START

Title: OFFICIAL GAZETTE OF THE UNITED STATES
PATENT AND TRADEMARK OFFICE. PATENTS.

Reel No: 11 PATENTS: 5,062,156-5,068,918

Volume: 1132 Issues: 1-4

Date: NOVEMBER 5-26, 1991

UMI No: 10426.00

Notes:

THIS PERIODICAL MIGHT BE COPYRIGHTED, IN WHICH CASE THE CONTENTS REMAIN THE PROPERTY OF THE COPYRIGHT OWNER. THE MICROFORM EDITION IS REPRODUCED BY AGREEMENT WITH THE PUBLISHER. DUPLICATION OR RESALE WITHOUT PERMISSION IS PROHIBITED.

UNIVERSITY MICROFILMS INTERNATIONAL, ANN ARBOR, MICHIGAN

U·M·I

THE PAPER AND INK USED IN THE ORIGINAL MATERIAL AFFECT THE QUALITY OF THE MICRO-FORM EDITION. THIS REPRODUCTION IS MADE FROM THE BEST COPY AVAILABLE.

VOL
1132

ISS
1

NO
5

1991

UMI

H.FRIEND/ ~~B.STRONG~~ /TIC

Vol. 1132 Number 1

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENTS

November 5, 1991

Route to:

AMF

U.S.
DEPARTMENT
OF COMMERCE

Patent
and
Trademark
Office

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

VOL
1132
ISS
1
NO
5
1991
UMI

OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
November 5, 1991 Volume 1132 Number 1

CONTENTS

	Page
Patent and Trademark Office Notices	
Patent Cooperation Treaty (PCT) Information	1132 OG 2
Notice of Maintenance Fees Payable	1132 OG 2
Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees	1132 OG 5
Notification of Acceptance of Delayed Payment of Maintenance Fees	1132 OG 6
Reissue Applications Filed	1132 OG 7
Requests for Reexaminations Filed	1132 OG 7
Notice of Exclusion	1132 OG 8
Patent Certificates of Correction	1132 OG 9
Erratum	1132 OG 9
Disclaimers	1132 OG 9
Special Boxes for Mail	1132 OG 10
Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries	1132 OG 11
Patent Examining Corps	1132 OG 13
Reexaminations	1
Statutory Invention Registrations	3
Reissue Patents Granted (33,732)	11
Plant Patents Granted (7,700)	13
Patents Granted	
General and Mechanical (5,062,156)	15
Chemical (5,062,861)	263
Electrical (5,063,273)	379
Design Patents Granted (321,270)	501
Index of Patentees	PI 1
Indices of Reissue, Reexamination, Design, Plant Patents and Statutory Invention Registrations	PI 63
Classification of	
Patents (Including Reissues and Reexaminations)	PI 71
Designs, and Plants Applications	PI 74
Geographical Index of Residence of Inventors	
Patents (Including Reissues and Reexaminations)	PI 75
Designs and Plant Applications	PI 77
Change of Address Form and Subscription Order Form	PI 79

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed.
THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.
THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.
GENERAL INFORMATION concerning PATENTS.
GENERAL INFORMATION concerning TRADEMARKS.

COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.50 each; PLANT PATENTS in color, $10.00 each; copies of TRADEMARKS at $1.50 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. P.T.O.

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328

VOL
1132
ISS
1
NO.
5
1991
UMI

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1126 O.G. 2, on May 7, 1991.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed on July 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the German mark, and was announced in the *Official Gazette* at 1126 O. G. 76 on May 28, 1991.

International fees were changed on August 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the Swiss franc, and were announced in the *Official Gazette* at 1128 O.G. 46, on July 23, 1991.

Certain domestic PCT fees and charges for International Search and Preliminary Examination have been changed effective Apr. 17, 1989 and were announced in the *Official Gazette* at 1100 O.G. 24 on Mar. 7, 1989.

The current schedule of PCT fees (in U.S. dollars) is as follows:

Transmittal fee:	170.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	550.00
—Corresponding prior U.S. national application filed	380.00
—Supplemental search fee, per additional invention	150.00
European Patent Office as ISA	1320.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	400.00
—Additional examination fee, per additional invention	130.00
—ISA not the USPTO	600.00
—Additional examination fee, per additional invention	200.00
International fees	
Basic fee	490.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	119.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	150.00

U.S. National Stage fees	Small Entity	Regular
USPTO was IPEA	165.00	330.00
USPTO was ISA but not IPEA	185.00	370.00
USPTO was neither ISA nor IPEA	250.00	500.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	25.00	50.00
—For each independent claim in excess of 3	18.00	36.00
—For each claim in excess of 20	6.00	12.00
—For each application containing a multiple dependent claim	60.00	120.00
—Surcharge for filing national fee or oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	60.00	120.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	30.00	30.00

June 27, 1991

HARRY F. MANBECK, Jr.
Assistant Secretary and Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d), effective Nov. 1, 1984, provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(k) or (l), as amended effective Apr. 17, 1989. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on November 1, 1983 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,780,911 through 4,782,533
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on October 30, 1984 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,479,267 through 4,480,338
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months are set forth in 37 CFR 1.20(e), and (f), as amended Nov. 5, 1990, which are reproduced below:

37 CFR § 1.20 Post-issuance fees and surcharges

"(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant.....$245.00

"(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant.....$495.00"

"(h) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Aug. 27,1982, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§1.9(f)).....$415.00
By other than a small entity.....$830.00"

"(i) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§1.9(f)).....$835.00
By other than a small entity.....$1670.00"

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(k), (l) and (m), which are reproduced below:

"(k) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982.....$120.00"

"(l) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Aug. 27, 1982:

By a small entity(§1.9(f)).....$60.00
By other than a small entity.....$120.00"

"(m) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been unavoidable.....$550.00"

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED AUGUST 25, 1991
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,399,574	06/222,921	8/23/83
4,399,575	06/250,733	8/23/83
4,399,576	06/235,222	8/23/83
4,399,577	06/308,914	8/23/83
4,399,580	06/278,626	8/23/83
4,399,585	06/291,102	8/23/83
4,399,607	06/306,672	8/23/83
4,399,608	06/333,638	8/23/83
4,399,609	06/333,763	8/23/83
4,399,615	06/265,688	8/23/83
4,399,626	06/230,534	8/23/83
4,399,628	06/221,379	8/23/83
4,399,630	06/233,978	8/23/83
4,399,631	06/248,955	8/23/83
4,399,634	06/315,718	8/23/83
4,399,645	06/216,320	8/23/83
4,399,654	06/350,326	8/23/83
4,399,657	06/368,403	8/23/83
4,399,663	06/325,609	8/23/83
4,399,666	06/319,739	8/23/83
4,399,667	06/383,423	8/23/83
4,399,672	06/286,780	8/23/83
4,399,677	06/319,822	8/23/83
4,399,681	06/231,132	8/23/83
4,399,682	06/257,163	8/23/83
4,399,684	06/325,262	8/23/83
4,399,688	06/264,512	8/23/83
4,399,695	06/315,089	8/23/83
4,399,724	06/231,598	8/23/83
4,399,738	06/220,837	8/23/83
4,399,743	06/311,615	8/23/83
4,399,744	06/303,156	8/23/83
4,399,745	06/229,768	8/23/83
4,399,747	06/281,229	8/23/83
4,399,762	06/284,447	8/23/83
4,399,765	06/300,417	8/23/83
4,399,766	06/274,390	8/23/83
4,399,767	06/386,656	8/23/83
4,399,768	06/318,418	8/23/83
4,399,775	06/371,759	8/23/83
4,399,776	06/371,760	8/23/83
4,399,778	06/340,507	8/23/83
4,399,779	06/286,181	8/23/83
4,399,783	06/356,014	8/23/83
4,399,784	06/255,173	8/23/83
4,399,785	06/296,193	8/23/83
4,399,793	06/361,681	8/23/83
4,399,794	06/316,340	8/23/83
4,399,799	06/342,729	8/23/83
4,399,801	06/310,706	8/23/83
4,399,803	06/290,209	8/23/83
4,399,806	06/256,319	8/23/83
4,399,810	06/314,533	8/23/83
4,399,828	06/316,079	8/23/83
4,399,832	06/265,470	8/23/83
4,399,838	06/242,482	8/23/83
4,399,839	06/420,949	8/23/83
4,399,844	06/371,255	8/23/83
4,399,848	06/319,804	8/23/83
4,399,857	06/291,950	8/23/83
4,399,867	06/263,625	8/23/83
4,399,882	06/280,431	8/23/83
4,399,884	06/300,228	8/23/83
4,399,901	06/252,285	8/23/83
4,399,907	06/251,066	8/23/83
4,399,912	06/257,169	8/23/83
4,399,917	06/272,529	8/23/83
4,399,926	06/373,223	8/23/83
4,399,936	06/315,112	8/23/83
4,399,937	06/318,200	8/23/83
4,399,947	06/312,093	8/23/83
4,399,956	06/308,397	8/23/83
4,399,960	06/224,950	8/23/83
4,399,964	06/229,115	8/23/83
4,399,978	06/352,810	8/23/83
4,399,981	06/306,393	8/23/83
4,399,982	06/330,507	8/23/83
4,399,984	06/346,530	8/23/83
4,399,994	06/304,529	8/23/83
4,399,995	06/273,388	8/23/83
4,399,998	06/334,740	8/23/83
4,400,002	06/262,092	8/23/83
4,400,003	06/236,228	8/23/83

VOL
1132
ISS
1
NO
5
1991
UMI

Patent Number	Serial Number	Issue Date
4,400,005	06/289,055	8/23/83
4,400,006	06/303,903	8/23/83
4,400,012	06/298,192	8/23/83
4,400,014	06/319,897	8/23/83
4,400,015	06/270,010	8/23/83
4,400,020	06/291,821	8/23/83
4,400,021	06/290,281	8/23/83
4,400,024	06/288,712	8/23/83
4,400,029	06/308,377	8/23/83
4,400,035	06/251,356	8/23/83
4,400,037	06/281,570	8/23/83
4,400,039	06/244,787	8/23/83
4,400,042	06/337,598	8/23/83
4,400,044	06/246,855	8/23/83
4,400,047	06/283,202	8/23/83
4,400,051	06/255,090	8/23/83
4,400,066	06/270,590	8/23/83
4,400,081	06/285,057	8/23/83
4,400,087	06/262,895	8/23/83
4,400,092	06/272,944	8/23/83
4,400,095	06/434,020	8/23/83
4,400,103	06/232,598	8/23/83
4,400,104	06/333,598	8/23/83
4,400,109	06/220,922	8/23/83
4,400,110	06/318,497	8/23/83
4,400,111	06/239,117	8/23/83
4,400,112	06/336,415	8/23/83
4,400,116	06/228,238	8/23/83
4,400,124	06/268,187	8/23/83
4,400,126	06/292,612	8/23/83
4,400,128	06/256,125	8/23/83
4,400,130	06/276,176	8/23/83
4,400,133	06/300,591	8/23/83
4,400,145	06/246,099	8/23/83
4,400,153	06/323,818	8/23/83
4,400,160	06/318,935	8/23/83
4,400,162	06/365,596	8/23/83
4,400,171	06/368,217	8/23/83
4,400,172	06/368,169	8/23/83
4,400,176	06/371,624	8/23/83
4,400,177	06/342,055	8/23/83
4,400,184	06/346,190	8/23/83
4,400,189	06/348,981	8/23/83
4,400,191	06/403,847	8/23/83
4,400,194	06/347,668	8/23/83
4,400,199	06/316,305	8/23/83
4,400,207	06/377,035	8/23/83
4,400,213	06/231,085	8/23/83
4,400,217	06/337,687	8/23/83
4,400,222	06/274,276	8/23/83
4,400,223	06/294,908	8/23/83
4,400,226	06/429,731	8/23/83
4,400,229	06/326,961	8/23/83
4,400,231	06/220,273	8/23/83
4,400,232	06/319,638	8/23/83
4,400,237	06/232,217	8/23/83
4,400,238	06/373,113	8/23/83
4,400,241	06/285,307	8/23/83
4,400,246	06/392,840	8/23/83
4,400,252	06/282,648	8/23/83
4,400,254	06/339,865	8/23/83
4,400,258	06/358,529	8/23/83
4,400,269	06/265,796	8/23/83
4,400,273	06/310,282	8/23/83
4,400,283	06/294,590	8/23/83
4,400,285	06/367,728	8/23/83
4,400,286	06/225,417	8/23/83
4,400,294	06/439,946	8/23/83
4,400,300	06/256,384	8/23/83
4,400,315	06/459,937	8/23/83
4,400,319	06/305,305	8/23/83
4,400,321	06/274,338	8/23/83
4,400,330	06/403,239	8/23/83
4,400,332	06/328,131	8/23/83
4,400,336	06/314,251	8/23/83
4,400,348	06/222,351	8/23/83
4,400,369	06/369,944	8/23/83
4,400,382	06/244,361	8/23/83
4,400,393	06/246,938	8/23/83
4,400,395	06/349,809	8/23/83
4,400,396	06/337,100	8/23/83
4,400,397	06/337,121	8/23/83
4,400,398	06/365,473	8/23/83
4,400,402	06/350,524	8/23/83
4,400,404	06/330,181	8/23/83
4,400,425	06/329,934	8/23/83
4,400,440	06/222,014	8/23/83
4,400,451	06/259,917	8/23/83
4,400,454	06/399,090	8/23/83
4,400,456	06/295,036	8/23/83
4,400,457	06/322,758	8/23/83
4,400,458	06/302,286	8/23/83
4,400,462	06/268,776	8/23/83
4,400,469	06/273,365	8/23/83
4,400,485	06/297,175	8/23/83
4,400,489	06/323,763	8/23/83
4,400,492	06/247,123	8/23/83
4,400,495	06/296,279	8/23/83
4,400,506	06/314,994	8/23/83
4,400,510	06/304,293	8/23/83
4,400,525	06/322,205	8/23/83
4,400,528	06/372,499	8/23/83
4,400,532	06/284,584	8/23/83
4,400,541	06/344,718	8/23/83
4,400,549	06/324,277	8/23/83
4,400,561	06/329,480	8/23/83
4,400,565	06/372,494	8/23/83
4,400,568	06/368,920	8/23/83
4,400,572	06/326,027	8/23/83
4,400,578	06/243,213	8/23/83
4,400,583	06/282,051	8/23/83
4,400,584	06/365,811	8/23/83
4,400,585	06/227,901	8/23/83
4,400,586	06/301,756	8/23/83
4,400,591	06/284,585	8/23/83
4,400,593	06/242,385	8/23/83
4,400,612	06/261,003	8/23/83
4,400,620	06/312,653	8/23/83
4,400,637	06/252,048	8/23/83
4,400,642	06/397,281	8/23/83
4,400,645	06/280,682	8/23/83
4,400,647	06/295,877	8/23/83
4,400,652	06/373,834	8/23/83
4,400,668	06/275,356	8/23/83
4,400,678	06/258,812	8/23/83
4,400,686	06/285,693	8/23/83
4,400,691	06/289,375	8/23/83
4,400,693	06/326,637	8/23/83
4,400,697	06/275,277	8/23/83
4,400,701	06/227,770	8/23/83
4,400,706	06/287,686	8/23/83
4,400,707	06/290,654	8/23/83
4,400,712	06/234,453	8/23/83
4,400,724	06/271,062	8/23/83
4,400,727	06/325,610	8/23/83
4,400,734	06/315,762	8/23/83
4,400,753	06/275,543	8/23/83
4,400,759	06/381,833	8/23/83
4,400,760	06/381,834	8/23/83
4,400,778	06/328,038	8/23/83
4,400,784	06/238,392	8/23/83
4,400,786	06/215,893	8/23/83
4,400,792	06/225,798	8/23/83
4,400,798	06/282,367	8/23/83
4,400,802	06/231,005	8/23/83
4,400,803	06/267,168	8/23/83
4,400,805	06/257,840	8/23/83
4,400,807	06/321,761	8/23/83
4,400,815	06/342,854	8/23/83
4,400,816	06/372,150	8/23/83
4,400,817	06/221,190	8/23/83
4,400,823	06/273,238	8/23/83
4,400,827	06/321,066	8/23/83
4,688,275	06/904,029	8/25/87
4,688,284	06/871,320	8/25/87
4,688,287	06/833,890	8/25/87

Patent Number	Serial Number	Issue Date
4,688,292	06/887,313	8/25/87
4,688,296	06/756,983	8/25/87
4,688,303	06/870,498	8/25/87
4,688,309	06/816,083	8/25/87
4,688,313	06/814,239	8/25/87
4,688,316	06/863,453	8/25/87
4,688,318	06/597,255	8/25/87
4,688,330	06/824,777	8/25/87
4,688,331	06/886,019	8/25/87
4,688,333	06/898,102	8/25/87
4,688,335	06/830,320	8/25/87
4,688,339	06/934,266	8/25/87
4,688,341	06/772,325	8/25/87
4,688,342	06/785,602	8/25/87
4,688,343	06/779,938	8/25/87
4,688,345	06/803,113	8/25/87
4,688,349	06/782,094	8/25/87
4,688,350	06/892,142	8/25/87
4,688,351	06/910,634	8/25/87
4,688,353	06/871,680	8/25/87
4,688,356	06/874,165	8/25/87
4,688,357	06/852,649	8/25/87
4,688,359	06/806,455	8/25/87
4,688,365	06/861,455	8/25/87
4,688,374	06/837,906	8/25/87
4,688,377	06/742,969	8/25/87
4,688,379	06/836,854	8/25/87
4,688,383	06/736,797	8/25/87
4,688,394	06/874,668	8/25/87
4,688,395	06/881,386	8/25/87
4,688,398	06/933,348	8/25/87
4,688,400	06/808,165	8/25/87
4,688,404	06/823,192	8/25/87
4,688,405	06/689,573	8/25/87
4,688,408	06/912,084	8/25/87
4,688,414	06/924,874	8/25/87
4,688,417	06/843,018	8/25/87
4,688,421	06/785,281	8/25/87
4,688,422	06/901,113	8/25/87
4,688,439	06/723,731	8/25/87
4,688,446	06/939,380	8/25/87
4,688,457	06/787,701	8/25/87
4,688,458	06/741,669	8/25/87
4,688,459	06/797,842	8/25/87
4,688,460	06/768,446	8/25/87
4,688,461	06/927,292	8/25/87
4,688,469	06/789,456	8/25/87
4,688,479	06/816,446	8/25/87
4,688,489	06/822,423	8/25/87
4,688,492	06/934,375	8/25/87
4,688,496	06/888,639	8/25/87
4,688,504	06/809,431	8/25/87
4,688,519	06/888,284	8/25/87
4,688,520	06/833,543	8/25/87
4,688,531	06/882,894	8/25/87
4,688,532	06/738,722	8/25/87
4,688,542	06/768,696	8/25/87
4,688,543	06/838,909	8/25/87
4,688,544	06/874,560	8/25/87
4,688,545	06/895,592	8/25/87
4,688,549	06/903,685	8/25/87
4,688,561	06/776,772	8/25/87
4,688,567	06/822,225	8/25/87
4,688,571	06/874,615	8/25/87
4,688,580	06/753,824	8/25/87
4,688,581	06/913,308	8/25/87
4,688,584	06/829,117	8/25/87
4,688,587	06/549,761	8/25/87
4,688,592	06/935,347	8/25/87
4,688,598	06/721,245	8/25/87
4,688,603	06/821,348	8/25/87
4,688,613	06/891,606	8/25/87
4,688,618	06/827,463	8/25/87
4,688,623	06/554,752	8/25/87
4,688,630	06/945,058	8/25/87
4,688,633	06/844,081	8/25/87
4,688,635	06/739,113	8/25/87
4,688,651	06/910,572	8/25/87
4,688,657	06/783,334	8/25/87
4,688,665	06/858,153	8/25/87
4,688,672	06/807,752	8/25/87
4,688,679	06/776,415	8/25/87
4,688,683	06/905,637	8/25/87
4,688,684	06/816,813	8/25/87
4,688,686	06/847,182	8/25/87
4,688,688	06/767,255	8/25/87
4,688,695	06/787,268	8/25/87
4,688,696	06/801,742	8/25/87
4,688,697	06/713,124	8/25/87
4,688,699	06/783,297	8/25/87
4,688,700	06/842,293	8/25/87
4,688,704	06/616,470	8/25/87
4,688,709	06/764,670	8/25/87
4,688,712	06/800,169	8/25/87
4,688,714	06/640,768	8/25/87
4,688,723	06/821,379	8/25/87
4,688,725	06/811,536	8/25/87
4,688,731	06/785,480	8/25/87
4,688,739	06/889,660	8/25/87
4,688,743	06/709,872	8/25/87
4,688,744	06/414,730	8/25/87
4,688,746	06/668,502	8/25/87
4,688,749	06/812,180	8/25/87
4,688,761	06/888,344	8/25/87
4,688,762	06/878,614	8/25/87
4,688,770	06/821,749	8/25/87
4,688,781	06/649,503	8/25/87
4,688,783	06/713,451	8/25/87
4,688,789	06/808,549	8/25/87
4,688,792	06/870,801	8/25/87
4,688,793	06/863,468	8/25/87
4,688,796	06/786,349	8/25/87
4,688,797	06/805,814	8/25/87
4,688,799	06/806,875	8/25/87
4,688,815	06/593,835	8/25/87
4,688,816	06/934,480	8/25/87
4,688,822	06/683,685	8/25/87
4,688,827	06/875,544	8/25/87
4,688,828	06/847,277	8/25/87
4,688,829	06/903,383	8/25/87
4,688,838	06/835,748	8/25/87
4,688,841	06/872,553	8/25/87
4,688,842	06/800,120	8/25/87
4,688,843	06/836,081	8/25/87
4,688,845	06/915,093	8/25/87
4,688,852	06/882,145	8/25/87
4,688,853	06/824,267	8/25/87
4,688,855	06/823,112	8/25/87
4,688,856	06/791,686	8/25/87
4,688,862	06/730,294	8/25/87
4,688,867	06/818,147	8/25/87
4,688,874	06/827,761	8/25/87
4,688,886	06/765,950	8/25/87
4,688,890	06/710,461	8/25/87
4,688,892	06/713,151	8/25/87
4,688,905	06/719,801	8/25/87
4,688,935	06/507,597	8/25/87
4,688,937	06/699,533	8/25/87
4,688,943	06/848,815	8/25/87
4,688,959	06/783,461	8/25/87
4,688,960	06/880,436	8/25/87
4,688,962	06/843,547	8/25/87
4,688,963	06/854,014	8/25/87
4,688,965	06/866,907	8/25/87
4,688,968	06/872,183	8/25/87
4,688,970	06/763,936	8/25/87
4,688,971	06/567,542	8/25/87
4,688,976	06/839,257	8/25/87
4,688,981	06/771,907	8/25/87
4,688,984	06/767,583	8/25/87
4,688,985	06/737,493	8/25/87
4,688,994	06/919,614	8/25/87
4,688,996	06/822,183	8/25/87
4,689,001	06/726,405	8/25/87
4,689,002	06/818,810	8/25/87
4,689,003	06/741,517	8/25/87

VOL 1132 ISS 1 NOV 5 1991 UMI

Patent Number	Serial Number	Issue Date
4,689,012	06/844,454	8/25/87
4,689,013	06/839,218	8/25/87
4,689,019	06/696,116	8/25/87
4,689,029	06/842,282	8/25/87
4,689,031	06/869,343	8/25/87
4,689,032	06/802,925	8/25/87
4,689,033	06/826,855	8/25/87
4,689,034	06/827,335	8/25/87
4,689,035	06/752,291	8/25/87
4,689,038	06/827,571	8/25/87
4,689,047	06/832,362	8/25/87
4,689,050	06/811,379	8/25/87
4,689,051	06/867,668	8/25/87
4,689,057	06/896,043	8/25/87
4,689,068	06/825,387	8/25/87
4,689,117	06/772,575	8/25/87
4,689,119	06/606,800	8/25/87
4,689,126	06/673,937	8/25/87
4,689,132	06/833,134	8/25/87
4,689,134	06/886,585	8/25/87
4,689,135	06/833,357	8/25/87
4,689,139	06/832,936	8/25/87
4,689,142	06/714,832	8/25/87
4,689,145	06/892,047	8/25/87
4,689,154	06/798,508	8/25/87
4,689,156	06/796,824	8/25/87
4,689,165	06/849,500	8/25/87
4,689,174	06/916,844	8/25/87
4,689,175	06/896,399	8/25/87
4,689,177	06/919,119	8/25/87
4,689,187	06/702,100	8/25/87
4,689,204	06/709,595	8/25/87
4,689,209	06/884,470	8/25/87
4,689,219	06/618,239	8/25/87
4,689,224	06/905,447	8/25/87
4,689,227	06/890,248	8/25/87
4,689,228	06/769,533	8/25/87
4,689,230	06/561,527	8/25/87
4,689 232	06/785,181	8/25/87
4,689,233	06/816,253	8/25/87
4,689,234	06/794,484	8/25/87
4,689,238	06/662,971	8/25/87
4,689,249	06/819,505	8/25/87
4,689,255	06/916,688	8/25/87
4,689,262	06/775,386	8/25/87
4,689,269	06/722,663	8/25/87
4,689,276	06/695,426	8/25/87
4,689,282	06/815,965	8/25/87
4,689,327	06/748,394	8/25/87
4,689,335	06/570,585	8/25/87
4,689,337	06/714,857	8/25/87
4,689,343	06/853,826	8/25/87
4,689,346	06/791,934	8/25/87
4,689,361	06/841,639	8/25/87
4,689,366	06/808,364	8/25/87
4,689,367	06/837,930	8/25/87
4,689,375	06/777,901	8/25/87
4,689,385	06/870,991	8/25/87
4,689,418	06/339,528	8/25/87
4,689,421	06/641,152	8/25/87
4,689,425	06/927,477	8/25/87
4,689,428	06/901,633	8/25/87
4,689,430	06/931,606	8/25/87
4,689,448	06/764,835	8/25/87
4,689,451	06/833,956	8/25/87
4,689,454	06/751,057	8/25/87
4,689,458	06/887,726	8/25/87
4,689,461	06/780,031	8/25/87
4,689,464	06/698,935	8/25/87
4,689,469	06/731,972	8/25/87
4,689,472	06/752,448	8/25/87
4,689,476	06/651,601	8/25/87
4,689,492	06/891,969	8/25/87
4,689,520	06/755,331	8/25/87
4,689,523	06/698,554	8/25/87
4,689,524	06/784,287	8/25/87
4,689,527	06/749,180	8/25/87
4,689,531	06/750,584	8/25/87
4,689,532	06/731,387	8/25/87
4,689,536	06/835,726	8/25/87
4,689,543	06/813,996	8/25/87
4,689,548	06/851,850	8/25/87
4,689,551	06/772,798	8/25/87
4,689,553	06/722,711	8/25/87
4,689,554	06/772,724	8/25/87
4,689,555	06/837,813	8/25/87
4,689,573	06/767,638	8/25/87
4,689,584	06/801,536	8/25/87
4,689,585	06/801,534	8/25/87
4,689,598	06/930,152	8/25/87
4,689,611	06/731,937	8/25/87
4,689,612	06/776,681	8/25/87
4,689,613	06/741,106	8/25/87
4,689,614	06/810,329	8/25/87
4,689,620	06/761,619	8/25/87
4,689,629	06/424,834	8/25/87
4,689,632	06/739,429	8/25/87
4,689,634	06/718,156	8/25/87
4,689,637	06/737,479	8/25/87
4,689,650	06/783,702	8/25/87
4,689,675	06/737,247	8/25/87
4,689,705	06/855,521	8/25/87
4,689,714	06/854,625	8/25/87
4,689,719	06/724,491	8/25/87
4,689,720	06/824,834	8/25/87
4,689,732	06/759,139	8/25/87
4,689,734	06/872,894	8/25/87
4,689,753	06/744,026	8/25/87
4,689,757	06/810,532	8/25/87
4,689,761	06/641,162	8/25/87
4,689,774	06/760,578	8/25/87
4,689,791	06/773,618	8/25/87
4,689,794	06/695,658	8/25/87
4,689,798	06/891,019	8/25/87
4,689,810	06/702,161	8/25/87
4,689,811	06/857,746	8/25/87
4,689,813	06/670,611	8/25/87
4,689,814	06/868,775	8/25/87

NOTIFICATION OF ACCEPTANCE OF DELAYED PAYMENT OF MAINTENANCE FEE (35 U.S.C. 41(c); 37 CFR 1.378)

The patent(s) listed below are considered as not having expired but are subject to the conditions set forth in 35 U.S.C. 41(c)(2), in view of the Petition to Accept Late Payment of the maintenance fees which has been GRANTED BY THE COMMISSIONER OF PATENTS AND TRADEMARKS, as provided for under 35 U.S.C. 41(c)(1) and 37 CFR 1.378.

Patent No.	Serial No.	Patent Date	Application Filing Date	Delayed Payment Acceptance Date
4,331,576	06/229,467	5/25/82	1/29/81	4/29/91
4,623,679	06/744,224	11/18/86	6/13/85	9/20/91
4,623,668	06/614,142	11/18/86	5/25/84	9/20/91
4,623,942	06/734,182	11/18/86	5/15/85	9/20/91
4,624,423	06/734,181	11/25/86	5/15/85	9/20/91
4,625,252	06/411,606	11/25/86	8/25/82	9/20/91

Patent No.	Serial No.	Patent Date	Application Filing Date	Delayed Payment Acceptance Date
4,641,848	06/723,370	2/10/87	4/15/85	9/20/91
4,648,594	06/690,991	3/10/87	1/14/85	9/13/91
4,669,405	06/653,794	6/02/87	9/24/84	9/13/91

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,790,266, Re. S.N. 07/619,957, Filed Nov. 30, 1991, Cl. 119/515, FEEDER FOR ANIMALS, Jonathan R. Kleinsasser, et. al., Owner of Record: *Gro- Master Feeds Inc., Omaha, Nebr.*, Attorney or Agent: Dennis L. Thomte, Ex. Gp.: 333

4,800,442, Re. S.N. 07/645,398, Filed Jan. 24, 1991, Cl. 358/459, APPARATUS FOR GENERATING AN IMAGE FROM A DIGITAL VIDEO SIGNAL, John H. Riseman, et. al., Owner of Record: *Inventor*, Attorney or Agent: Ronald A. Clayton, Ex. Gp.: 268

4,809,070, Re. S.N. 07/756,259, Filed Sept. 3, 1991, Cl. 358/166, METHOD AND APPARATUS FOR ADDING TEXTURING HIGHLIGHTS TO A VIDEO SIGNAL, Drake E. Lake, Owner of Record: *The Grass Valley Group, Inc., Grass Valley, Calif.*, Attorney or Agent: Francis I. Gray, Ex. Gp.: 262

4,848,803, Re. S.N. 07/732,058, Filed July 18, 1991, Cl. 285/47, FABRIC EXPANSION JOINTS FOR EXHAUST SYSTEMS OF GAS TURBINES, Lothar Bachman, Owner of Record: *Bachman Industries, Inc., Lewiston, Me.*, Attorney or Agent: G. Roger Lee, Ex. Gp.: 351

4,869,027, Re. S.N. 07/765,306, Filed Sept. 25, 1991, Cl. 51/204, KNIFE HOLDING AND SHARPENING CASETTE AND KNIVES THEREFOR, John B. McEvily, Owner of Record: *McPherson's America Inc., Farmingdale, N.Y.*, Attorney or Agent: Edward S. Irons. Ex. Gp.: 323

4,869,408, Re. S.N. 07/765,221, Filed Sept. 23, 1991, Cl. 224/32A, BICYCLIST'S HAND-PORTABLE RACK-MOUNTING GARMENT-PACK W/PANNIERS, Raymond Clark Lutz, Owner of Record: *Inventor*, Attorney or Agent: none Ex. Gp.: 243

4,869,807, Re. S.N. 07/764,599, Filed Sept. 24, 1991, Cl. 208/120, GASOLINE OCTANE ENHANCEMENT IN FLUID CATALYTIC CRACKING PROCESS WITH SPLIT FEED INJECTION TO RISER REACTOR, Ashok S. Krishna, Owner of Record: *Chevron Research Co., San Francisco, Calif.*, Attorney or Agent: Allen H. Uzzell, Ex. Gp.: 119

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,847,399, Reexam No. 90/002,462, Requested Oct. 4, 1991, Cl. 273/167F, GOLF CLUB WITH UNIT-CELL HEAD CONSTRUCTION, William R. Raymont, Owner of Record: *Dillis V. Allen, Elk Grove Village, Ill.*, Attorney or Agent: John Holtrichter, Jr., Redondo Beach, Calif., Ex. Gp.: 334, Requester: Dunlop Slazenger Corp., Greenville, S.C.

4,226,737, Reexam No. 90/002,451, Requested Sept. 18, 1991, Cl. 252/182.13, POLYCYCLOALIPHATIC POLYAMINES, Edward W. Kluger, et. al., Owner of Record: *Milliken Research Corp., Spartanburg, S.C.*, Attorney or Agent: H. William Petry and Terry T. Moyer, Milliken Research Corp., Spartanburg, S.C., Ex. Gp.: 224, Requester: Russell L. Brewer, Air Products and Chemicals, Inc., Allentown, Pa.

4,307,320, Reexam No. 90/002,460, Requested Sept. 6, 1991, Cl. 313/474, PIGMENT COATED PHOSPHOR AND HIGH CONTRAST COLOR TELEVISION CATHODE RAY TUBE USING SAME, Noboru Kotera, et. al., Owner of Record: *Kasei Optonix, Ltd., Tokyo, Japan*, Attorney or Agent: Charles E. Miller, Pennie & Edmonds, New York, N.Y., Ex. Gp.: 264, Requester: Nichia America Corp., Lancaster, Pa.

4,321,353, Reexam No. 90/002,452, Requested Sept. 18, 1991, Cl. 528/120, POLYCYCLOALIPHATIC POLYAMINES, Edward W. Kluger, et. al., Owner of Record: *Milliken Research Corp., Spartanburg, S.C.*, Attorney or Agent: H. William Petry and/or Terry T. Moyer, Milliken Research Corp., Spartanburg, S.C., Ex. Gp.: 153, Requester: Russell L. Brewer, Air Products and Chemicals, Allentown, Pa.

4,381,458, Reexam No. 90/002,461, Requested Sept. 30, 1991, Cl. 307/066, BACK-UP ELECTRICAL POWER SUPPLIES, Michael J. Anstey, et. al., Owner of Record: *Dallas Semiconductor Corp., Dallas, Tex.*, Attorney or Agent: Carlton H. Hoel, Worsham, Forsythe, Sampels & Woolridge, Dallas, Tex., Ex. Gp.: 214, Requester: Owner

4,387,415, Reexam No. 90/002,450, Requested Sept. 30, 1991, Cl. 362/074, CORNICE LIGHTING FIXTURE, Ben V. Domas, Owner of Record: *Transmatic Inc., Waterford, Mich.*, Attorney or Agent: James A. Kushman, Brooks & Kushman, Southfield, Mich, Ex. Gp.: 346, Requester: Morris Relson, Darby & Darby, New York, N.Y.

4,513,743, Reexam No. 90/002,453, Requested Sept. 26, 1991, Cl. 128/419PG, PHYSIOLOGICAL DEVICES SUCH AS PACEMAKERS AND METHOD FOR PROVIDING HISTOGRAM DATA, Gerrit W. Van Arragon, Owner of Record: *Viatron Medical B. V., Dieren, The Netherlands*, Attorney or Agent: Albert W. Preston, Jr., Woodcock, Washburn, Kurtz, Mackiewicz & Norris, Philadelphia, Pa., Ex. Gp.: 335, Requester: Owner

4,652,630, Reexam No. 90/002,454, Requested Sept. 26, 1991, Cl. 530/344, METHOD OF SOMATOTROPIN NATURATION, Larry A. Bentle, et. al., Owner of Record: *Monsanto Co., St. Louis, Mo.*, Attorney or Agent: Wayne R. Eberhardt & George R. Beck, Monsanto Co., St. Louis, Mo., Ex. Gp.: 186, Requester: Owner

4,816,455, Reexam No. 90/002,455, Requested Sept. 27, 1991, Cl. 514/254, CRYSTALLINE ANHYDROUS SIGMAFORM OF 2-(4-(2-FUROYL)-(2-PIPERAZIN)-1-YL)-4-AMINO-6,7-DIMETHOXY-QUINAZOLINE HYDROCHLORIDE AND A PROCESS FOR ITS PREPARATION, Helmut Schickaneder, et. al., Owner of Record: *Heumann Pharma GmbH & Co., Nuremberg, Federal Republic of Germany*, Attorney or Agent: Norman H. Stepno, Burns, Doane, Swecker & Mathis, Alexandria, Va., Ex. Gp.: 125, Requester: James C. Lydon, Armstrong Nikaido, Marmelstein Kubovcik & Murray, Washington, DC

4,916,250, Reexam No. 90/002,463, Requested Oct. 4, 1991, Cl. 558/217, PHOSPHONATE REAGENT COMPOSITIONS, James H. Babler, Owner of Record: *Loyola University of Chicago, Chicago, Ill.*, Attorney or Agent: Marshall, O'Toole, Gerstein, Murray & Bicknell, Chicago, Ill., Ex. Gp.: 121, Requester: Owner

VOL
1132
ISS
1
NO
5
1991
UMI

Notice of Exclusion

In Disciplinary Proceeding D91-9, Edmund Francis Bard III of Houston, Tex., whose registration number is 20,094, has been excluded, as of Sept. 22, 1991, from practice in patent, trademark and other non-patent law before the Patent and Trademark Office. Inasmuch as there has been no appeal to the Commissioner, this action is taken under the provisions of 35 U.S.C. 32 and 37 CFR 10.154(a).

Oct. 8, 1991

CAMERON WEIFFENBACH,
Director, Office of Enrollment and Discipline

PATENT NOTICES

Certificates of Correction For Week of October 29, 1991

4,704,724	4,888,757	4,921,777	4,940,772
4,722,875	4,889,663	4,922,203	4,940,814
4,741,891	4,891,118	4,922,348	4,940,977
4,746,990	4,894,740	4,922,535	4,941,304
4,762,708	4,894,822	4,922,617	4,941,316
4,763,251	4,897,107	4,922,967	4,941,557
4,786,014	4,897,419	4,923,177	4,941,967
4,786,600	4,897,874	4,924,842	4,942,142
4,789,690	4,898,317	4,925,390	4,942,502
4,790,081	4,898,896	4,925,456	4,942,653
4,813,952	4,899,284	4,926,041	4,943,832
4,816,584	4,899,535	4,927,469	4,944,196
4,826,778	4,905,168	4,927,721	4,944,516
4,839,804	4,906,158	4,927,923	4,944,650
4,849,614	4,908,403	4,929,997	4,945,140
4,850,749	4,909,105	4,930,204	4,945,354
4,854,993	4,909,399	4,930,412	4,945,529
4,855,466	4,909,531	4,930,613	4,945,531
4,857,432	4,910,031	4,931,401	4,946,116
4,857,991	4,910,226	4,931,574	4,946,768
4,859,485	4,910,683	4,931,802	4,947,209
4,860,898	4,910,731	4,931,868	4,947,226
4,861,581	4,911,423	4,932,000	4,947,646
4,861,761	4,912,011	4,932,071	4,947,945
4,861,945	4,912,116	4,932,209	4,948,213
4,866,110	4,912,157	4,932,416	4,948,367
4,866,278	4,912,643	4,934,474	4,948,572
4,869,110	4,912,910	4,934,983	4,949,818
4,872,570	4,913,209	4,935,358	4,950,691
4,873,082	4,914,122	4,927,230	4,950,763
4,873,227	4,915,713	4,938,372	4,952,287
4,873,244	4,916,592	4,938,563	4,954,204
4,877,509	4,917,645	4,938,842	4,960,436
4,878,725	4,917,708	4,939,070	4,976,871
4,879,106	4,917,858	4,939,094	4,981,351
4,879,471	4,917,919	4,939,293	4,988,760
4,879,874	4,917,958	4,939,321	4,999,263
4,882,202	4,918,266	4,939,758	5,027,117
4,883,806	4,919,836	4,939,773	5,031,324
4,886,526	4,920,194	4,939,785	5,035,354
4,886,705	4,920,244	4,939,821	5,036,272
4,887,079	4,920,613	4,940,148	5,040,087
4,887,467	4,920,913	4,940,200	
4,887,904	4,921,105	4,840,446	

Erratum

4,959,682-Takemi Yamamoto, Ryohei Koniyi, both of Nagoya; Naoyuki Hatta, Gamagori; Ymio Matsumoto, Kasugai; Fumihiro Sunda, Nagoya, all of Japan. COPYING APPARATUS. In the notice of Disclaimer appearing at 1126 OG 22 in the *OFFICIAL GAZETTE* of May 14, 1991, the entire term of said patent was erroneously disclaimed and should be corrected to read as follows: this patent subsequent to Sept. 26, 2006 has been disclaimed.

Disclaimers

4,601,875—*Hitoshi Yamamoto, Osaka; Masato Sagawa, Nagoakakyo; Setsuo Fujimura, Kyoto; Yutaka Matsuura, Ibaraki*, all of Japan. PROCESS FOR PRODUCING MAGNETIC MATERIALS. Patent dated July 22, 1986, by the assignee, Sumitomo Special Metals Co., Ltd.

Hereby enters this disclaimer to claims 34 and 35 of said patent.

4,866,602—*John C. Hall*, Redmond, Wash. POWER SUPPLY FOR A COMPUTER PERIPHERAL DEVICE WHICH POSITIONS A CURSOR ON A COMPUTER DISPLAY. Patent dated Sept. 12, 1989. Disclaimer filed July 8, 1991, by the assignee, Microsoft Corp.

Hereby enters this disclaimer to claim 15 of said patent.

4,959,100—*Ghyslain Dube; Jean-Paul Huni, Serge Lavoie; Wesley D. Stevens*, all of Jonquiere, Canada. RECOVERY OF NON-FERROUS METALS FROM DROSS. Patent dated Sept. 25, 1990. Disclaimer filed July 25, 1991, by the assignee, Alcan International Ltd.

Hereby enters this disclaimer to claims 28, 32, 37 and 41 of said patent.

4,993,355—*Wiebe B. deBoer*, GB Eersel, Netherlands; Albert. E. Ozias, Aumsville, Oreg. SUSCEPTOR WITH TEMPERATURE SENSING DEVICE. Patent dated Feb. 19, 1991. Disclaimer filed Sept. 3, 1991, by the assignee, Epsilon Technology, Inc.

The term of this patent subsequent to February 19, 2008, has been disclaimed.

5,002,693—*Takayuki Higashii, Kishiwada; Masayoshi Minai, Moriyama*, both of Japan. NOVEL OPTICALLY ACTIVE BENZENE DERIVATIVES, PROCESS FOR PRODUCING THE SAME AND LIQUID-CRYSTALLINE SUBSTANCES CONTAINING SAID DERIVATIVES AS ACTIVE INGREDIENT AND OPTICAL SWITCHING ELEMENTS. Patent dated Mar. 26, 1991. Disclaimer filed June 6, 1991, by the assignee, Sumitomo Chemical Co. Ltd.

The term of this patent subsequent to Jan. 15, 2008, has been disclaimed.

5,037,061—*Harvey J. Shopsky*, Latrobe, Pa. VALVE CONSTRUCTION AND METHOD OF MAKING THE SAME. Patent dated Aug. 6, 1991. Disclaimer filed May 31, 1991, by the assignee, Robertshaw Controls Co.

The term of this patent subsequent to Sept. 25, 2007, has been disclaimed.

VOL
1132
ISS
1
NO
5
1991
UMI

SPECIAL BOXES FOR MAIL

Special PTO mail box numbers should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded directly to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these boxes. If any documents other than the specified type identified for each box are addressed to that box, they will be delayed in reaching the appropriate area for which they are intended.

The following special boxes should be used only for their specified purpose. Address mail as follows:

Box _____
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Box 3	Mail for the Office of personel for NFC
Box 4	Mail for the Assistant Commissioner for External Affairs and the Office of Legislation and Internal Affairs.
Box 5	"No Fee" mail related to trademarks.
Box 6	Mail for the Office of Procurement
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation*; papers relating to pending litigation shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Va. 22215
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents except: trademark registrations and assignments.
Box 11	Electronic Ordering Service (EOS).
Box 12	Contributions to the Examiner Education Program.
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Invoices directed to the Office of Finance.
Box 15	Mail for the Advisory Commission on Patent Law Reform.
Box 16	Deposit Account Replenishment Checks
Box 171	Vacancy Announcement Applications.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box DAC	Petitions to revive, petitions to accept late payment of fees, petitions to defer issue, and petitions to withdraw an application from issue.
Box Assignment	All assignment documents except those filed with new applications.
Box DD	Mail related to Disclosure Documents.
Box EEO	Mail for the Office of Equal Employment Programs.
Box FWC	Requests for File Wrapper Continuation Applications (under 37 CFR 1.62)
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box Issue Fee	All Communications following the receipt of a PTOL-85. "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box ITU	All intent to use documents, excluding the initial application and amendments to allege use.
Box M. Fee	Correspondence related to a patent that is subject to the payment of a maintenance fee.
Box Non-Fee-Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box OED	Mail for the Office of Enrollment and Discipline
Box PATENT APPLICATION	New patent application and associated papers and fees.
Box TRADEMARK	New trademark application and associated papers and APPLICATION fees.
Box Pat. Ext.	Applications for patent term extension.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return postcard or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The following libraries, designated as Patent Depository Libraries (PDLs), receive current issues of U.S. Patents and maintain collections of earlier-issued patents. The scope of these collections varies from library to library, ranging from patents of only recent years to all or most of the patents issued since 1790.

These patent collections, which are organized in patent number sequence, are available for use by the public free of charge. Each of the PDLs, in addition, offers supplemental reference publications of the U.S. Patent Classification System, including the *Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions*, and provides technical staff assistance in their use to aid the public, in gaining effctive access to information contained in patents. CASSIS (Classification And Search Support Information System); which provides direct, on-line access to Patent and Trademark Office data, is available at all PDLs. Facilities for making paper copies of patents from either microfilm or paper collections are generally provided for a fee.

Since there are variations in the scope of patent collections among the PDLs and in their hours of service to the public, anyone contemplating use of the patents at a particular library is urged to contact that library, in advance, about its collection and hours in order to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Auburn University Libraries	(205) 844-1747
	Birmingham Public Library	(205) 226-3680
Alaska	Anchorage: Z. J. Loussac Public Library	(907) 261-2916
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 612-3273
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	Sunnyvale Patent Clearinghouse	(408) 730-7290
Colorado	Denver Public Library	(303) 640-8847
Connecticut	New Haven: Science Park Library	(203) 786-5447
Delaware	Newark: University of Delaware Library	(302) 451-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(305) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa: Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 269-2865
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette: Purdue University Libraries	(317) 494-2873
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 689-3155
Kentucky	Louisville Free Public Library	(502) 561-8617
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Engineering Transportation Library, University of Michigan	(313) 764-7494
	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library and Information Center	(612) 372-6570
Misssissippi	Jackson: Mississippi Library Commission	Not Yet Operational
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada-Reno Library	(702) 784-6579
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7782
	Piscataway: Library of Science and Medicine, Rutgers University	(908) 932-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 473-4636
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 714-8529
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Cincinnati and Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138

VOL
1132
ISS
1
NO
5
1991
UMI

Reference Collections of U. S. Patents Available for Public Use in Patent Depository Libraries—(continued)

State	*Name of Library*	*Telephone Contact*
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8876
	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-2551
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext.2587
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 367-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

PATENT EXAMINING CORPS

JAMES E. DENNY, Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 110 — D. E. TALBERT, Director	308-0661	6/7/90
ORGANIC CHEMISTRY, GROUP 120 — JOHN F. TERAPANE, JR., Director	308-1235	11/1/90
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 130 — BARRY S. RICHMAN, Director	308-0651	2/1/91
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 150 — J. O. THOMAS, Director	308-2351	6/8/90
BIOTECHNOLOGY, GROUP 180 — EDWARD E. KUBASIEWICZ, Director	308-0196	2/1/90
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210 — D. G. KELLY, Director	308-1782	3/8/90
SPECIAL LAWS ADMINISTRATION, GROUP 220 — ROBERT E. GARRETT, Director	308-0511	1/22/90
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 230 — GERALD GOLDBERG, Director	308-0754	7/8/89
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 240 — CARLTON CROYLE, Director	308-0771	9/8/90
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 250 — JOSEPH J. ROLLA, Director	308-0956	12/1/90
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 260 — BOBBY R. GRAY, Director	308-0962	6/1/90
DESIGN, GROUP 290 — ROBERT E. GARRETT, Director	308-0511	1/22/89
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 310 — F. R. SCHMIDT, Director	308-1113	11/1/90
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 320 — N. GODICI, Director	308-1148	1/1/91
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 330 — J. J. LOVE, Director	308-0858	10/1/90
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 340 — JOHN KITTLE, Director	308-0861	12/7/90
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 350 — A. L. SMITH, Director	308-0651	10/1/90

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during October 1991 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

Patents ..... Numbers 3,838,466 to 3,845,503 inclusive
Plant Patents ..... 3,628 to 3,643

VOL
1132
ISS
1
NO
5
1991
UMI

REEXAMINATIONS

NOVEMBER 5, 1991

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,229,360 (1585th)
PROCESS FOR THE DEHYDRATION OF A COLLOIDAL DISPERSION OF LIPOSOMES
Michel Schneider, Grand-Lancy, and Bernard Lamy, Carouge, both of Switzerland, assignors to Liposome Company, Inc.
Reexamination Request No. 90/002,252, Jan. 11, 1991.
Reexamination Certificate for Patent No. 4,229,360, issued Oct. 21, 1980, Ser. No. 931,243, Aug. 4, 1978.
Int. Cl.[5] A23J *7/00;* C07F *9/02;* C11C *3/00*
U.S. Cl. 260—403

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims 1–3 are determined to be patentable as amended.

Claims 4–5, dependent on an amended claim, are determined to be patentable.

New claims 6–15 are added and determined to be patentable.

1. A process for the dehydration of a colloidal dispersion of liposomes [in an aqueous liquid medium] which comprises mixing a hydrophilic compound with the [liposome dispersion] *colloidal dispersion of the liposomes in an aqueous liquid medium,* and dehydrating the mixture to form a stable [liposome containing] powder which can be stored and reconstituted in an aqueous medium [as a liposome dispersion] *to recover the colloidal dispersion of liposomes which is suitable for administration in vivo.*

B1 4,835,182 (1586th)
ENHANCING DRUG DELIVERY TO THE BRAIN
Nigel H. Greig, Washington, D.C.; Daniel J. Sweeney, Indianapolis, Ind., and Stanley I. Rapoport, Washington, D.C., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.
Reexamination Request No. 90/002,048, Jun. 8, 1990.
Reexamination Certificate for Patent No. 4,835,182, issued May 30, 1989, Ser. No. 88,982, Aug. 21, 1987.
Int. Cl.[5] A61K *31/245;* C07C *101/64, 229/00*
U.S. Cl. 514—538

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

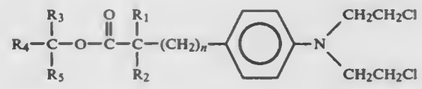
Claims 5 and 6 are cancelled.

Claims 1 and 2 are determined to be patentable as amended.

Claims 3, 4, 7 and 8, dependent on an amended claim, are determined to be patentable.

New claims 9, 10, 11, 12 and 13 are added and determined to be patentable.

1. A compound having the following formula:



wherein
R_1 and R_2 are the same or different and are selected from the group consisting of H, Cl, F, Br, I and R_2 may also be NH_2;
R_3, R_4, and R_5 are the same or different and are selected from the group consisting of C_1–C_3 alkyl, [H, F, Cl, Br, I]; wherein alkyl may be substituted with F, Cl, Br, or I, [with the proviso that at least two of R_3, R_4 and R_5 are alkyl or substituted alkyl]; and
n is an integer of 0–4.

B1 4,869,946 (1587th)
TAMPERPROOF SECURITY CARD
Stanton T. Clay, Alpharetta, Ga., assignor to Nimslo Corporation
Reexamination Request No. 90/002,178, Oct. 24, 1990.
Reexamination Certificate for Patent No. 4,869,946, issued Sep. 26, 1989, Ser. No. 139,191, Dec. 29, 1987.
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—167



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claim 1 is determined to be patentable as amended.

Claims 2–7, dependent on an amended claim, are determined to be patentable.

1. A security card comprising an image-containing substrate layer and a transparent layer overlaying said substrate, said transparent layer having a plurality of parallel uniformly-spaced lenticules on the outer surface thereof, and said image-containing layer *comprising a photographic emulsion affixed to the inner surface of said transparent layer and* having *photographically recorded thereon through the overlying lenticules* discrete data-containing bands under and parellel to a plurality of the lenticules of the lenticular layer, said lenticules and said bands positioned with respect to one another such that they function as a lenticular system wherein said discrete bands are selectively visible and not visible as at least one data-containing image when the card is viewed from different angles about an axis of rotation parallel to said lenticules, said at least one data-containing image containing imformation which distinguishes said card from otherwise similar cards and which is unique to a particular person assigned to said card.

VOL
1132
ISS
1
NO
5
1991
UMI

STATUTORY INVENTION REGISTRATIONS

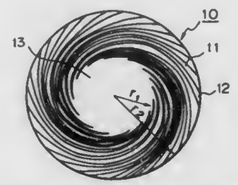
PUBLISHED NOVEMBER 5, 1991

A statutory invention registration is not a patent. It has the defensive attributes of a patent but does not have the enforceable attributes of a patent. No article or advertisement or the like may use the term patent, or any term suggestive of a patent, when referring to a statutory invention registration. For more specific information on the rights associated with a statutory invention registration see 35 U.S.C. 157.

H974
THRUST BEARING AND METHOD OF MANUFACTURING THEREOF

Shotaro Mizobuchi, 2-20-401 Satsuki-cho, Ebina-shi, Kanagawa-Ken; Katsumi Sasaki, 5-19-9, Haneda, Ota-ku, Tokyo, and Yoshikazu Kimura, 4679-8, Kami-iida-cho, Yokohama-shi, Kanagawa-ken, all of Japan

Continuation of Ser. No. 70,824, Jul. 6, 1987, abandoned, which is a continuation-in-part of Ser. No. 627,731, Jul. 3, 1984, abandoned. This application Sep. 28, 1989, Ser. No. 414,578
Claims priority, application Japan, Jul. 6, 1983, 58-121567
Int. Cl.[5] B22F *3/24*
U.S. Cl. 29—898.041 **2 Claims**



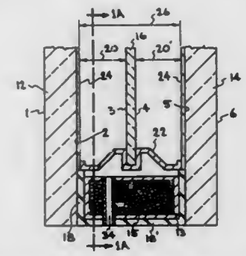
1. A method of manufacturing an element of a thrust bearing having spiral grooves thereon, comprising the steps of:
shaping and sintering a material to form a body which is entirely of sintered ceramic and in a disk form having flat surfaces on both sides thereof and having a ratio of the outer diameter of the sintered disk to the thickness of the sintered disk which is less than or equal to 25;
lapping at least one of said surfaces of said sintered ceramic disk;
preparing a mask having a pattern of spiral grooves;
placing said mask over said lapped surfaces of said sintered ceramic disk;
directing a stream of minute abrasive particles onto said lapped surface of said sintered ceramic disk through said mask for shot blasting spiral grooves in said lapped surface;
controlling the depth of said spiral grooves in said sintered ceramic disk to be a desired depth by operation of said shot blasting; and
removing said mask from said lapped surface of said sintered ceramic disk;
whereby spiral grooves are formed on said lapped surface of said sintered complete ceramic disk.

H975
THERMAL INSULATED GLAZING UNIT

Stephen E. Selkowitz, Piedmont; Dariush K. Arasteh, Oakland, both of Calif., and John L. Hartmann, Seattle, Wash., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation-in-part of Ser. No. 319,871, Mar. 1, 1989, abandoned, which is a continuation of Ser. No. 178,043, Apr. 5, 1988, abandoned. This application Oct. 30, 1989, Ser. No. 428,539
Int. Cl.[5] E06B *7/12*
U.S. Cl. 52—172 **21 Claims**

1. An insulated glazing unit for constructing thermal windows comprising:
an outer glazing having an exterior surface and a center-facing surface,
an inner glazing having an interior surface and a center-facing surface, said inner glazing being held parallel to and spaced away from said outer glazing such that the center-facing surface of said outer glazing and the center-facing surface of said inner glazing face each other,
a means for sealing said inner glazing and said outer glazing together to form a gas impermeable space between said inner glazing and said outer glazing;
at least one middle glazing held substantially parallel to,

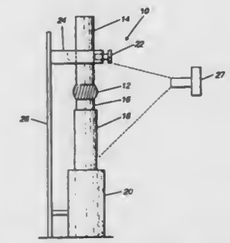


between and spaced away from said center-facing surface of said outer glazing and said center-facing surface of said inner glazing to form at least two thermal gaps;
a low emittance coating having an emissivity of less than about 0.15 on at least one glazing surface facing each said thermal gap; and,
a low conductance gas comprising krypton entrapped within said gas impermeable space.

H976
APPARATUS AND METHOD FOR MEASURING ELONGATIONAL VISCOSITY OF A POLYMERIC SOLUTION

Joseph E. Matta, and Raymond P. Tytus, both of Bel Air, Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Mar. 16, 1990, Ser. No. 495,052
Int. Cl.[5] G01N *11/02*
U.S. Cl. 73—54 **7 Claims**



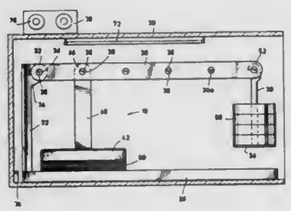
1. A falling extensional rheometer for measuring the elongational viscosity of a polymeric medium, comprising, an upper fixed means having a free end, a lower movable means having a free end, said upper fixed means and said lower movable means being vertically oriented and having their longitudinal axes substantially coincidental and their ends parallel spaced from each other, means for supporting said lower movable means and then retracted downwardly allows said lower movable means to fall and stretch a medium adhering between the ends of said upper fixed means and said lower movable means.

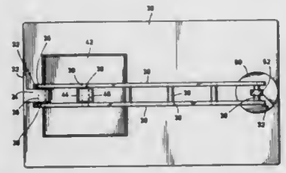
VOL
1132
ISS
1
NO
5
1991
UMI

H977
APPARATUS AND METHOD FOR INDUCING BLOCKING IN PLASTIC FILMS UNDER KNOWN CONDITIONS

Werner Kurzbuch, Baytown; Larry J. Mitchell, and Andor Scheller, both of Houston, all of Tex., assignors to Exxon Chemical Company, Baytown, Tex.

Filed Oct. 5, 1990, Ser. No. 593,153
Int. Cl.[5] B30B *1/02*; B29G *43/22*
U.S. Cl. 100—179 **14 Claims**





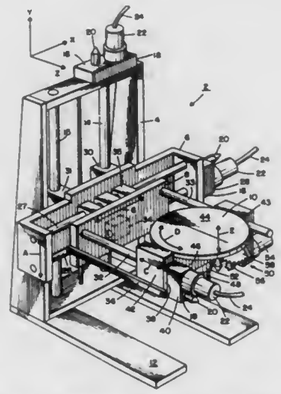
1. An apparatus useful for inducing blocking between a plurality of plastic samples comprising:
an oven;
means for controlling the temperature within said oven; and
a sample testing device for applying a known, but variable, compressive force to a plurality of plastic samples, said testing device disposed with said oven and comprising,
a base platen;
a movable platen disposed for cooperation with said base platen;
a rigid, fixed support extending above said base platen;
a lever arm, said lever arm pivotable about a pivot with respect to said support;
a plurality of weight receiving locations disposed along said lever arm; and
a thrust member for transmitting a force from said lever arm to said movable platen.

H978
HOT CELL EXAMINATION TABLE

Peter S. Gaal, Monroeville, Pa.; Lino P. Ebejer, Weston, Mass.; James H. Kareis, Slickville, and Gary L. Schlegel, McKeesport, both of Pa., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Apr. 27, 1990, Ser. No. 515,307
Int. Cl.[5] A47B *85/00*
U.S. Cl. 108—20 **12 Claims**

1. An examination table for use in a hostile environment having a frame, a movable table top, and means for controllably moving said table top relative to said frame, said moving means comprising:
shaft means fixedly mounted to said frame for axial rotation;
electromechanical drive means connected to said frame and said shaft means for rotating said shaft means; and
shaft travel means for traveling along said shaft means, said shaft travel means comprising a plurality of tilted rollers, means for biasing said tilted rollers against said shaft means and means for connecting said shaft travel means to said table top such that rotation of said shaft means causes said tilted rollers to frictionally roll along said shaft means

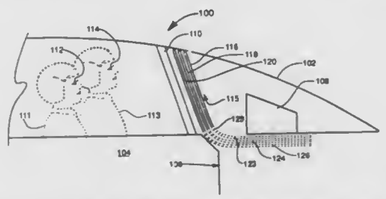


whereby said table top is moved parallel to said shaft means as said shaft means is rotated.

H979
COCKPIT VISION AND PROTECTION APPARATUS

Malcolm E. Kelley, Yellow Springs, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jul. 2, 1990, Ser. No. 548,466
Int. Cl.[5] B64C *1/14*
U.S. Cl. 244—129.3 **12 Claims**

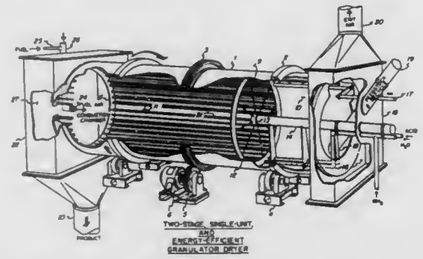


1. A protective viewing system for an aircraft cockpit comprising the combination of:
exterior windshield means including an aircraft surface merged, curved, clear thin outer windshield member disposed in front of the aircraft pilot for transparently closing the cockpit fuselage aperture of said aircraft;
heads-up display means located behind said outer windshield member and in front of said pilot for communicating selected avionics data thereto;
a thicker impact protection transparent shield member located intermediate said heads-up display means and said pilot for halting the travel of pilot threatening physical objects passing through said thin windshield member into said fuselage;
a retractably mounted first specific threat protecting selectively transparent shield member disposable between said heads-up display means and said impact protection windshield member in a first pilot protection affording use position thereof and disposable in an internal portion of the aircraft fuselage in a second storage position thereof.

H980
TWO-STAGE, SINGLE-UNIT, AND ENERGY-EFFICIENT GRANULATOR DRYER

Cecil P. Harrison, Florence, Ala., assignor to Tennessee Valley Authority, Muscle Shoals, Ala.

Filed May 11, 1989, Ser. No. 350,274
Int. Cl.[5] B22F *3/00*; B29C *67/24*; A01N *25/00*; B01J *8/08*
U.S. Cl. 425—222 **8 Claims**



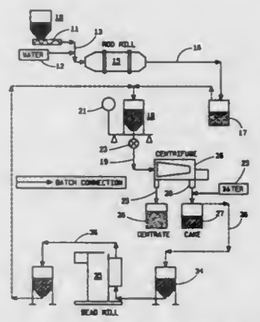
1. Apparatus for treating particulate solid material in free-flowing condition with at least two fluid reactants comprising: a rotating drum with its axis slightly inclined from the horizontal and adapted for rotation about said axis; said drum having a cylindrical side wall, including an inner peripheral surface, the lowermost portion of which comprises the bottommost position on said inner peripheral surface of said drum; and, said drum having a first longitudinal portion of its length free of lifting flights wherein is formed particulate material into a tumbling bed; said drum also having a second longitudinal portion of its length fitted with internal lifting flights extending about the whole of the length of said second drum portion for lifting and dropping particulate material in the form of free falling curtains, which curtains extend about the whole of the length of said second drum portion; a first plurality of reactant spray nozzle means in and spaced apart along the length of said first drum portion and about parallel to the axis thereof, and located near the inner peripheral surface of said drums so as to be continuously embedded in said tumbling bed for delivery of a first fluid reactant into said tumbling bed, and a second plurality of reactant spray nozzle means in and spaced apart along the length of said first drum portion and about parallel to the axis thereof, and located near the inner peripheral surface of said drum so as to be continuously embedded in said tumbling bed for delivery of a second fluid reactant into said tumbling bed; said first plurality of reactant spray nozzle means and said second plurality of reactant spray nozzle means located in a lower quadrant of said drum, when viewed in a plane perpendicular to the axis of said drum, into which a point located at the bottommost position on said inner peripheral surface of said drum would next enter; air heating and drying means for supplying heated and dried air to said second drum portion, and air moving means for providing distribution of heated and dried air removed from said air heating and drying means and introduced into intimate contact with said curtains of particulate material in said second portion of said drum prior to contact of said air with said particulate material in said tumbling bed in said first portion of said drum.

H981
PROCESS FOR SELECTIVE GRINDING OF COAL

Mukund K. Venkatachari, San Francisco; August D. Benz, Hillsborough, and Horst Huettenhain, Benicia, all of Calif., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Aug. 25, 1989, Ser. No. 398,576
Int. Cl.[5] C10L *1/32*
U.S. Cl. 44—282 **20 Claims**

1. A process for preparing coal for use as a fuel, comprising grinding coal particles in the presence of water to form a coal-water slurry having solid coal particles with a particle size not exceeding about 80 microns, classifying the ground coal-water slurry in a solid bowl centrifuge to provide a centrate containing solid particles with a particle size distribution of from about 5 microns to about 20 microns and to provide a

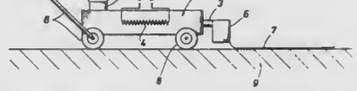


centrifuge cake of solids having a particle size distribution of from about 10 microns to about 80 microns, and regrinding the classifier cake, wherein more than about 50% of the slurry particles are larger than 6 microns.

H982
METHOD FOR PREPARING POLYMERIC MEMBRANES IN-SITU AND AN APPARATUS FOR PERFORMING THIS PROCESS

Mark A. Berggren, 6233 Haskell, Houston, Tex. 77007, and Lance M. Garton, 7610 Miller Glen La., Houston, Tex. 77072

Filed Dec. 20, 1989, Ser. No. 453,871
Int. Cl.[5] B29C *63/00*; B32B *31/00*; B05D *3/12*; B28B *1/00*
U.S. Cl. 264—171 **20 Claims**



1. A process to produce a polymeric waterproof sealing membrane and adhere it to the roof of a structure, the process comprising the steps of:
(a) providing a polymeric waterproof sealing material on the roof;
(b) melting the polymeric material on the roof;
(c) forcing the melted polymeric material through a light movable die, located on the roof, wherein the die shapes the meld into a film;
(d) positioning the movable die in close proximity to the roof and moving the movable die across the roof; and
(e) applying the film melt directly to the roof before the film melt has cooled significantly from the temperature of the melt at the movable die.

H983
POLYKETONE FIBERS

Houston S. Brown, 7306 Turbury La., Houston, Tex. 77095, and Paul A. Westbrook, 15419 Rio Plz., Houston, Tex. 77083

Division of Ser. No. 175,024, Mar. 30, 1988, abandoned. This application Jun. 21, 1989, Ser. No. 369,402
Int. Cl.[5] B29C *47/88, 47/30*
U.S. Cl. 264—211.17 **8 Claims**

1. A process for preparing a fiber from a linear alternating polymers of carbon monoxide and at least one ethylenically

VOL 1132 ISS 1 NO 5 1991 UMI

unsaturated hydrocarbon wherein said process comprises the following steps:

(i) adding a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon to a high shear mixing device;

(ii) mixing the contents at temperatures between about 175° C. and 300° C.;

(iii) extruding the contents into a fiber; and

(iv) quenching the extruded strand.

H984

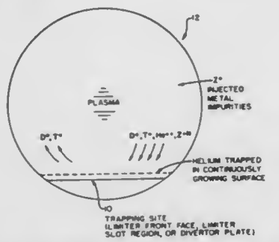
SELF-PUMPING IMPURITY CONTROL

Jeffrey N. Brooks, Darien, and Richard F. Mattas, Downers Grove, both of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation of Ser. No. 564,112, Dec. 21, 1983, abandoned. This application Mar. 17, 1989, Ser. No. 324,999

Int. Cl.[5] G21B *1/00*

U.S. Cl. 376—146 **4 Claims**



1. In a magnetic plasma confinement nuclear fusion system having a vessel, a hydrogen plasma within said vessel, said hydrogen plasma containing helium ash impurities, apparatus for removing said helium ash from said plasma, during plasma burn, said apparatus comprising:

(a) a fixed helium trapping site within said magnetic plasma confinement fusion system, said trapping site having a surface of trapping material exposed to the plasma, said trapping material being selected from the group consisting of vanadium, niobium, tantalum, tungsten and molybdenum; and

(b) means for injecting particles of said trapping material into said plasma whereby during operation a coating of said trapping material is continuously deposited on said trapping site, at a rate sufficient to prevent saturation of impurity trapping during plasma.

H985

CELL COMPARTMENT FOR BATTERY MATRIX

John A. Christopulos, Oakhurst, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 25, 1990, Ser. No. 589,147

Int. Cl.[5] H01M *2/10, 14/00*

U.S. Cl. 429—99 **4 Claims**

1. A battery cell compartment comprising:

a housing;

a plurality of berths disposed within said housing, each berth having at least one opening;

a door panel;

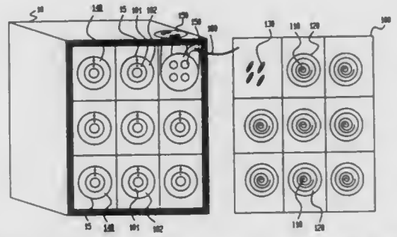
means to attach said door panel to said housing;

a plurality of electrically connected concentric springs attached to said door panel in a manner such that the concentric springs are aligned with the openings of said berths when said door panel is attached to said housing;

a plurality of circuit power pins attached to said door panel and electrically connected in series to said concentric springs;

a plurality of diodes electrically connected to said circuit power pins;

a current fuse electrically connected said diodes; and



means for connecting an application device circuit to said battery cell compartment.

H986

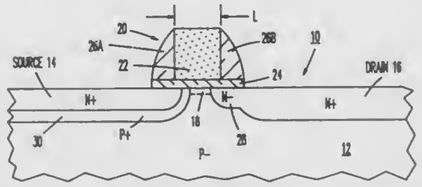
FIELD EFFECT-TRANSISTOR WITH ASYMMETRICAL STRUCTURE

Christopher F. Codella, Marlboro; Nivo Rovedo, Lagrangeville, and Seiki Ogura, Hopewell Junction, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 9, 1989, Ser. No. 363,747

Int. Cl.[5] H01L *2/265*

U.S. Cl. 437—41 **12 Claims**



1. A method of forming a field effect transistor, comprising the steps of:

providing a semiconductor substrate of first conductivity type;

forming a generally conformal layer of gate electrode material over said substrate;

forming a mask over said layer of gate electrode material, said mask including a generally vertical edge situated over said substrate;

forming a halo region of said first conductivity type in said substrate self-aligned with said vertical edge of said mask;

forming a source region of said second conductivity type in said halo region;

using said mask to define a gate electrode from said layer of gate electrode material while exposing a previously masked portion of said substrate adjoining said gate electrode;

forming a lightly doped region of said second conductivity type in said substrate self-aligned with an edge of said gate electrode on a side of said gate electrode opposite said source region;

forming a sidewall of protective material on the side of said gate electrode overlying said lightly doped region; and

forming a drain region of said second conductivity type in said substrate using said gate electrode and said sidewall as a mask such that said lightly doped region extends said drain region under said sidewall;

said step of forming said source region performed before said steps of forming said lightly doped region and said sidewall so that said lightly doped region extends only said drain region under said sidewall.

H987

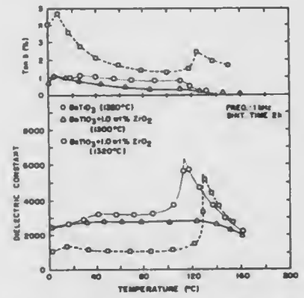
TEMPERATURE STABLE CERAMIC DIELECTRIC COMPOSITIONS

Relva C. Buchanan, 1723 Henry St., Champaign, Ill. 61821, and Aléna K. Maurice, 1205 Florida Ave., Apt. 14A, Urbana, Ill. 61801

Filed Jun. 12, 1989, Ser. No. 364,416

Int. Cl.[5] C04B *35/49*

U.S. Cl. 501—137 **4 Claims**



1. A ceramic dielectric composition having a dielectric constant in the range from 1800 to 3500 in the temperature range from −50 to +150 degrees C., and having a heat dissipation factor, tangent delta, not exceeding 3 percent in said temperature range, consisting essentially of 98 to 99.5 percent by weight of barium titanate and 0.5 to 2.0 percent by weight of zirconium dioxide.

H988

POLYMER BLENDS

William P. Gergen, Houston; Joseph M. Machado, Richmond; Dixie G. Waters, and Randall P. Gingrich, both of Houston, all of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Oct. 31, 1989, Ser. No. 429,915

Int. Cl.[5] C08L *77/00*

U.S. Cl. 525—179 **23 Claims**

1. A polymer blend comprising a major proportion of a polyamide polymer having each recurring unit of up to 16 carbon atoms and a melting point in excess of 200° C., and lesser proportions of (a) a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon, and (b) an acidic polymer containing moieties of α-olefin and α,β-ethylenically unsaturated carboxylic acid, optionally with a third monomer, the monomer being a non-acidic, low molecular weight polymerizable monomer, and optionally with a portion of the carboxylic acid group neutralized with non-alkali metal.

H989

PURIFICATION OF HYDROLYZED PROTEIN BY EXTRACTION

Guy J. Hartman, Decatur, Ill., assignor to A. E. Staley Manufacturing Co., Decatur, Ill.

Filed Jul. 13, 1990, Ser. No. 552,403

Int. Cl.[5] C07K *3/12, 3/00*

U.S. Cl. 530—422 **6 Claims**

1. A method of purifying a hydrolysed protein comprising contacting a mixture of a hydrolysed protein and a chlorohydrin with a substantially phase-incompatible fluid extractant capable of extracting at least a portion of said chlorohydrin from said aqueous mixture and separating said hydrolysed protein from said substantially phase-incompatible fluid extractant.

H990

RECRYSTALLIZATION OF 3-NITRO-1,2,4-TRIAZOL-5-ONE FROM DIMETHYLSULFOXIDE AND METHYLENE CHLORIDE

Eleonore G. Kayser, Baltimore, Md., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 26, 1989, Ser. No. 386,378

Int. Cl.[5] C07D *249/12, 249/14*

U.S. Cl. 548—263.8 **5 Claims**

1. A process for producing finely divided 3-nitro-1,2,4-triazol-5-one of uniform particle size comprising:

(1) dissolving conventional large, jagged, rodlike 3-nitro-1,2,4-triazol-5-one crystals having a particle size of (2,702 cm^2/cm^3 in hot dimenthylsulfoxide at a temperature of from about 60° C. to about 90° C.;

(2) injecting the hot dimethylsulfoxide solution through an opening of 0.70 mm or less in diameter in methylene chloride which is kept at a temperature of from about −10° C. to about 30° C.; and

(3) isolating the finely divided particles of 3-nitro-1,2,4-triazol-5-one which are produced in step (2).

H991

SYNTHESIS OF NITRATOMETHYLMETHYLOXETANE (NMMO)

John W. Fischer, and Richard A. Hollins, both of Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 3, 1989, Ser. No. 296,556

Int. Cl.[5] C07D *305/04*

U.S. Cl. 549—510 **16 Claims**

1. A method of preparing 3-nitratomethyl-3-methyloxetane comprising the following steps:

dissolving hydroxymethylmethyloxetane in a solvent;

dissolving dinitrogen pentoxide in a solvent;

adding said dinitrogen pentoxide solutions to said hydroxymethylmethyloxetane solution;

holding said reaction mixture at a first reaction temperature;

stirring said reaction mixture for a time sufficient to complete the reaction while holding said reaction mixture at said first reaction temperature;

washing said reaction mixture with water;

washing said reaction mixture with saturated sodium bicarbonate solution;

washing said reaction mixture with saturated sodium chloride solution;

drying said reaction mixture with anhydrous sodium sulfate;

filtering said sodium sulfate from said reaction mixture;

removing said solvent at reduced pressure;

purifying said 3-nitratomethyl-3-methyloxetane by vacuum distillation; and

holding said product at a second reaction temperature while purifying.

H992

PREPARATION OF FLUOROBENZENES BY THE DECARBOXYLATION OF FLUOROPHTHALIC ACIDS OR BENZOIC ACIDS

Lawrence B. Fertel, Buffalo, and Henry C. Lin, Grand Island, both of N.Y., assignors to Occidental Chemical Corporation, Dallas, Tex.

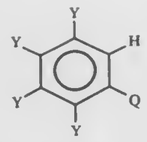
Filed Aug. 30, 1990, Ser. No. 574,861

Int. Cl.[5] C07C *17/33, 17/22, 22/08*

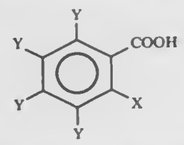
U.S. Cl. 570—142 **14 Claims**

1. A process for the production of polyfluorobenzenes represented by the following formula:

VOL 1132 ISS 1 NO 5 1991 UMI



wherein Q may be H or Cl, and each Y maybe be independently F or H provided that at least 2 Y's are F which comprises heating a polyfluorobenzoic acid or polyfluorophthalic acid starting material represented by the following formula:



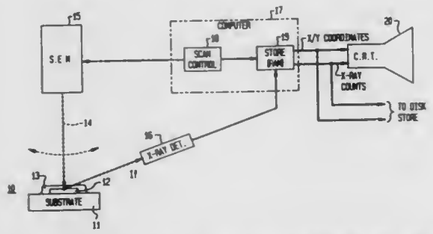
wherein X may be COOH or Cl, and each Y maybe be independently F or H provided that at least 2 Y's are F in a solvent selected from the group consisting of quinoline and n-methyl-2-pyrrolidone, in the presence of a catalyst selected from the group consisting of copper metal, Cu_2O and CuO.

H993

THIN FILM THICKNESS MAPPING TECHNIQUE

Richard G. Sartore, Bradley Beach, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 17, 1990, Ser. No. 583,612
Int. Cl.[5] G01N *23/02*
U.S. Cl. 250—307 **4 Claims**



1. A method of detecting defects and mapping the thicknesses of passivation layers of an integrated circuit comprising the steps of:

directing a narrow, high energy, electron beam to impinge upon an integrated circuit, by increasing the accelerating voltage of the electron beam until the electrons have a minimal amount of energy to penetrate through the thickness of a passivation layer of the integrated circuit;

increasing said voltage a predetermined amount above the voltage required for passivation layer penetration wherein the transmitted electrons serve to interact with a sublayer of film material and to generate distinct X-rays and wherein the predetermined amount of voltage increase is sufficient to achieve a substantially linear relationship between the X-ray intensity from the film material and the thickness of the passivation layer;

raster scanning the increased-intensity electron beam over the area of interest of the integrated circuit;

detecting any X-rays that are generated during the raster scanning of the electron beam;

visually displaying a count of X-rays detected during the raster scanning; and

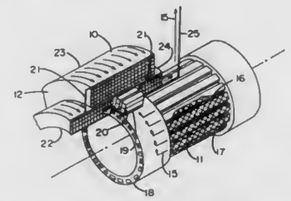
compensating for the absorption effect of the X-rays through the passivation layer and sublayer by a predetermined formula.

H994

TRANSPOSED AIR CORE HOMOPOLAR GENERATOR CONDUCTORS

David W. Ohst, Livermore, Calif.; Jack T. Gunn, Vancouver, and Dennis Pavlik, Pittsburgh, Pa., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 21, 1990, Ser. No. 642,978
Int. Cl.[5] H02K *31/00*
U.S. Cl. 310—178 **7 Claims**



1. A rotor/stator apparatus for a series wound air core homopolar generator with high magnetic fields which controls and reduces eddy currents comprising:

means for segmented stator current collection to prevent eddy currents from flowing;

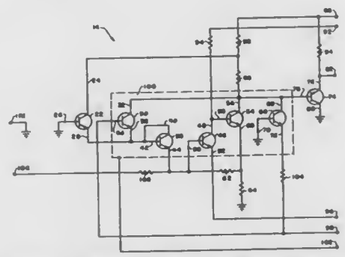
means for segmented rotor conductors to prevent eddy currents from flowing.

H995

PREAMPLIFIER FOR LASER GUIDED PROJECTILE

Robert D. Moran, Dahlgren, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 15, 1984, Ser. No. 671,711
Int. Cl.[5] H03G *3/10, 3/18, 3/30*
U.S. Cl. 330—278 **4 Claims**



1. An amplifier having controllable gain comprising:

a plurality of means for amplifying an externally providable signal, and

power supply means for establishing gain operation conditions of each of the plurality of amplifying means,

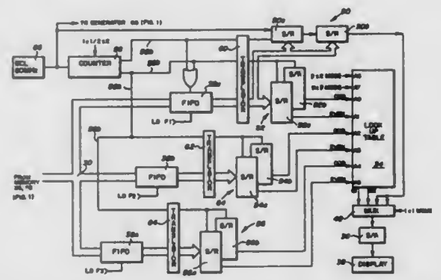
the amplifier being determined by the gain of the of the plurality of amplifying means, the gain of the respective amplifying means being controllable between a gain ON condition and a gain OFF condition by selection of supply power values providable to the respective amplifying means for controlling the gain of the amplifier.

H996

HIGH RESOLUTION PAGE IMAGE DISPLAY SYSTEM

Lynn D. McWaters, Garland, and Kenneth T. Lovelady, Irving, both of Tex., assignors to Recognition Equipment Incorporated, Irving, Tex.

Continuation of Ser. No. 4,953, Jan. 20, 1987, abandoned. This application Aug. 16, 1988, Ser. No. 233,993
Int. Cl.[5] G09G *1/06*
U.S. Cl. 340—728 **5 Claims**



1. An image processing system for converting high resolution rasterized black/white picture element scan data of an image to a lower resolution multi-level gray value for display on a cathode ray tube comprising:

means for extracting a selected group of black/white picture elements from the rasterized scan data; and

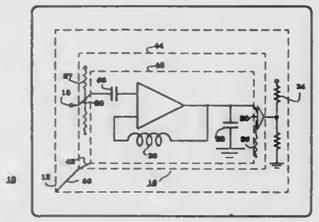
means for converting said selected group of black/white picture elements to a variable brightness single gray level picture element for display on the cathode ray tube, the displayed gray level of said picture element being preselected based upon the number of occurrences of a black or a white picture element in said selected group to thereby reduce the number of picture elements displayed on the cathode ray tube while displaying the image at its actual size in gray level.

H997

VIDEO DISPLAY ENHANCEMENT

Barry S. Bronson, 13750 Via Alto Ct., Saratoga, Calif. 94070

Filed Mar. 26, 1990, Ser. No. 499,103
Int. Cl.[5] G06F *15/62*
U.S. Cl. 364—521 **1 Claim**



1. A method of enhancing a video display comprising the steps of:

selecting a target area to be enhanced within the video display;

selecting a maximum area, surrounding the target area, within the video display;

selecting an exploded view area, within the maximum area and including the target area; and

creating a second display in which the target area is enlarged to fill the exploded view area, the display between the target and maximum areas is compressed to fit between the exploded and maximum areas, and the area within the video display outside the maximum area is displayed without change.

VOL
1132
ISS
1
NO
5
1991
UMI

REISSUES

NOVEMBER 5, 1991

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 33,732

METHOD OF MACHINING A WORKPIECE IN A TURRET LATHE AND AN NC LATHE FOR PERFORMING THIS METHOD

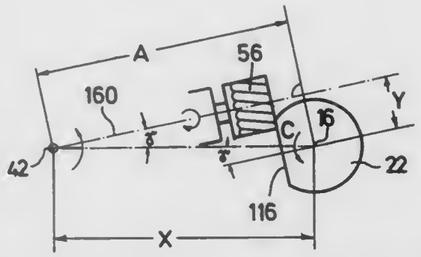
Helmut F. Link, Aichwald, Fed. Rep. of Germany, assignor to Index-Werke GmbH & Co. KG Hahn & Tessky, Fed. Rep. of Germany

Original No. 4,635,340, dated Jan. 13, 1987, Ser. No. 636,886, Aug. 2, 1984. Application for reissue Jan. 10, 1989, Ser. No. 295,484

Claims priority, application Fed. Rep. of Germany, Aug. 5, 1983, 3328327

Int. Cl.[5] B23B *5/36, 35/00*

U.S. Cl. 29—558 **14 Claims**



3. A method of machining a circumferential portion of a rotatable workpiece off-center comprising the following steps which are carried out simultaneously while performing such machining:

(a) rotatively displacing the workpiece about a first axis in a defined direction of rotation;

(b) rotating a cutting tool about a second axis for machining a circumferential portion of said workpiece off-center from said first axis;

(c) rotatively displacing said second axis about a third axis in said defined direction of rotation;

said third axis of rotation being parallel to said first axis and spaced from said first axis by a variable distance;

said cutting tool being located on said second axis a predetermined tool distance from said third axis;

said second axis being positioned perpendicular to a predetermined plane of such workpiece which is parallel to said first axis; and

(d) providing relative transverse displacements between said third axis and said first axis;

the rotational displacements of said workpiece about said first axis and said tool about said third axis being simultaneously controlled to provide the same angular displacement of each in the same direction to maintain said second axis perpendicular to said predetermined plane of said workpiece while performing such machining; and

the transverse displacement of said third axis relative to said first axis being simultaneously controlled relative to said rotational displacements of said workpiece about said first axis and said tool about said third axis to effect the positioning of said cutting tool in a direction perpendicular to said plane in a predetermined manner while performing such machining.

Re. 33,733

DEVICE FOR DRIVING A DRILLING AND/OR IMPACTING TOOL

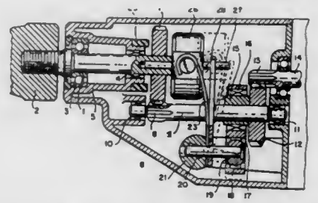
Wilhelmus J. M. Hendrikx, 297 Liesboslaan, 4838 Ev Breda; Antonie J. Moolenaar, 27 Cypressenstraat, 4949 An Dorst, and Jan P. Houben, 56 Rechterenstraat, 4834 Lv Breda, all of Netherlands

Original No. 4,726,430, dated Feb. 23, 1988, Ser. No. 673,617, Nov. 21, 1984. Application for reissue Dec. 22, 1988, Ser. No. 289,365

Claims priority, application Netherlands, Nov. 24, 1983, 8304043

Int. Cl.[5] B23B *45/16*

U.S. Cl. 173—109 **18 Claims**



1. A device for driving a drilling and/or impacting tool comprising:

a tool shaft journalled in a housing so as to be rotatable, if necessary, one end of said shaft being connectable with the tool whereas the other end is accessible for engagement with an oscillatory impact body movable in the housing by means of a guide and a rotatable driving shaft operatively connected through a transmission for impacting rotation to the tool shaft and/or movement to the impact body against the tool shaft, characterized in that the transmission comprises means for converting the rotary movement of the driving shaft into an oscillatory movement of a driving element, which is connected through an elastic member with the impact body, said elastic member has a non-linear spring characteristic.

8. A device as claimed in claim 1, and further including pivotol arms, said guide for the impact body [is] *being* formed by one or more of said pivotol arms.

9. A device as claimed in claim [1,] *8* characterized in that said elastic member is arranged between said [motion converting means] *means for converting the rotary movement* and said pivotol arm of the impact [*mass*] *body.*

Re. 33,734

Patent Not Issued For This Number

Re. 33,735

GOLF CLUB SHAFT

Joseph W. Rumble, Hartford, and William G. Sprague, Litchfield, both of Conn., assignors to Brunswick Corporation, Skokie, Ill.

Original No. 4,431,187, dated Feb. 14, 1984, Ser. No. 391,988, Jun. 25, 1982. Application for reissue Jun. 13, 1989, Ser. No. 365,951

Int. Cl.[5] A63B *53/12*

U.S. Cl. 273—80 R **17 Claims**

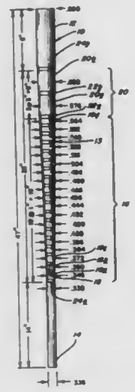
1. A golf club shaft having a grip end, a hosel end and a main shaft portion intermediate the grip and hosel ends, the main shaft portion having a plurality of [stop] *step* portions with

VOL 1132 ISS 1 NO 5 1991 UMI

each adjacent pair of step portions having a transitional portion therebetween, the main shaft portion comprising:

a first step portion extending partly along a length of the main shaft portion and having a first diameter;

a second step portion extending partly along the length of the main shaft portion and spaced from the first step portion and having a second diameter different than the first diameter; and



a transitional portion disposed between the first and second step portions having a tapered outer surface of changing diameter smoothly linking the first and second step portions, *the tapered outer surface being characterized by a taper angle of approximately 1.5°*, the length of the transitional portion being substantially greater than the difference between the first and second diameters wherein the pattern of the step portions and transitional portions of the main shaft portion is substantially as shown in FIG. 1.

Re. 33,736

PERIODIC PERMANENT MAGNET STRUCTURE WITH INCREASED USEFUL FIELD

John P. Clarke, Cranford, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Original No. 4,731,598, dated Mar. 15, 1988, Ser. No. 89,100, Aug. 24, 1987. Application for reissue Aug. 30, 1990, Ser. No. 578,177

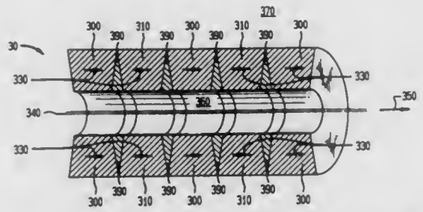
Int. Cl.[5] H01F *7/00*

U.S. Cl. 335—210 **7 Claims**

[1. A device for manipulating a charged particle beam traveling along a beam path, said device comprising:

a pair of similar permanent magnets, one of said magnets having its magnetization aligned parallel to said beam path and in a direction opposite to the magnetization of the other said magnet;

an interstitial pole piece interposed between said magnets; said magnets and interstitial pole piece aligned adjacent to and parallel to said beam bath; and,



one said interstitial pole piece cross section, in a plane which contains said beam path, being tapered away from said beam path.]

Re. 33,737

OPTICAL FIBER COATED WITH AN ORGANOPOLYSILOXANE CURABLE ACTINIC RAYS

Yoshinori Hida, Kawasaki; Shohei Kozakai; Seiji Katayama, both of Annaka, all of Japan, and Noriyuki Meguriya, Akron, Ohio, assignors to Shin-Etsu Chemical Co., Ltd., Chiyoda, Japan

Original No. 4,733,942, dated Mar. 29, 1988, Ser. No. 930,002, Nov. 12, 1986. Application for reissue Mar. 13, 1990, Ser. No. 492,779

Claims priority, application Japan, Nov. 12, 1985, 60-259275

Int. Cl.[5] G02B *6/00*

U.S. Cl. 385—141 **3 Claims**

1. A coated optical fiber which comprises:

(a) a fused quartz glass-made optical fiber base; and

(b) a coating layer on the optical fiber base formed of a coating material comprising, as the principal ingredient thereof, an organopolysiloxane represented by the average unit formula

$$(R^1)_a[(R^3O)_n(R^4)_{3-n-m}(R^5O)_mSi-R^2-]_bSiO_{(4-a-b)/2},$$

in which the groups denoted by R^1 and R^4 are each, independently from the others, a substituted or unsubstituted monovalent hydrocarbon groups, R^2 is a divalent hydrocarbon group having 2 to 4 carbon atoms or an oxygen atom, R^3 is a monovalent organic group having 4 to 25 carbon atoms and 1 to 3 ethylenically unsaturated groups, R^5 is a monovalent hydrocarbon group free from aliphatic unsaturation having 1 to 18 carbon atoms or an organosilyl group represented by the general formula

$$-SiR^6{}_2-O)_pSiR^6,$$

R^6 being a monovalent hydrocarbon group having 1 to 9 carbon atoms and p being zero or a positive integer, a is a positive number in the range from 1.6 to 2.2, b is a positive number in the range from [0.02] *0.002* to 0.5 with the proviso that a+b is in the range from 1.8 to 2.2, n is 1, 2 or 3, m is zero, 1 or 2 with the proviso that n+m is 1, 2 or 3 and R^3 has at least two ethylenically unsaturated groups when n is 1.

PLANT PATENTS

GRANTED NOVEMBER 5, 1991

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

7,700

ORANGE TREE 'BECK EARLY NAVEL'

James W. Beck, 2118 9th Ave., Delano, Calif. 93215

Continuation of Ser. No. 356,680, May 24, 1989, abandoned, which is a continuation of Ser. No. 623,223, Jun. 21, 1984, abandoned. This application Jul. 5, 1990, Ser. No. 549,545

Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—45 **1 Claim**

1. A new and distinct variety of orange tree substantially as shown and described, characterized particularly as to novelty by a somewhat smaller tree size that the conventional Washington navel tree, a bright red-orange color of the fruit with a more durable rind than a conventional Washington navel orange and maturing during a relatively shorter period.

7,701

VARIETY OF STRAWBERRY NAMED FLORIKA

Annelise Bauer, Hechlstrasse 11, D-8211 Breitbrunn, and Birgit Schlindwein, Freising, both of Fed. Rep. of Germany, assignors to Annelise Bauer, Fed. Rep. of Germany

Filed Feb. 12, 1990, Ser. No. 478,641

Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—48 **1 Claim**

1. The new distinct variety of *vescana* strawberry plant named Florika as herein described and illustrated.

7,702

***PENTAS LANCEOLATA* PLANT NAMED JESSICA**

Russell R. Pennington, Sr., 10500 Isabelle Rd., Lafayette, Colo. 80026

Filed May 1, 1990, Ser. No. 517,080

Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of *Pentas lanceolata* plant named Jessica, as illustrated and described.

7,703

ALSTROEMERIA PLANT NAMED MARIA

Erwin Mojonnier, 237 Quail Dr., Encinitas, Calif. 92024

Filed Jul. 24, 1990, Ser. No. 556,401

Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of Alstroemeria plant named Maria, as illustrated and described.

7,704

AFRICAN VIOLET PLANT NAMED LITTLE BLACKFOOT GIRL

Reinhold Holtkamp, Sr., Blumenstrasse 28, D 4242 Rees-Haffen, Fed. Rep. of Germany

Filed Aug. 10, 1990, Ser. No. 565,315

Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet named Little Blackfoot Girl, as described and illustrated, and particularly characterized by its mid-size growth habit (13–15 cm in diameter); purplish red, single violet-shaped flowers; strong stems which curve toward the center to form a compact bouquet above the leaves; profuse flowering; an abundance of blooms at one time, and continuous flowering; dark green, spear-shaped leaves; flowering 10–11 weeks after planting of unrooted shoot, and by its long lasting and non-dropping flowers.

7,705

AFRICAN VIOLET PLANT NAMED LITTLE NAVAJO GIRL

Reinhold Holtkamp, Sr., Blumenstrasse 28, D 4242 Rees-Haffen, Fed. Rep. of Germany

Filed Aug. 10, 1990, Ser. No. 565,318

Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet named Little Navajo Girl, as described and illustrated, and particularly characterized by its mid-size growth habit (13–15 cm in diameter); blue, single violet-shaped flowers; strong stems which curve toward the center to form a compact bouquet above the leaves; profuse flowering; medium green, girl-type leaves; flowering 10–11 weeks after planting of unrooted shoot, and by its long lasting and non-dropping flowers.

VOL
1132

ISS
1

NO
5

1991

UMI

PATENTS

GRANTED NOV. 5, 1991

ERRATA

For CLASS	See PATENT NO.
119-051	5,062,382
119-173	5,062,383
118-723	5,062,508
229-117	5,062,527
241-079	5,062,601
248-027	5,062,604
248-061	5,062,605
248-171	5,062,606
248-211	5,062,607
248-289	5,062,608
248-676	5,062,609
249-052	5,062,610
251-129	5,062,611
256-011	5,062,612
266-044	5,062,613
266-216	5,062,614
266-217	5,062,615
267-064	5,062,616
267-132	5,062,617
267-140	5,062,618
267-154	5,062,619
267-260	5,062,620
269-305	5,062,621
297-129	5,062,650
359-206	5,062,679
385-131	5,062,680
385-050	5,062,681
385-085	5,062,682
385-087	5,062,683
385-027	5,062,684
385-114	5,062,685
385-033	5,062,686
385-128	5,062,687
359-619	5,062,688
359-230	5,062,689
359-059	5,062,690
359-056	5,062,691
359-045	5,062,692
359-241	5,062,693
359-498	5,062,694
359-689	5,062,695
359-554	5,062,696
359-379	5,062,697

VOL
1132
ISS
1
NO
5
1991
UMI

ERRATA—Continued

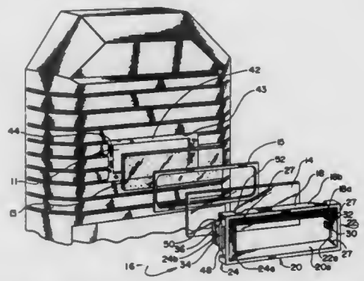
359-414	5,062,698
359-430	5,062,699
359-508	5,062,700
439-096	5,063,130
422-082	5,063,178
250-343	5,063,275
346-143	5,063,451
358-310	5,063,456
358-330	5,063,457
358-335	5,063,458
358-404	5,063,459
358-474	5,063,460
358-474	5,063,461
358-475	5,063,462
395-800	5,063,494
395-650	5,063,495
395-700	5,063,496
395-800	5,063,497
395-425	5,063,498
395-500	5,063,499
395-200	5,063,500
395-725	5,063,501
395-725	5,063,502
395-725	5,063,503
395-725	5,063,504
395-027	5,063,521
395-051	5,063,522
395-157	5,063,525
395-155	5,063,526
395-025	5,063,531
395-425	5,063,533
395-575	5,063,535
395-775	5,063,536
359-127	5,063,559
359-152	5,063,612

PATENTS

GRANTED NOVEMBER 5, 1991

GENERAL AND MECHANICAL

5,062,156
FACE SHIELD FILTER PLATE RETENTION
Burton L. Siegal, Skokie, Ill., assignor to Sellstrom Manufacturing Company, Palatine, Ill.
Continuation of Ser. No. 451,423, Dec. 15, 1989, abandoned. This application Dec. 6, 1990, Ser. No. 624,493
Int. Cl.[5] A61F *9/06*
U.S. Cl. 2—8 **13 Claims**



1. In a face-protecting device having a viewing port therein, the improvement which comprises supporting a filter plate on a support ledge of a face-protecting device and retaining the filter plate on the exterior of said face-protecting device by a flexible filter plate retainer provided with integral fastening means projecting inwardly therefrom and means for adjustably engaging the fastening means with the face-protecting device.

5,062,157
HEADBAND TOWEL
Theodore J. Muta, 1817 Fisher St., Munster, Ind. 46321
Continuation-in-part of Ser. No. 567,841, Aug. 15, 1990, which is a continuation-in-part of Ser. No. 519,767, May 7, 1990, abandoned. This application Mar. 12, 1991, Ser. No. 667,834
Int. Cl.[5] A41D *20/00, 23/00*
U.S. Cl. 2—171 **20 Claims**



1. A fabric head towel, conveniently carried about the head while also serving as a head covering for protecting one's head from heat, dirt, sun, and other environmental elements comprising:

a) a planar fabric material section, having inner and outer surfaces, opposed sides, and first and second opposed ends;

b) two elongated fabric material strips, extending from either side at the first opposed end, said strips having sufficient length to at least extend horizontally around one's head, and having interacting first fastener means sections incorporated in respective end sections of the elongated fabric material strips, for closably effecting a firm positioning of the fabric material section around one's head when the first opposed end is positioned upon one's forehead;

c) at least one second fastener means section, incorporated in an outer surface of the elongated fabric material strips and positioned to be accessible outwardly from the back of one's head; and

d) third fastener means sections, interactive with said second fastener means sections, positioned upon the inner surface of the planar fabric material section to interact closably with respective second fastener means sections whenever the second opposed end is urged backwardly over the surface of one's head, whereby the head covering is firmly secured to provide protection.

5,062,158
PROTECTIVE SHEETS HAVING SELF-ADHESIVE PROPERTY USED FOR WEARING ON CLOTHES AND KEEPING THEM CLEAN
Mitsuko Oka, and Yoshiharu Okumura, both of Shiga, Japan, assignors to Toray Industries, Inc., Tokyo, Japan
PCT No. PCT/JP89/00002, § 371 Date Sep. 1, 1989, § 102(e) Date Sep. 1, 1989, PCT Pub. No. WO89/06093, PCT Pub. Date Jul. 13, 1989
PCT Filed Jan. 5, 1989, Ser. No. 415,202
Claims priority, application Japan, Jan. 6, 1988, 63-1113
Int. Cl.[5] A41B *13/10*; A41D *13/04*
U.S. Cl. 2—46 **14 Claims**



1. Protective sheets having self-adhesive properties used for wearing on clothes and keeping the clothes clean, comprising: at least one electret sheet which is composed of a dielectric material injected with a static electrical charge, which has a surface electric charge density which is at least 1×10^{31} coulomb/cm^2, and whose weight per square meter is in a range of at least 10 g/m^2 and 100 g/m^2, said at least one electret sheet maintaining said static electrical charge while being worn without substantial dissipation of said static electrical charge, and said surface electric charge density being sufficient to retain said at least one electret sheet against clothing while the clothing is being worn.

5,062,159
PATIENT'S HOSPITAL GOWN
Beatrice Jakub, 2570 N. Pontiac Trail, Walled Lake, Mich. 48088
Filed Aug. 27, 1990, Ser. No. 572,869
Int. Cl.[5] A41D *13/00, 13/12*
U.S. Cl. 2—114 **8 Claims**

1. A patient's hospital gown having a front and rear, said gown comprising:

a lower portion comprising a fabric lower panel able to be wrapped around a patient's waist and forming an overlapped releasable seam at said front of the gown, said lower panel having a top and bottom edge;

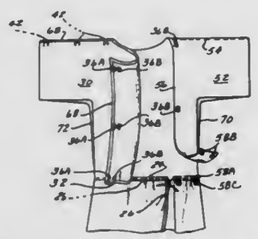
a series of releasable fasteners for securing said seam;

a main front panel having a top and bottom edge and inside

VOL 1132 ISS 1 NO 5 1991 UMI

and outside edges, said main front panel sewn to said top edge of the lower panel to form a seam extending along said bottom edge of said main front panel for a segment of the bottom edge at the outside thereof to form a flap portion comprised of a portion of said main front panel adapted to be drawn across the wearer's chest;

a rear panel having a top and bottom edge, sewn along said bottom edge thereof to said lower panel, said rear panel having ieft and right sleeve sections, one of said sleeve sections



having attached thereto an auxiliary front panel adapted to be drawn down over the wearer's chest and meeting said inside edge of said main front panel to form a releasable flap seam;

a series of releasable fasteners for securing said flap seam;

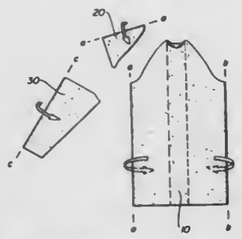
said main front panel formed with a sleeve section overlying said other sleeve section of said rear panel opposite from said right and left sleeve sections; a releasable seam formed along the top edge of said overlying sleeve sections of said main front panel and rear panel sleeve; and, a series of releasable fasteners for securing said releasable seam.

5,062,160

RAGLAN SLEEVE SURGICAL GOWN

John Dillon, Jr., El Paso, Tex., assignor to Johnson & Johnson Medical, Inc., Arlington, Tex.

Filed Jun. 4, 1990, Ser. No. 532,920
Int. Cl.[5] A41D *13/12*
U.S. Cl. 2—114 **11 Claims**



1. A garment comprising:

a single body portion formed of a sheet of material and having a neck opening and two arm openings formed by removing sections of the material;

two shoulder portions, each formed of material having been removed from the arm openings in the body portion; and

two lower sleeve portions, each affixed to one of the shoulder portions,

whereby the shoulder portions terminate between the shoulder and the elbow of the wearer and the lower sleeve portions extend downward toward the wrist of the wearer.

5,062,161

METHOD OF MAKING GARMENT, GARMENT AND STRAND MATERIAL

Roger I. Sutton, Bermuda Run, N.C., assignor to Golden Needles Knitting and Glove Co., Inc., Wilkesboro, N.C.

Continuation of Ser. No. 285,403, Dec. 16, 1988, abandoned. This application Mar. 8, 1991, Ser. No. 668,813
Int. Cl.[5] A41D *19/02*; D04B *7/34*
U.S. Cl. 2—169 **13 Claims**



1. A method of making a protective garment comprising the steps of:

providing a strand material formed by a multifilament bundle of continuous metallic strands entwined with a transitory strand soluble in agents which have substantially no effect on the metallic strands,

manipulating the strand material, in a conventional manner which is incapable of manipulating metallic material alone to form a textile fabric and fabricating the textile fabric into a garment, and

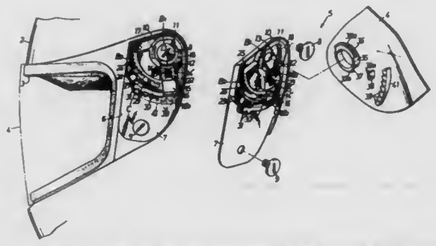
treating the textile fabric with an agent for removing the transitory strand so as to leave only the multifilament bundle of continuous metallic strands forming the fabric.

5,062,162

SHIELD PLATE-MOUNTING STRUCTURE IN HELMET

Eitaro Kamata, Tokyo, Japan, assignor to Shoei Kako Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 11, 1991, Ser. No. 667,918
Claims priority, application Japan, Oct. 24, 1990, 2-286562
Int. Cl.[5] A42B *1/08*
U.S. Cl. 2—424 **4 Claims**



1. A shield plate mounting structure in a helmet for mounting a shield plate to a mounting base plate secured to an outer side surface of a cap body such that the shield plate is turnable between a fully opened position in which a window of the cap body is fully opened and a fully closed position in which the window is fully closed, the structure comprising:

a cylindrical support provided on one of the mounting base plate and the shield plate;

a pivot provided on the other of said mounting base plate and said shield plate, said cylindrical support and said pivot being capable of being relatively turnably fitted with each other; and

a first bayonet mechanism between said mounting base plate and said shield plate for separably connecting said mounting base plate and said shield plate through a relative pivotal movement therebetween;

a second bayonet mechanism provided between said mounting base plate and said shield plate at a position radially outwardly of said first bayonet mechanism for separably connecting said mounting base plate and said shield plate through a relative pivotal movement therebetween;

wherein separating positions of said first and second bayonet mechanisms are set at first and second different rotational positions of said shield plate; and

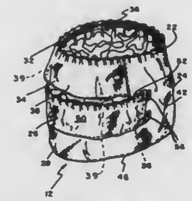
wherein said shield plate is provided with a resilience permitting a predetermined deformation thereof for disconnection of the second bayonet mechanism in the second rotational position.

5,062,163

HEAD PROTECTOR FOR USE WITH HARD HEAD GEAR

I. D. Jean Avey, Rt. 1, Box 90, Albert, Kans. 67511

Filed Mar. 13, 1987, Ser. No. 25,638
Int. Cl.[5] A42B *3/00*
U.S. Cl. 2—424 **4 Claims**



1. A head protection assembly adapted to be connected about a tapered brim section of a hard hat structure to be worn on the head of a person, comprising:

a) a brim support section mountable in a resilent manner about the tapered brim section of a hard hat structure

b) a mid-body cover section integral with a lower portion of said brim support section to cover head and ear portions of the person utilizing same;

c) a chin protector and anchor assembly integral with a lower portion of said mid-body cover section;

d) said chin protector and anchor assembly including a left flap cover member and a right flap cover member downwardly depending from said mid-body cover section; each of said left flap cover member and said right flap cover member of substantial width operable to engage and cover chin and mouth portions of the person wearing same;

e) said chin protector and anchor assembly having a connector assembly to adjustably connect a lower portion of said left flap cover member to said right flap cover member to fit in a weather sealing and enclosed condition about the chin portion of the person wearing same; and

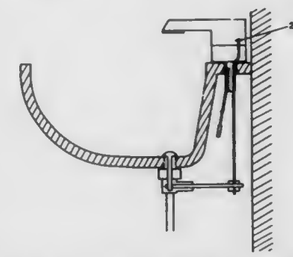
f) said brim support section including a brim portion constructed of an elastic material having a pair of tuck portions therein to provide the necessary clamping action about the tapered brim section of the hard hat structure operable to elastically clamp against a forehead portion of the person wearing same.

5,062,164

AUTOMATIC MIXING FAUCET

Chang H. Lee, 300 Winston Dr., Apt. 810, cliffside Park, N.J. 07010, and Young J. Kim, Seoul, Rep. of Korea

Continuation-in-part of Ser. No. 359,994, Jun. 1, 1989, Pat. No. 4,953,236, which is a continuation of Ser. No. 244,135, Sep. 14, 1988, Pat. No. 4,886,207. This application Jun. 30, 1989, Ser. No. 374,666
Int. Cl.[5] E03C *1/04*; C11D *9/18*
U.S. Cl. 4—194 **8 Claims**



1. A water supply valve including a valve body having a water chamber formed therein; a valve piston in said chamber and dividing said water chamber into first and second chambers, said valve body having a water inlet and water outlet opening formed therein and communicating with said first chamber, said valve piston, in a first position, closing communication through said first chamber between said water inlet and outlet opening and, in a second position, opening communication therebetween; pilot valve means connected between said second chamber and said outlet opening for selectively permitting and closing off communication between said second chamber and said water outlet opening, thereby to reduce pressure in said second chamber when such communication is permitted; sensor means for detecting the presence of a physical object, and means responsive to said sensing means for actuating said pilot valve to permit communication between said second chamber and said water outlet, thereby to permit water pressure in said first chamber to move said valve piston to its second position and open the valve to allow water to flow from said inlet opening to said outlet opening, said sensor means comprising an IR sensor; and said responsive means including an electric motor and transmission means connected between said motor and said pilot valve; said transmission means including cam means rotated by said motor for operating said pilot valve.

5,062,165

BEDSIDE TOILET INCORPORATING OVERHEAD HOIST

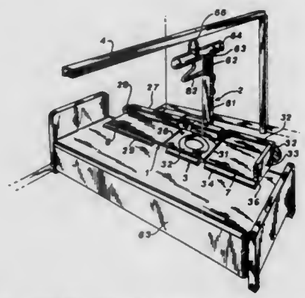
Harry D. Kerr, 4641 N. Ardmore Ave., Whitefish Bay, Wis. 53217

Filed Aug. 3, 1990, Ser. No. 562,895
Int. Cl.[5] A61G *9/00*
U.S. Cl. 4—480 **16 Claims**

1. A construction for transporting a disabled patient, comprising an elongated platform to support a patient and including a back section, a posterior section and a leg section, said sections being hingedly connected for movement between a generally horizontal position and an operative position where said posterior section is disposed generally horizontally and said back section extends upwardly from said posterior section and said leg section extends downwardly from said posterior section, a supporting structure, cantilevered support means for supporting said posterior section in cantilevered relation from said supporting structure, an overhead track, trolley means movable on the track and connected to said supporting structure, first operating means for pivoting said back section relative to said posterior section, second operating means for

VOL 1132 ISS 1 NO 5 1991 UMI

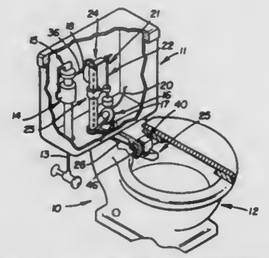
pivoting said leg section relative to said posterior section, said supporting structure including a first support member connected to said posterior section and a second support member connected to said trolley means, said first and second support members being movable relative to each other to vary the vertical distance between said track and said platform, drive



means for moving said support members relative to each other, a horizontal beam interconnecting the upper end of said second support member and said trolley means, and handle means connected to said beam and disposed in spaced relation above said platform in position to be grasped by a patient supported on the platform.

5,062,166
OVERFLOW CONTROL APPARATUS FOR WATER CLOSETS

Tom Krenecki, 1761 Las Raposas, Santa Rosa, Calif. 95405
Filed Sep. 17, 1990, Ser. No. 583,494
Int. Cl.[5] E03D *11/02*
U.S. Cl. 4—427 **14 Claims**



11. Overflow control apparatus in combination with a water closet having a tank, a vertically disposed overflow tube mounted in said tank, a bowl refill tube having its distal end communicating with an open upper end of said overflow tube, a bowl, flush valve means movable between a normally closed position stopping communication of water from said tank to said bowl and an open position communicating water from said tank to said bowl, and means for selectively moving said flush valve means to its open position, said overflow control apparatus comprising shut-off means for applying a closing force to said flush valve means to move it from its open position and to hold it at its closed position, said shut-off means comprising

reciprocal plunger means reciprocally mounted on said overflow tube, vertically above said flush valve means, for being released and dropped vertically under the influence of gravity from a raised position to a lowered position for applying said closing force to said flush valve means to move it from its open position and to hold it at its closed position,

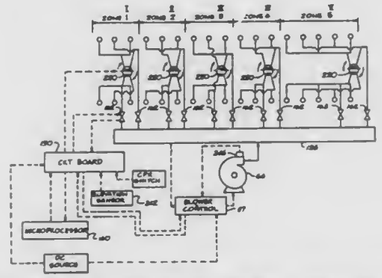
trip means movably mounted on said overflow tube for movement from a first position for holding said plunger means in its raised position to a second position releasing said plunger means to permit it to drop to its lowered position,

control means for moving said trip means from its first position to its second position, and

a cap fixedly securedly mounted on the upper end of said overflow tube and wherein said trip means is slidably mounted on said cap.

5,062,167
BIMODAL TURNING METHOD

James M. C. Thomas, Mt. Pleasant; James R. Stolpmann, Charleston; William T. Sutton, Charleston, and James J. Romano, Charleston, all of S.C., assignors to SSI Medical Services, Inc., Charleston, S.C.
Division of Ser. No. 355,755, May 22, 1989, Pat. No. 4,949,414, which is a continuation-in-part of Ser. No. 321,255, Mar. 9, 1989, abandoned. This application Jul. 18, 1990, Ser. No. 555,169
Int. Cl.[5] A61G *7/057*
U.S. Cl. 5—61 **3 Claims**



1. A method for relieving the pressure points between a patient and the sacks of a low air loss patient support system initially maintained at a first pressure profile, the method comprising:

(a) supporting the patient on a plurality of elongated inflatable sacks wherein each sack extends transversely across the longitudinal centerline of the patient support and each sack includes a pair of separately pressurizable chambers, one of said chambers being disposed at least partly above the other of said chambers, one of said chambers being disposed predominately to the left side of the centerline and having a minority portion to the right side of the centerline, and one of said chambers being predominately disposed to the right side of the centerline and having a minority portion to the left of the centerline;

(b) elevating the head and chest of the patient to an angle between 0° and 30° above the horizontal;

(c) supplying air pressure to the sacks in a manner so that both sides of a first group of sacks can be maintained at a separate pressure profile from both sides of a second group of sacks;

(d) decreasing the air pressure to both sides of the sacks in said first group during a first interval of time to a second pressure profile;

(e) increasing the pressure being supplied to both sides of the sacks of said second group during said first interval of time until a third pressure profile is being provided to said second group;

(f) maintaining said first group of sacks at said second pressure profile and said second group of sacks at said third pressure profile during a second interval of time;

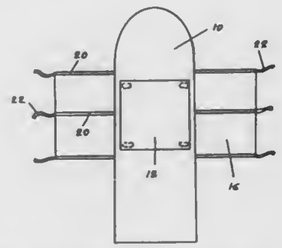
(g) decreasing the pressure being supplied to the sacks in said second group during a third interval of time until said second pressure profile is being provided to said second group;

(h) increasing the pressure being supplied to the sacks in said first group during said third interval of time until said third pressure profile is being provided to said first group; and

(i) maintaining said first group of sacks at said third pressure profile and said second group of sacks at said second pressure profile during a fourth interval of time.

5,062,168
COVER-UP FOR INFANTS

Vera M. Kocib, 1315 Piper Dr., Lake Havasu City, Ariz. 86403
Filed Dec. 21, 1990, Ser. No. 631,999
Int. Cl.[5] A47G *9/00*
U.S. Cl. 5—413 **7 Claims**



1. An infant supporting article comprising:

a) An oblong piece of wrapping material, the dimension of said piece of material being from approximately 100 cm×30 cm to about 150 cm×45 cm, fastening means, attached to both longer sides of said piece of wrapping material, approximately within the middle third of the total length of said piece of material,

said fastening means comprising two supplemental rectangles, approximately 30 cm×35 cm large, of said wrapping material, each said rectangle having one longer edge sewn to one longer edge of said oblong piece of wrapping material, and remaining free longer edges of said rectangles are provided with means for attaching said rectangles together along said edges, the joint width of said rectangles being about one third bigger than the width of said piece of wrapping material, each one of said rectangles being gathered in the middle and along both shorter edges of said rectangles by lengths of expandable ties, said ties being means for attaching one of said rectangles to the other, and a waterproof pad attached to said piece of wrapping material by means allowing easy removal of said pad,

whereby the infant is laid with his/her head towards one narrower end of said piece of material, the free unused portion of said piece of said material being loosely folded over the body of the lying infant and secured in place with said fastening means, thus keeping the infant's body securely covered-up and warm, while allowing for unrestricted movements of the infant's limbs and body.

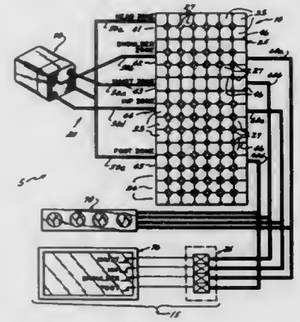
5,062,169
CLINICAL BED

Earl W. Kennedy, Joplin; Robert D. Oexman, and Larry Higgins, both of Carthage, all of Mo., assignors to Leggett & Platt, Incorporated, Carthage, Mo.
Filed Mar. 9, 1990, Ser. No. 491,327
Int. Cl.[5] A47C *27/08*
U.S. Cl. 5—449 **11 Claims**

1. Clinical bed apparatus for use in diagnosing sleep disorders by non-invasively monitoring a person reclining on a bed, which apparatus includes

a bed for supporting a person reclining atop the bed, said bed having at least one isolated fluid-filled zone maintained at a pressure substantially above atmospheric pressure,

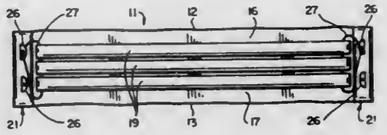
readout and recording means including a readout and recording device, and connecting means extending between said readout and recording device and said fluid-filled zone, said readout and recording means being operative to measure and record movement of a person reclining on



said bed as a result of fluid pressure changes in said fluid-filled zone measured and recorded on a record by said readout and recording device, said record being of a form and sufficiently sensitive to enable sleep disorders to be diagnosed from said record.

5,062,170
WATERBED MATTRESS AND CORNER STRUCTURE WITH TETHERED INSERT

John B. Johenning, Beverly Hills, Calif., assignor to Strata Flotation, Inc., Torrance, Calif.
Continuation-in-part of Ser. No. 490,130, Mar. 6, 1990, abandoned. This application Aug. 17, 1990, Ser. No. 569,096
Int. Cl.[5] A47C *27/08*
U.S. Cl. 5—450 **23 Claims**



1. In a waterbed mattress: walls of film material defining a chamber for holding water, a cornerpiece which is substantially thicker than the film material joined to the film material and forming a corner of the mattress, an insert disposed in the chamber for reducing wave action in the water, and a thether connected between the insert and the cornerpiece to retain the insert in a predetermined position in the chamber.

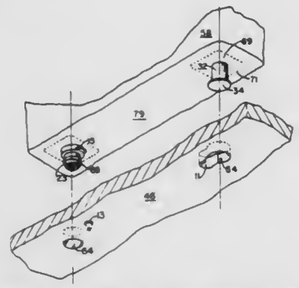
5,062,171
PATIENT SUPPORT AIR BAGS AND RELATED SYSTEM WITH CONNECTORS FOR DETACHABLE MOUNTING OF THE BAGS

John H. Vrzalik, San Antonio, Tex., assignor to Kinetic Concepts, Inc., San Antonio, Tex.
Division of Ser. No. 249,880, Sep. 27, 1988, abandoned, which is a continuation of Ser. No. 905,553, Sep. 9, 1986, abandoned, which is a continuation-in-part of Ser. No. 784,875, Oct. 4, 1985, abandoned, which is a continuation-in-part of Ser. No. 683,153, Dec. 17, 1984, abandoned. This application Mar. 12, 1990, Ser. No. 493,107
Int. Cl.[5] A61G *7/04*
U.S. Cl. 5—455 **7 Claims**

1. An air sac for use in a patient support system, comprising:

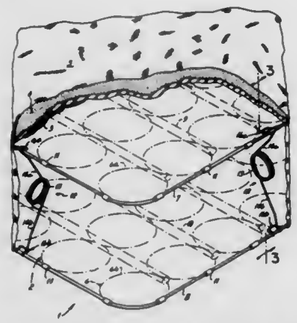
VOL 1132 ISS 1 NO 5 1991 UMI

an inflatable enclosure for mounting transversely on a patient support system to support a portion of a patient;
a nipple secured to a bottom wall of said enclosure, said nipple being provided with a passage therethrough for enabling communicating of air to the interior of said enclosure;



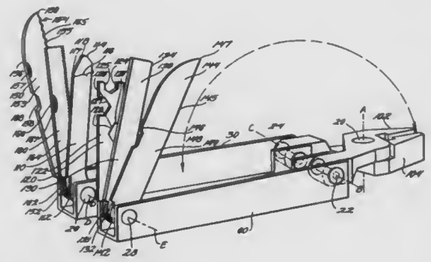
a tab extending radially from said nipple for securing the nipple to an air supply; and
a post secured to the bottom wall of said enclosure in spaced relationship with said nipple, said post having an enlarged end for releasably engaging a keyslot.

5,062,172
BEDDING MATTRESS SPRING ASSEMBLY HAVING BORDER EDGE SUPPORT
Ralph D. Stewart, Carthage, Mo., assignor to Leggett & Platt, Incorporated, Carthage, Mo.
Filed Jul. 30, 1990, Ser. No. 559,356
Int. Cl.[5] A47C *23/00*
U.S. Cl. 5—474 4 Claims



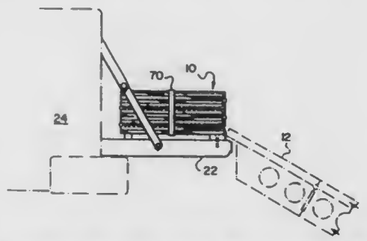
1. A spring assembly for use in a bedding mattress, said spring assembly including lower and upper border wires, each having a substantially rectangular shape with two sides and two ends, said upper and lower border wires being parallel to one another, a plurality of rows of coil springs extending between said sides of said lower and upper border wires, each of said coil springs in said row being vertically oriented so a lowermost coil revolution of each coil spring is coplanar with said lower border wire and an uppermost coil revolution of each coil spring is coplanar with said upper border wire, endmost coil springs of said rows being located adjacent said lower and upper border wires and having the lowermost coil revolution joined to said lower border wire by a sheet metal clip and the uppermost coil revolution joined to said upper border wire by a sheet metal clip, said rows of coil springs having adjacent lowermost and uppermost coil revolutions joined together by a plurality of parallel helical lacing wires, and a plurality of edge support springs mounted between said upper and lower border wires, said edge support springs being secured to said border wires without the use of any sheet metal clips, each of said edge support springs comprising a single strand of wire having two ends and a torsion coil intermediate said ends of said strand of wire, one of said ends of said strand or wire being secured to said upper border wire and the other end of said strand of wire being secured to said lower border wire, each end of said strand of wire having an open U-shaped channel formed therein, said U-shaped channel having two, horizontally oriented, inwardly open, parallel U-shaped sections interconnected by a connecting portion of said single strand of wire, each of said edge support springs being secured to said upper and lower border wires by securement of said upper and lower border wires within said U-shaped channels of said edge support springs.

5,062,173
MULTIFUNCTION TOOL
Michael C. Collins, 3075 Batesville Rd., Woodstock, Ga. 30188, and Walter W. Collins, P.O. Box 100, North, S.C. 29112
Continuation-in-part of Ser. No. 430,781, Nov. 2, 1989, abandoned. This application Jul. 5, 1990, Ser. No. 550,798
Int. Cl.[5] B26B *11/00*
U.S. Cl. 7—118 13 Claims



1. A tool comprising:
a left pliers;
a right pliers;
a first pivot means for pivotally interconnecting said left and said right pliers so that said left pliers and said right pliers can cooperatively hold an object therebetween, said left and said right pliers pivoting about a first axis;
a left handle having a first recess dimensioned to receive said left pliers;
a second pivot means for pivotally attaching said left handle to said right pliers, said right pliers and said left handle pivoting about a second axis perpendicular to said first axis;
a right handle having a second recess dimensioned to receive said right pliers;
a third pivot means for pivotally attaching said right handle to said left pliers, said left pliers and said right handle pivoting about a third axis perpendicular to said first axis and aligned with said second axis so that said left and said right pliers rotate together about said second and said third axes, respectively, from a fully extended position to a fully retracted position whereby said left pliers is received into said first recess of said left handle and said right pliers is received into said second recess of said right handle;
said left and said right pliers openable and closable by separating and bringing together said left and said right handles,
said left and right pliers cooperating to hold said object over a range of positions between said fully extended position and near said fully retracted position; and
latching means for holding said left handle and said right handle together when said left and said right pliers are in said retracted position in said left and right handles, respectively,
said latching means unlocking when said left and said right pliers are rotated to the extended position.

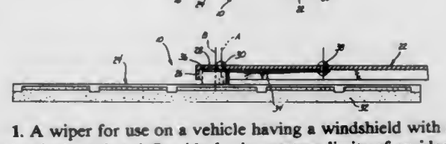
5,062,174
PORTABLE RAMP
Stanley A. DaSalvo, R.R. #1, Lombardy, Ontario, Canada K06 1L0
Filed Aug. 30, 1990, Ser. No. 574,802
Claims priority, application Canada, Aug. 30, 1989, 609,937
Int. Cl.[5] E01D *1/00*
U.S. Cl. 14—69.5 3 Claims



1. A portable lightweight folding ramp consisting essentially of in combination:
(i) a plurality of ramp panels, each having a top surface, a bottom surface, lateral side edges, and longitudinal side edges;
(ii) a plurality of support panels, each of which has longitudinal side edges and lateral side edges;
(iii) first hinge means, foldably connecting together the lateral edges of adjoining ramp panels at adjoining lateral edges, the first hinge means being adapted and constructed such that:
(a) when the ramp is in the open position, the ramp panels are coplanar; and
(b) when the ramp is in the stored position, pairs of top surfaces and bottom surfaces are alternately folded against each other, so that the bottom surface of one panel is parallel to the top surface of the next adjacent panel;
(iv) second hinge means adjacent the ramp panel longitudinal edges foldably connecting longitudinal side edges of at least two support panels to each ramp panel, the second hinge means being adapted and constructed such that:
(a) when the ramp is in the open position, the support panels are co-planar and substantially normal to the ramp panels; and
(b) when the ramp is in the stored position, the support panels are co-planar with the ramp panels, and
(v) third hinge means foldably connecting pairs of lateral edges of the support panels adjacent the ramp panel lateral edges, the third hinge means being adapted and constructed so that when the support panels are folded to be co-planar with the ramp panels, the ramp can be folded into its stored position.

5,062,175
WINDSHIELD WIPER WITH ADJUSTABLE WIPING PRESSURE
Harry C. Buchanan, Spring Valley, and Keith R. Victor, Kettering, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed May 16, 1990, Ser. No. 523,952
Int. Cl.[5] A47L *1/02, 1/00*
U.S. Cl. 15—103 2 Claims

2. In a vehicle having a windshield, a windshield wiper with adjustable wiping pressure, comprising,
a wiper drive shaft,
a base fixed to said wiper drive shaft above said windshield,
a wiper arm pivoted to said base so as to pivot toward and away from said windshield about a main pivot axis,
a wiper blade mounted to said wiper arm so as to engage said windshield with a wiping pressure dependent upon the torque on said wiper arm as measured about said main pivot axis,
a lever pivoted to said base so as to pivot up or down about a secondary pivot axis located below said main pivot axis,
a tension spring having one end fixed to said wiper arm and another end fixed to said lever, so that, when said lever is held in a stable position relative to said base, said spring pulls said wiper arm down about said main pivot axis toward said windshield with a moment arm,



a mechanical actuator movably mounted to said base and adapted to pivot said lever up or down about said secondary axis as said actuator is moved relative to said base between a pair of stable limit positions where the spring line of force is located above and below said secondary axis respectively, thereby establishing lesser and greater moment arms relative to said main pivot axis corresponding to lesser and greater torques on said wiper arm about said main pivot axis, and,
thermally responsive shape memory means adapted, when selectively heated, to move said mechanical actuator far enough to move said lever between said limit positions,
whereby, greater or lesser wiping pressures may be applied to said wiper blade by selectively heating said thermally responsive shape memory means.

5,062,176
WIPER WITH SELF COMPENSATING BLADE PARK POSITION
Ralph J. Unterborn; Michael J. McClain, both of Dayton, and Mark M. Benner, Xenia, all of Ohio, assignors to General Motors Corporation, Detroit, Mich.
Filed Apr. 11, 1991, Ser. No. 683,906
Int. Cl.[5] B60S *1/44, 1/40*
U.S. Cl. 15—250.23 2 Claims

1. A wiper for use on a vehicle having a windshield with a pair of edges that define ideal wipe pattern limits of an ideal wipe pattern in which one of two normal wipe pattern limits, in a normal wipe pattern located within said ideal wipe pattern, is not substantially parallel to one of the windshield edges, said

VOL 1132 ISS 1 NO 5 1991 UMI

vehicle also having a park mechanism adapted to move said wiper forcefully to a park position beyond said one normal wipe pattern limit, said wiper comprising,

an elongated wiper arm, pivoted at one end to a wiper post, adapted to be oscillated over said windshield through said normal wipe pattern,

a wiper blade and support pivoted to said wiper arm so as to rotate relative thereto about a main axis and to wipe said windshield when maintained in a fixed angular relationship to said wiper arm, and,

an elongated buckling member having an outer end rotatably joined to said blade support about a secondary axis located outwardly, with respect to said wiper post, of said main axis, so that rotation of said wiper blade support about said main axis causes said secondary axis to swing about said main axis, said buckling member also having an inner end fixed to said wiper arm inwardly, with respect to said wiper post, of said main axis so as to maintain said wiper arm and blade support in said fixed angular relationship when said buckling member is in a flat, unstressed condition, and,

a stop member engageable with said wiper blade support when said wiper is moved to said park position so as to apply a torque to said wiper blade support about said main axis sufficient to swing said secondary axis about said main axis and move said buckling member outer and inner ends together to buckle said buckling member out of its flat condition,

whereby, when said wiper arm is moved to said park position, said blade support can rotate out of said fixed angular relationship and move substantially parallel to said one windshield edge, said buckling member returning to its unstressed condition as said wiper arm is again moved away from park position, thereby rotating said wiper blade support back to its fixed angular position.

5,062,177

BRUSH HEAD FOR DEBURRING AND BRUSHING MACHINES

Reinhard Huhmann, Gummersbach, Fed. Rep. of Germany, assignor to RSA Entgrat-Technik Rainer Schmidt, Fed. Rep. of Germany

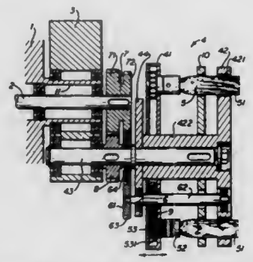
PCT No. PCT/DE88/00325, § 371 Date Feb. 16, 1990, § 102(e) Date Feb. 16, 1990, PCT Pub. No. WO89/00480, PCT Pub. Date Jan. 26, 1989

PCT Filed Jun. 3, 1988, Ser. No. 459,772

Claims priority, application Fed. Rep. of Germany, Jul. 17, 1987, 3723602

Int. Cl.[5] A47L *15/00*

U.S. Cl. 15—88.2 **7 Claims**



1. Brush head (4) for deburring and brushing machines, comprising:

a base plate (41) rotatingly connected to a working shaft (43),

several fingerlike brushes (5) held in said base plate (41), said brushes (5) being arranged parallel to said working shaft (43) and on a circle concentric to said working shaft (43);

means driving said base plate (41) by a planetary gearing (7,8) for autorotation about said working shaft (43), and for a planetary motion on a circular orbit around a drive shaft (2) of the machine;

each fingerlike brush (5) being rotatably associated with said base plate (41); and

means driving the fingerlike brushes with a rotational speed whose maximum ratio relative to the speed of autorotation of said base plate (41) is about 1:50.

5,062,178

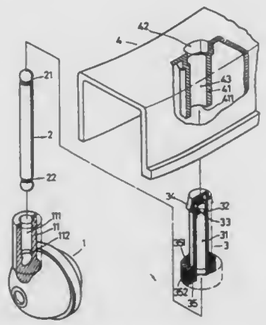
WHEEL UNIT FOR A SLIDABLE INFANT CHAIR

Hsiu-Hui Chiu, Tainan Hsien, Taiwan, assignor to Sunshou Molding Co., Ltd., Tainan Hsien, Taiwan

Filed Dec. 11, 1990, Ser. No. 625,468

Int. Cl.[5] B60B *33/00*

U.S. Cl. 16—38 **2 Claims**



1. A wheel unit for coupling a wheel to a frame of a displaceable infant chair comprising:

(a) a vertically extending rod cap member having a vertically directed outer side wall defining a closed upper end section having a pair of opposingly located U-shaped elastic fragment elements biased outwardly from said rod cap member outer side wall, said rod cap member further defining an open lower end section having a flanged annular member secured to said rod cap member side wall at a lower end thereof, said flanged annular member having a serrated side wall and a serrated upper surface;

(b) a vertically directed fixing sleeve member having a through opening, said fixing sleeve member secured to said frame of said infant chair at an upper end and having a lower end including a lower sleeve serrated surface for mating engagement with said serrated surface of said flanged annular member when said rod cap member is inserted within said sleeve member through opening, said U-shaped fragment elements being (1) radially compressed in sliding contact with an inner wall of said fixing sleeve member when said rod cap member is inserted within said through opening of said fixing sleeve member and (2) expanded beyond a diameter of said fixing sleeve member through opening when said upper end section of said rod cap member has passed through said fixing sleeve through opening for releaseably coupling said rod cap member to said fixing sleeve; and,

(c) a vertically extending rod member releaseably insertable within said rod cap member and a rod supporter member secured to said wheel for releaseably coupling said wheel to said rod cap member, said fixing sleeve and said frame of said infant chair, said rod member having upper and lower grooves for respectively mating with flange ring members formed within said rod cap member and said rod supporter member.

5,062,179

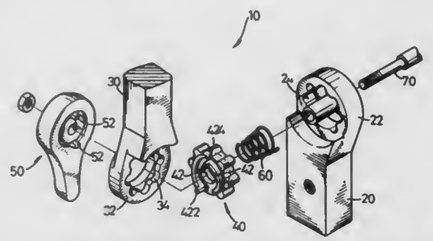
HANDLE ASSEMBLY FOR DOLL CARRIAGES

Ming-Tai Huang, 4Fl., No. 302, Pai Ling Wu Rd., Taipei, Taiwan

Filed Mar. 11, 1991, Ser. No. 667,272

Int. Cl.[5] F16C *11/00*; E05D *11/10*

U.S. Cl. 16—111 R **4 Claims**



1. In a handle assembly for a doll carriage of the type comprising a pair of support rods each having a first pivot head defining a cog seat; a substantially U-shaped handle having a pair of second pivot heads each defining a second cog seat; a spring-biased cog member disposed between the first and second cog seats, the cog member being constantly biased by a spring to assume an engaged position where the U-shaped handle is prevented from a pivotal movement with respect to the support rods, and being urgeable to assume a released position where the U-shaped handle is pivotal with respect to the support rods; and an adjusting piece operable to move the cog member from the engaged position to the released position, the improvement comprising:

said cog member having a pair of annular wedges diametrically spaced from each other; and

said adjusting piece having a pair of ridges on a side opposite to said cog member, each said ridge being constantly in contact with a corresponding annular wedge so that said ridges track along a respective slanted surface of said annular wedges in response to a rotational movement of said adjusting piece, thereby urging said cog member from the engaged position to the released position while simultaneously preventing said spring-biased cog member from assuming the engaged position.

5,062,180

MOUNTING PLATE FOR CABINET HINGES

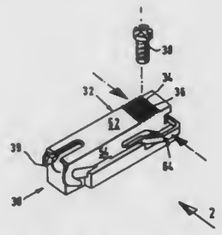
Karl Lautenschläger, Jr., Reinheim, Fed. Rep. of Germany, assignor to Karl Lautenschläger GmbH & Co. KG, Reinheim, Fed. Rep. of Germany

Filed Jun. 20, 1990, Ser. No. 541,255

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1989, 8907480[U]

Int. Cl.[5] E05D *7/04, 7/12*

U.S. Cl. 16—257 **18 Claims**



1. Mounting plate for the adjustable mounting of the supporting wall-related part of a cabinet hinge, which is composed of two separable mounting plate members, of which the bottom mounting plate member nearer the supporting wall can be fastened fixedly to the supporting wall and the upper mounting plate member, which is farther from the supporting wall and adjustably holds the carcase-related member of the cabinet hinge, can be fastened by a resilient catch mechanism to the bottom mounting plate member, the bottom mounting plate member having in its front end portion adjacent the door leaf at least one hook projection with which a hook on the bottom of the upper mounting plate member is associated, and the associated engagement surfaces of the hook projection and hook being configured in a complementary manner and being approximately arcuate at least in sections, and the upper mounting plate member partially overlapping the bottom mounting plate member at least in its end portion pointing into the carcase interior and being provided in the overlapping portion with two tongues which are resiliently flexible parallel to the supporting wall surface and have each a catch section, which catch sections are interlocked each with an associated catch receiver, and the catch sections and the catch receivers being able nevertheless to be brought out of engagement by flexing the tongues against one another parallel to the supporting wall surface, and each tongue having a finger grip that is accessible when the two mounting plate members are in the coupled state for the exertion of a pressure directed against one another parallel to the supporting wall surface, characterized in that the catch sections (74, 174, 274) provided on the resiliently flexible tongues (64, 164, 264) and the associated catch receivers run at an angle between 30° to 60° with respect to the longitudinal central axis of the mounting plate (30).

5,062,181

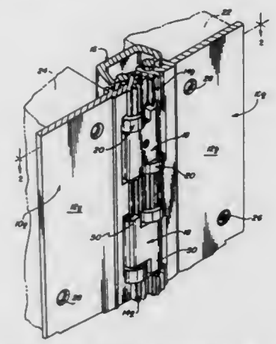
CONTINUOUS HINGE WITH IMPROVED BEARING DESIGN

Louis G. Bobrowski, Berlin, and Richard H. Kon, Avon, both of Conn., assignors to The Stanley Works, New Britain, Conn.

Filed Feb. 12, 1991, Ser. No. 654,735

Int. Cl.[5] E05D *1/00*

U.S. Cl. 16—354 **24 Claims**



1. An extruded hinge with a multiplicity of bearing assemblies spaced along its length an comprising:

(a) a pair of abutting hinge leaves each having a mounting portion and a pivot portion extending along the abutting edge, said pivot portions having convexly arcuate surfaces with intermeshing gear teeth extending along the length thereof and channels in their opposite surfaces, said hinge leaves having a multiplicity of pairs of opposed cooperating cutouts extending through said pivot portions into said mounting portions, the cutouts of each pair being axially offset to provide a center portion in which the cutouts are aligned and recesses at the axial ends thereof in opposite hinge leaves;

(b) an elongated lateral bearing member of generally C-shaped cross section providing an axially extending cavity

VOL 1132 ISS 1 NO 5 1991 UMI

therewithin and opposed flanges at its free ends, said cavity receiving said pivot portions and said flanges extending into said channels of said pivot portions to lock said hinge leaves with their pivot portions in intermeshing engagement, said hinge leaves being pivotable relative to each other about their abutting geared surfaces within said cavity of said lateral bearing member;

(c) a bearing block in each of said cutouts of said hinge leaves and within said cavity, said block having an axially extending body portion seated in the aligned center portion of said cutouts and of lesser length than said center portion, said block also having axially projecting portions at each end disposed within said recesses defined by said cutouts, said block having channels along its sides in which are seated said flanges of said elongated lateral bearing member; and

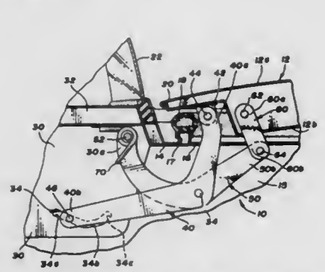
(d) bearing caps at the ends of said bearing block disposed within said cavity between the ends of the body portion thereof and the adjacent pivot portions of said leaves, said bearing caps being engaged with their respective pivot portions and pivotable therewith, said caps extending beyond the teeth of the pivot portion upon which secured and beyond the teeth of the opposed pivot portion.

5,062,182

THREE LINK, SIX POINT HINGE ASSEMBLY FOR DECK LID

Guy G. V. Griffiths, Cheylesmore Coventry, England; James Bolsworth, Sterling Heights, and John M. Appleby, Warren, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jan. 16, 1990, Ser. No. 465,867
Int. Cl.[5] E05D *15/00*
U.S. Cl. 16—368 **7 Claims**



1. In an automotive vehicle having rear body structure whose upper periphery defines an access opening to a trunk compartment,

a compressible elastomeric seal means carried by said upper periphery of said body structure,

a deck lid for said access opening,

and a pair of laterally spaced hinge assemblies connected with said deck lid adjacent its front end and pivotally connected with said rear body structure adjacent said front end of said deck lid,

said hinge assemblies swingably supporting said deck lid for movement between an open position to afford access to said compartment and a closed position in which said deck lid compresses said seal means and closes off access to said compartment, the improvement being that said hinge assemblies each comprise a linkage means including a three link, six pivot linkage arrangement operatively pivotally connected to said deck lid and operatively both pivotally and slidably connected to said body structure, said linkage arrangement comprising a first link having one end pivotally connected via a first pivot means to said deck lid adjacent its front end and its other end pivotally and slidably connected by a second pivot means to a support member on said body structure located adjacent the front end of said deck lid,

said support member on said body structure having a non-linear slot extending longitudinally of said vehicle and whose intermediate portion is lower than its first and second opposite ends, as viewed in side elevation, said second pivot means being pivotally and slidably received in said slot,

a second link pivotally connected intermediate its ends to said first link at a location intermediate the opposite ends of said first link via a third pivot means,

said second link at one end being pivotally connected via a fourth pivot means to said support member,

a third link having one end pivotally connected via a fifth pivot means to said deck lid at a location spaced further rearwardly than said first pivot means and its other end pivotally connected via a sixth pivot means to the second link at its end remote from said fourth pivot means,

said second pivot means being located adjacent said first end of said slot when said deck lid is in its closed position,

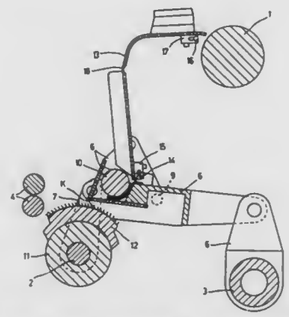
said linkage arrangement and said slot in said support having a configuration such that, when the deck lid is being initially moved from its closed position toward an open position, the deck lid is caused to be rapidly moved vertically upward from said seal means with only a very little pivotal movement until the front end of the deck lid clears said seal means whereby the exertion of transverse forces against said seal means due to any wiping action of said deck lid as it is being initially moved to its open position is minimized.

5,062,183

LAP FEED PLATE CONNECTED TO OSCILLATING NIPPERS IN A COMBING MACHINE

Gian-Carlo Mondini, and Walter Ackeret, both of Winterthur, Switzerland, assignors to Rieter Machine Works Limited, Winterthur, Switzerland

Filed Jul. 11, 1990, Ser. No. 550,998
Claims priority, application Switzerland, Jul. 20, 1989, 2711/89
The portion of the term of this patent subsequent to May 29, 2007, has been disclaimed.
Int. Cl.[5] D01G *19/16*
U.S. Cl. 19—225 **13 Claims**



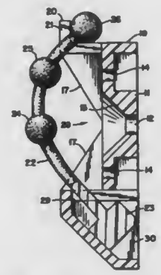
1. A lap feed plate connected to oscillating nippers in a combing machine having a frame, and effective to guide the lap to be combed which is fed to a feed roller mounted in the nippers, wherein said lap feed plate includes a single sheet of plastic and has a first edge connected to the oscillating nippers and a second edge connected to an element secured to said frame and disposed near a lap roller of the combing machine, and wherein said lap feed plate has a reduced thickness between said two edges in at least one linear bend zone which extends substantially parallel to said edges and over the entire width of the plate, said reduced thickness allowing said nippers to oscillate at a high combing cycle rate.

5,062,184

CLIP FOR HOLDING ELONGATED DEVICES

David E. Rowland, San Diego, Calif., assignor to Janice L. Rowland, Imperial Beach, Calif.

Continuation-in-part of Ser. No. 363,609, Jun. 8, 1989, and Ser. No. 375,664, Jul. 8, 1989, each is a continuation-in-part of Ser. No. 176,670, Apr. 1, 1988, abandoned. This application Aug. 31, 1990, Ser. No. 575,867
Int. Cl.[5] B65D *63/00*
U.S. Cl. 24—16 PB **10 Claims**



1. A clip for holding elongated devices, comprising:

a base,

a first and second projections each of which projects outward from and transversely to said base,

both of said projections extending away from said wall in the same general direction,

each of said projections defining a cavity through which said elongated device may pass,

said projections being spaced from each other to thereby provide a space between said cavities,

said cavities being in general alignment with each other so that the elongated device may be positioned to extend through both cavities as well as the space between said cavities, and

means for firmly holding an elongated device that extends through and between said cavities comprising an elastic stretchable elongated member that extends transverse to an elongated device located in and between said cavities and which presses against the elongated device to hold it in place,

said elastic stretchable elongated member having at least two enlargements that are spaced from each other, one of which enlargements is positioned adjacent one side of an elongated device that extends through and between said cavities and the other of which enlargements is positioned adjacent the other side of the elongated device that extends through and between said cavities,

said means including connecting means on said base for connecting one of said enlargements of said elongated member to said base and for removably connecting the other of said enlargements of said elougated member to said base.

5,062,185

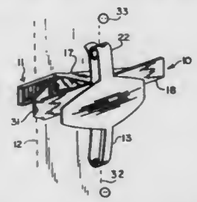
CONCEALED TIE CLASP

Roy T. Howard, 973 Acacia Ave., Sacramento, Calif. 95815

Filed Nov. 29, 1990, Ser. No. 619,598
Int. Cl.[5] A41D *25/04*
U.S. Cl. 24—49 CC **4 Claims**

1. A device for securing to the vertical buttonhole edge of a shirt the front and rear pendant panels of a four-in-hand necktie wherein the rear surface of said front panel has a horizontally disposed designer label loop, said device comprising:

a) clip means for engaging said button hole edge and comprised of a horizontally elongated lever having interior and outer surfaces, a horizontally elongated base member having interior and outer surfaces and a retaining elbow, pivot means which interengage said lever and base member, and a spring associated with said pivot means and serving to urge said lever and base member together so



that said interior surfaces are in facing and abutting juxtaposition, and

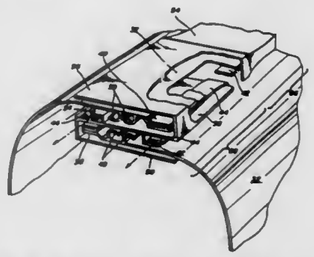
b) an elongated constraining loop for engaging said label loop, disposed upon the outer surface of said base member, having an opening therein, and centered upon a vertical axis orthogonal to said base member and laterally spaced about ¼ inch from said retaining elbow.

5,062,186

QUICK-SEALING DESIGN FOR RADIOLOGICAL CONTAINMENT

Donald S. Rampolla, Pittsburgh, and Elmer Speer, Ruffsdale, both of Pa., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Continuation of Ser. No. 118,084, Nov. 9, 1987, Pat. No. 4,914,793. This application Jan. 23, 1990, Ser. No. 469,652
The portion of the term of this patent subsequent to Apr. 10, 2007, has been disclaimed.
Int. Cl.[5] A44B *19/32*
U.S. Cl. 24—389 **4 Claims**



1. A sealing assembly suitable for joining two elongated edges of flexible sheet material to form a hermetic barrier in the plane of said flexible sheet material, comprising:

an elongated slide zipper type mechanical fastener having elongated edges and opposing engaging members affixed at a predetermined distance from each of said elongated edges, the respective elongated edges overlapping upon engagement of said mechanical fastener to form first and second flaps;

a first adhesive layer formed along the elongated edge of said first flap;

a second adhesive layer formed along the elongated edge of said second flap;

a slide zipper having an inverted block "S" cross-sectional configuration including an upper plate, a center plate running along a portion of the slide terminating in a back edge which is configured to permit peel-off strips to slide smoothly over said back edge, and a lower plate, and a

VOL 1132 ISS 1 NO 5 1991 UMI

longitudinal configuration having a head portion and a tail portion, the head portion being sufficiently wide to accommodate said adhesive layers and the upper and lower plates extending past the center plate and necking down to form the tail portion of the slide; and

peel-off strip means formed over each of said first and second adhesive layers prior to the formation of said barrier such that the slide zipper does not contact the adhesive layers;

whereby said mechanical fastener and said first and second flaps combine along the adhesive layers thereof with opposite sides of said center plate to form said hermetic seal.

5,062,187

INTERNAL CUTTING HEAD FOR DRIFTING PIPE

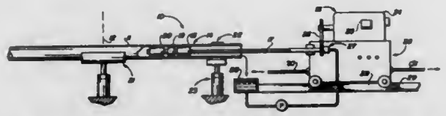
Scott Bromley, Lovington, N. Mex., assignor to Scott Tech International, Inc., Lovington, N. Mex.

Continuation-in-part of Ser. No. 413,540, Sep. 27, 1989, Pat. No. 4,954,023. This application Aug. 30, 1990, Ser. No. 575,263

The portion of the term of this patent subsequent to Sep. 4, 2007, has been disclaimed.

Int. Cl.[5] B23B *47/00*

U.S. Cl. 29—33 T **38 Claims**



1. Method of removing irregularities from the inside of a pipe section, comprising the steps of:

mounting a cutter device on a mandrel; connecting one end of said mandrel to a rotatable shaft which can be moved axially along the interior of the pipe section;

mounting a first and second alignment device on said mandrel in spaced relationship respective to one another; connecting said cutter device to be rotated by said mandrel; mounting the cutter device between the alignment devices;

rotatably mounting each said alignment device in journaled relationship respective to said mandrel, forming radially active pistons which are reciprocatingly received within a piston receiving chamber in said alignment device; connecting said piston receiving chambers to a common source of pressure to concurrently extend the pistons of an alignment device into contact with the inner wall of the pipe section to engage the inner pipe wall with said pistons and thereby resist rotation of said alignment device while permitting said cutter device to be moved axially within the pipe section;

rotating the shaft while moving the shaft axially through the pipe section to cut the inner wall surface along the length of a pipe section with the cutter device and thereby provide the pipe section with a minimum inside diameter.

5,062,188

TRANSFER APPARATUS FOR MOVING PALLETS USING HYDRAULIC LIFT

Joel W. Jones, and John Eldracher, both of Windsor, Canada, assignors to Tri-Way Machine Ltd., Windsor, Canada

Filed Jan. 14, 1991, Ser. No. 640,829

Int. Cl.[5] B23Q *7/00*; B65G *47/00*

U.S. Cl. 29—33 P **24 Claims**

1. For use with an automated machine tool assembly in which a plurality of work stations are interconnected by slide rails on which can slide a pallet to which a workpiece is affixed, and at least one transfer bar with means for engaging the pallet and sliding the pallet the slide rails longitudinally thereof, a hydraulic lift and monitoring system which comprises:

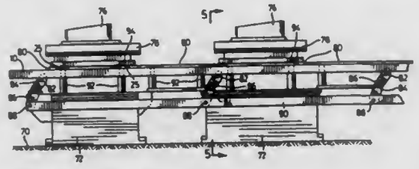
a plurality of hydraulic cylinders provided as part of said transfer bar,

in each cylinder a plunger of which a portion extends above the top of the transfer bar and is adapted to contact a pallet,

a first source of fluid under pressure,

conduit means ducting fluid from said first source to all said cylinders, said fluid acting to urge the plungers upwardly,

a second source of fluid under pressure,



pressure detecting means,

passageway means linking said second source through all said cylinders in series and finally to said pressure detecting means in such a way that, when all the plungers are at or above a predetermined vertical position, pressurized fluid from said second source is available at the pressure detecting means, and when one or more plungers fail to reach said predetermined vertical position, pressurized fluid from said second source fails to reach said pressure detecting means.

5,062,189

DEVICE FOR PROFILING AN ELECTRODE ROLLER

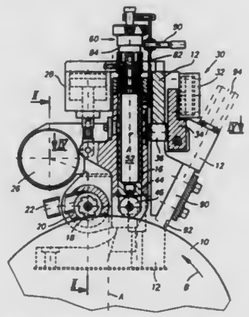
Hans Aebersold, Birmensdorf, Switzerland, assignor to Elpatronic AG, Zug, Switzerland

Filed Mar. 12, 1991, Ser. No. 668,076

Claims priority, application Switzerland, May 2, 1990, 01484/90

Int. Cl.[5] B23P *6/00*; B23C *3/12*

U.S. Cl. 29—33 R **6 Claims**



1. A device for profiling an electrode roller, with

a tool slide which can be moved approximately radially backwards and forwards in relation to the electrode roller by means of a feed drive, and

at least one profiling tool which is mounted on the tool slide, characterized by

a feeler slide which carries a feeler which can move parallel to the tool and is biassed towards the electrode roller,

an adjustable limit stop which limits the relative movement of the tool slide in relation to the feeler slide, and which thus limits the depth of feed of the profiling tool into the electrode roller, and

a clamping device with which the tool slide can be stopped as soon as the preset depth of feed of the profiling tool has been reached.

5,062,190

PALLET CHANGER

Koichiro Kitamura, Takaoka, Japan, assignor to Kitamura Machinery Co., Ltd., Toyama, Japan

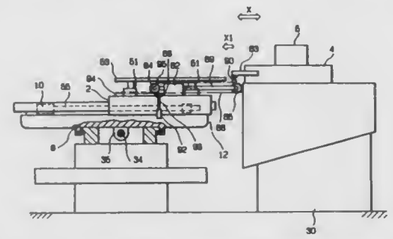
Continuation of Ser. No. 434,674, Oct. 27, 1989, Pat. No. 4,996,754. This application Oct. 2, 1990, Ser. No. 591,827

Claims priority, application Japan, May 7, 1987, 62-109837

The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.

Int. Cl.[5] B23Q *7/00*; B65G *47/00*

U.S. Cl. 29—33 P **10 Claims**



1. A pallet changer for a machine tool which employs pallets for supporting workpieces, said pallet changer comprising:

(A) a support;

(B) a table for mounting at least one of said pallets such that a pallet mounted on said table is movable along said table, said table being supported by the support and movable along a first axis;

(C) pallet holding means for holding at least one of said pallets, said pallet holding means being positioned near the support so that pallets are transferrable between said pallet holding means and said table;

(D) driving means for moving the table between the machine tool and the pallet holding means along said first axis;

(E) transfer means for moving a pallet movably mounted on the table in a first direction along the first axis or a second direction along the first axis opposite to said first direction by means of a driving force of said driving means as the table moves in the first direction or the second direction, said transfer means comprising:

(i) a guide body fixed to the table;

(ii) a slide body slidable along said first axis and supported by the guide body;

(iii) a first sprocket positioned on a first portion of the slide body and a second sprocket positioned on a second portion of the slide body;

(iv) a chain arranged between the first sprocket and the second sprocket; and

(v) first engagement means for detachably engaging the chain and the pallet movably mounted on the table; and

(F) chain moving means for moving the chain whereby the slide body slides relative to the table in said first direction or said second direction and the pallet movably mounted on the table slides in said first direction or said second direction as the table moves in said first direction or said second direction, said chain moving means comprising a pinion connected to the slide body, a rack for engagement of the pinion fixed to the table, and second engagement means for engaging the chain as one of said pallets is transferred between the table and the pallet holding means;

wherein said transfer means moves the pallet movably mounted on the table in the first or second directions only from the driving force of said drive means.

5,062,191

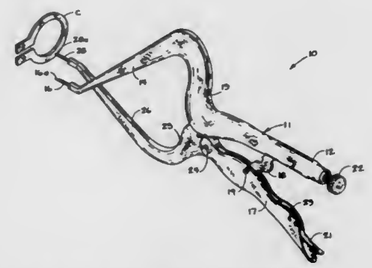
LOCKING RING TOOL

Luther J. Carr, P. O. Box 51, Road 1002, Hessel, N.C. 27841

Filed Oct. 9, 1990, Ser. No. 594,419

Int. Cl.[5] B23P *19/04*

U.S. Cl. 29—229 **1 Claim**



1. A locking ring tool comprising, in combination,

a fixed leg, including a first leg portion, with a second leg portion orthogonally mounted at a forward end of the first leg portion, with a third leg portion integrally mounted at a first acute included angle between the second leg portion and the third leg portion, and

a first support pin mounted at a forward terminal end of the first leg portion, and

a first pivot leg pivotally mounted to a second pivoted leg, with the second pivot leg mounted to the fixed leg, and

the second pivot leg including a projecting leg defining a second acute included angle between the projecting leg and the second pivot leg, and

a second support pin fixedly mounted to a forward terminal end of the projecting leg, with the second support pin positioned coextensive, contiguous, and parallel with the first support pin in a first position, and spaced from the first support pin in a second position, and

wherein the second pivot leg is pivotally mounted to the fixed leg at a junction defined by the first leg portion and the second leg portion, and

wherein the first support pin is arranged parallel to the first leg portion, and

wherein the second pivot leg is aligned with the second leg portion in a first position, with the second pivot leg defining a further acute angle between the second leg portion and the second pivoted leg in the second position, and

wherein the first pivot leg includes an adjusting link, with the adjusting link including an adjusting link pivot pivotally mounting the adjusting link rearwardly of the second pivot leg, and the adjusting link including an arcuate rear terminal end spaced from the first pivot leg cooperatively positioned within the first leg portion to cooperate with a forward terminal end of an adjusting screw threadedly mounted within a terminal end of the first leg position.

5,062,192

CABLE STRIPPING TOOL

Alan G. Sawyer, 6346 Beulah Church Rd., Liberty, N.C. 27298; Dale L. Hughes, 1505 McCuiston Dr., Burlington, N.C. 27215, and Edwyn H. Petree, Burlington, N.C., assignors to Alan G. Sawyer, Liberty and Dale L. Hughes, Burlington, both of, N.C.

Division of Ser. No. 399,744, Aug. 28, 1989, Pat. No. 5,009,006.

This application Feb. 1, 1991, Ser. No. 649,671

Int. Cl.[5] H02G *1/12*

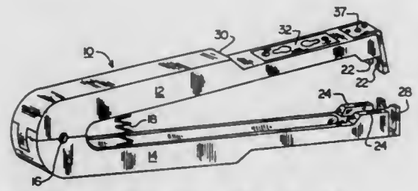
U.S. Cl. 29—426.4 **3 Claims**

1. A method for stripping insulation or sheathing from a cable having at least one conductor, comprising the step of, seriatim:

(a) moving a pair of opposed, substantially rigidly mounted cutting blades in a tangential path with respect to the

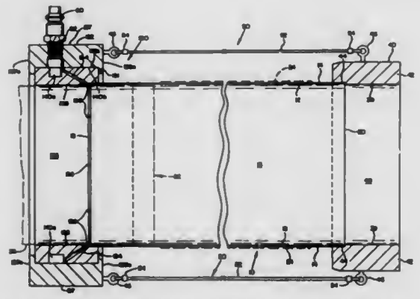
VOL 1132 ISS 1 NO 5 1991 UMI

cable, said blades being mounted at a predetermined distance with respect to one another;
(b) contacting opposite sides of the cable;
(c) continuing through at least a portion thereof of the insulation or sheathing, thereby scoring the insulation or sheathing on opposite sides;



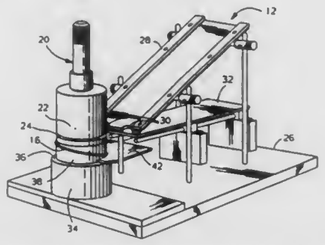
(d) passing the cutting blades clear of the cable;
(e) making longitudinal cuts in the insulation or sheathing of the cable; and
(f) removing the insulation or sheathing from the cable.

5,062,193
METHOD FOR MOUNTING AND DISMOUNTING RIGID SLEEVES ONTO AND FROM A CYLINDER
William L. Thompson, Vancouver, Wash., assignor to International Composites Corporation, Vancouver, Wash.
Continuation-in-part of Ser. No. 293,131, Jan. 3, 1989, Pat. No. 4,979,278. This application Jan. 3, 1990, Ser. No. 460,362
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—426.6 **6 Claims**



1. A method for axially dismounting a rigid sleeve from a cylinder, said sleeve having a longitudinal dimension which is less than or equal to the longitudinal dimension of said cylinder, which comprises:
providing said sleeve and said cylinder, said sleeve having a first and a second end and being mounted onto said cylinder;
providing an external source of expansion fluid comprising two semicircular sections which are attachable and detachable from each other for facilitating engagement and disengagement of said external source of expansion fluid with said sleeve, said external source of fluid including a channel for introducing expansion fluid to the interior of said sleeve for expanding the diameter of said sleeve;
detaching said semicircular sections in preparation for installation of the same about said sleeve and cylinder;
attaching said semicircular sections together, with said sleeve contained therewithin, such that said channel is aligned with said sleeve and said cylinder to ensure that said expansion fluid will be introduced between said sleeve and said cylinder;
expanding the diameter of said sleeve by introducing said expansion fluid, from said external source of fluid to the interior of said sleeve; and
moving said sleeve axially from about said cylinder.

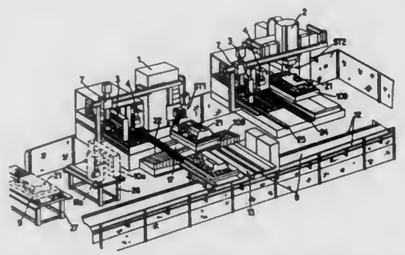
5,062,194
METHOD FOR INSTALLING O-RING SEALS
Joseph F. Mercurio, Birmingham, and Salvador Cantio, Troy, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 13, 1990, Ser. No. 612,155
Int. Cl.[5] B23P *19/02*
U.S. Cl. 29—451 **1 Claim**



1. A method of installing an elastic O-ring seal in a retention groove cut into a cylindrical outer surface of a part, said part outer surface having a predetermined diameter, said O-ring seal having a free state diameter less than said predetermined diameter comprising the steps of,
providing a cylindrical mandrel having a circular end face with a diameter substantially equal to said predetermined part outer surface diameter,
mounting said mandrel for close fitting axial sliding within a guide cylinder having an annular end edge such that said mandrel is axially movable from a loading position with its end face above said guide cylinder end edge to a release position below said end edge,
providing a feed ramp to feed said O-rings one at a time into a loading orientation adjacent to said mandrel end face and in which the plane of said O-ring is tilted away from and intersected by the plane of said mandrel end face,
providing a loading slide beneath the end of said feed ramp adapted to extend out past the end of said feed ramp and closely over said mandrel end face,
feeding an O-ring into said loading orientation when said mandrel is in said loading position,
extending said loading slide, thereby stretching said O-ring over said mandrel and below said end face,
abutting said part with said mandrel end face in its loading position with said part outer surface and mandrel end face concentric, and,
moving said mandrel to its release position while maintaining said part abutted with said end face,
thereby pushing said stretched O-ring off of said mandrel with said guide cylinder end edge and onto said part outer surface until said O-ring contracts into said retention groove.

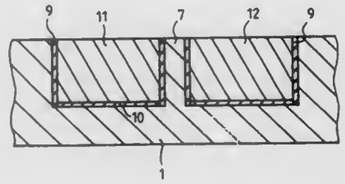
5,062,195
MACHINING CENTER
Rolf Binder, Möchengladbach, Fed. Rep. of Germany, assignor to Werner und Kolb Werkzeugmaschinen GmbH, Berlin, Fed. Rep. of Germany
Filed Aug. 1, 1990, Ser. No. 560,610
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1989, 3925568
Int. Cl.[5] B23Q *3/155, 7/00*
U.S. Cl. 29—568 **16 Claims**
1. A machining center, particularly for removal of material

from five sides of medium-sized and large workpieces, comprising a plurality of machines each having a material removing station with at least one tool spindle, at least one first mobile magazine for material removing tools and at least one



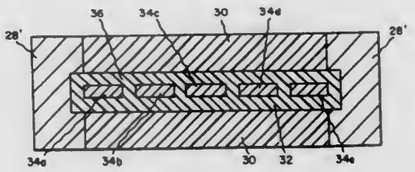
second mobile magazine for tool adapters; at least one manipulator operable to shuttle tools and adapters between said magazines and the tool spindles at the respective stations; and a common multiple-function transporting unit for workpieces and said magazines.

5,062,196
METHOD OF MANUFACTURING THE POLE PIECES AND THE GAP OF MAGNETIC HEADS IN THIN LAYERS
Patrice Deroux-Dauphin, Saint Egreve, France, assignor to Compagnie Europeenne de Composants Electroniques LCC, Courbevoie, France
Filed Aug. 27, 1990, Ser. No. 572,553
Claims priority, application France, Sep. 12, 1989, 89 11892
Int. Cl.[5] G11B *5/42*
U.S. Cl. 29—603 **2 Claims**



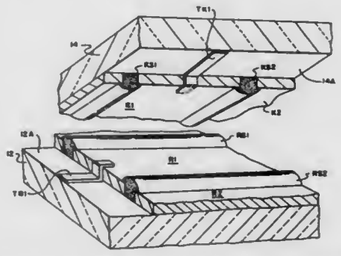
1. A method of manufacturing the pole pieces and the gap of magnetic heads in thin layers, starting from a silicon substrate, said method comprising the following steps:
a) forming an insulating layer on a silicon substrate;
b) depositing a metal layer on the insulating layer;
c) depositing a masking resin layer on the metal layer;
d) etching the substrate covered with the insulating layer and the metal layer to form wells bordering a bar of a determined width;
e) removing the left-over portion of the metal layer etched in the previous step;
f) thermo-oxidizing the etched substrate to develop a silicon oxide layer enabling the bar to be adjusted to obtain the desired gap;
g) selectively etching the oxide layer developed in the previous step in order to remove the parts of this layer that are located at the bottom of the wells;
h) depositing a conductive layer at the bottom of the wells;
i) electrolytically depositing a magnetic material in the wells; and
j) removing the left-over portion of the insulating layer initially deposited on the substrate.

5,062,197
DUAL-PERMEABILITY CORE STRUCTURE FOR USE IN HIGH-FREQUENCY MAGNETIC COMPONENTS
Richard J. Charles, Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 290,078, Dec. 27, 1988, Pat. No. 4,943,793. This application May 7, 1990, Ser. No. 519,997
Int. Cl.[5] H01F *41/02*
U.S. Cl. 29—606 **20 Claims**



1. A method of manufacturing a high-frequency magnetic circuit component, for use as an inductor or a transformer, having a closed-loop, dual-permeability magnetic pot core including therein a winding window which contains a plurality of planar conductors, comprising the steps of:
(a) machining a high-permeability ferrite to form a substantially cylindrical housing comprising an substantially cylindrical peripheral wall and a substantially cylindrical core post located in the interior of said cylindrical housing, said core post being concentric with said cylindrical wall;
(b) providing a temporary base for rigidly mounting said housing thereon;
(c) applying a first low-permeability layer above and adjacent to said temporary base;
(d) inserting at least one conductive winding into said housing, said winding lying above and adjacent to said first low-permeability layer;
(e) applying a second low-permeability layer above and adjacent to said winding; and
(f) removing said temporary base.

5,062,198
METHOD OF MAKING A TRANSPARENT TOUCH SCREEN SWITCH ASSEMBLY
Brian Y. Sun, Garland, Tex., assignor to Keytec, Inc., Richardson, Tex.
Filed May 8, 1990, Ser. No. 520,232
Int. Cl.[5] H01H *11/04*
U.S. Cl. 29—622 **3 Claims**



1. A method for making a touch-sensitive switch assembly comprising:
forming a plurality of conductive row strips on a side surface of an insulating substrate, with each pair of adjacent row

VOL 1132 ISS 1 NO 5 1991 UMI

strips being separated by a longitudinally extending row channel, respectively;

forming a plurality of conductive column strips on a side surface of an insulating substrate, with each pair of adjacent column strips being separated by a longitudinally extending column channel, respectively;

filling each row channel with an insulating deposit until the deposit is enlarged slightly out of the channel, thereby forming a row spacer strip;

filling each column channel with an insulating deposit until the deposit is enlarged slightly out of the channel, thereby forming a column spacer strip; and,

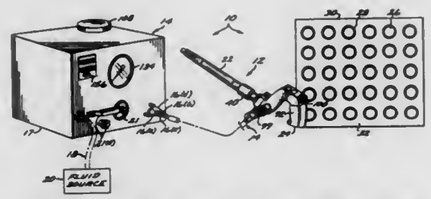
mounting the first insulating substrate onto the second insulating substrate with the row conductors extending transversely with respect to the column conductors and with the row spacer strips engaging the column spacer strips, thereby defining an air gap between the row conductors and the column conductors.

5,062,199

APPARATUS FOR RADIALLY EXPANDING AND ANCHORING SLEEVES WITHIN TUBES

John W. Kelly, La Canada, Calif., assignor to Haskel, Inc., Burbank, Calif.

Division of Ser. No. 463,367, Jan. 11, 1990, Pat. No. 5,009,002.
This application Jan. 3, 1991, Ser. No. 637,156
Int. Cl.[5] B23P *15/26*
U.S. Cl. 29—727 **15 Claims**



1. An apparatus for radially expanding and anchoring a sleeve within a tube, which is contained within a bore in a surrounding structure having a primary side and a secondary side but extends axially beyond said secondary side of said structure, so as to repair a defective area of said tube and form a tight and substantially leakproof joint between said tube and sleeve, comprising:

a fluid source for supplying a first pressurized fluid and a second fluid;

a hydraulic expanding mandrel positioned axially within said sleeve, said mandrel having an elongated body with two axially separated seals, said mandrel and said sleeve together defining a substantially annular hydraulic pressure zone situated between said sleeve, said body and said seals with a certain portion of said pressure zone being situated beyond said secondary side, said mandrel being further connected to said fluid source and having a passage for conveying said second fluid to said pressure zone;

a first pump, which is linked to said fluid source and to said passage and pressurizes said second fluid upon being driven by said first fluid, said first pump further being preset so as to pressurize said second fluid and cause said second fluid to enter said pressure zone until said second fluid reaches a predetermined pressure which is above the radial yield point of said sleeve but below the aggregate radial yield point of said sleeve and tube, whereby said sleeve pre-expands into said tube substantially radially throughout said pressure zone;

a second pump, which is linked to said fluid source and said passage and pressurizes said second fluid upon being driven by said first fluid, said second pump being preset so as to pressurize said second fluid and cause a predetermined total volume of said second fluid to enter said pressure zone at a predetermined maximum pressure which is above said aggregate yield point, whereby said sleeve further expands substantially radially throughout said pressure zone and said tube expands substantially radially along with said sleeve; and

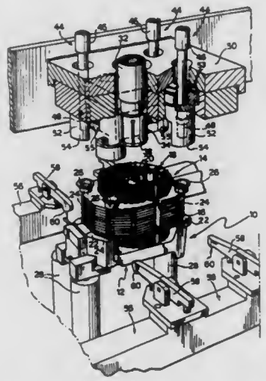
fluid control means for selectively activating said second pump after said sleeve has substantially pre-expanded into said tube and for controlling the total volume of said second fluid passage by said second pump through application of fluid stroke signals to said second pump, said control means being linked to said fluid source and being driven by said first fluid.

5,062,200

DEVICE FOR THE ASSEMBLY OF SMALL ELECTRICAL MACHINES

Antonello Lanfranco, Turin, Italy, assignor to Aspera S.r.l., Turin, Italy

Division of Ser. No. 411,533, Oct. 2, 1989, Pat. No. 5,010,638.
This application Nov. 26, 1990, Ser. No. 617,753
Claims priority, application Italy, Apr. 1, 1987, 67257 A/87
Int. Cl.[5] H02K *15/14*
U.S. Cl. 29—732 **8 Claims**



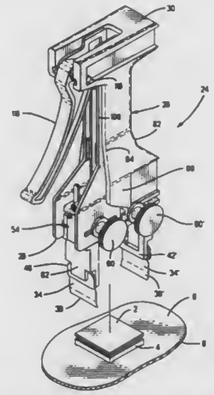
1. A device for assembling a stator comprised of a stack of core laminations (16) and stator windings (18), on to a respective head support (12) of a small rotary electrical machine, in a position concentric with a rotary shaft (20) mounted in the support (12), wherein the periphery of one end face of the stack (16) rests on the peripheral coplanar surfaces (22) of the support (12) which define a reference plane (P), and the stack (16) is traversed by peripheral bolts (24) situated in correspondence with the coplanar surfaces (22), perpendicular to these surfaces and which are screwed into the support, the device including means for supporting the support, a centering device (34) which can be interposed between the shaft (20) and the stack (16) and means (44) for tightening the bolts, characterised in that the device also includes thrust members (52) for clamping the stack (16) between the thrust members and the coplanar surfaces (22), before the bolts (24) are tightened and while the centering device (4) keeps the stack centered relative to the shaft (20), with clamping forces normal to the reference plane (P) and at least substantially equal to those predetermined tightening forces to be applied by the bolts on the stack.

5,062,201

INSERTION/EXTRACTION TOOL FOR SUBSTRATE PACKAGE

Alden O. Long, Jr., Carlisle, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 7, 1990, Ser. No. 623,468
Int. Cl.[5] H05K *13/04, 3/30*
U.S. Cl. 29—741 **19 Claims**



1. An insertion-extraction tool for assembling a substrate package to, and disassembling a substrate package from, a socket which is mounted on a circuit board, the tool comprising:

a frame assembly, a yoke, spaced-apart yoke arms which extend from the yoke, first and second pairs of frame arms, and actuating means,

the yoke being in the frame assembly, the yoke arms being spaced-apart and extending beyond the frame assembly, the yoke arms having opposed first side surfaces and oppositely facing second side surfaces, the free ends of the yoke arms having gripping portions,

the first pair of frame arms being between the first side surfaces, the second pair of frame arms being proximate to the second side surfaces so that each yoke arm is between one first frame arm and one second frame arm,

the first frame arms being fixed to the frame assembly and having free ends which are between the yoke and the free ends of the yoke arms, the second frame arms being slidably mounted on the frame assembly for movement between extended positions and retracted positions, the second frame arms having free ends which are beyond the free ends of the yoke arms when the second frame arms are in their extended positions, and which are between yoke and the free ends of the yoke arms when they are in their retracted positions,

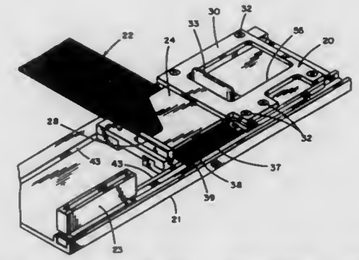
the actuating means being effective to move the yoke and the frame assembly relative to each other in directions parallel to the yoke arms and the frame arms whereby, the substrate package can be assembled to the socket by moving the second frame arms to their retracted positions, locating the substrate package on the socket with the substrate pins in alignment with the socket receptacles, locating the tool above the substrate with the free ends of the yoke arms between the surface of the circuit board and the underside of the socket and moving the frame assembly towards the free ends of the yoke arms by use of the actuating means whereby the free ends of the first frame arms will move against the substrate and push the substrate into assembled relationship with the socket, and the substrate can be disassembled from the socket by moving the second frame arms to their extended positions, locating the tool above the substrate with the free ends of the second frame arms on the surface of the circuit board and with the free ends of the yoke arms between the opposed surfaces of the substrate and the socket, and moving the yoke away from the free ends of the second frame arms by use of the actuating means whereby the yoke will pull the substrate from the socket.

5,062,202

TWISTED CABLE POSITIONING TRAY

Donald C. Wiencek, Tinley Park, and Robert J. Brown, Mokena, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.

Filed Dec. 21, 1990, Ser. No. 632,225
Int. Cl.[5] H01R *43/01*
U.S. Cl. 29—749 **5 Claims**



1. A cable tray for positioning a multiconductor cable having a twisted longitudinal section in a connector application tool, comprising:

planar positioning means for accurately laterally positioning the multiconductor cable;

cable tray positioning means for positioning the cable tray relative to the connector application tool; and

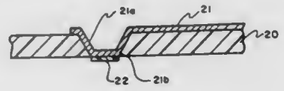
slide means for covering and securing the twisted multiconductor cable in an accurately aligned planar disposition on the planar positioning means after it has been initially placed on the cable tray positioning means, the slide means being mounted adjacent the planar positioning means to reciprocate between a first position extending fully across the width of the twisted cable and a second position completely retracted from the width of the twisted cable.

5,062,203

METHOD OF MAKING A FLEXIBLE MEMBRANE CIRCUIT TESTER

Brian S. Miller, Stafford, and David R. Kaplan, Burke, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 551,370, Jnl. 10, 1990. This application Feb. 22, 1991, Ser. No. 658,805
Int. Cl.[5] H01K *3/10*
U.S. Cl. 29—852 **1 Claim**



1. A method of making a flexible membrane tester for a planar electrical circuit including the steps of:

preparing a frame to hold said membrane;

affixing a relatively thin flexible membrane to said frame;

depositing a removable layer on one side of said membrane;

VOL 1132 ISS 1 NO 5 1991 UMI

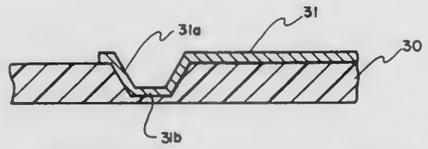
forming a plurality of perforations through said membrane extending to said removable layer;
depositing a plurality of combination electrode and lead lines on the side of the membrane opposite to said removable layer such that each combination includes an electrode portion at the bottom of each perforation and in planar contact with said removable layer and a lead line portion extending through said membrane and in contact with said electrode and further extending to another region on said membrane;
removing said removable layer;
and forming a high-dielectric layer on the side of each electrode that was previously in contact with the removable layer.

5,062,204

METHOD OF MAKING A FLEXIBLE MEMBRANE CIRCUIT TESTER

Brian S. Miller, Stafford, and David R. Kaplan, Burke, both of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 551,370, Jul. 10, 1990. This application Feb. 22, 1991, Ser. No. 658,803
Int. Cl.[5] H01K *3/10*
U.S. Cl. 29—852 **1 Claim**



1. A method for making a flexible membrane tester for a planar electrical circuit including the steps of:
preparing a frame to hold said membrane;
affixing a relatively thin flexible membrane to said frame;
forming a plurality of depressions, extending the majority of the way through the membrane, form a given side thereof; and
depositing a plurality of combination electrode and leads on said given side of said membrane such that each combination includes an electrode portion at the bottom of each depression and a lead line portion extending from said given side to said electrode portion and further extending to another region on said membrane.

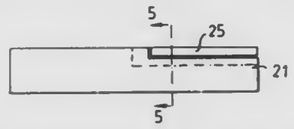
5,062,205

METHOD OF MANUFACTURE AND REPAIR OF TURBINE BLADES

Michael J. Fraser, Broughton Hackett, England, assignor to Refurbished Turbine Components Limited, England

Filed Jan. 22, 1990, Ser. No. 467,864
Claims priority, application United Kingdom, Jan. 24, 1989, 8901482
The portion of the term of this patent subsequent to May 23, 2006, has been disclaimed.
Int. Cl.[5] B23P *15/04*
U.S. Cl. 29—889.7 **16 Claims**

1. A method of manufacturing a turbine blade comprising the steps of:
(a) forming the turbine blade with a leading edge and a trailing edge from a first material, the turbine blade having a radially inner end and a radially outer end;
(b) forming a metallic insert for attachment to said turbine blade, said insert being formed from a material having a higher carbon content than the material from which the turbine blade is made;
(c) welding said insert to said turbine blade; and
(d) applying heat to a part of said insert, after welding said insert to said turbine blade, so as to cause hardening of said insert at least where said insert forms a part of said leading edge of the turbine blade, said heat being applied in a manner such that the hardening does not fully extend as



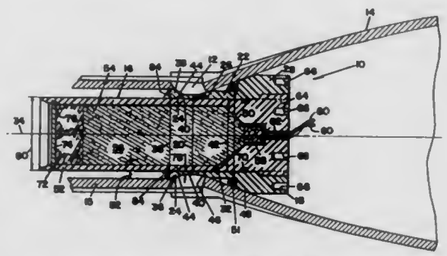
far as the junction between the insert and said blade so that there exists adjacent the boundary with the remainder of the blade a portion of said insert of substantially unhardened material.

5,062,206

REMOVABLE ROCKET MOTOR IGNITER

Robert I. Myers, New Hope; Bryce D. Brubaker, and Robert E. Overall, both of Huntsville, all of Ala., assignors to Thiokol Corporation, Ogden, Utah

Division of Ser. No. 113,783, Oct. 26, 1987, Pat. No. 5,007,236. This application Aug. 4, 1989, Ser. No. 389,457
Int. Cl.[5] F02K *9/00*
U.S. Cl. 29—890.01 **6 Claims**



1. The method for removably installing an igniter in a rocket motor nozzle throat, the method comprising:
a. providing a sleeve having a body portion and a plurality of flexible tab members extending axially from one end of the body portion and which are spaced apart circumferentially thereof, the tab members having first portions which in combination define a diameter which is greater than the nozzle throat diameter, and the body portion having a diameter greater than the nozzle throat diameter;
b. flexing the tab members, thereby effecting movement of the first tab member portions radially inwardly so that they may be inserted through the nozzle throat;
c. inserting the first tab member portions through the nozzle throat;
d. effecting movement of the first tab member portions to substantially their unflexed positions, thereby removably locking the sleeve in position in the nozzle throat; and
e. inserting an igniter tube containing ignition material and an initiator therefor in the sleeve and removably attaching the igniter tube to the sleeve.

5,062,207

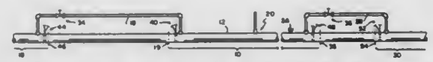
METHOD OF MAKING LIVE GAS MAIN INSERTIONS

Luther W. Martin, 1221 Julie Dr., Champaign, Ill. 61821, and Richard L. Smith, R.R. 2 - Box 82A, Edwardsville, Ill. 62025

Filed Oct. 20, 1989, Ser. No. 424,609
Int. Cl.[5] F16L *55/18*
U.S. Cl. 29—890.14 **5 Claims**

1. A method of inserting a length of smaller cross-section gas main into a first length of larger cross-section gas main while

the first length of main remains pressurized, the method consisting essentially of the steps of providing a parallel gas pathway from a second length of main upstream toward the gas supply from the first length of main into which the smaller cross-section main is to be inserted, placing a first temporary seal in the first length of main between the point at which the parallel pathway enters the first length of main and the upstream end of the first length of main, separating the first length of main from the second length of main to leave exposed an upstream end of the first length of main, placing on the exposed end of the first length of main one of an entry end fitting and an exit end fitting, each of the entry end fitting and exit end fitting having an inner end for joining to an exposed end of the first length of main, an outer end, and a passageway having the same cross-section as the length of the smaller



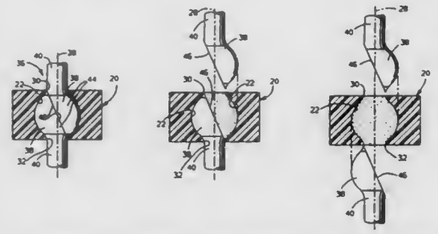
cross-section main, placing a second temporary seal upstream from the downstream end of the first length of main, preparing the downstream end of the first length of main to receive the other of the entry end fitting and the exit end fitting, mounting said other fitting on the downstream end of the first length of main, removing the second temporary seal, closing the end of the length of smaller cross-section main which is to be inserted first into the first length of main, inserting the closed end of the length of smaller cross-section main into the outer end of the entry end fitting, pushing the length of smaller cross-section main through the first length of main and through the outer end of the exit end fitting, placing permanent seals at the upstream and downstream ends of the first length of main between the inner sidewall of the first length of main and the outer sidewall of the length of smaller cross-section main, and removing the entry and exit end fittings.

5,062,208

METHOD OF MOLDING A BEARING SEPARATOR

William R. Goforth, Pontiac, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 31, 1990, Ser. No. 575,696
Int. Cl.[5] B21D *53/12*
U.S. Cl. 29—898.049 **2 Claims**



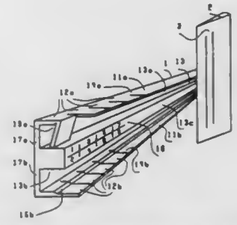
1. A method of injection molding a one piece, rigid plastic bearing separator having a plurality of complete pockets, each of which is designed to wrap a rolling element with a cross section of predetermined width, said pockets each having a central plane with an interior width that is substantially equal to said predetermined width, said pockets each also having a pair of openings opposed along an axis perpendicular to said central plane, said method comprising the steps of,
providing a shaping insert with an outer surface that substantially conforms to each of said pockets,
dividing each of said shaping inserts into two segments along a plane that is tilted out of said central plane, so that a projection of each insert segment along said axis and into said central plane will have an effective width less than said pocket interior width,
adjoining said insert segments along said dividing plane,
injection molding a suitable material around the outer surface of said adjoined insert segments so as to create said pockets, and,
withdrawing each said insert segment along said axis through a respective opposed opening,
whereby each respective pocket opening is stressed by the withdrawal of said insert segment less than it would be by withdrawing an undivided shaping insert.

5,062,209

USE INDICATOR FOR A DISPOSABLE RAZOR

Elliot Rais, 60 Sutton Place South, New York, N.Y. 10022

Filed Jul. 27, 1990, Ser. No. 558,718
Int. Cl.[5] B26B *1908*; G09F *9/00*
U.S. Cl. 30—41.7 **9 Claims**



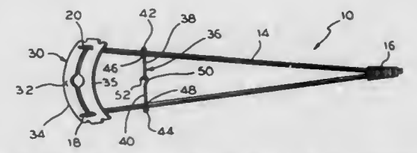
1. A disposable razor comprising a blade holder, a blade in the blade holder, a handle connected to the blade holder and means for indicating the number of times the blade has been used comprising tabs integrally formed on the handle and bendable about a pivot line from a first position indicating non-use to a second position indicating one use and indicia associated with each tab.

5,062,210

CACTUS THORN REMOVING TOOL

Jose C. Arroyo, Jr., 229 Casalon Dr. #7, O'Fallon, Mo. 63366

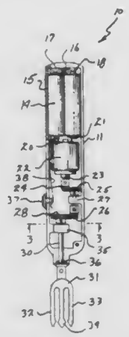
Filed Oct. 26, 1990, Ser. No. 605,103
Int. Cl.[5] B26B *3/00*
U.S. Cl. 30—317 **3 Claims**



1. A cutter for removing thorns from a cactus comprising:
a pair of diverging prongs pivotably connected together at one end, an opposite end of each prong including tab means sized to be received in transverse slots in a wafer type razor blade having a cutting edge; and
means connected between said prongs for drawing said prongs together to flex and retain said razor blade in a concavo-convex shape with a convex surface of said razor blade facing outwardly from said prongs and said cutting edge of said razor blade directed perpendicular to a plane of said prongs.

VOL 1132 ISS 1 NO 5 1991 UMI

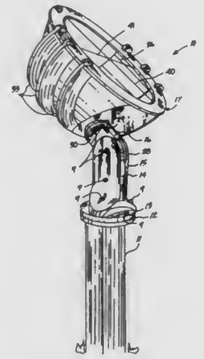
5,062,211
MOTORIZED TWISTING PASTA FORK
Paul A. Di Amico, 500 E. Palm Canyon, Palm Springs, Calif. 92264
Filed Mar. 4, 1991, Ser. No. 664,122
Int. Cl.[5] A47J *43/28*
U.S. Cl. 30—322 1 Claim



1. An eating utensil for gathering food such as pasta, comprising:
a handle having a hollow sleeve composed of a pair of portions snap-locked together to define internal compartments;
a fork element having an elongated shaft insertably disposed within said sleeve in rotatable relationship therewith about the central longitudinal axis of said elongated sleeve;
motor means disposed within one of said internal compartments of said sleeve and operably coupled to said elongated shaft for providing turning power to drive said fork element in a rotary movement about said central longitudinal axis;
a plurality of elongated tines carried on said fork element in fixed spaced-apart relationship for collection of pasta thereon;
said motor means includes a motor having a drive shaft;
a gear reduction mechanism interconnecting said drive shaft with said fork element shaft;
a battery pack removably carried in another one of said internal compartments in electrical contact with said motor;
switch means carried on said sleeve for selectively supplying power from said battery pack to said motor;
said plurality of elongated tines includes a central tine separating adjacent tines in fixed spaced-apart relationship;
said central tine having one end integral with said shaft and its other end terminating in a tip; and
said one end and said other end of said central tine lying on the central longitudinal axis of said sleeve and said central tine having a mid-portion between its opposite ends laterally offset from said central longitudinal axis.

5,062,212
SUNDIAL APPARATUS
James L. Blaker, 1150 Archer La., Lansdale, Pa. 19446
Filed Dec. 5, 1990, Ser. No. 622,630
Int. Cl.[5] G01C *12/34*
U.S. Cl. 33—270 2 Claims

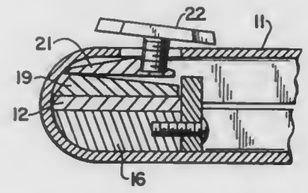
1. A sundial apparatus comprising,
a support base, the support base including a mounting plate fixedly secured thereon, and
a lower rotation plate pivotally mounted to the mounting plate, and
a plurality of vertical support plates adjustably mounted to the lower rotation plate, and
an upper rotation plate pivotally mounted to the support plates, and
a sundial head member pivotally mounted to an upper surface of the upper rotation plate, and
wherein the mounting plate includes a plurality of mounting apertures for securement of the mounting plate to the support base, and the mounting plate further including a plurality of diametrically opposed first and second arcuate slots, the arcuate slots oriented parallel to an axis defined by the mounting plate, and the lower rotation plate including at least one fastener directing bore associated with each slot of the first and second arcuate slots to position a fastener through each bore and through each slot of the first and second arcuate slots, and



wherein the lower rotation plate further includes a convex surface diametrically disposed and integrally secured to an upper surface of the lower rotation plate, with the convex surface directed upwardly thereof, and each support plate of the first and second support plates are of an "L" shaped configuration, and each of the support plates including a vertical support plate mounting slot directed through a horizontal leg of each support plate, and a further fastener directed through each of the vertical support plate mounting slots within an associated lower rotation plate mounting bore, with each lower rotation mounting bore directed into the convex surface, and each of the first and second "L" shaped support plates secured together in a back-to-back relationship to define a vertically disposed support plate pair slot, wherein the support pair slot pivotally receives the upper rotation plate therewithin.

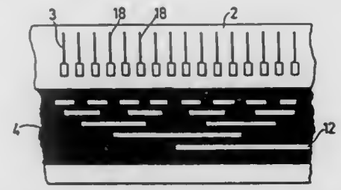
5,062,213
CONSTRUCTION SQUARE
Eugene H. Kolesky, 17231 Community Street, Lansing, Ill. 60438
Filed Oct. 22, 1990, Ser. No. 600,837
Int. Cl.[5] B43L *7/00*
U.S. Cl. 33—479 13 Claims

1. An improved construction square for releasably securing a blade, comprising;
a handle;
a locking mechanism for tightening said blade within said handle, said locking mechanism being housed within said handle and including a trapezoidal-shaped filler wedge seated on the horizontal portion of an L-shaped blade guide, and a generally rectangular member positioned above and adjacent to said filler wedge, the top face of



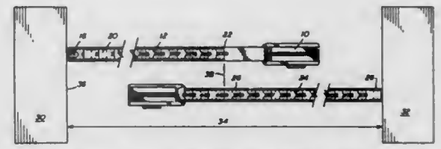
said generally rectangular member including two sloping sides and an aperture.

5,062,214
ABSOLUTE MEASUREMENT SCALE SYSTEM
Carl-Erik Gustafsson, Eskilstuna, and Bo Pettersson, Torshälla, both of Sweden, assignors to C. E. Johansson AB, Eskilstuna, Sweden
PCT No. PCT/EP87/00458, § 371 Date May 17, 1988, § 102(e) Date May 17, 1988, PCT Pub. No. WO88/02848, PCT Pub. Date Apr. 21, 1988
Continuation of Ser. No. 197,409, May 17, 1988, abandoned. This PCT application Oct. 9, 1987, Ser. No. 512,083
Claims priority, application Sweden, Oct. 13, 1986, 8604337
Int. Cl.[5] G01B *11/02*
U.S. Cl. 33—706 16 Claims



1. An absolute measuring scale system including a scale which extends a measuring length, and a measuring head which is movable relative to the scale, and which further includes a fine-measurement sensor which is operative in measuring the absolute values within each of a number of intervals located sequentially along the scale, and a coarse-measurement sensor operative in measuring the absolute values with regard to the interval in which the fine-measurement sensor is located at that moment, where the scale (2) includes a carrier (38) made of a transparent and form-stable material, which has provided on its surface a coating which forms an opaque pattern (3, 4; 3', 4'); which pattern forms along the length of the scale (2) transparent, mutually parallel binary code tracks (12) for use by said coarse measurement sensor and where the measuring head (1) incorporates light-emitting (5) and light-sensitive (6) devices by means of which the measuring head (1) is intended to sense the code track (12), the coarse-measurement sensor including the code-tracks (12) and said light emitting (5) and light sensitive (6) devices; and where said pattern (3, 4; 3', 4') along the length of the scale (2) also forms a plurality of sensing members which are intended to co-act with the fine-measurement sensor, said fine measurement sensing members including electrodes (18) which are formed by means of said surface coating and which, in coaction with electrodes (23–27, 28) provided in the measuring head (1), are included in a capacitive measuring system forming said fine measurement sensor.

5,062,215
CONTINUOUS TAPE MEASURE
George J. Schlitt, Raleigh, N.C., assignor to Cooper Industries, Inc., Houston, Tex.
Continuation of Ser. No. 383,308, Jul. 18, 1989, abandoned, which is a continuation of Ser. No. 219,662, Jul. 14, 1988, abandoned. This application Feb. 21, 1991, Ser. No. 657,983
Int. Cl.[5] G01B *3/10*
U.S. Cl. 33—755 2 Claims



1. A measuring tape for measuring a linear distance comprising:
a tape having a first side and a second side;
a case for housing said tape;
said tape having one end secured within said case whereby the other free end may be extended from said case a maximum length;
said first side having first graduations beginning at zero at said free end and sequentially scaled to a measurement N substantially equal to said maximum length of said tape;
said first and second sides including numbers for said first and second graduations, said numbers having a top with the top of said numbers on said first and second sides being adjacent a common edge of said tape;
said second side having second graduations beginning at said free end and starting with said measurement N and sequentially scaled to a measurement 2N substantially equal to twice said maximum length of said tape whereby said first and second graduations increase in a common direction on said tape and measure a linear distance substantially twice said maximum length of said tape such that said free end may be aligned with one end of the linear distance, said tape extended to said measurement N, and said measurement N being marked, and said tape being reversed with said free end aligned with the other end of the linear distance and the measurement on said second side of said tape at the mark indicating the total measurement of the linear distance; said first and second sides including numbers for said first and second graduations, said numbers having a top with the top of said numbers on said first and second sides being adjacent a common edge of said tape.

5,062,216
SINGLE TIERED MULTI-CYLINDER PAPER DRYER APPARATUS
Judson Hannigan, Scarsdale. N.Y., assignor to Champion International Corporation, Stamford, Conn.
Continuation of Ser. No. 85,163, Aug. 14, 1987, abandoned. This application Oct. 6, 1988, Ser. No. 253,440
Int. Cl.[5] F26B *5/04*
U.S. Cl. 34—16 3 Claims

1. A process for drying a paper web, said process comprising the steps of:
arranging first and second pluralities of consecutive cylindrical dryers in a single tier in tandem;
entraining a first run of the web on said first plurality of cylindrical dryers such that one face of said web is exposed to said first plurality of cylindrical dryers;
entraining a second run of the web on said second plurality of cylindrical dryers such that the opposite face of said web is exposed to said second plurality of cylindrical dryers;
rotating sad first plurality of cylindrical dryers in one direc-

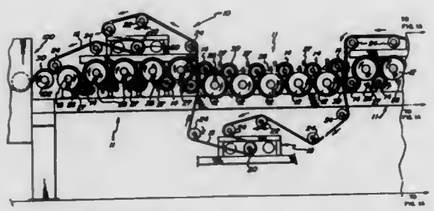
VOL 1132 ISS 1 NO 5 1991 UMI

tion and said second plurality of cylindrical dryers in the opposite direction;

overlaying said first run of said web with a a second endless belt which moves in concert therewith;

overlaying said second run of said web with a second endless belt which moves in concert therewith;

moving a run of said first endless belt and a run of said second endless belt adjacent to each other at an interface between said first and second pluralities of cylindrical dryers, the interface comprising a first section where said



endless belts define parallel planes and a second section where one of said belts defines a second plane substantially tangent to the other belt, the second plane being aligned to intersect the parallel planes; and

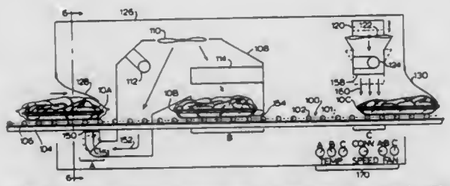
sandwiching said web between said run of said first endless belt and said run of said second endless belt at said interface to transfer said web from said first plurality to said second plurality of cylindrical dryers, whereby said web is fully supported between said first and second endless belts throughout the interface between the first and second pluralities of cylindrical dryers.

5,062,217

SELECTIVE SEQUENTIAL SHRINK APPARATUS AND PROCESS

Sidney S. Tolson, Scotland Neck, N.C., assignor to Ossid Corporation, Rocky Mount, N.C.

Filed Nov. 13, 1990, Ser. No. 611,530
Int. Cl.[5] F26B *3/00*
U.S. Cl. 34—22 **25 Claims**



15. A process for the shrinking of a heat shrinkable film forming a package enclosing a product supported in a shallow rectangular tray with a peripheral upper flange, said film being sealed across leading and trailing ends of said tray, comprising:

(a) transporting said film wrapped package on a conveyor through a shrink tunnel having three operative sequential stations capable of applying directed streams of heated air to packages passing thereby;

(b) blowing a heated air stream at a first station from beneath and through said conveyor upwardly at a bottom surface of said package and particularly at the leading and trailing end seals thereof such that said end seals are drawn beneath said tray flange;

(c) blowing a pair of horizontally opposed heated air streams at a second station from beside said conveyor laterally at both lower sides of said package such that said side film is tightened in the lower portion; and

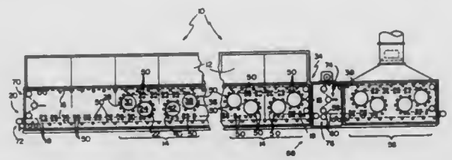
(d) blowing a heated air stream at a third station from above said conveyor downwardly at a top surface of said package such that the entire film enclosure is tightened and essentially free of wrinkles with said end seals drawn beneath said peripheral flange.

5,052,218

SCREEN DRYER

George Weil, Mississauga, Canada, assignor to David R. Webb Co., Inc., Edinburg, Ind.

Filed Oct. 9, 1990, Ser. No. 593,941
Int. Cl.[5] F26B *11/02, 13/00*
U.S. Cl. 34—114 **13 Claims**



1. A veneer dryer having an entry end and an exit end conveyor means for conveying sheets of veneer through the dryer from the entry end to the exit end, and means for applying a drying medium to the veneer in the dryer, the conveyor means including a first set of drums, each having an axis of rotation and being rotatably mounted in the dryer, a pair of belts permeable by the medium, the belts running together over the drums, the sheets being captured for conveyance through the flow of drying medium in the dryer between the belts, the belts extending around a first set of said drums generally from the entry end toward the exit end, then generally from the exit end toward the entry end, then generally from the entry end toward the exit end, then generally from the exit end toward the entry end, and then generally from the entry end toward the exit end, and further comprising a second set of said drums, the belts extending around said second set of drums first generally from the entry end toward the exit end, then generally from the exit end toward the entry end, then generally from the entry end toward the exit end, then generally from the exit end toward the entry end, and then generally from the entry end toward the exit end the axes of rotation of the first and second sets of drums and the surfaces of the first and second sets of drums being so spaced that the sheets of veneer are pressed against the surfaces of the first and second sets of drums for greater than 180° of the rotation of each of the first and second sets of drums.

5,062,219

AIR FLOW APPARATUS FOR CLOTHES DRYER

Robert D. Harris, Oshkosh, and Brett J. Putnam, Ripon, both of Wis., assignors to Speed Queen Company, Ripon, Wis.

Filed Feb. 12, 1991, Ser. No. 654,442
Int. Cl.[5] F26B *11/02*
U.S. Cl. 34—133 **24 Claims**

1. A clothes dryer comprising:

a clothes drum having an air inlet and a perforated annulus;

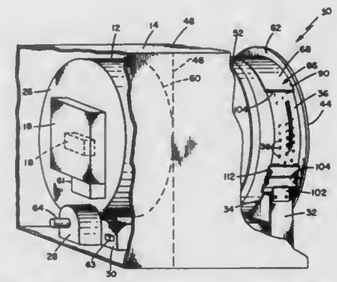
a cabinet surrounding said drum and defining a region of space between said drum and said cabinet;

means for axially rotating said drum;

means communicating with said inlet for providing hot air;

stationary means surrounding an arcuate portion of said perforated annulus for drawing said hot air into said drum through said inlet and out perforations of said annulus instantaneously aligned with said stationary drawing means; and

means for preventing air flowing from said drum into said region of space through perforations of said annulus not instantaneously aligned with said stationary drawing



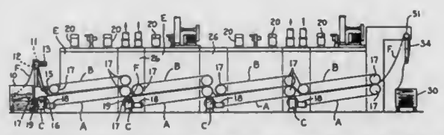
means, said preventing means comprising a flexible wrap supported in sliding engagement by said drum.

5,062,220

TEXTILE FABRIC DRYER AND METHOD

Hans O. Keilhack, P.O. Box 19042, Charlotte, N.C. 28219

Filed Jun. 27, 1990, Ser. No. 545,412
Int. Cl.[5] F26B *13/04*
U.S. Cl. 34—155 **18 Claims**



1. A textile fabric drying and shrinking apparatus having an elongated oven containing means for blowing heated air through fabric conveyed through said oven comprising:

a plurality of upwardly inclined conveyors constructed of foraminous belts carrying said textile fabric thereon;

a drive for each of said conveyors moving said conveyors at a predetermined speed with respect to a preceding conveyor so as to convey said fabric along said oven; and

a blower directing heated air through said conveyors and the fabric carried thereon;

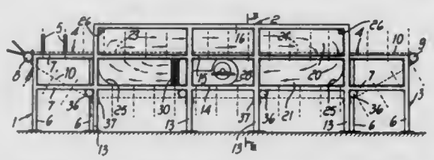
whereby control of drying and shrinking may be facilitated.

5,062,221

DRYING SYSTEM FOR PASTA OR SIMILAR PRODUCTS

Patrizio Fazion, Casaleone, Italy, assignor to Eurovo S.r.l., Santa Maria in Fabriago-Lugo, Italy

Filed Jan. 26, 1990, Ser. No. 471,302
Claims priority, application Italy, Feb. 2, 1989, 84909 A/89
Int. Cl.[5] F26B *19/00*
U.S. Cl. 34—204 **8 Claims**



1. A drying system for pasta, comprising in sequence at least one loading station, at least one drying station with forced warm-air circulation defining a drying air flow, an unloading station and at least one conveyor for transferring pasta from the loading station to the unloading station through the drying station, said conveyor comprising a plurality of pasta engagement and support means arranged in sequence along said conveyor for placing pasta in an arrangement which is predominantly transverse with respect to the flow of drying air, said engagement and support means of the conveyor comprising a plurality of box-like receptacles with perforated walls for receiving each at least one portion of thin pasta layer at the loading station and keeping said portion in a planar arrangement during passage through the drying station up to the unloading station.

5,062,222

SHOE OR BOOT HAVING A HEATING DEVICE

Philippe Billet, Annecy-le-Vieux, and Jean-Louis Demarchi, Duingt, both of France, assignors to Salomon S.A., Annecy Cedex, France

Filed Sep. 19, 1989, Ser. No. 409,457
Claims priority, application France, Sep. 19, 1988, 88 12197
Int. Cl.[5] A43B *7/02*
U.S. Cl. 36—2.6 **48 Claims**



1. A ski shoe or boot having a foot support zone, a sole, and an upper, said upper including a rear part, said shoe or boot further including a heating assembly, at least a portion of said heating assembly being located proximate said sole, said heating assembly comprising a catalytic burner for producing heat, an electrode positioned proximate said catalytic burner, an igniter functionally connected to said electrode, and a pusher for activating said igniter, a plate for diffusion of said heat, said plate located proximate said foot support zone, means for receiving a source of fuel, a supply circuit for feeding said fuel to said catalytic burner, a valve for regulating said feeding of said fuel from said source of fuel to said catalytic burner, and a heating control device, wherein said means for receiving a source of fuel comprises means for receiving and holding an interchangeable fuel cartridge, comprising a housing provided on said rear part of said upper of said shoe or boot in position for connecting said interchangeable fuel cartridge to said supply circuit, said igniter being positioned proximate said housing, said housing further comprising an upper end, said boot further including a cover movably mounted with respect to said upper end of said housing and being adapted to engage an upper portion of said fuel cartridge and said pusher.

5,062,223

ADJUSTABLE SHOE COVERING

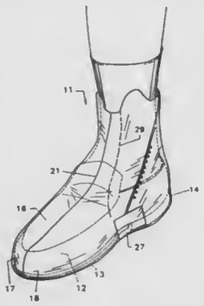
Gregory K. Johnson, Palo Alto, Calif., assignor to Innova Products, Inc., Santa Clara, Calif.

Continuation of Ser. No. 293,944, Jan. 5, 1989, abandoned. This application Jul. 6, 1990, Ser. No. 549,252
Int. Cl.[5] A43B *17/14*
U.S. Cl. 36—7.1 R **5 Claims**

1. A disposable shoe covering to be applied over a shoe comprising a boot portion of a flexible material for covering the vamp, sole and heel of said shoe, and means for both adjusting the fit of said boot portion over said shoe, sole and heel to obtain a snug fit and securing said portion on said shoe; said means for both adjusting the fit of said boot portion over said shoe sole and securing said portion on said shoe also securing

VOL 1132 ISS 1 NO 5 1991 UMI

to the boot portion covering said wearer's shoe, that excess material making up said boot portion which is not needed for said boot portion to snugly fit about said wearer's shoe, said means being adapted to secure said excess material to said boot



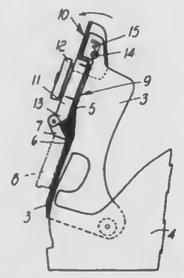
portion after said excess material is wrapped around said boot portion toward either of the two sides of said wearer's shoe; and wherein said means for securing is a pressure sensitive adhesive provided on both side surfaces of the same rear end section of said boot portion.

5,062,224

SKI BOOT WITH VARIABLE-INCLINATION UPPER SPOILER

Maurizio Tacchetto, Noventa Padovana, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed Nov. 13, 1990, Ser. No. 611,592
Claims priority, application Italy, Dec. 21, 1989, 82627 A/89
Int. Cl.[5] A43B 5/04
U.S. Cl. 36—117 5 Claims



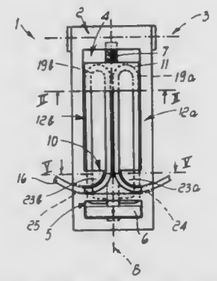
1. Ski boot with a variable-inclination upper spoiler, said ski boot comprising a shell, and a front quarter and a rear quarter both articulated to said shell, said rear quarter comprising a lower part and said upper spoiler, said lower part of said rear quarter being pivotally articulated to said shell, said upper spoiler being pivoted exclusively to said lower part at a transverse axis defined on said lower part, said ski boot further comprising a first adjustment device and a second adjustment device, said first adjustment device and said second adjustment device both being connected to said rear quarter, wherein said first adjustment device is arranged at said lower part of said rear quarter and said second adjustment device is arranged at said upper spoiler.

5,062,225

SKI BOOT CLOSURE DEVICE HAVING A LEVER WITH A SLIDING TENSIONING ARRANGEMENT

Roberto Gorza, Feltre, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed Jun. 25, 1990, Ser. No. 542,547
Claims priority, application Italy, Jul. 4, 1989, 59375/89[U]
Int. Cl.[5] A43B 5/04
U.S. Cl. 36—117 12 Claims



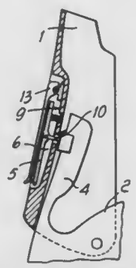
1. Closure device, particularly for ski boots, comprising a lever which is articulated, at one end, to a ski boot, and at least one slider which is provided with means which can be actuated by the skier for its axial movement with respect to said lever, said device further comprising at least one traction element which is guided both on said lever and, in separate points, to said at least one slider, said traction element exiting at the sides of said lever at fixed openings, said at least one traction element having at least two entry points and two exit points on said at least one slider, a first axial seat and a second axial seat being provided at said lever, said seats being separated by a dividing wall, said first and second axial seats being connected by means of a first hole arranged according to an axis which is parallel to the longitudinal axis of said lever, wherein second and third through holes are provided at said dividing wall adjacent to the longitudinal perimetric edges of said first and second axial seats, said holes being arranged parallel to the longitudinal axis of said lever on a plane which is adjacent to the lower surface of said lever.

5,062,226

HEEL SECURING DEVICE, PARTICULARLY FOR SKI BOOTS

Mariano Sartor, Montebelluna, and Roberto Gorza, Feltre, both of Italy, assignors to Nordica S. p. A., Montebelluna, Italy

Filed Dec. 14, 1989, Ser. No. 450,500
Claims priority, application Italy, Dec. 23, 1988, 82620A/88
Int. Cl.[5] A43B 5/04
U.S. Cl. 36—117 12 Claims



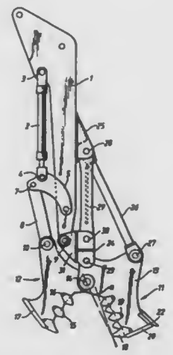
1. Heel securing device, particularly for ski boots comprising a shell, a rear quarter and a front quarter articulated to said shell, and a flap means arranged at the heel region of the ski boot for embracing the heel of the foot, said device comprising an abutment member for abutting against the flap means of the ski boot, said abutment member comprising a stem means protruding through a seat means provided in said rear quarter at the heel region thereof, the ski boot further comprising quarters fastener means for the mutual fastening together of the rear and front quarters about the wearer's leg, said quarters fastener means being connected to said rear quarter, wherein said quarters fastener means engage with said stem means upon a quarters closing activation of said quarters fastening means to move said stem means in said seat means relative to said rear quarter, thereby said abutment member provides an abutting securement adjustment of said flap means about the heel.

5,062,227

DEVICE FOR BREAKING OBJECTS CONSISTING OF CONCRETE OR SIMILAR MATERIAL

Gertrudis M. G. De Gier, JZ Velddriel, and Jan R. Sytstra, Am Papendrecht, both of Netherlands, assignors to Verachtert Beheer B.V., 's-Hertogenbosch, Netherlands

Filed Jun. 15, 1990, Ser. No. 538,726
Claims priority, application Netherlands, Jun. 20, 1989, 8901542
Int. Cl.[5] E02F 3/76; B66C 3/00
U.S. Cl. 37—117.5 11 Claims



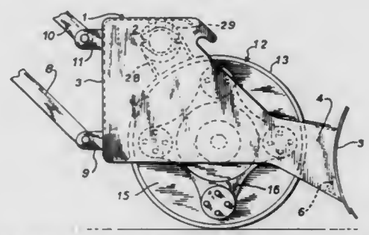
1. A device for breaking objects, which comprises:
an excavator arm;
a pair of jaws having teeth, said jaws including a first fixed jaw and a second pivotable jaw;
a pivot pin for pivotably interconnecting said jaws;
a first hinge pin for mounting said jaws of said arm;
a first strut connecting said first fixed jaw to the arm
a setting cylinder having a first end coupled to the arm and having a second end coupled to the second jaw such that the second jaw is pivotable toward and away from the first fixed jaw by means of said setting cylinder;
a coupling piece coupled to an end of the arm by means of the first hinge pin wherein the first fixed jaw is connected to the coupling piece at a point which is located between the first hinge pin and a point of attachment of the first strut to the first jaw; and a second strut interconnecting the coupling piece and an end of the first strut.

5,062,228

COMPACTOR AND BLADE ATTACHMENT FOR LOADER

Thomas G. Artzberger, Menomonee Falls, Wis., assignor to M-B-W Inc., Slinger, Wis.

Filed Jul. 2, 1990, Ser. No. 546,899
Int. Cl.[5] E02F 3/76
U.S. Cl. 37—117.5 4 Claims



1. An attachment for a front-end loader having lift arm means and tilt arm means, said attachment comprising a frame including a pair of side plates, first connecting means for pivotally connecting the lift arm means of the loader to said frame about a first pivot axis, second connecting means for pivotally connecting the tilt arm means of the loader to said frame at a second pivot axis spaced from said first pivot axis, a compaction drum mounted for free rotation about a horizontal drum axis with respect to said frame and disposed to move over the terrain in a fore and aft direction normal to the drum axis, a scraping blade fixed to said frame said first and second connecting means being disposed on one side of a vertical plane extending along said drum axis and said scraper blade being disposed on a side opposite said one side of said vertical plane, said tilt arm means being constructed and arranged to tilt said frame about said first pivot axis to thereby move the lower edge of said blade from an inoperative position where said lower edge is above the level of the lower extremity of said drum to an operative position where said lower edge is disposed beneath the level of said lower extremity of said drum, vibratory means operably connected to said drum, drive means mounted on the drum and operably connected to said vibratory means for operating said vibratory means to vibrate said drum, an end plate disposed between each end of the drum and the corresponding side plates, journalling means for journaling each end plate for rotation relative to the corresponding side plate, and resilient isolation mount means interconnecting each end plate and the corresponding end of said drum.

5,062,229

POSTCARD CALENDAR

Christina Werjefelt, 277 Kaha St., Kailua, Hi. 96734

Filed Jan. 12, 1990, Ser. No. 464,398
Int. Cl.[5] B42D 5/04, 15/00
U.S. Cl. 40—107 1 Claim

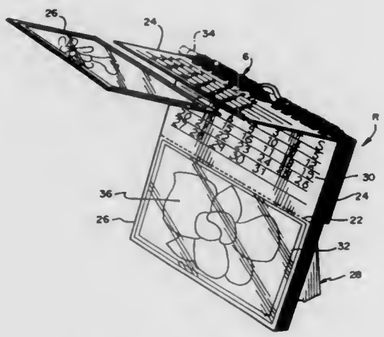
1. A calendar, comprising:
a) a plurality of sheets superimposed on each other, each of said sheets having front and rear faces and a top edge;
b) means for hingeably binding said plurality of sheets along said top edges such that each of said sheets may be rotated in planar position about said binding means through substantially a full circle to thereby expose said front face of a next succeeding sheet and said rear face of the sheet being turned when said calendar is rotated about an imaginary vertical axis;
c) each of said sheets including a straight demarcation line disposed across thereof from one side to the opposite side;
d) each of said sheets including a first portion adjacent said binding means and a second portion disposed away from said binding means and separated by said demarcation line;

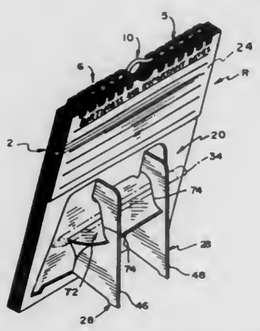
VOL 1132 ISS 1 NO 5 1991 UMI

e) said second portion being detachable from said first portion through said demarcation line such that when said second portion is detached from said first portion, said first portion remains attached to said binding means and a second portion of a succeeding sheet is exposed;

f) said first portion including a front surface having right-side-up calendar indicia relative to said top edge for a complete unit of time and a rear surface having non-calendar indicia and blank ruled spaces for receiving written notes;

g) said second portion including a front surface having printed graphic art indicia and a rear surface having a blank postcard indicia, said graphic art indicia being right-side-up when said calendar indicia is oriented right-side-up, said second portion rear surface including a blank space for receiving an address and another blank space for receiving a written message;





h) each of said top edges including a notch disposed on an intermediate portion thereof;

i) a member pivotally secured to said binding means for permitting the calendar to be hung from a wall;

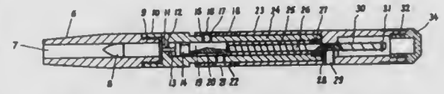
j) said member including a curved portion disposed opposite said notch;

k) a back cover secured to said plurality of sheets, said back cover being of the same size as each of said sheets;

l) a fold-out stand integral with said back cover for providing support to the calendar when positioned substantially vertically on a horizontal surface; and

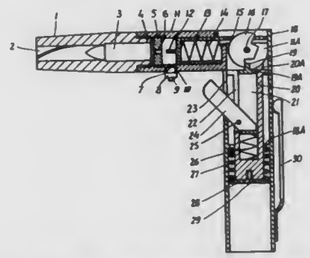
m) said stand being completely disposed below said demarcation line such that said upper portion, when rotated substantially a full circle about said binding means after its respective lower portion has been detached, does not interfere with said stand.

5,062,230
PEN GUN
Robert J. Braverman, Marblehead, and Isaak M. Shklyarov, Boston, both of Mass., assignors to R. J. Braverman Corp., Winthrop, Mass.
Filed Nov. 5, 1990, Ser. No. 608,707
Int. Cl.[5] F41C *9/02*
U.S. Cl. 42—1.09 **2 Claims**



1. A single shot pistol which simulates the appearance of a modern pen like instrument, comprised of a barrel adapted to receive a cartridge and threadably connected to a main body having coaxial front and rear bores spaced apart by a breech block with an aperture through which a firing pin assembly which is mounted for reciprocative movement in said rear bore can project a firing pin through said aperture and engage and fire said cartridge after the firing pin assembly has been retracted and locked into a ready to fire position by simultaneously pulling a trigger collar forward and a rear housing rearward which causes the firing pin assembly to be locked behind a ball bearing which is forced down into a groove in the firing pin assembly until it is released by sliding the trigger collar rearward causing the ball bearing to be forced upwards into a recessed cavity on the interior surface of the trigger collar causing a compressed firing pin spring to force the firing pin assembly forward with sufficient force to fire said cartridge.

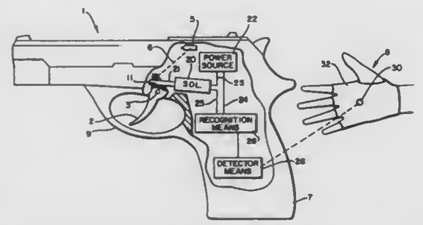
5,062,231
DUEL PROFILE PEN GUN
Robert J. Braverman, Marblehead, and Isaak M. Shklyarov, Boston, both of Mass., assignors to R. J. Braverman Corp., Winthrop, Mass.
Filed Feb. 8, 1991, Ser. No. 653,496
Int. Cl.[5] F41C *9/02*
U.S. Cl. 42—1.09 **2 Claims**



1. A single shot pistol which simulates the appearance of a modern pen like instrument, comprised of a barrel adapted to receive a cartridge and threadably connected to a main body having coaxial front and rear bores spaced apart by a breech block with an aperture through which a firing pin assembly which is mounted for reciprocative movement in said rear bore can project a firing pin through said aperture and engage and fire said cartridge after the firing pin assembly has been retracted and locked into a ready to fire position by simultaneously pulling the barrel forward and the rear housing rearward which exposes a hinge joint that will allow a rear handle to be bent downward, exposing a hidden trigger and causing a firing pin carrier to be drawn rearward until it is released by pressing the trigger inward causing a control pin to release a cam which in-turn releases the firing pin carrier under pressure

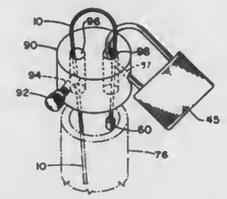
from a compressed spring to force the firing pin carrier forward with sufficient kinetic energy to fire said cartridge.

5,062,232
SAFETY DEVICE FOR FIREARMS
Larry D. Eppler, 1817 Highridge Cove, Carrollton, Tex. 75006
Filed Feb. 23, 1990, Ser. No. 483,660
Int. Cl.[5] F41A *17/06*
U.S. Cl. 42—70.11 **4 Claims**



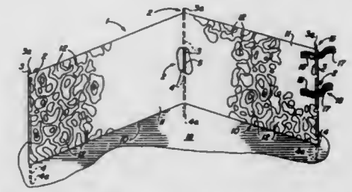
1. A safety device for a firearm comprising:
a trigger mechanism operably connected to the firearm to discharge the firearm;
a power source;
trigger interrupting means operably connected to the trigger mechanism to prevent the trigger mechanism operation from movement to render the firearm inoperable;
recognition means operably connected to the trigger interrupting means and connected to the power source;
code detecting means operably connected to the recognition means to enable the recognition means to disengage the trigger interrupting means upon receipt of a signal;
code generating means to generate a signal to enable the code detecting means; and
means for attaching the code generating means to the palm of a user's gun hand.

5,062,233
SAFETY DEVICE FOR A FIREARM
Franklin C. Brown, 1967 Genoa Ave., Akron, Ohio 44305
Continuation-in-part of Ser. No. 391,883, Aug. 8, 1989. This application Jan. 14, 1991, Ser. No. 641,452
Int. Cl.[5] F41A *17/44*
U.S. Cl. 42—70.11 **10 Claims**



1. A safety device for a firearm having a barrel with a first end and a second end which comprises:
(a) a cable having a first end and a second end;
(b) a plug element firmly affixed to the first end of the cable;
(c) a stopper firmly affixed to the second end of the cable;
(d) a restricting means comprising a plug like element having a diameter greater than a diameter of said firearm barrel, said restricting means comprising at least one cable bore formed therein, said bore having two open ends and a diameter slightly larger than a diameter of said stopper such that said bore is capable of receiving said cable therethrough and a means for securing said restricting means to said cable; and
(e) a locking device inserted through at least a portion of said cable bore in said restricting means for retaining said restricting means on said cable.

5,062,234
PORTABLE BLIND
Richard T. Green, 1023 N. 15th St., Arkadelphia, Ark. 71923
Filed Jul. 24, 1989, Ser. No. 383,726
Int. Cl.[5] A01M *31/02*
U.S. Cl. 43—1 **2 Claims**



1. A portable blind for concealing an observer, comprising at least two elongated supports for insertion in the ground in spaced, upward-standing relationship, said supports each characterized by a bottom member having one end sharpened and a receptacle provided on the opposite end of said bottom member, a top member having one end adapted for insertion in said receptacle and the opposite end of said top member sharpened and an elastic band connecting said one end of said top member and said opposite end of said bottom member for biasing said top member in said receptacle; a flexible sheet of camouflage material carried by said supports, a first camouflage pattern provided on one side of said camouflage material and a second camouflage pattern provided on the opposite side of said camouflage material to facilitate insertion of said bottom member in the ground for orienting said camouflage material in a first camouflage orientation and orienting said first camouflage pattern outwardly of the observer and said top member in the ground for orienting said camouflage material in a second camouflage orientation and orienting said second camouflage pattern outwardly of the observer; loop and pile fasteners provided on said camouflage material; and at least one drawstring provided in one edge of said camouflage material, whereby said supports are foldable in said camouflage material and said camouflage material is secured by said loop and pile fasteners to bind said camouflage material and said supports in carrying configuration.

5,062,235
ARTIFICIAL BAIT FOR FISH AND SHELLFISH
Harold T. Cook, Jr., Bainbridge Island, and Mimi S. Fielding, Gig Harbor, both of Wash., assignors to Marco Seattle, Inc, Seattle, Wash.
Filed Jun. 22, 1990, Ser. No. 543,117
Int. Cl.[5] A01K *85/00*
U.S. Cl. 43—42 **17 Claims**

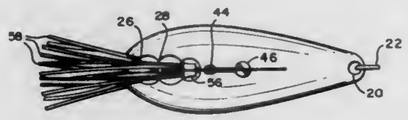
1. A method for making an artificial bait comprising:
forming a mixture of the following proportions:

alginate	4% to 8%
fiber	1% to 4%
attractant	trace to 40%
setting agent	0.5% to 4%
water	balance

all percentages being by weight based on the total weight of the composition;
forming the resulting mixture into a shape and allowing said mixture to gel.

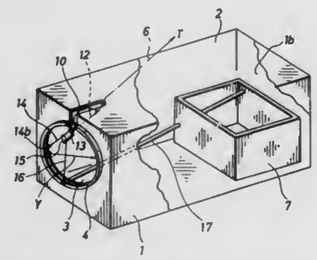
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,236
FISHING LURE
Gerald Fish, P.O. Box 1135, Cape Canaveral, Fla. 32930
Filed Feb. 5, 1990, Ser. No. 475,264
Int. Cl.[5] A01K *85/00*
U.S. Cl. 43—42.5 13 Claims



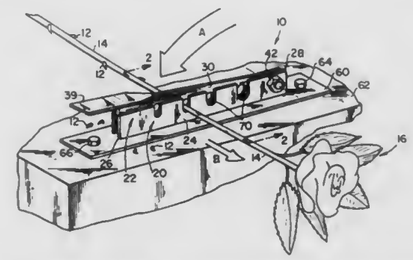
1. A fishing lure comprising:
a) a spoon portion;
b) said spoon portion having a longitudinal slot extending from an intermediate part of said spoon portion to one end thereof;
c) tooth means along the edges of said spoon portion defining the longitudinal slot;
d) a fish hook secured to said spoon portion and extending in overlying relation to the longitudinal slot thereof; and
e) a flexible tail portion positioned on said fish hook, a portion of said tail portion extending through the longitudinal slot and frictionally engaged by said tooth means to prevent relative movement between said tail portion and spoon portion.

5,062,237
NOOSING BEAR TRAP
Nobuhiro Kitagawa, 50-42, Sata, Mihama-cho, Mikata-gun, Fukui-ken, and Sigeru Gotsugi, 1-4-1, Sunagare, Tsuruga-shi, Fukui-ken, both of Japan
Continuation-in-part of Ser. No. 219,727, Jul. 7, 1988, abandoned. This application Dec. 29, 1989, Ser. No. 459,371
Claims priority, application Japan, Nov. 30, 1987, 62-182090[U]
Int. Cl.[5] A01M *23/34*
U.S. Cl. 43—86 39 Claims



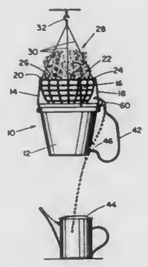
1. A noosing bear trap comprising:
a main body defining an interior space, said main body being provided with at least one access opening which allows insertion of a bear's hand into said interior space for taking a bait placed therein at a position spaced from said access opening;
a capturing wire fixable at one end and formed at the other end with a diametrically variable noosing loop located at or adjacent said access opening; and
trigger means which causes said noosing loop to be tensioned for diametrical reduction in response to the movement of the bear's hand for taking the bait; wherein
said capturing wire is normally subjected to a pre-tension; and
said trigger means includes a tension blocking device which normally blocks said pre-tension of said capturing wire before said noosing loop but allows said pre-tension to be applied to said noosing loop in response to the movement of the bear's hand for taking the bait.

5,062,238
ROSE THORN STRIPPER
Glenn Smith, and Roseanna Smith, both of R.R. #2, Box 33-3, Covington, Ind. 49732
Filed Jul. 13, 1990, Ser. No. 552,071
Int. Cl.[5] A01G *1/04*
U.S. Cl. 47—1.01 12 Claims



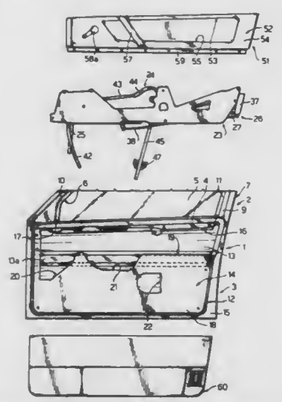
1. An apparatus for removing protuberances extending from a plant stem comprising:
a first stripping arm having a longitudinally extending first body terminating in an opposed first and second end, said first body having a first stripping arm edge extending between the first and second ends,
a second stripping arm having a longitudinally extending second body terminating in an opposed first and a second end, said second body having a second stripping arm edge extending between the first and second ends,
a pivot extending through and connecting the first end of the first body of the first stripping arm and the first end of the second body of the second stripping arm to allow pivotal movement of the second stripping arm relative to the first stripping arm, and
mounting means for mounting the first stripping arm to a base to permit stripping of protuberances from any stem received between the stripping arms without requiring the apparatus to be manually held thereby inhibiting injury from the protuberances during their removal.

5,062,239
METHOD AND APPARATUS FOR WATERING POTTED PLANTS
Arch W. Helton, 6575 W. LoopSouth STE. 650, Bellaire, Tex. 77401
Filed Feb. 26, 1990, Ser. No. 484,782
Int. Cl.[5] A01G *25/00*
U.S. Cl. 47—79 13 Claims



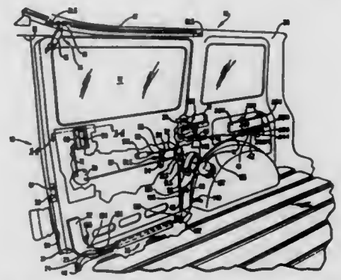
1. Apparatus for watering a hanging plant having a container with soil therein for growing plants and a bridle for suspension thereof, comprising:
(a) a receptacle having bottom and side wall means and forming an upwardly directed opening having sufficient dimension for collection of any water dripped from said hanging plant, said side wall means having a drain opening near said bottom wall;
(b) a plurality of hanger elements disposed for suspension of said receptacle, said hanger elements being adapted for releasable engagement with said container of said hanging plant;
(c) a water drain fitting being provided in said drain opening means and forming an outlet at the lower portion of said receptacle; and
(d) a flexible liquid drain tube extending from said and being of sufficient length to extend above said receptacle and to extend a predetermined distance below said receptacle, said flexible liquid drain tube forming an open free end.

5,062,240
VEHICLE DOOR
Enzo Brusasco, Turin, Italy, assignor to Roltra, Morse S.p.A., Vica-Rivoli, Italy
Filed Nov. 7, 1990, Ser. No. 609,768
Claims priority, application Italy, Nov. 9, 1989, 67984 A/89
Int. Cl.[5] E05F *11/48;* B60J *5/04*
U.S. Cl. 49—348 7 Claims



1. A vehicle door (1) having an upper window opening (6) fitted with a sliding window (5), and comprising, at the bottom, a box body (12) defined by an inner sheet (14) and an outer sheet (13) connected peripherally to each other; characterised by the fact that said inner sheet (14) presents an opening (16) extending over a relatively small upper portion of the same; a self-supporting frame (23) being connected in removable manner to said inner sheet (14) for closing said opening (16); a first finish panel (51) being connected to said inner sheet (14) for covering said frame (23); a second finish panel (60) being provided outside said box body (12) for covering said inner sheet (14); and door locking means (26, 27) and window regulating (24) and guide (25) means being connected to said frame (23).

5,062,241
VARYING RADIUS HELICAL CABLE SPOOL FOR POWERED VEHICLE DOOR SYSTEMS
Daniel L. DeLand, Davison, Mich., assignor to Masco Industries, Inc., Taylor, Mich.
Continuation-in-part of Ser. No. 497,487, Mar. 22, 1990, and a continuation-in-part of Ser. No. 497,546, Mar. 22, 1990, and a continuation-in-part of Ser. No. 497,603, Mar. 22, 1990, and a continuation-in-part of Ser. No. 497,504, Mar. 22, 1990, Pat. No. 4,984,385. This application Aug. 1, 1990, Ser. No. 561,313
Int. Cl.[5] E05F *11/00*
U.S. Cl. 49—460 64 Claims



33. In a cable-actuated door operator system having a cable spool, drive means for selectively rotating said cable spool about an axis in either of two directions, and a cable with one end interconnected with a movable door in order to cause movement of the door in response to rotation of said cable spool, a first portion of the movement of the door being a high displacement/low force movement, and a second portion of the movement of the door being a low displacement/high force movement, the improvement comprising: cable attachment means for securing the opposite end of the cable to said cable spool; and a groove formed along a generally helical path on a circumferential portion of said cable spool for windingly receiving the cable therein as said cable spool is selectively rotated in one direction and for unwindingly paying out the cable therefrom as said cable spool is selectively rotated in an oposite direction, the radial depth of said helical groove varying along at least a portion of said helical path in order to cause the cable to be wound onto, and paid out from, said varying-depth portion of said helical groove at a varying rate with respect to the rotation of said cable spool in both the high displacement/low force movement and the low displacement-/high force movement of the door, thereby causing the movable door to move at a correspondingly varying rate with respect to the rotation of said cable spool when said cable is wound onto, and paid out from, said varying-depth portion of said helical groove.

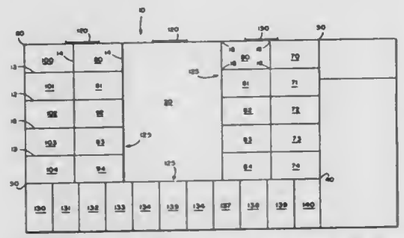
5,062,242
HIGH DENSITY STORAGE FACILITY
John Corcoran, Dennis, Mass. 02638
Filed Jul. 10, 1989, Ser. No. 378,156
Int. Cl.[5] E04H *3/04;* A47B *5/00, 53/00*
U.S. Cl. 52—36 1 Claim

1. A high density storage facility comprising:
a building enclosing a rectangular floor area of certain length and width;
a plurality of rectangular storage racks of certain height divided from top to bottom into storage slots, the slots extending the rectangular length of the racks and being opened and accessable for inserting and removing objects into and from the width ends of the racks; the racks being disposed within the enclosed rectangular floor area and including means for rolling the racks along the floor area, the racks arranged in row within the rectangular floor area the rows of racks comprising a series of spaced verti-

VOL 1132 ISS 1 NO 5 1991 UMI

cal supports interconnected by a series of spaced horizontal supports, the lengthwise sides of the racks being arranged substantially parallel to the lengthwise sides of the rectangular floor area, the rows comprising a plurality of side by side racks which collectively fit within and across the width of the floor area, said rows rollably moveable in a lengthwise direction along the floor area;

the building including a wall disposed substantially parallel to a lengthwise side of the rectangular floor area, the wall including door means selectively disposed along the



length of the wall for providing access to all of the width ends of all of the racks;

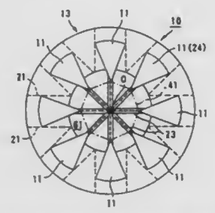
the racks being rollably moveable along the length of the enclosed rectangular floor area for providing access to the width ends of the racks from the door means, said racks disposed within the enclosed floor area sufficient to leave a portion of the floor area unoccupied which is of a size sufficient to provide access from the door means to the width ends of the racks upon selective movement of the rows along the length of the floor.

5,062,243

OPENABLE ROOF

Takenori Kumagai, Tokyo, Japan, assignor to Shimizu Construction Co., Ltd., Tokyo, Japan

Filed Nov. 24, 1989, Ser. No. 440,928
Claims priority, application Japan, Nov. 24, 1988, 63-296448
Int. Cl.[5] E04B *1/346*
U.S. Cl. 52—66 **15 Claims**



1. An openable roof capable of opening and closing a central space having a certain point, said openable roof comprising;

a stationary roof section arranged in spaced relation to said certain point of said central space by a predetermined distance, said stationary roof section having an inner periphery which defines said central space;

a movable roof section arranged on said stationary roof section and radially movable relatively thereto toward and away from said certain point of said central space between an open position where said central space is open and a closed position where said central space is closed, said movable roof section being divided into a plurality of movable roof units, each of said movable roof units including a radially movable roof-structural support movable relative to said stationary roof section and a radially movable roof finish movable relative to said movable roof-structural support, said movable roof finishes having their respective apexes which are substantially identical in central angle with each other, wherein, in said closed position, said apexes of said movable roof finishes abut against each other and said movable roof units cooperate with each other to close said central space, and wherein, in said open position, said movable roof finishes are spaced from each other and are spaced from said certain point of said central space to open the latter; and

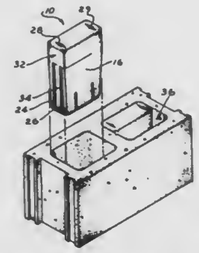
drive means for drivingly moving said movable roof units between said open and closed positions.

5,062,244

INSULATING INSERT FOR THE CORES OF BUILDING BLOCKS

Edgar R. Ducharme, 28 Shady Brook La., West Springfield, Mass. 01089

Filed Mar. 4, 1991, Ser. No. 664,091
Int. Cl.[5] E04B *1/62*
U.S. Cl. 52—98 **9 Claims**



1. An insulating insert for the cores of building blocks, said insert comprising a generally rectangular body having an upper and lower face, front and back surfaces, and sidewalls, said insert having a plurality of elongated internal cavities extending downwardly from said upper face toward said lower face and having a plurality of compression slots extending upwardly from said lower face toward said upper face and extending outwardly from said front surface to said back surface, such that said elongated internal cavities and said compression slots terminate at or beyond a common horizontal plane within said body of said insert, thereby enabling lateral compression over the full height of said insert and thereby enabling said insert to conform to the cores of different sizes and shapes of building blocks.

5,062,245

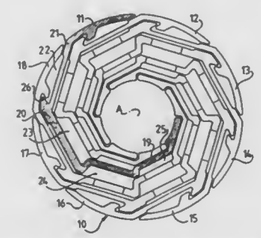
TELESCOPIC BEAM

Nigel A. Dent, Standingford House, Cave St., Oxford, OX4 1BA, England

PCT No. PCT/GB89/00553, § 371 Date Feb. 23, 1990, § 102(e) Date Feb. 23, 1990, PCT Pub. No. WO89/11575, PCT Pub. Date Nov. 30, 1989
PCT Filed May 19, 1989, Ser. No. 458,614
Claims priority, application United Kingdom, May 21, 1988, 8812063
Int. Cl.[5] E04H *12/34*
U.S. Cl. 52—118 **7 Claims**

1. An extendible beam characterized by being made up of an array of nested overlapping substantially identical members disposed substantially symmetrically about a longitudinal axis of the beam, the members having substantially arcuate cross-sections in a direction transverse the axis; each member of the array providing for angular axial alignment of that member relative to at least one other member in the array and for

slidable engagement of that member with that other member so that relative linear movement between two adjacent members



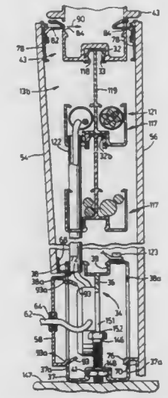
occurring during extension of the beam is constrained so as to be substantially or entirely in the direction of the axis.

5,062,246

PARTITION STRUCTURES AND FRAME ELEMENTS THEREFOR

Christopher C. Sykes, 211 Queens Quay West, Apt. 902, Toronto, Ontario, Canada M5J 2M6

Continuation-in-part of Ser. No. 271,920, Nov. 16, 1988, Pat. No. 4,905,478. This application Feb. 26, 1990, Ser. No. 484,520
The portion of the term of this patent subsequent to Mar. 6, 2007, has been disclaimed.
Int. Cl.[5] E04B *2/82*
U.S. Cl. 52—126.4 **5 Claims**



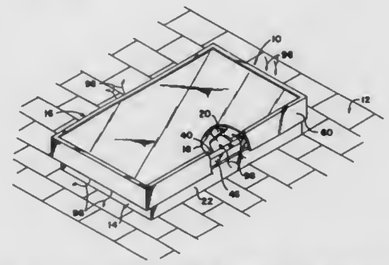
1. A modular partition structure comprising a plurality of rectangular frame elements formed by peripheral rails defining rectangular openings of uniform size therein, a plurality of rectangular panels of uniform size attaching to said frame elements substantially to fill said openings, and at least one of said frame elements being provided with a service cross beam for carrying electrical and telecommunication service members, said beam extending across an intermediate portion of one of said openings and connected at opposite ends to opposite peripheral rails of the frame element, and including a narrow panel attaching to said cross beam and to a peripheral rail of the frame element parallel thereto and substantially filling the space therebetween, and a cover plate attaching to and covering said cross beam, wherein said cross beam is of generally I-section with the upright of said I disposed parallel to the plane of the frame element, wherein said beam offers a channel section recess on each face of the frame element.

5,062,247

VENTILATED MULTIPLE PANE SKYLIGHT

Marian A. Dittmer, 2000 Woodland Boulevard, Fort Myers, Fla. 33907

Filed Apr. 2, 1990, Ser. No. 504,120
Int. Cl.[5] E04B *7/18*
U.S. Cl. 52—200 **13 Claims**



1. A ventilated, multiple pane skylight comprising:

a base portion for mounting on a building to generally peripherally surround a rooftop opening therein; and

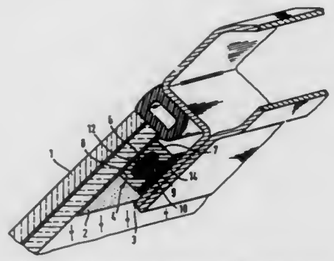
an upper portion supported by said base portion, above the rooftop opening, said upper portion including inner and outer radiation attenuating members, means for holding said members spaced apart to form an interstitial space therebetween, and air inlet and outlet means formed through said upper portion above the rooftop opening in communication with said interstitial space for allowing outside air to ventilate said space.

5,062,248

GLASS PANE INTENDED DIRECT BONDING, ESPECIALLY AUTOMOBILE GLASS PANE

Heinz Kunert, Cologne, Fed. Rep. of Germany, assignor to Saint-Gobain Vitrage, Courbevoie, France

Continuation of Ser. No. 84,863, Aug. 13, 1987, abandoned. This application Mar. 22, 1989, Ser. No. 326,441
Claims priority, application Fed. Rep. of Germany, Aug. 13, 1986, 3627536
Int. Cl.[5] E06B *3/56*; B60J *1/00*
U.S. Cl. 52—208 **13 Claims**



1. A glass pane assembly bonded to a fixing web of a window, comprising:

a glass pane;

a hardened plastic profile strand adhered to an edge portion of said pane, said profile strand having a U-shaped cross-section with flanges defining a channel shaped cavity, said flanges having anchorage projections oriented towards one another to define cut back zone with increased width as compared to a spacing between said projections; and

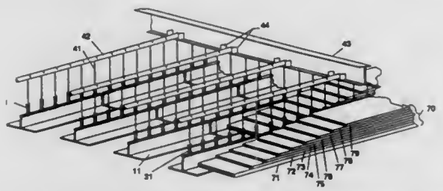
a hardened adhesive strand filling said channel and adhering to the fixing web of the window opening,

whereby said hardened plastic profile strand and said adhe-

VOL 1132 ISS 1 NO 5 1991 UMI

sive strand are united by a form-fitting mechanical connection resulting from the width of the cut back zones being greater than the spacing between said projections.

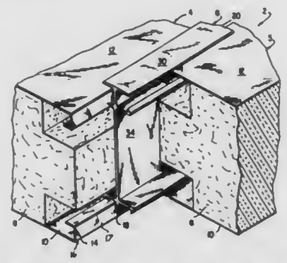
5,062,249
FURNACE CROWN MEANS AND METHOD
John D. Smagner, 109 South Ave., Watkins Glen, N.Y. 14891
Filed Jul. 20, 1989, Ser. No. 382,987
Int. Cl.[5] E04C *1/24*
U.S. Cl. 52—320 **12 Claims**



1. A crown structure for furnaces and kilns used to fire materials at a high temperature comprising:
a. inverted T-rails which comrise:
1. a slotted narrow attaching flange,
2. a broad base flange parallel to said narrow attaching flange and
3. a T-rail web which connects the two flanges, such that the T-rails form T-rail rows when placed end to end;
b. bone and hanger device combinations each combination including a bone and a hanger device for connection to said T-rails;
c. said bones including:
1. a T-rail attachment end with an opening for attachment to said T-rail,
2. a hanger attachment end with a hole for attachment to said hanger device and
3. a stem connecting the two ends;
d. an ultimate support system capable of supporting the kiln crown sturcture including pipes for attachment of said hanger devices;
e. layers of insulation supported by and evenly separating the T-rail rows;
f. wherein said T-rails and said bones are made of suitable heat-resistant structural materials;
g. wherein the improvement includes the following modifications:
1. said inverted T-rail is slotted forming slots along its narrow attaching flange, to allow for easier attachment and removal of the said bones, and stopper means forming stops to each side of the said slot such that the slot evenly divides the stops which thus allows said bones to be attached and positioned such that the said bones are evenly spaced upon said T-rail,
2. rigid insulation cases fitted securely and fully into the space formed between said bones, above and within the space formed between said layers of insulation and
3. said insulation cases and said T-rail stopper means combine to lock said bones providing for better support of the T-rails and thus for the entire crown stucture.

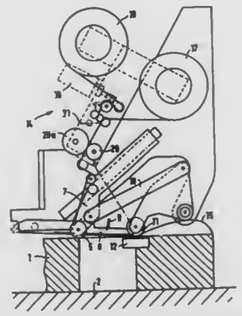
5,062,250
INSULATING PANEL SYSTEM, PANELS AND CONNECTORS THEREFOR
David Buzzella, Miami Lakes, Fla., assignor to Metal Tech, Inc., Hialeah, Fla.
Filed Feb. 27, 1990, Ser. No. 485,560
Int. Cl.[5] E04C *3/28*
U.S. Cl. 52—584 **19 Claims**

1. An insulating panel system comprising:
panel means for insulating, said panel means comprising a skin adjacent and in contact with a first face of an insulating foam core and a second skin adjacent and in contact with a second face of said insulating foam core opposite said first face, said first skin terminating in an elongated C-shaped edge and said second skin terminating in an elongated C-shaped edge, wherein portions of said foam core are cut away around said elongated C-shaped edges of said first and second skins, and wherein a plurality of said panel means are joined in adjacent relationship to form said insulating panel system; and
connecting means for joining said C-shaped elongated edges



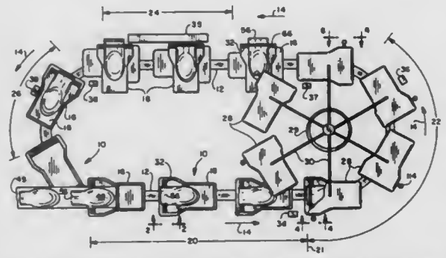
of said first skin and said second skin of each of panel means to be joined in adjacent relationship, said connecting means comprising first channel means for receiving said C-shaped elongated edges of said first skin of adjacent panel means to be joined, and a sheet member joining said first channel means and said second channel means, wherein at least one of said first and second channel means comprises lip means for retaining elongated edges of outer skins of panels to be joined, and wherein a portion of the foam core of each panel means substantially abuts said sheet member.

5,062,251
PROCESS AND DEVICE FOR APPLICATION OF A CARRYING GRIP DURING THE AUTOMATIC SEALING OF CARTONS
Werner T. Gunther, Neuss, Fed. Rep. of Germany, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Division of Ser. No. 190,130, May 4, 1988. This application Nov. 27, 1989, Ser. No. 441,328
Int. Cl.[5] B65B *61/14*
U.S. Cl. 53—134.1 **6 Claims**



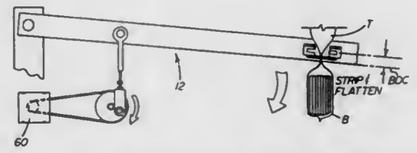
1. A device for application of a carrying grip by means of an adhesive tape onto cartons which are continuously moving in a row past the device, each of the cartons having a front face, a longitudinal face, and a rear face, and a front edge separating the front face and the longitudinal face, and a rear edge separating the longitudinal face from the rear face, the device comprising:
a swingable lever bar;
a front application roll on said swingable lever bar for holding the beginning of the adhesive tape, said lever bar being shiftable from a first position (a) whereby said front application roll firmly adheres the beginning of the adhesive tape to the front face of the carton, to a second position (b) on the longitudinal side of the carton;
a rear application roll mounted on said lever bar and connected with said front application roll by said lever bar and simultaneously shiftable from a first position (c) into a second position (d) which is the same height as said second position (b) of said front application roll, so that when one of the cartons moves by said front application roll in said second position (b), the adhesive tape is applied over the length of the longitudinal face of the carton in a fashion which parallels the direction in which the carton is moving:
means for actuating a handle forming assembly responsive to the front face of a carton passing; a predetermined point relative to the device, said handle forming assembly including means for forming an extra length of adhesive tape on the upper side of the carton, and means for applying a cover to the adhesive layer of a section of the adhesive tape corresponding in length to the extra length of the subsequent handle; and
whereby as said application roll in its second position (d) moves over the rear edge of the longitudinal face of the carton, said actuating means deactivates said handle forming assembly, whereupon said rear application roll moves downward along the rear face of the carton into said first position (c) while said front application roll swings into said first position (a) and thereby firmly adheres the free end of the cut-off adhesive tape onto the rear face of the carton so as to secure the handle to the carton.

5,062,252
VACUUM PACKAGING METHOD AND APPARATUS
Vytautas Kupcikevicius, Oaklawn, Ill., assignor to Viskase Corporation, Chicago, Ill.
Filed Aug. 8, 1990, Ser. No. 564,231
Int. Cl.[5] B65B *31/02*
U.S. Cl. 53—434 **31 Claims**



1. A method of vacuum packaging articles in sealable bags comprising the steps of:
a) placing an open article-containing sealable bag at a loading zone and drawing the open neck of the bag to a flat width over a first clamp surface;
b) moving the article-containing bag and first clamp surface into an evacuation zone and at least partly evacuating air from the bag through the open neck while holding the neck at substantially its flat width over the first clamp surface;
c) moving a second clamp surface against the first clamp surface in the evacuating zone and clamping the bag neck therebetween for effecting a temporary gas-tight seal of the evacuated, article-containing bag;
d) moving the evacuated, article-containing bag from the evacuation zone through a region of atmospheric pressure to a sealing zone and maintaining said temporary gas-tight seal during said movement through the atmospheric pressure region;
e) sealing the clamped bag neck across its flat width in the sealing zone to effect a permanent gas-tight seal closure of the bag neck; and
f) moving the permanently sealed, evacuated, article-containing bag from the sealing zone to an unloading zone, unclamping the bag neck and removing the permanently sealed article-containing bag from between the said clamping surfaces.

5,062,253
COMBINED FILM FEEDING STRIPPING AND SEALING FOR BAG FORMING AND METHOD
Forrest C. Bacon, and William A. Hadden, both of Conyers, Ga., assignors to Kliklok Corporation, Decatur, Ga.
Continuation of Ser. No. 304,315, Jan. 31, 1989, Pat. No. 4,996,825. This application Dec. 18, 1990, Ser. No. 629,385
The portion of the term of this patent subsequent to Mar. 5, 2008, has been disclaimed.
Int. Cl.[5] B65B *9/08, 9/10*
U.S. Cl. 53—451 **9 Claims**



1. A combined feeding stripping and sealing apparatus for use in packaging product in a bag formed form a continuous film tube in a form, fill and seal packaging machine, comprising:
means for feeding said tube;
a carriage;
means for driving said carriage in a longitudinal direction along said tube;
sealing jaw means mounted on said carriage for movement between closed and open positions;
stripping means on said sealing jaw means for stripping the product prior to sealing;
means mounted on said carriage and connecting to said sealing jaw means for selectively moving said sealing jaw means in a first direction toward the closed position for stripping and sealing, and moving said sealing jaw means in a second direction toward the open position to release the formed bag; and
control means for at least one of said feeding means and said driving means programmable to vary the relative movement of said film and said carriage for adjustment of the stripping length;
whereby said feeding, stripping and sealing is performed in a precise manner to maximize packaging machine speed.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,254

METHOD FOR MAKING AN OPTICAL FIBER COATING DISPENSER PACKAGE

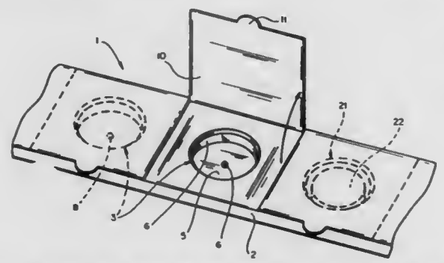
Akira Tomita, Redwood City; Stephen H. Diaz, Palo Alto; Robert S. Dubrow, and Michael Feldman, both of San Carlos, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

PCT No. PCT/US89/02197, § 371 Date Oct. 31, 1990, § 102(e) Date Oct. 31, 1990, PCT Pub. No. WO89/11668, PCT Pub. Date Nov. 30, 1989

PCT Filed May 19, 1989, Ser. No. 601,813

Int. Cl.[5] B05D *1/26*; B65B *7/26*

U.S. Cl. 53—467 **4 Claims**



1. A method of making a dispenser for dispensing a coating material onto an end of an optical fiber, comprising the steps of:

piercing an elastic membrane with a hollow needle;

ejecting only a generally spherical quantity of a coating material from the needle;

withdrawing the needle from the membrane, the membrane being constructed so as to substantially seal upon itself upon withdrawal of the needle therefrom and so as to pierce the coating material and separate a mass thereof from the needle such that the coating material mass is disposed on a top surface of the membrane.

5,062,255

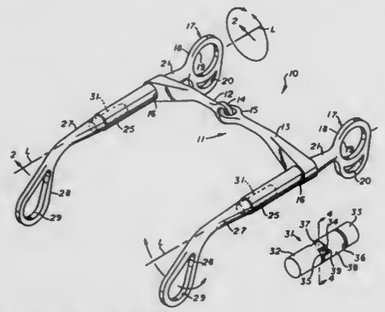
BRIDLE BIT

Ronald J. Myler, P.O. Box 143, Crockett, Tex. 75835, and Leo Benjak, 24 Barakee St., Marsden 4203 Queensland, Australia

Continuation-in-part of Ser. No. 196,073, May 19, 1988, Pat. No. 4,884,390. This application Sep. 15, 1989, Ser. No. 407,624

Int. Cl.[5] B68B *1/06*

U.S. Cl. 54—7 **20 Claims**



1. A bridle bit comprising

a mouthpiece member adapted to be received in the mouth of a horse and having laterally extending ends,

head stall ring members mounted on the outer ends of said mouthpiece and extending rearwardly therefrom,

a curb chain slot in said head stall ring member,

a cheek piece member extending forwardly from each lateral end of said mouthpiece to reside closely adjacent the cheek of the horse,

a rein ring member rotatably mounted on each said cheek piece member and extending forwardly therefrom and rotatable relative thereto partially about their longitudinal axes, and

means supporting said head stall ring member and cheek piece member for rotation as a unit relative to each other and relative to said mouthpiece member.

5,062,256

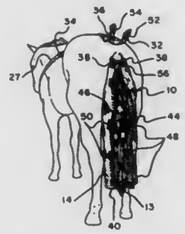
HORSE TAIL COVER AND METHOD

Betty M. Kingett, Lindenwold, N.J.; Donald L. Kingett, executor, c/o Kulzer & di Padova 76 Euclid Ave., Haddonfield, N.J. 08033, and Kingett, III, executor Albert E., Box 253 C Cohawkin Rd., Sewell, N.J. 08080

Filed Oct. 3, 1989, Ser. No. 416,487

Int. Cl.[5] B68B *5/04*

U.S. Cl. 54—78 **11 Claims**



1. A device to cover a horse's tail comprising:

(a) a cloth panel comprising:

(i) a top edge,

(ii) a bottom edge substantially parallel to said top edge, and

(iii) two lengthwise edges,

(b) lengthwise edge attachement means to detachably attach the lengthwise edges together to form the cloth panel into a tubular shape,

(c) top edge attachment means to detachably attach portions of the top edge together to partially close off and reduce the diameter of the top edge of the tubular shaped cloth panel,

(d) strap means attachable proximate the top edge comprising a strap of sufficient length to extend from the top of horse's tail over the horse's back, over the horse's chest above the horse's shoulders, and over the back to the top of the horse's tail, to hold up the cloth panel up under the horse's tail, and

(e) a means to detachably attach at least end portions of said bottom edge together to close off said bottom edge of said tubular shaped cloth panel.

5,062,257

MOWING APPARATUS

William M. Morris, 84 Ingleston Rd., Wakerley, 4154, Australia

Filed Jul. 9, 1990, Ser. No. 550,087

Claims priority, application Australia, Jul. 13, 1989, PJ5228; Dec. 8, 1989, PJ7764

Int. Cl.[5] A01D *34/77*

U.S. Cl. 56—11.1 **10 Claims**

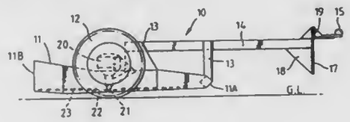
1. Mowing apparatus for cutting grass or the like, the mowing apparatus being adapted in use to be pulled or pushed by a vehicle, comprising:

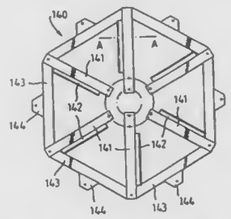
a wheeled frame;

a cutting member mounted for rotation about a generally vertical axis;

drive means connected between at least one wheel of the wheeled frame and the cutting member whereby the cutting member is located by rotation of the wheel(s);

wherein the cutting member comprises a central hub member, a plurality of equally spaced, generally flat, radial arm members having their inner ends connected to the hub member, each blade member having an upswept portion





along its trailing edge such that a downward force is exerted on the blade when it rotates rapidly through air; and

a plurality of connection members each connected between a respective pair of adjacent arm members and each being adapted to have a blade member connected thereto.

5,062,258

TERRAIN TRAVERSING APPARATUS HAVING MEANS FOR TRANSFERRING GRASS CLIPPINGS TO COLLECTION BOX

Kazuo Samejima, and Hiroaki Kawakita, both of Osaka, Japan, assignors to Kubota LTD, Osaka, Japan

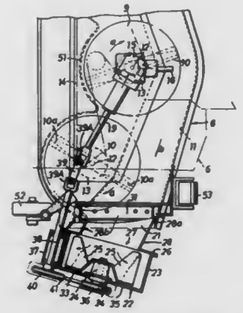
Filed Jul. 25, 1986, Ser. No. 889,364

Claims priority, application Japan, Aug. 13, 1985, 60-178313; Jan. 23, 1986, 61-13403

The portion of the term of this patent subsequent to Jun. 26, 2007, has been disclaimed.

Int. Cl.[5] A01D *34/63, 87/10*

U.S. Cl. 56—202 **8 Claims**



1. A terrain travelling vehicle comprising:

a mower including a deck, a mower assembly having meshing bevel gears, and mower cutters, said deck having forward, rearward and two side portions, said mower cutters being driven by said mower assembly to cut grass and the like to form clippings, said mower cutters being set in said deck and being rotatable about a vertical shaft, said deck having an opening in at least one side thereof, for discharge of clippings;

a collection box for storing said clippings;

a housing connected to said discharge opening of said deck, said housing having an inner side and an outer side, said inner side having an inlet for receiving said clippings from said mower and an outlet for discharge of said clippings from said housing;

a duct assembly connecting said outlet of said housing to said collection box;

an impeller mounted within said housing, said impeller including a plurality of blades which are rotatable about and driven by a horizontal shaft such that rotation of said blades of said impeller moves said clippings from said inlet to said outlet of said housing and then moves said clippings through said duct assembly to said collection box, said horizontal shaft being mounted through said outer side of said housing such that said inlet is free of obstructions which may tend to clog clippings inn said housing;

power input means for driving at least said mower assembly;

an input shaft located between said power input means and said mower assembly, said input shaft extending in a direction generally parallel to the general direction of travel of said vehicle;

a power takeoff shaft being driven by said power input means via said mower assembly and extending from said mower assembly in a direction opposite to and at an angle offset from the general direction of travel of said vehicle; and

means for driving said horizontal shaft for rotation of said impeller, said means for driving being powered by said power takeoff shaft being located externally of said housing on said outer side thereof, said means for driving including a transmission shaft and a power receiving shaft, said power receiving shaft and a power receiving shaft, said power receiving shaft being connected to said power takeoff shaft by a universal joint and being connected to said transmission shaft by another universal joint, said power receiving shaft being generally parallel to said horizontal shaft, said means for driving said horizontal shaft further including means for belting the power receiving shaft to said horizontal shaft, said means for belting being arranged externally of said outer side of said housing, and

wherein said housing further comprises a front and rear side and wherein said horizontal shaft has a free end positioned generally midway between the front and rear side of said housing, said inlet of said housing having a top and bottom side each positioned at a predetermined elevation, and said free end being positioned at a height between said predetermined elevations.

5,062,259

ROTARY DRIVE MECHANISMS

Brian R. Lipscombe, Bishops Cleeve, England, assignor to Ultra Hydraulics Limited, Cheltenham, England

Filed May 21, 1990, Ser. No. 526,552

Claims priority, application United Kingdom, Apr. 4, 1990, 9007676

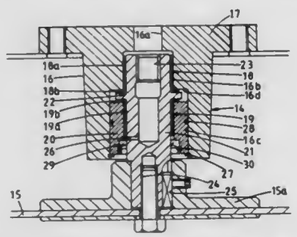
Int. Cl.[5] A01D *55/18*

U.S. Cl. 56—255 **11 Claims**

1. A rotary drive mechanism comprising an hydraulic motor, a shaft rotatable by the hydraulic motor, a blade connected to the shaft, and a bearing assembly supporting the shaft, the

VOL 1132 ISS 1 NO 5 1991 UMI

bearing assembly comprising a bearing housing, a plain journal bearing mounted in said housing, a thrust bearing also mounted



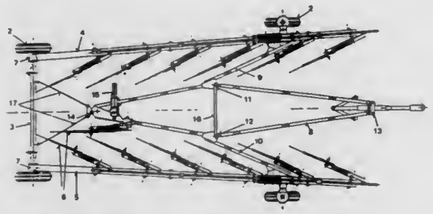
in said housing, and means for lubricating the journal and thrust bearings with hydraulic fluid from the hydraulic motor.

5,062,260

PULL TYPE BIFOLD HAY RAKE

Carletto Tonutti, Tricesimo, Italy, assignor to Tonutti S.P.A., Italy

Filed Sep. 25, 1990, Ser. No. 587,400
Claims priority, application Italy, Mar. 2, 1990, 83341/90[U]
Int. Cl.[5] A01D *78/00*
U.S. Cl. 56—380 **12 Claims**



1. A pull type bifold rake, comprising:
a cross member;
a pair of rake arms, each having a plurality of rotatable rake wheels mounted thereto, and each rake arm being pivotably mounted at one of its ends to the cross member; and
a closed polygonal frame assembly disposed between the pair of rake arms and being interconnected with each rake arm at a point spaced from the pivotable mounting of each rake arm to the cross member, the frame assembly being movable between an operative position in which the frame assembly assumes a first closed polygonal configuration and in which the rake arms are pivoted about their pivotable mounting to the cross member away from each other to a position in which they are non-parallel to each other to form substantially a V-shape when viewed in plan, and a retracted position in which the frame assembly assumes a second closed polygonal configuration and in which the rake arms are pivoted inwardly toward each other; and
means for moving the frame assembly between its operative position and its retracted position.

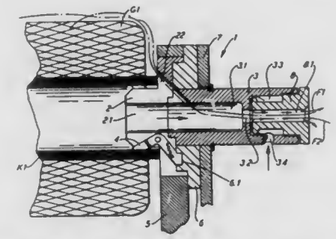
5,062,261

METHOD AND APPARATUS FOR TRANSPORTING A YARN PACKAGE TO A YARN PROCESSING MACHINE

Heinz Fink, Krefeld, Fed. Rep. of Germany, assignor to Palitex Project Company GmbH, Krefeld, Fed. Rep. of Germany

Filed Jan. 18, 1990, Ser. No. 467,169
Claims priority, application Fed. Rep. of Germany, Jan. 21, 1989, 3901770
Int. Cl.[5] D01H *9/18*
U.S. Cl. 57—281 **7 Claims**

1. Method of transporting a wound hollow yarn package having a loose yarn end from a yarn processing machine while maintaining the loose yarn end in defined and fixed positions; said method comprising the steps of:
gripping the yarn package in the yarn processing machine by inserting a hollow gripper device into one end of the hollow yarn package;
pneumatically positioning the loose yarn end from the gripped yarn package in the hollow gripper device;



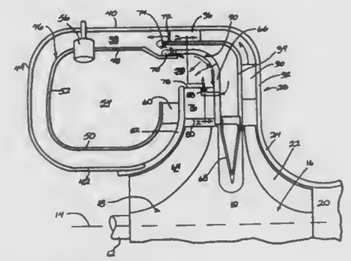
removing the yarn package from the yarn processing machine and placing the yarn package on a hollow pin of a transporting mechanism by the gripper device;
pneumatically removing the loose yarn end of the yarn package from the gripper device and positioning the yarn end in the hollow pin of the transporting mechanism;
removing the gripper device; and
transporting the yarn package.

5,062,262

COOLING OF TURBINE NOZZLES

Jack R. Shekleton, San Diego, Calif., and Douglas C. Johnson, Rockford, Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Dec. 28, 1988, Ser. No. 291,056
Int. Cl.[5] F02C *3/05*
U.S. Cl. 60—39.36 **10 Claims**



1. A gas turbine comprising:
a rotary compressor;
a radial inflow turbine wheel mounted for rotation and coupled to said compressor;
an annular nozzle and shroud structure surrounding said turbine wheel and including an annular, generally radially extending front shroud on one side of said turbine wheel, an annular, radially and axially extending rear shroud on the opposite side of said turbine wheel and a plurality of vanes interposed between and supported by said shrouds radially outwardly of said turbine wheel, said vanes having leading edges remote from said turbine wheel and downstream edges oppositely thereof;
a combustor for receiving compressed air from said compressor and fuel from a source, combusting the same and providing hot gases of combustion to said nozzle and shroud structure at the leading edges of said vanes;
at least one passage in each said vane; and

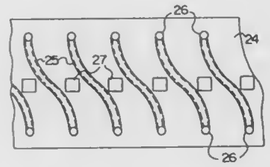
means associated with said compressed air for providing compressed air to said passages;
said passages having means for defining an opening in the associated leading edge generally centrally of said vane sized to provide resistance to plugging by contaminants present in said compressed air.

5,062,263

EXHAUST GAS DEPURATOR HAVING A CATALYTIC ACTIVITY, AND SILENCER, FOR INTERNAL COMBUSTION ENGINES

Luigi Carboni, Turin, Italy, assignor to Luciano Bonansea, Turin, Italy and I.R.T.I. Istituto Di Ricera E Trasferimenti Tecnologic Alle Imprese srl, Rome, both of, Italy, a part interest to each

Filed Mar. 14, 1990, Ser. No. 493,314
Claims priority, application Italy, Apr. 12, 1989, 67264 A/89
Int. Cl.[5] F01N *3/28*
U.S. Cl. 60—299 **11 Claims**



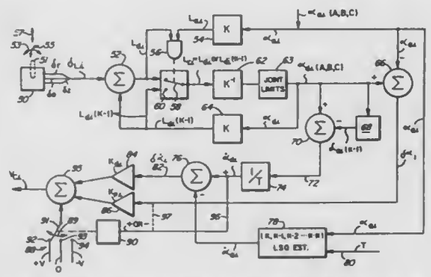
1. An exhaust gas depurator having a catalytic activity, for internal combustion engines, further acting as discharge silencer, comprising the combination of:
at least one element having a catalytic activity, said element having a catalytic activity including a strip of metal sheet covered by a catalytically active material and wound to a spiral of several coils, said strip having a number of drawn projections, inclined with respect to the longitudinal and transverse directions of the strip, acting as spacers among the winding coils of the strip and acting as baffles for the exhaust gas flow, said inclined projections having a sinuous shape, each said projection showing on a half thereof a curvature directed towards one side, and on the other half thereof a curvature directed towards the opposite side; and
at least one substantially non-dissipative noise silencer.

5,062,264

HYDRAULIC CONTROL SYSTEM

Réal N. Frenette, and Peter D. Lawrence, both of Vancouver, Canada, assignors to The University of British Columbia

Filed Jul. 24, 1990, Ser. No. 556,417
Int. Cl.[5] F16D *31/00*; B66C *23/00*
U.S. Cl. 60—427 **18 Claims**



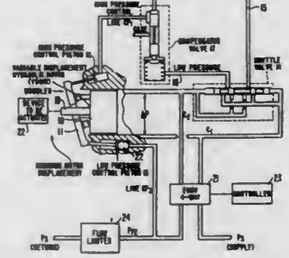
1. A motion control system for actuators adapted to move arm segments of an articulated arm, said arm segments being interconnected by joints comprising a control means generating δr, δΘ and δz signals for r, Θ and z directional movements of an end point at the free end of an arm segment, actuator means for displacing each said arm segment relative to one of said joints, means to actuate each of said actuators as required to obtain a desired movement of said end point as directed by said r, Θ, and z signals, means to measure the actual joint position of each of said joints, means to determine the desired joint position of each of said joints, means to determine the actual end point location of said end point, means to calculate a new desired end point location based on said δr, δΘ and δz signals and the previous desired end point location of said end point, means to compare said determined actual end point location with said calculated new desired end point location, means to send modified r, Θ and z signals to adjust the joint position of said joints if said actual end point location differs from said new desired end point location by more than a preset limit and means to generate control signals to control the operation of said actuating means to obtain the desired movement of said end point based on said modified r, Θ and z signals to reduce the discrepancy between said actual end point location and said new desired end point location.

5,062,265

HYDROMECHANICAL CONTROL OF DIFFERENTIAL PRESSURE ACROSS A VARIABLE DISPLACEMENT HYDRAULIC MOTOR

Albert L. Markunas, Roscoe, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Aug. 1, 1989, Ser. No. 387,986
Int. Cl.[5] F15B *11/02*; F03C *1/40*
U.S. Cl. 60—450 **13 Claims**



5. An apparatus for mechanically actuating a device with a variable displacement hydraulic motor driven by hydraulic fluid from a hydraulic power supply, comprising a device to be mechanically actuated, a variable displacement hydraulic motor, means for mechanically connecting the output of the motor to said device for actuatting said device, a hydraulic power supply for supplying hydraulic fluid for driving the motor, fluid passage means for supplying pressurized hydraulic fluid to the motor from said hydraulic power supply and for returning pressurized hydraulic fluid from the motor to the hydraulic power supply, and means responsive to the hydraulic pressure differential between said supply pressurized fluid and said return pressurized fluid for controlling the hydraulic pressure differential across the motor by adjusting the displacement of the motor to maintain a near constant hydraulic pressure differential across the motor when the motor is operating under an opposing load in an intermediate region of its speed-load torque profile, and including means responsive to the pressure of the return pressurized fluid for automatically reducing and maintaining the displacement of the motor to a minimum when the motor is operating under an aiding load.

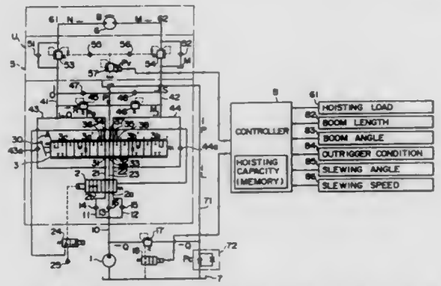
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,266

SLEWING CONTROL DEVICE FOR CRANE

Hideaki Yoshimatsu, Akashi, Japan, assignor to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Aug. 23, 1990, Ser. No. 571,108
Int. Cl.[5] F15B *11/04*
U.S. Cl. 60—466 2 Claims



1. A slewing control device for a crane for supplying a discharge oil from a pump through a direction selecting valve to a slewing motor and for controlling a rotational direction of said slewing motor, said slewing control device comprising:

a main circuit including select means provided between said pump and said direction selecting valve, said select means selecting either an unload condition of said pump where a hydraulic oil in said main circuit is communicated with a tank or an on-load condition of said pump where communication between said main circuit and said tank is blocked;

a first check valve provided between said direction selecting valve and a suction port of said slewing motor;

a second check valve provided between said direction selecting valve and a discharge port of said slewing motor, said first and second check valves permitting flow of said hydraulic oil from said direction selecting valve to said slewing motor;

a first electromagnetic proportional pressure control valve provided between said direction selecting valve and said suction port of said slewing motor in parallel with said first check valve;

a second electromagnetic proportional pressure control valve provided between said direction selecting valve and said discharge port of said slewing motor in parallel with said second check valve, said first and second electromagnetic proportional pressure control valves controlling pressure of oil discharged from said slewing motor to said direction selecting valve; and

control means for outputting a select signal to said select means to select said unload condition and also for outputting a pressure control signal to said second electromagnetic proportional pressure control valve between said direction selecting valve and said discharge port to control oil pressure on a discharge side of said slewing motor to stop rotation of said slewing motor.

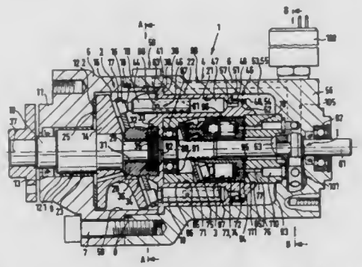
5,062,267

HYDROSTATIC TRANSMISSION CONTAINING AN AXIAL PISTON MOTOR LOCATED IN A RECESS OF A VALVE CONTROLLED AXIAL PISTON PUMP

Rainer Stölzer, Ulm, Fed. Rep. of Germany, assignor to Hydromatik GmbH, Elchingen, Fed. Rep. of Germany

Filed Dec. 6, 1989, Ser. No. 446,940
Claims priority, application Fed. Rep. of Germany, Dec. 8, 1988, 3841382
Int. Cl.[5] F16D *39/00*
U.S. Cl. 60—493 22 Claims

20. A hydrostatic transmission comprising a housing containing an axial piston pump, which includes a first drive part rotatably driven by a drive shaft, and a stationary cylinder block with pistons, and comprising an axial piston motor, connected to said pump by at least one hydraulic line, wherein said motor comprises a non-rotatable second drive part and a rotatable cylinder drum and is integrated in the pump housing on a side opposite to said first drive part, the cylinder drum



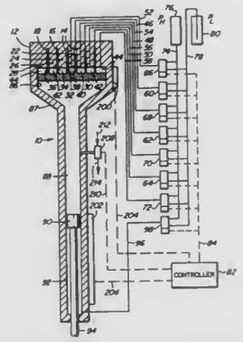
being fixed non-rotatably on an output shaft and being arranged at least partly on an output shaft and being arranged at least partly in a recess in the cylinder block of said pump said transmission also including a pressure chamber of said pump defined by an output side end wall of the housing and said cylinder block.

5,062,268

FLUID ACTUATOR

Andrew B. Dunwoody, Richmond, Canada, assignor to The University of British Columbia, Canada

Continuation-in-part of Ser. No. 473,748, Feb. 2, 1990. This application Sep. 20, 1990, Ser. No. 585,524
Int. Cl.[5] F15B *7/00*
U.S. Cl. 60—533 16 Claims



1. A digital hydraulic actuator comprising a fixed element, a driven piston cooperating with a first cylinder formed by said fixed element, means to digitally vary the pressure acting between said fixed element and said driven piston tending to displace said driven piston in said first cylinder, said means to digitally vary the pressure acting between said fixed element and said driven piston including a first set of different cross sectional area piston cavities and a first set of different cross section area pistons on said fixed element, a second set of different cross sectional area pistons and a second set of different cross sectional area piston cavities on said driven piston, each piston of said second set of pistons being received within said one of said cavities of said first set of piston cavities and each cavity of said second set of piston cavities receiving a piston of said first set of pistons, and means to selectively apply fluid under selected pressures to each cavity of said first and

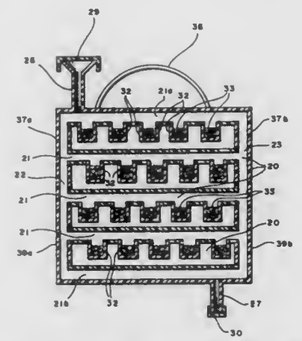
said second sets of cavities, a second cylinder, a hydraulic coupling hydraulically connecting said first cylinder to said second cylinder, said second cylinder having a cross sectional area different from said first cylinder, a working piston in said second cylinder adapted to apply a force determined by the ratio of the cross sectional areas of said first and second cylinders.

5,062,269

DISPOSABLE BODY COOLER

Israel Siegel, 2980 Point East Dr., N. Miami Beach, Fla. 33160

Filed Feb. 19, 1991, Ser. No. 656,458
Int. Cl.[5] F25D *5/02*
U.S. Cl. 62—4 8 Claims



1. A disposable wearable cooling device said device consist of a network of inter-communicating containers,

said containers adapted to fit body contour,

a solid component which induces an endothermic reaction when mixed with water distributed in said containers,

means to fix said solid component in pre-determined locations in said containers to obtain an even distribution of said solid component in said containers,

and a reversible communication of said containers with the outside environment to allow the addition of water to said solid endothermic component.

5,062,270

METHOD AND APPARATUS TO START-UP CONTROLLED FREEZING ZONE PROCESS AND PURIFY THE PRODUCT STREAM

Richard C. Haut, Stavanger, Norway; Eugene R. Thomas, Midland, and Robert D. Denton, Houston, both of Tex., assignors to Exxon Production Research Company, Houston, Tex.

Filed Aug. 31, 1990, Ser. No. 576,059
Int. Cl.[5] F25J *5/00*
U.S. Cl. 62—12 60 Claims

1. A method for start-up of a distillation column with a controlled freezing zone comprising the steps:

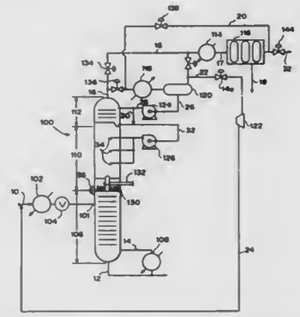
feeding a mixture of at least one acid gas and methane to a lower distillation zone;

producing in said lower distillation zone an enriched carbon dioxide liquid bottoms stream and a freezing zone vapor feedstream at a temperature and pressure at which substantially no carbon dioxide solids are formed;

contacting said freezing zone vapor feedstream with at least one freezing zone liquid feedstream containing methane in a controlled freezing zone at a temperature and pressure wherein both solids containing carbon dioxide and a methane-enriched vapor stream are formed;

stripping the acid gas component from the methane-enriched vapor stream to produce an acid gas stripped stream;

separating said stripped stream into liquid and vapor components; and



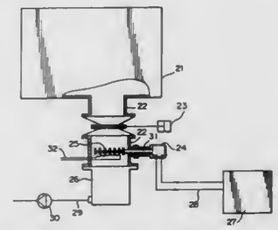
refluxing the liquid component of said stripped stream to the distillation column.

5,062,271

EVACUATION APPARATUS AND EVACUATION METHOD

Katsuya Okumura; Fumio Kuriyama; Yukio Murai; Manabu Tsujimura, and Hiroshi Sobukawa, all of Kanagawa, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki and Ebara Corporation, Tokyo, both of, Japan

Filed May 4, 1990, Ser. No. 519,377
Claims priority, application Japan, May 9, 1989, 1-114166
Int. Cl.[5] B01D *8/00*
U.S. Cl. 62—55.5 8 Claims



1. An evacuation apparatus operatively connectable to a vacuum vessel to be evacuated, said apparatus comprising:

a turbomolecular pump having a rotor provided with a plurality of rotor blades and a spacer provided with a plurality of stator blades, said turbomolecular pump operating so that gas molecules are sucked in from a suction port, compressed and discharged from an exhaust port;

a heat exchanger operatively connected to said suction port of said turbomolecular pump for freeze-trapping gas molecules in said heat exchanger;

a helium refrigerator connected to said heat exchanger for cooling said heat exchanger to a temperature of −100° C.;

a gate valve operatively connected at an upstream side of said heat exchanger for controlling inflow of the gas molecules from said vacuum vessel into said heat exchanger.

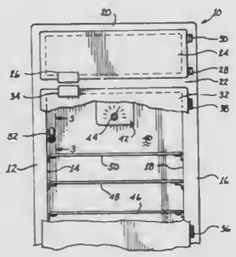
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,272

REFRIGERATOR OR FREEZER FRESHENING DEVICE AND PROCESS

Marsha L. Burns, Casa Grande, Ariz., assignor to MarShel Corporation, Mesa, Ariz.

Filed Oct. 9, 1990, Ser. No. 594,332
Int. Cl.[5] F24F *3/16*
U.S. Cl. 62—78 10 Claims



10. The process of replacing an unwanted odor in a refrigerator or freezer compartment with a fruit extract scent including the steps of:

mounting a freshener unit having a perforated front plate and a perforated rear plate and peripheral plate with a chamber on an inner surface of a wall of the refrigerator or freezer and offset from the inner surface;

placing a particle mixture containing by weight about 5 percent food or fruit extract and about 47 percent carbon filter type particles and about 48 percent sodium carbonate particles in the chamber; and

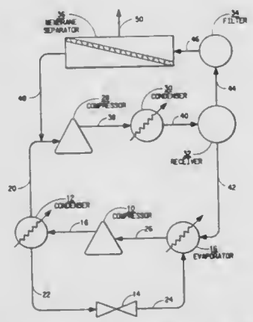
circulating air with the unwanted odor through the front and rear plates and the particle mixture.

5,062,273

METHOD AND APPARATUS FOR REMOVAL OF GAS FROM REFRIGERATION SYSTEM

Kung H. Lee, Chadds Ford, Pa., and Earl M. Clark, Newark, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 12, 1990, Ser. No. 551,954
Int. Cl.[5] F25B *47/00*
U.S. Cl. 62—85 8 Claims



1. In a process wherein a halocarbon refrigerant is circulated, by use of a first compressor, from the high pressure outlet of the first compressor sequentially through a first condenser, a fluid expansion valve and an evaporator and then back to the low pressure inlet side of the compressor, the specific improvement comprising the steps of:

(a) withdrawing at least a portion of the vapor phase present between the high pressure outlet of said first compressor and the high pressure side of said expansion valve means, wherein said vapor phase withdrawn contains non-condensible contaminants;

(b) subjecting said vapor phase containing non-condensible contaminant of step (a) to a second compression to an even higher pressure;

(c) passing the high pressure compressed vapor phase of step (b) through a second condenser to produce a condensed liquid phase halocarbon and a vapor phase enriched in non-condensible contaminant;

(d) separating said liquid phase halocarbon produced in step (c) and returning said liquid phase halocarbon back to the liquid phase halocarbon refrigerant to be passed through an evaporator;

(e) passing said vapor phase enriched in non-condensible contaminant produced in step (c) through a semipermeable membrane means to form a halocarbon enriched/-non-condensible contaminant depleted first stream and a non-condensible contaminant enriched/halo-carbon depleted second stream;

(f) recycling said halocarbon enriched/non-condensible contaminant depleted first stream produced in step (e) to the inlet side of said second compression step (b); and

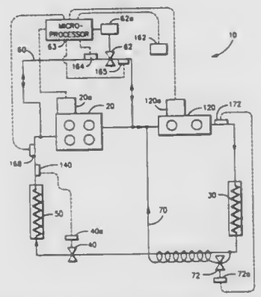
(g) removing said non-condensible contaminant enriched/-halocarbon depleted second stream produced in step (e) from further circulation.

5,062,274

UNLOADING SYSTEM FOR TWO COMPRESSORS

David N. Shaw, Manlius, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Continuation-in-part of Ser. No. 374,907, Jul. 3, 1989, Pat. No. 4,938,029. This application Jun. 28, 1990, Ser. No. 546,211
Int. Cl.[5] F25B *41/04*
U.S. Cl. 62—117 9 Claims



1. An unloading system for a refrigeration system comprising:

a first closed fluid loop serially including a first stage compressor means, a second stage compressor means, a condenser means, expansion means and evaporator means;

a second fluid loop defining bypass means and fluidly connected to said first loop between a first end located intermediate said first and second stages and a second end located intermediate said evaporator means and said first stage;

first valve means located in said second loop for unloading said first stage back to said second end of said second loop when said first valve means is open and said first stage compressor means is running and for bypassing said first stage from said second end to said first end of said second fluid loop when said first valve means is opened and said first compressor means is shut off;

a third fluid loop defining an economizer means and fluidly connected to said first loop between a first end located intermediate said condenser means and said expansion means and a second end located intermediate said first and second stages;

second valve means in said third loop for providing an economizer flow;

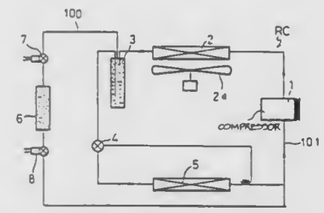
whereby when said first valve means is fully open said second stage alone must handle refrigerant vapor generated by both said evaporator means and said economizer means thereby unloading said refrigeration system.

5,062,275

AUTOMOTIVE AIR CONDITIONER

Toshio Hirata, Anjo; Kenji Ogura, Kariya, and Takehito Mizutani, Oobu, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Mar. 8, 1990, Ser. No. 489,188
Claims priority, application Japan, Mar. 9, 1989, 1-54994; Mar. 11, 1989, 1-58602
Int. Cl.[5] F25B *41/00*
U.S. Cl. 62—174 9 Claims



1. An automotive air conditioner comprising:

a compressor for introducing a mixed coolant mixing a higher boiling point coolant and a lower boiling point coolant and for compressing and discharging the coolant,

a condenser for receiving a compressed coolant from said compressor and condensing the coolant,

a receiver for receiving the condensed coolant from said condenser and stacking the condensed coolant therein so that a condensed liquid phase coolant is stacked in the lower portion of said receiver and a gas phase coolant is positioned in an upper portion of aid receiver,

an expansion valve for receiving the liquid phase coolant from said receiver and expanding the coolant,

an evaporator for receiving the expanded coolant from said expansion valve and evaporating the coolant therein,

a conduit for connecting said compressor, said condenser, said receiver, said expansion valve and said evaporator for forming a refrigerant circuit,

a stacking container connected to the upper portion of said receiver for receiving the gas phase coolant in said receiver and connecting to a suction side of said compressor for flowing the coolant within said stacking container toward said compressor, said stacking container stacking a coolant therein,

a first valve provided on a conduit connecting said receiver and said stacking container for controlling a flow of the coolant from said receiver to said stacking container,

a second valve provided on a conduit connecting said stacking container and the suction side of said compressor for controlling a flow of the coolant from said stacking container toward said compressor, and

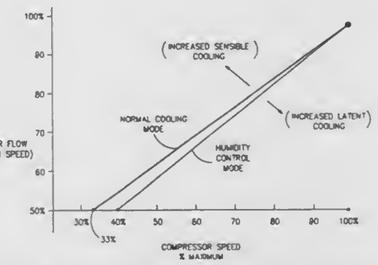
a controlling unit for controlling an operation of said first valve and said second valve so that the lower boiling point coolant is separate from the refrigerant circuit and stacked in said stacking container when the automotive air conditioner is in a separating mode and that the lower boiling point coolant is mixed with the higher boiling point coolant and the mixed coolant circulates in the refrigerant circuit when the automotive air conditioner is in a mixing mode.

5,062,276

HUMIDITY CONTROL FOR VARIABLE SPEED AIR CONDITIONER

Kevin F. Dudley, Cazenovia, N.Y., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Sep. 20, 1990, Ser. No. 585,607
Int. Cl.[5] F25B *49/00*
U.S. Cl. 62—176.6 9 Claims



1. A process for controlling an air conditioning system to control temperature and humidity wherein the air conditioner system comprises a variable speed compressor whose operating speed is varied as a function of cooling demand between a normal minimum compressor speed for low cooling demand and full compressor speed for high cooling demand; outdoor heat exchanger means coupled to a discharge outlet of the compressor for receiving compressed refrigerant therefrom and transferring heat to outdoor air; and indoor heat exchanger means for cooling and dehumidifying air in an indoor comfort space including an evaporator coil to receive condensed refrigerant from the outdoor heat exchanger means and having an outlet coupled to a return port of said compressor; and a variable speed fan for blowing the air of the comfort space at a controlled flow rate over said evaporator coil to reduce its temperature and to remove water vapor therefrom, the fan speed being varied with said cooling demand to vary with said compressor speed and with relative humidity in the comfort space from a minimum fan speed at a low cooling demand to a maximum speed at high cooling demand; the method comprising:

sensing the cooling demand in said comfort space,

sensing the relative humidity in said comfort space,

controlling the fan speed so that the air flow varies as a function of the cooling demand and relative humidity between said minimum fan speed and said maximum fan speed;

if the relative humidity is below a predetermined level, controlling the compressor speed as a function of said cooling demand between said normal minimum compressor speed and said full compressor speed; but

if the relative humidity is above said predetermined level, controlling the compressor speed as a function of said cooling demand that is substantially linear between a dehumidification minimum compressor speed, higher than said normal minimum speed, and said full compressor speed; and

controlling the fan speed to have a speed in the range between said minimum fan speed and said maximum fan speed, with a first linear relation relative to the compressor speed between said normal minimum compressor speed and said full compressor speed when the relative humidity is below said predetermined level, and with second linear relation relative to the compressor speed between said dehumidification minimum compressor speed and said full compressor speed when the relative humidity is above said predetermined level.

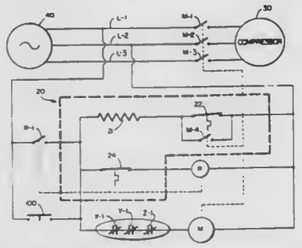
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,277

COMBINED OIL HEATER AND LEVEL SENSOR

Errie L. Heitmann, Clay, and David N. Shaw, Manlius, both of N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 29, 1990, Ser. No. 604,310
Int. Cl.[5] F25B *49/00*
U.S. Cl. 62—193 6 Claims



1. In an oil sump containing oil for lubricating a drive means, a combined oil heater and liquid level sensor means comprising:

heater means normally located within said oil in said oil sump for heating said oil;

normally closed thermal protection means located near said heater means in said sump;

a source of electric power;

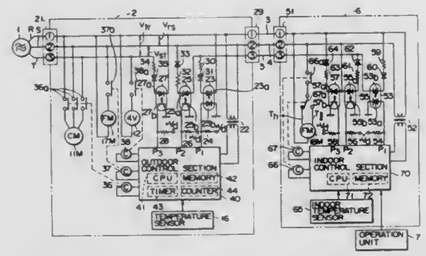
electrical circuit means connecting said source of electric power to said heater means, said thermal protection means and said drive means whereby said heater means heats said oil in said sump with said oil acting as a heat sink when said heater means is in said oil and connected to said source of electric power and said heater means causes said normally closed thermal protection means to open and cause a break in said circuit means responsive to said heater means being connected to said source of electric power and located above said oil thereby disabling said drive means.

5,062,278

AIR-CONDITIONING APPARATUS INCLUDING AN INDOOR UNIT AND AN OUTDOOR UNIT HAVING ITS COMPRESSOR DRIVEN BY A THREE-PHASE AC POWER SUPPLY

Akiyoshi Sugiyama, Fuji, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 31, 1990, Ser. No. 636,429
Claims priority, application Japan, Feb. 23, 1990, 2-40919
Int. Cl.[5] F25B *49/02*; H02H *7/00*
U.S. Cl. 62—230 8 Claims



1. An air-conditioning apparatus, including an indoor unit and an outdoor unit having its compressor driven by a three-phase alternating-current power supply, comprising:

means, provided at at least one of the units, for preparing a serial signal corresponding to to-be-transmitted information in synchronism with a first line voltage of the three-phase alternating-current power supply and for transmitting the serial signal to the other unit;

means, provided at at least one of the units, for receiving the serial signal sent from the corresponding unit and determining the contents of the serial signal;

means for detecting one of a second and a third line voltages of the three-phase alternating-current power supply;

means for detecting a difference between a phase angle of the detected line voltage and that of the serial signal;

means for comparing the detected difference with set values;

means for determining, in accordance with the result of comparison, whether the three-phase alternating-current power supply is in a positive-phase sequence or in a negative-phase sequence; and

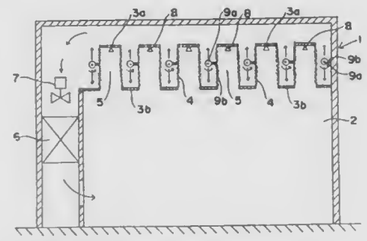
means for inhibiting an operation of the compressor when the negative-phase sequence is determined by the determining means.

5,062,279

ARTIFICIAL SNOWFALL SYSTEM

Ichiro Kawashima, Tokyo; Mitsuo Seki, Atsugi, and Isao Hirano, Toda, all of Japan, assignors to Kabushikigaisha Toyo Seisakusho, Tokyo and Marubeni Kabushikigaisha, Osaka, both of, Japan

Filed Feb. 4, 1991, Ser. No. 649,989
Claims priority, application Japan, Feb. 9, 1990, 2-30540
Int. Cl.[5] A63C *19/10*
U.S. Cl. 62—235 6 Claims



1. An artificial snowfall system comprising:

a snowfall room;

a snow catching element disposed in said snowfall room, said snow catching element being made of an air-permeable material;

an atomizer unit for ejecting atomized particles of liquid into said snowfall room, said atomizer unit being disposed in said snowfall room;

ambient air within said snowfall room, in operation of the system, being kept at a temperature below freezing point of said liquid, and forming an air flow passing through said snow catching element to cause said atomized particles to be frozen by heat exchange with said ambient air and also to cause said atomized and frozen particles to be deposited on one side of said snow catching element so as to form a snow layer thereon; and

a beater element for beating the other side of said snow catching element, said beater element being oppositely disposed from said one side of said snow catching element to cause said snow layer to be separated from said one side of said snow catching element in a flake-like state during the beating operation thereof;

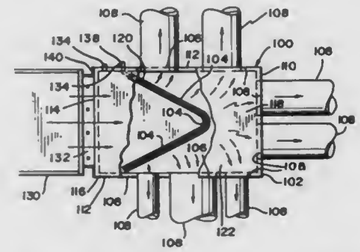
whereby said snow layer when separated from said one side of said snow catching element creates artificial snowfall in said snowfall room.

5,062,280

AIR CONDITIONING APPARATUS

Lendell Martin, Sr., 7037 Brittmore, Houston, Tex. 77041

Filed Oct. 31, 1990, Ser. No. 606,896
Int. Cl.[5] F25D *21/14*
U.S. Cl. 62—291 4 Claims



2. A device for conditioning air, the device comprising

an enclosure having an interior,

an air conditioning coil with a plurality of vanes disposed in the enclosure,

a first opening in the enclosure through which unconditioned air flows to the coil,

at least one second opening in the enclosure to which flows air conditioned by the coil and from which air flows to an air-conveying means for conveying conditioned air from the enclosure.

the coil's vanes directing air in the general direction of the at least one second opening,

a connection member for connecting the device to an outlet of an air-conveying apparatus, the connection members comprising movable members for accommodating outlets of different size,

connections extending from the coil through which conditioning fluid flows, the connections extending through a service door movably connected to the enclosure for providing access to this interior,

a drain pan disposed beneath the coil, the drain pan having means for transferring drained liquid therefrom,

the means for transferring drained liquid is at least one drain nipple, the drain nipple extending through the service door,

the enclosure is generally cubical having four side walls and a top wall and a bottom wall,

the coil V-shaped with the point of the V pointing away from a first sidewall and toward another sidewall,

each of the side walls other than the first sidewall having at least one opening therein from which air exits the enclosure, and

the vanes directing air conditioned by the coil in the general direction of each sidewall other than the first sidewall, and

the enclosure comprised of an insulative material with a top and bottom over the insulative material made from metal.

5,062,281

AIR CONDITIONING DEVICE

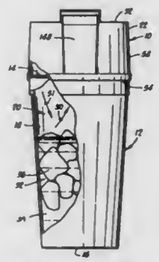
Samuel C. Oliphant, 13217 Green Valley Dr., Oklahoma City, Okla. 73120, and David E. Gormley, Pocola, Okla., assignors to Samuel C. Oliphant, Oklahoma City, Okla.

Filed Jan. 7, 1991, Ser. No. 638,270
Int. Cl.[5] F25D *3/08*
U.S. Cl. 62—457.1 .26 Claims

1. An air conditioning device adapted to be used with a cup having an upper end, a lower end and a cup opening intersecting the upper end extending a distance therethrough forming a cup space and a air conditioning substance disposed in the cup space, the air conditioning device comprising:

a lid removably connectable to the upper end of the cup and having an air entry opening and an air exit opening, the air entry opening being spaced a distance from the air exit opening; and

blower assembly means connected to the lid with a portion of the blower assembly means being in communication with the air entry opening and being conditionable in an ON and an OFF condition for blowing air into the air



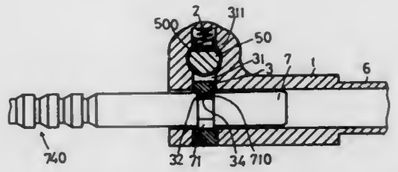
entry opening in an ON condition of the blower assembly means providing an air entry stream, the air entry stream passing through the air entry opening and into the cup space and the air passing over the substance and providing an air exit stream and the air exit stream passing through the cup space and through the air exit opening.

5,062,282

AUTOMOBILE STEERING LOCK WITH A ROD ANTI-RELEASING MECHANISM

Wang C. Rong, No. 27, Alley 74, Lane 313, Wen-Hsien Road, Tainan, Taiwan

Filed Jul. 16, 1990, Ser. No. 552,877
Int. Cl.[5] B60R *25/02*
U.S. Cl. 70—209 1 Claim



1. An antitheft device for attachment to a steering wheel of an automobile comprising:

an elongated tubular member having an inner end, an outer end and an elongated passageway extending along its axis therethrough, said tubular member having a first U-shaped hook portion extending therefrom with the closed end of the U-shaped hook portion generally adjacent to and slightly spaced from the inner end of said tubular member and the open end of said U-shaped hook portion facing said outer end of said tubular member, but substantially removed therefrom, said U-shaped hook portion of said tubular member further defined by a bottom leg portion generally extending in the direction of said tubular member's axis and terminating at a distance substantially removed from said outer end of said tubular member, said U-shaped hook portion of said tubular member adapted to engage said steering wheel from the inside thereof with said outer end of said tubular member extending a substantial distance beyond the periphery of said steering wheel;

a rod member having an elongated rod adapted to extend in a telescopic manner within said elongated passageway of said tubular member and a second U-shaped hook secured to one end of the rod member having an opening facing

VOL 1132 ISS 1 NO 5 1991 UMI

opposite to the first U-shaped hook portion and adapted to engage said steering wheel from the inside thereof;

a plurality of spaced first annular grooves each first groove defined by a vertical side wall extending generally perpendicular to the longitudinal direction of the rod member and a sloped side wall extending obliquely to the longitudinal direction of the rod member, each first annular groove circumferentially formed in a portion of the rod member;

a second annular groove defined by opposite vertical side walls extending substantially perpendicular to the longitudinal direction of the rod member and circumferentially formed in an end portion of the rod member opposite to the second U-shaped hook;

a housing means firmly formed around an end portion of the tubular member with the elongated passageway of the tubular member extending therethrough;

a lock having a locking member extending horizontally and having at least one side of longer dimension and one side of shorter dimension;

means offset with respect to the axis of the tubular member in the housing means for firmly receiving the lock;

a vertical passageway vertically formed in the housing means and interconnecting bore means and the passageway in the tubular means in the housing means;

rod-like bearing means slidably accommodated in the vertical passageway beside the lock and having a tenon member attached to an end thereof and arranged to be actuated between a locking position with the tenon member protruding into one of the first annular grooves or the second annular groove in the rod member and an unlocking position with the tenon member withdrawn from first or second annular groove and opposed vertical side walls between the locking member being controlled to position the tenon member in locking or unlocking position through the rod-like bearing member by means of the locking member; and

a spring member disposed in the vertical passageway and biasing the rod-like bearing means towards the passageway in the tubular member, such that engagement of the tenon member and the second annular groove prohibits longitudinal movement of the rod member in a longitudinal direction so as to prevent inadvertent disengagement of the rod member from the elongated tubular member.

5,062,283

PRESS BRAKE AND A WORKPIECE MEASURING METHOD IN THE PRESS BRAKE

Naoomi Miyagawa, Gifu; Chiyoaki Yoshida, Aichi; Kazuyuki Toda, Aichi, and Yukiyasu Nakamura, Aichi, all of Japan, assignors to Yamazaki Mazak Kabushiki Kaisha, Aichi, Japan

Filed Jul. 12, 1989, Ser. No. 378,622

Claims priority, application Japan, Jul. 19, 1988, 63-179398; Nov. 22, 1988, 63-294947

Int. Cl.[5] B21D *5/02*

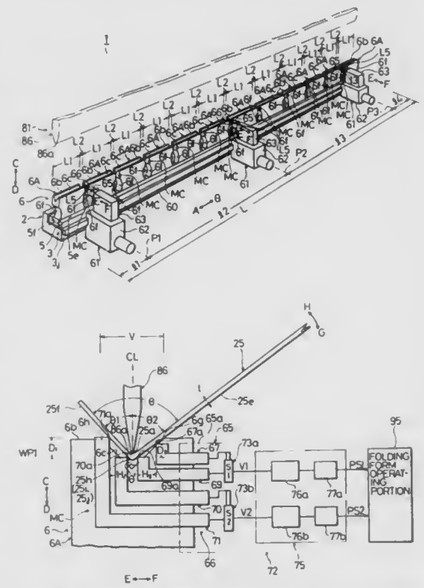
U.S. Cl. 72—10 **11 Claims**

1. A press brake comprising:

a lower die disposed in a horizontal position and an upper die movable in up and down directions out of and into workpiece shaping relationship with said lower die for bending a workpiece so that it has a bent portion;

at least one workpiece measuring portion provided on said lower die;

at least one workpiece measuring means at said workpiece measuring portion, said workpiece measuring means having at least two pairs of probes movable in up and down directions, said two pairs of probes being disposed on opposite sides of the bent portion of the workpiece which is in said lower die, a workpiece contacting portion on each of said probes for contacting said workpiece as said probes are moved upwardly in said lower die, and a displacement detecting means connected to said workpiece measuring means for detecting relative displacement in the up and down directions between said probes of each



pair of probes as said probes respectively engage the workpiece.

5,062,284

METHOD OF FABRICATING A BENT METAL BODY WITH HARDENABLE RESIN COATING

Masao Kubo, Koshigaya; Tetsuo Miyake, Saitama; Kunimitsu Matsuzaki, Yono, and Katsuji Kitagawa, Kasukabe, all of Japan, assignors to Somar Corporation, Japan

Filed Nov. 7, 1990, Ser. No. 611,759

Claims priority, application Japan, Nov. 10, 1989, 1-293105

Int. Cl.[5] B21B *45/00*

U.S. Cl. 72—46 **5 Claims**

1. A method of processing a metal body to produce a bent, metal body having a hardened resin coating on at least the bent surface, comprising the steps of:

(a) providing a powder coating composition providing a flexible, hardenable coating;

(b) coating a surface of the metal body with the powder coating composition by preheating the metal body to a temperature sufficient to melt the coating composition while preventing the coating composition from hardening, and contacting the metal body at said temperature with a fluidized mass of the powder coating composition to form a flexible, hardenable layer over the surface of the metal body;

(d) then bending the metal body at a portion having the hardenable layer; and

(e) then hardening the hardenable layer.

5,062,285

HORIZONTAL METAL EXTRUSION PRESS

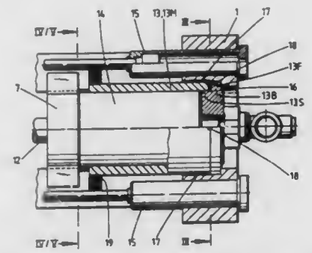
Horst Groos, Birkenweg 6, D-4020 Mettmann 2, Fed. Rep. of Germany

Filed Oct. 31, 1990, Ser. No. 606,099

Claims priority, application Fed. Rep. of Germany, Nov. 9, 1989, 3937276

Int. Cl.[5] B21C *23/04, 26/00*

U.S. Cl. 72—272 **13 Claims**



1. In a horizontal metal extrusion press including a cylinder crosshead; a counter cross head for supporting a press die; tie rods interconnecting said crossroads to form a press frame; a receiver container mounted in axially slidably displaceable manner on said press frame; a traveling crosshead mounted in axially slidably displaceable manner on said press frame; a press ram carried by said travelling crosshead for extruding a billet; a press cylinder axially secured to said cylinder crosshead; and a press piston axially slideably disposed in said press cylinder for axially displacing said travelling crosshead; said press cylinder being a tubular open-ended sleeve and a cylinder head closing one open end of the sleeve proximate said cylinder crosshead; the improvement comprising:

a plug region on said cylinder head located within said one open end of said sleeve;

a flange region on said cylinder head facing an end surface of said sleeve at said one open end, so that said end surface and flange region have mutually opposed radially extending surfaces; and

a plurality of radially extending mechanical key means interconnecting said opposed surfaces for positively centering said cylinder sleeve with respect to said cylinder head.

5,062,286

METHOD AND APPARATUS FOR BENDING CORRUGATED SHEET

Bengt I. G. Sjöblom, Norrtälje, Sweden, assignor to Beco Produktutveckling, Norrtalje, Sweden

PCT No. PCT/SE88/00566, § 371 Date May 10, 1990, § 102(e) Date May 10, 1990, PCT Pub. No. WO89/04222, PCT Pub. Date May 18, 1989

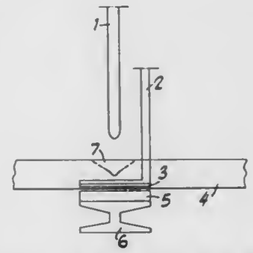
PCT Filed Oct. 25, 1988, Ser. No. 487,959

Claims priority, application Sweden, Nov. 3, 1987, 8704304

Int. Cl.[5] B21D *11/20*

U.S. Cl. 72—305 **9 Claims**

1. A method for bending corrugulated sheet transversely of its corrugations in two stages; said method comprising in the first stage, placing the corrugated sheet on a flat support, holding the corrugated sheet in position on the support by a tongued pressfoot having tongues brought into pressure engagement with the bottom of valleys of the corrugated sheet, moving a bar towards the flat support to form indentations in the crests of the corrugations and produce a fold line or weakening in the corrugated sheet transversely of the longitudinal axes of said corrugations; and in the second of said stages,



bending the sheet over a support edge along the fold line or weakening to an angle determined by said indentation.

5,062,287

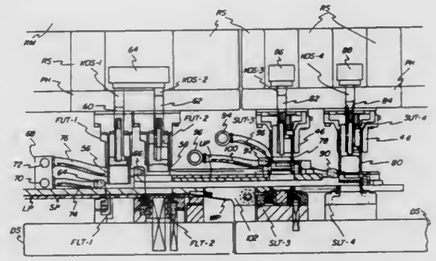
METHOD AND APPARATUS FOR MAKING AND TRANSFERRING SHELLS FOR CANS

Omar L. Brown, Dayton, and David K. Wynn, Tipp City, both of Ohio, assignors to Dayton Reliable Tool & Mfg. Co., Dayton, Ohio

Filed Jan. 19, 1990, Ser. No. 467,818

Int. Cl.[5] B21D *43/18*

U.S. Cl. 72—336 **29 Claims**



1. A method of forming within a press a plurality of shells such as used in the manufacture of can ends, comprising the steps of:

at a first station providing a plurality of first sets of tooling arranged in first and second parallel rows; at a second station providing a plurality of second sets of tooling arranged in third and fourth parallel rows;

at each of said first tooling sets, separating a generally circular blank from a sheet of thin metal and forming into said blank a substantially flat central panel and an upward extending chuckwall about the edge of said panel to produce a partially formed shell;

at each of said tooling sets of said first row, lifting the partially formed shell therein to a first level above said metal sheet;

transferring from each of said first tooling sets of said first row the partially formed shell along a substantially horizontal lower path at said first level to one of said second tooling sets of said fourth row by applying a force edgewise of the shell and thereby directing said shell edgewise to said second station;

at each of said tooling sets of said second row, lifting the partially formed shell therein to a second level higher than said first level;

transferring from each of said first tooling sets of said second row the partially formed shell along a substantially horizontal upper path at said second level to one of said sec-

VOL 1132 ISS 1 NO 5 1991 UMI

ond tooling sets of said third row by applying a force edgewise of the shell and thereby directing said shell edgewise to said second station;

capturing and locating the partially formed shells within said second tooling sets;

at each of said second tooling sets forming into the shell located therein a countersink at the base of said chuckwall by moving said panel upward relative to said chuckwall to produce a completed shell; and

discharging the completed shells from said second station.

5,062,288

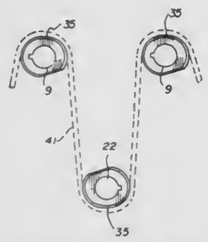
METHOD AND APPARATUS FOR FORMING BENDS IN A TUBE

Keith Titzer, Evansville; Charlie Oran, Wadesville; Richard Reich, Evansville; Gary Gann, Evansville; William O. Toy, Jr., Evansville; Jerry Lamb, Evansville; Chris Brack, Evansville; Lloyd Comer, Evansville; Dan Libbert, Evansville; Don Masterson, Evansville; Jerry Shekell, Evansville; Don Deig, Evansville; Kenneth Butler, Evansville, and Earl Roehm, Evansville, all of Ind., assignors to Indiana Tube Corporation, Evansville, Ind.

Filed Dec. 13, 1990, Ser. No. 625,655

Int. Cl.[5] B21D *11/07*

U.S. Cl. 72—383 **7 Claims**



1. A method for forming a tube into a serpentine configuration comprising the steps of locating at least one straight tube lengthwise between spaced bend forming elements having predetermined curvatures thereon with adjacent bend forming elements being disposed on opposite sides of the tube, clamping the ends of the tube, bringing the spaced bend forming elements together with lazy tong linkages along a longitudinal line parallel to the longitudinal center line of the straight tube and simultaneously drawing one set of alternate bend forming elements disposed on one side of the straight tube along a line extending normally with respect to the longitudinal center line of the straight tube to form the tube into a serpentine configuration, and subsequently separating the tube forming elements and changing the curvature on the bend forming elements and bringing the bend forming elements together again to reshape the bends formed in the tube.

5,062,289

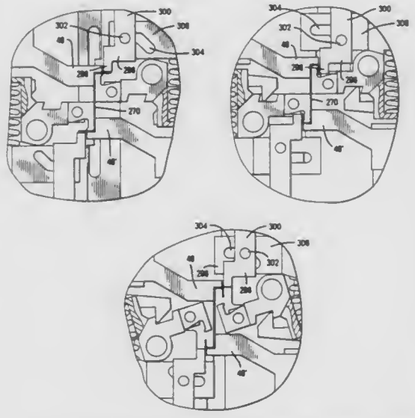
BENDING TOOLING FOR BENDING FLAT BLANKS

Johannes C. W. Bakermans, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 1, 1990, Ser. No. 532,298

Int. Cl.[5] B21D *5/01*

U.S. Cl. 72—383 **39 Claims**



1. Apparatus for carrying out forming operations on first and second flat blanks, the blanks being integral with, and extending from, first and second side edges of a continuous carrier strip which has a plurality of identical flat blanks extending from the first and second side edges, the carrier strip having a center line which is between the first and second side edges, each blank having an adjacent portion which is adjacent to the carrier strip, a blank free end which is spaced from the carrier strip, and a remote portion which is between the adjacent portion and the blank free end, the remote portion of each blank, after the forming operation has been carried out, being bent laterally of the adjacent portion and extending normally of the plane of the carrier strip, the apparatus having an operating zone and strip feeding means for intermittently feeding the strip along a strip feed path which extends through the operating zone, the apparatus comprising:

first and second ram assemblies which are movable towards and away from each other between retracted positions and closed positions, the ram assemblies having opposed faces which are spaced apart when the ram assemblies are in their retracted positions and are substantially against each other when the ram assemblies are in their closed positions, the ram assemblies being on opposite sides of the strip feed path, the strip feed path being in a plane which is perpendicular to the directions of movement of the ram assemblies,

the first ram assembly having a first mandrel thereon which has a first mandrel end, the first mandrel being against, and in alignment with, the first blank when the ram assemblies are in their closed positions with the first mandrel end located between the blank free end and the adjacent portion of the first blank,

the second ram assembly having first primary bending tooling means thereon which is engageable with the remote portion of the first blank when the second ram assembly moves to its closed position thereby to bend the remote portion of the first blank laterally of the plane of the carrier strip over the first mandrel end through an angle of substantially 90 degrees;

the second ram assembly has a second mandrel thereon and the first ram assembly has a second primary bending tooling means thereon, the first mandrel and the first primary bending tooling means being on one side of the center line of the carrier strip, the second mandrel and the second primary bending tooling means being on the other side of the center line of the carrier strip whereby, upon movement of the ram assemblies towards each other from their retracted positions to their closed positions, the remote portion of the first blank is bent laterally of the plane of the strip in a first direction and the remote portion of the second blank is bent laterally of the plane of the strip in a second direction so that the formed laterally extending remote portion of the first blank is on one side of the plane of the carrier strip and the formed laterally extending remote portion of the second blank is on the other side of the plane of the carrier strip.

5,062,290

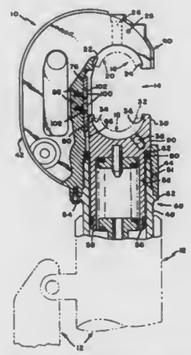
HYDRAULIC CRIMPING PRESS FOR ELECTRICAL CONNECTORS

John B. Hoover, Manchester, N.H., assignor to Burndy Corporation, Norwalk, Conn.

Filed Jun. 25, 1990, Ser. No. 544,264

Int. Cl.[5] B21D *41/04*; B23P *11/00*

U.S. Cl. 72—416 **1 Claim**



1. A hydraulic tool for crimping connectors comprising a C-shaped die head having a spine, a lower hub, and an upper jaw, a die fitted into the upper jaw defining a fixed die, a piston ram and cylinder subassembly secured to and together with the hub member aligned along the vertical tool axis, the piston ram having an upper side wall and an upper surface defining a low jaw, a die member fitted to the movable jaw defining a movable die, the fixed and movable dies aligned along the tool axis and cooperating to crimp connectors when the tool is actuated, the piston ram upper wall having a dovetail channel defined by a channel base and converging side walls extending vertically along the surface of the upper wall from its base to the circumferential surface of the upper wall, the channel being open at the top, side and bottom portions of the side wall, a recess in the spine portion of the C-shaped head extending vertically in parallel with the tool axis and in confronting relation with the dovetail channel and for a sufficient length to accommodate the excursionary distance travelled by the piston ram during a crimping operation, the recess having a base portion and parallel side walls, a dovetail key in the recess having a base portion conforming to the recess, side walls flaring outward from the base portion and conforming to the contour of the dovetail channel so that the circumferential surface and the coverging side walls of the channel form wall members for grasping the dovetail key whereby the piston ram is guided during the crimping operation by the dovetail key to move in a true axial direction being held in true axial alignment when encountering non-linear forces as when crimping an irregular shaped connector and for preventing the piston ram from rotating with respect to the tool axis or from moving laterally of the tool axis so that opposing die members maintain planar alignment for proper engagement and crimping of irregular shaped connectors.

5,062,291

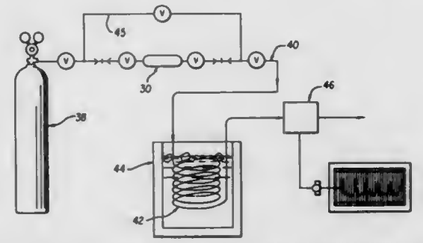
CALIBRATION OF FLOWMETERS USING A DISSOLVED ARGON TRACER TECHNIQUE

Roger H. Asay, Santa Clara, Calif., assignor to Radiological & Chemical Technology, Inc., San Jose, Calif.

Filed Apr. 3, 1989, Ser. No. 332,619

Int. Cl.[5] G01F *25/00*

U.S. Cl. 73—3 **43 Claims**



1. A method of calibrating a flowmeter in a system having a condensible fluid flowing in a flowpath therein, comprising:

injecting a known volume of a liquid test solution into said flowpath upstream of said flowmeter, said solution having dissolved therein a known concentration of an inert gas not otherwise present in said fluid;

observing the indicated flowrate indicated by said flowmeter;

measuring the concentration of said inert gas present in a condensed form of said fluid at a position in said flowpath downstream of said flowmeter; and

determining the true flowrate corresponding to the indicated flowrate.

5,062,292

DEVICE FOR MEASURING GAS DISSOLVED IN OIL

Masaru Kanba; Yasuo Inoue; Sadayoshi Mukai; Masanari Kikawa, and Yasunori Suga, all of Kyoto, Japan, assignors to Nissin Electric Co., Ltd., Kyoto, Japan

Continuation of Ser. No. 231,296, Aug. 12, 1988, abandoned.

This application May 8, 1990, Ser. No. 520,842

Claims priority, application Japan, Aug. 12, 1987, 62-123564[U]; Aug. 17, 1987, 62-125089[U]; Dec. 25, 1987, 62-198513[U]; Dec. 29, 1987, 62-198878[U]; Feb. 12, 1988, 63-18026[U]; Apr. 18, 1988, 63-51682[U]

Int. Cl.[5] G01N *7/00*

U.S. Cl. 73—19.01 **20 Claims**

1. A device for measuring a gas dissolved in an oil sample, comprising:

a sample container for containing an oil sample;

an air bubble discharging means, provided in said sample container, for extracting a measurement gas dissolved in said oil sample;

a gas container for containing said measurement gas extracted by said air bubble discharging means;

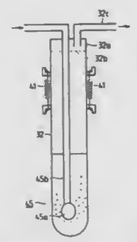
gas detecting means for detecting said measurement gas charged in said gas container;

measuring means for measuring a concentration of said measurement gas in response to a signal dispatched from said gas detecting means;

VOL 1132 ISS 1 NO 5 1991 UMI

pumping means for supplying air to said air bubble discharging means; and

filter means for purifying the air before being fed into said air bubble dischrging means;



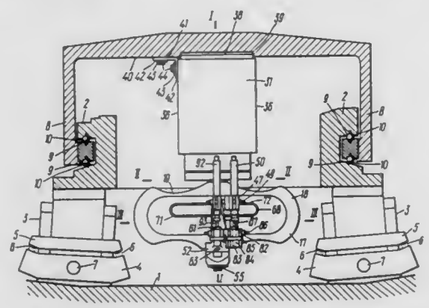
said air bubble discharging means comprising a mesh filter having a mesh of 0.5 to 10 μm square for discharging bubbles therefrom and air leading means for leading air to said discharging means.

5,062,293

APPARATUS FOR MEASURING HARDNESS OF MATERIALS

Murat B. Bakirov, Zhukovsky; Alexandr F. Getman, Moscow; Boris I. Gribov, Sofrino; Andrei A. Bordjugovsky, and Alexandra P. Klimenok, both of Moscow, all of U.S.S.R., assignors to Nauchno-Proizvodstvennoe Objedinenie, Moscow, U.S.S.R.

Filed Jan. 8, 1990, Ser. No. 461,749
Int. Cl.[5] G01N *3/42*
U.S. Cl. 73—81 **39 Claims**



1. An apparatus for measuring hardness of materials, said apparatus comprising:

a rod having an axis; a center plate of said rod having a first end and a second end; a shank of said rod having a first end and a second end; said first end of said shank being secured to said first end of said center plate of said rod;

an indentor to be pressed into a surface of material secured to the second end of said center plate of the rod;

a dynamometric gauge having a first branch and a second branch, a longitudinal plane of symmetry which is positioned to extend perpendicularly with respect to said surface of material; the first branch of said dynamometric gauge having an outer surface and an inner surface and a hole in which said shank of said rod is received; the second branch of said dynamometric gauge having an outer surface and an inner surface;

a means for loading the indentor accommodated in a casing; a spindle of said means for loading the indentor having a periphery and mounted coaxially with said rod on said second branch of said dynamometric gauge; a drive for moving the spindle of said means for loading the indentor which is mechanically coupled to said spindle of said means for loading the indentor;

at least one pick-up for measuring the load at the indentor having a body and a sensor member, the body being mechanically coupled to one of the branches of said dynamometric gauge; said sensor member of said at least one pick-up for measuring the load at the indentor being engageable with said other branch of said dynamometric gauge;

a means for measuring the depth of penetration of the indentor into the surface of material in the form of a frame having a first bar and a second bar opposed to each other, a longitudinal plane of symmetry, said first and second bars enclosing said first branch of said dynamometric gauge; said first bar of said frame of said means for measuring the depth of penetration of the indentor into the surface of material having a central part and a peripheral part, being positioned between said surface of material and said first branch of said dynamometric gauge and mounted for movement along said axis of said rod on said center plate of said rod; said second bar of said frame of said means for measuring the depth of penetration of the indentor into the surface of material having a central portion and a peripheral portion, being positioned between said first and second branches of said dynamometric gauge and mounted for movement along said axis of said rod on said shank of said rod; a tip having a first end and a second end and an interior space, the first end of the tip being secured to said first bar of said frame and the second end of tip being engageable with said surface of material; said interior space of said tip receiving the indentor in spaced relation thereto;

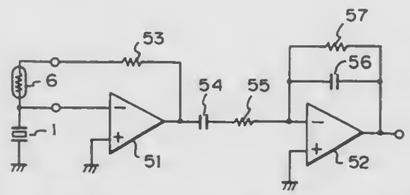
at least one pick-up for measuring the depth of penetration of the indentor into the surface of material having a body and a sensor member, the body being mechanically coupled to said first branch of said dynamometric gauge, the sensor member being engageable with said frame of said means for measuring the depth of penetration of the indentor into the surface of material.

5,062,294

APPARATUS FOR DETECTING PRESSURE IN CYLINDER OF INTERNAL COMBUSTION ENGINE

Toshio Iwata, Hyogo, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Continuation of Ser. No. 311,787, Feb. 17, 1989, abandoned. This application Mar. 29, 1990, Ser. No. 503,072
Claims priority, application Japan, Feb. 22, 1988, 63-39906; Feb. 22, 1988, 63-39907; Feb. 22, 1988, 63-39909; Feb. 22, 1988, 63-39910; Mar. 18, 1988, 63-35162[U]
Int. Cl.[5] G01M *15/00*
U.S. Cl. 73—115 **9 Claims**



1. An apparatus for detecting pressure in a cylinder of an internal combustion engine, comprising:

a piezoelectric pressure sensor for detecting pressure in the combustion cylinder of said internal combustion engine and for outputting an electrical output signal according to the pressure;

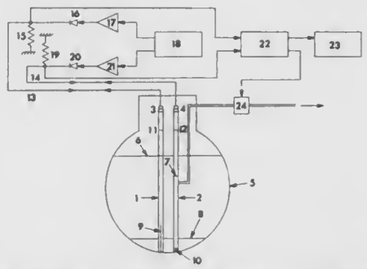
a current input circuit for directly receiving said electrical signal output from said sensor in the form of a current and for generating an output corresponding to the value of the current, wherein said current input circuit consists of an operational amplifier and resistory means connected between input and output terminals of said operational amplifier for converting said current signal output from said sensor to a voltage signal; and wherein said current input circuit outputs said voltage signal which is proportional to dP/dt, where P is said detected pressure.

5,062,295

DUAL TUBE SONIC LEVEL GAGE

Parthasarathy Shakkottai, Duarte, and Eug Y. Kwack, Walnut, both of Calif., assignors to Sparktech, Duarte, Calif.

Filed Dec. 24, 1990, Ser. No. 633,130
Int. Cl.[5] G01F *23/28*; G01H *5/00*
U.S. Cl. 73—290 V **11 Claims**



1. A system for measuring the levels of two immiscible liquids such as water and gasoline contained in a tank, comprising two vertical tubular sonic wave guides, resting at the bottom of said tank; one of said wave guides allowing water and gasoline to enter through a long vertical slit thus allowing said gasoline to have the same free surface level inside said guide as outside in said tank; the extent of said slit being from the bottom to the maximum expected level of said lower liquid; the other said waveguide allowing only the heavier liquid to rise by virtue of its being open only at the very bottom; each said guide containing a reflecting stub or ring to produce a reference length from the top to location of said stub or ring; a transmitting and receiving means in each said waveguide for generating sound pulses and detecting said sound pulses multiply-reflected from said stub or ring and from free surfaces of said liquid levels in each said wave guide; means for exciting said transmitting means and measuring time intervals between various pulses, said time intervals being proportional to corresponding distances from said transmitting means; output means for calculating, displaying and tabulating levels and volumes of said liquids and providing control signals to actuate a drain pump to remove water when its level exceeds a preset value in said other waveguide.

5,062,296

RESONANT ULTRASOUND SPECTROSCOPY

Albert Migliori, Santa Fe, N. Mex., assignor to The United States of America as represented by the Department of Energy, Washington, D.C.

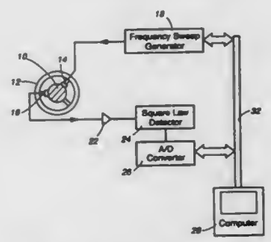
Filed Sep. 20, 1990, Ser. No. 585,557
Int. Cl.[5] G01N *29/12*
U.S. Cl. 73—579 **6 Claims**

1. A method for characterizing an object by resonant ultrasound spectroscopy, comprising the steps of:

applying to said object acoustic waves having frequencies swept over a predetermined frequency range;

detecting a response of said object to said acoustic waves;

determining the frequency of each resonant response peak in said predetermined frequency range; and



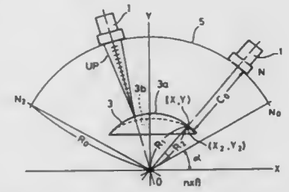
forming a unique signature of said object from a density distribution of said resonant response frequencies.

5,062,297

METHOD OF MEASURING A PROFILE OF AN OBJECT AND AN APPARATUS FOR CARRYING OUT THE METHOD

Nobuo Hashimoto, Tokyo; Kunioki Suzuki, Shizuoka, and Teruaki Saijo, Shiga, all of Japan, assignors to 501 Toray Industries, Inc., Tokyo, Japan

Filed Jul. 12, 1989, Ser. No. 378,991
Claims priority, application Japan, Aug. 16, 1988, 63-203362; Aug. 16, 1988, 63-203363
Int. Cl.[5] G01N *9/24*
U.S. Cl. 73—597 **15 Claims**



1. A method of measuring a profile of an object located in a predetermined position under water, comprising the steps of:

moving an ultrasonic transducer sequentially to a plurality of measurement points on an arc equidistant from a predetermined rotational center while opposing said ultrasonic transducer to the object;

radiating an ultrasonic wave from said ultrasonic transducer toward said predetermined rotational center when said ultrasonic transducer is in each of said measurement points on said arc;

receiving a reflected wave which has been radiated from said ultrasonic transducer and reflected at a surface of said object, by said ultrasonic transducer;

calculating a distance between said ultrasonic transducer and the surface of said object in accordance with a difference between the time said ultrasonic transducer radiated the ultrasonic wave and the time said ultrasonic transducer received the reflected wave reflected at the surface of said object;

calculating coordinates on the surface of said object from coordinates of each of said measurement points and the calculated distance corresponding thereto; and

obtaining a profile of said object from the calculated coordinates of the surface thereof in each said measurement point;

said ultrasonic transducer being swung about a center of the ultrasonic radiation surface thereof at each of said measurement points while an intensity of the reflected wave at the surface of said object is measured, to detect an angle of swing where the intensity of the reflected wave is maxi-

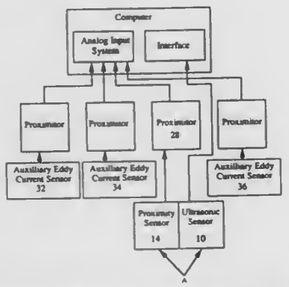
VOL 1132 ISS 1 NO 5 1991 UMI

mum, and said coordinates of the surface of said object are obtained from the detected angle of swing, in addition to the coordinates of each of said measurement points and the calculated distance corresponding to each of said measurement points.

5,062,298
NON-CONTACT WET OR DRY FILM THICKNESS MEASURING DEVICE USING EDDY CURRENT AND ULTRASONIC SENSORS

Allan F. Falcoff, Lake Orion, and Norman M. West, Pontiac, both of Mich., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 5, 1989, Ser. No. 446,336
Int. Cl.[5] G01B *7/10*
U.S. Cl. 73—597 **6 Claims**



1. A device for measuring the thickness of a film applied on a substrate without contacting the film, comprising;

a) first ultrasonic sensor means for measuring a first distance value between the top surface of the film and the device; wherein the ultrasonic sensor means comprises an ultrasonic pulse generator which generates an ultrasonic pulse which is directed to the film surface and a transducer which receives the pulse after it is reflected back from the film surface;

b) second electrical proximity sensor means immediately adjacent with said first means for measuring a second distance value between the top surface of the substrate and the device; wherein the electrical proximity sensor means comprises an inductive eddy-current proximity sensor means;

c) said first and second means disposed on the same side of the substrate;

d) means operably associated with said first and second means for calculating the film thickness by comparing said first and second distance values;

e) auxiliary sensor means comprising inductive eddy-current sensors means spaced from said second electrical proximity sensor means for measuring a third distance value between the top surface of the substrate and the device;

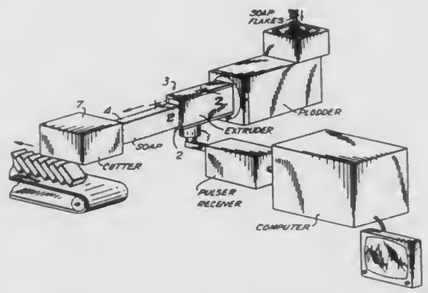
f) said first ultrasonic sensor means, said second electrical proximity sensor means and said auxiliary sensor means all disposed on the same side of the substrate; and

g) means being operably associated with said first ultrasonic sensor means, said second electrical proximity sensor means and said auxiliary sensor proximity sensor means and said auxiliary sensor means for calculating the film thickness by comparing said first, second, and third distance values.

5,062,299
APPARATUS AND METHOD FOR DETECTING INHOMOGENEITIES IN SEMI-PLASTIC SUBSTANCES THROUGH ULTRASOUND

Ray E. Davis; Dana L. Duncan, both of Old Lyme; Samir W. Habboosh, Norwich; James R. Hall, Clinton; Dennis L. Nudelman, Waterford, and Michael J. Westkamper, Salem, all of Conn., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jan. 5, 1990, Ser. No. 461,200
Int. Cl.[5] G01N *29/00*
U.S. Cl. 73—609 **32 Claims**



1. A method for detecting inhomogeneities in a semi-plastic substance through steps comprising:

(a) extruding a flow of said substance through and orifice;

(b) generating an ultrasonic wave and emitting said wave outwardly through an ultrasonic probe, said probe including an ultrasound delay material at one end thereof, said delay material being a thermoplastic in solid form, and said probe being positioned at said orifice;

(c) contacting said delay material against a face of said substance as said substance exits said orifice, said substance as it flows downstream past said delay material being wedged inwardly at an angle to achieve good contact between said substance and said material;

(d) directing said wave from said probe through said delay material and then through said flow;

(e) receiving a signal based on a return of said wave passing through said flow; and

(f) analyzing said signal by means of a program comparing said signal to a reference value.

5,062,300
DEVICE FOR THE ULTRASONIC NON-DESTRUCTIVE TESTING OF TUBES

Jean P. Vallee, 4, rue de la Fontaine, 78820 Juziers, France

Filed Dec. 9, 1988, Ser. No. 281,715
Claims priority, application France, Nov. 25, 1987, 87 16353
Int. Cl.[5] G01N *29/06, 29/26*
U.S. Cl. 73—623 **5 Claims**

1. Ultrasonic device for non-destructive testing of tubes having a thickness which is small as compared with their diameter, comprising a head having a longitudinal axis and insertable into a tube along said longitudinal axis means for centering the head in a tube and means for imparting to the head a rectilinear motion along said longitudinal axis and a rotational motion about said axis,

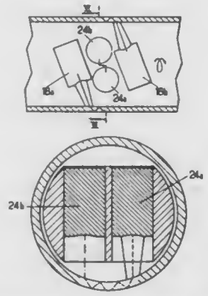
said head containing ultrasonic transducer means arranged to be coupled with a wall of a tube into which said head is introduced through a fluid and able to transmit an ultrasonic beam in a direction at an angle with said longitudinal axis and to detect echoes of said beam,

wherein said transducer means comprise

two first ultrasonic transducers located symmetrically with respect to a plane perpendicular to said axis and delivering

a focussed base directed in a plane containing said longitudinal axis and at an angle with a direction perpendicular to the longitudinal axis, and

two second ultrasonic transducers located symmetrically with respect to a plane perpendicular to said longitudinal

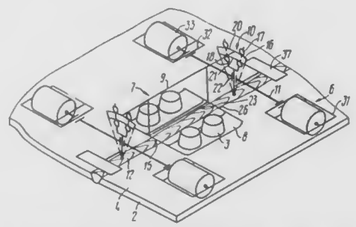


axis and each delivering a focussed beam directed parallel to a line perpendicular to said longitudinal axis and located at a distance from said line whereby the beam is oblique with respect to the wall of a tube into which said head is introduced.

5,062,301
SCANNING DEVICE FOR ULTRASONIC QUALITY CONTROL OF ARTICLES

Nikolai P. Aleshin, 15 Parkovaya ulitsa, 18, korpus 1, kv. 109; Vladimir J. Baranov, Schelkovskoe shosse, 58, Korpus 2, kv. 17, both of Moscow; Vyacheslav M. Dolgov, Scherbinka, ulitsa Pushkinskaya, 6, kv. 18, Moskovskaya oblast; Alexandr A. Yarovoi, prospekt Mira, 25, kv. 48, Nikolaev, and Oleg A. Preobrazhensky, ulitsa Muranovskaya, 13b, kv. 183, Moscow, all of U.S.S.R.

PCT No. PCT/SU88/00648, § 371 Date Jun. 19, 1989, § 102(e) Date Jun. 19, 1989, PCT Pub. No. WO89/05451, PCT Pub. Date Jun. 15, 1989
PCT Filed Feb. 29, 1988, Ser. No. 381,395
Claims priority, application U.S.S.R., Dec. 10, 1987, 4336106
Int. Cl.[5] G01N *29/24, 29/26*
U.S. Cl. 73—629 **12 Claims**



1. A scanning device for ultrasonic quality control of articles, comprising:

a motion mechanism of said scanning device for moving said device along a direction of travel;

ultrasonic transducers adapted to be positioned on an article under inspection;

a suspension assembly for mounting said ultrasonic transducers on said motion mechanism, said assembly establishing an operative connection between ultrasonic transducers and said motion mechanism, said assembly including,

flexible members positioned above the surface of said article under inspection along the direction of the travel of said device, preset with said motion mechanism,

said flexible members having said ultrasonic transducers fixedly mounted thereon,

a beam having a first end and a second end, extending above said flexible members along said direction of the travel of said device, mechanically connected with said flexible members,

at least two self-aligning supports having a common rolling axis extending in direct proximity to said surface of said article under inspection,

each said self-aligning support including,

a first part carried by said beam, and

a second part arranged with respect to said first part so that relative displacement of said two parts takes place about said rolling axis common to said self-aligning supports, and

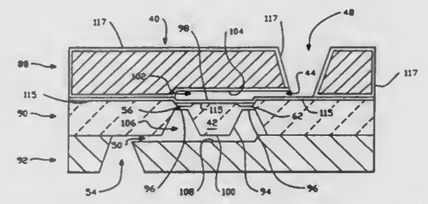
two rockers operatively connected with said beam and said motion mechanism;

means for holding said ultrasonic transducers against said surface of said article under inspection.

5,062,302
LAMINATED SEMICONDUCTOR SENSOR WITH OVERPRESSURE PROTECTION

Kurt E. Petersen, San Jose; Phillip W. Barth, Palo Alto; Janusz Bryzek, and Joseph R. Mallon, Jr., both of Fremont, all of Calif., assignors to Schlumberger Industries, Inc., Norcross, Ga.

Continuation of Ser. No. 187,739, Apr. 29, 1988, abandoned. This application Aug. 27, 1990, Ser. No. 574,387
Int. Cl.[5] G01L *9/00*
U.S. Cl. 73—754 **23 Claims**



1. An electromechanical sensor comprising:

a first semiconductor wafer including a first stop surface residing in a first shallow recessed region of said first wafer;

a second semiconductor wafer;

wherein said first and second semiconductor wafers are laminated together such that said first recessed region of said first wafer and said second wafer define a first chamber in which said first stop surface and said second wafer are disposed close enough together such that said first stop surface restrains said second wafer from deflecting beyond said first stop surface;

means for measuring deflection of said second wafer;

wherein said second wafer includes a first contact surface residing in a second shallow recessed region of said second wafer;

wherein said first stop surface and said first contact surface are disposed substantially opposite each other in said first chamber; and

wherein said second shallow recessed region includes a center section and a thinner perimeter section which substantially surrounds said center section.

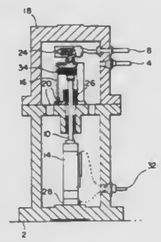
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,303

ENCAPSULATED ACTUATOR FOR TESTING OF SPECIMENS

Larry D. Gould, Canaan, and David M. Cole, Lyme, both of N.H., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 22, 1990, Ser. No. 542,331
Int. Cl.[5] G01N *3/00*
U.S. Cl. 73—798 16 Claims



1. Apparatus for applying a mechanical stress to a specimen, comprising

(a) a housing containing a wall defining first and second chambers, the specimen being arranged in said first chamber and the walls containing a plurality of vent holes to equalize the hydrostatic pressure within said first and second chambers;

(b) actuator means arranged within said second chamber for generating a mechanical force;

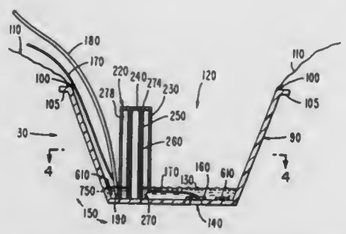
(c) force transmitting means connected between said actuator means and the specimen, said force transmitting means passing through an opening in said housing wall to transmit the mechanical force from said actuator means to the specimen, whereby said actuator is encapsulated within said second chamber and subjected to the same confining pressure as the specimen.

5,062,304

URINE COLLECTION MONITOR WITH TEMPERATURE SENSING

Robert S. Van Buskirk, Danville, and Robert R. Clappier, Los Altos, both of Calif., assignors to Endotherapeutics, Menlo Park, Calif.

Filed May 12, 1989, Ser. No. 351,733
Int. Cl.[5] G01F *1/00*
U.S. Cl. 73—861 24 Claims



1. An apparatus for measuring temperatures and flow rates of a fluid, comprising:

a vessel including a wall defining an interior and an exterior, said interior for collecting an amount of the fluid;

a first electrode comprising a first electrical conductor disposed adjacent said wall at said exterior;

a second electrode carried in said interior of said vessel;

a first dielectric disposed adjacent said first electrode for insulating said first electrode from said second electrode and from said fluid;

a second dielectric disposed adjacent said second electrode and in communication with said vessel interior, such that said first and second electrodes and said first and second dielectrics together comprise a variable capacitor with a capacitance value which varies with said amount of fluid;

means connected to said variable capacitor for determining the flow rates of the fluid as a function of said capacitance value and for providing an output reflecting said flow rates;

means for displaying said flow rates;

means in communication with said interior for removing a sample of the fluid from said vessel;

means in communication with said interior for draining the fluid from said vessel; and

means for sensing temperatures of the fluid within the vessel; and

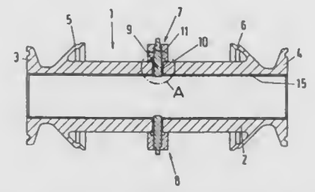
means for correlating said sensed temperatures with said flow rates.

5,062,305

METHOD OF MAKING A MEASURING TUBE FOR AN ELECTROMAGNETIC FLOW METER, AND THE MEASURING TUBE

Henry Hansen, Grasten; Leif Studsgaard, Augustenborg, and Erik Laursen, Nordborg, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

Filed May 29, 1990, Ser. No. 530,907
Claims priority, application Fed. Rep. of Germany, Jun. 2, 1989, 3917975
Int. Cl.[5] G01F *1/58*
U.S. Cl. 73—861.12 16 Claims



1. A method of making a measuring tube for an electromagnetic flow meter wherein the measuring tube has a tube member made of a non-magnetic material such as stainless steel and having an inner circumferential surface and spaced through passages defined by surfaces opening through the tube member inner circumferential surface into the tube member interior, and a continuous lining of meltable electrically non-conductive material covering the inner circumferential surface and the through passages, the steps of

(a) fixing electrodes to extend through the through passages and radially into the tube member interior in spaced relationship to the through passage surfaces to provide gaps between the electrodes and the passage surfaces and with the electrode end faces located in the tube member interior,

(b) applying enamel priming slip to circumferential surface and in the entire gaps,

(c) then clearing the enamel priming slip from the electrode end faces, and

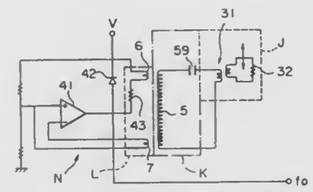
(d) thereafter heating the enamel priming slip to melt the enamel priming slip and thence cooling the heated priming slip.

5,062,306

APPARATUS FOR DETECTING TORQUE OF ROTATING SHAFT

Shigeyuki Gotoh; Kazunori Yokota, and Isao Suzuki, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Apr. 17, 1990, Ser. No. 510,005
Claims priority, application Japan, Apr. 20, 1989, 1-101157; Apr. 24, 1989, 1-104128
Int. Cl.[5] G01L *3/10*
U.S. Cl. 73—862.33 19 Claims



1. A torque detecting apparatus for detecting torque applied to a rotatable shaft, comprising:

an annular bobbinless sensor coil disposed rotatably with the shaft and formed by winding an electrically conductive wire so as to define a hollow space;

a position-adjustable, non-ferromagnetic metal core member disposed rotatably with the shaft at a position adjacent said sensor coil, said core member being associated with said sensor coil so that when a relative angular displacement develops between said core member and said sensor coil upon twisting of the shaft in response to application of torque thereto, said core member is moved within the hollow space of said sensor coil to thereby change inductance of said sensor coil in corespondence to the relative angular displacement;

a capacitor mounted on the shaft;

solenoid coil means wound on said shaft and connected to said capacitor and said sensor coil to thereby constitute a resonance circuit; and

detecting means including one set of an input coil and an ouput coil each comprising a magnetic core and an electrically conductive wire wound around said magnetic core, said input and output coils of said detecting means being disposed opposite said solenoid coil means in radially outwardly spaced relation with the outer periphery of the shaft, said detecting means forming, in cooperation with said resonance circuit, an oscillation circuit capable of oscillating at the resonant frequency of said resonance circuit for detecting the angular displacement corresponding to the torque in terms of change in the oscillation frequency.

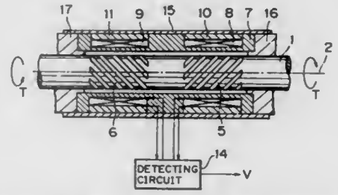
5,062,307

STRAIN DETECTOR

Hideo Ikeda; Chiyo Hamamura; Hiroshi Satoh, and Yoshihiko Utsui, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 26, 1990, Ser. No. 514,801
Claims priority, application Japan, Apr. 27, 1989, 1-109713; Apr. 27, 1989, 1-109715; May 17, 1989, 1-123311; May 17, 1989, 1-123312
Int. Cl.[5] G01L *3/10*
U.S. Cl. 73—862.36 4 Claims

1. A strain detector for detecting strain in a driven shaft to which an external force is applied, comprising a magnetic layer made of a soft magnetic material having a high permeability and suitable magnetostriction fixedly mounted on an outer periphery of said driven shaft, a pair of bearings or bearing stands made of a soft magnetic material having a high permeability for supporting said driven shaft for rotation thereon, a detecting coil disposed around said magnetic layer for detecting a variation of the permeability of said magnetic layer arising from strain of said magnetic layer caused by an external force applied to said driven shaft, and a shield disposed on an



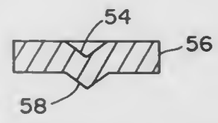
outer periphery of said detecting coil and magnetically connected at the axial opposite end portions thereof to said bearings or bearing stands.

5,062,308

FILTER PUNCH AND FILTER COLLECTION SYSTEM

Donald B. Rising, Stow, and Emile O. Montminy, Lowell, both of Mass., assignors to Millipore Corporation, Bedford, Mass.

Continuation of Ser. No. 169,523, Mar. 17, 1988, Pat. No. 4,974,462. This application Oct. 15, 1990, Ser. No. 583,428
Int. Cl.[5] G01N *1/04*
U.S. Cl. 73—864.41 9 Claims



1. A filter punch which comprises a punch section having a thickness and two opposing surfaces,

a filter piercing member secured to and extending from one of said opposing surfaces, said one of said opposing surfaces comprising a flat surface, said filter piercing member having a sharp point and having a side area and a vertical axis, said side area and said vertical axis forming a small angle such that a filter pierced by said piercing member is secured to said piercing member and

a punch guide comprising a depression formed in the second of said opposing surfaces, said punch section, piercing member and guide having a size and shape to permit said filter punch to pass through a filter section having substantially the same size and shape of said one of said opposing surfaces.

5,062,309

DEVICE FOR TAKING SAMPLES OF BOTTOM SEDIMENTS FROM WATER BASINS

Martin A. Voll, and Robert K. Eiskop, both of Tallin, U.S.S.R., assignors to Institut Khimii Akademii Nauk Estonskoi SSR, Tallinn, U.S.S.R.

Continuation-in-part of Ser. No. 404,076, Sep. 7, 1989, abandoned. This application May 25, 1990, Ser. No. 528,343
Int. Cl.[5] G01N *1/04*
U.S. Cl. 73—864.44 5 Claims

1. A device for taking samples of bottom sediments from water basins, said device comprising:

at least one vertical coring tube;

sections of said coring tube arranged in succession one after another longitudinally of said tube;

a closed upper end of said tube;

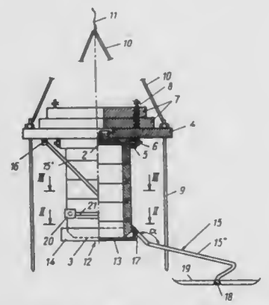
a check valve built in said upper end;

an open lower end of said tube;

a carrying element, said upper end of said tube being secured to said carrying element;

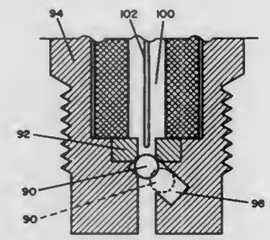
VOL 1132 ISS 1 NO 5 1991 UMI

a forked rod having a branched upper end and an unbranched lower end and the entire length exceeding the entire length of said tube;
said branched upper part of said rod having two branches with upper ends of said rod;
said unbranched lower part of said rod having a lower end of said rod;
said branches of said branched part, pivotally secured by



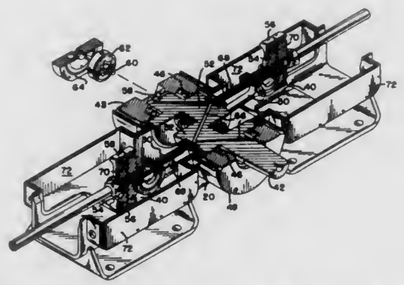
said upper ends to said carrying element symmetrically relative to said tube and with the distance from each other exceeding the diameter of said tube;
a cover, pivotally secured to said branches at the places guaranteeing that in a rest position said cover closes said lower end of said tube;
said lower end of said rod, being in a rest position below the level of said lower end of said tube;
a plate, pivotally secured to said lower end of said rod.

5,062,310
PROBE INLET APPARATUS AND METHOD
David K. Eaton, Austin, Tex., assignor to Jade Systems, Inc., Austin, Tex.
Filed Mar. 1, 1990, Ser. No. 487,599
Int. Cl.[5] G01M *19/00*
U.S. Cl. 73—866.5 **21 Claims**



1. A probe inlet apparatus for facilitating the introduction of an elongated probe member into an isolated environment, the inlet apparatus comprising:
(a) an inlet housing having an inlet housing cavity extending therethrough through which the elongated probe member may pass;
(b) annular seal means connected to the inlet housing for providing an annular seal around the probe member so that fluid may not flow through the inlet housing cavity when the probe member is received through said cavity;
(c) an inner seal seat mounted toward an inner end of the inlet housing from the annular seal means, the inner seal seat having a seat opening through which the probe member may pass when the probe member is extended completely through the inlet housing cavity;
(d) seal member positioning means associated with the inlet housing for providing a magnetic positioning force; and
(e) a seal member responsive to the magnetic positioning force to be positioned in a seated position against the inner seal seat over the seat opening for preventing fluid from flowing through the inlet housing cavity from the seal opening toward the annular seal means, and adapted to be contacted and moved to an unseated position against said magnetic positioning force by the probe member as the probe member is inserted through the seat opening toward the inner end of the inlet housing from the annular seal means.

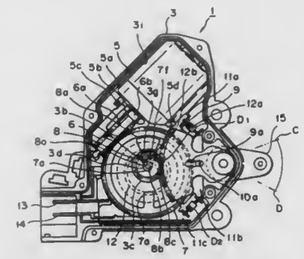
5,062,311
FRAME, CRANKSHAFT AND CROSSHEAD ASSEMBLY, AND A CRANKSHAFT AND CROSSHEAD FRAME, FOR A RECIPROCATING-PISTON MACHINE
Robert A. Bennitt, Painted Post, N.Y., assignor to Dresser-Rand Company, Corning, N.Y.
Filed Mar. 29, 1991, Ser. No. 677,698
Int. Cl.[5] F16H *21/22*
U.S. Cl. 74—44 **17 Claims**



1. A frame, crankshaft and crosshead assembly for a reciprocating-piston machine, comprising:
a tubular housing; and
means fixed to said housing for supporting said housing along a given, longitudinal axis; wherein
said housing has apertures formed therein; and including
a crankshaft journalled in said apertures; wherein
said housing further has openings formed therein; and including
casings fixed in said openings; and
a crosshead subassembly coupled to said crankshaft; wherein
said casings have webs upon which, slidably, said subassembly is supported.

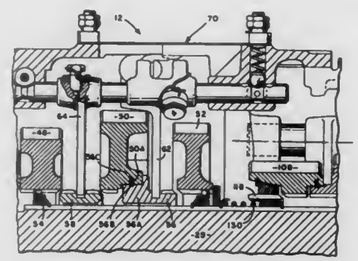
5,062,312
ACTUATOR
Yoshio Watanuki; Haruo Mochida; Masaru Inoue; Kazuya Suzuki, and Masaki Tanaka, all of Yokohama, Japan, assignors to Nissan Motor Co., Ltd. and Jidosha Denki Kogyo K.K., both of Kanagawa, Japan
Filed Dec. 13, 1989, Ser. No. 450,102
Claims priority, application Japan, Dec. 15, 1988, 63-162568[U]
Int. Cl.[5] F16H *29/20*; F16D *71/00*
U.S. Cl. 74—89.14 **1 Claim**

1. An actuator comprising:
a motor having a shaft;
a worm connected to said shaft of said motor;
a worm wheel disposed in meshing engagement with said worm and provided with a pinion-engaging part and spring means for biasing the worm wheel to an original starting position;
a pinion provided with a worm wheel-engaging part to be engaged with said pinion-engaging part and having a rotational axis offset from a rotational axis of said worm wheel;
a sector wheel having an output arm and a holder engaging slot, said sector wheel being disposed in meshing engagement with said pinion;
a contact holder linked to said sector wheel by means of a projection extending through said holder-engaging slot; and



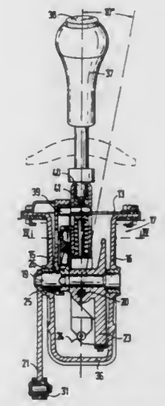
a changeover means for switching contacts on and off according to the position of said contact holder with respect to said sector wheel;
said sector wheel being located at a starting position when said pinion-engaging part is engaged with said worm wheel-engaging part at a position opposite to the rotational axis of said pinion relative to the rotational axis of said worm wheel.

5,062,313
MANUAL CONTROL FOR EXTENDED RANGE SPLITTER TYPE COMPOUND TRANSMISSION
Melvern W. Fletcher, Manchester, England, assignor to Eaton Corporation, Cleveland, Ohio
Filed Feb. 6, 1990, Ser. No. 475,529
Claims priority, application United Kingdom, Feb. 11, 1989, 8903132.2; May 6, 1989, 8910448.3
Int. Cl.[5] F16H *3/093, 3/16*; F16D *21/04*
U.S. Cl. 74—335 **9 Claims**



2. The control of claim 1 wherein one of said main section mainshaft gears (48) is a second lowest speed ratio main section mainshaft gear and said first main section clutch collar (58) is axially displaceable in a first axial direction from a disengaged position to engage the second lowest speed ratio main section mainshaft gear (48) and in the second axial direction to engage said low speed ratio main section mainshaft gear (50) and said second main section clutch collar (56) is axially displaceable in said first axial direction to cause engagement between said low speed ratio mainsection mainshaft gear (50) and the mainshaft and in the second axial direction to engage a reverse speed mainsection mainshaft gear (52).

5,062,314
SHIFTING ARRANGEMENT FOR A MOTOR VEHICLE TRANSMISSION
Ulrich Maier, Freiberg/N., and Friedrich Raff, Eberdingen, both of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 302,387, Jan. 27, 1989, Pat. No. 4,987,387. This application Aug. 15, 1990, Ser. No. 567,645
Claims priority, application Fed. Rep. of Germany, Mar. 10, 1988, 3807881; Aug. 24, 1989, 3927922
The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.
Int. Cl.[5] F16H *59/02*; G05G *5/06*
U.S. Cl. 74—475 **10 Claims**



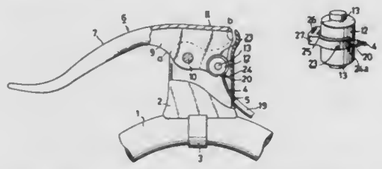
1. A shifting arrangement for an automatic transmission of a motor vehicle controlled by an electronic control unit comprising:
a selector lever pivotable in first and second shifting paths, a pivoting of the selector lever in the first shifting path preselecting driving positions having various transmission gears which are to be automatically shifted, and a pivoting of the selector lever in the second shifting path causing a manual shifting of transmission gears, said second shifting path being parallel to the first shifting path, said selector lever being movable via a transverse path between the first and second shifting paths; and
a hollow frame in which said selector lever is disposed, said hollow frame having a pot-shaped bottom part and a cover part fastened to the bottom part.

5,062,315
DEVICE FOR PREVENTING DISENGAGEMENT OF AN INNER WIRE OF A BOWDEN CABLE FROM A BICYCLE BRAKE OPERATING LEVER
Kenichi Yoshigai, Osaka, Japan, assignor to Yoshigai Kikai Kinzoku Co., Ltd., Osaka, Japan
Filed Apr. 20, 1990, Ser. No. 512,103
Int. Cl.[5] F16L *1/10*
U.S. Cl. 74—502.2 **3 Claims**

1. A device for preventing disengagement of an inner wire of a Bowden cable from a bicycle brake operating lever, wherein the Bowden cable has a nipple secured to one end of said inner wire, wherein a connector, in which a locking hole for engaging said nipple is formed, is supported within said operating lever, wherein a ring body is attached upon a circumferential surface of said connector in the area of the locking hole to retain said nipple within the locking hole of said connector,

VOL 1132 ISS 1 NO 5 1991 UMI

and wherein said ring body is carried solely by said connector hidden within said operating lever, has a fitting concave por-



tion over a head of the nipple, san has a handle-shaped pickup portion with a slot-shaped through hole for a tool.

5,062,316

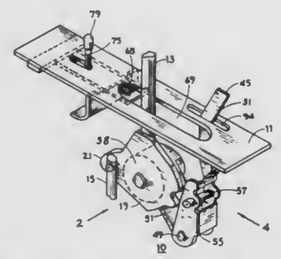
HANDLE POSITION CONTROL APPARATUS

Thomas G. Lykken, and Philip T. Kemper, both of Fargo, N. Dak., assignors to J. I. Case Company, Racine, Wis.

Filed Oct. 19, 1989, Ser. No. 423,843

Int. Cl.[5] G05G *5/06*

U.S. Cl. 74—529 **2 Claims**



1. A handle position control apparatus including:

an operating handle assembly having a plate for coupling such assembly to a hydraulic valve to be positioned, such plate including a detent notch, a shoulder and a control surface, the handle being mounted for movement from a neutral position through an operating position to a float position;

an auxiliary lever mounted for movement between a first, engaged position and a second disengaged position, such lever including an engagement pin for engaging such shoulder when in the first position, thereby preventing such handle from moving to such neutral position while yet permitting movement of the handle to the float position, such auxiliary lever further including a back web and a plurality of side webs attached to the back web, each of such side webs including an aperture for receiving a shaft on which such lever is pivotably moved, each of the side webs further including a hole for receiving such engagement pin, such pin engaging the detent notch, the shoulder or the control surface when such auxiliary lever is in the engaged position;

a force member embodied as a toggling-type compression spring coupled to such lever and acting thereon to maintain such lever in the first position or the second position; and,

a stop plate mounted for movement between an access position for permitting such operating handle to be moved to the float position and a blocking location for preventing such operating handle from being moved to the float position;

such engagement pin preventing such operating handle from moving from the detent position when such engagement pin is in such detent notch.

5,062,317

BRAKING DEVICE FOR AUTOMOTIVE VEHICLE FITTED WITH AN ELECTRIC MOTOR

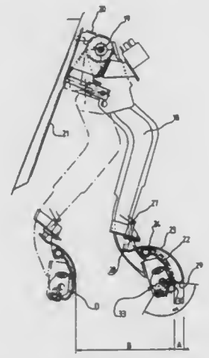
Bernard Saliba, Choisy-le-Roi, France, assignor to Automobiles Peugeot and Automobiles Citroen, both of, France

Filed May 15, 1990, Ser. No. 524,371

Claims priority, application France, May 16, 1989, 89 06376

Int. Cl.[5] G05G *1/14*; H01C *10/00*

U.S. Cl. 74—560 **6 Claims**



1. A brake device for an automotive vehicle including an engine adapted to operate in response to a control signal alternately as an electric motor for driving the vehicle and as a generator for generating electrical energy when said vehicle is moving, an electric power source, means for feeding electric energy from said power source to said engine when said engine is working as a motor and means for transferring electrical energy generated by said engine to said power source when said engine is working as a generator and an electrical device for producing said control signals in accordance with operations of a driver of the vehicle,

said brake device comprising

mechanical brake means including a brake pedal having a pedal body mounted pivotally about a pivot axis carried by a stationary vehicle support structure, said mechanical brake means adapted to cause mechanical braking of the engine when pivoting about said axis,

electrical brake means including means for generating control signals to said electrical device to cause transfer of electrical energy to said power source, thereby providing a braking effect to said engine, and

a lever pivotally connected to said pedal body to effectuate a pivoting movement in response to an actuating operation produced by the vehicle driver, said lever controlling said means for generating control signals, said lever being pivotable into a first position in which it activates said means for generating control signals and thereby selectively activating only said electrical brake means until said lever reaches a threshold angle at which said lever is locked with said pedal body to become pivotally secured therewith, said lever and said pedal body being jointly pivotable into a second position exceeding said threshold angle which activates said mechanical brake means.

5,062,318

BICYCLE GEAR CRANK ASSEMBLY

Toshimasa Yamazaki, Sakai, Japan, assignor to Maeda Industries, Ltd., Osaka, Japan

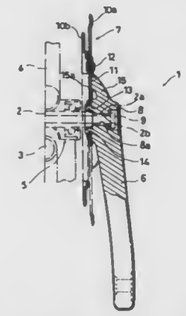
Filed Nov. 26, 1990, Ser. No. 617,810

Claims priority, application Japan, Dec. 5, 1989, 1-141287[U]

Int. Cl.[5] G05G *1/14*

U.S. Cl. 74—594.2 **6 Claims**

1. A gear crank assembly for attachment to a crank shaft comprising: a crank having a boss portion for fitting to a crank shaft; and a chainwheel including a largest sprocket and at least one smaller sprocket coaxial with said largest sprocket, said largest sprocket having a radially outer tooth carrying portion and a central portion mounted on said boss portion, said largest sprocket further having a plurality of stays extending radially outward from said central portion to said tooth carrying portion to define weight reduction openings between said stays,



wherein said boss portion of said crank is provided with a sprocket backup means located on the side of said largest sprocket laterally away from said smaller sprocket, said backup means extending radially outward from said boss portion beyond said central portion of said largest sprocket but short of said tooth carrying portion of said largest sprocket to contact each of said stays at least at an intermediate portion thereof, so that said backup means prevents said largest sprocket form laterally bending in a direction away from said smaller sprocket.

5,062,319

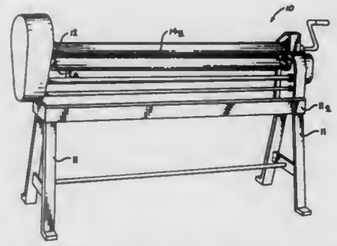
SHEET ROLLING MACHINE GUARD APPARATUS

Edward A. Beckner, 926 Florida St., Salem, Va. 24153

Filed Mar. 15, 1991, Ser. No. 670,181

Int. Cl.[5] F16D *1/02*

U.S. Cl. 74—612 **5 Claims**



1. A sheet rolling machine guard apparatus comprising, in combination,

a support framework, the support framework mounting a top roll spaced from and parallel a bottom roll,

and

a rear roll mounted rearwardly of and parallel the bottom roll,

and

a guard member including a top semi-cylindrical shield spaced above a bottom semi-cylindrical shield defining a gap therebetween, the top semi-cylindrical shield positioned forwardly of the top roll and the bottom semi-cylindrical shield positions forwardly of the bottom roll, with the top and bottom roll defining a roll gap, wherein the gap is substantially aligned with the roll gap,

and

the top shield including a top shield top linear end and a top shield bottom linear end, the bottom shield including a bottom shield top linear end and a bottom shield bottom linear end, wherein each linear end is arranged in a single plane,

and

a first link mounted adjacent the top shield bottom linear end and the bottom shield top linear end,

and

a second link mounted to the top shield bottom linear end and the bottom shield top linear end, wherein the first and second links are arranged parallel relative to one another and mounted adjacent opposed ends of the gap defined by the top and bottom shields.

5,062,320

DIFFERENTIAL MECHANISM

David Parsons, Kenilworth; Wilfred N. Bainbridge, Banbury; Alastair J. Young, Kenilworth, and Harry D. Temperley, Leamington Spa, all of England, assignors to 501 Automotive Products Plc, England

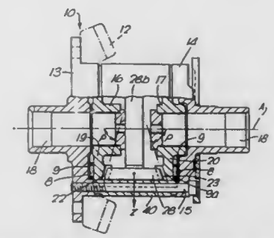
PCT No. PCT/GB89/00053, § 371 Date Jul. 11, 1990, § 102(e) Date Jul. 11, 1990, PCT Pub. No. WO89/06761, PCT Pub. Date Jul. 27, 1989

PCT Filed Jan. 19, 1989, Ser. No. 543,747

Claims priority, application United Kingdom, Jan. 22, 1988, 8801401; Feb. 25, 1988, 8804373

Int. Cl.[5] F16H *35/04*

U.S. Cl. 74—650 **25 Claims**



1. A differential mechanism comprising, two output cam members rotatable about an axis, each said member having a single annular cam surface thereon of undulating form comprising pairs of mutually inclined surfaces, the cam surface on each cam member comprising at least two identical tracks which form the complete annular cam surface, one of said cam members having a different number of said pairs of inclined surfaces thereon than the other of said cam members, the cam surfaces on the two cam members converging towards the axis, a plurality of substantially identical cam followers which have end surfaces thereon for engaging the cam surfaces of the output cam members, the arrangement being such that relative contra rotation of said output cam members causes the cam followers to slide axially, and an input element extending circumferentially around the cam followers and engaging with the radially outer portion of the cam followers to move the follower circumferentially relative to the output cam members, the cam followers being elongate in the direction of said axis and slidably supported at least towards ends thereof by the surrounding drive input element, the cam followers lying side by side with the adjacent side surfaces of each cam follower in contact with or lying closely to the side surfaces of each adjacent cam follower and during drive of said output cam members through the followers a force is created which urges the follower members radially outward towards said drive input element.

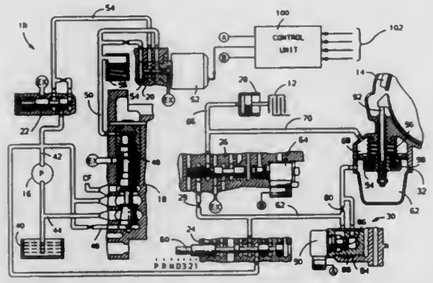
VOL
1132
ISS
1
NO
5
1991
UMI

5,062,321

CONTROL APPARATUS FOR REGULATING ENGAGEMENT OF A FLUID OPERATED TORQUE TRANSMITTING DEVICE

Melissa M. Koenig, Ann Arbor, and William J. Vukovich, Ypsilanti, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Mar. 11, 1991, Ser. No. 667,141
Int. Cl.[5] F16H *61/06*
U.S. Cl. 74—866 **7 Claims**



1. A control system for controlling the supply of fluid to a servo chamber of predetermined volume which is filled to engage a fluid operated torque transmitting device, said control system comprising;

a source of fluid pressure;

pressure regulating means for regulating the pressure of said source of fluid pressure in accordance with a pressure command;

fluid restriction means including variable flow orifice means connecting said source of fluid pressure to said chamber, and electromagnetic means for adjusting the flow of said orifice means in accordance with a restriction command; and

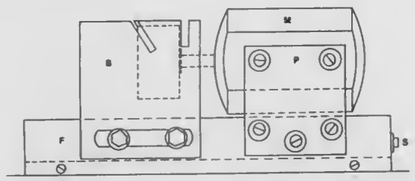
control means for issuing a combination of pressure and restriction commands for filling the predetermined volume in a desired time, thereby to control an engagement rate of said torque transmitting device.

5,062,322

UNIVERSAL LAWN MOWER BLADE SHARPENING MACHINE

John E. Sinko, P.O. Box 586, Blanchard, Okla. 73010

Filed Sep. 28, 1989, Ser. No. 413,727
Int. Cl.[5] B21K *11/00*
U.S. Cl. 76—82.1 **4 Claims**



1. A self contained lawn mower blade sharpening machine, said machine comprising;

(a) base means for the purpose of attachment to a work bench;

(b) electric motor means attached to said base means via vibration isolators, for the purpose of providing power to a working surface;

(c) composite abrasive wheel means attached to said motor drive means allowing both sides of the lawn mower blade to be sharpened without machine adjustment; and

(d) a laterally traveling blade guide means attached to said base means for grinding both sides of the lawn mower blade;

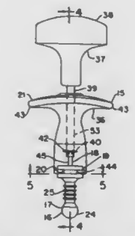
(e) said blade guide means totally enveloping said abrasive wheel means thereby making it virtually impossible for the operators hand to contact the abrasive wheel means.

5,062,323

TIRE REPAIR PLUG AND INSTALLATION TOOL

Simon Roberts, Southfield; John A. Battista, Livonia, and Alex Rhodes, West Bloomfield, all of Mich., assignors to Baseline Products, Inc., Southfield, Mich.

Filed Jul. 31, 1989, Ser. No. 387,972
Int. Cl.[5] B29C *73/08, 73/06*
U.S. Cl. 81—15.7 **11 Claims**



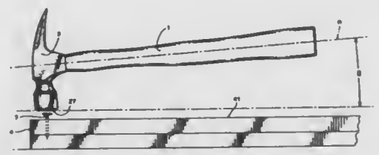
1. A plug and tool for repairing a puncture of a vehicle tire comprising: an assembly of a generally cylindrical plug made of a rubber material, a cylindrical shank portion having a circular aperture disposed on the axis of said plug and an enlarged cylindrical head end portion adjoining said shank portion which is adapted for engaging a tool to insert the plug into a puncture and a slender cylindrical core for engaging said aperture, one end portion of said core projecting outwardly from said plug for engaging the end of a shank of a tool; and a tool for elongating and inserting said plug into a puncture of a tire, said tool having a frame with a slotted foot portion for releaseably engaging said enlarged head portion of said plug and a shank slideably mounted in said frame, said shank having an end portion for releaseably engaging said outward projecting end of said core.

5,062,324

HAND HAMMER

Thomas A. Saviano, 13866 Skyline Blvd., Woodside, Calif. 94062

Filed Sep. 4, 1990, Ser. No. 578,727
Int. Cl.[5] B25C *1/00*
U.S. Cl. 81—20 **16 Claims**



1. A hand hammer comprising

(1) a handle, and

(2) a head which has a substantially planar striking surface for striking nails, the handle having a single straight axis between the head and all points on the handle at which the handle can be grasped by a hand when the hammer is being used to strike a nail, and the striking surface being inclined away from the handle so that, if

(a) the striking surface is held against a flat horizontal surface, and

(b) the hammer is viewed horizontally,

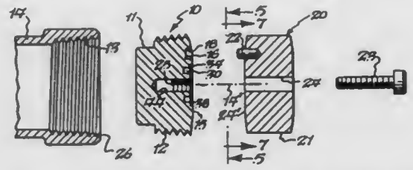
the axis of the handle is inclined to the horizontal at an angle ϕ which is greater than 0°, with the end of the handle adjacent the head being lower than the end of the handle remote from the head.

5,062,325

PIPE PLUG AND CENTERING CONSTRUCTION FOR CENTERING RIDGED KEY IN MATING GROOVE IN PIPE PLUG OR NUT

Durham S. McCauley, and Jeffrey R. Sullivan, both of Boston, N.Y., assignors to McGard, Inc., Orchard Park, N.Y.

Continuation of Ser. No. 100,536, Sep. 24, 1987, abandoned, which is a division of Ser. No. 900,975, Aug. 27, 1986, Pat. No. 4,712,586, which is a continuation of Ser. No. 732,675, May 10, 1985, abandoned. This application Jan. 26, 1989, Ser. No. 302,062
Int. Cl.[5] B25B *13/48*
U.S. Cl. 81—436 **20 Claims**



1. A body member having an axis of rotation, threads on said body member for mounting said body member on an object, a face on said body member which is transverse to said axis of rotation, undulating curvilinear key-receiving groove means in said face, a mating key counterbore means having a side in said face in alignment with said curvilinear key-receiving groove means for engaging said mating key and permitting said mating key to rotate relative to said body member while in contact with said side prior to alignment of said mating key with said curvilinear key-receiving groove means prior to entry of said mating key into said curvilinear key-receiving groove means and to permit said mating key to enter into said curvilinear key-receiving groove means after alignment between said mating key and said curvilinear key-receiving groove means, curvilinear ridge means on said mating key for mating engagement with said curvilinear groove means, said curvilinear ridge means having spaced outer circumferential areas for engagement with said side of said counterbore means to align said curvilinear ridge means relative to said curvilinear key-receiving groove means during rotation of said mating key, a base on said mating key, said curvilinear ridge means being mounted on said base, and said base having an outer surface with a circumference which provides a close fit with said side of said counterbore means, whereby said outer surface of said base is in contiguous relationship to said side of said counterbore when said curvilinear ridge means is in said curvilinear groove to thereby stabilize said curvilinear ridge means in said curvilinear key-receiving groove means.

5,062,326

POWER-DRIVEN OR MANUALLY-OPERATED WRENCH PULLER FOR TIGHTENING OR LOOSENING THREADEDLY-ENGAGED WORK PIECES

Steven H. Goldschmidt, 10 Greenbrier Dr., Bloomfield, Conn. 06002

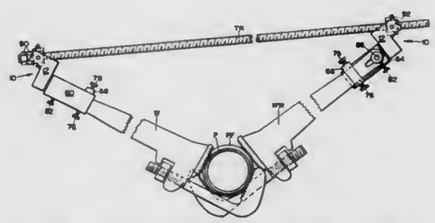
Filed Nov. 21, 1990, Ser. No. 616,838
Int. Cl.[5] B25B *13/00*
U.S. Cl. 81—57.32 **4 Claims**

1. In a manually or mechanically or hydraulically or electrically operated wrench puller system for tightening or loosening a threaded connection in a workpiece with a multiplied pulling force comprising:

a pair of wrenches each grippingly engaged with one of the threaded components of the workpiece,

a turret disposed at the opposite extremity of each wrench and including independently pivotable and rotatable inner and outer pivot blocks swingable with respect to each other in a substantially friction free manner in mutually perpendicular axes,

a connector means connecting each wrench to its respective turret,



a threaded tie rod extendable between and through each turret,

a pair of nuts tightened together and threadedly engaged on the tie rod outboard of an adjacent one of the turrets,

single nut threadedly engaged on the tie rod within an adjacent one of the turrets,

adapted and arranged whereby rotation of the tie rod responsive to the tihghtening of the pair of nuts effects concomitant angular deviations of the inner and outer pivot blocks of the pair of turrets and the resultant axial displacement of the wrenches as they are driven toward each other.

5,062,327

YOKE NUT TIGHTENING WRENCH

Alva C. Hammons, 760 Yell Rd.; James R. Sanders, 949 Midway St., and Franklin J. Ulrich, 1199 Nashville Highway, Apt. 14, all of Lewisburg, Tenn. 37091

Filed Dec. 28, 1990, Ser. No. 635,740
Int. Cl.[5] B25B *13/06*
U.S. Cl. 81—124.3 **7 Claims**



1. A wrench disposed for insertion into a yoke/U-joint assembly of a vehicle, said yoke provided with extending spaced trunnions and having a body provided with a recess for receiving a yoke securing nut therein, said recess disposed on said body between said trunnions, said nut disposed for threaded engagement with a threaded portion of a shaft to which said yoke is to be secured, said threaded portion of said shaft extending through an opening in said body of said yoke for secured relation thereto responsive to said threaded engagement with said nut, said wrench comprising:

a handle having first and second ends and first and second sides and a neck portion at said first end, said neck portion having a dimensionally reduced cross section relative to said sides of said handle, to form a neck portion of predetermined thickness a predetermined width; and

a nut engaging head secured to said neck portion, said head including an extending portion of predetermined diameter for insertion into said recess of said body of said yoke, said

VOL 1132 ISS 1 NO 5 1991 UMI

head including said extending portion provided with an inner nut engaging surface for engaged relation of said nut in said recess;

said handle and said head are provided with mating planar upper surfaces;

said predetermined with of said neck portion is provided by providing each said side, at said neck portion, with a cut-away portion, said cut-away portions providing said neck portion with a smaller width than the remainder of said handle, said cut-away portions permitting said handle to be swung in a wider arc than would be otherwise possible without said cut-away portions; and

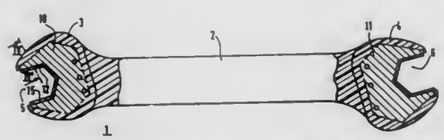
said neck portion includes upper and lower surfaces, and said predetermined thickness of said neck portion is provided by providing said lower surface of said neck portion with a recessed surface, to reduce the thickness of said neck portion relative to the thickness of said head and said handle, said recessed surface permitting insertion and rotational movement of said neck portion and head between adjacent spaced surfaces of said yokes.

5,062,328

PLASTIC WRENCH WITH METAL INSERT

Jean P. Demurger, Roanne, France, assignor to Demurger et cie, France

Filed Feb. 28, 1990, Ser. No. 486,090
Claims priority, application France, Mar. 2, 1989, 89 02997
Int. Cl.[5] B25B *13/00*
U.S. Cl. 81—186 **7 Claims**



1

1. A high strength molded wrench for engaging a grippable member that includes:

a metal insert having parallel top and bottom walls, end walls and an opening passing inwardly through one end wall to form a pair of jaws having opposed walls for engaging a grippable member,

body means formed of a high strength moldable material having a head that is molded over said insert to encompass the top wall, bottom wall and end walls said insert, said head having an opening that complements the opening in the insert to expose only the opposed gripping walls, and an elongated handle means extending from said head.

5,062,329

LEAF TAMPER FOR CHIPPER/SHREDDER

Kevin J. Connolly, Ballston Lake; James M. D'Aleo, Clifton Park, both of N.Y., and Clifford J. Griffith, Clemmons, N.C., assignors to Garden Way Incorporated, Troy, N.Y.

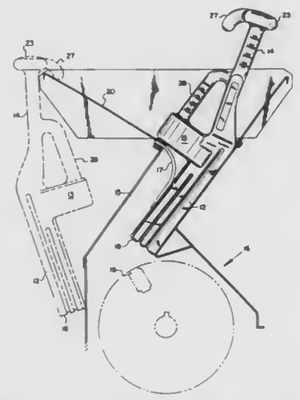
Filed Jul. 17, 1990, Ser. No. 554,202
Int. Cl.[5] B25B *33/00*
U.S. Cl. 81—488 **8 Claims**

1. A tamping tool for pushing materials contained in a hopper of a chipper/shredder device through a throat of predetermined, fixed, non-circular cross section of the hopper and towards high speed, rotating pulverizing elements of the device, comprising:

a pushing member having a working end configured for insertion into said hopper throat for pushing materials contained in said hopper into said hopper throat and towards said pulverizing elements, said member having a non circular cross section that closely engages at least a portion of the throat to preclude rotation of the member in said hopper throat thereby allowing only slideable pushing movement of said member in said throat;

an operator engageable handle on an end of said member; and

a safety stop intermediate the length of said member for



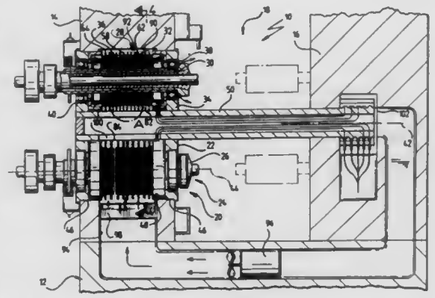
engagement with said hopper to limit the distance said member may be inserted into said throat, said stop precluding engagement of said working end with said pulverizing elements.

5,062,330

MACHINE TOOL WITH A COOLED MOTOR SPINDLE

Guenther H. Trautmann, Kirchheim-Nabern, and Helmut F. Link, Aichwald 1, both of Fed. Rep. of Germany, assignors to Index-Werke Komm.-Ges. Hahn & Tessky, Fed. Rep. of Germany

Filed Dec. 27, 1989, Ser. No. 457,258
Claims priority, application Fed. Rep. of Germany, Dec. 30, 1988, 3844337
Int. Cl.[5] B23B *19/02*
U.S. Cl. 82—147 **20 Claims**



1. A machine tool comprising:

a motor spindle having a work spindle and a main motor, said main motor being integrated into and carried by said work spindle coaxially with a spindle axis thereof, said work spindle being mounted in at least two bearings, one of said bearings comprising a spindle bearing facing a working area of said machine tool, said main motor having a rotor and a stator, said stator having stator plates forming, for their part, cooling surfaces; and

a cooling device designed to supply a gaseous coolant to said main motor under pressure above atmospheric, said gaseous coolant being conducted directly along said cooling surfaces of said stator plates and to said spindle bearing

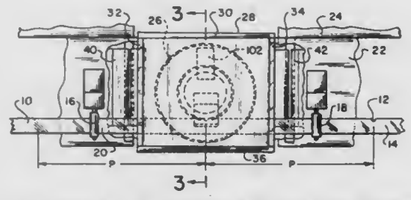
facing said working area for acting upon said spindle bearing to counteract penetration of dirt and liquid from said working area into said spindle bearing.

5,062,331

APPARATUS AND METHOD FOR EDGE NOTCHING A CONTINUOUSLY MOVING WEB

Vratislav M. Michal, and Ralph S. Barbaro, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 7, 1989, Ser. No. 390,129
Int. Cl.[5] B26D *1/56*
U.S. Cl. 83—37 **8 Claims**



1. Apparatus for edge notching a moving web, comprising:

first means for supporting such web to provide a substantially straight run of such moving web;

at least one die means having an opening for at least partially defining the geometry of a notch to be made in such moving web;

at least one cylindrical punch means having a shape and a shearing edge for cooperating with said opening to form such notch;

second means for supporting said die means and said punch means on opposite sides of such moving web;

means for rotating said second supporting means about an axis substantially perpendicular to the plane of such straight run so that said punch means and said die means move in substantially parallel planes on said opposite sides; and

means for driving said shearing edge of said punch means through such moving web and said die means at least once during each revolution to form such notch and for withdrawing said shearing edge of said punch means after formation of such notch, said punch means comprising a first radially extending slot through which an edge portion of such moving web passes prior to actuation of said means for driving, said shearing edge being formed by said first slot, and a second radially extending slot, spaced axially on said punch means from said first slot, through which an edge portion of such moving web passes after actuation of said means for driving.

5,062,332

CUTTING MACHINE FOR CUTTING FLAT WORKPIECES

Gottfried Blaimscheln, Steyr, and Harald Dietachmayr, Ternberg, both of Austria, assignors to GMF Gesellschaft für Fertigungstechnik und Maschinenbau Aktiengesellschaft, Steyr, Austria

Filed Sep. 21, 1990, Ser. No. 586,420
Claims priority, application European Pat. Off., Sep. 25, 1989, 89890248
Int. Cl.[5] B23Q *17/22*
U.S. Cl. 83—74 **2 Claims**

1. A cutting machine for cutting a flat workpiece, which comprises

(a) a cutting table having a working surface for supporting the flat workpiece,

(b) a support movable substantially parallel to the working surface,

(c) a cutting unit mounted on the support above the working surface, the cutting unit comprising

(1) a cutting knife vertically adjustable perpendicularly to the working surface to regulate the cutting depth of the knife,

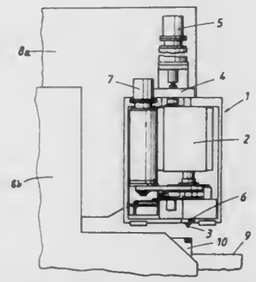
(2) a vertically displaceable carriage for the cutting knife for vertically adjusting the knife,

(3) a cutting knife holder rotatable about a vertical axis for orienting the knife into desired angular positions, and

(4) drive means actuatable for displacing the carriage rotating the holder and moving the support relative to each other in response to a programmable control, and

(d) a setting device for the cutting knife, the setting device being mounted on the support and comprising

(1) a vertically extending positioning path indicator extending perpendicularly to the working surface and having a measuring head arranged to be engaged by the cutting knife upon vertical displacement thereof to indicate the actual position of the cutting knife in a set position and to transmit to the control a signal deter-



mined by a deviation of the actual position of the measuring head from a pre-set vertical position thereof relative to the working surface whereby a reference point for the vertical adjustment of the cutting knife is put in the control,

(2) a horizontally extending positioning path indicator extending in a plane parallel to the working surface and defined by the pre-set vertical position of the measuring head, the horizontally extending positioning path indicator having a measuring head arranged to be engaged by the cutting knife upon angular displacement thereof in the pre-set vertical position to indicate the changing angular positions of the cutting knife in set positions occurring during rotation of the cutting knife holder about the vertical axis and to transmit to the control signals corresponding to the angular positions whereby a reference point for the angular adjustment of the cutting knife is put in the control, and

(3) a common housing for the vertically and horizontally extending positioning path indicators.

5,062,333

SHEARING MACHINE

Kazui Ogasawara, Kanagawa, Japan, assignor to Amada Company, Limited, Japan

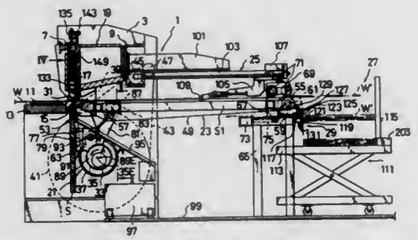
Continuation-in-part of Ser. No. 227,133, Aug. 2, 1988, abandoned. This application Dec. 15, 1988, Ser. No. 285,396
Claims priority, application Japan, Aug. 3, 1987, 62-118130; Aug. 3, 1987, 62-192603; Aug. 5, 1987, 62-119307
Int. Cl.[5] B26D *1/08, 7/32*
U.S. Cl. 83—94 **2 Claims**

1. A shearing machine for shearing a plate workpiece comprising:

a frame;

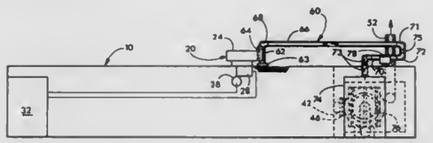
VOL 1132 ISS 1 NO 5 1991 UMI

a ram having an upper cutting blade and being mounted on the frame in a vertically movable manner;
a worktable having a lower blade and being fixedly mounted on the frame;
a conveying means for conveying a sheared plate workpiece;
a storage means positioned at the delivery end of the conveying means for receiving the sheared plate workpiece in a stacked manner;
a stopper means being movably guided on a guide means provided along a rear side of the storage means, in an X-direction parallel to the cutting blades for aligning a pile of the sheared plate workpieces stacked at a selected place on the storage means and further movable in a Y-



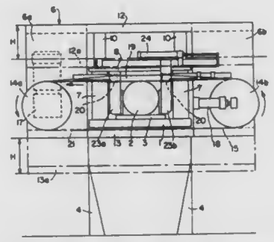
direction crossing normal to the X-direction, said stopper means provided with a lock means comprising a rotatable member having a cam surface, said cam surface having a minimum and maximum radial dimension which positively shifts the stopper means tin the Y-direction by a displacement distance no greater than the difference between said maximum and minimum radial dimensions to approach the conveying means when securing the stopper means on the guide means, said lock means being adapted to positively move the stopper means to a position spaced apart form the stacked pile of the sheared plate workpiece by said displacement distance when releasing the secured stopper means so that the stopper means is unlocked to move freely along the guide means.

5,062,334
APPARATUS FOR CLEANING CUTTING TABLE SUPPORT SURFACE
Timothy R. Killilea, 5636 W. Reighmoor Rd., Omro, Wis. 54963, and David W. Sattler, Rte. 1, Box 161, Pine River, Wis. 54965
Filed May 21, 1990, Ser. No. 527,071
Int. Cl.[5] B26D *7/18*
U.S. Cl. 83—99 **13 Claims**



10. In an apparatus for cutting sheet material comprising a cutting table including an air-permeable support surface for said sheet material; a vacuum chamber disposed below said support surface; carrier means, including cutting means, supported above said support surface for longitudinal and transverse movement relative to said table; and vacuum generating means including fluid communication means to said vacuum chamber for applying a vacuum to hold down said sheet material on said support surface during cutting operation; the improvement comprising:
(a) sweeper means having a nozzle mounted on said carrier means and adaptable for contacting said support surface, and including fluid communication means to said vacuum generating means;
(b) a substantially cylindrical filter means disposed intermediate said nozzle and said vacuum generating means,
(c) housing for said filter means, said filter means concentrically disposed in said housing,
(d) conduit means mounted to said housing and extending from said nozzle to provide fluid communication to said housing at one surface of said filter means,
(e) fluid communication means from the opposite surface of said filter means in said housing to said vacuum generating means, and
(f) valve means for cutting off vacuum to said vacuum chamber and opening vacuum to said sweeper means for cleaning said support surface.

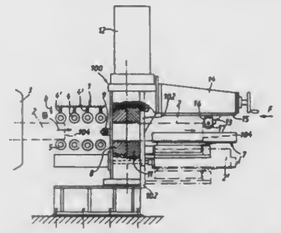
5,062,335
HORIZONTAL BAND-SAW
Patrick Missler, 12, rue de Tournehem, F-91450 Etiolles, France
Filed Oct. 12, 1989, Ser. No. 420,462
Claims priority, application France, Oct. 17, 1988, 88 13631
Int. Cl.[5] B23D *55/02;* **B26D** *1/46;* **B27B** *13/02*
U.S. Cl. 83—168 **5 Claims**



1. A horizontal band-saw comprising a workpiece-supporting table, a work unit mounted for vertical movement relative to the table, said unit having two lateral portions located on opposite horizontal sides of said table each said portion serving as a support for a respective vertical wheel for driving and guiding an endless saw blade that passes about said wheels, the saw blade having two horizontal runs that extend between said wheels respectively above and below said table, two vertical sleeves fixed to said table, and two vertical columns each of which is slidable vertically in a respective one of said sleeves, said vertical columns having upper and lower ends, said lower ends of said vertical columns being secured to a horizontal crosspiece that interconnects said two portions at the bottom of said unit and said upper ends of said columns being secured to a horizontal crosspiece which interconnects said portions at the top of said unit.

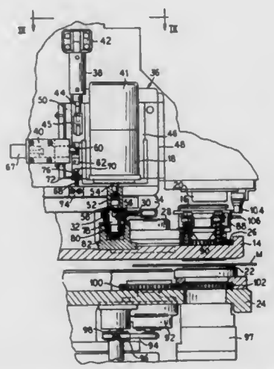
5,062,336
HOT SHEARING APPARATUS
Friedrich W. Elhaus, Moos, Fed. Rep. of Germany, assignor to Elhaus Industrieanlagen GmbH, Rielasingen, Fed. Rep. of Germany
Filed Dec. 5, 1989, Ser. No. 446,043
Claims priority, application Fed. Rep. of Germany, Dec. 9, 1988, 3841584
Int. Cl.[5] B26D *3/16, 7/02*
U.S. Cl. 83—198 **6 Claims**

1. A hot shearing apparatus for shearing heated round or flat section bars, especially of light metal, in billets, comprising:
a stationary shearing ring;
a moveable shearing ring, and
a drive means for generating shearing movement of the movable shearing ring,
wherein the stationary shearing ring is formed by two shell halves arranged such that, when the two shell halves of the stationary shearing ring are in a closed position, the interface between the two shell halves is in a plane containing a diameter of the closed position of the stationary shearing ring,
said shell halves of the stationary shearing ring being adapted to be spread apart in a direction transversely to the shearing movement of the moveable shearing ring, and
wherein the moveable shearing ring is formed by two shell



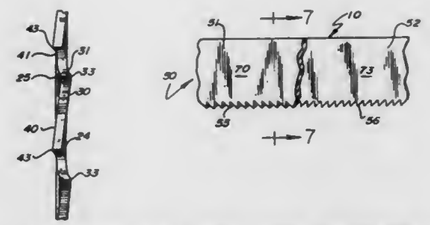
halves arranged such that, when the two shell halves of the moveable shearing ring are in a closed position, the interface between the two shell halves is in a plane containing a diameter of the closed position of the moveable shearing ring,
said shell halves of the moveable shearing ring being adapted to be spread in a direction which is offset by 90° with respect to the spreading direction of the stationary shearing ring.

5,062,337
INDEXABLE MULTI-TOOL FOR PUNCH PRESS
Gary E. Johnson, Ramsey, Minn., and Richard M. Eckert, Eggertsville, N.Y., assignors to Strippit, Inc., Akron, Ohio
Filed May 12, 1989, Ser. No. 351,413
Int. Cl.[5] B26D *5/02*
U.S. Cl. 83—552 **24 Claims**



1. In a punch press for punching a sheet material, the combination comprising:
a housing;
a ram reciprocably mounted in said housing;
a punch assembly removably supported below said ram and including a striker means, a punch carrier means and a stripper guide means underlying said ram, at least two punches supported by said punch carrier means and movable relative to said stripper guide, said punches each having a working end adapted to strike the associated sheet material and an opposite end being selectively engageable, when in a working position, by said striker means acted upon by said ram, to move said punch along an axis parallel to the axis of reciprocation of said ram, and control means for moving a selected one of said punches to said working position and concurrently operable to dispose the at least one other punch in an inactive position so that only the selected one of said punches is in said working position;
wherein said striker means includes a radially and axially projecting portion which overlies said punch carrier means, and said punch carrier means is rotatable below said striker means to present a selected one of said punches below said projecting portion.

5,062,338
HACKSAW BLADE WITH BI-DIRECTIONAL TEETH
Slade H. Baker, 109 ½ Broad St., Mankato, Minn. 56001
Filed Mar. 13, 1990, Ser. No. 492,834
Int. Cl.[5] B27B *21/02*
U.S. Cl. 83—848 **2 Claims**

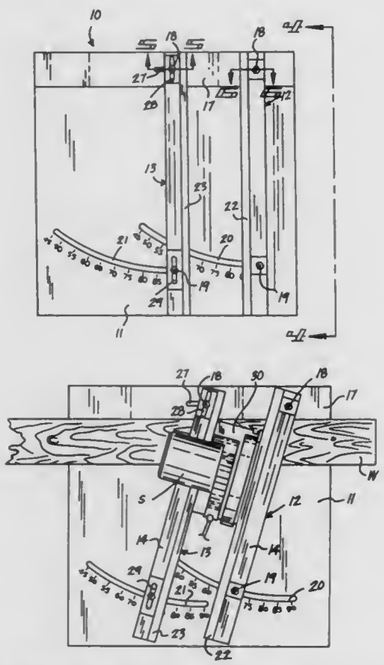


1. A hacksaw blade for being mounted on a hacksaw for sawing an object, the blade producing a cut and particulate matter when sawing the object, the blade comprising
a blade with two ends, first and second edges, and opposing faces, the blade further having an axis disposed equidistant from the first and second edges and extending between the ends, the blade further having a pair of apertures for connecting the blade to the hacksaw, each of the apertures adjacent one of the ends
a first set of teeth being disposed on the first and second edges of the blade to saw the object in one sawing direction from one of the ends to the other end of the blade, each of the teeth of the first set having a linear clearing edge disposed at an acute angle relative the axis, each of the teeth of the first set further having an elliptic cutting edge, each of the liner clearing edges and each of the respective elliptic edges forming a tip, and
a second set of teeth being disposed on the first and second edges to saw the object in an opposite sawing direction, each of the teeth of the second set being a mirror image of each of the teeth of the first set on their respective edges and having corresponding linear clearing edges, elliptic cutting edges, and tips, each of the teeth of the first set being arranged in an alternating fashion with each of the teeth of the second set, each of the linear clearing edges of the first set of teeth being adjacent to and leading into one of the linear clearing edges of the second set and forming the shape of a V, the elliptic cutting edges of the first set

VOL
1132
ISS
1
NO
5
1991
UMI

leading into the elliptic cutting edges of the second set and forming essentially the shape of half of an ellipse, the tips of the first set extending outwardly relative to one of the faces of one of the blade and the tips of the second set extending outwardly relative to the other face of the blade so that the tips are staggered relative to each other, each of the adjacent linear edges which form the shape of a V being linear relative to each other to be disposed substantially in the same plane and lying obliquely relative to the blade whereby each of the first and second blade edges saws the object and clears particulate in both of the sawing directions.

5,062,339
SAW GUIDE APPARATUS
William Campos, 7080 Kayo Dr., Penryn, Calif. 95663
Filed Dec. 31, 1990, Ser. No. 636,187
Int. Cl.[5] B27B 9/04
U.S. Cl. 83—763 **1 Claim**

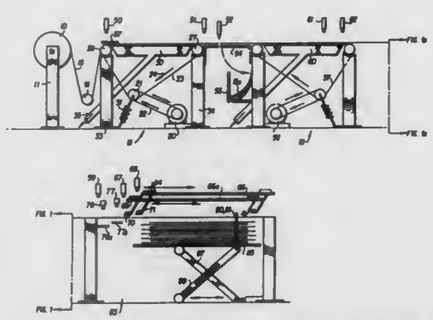


1. A saw guide apparatus comprising:
a planar support base, the support base including an elongate rear edge spaced from and parallel a forward edge, and
the rear edge and forward edge spaced apart a predetermined length, and
a first track member and a second track member mounted overlying the support base, and
each respective first and second track member including a respective first and second horizontal leg fixedly and orthogonally mounted to a respective first and second vertical leg, the first horizontal leg pivotally mounted to the support base adjacent the rear edge, and the second horizontal leg pivotally mounted to the support base adjacent the rear edge independent of the first horizontal leg, and
the respective first and second vertical legs pivotally mounted independent of one another overlying the base adjacent the forward edge of the base, and
including a mounting block fixedly mounted overlying the support base coextensive with the rear edge and including a planar forward surface orthogonally oriented relative to the planar base, and
the support block defined by a predetermined height, and
each vertical leg of each first and second track member defined by a height equal to the predetermined height wherein the first and second track member each define an enclosed gap to receive a work piece therethrough wherein the enclosed gap is defined by the base, the horizontal leg of each respective first and second track member, and a forward vertical leg of each respective first and second track member, and
wherein each horizontal leg of each respective first and second track member includes a respective first and second "L" shaped guide mounted thereon, each "L" shaped guide including a horizontal "J" shaped guide leg overlying each respective horizontal leg of each respective first and second track member to define a respective first and second "U" shaped track of each first and second track member wherein each first and second "U" shaped track are in a confronting parallel relationship to receive a saw guide plate of an associated saw therebetween, and
wherein the second horizontal leg of the second track member includes a rear pivot boss and the rear pivot boss of the second track member is slidably adjustable within a rear pivot slot longitudinally aligned through the mounting block and the support base, and the horizontal leg of the second track member including a rear horizontal leg slot orthogonally oriented and bisecting the rear pivot slot to receive the rear pivot fastener boss therethrough, and wherein the horizontal leg of the second track member further includes a forward horizontal leg slot longitudinally aligned with the rear horizontal leg slot to longitudinally adjust the second track member relative to the support base, and
wherein the forward horizontal slot of the second track member includes a forward pivot fastener boss directed therethrough wherein the forward pivot boss is further directed orthogonally through the planar support base and is slidably adjustably mounted within a second arcuate guide slot, and further including a first arcuate guide slot to receive a forward pivot fastener boss directed through the horizontal leg of the first track member to permit parallel pivotment of the first track member relative to the second track member, and
wherein the horizontal leg of the first track member includes a rear pivot fastener boss orthogonally directed through the horizontal leg, the mounting block, and the base, and each rear and forward pivot fastener boss of each horizontal leg of the respective first and second track members are arranged parallel relative to one another.

5,062,340
CUTTING AND POSITIONING APPARATUS
Richard Greven, 1015 Linda Vista Dr., Bldg. C, San Marcos, Calif. 92069
Filed Jun. 21, 1990, Ser. No. 541,790
Int. Cl.[5] B32B 31/18, 31/08
U.S. Cl. 83—95 **9 Claims**

8. An apparatus for cutting a continuous web into sheets of predetermined length and for stacking the sheets so cut, in a precise position, relative to each other, said apparatus comprising:
a) a means for securing a portion of said continuous web to a moving surface for moving said portion of said continuous web in a predetermined direction of travel;
b) a web shearing means for cutting said continuous web transverse to said predetermined direction of travel for forming a leading edge on said continuous web and for cutting said continuous web into sheets;

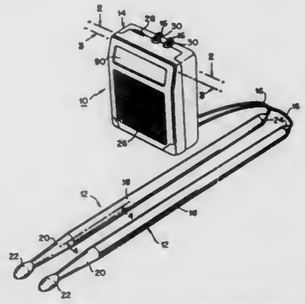
c) a web stop means, positioned downstream in said predetermined direction of travel from said web shearing means, for stopping said continuous web with said leading edge in a predetermined relationship to said web stop means for cutting said continuous web into a cut sheet of predetermined length by said web shearing means;
d) a detector means for detecting each of two laterally spaced, predetermined points on said cut sheet for orienting said cut sheet in accordance with a position of said detector means, said detector means positioned in a first predetermined position when detecting said two laterally spaced, predetermined points on a first cut sheet for orienting said first cut sheet in a first predetermined oriented condition and said detector means positioned in a second position when detecting said two laterally spaced predetermined points on a next cut sheet for orienting said next cut sheet in a second predetermined oriented condition;



e) a hole punch means for punching a first hole and a second hole in each said cut sheet when said cut sheet is oriented in accordance with said position of said detector means, said detector means being positioned at said first predetermined position when said first hole and said second hole are punched in said first cut sheet and said detector means is positioned at said second predetermined position when said first hole and said second hole are punched in said next cut sheet for offsetting said first hole and said second hole in said first cut sheet from said first hole and said second hole in said next cut sheet; and
f) a first pin and a second pin extending from a stacking bed, said first pin and said second pin spaced laterally from each other so that said first hole and said second hole align with said first pin and said second pin, respectively, and said first pin passes through said first hole and said second pin passes through said second hole when said cut sheet is on said stacking bed for offsetting adjacent cut sheets, in a stack of cut sheets on said stacking bed, from each other.

5,062,341
PORTABLE DRUM SOUND SIMULATOR GENERATING MULTIPLE SOUNDS
Victor G. Reiling, West Cornwell, and Bryan L. Dean, Torrington, both of Conn., assignors to Nasta International, Inc., New York, N.Y.
Continuation-in-part of Ser. No. 333,879, Mar. 31, 1989, Pat. No. 4,909,117, which is a continuation of Ser. No. 149,656, Jan. 28, 1989, abandoned. This application Dec. 29, 1989, Ser. No. 458,601
Int. Cl.[5] G10H 1/057, 5/00
U.S. Cl. 84—702 **9 Claims**

1. A portable drum sound simulator comprising:
a portable enclosure having therein drum sound generating means comprising an electronic circuit having a power source and energizable in response to momentary electrical trigger signals for generating two different audible drum-like sound outputs each in response to a corresponding trigger signal;
a sound select switch connected to the electronic circuit and having means for selectively selecting which said drum-like sound output the drum sound generating means generates;
tone pitch varying means connected in the electronic circuit for varying the tone pitch of generated drum-like sound outputs;
a tone select switch connected to the tone pitch varying means comprising means for selecting a higher tone pitch than one previously set, means for selecting a lower tone pitch than one previously set and means for maintaining a selected tone pitch;



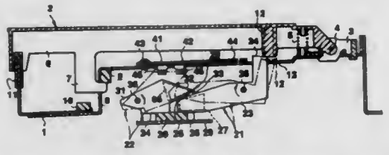
two normally open independently activated switches connected to the electronic circuit and momentarily closable for developing the momentary electrical trigger signals for independently effecting energizing of the drum sound generating means when momentarily closed and generating the drum-like sound outputs; and
two drumsticks each having a corresponding one of the two independently activated switches and movable in a striking motion in any desired direction at an accelerated velocity and decelerated at a certain rate momentarily at will while moving in said any direction for effectively generating the electrical trigger signals, each said independently activated switch having means for detecting momentary deceleration of the corresponding drumstick and effecting momentary closing of the corresponding switch in response to the detection of the momentary decelerations and effecting generating of the momentary electrical trigger signals.

5,062,342
PIANO ACTION DEVICE FOR ELECTRONIC KEYBOARD MUSICAL INSTRUMENTS
Shigeyuki Nagatsuma, Hamura, Japan, assignor to Casio Computer Co., Ltd., Tokyo, Japan
Filed Dec. 22, 1989, Ser. No. 455,977
Claims priority, application Japan, Dec. 28, 1988, 63-169125[U]; Dec. 28, 1988, 63-169126[U]
Int. Cl.[5] G10C 3/12; G10H 1/34
U.S. Cl. 84—744 **5 Claims**

1. A piano action device for electronic keyboard musical instruments, comprising:
a keyboard chassis;
a key mounted on said keyboard chassis so as to be swingable up and down;
an action mechanism located under said key, and including first and second hammer arms, said first hammer arm being swingable up and down in response to the swingable movement of said key, said second hammer arm being

VOL
1132
ISS
1
NO
5
1991
UMI

swingable up and down in response to the swingable movement of said first hammer arm, a swing center of said first hammer arm and a swing center of said second hammer arm being separated from each other in a longitudinal direction of said key and arranged on substantially the same horizontal plane, and one end of said second hammer arm near said first hammer arm being located on one end of said first hammer arm near said second hammer arm



thereby transmitting the swingable movement of said first hammer arm to said second hammer arm to cause it to swing; and

means for detecting a swing speed of said second hammer arm and generating a musical-sound-characteristic indicating signal to control characteristics of musical sounds to be generated in response to the detected swing speed of said second hammer arm.

5,062,343

METHOD AND A DEVICE FOR FILLING A SPACE IN AN AMMUNITION UNIT WITH EXPLOSIVE

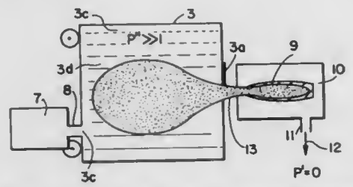
Per Sjöberg, Karlskoga, Sweden, assignor to Nobel Kemi AB, Karlskoga, Sweden

Filed May 29, 1990, Ser. No. 529,458

Claims priority, application Sweden, May 29, 1989, 8901900

Int. Cl.[5] F42B *4/00*

U.S. Cl. 86—20.1 **12 Claims**



1. A method of filling a space in at least one ammunition unit with a ready-mixed explosive containing a substance which imparts high viscosity to said explosive, said method comprising the steps of:

supplying said explosive into a flexible container having a single opening therein;

positioning said flexible container into a second container adapted to withstand high internal pressure;

applying a high pressure into said second container thereby exposing said flexible container to said high pressure;

pressing out said explosive from said flexible container through said opening in said flexible container into said space in said ammunition unit upon application of said high pressure whereby filling said space with said explosive.

5,062,344

BOWLINE KNOT IN A BRAIDED LINE

Thomas F. Gerker, DeLand, Fla., assignor to Sparton Corporation, Jackson, Mich.

Filed Apr. 12, 1990, Ser. No. 507,952

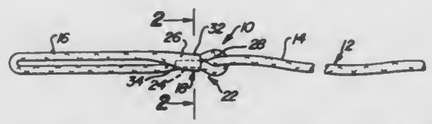
Int. Cl.[5] D04C *1/12*; D07B *7/18*

U.S. Cl. 87—8 **4 Claims**

1. The method of making an eye splice in a cord of the hollow braid type, said cord having a tubular wall and a hollow center, said method comprising the steps of:

forming a bight in the free end of a standing part of the cord,

inserting the bight through the wall on the standing part into the hollow center at an entry point and through the hollow center to a take-out point on the standing part,



extracting a loop of said bight through said wall at said take-out point leaving an overlap section of the standing part surrounding the free end of said bight between said entry point and said take-out point, thereby forming an eye, and said eye and bight being on the opposite sides of said overlap section,

passing the standing part through the loop of said bight, and tightening said bight around said standing part.

5,062,345

CAP FOR A ROCKET EXIT OPENING

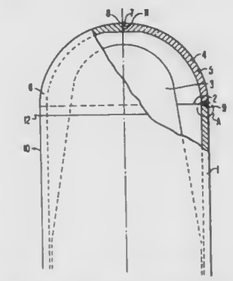
Marek Tegel, deceased, late of Wedel by Anita Tegel, beir , and Dieter Wenzel, Haseldorf, all of Fed. Rep. of Germany, assignors to DMT Marinetechnik GmbH, Hamburg, Fed. Rep. of Germany

Filed Dec. 7, 1990, Ser. No. 623,768

Claims priority, application Fed. Rep. of Germany, Dec. 7, 1989, 3940468

Int. Cl.[5] F41F *3/077*

U.S. Cl. 89—1.817 **6 Claims**



1. A cap for a rocket exit opening of a mobile rocket launcher for a submarine which is guided to the surface of the water in order to launch an air rocket which pushes out the cap when it is launched, wherein the exit opening presents a peripheral edge, comprising:

pressed together cap segments for covering the exit opening of the mobile rocket launcher, said cap segments being shaped so that externally applied force components which are radial with respect to the longitudinal axis of the submarine act on said segments, said cap segments presenting a peripheral edge which cooperates with the peripheral edge of the exit opening to form at least partly a form locking plug-in connection with one another which is held together by external force components acting in the axial direction of the submarine; and

a tear-away, pressure resistant, slightly elastic and watertight, thin sheet adapted for attachment to the submarine and being stretched over said cap segments when it is attached to the submarine.

5,062,346

HEAT PROTECTIVE COVERING FOR A PIPE AND A ROD-SHAPED ARTICLE, ESPECIALLY FOR GUN BARRELS

Niels F. Greve Hansen, Jerslev, and Jørn H. Greve Hansen, Kalundborg, both of Denmark, assignors to Dansk Industri Syndikat A/S, Denmark

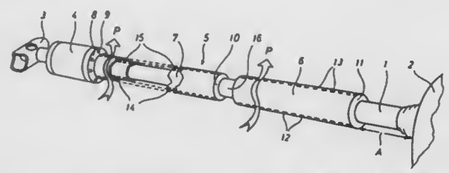
PCT No. PCT/DK89/00136, § 371 Date Nov. 21, 1990, § 102(e) Date Nov. 21, 1990, PCT Pub. No. WO89/11628, PCT Pub. Date Nov. 30, 1989

PCT Filed May 24, 1989, Ser. No. 603,713

Claims priority, application Denmark, May 25, 1988, 2839/88

Int. Cl.[5] F41A *13/12*

U.S. Cl. 89—14.1 **9 Claims**



1. A heat protective covering for gun barrels of a calibre of 40 to 120 mm, characterized in that the heat protective covering comprises at least two concentric and cylindrical plate layers, which are fixedly mounted at regular intervals around and at a distance from the barrel, and that at least one row of holes is formed at most a short distance in the circumferential direction thereof from and parallel to the upper and the lower line of generatrix, respectively, of each plate layer.

5,062,347

TRUNNION ASSEMBLY

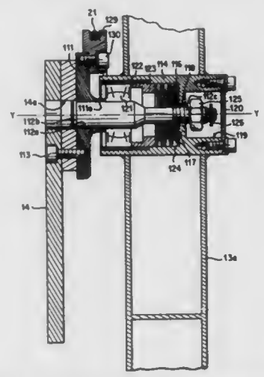
Jean-Philippe P. B. Allais, Montivilliers; Alain R. Guillermond, Epouville, and Pascal G. Rouyer, Le Havre, all of France, assignors to Societe Anonyme Dite Hispano Suiza, Saint Cloud Cedex, France

Filed Aug. 2, 1990, Ser. No. 561,867

Claims priority, application France, Aug. 10, 1989, 89 10764

Int. Cl.[5] F41A *27/08, 23/10*

U.S. Cl. 89—37.07 **14 Claims**



1. A trunnion assembly for pivotally supporting a weapon carrier on support member so as to pivot about a pivot axis comprising:

a) a pivot pin having a longitudinal axis defining the pivot axis;

b) a support member;

c) bearing means attached to the pivot pin such that the pivot pin may pivot about the pivot axis;

d) mounting means slidably mounting the bearing means to the support member such that the bearing means is movable along the axis about which the pivot pin pivots;

e) resilient biasing means operatively interposed between the support member and the bearing means to exert a biasing force on the bearing means so as to bias the bearing means and the pivot pin in a first axial direction along the axis about which the pivot pin pivots; and,

f) means operatively interposed between the pivot pin and the support member to overcome the biasing force of the resilient biasing means and move the pivot pin and the bearing means in a second axial direction along the axis about which the pivot pin pivots generally opposite to the first axial direction.

5,062,348

SEAL UNIT FOR BRAKE BOOSTER

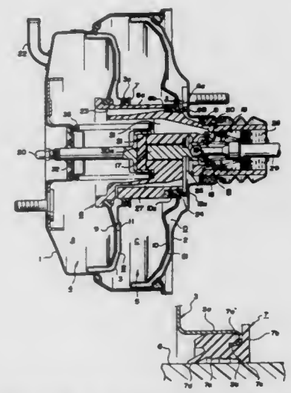
Hiroya Gotoh, and Kazuo Kobayashi, both of Saitama, Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed Aug. 15, 1990, Ser. No. 567,912

Claims priority, application Japan, Aug. 31, 1989, 1-102617[U]

Int. Cl.[5] F15B *9/10*; F01B *19/00*

U.S. Cl. 91—369.2 **9 Claims**



1. In a brake booster including a center plate disposed within a shell to divide its interior into a front chamber and a rear chamber, a valve body slidably extending through the center plate, annular seal means for maintaining a hermetic seal between the center plate and the valve body, a pair of power pistons disposed within respective chambers and connected to the valve body, and a pair of diaphragms applied to the back surfaces of the respective power pistons to divide each chamber into a constant pressure chamber and a variable pressure chamber; the improvement wherein said center plate includes a central, axially extending cylindrical portion, an end of the cylindrical portion being folded back radially inwardly to form a generally axially opening U-shaped fold, said U-shaped fold including a pair of radially spaced and generally axially extending leg portions which are connected by a generally radially extending bight portion, said axially extending cylindrical portion defining one of said leg portions, the annular seal means being fitted inside the cylindrical portion and confined radially between said cylindrical portion and said valve body, and a part of said annular seal means being disposed radially between said leg portions of the fold.

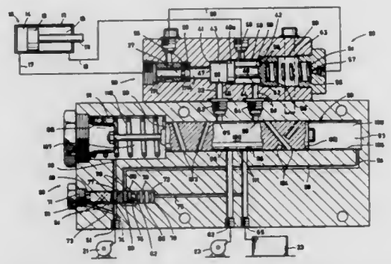
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,349

FLUID ECONOMIZER CONTROL VALVE SYSTEM FOR BLOWOUT PREVENTERS

Farooq A. Khan, Yorba Linda, Calif., assignor to Baroid Technology, Inc., Houston, Tex.

Filed Mar. 19, 1990, Ser. No. 495,490
Int. Cl.[5] F15B *11/16*
U.S. Cl. 91—436 10 Claims



1. A flow pressure sensing control valve system for use with blowout preventers having an operator piston and cylinder for opening and closing a blowout preventer, said piston and cylinder having a closing side and an opening side, said closing side having a greater effective surface area than said opening side, said system comprising:

a sensing means for creating a pressure drop in the flow directed to said closing side relatively with increases in flow velocity wherein said sensing means has a high side and a low side, said low side communicating with said closing side of said operator cylinder and said high side communicating with a pressurized fluid source; and

a fluid return system, comprising,

a directional flow control system for selectively directing flow from said opening side of said operator piston alternatively to said closing side of said operator piston when the drop in pressure across said sensing means is greater than a preselected value or to a discharge point when said pressure drop is less than said preselected value, said directional flow control system, comprising,

a control cylinder having a bore with an inner diameter, a substantially open return end and a substantially closed retracting end, said retracting end being in communication with said pressurized fluid source and further having a retracting aperture proximate to said retracting end, a return aperture proximate to said return end and a mid-aperture located along the length of said control cylinder and in communication with said opening side of said actuating cylinder; and

a control piston slidably mounted in said control cylinder for longitudinal movement, said piston having a configuration which snugly fits the inner diameter of said control cylinder and a longitudinal width which accommodates the communication of fluid from said opening side of said operator cylinder with said closing side of said operator cylinder when said control piston is at the return end of the flow routing cylinder and wherein discharge of fluid from said opening side of said operator cylinder is accommodated when said control piston is adjacent to said retracting end; and

a pressure switching system in communication with said directional flow control system for selectively varying the alternative flow paths of said directional flow control system, said switching system, comprising,

a switching cylinder having a discharge end in communication with said control cylinder, a feedback end in communication with said low side of said sensing means, and a longitudinal bore of diameter slightly greater than said inner diameter of said control cylinder;

a switching cylinder piston slidably mounted in said switching cylinder for longitudinal movement having an effective surface area slightly greater than the effective surface area of said control cylinder piston so that, upon closing of said operator cylinder, flow from said low side of said sensing means moves said switching cylinder piston to a discharge end when said pressure drop across said sensing means is below said preselected value and further having a configuration which snugly fits said inner diameter of said bore of said switching cylinder; and

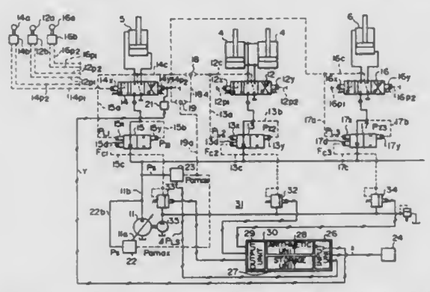
a switching rod positioned between said switching cylinder piston and said control piston, said rod having outer radial dimensions smaller than said inner diameter of said control cylinder and a location between said two pistons so that said switching rod can pass into said control cylinder to push said control piston to said retracted end upon movement of said switching cylinder piston to said discharge end and so that fluid may pass around said switching rod and through said control cylinder when said control piston is adjacent said retracting end of said control cylinder.

5,062,350

HYDRAULIC DRIVE SYSTEM FOR CIVIL ENGINEERING AND CONSTRUCTION MACHINE

Hideaki Tanaka, Tsuchiura; Toichi Hirata, Usbiku; Genroku Sugiyama, Ibaraki; Masakazu Haga, Ibaraki, and Yusuke Kajita, Tsuchiura, all of Japan, assignors to Hitachi Construction Machinery Co., Ltd., Tokyo, Japan

PCT No. PCT/JP90/00375, § 371 Date Jul. 12, 1990, § 102(e) Date Jul. 12, 1990, PCT Pub. No. WO90/11413, PCT Pub. Date Oct. 4, 1990
PCT Filed Mar. 29, 1990, Ser. No. 536,545
Claims priority, application Japan, Mar. 22, 1989, 1-67620
Int. Cl.[5] F15B *11/08*
U.S. Cl. 91—448 9 Claims



1. A hydraulic drive system for a civil engineering and construction machine comprising a hydraulic pump, a plurality of actuators driven by a hydraulic fluid supplied from said hydraulic pump and including an arm cylinder and a boom cylinder, a plurality of flow control valves for controlling flows of the hydraulic fluid supplied to said respective actuators and including an arm directional control valve and a boom directional control valve, and a plurality of distribution compensating valves for controlling differential pressures across said respective flow control valves, said distribution compensating valves each having drive means to set a target value of the differential pressure across the associated flow control valve, said hydraulic drive system further comprising:

first means for detecting an arm crowding operation performed by driving of said arm cylinder, and

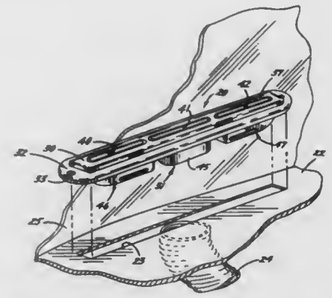
second means for controlling said drive means of the distribution compensating valve associated with said arm cylinder so as to reduce at least the target value of the differential pressure across the associated flow control valve, when the arm crowding operation is detected.

5,062,351

AIR DIFFUSER FOR A MOTOR VEHICLE

John M. Kloster, Caledonia, Ill., assignor to Atwood Industries, Inc., Rockford, Ill.

Filed Sep. 27, 1990, Ser. No. 589,190
Int. Cl.[5] B60S *1/54*
U.S. Cl. 98—2.09 7 Claims



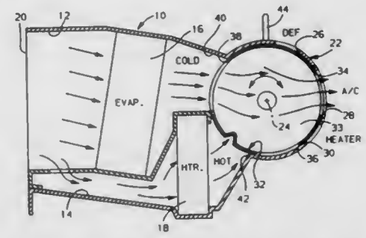
1. A diffuser for receiving conditioned air from supply hose means and for distributing such air upwardly toward and laterally across the windshield of a motor vehicle, said diffuser being molded of plastic and being formed with a laterally elongated hollow body having an upper portion and a lower portion, a laterally elongated and horizontally disposed mounting flange extending around the outer periphery of said body and having a lower side located between the upper and lower portions of the body, said upper portion of said body comprising a laterally elongated and horizontally disposed top plate, three laterally spaced and laterally elongated outlet slots formed vertically through said top plate, one of said slots being a center slot and the other two of said slots being first and second outboard slots spaced laterally from opposite ends of said center slot, the lower portion of said body comprising (A) a vertically extending inlet sleeve disposed in registry with said center slot and adapted for connection to said supply hose means, (B) first and second pods disposed in registry with said first and second outboard slots, respectively, and spaced laterally from said sleeve, each of said pods being defined by a bottom wall located a predetermined distance below said flange, by a pair of laterally extending side walls extending upwardly from said bottom wall to the lower side of said flange, by an outboard end wall extending upwardly from said bottom wall to the lower side of said flange at the outboard ends of said side walls, and by an inboard end wall extending upwardly from said bottom wall at the inboard ends of said side walls and terminating short of the lower side of said flange, and (C) first and second channels extending laterally between said sleeve and said first and second pods, respectively, to establish communication from said sleeve to said pods, the depth and volume of each channel being substantially less than the depth and volume of the respective pod whereby said pods define static regain chambers to promote substantially uniform distribution of air through the three slots.

5,062,352

MOTOR VEHICLE HEATING, VENTILATING AND AIR CONDITIONING SYSTEM WITH COMBINED MODE/TEMPERATURE DOOR

James C. Ostrand, Armada, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 16, 1990, Ser. No. 552,630
Int. Cl.[5] B60H *1/26*
U.S. Cl. 98—2.08 3 Claims



1. A motor vehicle passenger compartment heating, ventilating and air conditioning system comprising an air duct having an inlet at one end and a defroster outlet, air conditioning outlet and heater outlet at another end, said air duct having parallel arranged first and second passages for connecting said outlets to said inlet, an evaporator mounted n said first passage, a heater mounted in said second passage, and singular mode/-temperature door means mounted in said duct between said passages and outlets for (1) fully opening said first passage and air conditioning outlet while closing said defroster outlet, heater outlet and second passage to effect within said door means a first mode providing full cold operation, (2) fully opening said first passage while partially opening said air conditioning outlet and second passage and closing said defroster outlet and heater outlet to effect within said door means a second mode providing mixed hot and cold operation, (3) fully opening said first passage while partially opening said second passage, air conditioning outlet and heater outlet and closing said defroster outlet to effect within said door means a third mode providing bi-level mixed hot and cold operation, (4) fully opening said second passage and heater outlet while closing said first passage and air conditioning outlet and partially opening said defroster outlet to effect within said door means a fourth mode providing full hot heater/defroster operation, and (5) fully opening said second passage while partially opening said defroster outlet and heater outlet and closing said first passage and air conditioning outlet to effect within said door means a fifth mode providing full hot heater and defroster bleed operation.

5,062,353

HEATING OR AIR CONDITIONING EQUIPMENT FOR THE PASSENGER COMPARTMENT OF A MOTOR VEHICLE

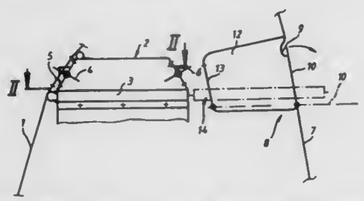
Klaus Arold, Sindelfingen, and Ulrich Bruhnke, Ehningen, both of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Feb. 4, 1991, Ser. No. 650,000
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1990, 4004501
Int. Cl.[5] B60H *3/06*
U.S. Cl. 98—2.11 4 Claims

1. Heating or air conditioning equipment for the passenger compartment of a motor vehicle, which equipment is connected to the bulkhead on the passenger compartment side, is covered by a dashboard provided with a glove compartment and has an air filter located on the air inlet side, which air filter is designed in particular as a dust filter, wherein the air filter is aligned at least approximately horizontally and is adjacent to

VOL 1132 ISS 1 NO 5 1991 UMI

the insert of the glove compartment, and wherein the air filter can be inserted and removed through the glove compartment

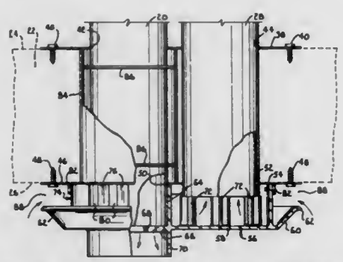


opening after the insert or a partial region of it has been removed or pivoted away.

5,062,354
SIDE WALL VENT/AIR TERMINATION UNIT FOR BOILERS

James V. Goins; Robert B. Duggan; William J. Pier, all of Michigan City, and Roger Wienhoft, LaPorte, all of Ind., assignors to The Marley Company, Mission Woods, Kans.

Filed Dec. 3, 1990, Ser. No. 620,566
Int. Cl.[5] F23L *17/04*
U.S. Cl. 98—62 **17 Claims**

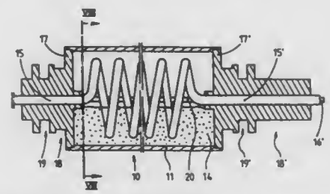


1. A side wall vent/air termination unit for separate vent and air supply pipes of a boiler, said termination unit comprising:
a termination cap having first and second portions for receiving ends of the vent pipe and air supply pipe, respectively, when the pipes are extended through the side wall;
means for mounting said termination cap on said side wall on an exterior surface thereof;
a face plate on said termination cap at an exposed location spaced outwardly from said exterior surface when the termination cap is mounted on the side wall;
said face plate having a vent opening therethrough aligned with said vent pipe to vent through the face plate exhaust gases from the boiler which flow through the vent pipe;
said termination cap having a termination cap wall which extends around said first and second portions and within which the end of the air supply pipe is situated with said end of the supply pipe exposed to receive incoming air; and
a plurality of air intake openings in said termination cap wall for receiving incoming air supplied to the supply pipe.

5,062,355
RUN-THROUGH GRILL WITH NON-UNIFORM HEAT DISTRIBUTION ABOUT THE ROLL SURFACE

Hansdieter Greiwe, Boxberg, Fed. Rep. of Germany, assignor to Patzner GmbH & Co., Bad Mergentheim, Fed. Rep. of Germany

Continuation of Ser. No. 301,232, Jan. 24, 1989, abandoned. This application Apr. 18, 1990, Ser. No. 510,527
Claims priority, application Fed. Rep. of Germany, Jan. 27, 1988, 3802345
Int. Cl.[5] A47J *37/06*; B21B *27/06*
U.S. Cl. 99—349 **7 Claims**

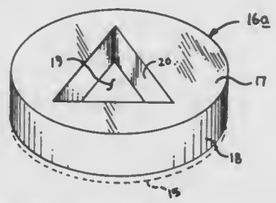


1. A run-through grill comprising:
at least two rolls mounted in parallel for rotation about a horizontal axis, and forming a gap therebetween, for downwardly introducing a piece of meat into said gap, each of said at least two rolls comprising:
(a) a helical heating coil;
(b) a jacket surrounding said helical heating coil so as to provide a cavity between the heating coil and the jacket;
(c) a fluidly movable particulate filling material in a quantity so as to continually provide for heat-transferring contact between a lower part of the heating coil and a lower part of the jacket through said particulate filling material and heat-transfer between an upper part of the heating coil and an upper part of the jacket through heat-radiation; and
(d) a circumferential non-uniform heat distribution over the jacket being provided such that said upper part of said jacket out of contact with said particulate filling material is heated to a higher temperature than said lower part of said jacket in contact with said filling material.

5,062,356
COOKIE BAKING APPARATUS

Armella Frankowski, 18911 Townline Rd., Mokena, Ill. 60448

Filed Nov. 5, 1990, Ser. No. 610,161
Int. Cl.[5] A22C *7/00*; A23P *1/00*
U.S. Cl. 99—428 **1 Claim**



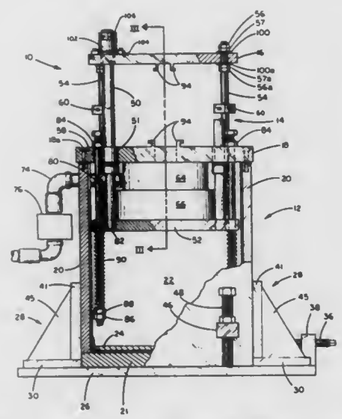
1. A cookie baking apparatus comprising, in combination,
an elongated continuous planar metallic support plate, the metallic support plate including a perimeter flange extending peripherally about the support plate in a fixed relationship, and
a plurality of mold members securable to the support plate for effecting severing of discrete cookie portions from a dough sheet, and

wherein each of the mold members include a top plate, the top plate includes a downwardly extending continuous skirt orthogonally mounted to an outer periphery of the top plate, and a dough ejecting opening directed through the top plate medially thereof, and a continuous opening skirt fixedly and orthogonally mounted coextensively to the top plate to an inner periphery thereof defining the dough ejecting opening, wherein the opening skirt and the continuous skirt are of equal predetermined height, and
wherein a lower terminal end of the continuous skirt includes a continuous ferromagnetic strip to enhance securement of the opening skirt to the support plate during a dough severing procedure.

5,062,357
PNEUMATIC PRESS

Robert B. Senior, Holland, and Edward L. Hvizdos, Fruitport, both of Mich., assignors to Innovated, Inc., Holland, Mich.

Filed Apr. 25, 1990, Ser. No. 514,672
Int. Cl.[5] B30B *15/16, 1/00*
U.S. Cl. 100—53 **25 Claims**

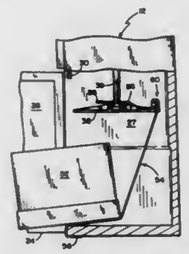


1. A fluid-operated press for continual stamping comprising:
a bed plate having an aperture, a discharge hole, a first surface, and a second surface opposite the first surface;
a press plate spaced from the first surface and defining a die-set area therewith;
spring means biasing the press plate away from the first surface;
pneumatically operated means for urging the press plate toward the first surface, said pneumatically operated means including a piston mounted to the second surface and a cylinder telescopically received over the piston for reciprocating movement relative thereto;
said piston having an inclined groove in communication with the discharge hole, said groove sloping away from the discharge hole radially of the piston; and
link means connecting the cylinder to the press plate, said link means comprising a rod connected at one end to the press plate and at another end to the cylinder, said rod extending through the aperture, whereby upon introduction and exhaust of pressurized fluid to the cylinder, the cylinder is thereby urged away from and toward, respectively, the second surface, and the press plate is urged toward and away from, respectively, the first surface to repetitively compress a die set positioned in the die-set area.

5,062,358
BALE EJECTOR FOR A TRASH COMPACTOR

Anthony Fox, Bloomington, Minn., assignor to Marcella M. Fox, Bloomington, Minn.

Continuation-in-part of Ser. No. 405,272, Sep. 11, 1989, abandoned, which is a continuation-in-part of Ser. No. 357,091, May 25, 1989, abandoned. This application Oct. 31, 1990, Ser. No. 606,907
Int. Cl.[5] B30B *15/32*
U.S. Cl. 100—218 **12 Claims**



1. In a refuse compaction apparatus of the type including an upright rectangular cabinet having a compaction chamber at the base of said cabinet and having a rear side wall and a compaction plate disposed within said cabinet for vertical, reciprocating displacement and an ejection means for facilitating the removal of compacted refuse from said cabinet, said ejection means including an elongated flexible band, having a first end anchored to the front edge of said base of said cabinet and extending across said base and up said rear side wall of said cabinet to a second end which, when tensioned, causes displacement of the compacted refuse, the improvement comprising:
(a) band take-up means coupled to said second end of said elongated flexible band for reeling and unreeling said band as said compaction plate moves downward and upward, respectively, within said cabinet;
(b) a locking means coupled to said band take-up means for preventing the unreeling of said elongated flexible band upon upward movement of said compaction plate to thereby tension said band to lift and rotate said refuse from said compaction chamber.

5,062,359
INTAGLIO PRINTING MACHINE FOR THE PRINTING OF CURRENCY PAPERS

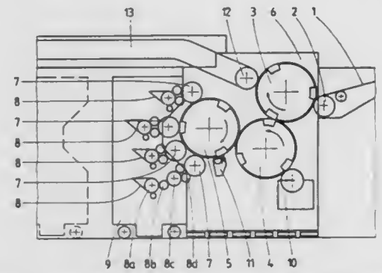
Gualtiero Giori, Lonay, Switzerland, assignor to De La Rue Giorgi S.A., Lausanne, Switzerland

Filed May 3, 1990, Ser. No. 518,146
Claims priority, application Switzerland, Jun. 29, 1989, 2422/89
Int. Cl.[5] B41F *9/02*
U.S. Cl. 101—152 **9 Claims**

1. A sheetfed or webfed intaglio printing machine for currency papers, especially bank notes, comprising: a plate cylinder (4) with several printing plates, and impression cylinder (3), a wiping device (10) and an inking system consisting of a collector inking cylinder (5) having an elastic surface interacting with the printing plates, selective color inking cylinders (7) having reliefs corresponding to the colored zones to be printed in different colors and in contact with the periphery of the collector inking cylinder (5), and a separate inking device (8) associated with each selective color inking cylinder (7), wherein the diameter of the collector inking cylinder (5) is equal to N times the diameter of the plate cylinder (4), N being an integer ranging from 1 to 3; wherein the printing plates are equipped with intaglio cuts representing the elements of a main design and with less deep and finer intaglio cuts representing the elements of a safety background, and wherein at least one

VOL 1132 ISS 1 NO 5 1991 UMI

selective color inking cylinder transfers by direct contact the ink to the collector inking cylinder (5) in order to ink the intaglio cuts representing the main design, while the other



selective color inking cylinders transfer by direct contact the ink to the collector inking cylinder (5) in order to ink the intaglio cuts representing the multicolor safety background.

5,062,360

COMBINED ROTARY WEB-FED PRINTING MACHINE, ESPECIALLY FOR THE PRINTING OF SECURITIES

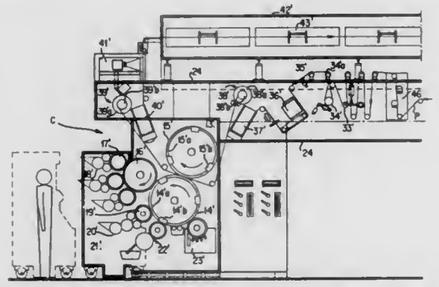
Albrecht J. Germann; Hans B. Bolza-Schünemann; Johannes G. Schaede, all of Wuerzburg, and Joachim A. H. Lapp, Margetshochheim, all of Fed. Rep. of Germany, assignors to De La Rue Giori S.A., Lausanne, Switzerland

Filed Aug. 1, 1990, Ser. No. 561,698

Claims priority, application Switzerland, Aug. 30, 1989, 03148/89

Int. Cl.[5] B41F *5/16, 9/02, 11/00*

U.S. Cl. 101—152 16 Claims



1. A combined rotary web-fed printing machine, with at least two printing units (A, B) arranged in succession and with a transport device conveying the paper in the form of a web (P) through the printing units and equipped with continuously driven draw-roller arrangements (27, 34, 34'), wherein the printing units (A, B) have respective cylinders (2, 3; 14, 15), including printing and impression cylinders forming the printing nip, each cylinder having a plurality of sectors separated by cylinder pits, wherein, as seen in a transport direction, the transport device possesses, in front of the printing nip of each printing unit (A, B), a first paper-web store (29; 37) and a following intermittently controllable first draw-roller unit (30; 38) and, after the printing nip of each printing unit (A, B), an intermittently controllable second draw-roller unit (31; 39) and a following second paper-web store (32; 40); control means including a regulating and control system for said first and second draw-roller units; said control system including individually regulated drives for each said draw-roller unit and means for intermittently controlling said draw-roller units for forward and backward movement of the web by said individually regulated drives for performing register and printing length correction, and wherein at least one of said continuously driven draw-roller arrangements (27, 34, 34') is installed respectively in front of the first paper-web store (29) of the first printing unit (A), between the second paper-web store (32) of the first printing unit and the first paper-web store (37) of the second printing unit (B), and behind the second paper-web store (40) of the second printing unit, in such a way that the paper web is transported uniformly in front of the first paper-web store of the second printing unit, behind the second paper-web store of the second printing unit, and between the two printing units (A, B), within a portion limited by the respective paper-web stores (32, 37).

5,062,361

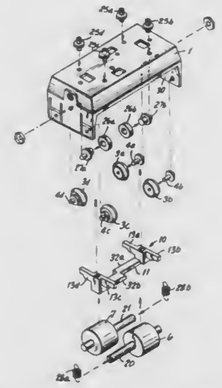
CREDIT CARD IMPRINTER WITH ONE-PIECE SLIDER

Mikhail Kabelsky, New York, N.Y., assignor to Bartizan Corporation, Yonkers, N.Y.

Filed Jul. 23, 1990, Ser. No. 557,406

Int. Cl.[5] B41F *3/04*

U.S. Cl. 101—269 4 Claims



1. A credit card imprinter including a base member having a flat top face, means to locate at least one embossed card on said top face, a carriage slidingly connected to said base member and adapted to be hand-pulled over said top face in a reciprocal motion, first and second cam means positioned on said base member, first and second axles within said carriage, a first platen roller mounted on said first axle and a second platen roller mounted on said second axle; each of said axles and the rollers carried thereon having a raised idle position and a lowered imprinting position; and a slider means to shift said axles alternatively from said idle to said imprinting position; said slider means comprising a one-piece unitary member having a central portion with an imaginary median line therethrough, a front face and a rear face, four arm portions extending outwardly from the central portion with two arms extending outwardly on each side of said median line; each of said arm portions having a bottom surface which abuts an axle and positions the height position of the axle, each of said bottom surfaces having an upper horizontal ledge portion, an inclined cam portion and a lower horizontal ledge portion; wherein said first and second base cam means contact said slider front face and rear face, respectively, to shift said slider.

5,062,362

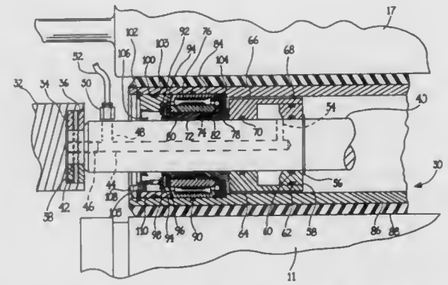
OSCILLATING PRINTING PRESS ROLLER HAVING A PLURALITY OF SEPARATE ANNULAR PISTONS

James R. Kemp, Hurst, Tex., assignor to Advanced Graphics Technologies, Inc., Grapevine, Tex.

Continuation of Ser. No. 255,153, Oct. 7, 1988, abandoned. This application Feb. 4, 1991, Ser. No. 651,747

Int. Cl.[5] B41F *31/14, 7/26*

U.S. Cl. 101—348 25 Claims



1. An oscillating roller for one of the ink and dampening fluid systems of a printing press, comprising an elongated axially extending roller shaft having two opposed outer ends, means on said outer ends of said roller shaft for mounting said roller shaft to a printing press, a plurality of annular cylinder heads located on and concentric with said roller shaft, said annular cylinder heads being axially spaced apart along said roller shaft, at least one of said annular cylinder heads being located adjacent each of said outer ends of said roller shaft, a plurality of separate annular pistons relatively non-rotatably mounted and relatively slidable on and concentric with said roller shaft, said plurality of separate annular pistons being axially spaced apart along said roller shaft, at least one of said separate annular pistons being located adjacent each of said outer ends of said roller shaft, a plurality of annular cylinder walls axially spaced apart along said roller shaft between said annular cylinder heads and said separate annular pistons, each of said separate annular pistons sliding in the adjacent said annular cylinder wall, said roller shaft extending through each of said pluralities of annular cylinder heads, separate annular pistons and annular cylinder walls, said pluralities of annular cylinder heads, separate annular pistons and annular cylinder walls cooperating to form a plurality of annular axially variable volumes about said roller shaft, at least one of said annular axially variable volumes being located adjacent each of said outer ends of said roller shaft, control means for admitting and exiting pressurized fluid from said plurality of annular axially variable volumes for causing axial oscillating motion of said plurality of separate annular pistons relative to said plurality of annular cylinder heads, a hollow roller core, said outer ends of said roller shaft extending beyond said hollow roller core, said pluralities of separate annular pistons, annular cylinder heads and annular cylinder walls being contained beneath said hollow roller core, said hollow roller core being spaced radially outwardly apart from each of said plurality of annular cylinder walls, and means for axially moving said hollow roller core with one of said plurality of annular cylinder walls and plurality of separate annular pistons, whereby operating said control means to admit and exit pressurized fluid from said plurality of annular axial variable volumes causes axial oscillating motion of said hollow roller core relative to said roller shaft.

5,062,363

FLEXIBLE PRINTING PLATE ATTACHMENT SYSTEM

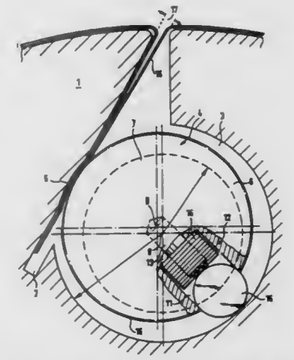
Klaus T. Reichel, Augsburg, Fed. Rep. of Germany, assignor to Man Roland Druckmaschinen AG, Offenbach am Main, Fed. Rep. of Germany

Filed Jan. 14, 1991, Ser. No. 640,688

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1990, 4005093

Int. Cl.[5] B41F *1/28, 21/00*

U.S. Cl. 101—415.1 7 Claims



1. Flexible printing plate attachment system having

a plate cylinder (1) formed with a clamping groove (2, 3) for placement of end portions of a flexible printing plate (16) therein,

wherein, in accordance with the invention,

the clamping groove includes a cylindrical opening (3) extending axially in the cylinder (1), and an insertion channel (2) defining a channel wall (5), said channel wall intersecting the cylindrical opening at a tangential region thereof; and

wherein an eccentrically retained spindle (4) is located in said cylindrical opening (3) and positioned for engagement against said end portions of the flexible printing form (16) and, selectively, to press the end portion against said channel wall upon rotation of said eccentrically retained spindle within the cylindrical opening, wherein said channel wall has a part-cylindrical portion which forms a portion of the circumferential circle of said cylindrical opening.

5,062,364

PLASMA-JET IMAGING METHOD

Thomas E. Lewis, E. Hampstead; Richard A. Williams, Hampstead; John P. Gardiner, Londonderry, and John F. Kline, Hudson, all of N.H., assignors to Presstek, Inc., Hudson, N.H.

Continuation of Ser. No. 329,979, Mar. 29, 1989, Published Application No.

Int. Cl.[5] B41C *1/05, 1/10*

U.S. Cl. 101—467 16 Claims

5. A method imaging a lithographic plate having a printing surface and including a metal layer and a second layer underlying said metal layer, said metal and second layers having different affinities for a printing liquid selected from the group consisting of water and ink, said method comprising the steps of:

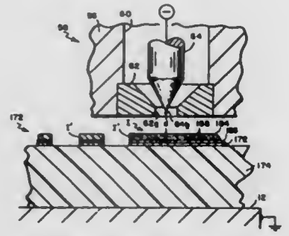
spacing a plasma-jet discharge source opposite and close to the printing surface; and

without contacting said printing surface, exposing the metal layer to ionized plasma discharges from said plasma-jet discharge source at selected points thereon to remove said

VOL 1132 ISS 1 NO 5 1991 UMI

metal layer and expose said second layer at the selected points.

spacing a plasma-jet discharge source opposite and close to the printing surface; and



without contacting said printing surface, exposing the first and second layers to ionized plasma discharges from said plasma-jet discharge source at selected points thereon to remove said first and second layers at the selected points, thereby exposing said third layer.

5,062,365

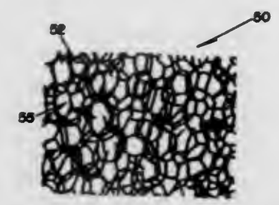
RAPID BURNING PROPELLENT CHARGE FOR AUTOMOBILE AIR BAG INFLATORS, ROCKET MOTORS, AND IGNITERS THEREFOR

J. B. Canterberry, Taft, Tenn., assignors to Thiokol Corporation, Ogden, Utah

Division of Ser. No. 158,829, Feb. 11, 1988, Pat. No. 5,024,160, which is a division of Ser. No. 908,763, Sep. 18, 1986, Pat. No. 4,798,142. This application Oct. 1, 1990, Ser. No. 591,406

Int. Cl.[5] F42B *3/00, 15/10*

U.S. Cl. 102—322 **11 Claims**



1. An igniter comprises a gas generant charge including a reticulated substrate having a network of interconnected ligaments and a coating of solid gas generant composition on said ligaments, said solid gas generant composition being interconnected in the form of a network, said coating has a thickness such that interstices are between coated ligaments which interstices define open gas generant surface area for supporting combustion, said interconnected ligaments defining voids which are open to each other so that the gas generant may constitute a single mass.

5,062,366

TEMPERATURE COMPENSATING CONTROL SYSTEM FOR ADJUSTING PRIMARY PROPELLANT CHAMBER VOLUME

Calvin T. Candland, Eden Prairie; Kim L. Christianson, Maple Grove; James L. Kennedy, Bloomington; David A. Smith, St. Paul; Francis J. Nosan, Brooklyn Park, and Steven F. Overend, New Hope, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Aug. 7, 1989, Ser. No. 389,939

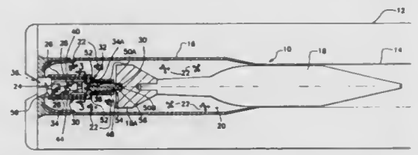
Int. Cl.[5] F42B *5/02*

U.S. Cl. 102—430 **23 Claims**

1. A temperature compensating control system for adjusting the volume of a chamber in an ammunition round which communicates with a projectile and contains a propellant having temperature dependent performance characteristics, said control system comprising:

(a) a control tube housing;

(b) a piston assembly slidably mounted relative to said housing for movement through a drive stroke and being drivingly coupled to a trailing end of the projectile; and



(c) means responsive to the temperature of the ammunition round for adjusting the length of the drive stroke of said piston assembly in proportion to the temperature and thereby adjusting the position of the projectile and said volume of the chamber in proportion to the temperature of the ammunition round; and

(d) means for stopping the piston in response to the temperature of the ammunition round at an adjusted position prior to firing the round.

5,062,367

AIR BAG INFLATION GAS GENERATOR

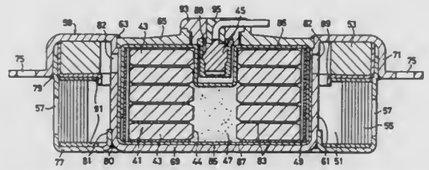
Minoru Hayashi; Mitoshi Matsufuji; Sakae Takahashi, all of Shirakawa; Koichi Kamiji, Wako; Kouichi Kobari, Shirakawa; Junichi Kishimoto, Shirakawa; Michio Shioda, Shirakawa, and Masaaki Kawaguchi, Wako, all of Japan, assignors to Nippon Koki, Co., Ltd., Tokyo, Japan

Filed Dec. 1, 1989, Ser. No. 444,706

Claims priority, application Japan, Dec. 5, 1988, 63-309091; Dec. 5, 1988, 63-309092; Dec. 5, 1988, 63-309094

Int. Cl.[5] C06D *5/00*; F42B *3/04*

U.S. Cl. 102—530 **8 Claims**



1. As air bag inflation gas generator comprising a combustion chamber containing a gas generating agent, an igniter and an ignition agent arranged in the center of said combustion chamber to burn said gas generating agent, a combustion chamber filter arranged along an inner wall of said combustion chamber, a plenum chamber annularly surrounding and communicating with said combustion chamber to receive gas flow from said combustion chamber filter, a plenum chamber filter contained in said plenum chamber, and gas outlets provided with said plenum chamber to feed the gas flow from said plenum chamber filter to an air bag, wherein:

said combustion chamber comprises a one-piece bottom-closed cylinder of a housing body and a lid welded to seal the opening of said bottom-closed cylinder, said lid receiving said igniter,

said housing body comprises a flange extending outward and formed integrally, in one-piece, with the opening of said bottom-closed cylinder, and an external cylinder formed on the periphery of said flange and bent toward the bottom of said housing body,

said plenum chamber is formed by covering said external and bottom-closed cylinders with a covering member from the bottom of said housing body, and

said covering member is welded to said external and bottom-closed cylinders.

5,062,368

ASSEMBLY LINE FOR WORKING AND MOUNTING STRUCTURAL PARTS

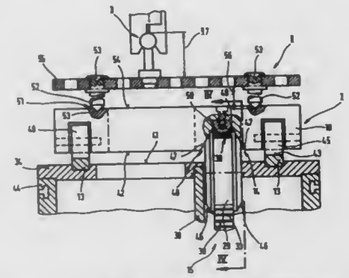
Walter Sticht, Attnang-Puchheim, and Roland Heiml, Vöcklamarkt, both of Austria, assignors to STIWA-Gertigungstechnik Sticht Gesellschaft m.b.H., Attnang-Puchheim, Austria

Filed Mar. 8, 1990, Ser. No. 490,391

Claims priority, application Austria, Mar. 8, 1989, 530/89

Int. Cl.[5] B61J *3/04*

U.S. Cl. 104—172.3 **11 Claims**



1. A production plant for processing or assembling components transported on workpiece carriers in a conveying direction along a succession of adjacent guide sections, each guide section comprising two vertical guides defining a conveying plane for the workpiece carriers, the vertical guides extending in the conveying direction and being spaced from each other transversely to the conveying direction, and an independent feed device in each guide section for driving the workpiece carriers in the conveying direction, the feed devices beign independent of each other and of the vertical guides in each guide section, each feed device comprising

(a) a toothed driving belt extending parallel to the conveying plane in the conveying direction,

(b) two deflection rollers spaced from each other in the conveying direction and extending perpendicularly to the conveying plane, the toothed belt being trained over the deflection rollers and being vertically and laterally guided thereby, and each deflection roller including

(1) respective circumferential lateral guide faces directed transversely in opposite directions, and

(c) a drive motor arranged to drive the toothed driving belt about the deflection rollers, and

(d) the workpiece carriers including

(1) respective lateral guide faces engaged by the lateral guide faces of the deflection rollers whereby the engaging lateral guide faces of the deflection rollers and the workpiece carriers provide a lateral guide for the workpiece carriers, and

(2) a rack engaging the toothed belt whereby the toothed belt drives the workpiece carriers upon being driven by the drive motor.

5,062,369

FRAME STRUCTURE

Ronald C. Cobden, Pinner, and Alan J. Shiels, Hazlemere, both of Great Britain, assignors to British Alcan Aluminium PLC, Buckinghamshire, England

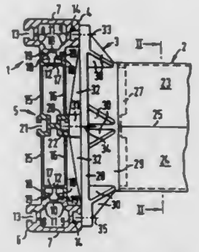
PCT No. PCT/GB89/01264, § 371 Date Jul. 17, 1990, § 102(e) Date Jul. 17, 1990, PCT Pub. No. WO90/04534, PCT Pub. Date May 3, 1990

PCT Filed Oct. 20, 1989, Ser. No. 543,777

Claims priority, application United Kingdom, Oct. 21, 1988, 8824765

Int. Cl.[5] B62D *21/12*; B61D *17/00*

U.S. Cl. 105—396 **10 Claims**



1. A frame structure of aluminium alloy having a pair of spaced apart side rails and a plurality of spaced apart cross-members each comprising a central tubular portion and extending between the side rails, characterised in that at least over a major part of its length each side rail comprises at least three hollow extrusions welded together at positions of low stress and has more than two longitudinally extending re-entrant, slots opening inwardly thereof at selected low stress locations thereon to receive the heads of bolts and in that an end plate formation is welded to each end of the tubular formations, said bolts engaging through apertures in the associated end plates to removably secure together the side raiis and the cross-members only by said bolts at any desired location along said major part of the length of each side rail.

5,062,370

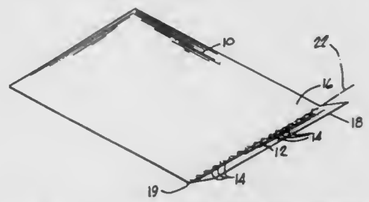
SLIP SHEET HAVING PERMANENTLY BENT PULL TAB AND METHOD OF MAKING THE SAME

Leon D. Etlinger, Aurora, Colo., assignor to Baron Industries, Inc., Denver, Colo.

Continuation-in-part of Ser. No. 67,602, Jun. 29, 1987, abandoned. This application Jul. 3, 1990, Ser. No. 547,803

Int. Cl.[5] B65D *19/00*

U.S. Cl. 108—51.3 **9 Claims**



1. A slip sheet device for supporting and pulling a load positioned thereon onto the fork arms of a lift truck comprising:

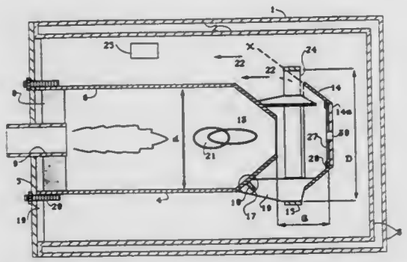
a sheet of deformable plastic material having a flat main support portion;

a flap portion non-separably connected to said flat main support portion by an elongation transverse hinge portion providing a longitudinal pivotal axis enabling resilient

VOL 1132 ISS 1 NO 5 1991 UMI

pivotal movement of said flap portion relative to said main support portion;
said flap portion being normally outwardly inclined relative to said main support portion;
said hinge portion comprising a uniform continuous pattern of equal size and equally spaced indentations formed in said plastic material; and
the indentations have triangular-shape flat unformed sheet portions therebetween.

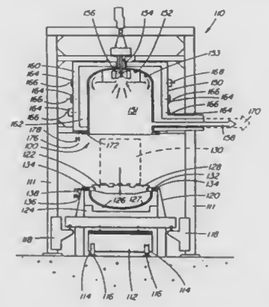
5,062,371
THERMAL REACTOR FOR HEATERS AND FUEL GENERATORS
Henri Lavorel, Sevrier, France, assignor to Efficient Thermal Reactors, Inc., Hyde Park, N.J.
Filed Feb. 12, 1990, Ser. No. 478,507
Int. Cl.[5] F23G 7/06; F23J 15/00
U.S. Cl. 110—214 **8 Claims**



1. A thermal reactor for enhancing combustion and reducing the emission of pollutants comprising:
a burner chamber bounded by (a cylindrical) an enclosure wall and a rear wall formed from refractory material and with a central opening for introducing gases of combustion;
a conical nose section, in the form of an inwardly diverging restriction, with the base of said nose section mounted on said enclosure wall at the open end thereof and the apex of said nose section formed with an exit orifice for said gases of combustion, on the end of said burner chamber;
(frusto conical shaped deflection) inwardly diverging restriction means spaced apart from and coextensive with said conical nose section directing said gases of combustion toward said nose section; and
means coaxial with said burner chamber positioned between said burner chamber and said restriction means for coupling said burner chamber and said restriction means, whereby prior to exiting said burner chamber said gases are places in turbulence, and after exiting said burner chamber said gases are reduced in velocity and change direction toward said burner chamber.

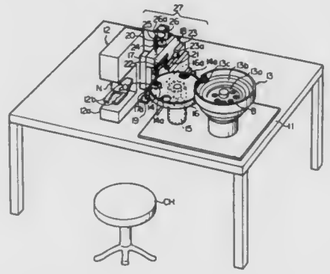
5,062,372
LINED HAZARDOUS WASTE INCINERATOR
Robert A. Ritter, 5108 Varscliff Road, NW., Calgary, Alberta, Canada T3A 0G3
Filed Oct. 24, 1990, Ser. No. 603,536
Claims priority, application Canada, Dec. 20, 1989, 2006139
Int. Cl.[5] F23G 5/00, 7/00
U.S. Cl. 110—242 **22 Claims**

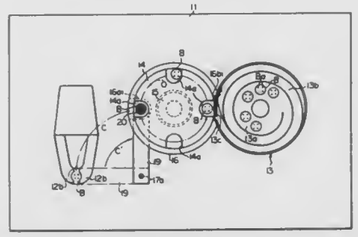
1. A hazardous waste incinerator comprising:
(i) a sealed inner incineration chamber, which is either made from, or which is lined with, a non-porous, impervious, corrosion-resistant material, said incineration chamber including means for supporting hazardous waste to be incinerated, and a recirculating blower;
and
(ii) an insulated outer combustion chamber in sealed, spaced-apart relationship to said inner incineration chamber;



said outer combustion chamber always being out of communication with said inner incineration chamber.

5,062,373
BUTTON TRANSFERRING DEVICE
Maeno Kichizo; Junpei Arai, both of Tendou, and Hideo Aso, Chofu, all of Japan, assignors to Juki Corporation, Tokyo, Japan
Filed Aug. 28, 1990, Ser. No. 574,442
Claims priority, application Japan, Aug. 31, 1989, 1-226975; Sep. 18, 1989, 1-242875; Sep. 18, 1989, 1-242876; Sep. 18, 1989, 1-242883
Int. Cl.[5] D05B 3/22; B65H 7/02; B23Q 7/12
U.S. Cl. 112—113 **9 Claims**

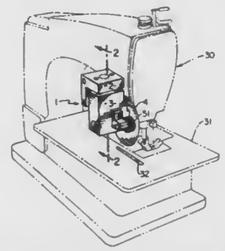




1. In a sewing apparatus having a button storage unit delivering buttons, one by one, to a sewing machine, a button transferring device for transferring a button from said storage unit to said sewing machine, comprising:
a button clamping device provided for clamping the button in a sewing position,
a rotary disk having a plurality of button insert holes,

a drive motor driving said rotary disk horizontally and intermittently,
a button receiving disk, positioned under said rotary disk, for receiving the button thereon, said receiving disk having a first button discharge hole communicating with said button insert holes of said rotary disk to discharge the button, and
an arm horizontally moving between said button discharge hole and said button clamping device, said arm having a button holder at the tip end thereof for holding the button discharged rom said first button discharge hole.

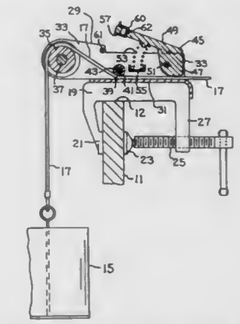
5,062,374
ROTARY THREAD CUTTER FOR A SEWING MACHINE
Arthur C. Wokeck, Mauldin, and Theodore Opuszenski, Greenville, both of S.C., assignors to Clinton Industries, Inc., Carlstadt, N.J.
Filed Aug. 23, 1990, Ser. No. 572,051
Int. Cl.[5] D05B 37/04
U.S. Cl. 112—130 **6 Claims**



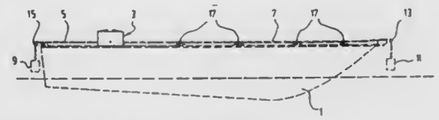
1. A rotary cutter for a sewing machine having a mounting plate, said rotary cutter comprising:
a circular blade movable into engagement with an article to be cut;
means for rotating said circular blade;
a housing for supporting said rotating means; and
means for attaching said housing to the mounting plate for reciprocal movement relative thereto to provide for engagement of said circular blade with the article to be cut, said attaching means including a piston member fixedly connected to the mounting plate, said housing having a cylinder in which said piston member is located, and conduit means for supplying a pressure fluid alternatively to opposite sides of said piston member to effect reciprocal movement of said cylinder and thereby of said housing relative to said piston member.

5,062,375
BOAT ANCHOR LINE CONTROL
James A. Makielski, 125 W. Marion, Apt. 222, South Bend, Ind. 46601
Filed Apr. 5, 1991, Ser. No. 680,839
Int. Cl.[5] B63B 21/22
U.S. Cl. 114—210 **9 Claims**

1. A mechanism for controlling the extension of a boat anchor line from a boat; said mechanism comprising a c-shaped mounting means having opposed jaws engageable against opposite surfaces of a boat wall to rigidly position the mounting means on the wall; a trough structure supported on said mounting means; a pulley rotatably supported in said trough structure at one end thereof; and a spring-biased line gripper device supported in said trough structure at its other end; said mechanism being adapted to have a boat anchor line pass through the line gripper device, around the pulley and downwardly into the water; said line gripper device having a line-engageable clamp element normally holding the line in a fixed condition relative to the trough structure, and a manually-operated handle for releasing said clamp element from the line.



5,062,376
ANCHORING DEVICE FOR LIGHT BOAT
Michel Tremblay, deceased, late of Val Bélair, Canada by Francine Paquet, heiress , assignor to Gestion A. et Y. Gilbert Inc., Québec, Canada
Filed Dec. 20, 1990, Ser. No. 631,149
Int. Cl.[5] B63B 21/50
U.S. Cl. 114—230 **18 Claims**



1. An anchoring device comprising:
a frame;
a pair of winch drums and cables for attaching to anchors, said cables being wound into rolls on said drums for winding and unwinding in opposite directions;
means rotatably mounting said drums on said frame;
manually operable means on said drums and on said frame for rotating said drums and, in neutral position of said operable means, for allowing said drums to idle; and
manually releasable stopping means on said frame for stopping rotation of said drums to prevent said cables from unwinding therefrom, wherein said manually operable means comprise:
a first driven gear fixed to one of said drums and a second driven gear fixed to the other of said drums;
an operating shaft mounted for rotation and axial displacement on said frame and having a pair of pinions fixed thereto;
means controlling said axial displacement of said shaft between a first position wherein one of said pinions meshes with said first driven gear; a second position wherein both of said pinions are free of said gears; and a third position wherein the other of said pinions meshes with said second driven gear,
said operating shaft being formed with three spaced circumferential lock grooves,
said control means comprising a ball lock including a spring-biased ball engageable in said grooves to hold said shaft selectively in any of said three positions.

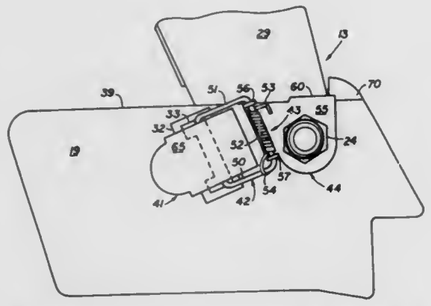
VOL 1132 ISS 1 NO 5 - 1991 UMI

5,062,377

POLE-LATCH ATTACHMENT FOR JET SKI

Randolph D. Miller, 14037 N. 41st St., Phoenix, Ariz. 85032

Filed Dec. 7, 1990, Ser. No. 623,518
Int. Cl.[5] B63B *35/73*
U.S. Cl. 114—270 3 Claims



1. An attachment for a motorized water ski, said ski including

a hull body,

motive power means mounted on said body for propelling said body through water,

a support member attached to said hull body and including at least one flange means, said flange means including an aperture formed therethrough,

an elongate steering handle extending outwardly from said body and having a distal end and a proximate end, said proximate end being attached to said flange means to permit movement of said handle between at least two operative positions,

a primary operative position, and

a secondary operative position with said distal end of said steering handle pivoted from said first operative position outwardly away from said hull body such that an object can be slid through said aperture and adjacent said steering handle, said attachment being operable to support said handle in said secondary operative position and prevent said handle from moving from said secondary to said primary operative position, said attachment comprising

(a) mounting means attached to one of the pair comprising

(i) said flange means, and

(ii) said hull body; and,

(b) spring loaded latching means attached to said mounting means and shaped and dimensioned to extend through said aperture when said handle is in said secondary operative position to prevent said handle from moving from said secondary operative position to said primary operative position, said latching means being movable between at least two operative positions,

(i) a first support operative position with said latching means extending through said aperture and adjacent said handle when said handle is in said secondary operative position to prevent said handle from moving from said secondary to said primary operative position, and

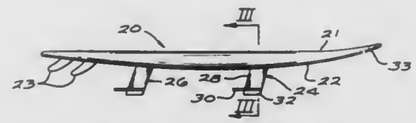
(ii) a second storage operative position with said latching means at least partially withdrawn through said aperture from said first operative position such that said handle is free to move from said secondary to said primary operative position.

5,062,378

HYDROFOIL AND SURFBOARD TYPE ASSEMBLY

Jess R. Bateman, 2400 Palos Verdes Dr., West, #9, Palos Verdes Estates, Calif. 90274

Filed Nov. 16, 1989, Ser. No. 437,686
Int. Cl.[5] B63B *1/28*
U.S. Cl. 114—274 13 Claims



1. A surfboard and hydrofoil assembly comprising:

a surfboard including a generally elongated substantially flat board member having a density or specific gravity substantially less than that of water so that it will float, said surfboard having a top and a bottom surface and front and rear ends;

means including at least one hydrofoil member for supporting the main body of the surfboard out of the water when the assembly is moving forward at a relatively high speed; and

foil securing means for removably securing said hydrofoil member to the bottom of said surfboard;

means for securing a rope or cable to said assembly;

locking means being provided for holding said hydrofoil member in the assembled configuration with said surfboard;

said hydrofoil member having a vertical strut;

said foil securing means including trunk means for receiving said hydrofoil member;

said trunk means including a foil slot opening through said bottom surface of the surfboard;

said locking means including retractable engaging means for engaging and locking said strut in said trunk means;

said strut including at least one strut hole; and

said engaging means including for each said strut hole, a locking protrusion for extending through each said strut hole in a locking position, and spring means for biasing said engaging means into the locking position;

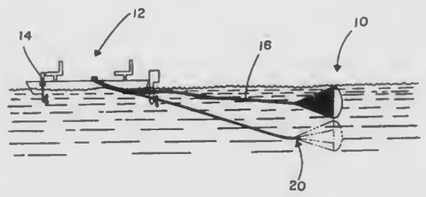
whereby said surfboard assembly may be towed behind a motor boat at high speeds, or may be used as a conventional surfboard, with said hydrofoil element being selectively removable.

5,062,379

METHOD AND APPARATUS FOR CONTROLLING THE SPEED OF BOATS

Phillip D. Cherry, 33637 Betts Dr., Zephyrhills, Fla. 33543

Continuation-in-part of Ser. No. 441,244, Nov. 27, 1989, abandoned. This app . Jul. 10, 1990, Ser. No. 550,481
. 363B *21/48*
U.S. Cl. 114—311 10 Claims



1. A speed reducing device for use from a fishing boat when fishing in a boat moving with the wind and/or current comprising:

a rearward portion formed as an essentially circular end panel of water impervious material having the buoyancy to float in water;

an intermediate portion formed of a plurality of similarly shaped mesh panels adapted to allow the flow of water therethrough while precluding the passage of debris into the device, each panel having a generally triangular configuration with a rearward edge and side edges converging and meeting at the forwardmost position, the panels being stitched together along the side edges into the general configuration of a cone with the small end of the cone constituting the forward end of the device and with the large end of the cone constituting the rearward end of the device, the end panel being stitched along its periphery to the rearward end of the mesh panels; and

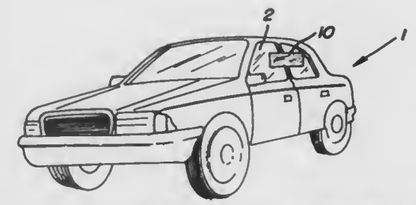
a forward portion being formed by the folded midpoints of cords jointly coupled together at the small end of the cone and separately joined at the large end of the cone to the periphery of the end panel.

5,062,380

DISTRESS SIGNAL

Billy D. Chestnutt, Rte. 1, Box 299, Magnolia, N.C. 28453

Filed Aug. 24, 1990, Ser. No. 571,979
Int. Cl.[5] G09F *7/02*; B60Q *7/00*
U.S. Cl. 116—28 R 5 Claims



1. A safety device for attaching to a vertically movable side window of a vehicle to indicate that a motorist is in need of aid, comprising:

(a) a first member and a second member integral with and at a right angle to each other;

(b) said second member extending perpendicular from said window and having a width and length visible to passing motorists;

(c) said first member having a width about the same as said second member, and where said first member is parallel to said window to support said second member; and

(d) a mounting means on said first member for attaching and holding said safety device to said window.

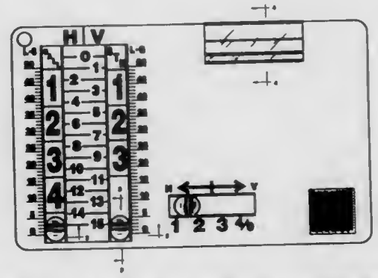
5,062,381

GAME DATA BOARD

Kenneth J. Hendricks, 718 Coral Ave., Bartlett, Ill.

Filed Aug. 29, 1990, Ser. No. 575,375
Int. Cl.[5] A63B *71/06*
U.S. Cl. 116—225 24 Claims

1. A GAME DATA BOARD comprising: a planar substrate having an upper surface and lower surface; a first marking slide; first passage means in said upper surface of said planar substrate for receiving said first marking slide and for permitting movement of said first marking slide therein; first indicia on said upper surface of said planar substrate adjacent said first passage means and arranged relative to said first marking slide so as to permit said first marking slide to be moved in said first passage means to various positions adjacent said first indicia for indicating particular scoring for at least one sport; a second marking slide; second passage means in said upper surface of said planar substrate for receiving said second marking slide and for permitting movement of said second marking slide therein; second indicia on said upper surface of said planar substrate adjacent said second passage means and arranged relative to said second marking slide so as to permit said second marking slide to be moved in said second passage means to various positions adjacent said second indicia for indicating



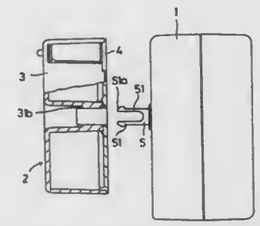
particular scoring for at least one other sport or game; said first passage means including an upwardly facing bottom surface; and third indicia on the bottom surface of said first passage means for indicating scores or statistics for the at least one other sport or game.

5,062,382

FEEDER

Takumi Matsuda, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan

Filed Mar. 13, 1990, Ser. No. 492,636
Claims priority, application Japan, Mar. 14, 1989, 1-28580[U]
Int. Cl.[5] A01K *5/00*
U.S. Cl. 119—51.04 15 Claims



1. A feeder having a rotational driving apparatus and a feed box detachably connected to said rotational driving apparatus and rotationally driven by said driving apparatus, the improvement comprising:

said feed box comprises a container, and a cover detachably coupled to said container by a snap fitting method;

coupling means for detachably coupling said container and said cover with a snap fit, said coupling means comprising engagement portions defined by inner walls of an engagement hole of said container and two elastic engagement arms integrally formed on said cover;

two elastic engagement arms at an end of a driving shaft projecting from said rotational driving apparatus; and wherein said elastic engagement arms of said driving apparatus are inserted with a snap fit into said elastic engagement arms of said cover and engage with said engagement portions on the inner walls of said engagement hole of said feed box in such a manner to inhibit inward deformation of said elastic engagement arms of said cover.

VOL
1132
ISS
1
NO
5
1991
UMI

5,062,383

ANIMAL LITTER CONTAINING AN IMPROVED CLAY

Thomas E. Nelson, 3614 Montrose Blvd., #906, Houston, Tex. 77006

Filed Oct. 25, 1989, Ser. No. 427,009
Int. Cl.[5] A01K *29/00*
U.S. Cl. 119—173 12 Claims

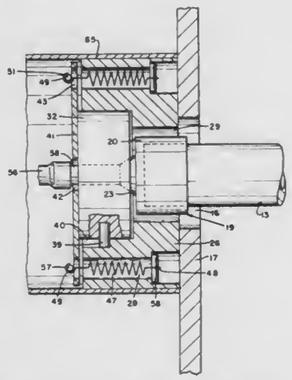
1. A method of improving a regular volatile material Fuller's Earth clay for use as an animal litter, comprising the step of adding water to the regular volatile material Fuller's Earth clay to increase its free moisture content to more than 7 weight percent.

5,062,384

VACUUM CHUCK ROTARY SEAL

Thomas P. Foley, Stony Brook, and Roger Mosciatti, Coram, both of N.Y., assignors to MFM Technology, Inc., Ronkonkoma, N.Y.

Filed Nov. 13, 1989, Ser. No. 435,259
Int. Cl.[5] B05C *13/00*
U.S. Cl. 118—500 10 Claims



1. A rotary device comprising a motor having an axially bored drive shaft, a vacuum chuck mounted on one end of said shaft; a first seal member mounted on the other end of said shaft opposite said chuck end; a floating second seal member of restricted rotation; means mounting said second seal member coaxial with said first seal member and longitudinally movable relative thereto and for restricting its rotation; one of said seal members having formed therein an axial socket with a first conical face terminating in a base at its inner end and having a bore communicating with said socket and the other seal member having an axial projection with a second conical face nesting in said socket and superimposed on and slidably engaging said first conical face and provided with an axially extending bore, the apex of said projection being axially spaced from said base of said socket; means connecting one of said bores to a vacuum source and means for axially resiliently biasing said seal members toward each other to urge said first and second faces into mutual engagement.

5,062,385

OPEN-CELL FOAM DEVELOPING ROLLER

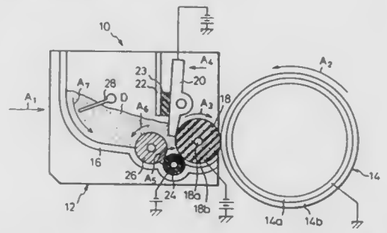
Yukio Nishio, Tama, and Kazonori Hirose, Hiratsuka, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 2, 1990, Ser. No. 517,898
Claims priority, application Japan, May 11, 1989, 1-118385
Int. Cl.[5] G03G *15/08*
U.S. Cl. 118—653 31 Claims

1. A developing device using a one-component developer, said developing device comprising:

a vessel for holding a one-component developer composed of toner particles;

a developing roller rotatably provided within said vessel in such a manner that a portion of said developing roller is exposed therefrom and faces a surface of an electrostatic latent image carrying body; and



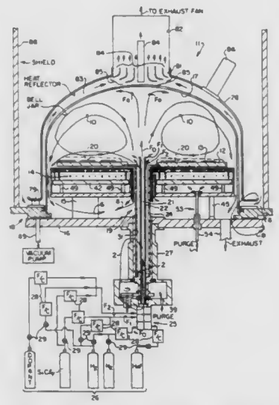
said developing roller formed of a monolithic conductive open-cell foam elastic material, an outside peripheral surface of said conductive open-cell foam elastic material thermally or chemically fused to prevent a penetration of the toner particles to an open-cell foam structure of said developing roller.

5,062,386

INDUCTION HEATED PANCAKE EPITAXIAL REACTOR

Robert W. Christensen, Monte Sereno, Calif., assignor to Epitaxy Systems, Inc., Santa Clara, Calif.

Continuation-in-part of Ser. No. 78,278, Jul. 27, 1987, abandoned. This application May 23, 1989, Ser. No. 356,293
Int. Cl.[5] C23C *16/46*
U.S. Cl. 118—725 22 Claims



1. In an inductively heated pancake epitaxial reactor for processing wafers by depositing a film of epitaxial material on the wafers:

pancake susceptor means for holding the major faces of the wafers to be processed generally in a horizontal plane for transferring heat to the wafers;

inductive heater means for heating said susceptor means and wafers as held by said susceptor to an elevated deposition temperature by radio frequency induction;

bell jar means for enclosing said susceptor means and the wafers to be processed and for controlling the atmosphere in a deposition zone defined within said bell jar means and overlaying the wafers being processed;

gas distribution means for feeding reactant gases into said deposition zone along a flow path generally radially directed of said pancake susceptor means;

said gas distribution means including a plurality of tubes with their longitudinal axes being generally vertically oriented for feeding said reactant gases into the deposition zone overlaying said wafers;

deflector means disposed proximate the open upper end of at least one of said tubes of said gas distribution means for imparting a substantial radial component of velocity to at least a portion of the flow of reactant gases inducted into said deposition zone, said tubes being coaxial and said deflector means comprising a radially flared flange carried upon one of said coaxial tubes and said flange overlaying the open upper end of another one of said coaxial tubes; and

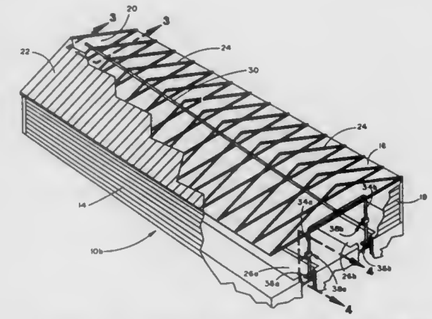
flow control means for feeding said gases through said plurality of tubes at different controlled flow rates, whereby control of the deposition is obtained by control of the respective reactant gases through respective ones of said plurality of tubes.

5,062,387

ANIMAL WASTE COLLECTION PIT FLUSHING APPARATUS AND METHOD

Ricky Anderson, Highway 18 West, Box 1816, Mason City, Iowa 50401

Filed Oct. 9, 1990, Ser. No. 594,016
Int. Cl.[5] A01K *1/01*
U.S. Cl. 119—28 3 Claims



1. A method of cleaning a waste collection pit of an animal housing facility, comprising the steps of:

(a) creating a head of water pressure in an overhead reservoir within said facility;

(b) applying said head of pressure to a gate valve;

(c) opening said gate valve;

(d) directing said water from said gate valve to a water distributor to distribute said water across the collection pit; and

(e) wherein said water flushes the waste from the collection pit.

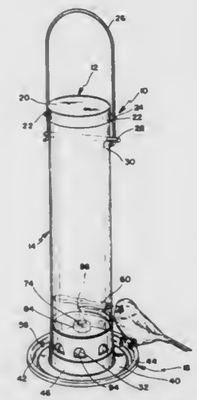
5,062,388

BIRD FEEDER

Peter Kilham, Foster, R.I., assignor to Droll Yankees, Inc., Foster, R.I.

Continuation-in-part of Ser. No. 439,236, Nov. 20, 1989, Pat. No. 4,977,859. This application Dec. 4, 1990, Ser. No. 622,832
The portion of the term of this patent subsequent to Dec. 18, 2007, has been disclaimed.
Int. Cl.[5] A01K *39/00*
U.S. Cl. 119—52.2 4 Claims

1. A bird feeder comprising a vertically disposed cylindrical housing having upper and lower ends, a ring member of substantially the same diameter as said housing positioned at the lower end thereof, said ring member having upper and lower extremities, a plurality of circumferentially spaced feed apertures in said ring member, a tray member having a peripheral skirt extending outwardly adjacent the lower extremity of said ring member, said tray member having a wall portion that closes off the bottom of said feeder, and means for securing said housing, ring member and tray member in assembled



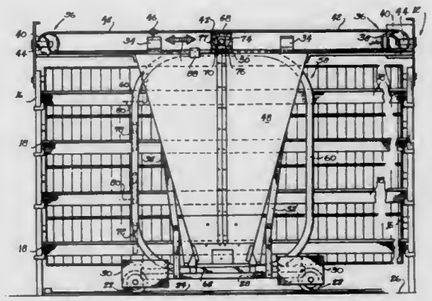
relation, said securing means comprising a locking arm extending diametrically across said housing and being secured thereto in spaced relation above said bottom, a threaded hole extending through said locking bar at approximately the midpoint thereof, a central opening in said bottom, and an elongated screw member extending upwardly through said opening into threaded engagement with said hole, whereby tightening of said screw secures said tray member to said housing, with said ring member clamped therebetween.

5,062,389

FEED CAR APPARATUS

Michael E. Krehl, Corunna, Ind., assignor to CTB, Inc., Milford, Ind.

Filed Aug. 21, 1990, Ser. No. 570,386
Int. Cl.[5] A01K *5/02*
U.S. Cl. 119—57.6 16 Claims



1. Feed car apparatus for supplying feed to an arrangement of bird or animal confinement cages having feed trough means of a predetermined length associated therewith, said feed car apparatus comprising:

hopper means for receiving and maintaining a limited amount of feed;

movable support frame means operatively associated with

VOL 1132 ISS 1 NO 5 1991 UMI

said hopper means for carrying said hopper means along and adjacent to said feed trough means;

feed delivery means mounted on said hopper means for delivering feed from said hopper means into said feed trough means; and

drive means operatively associated with said support frame means and said delivery means for moving said hopper means and operating said delivery means;

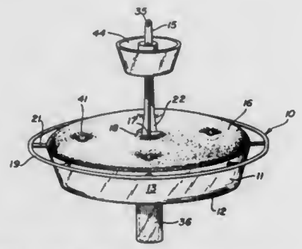
wherein, said feed delivery means comprises a continuous moving conveyor element and housing for receiving feed in a horizontal position from said hopper means, a drop tube means for filling said feed trough means and a leveling member operatively associated with the drop tube means for selectively controlling the amount of feed deposited and maintaining a uniform level of feed within the trough means.

5,062,390

BIRD FEEDER

Rnbert E. Bescberer, Bristol, and Barry D. Colvin, Hope, both of R.I., assignors to Aspects, Inc., Warren, R.I.

Filed Nov. 23, 1990, Ser. No. 617,343
Int. Cl.[5] A01K *7/00*
U.S. Cl. 119—72 **6 Claims**



1. Hummingbird feeder comprising

(a) a bowl having a bottom wall and having a side wall terminating in an upper edge,

(b) an elongated stem having a lower end fixed to the center of the bottom of the bowl and extending upwardly therefrom,

(c) a cover overlying the upper edge of the bowl and having a central aperture through which the stem extends, said cover with said bowl defining an enclosure and wherein said cover includes a plurality of feed entrances into the enclosure, and

(d) a quick-release locking means associated with the stem and the aperture to fasten the cover to the stem and to hold the cover tightly on the upper edge of the bowl.

5,062,391

BRACKET FILLER FOR ANIMAL WATERING DEVICE

Robert D. Hostetler, Elkhart, Ind., assignor to Avtron, Inc., Elkhart, Ind.

Filed Jan. 29, 1991, Ser. No. 647,153
Int. Cl.[5] A01K *39/02*
U.S. Cl. 119—72 **20 Claims**

1. A water supply system for fowl or small animals, comprising:

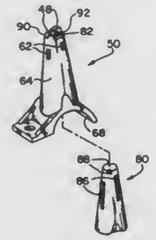
an elongate ballast member;

a tubular water supply conduit;

a bracket assembly for rigidly attaching said conduit to said ballast member, said bracket assembly including a peripheral wall defining a hole and an interior region;

a plurality of valve means on said conduit for providing water to the fowl or small animals, said plurality of valve means in fluid communicetion with said conduit;

suspension means for suspending said ballast member and said conduit; and



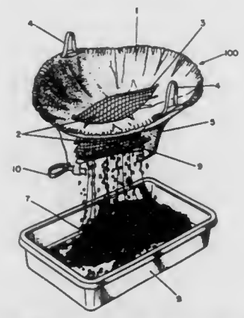
a bracket insert disposed within said bracket assembly, said bracket insert blocking passage of any particles through said hole and into said interior region.

5,062,392

FILTERING AND DISPOSAL SYSTEM FOR PET LITTER

Bruce W. Lavash, West Chester, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 10, 1990, Ser. No. 507,697
Int. Cl.[5] A01K *29/00*
U.S. Cl. 119—167 **28 Claims**



1. A disposable filtering and disposal system for installation in a litter box beneath a granular litter material contained in said litter box, said system and said granular litter material being used by an animal owner for the collection of both solid and liquid animal excreta; said system being capable of automatically separating substantially all of the solid animal excreta from the granular litter material contained in said litter box when said system is lifted from said litter box to initiate the filtering operation, said system comprising:

(a) a porous filtering member having an uppermost surface and exhibiting a pore size which will readily permit the granular litter material to pass therethrough, yet retain substantially all of the solid animal excreta coming in contact therewith during the filtering operation on its uppermost surface; and

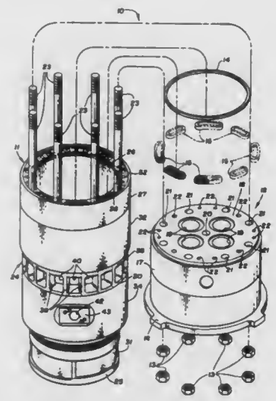
(b) a protective member having a perimeter substantially coinciding with said litter box and an uppermost surface which contacts the granular litter material contained in said litter box in use and which is capable of substantially resisting damage when subjected to digging or clawing by animals secured in superposed relation to and completely overlying said uppermost surface of said porous filtering member, said protective member including means for forming an opening having a predetermined periphery in its uppermost surface when said filtering and disposal system is lifted from the litter box to initiate the filtering operation, said filtering member being secured in underlying relation about said predetermined periphery of said opening in said protective member so that said filtering member is protected from damage due to digging or clawing by animals during the normal use cycle by said overlying protective member, yet substantially all of the granular litter material containing said solid animal excreta which is located on said uppermost surface of said protective member will pass through said opening and be filtered by said filtering member when said system is lifted from said litter box.

5,062,393

ENGINE CYLINDER LINER, SEALS AND ASSEMBLY THEREWITH

Stephen Smith, Downers Grove, and Dale F. Engelhardt, Orland Park, both of Ill., assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 22, 1990, Ser. No. 600,958
Int. Cl.[5] F02F *1/10*
U.S. Cl. 123—41.72 **14 Claims**



1. An engine cylinder liner comprising

a body defining a generally cylindrical inner bore wall spaced radially within an annular outer coolant jacket wall and an annular flange having amounting and sealing end and joining the bore and jacket walls at an opposite end to form a coolant jacket between the walls and adjacent the flange,

a plurality of fastening means in the flange and opening to its mounting end at annularly spaced points axially aligned with the coolant jacket,

a plurality of coolant passages between each spaced pair of the fastening means and extending axially through the flange from the coolant jacket, and

manifold recesses in the flange mounting end, one between each spaced pair o the fastening means and interconnecting outer ends of the coolant passages located between each spaced pair of said fastening means.

5,062,394

MECHANISM FOR CONVERTING RECIPROCATORY MOTION INTO ROTARY MOTION IN AN ENGINE

James R. Belford, 184 Lake Shore Dr., Pasadena, Md. 21122

Continuation-in-part of Ser. No. 71,103, Jul. 8, 1987, abandoned. This application Oct. 13, 1989, Ser. No. 423,562
Int. Cl.[5] F02B *75/24*
U.S. Cl. 123—56 AC **6 Claims**

1. An engine, such as an internal combustion engine, wherein the engine comprises:

at least first and second opposed pistons, the pistons having pressure faces in opposite directions;

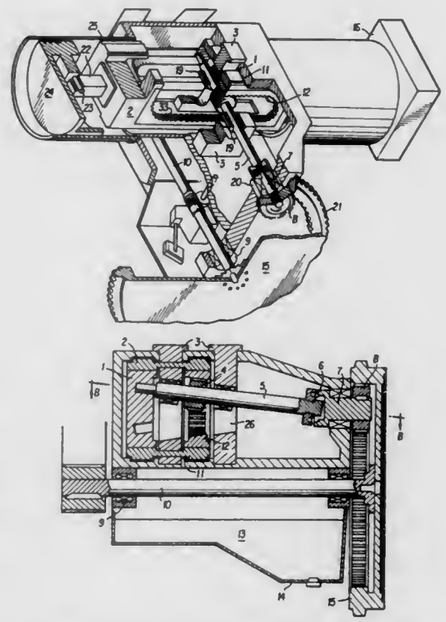
cylinder means enclosing the face of each piston and means for applying pressure alternatively to one piston face and then the other;

a connecting assembly for connecting the two pistons together;

means for restraining the connecting assembly to only straight-line, reciprocal motion with respect to the cylinder means over a straight-line path of motion;

means for connecting the pistons to the connecting assembly, the connecting means being restrained from moving laterally with respect to either the piston or the assembly;

an enclosed track, within the connecting assembly, the enclosed track including opposed spaced apart straight-



toothed sections joined by semi-circular end-toothed sections to form a continuous, internally toothed surface;

a circular gear received within the track and meshed thereto;

a drive shaft connected to the gear and having an axis extending in a plane perpendicular to a plane including the path of motion of the connecting assembly;

means in engagement with the drive shaft for holding the gear in continuous engagement with the track;

means for restraining the shaft to rocking motion as the drive shaft rotates about its axis with the axis of the drive shaft remaining in a plane oriented normally to the plane including the direction of motion of the assembly;

an output shaft aligned with the drive shaft; and

coupling means for connecting the drive shaft to the output shaft wherein as the drive shaft rotates and oscillates, the output shaft rotates.

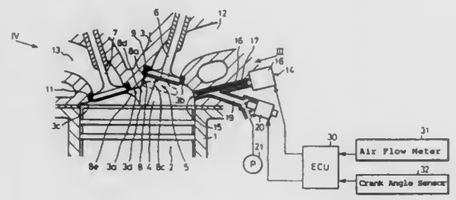
VOL
1132
ISS
1
NO
5
1991
UMI

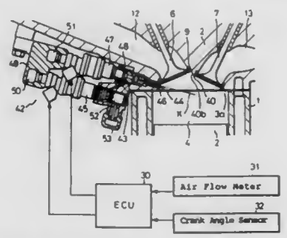
5,062,395

TWO-STROKE INTERNAL COMBUSTION ENGINE

Manabu Tateno, Susono, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan

PCT No. PCT/JP89/00650, § 371 Date Mar. 30, 1990, § 102(e) Date Mar. 30, 1990, PCT Pub. No. WO90/00222, PCT Pub. Date Jan. 11, 1990
PCT Filed Jun. 29, 1989, Ser. No. 465,159
Claims priority, application Japan, Jul. 1, 1988, 63-162399
Int. Cl.[5] F02B *75/02*
U.S. Cl. 123—65 VD 18 Claims





1. A two-stroke internal combustion engine provided with a piston which moves reciprocatively in a cylinder, a cylinder head which has an inner wall surface, at least one intake valve which is arranged on a cylinder head inner wall surface, at least one exhaust valve which is arranged on the cylinder head inner wall surface, a masking means which is arranged between the intake valve and the exhaust valve to close off a portion of the opening toward the exhaust valve that exists between the peripheral edge of the intake valve and a valve seat when the intake valve is open, a fuel injection means which is arranged at the peripheral side portion of the cylinder head inner wall of the intake valve side, and a control means which controls the fuel injection from the fuel injection means to the cylinder, the control means starting the fuel injection from the fuel injection means to the cylinder when the intake valve is opening.

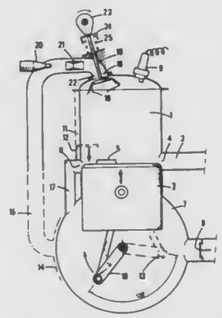
5,062,396

DEVICE AND METHOD FOR INTRODUCING A CARBURETTED MIXTURE UNDER PRESSSURE INTO THE CYLINDER OF AN ENGINE

Pierre Duret, rue du Conservatoire, and Jean-Luc Blanchard, rue Henri Dunant, both of France, assignors to Institut Francais Du Petrole, Rueil-Malmaison, France

Continuation of Ser. No. 210,912, Jun. 24, 1988, abandoned.
This application Nov. 9, 1989, Ser. No. 461,487
Claims priority, application France, Jun. 26, 1987, 87 09035
Int. Cl.[5] F02M *23/00*
U.S. Cl. 123—73 BA 21 Claims

1. A device for introducing a carburetted mixture into a first engine cylinder of an internal combustion engine having at least one other engine cylinder with a crankcase pump, the device comprising a non-pressurized connecting duct disposed between said crankcase pump of said at least one other engine cylinder and the first engine cylinder and serving as a direct communication between said crankcase pump and said at least one other engine cylinder whereby the crankcase pump of said at least one other engine cylinder forms a sole pressure source for supplying necessary pressure through said connecting duct thereby enabling the introduction of the carburetted mixture



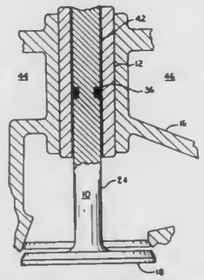
under pressure into the first engine cylinder, and wherein an angular non-zero shift exists between cycles of said first engine cylinder and said at least one other engine cylinder.

5,062,397

VALVE STEM SEAL

Jay M. Larson, Marshall, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Sep. 7, 1990, Ser. No. 578,379
Int. Cl.[5] F01L *3/08*
U.S. Cl. 123—188 P 10 Claims



1. In an internal combustion engine comprising a cylinder head, a tubular valve guide received in a bore formed in said cylinder head, a poppet valve having a stem portion slidingly received in said valve guide, and a valve stem seal substantially preventing engine oil from traveling past said valve guide to the head end of said poppet valve; the improvement wherein an annular groove is formed in said stem portion and said valve stem seal comprises a ring type seal element received in said groove and in sealing contact with the inside diameter of said valve guide.

5,062,398

APPARATUS AND METHOD FOR CHANGING OIL IN AN INTERNAL COMBUSTION ENGINE WITH OPTIONAL FLUSHING

Ram D. Bedi, and Adrianus J. van der Griendt, both of Birmingham, Mich., assignors to K. J. Manufacturing, Wixom, Mich.

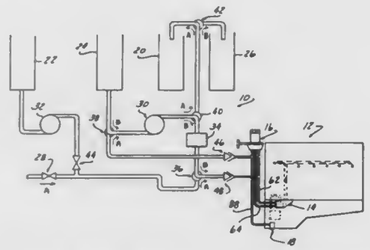
Filed Apr. 27, 1990, Ser. No. 516,243
The portion of the term of this patent subsequent to Aug. 28, 2007, has been disclaimed.
Int. Cl.[5] F01M *11/04*
U.S. Cl. 123—196 R 20 Claims

14. An apparatus for changing oil in an internal combustion engine having an internal oil lubrication distribution passage system with an oil pump, an oil filter and an oil reservoir, the apparatus comprising:

fluid supply passage means having a disengagable fluid connection with said internal oil lubrication distribution passage system at a point between said oil pump and said oil filter;

fluid withdrawal passage means having a disengagable fluid connection in fluid communication with a lowermost portion of said oil reservoir of said internal combustion engine;

first fluid supply passage means connectible with an external storage receptacle;



first fluid discharge passage means connectible with an external spent fluid storage receptacle;

pump means having inlet passage means and outlet passage means;

first valve means for selectively connecting said inlet passage means with said fluid withdrawal passage means and with said first fluid supply passage means;

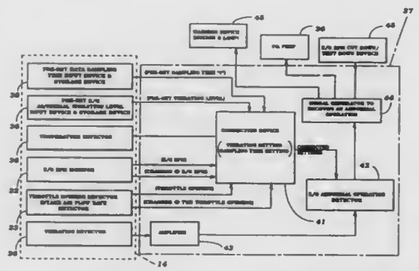
second valve means for selectively connecting said outlet passage means with said fluid supply passage means to said internal combustion engine and with said first fluid discharge passage means.

5,062,399

PISTON PROTECTION SYSTEM FOR INTERNAL COMBUSTION ENGINE

Hodaka Nagakura, and Tsuneshi Kondo, both of Hamamatsu, Japan, assignors to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Apr. 26, 1990, Ser. No. 514,729
Claims priority, application Japan, Apr. 26, 1989, 1-106842
Int. Cl.[5] F02B *77/00*
U.S. Cl. 123—198 D 20 Claims



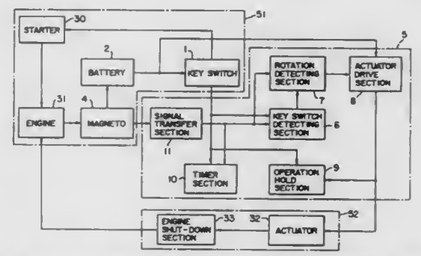
1. A control system for protecting a reciprocating engine from damage, comprising means for measuring the vibrations of the engine, means for comparing the vibrations measured with those predicted to cause detrimental operation, means for initiating protective operation of the engine to preclude damage in the event the measured vibrations exceed those determined to be detrimental to engine operation, and means for calculating the acceleration of the vibrations from the measured vibrations.

5,062,400

DIESEL ENGINE SHUT-DOWN DEVICE

Masami Minegishi, Urawa, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 4, 1990, Ser. No. 622,412
Claims priority, application Japan, Dec. 14, 1989, 1-144719
Int. Cl.[5] F02B *77/00*
U.S. Cl. 123—198 DB 5 Claims



1. A diesel engine shut-down device for stopping a diesel engine having engine shut-down means for cutting at least one of a fuel and an intake air, an actuator linked to actuate the engine shut-down means, and an engine key switch, comprising:

key switch detecting means for detecting an ON/OFF state of the key switch and producing an engine stop signal when the key switch is in the OFF state;

rotation detecting means responsive both to the engine stop signal and a rotation state of the engine so as to produce an actuator drive signal when the engine is rotating;

actuator drive means responsive to the actuator drive signal for driving the actuator; and

timer means for stopping the production of the engine stop signal when a predetermined period of time elapses after the key switch is turned off, wherein the actuator is stopped when the predetermined period of time elapses even if the engine is not stopped though the actuator has operated.

5,062,401

FUEL SUPPLYING DEVICE FOR MARINE PROPULSION UNIT

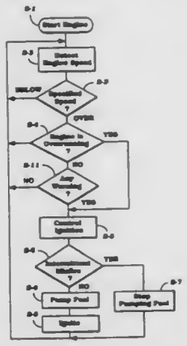
Yasuo Suganuma, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Nov. 21, 1990, Ser. No. 616,648
Claims priority, application Japan, Nov. 22, 1989, 1-301905
Int. Cl.[5] F02B *77/08;* F02D *41/22;* F02P *11/02*
U.S. Cl. 123—333 11 Claims

1. An internal combustion engine having an ignition system for initiating combustion in a combustion chamber a fuel system for supplying fuel to said combustion chamber, means for detecting an abnormal engine condition, means for slowing the

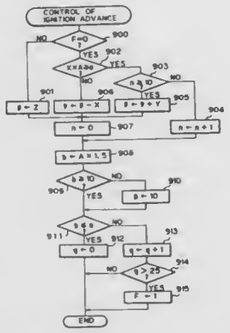
VOL 1132 ISS 1 NO 5 1991 UMI

speed of said engine in response to the detection of an abnormal condition by misfiring of the ignition means, and means for



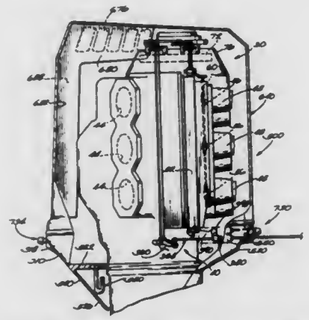
precluding the flow of fuel to the engine from said fuel system when ignition is interrupted.

5,062,402
KNOCKING CONTROL APPARATUS OF INTERNAL COMBUSTION ENGINE
Yuji Takeda, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan
Filed Aug. 9, 1990, Ser. No. 565,580
Claims priority, application Japan, Aug. 10, 1989, 1-207251; Aug. 30, 1989, 1-223466
Int. Cl.[5] F02P 5/14
U.S. Cl. 123—425 27 Claims



1. A knocking control apparatus comprising:
detection means for detecting the strength of vibrations generated by an engine in a predetermined range of crank angle;
updating means for updating a maximum frequency point, said maximum frequency point occurring at that strength of engine vibration generated most frequently by the engine in said predetermined range of crank angle;
level setting means for setting a knocking determination level based on said maximum frequency point; and
judgement means for judging that knocking has occurred when the maximum strength of vibration occurring in the engine exceeds said knocking determination level, a first region of a predetermined fixed width being set at the side of the larger strength of vibration of the maximum frequency point, a second region which has the same width as the first region being set at the side of the smaller strength of vibration of the said maximum frequency point, said updating means increasing the said maximum frequency point by a predetermined correction when the maximum strength of vibration occurring in the engine is in said first region and decreasing said maximum frequency point by said predetermined correction when the maximum strength of vibration occurring in the engine is in said second region.

5,062,403
INTERNAL COMBUSTION ENGINE
Paul W. Breckenfeld, Kenosha, Wis.; James A. Nettles, Round Lake, Ill.; Duane E. Rogers, Kenosha, Wis., and George Broughton, Zion, Ill., assignors to Outboard Marine Corporation, Waukegan, Ill.
Filed May 18, 1990, Ser. No. 525,746
Int. Cl.[5] F02P 5/02
U.S. Cl. 123—413 54 Claims

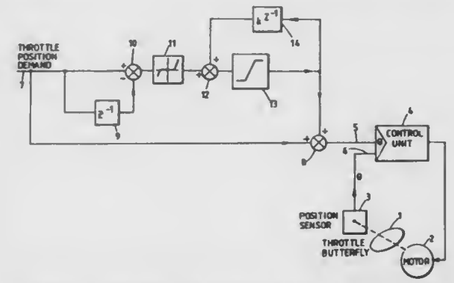


1. An internal combustion engine comprising an engine block, a spark control member movably mounted on said engine block, means for controlling the spark timing of said engine in response to movement of said spark control member, a first actuating member movably mounted on said engine block, and means for adjustably connecting said first actuating member to said spark control member for effecting common movement of said first actuating member and said spark control member in response to operating movement of said first actuating member and for permitting adjustment of said spark control member relative to said actuating member independently of operating movement of said first actuating member.

5,062,404
ENGINE THROTTLE CONTROL SYSTEM
Peter G. Scotson, West Midlands, and John M. Ironside, Birmingham, both of England, assignors to Lucas Industries Public Limited Company, England
Filed Apr. 13, 1990, Ser. No. 509,391
Claims priority, application United Kingdom, Apr. 17, 1989, 8908661
Int. Cl.[5] F02D 41/00, 9/02
U.S. Cl. 123—399 10 Claims

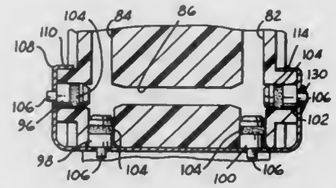
1. An engine throttle control system for a throttle motor, said system comprising a control circuit for supplying a drive to the throttle motor in response to an error between a throttle position demand signal and an actual throttle position signal,

said control circuit including augmenting means responsive to a change in the throttle position demand signal for temporarily



augmenting the throttle position demand signal by applying a transient increase to the change in the throttle position signal.

5,062,405
INTAKE MANIFOLD/FUEL RAIL AND METHOD
Paul D. Daly, Troy, Mich., assignor to Siemens Automotive L.P., Auburn Hills, Mich.
Filed Aug. 7, 1990, Ser. No. 563,459
Int. Cl.[5] F02M 55/02; F16L 55/10
U.S. Cl. 123—468 14 Claims

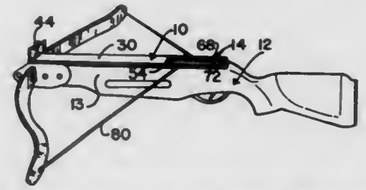


1. A method of making a part for an internal combustion engine, said part comprising a fuel rail, said method comprising creating in the part fuel passageway structure serving injector-receiving socket structure and having plural openings at the exterior surface of the part, disposing openable and closeable fuel injectors in said socket structure to create sealed volumes within said socket structure that are in fluid communication with said fuel passageway structure, inserting into each of one or more of said plural openings a corresponding closure such that each such closure does not protrude from the corresponding opening beyond the exterior surface of the part, disposing over each such closure-containing opening a keeper means which is adapted for engagement by the corresponding closure to prevent the corresponding closure from being removed from closure of the corresponding opening via the exterior of the part, and with the fuel injectors closed, placing the remainder of said plural openings in association with externally supplied pressure fluid to cause each such closure to move into engagement with the overlying keeper means

---

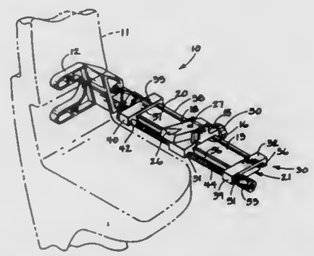
5,062,406
ATTACHMENT FOR CROSSBOW THAT SHOOTS ARROWS TO ENABLE THE CROSSBOW TO SHOOT SLUGS
David H. Robertson, P.O. Box 3625, Palmer, Ak. 99645
Continuation-in-part of Ser. No. 143,951, Jan. 14, 1988, abandoned. This application Aug. 11, 1989, Ser. No. 392,442
Int. Cl.[5] F41B 5/02
U.S. Cl. 124—25 34 Claims

1. In a device for shooting either arrows or slugs:
a crossbow defining an elongated groove and having means for shooting arrows with a feather of the arrow guided by said groove, said crossbow having a bow string,
a removable elongated guiding means which when added to said crossbow enables the crossbow to shoot slugs,
said removable elongated guiding means when added to said crossbow cooperating with said elongated groove to provide apparatus having two parallel elongated grooves that form a barrel for the slug fired by the crossbow,



means for removably supporting said elongated guiding means on said crossbow so that when said elongated guiding means is removed from said crossbow that the crossbow may be used to shoot arrows,
said elongated guiding means forming, with said crossbow, a slot that extends along at least a limited length of said barrel, said bowstring passing laterally through said slot, so that a slug may be shot out of said barrel.

5,062,407
ARROW REST AND ARROW LAUNCHER ADJUSTMENT APPARATUS
George T. Newbold, Walla Walla, Wash., assignor to Martin Archery, Inc., Walla Walla, Wash.
Filed Jun. 21, 1990, Ser. No. 541,592
Int. Cl.[5] F41B 5/22
U.S. Cl. 124—44.5 9 Claims

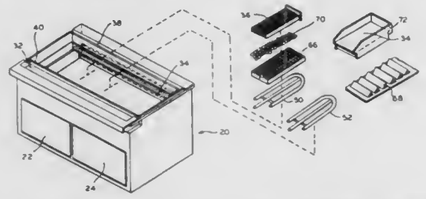


1. An arrow launcher adjustment apparatus for adjusting an arrow launcher laterally along an elongated lateral support bar of an arrow rest apparatus, the arrow launcher apparatus comprising:
an arrow launcher support block, the support block having a threaded bore extending generally laterally therethrough and being slidably mountable to the arrow rest lateral support bar for lateral movement relative thereto;
an arrow launcher supported by the support block;
a laterally elongated threaded rod threadably received by the support block threaded bore, the threaded rod being mountable laterally along the arrow rest lateral support bar for rotation relative to the support bar and support block, rotation of the threaded rod when so mounted imparting lateral movement to the support block;
locking means on the support block and apart from the threaded rod for selectively locking the support block at a selected lateral position along the arrow rest lateral support bar; and
a pair of end blocks removably mountable to the arrow rest

VOL 1132 ISS 1 NO 5 1991 UMI

lateral support bar, each end block having a barrel, the threaded rod being slidably received through the barrel for rotation therein.

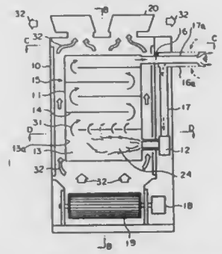
5,062,408
CHARBROILER
Mark Smith, and Larry Cooper, both of Fuquay-Varina, N.C., assignors to Middleby Corporation, Rosemont, Ill.
Filed Apr. 19, 1990, Ser. No. 511,044
Int. Cl.[5] F24C *3/08*
U.S. Cl. 126—41 R **11 Claims**



1. A charbroiler for cooking food comprising a cabinet including:
an upper cooking level and;
an intermediate heat distribution level;
a plurality of grids for providing a cooking surface, for mounting on said upper cooking level; each grid having a width which is the same or a uniform multiple of at least one other grid;
a plurality of griddles for providing a cooking surface, for mounting on said upper cooking level, each griddle having a width which is the same as or a uniform multiple of at least one other griddle and grid;
whereby a cooking surface may be formed by an assembly of any suitable and desired combination of griddles and grids;
a first pair of spaced parallel support means at said upper cooking level for supporting either a plurality of grills, a plurality of griddles or a combination of griddles and grills on said upper cooking level;
a second pair of spaced parallel support means at said intermediate heat distribution level for supporting a selected one of said heat distribution means in the form of a plurality of ceramic briquettes and a sheet metal radiant heat distribution plate;
whereby either said ceramic briquettes or said sheet metal radiant heat distribution plate is positioned on the intermediate level supports and a plurality of grids, a plurality of griddles or a plurality of grids and griddles can be positioned on the upper level cooking supports;
said grids being positioned to drip grease drippings onto said heat distribution means to impart a smoky taste to the food being cooked.

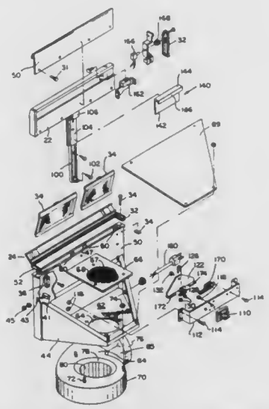
5,062,409
HOT-AIR FURNACE
Ryusuke Kamanaka, Chigasaki, and Yosbio Kakuta, Sagamihara, both of Japan, assignors to Nepon Company, Ltd, Tokyo, Japan
Filed Apr. 16, 1990, Ser. No. 510,294
Claims priority, application Japan, Aug. 17, 1989, 1-210658
Int. Cl.[5] F24H *3/00*
U.S. Cl. 126—99 R **20 Claims**

1. A hot-air furnace, comprising:
a casing having an upper end and a lower end opposite said upper end;
a drum disposed within said casing and defining a combustion chamber and a heat exchanger;
a long-flame burner for combusting a fuel in said combustion chamber;
said combustion chamber having a length (l) and width (w_1) in the relationship of $w_1 < l$;
said heat exchanger being located above said combustion chamber and having a gas flow guide plate for guiding combustion gas flow discharged from the combustion chamber to said heat exchanger;
said heat exchanger having a width (w_2) and length (l) in the relationship of $w_2 < l$; and
said heat exchanger being provided with an exhaust port located above said combustion chamber for exhausting the



combustion gas flow therefrom; an air flow guide and directing plate covering said drum;
a radiant heat absorber plate disposed between said combustion chamber and said casing;
a blower in the casing spaced from the drum;
a discharge port for discharging heated air from the furnace; and
said blower and said discharge port being disposed at opposite ends of said casing whereby hot air is discharged from said casing at an opposite end to said blower.

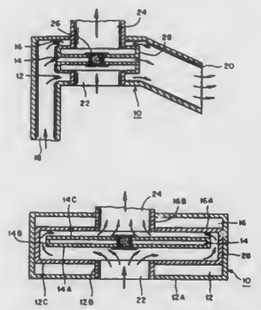
5,062,410
DOWNDRAFT RANGE VENTILATOR
Joseph R. Sarnosky, Fort Atkinson; David W. Wolbrink, Hartford; Alan G. Klug, Mequon, and Gary E. Behm, West Bend, all of Wis., assignors to Broan Mfg. Co., Inc., Hartford, Wis.
Filed Jul. 23, 1990, Ser. No. 556,843
Int. Cl.[5] F24C *15/20*
U.S. Cl. 126—299 D **18 Claims**



1. A ventilator for drawing off cooking effluents produced at a cooking unit positioned in a generally horizontal surface, the ventilator comprising:

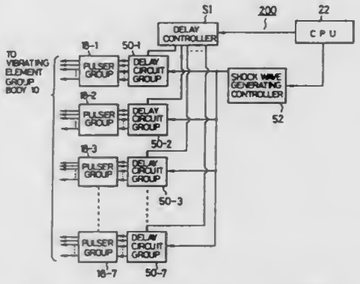
a housing suitable for mounting beneath the surface in which the cooking unit is positioned;
a vent member having an opening through which the cooking effluents may be drawn off, said vent member being movable in a generally vertical direction between a retracted position in which said vent member is proximate the surface and an extended position in which the vent extends above the surface adjacent to the cooking unit, said vent member being in fluid communication with said housing, at least when said vent member is in the extended position;
a blower coupled to said housing for drawing the cooking effluents into said opening in said vent member, downwardly through said vent member into said housing, and discharging same from said ventilator; and
means for moving said vent member between the retracted and extended positions, said means having;
follower means mounted on said vent member and having a follower surface;
motive power means; and
drive means coupled to, and movable by, said motive power means, said drive means having a drive portion engaging said follower surface and displaceable therealong, said drive portion being moved by said motive power means in an arcuate path in a plane generally parallel to the direction of movement of said vent member between said extended and retracted positions so as to have a vertical component of motion, displacement of said drive portion along said follower surface upon movement of said drive means driving said vent member upwardly to the extended position as a result of the vertical component of motion of said drive portion, the engagement of said follower surface and said drive portion controlling the return of said vent member downwardly to the retracted position.

5,062,411
LOW PRESSURE DROP FIREPLACE HEAT EXCHANGER
Tadeusz Karabin, Huntington, and Roy E. Mundy, Roann, both of Ind., assignors to MAJCO Building Specialties, L.P., Huntington, Ind.
Filed Jul. 11, 1990, Ser. No. 551,199
Int. Cl.[5] F24B *1/188*
U.S. Cl. 126—523 **17 Claims**



15. A heat exchanger assembly for use with a fireplace, comprising:
a heat exchanger housing including a top wall, a bottom wall, and a plurality of side walls connecting said top and bottom wall, said top, bottom and side walls defining a chamber;
a set of upper and lower walls connected to said side walls of said housing and defining an air conduit within said chamber, said air conduit being isolated from said chamber such that gas within said chamber will not mix with air within said air conduit, said upper and lower walls of said air conduit being generally parallel to the top and bottom walls of the housing;
a first opening within the bottom wall of said housing and communicating with said chamber, said first opening being in opposing relation to the lower wall of said air conduit;
a second opening within the top wall of said housing and communicating with said chamber;
an inlet opening within one of said side walls of said housing for admitting air to said air conduit; and
an outlet opening within one of said side walls of said housing for allowing air to exit said air conduit,
whereby heated flue gas entering said first opening will be deflected in opposing directions by said lower wall of said air conduit towards the side walls of said chamber, turned about one hundred eighty degrees as the flue gas moves from beneath the ar conduit to above the air conduit, and caused to exit through the second opening.

5,062,412
SHOCK WAVE GENERATING APPARATUS FORMING WIDE CONCRETION-DISINTEGRATING REGION BY FOCUSED SHOCK WAVE
Kiyoshi Okazaki, Tochigi, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Oct. 26, 1989, Ser. No. 426,546
Claims priority, application Japan, Oct. 31, 1988, 63-276628
Int. Cl.[5] A61B *17/22*
U.S. Cl. 128—24 OEL **6 Claims**



1. A shock wave generating apparatus comprising:
a plurality of high-voltage pulse generating means for generating a plurality of high-voltage pulses;
shock wave generating means having a plurality of ultrasonic vibrating element groups, coupled to said plurality of high-voltage pulse generating means, for generating shock waves and for focusing the shock waves onto a plurality of different focused regions within a biological body under examination; and,
a plurality of delay means coupled via said plurality of high-voltage pulse generating means to said plurality of ultrasonic vibrating element groups, for causing said plurality of high-voltage pulses to be generated from the high-voltage pulse generating means with predetermined delay times, whereby the plural focused regions are simultaneously formed juxtaposed each other near an object to be disintegrated within the biological body.

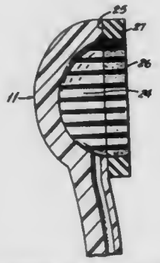
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,413

VACUUM TEETH CLEANING SYSTEM

Horace Bullard, 3333 Henry Hudson Pkwy., Riverdale, N.Y. 10463

Continuation-in-part of Ser. No. 361,926, Jun. 6, 1989, Pat. No. 4,991,570. This application Nov. 8, 1990, Ser. No. 610,527
The portion of the term of this patent subsequent to Feb. 12, 2008, has been disclaimed.
Int. Cl.[5] A61H 9/00
U.S. Cl. 128—66 11 Claims



1. A system for cleaning a set of teeth and gum adjacent thereto comprising:
(a) vacuum means to create a vacuum;
(b) a source of liquid to be pulled by the vacuum to clean the teeth;
(c) a non-custom formed head means to removably form an air-tight chamber over one side of at least two teeth and no more than five teeth; said head means comprising a single head member having a flexible circumferential ring lip means to form an air tight seal against the teeth and a cavity in said head means adapted to face the teeth; said head being a cup like member and including a plurality of bristles within said cavity, said bristles having free ends adapted to contact said teeth;
(d) a vacuum line leading from the vacuum means to the cavity;
(e) a liquid line leading from the liquid source to the cavity; and
(f) control means connected to said vacuum line to intermittently apply vacuum from said vacuum means to said head means in order to pull liquid from said liquid means to within said chamber and thereby clean the teeth.

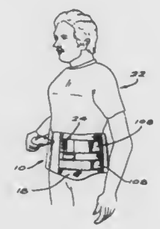
5,062,414

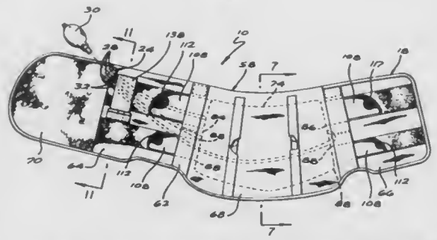
SIMPLIFIED ORTHOPAEDIC BACK SUPPORT

Tracy E. Grim, Broken Arrrow, Okla., assignor to Royce Medical Company, Westlake Village, Calif.

Continuation-in-part of Ser. No. 308,687, Feb. 8, 1989, Pat. No. 4,993,409. This application Jan. 11, 1990, Ser. No. 464,360
Int. Cl.[5] A61F 5/00
U.S. Cl. 128—68.1 17 Claims

1. A simplified inflatable back support assembly comprising:
a main body member formed of elasticized material for extending continuously at least around both sides and the back of a patient;
said body member having an enlarged central area formed of said elasticized material for covering the lower back;
said body member having first and second arm means formed of said material for holding said back support assembly around the mid-section of the patient;
an inflatable assembly including a central inflatable bladder substantially co-extensive in configuration with said enlarged central area of elasticized material;
said inflatable assembly including at least two straps or thin arms directly secured to said bladder and extending outwardly along said first and second arm means and being substantially thinner than said arm means;
said first and second arm means being provided with transverse slits adjacent said central area to permit the passage of said straps therethrough, with the bladder on the inside of the enlarged central area of the main body member and said straps starting inside said main body member where said straps are secured to said bladder, and then extending along the outside of said main body member after passing through said slits;
means for adjustably securing the outer ends of said first and





second arm means together to provide an initial coarse fit of said back support assembly onto said patient;
means for adjustably securing said straps to the outer surfaces of said arm means to provide a vernier fit of said back support assembly onto said patient; and
means for selectively applying air to said bladder assembly to provide a final therapeutic and comfort fit to said back support assembly.

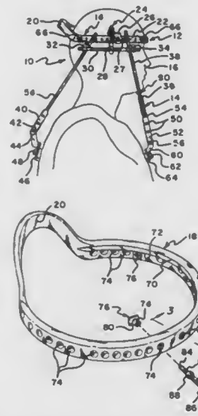
5,062,415

CERVICAL TRACTION ORTHOTIC DEVICE

John H. Weatherby, Mullica Hill, N.J., and Jack M. Potts, Danielsville, Pa., assignors to Sttop Industries, Inc., Allentown, Pa.

Filed Sep. 17, 1990, Ser. No. 583,670
Int. Cl.[5] A61F 5/08
U.S. Cl. 128—76 R 19 Claims

19. A cervical traction orthotic apparatus comprising a form fitting semirigid vest, support rods structurally attached to an extending from the vest upwardly to a halo support ring, first connection means to adjustably and structurally attach lower ends of the support rods to the vest, and second connection means to adjustably and structurally attach upper ends of the rods to the halo ring, wherein:
(a) the halo ring comprises a halo ring member comprising:
(i) a partial oval section positionable essentially horizontally above the ears of the patient encircling the head from behind the ears around the forehead of the patient comprising a center, an outside surface facing outwardly from the center, and an inside surface facing inwardly toward the center,
(ii) an integral composition of unidirectional fibers around the ring member in a reinforced composite material,
(iii) a horizontal shoulder extending inwardly from the inside surface of the partial oval section of the ring toward the center forming a horizontal annular surface, and
(iv) a multiplicity of horizontal circular holes through the partial oval section opening from the outside surface to the inside surface,
(b) the apparatus further comprises a multiplicity of insert devices each comprising:
(i) a body comprising an outside shape and size to press fit into the horizontal holes and a length extending outwardly past the outside surface,
(ii) a bore the length of the body opening at both ends of the body forming an inside lengthwise cylindrical surface,
(iii) spiral threads on the inside surface of the bore, and
(iv) stop means to prevent the body from rotating in the hole comprising an integral member of the insert device located on an end of the body comprising at least one surface to abut the horizontal annular surface when the insert device is fitted into a hole,
(c) the support rods comprise a pair of the support rods connecting to the front of the vest, each of said support rods of the pair comprising:



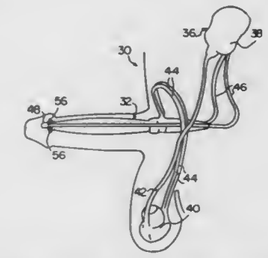
(i) an upper rod section having an upper end and a lower end, the upper end connectable to the halo support ring through the second connection means,
(ii) a lower rod section having an upper end and a lower end, the lower end connectable to the vest through the first connection means,
(iii) the lower end of the upper section and the upper end of the lower section interconnectable by complimentary mating shapes comprising first mating aligned surfaces that are proximately horizontal and second aligned mating surfaces that are proximately vertical,
wherein when the mating shapes are interconnected the outer surface of the cross-section of the mated ends is essentially identical to the outer surface of the cross-section of both rod sections, and
(d) the apparatus further comprises:
(i) a locking cylindrical sleeve having an inside size and shape to closely fit over and surround the outer surface of the cross-sectional shape to slide over either section and over the mated ends,
(ii) support means to hold the sleeve at a height surrounding the mated ends, and
(iii) locking means to prevent inadvertant sliding of the sleeve away from surrounding the mated ends.

5,062,416

PENILE ERECTION SYSTEM

Albert A. Stucks, 6202 Spencer Hwy., #11, Passdena, Tex. 77505

Filed Dec. 1, 1988, Ser. No. 278,489
Int. Cl.[5] A61F 2/26
U.S. Cl. 128—79 3 Claims



1. An erection system for implanting in a male including:
a first inflatable cylinder for positioning within a first corpora carvernosa region within the male's penis;
a second inflatable cylinder for positioning within a second corpora carvernosa region within the male's penis;
a first fluid transfer means mounted in the first cylinder for directing fluid into the first cylinder and maintaining the fluid therein in a first state and releasing the fluid therefrom in a second state;
a second fluid transfer means mounted in the second cylinder for directing fluid into the second cylinder and maintaining the fluid therein in a first state and releasing the fluid therefrom in a second state;
a reservoir having fluid therein which is coupled to the first and second transfer means;
a pump for pumping fluid from the reservoir to the first and second fluid transfer means so that when fluid is maintained in the first and second fluid transfer means during the first state the first and second cylinders are inflated and so that when fluid is released from the first and second fluid transfer means during the second state the first and second cylinders are deflated; and
a fluid circulating means for allowing the fluid to circulate from the first and second cylinders through the pump, and back to the reservoir while fluid is transferred to the cylinders and the cylinders are being inflated to the first state whereby the recirculation of the fluid warms the penis.

5,062,417

PROSTHESIS WITH IMPROVED PUMP

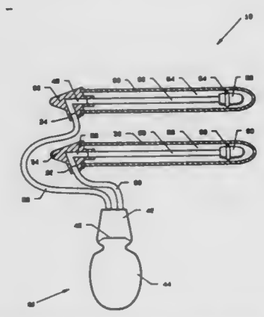
Timothy B. Cowen, Andover, Minn., assignor to Mentor Corporation, Minneapolis, Minn.

Filed Oct. 10, 1990, Ser. No. 597,088
Int. Cl.[5] A61F 2/26
U.S. Cl. 128—79 5 Claims

1. A penile prosthesis comprising:
a. at least one inflatable cylinder implantable within the corpus cavernosum of a patient;
b. a reservoir chamber implantable within the scrotum of said patient having a first volume and having a flexible wall;
c. a pump chamber having a second volume and having a rigid wall fixedly attached to said flexible wall of said reservoir chamber;
d. means coupled to said at least one inflatable cylinder and said pump chamber for providing fluid communication between said at least one inflatable cylinder and said pump chamber;
e. means coupled to said providing means for regulating fluid transfer with said providing means; and,

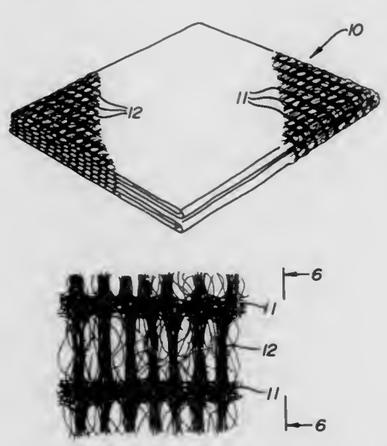
VOL 1132 ISS 1 NO 5 1991 UMI

f. a diaphragm containing a slot valve disposed between said reservoir chamber and said pump chamber for controlling



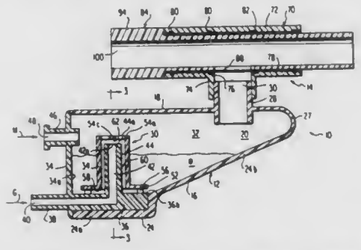
fluid communication between said reservoir chamber and said pump chamber.

5,062,418
NAPPED NONWOVEN FABRIC HAVING HIGH BULK AND ABSORBENCY
John Dyer, Randolph; Grace Mathews, Princeton, and Matthew M. Major, Sayreville, all of N.J., assignors to Johnson & Johnson Medical, Inc., Arlington, Tex.
Filed Jan. 31, 1989, Ser. No. 304,156
Int. Cl.[5] A61F *13/00, 15/00*
U.S. Cl. 128—156 **8 Claims**



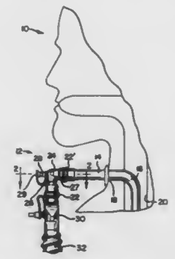
1. A nonwoven fabric, having a basis weight of from about 1.2 to 2.5 oz/yd^2, and comprising entangled staple fibers arranged in a repeating pattern of spaced, parallel ribs extending in one direction, with a plurality of spaced parallel fiber bundles extending between and interconnecting adjacent ribs, said fiber bundles being substantially perpendicular to said fibrous ribs, each of said ribs comprising a napped, bulky, highly entangled, dense, fibrous mass, and each of said fiber bundles comprising a loosely arranged group of substantially parallel staple fibers, whereby the ratio of four-ply bulk—measured in inches—to basis weight—in ounces per square yard—is greater than about 0.06.

5,062,419
NEBULIZER WITH VALVED "T" ASSEMBLY
Donald L. Rider, 25 Chianti, Reno, Nev. 89512
Filed Jan. 7, 1991, Ser. No. 637,907
Int. Cl.[5] A61M *11/00*
U.S. Cl. 128—200.21 **12 Claims**



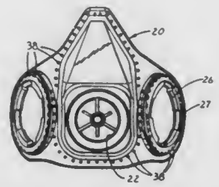
1. A horizontally elongated hollow, shallow nebulizer body having vertically spaced top and bottom walls, at least one vertical end wall and laterally opposed side walls joining said top wall to said bottom wall, said body being generally trapezoidal in side configuration, a horizontal source gas supply tube mounted to said at least one vertical end wall and opening internally thereof, a vertical pipe within said body, being connected to said source gas supply tube and terminating at an upper end in a reduced diameter nozzle opening, an inverted cup-like hollow cylindrical nozzle member having an inner diameter in excess of the outer diameter of said vertical pipe and concentrically surrounding said pipe and forming an annular liquid aspirating passage therebetween, said vertical pipe terminating at an upper end in an end wall extending across the upper end of said vertical pipe and being axially spaced above the end of said pipe to form a cylindrical mixing chamber between the upper end of said vertical pipe and the upper end of said nozzle member, at least one outlet opening in said nozzle member upper end wall, opening outwardly to the interior of said nebulizer body, said nebulizer body including means for supplying a liquid medication to the interior of said body and said shallow, hollow nebulizer body bottom wall including an upwardly oblique portion extending from the side of said vertical pipe and said inverted cup-like hollow, cylindrical nozzle member toward said top wall such that any liquid medication within said body tends to accumulate in the vicinity of said annular aspirating passage, said top wall including a cylindrical vertical outlet opening to the interior of said hollow nebulizer body and projecting upwardly therefrom, and wherein, said nebulizer further comprises a valved "T" hollow tube assembly comprising a horizontally elongated outer pipe, and a short length vertical pipe fixed thereto at one side thereof, and a cylindrical hole within the side of a said horizontal pipe sized to the bore of the short length vertical tube and opening thereto, and an adjustable valve member mounted internally of the horizontally elongated outer pipe, and selectively moveable to close off and open, the connection between the bore of the elongated horizontal pipe and the bore of the short length vertical pipe whereby, with liquid medication within said hollow nebulizer body, and a supply of a source gas to the horizontal source gas supply tube, passage of said gas through said vertical pipe interior of said body causes aspiration of liquid through said inverted cup-like hollow cylindrical nozzle member annular passage and mixing of the liquid medication and the source gas within said chamber, such that by opening and closing the valve of said valved "T" assembly, a mist of medication particles and said source gas is formed within said hollow body for entry into the bore of said elongated horizontal pipe for passage selectively through ventilator tubing into interior airways of a patient by a ventilation circuit including said nebulizer with said valved "T" assembly.

5,062,420
SEALED SWIVEL FOR RESPIRATORY APPARATUS
Walter Levine, 6948 North Keating, Lincolnwood, Ill. 60646
Filed Sep. 18, 1990, Ser. No. 584,253
Int. Cl.[5] A61M *16/00;* **A62B** *7/00*
U.S. Cl. 128—204.18 **20 Claims**



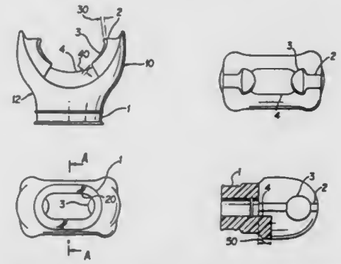
1. A swivel member for a respiratory connector having a respiratory connector fitting, comprising:
a tubular body having a first open end, a second open end and a central portion defining a swivel track adapted to sealingly and swivellingly engage an end of the connector fitting;
said first open end having an inner diameter and an outer diameter;
said second end having means for sealing said end to a tubular member, said means for sealing including at least one integral annular sealing band; and
said swivel track including an annular collar circumscribing said body, being integrally secured to said body by an annular shoulder, and having an annular sealing rib projecting inwardly from an inner surface of said collar.

5,062,421
RESPIRATORY MASK HAVING A SOFT, COMPLIANT FACEPIECE AND A THIN, RIGID INSERT AND METHOD OF MAKING
James A. Burns, Lake Elmo, and Joseph G. Reischel, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Continuation of Ser. No. 121,069, Nov. 16, 1987, abandoned. This application Feb. 19, 1991, Ser. No. 657,102
Int. Cl.[5] A62B *7/10*
U.S. Cl. 128—205.27 **21 Claims**



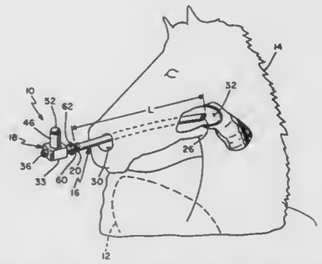
1. A structural member for use in a facepiece of a respiratory mask, said structural member being thin and rigid relative to the facepiece and having a pair of substantially flat, swept back cheek portions, each formed with an aperture and structure around the aperture to mate with and hold a filter cartridge, and a central portion having a nose aperture for an exhalation valve, and provided with discontinuities permitting the facepiece material to flow through the discontinuities under molding conditions to form a mechanical seal to the structural member.

5,062,422
OFFSET ANATOMICAL MOUTHPIECE
Donald J. Kinkade, Greeley, Colo., assignor to Kinkade Family Partnership, Greeley, Colo.
Continuation-in-part of Ser. No. 283,611, Dec. 13, 1988. This application Dec. 12, 1989, Ser. No. 449,560
Int. Cl.[5] A62B *9/06;* **B63C** *11/16*
U.S. Cl. 128—207.14 **8 Claims**



1. A mouthpiece oriented for an overbite comprising:
U shaped body member having first and second ends and upper and lower portions;
the first end formed in a generally oval shape and having an orifice formed therein;
the second end extending away from the orifice and formed into two leg members, each having an outer end;
an internal wing member formed on each leg member near the outer end thereof;
the lower portion of the U shaped member extending outwardly toward the leg members more than the upper portion of the U shaped member to form an offset which reaches to the lowest level of the internal wing members;
the internal wing members having first and second ends;
said wing members have a taper such that the first end farther from the orifice is smaller than the second end nearer the orifice.

5,062,423
EQUINE AEROSOL DRUG DELIVERY METHOD AND APPARATUS
Charles J. Matson, and David J. Velasquez, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.
Filed Feb. 27, 1990, Ser. No. 486,609
Int. Cl.[5] A61M *16/00, 15/00, 11/00;* **A62B** *7/00*
U.S. Cl. 128—207.15 **20 Claims**



1. A method of delivering a dose of an aerosol drug through the nasal-pharyngeal cavity of a large animal, such as a horse, for administration through its trachea to its lungs, the method comprising the following steps:
inserting a distal end of an endotracheal-like nasal tube through a nostril and nasal cavity of the large animal until the distal end of the nasal tube is positioned within the

VOL 1132 ISS 1 NO 5 1991 UMI

nasal-pharyngeal cavity of the animal such that a lumen of the nasal tube communicates through the trachea with the lungs of the large animal; and

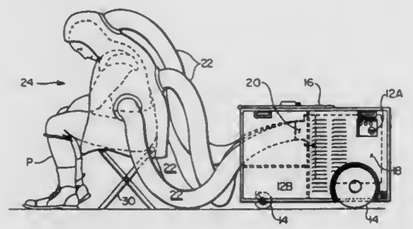
discharging an aerosol drug dose into the lumen of the nasal tube when air flows inwardly through the lumen of the nasal tube toward the lungs for delivery of the drug dose to the lungs of the large animal.

5,062,424

PORTABLE APPARATUS FOR RAPID REDUCTION OF ELEVATED BODY CORE TEMPERATURE

Daniel N. Hooker, Chapel Hill, N.C., assignor to The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Filed Jan. 24, 1991, Ser. No. 645,218
Int. Cl.[5] A61F *7/00*
U.S. Cl. 128—379 **20 Claims**



1. A manually rolled portable apparatus for rapid cooling of an overheated person comprising:

a container housing movably mounted on a plurality of wheels;

air conditioning means mounted in said container housing for providing a cool air flow;

a garment with an interior and an exterior surface removably stored within said container housing and comprising at least a head covering portion and a torso covering portion; and

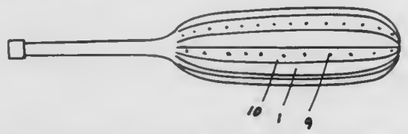
a plurality of flexible air supply hoses fluidly communicating at one end thereof with said air conditioning means and at the other end thereof with the interior surface of said garment.

5,062,425

EXPANSIBLE INTERNAL PRESSURE COLD PACKS AND PERINEAL ICE PAD

Annabelle D. Tucker, 4480 Sberman Oaks Cir., Sherman Oaks, Calif. 91403

Continuation-in-part of Ser. No. 67,084, Jun. 26, 1987, abandoned. This application Sep. 12, 1990, Ser. No. 582,663
Int. Cl.[5] A61F *7/12*
U.S. Cl. 128—401 **10 Claims**



1. An inflatable, expandable device to fit into various contours and sizes of a body cavity for the purpose of providing pressure and cold against traumatized tissue in the prevention of edema, bleeding and hematomas, comprising:

an outer cover comprising an elastic material, said elastic material being expandable and stretchable such that, upon inflation of said outer cover, the elastic material will substantially conform to interior shapes of the body cavity thereabout, said outer cover defining an interior volume therein;

an ice capsule pack comprising inner walls which are enclosed within the interior volume defined by the outer cover, said interior walls also defining a sealed enclosed volume, said enclosed volume having frozen fluid therein such that said inner walls encapsulate the frozen fluid, wherein said frozen fluid is frozen into solid form prior to insertion of said device into the body cavity, wherein said inner walls and said outer cover define a flow path volume therebetween and wherein said device further includes suspension means for attaching said outer cover to a plurality of locations on said inner walls;

access means for allowing a fluid substance to be introduced into said flowpath volume; and

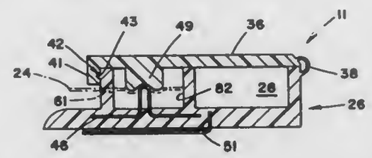
a cold fluid substance within said flowpath volume, said fluid substance being present in a quantity suitable for maintaining the outer cover in an inflated, expanded state having a configuration matching the interior contours of the body cavity.

5,062,426

FETAL HEART MONITOR LEG PLATE ELECTRODE

Paul Ulbrich, Livermore, and Thanh Tran, Union City, both of Calif., assignors to EMS Products, Inc., Bothell, Wash.

Filed Nov. 26, 1990, Ser. No. 618,228
Int. Cl.[5] A61B *5/0448*
U.S. Cl. 128—640 **13 Claims**



12. A leg plate for coupling first and second output wires of a fetal heart rate sensing electrode assembly with a heart rate monitor, comprising:

a base member having a flat underside and a front surface with a raised wall defining a recessed region in said front surface which recessed region including said raised wall has a smaller area than said undersurface and wherein a portion of said base member divides said recessed region into two parallel compartments, said raised wall having a pair of wire receiving notches therein at one end of said recessed region each of which communicates with a separate one of said compartments,

a pair of pivotable cover members each being proportioned to overlay and cover a separate one of said compartments and each being individually hinged to said base member by a thin strip of flexible material which strips are situated at the ends of said compartments that are remote from said notches, each of said cover members having a protrusion which extends down into the underlying compartment when the cover member is pivoted to overlay the compartment, each of said cover members further having means for latching onto said raised wall with a snap action when the cover member is pivoted to overlay said underlying compartment,

said base member and said pair of pivotable cover members and said thin strips of flexible material all being portions of a single integral body of molded plastic material,

a pair of conductive electrical contacts each being partially embedded in said molded plastic material and having an exposed surface which extends into a separate one of said compartments, said exposed surfaces being positioned to be contacted by said output wires when said wires are inserted into said notches and being positioned to exert clamping force on said wires in conjunction with said

cover member protrusions when said cover members are latched onto said raised wall,

a conductive electrode plate secured to said underside of said base member, and

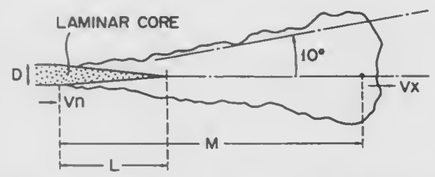
a signal output cable extending from said base member and having a pair of conductors each of which is connected to a separate one of said contacts and an additional conductor which is connected to said electrode.

5,062,427

ULTRASONIC DOPPLER APPARATUS

Yasutsugu Seo, Ootawara, and Motoaki Sugawara, 10-14, Higashimine-machi, Oota-ku, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki and Motoaki Sugawara, Tokyo, both of, Japan

Filed Oct. 19, 1989, Ser. No. 424,337
Claims priority, application Japan, May 6, 1988, 63-110171; Oct. 21, 1988, 63-265518
Int. Cl.[5] A61B *8/06*
U.S. Cl. 128—661.10 **15 Claims**



1. An ultrasonic Doppler apparatus comprising:

fluid imaging means for transmitting ultrasonic waves to a fluid issued from an orifice, receiving reflected echoes thereof, and displaying a tomographic image of the fluid and deriving a Doppler shift frequency of the fluid according to the received echoes;

means for specifying a first point near the orifice on the tomographic image and a second point on a centerline of a portion of the issued fluid other than a laminar core of the issued fluid;

first calculating means for deriving flow velocities at the first and second points based on the Doppler shift frequency derived by said fluid imaging means;

second calculating means for deriving a distance between the first and second points; and

third calculating means for deriving an issuing flow-rate of the fluid based on the flow velocities derived by said first calculating means and the distance derived by said second calculating means.

5,062,428

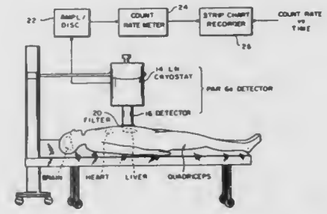
METHOD AND DEVICE FOR IN VIVO DIAGNOSIS DETECTING IR EMISSION BY BODY ORGAN

Britton Chance, Philadelphia, Pa., assignor to Nim Incorporated, Philadelphia, Pa.

Continuation of Ser. No. 532,142, Jun. 4, 1990, abandoned, which is a continuation of Ser. No. 149,551, Jan. 28, 1988, abandoned. This application Feb. 11, 1991, Ser. No. 653,971
Int. Cl.[5] A61B *6/00*
U.S. Cl. 128—664 **19 Claims**

1. A method for in vivo monitoring of the condition of an internal body organ of a patient, comprising:

detecting photons of electromagnetic radiation caused by the characteristic emission of free radicals from an organ of the patient; and



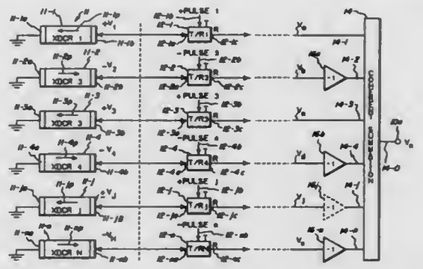
comparing the rate of said photon detection, signifying the rate of free radical emission, with the expected rate of free radical emission from a healthy organ.

5,062,429

ULTRASOUND IMAGING SYSTEM PROBE WITH ALTERNATE TRANSDUCER POLLING FOR COMMON-MODE NOISE REJECTION

Lowell S. Smith, Schenectady, and Edward J. Piel, Jr., Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 15, 1989, Ser. No. 454,581
Int. Cl.[5] A61B *8/00*
U.S. Cl. 128—661.01 **11 Claims**



1. An ultrasonic imaging system having common-mode noise reduction, comprising:

an array of an even-numbered plurality N of transducer means for converting between electric and ultrasonic signals, each assigned to a like-numbered one of a plurality of channels, with the transducer means in (N/2) of the channels being polarized in a direction opposite to the polling direction of the transducer means in the other (N/2) of the channels;

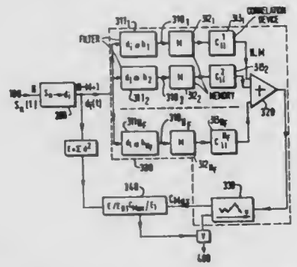
(a plurality N of channel means each for separately processing a received signal from the transducer means of that channel;

a plurality (N/2) of inversion means, each in a different one of the (N/2) channels having transducer means polled in a selected polling direction, for providing an output signal which includes an inverted-polarity version of the processed received signal in that channel; and

means for summing all inverted-polarity output signals from all of said inversion means and all processed signals from all of the remaining channels, to cause all transducer means signals to be summed while undesired signals commonly present after said transducer means are substantially rejected.

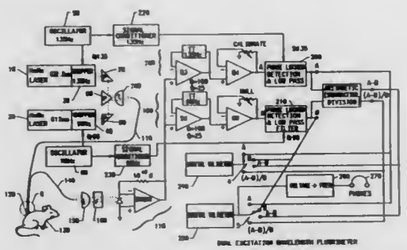
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,430
DEVICE FOR MEASURING THE SPEED OF BLOOD FLOWS BY ULTRASONIC ECHOGRAPHY AT AN INCREASED MEASURING SPEED
Odile Bonnefous, Nogent sur Marne, France, assignor to U.S. Philips Corporation, New York, N.Y.
Filed May 4, 1990, Ser. No. 518,896
Claims priority, application France, May 12, 1989, 89 06289
Int. Cl.[5] A61B *8/06*
U.S. Cl. 128—661.09 8 Claims



1. A device for measuring the speed of blood flow comprising:
M-point fixed-echo elimination means responsive to a sequence of N successive echographic signals applied thereto for producing N−M+1 independent output signals, where M and N are positive integers;
N_F parallel processing channels each comprising filter means for filtering said N−M+1 output signals, memory means for storing the N−M+1 filtered signals, and correlation means responsive to the stored N−M+1 signals for producing a processed signal manifesting N−M intercorrelation functions of said stored N−M+1 signals;
adding means for forming a mean value output signal representing the mean value of the N_F(N−M) intercorrelation functions of the processed signals of said channels; and
interpolation means responsive to said mean value output signal for providing an estimate of the speed of the blood flow corresponding to said mean value output signal.

5,062,431
IN VIVO FLUORESCENCE PHOTOMETER
William R. Potter, Grand Island, N.Y., assignor to Health Research, Inc., Buffalo, N.Y.
Division of Ser. No. 268,723, Nov. 8, 1988. This application Mar. 30, 1990, Ser. No. 502,447
Int. Cl.[5] A61B *5/00*
U.S. Cl. 128—665 3 Claims



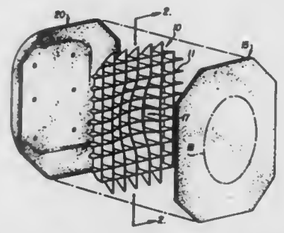
1. An apparatus for in vivo detection of abnormal tissue in a patient, comprising:
at least one light source for providing a first light beam having a first wavelength and a second light beam having a second wavelength;
means for imparting characteristics to said first and second beams for differentiating between them;
means for transmitting said first and second beams simultaneously to a diagnostic region of the patient;
means for detecting a fluorescent signal from both the abnormal tissue in the patient and from normal tissue in the vicinity of the abnormal tissue, said fluorescent signal resulting from irradiation of the diagnostic region by said first and second beams and having an intensity related to an amount of each of the normal and abnormal tissue present at the diagnostic region;
means for converting said fluorescent signal to a first electronic signal having a signal strength related to said intensity;
means for electronically differentiating a first portion of said first electronic signal from a second portion of said first electronic signal, by means of said characteristics, where said first portion results from said first incident beam and said second portion results from said second incident beam;
means for generating a second electronic signal relating to a difference in magnitude between said first and second portions of said first electronic signal; and
means for providing said second electronic signal as an output for indicating the presence of abnormal tissue.

5,062,432
METHOD AND APPARATUS FOR MONITORING PERSONAL CORE TEMPERATURE
Paul James, Marietta, Ga.; Theodore J. Kuemmel, Waukesha, Wis.; Michael G. Wurm, Franklin, Wis.; James D. Banach, Milwaukee, Wis., and David Fulton, Pickering, Canada, assignors to LaBelle Industries, Inc., Oconomowoc, Wis.
Filed May 9, 1990, Ser. No. 521,088
Int. Cl.[5] A61B *5/00*
U.S. Cl. 128—736 20 Claims



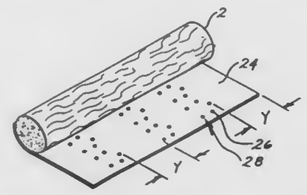
4. An apparatus for monitoring the core temperature of a warm blooded living being, said apparatus comprising:
means for monitoring temperature in the ear canal of the living being;
means for receiving an electronic signal from an orifice temperature sensor, the signal being representative of the core temperature of the living being at a given instant of time;
means for determining the difference between the ear canal temperature and the orifice temperature at the given instant of time; and
means for extrapolating the core temperature of the living being, at a second given instant of time different from the first mentioned instant of time, by using the monitored ear canal temperature at the second given instant of time and the determined difference.

5,062,433
PROTECTOR PAD
Frederick J. Kummer, Brooklyn, N.Y., assignor to Hospital for Joint Diseases, New York, N.Y.
Continuation of Ser. No. 319,613, Mar. 6, 1989, abandoned. This application Jan. 16, 1990, Ser. No. 465,387
Int. Cl.[5] A61F *13/00*
U.S. Cl. 128—888 11 Claims



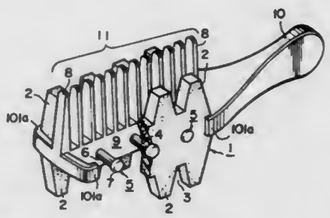
1. A protector pad for protecting a hip or other area on the body, said protector pad comprising:
(a) a plurality of walls defining a plurality of substantially uniformly shaped rigid cells, said plurality of walls having a length and a width and a thickness, said thickness defining the depth of the cells of said plurality of cells;
(b) said length and said width of said plurality of walls at least exceeding the length and width of a wound or a wound area to be protected by said protector pad; and
(c) wherein the walls defining selected adjacent cells are progressively reduced in said thickness for forming a concave section in said plurality of walls for providing a clearance over said wound or wound area.

5,062,434
CIGARETTE PAPER
Paul L. Aulbach; Dorothy M. Frank, and David S. Roth, all of Louisville, Ky., assignors to Brown & Williamson Tobacco Corporation, Louisville, Ky.
Filed Sep. 22, 1989, Ser. No. 411,177
Int. Cl.[5] A24D *1/02*
U.S. Cl. 131—336 5 Claims



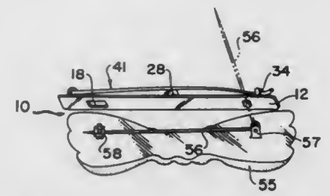
1. A cigarette wrapper comprising:
a plurality of at least three rows of perforations extending latitudinally across said paper, said perforations of each row being in alignment with each other, said rows of perforations being spaced apart from adjacent rows by the same preselected distance along the entire length of said paper, and each row of perforations includes a plurality of spaced apart preselected patterns of perforations, each of said patterns being separate and distinct from adjacent patterns, and including a plurality of perforations, and said patterns of each row being in alignment with each other.

5,062,435
HAIR COMB WITH ABSORBANT PAD
Hiroshi Ohtsuka, Shizuoka, Japan, assignor to Hapyo Yugen Kaisha, Shizuoka, Japan
Filed Jul. 12, 1990, Ser. No. 551,473
Claims priority, application Japan, Jul. 31, 1989, 1-90896[U]; Jul. 31, 1989, 1-90897[U]; Jul. 31, 1989, 1-90898[U]; Jul. 31, 1989, 1-90899[U]
Int. Cl.[5] A45D *24/16*
U.S. Cl. 132—108 7 Claims



2. A hair treating device comprising:
(a) a body made of synthetic resin and having at least one row of comb teeth;
(b) at least one elastic porous absorbing member having teeth formed of concave and convex portions, the pitch between neighboring teeth of said absorbing member being greater than the pitch between neighboring comb teeth of the body;
(c) a connecting structure for supporting the elastic porous absorbing member at an outer side of and in parallel with the row of comb teeth, the connecting structure including a plurality of rows of shafts integrally formed with the body; and
(d) a head disposed on each said shaft and at an outer side of the comb teeth of the body, the elastic porous absorbing member having at least one row of engaging holes, which are smaller than the heads of the shafts, the elastic porous absorbing member being engageable with and detachable from the body.

5,062,436
HAIR BARRETTE INCORPORATING AN ORNAMENTAL PIN
David Emsellem, 10300 Glen Rd., Potomac, Md. 20854
Filed Oct. 4, 1989, Ser. No. 417,044
Int. Cl.[5] A45D *8/24*
U.S. Cl. 132—279 29 Claims



1. A hair barrette, comprising:
an elongated main body having a first end, a second end, a longitudinal axis extending between said first and second ends, two side edges and an upper and bottom surface, said main body including a first aperture formed in said first end, said first aperture being dimensioned and positioned so as to receive therethrough either a pivot post or pivot pin clasp of an ornamental pin such that said hair barrette is adapted to maintain the ornamental pin releasably affixed thereto, and the width of said first aperture extending transverse to the longitudinal axis being greater

VOL 1132 ISS 1 NO 5 1991 UMI

than the length of said first aperture extending in the direction of the longitudinal axis both on the upper and lower surface of said main body so as to limit longitudinal shifting of either the pivot post or pivot pin clasp of the ornamental pin, said main body further including a second aperture formed in the second end of said main body and spaced from said first aperture so as to receive therethrough either the pivot post or the pivot pin of the ornamental pin;

a clamping member having a first end and second end with said first pivotably attached to one of said ends of said main body, and said clamping member adapted to assure an attached position and a detached position;

attachment means for releasably retaining said clamping member in the attached position; and

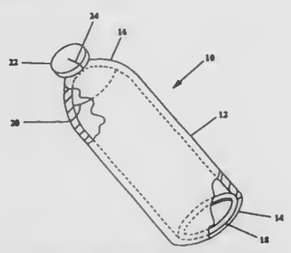
a bridge member attached to said main body and positioned between said first and second ends, said bridge member extending between the two side edges of said main body in a direction transverse to the longitudinal axis extending through the first and second ends of said main body and said first aperture being positioned between said bridge member and one of the ends of said clamping member.

5,062,437

DENTAL FLOSSING TOOL

Robert F. Mason, 10763 Hedda Pl., Cerritos, Calif. 90701

Filed Apr. 2, 1990, Ser. No. 502,800
Int. Cl.[5] A61C *15/00*
U.S. Cl. 132—323 **9 Claims**



1. An auxiliary dental flossing tool comprising:

an elongated, generally cylindrical handle member (formed for insertion into a user's mouth to facilitate manipulation of one end of a strand of flossing material during a flossing operation), and

a generally button-shaped disc fixedly mounted on the outside of said handle and forming a floss retaining V-shaped recess between and at the base of said disc and said handle member for releasable frictional retention of a strand of flossing material, (having at least one slot formed therein to frictionally retain a strand of flossing material mounted on the outside of said handle and forming a floss retaining recess between said disc and said handle member for releasable frictional retention of a strand of flossing material) and

at least one non-expandable slot extending part way through said disc to frictionally lock the end of a strand of dental floss within said slot from unwinding.

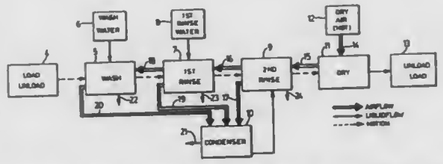
5,062,438

WASHING APPARATUS AND PROCESS

Bejrouth M. Micheletti, 1258 Hollyfield Crs., Oakville, Ontario, Canada L6H 2J6

Filed Sep. 28, 1989, Ser. No. 396,362
Int. Cl.[5] B08B *1/02, 3/04*
U.S. Cl. 134—9 **7 Claims**

1. A method for washing flat, flexible articles, comprising mounting the article on a foraminous belt lying in a vertical position passing the belt bearing the article through a plurality of water washing, rinsing and drying zones, extracting the moisture laden air from at least the said drying zone, condensing the water from the moisture laden air, utilizing the said



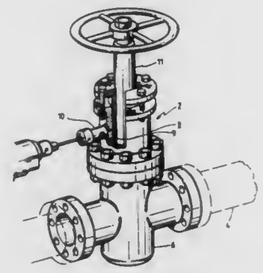
condensed water for rinse water in at least the final of said rinse zones.

5,062,439

METHOD AND APPARATUS TO FACILITATE THE INJECTION OF SEALANT INTO A PRESSURIZED FLUID MEMBER

Johnny L. Butler, Highlands; Richard E. Wakeland, Houston; Donald R. Batson, Dayton, and Robert E. Metzger, Baytown, all of Tex., assignors to Spinsafe, Inc., Highlands, Tex.

Filed Jun. 14, 1990, Ser. No. 537,574
Int. Cl.[5] F16K *43/00, 41/02*
U.S. Cl. 137—15 **14 Claims**



6. A method of injecting a sealant into a chamber formed by a packing assembly of a first valve, comprising the steps of:

attaching a driver cap to a first end portion of a fitting:

rotating said driver cap and fitting at high speed to friction weld a second end portion of the fitting to the exterior of the first valve at an area immediately adjacent the packing assembly chamber;

removing the driver cap from the fitting:

inserting a packing seal into a bore extending into the second end portion of said fitting;

opening a second valve operatively positioned in said fitting bore between said seal and said first end portion;

inserting a boring means through the packing seal, into the bore of said fitting, and through said opened second valve;

completing a bore hole into the packing assembly chamber of said first valve so as to establish fluid communication between the fitting bore and said packing assembly chamber;

withdrawing the boring means a preselected distance along said fitting bore to remove said boring means from said second valve while maintaining contact between said boring means and said packing seal;

closing the second valve in said fitting bore to interrupt fluid communication between said packing assembly chamber and said fitting bore;

removing said boring means from said fitting bore;

coupling to the second end of said fitting means for injecting sealant into the packing assembly chamber of said first valve;

opening said second valve to establish fluid communication between said packing assembly chamber and said sealant injecting means;

injecting sealant into the packing assembly chamber of said first valve; and

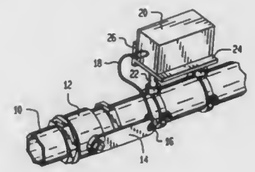
closing said second valve to interrupt fluid communication between said packing assembly chamber and said sealant injecting means.

5,062,440

TREMOR-RESPONSIVE SHUT-OFF VALVE

Walter Korabiak, 103 Crine Rd., Morganville, N.J. 07751

Filed Jan. 22, 1991, Ser. No. 644,196
Int. Cl.[5] F16K *17/36*
U.S. Cl. 137—38 **8 Claims**



1. Apparatus comprising:

a gas or water main;

a ball-cock valve incorporated within said main;

a handle on said valve to controllably open and close said valve;

a stand situated above said handle, having a platform angularly sloped towards said handle; and

an actuator weight coupled to said handle and quiescently resting on said platform;

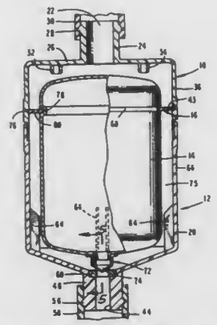
whereby earthquake tremors of a prescribed magnitude serve to shake said weight off said platform, and in a direction to automatically rotate said handle to close said valve.

5,062,441

DRAIN VALVE USED IN AIRCRAFT

Michael Glukhov, Encino, Calif., assignor to Sabre Industries, Inc., Burbank, Calif.

Filed Jun. 21, 1990, Ser. No. 541,529
Int. Cl.[5] F16T *1/20, 31/22*
U.S. Cl. 137—81.1 **6 Claims**



1. In an aircraft having a pressurized cabin and a supply of water that is incrementally and periodically discharged from the aircraft into the outside atmosphere, with the differential in pressure between the cabin pressure and atmospheric pressure increasing as the aircraft attains higher altitudes,

a valve including:

a housing having a water inlet and a water outlet, said water inlet being in communication with the cabin and at the same pressure as in the cabin, with water from the supply being discharged flowing into the valve though said water inlet, and said water outlet being in communication with the outside atmosphere,

a float member retained by a spring means in the form of a rubber, wheel-like member in the housing between the water inlet and water outlet and adapted to move within the housing in response to the aircraft changing altitudes and the water level in the housing,

said float member having at one end a stopper element which is adapted to engage the water outlet and seal the water outlet so that water entering the housing is retained in the housing,

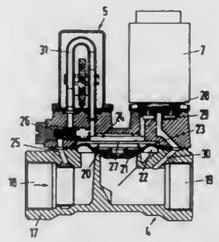
said spring means being biased to move the float member towards the water outlet so that the stopper element engages and seals the water outlet when the aircraft has gained a substantial altitude, and away from the water outlet when the aircraft is at or near ground level.

5,062,442

APPARATUS FOR MONITORING A FLUID CONDUIT SYSTEM FOR LEAKAGE POINTS

Theiss Steenstrøm; Jens J. Mølbaek, both of Nordborg; Poul E. Hyldig, Augustenborg, and Bjarne Straede, Sydals, all of Denmark, assignors to Danfoss A/S, Nordborg, Denmark

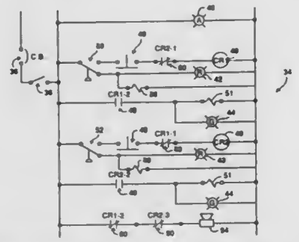
Filed Jan. 8, 1990, Ser. No. 461,685
Claims priority, application Fed. Rep. of Germany, Jan. 18, 1989, 3901251; Mar. 7, 1989, 3907209
Int. Cl.[5] G01F *5/00*
U.S. Cl. 137—110 **18 Claims**



1. Apparatus for monitoring a fluid conduit system for leakage points, comprising a main valve having a housing that includes an inlet, an outlet, and a valve seat interposed between the inlet and outlet, and a fluid flow responsive valve member in the housing operable between an open and a closed position for controlling fluid flow through the valve seat, and volumetric flow meter shunt means for defining a flow shunt flow path that opens to the inlet and outlet, bridging the valve seat and opening to the main valve member for controlling the opening of the valve member as a function of the flow volume in the shunt path and maintaining the main valve member closed until the volume in the shunt path exceeds a predetermined value, the shunt means including a volumetric flow meter for measuring fluid flow through the flow path, an operable shunt valve connected in series with the flow meter between the inlet and outlet for selectively permitting and blocking fluid flow through the flow path, and control means connected and acting at least in part in response to the flow through the flow meter for controlling the operation of the shunt valve.

VOL 1132 ISS 1 NO 5 1991 UMI

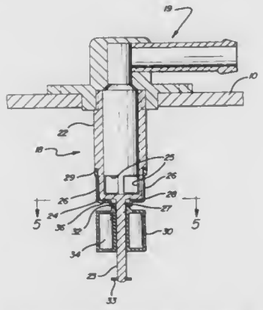
5,062,443
AUTOMATIC CHANGEOVER MANIFOLD
Radovan R. Maric, Willowdale, Canada, assignor to Union Carbide Canada Limited, Toronto, Canada
Division of Ser. No. 588,936, Sep. 27, 1990, Pat. No. 5,025,824.
This application Mar. 28, 1991, Ser. No. 676,306
Int. Cl.[5] F16K *11/24*
U.S. Cl. 137—113 **8 Claims**



1. A control circuit for an automatic changeover manifold, comprising:
first pressure-activated switch means for switching electrical energy between a first electrical circuit and a second electrical circuit in parallel with said first electrical circuit,
first solenoid valve control relay means in said first electrical circuit and first signal lamp means in said second electrical circuit,
third electrical circuit in parallel with said first and second electrical circuits, first solenoid valve control relay contact means in said third electrical circuit and activated by said first solenoid valve control relay means, first solenoid valve coil means in said third electrical circuit and second signal lamp means in said third electrical circuit,
second pressure-activated switch means for switching electrical energy between and a fourth electrical circuit and a fifth electrical circuit in parallel with said first to fourth electrical circuits,
second solenoid valve control relay means in said fourth electrical circuit and third signal lamp means in said fifth electrical circuit, and
sixth electrical circuit in parallel with said first to fifth electrical circuits, second solenoid valve relay contact means in said sixth electrical circuit and activated by said second solenoid valve control relay means, second solenoid valve means in sixth electrical circuit and fourth signal lamp means in said sixth electrical circuit.

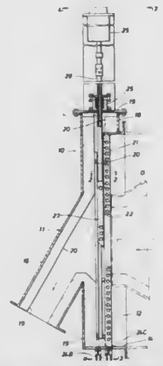
5,062,444
FUEL LEVEL RESPONSIVE VAPOR VENT VALVE
Rudolph Bergsma, Ann Arbor, Mich., assignor to G. T. Products, Inc., Ann Arbor, Mich.
Continuation of Ser. No. 419,335, Oct. 10, 1989, abandoned.
This application Nov. 5, 1990, Ser. No. 609,365
Int. Cl.[5] F16K *31/22*
U.S. Cl. 137—202 **4 Claims**

1. A fuel responsive vent valve for venting fuel vapor and air from the fuel tank of the type having a filler tube, said vent valve comprising:
a hollow valve body mounted within the fuel tank communicating with the upper end of the filler tube;
radial port means formed in said valve body communicating with the interior of said fuel tank;
axially slidable shutter means mounted to slide on said valve body between an open position remote from said radial port means and a closed position covering said radial port means;
float means axially slidable on said valve body, said float means responsive to the level of fuel in the fuel tank to raise and lower said shutter means between said open and closed positions;
wherein the valve body defines a first interior surface portion of the shutter means communicating with the interior of the valve body when the shutter means is in the closed position, and a second interior surface portion of the shutter means communicating with the interior of the fuel tank when the shutter means is in the closed position;



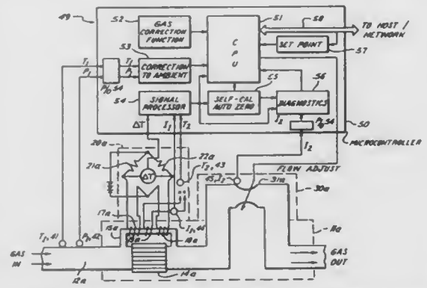
wherein the valve body includes an annular shoulder providing a first seal with the shutter means in the closed position, and an annular flange providing a second seal with the shutter means in the closed position, such that the first interior surface portion of the shutter means is defined between the first and second seals.

5,062,445
WATER COOLED GATE VALVE
Marius R. Junier, Houston, Tex., assignor to Triten Corporation, Houston, Tex.
Filed Aug. 24, 1990, Ser. No. 572,141
Int. Cl.[5] F16K *49/00*
U.S. Cl. 137—340 **5 Claims**



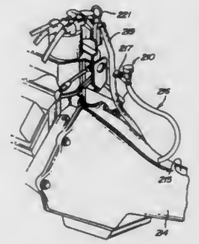
1. A water cooled gate valve, comprising
a body having an inlet thereto and an insulated side wall in which the outlet is formed,
a plate mounted in the body to extend across the interior thereof adjacent the inlet and spaced from the insulated side wall, said plate having an orifice therethrough,
elongate guide rails mounted in the body between the side wall and plate and at each side of the orifice,
a gate having parallel side edges which extend substantially its entire length and which are guidably slidable within the guide rails for guided movement within the body and across a side of the plate between positions regulating flow through the orifice,
means on the body for so moving the gate, and
means for circulating water through substantially the entire height and width of each of the orifice plate and gate and length of the guide rails.

5,062,446
INTELLIGENT MASS FLOW CONTROLLER
Richard L. Anderson, Austin, Tex., assignor to Sematech, Inc., Austin, Tex.
Filed Jan. 7, 1991, Ser. No. 638,279
Int. Cl.[5] G05D *7/06*
U.S. Cl. 137—468 **18 Claims**



1. An apparatus for controlling a mass flow of a gas for use in semiconductor processing comprising:
gas metering means having laminar flow coupled to receive said gas at its inlet and for providing a metered flow of said gas at its outlet;
regulating means coupled to said metering means for regulating said flow of said gas provided at said outlet of said metering means;
flow sensing means coupled to said metering means to sense said flow of said gas through said metering means;
a temperature sensor coupled to the inlet of said gas metering means to measure temperature of said gas entering said gas metering means;
a pressure sensor coupled to the inlet of said gas metering means to measure pressure of said gas entering said gas metering means;
processing means coupled to receive gas flow information from said sensing means which is indicative of the flow of said gas and coupled to receive temperature and pressure information from said temperature and pressure sensors;
said processing means also coupled to provide a control signal to said regulating means for controlling a position of said regulating means to provide a desired gas flow from said regulating means;
said processing means further including a software routine stored in its memory for automatically processing said gas flow, temperature and pressure information and adjusting said gas flow based on said temperature and pressure information to correct for ambient variations in order to maintain a selected mass of said gas to flow;
said processing means also including a calibration software routine to provide automatic, in-situ, in process calibration of said gas metering means during initialization of said apparatus.

5,062,447
TRANSMISSION BREATHER CONTROL VALVE AND VENT
Ellard D. Davison, Jr., Grosse Pointe Farms, and Lounes Rabhi, Ypsilanti, both of Mich., assignors to General Motors Corporation, Detroit, Mich.
Filed Apr. 1, 1991, Ser. No. 678,406
Int. Cl.[5] F16K *15/00*
U.S. Cl. 137—493 **1 Claim**



1. A breather control system for an automatic transmission in an engine driven vehicle comprising:
a transmission housing sealed to prevent fluid communication between a cavity within the transmission housing and atmosphere except through a primary valve assembly;
a transmission fill pipe having a sealed closure and inserted into the transmission housing;
the primary valve assembly, being disposed above a level of operating fluid in the transmission housing for both the transmission operating and non-operating modes, restricting passage of gas into and out of the transmission housing, further comprising:
pressure check valve means for relieving gas pressure within the transmission housing cavity by venting the transmission housing cavity to atmosphere when a selected pressure differential between the transmission housing cavity and atmosphere is exceeded;
vacuum check valve means for relieving vacuum within the transmission housing cavity by venting the transmission housing cavity to atmosphere when a selected vacuum differential between the transmission housing cavity and atmosphere is exceeded; and
a common cavity with which the two valve means and the transmission housing are in fluid communication;
means for connecting the primary valve assembly to the transmission housing, providing fluid communication between the primary valve assembly and transmission housing cavity, connecting to the transmission housing at a point above the level of the operating fluid in the transmission housing for both the transmission operating and non-operating modes; and
means for connecting the primary valve assembly to the transmission fill pipe, providing fluid communication between the common cavity of the primary valve assembly and transmission fill pipe, connecting to the transmission fill pipe at a point above the level of the operating fluid in the transmission fill pipe for both the transmission operating and non-operating modes.

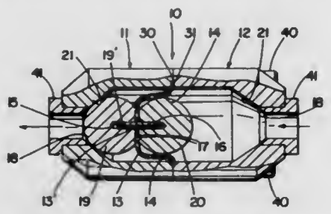
5,062,448
DOUBLE ACTION CHECK VALVE
Henry Hilsenbeck, 9951 Sunrise Blvd. R-8, North Royalton, Ohio 44133, and Jack E. Muck, Brookpark, Ohio, assignors to Henry Hilsenbeck, Cleveland, Ohio
Filed Jun. 14, 1990, Ser. No. 537,584
Int. Cl.[5] F16K *17/26*
U.S. Cl. 137—498 **6 Claims**

1. A valve comprising:
a) a coupling comprising an inlet and outlet member, said

VOL 1132 ISS 1 NO 5 1991 UMI

coupling members being rigidly secured together, fluids and gases being adapted to flow through said members;

b) a flexible membrane seating in the coupling members, said flexible membrane being provided with spaced apertures about the perimeter of the membrane and inwardly of the



seating thereof, liquids or gases passing through the apertures in the membrane; and

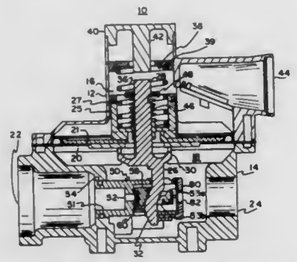
c) valve members carried on either side of the flexible membrane adapted to moderate the flow through the apertures in either direction of the flow and said valve members are truncated spheres with flat bottoms.

5,062,449

VIBRATION DAMPENER FOR DIRECT ACTING PRESSURE REGULATOR

David E. Woollums, Allen, and Donald D. Rice, Wylie, both of Tex., assignors to Fisher Controls International, Inc., Clayton, Mo.

Filed Dec. 28, 1990, Ser. No. 636,082
Int. Cl.[5] G05D *16/06*
U.S. Cl. 137—505.46 10 Claims



1. A regulator valve having a body including a spring housing and an inlet and an outlet comprising:

diaphragm means including a diaphragm head;

spring means in said spring housing applying a regulating force to one side of said diaphragm head;

a cylindrical spring cage in said spring housing in engagement with said diaphragm head and coupling said spring means to said diaphragm head;

valve means coupled beaten said inlet and said outlet;

stem means coupled to said diaphragm means and having an end coupled to said valve means for controlling flow from said inlet to said outlet; and

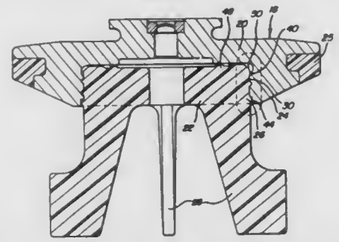
dampener means coupling said spring cage to said spring housing for suppressing vibrations in said regulator valve.

5,062,450

VALVE BODY FOR OILFIELD APPLICATIONS

Thomas F. Bailey, and John E. Campbell, both of Houston, Tex., assignors to MASX Energy Services Group, Inc., Houston, Tex.

Division of Ser. No. 312,855, Feb. 21, 1989, abandoned. This application Oct. 5, 1990, Ser. No. 593,181
Int. Cl.[5] F16K *15/06*
U.S. Cl. 137—533.21 16 Claims



1. A valve to pump fluids, said valve sealingly cooperating with a valve seat having a throughbore, said valve comprising:

a valve head having an internal cavity;

a valve body attached to said valve head, said valve body having a neck portion received within said cavity of said valve head; and

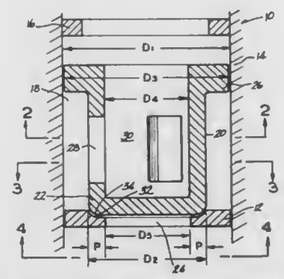
means to lockingly attach said valve body to said valve head, said valve head being made of a metal material and said valve body being made of an elastomer material, said locking means includes cooperating thread forms on said neck portion of said valve body and within said cavity of said valve head thereby preventing inadvertent separation of said valve body from said valve head.

5,062,451

MAXIMUM FLOW SINGLE PLUG RETENTION VALVE

Ammon M. Vadasz, San Antonio de Los Altos, and Jesus E. Chacin, Caracas, both of Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

Filed Sep. 26, 1990, Ser. No. 588,341
Int. Cl.[5] F16K *15/06*
U.S. Cl. 137—533.17 4 Claims



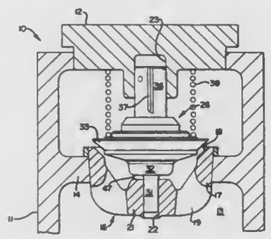
1. A check valve comprising a housing having an internal diameter D_1; a seat fixed in said housing, said seat defining a first flow area A_1; a stop fixed in said housing and spaced from said seat so as to define with said housing and said seat a chamber; and a valve plug mounted for reciprocal movement in said chamber, said valve plug having (1) a first diameter portion having a diameter D_2 adapted to mate with said seat for sealing said first flow area A_1, said first diameter portion defining with said housing a second annular flow area A_2, (2) a second diameter portion having an external diameter D_3 and an internal diameter D_4 wherein D_3 is substantially equal to D_1 and D_4 defines a third flow area A_3 and (3) an internal passage connecting A_2 with A_3 wherein said internal passage defines a flow area A_4 wherein A_3 is greater than or equal to A_4 which is greater than or equal to A_2 which is greater than or equal to A_1 whereby the pressure drop across the valve plug is minimized.

5,062,452

VALVE MEMBER AND METHOD OF MAKING SUCH A MEMBER

Jerry E. Johnson, Houston, Tex., assignor to Harrisburg, Inc., Houston, Tex.

Filed Nov. 21, 1990, Ser. No. 616,669
Int. Cl.[5] F16K *15/06*
U.S. Cl. 137—533.25 8 Claims



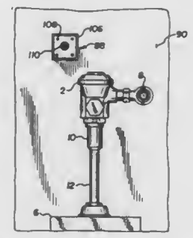
1. A valve member for a one-way check valve including an annular valve seat forming a flow passage, said seat having a central axis, said valve member being movable on said axis relative to said seat, said flow passage having a supply side and a discharge side, said valve member comprising a seal portion an a support portion, said seal portion being made of a relatively soft plastic material and said support portion being made of a relatively rigid plastic material, said soft and rigid plastic materials being compatible and merging along an interface therebetween to form an integral valve member, said seal and support portions extending across said flow passage and said seal portion forming an annular conical seal surface which is engageable with a seal surface of said valve seat, said interface extending closely adjacent said seal surface, said rigid plastic material being on said supply side and said soft plastic material being on said discharge side.

5,062,453

ON DEMAND SENSOR FLUSH VALVE

Robert E. Sandi; Allen R. Becker; Christopher J. Ball, and John Steffan, all of Erie, Pa., assignors to Zurn Industries, Inc., Erie, Pa.

Filed Mar. 6, 1991, Ser. No. 665,344
Int. Cl.[5] E03D *3/08*; F16K *31/00*
U.S. Cl. 137—624.11 20 Claims



1. An on demand, non-contact sensor controlled flush alve actuation system comprising:

a flush valve controlling the flow of water between a pressurized water supply and a plumbing fixture, said flush valve including a trip mechanism therein;

an actuator assembly positioned within said flush valve and including a movable piston which is in fluid communication with a control water inlet therethrough;

a control water conduit having one end connected to said flush valve and in constant fluid communication with the pressurized supply water;

a normally closed solenoid operated control valve having an inlet port connected to the other end of said control water conduit and having an outlet port connected to said control water inlet of said actuator assembly;

a radiation generating and sensing unit which immediately generates a first control signal in response to the return reflection of electromagnetic radiation generated therein, said sensing unit having a low sensitivity range so that only deliberate actions of a user will cause the return reflection of said electromagnetic signal; and

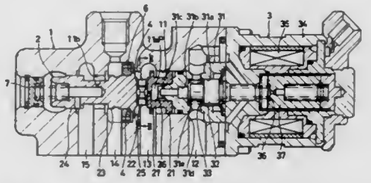
a timer which receives said first control signal and in response thereto immediately generates a second control signal of a predetermined duration, with said second control signal supplied to and activating said solenoid operated control valve, thereby opening said control valve and permitting a portion of said pressurized supply water to flow into said control water inlet and against said piston, with said piston moving from said pressurized supply water and moving said actuator assembly against the trip mechanism and opening the flush valve.

5,062,454

SPOOL CONTROL VALVE

Koji Ichihashi, and Jun-ichi Yasuma, both of Saitama, Japan, assignors to Diesel Kiki Co. L.T.D., Japan

Filed May 23, 1990, Ser. No. 528,063
Claims priority, application Japan, May 24, 1989, 1-59119[U]; Sep. 26, 1989, 1-111708[U]
Int. Cl.[5] F15B *13/043*
U.S. Cl. 137—625.61 1 Claim



1. A spool control valve comprising:

a valve housing in which are formed a spool passage and a multiplicity of hydraulic fluid ports in communication with the spool passage;

a spool slidably arranged in the spool passage in the valve housing;

drive means for driving the spool to open and close the hydraulic fluid ports;

wherein communicating passages are formed in the spool which communicate between a first location and a second location in the spool passage, the first location in the spool passage being a portion in communication with a pump port, the second location being a portion in communication with a return port;

wherein the communicating passages in the spool comprise a cross-aperture which extends from the outer peripheral surface facing the pump port in a direction of intersection with the axis of the spool, an orifice which has a smaller cross-section than that of the cross-aperture, and a pilot chamber which is connected to the cross-aperture by the orifice;

wherein a pair of filter elements is disposed in the cross-aperture with the orifice arranged therebetween, each of the

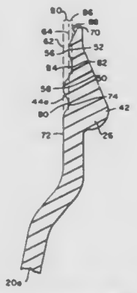
VOL 1132 ISS 1 NO 5 1991 UMI

filter elements being inserted into the cross-aperture in a direction of intersection with the axis of the spool.

5,062,455
PRESSURE VESSEL WITH DIAPHRAGM COMPRESSION SEAL

Robert M. Schurter, Elm Grove, Wis., and Robert H. Palmerton, New Dundee, Canada, assignors to A. O. Smith Corporation, Milwaukee, Wis.

Filed Aug. 25, 1989, Ser. No. 399,596
Int. Cl.[5] F16L *55/04*
U.S. Cl. 138—30 **2 Claims**

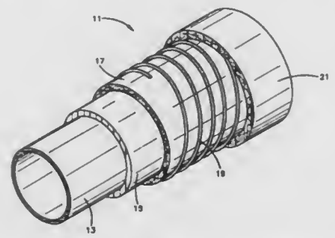


1. A pressure vessel comprising upper and lower cylindrical vessel shells having facing open mouths received one within the other in partially overlapping telescoped relation, said upper shell having a lower wall section received within and overlapping an upper wall section of said lower shell, a flexible resilient diaphragm disposed within said vessel and separating the latter into variable volume chambers, said diaphragm having a peripheral edge received between said lower wall section of said upper shell and said upper wall section of said lower shell, said upper wall section of said lower shell having a top terminal edge and a radially outwardly extending bulge therebelow, said lower wall section of said upper shell having a radial inward transition engaged by said top terminal edge of said upper wall section of said lower shell upon axial telescoped insertion of said shells during assembly, said lower wall section of said upper shell having an inner cylindrical wall portion extending downwardly from said transition and spaced radially inwardly of said bulge, said peripheral edge of said diaphragm having an outer side with a radially outwardly extending bulge received in said bulge of said upper wall section of said lower shell prior to insertion of said upper shell, said peripheral edge of said diaphragm having an inner side engaged by said inner cylindrical wall portion of said lower wall section of said upper shell to radially compress the material of said diaphragm and provide a tight fit of said bulge of said peripheral edge of said diaphragm into said bulge of said upper wall section of said lower shell in sealed relation, said inner side of said peripheral edge of said diaphragm having compression means reducing the amount of diaphragm material requiring compression and also increasing the compression of said bulge of said peripheral edge of said diaphragm in said bulge of said upper wall section of said lower shell to enhance the seal thereat, wherein said compression means comprises one or more internal ribs on said inner side of said peripheral edge of said diaphragm such that said inner cylindrical wall portion of said lower wall section of said upper shell compresses said internal ribs and subjects said bulge of said peripheral edge of said diaphragm to a direct force to provide said increased compression of said bulge of said peripheral edge of said diaphragm, and such that the radial force on said ribs from said inner cylindrical wall portion of said lower wall section of said upper shell is allowed to spread said ribs axially into less compressed areas to enable said reduction in the amount of diaphragm material requiring compression, wherien said bulge of said upper wall section of said lower shell includes a radially inwardly tapered wall portion extending upwardly, and comprising a first said rib radially opposite said tapered wall portion of said upper wall section of said lower shell, and wherein during assembly of said shells, said inner cylindrical wall portion of said lower wall section of said upper shell engages and compresses said first rib to apply a radial outward force compressing said peripheral edge of said diaphragm radially outwardly against said tapered wall portion of said upper wall section of said lower shell which also compresses said peripheral edge of said diaphragm downwardly into the widest radial area portion of said bulge of said upper wall section of said lower shell to enhance the seal thereat, all while still maintaining ease to telescoped assembly of said shells, and comprising a second said rib spaced above said first rib and having an innermost radial inward extension which does not extend as far radially inwardly as the innermost radial inward extension of said first rib, to facilitate said telescoped insertion of said shells during assembly, wherein said inner side of said peripheral edge of said diaphragm includes a lower cylindrical surface extending downwardly below said first rib and spaced therefrom by a valley, and wherein said first and second ribs and spaced by a second valley having an outermost radial outward extension which extends farther radially outwardly than the outermost radial outward extension of said first mentioned valley.

5,062,456
KINK-RESISTANT, SMALL BEND RADIUS HOSE WITH POLYFLUOROCARBON LINER

Horise M. Cooke, Weatherford, and Richard F. Deiss, Arlington, both of Tex., assignors to Parker-Hannifin Corporation, Cleveland, Ohio

Filed Mar. 2, 1990, Ser. No. 488,334
Int. Cl.[5] B67L *11/02, 11/08*
U.S. Cl. 138—125 **10 Claims**

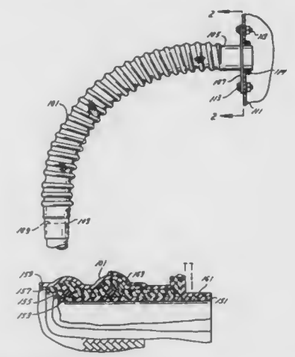


1. A kink-resistant, small bend radius hose with a polyfluorocarbon liner comprising:
said polyfluorocarbon liner being a polyfluorocarbon liner tube with a thickness of from about 0.005 inches to about 0.025 inches; said tube having an exterior which is etched to allow silicone to be bonded thereto;
a layer of silicone bonded to said etched exterior of said polyfluorocarbon tube; said layer of silicone being sufficiently thick to allow a silicone impregnated reinforcing fabric to be bonded thereto;
said layer of silicone impregnated reinforcing fabric bonded to said layer of silicone for reinforcing said polyfluorocarbon tube;
a helix strand wound helically about said layer of reinforcing fabric for protecting said hose against kinking; and
a cover layer bonded to said reinforcing fabric to contain said helix strand with respect to said reinforcing fabric, whereby the combination of said polyfluorocarbon liner tube, said layer of silicone, said reinforcing fabric, said helix strand, and said cover layer form a reinforced hose which is capable of bending to a small bend radius while resisting kinking.

5,062,457
CORRUGATED AIR HOSE ASSEMBLY

Robert W. Timmons, Cypress, Calif., assignor to McDonnell Douglas Corporation, Long Beach, Calif.

Filed May 5, 1989, Ser. No. 347,576
Int. Cl.[5] F16L *11/112*
U.S. Cl. 138—125 **3 Claims**



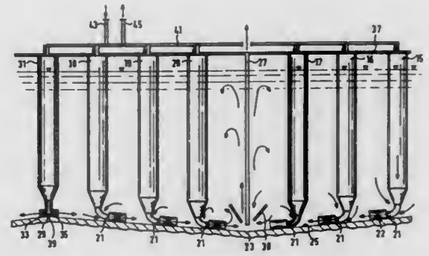
1. A duct comprising:
an inner tube having a longitudinal axis, comprising a substantially smooth inner surface, formed of one layer of silicone impregnated cloth;
a non-metallic spiral coil surrounding said inner tube, said longitudinal axis of said inner tube forming the axis about which said spiral coil extends;
an outer tube having at least two layers of silicone impregnated cloth surrounding said spiral coil;
a polyamide protective covering, located concentrically outwardly of, and extending over a substantial portion of said outer tube;
a flange, near at least one end of said duct;
a first section of silicone impregnated cloth, surrounding a portion of said polyamide protective covering and a portion of said outer tube sufficient to hold said polyamide protective coating in place at said one end of said duct having said flange; and,
a second section of silicone impregnated cloth, located between said flange and said one end of said duct, said second section of silicone impregnated cloth surrounding a portion of said outer tube, said flange being formed integral with said first selection of silicone impregnated cloth, said second section of silicone impregnated cloth, and said two layers of silicone impregnated cloth of said outer tube.

5,062,458
ANNULAR VESSEL FOR RECEIVNG RADIOACTIVE SOLUTIONS CONTAINING SOLIDS

Norbert Rohleder, Bruchsal-Obergrombach; Hubert Praxl, Waghäusel, and Dietrich Göbel-Rick, Oberramstadt, all of Fed. Rep. of Germany, assignors to Deutsche Gesellschaft für Wiederaufarbeitung von Kernbrennstoffen mbH, Hannover, Fed. Rep. of Germany

Filed Mar. 29, 1990, Ser. No. 501,156
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1989, 3910262
Int. Cl.[5] B65B *3/10*
U.S. Cl. 141—80 **9 Claims**

1. An annular vessel arrangement for receiving a radioactive solution containing solids, the annular vessel arrangement comprising:
an annular vessel including a base wall inclined downwardly to a bottom location and mutually adjacent inner and outer side walls extending upwardly from said base wall to define an annular space therebetween for receiving the radioactive solution therein;
discharge means disposed at said bottom location for discharging the solution from said vessel;
a plurality of pulsators arranged in said annular space one next to the other for receiving respective portions of the radioactive solution therein;
air supply means for supplying air under pressure to said pulsators for acting on said portions of radioactive solution;

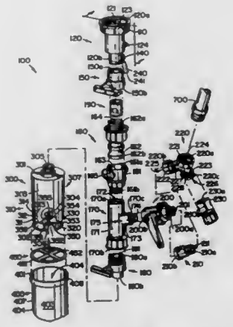


each of said pulsators extending downwardly into the solution and having a lower end; and,
a plurality of outlet nozzles mounted on corresponding ones of the lower ends of said pulsators so as to be substantially parallel to said base wall and positioned so as to direct respective flows of the solution along said base wall toward said bottom location thereby preventing the solids from accumulating on said base wall.

5,062,459
SYSTEM FOR HERMETICALLY DISPENSING AND DILUTING A CONCENTRATED CHEMICAL

Earl H. Schrupp, 7611 36th Ave. N., New Hope, Minn. 55428

Filed May 29, 1990, Ser. No. 529,921
Int. Cl.[5] B67C *9/00*
U.S. Cl. 141—91 **16 Claims**



1. An assembly for hermetically dispensing a concentrated chemical from a container to a dilution tank, comprising:
a means for hermetically coupling a sealed opening in a container to an opening into a dilution tank,
a means for unsealing the sealed opening in the container after the container has been hermetically coupled to the dilution tank,
an extensible nozzle connected to the coupling means and having a spray head wherein the nozzle is operable for extending the spray head when pressurized fluid is sup-

VOL 1132 ISS 1 NO 5 1991 UMI

plied to the spray head into the container through said unsealed opening,

a means for hermetically providing fluid flow from a source of a liquid solvent into the dilution tank, and

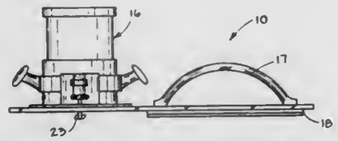
a means for hermetically directing fluid flow from the solvent source into the container through the extensible nozzle for rinsing residual chemical from the container which is then directed into the dilution tank through the unsealed opening in the container.

5,062,460

ROUTER AND GUIDE APPARATUS

Steven K. DeLine, 626 W. Catawba Ave., Mt. Holly, N.C. 28120

Filed Mar. 4, 1991, Ser. No. 663,681
Int. Cl.[5] B27C *5/00*
U.S. Cl. 144—136 C 4 Claims



1. A router and guide apparatus comprising, in combination,

a transparent base plate, the transparent base plate formed of a rectangular configuration including a rear edge, a forward edge, and spaced parallel side edges, and

a "V" notch guide positioned medially of the forward edge, and

a router bit bore defined by a predetermined diameter directed through the transparent base plate adjacent the forward edge, with the "V" notch guide radially aligned with the router bit bore, and

a router assembly orthogonally mounted to a top surface of the transparent base plate, wherein the router assembly includes a router bit coaxially directed through the router bit bore projecting underlying a bottom surface of the transparent base plate, and

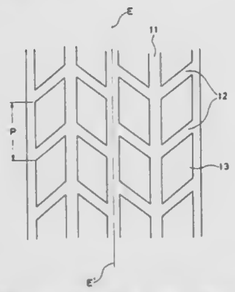
a handle positioned medially of and longitudinally aligned relative to the transparent base plate and radially aligned with the router bit bore and the "V" notch guide.

5,062,461

PNEUMATIC TIRE HAVING A TREAD PATTERN FOR REDUCING NOISE

Makoto Noguchi, Hiratsuka, Japan, assignor to The Yokohama Rubber Co., Ltd., Tokyo, Japan

Filed Jun. 25, 1990, Ser. No. 543,014
Claims priority, application Japan, Jun. 30, 1989, 1-166738
Int. Cl.[5] B60C *11/03*
U.S. Cl. 152—209 R 2 Claims



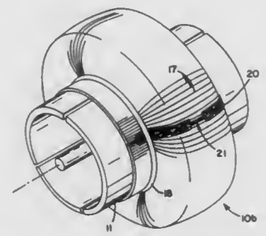
1. A pneumatic tire having a trend pattern on a thread thereof consisting of a plurality of kinds of pitches having different pitch lengths and arranged repeatedly characterized in that said pitches having different pitch lengths, which are to be disposed inside the length of one circumference of said tread, are at least four kinds, the number of pitches having the smallest pitch length in said one circumference is one or two, and the pitch ratio α of the greatest pitch length Pmax to the smallest pitch length Pmin (Pmax/Pmin) is from 1.40 to 1.55; and that the total number of the fundamental periods, each of which is defined as a period from the pitch having the greatest pitch length to a pitch immediately before the next pitch having the greatest pitch length and which is to be disposed inside one circumference of said tread, is at least 6, and the period length ratio β (Tmax/Tmin) of the greatest period length Tmax to the smallest period length Tmin is from 1.20 to 1.80.

5,062,462

PNEUMATIC TIRE MADE BY BUTT-SPLICING STRUCTURAL MEMBERS AND A METHOD THEREFOR

Grover W. Rye, Cuyahoga Falls; David A. Kindry, Clinton, and Carolyn T. Weber, Mogadore, all of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Jan. 19, 1990, Ser. No. 467,715
Int. Cl.[5] B60C *9/02;* B29D *30/06*
U.S. Cl. 152—548 14 Claims



1. In a pneumatic tire comprising at least one carcass ply having longitudinal reinforcing members therein disposed over an inner liner, said carcass ply being wrapped around tire beads and having two free ends, wherein

(a) the free ends of said carcass plies abut one another such that side by side longitudinal reinforcing members embedded therein are substantially parallel to said free ends, and a longitudinal reinforcing member next to a free end is next to a longitudinal reinforcing member in an abutting free end, and a splicing strip comprising spun-bonded filaments of synthetic material bridges said free ends of said carcass plies, and

(b) wherein said spun-bonded synthetic material has a density of between about 2.0 oz and 0.6 ox/sq yd and wherein said spun-bonded synthetic material has expansion properties similar to the expansion properties of the carcass plies during the building of the tire.

10. A method of manufacturing a tire comprising the steps of:

(a) disposing a carcass ply on a tire building drum and butt splicing free ends of said carcass play with a splicing strip comprising spun bonded synthetic material bridging the free ends of said carcass ply, said spun bonded synthetic material having expansion properties similar to the expansion properties of the carcass ply during the building of the tire;

(b) applying tread and sidewall rubber; and

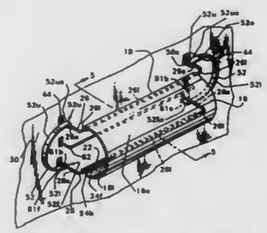
(c) vulcanizing the completed structure.

5,062,463

WINDOW CORNICE AND METHOD FOR HANGING CURTAINS

Margaret A. Peters, 1139 Summit Lawn, Wichita, Kans. 67212

Continuation of Ser. No. 426,640, Oct. 30, 1989, Pat. No. 4,966,218, which is a continuation of Ser. No. 173,056, Mar. 25, 1988, Pat. No. 4,922,600. This application Aug. 6, 1990, Ser. No. 563,485
The portion of the term of this patent subsequent to Sep. 12, 2006, has been disclaimed.
Int. Cl.[5] E04F *10/00*
U.S. Cl. 160—38 99 Claims



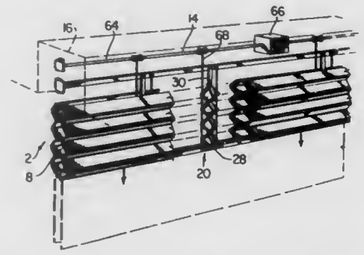
11. A window cornice assembly comprising a front plate member generally semi-circular in vertical cross section and having an upper edge and a lower edge; a curtain rod means for supporting at least one generally semi-circular side plate member adaptable to be covered with a fabric, said curtain rod means having an intermediate rod section that is distinct from and secured to said front plate member such that the intermediate rod section extends longitudinally along the front plate member and comprising a first off-set side and a second off-set side both bound to said intermediate rod section with said first off-set side and said second off-set side including ends being adaptable to mount to a wall member; a first generally semi-circular side plate member adaptable to be covered with a fabric, said first generally semi-circular side plate member being secured against said first off-set side; and a second generally semi-circular side plate member adaptable to be covered with a fabric, said second generally semi-circular side plate member being secured against said second off-set side.

5,062,464

VERTICALLY COLLAPSIBLE WALL PARTITIONS

Miles Peterson, Baie D'Urfe, Canada, assignor to Diesel Kiki Co. Ltd., Baie d'Urfe, Canada

Filed Mar. 25, 1991, Ser. No. 675,549
Int. Cl.[5] E05F *15/00*
U.S. Cl. 160—193 8 Claims



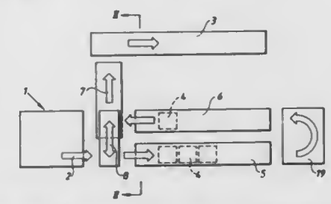
1. A rigid wall partition vertically upwardly movable into storage position and vertically downwardly movable to form a wall comprising a support frame of similarly constructed, vertically aligned trains of elongated members, the trains spaced horizontally over a predetermined distance, the members of each train arranged in a single pantograph construction to form a single row of similar-sized vertically stacked diamonds aligned parallel to a desired wall line of the wall, the trains being expandable to a lower, wall-forming position and upwardly liftable to an upper, raised storage position, the diamonds of the trains forming from one train to the next horizontal rows of diamonds, the diamonds in each horizontal row being of similar size and shape, in each train similar pairs of elongated members intersecting and secured pivotally together centrally between their ends to form adjoining vertically disposed apexes of adjacent diamonds and corresponding ends of these pairs of intersecting members pivotally connected to the ends of other pairs of intersecting members to form at those ends laterally disposed apexes of the diamonds so that when the rows are all contracted and the vertical apexes of the diamonds are drawn together, the diamonds are collapsed about their lateral apexes; a pair of similar-sized elongated panel supporting members associated with each of the diamonds, the panel supporting members pivotally secured at one end of each to each other and at their other end to on side of the pantograph opposite respective vertically disposed apexes of that diamond, the panel supporting members being of a length such that they are vertically oriented when the trains are expanded to a predetermined limit; similar, rigid panels being secured to a panel support member of each train at the corresponding height in a horizontal row with different panels secured at different heights so that the panels extend laterally horizontally over said predetermined distance, and provide a continuous wall surface when the panel support members are in vertical orientation; a first horizontally oriented beam member joining the trains at their bottom and a second horizontally oriented beam member joining the trains at their top; mechanical means associated with the first horizontally oriented beam member and actuable to cause the first beam member to lift while maintaining its horizontal orientation, the diamonds to collapse at the same rate as the first beam is lifted to upper, storage position.

5,062,465

PROCEDURE FOR CONVEYING MOLDS, AND A PLANT FOR THAT PURPOSE

Anders Mortensen, Brønshøj, Denmark, assignor to Dansk Industri Syndikat A/S, Herlev, Denmark

Filed Oct. 9, 1990, Ser. No. 596,715
Claims priority, application Denmark, Oct. 16, 1989, 5132/89
Int. Cl.[5] B22C *11/08;* B22D *47/02*
U.S. Cl. 164—4.1 5 Claims



1. In a method for conveying molds from the delivery end of a molding machine to a cooling conveyor or an extractor station, wherein the molds are conveyed in a direction away from the molding machine in close mutual contact with each other on a first conveyor at which pouring takes place, and are then conveyed back in the direction of the molding machine on a second conveyor which extends parallel to said first conveyor and on which initial cooling and solidification take place, whereupon the molds with partially cooled castings formed therein are ejected onto the cooling conveyor or to the extractor station by the action of a reciprocating ejector element which is adapted to move the molds transversely away from the second conveyor, the improvement comprising controlling the molds delivered by the molding machine by ejecting defective molds having irregularities or flaws therein trans-

VOL 1132 ISS 1 NO 5 1991 UMI

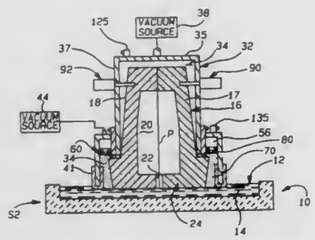
versely from the first conveyor in the direction of the second conveyor immediately upon leaving the molding machine and thereafter conveying the defective molds to the cooling conveyor or the extractor station by the action of the ejector element.

3. In a molding plant comprising a molding machine having a delivery end, a first conveyor, having an entry end to receive molds delivered from the delivery end of the molding machine, for conveying the molds in closely held together end-to-end relation, and along which conveyor pouring is carried out to produce poured castings, a turning station on which the molds are turned individually through 180°, and a second conveyor having an exit end on which the molds and poured castings are cooled while the closely held together molds are conveyed back towards the molding machine, a mold ejector means at the exit end of the second conveyor for moving the molds to a cooling conveyor or an extractor station, the improvement comprising a cross-conveyor means, located at the delivery end of the molding machine, for, together with the ejector means, moving defective molds directly from the entry end of the first conveyor to the cooling conveyor or the extractor station.

5,062,466
COUNTERGRAVITY CASTING APPARATUS AND METHOD

John G. Kubisch, Midland; James B. Mercer, Saginaw; Wilmer G. Schaeff, Saginaw, and Thomas E. Wenzel, Saginaw, all of Mich., assignors to General Motors Corporation Detroit, Mich.

Filed May 10, 1991, Ser. No. 698,560
Int. Cl.[5] B22D *18/06*
U.S. Cl. 164—7.1 **23 Claims**



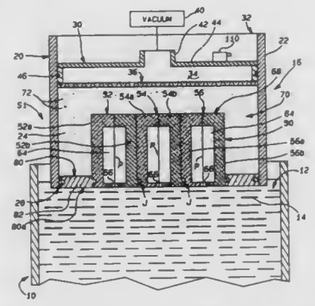
1. Countergravity casting apparatus, comprising:
a) a casting mold having a mold cavity for receiving melt and a melt inlet communicating said mold cavity with a lower mold portion adapted to engage an underlying source of said melt,
b) a container having a depending skirt and defining a chamber with an open bottom end, said container engaging said mold such that said chamber confronts the mold so as to form an open bottom peripheral space defined by said skirt and said lower mold portion,
c) a sealing gasket disposed between the mold and the container above said lower mold portion,
d) particulates disposed in said peripheral space between said sealing gasket and said lower mold portion, and
e) means for establishing a negative differential pressure between the inside and the outside of said peripheral space sufficient to hold the particulates therein such that the particulates thermally isolate said sealing gasket from heat from and contact with said source.

13. In a method of countergravity casting a melt, the steps of:
a) positioning a mold having a mold cavity communicated to a lower mold portion by a melt inlet in a container having a chamber with an open bottom end such that said chamber confronts said lower mold portion as to form an open bottom peripheral space about said lower mold portion,
b) positioning a sealing gasket between the mold and the container above said lower mold portion,
c) disposing particulates in the peripheral space between said sealing gasket and said lower mold portion, and
d) establishing a sufficient negative pressure between the inside and the outside of said peripheral space to hold the particulates therein such that said particulates thermally isolate said sealing gasket from heat from and contact with an underlying source of the melt when said lower mold portion is engaged to said source for casting.

5,062,467
VACUUM COUNTERGRAVITY CASTING APPARATUS AND METHOD

John G. Kubisch, Midland, and Paul D. Wilczynski, Bay City, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed May 10, 1991, Ser. No. 698,140
Int. Cl.[5] B22C *9/02, 9/04;* B22D *18/06*
U.S. Cl. 164—7.1 **35 Claims**



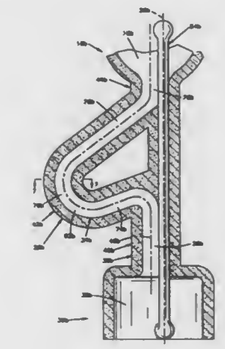
1. Apparatus for countergravity casting of a melt, comprising:
a) a container having a peripheral wall defining a chamber having an open bottom end,
b) means disposed in the chamber for forming a mold cavity and melt inlet for communicating the mold cavity with an underlying source of the melt,
c) a first inherently unstable mass of particulates disposed in the chamber about the mold cavity and inlet-forming means, and
d) a second supportive mass of bonded particulates disposed in the container about the mold cavity and inlet-forming means beneath said first mass for supporting said first mass in the chamber as the container and source are relatively moved toward/away from one another for communicating/discommunicating said mold cavity and said source, as appropriate, for casting.

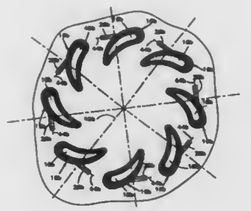
24. A method of countergravity casting a melt, comprising the steps of:
a) disposing a container about means for forming a mold cavity and a melt inlet beneath said mold cavity such that an open bottom end of the container is disposed proximate the melt inlet,
b) providing a first inherently unstable mass of particulates about the mold cavity and inlet-forming means in the container,
c) providing a second mass of bonded particulates about the mold cavity and inlet-forming means in the container such that, when the container is oriented to position said melt inlet facing the underlying source of the melt, said first mass is disposed atop said second mass and is supported in the container by said second mass,
d) relatively moving the container and the source to engage said melt inlet and said source, and
e) drawing the melt upwardly toward the melt inlet into the mold cavity when said melt inlet and said source are engaged.

5,062,468
MOLD AND METHOD FOR CASTING A SINGLE CRYSTAL METAL ARTICLE

Louis H. Monte, Minerva; Arunachalam Jeyarajan, Euclid, and Lawrence D. Graham, Chagrin Falls, all of Ohio, assignors to PCC Airfoils, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 382,729, Jul. 19, 1989, Pat. No. 4,940,073, and a continuation-in-part of Ser. No. 542,436, Jun. 22, 1990. This application Jul. 3, 1990, Ser. No. 547,287
The portion of the term of this patent subsequent to Jul. 10, 2007, has been disclaimed.
Int. Cl.[5] B22C *9/04*
U.S. Cl. 164—122.2 **48 Claims**





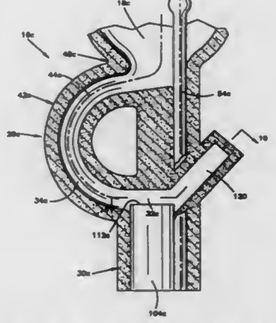
1. A mold for use in casting a single crystal metal article, said mold comprising article mold means for defining an article mold cavity having a configuration corresponding to the configuration of the article to be cast, starter means for defining a starter cavity in which molten metal solidifies, and selector means extending between an upper end portion of said starter means and a lower end portion of said article mold means for at least partially defining a crystal selector passage which extends between said starter cavity and said article mold cavity and from which a single crystal of metal solidifies upwardly into said article mold cavity, said selector means including a lower section connected with said starter means and in which a lower portion of said selector passage extends away from said starter cavity, an upper section connected with said article mold means and in which an upper portion of said selector passage extends downwardly away from said article mold cavity and a connector section connected with said upper and lower sections of said selector means, said connector section of said selector means including an entry section in which a first portion of said selector passage slopes downwardly away from an upper end of said lower portion of said selector passage, a single bend section in which a single bend portion of said selector passage extends upwardly away from a lower end of said first portion of said selector passage, and an exit section in which a second portion of said selector passage slopes upwardly from an upper end of said single bend portion of said selector passage to a lower end of the upper portion of said selector passage.

31. A method of casting a single crystal article, said method comprising the steps of initiating solidification of a plurality of crystals of metal in a starter cavity, growing crystals of metal from the starter cavity along a selector passage, said step of growing crystals of metal along a selector passage including growing one or more crystals of metal along a downwardly sloping portion of the selector passage and, thereafter, growing one or more crystals of metal along an upwardly extending portion of the selector passage, and growing only one crystal of metal from the selector passage into an article mold cavity.

5,062,469
MOLD AND METHOD FOR CASTING A SINGLE CRYSTAL METAL ARTICLE

Louis H. Monte, Minerva; Arunachalam Jeyarajan, Euclid, and Lawrence D. Graham, Chagrin Falls, all of Ohio, assignors to PCC Airfoils, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 382,729, Jul. 19, 1989, Pat. No. 4,940,073. This application Jun. 22, 1990, Ser. No. 542,436
The portion of the term of this patent subsequent to Jul. 10, 2007, has been disclaimed.
Int. Cl.[5] B22D *9/04*
U.S. Cl. 164—122.2 **24 Claims**



1. A mold for use in casting an article as a single crystal having selected primary and secondary orientations, said mold comprising article mold means for defining an article mold cavity having a configuration corresponding to the configurstion of the article to be cast, starter means for defining a starter cavity in which molten metal solidifies as one or more crystals, said starter means including means for holding a single crystal seed with a primary orientation axis parallel to the selected primary orientation axis of the single crystal article and a secondary orientation axis parallel to the selected secondary orientation axis of the single crystal article when the single crystal article is cast in the mold cavity, and selector means extending between an upper portion of said starter means and a lower portion of said article mold means for at least partially defining a crystal selector passage which extends between said starter cavity and said article mold cavity and from which a single crystal of metal having a primary orientation and a secondary orientation which correspond to the selected primary and secondary orientations of the single crystal article solidifies upwardly into said article mold cavity, said selector means includes a lower section connected with said starter

VOL 1132 ISS 1 NO 5 1991 UMI

means and in which a lower portion of said selector passage extends upwardly away from an upper end portion of said starter cavity, an upper section connected with said article mold means and in which an upper portion of said selector passage extends downwardly away from a lower end portion of said article mold cavity, a single arcuate bend section connected with said upper and lower sections and in which a single arcuate bend portion of said selector passage extends between an upper end of the lower portion of said selector passage and a lower end of the upper portion of said selector passage, said upper and lower portions and said single arcuate bend portion of said crystal selector passage having a longitudinal central axis at least a portion of which extends transversely to a vertical central axis of the starter cavity, said longitudinal central axis of said upper and lower portions and said single arcuate bend portion of said selector passage being disposed in a single vertical plane which is parallel to a plane containing the selected primary orientation axis of the single crystal article and the selected secondary orientation axis of the single crystal article when the single crystal article is cast in said article mold cavity.

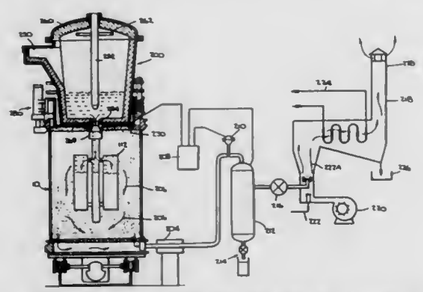
21. A method of casting an article as a single crystal, said method comprising the steps of conducting a flow of molten metal through an article mold cavity to a starter cavity containing a single crystal seed, thereafter, removing contaminants from the upper side surface of the single crystal seed by conducting an initial portion of the flow of molten metal from the article mold cavity across an upper side surface of the single crystal seed, said step of conducting an initial portion of the flow of molten metal from the article mold cavity across the upper side surface of the single crystal seed including conducting the flow of molten metal across the upper side surface of the single crystal seed from one edge portion of the seed to the opposite edge portion of the seed in a stream having a direction of flow which is generally parallel to the upper side surface of the single crystal seed throughout the extent of the upper side surface of the single crystal seed, and removing the contaminants from the starter cavity by conducting the initial portion of the flow of molten metal to a contaminant receiving chamber which is spaced from the mold cavity.

5,062,470

METHOD AND APPARATUS FOR TREATING GASEOUS MATERIAL FROM EVAPORATIVE PATTERN CASTING

Leslie D. Rikker, 15441 Betty Ann La., Oak Forest, Ill. 60452

Division of Ser. No. 181,443, Apr. 14, 1988, Pat. No. 4,947,923.
This application Mar. 28, 1990, Ser. No. 501,528
Int. Cl.[5] B22D *27/15, 46/00*
U.S. Cl. 164—457 10 Claims



1. A method for processing gaseous material resulting from the evaporation of a pattern by the heat energy molten metal as the molten metal displaces the pattern, said pattern being surrounded by packed unbound molding medium within a container, said method comprising the steps of:

removing the resulting gaseous material from within said container as said gaseous material permeates through the packed unbound molding medium;

said step of removing comprising controlling the outflow of said gaseous material to control the rate of displacement of the pattern by the molten metal;

cleaning and cooling the removed gaseous material thereby forming condensate and detoxified gas;

discharging said condensate; and

discharging said detoxified gas.

6. Apparatus for processing gaseous material resulting from the evaporation of a pattern by the heat energy of molten metal as the molten metal displaces the pattern surrounded by packed unbound molding medium within a container, said apparatus comprising:

means for removing the resulting gaseous material from within said container as said gaseous material permeates through the packed unbound molding medium, said means for removing comprising means for controlling the outflow of said gaseous material to control the rate of displacement of the pattern by the molten metal;

means for cleaning and cooling the removed gaseous material thereby forming condensate and detoxified gas;

means for discharging said condensate; and

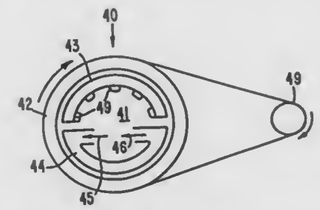
means for discharging said detoxified gas.

5,062,471

HEAT TRANSFER SYSTEM WITHOUT MASS TRANSFER

Marc J. Jaeger, Gainesville, Fla., assignor to University of Florida, Gainesville, Fla.

Division of Ser. No. 397,407, Aug. 23, 1989, Pat. No. 5,004,041, which is a division of Ser. No. 199,355, May 26, 1988, Pat. No. 4,880,049. This application Dec. 19, 1990, Ser. No. 630,201
Int. Cl.[5] F32D *19/04*
U.S. Cl. 165—8 1 Claim



1. A heat-transfer system comprising:

at least a pair of zones constructed of heat-conductive material, each of said zones having a first solid surface adapted for positioning at respective locations of differing temperatures between which it is desired to transfer heat and each having a second solid, continuous surface adapted to slidably engage the interior solid surface of a cylindrical element rotating about its longitudinal axis;

a cylindrically hollow element having at least the interior solid cylindrical surface thereof constructed of a heat-conductive material and being positioned such that the said interior solid cylindrical surface thereof slidably engages said second solid, continuous surfaces of said zones when rotated about the longitudinal axis of said cylinder; and

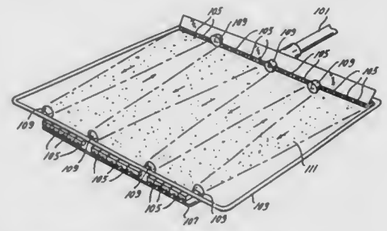
means for establishing rotation of said element about the longitudinal axis of said cylinder.

5,062,472

TURBULENT DROPLET GENERATOR WITH BOOM MOUNTED PITOT PUMP COLLECTOR

James B. Blackmon, Irvine, and Robert E. Drubka, Huntington Beach, both of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed May 23, 1989, Ser. No. 356,055
Int. Cl.[5] F28D *15/00;* B64G *1/50*
U.S. Cl. 165—41 15 Claims



1. A heat rejection system comprising:

a cooling fluid ejection apparatus including:

housing means for accepting the flow of a heated coolant fluid, said housing means having a generally rounded orifice;

flow distribution means, fittable within said orifice of said housing means, for facilitating wide distribution of said heated coolant fluid flowing through the cross section of said orifice between said flow distribution means and said housing means, said flow distribution means positionally adjustable within said housing means to thereby control the flow rate of said fluid even to the extent of total shut-off; and,

turbulence generating means, integral with the outer surface of said flow distribution means, for facilitating the dispersion of fluid ejected from said fluid ejection means;

fluid collection means for capturing the flow of coolant fluid;

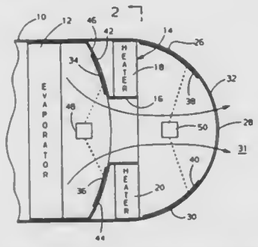
fluid collection support means, connected to said fluid collection means and said fluid ejection means, for facilitating operation of said fluid collection means, and providing a return path for said cooling fluid.

5,062,473

MOTOR VEHICLE PASSENGER COMPARTMENT HEATING, VENTILATING AND AIR CONDITIONING SYSTEM

James C. Ostrand, Armada, and William L. Drayer, Romeo, both of Mich., assignors to General Motors Corporadon, Detroit, Mich.

Filed Jun. 18, 1990, Ser. No. 539,398
Int. Cl.[5] F24F *11/02, 13/08;* B60H *3/00*
U.S. Cl. 165—42 3 Claims



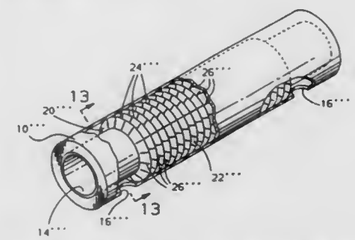
1. A motor vehicle passenger compartment heating, ventilating and air conditioning system comprising an air duct having an inlet and at least three outlets, an evaporator mounted in said duct, a split heater continuously receiving engine coolant mounted in said duct in a singular duct portion between said evaporator and said outlets, said heater having an opening therethrough aligned with one of said outlets, said heater having heat transfer zones located on opposite sides of said opening, said heater opening and heat transfer zones together composing the entire cross-sectional flow area of said singular duct portion, the others of said outlets located in a path downstream of the respective heat transfer zones, mode door means for opening said one outlet while closing said other outlets and vice versa, and air temperature door means for opening said heater opening while closing said heat transfer zones and vice versa.

5,062,474

OIL COOLER

Shrikant M. Joshi, Getzville, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 527,459, May 23, 1990, abandoned, which is a continuation-in-part of Ser. No. 470,504, Jan. 26, 1990, Pat. No. 4,945,981. This application Jan. 8, 1991, Ser. No. 638,972
The portion of the term of this patent subsequent to Aug. 7, 2007, has been disclaimed.
Int. Cl.[5] F28F *13/12*
U.S. Cl. 165—109.1 2 Claims



1. An oil cooler for transferring heat from oil within the cooler to fluid without the cooler, comprising:

a pair of tubular members secured together at their ends and concentrically arranged to form an oil flow path therebetween, inlet and outlet ports in one of said members to define the general direction of oil flow,

an oil center between the tubular members in thermal contact with the tubular members and in the oil flow path for transferring heat from the oil to the tubular members,

the oil center comprising a corrugated metal sheet having a plurality of substantially plane fins in side-by-side relationship and joined at bends wherein the bends make the thermal contact with the tubular members,

a plurality of louvers in each fin for creating turbulence in the oil flow and defining openings in the fins, and

the oil center being disposed with the direction of the fin planes transverse to the general direction of flow so that the oil passes through the openings in the fins in passing from the inlet port to the outlet port.

5,062,475

CHEVRON LANCED FIN DESIGN WITH UNEQUAL LEG LENGTHS FOR A HEAT EXCHANGER

Charles H. Bemisderfer, Granger, Ind., and James A. Wanner, Rockford, Ill., assignors to Sundstrand Heat Transfer, Inc., Dowagiac, Mich.

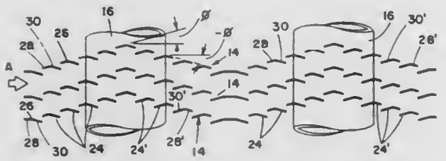
Filed Oct. 2, 1989, Ser. No. 415,950
Int. Cl.[5] F28D *1/04*
U.S. Cl. 165—151 13 Claims

6. A heat exchanger fin adapted for use in a fin and tube type heat exchanger comprising tubes conveying a first heat ex-

VOL 1132 ISS 1 NO 5 1991 UMI

change fluid and wherein said tubes pass through a plurality of fin plates with air flow passing over the fin plates being along an air flow axis substantially parallel to the major plane of the fin plates, said fin comprising:

a thin plate of thermally conductive material having angled louvers formed from said fin plate with the length of said louvers lying substantially perpendicular to said air flow axis and the width of said louvers being along said air flow axis, wherein said louver width consists of a short leg and a longer leg;



said fin plate having first areas upstream in the direction of air flow relative to a first row of said tubes and second areas downstream relative to said first row of said tubes; and

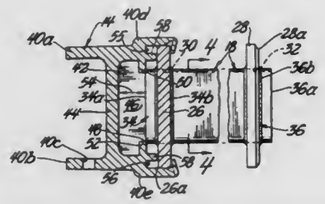
said fin plane being corrugated with convolutions of said plate in said first area being bent from the air flow axis a first direction and convolutions of said plate in said second areas being bent from the air flow axis in the opposite direction, said longer leg being bent in an acute angle from the plane of said convolutions and said short leg being in said plane of said convolutions of said fin plate.

5,062,476

HEAT EXCHANGER WITH AN EXTRUDED TANK

Richard P. Ryan, East Amherst; Glenn W. Shaffer, Middleport; Gary A. Halstead, Lockport; David M. Smith, Amherst, and Shrikant M. Joshi, Getzville, all of N.Y., assignors to General Motors Corporation, Detroit, Mich.

Filed Feb. 28, 1991, Ser. No. 661,963
Int. Cl.[5] F28F *9/02*
U.S. Cl. 165—173 **6 Claims**



1. A heat exchanger assembly having a pair of spaced unitary members;

each of said unitary members having tank means;

a plurality of tube members extending between said unitary members for communicating each of said tank means in fluid flow relationship;

each of said tube members having opposite end surfaces thereon;

header means engaged to said tube members for sealing against fluid leakage along said opposite end surfaces and for locating said tube members in spaced relationship to one another lengthwise of said unitary members; said header means having an inboard surface and an outboard surface;

said unitary members each having a pair of seal ribs thereon engaged with said inboard surface for sealing against fluid leakage from said tank means;

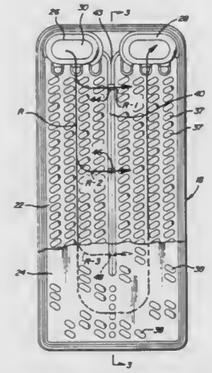
and integral tab means on said unitary members bent against said outboard surface to join said header means to said unitary members.

5,062,477

HIGH EFFICIENCY HEAT EXCHANGER WITH DIVIDER RIB LEAK PATHS

Prasad S. Kadle, Getzville, N.Y., assignor to General Motors Corporation, Detroit, Mich.

Filed Mar. 29, 1991, Ser. No. 677,193
Int. Cl.[5] F28D *1/03*
U.S. Cl. 165—174 **4 Claims**



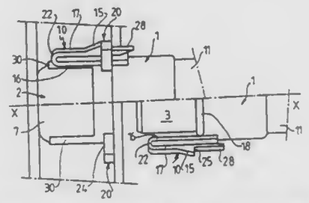
3. A heat exchanger having a plurality of flattened tubes operatively interconnected together to provide passage for conducting a volatile heat exchanger fluid therethrough, connector means for interconnecting said tubes so that air can flow between tubes which are adjacent to one another, said tubes having a leading edge and a trailing edge and flattened side portions that are laterally spaced from one another, a rib in each of said tubes for separating said tubes into an intake side and an outlet side for said heat exchanging fluid, said intake side of said tubes providing a leading edge of a core so to receive air therebetween, said outlet side of said core providing a trailing side of said core for discharging air therefrom, and bypass means in each said core rib for transmitting a portion of said volatile heat exchanger fluid from said intake side to said outlet side so that said heat exchanger fluid will have volatile fluid in each said tube downstream of said intake side to increase the potential for heat transfer because of the latent heat of vaporization.

5,062,478

SNAP-FASTENING ASSEMBLY DEVICE FOR MOTOR VEHICLE HEAT EXCHANGERS

Michel Potier, Rambouillet, and Gilles Briet, Gueugnon, both of France, assignors to Hutchinson, S.A., Paris and Valeo Thermique Moteur, S.A., Le Mesnil-Saint-Denis, both of, France

Filed Apr. 30, 1990, Ser. No. 516,331
Claims priority, application France, May 5, 1989, 89 05976
Int. Cl.[5] F28F *9/00*; F16L *37/133*
U.S. Cl. 165—178 **5 Claims**



1. An assembly device for a heat exchanger and tubular

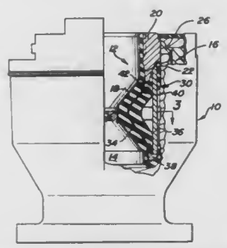
connector assembly, in which the tubular connector opens out into an opening in a tank of the heat exchanger and is fixed firstly to a flexible hose by a permanent connection and secondly to the tank via an easily disassembled resilient connection, with sealing between the tubular connector and the tank being provided by an elastomer ring which is radially compressed therebetween, the tubular connector and the tank being in alignment along an assembly axis and constituting two parts to be assembled by snap fastening at least one axially-directed tab carried on one of the two parts, said tab being radially resilient and provided with a snap-fastening catch, said catch engaging axial abutment means carried by the other one of the two parts, said radially resilient tab thus serving as an expansion spring whose resilient reaction acts in a radial direction tending to maintain the tab pressed against the abutment means when the said two parts are in the assembled position, wherein said tab is in the form of a leaf spring comprising a first branch and a second branch which are substantially parallel to each other and to the assembly axis, with the first branch projecting from one of the two parts in the assembly direction while the second branch projects from the axially inner end of the first branch in opposite direction to the assembly direction, such that the tab is generally U-shaped, with the catch projecting radially outwards from the second branch of the tab.

5,062,479

STRIPPER RUBBERS FOR DRILLING HEADS

Thomas F. Bailey, and Larry F. Moeller, both of Houston, Tex., assignors to MASX Energy Services Group, Inc., Houston, Tex.

Filed Jul. 31, 1990, Ser. No. 560,526
Int. Cl.[5] E21B *33/03, 33/08*
U.S. Cl. 166—84 **22 Claims**



1. A stripper rubber for use in a well drilling head having a drill string selectively extending therethrough, said stripper rubber comprising:

a stripper body having an axial passageway, said stripper body selectively sealingly engaging the drill string extending through said axial passageway and the drilling head; and

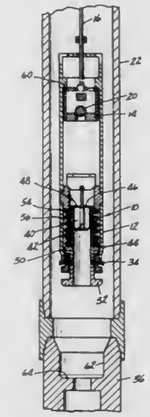
means for restraining said stripper body against deformation within the drilling head, said means including an integral drive bushing incorporated into an upper end of said stripper body and at least one longitudinal support member extending between said drive bushing at said upper end of said stripper body and a lower end of said stripper body to restrain said lower end of said stripper body against deformation into said axial passageway.

5,062,480

SELF ACTUATED INTAKE VALVE ASSEMBLY FOR INSERT SUBSURFACE RECIPROCATING PUMPS

Jesus E. Chacin U., Caracas, and Amnon M. Vadasz F., Urb. Club de Campo, both of Venezuela, assignors to Intevep, S.A., Caracas, Venezuela

Filed Oct. 11, 1990, Ser. No. 597,203
Int. Cl.[5] E21B *43/16*; F04B *21/06*
U.S. Cl. 166—108 **9 Claims**



1. In a deep well having a production tube and a sucker rod operated reciprocating subsurface pump which is selectively positioned between a first position wherein said pump is anchored in said production tube for pumping fluid from the well and a second position wherein said pump is unanchored in said production tube for non-pumping operations wherein said pump comprises a pump barrel having first valve seat defining an inlet port and a second valve seat defining an outlet port, an inlet valve for selectively sealing said inlet port and an outlet valve for selectively sealing said outlet port and a plunger reciprocally mounted within said pump barrel for pumping fluid from said inlet port to said outlet port, the improvement which comprises said inlet valve includes means for locking said inlet valve against said inlet port for sealing same against pressure downhole in the well when said pump is in said second position so as to prohibit passage of fluid into said pump barrel and unlocking said inlet valve so as to allow for selective sealing and unsealing of the inlet port when said pump is in said first position for pumping fluid from said well.

5,062,481

CONTROL OF 'U' TUBING IN THE FLOW OF CEMENT IN OIL WELL CASINGS

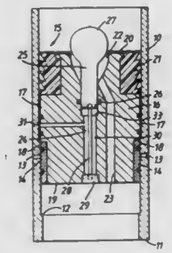
Paul D. M. Gullett, Grantham, United Kingdom, assignor to Sterling Design International, Newark, United Kingdom

Filed Oct. 3, 1990, Ser. No. 592,450
Claims priority, application United Kingdom, Oct. 3, 1989, 8922302
Int. Cl.[5] E21B *17/14, 33/16*
U.S. Cl. 166—153 **20 Claims**

1. A device for preventing 'U' tubing in the flow of fluid in oil well casings comprising a body for sealing engagement with an interior of a casing string towards an end thereof and having opposed end walls, a passage extending between said end walls for passing fluid under pressure from a supply thereof to the end of the casing, a member being arranged in said passage to move from a first position in which fluid flow through said passage is permitted and a second position in which said flow

VOL 1132 ISS 1 NO 5 1991 UMI

is reduced when the pressure in the flow of the fluid exceeds a predetermined value likely to cause the commencement of 'U'



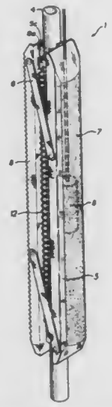
tubing, said member returning to said first position when said pressure reduces below the said predetermined value.

5,062,482

PIEZOMETER ACTUATOR DEVICE AND METHOD FOR ITS INSTALLATION IN A BOREHOLE

John P. Graham, Edmonton, Canada, assignor to Alberta Oil Sands Technology and Research Authority, Edmonton, Canada

Filed Aug. 7, 1989, Ser. No. 390,011
Int. Cl.[5] E21B *47/00*
U.S. Cl. 166—250 **2 Claims**



1. A device for installing a piezometer at a predetermined elevation within a borehole, said device being interconnectable with a string of grout pipe, which comprises:

a tubular support pipe, said support pipe being operative to combine with the grout pipe string to form an inner fluid passageway;

a tray, carried by said support pipe, said tray carrying a piezometer embedded in a layer of permeable material, said layer being outermost and operative to make an hydraulic connection between the piezometer and borehole wall;

spring means, associated with the tray, adapted to normally expand to move the tray outwardly and radially to bring the layer of permeable material into contact with the borehole wall;

means for restraining said tray against the support pipe so as to permit the device to be inserted into the borehole; and

means, operable from the ground surface, for releasing the restraining means whereby the spring means may expand to bring the layer of permeable material into hydraulic connection with the borehole wall.

5,062,483

TREATMENT FOR REDUCING WATER CONING IN AN OIL RESERVOIR

Kenneth E. Kisman, and Boyd Russell, both of Calgary, Canada, assignors to Alberta Oil Sands Technology and Research Authority, Edmonton, Canada

Filed Jun. 15, 1990, Ser. No. 538,313
Claims priority, application United Kingdom, Jun. 15, 1989, 8913834
Int. Cl.[5] E21B *43/12, 43/16*
U.S. Cl. 166—263 **2 Claims**

1. A method for treating a first oil well completed in an oil reservoir, said reservoir having an increased gas saturation in the vicinity of the first oil well, due to gas having been injected into the reservoir through a second adjacent well, said first oil well having a high water cut, said method comprising:

injecting into the reservoir through the first oil well a slug of non-condensible gas in an amount between about 50,000 m^3 and 200,000 m^3; and

placing the first oil well back on production;

whereby the water cut is reduced.

5,062,484

METHOD OF GRAVEL PACKING A SUBTERRANEAN WELL

Donald E. Schroeder, Jr., Littleton, and David O. Falk, Denver, both of Colo., assignors to Marathon Oil Company, Findlay, Ohio

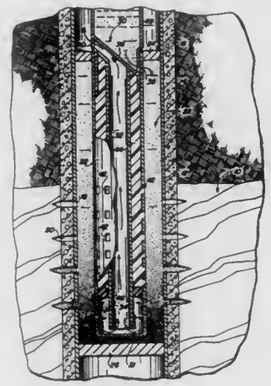
Filed Aug. 24, 1990, Ser. No. 572,925
Int. Cl.[5] E21B *43/04, 43/08*
U.S. Cl. 166—278 **25 Claims**

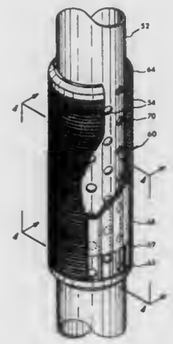
1. A method of gravel packing a well bore penetrating a subterranean formation comprising:

blocking a first group of apertures in a liner with an immobile gel;

positioning said liner within the well bore thereby defining a first annulus between said liner and the well bore;

transporting a slurry comprised of gravel suspended in a fluid into said first annulus, said fluid flowing through a second group of apertures in said liner while said gravel is deposited within said first annulus to form a gravel pack; and thereafter





removing substantially all of said gel from said first group of apertures.

5,062,485

VARIABLE TIME DELAY FIRING HEAD

David S. Wesson, Waxahachie, and Kevin R. George, Columbus, both of Tex., assignors to Halliburton Company, Duncan, Okla.

Filed Mar. 9, 1989, Ser. No. 321,471
Int. Cl.[5] E21B *43/1185*
U.S. Cl. 166—297 **14 Claims**

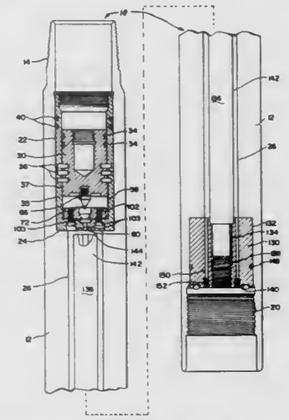
7. In a borehole, a method of perforating a wall of the borehole at a desired location and at a desired perforating pressure condition within the borehole adjacent the desired location, comprising:

positioning a perforating means adjacent the desired location;

a first time delayed combustive reaction;

a second time delayed combustive reaction in response to the first time delayed combustive reaction which, in turn, causes the performation of the wall of the borehole by the actuation of the perforating means; and thereafter,

reducing the pressure within the borehole adjacent the desired location from the initiating pressure condition to the



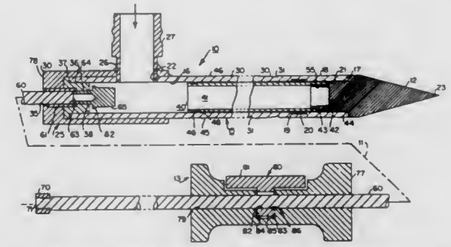
desired perforating pressure condition prior to the perforation of the wall of the borehole.

5,062,486

FIREFIGHTER'S BARRIER PENETRATOR AND AGENT INJECTOR

Charles H. McClenahan, 98 Hurlburt Rd., Fort Walton Beach, Fla. 32548

Filed Dec. 7, 1989, Ser. No. 447,497
Int. Cl.[5] A62C *13/62*
U.S. Cl. 169—70 **7 Claims**



1. A penetrator for percussively penetrating a structure for extinguishing a fire in said structure, said penetrator having an impact end and a striker end, comprising:

an impact barrel having a central axis, an axially-extending internal guide wall, a striker end and an impact end;

an axially extending nozzle barrel slidably disposed in said impact barrel, and having an axially-extending passage, said nozzle barrel having a peripheral wall with nozzle ports therethrough;

a point attached to said nozzle barrel, projecting beyond said impact barrel;

a shoulder on said point laterally aligned with said impact end of said impact barrel for transmission of impact forces from said impact barrel to said point;

an end cap on said impact barrel at its striker end closing said impact barrel, and having an axially extending rod passage therethrough;

a slide rod slidably fitted in said end cap, and a collar on said rod outside of said impact barrel;

a slide hammer reciprocably slidably fitted on said slide rod

VOL 1132 ISS 1 NO 5 1991 UMI

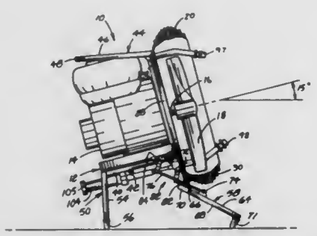
having a striker face disposed and arranged so as to be impacted on the striker end of the impact barrel;
retention means on said barrels preventing the nozzle barrel from being expelled from the impact barrel;
rod retention means adapted to retain said slide rod in a first axial position closer to said impact end, and a second axial position closer to said striker end, in said first position much of the striker rod is housed in said barrels to reduce the total axial length of the penetrator, and in said second position much of the slide rod is outside of the barrels to provide a guidance of substantial length for said slide hammer; and
inlet port means through said impact barrel for admitting fluid under pressure into the barrels;
whereby impact of the slide hammer on the impact barrel exerts forces on the structure through the point to penetrate the structure, and whereby after penetration of the structure by the point, fluid under pressure will be admitted to the barrels, thereby extending the nozzle barrel, and exposing the nozzle ports inside the structure in order to inject fluid agent into the structure.

5,062,487

HAND-PORTABLE FIRE FIGHTING POSITIVE PRESSURE WATER MISTING AND VENTILATION BLOWER

Darrell L. Siria, N. 12023 Hemlock Ct., Spokane, Wash. 99218; Lorran Sommerfeld, Spokane, and Daniel G. Raczykowski, Airway, both of Wash., assignors to Darrel Lee Siria, Spokane, Wash.

Filed Jun. 7, 1990, Ser. No. 535,376
Int. Cl.[5] A62C *39/00*
U.S. Cl. 169—91 **25 Claims**



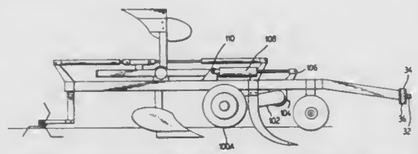
1. A hand-portable fire fighting, positive pressure ventilation and water misting blower for generating and directing a focused water ladened airstream for use in fighting fires and smoke in a structure, using positive pressure ventilation techniques, comprising:
a portable support frame;
an engine mounted on the frame for rotating a propeller drive shaft on a propeller shaft axis in a prescribed direction of rotation;
a propeller having blades, operatively connected to the propeller drive shaft for directing air in an airstream along the propeller shaft axis in a forward direction in the general form of a helix such that the airstream has a forward directional component and a rotational direction about the propeller axis;
a propeller guard mounted on the frame surrounding the propeller;
at least one misting nozzle operatively stationarily mounted to the frame radially outward of the propeller and directed forward and radially inward toward the propeller axis for directing a misted spray of water angularly forward and radially inward into the airstream to cool the airstream and enable the airstream to carry the water mist into the structure; and
a supply conduit mounted to the misting nozzle and including a water supply fitting for connecting the misting nozzle to a source of water.

5,062,488

SMALL TERRACE GENERATING MACHINE WITH LATERAL DAMMERS

Alan W. Lochmiller, 509 N. Jackson St., Bushnell, Ill. 61422

Filed Jul. 19, 1990, Ser. No. 555,926
Int. Cl.[5] A01B *3/28, 13/02, 13/16*
U.S. Cl. 172—1 **3 Claims**



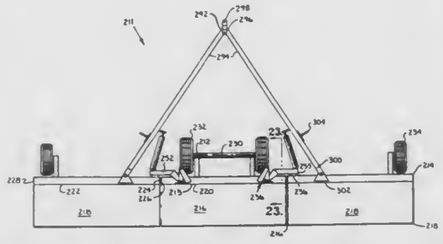
1. The method of tilling soil to form small, parallel, flat topped terraces with lateral dams, comprising:
a. slicing crop residue and soil with a plurality of coulter means in parallel, widely spaced slices as preparation for tilling soil;
b. tilling parallel, widely spaced strips of soil with a plurality of narrow trench generating means and in line with selected slices as formed in Step a. and leaving a narrow open trench in the soil behind each said narrow trench generating means;
c. tilling parallel, widely spaced, wide furrow strips in the soil with a plurality of furrow generating means so as to form ribbons of soil cut out from said furrow strips, which ribbons are deposited upside down on said narrow open trenches left in the soil by Step b., thereby generating small, parallel, flat topped terraces; and
d. collecting loose soil from the wide furrow strips with a lateral dammer means, and depositing loose soil periodically so as to form substantially uniformly spaced barriers or lateral dams between said adjacent small, parallel terraces.

5,062,489

FOLDING AGRICULTURAL IMPLEMENT

Raymond A. Adee, 1504 Terrace Dr., Newton, Kans. 67114

Continuation-in-part of Ser. No. 395,280, Aug. 16, 1989, Pat. No. 4,945,997. This application Aug. 7, 1943, Ser. No. 564,443 The portion of the term of this patent subsequent to Aug. 7, 2007, has been disclaimed.
Int. Cl.[5] A01B *73/06*
U.S. Cl. 172—311 **20 Claims**



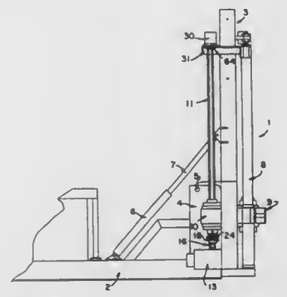
11. A floating agricultural implement adapted to be connected in a towed relation to a tow vehicle, said implement comprising:
(a) a center implement frame with opposite ends;
(b) a pair of folding, outer implement frames each having a proximate end and a distal end and each being rotatably and pivotally connected to said rear carrier at said proximate end;
(c) said center and outer implement frames mounting work performing means;
(d) said outer implement frames having field and transport positions;
(e) said outer implement frames being oriented substantially perpendicular to the direction of travel in their field positions and substantially parallel to the direction of travel in their transport positions;
(f) a pair of hinge assemblies each pivotally and rotatably connecting a respective outer implement frame at its proximate end to said center implement frame at a respective end thereof;
(g) towing tongue means adapted for connecting said outer implement frames with a tow vehicle; and
(h) said hinge assembly including means for rotating a respective outer implement frame inwardly about its longitudinal axis as said outer implement frame is folded from its field position to its transport position whereby each said outer implement frame is at least partly retained in its transport position whereby each said outer implement frame is at least partly retained in its transport position by gravity, said rotating means including a first, fixed pivotal connection of said outer implement frame and said center implement frame and a second floating pivotal connection of said outer implement frame, said second pivotal connection being restrained with the implement in its transport position.

5,062,490

KELLY BAR COUPLING

Charles L. Rassieur, St. Louis County, Mo., assignor to Central Mine Equipment, St. Louis, Mo.

Filed Dec. 22, 1989, Ser. No. 455,948
Int. Cl.[5] E21B *3/04*
U.S. Cl. 173—104 **6 Claims**



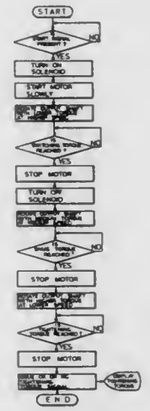
1. In an earth drill rig having a right angle drive with a drive stud projecting vertically upwardly from it, a table drive Kelly bar, connected to drive a rotary table mounted to move axially along said table drive Kelly bar, and coupling means associated with said table drive Kelly bar for selectively connecting said drive stud to a lower end of said table drive Kelly bar, and a mast carrying said table drive Kelly bar and adapted to be rotated about a pivot axis offset from the long axis of said table drive Kelly bar from an erected position to a folded position, whereby said lower end of said table drive Kelly bar is arcuately translated away from said drive stud, and to be rotated from said folded position to said erected position, whereby said lower end of said table drive Kelly bar is arcuately translated toward said drive stud, the improvement comprising means for mounting said coupling means on said table drive Kelly bar for axial sliding movement from a coupling position extending below the lower end of said table drive Kelly bar to a non-coupling position and means for limiting the downward sliding of said coupling means and holding said coupling means against sliding off the said table drive Kelly bar, means for moving said table drive Kelly bar axially in a direction toward said drive stud to permit said coupling means to receive and engage said drive stud and table drive Kelly bar, to transmit rotary motion from said drive stud to said table drive Kelly bar, and means for moving said table drive Kelly bar axially in a direction away from said drive stud to pull said coupling means away from said drive stud to de-couple said table drive Kelly from said drive stud.

5,062,491

APPARATUS FOR CONTROLLING NUT RUNNER

Akira Takeshima; Toshikazu Asakura; Akihiko Takahashi; Shigeo Kobayashi, and Shoichi Hayashi, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 288,248, Dec. 22, 1988, Pat. No. 4,908,926. This application Dec. 29, 1989, Ser. No. 459,332
Int. Cl.[5] B23Q *5/00*
U.S. Cl. 173—12 **5 Claims**



1. An apparatus for controlling a nut runner for tightening a fastener, comprising:
a motor operatively connected to an output shaft of the nut runner for rotating said output shaft;
speed reducer means for reducing a rotational speed of said output shaft, said speed reducer means comprising a switching clutch shiftable selectively in higher and lower speed positions for rotating said output shaft in respective higher and lower speed ranges;
torque sensor means for detecting a tightening torque of said output shaft;
means for presetting torque and speed values corresponding to a switching torque, a snug torque, a final torque, a higher motor speed, a medium motor speed, and a lower motor speed;
comparator means for comparing the detected tightening torque of said output shaft with each of said preset torque values corresponding to said switching, snug and final torques, said comparator means outputting a signal when said detected tightening torque reaches each of said preset torque values;
switching means responsive to the signal output from said comparator means, said switching means outputting a switching signal for switching a rotational speed and torque of said output shaft;
motor driver means responsive to switching signal for controlling said motor and said output shaft through said speed reducer, thereby rotating said output shaft at said higher, medium and lower motor speeds, respectively;

VOL 1132 ISS 1 NO 5 1991 UMI

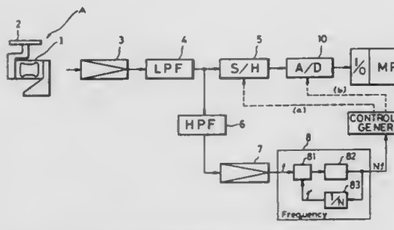
wherein when the switching clutch is shifted into said higher speed position said output shaft is rotated with a lower torque at said higher speed; when the detected tightening torque reaches the preset switching torque the rotation of said output shaft is interrupted, the switching clutch is shifted into said lower speed position and thereafter said output shaft is rotated with a medium torque at said medium speed; when the detected tightening torque reaches said preset snug torque the rotation of said output shaft is interrupted and thereafter said output shaft is rotated with a higher torque at said lower speed; and when the detected tightening torque reaches said preset final torque the rotation of said output shaft is stopped.

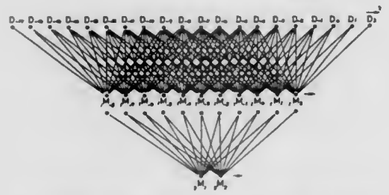
5,062,492

ELECTRONIC WEIGHING SCALE

Shinichi Inoue, Tarumiki, Japan, assignor to Yamato Scale Company, Limited, Akashi, Japan

Filed Feb. 16, 1990, Ser. No. 480,843
Claims priority, application Japan, Feb. 18, 1989, 1-38727
Int. Cl.[5] G01G *19/40, 23/10*
U.S. Cl. 177—25.14 **28 Claims**





1. An electronic weighing scale which is adapted to determine the weight of an object, the electronic weighing scale comprising:

means for generating a weight signal having a direct current component indicative of the weight of the object and a superposed periodic oscillatory component having a period T_1 which is an arithmetic function of the weight of the object;

means for determining the period T_1 of the periodic oscillatory component of the weight signal;

means for sampling the weight signal at sampling intervals T_2, having a relationship to period T_1 defined by:

$$nT_1 = NT_2; \text{ and}$$

$$N \geq 2n$$

where n and N are positive integers, n being the number of cycles of the periodic oscillatory component during which the sampling takes place, and N being the number of samples taken;

means for averaging the samples of the weight signal; and

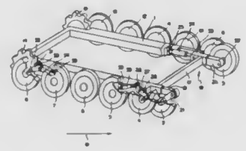
means for determining the weight of the object based on the averaged samples.

5,062,493

TRACKED VEHICLE AND IN PARTICULAR ONE FOR THE PREPARATION OF SKI SLOPES

Helmuth Platter, Vipiteno, and Artur Webhofer, Chiusa, both of Italy, assignors to Leitner, S.p.A., Italy

Filed Jul. 19, 1990, Ser. No. 555,050
Int. Cl.[5] B62D *55/30*
U.S. Cl. 180—9.52 **6 Claims**



1. A tracked vehicle supported at each side thereof on an endless track for travel across a terrain, and suited in particular for the preparation of ski slopes, said vehicle comprising a self-bearing chassis having spaced, longitudinal sides, a plurality of track bearing wheels fixed to rotate in a vertical plane on longitudinally spaced horizontal axles at each longitudinal side of the chassis, a track drive wheel fixed in a rotating manner on a horizontal axle adjacent a first end of each longitudinal side of the chassis, a track tightening wheel fixed to a horizontal axle adjacent a second end opposite said first end of each longitudinal side of the chassis characterized in that at least one of said bearing wheels on each longitudinal side of said chassis is supported by said chassis in a manner to be movable in the vertical plane containing each said at least one bearing wheel, and drive means provided for moving each of said at least one bearing wheel from a lowered position, in which a lower leg of said track supported thereon is in contact with the underlying terrain during the travel of the vehicle across said terrain, to a raised position above said lowered position, said plurality of bearing wheels at each side of said chassis lying in a vertical plane spaced parallel to a plane containing the associated track tightening wheel, a first and second of each of said plurality of bearing wheels at each side of said chassis being disposed in overlapping, registering relation to a respective track drive and tightening wheel at each end of said chassis.

5,062,494

HYDRAULIC POWER STEERING APPARATUS FOR INDUSTRIAL VEHICLE

Tsukasa Okamoto, and Shuji Ohta, both of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Aug. 20, 1990, Ser. No. 569,936
Claims priority, application Japan, Aug. 22, 1989, 1-215407
Int. Cl.[5] B62D *5/06*
U.S. Cl. 180—132 **8 Claims**

1. A fully hydraulic power steering apparatus for hydraulically steering an industrial vehicle by pivoting rear wheels of the vehicle, comprising:

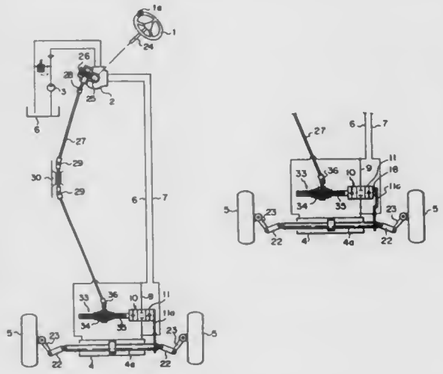
a steering wheel turned by a driver of the vehicle;

a power steering hydraulic valve unit operated by the steering wheel for delivering pressurized oil;

a double-rod type power cylinder including a pair of oil chambers for receiving the pressurized oil when delivered from the power steering hydraulic valve unit, and a piston rod capable of hydraulically carrying out a stroke motion for actuating a pivoting of the rear wheels in response to a turning of the steering wheel;

oil piping interconnecting the power steering hydraulic valve unit and the pair of oil chambers of the power cylinder, respectively; and

a correcting means for compensating an error between an angle by which the steering wheel is turned and an amount of stroke motion of the piston rod of the power cylinder, said correcting means including a first mechanical means operatively and mechanically connected to said steering wheel for deriving a first mechanical motion from the turning of said steering wheel, a second mechanical



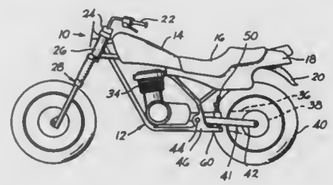
means operatively and mechanically connected to said power cylinder for deriving a second mechanical motion from the stroke motion of the piston rod of said power cylinder, and a hydraulic correcting means for generating a hydraulic correction force in proportion to an error in the first and second mechanical motions which hydraulically corrects the stroke motion of the piston rod of the power cylinder.

5,062,495

REAR SUSPENSION SYSTEM FOR MOTORCYCLES

Ray T. Padgett, Rte. #1, Box 1253 C, Dawsonville, Ga. 30354

Filed Jun. 18, 1990, Ser. No. 539,550
Int. Cl.[5] B62D *61/02*
U.S. Cl. 180—227 **13 Claims**



1. In a suspension system for a motorcycle which has a steerable front wheel and a driven rear wheel:

a motorcycle frame having the steerable front wheel mounted thereon,

a movable swingframe supporting said rear wheel for movement on said frame,

a shock absorber comprising an outer casing thereof mounted on mounting points on said motorcycle frame and said swingframe for movement therewith,

said shock absorber including means for cushioning and resisting said shock absorber casing, and

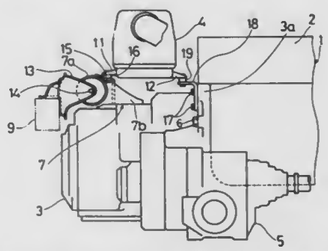
said shock absorber being arranged so that when the rear wheel is moved downwardly, the mounting points are moved closer together.

5,062,496

STRUCTURE FOR MOUNTING AIR CLEANER OF ENGINE

Hirotaka Fukada; Koichi Kondoh, both of Hiroshima, and Tsuyoshi Tsuchida, Yamaguchi, all of Japan, assignors to Mazda Motor Corporation, Japan

Filed Jul. 25, 1989, Ser. No. 385,346
Claims priority, application Japan, Jul. 29, 1988, 63-101202
Int. Cl.[5] B60K *5/12*
U.S. Cl. 180—291 **15 Claims**



1. An assembly for mounting an air cleaner to an automobile power plant having an engine and a transmission, comprising:

first, means mounting said air cleaner to a portion of said power plant which is substantially vibrated by said engine;

second means mounting said air cleaner to a portion of said power plant which is substantially vibrated by said transmission; and

frame member mounting means for connecting said second mounting means to an associated vehicle body, said frame member mounting means including

first bracket means for connecting said frame member mounting means to said second mounting means,

second bracket means for connecting said frame member means to said vehicle body, and

means for connecting said first bracket means to said second bracket means, whereby vibration of said air cleaner at a natural frequency thereof by said power plant is prevented.

5,062,497

SYSTEM FOR CONTROLLING SPRING COEFFICIENT OF ENGINE MOUNT

Hisashi Ogata, Kanagawa, Japan, assignor to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Jul. 3, 1989, Ser. No. 374,668
Claims priority, application Japan, Jul. 1, 1988, 63-87748[U]
Int. Cl.[5] F16M *13/00*
U.S. Cl. 180—300 **3 Claims**

1. An engine mount system for an automotive power plant for mounting a vehicle body, comprising:

a fluid filled insulator defining therein at least two fluid chambers mutually separated from each other, and a fluid passage connected to said fluid chambers for fluid communication therebetween;

valve means disposed within said fluid passage for selectively establishing and blocking fluid communication therethrough, said valve means including electrically

VOL 1132 ISS 1 NO 5 1991 UMI

operable means for operating said valve means between open and closed positions;

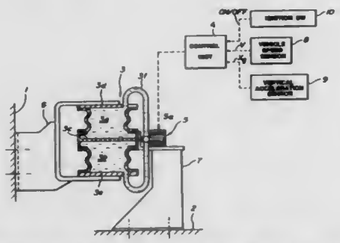
first sensor means for monitoring a vehicle speed for producing a vehicle speed indicative signal;

second sensor means, associated with a vehicular suspension member rotatably supporting a road wheel, for monitoring a vertical displacement between the vehicle body and the suspension member to produce a vertical acceleration indicative signal of said suspension member, in such a manner as to detect a road surface condition;

a control unit for receiving said vehicle speed indicative signal and said vertical acceleration indicative signal and discriminating between a first state of a vehicle driving condition, wherein a vehicle travels at a constant speed, a second state of the vehicle driving condition, wherein the vehicle is accelerating or decelerating, and a third state of the vehicle driving condition, wherein the vehicle is stopping or substantially stopping, said control unit operating said valve means at said open position during said third state, and at said closed position during said second state,

said control unit further discriminating said road surface condition on the basis of said vertical acceleration indicative signal from said second sensor means;

wherein said control unit selects one of two road surface



dependent vibration modes of said insulator, one being a road surface dependent first vibration mode having a resonating point at a first specific resonant frequency with respect to an operational mode of said insulator in a state wherein said valve means is in said open position, the other being a road surface dependent second vibration mode having a resonating point at a second specific resonant frequency with respect to the operational mode of said insulator in a state wherein said valve means is in said closed position, on the basis of said road surface condition; and

wherein said control unit selects one of said first and second vibration modes having a resonating point far from the resonating points of the vehicle body derived on the basis of a value of said vehicle speed indicative signal and a known wheel base of the vehicle when said control unit determines that said driving condition is in said first state and said road surface condition is an irregular undulation road surface, and selects one of said first and second vibration modes having a resonating point far from the resonating points of the vehicle body derived on the basis of an interval of undulation when said control unit determines that said driving condition is in said first state and said road surface condition is a regular undulation road surface.

5,062,498

HYDROSTATIC POWER TRANSFER SYSTEM WITH ISOLATING ACCUMULATOR

Jaromir Tobias, 322 E. 57th St., New York, N.Y. 10022

Filed Jul. 18, 1989, Ser. No. 381,197

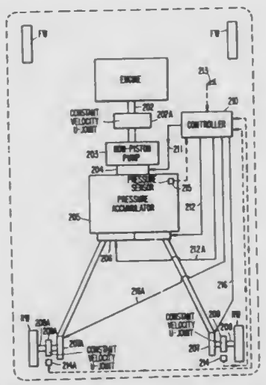
Int. Cl.[5] B60K *17/356*; F15B *1/02*

U.S. Cl. 180—308 **22 Claims**

1. A hydrostatic power transfer system for transferring power from a rotating power input shaft to a rotating output shaft, comprising:

fluid pump means driven by a power input shaft and including means for supplying pressurized fluid to a pump outlet means,

pressure accumulator means disposed downstream of the pump means and having respective accumulator inlet means for accepting pressurized fluid from the pump outlet means and accumulator outlet means for discharging fluid under pressure from the accumulator means, said accumulator means including two chambers and pressure transmissive means separating said two chambers, the pressurized fluid from said fluid pump means being supplied to one of the two chambers and the other chamber including spring cushion means for acting against said pressurized fluid in said one chamber via said pressure transmissive means for insulating the system against vibration transmission through the accumulator means and



fluid motor means downstream of the pressure accumulator means and driven by fluid from the accumulator outlet means whereby said pressure accumulator means is interposed in series between said fluid pump means and the fluid motor means so that it substantially eliminates transmission of vibrations from the fluid pump means to the fluid motor means, said fluid motor means being drivingly connectable to a rotating output shaft.

5,062,499

SIDE RAILS FASTENING MECHANISM FOR TELESCOPIC ALUMINUM STEP LADDERS

Ching-Chuan Tu, No. 24, Feng-Shu Lane, Feng-Shu Li, Nan-Tun District, Taichung, Taiwan

Filed Oct. 10, 1990, Ser. No. 596,706

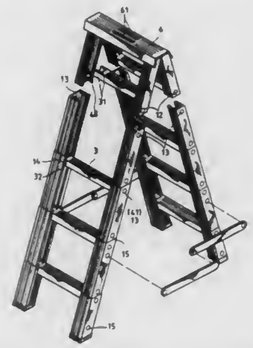
Int. Cl.[5] E06C *1/30, 7/50*

U.S. Cl. 182—166 **6 Claims**

1. A side rails fastening mechanism for securing the frame fractions of the side rails of a telescopic aluminum step ladders in an extended or collapsed position, comprising an insert block fixedly secured inside each frame fraction at a lower position with a locking bolt fastened inside a transverse hole thereon and pushed by a compression spring to insert through a mounting hole on the frame fraction disposed at an inner side into a locating hole on the frame fraction disposed at an outer side so as to firmly secure two connected frame fraction in an extended position; and characterized in that:

said insert block has two parallel grooves on the top and spaced from each other at such a range that a rung can be secured thereto with its two opposite side projections respectively inserted in the two parallel grooves, and

fastening screws can be inserted from the two opposite sides of each frame fraction to fixedly secure a rung and



said insert block to a frame fraction permitting a frame fraction to freely slide inside another.

5,062,500

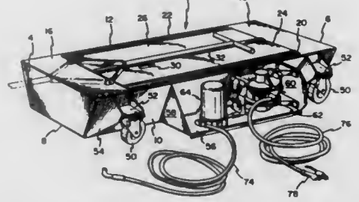
LOW PROFILE CART FOR THE INSITU COLLECTION FILTERATION AND RECYCLE OF FLUIDS FROM MACHINERY

Robert E. Miller, Mount Joy, and F. Jay Eichelberger, Jr., Paradise, both of Pa., assignors to Ford New Holland, Inc., New Holland, Pa.

Filed Nov. 28, 1990, Ser. No. 619,286

Int. Cl.[5] F16N *31/00*

U.S. Cl. 184—106 **24 Claims**



1. A low profile cart for the collection, filteration and recycle of fluid from machinery comprising:

a) a movable fluid receiving chamber having front, rear, bottom, left and right side panels forming a top opening;

b) means connected to said cart for manually positioning said cart;

c) drain means associated with said chamber and extending from said rear panel;

d) side support means outside of said chamber and connected to one of said left and right side panels;

e) said side support means having means for positioning pump and filter means;

f) means for connecting said pump and filter means to said drain means;

g) said chamber sloping from said front to said rear for permitting fluid in said chamber to be substantially and completely removed after collection from said chamber;

h) whereby when said cart is connected to said pump and filter means and said pump is activated, said fluid collected in said chamber will be evacuated therefrom and run through said filter for eventual reuse.

5,062,501

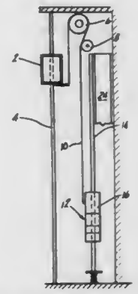
ELEVATOR WITH LINEAR MOTOR COUNTERWEIGHT ASSEMBLY

Marcel Pavoz, Nanterre, France, and Ernest P. Gagnon, Manchester, Conn., assignors to Otis Elevator Company, N.J.

Continuation of Ser. No. 318,293, Mar. 3, 1989, abandoned. This application May 4, 1990, Ser. No. 518,275

Int. Cl.[5] B66B *1/06*

U.S. Cl. 187—112 **8 Claims**



1. An elevator assemblage of the type which derives motive power for movement through a hoistway from a linear motor mounted on an elevator counterweight assembly, said elevator assemblage comprising:

a) a counterweight frame;

b) a flat linear motor mounted on said counterweight frame, said linear motor being mounted centrally on said frame whereby said frame includes side portions which in part flank said linear motor;

c) a flat steel strip disposed adjacent said counterweight frame, said steel strip being elongated in the vertical direction of the hoistway, said steel strip including a central portion facing said linear motor, which central portion is coated with a highly electrically conductive material coating whereby said coated central portion of said steel strip serves as a stator for said linear motor and said steel strip having side margins flanking said central portion which are uncoated exposed steel; and

d) brake means mounted on said counterweight frame for engaging only said exposed steel side margins of said steel strip to selectively stop movement of said counterweight assembly in the hoistway.

5,062,502

ELEVATOR CONTROLLING APPARATUS

Masaaki Amano, Inazawa, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Apr. 19, 1990, Ser. No. 511,403

Claims priority, application Japan, May 18, 1989, 1-22788

Int. Cl.[5] B66B *1/18*

U.S. Cl. 187—124 **6 Claims**

1. An elevator controlling apparatus comprising:

a plurality of hall call registering means for generating information with respect to hall calls;

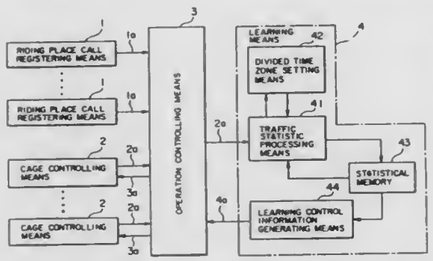
a plurality of cage controlling means which are provided in correspondence with a plurality of elevator cages, which generate information with respect to cage calls and cage traffic information in each of the elevator cages and which control the operation of said elevator cages;

learning means which calculates traffic values in unit time zones on the basis of cage traffic information so that when the traffic in a unit time zone is similar to that of an adjacent unit time zone, these time zones are combined into a divided time zone, and when a divided time zone exceeds a predetermined time, a new divided time zone is set; and

operation controlling means for controlling said plurality of

VOL 1132 ISS 1 NO 5 1991 UMI

cage controlling means on the basis of the traffic values for unit time zones, the divided time zones, said information with respect to cage calls and said information with respect to hall calls.

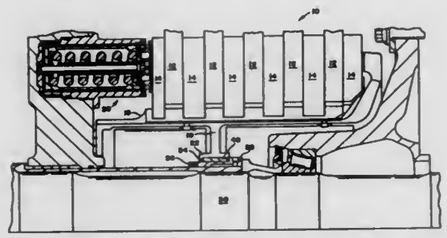


5,062,503

ABLATIVE BRAKE BUSHING FOR AXLE THERMAL PROTECTION

Raymond J. Black, and Benjamin C. Han, both of South Bend, Ind., assignors to Allied-Signal Inc., Morristown, N.J.

Filed Sep. 19, 1990, Ser. No. 585,415
Int. Cl.[5] F16D *55/36*
U.S. Cl. 188—71.5 **26 Claims**



1. In combination, an ablative bushing utilized with a brake mechanism in order to protect thermally an axle, comprising a brake mechanism receiving support from a support member, the support member having a central aperture through which extends an axle,. one of bushing means and flange means disposed between said axle and support member, and an ablative bushing disposed between the support member and one of the bushing means and flange means, the ablative bushing ablatable at a predetermined temperature in order to introduce an air gap between said support member and one of the bushing means and flange means in order to reduce heat flow from said brake mechanism to said axle.

5,062,504

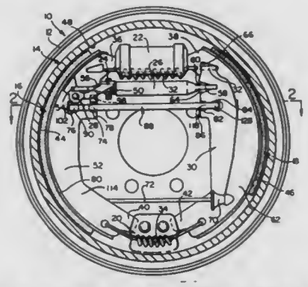
DRUM BRAKE ASSEMBLY HAVING PARKING BRAKE ACTUATOR ADJUSTER WITH AUTOMATIC BRAKE ADJUSTMENT DURING THE SERVICE BRAKING MODE OF OPERATION

Mayjue A. Yamamoto, Yellow Spring, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Continuation of Ser. No. 351,974, May 5, 1989, abandoned. This application Feb. 4, 1991, Ser. No. 651,057
Int. Cl.[5] F16D *51/46, 65/24*
U.S. Cl. 188—79.56 **1 Claim**

1. In a drum brake assembly having a rotatable drum to be braked; first and second brake shoe assemblies adapted to be moved into friction braking engagement with the drum in a service brake operating mode and in a parking brake operating mode said first brake shoe assembly having a web portion with an aperture; first actuating means for moving said shoe assemblies in the service brake operating mode; second actuating means for moving said shoe assemblies in the parking brake operating mode and including a parking brake actuating lever having one end pivotally mounted on said second brake shoe assembly, a parking brake cable attached to the other end of the parking brake actuating lever and adapted to pivotally move that lever toward the first brake shoe assembly for parking brake actuation; and an automatic adjuster actuated as needed in the service brake operating mode and including an axially expandable adjuster strut operatively connecting said first and second shoe assemblies and said parking brake actuating lever; the improvement comprising:

a parking brake spreader bar also providing a parking brake actuating lever adjuster, said spreader bar having one end with a tab for a hooked connection with said web aperture of said first shoe assembly and the other end of said spreader bar having a tab for a hooked connection to said parking brake actuating lever and said spreader bar being in force transmitting engagement with said first shoe assembly and said parking brake actuating lever to transmit both tension and compression forces therebetween; said spreader bar during the service brake actuation phase



acting, as the brake shoe assemblies are spread apart in the vicinity of said spreader bar by said first actuating means, to move with said first brake shoe assembly and by exerting tension force on said parking brake actuating lever pivotally moving that lever toward the parking brake apply position to take up such lever movement as would be required in the parking brake apply phase to move the brake shoe assemblies substantially to the position to which they are moved by said first actuating means; said spreader bar acting to keep said parking brake actuating lever at an adjusted pivotal position on said second brake shoe assembly attained when the service brake mode automatic adjuster has expanded the adjuster strut to provide a brake shoe assembly brake release position that is a position adjusted for wear of said brake shoe assemblies by said spreader bar positional translation in a direction toward said first brake shoe assembly resultant of said first brake shoe assembly web aperture hooked connection with said spreader bar causing said spreader bar to pull on said parking brake lever; said parking brake actuating lever, thus being positionally adjusted to compensate for brake lining wear.

5,062,505

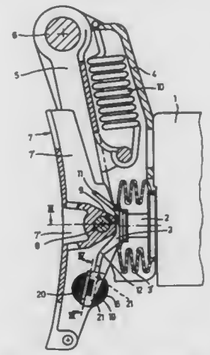
BRAKE BLOCK HOLDER ARRANGEMENT

Anders O. G. Sjärne, Rättarev, and Sven-Olof Larsson, Bästemansg, both of Sweden, assignors to SAB Nordic AB, Landskrona, Sweden

Filed Apr. 19, 1990, Ser. No. 511,338
Claims priority, application Sweden, Apr. 27, 1989, 8901537-4
Int. Cl.[5] B60T *11/10*; B61H *1/00*
U.S. Cl. 188—153 R **1 Claim**

1. A brake block holder arrangement, comprising a brake block holder (7) for transmitting an axial brake force from an

axially movable push rod (2) of a brake actuator (1) and being pivotally attached to brake block hangers (5), which are suspended from a suspension bracket (4) on the actuator, wherein the brake force is transmitted from the push rod (2) via a push rod head (3) thereon in direct contact with a generally tube-shaped portion of the brake block holder (7) around its shaft (8) for pivotal connection to the hangers, characterized in that the



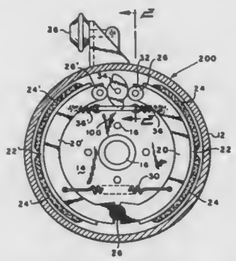
push rod head (3) has an upper extension (11) and a lower extension (12) with a width corresponding to the distance between the side-walls (7') of the brake block holder (7) and that one of the extensions (12) of the push rod head (3) is provided with a laterally movable cross piece (19) having toothed end surfaces for cooperation with spring biassed toothed segments (16), rotatably arranged in the inner surfaces of said brake block holder sidewalls (7').

5,062,506

ROTARY DRUM BRAKE ASSEMBLY BRACKET

Jay D. White, Galesburg, Mich., assignor to Eaton Corporation, Cleveland, Ohio

Filed Aug. 8, 1990, Ser. No. 564,274
Int. Cl.[5] F16D *51/20*
U.S. Cl. 188—329 **10 Claims**



1. An anchor bracket for a brake assembly, which brakes a rotary drum, said brake assembly of the type comprising:

a stationary backing plate,

a pair of opposed brake shoes assemblies respectively having opposite ends with one end pivotally secured to the stationary plate and carrying a frictional braking material facing towards the drum,

a cam disposed between the opposite ends of the brake shoe assemblies and mounted on a rotary shaft and operative to rotate and urge the brake shoe assemblies away from each other and cause the frictional braking material to engage the drum upon actuation of the brake, and

biasing means respectively having one end secured to each brake shoe assembly and an opposite end secured to the bracket, said bracket having an inverted "U" type configuration comprising a pair of legs extending from opposite sides of a bridging portion,

said legs respectively secured in substantial transverse relationship to the backing plate, said bridging portion having a height above the cam, and said legs spaced apart from each other for a distance sufficient to enable the bracket to be disposed in close proximity to the cam, and

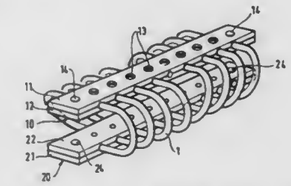
said legs respectively provided with means for securing the opposite ends of the biasing means thereto in such a manner as to enable the biasing means to urge the brake shoe assemblies towards each other upon release of the brake.

5,062,507

VIBRATION AND SHOCK ABSORBER DEVICE

André Roche, Elancourt, France, assignor to Vibrachoc, Evry Cedex, France

Filed Aug. 18, 1989, Ser. No. 396,186
Claims priority, application France, Sep. 5, 1988, 88 11584
Int. Cl.[5] F16F *7/00*
U.S. Cl. 188—378 **8 Claims**



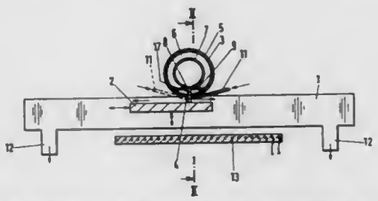
1. In a vibration and shock absorber device, comprising a metal body constituted by at least one helically wound length of cable of plural turns and two bars interconnecting the turns in two diametrically opposite zones, and a layer of elastomer material coating the structure and leaving a central orifice, the improvement comprising said turns of said length of cable comprising means for preventing said turns from adhering to the elastomer material.

5,062,508

CVD COATING PROCESS FOR PRODUCING COATINGS AND APPARATUS FOR CARRYING OUT THE PROCESS

Ulrich Ackermann, Mainz-Gonsenheim; Ralf T. Kersten, Bremthal; Heinz-Werner Etzkorn, Neu-Ansbach; Volker Paquet, and Uwe Rutze, both of Mainz, all of Fed. Rep. of Germany, assignors to Schott Glaswerke, Mainz, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 403,430, Sep. 6, 1989. This application Dec. 7, 1989, Ser. No. 447,480
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1988, 3830215; Aug. 7, 1989, 3926023
Int. Cl.[5] C23C *16/48*
U.S. Cl. 118—723 **16 Claims**



1. An apparatus for a chemical vapor deposition process comprising:

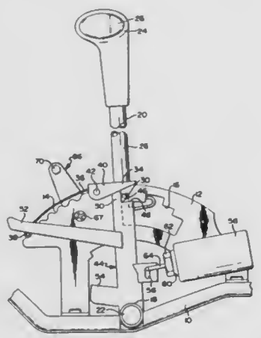
a reaction chamber in which a substrate is coated;

a tubular prechamber containing tubular shield means disposed therein;

VOL
1132
ISS
1
NO
5
1991
UMI

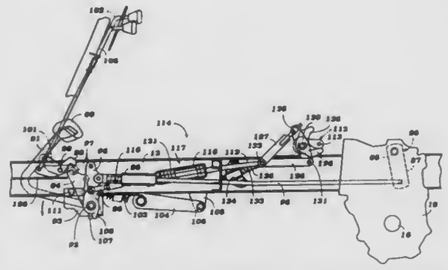
means for generating electromagnetic radiation in said prechamber, said prechamber having an opening which communicates with the interior of said reaction chamber;
means for supplying reaction gas to said reaction chamber;
vacuum means for reducing the pressure in the reaction chamber and for removing consumed reaction gases; and
means for supplying at least one component of the reaction gas to the reaction chamber adjacent said opening other than from the prechamber.

5,062,509
SHIFTER MOUNTED BRAKE-TRANSMISSION INTERLOCK
Vincent N. Carpenter, Elk Rapids, and William J. LaRocca, Sterling Heights, both of Mich., assignors to Dura Mechanical Components, Inc., Troy, Mich.
Filed Jun. 4, 1990, Ser. No. 534,559
Int. Cl.[5] B60K *41/28*
U.S. Cl. 192—4 A **7 Claims**



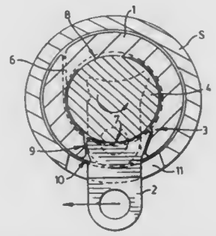
1. In an automobile having an ignition switch, an automatic transmission, a service brake actuator, and an automatic transmission control lever movable into and out of a park position, a shift lever control comprising:
blocking means movable between positions blocking and enabling movement of the shift lever only out of the park position; and
control means for controlling movement of the blocking means characterized by
an electric acutator for moving the blocking means between positions,
a normally closed electric brake switch opened by movement of the service brake to brake-apply position and closed by movement to the brake-release position,
a normally closed electric shifter switch,
cam means coupling the shift lever to the shifter switch for opening the shifter switch only upon movement of the shift lever out of the park position, and
an electric control circuit interconnecting the ignition switch, the brake switch, the shifter switch and the electric actuator in such a manner that the actuator effects movement of the blocking means to blocking position only when the ignition switch, the brake switch and the shifter switch are closed.

5,062,510
SHIFTING DEVICE FOR LAWN MOWER AND THE LIKE
Toshiharu Shimizu, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan
Filed May 2, 1989, Ser. No. 346,476
Claims priority, application Japan, May 6, 1988, 63-110182
Int. Cl.[5] B60K *41/26, 20/00*
U.S. Cl. 192—4 C **9 Claims**



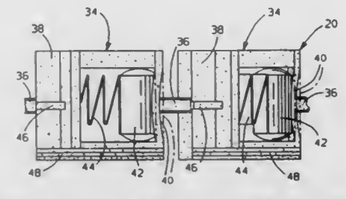
1. In a vehicle having a transmission operative between a neutral condition and a drive condition, transmission operator means selectively operable by an operator for operating said transmission between its neutral and drive conditions, a brake for braking an operation of said vehicle, a brake operator selectively operable by an operator, and means connecting said brake operator to said brake for operating said brake, the improvement comprising means for positively moving said transmission to its neutral condition from a drive condition in response to operation of said brake operator comprising a pair of pivotally connected jaw members acting on a pin member affixed to the mechanism for coupling said transmission operator means to said transmission.

5,062,511
BRAKE ACTUATOR FOR BICYCLES AND THE LIKE
Winnett Boyd, 107 Victoria Place R.R. No. 1, Bobcaygeon, Ontario, Canada K0M 1A0
Filed Jan. 22, 1991, Ser. No. 644,384
Int. Cl.[5] F16D *41/24*
U.S. Cl. 192—5 **3 Claims**



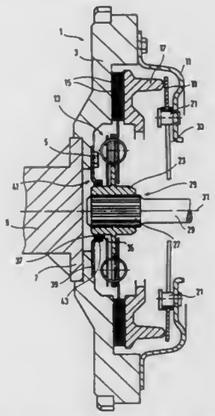
1. In a device for operating a brake of a pedal operated vehicle, comprising a brake operating lever projecting through an opening in a pedal crankshaft housing of the vehicle and having an inner end forming a first primary clutch element engageable with part of the circumference of a pedal crankshaft within the housing, a pilot clutch comprising two oppositely wound spring coils connected by a bight engaged in a yoke, the bight ends of the coils being directed in the direction of forward rotation of the crankshaft, the inner end of the lever having an end extending around the crankshaft circumference in the opposite direction to said yoke, means extending from the said end of the lever and wrapping around the crankshaft so as to form a second primary clutch element engageable with the circumference of the crankshaft at least in a zone opposite to that engageable by the lever, and means transmitting forces from the yoke to a distal end of said first primary clutch portion whereby to wrap the latter onto the crankshaft upon rearward motion of the crankshaft, the improvement wherein:
the second primary clutch element is formed by a major peripheral portion of an annulus surrounding the pedal crankshaft within the pedal crankshaft housing, and the first primary clutch element is received within an arcuate slot formed through a remaining peripheral portion of the annulus, bearing surfaces on the annulus at opposite ends of said arcuate slot providing respectively the means transmitting forces from the yoke to the distal end of the primary clutch portion, and a fulcrum for engagement by said inner proximate end of the primary clutch portion, such that the pedal crankshaft can be clamped between the primary clutch element and the secondary clutch element.

5,062,512
ROLLER CLUTCH CAGE WITH PUSH ON INSTALLATION
Frederick E. Lederman, Sandusky, Ohio, assignor to General Motors Corporation, Detroit, Mich.
Filed Jul. 25, 1990, Ser. No. 558,007
Int. Cl.[5] F16D *41/00*
U.S. Cl. 192—45 **3 Claims**



1. A roller clutch cage adapted to be installed between a pair of coaxially disposable clutch races, one of said races having a generally cylindrical surface with a circular groove, said cage comprising,
a plurality of adjacent roller pockets arrayed in an annular pattern about and parallel to a central axis, each pocket having a boundary defining member that is flexible, in the circumferential direction, toward and away from each adjacent pocket,
a plurality of connecting members interconnecting said adjacent pockets at said flexible boundary defining members, thereby determining a free state circumference of said cage that is designed to clear said one race surface when said cage is moved coaxially toward said one race, said connecting members further being substantially rigid and disposed generally in a central plane perpendicular to said central axis so that, when said cage is put into compression or tension, said connecting members translate said compression or tension into circumferential flexing of said boundary defining member in said central plane, thereby allowing the circumference of said cage to effectively shrink or expand from its free state circumference while said pockets remain substantially parallel to said cage axis, and,
a plurality of ribs located at evenly spaced, diametrically opposed locations and at a diameter designed to fit within said race groove, but to interfere with said one race surface when said cage is at its free state circumference, thereby applying an evenly distributed radial force to said cage to put said cage into compression or tension,
whereby, said cage may be installed to said one race by moving it, at its free state circumference, coaxially toward said one race, thereby forcing said ribs into said one race surface to put said cage into compression or tension and shrinking or expanding said cage circumference as said cage pockets remain substantially parallel to said cage axis until said ribs move into alignment with said groove, whereupon said cage may return to its free state circumference as said ribs move into said groove.

5,062,513
HUB GUIDANCE FOR FRICTION CLUTCH
Wolfgang Grosspletsch, Schweinfurt, and Erich Scheer, Possel-sheim, both of Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Fed. Rep. of Germany
Filed Nov. 3, 1989, Ser. No. 431,739
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1988, 3838306; May 24, 1989, 3916853
Int. Cl.[5] F16D *13/50, 13/58*
U.S. Cl. 192—70.17 **9 Claims**



1. A friction clutch for arrangement in the drive line of a motor vehicle between a crank-shaft (9) which is rotatable about a rotation axis (31) and a gear shaft (29) coaxial with the crank-shaft (9), comprising a fly-wheel (3) securable by means of at least one securing element (5) on the crank-shaft (9), a clutch cover (11) held on the fly-wheel (3), a presser plate (17) arranged between the fly-wheel (3) and the clutch cover (11) and guided non-rotatably but axially movably on the clutch cover (11), a clutch disc (13) which comprises a hub (23) with an internal splining (25) for a non-rotatable but axially movable connection with the gear shaft (29) and friction linings (15) which can be clamped axially between the fly-wheel (3) and the presser plate (17), and a clutch main spring arrangement (19) provided with release elements (33), wherein said fly-wheel (3), securing element (5), clutch cover (11), and presser plate (17) each form a construction part of said friction clutch, the hub (23) of the clutch disc (13) is radially guided and centered by means of a bearing concentric with the rotation axis (31) separate from and independent of the gear shaft (29), on one of the construction parts (3; 5; 11; 17) of the friction clutch (1), and said gear shaft (29) has an end adjacent to and spaced from said crank-shaft (9) and said end is free of pilot bearing guidance, the bearing (41, a, i, k, m) is provided between the hub (23; a, i, k, m) and a bearing carrier (39, i, ki, m; 43*a*) held on the fly-wheel (3, a, i, k, m), the bearing carrier (39; 43*a*; 39*i*) is held on fly-wheel (3, a, i) by means of a plurality of fastening elements provided for the securing of the fly-wheel (e, a, i) on the crank-shaft (9, a, i) on a circle about the rotation axis (3, a, i), the fly-wheel (3*i*) is made as a two-mass fly-wheel and comprises a first fly-wheel (69) which is securable by means of the securing elements (5*i*) on the crank-shaft (9*i*) and a second fly-wheel (75) rotatable about the rotation axis (31*i*) in relation to the first fly-wheel (69), which second fly-wheel is rotation-

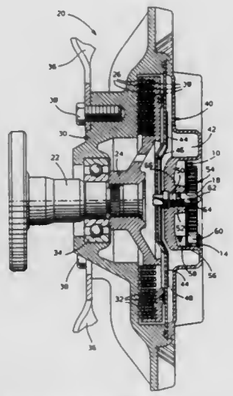
VOL
1132
ISS
1
NO
5
1991
UMI

ally elastically coupled with the first fly-wheel (69) through a torsion spring device (79), and wherein the bearing carrier (39*i*) comprises, radially within the circle of arrangement of the securing elements (5*i*), a collar (43*i*) protruding axially to the clutch disc (13*i*), on which collar the hub (23*i*) is mounted and merges radially outside the circle of arrangement into a bearing plate (71) on which the second fly-wheel (75) is guided.

5,062,514
INSULATING RETAINER FOR A VISCOUS FLUID CLUTCH

Lawrence C. Kennedy, Kettering, and Harvey J. Lambert, West Milton, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Apr. 22, 1991, Ser. No. 688,796
Int. Cl.[5] F16D *35/02*
U.S. Cl. 192—82 T **11 Claims**



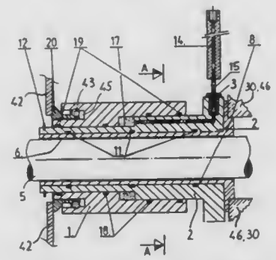
1. A viscous fluid clutch comprising:
(a) a housing;
(b) a bimetallic coil mounted on the housing for controlling clutch rotation; and
(c) insulating means mounted between the housing and the bimetallic coil for inhibiting radiant heat transfer from inside the housing to the bimetallic coil.

5,062,515
CLUTCH CONTROL DEVICE

Luigi R. Cimarosti, Quai de l'Ourthe, 7, Comblain-au-Pont, Belgium B-4170

PCT No. PCT/BE89/00035, § 371 Date Mar. 8, 1990, § 102(e) Date Mar. 8, 1990, PCT Pub. No. WO90/01123, PCT Pub. Date Feb. 8, 1990
PCT Filed Jul. 20, 1989, Ser. No. 477,832
Claims priority, application Switzerland, Jul. 21, 1988, 02 789/88-9
Int. Cl.[5] F16D *25/00*
U.S. Cl. 192—91 A **8 Claims**

1. In a friction clutch comprising two rotary parts (32,34) capable of being pressed against one another or separated as desired; a tube (8), intended for carrying at one end a conventional clutch bearing, concentrically surrounding a rotary shaft (5) and bearing at its other end against an end bearing (46) of a clutch housing (30), the improved clutch control device comprising: a piston (1), having two different inside diameters, adapted to slide on a cylinder (2) having a central bore (6) and two different outside diameters corresponding to the two inside diameters of piston (1), whereby a chamber (17) of varying volume can be defined between them by sliding piston (1) along cylinder (2); an orifice (3) for forcing fluid under pressure into chamber (17) and an orifice (13) for bleeding fluid therefrom; the assembly comprising cylinder (2) and piston (1) being capable of being slid onto tube (8) so that at one end the cylinder (2) bears against the end bearing (46) of clutch housing (30), while at the other end piston (1) indirectly bears on a moveable part (42) in contact with rotary part (34) through the means of a ring (20) located in a cavity (45) situated at the end of piston (1), said ring (20) constituting the clutch bearing and,

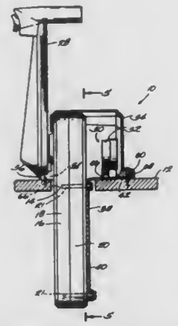


together with the outer wall of the cavity (45) and balls (43), forming a ball-bearing fitting; the introduction of fluid under pressure into chamber (17) causing piston (1) to slide on cylinder (2) in the direction of ring (20) thereby setting in motion ring (20) and, in turn, moveable part (42) which causes the separation of rotary parts (32,34), the reverse action being initiated when the fluid is bled from chamber (17).

5,062,516
SINGLE LEVER CONTROL

Anthony P. Prince, Waukegan, Ill., assignor to Outboard Marine Corporation, Waukegan, Ill.

Continuation of Ser. No. 201,378, May 27, 1988, abandoned, which is a continuation of Ser. No. 738,183, May 28, 1985, abandoned. This application Mar. 12, 1990, Ser. No. 494,789
Int. Cl.[5] B60K *41/02*
U.S. Cl. 192—0.096 **11 Claims**



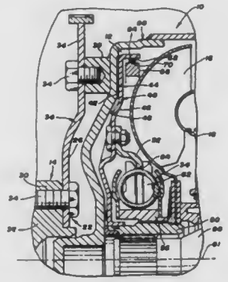
1. A single lever control adapted to be mounted on a generally horizontal mounting surface having therein an opening, said control comprising a housing which is adapted to extend through the opening and which includes an upper portion adapted to extend above the mounting surface, and a lower portion adapted to extend below the mounting surface, an operating mechanism including a clutch control member movably mounted on said housing, a throttle control member movably mounted on said housing, and a control level pivotally mounted on said upper portion of said housing and operably connected to said throttle control member and to said clutch control member, a mounting bracket mounted on said housing, said mounting bracket including a vertical portion fixedly connected to said lower portion of said housing and adapted to

extend through the opening, and a horizontal portion adapted to be connected to the mounting surface adjacent the opening, warning means mounted exteriorly of said housing on said mounting bracket and adapted to be operably connected to an engine for providing a warning signal when an engine condition exceeds a predetermined value, said warning means being mounted on said horizontal portion of said mounting bracket, a cover connected to said housing and including means for engaging the mounting surface, said cover partially enclosing said upper portion of said housing and enclosing said warning means, and said cover enclosing said horizontal portion of said mounting bracket and being adapted to be fixedly connected with said horizontal portion of said mounting bracket to the mounting surface, and an ignition switch mounted on said cover and adapted to be operably connected to an engine ignition system.

5,062,517
TUNED DAMPER FOR A TORQUE CONVERTER CLUTCH

Robert A. Muchmore, Mason, and William H. Roth, Centerville, both of Ohio, assignors to General Motors Corporation, Detroit, Mich.

Filed Oct. 9, 1990, Ser. No. 594,901
Int. Cl.[5] F16D *3/14*
U.S. Cl. 192—106.2 **4 Claims**

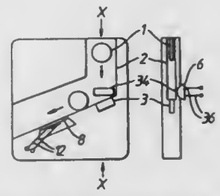


1. A tuned damper disposed within a torque converter of an automatic transmission of an engine driven vehicle for overcoming vibrations in a clutch disposed within the torque converter for driving a torque converter turbine directly by the engine, comprising:
a clutch drive element having a rotatively rigid connection to the engine and a clutch engagement surface, and having an axis of rotation;
a clutch driven element having a rotatively rigid connection to the engine and a clutch engagement surface, and having an axis of rotation;
a clutch driven element having a clutch engagement surface complementary to the clutch engagement surface of the clutch drive element, selectively and frictionally engagable with the clutch drive element, having an axis of rotation common with the axis of rotation of the clutch drive element, having inertia about the axis of rotation, axially movable relative to the clutch drive element, and rotating with the clutch drive element after clutch engagement;
a clutch hub linking the clutch driven element and an output element and moving axially with the clutch driven element, rotatively fixed and axially movable relative to the output element;
clutch springs interposed between the clutch driven element and the clutch hub such that relative rotary movement between the clutch driven element and the clutch hub axially compresses the springs producing a torsional load between the clutch driven element and the clutch hub, providing a torsional spring rate between the clutch driven element and the clutch hub;
the clutch driven element and the clutch hub each having a corresponding plurality of openings for the disposition of the clutch springs, the openings being of approximately the same size and shape as the springs in their free state;
a natural frequency of rotary vibration for a driveline system dependent on the rotary inertia of the clutch driven element, on a torsional spring rate between the transmission and the clutch driven element primarily controlled by the torsional spring rate between the clutch driven element and the clutch hub, on a rotary inertia of rotating transmission components, on a rotary inertia of the vehicle as reflected through a final drive ration of the vehicle, and on a torsional spring rate of the vehicle primarily controlled by an axle spring rate;
a ring shaped inertia element centered relative to the axis of rotation of the clutch driven element in parallel with the output element; and
a visco-elastic material element with both torsional spring and torsional damping characteristics linking the ring shaped inertia element with the clutch driven element.

5,062,518
COIN VALIDATION APPARATUS

Clive L. Chitty, and Roger W. Whatmore, both of Northants, England, assignors to GEC Plessey Telecommunications Limited, Coventry, England

Filed Oct. 12, 1989, Ser. No. 420,188
Claims priority, application United Kingdom, Sep. 20, 1988, 8822115
Int. Cl.[5] G07D *5/04*
U.S. Cl. 194—317 **11 Claims**



1. Coin validation apparatus comprising a coin chute including a hard striking surface upon which a coin entering the apparatus is directed, a microphone positioned to detect acoustic vibrations of the coin after striking said surface, an output from said microphone being applied to signal processor means to produce a dynamic signal analysis of the coin vibrations, weigh-bridge measuring apparatus comprising a flexible strip of resilient material which is carried on a support at each end, guide means for permitting the said coin to be rolled along the whole length of the strip thereby causing a temporary deflection of a centre portion of said strip, and a strain gauge located at the strip centre portion effective to produce an electrical signal representative of the deflection which is induced in the strip, comparison means for enabling the resulting vibration spectrum and electrical signal to be compared with stored data representative of a set of standard coins, and output means arranged to indicate which coin value of the expected set has entered the apparatus.

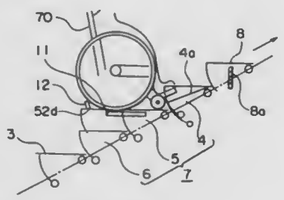
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,519

ESCALATOR SYSTEM WITH CONVERTIBLE STEP UNIT

Yasumasa Haruta, Inazawa, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed May 30, 1990, Ser. No. 530,797
Claims priority, application Japan, May 31, 1989, 1-137637; May 31, 1989, 1-137638
Int. Cl.[5] B66B *23/12*
U.S. Cl. 190—333 15 Claims



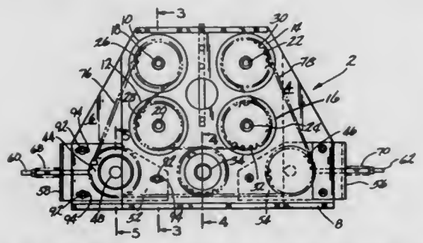
1. An escalator system comprising:
a main frame defining a circulating loop path;
a plurality of steps connected in an endless step loop disposed in said loop path;
a convertible step unit disposed in said step loop, at least one step in said unit having a movable member disposed in a first position during an ordinary operating mode and disposed in a second position during a special operating mode;
a displacement mechanism, associated with the movable member and connected to said convertible step unit, for displacing the movable member of said convertible step unit between the first position and the second position by a drive force of said step loop which is a drive force component in the direction of width of a step; and
a movable guide rail unit engageable with said displacement mechanism during the special operating mode which moves said displacement mechanism in the step width direction by a camming action of said guide rail and converts said convertible step unit.

5,062,520

SELF ADJUSTABLE HANDRAIL DRIVE WITH SEPARATE DRIVE CHAINS

Dat Nguyen, New Britain; Frank Sansevero, West Hartford; Gerald E. Johnson, Farmington, and James A. Rivera, Bristol, all of Conn., assignors to Otis Elevator Company, Farmington, Conn.

Filed Jul. 11, 1990, Ser. No. 550,926
Int. Cl.[5] B66B *23/02*
U.S. Cl. 198—335 7 Claims



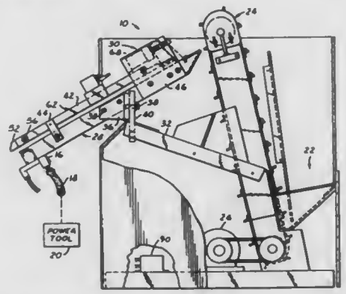
1. A handrail drive assembly for a moving handrail, said assembly comprising:
a) a first pair of drive rollers mounted on first rotatable drive roller shafts, said first drive rollers forming a first nip through which the handrail passes;
b) first rotatable end bearings supporting opposite ends of said first drive roller shafts, said first end bearings being mounted eccentrically of said first drive roller shafts;
c) a second pair of drive rollers mounted on second rotatable drive roller shafts, said second drive rollers forming a second nip adjacent said first nip, and through which the handrail passes;
d) second rotatable end bearings supporting opposite ends of said second drive roller shafts, said second end bearings being mounted eccentrically of said second drive roller shafts; and
e) first and second second separate drive chains for separately rotating said first and second drive rollers and drive roller shafts respectively in said first and second end bearings whereby the axes of said drive rollers in each of said first and second pairs thereof move toward each other due to the eccentricity of said shafts and bearings to increase nip pressure on the handrail responsive to resistance to movement of the handrail.

5,062,521

ARTICLE ORIENTING APPARATUS

Edward N. Hockman, Auburn Hills, Mich., assignor to Clyde Corporation, Rochester Hills, Mich.

Filed Jan. 31, 1990, Ser. No. 473,216
Int. Cl.[5] B65G *47/24*
U.S. Cl. 198—389 5 Claims



1. An apparatus for orienting articles each having a head and a shank comprising, a track having a pair of generally parallel and laterally spaced apart rails constructed and arranged to receive a head of an article thereon with at least a portion of the shank thereof depending therebetween, said track sloping downwardly such that articles received thereon slide toward the lower end thereof, a movable finger overlying said track, disposed between the ends thereof and having a gate opening therethrough adjacent said track which is constructed and arranged to permit only articles properly oriented on said track with their heads on said rails and their shanks depending therebetween to pass through said finger from a location on said rack upstream of said finger to a location downstream thereof, said finger also being constructed and arranged to prevent articles received on said track in any other orientation from moving downstream thereof and having means thereon to remove improperly oriented articles on said track therefrom when said finger is reciprocated longitudinally of said track, a mounting plate carried by said track, a way secured to said mounting plate and constructed and arranged to slidably receive said finger thereon for reciprocation generally longitudinally of said track and to prevent rotation thereof, a drive operably connected with said finger for moving said finger relative to said track to engage and remove improperly oriented articles therefrom while permitting properly oriented articles to pass through the gate thereof, said drive comprising a ram carried by said mounting plate, having a piston rod

releasably connected to said finger, and constructed and arranged to reciprocate said finger on said way generally longitudinally of said track, and article delivery means associated with said track and constructed and arranged to periodically dump articles onto said track from a location above and spaced from said track and upstream of said finger, whereby articles dumped by said delivery means fall by gravity onto said track and which are oriented with their heads received on said rails and their shanks depending therebetween will move along said track through said gate of said finger and downstream thereof and articles from said delivery means remaining on said track in any other orientation will be removed from said track by movement of said finger and prevented from moving on said track downstream of said finger such that only articles with their heads bearing on said rail and having their shanks depending therebetween are received on said track downstream of said finger.

5,062,522

DEVICE FOR ALIGNING ARTICLES HAVING DIFFERENT DIAMETERS AT THEIR HEAD AND TAILS ALONG A SELECTED DIRECTION OF MOVEMENT WHILE CONCURRENTLY ORIENTING THEIR HEADS EITHER FORWARDLY OR REARWARDLY RELATIVE TO THAT DIRECTION

Takayoshi Sagawa, Hiratsuka; Shichisei Tani, Yokohama, and Katsuo Kato, Hiratsuka, all of Japan, assignors to Japan Tobacco Inc., Tokyo, Japan

Filed Mar. 23, 1990, Ser. No. 497,916
Claims priority, application Japan, Mar. 29, 1989, 1-75045
Int. Cl.[5] B65G *47/24*
U.S. Cl. 198—400 6 Claims

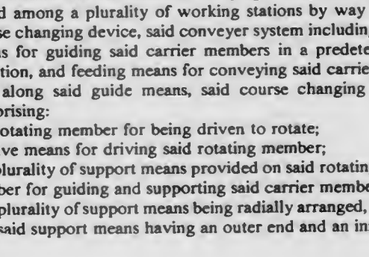
1. A device for aligning rod-like articles which have different diameters at their heads and tails in a selected direction and for orienting their said heads forwardly relative to said selected direction, said device comprising:
a drum mounted for rotation in a plane along a path of conveyance of said articles, said drum including a pair of spaced-apart side rims each having a circumferential edge, said side rims defining therebetween a circumferential groove in said drum having a width larger than the diameter of the tails of said articles but smaller than the diameter of the heads thereof, and a depth greater than the length of the tails;
a feed-in conveyor means for successively supplying the articles onto an uppermost circumferential portion of said drum in such a manner that the articles are suspended by said drum during rotation thereof with their heads being dependently supported by means of said circumferential edges of said side rims with their respective tails hanging downwardly into said groove defined between said side rims;
feed-out conveyor means for receiving the articles conveyed from said feed-in conveyor means by said drum, said tails of said articles hanging in the groove on the uppermost circumferential portion of the drum being contacted first by the feed-out conveyor means, and wherein
said feed-out conveyor means includes a belt which is stretched along plural pulleys and passes through the groove at the uppermost circumferential portion of the drum such that the articles are transferred to said belt by said rum, and wherein
said belt operates at a slower speed as compared to the peripheral speed of the drum to provide means which causes said heads of said articles to be oriented forwardly relative to said tails.

5,062,523

CONVEYOR FOR SHAFT-LIKE PARTS

Roger L. Lenz, Dimondale, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 20, 1990, Ser. No. 569,150
Int. Cl.[5] B65G *29/00*
U.S. Cl. 198—463.4 8 Claims



1. A transfer apparatus for moving shaft-like parts from one station to another comprising:
a frame supporting a linear array of horizontal parallel rotors, each rotor mounted for rotation about its axis;
drive means coupled to the rotors for continuously driving the rotors for uninterrupted rotation;
each rotor including a pair of spaced discs mounted for rotation with the respective rotor, the discs of each rotor overlapping and axially spaced from the discs of adjacent rotors;
each pair of discs having aligned notches for receiving a part and carrying the part in the direction of disc rotation; and
gate means responsive to the presence of a first part engaged by a pair of discs for preventing the movement of a second part into the notches of a pair of discs already engaging the first part.

5,062,524

COURSE CHANGING DEVICE FOR CONVEYER SYSTEM

Yoshihisa Nozaki, Toyokawa; Takashi Inden, and Tohur Takemura, both of Nagoya, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

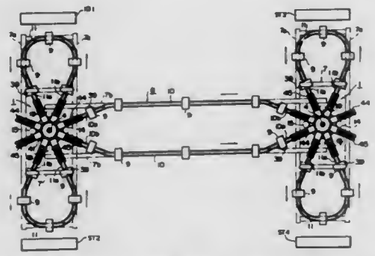
Filed Jul. 25, 1990, Ser. No. 558,079
Claims priority, application Japan, Jul. 26, 1989, 1-193129
Int. Cl.[5] B65G *29/00*
U.S. Cl. 198—465.4 13 Claims

1. A course changing device employed in a conveyer system, wherein carrier members carrying workpieces are conveyed among a plurality of working stations by way of said course changing device, said conveyer system including guide means for guiding said carrier members in a predetermined direction, and feeding means for conveying said carrier members along said guide means, said course changing device comprising:
a rotating member for being driven to rotate;
drive means for driving said rotating member;
a plurality of support means provided on said rotating member for guiding and supporting said carrier members, said plurality of support means being radially arranged, each of said support means having an outer end and an inner end

VOL 1132 ISS 1 NO 5 1991 UMI

being rockable with respect to the outer end thereof so that the inner end of each of said support means is capable of being rocked between an upper position and a lower position;

shifting means for driving said support means to be shifted between said upper and lower positions, wherein said support means is capable of sending said carrier member supporting thereon to said guide means when said support



means is shifted to said upper position by said shifting means, and wherein said support means is capable of receiving said carrier member from said guide means when said support means is shifted to said lower position by said shifting means; and

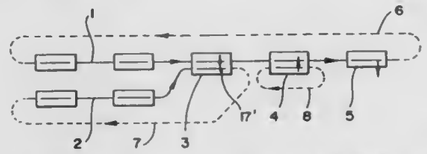
control means for controlling said drive means in accordance with the station which said carrier member supported by said plurality of support means is directed to.

5,062,525

PRODUCTION MACHINE INCORPORATIONG A HIGH-SPEED LIFT AND CARRY DEVICE WITH DOUBLE WALKING BEAM, AND THE PRODUCTION SYSTEM IMPLEMENTING THIS TYPE OF MACHINE

Claude Terracol, Eybens; Patrick Bredel, St. Martin D'Heres, and Jean-Laurent Guillet, Eybens, all of France, assignora to Merlin Gerin, Meylan, France

Filed Sep. 24, 1990, Ser. No. 587,355
Claims priority, application France, Sep. 22, 1989, 89 12558
Int. Cl.[5] B65G *27/34*
U.S. Cl. 198—468.6 **9 Claims**



1. An automated conveyorized production apparatus, comprising:

a conveyorized main track for transporting a plurality of palettes;

a conveyorized branch track for transporting a plurality of palettes, wherein at least a first segment of said main track and a corresponding second segment of said branch track are adjacent to each other and arranged in parallel, palettes transported across said first segment and said second segment being synchronized to move at the same speed;

first walking beam lift and carry means forming a part of said first segment for transporting a plurality of palettes along said main track;

second walking beam lift and carry means forming a part of said second segment for transporting a plurality of palettes along said branch track; and

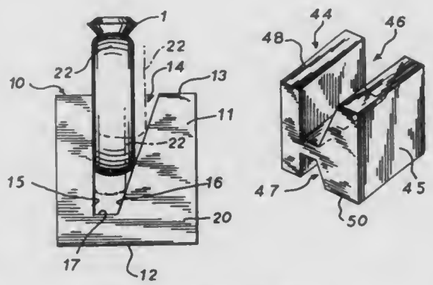
transfer handling means disposed at a location along said first segment and said second segment for directly transferring an item from a palette of said branch track disposed on said second lift and carry means to a corresponding palette of said main track disposed on said first lift and carry means before subsequent movement of said corresponding palette along said main track.

5,062,526

JEWELRY DISPLAY DEVICE

Alan S. Rudnick, and Lance N. Janke, both of Rte. 3, Plymouth, Wis. 53073

Filed Dec. 18, 1989, Ser. No. 452,213
Int. Cl.[5] B65D *6/04*
U.S. Cl. 206—6.1 **1 Claim**



1. A display device for rings comprising:

a rigid unitary body having a lower supporting base portion and an upper surface portion;

a wedge-shaped notch in said body, said notch having an open upper end in said upper surface portion;

said notch being defined by a pair of opposed upwardly divergent planar surfaces, which surfaces are perpendicular to a common plane; and,

a second wedge-shaped notch in said body, said second notch having an open lower end in said base portion;

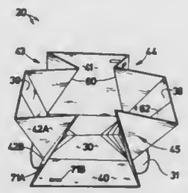
whereby rings of varying band widths may be inserted and held between said divergent surfaces by a wedging action.

5,062,527

FOLDABLE, LEAKPROOF MULTI-MODE CARTON CONSTRUCTION

Frank E. Westerman, 30 Woodberry Rd., Little Rock, Ark. 72212

Filed May 21, 1990, Ser. No. 526,032
Int. Cl.[5] B65D *5/36*
U.S. Cl. 229—117 **44 Claims**



1. A blank adapted to be folded into a slotless carton without natural leak paths for safely containing contents such as medical waste, said blank comprising:

center panel means for integrally forming a continuous, slotless floor of said carton, said center panel means comprising a top, a bottom, and a pair of spaced apart sides;

width panel means integral with said center panel means for forming end walls of said carton, said width panel means adjoining said center panel means at said top and said bottom;

length panel means integral with said center panel means and said width panel means for forming side walls of said carton, said length panel means adjoining said center panel means at said sides;

corner panel means for yieldably bending into said carton interior when said blank is folded into said carton, said corner panel means integral with said center panel means, said width panel means, and said length panel means; and

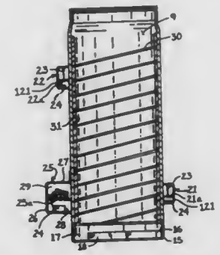
score line means for facilitating folding of said width panel means, said length panel means, and said corner panel means, thereby enabling the formation of said carton.

5,062,528

HEATED GOLF BAG APPARATUS

Bobby V. Whitaker, Jr., 531 Hartfield St., Jackson, Miss. 39216

Filed Nov. 13, 1990, Ser. No. 612,546
Int. Cl.[5] A63B *55/00*; F24S *7/10*; H05B *3/06*
U.S. Cl. 206—315.3 **7 Claims**



1. A heated golf bag apparatus comprising, in combination,

an elongate longitudinally aligned bag, the bag including a lower compartment fixedly mounted to a lower end of the bag, with the lower compartment defining an enclosed lower chamber, the enclosed lower chamber including a rechargeable battery positioned therewithin, and

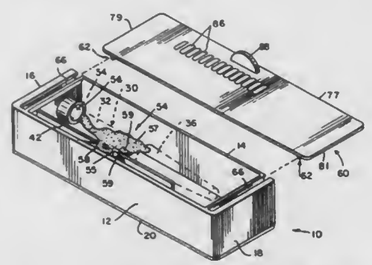
a helically wound heating coil mounted coextensively within the bag above the lower compartment, with the heating coil in operative association with the battery.

5,062,529

ENCLOSURE FOR CURLING IRON OR SIMILAR ARTICLE

Connie D. Blair, 5073 Madison St., Gary, Ind. 46408

Filed Nov. 14, 1988, Ser. No. 271,330
Int. Cl.[5] B65D *85/20*
U.S. Cl. 206—349 **21 Claims**



1. An enclosure storing a curling iron, comprising:

a front member having a top and a bottom;

a back member having a top and a bottom;

a first side member having a top and a bottom;

a second side member having a top and a bottom;

a floor member attached to said bottom of said front member, to said bottom of said back member, and to said bottom of said first side member and to said bottom of said second side member;

a partition member attached to at least one of said first side member and said floor member;

a first section on a first side of said partition member receiving a handle of said curling iron, said handle having a first end and a second end, and receiving an elongate heatable element of said curling iron, said elongate heatable element having a mounted end attached to said first end of said handle and a free end;

a second section on a second side of said partition member receiving an electrical power cord fixedly attached to said second end of said handle of said curling iron;

a cover removably attached to said top of said front member, to said top of said back member, to said top of said first side member, and to said top of said second side member; and

said cover includes ventilation means for providing air circulation between the exterior and the interior of said enclosure.

7. A combination of a curling iron and an enclosure of same, comprising:

a handle with a first end and a second end;

an elongate heatable element having a free end and a mounted end attached to said first end of said handle;

an electrical power cord fixedly attached to and extending from said second end of said handle;

a front member;

a back member;

a first side member;

a second side member;

a floor member attached to each of said front member, said back member, said first side member and said second side member; and

partitional means separating said handle and said elongate heatable element from said electrical power cord within said enclosure.

20. An enclosure storing a curling iron, comprising:

a front member having a top and a bottom;

a back member having a top and a bottom;

a first side member having a top and a bottom;

a second side member having a top and a bottom;

a floor member attached to said bottom of said front member, to said bottom of said back member, to said bottom of said first side member and to said bottom of said second side member;

a partition member attached to at least one of said first side member and said floor member;

a first section on a first side of said partition member receiving a handle of said curling iron, said handle having a first end and a second end, and receiving an elongate heatable element of said curling iron, said elongate heatable element having a mounted end attached to said first end of said handle and a free end;

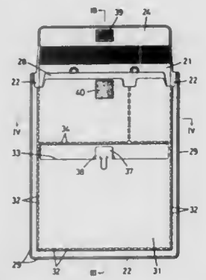
a second section on a second side of said partition receiving an electrical power cord attached to said second end of said handle of said curling iron;

a cover removably attached to said top of said front member, to said top of said back member, to said top of said first side member, and to said top of said second side member; and

said cover includes at least one elongated projection which is slideably received into at least one track, said track being located in at least one of said top of said front member, said top of said back member, said top of said first side member and said top of said second side member.

VOL 1132 ISS 1 NO 5 1991 UMI

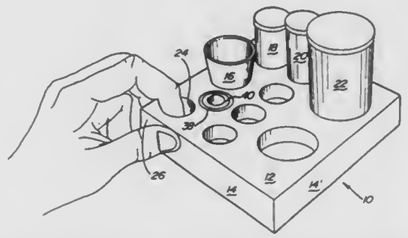
5,062,530
COMPACT FILE FOR LETTERS AND OTHER DOCUMENTS
Masuhiro Mitsuyama, 1071, Kinugasa, Wake-cho, Wake-gun, Okayama, Japan
Filed May 30, 1990, Ser. No. 530,397
Claims priority, application Japan, Feb. 20, 1990, 2-16421[U]
Int. Cl.[5] B65D *85/00, 27/08*
U.S. Cl. 206—425 **12 Claims**



1. A file comprising:
a rigid plate having a top edge, a bottom edge, two side edges, a front surface and a rear surface;
a cover sheet having a top edge, a bottome dge, and two side edges, said cover sheet being attached along its two side edges to said two side edges, respectively, of said rigid plate, said cover sheet further being attached along its bottom edge to said bottom edge of said rigid plate but being separable along said top edge of said cover sheet from said rigid plate, such that said cover sheet is adjacent said front surface of said rigid plate and a pocket is formed between said rigid plate and said cover sheet;
said rigid plate comprising a flat rigid member, and means mounted to said rigid member for allowing a space to be formed between said top edge of said rigid plate and said top edge of said cover sheet when said rigid plate is held firmly and said top edge of said cover sheet is pulled forwardly away from said rigid plate; and
said means for allowing a space to be formed comprises pliable portions attached to said rigid member and extending laterally outwardly therefrom along both side edges thereof, said side edges of said cover sheet being attached along said pliable portions such that, when said rigid plate is held firmly and said top edge of said cover sheet is pulled forwardly away from said rigid plate, said pliable portions bend forwardly to allow said top edge of said cover sheet to move forwardly relative to said rigid plate.

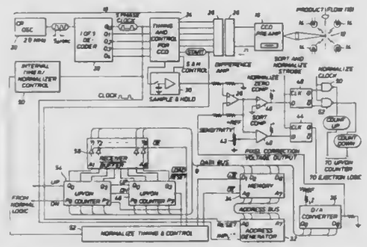
5,062,531
MEDICINE CADDY OR TRAY
Walter G. Coy, 36652 Six Mile Rd., Livonia, Mich. 48152
Filed Mar. 20, 1989, Ser. No. 325,949
Int. Cl.[5] B65D *1/36*
U.S. Cl. 206—564 **6 Claims**

1. A tray for removably holding one or more medicine containers, said tray comprising:
a body having a plurality of medicine-container holding recesses defined therein, said body including at least three sides, a substantially planar base, and a substantially planar top, said recesses being defined in said top;
said body being composed of a lightweight, resiliently flexible and expanded polymerized material, whereby said one or more medicine containers may be firmly but removably held;
means for altering the inner diameter of at least one of said plurality of said recesses, said means for altering the inner diameter comprising at least one selectively removable and reinsertable concentric sizing ring having a diameter smaller than the diameter of said one of said plurality of recesses, said at least one ring being adapted to be received in said one of said plurality of recesses, said at least one ring being tubular and cylindrical in shape and having an axial length substantially the same as depth of said recess so that, upon insertion of said ring into said recess, a top surface of said at least one ring is substantially flush with a top surface of said body;



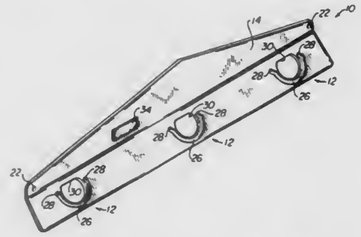
said means for altering being composed of a lightweight, resiliently flexible and expanded polymerized material, whereby said one or more medicine containers may be firmly but removably held;
said at least one sizing ring being firmly but removably held in said body;
means for grasping, said means for grasping comprising an aperture defined in said top for receiving an index finger when two of said at least three sides are pinched between the thumb and the second finger of a user's hand.

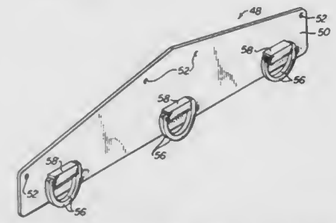
5,062,532
SORTING MACHINE INCLUDING PHOTO SITE PROCESSING
George A. Zivley, Houston, Tex., assignor to ESM International, Inc., Houston, Tex.
Filed May 7, 1990, Ser. No. 519,886
Int. Cl.[5] B07C *5/342*
U.S. Cl. 209—581 **5 Claims**



1. In a sorting machine having at least one channel through which fungible products to be sorted flow, are electro-optically observed in a viewing window, and cause a defect signal to occur when observed to be substandard, the improvement comprising
separate photodetectors for observing a respective one of a plurality of photo sites of the viewing window and producing an electrical output proportional to the respective photo site light intensities,
timing-and-control means for controllably separably enabling each of said photodetectors during a sample period of time, and
processing means for individually processing the respective photo site electrical outputs to determine when a successive number of adjacent ones of them are outside of a predetermined acceptable standard to produce a reject output.

5,062,533
BAG HOLDER FOR RECYCLABLE MATERIAL
William H. Fickes, 4503 Club House Dr., Marietta, Ga. 30066, and Edward A. Fickes, Plano, Tex., assignors to William H. Fickes, Marietta, Ga.
Filed Sep. 18, 1990, Ser. No. 584,458
Int. Cl.[5] B42F *17/00*
U.S. Cl. 211—12 **15 Claims**

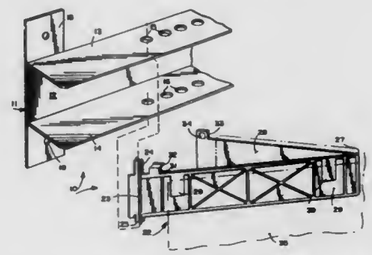




1. A holder for suspending bags for collecting materials therein, comprising an upper body portion having a generally planar configuration and adapted for parallel securement to a generally vertical surface, a lower body portion extending angularly from said upper body portion and away from said vertical surface, and securing means on said lower body portion for receiving and securing a bag or the like, including an aperture formed in said lower body portion with a ring means disposed in close proximity to said aperture and adapted to pivot toward and away from said lower body portion for receiving a portion of a bag through said aperture and said ring means and between said ring means and said lower body portion.

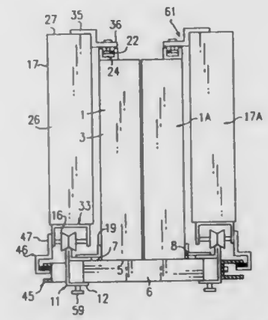
5,062,534
FABRIC SAMPLE DISPLAY
Paula Neustat, and Larry Marchiony, both of New York, N.Y., assignors to Burlington Industries, Inc., Greensboro, N.C.
Filed Mar. 28, 1990, Ser. No. 500,602
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—48 **20 Claims**

1. A display for fabric samples, comprising:
(a) a stationary support;
(b) a cantilever arm;
(c) said cantilever arm comprising a first section, and a second section pivotally mounted by hinge means for movement about a generally vertical axis with respect to said first section;
(d) means for mounting said cantilever arm to said support so that said arm first section extends outwardly therefrom and generally horizontally; and
(e) means for mounting a fabric sample to both sections of said cantilever arm so that said fabric sample may assume a low volume configuration when said second section is pivoted to a position generally parallel to said first section, or a deployed configuration when said second section is



pivoted to extend substantially in line with said first section.

5,062,535
SIDE-SLIDING STORAGE RACK FOR 3480 CARTRIDGES
Frank Potter, P.O. Box 538, Syosset, N.Y. 11791
Filed Feb. 15, 1991, Ser. No. 656,215
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—162 **9 Claims**



1. An extendable assembly of cartridge storage stationary racks and a cartridge storage slide rack that is slidable relative to the stationary racks, the assembly comprising: multiple stationary racks, removable brackets connecting the stationary racks in end-to-end relation, a roller engageable channel track mounted along a top wall of each stationary rack in end-to-end abutting relation with similar tracks mounted along the top walls of neighboring stationary racks, each track being open along its top and at its ends to provide a continuous channel track with adjoining tracks; a separate base upon which each stationary rack is individually mounted, each base having a shoulder extending along a front of the rack mounted upon the base and having a shoulder extending along a rear of the rack; a separate rail track unit supported upon the shoulder fronting each stationary rack, each rail track unit having a front wall and a top wall extending rearwardly from the front wall, means securing the top wall to the stationary rack, the top wall having a narrow raised portion extending along a front edge thereof, and means connecting the rail track units end-to-end whereby the narrow raised portions of the several units provide a continuous rail track fronting the stationary racks; a cartridge storage slidable rack unit comprising a slide rack for the storage thereon of cartridges, peripherally grooved rollers mounted to a bottom wall of the slide rack engaged for rolling along the rail track, and strap elements extending rearwardly from a top wall of the slide rack supporting rollers depending into the channel track, whereby the cartridge storage slidable rack unit is slidable along the rail and channel tracks, and

VOL
1132
ISS
1
NO
5
1991
UMI

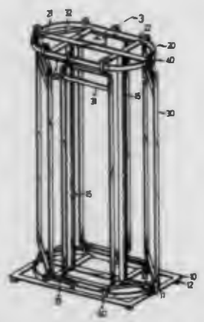
whereby the assembly is adapted to have additional slidable cartridge storage rack units added to it by entering the depending rollers of the additional rack units into the channel track through an open end of the channel track and by seating the peripherally grooved rollers of the additional rack units onto the rail track.

5,062,536

ROTATABLE HANGER ASSEMBLY

Huang S. Tsai, Taichung Hsien, Taiwan, assignor to Tung Keng Col, Ltd., Taichung Hsien, Taiwan and Tung Keng Col, Ltd., Taichung Hsien, Taiwan

Filed Nov. 15, 1990, Ser. No. 613,593
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—162 3 Claims



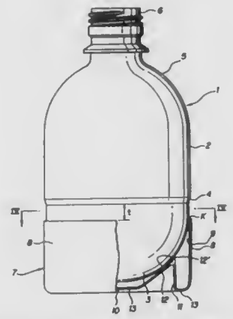
1. A hanger assembly comprising a base and an upper support coupled together by two posts, a first track which is endless being disposed on said base and having two side surfaces, said upper support having a second track which has a shape similar to that of said first track and which is disposed in parallel to said first track and which has two side surfaces, a plurality of frames, an upper portion of each of said frames being slidably coupled to said second track by two roller supports, each of said roller supports including a substantially C-shaped holder with a roller provided in an upper portion of said holder and with a pair of discs pivotally supported on a lower portion of said holder, said roller being straddled on said second track so that said roller support can slide freely along said second track, said discs slidably contacting said side surfaces of said second track so that said upper portion of said frame can be guided to slide along said second track, a lower portion of each of said frames being slidably coupled to said first track by two guides, a bar being laterally coupled to an upper portion of each of said frames so that clothes may be hung on said bar, an upper strip being pivotally coupled between two adjacent roller supports of every two adjacent frames, and a lower strip being pivotally coupled between two adjacent guides of every two adjacent frames so that said frames are pivotally coupled together by said strips and so that said frames move in concert along said first track and said second track and so that a great many clothes can be hung on either of said bars, and said clothes can be easily reached when said frames are rotated to slide along said first track and said second track.

5,062,537

BOTTLE-SHAPED CONTAINER WITH BASE CAP

Yoshiaki Hayashi, Matsudo, Japan, assignor to Yoshino Kogyosho Co., Ltd., Tokyo, Japan

Filed Mar. 6, 1990, Ser. No. 489,216
Claims priority, application Japan, Mar. 9, 1989, 1-26779[U]
Int. Cl.[5] B65D *23/08, 25/24*
U.S. Cl. 215—12.1 5 Claims



1. A bottle-shaped container with a base cap comprising:
a bottle including a body and a semispherical convex shaped bottom extending downward from the body; and
a cylindrical base cap securely attached to said bottom, said base cap providing support for the container; wherein
said body has a lower portion having a reduced diameter zone and a tapered zone for preventing a shrunk label attached thereto from slipping;
inlet means are formed between an outer periphery of an upper portion of the bottom and an inner periphery of an upper end of a cylindrical side wall of the base cap;
outlet means are formed in a bottom wall of the base cap for draining hot water from the base cap; and
an intermediary zone is formed on an outer surface of the body between the tapered zone and said upper end of the base cap to enable hot water to flow into the base cap through said inlet means.

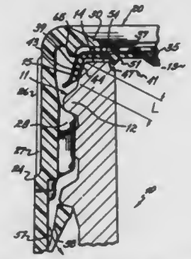
5,062,538

PACKAGE WITH PRESSURE VENTING CLOSURE ACCEPTING DIFFERENT TYPES OF INSERT DISKS FOR DIFFERENT FOOD PRODUCTS

Charles S. Ochs, Lancaster, Ohio, assignor to Anchor Hocking Packaging Company, Lancaster, Ohio

Continuation-in-part of Ser. No. 401,999, Sep. 1, 1989, Pat. No. 4,993,572, and a continuation-in-part of Ser. No. 402,211, Sep. 1, 1989, abandoned. This application Jun. 8, 1990, Ser. No. 535,114
The portion of the term of this patent subsequent to Feb. 19, 2008, has been disclaimed.
Int. Cl.[5] B65D *51/16*
U.S. Cl. 215—260 14 Claims

1. A package comprising a container and a pressure venting, side sealing closure,
said container having a finish with an opening and a top seal area around said opening, said top seal area comprising an upwardly facing annular area at the top of the finish,
said container also having a side seal area comprising an annular area extending downwardly and outwardly around said top seal area, said side seal area and said top seal area together having a width adequate for sealing meat products,
said container having external thread means for securing said closure;
said closure comprising,
an annular shell having a top opening and a skirt with internal thread means for engaging the thread means of said container, said closure having a top lip which projects inwardly around said top opening,
an insert disk contained in said shell beneath said top lip, said insert disk having a downwardly opening gasket channel with an annular band at the top and a downwardly and outwardly angulated side seal flange around said band,
a gasket in said gasket channel, said gasket covering both said band and said flange and forming a seal with both said top seal area and said side seal area of said container,



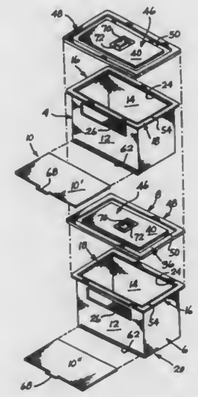
said top lip of said closure having an undersurface with at least one bearing area for engaging said band above said gasket channel,
the said undersurface of said top lip also having at least one recessed area which does not bear on said disk, said recessed area permitting gas pressure in said container in excess of a predetermined limit to deflect the disk upwardly into said recessed area and away from said top seal area of said container sufficiently to release excess gas pressure.

5,062,539

COMPARTMENTALIZED REFUSE CONTAINER

John W. Chandler, 131 NW. 55th St., Seattle, Wash. 98107

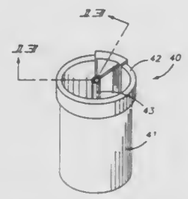
Continuation-in-part of Ser. No. 349,325, May 8, 1989. This application Jul. 25, 1990, Ser. No. 558,145
Int. Cl.[5] B65D *21/02*
U.S. Cl. 220—4.27 12 Claims



1. In an upright container for holding refuse and the like,
a pair of relatively upper and lower tube-like storage modules that are stacked on top of one another to form a joint therebetween,
a pair of panels which are removably insertable in the pair of modules to form false bottoms for the modules,
each module having an annular wall structure which is arranged upright in the container and defines the sides of the module and a hollow bin therewithin for refuse,
each wall structure having a relatively upper rim about the top thereof which forms first joint locking attachment means on opposing sides of the module at the top of the wall structure, and a relatively lower rim about the bottom thereof which forms second joint locking attachment means on opposing sides of the module at the bottom of the wall structure,
each wall structure having an opening at the top thereof that is formed within the relatively upper rim of the wall structure, an opening at the bottom thereof that is formed within the relatively lower rim of the wall structure, and a pair of additional openings in the body of the wall structure that are formed to open to the outside of the module at levels between the tip and bottom openings of the wall structure,
one of the additional openings in each wall structure being formed in a horizontal plane adjacent the bottom of the corresponding bin, and the other additional opening in each wall structure being formed at a level which is disposed above the one additional opening and relatively adjacent the top opening of the respective wall structure,
the one additional opening in each wall structure being generally rectangular in outline to form a horizontally extending slot-like recess in the bottom portion of the wall structure for receiving the respective panel for the module, the panel being removably insertable in the bin of the respective module through the recess, and there being means disposed about the bin at the level of the recess to support the panel crosswise of the bin at that level, so that when inserted the panel can serve as a false bottom for the bin, but will open the bin to the bottom opening of the wall structure when it is removed from the bin, and
coupler means which are removably interposed between the relatively upper and lower modules at the joint therebetween and have third and fourth joint locking attachment means on the opposing relatively upper and lower sides thereof, respectively, which are snap engageable with the second and first joint locking attachment means, respectively, on the relatively upper and lower rims of the relatively lower and upper modules, respectively, to form interfering male/female joints between the third and second joint locking attachment means and the fourth and first locking joint attachment means, respectively, that operate to interlock the modules for conjoint movement in the vertical directions thereof, when the relatively upper module is lifted in the vertically upward direction, but which are disengageable under a predetermined vertical force to enable the coupler means to be detached from the respective modules, and vice versa, when the modules are to be unloaded,
the other additional openings in the wall structures of the respective modules being adapted to form entry ports for loading refuse in the respective bins of the modules, so that two types of refuse can be loaded in the respective bins, with the panel of the relatively upper module segregating one bin from the other, and then when the container is to be unloaded, the two types can be separately unloaded through the respective top and bottom openings of the stack of modules, and/or through the respective top and/or bottom openings of the respective modules when the coupler means have been disengaged from at least one of the first and second attachment means and the respective modules have been relatively separated from one another by relatively lifting one module away from the other.

VOL 1132 ISS 1 NO 5 1991 UMI

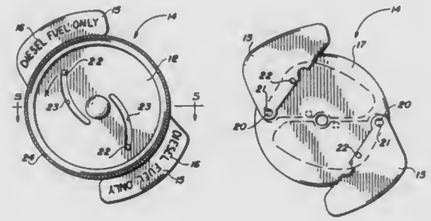
5,062,540
CONTAINER RECYCLING APPARATUS
Robert A. Jenkins, 2216 Division, Boise, Id. 83706
Filed Apr. 29, 1991, Ser. No. 693,157
Int. Cl.[5] B65F *1/08*
U.S. Cl. 220—23.83 1 Claim



1. A container recycling apparatus, comprising in combination,
a rigid cylindrical container, the cylindrical container including a floor and an upper terminal edge, the upper terminal edge including an "L" shaped flange mounted circumferentially and continuously to the upper terminal edge extending exteriorly of the cylindrical container and downwardly along the cylindrical container in a spaced relationship relative to a cylindrical side wall of the cylindrical container, and the cylindrical container including a central shaft, the central shaft fixedly and coaxially mounted to the floor of the cylindrical container extending coextensively thereof from the floor to the upper terminal edge, and
a plurality of inserts, each insert of said plurality of inserts defining a cylindrical segment of a varying degree of arc, wherein each insert includes an "L" shaped lock flange, each lock flange complementarily receives the "L" shaped flange of the cylindrical container therewithin, and each "L" shaped lock flange includes a flange extension extending downwardly below the "L" shaped flange, wherein the "L" shaped lock flange and flange extension are flexible permitting manual displacement of the flange extension and "L" shaped lock flange relative to the "L" shaped flange permitting ease of removal of each of said inserts therewithin, and
each insert includes a positioning sleeve fixedly and coaxially mounted on each insert at a varying position among the inserts permitting positioning of said plurality of inserts within the cylindrical container, with the positioning sleeve of each respective insert displaced relative to an adjacent insert.

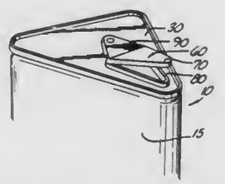
5,062,541
CLOSURE CAP
Vincent J. Galbo, Williamsville, N.Y., assignor to U-Haul International, Inc., Phoenix, Ariz.
Filed Mar. 22, 1990, Ser. No. 497,268
Int. Cl.[5] B15D *51/24*
U.S. Cl. 220—212 7 Claims

1. A closure cap for a fuel tank, said cap comprising first and second coaxially-mounted plate members adapted for relative rotational movement about their common axes, a flag member mounted on one of said plate members for movement between one position in which the flag is disposed substantially entirely within the periphery of the cap and another position in which the flag extends substantially beyond the periphery of the cap, means for causing said flag to move from its said one position to its said other position in response to relative rotating movement of said plate members, and indicia on said flag which is



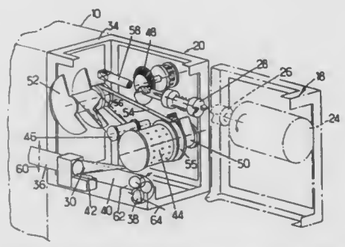
covered when the flag is in its said one position and displayed when the flag is in its said other position.

5,062,542
EASY-OPEN AND RECLOSABLE CONTAINER
Jay Morton, Miami Beacb, Fla., assignor to City of Hope, Duarte, Calif. and Lucille T. Morton, Miami Beach, Fla.
Divislon of Ser. No. 451,461, Dec. 13, 1989. This application Apr. 1, 1991, Ser. No. 678,859
Int. Cl.[5] B65D *17/32*
U.S. Cl. 220—269 11 Claims



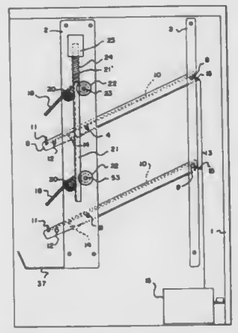
1. An easy-open and reclosable container comprising:
a container body portion having a bottom end panel,
a container top lid having an opening,
an openable and reclosable assembly including a bottom flange portion mounted on the inner surface of said top lid and having an elevated rim extending upwardly through said opening defining an aperture, a closure portion with a channel complementary in shape with said rim and hingedly connected to said rim in part, a tension controlling portion having a hole at one end separably engaged with an elevated locking rivet integrally fixed on said top lid, and the opposite end of said tension controlling portion joined to said closure member by a deformable hinge portion and having a locking lip, so that a pulling force will be applied on said closure portion while said hole is seated on said locking rivet and the pulling force will be released while said tension controlling member is lifted.

5,062,543
FOOD PELLET DISPENSING APPLIANCE
Jean-Claude Germain, Gif sur Yvette, France, assignor to Carrar, France
Filed Apr. 16, 1990, Ser. No. 508,720
Claims priority, application France, Apr. 14, 1989, 89 04993
Int. Cl.[5] G07F *11/72*
U.S. Cl. 221—30 11 Claims



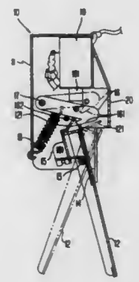
1. Appliance for dispensing agglomerated pellets of food for animals or plants comprising:
a pipe having a thin wall of flexible material in which individual pellets are disposed in series relation as a stack and are retained against movement in said pipe;
a storage magazine having means for compactly storing said pipe and having an outlet guide tube for egress of said pipe; and
a dispenser comprising:
a frame;
a pellet collecting and delivering tube aligned with said outlet guide tube and separated therefrom by a gap;
stationary splitting means supported by the frame, located to engage the pipe and to cut it along a generatrix as it advances and leaves the guide tube for releasing the pellets; and
means for drawing said pipe along said guide tube and over said pellet collecting and delivering tube after it has been split and emptied and for flattening it prior to storage thereof on a motor driven spool.

5,062,544
AUTOMATIC DISPENSER FOR BAKERY PRODUCTS AND THE LIKE
Jean-Paul Buzy-Vigneau, Longwy, France, assignor to Lorraine Distribution Buzy-Vigneau, Longway, France
Filed Aug. 31, 1989, Ser. No. 401,124
Int. Cl.[5] B65G *59/00*
U.S. Cl. 221—130 20 Claims



1. An automatic dispenser for discrete items, comprising:
a plurality of inclined plates supported by first horizontal axles fixed to two sets of two vertical supports which are fixed to side walls of a frame of the dispenser and of which a first set is located in front of a second set, each inclined plate being extended by a rocker supporting the item to be dispensed, each rocker being fixed, via its lower face, with a second horizontal axle connected by means of a cable to a control unit located in the dispenser, the cable and the control unit being adapted to pivot the rocker about the axle; and
above each rocker, a retaining tongue fastened to a horizontal axle which is mounted pivotably on the first supports and which is fixed, at one end, to a toothed pinion located between the frame and the support and engaging with a rack extended in its upper part by a cylindrical rod, having an end which is seated in an electromagnet fixed to the support, the retaining tongue adapted to retain the item located immediately behind that situated on the rocker during dispensing of the item located on the rocker, the control unit and the electromagnets being subject to an electronic control to actuate rockers and retaining tongues in such a manner that the retaining tongue prevents motion of items into the rocker when the rocker pivots, the retaining tongue being lowered immediately before the rocker supporting the selected item pivots in order to free the item which falls into a container accessible to the user.

5,062,545
AUTOMATIC VENDING MACHINE DISPENSING MECHANISM
Toshiyuki Takamura; Kazunari Kurihashi, and Masazumi Harada, all of Gunma, Japan, assignors to Sanden Corporation, Japan
Continuation of Ser. No. 188,479, Apr. 29, 1988, abandoned.
This application Oct. 15, 1990, Ser. No. 598,790
Claims priority, application Japan, Apr. 30, 1987, 62-65774[U]
Int. Cl.[5] B65G *59/00*
U.S. Cl. 221—152 30 Claims



1. An automatic vending machine including at least one column for storing and dispensing merchandise, a discharge opening, and a dispensing mechanism, said column having at least one shelf for supporting merchandise, said dispensing mechanism comprising conveying means for conveying the merchandise through said discharge opening, and discharge control means for controlling the passage of said merchandise through said discharge opening, the improvement comprising:
said discharge control means comprising a control plate supported adjacent said discharge opening, biasing means for biasing said control plate toward said discharge opening and locking means for releasably locking said control plate, said locking means being movable from a first portion wherein said locking means locks said control plate and is in engagement therewith to a second position wherein said locking means releases said control plate and

VOL
1132
ISS
1
NO
5
1991
UMI

is out of engagement therewith, said discharge control means further comprising locking means control means for controlling position of said locking means, and

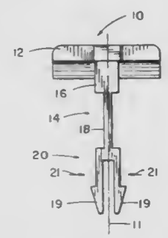
wherein said discharge control means further comprises posture control means mounted adjacent said discharge opening for controlling the attitude of the merchandise while being dispensed so that the bottom of the merchandise is oriented downwardly.

5,062,546

SNAP RIVET SAFETY LOCK FOR INFLATORS

Glenn H. Mackal, 4923 59th Ave. S., St. Petersburg, Fla. 33715

Filed May 15, 1990, Ser. No. 523,106
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—3 **2 Claims**



1. A safety lock for inflators of the type having a pivotally mounted bell crank activated by a lanyard, and of the type having a transversely extending bore formed in said inflator and said bell crank when said bell crank is in an unpivoted position; comprising:

a frangible rivet member of generally linear configuration being disposed within said bore;

said rivet member having a first head means and a pre-formed second head means;

a generally flat handle positioned in a first plane;

a linear in configuration main body that depends from said handle in orthogonal relation thereto;

said main body being disposed in said bore when said bell crank is in an unpivoted position relative to said inflator;

said handle being said first head means of said rivet member;

said main body including a bifurcated leading end, a medial part, and a trailing part;

said trailing part abutting said handle and being integrally formed therewith;

said leading end forming said pre-formed second head means;

said leading end including a pair of transversely spaced apart resilient prongs that transiently converge toward one another when inserted into said bore;

a laterally extending anti-retraction barb being formed on each of said prongs adjacent a leading edge thereof, said barbs engaging a rim of said bore when said main body is fully inserted into said bore, said barbs preventing inadvertent retraction of the rivet from the bore;

said trailing part of said main body having a transverse extent substantially equal to the diameter of said bore;

said medial part of said main body having a transverse extent substantially less than the transverse extent of said trailing part, said medial part being breakable when said lanyard is pulled firmly;

said prongs of said leading end of said main body having a collective breadth substantially equal to the transverse extent of said trailing part of said main body;

said leading end, medial part, and trailing part of said main body having a common thickness; and

said medial part having a longitudinal extent substantially equal to a longitudinal extent of said leading end and substantially equal to a combined longitudinal extent of said handle and said trailing part;

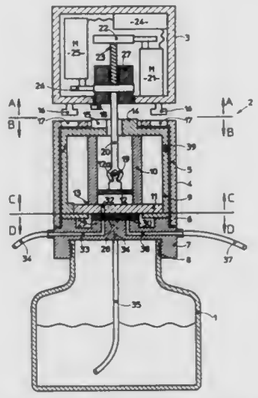
whereby said bell crank is keyed to said inflator by said frangible rivet member and held against pivoting relative thereto.

5,062,547

VOLUME MEASUREMENT AND DOSAGE DEVICE

Paul Zähner, and Karl Kaempf, both of Herisau, Switzerland, assignors to Metrohm AG, Switzerland

Filed May 9, 1990, Ser. No. 520,817
Claims priority, application Switzerland, May 26, 1989, 1990/89
Int. Cl.[5] G01N *1/00*
U.S. Cl. 222—144.5 **12 Claims**



1. A volume measurement and dosage device comprising

a cylinder having a longitudinal axis and an end closure having an opening therein, said cylinder being supported about an axis of rotation,

a valve system comprising means defining at least two separate channels for fluid flow, a stationary valve element connected to each of said channels and having plural apertures therein,. one communicating with each of said channels, said cylinder end being in contact with the valve element, the apertures thereof being arranged so that said cylinder opening can be aligned with any of said apertures by rotating the cylinder,

a piston within the cylinder for displacing fluid in the cylinder, and

an actuating system for moving the piston relative to the cylinder to displace said liquid through said opening, thereby producing aspiration or delivery of the liquid through the passage aligned with the opening.

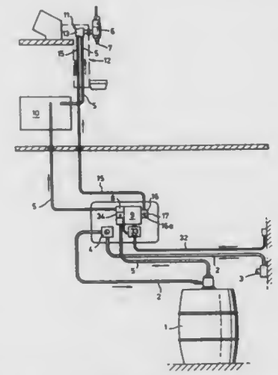
5,062,548

BEVERAGE DISPENSING SYSTEM

John B. Hedderick, Pinner; Brian R. Rutty, Weybridge; David G. Page, Swindon, and John J. Walshe, Minety, all of Great Britain, assignors to Arthur Guinness Son and Company (Great Britian) Limited, London, Great Britain

Continuation of Ser. No. 314,235, Feb. 21, 1989, abandoned, which is a continuation of Ser. No. 120,230, Nov. 10, 1987, abandoned, which is a continuation of Ser. No. 838,625, Mar. 11, 1986, abandoned. This application Jan. 28, 1991, Ser. No. 649,112
Claims priority, application United Kingdom, Mar. 11, 1985, 8506227
Int. Cl.[5] B67D *5/58*
U.S. Cl. 222—190 **19 Claims**

1. A beverage dispensing system comprising valve means controlling dispensing of the beverage through a supply passage which is intended to be connected to a bulk source of the beverage, and gasifying means for introducing at least one of nitrogen, carbon dioxide, and air gases into said beverage in the supply passage remote from the bulk source and during dispensing of the beverage, said gasifying means having an inlet for connection to a source of the gas under pressure; a capillary restrictor through which said gas is to be directed to the supply passage, said restrictor having a bore in the range of 0.05 to 0.4 millimeters diameter and a length in the range of approximately 25 to 1,000 millimeters, means for adjusting the pressure of the gas supplied to the capillary restrictor, and a non-return valve through which gas emanating from the restrictor is introduced to the beverage.

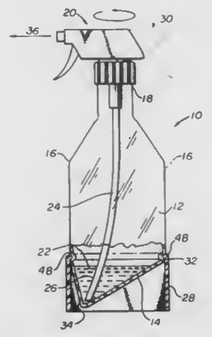


5,062,549

HAND HELD, DIP-TUBE STYLE LIQUID DISPENSER

David A. Smith, Midland, and Clark M. Woody, Bay City, both of Mich., assignors to DowBrands Inc., Indianapolis, Ind.

Filed Nov. 3, 1989, Ser. No. 431,418
Int. Cl.[5] B67D *5/40*
U.S. Cl. 222—377 **6 Claims**



1. An improved hand held, non-pressurized dispenser for liquids, comprising:

a container having an inclined bottom, sidewalls extending upwardly from said bottom, and an upper end;

dispensing means positioned adjacent said upper end of said contain for dispensing a liquid held in said container and communicated upward to said dispensing means;

a tube for communicating said liquid upward from a lower end of said tube to said dispensing means, said tube being of a sufficient length such that said lower end of said tube is urged by the inclined bottom towards a lowermost portion of said bottom when said container is oriented as in use; and

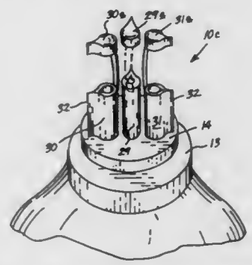
support means fastened to said container for supporting said container in a substantially upright position when not in use.

5,062,550

SELECTIVE FLOW DISPENSING CONTAINER

Bharat H. Singh, 1314 41st St., Brooklyn, N.Y. 11218

Filed May 24, 1990, Ser. No. 527,847
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—80 **2 Claims**



1. A selective flow dispensing container comprising, in combination,

a polymeric deformable container defined about a central axis, including a cap member mounted to an upper end of the container, the cap member including a rigid cap cover overlying the cap member enclosing the container, the cap cover including a first, second, and third fluid conduit integrally mounted to the cap cover, wherein each conduit is in fluid communication with contents contained within the container, and

wherein the first conduit includes a first opening at an upper terminal end thereof, the second conduit includes a second opening at an upper terminal end of the second conduit, and wherein the third conduit includes a third opening at an upper terminal end of the third conduit, the first opening is defined by a first diameter, the second opening is defined by a second diameter, and the third opening is defined by a third diameter, and

wherein the third diameter is greater than the second diameter, and wherein the second diameter is greater than that defined by the first diameter, and

the first, second, and third conduits are arranged parallel relative to one another and are arranged parallel to the axis defined by the container, and

the first conduit includes a first closure cap, the second conduit includes a second closure cap, and the third conduit includes a third closure cap, wherein each closure cap is individually secured to each respective conduit, and

each first, second, and third closure cap is secured to each respective first, second, and third conduit by a respective flexible band, and

wherein the first conduit, the second conduit, and the third conduit each include a knife edge integrally formed to each conduit.

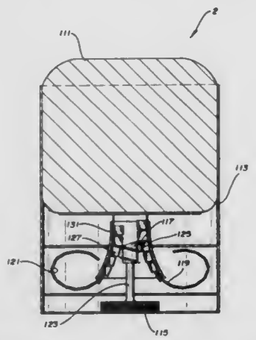
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,551

POSTLESS PUSHUP CONTAINER

Charles Goldstein, Ramapo Township, Rockland County, N.Y., and Kenneth P. Glynn, Raritan Township, Hunterdon County, N.J., assignors to Delta Dispensing, Inc., Flemington, N.J.

Filed Oct. 1, 1990, Ser. No. 596,785
Int. Cl.[5] B67D *5/42*
U.S. Cl. 222—390 14 Claims



1. An apparatus for storing and dispensing materials, said apparatus including:

a) a substantially hollow container having two ends, a dispensing end and a drive mechanism end, said dispensing end having at least one orifice for the exiting of material stored within said container;

b) at least one flexible band, said band having at least one front and rear surface, two side edges and two ends, said band having a plurality of side wall segments depending from at least one said side edge of said band, each said side wall segment being comprised of a substantially rigid member attached to said band by an interdepending flexible member, allowing said side wall segment to be elastically deformed into a plane substantially perpendicular to said band;

c) a piston attached to, and carried by at least one said flexible band;

d) a tapered conduit depending from said hollow container inner surface, said tapered conduit having two ends, an entrance end and an exit end, said tapered conduit narrowing to a width not substantially wider than said band, wherein the passage of said band through said conduit causes said band side wall segments to deform into an orientation substantially perpendicular to said band and causes said band to have a linear orientation substantially perpendicular to said piston; and

e) a means of driving said band through said conduit, wherein said means engages at least one said band.

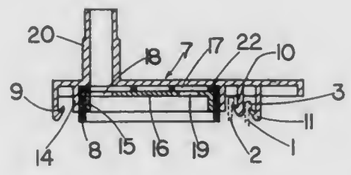
5,062,552

SPOUT FOR DIFFERENT SIZE CANS

Walter Heubel, Bergstrasse 7, 8901 Aystetten, Fed. Rep. of Germany

Filed Jan. 11, 1990, Ser. No. 463,509
Claims priority, application Fed. Rep. of Germany, Jan. 11, 1989, 8900273[U]
Int. Cl.[5] B65D *25/48*
U.S. Cl. 222—570 9 Claims

1. A cap arrangement for cans having a lid edge bead and a lid with a lid wall part that may be opened to form a pouring opening, comprising: a cap body formed of plastic positionable over said lid, said cap body including a sealing ring engageable with the lid wall part surrounding the opening, said cap body including a single front edge web for gripping behind said lid edge bead, said front edge web having a curvature substantially corresponding to a curvature of the lid bead and plural individual webs spaced radially from said front edge web, said individual webs being positioned at radially spaced locations



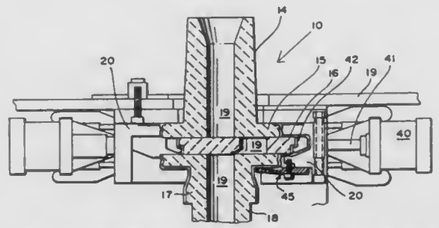
from one another corresponding to a thickness of the lid edge bead to provide an outer individual web and an inner individual web with respect to the can.

5,062,553

CANTILEVER SPRING MOUNT FOR SLIDING GATE VALVE AND METHOD

Patrick D. King, Rantoul, Ill., assignor to Flo-Con Systems, Inc., Champaign, Ill.

Continuation-in-part of Ser. No. 494,587, Mar. 16, 1990. This application Jun. 18, 1990, Ser. No. 539,582
Int. Cl.[5] B22D *41/08*
U.S. Cl. 222—590 13 Claims



1. In a sliding gate valve, a cantilever spring for use in said sliding gate valve, said valve having a frame, said frame having cantilever spring mounting means, and a plurality of refractory members contained by said frame with each refractory member having an orifice for teeming steel when in alignment and controlling the flow of steel or shutting it off when misaligned comprising,

said cantilever spring formed for mounting to said valve frame cantilever spring mounting means at a lower portion thereof,

a body having a length at least twice the thickness,

a heel portion of said spring body,

mounting means provided for the heel portion,

a cantilever portion of said spring body extending from the heel portion,

said cantilever spring portion having a working face proportioned to engage an adjacent refractory member,

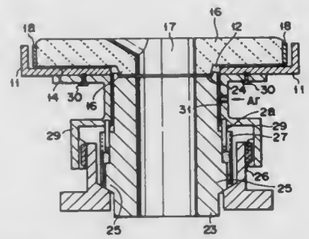
and means for securing said cantilever spring to the valve.

5,062,554

SLIDING NOZZLE DEVICE

Hiroshi Sakai; Masamichi Asai, both of Kariya; Kenzo Hayashi, Okazaki; Kazunori Sakurai, Wakayama, and Kazuhiko Watanabe, Kariya, all of Japan, assignors to Toshiba Ceramics Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 444,974, Dec. 4, 1989, abandoned. This application Feb. 28, 1991, Ser. No. 662,514
Claims priority, application Japan, Feb. 13, 1989, 1-33163
Int. Cl.[5] B22D *41/08*
U.S. Cl. 222—600 6 Claims



1. A sliding nozzle device comprising:

a metallic case having an opening at its central area;

a refractory plate secured to the metallic case and having a discharge hole at its central area to allow a molten metal to be discharged, said refractory plate being disposed in the opening of the metallic case;

a metallic hoop wound around an outer periphery of the refractory plate;

an immersion nozzle mounted on the refractory plate and having a swollen region along an outer periphery of a lower portion thereof;

a female member outwardly projecting in a direction perpendicular to an outer surface of the metallic hoop;

fastening means for fixing the female member to the metallic case under an action of a vertical force;

a holder support member fixed to the bottom of the metallic case; and

a holder provided near the swollen region of the immersion nozzle in a manner to be fitted into the holder support member.

5,062,555

MICROPROCESSOR BASED RATIO ADJUSTMENT AND PORTION CONTROL SYSTEM FOR POSTMIX BEVERAGE DISPENSING VALVES

Roger C. Whigham, Atlanta, and George H. Hoover, Marietta, both of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Apr. 3, 1989, Ser. No. 332,644
Int. Cl.[5] G04C *1/12*
U.S. Cl. 222—641 2 Claims

1. In a postmix beverage dispensing valve including a valve body, a valve cover including a front panel, a water circuit through said body, a syrup circuit through said body, a water solenoid controlling flow through the water circuit, a syrup solenoid controlling flow through the syrup circuit, an adjustable water flow control, an adjustable syrup flow control, a plurality of cup size selection buttons and a Pour/Cancel button on said front panel, and a nozzel for dispensing a beverage mixture of syrup and water, the improvement comprising:

(a) a control system of easily adjusting the ratio of water to syrup;

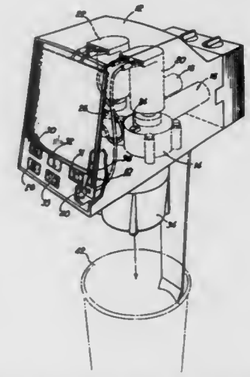
(b) said control system including a microprocessor based control circuit mounted inside said cover;

(c) said circuit including:

(i) means for dispensing water for a predetermined period of time; and

(ii) means for dispensing syrup for a predetermined period of time; and

(d) a volume measuring cup having a water level mark and



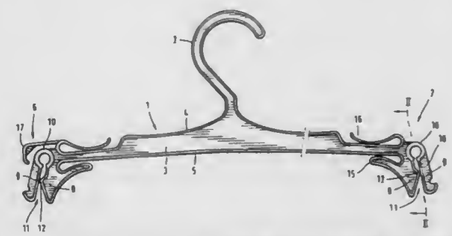
a syrup level mark, whereby, the water and syrup flow controls provides a means that is adjusted if the dispensed water and syrup volumes do not identically match said marks.

5,062,556

MOLDED PLASTIC GARMENT HANGER WITH INTEGRAL CLIPS

Wilhelm Willpütz, Köln, Fed. Rep. of Germany, assignor to W. Willpütz Kunststoffverarbeitungs GmbH, Köln, Fed. Rep. of Germany

Filed Feb. 28, 1990, Ser. No. 486,525
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1989, 8902362[U]
Int. Cl.[5] A47G *25/48, 25/14*
U.S. Cl. 223—96 13 Claims

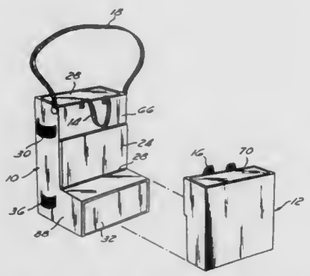


1. A clothes hanger of a synthetic plastic material, comprising a main part a substantially vertical web wall, and an upper flange and a lower flange having a width greater than that of said web wall, said main part having two ends; a clamp provided at each of said ends of said main part and including a substantially rigid abutment part and a tongue connected with said abutment part so that a gap is formed between said abutment part and said tongue for inserting an article of clothing to be clamped; and means for connecting said abutment part and said tongue with one another and including a substantially freely lying synthetic plastic ring-shaped arc interrupted by said gap and connecting said abutment part with said tongue so that said tongue is pressed toward and abuts against said abutment part with a prestress under a springy action produced solely by said arc, said synthetic plastic arc having a width which is greater than a width of said upper flange and said lower flange and said clothes hanger further comprising a shoulder projection formed in alignment with said upper

VOL 1132 ISS 1 NO 5 1991 UMI

flange on said main part above said synthetic plastic arc overlapping said arc at a distance therefrom.

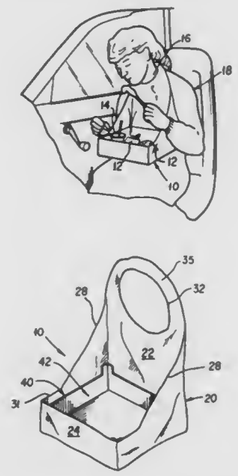
5,062,557
INFANT CARE BAG
A. Pascal Mahvi, and Caryl L. Mahvi, both of 17 Montpellier, Newport Beach, Calif. 92660
Filed Oct. 13, 1989, Ser. No. 421,530
Int. Cl.[5] A45F 4/04
U.S. Cl. 224—153 11 Claims



3. An infant care bag for conveniently transporting a variety of infant care items, for providing a booster seat, and a changing pad, and for cooling food and beverage items, comprising:
(a) a primary bag section having a plurality of closable compartments;
(b) a removable auxiliary bag section removedly attached to said primary bag section, said removable auxiliary bag section having at least one closable compartment formed therein;
(c) at least one handle attached to said primary bag section for carrying the infant care bag by hand;
(d) at least one handle attached to said removable auxiliary bag section for carrying said removable auxiliary bag section by hand;
(e) two adjustable straps attached to said primary bag section for carrying the infant care bag upon the user's back;
(f) a shoulder strap detachably attached to said primary bag section for carrying the infant care bag over the shoulder;
(g) a seat rotatably attached to said primary bag section;
(h) said primary bag section forming a backrest;
(i) wherein one of the closable compartments of said primary bag is a cooler compartment;
(j) a shelf and a flexible insulating curtain formed as a removable unit disposable within the cooler compartment, said shelf having a cavity formed therein.

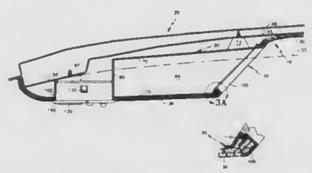
5,062,558
FOOD TRAY AND BIB SYSTEM
Michael A. Stang, 26 Stockmill Rd., Apt. F, Pikesville, Md. 21208
Continuation-in-part of Ser. No. 246,678, Sep. 20, 1988, Pat. No. 4,946,094. This application May 7, 1990, Ser. No. 519,475
Int. Cl.[5] A45F 5/00
U.S. Cl. 224—270 16 Claims

1. A food tray bib system adapted to be removably coupled to the body of a user, comprising:
a flexibly collapsible housing integrally formed in one piece formation and defining a deformable cavity;
bib means for overlaying a first portion of a user's body and providing a removable coupling to a second portion of said user's body, said bib means defining a rear wall of said housing extending longitudinally a predetermined distance external said cavity, said flexibly collapsible housing including an opposing pair of side walls, each of said side walls having an angularly extended portion extending between a forward perimeter portion of said cavity and an upper portion of said bib means; and,
tray means insertable within said deformable cavity for supporting food items disposed thereon, said tray means including a container housing having a predetermined contour and defining an internal housing chamber having a planar bottom member for supporting said food items, said container housing within said deformable cavity, whereby subsequent to receipt of said container housing



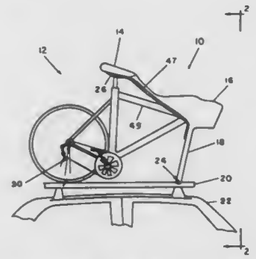
said deformable cavity substantially conforms to said contour of said container housing, said container housing including a plurality of corner members, each of said corner members extending a predetermined distance external said internal housing chamber for interfacing with said pair of opposing side walls to provide a vertically extending support for said opposing side walls in said vertical direction and maintaining said opposing side walls in a substantially vertical plane.

5,062,559
OVERHEAD CONSOLE
Monte L. Falcoff, Southfield, Mich., assignor to United Technologies Automotive, Dearborn, Mich.
Filed Aug. 1, 1989, Ser. No. 388,269
Int. Cl.[5] B60R 7/04
U.S. Cl. 224—311 17 Claims



1. An overhead center console for a motor vehicle or the like having a roof provided with a windshield header, the interior surface of said roof being covered by a headliner, said console including a compartment for the storage of objects therein and characterized by:
said compartment being attached to said windshield header from therebelow;
said compartment being disposed between said headliner and said vehicle roof such that at least a portion of said compartment lies above the nominal surface of said headliner, said compartment being covered over the lower portion of the outer surface thereof by said headliner,
said compartment being provided with a first opening for access to the interior thereof,
said first compartment opening being adapted for registry with a first opening in said headliner; and
a bezel for providing a decorative covering for the registry of said first compartment opening with said first headliner opening.

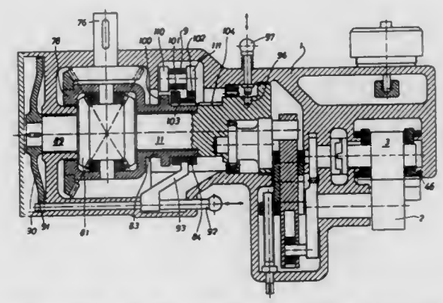
5,062,560
FLEXIBLE PROTECTIVE BICYCLE COVER FOR TRANSPORT ON A VEHICLE CARRIER
Kent J. Wasden, 3680 North 250 East, Rexburg, Id. 83440
Filed Oct. 11, 1989, Ser. No. 420,013
Int. Cl.[5] B60R 9/10
U.S. Cl. 224—328 5 Claims



1. An elastic continuous protective cover for a bicycle being transported by a vehicle, said bicycle having front forks, handlebars, a seat, and a front wheel removed, the cover comprising:
a. a depending front fork cover portion having means for attaching said cover portion to the front fork at the end thereof;
b. a handle bar cover portion continuously connected to the front fork cover portion;
c. a seat cover portion continuously connected to the handle bar cover portion and including a pocket for fitting over the seat;
d. a connecting fabric portion continuously connecting the handle bar cover portion and the seat cover portion and having a small cross-wind profile;
e. each of the front fork cover portion and the handle bar cover portion being expandable to elastically surround the handle bars and front fork of the bicycle; and
f. elastic attachment means formed continuously from one side of said handle bar cover portion around said seat cover portion to an opposite side of said handle bar cover portion, whereby the flexible cover protects the forks, handle bars, and seat of the bicycle, while providing a small cross-wind profile.

5,062,561
APPARATUS FOR CONTROLLING THE FEED OF AN INTERMITTENT WEB-FEEDING APPARATUS
Helmut Messner, Arbon, Switzerland, assignor to Bruderer Ag, Frasnacht, Switzerland
Filed Apr. 20, 1990, Ser. No. 512,749
Int. Cl.[5] B65H 20/00
U.S. Cl. 226—152 7 Claims

1. In an apparatus for controlling the feed of a feeding apparatus for intermittently feeding a web-shaped workpiece, the apparatus having a rotationally driven web with a sleeve section, a planetary gear having planet gears pinioned on the web and sun wheels, a drive shaft rotatably supported in the sleeve section of the web and coupled for rotation with one of the sun wheels, feeding means having a pressing and feeding roller rotated by the rotation of the drive shaft and rockable for intermittently feeding the web-shaped workpiece when rocked into engagement therewith, holding means having a pressing bar rockable into intermittent engagement with the web-shaped workpiece for holding it, and rocking means operated by the rotation of the drive shaft for rocking the feeding and



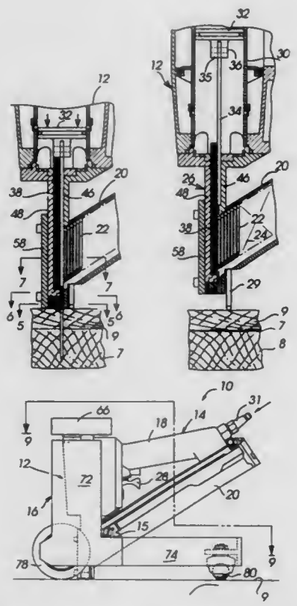
holding means, the improvement of the rocking means, comprising:
a plurality of control disks on a shifting sleeve arranged rotationally fixed but axially displaceable on the sleeve section of the web and a further control disk fixedly mounted to the sleeve section of the web to control the rocking means for the feeding and holding means.

5,062,562
PORTABLE POWER FASTENING TOOL
James V. Michael, Hayward, Calif., assignor to Senco Products, Inc., Cincinnati, Ohio
Filed Jul. 14, 1989, Ser. No. 379,819
Int. Cl.[5] B25C 1/04
U.S. Cl. 227—111 10 Claims

1. A pneumatic tool for selectively driving fasteners into a surface of a floor and compressively striking the surface, comprising:
a barrel assembly located at an end of the tool having a bore therein comprising a longitudinal first groove slidably capturing a driver member and a longitudinal second groove capturing a hammer member in sliding contact with the driver member, one of hammer member and the driver member having a third longitudinal groove therein for slidably capturing the other member, thereby allowing independent sliding movement of the members along the bore in a first driving direction toward one end of the bore and a second, opposite, retraction direction;
an air motor mounted to the barrel assembly and including a reciprocable piston means operatively connected to the drive member for moving the drive member in the first and second directions;
the piston means being adopted for pushing the hammer member in the first, driving direction;
a fastener magazine secured to the barrel assembly and adopted for serially supplying fasteners via a slot in the barrel assembly into the barrel assembly to a position coincident with the path of the driver member, whereby driving movement of the piston means impels the driver member to drive a fastener through the one end of the bore and the hammer member to compressively strike the surface of the floor through said one end of the bore; and

VOL 1132 ISS 1 NO 5 1991 UMI

the tool further comprising a carriage mounted thereto which includes a frame for supporting the tool and wheel

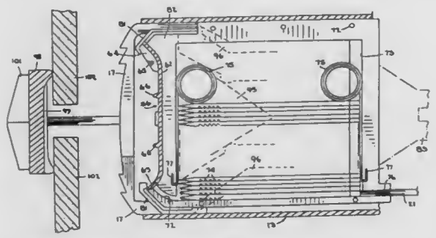


means mounted thereon for moving the carriage along the floor from one fastening location to another.

5,062,563
FASCIA STAPLER

David T. Green, Westport, Conn.; Wayne P. Young, Brewster, N.Y.; Henry Bolanos, East Norwalk, Conn.; Robert J. Geiste, Milford, Conn.; Keith Ratcliff, Sandy Hook, Conn., and Daniel E. Alesi, New Fairfield, Conn., assignors to United States Surgical Corporation, Norwalk, Conn.

Filed Apr. 10, 1989, Ser. No. 335,822
Int. Cl.[5] A61B *17/00*
U.S. Cl. 227—176 **42 Claims**

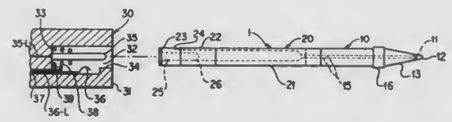


1. In a stapler, the combination comprising
a housing;
a pusher assembly movably mounted in said housing between a rest position and a fired position;
a handle articulated to said housing and said pusher assembly for reciprocating said pusher assembly between said positions;
a toothed rack secured to and within said housing;
a pawl mounted on said pusher assembly and having a depending tab for selectively engaging said rack during movement of said pusher assembly from said rest position toward said firing position;
a counter wheel rotatably mounted about said pusher assembly and having a plurality of inwardly directed tabs and a sequence of numbers thereon, and a lever mounted on said pusher assembly for selectively engaging one of said tabs to rotate said wheel in response to movement of said pusher assembly through said wheel.

5,062,564
RAPID RESPONSE SOLDERING STATION

Paul L. Urban, Cheraw, S.C., assignor to Cooper Industries, Houston, Tex.

Filed Nov. 28, 1989, Ser. No. 442,219
Int. Cl.[5] B23K *3/03*; H05B *1/02*
U.S. Cl. 228—9 **36 Claims**

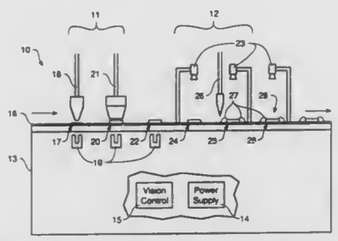


1. A soldering tip for conducting heat from a heat source external to said soldering tip to an application site, comprising:
a heat receiving end including means for coupling the soldering tip to an external heat source;
a heat emitting end forming a working surface for contacting an application site and conducting heat thereto; and
a sensor for sensing local temperature embedded within the soldering tip immediately adjacent said working surface.

5,062,565
METHOD FOR COMBINING DIE ATTACH AND WIREBOND IN THE ASSEMBLY OF A SEMICONDUCTOR PACKAGE

Alan G. Wood, Boise; Warren M. Farnworth, Nampa, and George P. McGill, Boise, all of Id., assignors to Micron Technology, Inc., Boise, Id.

Filed Jul. 13, 1990, Ser. No. 553,099
Int. Cl.[5] B23K *3/08*
U.S. Cl. 228—9 **2 Claims**

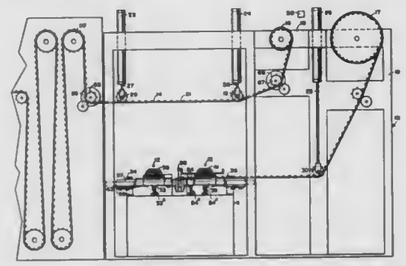


1. A unified and automatically controlled semiconductor device assembly and inspection system, said system comprising:
a) An existing automated leadframe die attach equipment and automated wire bonder operably attached to each other in such a way as to unify and coordinate mechanical and electrical operations between said die attach equipment and said wire bonder during assembly of semiconductor devices;
b) a common lead frame transport means of known design operably and fixedly attached to and between said die attach equipment and said wire bonder in such a way as to support and move said semiconductor devices in a controlled and continuous manner and serving to provide common reference for positional placement of said devices throughout said die attach and wirebond operations and final inspection of said completed devices;
c) a common lead frame position indexing means of known design operably attachable to said common lead frame transport means in a known manner to enable precise and accurate positioning and placement of said semiconductor devices during their assembly and inspection;
d) an automated vision control means operably and independently attachable to said die attach equipment in such a manner as to observe and control said die attach operation;
e) an automated vision control means operably and independently attached to said wire bonder in such a manner as to observe and control said wire bond operation and validate said previous die attach operation;
f) automated vision control means operably and independently attached to said assembly system in such a manner as to observe and control completely assembled semiconductor devices; and
g) all of said automated vision control means operably interconnected to each other in such a manner as simultaneously to collect, store, coordinate and utilize all information received by each of said vision control means in order to validate all assembly operations and control, precisely and accurately, the assembly of said semiconductor devices.

5,062,566
AUTOMATED CARRIER-STRIP SPLICER

Sigmund Ege, Oslo, Norway, Kloften & Kloften A/S, Oslo, Norway

Filed Sep. 21, 1990, Ser. No. 585,965
Int. Cl.[5] B23K *1/14, 3/00*
U.S. Cl. 228—102 **11 Claims**

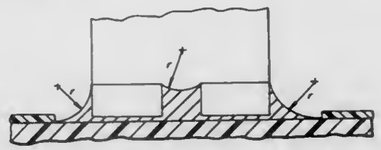


1. An improved apparatus for splicing carrier strip which has a large plurality of elements projecting therefrom at regular intervals, said apparatus comprising:
at least one cutting blade for the strip,
grooved guide plates for the strip,
two guide bars aligned end-to-end and slidably fitting the grooves of the plates, the bars comprising means for engaging said strip,
downstream and upstream sets of upper and lower cooperating jaws, the lower of each of each of the sets of jaws comprising one of the plates,
supplies of continuous lengths of strip,
means directing the strip in a pathway to another location, my apparatus aligning and connecting a trailing end of one supply to the leading end of another supply, the improvement comprising:
(A) automatic means for changing the pathway to a position closely aligned above the downstream of the bars,
(B) automatic means for determining the proximity of the trailing end,
(C) means actuated by the sensing means, for pressing the strip from its pathway so as to engage the strip with the downstream bar,
(D) means for sensing the engagement of the strip to the downstream bar,
(E) automatic means, actuated by the engagement-sensing means, for cutting the trailing end of the strip, advancing solder across the trailing and leading ends, and fusing the solder to join together both supplies.

5,062,567
LEAD DESIGN TO FACILITATE POST-REFLOW SOLDER JOINT QUALITY INSPECTION

H. Keith Nishihara, Los Altos, Calif.; P. Anthony Crossley, Austin, Tex.; Neil D. Hunt, Mountain View, and J. Martin Tenenbaum, Portola Valley, both of Calif., assignors to Schlumberger Technologies, Inc., San Jose, Calif.

Continuation of Ser. No. 286,834, Dec. 20, 1988, abandoned. This application May 1, 1990, Ser. No. 519,334
Int. Cl.[5] H05K *3/34*
U.S. Cl. 228—105 **5 Claims**

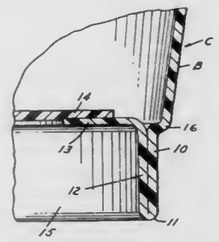


1. A method of inspecting solder joints in surface-mounted electronic components comprising:
placing an electrical component on a board said component having a plurality of leads;
soldering said leads to said board with solder material, thereby forming a peripheral fillet of solder around each lead periphery;
selecting a lead, a portion of said lead having a vertical hole therethrough of preselected diameter; and
inspecting the quality of the peripheral fillet by observing the meniscus of said solder material through said hole.

5,062,568
THERMOPLASTIC CUP AND METHOD AND APPARATUS FOR MAKING

James A. Hill, Toledo, and John E. Burtch, Curtice, both of Ohio, assignors to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Filed Oct. 9, 1990, Ser. No. 594,533
Int. Cl.[5] B65D *3/12*
U.S. Cl. 229—1.5 B **7 Claims**



6. A cup-like container comprising
a side wall formed from a single double ended sheet of a heat-shrinkable thermoplastic foam material,
the ends of said sheet being joined to one another to form a seam,
said side wall extending inwardly and downwardly from a point near the open mouth of the upper end of the container to a point near the bottom, and
a recessed bottom on the bottom of said side wall comprising

VOL 1132 ISS 1 NO 5 1991 UMI

an integral folded portion folded along its lower edge toward the mouth of the container to form a double wall portion having an inner wall and an outer wall, and a radially inwardly extending annular portion,

a separate bottom member overlying said radially inwardly extending portion,

said bottom member comprising a disk made of thermoplastic foam material,

said disk having a diameter less than the outer diameter of said radially inwardly extending portion,

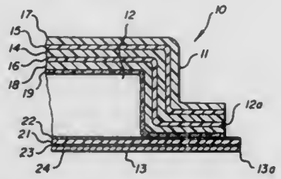
and being sealing joined without adhesives to said radially inwardly extending portion.

5,062,569

PEELABLY SEALED PLASTIC PACKAGES AND METHOD OF PREPARING SAME

Ihal M. Hekal, 121 Blackberry Dr., Stamford, Conn. 06903

Filed Aug. 1, 1988, Ser. No. 226,490
Int. Cl.[5] B65D *1/34*
U.S. Cl. 229—3.5 R **18 Claims**



1. A package comprised of a container formed from a structure having a sealing surface formed from a polypropylene resin, the container having a complementary lid, the lid having a contact face and extending across an opening in the container in contact with the sealing surface, the contact face of the lid and sealing surface being opposed and bonded together by an internally cleavable heat seal layer intermediate between the opposed lid contact face and sealing surface, the heat seal layer being comprised of about 30 to about 50 percent by weight of a particulate filler and an olefin polymer blend including about 20 to about 45 percent by weight of an olefin homopolymer about 20 to about 50 percent by weight of a highly crystalline propylene-ethylene block copolymer and about 1 to about 20 percent by weight of an elastomeric ethylene-propylene rubber.

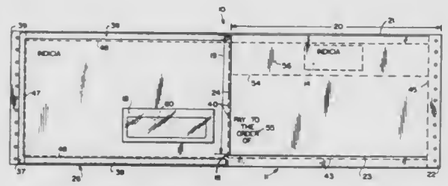
10. A method of making a package comprised of a container part heat sealed with a lid having a contact face, the container part having a contact face formed from a polypropylene resin, the contact face of the lid and container part being placed in opposed relation to be hermetically heat sealed together, which method comprises applying to at least one of the opposed faces a heat sealable layer in which the cohesive strength of the heat seal layer is less than the tensile strength of the heat seal layer so that the layer cleaves within itself when forces are applied to the parts to pull them apart, the heat seal layer being comprised of a mixture of about 30 to about 50 percent by weight of a particulate filler and an olefin polymer blend including a mixture of about 20 to about 45 percent by weight of an olefin homopolymer, about 20 to about 50 percent by weight of a highly crystalline propylene-ethylene block copolymer and about 1 to about 20 percent by weight of an elastomeric ethylene-propylene rubber.

5,062,570

MAILER WITH DIE CUT INSERT AND SELF-IMAGING AREA

Robert E. Ashby, Quakertown, Pa., assignor to Moore Business Forms, Inc., Grand Island, N.Y.

Filed Nov. 19, 1990, Ser. No. 615,167
Int. Cl.[5] B65D *27/04, 27/34*
U.S. Cl. 229—71 **22 Claims**



1. A business form comprising:

a bottom ply having a first width and length, and having a self-contained, self-imaging spot formed on the top surface thereof, said spot covering only a small percentage of the area of the top surface;

an insert ply having a second width and length, both smaller than said first length and width;

a top ply having essentially said first width and length, and means for operatively connecting said top ply to said bottom ply along both lengthwise and widthwise edges thereof

means for attaching said insert ply to said bottom and top plies adjacent only a first lengthwise edge and along only a first widthwise edge, so that a second lengthwise and a second widthwise edge of said insert ply are free of connection to both said top and bottom plies; and

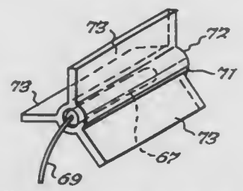
means defining perforations in said insert ply parallel to said first lengthwise and widthwise edges thereof, to allow detachment of a detachable portion of said insert ply from the first lengthwise and widthwise edges thereof.

5,062,571

TEMPERATURE SENSING CONTROL FOR REFRIGERATION SYSTEM

Raymond P. Arno, Amherst, and Scott C. Carnes, Buffalo, both of N.Y., assignors to Rayco Enterprises, Inc., Buffalo, N.Y.

Division of Ser. No. 652,309, Feb. 6, 1991, which is a continuation-in-part of Ser. No. 490,340, Mar. 8, 1990, abandoned. This application Mar. 1, 1991, Ser. No. 662,961
Int. Cl.[5] G01K *1/08*
U.S. Cl. 236—43 A **2 Claims**



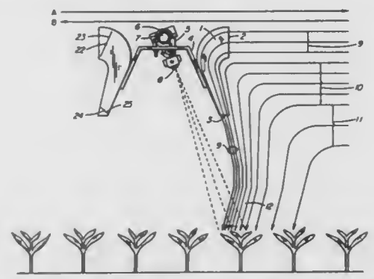
1. In a fluid passing conduit having an internal surface through which fluid passes and having an external surface subject to the temperature of a cooling medium in which the fluid passing conduit is located, a temperature sensing control comprising a finned tube having a central tubular portion, fin means extending outwardly from said central tubular portion, outer edge means on said fin means in firm heat conducting contact with said internal surface, and a control member located within said central tubular portion and in firm heat conducting contact therewith to thereby substantially sense the temperature of said fluid passing through said fluid passing conduit when said flow dominates the effect of said cooling medium to which the external surface of said fluid passing conduit is subjected and to substantially sense the temperature of said medium when the latter dominates the temperature of said fluid passing through said fluid passing conduit.

5,062,572

SPRAY SHIELD

Roger Reiter, Saskatoon; Stanley Boyko, and Nadina Boyko, both of St. Brieux, all of Canada, assignors to F. P. Bourgault Industries, Saskatchewan, Canada

Filed Jul. 17, 1990, Ser. No. 554,242
Claims priority, application Canada, Nov. 7, 1989, 2002372
Int. Cl.[5] B05B *1/28*
U.S. Cl. 239—899 **12 Claims**



1. A spray shield for use with an agricultural liquid sprayer of the type comprising at least one elongate wet spray boom adapted to spray when said boom is in the field position transverse to the direction of travel;

said spray shield comprising an elongate structure adapted to be positioned longitudinally adjacent said wet spray boom and having an air intake adapted to be directed horizontally away from said wet spray boom, and an air outlet adapted to be directed downwards and forwards of said spray boom;

said spray shield defining a passageway between said intake and said outlet such that during operation, air exiting through said outlet produces a downwardly directed curtain of air in front of the spray in the direction of travel thereby reducing the disruption of spray.

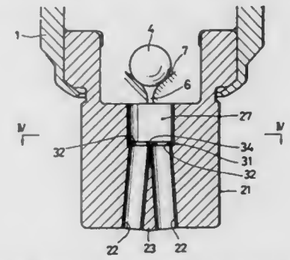
5,062,573

NOZZLE STRUCTURE IN ELECTROMAGNETIC FUEL INJECTOR

Toshiro Makimura, Obu, Japan, assignor to Aisan Kogyo Kabushiki Kaisha, Obu, Japan

Filed Mar. 20, 1990, Ser. No. 496,317
Claims priority, application Japan, May 29, 1989, 1-135226
Int. Cl.[5] F02M *61/00*
U.S. Cl. 239—533.12 **3 Claims**

1. In an electromagnetic fuel injector including an injector body, a valve housing mounted in a front portion of said injector body, said valve housing having an injection hole at a front end thereof, a solenoid coil mounted in a rear portion of said injector body, a valve axially movably received in said valve housing, an armature fixed to a rear end portion of said valve, a spring for normally biasing said valve in a valve closing direction, and a nozzle mounted to the front end of said valve housing, said nozzle having a plurality of atomizer holes communicated with said injection hole of said valve housing, wherein said valve is reciprocated by a magnetic attraction force due to excitation of said solenoid coil and a reaction force of said spring to thereby intermittently inject fuel from said injection hole; the improvement comprising an atomizer plate provided between said nozzle and said injection hole, said atomizer plate having a plurality of atomizer apertures arranged at circumferentially equal intervals, parting portions for parting said atomizer apertures and a fuel colliding portion formed at a central junction area of said parting portions against which the fuel injected from said injection hole collides, wherein each of said atomizer apertures has a shape similar to that of each of said upstream openings of said atomizer holes, and has an opening area slightly smaller than that of each upstream opening of said atomizer holes.



5,062,574

PROCESS FOR THE PREPARATION OF ACTIVE-MASS OF IMPROVED QUALITY FROM ACTIVE-MASS WASTES FORMED DURING THE PRODUCTION OF LEAD ACCUMULATORS

József Kéri, Budapest, Hungary, assignor to Akkumulator-Es Szarazelemgyar, Budapest, Hungary

Filed Aug. 13, 1990, Ser. No. 567,067
Claims priority, application Hungary, Aug. 16, 1989, 4206/89
Int. Cl.[5] B02B *5/02*
U.S. Cl. 241—22 **2 Claims**

1. A process for the preparation of a positve or negative active mass of lead accumulators by using the active mass separated from production-refuse plates and/or the active-mass wastes formed during production, which process comprises:

a) drying the active mass waste,

b) heat-treating the dried active-mass waste at a temperature of 500° to 600° C.,

c) feeding the heat-treated active-mass waste together with metal lead in an amount of at most 80% by mass, based on the mass of the metal lead, into a lead-powder producing mill, wherein the starting active-mass is positive when positive active-mass is prepared and the starting active-mass waste is negative when negative active-mass is prepared.

5,062,575

COMMINUTOR WITH IMPACT, SHEAR AND SCREENING SECTIONS

Edward J. Barnable, Turnersville, N.J., and John D. Duke, Jr., Collingdale, Pa., assignors to Pennsylvania Crusher Corporation, Broomall, Pa.

Continuation of Ser. No. 298,233, Jan. 9, 1989, abandoned, which is a continuation of Ser. No. 47,091, May 8, 1987, abandoned. This application Mar. 20, 1990, Ser. No. 495,975
Int. Cl.[5] B02C *13/282*
U.S. Cl. 241—73 **17 Claims**

1. Comminuting apparatus for comminuting by sequential action of impact and shearing members, said apparatus comprising:

A) a rotor mounted for rotation about an axis of rotation and comprising a shaft and hammers mounted in at least one circular array for rotation with said shaft, said hammers having peripheral surfaces or edges defining a hammer circle upon rotation of said shaft,

B) means for introducing feed particulates to the rotor

VOL 1132 ISS 1 NO 5 1991 UMI

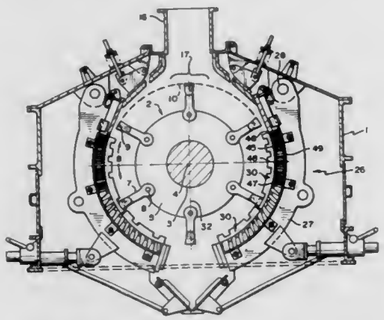
1) from outside the hammer circle,
2) with a component of motion directed radially inward with respect to the axis, and
3) at an in-feed position on the hammer circle,

C) an impact breaker member
1) located opposite a portion of the hammer circle adjacent the in-feed position and
2) having at least one surface extending in a direction of rotation of said rotor and convergent with the hammer circle for crowding feed particulates against the rotor,

D) a cage having a generally arcuate inner working face confronting and adjacent to the hammer circle and including
1) a cage frame, and
2) plural grinding members supported by the frame in at least one array for forming the working face,
a) said members being mounted and distributed in or on the frame in a generally arcuate pattern at least partially surrounding the hammer circle,
b) with the lengths of said members lying generally parallel to the axis,
c) with said members being angularly spaced from one another about said axis,

d) said members having inner surfaces confronting and adjacent to the hammer circle, and

e) at least a portion of said grinding members being at least one group of shearing members in angularly consecutive series within which



(1) the angular width of said shearing members is about one half inch or more,
(2) the angular spacing of said shearing members is about one eighth of an inch or more,
(3) the ratio of angular spacing to angular width of said shearing members is about 0.15 or more,
(4) the number of shearing members per peripheral inch of that portion of the working face occupied by the shearing members is at least one; and
(5) the angular interval of the hammer circle subtended by said group or groups of shearing members represents at least about 30 degrees, at least a portion of the arc subtended by the shearing members extending above the three o'clock position of the hammer circle,

for causing the major portion of feed particulates traversing the series of shearing members to skip over the inner surfaces of the shearing members, and

f) at least a portion of said grinding members being at least one group of screening members in angularly consecutive series within which
(1) the angular width of said screening members is about one inch or more,
(2) the angular spacing of said screening members is about three quarters of an inch or more,
(3) the ratio of angular spacing to angular width of said screening members is about 0.5 or more,
(4) the number of scanning members per peripheral inch of that portion of the working face occupied by the screening bars is less than one and
(5) the angular interval of the hammer circle subtended by said group or groups of screening members represents at least about 45 degrees,

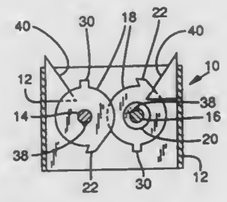
for causing the major portion of feed particulates traversing the series of screening members to exit the hammer circle via the spaces between the inner surfaces of the screening members.

5,062,576

ROTARY SHEAR-TYPE SHREDDER CUTTER WITH RECTANGULAR FEED TOOTH

Dan S. Burda, 7247 Lake Bluff Ct., Wilsonville, Oreg. 97070

Filed Jun. 11, 1990, Ser. No. 537,050
Int. Cl.[5] B02C *18/16*
U.S. Cl. 241—167 **11 Claims**



1. A rotary shear-type shredder comprising:
a housing having an inlet at the top and a discharge at the bottom thereof;
first and second parallel spaced cutter shafts mounted for rotation within said housing;
reversible drive means for counterrotating said cutter shafts;
a plurality of cutter discs and spacers fixedly stacked on each of said first and second cutter shafts, a spacer disposed between each said cutter disc so that opposing cutter discs can mesh in coacting relationship for shearing of material;
a hook fixedly mounted on the circumferential surface of said cutter disc, slanted toward the direction of rotation for grabbing and pulling material through said cutter discs; and
a rectangular block fixedly mounted on the circumferential surface of each said cutter disc at a position spaced angularly from said hook, said rectangular block having parallel front and back sides, each side forming a pair of opposite right-angle cutting edges to improve grabbing and shredding of difficult-to-grab flat material.

2. A rotary shear-type shredding apparatus according to claim 1 wherein each said block is angularly positioned so as to be opposed by a coacting hook on an opposing cutter disc on the parallel shaft.

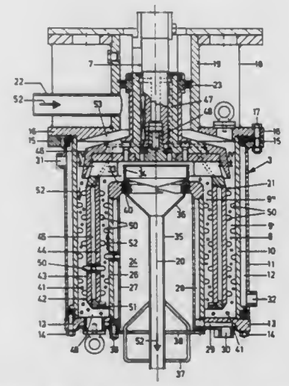
3. A rotary shear-type shredding apparatus according to claim 2 wherein an equal number of blocks and hooks are mounted on each said cutter disc, each block on each said cutter disc angularly spaced about 180 degrees apart from a hook on the circumferential surface of said cutter disc.

5,062,577

AGITATOR MILL

Philipp Schmitt, Lampertheim, and Norbert Stehr, Grünstadt, both of Fed. Rep. of Germany, assignors to Draiswerke GmbH, Mannheim, Fed. Rep. of Germany

PCT No. PCT/EP88/00408, § 371 Date Nov. 6, 1989, § 102(e) Date Nov. 6, 1989, PCT Pub. No. WO88/09212, PCT Pub. Date Dec. 1, 1988
PCT Filed May 10, 1988, Ser. No. 439,048
Claims priority, application Fed. Rep. of Germany, May 18, 1987, 3716587
Int. Cl.[5] B02C *17/16*
U.S. Cl. 241—171 **12 Claims**



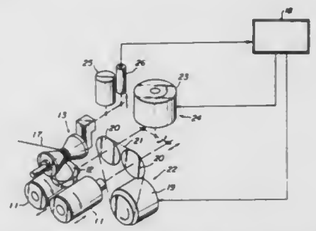
1. An agitator mill for the treatment of flowable grinding stock comprising a grinding receptacle (3) defining a mostly closed grinding chamber (9), an agitator element (21), capable of being rotatingly driven and being cup-shaped in relation to a common central-longitudinal axis (20), disposed in said receptacle, inside of which is disposed an interior stator (24) fixedly connected with the grinding receptacle (3), an exterior grinding chamber (9') being formed between the grinding receptacle (3) and an outer wall (43) of the agitator element (21) and an interior grinding chamber (9") being formed between an inner wall (44) of the agitator element (21) and the interior stator (24), said interior grinding chamber being disposed coaxially within the exterior grinding chamber (9') and connected with it via a deflection chamber (49), the exterior grinding chamber (9'), the deflection chamber (49) and the interior grinding chamber (9") forming the grinding chamber (9) which is partially filled with auxiliary grinding bodies (41), a grinding stock supply chamber (53), disposed ahead of the grinding chamber (9) in relation to the flow direction of the grinding stock, a separator device (34, 34') for the discharge of the grinding stock, disposed after the grinding chamber in relation to the flow direction of the grinding stock, said supply chamber and said separator device being disposed on the same side of the grinding receptacle, and bypasses (60, 60') for the return of the auxiliary grinding bodies (41) from the separator device (34, 34') to an area adjacent the grinding stock supply chamber (53) by utilizing centrifugal force being provided by the agitator element, wherein the exterior grinding chamber (9') and the interior grinding chamber (9") are essentially annular cylindrical, in that the grinding stock supply chamber (53) is placed upstream of the exterior grinding chamber (9') in relation to the flow direction of the grinding stock and the separator device (34, 34') is placed after the interior grinding chamber in relation to the flow direction of the grinding stock and in that the bypasses (60, 60') are placed upstream of the separator device (34, 34') in relation to the flow direction of the grinding stock.

5,062,578

YARN WINDER

Masaaki Kaida, Higashiyamato, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 322,383, Mar. 13, 1989, abandoned. This application Sep. 6, 1990, Ser. No. 578,166
Claims priority, application Japan, Mar. 17, 1988, 63-62031
Int. Cl.[5] B65H *54/66*; A63B *45/00*
U.S. Cl. 242—3 **8 Claims**



1. A yarn winder for winding a yarn about a spherical body including a pair of cylindrical rollers extending in parallel with each other in a horizontal plane and rotatively driven in the same directions and reciprocatively driven in respective axial directions opposite to each other, and a two-frustoconical roller extending in parallel with the cylindrical rollers and urged by a predetermined force against the spherical body, wherein said the two-frustoconical roller comprises a center roller having a yarn guide and two taper rollers in the form of two frustocones separated from the center roller and rotatably arranged on both sides of the center roller so that smaller diameter ends of the frustocones are facing to the center roller and wherein a surface hardness of the cylindrical rollers is in the range of 40°–60° JIS A hardness and a surface hardness of said taper rollers is in the range of 80°–100° JIS A hardness.

5,062,579

REEL SHAFT IN MAGNETIC TAPE CASSETTE RECORDING AND/OR REPRODUCING

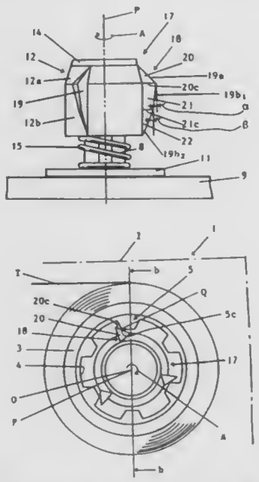
Yasuhiro Noguchi, Tokorozawa, Japan, assignor to Nakamichi Corporation, Tokyo, Japan

Continuation of Ser. No. 432,929, Nov. 7, 1989, abandoned. This application Jan. 10, 1991, Ser. No. 640,511
Claims priority, application Japan, Jul. 11, 1988, 63-145153[U]
Int. Cl.[5] B65H *75/22*
U.S. Cl. 242—68.3 **3 Claims**

1. A reel shaft for a magnetic tape recording and/or reproducing apparatus, which comprises a rotating body; and a plurality of vanes secured to an outer periphery of said rotating body for engagement with axially extending engaging members of substantially rectangular cross-sectional profile projecting inwardly from an inner wall of a reel hub around which a magnetic tape is wound in a tape cassette, said vanes each having a ridge on the side of the vane which comes into contact only at a single point with an engaging member of the reel hub while said rotating body is rotating, said ridge being formed on the contacting side of the vane by the intersection of converging surfaces on the vane such that the ridge thus defined lies in a plane generally perpendicular to the axis of rotation so that all ridges lie in the plane which coincides with the center line of the width of the magnetic tape in the tape cassette loaded into the apparatus and such that each ridge is

VOL 1132 ISS 1 NO 5 1991 UMI

directed at an oblique angle to a radius of the rotating body and between said radius and a tangential position so that the vane



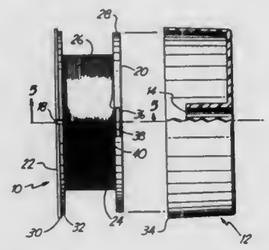
will make contact only at a single point with an engaging member of the reel hub.

5,062,580

SPOOL WITH RESILIENT TAB FOR STORING AND DISPENSING FILAMENTARY MATERIAL

Brian R. Meagher, Bloomington, Minn., assignor to Katun Corporation, Minneapolis, Minn.

Filed Feb. 28, 1991, Ser. No. 662,229
Int. Cl.[5] B65H *75/28*
U.S. Cl. 242—125.2 **14 Claims**



1. A spool for storing and dispensing a filamentary material, such as corona wire, the spool comprising:

a front ring;

a back ring having an outer edge and an inner surface facing the front ring;

a pocket extending radially inward from the outer edge and having an inner notch on the inner surface extending radially inward from the outer edge;

an outer hub around which the filamentary material is wound, connected coaxially between the back ring and the front ring; and

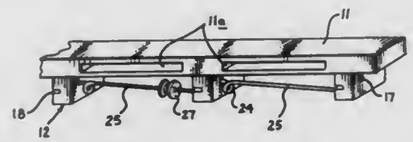
resilient tab means positioned securely within the pocket for capturing a loose end of the filamentary material between the resilient tab means and the back ring in a locked position and for releasing the loose en din a released position, the resilient tab means being deflectable from the locked position into the released position and tending to return to the locked position.

5,062,581

SPOOL SUPPORT APPARATUS

William R. Bakke, P.O. Box 9564, Virginia Beach, Va. 23450

Filed Sep. 18, 1990, Ser. No. 585,017
Int. Cl.[5] B65H *49/20*
U.S. Cl. 242—129.6 **6 Claims**



1. A spool support apparatus comprising,

an elongate support plate defined by a top surface and underlying bottom surface, and

a plurality of support blocks fixedly mounted to the bottom surface of the support plate, including at least a first support block and a second support block, and

at least one spring biased support arm including a rear terminal end and a forward terminal end, the rear terminal end mounted within the first support block, and the forward terminal end selectively receivable within the second support block, and

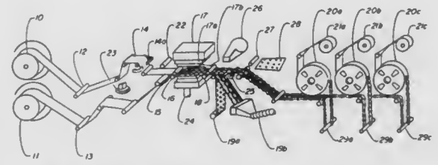
the first support block includes a forward wall spaced from and parallel a rear wall, and a top wall spaced from and parallel a bottom wall, and a forward side wall spaced from and parallel a rear side wall, and the rear terminal end of the spring biased support arm including an arm support shank, the arm support shank received within a through-extending support bore, the support bore orthogonally directed through the rear side wall and the forward side wall of the first support block adjacent the rear wall of the support block.

5,062,582

APPARATUS AND METHOD FOR PRODUCING SEMI-CONVERTED DISKETTE LINERS

Thomas D. Harmon, Woburn, and Kenneth G. Morrison, Hanover, both of Mass., assignors to International Paper Company, Purchase, N.Y.

Filed Aug. 2, 1989, Ser. No. 388,455
Int. Cl.[5] B65H *35/02, 35/04;* B26D *5/20*
U.S. Cl. 242—56.4 **15 Claims**



1. An apparatus for manufacturing cut products in continuous roll form, comprising:

a first unwind feed for supplying a continuous web of material from which the products are to be made along a machine direction;

a second unwind feed for supplying a transport web for supporting the continuous web of product material thereon in parallel therewith along the machine direction;

an input pair of feed rollers for incrementally advancing the two webs together to a cutting station;

a first input dancer bar positioned between the first unwind feed and the input feed rollers around which the product web is run with a given take-up length such that the product web is unwound from the first unwind feed and fed by the input feed rollers to the cutting station under substantially constant tension, and a second input dancer bar positioned between the second unwind feed and the input feed rollers around which the transport web is run with a given take-up length such that the transport web is unwound from the second unwind feed and fed by the input feed rollers to the cutting station under substantially constant tension;

the cutting station having a die cutter for cutting through the product and transport webs to form cut product units in successive increments and respective connecting portions between increments for keeping the products units joined together in a continuous strip;

scrap removal means for separating the transport web and scrap material of the continuous web of product material from the strip of cut products;

an output pair of feed rollers positioned at an output end of the cutting station and indexed with the input feed rollers for incrementally transporting the strip of cut products to a windup station;

the windup station having a spool on which the cut product strip is wound as an output product roll; and

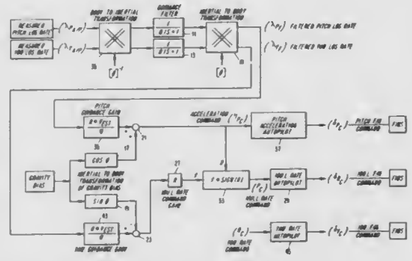
an output dancer bar positioned between the output feed rollers and the windup station around which the cut product strip is run with a given take-up length such that the cut product strip is fed by the output feed rollers from the cutting station and wound up on the windup spool under substantially constant tension.

5,062,583

HIGH ACCURACY BANK-TO-TURN AUTOPILOT

Gary D. Lipps, and Stephen D. Wood, both of Orlando, Fla., assignors to Martin Marietta Corporation, Bethesda, Md.

Filed Feb. 16, 1990, Ser. No. 480,976
Int. Cl.[5] F41G *7/20;* G06F *15/50*
U.S. Cl. 244—3.15 **13 Claims**



13. A bank-to-turn guided weapon, comprising

a pitch control surface for changing a pitch attitude of said guided weapon;

a roll control surface for changing a roll attitude of said guided weapon; and

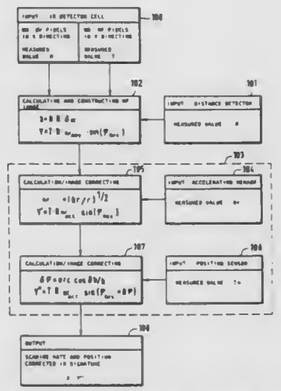
a bank-to-turn autopilot for changing a yaw attitude of said guided weapon through a combination of changes in said pitch attitude and said roll attitude, said bank-to-turn autopilot comprising yaw rate determining means and pitch rate determining means and a roll command channel, said yaw rate determining means commanding said roll command channel exclusive of any contribution in magnitude from said pitch determining means.

5,062,584

TARGET DETECTION METHOD FOR FLYING BODIES PROVIDED WITH SEARCH HEAD

Franz H. Neff, and Jürgen Heinrich, both of Hermannsburg, Fed. Rep. of Germany, assignors to TZN Forschungs, und Entwicklungszentrum Unterlüss GmbH, Unterlüss, Fed. Rep. of Germany

Filed Sep. 8, 1989, Ser. No. 404,909
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1988, 3835883
Int. Cl.[5] F41G *7/22*
U.S. Cl. 244—3.15 **10 Claims**



1. In a target detection method for a flying body provided with a search head and with the flying body rotating about an axis of rotation during its descending flight and scanning the area with its search head for possible targets, said method including the steps of determining the geometric dimensions of detected possible targets in the direction of the scanning path (Y direction) and in a direction perpendicular to the scanning path (X direction) under consideration of the distance R between the flying body and the possible target, and comparing the determined geometrical dimension values with corresponding stored values to detect the presence of a true target; the improvement comprising: continuously determining the actual angular velocity $\omega_{act.}$ of the flying body about the axis of rotation during the scanning process by (a) measuring the radial acceleration (br) of the flying body by means of an acceleration sensor mounted on the flying body so that it is radially displaced from the axis of rotation, and calculating $\omega_{act.}$ from the equation

$$\omega_{act.} = (br/r)^{\frac{1}{2}}$$

where r is the distance between the axis of rotation and the location of the acceleration sensor; and

using the determined angular velocity value $\omega_{act.}$ to correct the geometric dimension in the Y direction of the possible target during said step of determining the geometric dimensions.

5,062,585

DETACHED AND ATTACHED THERMAL SPOILERS FOR KINETIC ENERGY PROJECTILE FINS

Ameer G. Mikhail, Bel Air, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Jun. 26, 1990, Ser. No. 543,896
Int. Cl.[5] B64C *3/28*
U.S. Cl. 244—3.24 **6 Claims**

1. A supersonic kinetic energy projectile intended to be

VOL 1132 ISS 1 NO 5 1991 UMI

launched toward a selected target, comprising a projectile body, a plurality of fins attached to the projectile body to provide stability thereto in flight, spoilers means attached to the projectile body ahead of each of said fins for reducing the temperature of the fins during flight of the projectile, and thereby, the turning of the fins in flight, and wherein said fins being main fins, and said spoiler means comprising a plurality



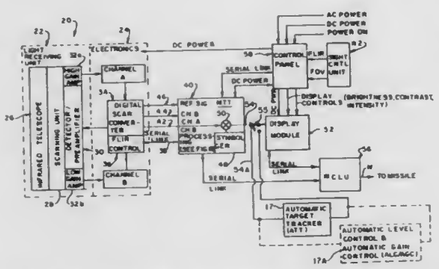
of advance fins, each being associated with and being mounted ahead of a respective one of said main fins, and a predetermined gap between each of said advance fins and the associated trailing one of said main fins, and wherein each of said advance fins and the associated trailing one of said main fins are formed from a single sheet of material, and are connected by a portion of said material beneath said gap.

5,062,586

MISSILE TRACKING, GUIDANCE AND CONTROL APPARATUS

Gregory L. Hobson, St. Peters; Kent Luetkemeyer, Maryland Heights, and John R. Wootton, St. Louis, all of Mo., assignors to Electronics & Space Corporation, St. Louis, Mo.

Filed May 17, 1990, Ser. No. 524,495
Int. Cl.[5] F41G *7/26*
U.S. Cl. 244—3.12 **29 Claims**



1. Apparatus for acquiring, tracking and guiding an object to a target comprising:

beacon means carried on the object for providing an indication of its location at any time during its movement toward the target;

acquisition means responsive to the beacon means for acquiring and tracking the object, the acquisition means including means for scanning a field of view which includes an image of the object as produced by the beacon means, and means for converting the image from each scan into two separate electrical signals one of which is supplied as an output non a first signal channel and the other of which is supplied as an output on a second and separate signal channel;

first processing means for processing the electrical signal on the first signal channel to generate a display signal for producing a visual display of the field of view including the target and the object, and display means to which the display signal is supplied for producing the visual display;

second processing means for separately processing the electrical signal on the second signal channel to determine the location of the object relative to the target; and,

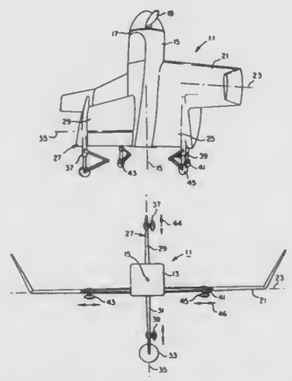
control means responsive to the location for generating and transmitting a control signal to the object to guide it to the target.

5,062,587

LANDING GEAR FOR A TAIL SITTING AIRPLANE

Kenneth G. Wernicke, 409 Circleview North, Hurst, Tex. 76054

Filed Jul. 27, 1990, Ser. No. 558,602
Int. Cl.[5] B64C *29/02*
U.S. Cl. 244—7 B **8 Claims**



1. In a tail sitter aircraft of a type having a fuselage with a longitudinal fuselage axis, a nose on its forward end and a tail section on its rearward end, a pair of wings extending laterally from the fuselage axis, a propulsion means for propelling the aircraft, the aircraft being capable of landing and taking off on the tail section with the nose up, an improved landing gear means, comprising in combination:

two pairs of landing gears, each landing gear having a wheel rotatably mounted about a wheel axle, each wheel carried by the aircraft and extending rearward of the tail section along a support axis which is offset from the fuselage axis and which intersects the wheel axle at a 90 degree angle, the landing gears within each pair being spaced opposite from each other relative to the fuselage axis, each landing gear within each pair being angularly spaced from an adjacent landing gear in the other pair relative to the fuselage axis; and

means for preventing each wheel of the landing gears from turning about its support axis so that each wheel will roll only along a straight line, and for aligning the wheels of each pair so that the wheels of each pair will roll only along the same straight line, the straight line of one pair intersecting the straight line of the other pair, to reduce the tendency of the aircraft to tip over when landing and for preventing the aircraft from moving translationally when resting on all of the landing gears.

5,062,588

SEGMENTED ROTATABLE NOZZLES

Douglas Garland, Rexdale, Canada, assignor to Boeing of Canada Ltd., Downsview, Canada

Filed Feb. 8, 1989, Ser. No. 307,449
Int. Cl.[5] B64C *29/00*
U.S. Cl. 244—23 D **20 Claims**

1. A thrust deflector arrangement for use in VSTOL aircraft having a pressurized gas generator fluidly communicating with a horizontal thrust outlets through a passage, said thrust deflector arrangement comprising:

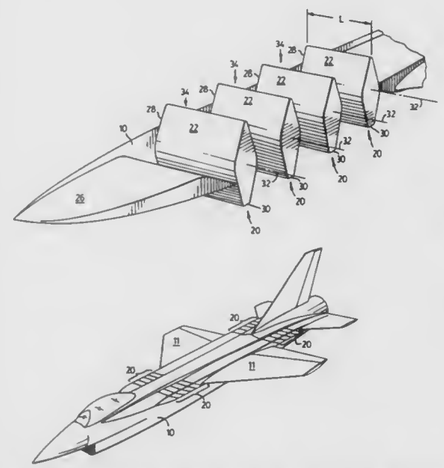
a plurality of adjacent nozzles mounted in an aerodynamic element having upper and lower surfaces, each of said nozzles having;

a unitary body with a first face and second face,

an inlet for receiving pressurized gas from said passage,

and at least one outlet fluidly connected with said inlet for discharging said pressurized gas;

each of said nozzles being rotatable about an axis from a first position in which said outlet is directed generally downwardly, to a second position where said outlet is directed generally rearwardly;



in said first position said first and second faces of said bodies of adjacent nozzles are spaced apart thereby defining an air entrainment channel therebetween, said air entrainment channel being generally unobstructed above and below said nozzles;

in said second position said first and second faces of said adjacent nozzles contact thereby closing said air entrainment channel and forming continuous upper and lower surfaces which are least adjacent the upper and lower surfaces respectively of the aerodynamic element.

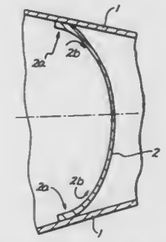
5,062,589

FIBER REINFORCED PRESSURE BULKHEAD WITH INTEGRATED FRAME

Siegfried Roth, Mittelstenweiler; Detlef Benz, Immenstaad; Anton Reichle, Stetten; Reiner Teske, Markdorf; Peter Zimmermann; Peter Hager, both of Friedrichshafen; Josef Mueller, Markdorf, and Werner Poenitzsch, Friedrichshafen, all of Fed. Rep. of Germany, assignors to Dornier Luftfahrt GmbH, Oberpfaffenhofen, Fed. Rep. of Germany

Filed Feb. 27, 1990, Ser. No. 485,949
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1989, 3906170; Jul. 19, 1989, 3923871
Int. Cl.[5] B64C *1/10*
U.S. Cl. 244—117 R **19 Claims**

1. Pressure loaded aircraft bulkhead element, internal aircraft partition element or end element in an aircraft and for utilization in a pressurized environment: the element being made of fiber reinforced material and being of a calotte contour with a center part and a transition of round, oval or elliptical configuration at or near an edge portion; and



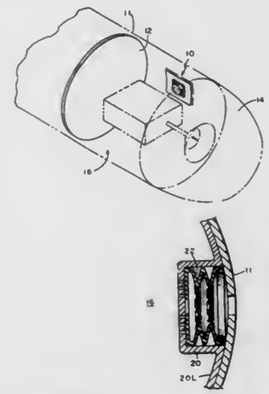
the edge portion including additional carbon fiber reinforcing layer means.

5,062,590

VENTING AND SEALING MECHANISM

James J. DiPrima, Medford, and Frank K. Porter, Jr., Billerica, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 6, 1989, Ser. No. 446,738
Int. Cl.[5] B64D *11/00*
U.S. Cl. 244—118.5 **5 Claims**



1. A missile comprising:

(a) a shell having a space enclosed thereby normally isolated from air surrounding the missile;

(b) a guidance apparatus disposed within the space; and

(c) venting and sealing mechanism disposed between the space and the atmosphere, the venting and sealing mechanism comprising:

(i) a cup fabricated from a metallic material, the cup having a lip affixed to an inner surface of the shell to encompass an opening formed through the shell and having a perforate bottom with individual holes adjacent to the space within the missile wherein the individual holes in the perforate bottom of the cup have transverse dimensions to render the perforate bottom opaque to radio frequency energy utilized by the guidance system;

(ii) a plug, fabricated from an elastometer and movably mounted within the cup, the plug having an annular end adapted to cover the individual holes in the perforate bottom; and

(iii) a bellows having a first end and a second end, the first end of the bellows affixed to the plug and the second

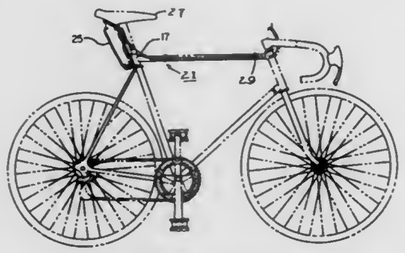
VOL 1132 ISS 1 NO 5 1991 UMI

end of the bellows disposed adjacent the inner surface of the shell within the lip of the cup.

5,062,591
PRESSURIZED POTABLE BEVERAGE DRINKING SYSTEM

Kevin D. Runkel, Midkiff, Tex., assignor to Bikestream, Inc., Midland, Tex.

Filed Feb. 12, 1990, Ser. No. 478,919
Int. Cl.[5] B62J *11/00*
U.S. Cl. 224—148 **4 Claims**



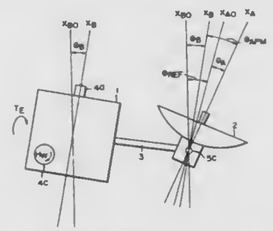
1. A drinking apparatus for a bicycle comprising:
a. an inflatable bladder means adapted to receive a potable beverage under pressure and to expand in proportion to the volume of fluid so as to provide an expelling force for said potable beverage and force said potable beverage to a drinker riding the bicycle when a flow path is established;
b. a drinking tube for drinking therefrom by said rider; said drinking tube adapted to extend upwardly from the frame of the bicycle toward said drinker and having a free drinking end;
c. conduit means connected from said inflatable bladder means to said drinking tube and adapted for conveying said potable beverage to said drinking tube;
d. a valve means interposed intermediate said inflatable bladder means and said free drinking end of said drinking tube; said valve means being operable by said drinker to be opened to afford a drink as needed by said drinker; and
e. tie means for tying said conduit means to said frame of the bicycle for supporting and conveying said potable beverage to said drinker;
whereby a bicycle rider can drink a potable beverage without stopping the bicycle.

5,062,592
ORIENTATION CONTROL APPARATUS FOR SPACE VEHICLE

Hitoshi Kishimoto, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 11, 1990, Ser. No. 507,467
Claims priority, application Japan, Apr. 14, 1989, 1-94879
Int. Cl.[5] B64G *1/24*
U.S. Cl. 244—164 **5 Claims**

1. An orientation control apparatus for a space vehicle, comprising:
a first orientation control system for controlling the orientation of a main body of the space vehicle on the basis of information representing a variation in the orientation of the main body;
a second orientation control system for controlling the orientation of a device provided on the main body on the basis of information representing a variation in the orientation of the device;
a first estimation section for estimating a target direction of the device;
a second estimation section for estimating an orientation error of the device on the basis of information representing the target direction estimated by the first estimation section and on the basis of information obtained by the first orientation control system and representing a variation in the orientation of the main body;
a first compensation means for correcting the operation of the second orientation control system on the basis of the orientation error estimated by the second estimation section, thereby compensating for dynamic effects which the first orientation control system may have on the second orientation control system; and

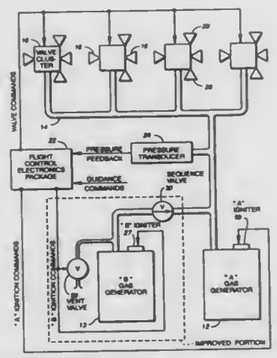


a second compensation means for correcting the operation of the first orientation control system on the basis of the estimated orientation error, thereby compensating for dynamic effects which the second orientation control system may have on the first orientation control system when the first compensation means performs compensation.

5,062,593
SOLID-PROPELLANT-POWERED MANEUVERING SYSTEM FOR SPACECRAFT

Charles W. Goddard, San Jose; John T. Lucas, Los Altos, and Paul A. Galvan, San Jose, all of Calif., assignors to United States Government as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 15, 1991, Ser. No. 660,361
Int. Cl.[5] B64G *1/26*; F42B *15/033*
U.S. Cl. 244—169 **4 Claims**



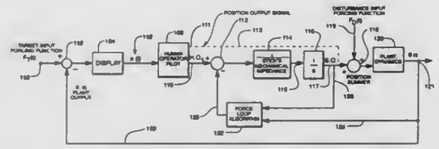
1. In combination with a solid-propellant-powered maneuvering system for spacecraft having (1) a first gas generator set for providing a hot gas output said first set consisting of at least one gas generator each generator containing solid propellant and having an ignition means responsive to an ignition command, the burn rate of said propellant being directly related to the pressure of said gas output so that the rate of said gas output is directly related to the pressure of said gas output, (2) at least three nozzle valve clusters disposed to be mounted on the spacecraft and radiosymmetrically arranged about the

spacecraft roll axis, each nozzle valve cluster having a first and a second high thrust nozzle valve having a corresponding first and second high thrust nozzle attached and fluidly connected thereto the first high thrust nozzle oriented to produce thrust in a direction along and defining a high-thrust-line axis and the second high thrust nozzle oriented to produce thrust in a direction directly opposite to that of the first high thrust nozzle and along said high-thrust-line axis which is spaced from and is parallel to said roll axis, and each nozzle valve cluster also having a first and a second low thrust nozzle valve having a corresponding first and second low thrust nozzle attached and fluidly connected thereto the first low thrust nozzle oriented to produce thrust in a direction along and defining a low-thrust-line axis and the second low thrust nozzle oriented to produce thrust in a direction directly opposite to that of the first low thrust nozzle and along said low-thrust-line axis which intersects said high-thrust-line axis and is perpendicular to a plane containing both said high-thrust-line axis and said roll axis, each nozzle valve having means for individually operating in response to valve commands, (3) a gas conducting manifold fluidly connecting each gas generator of said first gas generator set to each nozzle valve cluster inlet port, (4) a gas pressure transducer fluidly connected to said manifold, and (5) command generating means responsive to guidance command inputs and resposive to pressure feedback from said gas pressure transducer for generating valve commands to individual nozzle valves and for generating ignition commands to individual gas generator ignitors, the improvement which comprises:
a second gas generator set for providing a hot gas output said second set consisting of at least one gas generator each generator containing solid propellant and having an ignition means responsive to an ignition command, the burn rate of said propellant being directly related to the pressure of said gas output so that the rate of said gas output is directly related to the pressure of said gas output; and
a set of sequence valves equal in number to the number of gas generators of the second gas generator set, each sequence valve uniquely associated with a particular gas generator of said second set and fluidly connecting that associated gas generator to the gas conducting manifold, each sequence valve installed in a direction to permit gas flow from the associated gas generator into said manifold.

5,062,594
FLIGHT CONTROL SYSTEM WITH TACTILE FEEDBACK

Daniel W. Repperger, Vandalia, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Nov. 29, 1990, Ser. No. 624,096
Int. Cl.[5] G05D *01/00*; B64C *13/46*
U.S. Cl. 244—175 **9 Claims**



1. An aircraft flight controller system providing a human operator with visual primary flight control information and tactile secondary flight control information supplementary to the visual primary flight control comprising the combination of:
a primary information human operator vision based and noise input forcing function $f_D(t)$ signal inclusive closed feedback loop aircraft dynamics plant controlling apparatus, said apparatus including,
an aircraft dynamics plant means output, $\theta(t)$ signal, to target input forcing function, $F_T(t)$ signal, difference error based visual display having plant position display $e(t)$ signal, output to said human operator,
a human operator force and secondary information tactile feedback force operated control stick including a predetermined stick mechanical impedance characteristic and integration means for converting stick velocity signals to stick position signals, and
aircraft dynamics plant for generating said output $\theta(t)$ signal, said aircraft dynamics plant means including said $F_D(t)$ noise forcing signal as an input thereto;
a secondary information tactile signal feedback path having said aircraft dynamics plant means output $\theta(t)$ signal and said control stick position output signal as inputs thereto, and
a secondary information force signal output connected with said control stick, and
a transfer function defined by the mathematical relationship

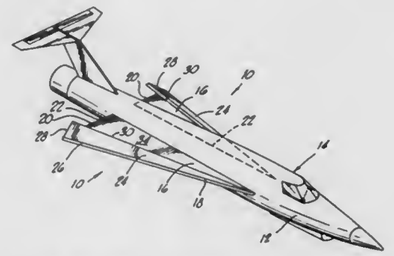
$$1/P^N(1/P - s.S\ IMP)$$

wherein
P represents the aircraft dynamics plant transfer function
N represents a feedback determination variable having possible values of zero and one,
s represents the Laplace transform operator, and S IMP represents the impedance of said control stick.

5,062,595
DELTA WING WITH LIFT ENHANCING FLAP

Tony Maxworthy, Culver City, Calif., assignor to University of Southern California, Los Angeles, Calif.

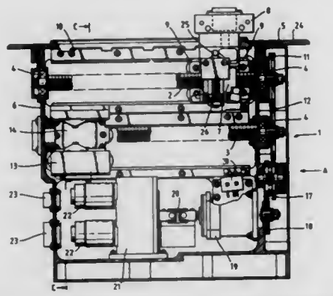
Continuation of Ser. No. 515,312, Apr. 26, 1990, abandoned, which is a continuation of Ser. No. 221,320, Jul. 19, 1988, abandoned. This application Jan. 2, 1991, Ser. No. 635,800
Int. Cl.[5] B64C *3/50*
U.S. Cl. 244—214 **23 Claims**



1. A wing assembly, comprising:
a delta wing having a leading edge, a trailing edge and side edge;
a delta flap smaller in size than the wing having a leading edge, a trailing edge and a side edge;
means for rotatably connecting the entire leading edge of the flap to the leading edge of the wing; and
rotating means for rotating the flap with respect to the top surface of the wing under flow conditions to create stable vortices with high circulation over substantially the entire wing and to thereby enhance wing lift.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,596
CONTROL APPARATUS
Alan Aldersley, Blackpool, and Ronald Hayes, Preston, both of England, assignors to British Aerospace plc, London, England
Filed Aug. 8, 1990, Ser. No. 564,069
Claims priority, application United Kingdom, Aug. 26, 1989, 8919453
Int. Cl.[5] B64C *13/28*
U.S. Cl. 244—234 5 Claims



1. Control apparatus comprising a control member linearly moveable on a first shaft, and means for detecting the position of said control member on said first shaft and generating an output control signal in response thereto, further a second shaft parallel to said first shaft and having linearly movable thereon a counterweight said shafts being coupled and driven together such that movement of said control member causes said counterweight to move with, but in the opposite direction to, said control member wherein the control member and the counterweight are both threadably mounted on their respective shafts through ball screws and said shafts are able to rotate in synchronism, but in opposite senses by gearing associated with said shafts.

5,062,597
METHOD OF FORMING A NEW PILE AFTER DISCHARGE OF A COMPLETED PILE IN A PILE-FORMING MACHINE ASSOCIATED IN PARTICULAR WITH A PRINTER AND DEVICE FOR CARRYING OUT THIS METHOD
Martial G. E. Martin, Villejuif, France, and Pierre L. V. Nuttin, Massagno, Switzerland, assignors to Syntone, Belgium
Filed Mar. 16, 1990, Ser. No. 494,777
Claims priority, application France, Mar. 17, 1989, 89 03560
Int. Cl.[5] B41L *1/32*
U.S. Cl. 270—39 9 Claims

1. A method for forming individual zigzag folded piles from an endless web made from a flexible material such as paper and containing flaps defined by transverse perforation lines, in a pile forming machine comprising a pile support table and, above said table, a web guiding swinging unit making a pivoting movement above said table, said method comprising the steps of

continuously feeding said endless web to said swinging unit and causing said unit to deposit the continuously forward-moving web on said table in a zigzag folded file configuration,

rupturing the web along a transverse perforation line between the last flap of the folded pile and the first flap of a new pile to be formed,

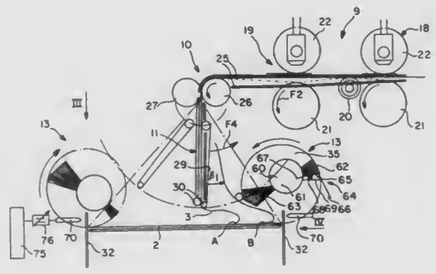
continuing the forward motion of the ruptured web until the last flap has been laid down on the folded pile and a forward end of the first flap reaches a position corresponding to its final position at the base of the new pile to be formed,

stopping the swinging device and the forward motion of the web,

moving said support table away from a pile-forming position to a distant pile discharge position,

providing a cushion of gaseous fluid such as air under pressure in a zone located below said forward edge of said first flap,

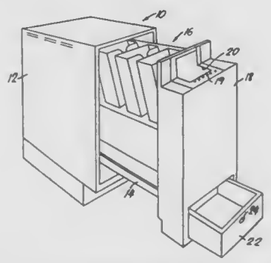
causing said cushion to support said forward edge zone and to form a temporary support during the absence of the supporting table,



moving said supporting table back to its pile-forming position after the discharge of the completed pile so that said forward edge zone contacts said supporting table,

stopping the formation of said gaseous fluid cushion under said forward edge zone of said first flap and restarting the operation of the swinging unit and the forward motion of said web.

5,062,598
DELIVERY SYSTEM FOR UNDER THE COUNTER CURRENCY DISPENSER
Theodore Winkler, Levittown, Pa., assignor to Brandt, Inc., Bensalem, Pa.
Continuation of Ser. No. 371,499, Jun. 26, 1989, abandoned.
This application Dec. 28, 1990, Ser. No. 635,389
Int. Cl.[5] B65H *5/22*
U.S. Cl. 271—6 15 Claims



I. Apparatus for dispensing currency notes including in combination

a cabinet having a front provided with an opening forming a delivery location which is freely accessible to a user,

means fin said cabinet for holding a supply notes,

normally enabled conveying means extending from said supply means to said delivery location,

normally enabled means for removing notes from said supply and delivering removed notes to said conveying means,

a tray,

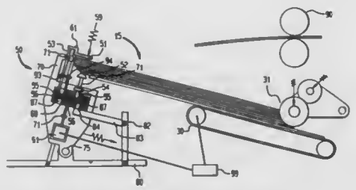
means mounting said tray at said delivery location for movement between an operative position at which it receives notes from said conveying means and an inoperative position at which notes conveyed to said delivery location pass by said tray to an escrow area in said cabinet,

means normally holding said tray in its operative position,

means responsive to a malfunction of said removing and delivering means for producing an error signal, first means responsive to said error signal for immediately disabling said removing and delivering means while said conveying means remains enabled,

and second means responsive to said error signal for immediately moving said tray to its operative position and including a timer for maintaining said tray in its inoperative position until all notes received by said conveying means have been carried to said delivery location.

5,062,599
SHEET SEPARATING MECHANISM AND APPARATUS FOR USE THEREIN
Jon M. Kriegel, Rochester, and Richard E. Albrecht, Honeoye Falls, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 19, 1990, Ser. No. 495,512
Int. Cl.[5] B65H *3/52*
U.S. Cl. 271—35 13 Claims



1. A sheet separating mechanism comprising:

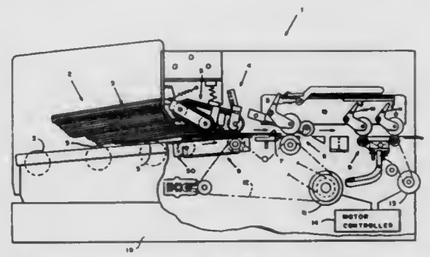
means for receiving a stack of sheets in a position in which the sheets and the stack have leading ends and trailing ends,

sheet retard means,

sheet separating means forming a nip with the sheet retard means, for engaging an outside sheet of a received stack and feeding a leading end of said sheet into said nip, and

gripping and moving means for gripping the trailing end of the portion of said stack other than said outside sheet after said outside sheet has been moved toward or into said nip and for moving said stack in a direction away from said nip to reduce the force of the nip forcing the sheet adjacent said outside sheet against the outside sheet.

5,062,600
REPLACEABLE BELT CARTRIDGE FOR AN ENVELOPE FEED APPARATUS
Russell W. Holbrook, Middlebury, and Scott A. MacDonald, Bethel, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.
Filed Nov. 14, 1989, Ser. No. 435,878
Int. Cl.[5] B65H *3/04*
U.S. Cl. 271—35 4 Claims



1. A detachable belt cartridge for detachable mounting in an envelope feeder apparatus, comprising:

a housing having spaced apart side walls, first and second end walls, and a top;

said top having a plurality of lengthwise slots formed therein;

a first and second shaft rotatively mounted in spaced apart relationship in said housing;

a plurality of wheels drivenly mounted on said first and second shafts;

a plurality of endless belts respectively extending around a respective one of said wheels of said first and second shafts such that a portion of said belt extends in a respective slot slightly above said top;

said apparatus having first support means for rotatively supporting portions of said first shaft at one end of said housing such that said first shaft may be slidably removed longitudinally from said first support, a second support means for detachably supporting said other end of said housing.

5,062,601
MILL SCREEN APPARATUS
Carl R. Graf, King of Prussia, Pa., assignor to Pennsylvania Crusher Corporation, Broomall, Pa.
Continuation of Ser. No. 410,140, Sep. 21, 1989, abandoned, which is a continuation of Ser. No. 198,027, May 24, 1988, abandoned. This application Aug. 28, 1990, Ser. No. 573,696
Int. Cl.[5] B02C *17/18*
U.S. Cl. 241—79.3 25 Claims

1. Co-rotating screen and reduction drum apparatus for reducing particulate materials, comprising:

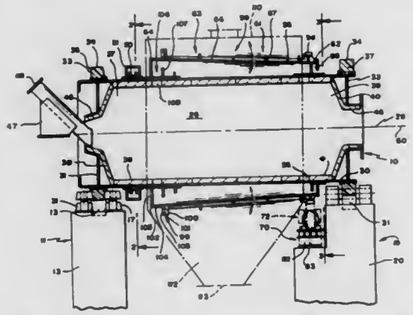
(a) rotary drum particle size reduction means having a substantially imperforate drum,

(b) a rotary screen connected with said drum for co-rotation therewith, and having a perforate screening member with upstream and downstream portions, including upstream and downstream ends, said upstream portion of the screen surrounding at least a portion of the periphery of the drum, and

(c) means engaging an upstream portion of said screen and including a vibratory exciter for vibrating said upstream portion substantially independent of the drum, for restrict-

VOL 1132 ISS 1 NO 5 1991 UMI

ing consumption of power that would otherwise be expended in vibrating the drum while promoting increased



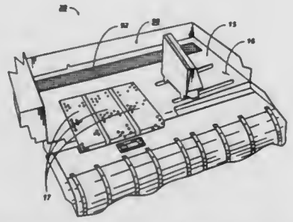
removal of fines from the particulate material through the upstream portion of the screening member.

5,062,602

DOUBLE FEEDING PREVENTION IN A BOTTOM SHEET DOCUMENT FEEDER

Glenn F. Kress, and Gerald L. Coy, both of Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 24, 1990, Ser. No. 572,279
Int. Cl.[5] B65H *3/34*
U.S. Cl. 271—104 **6 Claims**



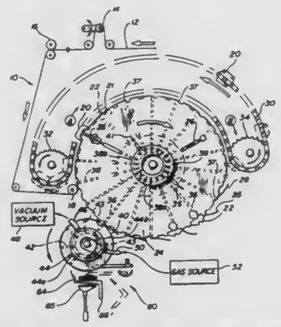
1. In a non-retard type bottom of stack sheet separating and feeding apparatus in which the bottom-most sheet is sequentially separated and fed out downstream by its downstream or lead edge from under the stack of sheets while the stack of sheets is generally supported on the bottom surface of a stacking tray thereof; the improvement comprising oriented fiber material mounted generally coplanar said bottom surface of said stacking tray and providing a substantial upstream area of said bottom surface of said stacking tray underlying and engaging a substantial upstream or trail edge area of said stack, said oriented fiber material having fibers which are predominantly angled upstream oppositely of said downstream sheet feeding direction to engage the trail or upstream edge area of the second-from-the-bottom sheet in said stack to resist its downstream movement as said bottom-most sheet is being initially separated and fed out.

5,062,603

VACUUM DRUM PURGE METHOD AND APPARATUS

David A. Smith, Midland, and James A. LaCombe, Bay City, both of Mich., assignors to Dow Brands Inc., Indianapolis, Ind.

Filed Apr. 25, 1990, Ser. No. 514,464
Int. Cl.[5] B65H *5/22*
U.S. Cl. 271—195 **13 Claims**



1. Apparatus for supplying gas to the vacuum ports of a vacuum drum comprising:
a source of vacuum and a source of gas;
a vacuum drum, including means for rotating said drum;
said drum including a plurality of vacuum ports on the surface thereof, said vacuum ports communicating with means for selectively exposing said vacuum ports to said vacuum source and said source of gas as said drum rotates, said exposing means comprising a plurality of vacuum passages each having a diameter and extending generally outwardly from the interior of said drum, each of said passages connected with a corresponding vacuum port; and
valve means for alternately connecting said passages to said vacuum source and to said source of gas, said valve means comprising a channel including at least one adjustable plug positioned in said channel, said plug having a width equal to or greater than the diameter of said vacuum passages.

5,062,604

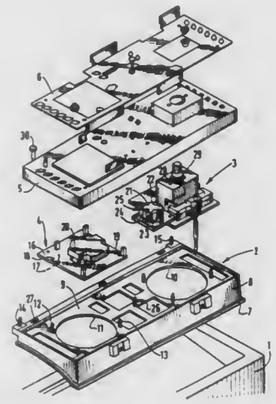
INSTRUMENT DANEL ASSEMBLY FOR MOTOR VEHICLE DASHBOARD

Christian Monnier, Pontoise, France, assignor to Societe d'Applications Generales d'Electricite et de Mecanique Sagem, Paris, France

Filed Jun. 13, 1990, Ser. No. 537,334
Claims priority, application France, Jun. 13, 1989, 89 07790
Int. Cl.[5] B60K *37/00*
U.S. Cl. 248—27.1 **7 Claims**

1. An instrument panel assembly for a motor vehicle dashboard, comprising:
(a) a housing having a front window and a rear wall overlying and spaced from the front window, said rear wall having a plurality of display openings;
(b) a plurality of dashboard instruments, each having a dial face;
(c) means for precisely positioning the instruments on the rear wall of the housing, and for aligning a respective dial face with a respective display opening;
(d) a casing having a back wall;
(e) means for connecting the instruments to the back wall of the casing; and

(f) means for fixedly securing the casing with the instruments connected thereon to the housing, and for enclosing the



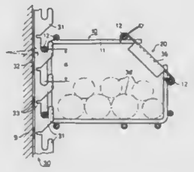
instruments between the back wall of the casing and the rear wall of the housing.

5,062,605

CABLE-LAYING CONDUIT

Erhard Muhlethaler, Schaluneu, Switzerland, assignor to Lanz Oensingen AG, Oensingen, Switzerland

Filed Aug. 15, 1989, Ser. No. 393,735
Claims priority, application Switzerland, Aug. 17, 1988, 3070/88
Int. Cl.[5] F16L *3/00*
U.S. Cl. 248—68.1 **16 Claims**



1. A cable-laying conduit for building installation, said conduit having a rectilinear lateral cross-section, the improvement comprising:
a conduit having four sides and three corners; and
a longitudinal opening for insertion of cable located along the projected intersection of two of said sides of said conduit which are shorter than their opposite sides.

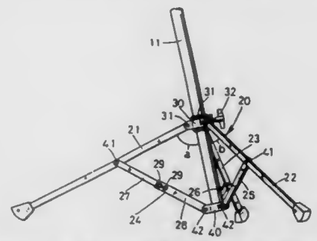
5,062,606

ADJUSTABLY TILTABLE TRIPOD STAND

Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Gakki Co. Ltd., Japan

Continuation of Ser. No. 339,009, Apr. 17, 1989, abandoned. This application Jun. 4, 1990, Ser. No. 541,206
Claims priority, application Japan, Aug. 29, 1988, 63-113189
Int. Cl.[5] F16M *11/00*
U.S. Cl. 248—171 **26 Claims**

1. A tiltable tripod stand comprising:
a main post;
three tripod legs, the legs having respective upper ends; a holding member journaled to the upper ends of the legs and movable along the main post for moving the upper ends of the legs along the main post;
the legs having lower ends for resting on a surface on which the tripod stand is supported;
a respective articulated arm hingedly journaled to each leg intermediate the ends of the leg and also hingedly journaled to the main post, wherein movement of the upper ends of the legs with respect to the main post, through the articulated arms, selectively folds the legs together to close the stand and opens the legs apart to a supporting condition by forming the lower ends of the legs into a triangle which supports the tripod stand;
one of the articulated arms being connected to one of the



legs and the one arm being adjustable in its length between the respective one leg thereof and the main post, selectively enabling the one articulated arm to have a different length than the other two articulated arms; the other two arms having no length adjusting means, whereby the respective lengths of the other two articulated arms between the respective legs and the main post are fixed and non-adjustable; with the legs in the supporting condition, the length of the one articulated arm is adjustable in length to cause the tilt angle, with respect to the main post, of the one leg connected to the one articulated arm to be adjustable with respect to the tilt angles with respect to the main post of the other two legs connected to the other two articulated arms, enabling the tilting of the main post generally toward one of the legs.

5,062,607

HOLDER FOR DETACHABLY MOUNTING A RECEPTABLE ON A LADDER

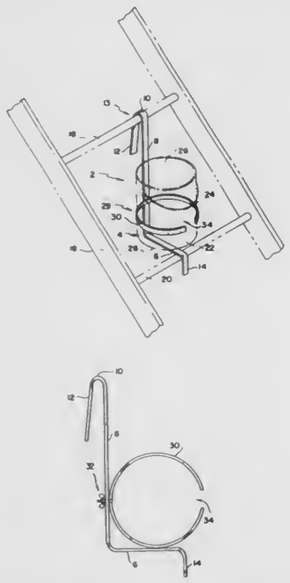
Howard A. Kisner, River Rd. PO 177-0177, Volga, W. Va. 26238

Filed Jan. 14, 1991, Ser. No. 640,831
Int. Cl.[5] E06C *7/14*
U.S. Cl. 248—211 **14 Claims**

1. A holder for detachably mounting a receptacle on a ladder, the holder comprising:
a generally L-shaped body member, said body member having a foot portion and a back portion, the receptacle resting on the foot portion when being held by the holder;
an extension portion connected to the back portion by a curved portion, the back portion, curved portion and extension portion forming a hook to attach the holder to a first rung of the ladder with the extension portion being positioned behind the first rung when the holder is mounted on the ladder;
a front portion connected to the foot portion of the body member, said front portion being positioned in front of a second rung of the ladder and at least the foot portion engaging the second rung of the ladder when the holder is mounted on he ladder, the first rung of the ladder being above the second rung; and
retainer means for holding the receptacle on he holder, the retainer means being pivotally attached to the back portion of the body member and the retainer means comprising a restraint member having a generally circular shape, the restraint member being attached to the back portion at

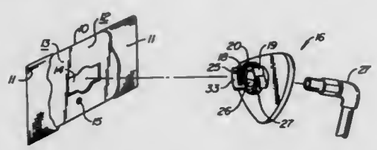
VOL 1132 ISS 1 NO 5 1991 UMI

a predetermined position, the predetermined position being spaced from the foot portion of the body member by



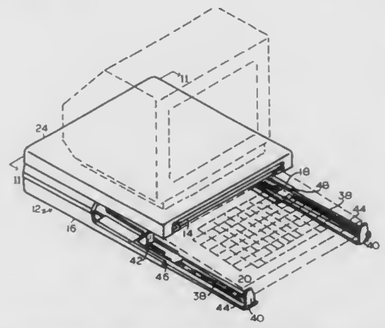
a distance which is greater than the radius of the restraint member.

5,062,608
VISOR MOUNT
Richard A. Phelps, Ferndale, and Brian S. Lorence, Warren, both of Mich., assignors to Chivas Products Limited, Sterling Heights, Mich.
Filed Apr. 23, 1990, Ser. No. 509,954
Int. Cl.[5] A47F *5/00*
U.S. Cl. 248—289.1 22 Claims



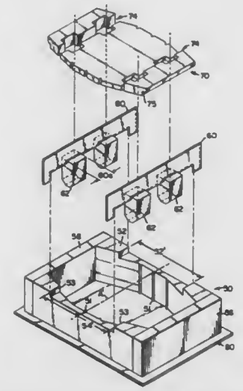
1. A toolless visor mount assembly, for use in mounting a visor to a panel of a vehicle, comprising:
a body, including an outer body portion, an inner body portion, and an intermediate body portion;
the vehicle panel having an outer surface, an inner surface, and a first opening formed therein, said first opening sized for receipt of the inner body portion and intermediate body portion when the body is at a first rotary orientation;
means for removably securing the body to the panel when the body is moved from the first rotary orientation to a second rotary orientation, said means including a pin carried by the inner body portion; and
the panel including a second opening adapted to receive said pin when the body is at the second rotary orientation.

5,062,609
COMBINED KEYBOARD STORAGE, MONITOR SUPPORT AND DOCUMENT STORAGE SHELF APPARATUS
Edward L. Hames, Peterborough, N.H., and Robert Howitt, Leominster, Mass., assignors to Curtis Manufacturing Company, Inc., Jaffrey, N.H.
Continuation-in-part of Ser. No. 553,142, Jul. 16, 1990. This application Oct. 1, 1990, Ser. No. 591,460
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—676 5 Claims



1. A combined keyboard storage, monitor support and document storage shelf apparatus, which apparatus comprises:
a) a first support leg and a second support leg positioned in a generally parallel, spaced apart relationship, each having a U-shaped opening with a top and back surface, with an other side and a bottom surface an open front to define an open space;
b) means on the bottom surface of each support leg to retain a keyboard and to permit slideable movement of the keyboard between a stored, non-use position within the open space defined by the support legs and an extended, use position in front of the support legs;
c) a top flat support shelf to form a support surface for a monitor screen console characterized by a central drawing cavity disposed between a first and second side channel member comprising:
i) a short downwardly extending back; and
ii) the first side channel member in spaced relationship with the second side channel member for fitting in snug relationship over the top surface of the support legs to form a support surface for the monitor screen console, the first side channel member comprising a first downwardly extending side and the second side channel member comprising a second downwardly extending side and each side member characterized by a side rail cavity extending along the axis of the channel member and parallel to the top support shelf in spaced relationship therewith; and
d) a slideable, generally shallow document storage shelf means positioned directly beneath the support shelf and slideably positioned in the drawer cavity and slideably movable between a stored position directly beneath the support shelf and an extended user across position extending outwardly in front of the support leg comprising:
i) a drawer for supporting items for storage having a first and second side; and
ii) a plurality of spaced apart elongated side rail means extending outwardly from the sides of the drawer for resting on the top surfaces of the support legs to permit the drawer to be mutually slideably moved between a document storage position and an extended document access position.

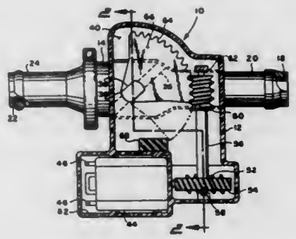
5,062,610
COMPOSITE MASONRY BLOCK MOLD FOR USE IN BLOCK MOLDING MACHINES
Michael E. Woolford, Lake Elmo, Minn., and Dick J. Sievert, New Richmond, Wis., assignors to Block Systems Inc., St. Paul, Minn.
Continuation-in-part of Ser. No. 413,400, Sep. 28, 1989, and a continuation-in-part of Ser. No. 413,050, Sep. 28, 1989. This application Jun. 7, 1990, Ser. No. 534,831
Int. Cl.[5] B28B *7/14, 7/18*
U.S. Cl. 249—52 15 Claims



12. A masonry block mold defining a concrete fill-receiving cavity which is open on top and bottom, thereby allowing the loading of fill through the top of the mold and allowing raking of the fill across the top of the mold and allowing the compressing of the fill and stripping of the mold to be accomplished by relative movement between the mold and a stepped compression head moving through the mold cavity from top to bottom, said mold comprising:
(a) a pair of opposed side walls bounding the sides of said cavity, each side wall comprising a top edge and a bottom edge, said bottom edges adapted to seat on a generally horizontal pallet as the fill is compressed during the molding process, and said top edges each comprising a first and second step, said first step forming a first end portion which is higher than an adjacent central portion, and being adapted to cooperate with a first step in the compression head as the fill is compressed during the molding process, said second step forming a second higher end portion separated from said first end portion by said central portion, and being adapted to cooperate with a second step in the compression head as the fill is compressed during the molding process; and
(b) means for holding fill adjacent said higher end portions at a level above that of the central portion of said top edges, said fill holding means comprising members extending across said mold cavity from one side to the other and adjoining the top edges of the sides in the regions of the steps.

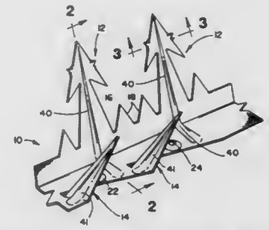
5,062,611
SERVO OPERATED VALVE ASSEMBLY
Bruce M. Hatton, Carol Stream, Ill., assignor to Eaton Corporation, Cleveland, Ohio
Filed Jul. 31, 1990, Ser. No. 560,929
Int. Cl.[5] F16K *31/04, 51/00*
U.S. Cl. 251—129.11 11 Claims

1. A servo driven valve assembly comprising:
(a) a body means defining a flow passage therethrough communicating with a flow inlet and flow outlet;
(b) valve means disposed in said flow passage and rotatably movable therein between a closed position preventing flow from said inlet to said outlet and an open position permitting flow between said inlet and said outlet, said valve means including shaft means extending exteriorly of said flow passage, said body means including stop means for limiting movement of said valve means;



(c) motor driven means including actuator means connected to said shaft means, operable upon energization to move said valve means between said first and second positions; and,
(d) retarding means formed of resilient material associated with said stop means and operable to retard the stall of said motor.

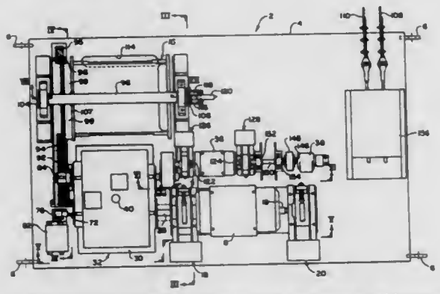
5,062,612
SECURITY RAIL
William H. Mincher, 2 Eden Road, Bramley, Johannesburg, Transvaal, South Africa
Filed Jul. 19, 1990, Ser. No. 555,236
Claims priority, application South Africa, Jul. 20, 1989, 89/5530
Int. Cl.[5] E04H *17/00*
U.S. Cl. 256—11 3 Claims



1. An elongate security rail comprising a land exstending in the long direction of the rail and being connectable to the top edge of a wall or fence frame, a first series of spikes in the form of barbed palings spaced apart along the length of the rail and situated to one side of the land, and a second series of spikes spaced apart along the length of the rail and situated to the opposite side of the land, the security rail being formed integrally from one of two identical, mirror image blanks which are produced from a single strip of flat metal, the blank including palings, spikes and the land, and the palings and spikes being bent up relative to the land so as to project from the opposite sides of the land and the barbed palings having arrowhead shapes and being spaced apart, on the relevant side of the land, by further spikes which are also bent up out of the plane of the flat metal strip.

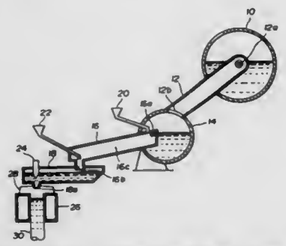
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,613
TWO SPEED HOIST DRIVE ASSEMBLY
Peter Petrachkoff, Salem, Ohio, assignor to Fordees Manufacturing, Leetonia, Ohio
Filed Dec. 3, 1990, Ser. No. 620,708
Int. Cl.[5] C21B *13/00*; C21C *5/30*
U.S. Cl. 266—44 **18 Claims**



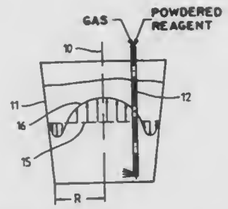
1. A basic oxygen furnace sublance hoist system, said system comprising:
a platform adapted for positioning above a basic oxygen furnace vessel;
means carried by said platform for suspending said sublance;
a first motor means carried by said platform for hoisting said sublance at a first speed through a region above a metal bath contained within said basic oxygen furnace vessel;
a second motor means carried by said platform for hoisting said sublance at a second speed for insertion and withdrawal of said sublance into and from said metal bath, said second speed being less than said first speed; and
means operable by said first and second motor means for transmitting power to said means for suspending to enable hoisting of said sublance by said first and second motor means.

5,062,614
APPARATUS AND METHOD FOR MANUFACTURING COPPER-BASE ALLOY
Izumi Sukekawa, Matsudo; Haruhiko Asao, Abiko; Hiroshi Kohno, Iwaki; Yukio Sugawara, Iwaki, and Keiji Nogami, Iwaki, all of Japan, assignors to Mitsubishi Kinzoku Kabushiki Kaisha, Japan
Filed Aug. 28, 1987, Ser. No. 90,652
Claims priority, application Japan, Sep. 2, 1986, 61-206133
Int. Cl.[5] C21C *7/00*
U.S. Cl. 266—216 **6 Claims**



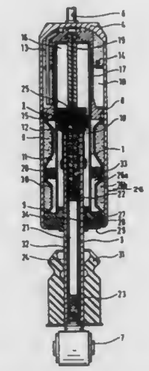
1. An apparatus for manufacturing a copper-base alloy, comprising:
an alloying spout inclined downwardly from one end toward the other end for flowing a molten copper therethrough, said alloying spout including an inlet at said one end and an outlet at said other end and having an elongated passageway through which said inlet communicates with said outlet, whereby the molten copper introduced from said inlet can flow downwardly through said passageway to said outlet;
a plurality of feeders for introducing solid solute constituents directly into said passageway of said alloying spout to thereby uniformly mix said solute constituents with said molten copper to produce a molten copper-base alloy, said feeders being connected to said alloying spout so as to be spaced longitudinally of said spout;
a tundish disposed at said other end of said alloying spout for receiving said molten copper-base alloy tapped from said alloying spout; and
a heating furnace interposed between said alloying spout and said tundish for heating the molten copper-base alloy tapped from said alloying spout.

5,062,615
APPARATUS FOR THE INTRODUCTION OF REAGENTS IN POWDER FORM INTO A MELTING PAN
Frank Schaberg; Heribert Martens, both of Oelde, and Peter Pöhlmann, Munster, all of Fed. Rep. of Germany, assignors to Krupp Polysius AG, Fed. Rep. of Germany
Continuation of Ser. No. 345,442, May 1, 1989, abandoned. This application Sep. 17, 1990, Ser. No. 584,365
Claims priority, application Fed. Rep. of Germany, May 20, 1988, 3817358
Int. Cl.[5] C21C *5/32*
U.S. Cl. 266—217 **4 Claims**



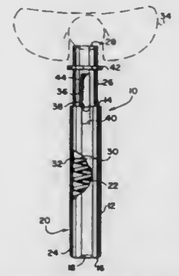
1. Apparatus for the introduction of powdered reagents into a melting pan containing a melt and having a cylindrical base and a vertical center axis, said melt having its surface at a predetermined level above the base of said pan, said apparatus comprising a source of gas and powdered reagent, a lance projecting downwardly into said pan with its lower end portion forming a delivery outlet at a level between the surface of said melt and said base, and means communicating with said lance and said source for pneumatically supplying a gas and a powdered reagent to said lance for discharge through the delivery outlet of said lance into said melt, said lance being offset eccentrically of said axis of said pan, said delivery outlet of said lance comprising a pair of circumferentially spaced outlet nozzles at said lower end portion, each of said nozzles being directed wholly radially outwardly of said lance below the surface of said melt, one of said nozzles opening in a direction to one side of said axis and the other of said nozzles opening in a direction to the opposite side of said axis, said nozzles being spaced from one another at an angle in the range of 60° to 120°, said angle having its bisector intersecting said axis.

5,062,616
SELF-PUMPING HYDROPNEUMATIC SHOCK ABSORBING STRUT
Norbert Sommer, Konigswinter, Fed. Rep. of Germany, assignor to Boge AG, Eitorf, Fed. Rep. of Germany
Continuation-in-part of Ser. No. 349,004, May 9, 1989, Pat. No. 4,993,693. This application Apr. 30, 1990, Ser. No. 516,627
Claims priority, application Fed. Rep. of Germany, Apr. 29, 1989, 3914385
Int. Cl.[5] B60G *17/00*; F16F *9/36*
U.S. Cl. 267—64.17 **16 Claims**



1. A hydropneumatic shock absorbing strut, for connection between relatively moveable first and second elements of a vehicle, said first and said second elements each comprising one of axle means and body means of said vehicle, said shock absorbing strut comprising:
an elongated working cylinder having a first end and a second end;
said second end of said working cylinder having a piston rod hole therethrough;
a piston mounted on a piston rod;
said piston being disposed for movement within said working cylinder with said piston rod extending through said piston rod hole in said second end;
said first end of said working cylinder for being connected to said first element;
said piston rod for being connected to said second element;
said working cylinder for having oil disposed therein;
said oil in said working cylinder for damping movement of said piston within said working cylinder during relative movement of said first and said second elements;
a high pressure oil reservoir for containing pressurized oil at a higher pressure than the oil in said working chamber when the vehicle is stopped;
means, within said shock absorber strut, for pumping pressurized oil in said working cylinder into said high pressure oil reservoir when vehicle is moving;
wholly mechanical sensing means, on said shock absorber strut, for mechanically sensing that the vehicle has descended to a first general position;
wholly mechanical means within said shock absorber strut for supplying a quantity of pressurized oil from said high pressure oil reservoir to said working cylinder upon said sensing means sensing the first position of the vehicle;
said wholly mechanical means for supplying said quantity of said pressurized oil from said high pressure oil reservoir to said working cylinder for movement of said piston and the vehicle from the descended, first position of the vehicle towards a raised, second general position of the vehicle;
wherein said sensing means comprises a projection mounted to move with said piston rod;
said oil supplying means comprising valve means; and
said projection being disposed for pressing against and opening said valve means upon the vehicle attaining said first position for releasing pressurized oil from said high pressure oil reservoir for moving the vehicle to the raised second position.

5,062,617
SHOCK ABSORBING SUPPORT POST
Raymond D. Campbell, Smith Falls, Canada, assignor to Camberfield Manufacturing Limited, Smith Falls, Canada
Filed Feb. 15, 1990, Ser. No. 480,769
Claims priority, application Canada, Jul. 11, 1989, 605298
Int. Cl.[5] B62J *1/02*; F16F *1/00*
U.S. Cl. 267—132 **11 Claims**



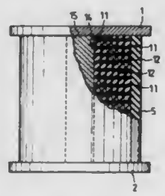
1. A shock absorbing support post for a seat comprising:
a tubular member having top and bottom ends;
shock absorbing means within said tubular member;
an elongated cylindrical stem partially within and in sliding engagement with said tubular member, a first end of said stem engaging said shock absorbing means and a second end of said stem extending outwardly of said tubular member;
means limiting the range of sliding movement of said stem longitudinally relative to said tubular member;
means restraining said stem against rotation in said tubular member; and
means for maintaining a predetermined resting force between said stem and said shock absorbing means, said means limiting, said means restraining and said means for maintaining comprising a longitudinally extending slot or keyway having upper and lower ends in said stem and a mating key in said tubular member and wherein said key and said keyway are positioned such that said lower end of said keyway brings up against said key to thereby stop sliding movement of said stem at a point where said predetermined resting force exists between said shock absorbing means and said stem.

5,062,618
VIBRATION-INSULATIVE SUPPORT MEMBER WITH CORDS
Yasuhiko Yamada; Minaki Tomio, both of Osaka; Toshiyuki Miyamae, Hyogo, and Norio Kawai, Osaka, all of Japan, assignors to Toyo Tire & Rubber Co., Ltd., Osaka, Japan
Filed Jun. 13, 1989, Ser. No. 365,459
Claims priority, application Japan, Jun. 16, 1988, 63-148606
Int. Cl.[5] F16M *13/00*; F16F *7/00*
U.S. Cl. 267—140.4 **23 Claims**

1. A vibration-insulative support member comprising an elastic body made mainly of rubber comprising a rubber portion, and a pair of upper and lower flanges secured to upper and lower ends of said elastic body, respectively; said elastic body including cords disposed in the rubber portion of said elastic body, said cords being arranged in at least two directly

VOL 1132 ISS 1 NO 5 1991 UMI

adjacent layers substantially parallel to the upper and lower flanges in such a manner that said cords in each layer are

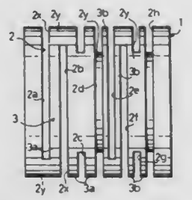


distributed in a plane substantially parallel to said upper and lower flanges.

5,062,619
NON-LINEAR SPRING

Masahide Sato, Seki, Japan, assignor to Nabeya Kogyo Co., Ltd., Gifu, Japan

Filed Mar. 30, 1990, Ser. No. 502,489
Claims priority, application Japan, Apr. 3, 1989, 1-39461[U]; Jul. 29, 1989, 1-197408
Int. Cl.[5] F16F *1/02*
U.S. Cl. 267—154 **7 Claims**



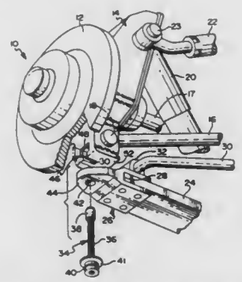
1. A spring comprising:
an elongated spring body having a longitudinal axis;
a plurality of substantially parallel slits extending laterally through the spring body, each said slit extending more than half way through the spring body, the slits being arranged in sets, each set having at least two pairs of slits oriented at different phase angles, wherein the individual slits in each slit pair are angularly displaced substantially 180° relative to one another; and
a plurality of elastic portions respectively defined between adjacent slits, wherein the thicknesses of the elastic portions in a first set is different from the thicknesses of the elastic portions in a second set to provide the spring with a non-linear elasticity characteristic.

5,062,620
FLEXIBLE LINK AND METHOD FOR A VEHICULAR SUSPENSION SYSTEM

Christopher J. Martone, Rochester Hills, Mich., assignor to General Motors Corporation, Detroit, Mich.

Filed Aug. 20, 1990, Ser. No. 569,337
Int. Cl.[5] B60G *11/10*
U.S. Cl. 267—260 **6 Claims**

1. An automotive suspension system comprising:
a knuckle for receiving a wheel assembly;
a leaf spring mounted on a vehicle;
a spring hanger mounted onto an end of the leaf spring, the spring hanger including an opening; and
a flexible link for connecting the leaf spring to the knuckle including
a central flexible portion;
a first head connected to one end of the flexible portion, the first head inserted through the spring hanger opening and removably received into a complementary lot on the knuckle, and

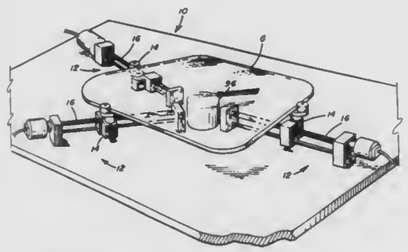


a second head connected to an opposite end of the flexible portion for retaining the spring, whereby the flexible portion is received in the opening of the spring hanger.

5,062,621
ZERO DIAMETER LOCATOR POST

Donald A. Mackey, Pittsburgh, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Filed Dec. 5, 1988, Ser. No. 279,695
Int. Cl.[5] B23Q *3/00*
U.S. Cl. 269—305 **14 Claims**

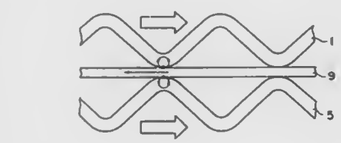


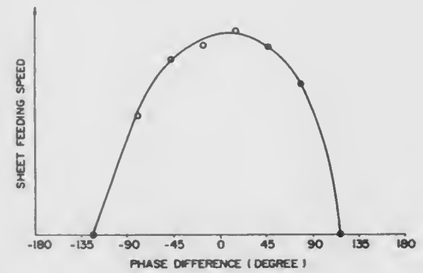
10. An apparatus for positioning a sheet comprising:
a sheet support;
a plurality of positioning devices;
means for moving selected ones of said positioning device along a first axis toward said sheet support; and
each of said selected ones of said positioning devices moved along said first axis comprises:
a support block positioned on said first axis movable along said first axis toward said sheet support;
a stop assembly having a sheet engaging surface; and
means for mounting said stop assembly on said support block for movement about a second axis, said second axis transverse to said first axis with said engaging surface at said second axis wherein moving said support block along said first axis toward said sheet support moves said sheet engaging surface into contact with an edge of the sheet to position the sheet.

5,062,622
VIBRATORY SHEET FEEDER WHICH USES PHASE ADJUSTMENT TO CONTROL THE SHEET FEEDING SPEED

Kenichi Kataoka; Yoshifumi Nishimoto, both of Yokohama, and Masahiko Igaki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 18, 1990, Ser. No. 466,952
Claims priority, application Japan, Jan. 19, 1989, 1-10380; Feb. 23, 1989, 1-44002
Int. Cl.[5] B65H *5/00*
U.S. Cl. 271—270 **17 Claims**





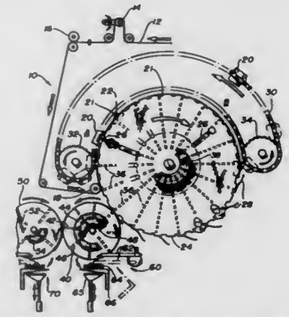
1. A sheet feeding device comprising:
a vibration member for generating vibration for feeding a sheet member, said vibration member having first and second vibration elements provided in positions for pinching said sheet member;
means for controlling the amplitude of vibration of said vibration member, in response to a change in the feeding speed of said sheet member; and
means for varying the phase difference between the vibration generated in the first vibration element and that in the second vibration element in accordance with the change in the feeding speed of the sheet member.

5,062,623
MULTIPLE DELIVERY SYSTEM

David A. Smith, Midland, and Clark M. Woody, Bay City, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 159,133, Feb. 23, 1988, Pat. No. 4,919,415. This application Jul. 5, 1989, Ser. No. 375,662
Int. Cl.[5] B65H *29/24*
U.S. Cl. 271—283 **7 Claims**

1. A high speed product delivery system comprising:
means for providing a series of individual flexible web products sequentially to a transfer point, said providing means including a vacuum product drum for conveying said individual products to said transfer point, means for rotating said drum, said vacuum product drum including a plurality of vacuum ports for securing a plurality of said individual products to said vacuum product drum during rotation thereof,
means for transferring individual ones of said products from said transfer point to a plurality of delivery points, said transfer means including a plurality of vacuum transfer drums, means for rotating said drums, said drums arranged such that the first of said plurality of transfer drums accepts products from said product drum and transfers at least a portion of said individual products to a succeeding transfer drum and at least a portion of said individual products to a first delivery point, each succeeding transfer

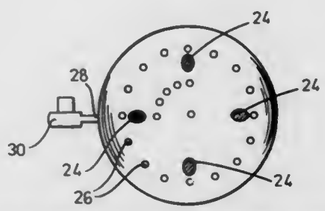


drum delivering at least that portion of said individual products received from said first transfer drum to succeeding delivery points, and
packing devices located adjacent each of said delivery points for removing said flexible products from each of said vacuum transfer drums, said packing devices including orbital packing fingers to contact and remove said flexible products.

5,062,624
RIDING CAPSULE DEVICE

Victoria K. Reed, 1778 Peck La., Cheshire, Conn. 06410

Filed Oct. 24, 1986, Ser. No. 922,942
Int. Cl.[5] A63G *23/00*
U.S. Cl. 272—1 R **18 Claims**



1. A riding capsule device comprising a capsule member and a base member, said capsule member including a generally egg-shaped body having a convex exterior shape with a bottom configuration in the form of a convex spherical segment, said base member having a flat bottom surface for stationary placement on a horizontal surface and a top configuration in the form of a concave spherical segment, said spherical segments engaging each other so that said capsule member can tilt and rotate with respect to said base member, under the impetus of an occupant of said capsule member, while confined thereby to a limited horizontal location.

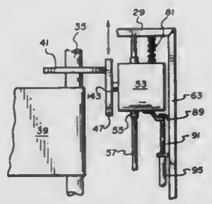
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,625
HAND EXERCISER
Jan C. M. Vonk, 754 Adelaide St. West, Toronto, Ontario, Canada M6J 1B3
Filed Sep. 13, 1989, Ser. No. 406,554
Int. Cl.[5] A63B *23/16*
U.S. Cl. 272—67 11 Claims



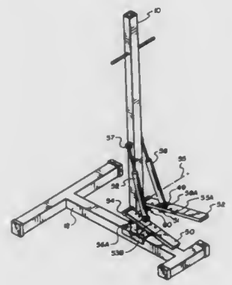
1. A hand exerciser comprising an elastomeric material having a plurality of finger engaging ports each connected to a respective elongate bridging segment with the bridging segments being connected to and extending outwardly from one side of a body portion spacing said finger engaging ports from said body portion, and wherein, in an unstressed state of said exerciser, said body portion to the side of said body portion opposite said one side including a thumb engaging port.

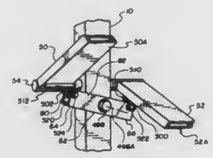
5,062,626
TREADMILL SPEED ADJUSTMENT
William T. Dalebout, Logan, and Jon Jensen, Providence, both of Utah, assignors to Proform Fitness Products, Inc., Logan, Utah
Filed Feb. 20, 1990, Ser. No. 482,222
Int. Cl.[5] A63B *23/06*
U.S. Cl. 272—69 6 Claims



1. In a treadmill having a frame, a pair of spacedly positioned drums, a first said drum being rotatably mounted on said frame for rotation about a first rotational axis, and a belt trained over said drums to extend therebetween, the improvement comprising:
- a first planar sided, circular disk mounted on said first drum for rotation about said first rotational axis, a rotation of said first planar sided, circular disk effecting a corresponding rotation of said first drum and, in turn, a rotation of said belt;
- a drive head mechanically engaging said first planar sided, circular disk, said drive head having a planar drive surface, said drive head planar drive surface defining a plurality of concentric circular paths which vary dimensionally in circumference, said first planar sided, circular disk riding on said planar drive surface along one of said circular paths;
- a drive means mounted to said drive head for rotating said drive head about a second rotational axis, said drive means being displaceably mounted on said frame for displacement along a linear path parallel to said first rotational axis, a displacement of said drive means causing a resultant change in the identity of said circular path of said drive head on which said first planar sided, circular disk rides, said first rotational axis being oriented perpendicular to said second rotational axis; and
- a control means, mounted to said frame and connected to said drive means, said control means being adapted for selectively displacing said drive means along said linear path;
- wherein an angular velocity of said first is selectively adjustable by displacing said drive means along said linear path and thereby varying the identity of said circular path being traveled over by said first planar sided, circular disk.

5,062,627
RECIPROCATOR FOR A STEPPER EXERCISE MACHINE
Curt G. Bingham, Logan, Utah, assignor to Proform Fitness Products, Inc., Logan, Utah
Filed Jan. 23, 1991, Ser. No. 644,456
Int. Cl.[5] A63B *23/04*
U.S. Cl. 272—70 12 Claims





1. An exercise machine comprising:
- frame means for positioning on a support surface;
- left lever means pivotally secured to said frame means for movement relative thereto by a user;
- right lever means pivotally secured to said frame means spaced from and in general alignment with said left lever means for movement relative to said frame means by a user;
- resistance means interconnected between said left lever means and said frame means and between said right lever means and said frame means to resist movement thereof;
- rocker means attached to said frame means having a left end extending under said left lever means and a right end extending under said right lever means, said rocker means having a rotation axis about which said left end and said right end rotate;
- left tracking roller means attached to the left end of said rocker means for movement therewith;
- right tracking roller means attached to the right end of said rocker means for movement therewith;
- left engagement means attached to the underside of said left lever means to engage said left tracking roller means for urging said left tracking roller means to track along said left engagement means upon movement of said left lever means; and
- right engagement means attached to the underside of said right lever means to engage said right tracking roller means for urging said right tracking roller means to track along said right engagement means upon movement of said right lever means.

5,062,628
EXERCISING DEVICE
Bennington R. Heyn, 1009 Alexander Ave., Ridgefield, N.J. 07657, and Joseph J. Gartner, 334 W. Shore Dr., Wyckoff, N.J. 07481
Filed Mar. 9, 1990, Ser. No. 491,099
Int. Cl.[5] A63B *5/20*
U.S. Cl. 272—75 8 Claims



1. An exercising device comprising:
- a crossbar, extending axially in only one direction, for holding and turning about an axis of rotation by a user;
- at least a first, one-piece, bendable member for forming a first hoop, said member including two end portions;
- said end portions each having a fixed connection to the crossbar, each said fixed connection including a thru-hole in the crossbar and a portion of the corresponding end portion received in means for restraining axial movement of said end portion in said thru-hole,
- each said end portion and said thru-hold cooperatively adapted whereby each said end portion can be adjustably positioned in the corresponding thru-hole by the application of a preselected force such that the size of the hoop can be variably adjusted to accommodate the size of each particular user, and whereby
- each said end portion and said corresponding means for restraining axial movement in said corresponding thru-hole includes a press fit relationship therebetween whereby, after the hoop size is set, the end portion is thereafter substantially restrained in axial movement in the corresponding thru-hole until said preselected force is once again applied.

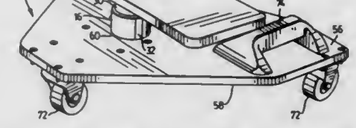
5,062,629
SURFING SIMULATOR
Jeffrey R. Vaughan, Rte. 2-Box 324, Swall Meadows, Bisbop, Calif. 93514
Filed Feb. 20, 1991, Ser. No. 658,000
Int. Cl.[5] A63B *69/18*
U.S. Cl. 272—97 6 Claims

1. A surfing simulator comprising a supporting base, a turntable bearing removably attached concentrically upon the base to allow 360 degrees rotational motion, a plurality of springs having means for removable attachment to the upper surface of said turntable bearing to allow up-and-down motion, a cover plate, removably attached to the upper ends of said springs, thereby controllably coupling the up-and-down motion of said springs and the rotational motion of said turntable bearing a mounting pad deployed on the upper surface of said



coverplate for resiliently mounting an elongated riding deck intermediate its length to the upper surface of said coverplate thereby coupling the riding deck to said coverplate, springs, turntable bearing and supporting base disposed concentrically thereunder.

5,062,630
GYMNASTIC TRAINING DEVICE
Riley H. Nelson, Oshawa, Canada, assignor to 859545 Ontario Ltd., Bowmanville, Canada
Filed Mar. 6, 1990, Ser. No. 488,563
Claims priority, application Canada, Aug. 21, 1989, 608851
Int. Cl.[5] A63B *22/20*
U.S. Cl. 272—111 24 Claims



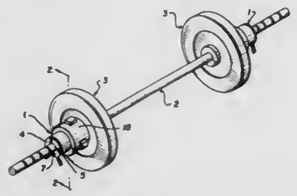
1. A gymnastic balancing training device comprising:
- (a) first substantially horizontal support platform defining an upper side and a lower side, said lower side having a central portion;
- (b) a substantially vertical support member having first and second ends, said first substantially horizontal support means mounted on one end of said support member within said central portion;
- (c) means for permitting rotation of said first substantially horizontal support platform in a substantially horizontal plane about said substantially vertical support member;
- (d) ground engaging wheel means mounted to the other end of said substantially vertical support member;
- (e) a generally horizontal second substantially horizontal support platform defining an upper side a lower side and a second central portion; and
- (f) three rotatably mounted wheel means attached to said lower side of said second substantially horizontal support platform, said rotatably mounted wheel means spaced to define a triangle which encompasses said ground engaging wheel means, the lowermost portion of said ground engaging wheel means being lower than the lowermost portion of each of said rotatably mounted wheel means

VOL 1132 ISS 1 NO 5 1991 UMI

when the plane defined by said rotatably mounted wheel means is horizontal;

said substantially vertical support member and said ground engaging wheel means being adapted to co-operate with said first substantially horizontal support platform to provide a mobile surface for the user to balance upon, said substantially vertical support member being attached to said second substantially horizontal support platform within said central portion at a location on said substantially vertical support member between said ground engaging wheel means and said first substantially horizontal support platform.

5,062,631
BARBELL CLAMP
William S. Dau, 4707 Olympia Ave., Beltsville, Md. 20705, and Ernest Jaen-Guardia, Jr., 7910 Innkeeper Dr., Severn, Md. 21144
Filed May 17, 1990, Ser. No. 524,476
Int. Cl.[5] A63B *21/075*
U.S. Cl. 272—123 **9 Claims**



1. A barbell comprising, a lift bar, a plurality of longitudinally spaced slots provided on each end portion of said lift bar, interchangeable weights slidably mounted on each end portion of said lift bar, a flange on each end portion of the lift bar, the inner face of a weight on each end portion of the bar abutting a respective flange, and a clamp assembly connected to each end portion of the lift bar to prevent the weights from sliding off each end of the bar, each clamp assembly comprising a hub member slidably mounted on the end portion of the lift bar and abutting the outer face of the weight, a pair of semi-circular jaws pivotally connected to the hub member and engaged within a selected lift bar slot, whereby the end of the hub member is held against the outer face of the weight to thereby prevent the clamp assembly from becoming loose during the exercise workout.

5,062,632
USER PROGRAMMABLE EXERCISE MACHINE
William T. Dalebout, and Michael Burk, both of Logan, Utah, assignors to Proform Fitness Products, Inc., Logan, Utah
Filed Dec. 22, 1989, Ser. No. 455,631
Int. Cl.[5] A63B *21/005*
U.S. Cl. 272—129 **14 Claims**

1. An exercise apparatus, comprising:

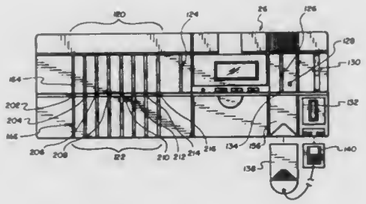
a frame;

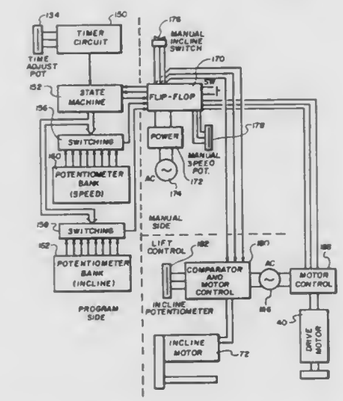
a moveable member mechanically associated with said frame for repetitive user movement with movement of said moveable member;

adjustment means associated with said moveable member and adapted to selectively vary the difficulty of user movement with movement of said moveable member;

a plurality of indicators associated with said frame proximate each other, said plurality of indicators being moveable with respect to each other by the user to select and to continually visually indicate a sequential set of relative values of said difficulty; and

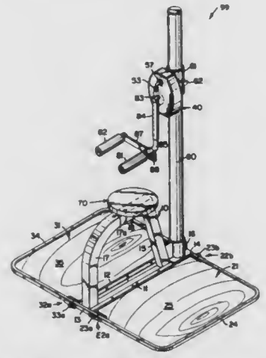
control means operatively linked with said indicators to receive said sequential set of relative values of said difficulty therefrom and with said adjustment means to supply control signals thereto, said control means being adapted to vary said difficulty of user movement with movement





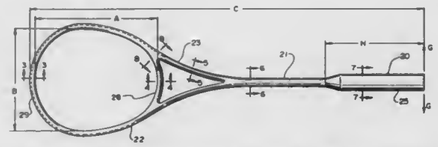
of said moveable member in the sequence selected by said user through said indicators.

5,062,633
BODY-BUILDING EXERCISE APPARATUS
Timothy S. Engel, Bloomington, and Robert A. Iverson, Eden Prairie, both of Minn., assignors to Nordictrack, Inc., Chaska, Minn.
Filed Aug. 31, 1990, Ser. No. 575,968
Int. Cl.[5] A63B *21/015*
U.S. Cl. 272—132 **8 Claims**



6. An exercise apparatus according to claim 5, wherein said adjustable resistance means includes a pair of opposing pads positioned on opposite sides of said disc, a pair of spring washers adjacent one of said pads, and a threaded adjustment knob adjacent one of said washers, wherein rotation of said knob in one direction increases pressure between said washers and between said pads and said disc, and rotation of said knob in an opposite direction decreases pressure between said washers and between said pads and said disc.

5,062,634
SQUASH RACKET
Eric C. Strauch, Chicago, and William D. Severa, Addison, both of Ill., assignors to Wilson Sporting Goods Co., River Grove, Ill.
Filed Aug. 31, 1990, Ser. No. 574,581
Int. Cl.[5] A63B *49/02*
U.S. Cl. 273—67 R **15 Claims**

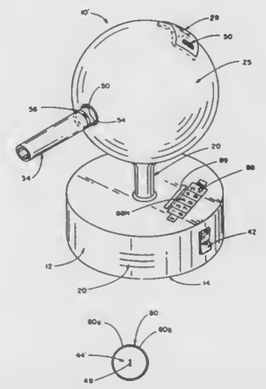


1. A squash racket comprising a frame having a head portion adapted to support a strung surface, a handle portion adapted to be held by a player, a shaft portion connected to the handle portion, and a throat portion connecting the handle portion and the head portion, the improvement characterized by the racket having:

a) a weight within the range of about 150 to about 175 grams, and

b) a center of gravity located closer to the head end of the racket than the handle end of the racket.

5,062,635
NUMBER GENERATING DEVICE WITH MAGNETIC BIASING MEANS
Kam Y. Tse, and Leonard J. Wong, both of 63-75 Carlton St., Rego Park, N.Y. 11374
Filed Jul. 25, 1989, Ser. No. 384,793
Int. Cl.[5] A63B *71/00*; A63F *1/18*
U.S. Cl. 273—144 A **1 Claim**



1. A number generator for use in generating lottery numbers comprising:

A) a base having a cylindrical wall with air inlet vents defined therein, and a bottom;

B) an updraft channel mounted on said base;

C) a spherical container mounted on said channel, said container having a chamber defined interiorly thereof, said chamber being fluidically connected to said channel to receive air therefrom;

D) an inlet opening defined in said container;

E) a door hingeably mounted on said container to open and close said inlet opening;

F) an outlet chute connected to said container to be fluidically connected to said chamber, said chute having a longitudinal axis;

G) a multiplicity of balls, each having a number thereon, said balls being of different sizes with balls having numbers 1 through 5 thereon being smaller than balls having numbers 6 through 0 thereon, said balls being combined in said chute to form a series of number; and

H) selection means for selecting one ball over another, said selection means including

(1) a fan mounted in said housing and oriented to force air from said housing into said updraft channel towards said chamber,

(2) power means for operating said selection means,

(3) switch means connecting said fan to said power means and for controlling operation of said fan by selectively connecting and disconnecting said fan and said power means, and

(4) chute covering means on said chute to selectively open and close said chute to said chamber, said chute covering means including a butterfly disc rotatably mounted in said chute and a handle connected to said disc and extending outside said chute; and

(I) influencing means for biasing the selection of one ball over another to move into said chute, said influencing means including

(1) a magnet on each ball, each magnet being oriented so that only a single pole thereof faces outwardly of each ball,

(2) an electromagnet mounted adjacent to said chute, said electromagnet being connected to a source of power and being turned on and off to influence said ball mounted magnets when said electromagnet is turned on.

(3) a programmed microprocessor means for controlling said electromagnet and a shutter means according to a program stored in said microprocessor means,

(4) said shutter means mounted adjacent to said chute and adjacent to said electromagnet and being opened and closed to permit selected ones of said balls to move into said chute, said shutter means including

(a) a plurality of steel shutter leaves each of which includes a pivot about which it rotates in such a way as to open said shutter means when said shutter leaves move out in a direction away from said chute longitudinal axis and to close said shutter means when said shutter leaves are moved back toward said chute longitudinal axis,

(b) a drive element connected to said microprocessor means to be connected by said microprocessor means to a source of power to operate said shutter leaves according to the program stored in said microprocessor means,

(c) shutter operating pins engaged against said drive element,

(d) an actuating ring connected to said operating pins, said actuating ring including a plurality of slots,

(e) shutter closing pins on said actuating ring in position to engage against said drive element to close said shutter, and

(e) a ball sensor mounted in said chute.

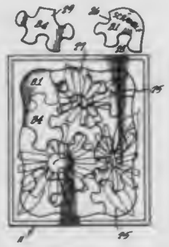
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,636
THREAD PROTECTOR AND TIP MAINTENANCE DEVICE FOR A BILLIARD CUE
Peter R. Rahn, 1460A S. 77th St., West Allis, Wis. 53214
Filed Jan. 26, 1990, Ser. No. 470,907
Int. Cl.[5] A63D *15/08*
U.S. Cl. 273—68 12 Claims



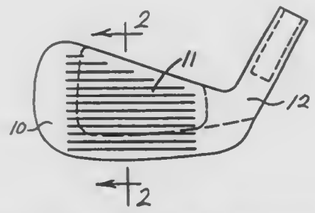
1. A protective and maintenance apparatus for a billiard cue that includes two sections coaxially attached at adjoining cue ends, one of which adjoining cue ends is provided with an axially extending threaded stud and the other of which adjoining cue ends is provided with a threaded axial bore for receipt of the stud to assemble the cue for use, after which it may be disassembled for storage and transport, said apparatus comprising:
- a first end protector having a body, a threaded protector stud attached to said body and extending from one end of said body, said protector stud having a thread pattern corresponding to the thread stud on the one adjoining cue end for receipt in the threaded axial bore in the other adjoining cue end;
- a second end protector having a body, a threaded protector bore in one end of said body, said protector bore having a thread pattern corresponding to the threaded axial bore in the other adjoining cue end; and,
- a concave cue tip scuffing means adapted to receive a cue tip and recessed in one of said first and second end protector bodies for maintaining the surface of the cue tip.

5,062,637
METHOD OF PLAYING A JIGSAW PUZZLE BOARD GAME
William J. Bianchi, 10935 S. Fulton Wells Ave., Apt. 105, Santa Fe Springs, Calif. 90670
Filed Jan. 22, 1990, Ser. No. 467,902
Int. Cl.[5] A63F *9/10*
U.S. Cl. 273—157 R 2 Claims



1. A method of playing a game with game boards comprising jigsaw puzzles wherein each such game board has a surface for normally supporting a plurality of jigsaw-type game pieces and including for each game a plurality of such game pieces, the surface of each board having outlines of game pieces, each game piece having first indicia thereon indicating the location of the game piece on its respective game board and board indicia which identifies its respective game board, and wherein at least one game piece of each game board has a second unique indicia on the bottom of at least one such game piece, the method comprising the steps of
- removing game pieces from at least first and second game boards, and grouping and mixing the game pieces of said first and second boards together,
- a first player of two players selecting a number of game pieces the number being defined by the method of playing the game, keeping those selected which came from the respective player's board as indicated by the board indicia and returning those which came from another player's board, and placing the remaining selected pieces in that respective player's game board,
- moving that player's game board to the next player if one of the selected and retained game pieces has the second unique indicia thereon, and
- continuing play substantially according to the foregoing steps until all game pieces have been returned to one game board.

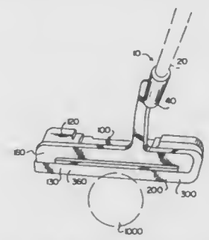
5,062,638
METHOD OF MAKING A GOLF CLUB HEAD AND THE ARTICLE PRODUCED THEREBY
Chester S. Shira, 3645 Ruffin Rd., Suite 125, San Diego, Calif. 92103
Division of Ser. No. 465,831, Jan. 16, 1990, Pat. No. 4,992,236.
This application Oct. 22, 1990, Ser. No. 606,980
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—167 R 10 Claims



1. A unitary golf club head having a substantially exposed and essentially metallic toe, sole, face, and heel and made from metal powders, said clubhead having an outer perimeter configured to optionally contain inserts made from a material selected from the group consisting of castings, wrought metal and green compacts of metal powders and combinations thereof, and characterized by the density of the material in said golf club head being nearly 100 percent of the theoretical density of said material in said golf club head when said material is in solid form.

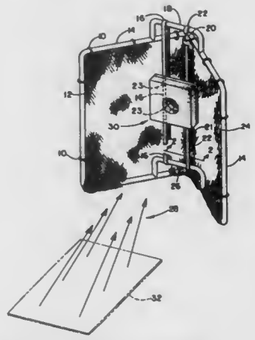
5,062,639
SUPPLEMENTARY IMPACT DEVICE FOR A GOLF CLUB
Otis H. Hitt, 3520 Gas Lite Dr., Archbold, Ohio 43502
Filed Jul. 11, 1990, Ser. No. 551,153
Int. Cl.[5] A63B *69/36, 53/04*
U.S. Cl. 273—171 2 Claims

1. A supplementary impact device for improving the performance of a golf club having a striking head, which striking head has a frontal striking face and a posterior face which opposes the frontal striking face, said impact device adapted to be connected to the striking head of the golf club, and comprising:
- (a) a longitudinally extending bar member having a longitudinally extending axis, a predetermined height, a frontal surface along the entire length thereof for stroking engagement with a golf ball, and a posterior surface, said predetermined height of said bar member being substantially less than the height of said frontal striking face of said club head to provide a concentrated weight mass along the longitudinal axis thereof to enhance the hitting power of said club during the ball stroking process; and
- (b) spacing means protruding from the posterior surface of said bar member at opposite ends thereof for connecting said bar member to the frontal striking face of said club



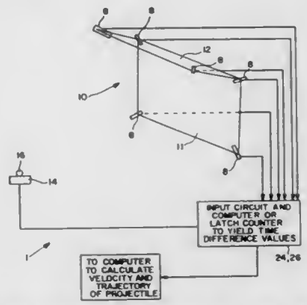
head so that said bar member extends over the full length of said head and said bar member is continuously spaced forwardly of the frontal striking face of said club head along the full length of said bar member between said protruding spacing means.

5,062,640
PRACTICE DEVICE FOR GOLFERS
Patrick F. Haley, 3529 Caballero La., N. Highlands, Calif. 95660
Filed Dec. 31, 1990, Ser. No. 636,448
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—176 F 7 Claims



1. A golf practice apparatus, comprising:
- (a) a frame,
- (b) a backstop, said backstop supported by said frame, said backstop including a first screen portion and a second screen portion said first and second screen portions being positioned to form a vertical, generally "V" or "U" shaped angle there between;
- (c) a target including an opening, said target projecting forward from said backstop junction of said first and second screen portions;
- (d) attachment means for flexibly attaching said target to said frame.

5,062,641
PROJECTILE TRAJECTORY DETERMINATION SYSTEM
Nannette Poillon, Stamford; Howard Canistraro, West Hartford, and Ronald F. Sienko, Southbury, all of Conn., assignors to Nannette Poillon, New York, N.Y.
Filed Sep. 28, 1989, Ser. No. 413,789
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—181 C 9 Claims



1. A system for determining the point of impact and velocity of a projectile that is driven from a start point and impacted upon a screen, comprising:
- a start point which is a known position from which the projectile commences its flight;
- a target screen located a fixed distance from said start point and adapted to be impacted by the projectile;
- at least three sound wave detectors adapted to be located at predetermined locations adjacent to any portion of said screen, each of said sound wave detectors being disposed to receive a sound wave originating and radiating from the point of impact of the projectile on said screen;
- first means for measuring the distance from said start point to the actual point of impact of the projectile on said target screen, and for determining the flight time of the projectile;
- second means for determining the first time the sound wave reaches each of said sound wave detectors;
- third means for determining the time difference values amongst said second means determinations to calculate by using an algorithm that is based upon the pythagorean theorem the calculated point of impact of the projectile; and
- fourth means for calculating the initial velocity of the projectile by using said first means and the calculated point of impact of said third means to calculate three vector components of the initial velocity of the projectile;
- wherein said third means and said fourth means provide a calculated point of impact and a calculated initial velocity, respectively.

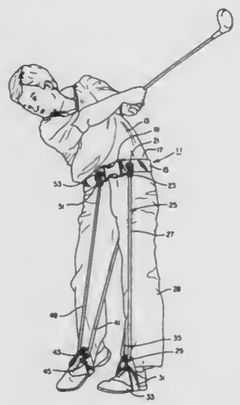
5,062,642
TRAINING DEVICE
Troy R. Berry, 4924 Pershing, Fort Worth, Tex. 76107, and Larry R. Mills, 7258 Valleydale Ct., Fort Worth, Tex. 76116
Filed Sep. 12, 1990, Ser. No. 581,037
Int. Cl.[5] A63B *69/36, 21/04, 21/02, 21/00*
U.S. Cl. 273—183 B 4 Claims

1. A training device adapted to be worn by a user, comprising in combination:
- a belt adapted to be connected around a waist of a user, with a back section extending around the back of the user and having a front section located on the front of the user;
- fastening means on the front section of the belt for fastening the belt around the user;
- an elastic strap having two forward runs and two rearward

VOL 1132 ISS 1 NO 5 1991 UMI

runs, each of the forward runs having an upper end joining the front section of the belt and extending downward to a lower end, and each of the rearward runs having an upper end joining the back section of the belt and extending downward to a lower end;

loop means for retaining the lower ends of one of the forward runs and one of the rearward runs with one foot of



the user and for retaining the other of the forward runs and rearward runs with the other foot of the user; and wherein

the loop means comprises a flexible loop which is adapted to receive the user's foot, with the forward and rearward runs sized to be in tension, and with the loops pulling upward on an arch of the user's foot when the user's legs are straightened.

5,062,643
GOLFING AID
Carter S. Bibbey, 2508 Wildrose Ct., and Jack L. Williams, 2405 Castle Rock Rd, both of Arlington, Tex. 76006
Filed Feb. 5, 1991, Ser. No. 650,745
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—188 A **28 Claims**



1. A golf aid for limiting and restricting a golfer's front shoe and foot from undesirable movement during the backswing and swing when the golfer's shoe and foot are placed in use position in the golf aid device on a ground surface, comprising:

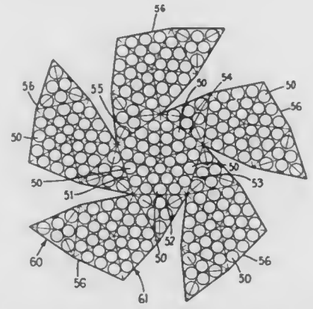
an outside base member having front and rear end portions and a contact surface between the end portions for contact with the outside edge part of a golfer's shoe;

an inside base member having front and rear end portions and a contact surface between the end portions for contact with the inside edge part of said golfer's shoe;

a connecting device bridgeable over the front portion of said golfer's shoe when said shoe is placed between the spaced apart base members in use position with the contact surfaces proximate the edge parts of the golfer's shoe, said connecting device connecting a front portion of the outside base member with the inside base member; and

means for removably securing the inside and outside base members to a ground surface in an adjustably spaced apart relationship to each other so that said golfer's aid will tend to prevent the golfer's front foot from lifting and turning or pivoting during the swing to condition the golfer to keep the front foot planted during his swing.

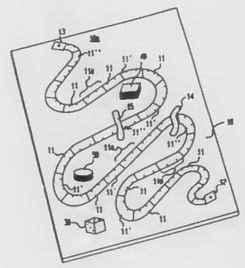
5,062,644
GOLF BALL
Young-Bum Lee, Seoul, Rep. of Korea, assignor to Accufar Golf Co., Ltd., Mokpo, Rep. of Korea
Filed Jun. 13, 1990, Ser. No. 538,028
Claims priority, application Rep. of Korea, Nov. 6, 1989, 89-16030
Int. Cl.[5] A63B *37/14*
U.S. Cl. 273—232 **13 Claims**

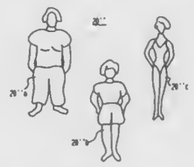


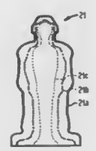
1. In a golf ball including an outer cover having a spherical outer surface, said spherical outer surface having a plurality of dimples formed therein and arranged in a repeating pattern, said repeating pattern being defined by projecting onto said spherical outer surface the edges of an icosidodecahedron having 20 regular triangular faces and 12 regular pentagonal faces, and the edges of said icosidodecahedron, as projected onto said spherical outer surface, defining 6 circular dividing lines on said spherical outer surface, the improvement comprising:

said outer cover including two molded cover parts having respective hemispherical outer surfaces which adjoin one another along a generally circular mold parting line to define said spherical outer surface, said mold parting line being coincident with one of said 6 dividing lines, all of said dimples being arranged in nonintersecting relationship relative to said mold parting line and the dividing line coincident therewith, and the remaining 5 dividing lines each being intersected by at least one of said dimples, whereby said dimples are arranged evenly and uniformly over said spherical outer surface.

5,062,645
FITNESS AND NUTRITION GAME APPARATUS AND METHOD OF PLAY
Meri Goodman, 14 Clover Pl., Cos Cob, Conn. 06807, and Phyllis Schondorf, 21 Herthstone Dr., Riverside, Conn. 06878
Filed Nov. 5, 1990, Ser. No. 608,818
Int. Cl.[5] A63F *3/00, 9/18*; G09B *19/00*
U.S. Cl. 273—249 **5 Claims**







1. A fitness and nutrition education game apparatus comprising

a playing board having a plurality of contiguous playing spaces disposed thereon defining a playing path, said playing spaces having player directives marked thereon, said player directives including directions to select one of a first plurality of playing cards and directions to select one of a second plurality of playing cards, said playing board further having two stations marked thereon disposed between adjacent contiguous playing spaces at spaced locations, said stations defining points along said playing path where a player can change body image representations in accordance with the rules of play;

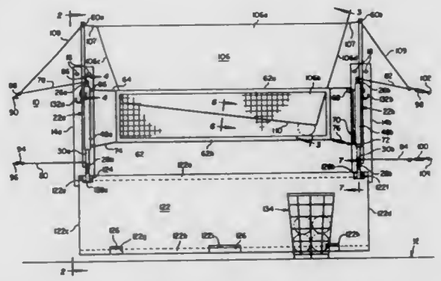
a set of playing pieces for each player comprising separate representations of respective body images, said body image representations being nestable;

chance means for determining the number of spaces a player can advance a playing piece along the playing path;

a first plurality of playing cards each having printed thereon a first question of moderate difficulty about nutrition, diet, exercise and fitness and a corresponding first answer to the first question; and

a second plurality of playing cards each having printed thereon a second question of advanced difficulty about nutrition, diet, exercise and fitness and a corresponding second answer to the second question.

5,062,646
VOLLEYBALL TRAINING APPARATUS
Michael A. Crist, Rte. 2 Box 82, Ewing, Mo. 63440-9424
Filed Jan. 3, 1991, Ser. No. 637,276
Int. Cl.[5] A63B *69/00*
U.S. Cl. 273—411 **19 Claims**



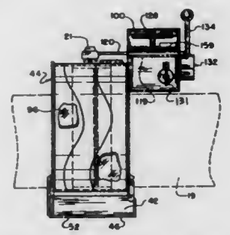
1. A surface-mountable volleyball training apparatus, comprising:

a pair of vertically extending rigid frames disposed in horizontally spaced relation to one another which are attached to an upright surface and project outwardly from said surface;

said frames being pivotably attached to said surface for swinging movement relative to said surface and to one another; and,

a net supported between said frames in spaced relation to said surface.

5,062,647
TOY SIMULATOR
Edward G. Chanter, Lakewood, Ohio, and Randy J. Randleman, Stillwater, Minn., assignors to Those Characters from Cleveland, Inc., Cleveland, Ohio
Filed Jan. 4, 1990, Ser. No. 460,766
Int. Cl.[5] A63F *9/14*
U.S. Cl. 273—442 **18 Claims**



1. A toy for testing and simulating the driving skills of a user comprising:

a support unit for removably mounting said toy upon a limb of the user;

a circular drum removably mounted for rotation upon said support unit;

a travel path formed upon the outer diameter of said drum;

a travel element positioned above said drum;

control means for altering the position of said travel element relative to said travel path;

motor means for rotating said drum in a first direction and an opposite second direction relative to said support unit; and

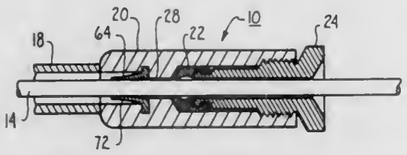
circuit means for selectively controlling the rotational direction of said motor means.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,648
SEAL FOR ROTATING TORQUE TUBE WITH SEAL VALVE

Gary G. Gomringer, Escondido, Calif., assignor to InterVentional Technologies, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 413,003, Sep. 26, 1989. This application Mar. 21, 1990, Ser. No. 496,883
Int. Cl.[5] F16J *15/18*; A61M *25/00*; F16K *15/14*
U.S. Cl. 277—112 **26 Claims**

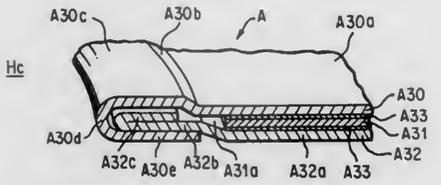


1. A device for preventing leakage when establishing a fluid-tight seal around a rotatable drive shaft which comprises:
resilient means for radially surrounding said drive shaft;
means for holding said resilient means on said drive shaft;
means for urging said resilient means against said holding means to constrict said resilient means around said drive shaft to establish a fluid-tight seal; and
resilient valve means having a reclosable slit and mounted within said holding means for receiving said drive shaft through said slit, said slit being closed when said drive shaft is removed from said valve means to establish said valve means as a fluid barrier.

5,062,649
STEEL LAMINATE GASKET WITH WIDE SEALING AREA

Tsunekazu Udagawa, Ichikawa, Japan, assignor to Ishikawa Gasket Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 243,528, Sep. 12, 1988. This application Jul. 2, 1990, Ser. No. 546,839
Int. Cl.[5] F16J *15/08*
U.S. Cl. 277—235 B **12 Claims**

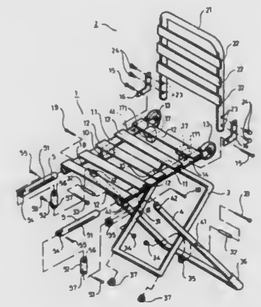


1. A steel laminate gasket for an internal combustion engine having at least one hole therein, comprising,
a first plate having at least one first hole therein corresponding to the hole of the engine, said first plate including a base portion, at least one curved portion integrally formed with the base portion to extend transversely with respect to the base portion to surround and define the first hole, at least one flange integrally formed with the curved portion and located at a side of the base portion to extend substantially parallel to the base portion and surrounding the first hole, at least one side wall formed at one of the base portion and the flange, said side wall being spaced apart from the curved portion to surround the first hole, and an area around the first hole surrounded by the side wall and the curved portion for forming an embossed portion,
a second plate situated at a flange side of the first plate, said second plate having at least one second hole therein, the size of the second hole being larger than the size of the flange so that when the gasket is assembled, the flange is located inside the second hole, and
a third plate situated adjacent to the second plate and having a solid portion situated between the flange and base portion inside the embossed portion, distance between an outer surface of the third plate and an outer surface of the base portion of the first plate laterally outside the side wall being smaller than distance between outer surfaces of ht flange and the base portion laterally inside the side wall, thickness of the solid portion being greater than that of the third plate and thinner than an inner space between the flange and base portion inside the embossed portion so that when the gasket is tightened, the side wall deforms to seal thereat.

5,062,650
MULTI-FUNCTION CHAIR

C. I. Chang, 157-1, Hou-Hu, ChiaYi City, Taiwan

Filed Jan. 23, 1990, Ser. No. 469,018
Int. Cl.[5] A47C *13/00*
U.S. Cl. 297—129 **2 Claims**

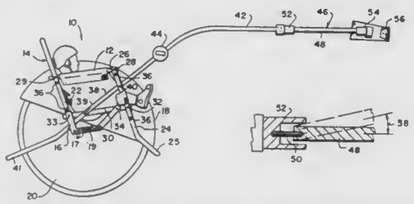


1. A multi-function chair structure, comprising:
a seat comprising of two parallel round tubes and a plurality of parallel crosswise plates fixed on and extending between the parallel tubes, each tube having an open front end, a first pair of opposing pin holes at a rear end of said tube, a second pair of opposing pin holes adjacent the front end of the tube, a wheel on the rear end of each tube mounted on an axis perpendicular to the tube and a stop projection fixed under the seat at the rear end of said tube, and a bracket at approximately the longitudinal center of said tube;
a backrest comprising a U-shaped tube frame and a plurality of parallel crosswise plates fixed on the frame, each leg of said U-shaped frame having a third pair of opposing pin holes at lower ends of the limbs of said frames to attach said frame, by means of bolts through said third pin holes, to one leg of an L-shaped fastener, another leg of said fastener being attached to a corresponding said parallel tube by means of bolts though said tube's first pair of pin holes, whereby the seat is connected to the backrest;
a fore leg shaped as a rectangular frame, having a first shaft hole at approximately the longitudinal center of each of two side tubes of said fore leg;
a U-shaped hind leg, having a second shaft hole at approximately the longitudinal center of each of two side limbs of said hind leg so that a shaft tube may pass through both the first shaft holes of said fore leg and said second shaft holes of said hind leg, to affix the fore leg with the hind leg;
two extending tubes received respectively in the front ends of said round tubes, each extending tube having a straight slot for a pin received in said second opposing pin holes of a corresponding said parallel tube to pass through, and each having a fourth pair of opposing pin holes at a front end of said extending tube for a pin to connect with a linking member, said linking member attached on an opposite end to a corresponding free end of a limb of said hind leg, whereby said extending tubes are mounted for back and forth motion within said parallel tubes, to enable partial ingress into and egress out of the front end of each of said parallel tubes for the respective linking members and limbs of the hind leg, the legs being moveable between a first configuration for use of the structure as a chair in which the linking members are withdrawn from the front ends of said parallel tubes, the hind leg limbs and fore leg side tubes are angled relative to one another under the seat and a top tube of the fore leg engages said stop projection, and a second configuration for use of the structure as a truck supported on said wheels in which the linking members are inserted in the front ends of said parallel tubes, the limbs of the hind leg project coaxially from the front ends of said parallel tubes and the top tube of the fore leg engages said brackets with the fore leg side tubes being parallel to the hind leg limbs.

5,062,651
JOGGING BABY CARRIAGE

Michael J. Varieur, 25 Filors La., Stony Point, N.Y. 10980

Filed Aug. 10, 1990, Ser. No. 565,664
Int. Cl.[5] B62D *51/04*
U.S. Cl. 280—1.5 **11 Claims**

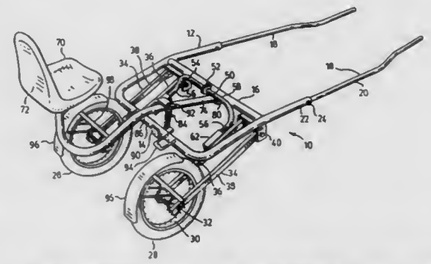


1. A carriage for receiving a child to be towed by a person during jogging and walking, comprising:
a frame;
at least two wheels rotatably mounted to said frame for rolling on the ground;
a seat for receiving a child connected to and supported by said frame;
torso engaging means adapted to be connected to a person to tow the carriage;
at least one tow bar having one end connected to said frame, and an opposite end; and
flexible motion suppression means connected between the opposite end of said tow bar and said torso engaging means for pulling said frame while suppressing the transmission of erratic vertical and horizontal movement from said torso engaging means to said frame, said motion suppression means comprises a suppression bar, a cut-shaped fitting connected to the opposite end of said tow bar, an axially extending flexible member connected to said flexible member being said fitting, said flexible member and an end of said suppression bar connected to said flexible member being positioned within said fitting for restricting a maximum angle of motion between said suppression bar and said tow bar in any direction around said fitting.

5,062,652
SULKY

Mervin G. Burke, R.R. #3, Chelmsford, Ontario P0M 1L0, Canada

Filed Mar. 7, 1989, Ser. No. 320,055
Claims priority, application Canada, Oct. 12, 1988, 580121
Int. Cl.[5] B62C *1/08*
U.S. Cl. 280—64 **13 Claims**

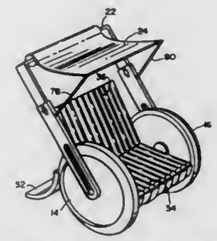


1. A sulky adapted for pulling by an animal comprising a rigid frame having a rear cross member and a pair of transversely spaced thills extending forwardly from the cross member, a driver's seat, means for mounting said seat on said rigid frame, a pair of transversely spaced, downwardly-extending wheel mounts having upper and lower ends and being pivotably connected at their upper ends to said rigid frame, a ground engaging wheel rotatively connected to the lower end of each of said wheel mounts, and a single torsion bar suspension means connected directly to both of said wheel mounts and said frame for yieldably supporting the frame on the two wheels.

5,062,653
MULTIPURPOSE RECREATIONAL CART

Janis W. Deglis, 612 North St., Feeding Hills, Mass. 01030, and Robert C. Amrich, 50 Shady Hill La., Glastonbury, Conn. 06033

Filed Nov. 14, 1989, Ser. No. 436,327
Int. Cl.[5] B62B *11/00*
U.S. Cl. 280—648 **5 Claims**



1. A multipurpose cart comprising a barrel shaped body having a circular cross-section and transversely opposed planar end portions, said body including a semi-cylindrical lower section having a rectangular top opening and a semi-cylindrical lid pivotally attached to the lower section, a pair of transverse axle pins extending through respective ones of said end portions, an inverted U-shaped handle having a pair of legs, a lower end of each leg being secured to a respective axle pin, a pair of wheels, each wheel extending between a respective one of said legs and end portions, and supported for rotation by a respective one of said axle pins, a chair including a planar seat portion and a planar backrest portion pivotally connected to the seat portion for movement between an extended use position and a folded storage position, and means on said lower

VOL 1132 ISS 1 NO 5 1991 UMI

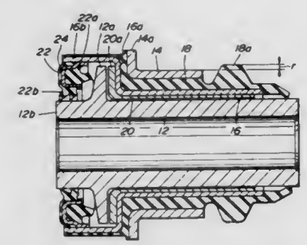
section for supporting said seat portion with said seat portion extending substantially along a plane formed by the opening in the top of said lower section, wherein the cart provides storage space within said lower section and said lid when said chair is in the folded position and the lid is pivoted to a closed position.

5,062,654

BUSH ASSEMBLY

Toshihiko Kakimoto, and Takuya Murakami, both of Kanagawa, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Continuation of Ser. No. 259,819, Oct. 19, 1988, abandoned. This application Mar. 5, 1991, Ser. No. 666,480
Claims priority, application Japan, Oct. 19, 1987, 62-261773
Int. Cl.[5] F16F *1/38*
U.S. Cl. 280—673 4 Claims



1. A bush assembly used for fixing a first member having an essentially cylindrical opening to a second member, said bush assembly comprising:

an inner cylindrical member defining therein an essentially cylindrical space for supporting an elongated member which engages said second member;

an outer cylindrical member which engages said opening of the first member, the outer cylindrical member being arranged so that the axis thereof substantially coincides with that of said inner cylindrical member;

a rigid sleeve arranged between said inner and outer cylindrical members, said rigid sleeve having a greater inner diameter portion at one end thereof so as to form an annular space between the greater inner diameter portion and said inner cylindrical member;

an elastic member, one surface of which is fixed to said outer cylindrical member, and the other surface of which is fixed to said rigid sleeve, said elastic member having a radially extending projection which engages said opening of the first member, the outer diameter of said radially extending projection being greater than that of said outer cylindrical member;

a slipping member arranged between said rigid sleeve and said inner cylindrical member so that said rigid sleeve slidably engages said inner cylindrical member; and

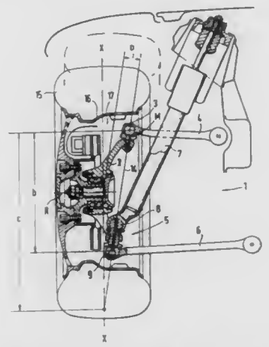
a sealing member disposed in said annular space, a portion of which is fixed to one of said rigid sleeve and said inner cylindrical member, and another portion of which contacts the other of said rigid sleeve and said inner cylindrical member.

5,062,655

WHEEL SUSPENSION SYSTEM HAVING A LOWER BEARING WITH TWO BALL JOINTS

Karl Sommerer, Wiernsheim, Fed. Rep. of Germany, assignor to Dr.Ing.h.c.F. Porsche Aktiengesellschaft, Fed. Rep. of Germany

Filed Nov. 6, 1990, Ser. No. 609,635
Claims priority, application Fed. Rep. of Germany, Nov. 20, 1989, 3938475
Int. Cl.[5] B60G *7/00*
U.S. Cl. 280—674 10 Claims



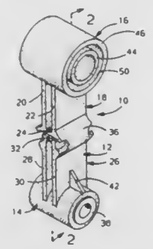
1. A wheel suspension system, particularly a front-wheel suspension system for a motor vehicle, comprising: a wheel carrier; a spring strut; upper and lower wheel suspension members linked to said wheel carrier by upper and lower bearing elements and guiding said wheel carrier around a turning axis; said lower bearing element comprising at least two joints, said spring strut being supported in a hinged manner in a joint of said lower bearing element, and said turning axis extending through a center axis of said upper bearing element and through joints of the lower bearing element.

5,062,656

FLEXIBLE LINK ASSEMBLY FOR A VEHICLE SUSPENSION SYSTEM

Ernest J. Hynds; Keith A. Stowe, both of Saginaw, and David C. Cook, Frankenmuth, all of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 6, 1990, Ser. No. 563,150
Int. Cl.[5] B60G *21/00, 11/22;* F16F *1/16*
U.S. Cl. 280—689 7 Claims



1. A flexible and resilient link assembly for connecting a control arm and a tubular stabilizer bar of a vehicle suspension system, the link assembly comprising:

(a) a jointed arm having first and second portions pivotal with respect to one another;

(b) a collar portion including an outer cylinder connected to the first portion of the arm and an inner cylinder concentrically mounted within the outer cylinder by a flexible annular wall for receiving the stabilizer bar;

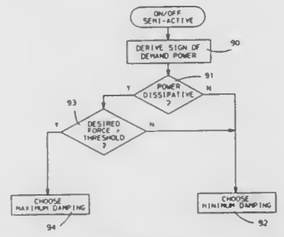
(c) means for connecting the second portion of the arm to the control arm.

5,062,657

ON/OFF SEMI-ACTIVE SUSPENSION CONTROL

Kamal N. Majeed, Centerville, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 430,856, Nov. 2, 1989, abandoned. This application Nov. 16, 1990, Ser. No. 614,813
Int. Cl.[5] B60G *17/08*
U.S. Cl. 280—707 2 Claims



1. A controlled suspension for a wheeled vehicle having a body suspended by at least one suspension spring on an unsprung, road contacting wheel, the suspension comprising, in combination:

a damper connected to apply a damping force between the body and wheel, the damper including apparatus providing a first mode of operation characterized by a high damping force and a second mode of operation having a low damping force and including a valve capable of switching the actuator between the first and second modes of operation at a frequency sufficient for control of resonant wheel vibrations; and

control means effective to repeatedly derive from one or more sensed vehicle suspension related operating variables, at the rate sufficient to control resonant wheel vibrations, a desired force to be applied between the body and wheel in order to produce a desired suspension behavior and to further determine for each such derivation whether the application of the desired force would result in active or dissipative suspension power, the control means being further effective to store a threshold and to control the valve for each such derivation so that (1) the damper operates in its second mode of operation when the desired force would produce active power, (2) the damper operates in its first mode of operation when the desired force exceeds the threshold and would produce dissipative power, and (3) the damper operates in its second mode of operation when the desired force is less than the threshold and would produce dissipative power.

5,062,658

VEHICLE SUSPENSION CONTROL WITH REAL TIME GAIN SWITCHING

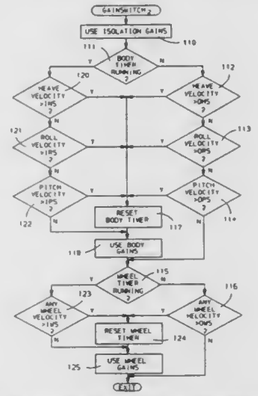
Kamal N. Majeed, Centerville, Ohio, assignor to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 430,859, Nov. 2, 1989, abandoned. This application Nov. 16, 1990, Ser. No. 614,894
Int. Cl.[5] B60G *17/08*
U.S. Cl. 280—707 7 Claims

1. Suspension apparatus for a motor vehicle having a body suspended by suspension springs at a plurality of points on unsprung, road contacting wheels, the suspension comprising, in combination:

an actuator connected to exert a variable vertical force between the vehicle body and one of the wheels in response to a control signal;

a control effective to derive the control signal for the actuator from a linear combination of vehicle state variables derived from sensed vehicle variables, the linear combination being characterized by gains determining the relative contribution of each state variable to the control signal;



memory means storing a plurality of alternative sets of gains for use in deriving the control signal, each stored set of gains comprising gain values tending to produce a different suspension performance; and

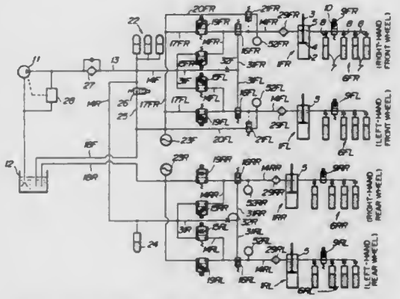
the control having means responsive to one of the sensed vehicle variables in real time to select between the alternative sets of gains in deriving the control signal.

5,062,659

SUSPENSION APPARATUS OF A VEHICLE

Takeshi Edahiro; Shin Takehara; Toshiki Morita, and Hiroyoshi Kumada, all of Horishima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Jan. 17, 1990, Ser. No. 466,666
Claims priority, application Japan, Jan. 17, 1989, 1-8143
Int. Cl.[5] B60G *11/27*
U.S. Cl. 280—707 30 Claims



1. A suspension apparatus of a vehicle, comprising:

a cylinder unit interposed between a sprung weight and an unsprung weight for changing a ride height by supplying or discharging an operating liquid;

a supply/discharge control valve for supplying to or discharging from the cylinder unit;

a supply/discharge control means for controlling supply of the operating liquid to or discharge of the operating liquid

VOL 1132 ISS 1 NO 5 1991 UMI

from the cylinder unit by controlling the supply/discharge control valve on the basis of a predetermined condition;

a rebound detecting means for detecting a rebound of a wheel;

a pressure detecting means for detecting a pressure in the cylinder unit; and

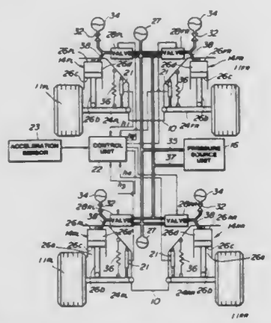
a trouble detecting means for detecting that the supply/discharge control valve is operating outside of predetermined normal values when the pressure detected by the pressure detecting means is continued at a magnitude above a given value for a given period of time when the rebound detected by the rebound detecting is above a given value.

5,062,660

PRESSURE MEDIUM FLUID CIRCUIT FOR ACTIVE SUSPENSION SYSTEM WITH VARIABLE FLUID SOURCE DISCHARGE RATE DEPENDING UPON MAGNITUDE OF STROKE IN RELATIVE DISPLACEMENT BETWEEN VEHICULAR BODY AND SUSPENSION MEMBER

Masaharu Satoh; Naoto Fukushima; Yukio Fukunaga; Yohsuke Akatsu; Itaru Fujimura, and Kensuke Fukuyama, all of Kanagawa, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Apr. 27, 1990, Ser. No. 515,891
Claims priority, application Japan, Apr. 28, 1989, 1-110626
Int. Cl.[5] B60G *11/26*
U.S. Cl. 280—707 **18 Claims**



1. A fluid supply system for an active suspension system for supplying fluid pressure for a hollow working cylinder via a pressure control valve for adjusting suspension characteristics in order to suppress a vehicular body attitude change of an automotive vehicle and absorb road shock vibration, said system comprising:

a pressurized fluid source unit for circulating pressurized fluid through a fluid circuit extending via said pressure control valve and said working cylinder;

sensor means for monitoring a relative displacement between a vehicular body and a suspension member rotatably supporting a road wheel for producing a relative displacement magnitude indicative signal;

first means for deriving a predicted fluid flow amount through said fluid circuit on the basis of said relative displacement magnitude indicative signal to produce a predicted fluid flow amount indicative signal;

second means for determining on the basis of said relative displacement magnitude indicative signal whether a magnitude of relative displacement is greater than or equal to a predetermined stroke criterion, so as to produce a large stroke indicative signal when said relative displacement magnitude is greater than or equal to said predetermined stroke criterion; and

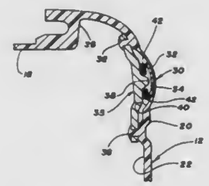
third means for deriving an amount of fluid supplied from said pressurized fluid source unit on the basis of said predicted fluid flow amount for controlling said pressurized fluid source unit in such a manner as to adjust an amount of fluid flow supplied from said pressurized fluid source unit towards the fluid flow amount derived by said third means, said third means being responsive to said large stroke indicative signal for increasing the derived fluid flow amount.

5,062,661

AUTOMOTIVE AIR BAG COVER HAVING A HORN SWITCH FORMED THEREIN

Larry J. Winget, 1799 Foxknoll, Leonard, Mich. 48038

Filed Jul. 20, 1990, Ser. No. 555,893
Int. Cl.[5] B60R *21/08*
U.S. Cl. 280—731 **5 Claims**



1. An automotive air bag cover comprising:

substantially rigid front cover and side panels adapted to enclose an uninflated automotive air bag, the front panel having inner and outer surfaces and being interconnected to the side panel at seams which permit the inflating air bag to leave the cover, the inflating air bag exerting a force at the inner surface of the front panel sufficient to cause the front panel to separate from the side panels along the seams; and

a horn switch device including a flexible manually operable diaphragm at the outer surface of the front panel, the diaphragm having a first electrically conductive inner surface for making a circuit path with a corresponding second electrically conductive inner surface upon manual actuation of the diaphragm, the second electrically conductive inner surface being defined by a rigid plate attached to the substantially rigid remainder of the front panel to move therewith wherein the first and second electrically conductive inner surfaces define a hollow compartment in the front panel and wherein upon separation from the side panels the front panel including the diaphragm, the hollow compartment and the rigid plate move together to permit the inflating air bag to leave the cover.

5,062,662

VEHICLE SEATBELT HAVING AN INTEGRAL AIRBAG

Robert W. Cameron, 1321 King St., Bellingham, Wash. 98226

Filed May 16, 1990, Ser. No. 524,161
Int. Cl.[5] B60R *21/18*
U.S. Cl. 280—733 **14 Claims**

1. A passenger restraint device mountable in a vehicle having a seat for seating at least one passenger, said restraint device comprising:

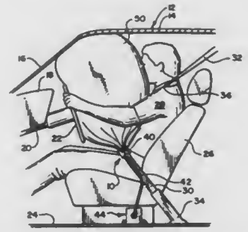
at least one safety belt for placement about said passenger in said seat, said safety belt having first and second ends anchorable to said vehicle and a middle portion configured to be positioned in front of said passenger;

an inflatable restraint bag for restraining motion of said passenger when inflated, said inflatable restraint bag being attached to said middle portion of said safety belt so that said inflatable bag is positioned in a selected location relative to said passenger when said safety belt is placed about said passenger;

a cylinder containing a compressed gas in an amount sufficient to inflate said restraint bag, said compressed gas cylinder having a neck portion having a bore for permitting said compressed gas to flow therethrough;

a conduit for conveying said compressed gas from said cylinder to said restraint bag, said conduit being attached to said neck portion of said compressed gas cylinder so that the interior of said conduit is continuous with said bore in said neck of said cylinder,

a lid positionable in said bore in a first position in which said bore is closed by said lid so as to prevent said compressed gas from flowing from said cylinder into said conduit, said lid having a recess in an edge thereof;



a hinge mounted to said edge of said lid and said neck of said cylinder so as to permit said lid to pivot about said hinge from said first position in which said bore is closed by said lid to a second position in which said lid is removed from said bore so as to permit said compressed gas to flow from said cylinder into said conduit;

an actuating rod having a first end which is positionable in said recess in said edge of said lid so as to maintain said lid in said closed position; and

means for withdrawing said first end of said actuating rod from said recess in response to an impact so that said lid pivots about said hinge from said first position to said second position so as to open said bore and permit said compressed gas to flow from said cylinder into said conduit.

5,062,663

MODULE COVER OF AIR BAG SYSTEM

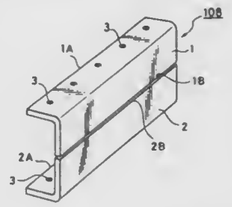
Takeshi Satoh, Shiga, Japan, assignor to Takata Corporation, Tokyo, Japan

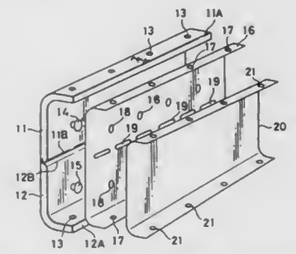
Filed Aug. 27, 1990, Ser. No. 572,458
Claims priority, application Japan, Sep. 25, 1989, 1-248682
Int. Cl.[5] B60R *21/20*
U.S. Cl. 280—743 **7 Claims**

1. A module cover adapted for covering a front opening of a case in which a folded air bag is confined and an inflator for providing gas to inflate and expand the air bag is disposed, comprising;

a pair of cut-in-half bodies each of which covers half of said front opening of said case and has a rear face and one edge, said one edge of one of said cut-in-half bodies contacting with one edge of the other of said cut-in-half bodies, edge portions of the cut-in-half bodies opposite to said one edges being attached to said case, at least one of said cut-in-half bodies having protrusions protruding from said rear face; and

a resin film disposed so as to stretch over the rear face of one of said cut-in-half bodies and the rear face of the other of said cut-in-half bodies, said resin film having holes in which said protrusions are inserted so that said film is engaged with the cut-in-half bodies, and when said inflator is not actuated, said film maintaining contact with the cut-in-half bodies and allowing engagement state between said cut-in-half bodies for making said cut-in-half bodies an integral module cover, and when said inflator is actuated and said air bag is expanded, said film permitting said engagement between said cut-in-half bodies to be released





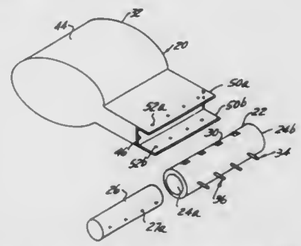
and said one edges of said cut-in-half bodies to be opened so as to move away from said case.

5,062,664

AIR BAG ASSEMBLY

Robert J. Bishop, Washington; Robert P. Fontecchio, Rochester Hills, and Daniel G. Zelenak, Jr., Rochester, all of Mich., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed May 11, 1989, Ser. No. 350,432
Int. Cl.[5] B60R *21/20*
U.S. Cl. 280—743 **47 Claims**



1. A device comprising the combination of a generally cylindrically shaped gas generator and an assembly, the assembly comprising:

a first member including a wall extending along a length dimension, and defining an opening, the first member being at least of partial cylindrical construction;

first means, including a first portion extending through the wall, and a second portion adapted to circumferentially envelope portions of the gas generator and to secure the gas generator to the first means positioned inboard from ends of the first member and ends of the gas generator.

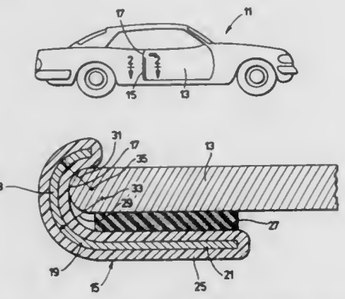
VOL
1132
ISS
1
NO
5
1991
UMI

5,062,665

DOOR EDGE GUARD WITH J CROSS SECTION

Gerald R. Schotthoefer, Dallas, Tex., assignor to Adell Corporation, Sunnyvale, Tex.

Filed Jun. 11, 1990, Ser. No. 536,422
Int. Cl.[5] B60R *27/00*
U.S. Cl. 280—770 **1 Claim**



1. A door edge guard for protecting the trailing edge of an automobile door, the trailing edge being curved and having a specific radius of curvature, comprising:

a body having a straight portion parallel to an outer surface of the automobile door, and a curved portion extending from the straight portion around the, .trailing edge of the door, the curved portion having an outer surface with a first radius of curvature and a second radius of curvature, wherein the first and second radii have different centers, wherein the first radius of curvature is located between the straight portion of the body and the second radius of curvature, and the first radius of curvature is larger than the second radius of curvature;

a piece of double sided adhesive tape of predetermined thickness located between the outer surface of the door and the straight portion of the body for securing the body to the door; and

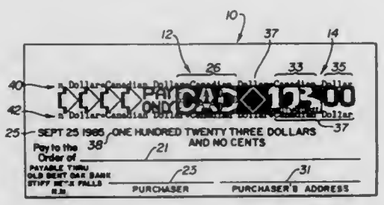
an insulating cover completely surrounding the body to prevent contact between the body and the door wherein the outer surface of the portion of the insulating cover located adjacent an inner surface of the second radius of curvature of said curved portion has a radius of curvature which corresponds to the radius of curvature of the trailing edge of the door for engagement therewith.

5,062,666

FINANCIAL INSTRUMENT AND METHOD OF MAKING

William H. Mowry, Dayton; James H. Schuelke, Vandalia, and Robert L. White, Franklin, all of Ohio, assignors to The Standard Register Company, Dayton, Ohio

Filed Feb. 1, 1990, Ser. No. 473,929
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—67 **40 Claims**



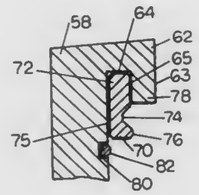
1. An international financial instrument comprising a face having a first area and a second area, a multi-letter international monetary code printed on said first area, an amount printed on said second area, said monetary code comprising a three letter code consisting of letters printed in a negative pattern and formed by a series of rows of printed dots to define an outline of each of said letters.

5,062,667

CONNECTION SEAL

Jack E. Miller, Houston; Joe R. Fowler, Spring; Stewart A. Fox, and Bryan Lane, both of Houston, all of Tex., assignors to National-Oilwell, Houston, Tex.

Filed Jan. 19, 1990, Ser. No. 467,600
Int. Cl.[5] F16L *15/04*
U.S. Cl. 285—381 **16 Claims**



1. A connection, comprising:

a first tubular member having a flow axis and an annular shoulder;

a second tubular member adapted for engagement with said first tubular member and having an annular sealing surface;

cooperable connection means disposed on said members for coupling said member;

said shoulder having an annular groove forming a first annular wall opposite and parallel a second annular wall, said first annular wall facing in the same direction as that of said annular sealing surface;

a metal seal ring shrink fitted onto said first annular wall of said annular groove and not onto said second annular wall; and

said metal seal ring sealingly engaging said annular sealing surface of said second tubular member thereby establishing a metal-to-metal seal between said members.

5,062,668

SAFETY LOCK FOR THE DOORS OF ELECTRICAL APPLICANCES

Oswald Onderka, and Fritz Krasser, both of Altdorf, Fed. Rep. of Germany, assignors to Ellenberger & Poensgen GmbH, Altdorf, Fed. Rep. of Germany

Filed Apr. 11, 1990, Ser. No. 507,216
Claims priority, application Fed. Rep. of Germany, Apr. 13, 1989, 8904660
Int. Cl.[5] E05B *15/02*
U.S. Cl. 292—25 **37 Claims**

1. A safety door lock for a door of an electrical appliance to selectively enable or disable operation of the electrical appliance, comprising:

a longitudinally displaceable detent bolt mounted in a door of an appliance, said detent bolt including a free end having a detent recess;

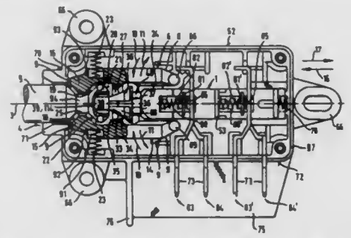
a door lock housing having an opening adapted for receiving said free end of said detent bolt;

a switching slide which is longitudinally displaceable along a longitudinal axis and which is mounted in the door lock housing, the switching slide being oriented such that longitudinal displacement of the detent bolt toward the switching slide brings the detent bolt into engagement with the switching slide, said switching slide having a stub end adapted to engage with the free end of the detent bolt;

after engagement of the end of the detent bolt with the stub end of the switching slide, further longitudinal displacement of the detent bolt in a direction toward the switching slide causing movement of the switching slide in an "on" direction to its "on" position;

a biasing means for urging the switching slide in an "off" direction toward an "off" position in which the appliance is disabled;

a detent means for latching the free end of the detent bolt in a locking position within the door lock housing upon insertion of the detent bolt in the door lock housing and for locking the switching slide in its "off" position when the end of the detent bolt is not inserted in the door lock housing; the detent means including at least one releasable



locking latch which clamps the stub end of the switching slide in the "on" position of the switching slide, to prevent longitudinal movement of the switching slide; said at least one locking latch being movable in a direction which is generally radial to the longitudinal axis; means for biasing the latch carriers toward the longitudinal axis;

said at least one locking latch having a first portion which, in the "on" position of the switching slide, engages the detent recess in the free end of the detent bolt to retain the detent bolt within the door lock housing, and having a second portion which, in the "off" position of the switching slide, engages the stub end of the switching slide to retain the switching slide against longitudinal movement toward the "on" position.

5,062,669

SECURED LOCKING DEVICE

Donald P. McManigal, 12931 S. Meade, Palos Heights, Ill. 60463; David G. Yaksic, 14922 West Ave., Orland Park, Ill. 60462, and John McHugh, 5437 S. Menard, Chicago, Ill. 60638

Continuation of Ser. No. 331,089, Mar. 27, 1989, abandoned, which is a continuation-in-part of Ser. No. 946,783, Dec. 29, 1986, abandoned. This application Jul. 16, 1990, Ser. No. 554,941
Int. Cl.[5] E05C *5/02*
U.S. Cl. 292—60 **15 Claims**

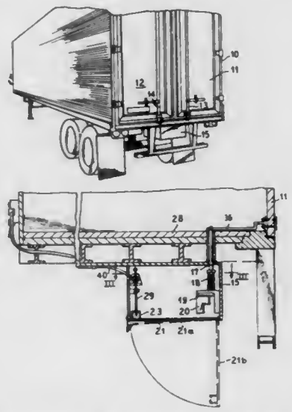
1. A lock mechanism for licking the rear doors of a trailer-tractor having support members secured to the floor of the trailer comprising:

a tamper-proof enclosure secured to the support members below the floor and generally between and behind at least one rear wheel of the trailer for preventing unauthorized access to said lock mechanism from outside the trailer, said enclosure including a rotatably secured panel member;

a manually operable locking mechanism for locking at least one trailer rear door including an actuating rod extending through the floor to the interior of the trailer and operatively connected to a door locking arrangement in an interior portion of the trailer and a handle located with said tamper-proof enclosure secured to said actuating rod;

means for receiving air pressure; and

a latch mechanism operatively connected to said air pressure receiving means and contained within said tamper-proof enclosure effective to selectively permit said panel to



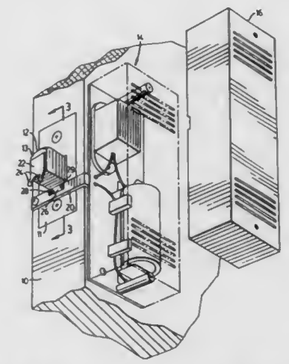
rotate downwardly in response to gravity to provide access to said handle.

5,062,670

LOCK MONITOR

Emanuel Grossman, 1555 Finch Ave. E., Suite 1105, Willowdale, Canada

Filed Oct. 23, 1990, Ser. No. 601,648
Int. Cl.[5] E05C *1/112*; H01H *27/00*
U.S. Cl. 292—137 **12 Claims**



1. A lock monitor for fitting to lockable objects that have locks that incorporate a bolt mechanism including a slidable bolt having an engaging face at the free end thereof and a mortise, where the opening of said mortise is larger in at least one dimension than said engaging face of said slidable bolt, said lock monitor comprising:

an electrically operated status indicator;

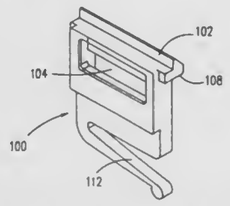
an actuating arm attachable to the engaging face of said slidable bolt, where said actuating arm extends generally perpendicular to the direction of movement of said slidable bolt;

a contact plate attachable to said bolt mechanism adjacent to said engaging face of said slidable bolt; and first and second circuit contacts located on said contact plate, said first and second circuit contacts being connected in a circuit monitored by said status indicator, with said first and

VOL 1132 ISS 1 NO 5 1991 UMI

second circuit contacts being separated and insulated from each other such that said circuit remains open until the separation between said first and second circuit contacts is bridged by engagement with said actuating arm when said slidable bolt is disengaged from said mortise, said engagement between said actuating arm and said first and second circuit contacts causing said status indicator to register a change in status of said lock.

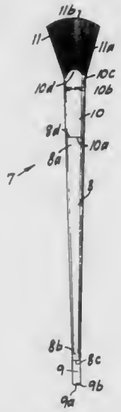
5,062,671
DOOR LATCH FOR A COMPUTER HOUSING
Frederick E. Goetz, Niceville; Michael S. Miller, Delray Beach, both of Fla., and Homer Shelton, Jr., Lexington, Ky., assignors to IBM Corporation, Armonk, N.Y.
Filed Nov. 5, 1990, Ser. No. 609,298
Int. Cl.[5] E05C *1/08*
U.S. Cl. 292—175 **8 Claims**



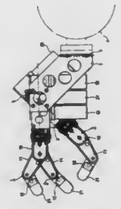
1. A door latch assembly, comprising in combination:
a door including a latch pocket, said latch pocket includes a first aperture in a first surface of said pocket, and a second aperture in a second surface of said pocket, said second surface opposing said first surface;
a slidable latch positioned in said pocket of said door, said latch including the following parts: a catch; means for receiving a force for sliding said latch in a first direction, said force receiving means is positioned in said first aperture of said pocket; means for retaining said latch in said pocket and for limiting the travel of said latch in a second direction opposite said first direction, said means for retaining is positioned in said second aperture of said pocket; and a spring for applying a force to said latch in said second direction.

5,062,672
COPY MACHINE REMOVER OF PAPER CLIPS AND STAPLES
James I. Harris, 440 W. 47th St. #5-F, New York, N.Y. 10036
Filed Dec. 13, 1990, Ser. No. 626,731
Int. Cl.[5] B25J *15/06*
U.S. Cl. 294—65.5 **19 Claims**

1. A copy machine paperclip and staple retrieval device comprising as a combination: a substantially rigid axially elongated member elongated along a longitudinal axis thereof having opposite proximal and distal ends thereof, said elongated member having a first cross-sectional area extending transversely across said longitudinal axis in juxtaposition to said proximal end and the cross-sectional area of said elongated member diminishing from said first cross-sectional area to a diminished cross-sectional area at said distal end, a permanent magnet having a transverse second cross-sectional area smaller than said diminished cross-sectional area of said distal end, and a cap member having a bottom end and a top open end and having an inner space in through-communication with the top open end and of a size and shape having the permanent magnet seated within the inner space, and said open end being of a size having said distal end received therein and the cap member being secured onto said distal end, said cap member mounted thereon having a sufficiently small third cross-sectional area as to be maneuverable within small spaces between copy machine inner parts whereby metallic debris is accessible to be attracted and held by the permanent magnet to and removed by withdrawal of said elongated member, said bottom end having an outer side surface substantially columnar in shape with a substantially blunt outer bottom surface having rounded edges such that no sharp corners or sharp edges exist thereby being devoid of danger of scratching or marring sensitive or soft surfaces of copy machine inner parts.

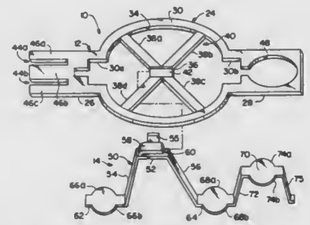


5,062,673
ARTICULATED HAND
Nobuharu Mimura, Aichi, Japan, assignor to Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, Japan
Filed Dec. 28, 1989, Ser. No. 458,346
Claims priority, application Japan, Dec. 28, 1988, 63-332683
Int. Cl.[5] B66C *1/10*; B25J *15/02*
U.S. Cl. 294—111 **9 Claims**



1. An articulated hand comprising:
a plurality of finger module structures each of which has a top end provided with an abutting member for contacting an object and an other end connected to a finger connecting member and has a plurality of articulates formed between said top end and said other end by a plurality of link members rotatably mounted on articulate turn-shafts so that said articulates are capable of being bent and stretched both in a first direction vertical to the longitudinal direction of said finger module structure and in a second direction perpendicular to said first direction;
a plurality of motors provided at said other end of each of said finger module structures integrally therewith in a manner so as to give torque to said link members through power transmitting means to thereby freely bend and stretch said link members independently of each other; and
a hand structure connected to a manipulator so as to arrange at least one of said finger module structures in opposition to at least one other of said finger module structures and so as to change a distance between said finger module structures in opposition to each other through the operation of said motors to bring said finger structures into contact with said object; wherein
said finger module structures are arranged in a manner so that said articulate turn-shafts are driven independently of each other,
each of said link members is provided with sensors respectively for directly detecting a relative angle and a relative torque between adjacent link members, and
independent angle-torque servo systems are provided for each of said articulate turn-shafts for comparing said relative angle and torque directly detected by said angle and torque sensors with a desired value thereof and processing resultant deviation signals therebetween; and
wherein each of said motors is connected to a variable constant-current source to change its power through changing an instruction current value and wherein values of motor revolution speed obtained from driving voltages of said motors are respectively fed back to servo systems to thereby correct said instruction current values so that damping may be applied to said angle-torque servo systems.

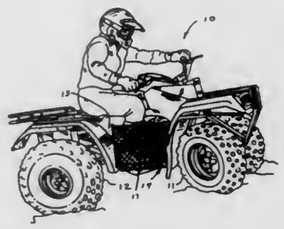
5,062,674
HAND TABLE AND CARRYING RACK
Charles Magee, Route 3, Box 895, Fort Valley, Ga. 31030
Filed Nov. 16, 1989, Ser. No. 437,091
Int. Cl.[5] A47G *23/06*
U.S. Cl. 294—143 **11 Claims**



1. A hand table for carrying a plate and a cup, comprising:
an upper support having a generally circular plate support and a cup opening; and
a lower support coupled to said upper support, said lower support having
a generally inverted U-shaped handle portion with a bight and first and second legs depending from said bight,
first and second foot members extending outwardly from free ends of said first and second legs, respectively, and
a cup support extending outwardly from said first foot member to a position directly below said cup opening.

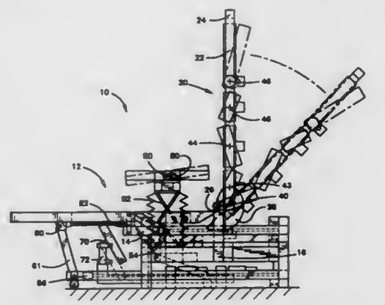
5,062,675
ATV GUARD APPARATUS
Buddy Rhoden, Rte. 2, Box 142-C, and John Singletary, Rte. 2, Box 77C, both of Ochlocknee, Ga. 31773
Filed Oct. 15, 1990, Ser. No. 597,500
Int. Cl.[5] B62J *25/00*
U.S. Cl. 296—1.1 **6 Claims**

1. An ATV guard apparatus for securement to a vehicle, including forward and rear wheel members, wherein the apparatus is secured to the vehicle between the forward and rear wheel members to overlie a leg compartment of the vehicle, wherein the apparatus comprises,
a first framework, the framework mounting a convex shield coextensively overlying and substantially upwardly extending relative to the first framework, the first framework further including a horizontal base plate, the horizontal base plate including mounting plate secured thereto, the mounting plate including a mounting plate



slot longitudinally arranged relative to the mounting plate for securement to the vehicle.

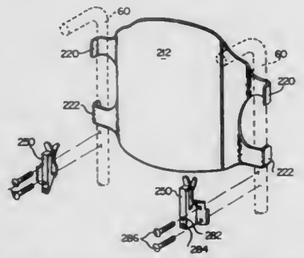
5,062,676
ADJUSTABLE CHAIR
Suzanne P. Mars, 23649 Duffield Rd., Shaker Hts., Ohio 44122
Filed Apr. 16, 1990, Ser. No. 509,463
Int. Cl.[5] A47C *1/02*
U.S. Cl. 297—338 **14 Claims**



1. An adjustable chair, comprising:
a base having a pair of spaced, parallel, forwardly extending frame members;
a vertically extending frame connected to, and projecting upwardly from, the base, the vertically extending frame having a pair of spaced, generally parallel uprights;
a seat connected to the base and disposed intermediate the frame members, the seat being vertically adjustable and pivotable about a laterally extending horizontal axis;
first and second arm rests connected to the frame members and disposed on either side of the seat and oriented parallel to the frame members, each of the arm rests being vertically adjustable and pivotable about a laterally extending horizontal axis;
a first, lower back rest extending between and connected to the uprights, the first back rest being pivotable about a laterally extending horizontal axis;
a second, middle back rest extending between and connected to the uprights, the second back rest being disposed at a vertical elevation above the first back rest, the second back rest being pivotable about a laterally extending horizontal axis; and
a third, upper back rest extending between and connected to the uprights, the third back rest being disposed at a vertical elevation above the second back rest, the third back rest being pivotable about a laterally extending horizontal axis.

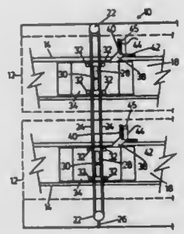
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,677
WHEELCHAIR BACK SYSTEM
Eric C. Jay, Boulder, and Michael H. Nordquist, Louisville, both of Colo., assignors to Jay Medical, Ltd., Boulder, Colo.
Continuation of Ser. No. 7,272,137, Nov. 16, 1988, abandoned. This application Nov. 1, 1990, Ser. No. 607,552
Int. Cl.[5] A47C 7/42
U.S. Cl. 297—444 **9 Claims**



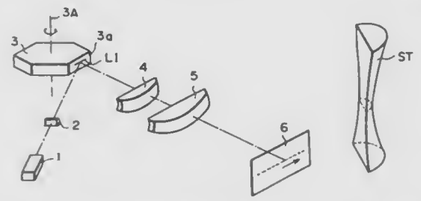
1. A wheelchair back system removably affixable to vertical wheelchair posts, said wheelchair back system comprising:
a shell and a pair of post clips;
said shell having an upper channel and a lower channel on each side, said upper channels being vertically aligned with the lower channels on the corresponding side, one of said channels on each side being open to the rear and the other of said channels on each side being open to the front, whereby said channels are adapted to engage vertical wheelchair posts;
said post clips being affixed to the rear side of vertical wheelchair posts, said clips adapted to releasably engage said front opening channels and to secure said channel in engagement with said wheelchair post.

5,062,678
FLEXIBLE ANTI-TIPPING MECHANISM
Florian Westwinkel, Toronto, Canada, assignor to Pundra Industries Limited
Filed Feb. 28, 1991, Ser. No. 662,015
Int. Cl.[5] E05C 7/06
U.S. Cl. 312—221 **19 Claims**



1. A drawer interlock associated with drawer slides for use in association with a stack of vertically stacked drawers, each drawer being withdrawable from and retractible into the stack and rearrangeable in its vertical location in the stack, each drawer slide having at least an inner slide member attachable to the drawer and an outer slide member attachable to a frame for the stack, the interlock comprising:
an elongate flexible member mountable on the frame to extend over at least the height between drawer slides the flexible member being deflectable between slack and taut positions;
an actuating member rotatably attached to each outer slide member to be rotatable between first and second positions and located with respect to the flexible member such that, in the first position, the flexible member is in its slack position and, in the second position, the flexible member is deflected into its taut position, the flexible member having a length such that when any one actuating member is deflected into its second position the flexible member in its corresponding taut position restricts movement of any other actuating member into its second position;
means associated with the inner slide member to rotate the actuating member into its second position on withdrawal of the respective drawer from the stack and to rotate the actuating member into its first position on retraction of the respective drawer into the stack;
at least one guide associated with the drawer slide configured to confine deflection of the flexible member, within a prechosen height on rotation of the respective actuating member into its second position.

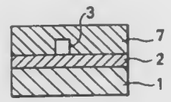
5,062,679
Fθ LENS SYSTEM IN OPTICAL SCANNER
Akihisa Itabashi, Mitaka, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Filed Jan. 4, 1990, Ser. No. 461,020
Claims priority, application Japan, Jan. 13, 1989, 1-6473
Int. Cl.[5] G02B 26/08, 3/04
U.S. Cl. 359—206 **8 Claims**



1. An fθ lens system in an optical scanner in which a light beam from a light source is formed as a line image extending in a main scanning corresponding direction and is deflected at an equal angular velocity by a rotary polygon mirror having a reflecting face in the vicinity of an image forming position of the line image and is then formed by an image forming lens system in the shape of a spot on a scanned face to optically scan the scanned face, said fθ lens system focusing and forming the light beam deflected by the rotary polygon mirror as an image on the scanned face, said fθ lens system having a function for connecting a reflecting position of the rotary polygon mirror and the scanned face in an approximately conjugate relation with respect to a secondary scanning direction, and having an fθ function with respect to a main scanning direction, said fθ lens system comprising two groups of first and second lenses sequentially arranged from the side of the rotary polygon mirror toward the scanned face side,
said lenses having first to fourth lens faces provided from the side of said rotary polygon mirror and having shapes on a deflecting plane sequentially composed of an arc, a straight line, a straight line and an arc from the first to fourth lens faces, said first and second lenses respectively having negative and positive refracting powers on a plane parallel to the deflecting plane,
said first to fourth lens faces being respectively constructed by a saddle type toric face having a radius of curvature on the deflecting perpendicular plane increased as this face is separated from an optical axis, a planar face, a concave cylindrical face having a refracting power on only the deflecting perpendicular plane, and a convex toric face having a large curvature on the deflecting perpendicular plane,
a combined focal distance fs on the deflecting perpendicular plane, radii of curvature r_1', r_3' and r_4' corresponding respectively to said first, third and fourth lens faces on the deflecting perpendicular plane satisfying the following condition,

$$2.20<\{(1/r_1')+(1/r_3')-(1/r_4')\}\cdot fs<3.51.$$

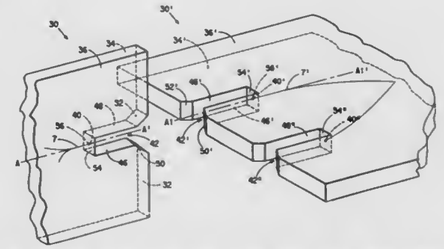
5,062,680
PLATE PLASTICS OPTICAL WAVEGUIDE
Saburo Imamura, Mito, and Tatsuo Izawa, Musashino, both of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan
Filed Sep. 24, 1990, Ser. No. 586,984
Claims priority, application Japan, Sep. 27, 1989, 1-249180
Int. Cl.[5] G02B 6/00; C08F 14/14; B32B 9/04; G03G 15/04
U.S. Cl. 385—131 **20 Claims**



1. A plate plastics optical waveguide, comprising:
a substrate;
a lower clad portion made of a first polymer and provided on said substrate;
a core portion made of a homopolymer or copolymer of dueterated or halogenated acrylates or deuterated or halogenated siloxanes provided on said lower clad portion; and
an upper clad portion made of said first polymer, said upper clad portion being provided on said core portion and surrounding said core portion together with said lower clad portion.

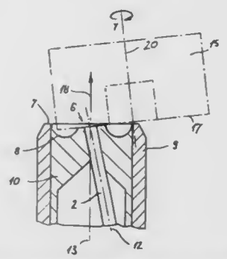
5,062,681
SLOT-COUPLING OF OPTICAL WAVEGUIDE TO OPTICAL WAVEGUIDE DEVICES
Robert J. Furmanak, Wilmington, Del.; Bruce L. Booth, West Chester, and Thomas K. Foreman, Sayre, both of Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.
Filed May 2, 1990, Ser. No. 521,056
Int. Cl.[5] G02B 6/24
U.S. Cl. 385—50 **33 Claims**

8. An optical waveguide device adaptable to be connected to a matching similar optical waveguide device, comprising:
a terminal edge;
a first pair of opposite external surfaces, substantially parallel to each other, and extending away from the terminal edge; and
a waveguide positioned equidistantly between the first pair of the opposite external surfaces, and having an end point and a center axis, the center axis forming an angle greater than zero with the terminal edge;
the device also having a through-slot extending in a direction substantially parallel to the guiding direction of the waveguide, the through-slot starting at the terminal edge and extending within the device so as to meet the end of the waveguide, the through-slot having a center axis coinciding with the center axis of the waveguide, the through-slot confined by a second pair of opposite side surfaces, substantially parallel to each other and to the center axis of the waveguide, and substantially perpendicular to the first pair of surfaces with the requirement that the width of the through-slot is substantially the same as the thickness of the matching device, and



an internal surface meeting with and being substantially perpendicular to the first and the second pairs of surfaces, the internal surface having a center point, the center point coinciding with the end of the waveguide,
so that when the through-slot of the optical waveguide device is coupled with a similar slot of a second similar device, the ends of the respective waveguides come in contact, and the center axes of the waveguides substantially coincide.

5,062,682
CONNECTOR FOR AN OPTICAL FIBER
Silvio Marazzi, Cavigliano, Switzerland, assignor to Diamond S.A., Switzerland
Filed Sep. 20, 1990, Ser. No. 585,188
Claims priority, application Switzerland, Oct. 2, 1989, 3575/89
Int. Cl.[5] G02B 6/36
U.S. Cl. 385—85 **8 Claims**



1. An optical connector comprising an optical fiber and a pin surrounding and supporting the fiber, the pin and the fiber having respective longitudinal axes and respective end surfaces, the improvement wherein the end surface of the connector pin comprises
an inner portion inclined relative both to the axis of the pin and to the axis of the fiber, said inner portion containing the entire end surface of the fiber and being flush therewith, and
a peripheral portion completely surrounding said inner portion, the peripheral portion being orthogonal to the pin axis, said inner portion being completely separated from said peripheral portion by an annular indentation.

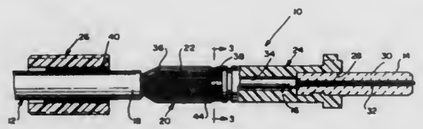
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,683

STRAIN RELIEF CONNECTOR FOR OPTICAL FIBER

Igor Grois, and Mark Margolin, both of Lincolnwood, Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Jul. 9, 1990, Ser. No. 549,872
Int. Cl.[5] G02B 6/26, 6/36
U.S. Cl. 385—87 14 Claims



1. An optical fiber connector for terminating and providing strain relief on an optical fiber cable having an inner fiber, an outer jacket and longitudinal strength material therebetween, comprising:

a housing having a rear input end into which the fiber, stripped of the outer jacket, extends and a front termination end, the rear input end being externally threaded and about which the longitudinal strength material is positionable; and

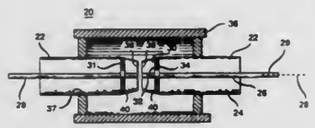
an internally threaded strain relief member through which the cable extends, the strain relief member being threadable onto the externally threaded rear input end of the housing to clamp the longitudinal strength material therebetween.

5,062,684

OPTICAL FIBER FILTER

Jane B. Clayton, Suwanee, and Calvin M. Miller, Atlanta, both of Ga., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jan. 17, 1990, Ser. No. 466,536
Int. Cl.[5] G02B 6/38
U.S. Cl. 385—27 20 Claims



1. An optical filter which is capable of having a desired bandwidth, said filter comprising:

a first ferrule assembly having aligned passageway portions for receiving a length of optical fiber in one portion and another length in another portion thereof, the passageway portions being spaced apart by a mirror which is transverse to a longitudinal axis of the passageway portions and which is substantially closer to one end of said first ferrule assembly than to an opposite end thereof;

a second ferrule assembly having aligned passageway portions for receiving a length of optical fiber in one portion thereof and another length in another portion thereof, the passageway portions in said second ferrule assembly being spaced apart by a mirror which is transverse to a longitudinal axis of said passageway portions in said second ferrule assembly, and which is substantially closer to one end of said second ferrule assembly than to an opposite end thereof;

optical fiber positioned in each passageway portion of each ferrule assembly; and

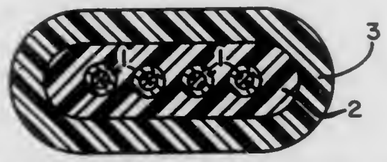
means for holding said first and second ferrule assemblies with the axes of the passageways aligned and with said one end of said first ferrule assembly being adjacent to said one end of said second ferrule assembly and for causing adjacent one ends of the ferrule assemblies to have a predetermined axial spacing.

5,062,685

COATED OPTICAL FIBERS AND CABLES AND METHOD

Michael B. Cain; Robert B. Desorcie, both of Corning; Rengan Kannabiran, Big Flats; Gitimoy Kar, Painted Post, and Eric H. Urruti, Corning, all of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Oct. 11, 1989, Ser. No. 419,674
Int. Cl.[5] G02B 6/44
U.S. Cl. 350—96.23 15 Claims



1. An optical communication medium comprising one or more optical fibers in a multilayer polymer coating, wherein the multilayer coating includes a textured polymer outer layer and at least one soft buffer layer positioned between the textured polymer outer layer and the glass optical fiber, and wherein:

the buffer layer comprises a low T_g polymer having a glass transition temperature not exceeding about −50° C.; and

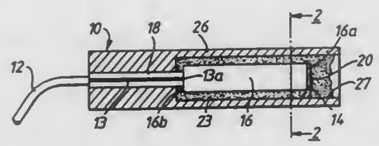
the buffer layer has a layer thickness at least sufficient to maintain thermally induced microbending loss in the communication medium below about 0.05 db/km at operating temperatures in the range of 0° C. to −60° C.

5,062,686

OPTICAL SENSORS AND OPTICAL FIBRE NETWORKS FOR SUCH SENSORS

Ross Barrow, Noble Park North; Martin C. Elias, O'Connor; Peter R. A. Lyons, Kaleen; Peter G. Jacob, Gilmore, and Scott C. Rashleigh, Wanniassa, all of Australia, assignors to Commonwealth of Australia, Australian Capitan Territory, Australia

PCT No. PCT/AU87/00399, § 371 Date Sep. 23, 1988, § 102(e) Date Sep. 23, 1988, PCT Pub. No. WO88/04065, PCT Pub. Date Jun. 2, 1988
PCT Filed Nov. 26, 1987, Ser. No. 259,120
Claims priority, application Australia, Nov. 27, 1986, PH9203/86
Int. Cl.[5] G02B 6/02, 6/16
U.S. Cl. 385—33 24 Claims



1. An optical sensor comprising:

elongate light transmission means;

lens means of at least substantially half-pitch length, positioned with one of its focal planes substantially at a mouth of the light transmission means to receive and focus a diverging cone of light emergent therefrom;

reflector means substantially at another focal plane of said lens means to reflect said focused light back to said mouth of the light transmission means; and

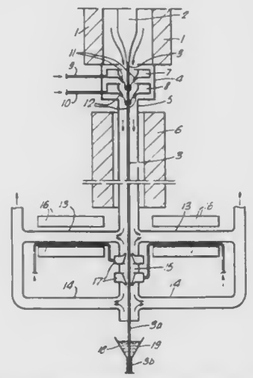
detection means in the path of said light between said mouth and said reflector means, said detection means being responsive to an external condition to influence said diverging cone of light.

5,062,687

CARBON COATING OF OPTICAL FIBRES

Gary S. Sapsford, Bishop's Stortford, Great Britain, assignor to STC PLC, London, England

Filed May 31, 1990, Ser. No. 531,859
Claims priority, application United Kingdom, May 31, 1989, 8912470
Int. Cl.[5] G02B 6/16
U.S. Cl. 350—96.30 7 Claims



1. A method of providing a glass fibre with a vitreous carbon coating, which coating is formed principally by the pyrolysis of propadiene.

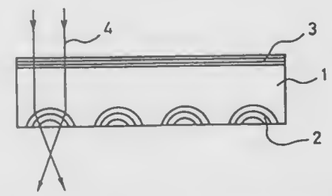
4. A vitreous carbon coated optical fibre made by the method claimed in claim 1.

5,062,688

FLAT PLATE OPTICAL ELEMENT AND METHOD FOR PREPARING THE SAME

Eiji Okuda, and Hiroyuki Nemoto, both of Osaka, Japan, assignors to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Filed Sep. 14, 1990, Ser. No. 582,315
Int. Cl.[5] G02B 27/00, 6/10
U.S. Cl. 359—619 9 Claims



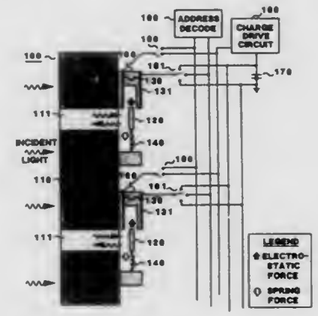
1. A flat plate optical element comprising an optical element with a predetermined pattern formed by ion diffusion from a restricted region within a flat substrate, wherein an ion diffusion layer having a uniform thickness is formed with the same ions as those used for forming said optical element on the whole surface of the substrate opposite to the surface on which said optical element is formed, and wherein the volume ratio of the total volume of said optical element to the total volume of said diffusion layer is from 50 to 150%.

5,062,689

ELECTROSTATICALLY ACTUATABLE LIGHT MODULATING DEVICE

Dale R. Koehler, 1332 Wagontrain Dr., Albuquerque, N. Mex. 87123

Filed Aug. 21, 1990, Ser. No. 570,539
Int. Cl.[5] G02B 26/02
U.S. Cl. 359—230 16 Claims



1. An electrostatically actuatable light modulating device comprising:

a substrate plate patterned with an array of light passing apertures; and,

a co-located array of shuttering cells to spatially control light transmission through the aperture array, each of the cells comprising:

a mechanically positionable shutter means;

an electrostatic field actuator means to forcibly move the shutter means;

a position dependent mechanical restoring force means acting on said shutter means and in opposition to said electrostatic field actuator means; and,

an electrical switch element means which is uniquely addressable within the array, to provide electrical energy to said electrostatic field actuator means.

5,062,690

LIQUID CRYSTAL DISPLAY WITH REDUNDANT FETS AND REDUNDANT CROSSOVERS CONNECTED BY LASER-FUSIBLE LINKS

Nathan R. Whetten, Ballston Lake, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jun. 30, 1989, Ser. No. 373,433
Int. Cl.[5] G02F 1/133; H01L 29/68; G09G 3/36
U.S. Cl. 359—59 14 Claims

5. A liquid crystal display, comprising:

a plurality of cells arranged in an array of rows and columns;

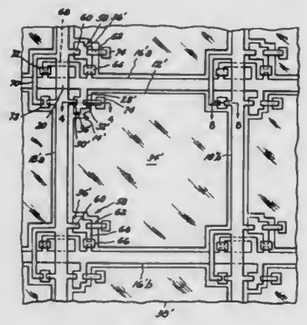
a plurality of electrically conductive scan lines formed from a first electrically conductive layer, at least one scan line for transmitting electrical signals to each row of cells;

a plurality of electrically conductive data lines formed from a second electrically conductive layer, at least one data line for transmitting electrical signals to each column of cells, each scan line crossing each data line at a different crossover location at which that scan line is insulatively spaced from the data line to be crossed by at least a first section of insulation material;

at least one redundant scan line crossover means formed from at least a portion of said first conductive layer, each located at a different one of said crossover locations, for electrically bypassing that one crossover location when an associated one of said plurality of scan lines is electrically

VOL 1132 ISS 1 NO 5 1991 UMI

aborted to an associated one of said plurality of data lines at that one crossover location and said one of said plurality of scan lines has been severed at a location encompassed by said redundant scan line crossover means; and at least one redundant data line crossover means formed at least a portion of said second conductive layer, each lo-



cated at a different one of said crossover locations, for electrically bypassing that one crossover location when an associated one of said plurality of scan lines is electrically shorted to an associated one of said plurality of data lines at that one crossover location and said one of said plurality of data lines has been severed at a location encompassed by said redundant data line crossover means.

5,062,691

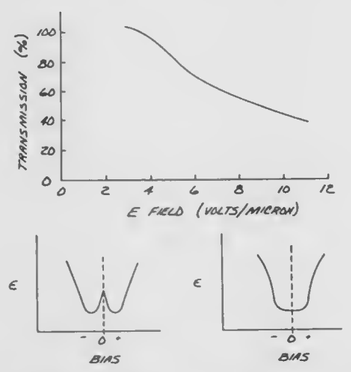
LIQUID CRYSTAL DEVICE WITH GREY SCALE

Miguel G. Tristani-Kendra, and George Papapolymerou, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 428,241, Oct. 27, 1989, abandoned. This application Aug. 3, 1990, Ser. No. 562,465

Int. Cl.[5] G02F *1/13*

U.S. Cl. 359—56 **9 Claims**



1. A ferroelectric liquid crystal device comprising a transparent substrate, an opposed substrate, said substrates disposed to provide a non-helicoidal alignment of the ferroelectric liquid crystal material, a ferroelectric liquid crystal material disposed between said substrates and electrodes on said substrates to define one or a plurality of pixels, each said pixel exhibiting controlled continuously variable light transmission as a function of applied field and wherein the molecular orientation of the liquid crystal material is continuously variable and controllable.

5,062,692

EXPOSURE APPARATUS

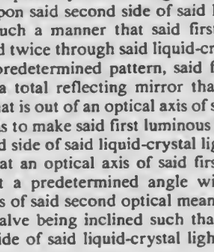
Masatoshi Marui, Saitama; Tomonori Inage, Tokyo; Yuji Matsui, Kawagoe, and Tazuko Isbizuka, Urawa, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 249,764, Sep. 26, 1988. This application Nov. 21, 1990, Ser. No. 616,385

Claims priority, application Japan, Sep. 24, 1987, 62-239832; Jun. 14, 1988, 63-146134

Int. Cl.[5] G02F *1/13*; G03B *23/14*

U.S. Cl. 359—45 **22 Claims**



1. An exposure apparatus for exposing a subject with an optical image, comprising:

a thermally-written liquid-crystal light valve having accommodated therein a liquid crystal layer;

means for emitting an optical writing heat spot directed onto said liquid-crystal light valve, said optical writing heat spot being reciprocatively movable in an X direction, either said liquid-crystal light valve or said emitting means being movable relative to each other to cause said heating spot to write a predetermined pattern into said liquid-crystal light valve; and

an optical projection system having a light source, a first optical means arranged between said light source and said liquid-crystal light valve for transmitting a first luminous flux that is emitted from said light source, through said liquid crystal layer formed into said predetermined pattern, and second optical means arranged between said liquid-crystal light valve and said subject for bringing a luminous flux transmitted through said liquid crystal layer to a substantially telecentric second luminous flux and for illuminating said subject with said second luminous flux, whereby said subject is exposed to an optical image corresponding to said predetermined pattern formed in said liquid crystal layer, wherein said liquid-crystal light valve has two opposite sides, one opposite side of which faces towards said writing optical means and a second opposite side that faces said subject, said writing optical means directing said heating light spot onto said one side of said liquid-crystal light valve, said first optical means of said projecting optical system making said first luminous flux incident upon said second side of said liquid-crystal light valve in such a manner that said first luminous flux is transmitted twice through said liquid-crystal layer formed into said predetermined pattern, said first optical means including a total reflecting mirror that is arranged at a location that is out of an optical axis of said second optical means so as to make said first luminous flux incident upon said second side of said liquid-crystal light valve in such a manner that an optical axis of said first luminous flux is inclined at a predetermined angle with respect to the optical axis of said second optical means, said liquid-crystal light valve being inclined such that a normal line to said one side of said liquid-crystal light valve defines an angle with respect to the optical axis of aid second optical means that is half said predetermined angle.

5,062,693

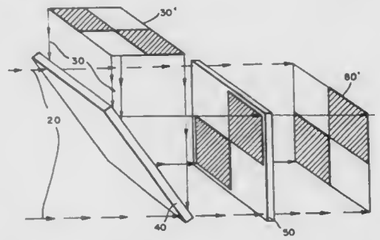
ALL-OPTICAL PHOTOCHROMIC SPATIAL LIGHT MODULATORS BASED ON PHOTOINDUCED ELECTRON TRANSFER IN RIGID MATRICES

David N. Beratan, and Joseph W. Perry, both of South Pasadena, Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Administration, Washington, D.C.

Filed Feb. 15, 1990, Ser. No. 480,385

Int. Cl.[5] G02B *5/23, 1/01, 1/12*

U.S. Cl. 359—241 **20 Claims**



1. An all-optical, two-dimensional spatial light modulator adapted to switch transmissive properties for a certain amount of time at specific locations comprising:

(a) a multi-state intermolecular charge transfer system capable of switching electrons between states;

(b) optical means for supplying input data to said charge transfer system; and

(c) optical means for supplying an input electromagnetic wave which induces electron transfer in said charge transfer system to provide an output electromagnetic wave, the intensity of said output electromagnetic wave being spatially modulated by said input data.

5,062,694

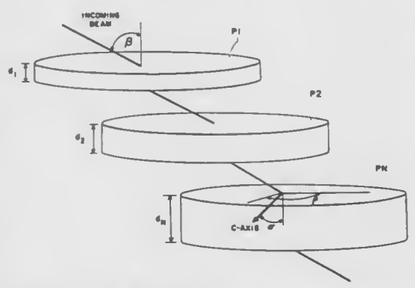
BIREFRINGENT FILTER DESIGN

Clayton H. Bair, Newport News, Va., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 8, 1991, Ser. No. 681,288

Int. Cl.[5] G02B *27/28*

U.S. Cl. 359—498 **4 Claims**



1. A birefringent filter comprising:

a plurality of N plates of an optical material exhibiting birefringence, each of said plates having a respective thickness $d_1, d_2 \ldots d_N$, wherein $d_1 < d_2 \ldots < d_N$, the respective thicknesses $d_1 \ldots d_N$ are non-unity, integral multiples of the difference in thickness between d_1 and d_2, and the plates are stacked such that light to be filtered passes in order through the plates having respective thicknesses of $d_1, d_2 \ldots d_N$.

5,062,695

ZOOM LENS SYSTEM FOR USE IN A MICROFILM PROJECTION APPARATUS

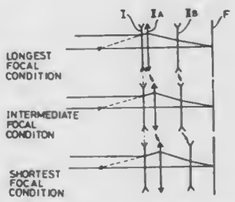
Satoshi Iwasaki, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Feb. 27, 1990, Ser. No. 486,060

Claims priority, application Japan, Feb. 28, 1989, 1-47492

Int. Cl.[5] G02B *15/17715/16*

U.S. Cl. 359—689 **14 Claims**



1. A zoom lens system comprising, in order from an enlargement side:

a first lens unit of a negative power;

a second lens unit of a positive power, and

a third lens unit of a negative power,

wherein, during a zooming operation from a longest focal length condition to a shortest focal length condition, said first lens unit is fixed, whereas said second lens unit and said third lens unit are movable from the enlargement side to a reduction side, with the distance between said second lens unit and said third lens unit first decreasing, then increasing, during said zooming operation, the zoom lens system satisfying the following conditions:

$$1.7 < (\Psi_I + \Psi_{II})/\Psi_L < 2.2$$

$$2.5 < \Psi_{II\ IIIL}/\Psi_L < 3.0$$

where Ψ_I represents a refracting power of said first lens unit, Ψ_{II} represents a refracting power of said second lens unit, Ψ_L represents a refracting power of the entire system in the longest focal length condition, and $\Psi_{II\ IIIL}$ represents a combined refractive power of said second and third lens units in the longest focal length condition.

5,062,696

CAMERA APPARATUS

Mitsuaki Oshima, Moriguchi; Masataka Izaki, Yawata; Jirou Kajino, Neyagawa; Yoshiaki Igarashi, Ikoma, and Hiroshi Mitani, Daito, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 886,424, Jul. 17, 1986, Pat. No. 4,856,882, which is a division of Ser. No. 688,154, Dec. 31, 1984, Pat. No. 4,623,930. This application Feb. 17, 1989, Ser. No. 312,057

Claims priority, application Japan, Dec. 29, 1983, 58-251306

Int. Cl.[5] G02B *27/64*; G03B *15/00*

U.S. Cl. 359—554 **4 Claims**

1. A camera apparatus comprising:

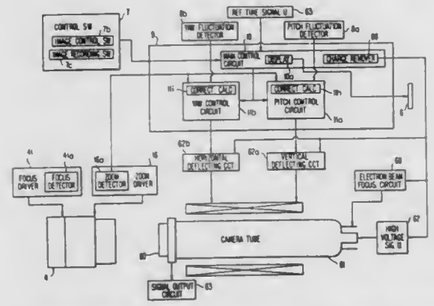
focusing means for optically focusing a light beam from an object;

imaging means for converting an optical image produced by the focusing means into electric or physiochemical information and issuing or recording the information as an image;

means for detecting a fluctuation of the camera apparatus and issuing a fluctuation detecting signal;

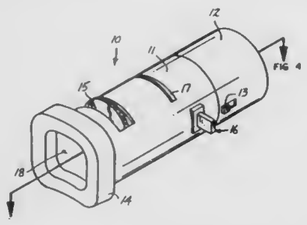
VOL 1132 ISS 1 NO 5 1991 UMI

means responsive to the fluctuation detecting signal for issuing an image fluctuation control signal;
means responsive to the image fluctuation control signal for suppressing a fluctuation of the image due to the fluctuation of the apparatus;
said imaging means comprising means for photoelectrically



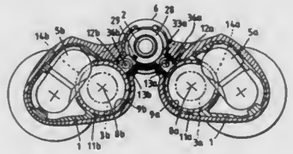
converting the optical image produced by said focusing means into image information, electric readout means for reading out the image information, and means for issuing an image-dependent electric signal, said electric readout means being controllable by said image fluctuation control signal issuing means dependent on information from said detecting means.

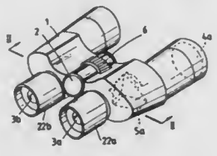
5,062,697
PORTABLE MICROSCOPE APPARATUS
Phillip R. Mitchell, 20½ Dexter St., Apt. I, Providence, R.I. 02909
Filed Aug. 8, 1990, Ser. No. 564,118
Int. Cl.[5] G02B *21/06, 21/24, 21/34, 25/02*
U.S. Cl. 359—379 **8 Claims**



1. A portable microscope apparatus for permitting visual observation in comparison of a blood sample wherein the apparatus comprises,
a first cylindrical body selectively securable to a second cylindrical body wherein the first and second cylindrical bodies are coaxially aligned relative to one another, and
the second cylindrical body includes a cup shaped cavity defining an illumination compartment therewithin, and
the illumination compartment including illumination means therewithin selectively actuatable to effect selective actuation of the illumination means, and
the first cylindrical body member including a forward terminal end coaxially aligned with and spaced from the second cylindrical body and the forward cylindrical end defining a forward opening, and
a first body web fixedly and diametrically mounted within the first said cylindrical body adjacent said forward opening, first body web adjustably mounting a focusing lens, and adjusting means for axially mounting and adjusting the focusing lens relative to the first body web, and
at least one fixed lens member mounted rearwardly of the focusing lens within the first cylindrical body member and coaxially aligned relative to the focusing lens, the said at least one fixed lens positioned between the focusing lens and the illumination means, and
a slide member selectively receivable within the first cylindrical body member between the fixed lens and the illumination means.

5,062,698
FOCUSING DEVICE FOR A BINOCULAR INSTRUMENT
Gouzi Funathu, Tokyo, Japan, assignor to Asahi Kogaku Kogyo K.K., Tokyo, Japan
Continuation of Ser. No. 381,542, Jul. 19, 1989, abandoned. This application Jan. 25, 1991, Ser. No. 646,443
Claims priority, application Japan, Jul. 21, 1988, 63-183151; Jul. 21, 1988, 63-183152; Jul. 21, 1988, 63-183153
Int. Cl.[5] G02B *7/06, 23/18*
U.S. Cl. 359—414 **11 Claims**



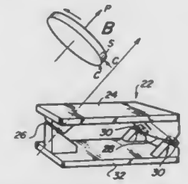


1. A binocular instrument comprising:
a binocular body;
a pair of right and left ocular lenses;
a single focusing drive means provided between the right and left ocular lenses for simultaneously moving the right and left ocular lenses forward and backward in a direction of an optical axis to effect focusing;
a pair of right and left guide holes formed in said body extending inwardly from an ocular side end of said body, the guide holes extending in coaxial relation to respective ocular optical axes, and a wall of each of the guide holes having a slot, formed parallel to a respective one of said ocular optical axes, through which each of right and left connecting means extends;
a pair of right and left ocular tubes respectively supporting said ocular lenses and being received respectively in the guide holes to as to be slidable along the respective ocular optical axes; and
said right and left connecting means for connecting each of the ocular tubes to said focusing drive means.

5,062,699
PIVOTLESS EQUATORIAL TABLE FOR A TELESCOPE
Georges d'Autume, Le Vesinet, France, assignor to Jupiter Telescope Co., Inc., Wellington, Fla.
Filed Aug. 11, 1989, Ser. No. 392,449
Int. Cl.[5] G02B *23/16, 23/00*
U.S. Cl. 359—430 **21 Claims**

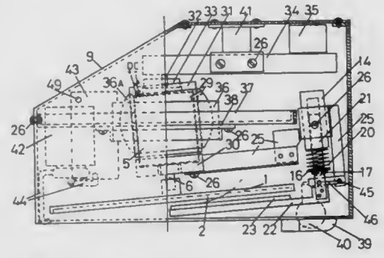
1. A pivotless equatorial table for a telescope, said table comprising:
a substantially planar telescope table portion, said table portion having a top side and a bottom side;
a table base situated below said table portion;

said table base having provided thereupon a plurality of rolling bodies;
a conical assembly for coacting said table portion with said plurality of rolling bodies about a common virtual axis, said common virtual axis being aligned in parallel with the polar axis of the earth;



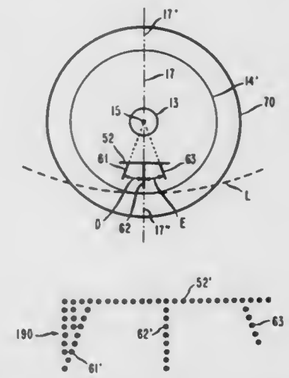
said conical assembly comprising a plurality of tracks constrained by gravity to remain in contact with said plurality of rolling bodies;
said tracks being rotation 2I symmetrical about said common virtual axis.

5,062,700
REARVIEW DIRECTIONAL CONTROL DEVICE FOR REARVIEW MIRROR
Shyh-Her Sheu, No. 18, Shihchien Street, Peitou, and Yu-Ming Tsui, No. 16-11, 3rd. Floor Lane 189, Sec. 4, Cheng Kung Road, Neihu Locality, Taipei, both of Taiwan
Filed Jan. 8, 1991, Ser. No. 638,539
Int. Cl.[5] G02B *7/198, 5/08;* **B60S** *1/34, 1/46*
U.S. Cl. 359—508 **7 Claims**



1. A rearview directional control device for a rearview mirror comprising:
a rearview mirror body adapted to be fixed to one side of a vehicle:
a spherical plain bearing mounted in said body and having an inner ring:
a sleeve secured in said inner ring, having an open end;
a gear box mounted on said body having a power output shaft and a power input end:
an eccentrical wheel secured to said power output shaft and is engagingly received in said open end;
a motor mounted on said body and is connected to said power input end:
a mirror fixed on one side of a mirror disk and a disk shaft is provided on the other side of said mirror disk; and
said disk shaft is engaged in the other end of said sleeve,
such that when said motor is energized, the angle of said mirror will be adjusted.

5,062,701
ASYMMETRIC CONTACT LENS
Martin J. Drazba, Arlington Heights; Michael L. Bellek, Lindenhurst; Samuel Dranoff, Buffalo Grove, and Paul Hahn, Loves Park, all of Ill., assignors to Wesley-Jessen Corporation, Chicago, Ill.
Continuation-in-part of Ser. No. 203,381, Jun. 7, 1988, Pat. No. 4,976,533. This application Nov. 16, 1990, Ser. No. 614,356
Int. Cl.[5] G02C *7/04;* **A61B** *3/00*
U.S. Cl. 351—160 R **6 Claims**



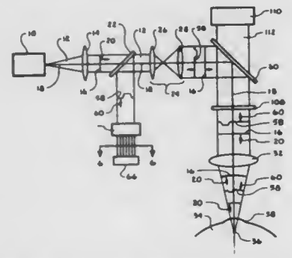
1. A contact lens comprising: p1 A. a corneal section intended to cover the cornea of the wearer;
B. a pupil section within said corneal section intended to cover the pupil of the wearer;
C. a vertical axis having a top intended to be located at the top of the wearer's eye and bottom intended to be located at the bottom of the wearer's eye;
D. a shape adapted to maintain said lens at its intended orientation within the eye;
E. a visible horizontal line segment located within said corneal section perpendicular to said vertical axis, said line segment and its extensions being outside of said pupil section;
F. an asymmetric prescription located over at least a portion of said corneal section, and
G. extra marking to cause the combination of said line segment and extra marking to be asymmetric about said vertical axis.

5,062,702
DEVICE FOR MAPPING CORNEAL TOPOGRAPHY
Josef F. Bille, Rancho Santa Fe, Calif., assignor to Intelligent Surgical Lasers, Inc., San Diego, Calif.
Filed Mar. 16, 1990, Ser. No. 494,683
Int. Cl.[5] A61B *3/10*
U.S. Cl. 351—212 **5 Claims**

1. A device for mapping the topography of the cornea of an eye which comprises:
means for generating a beam of collimated monochromatic light characterized by having a flat directed wave front;
means for directing said beam toward said cornea;
an objective lens for converting said flat wave front into a spherically converging wave front for incidence on said cornea;
means for receiving light of said beam reflected by said cornea, said reflected light being characterized by a reflected wave front indicative of said topography;
a charge-coupled device;
a lens array comprising a first layer having a plurality of juxtaposed cylindrical lenses and a second layer having a

VOL 1132 ISS 1 NO 5 1991 UMI

plurality of juxtaposed cylindrical lenses, said first layer being adjacent said second layer and substantially perpendicular thereto to collectively receive said reflected wave front to detect deviations of said reflected wave front



from said flat wave front and individually focus the light incident on each of said cylindrical lenses onto said charge-coupled device to create a pattern on said charge-coupled device indicated of said topography.

5,062,703

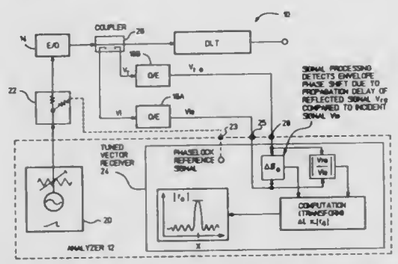
METHOD AND APPARATUS FOR MEASURING THE LENGTH OF, OR DISTANCES TO DISCONTINUITIES IN, AN OPTICAL TRANSMISSION MEDIUM

Roger W. Wong; Hugo Vifian, both of Santa Rosa, and Michael G. Hart, Windsor, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 146,642, Jan. 21, 1988, abandoned. This application Feb. 2, 1990, Ser. No. 474,184

Int. Cl.[5] G01N *21/00*

U.S. Cl. 356—73.1 **20 Claims**



1. A method for measuring optical reflections, which allows resolution of one or more optical reflections due to one or more corresponding discontinuities in an optical device under test, comprising the steps of:

producing a continuous wave optical signal;

producing at least one modulating signal;

modulating the continuous wave optical signal with the at least one modulating signal to produce at least one modulated optical signal;

applying the at least one modulated optical signal to the optical device under test;

thereby producing incident and reflected modulated optical signals in the optical device under test, the reflected modulated optical signal being produced by the at least one modulated optical signal being reflected as the modulated optical signal encounters a change in the index of refraction caused by a discontinuity in the optical device under test;

detecting a phase value of an envelope of the incident modulated optical signal and a phase value of an envelope of the reflected modulated optical signal;

comparing the values of the phase envelopes of the incident and reflected modulated optical signals to determine an envelope phase difference;

calculating a propagation delay difference between the incident and reflected modulated optical signals from the envelope phase difference and the speed of light according to the expression $X=(vel/2)*Delta\ Phi_e/w_m$, where x is the distance to a discontinuity in the optical device under test, vel is the propagation velocity of the continuous wave in the optical device under test, $DeltaPhi_e$ is the envelope phase difference, and w_m is the at least one modulating frequency.

5,062,704

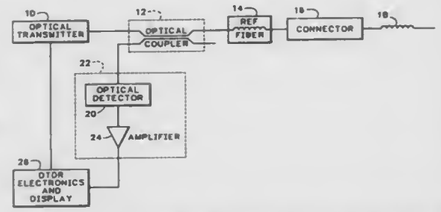
OPTICAL TIME DOMAIN REFLECTOMETER HAVING PRE AND POST FRONT PANEL CONNECTOR TESTING CAPABILITIES

Glenn Bateman, Redmond, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Apr. 25, 1990, Ser. No. 514,070

Int. Cl.[5] G01N *21/88*

U.S. Cl. 356—73.1 **5 Claims**



1. An improved optical time domain reflectometer having an optical transmitter and receiver coupled to a front panel connector via an optical coupler, the transmitter launching optical pulses into a fiber under test connected to the front panel connector and the optical receiver receiving backscattered light from the fiber that includes a reflective pulse from the front panel connector, the improvement comprising a reference optical fiber interposed between the optical coupler and the front panel connector having a length that is a function of the pulse width of the launched optical pulses permitting the acquisition of a reference backscatter level prior to the front panel connector for comparing with the backscattered light from the fiber under test to determine a loss for the front panel connection and acquisition of data representative of the front panel connector reflective pulse.

5,062,705

APPARATUS FOR EVALUATING A LENS

Takeo Sato, Kawasaki; Masaki Yamamoto, Tokyo; Shioichiro Aoki, Kawasaki; Yoshiyuki Sugiyama, Ayase; Yoshito Nakanishi, and Hiroyuki Takeuchi, both of Kawasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 11, 1990, Ser. No. 580,752

Claims priority, application Japan, Sep. 13, 1989, 1-237797; Oct. 19, 1989, 1-272841; Oct. 19, 1989, 1-272844

Int. Cl.[5] G01B *9/00*

U.S. Cl. 356—124 **9 Claims**

1. An apparatus for evaluating a lens, comprising:

a first reticle located at an object position of the lens and formed with a first diffraction grating;

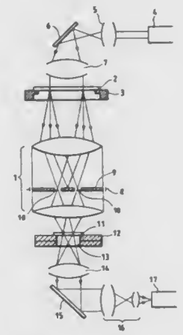
a stage supporting the first reticle;

a coherent light source illuminating a whole region of the first diffraction grating;

a spatial filter blocking a 0-order component of diffraction light from the first diffraction grating;

a second reticle located at an image position of the lens and formed with a second diffraction grating;

a stage moving the second reticle within a projection range of the lens; and



means for observing moire fringes which are caused by the second diffraction grating and interference fringes, the interference fringes being formed on the second reticle by re-diffraction by the lens.

5,062,706

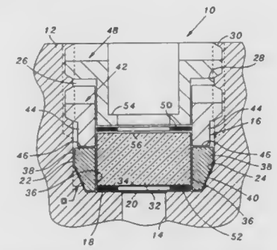
HIGH PRESSURE FLUID SAMPLE FLOW CELL WITH CIRCUMFERENTIAL WINDOW EDGE SEAL

Haakon T. Magnussen, Jr., Orinda, Calif., assignor to Rainin Instrument Co., Inc., Emeryville, Calif.

Filed Apr. 16, 1990, Ser. No. 510,038

Int. Cl.[5] G02B *7/00*

U.S. Cl. 356—246 **7 Claims**



1. In a high pressure flow cell including a cell body having a passageway therethrough and windows for passing light through fluid flowing in the passageway, a high pressure circumferential window edge seal, comprising:

a window receiving cavity including a flat inner end surrounding an opening to the fluid passageway, an inner end portion including an inner axially extending radially outwardly diverging annular surface adjacent the inner end, and a outer end portion including an axially extending internally threaded annular surface adjacent an outer end of the cavity;

a cylindrical window in the inner end portion of the cavity and including a flat end over the flat inner end of the cavity and a cylindrical circumferential edge adjacent the inner annular surface of the cavity;

an annular ferrule around the circumferential edge of the window and adjacent the inner annular surface of the cavity, the ferrule including an axially extending radially outwardly diverging surface for mating with the outwardly diverging surface of the inner annular end portion of the cavity; and

a ferrule clamp comprising a tubular screw threaded into the outer end portion of the cavity and including and annular end for pressing axially on an outer end of the ferrule to wedge the ferrule and create a fluid tight high pressure seal between the circumferential edge of the window and the inner annular surface of the cavity.

5,062,707

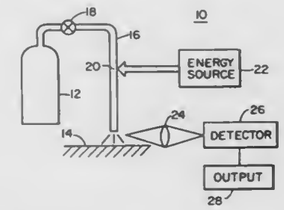
SURFACE CONTAMINATION SENSOR

Steven Adler-Golden, Newtonville, and Michael W. Matthew, Burlington, both of Mass., assignors to Spectral Sciences, Inc., Burlington, Mass.

Filed Nov. 5, 1990, Ser. No. 609,875

Int. Cl.[5] G01N *21/71, 21/88*

U.S. Cl. 356—311 **23 Claims**



1. An ambient surface contamination sensor, comprising:

means for supplying a gas to a surface being sensed;

means for energizing the gas before it reaches the surface for transferring energy to surface contaminants;

means for detecting the optical emission from the gas passed over the surface within a selected wavelength band characteristic of the presence on the surface of the contaminant; and

means, responsive to said means for detecting, for indicating the presence of the contaminant on the surface.

5,062,708

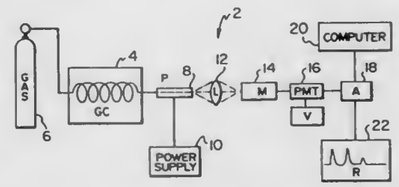
CAPACITIVELY COUPLED PLASMA DETECTOR FOR GAS CHROMATOGRAPHY

Dong C. Liang, Vancouver, and Michael W. Blades, Surrey, both of Canada, assignors to University of British Columbia, Vancouver, Canada

Filed May 19, 1989, Ser. No. 354,150

Int. Cl.[5] G01N *21/73*

U.S. Cl. 356—316 **13 Claims**



1. A method of spectroscopically investigating compounds separated in the eluant of a gas chromatograph comprising the steps of:

passing the eluant of the gas chromatograph into a radio-frequency atmospheric pressure capacitively coupled plasma created between a pair of opposing electrically conducting electrodes;

applying radio-frequency power from a power supply to the electrodes sufficient to create a plasma in the eluant passing between the electrodes; and

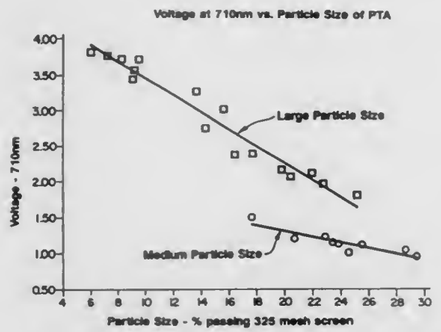
analyzing the light spectrum emitted from the plasma.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,709
PROCESS FOR MONITORING PARTICLE SIZE AND MOISTURE CONTENT OF FINELY DIVIDED MATERIAL

James D. Slee, Naperville, Ill., assignor to Amoco Corporation, Chicago, Ill.

Filed Apr. 25, 1990, Ser. No. 514,504
Int. Cl.[5] G01N *15/02*
U.S. Cl. 356—335 14 Claims



1. A process for on-line monitoring of particle size and moisture content of finely-divided material in a product stream wherein said material reflects scattered light sufficient for detection by a photodetector, the light is of a wavelength within the range of from about 350 nanometers to about 1200 nanometers, particle size of said material is from about 1 micron to about 300 microns and moisture content is no greater than 10 weight percent of said material, which process comprises:

a. a sampling means comprising a sampling vessel located in said product stream wherein said sampling vessel contains a discharge means to discharge continuously or periodically;

b. a reference light source;

c. a spectrophotometric analyzer having a plurality of photodetectors for the characterization of wavelengths of scattered light within the range of from about 350 nanometers to about 1200 nanometers;

d. a communication means, having a first end connected to the light source and a second end extending into the sampling means;

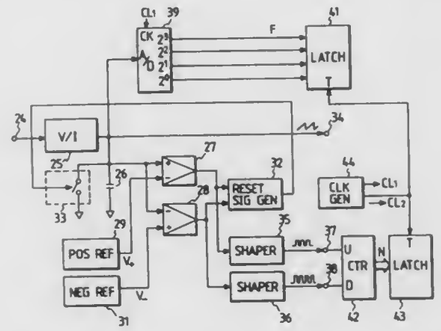
e. a light transmission means capable of transmitting scattered light of wavelengths from about 350 nanometers to about 1200 nanometers from the sampling means to the plurality of photodetectors within the spectrophotometric analyzer;

f. a signal processor means in communication with the plurality of photodetectors for processing the characteristics of the said wavelengths to quantify the photodetector responses in volts to (i) measure the percent particles of said finely-divided material of particle size within the range of from about 1 micron to about 300 microns as measured by the voltage generated by a photodetector which measures the intensity of scattered light of a selected wavelength wherein said selected wavelength is within the range of from about 350 nanometers to about 1200 nanometers; and (ii) to measure the moisture content of said finely-divided material by the standard deviation of measurements of voltages generated by a photodetector which measures the said intensity of said scattered light of at least one wavelength within the range of from about 350 nanometers to about 1200 nanometers.

5,062,710
LINEAR PHASE RAMP FIBER OPTIC GYRO

Kenichi Okada; Masashi Nishino, and Shu Tanigawa, all of Tokyo, Japan, assignors to Japan Aviation Electronics Industry Limited, Tokyo, Japan

Filed Apr. 18, 1990, Ser. No. 510,846
Claims priority, application Japan, Apr. 20, 1989, 1-102188
Int. Cl.[5] G01C *19/72*
U.S. Cl. 356—350 2 Claims



1. A linear phase ramp fiber optic gyro comprising:

means defining an optical path which makes at least one turn;

means for applying right-handed light and left-handed light to said optical path;

interference means whereby right-handed light and left-handed light having propagated through said optical path are caused to interfere with each other;

phase difference generating means between said interference means and one end of said optical path for providing a phase difference between said right-handed light and said left-handed light;

photoelectric conversion means whereby the intensity of interference light available from said interference means is output as an electrical signal;

phase detecting means for detecting and outputting information about said phase difference between said right-handed light and said left-handed light, contained in the output electrical signal of said photoelectric conversion means;

ramp voltage generating means for generating a ramp voltage output of a frequency and polarity corresponding to the output of said phase detecting means and for negatively feeding said ramp voltage output back to said phase difference generating means so that the phase difference between said right-handed light and said left-handed light is reduced to zero;

counter means for counting pulses of said ramp voltage generated by said ramp voltage generating means;

clock generating means for generating first and second clocks, said second clocks being higher in frequency than said first clocks;

A/D conversion means for converting said ramp voltage output of said ramp voltage generating means into a digital value upon each occurrence of said second clocks; and

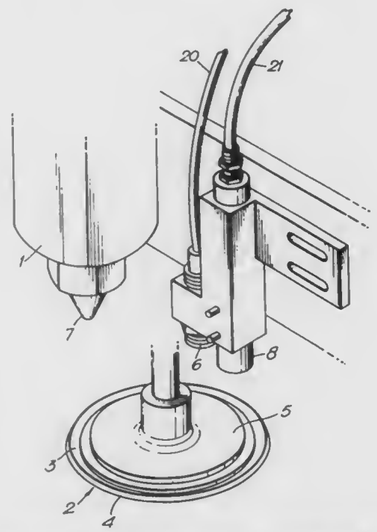
first and second latches for simultaneously latching the count value of said counter means and the output digital value of said A/D conversion means upon each occurrence of said first clocks;

the count value of said counter means and said digital output value of said A/D conversion means respectively latched in said first and second latches being used in combination as angular information.

5,062,711
METHOD AND APPARATUS FOR INSPECTING WORKPIECES

Derek A. Brown, Buckinghamshire; John N. Worth, Bedford, and Brian F. Santaniello, Staffordshire, all of England, assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Nov. 13, 1989, Ser. No. 434,731
Claims priority, application United Kingdom, Nov. 23, 1988, 8827325; Jun. 9, 1989, 8913279
Int. Cl.[5] G01N *21/88*
U.S. Cl. 356—394 15 Claims



1. A method of inspecting a workpiece comprising the steps of:

(a) holding a workpiece at an inspection station,

(b) illuminating a region of the workpiece and observing by means of an observation head the reflected illumination from that region for evaluation of the reflectance properties of the workpiece,

(c) detecting the position of the workpiece to initiate a scanning phase only when the workpiece is in a predetermined positioned relative to the observation head, said observation head emitting signals representative of the reflection from said illuminated region,

(d) scanning the illuminated region along a closed path over the surface of the workpiece for at least one complete circuit of the closed path to define the scanning phase,

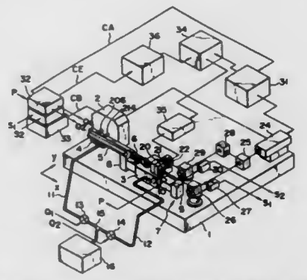
(e) discontinuing the scanning phase when the workpiece leaves the predetermined position; and

(f) processing the signals derived from the observation head only during the scanning phase for indicating acceptability in the case of a workpiece corresponding to certain predefined conditions and indicating a rejection signal in the case of a workpiece which does not correspond to the predefined conditions; wherein the predefined conditions include change of the reflected illumination from a first level representing an unfinished state of the illuminated region of the workpiece to a second level representing the result of further processing; and wherein a rejection is indicated when one of failure to the change, and a variation from the second level representing poor quality of the further processing, is observed.

5,062,712
ALIGNING APPARATUS WITH A COARSE/FINE MOVEMENT CONTROLLER AND AN ULTRAFINE MOVEMENT CONTROLLER

Shigeru Sakata, Yokosuka, and Katsunobu Ueda, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 6, 1990, Ser. No. 488,890
Claims priority, application Japan, Mar. 7, 1989, 1-54601; Mar. 7, 1989, 1-54602; Dec. 28, 1989, 1-344352; Feb. 7, 1990, 2-26131
Int. Cl.[5] G01B *11/14*
U.S. Cl. 356—400 13 Claims



1. A coarse/fine movement aligning apparatus comprising:

coarse movement driving means for coarsely moving

fine adjustment means for finely moving the object to be aligned;

position detection means for detecting a position of the object to be aligned;

coarse/fine movement control means for selectively and simultaneously operating said coarse movement driving means and said fine adjustment means based on a difference between the detection position by said position detection means and a target position of the object to be aligned; and

ultrafine movement control means for ultrafinely operating said fine adjustment means to cause the object to be aligned to coincide with the target position.

5,062,713
METHOD FOR DETERMINING THE RESIDENCE TIME DISTRIBUTION OF A POLYMER EXTRUDER

Stuart Farquharson, Freeport, and Peter T. Keillor, III, West Columbia, both of Tex., assignors to The Dow Company, Midland, Mich.

Continuation of Ser. No. 403,552, Sep. 6, 1989, abandoned. This application Nov. 1, 1990, Ser. No. 608,066
Int. Cl.[5] G01I *3/46*; G01N *21/25*; G01J *3/42*
U.S. Cl. 356—402 1 Claim

1. A method for determining the residence time distribution of a polymer extruder on the line, comprising the steps of:

(a) flowing a polymer from the polymer extruder;

(b) introducing a tracer chemical into the extruder, the tracer chemical having a first wavelength of absorption of light where its absorbency of light is greater than its absorbency of light at a second wavelength;

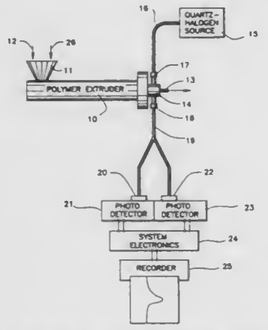
(d) passing a beam of polychromatic light through the polymer flowing from the polymer extruder;

(e) splitting the beam of the light passed through the polymer flowing from the polymer extruder into a first part and a second part;

(f) directing the first part through a first optical filter to a first photodetector to generate a first signal, the wavelength of maximum transmission of the first filter being near the first wavelength of absorption of the tracer chemical, the first signal being a function of the concentration of the tracer chemical in the polymer;

VOL 1132 ISS 1 NO 5 1991 UMI

(g) directing the second part through a second optical filter and to a second photodetector to generate a second signal, the wavelength of maximum transmission of the second filter being near the second wavelength of absorption of



the tracer chemical, the second signal being a function of the background absorbency of the polymer;

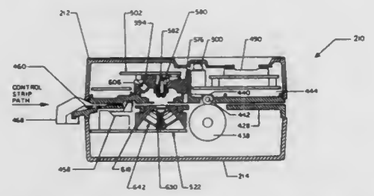
(h) correcting the first signal with the second signal to obtain a signal that over time after step (b) represents the residence time distribution of the polymer extruder.

5,062,714

APPARATUS AND METHOD FOR PATTERN RECOGNITION

Steven H. Peterson, Wyoming, and Timothy R. Friend, Jenison, both of Mich., assignors to X-Rite, Incorporated, Grandville, Mich.

Filed Feb. 12, 1990, Ser. No. 478,475
Int. Cl.[5] G01J *3/51*
U.S. Cl. 356—406 **40 Claims**



1. A method adapted for use in a densitometer system for measuring color characteristics of object samples under test, said method directed to comparison of color data read from a control strip object sample with color data previously stored in a memory means of said densitometer system, said method comprising the steps of:

reading said control strip and storing data samples representative of color samples of said control strips;

storing with each of said data samples a distance measurement indicative of a position of each of said data samples;

formatting said data samples into a plurality of regions, each of said regions comprising a plurality of successive data samples having common parameters within predetermined tolerances;

comparing each of said regions with said previously stored color data; and

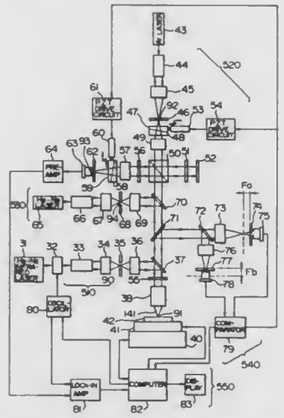
generating an indication to an operator of said densitometer system whether said regions match or do not match said previously stored color data.

5,062,715

METHOD AND APPARATUS FOR DETECTING PHOTOACOUSTIC SIGNAL AND METHOD FOR DETECTING INTERNAL DEFECT OF SEMICONDUCTOR DEVICE

Toshihiko Nakata, and Yukio Kembo, both of Yokohama, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 14, 1990, Ser. No. 479,712
Claims priority, application Japan, Mar. 17, 1989, 1-063604
Int. Cl.[5] G01N *21/25, 21/71*
U.S. Cl. 356—432 **19 Claims**



1. A method for detecting internal structure information of a sample comprising the steps of:

generating a laser beam having a wavelength such that the laser beam penetrates through the sample;

intensity-modulating said laser beam at a desired frequency for causing a short thermal diffusion length μs corresponding to a desired high resolution, said intensity-modulated laser beam being emitted from a first light source;

focusing said intensity-modulated laser beam into a fine spot in a predetermined depth of the sample by removing high order diffraction light components; and

detecting a thermal distortion due to a photoacoustic effect generated at a fine area in the sample by the focused fine spot of said intensity-modulated laser beam in said predetermined depth of the sample, by a thermal distortion detecting means,

whereby said internal structure information of the sample is detected at said desired high resolution in accordance with a thermal distortion signal detected by said thermal distortion detecting means.

5,062,716

STAGED RELEASE BAG AND METHOD FOR MAKING

Daniel J. Conrad; Jerry W. Davenport, both of Murfreesboro, Tenn.; Robert R. Isen, Philadelphia, Pa.; Michael A. Bullock, Murfreesboro, Tenn., and Wilfred E. Riddell, Neenah, Wis., assignors to Kimberly-Clark Corp., Neenah, Wis. and Paramount Packaging Corp., Chalfont, Pa.

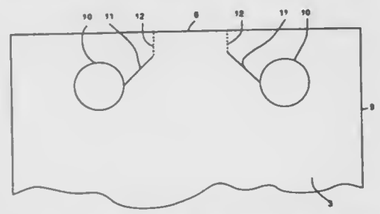
Filed Mar. 7, 1990, Ser. No. 490,014
Int. Cl.[5] B65D *33/06*
U.S. Cl. 383—9 **11 Claims**

1. A multilayered bag of plastic material having a filling edge and being securable to a filling mandrel comprising:

(A) a wicket opening;

(B) a stabilizing cut having first and second ends; and

(C) a release path, said stabilizing cut being formed from a weakened line of bag material, said first end extending from said wicket opening to said release path, said release path being formed from a weak-



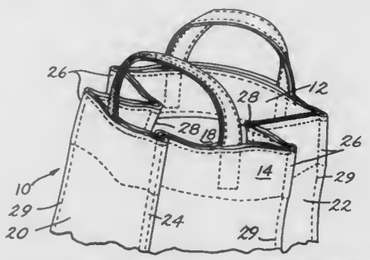
ened line of bag material, said stabilizing cut being oriented so as to form an acute angle with a geometric ray having an origin at said first end and a direction parallel to said filling edge.

5,062,717

SHOPPING BAG WITH HANDLE

Dru Shockley, 3904 McTyres Cove Ct., Midlothian, Va. 23113

Filed Oct. 31, 1990, Ser. No. 606,599
Int. Cl.[5] B65D *33/02, 33/14*
U.S. Cl. 383—20 **10 Claims**



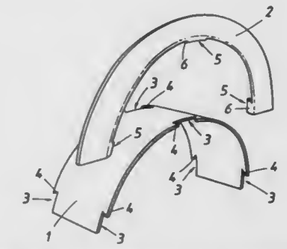
1. A bag structure comprising parallel front and rear panels which face each other, said panels having longitudinal edges and upper portions, rectangular side pieces of pleated construction integrally connected to the corresponding longitudinal edges of said front and rear panels and extending transversely between said front and rear panels when the bag is open for reception of articles; a plurality of top strips at the upper portions of said front and rear panels and said side pieces, whereby a multiple ply border or web extends around the top of said bag; a base portion integrally connected to said side pieces and said front and rear panels to seal the bottom of said bag; said base portion having a selvage continuous around the perimeter of said base portion and having portions of said selvage exposed to the exterior of said bag; multiple bottom folds in said base portion in overlapping relationship with each other, whereby said base is of reinforced planar construction; means for reinforcing the corners of said side pieces extending from the top of said border or web to said base portion; and handle means attached to said border to web in a load-supporting relationship.

5,062,718

ONE-HALF PART OF A SLIDING SURFACE BEARING

Hngo Lenhard-Backhaus; Otto Ebrentraut, both of Gmunden, and Ottmar Haager, Laakirchen, all of Austria, assignors to Miba Gleitlager Aktiengesellschaft, Laakirchen, Austria

PCT No. PCT/AT88/00050, § 371 Date Mar. 3, 1989, § 102(e) Date Mar. 3, 1989, PCT Pub. No. WO89/00250, PCT Pub. Date Jan. 12, 1989
PCT Filed Jul. 6, 1988, Ser. No. 345,706
Claims priority, application Austria, Jul. 6, 1987, 1689/87
Int. Cl.[5] F16C *33/06, 17/10*
U.S. Cl. 384—294 **4 Claims**



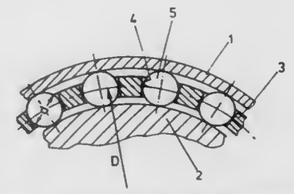
1. A half part of a substantially semi-cylindrical sliding surface bearing having an axis, the bearing consisting of a bearing half-shell having end faces extending transversely to the axis and at least one stop collar constituted by a separate end flange, the end faces of the bearing half-shell defining undercut and open-ended fitting openings extending in an axial direction and the stop collar having axially aligned mounting lugs protruding toward the bearing half-shell and extending into the openings and behind the undercuts thereof.

5,062,719

ROLLER BEARING CAGE

Bernhard Bauer, Hassfurt; Heinz Reichle, Tuttlingen, and Robert Stolz, Schweinfurt, all of Fed. Rep. of Germany, assignors to SKF GmbH, Schweinfurt, Fed. Rep. of Germany

Filed Oct. 23, 1990, Ser. No. 602,123
Claims priority, application Fed. Rep. of Germany, Nov. 2, 1989, 3936451
Int. Cl.[5] F16C *33/54*
U.S. Cl. 384—450 **2 Claims**



1. In a rolling element bearing cage assembly including a cage made of a bent strip of sheet metal having abutting ends connected to one another, wherein the cage is comprised of two end rings and a cage frame surrounding a plurality of windows, said windows retaining and guiding rolling elements, the improvement wherein the center distance of the cage windows in a flat development of the cage section is $\pi d/2$, in which d is the diameter of the rolling elements.

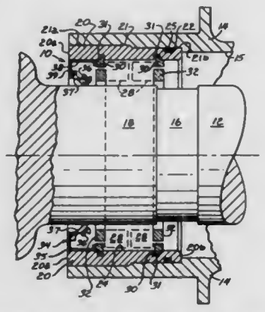
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,720

REPLACEMENT BEARING FOR WORN SHAFTS

David A. Hall, Indianapolis, and John R. Marjancik, Brownsburg, both of Ind., assignors to Rexnord Corporation, Milwaukee, Wis.

Filed Feb. 13, 1990, Ser. No. 479,294
Int. Cl.[5] F16C *25/06*
U.S. Cl. 384—484 10 Claims



1. A bearing assembly for supporting a rotating axle shaft within an axle housing containing axle lubricant, the rotating axle shaft including an annular worn portion and an annular unworn portion, the bearing assembly including:

an annular sleeve means adapted for sealing engagement with the axle housing,

a plurality of bearing element radially positioned on the inside annular surface of the annular sleeve means and adapted to engage an unworn portion or the axle shaft;

a single lip seal member mounted to a retaining housing fitted to the inner annular surface of the annular sleeve means and engageable with the rotating shaft to seal the rotating shaft within the axle housing and to retain the axle lubricant within the bearing assembly and axle housing, and

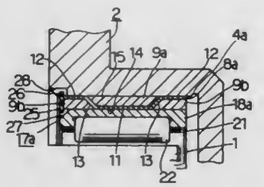
said annular sleeve means includes an outer annular surface containing a sealing compound affixed thereto to provide the sealing engagement with the axle housing.

5,062,721

ROLLING BEARING WITH SLEEVE

Moichi Chiba, Yokosuka, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 27, 1990, Ser. No. 515,937
Claims priority, application Japan, Apr. 28, 1989, 1-107343; May 16, 1989, 1-55253[U]; May 16, 1989, 1-55254[U]
Int. Cl.[5] F16C *27/00*
U.S. Cl. 384—536 4 Claims



1. A rolling-bearing/sleeve assembly, comprising:

a rolling bearing which has an outer ring and a plurality of rolling bodies, such that said outer ring has inner and outer peripheral surfaces and an inner raceway on said inner peripheral surface thereof and said plurality of rolling bodies are rotatably provided on said inner raceway; and

a bearing support sleeve including:

a metal core having outer and inner peripheral surfaces and a high degree of dimensional elasticity to have a larger radial thickness in a free state and fabricated in a short cylindrical shape with a width which is indented across said width in cross section, and

a cylindrical spacer section of synthetic resin having an outer peripheral surface laminated with said core on said outer peripheral surface thereof, such that, at normal temperature, one part of said outer peripheral surface of said core and one part of said outer peripheral surface of said cylindrical spacer section are flush with each other to conjointly form a single outer peripheral surface;

wherein said bearing support sleeve is secured to said outer peripheral surface of said outer ring of said rolling bearing, and

wherein said outer ring forming said rolling bearing is formed on said outer peripheral surface thereof with a concave engaging section,

said core has an edge section and a first tongue leaf projected from said edge section to be inwardly folded to form a first folded leaf which is freely engaged with said concave engaging section, and

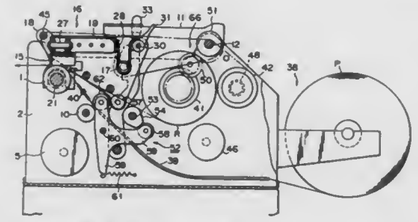
said core has a second tongue leaf projected from said edge section to be outwardly folded to form a second folded leaf for engagement in a housing means for supporting the rolling bearing/sleeve assembly.

5,062,722

THERMAL PRINTER WITH RECIPROCAL PAPER FEED CONTROL

Tsugio Shiozaki, Susono; Satoshi Kitahara, Mishima; Osamu Koizumi, Shizuoka, and Ikuzo Sugiura, Sagamihara, all of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

Division of Ser. No. 256,762, Oct. 11, 1988, Pat. No. 4,953,991.
This application Jul. 12, 1990, Ser. No. 552,405
Claims priority, application Japan, Oct. 14, 1987, 62-157117; May 6, 1988, 63-59824
Int. Cl.[5] B41J *3/20, 11/66*
U.S. Cl. 400—120 8 Claims



1. A thermal printer, comprising:

a platen (1);

platen supporting means (2) for rotatably supporting the platen;

platen driving means (3,5,7) for rotating the platen to feed a printed paper sheet in a downstream direction;

a thermal head (15) disposed opposite the platen for printing a paper sheet;

head driving means (11,16) for selectively moving the thermal head between a first position in which the thermal head is pressed against the platen for printing, and a second position in which the thermal head is disengaged from the platen;

sheet cutting means (151) disposed on the downstream side of the platen for cutting the paper sheet;

sheet transportation means (9,10,62) which is selectively brought to a first operating state, in which it conveys the paper sheet in said downstream direction, and a second operating state, in which it conveys said paper sheet in an upstream direction; and

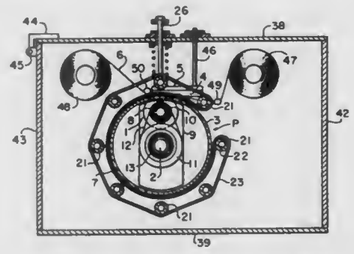
control means (152) for controlling the head driving means, the sheet transportation means and the cutting means such that after the paper sheet is cut by the cutting means, the paper sheet is conveyed in the upstream direction while the thermal head is positioned in the second position, disengaged from the platen, until a cut end of a remaining portion of the paper sheet is situated on the platen, and for thereafter causing the thermal head to be brought to the first position, and the paper sheet to be conveyed in the downstream direction for printing.

5,062,723

PRINTING APPARATUS

Fumio Takeda, Ushiku; Takashi Yoshida, Ibaraki; Hiroya Taguchi, Tokyo; Tsutomu Omine, Mito, and Mitsugu Asano, Ibaraki, all of Japan, assignors to Hitachi, Ltd. and Hitachi Koki Co., Ltd., both of Tokyo, Japan

Filed May 17, 1989, Ser. No. 353,695
Claims priority, application Japan, May 18, 1988, 63-119123
Int. Cl.[5] B41J *3/02*
U.S. Cl. 400—120 24 Claims



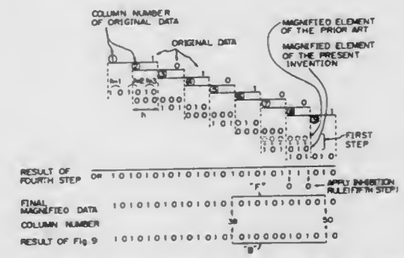
12. A thermal-transfer printing apparatus of the type which effects thermal-transfer printing on a printing medium using an ink film, the thermal-transfer printing apparatus comprising: a rotatably supported platen roller having a surface of an elastic material; a thermal printing head facing said platen roller and arranged within a longitudinal range in the axial direction thereof; a pair of drums having a high rigidity arranged in parallel on both sides in the axial direction of said platen roller and provided as separate independent members with respect to said platen roller, said drums being positioned such that both side sections of the printing medium reach respective peripheral surfaces thereof and having a circumference sufficient to allow an entire length in the feed direction of the printing medium to be wound around the drums, said platen roller having a diameter smaller than a diameter of said drums and a platen roller surface not protruding beyond said drums and at the same level with the peripheral surfaces of the drums at the position where the platen roller faces said thermal printing head; a means for driving said drums; and printing medium retaining means arranged around the respective outer peripheries of said drums and adapted to continuously retain both side sections of the printing medium in such a manner that the retaining means are movable with respect to said peripheral surfaces, said side sections of the printing medium being in contact with the respective outer peripheries of said drums and being held between said printing medium retaining means and said outer peripheries of said drums.

5,062,724

METHOD OF MAGNIFYING A BIT MAP FONT DATA IN A HORIZONTAL DIRECTION

Shinichi Iizuka, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 27, 1989, Ser. No. 302,390
Claims priority, application Japan, Jan. 29, 1988, 63-020823
Int. Cl.[5] B41J *5/30*
U.S. Cl. 400—121 3 Claims



1. A method of processing original bit map font data for magnification, by a predetermined magnification factor in a horizontal direction, comprising:

a first, data preprocessing step of reducing the number of successive "0's" in a portion of the bit map font data, which portion represents a solid line in the horizontal direction and is to be magnified by the predetermined magnification factor, to not more than a first predetermined number, by replacing each of one or more of the "0's" in said portion with a "1" so that the resulting number of successive "0's" in said portion is not more than said first predetermined number of successive "0's", said first predetermined number being determined in accordance with limiting the number of successive "0's" in the corresponding, magnified portion of the magnified bit map font data to not more than a second predetermined number; and

a second step of magnifying said bit map font data, after said replacement and the predetermined magnification factor, for half density printing in the horizontal direction, the second predetermined number being defined in accordance with avoiding the appearance of a blank segment in printing of the solid line in the horizontal direction, as represented by and in accordance with the corresponding, magnified portion of the magnified bit map font data.

5,062,725

TYPEWRITER OR PRINTER RIBBON AND METHOD FOR ITS MANUFACTURE

Ian W. Hogarth, Turriff, England, and Friedhelm Kiewning, Holo, Switzerland, assignors to Franz Buettner AG, EGG/ZH, Switzerland

Filed Sep. 19, 1990, Ser. No. 585,316
Claims priority, application Fed. Rep. of Germany, Ang. 14, 1990, 4025758
Int. Cl.[5] B41J *32/00*
U.S. Cl. 400—195 1 Claim

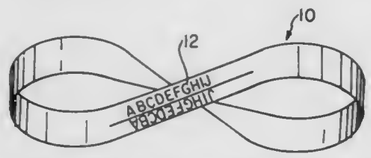
1. A method for the manufacture of typewriter or printer ribbons comprising the steps of:

coating a support film with a plurality of inked strips offset relative to one another at equal, predetermined intervals and alternatively on the front and back surfaces of said film;

cutting said film into linear ribbons along a longitudinal direction such that only one half of said front surface and only one half of said back surface is coated with said inked strips;

VOL 1132 ISS 1 NO 5 1991 UMI

rotating said ribbons individually through 180 degrees about its longitudinal axis; and



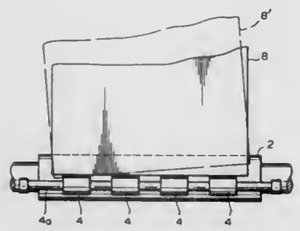
connecting the ends of said individual ribbons by adhesive means applied to surfaces of the ribbons not coated with ink.

5,062,726

PROCESS FOR SETTING A CUT PRINTING SHEET

Mitsugu Inomata; Fumio Nakao, both of Kawasaki; Takashi Maekawa, Machida; Kaneastu Uchiyama, Hachioji; Tetsu Endo, Komae; Kazuo Nobue, Okayama; Masaki Shimazaki, Kawaguchi, and Shigeki Idouji, Inagi, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 279,258, Dec. 1, 1988, abandoned, which is a continuation of Ser. No. 927,974, Nov. 7, 1986, abandoned. This application Oct. 17, 1989, Ser. No. 423,597
Claims priority, application Japan, Nov. 9, 1985, 60-249940
Int. Cl.[5] B41J *13/26*
U.S. Cl. 400—630 **3 Claims**



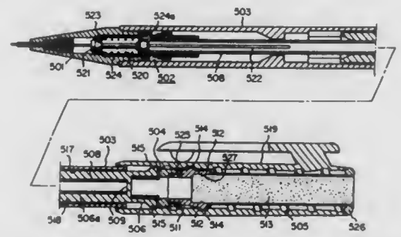
1. A process for feeding a cut sheet into a printer and aligning said cut sheet with said printer for printing, said printer comprising a cylindrical platen for supporting and feeding the printing sheet, at least one pinch roller, in at least a cut sheet printing mode of said printer, in resilient contact with said platen to cooperate therewith to feed the cut sheet, and an inclined sheet guide on which a cut sheet is loaded, wherein a leading edge of said cut sheet is inserted into a space between said platen and said pinch roller so that the cut sheet is ready to be compulsorily fed by said platen and said pinch roller, means for indicating that a cut sheet is loaded on said sheet guide and means for driving said platen characterized in that, said cut sheet feeding and aligning process comprises the steps of loading a cut sheet on said inclined sheet guide so that said cut sheet is freely supported on said sheet guide and said leading edge thereof is inserted into said space but not pinched between said platen and said pinch roller, rotating said platen in the reverse direction by a predetermined amount of rotation and pushing up said cut sheet in gravity contact at said leading edge with said platen rotating in said reverse direction to correct the posture of said cut sheet on said sheet guide and align the leading edge of said cut sheet with said platen and then rotating said platen in the forward direction and drawing said correct posture cut sheet between said forward direction rotated platen and said pinch roller and setting said cut sheet at a pre-set print start line position.

5,062,727

WRITING TOOL

Shubei Kageyama; Toshihiko Kageyama; Youichi Nakazato, and Yoshihide Mitsuya, all of Kawagoeshi, Japan, assignors to Kotobuki & Co., Ltd., Kyoto, Japan

Division of Ser. No. 255,101, Oct. 7, 1988. This application Nov. 21, 1988, Ser. No. 274,297
Claims priority, application Japan, Oct. 9, 1987, 62-155300[U]; Oct. 9, 1987, 62-155301[U]; Oct. 9, 1987, 62-155302[U]; Nov. 6, 1987, 62-170189[U]; Nov. 6, 1987, 62-170190[U]; May 18, 1988, 63-66194[U]
Int. Cl.[5] B43K *29/02, 21/16, 21/08*
U.S. Cl. 401—52 **4 Claims**



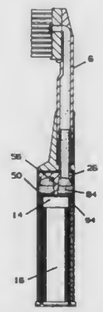
1. A writing tool comprising; an outer sleeve; a writing shaft having a head member on one end and a container being inserted in said outer sleeve; a tubular cap mounted on said outer sleeve; said tubular cap having a spiral shaped groove on an inner surface thereof extending from a stepped portion at one end of said tubular cap to a portion having a larger inside diameter at the other end of said tubular cap; a tubular body in said outer sleeve having a bearing surface engaging an end of said container on said writing shaft; said tubular body being axially movable and locked against rotational movement by means on an inner surface of said outer sleeve; an elongated slit in said tubular body; a stick-shaped object holder being inserted in said tubular body and having a projection engaging said elongated slit; said elongated slit allowing axial movement of said stick-shaped object holder while preventing rotational movement; said projection engaging said spiral groove on the inside surface of said tubular cap for axial movement when said tubular cap is rotated.

5,062,728

DENTIFRICE DISPENSING TOOTHBRUSH WITH REPLACEABLE CARTRIDGE

Youti Kuo, 88 Foxbourne Rd., Penfield, N.Y. 14526

Filed Jul. 31, 1990, Ser. No. 563,307
Int. Cl.[5] B43K *5/06, 5/18;* **A46B** *11/00*
U.S. Cl. 401—176 **16 Claims**



1. A dentifrice dispensing toothbrush comprising:

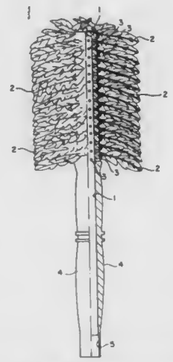
a. a housing having a body and a neck;
b. a reservoir situated in the body of the housing;
c. a removable cartridge positioned within the reservoir for storing dentifrice material, said removable cartridge comprising a hollow cylinder and a follower disc having a shape which is conformable to the shape of the cylinder base;
d. pumping means positioned within the housing and comprising a piston with an orifice for applying a pumping force to the dentifrice material to cause a controlled quantity of it to flow from the reservoir and through the orifice;
e. a brush head comprising a platform with an opening therethrough and a series of bristles which are attached to the platform;
f. a plunger for driving the piston and being slidably attached to the neck of the housing and to the brush head, said plunger being comprised of a hollow conduit having one of its ends in communication with the piston orifice and its remaining end in communication with the opening in the platform of the brush head, whereby dentifrice material flows through the hollow conduit and through the opening in the platform to the brush head when a pumping force is applied; and
g. locking means for preventing movement of the piston when a pumping force is applied and the follower disc is at its terminal position, said locking means comprising a spacer which is in simultaneous contact with the piston and the follower disc when the follower disc is at its terminal position.

5,062,729

COMBINATION OF CAR WASHING BRUSH AND DUSTER UTILIZING FEATHER OF WATERFOWLS

Mitsuhiro Yamamoto, 1487-8, Ooaza Shiwanini, Shiwa, Higashi Hiroshima shi, Hiroshima, Japan

Filed May 14, 1990, Ser. No. 523,396
Int. Cl.[5] A46B *11/04;* **A47L** *13/22*
U.S. Cl. 401—287 **2 Claims**



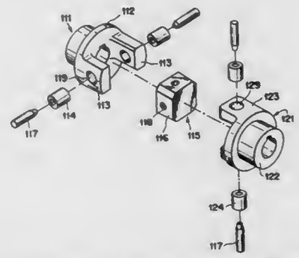
1. A combination of a car washing brush and duster utilizing feather of waterfowls comprising;
a stem made of a pipe and having distal and proximal halfs, said distal half of said stem having a number of water fountain holes, and said proximal half being served as a grip;
a dusting portion provided substantially on said distal half of said stem and made of feather of waterfowls; and
a water hose insertion hole provided at a proximal end of said proximal grip;
wherein wax is sprayed to said feather of waterfowls upon applications.

5,062,730

UNIVERSAL JOINT

Hiroyasu Tomii, Kawaguchi, and Yukio Kaneko, Yono, both of Japan, assignors to Nippon Piston Ring Co., Ltd. and Kay Seven Co., Ltd., both of Tokyo, Japan

Filed Aug. 7, 1990, Ser. No. 563,388
Claims priority, application Japan, Aug. 14, 1989, 1-207897
Int. Cl.[5] F16D *3/00*
U.S. Cl. 403—57 **3 Claims**



1. In a universal joint for use with a first and second rotation shaft, said universal joint including a first joint body provided with a first cylindrical hub portion and a first yoke portion, a second joint body provided with a second cylindrical hub portion and a second yoke portion, and a coupling member for coupling together the first and the second yoke portions therethrough, the improvement comprising:
the first and second yoke portions **(113, 123)** being provided integrally with the first and second hub portions **(112, 122)**, respectively, and extending from diametrically opposite sides of the hub portions toward each other in axial directions thereof, the first and second yoke portions being formed with first and second pairs of bearing holes **(119, 129)**;
first and second pairs of open ended sleeve members **(114, 124)** force-fittable with the first and second pairs of bearing holes, respectively;
the coupling member **(115)** comprising a rectangular segment **(116)** having four side walls formed with holes **(118)**, and four pins **(117)** provided separately from the rectangular segment **(116)** prior to assembly and forcibly fittable into corresponding ones of said holes **(118)** to provide the coupling member **(115)** with a cruciform configuration upon assembly, each of the pins **(117)** being rotatably and axially slidably engaged with each of the sleeve members **(114), 124)** so as to absorb force generated by an arrangement of said first and second rotation shafts, whereby said first and second joint bodies **(111, 121)** are coupled together by the coupling member **(115)**.

5,062,731

LOCKABLE/UNLOCKABLE PIVOTED CONNECTION APPARATUS

Donald M. MacMillan, 26607 30A Ave., Aldergrove, B.C., Canada V0X 1A0

Filed Feb. 8, 1990, Ser. No. 476,741
Int. Cl.[5] F16C *11/10*
U.S. Cl. 403—96 **1 Claim**

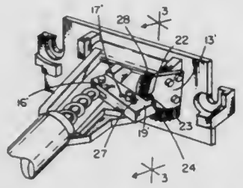
1. Apparatus comprising a first bracket connected to a second bracket by a pivotable connection having a pivot pin with end play which allows relative movement between said first and second brackets, said pivot pin having a centerline, said apparatus further comprising:
a plate having a circular segment configuration with a center, a first side and a second side and being attached to said first bracket with said plate perpendicular to said centerline and with said center at said centerline, said second side being provided with a plurality of radial serrations,

VOL 1132 ISS 1 NO 5 1991 UMI

a backstop element being attached to said first bracket in close proximity to said first side of said plate,

a clamping mechanism attached to said second bracket and having an adjustable part, said adjustable part having a plurality of points and being attached to said mechanisms such that one of said points is in close proximity to face said plurality of radial serrations on said second side of said plate,

whereby when said clamping mechanism is operated and said point is moved against said plate and said plate is moved against said backstop element so that relative motion is prevented between said first and second brackets,



and whereby said adjustable part having said plurality of points being adjustable with any one of said plurality of points in said close proximity to said plurality of radial serrations on said second side of said plate,

said backstop element further comprising a set screw having a longitudinal axis and an end portion, said axis being perpendicular to said plate, said end portion of said set screws being in close proximity to said first side of said plate and adjustment of said set screw adjusts the proximity of said backstop element to said first side and said end play allows one of said points to engage one of said plurality of radial serrations of said second side of said plate.

5,062,732

TUBULAR WELDED RAILING SYSTEM

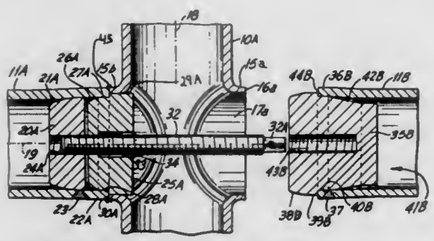
John E. Ballerstein, Fredericksburg, Va., assignor to Standard Steel Rail Technology, Harrison, N.Y.

Continuation-in-part of Ser. No. 341,937, Apr. 21, 1989, Pat. No. 4,952,092. This application Aug. 6, 1990, Ser. No. 563,268

The portion of the term of this patent subsequent to Aug. 28, 2007, has been disclaimed.

Int. Cl.[5] F16B *7/08*

U.S. Cl. 403—174 **5 Claims**



1. A metal tube railing system comprising:

(a) a plurality of vertically aligned metal tubular posts each post having an outer diameter and at least one circular annular boss having substantially the same outer diameter as said post and having a flat annular lip, said boss being formed from said post and being integral therewith;

(b) a plurality of tubular metal side rails extending between said posts with each rail having opposite ends, the outer diameter of each of said side rails being the same as the outer diameter of said annular lip of said boss and both ends of each rail having a flat annular edge;

(c) a circular ring like weld means to join said side rail edges and said boss flat annular lips to thereby form circular weld joints.

5,062,733

JOINING ELEMENT FOR BEAMS

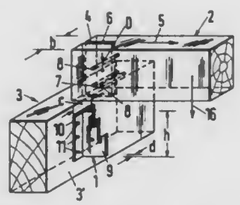
Yanbo Cholid, Bremen, Fed. Rep. of Germany; Trygve Theordorsen, Jar, Norway, and Jurgen Wilhelmi, Syke - Wachendorf, Fed. Rep. of Germany, assignors to Bulldog Beratungs- und Vertriebs-GmbH, Syke, Fed. Rep. of Germany

Filed May 3, 1990, Ser. No. 517,680

Claims priority, application Fed. Rep. of Germany, May 3, 1989, 3914618

Int. Cl.[5] F16B *7/08*

U.S. Cl. 403—189 **17 Claims**



1. Joining element made of metal, to connect the end face of a first beam to a second beam running crosswise to this first beam, or to another structural component, wherein the first beam's end section, which is to be connected to the second beam, is provided with an essentially centered vertical slot running in the longitudinal direction of the first beam from its end face that is to be connected, and with several drill holes disposed crosswise to and in the vicinity of the slot, in each of which a rod-shaped fastening means extending essentially across the width of the first beam, such as a dowel pin or the like, is disposed or is to be disposed, with at least one connecting flange protruding from the connecting surface of the second beam in the longitudinal direction of the first beam and to be attached to the second beam with a holding flange, the dimensions of which connecting flange essentially match the corresponding dimensions of the slot, and which connecting flange is provided with receiving openings each of which is to accept one rod-shaped fastening means disposed in the first beam; characterized in that at least one first receiving opening (12.1) is dimensioned larger, at least in the longitudinal direction (5) of the first beam (2), than the cross-section, extending in this direction, of the rod-shaped fastening means (8) to be disposed in this first receiving opening (12.1), by so much that this fastening means is not engaged, either during/after assembly or when the first beam (2) is put under load, with at least one side wall (15 and/or 14) of the first receiving opening (12.1) running crosswise to the side wall (13) of the first receiving opening (12.1) that supports the rod-shaped fastening means (8).

5,062,734

SHAFT COUPLING DEVICE

David G. Vanzee, and Douglas A. Ostlind, both of Rte. 3, Box 875, Rd. 97, Woodland, Calif. 95695

Filed Nov. 8, 1990, Ser. No. 610,741

Int. Cl.[5] F16B *2/02*

U.S. Cl. 403—313 **22 Claims**

4. A shaft coupling device for rigidly connecting two shafts for mutual rotation comprising, in combination:

a first sleeve portion with a hollow inner bore,

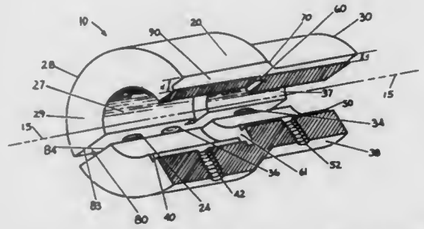
a second sleeve portion juxtaposed with said first sleeve portion and having a different size hollow inner bore than said hollow inner bore of said first sleeve portion, and

a means for attaching both said first sleeve portion and said second sleeve portion of said coupling device onto a first shaft of one size complemental to said first sleeve bore and onto a second shaft of another size complemental to said second sleeve bore;

whereby two rotating shafts of distinct sizes may be rigidly coupled together;

and wherein said inner bore of said first sleeve has a keyway formed in an inner surface of said inner bore and said inner bore of said second sleeve has a separate keyway formed in an inner surface of said inner bore;

and wherein said keyways are rectangular cross-section channels of constant depth which run from a first end and a second end longitudinally along the entirety of said first sleeve portion and second sleeve portion,



whereby keys of complemental shape to said keyways may fit within said keyways and also within two similar keyways formed in the shafts restricting the shafts and said first sleeve and said second sleeve from rotation relative to each other;

and wherein the keys are held in place by a plurality of key screws which fit within threaded keyway holes which extend radially through said first sleeve and said second sleeve from an outer surface to within said keyways,

whereby when the keys are in place within said keyways said key screws will contact said keys with a tip thereof, thereby preventing the keys from moving longitudinally.

5,062,735

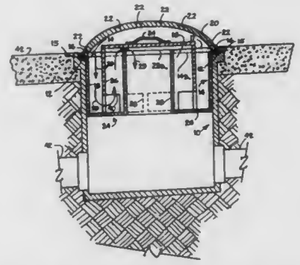
SELF SEALING DOMED SEWER COVER ASSEMBLY

Carl J. Gaudin, P. O. Box 74823, Baton Rouge, La. 70874

Filed Dec. 4, 1989, Ser. No. 445,766

Int. Cl.[5] E02D *29/14*

U.S. Cl. 404—25 **10 Claims**



1. A self sealing sewer cover assembly for preventing gases from escaping from a sewer inlet level with the ground comprising:

a. insert means having a top end and a bottom end for connection to a sewer inlet having generally vertical interior walls, said insert means having generally vertical walls on the exterior thereof for parallel alignment with said generally vertical interior walls of said sewer inlet,

b. trough means connected to said bottom end of said insert means and extending completely around the interior of said generally vertical walls of said insert means for containing water, said trough means having an inner generally vertical wall defining an opening through which water overflowing from said trough means can flow, said inner generally vertical wall of said trough means having a height extending to the level of the ground in which the sewer inlet is located to maintain the level of liquid in said insert means at the level of the ground surrounding the said sewer inlet,

c. a lid means lying in said trough and over and around said opening to prevent gases from traveling through said opening when said trough means is filled with water while permitting liquids to flow through said opening, and

d. a dome shaped cover means lying on top of said insert means, said cover means having a plurality of channels therein through which liquids may flow.

5,062,736

SNOW MELTING METHOD UTILIZING HEAT RETAINING FUNCTION OF UNDERGROUND AQUIFER WITHOUT SPRINKLING WATER

Kohei Katsuragi, and Takayuki Hiyama, both of Yamagata,, Japan, assignors to Nihon Chikasui Kaihatsu Kabushiki Kaisha, Yamagota, Japan

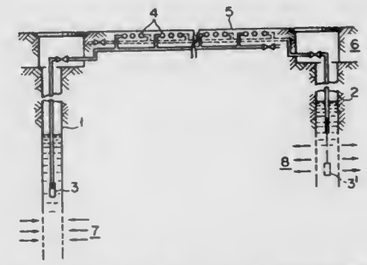
Filed Jun. 19, 1989, Ser. No. 368,409

Claims priority, application Japan, Aug. 8, 1988, 63-197688

The portion of the term of this patent subsequent to Jun. 18, 2008, has been disclaimed.

Int. Cl.[5] F24J *3/08*; F28D *7/12*

U.S. Cl. 404—72 **2 Claims**



1. A method of melting snow lying on a structure above the ground by utilizing a heat retaining function of an aquifer located in a deep region of the ground, said method comprising the steps of:

(a) pumping up through a first artesian well, in a cold snow season, underground water warmed by geothermy to a temperature of from 15° to 18° C. in an aquifer from 50 to 200 meters below the surface of the ground;

(b) causing the pumped up water to flow at a speed of 1.5 meters per second through pipe means laid in said structure to store heat of the underground water in the structure and to transfer the heat of the underground water to snow lying thereon to melt the snow;

(c) returning through a second artesian well the underground water once used and cooled by heat transfer to a temperature from 7° C. to 8° C. into a second aquifer which has a depth of at least two-thirds of said first mentioned aquifer;

(d) storing the underground water returned through the second well in the second aquifer to warm the returned underground water in about six months to a temperature from 15° to 18° C. by the heat retaining function of the second aquifer;

(e) pumping up through the second artesian well, in the next cold snow season, the underground water in the second aquifer;

(f) causing the pumped up water from the second artesian

VOL 1132 ISS 1 NO 5 1991 UMI

well to flow at a speed of 1.5 meters per second through said pipe means to melt the snow on said structure;

(g) returning the underground water used and cooled in the pipe means for the second time into the first aquifer through the first artesian well;

(h) storing the underground water returned through the first well in the first aquifer to warm the returned water by the heat retaining function of the first aquifer; and

(i) repeating the above steps every two years.

5,062,737

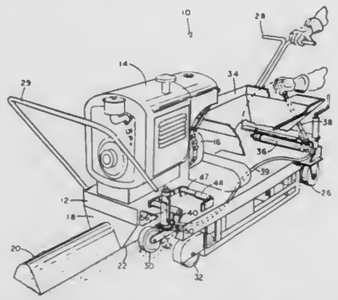
POWERED HEIGHT CHANGER FOR IMPROVED POWER CURBER

Terry G. Samuels, 489 Pine Hill Blvd., Geneva, Fla. 32732

Continuation-in-part of Ser. No. 167,955, Mar. 14, 1988, abandoned. This application Apr. 21, 1989, Ser. No. 341,373

Int. Cl.[5] E01C *19/52*

U.S. Cl. 404—98 15 Claims



1. A curb laying machine comprising a chassis, steerable front wheels supporting a forward portion of said chassis, and at least one rear wheel mounted on a rearward portion of said chassis, an engine carried on said chassis, and a curb mold mounted on the underside of a rear portion of said chassis with its lower edges normally in ground contact, said curb mold containing a rotatable auger driven in rotation by the engine, with the rotation of the auger bringing about the extrusion of curbing through said curb mold onto the ground as the machine moves slowly forward, the improvement comprising a height changing mechanism in operative relationship with said rear wheel, said rear wheel being located in the vicinity of said curb mold, said height changing mechanism including the use of an extensible fluidic actuator under control of an operator of said machine, said actuator being mounted in an operative relationship with said rear wheel, said actuator serving, when caused by the machine operator to extend, to bring about a degree of lifting of the rear portion of said chassis, thus to remove the lower edges of said curb mold from ground contact, and thereby enabling the operator to turn or move said machine to a new operative position, and a bleed valve under control of the operator, located in the fluid line in which said extensible fluidic actuator is operatively disposed, the opening of said bleed valve enabling said extensible fluidic actuator to rapidly return, under the bias provided by the weight of said chassis, to its non-extended condition, thereby enabling the lower edges of said curb mold to return promptly into contact with the ground, whereby the operator can immediately resume the curb laying operation in the new operative position.

5,062,738

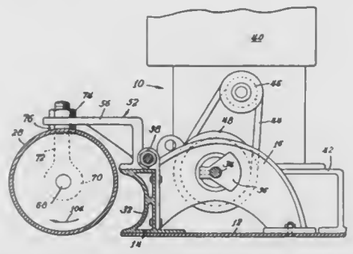
ROLLER SCREED

Joe M. Owens, 842 Lake Holiday Dr., Sandwich, Ill. 60548

Filed Apr. 17, 1990, Ser. No. 510,008

Int. Cl.[5] E01C *19/00*

U.S. Cl. 404—114 11 Claims



1. A portable screed for smoothing and leveling an area of freshly poured concrete, the screed having an elongated screed plate with a flat bottom bearing surface and having means extending at one side of the screed plate along the length of the screed plate for accumulating and transporting quantities of plastic concrete, the improvement comprising

a. a cylindrical horizontal smoothing roller secured to the screed plate, said roller having a length substantially coextensive with the length of the screed plate,

b. means rigidly mounting said roller in relation to said screed plate immediately adjacent and in front of said means for accumulating and transporting, such that when the screed is used to smooth and level concrete, said roller encounters portions of plastic concrete before said means for accumulating and transporting encounters such portions,

c. means for adjusting the elevation of said roller relative to the bottom bearing surface of said screed plate, and

d. means for rotating said roller about its axis in a direction opposite to the direction of travel of the screed.

5,062,739

ZIGZAG BREAKWATER

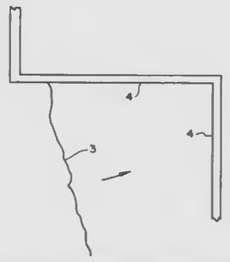
Albrecht Klockner, Spreitgen, D-5223 Numbrecht, Fed. Rep. of Germany

Continuation of Ser. No. 544,016, Jun. 27, 1990, abandoned, which is a continuation of Ser. No. 810,288, Jan. 28, 1986, abandoned. This application Feb. 19, 1991, Ser. No. 657,378

Claims priority, application Fed. Rep. of Germany, Sep. 25, 1982, 3235602

Int. Cl.[5] E02B *3/06*

U.S. Cl. 405—21 1 Claim



1. A zigzag breakwater with essentially straight-line stationary zigzag elements embedded into the sea bottom and whose side walls face the attacking waves essentially run perpendicular to the calm water surface, characterized by the fact that the side walls form right angles with each other, the length (l) of the side walls is at least 5 to 8 times as great or greater than the depth of water (d) and that the total height (h) of the wave-reflecting side walls (4) is 2 to 2.5 times greater than the depth of the water wherein d is measured from a breakwater grounding to a calm water level at high tide.

5,062,740

LAMINATE FORMING AND APPLYING APPARATUS AND METHOD AND PRODUCT THEREFROM

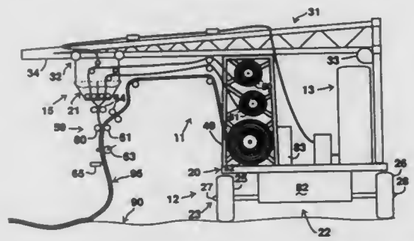
Le Roy Payne, 3300 Nicholas La., Molt, Mont. 59057

Division of Ser. No. 417,501, Oct. 5, 1989, Pat. No. 4,955,760, which is a continuation-in-part of Ser. No. 235,205, Aug. 23, 1988, Pat. No. 4,872,784. This application Aug. 27, 1990, Ser. No. 572,397

The portion of the term of this patent subsequent to Sep. 11, 2007, has been disclaimed.

Int. Cl.[5] E01C *19/00*; E02B *11/02*

U.S. Cl. 405—270 19 Claims



1. A method of continuously forming a continuous structural laminate and applying said laminate to a surface including the steps of dispensing continuously a first solidifiable liquid polymeric mixture uniformly to a continuously advancing first porous blanket, dispensing continuously a second solidifiable liquid polymeric mixture uniformly to a continuously advancing second porous blanket, dispensing continuously an individually pre-selected solidifiable liquid polymeric mixture to each remaining continuously moving porous blanket, combining said advancing porous blankets into a single laminate with each blanket closely adjacent to adjoining blankets, monitoring the rate of advance of each blanket, coordinating said rate of advance with the flow rate of the liquid polymeric mixture thereon, monitoring the relationship of the blankets to one another in the combined laminate, immediately applying the freshly formed laminate to a surface continuously while said laminate is deformable and adhesive, simultaneously conforming said laminate to said surface configuration and setting said laminate in the configuration thereof.

5,062,741

CABLE WITH RADIAL ELEMENTS FOR CONVEYING MATERIALS BEHAVING AS FLUIDS THROUGH DUCTS

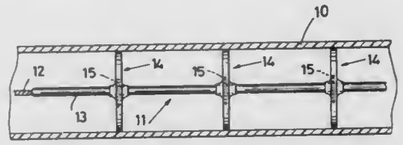
Camillo Pirovano, Località Cavigiolo, 22052 Cernusco Lombardone (Como), Italy

Filed Apr. 12, 1990, Ser. No. 507,780

Claims priority, application Italy, Apr. 14, 1989, 20147 A/89

Int. Cl.[5] B65G *53/40*

U.S. Cl. 406—76 8 Claims



1. In a conveyor apparatus for conveying materials behaving substantially like fluids through a tubular duct with a flexible cable having a plurality of conveying elements extending substantially radially therefrom and fixed along the length thereof at spaced intervals, the improvement comprising a plurality of spaced pins that pass through the cable with either end thereof protruding radially outward from the cable in opposite directions, and a plurality of conveying elements, each of which is molded in place around a pin and the adjoining portions of the cable so as to completely embed the pin within the element.

5,062,742

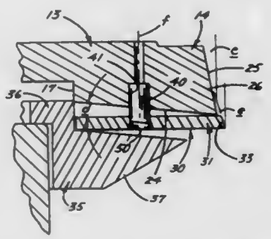
ANGULAR INTERLOCK FOR THE REPLACEABLE WAFER OF A SHAPER CUTTER

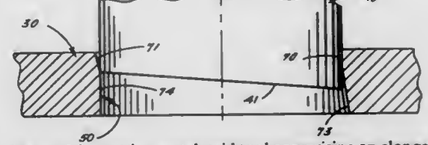
Edward W. Haug, Rockford, Ill., assignor to Pfauter-MAAG Cutting Tools Limited Partnership, Rockford, Ill.

Filed May 24, 1990, Ser. No. 528,241

Int. Cl.[5] B23F *21/28*

U.S. Cl. 407—28 11 Claims





1. A tool for cutting metal, said tool comprising an elongated body having a circular cross-section and a forward end surface, said forward end surface being generally frustoconical, a plurality of radially projecting teeth formed on the periphery of said body adjacent said forward end surface and spaced angularly around said body, a thin and flexible sheet metal wafer located forwardly of said forward end surface of said body and having a plurality of radially projecting cutting teeth spaced angularly around its periphery, the number of cutting teeth on said wafer being equal to the number of teeth on said body, each cutting tooth on said wafer being alined angularly with one of the teeth on said body, the cutting teeth on said wafer being larger at their ends, sides and roots than the corresponding teeth on said body whereby the cutting teeth on the wafer extend slightly beyond the ends, sides and roots of the teeth on said body, means for holding said wafer in a flexed condition and in rigid face-to-face conformity with said frustonical forward surface whereby the cutting teeth on said wafer are backed by the teeth on said body, and anti-rotation means for preventing said wafer from turning relative to said body, said anti-rotation means comprising a hole in said body and an alined circumferentially continuous hole in said wafer, a pin fixed within the hole in said body and projecting into the hole in said wafer, the hole in said wafer having first and second end portions, the hole in said wafer being shaped such that the first end portion of such hole engages said pin around one side of the pin and is spaced from the pin around the opposite side of the pin while the second end portion of such hole engages said pin around said opposite side of the pin and is spaced from the pin around said one side of the pin.

VOL
1132
ISS
1
NO
5
1991
UMI

5,062,743

DRILLING DEVICE

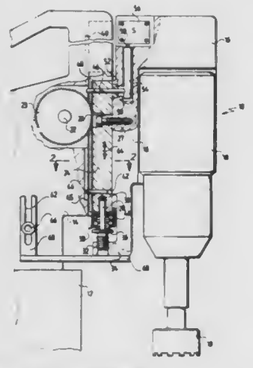
Dietrich Wieland; Martin Kalb, both of Wendelstein; Werner Grupp, Vaihingen, and Michael Nothofer, Kornwestheim, all of Fed. Rep. of Germany, assignors to C. & E. Fein GmbH & Co., Fed. Rep. of Germany

Continuation-in-part of Ser. No. 335,609, Apr. 10, 1989, abandoned. This application Jul. 10, 1990, Ser. No. 550,731

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1990, 9010313

Int. Cl.[5] **B23B** *47/24, 45/14*

U.S. Cl. 408—6 **25 Claims**



1. A drilling device comprising

a foot having a fixing device acting with a holding force on an object for fixing said foot on said object,

a holder displaceable with respect to said foot in a feed direction,

a drilling machine tool carried by said holder,

a feed drive comprising an electromotor for driving said holder in said feed direction,

a controlling means for controlling the feed velocity of the feed drive in response to said holding force of said fixing device.

5,062,744

APPARATUS FOR CONFIRMING MOVEMENT OF TAP WHEN RIGID TAPPING

Kosei Nakamura, Hino, and Kazuhisa Numai, Yamanashi, both of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

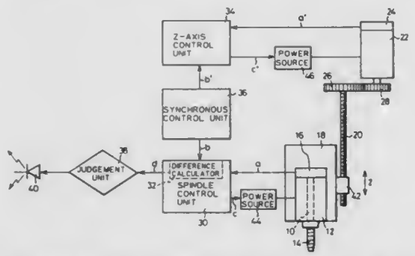
PCT No. PCT/JP89/00747, § 371 Date Mar. 26, 1990, § 102(e) Date Mar. 26, 1990, PCT Pub. No. WO90/01388, PCT Pub. Date Feb. 22, 1990

PCT Filed Jul. 27, 1989, Ser. No. 474,758

Claims priority, application Japan, Aug. 3, 1988, 63-192824

Int. Cl.[5] **B23G** *1/44*

U.S. Cl. 408—8 **1 Claim**



1. An apparatus for confirming movement of a tap when rigid tapping with a machine tool having a built-in spindle motor for directly driving a spindle to rotate and a Z-axis motor for driving the spindle to move linearly along an axis of the spindle, comprising:

a detecting means for detecting a rotation of said spindle;

a spindle control means for outputting a signal to control a rotation of said spindle motor according to a signal output from said detecting means;

a Z-axis control means for outputting a signal to control a rotation of said Z-axis motor;

a synchronous control means for outputting each synchronous signal to said spindle control means and said Z-axis control means, respectively; and

a judgement means for judging a follow-up ability of said spindle motor, by comparing a prescribed reference signal with a signal of a rotational error of said spindle calculated by said spindle control means, using the synchronous signal from said synchronous control means and the signal from said detecting means.

5,062,745

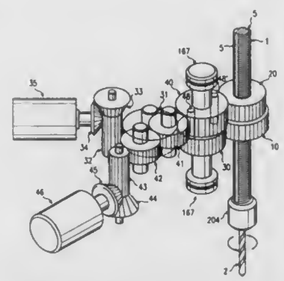
MECHANICAL PECK DRILL AND METHOD

Richard E. Eckman, Houston, Tex., assignor to Dresser Industries, Inc., Dallas, Tex.

Filed Jun. 30, 1989, Ser. No. 374,306

Int. Cl.[5] **B23B** *47/34*

U.S. Cl. 408—17 **26 Claims**



1. A control system for controlling an apparatus used for reciprocating a tool, held in a spindle, into and out of a workpiece wherein the apparatus includes a reciprocator for advancing the tool at either of at least two different advancement speeds with respect to the workpiece and retracting the tool with respect to the workpiece, a rotator for turning the tool, and a drive train for providing power to the reciprocator and the rotator and including at least one power means for rotating in a first direction to cause the reciprocator to advance and retract the tool at a predetermined one of the two different advancement speeds and in a second and opposite direction to cause the reciprocator to retract the tool, said control system comprising:

a first sensor operatively positioned to sense the position of the tool and to signal the drive train that the tool is near a position where the tool will be in contact with the workpiece;

a timer operatively connected to said first sensor to receive a signal therefrom and provide a signal to the drive train that the tool has been advancing in contact with the workpiece for a selected period of time, the drive train then providing power to the reciprocator which then retracts the tool from the workpiece; and

a second sensor operatively positioned to sense the position of the tool and to signal the drive train that the tool has retracted to a first predetermined position, the drive train then providing power to the reciprocator which then advances the tool until the drive train is signaled by said first sensor that the tool is near a position where the tool will be in contact with the workpiece, the drive train then providing power to the reciprocator which then changes the speed of advancement of the tool to another advancement speed, said second sensor comprising a switch means for changing the direction of rotation of the at least one power means of the drive train, said switch means comprises a valve member which is shifted to change the direction of rotation of the at least one power means when said valve member is contacted by a first collar on the spindle.

5,062,746

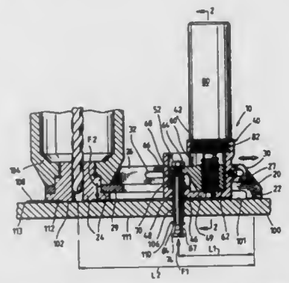
CLAMPING ATTACHMENT FOR PORTABLE DRILLS

Edwin J. Deremo, Lexington, S.C., assignor to Cooper Industries, Inc., Houston, Tex.

Filed Mar. 5, 1991, Ser. No. 664,701

Int. Cl.[5] **B23B** *45/14*

U.S. Cl. 408—79 **3 Claims**



1. A device for selectively clamping a portable drill to a work piece comprising:

a foot member, said foot member having:

means for engaging the portable drill;

a contact pad for placing pressure on the surface of the work piece;

a substantially horizontal guide path;

a housing constructed and arranged to be positioned within said substantially horizontal guide path, said housing having:

mounting means for a source of rotational torque;

a hollow collet member constructed and arranged to extend outwardly from said housing;

means for expanding said hollow collet member contained within said housing, said means for expanding said hollow collet member having:

a mandrel constructed and arranged to pass through and expand said hollow collet member;

means for converting said rotational torque to substantially vertical movement of said mandrel;

whereby when said mandrel is moved in a substantially vertical direction, said hollow collet member is expanded and pressure is placed on the surface of the work piece by said contact pad, thus selectively positioning said means for engaging the portable drill with respect to the work piece.

5,062,747

JIG-BORING DEVICE

Ming-Tang Chen, No. 23-4, Alley 21, Lane 205, Yong Xing Road, Dali, Taichung, Taiwan

Filed Jan. 10, 1990, Ser. No. 463,195

Int. Cl.[5] **B23B** *47/28*

U.S. Cl. 408—115 R **3 Claims**

1. A jig-boring device, comprising:

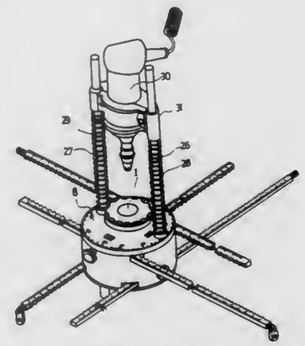
a hollow circular axle barrel, a bottom plate having a central opening, a lower gear having an extended portion, a fixed support, an upper gear having an extended portion, a lock nut, two pairs of measuring staff brackets, two pairs of parallel measuring staffs;

said hollow circular axle barrel being perpendicular to the central opening of said bottom plate, and surrounded by said lower gear, said fixed support, and said upper gear, and having male threads at its top outer periphery to securely thread with said lock nut;

said bottom plate, comprising a circular plate with the central opening connected to said axle barrel and having a symmetry of guide grooves as well as cross nut pieces in its upper area where one of said pair measuring staff brackets is connected thereby and is guided in its moving back or forth;

said lower gear, having a central opening surrounding said axle barrel, having its extended portion in its upper area to insert said fixed support above to get positioned thereby;

said fixed support, comprising a short cylindric block, fixed between said lower gear and said upper gear, and having a central opening surrounding said axle barrel, said support having a concave portion in its central upper and lower areas which corresponds to the extended portion of the lower gear and upper gear for them to insert, and having a symmetry of guide grooves and cross nut pieces in the upper area outside said concave portion where the other of said pair of measuring staffs make connection thereto;



an upper gear, which has all the same structure as said lower gear but having said extended portion in its lower area to insert into said fixed portion;

each of said measuring staffs comprising a longitudinal rack having a rectilinear shape, each staff having an upper outward face scaled with length scales while the upper inward face is a longitudinal rack rim, and said pairs of staffs are placed parallel beside the opposing two sides of said lower gear and upper gear, one pair perpendicularly crossing the other pair, and each staff having direction-turntable rest plates at an end for touching with a basic plane when in use;

said two pairs of measuring staff brackets comprising a U-support, a screw stem and a handlebar, connected to the symmetry of guide grooves and cross nut pieces provided in the upper areas of said bottom plate and fixed support respectively, so as to guide each said pair of measuring staffs inserted in their U-supports in their movement;

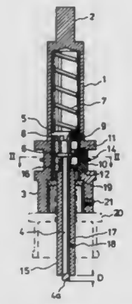
a cover plate, which by means of a central opening therein surrounds said axle barrel and is above the top of said fixed support;

said lock nut, screws to the male threads of the top outer periphery of said axle barrel; and

wherein said device measures bore center position on work objects.

VOL
1132
ISS
1
NO
5
1991
UMI

5,062,748
SHANK STRUCTURE FOR ANNULAR HOLE CUTTER
Shigeru Kishida, Miki, Japan, assignor to ODSK Company, Limited, Hyogo, Japan
Filed Apr. 15, 1991, Ser. No. 684,786
Int. Cl.[5] B23B *51/04*
U.S. Cl. 408—206 4 Claims



1. A shank structure for annular hole cutter comprising a hollow-cylindrical body having a holder portion for holding an annular hole cutter at an end thereof, a center drill slidably inserted in an inner cavity of said body, and a spring disposed in said cavity for urging said center drill axially outwards, characterized by

A sleeve fit on said center drill and adapted to be axially slidable,

first clutch means responsive to the axial movement of said sleeve for inhibiting and allowing the axial movement of said center drill,

second clutch means responsive to the axial movement of said center drill for inhibiting and allowing rotation of said center drill,

wherein both axial movement and rotation of said center drill is inhibited by said first and second clutch means in the initial state and, when said body is rotated, said center drill first drills a center hole and, after drilling the center hole of a predetermined depth, said sleeve moves axially to release said first clutch means, thereby moving said center drill axially to release said second clutch means to stop rotation of said center drill.

5,062,749
TOOL COUPLER
Harold D. Sheets, 12556 White Chapel Ave., Baton Rouge, La. 70810
Filed Feb. 21, 1989, Ser. No. 313,582
Int. Cl.[5] B23B *31/10*
U.S. Cl. 408—240 15 Claims

1. A tool coupler, comprising:

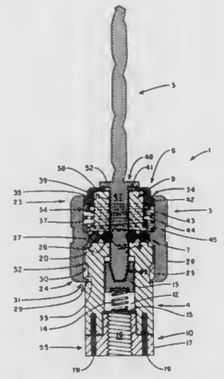
a. an elongated body having an upper end, a lower end, a first axial bore having a non-circular cross-section, said first axial bore extending at least partially through said body from said upper end toward said lower end, and at least one radial bore extending from said first axial bore to the exterior of said body;

b. a collar, positioned around said body and having an upper end, a lower end, an inner wall, an outer wall, an outer wall and an annular retaining flange extending radially from said inner wall, said retaining flange being alignable with said radial bore;

c. a means for gripping a tool shank, positioned in said radial bore and having a greater length than said radial bore such that when said retaining flange of said collar is aligned with said radial bore, said means for gripping a tool shank is urged at least partially into said radial bore;

d. a means for retaining said collar in position around said body, connected to said collar and said body;

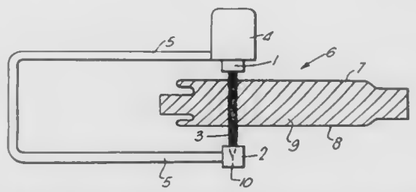
e. a cap, positioned in said collar, said cap having an upper surface, an outer surface facing said inner wall of said collar, a lower surface and an axial opening at least as large as said aligned with said first axial bore of said body;



f. a first resilient means, positioned between said cap and said retaining flange of said collar, for urging axial separation between said retaining flange and said cap; and

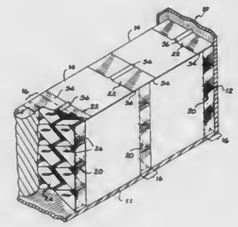
g. a means, connected to said upper end of said collar, for retaining said cap within said collar.

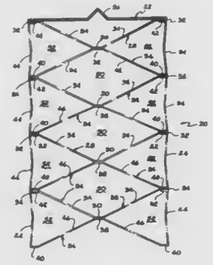
5,062,750
SANDWICH PANEL CUTTING METHOD AND MACHINE TOOL
Lukas Oosterhof, Zevenhizen, Netherlands, assignor to Hunter Douglas International NV, Curacao-Netherlands, Netherlands Antilles
Filed May 31, 1990, Ser. No. 530,359
Claims priority, application United Kingdom, Jun. 2, 1989, 8912705
Int. Cl.[5] B23B *51/08;* B23C *1/20, 3/00*
U.S. Cl. 409—132 16 Claims



1. A method of cutting a workpiece, to sever a part of the workpiece, said method comprising the steps of rotatably supporting an elongate milling cutter in bearings which are spaced apart in an axial direction of the cutter, said cutter having a longitudinal axis and an effective cutting length related to a thickness dimension of the workpiece to be cut, supporting the workpiece in cutting position relative to the cutter and effecting relative cutting sweep movement between the workpiece and the cutter, said relative movement taking place in at least one cutting direction transverse to the axis of the cutter, whereby a cut is made in the workpiece in the cutting direction wherein said cutter has a sharpened end and prior to making said cut, said sharpened end and a relevant one of said bearings are temporarily disengaged from one another, relative movement is effected between said workpiece and said cutter in the axial direction of said cutter to pierce through said workpiece, and said cutter and said relevant bearing are then re-engaged for carrying out said cutting sweep movement.

5,062,751
ECONOMY VOID FILLER
Henry L. Liebel, Cincinnati, Ohio, assignor to Shippers Paper Products Company, Loveland, Ohio
Filed Mar. 13, 1991, Ser. No. 669,105
Int. Cl.[5] B61D *45/00;* B32B *3/12*
U.S. Cl. 410—154 1 Claim





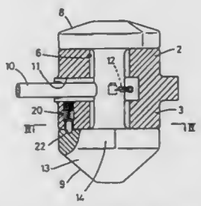
1. A collapsible and expandable void filler comprising a plurality of first and second corrugated panels alternately stacked one on another and adhered together, said first panel being generally V-shaped in the expanded condition and comprising a central glue section, a pair of glue flaps at the outboard edges thereof, and a pair of long panels extending therebetween, said second panel being generally W-shaped in the expanded condition and comprising a central glue section, a pair of lower side glue sections, a pair of upper glue flaps, a pair of long panels extending between said lower side glue sections and said pair of said upper glue flaps, and a pair of long panels extending between said lower side glue sections and said central glue section,

said central glue section of said first panel being adhered to said central glue section of said second panel,

said glue flaps of said first panel being laminated between the lower side glue section of said second panel and the upper glue flaps of an adjacent second panel,

in the expanded condition in use said long panels of said first panel and said long panels of said second panel extending between said lower side glue sections and said central glue sections forming a vertical array of stacked diamond-shaped cells, and said pair of long panels extending between said lower side glue sections and said pair of upper glue flaps of said second section forming therewith a vertical array of stacked triangle-shaped cells adjacent to said diamond-shaped cells.

5,062,752
CONTAINER COUPLING DEVICE
Hiroyuki Takaguchi, Nagasaki, Japan, assignor to Taiyo Seiki Iron Works Co., Ltd., Osaka, Japan
PCT No. PCT/JP89/00096, § 371 Date Sep. 15, 1989, § 102(e) Date Sep. 15, 1989, PCT Pub. No. WO89/07079, PCT Pub. Date Aug. 10, 1989
PCT Filed Jan. 30, 1989, Ser. No. 415,229
Claims priority, application Japan, Feb. 4, 1988, 63-25452
Int. Cl.[5] F16B *21/00*
U.S. Cl. 411—347 18 Claims



1. A coupling device for coupling together containers such that the containers are maintained in a vertical stack, comprising:

an upper portion adapted for engagement in an engaging hole in a bottom surface of an upper container;

a horizontally elongated insertion shank mounted to said upper portion, said shank being rotatable about a vertical axis;

a horizontally elongated engaging body, adapted for engagement in an engaging hole in a top surface of a lower container, mounted to a lower end of said upper portion for rotation about said vertical axis relative to said insertion shank, said engaging body having opposing side faces and a horizontal cross section which is substantially similar to a horizontal cross section of said insertion shank such that said elongated engaging body and said elongated insertion shank can be vertically aligned;

a lever fixed for rotation with said engaging body;

spring means for biasing said engaging body to rotate relative to said insertion shank toward a locking position wherein said engaging body and said insertion shank are misaligned such that portions of longitudinal ends of said engaging body protrude beyond a periphery of said insertion shank;

rotation restriction means for restricting rotation toward said locking position of said engaging body relative to said insert shank such that a rotational torque in addition to that provided by said spring means is necessary to rotate said engaging body toward said locking position relative to said insertion shank beyond a predetermined point; and

additional torque providing means for providing additional torque to cause said engaging body to automatically rotate relative to said insertion shank toward said locking position beyond said predetermined point upon insertion of said engaging body into the engaging hole in the top surface of the lower container.

5,062,753
SURVEY NAIL
Joseph E. Begue, 2444 S. 8th St., Springfield, Ill. 62703
Filed Jan. 22, 1991, Ser. No. 644,278
Int. Cl.[5] F16B *15/00, 15/02*
U.S. Cl. 411—470 5 Claims

1. A benchmark nail organization comprising, in combination,

a support truss, the support truss including a planar impact head surface and a main body support surface, the main body support surface arranged orthogonally relative to the planar impact head surface, and

the support truss including a first spike extending orthogo-

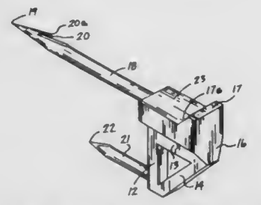
VOL 1132 ISS 1 NO 5 1991 UMI

nally relative to the support truss and longitudinally of the main body support surface, and

a second spike arranged orthogonally relative to the support truss spaced from and parallel to the first spike, and

wherein the first spike is defined by a first length and the second spike is defined by a second length, wherein the second length is less than that of the first length, and

wherein the first spike includes a pointed outer terminal end with a back cut recess directed into the first spike adjacent the outer terminal end, and a rearwardly directed projection overlying the recess oriented in an opposed orientation to the pointed outer terminal end of the first spike, and



wherein the truss includes a first leg, with the first leg integrally mounting the second spike orthogonally to a forward terminal end of the first leg, with the first spike orthogonally arranged adjacent to a rear end of the first leg, with the first leg integrally and orthogonally formed to a second leg, with the second leg including a main body support including a planar main body support surface formed on an exterior surface thereof, and a main body projection orthogonally oriented relative to the main body support formed at an upper terminal end of the main body support spaced from the first spike wherein the first spike is longitudinally aligned with the main body support.

5,062,754

BOOKLET, METHOD AND APPARATUS FOR PRODUCING THE SAME

Göran Bolin, Täby; Urpo Latvakangas, Saltsjö-Boo, and Jan Sabelström, Huddinge, all of Sweden, assignors to Bindomatic AB, Sweden

PCT No. PCT/SE87/00130, § 371 Date Sep. 8, 1988, § 102(e) Date Sep. 8, 1988, PCT Pub. No. WO87/05565, PCT Pub. Date Sep. 24, 1987

PCT Filed Mar. 13, 1987, Ser. No. 246,298

Claims priority, application Sweden, Mar. 14, 1986, 8601216

Int. Cl.[5] B42L *11/00*

U.S. Cl. 412—4 **16 Claims**



1. Method of producing a folder or wrapper comprising two substantially parallel covers that are united with a spine at inner and outer pairs of crease lines, the spine being substantially perpendicular to the covers, and a strip of binder being rectangular or trapezoidal in cross-section and having top and bottom surfaces and two opposing longitudinal side edges, comprising the steps of attaching the strip at its bottom surface to the spine between the inner crease lines and activating substantially only the two opposing longitudinal side edges of the binder to bind the two opposing longitudinal side edges of the strip to the covers.

5,062,755

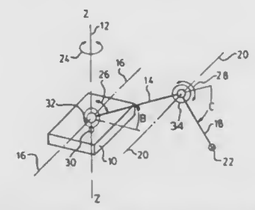
ARTICULATED ARM CONTROL

Peter D. Lawrence, and Robert V. Ross, both of Vancouver, Canada, assignors to MacMillan Bloedel Limited

Continuation of Ser. No. 158,731, Feb. 23, 1988, abandoned. This application Jul. 25, 1989, Ser. No. 384,912

Int. Cl.[5] B25J *3/00*

U.S. Cl. 414—4 **11 Claims**



1. A system for controlling the movement of an arm formed by a plurality of articulated interconnected arm segments mounted for movement on at least three separate axes one of which comprises a z axis to move a point located substantially adjacent to the free end of said arm selectively in substantially mutually perpendicular x, y and z directions, said x direction always being along a straight line extending substantially in the direction between said point and said z axis, said y direction being substantially along any selected arc of fixed radius around said z axis and said z direction being substantially parallel to said z axis, comprising a manually operated controller, a computer control means, independent means for moving said arm segments on each of said axes, said controller having x direction control means, y direction control means and z direction control means adapted to provide an independent x, y and z signal respectively to said computer control means, each said signal varying in accordance with displacement of its respective direction control means, said computer control means controlling said means to move said arm segments to move said point in solely a selected one of said x, y or z directions when said controller is activated to provide a signal to said computer control means for movement in solely the selected one of said x, y or z directions, respectively, said computer control means controlling said means to move said arm segments to move said point in said y direction at the same velocity for a given displacement of said y direction control means regardless of the position of said point relative to said z axis, said controller being positioned so that the direction of displacement of at least two of said independent x, y and z direction control means is manipulated substantially in the same respective x, y or z direction as the direction of movement of said point from the perspective of an operator operating said controller.

5,062,756

DEVICE FOR POSITIONING AND STABBING CASING FROM A REMOTE SELECTIVELY VARIABLE LOCATION

James R. McArthur, Tishimingo, Okla.; John Harrel, Box 850, Hwy. 76 South, Lindsay, Okla. 73052, and John Mayberry, Lindsay, Okla., assignors to John Harrel and Charlena Harrel, Lindsay, Okla., a part interest

Filed May 1, 1990, Ser. No. 517,857

Int. Cl.[5] B65G *47/08*

U.S. Cl. 414—22.51 **6 Claims**

1. A casing stabbing apparatus comprising:

an elongated boom having an inner first end and an outer second end;

mounting means pivotally connected to said inner first end of said boom for connecting said inner first end of said boom to a derrick, and permitting said boom to pivot about a horizontal and vertical axis;

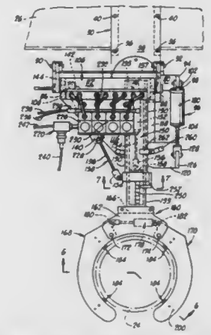
a yawing piston and cylinder subassembly connected to said boom for pivoting said boom from side-to-side about an axis extending perpendicularly to the longitudinal axis of the elongated boom, said yawing piston and cylinder subassembly including:

a yawing cylinder having one end connected to said mounting means at a location spaced from the inner first end of said boom, and having a second end; and

a piston rod extending from said second end of said yawing cylinder and having an end connected to said elongated boom between said inner first end and said outer second end, and extending at an acute angle to the longitudinal axis of said boom;

a boom elevating and lowering piston and cylinder subassembly liftingly connected to said boom for pivoting said boom about a horizontal axis to thereby cause arcuate upward movement of the outer second end of said elongated boom, said boom elevating and lowering piston and cylinder subassembly including:

an elevating and lowering cylinder having one end connected to said mounting means at a location spaced up-



wardly from the location where said inner first end of said boom is connected to said mounting means, and having a second end; and

a piston rod extending from said second end of said elevating and lowering cylinder and having an end liftingly connected to said elongated boom between the inner first end of said boom and the outer second end thereof;

a jaw-supporting bracket mounted on the outer end of said boom;

a pair of tubular jaw-receiving sleeves each having an opening at one end of the respective tubular sleeve for receiving a jaw;

a pivot bolt pivotally supporting and mounting each of said tubular jaw-receiving sleeves on an end of said supporting bracket so that said tubular jaw-receiving sleeves are located on opposite ends of said jaw-supporting bracket and pivotable with relation to said jaw-supporting bracket, said tubular sleeves being pivotally mounted by said pivot bolts on said bracket for pivotation about spaced parallel axes;

a jaw-actuating piston and cylinder subassembly interconnecting said jaw-receiving sleeves for pivoting said sleeves about said parallel axes at a time when said jaw-actuating piston and cylinder subassembly is actuated to extend or retract a piston rod forming a part of said jaw-actuating piston and cylinder subassembly;

a pair of opposed, spaced, arcuate jaws each having a concave inner side and a convex outer side, and each having one end portion thereof detachably mounted in one of said jaw-receiving tubular sleeves by slidable insertion on said end portion into the open end of the respective tubular sleeve thereby facilitating quick detachment and replacement with a jaw of a different size, and said arcuate jaws being movable with said sleeves during pivotation of the sleeves to converge the jaws toward each other and diverge the jaws away from each other for the purpose of engaging and releasing a section of casing; and

a plurality of bolts removably bolting each of said jaws in its respective jaw-receiving tubular sleeve for pivotal movement therewith.

5,062,757

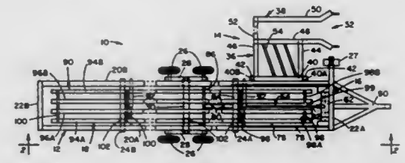
LARGE ROUND BALE HANDLING APPARATUS

R. Dale Eichenauer, Rte. 1, Box 120, Ingalls, Kans. 67853

Filed Jul. 2, 1990, Ser. No. 547,602

Int. Cl.[5] A01D *95/02*

U.S. Cl. 414—24.5 **16 Claims**



1. A large round bale handling apparatus, comprising:

(a) a mobile frame with a pair of elongated laterally-spaced longitudinal beams having upper surfaces for receiving and supporting large round bales in a row and for permitting sliding of bales rearwardly without obstruction by anything that might penetrate into the bales and cause tearing of plastic covers when applied around the bales;

(b) a bale pickup mechanism pivotally mounted to the mobile frame adjacent one end and along one side thereof and operable for undergoing movement between a lower bale-engaging position and an upright bale-discharging position for depositing a bale onto said beams adjacent said one end of said frame;

(c) a bale pushing mechanism movably supported at said one end of the mobile frame and operable for undergoing reciprocal movement through working and return strokes to move each bale deposited onto said beams through a distance greater than an axial length of a bale thereby allowing transfer of a succeeding bale from said pickup to said beams of said frame and movement thereof until a row of bales has been accumulated on said beams of said frame; and

(d) a bale unloading mechanism pivotally mounted to said mobile frame and operable for undergoing movement between a lowered position underlying the row of bales on said frame and a tilted raise position for unloading the row of accumulated bales from said longitudinal beams of said frame so as to discharge the bales all at the same time therefrom, said bale unloading mechanism including an elongated lift gate pivotally mounted to said frame between said longitudinal beams thereof and disposed below the level of said upper surfaces of said longitudinal beams when in said lower position so as to avoid obstruction of movement of the bales along said longitudinal beams, said bale unloading mechanism also including a plurality of actuators connected between said lift gate and said frame and being operable for pivoting said lift gate between said lowered position underlying the row of bales on said frame and said tilted raised position.

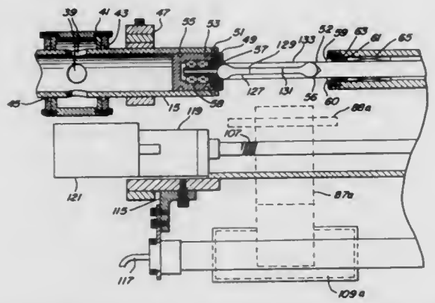
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,758

SHUTTLE SYSTEM FOR RAPIDLY MANIPULATING A WORKPIECE INTO AND OUT OF AN ATMOSPHERICALLY CONTROLLED CHAMBER FOR DOING WORK THEREON IN THE CHAMBER

Richard E. Trillwood, Santa Ana, Calif., assignor to Wentgate Dynaweld, Inc., Agawam, Mass.

Continuation of Ser. No. 332,346, Mar. 31, 1989. This application Apr. 19, 1990, Ser. No. 511,332
The portion of the term of this patent subsequent to Nov. 6, 2007, has been disclaimed.
Int. Cl.[5] B65G *65/30*
U.S. Cl. 414—217 34 Claims



1. Shuttle system for moving a workpiece into and out of a sealed chamber through a single aperture in the chamber wall, said chamber containing a controlled high vacuum atmosphere for doing work on the workpiece in the chamber, said system comprising:

a passageway extending into said sealed chamber through said single aperture at a first end and being open to the atmosphere at a second end; said passageway having at least one exhaust hole between said first end and said second end for reducing pressure in said passageway;

a split person having a headstock with a leading end and a trailing end physically connected to a tailstock with a leading and trailing end, with space between said headstock and tailstock for receiving a workpiece, said piston being sized to fit and move within said passageway;

means for moving said piston into and out of said chamber through said passageway in a reciprocal manner;

first sealing means on the headstock of said piston for sealing said headstock against an interior of said passageway at said first sealing means;

second sealing means on said headstock for sealing said headstock against an interior of said passageway at said second sealing means, spacing between said first and second sealing means being such that when said first sealing means is on a chamber side of said exhaust hole, said second sealing means is still engaging the interior of said passageway on the atmosphere side of said exhaust hole; and

a third sealing means for sealing the interior of said passageway to said piston at said third sealing means, spacing between said second and third sealing means being such that when said third sealing means begins sealing said tailstock with the interior of said passageway, said second sealing means is still on an atmosphere side of said exhaust hole;

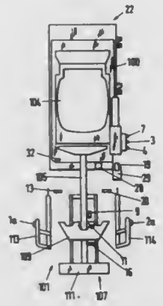
whereby said exhaust hole in said passageway is not exposed to atmosphere during loading of the workpiece in said piston, passage of the workpiece into and out of said chamber, and during unloading of the workpiece from said piston.

5,062,759

SAFETY CIRCUIT ARRANGEMENT FOR LIFTING/TILTING OR TILTING DEVICES

Hans J. Pieperhoff, Mainz Laubenheim, Fed. Rep. of Germany, assignor to Zöller-Kipper GmbH, Mainz-Laubenheim, Fed. Rep. of Germany

Filed Mar. 30, 1990, Ser. No. 503,442
Claims priority, application Fed. Rep. of Germany, Apr. 3, 1989, 3910660
Int. Cl.[5] B65F *3/04*
U.S. Cl. 414—408 16 Claims



1. Safety circuit arrangement for a lifting/tilting device for emptying a container into a garbage truck (22), said circuit arrangement having an automatic control unit (30) for regulating an automatic emptying cycle of the container into a collection bin (100) of said truck (22), and said safety circuit arrangement having a first switch (16) and a second switch (11), which are mounted on said lifting/tilting device and which are each actuatable to intended predetermined statuses in response to a container being correctly placed and correctly positioned upon said lifting/tilting device, characterized in that said switches (16, 11) are connected to an electrical current flow monitor means (25) which continuously functions and which is electrically connected to said automatic control unit (30), and which monitor means continuously checks and continuously oversees the said intended predetermined statuses of the switches (16, 11) and transmits an operation-rendering signal to said automatic control unit (30) only during such times that the said switches (16, 11) are both disposed in said predetermined respective statuses corresponding to said correct positioning of the container on said lifting/tilting device.

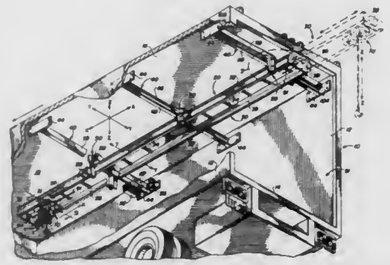
5,062,760

MATERIAL HANDLING SYSTEM

Felix Samaniego, Roswell, assignor to Transport Technology Corporation, Roswell, N. Mex.

Filed Apr. 16, 1990, Ser. No. 510,133
Int. Cl.[5] B60P *1/54*
U.S. Cl. 414—542 7 Claims

1. A material handling system for moving cargo both within and without the cargo compartment of a vehicle, said cargo compartment having a bed and opposed sidewalls, a front end and rear opening thereto and having an X-axis traversing the length of the compartment, a Y-axis traversing the width of the compartment, and a Z-axis traversing the height of the compartment, said system including: at the least two spaced apart Y-axis frame means extending between the sides of said compartment and positioned at the upper portion of said compartment sidewalls, each of said Y-axis frame means including a channel extending substantially the length of said Y-axis frame means; an X-axis frame positioned beneath said Y-axis frame means and extending substantially the length of the x-axis of said compartment, said X-axis frame being suspended from and mounted to each of said Y-axis frame means by a carriage assembly in a manner such that said X-axis frame will move through both the X-axis and Y-axis of said comparemtn both inside and outside said compartment; said carrige assembly provided with roller means mounted in the channel of said Y-axis frame means to allow said X-axis frame to move along the Y-axis of said compartment, said carriage assembly provided with additional roller means to support said X-axis frame and to allow said X-axis frame to move along said X-axis; hoist



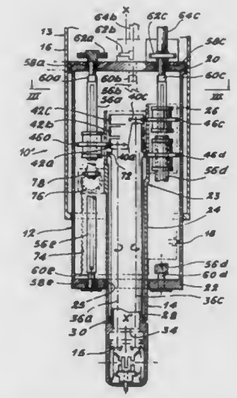
means movably mounted on said X-axis frame; a first drive means for movign said X-axis frame and hoist means through the Y-axis of said compartment; second drive means for movign said hoist means along said X-axis frame, said second drive means also providing the means for moving said X-axis frame through the X-axis of said compartment to a predetermined distance outside of and back into said compartment; and means to control the operation of said first and second drive means.

5,062,761

TELESCOPIC MANIPULATION ARM

Charles Glachet, Vendome, France, assignor to Euritech, Vendome, France

PCT No. PCT/FR88/00480, § 371 Date Mar. 12, 1990, § 102(e) Date Mar. 12, 1990, PCT Pub. No. WO89/02809, PCT Pub. Date Apr. 6, 1989
PCT Filed Sep. 29, 1988, Ser. No. 490,602
Claims priority, application France, Sep. 30, 1987, 87 13517
Int. Cl.[5] B25J *3/00*
U.S. Cl. 414—729 7 Claims



1. A telescopic manipulation arm, which comprises:

an external tubular body and an internal tubular body arranged along a common axis and defining therebetween an annular space in which are mounted in parallel and equidistantly of said axis a plurality of first rotary shafts supported in a rotary manner by the external tubular body

a plurality of second rotary shafts supported in a rotary manner within the internal tubular body, the latter being supported in a rotary manner by an intermediate part so as to be slidable in the external tubular body along said common axis,

means for controlling translation of the intermediate part in the external tubular body, the intermediate part supporting in a rotary manner first identical pinions, each first pinion being traversed by one of the first shafts and being rotatable with the latter by a first transmission means;

drive means by which one of the first pinions is rotatable with the internal tubular body wherein each of the remaining first pinions is rotatable with said second rotary shafts;

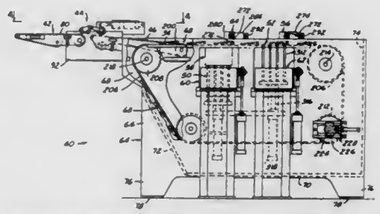
the second rotary shafts all each mounted in parallel and equidistantly of said axis, said drive means incorporating second substantially identical pinions fixed to each of the second shafts, and substantially identical toothed gears centered on said common axis and supported in a rotary manner by the intermediate member, each of the toothed gears having an external tooth system engaged on one of the remaining first pinions and an internal tooth system engaged with one of the second pinions.

5,062,762

BATTERY PLATE STACKER METHOD

John W. Wirtz; David Yanik; Robert R. Rader; Roel Mendoza, and Dennis E. Essig, all of Port Huron, Mich., assignors to Wirtz Manufacturing Company, Inc., Port Huron, Mich.

Division of Ser. No. 367,020, Jun. 16, 1989, Pat. No. 4,973,218, which is a continuation-in-part of Ser. No. 209,911, Jun. 22, 1988, abandoned. This application Mar. 2, 1990, Ser. No. 488,272
Int. Cl.[5] B65G *57/14*
U.S. Cl. 414—786 25 Claims



1. A method of stacking battery plates comprising, conveying a plurality of battery plates in sequence along a first predetermined path, synchronizing the plates being conveyed with a carrier for moving the plates into one of at least two downstream plate receiving stations, transferring plates to the carrier, supporting the plates on the carrier so they are retaining thereon only by frictional engagement therewith and so they can be disengaged therefrom if stopped to deposit them in a stack, removing plates which are not synchronized with the carrier, sequentially in one and then another of the plate receiving stations rapidly stopping each of a plurality of succeeding synchronized plates and disengaging each such synchronized plate from the carrier to deposit them in a stack on an elevator underlying said plate receiving stations, retracting the elevator as each plate is deposited so that the next plate to be stopped can be received on the stack, periodically switching the depositing of synchronized plates to the other station and ceasing depositing plates in said one station to provide a stack of the desired height in said one station, and periodically removing stacks of plates from the elevator associated with each station.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,763

STACKER, ESPECIALLY FOR AN OFFSET PLATE TRANSPORTER

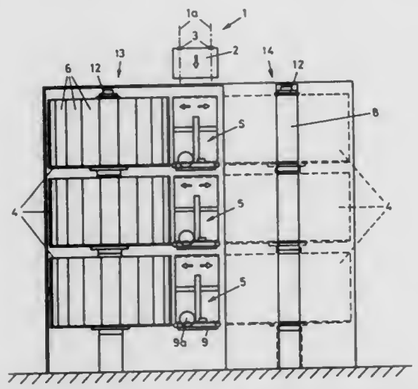
Willy Maier, Kloten, Switzerland, assignor to Daverio AG, Zurich, Switzerland

Filed Jun. 28, 1990, Ser. No. 545,275

Claims priority, application Switzerland, Aug. 9, 1989, 2930/89

Int. Cl.[5] B65G *1/133*

U.S. Cl. 414—787 **11 Claims**



1. A stacker suitable for use with an offset plate transporter, comprising:

a feed device for individually feeding plates to at least one storage unit, wherein the storage unit includes a rotatable storage drum having cells which are open along the circumference of the storage drum, and at least one drum loader for receiving the plates from the feed device and for inserting the plates into the cells of the storage drum;

wherein the drum loader has a stationary feed element for receiving a plate and for inserting the plate into an open cell of the storage unit, the feed device includes means for moving the plates vertically downwardly onto the feed element, the feed element includes a support for receiving a plate stopped and resting on the feed element, and the drum loader further includes means for transferring a plate from the feed device to the feed element, including means for moving the plate into position above the feed element so that the plate is stopped and removable from the feed device and comes to rest on the feed element.

5,062,764

METHOD AND APPARATUS USING ELECTROSTATIC CHARGES TO STABILIZE THE UPPER SHEETS OF A STACK OF PAPER

Bernhard J. Welsch, Waverly, Ohio, assignor to Robert A. Foisie, Carson City, Nev.

Filed Jan. 8, 1990, Ser. No. 462,140

Int. Cl.[5] B65H *3/18*; B65G *59/02*

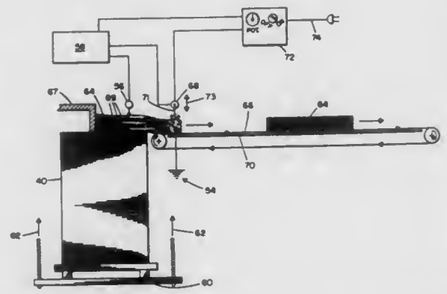
U.S. Cl. 414—796 **8 Claims**

5. An apparatus using electrostatic charges to temporarily hold sheets of paper in assembly comprising:

A. means for providing a skid load of sheets of paper with the sheets in at least a lower portion of said skid load being electrostatically charged so at least said lower portion sheets tend to repel one another;

B. means for separating a predetermined number of sheets from said skid load to form a separated stack of sheets;

C. means for introducing to said separated stack of sheets an electrostatic charge of opposite polarity to said existing electrostatic charge in the lower portion sheets, said electrostatic charge of opposite polarity acts in combination with the weight of said separated stack of sheets to cause said sheets in said separated stack to attract to one another thereby decreasing the tendency of said sheets to repel one another; and



D. means adjacent said skid load for conveying said separated stack for further processing.

5,062,765

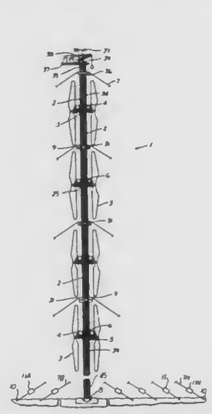
HIGH TOWER WIND GENERATING SYSTEM

H. Reginald McConachy, 2/9 David Street, Balaclava 3183, Victoria, Australia

Filed Jun. 25, 1990, Ser. No. 542,578

Int. Cl.[5] F03D *7/04*

U.S. Cl. 415—4.3 **4 Claims**



1. A wind generating system comprising in combination:

a vertically oriented tower having a series of interconnected modular mast sections along a vertical height connected by joints, said tower carrying a plurality of wind powered generators with accompanying rotors positioned at a multiplicity of vertical levels between the joints of said interconnected modular mast sections,

a guy wire system for supporting the tower against lateral forces at a multiplicity of vertical levels from positions on the tower between the rotors,

articulation means connected to define said joints between adjoining modular mast sections permitting the individual mast sections to be relatively angularly moved in response to lateral forces on the tower, and

further comprising a maintenance platform supported by the tower at a position above the wind generators with a rotatably positionable crane for use in servicing the wind generators.

4. A wind generating system comprising in combination:

a vertically oriented tower having a series of interconnected modular mast sections along a vertical height connected by joints, said tower carrying a plurality of wind powered generators with accompanying rotors positioned at a multiplicity of vertical levels between the joints of said interconnected modular mast sections,

a guy wire system for supporting the tower against lateral forces at a multiplicity of vertical levels from positions on the tower between the rotors,

articulation means connected to define said joints between adjoining modular mast sections permitting the individual mast sections to be relatively angularly moved in response to lateral forces on the tower,

wherein the tower comprises at the joints a network of bracing members arranged on four sides of a substantially square cross section configuration, and

wherein the articulation joint means comprise at each joint a hollow steel block with substantially the same square cross section as the tower interposed between adjacent mast sections, the adjacent mast sections terminate in two tapered universal joint yokes curved at the free ends on only two opposite sides of the mast sections, the respective yokes on adjacent mast sections being oriented perpendicular to each other, the articulation joint means has bearing surfaces with mating curved engagement surfaces for receiving the universal joint yokes merging into angularly tapered sides forming a sector shaped cage permitting an angular motion about a pivot axis in the yokes confined to a limited degree of angular movement.

5,062,766

TURBO COMPRESSOR

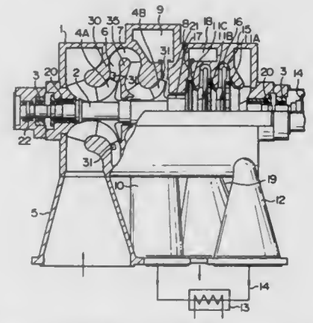
Haruo Miura, Ibaraki; Yasuo Fukushima, Tsuchiura; Hideo Nishida; Hiromi Kobayashi, both of Ibaraki, and Takeo Takagi, Tsukuba, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 12, 1989, Ser. No. 406,299

Claims priority, application Japan, Sep. 14, 1988, 63-228726; Sep. 14, 1988, 63-228744

Int. Cl.[5] F01D *1/02*

U.S. Cl. 415—199.1 **14 Claims**



1. A turbo compressor having a plurality of impellers mounted on an impeller shaft so as to form a plurality of stages through which a gas is progressively compressed, comprising:

at least one open-type non-shrouded first impeller having a gas outlet angle such that gas discharged from the outlet of said first impeller flows in a direction which is in line from the radial direction towards the axial direction of said impeller shaft when viewed in a meridional plane; and

at least one second impeller having a gas outlet angle such that gas discharged from said second impeller flows in the radial direction of said impeller shaft, said first and second impellers being mounted on said impeller shaft such that inlet sides of said impellers are disposed adjacent to opposite ends of said impeller shaft with outlet sides of said impellers being disposed adjacent to a center of said impeller shaft.

5,062,767

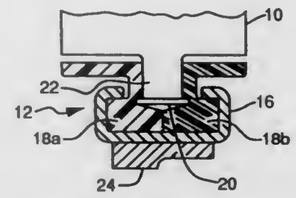
SEGMENTED COMPOSITE INNER SHROUDS

Kevin L. Worley, Palm Beach Gardens; John L. Mayers, Lake Park, and Herbert L. Burchette, West Palm Beach, all of Fla., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 27, 1990, Ser. No. 516,493

Int. Cl.[5] F01D *5/00*

U.S. Cl. 415—209.3 **2 Claims**



1. A shroud for supporting airfoils positioned within the hot gas flow path of a gas turbine engine, comprising:

a plurality of said airfoils; and

a metal ring having a C-shaped cross section and a positive coefficient of thermal expansion, said metal ring being formed of two half circles;

a lightweight ceramic ring comprised of a plurality of abutting and touching ceramic segments, said ceramic segments being movably contained within the C-shaped cross section of said metal ring, said each ceramic segment also being formed in two circumferential halves, said metal ring further enveloping said ceramic segments on more than three sides of the ceramic segment cross section, said segments having a coefficient of expansion substantially less than said coefficient of expansion of said metal ring, said airfoils being supported in said flow path from said ceramic segments, whereby expansion of said metal ring results in the separation of said abutting, previously touching ceramic segments and the apparent growth of said segments.

5,062,768

COOLED TURBOMACHINERY COMPONENTS

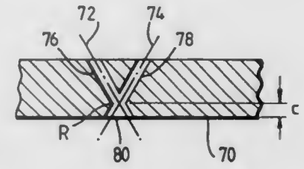
Peter V. Marriage, Derby, England, assignor to Rolls-Royce plc, London, England

Continuation of Ser. No. 450,068, Dec. 13, 1989, abandoned. This application Apr. 29, 1991, Ser. No. 693,014

Claims priority, application United Kingdom, Dec. 23, 1988, 8830152

Int. Cl.[5] F01D *5/18*

U.S. Cl. 416—97 R **13 Claims**



1. A film-cooled component having wall means comprising a first surface subject to heating by flow of hot fluid therepast and a second surface subjected to cooling by flow of pressurized coolant therepast, the first surface having a plurality of small coolant exit apertures therein connected to the second

VOL
1132
ISS
1
NO
5
1991
UMI

surface by cooling hole structures extending through the wall means, whereby coolant exits from said apertures onto the first surface for film-cooling of the same, each cooling hole structure comprising in flow series a plurality of coolant entry apertures in said second surface, a flow constriction and one of said exit apertures connected only to said one flow constriction, each cooling hole structure being a plurality of substantially straight mutually intersecting holes which share said flow constriction and said exit aperture, each cooling hole structure being separated by a portion of said wall means from each other cooling hole structure so that said cooling hole structures are unconnected to one another, said flow constriction comprising the intersection of said holes and said exit aperture being formed adjacent said intersection, said flow constriction being of smaller flow are than said exit aperture.

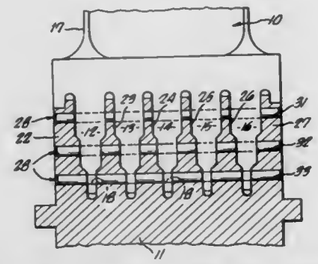
10. A method for producing a film-cooled component, the component having wall means comprising a first surface subject to heating by flow of hot fluid therepast and a second surface subject to cooling by flow of pressurized coolant therepast, the method comprising drilling a plurality of groups of film-cooling holes through the wall means to connect the first surface to the second surface, the members of each group of holes being drilled sequentially with different but crossing orientation with respect to each other such that they penetrate the first surface in overlapping fashion to form a common coolant exit aperture and intersect each other to form a flow constriction for controlling the flow rate of coolant out of the common exit aperture, said flow constriction being of smaller flow area than said exit aperture, and including the step of maintaining the members of each group having a common coolant exit aperture separated from the members of each other group associated with a different exit aperture.

5,062,769

CONNECTOR FOR TURBINE ELEMENT

Ralph J. Ortolano, 3776 Coolheights Dr., Rancho Palos Verdes, Calif. 90274

Filed Nov. 22, 1989, Ser. No. 440,239
Int. Cl.[5] F01D 5/32
U.S. Cl. 416—217 22 Claims



1. A device for connecting a first turbine element with a second turbine element comprising a pin formed with a first metallic material, a surface of the pin being in a compression condition and a layer of a second metallic material on the surface of the pin, and wherein the first material is relatively harder than the second material, and the second material provides a lubricating outer surface to the pin.

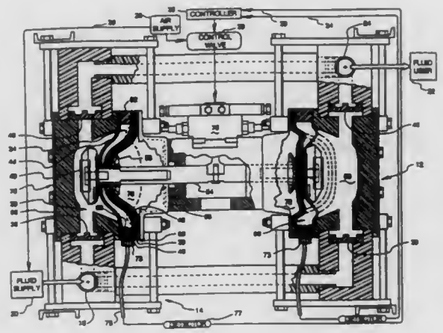
15. A method for connecting a turbine blade and a rotor including providing a formation on the blade and a formation on the rotor, interengaging the formation of the blade with the formation of the rotor, apertures being provided in the interengaging formations for mating alignment, inserting a plurality of pins through the apertures, the pins being formed of a first metallic material and having a surface in a compression condition, a layer of a second metallic material being on the surface of the pin, the second metallic material providing a lubricating surface thereby to facilitate removal of the pins from the apertures.

5,062,770

FLUID PUMPING APPARATUS AND SYSTEM WITH LEAK DETECTION AND CONTAINMENT

Carl E. Story, Cupertino; Jerry A. Nichols, San Jose, and Byron C. Cady, Gilroy, all of Calif., assignors to Systems Chemistry, Inc., Milpitas, Calif.

Filed Aug. 11, 1989, Ser. No. 393,142
Int. Cl.[5] F04B 43/06
U.S. Cl. 417—46 18 Claims



1. A fluid pumping apparatus for pumping ultra pure fluids and including means for detection and prevention of contamination of the fluids in the event of diaphragm failure, comprising:

means forming a pump housing having an inlet and an outlet;

a first pumping component formed within said housing and adapted to draw fluid into said inlet and to force fluid out of said outlet, said first pumping component including a first diaphragm means combining with said housing to form a first pumping chamber in communication with said inlet and said outlet, first generally annular spacer means having a first opening formed therein extending radially through one side thereof, and a second diaphragm means held in spaced apart relationship with said first diaphragm means by said spacer means and combining with said first diaphragm means and said spacer means to form a first containment chamber, said first and second diaphragm means and all interior surfaces forming said first pumping chamber and said first containment chamber being made of inert material;

first sensor means extending into said opening and having a distal end surface disposed within said first opening and forming a closure for said first containment chamber, said first sensor means being operative to detect the presence of unintended fluid appearing in said first containment chamber as a consequence of the failure of said first diaphragm means and to generate a commensurate first output signal for transmission to a remote indicator; and

first actuator means for reciprocatingly moving said first diaphragm means to cause fluid to be pumped through said first pumping chamber;

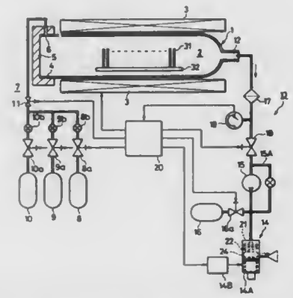
the said pumping apparatus being characterized in that any failure of said first diaphragm means allowing pumped fluid to invade said first containment chamber will result in complete containment and no contamination of the invading fluid, immediate detection of the failure by said first sensor means, and annunciation of the failure by said first output signal.

5,062,771

VACUUM SYSTEM WITH A SECONDARY GAS ALSO CONNECTED TO THE ROUGHING PUMP FOR A SEMICONDUCTOR PROCESSING CHAMBER

Akihiko Satou, Maebashi; Tadao Kusaka, Takasaki; Shigeo Tomiyama, Fujioka; Kouzi Aoki, Maebashi; Ichiro Gyobu, Dejima; Kimio Muramatsu; Hiroaki Sakamoto, both of Takasaki; Shinjiroo Ueda, Abiko; Masahiro Mase, Nogi, and Takashi Nagaoka, Shimoinayoshi, all of Japan, assignors to Hitachi, Ltd. and Hitachi Tokyo Electronics Co. Ltd., both of Tokyo, Japan

Division of Ser. No. 16,567, Feb. 19, 1987, Pat. No. 4,835,114.
This application Mar. 20, 1989, Ser. No. 325,910
Claims priority, application Japan, Feb. 19, 1986, 61-32969; Feb. 19, 1986, 61-32970; Feb. 19, 1986, 61-32971; Apr. 23, 1986, 61-92197; Sep. 26, 1986, 61-226023
Int. Cl.[5] F04D 17/12, 25/00
U.S. Cl. 417—201 52 Claims



1. A processing apparatus for gas phase treatment for semiconductor device fabrication comprising:

(a) a processing chamber for accommodating a semiconductor device;

(b) a gas supplying device for supplying a processing gas to the processing chamber;

(c) a main evacuation pump system for evacuating the processing chamber within a steady state during the treatment having only one set of one or more vacuum pumps, the one or more pumps being oil-free mechanical pumps which operate without using oil as an operating medium for gas evacuation and which include at least one roughing pump adapted to operate under atmospheric pressure; and

(d) a supply source for a gas having higher molecular weight than that of helium adapted is also connected to a suction port side of the roughing pump.

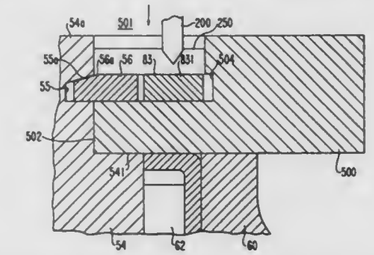
5,062,772

SLANT PLATE TYPE COMPRESSOR

Shigemi Shimizu, Sakai, and Kazuhiko Takai, Isesaki, both of Japan, assignors to Sanden Corporation, Gunma, Japan

Filed Oct. 20, 1989, Ser. No. 424,691
Claims priority, application Japan, Oct. 25, 1988, 63-138134[U]; Oct. 25, 1988, 63-138136[U]
Int. Cl.[5] F04B 1/14
U.S. Cl. 417—269 28 Claims

1. In a slant plate type refrigerant compressor comprising a compressor housing including a cylinder block, said cylinder block including a plurality of peripherally disposed cylinders, a crank chamber enclosed within said cylinder block at a location forward of said cylinders, said compressor housing including a suction chamber and a discharge chamber formed therein, a piston slidably fitted within each of said cylinders, a drive mechanism coupled to said pistons to reciprocate said pistons within said cylinders, said drive mechanism including a drive shaft rotatably supported in said housing, said drive mechanism further including coupling means for coupling said drive shaft to said pistons such that rotary motion of said drive shaft is converted into reciprocating motion of said pistons in said cylinders, said coupling means including a slant plate disposed on said drive shaft and having a surface disposed at an inclined angle relative to said drive shaft, said slant plate having a boss, an annular balance weight disposed about said boss, said annular balance weight including a thin plate region defining a recessed portion, and a retaining means including a first annular groove formed on said boss and a first annular member



disposed in both said groove and said recessed portion, said first annular member in contact with said recessed portion of said balance weight to retain said balance weight on said boss of said slant plate, the improvement comprising:

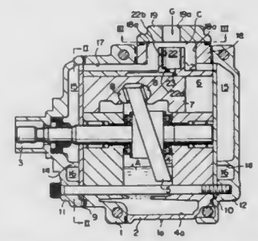
said retaining means further comprising a second annular member securely disposed in said recessed portion peripherally around said first annular member, said second annular member acting to securely retain said first annular member in said groove to securely retain said balance weight on said boss.

5,062,773

SWASH PLATE TYPE REFRIGERANT COMPRESSOR WITH A SEPARATOR OF REFRIGERANT GAS AND LUBRICANT OIL

Katsunori Kawai; Hayato Ikeda; Naoya Yokomachi, and Toshihiro Kawai, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokku Seisakusho, Aichi, Japan

PCT No. PCT/JP90/00274, § 371 Date Oct. 25, 1990, § 102(e) Date Oct. 25, 1990, PCT Pub. No. WO90/10156, PCT Pub. Date Sep. 7, 1990
PCT Filed Mar. 2, 1990, Ser. No. 601,732
Claims priority, application Japan, Mar. 2, 1989, 1-50490
Int. Cl.[5] F04B 39/04, 27/08; F01M 1/00
U.S. Cl. 417—269 4 Claims



1. A swash plate type refrigerant compressor provided with a separating means for conducting a separation of lubricant oil from a refrigerant gas, comprising:

a cylinder block assembly provided with a plurality of cylinder bores arranged around a fixed axis, and a swash plate chamber;

a drive shaft rotatably supported by said cylinder block assembly, and having an axis of rotation coinciding with said fixed axis;

VOL 1132 ISS 1 NO 5 1991 UMI

a swash plate mounted on said drive shaft to be rotated therewith, and wobbled in said swash plate chamber;

a plurality of double-headed pistons arranged to be reciprocated in said cylinder bores of said cylinder block assembly in response to a rotation of said drive shaft and said swash plate, to thereby perform a suction, compression, and discharge of the refrigerant gas;

suction passageway means provided in said cylinder block assembly for permitting a refrigerant gas in which a lubricant oil is suspended and contained to flow toward said cylinder bores when sucked from an external refrigerating circuit;

cylindrical chamber means for a separation of the lubricant oil from the refrigerant gas, arranged in a part of said suction passageway means, and provided with an opening directed toward an entering direction of a flow of said refrigerant gas from said external refrigerating circuit into said cylinder block assembly, and having an internal spacing having an appreciable volume defined therein; and

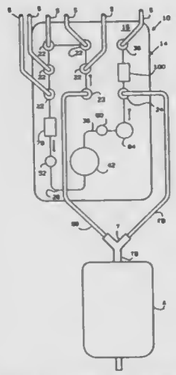
a communicating through-hole formed in a bottom wall of said cylindrical chamber means for fluidly communicating between said internal spacing of said chamber means and said swash plate chamber, to thereby permit said lubricant oil to flow from said cylindrical chamber means into said swash plate chamber.

5,062,774

SOLUTION PUMPING SYSTEM INCLUDING DISPOSABLE PUMP CASSETTE

David E. Kramer, Northbrook; Andrew J. Muetterties, Mundelein, and Walter T. Szempruch, Gurnee, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Dec. 1, 1989, Ser. No. 444,459
Int. Cl.[5] F04B *43/04*
U.S. Cl. 417—413 22 Claims



1. A pump cassette for use with an associated pump driver having a reciprocable pump plunger and a plurality of valve actuators, said pump cassette comprising:

a cassette body including a plate-like front body member, and a juxtaposed, plate-like rear body member; and

elastomeric diaphragm means positioned between said front and rear body members, said cassette body and said diaphragm means together providing said pump cassette with a plurality of liquid inlets including at least one downstream inlet at least one liquid outlet, a liquid flow path for joining said liquid inlets and outlet in fluid communication, and pump means operably driven by the pump plunger of said associated pump driver for pumping liquid from a selected one of said liquid inlets to said liquid outlet via said flow path,

said front and rear body members being joined to each other at marginal joint means extending along at least a portion of confronting marginal edges of said front and rear body members,

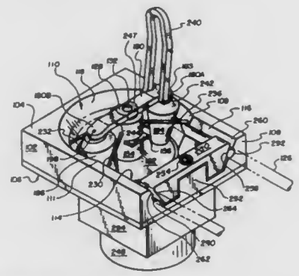
said front and rear body members being further joined together inwardly of said marginal joint means at diaphragm joint means, said diaphragm joint means extending completely about the periphery of said diaphragm means for enhancing sealing of said liquid flow path.

5,062,775

ROLLER PUMP IN AN EXTRA CORPOREAL SUPPORT SYSTEM

Jeffrey L. Orth, Salt Lake City, Utah, assignor to Rocky Mountain Research, Inc., Salt Lake City, Utah

Filed Sep. 29, 1989, Ser. No. 414,780
Int. Cl.[5] F04B *43/12*
U.S. Cl. 417—477 12 Claims



1. A roller pump comprising:

a housing having a top and a bottom;

a recess formed in said housing with a surface extending inwardly from the top of said housing;

axle means adapted to said housing in said recess to rotate relative to said housing;

arm means secured to axle means to rotate therewith, said arm means including locking means for removably securing said arm means to said axle means and said axle means including an engagement portion for engaging said arm means, and further including a handle means having a first position extending away from said arm means and a second position in which said handle means is positioned proximate said arm means;

roller means secured to said arm means and positioned proximate said surface for movement therealong upon rotation of said axle means;

adjustment means interpositioned between said axle means and said arm means for moving the arm means and in turn said roller means; and

a latch member movable between a first position in which the latch member engages the engagement portion to secure said arm means to said axle means and a second position in which the latch member is disengaged from the said engagement portion for removal of said roller means from said recess.

5,062,776

COMMUTATOR FOR ORBITING GEROTOR-TYPE PUMPS AND MOTORS

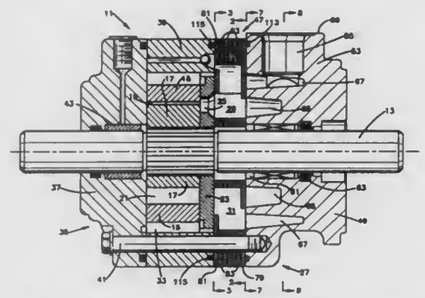
Andrew N. Dlugokecki, Bridgton, Me., assignor to Parker Hannifin Corporation, Cleveland, Ohio

Filed Aug. 4, 1989, Ser. No. 389,657
Int. Cl.[5] F03C *2/08*; F04C *2/10*
U.S. Cl. 418—61.3 12 Claims

1. An improved hydraulic pump or motor of the type having a commutator with an inlet port and outlet port therein connected, respectively, to a plurality of alternating inlet and outlet commutator openings formed in the commutator and

disposed in a circular array adjacent to a rotating valve plate disposed between said commutator and a rotating set of gerotor-type gears and which selectively communicates said inlet and outlet commutator openings with a said rotating set of gerotor-type gears, the improvement comprising:

said commutator comprising a chamber section which includes said inlet and said outlet extending radially outwardly therein; said chamber section having a face with a planar portion having hollow concentric chambers formed therein including a radially inner and a radially



outer annular chamber each of which is connected to a selected one of said inlet and outlet; and

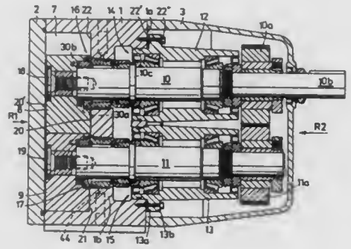
said commutator also comprising a pathways section disposed adjacent and in sealing relation with said face of said chamber section and having said plurality of inlet and outlet commutator openings therein; said pathways section having fluid pathways therein which connect said inlet commutator openings to said annular chamber of said chamber section which is connected to said inlet port, and which connect said outlet commutator openings to said annular chamber which is connected to said outlet port.

5,062,777

PUMP SEAL ARRANGEMENT ACCESSIBLE FROM THE BASE PLATE

Ulf Carlsson, Kristinehamn, Sweden, assignor to Johnson Pump AB, Orebro, Sweden

PCT No. PCT/SE89/00110, § 371 Date Oct. 12, 1989, § 102(e) Date Oct. 12, 1989, PCT Pub. No. WO89/08782, PCT Pub. Date Sep. 21, 1989
PCT Filed Mar. 8, 1989, Ser. No. 424,203
Claims priority, application Sweden, Mar. 17, 1988, 880096
Int. Cl.[5] F04C *27/00*
U.S. Cl. 418—104 11 Claims



1. A pump assembly comprising:

a pump housing which constitutes the pump's foundation for mounting said pump assembly on a support means;

said housing defining a working space therein for product-feeding units and having a front and rear portion, front and rear recesses provided in said front and rear portion of said pump housing and a front gable having at least a gable section removably fitted to said front portion of said pump housing;

a casing connected to said rear portion of said pump housing for enclosing parts of bearing axles of said units projecting from said housing, which are adapted to be fitted through said rear recesses prior to connection of said casing to said pump housing and for extending through said working space and into said front recesses, said axles being connected in a rotationally fixed manner to said units;

movement-transmitting elements for the axles supported in the pump housing;

sliding ring seals arrangements provided at said front recesses for sealing off said working space from rear parts of said pump, said sliding ring seals arrangements being accessible from said front portion of said housing through said removable gable section, sliding ring seals of each arragnement including a rotationally fixed part and at least one rotatable part;

a seat member provided at each of said front recesses of said pump housing for supporting said rotationally fixed portion of said sliding ring seal and adapted for interacting with an element for fixing axial displacement of said rotationally fixed part;

each of said sliding ring seals arrangements also including an exposed rear surface which is accessible to an extraction tool for extraction of said sliding ring seals arrangement, said extraction element being insertable over a respective axle from the front portion of said pump upon removal of said removable gable section and respective product-feeding unit;

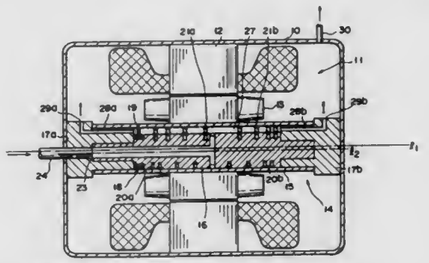
an abutting surface provided in said pump housing for interacting with respective bearing sleeve for adjustment of the position of said axle and corresponding unit in a direction of longitudinal displacement with respect to said seat for providing a gap of predetermined width between an inner limiting wall in said working space and a rear surface of said each unit and a gap between an inner surface of said front gable and end surfaces of said units.

5,062,778

HELICAL BLADE TYPE COMPRESSOR WITH THRUST LOSS COMPENSATION

Hitoshi Hattori, Yokohama; Hirotsugu Sakata, Chigasaki; Makoto Hayano, Tokyo; Masayuki Okuda, Kawasaki, and Naoya Morozumi, Machida, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 388,634, Aug. 2, 1989, abandoned. This application Feb. 21, 1991, Ser. No. 657,958
Claims priority, application Japan, Oct. 31, 1988, 63-275574
Int. Cl.[5] F04C *15/00*
U.S. Cl. 418—220 16 Claims



1. A helical blade type compressor comprising:

a cylinder;

a piston eccentrically arranged in said cylinder along an axial direction thereof so as to be rotated relative to said cylinder while a part of said piston is in contact with an inner surface of said cylinder, said piston having first and sec-

VOL 1132 ISS 1 NO 5 1991 UMI

ond helical grooves formed in an outer surface thereof and separated at a central portion thereof, pitches of said first and second helical grooves being gradually increased from both end portions to the central portion of said piston;

first and second blades, respectively inserted in said first and second helical grooves of said piston so as to be moved in and out of said grooves and having outer edges helically brought into contact with said inner surface of said cylinder, for partitioning a space between the inner surface of the cylinder and the outer surface of said piston into a plurality of operation chambers, volumes of the plurality of operation chambers corresponding to the gradual pitch increase;

fluid introducing means having a hollow portion formed in said piston along the axial direction thereof and between at least one end portion of the piston and a central portion of the piston, for introducing a fluid to be compressed into a large-volume operation chamber of the plurality of operation chambers, which corresponds to the central portion of said piston;

driving means for causing the fluid introduced into the large-volume operation chamber to branch into the operation chambers constituting two channels whose volumes are gradually decreased toward both the end portions of said piston and sequentially supplying the fluid by rotating said piston relative to said cylinder, said driving means including a motor section for rotating said cylinder, transmitting means for transmitting a rotational force of said cylinder to said piston and first and second bearings for rotatably supporting both end portions of said cylinder and both end portions of said piston;

fluid extracting means for extracting a compressed fluid obtained by causing the fluid to branch into the operation chambers of the two channels and sequentially supplying the fluid; and

a sealed case for housing at least said cylinder, said driving means and said fluid extracting means, and for storing a compressed fluid which is extracted by said extracting means therein;

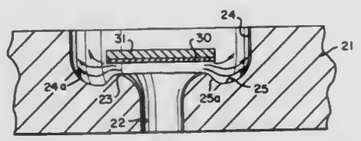
wherein said motor section includes a stator fixed in said sealed case and a rotor arranged inward from said stator, said rotor being fixed to an intermediate portion of said cylinder.

5,062,779

OUTLET VALVE FOR A ROLLING PISTON ROTARY COMPRESSOR

Caio M. F. N. Da Costa, Joinville, Brazil, assignor to Empressa Brasileira De Compressores S.A.-Embraco, Joinville, Brazil

Filed Feb. 27, 1990, Ser. No. 486,980
Claims priority, application Brazil, Mar. 9, 1989, PI 8901183
Int. Cl.[5] F04C *18/344;* F16K *15/16*
U.S. Cl. 418—270 **9 Claims**



1. An outlet valve for a rotary rolling piston compressor, comprising:

a cylinder of metal formed by a cylinder block and two opposed end walls,

A piston moving within said cylinder and defining a suction chamber and a compression chamber,

the outer face of one of the end walls having an oblong recess formed therein, said one end wall also having a gas discharge passage extending therethrough in the area of said oblong recess communicating with one of said chambers,

an annular valve seat at the outlet end of said gas passage extending upwardly from the bottom wall of the recess, the upper end of said seat being below the outer face of said one end wall,

a blade outlet valve located in said oblong recess for sealing the gas passage outlet by resting on said seat,

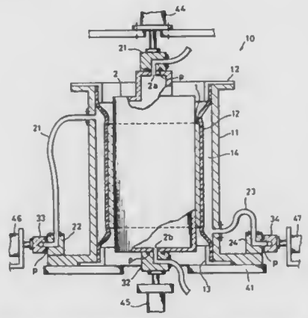
said seat having a continuous rounded surface starting from its interior at point before contact by the blade valve and on which the blade valve rests, and the junction of the recess bottom wall and the recess side wall circumscribing the valve seat having a concave curvature, the shape of the seat and junction serving to guide the gas around the junction and along the recess side wall.

5,062,780

VULCANIZATION APPARATUS

Toshio Nakagaki, Kobe, Japan, assignor to Bando Kabushiki Kaisha d/b/a Bando Chemical Industries, Ltd., Kobe, Japan

Filed Oct. 4, 1990, Ser. No. 592,844
Claims priority, application Japan, Oct. 31, 1989, 1-285482
Int. Cl.[5] B29C *43/12, 33/02, 33/34, 35/02*
U.S. Cl. 425—39 **2 Claims**



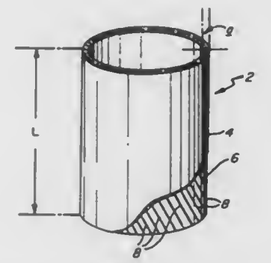
1. A vulcanization apparatus for vulcanizing a cylindrical rubber molding utilizing a heated fluid under pressure, comprising a cylindrical mold having a hollow interior, said mold being adapted to receive said molding over the external circumference thereof; a jacket comprising a tubular rubber sleeve mounted inside a cylindrical casing, both axial ends of said sleeve being secured and sealed to said casing, said jacket being dimensioned such that a molding and a mold can be inserted into said sleeve, an internal space between said casing and said sleeve being formed which when pressurized causes said sleeve to be swelled inwardly and the molding to be pressed by the inner circumference of said sleeve; first piping connected to said jacket to pass said fluid through said internal space; second piping connected to said mold to pass said fluid through said hollow interior, means for moving said jacket and said mold between a preparation position and a vulcanization position, and means for connecting said fluid to said jacket and to said mold when in said vulcanization position and disconnecting said fluid when in said preparation position.

5,062,781

REINFORCED TIRE CURING BLADDER

Walter Szyms, Trumbull, and Joseph W. Valaitis, Guilford, both of Conn., assignors to Firelli Armstrong Tire Corporation, New Haven, Conn.

Continuation-in-part of Ser. No. 230,735, Aug. 10, 1988, Pat. No. 4,877,469. This application Aug. 7, 1989, Ser. No. 390,627
The portion of the term of this patent subsequent to Oct. 31, 2006, has been disclaimed.
Int. Cl.[5] B29C *35/00*
U.S. Cl. 425—52 **11 Claims**



1. A tire processing bladder comprising a hollow, tubular relatively thin member having a tubular circumference extending around a tubular axis, said tubular membrane member inflatable to provide a circular circumference greater than the tubular circumference, said tubular membrane member having included therein a plurality of parallel cords, each said cord traversing a spiral path from one end to an opposing end of said tubular membrane at an angle of inclination with respect to the tubular axis, the relative thinness of said tubular membrane member permitting said cords to protrude from said tubular membrane member when formed to have said circular circumference to create reciprocal shallow areas between said cord lengths and thus form a matrix for venting air trapped between said tubular membrane member and an uncured tire, the inclination angle of said cords limiting the circular circumference by limiting the amount said tubular membrane member may be inflated, said tubular membrane member rotating substantially in a screw manner upon inflation into relatively close engagement with an inside surface of said uncured tire.

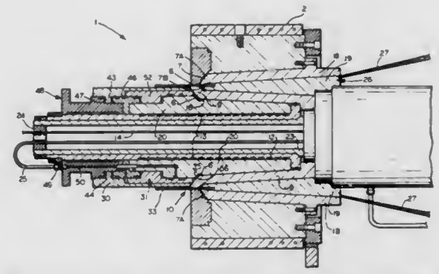
5,062,782

COEXTRUSION APPARATUS FOR VARYING THE INNER AND/OR OUTER PROFILE OF A TUBULAR EXTRUDATE

Dale A. Tompkins, Akron, and Richard W. Sicka, Brecksville, both of Ohio, assignors to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Jul. 24, 1990, Ser. No. 557,191
Int. Cl.[5] B29C *47/02, 47/06, 47/16*
U.S. Cl. 425—113 **11 Claims**

1. Coextrusion apparatus for varying the inner profile of a generally tubular extrudate, including an outer die assembly forming an outer extrusion orifice for forming the tubular extrudate, and an inner die assembly forming an adjustable inner extrusion orifice for depositing elastomeric material on an inner surface of the tubular extrudate for varying the inner profile of said extrudate; first means for forming an outer flow channel for delivering a first stream of an elastomeric material to the outer extrusion orifice of the outer die assembly to form the tubular extrudate; second means for forming an inner flow channel for delivering a second stream of an elastomeric material to the inner extrusion orifice of the inner die assembly; said inner die assembly having an axially movable annular compensating ring located concentrically within an axially movable annular die ring both of which extend in a downstream direction from the inner extrusion orifice; annular pistons cooperating with each of the die ring and compensating ring and spaced axially from each other downstream of the inner extrusion



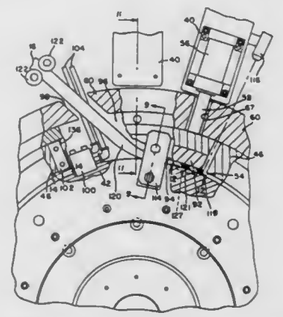
orifice, each of said pistons being axially movable within an annular fluid chamber; and fluid supply means communicating with each of the fluid chambers for reciprocally moving said pistons independently of each other for moving the die ring to vary the size of the inner extrusion orifice and for moving the compensating ring to vary the size of an expansion chamber in relationship to the size of the inner extrusion orifice, for controlling the pressure within the second stream of elastomeric material as it moves through said inner extrusion orifice for depositing on the inner surface of the tubular extrudate.

5,062,783

APPARATUS FOR INJECTION MOLDING TIRE TREADS

Norbert Majerus, and John S. Rambacher, both of Akron, Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Continuation-in-part of Ser. No. 295,988, Jan. 12, 1989, abandoned, which is a division of Ser. No. 202,130, Jun. 2, 1988, Pat. No. 4,826,416. This application Apr. 18, 1990, Ser. No. 512,534
The portion of the term of this patent subsequent to May 2, 2006, has been disclaimed.
Int. Cl.[5] B29C *45/14*
U.S. Cl. 425—115 **3 Claims**



1. Apparatus for injection molding of a continuous elongated body made of curable fluid molding material by increments said apparatus comprising a generally cylindrical segmental

VOL 1132 ISS 1 NO 5 1991 UMI

mold having a core and radially expandable and contractible mold segments at circumferentially paced positions around said core forming a mold cavity in said mold, a closed end of said mold cavity at a trailing end of a first one of said segments, an open end of said mold cavity adjacent a leading end of said first one of said segments spaced from said closed end a distance less than the length of said elongated body, said core having a textured surface at said open end of said mold cavity, means for injecting a curable fluid molding material into said mold cavity to form a first section of said elongated body in a first position with a trailing portion abutting said closed end, means for heating said injected fluid molding material to cure said first section, temperatur moderating means for limiting the heating of said trailing portion of said first section at said closed end of said first one of said segments to prevent full curing of said trailing portion of said first section, means for expanding said segments of said mold to permit shifting of said first section circumferentially from said first position in said mold cavity to a second position with said trailing portion of said first section at said open end of said mold cavity and the remainder of said first section being outside of said mold, means to support said cured elongated body as it is shifted circumferentially in said mold cavity after expansion of said segments, means for closing asid mold to move said segments radially inward to enclose said mold cavity and urge said second oen of said segments radially inward to clamp said trailing portion of said first section against said textured surface, said means for injecting said curable fluid molding material being operative to form a second sectino of said elongated body with a leading portion of said second section abutting said trailing portion of said first section, and a trailing portion of said second section abutting said closed end of said mold cavity at said end of said first one of said segments, said means for heating being operative to heat said injected fluid molding material of said second section and said trailing portion of said first section to cure said second section and adhere said trailing portion of said first section to said leading portion fo said second section, and said means for expanding said mold segments being operative to expand said mold segments radially outward to open said mold and permit movement of said trailing portion of said first section and said second section of said elongated body circumferentially through said mold cavity.

5,062,784

MOLDING CONDITION RECORDING APPARATUS FOR AN INJECTION MOLDING MACHINE

Yoshiharu Inaba, Kawasaki; Hideo Naito, Hino; Masao Kamiguchi; Noriaki Neko, both of Yamanashi, and Shinsuke Sakakibara, Komae, all of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

PCT No. PCT/JP89/00326, § 371 Date Oct. 25, 1989, § 102(e) Date Oct. 25, 1989, PCT Pub. No. WO89/09126, PCT Pub. Date Oct. 5, 1989

PCT Filed Mar. 28, 1989, Ser. No. 432,744

Claims priority, application Japan, Mar. 28, 1988, 63-71904

Int. Cl.[5] B29C *45/77*

U.S. Cl. 425—143 **5 Claims**

1. A molding condition recording apparatus for an injection molding machine comprising:

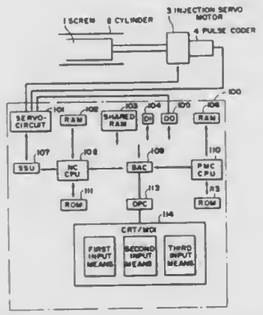
first input means for changeably inputting parameters which constitute one set of molding conditions, the one set of molding conditions consisting of plural groups of parameters;

first memory means for changeably storing the parameters constituting the one set of molding conditions;

second memory means for storing a plurality of stored sets of molding conditions including one or more stored sets of molding conditions that cause defective molding, the plurality of stored sets of molding conditions stored in said second memory means representing a history of processes for determining optimum molding conditions;

second input means for inputting a command to transfer the one set of molding conditions stored in said first memory means to said second memory means as one of the plurality of stored sets of molding conditions; and

control means for controlling said first and second memory



means so that the one set of molding conditions is stored in said second memory means as the one of the plurality of stored sets of molding conditions in response to an operation of said first and second input means.

5,062,785

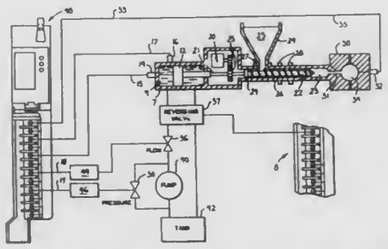
INJECTION MOLDING CONTROLLER WITH PROCESS VARIABLE LEARNING

James W. Stroud, III, Cleveland, and John F. Dodds, Newbury, both of Ohio, assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.

Filed Jun. 15, 1990, Ser. No. 538,970

Int. Cl.[5] B29C *45/77*

U.S. Cl. 425—145 **4 Claims**



1. A controller for use with an injection molding machine having a ram to inject plastic material into a mold cavity during at least one stage of an injection molding cycle, the injection molding machine having a valve for receiving a control signal and controlling the ram, and a transducer for producing a process signal related to a response of the ram to the control signal, the controller comprising:

a memory for storing profile data for the at least one stage, the profile data being comprised of a plurality of segments of data each segment having a start and end delineated by startpoint data and each segment associated with a velocity setpoint;

a segment pointer for addressing the memory and identifying a current segment and the segment's current setpoint and for producing a transition signal at the end of a segment;

an open-loop control means for receiving the current setpoint determined by the segment pointer and converting the current setpoint to a first control signal for controlling the valve during a first period during the current segment;

a closed-loop control means for receiving the process signal from the injection molding machine and the current setpoint determined by the segment pointer to produce a second control signal for controlling the valve during a second period during the current segment and after the first period; and

a setpoint correcting means responsive to the transition signal to compare the process signal at the end of the segment to the current setpoint in the memory to reduce a difference between the process signal and the current setpoint by changing the current setpoint in memory.

5,062,786

MOLDING DEVICE FOR MOLDING OPTICAL ELEMENTS

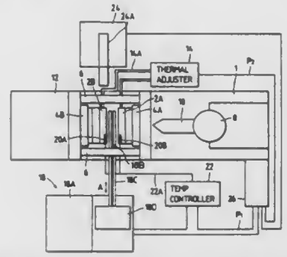
Takashi Arai, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 11, 1989, Ser. No. 448,544

Claims priority, application Japan, Dec. 12, 1988, 63-314512; Dec. 16, 1988, 63-317698; Jul. 4, 1989, 1-171219; Jnl. 7, 1989, 1-174120; Jul. 10, 1989, 1-175579

Int. Cl.[5] B29C *45/73*

U.S. Cl. 425—174 **4 Claims**



1. A molding apparatus having a cavity formed by a movable side mold, said molding apparatus being provided with a circulating pathway for circulating a cooling medium;

an injection cylinder for injecting a resin into said cavity;

a mold driving means for opening and closing said molding apparatus;

a high frequency heating means having a coil member for heating said molding apparatus, an oscillation control section for heating said coil member and a progressing and retreating means for heating said cavity when said molding apparatus is open;

a mold temperature detecting means including, a temperature sensor for measuring the temperature of said molding apparatus;

a mold temperature control means including said cooling medium flowing through said circulating pathway provided within said molding apparatus;

a means for stopping oscillation of said coil member when said molding apparatus reaches a predetermined temperature peak; and a cooling medium temperature control means for of maintaining a constant temperature in said molding apparatus after said molding apparatus is closed.

5,062,787

ROTARY TYPE INJECTION ORIENTATION BLOW MOLDING MACHINE

Setsuyuki Takeuchi, Toguramachi, Japan, assignor to A.K. Technical Laboratory, Inc., Japan

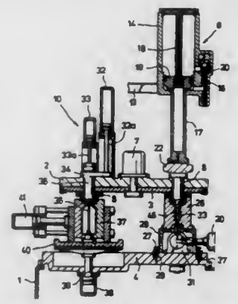
Filed Oct. 30, 1990, Ser. No. 605,989

Claims priority, application Japan, Oct. 30, 1989, 1-282807

Int. Cl.[5] B29C *49/06*

U.S. Cl. 425—522 **3 Claims**

1. A rotary injection orientation blow molding machine comprising a machine bed, a horizontal base plate vertically movably supported above said machine bed, tie bars on said machine bed, the base plate having portions of a peripheral edge thereof which are installed on said tie bars which are standing upright on said machine bed, said base plate having an underside spaced below said machine bed, a transfer plate rotatably mounted on said underside of said base plate, said transfer plate having a lower surface and having hold molds at three locations of said lower surface thereof, said base plate having an upper portion, a drive device located in a central portion of said upper portion of said base plate to intermittently rotate said transfer plate by a predetermined angle to bring each said hold mold to a said location of said transfer plate, a vertical clamping device and an injection mold with stop positions of said hold molds serving as an injection molding portion, an orientation blow molding portion and a releasing portion, respectively, a blow mold and orientation blow device, and a releasing device provided at predetermined locations above said machine bed, said tie bars having upper ends, a frame for connecting said upper ends of said tie bars with



each other, and a fixed plate downwardly having a clamping cylinder of said clamping device, said clamping cylinder being integrally molded to said fixed plate, said fixed plate being secured to said tie bars on both sides of said injection molding portion, a plurality of base plate vertically moving cylinders provided over said machine bed and at the peripheral edge of the base plate, said clamping device comprising a clamping cylinder including an upper and lower chamber wherein the inner diameter of said upper chamber is larger than the inner diameter of said lower chamber and both said chambers are communicated by a bypass provided with a closing valve, a cylindrical clamping ram extended through a central portion of said clamping cylinder, and said cylindrical clamping ram having a piston of an outer diameter matched to the diameter of said lower chamber and having a booster ram inserted therein.

5,062,788

HIGH EFFICIENCY LINEAR GAS BURNER ASSEMBLY

Willie H. Best, Columbia, S.C., assignor to Haden-Schweitzer Corporation, Madison Heights, Mich.

Continuation of Ser. No. 295,264, Jan. 10, 1989, abandoned. This application Jan. 24, 1991, Ser. No. 647,173

Int. Cl.[5] F23D *14/12*

U.S. Cl. 431—7 **29 Claims**

22. Process of burning fuel to produce heat, comprising:

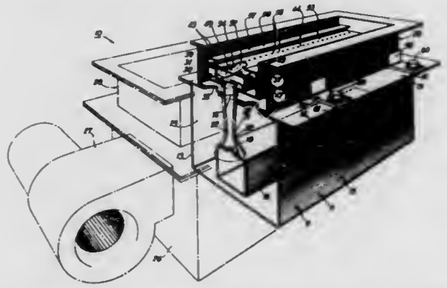
(a) disposing a first plate and a second plate adjacent to each other to define therebetween a first chamber, said first plate and said second plate each defining spaced apertures therethrough, said apertures of said first plate being misaligned with said apertures of said second plate and having diameters, the distance between said first plate and said second plate being less than one-fourth of the diameter of one of said apertures of said second plate;

(b) passing a combustible fuel through the apertures of said first plate and into said first chamber under sufficient pressure that said fuel moves at a first velocity laterally in said chamber away from said apertures of said first plate and toward and through said apertures of said second

VOL 1132 ISS 1 NO 5 1991 UMI

plate for emerging at a second velocity from said apertures of said second plate;

(c) controlling said first velocity of said fuel in said chamber around said perimeters of said apertures of said second plate so that said first velocity of said fuel around said



perimeters of said apertures of said second plate is greater than said second velocity of said fuel emerging from said apertures of said second plate; and

(d) igniting said fuel emerging from said apertures of said second plate.

5,062,789

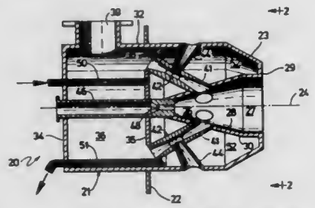
ASPIRATING COMBUSTION SYSTEM

Gregory M. Gitman, 3642 Frederica Rd., Duluth, Ga. 30106

Continuation of Ser. No. 203,803, Jun. 8, 1988, abandoned. This application Aug. 27, 1990, Ser. No. 574,500

Int. Cl.[5] F23D *21/00*

U.S. Cl. 431—9 16 Claims



1. A method of firing a furnace with an ongoing hydrocarbon flame formed in a combustion chamber of a burner and emitted from the combustion chamber into a furnace comprising the steps of:

circulating a cooling liquid in the burner about the combustion chamber to cool at least a portion of the burner,

injection a fluid hydrocarbon fuel into a combustion chamber of the burner mounted to a furnace,

injecting an oxygen based gas having an oxygen content greater than atmospheric air into the combustion chamber,

mixing the oxygen based gas with the fuel in the combustion chamber to form a flame in the combustion chamber,

emitting the flame from the combustion chamber of the burner toward the furnace, and

injecting the oxygen based gas into the combustion chamber through an oxygen based gas passage to form a zone of reduced pressure of the oxygen based gas in the burner, the zone being in communication with the furnace thereby inducing with the zone of reduced pressure the movement of some of the furnace gas from within the furnace through a passage within the liquid cooled portion of the burner and into the flame in the combustion chamber to reduce the temperature of the flame in the combustion chamber before the flame passes into the furnace.

5,062,790

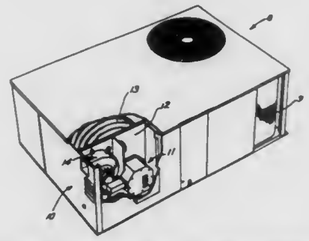
BURNER SOUND REDUCTION ENCLOSURE

Gregory C. Loberger, Dallas, Tex., and Jay L. Slind, Superior, Wis., assignors to Lennox Industries Inc., Carrollton, Tex.

Filed Mar. 9, 1990, Ser. No. 490,926

Int. Cl.[5] F23D *11/40*

U.S. Cl. 431—114 6 Claims



1. For use with a furnace having an outer housing, a combustion chamber within said housing, a burner associated with said combustion chamber and adapted to communicate with a source of fuel, means for supplying air to the combustion chamber, said fuel and said air being ignited in the combustion chamber, the improvement characterized by a sound reduction enclosure means secured within said housing, said sound reduction enclosure means including a muffler portion defining an elongated air passage having an air opening at one end and a baffle in said elongated air passage, said sound reduction enclosure means comprising a generally octagon-shaped enclosure that contains the noise emission from the combustion chamber and avoids harmonic/pure tone resonance, said air opening to the muffler portion being restricted and the elongated air passage being serpentine to eliminate direct sound emission from said air opening, said muffler portion being constructed and arranged so as to redirect sound emission toward the source, the sound reduction being on the order of 7–16 db in the 63–250 Hz range as compared to the same furnace without the sound reduction enclosure.

5,062,791

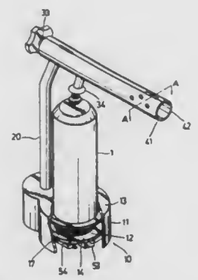
GAS BLOWTORCH

Charg-Shing Liou, No. 647, Fu-Hsing Rd., Fu-Hsing Li, Tsao-Tun Chen, Nan-Tou Hsien, Taiwan

Filed Apr. 1, 1991, Ser. No. 678,218

Int. Cl.[5] F23Q *7/12*

U.S. Cl. 431—266 6 Claims



1. A blowtorch, comprising:

a replaceable gas cylinder;

a base including a hollow body having an open top end and defining a hollow space, and a first plate covering said open top end and having an opening to slidingly receive a lower portion of said gas cylinder;

a tubular support rod extending perpendicular to and upward from a portion of said first plate which is spaced from said opening;

a torch head mounted horizontally on a distal end of said tubular support rod, said torch head having a front end, a rear end, a gas outlet formed on said front end, a gas regulating means provided on said rear end to control gas flow through said gas outlet, and a downwardly extending gas inlet means engaging said gas cylinder to permit controlled release of gas contained in said gas cylinder through said gas outlet;

a protective cover assembly longer than and detachably fitted over said torch head, said protective cover assembly including a pair of elongated casing halves, which casing halves are hinged together on one side, and releasably secured to one another on the other side;

a spark igniter means mounted on said torch head; and

means for generating a high voltage output to trigger said spark igniter means to produce a spark;

whereby, gas released at said gas outlet mixes with air to form a combustible mixture, said spark produced by said spark igniter means ignites the combustible mixture to produce a flame output.

5,062,792

HYBRID BURNER FOR A PRE-MIXING OPERATION WITH GAS AND/OR OIL, IN PARTICULAR FOR GAS TURBINE SYSTEMS

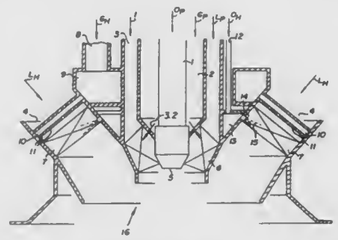
Helmut Maghon, Mülheim/Ruhr, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 148,447, Jan. 26, 1988, abandoned. This application Oct. 20, 1989, Ser. No. 425,432

Claims priority, application Fed. Rep. of Germany, Jan. 26, 1987, 3702181

Int. Cl.[5] F23Q *9/00*

U.S. Cl. 431—284 11 Claims



1. Burner for operation with gas and/or oil having a burner outlet, comprising a central pilot burner system operble with gas and/or oil fuel; and an annular main burner system surrounding said pilot burner system and carrying a primary air flow, said main burner system including a multiplicity of first nozzles for admixing gas with the primary air flow for pre-mixing gas and air upstream of the burner outlet, and a plurality of second inlet nozzles for admixing oil into the primary air flow for pre-mixing oil and air upstream of the burner outlet, and said pilot burner system including means for feeding inert substances.

5,062,793

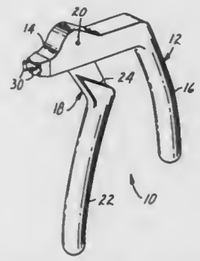
DEBONDING INSTRUMENT FOR ORTHODONTIC BRACKETS

James D. Cleary, and Robert P. Eckert, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 8, 1989, Ser. No. 404,954

Int. Cl.[5] A61C *3/00*

U.S. Cl. 433—3 7 Claims



1. An instrument for debonding an orthodontic bracket having occlusal and gingival wings from a tooth comprising:

a body;

a lever movably connected to said body;

a pair of arms connected to said lever and each having a pulling section, said pulling sections adapted to engage the bracket behind both of the occlusal and the gingival wings and exert a pulling force on the occlusal and gingival wings simultaneously upon movement of said lever relative to said body; and

a pair of reaction supports connected to said body and extending in an occlusal-gingival direction contacting the tooth along the mesial and distal sides of the bracket when both of said pulling sections are in engagement with the bracket behind the occlusal and gingival wings.

5,062,794

ORTHODONTIC APPLIANCE WITH SHOULDER SUPPORT FOR LIGATURE

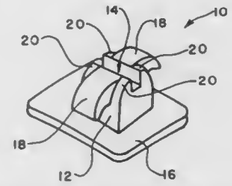
Fujio Miura, Tokyo, Japan, assignor to GAC International, Inc., Central Islip, N.Y.

Filed Apr. 2, 1990, Ser. No. 503,293

Claims priority, application Japan, Jun. 20, 1989, 1-155895

Int. Cl.[5] A61C *3/00*

U.S. Cl. 433—10 17 Claims



1. An orthodontic appliance including a bracket portion, comprising:

an archwire slot defined in the bracket portion, the archwire slot extending substantially in the mesial-distal direction of the appliance and being adapted to receive an archwire therein, the bracket portion including four shoulders on the free ends thereof, two shoulders being located on opposite sides of the archwire slot with respect to each other on the mesial end of the appliance and the other two shoulders being located on opposite sides of the archwire slot with respect to each other on the distal end of the

VOL 1132 ISS 1 NO 5 1991 UMI

appliance, each shoulder defining a supporting surface, thus forming two supporting surfaces located on either side of the archwire slot on the mesial end of the appliance and two supporting surfaces located on either side of the archwire slot on the distal end of the appliance, each supporting surface supporting a ligature thereon spaced away from an archwire received within the archwire slot to permit the appliance to move relative to the archwire during orthodontic treatment.

5,062,795

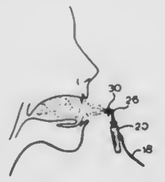
THERAPEUTICALLY CARING FOR THE MOUTH AND THROAT

Philippe G. E. Woog, Villa Le Sequoia, Vesenaz, Switzerland

Continuation of Ser. No. 64,659, Jun. 22, 1987, abandoned. This application Apr. 4, 1990, Ser. No. 504,695

Int. Cl.[5] A61G *17/02*

U.S. Cl. 433—80 **11 Claims**



1. An apparatus for wound lavage and for moisturizing and therapy of the oral cavity and throat, comprising:

a liquid pulse generator;

a spray break-up nozzle connected to said liquid pulse generator including means for setting a discharge rate of said nozzle to between 10 and 100 ml/minute and a pin-hole discharge opening designed for emitting a nebulized fine spray pattern of relatively small droplets in the form of fine mist under pressure and consisting essentially of liquid droplets small enough to prevent harm to tissues of the mouth and throat.

5,062,796

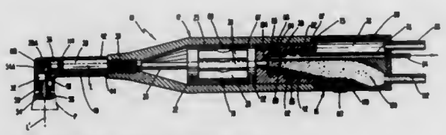
DENTAL HANDPIECE

Neil A. Rosenberg, 10 Hussey Farm Rd., Nantucket, Mass. 02554

Filed Jul. 17, 1990, Ser. No. 553,382

Int. Cl.[5] A61C *1/10, 17/02, 3/02, 1/02, 3/06;* A61G *17/02*

U.S. Cl. 433—82 **16 Claims**



1. A dental handpiece comprising:

a casing having front and rear ends and defining a front-to-rear extending axis,

a rotatably driven output member disposed at said front end of said casing and adapted to removably carry a rotary dental tool,

hollow drive shaft means mounted in said casing for rotation about said front-to-rear extending axis and being operably connected to said output member to drive the latter, said hollow drive shaft means defining an internal conduit,

an air-driven rotor connected to said hollow drive shaft means for transmitting rotary motion thereto,

means situated within said casing and communicating with said hollow drive shaft means for introducing a flowable cleaning agent into said internal conduit defined by said hollow drive shaft means,

means for supplying pressurized air to said rotor for pneumatically rotating said hollow drive shaft means and said output member, and for supplying pressurized air into said internal conduit defined by said hollow drive shaft means for pneumatically forcing cleaning agent through said internal conduit toward said output member.

5,062,797

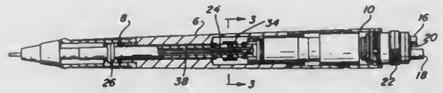
ALLOY BEARING FOR DENTAL SCALER

Donald I. Gonser, Lancaster, Pa., assignor to Den-Tal-Ez, Inc., Audubon, Pa.

Filed Sep. 5, 1990, Ser. No. 578,651

Int. Cl.[5] A61C *3/08*

U.S. Cl. 433—118 **14 Claims**



1. In a dental scaler having a rotor rotatable about a shaft and operably engageable therewith to produce vibrations, the improvement comprising a nickel-boron alloy layer comprising from about 98.5 to about 99.5 weight percent nickel and from about 1.5 to about 0.5 weight percent boron, based on the total weight of said nickel-boron alloy, interposed between the rotor and the shaft to provide a wear resistant, low friction bearing surface.

5,062,798

SIC BASED ARTIFICIAL DENTAL IMPLANT

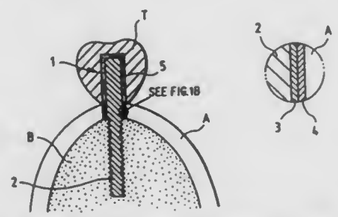
Kazuto Tsuge; Masateru Hattori; Kazuo Kondo, and Yoshimasa Shibata, all of Aichi, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed Apr. 26, 1989, Ser. No. 343,207

Claims priority, application Japan, Apr. 27, 1988, 63-102797; May 18, 1988, 63-119269

Int. Cl.[5] A61C *8/00*

U.S. Cl. 433—201.1 **7 Claims**



1. An artificial radix dentis comprising a first portion adapted to be buried in an alveolar bone and a second portion adapted to contact a gingiva, wherein at least an outermost layer of said first portion consists essentially of a SiC-based ceramic material.

5,062,799

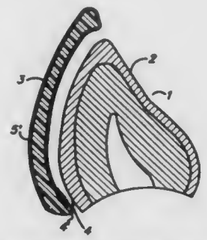
INTERFACE MATRIX FOR DENTAL RESTORATION

Frank L. Duncan, 210-15 Northern Blvd., Bayside, N.Y. 11361, and Vincent Chiaramonte, 113 Mayfield Dr., Mastic Beach, N.Y. 11951

Filed Oct. 13, 1989, Ser. No. 420,943

Int. Cl.[5] A61C *5/00*

U.S. Cl. 433—215 **3 Claims**



1. The process of applying a dental surface restoration matrix to the face of an existing natural tooth, comprising the following steps; a. lubricating the surface of the natural tooth, b. forming a glass filament matrix having inner and outer surfaces on the natural tooth, coating the matrix with a first curable material on the outer face and a second curable material on the inner face, c. curing the matrix assembly, d. removing the matrix assembly from the natural tooth, e. applying composite surface material of the proper color to the first material on the outer surface of the matrix, f. replacing the matrix assembly on the natural tooth with a bonding agent.

5,062,800

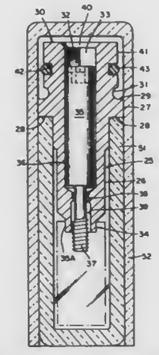
DENTAL IMPLANT HANDLE, AND DENTAL IMPLANT PACKAGE INCLUDING A DENTAL IMPLANT HANDLE

Gerald A. Niznick, Encino, Calif., assignor to Core-Vent Corporation, Encino, Calif.

Filed Mar. 21, 1990, Ser. No. 496,610

Int. Cl.[5] A61C *5/00*

U.S. Cl. 433—229 **15 Claims**



1. A handle adapted for holding a dental implant comprises a body section including a middle portion adapted to fit within and to close a container for said implant, a first end portion connected to said middle portion and including implant-engaging means comprising a multi-sided configuration adapted to engage a complementary multi-sided configuration on a dental implant, and a second end portion connected to said middle portion and including means for engaging an implant insertion device, said body section having an internal passage adapted for receiving shaft means adapted for connecting said implant to said implant-engaging means, and shaft means including means for holding an implant to said implant-engaging means when said shaft means is inserted into said internal passage, and connected to an implant.

5,062,801

FUNCTION UNIT IN WHICH CIRCUIT BOARDS ARE MOUNTED ON A CENTER PLANE BY WAY OF DISTRIBUTION BOARDS

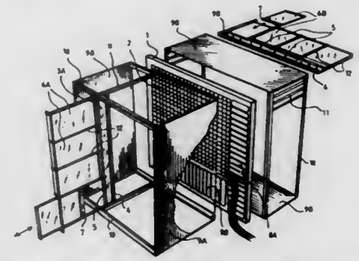
Sture G. Roos, Bergshamra, Sweden, assignor to Telefonaktiebolaget L M Ericsson, Sweden

Filed Sep. 14, 1990, Ser. No. 582,355

Claims priority, application Sweden, Oct. 2, 1989, 8903228

Int. Cl.[5] H05K *1/14*

U.S. Cl. 439—61 **20 Claims**



1. A function unit for electronic equipment, comprising:

a center plane having electrical contact pins mounted thereon over a substantial portion of its surface area, said contact pins being arranged in rows and columns on said center plane to form groups, said contact pins being electrically insulated form the center plane and including contact pins disposed along one edge margin of the center plane in a first terminal field, said first terminal field extending longitudinally along substantially the whole of said one edge margin and being accessible from one side of the center plane, said first terminal field being adapted to be connected with at least incoming and outgoing signal lines and current supply lines;

a plurality of distribution boards adapted to be mounted substantially perpendicularly to and on opposite sides of said center plane, each of said distribution boards being provided with a first electrical contact device along one edge thereof that is adapted to face towards the center plane and being provided with at least one second electrical contact device along an opposite edge thereof, said first electrical contact devices being adapted to mate with said contact pins; and

a plurality of circuit boards, each of said circuit boards being provided with a connection device for connection to one of said second electrical contact devices on said distribution boards, said circuit boards being adapted to be positioned in a plane substantially parallel to the plane in which lies the respective distribution board to which the circuit board is to be attached, said distribution boards extending transversely across a substantial portion of the center plane and being provided with means for effecting the distribution of electrical signals to, from the between the circuit boards, the distribution boards adapted to be mounted on said one side of the center plane being adapted to be positioned substantially parallel to the longitudinal extent of the first terminal field, the distribution boards adapted to be mounted on the opposite side of the center plane being adapted to be positioned substantially perpendicular to the longitudinal extent of the first terminal field.

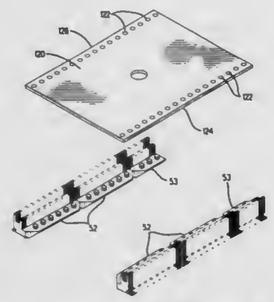
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,802

CONTACT MODULE FOR A LOW HEIGHT MULTI-CHIP CARRIER SOCKET

Dimitry G. Grabbe, Middletown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 1, 1990, Ser. No. 608,122
Int. Cl.[5] H01R *9/09*
U.S. Cl. 439—72 21 Claims



1. A contact module for arranging with another similar contact module to form a connector for electrically connecting the leads of a component to respective pads on a substrate, wherein the leads are spaced apart and projecting from a peripheral edge of the component, and wherein a positioning means is included for positioning both said contact module and said similar contact module with respect to said pads only during assembly of said modules in said forming of said connector, said positioning means being separable from said modules thereafter, comprising:

(a) a body having a longitudinal axis and a plurality of slots formed lateral to said longitudinal axis;

(b) a plurality of contacts, one for each of said slots and arranged for electrically connecting some of said leads to respective ones of said pads on said substrate, each said contact including a terminal portion arranged to electrically engage a respective said pad and a contacting portion arranged to electrically engage a respective said lead;

(c) locking means for urging each said lead into pressing electrical contact with said contacting portion of a respective one of said contacts;

(d) means for engaging features on said positioning means for aligning said body therewith.

5,062,803

PLUG PULLER

Perry C. Howard, deceased, late of Naples, and by Moses W. Howard, 1959 Fourth Street Ct., Naples, both of Fla. 33940

Filed Oct. 15, 1990, Ser. No. 596,962
Int. Cl.[5] H01R *13/62*
U.S. Cl. 439—160 20 Claims

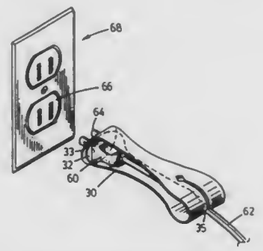
1. A device for disengaging a plug member from a receptacle, comprising:

an elongated strap member, said strap member having flat faces for latching together ends of said strap member; and

an aperture formed in the strap member for each portion of said plug member that is to be inserted into said receptacle, each aperture being formed so as to operatively engage about its corresponding portion of said plug member to be inserted into said receptacle, said strap member being mounted on said plug member so as to form a loop thereabout so that said loop can be grasped and pulled at a rear portion thereof at a distance from said plug member to disengage said plug member from said receptacle;

and wherein:

said elongated strap member is made of an electrically non-conductive material and has a central portion and two end portions located on opposite sides of said central portion, at least one of said central and end portions having an elongated aperture through which said plug member and an electrical cord attached thereto can be threaded,



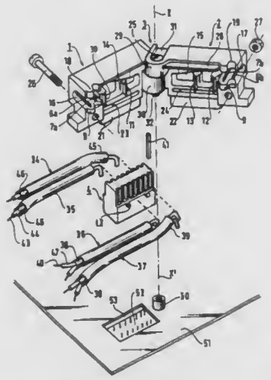
at least one of said central and end portions having a set of two or more apertures accepting prongs of said plug member.

5,062,804

METAL HOUSING FOR AN ELECTRICAL CONNECTOR

Daniel Jamet, Nozay, and Christian Guiberteau, Longjumeau, both of France, assignors to ALCATEL CIT, Paris, France

Filed Nov. 23, 1990, Ser. No. 617,841
Claims priority, application France, Nov. 24, 1989, 89 15481
Int. Cl.[5] H01R *4/24*
U.S. Cl. 439—394 8 Claims



1. Metal housing for an electrical connector comprising two facing metal half-housings and assembly means for enclosing a connector plug adapted to be inserted into a connector socket and to be connected to at least one cable comprising a conductive braid covered with insulation and surrounding at least one insulated electrical conductor projecting beyond the end of the braid,

wherein each half-housing comprises:

at least one orifice on the periphery of the half-housing and having an open contour when the two half-housings are open and a closed contour when they are closed, said closed contour having dimensions adapted to allow at least one cable to pass through it;

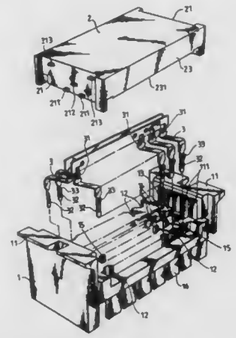
at least one fork-shape projection in said at least one orifice, said projection being integral with said half-housing and constituting an insulation-displacement contact for establishing an electrical connection between the half-housing and the braid of a cable and for retaining the cable.

5,062,805

STRUCTURE OF CABLE CONNECTOR FOR MATCHING WITH IC MOUNTING SEAT

Yun-Yu Liu, Taipei; Hsiao-Lei Shih, Hsin Tien; Yang-Chih Chyou, Chung Ho, and Ming-Shing Laiw, Yun Lin Hsien, all of Taiwan, assignors to Pan-International Industrial Corp., Taipei, Taiwan

Filed Nov. 27, 1990, Ser. No. 618,413
Int. Cl.[5] H01R *4/24*
U.S. Cl. 439—404 2 Claims



1. A cable connector, comprising a plug seat for mounting in an IC mounting seat of an electric control circuit of a machine, an upper cover connected to said plug seat at the top, and a terminal assembly fastened therebetween for connection thereto of a bus line from another machine;

said plug seat comprising a plurality of plug pins at two opposite sides for fastening in a plurality of plug holes made on said IC mounting seat, two brackets at two opposite ends, said brackets having each a plurality of parallel recesses at an inner side, two rows of mounting slots at two opposite sides within said plug pins, an elongated locating seat at a top portion middle, said locating seat having a plurality of grooves alternatively vertically disposed at two opposite sides and obliquely aligned with said mounting slots, and a row of projecting strips longitudinally disposed at a top portion between said locating seat and one of said two rows of mounting slots;

said upper cover comprising a large face plate, two opposite end walls at two opposite ends, a shorter side wall at one side and a longer side wall at an opposite side, said face plate having a plurality of posts extending downward therefrom at two opposite ends, said end walls having each a plurality of projecting blocks respectively disposed at lower, middle and upper positions;

said terminal assembly comprising a plurality of contact ends respectively obliquely curvilinearly extending downward from a plurality of connecting racks; and

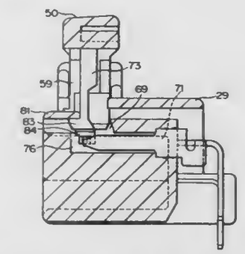
wherein said contact ends of said terminal assembly are respectively fastened in said mounting slots, said connecting racks of said terminal assembly are respectively vertically fastened in said grooves of said locating seat, the projecting blocks at lower and middle positions on said end walls of said upper cover are respectively fastened in said parallel recesses of said brackets of said plug seat to define a bus line mounting hole between the bottom edge of said shorter side wall of said upper cover and a top edge of said connecting racks of said terminal assembly for mounting a bus line in the space defined within said posts of said face plate, permitting said connecting racks of said terminal assembly to be further squeezed by said upper cover to respectively pierce in said bus line and electrically connect the conductors thereof.

5,062,806

ELECTRIC CONNECTOR

Akira Ohno, Tokyo; Kunihiko Muraoka, and Wataru Nakazato, both of Gunma, all of Japan, assignors to Japan Aviation Electronics Industry, Limited and Fuji Jukogyo Kabushiki Kaisha, both of, Japan

Filed Dec. 14, 1990, Ser. No. 628,335
Claims priority, application Japan, Dec. 19, 1989, 1-145461[U]
Int. Cl.[5] H01R *3/00*
U.S. Cl. 439—490 7 Claims



1. An improved electric connector comprising:

at least one socket connector;

a pin connector provided with at least one receiving hole adapted for receiving said socket connector;

a detection lever provided with a plurality of legs extending towards said receiving hole and coupled to said pin connector in an arrangement such that said legs should intrude into said receiving hole to rest in a corresponding recess formed in said socket connector when said socket connector is completely received in said receiving hole of said pin connector and said detection lever is depressed against said pin connector;

at least one pair of switch contacts arranged within said pin connector; and

at least one push rod coupled to said detection lever so as to push and open said switch contacts, only when said detection lever is depressed and said socket connector is completely received in said receiving hole of said pin connector.

5,062,807

LIGHTED ELECTRICAL CONNECTOR PERMITTING MULTI DIRECTIONAL VIEWING

Robert J. Guss, III, Glen Ellyn, Ill., assignor to Woodhead Industries, Inc., Northbrook, Ill.

Filed Oct. 22, 1990, Ser. No. 600,916
Int. Cl.[5] H01K *3/00*
U.S. Cl. 439—490 10 Claims

1. A quick-disconnect connector assembly for completing an electrical circuit to connect a functional device to a load, and for indicating a continuity condition for the electrical circuit, said connector assembly comprising:

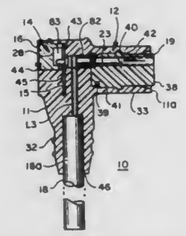
connector body means including a lens portion, said connector body means having a rear surface, a top surface and first and second side surfaces;

contact means including a plurality of contact elements located within said connector body means;

a multi-conductor cable including a plurality of electrical conductors, a terminating portion of said cable extending into said connector body means, at least first and second conductors of said plurality of conductors being electrically connected to first and second ones of said contact elements within said connector body means;

VOL 1132 ISS 1 NO 5 1991 UMI

indicating circuit means within said connector body means and including first and second light sources located adjacent to said lens portion, said first light source being energized to indicate a first continuity condition when power is connected to said electrical circuit and said second light source being energized to indicate a second continuity condition when power is applied to the load; said first light source emitting light in a first frequency band and said second light source emitting light in a second frequency band, said lens portion having a forward surface, an upper surface and first and second side surfaces and being constructed and arranged to transmit light in said first frequency band at least through portions of its forward and upper surfaces and through said first side surface



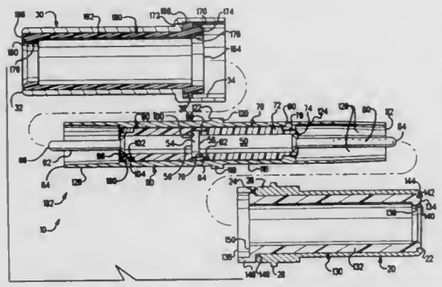
and to transmit light in said second frequency band at least through portions of its forward and upper surfaces and through said second side surface of said lens; said indicating circuit means being electrically connected to said contact means within said connector body means to enable one of said light sources to be energized whenever the continuity condition associated therewith is provided, said lens portion being of a light transmissive material and defining a plurality of light transmitting surfaces which are oriented in at least two different respective directions, whereby whenever one of said continuity conditions is provided, light produced by said light source associated with said condition is transmitted through said lens portion in different directions.

5,062,808

ADAPTER FOR INTERCONNECTING SOCKET CONNECTORS FOR TRIAXIAL CABLE

Robert C. Hosler, Sr., Marysville, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 12, 1991, Ser. No. 684,719
Int. Cl.[5] H01R *17/18*
U.S. Cl. 439—580 **12 Claims**



1. An adapter assembly for interconnecting two triaxial connectors of the type having an inner signal contact, an intermediate ground therearound, and an outer conductor thereabout, comprising:

an inner contact member disposed within a first dielectric sleeve means and coaxially disposed within an intermediate contact member, all of which is disposed within a second dielectric sleeve means and coaxially within an outer contact means;

said inner contact member including a body section extending between forward and rearward contact sections and an annular collar around said body section cooperable with stop surfaces of said first sleeve means to assure precise locating of first and second contact ends with respect to forward and rearward stop means of said first sleeve means;

said intermediate contact member being tubular and having forward and rearward ends and including at least a first stop means therewithin cooperable with a corresponding one of said forward and rearward stop means of said first sleeve means to assure precise locating of said first sleeve means therewithin, in conjunction with a retention means firmly securable within said intermediate contact member at a selected location therealong and cooperable with the other of said forward and rearward stop means of said first sleeve means;

said intermediate contact member further including an annular collar therearound cooperable with stop surfaces of said second sleeve means to assure precise locating of said first and second contact ends of said inner contact member held within said intermediate contact member, with respect to forward and rearward stop means of said second sleeve means; and

said outer contact means being tubular and having forward and rearward ends and being continuous axially along the assembly at least after assembly thereof and including forward and rearward stop means therewithin cooperable with said forward and rearward stop means of said second sleeve means to assure precise locating of said first and second contact ends of said inner contact member held within said intermediate contact member within said outer contact means;

said first sleeve means adapted to provide dielectric material about said inner contact adapted to provide dielectric material about said intermediate contact continuously therealong;

whereby the inner contact member, first sleeve means, intermediate contact member, second sleeve means and outer contact means define a series of interrelated precisely located stop means when assembled to assure precise locating of contact sections of said inner contact with respect to ends of the adapter assembly and indirectly with respect to corresponding contact means of opposing triaxial connectors matable therewith.

5,062,809

HIGH-FREQUENCY CONNECTOR AND METHOD OF MANUFACTURING THEREOF

Katsuhiko Sakamoto, Kamakura; Akira Kawaguchi, Musashimurayama, and Yasuhiro Ishikawa, Machida, all of Japan, assignors to AMP Incorporated, Harrisburg, Pa.

Filed Mar. 15, 1991, Ser. No. 669,802
Claims priority, application Japan, Mar. 15, 1990, 2-62763
Int. Cl.[5] H01R *13/54*
U.S. Cl. 439—581 **8 Claims**

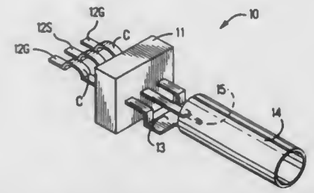
1. An electrical connector, comprising:

outer plate-shaped contacts and a center plate-shaped contact;

a dielectric member secured onto said plate-shaped contacts maintaining said plate-shaped contacts in spaced relationship and in the same plane so that the plate-shaped contacts are coplanar;

a coupling part at the other ends of the outer plate-shaped contacts interconnecting the outer plate-shaped contacts;

a receptacle contact member as part of said coupling part; and



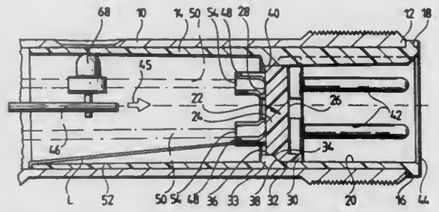
a pin contact member at the other end of said center plate-shaped contact disposed with said receptacle contact member at the center thereof.

5,062,810

PLUG INSERT FOR A METAL TUBE HOUSING

Peter Kroll, Neckartailfingen, Fed. Rep. of Germany, assignor to Gebhard Balluff Fabrik feinmechanischer Erzeugnisse GmbH & Co., Fed. Rep. of Germany

Filed Aug. 27, 1990, Ser. No. 573,901
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1989, 3928791
Int. Cl.[5] H01R *13/40*
U.S. Cl. 439—589 **13 Claims**



1. A plug inset for a metal tube housing comprising:

a contact carrier with plug pins protruding from a first side thereof and solder terminals protruding from a second side thereof opposite said first side; and

a protective sleeve adapted to be inserted into said metal tube housing for holding said contact carrier;

said protective sleeve having:

a receptacle adapted to receive and retain said contact carrier to form a unitary structure for mounting said plug pins and solder terminals within said metal tube housing, said receptacle containing means therein for limiting the travel of the contact carrier into the receptacle,

a front extension adapted to project from the first die of said contact carrier in a first direction parallel to said plug pins when the contact carrier is retained in said receptacle, and

a rear extension adapted to project from the second side of said contact carrier in a second direction opposite said first direction and beyond said solder terminals when the contact carrier is retained in said receptacle.

5,062,811

CAPACITIVE COUPLED CONNECTOR FOR PCB GROUNDING

John A. Hackman, Elizabethtown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 30, 1990, Ser. No. 605,613
Int. Cl.[5] H01R *13/66*
U.S. Cl. 439—620 **6 Claims**

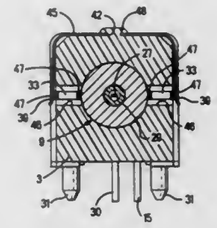
1. An electrical connector form mounting to a printed circuit board, said connector comprising:

an insulated inner signal transmittal contact;

an insulated outer conductive shell encircling the contact;

a conductive post insulated from the shell and adapted for insertion into the board;

an electric capacitor element held in contact with the shell; and



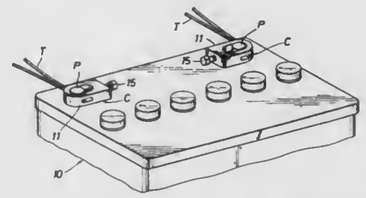
a conductive clip adapted to engage the capacitor element; said clip being maintained in contact with the post to establish a capacitive electrical coupling of the shell, through the capacitor element and the post, to the board.

5,062,812

BATTERY CABLE CONNECTOR

William H. Allen, P.O. Box 178, Tomball, Tex. 77375, assignor to William H. Allen, Houston, Tex.

Continuation of Ser. No. 501,012, Mar. 29, 1990, abandoned. This application Oct. 22, 1990, Ser. No. 601,880
Int. Cl.[5] H01R *11/01*
U.S. Cl. 439—756 **6 Claims**



1. A connector for electrically connecting the bared end of one or more battery cables to a terminal post of a storage battery, comprising

a body having top and bottom walls, side walls, and end walls,

an elongate slot in the bottom wall of a width to fit over the terminal post,

an opening connecting the side walls and intersecting one end of the slot near one end wall of the body to permit the bared end of each such cable to be inserted into the opening for disposal between said one end of the slot and one side of the post, and

a threaded hole connecting the other end wall and other end of the slot, and

a bolt threadedly received within the hole for inward and outward movement toward and away from the one end of the slot so as to permit its inner end to tightly engage with the other side of the post, when moved inwardly, so as to compress the bared ends of the cable between said one end of the slot and one side of the post,

said inner end of the bolt being of a size for passing into and out of the threaded hole.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,813

STRUCTURE OF RECEPTACLE TERMINAL MATERIAL STRIP

Yun-Yu Liu, Taipei, and Juinn-Horng Lu, Yunlin Hsien, both of Taiwan, assignors to Pan-International Industrial Corp., Taipei Hsien, Taiwan

Filed Aug. 29, 1990, Ser. No. 574,090
Int. Cl.[5] H01R *11/22*
U.S. Cl. 439—857 **3 Claims**



1. A receptacle terminal material strip, comprising a plurality of terminals for fastening in terminal seats of a rubber core of a receptacle, characterized in that:

said terminals comprise each integrally:

a plug terminal retaining portion at the front, comprising a folded frame having upper and lower frame portions formed by bending the front end of the terminal backward each frame portion comprising side arms and a spring strip between the side arms, the spring strip relatively obliquely projecting forward and inward for holding a plug terminal, the upper and lower side arms being substantially parallel and the frame being open at each side between the upper and lower side arms;

a fastening portion at the middle, having two wing projections at two opposite sides for fastening said terminal in either of said terminal seats in said rubber core; and

an electrical connection portion at the rear end, being an elongated rod having a substantially U-shaped cross section and a plurality of indentations for breaking according desired length.

5,062,814

OUTBOARD MOTOR

George Reynolds, Surrey, Canada, assignor to Ronald F. Taylor, Richmond, Canada

Filed Jul. 12, 1989, Ser. No. 379,578
Int. Cl.[5] B63H *16/20*
U.S. Cl. 440—31 **6 Claims**



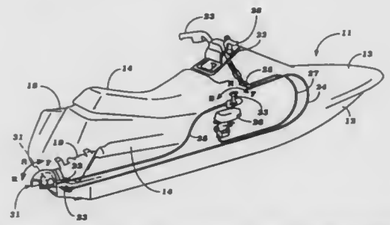
1. A manually operated outboard motor which is removably attachable to a boat comprising an upper housing and a lower skeg portion operably connected to said upper housing, a propeller operably mounted in said lower skeg portion, a plurality of shaft means extending between said propeller and said upper housing, gear means between said plurality of shaft means, a crank rotatable about a vertical axis in said upper housing and being operably connected to said plurality of shaft means, said crank having a handle operatively attached thereto, said crank and crank handle being manually rotated and operating to power said plurality of shaft means and said propellor and including steering means, separate from the crank, for changing the orientation of the propellor relative to said boat for steering said boat, said steering means further being operable to be moved to positions forwardly or rearwardly of said housing independently of the movement of said lower skeg portion and comprising a handle which is capable of pivotal movement relative to the housing about a substantially horizontal axis extending through said upper housing.

5,062,815

SHIFT CONTROL FOR SMALL WATERCRAFT

Noboru Kobayashi, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Nov. 27, 1989, Ser. No. 441,381
Claims priority, application Japan, Nov. 28, 1988, 63-301927
Int. Cl.[5] B63H *11/11*
U.S. Cl. 440—41 **4 Claims**



1. A small watercraft having a hull, a rider's area defining an area to accommodate a rider, a throttle control positioned contiguous to the rider's area and on one side thereof for controlling the speed of said watercraft by the hand of a rider, said throttle control being spring biased to an idle position and requiring the pressure of the hand of the rider to hold the engine speed in any speed other than idle speed, and a drive control for effecting operation of said watercraft in either forward drive mode or reverse drive mode in proximity to that hand of a rider in said rider's area on that one side of the small watercraft said drive control being located on said one side of the small watercraft and spaced a sufficient distance below said throttle control such that a rider can operate only one of said controls with the same hand at a given time.

5,062,816

AQUATIC SPORTING DEVICE

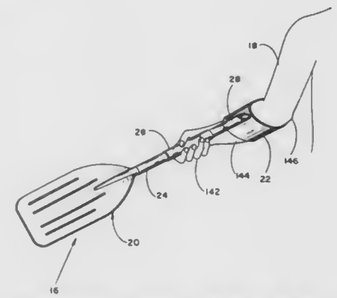
Andrew Berglund; James A. James, both of Northfield, and James B. Easley, Minneapolis, all of Minn., assignors to Zonco, Inc., Northfield, Minn.

Filed Jul. 2, 1990, Ser. No. 546,914
Int. Cl.[5] B63H *16/04*
U.S. Cl. 440—101 **17 Claims**

1. An aquatic sporting device suited for manipulation with one arm, said device including:

an elongate, longitudinally extended shank having proximal and distal ends, and a hand gripping region along the shank between the proximal and distal ends;

a rigid bracing means including a support segment mounted at the proximal end of the shank and extended away from the shank and a bracing segment mounted to the support segment, said support segment supporting the bracing segment parallel to the shank and proximally and laterally spaced apart from said proximal end, positioned for bearing against an elbow of the arm when a hand of the arm is closed about the shank along the gripping region, with a forearm portion of the arm in substantially parallel relation to the shank, and shaped to permit full flexing of the elbow with the bracing segment bearing against the elbow; and



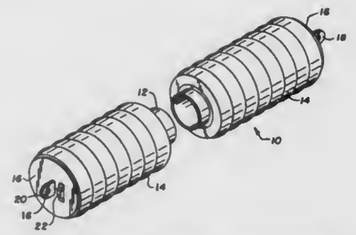
a working implement mounted at the distal end of the shank for lateral movement with the shank by laterally moving the hand gripping the shank while the bracing segment bears against the elbow.

5,062,817

BOOMSTICK

Harry G. Wearne, Site 415, Comp. 14, R.R. #4, Courtenay, B.C., Canada V9N 7J3

Filed Mar. 15, 1991, Ser. No. 669,750
Int. Cl.[5] B63B *7/04*
U.S. Cl. 441—45 **5 Claims**



1. A boomstick for use in flexibly joining with other boomsticks floating in water to contain a plurality of logs, the boomstick comprising:

a hollow pipe having an outside diameter to permit installation of unpressurized tires on the pipe,

a plurality of unpressured tire installed on the pipe,

end discs, larger in diameter than the pipe, welded at both ends of the pipe to retain the tires on the pipe and provide a sealed pipe to float in water, and

attachment means on the boomstick for connection by attaching chains.

5,062,818

MINIATURE BULB ASSEMBLY AND METHOD OF PRODUCING THE SAME

Takasi Wasimoto, Yokohama, and Morio Kimura, Fukushima, both of Japan, assignors to Stanley Electric Co., Ltd. and Alpine Electronics Inc., both of, Japan

Division of Ser. No. 573,538, Aug. 27, 1990. This application Jan. 11, 1991, Ser. No. 640,157
Claims priority, application Japan, Aug. 29, 1989, 1-222578
Int. Cl.[5] H01J *9/28, 9/30, 9/34*
U.S. Cl. 445—22 **3 Claims**

1. A method for producing miniature bulb assemblies each adapted to be mounted on a base plate comprising:

providing a socketless miniature bulb having a pair of lead wires extending therefrom,

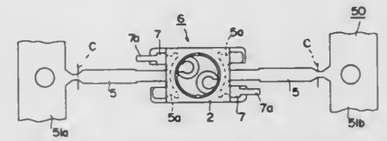
a base member molded of a synthetic resin, said base member having upper and lower surfaces and first and second pairs of opposing sidewalls and being formed with a bulb receiving recess in a substantially central portion of and extending downwardly from said upper surface,

a pair of lead wire holes extending from the bottom of said recess to said bottom surface and a pair of terminal grooves arranged on opposite sides of said bulb receiving recess, and

a pair of conductive terminal members each comprising an elongated plate-shaped terminal and a base fitting portion, a portion of said elongated plate-shaped terminal and a portion of said base fitting portion each being embedded in said base member during the molding operation, said elongated plate-shaped terminal being bent to extend downwardly in an associated terminal groove so that its free end is directed to said base board for engagement therewith,

further providing a substantially flat metallic sheet,

punching the metallic sheet to form a ladder-like configuration comprising elongated marginal side portions joined by a plurality of spaced substantially parallel spanning



members integrally joined to said marginal side portions and a pair of plate-shaped terminal members each joined to marginal side portions of said sheet, said marginal side portions of said sheet and each adjacent pair of said spanning members enclosing a pair of terminal members, the terminal members each having their terminal portions joined to one of said marginal side portions,

said terminal members extending toward one another so that the base fitting portions are adjacent to but spaced apart from one another,

placing a pair of said terminal members in a molding machine,

molding a base member with synthetic resin about said pair of terminal members so as to embed said adjacent base fitting portion into said base member by an insert molding process,

cutting said pair of terminal members away from said marginal side portions,

bending said terminal portions so that they extend along the sides of the base member,

inserting the lead wires of said socketless miniature bulb into said lead wire holes so that said socketless miniature bulb moves into said bulb receiving recess, and

joining each of said lead wires to an associated one of said terminal members.

5,062,819

TOY VEHICLE APPARATUS

Mitchell K. Mallory, 403 Kinsey St., Richmond, Ind. 47374

Filed Jan. 28, 1991, Ser. No. 646,818
Int. Cl.[5] A63H *29/22*
U.S. Cl. 446—462 **1 Claim**

1. A toy vehicle apparatus comprising,

an elongate vehicle chassis, the vehicle chassis including a forward rotatable axis mounted within a forward portion of the chassis, and a rear axle rotatably mounted within a rear portion of the chassis arranged parallel to the forward axle, with a plurality of forward wheels mounted to the

VOL 1132 ISS 1 NO 5 1991 UMI

forward axle, and a plurality of rear wheels to the rear axle,

and

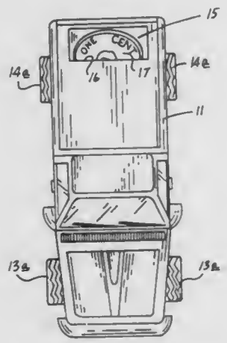
a vehicle body removably mounted relative to and overlying the chassis,

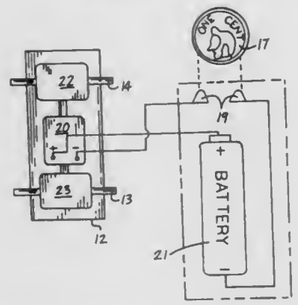
and

wherein the chassis includes a medially positioned drive motor, and a rear gear drive operatively associated with the rear axle, and a forward gear drive operatively associated with the forward axle to effect selective rotation of the forward and rear axle by the forward and rear gear drives, and contact means mounted within the chassis and operatively associated with the vehicle body to effect selective actuation of the drive motor,

and

wherein the contact means includes a plurality of spaced





electrical contacts in electrical communication with a battery, wherein the battery is in electrical communication with the drive motor, whereupon selective electrical communication between the spaced electrical contacts effects selective actuation of the drive motor, and wherein the contact means further includes a coin support plate fixedly mounted on the vehicle body, wherein the coin support plate includes a top surface and the top surface defines an obtuse angle between the top surface and the vehicle chassis, and the coin support plate including a slot mounted at a lower terminal end of the coin support plate, and a further slot mounted within the chassis in alignment with the slot, and a metallic coin disk positionable in contiguous communication with the coin support plate directed through the slot and the further slot to effect selective electrical communication between the spaced electrical contacts.

5,062,820

AUTOMATIC ANIMAL PROCESSING

Russel J. Rankin, Clean Mountain; David J. de Chastel, deceased, late of Virginia by Ann de Chastel, executrix ; Graeme L. Wescombe, Manly West; David T. Kerr, Beenleigh; Phillip R. Boyce, Tingalpa; Raymond M. White, Capalaba; Robert W. Tritchler, Manly, and John W. Buhot, Coorparoo, all of Australia, assignors to Commonwealth Scientific & Industrial Research Organisation and Australian Meat & Live-Stock Research & Development Corp., both of, Australia

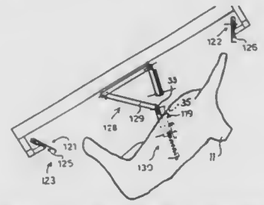
PCT No. PCT/AU88/00496, § 371 Date Aug. 23, 1990, § 102(e) Date Aug. 23, 1990, PCT Pub. No. WO89/05584, PCT Pub. Date Jun. 29, 1989

PCT Filed Dec. 22, 1988, Ser. No. 566,386

Claims priority, application Australia, Dec. 23, 1987, PI6045

Int. Cl.[5] A22C *11/02*

U.S. Cl. 452—187 **10 Claims**



1. An apparatus for automatically processing an animal carcass, the apparatus comprising suspension means for suspending a carcass in an inverted position with the spine located beneath the carcass and the carcass having an abdominal cavity opening upwardly so as to expose the abdominal side of the diaphragm so that the abdominal viscera lay away from the diaphragm within the abdominal cavity under the weight of the abdominal viscera, the apparatus further comprising a cutting assembly movable relative to the carcass so as to be advanceable into the abdominal cavity adjacent to the diaphragm, the cutting assembly including a cutting support and a cutting means movably mounted to the cutting support for generally arcuate movement about the length of the carcass within the abdominal cavity and being operable during the arcuate movement to cut the diaphragm around the periphery thereof.

5,062,821

ARRANGEMENT OF A PROTECTIVE COVER ON THE SOCKET OF A TRANSMISSION JOINT

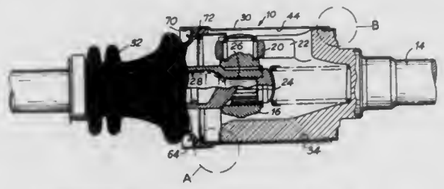
Francois Moulinet, Triel sur Seine, France, assignor to Glaenzer Spicer, Poissy, France

Filed Jun. 19, 1989, Ser. No. 367,712

Claims priority, application France, Jun. 22, 1988, 88 08391

Int. Cl.[5] F16D *3/84*

U.S. Cl. 464—111 **10 Claims**



1. A transmission joint assembly, comprising:

a first shaft having a socket connected thereto, said socket defining at least one pair of rolling tracks;

a second shaft having at least one rolling element connected thereto, said rolling element being received in said pair of rolling tracks;

said socket having an outer wall, and said outer wall having an unmachined outer surface;

said socket further having a first end adjacent said first shaft and a second end adjacent said second shaft;

a protective closing cover having a substantially cylindrical shape mounted on said outer wall of said socket such than an inner wall of said cover is radially spaced from said unmachined surface of said outer wall of said socket;

a gasket interposed between said outer wall of said socket at said first end thereof and said cover; and

a sealing bellows having a free annular edge sealing against said inner wall of said cover at said second end of said socket;

wherein said outer wall of said socket at said second end has a machined cylindrical bearing zone adjacent said unmachined outer surface of said outer wall for mounting and centering said cover thereon; and

wherein an annular ring member is disposed on said machined cylindrical bearing zone of said outer wall of said socket and wherein said free annular edge of said bellows is disposed between said annular ring member and said inner wall of said cover.

5,062,822

DRIVE SYSTEM WITH INTERMEDIATE SHAFT FOR AUTOMOBILES

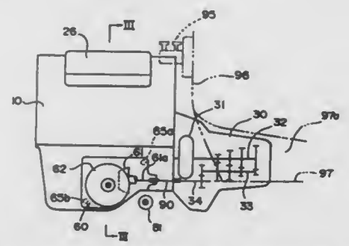
Hiroshi Nakayama, and Toshiyuki Yumoto, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 9, 1988, Ser. No. 282,212

Claims priority, application Japan, Dec. 11, 1987, 62-313825

Int. Cl.[5] F16H *37/08*

U.S. Cl. 475—200 **16 Claims**



1. A drive system for an automobile comprising an engine, a transmission coupled to an output end of the engine, and a final speed reduction gear unit joined to said engine either laterally or downwardly thereof separately from said transmission, comprising, an output shaft of said transmission and an input shaft of said final speed reduction gear unit positioned substantially coaxially with each other and coupled to each other through an intermediate shaft having a solid portion coaxial with and between said input and output shaft, said intermediate shaft being axially movable with respect to said output shaft and said input shaft, and a lock member for locking said intermediate shaft in a position engaging said output and input shafts to connect them, and said intermediate shaft being releasable from said lock member and movable axially until the intermediate shaft disengages from at least one of said output and input shafts.

5,062,823

CONTINUOUSLY VARIABLE TRANSMISSION WITH CONTROLLING BRAKES

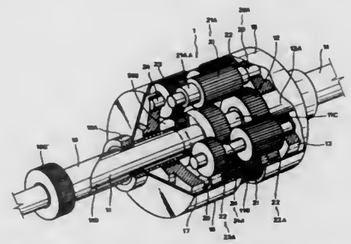
Jong Oh Ra, 2H-1, 265-154, Bokwang Dong, Yongsan-ku, Seoul, and Joon Young Lim, Duckyong Villa KA-204, 141-2, Duckjeong-Ri, Hoecheon-Eup, Yangiu-Kun, Kyungki-do, both of Rep. of Korea

Filed Jul. 9, 1990, Ser. No. 551,772

Claims priority, application Rep. of Korea, Aug. 26, 1989, 89-12212

Int. Cl.[5] F16H *37/06*

U.S. Cl. 475—330 **16 Claims**



9. A variable speed transmission, comprising:

an input shaft **11** with a first section **11A**, a midsection **11B** and a second section **11C** for receiving rotational input;

an input sun gear **11G** mounted between said midsection **11B** and said second section **11C** of said input shaft to enable simultaneous rotation with said input shaft;

an idler gear **12** including a hub **12A** mounted on said second section of said input shaft to enable independent rotation relative to said input shaft;

a differential gear carrier **13** mounted on said hub of said idler gear **12** to enable independent rotation relative to said hub of said idler gear **12**;

a transmission shaft **16** having a first end **16A** and a second end **16C** and being rotatably and coaxially mounted at said mid-section of said input shaft to enable independent rotation relative to said input shaft and with said first end of said transmission shaft **16** terminating in a sun gear **16G** and said second end of said transmission shaft **16** terminating in a sun gear **16G'**;

a differential gear carrier **17** mounted on said transmission shaft **16** to enable independent rotation relative to said transmission shaft **16**;

a plurality of pins **20A** with each pin **20** secured to and interlinking said differential gear carrier **13** and said differential gear carrier **17** to enable simultaneous rotation of said carriers **13** and **17** relative to said input shaft;

a plurality of first differential gears **21A** with each said gear **21** being rotatably mounted on a pin **20**, respectively, of said plurality of pins **20A** and with each said gear **21** being in mechanical communication with said input sun gear **11G**;

a control ring gear **18** rotatably mounted on said transmission shaft **16** with said control ring gear being in mechanical communication with each said gear **21** of said plurality of first differential gears **21A**;

a plurality of rods **24A** with each rod **24** interlinking and being rotatably secured to each said differential gear carrier **13** and said differential gear carrier **17** to enable each rod **24** to rotate about its axis and to enable simultaneous rotation of said carriers **13** and **17** relative to said input shaft;

an output shaft **14** terminating in an output ring gear **15** with said output ring gear **15** being distally mounted on said hub relative to said differential gear carrier **13** to enable independent rotation of said output ring gear and output shaft relative to said hub;

VOL 1132 ISS 1 NO 5 1991 UMI

a plurality of second differential gears **22A** with each said gear **22** rotatably mounted on a rod **24** of said plurality of rods **24A** and with each said gear **22** being in simultaneous mechanical communication with a gear **21** of said plurality of first differential gears **21A** and said output ring gear **15**;

a plurality of planetary gears **23A** with each said planetary gear **23** mounted on each said rod **24** of said plurality of rods **24A** which includes a gear **22** of said plurality of second differential gears **22A** and with each said planetary gear **23** of said plurality of planetary gears **23A** being in mechanical communication with said sun gear **16G**;

a circular plate carrier **37** rotatably mounted on said second end **16C** of said transmission shaft **16**;

a circular plate carrier **32** rotatably mounted on said first section **11A** of said input shaft **11**;

a plurality of locking pins **33A** with each said locking pin **33** secured to and interlinking said circular plate carrier **37** and said circular plate carrier **32** to enable simultaneous rotation of said carriers **32** and **37** relative to said input shaft;

a plurality of second planetary gears **35A** with each said planetary gear **35** rotatably mounted on each said locking pin **33** of said plurality of locking pins **33A**;

said sun gear **16G'** being in mechanical communication with each said gear **35** of said plurality of second planetary gears **35A**;

a high speed control ring gear **36** rotatably mounted on said transmission shaft **16** with said ring gear **36** being in mechanical communication with each said gear **35** of said plurality of second planetary gears **35A**;

an input sun gear **11G'** mounted between said first section **11A** and said mid-section **11B** of said input shaft to enable simultaneous rotation with said input shaft;

a plurality of first planetary gears **31A** with each said gear **31** of said plurality of said first planetary gears **31A** rotatably mounted on each said locking pin **33** of said plurality of locking pins **33A** and with each said gear **31** of said plurality of first planetary gears **31A** being in mechanical communication with said input sun gear **11G'**;

a ring gear **34** which is secured against rotation relative to said input shaft **11** with said ring gear **34** being in mechanical communication with each said gear **31** of said plurality of first planetary gears **31A**;

a first brake means **19** for applying rotational resistance to said control ring gear **18** such that in use when said first brake means **19** frictionally engages said control ring gear **18**, the rotation of said control ring gear **18** decreases whereby torque is applied to said output shaft **14** to rotationally initiate said output shaft **14** and upon further activation of said first brake means to stop the rotation of said control ring gear **18**, the rotational speed of said output shaft **14** further increases; and

a second brake means **38** for applying rotational resistance to said high speed control ring gear **36** such that in use when said frictional resistance being applied to said control ring gear **18** is removed and when said second brake means **38** frictionally engages said high speed control ring gear **36**, the rotational speed of said high speed control ring gear **36** decreases resulting in an increase in the rotational speed of said output shaft **14** and upon further activation of said second brake means to stop the rotation of said high speed control ring **36**, the rotational speed of said output shaft **14** exceeds the rotational input of input shaft.

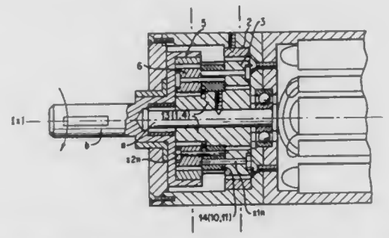
5,062,824

MULTIFUNCTION GEARING MECHANISM

Josef P. Prokopius, 9 Compton Road, Wendover, Bucks HP22 6HR, United Kingdom GR11 UEG

Filed Jan. 27, 1989, Ser. No. 302,241
Int. Cl.[5] F16H *1/46*
U.S. Cl. 475—342 **4 Claims**

1. A multifunction gearing mechanism having two rotational units, a first rotational unit having a first smaller inner rotational member fixed to input shaft rotatably mounted in common axis of rotation, a second larger outer rotational member fixed to stationary housing coaxially on the said common axis to circumferentially encompass said small member, said rotational members being mounted in one and the same radial plane, and at least a third rotational member mounted rotatably between the said first smaller member and the said second outer member as to provide rotational engagement within the first rotational unit; and a second rotational unit having a second smaller inner rotational member fixed also to the said input shaft rotatably mounted in the said common axis of rotation, the said first smaller inner rotational members of the said first and second rotational units being of different sizes, and also a second larger outer rotational member mounted to output shaft coaxially in the said common axis of rotation as to circumferentially encompass said first smaller member, said



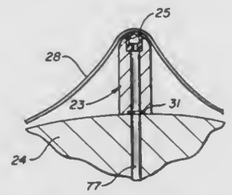
first smaller inner and second larger outer rotational members being mounted in one and the same radial plane, and at least a third rotational member mounted rotatably between said first smaller inner and second larger outer rotational members as to provide rotational engagement within the said second rotational unit, said third rotational members of said first and second rotational units being of different size and each said third rotational member of first and second rotational unit being independently and freely rotating on attributed individual and independent shafts, said shafts being mounted in individual and independent axes to a carrier plate, said carrier plate being rotatably mounted in said common axis of rotation between the said first and second rotational unit and the whole arrangement of said first and said second rotational units being spaced apart and arranged in two radial planes.

5,062,825

APPARATUS AND METHOD FOR THE PRODUCTION OF FLEXIBLE PRODUCTS

David A. Smith, Midland, and Herbert B. Geiger, Bay City, both of Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 353,932, May 22, 1989, abandoned. This application Aug. 9, 1990, Ser. No. 565,882
Int. Cl.[5] B31B *1/10, 1/12*
U.S. Cl. 493—194 **15 Claims**



1. An apparatus for the continuous production of individual flexible products from a folded web of material comprising:

a source of a continuous folded web of material;

a rotatable product drum having a plurality of sever and seal stations located about the outer periphery thereof for forming individual bags, each of said sever and seal stations having associated therewith means for severing and sealing said folded web of material;

means for continuously feeding said folded web of material onto the surface of said drum; and

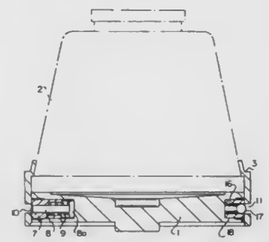
means positioned between adjacent sever and seal stations for tucking said web of material outwardly from the periphery of said drum, said means comprising a series of projections attached to the surface of and extending above the surface of said drum, said projections including means for expansion and contraction comprising a flexible diaphragm communicating with a source of positive air pressure and engaging said web of material, to provide tension relief in said web.

5,062,826

DEVICE FOR LOCKING A BLOOD CENTRIFUGATION CELL ON A CHUCK

Marco Mantovani, Via Dante Alighieri, 6, 46025 Poggio Rusco (Mantova), and Giorgio Rossetto, Via della Liberta, 5, 45037 Melara (Rovigo), both of Italy

Filed Jul. 6, 1990, Ser. No. 549,472
Claims priority, application Italy, Jul. 14, 1989, 21195 A/89
Int. Cl.[5] B04B *15/00*
U.S. Cl. 494—85 **11 Claims**



1. A device for locking the base of a blood centrifugation cell on a rotatable disc-shaped chuck plate characterized in that it comprises:

a plurality of locking means enclosed within the chuck plate which are based radially into the chuck plate to remain within the dimensions of the chuck plate when at rest and which are radially expandable out of the chuck plate by centrifugal force to extend radially beyond the periphery of the chuck plate during rotation;

an annular locking ring for engaging the base of the cell and for extending around the periphery of said chuck plate;

said locking ring having a plurality of recesses for receiving said locking means during rotation.

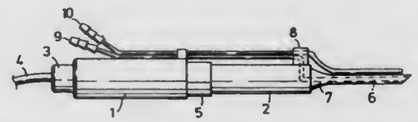
5,062,827

DEVICE IN ULTRASONIC ASPIRATORS

Hans Wiksell, Täby, Sweden, assignor to Swedemede AB, Uppsala, Sweden

Continuation of Ser. No. 927,185, Nov. 5, 1986, abandoned. This application Feb. 14, 1989, Ser. No. 309,936
Claims priority, application Sweden, Nov. 8, 1985, 8505289
The portion of the term of this patent subsequent to Dec. 12, 2006, has been disclaimed.
Int. Cl.[5] A61B *17/36*
U.S. Cl. 604—22 **7 Claims**

1. In an ultrasonic knife device having a transducer means for converting electrical energy at an ultrasonic frequency to mechanical oscillations, an amplitude transformer means mechanically connected to the transducer means for amplifying the stroke of mechanical oscillation, wherein said amplitude transformer means is an elongated integral unit having a substantially cylindrical portion connected to the transducer neons an intermediate portion adjacent to the cylindrical portion, a tip portion adjacent to the intermediate portion, and a through bore passing through the intermediate portion and the tip portion for aspirating tissue, the improvement wherein the length of the amplitude transformer means is 0.72 times the wavelength of the ultrasonic frequency, and wherein the intermediate portion has geometric form which is the curve of a wave function of the fourth order Fourier form and the tip



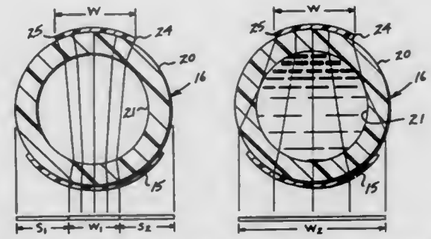
portion is conical, whereby the maximum stroke of the longitudinal oscillation mode is at a predetermined resonant frequency, this resonant frequency being separated, in order of magnitude of 20% from the harmonics of the predetermined resonant frequency in the longitudinal oscillation mode, and resonant frequencies of oscillations in the transverse mode.

5,062,828

HYPODERMIC SYRINGE

Roger L. Waltz, 1000 W. 4th #4, Grandview, Wash. 98930

Continuation-in-part of Ser. No. 321,999, Mar. 13, 1989, abandoned, which is a continuation of Ser. No. 106, 780, Oct. 8, 1987, abandoned. This application Feb. 6, 1990, Ser. No. 475,702
Int. Cl.[5] A61M *5/315*
U.S. Cl. 604—51 **1 Claim**



1. A method of detecting air bubbles in a hypodermic syringe having a light transmissive tubular body with an internal bore of a prescribed diameter extending between an open end and a reduced end, an elongated plunger with a piston at an end thereof slidably received in the bore, volume calibration indicia along the body, and an elongated strip of a single solid color extending longitudinally along the tubular body independently of the volume calibration indicia and having a chordal width dimension less than the prescribed diameter; comprising the steps of:

drawing a light transmissive liquid into the syringe bore by moving the plunger within the bore from the reduced end toward the open end until the plunger piston aligns visually with a prescribed volume calibration indicia; and

viewing the strip of solid color through the tubular body along the full length thereof between the plunger piston and reduced end to note that the solid strip of color appears to fill substantially the entire bore as a single solid color occupying the entire bore diameter thereby indicating presence of only liquid in the bore between the piston and reduced end of the tubular body, or that a portion of the strip between the piston and reduced end appears substantially narrower than the bore diameter thereby indicating presence of a bubble within the bore.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,829

RELATES TO DEVICES FOR ADMINISTERING A SUBSTANCE SUCH AS A DRUG OR CHEMICAL OR THE LIKE

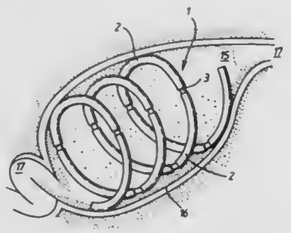
Raymond J. Pryor; James F. Pharoah, and Graham F. Duirs, all of Hamilton, New Zealand, assignors to Carter Holt Harvey Plastic Products Group Limited, Hamilton, New Zealand

Filed Mar. 16, 1990, Ser. No. 495,029

Claims priority, application New Zealand, Mar. 17, 1989, 228382

Int. Cl.[5] A61M *31/00*

U.S. Cl. 604—57 **16 Claims**



1. A device for insertion into a body cavity of an animal, when in one configuration and to lie against walls of said body cavity in a second expanded configuration, said device comprising a set of interconnected primary elements, and a set of secondary elements forming connectors between said primary elements and connecting said primary elements in the form of a coil, wherein elements of at least one of said sets are constructed of a bio-degradable material.

5,062,830

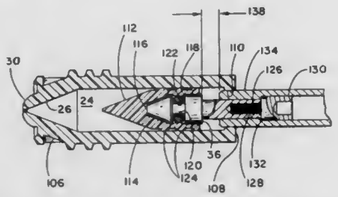
DRY DISPOSABLE NOZZLE ASSEMBLY FOR MEDICAL JET INJECTOR

Kenneth W. Dunlap, Plymouth, Minn., assignor to Derata Corporation, Minneapolis, Minn.

Filed Apr. 4, 1990, Ser. No. 503,948

Int. Cl.[5] A61M *5/30*

U.S. Cl. 604—68 **3 Claims**



1. A dry disposable nozzle assembly for a hypodermic jet injector of the type including a body containing a power spring operatively coupled to a ram member which is movable at high velocity between a cocked position and a released position, said body further including a plunger assembly disposed within a generally tubular metal sleeve in the path of travel of said ram to be driven thereby where the plunger assembly includes a radial groove, said nozzle assembly including in combination:

(a) a disposable molded plastic nozzle of a generally cylindrical shape adapted to be disposed within and at least partly reinforced on the exterior thereof by said tubular metal sleeve and having first and second ends with an axial bore of circular cross-section extending from said first end toward said second end, said axial bore terminating in a generally conical segment having an apex lying on a longitudinal axis of said axial bore and a counterbore of a predetermined, small diameter relative to said axial bore extending from said second end to said apex and forming a one-piece ejection orifice;

(b) means for removably attaching said molded plastic nozzle to said body within said metal sleeve; and

(c) a disposable seal member encompassed by said molded plastic nozzle and fitted into said axial bore for longitudinal motion therein and including an integrally formed generally conical head dimensioned to fit within said generally conical segment of said axial bore with a predetermined close tolerance, said seal member including a socket formed in said seal member, said socket including a detent adapted to cooperate with said radial groove in said plunger assembly for receiving and releasably locking said plunger assembly.

5,062,831

CATHETER FOR USE IN THE SURGICAL CORRECTION OF A NASOLACRIMAL DUCT OBSTRUCTION

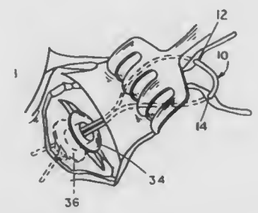
John D. Griffiths, 1738 S. 85th St., Omaha, Nebr. 68124

Continuation-in-part of Ser. No. 250,164, Sep. 28, 1988. This application Apr. 18, 1990, Ser. No. 510,429

The portion of the term of this patent subsequent to May 1, 2007, has been disclaimed.

Int. Cl.[5] A61M *25/00*

U.S. Cl. 604—104 **3 Claims**



1. In combination,

a flexible tube having its ends extended downwardly, through the puncta, canaliculi, nasolacrimal sac and nasal cavity of a person's nasolacrimal system,

a catheter having upper and lower ends,

the inside diameter of said catheter being such that the free ends of the flexible tube may be extended therethrough,

the length of said catheter being such that said catheter may be extended into the upper end of the nasal cavity with the upper end thereof positioned in the nasolacrimal sac,

said catheter having a flexible, enlarged head portion provided on its upper end for positioning in the nasolacrimal sac;

said catheter having a flexible, enlarged portion provided on its lower end for positioning in the nasal cavity.

5,062,832

ANTICONTAGION DEVICE FOR INJECTING DENTAL ANESTHETIC SOLUTIONS CONTAINED IN CARTRIDGES

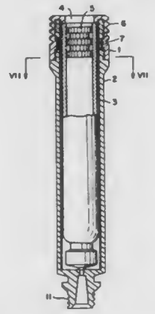
Giovanni Seghi, Firenze, Italy, assignor to L. Molteni & C. dei F.lli Alitti S.p.A., Scandicci, Italy

Filed Nov. 7, 1989, Ser. No. 432,859

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—110 **7 Claims**

1. An anticontagion device for injecting dental anesthetic solutions, which comprises a cartridge containing anesthetic solution and having a plunger, received therein a piston mechanism for pushing the plunger of the cartridge, a cartridge holding sleeve adapted to receive said cartridge therein and a plug for closing the upper end of said sleeve, means being provided between said sleeve and said plug such that when they are fitted one on the other they cannot be separated, said plug and said piston mechanism being provided respectively with an external and an internal thread to enable the plug-



sleeve-cartridge assembly to be fitted to said piston mechanism, by engagement of said threads.

5,062,833

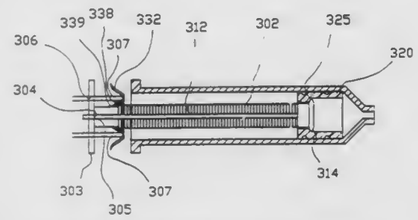
NON-REUSABLE DISPOSABLE SYRINGE AND LOCKING DEVICE

Robert F. Perler, 175 Memorial Hwy., Ste 1-6, New Rochelle, N.Y. 10801

Continuation-in-part of Ser. No. 334,710, Apr. 6, 1989, Pat. No. 4,986,812. This application Oct. 25, 1990, Ser. No. 603,135

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—110 **19 Claims**



1. A non-reusable disposable syringe comprising:

(a) a syringe body having an open end and defining an inside surface;

(b) a plunger adapted to be positioned within said syringe body and to extend from said syringe body, said plunger comprising a plunger shaft and a plunger head at the end of said shaft adapted to be positioned in said syringe body, the shaft end on the other end of said shaft defining spaces for accepting a holding member to be positioned in said syringe body together with said plunger;

(c) a cylindrical piston dimensioned and configured such that said piston bears sealingly against the inside, surface of said syringe body said piston being adapted to be positioned within said syringe body, said piston defining a central passage, a portion of said central passage being smaller than said plunger head, and said central passage being configured and dimensioned to sealingly engage and be closed by said plunger head, said piston being positioned within said syringe body with said plunger passing into said central passage, said piston being adapted to receive said holding member and be urged by said holding member against said plunger head; and

(d) a locking device supported for slidable movement with respect to said plunger, said locking device being capable of movement with respect to said plunger in one direction only and capable of movement with respect to said syringe body in only one direction, said locking device being configured and dimensioned to advance said piston with said plunger after said piston is brought into contact with said locking device.

5,062,834

DEVICE FOR DISPENSING A LIQUID PARTICULARLY USEFUL FOR DELIVERING MEDICAMENTS AT A PREDETERMINED RATE

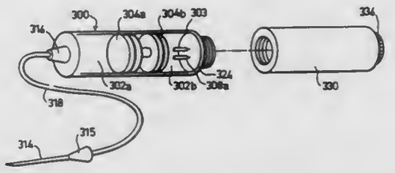
Joseph Gross, Moshav Mazor, and Shlomo Zucker, Yavne, both of Israel, assignors to Product Development (S.G.Z.) Ltd, Petah Tikua, Israel

Filed Aug. 15, 1989, Ser. No. 393,739

Claims priority, application Israel, Feb. 24, 1989, 89400; Jun. 30, 1989, 90816

Int. Cl.[5] A61M *37/00*

U.S. Cl. 604—143 **8 Claims**



1. A device for dispensing a liquid at a predetermined rate, comprising a container for receiving a supply of the liquid to be dispenses, and means for subjecting the liquid to a pressurized gas to force liquid from the container; characterized in that said device includes a piston assembly movable within said container and dividing same into a first expansible-contractible chamber for receiving the liquid to be dispenses, and a second expansible-contractible chamber for receiving the pressurized gas to dispense liquid from said first chamber of the container; said piston assembly comprising a pair of pistons spaced apart by a connecting stem; said container being formed with a vent opening in the space between said pistons to provide protection against inadvertent mixing of the gas from the second chamber with the liquid in the first chamber.

5,062,835

ASPIRATOR DEVICE FOR BODY FLUIDS

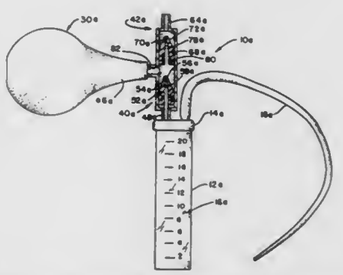
Carlos A. Maitz, 16451 Dapple Gray Ct., Chesterfield, Mo. 63017, and George M. Hauser, 29 Chieftan Dr., St. Louis, Mo. 63146

Continuation of Ser. No. 144,375, Jan. 15, 1988, Pat. No. 4,921,488. This application Dec. 1, 1989, Ser. No. 444,316

The portion of the term of this patent subsequent to May 1, 2007, has been disclaimed.

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—153 **3 Claims**



1. A meconium aspirator device for removing body fluids

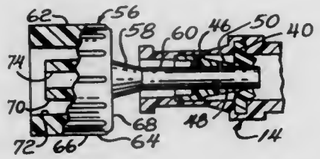
VOL 1132 ISS 1 NO 5 1991 UMI

comprising a fluid collector having an air-tight chamber for receiving body fluids, an elongated flexible tube securely connected to said collector and including a first sealed passageway communicating with said air-tight chamber, said elongated flexible tube having a free end adapted to be inserted into a body cavity for fluid communication with body fluids, a squeeze bulb securely connected to said collector and associated with a second sealed passageway communicating with the air-tight chamber of said collector, said squeeze bulb being operatively associated with first and second one-way valve means which open in the same direction, said first and second valve means comprising normally closed valve means which open and close in response to squeezing and expansion of said squeeze bulb, said first one-way valve means being operatively connected relative to said second sealed passageway to permit air to be withdrawn in one direction through the first sealed passageway, air-tight chamber and second sealed passageway upon compression and release of said squeeze bulb for establishing a vacuum through said passageways to remove body fluids for deposit of liquid content in said collector, said second one-way valve means being operatively connected to said squeeze bulb to allow gas and vapor to be expelled therethrough to atmosphere, and said squeeze bulb being operatively associated relative to the other components of said aspirator device to facilitate one-handed gripping, lifting and operation of said aspirator device by said squeeze bulb alone.

5,062,836
PLACEMENT DEVICE FOR A CATHETER AND GUIDE WIRE

Amy M. Wendell, Franklin, Mass., assignor to The Kendall Company, Mansfield, Mass.

Filed Mar. 14, 1990, Ser. No. 493,569
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—167 **6 Claims**



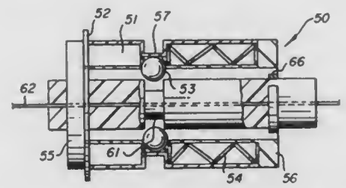
1. In a placement device for a catheter wherein the catheter is introduced into a patient with the aid of a guide wire, the placement device including a valve assembly having a proximal end for connection to a syringe after the guidewire is removed from the patient, a distal end for connection to the proximal end of the catheter, and an elastic valve member having at least one slit and a slide member being slidably received in the valve assembly and moveable between a first position spaced from the valve member with the valve member being closed, and a second position engaged against the valve member with the valve member being open, with the slide member having a bore extending therethrough;

the improvement comprising a valve opener for opening the valve to permit removal of the guidewire therethrough after introducing the catheter into the patient, the valve opener having opposed distal and proximal ends, a channel extending between the opposed ends and having an inner diameter sufficiently large to receive the guide wire at the distal end of the valve opener and to permit passage of the guide wire through the opener and then out the proximal end thereof, the valve opener having an elongated stem at its distal end, the stem having an outer diameter sufficiently small to be releasably received in the bore of the slide member, the stem having a sufficient length to extend through the slide member to open the valve member whereby to permit removal of the guide wire through the opened valve member, the proximal end of the valve opener having means for releasably securing the valve opener on the proximal end of the valve assembly prior to use in placing the catheter in the patient.

5,062,837
IV NEEDLE HOLDER

Habib Al-Sioufi, P.O. Box 654, Brookline, Mass. 02146, and Antoine J. Koudsi, 52 Blueberry Circle, Pelham, N.H. 03076

Division of Ser. No. 186,432, Apr. 26, 1988, Pat. No. 4,942,881.
This application May 24, 1990, Ser. No. 528,082
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—240 **4 Claims**

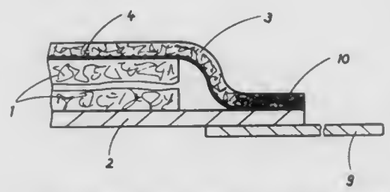


1. A blood collection needle holder comprising an elongated tube open at one end for receiving therein and holding a blood collection container, and locking means for releasable holding a blood collection needle in communication with said collection container disposed at the other end of said elongated tube, said locking means comprising a tubular receiver means for engaging said other end of the elongated tube and holding and retaining said blood collection needle in communication therewith, a sliding sleeve concentrically disposed around said receiver means and longitudinally displaceable with respect thereto, sufficient annular space being provided between said receiver means and sleeve to accommodate at least one laterally displaceable stop means disposed therein for engaging indentations provided in a collar fixedly attached to the portion of said blood collection needle to be disposed within said receiver, said sleeve being further provided with means for engaging and laterally displacing said stop means partially into said indentations when said sleeve is displaced longitudinally in a closed position with respect to said receiver means to thereby engage and hold said needle within said means and to release said needle when said sleeve is retracted.

5,062,838
ABSORBENT DISPOSEABLE ARTICLE

Krzysztof Nalowaniec, and Kurt Simmler, both of Heidenheim, Fed. Rep. of Germany, assignors to Paul Hartmann Aktiengesellschaft, Heidenheim, Fed. Rep. of Germany

Filed Apr. 15, 1987, Ser. No. 38,546
Claims priority, application Fed. Rep. of Germany, Apr. 17, 1986, 3613042
Int. Cl.[5] A61F *13/15*
U.S. Cl. 604—366 **8 Claims**



1. An absorbent disposable article for absorbing and retaining moisture, such as, for example, a diaper, and of the type including an absorbent body means having first and second sides and a boundary edge region, liquid impermeable protective sheet means operably arranged along said first side of said absorbent body means, porous cover layer means operably arranged along said second side of said absorbent body means, and further of the type wherein said liquid impermeable protective sheet means and said porous cover layer means extend beyond at least a portion of said boundary edge region of said absorbent body means and are there bonded together, said absorbent disposable article comprising:

a liquid barrier layer means being arranged along at least a portion of said boundary edge region, interposed between said porous cover layer means and said absorbent body means and likewise interposed between said porous cover layer means and said liquid impermeable protective sheet means,

said liquid barrier layer means being continuously physically bonded to and extending into said porous cover layer means without penetrating completely through said porous cover layer means,

said liquid barrier layer means being fabricated of a heat sealable thermoplastic material in the form of a prefabricated impervious sheet.

5,062,839
DISPOSABLE TRAINING PANTY WITH CONTROLLED WETNESS RELEASE

Dora Anderson, 28 Metamora Crescent, London, Ontario, Canada N6G 1R3

Filed Mar. 21, 1990, Ser. No. 497,129
Claims priority, application Canada, Sep. 29, 1989, 614631
Int. Cl.[5] A61F *13/15*
U.S. Cl. 604—385.1 **7 Claims**



1. A disposable training panty adapted to release wetness to a controlled extent, comprising:

(a) an outer liquid permeable covering including a front portion and a back portion, said front and back portions being contiguous along a crotch area,

(b) an inner absorbent portion secured to said outer covering which does not fully absorb a child's wetness so that in the event the child has a bowel or bladder accident in said panty said panty releases through said permeable covering to said controlled extent unabsorbed wetness,

(c) means for joining the sides of said front and back portions to form side seam, said joining means being releasable to permit ready opening of said seams in the event the child has a bowel or bladder accident in said panty,

(d) means for securing said panty to a child's waist, and

(e) means for defining leg openings through which a child's legs will extend once said panty is secured to a child.

5,062,840
DISPOSABLE DIAPERS

John N. Holt, and Debra S. Holt, both of Box 4, Ralston, Okla. 74650

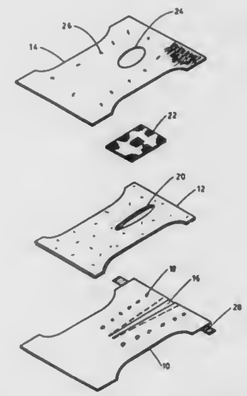
Filed May 22, 1989, Ser. No. 355,654
Int. Cl.[5] A41B *13/02*
U.S. Cl. 604—385.1 **13 Claims**

1. A disposable diaper comprising:

a water permeable inner layer having an opening therein shaped to surround a wearer's anal opening;

a water retention absorbent intermediate layer having a void positioned at least partially under said opening of said inner layer for receiving solid waste excretement from a wearer;

a water impervious outer layer adjacent said intermediate layer;

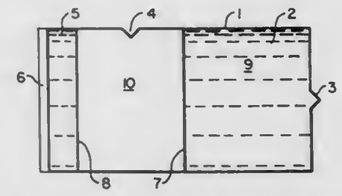


means to hold said inner layer, said intermediate layer and said outer layer in position.

5,062,841
IMPLANTABLE, SELF-REGULATING MECHANOCHEMICAL INSULIN PUMP

Ronald A. Siegel, San Francisco, Calif., assignor to The Regents of the University of California, Berkeley, Calif.

Continuation of Ser. No. 231,817, Aug. 12, 1988, abandoned.
This application Nov. 14, 1989, Ser. No. 434,623
Int. Cl.[5] A61K *9/22*
U.S. Cl. 604—891.1 **44 Claims**



1. An implantable pump for the delivery of insulin to a mammal in need thereof, said pump comprising a housing which supports within its walls:

(a) an aqueous-swellable member which initiates an insulin pumping cycle by swelling in response to an increase in blood glucose level and terminates an insulin pumping cycle by deswelling in response to a decrease in blood glucose level, said member being exposed to the body fluids which surround the pump when implanted in a mammal;

(b) a first chamber containing a pharmaceutically acceptable insulin composition and including a valve means which permits the outflow of the insulin composition; and

(c) means coupled with said first chamber for causing insulin to be expelled from the first chamber in response to swelling of the aqueous-swellable member.

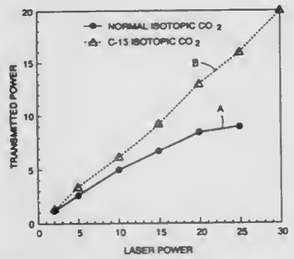
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,842

ISOTOPIC CO_2 LASER AND METHOD OF USE FOR MEDICAL TREATMENT

William B. Tiffany, Palo Alto, Calif., assignor to Coherent, Inc., Palo Alto, Calif.

Filed Dec. 21, 1989, Ser. No. 454,139
Int. Cl.[5] A61N 5/06
U.S. Cl. 606—3 12 Claims



1. An improved medical treatment laser system including a gas laser for generating a beam of laser energy, a means for delivering the beam of laser energy to the medical treatment site, and a means for purging the delivering means using a purge gas, with the improvement comprising:

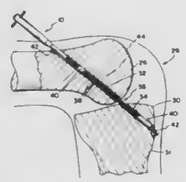
a gaseous lasing medium in the gas laser defined primarily by an isotope different from the isotope of the purge gas.

5,062,843

INTERFERENCE FIXATION SCREW WITH INTEGRAL INSTRUMENTATION

Thomas H. Mahony, III, 1730 Wood Ave., Colorado Springs, Colo. 80903

Filed Feb. 7, 1990, Ser. No. 476,252
Int. Cl.[5] A61F 2/08
U.S. Cl. 606—53 10 Claims



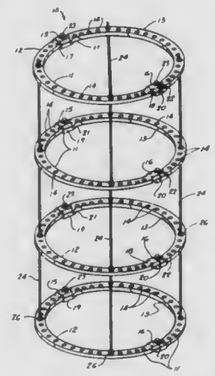
1. A fixation screw for securing a bone graft of a ligament replacement graft in place in a ligament tunnel in a bone by tightening between the bone graft and the bone surrounding the ligament tunnel to force the bone graft against the bone surrounding the ligament tunnel, comprising a body having a threaded end formed as an interference screw from material which is soft compared to bone so that threads of the threaded end do not cut into the bone graft and bone surrounding the ligament tunnel when the fixation screw is tightened, the fixation screw further including integral instrumentation means fabricated as one piece with the threaded end of the body, and of the same material formed as an integral part of the fixation screw for tightening the fixation screw without the need for use of instrumentation separate from the fixation screw, the body having a portion extended outwardly from an entrance to the ligament tunnel after fixation screw is tightened in place wherein said outwardly extending portion can be trimmed off.

5,062,844

METHOD AND APPARATUS FOR THE FIXATION OF BONE FRACTURES, LIMB LENGTHENING AND THE CORRECTION OF DEFORMITIES

Russell D. Jamison, Germantown, Tenn.; David Brumfield, Nesbit, Miss., and Richard Treharne, Memphis, Tenn., Paul Wisnewski, Memphis, Tenn., Robert Wigginton, Collierville, Tenn., Michael Sherman, Memphis, Tenn., assignors to Smith & Nephew Richards Inc., Memphis, Tenn.

Filed Sep. 7, 1990, Ser. No. 579,329
Int. Cl.[5] A61F 5/04
U.S. Cl. 606—54 25 Claims



1. A bone fixator apparatus for fixation of fractures, limb lengthening, and the correction of bone deformities comprising:

(a) a plurality of half rings, each having inner and outer annular curved surfaces, and spaced parallel, flat upper and lower surfaces, each half ring being made of a plastic-carbon composite material, the half rings being selectively connectable to form pairs that define multiple rings upon assembly such as by bolting, each ring defining a plane;

(b) the plastic-carbon composite half rings including one or more carbon fiber braid members oriented generally parallel to the plane of the half ring;

(c) a plurality of holes spaced along the half rings;

(d) circumferential reinforcement means positioned adjacent the holes for strengthening the half ring adjacent the holes; and

(e) a plurality of tie rods assemblies including rod members extending during use between half rings and through at least some of the holes in the half rings, and fasteners for securing each half ring to one or more tie rods, for maintaining spacing between the half rings during use.

5,062,845

METHOD OF MAKING AN INTERVERTEBRAL REAMER

Stephen D. Kuslich, Maplewood, and James D. Corin, Minneapolis, both of Minn., assignors to Spine-Tech, Inc., Minneapolis, Minn.

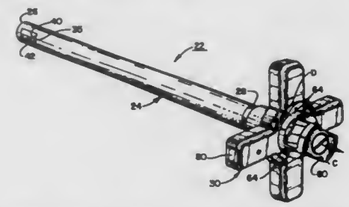
Filed May 10, 1989, Ser. No. 350,050
Int. Cl.[5] A61B 17/56
U.S. Cl. 606—80 12 Claims

1. A method of making a surgical tool for use in spinal stabilization in a mammal spine where said spine has contiguous vertebra, each including a body portion, said body portions being of generally predetermined dimension and spaced apart by a layer of tissue of generally predetermined dimension, said method comprising:

providing a tool body having an operator engaging end and a distal end;

sizing said distal end to have external dimensions selected for said distal end to be inserted within an animal body and located against said layer;

providing cutting means on said distal end for cutting at least a portion of said layer and at least a portion of said body portions to form a chamber within said contiguous vertebra and layer, and with said chamber sized greater than said external dimension; and



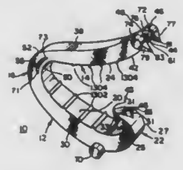
providing control means for controlling a depth of cut of said cutting means between at least a first position with said cutting means retained within said external dimensions and at least a second position with said cutting means extended to form said chamber.

5,062,846

PENETRATING PLASTIC LIGATING CLIP

Seik Oh, and Ray McKinney, Jr., both of Raleigh, N.C., assignors to Edward Weck Incorporated, Princeton, N.J.

Continuation-in-part of Ser. No. 329,453, Mar. 28, 1989, abandoned. This application Oct. 17, 1989, Ser. No. 422,464
Int. Cl.[5] A61B 17/12
U.S. Cl. 606—158 13 Claims



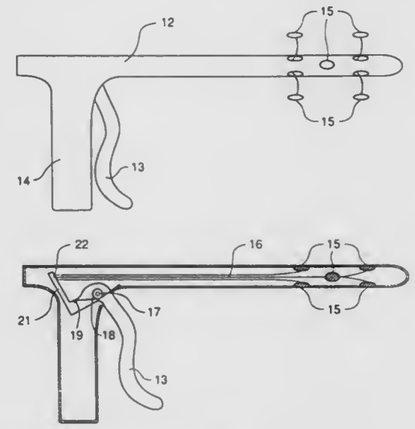
1. A polymeric surgical clip comprising first and second leg members joined at their proximal ends by a resilient hinge means, each leg member having a vessel clamping inner surface and an opposite outer surface, said vessel clamping inner surface being in opposition to the vessel clamping inner surface of the other leg member, said first leg member terminating at its distal end in a deflectible hook member curved toward said second leg member, said second leg member terminating at its distal end in a locking portion complementary to said hook member whereby when said first and second leg members are moved from an open position to a closed position about said hinge means, the hook member deflects about the distal end of said second leg member to lock the clip in a closed position, said hook member having a continuously curved outer surface extending distally from said outer surface of said first leg member, side surfaces and an inner surface; said hook member further comprising a distal tip portion terminating in a sharp pointed distal tip extending rearwardly toward the proximal end of said first leg, the distal end of said second leg member including a groove through which said distal tip passes when said first and second leg members are moved from an open position to a closed position, whereby connective tissue adjacent the vessel to be clamped is cut or stretched, which aids in locking the first and second leg members when said legs are closed.

5,062,847

LAPAROSCOPIC RETRACTOR

William E. Barnes, P.O. Box 126, Salem, Ky. 42078

Filed Dec. 31, 1990, Ser. No. 636,482
Int. Cl.[5] A61L 17/11
U.S. Cl. 606—194 4 Claims



1. A surgical retractor comprising

a barrel having a distal end and handle located opposite the distal end of said barrel,

a plurality of retractor pods located at a plurality of angles and positions on the lateral periphery of the barrel,

the retractor pods being movable between a retracted position in which the pods are substantially flush with the surface of the barrel and an extended position in which each pod is outwardly and laterally projected from the barrel.

the handle being operatively connected to the pods to move the pods between the retracted and extended positions, wherein the handle comprises a trigger and a grasping member, the trigger being pivotable with respect to the grasping member, and further comprising

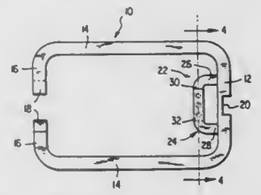
flexible, resilient fibers positioned substantially within the barrel having opposite ends connected to the trigger at one end and to a retractor pod at the opposite end.

5,062,848

HEMOSTATIC CLIP AND APPLICATOR THEREFOR

John G. Frazee, 17357 Magnolia, Encino, Calif. 91316, and Roger J. Malcolm, 920-C Calle Negocio, San Clemente, Calif. 92672

Division of Ser. No. 489,900, Mar. 7, 1990, Pat. No. 5,032,127. This application Mar. 26, 1991, Ser. No. 680,107
Int. Cl.[5] A61B 17/00
U.S. Cl. 606—213 12 Claims



1. A hemostatic clip comprising:

VOL 1132 ISS 1 NO 5 1991 UMI

a single-piece molded plastic member of generally C-shaped configuration having a pair of arms; a jaw at the first end of each arm, said jaws extending toward one another and having mating facing edges; a mid-portion connecting the other ends of said arms, said mid-portion having a centrally located transverse region of reduced thickness extending thereacross and forming a hinge about which said arms and jaws pivot; and first and second cooperating latching members, said members having base portions extending from said mid-portion on opposite sides of said region, respectively, and head portions extending in overlapping relation to one another and provided with a series of interengaging means.

5,062,849

JOINT FOR COUPLING TWO ELONGATED PROSTHESIS SECTIONS

Klaus-Dieter Schelhas, Bremen, Fed. Rep. of Germany, assignor to Bristol-Myers Squibb Company, New York, N.Y.

Filed Mar. 20, 1990, Ser. No. 496,359

Claims priority, application Fed. Rep. of Germany, Mar. 21, 1989, 3909182

Int. Cl.[5] A61F *2/28*

U.S. Cl. 623—16 **4 Claims**



1. Apparatus adapted to provide a self-locking, non-rotating joint for coupling two rod-shaped prosthesis sections using a hollow clamping sleeve, the apparatus comprising:

two prosthesis sections, each section having an unthreaded free end and external threads adjacent the free end, each free end being substantially cylindrical and having a sloping contact surface;

a hollow clamping sleeve with an interior diameter slightly larger than the outer diameter of the free ends, the clamping sleeve having counter-rotating internal threads adapted to cooperate with the external threads of the prosthesis sections, such that the sloping contact surfaces of the prosthesis sections slide on one another when the clamping sleeve is tightened, forcing said free ends transversely against the interior surface of said clamping sleeve; whereby the prosthesis sections are joined in non-rotatable, self-locking manner.

5,062,850

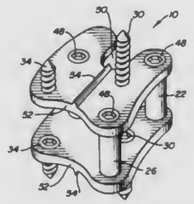
AXIALLY-FIXED VERTEBRAL BODY PROSTHESIS AND METHOD OF FIXATION

Michael MacMillan, Gainesville, Fla., and Regis Haid, Jr., San Antonio, Tex., assignors to University of Florida, Gainesville, Fla.

Filed Jan. 16, 1990, Ser. No. 465,419

Int. Cl.[5] A61F *2/44*

U.S. Cl. 623—17 **15 Claims**



1. A vertebral body prosthetic device for replacing a surgically removed natural vertebral body, comprising:

a. an upper endplate and a lower endplate, each endplate having a height, length and width to completely fit within a spinal column defect created when a vertebral body is surgically removed, and each endplate being provided with at least a first and a second hole extending through the height of the endplate;

b. a plurality of support columns separating the endplates, each support column connecting to the lower surface of the upper endplate and the upper surface of the lower endplate;

c. at least two fixation screws, one fixation screw being insertable into the first hole in the upper endplate and the other fixation screw being insertable into the first hole of the lower endplate, whereby when the device is inserted into a spinal column and the fixation screws are inserted into the first holes, the fixation screws are positioned approximately parallel to the axis of the spinal column; and

d. at least two anti-rotation screws, one anti-rotation screw being insertable into the second hole in the upper endplate and the other anti-rotation screw being insertable into the second hole of the lower endplate, whereby when the device is inserted into a spinal column and the anti-rotation screws are inserted into the second holes, the anti-rotation screws are positioned approximately parallel to the axis of the spinal column.

5,062,851

ANCHORING ELEMENT FOR SUPPORTING A JOINT MECHANISM OF A FINGER OR OTHER RECONSTRUCTED JOINT

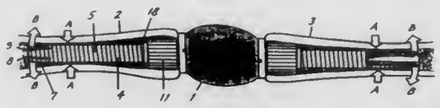
Per-Ingvar Branemark, Mölndal, Sweden, assignor to Medevelop AB, Sweden

Filed Sep. 13, 1989, Ser. No. 406,586

Claims priority, application Sweden, Apr. 25, 1989, 8901508

Int. Cl.[5] A61F *2/30*

U.S. Cl. 623—18 **12 Claims**



1. An anchoring element for supporting a joint mechanism, wherein said anchoring element is substantially rotationally symmetrical, at least partially hollow, and includes a material which is compatible with the tissue of a bone, said anchoring element having a surface which can be at least partially osseointegrated with the tissue to achieve permanent endosteal anchorage in the longitudinal axis of the bone; and

wherein said anchoring element comprises a sleeve-like body with a radially outer surface with external threads for screwing said anchoring element in to the bone; and

wherein said sleeve-like body is deformable so as to reduce the risk of concentrated stress and so as to provide said anchoring element with an ability to adjust to the tissue.

5,062,852

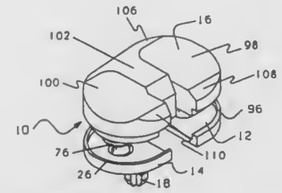
TIBIAL PROSTHESIS WITH INDEPENDENT MEDIAL AND LATERAL BASEPLATES

Lawrence D. Dorr, La Canada, Calif.; Brian D. Burkinshaw, Pflugerville, and Joseph S. Skraba, Austin, both of Tex., assignors to Intermedics Orthopedics, Inc., Austin, Tex.

Filed Feb. 9, 1990, Ser. No. 477,745

Int. Cl.[5] A61F *2/38*

U.S. Cl. 623—20 **49 Claims**



1. A tibial prosthesis comprising

a separate medial baseplate adapted to be affixed to a medial surface at a head of a patient's tibia, said medial baseplate having a bottom side and a top side;

means on said bottom side of said medial baseplate for independently securing said baseplate to said tibia;

a separate lateral baseplate adapted to be affixed to a lateral surface at the head of the tibia, said lateral baseplate having a bottom side and a top side;

means on said bottom side of said lateral baseplate for independently securing said baseplate to said tibia; and

an upper part having medial and lateral articulating surfaces and connected to both the medial baseplate and the lateral baseplate, respectively, at the top sides thereof.

5,062,853

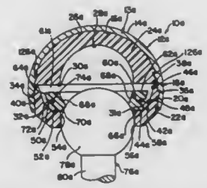
BIPOLAR FEMORAL IMPLANT

Mark R. Forte, 11 Oak La., Pine Brook, N.J. 07058

Filed Aug. 8, 1989, Ser. No. 391,117

Int. Cl.[5] A61F *2/34*

U.S. Cl. 623—22 **39 Claims**



1. An implantable prosthetic joint comprising:

a) first bone securing means for constraining the prosthetic joint within a first bone of a biological joint, said first bone securing means including a spherical shell articulating within a socket in the first bone, said shell including an inner spherical surface and an open circumferential end;

b) second bone securing means for securing the prosthetic joint to a second bone of the biological joint, said second bone securing means including a femoral head and stem means connected with said femoral head for securing the prosthetic joint to the second bone;

c) bearing means for connecting said second bone securing means with said first bone securing means, said bearing means including:

i) an outer spherical dome which engages with the inner spherical surface of said shell,

ii) an open circumferential end,

iii) an inner spherical surface which receives said femoral head for ball-and-socket movement therein, and

iv) an inner annular surface at said open circumferential end, said inner annular surface including at least one annular step;

d) split spring ring means for retaining said femoral head in said bearing means, said split spring ring means including an annular inner engaging surface biased into engagement with the femoral head when the femoral head is seated in said bearing means, and said split spring ring means engaged with said at least one annular step of said inner annular surface when said femoral head is fit within said bearing means; and

e) said bearing means including a bearing insert having said outer spherical dome and said inner spherical surface, and an insert rim formed separate from and independent of said bearing insert, said insert rim being secured to said first bone securing means and having said open circumferential end, said inner annular surface, with an annular recess defined between said bearing insert and said insert rim for receiving said split spring ring means.

5,062,854

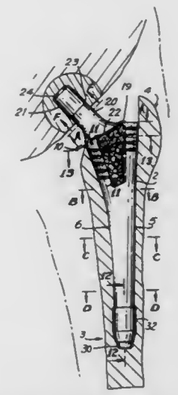
PROSTHETIC DEVICE AND METHOD OF IMPLANTATION

Philip C. Noble, Houston, Tex., and Mary B. Padgett, Parsippany, N.J., assignors to Pfizer Hospital Products Group, New York, N.Y.

Division of Ser. No. 255,206, Oct. 7, 1988, Pat. No. 5,002,560. This application Jul. 24, 1990, Ser. No. 557,272

Int. Cl.[5] A61F *2/34*

U.S. Cl. 623—23 **7 Claims**



1. A method comprising preparing an intramedullary canal of a femur for placement of a bone prosthesis therein, said bone prosthesis having a predetermined shape in its proximal portion, wherein the intramedullary canal is prepared in its proximal portion so that the inner wall of the entire lateral side possesses a substantial surface layer of cancellous bone and provides an interference press-fit with the lateral side of the proximal portion of said bone prosthesis and the inner wall of the entire media side possesses a surface layer substantially

VOL 1132 ISS 1 NO 5 1991 UMI

comprised of cortical bone and provides a substantially line-to-line fit with the medial side of the proximal portion of said bone prosthesis and a portion of the inner wall of each of the anterior and posterior sides possesses a substantial surface layer of cancellous bone and provides an interference press-fit with the corresponding proximal portion of said bone prosthesis and a portion of the inner wall of each of the anterior and posterior sides possesses a surface layer substantially comprised of cortical bone and provides a substantially line-to-line fit with the corresponding proximal portion of said bone prosthesis.

5,062,855

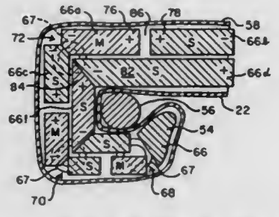
ARTIFICAL LIMB WITH MOVEMENT CONTROLLED BY REVERSING ELECTROMAGNET POLARITY

Richard G. Rincoe, 49 S. Holman Way, Golden, Colo. 80401

Continuation-in-part of Ser. No. 102,162, Sep. 28, 1987, abandoned. This application Oct. 25, 1988, Ser. No. 262,287

Int. Cl.[5] **A61F** *2/54, 2/70*

U.S. Cl. 623—24 **10 Claims**



1. A robotic or prosthetic limb such as a hand, arm, foot, or leg, or a portion of such a limb which can be moved to function in a substantially anatomical manner, said limb comprising inn combination:

an outer skin;

at least two magnets including at least one electromagnet, each said magnet having a first end and a second end, each said first end of each magnet carrying or capable of carrying a first magnetic polarity and each said second end of each magnet carrying or capable of carrying a second magnetic polarity, each said magnet being linearly aligned in a manner such that one pole end of each magnet is adjacent to only one pole end of each next adjacent magnet, said magnets being disposed inside said outer skin in a first position, each said electromagnet being located and positioned within said skin inn a manner such that when it is activated its magnetic field will affect each adjacent magnet;

means for pivotally attaching at least one pole end of one said electromagnet to only one pole end of an adjacent magnet by a hinge, said hinge being disposed in a joint area of the limb, wherein at least one said magnet is moveable;

an electrical power source connected to each said electromagnet; and

means for activating or switching the polarity of at least one said electromagnet, whereby the activating or switching of the polarity of said electromagnet causes either the switched electromagnet or one of said magnets which is adjacent to said switched electromagnet to move from a first position to a second position to thereby cause controllable movement of said limb or a portion of said limb.

5,062,856

TEACHING PLAYBACK SWING-PHASE-CONTROLLED ABOVE-KNEE PROSTHESIS

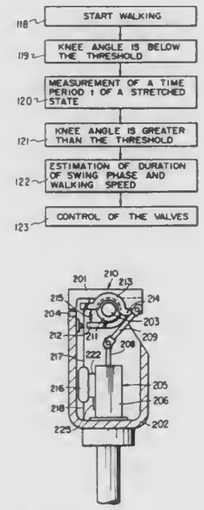
Seishi Sawamura, Kobe; Sakuya Nakajima, Nishinomiya; Kunio Amemori, Kobe; Hidehisa Oku, Akashi; Akio Nakagawa, Itami; Ichiro Kitayama, Kobe; Hiromu Matsuda, Akashi; Katsuhiko Yoshida, Takasago; Masaru Takeda, Kobe; Toshio Nakane, Akashi; Shiro Horiguchi, Hyogo, and Shigeru Yuki, Nishinomiya, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko SHO, Kobe, Japan

Filed Mar. 23, 1989, Ser. No. 327,894

Claims priority, application Japan, Mar. 25, 1988, 63-72943; Mar. 25, 1988, 63-72944; Mar. 25, 1988, 63-72945

Int. Cl.[5] **A61F** *2/64, 2/70, 2/74*

U.S. Cl. 623—24 **2 Claims**



1. A teaching playback swing-phase-controlled above-knee prosthesis comprising:

a thigh frame;

a leg frame pivotally joined to the thigh frame via at least one knee joint pin,

a cylinder interconnecting the thigh and leg frames, said cylinder being provided with upper and lower chambers, an air valve and means for adjusting the degree of opening of the air valve of the cylinder to a plurality of values for a plurality of walking speeds which may be selected during trial walking in a teaching mode of operation;

mode selecting means having a plurality of positions including positions which may be selected in the teaching mode for setting degrees of opening of the air valve of the cylinder for the plurality of walking speeds and a position to be selected for a playback mode;

opening detecting means for detecting a degree of opening of the air valve of the cylinder during the teaching mode;

opening storage means for storing a plurality of degrees of opening of the air valve of the cylinder set respectively for the plurality of walking speeds in the teaching mode;

phase detecting means for detecting swing phases and stance phases of walking int h teaching mode and the playback mode and comprising a detector capable of detecting an angle between said leg and thigh frames;

walking speed determining means for determining an actual walking speed during the playback mode on the basis of the lengths of said swing phases and stance phases detected by the phase detectin,g means;

control means for adjusting the degree of opening of the air valve of the cylinder during the playback mode to one of said values of opening corresponding to the actual walking speed determined by the walking speed determining means; and

a braking device for braking a drop-off of said leg frame, said braking device comprising:

a brake disk and a movable brake shoe respectively mounted to alternate ones of said thigh and leg frames;

resilient means for biasing the brake shoe away from the brake disk;

a pneumatic actuator having a hermetic chamber and operatively connected to the brake shoe;

an air passage connecting the upper chamber of said air cylinder to the hermetic chamber of the pneumatic actuator and provided with a check valve;

an air passage connecting the hermetic chamber of the pneumatic actuator to the lower chamber of said air cylinder and provided with a check valve and a metering valve; and

an air passage connecting upper and lower chambers of said air cylinder and provided with a check valve and a metering valve.

5,062,857

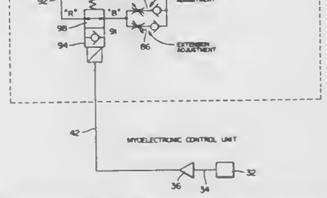
MYOELECTRICALLY CONTROLLED KNEE JOINT LOCKING DEVICE

William A. Berringer, Quakertown, and Edward J. Sulima, Jr., Ambler, both of Pa., assignors to Advanced Prosthestetics Development Corporation, Quakertown, Pa.

Filed Jun. 5, 1990, Ser. No. 533,430

Int. Cl.[5] **A61F** *2/64, 2/72*

U.S. Cl. 623—25 **6 Claims**



1. A myoelectrically controlled knee joint locking device, said device comprising:

an upper artificial limb,

a lower artificial limb pivotably mounted on said upper artificial limb for free-swinging extension and retraction of said lower artificial limb with respect to said upper artificial limb,

a hydraulic piston cylinder assembly, a piston rod of said assembly being pivotably mounted on said upper artificial limb, a cylinder of said assembly being pivotably mounted on said lower artificial limb,

a piston mounted on said piston rod being slidably mounted in said cylinder,

hydraulic fluid being in sealed communication with opposite sides of said piston for movement of said piston in two opposite directions and transfer of said fluid to opposite sides of said piston,

retraction adjustment means for regulating flow of said hydraulic fluid and therefore the speed of retraction of said lower artificial limb when said piston is moved in one of the two opposite directions by movement of said lower artificial limb with respect to said upper artificial limb,

extension adjustment means for regulating flow of said hydraulic fluid therefore the speed of extension of said lower artificial limb when said piston is moved in the other of the two opposite directions by movement of said lower artificial limb with respect to said upper artificial limb,

a single sensing means mounted on a single muscle of the user for generating a single signal in response to a detected myoelectric potential generated voluntarily or involuntarily by the muscle of the user in response to a desired instantaneous locking of said hydraulic piston cylinder assembly against retraction of said lower artificial limb, and

control means responsive to said signal for controlling said assembly to permit only extension of said artificial limb with respect to said upper artificial limb and to instantaneously lock said assembly against retraction of said lower artificial limb at any point along a path of travel of said piston rod.

5,062,858

CONNECTING DEVICE FOR TWO MEMBERS OF AN ARTIFICIAL JOINT

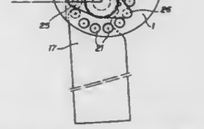
Vanden Broeck, 14b ronte du Curson, CH 1197 Prangins, and Olivier De Marchi, Ecole de Duillier, CH 1266 Duillier, both of Switzerland

Filed May 30, 1990, Ser. No. 530,312

Claims priority, application Switzerland, May 30, 1989, 2023/89

Int. Cl.[5] **A61F** *2/64*

U.S. Cl. 623—43 **4 Claims**



1. A joint device for connecting first and second members of an artificial joint, the first and second members being provided to affix the artificial joint to the human body, the joint device comprising:

first and second supporting side plates disposed in parallel and fixedly coupled to one another;

first and second pivot pins extending between said first and second side plates;

first and second semi-circular toothed sectors, one mounted coaxially to each pivot pin, said toothed sectors being in engagement with one another and each being fixedly associated with one of said first and second members; and

adjustable stop means extending into the path of at least one of said first and second members to define a sector of freedom for said at least one member, at least one of said side plates comprising positioning openings angularly distributed about the axis of at least one of said pivot pins and two angular stops which are angularly adjustable relative to the axis of said at least one pivot pin, each of said stops comprising a rod extending through a positioning opening of said at least one side plate, said rod being integral with a small plate which has a plane perpendicular to a longitudinal axis of said rod, said small plate including means for connecting said small plate to the axis of said at least one pivot pin.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,859

PROSTHETIC FOOT HAVING Z SHAPED INSERT

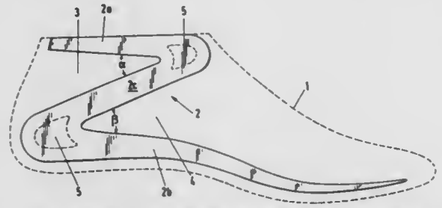
Max Naeder, Duderstadt, Fed. Rep. of Germany, assignor to Otto Bock Orthopaedische Industrie Besitz- und Verwaltungs-Kommanditgesellschaft, Duderstadt, Fed. Rep. of Germany

Filed Jun. 11, 1990, Ser. No. 536,099

Claims priority, application Fed. Rep. of Germany, Jun. 9, 1989, 3918810

Int. Cl.[5] A61F *2/66*

U.S. Cl. 623—55 18 Claims



1. A prosthetic foot having a front part including a toe section, a longitudinal part rearward of said front part, a top edge for non-articulate connection of said prosthetic foot to an artificial leg and a resilient foot insert located inside said prosthetic foot for receiving and transmitting stresses, said resilient foot insert comprising:

a top horizontal section forming said top edge;

a bottom horizontal section of more extended length than said top section having a free end extending into said toe section of said prosthetic foot for providing a high degree of elasticity for said front part of said prosthetic foot and a high degree of energy storage capacity when said front part of said prosthetic foot is stressed; and

an oblique Z-bar section joining said top section and said bottom section in said longitudinal part of said foot to form an approximately Z-shaped construction;

said top section and said bottom section, respectively with said oblique section, enclosing a top angle forming a top rear wedge-shaped cavity and enclosing a bottom angle forming a bottom front wedge-shaped cavity;

said top section, said bottom section, and said oblique section together enabling at least one of plantar flection, dorsal flection, and axial compression for said prosthetic foot;

said plantar flection occurring as said top angle is reduced in a plane perpendicular to a pelvis of a wearer and parallel to a direction of walking;

said dorsal flection occurring as said bottom angle is reduced;

said axial compression occurring as both said top angle and said bottom angle are reduced by deformation and movement perpendicular to a plane of said perpendicular foot.

5,062,860

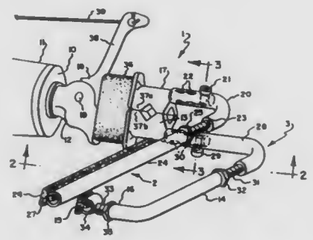
PROSTHETIC ATTACHMENT

Frank A. Cantafio, Jr., 500 Center Rd., W. Seneca, N.Y. 14224

Filed Feb. 6, 1990, Ser. No. 475,854

Int. Cl.[5] A61F *2/58*

U.S. Cl. 623—63 11 Claims



1. A prosthetic attachment for an upper limb to assist an amputee playing a stringed instrument which comprises, a chord finger, a portion of said chord finger extending in a direction generally normal to the remainder of said chord finger, a part of said portion being adapted to extend across an instrument neck having strings extending therealong, means to adjust the spacing between said part and the remainder of said finger, a note finger spaced from said chord finger, a portion of said note finger extending in a direction generally normal to the remainder of said note finger, and a piece of said note finger portion being adapted to engage a single string, means to adjust the spacing between said piece and the remainder of said note finger, and means to vary the spacing between said chord finger and said note finger, whereby a chord selected by engaging said chord finger with strings of an instrument can be selectively modified by engaging said note finger with a chosen one of the strings engaged by said chord finger.

5,062,861

NOVEL NAVY AND BLACK DISPERSE DYE MIXTURES INCLUDING AMINO-PHENYL THIOPHENE AZO DISPERSE DYE AND RED, YELLOW OR ORANGE DISPERSE DYES

Erwin Hahn, Heidelberg; Guenter Hansen, Ludwigshafen; Karl-Heinz Etzbach, Frankenthal; Helmut Reichelt, Neustadt; Ernst Schefczik, Ludwigshafen; Helmut Degen, Frankenthal; Reinhold Krallmann, Weisenheim, and Gerhard Wagenblast, Frankenthal, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 23, 1990, Ser. No. 497,672

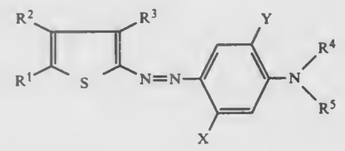
Claims priority, application Fed. Rep. of Germany, Apr. 12, 1989, 3911949

The portion of the term of this patent subsequent to Mar. 13, 2007, has been disclaimed.

Int. Cl.[5] C09B *29/03, 67/22;* D06P *1/18, 3/52*

U.S. Cl. 8—639 3 Claims

1. A navy or black dye mixture containing one or more thiopheneaxo dyes of the formula:



where

R^1 is formyl, cyano or phenylsulfonyl,

R^2 is halogen, C_1–C_8-alkoxy, substituted or unsubstituted phenoxy, C_1–C_6-alkylthio, phenylthio, C_1–C_4-alkylsulfonyl or phenylsulfonyl,

R^3 is cyano, C_1–C_6-alkoxycarbonyl, whose alkyl chain may be interrupted by one or more oxygen atoms, carbamoyl or C_1–C_4-monoalkyl- or dialkyl-carbamoyl,

R^4 is C_1–C_6-alkyl which may be substituted by hydroxyl, C_1–C_4-alkoxy, cyano, C_1–C_4-alkanoyloxy, C_1–C_4-alkoxycarbonyloxy, C_1–C_4-alkylaminocarbonyloxy, phenyl, C_1–C_4-alkoxycarbonyl or chlorine-, hydroxyl-, C_1–C_4-alkoxy- or phenoxy-substituted C_1–C_4-alkoxycarbonyl,

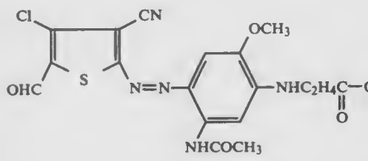
R^5 is hydrogen or C_1–C_6-alkyl which is substituted by phenyl, C_1–C_4-alkoxycarbonyl or chlorine-, hydroxyl-, C_1–C_4-alkoxyl- or phenoxy-substituted C_1–C_4-alkoxycarbonyl,

X is hydrogen, C_1–C_4-alkyl, C_1–C_4-alkoxy, chlorine, bromine or the radical —NH—CO—R^6, where R^6 is C_1–C_4-alkyl, which may be substituted by C_1–C_4-alkoxy, phenoxy, cyano, hydroxyl, chlorine or C_1–C_4-alkanoyloxy, or is unsubstituted or C_1–C_4-alkoxy-substituted phenoxy and

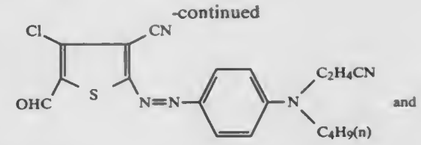
Y is hydrogen, C_1–C_4-alkyl or C_1–C_4-alkoxy, and

one or more dyes F selected from the group consisting of monoazo dyes, disazo dyes, anthraquinones, methine dyes, quinophthalones, naphtholactam dyes, coumarin dyes and diphenylamine dyes, said dyes F having an absorption maximum at a wavelength of from 390 to 520 nm, the proportion of the thiopheneazo dyes being from 60 to 99% by weight, based on the total weight of the thiopheneazo dyes and the dyes F in the mixture, except dye mixtures containing

a) the dyes



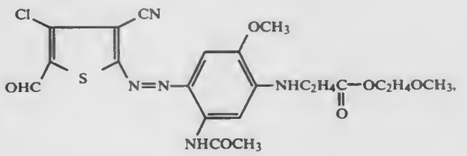
-continued

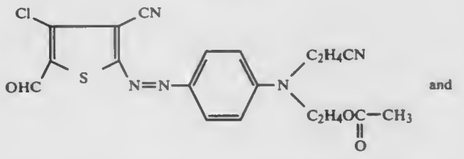


and

C.I. Disperse Red 54 : 1 in a weight ratio of 33 : 4.25 : 2.75,

b) the dyes

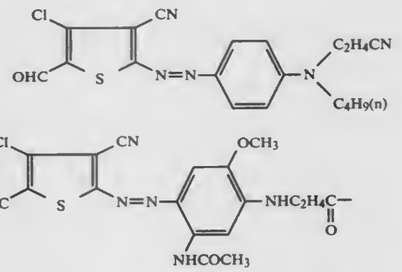


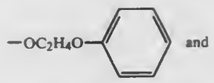


and

C.I. Disperse Red 54 : 1 in a weight ratio of 31 : 6.3 : 2.7,

c) the dyes

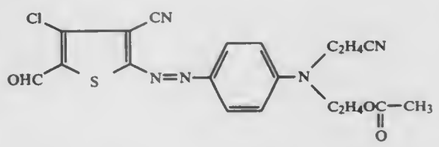


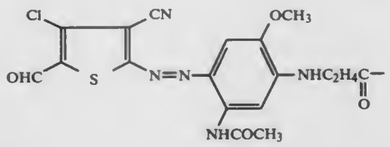


and

C.I. Disperse Red 167 : 1 in a weight ratio of 6.25 : 33.2 : 0.55 and

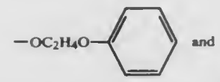
d) the dyes





VOL 1132 ISS 1 NO 5 1991 UMI

-continued



and

C.I. Disperse Red 167 : 1 in a weight ratio of 8 : 31.6 : 0.4.

5,062,862

PROCESS AND APPARATUS FOR RECOVERING A PURE SUBSTANCE FROM A LIQUID MIXTURE BY CRYSTALLIZATION

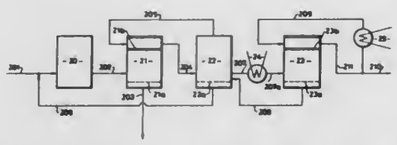
Halbe A. Jansen, Oss, Netherlands, assignor to Grasso's Koninklijke Machinefabrieken N.V., Hertogenbosch, Netherlands

Continuation of Ser. No. 137,677, Dec. 24, 1987, abandoned. This application Sep. 5, 1989, Ser. No. 402,989

Claims priority, application Netherlands, Nov. 29, 1986, 8603314

Int. Cl.[5] B01D *9/00; C07C 7/00, 7/14*

U.S. Cl. 23—295 R **3 Claims**



1. A process for recovering a pure organic substance from an organic liquid mixture, a starting mixture being cooled down in a crystallization zone at a temperature substantially below the freezing point of the pure organic substance to form a pumpable crystal suspension, from which crystals of the pure substance are recovered, wherein

a) the crystal suspension is subjected to a crude separation by feeding it into a first wash column to form a first mother liquor and an upwardly moving crystal bed,

removing crystals together with a few percent of the mother liquor at the top of the crystal bed in the column as a crystal mass, the small amount of mother liquor being due to imperfect washing of the crystal bed,

b) the crystal mass from step a) is subsequently transported to a ripening zone wherein the crystal mass is agitated at a temperature which is higher than that of the crystallization zone and lower than the melting point of the pure substance to be recovered,

a suspension is removed overhead and is introduced into an upper portion of the first wash column of step a) and is used as a wash and transport liquid,

a small stream (bleed stream) of second mother liquor is separated off, and

a crystal suspension containing substantially larger crystals than those in the crystal mass formed in step a) is removed from a lower portion of the ripening zone,

c) the crystal suspension containing substantially larger crystals from step b) is transported to a second wash column wherein the temperature of the crystals which move through the second wash column increases from the temperature of the ripening zone to the temperature of the melting point of the pure substance,

the crystal suspension is separated into a third mother liquor having substantially the same composition as the second mother liquor formed in step b), which is at least partially returned to the ripening zone of step b) and a washed crystal mass is recovered from an upper portion of the second wash column, and

d) a portion of said crystal mass from step c) is heated and returned as a wash and transport liquid to the top of the second wash column.

5,062,863

FUEL COMPOSITIONS CONTAINING POLYALKYLATED 1,3,4-THIADIAZOLES

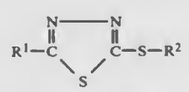
Thomas J. Karol, Norwalk, Conn., assignor to R. T. Vanderbilt Company, Inc., Norwalk, Conn.

Filed May 17, 1990, Ser. No. 524,538

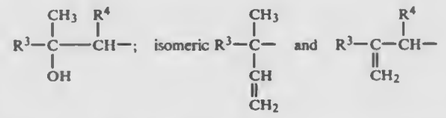
Int. Cl.[5] C10L *5/00*

U.S. Cl. 44—341 **5 Claims**

1. A diesel fuel composition characterized by improved wear properties and comprising a major portion of middle distillates boiling in the range of about 163° C. to 400° C. and a minor wear improving amount of a polyalkylated 1,3,4-thiadiazole selected from the group of compounds having the structural formula



wherein R^1 represents hydroxy, amino, mercapto, alkylthio, 2-hydroxyalkylthio or R^2S- group and R^2 represents a polyolefin residue and is characterized by the formulae



wherein R^3 is an alkyl group having 50 to 400 carbon atoms and R^4 is hydrogen or methyl group.

5,062,864

GAS FILTER ELEMENT

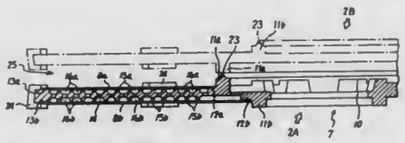
Yoshitomo Hasegawa, and Teruyuki Tsuchiya, both of Soka, Japan, assignors to SMC Corporation, Tokyo, Japan

Filed Apr. 2, 1990, Ser. No. 502,869

Claims priority, application Japan, Jul. 11, 1989, 1-81353

Int. Cl.[5] B01D *46/12*

U.S. Cl. 55—495 **7 Claims**



1. A gas filter element comprising:

a plural number of units each having a flat holder and filter membranes bonded to the opposite sides of said flat holder;

a center opening provided in said holder defining an axial gas passage for effluent filtrate gas;

an annular joint portion formed around said center opening and connectible to an adjacent unit in such a manner as to form an influent gas channel between connected units and to communicate said center opening of the connected units axially with each other;

an annular inner membrane mount portion formed around said joint portion on each side of said holder, said annular inner membrane mount portion being bonded by thermal fusion bonding to inner peripheral portions of said filter membranes;

an outer membrane mount portion formed on each side of said holder along the outer periphery thereof, said outer membrane mount portion being bonded by thermal fusion bonding to outer peripheral portions of said filter membranes;

a partition plate connecting said inner and outer mount portions with each other;

a large number of parallel ribs provided in closely spaced relation on each side of said holder and each having a gradually diminishing width in section toward an outer end with an arcuate surface with a small radius of curvature;

a large number of gas flow apertures defined by said ribs; and

a plurality of gas flow passages communicating said apertures with said center openings; wherein

said filter membranes are fixed to said holder by thermal fusion bonding only at said inner and outer mount portions; and

said units are securely connected with each other by thermal fusion bonding at said joint portions.

5,062,865

CHEMICALLY BONDED SUPERABRASIVE GRIT

Sy-Hwa Chen, and Chien-Min Sung, both of Salt Lake City, Utah, assignors to Norton Company, Worcester, Mass.

Continuation of Ser. No. 274,651, Nov. 18, 1988, abandoned, which is a continuation of Ser. No. 128,971, Dec. 4, 1987, abandoned. This application Nov. 22, 1989, Ser. No. 441,341

Int. Cl.[5] B24D *3/00*

U.S. Cl. 51—295 **22 Claims**

1. A coated superabrasive grit, comprising superabrasive grit particles having roughened surfaces by chemical and/or mechanical systems, said superabrasive grit being selected from the group consisting of diamond and CBN, a substantially continuous first metallic coating on top of said roughened surfaces and being chemically bonded thereto, said first metallic coating being selected from the group consisting of W, Mo, Ta, Nb, and alloys thereof, and a second substantially continuous metallic coating on tope of said first metallic coating, said second metallic coating comprising nickel or copper said first and second metallic coatings having a total thickness in the range of about 1 to 50 microns.

5,062,866

POLYMERIC MEMBRANE AND PROCESS FOR SEPARATION OF ALIPHATICALLY UNSATURATED HYDROCARBONS

W. S. Winston Ho, Annandale, N.J., assignor to Exxon Research and Engineering Co., Florham Park, N.J.

Continuation of Ser. No. 433,464, Nov. 8, 1989, abandoned, which is a continuation of Ser. No. 256,665, Oct. 13, 1988, abandoned. This application Aug. 20, 1990, Ser. No. 569,573

Int. Cl.[5] B01D *53/22, 71/28*

U.S. Cl. 55—16 **22 Claims**

1. Process for separating at least one unsaturated hydrocarbon from a hydrocarbon feed steam containing said unsaturated hydrocarbon by the steps of:

a. contacting the feed stream against a first side of a solid, homogeneous membrane comprising a hydrophilic polymer selected from the group consisting of a polyvinylalcohol, polyvinylacetate, sulfonyl-containing polymers, polyvinylpyrrolidone, polyethylene oxide, polyacrylamide, copolymers thereof, and blends thereof a transition metal or transition metal ion capable of reversibly complexing with the unsaturated hydrocarbon, and a hydrophilic salt of a Group I metal; and

b. withdrawing at a second side of the membrane a permeate comprising the unsaturated hydrocarbon in higher concentration than in the feed stream.

14. A solid, homogeneous membrane for separating at least one unsaturated hydrocarbon from a hydrocarbon stream containing said unsaturated hydrocarbon, said membrane comprising a hydrophilic polymer selected from the group consisting of polyvinylalcohol, polyvinylacetate, sulfonyl-containing polymers, polyvinylpyrrolidone, polyethylene oxide, polyacrylamide, copolymers thereof, and blends thereof, a transition metal or transition metal ion capable of reversibly complexing with the unsaturated hydrocarbon, and a hydrophilic salt of a Group 1 metal.

5,062,867

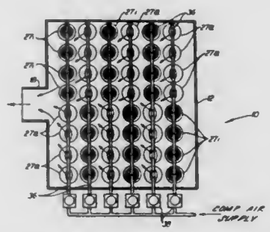
METHOD OF RETROFITTING A DUST COLLECTING APPARATUS

William J. Klimczak, Charlotte, N.C., assignor to Dustex Corporation, Charlotte, N.C.

Filed Dec. 14, 1989, Ser. No. 450,854

Int. Cl.[5] B01D *46/04*

U.S. Cl. 55—96 **6 Claims**



1. A method of retrofitting a dust collecting apparatus comprising a housing having a transverse panel dividing said housing into an inlet chamber and an outlet chamber, with said panel having a plurality of openings arranged in parallel rows of spaced apart openings, a plurality of elongate filter bag elements each having an open end and a closed end, with said bag elements being mounted to said panel such that said open ends are in registry with respective ones of said openings in said panel and the bag elements depend into said inlet chamber, and reverse pulse cleaning means for periodically directing a reverse pulse of air into all of the bags of each row, with said reverse pulse cleaning means comprising an air delivery pipe positioned in said outlet chamber in alignment above each of said rows of openings, each of said pipes having a single air outlet which is aligned above each opening in said panel for directing the pulse into the associated panel opening, and valve means for sequentially introducing high pressure air into each of said pipes, said method comprising the steps of

selecting a plurality of the bag elements to be active filtering bag elements and the remaining nonselected bag elements to be inactive bag elements, with the active and inactive bag elements being arranged in a predetermined pattern such that the inactive bag elements physically shield the active bag elements from the particulate matter which is expelled from the active bag elements of adjacent rows during the reverse cleaning thereof, and

closing the air outlet in the air delivery pipe above all of the non-selected inactive bag elements.

5,062,868

METHOD AND APPARATUS FOR UNLOADING MOBILE VACUUM LOADERS

Michael R. Kennedy, Point Pleasant, N.J., assignor to Aaxon Industrial, Inc., Avenel, N.J.

Filed Aug. 9, 1990, Ser. No. 564,611

Int. Cl.[5] B01D *46/00*

U.S. Cl. 55—97 **3 Claims**

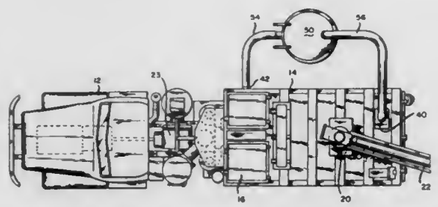
1. A method for cleaning and removal of particulate matter collected in a mobile vacuum loader wherein the particulate matter suspended in an airstream is introduced into said mobile vacuum loader and subjected to a flow path whereby heavier particulate matter is first collected in a debris box; said debris box in communication by means of a conduit with a subsequent

VOL 1132 ISS 1 NO 5 1991 UMI

bag filter chamber for the further collection of particulate matter suspended in said airstream, said bag filter chamber in communication by means of a conduit with a subsequent cyclone separator for further removal of particulate matter suspended in said airstream, said airstream exiting said cyclone separator substantially free of said particulate matter, said airstream discharged through a blower means, said particulate matter collected in said bag filter chamber being mechanically evacuated from said bag filter chamber to said debris box, said method for cleaning and removing said particulate matter collected in said debris box of said mobile vacuum loader comprising:

sealing said conduit from said debris box to said bag filter chamber so as to isolate said debris box from said bag filter chamber and prevent the passage of air and particulate matter therethrough;

positioning a bag separation means adjacent said mobile vacuum loader, said bag separation means having an inlet and an outlet, said bag separation means having a sealable bag secured therein;



positioning an outlet means on said debris box, said outlet means in communication with said inlet means on said bag separation means, said communication means comprising a conduit from said debris box to said bag separation means;

positioning an inlet means on said mobile vacuum loader, said inlet means secured to said bag filter chamber, said inlet means in communication with said outlet means on said bag separation means;

drawing negative pressure in said debris box by means of said blower on said mobile vacuum loader, thereby defining a path for air and particulate matter from said debris box through said outlet means on said debris box to said bag separation means, and from said bag separation means to said bag filter chamber by way of said inlet means to said bag filter chamber and thence to said cyclone filters and thence to said blower means, thereby removing and collecting said particulate matter from said debris box into said bag separation means for collection and disposal.

5,062,869

WATER SEPARATOR FOR AIR DATA SENSOR

Floyd W. Hagen, Eden Prairie, Minn., assignor to Rosemount Inc., Eden Prairie, Minn.

Continuation of Ser. No. 412,907, Sep. 26, 1989, abandoned, which is a continuation-in-part of Ser. No. 320,416, Mar. 8, 1989, abandoned. This application Oct. 10, 1990, Ser. No. 596,735

Int. Cl.[5] B01D *53/00*

U.S. Cl. 55—159 **15 Claims**

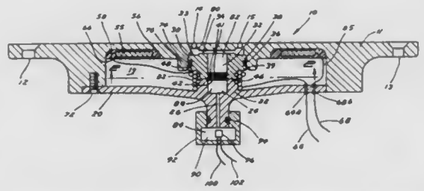
1. Apparatus coupled to the atmosphere for providing air from which water has been separated such that at least one parameter of the air can be measured, comprising:

a housing having an aperture which opens to the atmosphere;

a chamber having an opening to receive the air to be measured from the housing;

the housing providing passageway means coupling air from the aperture to the opening; and

water separating means disposed in the passageway means having an airflow port therethrough, the water separating means preventing air from moving through the passage-



way except through the port, which port is configured to substantially prevent water from passing therethrough.

5,062,870

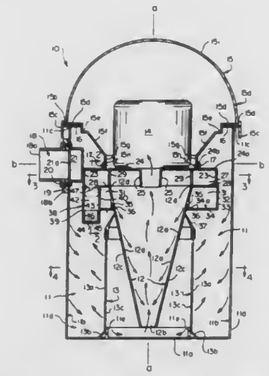
SHUT-OFF DEVICE FOR CYCLONIC VACUUM CLEANER

James Dyson, Bathford, England, assignor to Notetry Limited, England

Filed Jul. 6, 1990, Ser. No. 549,080

Int. Cl.[5] B01D *39/12*

U.S. Cl. 55—213 **37 Claims**



1. In a cleaning apparatus including a container comprising a bottom and a sidewall extending to and meeting the bottom, the sidewall having an interior surface, a dirty air inlet at an upper portion of the container spaced from the bottom which is oriented for supplying dirt laden air into the container and having an air outlet from the container at the upper portion of the container; and means for generating an airflow which passes sequentially through the dirty air inlet and the container, and depositing the dirt in the container and then exiting from the container through a clean air outlet the improvement in a dirt level sensing means comprising:

(a) a housing means mounted inside the container between the dirty air inlet and the clean air outlet and providing an air passage to the clean air outlet from the container, the housing means extending from an opening to the clean air outlet and having a plurality of perforations through the housing means which provide the air passage through which the air flows between the dirty air inlet and the clean air outlet; and

(b) a valve means slideably mounted inside the housing means wherein some of the perforations in the housing means are below the valve means and wherein in operation of the cleaner, the valve means rests in the housing means with the airflow from the container passing through the perforations in the housing means that provide the air passage through the housing means, before

entering the clean air outlet from the container as dirt is being accumulated in the container, and wherein when dirt in the container partially covers at least some of the perforations in the housing means thus reducing the air passage to the clean air outlet from the container, a pressure gradient occurs between the inside of the container and the air inlet to the cyclone so that the valve means moves in the housing means to close off the opening to the clean air outlet to stop the airflow to the clean air outlet from the container.

5,062,871

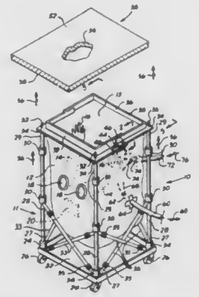
SYSTEM FOR LOCALIZING A PORTION OF A STRUCTURE FOR TREATMENT

Walter B. Lemon, III, Mesa County, Colo., assignor to Seth C. Hunt, Denver, Colo.

Filed Nov. 13, 1989, Ser. No. 435,089

Int. Cl.[5] B01D *46/42;* **B08B** *7/04*

U.S. Cl. 55—259 **14 Claims**



1. A system for isolating a localized portion of a to-be-treated structure by adjustably supporting an opening of a debris containment bag around a to-be-treated portion of a structure, comprising:

a base;

a bag attachment frame defining an open area, and including means for releasably receiving open bags, wherein said bag attachment frame is adjustable so that it is adjusted to releasably receive bags having different size openings; and

an adjustable means connected to and carried by said base and affixed to said bag attachment frame for adjusting the location of said bag attachment frame and the opening of an attached bag around a to-be-treated portion of a structure to thereby isolate such a to-be-treated portion when a bag is present.

5,062,872

AIR FILTER WITH HORIZONTAL FILTER ELEMENTS

Roger D. Williams, Dallas, N.C., assignor to Pneumafil Corporation, Charlotte, N.C.

Filed May 12, 1989, Ser. No. 351,095

Int. Cl.[5] B01D *46/04*

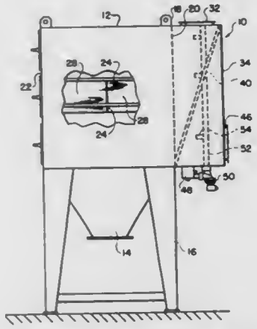
U.S. Cl. 55—302 **14 Claims**

1. Apparatus for filtering dust and the like entrained in a flow of transport air or other gas, said apparatus comprising:

(a) generally enclosed housing means having a side wall, an upper filtering portion and a lower collection portion;

(b) a plurality of filter elements disposed in said upper portion of said housing, each said filter element being generally hollow and mounted with its central axes extending substantially horizontally away from said side wall, and said filter elements being arranged in two generally vertical columns lying in spaced relation to one another and with a predetermined spacing between each filter element;

(c) inlet means located at said side wall for introducing said transport air and entrained foreign matter into said housing, said inlet means including an inlet opening in said side wall of said housing located between said columns of filter elements, and said inlet means being formed to direct said transport air in a predetermined flow path directed downwardly toward said lower housing portion and generally alongside the exterior surfaces of said filter elements in said vertical columns, whereby heavier particles of foreign matter entrained in said transport air will be carried directly to the lower portion of said housing for collection thereat and lighter particles of foreign matter will be separated from said transport air by said filter elements; and



(d) outlet means communicating with the interiors of said filter elements for permitting removal of said cleaned transport air when said transport air flows from said inlet means and through said filter elements.

5,062,873

DEVICE AT A FILTER HOSE

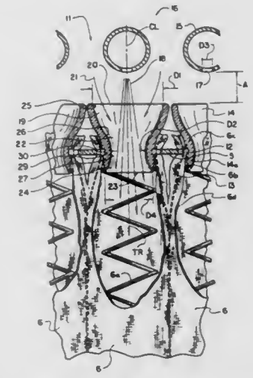
Roger S. Karlsson, Södra Ingelsträde, 263 91 Höganäs, Sweden

Filed May 7, 1990, Ser. No. 520,049

Claims priority, application Sweden, May 12, 1989, 8901704

Int. Cl.[5] B01D *46/04*

U.S. Cl. 55—302 **8 Claims**



1. Device at a filter hose, forming part of a hose filter, whereby contaminated gases (7) are brought to flow into the filter hose (6) for depositing contaminants (9) on the outer side of the filter hose (6), whereby the gases are brought to flow out of the filter hose (6) to a clean-gas zone (11) through a sleeve (14), whereby at least one compressed-air nozzle (17) is pro-

VOL 1132 ISS 1 NO 5 1991 UMI

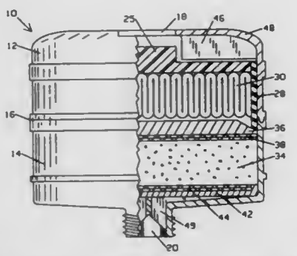
vided in the clean-gas zone (11) at a distance from the sleeve (14) and adapted to guide a blow-like flow (18) of compressed air through the sleeve (14) into the filter hose (6) for momentarily expanding said hose and thereby loosen the contaminants (9) deposited on the outer side of the filter hose (6), and whereby the sleeve (14) has an end portion (14*a*) defining a compressed-air discharge zone (24) through which the compressed air flows from the sleeve (14) into the filter hose (6), characterized in that the filter hose (6) engages and/or is connected to the end portion (14*a*) of the sleeve (14), the sleeve (14) has anchoring portions (29) for mounting the filter hose (6) at a filter cassette (4) forming part of the hose filter (3), the sleeve (14), is insertable into apertures (12) in anchoring portions (5) in the filter cassette (4) for clamping the filter hose (6) by means of said sleeve (14).

5,062,874

FILTER SEALING APPARATUS

Pierre Legare, Ontario, Canada, and David W. Pike, Salisbury, England, assignors to Her Majesty the Queen in right of Canada, as represented by the Minister of National Defence of Her Majesty's Canadian Government, Ottawa, Canada

Filed Jun. 5, 1990, Ser. No. 533,626
Int. Cl.[5] B01D *50/00*
U.S. Cl. 55—337 **29 Claims**



20. A sealant deflector for deflecting sealant toward a wall of a fluid filter housing during sealing in assembly of said fluid filter, said fluid filter including an inlet and an outlet with a filtering media situated therebetween, comprising:

deflecting means including a deflection surface for receiving a quantity of sealant in liquid state through one of said inlet and outlet while said deflecting means is rotating within said fluid filter housing during said sealing step and for flinging said sealant outward;

support means for carrying said deflecting means;

fixing means for permanently fixing said support means and thus said deflecting means in a predetermined location below one of said inlet and outlet within said fluid filter housing; and

said fixing means further comprising self-centering means, for disposing said support means in a central area of said fluid filter, including a plurality of arms extending radially from said support means.

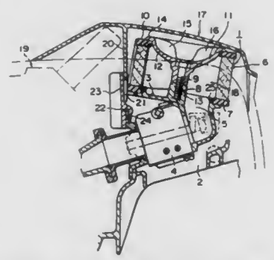
5,062,875

AIR CLEANER

Akira Nagashima, Kawasaki, Japan, assignor to Kioritz Corporation, Tokyo, Japan

Filed Nov. 13, 1990, Ser. No. 611,586
Claims priority, application Japan, Dec. 4, 1989, 1-140400[U]
Int. Cl.[5] B01D *46/10*
U.S. Cl. 55—493 **2 Claims**

1. An air cleaner comprising: a base body which includes a boss section and an outlet passage, a cylindrical filter element having an upper end section and a lower and section which is situated on said base body, a cover member which includes a bolt protruding from the center of its lower surface and which is adapted to be engaged with a tapped hole formed in the boss section of said base body and which is adapted to be engaged with the upper end section of said filter element so as to enclose the internal space of said filter element, and said cover member



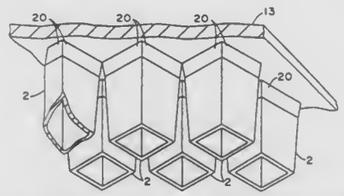
has a downwardly concave central outer surface portion, said outer surface portion having a pair of integrally formed thin diametrical protrusions which extend radially inwards from the periphery and which serve as a handle.

5,062,876

METHOD AND APPARATUS FOR FORMING ROUND GLASS FIBERS

Thomas H. Jensen, Murrysville, Pa., assignor to PPG Industries, Inc., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 357,157, May 26, 1989, abandoned. This application Jul. 12, 1990, Ser. No. 551,986
Int. Cl.[5] C03B *37/08*
U.S. Cl. 65—1 **12 Claims**



1. An apparatus for producing continuous round glass fibers by drawing molten glass streams from tips of a bushing comprising:

a lower bushing tip plate for discharging streams of molten glass having a viscosity of approximately 500 poise or less, said plate being positioned in a container for holding said molten glass;

a plurality of discrete, spaced apart, hollow tips extending downwardly from said lower plate, said tips including;

wall members defining the shape of said tip wherein said wall members of each of said tips are spaced from wall members of adjacent tips and said tips are arranged in groups of rows to accommodate the flow of molten glass therethrough while minimizing the potential for flooding between said tips; and

a lower end spaced from said lower plate wherein the cross-section of said lower end of said tips is substantially a regular polygon in shape; and

means to allow said glass fibers to retain said viscosity for sufficient period of time such that surface tension forces in said glass fibers can act on said fibers to change their cross-section from an initial shape corresponding to the said regular polygon shaped cross-section of said lower end of said tips to a round shape.

5,062,877

METHOD FOR MAKING AN OPTICAL DEVICE

Nicholas F. Borrelli, Elmira, and Dennis W. Smith, Corning, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Continuation-in-part of Ser. No. 432,160, Nov. 6, 1989, abandoned. This application Apr. 9, 1990, Ser. No. 506,078
Int. Cl.[5] C03C *10/10*
U.S. Cl. 65—30.13 **14 Claims**

1. In a method for making an optical device wherein a photonucleable, lithium silicate glass body is selectively crystallized to provide a crystalline matrix surrounding each lens in an array of spherically-shaped clear lenses integral with and rising above at least one matrix surface wherein sodium and/or potassium ions from an external source are exchanged for lithium ions within the surface of said clear lenses to create variable alkali metal ion concentrations defined by both radial and axial concentration gradients, the improvement comprising conducting said exchange of sodium and/or potassium ions for lithium ions at a temperature between about 25°–125° C. above the annealing point of said glass for a period of time sufficient to produce lenses which in diameters of 1 mm and larger have axial heights in excess of 20 microns.

5,062,878

METHOD AND APPARATUS FOR CLEARING FLORA FROM SEWER LINES

Timothy W. Tobiason, Silver Creek, Nebr., assignor to Toby's Chemical Company, Silver Creek, Nebr.

Filed Nov. 13, 1989, Ser. No. 436,071
Int. Cl.[5] A01N *25/16, 55/02*
U.S. Cl. 71—65 **10 Claims**

1. A flora growth inhibitor product adapted for inhibiting the growth of flora in a sewer line, comprising:

a herbicide;

a dry acid;

a carbonate; and

a surfactant mixed with said acid carbonate and said whereby foam is produced in water for vertically elevating said herbicide such that flora roots growing within a sewer line are coated with said herbicide thereby inhibiting growth of flora in a sewer line.

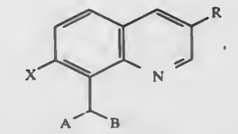
5,062,879

8-AZOLYLMETHYLQUINOLINES AND HERBICIDAL USE THEREOF

Rainer Seele, Fussgoenheim; Gunter Brill, Hassloch; Reiner Kober, Fussgoenheim; Thomas Saupe, Sandhausen; Karl-Otto Westphalen, Speyer, and Bruno Wuerzer, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed May 9, 1990, Ser. No. 520,810
Claims priority, application Fed. Rep. of Germany, May 26, 1989, 3917234; Aug. 1, 1989, 3925422
Int. Cl.[5] C07D *401/06;* A01N *43/653*
U.S. Cl. 71—92 **6 Claims**

1. A substituted 8-azolylmethylquinoline of the formula I



where R is hydrogen, halogen, cyano or C_1–C_4-alkyl or partially or completely halogenated C_1–C_4-alkyl;

X is halogen;

A is; pyrazol-1-yl, imidazol-1-yl, 1,2,4-triazol-1-yl, 1,3,4-triazol-1-yl, 5-mercapto-1,2,4-triazol-1-yl, 5-mercapto-1,3,4-triazol-1-yl or is imidazol-1-yl which at each carbon atom can bear one of the following substituents: halogen, thiol, nitro, cyano, C_1–C_4-alkyl, partially or completely halogenated C_1–C_4-alkyl, C_1–C_4-alkoxy, C_1–C_4-alkylthio, C_1–C_4-alkylsulfonyl, or a group CO—R^1, R^1 denoting C_1–C_4-alkoxy or amino;

B is chlorine, bromine, C_1–C_4-alkoxy, C_1–C_4-alkylthio or —(NR^2R^3), R^2 and R^3 denoting hydrogen, C_1–C_4-alkyl or C_1–C_4-acyl; ZR^4, R^4 denoting phenyl which may bear a nitro, cyano or phenoxy group and up to 3 of the following substituents: halogen, C_1–C_4-alkyl which may bear up to 3 halogen atoms, or C_1–C_4-alkoxy, and Z is oxygen, sulfur or —(NR^5)—, R^5 being hydrogen or C_1–C_4-alkyl,

and the salts and metal complexes of I with acids or metals which do not impair the herbicidal action of I.

6. A process for combating the growth of unwanted plants, wherein a herbicidally effective amount of a substituted 8-azolylmethylquinoline of the formula I, or an acid addition salt or metal complex thereof as set forth in claim 1 is allowed to act on plants, their habitat or seed.

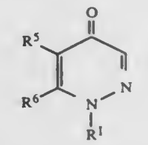
5,062,880

1-ARYL-1,4-DIHYDRO-4-OXO-5-CARBOXYPYRIDAZINE DERIVATIVES AND THEIR USE AS PLANT GROWTH REGULATORS AND HYBRIDIZING AGENTS

Dennis R. Patterson, North Wales, Pa., assignor to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 351,309, May 4, 1989, abandoned, which is a continuation of Ser. No. 167,612, Mar. 14, 1988, abandoned, which is a continuation of Ser. No. 551,438, Nov. 14, 1983, Pat. No. 4,732,603, which is a continuation of Ser. No. 193,677, Oct. 3, 1980, abandoned. This application Dec. 19, 1989, Ser. No. 453,336
The portion of the term of this patent subsequent to Mar. 22, 2005, has been disclaimed.
Int. Cl.[5] C07D *237/24, 309/36;* A01N *43/58;* C07B *43/04*
U.S. Cl. 71—92 **16 Claims**

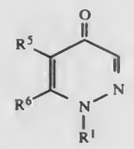
1. A compound of the formula:



wherein R^1 is an alkyl group or is an aryl group substituted with up to three substituents selected from the group consisting of halogen, nitro, trihalomethyl, (C_1–C_4)alkoxy, (C_1–C_4)alkyl and cyano; R^5 is a carboxy (COOH) group or an alkali metal salt thereof, or a carbamide (CONRR) group wherein R is an alkyl group and the agronomically acceptable acid addition salts thereof; and R^6 is an alkyl or is an aryl group optionally substituted with up to three substituents selected from the group consisting of halogen, nitro, trihalomethyl, (C_1–C_4)alkoxy, (C_1–C_4)alkyl and cyano.

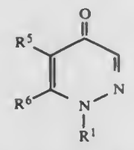
VOL 1132 ISS 1 NO 5 1991 UMI

2. A compound of the formula



wherein R^1 is phenyl substituted with 4-Cl, 3, 4-Cl_2, 4-Br; R^5 is a carboxy (COOH) group or an alkali metal salt thereof; and R^6 is CH_3 or C_2H_5.

3. A compound of the formula:



wherein R^1 is an alkyl group or is an aryl group substituted with up to three substituents selected from the group consisting of halogen, nitro, trihalomethyl, (C_1–C_4)alkoxy, (C_1–C_4)alkyl and cyano; R^5 is a carboxy (COOH) group or the alkali metal salt thereof and the agronomically acceptable acid addition salts thereof; and R^6 is an alkyl or is an aryl group optionally substituted with up to three substituents selected from the group consisting of halogen, nitro, trihalomethyl, (C_1–C_4)alkoxy, (C_1–C_4)alkyl and cyano.

13. A method for inducing male sterility in a cereal grain plant which comprises treating the plant prior to meiosis with a compound of claim 2 in an amount from about 0.125 to about 10 pounds per acre, which amount is effective to produce male sterility in the plant.

15. A method for producing hybrid cereal grain seed comprising treating a female parent of the cereal grain prior to meiosis with a compound of claim 1 or 2 in an amount sufficient to produce male sterility in the plant, pollinating the female parent with pollen from an untreated male parent which is of a different line from the female parent and allowing the female parent to produce the seed.

5,062,881

2-(1-SUBSTITUTED-2-IMIDAZOLIN-2-YL)BENZOIC AND NICOTINIC ACIDS AND A METHOD FOR THEIR PREPARATION

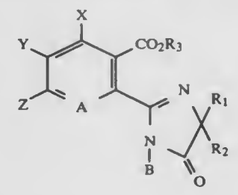
Michael A. Guaciaro, Hightstown, N.J., assignor to American Cyanamid Company, Stamford, Conn.

Filed Dec. 20, 1989, Ser. No. 453,659

Int. Cl.[5] A01N *43/40;* **C07D** *401/04*

U.S. Cl. 71—92 **12 Claims**

1. A compound having the formula I structure:



(I)

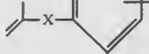
wherein

X is hydrogen, halogen or methyl;

Y and Z are each hydrogen, halogen, C_1–C_6 alkyl optionally substituted with C_1–C_3 alkoxy; C_1–C_3 alkoxy, phenoxy, C_1–C_3 haloalkyl, trifluoromethoxy, C_1–C_4 hydroxyalkyl, C_1–C_4 alkylthio, formyl, difluoromethoxy, 1,1,2,2-tetrafluoroethoxy, nitro, cyano, C_1–C_4 alkylsulfonyl, C_2–C_6 alkenyl optionally substituted with halogen; C_2–C_6 alkynyl optionally substituted with halogen; or phenyl optionally substituted with C_1–C_3 alkyl, C_1–C_3 alkoxy, or halogen;

A is nitrogen;

B is hydroxyl, cyano, halogen, or



R_1 is C_1–C_4 alkyl;

R_2 is C_1–C_4 alkyl or C_3–C_6 cycloalkyl; and when R_1 and R_2 are taken together with the carbon to which they are attached they may represent C_3–C_6 cycloalkyl optionally substituted with methyl;

R_3 is hydrogen,

C_1–C_6 alkyl optionally substituted with C_1–C_3 alkoxy, halogen, C_3–C_6 cycloalky, benzyl, furyl, trimethylsilyl, phenyl, halophenyl, C_1–C_4 alkylphenyl, C_1–C_4 alkoxyphenyl, or nitrophenyl;

C_3–C_6 alkenyl optionally substituted with C_1–C_3 alkoxy, phenyl, halogen or C_1–C_4 alkoxycarbonyl;

C_3–C_6 cycloalkyl optionally substituted with C_1–C_3 alkyl;

C_3–C_6 alkynyl optionally substituted with C_1–C_3 alkyl; or

a cation of alkali metals, ammonium or organic ammonium;

R_5 is C_1–C_4 alkyl;

the N-oxides thereof, when R_3 is not unsaturated alkyl and Y and Z cannot be unsaturated alkyl or alkylthio;

the optical isomers thereof, when R_1 and R_2 represent different substituents; and

the acid addition salts thereof, when R_3 is other than a cation.

5,062,882

TRIAZINE HERBICIDES

Trevor W. Newton, Sittingbourne, and Alastair McArthur, Oare, both of England, assignors to Shell International Research Maatschappij B. V., Netherlands

Filed Mar. 16, 1989, Ser. No. 324,440

Claims priority, application United Kingdom, Apr. 7, 1988, 8808071

Int. Cl.[5] A01N *43/66, 43/68;* **C07D** *251/46, 251/52*

U.S. Cl. 71—93 **9 Claims**

1. A compound of the formula I

(I)

wherein

R^1 and R^2 each independently represent a hydrogen or halogen atom, or an optionally substituted C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{3-8} cycloalkyl, C_{1-12} alkoxy, C_{2-12} alkenyloxy, C_{2-12} alknyloxy, phenyloxy, C_{1-12} alkylthio, C_{2-12} alkenylthio, C_{2-12} alkynylthio, phenylthio or amino group, or a formyl, optionally substituted C_{1-12} alkylcarbonyl, cyano, carboxy, optionally substituted C_{1-12} alkoxycarbonyl, dialkylaminoxy, dialkyliminoxy or azido group;

x represents an oxygen or sulphur atom or a group —SO_2—, —SO— or —NR^4— where R^4 represents a hydrogen atom or an optionally substituted alkyl group;

n is an integer from 1 to 4;

Y represents a hydrogen atom or each Y independently represents a halogen atom, a hydroxy group or an optionally substituted C_{1-12} alkyl, C_{2-12} alkenyl, C_{2-12} alkynyl, phenyl, C_{1-12} alkoxy, C_{2-12} alkenyloxy, C_{2-12} alkynyloxy, phenyloxy, C_{1-12} alkythio, C_{2-12} alkenylthio C_{2-12} alkynylthio, phenylthio or amino group, or a formyl, optionally substituted alkylcarbonyl, cyano or nitro group, or, when n is at least 2, two groups Y may be linked to form a fused saturated carbocyclic ring; and

Z represents a hydroxyalkyl, hydroxybenzyl, or mono-, di- or trialkoxyalkyl group, a group —CH=NOH, or an optionally esterified carboxyalkyl group, or a group COR^3 where R^3 represents a hydrogen or halogen atom, or a hydroxy group, or an optionally substituted C_{1-12} alkyl, phenyl, C_{2-12} alkenyl, C_{2-12} alkynyl, C_{1-12} alkoxy, C_{2-12} alkenyloxy, C_{2-12} alkynyloxy, cycloalkyloxy, phenyloxy, dialkylaminoxy, dialkyliminoxy, amino, C_{1-12} alkylthio, phenylthio, C_{2-12} alkenylthio or C_{2-12} alkynylthio group, or a carboxylic acid salt of a compound of formula I with an equivalent amount of an inorganic or organic cation,

said optional substituents for alkyl, alkenyl, alkynyl, alkoxy, alkenylthio, alkylcarbonyl, and alkoxycarbonyl groups being independently selected from one or more of halogen, C_{1-12} alkoxy, hydroxy, C_{1-12} alkylthio, phenylthio, phenyl, alkylsulphinyl, alkylenedioxy, alkylenedithio, haloalkyl, and alkoxycarbonyl groups, thienyl groups and dialkyliminoxy, optionally substituted amino, trialkylsilyl, alkylcarbonyl, phenylcarbonyl, alkoxycarbonyl, carboxy, cyano, thiocyanate, and optionally substituted aminocarbonyl groups,

said optional substitutents for phenyl, cycloalkyl, phenyloxy or phenylthio groups may be independently selected from one or more of halogen atoms and nitro, cyano, C_{1-12} alkyl, C_{1-12} haloalkyl, C_{1-12} alkoxy, C_{1-12} alkylthio, C_{1-12} alkoxycarbonyl and aralkoxycarbonyl groups,

said optional substitutents for an amino group being independently selected from C_{1-12} alkyl, C_{1-12} alkoxy, amino, mono or dialkylamino, arylamino, alkoxyalkyl, haloalkyl, hydroxy, hydroxyalkyl, carboxyalkyl or alkylcarbonylamino, or the amino group may form part of a pyrrolidinyl or morpholino ring.

7. A herbicidal composition which comprises an effective amount of a herbicidal compound as defined in claim 1 together with a carrier.

5,062,883

SPIRO-BENZYL-3-SUBSTITUTED PYRIDINES

Yoshio Kurahashi; Toshio Goto; Kunihiro Isono, all of Tokyo; Yoshinori Kitagawa, Tochigi; Tetsuji Izumi; Toshihito Kondo, both of Tokyo, and Takayo Sato, Gunma, all of Japan, assignors to Nihon Tokushu Noyaku Seizo K.K., Tokyo, Japan

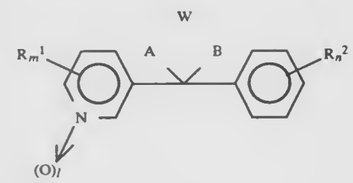
Division of Ser. No. 334,650, Apr. 6, 1989, Pat. No. 5,000,778, which is a continuation-in-part of Ser. No. 268,913, Nov. 8, 1988, Pat. No. 4,940,483. This application May 3, 1990, Ser. No. 518,640

Claims priority, application Japan, Nov. 10, 1987, 62-282211; May 30, 1988, 63-130168

Int. Cl.[5] C07D *405/06, 409/06;* **A01N** *43/40*

U.S. Cl. 71—94 **6 Claims**

1. A 3-substituted pyridine of the formula



(I)

wherein

R^1 represents hydrogen, halogen, lower alkyl, or halo-lower alkyl,

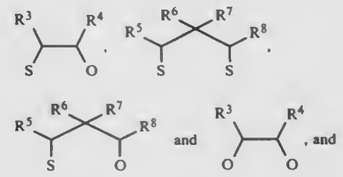
R^2 represents hydrogen, halogen, lower alkyl, phenyl, halo-lower alkyl or phenoxy,

l is 0 to 1,

m is an integer from 1 to 4,

n is an integer from 1 to 5, and

A-W-B represents a member selected from the group consisting of



in which

R^3 and R^4 each represent hydrogen, hydroxy lower alkyl, lower alkoxy-lower alkyl, benzyloxy-lower alkyl, halo-lower alkyl or carboxy-lower alkyl, or

R^3 and R^4 form a hydrocarbon ring having 3 to 12 carbon atoms in total together with the carbon atoms to which then are bonded, and

R^5, R^6, R^7 and R^8 each represent hydrogen, lower alkyl or hydroxy-lower alkyl.

5,062,884

N-SUBSTITUTED 3,4,5,6-TETRAHYDROPHTHALIMIDES AND THEIR INTERMEDIATES

Peter Plath, Frankenthal; Karl Eicken, Wachenheim; Norbert Goetz, Worms; Jochen Wild, Deidesheim; Norbert Meyer, Ladenburg, and Bruno Wuerzer, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

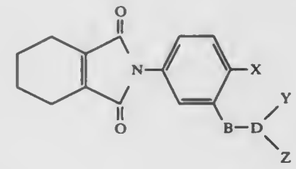
Continuation of Ser. No. 296,355, Jan. 10, 1989, abandoned, which is a continuation of Ser. No. 11,128, Feb. 5, 1987, abandoned. This application Jan. 16, 1990, Ser. No. 463,817

Claims priority, application Fed. Rep. of Germany, Feb. 7, 1986, 3603789

Int. Cl.[5] C07D *209/48;* **A01N** *43/38*

U.S. Cl. 71—95 **5 Claims**

1. An N-substituted 3,4,5,6-tetrahydrophthalimide of the formula



where

X is Cl or Br,

Z is —CO_2R^2,

R^2 is H, C^1–C_6-alkyl, or C_5- or C_6-cycloalkyl, C_1–C_4-alkoxy-C_2–C_4alkyl, C_114 C_4-alkylmercapto-C_2–C_4-alkyl, propargyl, benzyl, α-phenylethyl, α-phenylpropyl, C_2–C_4-alkyl which is monosubstituted, di- or tri-substituted by F or Cl, or CH_3-substituted or Cl-substituted allyl,

and either (1) B is —CH_2—, D is —CH, and Y is —H, C_1–C_7-alkyl, or —CO_2R^2 or (2) B is —CH═, D is ═C, and Y is C_1–C_7-alkyl, Cl, Br, CN, or —CO_2R^2.

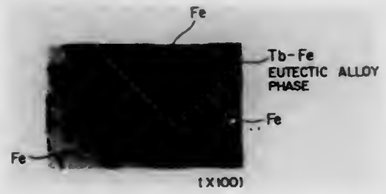
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,885

RARE EARTH METAL-IRON GROUP METAL TARGET, ALLOY POWDER THEREFOR AND METHOD OF PRODUCING SAME

Shunichiro Matsumoto, Yasugi; Tsutomu Inui; Rokuo Ichiyasu, both of Yonago, and Yoshitaka Chiba, Gyoda, all of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Division of Ser. No. 183,993, Apr. 20, 1988, Pat. No. 4,957,549.
This application Jun. 26, 1990, Ser. No. 543,375
Claims priority, application Japan, Apr. 20, 1987, 62-97057
Int. Cl.[5] B22F *1/00*
U.S. Cl. 75—255 3 Claims



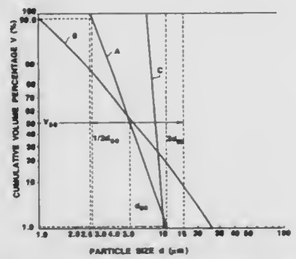
1. Alloy powder for manufacturing a metal target, each particle of the powder having a two phase structure in which an α-phase of at least one rare earth metal and an intermetallic compound phase composed of said at least one rare earth metal and at least one iron group metal are uniformly and finely dispersed.

5,062,886

PROCESS FOR PRODUCING METAL POWDER HAVING CONTROLLED PARTICLE SIZE DISTRIBUTION FOR METALLIC PIGMENTS

Sinya Ozawa; Katsumi Kondo, and Kajin Saito, all of Nara, Japan, assignors to Showa Alumi Powder K.K., Nara, Japan

Division of Ser. No. 406,388, Sep. 11, 1989, Pat. No. 4,976,777.
This application Jun. 1, 1990, Ser. No. 531,593
Claims priority, application Japan, Sep. 9, 1988, 63-226197
Int. Cl.[5] B22F *9/04*
U.S. Cl. 75—371 5 Claims



1. Process for producing a graded metal powder, comprising:
(a) providing a metal powder having a mean particle size of not greater than about 30 μm,
(b) providing a mineral oil,
(c) mixing said mineral oil with a nonionic-anionic surfactant having an HLB value of from about 5.5 to about 11.5, in a proportion of from about 1.8 to about 3.0% by weight based on the amount of said metal powder,
(d) dispersing said metal powder in said mineral oil containing said nonionic-anionic surfactant to form slurry, and
(e) subjecting said slurry to sedimentation to classify said metal particles in said slurry.

5,062,887

PROCESS FOR CHLORIDE REMOVAL FROM SPONGE METAL

Hani A. M. Abodishish, Ogden; R. James Adams, West Point, and Joseph B. White, Ogden, all of Utah, assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 8, 1991, Ser. No. 652,694
Int. Cl.[5] C22B *34/14*
U.S. Cl. 75—425 9 Claims

1. A process of removing residual magnesium chloride trapped in the pores of a sponge metal product that was produced from a metal tetrachloride by the use of magnesium metal as a reductant and that has had magnesium chloride removed therefrom, comprising charging into a distillation furnace a quantity of said sponge metal product and pure virgin magnesium metal in amount from about 20% to about 40% by weight of said quantity of sponge metal product; heating the material in said furnace under positive pressure at a temperature and for a time sufficient to melt said virgin magnesium metal and to wet said sponge metal product therewith and open the pores thereof; still under positive pressure, lowering the temperature in said furnace sufficiently, and maintaining the lowered temperature for a time sufficient, to solidify said molten magnesium; applying a vacuum within said furnace and raising the temperature therein sufficiently and maintaining the raised temperature for a time sufficient to vaporize most of the magnesium metal and remove it from the furnace; and again raising the temperature sufficiently and maintaining it for a time sufficient to remove from the furnace any remaining magnesium metal and the residual magnesium chloride that was trapped in the pores of the sponge metal.

5,062,888

METHOD OF PRODUCING PRECIPITATE OF RARE EARTH FERROMAGNETIC ALLOY

Shunji Watanabe, Tokyo, Japan, assignor to Seiko Instruments Inc., Japan

Filed Mar. 7, 1990, Ser. No. 489,699
Claims priority, application Japan, Mar. 7, 1989, 1-54497
Int. Cl.[5] H01F *1/06*
U.S. Cl. 75—739 12 Claims

1. A method of producing ferromagnetic powder, comprising the steps of:
preparing a solution containing a reducing agent which has a boron element, an iron-triads-group element ion, and a rare earth element ion; and
precipitating ferromagnetic powder composed of an alloy of iron-triads-group metal, rare earth metal and boron.

5,062,889

PROCESS FOR THE PREPARATION OF HYDROCOLLOID MIXTURES HAVING IMPROVED DISPERSIBILITY

Frank Höhl, Neuenkirchen, and Jörn Breckwoldt, Rothenburg, both of Fed. Rep. of Germany, assignors to Wolff Walsrode AG, Walsrode, Fed. Rep. of Germany

Filed Jun. 29, 1990, Ser. No. 546,459
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1989, 3923144
Int. Cl.[5] C09D *101/28*
U.S. Cl. 106—197.2 8 Claims

1. A process for the preparation of hydrocolloid mixtures dispersible in water from at least one uncross-linked hydrocolloid A and at least one cross-linked hydrocolloid B by mixing A and B, characterized in that at least one of the hydrocolloids is subjected to at least one swelling agent or solvent M for the hydrocolloid in a mixing apparatus and vigorously mixed therewith and the agent M is optionally subsequently drawn off, wherein the uncross-linked hydrocolloid is present in at least about 30% by weight, and wherein the hydrocolloid mixture comprises cross-linked methylhydroxyethylcellulose and uncross-linked methylhydroxyethylcellulose and uncross-linked carboxymethylcellulose.

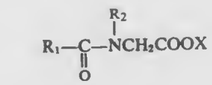
5,062,890

WATER-BASED INK COMPOSITION FOR BALL-POINT PEN

Hiroshi Miyashita, Koshigaya; Hideotoshi Hamamoto, Ishioka; Shigeru Nagai, Toda; Makoto Yamaguchi, Koshigaya; Onuki Isao, Kasukabe; Hiroshi Takahashi, and Atsushi Ishiguro, both of Ibraki, all of Japan, assignors to Pentel Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 161,289, Feb. 29, 1988, abandoned, which is a continuation of Ser. No. 890,377, Jul. 29, 1986, abandoned. This application Oct. 16, 1989, Ser. No. 423,527
Claims priority, application Japan, Jul. 29, 1985, 60-167046
Int. Cl.[5] C09D *11/06*
U.S. Cl. 106—27 7 Claims

1. In a water-based ink composition for a ball-point pen consisting essentially of a pigment; a dispersant for said pigment; a water-soluble organic solvent and water; the improvement wherein the composition contains a metal salt and/or an amine salt of N-acyl sarcosine represented by the following formula:



(I)

where R_1 is a saturated or unsaturated hydrocarbon having 8 to 20 carbon atoms; R_2 is H or alkyl group having 1 to 3 carbon atoms; X is a metal selected from the group consisting of Na and K, or an amine selected from the group consisting of NH_3 and $NH_2C_2H_4OH$; the amount of said metal salt and/or amine salt of N-acyl sarcosine being in a range of from 0.02 to 10 wt. % of the total amount of said water-based ink composition; said sarcosine compound functioning as a lubricant in the composition for the purpose of acting as a lubricant between a ball seat and the ball of a ball point pen to reduce the wear thereof when said water-based ink composition is used in a ball point pen.

5,062,891

METALLIC INKS FOR CO-SINTERING PROCESS

William C. Gruber, Arlington, and Eric A. Barringer, Waltham, both of Mass., assignors to Ceramics Process Systems Corporation, Milford, Mass.

Filed Aug. 13, 1987, Ser. No. 85,077
Int. Cl.[5] C09D *11/00*
U.S. Cl. 106—20 31 Claims

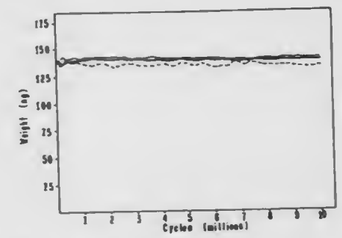
1. A metallic ink consisting essentially of:
(a) powdered metal particles selected from the group consisting of copper, silver, palladium, gold, alloys thereof, and mixtures thereof;
(b) an organic vehicle system;
(c) a glass component consisting essentially of: (i) 25–57 wt. % alkaline earth oxides, of which MgO comprises 0–50 wt. % and of which CaO comprises 50–100 wt. %; (ii) 23–35 wt. % SiO_2; (iii) 25–35 wt. % B_2O_3; and (iv) 0–10 wt. % Al_2O_3; and
(d) at least one ceramic material selected from the group consisting of: cordierite, forsterite, alumina, quartz, eucryptite, and spodumene.

5,062,892

INK ADDITIVES FOR IMPROVED INK-JET PERFORMANCE

David J. Halko, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Oct. 27, 1989, Ser. No. 428,282
Int. Cl.[5] C09D *11/02*
U.S. Cl. 106—22 26 Claims



1. An ink for thermal ink-jet printing comprising a vehicle and an anionic dye, characterized by the presence of at least one oxo anion therein, said at least one oxo anion selected from the group consisting of phosphates, polyphosphates, phosphate esters, arsenate, molybdate, sulfate, sulfite, and oxalate and present in an amount ranging from about 9 mg/L to 14 wt%.

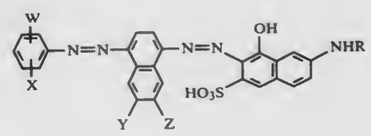
5,062,893

INK FORMULATIONS BY MIXING ANIONIC WATERFAST DYES CONTAINING TWO OR MORE CARBOXYL GROUPS

Raymond J. Adamic; Palitha Wickramanayake; Suraj L. Hindagolla; Garold E. Radke, and David J. Halko, all of Corvallis, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jun. 22, 1990, Ser. No. 542,862
The portion of the term of this patent subsequent to Oct. 16, 2007, has been disclaimed.
Int. Cl.[5] C09D *11/00*
U.S. Cl. 106—22 24 Claims

1. An ink comprising, by wt %:
a) from about 0.5% to about 20% of at least two dyes, each of which, in the free acid state, independently corresponds to the formula



I

wherein
W is COOH,
X is H or COOH,
Y is H, COOH, or SO_3H,
Z is H, COOH, or SO_3H, and
R is H, CH_2COOH, or CH_2CH_2COOH;
provided that there are at least two COOH groups and that the number of COOH groups is equal to or greater than the number of SO_3H groups,
b) up to about 30% of a water soluble organic solvent for said dye, and
c) water.

VOL 1132 ISS 1 NO 5 1991 UMI

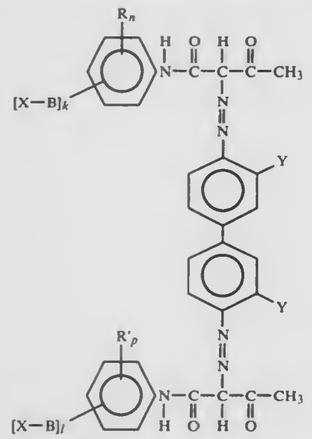
5,062,894

POLY (ALKYLENE OXIDE)-MODIFIED DIARYLIDE PIGMENT COMPOSITION

Russell J. Schwartz, Cincinnati; Anthony C. Zwirgzdas, Butler, and Terence R. Chamberlain, Cincinnati, all of Ohio, assignors to Sun Chemical Corporation, Fort Lee, N.J.

Continuation-in-part of Ser. No. 654,162, Feb. 12, 1991. This application Jun. 25, 1991, Ser. No. 720,310
Int. Cl.[5] C09B *31/11;* C09D *11/00*
U.S. Cl. 106—23 19 Claims

1. A diarylide pigment composition comprising:



wherein R and R' are independently selected from the group consisting of C_1–C_4 alkyl, C_1–C_4 alkoxy, and halogen; n and p are independently integers of 0 to 5; Y is selected from the group consisting of chlorine, methyl or methoxy; B comprises a divalent bridging moiety selected from the group consisting of C_1–C_6 alkyl, —$NHSO_2$—, —O—, —CO—, —COO— and —CONH—; X comprises a poly (alkylene oxide) having a number average molecular weight of about 200 to 10,000; and k and l are independently integers of 0 or 1, with the proviso that for at least 50 wt.% of the pigment composition, k and l are both equal to 0, and for at least 3 wt.% of the pigment composition, k and/or l are equal to 1.

5,062,895

CHEMICAL COMPOSITION, AND METHODS OF CONSTRUCTING AND UTILIZING SAME

Frank J. Pockrandt, 3337 Michael, Warren, Mich. 48091

Filed Jul. 20, 1989, Ser. No. 382,304
Int. Cl.[5] C09K *3/14, 3/18;* B25B *13/00;* B22F *7/02*
U.S. Cl. 106—36 25 Claims

1. A composition for use in the insertion, removal and retention of fasteners, comprising:

ethylene glycol paste; and

friction particles suspended throughout said paste for providing friction between a tool and a fastener;

said compound comprising a mixture of substantially one-quarter pound of friction particles per substantially one pint of ethylene glycol paste;

said composition being adapted to be applied to engaging surfaces of at least one of said fastener and said tool to prevent stripping of said fastener;

a size of said friction particles being generally in a range between 50 micrometers and 200 micrometers, and said size of said friction particles being specifically determined within said range in dependence on a size of fasteners to be removed.

5,062,896

SOLDER/POLYMER COMPOSITE PASTE AND METHOD

Wu-Song Huang, Poughkeepsie; Igor Y. Khandros, Peekskill; Ravi Saraf, Croton-on-Hudson, and Leathen Shi, Yorktown Heights, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 30, 1990, Ser. No. 502,090
Int. Cl.[5] B23K *35/34*
U.S. Cl. 106—287.19 16 Claims

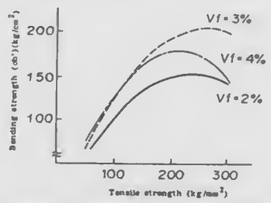
1. A composite polymer-solder paste having a maximum reflow temperature above the melting temperature of a metal alloy powder filler therein and having a rework temperature below said reflow temperature, said paste consisting essentially of at least about 85% by weight of a meltable eutectic metal alloy powder filler which is substantially free of noble metals, a minor amount equal to at least about 6% by weight of a solution of a thermoplastic polymer having a softening temperature which is higher than the melting temperature of said metal alloy powder filler and is below said reflow temperature and which is thermally stable at said maximum reflow temperature, dissolved in a volatile organic solvent having a boiling temperature above the melting temperature of said alloy powder filler and below said reflow temperature, and a lesser amount equal to at least about 0.5% by weight of a transient acidic fluxing agent comprising a metal oxide-reducing agent having a boiling temperature above the melting temperature of said metal alloy powder filler and below said reflow temperature, the reflow of said paste producing an electroconductive solder connection which is substantially free of said fluxing agent and said solvent and which comprises a polymer-reinforced partially coalesced interconnected network of said metal alloy powder, said electroconductive solder connection being reworkable at low remelt temperatures by heating above the softening temperature of said reinforcing polymer but below said maximum reflow temperature.

5,062,897

CARBON FIBER-REINFORCED HYDRAULIC COMPOSITE MATERIAL

Haruo Katsumata; Hiromichi Sakai; Keisuke Takahashi; Hirofumi Ootaguro; Masashi Matsumoto; Moriyasu Nakamura, all of Kitakyushu, and Tatsuo Ando, Yokohama, all of Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

Filed Feb. 16, 1990, Ser. No. 480,768
Claims priority, application Japan, Feb. 17, 1989, 1-38085; Apr. 6, 1989, 1-87679
Int. Cl.[5] C04B *14/00, 7/02, 7/36, 7/14*
U.S. Cl. 106—696 6 Claims



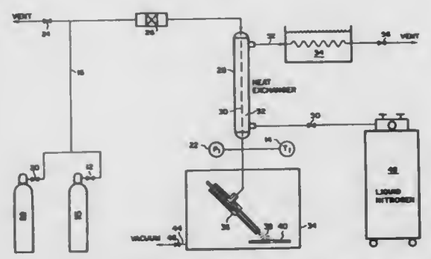
1. A carbon fiber-reinforced hydraulic composite material obtained by mixing and dispersing carbon fibers in a hydraulic material selected from the group consisting of Portland cement, blast furnace cement, alumina cement, calcium silicate, natural gypsum and synthetic gypsum, wherein chopped carbon fibers having a monofilament tensile strength of from 140 kg/mm to 270 kg/mm and a monofilament diameter of from 15 μm to 30 μm are blended as said carbon fibers at a volume fraction of from 1% to 4% of the entire composite material to bring a flow index of said composite material before hardening to 120 mm or above.

5,062,898

SURFACE CLEANING USING A CRYOGENIC AEROSOL

Wayne T. McDermott; Richard C. Ockovic, both of Allentown, Pa.; Jin J. Wu, Ossining; Douglas W. Cooper, Millwood, both of N.Y.; Alexander Schwarz, Allentown, Pa., and Henry L. Wolfe, Pleasant Valley, N.Y., assignors to Air Products and Chemicals, Inc., Allentown, Pa. and International Business Machines Corporation, Yorktown Heights, N.Y.

Filed Jun. 5, 1990, Ser. No. 534,810
Int. Cl.[5] B08B *5/00*
U.S. Cl. 134—7 17 Claims



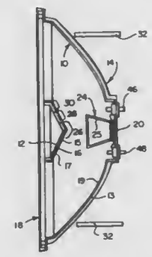
1. A method for removing contaminating particles and/or films from a particle and/or film-containing surface using an impinging stream of an at least substantially solid argon particle-containing aerosol, comprising: expanding a pressurized gaseous argon-containing stream, which is at a temperature above the liquefaction point of argon at the existing stream pressure prior to expansion, forming at least substantially solid particles of argon in said stream by the cooling resulting from said expansion to form an at least substantially solid argon particle-containing aerosol, and directing said aerosol at said surface to remove said contaminating particles and/or film.

5,062,899

WIDE ACCEPTANCE ANGLE, HIGH CONCENTRATION RATIO, OPTICAL COLLECTOR

Mark A. Kruer, Redondo Beach, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 30, 1990, Ser. No. 503,408
Int. Cl.[5] H01L *31/052;* F24J *2/18*
U.S. Cl. 136—259 7 Claims



1. A radiation collector capable of improved collection of off-axis radiation at high concentration ratios, said collector comprising:

a generally concave primary mirror for receiving and reflecting radiation;

means for collecting radiation reflected by said primary mirror;

a secondary mirror aligned coaxially with, and spaced in relation to, said primary mirror for redirecting radiation received from said primary mirror to said radiation collecting means, said secondary mirror having an inner zone, a central zone and an outer zone, said central zone having a hyperboloidal cross sectional configuration which reflects on-axis radiation from the primary mirror to the collecting means, and said inner and outer zones having paraboloidal cross sectional configurations which reflect off-axis radiation from the primary mirror to the collecting means.

5,062,900

PROCESS FOR THE IMPROVEMENT OF THE CORROSION RESISTANCE OF METALLIC MATERIALS

Roger Berneron, Gargenville, and Pierre de Gelis, Saint Germain en Laye, both of France, assignors to Institut de Recherches de la Siderurgie Francaise, Paris, France

PCT No. PCT/FR89/00176, § 371 Date Dec. 14, 1989, § 102(e) Date Dec. 14, 1989, PCT Pub. No. WO89/10424, PCT Pub. Date Nov. 2, 1989
PCT Filed Apr. 18, 1989, Ser. No. 458,743
Claims priority, application France, Apr. 18, 1988, 88 05091
Int. Cl.[5] C23F *15/00*
U.S. Cl. 148—4 13 Claims

1. Process for improving the corrosion resistance of a metallic material, wherein the metallic material is maintained at a temperature of less than about 100° C. while being subjected to a surface treatment by a low temperature plasma, at a pressure of from 1 to 10^3 Pa in an atmosphere comprising at least one gas chosen from the following: oxygen, ozone, nitrogen, hydrogen air, carbon dioxide, carbon monoxide, the nitrogen oxides, water, combustion gases, and mixtures of these with a neutral gas, and wherein said material is the cathode for said treatment.

5,062,901

METHOD OF PRODUCING HARDENED ALUMINUM ALLOY SHEETS HAVING SUPERIOR CORROSION RESISTANCE

Hiroki Tanaka, and Shin Tsuchida, both of Nagoya, Japan, assignors to Sumitomo Light Metal Industries, Ltd., Tokyo, Japan

Filed May 15, 1990, Ser. No. 524,295
Claims priority, application Japan, Aug. 25, 1989, 1-217479
Int. Cl.[5] C21D *8/00;* C22C *21/06*
U.S. Cl. 148—11.5 A 2 Claims

2. In a method of producing a hardened aluminum alloy sheet by casting an aluminum alloy containing 4.0 to 6.0% Mg in a conventional manner, said method comprising a homogenizing step, a hot rolling step, multiple cold rolling steps, at least one intermediate annealing step and a stabilizing treatment step, the improvement comprises: said aluminum alloy being provided as an Al-Mg-Cu alloy containing 0.05 to 0.50% Cu in addition to Mg; and said Al-Mg-Cu alloy being subjected to (1) a final intermediate annealing step comprising heating to temperatures of 350° to 500° C. and rapid cooling to temperatures of 70° C. or less at a cooling rate of 1° C./sec or more; (2) a finishing cold rolling step with a reduction of at least 50%; and (3) coating and baking operations under application of tension, thereby providing a hardened aluminum alloy sheet having a superior corrosion resistance.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,902

FLUXING AGENTS COMPRISING β-DIKETONE AND β-KETOIMINE LIGANDS AND A PROCESS FOR USING THE SAME

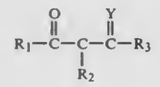
Thomas L. Ellison, San Jose; David A. Roberts, Carlsbad, both of Calif.; John C. Ivankovits, Northampton, and John A. T. Norman, Whitehall, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Division of Ser. No. 502,209, Mar. 30, 1990. This application Dec. 27, 1990, Ser. No. 635,904

Int. Cl.[5] B23K *35/34*

U.S. Cl. 148—23 **18 Claims**

1. A fluxing agent for soldering comprising an effective amount of a β-diketone or β-ketoimine ligand dispersed in a vehicle wherein the ligand is represented by the formula:

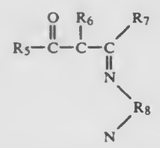


wherein:

R_1 and R_3 are independently selected from a non-fluorinated, partially fluorinated or fully fluorinated linear or branched alkyl or alkenyl group having from 1 to about 8 carbon atoms;

R_2 is a hydrogen atom, a non-fluorinated, partially fluorinated or fully fluorinated linear or branched alkyl or alkenyl group having from 1 to about 8 carbon atoms; and

Y is selected from an oxygen atom; N-R_4 where R_4 is selected from a non-fluorinated, partially fluorinated or fully fluorinated alkyl, aryl, aralkyl or hydroxyalkyl group having from 1 to about 10 carbon atoms; or Y is



wherein

R_5, R_6 and R_7 are independently selected from a non-fluorinated, partially fluorinated or fully fluorinated linear or branched alkyl or alkenyl group having from 1 to about 8 carbon atoms and

R_8 is a non-fluorinated, partially fluorinated or fully fluorinated linear or branched alkylene, alkenylene, phenylene, alkylphenylene or hydroxyalkylene group having from 1 to about 8 carbon atoms.

5,062,903

WELDING PROCESS AND MIXTURE OF REACTANTS FOR USE IN SUCH PROCESS

Denis A. Bronan, Liberty, S.C., and James E. Whetsel, Bedford, Ohio, assignors to Erico Products, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 406,607, Sep. 13, 1989. This application Nov. 30, 1990, Ser. No. 620,137

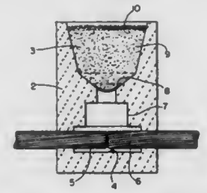
Int. Cl.[5] B23K *35/34*

U.S. Cl. 148—24 **13 Claims**

1. A process for producing molten weld metal for use in joining at least two metallic pieces comprising:

(A) providing a mixture of reactants comprising a reducing agent, a metallic compound which is exothermically reduced by such reducing agent and a filler metal that does no chemically react with such metallic compound or such reducing agent upon the exothermic reaction of such reducing agent and such metallic compound; and

(B) exothermically reacting such reducing agent and such metallic compound so as to generate sufficient heat to melt such filler metal and form such molten weld metal for joining such metallic pieces, at least 90 percent by weight



of such molten weld metal being formed by such filler metal.

5,062,904

TREATMENT OF FERROMAGNETIC METAL POWDERS AND MAGNETIC RECORDING MEDIA USING THE SAME

Kenichi Yoden, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 2, 1990, Ser. No. 592,453

Claims priority, application Japan, Oct. 3, 1989, 1-258514

Int. Cl.[5] H01F *1/02*

U.S. Cl. 148—105 **7 Claims**

1. A method for treating a ferromagnetic metal powder which comprises forming ferromagnetic metal powder, and then exposing said ferromagnetic metal powder to a low temperature plasma in an oxygen atmosphere.

5,062,905

METHOD OF PRODUCING NON-ORIENTED MAGNETIC STEEL PLATE HAVING HIGH MAGNETIC FLUX DENSITY

Yukio Tomita; Ryota Yamaba, and Tatsuya Kumagai, all of Tokai, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan, a

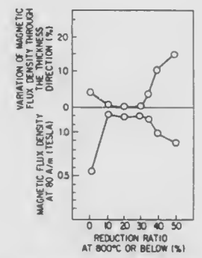
Filed Aug. 14, 1990, Ser. No. 567,142

Claims priority, application Japan, Aug. 18, 1989, 1-212689; Aug. 18, 1989, 1-212690

The portion of the term of this patent subsequent to Aug. 21, 2007, has been disclaimed.

Int. Cl.[5] H01F *1/047*

U.S. Cl. 148—111 **10 Claims**



1. A method of producing non-oriented electrical steel plate having high magnetic flux density comprising the steps of:

preparing a steel slab comprising, by weight, up to 0.01 percent carbon, 0.10 to 3.5 percent silicon, up to 0.20 percent manganese, up to 0.01 percent sulfur, up to 0.05 percent chromium, up to 0.01 percent molybdenum, up to 0.01 percent copper, 0.10 to 3.0 percent aluminium, up to 0.004 percent nitrogen, up to 0.005 percent oxygen and up to 0.0002 percent hydrogen, with the remainder being substantially iron;

reheating the slab to a temperature of 1150° to 1300° C.;

hot-rolling the slab at least once at a rolling shape factor A of at least 0.6 at a finish rolling temperature of at least 900° C. to provide a steel plate having a plate thickness of 50 mm or more;

dehydrogenation heat treating the steel plate at between 600° and 750° C.;

whereby a magnetic flux density of 0.8 tesla or more at a magnetic field of 80 A/m is imparted to the steel;

wherein the hot rolling is accomplished using a rolling mill having a radius R(mm) and wherein the steel plate has an entry-side thickness h_i(mm) and an exit-side plate thickness h_o(mm) which exhibits a relationship with the rolling shape factor A of the hot rolling as follows:

$$A = (2\sqrt{R(h_i - h_o)})/(h_i + h_o).$$

5,062,907

HARD MAGNETIC MATERIAL AND MAGNET MANUFACTURED FROM SUCH HARD MAGNETIC MATERIAL

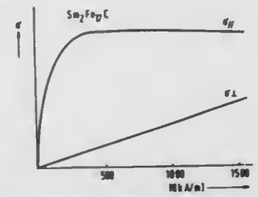
Kurt H. J. Buschow; Dirk B. de Mooij, and Theodora H. Jacobs, all of Eindhoven, Netherlands, assignors to U.S. Philips Corp., New York, N.Y.

Filed May 4, 1990, Ser. No. 518,900

Claims priority, application Netherlands, May 10, 1989, 8901168

Int. Cl.[5] H01F *1/053*

U.S. Cl. 148—301 **5 Claims**



1. A magnetic material having a magnetic phase comprising crystalline $RE_2.Fe_{17}$, wherein RE is a rare earth metal, having hexagonal crystal structure and interstitial C dissolved in the magnetic phase in a quantity sufficient to provide the magnetic material with a uniaxial magnetic anisotropy at room temperature, and at least 70 at.% of the rare earth metal consists of Sm.

5,062,906

METHOD OF MAKING NON-ORIENTED ELECTRICAL STEEL SHEETS

Akihiko Nishimoto; Yoshihiro Hosoya; Kunikazu Tomita; Toshiaki Urabe, and Masaharu Jitsukawa, all of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

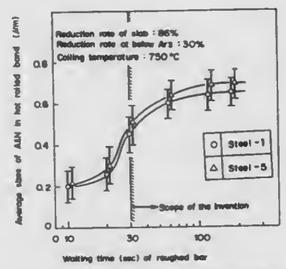
PCT No. PCT/JP89/00242, § 371 Date Oct. 12, 1989, § 102(e) Date Oct. 12, 1989, PCT Pub. No. WO89/08721, PCT Pub. Date Sep. 21, 1989

PCT Filed Mar. 7, 1989, Ser. No. 427,108

Claims priority, application Japan, Mar. 7, 1988, 63-51785

Int. Cl.[5] H01F *1/04*

U.S. Cl. 148—111 **9 Claims**



1. A method of making non-oriented electrical steel sheets, comprising roughing a steel slab immediately after continuously casting thereof to thickness of more than 20 mm at reduction rate of more than 10% without brief soaking at specified temperature range, said steel slab containing C: not more than 0.005 wt %, Si: 0.1 to 1.5 wt %, Mn: 0.1 to 1.0 wt %, P: 0.01 to 0.15 wt %, N: not more than 0.0031 wt %, sol.Al: 0.005 to 0.5 wt %, and S: not more than 0.005 wt %; having a time interval of more than 30 sec at temperature range where the surface temperature of the roughed bar is more than 950° C. till a following finish rolling; performing a finish rolling at not more than Ar_3 and at reduction rate of more than 25 % and coiling at temperature of more than 700° C.

5,062,908

VALVE GUIDE

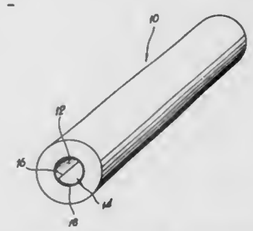
Charles G. Purnell, Coventry, and Andrew R. Baker, Lighthorn, both of England, assignors to Brico Engineering Limited, Coventry, England

Continuation-in-part of Ser. No. 516,703, Apr. 30, 1990. This application Sep. 18, 1990, Ser. No. 584,124

Claims priority, application United Kingdom, Sep. 27, 1989, 8921826

Int. Cl.[5] C22C *38/16*; F01L *3/00*

U.S. Cl. 148—332 **11 Claims**



1. A valve guide for an internal combustion engine, said valve guide comprising a tubular component having a bore and having a porous sintered ferrous matrix which is infiltrated over substantially the whole length of the bore of the guide with a copper alloy.

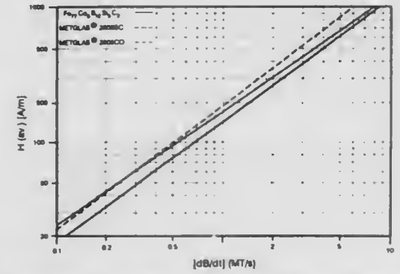
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,909

IRON RICH METALLIC GLASSES HAVING SATURATION INDUCTION AND SUPERIOR SOFT FERROMAGNETIC PROPERTIES AT HIGH MAGNETIZATION RATES

V. R. V. Ramanan, Dover, and Carl H. Smith, Chatham, both of N.J., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Continuation of Ser. No. 379,763, Jul. 14, 1989, abandoned. This application Jun. 13, 1990, Ser. No. 537,221
Int. Cl.[5] H01F *1/04*
U.S. Cl. 148—304 7 Claims



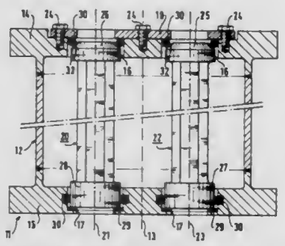
1. A magnetic metallic glass alloy that is at least about 80% glassy, having a composition described by the formula $Fe_aCo_bB_cSi_dC_e$, where "a"–"e" are in atom percent, "a" ranges from about 72 to about 84, "b" ranges from about 2 to about 8, "c" ranges from about 11 to about 16, "d" ranges from about 1 to about 4, and "e" ranges from about 0.5 to about 2, with up to about 1 atom percent of Mn being optionally present in the alloy, said alloy having been annealed, and having saturation induction ranging from about 1.55 T to 1.75 T, magnetic anisotropy energy ranging from about 300 J/m^3 to 400 J/m^3 and a dc swing from negative remanence to positive saturation ranging from about 2.9 T to 3.2 T.

5,062,910

METHOD OF ASSEMBLING A RIGID ELEMENT IN A MODULE, THE ELEMENT HAVING A MEMBRANE FOR SEPARATION, FILTRATION OR CATALYTIC TRANSFORMATION PURPOSES

Daniel Garcera, Tarbes, and Jacques Gillot, Laloubere, both of France, assignors to Societe Des Ceramiques Techiques, Bazet, France

Filed Jan. 26, 1990, Ser. No. 470,456
Claims priority, application France, Jan. 27, 1989, 89 01028
Int. Cl.[5] B30C *39/10;* B32B *18/00*
U.S. Cl. 156—82 17 Claims



1. In a method of assembling a rigid element in a module, the rigid element having a membrane for separation, filtration, or catalytic transformation purposes and having a substantially cylindrical or prismatic exterior shape, said method comprising forming a support of a sintered material, sealing the ends of said support and depositing an active layer on said support to form said rigid element, and wherein said module contains at least one such rigid element in a substantially cylindrical envelope having an axis parallel to said rigid element and fixed by two end plates having openings and where the ends of element are subsequently fixed to the end plates together with intervening seals, the improvement comprising:

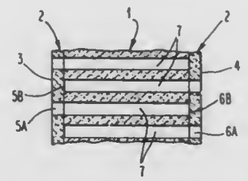
prior to assembling said rigid element in said module depositing an excess thickness on said ends and machining said excess thickness at each end to produce a shoulder whose outside surface has a predetermined circularly-symmetrical shape about an axis substantially coaxial with the axis of said support.

5,062,911

PREPARATION OF CERAMIC HONEYCOMB STRUCTURE HAVING SELECTIVELY SEALED CHANNELS

Leslie E. Hampton, Corning, and David F. Thompson, Painted Post, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Dec. 21, 1989, Ser. No. 454,524
Int. Cl.[5] C04B *37/00*
U.S. Cl. 156—89 11 Claims



1. A method for the preparation of a ceramic honeycomb substrate having selectively sealed channels comprising:

(a) providing a dried green ceramic honeycomb body having an inlet face and an outlet face and a plurality of substantially parallel open channels, separated from each other by partition walls, extending through the honeycomb between said faces;

(b) wetting with water the inlet face and the outlet face;

(c) applying a still-wet as formed, substantially flat, green ceramic, cap body against each of said wetted faces to form a substantially integral end cap over each of said faces whereby the channel openings therein are sealed;

(d) exposing the openings of given channels at said inlet face through the end cap thereon and exposing the openings of the remaining channels at said outlet face through the end cap thereon; and

(e) firing said honeycomb body and end caps.

5,062,912

METHOD AND APPARATUS FOR FABRICATING A SEAMLESS HOLLOW RUBBER CORE FOR A BALL

Allan C. Hoffman, 2891 Rumsey Dr., Riverside, Calif. 92506

Filed Oct. 15, 1990, Ser. No. 597,892
Int. Cl.[5] B29C *35/52*
U.S. Cl. 156—145 15 Claims

1. A method for fabricating a seamless hollow rubber core for a ball comprising steps of:

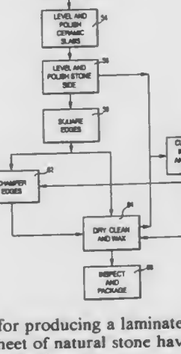
providing a mold having a first mold half and a second mold half, each of said first mold half and said second mold half having a hemispherical cavity in opposition to each other such that a spherical cavity is formed when said mold is closed, such spherical cavity being dimensioned commensurately with an outside diameter of said core;

forming a spherical surface from a material which has a melting temperature above a curing temperature of rubber used for said core, said spherical surface being dimensioned commensurately with an inside diameter of said core;

forming a pair of matching core preforms of uncured rubber;

placing said pair of uncured rubber core preforms about said spherical surface to form a core assembly;

mounting said core assembly within said spherical cavity;



heating said core preforms to said curing temperature for a time sufficient to cure said core preforms, said core being formed during such curing;

heating said core to said melting temperature such that such spherical surface melts whereby molten material remains within said core; and

removing said molten material from said core.

5,062,913

LAMINATED TILE PRODUCT AND METHOD FOR PRODUCING THE SAME

Charles R. Owens, Alexandria, Va., and Luigi Guazzoni, Novara, Italy, assignors to Charles R. Owens, Alexandria, Va.

Continuation-in-part of Ser. No. 177,947, Apr. 5, 1988, Pat. No. 4,931,331. This application Jul. 5, 1989, Ser. No. 375,726
Int. Cl.[5] B32B *31/00*
U.S. Cl. 156—154 15 Claims

1. A method for producing a laminated tile comprising:

providing a sheet of natural stone having opposed first and second major surfaces;

providing a plurality of ceramic substrates, each of said plurality of ceramic substrates having opposed first and second major surfaces;

providing an adhesive material on at least one of said first major surface of said sheet of natural stone and said first major surface of each of said plurality of ceramic substrates;

assembling said plurality of ceramic substrates and said sheet of natural stone to form a laminated assembly such that said first surface of each of said plurality of ceramic substrates faces said first major surface of said sheet of natural stone with said adhesive material therebetween; and

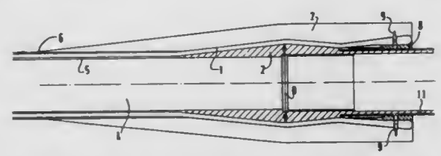
polishing said second major surface of said sheet of natural stone.

5,062,914

METHOD FOR AFFIXING A METALLIC TIP TO A TUBE MADE OF COMPOSITE WOUND MATERIAL

Jean-François Fuchs, Sainte Helene; Marcel Auberon, Le Haillan; Pierre Odru, Fontenay Sous Bois, and Charles Sparks, Le Vesinet, all of France, assignors to Areospatiale, Paris and Institut Francais du Petrole, Rueil Malmaison, both of, France

Filed Dec. 28, 1989, Ser. No. 458,471
Claims priority, application France, Dec. 29, 1988, 88 17392
Int. Cl.[5] B65H *81/00;* F16C *3/00*
U.S. Cl. 156—172 10 Claims



1. Method for affixing a metallic tip to a tube made of composite material, in which a metallic tip which is to be affixed to the tube has an external double-cone shape which includes two conical portions meeting at a central cone base, in which a cone radius decreases with respect to axial distance from the central cone base, comprising the steps of:

arranging the metallic tip adjacent to an end of the mandrel;

continuously winding fibers about said mandrel to form a composite tube, including winding said fibers longitudinally along the mandrel and longitudinally along both conical portions of said metallic tip; and

before completion of said composite tube by polymerization, applying complementary means for circumferentially binding said fibers which are longitudinally arranged for preventing separation of said metallic tip from said composite tube when axial force is applied along said composite tube, said complementary means limiting radial expansion of said composite tube;

wherein said complementary means includes providing a plurality of studs circumferentially distributed along a peripheral portion of said metallic tip, and said step of arranging said complementary means includes the steps of circumferentially winding fibers about the longitudinally arranged fibers forming said composite tube, and in said step of longitudinally winding fibers, further comprising the step of winding the longitudinally arranged fibers about ones of said plurality of studs distributed on said peripheral portion of said metallic tip;

wherein said complementary means includes an externally threaded portion and a ring connected to said externally threaded portion, and wherein each of said plurality of studs are mounted on said ring; and

wherein in said step of longitudinally winding the fibers to form said composite tube, withdrawing said ring prior to polymerization of said composite tube, and providing a nut in threaded engagement on said externally threaded portion until said nut comes in abutment against an end of said metallic tip, and then completing said step of circum-

VOL 1132 ISS 1 NO 5 1991 UMI

ferentially winding the fibers such that they are wedged by said nut before completing the polymerization.

5,062,915

LUMBER DOOR AND METHOD FOR MANUFACTURING THEREOF

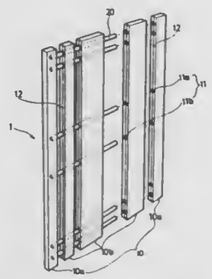
Seok G. Yoon, 563-36, Sinlim 8-Dong, Kwanak-Ku, Seoul, and Jeong Y. Seo, 804-5, Dooryoo 1-Dong, Dalseo-Ku, Daeku, Kyungsangbook-Do, both of Rep. of Korea

Division of Ser. No. 257,860, Oct. 14, 1988, Pat. No. 4,908,990. This application Sep. 11, 1989, Ser. No. 406,898

Claims priority, application Rep. of Korea, Aug. 23, 1988, 10726/1988

Int. Cl.[5] **B29C** *65/48*

U.S. Cl. 156—252 **15 Claims**



1. A method of manufacturing a door having two sides, comprising:

forming a number of openings in each of a plurality of lumber pieces;

aligning the pieces such that the openings of one piece align with the openings in another piece;

passing metal pipes through respective aligned openings in the plurality of pieces;

applying an adhesive so that said adhesive passes between said pipes and said pieces when the pipes pass through said openings;

pressing the pieces together and allowing said adhesive to cure so as to secure said pipes and said pieces to each other;

the step of passing the metal pipes through the opening including passing them so that they extend substantially from one side of the door to the other; and

the step of applying the adhesive includes applying an adhesive having means for corroding said pipes so that said pipes grip the pieces.

5,062,916

METHOD FOR THE MANUFACTURE OF ELECTRICAL MEMBRANE PANELS HAVING CIRCUITS ON FLEXIBLE PLASTIC FILMS

Brian E. Aufderheide, Cedarburg; Michael J. Robrecht, Whitefish Bay, and Wayne R. Kelley, Cedar Grove, ail of Wis., assignors to W. H. Brady Co., Milwaukee, Wis.

Filed Aug. 1, 1990, Ser. No. 561,027

Int. Cl.[5] **B32B** *31/00*

U.S. Cl. 156—269 **8 Claims**

1. A method for manufacturing electrical membrane panels including conductive first and second circuits on spaced surfaces of two plastic films including, in sequence, the steps of:

(1) providing a substrate web of flexible plastic film;

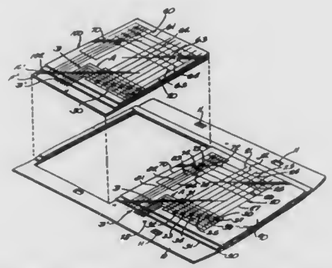
(2) defining a plurality of registration means longitudinally along the substrate web, there being a registration means for each row of circuits to be applied onto the web in subsequent steps;

(3) applying a plurality of spaced apart conductive first circuits along a first surface of the substrate web by aligning with the registration means during application thereof,

(a) the first circuits being arranged in rows and columns along the first surface of the substrate web, with at least one column thereof and at least one first circuit in each row,

(b) each first circuit comprising a plurality of conductive first traces and first leads, and each first lead including a connection end portion;

(4) laminating a second web of flexible plastic film to the substrate web by aligning a longitudinal edge of the second web relative to the first circuits to cover the first circuits except for the connection end portions of each first lead;



(5) applying a plurality of spaced apart conductive second circuits along the first surface of the second web by aligning with the registration means during application thereof,

(a) there being a second circuit registered with each first circuit;

(b) each second circuit comprising a plurality of conductive second traces arranged in selected registration with the first traces of a first circuit, and a plurality of second leads each including a connection end portion;

thereby forming a plurality of membrane panels each including a first circuit and a second circuit with the connection end portions of the first leads exposed along the substrate web and the connection end portions of the second leads exposed along the second web.

5,062,917

SUPPORT ELEMENT FOR THE FOLLOWERS OF A CAM DRIVE OF A DRIVE MECHANISM AND A LABELLING STATION EQUIPPED WITH A SUPPORT ELEMENT

Rudolf Zodrow, Düsseldorf, Fed. Rep. of Germany, assignor to ETI-TEC Maschinenbau GmbH, Erkrath, Fed. Rep. of Germany

Filed Apr. 7, 1989, Ser. No. 335,025

Claims priority, application Fed. Rep. of Germany, Apr. 9, 1988, 3811868; Feb. 8, 1989, 3903676

Int. Cl.[5] **F16H** *55/14*

U.S. Cl. 156—568 **17 Claims**

1. Support element for cam followers comprising:

an outer body member having at least one radially inwardly projecting claw;

said outer body member for the mounting of a cam follower thereon;

an inner body member for being operatively associated with said outer body member;

said inner body member having first and second radially outwardly projecting claws corresponding to said at least one radially inwardly projecting claw of said outer body member;

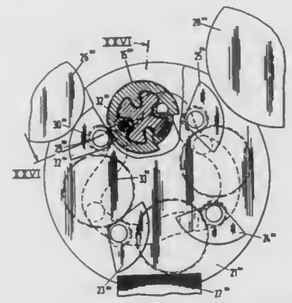
said inner body member and said outer body member being out of direct contact with one another;

dampening means for being interposed between and in direct contact with said outer body member and said inner body member;

said dampening means being an elastic material;

said first and second radially outwardly projecting claws of said inner body member being relatively positioned to define a cavity therebetween;

said at least one radially inwardly projecting claw of said outer body member being positioned within said cavity and between said first and second radially outwardly projecting claws of said inner body member;



said elastic material for absorbing at least radial forces between said inner body member and said outer body member to dampen noise applied to said outer body member before the noise reaches said inner body member; and

said outer body member and said inner body member defining a plurality of radial recesses which are filled with a slug of elastic material.

5,062,918

GLUE SEGMENTS WHICH CAN BE ATTACHABLE TO A DRIVE SHAFT OF A LABELLING MACHINE

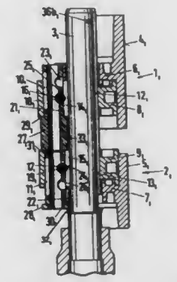
Rudolf Zodrow, Düsseldorf, Fed. Rep. of Germany, assignor to ETI-TEC Maschinenbau GmbH, Erkrath, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 335,478, Apr. 7, 1989. This application Nov. 3, 1989, Ser. No. 432,113

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1988, 3837362

Int. Cl.[5] **B65C** *9/26*

U.S. Cl. 156—578 **18 Claims**



1. A labelling machine for bottles, or the like, including a rotatable drive shaft, the drive shaft having an axis of rotation, the drive shaft including at least one radially extending surface means disposed at a predetermined location axially on the drive shaft, said labelling machine comprising;

at least one glue segment having a curved glue take-up surface;

said at least one glue segment including a hole for receipt of the drive shaft within said hole;

said at least one glue segment for being disposed on the drive shaft with the drive shaft being disposed within said hole

said at least one glue segment being for rotation with the drive shaft;

said at least one glue segment including an axial bore:

said axial bore including a longitudinal axis;

said hole including a longitudinal axis;

said longitudinal axis of said bore being substantially parallel with said longitudinal axis of said hole and with the axis of the drive shaft when the drive shaft is disposed within said hole;

a bushing including a base element and a spacing element:

said base element of said bushing for being disposed in said bore of said at least one glue segment;

said spacing element of said bushing for extending outwardly from said bore in an axial direction, along said longitudinal axis of said bore, toward one of the at least one radially extending surface means;

said spacing element including abutting surface means for making contact with the one of the at least one radially extending surface means; and

said abutting surface means making contact with the one of the at least one radially extending surface means for defining an axial position of said at least one glue segment relative to the predetermined location of the one of the at least one radially extending surface means of the drive shaft.

5,062,919

METHOD AND AN APPARATUS FOR BONDING TOGETHER AT LEAST TWO RUNNING LENGTHS OF MATERIAL

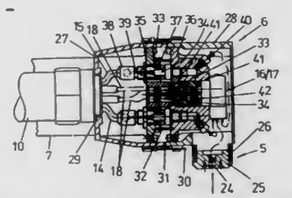
Malcolm McPherson, Poole-Dorset, United Kingdom, and Reinhold Ernest, Stadtbergen, Fed. Rep. of Germany, assignors to Grafotec Kotterer GmbH, Diedorf, Fed. Rep. of Germany

Division of Ser. No. 247,341, Sep. 21, 1988, Pat. No. 4,952,267. This application Apr. 16, 1990, Ser. No. 509,235

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1987, 3735856; Nov. 26, 1987, 3740045

Int. Cl.[5] **B05B** *1/00*

U.S. Cl. 156—356 **6 Claims**



1. An apparatus for applying at least one liquid strip to an endless web to aid in creasing the web, comprising:

a holder;

a supply cord through which at least one liquid supply line and control line means extend, said at least one liquid supply line having a check valve at one end; and

at least one feed head mounted to said holder, to which said supply cord is attached so that said at least one liquid supply line and said control line means extend into said at least one feed head, said at least one feed head including a nozzle, control valve means for controlling said nozzle and said at least one liquid supply line, coupling means including a setting member associated with each check valve, and detachably joined first and second halves defining a parting plane, wherein:

said first half being detachably mounted to said holder and having an inlet opening for receiving said supply cord,

said nozzle and control valve means being situated in said second half; and

said coupling means being situated partly in said first half

VOL 1132 ISS 1 NO 5 1991 UMI

and partly in said second half adjacent the parting plane such that when the two halves are joined together said control line means is coupled by said coupling means to said control valve means for controlling said control valve means, said at least one liquid supply line is sealingly coupled by said coupling means for control by said control valve means and such that the check valve of said at least one liquid supply line is maintained open by its associated setting member.

5,062,920

APPARATUS FOR MAKING A TIGHTLY CLOSED LOOP OF A TAPE OF THERMOPLASTIC MATERIAL AROUND AN OBJECT

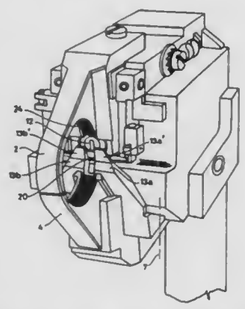
Cornelis M. Horikx, Brummen, and Martinus J. Jaspers, Nuenen, both of Netherlands, assignors to Akzo NV, Arnhem, Netherlands

Filed May 21, 1990, Ser. No. 526,368

Claims priority, application Netherlands, May 25, 1989, 8901314

Int. Cl.[5] B32B *31/24;* B65B *13/00*

U.S. Cl. 156—380.4 **3 Claims**



1. An apparatus for fixing a tightly closed loop of a tape of thermoplastic material around an object, comprising:

a. two jaws that can be moved relative to each other between an open and a closed, object-enclosing position, each having an inner tape guide channel along its inner periphery;

b. a first welding member comprising an electrode connected to a cavity resonator connected to a microwave generator with a frequency of at least 433 MHz;

c. a second welding member comprising a counter electrode connected to said cavity resonator positioned at a distance from said first welding member not greater than about three times the thickness of said tape, an electrical field intensity being generated between the first welding member and the second welding member by the microwave generator during operation of the apparatus;

d. means for the relative movement of the welding members to enable an open position when the tape is being positioned around the object, and a closed position when welding of the tape may be effected, said welding members being positioned with respect to said jaws so that the tape in the inner tape guide channel of said jaws will pass between the first and second welding members while the welding members are in the closed position;

e. means for passing the tape through the guide channel in the jaws in circumferential direction until its free end, after making at least one complete loop, is positioned between the welding members; and

f. means for clamping the free end of the tape and for subsequently pulling back the tape, such that a tight loop is made around the object and there is formed between the welding members a welding point where at least two different sections of the tape overlap, said means for clamping the free end of the tape being separate from said first welding member and said second welding member, being positioned in advance of the welding point with respect to the direction in which the tape is fed and comprising a first clamp provided with a first gripping surface that can be pivoted about a pivot pin which is transverse to the tape feeding direction and a second clamp comprising two parts that can be moved relative to each other to an operating position and an open position and are each provided with gripping surfaces, which parts in cooperation with the first gripping surface clamp the tape between them in the operating position and allow it to be passed through in the open position.

5,062,921

METHOD FOR REGULATING THE FEED OR COMBUSTION CONDITIONS OF CONCENTRATED WASTE LIQUORS IN A SODA RECOVERY UNIT

Paavo Hyoty, and Erik Saiha, both of Tampere, Finland, assignors to Oy Tampella Ab, Tampere, Finland

Filed Mar. 29, 1990, Ser. No. 500,951

Claims priority, application Finland, Mar. 31, 1989, 891574

Int. Cl.[5] D21C *11/12*

U.S. Cl. 162—31 **7 Claims**

1. A method for recovering heat and salts for preparation of cooking liquor from a feedstock of waste liquor produced in pulping of wood chips, including concentrating the feedstock of waste liquor to 28–40 percent water, spraying the concentrated waste liquor through a nozzle at the top of a soda recovery unit which has a porous pile containing pyrolysed liquor in a lower high temperature reducing zone thereof, and burning the sprayed droplets of concentrated waste liquor as they fall through the soda recovery unit from the nozzle to an upper surface of the pile whereby the droplets lose water to a flue gas stream which is taken off from the soda recovery unit and puff up into particles having a diameter larger than the diameter of the droplets emanating from the nozzle,

the improvement comprising:

(a) measuring the ratio of lignin to at least one carboxylic acid present in said concentrated waste liquor while measuring the ratio of droplet diameter to particle diameter;

(b) correlating said ratio of lignin to carboxylic acid with said ratio of droplet diameter to particle diameter;

(c) monitoring the ratio of lignin to at least one carboxylic acid present in said concentrated waste liquor and using the correlation obtained in step (b) to indirectly monitor said ratio of droplet diameter to particle diameter; and

(d) regulating a processing condition including at least one of a feed condition of the waste liquor and a combustion condition in the soda recovery unit in response to said monitored ratio of lignin to at least one carboxylic acid present in said concentrated waste liquor.

5,062,922

SIZING PAPER WITH α-HYDROXYCARBOXYLIC ACID

Masato Nakajima; Kenji Yokotani, both of Hirakata, and Atsushi Ikeda, Osaka, all of Japan, assignors to Arakawa Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation-in-part of Ser. No. 180,922, Apr. 13, 1988, abandoned. This application Sep. 22, 1989, Ser. No. 411,123

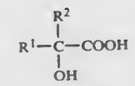
Claims priority, application Japan, Dec. 24, 1987, 62-327932

Int. Cl.[5] D21H *17/14*

U.S. Cl. 162—158 **12 Claims**

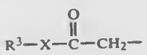
1. A method for sizing paper which comprises mixing a pulp slurry with a sizing agent comprising an aqueous dispersion having a solids content of 0.5 to 70% by weight, said solids comprising 80–99% by weight of an α-hydroxycarboxylic acid, or a salt thereof, and 20–1% by weight of an emulsifier, to form a mixture containing 0.1 to 1.0% of said solids based on the weight of the pulp, and preparing paper from the mixture;

said α-hydroxycarboxylic acid having the formula (I)



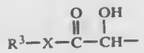
(I)

wherein R^1 is an alkyl group having 8 to 30 carbon atoms, an alkenyl group having 8 to 30 carbon atoms, a group having the formula (IIa):



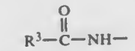
(IIa)

in which R^3 is an alkyl group having 8 to 30 carbon atoms or an alkenyl group having 8 to 30 carbon atoms and X is an oxygen atom or —NH—, a group having the formula (IIb):



(IIb)

in which R^3 and X are as defined above; or a group having the formula (IIc):



(IIc)

in which R^3, is as defined above; and R^2 is a hydrogen atom, an alkyl group having 1 to 30 carbon atoms or an alkenyl group having 1 to 30 carbon atoms.

5,062,923

ROPE SYSTEM FOR A PAPER MACHINE COATING OR SIZE PRESS SECTION

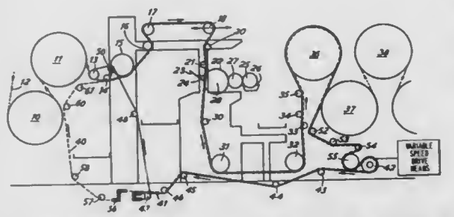
Leslie Morgan, Pendoylan, Great Britain, assignor to The Wiggins Teape Group Limited, Baskingstoke, England

Continuation of Ser. No. 321,314, Mar. 10, 1989, abandoned. This application Jul. 13, 1990, Ser. No. 552,849

Claims priority, application United Kingdom, Mar. 11, 1988, 8805786

Int. Cl.[5] D21F *7/02*

U.S. Cl. 162—265 **5 Claims**



1. In a papermachine, an on-line coating section or size press section thereof comprising a rope system, wherein the papermachine includes a drive means for driving the coating section or size press section and a drive means for driving the rope system and wherein the drive means for the rope system for the section is independent from the other drive means and is structured and arranged for driving the ropes at variable speeds and to provide a driving capacity such that during simultaneous operation of both drive means the drive means of the rope system can operate at speeds greater than the other drive means.

5,062,924

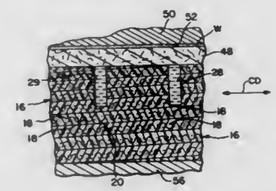
BLANKET FOR AN EXTENDED NIP PRESS WITH ANISOTROPIC WOVEN BASE LAYERS

Paul McCarten, Scranton, and Eugene Slagowski, Waverley, both of Pa., assignors to Beloit Corporation, Beloit, Wis.

Continuation-in-part of Ser. No. 179,086, Apr. 8, 1988, Pat. No. 4,944,820. This application Jul. 31, 1990, Ser. No. 560,402

Int. Cl.[5] D21F *3/02;* B32B *3/30*

U.S. Cl. 162—358 **15 Claims**



1. A looped non-porous blanket for an extended nip press, said blanket comprising:

a woven base;

said base including:

a first plurality of filaments disposed in a machine direction, said first plurality of filaments having a modulus of elasticity which permits flexing of the blanket during movement of the blanket through the extended nip press;

a second plurality of filaments woven together with said first plurality of filaments and disposed in a cross-machine direction, said second plurality of filaments having a modulus of elasticity which is higher than the modulus of elasticity of said first plurality of filaments for inhibiting flexing of the blanket in a cross-machine direction;

thermo-setting resin applied to said base such that said resin is reinforced by said base; and

said resin defining a plurality of vents for permitting the escape of water in the liquid and vapor phase away from the extended nip press during use thereof, said second plurality of filaments preventing collapse of said vents during use of the extended nip press due to said higher modulus of elasticity; said belt being structured and arranged such that in cross section multiple thicknesses of the woven base applied with resin are located in land areas of the blanket between the vents.

5,062,925

METHOD OF REDUCING THE NITROGEN DIOXIDE CONTENT OF FLUE GAS FROM A COKE OVEN WITH DUAL HEATING FLUES BY A COMBINATION OF EXTERNAL FLUE GAS FEED BACK AND INTERNAL FLUE GAS RECIRCULATION

Heinz Dürselen, Velbert; Arnulf Schüffler, and Günter Meyer, both of Essen, all of Fed. Rep. of Germany, assignors to Krupp Koppers GmbH, Essen, Fed. Rep. of Germany

Filed Dec. 4, 1989, Ser. No. 445,748

Claims priority, application Fed. Rep. of Germany, Dec. 10, 1988, 3841630

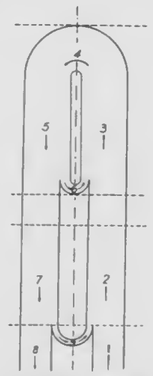
Int. Cl.[5] C10B *21/18*

U.S. Cl. 201—41 **5 Claims**

1. In a method of reducing a nitrogen oxides content of a flue gas generated on firing of a rich gas or combination coke oven, said coke oven having a plurality of heating walls forming dual heating flues, in which a single stage or multistage combustion takes place, and said coke oven also having a plurality of regenerators for recovery of flue gas heat and preheating of an underfiring medium, the improvement comprising the steps of mixing one portion of said flue gas drawn from one flue of said dual heating flues with said underfiring medium not after admission to the other flue of said dual heating flues, recirculat-

VOL 1132 ISS 1 NO 5 1991 UMI

ing another portion of said flue gas additionally inside said dual heating flues, recirculating externally at a predetermined flow rate said one portion of said flue gas and controlling said recirculating externally said one portion of said flue gas so that a flame temperature in said heating flues is kept constant based



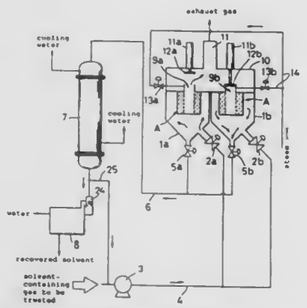
on a heat balance in said heating flues, and feeding, during rich gas firing of said coke oven, said one portion of said flue gas recirculated externally only to those of said regenerators, which receive said underfiring media during lean gas operation, and, during rich gas operation, only to every second one of said regenerators.

5,062,926

SOLVENT RECOVERY APPARATUS

Takeshi Maeda, Kobe; Hiroshi Kawaguchi, Ibaraki; Harukazu Yamaguchi, Izumi; Hitoshi Sakai, Tokyo; Akio Ando, Yokohama; Yasuo Matsushita, and Tetsuya Takemoto, both of Osaka, all of Japan, assignors to Osaka Gas Limited, Osaka and Asahi Seisakusho Company Limited, Tokyo, both of, Japan

Filed Sep. 28, 1990, Ser. No. 589,518
Claims priority, application Japan, Oct. 9, 1989, 1-118435[U]
Int. Cl.[5] B01D *53/14*
U.S. Cl. 202—183 16 Claims



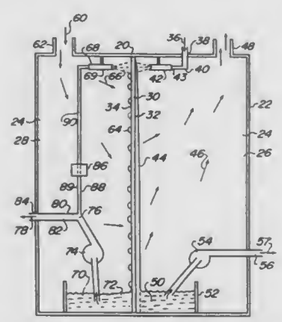
1. A solvent recovery apparatus including:
an adsorption tower having a gas adsorption element and an openable exhaust portion;
a gas supply pipe connected to the tower for supplying a solvent-containing gas to be treated to said tower;
a steam supply pipe connected to the tower for supplying steam to said tower to heat said adsorption element for solvent removal, the steam carrying away the solvent from the adsorption element;
a solvent recovery pipe connected to the tower for carrying from said tower the steam and the removed solvent carried therein;
a condenser connected to said solvent recovery pipe for cooling and liquefying the steam and the solvent carried therein to form a liquid mixture and discharging the liquid mixture;
a specific-gravity separating unit for receiving the discharged liquid mixture downstream of the condenser and separating the liquid mixture by specific gravity, thereby to recover a liquefied solvent, said condenser having an output for discharging the liquid mixture to said separating unit; and
blocking means, for preventing a transmission of gas pressure from said tower to said separating unit.

5,062,927

METHOD OF OPERATING A STILL

Timothy R. Stout, Placerville, Calif., assignor to T and G Technologies, Inc., Placerville, Calif.

Filed Jan. 5, 1990, Ser. No. 461,246
Int. Cl.[5] B01D *1/22, 3/28, 61/00*
U.S. Cl. 203—89 7 Claims



1. A method of condensing a vapor of a distilland on a surface of a membrane that includes a portion which is substantially vertically oriented and that is substantially unwettable by, and impervious to, the distilland, the method comprising the steps of:
supplying vapor of the distilland to the surface of the membrane;
transferring heat from the vapor at the surface of the membrane to condense droplets of the distilland thereon; and
supplying droplets of a washing liquid to an upper portion of the surface of the membrane at substantially the same temperature as the condensed droplets of the distilland to promote the accumulation of condensed droplets of the distilland in response to gravity-induced downward flow of washing liquid and condensed droplets along the surface.

7. A method of condensing a vapor of a distilland on a surface of a membrane that includes a portion which is substantially vertically oriented and that is substantially unwettable by, and impervious to, the distilland, the method comprising the steps of:
adding surfactant to the distilland of which vapor is to be condensed;
supplying the distilland and surfactant substantially as a continuous film on a surface of the membrane to receive heat transferred therethrough from an opposite surface of the membrane on which vapor of the distilland condenses;
supplying vapor of the distilland to the opposite surface of the membrane that is substantially unwettable;

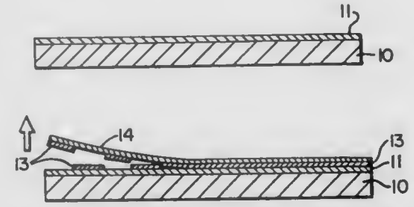
transferring heat from the vapor at the opposite surface of the membrane to condense droplets of the distilland thereon; and
supplying droplets of a washing liquid to an upper portion of the opposite surface of the membrane at substantially the same temperature as the condensed droplets of the distilland to promote the accumulation of condensed droplets of the distilland in response to gravity-induced downward flow of washing liquid and condensed droplets along the opposite surface.

5,062,928

PROCESS FOR PRODUCING COLOR CHANGE DEVICES INCORPORATING LATENT INDICIA AND THE RESULTING DEVICES

Gary J. Smith, Glenburnie, Canada, assignor to Alcan International Limited, Quebec, Canada

Filed Apr. 17, 1990, Ser. No. 510,175
Int. Cl.[5] C25D *11/34*
U.S. Cl. 204—15 16 Claims



1. In a process for producing colour change devices incorporating latent indicia by anodizing a colour-generating metal, having limited surface areas thereof covered by a mask, in the presence of a fluoride as an adhesion-reducing agent in order to produce a colour-generating laminate incorporating an anodic film having detachable and non-detachable areas, and adhering a transparent or translucent sheet onto said anoidic oxide film to facilitate detachment of parts of said film from said colour generating metal, the improvement which comprises forming said mask from a masking material which permits anodization of areas of said surface covered by said mask while preventing said adhesion-reducing agent from exerting a substantial adhesion-reducing effect in said areas of said surface covered by said mask, and forming an anodic film having detachable and nondetachable areas by means of a single anodization step carried out in the presence of said adhesion-reducing agent.

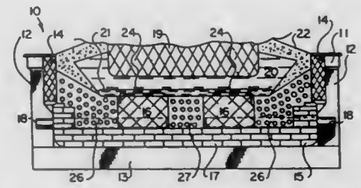
5,062,929

LININGS FOR ALUMINUM REDUCTION CELLS

Tom J. Hodson, Beaconsfield; John McIntyre, Kingston; Pierre Tremblay, Chicoutimi; Claude Allaire, Quebec, and Bohdan Gnyra, Kingston, all of Canada, assignors to Alcan International Limited, Montreal, Canada

Continuation of Ser. No. 218,834, Jul. 13, 1988, Pat. No. 4,877,507, which is a continuation-in-part of Ser. No. 138,503, Dec. 24, 1987, abandoned. This application Aug. 11, 1989, Ser. No. 393,966
Claims priority, application Canada, Jul. 14, 1987, 542053; Aug. 28, 1987, 545660
The portion of the term of this patent subsequent to Oct. 31, 2005, has been disclaimed.
Int. Cl.[5] C25C *3/06, 3/08*
U.S. Cl. 204—67 7 Claims

7. A method of producing aluminum in an aluminum electrolytic cell having a cell floor and cell walls for containing liquid cell components comprising an electrolyte and molten aluminum as a single discrete layer beneath the electrolyte, a lining for said cell floor having an upper surface which is generally flat beneath said layer of molten aluminum, a lining for said cell walls and one or more anodes capable of dipping into said liquid electrolyte from above and each having an anode surface spaced from but confronting said cell floor lining, said cell floor lining comprising a region made of solid electrically conductive material extending upwardly to said upper surface, and at least one region made of a solid refractory non-carbonaceous electrically non-conductive alumina-containing material extending upwardly to said upper surface between the electrically conductive material and the cell wall lining, and at least one current collector bar extending from outside the cell into



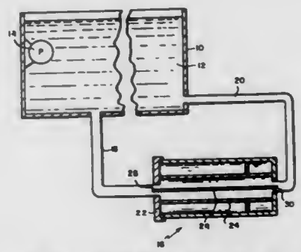
said cell floor lining beneath said upper surface and forming electrically conductive contact with said solid electrically conductive material while being substantially surrounded by said non-conductive material in said at least one region; said method comprising charging said cell with an electrolyte comprising a cryolite-alumina mixture, dipping said anodes into said electrolyte, passing a suitable electrical current through said cell between said anodes and said solid electrically conductive material of said cell floor lining, and tapping aluminum from said cell when a sufficient quantity of aluminum has formed on said cell floor lining.

5,062,930

ELECTROLYTIC PERMANGANATE GENERATION

John R. Dillon, Warwickshire, and James D. O'Connor, Coventry, both of England, assignors to Shipley Company Inc., Newton, Mass.

Filed Jul. 24, 1990, Ser. No. 557,623
Int. Cl.[5] C25B *1/28*
U.S. Cl. 204—82 16 Claims



1. A process for permanganate generation by electrolytic oxidization of one or more manganese compounds in a solution, comprising the steps of:
(a) contacting an anode and a cathode with the solution, the cathode having a surface deposit being adherent to manganese dioxide during electrolysis of the solution; and
(b) subjecting the solution to electrolysis.

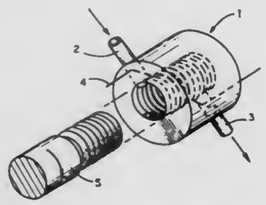
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,931

ELECTROCHEMICAL POLISHING OF THREAD FASTENER TEST SPECIMENS OF NICKEL-CHROMIUM IRON ALLOYS

Alan R. Kephart, Scotia, N.Y., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jul. 3, 1990, Ser. No. 547,370
Int. Cl.[5] B23H *3/10*; C25F *3/16*
U.S. Cl. 204—129.7 7 Claims



5. A method for electrochemically polishing machined metal surfaces of a threaded fastener to produce a surface from which surface machining-induced residual stresses and distressed metal have been removed, which comprises:

a) juxtaposing a the root surface of the threaded portion of said threaded fastener from which metal is to be removed in a sealed electrolyte flow path within an electrical insulating body with a nickel-chromium alloy cathode partly protruding therefrom; and

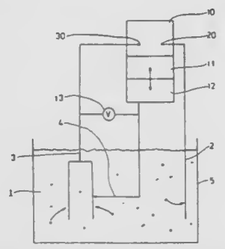
b) flowing an aqueous solution of sulfuric acid and nitric acid through said flow path and across the site of metal removal on a test specimen acting as an anode to flush out the metal's dissolution products and produce said electrochemically polished surface.

5,062,932

PROCEDURE AND MEANS FOR SEPARATING PLASTIC PARTICLES ELECTRICALLY FROM SOLUTIONS, IN PARTICULAR FROM CELLULOSE AND PAPER FIBRE SOLUTIONS

Martti Pulliainen, Anttola; Hannu Savisalo, Mikkeli, both of Finland, and Markku Ainali, Västerås, Sweden, assignors to Savcor-Consulting Oy, Finland

Filed Apr. 3, 1990, Ser. No. 504,554
Int. Cl.[5] C02F *1/46*
U.S. Cl. 204—130 13 Claims



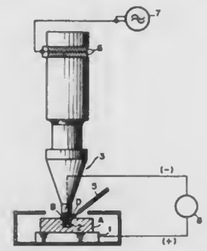
1. Method of separating plastic particles from a liquid medium in which the same are distributed, which comprises subjecting said liquid medium containing said plastic particles in a container provided with an anode, a cathode and a reference electrode to electrolytic separation by controlling the potential of the anode and the cathode such that the potential of the anode is at most 2800 mV S.C.V., or the potential of the cathode is at least −3500 mV S.C.V.

5,062,933

ULTRASONIC MACHINING METHOD

Akio Nakano, 14-1, Ichikawaminami 3-chome, Ichikawa-shi, Chiba-ken, Japan

Filed Oct. 31, 1989, Ser. No. 430,279
Claims priority, application Japan, May 19, 1989, 1-124196
Int. Cl.[5] B23H *3/08, 3/10*
U.S. Cl. 204—129.46 3 Claims



1. An ultrasonic machining method, comprising the steps of:

arranging a tool adjacent to a workpiece having a work surface, with a gap of a predetermined distance between said work surface and said tool;

supplying an electrolyte having spherical soft abrasive grains suspended therein, to the gap between the work surface and the tool;

applying an electric current across the workpiece and the tool; and

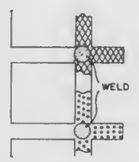
ultrasonically vibrating said tool such that said grains are ultrasonically vibrated and such that the grains remove a film formed on the work surface of the workpiece by electrolysis, with the removed film being discharged from said gap during machining.

5,062,934

METHOD AND APPARATUS FOR CATHODIC PROTECTION

Gian L. Mussinellil, Como, Italy, assignor to Oronzio deNora S.A., Bioggio, Switzerland

Filed Dec. 18, 1989, Ser. No. 452,561
Int. Cl.[5] C23F *13/00*
U.S. Cl. 204—147 20 Claims



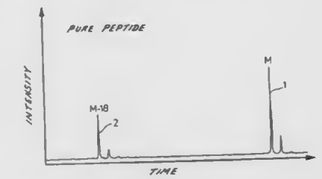
1. A grid electrode for cathodic protection of steel reinforced concrete structures comprising a plurality of valve metal strips each with an electrocatalytic surface, each of said strips having voids and nodes, said nodes being 2,000 to 7,000 nodes per square meter, said strips being connected together to form the grid.

5,062,935

METHOD OF VAPORIZING A SAMPLE SUBSTANCE

Edward W. Schlag, Garching; Josef Lindner, Munich; Ronald C. Beavis, Landshut, and Jurgen Grotemeyer, Freising, all of Fed. Rep. of Germany, assignors to Bruker-Franzen Analytik GmbH, Bremen, Fed. Rep. of Germany

Filed Mar. 21, 1989, Ser. No. 326,763
Claims priority, application Fed. Rep. of Germany, Mar. 22, 1988, 3809504
Int. Cl.[5] G01N *27/62*; B23K *26/00*
U.S. Cl. 204—157.41 20 Claims



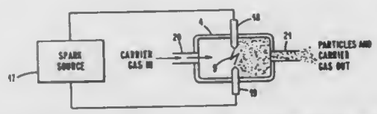
1. Method of vaporizing a sample substance consisting of molecules, wherein the sample substance is exposed to high-energy laser beam pulses so that the molecules at the surface of the sample substance are desorbed by the energy of the laser beam pulses to produce neutral molecules, characterized by the steps of mixing the sample substance, prior to its irradiation, with a matrix material which is easily decomposed under the influence of the laser beam pulses so that the sample substance is embedded in the matrix material and exposing the mixture comprising the sample substance and the matrix material to the laser beam pulses.

5,062,936

METHOD AND APPARATUS FOR MANUFACTURING ULTRAFINE PARTICLES

John S. Beaty, Belmont, and Jonathan L. Rolfe, North Easton, both of Mass., assignors to Thermo Electron Technologies Corporation, Waltham, Mass.

Filed Jul. 12, 1989, Ser. No. 378,845
Int. Cl.[5] H05A *3/00*
U.S. Cl. 204—164 3 Claims



1. The method of manufacturing non-vaporized ultrafine particles comprising:

providing two electrodes each containing a conductive material;

mounting said electrodes in spaced-apart relationship in a reaction chamber;

repetitively producing, at a frequency of between about 120 and 5000 pulses per second, a spark between the electrodes sufficient to cause non-vaporizing ablation of at least one of the electrodes and formation of ultrafine particles; and,

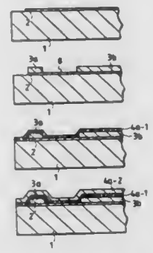
carrying said ablated material away from the reaction chamber in a carrier gas.

5,062,937

PROCESS FOR PREPARING AN INK JET HEAD

Hirokazu Komuro, Hiratsuka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 2, 1988, Ser. No. 279,056
Claims priority, application Japan, Dec. 2, 1987, 62-303264; Dec. 2, 1987, 62-303265; Dec. 2, 1987, 62-303266
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—192.15 16 Claims



1. A process for preparing an ink jet head having a support, an electrothermal transducer provided on the support and having a heat-generating resistor and a pair of electrodes electrically connected to the heat-generating resistor, a first upper layer provided on the electrothermal transducer, a second upper layer provided on the first upper layer and a liquid path communicated with a discharge opening for discharging liquid and formed on the support so as to correspond to the heat-generating resistor portion of the electrothermal transducer formed between the pair of electrodes, wherein the method comprises the steps of:

forming the first upper layer using a bias sputtering method, wherein the absolute value of the bias voltage is 50 V or less and greater than 0 V; and

forming the second upper layer using the bias sputtering method, wherein the absolute value of the bias voltage is higher than 50 V.

5,062,938

HIGH COERCIVITY LOW NOISE COBALT ALLOY MAGNETIC RECORDING MEDIUM AND ITS MANUFACTURING PROCESS

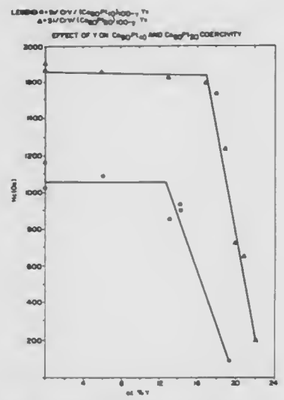
James K. Howard, Morgan Hill, Calif., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Jan. 16, 1990, Ser. No. 464,842
Int. Cl.[5] G11B *23/00*
U.S. Cl. 204—192.2 2 Claims

1. In a process for the fabrication of a thin film disk for horizontal magnetic recording, the disk being of the type having a magnetic layer comprising a cobalt alloy, wherein the magnetic layer is formed by sputter deposition, an improvement comprising the steps of (a) during the sputter deposition of the cobalt alloy elements, sputter depositing an impurity

VOL 1132 ISS 1 NO 5 1991 UMI

element selected from the group consisting of Y, Si, the rare earth elements, Hf, Ge, Sn and Zr, and (b) thereafter exposing



the sputter deposited magnetic layer to oxygen to form an oxide of the impurity element in the magnetic layer.

5,062,939

SELECTIVE METALLIZATION OF CARBONYL-CONTAINING POLYMER FILMS

Charles M. Roland, Waldorf, Md., and Mark F. Sonnenschein, Arlington, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 29, 1990, Ser. No. 500,979

Int. Cl.[5] B05D *3/06, 5/12;* **C23C** *16/00, 14/00*

U.S. Cl. 204—192.17 **11 Claims**

1. A method of selectively metallizing a carbonyl-containing polymer, comprising the steps of:

(a) contacting a surface of a carbonyl-containing polymer with a layer or film of a metal to be selectively deposited thereon;

(b) exposing a selected area on the surface of said polymer to infrared radiation of a wavelength absorbed by said polymer and having sufficient power to significantly increase the flexibility of said polymer in said exposed area without significantly increasing stress flow of said polymer, while leaving another area of said surface of said polymer unirradiated, whereby any of said metal on or opposite said irradiated areas of said polymer binds to said polymer; and

(c) removing any of said metal layer or film which has not bound to said polymer after step (b).

5,062,940

ELECTROLYTIC LIQUID PURIFICATION APPARATUS

Bruce Davies, Kenmore, Wash., assignor to Water Regeneration Systems, Inc., Kirkland, Wash.

Continuation of Ser. No. 163,501, Mar. 2, 1988, Pat. No. 4,917,782. This application Sep. 26, 1989, Ser. No. 412,832

Int. Cl.[5] C25B *15/02, 15/08, 9/00*

U.S. Cl. 204—228 **4 Claims**

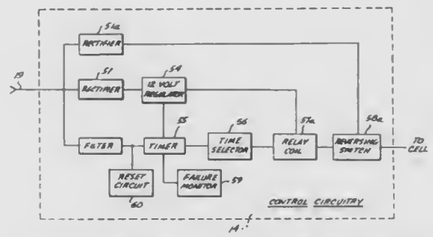
3. A liquid clarification apparatus comprising:

at least two plates of conductive material through which liquid containing impurities may flow;

energy supply means for supplying current to said plates to effect deposit of impurities from the liquid onto said plates;

monitoring means for monitoring the intervals of time during which said energy supply means supplies current to said plates in a first direction and a second direction; and

current-reversing means, coupled to said energy supply means, for reversing the direction of current supplied to said plates when the interval of time monitored by said monitoring means and corresponding to current in said first direction exceeds a first threshold and when the interval of time monitored by said



corresponding to current in said second direction exceeds a second threshold that is different from the first threshold.

5,062,941

ELECTROLYTIC PROCESS FOR STRIPPING A METAL COATING FROM A TITANIUM BASED METAL SUBSTRATE

Jiinjen A. Sue, Carmel, Ind., assignor to Union Carbide Coatings Service Technology Corporation, Danbury, Conn.

Filed Oct. 22, 1990, Ser. No. 600,929

Int. Cl.[5] C25F *5/00*

U.S. Cl. 204—146 **7 Claims**

1. A method for electrochemically stripping a metal compound of a metal selected from group IVB or VIB of the periodic table from a base metal of titanium or a titanium alloy in an electrolytic cell which comprises the steps of: immersing said base metal having a coating of said group IVB or VIB metal compound thereon into an electrolyte aqueous solution comprising an oxidizing reagent and an acid, said acid having a concentration so as to maintain a solution pH of less than 4.5, connecting said base metal as the anode of said electrolytic cell and a metallic member inert in said aqueous solution as the cathode, imposing a direct current voltage across said anode and cathode in a range of from about 6 to 40 volts DC at a bath temperature of between about 50° C. to 85° C.

5,062,942

FLUORESCENCE DETECTION TYPE ELECTROPHORESIS APPARATUS

Hideki Kambara, Hachioji; Tetsuo Nishikawa, Itabashi; Tomoaki Sumitani, Hachioji; Keiichi Nagai, Higashiyamato, and Yoshitoshi Ito, Ome, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 10, 1990, Ser. No. 506,986

Claims priority, application Japan, Apr. 12, 1989, 1-90843; Apr. 12, 1989, 1-90845; Aug. 28, 1989, 1-218582

Int. Cl.[5] G01N *27/26*

U.S. Cl. 204—299 R **25 Claims**

1. A fluorescence detection type electrophoresis apparatus, comprising:

(i) a migration lane on which sample fragments labeled with fluorophore migrate electrophoretically;

(ii) means for irradiating locally a predetermined portion to be irradiated with an excitation light for exciting said fluorophore, said predetermined portion being on said migration lane;

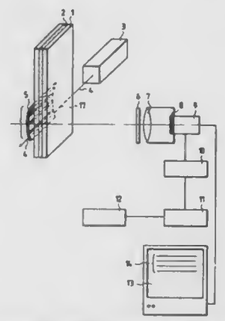
(iii) optical means for focusing a fluorescent light image which is emitted from said fluorophore at said predetermined irradiated portion, on a plurality of focusing positions separated from each other, said optical means comprising:

a) a focusing lens disposed on a predetermined distance from said predetermined irradiated portion; and

b) an image dividing means disposed on an optical path

from said predetermined irradiated portion to said focusing lens and makes said fluorescent light image visible as a plurality of virtual images positionally different from each other when said light image is seen from the focusing lens side;

iv) a plurality of wavelength selection means disposed on the respective optical paths from said predetermined irradiated portion to said plurality of focusing positions, said



respective optical paths lying separately from each other at the position of said wavelength selection means, and said plurality of wavelength selection means having transmission wavelength band different from each other; and

v) a light detector for detecting with positional distinction each light amount of a plurality of fluorescent light images each of which had passed through each of said wavelength selection means and focused on each of said focusing positions.

5,062,943

MODIFICATION OF BIFUNCTIONAL CATALYST ACTIVITY IN HYDROPROCESSING

Minas R. Apelian, Vincetown, N.J., and Clinton R. Kennedy, West Chester, Pa., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Oct. 4, 1990, Ser. No. 592,440

Int. Cl.[5] C10G *13/02*

U.S. Cl. 208—59 **17 Claims**

1. A method of controlling the operation of a hydrocracking process in which a hydrocarbon fraction is contacted under hydrocracking conditions in the prsence of hydrogen with a hydrocracking catalyst during a hydrocracking cycle comprising an initial phase and a second phase following the initial phase, the method comprising carrying out the initial phase of the hydrocracking cycle during which the hydrocracking temperature is being raised at a first rate from 1° to 20° F./day, in the presence of a nitrogen-containing organic compound which is added to the hydrocarbon fraction feed to reduce the hydrogen consumption, followed by carrying out the hydrocracking during a second phase of the hydrocracking cycle during which the temperature of the hydrocracking is raised at a second rate from 0.01° to 0.3° F./day, which is lower than the first rate.

5,062,944

CATALYTIC CRACKING PROCESS WITH MULTIPLE CATALYST OUTLETS

Tiberiu M. Leib, Voorhees, and Ajit V. Sapre, W. Berlin, both of N.J., assignors to Mobil Oil Corporation, New York, N.Y.

Filed Nov. 6, 1989, Ser. No. 431,952

Int. Cl.[5] C01G *11/18*

U.S. Cl. 208—113 **11 Claims**

1. In a process for the fluidized catalytic cracking (FCC) of a hydrocarbon by contact of a crackable hydrocarbon with a source of regenerated FCC catalyst in a cracking reactor to produce catalytically cracked products and coked FCC catalyst which is regenerated in a single dense bed regenerator which maintains a catalyst inventory of at least 100 tons of catalyst as a dense phase, bubbling, fluidized bed of catalyst having a depth of at least 8 feet within a regenerator vessel having a diameter of at least 10 feet, wherein coked cracking catalyst is added via a single coked catalyst inlet having an inlet diameter of at least 1 foot, said inlet discharging coked catalyst into said regenerator dense bed, and wherein said coked catalyst is regenerated in said dense bed by contact with an upflowing supply of oxygen or an oxygen containing gas to produce regenerated catalyst which is withdrawn from said catalyst bed via a single catalyst outlet connected with said bubbling catalyst inlet, the improvement comprising use of a swirl regenerator comprising a swirling, fluidized dense bed of catalyst, wherein coked catalyst is added via a single inlet in the center of the regenerator dense bed and regenerated catalyst is withdrawn from said dense bed via at least two catalyst withdrawal means which are both radially distributed and symmetrically distributed about said single inlet.

5,062,945

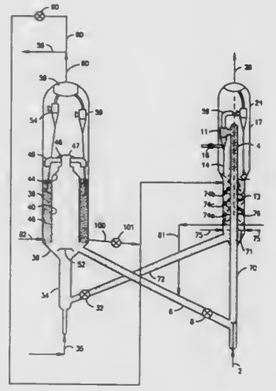
METHOD OF FCC SPENT CATALYST STRIPPING FOR IMPROVED EFFICIENCY AND REDUCED HYDROCARBON FLOW TO REGENERATOR

David A. Pappal, Haddonfield, N.J., and Paul H. Schipper, Wilmington, Del., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 248,058, Sep. 23, 1988, abandoned. This application Oct. 16, 1989, Ser. No. 423,610

Int. Cl.[5] C10G *11/18*

U.S. Cl. 208—113 **10 Claims**



1. A riser-reactor fluid catalytic cracking process comprising the steps of:

(a) mixing a hydrocarbon feed with hot regenerated cracking catalyst in the bottom section of a substantially vertical reactor riser to form a vapor-liquid suspension in said bottom section of said reactor riser at a temperature of about 525° to 650° C.;

(b) passing the mixture of step (a) upwardly through the reactor riser under selected temperature and residence time conditions to catalytically crack at least a portion of said hydrocarbon feed whereby said cracking catalyst is deactivated;

(c) flowing said mixture of step (b) through separation means to effect separation of catalyst particles from hydrocarbon conversion products;

(d) stripping hydrocarbon from said separated deactivated catalyst particles of step (c) by countercurrently contacting said catalyst particles with a stripping gas in an annular

VOL 1132 ISS 1 NO 5 1991 UMI

stripping zone, said annular stripping zone being concentric with a lower section of said reactor riser;
(e) withdrawing stripped deactivated catalyst from said annular stripping zone of step (d);
(f) regenerating said withdrawn deactivated catalyst of step (e) in a regeneration zone remote from and in valved communication with said reactor riser at a temperature above that of said stripping zone whereby a hot flue gas is generated;
(g) withdrawing a controlled volume of hot regenerated cracking catalyst from a lower section of said regeneration zone;
(h) fluidizing said hot regenerated cracking catalyst of step (g) in a stream of hot flue gas withdrawn from said regeneration zone of step (f); and
(i) indirectly transferring at least a portion of the thermal energy of said fluidized mixture of step (h) to said stripping zone of step (d) to heat said stripping zone of step (d) and to cool said fluidized mixture of regenerated cracking catalyst and regenerator flue gas.

5,062,946

CATALYTIC DEWAXING PROCESS

Pierre Dufresne, Rueil-Malmaison, and Francis Raatz, Acheres, both of France, assignors to Institut Francais du Petrole, Rueil-Malmaison, France

Filed Jun. 21, 1990, Ser. No. 541,859
Claims priority, application France, Jun. 21, 1989, 89 08358
Int. Cl.[5] C10G *11/08*
U.S. Cl. 208—115 **20 Claims**

1. A process for dewaxing hydrocarbons, comprising subjecting said hydrocarbons to dewaxing conditions in the presence of at least one catalyst comprising:
a/ 2 to 99.4% by weight of a synthetic crystalline zeolite of the ferrisilicate type, the approximate chemical formula of said zeolite being $M_{2/n}O$, Fe_2O_3, $xSiO_2$, where M represents a proton and/or a metal cation, n is the valence of M and x is a number ranging form 40 to 1,000, said zeolite having been synthesized in a fluoride medium and showing a fluorine content ranging from about 0.01 to 1.6% by weight, said zeolite having an X-ray diffraction diagram represented in Table 1 of the description,
b/ 0.1 to 97.5% by weight of a matrix, and
c/ at least one promoter selected from the group consisting of
Pd at a concentration by wt. ranging from 0.05 to 5%
Pt at a concentration by wt. ranging from 0.05 to 5%
NiO at a concentration by wt. ranging from 0.5 to 16%
CoO at a concentration by wt. ranging from 0.5 to 16%
MoO_3 at a concentration by wt. ranging from 0.1 to 30%
WO_3 at a concentration by wt. ranging from 0.1 to 40%.

5,062,947

SULFIDING OF HYDROGEL DERIVED CATALYSTS

Richard A. Kemp, Stafford, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 187,189, Apr. 28, 1988, Pat. No. 5,001,101.
This application Aug. 28, 1990, Ser. No. 573,768
Int. Cl.[5] C10G *45/00*
U.S. Cl. 208—216 R **9 Claims**

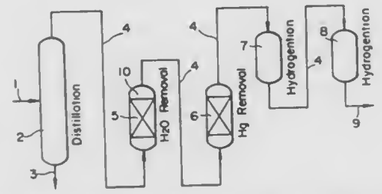
1. A process for hydrotreating hydrocarbon feeds which comprises contacting said feeds at a temperature in the range of from about 400° F. to about 850° F. and a pressure in the range of from about 400 psig to about 2500 psig with a catalyst having improved desulfurization activity prepared by incorporating an element selected from the group consisting of nickel, cobalt and mixtures thereof, and a heavy metal selected from the group consisting of molybdenum, tungsten and mixtures thereof, into an alumina hydrogel containing a phosphorus-containing compound, and sulfiding said catalyst with a gaseous sulfur compound at a temperature of at least about 900° F. for at least one hour.

5,062,948

MERCURY REMOVAL FROM LIQUID HYDROCARBON COMPOUND

Tetsu Kawazoe, and Tsukasa Iida, both of Ichihara, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Feb. 28, 1990, Ser. No. 486,607
Claims priority, application Japan, Mar. 3, 1989, 1-51685
Int. Cl.[5] C10G *17/00*
U.S. Cl. 208—251 R **16 Claims**



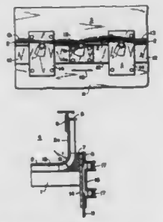
1. A method for removing mercury from a liquid hydrocarbon compound which contains some water, a desired hydrocarbon compound of up to 8 carbon atoms and components having a higher molecular weight than the desired hydrocarbon compound of up to 8 carbon atoms along with mercury, which comprises the steps of:
(a) removing the components having a higher molecular weight than the desired hydrocarbon compound of up to 8 carbon atoms from said compound by distillation, filtration, adsorption by molecular sieves, or adsorption by zeolite,
(b) removing water from said compound by distillation, filtration, adsorption by molecular sieves, or adsorption by zeolite, by thereafter
(c) contacting the thus obtained compound with an adsorbent having an active component supported on a carrier to remove mercury contained in the thus obtained compound,
wherein said steps (a) and (b) are carried out in an arbitrary order.

5,062,949

DEFORMABLE SIEVE MAT SCREENING APPARATUS HAVING RAISED SIEVE MAT RIMS

Herbert Hausmann, Cleisdorf, Austria, assignor to Binder & Co. Aktiengesellschaft, Gleisdorf, Austria

Filed Jul. 17, 1990, Ser. No. 554,207
Claims priority, application Austria, Jul. 21, 1989, 1765/89
Int. Cl.[5] B07B *1/30, 1/46*
U.S. Cl. 209—310 **3 Claims**



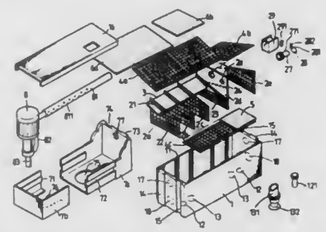
1. A screening apparatus comprising:
(a) an elongated support frame;
(b) a mobile, deformable sieve consisting of a sieve mat extending along the length of the support frame and having lateral edges; and
(c) a series of alternatingly immobile and mobile sieve mat carriers mounted on the support frame and extending transversely to the length of the support frame, the sieve mat being affixed to the carriers and the mobile carriers being movable with respect to the support frame in the direction of the length of the support frame, the lateral sieve mat edges extending transversely to the carriers and being raised to form rims for the sieve mat, the carriers having support shoulders for the raised sieve mat rims which are free of perforations, and the support shoulders having an arcuate transition section.

5,062,950

PREFAB FILTER TANK WITH WARNING FUNCTION

Wen-Yau Shieh, No. 32, Yu Kuang Road, An Ping Area, Tainan City, Taiwan

Filed May 4, 1990, Ser. No. 519,399
Int. Cl.[5] B01D *35/14;* A01K *63/04*
U.S. Cl. 210—86 **1 Claim**



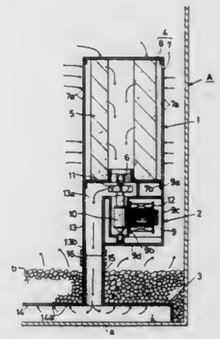
1. A prefab filter tank with warning function comprising a filter tank, a plurality of partitions, a water guiding board, a plurality of netted sheets, active carbon, filter fibre pads, motor seats, an alarm lamp seat, an overflow pipe, and a clean water pipe, wherein said filter tank is generally a rectangular and upward open tank with a removable top cover, a plurality of partition rails are bilaterally symmetrically formed on the inside of its two longer side walls for partitions to be fixedly supported therein, two sets of two preformed holes are separately provided at two ends of tank bottom, another two sets of preformed holes are separately formed on the two shorter end walls, and two pairs of suitable elongated tenons and mortises are diagonally symmetrically formed outside the two end walls normal to the tank bottom;
said water guiding board is inserted in slant slots formed at one side of the partitions, said slant slots have width of about one half the width of said partitions;
said netted sheets and active carbon are inserted in level slots formed at the opposite side of said partitions in a position slightly lower than the lower end of said slant slots; two of said netted sheets are separately placed on tops of partitions positioned at two sides of a main partition, a filter fibre pad is placed on each of said netted sheets on tops of said partitions;
said main partition has a meshy portion below its level slot and has a solid plate portion above its level slot, two through holes are formed in said solid plate portion for said water distributing pipe and a pipe head to transversely pass there, said pipe head has an outward and downward slant pipe end extending into the space between said main partition and one end wall of said filter tank with a shutter pivotally connected to the top of said slant pipe end, the upper end of said shutter extends to form a press plate which is closely aligned with a microswitch, said microswitch together with an alarm lamp or a buzzer are disposed in said alarm lamp seat mounted on said main partition and with its top projected out said tank top cover when said cover is covered on said filter tank;
said motor seat is assembled by two parts which join with each other by matching sliding bars and sliding rails separately formed on their two side walls, on one of said motor seat parts, vertical tenon and mortise are formed at its end wall to match said tenons and mortises formed on two end walls of said filter tank permitting said motor seat to join to said filter tank at either end; a keyhole-shaped opening is formed on bottom of one of said motor seat parts and cooperates with an oblong opening formed on bottom of another motor seat part to adjust space left on bottom of said motor seat for receiving a motor, and a through hole is formed on one end wall of said motor seat corresponding to said preformed holes on two end walls of said filter tank and said one of through holes on said main partition for said water distributing pipe to pass.

5,062,951

FILTERING DEVICE FOR HOUSEHOLD AQUARIUMS

Kazutoshi Tominaga, Higashiosakashi, Japan, assignor to Kabushiki Kaisha Tominaga Jyushi Kobyosho, Osaka, Japan

Filed Feb. 21, 1990, Ser. No. 483,058
Int. Cl.[5] A01K *63/04*
U.S. Cl. 210—169 **13 Claims**



12. A filtering device adapted for use in household aquariums, the device comprising:
a first casing having openings through its walls communicating with the inside of the aquarium, the first casing being placed on the aquarium bottom;
a second casing having openings through its walls communicating with the inside of the aquarium, the second casing being located above the first casing;
a cylindrical hollow filter medium housed in the second casing;
a pump unit means located midway between the upper casing and the lower casing so that the water in the aquarium casing is circulated first through the second casing, then the filter medium, the passageway, and lastly the first casing;
a passageway for communication from the second casing to the first casing, the passageway being constituted by detachably connecting a conduit portion of the pump unit to a conduit portion of the first casing; and
wherein the first casing comprises a shallow tray-like body having a size substantially equal to the whole area of aquarium bottom.

5,062,952

INJECTION MOLDING FILTER

Clayton L. Neuman, Coon Rapids, Minn., assignor to A-1 Engineering, Inc., Coon Rapids, Minn.

Continuation of Ser. No. 214,866, Jul. 1, 1988, abandoned, which is a continuation of Ser. No. 895,836, Aug. 12, 1986, abandoned.
This application Jan. 10, 1990, Ser. No. 463,906
Int. Cl.[5] B01D *29/11*
U.S. Cl. 210—232 **13 Claims**

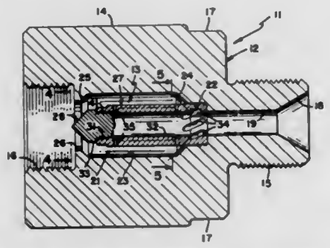
1. Apparatus for filtering a flow of fluid, comprising:
a housing having an inlet of predetermined cross sectional

VOL 1132 ISS 1 NO 5 1991 UMI

size for receiving unfiltered fluid and an outlet of predetermined cross sectional size for discharging filtered fluid, and defining an internal chamber aligned between the inlet and outlet;

a filter element comprising a tubular body with an annular wall of predetermined thickness, the tubular body having a first open inlet end, a second closed end and a plurality of filter openings extending through said annular wall;

and means for mounting the open end of the tubular body to the housing with said open end in fluid communication



with said inlet and aid tubular body extending in cantilever fashion toward said outlet in alignment therewith with said second closed end unengaged within said internal chamber;

said tubular body and internal chamber being relatively sized to define a passage therebetween that is disposed in fluid communication with said outlet, and through which filtered fluid flows as it leaves the filter openings;

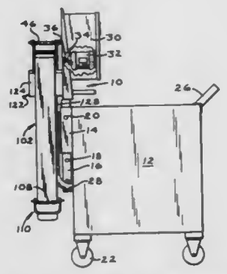
and the tubular body having a cross sectional size less than that of the housing outlet, whereby access to said tubular body may be gained through said housing outlet.

5,062,953

BELT TYPE OIL SKIMMER WITH HORIZONITAL ROLLERS

Philip C. Lewan, Jackson, Mich., assignor to Camshaft Machine Company, Jackson, Mich.

Filed May 10, 1990, Ser. No. 521,416
Int. Cl.[5] C02F *1/40*
U.S. Cl. 210—232 **18 Claims**



1. Apparatus for removing oil or the like from the horizontal surface of a body of liquid comprising, in combination, a frame adapted to be supported adjacent the body of liquid from which oil is to be removed, a primary elongated roller rotatably mounted on said frame for rotation about a substantially horizontal axis, said roller having an outer surface adapted to receive a substantially flat belt, a substantially flat endless belt having first and second sides, said belt first side engaging said roller, a pair of pressure rollers rotatably mounted on said frame movable toward and away from said primary roller, biasing means biasing said pressure rollers toward said primary roller, said pressure rollers being located substantially diametrically opposed to each other relative to said primary roller whereby said pressure rollers maintain said belt first side in engagement with approximately one half of the circumference of said primary roller, a motor mounted on said frame operatively connected to at least one of said rollers for rotating said rollers about their axes of rotation, and a collection receptacle mounted on said frame below said rollers receiving oil removed from said belt by said pressure rollers, said belt depending below said primary roller and pressure rollers and below said receptacle into the body of liquid from whose surface oil is removed.

5,062,954

CELLULOSE ABSORBENT PRODUCT AND METHOD OF MANUFACTURE

K. Duane Leedy, Perrysburg, and Norman A. Peiffer, Maumee, both of Ohio, assignors to The Andersons, Maumee, Ohio

Filed Apr. 15, 1991, Ser. No. 684,989
Int. Cl.[5] C02F *1/28*
U.S. Cl. 210—502.1 **16 Claims**

1. A process for producing an absorbent product comprising the following steps:

A) reducing a naturally occurring cellulose material to an intermediate pulverulent product;

B) adding moisture to said intermediate pulverulent product from step A);

C) compressing the intermediate pulverulent product from step B) to produce an intermediate product of compressed bodies having a nominal diameter of at least 3/16";

D) shearing said intermediate product of compressed bodies to produce compact bodies of smaller size than said compressed bodies;

E) classifying said compact bodies from step D) to produce a granular product of said bodies having a given screen size range.

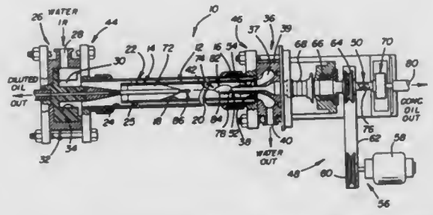
15. An absorbent cellulose granular product comprising compact bodies having an irregular surface and size which passes through a number 10 screen but is retained on a number 60 screen produced by the process of claim 1.

5,062,955

ROTATING SLEEVE HYDROCYCLONE

Steven F. Sciamanna, Moraga, Calif., assignor to Chevron Research and Technology Company, San Francisco, Calif.

Filed May 30, 1990, Ser. No. 530,877
Int. Cl.[5] B01D *45/12*
U.S. Cl. 210—512.1 **10 Claims**



1. A hydrocyclone for separating a fluid comprising immiscible less dense and more dense liquids from one another, comprising:

a sleeve having upstream and downstream end portions and a longitudinal axis and defining a circularly symmetrical separation chamber;

a relatively stationary longitudinally extending outer casing defining a central passageway about said longitudinal axis in surrounding relation to sleeve;

a relatively stationary fluid introduction structure having an inlet port and an outlet port with said outlet port in flow communication with said chamber adjacent said upstream end portion of said sleeve, said fluid introduction structure being adapted to impart to said fluid an axial component in the direction of said downstream end portion of said sleeve;

a more dense-liquid recovery structure having an annular recovery entrance and an exit for recovery of said more dense liquid, said recovery entrance being radially displaced from the region of said axis and in flow communication with said downstream end portion of said sleeve;

fluid introduction structure mounting means for mounting said casing to said fluid introduction structure;

more dense-liquid recovery structure mounting means for mounting said casing to said more dense liquid recovery structure;

rotating means for rotating said sleeve in a selected rotational direction about said axis; and

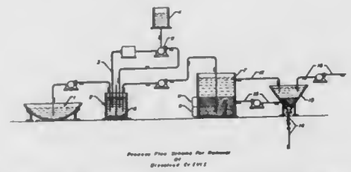
less dense liquid recovery means for recovering said less dense liquid from the region of said axis.

5,062,956

BIOREMEDIATION OF CHROMIUM (VI) CONTAMINATED AQUEOUS SYSTEMS BY SULFATE REDUCING BACTERIA

F. Stephen Lupton, Evanston; Louis J. DeFilippi, Mt. Prospect, and James R. Goodman, Chicago, all of Ill., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 177,557, Apr. 4, 1988, abandoned. This application Mar. 20, 1990, Ser. No. 496,462
Int. Cl.[5] C22F *1/62*
U.S. Cl. 210—611 **7 Claims**



1. A method of reducing levels of Cr(VI) dissolved in a liquid aqueous residue resulting from chromium processing in amounts up to in excess of 200 ppm Cr(VI) said aqueous residue containing up to 5–10 wt. percent of dissolved salts comprising

a) adjusting the pH of said aqueous residue to a value between about 6.5 and 9.5 by adding a neutralizing agent and thereby increasing the content of dissolved salts;

b) adding to the pH adjusted residue (a) (1) a carbon source sufficient to sustain microbial growth, (2) a sulfate source sufficient to provide at least 10 millimoles sulfate per liter of said residue and (3) nutrients for sulfate-reducing anaerobic bacteria;

c) diluting the aqueous residue of (b) to provide no more than 200 ppm of Cr(VI) per liter of diluted residue;

d) contacting said diluted residue of (c) in the substantial absence of oxygen with sulfate-reducing anaerobic bacteria for a period of time sufficient to reduce the concentration of Cr(VI) to below about 0.05 ppm as chromium and to precipitate Cr(III) hydroxides.

5,062,957

PROCESS FOR REMOVING NITRATES FROM WATER

Edgar Berreby, 25 rue Paul Valéry, Paris, France 75116

Filed May 3, 1990, Ser. No. 518,467
Int. Cl.[5] C02F *1/42*
U.S. Cl. 210—611 **7 Claims**

1. A process to eliminate nitrates from water or aqueous solution, which process comprises:

a) passing nitrate-containing water or aqueous solution through a strong base anion exchange resin having a cation portion and having the following affinities: $HCO_3^- < Cl^- < SO_4^{--} < NO_3^-$, said resin having a polystyrenic matrix with quaternary ammonium groups $—NR_1R_2R_3^+$ in which R_1, R_2 and R_3 are identical or different and each represents a C_1–C_6 alkyl group or a C_1–C_3 hydroxy alkyl group or two of the symbols R_1–R_3, together with the nitrogen atom, form a heterocycle selected from the group consisting of pyrrolindino, piperidino, morpholino, and thiomorpholino, the resin being in the sulphate or bisulsphate form to obtain 1) potable water and 2) the strong anion exchange resin in the nitrate form;

b) regenerating the strong anion exchange resin in the nitrate form to form the strong anion exchange resin in the sulphate or bisulphate form, which regeneration comprises the step of contacting the resin in the nitrate form with an aqueous solution containing sulphate or bisulfate anions to produce the strong anion exchange resin in the sulphate or bisulphate form and an acidic aqueous solution containing nitrates; and

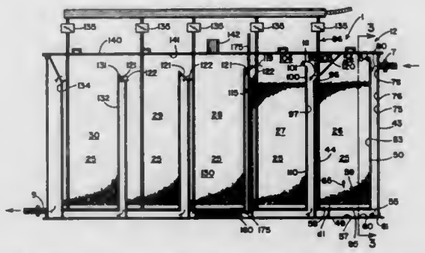
c) treating the nitrate-containing solution produced by the regeneration process with heterotropic denitrifying bacteria in the presence of an organic nutrient for said bacteria.

5,062,958

METHOD FOR WATER PURIFICATION

George F. Bateson, Roseville; Thomas J. Chresand, Minneapolis; Joel D. Moore, Bloomington, and Terrence L. Nayes, Eden Prairie, all of Minn., assignors to BioTrol, Inc., Chaska, Minn.

Division of Ser. No. 193,362, May 12, 1988, Pat. No. 4,952,552. This application Feb. 28, 1990, Ser. No. 486,805
Int. Cl.[5] C02F *3/06*
U.S. Cl. 210—611 **10 Claims**



1. A method of purifying water from a site contaminated with toxic and non-toxic organic materials; said method including the steps of:

(a) providing a reactor having an upstream end and a downstream end and comprising a plurality of treatment chambers oriented in series; each of said chambers having an upstream downcomer portion and a downstream column portion;

(i) each column portion having a downstream wall;

(ii) each chamber including a baffle member therein dividing said chamber into said downcomer portion and said column portion; each baffle member, except for a first, most upstream baffle member, having less upward extensions than a next upstream baffle member; and, the downstream wall of each column portion having less upward extension than a next downstream baffle member;

(b) providing biomasss support material in each of said chamber column portions;

(c) establishing a microbial consortium, of biomass capable of removing selected organic material in water to be treated, in said reactor by directing feed of water includ-

VOL 1132 ISS 1 NO 5 1991 UMI

ing microbial species indigenous to the treatment site through said reactor in direction from said upstream end to said downstream end;

(d) purifying water by directing water to be purified from said upstream end to said downstream end; and,

(e) said steps of establishing a microbial consortium and purifying water both including passing water upwardly through biomass support material in each of said treatment chambers.

5,062,959

PROCESS FOR THE ENRICHMENT AND/OR ISOLATION OF HEART GLYCOSIDES WITH THE USE OF NON-POLAR ABSORBER RESINS

Carl H. Ross, Viernheim; Rndolf Machat, Mannheim; Werner Häring, Heppenheim/Kirschhausen, and Gustav Lettenbauer, Lampertheim, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

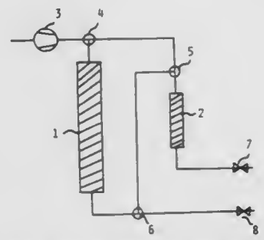
PCT No. PCT/EP87/00775, § 371 Date Oct. 17, 1988, § 102(e) Date Oct. 17, 1988, PCT Pub. No. WO88/04663, PCT Pub. Date Jun. 30, 1988

Continuation of Ser. No. 418,695, Oct. 2, 1989, abandoned, which is a continuation of Ser. No. 250,692, Oct. 17, 1988, abandoned. This PCT application Dec. 12, 1987, Ser. No. 581,147

Claims priority, application Fed. Rep. of Germany, Dec. 20, 1986, 3642760

Int. Cl.[5] B01D *15/08*

U.S. Cl. 210—635 **3 Claims**



1. A process for the enrichment of and/or isolation of cardiac glycosides from a crude extract in which an aqueous solution of the extract is subjected to adsorption and desorption on non-polar, non-ionic resin based on crossed-linked styrene polymers, acrylic ester polymers and/or styrene-divinyl benzene copolymers, said resin having a specific surface area of from 100 to 1000 m^2/g and in which an eluant consisting of a mixture of water and an organic solvent which does not contain chlorinated hydrocarbons is used in the desorption step to obtain a preparative amount of cardiac glycosides.

5,062,960

METHOD AND APPARATUS FOR RECOVERING AN ACID FROM AN ACID-CONTAINING WASTE LIQUOR

Yoshiharu Aoki, and Toshikatsu Hamano, both of Chiba, Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 429,379, Oct. 31, 1989, Pat. No. 4,954,262. This application Jul. 12, 1990, Ser. No. 551,409

Claims priority, application Japan, Nov. 8, 1988, 63-280412; Dec. 6, 1988, 63-306977; Dec. 22, 1988, 63-321916

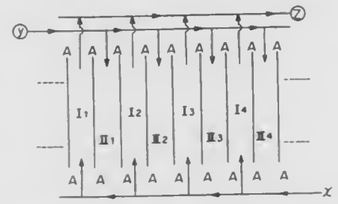
Int. Cl.[5] B01D *61/42, 61/50*

U.S. Cl. 210—638 **8 Claims**

1. An apparatus for recovering an acid from an acid containing waste liquor which overcomes the problem of heat accumulation in diffusion dialysis of waste acid liquor as a result of temperature increase which results in deterioration of the ion exchange membranes of the dialysis cell and heat deformation of cell parts all of which limit the operational life of the cell, comprising;

a diffusion dialysis cell divided into a plurality of alternating feed liquor compartments into which feed liquor is supplied and recovery compartments into which water is supplied by a plurality of anion exchange membranes, said cell being provided with a plurality of cooling compartments into which cooling water is supplied by the positioning of water-impermeable membranes in the cell such that said cooling compartments are adjacent to the feed liquor compartments or the recovery compartments, thereby controlling the temperature increases in the cell and extending the lifetime of the cell.

5. A method for recovering an acid from an acid-containing



waste liquor which overcomes the problem of heat accumulation in diffusion dialysis of waste acid liquor as a result of temperature increase which results in deterioration of the ion exchange membranes of the dialysis cell and heat deformation of cell parts all of which limit the operational life of the cell, comprising; conducting diffusion dialysis in a diffusion dialysis cell divided into a plurality of alternating feed liquor compartments into which feed liquor is supplied and recovery compartments into which water is supplied by a plurality of anion exchange membranes, said cell being provided with a plurality of cooling compartments into which cooling water is supplied by the positioning of water-impermeable membranes in the cell such that said cooling compartments are adjacent to the feed liquor compartments thereby controlling the temperature increases in the cell and extending the lifetime of the cell.

5,062,961

PROCESS FOR THE DETERMINATION OF THE CONCENTRATION OF AN IONIC OR IONIZABLE SOLUTE IN ION EXCHANGE CHROMATOGRAPHY

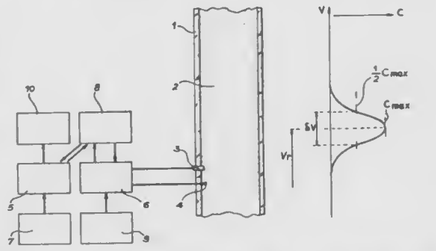
Michele Doury-Berthod, Gif sur Yvette, and Pierre Giampaoli, Montrouge, both of France, assignors to Commissariat a l'Energie Atomique, Paris, France

Filed Aug. 3, 1990, Ser. No. 499,470

Claims priority, application France, Oct. 27, 1988, 88 14038

Int. Cl.[5] B01D *15/08*

U.S. Cl. 210—656 **10 Claims**



1. Process for the determination of the concentration of a solute in an eluate, the solute being at least partly dissociated in the form of at least one anionic species, the eluate being also

constituted by hydrogen ions and species belonging to the acid-base system of an eluent at least partly dissociated in the form of at least one anionic species, the dissociation of these species and of those of the solute producing hydrogen ions, the composition of the eluate being more particularly governed by exchange reactions of ions previously used in the separating column between the anionic species of the eluent and those of the solute, said process comprising: calculating the concentration of the hydrogen ions solely as a function of the concentration of the solute with the aid of dissociation constants of acid species liable to be involved, invariable proportions for a given solute in a given chromatographic system of anions of the solute, which are exchanged in the separating column with eluent species of different valencies, proportions of the species of the solute dissolved in the separating column, the total concentration of the constituent species of the eluent and the concentration of the cationic species associated with the saline eluent species in the eluent, then calculating the concentrations in the eluate of at least some of its constituents, as a function of the solute concentration with the aid of the concentration of the hydrogen ions, then calculating a theoretical signal function consisting of superimposing effects resulting from concentration variations of the constituents of the eluate whose concentration has been calculated in the preceding stage and finally placing an experimental signal on the theoretical signal function in order to deduce therefrom the concentration of the solute and indicating the concentration of the solute.

5,062,962

METHODS OF CONTROLLING SCALE FORMATION IN AQUEOUS SYSTEMS

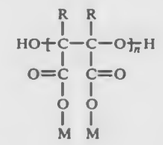
J. Michael Brown, The Woodlands; John F. McDowell, Spring, both of Tex., and Kin-Tai Chang, Columbus, Ga., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed May 4, 1990, Ser. No. 518,045

Int. Cl.[5] C02F *5/10*

U.S. Cl. 210—698 **18 Claims**

1. A method of controlling the formation and deposition of scale forming salts including calcium carbonate in a circulating aqueous system comprising introducing into said aqueous system a substoichiometric amount sufficient for the purpose of a treatment comprising a polyepoxysuccinic acid of the general formula



wherein n ranges from about 2 to about 50, M is hydrogen or a water soluble cation and R is hydrogen, C_{1-4} alkyl or C_{1-4} substituted alkyl.

5,062,963

METHOD AND APPARATUS FOR REMOVING SLUDGE FROM A SPRAY BOOTH

John Marcinkowski, Barrie; Herbert W. Bennett, Orillia, and Kenji Niwa, Barrie, all of Canada, assignors to DeVilbiss (Canada) Limited, Barrie, Canada

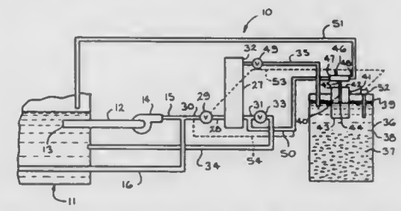
Filed Feb. 7, 1990, Ser. No. 478,146

Claims priority, application Canada, Mar. 17, 1989, 594020

Int. Cl.[5] B05B *15/12*

U.S. Cl. 210—712 **6 Claims**

4. Apparatus for removing paint sludge from a tank for a water wash paint spray booth comprising a liquid pump having an inlet connected to receive liquid from a paint spray booth tank and having an outlet, a plurality of eductors located in said tank, a first pipe means for returning liquid from said pump outlet through said eductors to said booth tank, said liquid returned through said eductors agitating liquid in said booth tank to maintain paint sludge in suspension, a hydrocyclone separator having an inlet, a clarified liquid outlet and a sludge outlet, a second pipe means for delivering liquid from said pump outlet to said separator inlet, a third pipe means for returning liquid from said separator clarified liquid outlet to said booth tank, a settling tank for collecting paint sludge and liquid from said separator sludge outlet, an aspirator pump



having a pressurized liquid inlet, an outlet and a suction inlet, means for circulating liquid from said separator clarified liquid outlet through said aspirator pump pressurized liquid inlet and said aspirator pump outlet to said booth tank, and liquid inlet means in said settling tank connected to said suction inlet for returning excess liquid from said settling tank to said booth tank.

5,062,964

PROCESS FOR CONTROL OF A FLOTATION SYSTEM

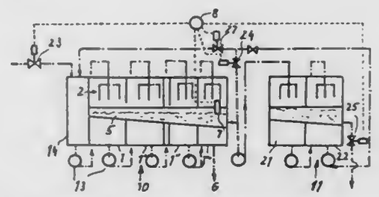
Herbert Ortner, and Lothar Pfalzer, both of Heidenheim, Fed. Rep. of Germany, assignors to J. M. Voith GmbH, Heidenheim, Fed. Rep. of Germany

Filed Apr. 6, 1990, Ser. No. 505,762

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1989, 3911233

Int. Cl.[5] B03D *1/02;* **C02F** *1/24*

U.S. Cl. 210—740 **4 Claims**



1. A process for controlling the quantity of foam generated in a flotation system in which said quantity is essentially determined by process parameters acting upon said system, said process comprising:

providing a probe for measuring the relative air content of sludge precipitated from said generated foam in the flotation system, said probe being operable to transmit a signal containing said relative air content;

withdrawing a sludge sample from said flotation system;

utilizing said probe to compress the withdrawn sludge sample, and to measure the relative air content of said sludge sample by determining the degree of compression of said sample;

providing a regulating apparatus, situated before or after said flotation system, for receiving the signal transmitted from said probe; and

controlling the action of at least one of said process parameters on said flotation system in response to said signal, whereby the quantity of foam generated may be regulated.

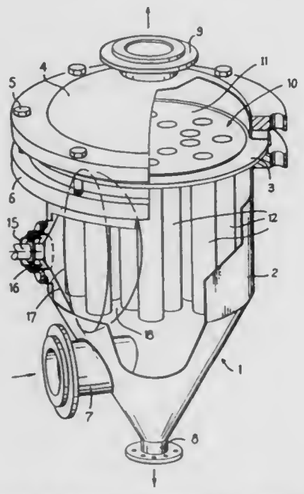
VOL 1132 ISS 1 NO 5 1991 UMI

5,062,965

FILTRATION APPARATUS COMPRISING AN ULTRASONIC CLEANING DEVICE AND CORRESPONDING CLEANING PROCESS

Jean-Louis Bernou, Fresnes; Frederic Dufau, La Celle St Cloud; Isabelle Geabel, St Germain En Laye, and Jean Hache, Voisins Le Bretonneux, all of France, assignors to Framatome, Courbevoie and Bertin & Cie, Plaisir, both of, France

Filed Nov. 7, 1989, Ser. No. 432,825
Claims priority, application France, Nov. 7, 1988, 88 14505
Int. Cl.[5] B01D *17/06*
U.S. Cl. 210—748 8 Claims



8. Process for ultrasonic cleaning of a filtration apparatus disposed in a circuit for supply of fluid to be filtered and for recovery of filtered fluid, said apparatus comprising a casing (2), an inlet conduit (7) for liquid to be filtered in said casing (2), an evacuation conduit (9) for filtered liquid, a bundle of porous filtration cartridges (12) disposed between said inlet conduit and said evacuation conduit over a predetermined length of said casing (2) in an axial direction and over a substantial part of a cross-section of said casing, and a device for ultrasonic cleaning (15, 16) of said porous filtration cartridges (12) constituted by spaced assemblies of transducers (15) disposed in at least one cross-sectional plane of said casing (2) in positions which are regularly spaced at a periphery of said casing (2), each of said transducers being placed within an opening passing through said casing, the process comprising the steps of

(a) isolating said casing from said circuit for recovery of filtered fluid;

(b) emitting ultrasonic waves by means of said transducers within cones having axes perpendicular to said filtration cartridges and a vertex located adjacent a wall of said casing (2) in the direction of said filtration cartridges (12), in such a manner as to tear out particles retained by said filtration cartridges (12);

(c) diffracting said ultrasonic waves emitted towards the interior of said casing (2) by an edge (50, 58) centered on an axis of emission of said ultrasonic waves; in such a manner as to increase a vertical angle of said cones of effectiveness within which said ultrasonic waves are emitted; and

(d) evacuating said particles torn out from the filtration cartridges (12) via an end of said casing (2).

5,062,966

PROCESS FOR DECOMPOSING SOLUTIONS OF HYDROXYLAMMONIUM SALTS

Ronald L. Dotson, and Sanders H. Moore, both of Cleveland, Tenn., assignors to Olin Corporation, Cheshire, Conn.

Filed Nov. 2, 1990, Ser. No. 608,416
Int. Cl.[5] C02F *1/58, 1/76*
U.S. Cl. 210—753 24 Claims

1. A process for decomposing an aqueous solution of a hydroxylammonium compound which comprises raising the pH of the solution to about 8 or higher and reacting the alkaline solution with a source of hypohalite ions.

5,062,967

METHOD FOR CONTROLLING ZEBRA MUSSELS USING DIDECYL DIMETHYL AMMONIUM HALIDES

Ramon A. Mnia, Coraopolis, and Rodney M. Donlan, Bridgeville, both of Pa., assignors to Calgon Corporation, Robinson Township, Pa.

Filed Apr. 18, 1990, Ser. No. 510,495
Int. Cl.[5] C02F *1/50, 1/68*
U.S. Cl. 210—755 4 Claims

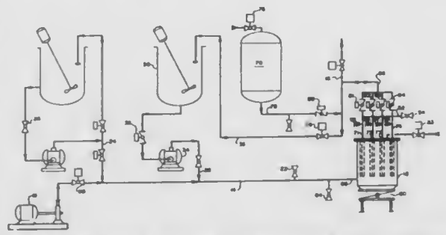
1. A method for inhibiting the growth of zebra mussels in an aqueous system which contains zebra mussels or which is prone to the growth of zebra mussels comprising adding to said system an effective amount of a didecyl dimethyl ammonium halide.

5,062,968

APPARATUS AND PROCESS FOR FILTERING FLUIDS

Theodore A. Warning, 11227 Rippling Meadows, Houston, Tex. 77064

Continuation-in-part of Ser. No. 96,634, Sep. 14, 1987, Pat. No. 4,874,533. This application Dec. 6, 1988, Ser. No. 280,673
Int. Cl.[5] B01D *37/02*
U.S. Cl. 210—771 16 Claims



1. An apparatus for filtering contaminated fluid, comprising:
a vessel having a filtration space therein;
means for introducing a contaminated fluid into the vessel;
means for introducing a filter media into the vessel;
a plurality of filter elements, each having an interior and an exterior, positioned inside the vessel, each filter element being provided with an individually controllable means for testing filtrate on an outlet of the filter element;
means for forming a layer of filter media on the exterior of the filter elements;
means for removing filtrate from the interior of the filter elements; and
means for draining the filter elements in fluid communication with the interior of the filter elements operable independently from the means for removing filtrate.

5,062,969

CROSSLINKABLE INTERPOLYMERS

Marlin D. Holtmyer; Charles V. Hunt, and Weldon M. Harms, all of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.

Filed May 22, 1989, Ser. No. 355,597
Int. Cl.[5] E21B *33/00*
U.S. Cl. 252—8.551 18 Claims

1. A method for treating a subterranean formation comprising:

providing an interpolymer that is the polymerization product of a mixture represented by the formula:

water soluble monomer	(x)	hydrophobe monomer	(y)	vicinal diol monomer	(z)

where the mole percent of each monomer is represented by x, y, and z and said hydrophobe monomer is selected from the group comprising alkyl methacrylate, acrylate esters, N-alkyl acrylamide, and N-alkyl methacrylamides with the alkyl group having 6 to 18 carbon atoms and y is a number of from about 0.5 to about 5;

inverting said interpolymer in an aqueous liquid to viscosify the liquid;

admixing a hydrophobe-containing surfactant with said liquid after inversion of said interpolymer in an amount whereby the viscosity of the liquid is caused to further increase;

admixing an agent capable of forming a crosslink with the diol functional group to subsequently form a crosslinked aqueous gel; and

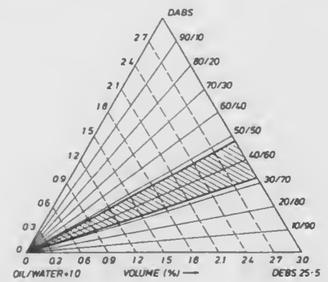
injecting the crosslinked interpolymer mixture with or without a particulate agent into said formation in a manner that results in an increase in the production of fluids from said formation.

5,062,970

SURFACTANT COMPOSITION

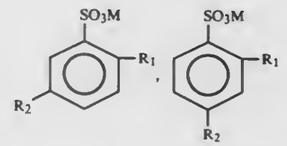
Herman M. Muijs; Nicolaas C. M. Beers, and Sebastianus P. F. M. Roefs, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 4, 1990, Ser. No. 532,546
Claims priority, application United Kingdom, Jun. 6, 1989, 8912963
Int. Cl.[5] E21B *43/22*
U.S. Cl. 252—8.554 9 Claims



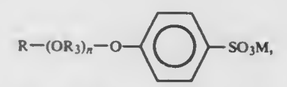
1. A surfactant composition suitable for enhanced oil recovery which comprises:

a) a dialkylated benzenesulfonate having a chemical formula selected from the group consisting of



and mixtures thereof, wherein M is an alkali metal and R_1 and R_2 are the same or different C_2–C_{20} alkyl groups, and

b) a polyalkoxyphenylethersulfonate of the chemical formula



wherein M is an alkali metal, R is a C_9–C_{22}-alkyl group and R_3 is a C_1–C_4-alkylene group, and n is an integer from 1 to 20, wherein the weight ratio of a:b is in the range of from about 60:40 to about 10:90.

5,062,971

STARCH WITH SILICONE GEL FOR EASE OF IRONING AND IMPROVED FABRIC APPEARANCE AFTER IRONING

Timothy W. Coffindaffer, Loveland; Robert G. Bartolo, Cincinnati, both of Ohio, and Kathleen A. Belfiore, Beaver Falls, Pa., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 6, 1990, Ser. No. 534,110
The portion of the term of this patent subsequent to May 8, 2007, has been disclaimed.
Int. Cl.[5] P06M *11/00;* C11D *3/00*
U.S. Cl. 252—8.6 25 Claims

1. A liquid starch composition for treating fabrics, said composition comprising: (1) from about 0.1% to about 33% of a polymeric silicone gel, (2) from about 0.1% to about 35% of a laundry starch and (3) an aqueous carrier; wherein said silicone gel has is curable and from about 3% to about 30% T (tri-functional units) $R'SiO_{3/2}$ and/or Q (quat-functional units), $SiO_{4/2}$ from about 70% to about 97% D (di-functional units), $R'_2SiO_{2/2}$ and up to about 10% (mono-functional units), $(RO)R'_2SiO_{1/2}$ and a molecular weight of from about 20,000 to about 1,000,000.

5,062,972

FABRIC CONDITIONING COMPOSITIONS: NATURAL HECTORITE CLAY AND BINDING AND DISPERSING AGENT

André C. Baeck, Bonheiden; Alfred Busch, Strombeek-Bever, both of Belgium, and Young S. Oh, Fairfield, Ohio, assignors to The Procter & Gamble Co., Cincinnati, Ohio

Continuation-in-part of Ser. No. 287,977, Dec. 21, 1988, abandoned. This application Dec. 20, 1989, Ser. No. 453,442
Claims priority, application United Kingdom, Jan. 3, 1989, 8900027
Int. Cl.[5] D06M *11/06, 13/34*
U.S. Cl. 252—8.8 26 Claims

1. A granular fabric conditioning composition comprising agglomerates of from about 0.5% to about 40% of a binding/-dispersing agent and from about 10% to about 99% of a clay material, said clay material consisting essentially of a hectorite clay of natural origin, said hectorite clay having the general formula:

VOL 1132 ISS 1 NO 5 1991 UMI

$$[Mg_{3-x}Li_x)Si_{4-y}Me^{III}_yO_{10}(OH_{2-z}F_z)]\frac{-(x+y)}{n}M^{n+}$$

wherein when $y \neq 0$, Me^{III} is Al, Fe, or B; or $y=o$; M^{n+} is a monovalent ($n=1$) or divalent ($n=2$) metal ion, said clay having a layer charge distribution ($x+y$) such that at least 50% of the layer charge is in the range of from about 0.23 to about 0.31; wherein said agglomerates have a median diameter of between about 75 microns and about 2000 microns.

5,062,973

STEARATE-BASED DRYER-ADDED FABRIC MODIFIER SHEET

George W. Kellett, Cranford, N.J., assignor to Creative Products Resource Associates, Ltd., Clifton, N.J.

Continuation-in-part of Ser. No. 331,870, Apr. 4, 1989, Pat. No. 4,938,879. This application May 9, 1990, Ser. No. 521,242
The portion of the term of this patent subsequent to Jul. 3, 2007, has been disclaimed.
Int. Cl.[5] B05D *3/12*; D06M *13/02, 13/17, 13/48*
U.S. Cl. 252—8.75 21 Claims

1. A fabric modifier comprising a gelled sheet consisting essentially of about 15–30% water, about 40–60% of a water-miscible organic solvent selected from the group consisting of a glycol ether, a pyrrolidinone, an alkanol and mixtures thereof, and an effective gel-forming amount of an alkali-metal stearate, having uniformly distributed thereon an effective amount of a fabric softening agent selected from the group consisting of a cationic quaternary ammonium salt, an imidazolinium salt, a stearyl amine salt, a tertiary phosphine oxide, a tertiary amine oxide, a nonionic surfactant, an ethoxylated alcohol sulfate, a sodium alkyl sulfate, an alkyl sulfonate, a sodium alkyl benzene sulfonate, a sodium alkyl glyceryl ether sulfonate, a potassium alkyl glyceryl ether sulfonate, an amphoteric tertiary ammonium compound, a zwitterionic quaternary ammonium compound and mixtures thereof; so that an insignificant residue of said sheet remains in a rotary hot air dryer following the drying cycle.

5,062,974

MUNITIONS LUBRICANT AND PROTECTOR

Keith E. Van Meter, West Palm Beach, Fla., assignor to Lighthouse Manufacturing Co., Inc., West Palm Beach, Fla.

Filed Jun. 23, 1989, Ser. No. 370,456
Int. Cl.[5] C10M *125/22*
U.S. Cl. 252—11 6 Claims

1. A composition for surface treatment of firearms and bullets, comprising:
a) finely divided molybdenum disulfide, between 20 and 0.01 percent by weight;
b) alkali metal molybdate, between 5 and 0.01 percent by weight;
c) volatile organic solvent, between 99.9 and 75 percent by weight.

5,062,975

FUNCTIONAL FLUID WITH BORATED EPOXIDES, CARBOXYLIC SOLUBILIZERS, ZINC SALTS, AND CALCIUM COMPLEXES

Frederick L. Bayles, Jr., Rocky River; Reed H. Walsh, Mentor, and Craig D. Tipton, Perry, all of Ohio, assignors to The Lubrizol Corporation, Wickliffe, Ohio

Continuation of Ser. No. 831,021, Feb. 19, 1986, abandoned. This application May 22, 1990, Ser. No. 526,967
Int. Cl.[5] C10M *141/12*
U.S. Cl. 252—33 11 Claims

1. A functional fluid comprising:
from about 88 to about 98.3 percent by weight based on the total weight of the functional fluid of a hydrocarbon oil and from about 1.7 to about 12 percent by weight based on the total weight of the functional fluid of an additive comprising:
from about 0.5 to about 5.5 weight percent of a calcium salt in the form of a calcium sulfonate complex which has been overbased with a calcium compound;
from about 1 to about 4 weight percent of an EP/antiwear agent in the form of a zinc salt of a dialkylphosphorodithioic acid treated with triphenylphosphite;
from about 0.1 to about 1.5 weight percent of a borated epoxide; and
from about 0.1 to about 1 weight percent of a carboxylic solubilizer in the form of an ester-salt reaction product of an acylating agent containing a substituted hydrocarbyl-based substituent containing about 12 to about 500 carbon atoms and an alkanol tertiary monoamine.

5,062,976

PROCESS FOR PREPARING AN EXTREME PRESSURE LUBRICATING OIL ADDITIVE

Costandi A. Audeh, Princeton, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Jun. 28, 1990, Ser. No. 545,003
Int. Cl.[5] C10M *143/06*
U.S. Cl. 252—45 20 Claims

1. A process for making an extreme pressure lubricant additive comprising the steps of:
(a) reacting sulfur monochloride with from about 1 to 2 moles of isobutylene per mole of sulfur monochloride at a temperature of from about 20° C. to about 80° C.;
(b) reacting the product produced in step (a) with an alkali metal monosulfide and free sulfur in a ratio of moles of alkali metal monosulfide to gram-atoms of free sulfur from about 1.8 to about 2.2:1;
(c) reacting the product produced in step (b) with an aqueous solution containing from about 5 to about 20 percent of an alkali metal hydroxide for a time sufficient to reduce the chlorine content below about 0.5 percent; and
(d) reacting the sulfurized isobutylene produced in step (c) with a mild oxidizing agent in a mole ratio of oxidizing agent to sulfurized isobutylene of between about 0.5 and about 2.5 moles of equivalent oxygen to 1 mole of sulfurized isobutylene at a reaction temperature between about 20° C. and about 95° C. under conditions sufficient to effect the appearance of new infrared frequency bands at 1300 cm^{-1} and 1030 cm^{-1} indicative of the formation of sulfoxides and sulfones and recovering a liquid oxidized sulfurized isobutylene product which is soluble in a lubricating composition.

5,062,977

SULPHUR-CONTAINING ADDITIVES TO LUBRICANTS WITH ANTIWEAR AND EXTREME-PRESSURE EFFECT AND THE PROCESSES FOR THEIR PREPARATION AND COMPOSITIONS CONTAINING THE SAID ADDITIVES

Laurent Germanaud, Valencin Le Fayet; Patrick Azorin, La Plaine - Mornant, and Lhopital Michel, Francheville, all of France, assignors to Elf France, Courbevole, France

Filed May 14, 1990, Ser. No. 523,063
Int. Cl.[5] C10M *105/72*
U.S. Cl. 252—48.2 19 Claims

1. Sulphur-containing additives to lubricants, with anti-wear and extreme-pressure effect, comprises of asymmetric polysulphides containing a polysulphide group $R\text{-}S_x$, where R denotes a C_1–C_{18} aliphatic radical and x varies between 2 and 10 in a vicinal position of a secondary or tertiary alcohol.

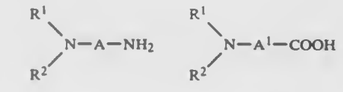
5,062,978

AQUEOUS LUBRICANT SOLUTIONS BASED ON FATTY ALKYL AMINES

Frank Weber, Duisburg, and Wolfgang Preibsch, Merzenich, both of Fed. Rep. of Germany, assignors to Unilever Patent Holdings BV, Rotterdam, Netherlands

Filed Nov. 29, 1989, Ser. No. 443,430
Claims priority, application European Pat. Off., Dec. 5, 1988, 88202781.6
Int. Cl.[5] C10M *173/02*
U.S. Cl. 252—49.3 13 Claims

1. An aqueous lubricant solution comprising consisting essentially of a lubricating amount of
(a) a fatty alkyl amine in an aqueous base, the fatty alkyl amine comprising at least one compound of the formula (I) or (II):



(I) (II)

wherein
R^1 is a saturated or unsaturated, branched or linear alkyl group having 8–22 carbon atoms,
R^2 is hydrogen, an alkyl group or hydroxyalkyl group having 1–4 carbon atoms, or —A—NH_2,
A is a linear or branched alkylene group having 1–8 carbon atoms, and
A^1 is a linear or branched alkylene group having 2–4 carbon atoms; and
the lubricant solution has a pH of from about 5 to about 8.

5,062,979

SOAP FREE CONVEYOR LUBRICANT THAT GIVES CLEAR SOLUTIONS IN WATER COMPRISING ALKOXYPHOSPHATE ESTER, ALKYL BENZENE SULFONATE AND CARBOXYLIC ACID

Rolf Scharf, Monheim, and Karl-Heinz Schmitz, Duesseldorf, both of Fed. Rep. of Germany, assignors to Ecolab Inc., St. Paul, Minn.

Filed Sep. 13, 1989, Ser. No. 406,984
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1988, 3831448
Int. Cl.[5] C10M *173/02*
U.S. Cl. 252—49.3 14 Claims

1. An aqueous, optically clear, substantially soap free lubricant composition having a pH value in the range from about 6 to about 8, capable of being diluted with optically clear hard water to form an optically clear solution therein, and comprising water and:
(a) from about 0.02 to about 15% by weight based on the total composition of alkyl benzene sulfonate molecules containing 10 to 18 carbon atoms in the alkyl part and having cations that are selected from the group consisting of alkali metal ions, ammonium ions and alkanolammonium ions containing 1 to about 14 carbon atoms in the alkanolamine part;
(b) from about 0.02 to about 15% by weight based on the total composition of partially esterified phosphonic acid or phosphate molecules corresponding to general formula (I)

$$R^1\text{—O—}(\text{—}CH_2\text{—}\underset{R^2}{CH}\text{—O})_n\text{—}PO_3X_2 \qquad (I)$$

in which R^1 is selected from the group consisting of aliphatic monovalent hydrocarbon radicals containing about 12 to about 18 carbon atoms, R^2 is H or CH_3, X is hydrogen or an alkali metal, and n is an integer in the range of about 8 to about 12; and
(c) from about 0.01 to about 10% by weight of the total composition of molecules selected from the group consisting of aliphatic carboxylic acids containing about 6 to about 22 carbon atoms and having a titer of not more than 20° C.; and, optionally,
(d) conventional solubilizers, solvents, foam inhibitors, disinfectants, or mixtures thereof, component (a) and component (b) being present in a ratio by weight of about 3:1 to about 1:3 and component (c) being present in a ratio by weight to the sum of components (a) and (b) of from about 1:20 to about 1:4.

5,062,980

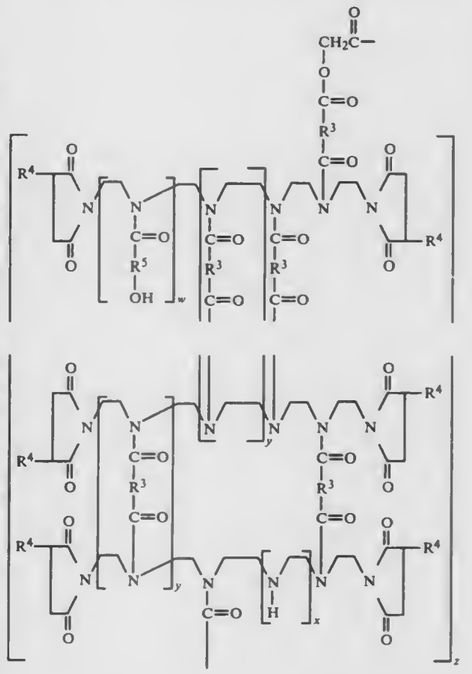
POLYMERIC STEP LADDER POLYSUCCINIMIDE COMPOSITIONS SUITABLE FOR LUBRICATING OIL DISPERSANTS AND FUEL ADDITIVES

Cyril A. Migdal, Croton-On-Hudson, and Robert H. Jenkins, Jr., Walden, both of N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Oct. 30, 1989, Ser. No. 428,545
Int. Cl.[5] C10M *133/16, 133/58, 149/18*
U.S. Cl. 252—51.5 A 16 Claims

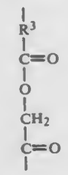
1. A polymeric step ladder polysuccinimide compound consisting essentially of at least three polyalkyleneamine chains, each of said chains being terminated at each end by a polyalkenyl succinimide, wherein each of said polyalkyleneamine chains is crosslinked to at least one other such chain by dicarboxylic acids which form amides by reaction with the secondary amines of said polyalkyleneamine chains.

6. A polymeric step ladder polysuccinimide compound having the formula:



VOL 1132 ISS 1 NO 5 1991 UMI

-continued



wherein R^3 is a hydrocarbyl group having from 2 to about 48 carbon atoms, R^4 is a polyalkenyl group, R^5 is an alkyl group having from 1 to about 4 carbon atoms, x ranges from 0 to about 9, y ranges from 0 to about 4, z ranges from 3 to about 1000 and w ranges from 0 to about 4, wherein each polyamine chain contains from 4 to about 14 nitrogen atoms.

5,062,981

MAGNET AND METHOD FOR MANUFACTURING THE SAME

Takuji Nomura; Shogo Miki; Takashi Sakauchi; Yoshitaka Sato, and Yuusuke Honma, all of Ohtsu, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jun. 21, 1990, Ser. No. 541,672

Claims priority, application Japan, Jun. 27, 1989, 1-164352; Feb. 2, 1990, 2-24695

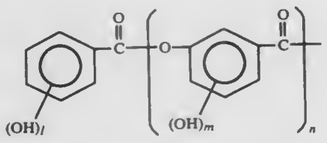
Int. Cl.[5] H01F *1/053;* C09K *15/02*

U.S. Cl. 252—62.54 8 Claims

1. A magnet comprising a magnetic powder expressed by R-T-B, wherein R is Nd or that partially replaced with rare earth elements and T is Fe or that partially replaced with transition metals, and a chelate resin or a chelate resin in admixture with other synthetic resins.

2. A magnet as claimed in claim 1, wherein the chelate resin contains groups expressed by formula (I):

(I)



wherein l=integers of 1–5, m=integers of 1–4, and n=integers of 1 or more.

5,062,982

MAGNETIC POWDER FOR MAGNETIC RECORDING MEDIA

Haruhisa Yamamoto, Yokohama; Hidenobn Urata, Kamakura; Tatsuo Kinebuchi, Tokyo, and Hidenori Sawabe, Yokohama, all of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Apr. 5, 1990, Ser. No. 505,073

Claims priority, application Japan, Apr. 7, 1989, 1-86962

Int. Cl.[5] C04B *35/26*

U.S. Cl. 252—62.57 5 Claims

1. A hexagonal ferrite magnetic powder for magnetic recording media, which has an average particle diameter of at most 0.1 μm, a plate ratio of maximum diameter to maximum thickness of at most 8 and a temperature dependence of coercive force of at most 1.5 Oe/°C. in the temperature range of 20°–100° C. and is represented by the following general composition formula:

$$(Fe)_a(Zr)_b(Si)_c(M^1)_d(M^2)_e(M^3)_f(O)_g$$

wherein M^1 means at least one metal element selected from Ba, Sr, Ca and Pb, M^2 denotes at least one metal element selected from Mo and W, M^3 stands for at least one metal element selected from Mg, Ti, Mn, Ni, Cu, Zn, Sb, La, Al, In, Ce, Nd and Sm, a, b, c, d, e, f and g respectively represent the numbers of Fe, Zr, Si, M^1, M^2, M^3 and O atoms, a is a number of 8.0 to 12.0, b is a number of 0.01 to 6.0, c is a number of 0.05 to 6.0, d is a number of 0.3 to 6.0, e is a number of 0.01 to 6.0, and f is a number of 0.0 to 6.0, and g is the number of oxygen atoms satisfying the atomic valence of the other elements.

5,062,983

MAGNETIC POWDER FOR MAGNETIC RECORDING MEDIA

Haruhisa Yamamoto, Yokohama; Hidenobu Urata, Kamakura; Tatsuo Kinebuchi, Tokyo, and Hidenori Sawabe, Yokohama, all of Japan, assignors to Nippon Zeon Co., Ltd., Japan

Filed Apr. 30, 1990, Ser. No. 516,593

Claims priority, application Japan, May 11, 1989, 1-116069

Int. Cl.[5] C04B *35/26*

U.S. Cl. 252—62.57 5 Claims

1. A hexagonal ferrite magnetic powder for magnetic recording media, which has an average particle diameter of at most 0.08 μm, a plate ratio of maximum diameter to maximum thickness of at most 8, a saturation magnetization of at least 55 emu/g and is represented by the following general composition formula:

$$(Fe)_a(Sn)_b(Si)_c(M^1)_d(M^2)_e(M^3)_f(O)_g$$

wherein M^1 means at least one metal element selected from Ba, Sr, Ca and Pb, M^2 denotes at least one metal element selected from Cr, Y, Ce, Nd, Sm, Al, La and Cd, M^3 stands for at least one metal element selected from Mg, Ti, Mn, Ni, Cu, Zn, Sb, In, Mo and W, a, b, c, d, e, f and g respectively represent the numbers of Fe, Sn, Si, M^1, M^2, M^3 and O atoms, a is a number of 8.0 to 12.0, b is a number of 0.01 to 6.0, c is a number of 0.05 to 6.0, d is a number of 0.3 to 6.0, e is a number of 0.01 to 6.0, and f is a number of 0.0 to 6.0, and g is the number of oxygen atoms satisfying the atomic valences of the other elements.

5,062,984

POLYMER MIXTURE WHICH COMPRISES AN AROMATIC POLYCARBONATE AND A POLYALKYLENE TEREPHTHALATE, AND ARTICLES FORMED THEREFROM

Wilhemus M. M. Roovers, Steenbergen, Netherlands, and Jan de Boer, Verderel les Sauqueuse, France, assignors to General Electric Company, Pittsfield, Mass.

Filed Dec. 22, 1989, Ser. No. 455,124

Claims priority, application Netherlands, Dec. 27, 1988, 8803173

Int. Cl.[5] C08L *69/00, 67/02*

U.S. Cl. 525—67 17 Claims

1. A polymer mixture which comprises A. an aromatic polycarbonate and B. a polyalkylene terephthalate, characterised in that the polymer mixture comprises C. cross-linked polymer comprising units derived from styrene or from a styrene compound substituted in the ring, from one or more C_4–C_8 alkyl-(meth)acrylates and from a cross-linking agent, the cross-linked polymer particles having an average particle size from 1 to 30 microns.

5,062,985

REFRIGERANT COMPOSITION CONTAINING DICHLOROMONOFLUOROMETHANE

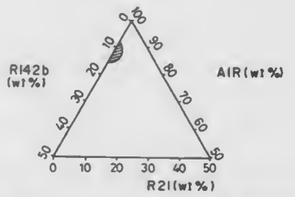
Kazuo Takemasa, Ota, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Jun. 15, 1990, Ser. No. 538,617

Claims priority, application Japan, Jun. 16, 1989, 1-155115; Oct. 4, 1989, 1-259060; Nov. 14, 1989, 1-295939; Nov. 14, 1989, 1-295945

Int. Cl.[5] C09K *5/04*

U.S. Cl. 252—67 7 Claims



1. A refrigerant composition consisting essentially of from 50 to 0.1 wt % of dichloromonofluoromethane and respectively from 50 to 99.9 wt % of at least one fluoroalkyl compound selected from the group consisting of trifluoromethane, pentafluoroethane, monochlorodifluoromethane and 1-chloro-1,1-difluoroethane.

5,062,986

FILM-SHAPE SOAP

Takeshi Fujita; Chuzo Isoda, both of Uji, and Kazuyo Aketa, Kyoto, all of Japan, assignors to Dai-Ichi Kogyo Seiyaku Co., Ltd., Kyoto, Japan

Filed Apr. 6, 1990, Ser. No. 505,471

Claims priority, application Japan, Apr. 20, 1989, 1-101163

Int. Cl.[5] C11D *17/06, 7/04*

U.S. Cl. 252—134 5 Claims

1. A film-shape soap which comprises (a) a water soluble polymer and (b) a soap; said water soluble polymer is a polyester of polyether polyol having an weight average molecular weight of more than about 1,000 and a polycarboxylic acid, and has a weight average molecular weight of not less than about 20,000.

5,062,987

COOLING SYSTEM CLEANING SOLUTIONS

David E. Turcotte, and Daniel E. Coker, both of Woodhaven, Mich., assignors to BASF Corporation, Parsippany, N.J.

Filed Oct. 9, 1990, Ser. No. 594,907

Int. Cl.[5] C11D *3/00, 3/60*

U.S. Cl. 252—156 17 Claims

1. An alkaline, storage stable cooling system cleaning concentrate composition having a pH of from 9 to 11, comprising in weight percent based on the total weight of the concentrate,

a. from 1 to about 30 percent of an EDTA salt selected from the group consisting of the alkali metal and ammonium salts of EDTA;

b. from 1 to about 50 percent of sorbitol;

c. from 0.5 to about 8 percent of a soluble nitrate salt;

d. from 1 to about 15 percent of a silicon containing aluminum corrosion inhibitor selected from the group consisting of alkali metal silicates, siliconates and silicone-silicate mixtures;

e. an amount of a glycol which is effective to render the composition storage stable; and

f. from 0.5 to about 8 percent of a mineral acid.

5,062,988

CLEANING COMPOSITION OF DIBASIC ESTER, HYDROCARBON SOLVENT AND COMPATIBILIZING COMPONENT

Kenneth T. Dishart, and Mark C. Wolff, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Aug. 7, 1989, Ser. No. 392,997

Int. Cl.[5] C11D *9/30, 15/04, 17/00, 7/50*

U.S. Cl. 252—170 12 Claims

1. A cleaning composition designed for cleaning a printed circuit board consisting essentially of (1) a dibasic ester, (b) an aliphatic hydrocarbon solvent wherein the term hydrocarbon solvent excludes a terpene, and (c) a compatibilizing component which increases the solubility of the dibasic ester hydrocarbon solvent combination wherein a ratio of dibasic ester to hydrocarbon solvent is in a range from 5:95 to 25:75 by weight.

5,062,989

DETERGENT COMPOSITION

Jun Kamegai, Ichikawa, and Masatoshi Arisawa, Matsudo, both of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Jan. 10, 1989, Ser. No. 295,389

Claims priority, application Japan, Jan. 12, 1988, 63-4420

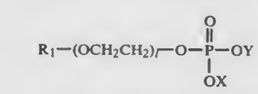
Int. Cl.[5] C11D *7/00, 3/04*

U.S. Cl. 252—174.17 6 Claims

1. A shampoo, skin cleanser or fine fabric detergent composition consisting essentially of:

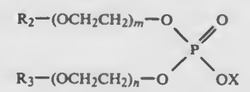
(A) 5–50 wt. % of a phosphate-type surface active agent represented by the following formula (I):

(I)



wherein R_1 represents a linear or branched alkyl group of a C_{8-18} carbon atom content, a linear or branched alkenyl group of a C_{8-18} carbon atom content, or an alkyl phenyl group of a C_{8-18} carbon atom content, with the alkyl group being either linear or branched, X and Y independently represent a hydrogen atom, an alkali metal, an ammonium, or an alkanol amine having a hydroxyl alkyl group of a C_{2-3} carbon atom content, and l denotes a value of 0 to 10, or a phosphate-type surface active agent represented by the following formula (II):

(II)



R_2 and R_3 independently represent a linear or branched alkyl group of a C_{8-18} carbon atom content, a linear or branched alkenyl group of a C_{8-18} carbon atom content, or an alkyl phenyl group of a C_{8-18} carbon atoms content, with the alkyl group being either linear or branched, X has the same meaning a defined in formula (I), and m and n independently denote a value of 0 to 10, or a mixture thereof, and

(B) 0.1–40 wt. % of an alkyl saccharide-type surface active agent represented by the following formula (III):

$$R_4\text{-}O\text{-}(R_5O)\text{-}(G)_p \qquad \text{(III)}$$

wherein R_4 represents a linear or branched alkyl group of a C_{8-18} carbon atom content, a linear or branched alkenyl group of a C_{8-18} carbon atom content, or an alkyl phenyl group of a C_{8-18} carbon atom content, with the alkyl group being either linear or branched, R_5 represents an alkylene group of a C_{2-4} carbon atom content, G repre-

VOL 1132 ISS 1 NO 5 1991 UMI

sents a reduced sugar of a C_{5-6} carbon atom content, and p denotes a value of 1 to 10, said (A) and (B) constituting at least about 80 wt. % of the surfactants present in said detergent composition.

5,062,990

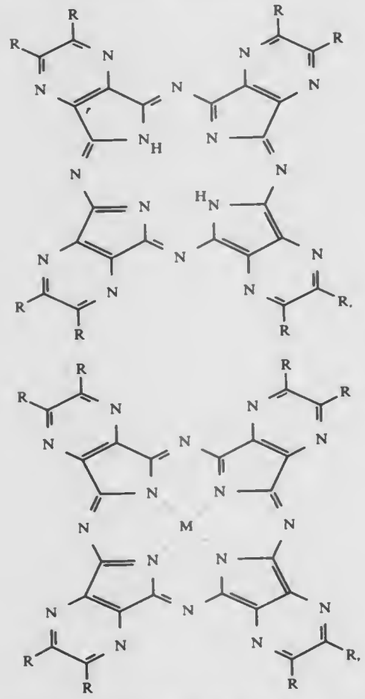
DISCOTIC OCTASUBSTITUTED TETRAPYRAZINOTETRAAZAPORPHYRAZINES

Iwawo Yamamoto, No 16-25, 2-chome, Fumiiri, Ueta City, Nagano Pref., and Kazuchika Ohta, Ueta, both of Japan, assignors to Eastern Co., Ltd., Chino and Iwawo Yamamoto, Ueda, both of, Japan, a part interest

Filed Dec. 27, 1989, Ser. No. 457,397
Claims priority, application Japan, Feb. 17, 1989, 1-36018
Int. Cl.[5] C09K *19/34, 19/58;* C07D *487/22*
U.S. Cl. 252—299.61 14 Claims

1. A discotic liquid crystal phase having electron-accepting character and comprising a tetrapyrazinotetraazaporphyrazine compound of the following formulas (1a) or (1b):

(1a)



(1b)

wherein R is selected from at least one of C_6H_{13}, C_7H_{15}, C_8H_{17}, C_9H_{19},$C_{10}H_{21}$,$C_{11}H_{23}$ and $C_{12}H_{25}$ and M is Cu, Zn, Pb, Fe, Co or Ni.

5,062,991

IN SITU USE OF GELATIN IN THE PREPARATION OF UNIFORM FERRITE PARTICLES

Olavi Siiman, Davie, Fla., and Alexander Burshteyn, Miami Lakes, both of Fla., assignors to Coulter Corporation, Hialeah, Fla.

Filed Jun. 4, 1990, Ser. No. 532,434
Int. Cl.[5] B01J *13/02;* C09D *5/23*
U.S. Cl. 252—315.2 13 Claims



1. A method of making colloidal ferrite particles of uniform size and shape comprising:

A. mixing a first solution of potassium nitrate and potassium hydroxide or sodium nitrate and sodium hydroxide, respectively, which has been nitrogen gas purged and a

B. second solution of a ferrous salt, divalent metal salt and a gelatin solution which second solution has been nitrogen purged;

C. sweeping the gelatinous metal hydroxide mixture of the two solutions with nitrogen gas and ripening same to form a ferrite hydrosol at a predetermined low temperature for a selected period of time;

D. washing the hydrosol with said gelatin solution by magnetic separation and redispersion,

whereby to form separate single metal ferrite particles coated with gelatin.

5,062,992

EMULSION MINIMIZING CORROSION INHIBITOR FOR NAPHTHA/WATER SYSTEMS

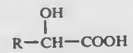
T. Miles McCullough, Houston, Tex., assignor to Betz Laboratories, Inc., Trevose, Pa.

Continuation of Ser. No. 248,465, Sep. 23, 1988, abandoned. This application May 9, 1990, Ser. No. 521,286
Int. Cl.[5] C23F *11/10*
U.S. Cl. 252—394 11 Claims

1. A corrosion inhibiting formulation comprising:

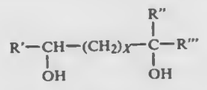
(a) an imidazoline dissolved in a hydrocarbon solvent;

(b) an effective amount of a 2-hydroxyalkylcarboxylic acid having the formula



where R is H or an alkyl group of from 1 to 6 carbon atoms; and

(c) an effective amount of a glycol having the formula



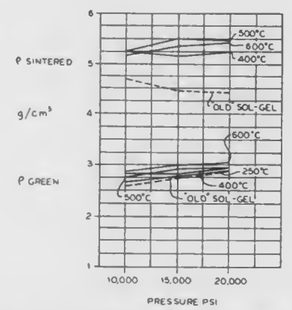
where R', R" and R"' are independently, hydrogen or an alkyl group of from 1 to 4 carbon atoms, X is an integer from 0 to 4 and wherein when X=O, R'R", and R"' are not all hydrogen, with said glycol having at least 4 carbon atoms, wherein said formulation is resistant to sludge formation and said formulation has an effect on oil/water emulsion stability less than imidazoline alone when added to an oil/water solution.

5,062,993

PROCESS FOR FABRICATING DOPED ZINC OXIDE MICROSPHERE GEL

Wesley D. Arnold, Jr., Oak Ridge; Walter D. Bond, Knoxville, and Robert J. Lauf, Oak Ridge, all of Tenn., assignors to Cooper Power Systems, Inc., Coraopolis, Pa.

Filed Aug. 29, 1990, Ser. No. 575,178
Int. Cl.[5] H01C *10/16;* H01B *1/08*
U.S. Cl. 257—518 21 Claims



1. A process for producing a hydrous doped zinc oxide microsphere gel comprising the steps of:

mixing at least two zinc oxide dopants with water;

blending with said mixture a hydrous zinc oxide precipitate which has been washed to the point of peptization and dried at a temperature between 100° C. and 135° C.;

adding an alcohol to said blended mixture and separating hydrous zinc oxide gel microspheres from said alcohol mixture.

5,062,994

WATER-FREE SKIN CLEANING COMPOSITION IN THE FORM OF A TABLET

Diana Imperatori, Via Melloni, 8, 20129 Milano, Italy

Filed Nov. 15, 1989, Ser. No. 437,363
Claims priority, application Italy, Nov. 22, 1988, 22694 A/88
Int. Cl.[5] C11D *1/88, 17/00*
U.S. Cl. 252—545 1 Claim

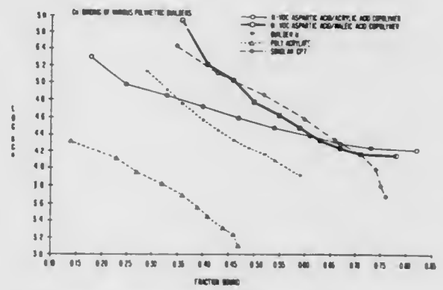
1. A moisture free skin-cleaning composition in tablet form comprising a skin cleaning powder and at least one absorbing powder miscible with said skin cleaning powder, said skin cleaning powder being included in said composition in an amount from 1 to 20% by weight and selected from the group consisting of alkyl sulfates, alkylether sulfates, non-ionic soaps of alkylamide or polyoxyethylene, amphoteric compounds selected from the group consisting of alkylammonium pyridine, isoquinoline halides, sulfates and phosphates; said absorbing powder being included in said composition in an amount from 1 to 20% by weight and being selected from the group consisting of cellulose, modified starches, kaolin, bentonite, talc, silicates, silica, magnesium carbonates, magnesium hydroxide, attapulgite, montmorrillonite and mixtures thereof; said composition further comprising a lubricating material in an amount from 0.5 to 10% by weight and being selected from the group consisting of talc, magnesium stearate, stearic acid, glycol stearate, skimmed milk powder, silicones and benzoates; said composition further comprising a disaggregating substance in an amount from 1 to 10% by weight so as not to form gels with water, said disaggregating substance being selected from the group consisting of alginates, carrageen, cellulose derivatives, gelatins, pectins and effervescent mixtures.

5,062,995

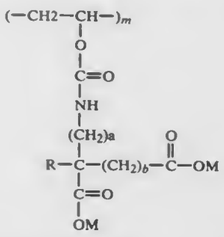
POLYMERIC CARBAMATE DETERGENT BUILDERS

Shang-Ren Wu, Mahwah, and Albert Garofalo, Whippany, both of N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Feb. 6, 1990, Ser. No. 475,660
Int. Cl.[5] C02F *5/12;* C11D *7/32, 3/33*
U.S. Cl. 252—546 49 Claims



1. Polymeric compounds of the Formula:



wherein a and b are independently 0, 1, or 2 or even greater; m is at least one; R is hydrogen, methyl, ethyl, or long chain alkyl, alkenyl or aryl and M is C_{1-4} alkyl, hydrogen, or a cation which forms a substantially water soluble salt with said polymeric compound at ambient temperatures.

5,062,996

METHODS AND COMPOSITIONS FOR SORBING FLAMMABLE LIQUIDS

Joseph B. Kaylor, Jonesboro, Ga., assignor to Jannette G. Kaylor, Manassas, Va.

Continuation-in-part of Ser. No. 511,729, Apr. 20, 1990. This application Jun. 6, 1990, Ser. No. 533,786
Int. Cl.[5] C09K *21/00*
U.S. Cl. 252—610 18 Claims

1. A composition for absorbing a flammable liquid comprising a mixture of absorbent solids, dry chemical fire extinguishing agents and a polymer; said polymer being soluble in said flammable liquid and being of sufficiently high molecular weight to gel said liquid and to impart viscoelasticity to it; the ratio of polymer to absorbent solids being set such that when said absorbent solids are loaded to capacity with said flammable liquid, particles of said absorbent solid are bonded together with sufficient strength to allow convenient mechanical removal of said composition from a surface; and the ratio of dry chemical fire extinguishing agents to said absorbent solids and polymer being set such that the flammability of said composition after absorbing said liquid is reduced to a selected level.

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,997

PROCESS FOR THE CHLORINATION AND SULFOCHLORINATION OF ORGANIC COMPOUNDS

Franz-Josef Carduck, Haan; Willi Wuest, Ratingen-Hoesel; Hubert Harth, Duesseldorf, and Harald Liebs, Leverkusen, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany

Continuation of Ser. No. 729,313, May 1, 1985, abandoned. This application Dec. 16, 1986, Ser. No. 941,590

Claims priority, application Fed. Rep. of Germany, May 5, 1984, 3416668

Int. Cl.[5] C07C *303/10*

U.S. Cl. 260—400 34 Claims

1. In a process for the chlorination and sulfochlorination of starting materials which are fatty acids and/or their esters containing olefinically unsaturated fractions and which are liquid under reaction conditions, by reaction with chlorine and SO_2, in which the liquid starting material is circulated through a reaction zone where it is reacted with chlorine and SO_2 which have been introduced into the circuit, the improvement wherein the chlorine and SO_2 are introduced in parallel current with the liquid starting material and, together with the liquid starting material, are passed through an intensive mixing step during or before entry into the reaction zone, the quantity of chlorine and SO_2 introduced being such that the reaction mixture passes through the reaction zone as a substantially homogeneous liquid phase, wherein the process is conducted in two reaction loops, the first loop effecting chlorination of the olefinic double bonds and the second loop effecting the subsequent sulfochlorination, both of said reaction loops having an intensive mixing step during or before entry into their respective reaction zones.

5,062,998

PREPARATION OF METALLATED AND SUBSTITUTED ALKYNES

Frederick L. Herman, Allentown; Ann C. L. Savoca, Sinking Spring, and Mark L. Listemann, Whitehall, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Apr. 23, 1990, Ser. No. 513,133

Int. Cl.[5] C07F *1/02, 1/04, 1/06, 1/00*

U.S. Cl. 260—665 R 8 Claims

1. A process for making metallated 1-alkynes which comprises contacting in an inert solvent under conditions for allene isomerization an allenic hydrocarbon of 3 to B carbon atoms with an alkali metal in the presence of an allene isomerization catalyst, thereby forming a metallated 1-alkyne.

5,062,999

VAPORIZER FOR AN ANESTHETIC MEDIUM

Carl F. Wallroth, Lübeck; Wolfgang Falb, Krummesse, and Helmut Mohr, Stockelsdorf, all of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck, Fed. Rep. of Germany

Filed Apr. 12, 1990, Ser. No. 507,953

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1989, 3912818

Int. Cl.[5] B01F *3/04*; A61M *11/04*

U.S. Cl. 261—39.1 7 Claims

1. A vaporizer for adding an anesthetic medium to a gas comprising:

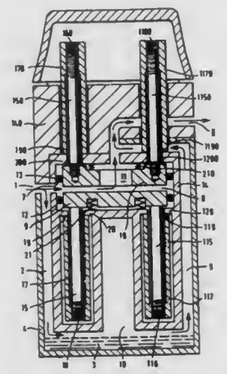
a housing defining a reservoir for holding the anesthetic medium;

said housing having inlet means for receiving the gas and outlet means for conducting the gas out of the vaporizer;

passage means extending from said inlet for passing a first component of the gas over said anesthetic medium so as to cause said first component to entrain vapors of the anesthetic medium therein;

first and second members mounted in said housing to conjointly define throttling gap means for throttling a second component of the gas entering said inlet means and passing the throttled second component to said outlet means to mix with said first component;

first temperature-responsive compensation means connected to one of said members for displacing said one member in dependence upon ambient temperature so as to adjust the width of said gap means thereby increasing or decreasing the quantity of the gas of said second component;



second temperature-responsive means connected to the other one of said members for displacing said other one of said members in dependence upon ambient temperature to coact with said first temperature-responsive means for adjusting the width of said gap means; and,

an enclosure made of corrosion-resistant material disposed in said housing so as to enclose said compensation means in a gastight manner with respect to said passage means.

5,063,000

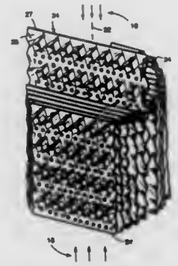
PACKING ELEMENTS

Thomas W. Mix, 28 Atwood St., Wellesley, Mass. 02181

Filed May 3, 1989, Ser. No. 346,983

Int. Cl.[5] B01F *3/04*

U.S. Cl. 261—94 28 Claims



1. A device for enhancing contact between a fluid having a predominant direction of flow and a second fluid, comprising

a layer of material including a flat portion lying in a plane generally aligned with said direction of flow,

said layer having a series of fluid deflection surfaces each of which comprises a corrugation that projects from said flat portion out of said plane, adjacent corrugations in said series projecting in opposite directions from said plane of said flat portion, said series being positioned generally along a line lying in said plane and at an angle to said direction of flow, adjacent corrugations in said series being oriented at different oblique angles to said direction of flow.

5,063,001

METHOD OF COMPACTING RADIOACTIVE METAL WASTES

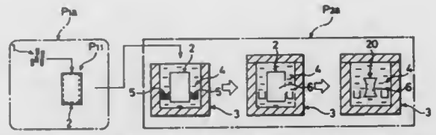
Hidehiko Miyao, Katsuta; Satoshi Ikeda, Mito; Masao Shiotsuki, Mito; Shigeyoshi Kawamura, Mito; Fumiaki Komatsu, Kobe; Ikuji Takagi, Ibaraki, and Tadamiti Saksi, Kobe, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe and Doryokuro Kakunenryo Kaihatsu Jigyodan, Tokyo, both of, Japan

Filed Aug. 20, 1990, Ser. No. 569,964

Claims priority, application Japan, Sep. 28, 1989, 1-253857

Int. Cl.[5] G21C *21/00*

U.S. Cl. 264—0.5 7 Claims



1. A method of compacting radioactive metal wastes, comprising the steps of:

enclosing the radioactive metal waste in vacuo in a capsule,

placing the capsule into a pressure container,

subjecting the capsule to an increased pressure at high temperature to compact the waste, and

increasing water vapor content of the atmosphere in the pressure container at a time no later than said step of subjecting the capsule to an increased pressure.

5,063,002

METHOD FOR PRODUCING AN ELASTOMERIC CRUMB USING GAS TO FIRST CUT AN EXTRUDED HOT, STICKY ELASTOMERIC EXTRUDATE MATERIAL, FORM THE CRUMB, AND THEN CONVEY IT AWAY

Norman E. Luker, Baton Rouge, La., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 225,059, Aug. 9, 1988, Pat. No. 4,954,352. This application Feb. 14, 1990, Ser. No. 479,837

Int. Cl.[5] B29C *9/02*

U.S. Cl. 264—12 3 Claims

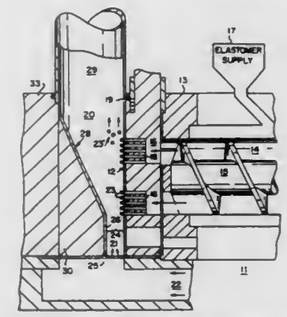
1. A method for producing crumb particles of an elastomer comprising:

extruding a hot, sticky elastomeric mass through orifices in a multi-orifice die plate into a chamber of variable cross-section, which forms a zone of reduced cross-section and a contiguous zone of increased cross-section,

supplying a stream of gas int o the zone of reduced cross-section sufficient to form a high velocity gas stream of 150 to 600 feet per second,

directing the flowing high velocity gas stream emitted from the zone of reduced cross-section substantially tangentially across the face of the die plate thereby severing the hot, sticky elastomeric material emerging form the orifices to form the crumb particles, while

said gas stream is conveying said crumb particles away from said die plate into said zone of increased cross-section where the velocity of the gas stream decreases to a level which results in temporary accumulation of a portion of said severed crumb particles in the vicinity of said die plate but away from said zone of reduced cross-sectional area but ultimately resulting in conveying said severed



crumb particles through said zone of increased cross-section and out of said chamber.

5,063,003

METHOD FOR MANUFACTURING AMORPHOUS SILICA OBJECTS

Carlos Gonzalez-Oliver, Backnang-Waldrems, Fed. Rep. of Germany, assignor to Battelle Memorial Institute, Geneva, Switzerland

Filed Nov. 15, 1989, Ser. No. 436,890

Claims priority, application European Pat. Off., Nov. 15, 1988, 88810782.8

Int. Cl.[5] B29B *9/00*; C01B *33/12*

U.S. Cl. 264—14 20 Claims

1. A method for manufacturing moulded bodies of amorphous silica under non-melt-collapsing conditions, this method comprising the steps of:

a) subjecting one or more alkoxysilanes to prehydrolysis by means of water and catalysts whereby oligomeric siloxane precursors solutions are formed;

b) converting said oligomer precursor solution into a spray of fine droplets by atomizing with a nozzle under gas pressure and discharging this spray into a stirred aqueous medium in which the polymerization of said siloxane oligomers will continue due to further hydrolysis therein and self-condensation, whereby the droplets will turn into hardened, cured polysiloxane beads or grains in the form of a slurry in said aqueous medium;

c) separating said beads from at least most of said aqueous medium and forming them into a paste by blending with binder, plastifier and fluidizing solvent;

d) casting or moulding said paste under pressure into shaped green substrate forms, most of the fluidizing solvents being squeezed out by the pressure;

e) drying the forms and subjecting to heat to destory and to evaporate volatile or decomposable components still present therein;

f) sinter the heat-treated form at temperatures substantially below the melting of SiO_2, whereby densification to a non-porous silica structure occurs, thus substantially avoiding possible substrate deformation due to fusion during sintering.

VOL
1132
ISS
1
NO
5
1991
UMI

5,063,004

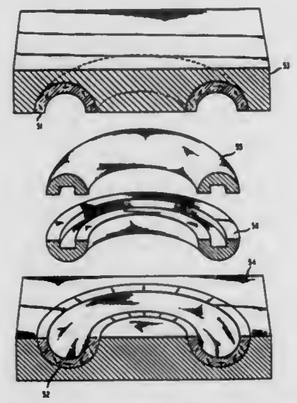
FABRICATION OF PERMANENT MAGNET TOROIDAL RINGS

Herbert A. Leupold, Eatontown, N.J., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Division of Ser. No. 302,706, Jan. 26, 1989, Pat. No. 4,911,627. This application Nov. 3, 1989, Ser. No. 431,278

Int. Cl.[5] **B29C** *35/02*

U.S. Cl. 264—22 **5 Claims**



1. A method for fabricating a permanent magnet toroidal ring comprising the steps of forming a hollow cylindrical permanent magnet flux source into a toroidal shape, splitting the toroidal flux source into two halves through its major equator, mounting two halves of a hollow toroid of magnetically neutral material into the two halves of the toroidal flux source, placing the two halves of the toroidal flux source in juxtaposition, depositing an unmagnetized suspension of magnetic material into the cavity of the toroid of neutral material, allowing time for the magnetic material to set and be magnetized, separating the halves of the toroidal flux source, and removing the permanent magnet toroidal ring from within the toroid of neutral material.

5,063,005

PREPARING HEAT SHRINKABLE WRAPS

Anthony J. Doheny, Jr., Natick, Mass., assignor to The Kendall Company, Mansfield, Mass.

Continuation-in-part of Ser. No. 170,177, Mar. 18, 1988, abandoned. This application Dec. 4, 1989, Ser. No. 445,505

Int. Cl.[5] **B29C** *35/10*

U.S. Cl. 264—22 **17 Claims**

1. A process for preparing a heat shrinkable film comprising steps of:

(1) depositing a mass of polyolefinic material at the nip of the first and second rolls of three-roll calender in which the second and third rolls rotate at approximately the same speed and the first roll rotates at a slower speed, said first roll being heated to a temperature above the melting point of said polyolefinic material, said second roll is heated to an elevated temperature below the melting point of said polyolefinic material, and said third roll is chilled relative thereto;

(2) extruding said mass of polyolefinic material between said first and second rolls to form a film adhering to the surface of said second roll;

(3) transporting said film from said second roll around said third roll;

(4) transporting said film from said third roll of said calender under tension, whereby to effect partial orientation of said film in the machine direction and to maintain substantially all the molecular orientation imparted to said film during said calendering steps;

(5) passing said film in the path of irradiation from a low energy electron beam while subjecting one surface of said film to said irradiation at voltage such that the radiation dose at the half-depth of said film is approximately one-half the dose at said irradiated surface and at a current to film surface speed ratio such that the surface dose would effect crosslinking sufficient to impart to said film a 100% modulus at 150° C. of from about 10 to about 100 pounds per square inch if the dose at any depth in the film were substantially equal to said surface dose;

(6) passing said film in the path of irradiation from a low energy electron beam while subjecting the opposed surface of said film to said irradiation at a voltage and at a current to speed ratio substantially equal to that in the irradiation of said one surface, such that the 100% at 150° C. of said film as a whole is from about 10 to about 100 pounds per square inch and said film is characterized as being substantially uniformly crosslinked throughout its thickness, thereby achieving a balance between moderate longitudinal shrink and very little width expansion; and

(7) molecularly orientating said film by stretching in the machine direction to provide a shrinkability of at least 25 percent upon heating said film in an absence of constraints;

(8) applying a layer of adhesive to said film, whereby to form a heat shrinkable adhesive tape.

5,063,006

METHODS FOR REPAIRING CRACKS IN CONCRETE STRUCTURES

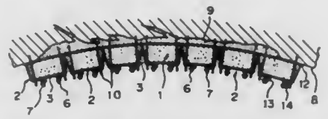
Tetsuo Tahara, Onojo, Japan, assignor to Shinnihon Jushikako Co., Ltd., Fukuoka, Japan

Continuation of Ser. No. 529,729, May 29, 1990, abandoned, which is a continuation of Ser. No. 216,377, Jul. 8, 1988, abandoned. This application Feb. 22, 1991, Ser. No. 658,459

Claims priority, application Japan, Jul. 13, 1987, 62-175723; Oct. 1, 1987, 62-249358; Oct. 1, 1987, 62-249359

Int. Cl.[5] **B29C** *31/04;* **B32B** *35/00;* **E02D** *37/00;* **E04G** *23/02*

U.S. Cl. 264—35 **7 Claims**



1. A method of repairing a continuous elongated crack in a concrete surface, comprising the steps of:

(a) overlying said crack along its entire length and width with a plurality of case members arranged in side-by-side relationship, each case member overlying less than said entire length of said crack and defining a chamber projecting outwardly of said surface and having a width greater than said width of said crack, each of said chambers having a predetermined open area and volume communicating with and covering said crack,

(b) securing each of said case members individually to said surface by anchor bolts such that a seal which resists strong pressure is effected between said surface and respective surface-opposing edges of each of said case members, thereafter

(c) introducing under pressure a urethane blowing agent through a valved inlet opening in each case member while a valved outlet opening in each respective case member is open, whereby said introduced blowing agent forces air and moisture outwardly through said valved outlet opening of each respective case member, thereafter

(d) closing said valved outlet openings when said air and moisture have been sufficiently discharged from said crack and when said chambers of said respective case members are filled with said urethane blowing agent,

(e) closing said valved inlet openings of said respective case members, and

(f) allowing said urethane blowing agent to expand within said filled chambers and said crack, to thereby penetrate into said crack under the force of said expansion.

5,063,007

PROCESS FOR MANUFACTURING A CERAMIC FOAM BODY

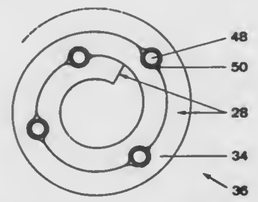
Jean-Pierre Gabathuler, Schleitheim; Karl-Ludwig Eckert; Peter Kiiser, both of Schaffhausen; Albert Maurer, Thayngen, and Anton Fischer, Schaffhausen, all of Switzerland, assignors to Alusuisse-Lonza Services Ltd., Zurich, Switzerland

Filed Jul. 18, 1990, Ser. No. 555,101

Claims priority, application Switzerland, Aug. 8, 1989, 2926/89

Int. Cl.[5] **B29H** *7/20*

U.S. Cl. 264—44 **6 Claims**



1. Process for manufacturing a Z-flow filter comprising an open pore foam body with a three-dimensional ceramic structure, which comprises:

(a) providing a soft open pore plastic foam strip;

(b) impregnating said foam strip at least once with a ceramic suspension;

(c) freeing said foam strip of excess ceramic suspension;

(d) assembling a spiral-shaped plastic foam block with a layered structure having flow channels from said impregnated foam strip by coiling said impregnated plastic foam strip to form layers and forming said flow channels by clamping thin-walled tubes of a combustible plastic in the layers alternatingly, the plastic foam strip having narrow longitudinal sides and each of said tubes having one end flush with one of said narrow longitudinal sides, the length of said tubes being about the depths of said flow channels;

(e) heating said spiral-shaped plastic foam block to a temperature below the melting point of the plastic; and

(f) burning off the plastic foam and plastic tubes at a temperature at which the ceramic sinters together to form a Z-flow filter with longitudinal channels therein which serve as flow channels.

5,063,008

METHOD FOR PRECISION VOLUMETRIC CONTROL OF A MOLDABLE MATERIAL IN AN INJECTION MOLDING PROCESS

James J. Wenskus, Jr., Rochester, and Alan B. Miller, Scottsville, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 21, 1990, Ser. No. 585,538

Int. Cl.[5] **B29C** *45/77, 45/80*

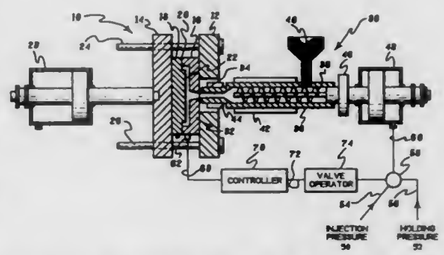
U.S. Cl. 264—40.5 **10 Claims**

1. An improved molding method for use with a molding apparatus having a pair of separable mold elements forming a mold cavity therebetween, means for opening and closing the mold elements and means for introducing a moldable material into the mold cavity at a first pressure and for exerting a second pressure on the moldable material as it cures in the cavity, said method comprising:

closing the mold elements:

introducing a moldable material into the mold cavity at the first pressure;

periodically measuring the separation distance between the mold elements while the moldable material is being introduced into the cavity;



integrating the separation distance as a function of time while the moldable, material is being introduced into the cavity to obtain an integral value;

detecting when the integral value reaches a preselected value;

changing the pressure from the first pressure to the second pressure when the integral value reaches the preselected value; and

opening the mold elements when the moldable material has cured.

5,063,009

PROCESS FOR PREPARATION OF HOLLOW FIBERS FOR FLUID SEPARATOR CONSTRUCTION

Shoji Mizutani, and Nobuo Taneda, both of Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

Continuation of Ser. No. 235,845, Aug. 24, 1988, abandoned, which is a division of Ser. No. 796,865, Nov. 12, 1985, Pat. No. 4,781,833. This application Jan. 26, 1990, Ser. No. 477,174

Claims priority, application Japan, Nov. 16, 1984, 59-240589; Nov. 16, 1984, 59-240590; Nov. 16, 1984, 59-240591; May 30, 1985, 60-115270; Jun. 19, 1985, 60-131990

Int. Cl.[5] **D01D** *5/247, 5/253*

U.S. Cl. 264—49 **7 Claims**

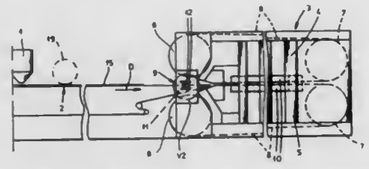


1. A process for preparing, by melt-spinning, a selective-permeable hollow fiber for blood dialysis having a urea clearance not less than 160 ml/min and having an outer diameter of about 100 to 500 μ, a hollow portion piercing in the longitudinal direction and 1 to 10 fins extended in the longitudinal direction on a periphery thereof the fins having a height H to width W ratio H/W of at least 0.4, wherein a spinning liquid containing at least one cellulose ester polymer having an average degree of polymerization of at least 150 and at least one additive for forming pores is extruded into a gas phase from a spinning nozzle for said hollow fiber having an annular double slit and 1 to 10 notches formed on an outer side of the double slit, the viscosity of the spinning liquid at said nozzle is 200 to 5,000 P, the distance between the spinning nozzle's end face and the point where the hollow fiber extruded from the spinning nozzle is solidified in the gas phase is less than about 40

VOL 1132 ISS 1 NO 5 1991 UMI

cm, and the solidified hollow fiber is treated so that it has selective-permeable properties.

5,063,010
MAKING PRESSED BOARD
Tilman Fischer, Meerbusch; Hans-Dietrich Sitzler, Nettetal, and Werner Ufermann, Schwalmtal, all of Fed. Rep. of Germany, assignors to G. Siempelkamp GmbH & Co., Krefeld, Fed. Rep. of Germany
Filed Apr. 20, 1990, Ser. No. 511,411
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1989, 3914106
Int. Cl.[5] B29C *43/22*
U.S. Cl. 264—109 12 Claims



1. A method of making a board, the method comprising the steps of sequentially:
forming a mixture of an aqueous binder and particles having a relatively low moisture content of between 5% and 10% by weight;
depositing the mixture as a mat on a movable substrate, the mat being substantially at ambient temperature and having the relatively low moisture content;
preheating the mat with steam at a temperature of between 100° C. and 140° C. to raise the mat's temperature and to increase its moisture content to a relatively high moisture contents of between 10% and 15% by weight; and
simultaneously heating and compressing the mat to form same into a board.

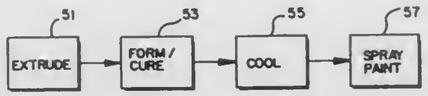
5,063,011
DOUBLY-COATED IRON PARTICLES
Howard Rutz, Newtown, Pa., and Francis G. Hanejko, Marlton, N.J., assignors to Hoeganaes Corporation, Riverton, N.J.
Filed Jun. 12, 1989, Ser. No. 365,186
Int. Cl.[5] H01F *1/06;* B29C *43/02, 45/00*
U.S. Cl. 264—126 23 Claims

1. A method of doubly coating iron particles comprising the steps of:
treating the iron particles with phosphoric acid to form a layer of hydrated iron phosphate at the surface of the iron particles;
heating the iron particles in an inert atmosphere at a temperature and for a time sufficient to convert the hydrated layer to an iron phosphate layer; and
coating said particles with a thermoplastic material that is a polyethersulfone or a polyetherimide to provide a coating of said thermoplastic material substantially uniformly circumferentially surrounding said iron phosphate layer, wherein sufficient thermoplastic material is used to provide a coating that constitutes from about 0.2% to about 15.0% by weight of the doubly-coated particles.

7. A mixture of doubly-coated iron particles for molding high frequency magnetic components wherein said coated iron particles comprise:
iron core particles having a weight average paticle size of about 20–200 microns;
a layer of iron phosphate at the surface of the iron core particles; and
a substantially uniform circumferential coating of a thermoplastic material that is a polyethersulfone or a polyetherimide surrounding the iron phosphate layer, said thermoplastic material constituting about 0.2% to about 15.0% by weight of said particles.

14. A method of making high frequency magnetic components comprising the steps of:
(a) providing a mixture of doubly-coated iron particles comprising:
(1) iron particles;
(2) a layer of iron phosphate at the surface of the iron particles; and
(3) a coating of a thermoplastic material that is a polyethersulfone or a polyetherimide surrounding the iron phosphate layer, said thermoplastic material constituting about 0.2% to about 15.0% by weight of said doubly-coated particles; and
(b) molding the mixture of doubly-coated iron particles into a magnetic component having a density that is at least about 96.5% of theoretical density.

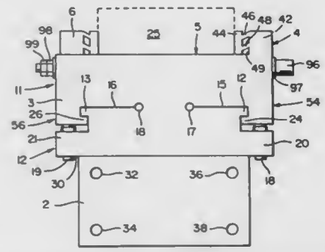
5,063,012
METHOD OF MANUFACTURING ELASTOMERIC ENGINE COMPONENTS
Robert M. Gibbon, Fort Worth, Tex., assignor to JMK International, Inc., Ft. Worth, Tex.
Filed Nov. 6, 1989, Ser. No. 432,081
Int. Cl.[5] B05D *1/02;* B29C *35/02*
U.S. Cl. 264—129 6 Claims



1. A method for reducing the degrading effect of radiant heat in excess of 500° F. upon an elastomeric component used in the engine compartment of a vehicle during the vehicle operation, the method comprising the steps of:
forming the elastomeric component into the desired shape;
at least partially curing the elastomeric component;
spray painting the exterior of the elastomeric component with a heat reflecting, heat resistant paint to form a reflective surface thereon, the reflective surface being effective to reduce the effects of radiant heat present in the surrounding environment to thereby improve the life expectancy of the component; and
wherein the heat reflecting, heat resistant paint is an aluminum containing silicone paint which is heat resistant in the temperature range from about 500°–650° F.

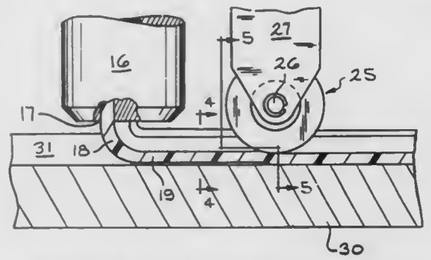
5,063,013
VISE
Börje K. H. Ramsbro, Djursholm, Sweden, assignor to System 3R USA, Inc., Pompton Plains, N.J.
Continuation of Ser. No. 252,038, Sep. 30, 1988, Pat. No. 4,925,168, which is a continuation of Ser. No. 839,947, Mar. 17, 1986, abandoned. This application May 9, 1990, Ser. No. 508,423
Claims priority, application Sweden, Mar. 18, 1985, 8501309
The portion of the term of this patent subsequent to May 15, 2007, has been disclaimed.
Int. Cl.[5] B23Q *3/02*
U.S. Cl. 269—136 12 Claims

1. A vise comprising
a base plate,
a first gripping jaw extending vertically from said base plate and being fixed in position with respect to said base plate,
a first clamping plate connected to said first gripping jaw,
a second gripping jaw rising above and being movably guided on said base plate,
a second clamping plate connected to said second gripping jaw, said second gripping jaw being rotatably connected to a spindle, said spindle being rotatably secured to said base plate, said spindle extending in a longitudinal channel formed in said base plate and being surrounded in the longitudinal channel by a guiding portion of the second gripping jaw, said guiding portion being connected to the second gripping jaw by a neck caught in a longitudinal slot of the base plate,
a flat reference face extending transversely to and between the first and second clamping plates and being formed on relatively thin side walls of the base plate that define the longitudinal channel,



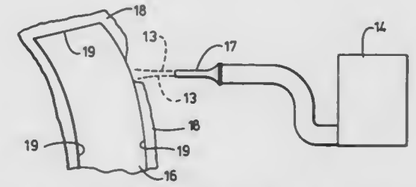
said side walls including at least two adjacent abutment surfaces extending in the direction of the reference face, a first of said abutment surfaces being inclined relative to the reference face and the second of said abutment surfaces being inclined oppositely relative to the first abutment surface, and
at least two abutting surfaces formed on said second gripping jaw and adjacent to the abutment surfaces, a first of the abutting surfaces extending parallel to a first of the abutment surfaces and a second of the abutting surfaces extending parallel to a second of the abutment surfaces.

5,063,014
METHOD FOR MOLDING TRIM STRIPS BY EXTRUSION MOLDING IN AN OPEN MOLD
Mehmet Y. Cakmakci, Rochester Hills, Mich., assignor to Aeroquip Corporation, Jackson, Mich.
Filed May 7, 1990, Ser. No. 520,306
Int. Cl.[5] B29C *43/08*
U.S. Cl. 264—151 17 Claims



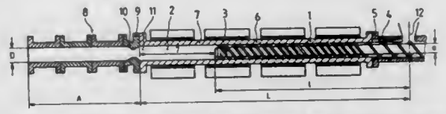
2. A method for molding a decorative plastic strip extending from a leading end to a trailing end and having an inner surface and an outer surface and a pair of edges joining said inner and outer surfaces comprising the steps of:
extruding a ribbon of heated and moldable plastic material into an open-faced mold cavity extending from a first end defining said leading end to a second end defining said trailing end, said mold cavity having a molding surface defining the desired configuration of said outer surface, said edges and said leading and trailing ends of the finished strip;
contacting said ribbon while in heated moldable condition with a shaping element;
imparting relative movement between said shaping element and said mold to sequentially compress incremental segments of said ribbon into conformity with said molding surface from said first end to said second end while shaping opposing portions of said incremental segments with said shaping element.

5,063,015
METHOD FOR DEFLASHING ARTICLES
Daniel L. Lloyd, Mason, and Eugene L. Cooke, Cincinnati, both of Ohio, assignors to Cold Jet, Inc., Loveland, Ohio
Continuation of Ser. No. 322,368, Mar. 13, 1989, abandoned. This application Jul. 24, 1990, Ser. No. 559,491
Int. Cl.[5] B26F *3/00;* B29C *37/02*
U.S. Cl. 264—161 1 Claim



1. A method for removing flashing from reaction injection molded articles, comprising the steps of:
(a) providing a workpiece which has been formed by reaction injection molding, said workpiece having a surface and having a flashing, said flashing being connected to said workpiece along an edge of said workpiece;
(b) providing a substantially continuous flow of carbon dioxide pellets while controlling the density of said carbon dioxide pellets so as to prevent degradation of said surface of said workpiece, said carbon dioxide pellets being generally cylindrical in shape, said carbon dioxide pellets being made of compressed carbon dioxide snow flakes which have been extruded through a die; and
(c) directing said flow of carbon dioxide pellets at said workpiece along said edge so as to impact both said workpiece and said flashing and to cause said flashing to become disconnected from said workpiece at said edge.

5,063,016
PRODUCTION OF HARDWEARING AND SHOCK-RESISTANT EXTRUDATES OF ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE AND APPARATUS FOR THIS PURPOSE
Peter Bauer, Ludwighsafen; Rainer Konrad, Goennheim; Herbert Morgenstern, Mannheim, and Horst Schuch, Ilvesheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany
Filed May 9, 1990, Ser. No. 520,768
Claims priority, application Fed. Rep. of Germany, May 12, 1989, 3915603
Int. Cl.[5] B29C *47/62*
U.S. Cl. 264—211.21 2 Claims



1. A method for producing hardwearing and shock-resistant extrudates of ultra-high molecular weight polyethylene

VOL 1132 ISS 1 NO 5 1991 UMI

(UHMW-PE) having an intrinsic viscosity of from about 800 to about 3,500 cm^3/g, in which finely divided polyethylene or polyethylene powder is introduced into the cooled feed zone of a single-screw extruder and compressed therein, heated to 180°-280° C. in a transport zone of the extruder, transferred to the screw-free zone and discharged with shaping of the extrudate and cooling to a surface temperature of less than 150° C., wherein the polyethylene is processed in the transport zone using a velocity gradient of from 50 to 1,000 sec^{-1} in the radial play between the screw flight and the extruder barrel.

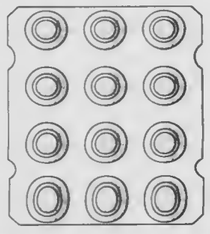
2. Apparatus for producing hardwearing and shock-resistant extrudates of ultra-high molecular weight polyethylene (UHMW-PE) having an intrinsic viscosity of from about 800 to about 3,500 cm^3/g, possessing a barrel which contains an inlet orifice and an outlet orifice at its ends and in whose cylindrical bore a screw is rotatable, the barrel having a coolable feed zone with grooves extending in the longitudinal direction and a heatable transport zone, and the ratio of the length L to the bore diameter D of the barrel being from about 15 to about 30 and the ratio of the length l to the nominal diameter d of the screw being from about 12 to about 20, so that a screw-free barrel section is formed downstream of the transport zone, the said section being connected to an outlet pipe A and being coolable in the region of the outlet orifice, wherein the screw is double-flighted in the region of the transport zone, and wherein the ratio of the length of the outlet pipe to the diameter of the outlet pipe is from about 4 to about 100.

5,063,017

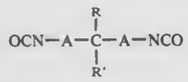
FLEXIBLE ARTICLES FORMED FROM POLYURETHANES BY RIM PROCESSES

Jae H. Choi, Carmel, Ind., assignor to AT&T Laboratories, Murray Hill, N.J.

Filed Mar. 30, 1990, Ser. No. 502,597
Int. Cl.[5] B29C *45/46*
U.S. Cl. 264—328.6 7 Claims



1. A process for forming a flexible article, said process comprising the steps of (1) introducing at least two reactive fluids into an injection mold, (2) directing said fluids into a cavity in said mold wherein said cavity defines the shape of said article and (3) allowing the composition resulting from the combination of said fluids to cure in said shape, wherein said fluids react to form said flexible article and include a polyol and an isocyanate represented by the formula:



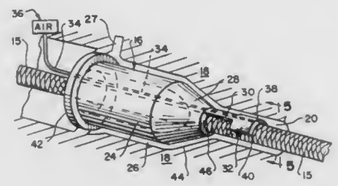
where R and R' are independently hydrogen or lower alkyl and where A is a substituted or unsubstituted phenyl group and where a mole ratio of said polyol to said isocyanate is in the range 17:1 to 5:1.

5,063,018

EXTRUSION METHOD

Carlos A. Fontirroche, Coral Gables, and Csaba Truckai, Miami, both of Fla., assignors to Cordis Corporation, Miami Lakes, Fla.

Filed Jun. 4, 1990, Ser. No. 532,626
Int. Cl.[5] B29C *47/20*
U.S. Cl. 264—514 23 Claims



1. An extrusion process for the manufacture of multiple lumen tubing, which comprises:

extruding an inner tube of molten plastic about metallic, bore-forming mandrel means; and

extruding about said inner tube an outer tube of molten plastic having a lumen formed by air mandrel means, with said inner and outer tubes being attached with the axis of said outer tube being parallel to but spaced from the axis of said inner tube.

12. In a mandrel for extrusion of tubing while the mandrel is positioned in an extrusion die that defines the outer diameter of tubing extruded through said die, said mandrel defining an extrusion head for positioning within said die, said head defining a distal end portion positioned and shaped to form a lumen in tubing extruded through said die, and an air flow passage extending through said mandrel to communicate with the lumen formed in said extruded tube for providing air mandrel means, the improvement comprising, in combination:

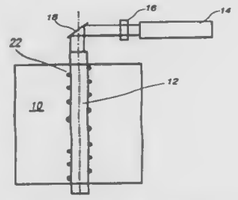
said distal end portion being carried by an intermediate neck portion of said mandrel, said neck portion having at least one transverse dimension that is less than the corresponding transverse dimension of said distal end portion, said distal end portion defining a transverse shoulder at its connection to the neck portion.

5,063,019

NUCLEAR REACTIVITY CONTROL USING LASER INDUCED POLARIZATION

Charles D. Bowman, Los Alamos, N. Mex., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Division of Ser. No. 357,248, May 26, 1989. This application May 23, 1990, Ser. No. 527,457
Int. Cl.[5] G21C *7/06*
U.S. Cl. 376—331 4 Claims



1. A control element for reactivity control of a fission source, comprising:

a volume of ^3He located in said fission source and having an atomic density of ^3He effective to control the reactivity of said fission source as said ^3He is spin-polarized;

an irradiation source for spin-polarizing said ^3He; and

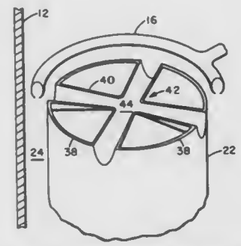
means for generating a guide magnetic field in said volume of ^3He and oriented along the direction of said spin-polarization effective to maintain said ^3He spin-polarization and concomitant fission source reactivity.

5,063,020

STEAM-WATER SEPARATING CONSTRUCTION FOR BOILING WATER NUCLEAR REACTORS

Douglas M. Gluntz, San Jose, Calif., assignor to General Electric Company, San Jose, Calif.

Filed May 29, 1990, Ser. No. 529,795
Int. Cl.[5] G21C *15/16*
U.S. Cl. 376—371 10 Claims



1. A boiling water nuclear fission reactor having an improved steam-water separator system, consisting essentially of the combination of a reactor pressure vessel having an inlet for supplying coolant feedwater and an outlet for steam discharge and containing a core of fissionable fuel for producing heat to generate steam, said fuel core being mounted within the reactor pressure vessel and surrounded by an open ended cylindrical shroud which is spaced inward away from the pressure vessel to provide an annular flow path between the pressure vessel and he shroud surrounding the fuel core whereby supplied coolant feedwater together with recirculating liquid coolant feedwater together with recirculating liquid coolant can flow downward around the exterior of the shroud surrounding the fuel core and then around back upward through the shroud and fuel core for the transfer of thermal energy for the fuel core and generation of steam from liquid coolant and thereby producing a mixture of liquid water and steam vapor, a core upper plenum area superimposed above the fuel core and surrounded by an upper portion of the open ended cylindrical core shroud, and a steam-water separator adjoining and transferring the upper open end of the cylindrical core shroud comprising at least one three sided open top through briding horizontally across the upper open end of the cylindrical core shroud and extending outward through the uppermost edge portion of the open ended shroud whereby any fluid contents of a trough can flow outward there from at a level beneath the uppermost open edge of the core shroud into the annular flow path between the pressure vessel and the core shroud.

5,063,021

METHOD FOR PREPARING POWDERS OF NICKEL ALLOY AND MOLYBDENUM FOR THERMAL SPRAY COATINGS

Vidhu Anand; Sanjay Sampath, both of Sayre; Clarke D. Davis, Wyalusing, and David L. Houck, Towanda, all of Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed May 23, 1990, Ser. No. 527,456
Int. Cl.[5] G22F *1/00*
U.S. Cl. 419—12 9 Claims

1. A method for preparing an intimate mixture of powders of nickel-boron-silicon alloy and molybdenum metal powder suitable for thermal spray coatings, said method comprising:

a) milling a starting mixture of said nickel-boron-silicon alloy and molybdenum powder to produce a milled mixture wherein the average particle size is less than about 10 micrometers in diameter;

b) forming an aqueous slurry of the resulting milled mixture and a binder selected from the group consisting of an



ammoniacal molybdate compound and polyvinyl alcohol; and

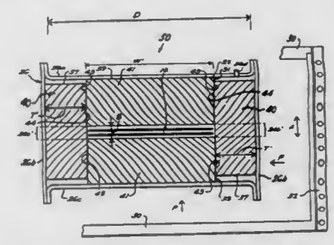
c) agglomerating said milled mixture and said binder to produce said intimate mixture.

5,063,022

METHOD FOR UNIAXIAL HIP COMPACTION

Daniel H. Zick, Andover, Mass., assignor to Industrial Materials Technology, Inc., Andover, Mass.

Filed Dec. 19, 1990, Ser. No. 631,083
Int. Cl.[5] G22F *1/00*
U.S. Cl. 419—49 4 Claims



1. A method for hot isostatic compaction of compactible material in a heated and pressurized environment within a pressure vessel, the method comprising

(a) placing a compaction die within a compaction container, the die having an interior wall area which defines within the die an internal cavity having a width measured along a first axis, and

(b) placing within the die cavity a compactible material charge and punch means for applying compaction force to

VOL 1132 ISS 1 NO 5 1991 UMI

the compactible material charge, the punch means having a width essentially equal to the die cavity width such that when the punch means is loaded oriented along the first axis within the die cavity, respective ends of the punch means contact the die interior wall area, the die wall thickness being selected according to the degree of contact of the punch means with the die interior wall area,

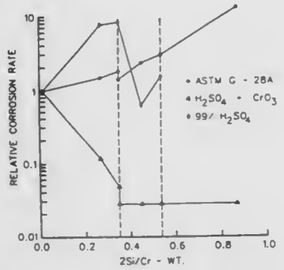
whereby, the loaded die is sealed within the container and the container is submitted to pressure in a pressure vessel, the submitted pressure forcing the punch means to travel transverse to the first axis to compact the loaded compactible material charge.

5,063,023

CORROSION RESISTANT NI- CR- SI- CU ALLOYS

Narasi Sridhar, Carmel, Ind., assignor to Haynes International, Inc., Kokomo, Ind.

Filed Nov. 17, 1989, Ser. No. 437,707
Int. Cl.[5] C22C *19/05*
U.S. Cl. 420—442 5 Claims



1. A nickel-base alloy consisting essentially of, in weight percent, up to 1.5 aluminum, up to 0.06 carbon, up to 3 columbium, 11 to 29 chromium, up to 20 cobalt, 1 to 3 copper, up to 19 iron, up to 2 manganese, 1 to 6.5 molybdenum, up to 0.2 nitrogen, 3.5 to 6.5 silicon, up to 2 titanium, up to 2.5 tungsten and the balance nickel and normal impurities wherein the value (20-Fe)×(Si-3) is greater than 5.

5,063,024

METHOD AND APPARATUS FOR IMMUNOLOGICAL DETERMINATIONS

Paul Partanen; Helena Seppänen, both of Helsinki, and Hannu Harjunmaa, Espoo, all of Finland, assignors to Labsystems OY, Helsinki, Finland

Continuation of Ser. No. 53,859, May 13, 1987, abandoned. This application Jul. 10, 1989, Ser. No. 377,538
Int. Cl.[5] G01N *21/13*
U.S. Cl. 422—65 7 Claims

1. An immunological assay equipment comprising:

a carriage (8) displaceable along a rectilinear path in a horizontal plane,

said carriage including a location area (20) for supporting a cuvette set (17) comprising a plurality of spaced cuvettes (18) of cylindrical shape,

said cuvette set (17) with its plurality of cuvettes (18) constituting a rectangular matrix in which the cuvettes are joined by means of a plate to provide said cuvettes in predetermined spaced apart relationship,

said carriage also including a location area (21) adjacent to area (20) for supporting samples,

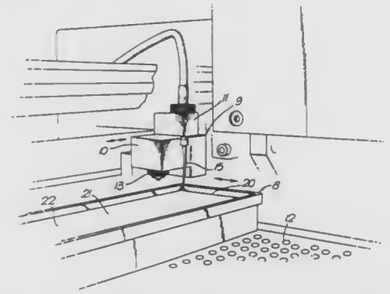
said location area (20) including a thermostated incubator having spaced heating pins (19) through which heat is conducted, said pin (19) being positioned to enter and occupy spaces between cuvettes (18) when said cuvette set is positioned in said incubator,

each of said heating pins (19) having a quadrangular shape with its sidewalls concaved to conform to the cylindrical walls of the cuvettes so that air can circulate freely between the cuvettes,

each of said cuvettes (18) having an antigen of an antibody or an antibody of an antigen immobilized onto inner faces of said cuvettes (18) of said cuvette set (7),

a dosage head (9) displaceable along said carriage (8) in a horizontal plane,

said displacement being along a rectilinear path perpendicular to said carriage path,



a single-tip liquid dosimeter (11) attached to dosage head (9) having a tip capable of being lowered onto the bottom of said cuvette (18) disposed beneath dosimeter (11),

a dosage equipment for passing liquid into cuvette (18) and removing solution therefrom via tip (15),

a measuring device (10) attached to dosage head (9) for measuring signals given by a trace agent adhering to inner faces of cuvettes (18),

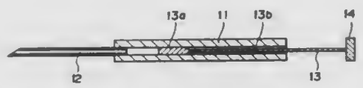
said assay equipment being fully automated so that cuvettes (18) placed therein may be dosed, incubated and their contents accordingly analyzed.

5,063,025

ANALYTICAL MICROSYRINGE WITH A SUPERELASTIC PLUNGER

Tatsuharu Ito, Tokyo, Japan, assignor to Ito Corporation, Shizuoka, Japan

Filed Feb. 20, 1990, Ser. No. 481,568
Int. Cl.[5] B01L *3/02;* G01N *1/02;* A61M *5/315*
U.S. Cl. 422—100 8 Claims



1. An analytical microsyringe comprising:

a syringe body having an inner surface;

an injection needle fixed to the inner surface of said syringe body at one end of said syringe body;

a linear plunger formed of superelastic wire and having one end thereof formed to have a diameter large enough to tightly and slidably contact the inner surface of said syringe body and a portion thereof other than the large-diameter end formed to have a smaller diameter and keep clear of the inner surface of said syringe body; and

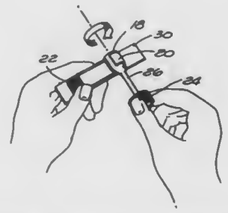
a knob integrally fixed to the other end of said linear plunger.

5,063,026

EGG COLLECTING APPARATUS

Johnson N. S. Wong, Rolling Hills, Calif., assignor to Evergreen Industries, Inc., Los Angeles, Calif.

Filed Jul. 11, 1990, Ser. No. 552,199
Int. Cl.[5] C12M *1/28;* A61B *10/00*
U.S. Cl. 422—102 8 Claims



1. An apparatus for the collection of parasitic eggs, comprising:

an adhesive strip having a first end, a second end, an adhesive side and a non-adhesive side;

a tab attached to the first end of the strip;

a shaft having an exterior surface adapted for receipt of the non-adhesive side of the strip;

the adhesive strip being removably wrapped around the exterior surface of the shaft with the adhesive side of the strip exposed and the tab overlapping the second end of the strip;

a gripping member; and

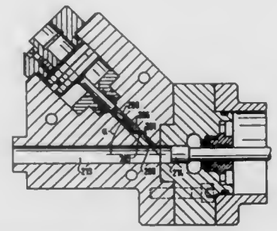
a connecting member having two ends, the connecting member being attached at one end to the shaft and connected at the other end to the gripping member.

5,063,027

APPARATUS FOR MIXING AT LEAST TWO REACTIVE PLASTIC MATERIALS

Fritz W. Schneider, Florence, Ky., assignor to Krauss-Maffei A.G., Fed. Rep. of Germany

Filed Jun. 20, 1989, Ser. No. 373,015
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1988, 3820810
Int. Cl.[5] C08F *2/00*
U.S. Cl. 422—133 15 Claims



1. An impingement mixing device comprising:

a mixing chamber housing;

a control piston axially displaceable within said mixing chamber housing between an extended position and a retracted position;

a mixing chamber within said housing defined by an end face of said control piston when in the retracted position and a mixing chamber discharge outlet coextensive with an end face of said control piston when in the extended position;

means for feeding a first component to said mixing chamber;

means for feeding a second component to said mixing chamber in opposing relationship to said first component; and

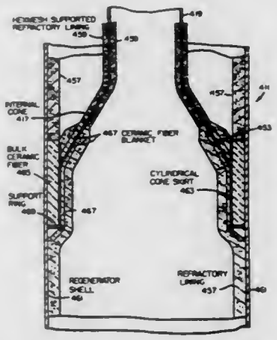
a discharge tube housing defining a quieting chamber communicating with said mixing chamber and having an opening at a discharge end, wherein said mixing chamber is arranged with a longitudinal axis at an acute angle, alpha, to a longitudinal axis of said quieting chamber.

5,063,028

PROCESS AND APPARATUS FOR REGENERATION OF FCC CATALYST

John D. Humble, Asheville, N.C.; Raymond C. Searles, Flemington, N.J.; John D. Ruggles, Surrey, England, and Judah L. Jacobowitz, Princeton, N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed May 18, 1990, Ser. No. 525,503
Int. Cl.[5] F27B *15/04, 15/06;* B01J *8/28, 8/34*
U.S. Cl. 422—144 10 Claims



1. A catalyst regenerator apparatus for the high efficiency regeneration of fluidized catalytic cracking catalyst in a vessel having a vessel sidewall and comprising:

a combustor having an inlet for spent catalyst from a cracking reactor, an inlet for combustion air, an inlet for receiving recycled regenerated catalyst and an outlet in an upper portion of said combustor comprising an internal cone;

a riser communicating said combustor with a disengaging vessel, said riser being in axial alignment with said internal cone of said combustor and extending therefrom and in axial alignment with said disengaging vessel, said riser operatively connecting said combustor and said disengaging vessel and permitting transfer of catalyst and combustion gas from said combustor to said disengaging vessel;

said disengaging vessel located above and in axial alignment with said riser and said combustor, said disengaging vessel having a bottom comprising said internal cone, said disengaging vessel comprising means for receiving a mixture of regenerated catalyst and combustion gas discharged from said riser and for separating said mixture into a regenerated catalyst bed located at said bottom of said disengaging vessel and a flue gas phase which is removed from said disengaging vessel; and wherein said disengaging vessel comprises a regenerated catalyst outlet means connective with said cracking reactor and a regenerated catalyst recycle means connecting with said combustor;

said internal cone having a downwardly extending cylindrical skirt spaced from the sidewall of said regenerator vessel and defining a cylindrical annular space intermediate said internal cone and said sidewall, and wherein said cylindrical skirt is fastened to said regenerator vessel by a support means.

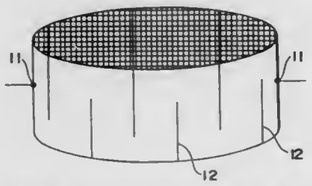
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,029

RESISTANCE ADJUSTING TYPE HEATER AND CATALYTIC CONVERTER

Hiroshige Mizuno, Tajimi; Fumio Abe, Handa, and Takashi Harada, Nagoya, all of Japan, assignors to NGk Insulators, Ltd., Japan

Filed Jun. 29, 1990, Ser. No. 545,509
Claims priority, application Japan, Apr. 12, 1990, 2-96866
Int. Cl.[5] F01N *3/10*; B01D *53/36*; H05B *3/10*
U.S. Cl. 422—175 16 Claims



1. An heating element for heating fluid flowing therethrough, comprising:

an electrically conductive integral honeycomb structure having a periphery and two ends, including a plurality of passages which are defined by partition walls and extend in an axial direction between the ends, and at least one slit which is formed through said partition walls; and

at least two electrodes in electrical contact with said honeycomb structure;

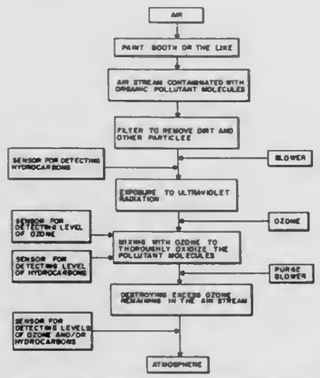
wherein said slit is disposed between said electrodes such that said slit interrupts current flow through portions of said honeycomb structure between said electrodes for heating said honeycomb structure and fluid flowing through said passages.

5,063,030

PROCESS AND APPARATUS FOR REMOVING ORGANIC CONTAMINANTS FROM A FLUID

Robert J. Sweetman, 4612 Thornhurst Dr., Olney, Md. 20832

Filed Mar. 8, 1990, Ser. No. 490,376
Int. Cl.[5] B01J *19/08, 19/12, 19/00*
U.S. Cl. 422—189 20 Claims



1. A gas treatment apparatus for removing organic contaminants from a gas containing organic pollutant molecules having the characteristics of reacting generally reluctantly with an oxidizing agent at room temperature, the apparatus comprising:

(a) a contaminated gas collection chamber, a photoexcitation unit, a mixing chamber, and a catalytic bed oxidizing gas destruct unit;

(b) means for exhausting said contaminated gas from said collection chamber and feeding said contaminated gas into said photoexcitation unit;

(c) means for transferring said photoexcited gas into said mixing chamber;

(d) said mixing chamber including means for supplying an oxidizing gas into said mixing chamber for reacting with said photoexcited gas to produce a substantially organic contaminants free gas;

(e) means for transferring said substantially organic contaminants free gas into said catalytic oxidizing gas destruct unit for reacting with a catalyst therein to break down substantially all of any excess oxidizing gas that may exist in said organic contaminants free gas; and

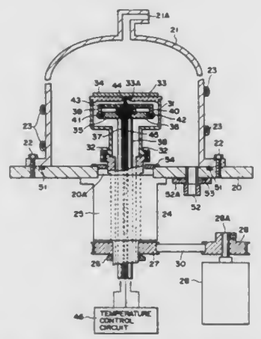
(f) means for venting said catalytically treated organic contaminants free gas.

5,063,031

APPARATUS FOR GROWING VAPOR PHASE LAYER ON SEMICONDUCTOR SUBSTRATE

Mitsuo Sato, Zama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 21, 1990, Ser. No. 570,555
Claims priority, application Japan, Aug. 24, 1989, 1-217845
Int. Cl.[5] F16K *1/16*; C23C *16/52*
U.S. Cl. 422—245 6 Claims



1. A chemical vapor deposition apparatus for rowing a vapor-phase deposition layer on a semiconductor substrate, comprising:

a base plate having opposed surfaces;

a container to be attached to and removed from one surface of the base plate, and to establish a chamber to be supplied with a gas;

a bearing secured to the other surface of the base plate;

a hollow shaft rotatably supported by the bearing, one end portion of said shaft extending into said chamber through said base plate;

driving means for rotating the shaft;

a casing arranged in the chamber, said casing being open at one end and mounted at the other end thereof to said one end portion of the shaft;

a susceptor in the open one end of the casing, said susceptor having a supporting surface on which a semiconductor substrate is to be placed and a concave recess opposite from said supporting surface;

a heat generator arranged in the casing for heating the susceptor and semiconductor substrate;

a conductive support for supplying power to and supporting said heat generator, said conductive support extending through said hollow shaft to said casing;

means for detecting the temperature of said heat generator, said detecting means extending through said hollow shaft to a distal end portion located in the concave recess of said susceptor; and

control means for controlling the temperature of the heat generator in response to temperatures detected by the detecting means.

5,063,032

METHOD OF PREPARING A SYNTHETIC RUTILE FROM A TITANIFEROUS SLAG CONTAINING MAGNESIUM VALUES

Michel Gueguin, Tracy, Canada, assignor to QIT-Fer et Titane, Inc., Montreal, Canada

Filed Mar. 27, 1990, Ser. No. 499,888
The portion of the term of this patent subsequent to Jun. 12, 2007, has been disclaimed.
Int. Cl.[5] C01G *23/00*
U.S. Cl. 423—84 26 Claims

1. A method for upgrading the content of TiO_2 in a titaniferous slag, the titaniferous slag containing FeO, Ti_2O_3 and at least 1.0 weight percent MgO, and the molecular ratio of Ti_2O_3 to FeO being at least about 1, the method comprising:

contacting the titaniferous slag with chlorine gas at a temperature of at least about 800° C. such that the slag is chlorine-treated and $FeCl_2$ is formed; and

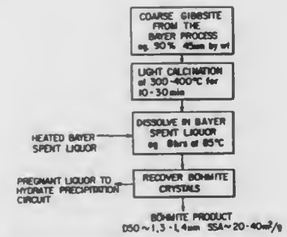
contacting the chlorine-treated slag with hydrochloric acid such that $MgCl_2$ is formed and the slag is hydrochloric acid-treated.

5,063,033

PROCESS FOR THE PRODUCTION OF BOEHMITE

Neil Brown, Bonn, Fed. Rep. of Germany, assignor to Vereinigte Aluminum-Werke Aktiengesellschaft, Bonn, Fed. Rep. of Germany

Filed Feb. 10, 1987, Ser. No. 13,009
Int. Cl.[5] C01F *7/02, 7/22*
U.S. Cl. 423—112 10 Claims



1. A process for producing boehmite crystals comprising:

calcinating gibbsite particles at a temperature above 300 degrees C to lower L.O.I. to less than 20% to produce boehmite particles embedded in a matrix material, the matrix material being essentially chi-alumina and essentially free of gibbsite, gamma-alumina and alpha-alumina;

dissolving the matrix material in a caustic aluminate liquor, at atmospheric pressure and at a temperature of from about 60°–120 degrees C to liberate the boehmite particles; and,

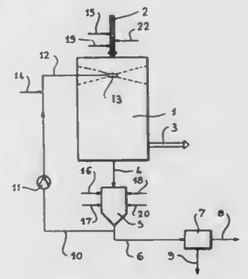
recovering boehmite particles essentially free of gibbsite, gamma-alumina and alpha-alumina and having an average particle size of between 1 and 2 micrometers and a specific surface area of 13 to 57 m^2/gram.

5,063,034

PROCESS FOR PURIFYING BY THE WET METHOD FUMES CONTAINING NITROGEN OXIDES

Jean-Francois Vicard, Lyons, France, assignor to Societe LAB, Lyons, France

Filed Feb. 13, 1990, Ser. No. 479,517
Claims priority, application France, Feb. 23, 1989, 89 02617
Int. Cl.[5] C01B *21/00*
U.S. Cl. 423—235 8 Claims



1. A process for purifying fumes resulting from a combustion process wherein the fumes contain nitrogen oxides and in which the fumes are purified to remove the nitrogen oxides by the wet method in a washer and wherein the fumes are scrubbed by recycling an aqueous washing liquid a portion of which is drained for removal of the pollutants trapped therein,

wherein the process comprises the following combination of steps:

a) introducing into the washing liquid, before the introduction thereof into the washer to contact the fumes, an oxidation compound of sodium chlorite of which the products of reaction with an acid agent are oxidizing agents;

b) introducing into the fumes, before the introduction thereof into the washer to contact the washing liquid containing said oxidation compound therein, a hydrochloric acid agent which is easily soluble and which reacts with said oxidation compound and of which the product of reaction therewith is an oxidizing agent which converts NO to NO_2 as the fumes are contacted with the washing liquid within the washer;

c) introducing a reducing agent into the washing liquid so that the reducing agent is in the washing liquid when the fumes are contacted within the washer with said washing liquid while NO is converted to NO_2;

d) and introducing into the washing liquid an intermediate agent oxidizable by NO_2 so that nitrates are not formed and NO_2 is converted to N_2, and thereafter the oxidized form of the intermediate agent is regenerated from the oxidized form by reduction with said reducing agent as the fumes are contacted with the recycling washing liquid within the washer.

5,063,035

ENHANCED PERFORMANCE OF ALUMINA FOR THE REMOVAL OF LOW-LEVEL FLUORINE FROM GAS STREAMS

Paul S. Leondaridis, Paris, France; William A. Von Drasek, Burbank, and Gregory M. Jursich, Clarendon Hills, both of Ill., assignors to American Air Liquide, New York, N.Y.

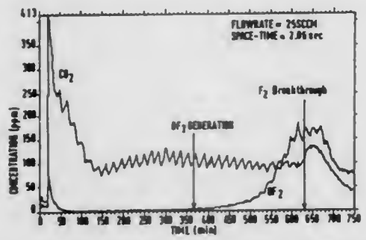
Filed Apr. 23, 1990, Ser. No. 512,410
Int. Cl.[5] C01B *7/20*; B01D *53/34*
U.S. Cl. 423—241 7 Claims

1. A method of removing fluorine from gas streams, consisting essentially of:

conducting a gas stream containing fluorine over an alumina

VOL 1132 ISS 1 NO 5 1991 UMI

having chromium oxide absorbed thereon thereby effectively eliminating fluorine from the gas while substantially



preventing the formation of toxic oxygen difluoride by-product.

5,063,036

PROCESS FOR PRODUCING PHASE-STABILIZED AMMONIUM NITRATE

Walter Engel, Wöschbach; Norbert Eisenreich, Pfinztal, and Klaus-Dieter Thiel, Karlsruhe, all of Fed. Rep. of Germany, assignors to Fraunhofer-Gesellschaft zur Forderung der angenwandten Forschng e.V., Munich, Fed. Rep. of Germany

Filed Jun. 22, 1990, Ser. No. 542,059

Claims priority, application Fed. Rep. of Germany, Jun. 28, 1989, 3921098

Int. Cl.[5] C01C *1/18*

U.S. Cl. 423—266 **9 Claims**

9. Process for producing phase-stabilized ammonium nitrate (AN) by incorporating a diammine complex of Ni or Cu into the AN lattice, comprising mixing CuO or Ni_2O_3 with the total AN quantity and heating the mixture to 110° to 170° C. for a time sufficient to produce said diammine complex in a solid-state reaction of CuO or Ni_2O_3 and AN and to directly incorporate the diammine complex into the AN lattice.

5,063,037

CRYSTALLINE BOROSILICATE

Mae K. Rubin, Bala Cynwyd, Pa., assignor to Mobil Oil Corp., Fairfax, Va.

Continuation of Ser. No. 647,506, Sep. 5, 1987, abandoned. This application Sep. 24, 1986, Ser. No. 913,541

Int. Cl.[5] C01B *33/34, 35/12*

U.S. Cl. 423—277 **6 Claims**

1. A synthetic porous crystalline borosilicate zeolite having a silica to B_2O_3 molar ratio of from about 5 to about 500, said porous crystalline material in the uncalcined state being characterized by an x-ray diffraction pattern having values substantially as set forth in Table 1 of the specification.

5,063,038

ZEOLITE SYNTHESIS USING AN ALCOHOL OR LIKE MOLECULE

Garry W. Kirker, Washington Township, Gloucester County; Donald J. Klocke, Somerdale, both of N.J.; James C. Vartuli, West Chester, Pa.; Pochen Chu, West Deptford, N.J.; David O. Marler, Deptford, N.J., and John P. McWilliams, Woodbury, N.J., assignors to Mobil Oil Corp., Fairfax, Va.

Continuation-in-part of Ser. No. 789,609, Oct. 21, 1985. This application Aug. 31, 1987, Ser. No. 91,612

Int. Cl.[5] C01B *33/34*

U.S. Cl. 423—328 **20 Claims**

1. A method for synthesizing a zeolite having the structure of ZSM-23, said method comprising the steps of:

(i) preparing an aqueous reaction mixture capable of forming said ZSM-23 zeolite, said reaction mixture comprising a source of silica, a source of alumina and a mixed organic directing agent comprising (a) an amine which is pyrrolidine and (b) an alcohol and/or a diol, wherein said alcohol or diol contains 1 to 6 carbon atoms;



(ii) maintaining said reaction mixture at a sufficient temperature to crystallize said zeolite; and

(iii) recovering said zeolite.

5,063,039

SYNTHESIS OF KENYAITE-TYPE LAYERED SILICATE MATERIAL AND ITS POLYMERIC CHALCOGENIDE INTERCALATES

Ernest W. Valyocsik, Yardley, Pa., assignor to Mobil Oil Corp., Fairfax, Va.

Continuation-in-part of Ser. No. 245,607, Sep. 19, 1988, abandoned. This application Nov. 9, 1989, Ser. No. 434,951

Int. Cl.[5] C01B *33/28;* **B01J** *21/00*

U.S. Cl. 423—329 **21 Claims**

1. A method for synthesizing crystalline Kenyaite-type silicate which comprises (i) preparing a mixture capable of forming said silicate, said mixture comprising sources of alkali metal cations (AM), silicon, non-alkali metal (M) of valence n selected from the group consisting of metals of Periodic Table Groups III A, IV B, IV A, VI B and VIII, water and organic agent (R) selected from the group consisting of alkylamine, trialkylamine, a tetraalkylammonium compound and trimethylhexamethylene diamine, said alkyl having 1 to about 12 carbon atoms, and having a composition, in terms of mole ratios, within the following ranges:

SiO_2/M_mO_n	at least about 40
H_2O/SiO_2	5 to 200
OH^-/SiO_2	0 to 5
AM/SiO_2	0.05 to 3
R/SiO_2	0.01 to 3

(ii) maintaining said mixture under sufficient conditions until crystals of said silicate are formed and (iii) recovering said crystalline Kenyaite-type silicate.

11. A method for preparing a pillared layered silicate material intercalated with a polymeric chalcogenide which comprises:

providing a crystalline silicate material characterized by an X-ray diffraction pattern exhibiting values substantially as set forth in Table 1 of the specification;

enhancing the interlamellar distance of said layered silicate by impregnating the layered silicate with an organic compound capable of forming a cationic species;

introducing between the layers of said impregnated layered silicate a compound capable of conversion to said chalcogenide and converting said compound to said chalcogenide.

20. The product of the method of claim 11.

5,063,040

METHOD FOR INCREASING THE YIELD OF TRICHLOROSILANE IN THE FLUIDIZED-BED HYDROCHLORINATION OF SILICON

Klaus Ruff, Troisdorf, Fed. Rep. of Germany, assignor to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Continuation of Ser. No. 325,545, Mar. 20, 1989, abandoned. This application Jan. 23, 1990, Ser. No. 467,286

Claims priority, application Fed. Rep. of Germany, Mar. 23, 1988, 3809784

Int. Cl.[5] C01B *33/107*

U.S. Cl. 423—342 **5 Claims**

1. The method of increasing the content of trichlorosilane in the mixture of chlorosilanes produced by the hydrochlorination of silicone in a fluidized-bed reactor at a temperature between 300° and 1000° C., which comprises fluidized silicon dust in said reactor with gaseous hydrogen chloride, cooling the mixture of hot reaction gases formed thereby within less than one second after leaving the fluidized bed to a temperature which

a) is either no higher than 550° C. if the reaction temperature in the fluidized bed is above 550° C., or

b) is at least 100° C. lower than the reaction temperature in the fluidized bed, if the latter is 550° C. or less, and recovering the mixture of chlorosilanes.

5,063,041

PROCESS FOR THE REDUCTION OF PERCHLORATE IN ELECTROLYTES USED FOR THE PRODUCTION OF CHLORATE

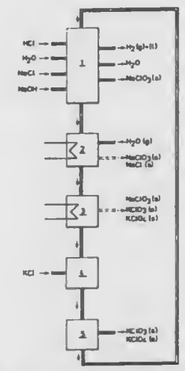
Carl J. F. Wanngård, Sundsvall, Sweden, assignor to Eka Nobel AB, Surte, Sweden

Filed Dec. 27, 1989, Ser. No. 457,589

Claims priority, application Sweden, Dec. 28, 1988, 8804675

Int. Cl.[5] C01B *11/18, 11/14;* **C25B** *1/28, 1/24*

U.S. Cl. 423—476 **16 Claims**



1. In a process for the production of sodium chlorate and byproduct sodium perchlorate which includes the steps of electrolyzing an aqueous electrolytic solution of sodium chloride in an electrolyzer, transferring the electrolytic solution to one or more reaction vessels for further reaction, recovering sodium chlorate from the electrolytic solution in the electrolyzer, and recycling at least a portion of the electrolytic solution to the electrolyzer, the improvement comprising:

(a) diverting at least a portion of the electrolytic solution from the process and evaporating water from the diverted portion to thereby reduce its liquid volume and form a precipitate, the precipitate optionally being separated from the liquid, the evaporation increasing the concentration of sodium perchlorate in the diverted portion;

(b) cooling the diverted portion of solution from step (a) to a temperature of between about 30° C. and about 0° C., a precipitate thereby being formed and optionally being separated from the cooled solution, the concentration of sodium perchlorate in the cooled solution being at least about 40 g/l;

(c) adding potassium chloride solution to the cooled solution from step (b), and converting soluble sodium perchlorate in the cooled solution to insoluble potassium perchlorate via metathesis with the added potassium chloride, the potassium perchlorate thereby precipitating, the potassium chloride solution having a concentration of from about 1.0 mole/l up to the saturation concentration and being at a temperature of between about 0° and about 50° C., the volume of the added potassium chloride solution containing from about 20% to about 120% of the potassium needed for precipitating the maximum amount of potassium perchlorate that can be selectively precipitated; and

(d) separating the solution from step (c) from the potassium perchlorate precipitate, and recycling the separated solution to the non-diverted portion of the electrolytic solution;

wherein said step of recovery of sodium chlorate occurs separately from the recovery of potassium perchlorate in step (d); and

wherein the concentration of sodium perchlorate in the electrolytic solution of the sodium chlorate process is less than about 40 g/l.

5,063,042

PROCESS FOR THE PRODUCTION OF CARBON FIBERS

Yoshikazu Arita; Toshi Iizuka, both of Takasaki; Yukio Abe, Maebashi; Yoshio Nakamura, Kiryu; Shoji Takigami, Kiryu, and Machiko Takigami, Kiryu, all of Japan, assignors to Gunei Kagaku Kogyo Kabushiki Kaisha, Japan

Filed Dec. 7, 1989, Ser. No. 447,046

Claims priority, application Japan, Feb. 17, 1989, 1-39113

Int. Cl.[5] D01F *9/20*

U.S. Cl. 423—447.4 **8 Claims**

1. A process for the production of carbon fibers, comprising the steps of:

(a) providing novolak resin fibers;

(b) impregnating said novolak resin fibers with a polymerizable vinyl monomer;

(c) polymerizing said vinyl monomer and swelling said fibers;

(d) carbonizing said novolak resin fibers containing the polymerized vinyl monomer; and

(e) activating said carbonized fibers.

5,063,043

PROCESS IN THE PRODUCTION OF HYDROGEN PEROXIDE

Erik A. Bengtsson, Surte, Sweden, assignor to Eka Nobel AB, Surte, Sweden

Filed Feb. 23, 1990, Ser. No. 483,770

Claims priority, application Sweden, Feb. 23, 1989, 8900636

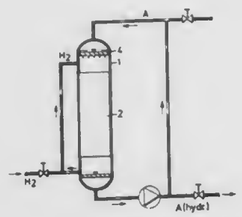
Int. Cl.[5] C01B *15/023*

U.S. Cl. 423—588 **11 Claims**

1. A process for the production of hydrogen peroxide according to the anthraquinone process by alternate reduction and oxidation of a working solution of alkylated anthraquinones, the hydrogenation of said working solution being conducted continuously with hydrogen gas or hydrogen gas-containing gas in a vertical monolithic fixed bed reactor at a temperature below 100° C. and a pressure below 1.5 MPa, wherein said working solution is supplied at the upper end of the reactor and uniformly distributed across the surface of the catalyst bed, while simultaneously introducing hydrogen gas or hydrogen gas-containing gas to the upper end of the reactor, the flow of said working solution through the catalyst bed being adjusted such that the liquid flow is lower than the falling rate of the liquid through the bed, whereby gas plugs are formed

VOL 1132 ISS 1 NO 5 1991 UMI

which have a diameter close to the diameter of the catalyst channels, and whereby said gas plugs and corresponding liquid



plugs alternately and automatically flow downwardly through said channels and a plug flow is obtained.

5,063,044

CARBOXY AND CARBOXY-GLYCOL ETHER AND ESTER FUNCTIONAL SILOXANE CONTAINING HAIR CONDITIONERS AND SHAMPOOS

Gretchen S. Kohl; Patricia A. Giwa-Agbomelrele, and Judith M. Vincent, all of Midland County, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Feb. 16, 1990, Ser. No. 481,003
Int. Cl.[5] A61K *7/075, 7/08, 7/09, 7/13*
U.S. Cl. 424—70 **7 Claims**

1. A hair conditioning composition comprising a mixture of a carrier, a thickener, and an organosilicon conditioning compound, the organosilicon conditioning compound being a carboxy-glycol ether or ester functional polysiloxane having the formula

$$QMe_2SiO(Me_2SiO)_x(MeRSiO)_y(MeR'SiO)_zSiMe_2Q$$

wherein

Me is a methyl radical;

R is a carboxyfunctional radical selected from the group consisting of carboxyalkyl radicals and carboxythioalkyl radicals;

R' is selected from the group consisting of glycol ether groups having the formula $—(CH_2)_3—O(CH_2CH_2O)_a—R''$ and glycol ester groups having the formula $(CH_2)_3—O(CH_2CH_2O)_a—COR''$ in which a is an integer of from one to about one hundred and R'' is selected from the group consisting of hydrogen and alkyl radicals having one to four carbon atoms;

Q is selected from the group consisting of R, Me, and OH; and

x, y and z are each integers from one to above five thousand.

5,063,045

METHOD FOR EVALUATING ANTIALLERGIC SUBSTANCES

Akio Namimatsu, and Kouichiro Go, both of Hyogo, Japan, assignors to Nippon Zoki Pharmaceutical Co., Ltd., Osaka, Japan

Filed Apr. 9, 1990, Ser. No. 506,039
Claims priority, application Japan, Apr. 10, 1989, 1-91578
Int. Cl.[5] A61K *49/00*
U.S. Cl. 424—9 **6 Claims**

1. A method for evaluating the efficacy of an antiallergic substance, which comprises administering the antiallergic substance to an animal with nasal mucosal hypersensitivity, and measuring the amount of nasal secretion quantitatively by means of a nasal thread.

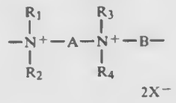
5,063,046

DENTIFRICE COMPOSITIONS HAVING ANTI-CARIES ACTIVITY AND CONTAINING A POLYCATIONIC POLYMER FLUORIDE

Jean-François Grollier, Paris, France, assignor to L'Oreal, Paris, France

Filed May 17, 1990, Ser. No. 524,316
Claims priority, application France, May 18, 1989, 89 06500
Int. Cl.[5] A61K *7/16, 7/18, 7/22, 31/785*
U.S. Cl. 424—52 **22 Claims**

1. A dentifrice composition containing, as an anti-caries agent, at least one water-soluble polycationic polymer having is part of the macrochain and having at least 5% of the cationic charges balanced by fluoride anions, said polycationic polymer comprising units of formula I



(1)

wherein

R_1, R_2, R_3 and R_4, each independently, represent an aliphatic, alicyclic or arylaliphatic group, optionally substituted, containing a maximum of 20 carbon atoms, or a hydroxyaliphatic group having 1–8 carbon atoms; or one or both of the pairs of substituents, R_1 and R_2, and R_3 and R_4, attached to a same nitrogen atom represent together a divalent group forming, with the nitrogen atom to which they are attached, a heterocycle capable of containing one or more heteroatoms other than nitrogen; or one or both of the pairs, R_1 and R_3, and R_2 and R_4, together form a divalent group linking two consecutive nitrogen atoms, represented in the unit of formula I, to which they are attached respectively;

A and B, each independently, represent (1) linear or branched alkylene having 1–20 carbon atoms, optionally unsaturated, the said alkylene group being able to be substituted and/or interrupted by one or more heteroatoms, and/or by one or more heteroatomic groups and/or by one or more aliphatic or aromatic rings or by one or more heterocycles; (2) a cycloalkylene group, optionally substituted and/or optionally having double bonds, containing up to 20 carbon atoms; (3) one or more arylene groups having 6 to 20 carbon atoms, the said arylene groups being optionally substituted and/or separated by one or more heteroatoms and/or by one or more heteroatomic groups or by one or more alkylene groups and/or by one or more aliphatic rings and/or by one or more heterocycles; and

X^- represents an anion, with the proviso that in the said composition at least 5%, in number, of the anions present in the polycationic polymer, having units of formula 1, are fluoride ions.

5,063,047

Patent Not Issued For This Number

5,063,048

UV LIGHT-ABSORBING SKIN-PROTECTING COMPOSITION

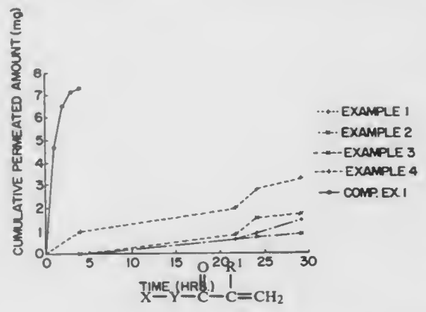
Izumi Saitoh, Nishinomiya, and Yoshio Sasaki, Takefu, both of Japan, assignors to Shionogi & Co., Ltd., Osaka and Nisshin Chemical Industry Co., Ltd., Fukui, both of, Japan

Filed Jul. 10, 1990, Ser. No. 550,540
Claims priority, application Japan, Jul. 10, 1989, 1-177714
Int. Cl.[5] A61K *7/42;* **C08F** *226/06*
U.S. Cl. 424—59 **10 Claims**

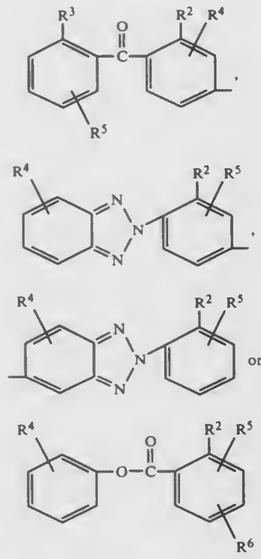
1. A UV light-absorbing skin-protecting composition which comprises:

an acrylic copolymer comprising

(A) 1 to 15% by weight of a compound of the formula:



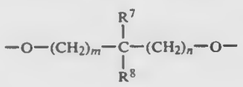
wherein R^1 is a hydrogen atom or a methyl group, X is a group of the formula:



in which

R^2 is a hydroxy group, R^3 is a hydrogen atom or hydroxy group, R^4 and R^5 are the same or different and each is a hydrogen atom, a lower alkyl group, a lower alkoxy group, a halogen atom, a nitro group, a carboxyl group, a sulfonic acid group or a sulfonamide group, and R^6 is a single bond or a methylene group,

Y is —O—, —NH— or a group of the formula:



in which R^7 is a hydrogen atom or a lower alkyl group, R^8 is a hydrogen atom or a hydroxy group, and m and n are the same or different and each is 0 and 1,

(B) 40 to 75% by weight of an alkyl acrylate,

(C) 10 and 40% by weight of an alkyl methacrylate, and

(D) 5 to 30% by weight of a monoethylenically unsaturated monomer having a carboxyl group;

and a medium.

5,063,049

DISINFECTANT NAIL POLISH REMOVER

Calvert Billings, 23221 Peralta, Ste. H, Laguna Hills, Calif. 92653

Filed Jun. 11, 1990, Ser. No. 535,512
Int. Cl.[5] A61K *7/04*
U.S. Cl. 424—61 **5 Claims**

1. A process for reducing infections located in an area adjacent a nail plate, by reducing fungus, bacteria and mold growth, by applying to the said area a blend of an acetone based nail polish remover to remove nail polish lacquer therefrom in a carrier solution of: parachlormetaxylenol: about 3–4 parts; thymol: about 3–4 parts; butyl acetate: about 30–50 parts; ethyl acetate: about 30–50 parts; and, isopropyl alcohol: about 15–25 parts.

5,063,050

TABLETED POWDER COSMETICS

Debra Verdon, Leonardo, N.J.; Marlene Tietjen, New York, and Ivonne Brown, Roosevelt, both of N.Y., assignors to Revlon, Inc., New York, N.Y.

Filed Mar. 23, 1990, Ser. No. 498,298
Int. Cl.[5] A61K *7/02, 7/021, 7/035*
U.S. Cl. 424—63 **8 Claims**

1. A cosmetic powder composition compression molded into a pressed tablet form at a compression ratio of between 2:1 to 4:1, comprising, in percent by weight:

about 10 to 80% talc,

about 0.1 to 20% aluminum starch octenylsuccinate

about 0.1 to 20% of a powdered sorbent agent selected from the group consisting of calcium silicate, silica, sodium silicate, magnesium silicate, aluminum silicate, bentonite, organomodified bentonite, hectorite, kaolinite, diate, nacrite, metahalloysite, pyrophyllite, and montmorillonite, and

about 0.1 to 20% of a liquid binder.

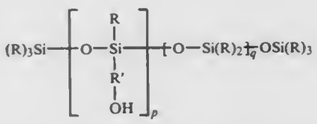
5,063,051

COSMETIC HAIR-CARE COMPOSITION BASED ON POLYORGANOSILOXANES CONTAINING A HYDROXYALKYL FUNCTIONAL GROUP

Jean F. Grollier, Paris; Claude Dubief, Le Chesnay, and Christine Dupuis, Paris, all of France, assignors to L'Oreal, Paris, France

Filed Jul. 7, 1989, Ser. No. 376,742
Claims priority, application Luxembourg, Jul. 12, 1988, 87273
Int. Cl.[5] A61K *7/06, 7/08*
U.S. Cl. 424—70 **14 Claims**

1. Cosmetic hair-care composition, which contains, in a cosmetically acceptable medium, a polyorganosiloxane containing a hydroxyalkyl functional group corresponding to the following formula (I):



(I)

in which the radicals R, which are identical or different, are chosen from methyl and phenyl radicals, at least 60 mol % of the radicals R being methyl radicals, the radical R' is a linear or branched divalent alkylene hydrocarbon chain containing from 2 to 18 carbon atoms, p is an integer between 1 and 30

VOL 1132 ISS 1 NO 5 1991 UMI

inclusive, q is an integer between 1 and 120 inclusive, in sufficient proportions to impart to the hair good sheen properties combined with a light and full appearance, said composition containing no anionic surfactant in concentrations more than 5% by weight based on the total weight of the composition which confer foaming properties to the composition.

5,063,052

COSMETIC AND DERMATOLOGICAL APPLICATION OF POLYSILOXANES CONTAINING A DIESTER FUNCTIONAL GROUP AND COMPOSITIONS EMPLOYED

Jean F. Grollier, Paris, and Claude Dubief, Le Chesnay, both of France, assignors to L'Oreal, Paris, France

Filed Sep. 26, 1989, Ser. No. 412,788
Claims priority, application Luxembourg, Sep. 28, 1988, 87350
Int. Cl.[5] A61K *7/06*
U.S. Cl. 424—70 **21 Claims**

1. A cosmetic or dermatological composition which contains in a cosmetically or physiologically acceptable medium, at least one diorganopolysiloxane containing a diester functional group, carrying, per molecule at least one unit of formula:

$$ZR_aSiO_{(3-a)/2} \quad (1)$$

in which:
a is 0, 1 or 2
Z denotes a radical of formula:

in which:
the symbols R', which are identical or different, denote a C_1–C_{12} monovalent saturated hydrocarbon radical, a C_2–C_{12} monovalent alkoxyalkyl radical, or a C_6–C_{12} aryl, alkylaryl or aralkyl radical;
X denotes a hydrogen atom or a methyl radical;
W denotes a covalent bond or a C_1–C_4 linear or branched alkylene radical;
the symbols R, which are identical or different, denote a C_1–C_{20} alkyl, vinyl, phenyl, 3,3,3-trifluoropropyl or hydroxyl radical, provided that only one radical R per silicon atom may be a hydroxyl group; and mixtures thereof.

5,063,053

ISOLATION AND PURIFICATION OF THE R18 ANTIGEN OF HTLV-III

Flossie Wong-Staal, Rockville, Md.; Pranab K. Chanda, Paoli, and John Ghrayeb, Thorndale, both of Pa., assignors to The United States of America as represented by the Department of Health & Human Services, Washington, D.C.

Division of Ser. No. 920,780, Oct. 20, 1986, Pat. No. 4,963,497.
This application Jul. 25, 1990, Ser. No. 556,999
Int. Cl.[5] A61K *39/21, 39/42;* **C07K** *15/06*
U.S. Cl. 424—89 **3 Claims**

1. An isolated, more than 95% pure R18 antigen encoded by the R gene of HTLV-IIIB virus as shown in FIG. 1A.

5,063,054

MICROBIAL PRODUCTS USED FOR TREATMENT OF HEPATITIS

Joseph Chang, 6-21-3 Siejl, Setagaya-ku, Tokyo, Japan

Continuation of Ser. No. 182,943, Apr. 18, 1988, abandoned.
This application Apr. 19, 1990, Ser. No. 512,053
Int. Cl.[5] A61K *35/74*
U.S. Cl. 424—92 **5 Claims**

1. A method of treating human hepatitis which comprises administering to a human in need thereof a therapeutically effective amount of an agent which comprises a water soluble, ethanol insoluble extract derived from cells of *Achromobacter stenohalis.*

5,063,055

PREPARATION OF STRAINS OF *BACILLUS THURINGIENSIS* HAVING AN IMPROVED ACTIVITY AGAINST CERTAIN LEPIDOPTEROUS PESTS AND NOVEL STRAIN PRODUCED THEREBY

Denis H. Burges, Goring-by-Sea, and Paul Jarrett, Littlehampton, both of England, assignors to Agricultural Genetics Company, Limited, Cambridge, England

Division of Ser. No. 784,562, Oct. 4, 1985, Pat. No. 4,935,353.
This application Mar. 27, 1990, Ser. No. 500,199
Claims priority, application United Kingdom, Oct. 9, 1984, 8425487
Int. Cl.[5] C12N *1/20, 15/03;* **A01N** *63/00*
U.S. Cl. 424—93 **4 Claims**

1. An entomocidal composition comprising a strain of *Bacillus thuringiensis* having all the identifying characteristics of strain GC91, (NCTC 11821) or a derivative or mutant thereof having entomocidal activity against lepidopterous pests, or a spore-crystal complex produced by said strain, derivative or mutant, together with a carrier, diluent, surfactant or application-promoting adjuvant.

5,063,056

MELANOGENESIS-INHIBITING PREPARATION FOR EXTERNAL APPLICATION

Shinji Yamamoto, Fukuoka, Japan, assignor to Sansho Seiyaku Co., Ltd., Fukuoka, Japan

Filed May 21, 1990, Ser. No. 526,354
Claims priority, application Japan, Jun. 12, 1989, 1-149833
Int. Cl.[5] A61K *7/00, 7/48*
U.S. Cl. 424—401 **3 Claims**

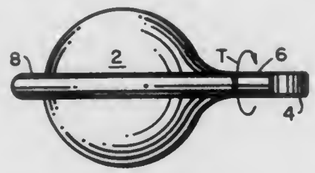
1. A preparation for external application to skin to inhibit melanine formation comprising 5-hydroxy-2-methoxymethyl-γ-pyrone as an active ingredient, said active ingredient being present in an amount ranging from 0.001 to 20% by weight of the total amount of said preparation, said preparation being in a form selected from the group consisting of lotions, emulsions, ointments, cataplasms and creams to be applied to human skin.

5,063,057

COSMETIC CAPSULES

Joseph X. Spellman, Westport, Conn.; Marlene C. Beck, and Victoria Connell, both of New York, N.Y., assignors to Elizabeth Arden Co., Division of Conopco, Inc., New York, N.Y.

Filed Sep. 26, 1990, Ser. No. 588,249
Int. Cl.[5] A61K *7/00*
U.S. Cl. 424—401 **12 Claims**



1. A cosmetic product comprising:
a cosmetic composition pharmaceutically acceptable for application to a human body; and
a capsule completely enclosing said cosmetic composition, said capsule comprising:
(i) a round body defined by an outward wall and having a hollow chamber, said round body forming a major portion of said capsule, said round body including a ring projecting outwardly from and circumferentially encompassing said outer wall, said ring being positioned in a plane equatorially cutting said round body, said cosmetic composition being contained within said chamber;
(ii) a tab forming a minor portion of said capsule; and
(iii) a neck section connecting said tab with said round body, said neck section upon being twisted breaking to allow exit of said composition from said chamber.

5,063,058

METHOD OF ATTRACTING *TRIBOLIUM CONFUSUM J.* USING 2,6-DIMETHYL-1-OCTANOL

Tatsuji Chuman, Yokohama, and Mikio Ono, Hamura, both of Japan, assignors to Japan Tobacco Inc., Tokyo, Japan

Filed Apr. 23, 1990, Ser. No. 512,424
Claims priority, application Japan, Apr. 25, 1989, 1-105505
Int. Cl.[5] A01N *25/10, 25/08, 25/34*
U.S. Cl. 424—405 **7 Claims**

1. A method of attracting *Tribolium confusum J.* to a predetermined trapping location, which comprises placing an effective amount of 2,6-dimethyl-1-octanol at a predetermined trapping location, wherein said 2,6-dimethyl-1-octanol is supported by a solid carrier; wherein said solid carrier is in the form of a disc or a tablet; wherein said solid carrier is impregnated with said 2,6-dimethyl-1-octanol in an amount of 1/10 to 1/100,000 the weight of said solid carrier; and wherein said solid carrier is selected from the group consisting of pulp, polysulfone nylon, nylon, polycarbonate, polyvinylidene chloride, polyvinyl chloride, polyvinylidene fluoride, polyurethane, cellulose ester, polyvinyl alcohol, epoxy resin and polyolefin, thereby luring *Tribolium confusum J.* to the trapping location.

5,063,059

MICROENCAPSULATED COCKROACH-CONTROLLING COMPOSITION

Toshiro Ohtsubo, Hyogo; Shigenori Tsuda, Kyoto; Hitoshi Kawada; Goro Shinjo, both of Osaka, and Kozo Tsuji, Nara, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 290,384, Dec. 27, 1988, abandoned.
This application Nov. 15, 1990, Ser. No. 614,555
Claims priority, application Japan, Dec. 25, 1987, 62-331237
Int. Cl.[5] A01N *25/34*
U.S. Cl. 424—408 **1 Claim**

1. A microencapsulated cockroach controlling composition comprising:
phenylxylylethane and (RS)-α-cyano-3-phenoxybenzyl (1R)-trans-chrysanthemate encapsulated in microencapsules, said microcapsules having
(a) a polyurethane wall,
(b) an average particle diameter of 16 to 80 microns,
(c) a wall thickness of 0.06 to 0.3 microns, and
(d) an average particle diameter size to wall thickness ratio of 100 to 400.

5,063,060

COMPOSITIONS AND METHOD FOR TREATING PAINFUL, INFLAMMATORY OR ALLERGIC DISORDERS

Joel E. Bernstein, Deerfield, Ill., assignor to Cisco Limited Partnership, Lincolnshire, Ill.

Filed Dec. 19, 1989, Ser. No. 452,476
Int. Cl.[5] A61K *9/02, 9/20, 1/48, 31/16*
U.S. Cl. 424—422 **14 Claims**

1. A composition comprising cis-8-methyl-N-vanillyl-6nonenamide in an amount of about 0.001% to about 1.0% by weight and a pharmaceutically acceptable vehicle, said composition for use in the treatment of painful or allergic disorders, said composition being comparable in efficacy to compositions containing capsaicin but with significantly less local adverse effects normally associated with capsaicin.

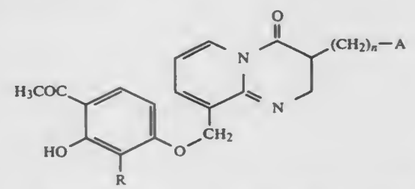
5,063,061

AQUEOUS PREPARATION OF PYRIDO(1,2-A)PYRIMIDINE COMPOUND

Takashi Yazaki, Misato; Tomohisa Matsushita, Okegawa, and Tsutomu Nagase, Ohizumimachi, all of Japan, assignors to Tokyo Tanabe Company, Tokyo, Japan

Filed Mar. 27, 1990, Ser. No. 499,954
Claims priority, application Japan, Jun. 9, 1989, 1-145201
Int. Cl.[5] A61F *2/00, 13/00;* **A61K** *31/52*
U.S. Cl. 424—427 **7 Claims**

1. An aqueous preparation comprising of 0.1 to 0.3% (W/V) of a pyrido[1,2-a]pyrimidine compound represented by the following formula:



wherein R represents an n-propyl or allyl group, A represents a tetrazolyl or carboxyl group, and n represents an integer of 0 to 2;
0.5 to 2.0% (W/V) of a polyoxyethylene sorbitan fatty acid ester, 0.5 to 2.0% (W/V) of polyethylene glycol and 1.0 to 3.5% (W/V) of disodium hydrogenphosphate.

5,063,062

CLEANING COMPOSITIONS WITH ORANGE OIL

Douglas H. Greenspan, Louisville, and Phillip A. Low, Littleton, both of Colo., assignors to D. Greenspan and W. Ingram, both of Louisville, Calif.

Filed Sep. 27, 1989, Ser. No. 413,395
Int. Cl.[5] A61F *13/00*
U.S. Cl. 424—443 **12 Claims**

1. A skin cleaning composition adapted for external use on human tissues, comprising a first ingredient being between five percent (5%) and sixty percent (60%) by volume of orange oil, a second ingredient being a pharmaceutically acceptable moisturizer for human skin and a third ingredient being an emulsifying agent in the form of an oat grain derivative product.

5,063,063

HYPOADHERENT DRESSINGS COMPRISING LIQUID PERVIOUS POLYMER COATING OF POLYURETHANE CONTAINING SILOXANE RESIDUES

Nigel D. Miller, South Wirral, United Kingdom, assignor to Smith & Nephew plc, United Kingdom

Filed May 17, 1989, Ser. No. 352,872
Claims priority, application United Kingdom, May 18, 1988, 8811776
Int. Cl.[5] A61L *15/00;* **B32B** *27/12, 27/28, 27/40*
U.S. Cl. 424—445 **12 Claims**

1. A hypoadherent dressing comprising a fibrous body-facing substrate having a liquid pervious polymer coating on its body-contacting surface, wherein said polymer coating comprises a polyurethane containing siloxane residues.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,064
METHOD FOR INHIBITING OR DESTROYING SPERMATOZOA

Pierre Bourbon, Toulouse, France; Pierre Lagny, Kildare, Ireland, and Pierre Billot, Neuilly/Seine, France, assignors to Atlantic Pharmaceutical Products Ltd., Celbridge, Ireland

Filed Sep. 20, 1988, Ser. No. 246,982
Int. Cl.[5] A61K *33/14*
U.S. Cl. 424—673 **9 Claims**

1. A method for inhibiting or destroying spermatozoa which comprises contacting the spermatozoa with a spermicidally effective amount of a composition which comprises ionic or ionizable lithium.

5,063,065
COMPOSITION AND METHOD FOR THE TREATMENT OF GENITAL DYSPLASIA

Enrique J. V. Bazterrica, and Enrique T. V. Bazterrica, both of 266 Roque Saenz Pena St., 1st Fl. "E" (1642), San Isidro, Province of Buenos Aires, Argentina

Filed Oct. 9, 1990, Ser. No. 594,838
Int. Cl.[5] A61K *33/34*
U.S. Cl. 424—637 **3 Claims**

1. A method for the diagnosis of genital dysplasia associated with viral condylomatosis, comprising applying an effective amount of a composition comprising a saturated solution of copper sulfate in a pharmacological acceptable medium to an area where genital dysplasia is suspected and observing the area for staining.

5,063,066
DIETARY MODIFICTION TO ALLEVIATE TOXICITY IN LIVESTOCK CAUSED BY MYCOTOXINS

Sid D. Hulse, Marietta, Ga.; D. V. Maurice, Clemson, S.C.; Nelson E. Ward, Blairstown, and David L. Wicker, Ringwood, both of N.J., assignors to Degussa Corporation, Ridgefield Park, N.J.

Filed Jan. 29, 1990, Ser. No. 472,046
Int. Cl.[5] A23K *1/00*
U.S. Cl. 426—2 **8 Claims**

1. A method for alleviating adverse toxicity reactions in poultry induced by feeding mycotoxin contaminated feed comprising feeding said conventional poultry with a feed diet an and amount of methionine and niacinamide effective to alleviate said adverse toxicity reactions to mycotoxins in poultry.

5,063,067
CONCENTRATED LIQUID FEED SUPPLEMENT CONTAINING POSITIONALLY STABILIZED EAT AND METHOD

Stephen F. Binder, Washington, Mo., and Kent J. Lanter, Millstadt, Ill., assignors to Purina Mills, Inc., St. Louis, Mo.

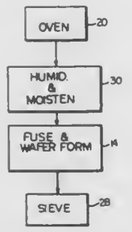
Continuation of Ser. No. 93,473, Sep. 4, 1987, abandoned. This application May 15, 1990, Ser. No. 523,841
Int. Cl.[5] A23K *1/22*
U.S. Cl. 426—69 **22 Claims**

1. A stable liquid feed concentrate which upon dilution with water becomes a liquid feed composition for animals, the concentrate consisting essentially of an aqueous phase containing nutrients, a dispersion in said aqueous phase of fat in an amount normally separating as an oil phase added in order to confer an increased energy level to the feed concentrate and, as a dispersing agent stabilizing the fat against separation from the aqueous phase, the sodium hydroxide saponification product of a portion of the fatty acids contained in the added fat, included in the concentration in an amount effective to form a stable dispersion without further processing.

5,063,068
METHOD OF PRODUCING LAMINATED WAFERS

Paul A. Cavanagh, Scituate, R.I., assignor to Cavanagh Company, Greenville, R.I.

Filed Jun. 7, 1990, Ser. No. 534,503
Int. Cl.[5] A21D *13/00*; A23G *3/00*
U.S. Cl. 426—94 **11 Claims**



1. A method for producing laminated bread wafers comprising,

first producing at least two sheets of bread by baking a batter comprising flour and water, each sheet having opposing friable outer crusts enclosing a center which is soft and porous relative to the crusts, and then

fusing at least part of one outer crust of a first one of the sheets of bread to at least part of one outer crust of a second one of the sheets of bread by the following steps:

(a) moistening at least one outer crust of the first sheet and at least one outer crust of the second sheet, by applying an aqueous-composition sufficient to render them fusable, and

(b) thereafter, fusing at least part of the two fusable outer crusts,

the method being characterized by advancing the sheets between wafer-forming members in an operation that forms the wafers and seals the outer crust edges to conceal lamination.

5,063,069
ZIPPERED CLOSURE FOR THERMOFORMED PACKAGE

Donald L. Van Erden, Wildwood; Daniel P. McDonald, Arlington Heights, both of Ill., and Steven Ausnit, New York, N.Y., assignors to Zip-Pak Incorporated, Northbrook, Ill.

Continuation-in-part of Ser. No. 327,619, Mar. 23, 1989. This application Apr. 27, 1990, Ser. No. 515,628
Int. Cl.[5] B65D *33/16*
U.S. Cl. 426—122 **17 Claims**



1. A plastic bag for foodstuffs or the like, comprising in combination:

a first plastic film bag wall joined at its edge to a second plastic film bag wall with a bag mouth at a top of the bag between the walls at a top of the bag;

reclosable fastener strips between the walls at the bag mouth having facing releasably interlocking profiles thereon each with a base web bonded to the confronting surfaces of the film, each base web having an inner portion extending downwardly toward the bag interior and an outer portion extending outwardly above the profiles;

the inner portion of said base webs being joined to each other to seal the bag interior;

frangible tear means on the inner portion of one of said base webs for breaking into the bag interior so that the profiles can be separated and thereafter afford a reclosable bag mouth; and the inner portion of one of said base webs being bonded to the film and the inner portion of the other base web forming a barrier membrane and being substantially free of the attachment to the film.

5,063,070
PROCESSES FOR SEPARATION OF STEROL COMPOUNDS FROM FLUID MIXTURES USING SUBSTANTIALLY INSOLUBLE COMPOUNDS

Lawrence P. Klemann, Somerville, and John W. Finley, Whippany, both of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Jun. 30, 1989, Ser. No. 373,822
Int. Cl.[5] A23C *9/14*; C12H *1/04*
U.S. Cl. 426—271 **37 Claims**

1. A process for separation of at least one sterol compound from a fluid mixture, said process comprising:

(a) treating a substantially insoluble carbonate salt with a first sterol compound capable of become adsorbed on the surface of the substantially insoluble carbonate salt, said treatment being effected under conditions effective to cause the first sterol compound to become reversibly adsorbed on the surface of the substantially insoluble carbonate salt, thereby producing a sterol-modified carbonate;

(b) treating the sterol-modified carbonate produced in step (a) with an excess of a surface-modifying agent, the surface-modifying agent having a reactive group capable of reacting with the surface of the substantially insoluble carbonate salt, and an elongate hydrophobic portion, the treatment of the sterol-modified carbonate with the surface-modifying agent being effected under conditions such that the adsorbed first sterol compound is not desorbed from the substantially insoluble carbonate salt but substantially all of the reactive sites on the surface of the substantially insoluble carbonate salt not covered by the adsorbed sterol compound react with the surface-modifying agent;

(c) desorbing the first sterol compound from the substantially insoluble carbonate salt, thereby producing a surface-modified carbonate; and

(d) contacting the surface-modified carbonate from step (c) with the fluid mixture under conditions effective to permit adsorption of at least one second sterol compound on to the surface-modified carbonate, and separating the surface-modified carbonate from the fluid mixture thereby producing a fluid mixture having a reduced content of the at least one second sterol compound.

5,063,071
METHOD FOR CENTERING AN EGG YOLK DURING COOKING

Gerd Bergmeier, Hiddenhausen, Fed. Rep. of Germany, assignor to Erich Bergmeier Maschinenfabrik, Fed. Rep. of Germany

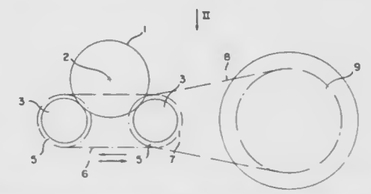
Filed Aug. 22, 1990, Ser. No. 570,773
Claims priority, application Fed. Rep. of Germany, Aug. 26, 1989, 3928346
Int. Cl.[5] A47J *29/00*
U.S. Cl. 426—298 **5 Claims**

1. A method for centering an egg yolk during cooking, comprising the steps of

(a) cooking the egg;

(b) rotating the egg in a first direction about its longitudinal axis for a first interval of time during said cooking step;

(c) rotating the egg in a second direction about its longitudinal axis opposite said first direction for a second interval of time during said cooking step; and



(d) repeating steps (b) and (c) until the egg white has solidified.

5,063,072
ONE-STEP FLAVORED PASTA PRODUCTS AND PROCESSES FOR PREPARING FAST COOKING PASTA PRODUCTS

Stephen R. Gillmore, Cato; Carleton G. Merritt, Phoenix; Dhyaneshwar B. Chawan, and Edward A. Matuszak, both of Liverpool, all of N.Y., assignors to Borden, Inc., Columbus, Ohio

Continuation-in-part of Ser. No. 225,211, Jul. 28, 1988, abandoned, and Ser. No. 149,589, Jan. 28, 1988, abandoned, which is a continuation-in-part of Ser. No. 105,704, Oct. 8, 1987, abandoned. This application Feb. 28, 1990, Ser. No. 485,893
Int. Cl.[5] A23L *1/00*
U.S. Cl. 426—557 **77 Claims**

1. A process for fast cooking pasta comprising the steps of

(a) soaking uncooked pasta in water having a temperature of between about 33° F. (0.6° C.) and about 140° F. (60° C.) for a period of time sufficient to hydrate said pasta; and

(b) cooking the soaked pasta resulting from step (a) by heating it for a period of time shorter than said be needed to cook pasta which had not been previously soaked,

said uncooked pasta being one which displays a starch loss of less than about 7.0 weight percent when evaluated by cooking 170 grams in 350 grams of water in a microwave oven at 700 watts for eight minutes and then extracting with 500 ml of room temperature water.

5,063,073
C-GEL COMPOSITE FOOD PRODUCTS

John F. Kratochvil, Oak Brook, Ill., assignor to Kraft General Foods, Inc., Glenview, Ill.

Division of Ser. No. 307,069, Feb. 6, 1989, abandoned, which is a continuation-in-part of Ser. No. 658,618, Oct. 9, 1984, Pat. No. 4,684,533, and a continuation-in-part of Ser. No. 81,115, Aug. 3, 1987, abandoned. This application Aug. 7, 1990, Ser. No. 563,499
Int. Cl.[5] A23L *1/05, 1/052*
U.S. Cl. 426—573 **12 Claims**

1. A method for manufacturing a packaged C-Gel composite food comprising steps of mixing and heating to at least pasteurization temperature components comprising at least about 30 weight percent water, at least about 1 weight percent gelatin, at least about 0.5 weight percent kappa carrageenan, and a dispersed food product selected from the group consisting of meat, seafood, fruit, vegetable, synthetic protein fibers, chocolate or mixtures thereof, to provide a fluid, heated packaging blend;

introducing the fluid, heated packaging blend into a packaging material tube to provide a C-Gel blend filled packaging tube; and

cross sealing and severing the C-Gel filled packaging material tube to provide a plurality of individually wrapped C-Gel food products.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,074

LOW FAT LOW CHOLESTEROL MILK PRODUCTS

Marvin L. Kahn, Williamsville, and John S. O'Mahony, Clarence Center, both of N.Y., assignors to Rich Products Corporation, Buffalo, N.Y.

Filed Jan. 30, 1990, Ser. No. 472,018
Int. Cl.[5] A23C *9/15, 9/154*
U.S. Cl. 426—585 11 Claims

1. A low fat, low cholesterol milk product approximating the taste and mouthfeel of whole or 2% milk comprising about 95 to about 99% skim milk and about 1 to about 5% of a premix, wherein said premix comprises about 50 to about 70% non-tropical vegetable oil, about 15 to about 20% food grade gum, about 6 to about 10% of a flavoring agent and about 6 to about 10% non-lauric emulsifier, said emulsifier comprising about 35 to about 54% mono and diglycerides, about 23 to about 43% sodium stearoyl lactylate and about 12 to about 32% polysorbate 60.

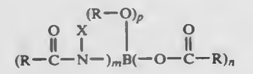
5,063,075

AMIDE ETHER DERIVATIVES AS LOW CALORIE FAT MIMETICS

Ronald G. Yarger, Covent Station; Lawrence P. Klemann, Somerville, and John W. Finley, Whippany, all of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Aug. 1, 1990, Ser. No. 561,868
Int. Cl.[5] A23D *9/00*
U.S. Cl. 426—601 29 Claims

1. A fat mimetic composition of the following formula, useful as a fat replacement in edible materials:



where
B is an aliphatic group having from 2 to 12 carbons,
each R is, independently, an aliphatic group having 1 to 30 carbons,
X=H, R or (CO)—R,
m=1 to 2,
n=0 to 6, and
p=1 to 2.

5,063,076

MULTIFUNCTIONAL, FAT-CONTINUOUS EMULSIONS WITH A REDUCED FAT CONTENT

Roger M. Finlayson, Farrarmere, South Africa; Harry Scharmann, Bromley, Great Britain, and Leo F. Vermaas, Maassluis, Netherlands, assignors to Van den Bergh Foods Co., Division of Conopco, Inc., Lisle, Ill.

Filed Oct. 2, 1990, Ser. No. 595,649
Claims priority, application United Kingdom, Aug. 29, 1986, 8620897
Int. Cl.[5] A23D *3/00, 5/00*
U.S. Cl. 426—602 7 Claims

1. Water-in-oil emulsion comprising:
(i) a fat-containing fatty phase having from 40 to 75 wt. % of a fat containing at least 10% of crystallized fat within the temperature range of 15°–30° C.;
(ii) a thickened proteinaceous, aqueous phase constituting at least 25% by weight of the total water-in-oil emulsion and containing a thickening agent or a gelling agent selected from the group consisting of a protein, a polysaccharide and mixtures thereof; and
(iii) an emulsifier system comprising mono-esters of saturated fatty acids and mono-esters of unsaturated fatty acids, said mono-esters formed from a polyhydroxyl alcohol selected from the group consisting of glycerol, polyglycerol, and mixtures thereof, wherein
(a) the amount of unsaturated fatty acid ester ranges from 0.1–0.6 wt. %,
(b) the amount of saturated fatty acid ester ranges from 0.1–0.4 wt. %, and
(c) the ratio of saturated fatty acid ester to unsaturated fatty acid ester ranges from 0.2–1.8.

5,063,077

PROCESS FOR THE REMOVAL OF CHOLESTEROL AND CHOLESTEROL ESTERS FROM EGG YOLK

Heinz-Rüdiger Vollbrecht, Altenmarkt; Jan Cully, Trostberg, and Johann Wiesmüller, Engelsberg, all of Fed. Rep. of Germany, assignors to SKW Trostberg Aktiengesellschaft, Trostberg, Fed. Rep. of Germany

Filed Nov. 21, 1989, Ser. No. 439,556
Claims priority, application Fed. Rep. of Germany, Aug. 26, 1989, 3928258
Int. Cl.[5] A23L *1/32, 1/015*
U.S. Cl. 426—614 8 Claims

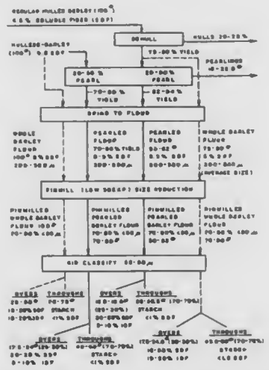
1. The method of removing cholesterol and cholesterol esters from egg yolk composed of egg yolk plasma and an LDL-granula fraction, which comprises
a) optionally adding an emulsion-breaking agent to the egg yolk,
b) separating the egg yolk plasma from the LDL-granula fraction,
c) adsorbing the cholesterol and cholesterol esters contained in the egg yolk plasma on a solid adsorbent,
d) separating the adsorbent loaded with cholesterol and cholesterol esters from the egg yolk plasma, and
e) optionally recombining the egg yolk plasma with the LDL-granula fraction.

5,063,078

METHOD OF DRY MILLING AND PREPARING HIGH SOLUBLE FIBER BARLEY FRACTION

Karen B. Foehse, Plymouth, Minn., assignor to General Mills, Inc., Minneapolis, Minn.

Filed Nov. 16, 1989, Ser. No. 437,229
Int. Cl.[5] B02C *7/00*
U.S. Cl. 426—618 10 Claims



1. A method for preparing a barley four fraction having a concentrated level of soluble dietary fiber, consisting essentially of the steps of:
A. milling barley having a native soluble dietary fiber content to form a course barley flour having a particle size such that about 90% is less than 600 microns and greater than 50% larger than 200 microns;
B. size reducing without shearing the coarse barley flour in a single step to form a fine barley flour having a particle size such that 30% to 80% of the fine barley flour is less than about 50 microns;
C. classifying the fine barley flour employing a screen setting ranging from about 28 to 65 microns into a first, minor barley flour fraction of a larger particle size having a concentrated soluble dietary fiber content at least 1.2 to 5× the native concentration and a second, major barley flour fraction of a smaller particle size having a reduced soluble dietary fiber content; and
D. separately recovering the first and second barley flour fractions.

5,063,079

METHOD OF PRODUCING SHELF STABLE WHEAT GERM

Peter J. Ferrara, Ridge Rd., P.O. Box 441, Cornwall, N.Y. 12518, and John T. Benson, 1260 N. 200 East, #18, Logan, Utah 84321

Filed Dec. 6, 1989, Ser. No. 446,806
Int. Cl.[5] A21D *2/38*
U.S. Cl. 426—627 4 Claims

1. A method of extending the shelf life of wheat germ, by the elimination of free SH groups, without adversely affecting the flavor of the wheat germ, which comprises: contacting the wheat germ with steam in a chamber, under a combination of conditions sufficient to reduce the sulfhydryl(SH) content of the wheat germ to substantially nil, including maintaining pressures of about 8 to 14 PSIG in said chamber for about 20 to 35 minutes, while drawing off from said chamber about 0.20 lb. to 0.40 lb. of steam per lb. of wheat germ being steamed.

5,063,080

SUGAR-FREE CRUST CHOCOLATES

Christof Kruger, Hamburg, and Karl Cappelmann, Solingen-Wald, both of Fed. Rep. of Germany, assignors to Suomen Xyrofin Oy, Kotka, Finland

Filed May 18, 1990, Ser. No. 524,879
Claims priority, application Fed. Rep. of Germany, May 18, 1989, 3916189; Dec. 2, 1989, 3939997
Int. Cl.[5] A23G *1/00*
U.S. Cl. 426—660 16 Claims

1. A composition for preparing a sugar-free crust for candies consisting essentially of:
(a) a polyol at 42–71% by weight;
(b) water or a mixture of water and alcohol at 28 to 48% by weight; and
(c) a thickening agent for retarding gelatinization or crystallization at 1–10% by weight;
wherein the ratio of said polyol to said water is 2.5:1 to 1.5:1.

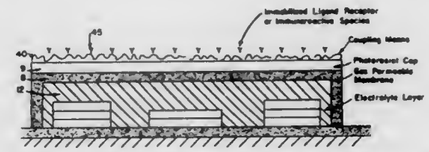
5,063,081

METHOD OF MANUFACTURING A PLURALITY OF UNIFORM MICROFABRICATED SENSING DEVICES HAVING AN IMMOBILIZED LIGAND RECEPTOR

Stephen N. Cozzette, Hightstown; Graham Davis, Plainsboro; Jeanne Itak, Hamilton, all of N.J.; Imants R. Lauks, Yardley, Pa.; Randall M. Mier, Ottawa, Canada; Sylvia Piznik, Jackson, N.J.; Nicolaas Smit, Hightstown, N.J.; Susan Steiner, Trenton, N.J.; Paul Van Der Werf, Princeton Junction, N.J., and Henry J. Wieck, Brooklyn, N.Y., assignors to I-Stat Corporation, Princeton, N.J.

Division of Ser. No. 432,714, Nov. 7, 1989, which is a continuation-in-part of Ser. No. 381,223, Jul. 13, 1989, abandoned, which is a continuation-in-part of Ser. No. 270,171, Nov. 14, 1988, abandoned. This application Aug. 15, 1990, Ser. No. 567,870
Int. Cl.[5] G01N *33/53*
U.S. Cl. 427—2 31 Claims

1. A method of manufacturing a plurality of uniform microfabricated sensing devices which comprises:
(a) establishing a plurality of base sensors on a suitable substrate wafer;
(b) establishing a permselective layer, superimposed over at least a portion of each base sensor, having a thickness sufficient to exclude substantially molecules with a molecular weight of about 120 or more while allowing the free permeation of molecules with a molecular weight of about 50 or less;



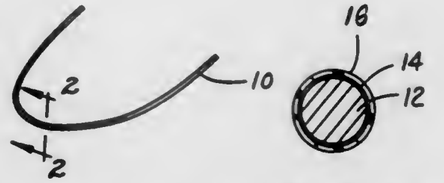
(c) establishing a photoresist layer comprising a photoformable proteinaceous mixture, superimposed over a substantial portion of said permselective layer; and
(d) establishing a topmost layer comprising a sufficient amount of an immobilized ligand receptor.

5,063,082

METHOD OF MAKING COATED METALLIC ORTHODONTIC ARCH WIRE

Loren S. Adell, 6207 Telluride La., Dallas, Tex. 75252, assignor to Loren Adell and Michael Adell, both of Sunnyvale, Tex.

Division of Ser. No. 202,785, Jun. 3, 1988, Pat. No. 4,946,387. This application Jul. 27, 1990, Ser. No. 558,709
Int. Cl.[5] A61C *7/20*
U.S. Cl. 427—2 11 Claims



1. A method of making coated metallic orthodontic wire which comprises passing metal wire sequentially through plural processing stations, applying to the metal wire at a first of said stations a layer of tooth color material that presents a color simulating that of teeth with which the orthodontic wire is adapted to be used, and applying at a second of said stations a layer of clear material covering said layer of tooth color material to protect said layer of tooth color material in an intra-oral environment while allowing the color of the layer of tooth color material to be presented through the layer of clear material.

5,063,083

PHOTOLYTIC DEPOSITION OF METAL FROM SOLUTION ONTO A SUBSTRATE

John J. Eisch, Vestal, N.Y., and Marek P. Boleslawski, Binghamton, N.Y., assignors to The Research Foundation of the State University of New York, Albany, N.Y.

Filed Jun. 5, 1990, Ser. No. 533,317
Int. Cl.[5] B05D *3/06, 5/12;* C01B *00/00*
U.S. Cl. 427—53.1 8 Claims

1. A process for the substantially photolytic deposition of a metal from solution onto a substrate which comprises irradiation with light to cause said deposition, of a solution formed by combining as separate reagents, (1) metal source selected from the group consisting of a 1,3-dicarbonyl complex of the metal and a soluble inorganic metal salt, and (2) a tetraarylborate

VOL 1132 ISS 1 NO 5 1991 UMI

compound capable of coordination with the metal species so as to be capable of promoting the photoreduction of the metal onto the substrate when the solution is in contact with the substrate.

5,063,084

METHOD OF PREVENTING ADHERENCE OF INSECT RESIDUES TO VEHICULAR SURFACES

Riley H. Nelson, 131 E. Hwy. 50, Winter Garden, Fla. 32787

Filed May 31, 1990, Ser. No. 531,054
Int. Cl.[5] B05D *5/08*
U.S. Cl. 427—154 8 Claims

1. A process for preventing insect remains from adhering to and damaging surfaces of a vehicle after impacting therewith, and for making such insect remains easily removable, comprising the steps of:

A. mixing together the following ingredients:
(1) one hundred gallons of water;
(2) from one to thirty gallons of a hydrophilic agent;
(3) from one to nineteen gallons of an emulsifier;
(4) from one pint to two quarts of vegetable oil;
(5) from one to twenty-three gallons of chlorine and phosphorus-free surfactant/detergent;
(6) from one pint to five gallons of non-ionic surfactant/detergent;
(7) from 0.0005 lbs. to 0.0015 lbs. of non-toxic, non-corrosive stabilizer;
(8) from 0.005 to 0.015 lbs. of anti-oxidant/color stabilizer;

B. applying a coating of said mixture of ingredients to selected surfaces of a vehicle for which protection is desired;

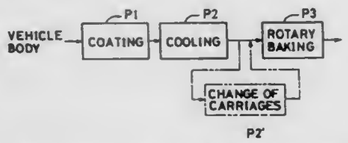
C. removing insect remains from the surfaces of the vehicle by removing the coating with water.

5,063,085

COATING METHOD

Takakazu Yamane; Yoshio Tanimoto, and Tadamitsu Nakahama, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Aug. 1, 1990, Ser. No. 560,994
Claims priority, application Japan, Aug. 1, 1989, 1-201074
Int. Cl.[5] B05D *1/102, 3/00*
U.S. Cl. 427—240 23 Claims



1. A coating method comprising a coating step for spraying a substrate with a paint and a drying step for drying the paint sprayed on the substrate;

wherein the coating step is to spray a surface of the substrate extending substantially upwardly and downwardly with the paint to form a coat in a thickness thicker than a thickness ar which the paint starts sagging;

the drying step is to dry the coat formed on the substrate by rotating the substrate about its axis extending in a substantially horizontal and longitudinal direction of the substrate for a period of time ranging from the time when the paint coated starts sagging on the surface of the substrate extending substantially upwardly and downwardly to the time when the paint of the coated formed thereon achieves a substantially sagless state, the rotation of the substrate sprayed with the paint thereon being carried out at a speed which is high enough to rotate the substrate from a vertical position to a horizontal position before the paint coated thereon substantially sags due to gravity yet which is low enough so as to cause no sagging as a result of centrifugal force; and

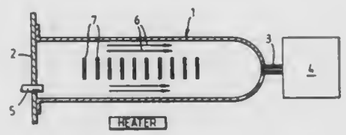
a cooling step for cooling with cool air the coat formed by spraying the substrate with the paint is provided immediately after the coating step yet before the drying step.

5,063,086

VACUUM DEPOSITION PROCESS AND APPARATUS FOR PRODUCING FILMS HAVING HIGH UNIFORMITY

Douglas B. Meakin, Harrow-on-the-Hill, England, assignor to The General Electric Company p.l.c., England

PCT No. PCT/GB88/01126, § 371 Date Sep. 5, 1989, § 102(e) Date Sep. 5, 1989, PCT Pub. No. WO89/05872, PCT Pub. Date Jun. 29, 1989
PCT Filed Dec. 16, 1988, Ser. No. 399,474
Claims priority, application United Kingdom, Dec. 18, 1987, 8729548
Int. Cl.[5] C23C *16/40, 16/44, 16/46, 16/52*
U.S. Cl. 427—255.3 5 Claims



1. A low-pressure chemical vapor deposition process for depositing a substantially uniform film on at least one major surface of a substrate, the process comprising the steps of:

(a) feeding at least one reactant film-forming gas into a deposition chamber along a gas flow direction;

(b) mounting the substrate within the chamber, and orienting said at least one major surface to be substantially perpendicular to the gas flow direction;

(c) heating said at least one reactant gas at said at least one major surface to cause a reaction of said at least one reactant gas, thereby forming the film on said at least one major surface; and

(d) maintaining pressure within the chamber at a level below 10 mTorr during the heating step, and maintaining a value of Sherwood number indicative of the uniformity of the film much smaller than unity, whereby the film formed on said at least one major surface is substantially uniform.

5,063,087

PROCESS FOR STRENGTHENING THE ADHESION OF POLYMERIC SUBSTANCES TO CARBONATE SURFACES

Herbert Eck, Burghausen; Gerald Fleischmann, Emmerting; Höhl Horst, Munich, and Helmut Weber, Ebersberg, all of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Mar. 29, 1990, Ser. No. 501,109
Claims priority, application Fed. Rep. of Germany, May 5, 1989, 3914874
Int. Cl.[5] B05D *3/10*
U.S. Cl. 427—302 28 Claims

1. A process for strengthening the adhesion of a polymeric substance which contains organic groups or are made up of such groups, or a substance containing organic groups which can be crosslinked to form a polymer, to a surface containing an inorganic carbonate, which comprises applying, a solution containing an organic aprotic solvent and a phsophorus compound to a surface containing an inorganic carbonate, in which the phosphorus compound is selected from the group consisting of phosphorus acid and a phosphorus-containing organosilicon compound having at least one group of the formula

RSiOP=O,

in which R is an SiC-bonded radical selected from the group consisting of a monovalent unsubstituted hydrocarbon radical and a monovalent substituted hydrocarbon radical, removing the solvent and thereafter applying the polymeric substance to the treated surface containing the inorganic carbonate, said phosphorus-containing organosilicon compound is selected from the group consisting of (1)

$(RR^1{}_2SiO)_3P{=}O$,

in which R is the same as above, R^1 is a radical selected from the group consisting of an SiC-bonded monovalent unsubstituted hydrocarbon radical, a monovalent substituted hydrocarbon radical, an alkoxy radical, an alkoxyalkylenoxy radical having from 1 to 4 carbon atoms per radical, radicals of the formula

$R_3SiO_{\frac{1}{2}}$,

in which R is the same as above, radicals having from 2 to 10 siloxane units of the formula

$RSiO_{3/2}$, R_2SiO or $SiO_{4/2}$,

in which R is the same as above and mixtures of at least 2 such siloxane units and (2) a compound obtained from the reaction of a silane of the formula

$RSi(OR^2)_3$,

in which R is the same as above, R^2 is selected from the group consisting of an alkyl radical having up to 4 carbon atoms per radical, an alkoxyalkylene radical having up to 4 carbon atoms per radical and partial hydrolyzates thereof containing at most 15 silicon atoms per molecule, with a phosphorus compound selected from the group consisting of orthophosphoric acid, phosphorus acid, phosphorus pentoxide and mixtures thereof, in which the reaction product contains from 0.005 to 0.33 phosphorus atom per silicon atom in the organosilicon compound.

5,063,088

PROCESS FOR PRODUCING REINFORCED POLYMER COMPOSITIONS

Seetha Coleman-Kammula, and Johannes C. M. Gillemans, both of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed Aug. 14, 1989, Ser. No. 393,159
Claims priority, application United Kingdom, Nov. 25, 1988, 8827400
Int. Cl.[5] B05D *3/00, 3/04*
U.S. Cl. 427—352 11 Claims

1. A process of producing a polymer composition comprising (1) a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon and (2) a fibrous inorganic reinforcing material, comprising the steps of:

(a) uniformly coating the fibrous inorganic material with a solution of the linear alternating polymer, said solution having a viscosity of from about 0.5 Pa.s to about 10 Pa.s.; and

(b) subsequently removing the solvent of said solution with a selective solvent which will dissolve the solvent of the linear alternating polymer solution but is a non-solvent for the linear alternating polymer.

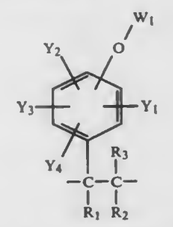
5,063,089

HYDROXYLAMINE OR AMINE OXIDE CONTAINING POLYPHENOLIC COMPOUNDS AND USES THEREOF

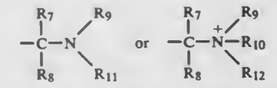
Andreas Lindert, Troy; John R. Pierce, Huntington Woods, and David R. McCormick, Madison Heights, all of Mich., assignors to Henkel Corporation, Ambler, Pa.

Continuation of Ser. No. 128,756, Dec. 4, 1987, Pat. No. 4,970,264. This application Sep. 26, 1990, Ser. No. 588,232
The portion of the term of this patent subsequent to Oct. 16, 2007, has been disclaimed.
Int. Cl.[5] B05D *3/00*
U.S. Cl. 427—354 18 Claims

1. A homo- or co-polymer or a salt thereof, wherein at least 1 percent of the repeating units in the homo- or co-polymer conform to the general formula:



in which R_1 through R_3 are independently selected for each repeating unit from hydrogen, an alkyl group having from 1 to about 5 carbon atoms, or an aryl group having from about 6 to about 18 carbon atoms; Y_1 through Y_3 are independently selected for each repeating unit from hydrogen, Z, $—CR_4R_5OR_6$, $—CH_2Cl$, or an alkyl or aryl group having from 1 to 18 carbon atoms; Y_4 is Z; and Z conforms to the general formula:



in which R_4 through R_{10} are independently selected for each repeating unit from hydrogen, an alkyl, aryl, hydroxy-alkyl, amino-alkyl, mercapto-alkyl, phospho-alkyl moiety, $—O^{(-1)}$ or —OH; R_{11} is —OH; and R_{12} is $—O^{(-1)}$; W_1 is independently selected for each repeating unit from the group consisting of hydrogen; acyl; 3-allyloxy-2-hydroxypropyl; 3-benzyloxy-2-hydroxypropyl; 3-alkylbenzyloxy-2-hydroxypropyl; 3-phenoxy-2-hydroxypropyl; 3-alkylphenoxy-2-hydroxypropyl; 2-hydroxyalkyl; 2-hydroxy-2-phenyl ethyl; 2-hydroxy-2-alkylphenyl ethyl; isopropenyl-; propenyl; benzyl; alkyl; allyl; alkylbenzyl; haloalkyl; haloalkenyl; sodium, potassium; tetra aryl ammonium; tetra alkyl ammonium; tetra aryl phosphonium; tetra alkyl phosphonium; and a condensation product of ethylene oxide, propylene oxide, or a mixture or copolymer thereof.

5,063,090

LECITHIN AS A WETTABILITY ENHANCING COATING FOR PLASTIC

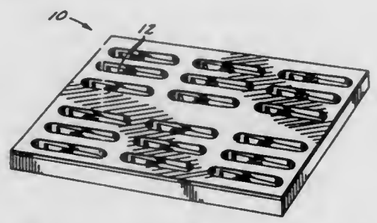
Jon C. Wannlund, San Diego, Calif., assignor to Difco Laboratories, Detroit, Mich.

Filed Jun. 29, 1990, Ser. No. 548,233
Int. Cl.[5] B05D *3/02*
U.S. Cl. 427—384 19 Claims

10. A process for preparing a reaction test apparatus treated for enhanced wettability, comprising the steps of:

VOL 1132 ISS 1 NO 5 1991 UMI

furnishing an untreated plastic reaction test apparatus having a preselected form;



applying to the surface of the piece of reaction test apparatus a solution of lecithin in a solvent; and

evaporating the solvent.

5,063,091

METHOD FOR USE OF AQUEOUS ELASTOMERIC COATINGS

Richard Martorano, Marlton, N.J., assignor to Rohm and Haas Company, Philadelphia, Pa.

Filed Oct. 6, 1989, Ser. No. 418,293

Int. Cl.[5] B05D *3/02*

U.S. Cl. 427—385.5 **12 Claims**

1. A method for use of an aqueous elastomeric coating comprising:

(a) forming an ambient-temperature-drying coating composition comprising at least two mutually incompatible water-insoluble polymers prepared by the polymerization of ethylenically unsaturated monomers, wherein at least one of said polymers comprises N-methylol functionality; and

(b) applying said composition to a surface;

(c) drying said coating composition at a temperature lower than about 50° C.

12. The method of claim 1 or claim 7 wherein said substrate surface is a sports surface.

5,063,092

USE OF PERFLUOROPOLYETHERS IN THE FORM OF AN AQUEOUS MICROEMULSION FOR PROTECTING STONY MATERIALS FROM ATMOSPHERIC AGENTS

Daria Lenti, and Mario Visca, both of Alessandria, Italy, assignors to Ausimont S.r.L., Italy

Continuation of Ser. No. 334,522, Apr. 7, 1989, abandoned. This application Apr. 25, 1990, Ser. No. 512,907

Claims priority, application Italy, Apr. 8, 1988, 20126 A/88

Int. Cl.[5] B05D *3/02*

U.S. Cl. 427—393 **6 Claims**

2. A process for protecting marble, stone, tiles, cement, gypsum or wood and other similar materials utilized in the building industry from the deterioration caused by atmospheric agents and pollutants, comprising applying onto said materials a protective agent selected from the products having perfluoropolyether structure composed of sequences of fluorooxyalkylene units selected from the class consisting of:

$$(CF(CF_3)CF_2O);\ (CF_2CF_2O);\ (CF_2O);\ (CF(CF_3)O);\ (CF_2C(CF_3)_2O);$$

$$(CF_2CF_2CF_2O);\ \text{and}\ (CF_2CF_2CH_2O);$$

having perfluoroalkyl end groups and furthermore being characterized in that the perfluoropolyether product is applied in the form of an aqueous microemulsion.

5,063,093

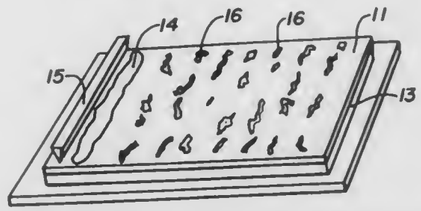
SIMULATED MARBLE AND PROCESS OF PREPARATION

Nancy E. Mentzer, Lancaster, Pa., assignor to Armstrong World Industries, Inc., Lancaster, Pa.

Filed Sep. 5, 1989, Ser. No. 402,352

Int. Cl.[5] B44E *9/04*

U.S. Cl. 428—15 **3 Claims**



1. A shaped solid simulated travertine marble article having surface indentations of irregular shape and depth wherein said solid material is phosphate bonded material and said indentations are produced by the generation of at least carbon dioxide from the chemical reaction of magnesium or calcium carbonate with phosphoric acid during formation of said phosphate bonded material.

5,063,094

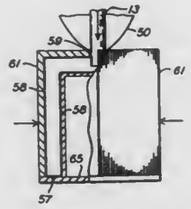
DRAPED PARISON BLOW MOLDED BOX

Richard C. Legge, Pittsford, and George F. Arp, Fairport, both of N.Y., assignors to John D. Brush & Co., Inc., Rochester, N.Y.

Division of Ser. No. 335,576, Apr. 10, 1989, Pat. No. 4,948,357, which is a division of Ser. No. 868,294, May 28, 1986, Pat. No. 4,828,786. This application Jnl. 3, 1990, Ser. No. 547,283

Int. Cl.[5] B65D *1/40*

U.S. Cl. 428—35.7 **6 Claims**



1. A blow molded double-walled box formed of a single, partially inverted, resin parison, said box having a depth from an open end region to a closed bottom region, said depth being larger than one-half a width of said open end region, and said box comprising:

a. leading and trailing parison pinch-off regions being formed in said closed bottom region so that one of said pinch-off regions occurs in an inner wall of said box and the other of said pinch-off regions occurs in an outer wall of said box; and

b. said open end region of said box being formed from an inverted portion of said parison spanning a space between said inner and outer walls of said box.

5,063,095

EXPANDABLE POWDER COATING COMPOSITION, METHOD OF COATING A SUBSTRATE WITH HEAT-INSULATING FOAM AND COMPOSITE MATERIAL OBTAINED THEREBY

Katsuji Kitagawa, Kasukabe; Kazutomo Moriguchi, Soka; Tetsuo Miyake, Saitama; Katusya Sano, Chiryu; Kiyoshi Kittaka, Okazaki, and Tetsuya Sakakibara, Gamagouri, all of Japan, assignors to Somar Corporation and Nippondenso Co., Ltd., both of, Japan

Filed Sep. 5, 1990, Ser. No. 577,663

Claims priority, application Japan, Sep. 6, 1989, 1-232024

Int. Cl.[5] C08J *9/10*

U.S. Cl. 428—35.8 **14 Claims**

1. An expandable, powder coating composition having a particle size distribution wherein the content of particles with a particle size of 40 mesh or finer is 100% by weight, the content of particles with a particle size of 200 mesh or finer is at least 50% by weight and the content of particles with a particle size of 325 mesh or finer is not greater than 50% by weight and comprising:

(a) a thermoplastic resin containing a copolymer of ethylene with vinyl acetate;

(b) a cross-linking agent containing an organic peroxide which is capable of reacting with said copolymer at a temperature higher than the melting point of said thermoplastic resin to crosslink said copolymer and which is solid at room temperature;

(c) a blowing agent capable of decomposing and generating a gas when heated to a temperature higher than the melting point of said thermoplastic resin; and

(d) an organic plasticizer.

5,063,096

OPTICAL DISK

Teiji Kohara, Kawasaki; Masayoshi Oshima, Niiza, and Tadao Natsuume, Yokosuka, all of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Jun. 7, 1990, Ser. No. 534,215

Claims priority, application Japan, Jun. 10, 1989, 1-147299

Int. Cl.[5] B32B *3/02*

U.S. Cl. 421—64 **11 Claims**

1. An optical disk having an optical reflectivity of 70% or above which comprises a substrate made of a thermoplastic saturated norbornene polymer having a glass transition temperature of 100° C. or above and a light reflecting layer formed by laminating, on said substrate, a multi-layer film constituted of at least one compound selected from the group consisting of metallic oxides and metallic fluorides.

5,063,097

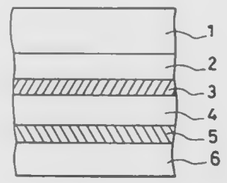
OPTICAL RECORDING MEDIUM

Kusato Hirota, Otsu; Gentaro Ohbayashi, Kusatsu, and Toshiharu Nakanishi, Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan

Filed Dec. 14, 1989, Ser. No. 450,782

Int. Cl.[5] B32B *3/02*

U.S. Cl. 428—65 **10 Claims**



1. An optical recording medium comprising a substrate and at least each of a recording layer and a protective layer, said recording layer being formed on said substrate for recording information thereon or reading or erasing information on record thereon by light-irradiation on the recording layer, wherein the recording and erasing of information takes place through a phase transition between an amorphous phase and a crystalline phase in said recording layer, said recording layer comprising a solid solution of a palladium, antimony and tellurium alloy with germanium, telluride, and having a composition represented by the following formula:

$$(M_xSb_yTe_{1-x-y})_{1-z}(Te_{0.5}Ge_{0.5})_z$$

wherein M is palladium; each of X, Y and Z represents the atomic fraction of respective elements; and $0.01 \leqq X \leqq 0.1$, $0.35 \leqq Y \leqq 0.65$ and $0.2 \leqq Z \leqq 0.4$.

5,063,098

VIBRATION DAMPING MATERIALS AND SOUNDPROOFING STRUCTURES USING SUCH DAMPING MATERIALS

Takahiro Niwa, Nara, and Yasuo Shimizu, Chiba, both of Japan, assignors to Nichias Corporation, Tokyo, Japan

Filed Mar. 21, 1989, Ser. No. 326,611

Claims priority, application Japan, Apr. 1, 1988, 63-80382; Jul. 13, 1988, 63-172619

Int. Cl.[5] B32B *1/04, 15/08*

U.S. Cl. 428—76 **18 Claims**



1. A soundproofing structure comprising in combination: a noise generating portion, a sound absorbing material surrounding said noise generating portion, and a vibration damping material which forms a cladding panel of said sound absorbing material; wherein said vibration damping material includes first and second materials, each being formed of a metal sheet having a rubber- or synthetic resin-base viscoelastic polymeric layer formed on one side, and includes a hot-melt-adhesive synthetic resin layer having a high melting point, which serves to bond together said first and second materials, while they are arranged in opposition to each other through said viscoelastic polymeric layers, and wherein said metal sheets, said polymeric layers and said resin layer all extend substantially parallel to each other.

5,063,099

NON-WOVEN MAT CONSISTING OF ACRYLIC CONTINUOUS FILAMENTS SHOWING HIGH MODULUS IMPREGNATED WITH AN INORGANIC MATRIX

Raffaele Tedesco; Giampaolo Busato, and Giampaolo Sinatora, all of Mestre, Italy, assignors to Montefibre S.p.A., Milan, Italy

Continuation of Ser. No. 196,342, Oct. 9, 1987, abandoned. This application Mar. 19, 1990, Ser. No. 496,116

Claims priority, application Italy, Oct. 14, 1986, 21990 A/86

Int. Cl.[5] B32B *5/12, 13/00*

U.S. Cl. 428—109 **9 Claims**

1. A non-woven mat impregnated with an inorganic matrix, said mat consisting of at least one layer, wherein each layer consists of a plurality of continuous parallel, monodirectional polyacrylic filaments having a tenacity of at least 50 cN/tex, an elastic modulus of at least 1,000 cN/tex, and an ultimate elongation lower than 15%, the filaments in each layer being bound together, said continuous filaments being arranged in a spread out open structure obtained by opening a tow of filaments until

VOL 1132 ISS 1 NO 5 1991 UMI

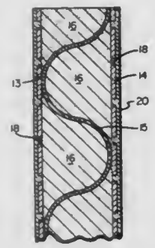
a width of between 50 and 500 cm prior to bonding the filaments in each layer to the other, wherein the filaments are bonded together by a cohesion agent in an amount from 5 to 50% by weight of the filaments, and the cohesion agent is a member of the group of agents which dissolve or swell in water or an alkaline solution of the matrix, employed when the non-woven mat is impregnated with the inorganic matrix to manufacture reinforced inorganic matrix.

5,063,100

MOISTURE-IMPERVIOUS PANEL CAPABLE OF DELAYED, RAPID HYDRATION INCLUDING WATER CHANNELS FILLED WITH WATER-REMOVAL MATERIAL

William Alexander, Naperville, Ill., assignor to American Colloid, Arlington Heights, Ill.

Filed Feb. 15, 1990, Ser. No. 481,442
Int. Cl.[5] B32B *3/10;* F02D *19/00*
U.S. Cl. 428—137 10 Claims



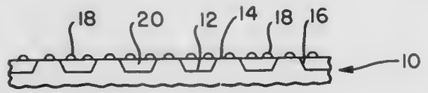
1. A rigid panel useful as a water barrier including first and second facing sheets having a layer of water, swellable clay therebetween, one of said facing sheets being water-permeable and including a plurality of water channels therein extending from an outer surface of the one facing sheet to an inner surface of the one facing sheet said water channels containing a layer of material completely across the water channel having a predetermined water-solubility to prevent water from passing through the water channels during installation of the panel and removable by water contact after panel installation.

5,063,101

INTERLINING

Peter S. Grynaeus, Lowell; Anthony Hollingsworth, Pepperel, and Chester J. Petkiewicz, Lowell, all of Mass., assignors to Freudenberg Nonwovens Limited Partnership, Lowell, Mass.

Filed Dec. 23, 1988, Ser. No. 289,611
Int. Cl.[5] A41D *27/00, 27/06;* B32B *3/10, 7/14*
U.S. Cl. 428—172 43 Claims



1. A shirt interlining comprising:

a base material having a contoured or textured surface and bonded thereon an intermediate layer comprising a fleece of fibers, said fleece of fibers or a porous film, said intermediate layer having an upper surface on which there is disposed a plurality of heat activatable adhesive means, said adhesive means being substantially in a single planar arrangement and at least some of which are separated from said base material by the intermediate layer.

5,063,102

RADIATION CURABLE ORGANOSILOXANE GEL COMPOSITIONS

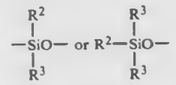
Chi-Long Lee; Michael A. Lutz, and Bernard VanWert, all of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Dec. 1, 1989, Ser. No. 444,351
Int. Cl.[5] B32B *9/06, 15/04;* C08G *77/00*
U.S. Cl. 428—209 6 Claims

1. An organosiloxane gel composition that cures upon exposure to ultraviolet radiation, said composition comprising

(1) a polyorganosiloxane consisting essentially of 80 to 97 mole percent of $(CH_3)_2SiO$ units, 2 to 10 mol percent of $CH_3SiO_{1.5}$ units, 1 to 6 mol percent of $(CH_3)_3SiO_{0.5}$ units and 0.2 to 4 mol percent of units represented by the formula $(CH_3)_aR^1SiO_{(3-a)/2}$, where R^1 represents 3-cyclohexenyl, cyclohexenylethyl or $CH_2{=}CH(CH_2)_x$, a is 1 or 2, and X represents 0 or an integer from 1 to 6, inclusive;

(2) as the curing agent for said composition, a liquid organic compound containing an average of at least two mercapto groups per molecule or a liquid mercaptoalkyl substituted polydiorganosiloxane containing an average of at least two repeating units per molecule corresponding to the formula



where R^2 represents a mercaptoalkyl radical, R^3 represents a monovalent hydrocarbon or halohydrocarbon radical, and said curing agent is compatible with the other ingredients of said composition: and

3) a photointiator in an amount sufficient to promote curing of said composition in the presence of ultraviolet radiation.

where the molar ratio of mercapto groups to alkenyl radicals in said composition is 1 or less.

5,063,103

REINFORCED POLYMERIC MATRIX

Tomoo Sugawara, Kawasaki, and Motoyuki Yamato, Naka, both of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Jun. 19, 1989, Ser. No. 367,580
Claims priority, application Japan, Jun. 21, 1988, 63-151118
Int. Cl.[5] B32B *27/00*
U.S. Cl. 428—285 20 Claims

1. A reinforced polymer comprising a ring-opened nonbornene polymer and a glass fiber mat disposed therein, wherein said norbornene polymer comprises at least one norbornene-type monomer which is polymerized in the presence of said glass mat, and wherein aid mat contains a hydrocarbon binder selected from the group consisting of polyolefins, vinyl aromatic polymers, and mixtures thereof.

5,063,104

FIBROUS BASE WEB BONDING SYSTEM AND METHOD

Diane M. Robertson, West Suffield, and Ludmila Byalik, West Hartford, both of Conn., assignors to The Dexter Corporation, Windsor Locks, Conn.

Filed Jan. 3, 1990, Ser. No. 460,405
Int. Cl.[5] A22C *11/00;* B32B *33/00, 27/04;* B65D *8/34*
U.S. Cl. 428—286 20 Claims

1. A bonded porous fibrous sheet material for use in the manufacture of food casings and the like comprising a fibrous base web containing about 10% by weight and less of a bonding system comprising a first treatment of a thermoplastic film forming material effective for imparting high alkaline strength to the base web and a subsequent treatment of a film forming material and an insolubilizing agent for the film forming material, said subsequent treatment being effective to impart high wet strength and absorption to the first treated web without substantially reducing the alkaline strength thereof.

5,063,105

MAGNETIC RECORDING MEDIUM IN WHICH CERTAIN PHYSICAL PROPERTIES OF THE MAGNETIC LAYER AND THE BACKCOAT LAYER ARE SPECIFIED

Katsumi Ryoke; Masatoshi Takahashi, and Yasuo Nishikawa, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 17, 1990, Ser. No. 466,547
Claims priority, application Japan, Jan. 17, 1989, 1-005902; Mar. 6, 1989, 1-53450
Int. Cl.[5] G11B *23/00*
U.S. Cl. 428—336 8 Claims

4. A magnetic recording medium comprising a non-magnetic support having formed thereon a magnetic layer containing a ferromagnetic fine powder, a binder, and carbon black and formed on the opposite side to the non-magnetic support to the magnetic layer-carrying side a backing layer containing a binder and carbon black, wherein the binder of the backing layer comprises (1) a vinyl chloride resin and/or vinyl chloride-vinyl acetate copolymer resin, (2) a polyurethane resin and (3) polyisocyanate in a ratio by weight percent of 45 to 55:15 to 25:20 to 35, and wherein the gloss of the magnetic layer is at least 150, and the gloss of the backing layer is from 2 to 7, and wherein the surface free energy of the magnetic layer is from 40 to 55 dyn/cm and the surface electric resistance of the magnetic layer is not higher than 5×10^{10} Ω/cm^2, and wherein the surface free energy of the backing layer is from 45 to 60 dyn/cm and at least 1 dyn/cm higher than the surface free energy of the magnetic layer, and the surface electric resistance of the backing layer is not higher than 1×10^{5} Ω/cm^2.

5,063,106

THERMOPLASTIC PLASTICIZER-RESISTANT FILM AND PRESSURE-SENSITIVE ADHESIVE FILM COMPRISING THE PLASTICIZER-RESISTANT FILM

O. V. Nieuwenhuize, Leiden; F. de Grunt, Zoetermeer; S. de Vissser, Boskoop, and R. Vos, Alphen a/d Rijn, all of Netherlands, assignors to Avery Dennison Corporation, Pasadena, Calif.

Filed Feb. 21, 1989, Ser. No. 313,170
Claims priority, application Netherlands, Feb. 19, 1988, 8800428
Int. Cl.[5] B32B *27/32, 7/12*
U.S. Cl. 428—343 12 Claims

1. A plasticizer-resistant film comprised of a layer formed of a blend of polyvinyl chloride and chlorinated polyethylene in respective weight rations of 10:90 to 65:35 in which the polyvinyl chloride has a K-value of 45 to 80 and the chloride content of the chlorinated polyethylene is from 30 to 40% by weight, said film being receptive to retaining diffused plasticizer from a plasticized substrate without becoming sticky and in contact with said layer, a plasticizer-resistant, pressure-sensitive adhesive which retains adhesion in the presence of a plasticizer, said adhesive comprising a polymer containing an alkyl acrylate or alkyl methacrylate or mixtures thereof.

5,063,107

SILICON CARBIDE FIBRE AND PRODUCTION THEREOF

James D. Birchall, Mouldsworth, and William J. Clegg, Upton, both of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Oct. 6, 1989, Ser. No. 418,262
Claims priority, application United Kingdom, Oct. 6, 1988, 8823472
Int. Cl.[5] D02G *3/00*
U.S. Cl. 428—367 9 Claims

1. A silicon carbide fibre in which the silicon carbide constitutes greater than 90% by weight of the fibre and in which the fibre is substantially homogeneous across a transverse section of the fibre.

5,063,108

CONTINUOUS MULTI-FILAMENT POLYESTER SUBSTRATE READILY ADHERABLE TO A VINYL SHEET

James H. Whetstone, Greensboro, N.C., assignor to Unifi, Inc., Greensboro, N.C.

Division of Ser. No. 262,538, Oct. 25, 1988, Pat. No. 4,935,293.
This application Jun. 6, 1990, Ser. No. 534,184
Int. Cl.[5] D02G *3/00*
U.S. Cl. 428—369 4 Claims



1. Polymeric yarn intended for use in a gauze substrate to be imbedded in the surface of a vinyl sheet material comprising:

a) a textured continuous multi-filament the term polyester yarn having a plasticizer incorporated into the interfilamentary structure thereof;

b) said plasticizer being selected from the group consisting of diacid esters of fatty diacides and short chain monoalcohols, diesters of fatty acids and short chain diol alcohols, and ethoxylated alkyl aryl alcohols;

c) said plasticizer, when said polyester yarn is placed adjacent the surface of said vinyl sheeting under heat and pressure, having the characteristics of softening at least the surface of the vinyl sheeting and laminating the polyester thereto, whereby the yarn will resist pull tests of at least 3.5 lbs.

5,063,109

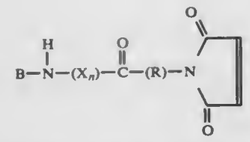
COVALENT ATTACHMENT OF ANTIBODIES AND ANTIGENS TO SOLID PHASES USING EXTENDED LENGTH HETEROBIFUNCTIONAL COUPLING AGENTS

Christopher Bieniarz, Highland Park; J. Christopher Welch, Urbana; Grady Barnes, Lindenhurst, and Carol A. Schlesinger, Wheeling, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Division of Ser. No. 254,288, Oct. 11, 1988, Pat. No. 5,002,883, which is a continuation-in-part of Ser. No. 114,930, Oct. 30, 1987, abandoned. This application Sep. 1, 1989, Ser. No. 402,013
Int. Cl.[5] G01N *33/551;* D02G *3/44;* C07K *17/06*
U.S. Cl. 428—378 5 Claims

1. A chemically derivatized solid phases material comprising

VOL 1132 ISS 1 NO 5 1991 UMI



wherein B is an amine bearing solid phase material; X is an amino acid having from three to ten carbon atoms in a straight chain; n is from one to ten; and R is an alkyl, cycloalkyl, an alkyl-cycloalkyl or an aromatic carbocyclic ring.

5,063,110

COMPOSITION COMPRISING PREPOLYMER POWDER AND PULVERULENT INORGANIC MATERIAL

Jean-Claude A. Bailly, Martigues, and Joelle Collomb, Marseille, both of France, assignors to BP Chemicals Limited, London, England

Division of Ser. No. 197,828, May 12, 1988, Pat. No. 4,970,279. This application Jul. 2, 1990, Ser. No. 547,683

Claims priority, application France, Oct. 2, 1986, 86 13854

Int. Cl.[5] C08F *4/02;* C08L *23/04*

U.S. Cl. 428—402 **2 Claims**

1. A solid composition containing catalytically active sites for a gas phase (co) polymerisation of alpha-olefins and optionally dienes, characterised in that it comprises:

(a) 100 parts by weight of a powder of a prepolymer of one or more alpha-olefins and optionally dienes, the said powder consisting of particles having a mean diameter by mass of from 50 to 500 microns, and containing per gram from 10^{-3} to 10^{-1} milligram atoms of a transition metal belonging to Groups IV, V or VI of the Periodic Table of Elements and from 0 to 20 millimols of at least one organometallic compound of a metal belonging to Groups I to III of the Periodic Table of Elements per milligram atom of the said transition metal, and

(b) from 0.1 to 20 parts by weight of a pulverulent inorganic substance consisting of particles chemically inert to the constituents used in the said gas phase (co-)polymerisation and being free from transition metal compound, said particles having a mean diameter by mass from 10 to 200 times lower than the mean diameter by mass of the particles of the said powder of prepolymer.

5,063,111

DEGRADABLE BOTTLE AND CAN CARRIER COATED WITH ULTRAVIOLET ABSORBER

Louis M. DiBello, Perrysburg, Ohio, assignor to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Filed Feb. 5, 1990, Ser. No. 474,883

Int. Cl.[5] B65D *71/00;* B32B *27/00*

U.S. Cl. 428—411.1 **4 Claims**

1. A degradable carrier comprising:

a body,

said body being made of a degradable polymeric composition comprising a polymer and a degradable additive such that the carrier is degradable upon exposure to ultraviolet radiation,

said body having an exposed surface,

a water soluble coating containing an ultraviolet absorber applied in a layer to said exposed surface of the carrier to define a water soluble coating covering said exposed surface such that the coating protects the carrier from degrading under ultraviolet radiation until such time that the carrier is discarded and becomes wet by rainfall, water or snow, whereupon the coating washes away so that the carrier will thereafter be readily degraded by sunlight or fluorescent lighting.

5,063,112

IMPACT-RESISTANT METHACRYLATE PROTECTIVE LAYER FOR POLYCARBONATE, CONTAINING UV ABSORBER

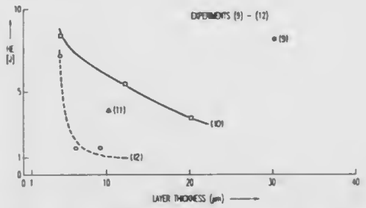
Heinz Gross, Mühltahl; Jens-Dieter Fischer, Darmstadt; Werner Siol, Darmstadt-Eberstadt; Thomas Süfke, Rossdorf, and Thomas Rhein, Stadecken-Elsheim, all of Fed. Rep. of Germany, assignors to Rohm GmbH Chemische Fabrik, Darmstadt, Fed. Rep. of Germany

Filed Nov. 6, 1989, Ser. No. 432,388

Claims priority, application Fed. Rep. of Germany, Nov. 5, 1988, 3837588

Int. Cl.[5] B32B *27/36, 27/08;* C08L *69/00*

U.S. Cl. 428—412 **4 Claims**



1. A multi-layer plastic element, comprising (1) a core layer of more than 50% by weight aromatic polycarbonate and (2) a thermoplastic polymethacrylate plastic layer with an impact strength which has been modified, which is in contact with said core layer, wherein said polymethacrylate plastic layer is a two-phase mixed polymer, which contains a UV absorber or UV-absorbing groups in an amount of 0.01 to 50% by weight, and said two-phase mixed polymer consists of:

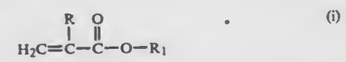
(A) 10 to 90% by weight of polymer, P, with a glass temperature $Tg \leqq 10°$ C., wherein said polymer P is selected from the group consisting of polyolefins, polydienes, ethylene/-vinyl acetate copolymers, polyacrylates, and polysiloxanes or a mixture thereof and into which 0 to 30% by weight, based on P, of polymerizable UV absorber is incorporated; and

(B) 90 to 10% by weight of a methyl methacrylate copolymer which is at least partially covalently linked with (A), with a glass temperature $Tg \geqq 30°$ C., comprising:

(i) 99.9 to 5% by weight of methyl methacrylate units and 0 to 40% by weight of other α,β-unsaturated monomer units;

(ii) 0 to 50% by weight of a polymerizable UV absorber; and

(iii) 0.1 to 95% by weight of acrylate and/or methacrylate units having formula (I)



(i)

wherein R is H or CH_3, and

R_1 is Y or A-Y, wherein Y is a substituted or unsubstituted C_{5-12} cycloalkyl or unsubstituted alkyl-substituted, or oxyalkyl-substituted C_{6-12} aryl, and A is a straight chain or branched C_{1-6} alkylene group, or a C_{2-4} oxyalkylene group, and where said copolymer (B) has a molecular weight $M_w \geqq 30{,}000$ and said aromatic polycarbonate and said copolymer (B) are compatible at all ratios, and a mixture of said polycarbonate and said copolymer (B) has a lower critical solution temperature of $\geqq 120°$ C.; and

wherein the amount of UV absorber or UV-absorbing groups in phase (A) and (B) is in an amount of 0.01 to 50% by weight.

5,063,113

SUBSTRATE HAVING SEMICONDUCTOR-ON-INSULATOR STRUCTURE WITH GETTERING SITES AND PRODUCTION METHOD THEREOF

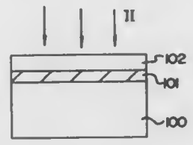
Kunihiko Wada, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 21, 1989, Ser. No. 382,937

Claims priority, application Japan, Jul. 28, 1988, 63-186872

Int. Cl.[5] B32B *9/00*

U.S. Cl. 428—446 **7 Claims**



1. A substrate having a semiconductor-on-insulator structure comprising:

a base substrate;

an insulator layer provided on said base substrate;

an active substrate provided on said insulator layer, said active substrate made of a single crystal semiconductor having gettering sites therein; and

an active layer provided on said active substrate, said active layer made of a single crystal semiconductor substantially free of gettering sites.

5,063,114

COATED MATERIAL

Toshiro Nambu, Hyogo; Hirotoshi Kawaguchi, Hyogo; Hisao Furukawa, Hyogo, and Yasushi Kato, Hyogo, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 6, 1990, Ser. No. 505,393

Claims priority, application Japan, Apr. 6, 1989, 1-87734

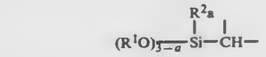
Int. Cl.[5] B32B *9/04*

U.S. Cl. 428—447 **18 Claims**

1. A coated material obtained by applying a coat containing a metallic power or a coloring pigment or both to a substrate and further applying a topcoat clear coating thereon, wherein said topcoat clear coating is a siloxy or siloxane crosslinking thermocurable coating which comprises

(A) a hydroxyl group-containing acrylic resin;

(B) an alkoxysilyl group-containing copolymer represented by formula:



where R^1 represents C_{1-10} alkyl group; R^2 represents a monovalent hydrocarbon group selected from the group consisting of hydrogen atom, alkyl group, aryl group, and aralkyl group; and a represents 0 or integer of 1 or 2; and

(C) curing catalyst.

5,063,115

ELECTRONIC DEVICE COATED WITH A POLYIMIDE COATING COMPOSITION

Burt T. Merriman, Jr., Willingboro, N.J., and David L. Goff, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 88,142, Aug. 21, 1987, abandoned. This application Jun. 15, 1990, Ser. No. 538,591

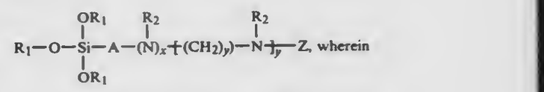
Int. Cl.[5] B32B *9/04*

U.S. Cl. 428—447 **2 Claims**

1. An electronic component comprising an inorganic substrate having an electronic device mounting thereon which is coated by a polymeric film formed by applying thereto a coating of a composition comprising an homogeneous liquid solution of:

(a) polyimide, polyamic acid or polyamide ester;

(b) silane compound corresponding to the structural formula:

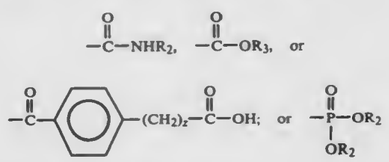


R_1 is independently selected from C_{1-3} alkyl groups;

A is either phenylene or $(CH_2)w$ in which w is an integer of from 1 to 6:

R_2 is independently selected from —H and C_{1-3} alkyl groups;

Z is independently selected from —H, C_{1-8} alkyl, C_{7-12} alkaryl, C_{7-12} aralkyl, glycidyl, romantic carboxyl,



in which R_3 is phenyl or C_{1-8} alkyl;

x is zero or 1;

y is zero or an integer of from 1 to 3; and

z is zero or an integer of from 1 to 3; the sum of the carbon atoms in moieties R_2 and Z being at least 3; and

(c) aprotic solvent, the weight ratio of (b) to (a) being from 0.01 to 02

and heating the applied coating to remove solvent therefrom.

5,063,116

WIRE FOR DOT PRINTER

Norimasa Uchida, Yonago, Japan, assignor to Hitachi Metals, Ltd., Tokyo, Japan

Filed Nov. 29, 1990, Ser. No. 619,431

Claims priority, application Japan, Mar. 16, 1990, 2-066131

Int. Cl.[5] C22C *38/22, 38/24, 38/36;* B41J *2/25*

U.S. Cl. 428—606 **7 Claims**

1. A wire for a dot printer, consisting, by weight, of 1.5 to 2.8% C, 7.5 to 12.0% Cr, at least one kind selected from the group consisting of not more than 18.0% W and not more than 11.0% Mo which W and Mo meet the relationship of $12 \leqq W + 2Mo \leqq 22$, 3 to 10% V, 1.0 to 10% Co, not more than 1.0% Si, not more than 1.0% Mn, the balance Fe and incidental impurities, the difference between the content of C and the value of carbon equivalent which difference is defined by $C - Ceq$ is in the range of -0.5 to -0.15 where $Ceq = 0.06 \times \%\ Cr + 0.033 \times \%\ W + 0.063 \times \%\ Mo + 0.2 \times \%\ V$.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,117

COPPER FIN MATERIAL FOR HEAT-EXCHANGER AND METHOD OF PRODUCING THE SAME

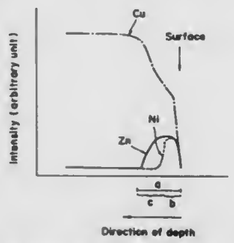
Hideo Suda, Imaichi; Norimasa Sato, Utsunomiya; Katsuhiko Takada, Anjo; Sumio Susa, Anjo; Yasushi Aiyoshizawa, Nikko, and Kenichi Omata, Imaichi, all of Japan, assignors to The Furukawa Electric Co., Ltd., Tokyo and Nippondenso Co., Ltd., Kariya, both of, Japan

Filed Dec. 21, 1989, Ser. No. 454,460

Claims priority, application Japan, Dec. 27, 1988, 63-327697; Jan. 30, 1989, 1-20275; Mar. 1, 1989, 1-49177; Mar. 1, 1989, 1-49178

Int. Cl.[5] B32B *15/01*

U.S. Cl. 428—610 4 Claims



1. A copper fin material for heat-exchanger comprising:
a Cu or Cu alloy strip of a base material having a couple of outer surfaces;
an inner side diffused layer provided on at least one of said outer surfaces of said base material consisting essentially of Zn alloyed to said Cu or Cu alloy of said base material; and
a surface side diffused layer provided on the surface of said inner side diffused layer opposite said base material, comprising Zn and at least one corrosion-resisting element selected from the group consisting of Ni, Al, Sn and Co alloyed to said Cu or Cu alloy of said base material.

5,063,118

ABRASIVE DENTAL STRIP

Roland Goetz, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Aug. 4, 1989, Ser. No. 389,753

Claims priority, application Switzerland, Aug. 9, 1988, 3006/88

The portion of the term of this patent subsequent to Oct. 29, 2008, has been disclaimed.

Int. Cl.[5] C22C *32/00*

U.S. Cl. 428—614 17 Claims

1. A metal foil-like abrasive dental strip for teeth and fillings having a maximum thickness of one millimeter and having a metal matrix solidified from a melt of the metal with hard particles having skeletal crystal shapes fixed in said matrix on one side.

5,063,119

MAGNETIC RECORDING MEDIUM COMPRISING A FLUORINE CONTAINING OLIGOMER SURFACTANT IN OR ON THE MAGNETIC LAYER

Toshio Ishida; Akira Ushimaru, and Yasuo Nishikawa, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 7, 1990, Ser. No. 489,987

Claims priority, application Japan, Mar. 7, 1989, 1-54255

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—694 7 Claims

1. A magnetic recording medium comprising a nonmagnetic support having provided thereon a magnetic layer comprising a ferromagnetic particles dispersed in a binder in an amount of from 10 to 100 parts by weight of the binder to 100 parts by weight of the ferromagnetic particles, said binder comprising a polar group-containing polymer in an amount of 5% by weight or more of the binder, said polar group-containing polymer containing a polar group in an amount of 1×10^{-6} to 1×10^{-3} equivalent per gram of polymer, said magnetic layer having therein or on its surface an ester compound in an amount of 0.1 to 3 parts by weight per 100 parts by weight of the ferromagnetic particles, said magnetic layer having therein in an amount of 0.01 to 8% by weight based on the amount of the ferromagnetic particles or on its surface in an amount of 2 to 50 mg/m^2 of the magnetic recording medium a fluorine-containing oligomer surfactant which has a side chain having a poly(alkylene oxide) structure, a side chain terminated with a perfluoroalkyl group, and a side chain derived from an ester of acrylic or methacrylic acid with an aliphatic alcohol.

5,063,120

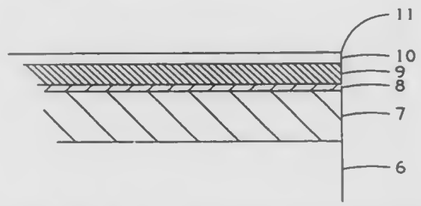
THIN FILM MAGENTIC MEDIA

David A. Edmonson; Peter R. Ivett; Kenneth E. Johnson, all of Rochester, Minn.; Seyyed M. T. Mirzamaani, Croton-on-Hudson, N.Y., and James F. Ward, Jr., Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 160,056, Feb. 25, 1988, abandoned. This application Mar. 27, 1990, Ser. No. 503,070

Int. Cl.[5] G11B *5/66*

U.S. Cl. 428—694 5 Claims



1. A thin film rigid magnetic recording media comprising
a rigid nonferromagnetic substrate;
a chromium underlayer of 50 to 200 angstroms thickness with the (100) plane of the body centered cubic structure parallel to the recording surface and
a ferromagnetic thin film cobalt alloy magnetic coating epitaxially grown from said chromium underlayer (100) plane with the cobalt alloy (110) plane parallel to said recording surface, whereby the cobalt alloy hexagonal close packed atomic structure has the C axis substantially parallel to said recording surface.

5,063,121

CIRCUIT SUBSTRATE COMPRISING NITRIDE TYPE CERAMICS, METHOD FOR PREPARING IT, AND METALLIZING COMPOSITION FOR USE IN IT

Hideki Sato; Nobuyuki Mizunoya, both of Yokohama; Hironori Asai, Kawasaki, all of Japan; Kazuo Anzai, Worcester, Mass., and Tsuyoshi Hatano, Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

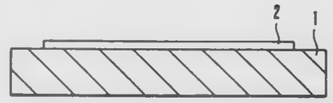
Division of Ser. No. 174,902, Mar. 29, 1988, Pat. No. 4,883,704. This application Sep. 22, 1989, Ser. No. 410,863

Claims priority, application Japan, Mar. 30, 1987, 62-73989; Mar. 31, 1987, 62-76164; Mar. 31, 1987, 62-76165; Feb. 26, 1988, 63-43858

Int. Cl.[5] B32B *9/00*

U.S. Cl. 428—698 23 Claims

1. A ceramic substrate comprising:
a substrate comprising a nitride ceramic sintered sheet;
a metallized layer formed on said substrate and comprising molybdenum, tungsten or a mixture thereof as a main component and at least one group IVb activation metal element;



and a uniform layer of a compound comprising yttria and alumina at the interface between said nitride ceramic sintered sheet and said metallized layer and uniformly penetrating said metallized layer.

5,063,122

FUEL CELL ASSEMBLY COMPRISING PERMANENTLY COMBINED FUEL CELLS

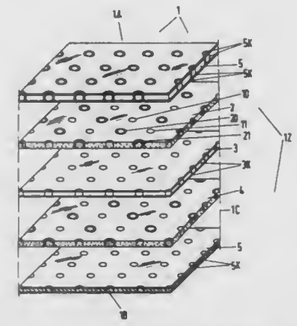
Franz-Josef Rohr, Abtsteinach, Fed. Rep. of Germany, assignor to Asea Brown Boveri Aktiengesellschaft, Mannheim, Fed. Rep. of Germany

Filed Apr. 24, 1990, Ser. No. 513,926

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1989, 3914244

Int. Cl.[5] H01M *8/10*

U.S. Cl. 429—32 5 Claims



1. Fuel cell assembly, comprising at least two permanently combined fuel cells each having an anode, a cathode and an ion-conducting solid electrolyte, and said fuel cells being combined to form a fuel cell block including at least one group of inner layers and two outer layers, said outer layers being electrically conducting, and said at least one group of inner layers including a middle layer serving as said solid electrolyte, a layer serving as said cathode between one of said outer layers and said middle layer, and a layer serving as said anode between the other of said outer layers and said middle layer, wherein said layers serving as said cathodes and said anodes are gas permeable and between 0.1 mm and 1 mm thick, wherein said layers serving as said solid electrolytes and said electrically conducting layers are 50 μm to 200 μm thick, are gas-tight and have surfaces on both sides thereof with contact layers disposed on said surfaces, said fuel cell block having channels for feeding and withdrawing air and channels for feeding and withdrawing fuel and reaction products, said channels being substantially perpendicular to said layers and completely penetrating said fuel cell block, each respective channel for feeding air being surrounded by at least four channels for withdrawing air equally spaced apart from said channel for feeding air by 1 to 5 cm, and each respective channel for feeding fuel being surrounded by at least four channels for withdrawing fuel and reaction products equally spaded apart from said channel for feeding fuel by 1 to 5 cm, said channels for feeding and withdrawing air in said layers serving as said cathode having a diameter of 0.5 to 1 mm, and said channels for feeding and withdrawing fuel in said layers serving as said anodes having a diameter of 1 to 3 mm, said channels for feeding and withdrawing air in the vicinity of said anodes, said electrically conducting layers and said solid-electrolyte being gas-tightly closed towards said layers, and said channels for feeding and withdrawing fuel in the vicinity of said cathodes, said electrically conducting layers and said solid electrolytes being gas-tightly closed towards said layers, and including ceramic gas distribution plates at end surfaces of said fuel cell block having ducts for air, waste air, fuel, waste gas and reaction products, and other channels inside said gas distribution plates connecting respective ducts to respective channels in said fuel cell block.

5,063,123

SEPARATOR FOR FUEL CELL

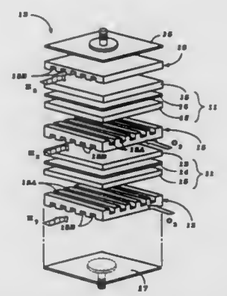
Masaru Ohsuga, and Kaoru Takahashi, both of Iwata, Japan, assignors to Yamaha Hatsudoki Katushiki Kaisha, Iwata, Japan

Filed Jan. 3, 1990, Ser. No. 460,509

Claims priority, application Japan, Jan. 6, 1989, 1-64400

Int. Cl.[5] H01M *8/04*

U.S. Cl. 429—38 12 Claims



1. A fuel cell for generating electrical energy from a reaction of a reformed fuel and air in said fuel cell, comprising at least one cell unit, at least one separator of one piece construction positioned on either end of said cell unit, said separator having a plurality of fuel and air passages through which fuel and air are supplied to said cell, said separator further having a plurality of pores therein containing a fluoric synthetic resin making said separator impermeable to said reformed fuel and air.

5,063,124

IONICALLY CONDUCTIVE MATERIAL

Michel Gauthier, La Prairie, Canada; Michel Armand, St. Martin D'Uriage, and Daniel Muller, Pau, both of France, assignors to Societe Nationale Elf Aquitane, Courbevoie, France and Hydro-Quebec, Montreal, Canada

Continuation of Ser. No. 114,721, Oct. 30, 1987, Pat. No. 4,851,307. This application Apr. 17, 1989, Ser. No. 338,949

Claims priority, application France, Oct. 30, 1986, 86 15113

The portion of the term of this patent subsequent to Apr. 4, 2006, has been disclaimed.

Int. Cl.[5] H01M *6/18*

U.S. Cl. 429—192 24 Claims

5. In an electrochemical generator, the improvement comprising using an ionically conductive material comprising a metallic salt of a strong acid in solution in a solvent, wherein said solvent is liquid and comprises a sulfonated derivative of formula (I):

$$R_1R_2N—SO_2—NR_3R_4$$

VOL 1132 ISS 1 NO 5 1991 UMI

wherein R_1, R_2, R_3 and R_4 are each independently a C_{1-10} alkyl group or a C_{1-10} oxaalkyl group.

5,063,125
ELECTRICALLY CONDUCTIVE LAYER FOR ELECTRICAL DEVICES

Huoy-Jen Yuh, Pittsford; John W. Spiewak, Webster; Constance J. Thornton, Ontario; John F. Yanus, Webster; William W. Limburg, and Joseph Mammino, both of Penfield, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

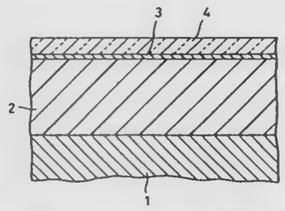
Filed Dec. 29, 1989, Ser. No. 458,937
Int. Cl.[5] G03G 5/14
U.S. Cl. 430—59 20 Claims

1. An electrophotographic imaging member comprising a substrate, an electrically conductive layer comprising an organic charge transporting continuous phase and finely divided electrically conductive particles dispersed in said continuous phase, and at least one photoconductive layer.

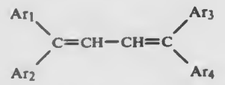
5,063,126
ELECTROPHOTOGRAPHIC PHOTOSENSITIVE MATERIAL

Kaname Nakatani; Yasuyuki Hanatani, and Yasufumi Mizuta, all of Osaka, Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

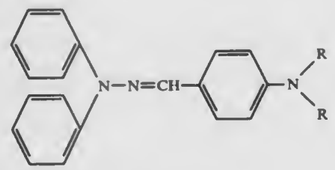
Continuation-in-part of Ser. No. 434,406, Nov. 13, 1989, abandoned. This application Nov. 16, 1989, Ser. No. 437,277
Claims priority, application Japan, Nov. 16, 1988, 63-290958; Nov. 16, 1988, 63-290960
Int. Cl.[5] G03G 5/047
U.S. Cl. 430—59 16 Claims



9. A positively charged electrophotographic photosensitive material comprising a charge transporting layer and a charge generating layer which are laminated in this order on a conductive substrate, the charge transporting layer containing, as charge transporting substances, a butadiene derivative represented by the general formula (I):



wherein Ar_1 to Ar_4 are aryl groups, each of which may have substituent, and a hydrazone compound represented by the general formula (II):



wherein R is a C_1–C_4 alkyl group.

5,063,127
METHOD FOR FORMING MULTI-COLOR IMAGES

Tateki Oka, and Tomoaki Yokoyama, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Nov. 21, 1989, Ser. No. 439,581
Claims priority, application Japan, Nov. 22, 1988, 63-295379; Nov. 22, 1988, 63-295380
Int. Cl.[5] G03G 15/01
U.S. Cl. 430—45 17 Claims

1. A method of forming a multi-color toner image comprising the steps of:
forming a first electrostatic latent image on an image-forming portion of an image bearer;
developing the first electrostatic latent image by using a first toner stored in a first developing unit;
forming a second electrostatic latent image on the image-forming portion;
developing the second electrostatic latent image by using a second toner stored in a second developing unit, wherein the second toner is transferrable to the image bearer under a higher bias voltage than that of the first toner, and the first toner which has been mixed into the second developing unit is chargeable to the same polarity as that of the second toner by friction with a carrier in the second developing unit;
transferring electrostatically the first and second toner images onto a recording medium; and
operating only the second developing unit for a non-image forming portion, wherein a voltage applied to the second developing unit is maintained at a higher voltage than the surface potential of the non image-forming portion so as to enable the first toner which has been mixed into the second developing unit to adhere to the non-image forming portion.

5,063,128
CONDUCTIVE AND BLOCKING LAYERS FOR ELECTROPHOTOGRAPHIC IMAGING MEMBERS

Huoy-Jen Yuh, Pittsford; John W. Spiewak, Webster; Constance J. Thornton, Ontario; Joseph Mammino, Penfield; Robert C. U. Yu, Webster; Vincent E. Hamilton, Rochester; William W. Limburg, Penfield, and Cindy Chen, Rochester, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

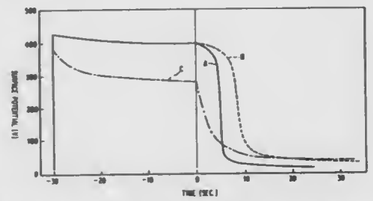
Filed Dec. 29, 1989, Ser. No. 459,027
Int. Cl.[5] G03G 5/14
U.S. Cl. 430—63 18 Claims

1. A process for preparing an electrophotographic imaging member comprising providing a substrate, applying to said substrate a coating comprising a dispersion of conductive particles having an average particle size less than about 1 micrometer and having an acidic or neutral outer surface in a basic solution comprising a film forming polymer dissolved in a solvent, drying said coating to remove said solvent and form a continuous, semi-transparent conductive layer, forming a charge blocking layer on said semi-transparent conductive layer, and forming at least one photoconductive layer on said charge blocking layer, said substrate having a transparency sufficient to transmit at least about 10 percent visible and near infrared light in the spectrum range to which said photoconductive layer is sensitive.

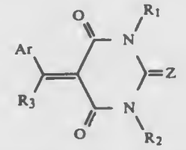
5,063,129
ELECTROPHOTOGRAPHIC PRINTING PLATE PRECURSOR

Hiroaki Yokoya; Hiromichi Tachikawa, and Syu Watarai, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

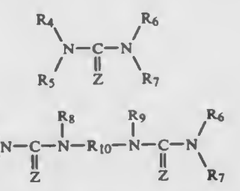
Filed Dec. 13, 1989, Ser. No. 449,161
Claims priority, application Japan, Dec. 15, 1988, 63-317318; Jan. 18, 1989, 1-9501
Int. Cl.[5] G03G 15/09, 15/00, 13/28
U.S. Cl. 430—83 9 Claims



1. An electrophotographic printing plate precursor comprising an electrically-conductive support having thereon a photoconductive layer containing at least photoconductive pigments and a binder resin which is designed to undergo an electrophotographic process wherein a toner image is formed and the photoconductive layer in the nonimage portion other than the toner image portion is then removed to form a printing plate, wherein said photoconductive pigments are phthalocyanine pigments and said photoconductive layer further comprises a compound represented by the general formula (I), (II) or (III):



wherein Z represents a sulfur or oxygen atom; Ar represents a monovalent aromatic hydrocarbon group or monovalent heterocyclic group; R_3 represents a hydrogen atom, alkyl group, aryl group or aralkyl group; Ar and R_3 may together form a ring; and R_1 and R_2, which may be the same or different, each represents an alkyl group, aryl group or aralkyl group, with the proviso that the aromatic hydrocarbon group and heterocyclic group represented by Ar and the alkyl, aryl and aralkyl group represented by R_1, R_2 and R_3 may be further substituted by substituents,



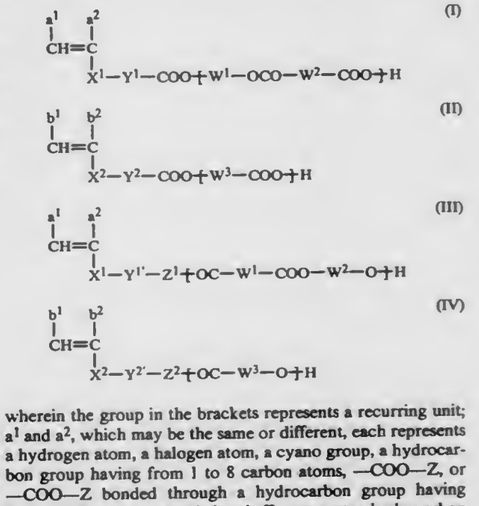
wherein Z represents a sulfur or oxygen atom; R_4 to R_9, which may be the same or different, each represents a hydrogen atom, alkyl group, aryl group or monovalent group derived from a heterocyclic group; R_4 and R_5 or R_6 and R_7 may be connected to each other; R_4 to R_7 may be connected to each other to form a crosslinkable ring as a whole in the general formula (II); and R_{10} represents a divalent arylene, aralkylene, polymethylene or alkylene group.

5,063,130
ELECTROPHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Eiichi Kato, and Kazuo Ishii, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 9, 1990, Ser. No. 491,018
Claims priority, application Japan, Mar. 10, 1989, 1-56379; Mar. 10, 1989, 1-58989; Apr. 7, 1989, 1-86939; Apr. 14, 1989, 1-93142
Int. Cl.[5] G03G 5/05
U.S. Cl. 439—96 9 Claims

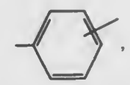
1. An electrophotographic light-sensitive material comprising an electroconductive support having formed thereon a photographic layer containing at least inorganic photoconductive particles and a binder resin, wherein the binder resin containing a copolymer having at least one of polyester type macromonomers having a weight average molecular weight of from 1×10^3 to 1.5×10^4 represented by following formulae (I), (II), (III), and (IV) as a copolymer component;



wherein the group in the brackets represents a recurring unit; a^1 and a^2, which may be the same or different, each represents a hydrogen atom, a halogen atom, a cyano group, a hydrocarbon group having from 1 to 8 carbon atoms, —COO—Z, or —COO—Z bonded through a hydrocarbon group having from 1 to 8 carbon atoms (wherein Z represents a hydrocarbon group having from 1 to 18 carbon atoms); X^1 represents a direct bond, —COO—, —OCO—, $-(CH_2)_{l^1}$—COO—, $-(CH_2)_{l^2}$—OCO— (wherein l^1 and l^2 each represents an integer of from 1 to 3),



(wherein P^1 represents a hydrogen atom or a hydrocarbon group having from 1 to 12 carbon atoms), —CONHCONH—, —CONHCOO—, —O—,



or $—SO_2—$; Y^1 represents group bonding X^1 to —COO—; W^1 and W^2, which may be the same or different, each represent a divalent aliphatic group, a divalent aromatic group (which

VOL 1132 ISS 1 NO 5 1991 UMI

may have at least one bonding group selected from —O—, —S—,



(wherein P^2 represents a hydrogen atom or a hydrocarbon group having from 1 to 12 carbon atoms), $—SO_2—$, —COO—, —OCO—, —CONHCO—, —NHCONH—,



(wherein P^3 has the same significance as P^2),



(wherein P^4 has the same significance as P^2), and



in the bond of each divalent organic residue) or an organic residue composed of a combination of these residues; $Y^{1'}$ represent a group bonding X^1 to Z^1; $Y^{2'}$ represents a group bonding X^2 to Z^2; Z^1 represents $—CH_2—$, —O—, or —NH—; b^1 and b^2 have the same meaning as z^1 and a^2; and X^2 and Z^2 have the same meaning as X^1 and Z^1, respectively; and W^3 represents a divalent aliphatic group.

5,063,131

METHOD FOR PROCESSING SILVER HALIDE PHOTOGRAPHIC PHOTOSENSITIVE MATERIALS

Akira Abe; Yoshihiro Fujita, and Keiji Mihayashi, all of Minami-Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami, Japan

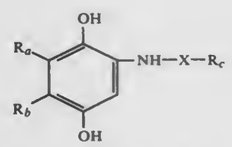
Continuation of Ser. No. 154,593, Feb. 10, 1988, abandoned. This application Jun. 22, 1990, Ser. No. 541,470

Claims priority, application Japan, Feb. 13, 1987, 62-31092

Int. Cl.[5] G03C *5/39, 7/40*

U.S. Cl. 430—372 **18 Claims**

1. A method for processing a silver halide color photographic photosensitive material which comprises treating a silver halide photographic photosensitive material with a bath having fixing ability and then water washing and/or stabilizing the photosensitive material, wherein the amount of replenished liquid for water washing or stabilization is 1 to 50 times the volume of liquid carried over by the photosensitive material from the bath preceding the water washing bath or the stabilization bath and that the silver halide color photographic photosensitive material comprises at least one member selected from the group consisting of compounds represented by the following general formula (A) and alkaline unstable precursors thereof:



(A)

in the general formula (A), R_a and R_b each represents hydrogen atom, halogen atom, sulfo group, carboxyl group, alkyl group, acylamino group, alkoxy group, aryloxy group, alkylthio group, arylthio group, sulfonyl group, acyl group, carbamoyl group or sulfamoyl group with the proviso that R_a and R_b may form a carbon ring together with the carbon atoms to which they are bonded; X represents —CO—; and R_c represents alkyl group, aryl group, heterocyclic group, cycloalkyl group, alkoxy group, aryloxy group or amino group; provided that the total number of carbon atoms of R_a, R_b and R_c is 10 or more and that the compound represented by the general formula (A) is substantially colorless and does not cause a coupling reaction with a developing agent to form a dye image.

5,063,132

XEROGRAPHIC PHOTOTYPESETTING SYSTEM AND TONER USEFUL THEREIN

Zona R. Pierce, Rochester; Dinesh Tyagi, Fairport, and John C. Wilson, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

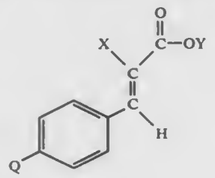
Filed Nov. 13, 1989, Ser. No. 434,379

Int. Cl.[5] G03G *9/00, 5/00*

U.S. Cl. 430—109 **9 Claims**

1. A toner composition for imaging a photolithographic transparency comprising on a 100 weight percent basis:

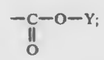
(a) about 80.0 to about 99.5 weight percent of at least one polyester which contains incorporated into the polymer structure thereof about 0.1/99.9 to about 100.0/0.0 mole ratio based on the total acid or hydroxy monomers of at least one methine dye having a spectral absorption peak in the range of about 300 to about 450 nm and the formula:



wherein,

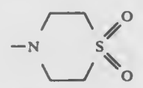
Y is a lower alkyl radical;

X is selected from the group consisting of —CN and



and

O is selected from the group consisting of $—NH_2$—NHY, $—N(Y)_2$ and



(b) about 0.5 to about 20 weight percent of at least one pigment; and

(c) about 0.05 to about 5 weight percent of at least one charge control agent, wherein the toner composition has a total transmission density of at least about 3 at a stack height of 10 microns.

5,063,133

ELECTROPHOTOGRAPHIC DEVELOPING SYSTEM COMPRISING TONER HAVING SPECIFIC PARTICLE SIZE DISTRIBUTION

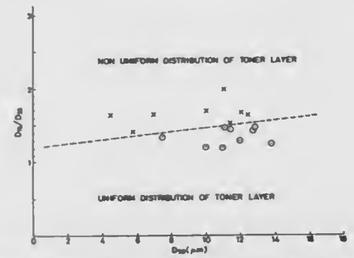
Tsutomu Kubo; Kazuo Terao; Takashi Yamamuro; Masashi Kajimoto, and Kazuhiko Tsukagoshi, all of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 270,448, Nov. 7, 1988, abandoned, which is a continuation of Ser. No. 925,373, Oct. 31, 1986, abandoned. This application Feb. 25, 1991, Ser. No. 659,471

Claims priority, application Japan, Oct. 31, 1985, 60-242916

Int. Cl.[5] G03G *13/09*

U.S. Cl. 430—122 **10 Claims**



1. In the method of operating an electrostatic image reproduction machine wherein particles of a mono-component developer having particle diameters of 5–20 82 m are formed into a uniform layer on a developer sleeve means by being passed between said sleeve mean sand a restriction member maintained under pressure in contact with said sleeve means and wherein an electric charge is imparted to the developer particles on said sleeve means prior to transfer thereof onto an electrostatic latent image retained on an electrostatic latent image retainer spaced opposite said developer sleeve, the improvement wherein said developer particles have a particle size distribution satisfying the following expression

$$D_{75}/d_{25} \leqq d_{50}/40 + 1.2$$

where d_{25}, d_{50} and d_{75} represent those particle diameters for which the integrated percentages, by weight or by volume, of particles of equal or lesser diameters constitute 25%, 50% and 75%, respectively, of the total amount of said developer particles, so that aid developer particles are enabled to consistently from a uniform thin layer on said sleeve means after being restricted by said restriction member.

5,063,134

PHOTOSENSITIVE COMPOSITION

Rumiko Horiguchi, Yokohama; Shuzi Hayase, Kawasaki, and Yasunobu Onishi, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 173,546, Mar. 25, 1988, abandoned. This application Jan. 2, 1990, Ser. No. 455,783

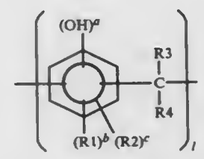
Claims priority, application Japan, Mar. 26, 1987, 62-72113; Sep. 29, 1987, 62-245497; Oct. 21, 1987, 62-263965

Int. Cl.[5] B03C *1/60;* **C03F** *7/08;* **C08G** *77/60*

U.S. Cl. 430—192 **16 Claims**

1. A photosensitive composition comprising:

a polymer having a unit represented by formula I



(I)

wherein

each of R_1 to R_4 represents a hydrogen atom, an alkyl group, an alkoxy group, a substituted or non-substituted allyl group, or these groups containing silicon, at least R_3 or R_4 being a silicon containing alkyl group having 1 to 10 carbon atoms a carbon atom of which is directly attached to the main chain of the polymer represented by formula I;

l represents a positive integer; and

each of a and b represents an integer from 1 to 3, and c represents an integer from 0 to 2, a+b+c not exceeding 4,

in admixture with a photosensitive effective amount of at least one photosensitive agent selected from the group consisting of a negative type azide compound, a positive type benzoquinone diazide compound and positive type naphthoquinone diazide compound.

5,063,135

COLOR DIFFUSION TRANSFER PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Masaharu Toriuchi, and Hirokazu Kondo, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

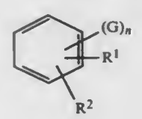
Filed Feb. 27, 1990, Ser. No. 485,907

Claims priority, application Japan, Feb. 27, 1989, 1-45723; Mar. 3, 1989, 1-51571; Mar. 30, 1989, 1-80104; Apr. 18, 1989, 1-97873

Int. Cl.[5] G03C *5/54, 1/42/1/04*

U.S. Cl. 430—214 **7 Claims**

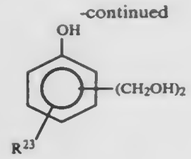
1. A color diffusion transfer photographic light-sensitive material comprising at least a light-sensitive silver halide emulsion layer combined with a dye providing compound capable of releasing or producing a diffusible dye, an image-receiving layer capable of mordanting said diffusible dye and a neutralizing layer, said light-sensitive material further comprising at least one member selected from the group consisting of polymers obtained by the condensation of at least one of compounds represented by general formula (I) and at least one of compounds represented by general formula (III) in the presence of an acid catalyst; and polymers obtained by the condensation of at least one of compounds represented by general formula (I) and at least one of compounds represented by general formula (V) in the presence of an acid catalyst; with the proviso that said polymers obtained by condensation have an average molecular weight of from 1,000 to 24,500 when said polymers do not contain long-chain alkyl groups having 6 or more carbon atoms and said polymers have an average molecular weight of from 1,000 to 8,000 when said polymers contain long-chain alkyl groups having 6 or more carbon atoms:



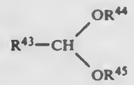
(I)

VOL 1132 ISS 1 NO 5 1991 UMI

-continued



(III)



(V)

wherein G represents a hydroxyl group or a group which undergoes hydrolysis by an alkali to produce a hydroxyl group; n represents an integer 1 or more, with the proviso that the plurality of G's may be the same or different; R^1 and R^2 may be the same or different and each represents a hydrogen atom or a substituent on the benzene ring; R^{23} represents a hydrogen atom, alkyl group, aryl group, aralkyl group, heterocyclic group, acyl group, carboxyl group or formyl group; R^{43} represents a hydrogen atom, alkyl group, aryl group, aralkyl group, heterocyclic group, acyl group or carboxyl group; and R^{44} and R^{45} may be the same or different and each represents an alkyl group, with the proviso that R^{44} and R^{45} may be connected to each other to form a ring.

5,063,136

PROCESSING LIQUID FOR USE IN DTR-PHOTOGRAPHY WITH TWO TONERS

René M. De Keyzer, Sint-Niklaas; Raymond L. Odeurs, Edegem, and Luc A. De brabandere, Lier, all of Belgium, assignors to AGFA-Gevaert, N.V., Mortsel, Belgium

Filed May 17, 1990, Ser. No. 524,382

Claims priority, application European Pat. Off., May 18, 1989, 89201251.9

Int. Cl.[5] G03C *5/54, 5/46*

U.S. Cl. 430—248 **17 Claims**

11. A silver complex diffusion transfer reversal (DTR-) process which is carried out by development of an information-wise exposed silver halide emulsion layer with a developing agent in the presence of a silver halide solvent to form diffusible silver complexes which diffuse into an image-receiving layer containing development nuclei, and in which said information-wise exposed photographic silver halide emulsion layer is moistened with an aqueous alkaline processing liquid, wherein said liquid contains one or more alkanolamines, the said alkanolamine(s) consisting of one or more tertiary alkanolamines in a total amount in the range from 0.15 mol to 1.5 mol/l, and one or more secondary alkanolamines in an amount higher than 5 mol % but not higher than 100 mol % with respect to the amount of tertiary alkanolamine(s), and said liquid also contains a mixture of a silver image toning agent A being 1-phenyl-1H-tetrazole-5-thiol or a tautomer thereof and at least one other silver image toning agent B being a 1-phenyl-1H-tetrazole-5-thiol or a tautomer thereof, wherein the phenyl nucleus is substituted with halogen, the toning agent A and toning agent(s) B being present in said liquid in a molar ratio from 1/15 to 15/1.

5,063,137

LASER-MARKING METHOD AND RESIN COMPOSITION FOR LASER-MARKING

Toshiyuki Kiyonari, Urawa; Satoshi Hirabayashi, Ohmiya; Naoto Kidokoro, Ageo, and Futoshi Takimoto, Kawanishi, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

Filed Nov. 9, 1989, Ser. No. 433,996

Int. Cl.[5] G03C *5/00;* **C08K** *3/38*

U.S. Cl. 430—292 **12 Claims**

1. A method for laser-marking which comprises marking the surface of an object composed of a resin composition containing at least one inorganic compound selected from the group consisting of an anhydrous metal borate salt, an anhydrous metal phosphate salt, a phosphoric acid-containing glass, basic zinc carbonate and basic magnesium carbonate, and a resin by applying laser beams onto the surface.

5,063,138

POSITIVE-WORKING PHOTORESIST PROCESS EMPLOYING A SELECTED MIXTURE OF ETHYL LACTATE AND ETHYL 3-ETHOXY PROPIONATE AS CASTING SOLVENT DURING PHOTORESIST COATING

Thomas E. Salamy, North Kingstown, R.I., assignor to OCG Microelectronic Materials, Inc., Cheshire, Conn.

Division of Ser. No. 269,521, Nov. 10, 1988, Pat. No. 4,965,167. This application Jun. 4, 1990, Ser. No. 533,258

Int. Cl.[5] G03F *7/023, 7/30, 7/32*

U.S. Cl. 430—326 **10 Claims**

1. The process of developing an image-wise exposed positive-working photoresist-coated substrate comprising:

(1) coating said substrate with a light-sensitive composition useful as a photoresist, said composition comprising an admixture of:

(a) at least one alkali-soluble binder resin;

(b) at least one photoactive compound;

(c) a sufficient amount of a solvent mixture comprising ethyl lactate and ethyl 3-ethoxy propionate to dissolve (a) and (b);

wherein the amount of said binder resin is from about 60% to 95% by weight, the amount of said photoactive compound is from about 5% to about 40% by weight, both based on the total solids contents of said light-sensitive composition, and wherein the weight ratio of ethyl lactate to ethyl 3-ethoxy propionate is from 30:70 to about 80:20, and wherein said substrate is a silicon-containing wafer having a diameter of at least 6 inches;

(2) subjecting said coating on said substrate to an image-wise exposure of radiant light energy; and

(3) subjecting said image-wise exposed coated substrate to a developing solution to form a positive image-wise pattern in the coating.

5,063,139

SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL CAPABLE OF BEING PROCESSED AT ULTRAHIGH SPEED AND PROCESS FOR THE FORMATION OF COLOR IMAGES USING THEREOF

Hiroshi Hayashi, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan

Filed Jun. 15, 1990, Ser. No. 539,434

Claims priority, application Japan, Jun. 19, 1989, 1-156323; Jan. 10, 1990, 2-003236

Int. Cl.[5] G03C *7/30, 7/32*

U.S. Cl. 430—377 **11 Claims**

11. A process for the formation of color images comprising (i) imagewise exposing a color photographic light-sensitive material and (ii) subjecting the exposed material to development for not more than 20 seconds, said color photographic light-sensitive material comprising at least two light-sensitive layers on at least one side of a support, wherein each layer contains a light-sensitive silver halide emulsion and a nondiffusive oil-soluble coupler capable of coupling with an oxidation product of an aromatic primary amine color developing agent to produce a dye, said light-sensitive layers having different sensitive wavelength ranges, said silver halide is silver chloride or silver chlorobromide containing at least 90 mol % of silver chloride, and the alkali-consuming amount of said light-sensitive material is not more than 2.6 mmol/m^2.

5,063,140

METHOD FOR PROCESSING SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIALS

Satoru Kuse; Masao Ishikawa; Shigeharu Koboshi; Minoru Ishikawa, and Toshihiko Yagi, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 309,818, Feb. 10, 1989, abandoned. This application Apr. 12, 1990, Ser. No. 508,786

Claims priority, application Japan, Feb. 15, 1988, 63-32501; Mar. 9, 1988, 63-55855

Int. Cl.[5] G03C *5/44*

U.S. Cl. 430—393 **16 Claims**

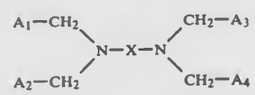
1. A method for forming color photographic images comprising steps of

imagewise exposing to light a silver halide color photographic light-sensitive material,

developing said light-sensitive material with a color developer,

bleaching, immediately after said step of developing, said light-sensitive material with a bleaching solution for 90 seconds or less, and

treating, after said step of bleaching, said light-sensitive material with a solution having fixing capability, wherein said light-sensitive material comprises a support and hydrophilic colloid layers including a silver halide emulsion layer provided on a side of said support, and a total dry thickness of said hydrophilic colloid layers is not more than 17 μm, and an amount of silver in said silver halide contained in said silver halide emulsion layers included in said hydrophilic layers is from 0.5 g/m^2 to 4.7 g/m^2, and said bleaching solution contains a ferric complex salt of a compound represented by the following Formula A in an amount of within the range of from 0.002 mole to 0.4 mole per liter of said bleaching solution;



Formula A

where A_1 through A_4 are each a $—CH_2OH$ group, a —COOM group, or a $—PO_3M^1M^2$ group, which may be the same with or different, M, M^1 and M^2 are each a hydrogen atom, a sodium atom, a potassium atom or an ammonium group; X is a substituted or unsubstituted alkylene group having three to five carbon atoms.

5,063,141

METHOD OF PROCESSING SILVER HALIDE PHOTOSENSITIVE MATERIAL

Takashi Nakamura, Minami-Ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan

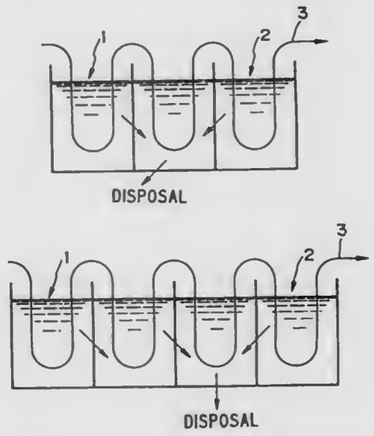
Filed Apr. 9, 1990, Ser. No. 506,255

Claims priority, application Japan, Apr. 10, 1989, 1-90064; Apr. 11, 1989, 1-90982

Int. Cl.[5] G03C *7/00*

U.S. Cl. 430—398 **19 Claims**

1. A method for processing a silver halide photosensitive material comprising developing an exposed silver halide photosensitive material with a developer containing a developing agent in at least two developing tanks, wherein the method further comprises introducing an ordinary developer (mother liquor) into the tanks; feeding a first developing replenisher which mainly comprises the developing agent into the first tank which is the tank photosensitive material to be processed is first introduced; and feeding a second replenisher which mainly comprises an alkali into a tank which is either the last tank or a tank close to the last tank so as to make pH of the developer in this tank higher than that of the developer in first tank and further wherein the developer flows in the same



direction as that of the movement of the photosensitive material.

5,063,142

PROCESS FOR PROCESSING SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Takatoshi Ishikawa, Ashigara, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 21, 1990, Ser. No. 525,818

Claims priority, application Japan, May 22, 1989, 1-128388

Int. Cl.[5] G03C *7/42*

U.S. Cl. 430—400 **10 Claims**

1. A process for processing a silver halide color photographic material, which comprises color developing and bleach-fixing said silver halide color photographic material, and then processing by at least one of washing said material with water and stabilizing said material, said silver halide color photographic material comprising a support having thereon at least one emulsion layer comprising a high silver chloride emulsion having a silver chloride content of 80 mol % or more and a used bleach-fixing solution which has been already used for said bleach-fixing, having a silver ion concentration of 0.02 mol/liter or more being used as a bleach-fixing solution for replenishment, wherein the silver halide is coated at a silver amount of 0.4 to 0.8 g/m^2 of the silver halide photographic material.

5,063,143

PROCESS FOR FORMING COLOR IMAGE

Takeshi Hirose; Akira Abe, and Kiyoshi Nakazyo, all of Minami-ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-ashigara, Japan

Filed Apr. 9, 1990, Ser. No. 506,201

Claims priority, application Japan, Apr. 10, 1989, 1-90065

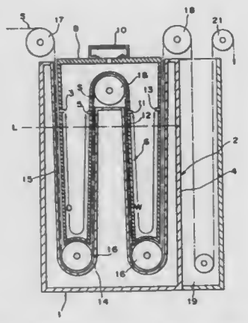
Int. Cl.[5] G03C *5/38*

U.S. Cl. 430—419 **16 Claims**

1. A process for forming a color image comprising developing an image-wise exposed color photographic material which comprises a support having at least one layer containing a coupler capable of forming a dye by reaction with an oxidized aromatic primary amino color developing agent and having a dye covering power of at least 0.75, and a silver chlorobromide emulsion or silver chloroiodobromide emulsion containing at

VOL 1132 ISS 1 NO 5 1991 UMI

least 90 molar % of silver chloride with a processing solution containing a solvent for the silver halide in the presence of an



aromatic primary amino color developing agent so as to conduct the development and desilverization in one step.

5,063,144

PHOTOGRAPHIC COLOR DEVELOPER SOLUTION AND A PROCESS FOR THE DEVELOPMENT OF A COLOR PHOTOGRAPHIC MATERIAL

Ubbo Wernicke, Colonge, Fed. Rep. of Germany, assignor to Agfa Gevaert Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 309,689, Feb. 10, 1989, abandoned. This application Feb. 20, 1991, Ser. No. 657,968

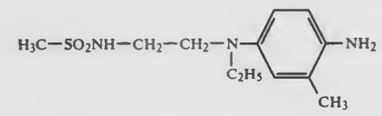
Claims priority, application Fed. Rep. of Germany, Feb. 24, 1988, 3805699

Int. Cl.[5] G03C *5/30*

U.S. Cl. 430—436 **8 Claims**

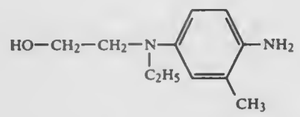
1. Color photographic developer solution for development in a negative process containing, in 1 liter of solution ready for use consisting essentially of

a) from 4 to 15 g of the developer corresponding to the following formula



or a corresponding quantity of salts thereof (CD 3),

b) from 0 to 2.0 g of developer corresponding to the following formula



or a corresponding quantity of salts thereof (CD 4),

c) from 8 to 35 g of PO_4^{3-} ions,

d) at least 0.2 g of antioxidant,

e) from 0.5 to 5.0 g of KCl,

f) from 0 to 0.5 g of KBr,

and one or more conventional components selected from the group consisting of optical brighiners, polyalkylene glycols, surface active agents, water softeners, stabilizers, benzyl alcohol and substances for adjusting the pH to from 10.4 to 12.9.

5,063,145

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Ken Sakanoue, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 10, 1989, Ser. No. 308,504

Claims priority, application Japan, Feb. 10, 1988, 63-27602

Int. Cl.[5] G03C *1/43, 1/46*

U.S. Cl. 430—505 **14 Claims**

1. A silver halide color photographic material comprising:

at least one red-sensitive silver halide emulsion layer;

at least one green-sensitive silver halide emulsion layer; and

at least one blue-sensitive silver halide emulsion layer,

wherein said layers are coated on a support and wherein said photographic material comprises at least one compound which reacts with the oxidation product of a color developing agent during development and releases a bleach accelerator, and wherein the swelling factor of said photographic material in a development bath is at least 2.8.

5,063,146

SILVER HALIDE PHOTOGRAPHIC MATERIAL

Yoshio Inagaki, and Keiichi Adachi, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

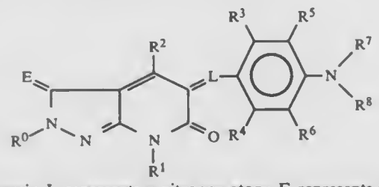
Filed Mar. 1, 1990, Ser. No. 487,078

Claims priority, application Japan, Mar. 2, 1989, 1-50874

Int. Cl.[5] G03C *1/02*

U.S. Cl. 430—522 **18 Claims**

1. A silver halide photographic material having a hydrophilic colloidal layer containing a dispersion of fine solid particles of a dye represented by formula (I):



(I)

wherein L represents a nitrogen atom; E represents O, S, or N-R^9; R^0 and R^9 each represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted alkynyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted heterocyclic group, a substituted or unsubstituted amino group, a substituted or unsubstituted amino group, a substituted or unsubstituted hydrazino group, or a substituted or unsubstituted diazenyl group; R^1 represents a hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted akynyl group, or a substituted or unsubstituted heterocyclic group; R^2 represent a hydrogen atom, a halogen atom, a cyano group, a nitro group, a hydroxyl group, a carboxyl group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted alkenyl group, a substituted or unsubstituted heterocyclic group, a substituted or unsubstituted alkoxyl group, a substituted or unsubstituted aryloxycarbonyl group, a substituted or unsubstituted alkoxycarbonyl group, a substituted or unsubstituted arloxycarbonyl group, a substituted or unsubstituted amino group, a substituted or unsubstituted acyloxy group, a substituted or unsubstituted carbamoyl group, a substituted or unsubstituted sulfamoyl group, a substituted or unsubstituted alkylthio group, a substituted or unsubstituted arylthio group, a substituted or unsubstituted alkylsulfonyl group, a substituted or unsubstituted arylsulfonyl group, or a substituted or unsubstituted alkynyl group; R^0 and R^9 may be connected to each other to from a ring; R^3 and R^4 each represents a hydrogen atom, a halogen atom, an alkoxyl group, an alkyl group, an alkenyl group, an aryloxy group, or an aryl group; R^5 and R^6 each

represents a hydrogen atom or a group capable of substituting a hydrogen atom; R^7 and R^8 each represents an alkyl group, an aryl group, a vinyl group, an acyl group, an alkylsulfonyl group, or an arylsulfonyl group; and R^3 and R^5, R^4 and R^6, R^7 and R^8, R^5 and R^7, or R^6 and R^8 may be connected to each other to form a ring.

5,063,147

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL CONTAINING ALIPHATIC CARBOXYLIC ESTER

Masakazu Yoneyama; Ryosuke Yamada; Yosuke Nishiura; Yukio Maekawa, all of Kanagawa; Yuzo Higaki, Tokyo, and Yoshiaki Iwamoto, Kanagawa, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 27, 1990, Ser. No. 515,992

Claims priority, application Japan, Apr. 28, 1989, 1-110388; Apr. 28, 1989, 1-110389

Int. Cl.[5] G03C *1/76*

U.S. Cl. 430—523 **18 Claims**

1. A silver halide photographic light-sensitive material comprising a support and a light-sensitive silver halide emulsion layer provided on the support,

wherein a surface layer provided on the photographic light-sensitive material contains an aliphatic carboxylic ester having the formula (I):

$$R^{11}COOR^{12} \quad \text{(I)}$$

in which each of R^{11} and R^{12} independently is analiphatic hydrocarbon group having 12–70 carbon atoms; said R^{12} having a branch at the second position from the carbon atom bonded to the ester group; and the number of the total carbon atoms contained in R^{11} and R^{12} is in the range of 32 to 140.

5,063,148

SILVER HALIDE LIGHT-SENSITIVE PHOTOGRAPHIC MATERIAL

Shuichi Sugita; Noboru Mizukura; Junichi Kohno; Kenzi Kadokura, and Atsushi Tomotake, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

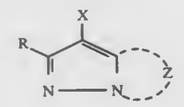
Filed Apr. 3, 1990, Ser. No. 503,539

Claims priority, application Japan, Apr. 7, 1989, 1-89304

Int. Cl.[5] G03C *7/32*

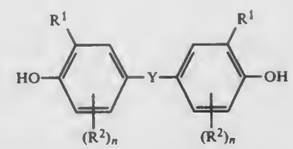
U.S. Cl. 430—551 **36 Claims**

1. A silver halide light-sensitive photographic material comprising a support and provided thereon at least one silver halide emulsion layer, which material contains a compound represented by formula M-1 and at least one compound represented by formula II;



M-I

wherein Z is a nonmetallic atomic group necessary for forming a nitrogen-containing heterocyclic ring, wherein so-formed ring may have a substituent; X is a hydrogen, halogen atom, or a group that is capable of being split off by reaction with an oxidation product of a color developing agent; R is a hydrogen atom or a substituent;



II

wherein R^1 is a secondary or tertiary alkyl group, a secondary or tertiary alkenyl group, a cycloalkyl or an aryl group, R^2 is a halogen atom, an alkyl, alkenyl, cycloalkyl or aryl group, n is an integer of 0 to 3, Y is a S, SO,SO_2 or alkylene group.

5,063,149

PERFORMING AN ENZYME-CATALYZED REACTION

Colin J. Suckling; Peter J. Halling, both of Glasgow; Grant A. Johnston, West Kilbride, and Linda Brown, Glasgow, all of Scotland, assignors to Imperial Chemical Industries PLC, London, England

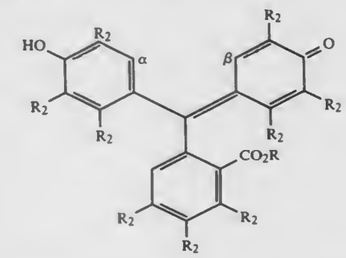
Filed Aug. 4, 1989, Ser. No. 389,596

Claims priority, application United Kingdom, Aug. 4, 1988, 8818564; Oct. 14, 1988, 8824145

Int. Cl.[5] C12Q *1/34, 1/44, 1/00*; C07D *311/82*

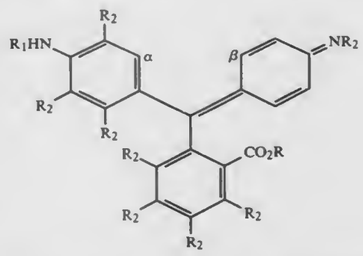
U.S. Cl. 435—4 **4 Claims**

1. A process for performing an enzyme-catalysed reaction in a reaction mixture comprising two phases, a first aqueous phase containing an enzyme and a second substantially non-aqueous phase containing a non-water miscible solvent wherein there is present in the non-aqueous phase a compound having the structural formula (I):



(I)

or a compound having the structural formula (II):



(II)

in which positions alpha and beta can be substituted by hydrogen atoms or can be linked together through a bridge comprising 1 or 2 atoms which may have substituents upon them; R is a substituted or unsubstituted hydrocarbon group or a substituted or unsubstituted amide group; R_1 is a hydrogen atom, or any other group (the individual groups R_1 being the same as or different from each other); and R_2 is a hydrogen atom or any other group (individual groups R_2 being the same as or different from each other); compound of structural formula (I) or

VOL 1132 ISS 1 NO 5 1991 UMI

compound of structural formula (II) being present for the purpose of measuring aqueous pH by monitoring spectroscopic properties and calculating the aqueous phase pH therefrom.

5,063,150

RETROVIRAL POLYPEPTIDES ASSOCIATED WITH HUMAN CELLULAR TRANSFORMATION

Dennis J. Slamon, Woodland Hills, and Irvin S. Y. Chen, Sherman Oaks, both of Calif., assignors to The Regents of The University of California, Berkeley, Calif.

PCT No. PCT/US85/01803, § 371 Date Nov. 13, 1987, § 102(e) Date Nov. 13, 1987, PCT Pub. No. WO86/01834, PCT Pub. Date Mar. 27, 1986

PCT Filed Sep. 19, 1985, Ser. No. 86,088

Int. Cl.[5] G01N *33/569*

U.S. Cl. 435—5 **27 Claims**

1. A polypeptide comprising:

at least 12 amino acids wherein the sequence of said polypeptide includes an epitopic site and wherein said sequence is substantially the same as a sequence from a peptide expressed by an HTLV-I virus or an HTLV-II virus with the proviso that the sequence of said polypeptide is other than the entire native sequence of a 42 kD expression product of the X-region of HTLV-I and comprises at least one of the following sequences or a part thereof:

Sequence (1): C P E H Q (aa)^{A} T W D P I D G R,

Sequence (2): I P R L P S F P T Q R T S (aa)^{B} T L K,

Sequence (3): K(aa)^{ArB} (aa)^{Ah} P (aa)^{Ar} RNG (aa)^{ArS} (aa)^{AS} EPTLG (aa)^{AcAm} (aa)^{AmB} LP (aa)^{Ah} L (aa)^{AAh} FP (aa)^{Ac} PGLRPQN (aa)^{A} YT (aa)^{AAh} WG (aa)^{AB} (aa)^{Ah} VVC (aa)^{AS} YLYQLSPP (aa)^{AS} TWPL (aa)^{A} PHVIFCHP (aa)^{AB} Q, and

Sequence (4): V (aa)^{A} QSS (aa)^{AAh} (aa)^{AAr} IF (aa)^{AcB} KF (aa)^{AcAm} TKA (aa)^{Ar} HPS (aa)^{Ar} LLSH (aa)^{AAm} LIQY SSFH (aa)^{AhAm} LHLLF (aa)^{Ac} EYTNIP (aa)^{A} S (aa)^{A} LFN (aa)^{AcB} (aa)^{AcB} EADDN (aa)^{AAc} (aa)^{AcB} EPQISPG-GLEPPSEKH FRETEV

wherein (aa)^{A}, (aa)^{Ac}, (aa)^{Ah}, (aa)^{Am}, (aa)^{Ar}, (aa)^{B}, (aa)^{ArB}, (aa)^{ArS}, (aa)^{AS}, (aa)^{AcAm}, (aa)^{AmB}, (aa)^{AAh}, (aa)^{AB}, (aa)^{AAr}, (aa)^{AcB}, (aa)^{AhAm}, (aa)^{AAc}, and (aa)^{S} may be the same or different and are selected from any one of the twenty naturally occurring amino acids found in proteins, and wherein superscript A designates an aliphatic amino acid, superscript Ac designates an acidic amino acid, superscript Ah designates an amino acid having an aliphatic-hydroxyl side chain, superscript Am designates an amino acid having an amine-containing side chain, superscript Ar designates aromatic amino acid, superscript B designates a basic amino acid, superscript S designates an amino acid having a sulfur-containing side chain, and combinations of two superscripts indicate amino acids that may be from any of the amino acids designated by either superscript.

5,063,151

IMMUNOASSAY METHOD AND KIT

Christa G. Kuehn, Princeton Junction, N.J.; Debra J. Rossi, Yardley, Pa., and Stephan S. Isied, Princeton, N.J., assignors to Biometallics, Inc., Princeton, N.J.

Filed Sep. 20, 1985, Ser. No. 778,554

Int. Cl.[5] G01N *33/535, 33/554*

U.S. Cl. 435—7.33 **40 Claims**

1. A method of binding and stabilizing antibody with protein A-positive-formalin-treated, heat-killed *Staphylococcus aureus* cells comprising the steps of:

a) incubating protein A-positive-formalin-treated, heat-killed *Staphylococcus aureus* cells with antibody to form treated cells of protein A-positive-formalin-treated, heat-killed *Staphylococcus aureus* with antibody attached thereto;

b) adding untreated cells of protein A-positive-formalin-treated, heat-killed *Staphylococcus aureus* to the treated cells;

c) adding to the treated and untreated cells an agent for cross-linking the antibody with the treated cells;

d) adding to the treated and untreated cells an agent for deactivating the agent for cross-linking the antibody with the treated cells.

5,063,152

SYNTHETIC PEPTIDIC SUBSTRATE FOR DETERMINATION OF TRYPSIN AND α_1-ANTITRYPSIN

Takeshi Nagasawa, Urawa; Yuko Gemba, Fukushima; Yoshio Nakamura, and Katsumasa Kurolwa, both of Koriyama, all of Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan

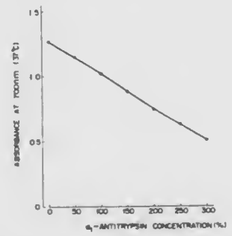
Division of Ser. No. 934,249, Nov. 21, 1986, Pat. No. 4,894,438.

This application Sep. 20, 1989, Ser. No. 410,099

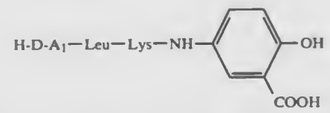
Claims priority, application Japan, Nov. 26, 1985, 60-265388

Int. Cl.[5] C12Q *1/37*

U.S. Cl. 435—24 **3 Claims**



1. A process for determining the concentration of trypsin or alpha$_1$-antitrypsin in a serum sample, in vitro which comprises admixing said sample with a synthetic peptide substrate of the formula



wherein A_1 is a prolyl (Pro) or alanyl (Ala) group; Leu is a leucyl group; and Lys is a lysyl group, or an acid addition salt thereof to cause an enzymatic reaction, terminating said enzymatic reaction and determining the concentration of trypsin or alpha$_1$-antitrypsin in said admixture.

5,063,153

INTEGRAL MULTILAYER ANALYTICAL ELEMENT

Fuminori Arai; Takeshi Igarashi, and Mitsutoshi Tanaka, all of Asaka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 9, 1987, Ser. No. 107,674

Claims priority, application Japan, Oct. 9, 1986, 61-240288; Nov. 6, 1986, 61-265090; Nov. 6, 1986, 61-265091

Int. Cl.[5] C12Q *1/32; G01N 31/22*

U.S. Cl. 435—26 **8 Claims**

1. A process for the preparation of a dry integral multilayer analytical element having reagent layers containing a dehydrogenase, oxidized nicotinamide coenzyme, an electron transport compound, an electron acceptable dye-forming compound, an alkali agent or an alkaline buffer selected from the group consisting of 2-amino-2-methyl-1,3-propanediol, 2-amino-2-ethyl-1,3-propanediol, diethanolamine, ethanolamine, 2-amino-2-methyl-1-propanediol, tris(hydroxymethyl)aminomethane and trimethylamine provided on a light-transmissive, water-impermeable support which comprises the steps of:

forming on said support a reagent layer containing at least said oxidized nicotinamide coenzyme and electron acceptable dye-forming compound dispersed in a hydrophilic polymer;

forming a spreading layer having a metering effect;

coating a solution or dispersion containing at least said alkali agent or alkaline buffer in an organic solvent which causes substantially no swelling of the hydrophilic polymer in the underlying reagent layer over the spreading layer; and

drying the coated layers.

5,063,154

PHEROMONE - INDUCIBLE YEAST PROMOTER

Gerald R. Fink, Brookline, Mass.; Joshua Trueheart, San Francisco, Calif., and Elaine A. Elion, Somerville, Mass., assignors to Whitehead Institute for Biomedical Research, Cambridge, Mass.

Continuation-in-part of Ser. No. 66,078, Jun. 24, 1987, abandoned. This application Jun. 24, 1988, Ser. No. 212,270

Int. Cl.[5] C12N *1/19, 15/31, 15/81*

U.S. Cl. 435—69.1 **33 Claims**

1. A DNA fragment comprising the promoter of the FUS1 gene isolated from *Saccharomyces cerevisiae*, operably linked to DNA encoding at least one polypeptide not normally expressed at substantial levels in Saccharomyces cells, transcription of the Saccharomyces promoter inducible by a Saccharomyces mating pheromone, for directing the expression of the polypeptide-encoding DNA in Saccharomyces cells.

5,063,155

METHOD FOR PRODUCING 2'''-O-DEMETHYLTYLOSIN

Karen L. Cox, Martinsville; Eugene T. Seno, and Gene M. Wild, both of Indianapolis, all of Ind., assignors to Eli Lilly and Company, Indianpolis, Ind.

Filed Mar. 28, 1988, Ser. No. 173,860

Int. Cl.[5] C12N *1/21, 15/52, 15/76;* C12P *19/62*

U.S. Cl. 435—76 **10 Claims**

1. A method for producing 2'''-O-demethyltylosin by a microorganism that is a mutant of a tylosin-producing species of *Streptomyces fradiae* containing a mutation that prevents the expression of tylosin biosynthetic gene tylE, comprising:

a) transforming the strain with a recombinant DNA cloning vector that comprises DNA which codes for the expression of *Streptomyces fradiae* tylF in the strain; and

b) culturing the transformed strain under conditions suitable for cell growth, expression of tylF, and subsequent production of 2'''-O-demethyltylosin.

5,063,156

PROCESS FOR THE FERMENTATIVE PRODUCTION OF ACETONE, BUTANOL AND ETHANOL

David A. Glassner, 4454 Satinwood Rd.; Mahendra K. Jain, 3950 Jonquil La., both of Okemos, Mich. 48864, and Rathin Datta, 442 W. Melrose Ave., #3, Chicago, Ill. 60657

Filed Apr. 30, 1990, Ser. No. 516,618

Int. Cl.[5] C12P *7/28, 7/30, 7/06;* C12R *1/145*

U.S. Cl. 435—150 **4 Claims**

1. The improved process for the production of butanol, acetone and ethanol, by the fermentation of an asporogenic microorganism capable of producing butanol, acetone and ethanol upon a medium containing assimilable carbohydrate and nutrients which comprises conducting the fermentation in at least two continuous fermentors connected in series at a temperature of about 33° to about 38° C. at a pH of about 4.8 to about 5.5 to produce maximum growth of the microorganism and organic acids and then subjecting the effluent from the continuous fermentors to batch fermentation at a temperature of about 24° C. to about 30° C. to complete the fermentation.

5,063,157

SERUM-FREE CULTURE MEDIUM FOR MAMMALIAN CELLS

Hubertus Stockinger, Penzberg, Fed. Rep. of Germany, assignor to Boefringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Filed Jan. 11, 1989, Ser. No. 295,813

Claims priority, application Fed. Rep. of Germany, Jan. 18, 1988, 3801236

Int. Cl.[5] C12N *5/00, 5/02;* C12Q *1/68*

U.S. Cl. 435—240.2 **17 Claims**

1. A method for culturing non-adherent mammalian cells comprising culturing said cells in a medium consisting essentially of

a base medium,

2–10 mg/liter of transferrin

2–10 mg/liter of insulin

1–10 g/liter of peptone

10–500 mg/liter beta-D-xylopyranose of a molecular weight range of 1,000–10,000 Dalton. substituted by at least one of a phosphate, carboxyl or sulphate group,

0.1–0.5 mg/liter selenite, and

0.1–2 mg/liter biological polyamine.

5,063,158

RECOMBINANT DNA EXPRESSION VECTOR COMPRISING BOTH TRANSCRIPTIONAL AND TRANSLATIONAL ACTIVATING SEQUENCES

Brigitte E. Schoner, and Ronald G. Schoner, both of Monrovia, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 118,678, Nov. 9, 1987, abandoned. This application Dec. 12, 1989, Ser. No. 449,199

Int. Cl.[5] C12N *15/67, 15/09;* C07N *15/12*

U.S. Cl. 435—252.3 **31 Claims**

1. A recombinant DNA expression vector which sequentially comprises

a) a transcriptional activating sequence,

b) a translational activating sequence selected from the group consisting of



VOL 1132 ISS 1 NO 5 1991 UMI

-continued

```
      AATAACA  -3'
      |||||||
      TTATTGTAT-5'

5'-CTAGCGATTTAAATAAGGAGGAATAACA  -3'
    |||||||||||||||||||||||||||
3'-  GCTAAATTTATTCCTCCTTATTGTAT-5'
```

and

```
5'-CTAGCGGGATCCCGCGATTTAAATAAGG
    |||||||||||||||||||||||||||
3'-  GCCCTAGGGCGCTAAATTTATTCC

      AGGAATAACA  -3'
      |||||||||
      TCCTTATTGTAT-5'
```

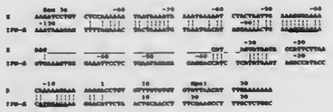
wherein
A is deoxyadenhyl,
G is deoxyguanyl,
C is deoxycytidyl,
T is thymidyl, and
c) a DNA sequence that codes for a functional polypeptide with a methionine as the first amino acid at the amino-terminus; subject to the limitation that sequences a and b are positioned for microbial expression of sequence c.

5,063,159

INTERFERON-INDUCED (2'-5') OLIGO A SYNTHETASE GENE, MRNA, CDNA AND ENZYMES HAVING (2'-5') OLIGO A SYNTHETASE ACTIVITY

Michel Revel, and Judith Chebath, both of Rehovot, Israel, assignors to Yeda Research and Development Co., Ltd., Rehovot, Israel

Continuation-in-part of Ser. No. 601,782, Apr. 18, 1984, abandoned. This application Feb. 25, 1986, Ser. No. 833,212
Claims priority, application Israel, Aug. 26, 1985, 76233
Int. Cl.[5] C12N *1/21, 9/00, 15/52, 15/70*
U.S. Cl. 435—252.3 **11 Claims**



1. An isolated human DNA molecule encoding an enzyme having (2'-5') oligo A synthetase activity and having the restriction enzyme sites set forth in FIG. 9.

5,063,160

IDENTIFICATION, CHARACTERIZATION, AND METHOD OF PRODUCTION OF A NOVEL MICROBIAL LIPASE

Paul E. Holmes, Hamden, Conn., assignor to Olin Corporation, Cheshire, Conn.

Filed Mar. 16, 1989, Ser. No. 324,062
Int. Cl.[5] C12N *1/20, 9/20*
U.S. Cl. 435—253.3 **4 Claims**

1. A biologically-pure culture of the microorganisms *Pseudomonas alcaligenes* strain SD2 having all of the identifying characteristics of ATCC 53877 and derivatives and mutants thereof.

5,063,161

METHOD OF DEGRADING KERATINACEOUS MATERIAL AND BACTERIA USEFUL THEREFOR

Jason C. H. Shih, and C. Michael Williams, both of Cary, N.C., assignors to North Carolina State University, Raleigh, N.C.

Division of Ser. No. 175,476, Mar. 31, 1988, Pat. No. 4,959,311.
This application Sep. 13, 1990, Ser. No. 581,681
Int. Cl.[5] C12N *1/20, 1/00;* **C12P** *21/00*
U.S. Cl. 435—252.5 **2 Claims**

1. A biologically pure culture of a keratinaceous material degrading microorganism having the identifying characteristics of *Bacillus licheniformis* PWD-1, ATCC Accession No. 53757.

5,063,162

PROCESS FOR ISOLATING NUCLEIC ACIDS UTILIZING PROTEASE DIGESTION

Hansruedi Kiefer, Riehen, Switzerland, assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 175,885, Apr. 1, 1988, Pat. No. 4,946,952.
This application May 9, 1990, Ser. No. 520,929
Int. Cl.[5] C12S *3/20;* **C12N** *9/50, 15/12*
U.S. Cl. 435—270 **6 Claims**

1. A process for isolating nucleic acids from a eukaryotic cell or tissue extract comprising:
(a) Preparing an extract of eukaryotic cells or tissue;
(b) treating the extract with a nonspecific protease that is active in the presence of detergents to degrade the proteins in the extract;
(c) treating the extract of step (b) with an excess of an aqueous solution containing at least 60% by volume acetone or an analogous water-soluble ketone to produce a mixture containing precipitated nucleic acids; and
(d) separating the precipitated nucleic acids from the mixture.

5,063,163

METHOD OF DETECTING COUNTERFEIT PAPER CURRENCY

Dov Carmeli, Tampa, Fla., assignor to Ach Group, Inc., Tampa, Fla.

Filed Mar. 20, 1990, Ser. No. 496,349
Int. Cl.[5] G01N *33/10, 33/34*
U.S. Cl. 436—94 **16 Claims**



1. A method of determining illegitimate paper currency by detecting the starch content therein in excess of the genuine currency, comprising the steps of:
(a) providing a paper currency to be tested;
(b) providing a test solution including iodine and having an initial color;
(c) applying said test solution to an area of said paper currency;
(d) waiting for a predetermined time period; and
(e) comparing the color of said area of said paper currency with a predetermined standard to determine if a reaction has taken place;
(f) whereby on the application of said test solution to a counterfeit paper currency the net result will be a color change from its initial color to a black coloration due to the reaction with starch in the counterfeit paper currency and for a genuine paper currency there will be no immediate change in its initial color.

5,063,164

BIOMIMETIC SENSOR THAT SIMULATES HUMAN RESPONSE TO AIRBORNE TOXINS

Mark K. Goldstein, San Diego, Calif., assignor to Quantum Group, Inc., San Diego, Calif.

Filed Jun. 29, 1990, Ser. No. 546,543
Int. Cl.[5] G01N *21/77*
U.S. Cl. 436—169 **24 Claims**

1. A biomimetic sensor for detecting the presence of airborne toxins comprising:
a porous, semi-transparent substrate that is transmissive to light;
means for detecting light transmitted through the substrate;
a self-regenerating chemical sensor reagent for detecting airborne toxins, wherein the self-regenerating chemical sensor is able to regenerate itself for a period of at least one year at ambient conditions; and
a molecular encapsulant encapsulating at least one component, but not all the components, of the chemical sensor reagent.

5,063,165

GEMINAL DIPHENYL DERIVATIVES AND THEIR USE IN IMMUNOASSAYS

Mae W. Hu, Los Altos Hills; Kirk Schulkamp; Cheng-I Lin, both of San Jose, and Edwin F. Ullman, Atherton, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Dec. 22, 1988, Ser. No. 289,998
Int. Cl.[5] G01N *33/78, 33/53*
U.S. Cl. 436—500 **23 Claims**

1. A method for inactivating interfering binding proteins in an assay for a member of a specific binding pair (sbp), which comprises including in an assay medium containing a sample suspected of containing said sbp member an effective amount of a water soluble compound having two substituted or unsubstituted phenyl groups linked to a common atom with the proviso that, when said sbp member or its sbp partner has two phenyl groups linked through a common atom, said compound has a number of groups other than hydrogen attached to said phenyl groups and/or said atom such that said number differs by at least two from the number of such groups on said sbp member and when said sbp member or its sbp partner has two phenyl groups linked to a common atom and the interfering binding protein is not an antibody, the compound has only one group other than hydrogen attached to a phenyl group or the common atom.

4. The method of claim 1 wherein the interfering binding protein is thyroxine binding globulin.

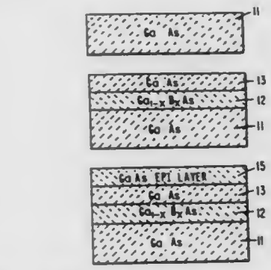
5,063,166

METHOD OF FORMING A LOW DISLOCATION DENSITY SEMICONDUCTOR DEVICE

John B. Mooney, San Jose, and Arden Sher, San Carlos, both of Calif., assignors to SRI International, Menlo Park, Calif.

Division of Ser. No. 187,939, Apr. 29, 1988, Pat. No. 4,916,088.
This application Apr. 9, 1990, Ser. No. 506,051
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—22 **24 Claims**

1. A method of forming a low dislocation density semiconductor device comprising the step of forming a layer of a III-V or II-VI compound in a bulk semiconductor substrate of the compound by burying in the substrate a sufficient quantity of alloying atoms to cause the alloying atoms to be supersaturated in the compound of the substrate and enable the layer to have a low dislocation density relative to the dislocation density of a layer of the same material without the alloying atoms, the alloying atoms being of a type to form an isoelectronic compound with the substrate compound and being buried by bombarding the substrate with an ion beam of the alloying atoms, and adding energy to the buried alloying atoms to cause the alloying atoms to move from random positions thereof in the



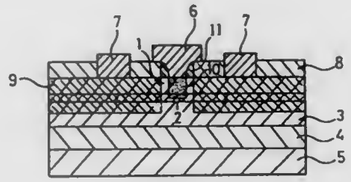
substrate to lattice positions of the substrate semiconductor where the layer has said low dislocation density.

5,063,167

METHOD OF PRODUCING A BIPOLAR TRANSISTOR WITH SPACERS

Teruyuki Shimura, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Japan

Division of Ser. No. 217,292, Jul. 11, 1988, Pat. No. 4,967,254.
This application Aug. 28, 1990, Ser. No. 573,698
Claims priority, application Japan, Jul. 16, 1987, 62-179343; Jul. 16, 1987, 62-179344
Int. Cl.[5] H01L *21/331*
U.S. Cl. 437—31 **6 Claims**



1. A method of producing a semiconductor device comprising:
successively depositing a collector layer comprising a first conductivity type semi-conductor layer, a base layer comprising a second conductivity type semiconductor layer, an emitter layer comprising a first conductivity type semiconductor layer, and a contact layer comprising an undoped semiconductor layer on a sub-collector layer comprising a first conductivity type semi-conductor layer;
depositing a resist pattern on said contact layer which becomes a mash for a first ion implantation region;
ion implanting second conductivity type impurity ions from the surface of said contact layer through said contact and emitter layers and into said base layer using said resist pattern as a mask to produce a second conductivity type first implanation region;
depositing first insulating films on the surfaces of said second conductivity type first implantation regions;
removing said resist pattern and depositing a second insulating material on said first insulating films and the area from which the resist pattern was removed;
etching said second insulating material to leave walls of said second material in the area from which the resist pattern was removed adjacent said first insulating films; and
ion implanting first conductivity type impurity ions from the surface of said contact layer through said contact and

VOL 1132 ISS 1 NO 5 1991 UMI

emitter layers and into said emitter layer to produce a first conductivity type second implanation region.

5,063,168

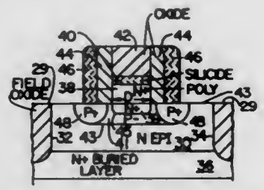
PROCESS FOR MAKING BIPOLAR TRANSISTOR WITH POLYSILICON STRINGER BASE CONTACT

Madhukar B. Vora, Los Gatos, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Division of Ser. No. 248,300, Sep. 21, 1988, Pat. No. 4,974,046, which is a continuation of Ser. No. 881,155, Jul. 2, 1986, abandoned. This application Mar. 13, 1990, Ser. No. 493,071

Int. Cl.[5] H01L *21/331, 21/283*

U.S. Cl. 437—31 **14 Claims**



1. A process for making a base and emitter contact structure for a transistor comprising the steps of:

forming an isolated island of monocrystalline silicon;

forming a layer of polysilicon covered by a first layer of metal disilicide;

doping the first metal disilicide layer with both P type and N type impurities where the impurities are selected such that the lower concentration impurity has a faster diffusion rate in terms of distance travelled per unit time for given diffusion conditions;

forming a layer of insulating material over said metal disilicide;

etching said combined three layers into the shape of an emitter contact stripe which crosses said island and which has an emitter contact pad located external to said island;

forming a second layer of insulating material over the etched structure;

anisotropically etching the second insulating layer until all the insulating material in planes parallel to the surface of said island is removed;

forming a layer of metal disilicide over the structure;

doping said second metal disilicide layer with impurities of the conductivity type which will exist in the base region of the final transistor;

masking a portion of said second metal disilicide layer which is to be the base contact pad at a location outside said island;

anisotropically etching away all portions of said second metal disilicide layer which lie in planes parallel to the surface of said island except that portion under said mask; and

baking the resultant structure in an oven long enough and at a temperature sufficient to allow the impurities in said first metal disilicide layer to diffuse into said polysilicon and said monocrystalline silicon sufficiently to form an emitter region of the desired depth and a base region of the desired width which is in electrical contact with said stringers of said second metal disilicide layer.

5,063,169

SELECTIVELY PLATING CONDUCTIVE PILLARS IN MANUFACTURING A SEMICONDUCTOR DEVICE

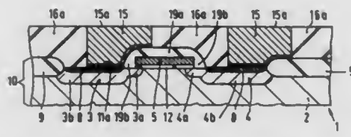
Leendert De Bruin; Robertus D. J. Verhaar, and Josephus M. F. G. Van Laarhoven, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 1, 1990, Ser. No. 531,825

Claims priority, application United Kingdom, Jun. 26, 1989, 8914627

Int. Cl.[5] H01L *21/445*

U.S. Cl. 437—41 **10 Claims**



1. A method of manufacturing a semiconductor device, which method comprises providing a semiconductor body having adjacent one major surface a device region bounded by an insulating region and forming an electrical connection to the device region by providing an activating layer on the one major surface, applying a photosensitive resist material to form a photosensitive resist layer on the one major surface, exposing and developing the photosensitive resist layer to define an opening through the photosensitive resist layer thereby exposing a contact area of the device region, and selectively depositing conductive material into the opening to form a conductive pillar which pillar has a top surface and which pillar is in electrical contact with the contact area, removing the photosensitive resist layer after formation of the conductive pillar, providing a layer of an inorganic insulating material to cover the conductive pillar and said major surface, applying a resist layer to the inorganic insulating material layer and etching the insulating and resist layers at the same rate to expose the top surface of the electrically conductive pillar and to provide a relatively flat surface for the insulating material bounding the conductive pillar.

5,063,170

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND A METHOD OF PRODUCING THE SAME

Kousuke Okuyama, Kawagoe, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

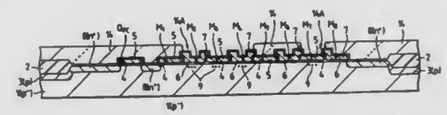
Continuation of Ser. No. 269,702, Nov. 10, 1988, Pat. No. 4,898,840. This application Jan. 2, 1990, Ser. No. 460,011

Claims priority, application Japan, Nov. 13, 1987, 62-285318

The portion of the term of this patent subsequent to Feb. 6, 2007, has been disclaimed.

Int. Cl.[5] H01L *21/00, 21/02, 21/265;* **B01J** *17/00*

U.S. Cl. 437—41 **19 Claims**



1. A method of producing a semiconductor device having a memory cell array, said memory cell array having a plurality of MISFET's that are connected in series and form cell rows, comprising the steps of:

introducing impurities into a surface of a semiconductor material having a first type of conductivity, said impurities having a second type of conductivity that is opposite to said first type of conductivity;

forming a plurality of first conductive layers maintaining an equal distance on the surface of said semiconductor material;

forming a plurality of second conductive layers among said plurality of first conductive layers on the surface of said semiconductor material, in such a manner that said second conductive layers are partly overlapped on said first conductive layers, said first and second conductive layers constituting gate electrodes of said MISFET's that are connected in series, said MISFET's forming said cell rows;

forming a masking layer having openings at positions corresponding to particular ones of the plurality of first and second conductive layers; and

selectively introducing impurities of the first conductivity type into the openings utilizing said masking layer, wherein said impurities of the first conductivity type are introduced into the channel-forming regions of said MISFET's.

5,063,171

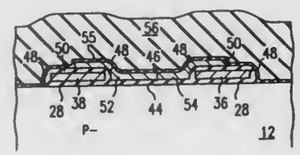
METHOD OF MAKING A DIFFUSIONLESS VIRTUAL DRAIN AND SOURCE CONDUCTOR/OXIDE SEMICONDUCTOR FIELD EFFECT TRANSISTOR

Manzar Gill, Rosharon, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 6, 1990, Ser. No. 505,802

Int. Cl.[5] H01L *21/265*

U.S. Cl. 437—41 **6 Claims**



1. A method for fabricating at least one diffusionless field effect transistor at a face of a semiconductor layer having a first conductivity type, comprising the steps of:

forming a thin insulator layer over the face of the semiconductor layer;

forming first and second diffused regions, each of a second conductivity type opposite the first conductivity type, the first diffused region formed to lie adjacent a future source conductor, the second diffused region formed to lie adjacent a future drain conductor;

forming a first conductor layer over the layer of thin insulator;

selectively etching the first conductor layer to define a source conductor and a drain conductor, laterally spaced apart by a channel region of the semiconductor layer;

forming a first interlayer insulator, layer overlying the source and drain conductors and the channel region;

forming a second conductor layer over the first interlayer insulator layer;

selectively etching the source conductor layer to define a gate conductor insulatively overlying the channel region;

forming a second interlayer insulator layer overlying the gate conductor; and

forming a first metal contact terminating at the first diffused region and a second metal contact terminating at the second diffused region.

5,063,172

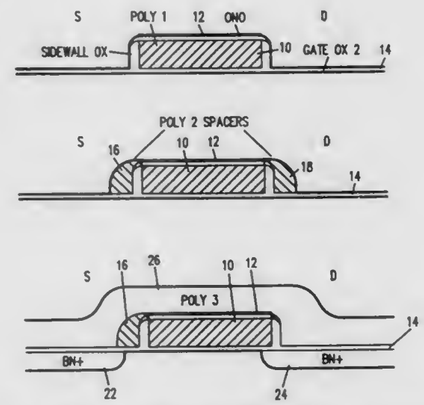
MANUFACTURE OF A SPLIT-GATE EPROM CELL USING POLYSILICON SPACERS

Martin H. Manley, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Division of Ser. No. 545,397, Jun. 28, 1990. This application Feb. 5, 1991, Ser. No. 650,740

Int. Cl.[5] H01L *21/265*

U.S. Cl. 437—43 **4 Claims**



1. A method of forming a split-gate memory cell in a semiconductor substrate of a first conductivity type, the method comprising the steps of:

(a) forming a conductive floating gate overlying the substrate but electrically insulated therefrom by a layer of first dielectric material, the floating gate having a layer of second dielectric material formed thereon;

(b) forming a sidewall insulator on a first edge of the floating gate;

(c) forming a conductive spacer adjacent to the first edge of the floating gate but insulated therefrom by the sidewall insulator;

(d) forming first and second regions of a second conductivity type in the substrate using a second edge of the floating gate to define an edge of the first region, and using an edge of the conductive spacer to define an edge of the second region;

(e) forming a conductive control gate in electrical contact with the conductive spacer and overlying but electrically insulated from the floating gate by the layer of second dielectric material.

5,063,173

METHOD FOR MIRROR PASSIVATION OF SEMICONDUCTOR LASER DIODES

Marcel Gasser, Zurich, and Ernst E. Latta, Adliswil, both of Switzerland, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 15, 1990, Ser. No. 538,626

Claims priority, application European Pat. Off., Oct. 10, 1989, 89810668

Int. Cl.[5] H01L *21/203*

U.S. Cl. 437—129 **7 Claims**

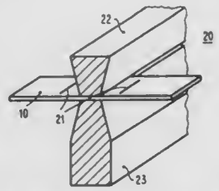
1. A method for passivating semiconductor laser diodes, comprising the steps of:

(a) providing a layered semiconductor structure forming the active waveguide of a laser diode;

(b) processing said layered semiconductor structure in an environment free of contamination so as to provide contamination-free mirror facets in order to terminate said

VOL 1132 ISS 1 NO 5 1991 UMI

active waveguide and define the length of the laser diode cavity, and



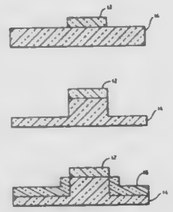
(c) depositing a passivation layer of material selected from a group comprised of silicon, germanium and antimony, in-situ onto said contamination-free mirror facets in said environment which is free of contamination.

5,063,174

SI/AU/NI ALLOYED OHMIC CONTACT TO N-GAAS AND FABRICATING PROCESS THEREFOR

Dana M. Beyea, Londonderry, N.H., and Kathleen Meehan, Medford, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Sep. 18, 1990, Ser. No. 585,015
Int. Cl.[5] H01L *21/283*
U.S. Cl. 437—184 **16 Claims**



1. A process for fabricating a Si/Au/Ni alloyed ohmic contact to n-type GaAs substrate comprising the steps of:
depositing a Si layer on the n-type GaAs substrate;
depositing a Au layer on the Si layer;
depositing a Ni layer on the Au layer; and
thermally annealing the GaAs substrate with its deposited Si, Au and Ni layers thereon for sufficient time to allow the Si, Au and Ni layers to interdiffuse with one another so that the Au and Ni reach the GaAs substrate.

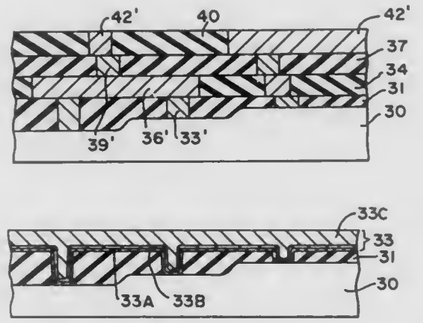
5,063,175

METHOD FOR MANUFACTURING A PLANAR ELECTRICAL INTERCONNECTION UTILIZING ISOTROPIC DEPOSITION OF CONDUCTIVE MATERIAL

Eliot K. Broadbent, San Jose, Calif., assignor to North American Philips Corp., Signetics Division, Sunnyvale, Calif.

Continuation of Ser. No. 224,275, Jul. 25, 1988, abandoned, which is a continuation of Ser. No. 913,428, Sep. 30, 1986, abandoned. This application Dec. 16, 1988, Ser. No. 287,582
Int. Cl.[5] H01L *21/44, 21/48*
U.S. Cl. 437—192 **30 Claims**

1. A method wherein a first electrically insulating layer having a largely planar upper surface is formed on a substructure, and first openings are etched through the first insulating layer down to the substructure, characterized by the steps of:
forming a first electrically conductive planarizing layer having a largely planar upper surface on the first insulating layer and in the first openings by an operation in which tungsten or molybdenum is isotropically deposited to create at least a portion of the first planarizing layer extending from its upper surface partway into the first openings;
removing a relatively uniform thickness of the first planarizing layer down to the upper surface of the first insulating layer;
forming a second electrically insulating layer having a largely planar upper surface on the first insulating layer and on the material in the first openings;
etching second openings through the second insulating layer down to the material in the first openings;
forming a second electrically conductive planarizing layer having a largely planar upper surface on the second insulating layer and in the second openings by an operation in which tungsten or molybdenum is isotropically deposited to create at least a portion of the second planarizing layer extending from its upper surface partway into the second openings; and
removing selected material of the second planarizing layer so as to leave the remainder of the second planarizing layer in a desired pattern; where each isotropic deposition entails providing tungsten or molybdenum from a species in a vapor by a surface-controlled chemical reaction in the immediate vicinity of where the tungsten or molybdenum accumulates.

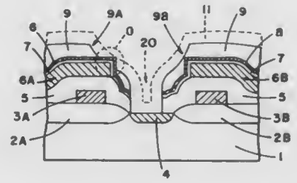


5,063,176

FABRICATION OF CONTACT HOLE USING AN ETCH BARRIER LAYER

Won G. Lee, Kangwon, and Mi Y. Kang, Seoul, both of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki, Rep. of Korea

Filed May 30, 1990, Ser. No. 530,644
Claims priority, application Rep. of Korea, May 30, 1989, 89-7209
Int. Cl.[5] H01L *21/441, 21/465*
U.S. Cl. 437—195 **8 Claims**



1. A method for forming a contact hole by utilizing an etch barrier layer in a semiconductor device, the method comprising the steps of:

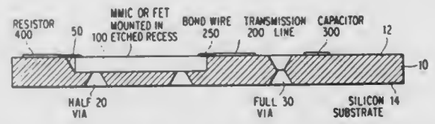
forming MOSFETs on a silicon substrate, each MOSFET having a field oxide film formed on the silicon substrate, a gate electrode formed on the field oxide film and a diffusion region formed into the silicon substrate between the field oxide films with the diffusion region being used as a source electrode or a drain electrode;
depositing a first insulating film on the entire surface;
forming conductive material layers on each portion of the first insulating film positioned on the gate electrodes of each MOSFET by a mask patterning process of the conductive material layer;
depositing a second insulating film on the entire surface to insulate the conductive material layers from each other;
forming an etch barrier layer on the second insulating film;
depositing a third insulating film on the entire surface of the etch barrier layer and then flowing the same;
forming a contact mask pattern for contact hole on the third insulating film positioned over the source electrode by utilizing a photoresistive layer as a contact mask; and
performing a rounding process of a portion of the third insulating film by isotropically etching a portion of the third insulating film along the contact mask pattern; and,
forming a contact hole by anisotropically etching a portion of the rounded third insulating film, a portion of the etch barrier layer, a portion of the second insulating film and a portion of the first insulating film, thereby preventing the second insulating film from being etched when the rounding process of a portion of the third insulating is performed by isotropically etching a portion of the third insulating film.

5,063,177

METHOD OF PACKAGING MICROWAVE SEMICONDUCTOR COMPONENTS AND INTEGRATED CIRCUITS

Bernard D. Geller, Rockville; Johann U. Tyler, Mt. Airy; Louis B. Holdeman, Boyds; Fred R. Phelleps, Gaithersburg, and George F. Laird, III, Baltimore, all of Md., assignors to COMSAT, Washington, D.C.

Filed Oct. 4, 1990, Ser. No. 592,750
Int. Cl.[5] H01L *21/60*
U.S. Cl. 437—209 **15 Claims**



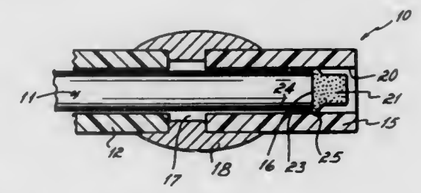
1. A method of packaging gallium arsenide monolithic microwave integrated circuits (MMICs), comprising:
(i) etching recesses in a first major surface of a silicon motherboard (SMB);
(ii) etching vias at least from a second major surface of said SMB to a bottom of said recesses; and
(iii) depositing said MMICs in said recesses; wherein said SMB comprises silicon having a resistivity of at least 8 kΩ cm and being operable to conduct energy at RF frequencies.

5,063,178

FREEZE-DRIED BLOOD GAS SENSOR

John C. Toomey, West Worthington, Ohio, assignor to Medex, Inc., Hilliard, Ohio

Filed Mar. 19, 1990, Ser. No. 495,849
Int. Cl.[5] G01N *21/64, 31/22;* G02B *23/26*
U.S. Cl. 422—82.07 **7 Claims**



4. A blood chemical sensor comprising:
an optical fiber,
a dye and hydrogel combination mounted on the end of the optical fiber, said dye and hydrogel combination being freeze-dried.

5,063,179

PROCESS FOR MAKING NON-POROUS MICRON-SIZED HIGH PURITY SILICA

Jameel Menashi, Lexington, Mass., and Kenneth C. Koehlert, Champaigne, Ill., assignors to Cabot Corporation, Waltham, Mass.

Filed Mar. 2, 1990, Ser. No. 490,005
Int. Cl.[5] C03C *3/06;* C01B *33/12*
U.S. Cl. 501—12 **11 Claims**

1. A process for producing nonporous, dense, silica particles having a diameter of about 3 to 1000 microns, and nitrogen B.E.T. surface area less than about 1 m^2/g, a total impurity content of less than about 50 ppm and a metal impurity content of less than about 15 ppm, comprising:
a) Forming an aqueous dispersion of fumed silica containing from about 5 to about 55 weight percent solids;
b) Converting the aqueous dispersion of step (a) into porous particles; and
c) Sintering the porous particles of step (b) in an atmosphere having a water partial pressure ranging from 0.2 to 0.8 atmosphere at temperatures below about 1200° C.

5,063,180

LOW SILICA CERAMIC FIBER

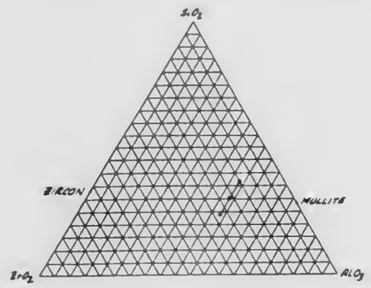
Robert B. Stevens, Mexico, and Orville Hunter, Jr., Columbia, both of Mo., assignors to A. P. Green Industries, Inc., Mexico, Mo.

Filed Jul. 16, 1990, Ser. No. 553,722
Int. Cl.[5] C03C *13/02, 13/00, 3/062*
U.S. Cl. 501—38 **2 Claims**

1. A refractory glass fiber, said fiber in bulk or blanket form

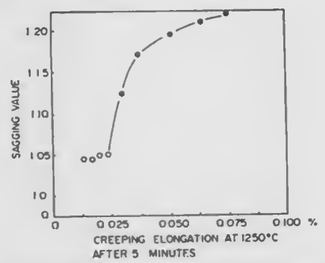
VOL 1132 ISS 1 NO 5 1991 UMI

being substantially cristobalite-free when subjected to temperatures of up to about 2700° F., consisting of, by weight percent:
Al_2O_3 46–49



SiO_2 23–25
ZrO_2 27–29.

5,063,181
SYNTHETIC SILICA GLASS ARTICLE FOR DOPANT-DIFFUSION PROCESS IN SEMICONDUCTORS
Masatoshi Takita, and Takaaki Shimizu, both of Niigata, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan
Filed Oct. 26, 1989, Ser. No. 427,792
Claims priority, application Japan, Oct. 31, 1988, 63-275297
Int. Cl.[5] C03C *3/06*
U.S. Cl. 501—54 **1 Claim**



1. An article for dopant-diffusion in semiconductors obtained by shaping a block of synthetic silica glass having an elongation after being held under a tension of 62.5 g/mm^2 for five minutes at a temperature of 1250° C. of not greater than 0.025%.

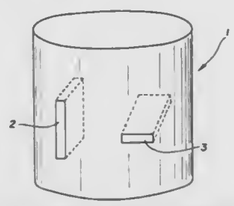
5,063,182
ZIRCONIA-MOLYBDENUM DISILICIDE COMPOSITES
John J. Petrovic, and Richard E. Honnell, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.
Filed Aug. 31, 1990, Ser. No. 575,913
Int. Cl.[5] C04B *35/48, 35/58*
U.S. Cl. 501—96 **3 Claims**

1. A composition of matter consisting essentially of molybdenum disilicide and a material chosen from a group consisting of pure zirconium oxide, partially stabilized zirconium oxide, and fully stabilized zirconium oxide.

5,063,183
SINTERABLE ALUMINUM NITRIDE COMPOSITION, SINTERED BODY FROM THIS COMPOSITION AND PROCESS FOR PRODUCING THE SINTERED BODY
Hitofumi Taniguchi, Chigasaki, and Nobuyuki Kuramoto, Sagamihara, both of Japan, assignors to Tokuyama Soda Kabushiki Kaisha, Yamaguchi, Japan
Continuation of Ser. No. 894,256, Aug. 7, 1986, abandoned. This application Aug. 14, 1990, Ser. No. 569,369
Claims priority, application Japan, Aug. 13, 1985, 60-176865; Oct. 30, 1985, 60-241348; Nov. 8, 1985, 60-248797; Nov. 8, 1985, 60-248798
Int. Cl.[5] C04B *35/58*
U.S. Cl. 501—96 **10 Claims**

1. A sintered body of aluminum nitride, said sintered body having a thermal conductivity of at least 200 W/m°K measured at room temperature on a sintered body having a thickness of 6 mm and a high density of at least 3.2 g/cm^3 and consisting essentially of at least 99% by weight of aluminum nitride, at most 0.2% by weight of bound oxygen, at most 0.1% by weight as metal of an oxide of at least one metal element selected from the group consisting of alkaline earth metals, lanthanum group metals and yttrium and at most 0.1% by weight as metal of metal compounds as impurities, wherein the alkaline earth metals are calcium, strontium and barium, and the metal of the metal compounds is silicon, iron, chromium, nickel, cobalt, copper or titanium and said sintered body having a light translucency represented by a coefficient of absorption, determined from its linear transmittance to light having a wavelength of 6 micrometers, of not more than 45 cm^{-1}.

5,063,184
PRESSURELESS SINTERED BODY OF BORON NITRIDE
Hagio Tsuycshi; Kazuo Kobayashi, both of Tosu; Hisayoshi Yoshida, Ogoori; Ichitaro Ogawa, Tosu; Hiroshi Harada, Omuta; Hiroaki Yasunaga, Omuta, and Hiroshi Nishikawa, Omuta, all of Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan and Denki Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 294695, Nov. 23, 1988, abandoned. This application Mar. 27, 1990, Ser. No. 501,318
Claims priority, application Japan, Apr. 1, 1987, 62-082097; Aug. 31, 1987, 62-218347
Int. Cl.[5] C04B *35/58*
U.S. Cl. 501—96 **8 Claims**



1. A pressureless sintered body of hexagonal boron nitride consisting essentially of more than 95% weight of boron nitride and not more than 5% of weight of impurities inevitably contained therein containing boron oxide and oxygen, said sintered body or boron nitride having a hexagonal structure, a density ranging between about 1.10 and about 1.80 g/cm^3 and a bending strength of not less than 300 kg/cm^2, and said sintered body being obtained by pulverizing powders of starting feed hexagonal boron nitride so that a specific surface area of each of said powders is at least two times that of the starting feed boron nitride powder,

molding the pulverized powders to obtain a pre-molded body and sintering the pre-molded at a temperature of at least 1400° C. under atmospheric pressure and under a non-oxidative atmosphere.

5,063,185
MODIFIED CERAMIC STRUCTURES AND METHODS OF MAKING THE SAME
Ratnesh K. Dwivedi, Wilmington, and Christopher R. Kennedy, Newark, both of Del., assignors to Lanxide Technology Company, LP, Newark, Del.
Continuation of Ser. No. 272,514, Nov. 16, 1988, abandoned, which is a continuation of Ser. No. 908,458, Sep. 17, 1986, Pat. No. 4,806,508. This application Jul. 2, 1990, Ser. No. 547,405
Int. Cl.[5] C04B *35/00*
U.S. Cl. 501—126 **7 Claims**

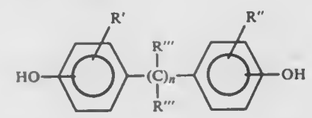
1. A self-supporting ceramic composite body comprising:

1) an initial ceramic composite body which comprises a polycrystalline oxidation reaction product embedding a substantially inert filler material, said oxidation reaction product selected from the group consisting of alumina, aluminum nitride, aluminum boride, aluminum carbide, silica, silicon nitride, silicon boride, silicon carbide, titania, titanium nitride, titanium boride, titanium carbide, tin oxide, tin nitride, tin boride, tin carbide, zirconia, zirconium nitride, zirconium carbide, hafnia, hafnium nitride, hafnium carbide, and hafnium boride being formed by a directed oxidation reaction of a molten parent metal selected from the group consisting of aluminum, silicon, titanium, tin, zirconium and hafnium, with an oxidant selected from the group consisting of an oxygen containing gas, a nitrogen containing gas, a boron containing element or compound, and a carbon containing element or compound, such that said filler material is embedded by said oxidation reaction product, said initial ceramic composite body having at least some interconnected porosity which is at least partially accessible from at least one surface of said initial ceramic composite body; and

a second ceramic component selected from the group consisting of chromia and silica being disposed in at least a portion of said porosity.

5,063,186
HIGHLY AROMATIC POLYUREA/URETHANE MEMBRANES AND THEIR USE OF THE SEPARATION OF AROMATICS FROM NON-AROMATICS
Robert C. Schucker, Baton Rouge, La., assignor to Exxon Research & Engineering Company, Florham Park, N.J.
Continuation-in-part of Ser. No. 108,822, Oct. 14, 1987, Pat. No. 4,914,064. This application Apr. 11, 1989, Ser. No. 336,172
The portion of the term of this patent subsequent to Apr. 3, 2007, has been disclaimed.
Int. Cl.[5] B01J *20/28*
U.S. Cl. 502—4 **12 Claims**

1. A polyurea/urethane membrane characterized by possessing a urea index of at least about 20% but less than 100%, an aromatic carbon content of at least about 15 mole percent, a functional group density of at least about 10 per 1000 grams of polymer and a C═O/NH ratio of less than about 8, prepared from a polyurea/urethane copolymer made by reacting a dihydroxy or polyhydroxy compound with an aliphatic, alkylaromatic or aromatic diisocyanate or polyisocyanate and then with a low molecular weight chain extender wherein the dihydroxy or polyhydroxy component is prepared by reacting aliphatic or aromatic dicarboxylic acids with an alkylaromatic dialcohol of the formula



wherein R′, R″, and R‴ may be the same or different and are selected from the group consisting of H, C_1–C_5 hydrocarbons or C_6H_5 and combinations thereof, and n is 0 to 4.

5,063,187
CATALYST BASED ON CRYSTALLINE ALUMINOSILICATE
Götz Burgfels, Feilenbach-Au; Karl Kochloefl, Bruckmühl; Jürgen Ladebeck, Bad Aibling; Friedrich Schmidt, Rosenheim; Michael Schneider, Ottobrunn/Riemerling, and Hans J. Wernicke, Geretsried, all of Fed. Rep. of Germany, assignors to Sud-Chemie Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Nov. 14, 1989, Ser. No. 436,477
Claims priority, application Fed. Rep. of Germany, Nov. 15, 1988, 3838710
Int. Cl.[5] B01J *29/28*
U.S. Cl. 502—71 **19 Claims**

1. A catalyst based on crystalline aluminosilicates of the pentasil type, having an Si/Al atomic ratio of at least 10, said catalyst having a structure of primary crystallites of a mean diameter of about 0.1 micron to about 0.9 micron, wherein at least 20 percent of said crystallites are combined into agglomerates of about 5 to about 500 microns in size, the primary crystallites and agglomerates being mutually joined by finely divided alumina obtainable by hydrolysis of aluminum-organic compounds, wherein at least 95 percent (relative to the mean diameter) of the alumina particles being ≦55 microns in size, wherein the BET surface area of the catalyst is about 300 to about 600 m^2/g, wherein the pore volume (determined by mercury porosity) is about 0.3 to about 0.8 cm^3/g and wherein at least 60 percent of the pores have a diameter of about 14 to about 80 nm.

6. In a process for preparing the catalyst of claim 1 by the elevated temperature reaction in an aqueous medium of colloidal silica or alkali metal silicate, aluminum hydroxide or alkali metal aluminate, a source of alkali and a template to form an alkaline aluminosilicate gel with subsequent conversion to a crystalline aluminosilicate, the improvement which comprises:

a) stopping the reaction when the primary crystallites have a mean diameter of about 0.1 to about 0.9 micron;

b) separating the primary crystallites as pre-agglomerates from the aqueous reaction medium;

c) drying the crystallites and subjecting them to an intermediate calcination;

d) reacting the product of step (c) in an aqueous medium a substance containing protons or donating protons on heating;

e) separating and drying the crystallites and subjecting them to intermediate calcination;

f) separating out the agglomerates having a particle size of about 5 to about 500 microns;

g) mixing the separated agglomerates of step (f) with finely divided alumina; and

h) subjecting the product of step (g) to final calcination.

5,063,188
CATALYST COMPONENT FOR ETHYLENE POLYERMIZATION AND COPOLYMERIZATION
Dennis B. Malpass, Peekskill, and Bor-Ping E. Wang, Ossining, both of N.Y., assignors to Texas Alkyls, Inc., Deer Park, Tex.
Filed Apr. 6, 1990, Ser. No. 505,378
Int. Cl.[5] C08F *4/64*
U.S. Cl. 502—116 **11 Claims**

1. A catalyst component for ethylene polymerization formed by:

(1) reacting an organomagnesium compound with an alkoxy silane to replace organo groups on the organomagnesium compound with alkoxy to yield a product comprising magnesium alkoxide;

(2) contacting the product from step (1) with a chlorinating reagent; and

(3) contacting the product from step (2) with a liquid titanium halide.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,189

RANEY CATALYST COMPOSITION

Peter Jowett, Tame Street, Stalybridge, Cheshire, SK15 1QW, England

Filed Mar. 29, 1990, Ser. No. 500,604

Claims priority, application United Kingdom, Jul. 31, 1987, 8718231

Int. Cl.[5] B01J *25/00*

U.S. Cl. 502—150 16 Claims

1. A method of preparing a Raney metal catalyst composition, which method comprises the step of treating a particulate Raney metal catalyst suspended in water with a fatty monoglyceride having a fatty acid residue of 8 to 24 carbon atoms to coat said Raney metal catalyst particles with said fatty monoglyceride.

5,063,190

ANIONIC INITIATOR SYSTEM FOR POLYMERIZING MONOMERS

1. Glen Hargis, Tallmadge; Hubert J. Fabris, Akron; John A. Wilson, Akron, and Russell A. Livigni, Akron, all of Ohio, assignors to GenCorp Inc., Fairlawn, Ohio

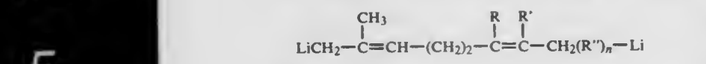
Continuation of Ser. No. 426,929, Oct. 26, 1989, abandoned, which is a division of Ser. No. 200,286, May 31, 1988. This application Jun. 19, 1990, Ser. No. 541,104

Int. Cl.[5] B01J *31/12, 31/14*

U.S. Cl. 502—157 4 Claims

1. An anionic initiator system for polymerizing monomers, comprising:

a blend of an organopolylithium component and a preformed complex component to form a trimetallic initiator, said organopolylithium component having the formula



where

R=H or DH_3,

R'=CH_3 or H with the provisio that R' is not the same as R,

R''=1,4 and 3,4 isoprene adducts,

n=approximately 4.0,

said preformed complex component made from a trialiphatic substituted aluminum compound and a barium salt of allyl alcohol, the mole ratio of said aluminum metal to said barium metal being from about 3.5 to about 4.5, and the mole ratio of said barium metal to said lithium metal being form about 0.10 to about 0.50.

5,063,191

ALKALI METAL AND ALKALI METAL CARBONATE CATALYTIC SYSTEMS AND CATALYTIC PROCESSES

Charles A. Drake, Nowata, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Sep. 17, 1990, Ser. No. 583,405

Int. Cl.[5] B01J *21/18, 23/02;* C07C *2/24*

U.S. Cl. 502—174 13 Claims

1. A catalytic system which comprises:

a) a catalyst which comprises an elemental alkali metal and a metal oxide wherein the metal is chosen from the lanthanide series; and

b) a catalyst support which comprises an alkali metal carbonate.

5,063,192

CATALYST FOR PURIFICATION OF EXHAUST GASES

Hiroshi Murakami, and Kazuko Yamagata, both of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Jul. 6, 1990, Ser. No. 549,143

Claims priority, application Japan, Jul. 6, 1989, 1-174817

Int. Cl.[5] B01J *21/04, 21/06, 23/02, 23/10*

U.S. Cl. 502—303 9 Claims

1. A catalyst for the purification of exhaust gases consisting essentially of a catalyst carrier with a first coat layer formed on a surface of the catalyst carrier and with a second coat layer formed on a surface of the first coat layer;

wherein the first coat layer consists essentially of an active alumina and a catalyst component comprised of a noble metal and at least one of zirconium oxide, lanthanum oxide and barium oxide is immobilized on particles of the active alumina;

the second coat layer consists essentially of an active alumina, cerium oxide and a catalyst component comprised of another noble metal, wherein a ratio of the weight of the active alumina to cerium oxide ranges from approximately 95 to 5 to approximately 70 to 30; and

wherein said zirconium oxide, lanthanum oxide or barium oxide is contained in an amount ranging from 1% to 10% by weight based on the weight of a total wash coat of the first coat layer and the second coat layer.

5,063,193

BASE METAL AUTOMOTIVE EXHAUST CATALYSTS WITH IMPROVED ACTIVITY AND STABILITY AND METHOD OF MAKING THE CATALYSTS

Raymond E. Bedford, Burton, and William J. LaBarge, Bay City, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 6, 1990, Ser. No. 534,584

Int. Cl.[5] B01F *17/00;* B01J *23/10*

U.S. Cl. 502—304 9 Claims

1. A catalyst for the treatment of automobile exhaust gas comprising a support member carrying a catalytically active particulate washcoat layer,

the washcoat consisting essentially of a mixture of finely divided ceric oxide carrier particles and alumina carrier particles, the cerium oxide particles having dispersed thereon copper oxide and optionally a mixture of copper oxide with one or more of chromium oxide, manganese oxide and tin oxide, and the aluminum oxide particles optionally containing one or more of said oxides other than copper oxide,

wherein the proportions of ceric oxide and alumina on the basis of 100 parts by weight of total carrier particles are 20 to 70 parts ceric oxide and 30 to 80 parts alumina, the amount of copper is 1 to 15 parts per 100 parts of carrier particles, the amount of chromium is 0 to 10 parts per 100 parts of carrier particles, and the amount of tin and manganese are respectively 0 to 25 parts per 100 parts of carrier particles.

5,063,194

PALLADIUM CATALYST

Franz J. Broecker, Ludwigshafen; Lothar Arnold, Heidelberg, and Paul Grafen, Weisenheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Aug. 2, 1990, Ser. No. 561,565

Claims priority, application Fed. Rep. of Germany, Aug. 11, 1989, 3926561

Int. Cl.[5] B01J *23/60, 23/62, 23/64*

U.S. Cl. 502—314 8 Claims

1. A palladium catalyst obtained by vapor-depositing metallic palladium on a carrier, treating the palladium coating with a metallic inhibitor by vapor deposition, and heating the product at from 300 to 800° C.

5,063,195

HIGH EFFICIENCY SILVER CATALYST FOR THE PRODUCTION OF ETHYLENE OXIDE VIA ETHYLENE OXIDATION

JiQuan Jin, Beijing; Lian Di Shang, Tianjin; Gno Quan Jin; Yong Xu, both of Beijing, and Guo Chun Luo, Tianjin, all of China, assignors to China Petrochemical Corporation, Beijing, China and Beijing China Research Institute of Beijing Yanshan Petrochemical Corporation, Beijing, China

Filed Feb. 1, 1989, Ser. No. 304,531

Claims priority, application China, Feb. 3, 1988, 88100400.6

Int. Cl.[5] B01J *21/04, 23/02, 23/50*

U.S. Cl. 502—341 21 Claims

1. A process for preparing a silver-containing catalyst for the production of ethylene oxide via ethylene oxidation, comprising:

preparing a mixture of commercial trihydrated α-alumina, boehmite alumina, carbonaceous material, a fluxing agent, a fluoride, a binder and water;

extruding the mixture to form a shaped body;

drying and calcining the shaped body to convert it into an alumina carrier having the following pore structure:

Specific surface area	0.2–2 m^2/g
pore volume	>0.5 ml/g
pore radius	10–25% of the total volume being greater than 30μ

impregnating the alumina carrier with a solution of a silver compound and an alkali or alkaline earth metal compound; and

reducing and activating said silver impregnated carrier.

5,063,196

CHROMIUM-FREE IMPREGNATED ACTIVATED CARBON FOR ADSORPTION OF TOXIC GASES AND/OR VAPORS

David T. Doughty, Coraopolis, and James E. Groose, Mt. Lebanon, both of Pa., assignors to Calgon Carbon Corporation, Pittsburgh, Pa.

Filed Jun. 23, 1989, Ser. No. 371,430

Int. Cl.[5] B01J *20/22, 20/20, 31/28;* B01D *53/04*

U.S. Cl. 502—417 9 Claims

1. An impregnated activated carbon adsorbent impregnated with at least one solution so as to provide a composition of, by total elemental weight including said activated carbon, from about 4 to 14% copper and 2 to 12% zinc, from 0 to 10% silver and from about 1.5 to 6% triethylenediamine.

5,063,197

HEAT-SENSITIVE RECORDING MATERIAL

Atsuo Goto; Fumio Okumura, both of Tsukuba, and Kazuhiko Ito, Tsuchiura, all of Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

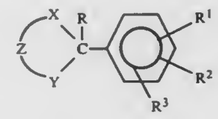
Filed Sep. 4, 1990, Ser. No. 576,969

Claims priority, application Japan, Sep. 4, 1989, 1-230084; Sep. 29, 1989, 1-254618; Nov. 17, 1989, 1-299072; Feb. 9, 1990, 2-30556; Feb. 9, 1990, 2-30557; Mar. 27, 1990, 2-79643; May 7, 1990, 2-118242; May 7, 1990, 2-118243

Int. Cl.[5] B41M *5/30*

U.S. Cl. 503—209 17 Claims

1. A heat-sensitive recording material comprising a support and a heat-sensitive recording layer provided on the support, said heat-sensitive recording layer comprising an electron-donating, colorless or pale-colored dye precursor, an electron-accepting developer which reacts with the dye precursor to form images upon heating, a binder, and an aromatic compound represented by the following structural formula:



wherein

X and Y are oxygen atoms or sulfur atoms and may or may not be identical with each other,

Z is alkylene group which has two or more carbon atoms and may have a side chain,

R is hydrogen atom or alkyl group,

R^1, R^2 and R^3 are independently

hydrogen atoms;

alkoxy groups;

alkylthio groups;

phenyl groups;

aryloxy groups which may have a substituent;

—$COOR^4$ groups wherein R^4 is alkyl group or aralkyl or aryl group which may have a substituent; or

—OZ^1X^1—Ar^1 groups wherein Z^1 is alkylene or alkenylene group which may have a substituent, X^1 is oxygen atom, sulfur atom or single bond, and Ar^1 is aryl group which may have a substituent;

and wherein

all of R^1, R^2 and R^3 are not hydrogen atoms and two of R^1, R^2 and R^3 may be linked with each other to form a cyclic structure.

5,063,198

DYE TRANSFER TYPE THERMAL PRINTING SHEETS

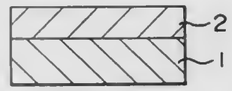
Akihiro Imai, Ikoma; Tetsuji Kawakami; Hiromu Matsuda, both of Katano; Keiichi Yubakami, Suita, and Nobuyoshi Taguchi, Ikoma, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 5, 1990, Ser. No. 504,606

Claims priority, application Japan, Apr. 14, 1989, 1-095762; Dec. 7, 1989, 1-318054

Int. Cl.[5] B41M *5/035, 5/26*

U.S. Cl. 503—227 15 Claims



1. A dye transfer thermal printing sheet comprising

(a) a substrate, and

(b) a lamina comprising

a dye and

either a cured product of a moisture curable resin or a reaction-cured product of a moisture curable resin and a reactive silicone oil,

on at least one side of the substrate.

5,063,199

METHOD OF DEPOSITING THIN FILMS OF HIGH TEMPERATURE BI-SR-CA-CU-O-BASED CERAMIC OXIDE SUPERCONDUCTORS

Kenton D. Budd, Woodbury, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 15, 1990, Ser. No. 538,835

Int. Cl.[5] B05D *5/12, 3/02*

U.S. Cl. 505—1 24 Claims

1. A method comprising the steps of

(a) preparing a liquid precursor of a Bi-Sr-Ca-Cu-O-based ceramic oxide superconductor phase, wherein said liquid

VOL 1132 ISS 1 NO 5 1991 UMI

precursor comprises an alkoxyalkanol, copper acrylate, strontium acrylate, bismuth nitrate, and calcium nitrate, wherein said liquid precursor has a cation ratio sufficient to form the desired stoichiometry in said ceramic oxide superconductor phase when said liquid precursor is heated to a temperature and for a time sufficient to provide said desired ceramic oxide superconductor phase, and wherein said copper acrylate, strontium acrylate, bismuth nitrate, and calcium nitrate are mutually soluble in said alkoxyalkanol;

(b) applying said liquid precursor to a substrate, wherein said substrate is one of an oxide ceramic, a metal selected from the group consisting of Ag and Ni, and Si; and

(c) heating said substrate in an oxygen-containing atmosphere with said liquid precursor applied thereon to a temperature and for a time sufficient to form a thin film comprising at least one Bi-Sr-Ca-Cu-O-based high temperature ceramic oxide superconductor phase.

5,063,200

CERAMIC SUPERCONDUCTOR ARTICLE

Michiya Okada, Mito; Tadaoki Morimoto, Ibaraki; Akira Okayama, Hitachi; Yoshimi Yanai, Hitachi; Hiroshi Satoh, Hitachi; Toshimi Matsumoto, Katsuta; Yoshiteru Chiba, Hitachi; Kimihiko Akahori, Katsuta; Takahiko Kato, Hitachi; Toshiya Doi, Hitachi, and Kazuhide Tanaka, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 9, 1988, Ser. No. 230,053

Claims priority, application Japan, Aug. 12, 1987, 62-199819; Dec. 11, 1987, 62-311982

Int. Cl.[5] B32B *9/00*

U.S. Cl. 505—1 **24 Claims**



1. A shaped superconductor article, which comprises:

a shaped high Tc ceramic oxide superconductor shaped in a form of one of a wire, a tape and a disk;

a metal sheath surrounding said shaped oxide superconductor and comprising a lowermost layer adjacent said shaped oxide superconductor and at least one upper layer adjacent said lowermost layer; and

an oxygen impermeable conductive oxide film made of aluminum oxide formed at an interface between said lowermost layer and said at least one upper layer so as to prevent diffusion of oxygen from said shaped oxide superconductor to said at least one upper layer.

5,063,201

METHOD TO PRODUCE $YBA_2CU_3O_{6+x}$ SUPERCONDUCTING WIRES OR TAPES

A. Srinivasa Rao, Arnold, and Om P. Arora, Silver Spring, both of Md., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 18, 1990, Ser. No. 599,605

Int. Cl.[5] H01L *39/12*

U.S. Cl. 505—1 **3 Claims**

1. A method for making an improved ceramic superconductor $YBa_2Cu_3O_{6+x}$ comprising:

a) mixing a yttrium oxide with barium carbonate and copper oxide in the ratio of about 50 to about 100 gm of Y_2O_3, about 175 to about 200 gm of $BaCO_3$ and about 105 to about 300 gm of CuO

b) ball milling the mixture with zirconia balls for at least one hour;

c) calcining the mixture at 940° C. + or −2° C. with a heating sequence of about 3° C. to about 5° C. per minute;

d) maintaining the temperature at 940° C. + or −2° C. for about 300 to about 600 minutes to ensure complete reaction of the mixture;

e) cooling the mixture to room temperature at the rate of about 3° C. to about 5° per minute;

f) grinding the mixture into a fine size powder using zirconia balls,

g) heating the powder to about 700° C. at the rate of about 5° C. per minute and cooling the mixture to 550°–600° C. for 300 minutes in a flowing oxygen environment;

h) annealing the mixture at 550°–600° C. for 300 minutes in a flowing oxygen environment;

i) cooling the mixture to room temperature at the rate of about 1° C. per minute;

j) adding pure aluminum powder to the fine $YBa_2Cu_3O_{6+x}$ in the ratio 60 gm of Al to 40 gm of $YBa_2Cu_3O_{6+x}$;

k) ball milling the mixture for about one hour using zirconia balls;

l) dry pressing the powder mixture at about 25,000 psi;

m) heating the powder mixture at from about 375°–400° C. for about 1 hour;

n) cooling the powder mixture, and

o) rolling the powder mixture into a thin ceramic superconductor.

5,063,202

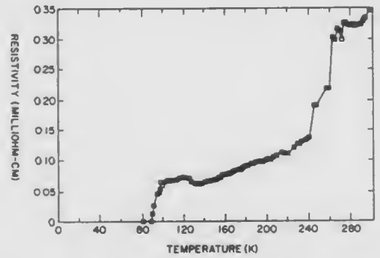
HIGH TRANSITION TEMPERATURE SUPERCONDUCTORS

Jagdish Narayan, Raleigh, N.C., assignor to Kopin Corporation, Taunton, Mass.

Continuation of Ser. No. 85,591, Aug. 14, 1987, abandoned. This application Apr. 27, 1990, Ser. No. 517,523

Int. Cl.[5] H01L *39/12*; C01F *17/00*; C01G *3/02*

U.S. Cl. 505—1 **3 Claims**



1. The compound $YBa_2 Cu_4O_{10}$ wherein is such that said compound has a perovskite-like unit cell structure of approximately the following dimensions a=3.8Å, b=3.9Å, and c=13.55Å.

5,063,203

METHOD OF PREVENTING OR TREATING THROMBOSIS USING KAPPA-CASEINOGLYCOPEPTIDE AS ACTIVE INGREDIENT

Ludovic O. Drouet, Paris; Claire Bal Dit Sollier, Vincennes; Elisobeth M. Mazoyer, Paris; Sylviane Levy Toledano, Paris; Pierre Jolles, Paris, and Ann-Taiic D. Fiat, Le Vesinet, all of France, assignors to Centre National de la Recherche Scientifique (CNRS) and Institut des Vaisseaux et du Sang (IVS), both of Paris, France

Filed May 9, 1990, Ser. No. 520,760

Claims priority, application France, May 11, 1989, 89 06207

Int. Cl.[5] A61K *37/02*; C07K *15/10, 15/14*

U.S. Cl. 514—8 **13 Claims**

1. A method of preventing or treating thrombosis in human beings, comprising the step of administering an effective antithrombotic amount of a κ-caseinoglycopeptide selected from the group consisting of:

κ-caseinoglycopeptide from cow's milk having the following composition in terms of residues/mole: 5 Asp; 12 Thr; 6 Ser; 10 Glu; 8 Pro; 1 Gly; 5 Ala; 6 Val; 1 Met; 6 Ile; 1 Leu; 3 Lys; and the following N-terminal sequence:

Met— Ala— Ile— Pro— Pro— Lys— Lys—

Asn— Gln— Asp— Lys,

κ-caseinoglycopeptide from ewe's milk having the following composition in terms of residues/mole: 7 Asp; 10 Thr; 7 Ser; 9 Glu; 7 Pro; 10 Ala; 6 Val; 1 Met; 5 Ile; 3 Lys; 1 His; and the following N-terminal sequence:

Met— Ala— Ile— Pro— Pro— Lys— Lys—

Asp— Gln— Asp— Lys,

κ-caseinoglycopeptide from goat's milk having the following composition in terms of residues/mole: 7 Asp; 11 Thr; 8 Ser; 9 Glu; 6 Pro; 9 Ala; 5 Val; 1 Met; 6 Ile; 3 Lys; 1 His; and the following N-terminal sequence:

Met— Ala— Ile— Pro— Pro— Lys— Lys—

Asp— Gln— Asp— Lys, and

κ-caseinoglycopeptide from human milk having the following composition in terms of residues/mole: 3 Asp; 14 Thr; 4 Ser; 6 Glu; 11 Pro; 7 Ala; 6 Val; 10 Ile; 1 Phe; 3 Lys; and the following N-terminal sequence:

Ile— Ala— Ile— Pro— Pro— Lys— Lys—

Ile— Gln— Asp— Lys.

5,063,204

PROCESS FOR TREATING INFERTILITY

Howard S. Jacobs, London, England, assignor to Nordisk Gentofte A/S, Gentofte, Denmark

Continuation of Ser. No. 64,846, Jun. 19, 1987, abandoned. This application Mar. 2, 1990, Ser. No. 488,490

Claims priority, application Denmark, Jan. 30, 1987, 499/87

Int. Cl.[5] A61K *37/24, 37/36, 37/38*

U.S. Cl. 514—8 **12 Claims**

1. In a process for treating infertility caused by abnormal gonadotrophin secretion in mature higher female mammals wherein said mammals are injected with gonadotrophins to stimulate ovarian function, the improvement comprising administering growth hormone to said mammals in combination with said gonadotrophins, said growth hormone being administered in an amount effective to enhance said stimulation of the ovarian function in said mammals.

5,063,205

UPTAKE OF IRON BY THE BODY

Timothy J. Peters, London, and Kishor B. Raja, North Harrow, both of England, assignors to National Research Development Corporation, London, England

Filed Dec. 8, 1987, Ser. No. 130,594

Claims priority, application United Kingdom, Jun. 5, 1987, 8713169

Int. Cl.[5] A61K *37/02, 37/36*

U.S. Cl. 514—12 **7 Claims**

1. A method for the enhancement of iron uptake or the treatment of iron deficiency in a subject in need thereof which comprises administering to said subject amounts which together are therapeutically effective of epidermal growth factor (EGF) and an iron providing material.

5,063,206

COMPOSITIONS HAVING USE AS TREATMENT OF NEUROPSYCHIATRIC DEFICITS

Peter Bridge, Washington, D.C., and Frederick K. Goodwin, Chevy Chase, Md., assignors to The United States of Americas as represented by the Department of Health and Human Services, Washington, D.C.

Continuation-in-part of Ser. No. 285,559, Dec. 16, 1988, which is a continuation-in-part of Ser. No. 199,873, May 27, 1988, abandoned. This application May 16, 1989, Ser. No. 352,313

Int. Cl.[5] A61K *37/02*; C07K *7/08*

U.S. Cl. 514—16 **11 Claims**

1. A method of treating mental disorders not caused by HIV infection which comprises administration of a thymoleptic effective amount of (1) a linear peptide of the formula:

$$R^a\text{—Ser—Thr—Thr—Thr—Asn—Tyr—}R^b \quad \text{(I)}$$

wherein R^a represents an amino terminal residue which is

Ala—,D—Ala, or Cys—Ala—,

R^b represents a carboxy terminal Thr-, Thr-amide, Thr-Cys or Thr-Cys-amide, and derivatives thereof which are esters and amides; (2) a thymoleptic effective amount of a linear peptide formula:

$$R^1\text{—}R^2\text{—}R^3\text{—}R^4\text{—}R^5 \quad \text{(II)}$$

wherein

R^1 is an amino terminal residue which is X-R′ or R′ wherein R′ is Thr—,Ser—,Asn—,Leu,Ile—,Arg— or Glu— and X is Cys;

R^2 Thr, Ser, or Asp;

R^3 is Thr, Ser, Asn, Arg, Gln, Lys or Trp;

R^4 is Tyr; and

R^5 is a carboxy terminal residue which is R″X or R″ wherein R″ may be any amino acid and X is Cys; or (3) a thymoleptic effective amount of a linear peptide of the formula:

$$R^{1'}\text{—}R^2\text{—}R^3\text{—}R^4\text{—}R^{5'} \quad \text{(III)}$$

wherein

$R^{1'}$ is an amino terminal residue Ala-R′, D-Ala-R′ or X—Ala—R′, R′, R^2, R^3, R^4 and X are defined as above, and $R^{5'}$ is a carboxy terminal residue Thr, thr amide or Thr-Cys; and ester and amide derivatives thereof or the physiologically acceptable salts thereof.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,207

RENIN INHIBITORS, METHOD FOR USING THEM, AND COMPOSITIONS CONTAINING THEM

Annette M. Doherty, Ann Arbor; Harriet W. Hamilton, Chelsea; John C. Hodges, Ann Arbor; Joseph T. Repine, and Ila Sircar, both of Ann Arbor, all of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Continuation-in-part of Ser. No. 206,023, Jun. 17, 1988, abandoned, which is a continuation-in-part of Ser. No. 113,772, Oct. 26, 1987, abandoned. This application Jul. 24, 1989, Ser. No. 384,236

Int. Cl.[5] **A61K** *37/02;* **C07K** *5/08, 5/10*

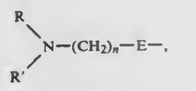
U.S. Cl. 514—18 **13 Claims**

1. A peptide of the formula

A—X—Y—W—U I

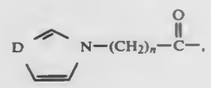
or a pharmaceutically acceptable acid addition salt thereof wherein

A is



Z' N—$(CH_2)_n$—E—,

or



wherein

R and R' are each independently hydrogen, benzyl or lower alkyl;

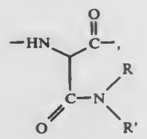


Z' N—

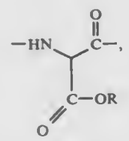
is a saturated ring of from 1 to 5 carbon atoms wherein Z' is CH_2, O, S, or NR, n is an integer of from 0 to 3; and D is N, S, or O;

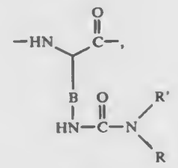
X is PHE, HOMOPHE, TYR, TYR(OMe), CYCLOHEXYLALA, LEU, NAPHTHYLALA, TRP, HIS, or (NMe)PHE;

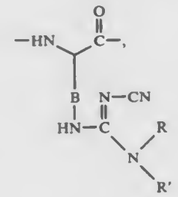
Y is GLN, HIS, LEU, PGY, MET, MET(O), MET(O_2), TZ, ALG, PPG, CPM, EMG, BYG, NIA, PHA,

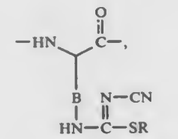


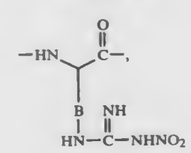
-continued

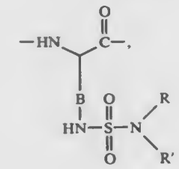


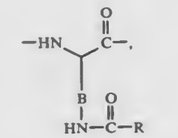


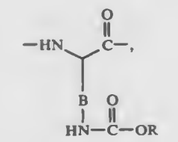






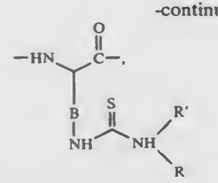






or

-continued

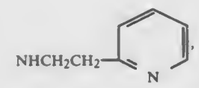


wherein B is a carbon chain of from 3 to 6 carbon atoms which is saturated, unsaturated, or acetylenic;

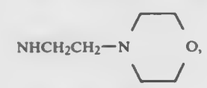
R and R' are each independently hydrogen benzyl or lower alkyl;

W is STA, CYSTA, PHSTA, CHSTA, ASTA, ACYS, DFSTA, DFKSTA, DFCYS, DFKCYS, DFCHS, DFKCHS; and

U is

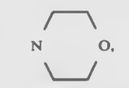


$NHCH_2CH_2N(CH_2CH_2OH)_2$,

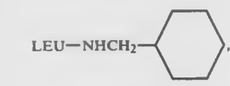


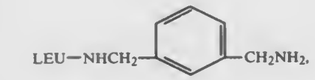
$NHCH_2CH(CH_3)CH_2CH_3$,

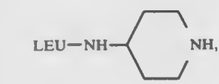
$NHCH(CH_2OH)CH(CH_3)CH_2CH_3$,



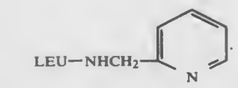
LEU—$NHCH_2Ph$,







or



5,063,208

PEPTIDYL AMINODIOL RENIN INHIBITORS

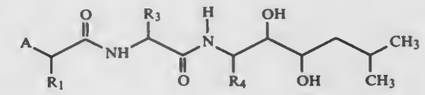
Saul H. Rosenberg, Libertyville; Kenneth P. Spina, Chicago, and Steven R. Crowley, Vernon Hills, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 7,385,836, Jul. 26, 1989, abandoned. This application Jun. 29, 1990, Ser. No. 544,072

Int. Cl.[5] **A61K** *37/02;* **C07K** *5/08*

U.S. Cl. 514—19 **10 Claims**

1. A compound of the formula:



wherein

A is R_{13}—Q—B—wherein R_{13} is (heterocyclic)amino, (heterocyclic)aminoalkyl, (heterocyclic)(alkyl)amino, (heterocyclic)(alkyl)aminoalkyl, ((heterocyclic)alkyl-)amino, ((heterocyclic)alkyl)aminoalkyl, ((heterocyclic-)alkyl)(alkyl)amino or ((heterocyclic)alkyl)(alkyl-)aminoalkyl; Q is —C(O)—or —$S(O)_2$—; and B is —NH—, —N(loweralkyl)—, —S—, —O—, —CH_2—or —CH(OH)—;

R_1 is loweralkyl, cycloalkylalkyl, arylalkyl, aryloxyalkyl, thioaryloxyalkyl, arylaminoalkyl, aryloxy, thioaryloxy or arylamino;

R_3 is loweralkyl, alkenyl, alkoxyalkyl, thioalkoxyalkyl, ((alkoxy)alkoxy)alkyl, arylalkyl or (heterocyclic)alkyl; and

R_4 is loweralkyl, cycloalkylalkyl or arylalkyl; or a pharmaceutically acceptable salt, ester or prodrug thereof.

5,063,209

MODULATION OF AIDS VIRUS-RELATED EVENTS BY DOUBLE-STRANDED RNAS

William A. Carter, Birchrunville, Pa., assignor to HEM Research, Inc., Rockville, Md.

Continuation of Ser. No. 433,445, Nov. 13, 1989, abandoned, which is a continuation of Ser. No. 124,572, Nov. 24, 1987, abandoned, which is a continuation-in-part of Ser. No. 900,614, Aug. 26, 1986, Pat. No. 4,795,744, which is a continuation-in-part of Ser. No. 886,363, Jul. 17, 1986, abandoned, which is a continuation-in-part of Ser. No. 769,494, Aug. 25, 1985, abandoned. This application Aug. 10, 1990, Ser. No. 565,174

The portion of the term of this patent subsequent to Jan. 2, 2006, has been disclaimed.

Int. Cl.[5] **A61K** *31/70, 37/00*

U.S. Cl. 514—44 **20 Claims**

1. A method of treating retrovirus or T-cell lymphotropic virus-induced conditions including AIDS in a person infected with same comprising administering to that person an amount of dsRNA sufficient to therapeutically benefit AIDS-related disorders.

5,063,210

USE OF SULFATED POLYSACCHARIDES TO DECREASE CHOLESTEROL AND FATTY ACID ABSORPTION

Louis G. Lange, III, 38 Kingsbury Place, St. Louis, Mo. 63112, and Curtis A. Spilburg, 2230 Willow Ridge La., Chesterfield, Mo. 63017

Continuation-in-part of Ser. No. 340,868, Apr. 20, 1989. This application Oct. 31, 1989, Ser. No. 429,398

Int. Cl.[5] **A61K** *31/715;* **C12N** *9/16*

U.S. Cl. 514—54 **4 Claims**

1. A method for inhibiting human pancreatic cholesterol esterase comprising contacting the human pancreatic cholesterol esterase with an effective inhibiting amount of a 3-sulfate

VOL 1132 ISS 1 NO 5 1991 UMI

polysaccharide having a molecular weight greater than 10,000 Daltons.

5,063,211

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND (N,N-DIMETHYL-N'-PHENYL-N'-FLUOROCHLOROMETHYLTHIO)-SULPHAMIDE

Deborah K. Donofrio, The Woodlands, and Wilson K. Whiteketle, Conroe, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,955
Int. Cl.[5] A01N *41/02, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride and (b) (N,N-dimethyl-N:-phenyl-N'-fluorodichloromethylthio).sulphamide wherein the weight ratio of (a):(b) is from about 11:1 to 1:3.6.

5,063,212

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND B-BROMO-B-NITROSTYRENE

Deborah K. Donofrio, The Woodlands, and Wilson K. Whiteketle, Conroe, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,950
Int. Cl.[5] A01N *33/18, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride and (b) B-bromo-B-nitrostyrene wherein the weight ratio of (a):(b) is from about 20:1 to 1:1.

5,063,213

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND BROMOCHLOROHYDANTOIN

Wilson K. Whitekettle, Conroe, and Deborah K. Donofrio, The Woodlands, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,951
Int. Cl.[5] A01N *43/50, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride and (b) bromochlorohydantoin wherein the weight ratio of (a):(b) is from about 10:1 to 1:1.9.

5,063,214

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND SODIUM HYPOCHLORITE

Wilson K. Whitekettle, Conroe, and Deborah K. Donofrio, The Woodlands, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,956
Int. Cl.[5] A01N *57/00, 59/08*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride (TPC) and (b) sodium hypochlorite wherein the weight ratio of (a):(b) is from about 16:1 to 1.6:1.

5,063,215

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND 3,5-D-THIADIAZINE THIONE

Deborah K. Donofrio, The Woodlands, and Wilson K. Whiteketle, Conroe, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,952
Int. Cl.[5] A01N *43/86, 43/88, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride (TPC) and (b) 3,5-D-thiadiazine thione wherein the weight ratio of (a):(b) is from about 1:1 to 1:21.

5,063,216

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND BIS(TRIBUTYL) TIN OXIDE

Deborah K. Donofrio, The Woodlands, and Wilson K. Whiteketle, Conroe, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,954
Int. Cl.[5] A01N *55/04, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride and (b) bis(tributyl) tin oxide wherein the weight ratio of (a):(b) is from about 84:1 to 1:4.

5,063,217

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND A MIXTURE OF 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE AND 2-METHYL-4-ISOTHIOZOLIN-3-ONF

Wilson K. Whitekettle, Conroe, and Deborah K. Donofrio, The Woodlands, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,957
Int. Cl.[5] A01N *43/80, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride and (b) a mixture of about 75% 5-chloro-2-methyl-4-isothiazolin-3-one and about 25% 2-methyl-4-isothiazol-3-one wherein the weight ratio of (a):(b) is from about 40:1 to 0.5:1.

5,063,218

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF N-TRIBUTYL TETRADECYL PHOSPHONIUM CHLORIDE AND TRICHLORO-S-TRIAZINE TRIONE

Wilson K. Whitekettle, Conroe, and Deborah K. Donofrio, The Woodlands, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Filed Aug. 13, 1990, Ser. No. 566,953
Int. Cl.[5] A01N *43/66, 57/00*
U.S. Cl. 514—75 **7 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) n-tributyl tetradecyl phosphonium chloride and (b) trichloro-s-triazine trione wherein the weight ratio of (a):(b) is from about 10.5:1 to 1:1.

5,063,219

ANTICOCCIDIAL COMPOSITION

Eugene G. Schildknecht, Hacketts Town, and Govind G. Untawale, Wayne, both of N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Division of Ser. No. 217,488, Jul. 11, 1988, Pat. No. 4,996,198. This application Oct. 9, 1990, Ser. No. 594,887
Int. Cl.[5] A61K *31/35, 31/505, 31/635*
U.S. Cl. 514—157 **4 Claims**

1. A composition for combatting coccidiosis in animals, which comprises sulfadimethoxine, ormetoprim, and salinomycin, wherein these ingredients are present in amounts which in combination are synergistically effective in combatting at least one coccidiosis-causing strain of Eimeria.

5,063,220

PARENTERAL FORMULATIONS OF 1-DIPHENYLMETHYL-4-((2-(4-METHYLPHENYL)-5-METHYL-1H-IMIDAZOL-4-YL)METHYL)PIPERAZINE

Alastair B. Selkirk, Edinburgh, and Michael J. Dey, West Lothian, both of Scotland, assignors to Syntex Pharmaceuticals, Ltd., Maidenhead, England

Division of Ser. No. 260,628, Oct. 21, 1988, Pat. No. 4,973,591. This application Sep. 20, 1990, Ser. No. 585,436
Int. Cl.[5] A61K *31/62, 31/495*
U.S. Cl. 514—161 **9 Claims**

1. A pharmaceutical formulation suitable for parenteral administration, comprising: 1-diphenylmethyl-4-[(2-(4-methylphenyl)-5-methyl-1H-imidazol-4-yl)methyl]piperazine, tartaric acid, a tonicifier, water, and a therapeutically effective amount of a second active agent, said second active agent being active in reducing the risk of stroke.

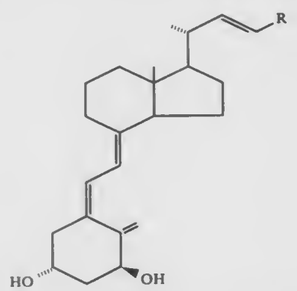
5,063,221

TREATMENT FOR HYPERPARATHYROIDISM WITH USE OF VITAMIN D DERIVATIVES

Yasuho Nishii, Tokyo, and Yumiko Takita, Mitaka, both of Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 29, 1990, Ser. No. 501,226
Claims priority, application Japan, Apr. 5, 1989, 1-87380
Int. Cl.[5] A01N *45/00; C07J 172/00, 175/00*
U.S. Cl. 514—167 **11 Claims**

1. A method for treating hyperparathyroidism comprising administering to a patient suffering from hyperparathyroidism an effective amount of a 1α-hydroxyvitamin D derivative of formula (I):



(I)

wherein R is a branched alkyl group having 4–6 carbon atoms that is substituted by one or two hydroxyl groups or a cyclopropylhydroxymethyl group.

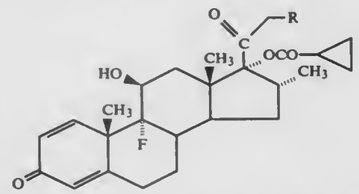
5,063,222

ANTIINFLAMMATORY DEXAMETHASONE 17α-CYCLOPROPANECARBOXYLATES WITH REDUCED SYSTEMIC ACTIVITY

Teruo Komoto, Chiba; Junji Okawa, Narita; Yoichiro Ogawa, Chiba; Susumu Sato, Shisui; Naokata Taido, Funabashi, and Tadayuki Kuraishi, Chiba, all of Japan, assignors to SS Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Apr. 13, 1990, Ser. No. 508,686
Claims priority, application Japan, Apr. 19, 1989, 1-99762
Int. Cl.[5] A61K *31/56*
U.S. Cl. 514—180 **2 Claims**

1. A steroid derivative represented by formula (I),



(I)

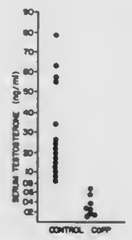
wherein R is a hydrogen atom, a halogen atom, a hydroxy group, or a group —OCOR$_1$, wherein R$_1$ is a linear or branched alkyl group which may be substituted by a halogen atom or a cycloalkyl group, a cycloalkyl group, or an aryl group.

5,063,223

METHOD OF CONTROLLING ANDROSTENE LEVELS IN VIVO WITH COBALT PORPHYRINS

Attallah Kappas, and George S. Drummond, both of New York, N.Y., assignors to The Rockefeller University, New York, N.Y.

Division of Ser. No. 310,855, Feb. 14, 1989, Pat. No. 4,948,792, which is a continuation-in-part of Ser. No. 105,591, Nov. 13, 1987, abandoned, which is a continuation-in-part of Ser. No. 927,830, Nov. 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 832,512, Feb. 21, 1986, abandoned, which is a continuation of Ser. No. 708,228, Mar. 5, 1985, abandoned, which is a continuation-in-part of Ser. No. 363,588, Mar. 8, 1982, abandoned. This application Mar. 23, 1990, Ser. No. 498,289
Int. Cl.[5] A61K *31/40*
U.S. Cl. 514—185 **3 Claims**



1. A method of limiting the production of androgenic steroidal hormones in animals in need of such limitation which comprises parenteral administration of from 5 to 50 um/kg b.w. of cobalt protoporphyrin or cobalt mesoporphyrin.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,224

R-CEFUROXIME AXETIL

Gerold L. Mosher, and Michael V. Mullen, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Jul. 9, 1990, Ser. No. 550,005
Int. Cl.[5] C07D *501/34;* A61K *31/545*
U.S. Cl. 514—202 **8 Claims**

1. Substantially pure R-cefuroxime axetil.

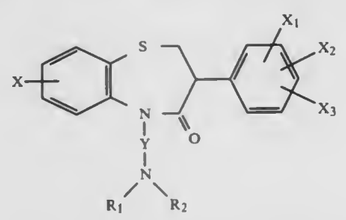
5,063,225

BENZOTHIAZEPINES

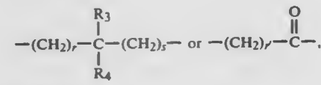
Francois Clemence; Daniel Fréchet, both of Paris; Gilles Hamon, Le Raincy, and Simone Jouquey, Paris, all of France, assignors to Roussel Uclaf, Paris, France

Filed Apr. 11, 1990, Ser. No. 508,127
Claims priority, application France, Apr. 13, 1989, 89 04905
Int. Cl.[5] C07D *281/10, 417/06;* A61K *31/55*
U.S. Cl. 514—211 **25 Claims**

1. A compound selected from the group consisting of all possible isomeric forms, racemic or optically active of a compound of the formula

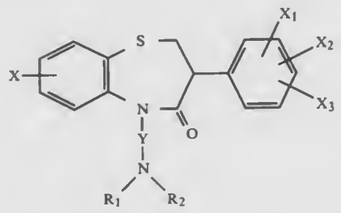


wherein X is selected from the group consisting of hydrogen, halogen, —OH, alkyl and alkoxy of 1 to 3 carbon atoms, $—NO_2$, $—NH_2$, $—CF_3$ and alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms, X_1, X_2 and X_3 are individually selected from the group consisting of hydrogen, halogen, —OH, alkyl and alkoxy of 1 to 3 carbon atoms, $—NO_2$, $—CF_3$, $—SCF_3$, $—OCF_3$, $—NH_2$ and alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms, Y is

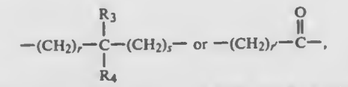


r and s are integers from 0 to 4 with r+s=1 to 4, R_3 and R_4 are individually hydrogen or alkyl of 1 to 4 carbon atoms, r' is an integer from 1 to 4, R_1 and R_2 are individually selected from the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms unsubstituted or substituted with aryl of 6 to 12 carbon atoms optionally substituted with 1 to 3 members of the group consisting of alkyl and alkoxy of 1 to 4 carbon atoms, —OH, —CN, halogen, $—NH_2$ and alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms or R_1 and R_2 together with the nitrogen to which they are attached form a member selected from the group consisting of pyrrolidinyl, imidazolidinyl, pyrazolidinyl, piperidyl, piperazinyl or morpholinyl, all optionally substituted on a carbon of the heterocycle or on the nitrogen atom when the heterocycle contains a second nitrogen atom by alkyl of 1 to 4 carbon atoms or by aryl or arylalkyl of 6 to 12 carbon atoms optionally substituted with 1, 2 or 3 members of the group consisting of halogen and alkyl or alkoxy of 1 to 4 carbon atoms and their non-toxic, pharmaceutically acceptable acid addition salts, with the proviso that at least one of X, X_1, X_2 and X_3 is selected from the group consisting of —OH, $—NH_2$, alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms or at least one of X_1, X_2 and X_3 is selected from the group consisting of $—SCF_3$ or $—OCF_3$.

15. A method of treating arhythmia in warm-blooded animals comprises administering to warm-blooded animals an anti-arhythmically effective amount of at least one compound selected from the group consisting of all possible isomeric forms, racemic or optically active of a compound of the formula



wherein X is selected from the group consisting of hydrogen, halogen, —OH, alkyl and alkoxy of 1 to 3 carbon atoms, $—NO_2$, $—NH_2$, $—CF_3$ and alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms, X_1, X_2 and X_3 are individually selected from the group consisting of hydrogen, halogen, —OH, alkyl and alkoxy of 1 to 3 carbon atoms, $—NO_2$, $—CF_3$, $—SCF_3$, $—OCF_3$, $—NH_2$ and alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms, Y is



integers from 0 to 4 with r+s=1 to 4, R_3 and R_4 are individually hydrogen or alkyl of 1 to 4 carbon atoms, r' is an integer from 1 to 4, R_1 and R_2 are individually selected from the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms unsubstituted or substituted with aryl of 6 to 12 carbon atoms optionally substituted with 1 to 3 members of the group consisting of alkyl and alkoxy of 1 to 4 carbon atoms, —OH, —CN, halogen, $—NH_2$ and alkylamino and dialkylamino of 1 to 4 alkyl carbon atoms or R_1 and R_2 together with the nitrogen to which they are attached form a member selected from the group consisting of pyrrolidinyl, imidazolidinyl, pyrazolidinyl, piperidyl, piperazinyl or morpholinyl, all optionally substituted on a carbon of the heterocycle or on the nitrogen atom when the heterocycle contains a second nitrogen atom by alkyl of 1 to 4 carbon atoms or by aryl or arylalkyl of 6 to 12 carbon atoms optionally substituted with 1, 2 or 3 members of the group consisting of halogen and alkyl or alkoxy of 1 to 4 carbon atoms and their non-toxic, pharmaceutically acceptable acid addition salts.

5,063,226

USE OF SUPPLEMENTAL DIETARY RIBOFLAVIN TO INCREASE FERTILITY AND/OR PROLIFICACY IN ANIMALS

Fuller W. Bazer, Gainesville, Fla., assignor to University of Florida, Gainesville, Fla.

Continuation of Ser. No. 220,037, Jul. 15, 1988, abandoned. This application Mar. 29, 1990, Ser. No. 503,065
Int. Cl.[5] A61K *31/525*
U.S. Cl. 514—251 **4 Claims**

1. A method for increasing the pregnancy rate and litter size in swine, said method comprising the administration of enhanced levels of riboflavin to a swine during a period which commences on about day 4 of the gestation period of said swine and ends on about day 10 of said gestation period; wherein the dosage of said riboflavin is at least about 100 mg/day and is sufficient to increase the concentration of riboflavin in uterine secretions of said swine by at least about 10%.

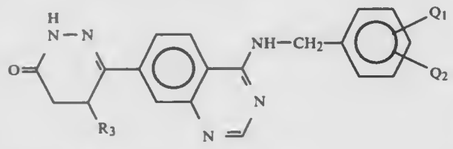
5,063,227

QUINAZOLINE-SUBSTITUTED PYRIDAZINONE DERIVATIVES HAVING CARDIOTONIC ACTIVITY

Yuji Nomoto; Haruki Takai; Tetsuji Ohno, and Kazuhiro Kubo, all of Shizuoka, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 297,440, Jan. 17, 1989, abandoned. This application Jan. 11, 1990, Ser. No. 462,914
Claims priority, application Japan, Jan. 23, 1988, 63-13301
Int. Cl.[5] C07D *403/02;* A61K *31/50*
U.S. Cl. 514—252 **3 Claims**

1. A compound of the formula:



wherein R_3 is hydrogen or C_{1-6} alkyl; and Q_1 and Q_2 are independently hydrogen, C_{1-4} alkyl, hydroxyl, C_{1-4} alkoxyl, amino, mono- or di-C_{1-4} alkyl-substituted amino, nitro or halogen; or a pharmaceutically acceptable acid addition salt thereof.

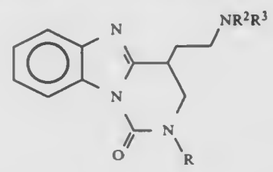
5,063,228

4-(SUBSTITUTEDAMINOETHYL)-3,4-DIHYDRO-2-ALKYLPYRIMIDO08 1,6-A09 BENZIMIDAZOL-1(2H)-ONES AS ANTIARRHYTHMIC AGENTS

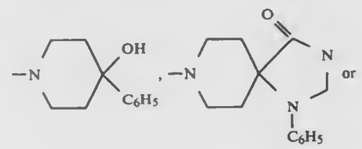
Albert D. Cale, Jr., Mechanicsville, and Thomas W. Gero, Richmond, both of Va., assignors to A. H. Robbins Company, Incorporated, Richmond, Va.

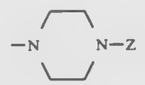
Filed May 31, 1990, Ser. No. 531,137
Int. Cl.[5] A61K *31/495, 31/505;* C07D *487/06*
U.S. Cl. 574—253 **15 Claims**

1. An antiarrhythmic compound having the formula:



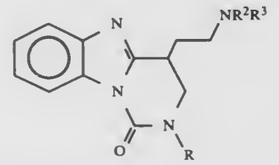
where R^1 is loweralkyl;
R^2 and R^3 are independently selected from H, loweralkyl, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of halogen, hydroxy, loweralkoxy, or loweralkylcarbonyl or $—NR^2R^3$ forms a heterocyclic group selected from the group consisting of imidazole, morpholine,



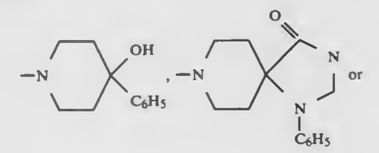


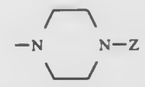
where Z is loweralkyl, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of halogen, hydroxy, loweralkoxy, or loweralkylcarbonyl, 2-pyridinyl or 2-pyrimidinyl; an optical isomer or a pharmaceutically acceptable salt thereof.

14. A method for treating cardiac arrhythmias in a warm blooded animal which comprises administering thereto a therapeutically effective amount for treating cardiac arrhythmias of a compound having the formula:



where R^1 is loweralkyl;
R^2 and R^3 are independently selected from H, loweralkyl, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of halogen, hydroxy, loweralkoxy, or loweralkylcarbonyl or $—NR^2R^3$ forms a heterocyclic group selected from the group consisting of imidazole, morpholine,





where Z is loweralkyl, phenyl or phenyl substituted by 1 or 2 substituents selected from the group consisting of halogen, hydroxy, loweralkoxy, or loweralkylcarbonyl, 2-pyridinyl or 2-pyrimidinyl; an optical isomer or a pharmaceutically acceptable salt thereof.

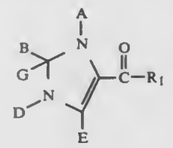
5,063,229

IMIDAZOLO [1,2-A]PYRIMIDINES AND MEDICAL USE THEREOF

Dankwart C. Fenske, Weybridge; Elizabeth A. Kuo, Swindon, and Wilfred R. Tully, Cirencester, all of Great Britain, assignors to Roussel Ulcaf, Paris, France

Division of Ser. No. 271,732, Nov. 15, 1988, Pat. No. 4,895,866, which is a division of Ser. No. 80,407, Jul. 31, 1987, Pat. No. 4,810,828. This application Nov. 9, 1989, Ser. No. 435,078
Claims priority, application United Kingdom, Aug. 28, 1986, 8620060
Int. Cl.[5] C07D *471/04;* A61K *31/415*
U.S. Cl. 514—258 **12 Claims**

1. A compound selected from the group consisting of compound of the formula

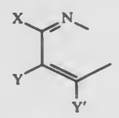


VOL 1132 ISS 1 NO 5 1991 UMI

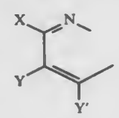
wherein R_1 is selected from the group consisting of



and —C≡C—R', R is selected from the group consisting of hydrogen and alkyl of 1 to 5 carbon atoms, R' is selected from the group consisting of hydrogen, alkyl and hydroxyalkyl of 1 to 5 carbon atoms, and aryl of 6 to 10 carbon atoms unsubstituted or substituted with at least one member of the group consisting of halogen, —OH, —COOH, $—CF_3$ and alkyl and alkoxy of 1 to 5 carbon atoms, A and B together form a bond, G and D together form



wherein X is alkyl or alkylthio of 1 to 5 carbon atoms, Y and Y' are individually hydrogen or alkyl of 1 to 5 carbon atoms and E is hydrogen or halogen with the proviso when A and B are a bond and G and D together are



and R_1 is



E is other than hydrogen or a non-toxic, pharmaceutically acceptable acid addition salt.

7. A method of relieving inflammation in warm-blooded animals comprising administering to warm-blooded animals an anti-inflammatorily effective amount of at least one compound of claim 1.

5,063,230

SUBSTITUTED SATURATED AND UNSATURATED INDOLE QUINOLINE AND BENZAZEPINE CARBOXAMIDES AND THEIR USE AS PHARMACOLOGICAL AGENTS

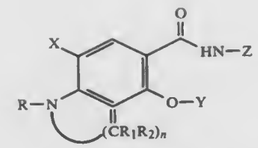
Jeffrey C. Pelletier, Lansdale, Pa.; Raymond D. Youssefyeh, Princeton Junction, N.J., and Henry F. Campbell, North Wales, Pa., assignors to Rhone-Poulenc Rorer Pharmaceuticals Inc., Ft. Washington, Pa.

Division of Ser. No. 277,582, Nov. 29, 1988, Pat. No. 4,920,219. This application Apr. 6, 1990, Ser. No. 489,646

Int. Cl.[5] A61K *31/46, 31/435*

U.S. Cl. 514—213 **2 Claims**

1. A method for the treatment of a patient suffering from gastrointestinal disorders comprising administering thereto a gastrointestinal effective amount of a compound according to the formula



wherein

X is hydrogen, hydroxy, amino, mono- and di-loweralkylamino, halo, trifluoromethyl, sulfamyl, mono- and di-loweralkylsulfamyl or loweralkylsulfonyl;

R is hydrogen or loweralkyl;

R_1 and R_2 are independently hydrogen or loweralkyl;

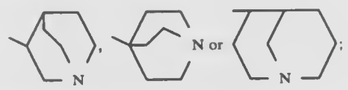
vicinal R_2 groups together may be $—(CH_2)_a—$ where a is 1 to 4, thus forming a 3 to 6 member ring;

n is 2 to 4;

Y is loweralkyl, $—(CR_1R_2)_b—SO$-loweralkyl or $—(CR_1R_2)_b—CO$-loweralkyl;

b and d are 1 to 3; and

Z is $—(CR_1R_2)_d—NR_1R_2$,



or a pharmaceutically acceptable salt thereof.

5,063,231

METHOD OF TREATMENT OF VISCERAL PAIN

Gareth J. Sanger, and Helen E. Marr, both of Harlow, England, assignors to Beecham Group p.l.c., Harlow, England

Division of Ser. No. 348,051, May 2, 1989, Pat. No. 4,942,160, which is a division of Ser. No. 145,537, Jan. 19, 1988, Pat. No. 4,845,092. This application May 7, 1990, Ser. No. 520,108

Int. Cl.[5] A61K *31/55, 31/44, 31/40*

U.S. Cl. 514—214 **2 Claims**

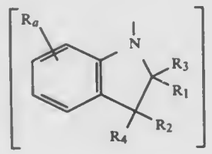
1. A method of treatment of visceral pain in mammals, including humans, which method comprises the administration to the mammal in need of such treatment, a visceral pain relieving effective amount of a compound of formula (I) or a pharmaceutically acceptable salt thereof:

X—CO—Y—Z (I)

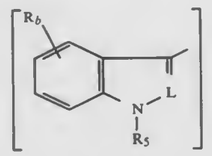
wherein

X is a group of formula (d) or (e):

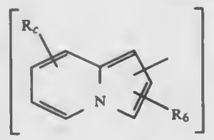
(a)

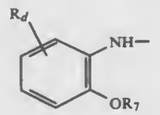


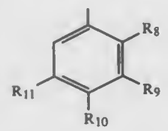
(b)



-continued







wherein

R_d is selected from hydrogen, halogen or hydroxy;

R_7 is independently hydrogen or C_{1-6} alkyl;

either R_8 is C_{1-6} alkoxy;

R_9 is hydrogen;

R_{10} is amino or C_{1-7} alkanoylamino; and

R_{11} is halo or C_{1-6} alkylthio; or

R_8 is hydrogen;

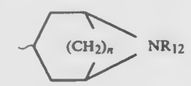
R_9 is halo C_{1-6} alkoxy or C_{1-6} alkyl;

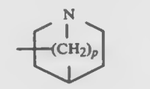
R_{10} is hydrogen or C_{1-6} alkoxy; and

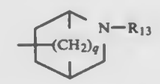
R_{11} is halo, C_{1-6} alkoxy or C_{1-6} alkyl;

Y is NH or O, with the proviso that Y is NH when X is (e) and R_8 is C_{1-6} alkoxy;

Z is a group of formula (f), (g) or (h):







wherein

n is 2 or 3;

p and q are independently 1 to 3; and

R_{12} or P_{13} is methyl or ethyl.

5,063,232

2-TERT-BUTYL-4-CHLORO-5-(4-TERT-BUTYLBENZYLTHIO)-3(2H)-PYRIDAZINONE FOR COTROLLING SNAILS AND SLUGS

Joachim Leyendecker, Ladenburg; Christoph Kuenast, Otterstadt, and Peter Hofmeister, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

(c) **Division of Ser. No. 377,945, Jul. 11, 1989, Pat. No. 4,981,851. This application Jul. 6, 1990, Ser. No. 549,064**

Claims priority, application Fed. Rep. of Germany, Jul. 16, 1988, 3824211

The portion of the term of this patent subsequent to Jan. 1, 2008, has been disclaimed.

Int. Cl.[5] A01N *43/58*

U.S. Cl. 514—247 **4 Claims**

(d) 1. A snail or slug bait which contains a molluscicidally effective amount of 2-tert-butyl-4-chloro-5-(4-tert-butyl-benzylthio)-3(2H)-pyridazinone and an edible bait capable of attracting molluscs;

(e) wherein said edible bait is selected from the group consisting of ground cereals, wheat flour, shredded wheat, shredded barley, coarse soybean flour, bran, rice, starch, fish meal, meat meal, and molasses.

5,063,233

N_9-CYCLOPENTYL-SUBSTITUTED ADENINE DERIVATIVES USEFUL AS ADENOSINE RECEPTOR AGONISTS

Jen Chen, Middlesex, and Alan J. Hutchison, Verona, both of N.J., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

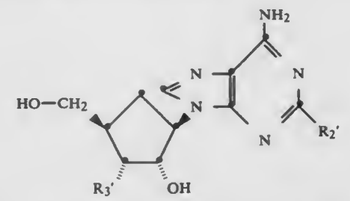
Continuation of Ser. No. 193,969, May 13, 1988, Pat. No. 4,954,504, which is a continuation-in-part of Ser. No. 137,554, Dec. 23, 1987, abandoned, which is a continuation-in-part of Ser. No. 931,327, Nov. 14, 1986, abandoned. This application May 31, 1990, Ser. No. 531,499

Int. Cl.[5] A61K *31/52;* **C07D** *473/18, 473/34, 473/16*

U.S. Cl. 514—266 **12 Claims**

1. A compound of the formula

(Ia)

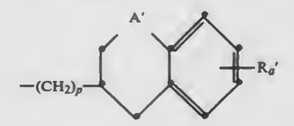


(f) wherein R_2' represents $NR_b'—R_1'$ or NHR_1'; R_1' represents cyclohexenyl-lower alkyl, C_3–C_6-cycloalkyl, 4-tetrahydropyranyl, 4-tetrahydrothiopyranyl, 4-tetrahydropyranyl-lower alkyl, 4-tetrahydrothiopyranyl-lower alkyl, admantyl-lower alkyl, C_3–C_6-cycloalkyl-lower alkyl, aryl or aryl-lower alkyl in which aryl represents thienyl, pyridyl, phenyl or

(g) phenyl substituted by one to three of halogen, trifluoromethyl, lower alkoxy, lower alkyl or by a substituent —W—Z in which W represents a direct bond, lower alkylene or oxy-lower alkylene, and Z represents hydroxy, cyano, carboxy, lower alkoxycarbonyl, carbamoyl, N-mono- or N,N-di-lower alkylcarbamoyl; or R_1' represents a substituent of the formula B'

(h)

(B')



VOL 1132 ISS 1 NO 5 1991 UMI

in which A' represents a direct bond, methylene, oxy or thio, p represents zero, one or two, and R_a' represents hydrogen, lower alkyl, lower alkoxy or halogen; R_3' represents hydrogen or hydroxy; R_b' represents lower alkyl; a pharmaceutically acceptable prodrug ester derivative thereof in which one or more free hydroxy groups are esterified in for of a pharmaceutically acceptable ester; or a pharmaceutically acceptable salt thereof.

9. A pharmaceutical composition having adenosine-2-receptor stimulating activity suitable for administration to a mammal comprising an effective amount of a compound of claim 1 in combination with one or more pharmaceutically acceptable carriers.

11. A method of treating cardiovascular conditions responsive to adenosine-2 receptor stimulation in mammals comprising the administration to a mammal in need thereof of an effective adenosine-2 receptor stimulating amount of a compound of claim 1 or of a pharmaceutical composition comprising a said compound.

5,063,234

METHOD OF INHIBITING DEMINERALIZATION OF BONE

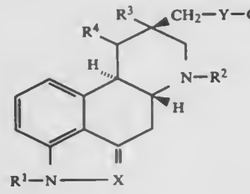
Henry U. Bryant, and James A. Clemens, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Continuation-in-part of Ser. No. 529,031, May 25, 1990, abandoned. This application Apr. 11, 1991, Ser. No. 684,524

Int. Cl.[5] **A61K** *31/48, 31/415;* **C07D** *457/02*

U.S. Cl. 514—288 **7 Claims**

1. A method of inhibiting bone demineralization comprising administering to a mammal in need of treatment an effective amount of a compound having the formula



I

where

X is CH or N;

Y is O or S;

R^1 is 2-propenyl, C_1–C_3 alkyl, benzyl or substituted benzyl where the substitutents are one or two of the same or different and are selected from methyl, ethyl, methoxy, ethoxy, hydroxy, chloro, bromo, or fluoro;

R^2 is C_2–C_3 alkyl, allyl or cyclopropylmethyl;

R^3 and R^4 are both hydrogen or combine to form a carbon-carbon bond; and pharmaceutically acceptable acid addition salts thereof.

5,063,235

4-[(DIARYL)HYDROXYMETHYL]-1-PIPERIDINEALKANOLS AND ESTERS AND CARBAMATES THEREOF USEFUL IN THE TREATMENT OF ALLERGIC DISORDERS

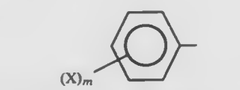
David A. Walsh, Richmond, Va., assignor to A. H. Robins Company, Inc., Richmond, Va.

Filed Apr. 30, 1990, Ser. No. 516,570

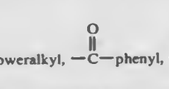
Int. Cl.[5] **A61K** *31/445;* **C07D** *211/22*

U.S. Cl. 514—317 **6 Claims**

1. A compound having the formula:



wherein Ar and Ar^1 can be independently phenyl, 2, 3 or 4-pyridinyl, or



where X is selected from halogen, trifluoromethyl, loweralkyl, loweralkoxy, or hydroxy and m is 0–3, "alk" is a straight or branched hydrocarbon chain containing 2–12 carbons;

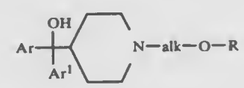


where R^1 and R^2 are independently selected from H, loweralkyl, phenyl, or



as defined above; the optical isomers and the pharmaceutically acceptable acid addition salts thereof.

3. A method of treating allergic disorders in warm blooded animals which comprises administering to said animals a therapeutically effective amount for treating allergic disorders of a compound having the formula:



wherein Ar and Ar^1 can be independently phenyl, 2, 3 or 4-pyridinyl, or

where X is selected from halogen, trifluoromethyl, loweralkyl, loweralkoxy, or hydroxy and m is 0–3, "alk" is a straight or branched hydrocarbon chain containing 2–12 carbons;

where R^1 and R^2 are independently selected from H, loweralkyl, phenyl, or

as defined above; the optical isomers and the pharmaceutically acceptable acid addition salts thereof.

5,063,236

PYRIDYL SUBSTITUTED GUANIDINES USEFUL AS INSECTICIDES

Laurenz Gsell, Basle, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

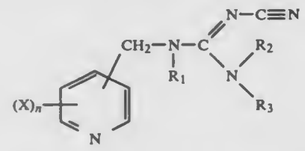
Continuation of Ser. No. 396,587, Aug. 21, 1989, abandoned, which is a continuation-in-part of Ser. No. 226,357, Jul. 29, 1988, abandoned. This application Jun. 18, 1990, Ser. No. 539,297

Claims priority, application Switzerland, Aug. 4, 1987, 2985/87; Jun. 6, 1988, 2141/88

Int. Cl.[5] **C07D** *277/20*

U.S. Cl. 514—318 **8 Claims**

7. A method of controlling insects and representatives of the order Acarina which comprises bringing into contact or treating said pests, or various stages of development thereof or the locus thereof, with a pesticidally effective amount of a compound of formula I and tautomers thereof



(I)

in which each of R_1 and R_3, independently of the other, is hydrogen or C_1–C_4alkyl; R_2 is hydrogen, C_1–C_4alkyl, benzyl or picolyl; or R_2 and R_3 are together a —$(CH_2)_4$— or —$(CH_2)_5$—radical; X is halogen; and n is an integer 0, 1, 2 or 3; or a salt of a compound of formula I; with the exception of N-picolyl-N-methyl-N'-cyanoguanidine and N-picolyl-N'-methyl-N''-cyanoguanidine; or with a composition containing a pesticidally effective amount of said compound together with a carrier or other adjuvant.

5,063,237

1,4-DIHYDRO-2-(4-[BENZIMIDAZOL-L-YL]PHENYL)-PYRIDINES AS PLATELET ACTIVATING FACTOR ANTAGONISTS

Kelvin Cooper; Michael J. Fray; Kenneth Richardson, and John Steele, all of New York, N.Y., assignors to Pfizer Inc., New York, N.Y.

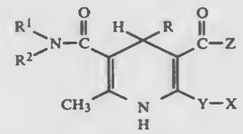
Division of Ser. No. 251,413, Sep. 29, 1988, Pat. No. 4,935,430. This application May 1, 1990, Ser. No. 517,116

Claims priority, application United Kingdom, Sep. 30, 1987, 8722977; Feb. 25, 1988, 8804441

Int. Cl.[5] **C07D** *401/10;* **A61K** *31/415*

U.S. Cl. 514—338 **7 Claims**

1. A compound of the formula



or a pharmaceutically acceptable acid addition salt, wherein R is phenyl, chlorophenyl, trifluoromethoxyphenyl, difluorophenyl, cyanophenyl, fluorophenyl, or methylenedioxyphenyl; R^1 is pyridyl; R^2 is hydrogen or alkyl having one to four carbon atoms; Z is alkoxy having one to six carbon atoms or chlorobenzyloxy; Y is 1,4-phenylene; and X is benzimidazol-1-yl or 2-methylbenzimidazol-1-yl.

4. A method of treating an allergic condition in a mammal which comprises administering to said mammal an anti-allergic effective amount of a compound according to claim 1.

5,063,238

PREVENTION OF GLYCOPROTEIN ENVELOPED VIRUS INFECTIVITY BY PYRIDINYLOXAZOLE-2-ONES

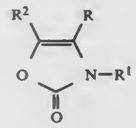
Sai P. Sunkara, and Winton D. Jones, both of Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Continuation-in-part of Ser. No. 436,264, Nov. 13, 1989, abandoned. This application Oct. 3, 1990, Ser. No. 590,522

Int. Cl.[5] **A61K** *31/44*

U.S. Cl. 514—340 **10 Claims**

1. A method of treating an enveloped viral infection in a patient in need thereof which comprises administering to the patient an anti-enveloped virally effective amount of a compound of the formula



(I)

wherein

R and R_1 are each independently selected from the group consisting of hydrogen, C_1–C_6 alkyl, and phenyl or C_1–C_3 alkylphenyl wherein the phenyl ring is optionally substituted with one, two or three of the substituents selected from the group consisting of fluorine, chlorine, bromine, C_1–C_4 alkyl, and C_1–C_4 alkoxy; and

R_2 is a 2-, 3-, or 4-pyridyl group wherein the pyridyl group is optionally substituted with one or two substituents selected from the group consisting of fluorine, chlorine, bromine, C_1–C_4 alkyl, C_1–C_4 alkoxy, C_1–C_4 alkylthio, C_1–C_4 alkylsulfinyl, C_1–C_4 alkylsulfonyl, cyano, carboxy, carb(C_1–C_5)alkoxy, carbamido, (C_1–C_5)alkanoylamino, imidazolyl, nitro and trifluoromethyl or wherein the pyridyl group is optionally substituted with a phenyl group which is optionally substituted with one, two or three of the substituents selected from the group consisting of fluorine, chlorine, bromine, C_1–C_4 alkyl, and C_1–C_4 alkoxy; or a pharmaceutically-acceptable salt thereof.

5,063,239

AMINO-ESTERS OF DIHYDROPYRIDINES USEFUL FOR IMPROVING CIRCULATION IN PATIENTS

Eckhard Schwenner, Wuppertal; Hartmut Stegelmeier, Hilden; Stanislav Kazda, Wuppertal, and Andreas Knorr, Erkrath, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

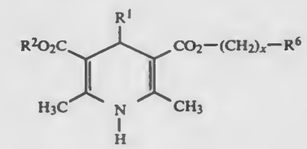
Division of Ser. No. 317,313, Mar. 1, 1989, Pat. No. 4,950,676, which is a division of Ser. No. 18,652, Feb. 25, 1987, Pat. No. 4,861,782. This application May 8, 1990, Ser. No. 520,419

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1986, 3607821

Int. Cl.[5] **C07D** *211/78;* **A61K** *31/44*

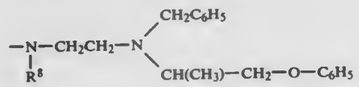
U.S. Cl. 514—357 **4 Claims**

1. An aminoalkyl ester of a dihydropyridinedicarboxylic acid of the formula

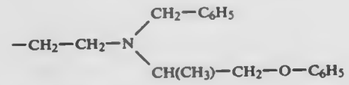


VOL 1132 ISS 1 NO 5 1991 UMI

in which
R^1 is phenyl, the phenyl ring being optionally substituted by 1 or 2 identical or different substituents from the group consisting of chlorine, trifluoromethyl, nitro and cyano,
R^2 is a straight-chain or branched hydrocarbon radical which has up to 7 carbon atoms and is optionally interrupted in the chain by an oxygen atom and said hydrocarbon radical is optionally substituted by fluorine and cyano,
X is a number from 2 to 6, and
R^6 represents a radical of the formula



wherein
R^7 represents hydrogen or methoxy and
R^8 represents hydrogen, or represents straight-chain or branched C_1–C_6-alkyl, or represents the group of the formula



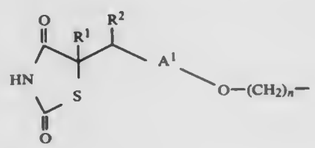
or a physiologically acceptable salt thereof.

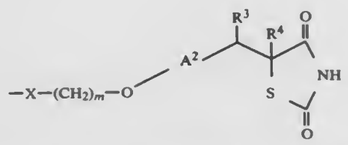
4. A method of improving the circulation of a patient in need thereof which comprises administering to such patient a circulation-active effective amount of a compound or salt according to claim 2.

5,063,240
NOVEL COMPOUNDS
Richard M. Hindley, Epsom, England, assignor to Beecham Group p.l.c., Brentford, United Kingdom
Filed May 7, 1990, Ser. No. 521,157
Claims priority, application United Kingdom, May 9, 1989, 8910639
Int. Cl.[5] C07D *417/12;* A61K *31/425*
U.S. Cl. 514—369 **10 Claims**

1. A compound of formula (I):

(I)

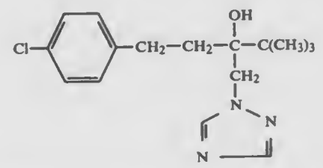




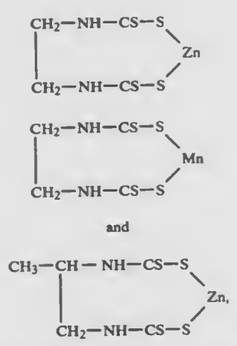
or a tautomeric form thereof and/or a pharmaceutically acceptable salt thereof and/or a pharmaceutically acceptable solvate thereof, characterized in that:
R^1 represents hydrogen or C_{1-12} alkyl and R^2 represents hydrogen or R^1 and R^2 together represent a bond;
R^3 represents hydrogen and R^4 represents hydrogen or C_{1-12} alkyl or R^3 and R^4 together represent a bond;
X represents a bond, >C=O, >CHOH, O, S or NR wherein R is a C_{1-12} alkyl group;
n represents an integer 1, 2 or 3;
m represents an integer 1, 2 or 3 and
A^1 and A^2 each independently represent a benzene ring having in total up to 5 substituents comprising up to 3 optional substituents selected from halogen, substituted or unsubstituted C_{1-12} alkyl or C_{1-12} alkoxy; and wherein optional substituents for the C_{1-12} alkyl group are up to five, groups selected from halogen, C_{1-12} alkyl, phenyl, C_{1-12} alkoxy, halo-C_{1-12}-alkyl, hydroxy, amino, nitro, carboxy, C_{1-12} alkoxycarbonyl, C_{1-12} alkoxycarbonyl-C_{1-12}-alkyl, C_{1-12} alkylcarbonyloxy, or C_{1-12} alkylcarbonyl groups.

5,063,241
FUNGICIDAL AGENTS
Wilhelm Brandes, Leichlingen; Gerd Hänssler, Leverkusen; Paul Reinecke, Leverkusen; Hans Scheinpflug, Leverkusen, and Graham Holmwood, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Division of Ser. No. 439,896, Nov. 20, 1989, Pat. No. 4,970,223, which is a continuation of Ser. No. 801,549, Nov. 25, 1985, abandoned, which is a continuation of Ser. No. 646,591, Aug. 31, 1984, abandoned. This application Aug. 14, 1990, Ser. No. 567,472
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1983, 3333411
Int. Cl.[5] A01N *43/64, 47/10*
U.S. Cl. 514—383 **2 Claims**

1. A fungicidal composition comprising a fungicidally effective amount of



or an addition product thereof with a metal or salt, and (ii) at least one member selected from the group consisting of

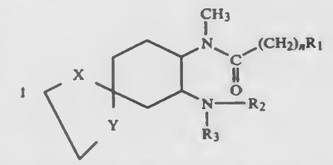


and

wherein the weight ratio of (i):(ii) is about 1:1.

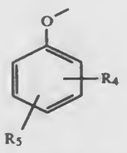
5,063,242
7-((SUBSTITUTED)AMINO)-8-((SUBSTITUTED)CARBONYL)-METHYLAMINO)-1-OXASPIRO(4,5)DECNAES AS DIURETICS ANTIINFLAMMATORY, AND CEREBROVASCULAR AGENTS
David C. Horwell, Foxton, and David C. Rees, Cambridge, both of England, assignors to Warner-Lambert Company, Morris Plains, N.J.
Division of Ser. No. 341,336, Apr. 21, 1989, Pat. No. 4,965,278. This application Jul. 11, 1990, Ser. No. 551,583
Int. Cl.[5] A01N *43/38*
U.S. Cl. 514—414 **3 Claims**

1. A method for treating inflammation which comprises administering to a patient in need of said treatment a therapeutically effective amount of a compound in unit dosage form of formula



or a pharmaceutically acceptable salt thereof, wherein n is an integer of from one to six; either of X or Y is oxygen and the other is —CH_2—; R is selected from

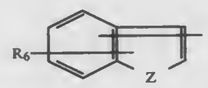
a)



where R_4 and R_5 are independently hydrogen, fluorine, chlorine, bromine, nitro, trifluoromethyl, alkyl of from one to six carbon atoms, alkoxy of from one to six carbon atoms, or aryl;

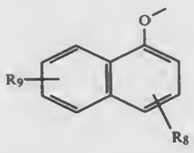
b) 3,4,5-trimethylphenoxy;

c)



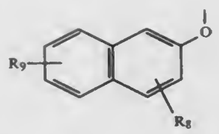
where R_6 is hydrogen, fluorine, chlorine, alkyl of from one to six carbon atoms, or aryl; Z is —CH_2—, —O—, —S—, or —NR_7— where R_7 is hydrogen, alkanoyl of from one to six carbon atoms, or alkyl of from one to six carbon atoms;

d)

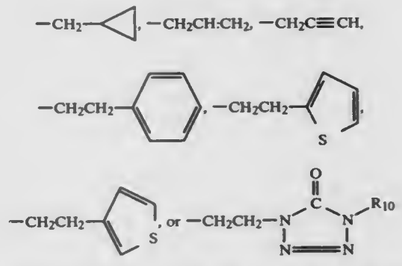


wherein R_8 and R_9 are independently hydrogen, fluorine, bromine, alkyl of from one to six carbon atoms, or alkoxy of from one to four carbon atoms; or

e)



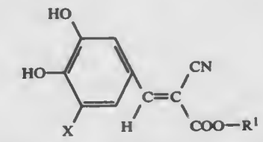
where R_8 and R_9 are as defined above; where R_2 is methyl and R_3 is hydrogen, alkyl of from one to six carbon atoms,



where R_{10} is alkyl of from one to four carbon atoms; or where R_2 and R_3 when taken together with the nitrogen atom to which they are attached, form a pyrrolidinyl, piperidinyl, or hexahydro-1H-azepinyl ring.

5,063,243
DERIVATIVE OF CAFFEIC ACID AND PHARMACEUTICAL COMPOSITION CONTAINING THE SAME
Hidetsura Cho, Osaka; Masaru Ueda, Saitama; Mie Tamaoka, Nara; Mikiko Hamaguchi, Hyogo; Seiitsu Murota, and Ikuo Morita, both of Tokyo, all of Japan, assignors to Suntory, Ltd., Osaka, Japan
Filed Apr. 28, 1989, Ser. No. 344,583
Claims priority, application Japan, Apr. 28, 1988, 63-106274; Mar. 8, 1989, 1-55867
Int. Cl.[5] A61K *31/275, 31/38;* C07C *255/34;* C07D *333/22*
U.S. Cl. 514—438 **5 Claims**

1. A caffeic acid derivative of the general formula (I) and pharmaceutically permissible salts thereof:

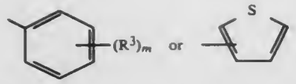


wherein X is a hydrogen atom or hydroxy group; R' is a straight or branched chain alkyl or an alkenyl group wherein said alkyl or alkenyl groups contain up to 20 carbon atoms or a group of the formula:

—$(CH_2)_n$—Z—R^2

wherein n is an integer of 1 to 10; Z is an oxygen atom, a vinylene residue or a single bond, and R^2 is selected from

VOL 1132 ISS 1 NO 5 1991 UMI



wherein R^3 is selected from hydroxy groups, lower alkoxy groups and halogens and m is an integer from 0 to 3.

5,063,244

PROCESS FOR THE ISOLATION OF ANTIFUNGAL AGENT (5-METHOXY-7-HYDROXYFLAVAN) FROM DRAGON'S BLOOD RESIN AND ITS USE IN AGRICULTURE

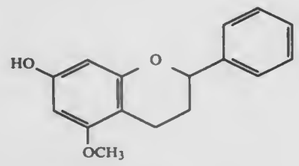
Ming-Ju Chang; Yuan-Hsun Hsu; Mei-Hui Kuo, and Tai-Sen Soong, all of Taipei, Taiwan, assignors to Development Center for Biotechnology, Taiwan, Taiwan

Filed Jul. 30, 1990, Ser. No. 559,079

Int. Cl.[5] A01N *43/16*

U.S. Cl. 514—456 **2 Claims**

1. A method of preventing the infection of fungi in plants, said method comprising applying a fungicidally effective amount of the compound



to the plants or the locus of the plants.

5,063,245

CORTICOTROPIN-RELEASING FACTOR ANTAGONISM COMPOUNDS

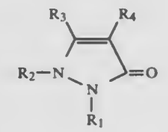
Mary E. Abreu, Baltimore; Waclaw Rzeszotarski, Millersville; Donald J. Kyle, Baltimore; Roger N. Hiner, Baltimore, and Richard L. Elliott, Baltimore, all of Md., assignors to Nova Pharmaceutical Corporation, Baltimore, Md.

Filed Mar. 28, 1990, Ser. No. 500,478

Int. Cl.[5] A61K *31/415*; C07D *231/22*

U.S. Cl. 514—404 **8 Claims**

1. A corticotropoin-releasing factor antagonist represented by the Formula I:



(I)

wherein:

R_1 is hydrogen; phenyl; phenyl singly or multiply substituted with halogen, nitro, amino, alkylamino, dialkylamino, dialkylaminomethyl, C_{1-8}alkyl (straight chain, branched, saturated or unsaturated), hydroxy, alkoxy, cyano, trifluoromethyl, alkylthio, alkylsulfonyl, or methylenedioxy; naphthyl; indanyl; indenyl; C_{1-4}alkyl (straight chain, branched, saturated or unsaturated); or aralkyl (where the aryl group is selected from phenyl or naphthyl and the alkyl group is C_{1-3});

R_2 is C_{1-4}alkyl (straight chain, branched, saturated or unsaturated); phenyl; or aralkyl (where the aryl group is selected from those set forth in the definition of R_1 and the alkyl is C_{1-3});

R_3 is C_{1-8} alkyl (straight chain, branched, saturated or unsaturated); C_{1-8} straight chain alkyl substituted with at least one carboxylic acid, amino or carboxymethoxy group; phenyl; or phenyl singly or multiply substituted with acetimido, amino, nitro, alkylamino, dialkylaminomethyl, hydroxy, alkoxy, alkylsulfonyl, methylenedioxy, halogen or trifluoromethyl;

R_4 is SCO-C_{1-4}alkyl, or pharmaceutically acceptable salt thereof.

5,063,246

PHENETHYLAMINE DERIVATIVE COMPOSITIONS AND USE

Kazuo Imai; Kunihiro Niigata; Takashi Fujikura, all of Saitama; Shinichi Hashimoto, Matsudo; Toichi Takenaka, Tokyo, and Kazuo Honda, Saitama, all of Japan, assignors to Yamanouchi Pharmaceutical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 364,579, Jun. 9, 1989, abandoned, which is a continuation-in-part of Ser. No. 253,368, Sep. 30, 1988, abandoned, which is a continuation-in-part of Ser. No. 24,605, Mar. 11, 1987, abandoned, which is a continuation-in-part of Ser. No. 894,464, Jul. 31, 1986, abandoned, which is a continuation-in-part of Ser. No. 690,398, Jan. 9, 1985, abandoned, which is a continuation-in-part of Ser. No. 517,734, Jul. 22, 1981, abandoned, which is a continuation-in-part of Ser. No. 285,782, Jul. 22, 1981, abandoned. This application Aug. 21, 1990, Ser. No. 569,780

Claims priority, application Japan, Jul. 29, 1980, 55-104175; Jun. 15, 1981, 56-92010

Int. Cl.[5] A61K *31/255, 31/135*

U.S. Cl. 514—517 **5 Claims**

1. A pharmaceutical composition useful for producing an antihypertensive action based solely on an alpha-adrenergic action, said composition comprised of a therapeutically effective amount of alpha-{[2-(2-methoxyphenoxy)ethylamino]methyl}-4-methyl-3-methylsulfinylbenzenemethanol or its salt and a pharmaceutically acceptable excipient or diluent therefor.

2. A method of producing an antihypertensive action based solely upon an alpha-adrenergic action by administering a therapeutically effective amount of a pharmaceutical composition comprised of a member selected from the group consisting of α-{[2-(2-methoxyphenoxy)ethylamino]methyl}-4-methyl-3-methoxysulfinylbenzenemethanol, α-{[2-(methoxyphenoxy)ethylamino]-methyl}-4-methyl-3-methylsulfinylbenzenemethanol and 4-{2-[2-(ethoxyphenoxy)ethylamino]-2-methylethyl}-2-(methylthio)anisole, and a pharmaceutically acceptable carrier.

5,063,247

DIPHENYLUREA DERIVATIVES

Tetsuo Sekiya, Yokohama; Shinya Inoue, Tokyo; Masao Taniguchi, Machida; Kohei Umezu, Yokohama, and Kazuo Suzuki, Machida, all of Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

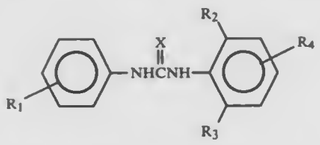
Filed Jun. 13, 1990, Ser. No. 537,302

Claims priority, application Japan, Jun. 15, 1989, 1-152594; Apr. 23, 1990, 2-106986

Int. Cl.[5] A61K *31/17*; C07C *335/18, 275/34*

U.S. Cl. 514—585 **5 Claims**

1. A diphenylurea derivative represented by the following formula (I):



(I)

wherein R_1 is an alkyl group of 5 to 18 carbon atoms, each of

R_2 and R_3 is independently an alkyl group of 1 to 5 carbon atoms, an alkoxy group of 1 to 5 carbon atoms or a halogen atom, R_4 is hydrogen atom, an alkyl group of 1 to 5 carbon atoms, an alkoxy group of 1 to 5 carbon atoms or a halogen atom, and X is oxygen atom or sulfur atom.

5. A pharmaceutical composition for treating hyperlipemia and atherosclerosis comprising a therapeutically effective amount of a diphenylurea derivative as defined in claim 1, in admixture with a pharmaceutically acceptable carrier, diluent, or a mixture thereof.

5,063,248

BIOCIDAL COMPOSITIONS AND USE THEREOF CONTAINING A SYNERGISTIC MIXTURE OF GLUTARALDEHYDE AND 2-(DECYLTHIO) ETHANAMINE

John T. Conlan, Ventura, Calif., and Wilson K. Whitekettle, Conroe, Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Division of Ser. No. 566,637, Aug. 13, 1990, Pat. No. 5,008,023. This application Oct. 12, 1990, Ser. No. 597,258

Int. Cl.[5] A01N *33/08, 35/00*

U.S. Cl. 514—665 **2 Claims**

1. A bacterial inhibiting composition comprising a synergistic mixture of (a) glutaraldehyde and (b) 2-(decylthio) ethanamine wherein the weight ratio of (a):(b) is from about 285:1 to 1.11:1.

5,063,249

NONIRRITATING TEAT DIP AND METHOD

Jeffrey F. Andrews, Stillwater, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 878,573, Jun. 25, 1986, abandoned, which is a continuation-in-part of Ser. No. 760,241, Jul. 29, 1985, abandoned. This application Oct. 23, 1989, Ser. No. 426,501

Int. Cl.[5] A61K *31/13*

U.S. Cl. 514—673 **19 Claims**

1. A germicidal animal teat dip concentrate comprising, as a substantially stable homogeneous mixture, a germicide selected from the group consisting of 3-(n-dodecylamino)propylamine, a pharmaceutically acceptable acid-addition salt of 3-(n-dodecylamino)-propylamine, 2-[2-(n-dodecylamino)ethylamino]ethylamine, and a pharmaceutically acceptable acid-addition salt of 2-[2-(n-dodecylamino)ethylamino]ethylamine; as an emollient a polyethylene glycol methyl glucoside; a film-forming ingredient; and water, wherein the total amount of all germicide or germicides present in said concentrate is about 0.25 to 2.5 percent based on the total weight of said teat dip concentrate.

5,063,250

PROCESS FOR THE PRODUCTION OF METHANOL

Katsutoshi Murayama, Niigata, and Hideaki Nagai, Tokyo, both of Japan, assignors to Mitsubishi Gas Chemical Company Inc. and Mitsubishi Jukogyo Kabushiki Kaisha, both of Tokyo, Japan

Continuation of Ser. No. 293,898, Jan. 5, 1989,. This application Aug. 27, 1990, Ser. No. 573,285

Claims priority, application Japan, Jan. 12, 1988, 63-3092

Int. Cl.[5] C07C *27/96, 31/04*

U.S. Cl. 518—704 **4 Claims**

1. A process for the production of methanol from hydrocarbon, which comprises the steps of:

(a) reacting hydrocarbon with steam to generate a synthesis gas composed of hydrogen, carbon monoxide and carbon dioxide as main components,

(b) reacting the synthesis gas on a methanol synthesis catalyst to synthesize crude methanol,

(c) feeding the crude methanol to a distillation column, without adding any alkaline compound to neutralize organic acids in the crude methanol, to distill the crude methanol and separate it into a purified methanol and effluent water containing low-boiling organic compounds, high-boiling organic compounds and organic acids, said distillation column composed of stainless steel having a composition of 18 to 20% by weight of Cr, 8 to 10.5% by weight of Ni and not more than 0.08% by weight of C in its portions contacting the low-boiling organic compounds, high-boiling organic compounds or organic acids,

(d) bringing the effluent water into contact with preheated gaseous hydrocarbon in an apparatus composed of stainless steel having a composition of 16 to 26% by weight of Cr, 6 to 14% by weight of Ni, 2 to 4% by weight of Mo and not more than 0.03% by weight of C in its portions contacting the low-boiling organic compounds, high-boiling organic compounds or organic acids to humidify the hydrocarbon, and

(e) feeding the humidified hydrocarbon for use in step (a), wherein step (d) contains

a step of humidifying the hydrocarbon with the effluent water from step (c) by means of a heat exchanger humidifier using, as a heat source, heat of the synthesis gas generated in step (a), or

a step of humidifying the hydrocarbon, pre-heated to 250° to 430° C., with the effluent water from step (c) by means of a heat-insulated humidifier, and then humidifying the hydrocarbon with water by means of a heat exchanger humidifier using, as a heat source, heat of the synthesis gas generated in step (a).

5,063,251

BLOWING AND CURING OF RESINS AND PLASTICS MATERIALS WITH CYCLODEXTRIN COMPLEXES

Finn Bergishagen, Union Lake, Mich., assignor to American Maize-Products Company, Stamford, Conn.

Filed May 4, 1990, Ser. No. 518,794

Int. Cl.[5] C08J *9/12, 9/14*

U.S. Cl. 521—84.1 **19 Claims**

1. A method for expanding a plastic material comprising:

forming an admixture comprising a plastic, rubbery or resinous material and a complex of cyclodextrin and a blowing agent; and

heating said admixture so as to fluidize said plastic material and cause said blowing agent to expand said plastic material while said plastic material is in a fluidized state.

5,063,252

PROCESS FOR THE PRODUCTION OF PLASTICS BY THE POLYISOCYANATE POLYADDITION PROCESS AND CATALYSTS SUITABLE FOR THIS PROCESS

Andreas Ruckes, Leverkusen; Martin Brock, Cologne, and Richard Welder, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Filed Nov. 7, 1989, Ser. No. 433,315

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1988, 3838128

Int. Cl.[5] C08G *18/20*; C07F *9/6584*

U.S. Cl. 521—108 **1 Claim**

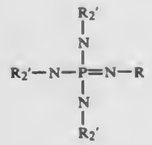
1. A process for the production of optionally cellular polyurethane by the isocyanate polyaddition process which comprises reacting

a) a polyisocyanate with

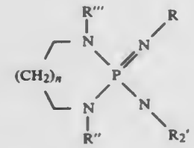
b) a compound containing at least two isocyanate-reactive groups and

c) a catalyst comprising one or more triamino(imino)phosphoranes corresponding to the following formulas

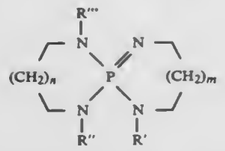
VOL 1132 ISS 1 NO 5 1991 UMI



(I)



(II)



(III)

wherein

R represents hydrogen, a linear or branched alkyl group containing 1 to 8 carbon atoms, a cycloalkyl or alkylcycloalkyl group containing 5 to 9 carbon atoms, an aryl group or an alkylaryl group,

R′ represents a linear or branched alkyl group containing 1 to 8 carbon atoms, a cycloalkyl or an alkylcycloalkyl group containing 5 to 9 carbon atoms or a cycloalkylene group containing 4 to 6 carbon atoms,

R″ represents hydrogen, a linear or branched alkyl group containing 1 to 8 carbon atoms, a cycloalkyl or an alkylcycloalkyl group containing 5 to 9 carbon atoms, an aryl group or an alkylaryl group,

R‴ represents a linear or branched alkyl group containing 1 to 8 carbon atoms, a cycloalkyl or an alkylcycloalkyl group containing 5 to 9 carbon atoms, an aryl group or an alkylaryl group and

n and m may be the same or different and represent 0, 1, or 2.

5,063,253

PROCESS FOR THE PRODUCTION OF COLD-SETTING FLEXIBLE POLYURETHANE FOAMS WITH EXCELLENT DAMPING PROPERTIES

Peter Gansen, Cologne; Rudi Wolfgramm, Leverkusen; Klaus D. Wolf, Cologne, all of Fed. Rep. of Germany, and John J. Lindsey, Pittsburgh, Pa., assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany and Mobay Corporation, Pittsburgh, Pa.

Continuation of Ser. No. 312,524, Feb. 17, 1989, abandoned. This application Mar. 30, 1990, Ser. No. 502,346

Claims priority, application Fed. Rep. of Germany, Mar. 1, 1988, 3806476

Int. Cl.[5] C08G *18/00*

U.S. Cl. 521—159 **20 Claims**

1. A process for the production of cold-setting flexible polyurethane foam useful for damping sound comprising reacting a polyisocyanate in the presence of water with

a) at least one polyether having an OH number of from 20 to 60 and containing at least two OH groups, wherein said polyether is based on 75 to 95% by weight propylene oxide and 5 to 25% by weight ethylene oxide;

b) a polyether or polyester having an OH number of from 150 to 400 and containing at least two OH groups, wherein said component b) is used in a quantity of from 10 to 20% by weight based on the total amount of components a), b), and c); and

c) a polyether different from components a) and b) having an OH number of from 20 to 200 and containing at least two OH groups, wherein said polyether is based on propylene oxide and ethylene oxide and has an ethylene oxide content above 50% by weight based on the total amount of propylene oxide and ethylene oxide, wherein said component c) is used in a quantity of from 30 to 70% by weight based on the total amount of components a), b), and c).

5,063,254

MTQ/POLYSILOXANE HYBRID RESINS, METHOD OF MAKING THE SAME, AND COATING/POTTING COMPOSITIONS CONTAINING THE SAME

Steven T. Nakos, Andover, Conn., assignor to Loctite Corporation, Hartford, Conn.

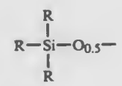
Continuation-in-part of Ser. No. 176,892, Apr. 4, 1988, abandoned. This application Nov. 27, 1989, Ser. No. 441,508

Int. Cl.[5] C08C *77/38, 77/20*

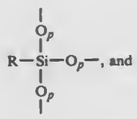
U.S. Cl. 522—43 **27 Claims**

1. A polysiloxane, comprising:

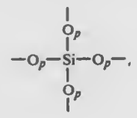
(I) an MTQ moiety having a plurality of pendant hydroxy groups and comprising a multiplicity of monofunctional siloxane units (M),



trifunctional siloxane units (T),



and tetrafunctional siloxane units (Q),



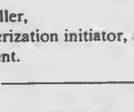
wherein:

p has a value of 0.5 when the associated oxygen atom is bonded to another silicon atom, and a value of 1 when the associated oxygen atom is bonded to other than a silicon atom, with the proviso that at least one p in each T and Q unit has a value of 0.5;

each R is independently selected from the group consisting of alkyl, aryl, alkaryl, aralkyl, haloalkyl, (meth)acryloxyalkyl, and (meth)acryloxyalkenyl;

the concentration ratio of M units to the sum of T and Q units, M/(T+Q), in the MTQ moiety is from about 0.55 to about 0.75; and

(II) covalently bonded to the MTQ moiety, a diorganosiloxane polymer of the formula:



wherein:

A is an acrylic-functional end group;

R_1 and R_2 are each independently selected from the group consisting of alkyl, aryl, alkaryl, aralkyl, haloalkyl, (meth-)acryloxyalkyl, and (meth)acryloxyalkenyl; and

n is from 25 to 1000.

5,063,255

PHOTOPOLYMERIZABLE TYPE RESIN COMPOSITIONS FOR DENTAL PURPOSES

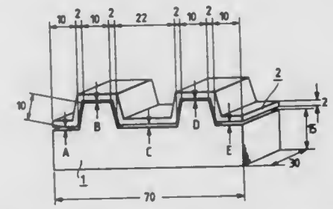
Akira Hasegawa, Inuyama; Hiroshi Mori, Chita; Tatsuhiko Takahashi, and Yasuyuki Sano, both of Nagoya, all of Japan, assignors to G-C Toshi Kogyo Corporation, Aichi, Japan

Filed Nov. 1, 1989, Ser. No. 430,590

Claims priority, application Japan, Nov. 18, 1988, 63-290160

Int. Cl.[5] C08F *18/02, 118/02, 218/02*

U.S. Cl. 522—96 **9 Claims**



1. A dental photopolymerizable resin composition consisting essentially of:

(a) at least one photopolymerizable compound that has therein at least one ethylenically unsaturated double bond present in a CH_2=CHCOO— or CH_2=C(CH_3)COO— group and is a solid either crystalline or amorphous at 40° C. and lower,

(b) an inorganic filler,

(c) a photopolymerization initiator, and

(d) a reducing agent.

5,063,256

DEODORIZING RESIN COMPOSITIONS AND FORMED DEODORIZING ARTICLES

Akira Hoshino, Koshigaya; Mikio Saji, Kasukabe, and Isamu Yamaguchi, Souka, all of Japan, assignors to Dainichiseika Color & Chemicals Mfg. Co., Ltd., Tokyo, Japan

Division of Ser. No. 185,409, Apr. 25, 1988, Pat. No. 4,880,852, which is a continuation of Ser. No. 928,377, Nov. 10, 1986, Pat. No. 4,757,099. This application Sep. 12, 1989, Ser. No. 405,973

Claims priority, application Japan, Apr. 7, 1986, 61-078181; Apr. 7, 1986, 61-078182; Apr. 7, 1986, 61-198183; May 13, 1986, 61-107543

The portion of the term of this patent subsequent to Sep. 5, 2006, has been disclaimed.

Int. Cl.[5] A61J *9/01;* **C08K** *3/22, 5/09;* **C08L** *1/12*

U.S. Cl. 523—102 **4 Claims**

1. A deodorized resin composition, consisting of:

99.5–50 parts by weight of a thermoplastic resin and 0.1–50 parts by weight of a combination of 10–90 parts by weight of a zinc compound and 90–10 parts by weight of an aromatic polycarboxylic acid or a salt thereof.

5,063,257

DENTAL GLASS IONOMER CEMENT COMPOSITIONS

Shoji Akahane, Higashikurume; Satoshi Tosaki, Omiya; Yukiharu Kusayanagi, Tokyo; Shigenobu Kusakai, Tokyo; Kazuo Hirota, Tokyo, and Kentaro Tomioka, Chofu, all of Japan, assignors to G-C Dental Industrial Corp., Tokyo, Japan

Filed Dec. 11, 1989, Ser. No. 448,298

Claims priority, application Japan, Dec. 16, 1988, 63-316303

Int. Cl.[5] C08F *2/50;* **A61K** *6/08*

U.S. Cl. 523—116 **13 Claims**

1. A dental glass ionomer cement composition consisting essentially of:

(a) a polymer of an α-β unsaturated carboxylic acid having a weight average molecular weight of 5,000 to 40,000,

(b) a fluoroaluminosilicate glass powder having an average particle size of 0.02 to 10 μm and a specific gravity of 2.4 to 4.0 and capable of reacting with said "polymer of an α-β unsaturated carboxylic acid having a weight average molecular weight of 5,000 to 40,000",

(c) a polymerizable unsaturated organic compound having at least one CH_2=C(R1)—COO—group wherein R1=H or CH_3,

(d) a polymerization catalyst,

(e) water,

(f) a surface active agent, and

(g) a reducing agent.

5,063,258

COATING COMPOSITIONS CONTAINING MOLYBDENUM DISULFIDE

Fridolin Bäbler, Marly, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Sep. 5, 1989, Ser. No. 403,248

Claims priority, application Switzerland, Sep. 9, 1988, 3372/88

Int. Cl.[5] C08K *3/30*

U.S. Cl. 523—171 **18 Claims**

1. A coating composition for producing a metal effect coating without the concomitant use of metal powders, which composition comprises, as coloring component, 0.001 to 30% by weight of an organic pigment and 0.001 to 30% by weight of molybdenum disulfide, based on the weight of the dry coating produced therewith, the molybdenum disulfide being in flake or platelet form having a particle diameter of less than 100 μm and a thickness of up to 4 μm.

5,063,259

CLEAR, IMPACT-RESISTANT PLASTICS

Robert A. Wanat, Langhorne, Pa., and Charles C. Crabb, Mt. Laurel, N.J., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Jul. 3, 1990, Ser. No. 547,743

Int. Cl.[5] C08G *83/00;* **C08F** *6/14*

U.S. Cl. 523—201 **25 Claims**

1. A process for preparing a clear, impact-modified acrylic plastic with improved color which comprises:

(a) preparing in emulsion a heterogeneous core/shell polymer of at least one rubbery stage containing a preponderance of units derived from at least one alkyl acrylate and an outer stage containing a preponderance of units derived from methyl methacrylate;

(b) optionally adding at least one emulsion polymer which is preponderantly comprised of units derived from methyl methacrylate to form a polymer blend in emulsion form;

(c) subsequently adding from about 0.005 to about 0.025 parts of an phosphorus-containing inorganic reducing agent per 100 parts of emulsion, wherein the phosphorus-containing inorganic reducing agent is a water-soluble alkaline earth salt of a phosphorus-containing inorganic acid wherein the phosphorus is in a valence state of +3 or

VOL 1132 ISS 1 NO 5 1991 UMI

+1 or a phosphorus-containing inorganic acid wherein the phosphorus is in a valence state of +3 or +1;

d) isolating the core/shell polymer or the polymer blend from the emulsion;

e) concurrently or subsequently blending the isolated polymer with a matrix polymer predominantly derived from units of methyl methacrylate to form the impact-modified acrylic plastic in molten form;

f) optionally adding other additives to the impact-modified acrylic polymer in molten form;

g) isolating the impact-modified acrylic plastic in solid form by extruding and cooling.

5,063,260

COMPOSITIONS AND THEIR USE FOR TREATING FIBERS

Kun-Long Chen, Taipei, and Yung-Yu Hsu, Tao Yuan, both of Taiwan, assignors to Dow Corning Corporation, Midland, Mich.

Filed May 1, 1991, Ser. No. 694,156

Int. Cl.[5] C08L *83/04;* C04B *31/00;* C08K *5/01;* D06M *15/66*

U.S. Cl. 523—213 **8 Claims**

1. A composition of matter comprising

(A) 36 to 94.9 weight percent of an amino organofunctional substantially linear polydiorganosiloxane polymer having the general formula

$$R''''R_2SiO(R_2SiO)_x(RSiO)_ySiR_2R'''';$$
$$\quad\quad\quad

VOL 1132 ISS 1 NO 5 1991 UMI

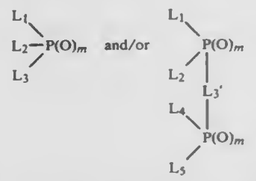
5,063,265

STABILIZED POLY(ARYL ETHER KETONE) COMPOSITIONS

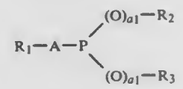
James E. Harris, Piscataway, N.J., assignor to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 189,390, May 2, 1988, abandoned. This application Jan. 3, 1990, Ser. No. 460,404
Int. Cl.[5] C08K 5/52, 5/53
U.S. Cl. 524—126 22 Claims

1. A melt-stable composition comprising (a) a poly(aryl ether ketone) (b) a stabilizing amount of a combination of (i) an aromatic phosphorous compound selected from the group consisting of aromatic phosphorus compounds of the formulae:



where L_1, L_2, L_3, L_4 and L_5 are the same or different and are independently either Ar_1 or Ar_1O, Ar_1 being a monovalent aromatic radical having at least six carbon atoms; L'_3 is Ar_2 or OAr_2O, Ar_2 being an arylene radical of at least six carbon atoms; and m is an integer of 0 or 1, and aromatic phosphite and/or phosphonite compounds of the formula



where R_1, R_2 and R_3 are the same or different and are substituted or unsubstituted aryl radicals containing from six to about 30 carbon atoms; a_1 is 0 or 1 and A is a chemical bond or an oxygen atom, with the provisos that (1) both a_1's must be one when A is a chemical bond and only one a_1 can be zero when A is an oxygen atom; and (2) at least one of R_1, R_2 and R_3 must be an aromatic group; and (ii) an organic acid selected from the group consisting of formic, acetic, propronic, n-butyric, iso-butyric, n-valeric, iso-valeric, n-caproic, iso-caproic, β-chlorobutyric, γ-chlorobutyric, trans-cinnamic, o-, m-, and p-chlorocinnamic, benzoic, phenylacetic, α-phenyl-propionic, β-phenylpropionic, γ-phenylbutyric, oxalic, fumaric, succinic, adipic, and citric acids.

5,063,266

NON-HALOGENATED INSULATION WITH HIGH OXYGEN INDEX

Howard F. McRae, Underhill, Vt., assignor to Champlain Cable Corporation, Winooski, Vt.

Filed Feb. 20, 1990, Ser. No. 482,386
Int. Cl.[5] C08J 3/28; C08K 5/24
U.S. Cl. 524—269 36 Claims

1. A fire retardant, non-halogenated wire and cable insulation, featuring increased tensile strength and elongation resulting from irradiation of a composition including:

a) an ethylene vinyl acetate base resin comprising approximately 100 parts by weight of the total composition, and containing carboxyl groups below approximately 3% by weight of said base resin;

b) a silicone material containing silanol groups and comprising approximately between 15 to 30 parts by weight of the total composition; and

c) a flame retardant hydrated filler material containing hydroxyl groups and comprising greater than 200 parts by weight of the total composition, said silanol groups linking both with the carboxylic groups of the ethylene vinyl acetate base resin, and the hydroxyl hydroxyl groups of the flame retardant hydrated filler material, said silanol groups having sufficient linkage with said carboxyl groups and said hydroxyl groups to provide said composition with a high, flame retardant, oxygen index, but having insufficient linkage capability to allow for extrusion of said composition into wire and cable insulation.

5,063,267

HYDROGEN SILSESQUIOXANE RESIN FRACTIONS AND THEIR USE AS COATING MATERIALS

Larry F. Hanneman; Theresa E. Gentle, both of Midland, Mich., and Kenneth G. Sharp, Landenberg, Pa., assignors to Dow Corning Corporation, Midland, Mich.

Filed Nov. 28, 1990, Ser. No. 618,865
Int. Cl.[5] C08K 3/22, 5/05; C08L 83/05
U.S. Cl. 524—284 10 Claims

5. Hydrogen silsesquioxane resin with a number average molecular weight of between about 700 and about 6000 and with a dispersity less than about 3.0.

5,063,268

COMPOSITION FOR TIRE TREADS (E-235)

Donald G. Young, Cranford, N.J., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Filed Jun. 8, 1990, Ser. No. 534,861
Int. Cl.[5] C08F 8/00; B60C 11/00; C08L 7/00
U.S. Cl. 524—286 28 Claims

1. A tire tread composition comprising:

(a) halogen-containing copolymer of a C_4 to C_7 isomonoolefin and a para-alkylstyrene;

(b) a rubber selected from the group consisting of natural rubber, styrene-butadiene rubber, polybutadiene rubber, a terpolymer of ethylene, propylene and a nonconjugated diene, and mixtures thereof;

(c) carbon black;

(d) a plasticizer oil; and

(e) a curing agent.

5,063,269

ONE-PART PRIMERLESS ADHESIVE

Ju-Ming Hung, Yardley, Pa., assignor to Essex Specialty Products, Inc., Clifton, N.J.

Filed Jan. 16, 1990, Ser. No. 464,828
Int. Cl.[5] C08L 75/00
U.S. Cl. 524—296 17 Claims

1. A one-part adhesive which comprises a mixture of:

(a) a polymerizable ethylenically unsaturated urethane polymer: and

(b) a polymerizable ethylenically unsaturated acid, acid salt, or acid anhydride

wherein component (b) is present in an amount in the range of from about 0.5 weight percent to about 25 weight percent of component (a).

5,063,270

CURABLE COMPOSITION

Sadao Yukimoto; Toshifumi Hirose; Hiroshi Wakabayashi, and Katsuhiko Isayama, all of Hyogo, Japan, assignors to Kanegafuchi Kagaku Kogyo Kabusbiki Kaisha, Osaka, Japan

Filed Jun. 7, 1989, Ser. No. 362,776
Claims priority, application Japan, Jun. 10, 1988, 63-144013
The portion of the term of this patent subsequent to Apr. 30, 2008, has been disclaimed.
Int. Cl.[5] C08K 5/09
U.S. Cl. 524—306 12 Claims

1. A curable composition which comprises:

(A) 100 parts by weight of oxyalkylene polymer which has at least one silicon-containing group containing a hydroxyl group and/or hydrolyzable group bound to a silicon atom and capable of crosslinking through the formation of a siloxane bond;

(B) 1 to 150 parts by weight of a plasticizer having a number-average molecular weight from 500 to 15,000 and selected from the group consisting of a polyester, a polyether, a polystyrene, a polydiene, a polybutene and a hydrogenated polybutene; and

(C) 0.1 to 20 parts by weight of a compound having one silanol group per molecule and/or a compound capable of reacting with moisture to thereby form one silanol group per molecule.

5,063,271

HOT MELT WAX COMPOSITIONS

Richard L. Jones, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Division of Ser. No. 307,655, Feb. 6, 1989, Pat. No. 4,965,306. This application May 31, 1990, Ser. No. 532,308
Int. Cl.[5] C08L 91/08, 23/04, 23/10
U.S. Cl. 524—351 16 Claims

1. A wax composition which comprises from about 1 weight percent to about 80 weight percent of a fully refined paraffinic petroleum wax having a melting point of from about 120° F. to about 160° F., (b) from about 1 weight percent to about 80 weight percent of a recrystallized heavy intermediate petroleum wax having a melting point of from about 145° F. to about 185° F., and a clear color, (c) from about 1 weight percent to about 50 weight percent of a microcrystalline wax having a melting point of from about 150° F. to about 200° F., and (d) from about 10 weight percent to about 30 weight percent of a polymeric compound selected from the group consisting of ethylene-vinyl acetate copolymer, ethylene-ethyl acrylate copolymer and polypropylene and mixtures thereof, said polymeric compound having a molecular weight of from about 2,000 to about 100,000 and a melt index of from abut 1 to about 250° to 375° F.

5,063,272

POLYMERIC WEB COMPOSITIONS FOR USE IN ABSORBENT ARTICLES

Philip A. Sasse, Alpharetta, Ga., assignor to Kimberly-Clark Corporation, Neenah, Wis.

Filed Oct. 16, 1990, Ser. No. 598,276
Int. Cl.[5] C08L 33/06; C08K 5/05
U.S. Cl. 524—377 6 Claims

1. A composition of matter comprising a polymeric blend of from about 60 to about 95 weight percent of a copolymer of a (meth)acrylate ester and (meth)acrylic acid and from about 5 to about 30 weight percent polyethylene glycol.

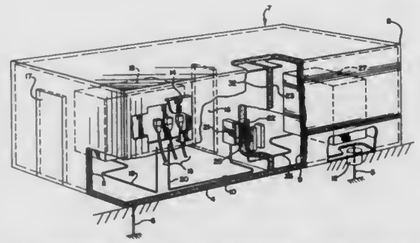
VOL
1132
ISS
1
NO
5
1991
UMI

5,063,273

PROTECTIVE HOUSING FOR APPARATUS

Hubertus M. H. A. Bloks, Elim, Netherlands, assignor to Fokker Special Products B.V., AN Hoogeveen, Netherlands

Filed Jan. 30, 1990, Ser. No. 472,322
Claims priority, application Netherlands, Feb. 1, 1989, 8900248
Int. Cl.[5] H05K *9/00*
U.S. Cl. 174—35 R 16 Claims



1. A housing for shielding an apparatus from electrical and magnetic signals and fields, electromagnetic radiation, cross-talk between signal carrying conductors and conducting parts, and leakage into the surrounding environment from the apparatus of electrical and magnetic signals, comprising:

a) an inner housing acting as a Faraday cage;

b) an outer housing acting as a Faraday cage enveloping the inner housing at a spaced position therefrom and defining an interstitial substantially continuous cavity therebetween; and

c) means for electrically insulating the inner housing from the outer housing;

d) first grounding means connected to the inner housing;

e) second grounding means connected to the outer housing; and

f) the first and second grounding means being spaced apart to avoid any galvanic, inductive or capacitive coupling between the first and second grounding means.

5,063,274

ELECTRIC FENCE INSULATOR

John I. Johnson, Ottawa, Canada, assignor to ITW Plastiglide, Concord, Canada

Filed Oct. 1, 1990, Ser. No. 590,711
Claims priority, application Canada, Sep. 29, 1989, 614990
Int. Cl.[5] H01B *17/16;* A01K *3/00*
U.S. Cl. 174—158 F 15 Claims

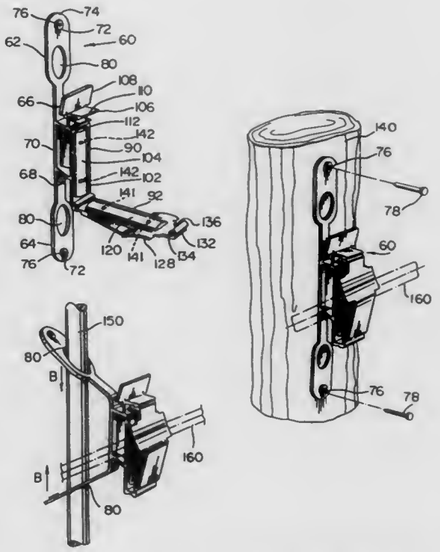
1. A plastic insulator for holding electrified wire, comprising:

means for supporting an electrified wire; and

means for selectively connecting said supporting means to a support structure;

said connecting means including an axially elongate structure comprising an axially central section and two arm sections extending in opposite directions with respect to each other from axially spaced end portions of said central section, first means defined within said two arm sections by which said supporting means may be connected to a suport structure with separate fastener means, and second means defined within said two arm sections by which said supporting means may be connected to a support structure without separate fastener means;

said supporting means comprising a backing portion, a securing portion hingedly connected to said backing portion for cooperating therewith in order to support said electrified wire therebetween when said securing portion is moved from an open position relative to said backing portion to a closed position relative to said backing portion, web means for fixedly supporting said backing portion of said supporting means upon said connecting means in spaced relation with respect to said central section of said connecting means, latch means provided upon said securing portion of said supporting means, and keeper means fixedly provided upon one of said backing portion and said web means for lockingly cooperating with said latch means of said securing portion so as to releaseably maintain said securing portion in a latched state with respect to said backing portion in order to support said electrified wire therebetween when said securing portion is moved to said closed position from said open position relative to said backing portion.



5,063,275

METHOD AND APPARATUS FOR GAS ANALYSIS

Elieser Z. Rosenfeld, and Lewis Coleman, both of Jerusalem, Israel, assignors to Spegas Industries Ltd., Jerusalem, Israel

Filed Jun. 21, 1990, Ser. No. 541,637
Claims priority, application Israel, Jun. 25, 1989, 90744
Int. Cl.[5] G01N *21/61*
U.S. Cl. 250—343 10 Claims

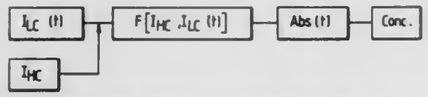
1. A method for analyzing gases to establish their concentration, comprising the steps of:

a) providing a radiant source, an analytical space, a radiation detector and a reference gas having a concentration HC beyond the range of concentrations of the gas to be analyzed,

b) establishing an instantaneous intensity $I_{LC}(t)$;

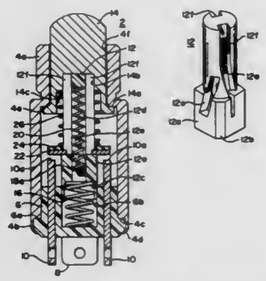
VOL 1132 ISS 1 NO 5 1991 UMI

c) establishing an intensity I_{HC} with said analytical space filled with said reference gas;
d) calculating, from said values $I_{LC}(t)$ and I_{HC}, the instantaneous value of the absorbed intensity Abs(t), and



d) translating said absorbed intensity Abs(t) into concentration values.

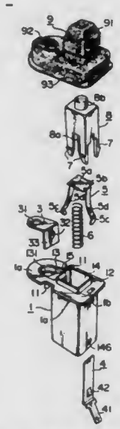
5,063,276
PUSHBUTTON SWITCH WITH ROTATIONAL CONTACT WIPING ACTION
Tony O. Woodard, Pine Level, N.C., assignor to Eaton Corporation, Cleveland, Ohio
Filed Aug. 20, 1990, Ser. No. 570,447
Int. Cl.[5] H01H *3/02, 13/14, 1/36*
U.S. Cl. 200—529 **16 Claims**



1. A pushbutton switch comprising, in combination:
a housing;
stationary contacts mounted in said housing;
a contact carrier disposed between said stationary contacts reciprocally movable normal to said stationary contacts between ON and OFF positions;
a helically shaped slot extending transversely through said carrier having an axis directed parallel to movement of said carrier;
movable contact means slidably disposed in said slot biased toward said stationary contacts opposite ends of said movable contact means extending beyond said carrier; and
said movable contact means being moved into abutting engagement with said stationary contacts and subsequently rotated on said stationary contacts by movement of said carrier to said ON position.

5,063,277
WATERPROOF AND DUSTPROOF PUSH SWITCH
T. Takano; Y. Kosuga, and K. Sinzawa, all of Tokyo, Japan, assignors to Daiichi Denso Buhin Co., Ltd., Tokyo, Japan
Filed Jun. 25, 1990, Ser. No. 542,956
Claims priority, application Japan, Jun. 28, 1989, 1-76103; Aug. 2, 1989, 1-91141
Int. Cl.[5] H01H *13/12*
U.S. Cl. 200—531.0 **11 Claims**

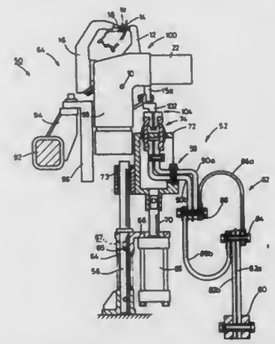
1. A waterproof switch comprising:
an electrically insulating cylindrical base having an outer flange and confronting inner walls defining an interior space;
fixed contacts disposed to as to partially extend along respective said inner walls of said insulating cylindrical base;
an actuator movably disposed within said defined interior space of said base;
said actuator having a substantially inverted V-shaped contact which is movable with said actuator and is thereby adapted to come into contact with each of said fixed contacts to make an electrical circuit when said actuator is moved into an on position;
a spring disposed within said interior space and exerting a bias force upon said actuator;



a resilient waterproof cap having a side region which defines a recess, said cap being disposed so as to cover said actuator and said outer flange of said insulating cylindrical body; wherein
said outer flange of said insulating base includes a fastening pin which is accepted within said recess defined within said side region of said waterproof cap so as to prevent separation of said waterproof cap from said insulating base.

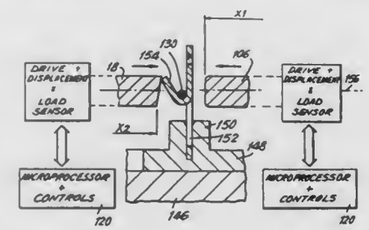
5,063,278
METHOD AND APPARATUS FOR SUPPLYING ELECTRIC POWER TO RESISTANCE WELDING GUN
Mitsuo Konno; Hisashi Noro, and Naotero Katsura, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 20, 1989, Ser. No. 368,828
Claims priority, application Japan, Jun. 22, 1988, 63-153873; Jun. 22, 1988, 63-153874
Int. Cl.[5] B23K *11/00*
U.S. Cl. 219—86.1 **13 Claims**

1. A method of supplying electric energy to a tiltable resistance welding gun having a pair of electrodes for gripping a workpiece and effecting resistance welding thereon, said method comprising the steps of:
tilting said resistance welding gun to grip said workpiece between said pair of electrodes, wherein tilting of said resistance welding gun moves a power receiver terminal mounted thereon from a first position to a second position adjacent a power supply terminal;
displacing said power supply terminal to connect said power receiver terminal and said power supply terminal to each other after the electrodes have gripped the workpiece therebetween;
supplying a welding current from said power supply terminal to said power receiver terminal;
displacing said power supply terminal to disconnect said power receiver terminal and said power supply terminal from each other; and
tilting said resistance welding gun to separate said electrodes from said workpiece after said power receiver terminal and said power supply terminal have been disconnected



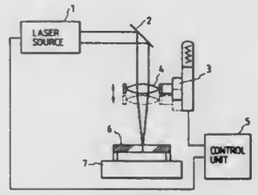
from each other, wherein tilting of said resistance welding gun moves said power receiver terminal from said second position to said first position.

5,063,279
METHODS AND APPARATUS FOR FUSING ARMATURE AND STATOR WIRES
Alessandro Rossi, Florence, Italy, assignor to Axis USA, Inc., Marlborough, Mass.
Continuation-in-part of Ser. No. 412,279, Sep. 25, 1989, abandoned. This application Nov. 15, 1989, Ser. No. 436,633
Int. Cl.[5] B23K *11/24*
U.S. Cl. 219—86.51 **50 Claims**



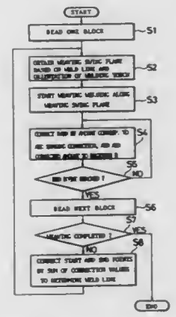
46. A method for fusing armature wires to the commutator of an electric motor, comprising the steps of:
causing a fusing member to exert a predetermined force on a predetermined section of the commutator, said force corresponding to the force at which maximum surface contact between the fusing member and the commutator occurs;
determining whether the displacement of the fusing member from a reference point is within a predetermined range corresponding to an acceptable commutator condition;
applying electrical current to the fusing member to heat said fusing member and any portions of said commutator and armature wire in thermal contact with said fusing member;
applying force to the fusing member as a function of displacement according to a predetermined force function to deform said section of said commutator;
continuously monitoring the force applied to said fusing member during said step of applying force to said fusing member;
adjusting the force applied to said electrode in response to data obtained while monitoring the force applied to the electrode to maintain said predetermined force function, until said force equals a predetermined force which corresponds to an acceptable fusion condition; and
determining whether the displacement of the electrode from said reference point is within a predetermined range corresponding to an acceptable fusion condition.

5,063,280
METHOD AND APPARATUS FOR FORMING HOLES INTO PRINTED CIRCUIT BOARD
Hideho Inagawa, Yokohama, and Shigenobu Nojo, Kawasaki, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 18, 1990, Ser. No. 553,666
Claims priority, application Japan, Jul. 24, 1989, 1-188971; Jun. 12, 1990, 2-154685
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.7 **4 Claims**



1. A method of forming holes into a printed circuit board, comprising the steps of:
irradiating a hole to be formed in a printed circuit board with an energy beam;
pulsating the energy beam irradiating the hole to be formed; and
moving a focal point of the energy beam so it is focused in a new working surface in the hole as the hole forming process progresses.

5,063,281
WEAVING WELDING METHOD
Toru Mizuno, Tama, and Shigehiro Morikawa, Atsugi, both of Japan, assignors to Fanuc Ltd., Yamanashi, Japan
PCT No. PCT/JP89/00119, § 371 Date Oct. 6, 1989, § 102(e) Date Oct. 6, 1989, PCT Pub. No. WO89/07507, PCT Pub. Date Aug. 24, 1989
PCT Filed Feb. 6, 1989, Ser. No. 427,102
Claims priority, application Japan, Feb. 10, 1988, 63-27648
Int. Cl.[5] B23K *9/127*
U.S. Cl. 219—125.12 **6 Claims**

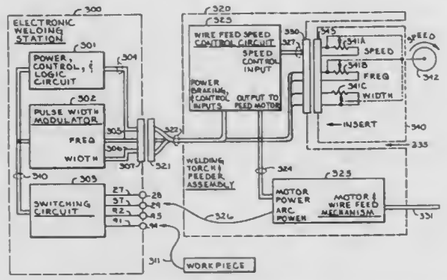


1. A weaving welding method comprising the steps of:
(a) determining a desired weld line;

VOL 1132 ISS 1 NO 5 1991 UMI

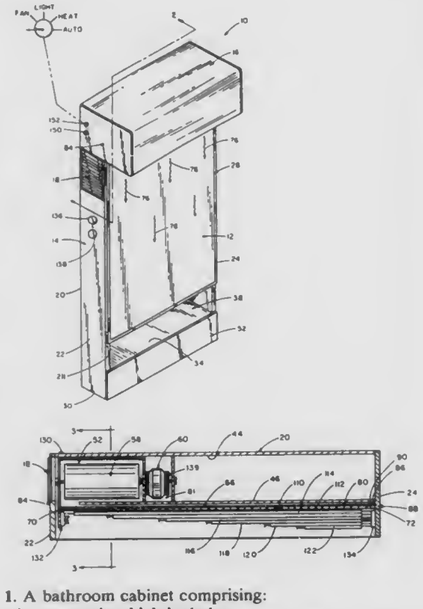
(b) detecting an orientation of a welding torch relative to the weld line;
(c) determining a weaving swing plane on the basis of the desired weld line and the detected orientation of said welding torch, said weaving swing plane including an intersecting line at which a first plane traversing said desired weld line at right angles thereto intersects a second plane perpendicular to an axis of said welding torch, and parallel to said desired weld line; and
(d) moving said welding torch along said desired weld line while weaving the same with a predetermined width with respect to said desired weld line in a direction traversing said desired weld line, to move the distal end of said welding torch on said weaving swing plane.

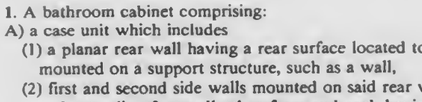
5,063,282
APPARATUS AND METHOD FOR OPTIMIZING A WELDING OPERATION
Malcolm T. Gilliland, 310 Pine Valley Rd., Marietta, Ga. 30067
Division of Ser. No. 374,465, Jun. 30, 1989, Pat. No. 5,025,127.
This application Nov. 14, 1990, Ser. No. 612,815
Int. Cl.[5] B23K *9/09*
U.S. Cl. 219—130.51 **27 Claims**



7. For use with an electronic welding station having at least three welding parameters, a method whereby adjustment of a selected welding parameter automatically adjusts at least two other parameters of said welding parameters to achieve an optimum weld, comprising the steps of:
(A) (1) selecting a type of welding operation;
(2) selecting a control parameter for said type of welding operation;
(3) selecting a value for said control parameter;
(4) adjusting a second parameter and a third parameter of said welding parameters to achieve an optimum weld;
(5) recording said value for said control parameter, a value for said second parameter, and a value for said third parameter;
(6) repeating steps (2) through (5) for a selected range of values for said control parameter; and
(B) (1) constructing a first control to have an output which represents said value of said control parameter;
(2) constructing a second control which has an output which represents said value for said second parameter and a third control which has an output which represents said value for said third parameter and which outputs vary, as a function of said value of said control parameter, in correspondence with said values recorded in step (A)(5); and
(3) ganging said first control, said second control, and said third control;
whereby adjustment of said control parameter causes said second parameter and said third parameter to be automatically adjusted to provide said optimum weld.

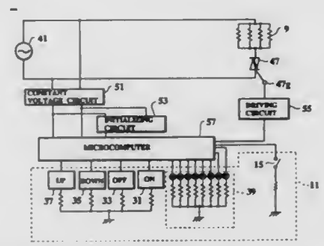
5,063,283
BATHROOM CABINET
William Orazi, 950 Colorado Ave. #6, Stuart, Fla. 33494
Filed Mar. 8, 1990, Ser. No. 490,353
Int. Cl.[5] H05B *3/64*
U.S. Cl. 219—218 **9 Claims**





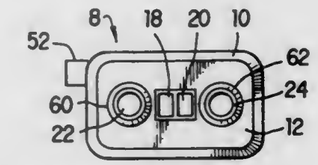
1. A bathroom cabinet comprising:
A) a case unit which includes
(1) a planar rear wall having a rear surface located to be mounted on a support structure, such as a wall,
(2) first and second side walls mounted on said rear wall and extending forwardly therefrom and each having a front edge spaced from said rear wall, said case having a width dimension defined between said first and second side walls and a thickness dimension defined between said rear wall and said side wall front edges,
(3) a bottom wall mounted on said rear wall and extending forwardly thereof,
(4) a bottom mirror attached to said bottom wall and to said first and second side walls,
(5) a shelf attached to said first and second side walls,
(6) a main mirror attached to said first and second side wall front edges,
(7) a hood attached to said rear wall and to said first and second side walls and located on top of said case unit and extending in front of said main mirror and having a lower wall located adjacent to said main mirror, said lower wall having a forward wall and a plurality of conduits defined therethrough and directed towards said main mirror,
(8) a plurality of divider walls including
(a) first and second divider walls attached to said rear wall and to said hood forward wall and extending across the width dimension of said case, said first and second divider walls being parallel and spaced from each other,
(b) a third divider wall attached to said first and second divider walls and extending perpendicular to said first and second divider walls and having an air flow exit opening defined therethrough, and
(c) a fourth divider wall attached to said first divider wall and extending perpendicular to said first divider wall toward said second divider wall, said fourth divider wall having a lower edge which is spaced from said second divider wall to define a gap between said second and said fourth divider walls,
(9) a plurality of chambers defined in said case by said divider walls including
(a) a fan compartment defined by said first, second and third divider walls,
(b) an air holding chamber defined by said first, second, third and fourth divider walls, said air holding chamber being fluidically connected to said fan compartment by said air flow exit opening, and
(c) a plenum defined by said second side wall, and said first, second and fourth divider walls, said plenum being fluidically connected to said air holding chamber by said gap,
(10) an air inlet defined through said first side wall and fluidically connected to said fan compartment,
(11) a flexible wall attached to said first side wall and located in said gap between said second and fourth divider walls, said flexible wall having a proximal end attached to said first side wall and a distal end, and being movable mounted to move between a first position completely closing said gap and a second position uncovering said gap, and
(12) a flexible wall moving means connected to said flexible wall, said flexible wall moving means including a flexible wall position sensor which generates a wall position signal corresponding to the position of said flexible wall relative to said first and second side walls;
B) an air flow assembly which includes
(1) a fan mounted in said fan compartment, said fan being fluidically connected to said air intake to receive ambient air,
(2) a selector switch mounted on said first side wall,
(3) a fan motor connected to said fan and to a source of power via said selector switch, and
(4) a fan output sensor mounted on said fan motor and generating a fan output signal corresponding to the output of said fan;
C) an air heating assembly which includes
(1) a plurality of heating elements mounted on said case side walls and connected to a source of power via said selector switch, each heating element having a length that differs from the length of adjacent heating elements, with a longest heating element of said plurality of heating elements being located adjacent to said gap,
(2) a control unit mounted in said case and connecting said heating elements to the source of power, said control unit including
(a) a temperature sensor mounted on said first side wall and generating a temperature signal corresponding to the temperature adjacent to said main mirror,
(b) a humidity sensor mounted on said first side wall and generating a humidity signal corresponding to the relative humidity adjacent to said main mirror,
(c) control circuit means,
(d) fan output signal receiving means connected to said circuit means,
(e) temperature signal receiving means connected to said circuit means,
(f) humidity signal receiving means connected to said circuit means,
(g) flexible wall position signal receiving means connected to said circuit means,
(h) a circuit element connecting said control circuit means to said heating elements and controlling the amount of power supplied to said heating elements to be a function of said temperature signal, said fan output signal, said flexible wall position signal, and said humidity signal; and
D) a light assembly mounted in said hood and including
(1) a fluorescent light; and
(2) means connecting said fluorescent light to said selector switch.

5,063,284
HEATING COOKER WITH TEMPERATURE CONTROL SYSTEM
Satoru Sunada, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Apr. 20, 1990, Ser. No. 512,280
Claims priority, application Japan, Apr. 25, 1989, 1-103494
Int. Cl.[5] H05B *1/02*
U.S. Cl. 219—497 **5 Claims**



1. A heating cooker, comprising:
a heating lamp for emitting infrared rays to heat an object to be heated;
temperature detecting means for detecting an ambient temperature around said heating lamp, and providing a signal if the ambient temperature is higher than a preset value;
output controlling means for controlling a heat output of said heating lamp by decreasing the amount of energy supplied to the heating lamp per unit of time, upon receiving the signal from said temperature detecting means; and
invalidating means for invalidating signals from said temperature detecting means for a predetermined time period after said output controlling means controls the heat output of said heating lamp.

5,063,285
COUNTING DEVICE
Joseph R. Curry, 11843 E. Cornell Cir., Aurora, Colo. 80014
Filed Oct. 11, 1989, Ser. No. 420,049
Int. Cl.[5] G06C *27/00, 1/00*
U.S. Cl. 235—114 **4 Claims**



1. A counting device comprising:
a housing having atop and a bottom with at least one window opening in the top of said housing;
means for attaching said housing to at least two fingers of one hand of a user so that said housing rests on the back surface of said hand of a user;
a plunger mounted for reciprocating movement within said housing and having one end thereof extending to the exterior of said housing, with said end extending to the exterior of said housing configured so that it may be depressed with the thumb of the same hand of the user to which said housing is attached; and
means for recording and displaying through said window opening the number of successive depressions of said

VOL 1132 ISS 1 NO 5 1991 UMI

plunger comprising a plurality of discs, each having a front and back surface and having numerals on the front surface thereof, rotatability mounted within said housing and engaging said plunger so that successive depressions of said plunger causes rotation of one or more of said discs so that successive numerals on the front surface thereof are displayed through said window opening; and

a flange rigidly fixed to and extending perpendicularly below the bottom of said housing to contact said finger of a user thereby preventing inadvertent movement of the counting device.

5,063,286

LINE IMAGE SENSOR WITH PLURAL ELEMENTS ARRANGED AT A PREDETERMINED PITCH ACCORDING TO THERMAL EXPANSION

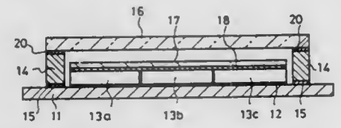
Yutaka Kaneko, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Division of Ser. No. 410,848, Sep. 22, 1989, Pat. No. 4,999,484. This application Dec. 17, 1990, Ser. No. 628,005

Claims priority, application Japan, Sep. 26, 1988, 63-240353

Int. Cl.[5] H01J *40/14*

U.S. Cl. 250—208.1 **7 Claims**



1. A multi-chip type image sensor comprising:

a base;

a plurality of sensor chips arranged into a line on said base, said sensor chips being fastened to said base by a die bonding process in which a first adhesive is used, each of sensor chips comprising silicon and a plurality of light receiving elements arranged into a line at a predetermined pitch;

a glass plate mounted on said sensor chips so as to cover said light receiving elements, said glass plate being fastened to said sensor chips by a second adhesive which hardens at a temperature lower than a curing temperature of said first adhesive; and

terminal pins supported on said base and electrically coupled to said sensor chips,

the following condition being satisfied:

$$|\alpha_3-\alpha_1|<|\alpha_2-\alpha_1|$$

where α_1 is a thermal expansion coefficient of said base, α_2 is a thermal expansion coefficient of each of said sensor chips, and α_3 is a thermal expansion coefficient of said glass plate.

5,063,287

PROCESSING CIRCUIT FOR OPTICAL COMBUSTION MONITOR

Adrian L. Trace, Solibull, Great Britain, and Mark J. Basten, Halesowen, England, assignors to Lucas Industries, Birmingham, England

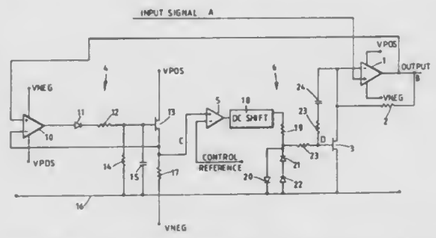
Filed May 30, 1990, Ser. No. 530,921

Claims priority, application United Kingdom, May 31, 1989, 8912462

Int. Cl.[5] H01J *40/14*

U.S. Cl. 250—214 AG **5 Claims**

1. A processing circuit for an optical combustion monitor, comprising a variable gain circuit having an input for connection to an optical transducer to receive an input signal, an output for providing an output signal having a peak amplitude, and a controllable variable gain; and gain controlling means connected to said output of said variable gain circuit for controlling the controllable variable gain of said variable gain



circuit so as to maintain substantially constant the peak amplitude of the output signal.

5,063,288

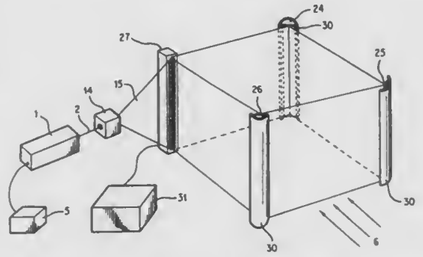
APPARATUS FOR SECURING A CONFINED SPACE WITH A LASER EMISSION

Chi-Hsueb Hsu, 4F, No. 144, Chu Lin Road, Yung Ho; Chin-Fen Huang, 2F, No. 3, Nung 13, Lane 38, Tien Yu St., Shih Lin, and Chun-Hsien Wang, 3F, No. 86, Mu Hsin Rd., Sec. 3, all of Taipei, Taiwan

Filed Aug. 23, 1989, Ser. No. 397,248

Int. Cl.[5] G01V *9/04*

U.S. Cl. 250—221 **2 Claims**



1. An apparatus for securing a confined space with a laser emission comprising:

a laser generator or tube for emitting a laser ray; a laser scattering device for converting said laser ray into a device for converting said laser ray into a divergent laser plane along a vertical plane;

reflection means spacedly arranged for sequentially reflecting said laser plane to form sequential laser planes therebetween; a sensor means having a plurality of sensor units in vertical alignment and facing reflecting laser plane from a last reflection member of the reflection means for detecting any intruder by interrupting any of the laser planes; identification means connected with sensors of the sensor means for automatically measuring a size and intrusion speed of the detected intruder;

means in combination with said measurement means for producing an inducted signal after a process of computation; means connected with the signal means to send out warning signals at least including radio communication signals as having received said inducted signal; and

a miniature receiver adapted to be carried along by a owner and sound warning signals upon having recieved said radio communication signals.

5,063,289

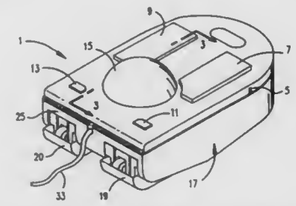
COMBINED MOUSE AND TRACKBALL

Joseph E. Jasinski, Delray Beach, Fla.; Charles H. Lingle, Nicholasville, Ky.; Richard F. Pollitt, Highland Beach, Fla., and David W. Shuman, Lexington, Ky., assignors to Lexmark International, Inc., Greenwich, Conn.

Filed Oct. 9, 1990, Ser. No. 594,893

Int. Cl.[5] G01V *9/04*; G06M *7/00*; H01J *40/14*

U.S. Cl. 250—221 **14 Claims**



1. A combined mouse and trackball comprising a control ball to produce signals describing the rotation of said ball, a first cover and a second cover between which said ball is supported for rotation with only one continuous surface of said ball extending past said covers, at least one of said covers being hinged for movement between a retracted position and an extended position, a first latch to latch said covers in a first position in which said one surface of said ball is opposite a flat surface, and a second latch to latch said covers in a second position in which said one surface of said ball is supported on opposite sides to frictionally engage a flat surface.

5,063,290

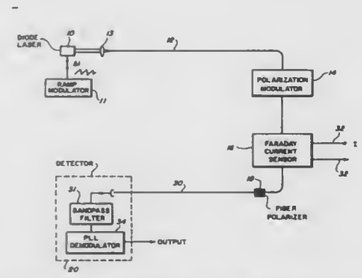
ALL-OPTICAL FIBER FARADAY ROTATION CURRENT SENSOR WITH HETERODYNE DETECTION TECHNIQUE

Alan D. Kersey, Springfield, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 14, 1990, Ser. No. 582,274

Int. Cl.[5] H01V *5/16*; G01B *9/02*

U.S. Cl. 250—227.17 **16 Claims**



1. A sensor system for detecting an electric current, said system comprising:

source means for providing an input beam of frequency-modulated linearly-polarized light;

polarization modulation means for converting said input beam of frequency-modulated light into polarization-modulated light;

current sensing means for imparting a Faraday rotation to said polarization-modulated light as a function of the magnitude of the electric current to be detected; and

means for measuring said Faraday rotation of said polarization-modulated light to determine the magnitude of said electric current.

5,063,291

OPTICAL GRATING WITH INTERPOLATOR HAVING MULTIPLYING MEANS TO PRODUCE QUADRATURE SIGNALS

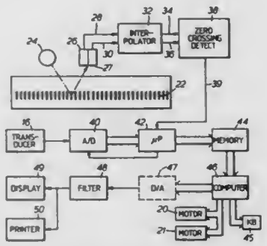
Ian K. Buehring, Leicester, United Kingdom, assignor to Rank Taylor Hobson Limited, United Kingdom

Filed Jun. 22, 1990, Ser. No. 542,707

Claims priority, application United Kingdom, Jun. 23, 1989, 8914417

Int. Cl.[5] G01D *5/34*

U.S. Cl. 250—231.16 **16 Claims**



1. An interpolator for receiving quadrature input signals at a first frequency and producing quadrature output signals at a second frequency which is a multiple of the first frequency, comprising means for producing first and second signals at double said first frequency and substantially in quadrature if the input signals are in quadrature, said producing means comprising squaring means for squaring one only of said input signals to provide said first signal and multiplying means for multiplying said input signals together to provide the second signal.

5,063,292

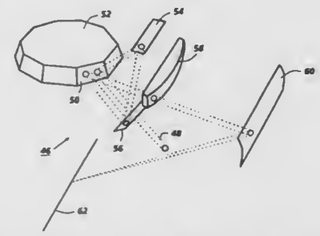
OPTICAL SCANNER WITH REDUCED END OF SCAN WOBBLE HAVING AN EVEN NUMBER OF BEAM REFLECTIONS

Harry P. Brueggemann, San Marino, Calif., assignor to Xerox Corporation, Stamford, Conn.

Filed Apr. 27, 1990, Ser. No. 515,799

Int. Cl.[5] H01J *5/16*

U.S. Cl. 250—236 **8 Claims**



1. An optical scanning system for reducing wobble at the ends of a scan line in a scan plane comprising:

a rotating polygon having a plurality of facets,

a collimated laser beam directed onto one of said facets from a location offset below the scan plane,

a mirror system to cause an even number of reflections of said laser beam before said laser beam is reflected off said facet a second time,

VOL 1132 ISS 1 NO 5 1991 UMI

a cylindrical scan lens system which focuses in the scan plane said laser beam twice reflected off said facet to said scan line, and

a cylindrical mirror which focuses in a cross-scan plane said laser beam which has passed through said scan lens system to said line.

5,063,293

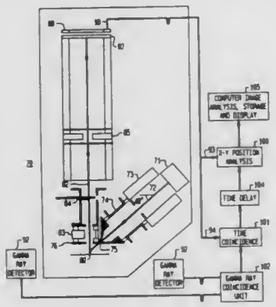
POSITRON MICROSCOPY

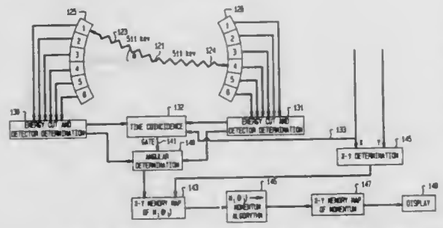
Arthur Rich, and James C. Van House, both of Ann Arbor, Mich., assignors to The University of Michigan, Ann Arbor, Mich.

Continuation of Ser. No. 359,951, Jun. 1, 1989, abandoned, which is a division of Ser. No. 118,550, Nov. 9, 1987, Pat. No. 4,864,131. This application Nov. 23, 1990, Ser. No. 618,521

Int. Cl.[5] H01J *37/26*

U.S. Cl. 250—308 **10 Claims**





1. A positron microscope system for producing magnified images of a specimen target, the positron microscope system comprising:

slow positron source means for producing a source beam formed of low energy positrons;

focusing means for focusing said source beam and directing said low energy positrons of said source beam onto the specimen target;

single particle image enhancement means for producing an image responsive to a target beam formed of particles emitted from the specimen target, said single particle image enhancement means being characterized by;

target plate means having a region having first and second dimensions for receiving the incident particle, said target plate means emitting a multiplicity of electrons in response to the incident particle; and

resistive anode encoder means arranged to receive at least one of said multiplicity of electrons from said target plate means, for providing a location signal responsive to the location of impingement of said incident particle in said region of said target plate means, and a timing signal responsive to a timing of said impingement of said incident particle in said region of said target plate means;

gamma ray detector means for detecting gamma rays which issue from the specimen target and producing a gamma ray detector signal responsive to said detection of said gamma rays; and

timing coincidence means for producing a signal responsive to a timing coincidence between said timing signal and said gamma ray detector signal.

5,063,294

CONVERGED ION BEAM APPARATUS

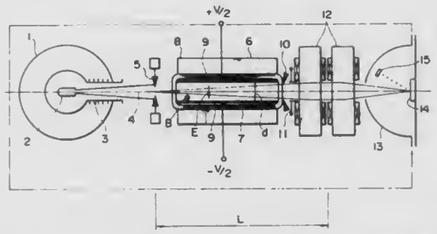
Yutaka Kawata; Ken-ichi Inoue; Kiyotaka Ishibashi; Akira Kobayashi, all of Kobe; Koji Inoue, Tokyo; Norio Suzuki; Akio Arai, both of Kobe; Kaneo Yamada, Akashi; Keizo Tokushige, Matsubara; Hirofumi Fukuyama, Kobe; Shigeto Adachi, Kobe; Yukito Furukawa, Kobe; Sunao Takahashi, Kobe, and Makoto Kimura, Kobe, all of Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed May 17, 1990, Ser. No. 524,432

Claims priority, application Japan, May 17, 1989, 1-125373; Aug. 8, 1989, 1-206457; Nov. 20, 1989, 1-302392; Jan. 11, 1990, 2-4841; Jan. 22, 1990, 2-13284; Mar. 7, 1990, 2-57501

Int. Cl.[5] G01W *23/00*

U.S. Cl. 250—309 **19 Claims**



1. A converged ion beam device for an apparatus wherein a high energy charge beam in the form of an ion beam from an accelerator is introduced in a spot to a specimen by way of an ion type classifying device, comprising an objective collimator and a beam collector to perform reforming of a surface or an analysis of physical properties and/or composition of a small area of the specimen, wherein said objective collimator is disposed just on the downstream of said accelerator, and an analyzing component for analyzing an ion type and/or energy of said ion beam is interposed in a drift space in an object distance between said objective collimator and a quadruple pole magnetic lens.

5,063,295

SLIT DISPOSITION STRUCTURE OF FIXED SLIT DISK IN PULSE ENCODER

Eiki Asaba; Yoshihito Tanabe, both of Yamanashi, and Kiyoshi Tagami, Hachioji, all of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

PCT No. PCT/JP89/01303, § 371 Date Aug. 23, 1990, § 102(e) Date Aug. 23, 1990, PCT Pub. No. WO90/07693, PCT Pub. Date Jul. 12, 1990

PCT Filed Dec. 26, 1989, Ser. No. 571,545

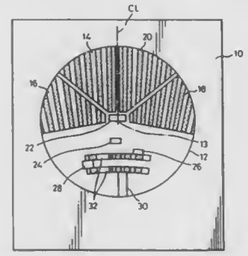
Claims priority, application Japan, Dec. 28, 1988, 63-329117

Int. Cl.[5] G01D *5/34*

U.S. Cl. 250—231.14 **2 Claims**

1. A slit disposition structure of a fixed slit disk in a pulse encoder having a light emitting diode, a rotary slit disk, a fixed slit disk, and a light receiving device, having absolute type slits and a plurality of increment type slit groups, and detecting the angular position or rotational speed of a rotary body, characterized in that the plurality of increment type slit groups are disposed radially on said fixed slit disk around the optical axis

of one said light emitting diode and in that absolute type slits are disposed around said optical axis and inside an arc formed



by the extension of the outer circumference of said plurality of increment type slit groups.

5,063,296

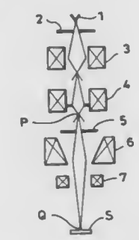
ELECTRON-OPTICAL SYSTEM FOR MAKING A PSEUDOPARALLEL MICRO ELECTRON-BEAM

Shigeki Hayashi, Kyoto, Japan, assignor to Shimadzu Corporation, Kyoto, Japan

Filed May 31, 1990, Ser. No. 531,362

Int. Cl.[5] H01J *37/141*

U.S. Cl. 250—396 ML **2 Claims**



1. An electron-optical system comprising:

a thermal electron source for emitting a diverging electron beam;

a condenser electron-lens assembly for converging said diverging electron beam to a first converging point; and

an asymmetric objective electron lens arranged, with its smaller field-gradient side directed to said condenser electron-lens assembly, for producing a micro electron beam having a beam converging angle of the order of 1×10^{-3} radian by converging to a final converging point a diverging electron beam proceeding from said first converging point, said micro electron beam giving an electron beam spot with a diameter not larger than 1 μm at said final converging point.

5,063,297

APPARATUS FOR DETECTING FLUORESCENCE OF A LUMINESCENT MATERIAL

James M. Hardenbrook, Longwood; Richard E. Williams, Lake Mary, and Mark L. Daniel, Deltona, all of Fla., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation-in-part of Ser. No. 364,194, Jun. 8, 1989, Pat. No. 5,030,832. This application Apr. 27, 1990, Ser. No. 515,203

The portion of the term of this patent subsequent to Jul. 9, 2008, has been disclaimed.

Int. Cl.[5] G01J *1/58*

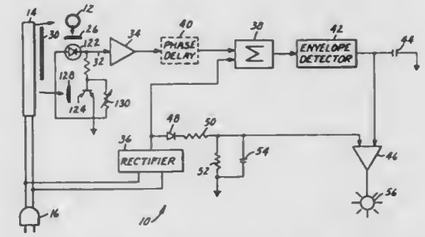
U.S. Cl. 250—458.1 **14 Claims**

1. An apparatus for detecting the fluorescence of a target luminescent material being excitable at an excitation wavelength and fluorescing at a fluorescing wavelength, comprising:

a discharge lamp adapted to be coupled to an alternating current voltage source operating at a source frequency and arranged to excite said target luminescent material at approximately said excitation wavelength;

first response means arranged to be responsive to said target luminescent material at approximately said fluorescing wavelength for providing a first electrical response as a function of the electromagnetic energy received from said target luminescent material at said fluorescing wavelength;

second response means arranged to be responsive to said discharge lamp for providing a second electrical response as a function of the electromagnetic energy received from said discharge lamp;



said first response means and said second response means being arranged such that said first electrical response opposes said second electrical response creating a combined output signal;

a band pass filter coupled to said combined output signal selected to pass predominantly signals of a frequency of approximately twice said source frequency to produce a filtered output signal;

a phase detector coupled to said band pass filter to detect the phase of said filtered output signal and producing a first response when said filtered output signal is of a first phase and producing a second response when said filtered signal is of a second phase; and

an indicator coupled to said phase detector to indicate the condition of said fluorescence of said target luminescent material as a function of at least one of said first response and second response.

5,063,298

IRRADIATOR FOR DOSIMETER BADGES

Joseph D. Freitas, Jr., BelleMead, N.J.; Yoshikazu Tatsumi, Roselle, Ill., and Hiroyuki Furukawa, River Edge, N.J., assignors to Matsushita Electric Corporation of America, Secaucus, N.J.

Filed Jun. 15, 1990, Ser. No. 538,994

Int. Cl.[5] G21F *5/02*

U.S. Cl. 250—497.1 **13 Claims**

1. An apparatus for uniformly irradiating a plurality of materials with a known dose of radiation comprising:

(a) a radiation shield housing having a channel provided therein;

(b) a radiation source placed at one end of said channel for transmitting a radiation beam therethrough;

(c) means for positioning at least one of said plurality of materials at the other end of said channel, said means for positioning being controlled to expose each of said plurality of materials to said known dose of radiation;

(d) a radiation attenuator for reducing the intensity of said radiation beam to obtain a lower dose rate;

(e) means for interposing said radiation attenuator between said radiation source and said one material positioned at said other end of said channel to select said lower dose rate; and

VOL 1132 ISS 1 NO 5 1991 UMI

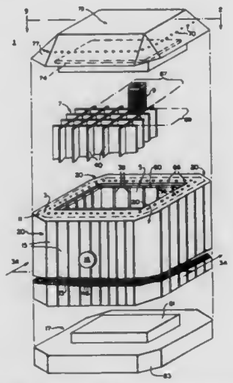
(f) a filter means interposed between said radiation beam and said one material to prevent undesirable radiation generated in said radiation shield housing from impinging upon said one material during irradiation thereof.

5,063,299

LOW COST, MINIMUM WEIGHT FUEL ASSEMBLY STORAGE CASK AND METHOD OF CONSTRUCTION THEREOF

Larry E. Efferding, Richland, Wash., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 18, 1990, Ser. No. 553,515
Int. Cl.[5] G21F *5/00*
U.S. Cl. 250—507.1 **40 Claims**



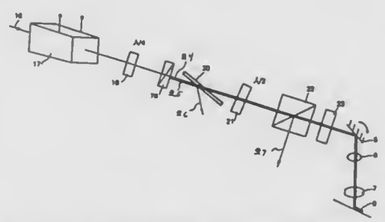
1. A cask for the storage of a radioactive structure having a polygonal cross-section, comprising:
- a shield wall assembly for defining a cask interior that is polygonal in cross-section and complementary in shape to said structure, consisting of a plurality of flat metallic wall plate members having uniform thicknesses and mutually parallel and adjoined side edges;
- a floor plate attached to the bottom of said wall assembly, and
- a lid detachably connectable to the top of the wall assembly.

5,063,300

METHOD AND APPARATUS FOR DETERMINING LINE CENTERS IN A MICROMINIATURE ELEMENT

Michael Kallmeyer, Boeblingen, and Dietmar Wagner, Stuttgart, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 28, 1990, Ser. No. 546,216
Claims priority, application Fed. Rep. of Germany, Jul. 8, 1989, 89112541
Int. Cl.[5] G01N *21/86*
U.S. Cl. 250—561 **10 Claims**



9. A method for determining the center of a line on a workpiece by use of a light beam and the measurement of light reflected by the line on the workpiece comprising the following steps:
- generating a light beam,
- pulsing said light beam,
- splitting said light beam into a direct beam and a reference beam,
- directing and focussing the direct beam on a line on a workpiece,
- scanning said light beam across the line,
- collecting light reflected from the scanned line,
- developing an analog electrical measurement signal of the light reflected by the scanned line and an analog electrical reference signal of the reference beam,
- filtering said measurement signal and said reference signal by eliminating the DC and the noise components in said electrical measurement signal and in said electrical reference signal, respectively,
- generating a filtered measurement signal having maximum and minimum values,
- digitizing the maximum and minimum values of said filtered measurement signal and of said filtered reference signal,
- processing of said digitized values of said measurement signal and said reference signal to generate a correlated measurement signal and eliminating noise in said correlated signal,
- processing said digitized values of said correlated measurement signal to generate correlated sine shaped curves, a first of said sine shaped curves being generated by computing the difference quotient of the curve created by the digitized maximum values, and a second of said sine shaped curves by computing the difference quotient of the curve created by the digitized minimum values, and
- determining the intersection point of said sine shaped curves with the zero line to establish the center of the scanned line.

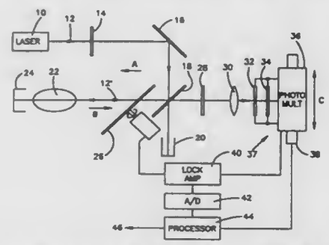
5,063,301

NONINVASIVE METHOD AND APPARATUS USING COHERENT BACKSCATTERING FOR PROCESS CONTROL

Leonid A. Turkevich, Hudson, and Kee-Ju Choi, Euclid, both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Dec. 21, 1989, Ser. No. 454,367
Int. Cl.[5] G01N *15/06*
U.S. Cl. 250—574 **9 Claims**

1. A method for determining a size for particles of a known concentration in a sample of a colloidal or particulate suspension, the method comprising: illuminating the sample with a source of coherent electromagnetic radiation; measuring a coherent backscattering line shape; and computing the size by comparing the measured coherent backscattering line shape to a plurality of known coherent backscattering line shapes corresponding to known sizes.

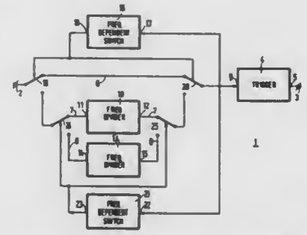


5,063,302

WIDE BAND TRIGGER SYSTEM HAVING SWITCHABLE SIGNAL PATHS FOR EXTENDING THE EFFECTIVE FREQUENCY RANGE

Wilhelmus D. H. van Groningen, Eindhoven, and Hubertus A. Caris, Enschede, both of Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 16, 1989, Ser. No. 324,377
Claims priority, application Netherlands, Mar. 21, 1988, 8800697
Int. Cl.[5] H03K *5/00*; G01R *13/24*; H03L *7/00*
U.S. Cl. 307—271 **18 Claims**



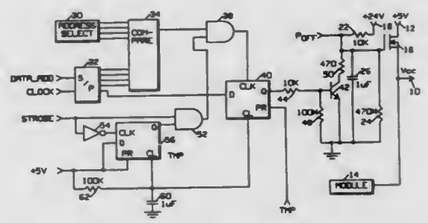
1. A system for triggering an oscilloscope comprising:
- an input terminal for a repetitive trigger signal,
- a first signal path,
- a second signal path parallel to the first signal path and which includes a first frequency division device for dividing the frequency of the trigger signal applied thereto,
- a trigger device for generating triggering pulses for said oscilloscope when the repetitive trigger signal is supplied thereto, and
- switching means for selectively switching said first and second signal paths between said input terminal and an input of said trigger device, wherein the switching means further comprises at least one frequency-dependent switching device responsive to the trigger signal for switching the signal paths depending on the frequency of the trigger signal.

5,063,303

SOFT START CIRCUIT

Edward J. Sackman, and Donald L. Wray, both of Sunrise, Fla., assignors to Racal Data Communications Inc., Sunrise, Fla.

Filed Feb. 8, 1991, Ser. No. 652,850
Int. Cl.[5] H03K *3/00*
U.S. Cl. 307—296.1 **10 Claims**



1. A circuit for providing soft starting current for circuit modules which may be selectively plugged into a bus, said bus including an active power supply connection, the circuit comprising in combination:
- a very low drain to source resistance field effect transistor having a gate, a drain, a source and a current path from said power supply through said drain and said source for supplying power to said module when said field effect transistor is turned on;
- a capacitor;
- a resistor; and
- means, responsive to plugging in said module, for applying current through said resistor to charge said capacitor and slowly turn on said field effect transistor to supply power to said module; whereby,
- the power at said module supplied through said field effect transistor is slowly increased to its quiescent level thereby inhibiting voltage sags at said bus and current surges into said module.

5,063,304

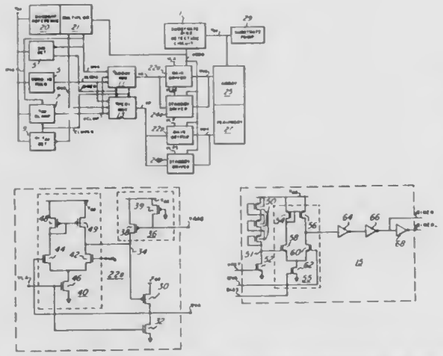
INTEGRATED CIRCUIT WITH IMPROVED ON-CHIP POWER SUPPLY CONTROL

Narasimhan Iyengar, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Apr. 27, 1990, Ser. No. 515,977
Int. Cl.[5] H02J *7/00*; G05F *1/56, 5/08*; H03K *3/027*
U.S. Cl. 307—296.6 **16 Claims**

1. An integrated circuit, comprising:
- functional circuitry biased at a bias node;
- a terminal for receiving a power supply voltage; and

VOL 1132 ISS 1 NO 5 1991 UMI



a circuit, coupled to said terminal, for biasing said bias node of said functional circuitry with a clamped voltage responsive to said power supply voltage at said terminal exceeding a first limit.

5,063,305

CURRENT MIRROR AMPLIFIER CIRCUIT

Hiroshi Minami, and Koreaki Fujita, both of Itami, Japan, assignors to Mitsubishi Denki Kabushik Kaisha, Tokyo, Japan

Division of Ser. No. 218,888, Jul. 14, 1988, Pat. No. 4,907,201, which is a continuation of Ser. No. 46,509, May 6, 1987, Pat. No. 4,767,942. This applicatioo Apr. 14, 1989, Ser. No. 338,896
Claims priority, application Japan, May 7, 1986, 61-104292
The portion of the term of this patent subsequent to Aug. 30, 2005, has been disclaimed.
Int. Cl.[5] H03K *3/01, 3/353;* **H03F** *3/45*
U.S. Cl. 307—304 **4 Claims**

1. A transistor circuit, comprising:

first and second voltage amplifier circuits, each including:

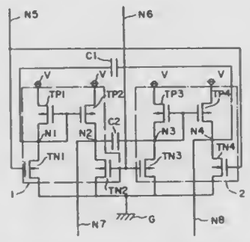
first and second active loads;

a first field-effect drive transistor, connected to pull current through said first active load, and a second field-effect drive transistor, connected to pull current through said second active load;

said first drive transistor and said first active load being connected at a first node, which is also connected to regulate the impedance of said second active load;

said second drive transistor and said second active load being connected at a second node, which is also connected to provide an output signal of said voltage amplifier;

a first input signal being connected to said first drive transistor of said first amplifier and to said second drive transistor of said second amplifier, and a second input signal being connected to said second drive transistor of said first



amplifier and to said first drive transistor of said second amplifier;

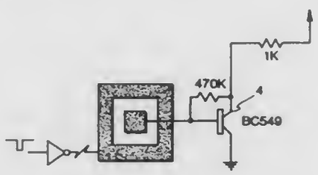
said second node of said first voltage amplifier being coupled to partially drive said first node of said second voltage amplifier, and said second node of said second voltage amplifier being coupled to partially drive said first node of said first voltage amplifier.

5,063,306

PROXIMITY SENSING DEVICE

Jeffery D. Edwards, Como, Australia, assignor to Intellect Electronics Ltd., Australia

PCT No. PCT/AU86/00043, § 371 Date Sep. 24, 1987, § 102(e) Date Sep. 24, 1987, PCT Pub. No. WO87/04851, PCT Pub. Date Aug. 13, 1987
Continuation of Ser. No. 131,194, Sep. 24, 1987, abandoned. This PCT application Feb. 20, 1986, Ser. No. 525,294
Claims priority, application Australia, Jan. 30, 1986, PH04377
Int. Cl.[5] H03K *00/00;* **G06G** *7/12;* **G01N** *27/00*
U.S. Cl. 307—308 **10 Claims**



1. A proximity sensing device comprising:

a sensor including a planar capacitor having a central region and an outer region, the capacitance value of said planar capacitor being substantially unaffected by the presence of a proximity body adjacent to said sensor;

means for forming a spiked output in response to a drive input pulse having at least one stepped edge, said planar capacitor forming part of said means for forming a spiked output pulse;

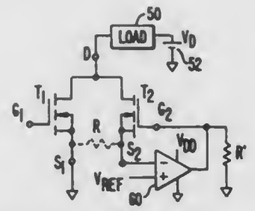
amplitude comparator means in circuit connection with said means for forming a spiked output pulse for receiving said spiked output pulse and repeatedly comparing the amplitude of said spiked output pulse with a reference datum, the amplitude of said spiked output pulse being influenced by said proximity body located adjacent said sensor, said amplitude comparator means providing a proximity sensing output signal when the amplitude of said spiked output pulse is reduced as compared with said reference datum, said proximity sensing output signal thereby providing an indication of whether said proximity body is located adjacent said sensor.

5,063,307

INSULATED GATE TRANSISTOR DEVICES WITH TEMPERATURE AND CURRENT SENSOR

Nathan Zommer, Los Altos, Calif., assignor to IXYS Corporation, San Jose, Calif.

Filed Sep. 20, 1990, Ser. No. 585,847
Int. Cl.[5] G05F *3/26;* **H01L** *29/78*
U.S. Cl. 307—310 **6 Claims**



1. A semiconductor device in combination with temperature sensing circuitry comprising:

a first insulated gate transistor having a first drain node, a first gate node, and a first source node;

a second insulated gate transistor, monolithic with and much smaller than said first transistor, having a second drain node, a second gate node, and a second source node;

said first and second drain nodes having a common connection;

a resistor coupled between said first and second source nodes;

means defining a reference voltage; and

an operational amplifier having a first input terminal coupled to said reference voltage, a second complementary input terminal coupled to said second source node, and an output terminal coupled to said second gate node;

whereupon when current flows from said second drain node, through said second gate insulated transistor, through said resistor, and to said second source node, the voltage appearing at said second gate terminal provides a direct measure of the temperature of said second insulated gate transistor.

5,063,308

OUTPUT DRIVER WITH STATIC AND TRANSIENT PARTS

Shekhar Borkar, Portland, Oreg., assignor to Intel Corporation, Santa Clara, Calif.

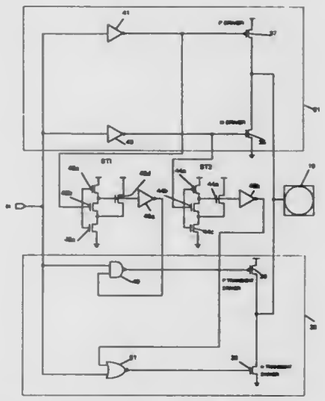
Division of Ser. No. 287,915, Dec. 21, 1988, Pat. No. 4,975,598. This application Jan. 11, 1990, Ser. No. 463,406
The portion of the term of this patent subsequent to Dec. 4, 2007, has been disclaimed.
Int. Cl.[5] H03K *17/16*
U.S. Cl. 307—443 **5 Claims**

1. In a large scale integrated circuit formed by a predetermined process, said circuit including at least one output driver comprising:

static means coupled to a driver input of said output driver for generating an output of said output driver as a function of said driver input;

level detection means coupled to said static means for monitoring said static means and generating first and second signals indicating that said output is beginning to change from a first logic level to a second logic level and from said second logic level to said first logic level;

transient means coupled to said static means and said level detection means operating substantially only during transitions i) from said first logic level to said second logic level for assisting the output of said static means to reach the second logic level and ii) from said second logic level to said first logic level for assisting the output of said static means to reach the first logic level and thereby reduce a rate of change of current flowing through said output driver; wherein said static means comprises:



a P transistor driver coupled to an N transistor driver;

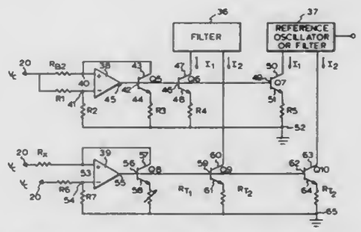
a first predriver having an input coupled to said driver input and having an output coupled to said P transistor driver and a second predriver having an input coupled to said driver input and having an output coupled to said N transistor driver.

5,063,309

HIGH FREQUENCY CONTINUOUS TIME FILTER

Richard G. Yamasaki, Torrance, Calif., assignor to Silicon Systems, Inc., Tustin, Calif.

Filed Mar. 28, 1990, Ser. No. 500,778
Int. Cl.[5] H03K *5/00;* **H04B** *1/00*
U.S. Cl. 307—521 **15 Claims**



1. A continuous time filter circuit comprising:

at least one filter element having a first equivalent resistance and a first equivalent capacitance, said first equivalent resistance dependent on a first and second current and the product of said first equivalent capacitance with said equivalent resistance dependent on a current ratio of said first and second currents;

a first current generating means coupled to said filter element for generating said first current;

a second current generating means coupled to said first filter element for generating said second current;

said second current dependent on a ratio of resistance between a first resistor and a second resistor coupled to said second current generating means, said first resistor being an adjustable resistor;

VOL 1132 ISS 1 NO 5 1991 UMI

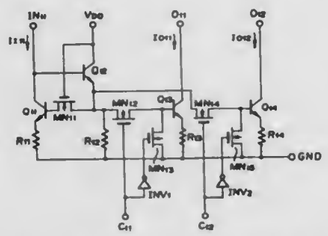
an oscillating means coupled only to said first and second current generating means during a first mode of operation, said oscillating means providing a reference frequency.

5,063,310

TRANSISTOR WRITE CURRENT SWITCHING CIRCUIT FOR MAGNETIC RECORDING

Eiji Shinozaki, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Nov. 16, 1990, Ser. No. 614,510
Claims priority, application Japan, Nov. 17, 1989, 1-299341
Int. Cl.[5] H03F *3/04*
U.S. Cl. 307—570 **17 Claims**



1. A transistor circuit comprising a current mirror circuit including an input current terminal, a first, second, third and fourth bipolar transistors, and first and second output current terminals; said first bipolar transistor being connected to said input current terminal and a source potential to produce a base current for each of said second, third and fourth bipolar transistors, said second bipolar transistor constituting an input-side transistor connected to said input current terminal, and said third and said fourth bipolar transistor constituting output-side transistors connected to said output current terminals, respectively, and said second, third and fourth bipolar transistors being coupled to a reference potential and supplied with said base current; and

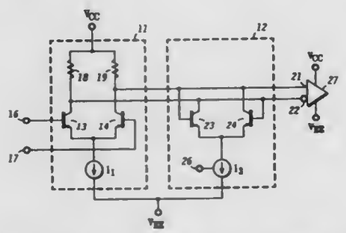
an output-side transistor on-off control circuit including first and second MOS transistors connected to the bases of said third and said fourth bipolar transistor for on-off switching of the base currents thereto in response to control signals applied to said first and second MOS transistors through first and second control terminals, respectively.

5,063,311

PROGRAMMABLE TIME DELAY CIRCUIT FOR DIGITAL LOGIC CIRCUITS

Mavin C. Swapp, Mesa, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jun. 4, 1990, Ser. No. 533,231
Int. Cl.[5] H03K *5/159;* **G06G** *7/12;* **H03G** *3/10*
U.S. Cl. 307—603 **10 Claims**



1. A logic circuit having first and second differential inputs and first and second differential outputs which are responsive to the inputs comprising: a means for delaying a response at one of the outputs when a change occurs at the differential inputs, wherein the means for delaying is controlled by an external signal and is coupled to each of the differential outputs, wherein the means for delaying a response further comprises

a first transistor having a collector, base, and emitter, wherein the collector of the first transistor is coupled to the first differential output and the base of the first transistor is coupled to the second differential output; and

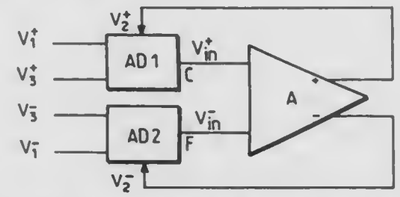
a second transistor having a collector, base, and emitter, wherein the collector of the second transistor is coupled to the second differential output and the base of the second transistor is coupled to the first differential output, and the emitter of the second transistor is coupled to the emitter of the first transistor.

5,063,312

DELAY CIRCUIT WITH ADJUSTABLE DELAY

Stéphane Barbu, Caen, and Laurent Le Pailleur, Herouville St. Clair, both of France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 27, 1990, Ser. No. 618,778
Claims priority, application France, Nov. 28, 1989, 89 15624
Int. Cl.[5] H03K *5/13, 5/159*
U.S. Cl. 307—603 **8 Claims**



1. A delay circuit with adjustable delay employing a switching flip-flop which comprises: a differential amplifier having a first and a second input and a first and a second output, the first and second output being feedback-looped respectively onto the first and the second input so as to produce said switching flip-flop, the looping including a first and a second adder, each adder having a first, a second and a third input and an output, said first inputs of the first and second adder being connected to respectively the first and second output of the differential amplifier to produce said feedback looping, the second inputs being connected respectively to a first and a second terminal to receive a signal to be delayed (V_1^+, V_1^-) and the third inputs being adapted to receive a first and a second control voltage ($V_3^+V_3^-$), said delay being a function of the difference between the first and the second control voltage (V_3^+, V_3^-), and the outputs of the first and second adders being connected respectively to the first and second inputs of the differential amplifer.

5,063,313

DELAY CIRCUIT EMPLOYING DIFFERENT THRESHOLD FET'S

Shigeru Kikuda; Hiroshi Miyamoto, and Michihiro Yamada, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 155,541, Feb. 12, 1988. This application Dec. 29, 1989, Ser. No. 459,238
Claims priority, application Japan, Feb. 25, 1987, 62-41837
Int. Cl.[5] H03K *5/13, 17/284, 17/30*
U.S. Cl. 307—605 **20 Claims**

1. A delay circuit comprising:

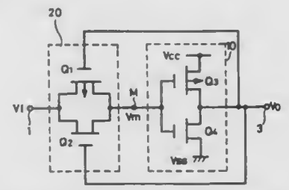
an input for receiving an input signal;

an output for outputting an output signal;

transmission gate means having a first field effect device of a certain conductivity type and a second field effect device of the opposite conductivity type each having the source, drain and insulated gate with said source and drain being arranged in operational relation wherein

respective sources of said first and second field effect devices are directly connected together at a node to form a first terminal of said transmission gate means,

respective drains of said first and second field effect devices are directly connected together at a node to form a second terminal of said transmission gate means,



one of said first and second terminals of said transmission gate means constitutes said input; and

inverter means connected between a power supply and the ground, wherein

the input of said inverter means is connected to said output of said transmission gate means,

the output of said inverter means constitute said output, and

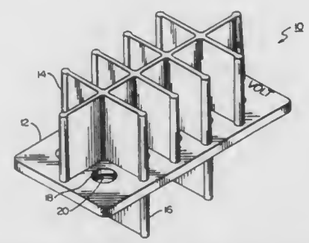
the gates of said first and second field effect devices of said transmission gate means are directly connected together to said output.

5,063,314

MISWIRE-PROOF INTERCONNECTING TERMINAL BLOCK

John J. DeSantis, Dewitt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Oct. 29, 1990, Ser. No. 604,537
Int. Cl.[5] H01R *9/16*
U.S. Cl. 310—71 **3 Claims**



1. A miswire proof phase barrier means comprising:

a plate of a non-arc tracking material having a first side and a second side and a plurality of spaced bores having essentially parallel axes and extending through said plate;

a plurality of jumper bars having at least two bores which are spaced in accordance with said spacing of said spaced bores in said plate;

each of said jumper bars being located on and attached to said first side of said plate in registration with associated ones of said bores in said plate;

first axial phase barrier means located on said first side and generally parallel to said axes of said bores in said plate and separating each of said jumper bars and said associated bores in said plate from all other bores on said first side of said plate; and

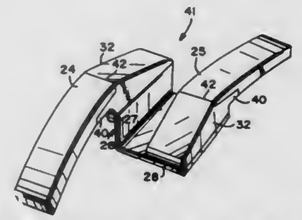
second axial phase barrier means located on said second side and generally parallel to said axes of said bores in said plate and separating each of said bores in said plate from each of the other bores in said plate.

5,063,315

ELECTRICAL COIL CONNECTOR FOR DYNAMOELECTRIC MACHINE WINDINGS

Paul C. Rasmussen, Schaghticoke, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Jan. 3, 1989, Ser. No. 292,978
Int. Cl.[5] H02K *3/28, 3/00*
U.S. Cl. 310—71 **28 Claims**



1. An electrical connector for laterally spaced apart opposite ends of a pair of adjacent electrical coils of a dynamoelectric machine comprising in combination

a) a pair of connector end pieces each of which is adapted for connection to a respective one of said coil ends, and

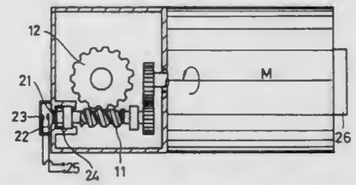
b) a bridging member adapted to multiplanar bridge the said laterally spaced coil ends for connection to said connector end pieces.

5,063,316

AUTOMATIC DOOR PROTECTIVE REVERSING SWITCH WITH WORM GEAR

C. E-Ming, No. 2, Lane 519, Chung Ho Rd., Yung Ho City, Taipei Hsien, Taiwan

Continuation of Ser. No. 335,403, Apr. 10, 1989, abandoned. This application Jun. 26, 1990, Ser. No. 542,663
Int. Cl.[5] F16K *31/50;* **H01H** *3/16;* **H02K** *7/06*
U.S. Cl. 310—83 **1 Claim**



1. An automatic door protective device comprising:

a motor having an output shaft; a driving gear mounted on said shaft; a driven gear shaft and driven gear thereon engaging said driving gear; a worm mounted on said gear shaft coaxially with said driven gear; a worm wheel shaft and a worm wheel mounted thereon engaging said worm; pulley means coaxially mounted on said wheel shaft for opening and closing said door responsive to rotation of said output shaft; a leaf spring disposed a predetermined distance from the end of said gear shaft opposite said driven gear; and electrical contact disposed adjacent and normally spaced a predetermined distance away from said leaf spring; an insulator disposed between the end of said gear shaft and said leaf spring; cushion means supporting said gear shaft and normally urging said worm into engagement with said worm wheel; signal means electrically coupled between said left spring, said electrical contact and said motor for reversing rotation of said motor when said door encounters an obstacle forcing said pulley means to stop rotation of the wheel shaft and worm wheel whereby the rotation of said motor will axially displace said worm and gear shaft until the end thereof forces said

VOL 1132 ISS 1 NO 5 1991 UMI

leaf spring into electrical engagement with said electrical contact closing an electrical circuit.

5,063,317

ELECTRIC MOTOR, ESPECIALLY AN ELECTRIC SMALL-POWER MOTOR FOR DRIVING WIPER SYSTEMS OF MOTOR VEHICLES

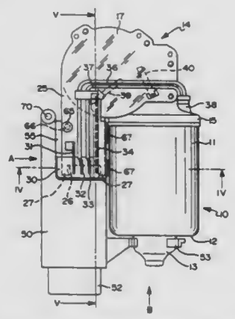
Rainer Bruhn, Karlsruhe, Fed. Rep. of Germany, assignor to SWF Auto-Electric GmbH, Bietigheim-Bissingen, Fed. Rep. of Germany

Filed Oct. 25, 1989, Ser. No. 427,052

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1988, 3838285

Int. Cl.[5] H02K *5/00*

U.S. Cl. 310—91 **15 Claims**



1. An electric motor for driving wiper systems of motor vehicles comprising:

a substantially cylindrical motor housing having a longitudinal axis and a bottom with a bulge extending outward from said bottom of said motor housing and aligned with said axis of said motor housing;

an electronics housing positioned beside said motor housing;

and means extending between said electronics housing and said bulge including an eye for attaching said electronics housing to said motor housing.

5,063,318

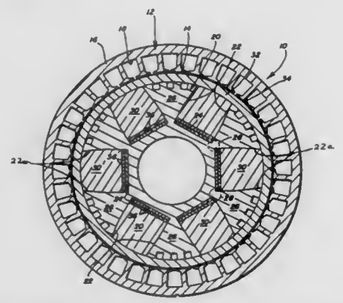
PRELOADED PERMANENT MAGNET ROTOR ASSEMBLY

W. Kyle Anderson, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Filed Aug. 25, 1989, Ser. No. 398,453

Int. Cl.[5] H02K *21/12, 1/00, 1/22*

U.S. Cl. 310—156 **9 Claims**



1. In a dynamoelectric machine of the permanent magnet type, a rotor assembly comprising:

a hub having a plurality of outwardly converging annularly spaced slots separated by outwardly diverging partition portions of the hub,

at least one said slot being defined by an outwardly facing bottom and circumferentially spaced sidewalls, said sidewalls converging in a radially outward direction only from a point spaced radially outwardly from the bottom;

a plurality of outwardly converging permanent magnets respectively disposed in the slots;

a containment shell surrounding the hub; and

wedge means between a base of each permanent magnet and a bottom of its respective slot for loading the permanent magnets radially outwardly toward the containment shell and against sides of the slots to place the partition portions of the hub under tension at least in a static condition of the rotor assembly,

said wedge means comprising first and second wedge-shaped members having spaced-apart ends with different thicknesses, each of said wedge-shaped members arranged in opposite juxtaposed relationship with the wedge members forcibly positioned in a direction axially of the rotor to bias one of the magnets radially outwardly toward the containment shell.

5,063,319

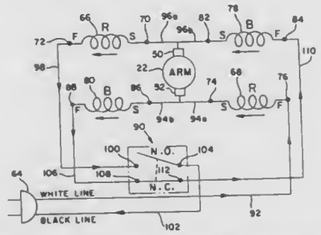
UNIVERSAL MOTOR WITH SECONDARY WINDING WOUND WITH THE RUN FIELD WINDING

John G. Mason, Rising Sun; John W. Miller, Parkton; William D. Sauerwein, Phoenix, and Stephen L. Vick, Reisterstown, all of Md., assignors to Black & Decker, Inc., Newark, Del.

Filed May 15, 1989, Ser. No. 351,995

Int. Cl.[5] H02K *3/16, 11/00;* **H02P** *3/00, 3/06*

U.S. Cl. 310—210 **31 Claims**



1. A universal electric motor having a longitudinally extending axis of rotation and comprising: an armature including a commutator and having, in terms of electrical connection, first and second sides:

a stator subassembly;

a first run field winding included in the stator subassembly and having first and second ends, the first end being connected to the first side of the armature;

a second run field winding included in the stator subassembly and having first and second ends, the first end being connected to the second side of the armature, said first and second run windings respective second ends being connectable to a source of electrical power so that the run windings and armature are connected in series with the armature electrically between the windings;

a first auxiliary field winding included in the stator subassembly and having first and second ends, the first end being connected to the first side of the armature;

a second auxiliary field winding included in the stator subassembly and having first and second ends, the first end being connected to the second side of the armature; and

switch means operable to disconnect the run windings from the source of electrical power and to connect the second ends of the respective first and second auxiliary windings together so as to change the mode of operation of the motor to an auxiliary mode.

5,063,320

FEEDER LEAD WIRE OF ROTOR FOR ELECTRIC MACHINE

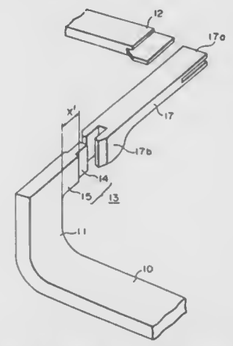
Takashi Watanabe, and Tatsuro Ishizuka, both of Hitachi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 14, 1990, Ser. No. 582,094

Claims priority, application Japan, Sep. 18, 1989, 1-240016

Int. Cl.[5] H02K *3/48*

U.S. Cl. 310—270 **8 Claims**



3. In a rotor for an electric rotating machine, comprising a rotatable shaft; an iron core rotatable with said rotatable shaft; a rotor winding wound in a laminated manner and partially extending from said iron core in an axial direction; and a feeder lead wire connected to an inner end of said rotor winding so as to supply field current to said rotor winding;

wherein said feeder lead wire has a plate-like rising portion extending radially outwardly of said rotatable shaft, and a connecting end portion extending from a side surface of an end of said plate-like rising portion in a circumferential direction of said rotatable shaft, said connecting end portion being brazed to the inner end of said rotor winding.

5,063,321

TORSIONAL VIBRATION DRIVE

Robert E. Carter, Arlington, Mass., assignor to Teldix GmbH, Heidelberg, Fed. Rep. of Germany

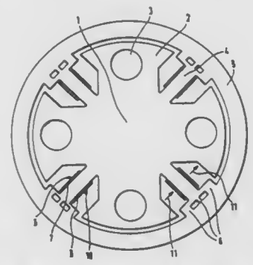
PCT No. PCT/EP88/01152, § 371 Date Aug. 24, 1990, § 102(e) Date Aug. 24, 1990, PCT Pub. No. WO89/08237, PCT Pub. Date Sep. 8, 1989

PCT Filed Dec. 14, 1988, Ser. No. 573,199

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1988, 3805631

Int. Cl.[5] H01L *41/08;* **F16F** *1/18*

U.S. Cl. 310—323 **3 Claims**



1. A torsional vibration drive for a laser gyro comprising a hub which is fastened to a base plate and is connected with a rim by way of a plurality of radial spokes, with the rim being connected with the laser gyro and holding the center of gravity of the laser gyro on the axis of the torsional vibration drive (rotation axis), the drive further comprising plates of a piezoelectric material which are applied to the lateral faces of the spokes and electrodes thereabove so as to cause the rim to perform oscillating vibrations about the axis of rotation when an alternating voltage is applied, with a flexural member being formed in each region of the transition from a spoke (**4**; **11**) to the rim (**5**; **13**), there is formed a flexural member (**6**; **15**) which exhibits great flexibility for rotation of the rim about the axis of rotation, characterized in that the flexural member (**6**) is formed of a radially extending web (**6B**) and two webs (**6A** and **6C**) which correspond to one another in the tangential direction.

5,063,322

FEED MECHANISM WITH A SLIDING MEMBER GUIDED BY A HYDROSTATIC BEARING

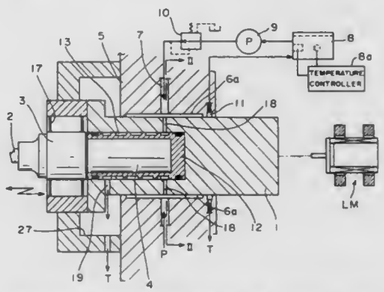
Kazuhiko Sugita, Anjo; Nohumitsu Hori, Ichinomiya, and Yasumasa Nakane, Takahama, all of Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Aug. 27, 1990, Ser. No. 572,256

Claims priority, application Japan, Aug. 30, 1989, 1-221819

Int. Cl.[5] H01L *41/08;* **F16C** *17/00*

U.S. Cl. 310—341 **6 Claims**



1. A feed mechanism wherein a sliding member is movably guided by guide surface formed on a guide base, and an additional actuator generating heat during operation and connected to a movable member to be moved is embedded in a front end of said sliding member, said feed mechanism comprising:

hydrostatic bearing means provided on said guide surfaces and each having pressure pockets to which pressurized fluid is fed to support said sliding member;

a cooling jacket at the periphery of said additional actuator and having an oil channel formed therein for removing heat generated by said additional actuator;

a cooling oil feeding channel formed in said sliding member to connect said hydrostatic bearing means and said oil channel of said cooling jacket; and

a cooling oil discharge channel formed in said sliding member to connect said oil channel of said cooling jacket and a space whose pressure is lower than that in said oil channel.

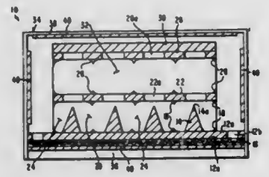
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,323

FIELD EMITTER STRUCTURE PROVIDING PASSAGEWAYS FOR VENTING OF OUTGASSED MATERIALS FROM ACTIVE ELECTRONIC AREA

Robert T. Longo, Arcadia; Zaher Bardai, Torrance; Arthur E. Manoly, Rancho Palos Verdes, all of Calif.; Ralph Forman, Rocky River, Ohio, and Randy K. Rolph, Redondo Beach, Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jul. 16, 1990, Ser. No. 552,643
Int. Cl.[5] H01J *01/30*
U.S. Cl. 313—309 **19 Claims**



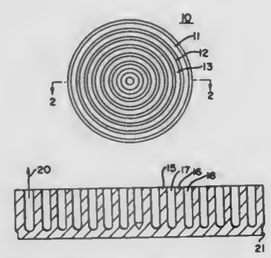
1. A field emitter structure, comprising:
an electrically conductive base;
a plurality of electrically conductive, pointed field emitters upstanding from a surface of the base;
electrode means supported above said surface, portions of the electrode means adjacent to the points of the field emitters being separated therefrom by open spaces respectively; and
passageway means interconnecting said open spaces, said passageways and open spaces being formed through an insulating layer between the base and said electrode means.

5,063,324

DISPENSER CATHODE WITH EMITTING SURFACE PARALLEL TO ION FLOW

Henry C. Grunwald, Bethlehem, Pa., assignor to ITT Corporation, New York, N.Y.

Filed Mar. 29, 1990, Ser. No. 502,078
Int. Cl.[5] H01J *1/28, 61/09*
U.S. Cl. 313—346 DC **20 Claims**



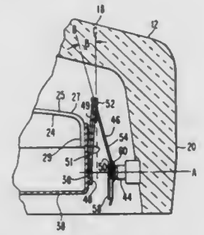
1. A dispenser cathode for use in a gas filled tube as an electron emitting surface with said cathode fabricated from a porous refractory metal interspersed with an electron emitting material, with said cathode when in operation subjected to ion back bombardment which undesirably can deplete said electron emitting material from said surface, the improvement herewith comprising:
at least one aperture located on said emitting surface and characterized in having steep vertical walls separated one from the other by a given distance such that said steep vertical walls of said at least one aperture extend to a specified depth not to exceed the thickness of said cathode with respect to said given distance whereby said at least one aperture does not pass through said cathode to enable said cathode to emit electrons when heated with said steep vertical walls operating to cause bombarding ions which impinge upon said wall to cause emitting material to deposit on the opposite wall.

5,063,325

COLOR PICTURE TUBE HAVING IMPROVED SHADOW MASK-FRAME ASSEMBLY SUPPORT

Frank R. Ragland, Jr., Lancaster, Pa., assignor to Thomson Consumer Electronics Inc., Indianapolis, Ind.

Filed Mar. 16, 1990, Ser. No. 494,364
Int. Cl.[5] H01J *29/07*
U.S. Cl. 313—405 **3 Claims**



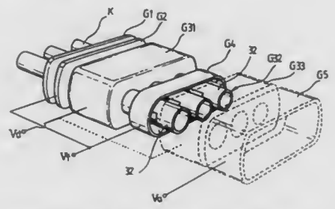
1. In a color picture tube including an evacuated glass envelope having a rectangular faceplate panel, said panel including a shadow mask assembly mounted therein by support means located at peripherally spaced positions within said panel, said support means providing thermal compensation for expansion of said shadow mask assembly, the thermal compensation being a movement of said shadow mask assembly toward a screen of said tube as the shadow mask assembly expands, said support means at each of said spaced positions including a stud attached to said glass envelope, a spring having an aperture therein engaging said stud, and a plate welded between said spring and said shadow mask assembly, the improvement comprising the combination of
said spring being angled with respect to said shadow mask assembly to provide approximately half of the required compensation, and
said plate being constructed of bimetallic materials and being of appropriate thickness and length to provide the approximately remaining half of the required compensation.

5,063,326

DYNAMIC FOCUS ELECTRON GUN

Suk-rae Cho, Suwon, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Japan

Filed Jan. 16, 1990, Ser. No. 465,494
Claims priority, application Rep. of Korea, Mar. 9, 1989, 89-2899
Int. Cl.[5] H01J *29/58*
U.S. Cl. 313—414 **4 Claims**



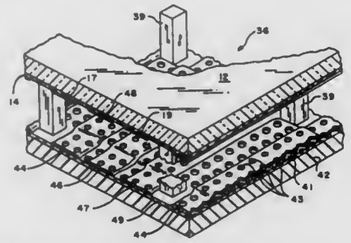
1. A dynamic focus electron gun comprising:
a triode for initially forming at least one electron beam; and
a main lens for focusing and accelerating the electron beam with dynamic electric fields including an auxiliary electrode comprising at least one cylindrical member including an electric field introducing window aperture for introducing an electric field into the auxiliary electrode and an oblong tubular electrode surrounding said member opposite said electric field introducing window aperture of said cylindrical member of the auxiliary electrode.

5,063,327

FIELD EMISSION CATHODE BASED FLAT PANEL DISPLAY HAVING POLYIMIDE SPACERS

Ivor Brodie, Palo Alto; Henry R. Gernick, Pleasanton; Christopher E. Holland, Redwood City, and Helmut A. Moessner, Saratoga, all of Calif., assignors to Coloray Display Corporation, Fremont, Calif.

Division of Ser. No. 215,603, Jul. 6, 1988, Pat. No. 4,923,421.
This application Jan. 29, 1990, Ser. No. 471,927
Int. Cl.[5] H01J *9/24*
U.S. Cl. 313—482 **5 Claims**



1. An electronic device comprising:
an array of field emission cathodes providing an electron emitting surface;
a display panel having a face including an anode opposing said surface; and
a plurality of prebaked spacers of uniform height of an organic polymer and substantially free of volatile material, said spacers extending between said surface of said face;
said electron emitting surface and said display panel being sandwiched together with said spacers defining a space therebetween, said space being subjected to a vacuum during emission of electrons from said field emitting surface to said display panel.

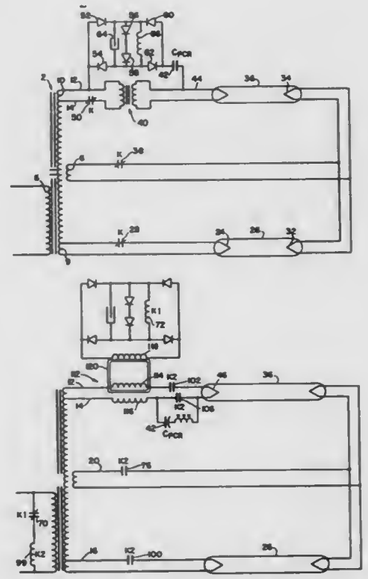
5,063,328

ENERGY SAVING CIRCUIT FOR DISCHARGE TUBES

John F. Walton, 6853 Strata St., McLean, Va. 22101

Continuation of Ser. No. 942,710, Dec. 17, 1986, abandoned.
This application May 26, 1988, Ser. No. 199,279
Int. Cl.[5] H05B *39/00*
U.S. Cl. 315—96 **17 Claims**

1. In a circuit for energizing and including at least one discharge type tube and a ballast with a primary winding and at least two secondary windings, filament circuits for connecting each filament of a discharge type tube across a different secondary of a ballast each secondary winding providing sufficient voltage to heat the filaments of a discharge type tube to incandescence; the voltage between the secondary windings being sufficient to induce plasma current through a discharge type tube; a filament control circuit comprising:
means responsive to plasma current through a discharge type tube to substantially terminate current through at least one of the filament circuits;
a current dropping capacitor connected in series with said responsive means between one of said secondary windings and a filament of a tube,
an isolation circuit inserted between said one of said secondary windings and said filament of the tube to which said capacitor is connected,
a relay having a coil and a plurality of normally closed contacts with at least one contact in series with each said filament circuit,
said coil maintains said current through said discharge tube, and



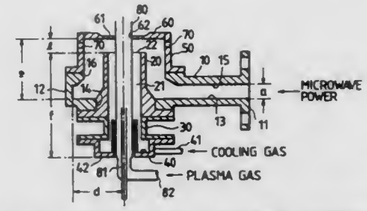
further said means breaking the continuity of a region of said one filament circuit i parallel with said coil upon establishment of plasma current through said tube whereby said coil is energized and all of said filament circuits are opened.

5,063,329

MICROWAVE PLASMA SOURCE APPARATUS

Yukio Okamoto, Sagamihara, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 5, 1990, Ser. No. 577,767
Claims priority, application Japan, Sep. 8, 1989, 1-231741
Int. Cl.[5] H05H *1/46*
U.S. Cl. 315—111.21 **48 Claims**

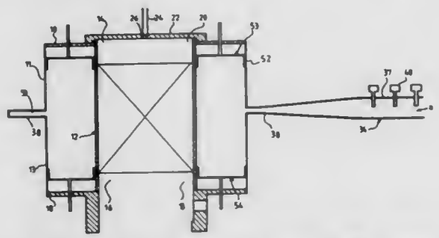


1. A microwave plasma source apparatus comprising:
a plane waveguide having an open end through which to introduce microwave power and an end plate located opposite to said open end;
a cylindrical coaxial waveguide having the central axis thereof located one quarter of the wavelength of said microwave power away from said end plate of said plane waveguide, an inner and an outer conductor of said cylin-

VOL 1132 ISS 1 NO 5 1991 UMI

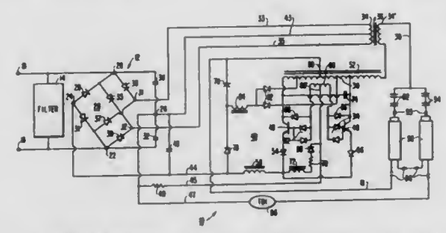
drical coaxial waveguide being coupled respectively with a bottom and an upper wall of said plane waveguide; and a discharge tube located on the central axis of said inner conductor of said cylindrical coaxial waveguide.

5,063,330
PLASMA REACTOR
Philippe Leprince, Gif-sur-Yvette; Patrick Chollet, Les Ulis, and Serge Saada, Kremlin-Bicetre, all of France, assignors to Centre National De La Recherche Scientifique, Paris, France
PCT No. PCT/FR89/00225, § 371 Date Jan. 7, 1991, § 102(e) Date Jan. 7, 1991, PCT Pub. No. WO89/11206, PCT Pub. Date Nov. 16, 1989
PCT Filed May 9, 1989, Ser. No. 601,818
Claims priority, application France, May 9, 1988, 88 06233
Int. Cl.[5] H05H *1/24*
U.S. Cl. 315—111.21 15 Claims



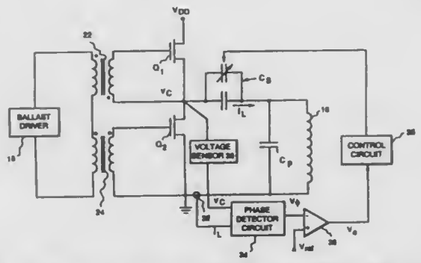
1. A plasma reactor comprising: a housing (10) capable of receiving a selected gaseous flow, a microwave generator (32) and wave guide means (34) for passing the microwaves to the housing (10) along a non-resonant coupling wherein the housing (10) does not dissipate, in the form of electromagnetic radiation, the ultrahigh frequency energy imparted thereto in the presence of gas, characterized in that, since the housing (10) is of a large size, the end portion (38) of the wave guide means is progressively reduced in one direction and widened in the other until it reaches a flat rectangular cross section completely surrounding the said housing (10) and produces a non-resonant coupling (50) therewith.

5,063,331
HIGH FREQUENCY OSCILLATOR-INVERTER CIRCUIT FOR DISCHARGE LAMPS
Allan A. Nostwick, Des Plaines, Ill., assignor to North American Philips Corporation, New York, N.Y.
Filed Jan. 4, 1991, Ser. No. 638,257
Int. Cl.[5] H05B *41/36*
U.S. Cl. 315—219 18 Claims



1. A high frequency oscillator-inverter circuit for starting and operating at least one electric discharge lamp from a low frequency AC signal of a given waveform produced by a power source, said signal crossing through a zero value to a maximum peak value, said circuit comprising:
rectifier means responsive to said AC signal applied at an input thereto for providing a fluctuating DC voltage at an output thereof;
means for receiving said at least one lamp including a frequency dependent impedance element for maintaining the flow of lamp current of a received lamp within given limits;
a power output transformer having a secondary winding and a primary winding;
circuit means including at least one semiconductor device and impedance means coupled to the transformer primary winding to form a resonant circuit which produces on said secondary winding a high oscillation operating frequency output voltage relative to the frequency of said AC signal in response to a DC voltage applied as an input thereto;
first power supply means including means responsive to said fluctuating voltage for generating a relatively smoother DC voltage from the fluctuating voltage and for applying the generated DC voltage to said circuit means; and
second power supply means coupled to said means for receiving and to said rectifier means responsive to a given voltage threshold for applying to said input and to said first power supply means during at least a portion of the AC signal cycle a signal manifesting the voltage of said AC signal smaller than said threshold level near the zero crossing of said AC signal such that the current waveform at said input induced by said circuit means approximately follows the AC signal voltage waveform at said input.

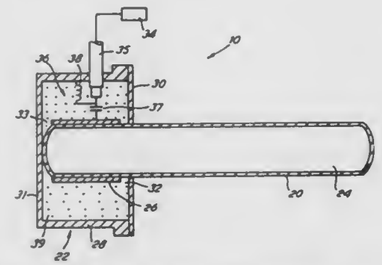
5,063,332
FEEDBACK CONTROL SYSTEM FOR A HIGH-EFFICIENCY CLASS-D POWER AMPLIFIER CIRCUIT
Sayed-Amr A. El-Hamamsy, and Joseph C. Borowiec, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.
Filed Dec. 21, 1990, Ser. No. 631,836
Int. Cl.[5] H05B *41/24*
U.S. Cl. 315—248 10 Claims



8. A ballast for a high intensity discharge lamp of the type having an excitation coil situated about an arc tube for exciting an arc discharge in an ionizable fill contained in said arc tube, comprising:
a Class-D power amplifier including two switching devices coupled in series in a half-bridge configuration and having an output resonant circuit coupled at the junction between said two switching devices, said output resonant circuit including the inductance of said excitation coil coupled in series with a variable capacitance;
phase detecting means for detecting the phase angle between the output resonant circuit voltage and the output resonant circuit current and generating a voltage proportional to said phase angle;
comparator means for receiving the voltage proportional to said phase angle and comparing said voltage to a reference voltage and generating an error signal therefrom; and
control means for receiving said error signal and generating a control signal for varying the value of said variable capacitance in accordance therewith in order to maintain

said resonant circuit in tune and thereby maximize efficiency of said ballast.

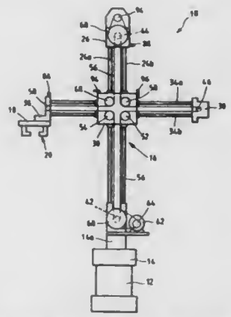
5,063,333
DISCHARGE TUBE ARRANGEMENT
Nell A. Linden-Smith, and Andrew T. Rowley, both of Leicester, Great Britain, assignors to Thorn Emi plc, London, England
Filed Dec. 13, 1989, Ser. No. 448,128
Claims priority, application United Kingdom, Dec. 15, 1988, 8829251
Int. Cl.[5] H01J *19/80*
U.S. Cl. 315—326 9 Claims



1. A discharge tube arrangement comprising:
a launcher suitable, when energised with radio frequency (r.f.) power, for exciting surface waves in a discharge tube containing a fill, for producing a light output;
a discharge tube positioned in part within the launcher;
and an electrically conductive structure extending along the discharge tube, in use, said structure being connected to an earth wherein said structure is separated from the discharge tube by a radial distance such that, in use, said discharge tube produces an increase in total light output over the total light output of said discharge tube not having said structure, said structure positioned such that when in use it inherently intercepts the light output from the discharge tube and causes a reduction in total light output from the discharge tube, and wherein said structure has dimensions and is positioned such that, in use, said increase in total light output is greater than said reduction in light output caused by said structure obscuring said total light output.

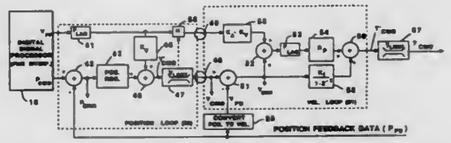
5,063,334
ORTHOGONAL TWO-AXIS MOVING APPARATUS
Takeo Tanita, Kawasaki; Hiroyuki Kigami, and Yusaku Azuma, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 23, 1990, Ser. No. 555,939
Claims priority, application Japan, Jul. 24, 1989, 1-188912; Jul. 24, 1989, 1-188913; Jul. 24, 1989, 1-188916; Sep. 28, 1989, 1-250562
Int. Cl.[5] B66C *23/16*
U.S. Cl. 318—568.10 19 Claims

1. An orthogonal two-axis moving apparatus comprising:
a first guide member which extends along a first direction and is attached to a stationary position;
a slide bock which is slidably supported on said first guide member and is moveable in the first direction;
a second guide member which extends along a second direction perpendicular to the first direction is supported by said slide block to be movable in the second direction;
first and second rollers pivotally supported on two ends of said first guide member;
a third roller pivotally supported on a first end of said second guide member;
intermediate rollers pivotally supported on four corner portions of said slide block;
a coupling belt, two ends of which are fixed to a second end of said second guide member and which is looped in a cross shape on said first to third rollers and said four intermediate rollers;
first origin detection means for detecting an origin position of said slide block along the first direction; and



second origin detection means for detecting an origin position of said second guide member along the second direction.

5,063,335
TWO-INPUT CONTROL WITH INDEPENDENT PROPORTIONAL AND INTEGRAL GAINS FOR VELOCITY ERROR AND VELOCITY FEEDFORWARD INCLUDING VELOCITY COMMAND LIMITING
Donald F. Baechtel, Lyndhurst; James E. Svarovsky, Sagamore Hills, both of Ohio, and Thomas Rehm, Mequon, Wis., assignors to Allen-Bradley Company, Inc., Milwaukee, Wis.
Filed Sep. 11, 1990, Ser. No. 580,708
Int. Cl.[5] G05B *11/36*
U.S. Cl. 318—609 4 Claims



1. In circuitry for controlling the velocity of a servomotor, in response to a motion command from other circuitry and in response to receiving position information which is fed back from an input device coupled to a servomotor, a servomotor control method comprising:
generating a position command from a processor in response to a motion command received by the processor;
algebraically summing the position command with position feedback derived from the position information to produce a position error result;
generating a velocity command in response to the position error result;
inputting the velocity command as a first input to circuitry operating as a proportional-integral velocity regulator;
generating a velocity feedforward command from the processor in response to the motion command received by the processor;
inputting the velocity feedforward command as a second input to the circuitry operating as the proportional-integral velocity regulator; and
generating a command output from the proportional-integral velocity regulator to control the velocity of the servomotor in response to the first and second inputs to the circuitry operating as the proportional-integral regulator.

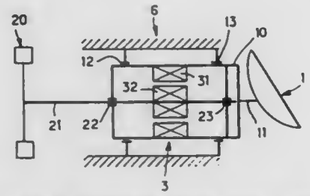
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,336

MECHANICAL STABILIZATION SYSTEM USING COUNTER-ROTATION AND A SINGLE MOTOR

Gérard Atlas, Saint Marcel, France, assignor to Societe Europeenne de Propulsion, Suresnes, France

Filed Jan. 26, 1990, Ser. No. 470,875
Claims priority, application France, Jan. 31, 1989, 89 01218
Int. Cl.[5] G05B 5/01
U.S. Cl. 318—611 8 Claims



1. A mechanical stabilization system using counter-rotation and a single motor, the system comprising:

a support to be stabilized,

a working rotor mounted on the support by frictionless bearings and fixed to a working member for which at least one parameter associated with the rotation of the working rotor is variable as a function of time,

an electric motor for driving the working rotor,

a detector interposed between the working rotor and the support for measuring the parameter associated with the rotation of the working rotor on which a predetermined law of motion as a function of time is imposed,

a servo-control circuit receiving signals from the detector for modifying the operating characteristics of the motor so as to cause the working rotor to comply with the predetermined law of motion; and

a nested reaction rotor mounted concentrically with the working rotor by frictionless bearings, and supporting a reaction inertia member,

wherein the motor is interposed between the working rotor and the reaction rotor to rotate the working rotor and the reaction rotor in opposite directions such that the torque disturbances generated on the support by the motion of the working rotor are cancelled by the simultaneous reaction motion of the reaction motor, with the ratio of the speeds of the working rotor and the reaction rotor being such that the total angular momentum of the working rotor and the reaction rotor is maintained at zero.

5,063,337

ELECTRIC MOTOR REGULATION TO OBTAIN DESIRED SPEED CURVE

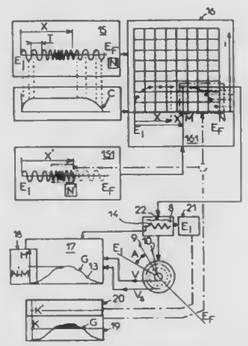
Jean Evin, Hameau de la Becque, Avelin 59710 Pontaillancq, France

PCT No. PCT/FR88/00198, § 371 Date Oct. 20, 1989, § 102(e) Date Oct. 20, 1989, PCT Pub. No. WO88/08477, PCT Pub. Date Nov. 3, 1988
PCT Filed Apr. 22, 1988, Ser. No. 432,725
Claims priority, application France, Apr. 23, 1987, 87 05962
Int. Cl.[5] B66B 13/08
U.S. Cl. 318—617 12 Claims

1. Method of regulating an alternating current electric motor having a rotor and connected to receive power from a power supply with an output which is variable depending on a predetermined speed reference (C) between two adjustable endmost angular positions (E_I and E_F) of the rotor spaced apart by an adjustable number of rotor revolutions and in which positions the speed is zero, this method comprising:

(A) initialization by the steps of: determining a theoretical number (N) of complete periods (T) of AC current (i) required for feeding the motor to drive the rotor over angular movement between the endmost angular positions (E_I and E_F), storing the theoretical number in a memory, storing a table having an output providing variations in the power supply to theoretically achieve the predetermined speed reference (c) based on a chronological position (x) of said complete periods (T) in the theoretical number (N), and

(B) operating the motor to provide the predetermined speed reference (c) by the steps of:



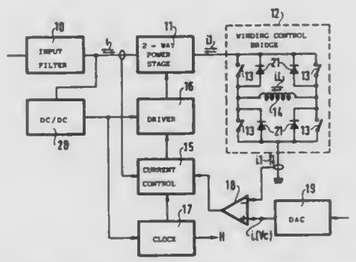
counting an instantaneous number (N') of complete periods of AC current from a first one of said endmost angular positions to a second one of said endmost angular positions, and controlling the power from the power supply to the motor by accessing the stored table based on the instantaneous number (N').

5,063,338

POWER MODULE FOR ELECTRONIC CONTROL OF A DC MOTOR

Antoine Capel, Ramonville, and Jean-Claude Marpinard, Toulouse, both of France, assignors to Alcatel Espace, Courbevoie, France

Filed Mar. 29, 1990, Ser. No. 501,223
Claims priority, application France, Mar. 30, 1989, 89 04167
Int. Cl.[5] G05B 19/40
U.S. Cl. 318—685 3 Claims



1. A power supply module for electronic control of a pulse-operated motor, said module comprising, in succession:

an input filter providing an output;

a bidirectional current supply module delivering a voltage pulse of variable duration derived from a nonregulated voltage source and accompanied by a current of controlled amplitude;

a bridge stage having bidirectional switches and associated diodes, said bridge stage having first and second terminals each coupled to a pair of said switches, with diagonally opposite ones of said switches being simultaneously excited, said switchs being connected to one winding of said motor, a current flowing in said winding being a parameter to be regulated by comparison with a sine wave type reference value;

a source of clock signals;

an error amplifier receiving a current reference value as one input and a current value from said bridge as another input;

a current control cell connected to the current supply module and receiving a signal from said clock, a signal from said output of said input filter, and a signal from said error amplifier;

a DC-DC converter connected to the output of the input filter for ensuring that auxiliary voltages and controlling clock signals are well distributed;

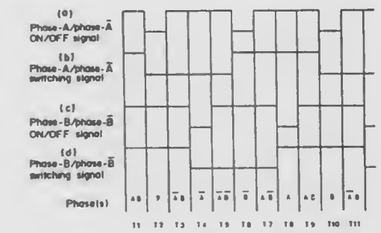
said current supply module generating a pulse of variable duration τ which is applied to said first bridge stage terminal for providing in said winding a triangular current waveform varying between a minimum value and a maximum value, which waveform, within each period, comprises first and second linear portions of opposite slope, the first portion having the form $(V-Vo)t/L$ during charging, and the second portion having the form $-(Vo)t/L$ during discharging, the amplitude of said triangular current being controlled by controlling said duration τ.

5,063,339

STEPPING MOTOR DRIVING DEVICE

Akira Orii, and Haruhisa Watanabe, both of Tokyo, Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan

Filed Nov. 25, 1987, Ser. No. 126,226
Claims priority, application Japan, Dec. 1, 1986, 61-284257
Int. Cl.[5] H02P 8/00
U.S. Cl. 318—696 4 Claims



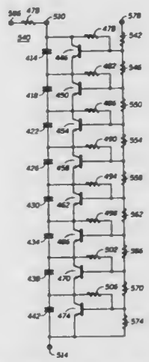
1. A drive device for driving a 4-phase stepping motor having a plurality of phase circuits including a plurality of windings, said phase circuits being arranged in phase circuit pair A,Ā and phase circuit pair B,B̄ and said phase circuits having terminals electrically connectable and disconnectable to a power source to energize an A-phase/Ā-phase, and a B-phase/B̄-phase of the stepping motor, in response to logic signals including a high level signal and a low level signal supplied from a logically operated pattern generator circuit; first switching means connected to said pattern generator circuit and structured, in response to input of the high level logic signal of the pattern generator circuit, to electrically connect one of the terminals of the phase circuits to the power source, and, in response to input of the low level signal of the pattern generator circuit, to electrically disconnect said one terminal of the phase circuits from said power source; and second switching means selectively structured so that in response to input of the high level signal of said pattern generator circuit one of the phase circuits is closed so as to energize a member of the group consisting of one of the A-phase and the Ā-phase, one of the B-phase and the B̄-phase, and both one of the A-phase and the Ā-phase and one of the B-phase and the B̄-phase, while maintaining the other phase circuits in the phase circuit pairs A,Ā and B,B̄, which have not been energized, nonenergized, and said second switching means being structured so that, in response to input of the low level signal of the pattern generator circuit, said one phase circuit is closed so as to deenergize said one of said A-phase and said Ā-phase, one of the B-phase and the B̄-phase and both one of the A-phase and the Ā-phase and one of the B-phase and the B̄-phase, while energizing the other phase circuits in the phase circuit pairs A,Ā and B,B̄ which have not been deenergized, said second switching means also including a logic circuit having at least two switching elements arranged therein logically operated in response to the high and low level signals of said pattern generator circuit to selectively switch said phase circuits between an energized state and a deenergized state, one of said two switching elements including a buffer and the other including an inverter.

5,063,340

CAPACITIVE POWER SUPPLY HAVING CHARGE EQUALIZATION CIRCUIT

John A. Kalenowsky, Palatine, Ill., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 25, 1990, Ser. No. 603,087
Int. Cl.[5] H02H 7/16
U.S. Cl. 320—1 26 Claims



1. A portable, rechargeable power supply forming a power source of pre-defined characteristics for powering a load element when coupled thereto, said power supply having:

means forming a first conductive surface comprised of a conductive material for collecting and storing electrical charge responsive to application of a charging current thereto;

means forming a second conductive surface comprised of a conductive material and spaced-apart from the first conductive surface whereby a potential difference is formed between the first conductive surface and the second conductive surface when electrical charge is stored upon the first conductive surface, said first conductive surface and said second conductive surface spaced-apart therefrom together being of a low electrical resistance to minimize, thereby, resistive loss across the first and second conductive surfaces, respectively, during discharge of the electrical charge stored upon the first conductive surface to power the load element when coupled thereto;

a transistor network formed of at least one transistor having a first terminal connected to the first conductive surface and a second terminal connected to the second conductive surface; and

means for biasing the transistor to vary conductive characteristics thereof such that the transistor forms a shunt for reducing levels of the charging current applied to the first conductive surface when the potential difference formed between the first conductive surface and the second conductive surface is beyond a pre-determined value.

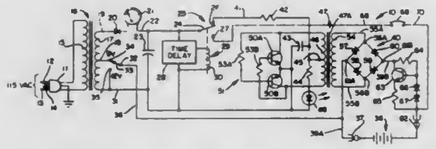
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,341

LEAD ACID BATTERY REJUVENATOR AND CHARGER

Carl E. Gali, 6414 Faircove Cir., Garland, Tex. 75043

Filed Oct. 16, 1990, Ser. No. 598,133
Int. Cl.[5] H02J 7/00, 7/02
U.S. Cl. 320—21 29 Claims



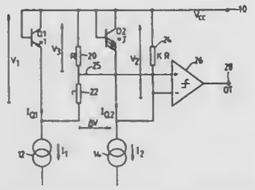
1. A combination rejuvenator and trickle charger for lead acid batteries comprising: AC power connection means: AC transference means; AC to DC conversion means; a DC to AC inverter multi-vibrator circuit connected to said AC to DC conversion means and to said AC transference means; a transformer with a primary coil a part of said DC to AC inverter multi-vibrator circuit, and having a secondary coil; a four diode recitfier bridge circuit having a first set of opposite terminals connected to said secondary coil, and a second set of opposite terminals; first connection means for connecting a first one of the terminals of said second set of bridge opposite terminals to a first terminal of a lead acid battery and second connection means for connecting the second of the terminals of said second set of bridge opposite terminals to the lead acid battery; one of said first and second connection means includes connection of terminal means of said second set of bridge opposite terminals through circuit means to a battery terminal connector.

5,063,342

TEMPERATURE THRESHOLD SENSING CIRCUIT

John B. Hughes, Hove, and Kenneth W. Moulding, Horley, both of England, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 31, 1989, Ser. No. 401,729
Claims priority, application United Kingdom, Sep. 19, 1988, 8821910
Int. Cl.[5] G05F 3/22, 1/569
U.S. Cl. 323—315 20 Claims



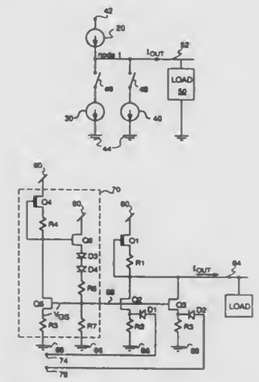
1. A temperature threshold sensing circuit comprising, first and second bipolar transistors formed together as part of an integrated circuit and biased so that the current density in the first transistor is larger than that in the second transistor by a first known factor, wherein said first and second transistors have their collectors connected to a first bias voltage source, their bases connected to a second bias voltage source and their emitters connected respectively to first and second current sources for passing first and second bias currents of known relative proportions through the first and second transistors, respectively and a voltage comparator connected to compare a first predetermined fraction of the base-emitter voltage of the first transistor with a second, larger predetermined fraction of the base-emitter voltage of the second transistor so that an output of the comparator adopts a first state when the temperature of the two transistors is above a known threshold temperature and adopts a second state when the temperature of the two transistors is below the known threshold temperature.

5,063,343

CURRENT PUMP STRUCTURE

Mark E. Fitzpatrick, San Jose, and Gary R. Gouldsberry, Cupertino, both of Calif., assignors to Gazelle Microcircuits, Inc., Santa Clara, Calif.

Filed Apr. 5, 1990, Ser. No. 506,418
Int. Cl.[5] G05F 3/08
U.S. Cl. 323—317 12 Claims



1. A circuit comprising:
a first current source means having a first terminal connected to a first reference level terminal and having a second terminal coupled to an output node;
a second current source means having a first terminal connected to said output node and having a second terminal connected to a second reference level terminal;
a third current source means having a first terminal connected to said output node and having a second terminal coupled to said second reference level terminal;
a first switch means operatively associated with said second current source means to cause said second current source means to change a current provided to said output node, wherein said first switch means is actuated by a first control signal; and
a second switch means operatively coupled to said third current source means to cause said third current source means to affect a current provided to said output node, wherein said second switch means is actuated by a second control signal.

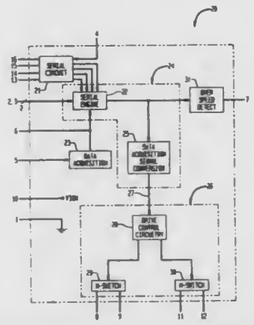
5,063,344

MODE SELECTABLE INTERFACE CIRCUIT FOR AN AIR CORE GAGE CONTROLLER

Scott L. Linke, Flora, Ind., assignor to Delco Electronics Corporation, Kokomo, Ind.

Filed Mar. 5, 1990, Ser. No. 488,567
Int. Cl.[5] G01R 15/08; H02K 11/00
U.S. Cl. 324—115 3 Claims

1. A serial interface circuit for driving an air core gage assembly, the circuit being capable of operating in a single chip mode or a host dependent mode, comprising:
mode select means for selecting the single chip mode or the host dependent mode;
data acquisition means for acquiring signals pertaining to a parameter to be displayed;
control means including serial engine means for computing a gage displacement value based on the signals acquired by said data acquisition means and a memory register for storing a gage displacement command;
serial circuit means effective when the single chip mode is selected to store the computed gage displacement value in said memory register, and when said host dependent mode is selected to store a remotely generated displacement value in said memory register;



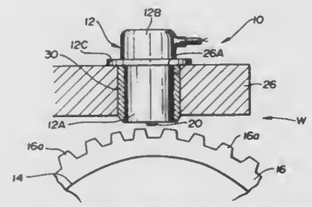
signal conversion means for converting the gage displacement command stored in said memory register to air core gage assembly drive commands wherein the commands are provided on a serial communication channel; and
output means for driving the air core gage assembly in response to the commands received on the serial communication channel.

5,063,345

APPARATUS FOR DETERMINING A ROTATIONAL SPEED OF A VEHICLE WHEEL

Takeo Akiyama, Tokyo, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Sep. 17, 1990, Ser. No. 583,275
Claims priority, application Japan, Oct. 19, 1989, 1-272319
Int. Cl.[5] G01P 3/48
U.S. Cl. 324—173 12 Claims



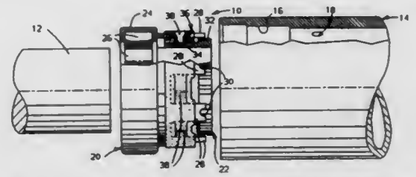
1. A corrosion-resistant arrangement for mounting a wheel speed sensor for determining a rotational speed of a wheel of a vehicle, comprising:
a sensor rotor rotatable with a road wheel of the vehicle;
an installation member made of a material comprising aluminum as a major component and formed with an installation hole, said installation member being connected with the body of the vehicle;
a metallic sleeve fitted in the installation hole of said installation member, said metallic sleeve being plated at an outer surface with zinc to form a corrosion-resistant zinc film thereat, said zinc film being in direct contact with an inner surface of the installation hole; and
a sensor main body comprising means for producing a signal in response to a rotation of said sensor rotor, said sensor main body having a tip section and a cylindrical cover section and being fitted inside said metallic sleeve in such a manner that the tip end section is located in close proximity to said sensor rotor.

5,063,346

WHEEL SPEED SENSOR FOR REMOTE INSTALLATION

Martin J. Hogan, Sandusky, Ohio, and Martin A. Hogan, Farmington Hills, Mich., assignors to General Motors Corporation, Detroit, Mich.

Filed Jun. 25, 1990, Ser. No. 542,614
Int. Cl.[5] G01P 3/44; F16C 32/00
U.S. Cl. 324—173 3 Claims



1. A speed sensor assembly adapted to be installed between a stationary housing having a cylindrical inner surface and a rotatable shaft disposed coaxially within said housing surface, comprising,
a generally cylindrical sensor ring having an interior surface sized to press fit non-turnably over said shaft and an exterior surface including a camming slot having a predetermined radial depth,
a generally cylindrical mounting sleeve sized to press fit non-turnably within said housing cylindrical surface, and,
an overcenter clutch member carried by said mounting sleeve which is shiftable from a first stable position in which it protrudes into said camming slot to a second stable position in which it rests clear of said slot when radially forced from said first stable position by said predetermined amount, said clutch member further being substantially inflexible in the axial direction,
whereby said sensor ring and mounting sleeve are retained together by said clutch member as a unit that can be installed by pushing said mounting sleeve into said housing cylindrical surface and by pushing said sensor ring over said shaft, by virtue of the axial inflexibility of said clutch member, after which said sensor ring may be freed from said mounting sleeve by turning said shaft and sensor ring, thereby forcing said camming slot into said clutch member and shifting it radially to second stable position.

5,063,347

MAGNETIC SENSOR HAVING A BASE WITH MAGNETORESISTORS AND A MAGNET MOUNTED ON THE BASE

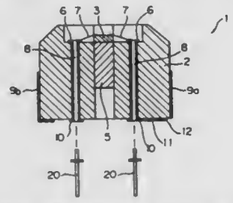
Yoshiharu Shigeno, Yokohama; Michihiro Murata, Kyoto; Yu Nishino, Ebina; Norio Fukui, Kyoto, and Keizou Yamamoto, Osaka, all of Japan, assignors to Murata Mfg. Co., Ltd., Nagaokakyo, Japan

Filed Mar. 23, 1990, Ser. No. 498,169
Claims priority, application Japan, Mar. 31, 1989, 1-38178[U]
Int. Cl.[5] G01R 33/02, 33/12; H01L 43/00; G01N 27/72
U.S. Cl. 324—235 3 Claims

1. In a magnetic sensor including a magnetic sensor element arranged on the upper surface of a base, and an input/output section provided on the lower surface of said base,
the improvement wherein said sensor element is comprised of a pair of serially connected magnetic resistances, a wiring pattern is formed on said base by electroless plating, and that said magnetic sensor element and said input-/output section are connected through said wiring pat-

VOL 1132 ISS 1 NO 5 1991 UMI

tern, and further comprising a hole extending through said base and a magnet in said hole aligned with said magnetic



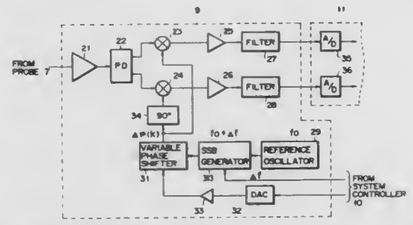
sensor element, said magnetic sensor having a nonmagnetic cover.

5,063,348

MAGNETIC RESONANCE IMAGING SYSTEM

Shigehide Kuhara, and Kozo Satoh, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Feb. 23, 1990, Ser. No. 484,048
Claims priority, application Japan, Feb. 23, 1989, 1-43504
Int. Cl.[5] G01V *3/00*
U.S. Cl. 324—307 **12 Claims**



1. A magnetic resonance imaging system for applying an RF field and slicing, phase encoding, and read-out gradient fields to an object to be examined which is placed in a homogeneous static field in a predetermined sequence, receiving a magnetic resonance signal from a region of interest in the object, causing a synchronous detection circuit to detect the magnetic resonance signal by using a predetermined reference wave, and sampling a detection output from said synchronous detection circuit, thereby acquiring magnetic resonance signal data and obtaining diagnostic data, said magnetic resonance imaging system comprising reference wave control means for shifting a frequency and phase of the reference wave, by predetermined amounts, from a frequency and phase of a magnetic resonance signal when the phase encoding and read-out gradient fields are zero.

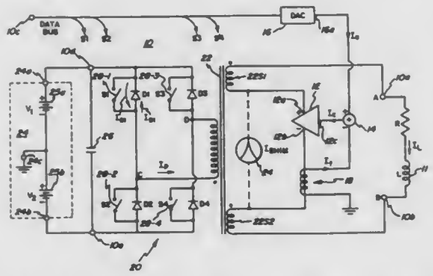
5,063,349

TRANSFORMER-COUPLED GRADIENT SPEED-UP CIRCUIT

Peter B. Roemer, Schenectady; Otward M. Mueller, Baliston Lake; John N. Park, Rexford, and William McMurray, Schenectady, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Jun. 4, 1990, Ser. No. 533,233
Int. Cl.[5] G01R *33/20*
U.S. Cl. 324—322 **15 Claims**

1. A gradient speed-up circuit, for use in a higher-speed NMR imaging system having an associated gradient coil, comprising:
- gradient power amplifier means for controlling a portion of a current flowing through an output circuit, responsive to an input signal;
- transformer means having at least first and second secondary windings for connection of said amplifier means output circuit to said gradient coil, and having at least one primary winding coupled to said at least first and second secondary windings;
- power switching means for providing a current flow through said primary winding to change the coil current responsive to a sequence of control signals; and



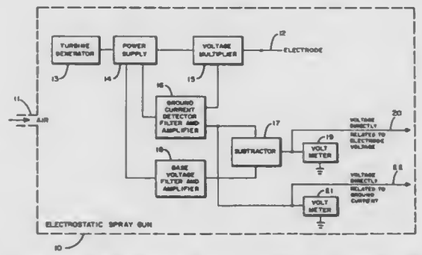
means for providing to said amplifier means the input signal with an amplitude changing the amplifier output circuit current whenever the coil current lags behind an amplitude commanded by a command signal.

5,063,350

ELECTROSTATIC SPRAY GUN VOLTAGE AND CURRENT MONITOR

Dale R. Hemming, Fridley; Lawrence J. Lunzer, St. Louis Park, and Robert J. Lind, Robbinsdale, all of Minn., assignors to Graco Inc., Minneapolis, Minn.

Filed Feb. 9, 1990, Ser. No. 478,277
Int. Cl.[5] G01R *29/12*
U.S. Cl. 324—457 **7 Claims**



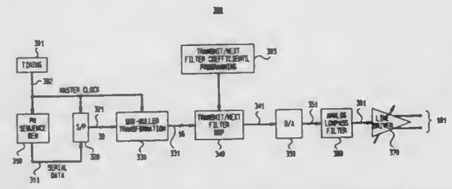
1. An indicating device of the voltage and current on an electrostatic spray gun electrode which is supplied from a power supply within the gun, comprising
- ground current sensing means detecting the ground current between the electrode and the power supply and producing a varying ground current voltage signal proportional to the varying ground current,
- a control means establishing a base voltage from the power supply with a magnitude which is directly related to the source output voltage to the power supply,
- and subtracting circuit means subtracting the ground current voltage signal from the base voltage and producing an output indicator directly proportional to electrode voltage.

5,063,351

DIGITAL SIGNAL PROCESSING RELATING TO NEAR-END CROSSTALK CABLE MEASUREMENTS

Jeffery M. Goldthorp, Parlin, and James S. Yeomans, Morristown, both of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.

Filed Sep. 24, 1990, Ser. No. 587,241
Int. Cl.[5] G01R *27/00, 23/16*
U.S. Cl. 324—628 **18 Claims**



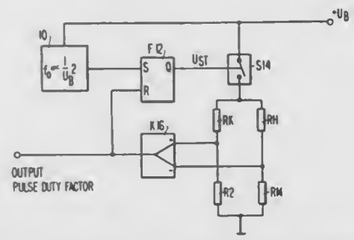
1. Circuitry for testing a wire cable communication system including a system-under-test (SUT) utilizing a first set of wires, said circuitry generating an interference signal corresponding to at least one interference source utilizing a second set of wires, said circuitry comprising
- means for digitally generating a discrete white noise source,
- filter means for digitally filtering said noise source to produce said interference signal, said filter means having an input-to-output frequency transfer function characteristic representative of the combined spectra of the at least one interference source and a near-end crosstalk path between the first and second set of wires, and
- means for injecting the interfering signal into the SUT at a prescribed location along the first set of wires.

5,063,352

CIRCUIT ARRANGEMENT WITH A FLOW PROBE OPERATED IN A BRIDGE CIRCUIT

Josef Kleinhans, Vaihingen, Enz, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE88/00761, § 371 Date Feb. 9, 1990, § 102(e) Date Feb. 9, 1990, PCT Pub. No. WO89/07242, PCT Pub. Date Aug. 10, 1989
PCT Filed Dec. 13, 1988, Ser. No. 473,949
Claims priority, application Fed. Rep. of Germany, Feb. 6, 1988, 3803609
Int. Cl.[5] G01R *27/08*
U.S. Cl. 324—706 **9 Claims**



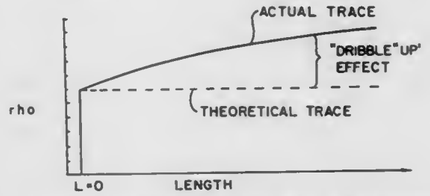
1. Circuit arrangement with a flow probe connected in a bridge circuit which is power supplied by a source of operating voltage (U_B), comprising
- a device for determining bridge balance;
- an oscillator circuit controlled by the operating voltage (U_B) to deliver an operating frequency (f_o) which is at least approximately inversely proportional to the square of the operating voltage;
- a triggering circuit controlled by the oscillator circuit and the bridge balance determining device to deliver control pulses (U_{ST}) whose duration (T_i) within time intervals (T_o) of respective cycles of the operating frequency (f_o) is a function (f(m)) of low rate sensed by the flow probe; and
- a switching device connected between the operating voltage source and the bridge circuit, the switching device being controlled by the control pulses (U_{ST}) to apply to the flow probe an average power which is independent of fluctuation of the operating voltage (U_B).

5,063,353

METHOD FOR ACCURATE MEASUREMENT OF TRANSMISSION LINE IMPEDANCE BY CORRECTING GROSS IMPEDANCE FOR THE "DRIBBLE-UP" EFFECT

Roland W. Gubisch, Lexington, Mass., assignor to Beckman Industrial Corporation, San Diego, Calif.

Filed Feb. 16, 1990, Ser. No. 480,782
Int. Cl.[5] G01R *31/08*
U.S. Cl. 324—710 **14 Claims**



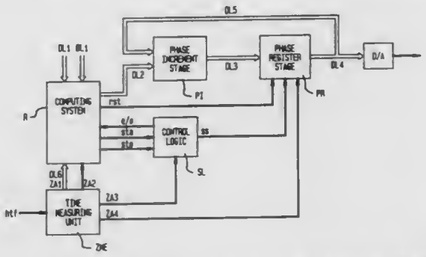
1. A method for measuring the impedance of a transmission line comprising:
- measuring the length and D.C. loop resistance of the line;
- transmitting along the line a pulse having a pulse duration greater than the time required for it to propogate from its source to the end of the transmission line and reflect back to the source;
- monitoring transmitted and reflected pulses and converting readings resulting therefrom to a gross impedance measurement; and,
- correcting the gross impedance measurement for the "dribble up" effect as a function of D.C. loop resistance in the transmission line, the corrected measurement being an accurate measurement of the line impedance.

5,063,354

FREQUENCY SYNTHESIZING DEVICE

Alfred Lauper, Zurich; Hanspeter Küpfer, Birmensdorf, and Daniel Rieder, Birmensdorf, all of Switzerland, assignors to Siemens-Albis Aktiengesellschaft, Zurich, Switzerland

Filed Dec. 20, 1989, Ser. No. 453,540
Claims priority, application Switzerland, Dec. 23, 1988, 04781/88
Int. Cl.[5] H03L *7/16*
U.S. Cl. 328—14 **9 Claims**



1. A method for the generation of periodic electrical oscilla-

VOL 1132 ISS 1 NO 5 1991 UMI

tions at a frequency that can be arbitrarily determined, in which, after changing the frequency and resetting it to any desired value that has previously been generated, phase coherence is maintained, the method comprising the steps of: periodically counting a time interval from $t=0$ to $t=t_z$; computing in advance for a subsequent time $t_N(0<t_N<t_z)$ the starting phase ϕ_N of a new frequency f_N; and generating the frequency f_N from the time t_N with the starting phase ϕ_N.

5,063,355

TIMER CIRCUIT

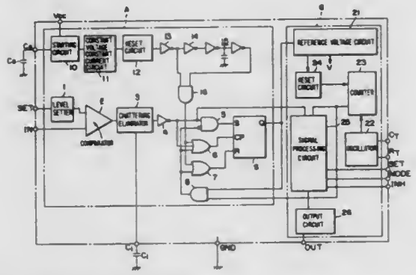
Kazuo Sasaki, Osaka; Hidetoshi Matsumoto, Kyoto, and Taneji Ohoka, Siga, all of Japan, assignors to Omron Corporation, Kyoto, Japan

Filed Mar. 9, 1990, Ser. No. 489,948

Claims priority, application Japan, Mar. 13, 1989, 1-60279

Int. Cl.[5] H03K *17/296;* **G04F** *15/00*

U.S. Cl. 328—129.1 **6 Claims**



1. A timer circuit comprising:

a first circuit block which is supplied with a source voltage at all times and comprising a memory circuit which is set when an input signal is applied thereto;

a second circuit block comprising a reference voltage circuit which outputs a reference voltage when said memory circuit is set and which ceases to output the reference voltage when said memory circuit is reset,

an oscillation circuit which outputs a train of pulse signals in a predetermined cycle,

a counter which starts counting said train of pulse signals when said reference voltage is outputted and which stops counting when a predetermined number of said pulse signals have been counted, and

a signal processing circuit which outputs a timer signal while said counter is counting;

wherein said reference voltage supplied by said reference voltage circuit is applied to power said second circuit block while the memory circuit remains set, wherein said memory circuit is reset in response to a time-out signal from said counter.

5,063,356

BALANCED FILTER CIRCUIT HAVING A CONTROLLABLE BALANCED CURRENT MULTIPLIER

Johannes O. Voorman, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 19, 1990, Ser. No. 585,341

Claims priority, application Netherlands, Sep. 29, 1989, 8902420

Int. Cl.[5] H03F *3/191*

U.S. Cl. 330—306 **13 Claims**

10. A balanced filter circuit which includes capacitance means and resistance means, said filter circuit comprising:

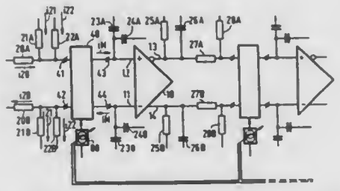
first and second signal input terminals,

first and second signal output terminals,

a balanced amplifier having an inverting input and a non-inverting input and furthermore an inverting output and a non-inverting output coupled to said first and second output terminals, respectively,

wherein said resistance means includes at least one pair of first and second filter resistors,

a controllable balanced current multiplier having first and second current inputs coupled to said first and second



filter resistors and to said first and second signal input terminals, respectively, and

means coupling first and second current outputs of said balanced current multiplier to the inverting input and the non-inverting input, respectively, of the balanced amplifier.

5,063,357

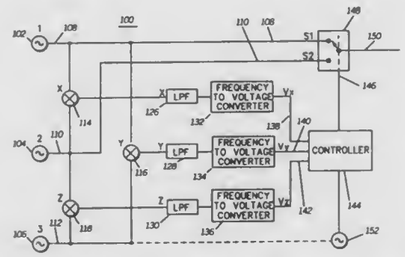
STABLE, RELIABLE OSCILLATOR SYSTEM USING AUTOMATIC OSCILLATOR SUBSTITUTION

William R. Williams, N. Lauderdale, and Edgar H. Callaway, Jr., Boca Raton, both of Fla., assignors to Motorola, Inc., Schaumburg, Del.

Filed Aug. 3, 1990, Ser. No. 562,361

Int. Cl.[5] H03L *7/00*

U.S. Cl. 331—49 **10 Claims**



1. A high reliability and high stability oscillator circuit having an output, comprising:

at least three oscillators each providing oscillator signals;

at least three mixers each coupled to a pair of oscillators for mixing pairs of said oscillator signals to provide mixed signals; and

detector means responsive to said mixed signals for detecting frequency shift in any one of the oscillators;

switching means responsive to said detector means to provide one of said oscillator signals to the output of said oscillator circuit.

5,063,358

ULTRA LOW NOISE CRYSTAL OSCILLATOR CIRCUIT

Christopher R. Vale, Elk Ridge; Thomas S. Dominick, Glen Burnie; William R. Via, Dundalk, and Gene P. Knapp, Sr., Glen Burnie, all of Md., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 1, 1990, Ser. No. 608,069

Int. Cl.[5] H03B *5/36*

U.S. Cl. 331—60 **7 Claims**

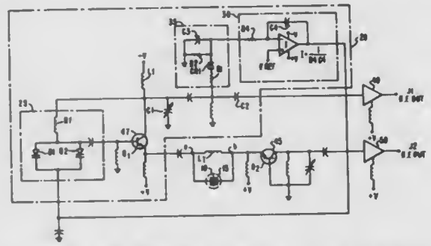
1. An ultra low noise oscillator circuit having first and second outputs comprising:

a crystal having first and second terminals;

heating means for heating said crystal;

an oscillator sustaining circuit having an output and having an input operatively connected to said first terminal;

a first amplifier having an output corresponding to the first



output of said oscillator circuit, and being operatively connected to said output of said oscillator sustaining circuit; and

a second amplifier having an output corresponding to the second output of said oscillator circuit, and being operatively connected to said second terminal.

5,063,359

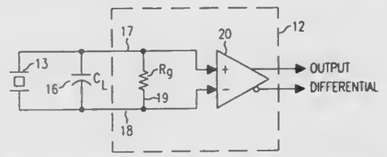
LOW-JITTER OSCILLATOR

Robert H. Leonowich, Temple, Pa., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 15, 1990, Ser. No. 614,325

Int. Cl.[5] H03B *5/36*

U.S. Cl. 331—116 FE **11 Claims**



1. In an electronic system, an oscillator CHARACTERIZED BY:

a resonator having two terminals;

a means for generating a negative resistance, coupled to the terminals of the resonator; and,

a comparator, having two inputs coupled to corresponding terminals of the resonator, and having at least one output;

wherein the output of the of the comparator is a signal having a frequency substantially determined by the resonator.

5,063,360

PULSE REPETITION FREQUENCY PUSHING COMPENSATION CIRCUIT

Bernard E. Sigmon, Tempe, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Mar. 4, 1991, Ser. No. 663,505

Int. Cl.[5] H03B *5/04, 5/18, 7/12;* **H03L** *1/02*

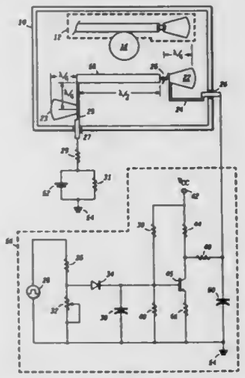
U.S. Cl. 331—175 **20 Claims**

1. A frequency-pushing compensation circuit for a pulsed source with a pulse repetition frequency (PRF)-induced frequency shift, comprising:

pulsed source means;

frequency compensation means coupled to the pulsed source means; and

pulse bias amplification means coupled separately to the pulsed source means and to the frequency compensation means, the pulse bias amplification means producing a



feedback compensation signal to the frequency compensation means to reduce the PRF-induced frequency shift.

5,063,361

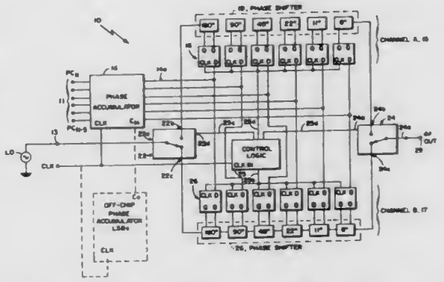
SERRODYNE MODULATOR

Irl W. Smith, Concord, and Manfred J. Schindler, Newton, both of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Dec. 21, 1990, Ser. No. 633,558

Int. Cl.[5] H04L *27/00*

U.S. Cl. 332—103 **6 Claims**



1. A direct digital synthesizer comprising:

phase accumulator means fed by a control word for computing a desired phase word whose time rate of change is proportional to a desired output frequency of the direct digital synthesizer; and

a radio frequency phase shifter having an RF input port, and RF output port, and a control port which controls the relative phase difference between an input signal fed to the input and output signal provides from the output with said phase word being fed to said control port and said relative difference being related to the phase word provided from said phase accumulator means.

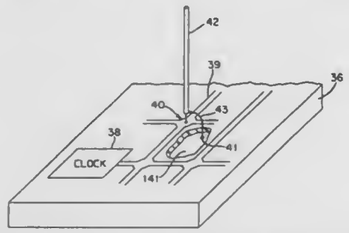
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,362

SUPPRESSION OF ELECTRICAL INTERFERENCES FROM AN ELECTRONIC CIRCUIT

Philip A. Herman, Hyde Park, and William F. McCarthy, Wappingers Falls, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 4, 1990, Ser. No. 519,528
Int. Cl.[5] H04B 3/28
U.S. Cl. 333—12 13 Claims



10. An apparatus for suppression of EMI radiations comprising:

an electronic circuit having a node which acts as an antenna emitting radiations to be suppressed, said node having separate electrical components electrically insulated from one another;

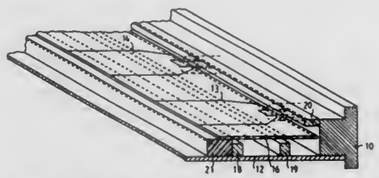
a stub member having a first conductor connected to one of said separate electrical components, and a second conductor connected to another of said separate electrical components, said stub member forming a resonant transmission line for suppressing said EMI radiations.

5,063,363

ELECTROMAGNETIC ENERGY RADIATION PICK-UP

Hervé Coppier, Noyon; Jean-Louis Pourailly, Vincennes, and Joseph Roger, Bures sur Yvette, all of France, assignors to Thomson-CSF, Puteaux, France

Filed Jun. 29, 1990, Ser. No. 546,380
Claims priority, application France, Jul. 7, 1989, 89 09175
Int. Cl.[5] H01P 5/08
U.S. Cl. 333—33 5 Claims



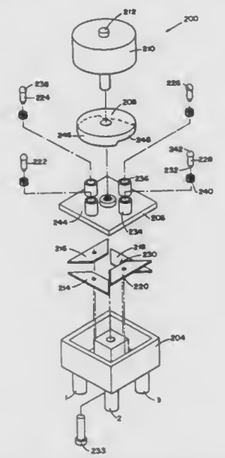
1. A pick-up for electromagnetic energy radiation guided between at least two parallel ground plates, said pick-up including a plane conductive tongue positioned between the two ground plates in a plane parallel to these plates and pointed in the direction of propagation of the guided electromagnetic energy, said plane conductive tongue being electrically unconnected to the parallel ground plates, and obstacles interposed between the ground plates and the tongue converting the electromagnetic energy guided between the two ground plates, propagated in the transverse electromagnetic mode, into an electromagnetic energy that is propagated in the transverse asymmetrical electromagnetic mode in a strip line structure formed by the tongue and the two ground plates, and wherein the obstacles are conductive strips that are positioned against the ground plates, facing the conductive tongue, and oriented perpendicularly to the direction in which the guided electromagnetic energy is propagated.

5,063,364

C-, T- AND S-SWITCHES THAT ARE MECHANICALLY OPERATED BY A ROTARY ACTUATOR

Paul Y. Tsoi, Waterloo, Canada, assignor to Com Dev Ltd., Cambridge, Canada

Filed May 2, 1990, Ser. No. 517,686
Claims priority, application Canada, Apr. 12, 1990, 2014584
Int. Cl.[5] H01P 1/12
U.S. Cl. 333—107 14 Claims



1. A microwave switch comprising an RF cavity housing, an actuator and power means for repositioning said actuator arranged as follows:

(a) said housing having at least two conductor paths interconnecting at least three ports, said housing also containing at least two pins, each pin having a separate connector thereon, one connector being located in each conductor path, each connector having two positions that are linearly displaced from one another;

(b) each connector connecting the conductor path in one position and interrupting the conductor path in another position;

(c) said housing having one opening therein for each pin, each opening being large enough for a pin to be spring-mounted therein, each pin being spring-mounted and having one end which is attached to that connector that is located immediately adjacent to that opening, said pin having another end being a free end, said free end being located outside of said housing when said pin is released, said spring-mounting tending to force said free end of said pin away from said housing, each pin having two distinct positions, a depressed position and a released position;

(d) said actuator being a rotary cam mounted outside said housing and connected to said power means so that said power means can rotate said cam to at least two predetermined positions, said cam having at least one ridge and at least one indentation located thereon, said at least one ridge and said at least one indentation being located so that when a ridge overrides a pin, said pin being depressed and when an indentation overrides a pin, said pin is released, said ridge and said indentation overriding said pins as said cam rotates;

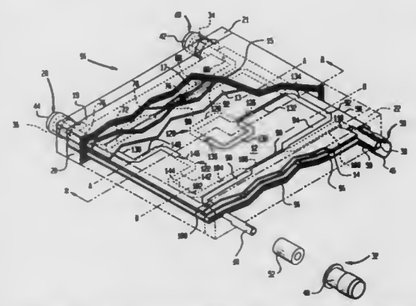
said at least one ridge and said at least one indentation being co-ordinated with said power means so that appropriate conductor paths are connected and interrupted substantially at the same time, the cam, the power means, the springs, the pins and the connectors being the only movable components of the switch.

5,063,365

MICROWAVE STRIPLINE CIRCUITRY

Joseph D. Cappucci, Wayne, N.J., assignor to Merrimac Industries, Inc., West Caldwell, N.J.

Filed Aug. 25, 1988, Ser. No. 236,657
Int. Cl.[5] H01P 5/20
U.S. Cl. 333—121 10 Claims



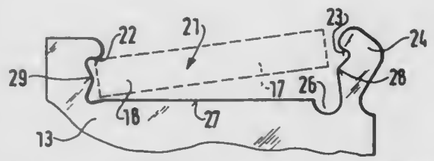
1. A broad band stripline magic tee designed for a center microwave frequency, comprising first and second 3db quadrature couplers each having a first port, a second port, a third port, and a fourth port; and a non-reflective, non-adjustable 90° differential phase shift circuit interconnecting said first and second couplers, said phase shift circuit including first and second conductors therein having apparent electrical lengths at said center microwave frequency that differ from one another by 270°, said second port of said first coupler being serially connected through said first conductor to said first port of said second coupler, said third port of said first coupler being serially connected through said second conductor to said fourth port of said second coupler, said first and fourth ports of said first coupler and said second and third ports of said second coupler serving as respective pairs of input and output ports of said magic tee, whereby the application of a microwave input signal within said band to one of said input ports results in output signals at said output ports that are of substantially equal amplitude and substantially in phase with one another, and the application of said microwave input signal to the other of said input ports results in signals at said output ports that are of substantially equal amplitude and substantially 180° out of phase with one another, said magic tee having left-to-right symmetry and being reversible in operation.

5,063,366

ELECTROMAGNETIC RELAY

Erhard Edelhaeuser, Ansbach; Hans-Dieter Schmid; Ludwig Speckner, both of Nuremberg; Karl Wutz, Neumarkt, and Horst Steffen, Schwarzenbruck, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed May 29, 1990, Ser. No. 529,907
Claims priority, application Fed. Rep. of Germany, Aug. 5, 1989, 8909467[U]
Int. Cl.[5] H01H 67/02; H01F 7/08
U.S. Cl. 335—271 1 Claim



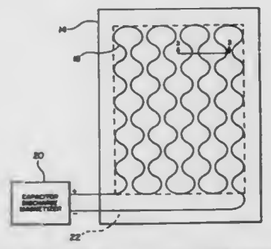
1. An electromagnetic relay comprising core, a relay winding on the core, an L-shaped magnetic yoke connected at one end thereof to the core, an armature assembly including an armature plate attached to a flat biasing spring, the armature assembly being hinged in a recessed support stamped out at the other end of the yoke; the recessed support being delimited by a bottom surface and two lateral projections extending from the bottom surface, each lateral projection having at its free end a shoulder engaging the armature assembly to prevent jarring impacts on the spring; a switching contact arranged on a free end of the spring; at least one fixed contact arranged opposite the switching contact; and at least one of the two projections having constricted region for permitting the bending of the projection between an open condition at which a corresponding shoulder is remote from the armature assembly, and a closed condition at which the shoulder overlaps the armature assembly, the constricted region being a trough-shaped cutout provided in a corner between one of the projections and the bottom surface of the recess, the respective lateral projections having inner walls formed with boundary surface portions for guiding opposite lateral sides of the armature assembly within the recess, the boundary surface portions having an arcuate configuration with rounded edges.

5,063,367

METHOD AND APPARATUS FOR PRODUCING COMPLEX MAGNETIZATION PATTERNS IN HARD MAGNETIC MATERIALS

J. Kelly Lee, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 4, 1990, Ser. No. 576,753
Int. Cl.[5] H01F 7/20, 13/00; G08B 13/24, 13/14
U.S. Cl. 335—284 8 Claims



1. Apparatus for producing a complex magnetization pattern in a sheet of magnetic material, comprising:

a magnetizing fixture having top and bottom plates, the top and bottom plates each having a conductor embedded in one surface thereof, the conductors forming matching folded serpentine patterns covering substantially the entire surface of the plate, in operation the sheet of magnetic material being placed between said top and bottom plates adjacent said folded serpentine conductor patterns; and

capacitor discharge magnetizing circuit means connected to the conductors for delivering a magnetizing pulse of current to the conductors.

6. A method of producing a complex folded serpentine magnetic pattern in a sheet of magnetic material suitable for use in a magnetic target demagnetizer, comprising the steps of:

(a) providing a magnetizing fixture having top and bottom plates, each having a conductor embedded in one surface thereof;

(b) placing a sheet of magnetic material between the plates of the magnetizing fixture; and

(c) applying a magnetizing current to the conductors employing a capacitor discharge magnetizer.

8. A magnetic article formed according to the steps of claim 6.

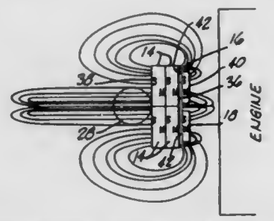
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,368

MAGNETIC ASSEMBLY FOR ENHANCING FUEL COMBUSTION

Reza Ettehadieh, 215 S. LaCienega Blvd., No. 101, Beverly Hills, Calif. 90211

Filed Dec. 18, 1990, Ser. No. 629,438
Int. Cl.[5] H01F 7/00, 7/02; B01D 35/06; F02M 27/00
U.S. Cl. 335—301 10 Claims



5. A magnetic assembly adapted to be secured to a fuel line of a motor vehicle for improving the combustion of the fuel passing through the line, said assembly comprising:

a housing having a top, bottom and side walls;

means carried by said housing for securing said assembly to the fuel line such that said bottom wall is disposed against the fuel line;

a plurality of primary magnets disposed within said housing and arranged in two adjacent columns with at least two primary magnets in each column and the south poles of each primary magnet facing toward said bottom wall of said housing;

a substantially flat plate disposed within said housing against the north poles of the two uppermost magnets in said columns; and

four secondary magnets disposed against said plate on the opposite side thereof from said primary magnets and adjacent said top wall of said housing, said secondary magnets being substantially weaker in magnetic strength then said primary magnets and two of said secondary magnets being aligned over each column of said primary magnets with the south poles of said secondary magnets being disposed against said plate.

5,063,369

AUTO THEFT ALARM

Alfonso Aguilar, 904 Bolivia, El Paso, Tex. 79903

Filed Jul. 27, 1990, Ser. No. 563,302
Int. Cl.[5] B60R 25/10
U.S. Cl. 340—429 3 Claims

1. A fail safe auto theft alarm system, comprising:

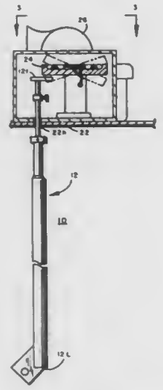
a rod having a top and a lower end;

rod to shock absorber coupling means coupling the lower end of the rod to a rear shock absorber of an auto wherein the auto has a trunk having a bottom surface;

a sound maker;

the bottom surface of the auto trunk defines a hole therethrough through which hole the top of the rod is coupled to a switch means that actuates the sound maker, and the rod is coupled to the shock absorber by shock absorber coupling means, the switch means comprising two switches in series, a first switch and a second switch, the rod is moved up and down by motion of the shock absorber when the auto is moving, so that movement of the rod up and down causes the first switch of the switch means to close, thereby permitting activation of the sound marker only if the second switch is also closed, and wherein the second switch is opened and closed manually to activate and deactivate the fail safe auto theft alarm system; and

a power source capable of generating power which power is transmitted through the two switches of the switch means



when both switches are closed to activate the sound maker.

5,063,370

HYPODERMIC SYRINGE NEEDLE DETECTION ALARM

Steven C. Smith, 2315 N. Pearl #10-185, Tacoma, Wash. 98406

Filed May 10, 1990, Ser. No. 521,678
Int. Cl.[5] G08B 21/00; H01H 47/00
U.S. Cl. 340—540 20 Claims



1. A hypodermic syringe needle detection device comprising two layers of permeable electrically conductive material which is susceptible to puncture by a hypodermic syringe needle separated by permeable electrically non-conductive material which is susceptible to puncture by a hypodermic syringe needle, a means to provide electrical connection from one pole of a two pole direct current power source to pole one of a two pole alarm; a means to provide electrical connection from pole two of said two pole alarm to the second layer of said two layers of electrically conductive material; a means to provide electrical connection from the first layer of said two layers of electrically conductive material to a second pole of said two pole direct current power source; and a means to hold said device together in a portable case.

5,063,371

AIRCRAFT SECURITY SYSTEM

Michael W. Oyer, 124 Stony Gate, Carlisle, Mass. 01741, and Algird M. Gudaitis, 13 Evelyn Rd., Stow, Mass. 01775

Division of Ser. No. 913,139, Sep. 29, 1986, Pat. No. 4,933,668.
This application Dec. 22, 1989, Ser. No. 455,246
Int. Cl.[5] G08B 13/00
U.S. Cl. 340—541 14 Claims

1. An aircraft security system comprising:

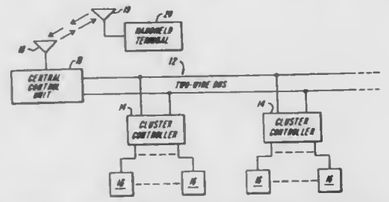
an onboard computer;

one or more cluster controllers remotely located from said onboard computer;

a plurality of sensors associated with and controlled by each of said cluster controllers, each of said sensors generating a sensor signal in response to sensing a security condition;

means for communication between said onboard computer and said cluster controllers, each of said cluster controllers transmitting said sensor signal to said onboard computer for generation of a security indication; and

said onboard computer including means for storing type information and operating parameters for each of said



plurality of sensors and for transmitting the type information and the operating parameters to the associated cluster controller when said system is to be put into operation, said type information and operating parameters identifying the type and operating characteristics of each of said sensors.

5,063,372

DOOR AJAR ALARM FOR REFRIGERATION UNIT

Jimmie D. Gillett, Garland, Tex., assignor to Ranco Incorporated of Delaware, Wilmington, Del.

Filed Jun. 22, 1990, Ser. No. 542,270
Int. Cl.[5] G08B 13/08
U.S. Cl. 340—547 8 Claims

1. An alarm system for signalling when a door of a refrigeration unit compartment is not fully closed comprising:

a. an alarm condition sensing means comprising;

i. a narrow elongated door sealing gasket magnet producing a narrow magnetic field for coupling the door to at least part of the unit extending about the compartment opening when the door is fully closed, said magnet supported by said unit within a tolerance band which is wider than the width of said magnet; and,

ii a magnetically responsive switch actuated to a first condition by the magnetic field when the door is fully closed, said switch maintained in a second condition when the door is away from the fully closed position; and,

b. an alarm signalling means for producing an alarm signal when said switch is in said second condition;

c. said switch comprising

i. a stationary contact having first and second contactors spaced apart in a direction transverse to the magnetic field when the door is fully closed;

ii. a movable elongated contact pad having first and second contacts spaced apart in said direction and each positioned for engagement with a respective one of said first and second contactors;

iii. first resiliently deflectable spring means supporting said first contact for movement toward and away from said first contactor, said first spring means deflected to produce contact between said first contact and said first contactor when said door is fully closed and the gasket magnet is at one extreme of said tolerance band; and,

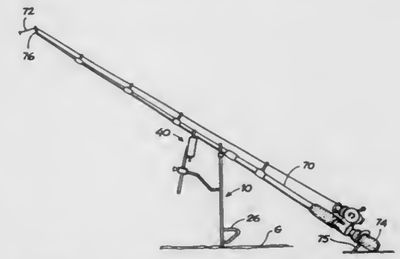
iv. second resiliently deflectable spring means supporting said second contact for movement relative to said first contact toward and away from said second contactor, said second spring means deflected to produce contact between said second contact and said second contactor when said door is fully closed and the gasket magnet is supported at the opposite extreme of said tolerance band.

5,063,373

FISHING ROD HOLDER WITH FISH ALERT

George R. Lindsley, 632 Calle Zapata, Tucson, Ariz. 85745

Filed Oct. 25, 1990, Ser. No. 603,156
Int. Cl.[5] G08B 23/00; A01K 85/01
U.S. Cl. 340—573 16 Claims



1. A fishing rod holder incorporating an alarm to alert a user of an increase in the tension of the fishing line, comprising:

(a) a support structure, consisting of a rod having a pointed bottom end for insertion into the ground and having a brace at its top end for receiving and supporting the blade of a fishing rod resting against said brace;

(b) sensor means, mounted on said support structure and adjustably in contact with the forward portion of said fishing rod, for sensing a pulling force on said forward portion of the fishing rod caused by a striking fish; and

(c) alarm means, actuated by said sensor means, for alerting said user of the pulling force on said fishing rod;

wherein said support structure further comprises a foot rest, projecting out perpendicularly from said rod to create a foothold by which said holder can be pushed into the ground, and a side arm, projecting out and generally upward from said rod in the direction opposite to said foot rest to adjustably support said sensor means.

5,063,374

SIMULTANEOUS SIGNAL DEVICES TESTING IN RESPONSE TO PERIODIC FUNCTION OF AN OPERATING DEVICE IN A SYSTEM

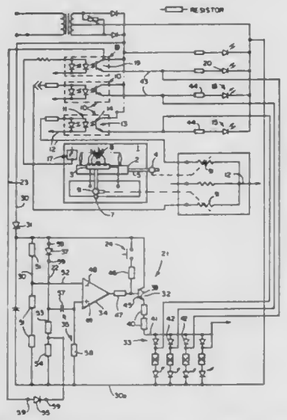
John J. Deisinger, Wauwatosa, Wis., assignor to A. O. Smith Corp., Milwaukee, Wis.

Continuation of Ser. No. 400,466, Aug. 29, 1989, abandoned.
This application Jan. 8, 1991, Ser. No. 637,925
Int. Cl.[5] G08B 21/00
U.S. Cl. 340—642 8 Claims

5. A circuit test system for testing a plurality of selectively actuated signal devices in a monitoring circuit for monitoring operation of various operating devices in an operating system including a demand signal input for supplying a demand signal for operating at least one of said various operating devices, each signal device providing a generally corresponding known output, said circuit test system comprising control means operable to simultaneously energize all of said signal devices, a

VOL 1132 ISS 1 NO 5 1991 UMI

reference voltage dividing circuit establishing a reference signal, a control voltage dividing circuit including a first resistor and a second resistor connected in series for establishing a control signal, a comparator having an output and having a first input connected to said reference voltage dividing circuit and said reference signal and having a second input connected to said control voltage dividing circuit for selectively driving



said comparator on in response to said control signal having a selective relationship to the reference signal at said first input a demand signal line connecting said control voltage dividing circuit and establishing said control signal in response to said demand signal, said control means connected to said output of said comparator, and means to selectively open and close said control voltage dividing circuit to selectively connect said demand signal to said comparator.

5,063,375

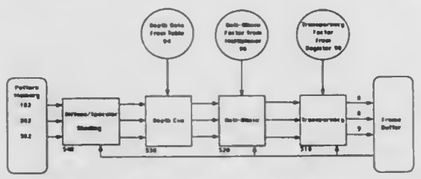
METHOD AND APPARATUS FOR SHADING IMAGES

Sheue-Ling Lien, Mountain View; Michael J. Shantz; Susan E. Carrie, both of Sunnyvale; Jim V. Loo, Los Altos, and David Elrod, Sunnyvale, all of Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Continuation of Ser. No. 77,797, Jul. 27, 1987, abandoned. This application Sep. 18, 1989, Ser. No. 409,262

Int. Cl.[5] G09G *1/28*

U.S. Cl. 340—703 **22 Claims**



1. An apparatus for generating shading values of graphic objects for display at a predetermined location on a graphics display device, said graphic objects comprising vectors, curves, polygons and patches, each graphic object defined by graphic object pixel data initially comprising a representation of the color of the graphic object, said graphic object shaded according to a light source, said device comprising a central processing unit (CPU), memory, a frame buffer and a display device which displays the pixel data stored in the frame buffer, said apparatus comprising:

means for modifying the graphic object pixel data according to specular and diffuse functions to include specular and diffuse shading values for the graphic object,

said specular function determined from specular shading scan line values, an object specular exponent for the graphic object and a surface normal vector for the graphic object, said specular shading scan line values being determined according to the dot product of the surface normal vector and unit vector in the direction of maximum highlight,

said diffuse function determined from diffuse shading scan line values, a coefficient of ambient reflection of the graphic object, the surface normal vector for the graphic object, a pattern memory relevant to the graphic object, said diffuse shading scan line values being determined according to the dot product of the surface normal vector and a unit vector in the direction of the light source;

means or modifying the graphic object pixel data to produce a depth cue effect according to a depth cue function, said depth cue function determined for a depth cue color for the graphic object, said background color and the graphic object pixel data;

means for modifying the graphic object pixel data to produce an anti-aliase effect according to an anti-aliase function, said anti-aliase function determined from a modified Bresenham error function, and the pixel data read from the frame buffer located at the predetermined location the graphic object is to be displayed;

means for modifying he graphic object pixel data to produce a transparency effect according to a transparency function, said transparency function determined from a transparency coefficient for the graphic object, pixel data read from the frame buffer located at the predetermined location the graphic object is to be displayed and the graphic object pixel data;

means for organizing the means for modifying the graphic object pixel data according to specular and diffuse functions, means for modifying ht graphic object pixel data to produce an anti-aliase effect, means for modifying the graphic object pixel data to produce a depth cue effect and means for modifying the graphic object pixel data to produce a transparency effect in a pipeline structure, said pipeline structure comprising means which serially connect said means for modifying the graphic object pixel data according to specular and diffuse functions, means for modifying the graphic object pixel data to produce an anti-aliase effect, means for modifying the graphic object pixel data to produce a depth cue effect and means for modifying the graphic object pixel data to produce a transparency effect such that the output of one means is connected to the input of another means, the first means connected in the pipeline structure having unmodified graphic object pixel data as one of its input and the last means connected in the pipeline being input to he frame buffer and having as its output the modified pixel data a reflective of a shaded image of the graphic object;

means for the CPU to selectively enable said means for modifying the graphic object pixel data according to specular and diffuse functions, means for modifying the graphic object pixel data to produce an anti-aliase effect, means for modifying the graphic object pixel data to produce a depth cue effect and means for modifying the graphic object pixel data to produce a transparency effect according to the type of graphic object the graphic object pixel data defines; and

means for the frame buffered to receive the output of the last means connected in the pipeline structure and the frame buffered for subsequent display of the shaded image of the graphic object.

5,063,376

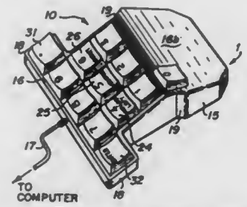
NUMERIC MOUSE ONE HAND CONTROLLABLE COMPUTER PERIPHERAL POINTING DEVICE

Ronald G. Chang, 1124 Wonderlich Dr., San Jose, Calif. 95129

Filed May 5, 1989, Ser. No. 348,062

Int. Cl.[5] G09G *5/00*

U.S. Cl. 340—706 **27 Claims**



1. A one hand controllable computer peripheral pointing device for selecting and controlling a portion of a computer screen display and for input to a mouse-based computer program comprising in operative combination:

(a) a housing, said housing being:

(i) sized to enclose means for on-screen pointing functioning of said pointing device; and

(ii) adapted to be held by one hand;

(b) said housing having at least one first surface;

(c) at least one finger-actuable button disposed on said first surface, each of said finger-actuable button being positioned on said pointing device for convenient and efficient actuation by one or more fingers of one of a user's hands while said pointing device is being controlled by said hand; and

(d) an analog switch, disposed in association with at least a first one of said finger-actuable buttons, said analog switch and associated finger-actuable button having dual function mode capability including:

(i) a first function mode for use as a selection mechanism; and

(ii) a second function mode for inputting to a computer a signal corresponding to the depth that said button is directly actuated by fingers of said user's one hand to dynamically control the value of an attribute of input data represented on a computer screen display.

5,063,377

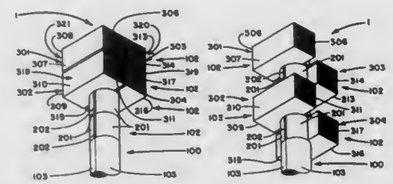
DISPLAY SYSTEM

Glenn W. Smith, Baton Rouge, La., assignor to Robotic Displays Corporation, Baton Rouge, La.

Filed Oct. 13, 1989, Ser. No. 421,264

Int. Cl.[5] G09G *3/16*

U.S. Cl. 340—764 **20 Claims**



1. A display system comprising:

a. a shaft means, for supporting said display system:

b. a plurality of carriage means, positioned on said shaft means such that carriage means are each independently movable circumferentially around said shaft means to independent positions;

c. a plurality of motorized circumferential motive means, each said circumferential motive means connected to one said carriage means, for independently moving said carriage means circumferentially about said shaft means, each said circumferential motive means and connected said carriage means forming an independently movable unit; and

d. a plurality of visual elements, each said visual element connectable to one said carriage means.

5,063,378

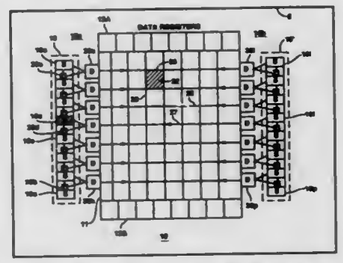
SCANNED LIQUID CRYSTAL DISPLAY WITH SELECT SCANNER REDUNDANCY

William R. Roach, Rocky Hill Borough, Somerset County, N.J., assignor to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Dec. 22, 1989, Ser. No. 455,191

Int. Cl.[5] G09G *3/18*

U.S. Cl. 340—784 **9 Claims**



1. In a scanned active matrix display including an array of selectable pixel cells arranged in a matrix having in a plurality of rows and a plurality of columns, wherein each pixel cell is addressed by selecting one of said rows of pixel cells and one of said columns of pixel cells, apparatus for redundantly selecting individual rows of pixel cells comprising:

shift register means having a plurality of stages, each coupled to a respectively different row of pixel cells, for successively applying a first select signal to each row of pixel cells;

alternate select means for successively applying a second select signal to each row of pixel cells; and

a plurality of combiner means, coupled to said plurality of stages of said shift register, respectively, and to said alternate select means for selectively applying said first select signal or said second select signal to the respective next stages of said shift register.

5,063,379

LIQUID CRYSTAL INDICATOR, PREFERABLY FOR MOTOR VEHICLES

Ehrenfried Fabry, Nürnberg; Georg Goddard, Wendelstein; Dieter Meyer, Feucht; Hans Petermann; Bernhard Pirkl, both of Nürnberg, and Werner Wiedemann, Herzogenaurach, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE87/00373, § 371 Date Apr. 21, 1989, § 102(e) Date Apr. 21, 1989, PCT Pub. No. WO88/03663, PCT Pub. Date May 19, 1988

PCT Filed Aug. 21, 1987, Ser. No. 347,776

Claims priority, application Fed. Rep. of Germany, Nov. 14, 1986, 3639008

The portion of the term of this patent subsequent to Oct. 23, 2007, has been disclaimed.

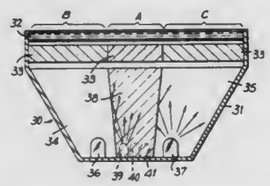
Int. Cl.[5] G09G *3/36*

U.S. Cl. 340—784 **8 Claims**

1. A display device for measured values, functions, status, and trouble indications and comprising at least one liquid crystal cell having a rear side and a plurality of areas for displaying letters, symbols or indications to be colored with different colorations; a light guide arranged at said rear side along

VOL 1132 ISS 1 NO 5 1991 UMI

at least one of said plurality of areas and having an upper surface facing said liquid crystal cell and an end portion; light source means arranged at said end portion for illuminating said liquid crystal cell, light being transmitted to said liquid crystal cell through said upper surface of said light guide, said light source transmitting a color light to said end portion of said



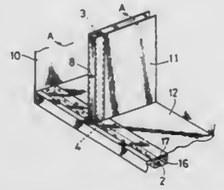
light guide; a light shaft located behind said liquid crystal cell adjacent to said light guide; and an incandescent light source located in said light shaft, said light guide having a light coupling surface for transmitting a portion of light from said incandescent light source to said at least one of a plurality of areas to provide a uniform background brightness of the liquid crystal cell.

5,063,380

DISCRETE OBJECT SEARCHING APPARATUS FOR SEARCH OF DISCRETE FILES AND THE LIKE

Shinji Wakura, Osaka, Japan, assignor to Kabushiki Kaisha Asahi Denshi Kenkyujyo, Osaka, Japan

Continuation of Ser. No. 314,129, Feb. 23, 1989, abandoned. This application Oct. 4, 1990, Ser. Nn. 593,501
Claims priority, application Japan, Feb. 24, 1988, 63-42828
Int. Cl.[5] H04Q *7/00*
U.S. Cl. 340—825.54 **15 Claims**



1. A discrete object search apparatus for searching and locating discrete objects comprising:

at least one cabinet having a plurality of shelves therein, each shelf having a groove defined therein with a transparent plate covering each of the grooves;

a plurality of infrared signal transmitters on each shelf for transmitting signals corresponding to the discrete objects being searched, each of the grooves having a plurality of said transmitters disposed therein along a longitudinal length thereof, adjacent transmitters being generally equidistantly spaced from one another, each of said discrete objects having a unique signal associated therewith;

infrared receivers individually mounted to each of the objects, each of said infrared receivers being associated with one separate, single one of said infrared transmitters, each of said infrared receivers having a receptor, a data processing portion and an external indicator, said receptor portion and said data processing portion being directly connected to each other without an amplifier portion therebetween and said data processing portion being operatively connected to the external indicator, said receptor portion receives infrared signals from the one infrared signal transmitter associated therewith, the infrared signals being transmitted from the infrared transmitter through a transparent plate covering the groove and to the receptor portion of the receiver, said data processing portion being actuated when the signal associated with the discrete object in which the infrared receiver is mounted is received, said external indicator thereafter being actuated to indicate correspondence between said signal transmitted by the infrared signal transmitters and said receivers to show a location of a desired one of the discrete objects, said infrared transmitters being located in a position to enable the infrared transmitters to transmit to the receptor portion a necessary amount of infrared light for actuating the data processing portion, and the receptor portion of each infrared receiver being in close proximity to the infrared signal transmitter associated therewith; and

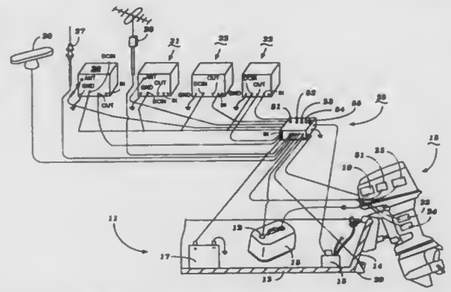
means for cutting off visible light to the receptor portion to thereby prevent actuation of the data processing portion by visible light, said means for cutting off visible light permitting infrared light to reach the receptor portion.

5,063,381

VESSEL RUNNING INFORMATION DISPLAY CONTROL SYSTEM

Saburo Ito, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabusbiki Kaisha, Hamamatsu, Japan

Continuation-in-part of Ser. No. 388,684, Aug. 2, 1989, Pat. No. 4,988,996. This application Feb. 28, 1990, Ser. No. 486,250
Claims priority, application Japan, Feb. 28, 1989, 1-49268
Int. Cl.[5] G08B *23/00*
U.S. Cl. 340—984 **3 Claims**



1. A vessel display system comprising a first output device for sensing a vehicle operating condition within a normal range and an abnormal condition and providing first output signals representative of a normal condition within the normal range and an abnormal condition when outside of the normal range, a second output device providing a second output signal of other information than the vehicle operating condition, a single display means for displaying information from said signals, and control means for switching said display means from a first condition wherein one of the first output signals is displayed during initial vehicle operation and in the event of an abnormal condition and wherein the second output signal is displayed at all other times and a second condition wherein one of the first output signals is displayed at all times.

5,063,382

CONSTRUCTION FOR MOUNTING A CAP TO A MAGNETIC TYPE ROTARY ENCODER

Yasuhisa Ohsumi, Sendai, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

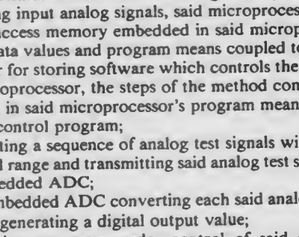
Filed Aug. 29, 1990, Ser. Nn. 574,708
Claims priority, application Japan, Nov. 22, 1989, 1-134863[U]
Int. Cl.[5] H03M *1/22*
U.S. Cl. 341—15 **2 Claims**

1. A construction for mounting a cap (33) having a first open edge (34) to a magnetic type rotary encoder, said rotary encoder comprising:

a housing (20) defining a second open edge; and

a base plate (21) disposed in said housing adjacent said second open edge; said construction for mounting comprising:

a first shoulder (35) formed on an inside surface of said



housing (20) adjacent said second open edge for receiving said base plate (21);

a second shoulder (36) formed on said inside surface of said housing adjacent said second open edge for receiving said first open edge (34) of said cap (33); and

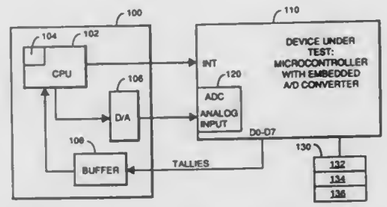
caulking disposed on said housing (20) adjacent said second open edge such that said cap (33) is secured to said housing (20).

5,063,383

SYSTEM AND METHOD FOR TESTING ANALOG TO DIGITAL CONVERTER EMBEDDED IN MICROCONTROLLER

Ram S. Bobba, San Jose, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Jun. 4, 1990, Ser. No. 532,606
Int. Cl.[5] H03M *1/10*; G06F *11/00*
U.S. Cl. 341—120 **16 Claims**



1. A method of testing an analog to digital converter (ADC) embedded in a microprocessor, said embedded ADC generating a predefined number of distinct, digital output values when converting input analog signals, said microprocessor having a random access memory embedded in said microprocessor for storing data values and program means coupled to said microprocessor for storing software which controls the operation of said microprocessor, the steps of the method comprising:

storing in said microprocessor's program mean a data tallying control program;

generating a sequence of analog test signals within a predefined range and transmitting said analog test signals to said embedded ADC;

said embedded ADC converting each said analog test signal and generating a digital output value;

said microprocessor, under control of said data tallying control program, tallying said digital output values generated by said embedded ADC and storing corresponding tally values in said microprocessor's embedded random access memory; and

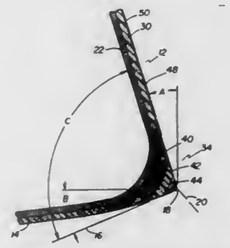
after said sequence of analog test signals has been transmitted and converted, transmitting said tally values stored in said embedded random access memory in said microprocessor to a tester, and then evaluating said tally values in said tester.

5,063,384

AIRCRAFT CONSTRUCTION

Philip F. Novak; Robert D. Shannon, both of Wichita, Kans.; Robert L. Pinckney, Cheyney, Pa., and James R. Humphreys, Jr., Wichita, Kans., assignors to The Boeing Company, Seattle, Wash.

Division of Ser. No. 295,644, Jul. 17, 1963, Pat. No. 4,924,228. This application Oct. 13, 1989, Ser. No. 420,866
Int. Cl.[5] H01Q *17/00*
U.S. Cl. 342—1 **5 Claims**



1. A structure for minimizing reflection of microwave energy back to its source comprising:

a layer of structural plastic foam;

microwave energy absorbing material filling said foam, and said filled foam having a dielectric constant of between two and ten and having a loss tangent of between 0.05 and unity and having a resistivity of between one hundred and ten thousand microohms per centimeter; and

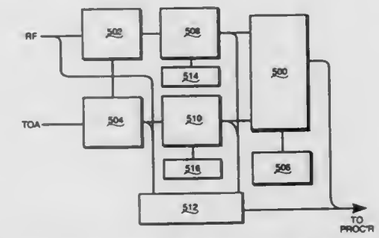
a skin of thin plastic material reinforced with non-metallic fiber covering said filled structural plastic foam.

5,063,385

RADAR WARNING RECEIVER COMPRESSED MEMORY HISTOGRAMMER

Joseph Caschera, Fairborn, Ohio, assignor to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Apr. 12, 1991, Ser. No. 684,074
Int. Cl.[5] G01S *7/36*; H04K *3/00*
U.S. Cl. 342—13 **14 Claims**



1. A method for preserving radar warning receiver generated pulse descriptor words for subsequent histogram organized processing comprising the steps of:

initializing each location of a frequency characterizing pulse descriptor word portion first memory and a time difference of arrival second memory to flag bit active predetermined initial condition;

storing, in a location of said first memory accessed by the frequency characterizing portion of an arriving pulse

VOL 1132 ISS 1 NO 5 1991 UMI

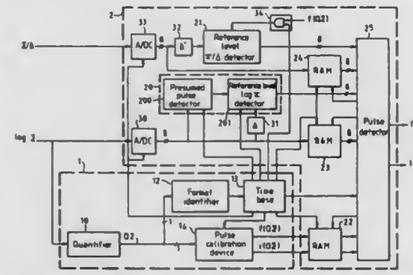
descriptor word from said receiver, the current contents of a first counter circuit;
remembering the time of arrival of said pulse descriptor word in a last time of arrival third memory;
incrementing the contents of said first counter circuit by one count;
computing the time difference of arrival value between each new pulse descriptor word arriving from said receiver and the remembered time of arrival stored in said third memory;
said storing, remembering, and computing steps being inhibited and said computing step enabled, however, by prior deactivation of said flag bit in said first memory accessed location;
addressing a location in said time difference of arrival second memory with said computed time difference of arrival value;
testing said addressed second memory location for presence for said second memory predetermined initial flag bit active condition therein;
setting the contents of said addressed second memory location to the present contents of a second counter circuit;
indexing the contents of said second counter circuit by one count;
said setting and indexing step being inhibited, however, by prior deactivation of said flag bit in said addressed second memory location;
accessing a histogram organized fourth memory location by the combined stored data from said first and second;
testing said accessed fourth memory location for an initial volume of zero;
incrementing said accessed fourth memory location by one;
if initial state of said accessed fourth memory location prior to incrementing is zero;
recording in an active pixel fifth memory, in the first available location therein, the address parameters and the most recently stored values from said frequency characterization first memory and said time difference of arrival second memory;
whereby active only pixel storage and reduced memory size requirements for said active pixel fifth memory are achieved.

5,063,386

DEVICE FOR THE DETECTION OF THE SIGNALS OF TRANSPONDERS INTERROGATED BY A SECONDARY RADAR IN THE PRESENCE OF MULTIPLE-PATH PHENOMENA

Alain Bourdeau, Limours, and Claude de Volder, Auffargis, both of France, assignors to Thomson-CSF, Puteaux, France

Filed Oct. 23, 1990, Ser. No. 601,351
Claims priority, application France, Nov. 3, 1989, 89 14416
Int. Cl.[5] G01S *13/78, 13/44*
U.S. Cl. 342—40 **6 Claims**



1. A device for detecting transponder signals generated by transponders interrogated by a secondary radar in the presence of multiple-path phenomena, wherein each of said transponder signals is formed by a pulse train arranged in a determined format with formatting pulses that identify the position of data pulses, wherein said device comprises:
a format identification circuit for identifying the format of a transponder signal including means for detecting said formatting pulses contained in a reception signal;
a time base synchronized by said format identification circuit and including means to generate timing signals for identifying time intervals in said reception signal that may possibly be occupied by data pulses of a transponder signal, and for identifying a middle of said time intervals and zones centered on said middles of said time intervals;
a presumed pulse determining circuit for determining presumed data pulses in said reception signal, said presumed pulse determining circuit having its timing rate set by said time base and including means to set up a correlation between a first, a second and a third sample of respective levels of said reception signal, wherein said first sample is taken at said middle of each said time interval that may possibly be occupied by a data pulse of a transponder signal, and said second sample and said third sample are taken during each said time interval at instants surrounding an instant when said first sample is taken, said presumed pulse determining circuit further including means to generate a weighting coefficient which is associated with each level determined by said first sample, and represents a probability of the presence of a data pulse in said time interval that may possibly be occupied by a data pulse of a transponder signal, wherein a value of said weighting coefficient corresponds to a level of correlation of said first sample, said second sample and said third sample;
a circuit for determining a reference level of said reception signal, thereby determining a reference amplitude level of pulses for each of the signals of said transponder whose format has been identified in said reception signal by said format identification circuit, said circuit for determining a reference level having its timing rate set by said time base and including means to select said reference level of said reception signal based on a maximum value of a frequency of occurrence of a level of said reception signal taken in the middle of each said time interval that may possibly be occupied by data pulses of a transponder signal wherein each said level considered is weighted by the weighting coefficients prepared by said circuit for determining presumed data pulses; and,
a circuit for detecting data pulses in said reception signal for each transponder signal whose format has been identified in the reception signal by said format identification circuit, said circuit for detecting data pulses including means for the recognition of a data pulse whenever a level of said reception signal at the middle of a time interval that might possibly be occupied by a data pulse belongs to a range of values centered on said reference level determined by said circuit for determining the reference level of the reception signal.

5,063,387

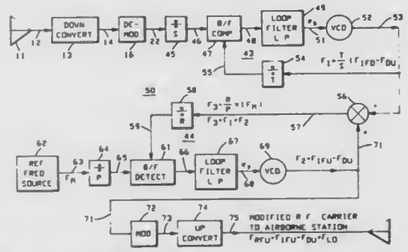
DOPPLER FREQUENCY COMPENSATION CIRCUIT

Vaughn L. Mower, Bountiful, Utah, assignor to Unisys Corporation, Blue Bell, Pa.

Filed Nov. 20, 1989, Ser. No. 439,907
Int. Cl.[5] H04L *27/30*
U.S. Cl. 342—103 **16 Claims**

1. A doppler frequency compensation circuit for a data link system comprising:
a moving airborne station source of coherent downlink R.F. signals comprising a fixed frequency carrier signal and a modulating data signal,
a ground station for receiving said coherent R.F. signals,
means in said ground station for recovering an I.F. carrier signal from said received coherent signal which is shifted by the downlink doppler frequency effect,

a scaling phase-locked loop coupled to said shifted I.F. carrier signals for producing a deviation frequency signal at said ground station which is inversely proportional to an uplink doppler frequency, and



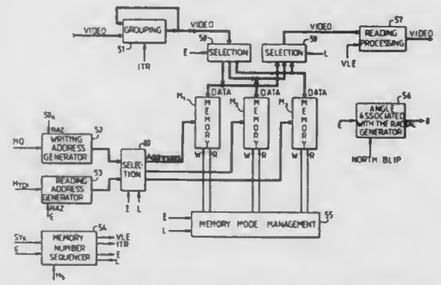
an inverting phase-locked loop coupled to said deviation frequency signal for producing uplink I.F. doppler frequency compensated signals.

5,063,388

METHOD FOR THE ASSIGNING OF RADAR RECURRENCES TO RADIALS TO BE DISPLAYED AND IMAGE DIGITAL CONVERTER TO IMPLEMENT SAID METHOD

Dominique Gault, Ville36'Avray; Jean-Pierre Andrieu, Paris, and Jean-Claude Henri, Boulogne Billancourt, all of France, assignors to Thomson-CSF, Puteaux, France

PCT No. PCT/FR88/00250, § 371 Date Nov. 15, 1989, § 102(e) Date Nov. 15, 1989, PCT Pub. No. WO88/09514, PCT Pub. Date Dec. 1, 1988
PCT Filed May 17, 1988, Ser. No. 455,441
Claims priority, application France, May 22, 1987, 87 07206
Int. Cl.[5] G01S *7/298;* **H04N** *7/01*
U.S. Cl. 342—185 **8 Claims**



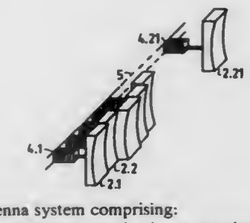
1. Method for the assigning of recurrences emitted by a radar to radials to be displayed, the recurrences being given at a first frequency which is the repetition frequency (PRF) of the radar and accompanied by a first synchronization signal (SY_R) formed by a first sequence of blips at the first frequency, and the radials being given at a second frequency in synchronism with a second synchronization signal (ϵ) formed by a second sequence of blips at the second frequency; the method being characterized by the fact that it comprises the following steps:
memorizing of the recurrences at the rate of their arrival in one of the memories of a group of m memories with $m \geq 3$, the identification of the memory written in being changed at the first blip (SY_R) of the first sequence following a blip (ϵ) of the second sequence:
grouping of a recurrence received with the previously received and already memorized recurrence, should there have been no change in said identification of memory;
reading of at least one memory of said group to form a radial, upon reception of each blip (ϵ) of the second sequence, the identification of the memory read being obtained from that of the memory written in at the same instant.

5,063,389

ANTENNA SYSTEM WITH ADJUSTABLE BEAM WIDTH AND BEAM ORIENTATION

Bernard J. Reits, Hengelo, Netherlands, assignor to Hollandse Signaalapparaten B.V., Hengelo, Netherlands

Continuation of Ser. No. 318,995, Mar. 3, 1989, abandoned. This application Sep. 13, 1990, Ser. No. 582,808
Claims priority, application Netherlands, Mar. 8, 1988, 8800538
Int. Cl.[5] H01Q *3/00, 15/14, 15/20*
U.S. Cl. 342—359 **21 Claims**



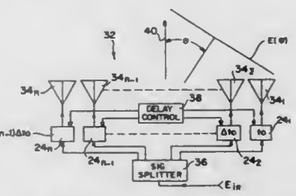
1. An antenna system comprising:
an active radiation source having a wavelength λ;
a substantially flat, contoured surface formed by a plurality of separate and independently adjustable adjacent reflecting plates having transverse dimensions on the order of the wavelength λ positioned for reflecting the radiation and forming at least one radiation beam; and
adjusting means for dynamically translating the plates with respect to each other during operation of the antenna system, thereby determining the antenna beam pattern;
wherein, for orienting at least one beam, the plates are arranged in groups of plates for which the mutual difference in radiation path distance from the active radiation source to two adjacent plates respectively belonging to the same group is much less than $n \times \frac{1}{2}\lambda$ ($n = 1, 2, \ldots$) and where the mutual difference in radiation path distance from the active radiation source to the two adjacent plates respectively belonging to different groups is substantially $n \times \frac{1}{2}\lambda$.

5,063,390

NON-DISPERSIVE ACOUSTIC TRANSPORT TIME DELAY BEAM STEERING ANTENNA

Charles E. Konig, Staten Island, N.Y., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 19, 1991, Ser. No. 656,915
Int. Cl.[5] H01Q *3/22*
U.S. Cl. 342—375 **5 Claims**



1. Beam steering apparatus for phased array antenna assembly including a plurality of antenna elements, comprising;
variable charge transport delay line means coupled to each of said antenna elements, wherein each said charge trans-

VOL 1132 ISS 1 NO 5 1991 UMI

port delay line means comprises an acoustic transport device; and

phase control means coupled to each said delay line means, wherein said phase control means controlls the phase shift imparted to respective RF energy coupled to and translated by said delay lines means,

whereby time delay beam steering of an RF wave is effected at said antenna.

5,063,391

METHOD OF MEASURING CHIRAL PARAMETERS OF A CHIRAL MATERIAL

Dwight L. Jaggard, Newtown Square, and Nader Engheta, King of Prussia, both of Pa., assignors to The Trustees of the University of Penn., Pa.

Filed Jun. 6, 1989, Ser. No. 362,072
Int. Cl.[5] G01R *29/80*
U.S. Cl. 343—703 **6 Claims**

1. A method of measuring chiral parameters of a chiral material, the steps of the method comprising:

providing at least one antenna sensing element;

irradiating the chiral material with electromagnetic energy from at least one transmitting antenna element thereby exciting the chiral material with the electromagnetic radiation and causing the electromagnetic energy to propagate in the chiral material according to two eigenmodes of propagation;

sensing the electromagnetic energy propagating in the chiral material according to the two eigenmodes of propagation with the antenna sensing element; and

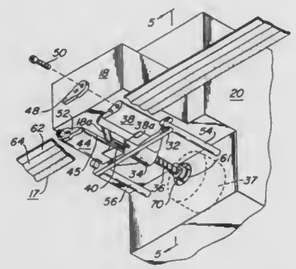
determining the chiral parameters from the sensed electromagnetic energy propagating according to the two eigenmodes of propagation.

5,063,392

COLOR CHANGE SYSTEM FOR MULTICOLOR STRIP CHART RECORDERS

Daniel J. Carr, Harleysville; Charles R. Scally, Warminster; Bill M. McClenoen, Harleysville; Michael D. Carney, Havertown; George Volkodav, North Wales, and Thomas J. Walsh, Hatboro, all of Pa., assignors to General Signal Corporation, Stamford, Conn.

Filed Jan. 2, 1990, Ser. No. 459,848
Int. Cl.[5] G01D *9/28*
U.S. Cl. 346—46 **7 Claims**



1. In a printer having a registration element, which is selectively driven in traverse of a paper to be printed on over a line parallel to the paper; a ribbon having a plurality of parallel color bands, which ribbon is carried by a cartridge providing a supply of ribbon; and means for transporting the ribbon through a plane between a line of traverse of the element and a surface of the paper; the improvement which comprises:

a ribbon guide mounted so that said ribbon guide traverses the paper with said registration element, said ribbon guide having guiding surfaces positioned on each side of the registration element and close to said registration element, said guiding surfaces being shaped to guide the ribbon on a path which extends across the paper so that said ribbon will pass between the registration element and the paper,

a stepping motor mounted on said carriage for moving said ribbon guide in a direction normal to the line of traverse of the registration element and parallel to said plane so as to selectively position color bands of the ribbon under the registration element so that a selected color can be printed at selected positions across the paper as the registration element is driven in traverse of the paper; and

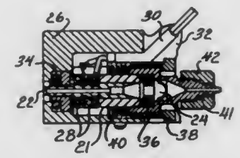
means for pivotally mounting said ribbon cartridge so that said ribbon cartridge is free to pivot about an axis above the line of traverse of the registration element whereby said ribbon is free to move in response to displacement of the ribbon by said movement of the ribbon guide in selection of the color band.

5,063,393

INK JET NOZZLE WITH DUAL FLUID RESONANCES

James E. Clark, Naperville, and Robert I. Keur, Niles, both of Ill., assignors to Videojet Systems International, Inc., Chicago, Ill.

Filed Feb. 26, 1991, Ser. No. 661,660
Int. Cl.[5] G01D *15/18*; B23P *15/00*
U.S. Cl. 346—75 **7 Claims**



1. A nozzle for drop marking comprising:

(a) a housing defining at least two fluid chambers therein adapted to receive a supply of marking fluid under pressure, each chamber having a characteristic fluid resonant frequency;

(b) transducer means for applying a stimulation voltage having an operating frequency f_0 to cause drop formation as said marking fluid issues from said housing;

(c) said fluid chambers being dimensioned so that one fluid resonant frequency is above the operating frequency f_0, while the other fluid resonant frequency is below f_0, said resonant frequencies being sufficiently close together that the magnitude of the stimulation voltage at an anti-resonance frequency therebetween is drivable by said transducer means;

whereby a robust operating region is defined between the resonances where substantially satellite free marking can occur while tolerating variations in stimulation voltage, temperature and the composition and/or characteristics of the marking fluid.

5,063,394

THERMAL RECORDING APPARATUS AND PRINT HEAD

Hitoshi Nagato, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 26, 1989, Ser. No. 385,091
Claims priority, application Japan, Jul. 26, 1988, 63-184511; May 17, 1989, 1-123604
Int. Cl.[5] B41J *2/325, 2/38, 2/39*
U.S. Cl. 346—76 PH **65 Claims**

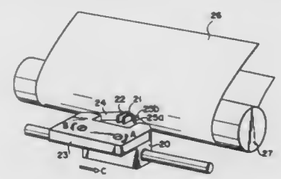
1. A thermal recording apparatus for recording on either of thermal paper or plain paper in accordance with recording data, comprising:

recording mode determining means for determining one of a current injection mode and a thermal paper mode;

hold means for holding an ink ribbon including a resistive base film and an ink layer in the current injection mode, ink being transferred from the ink layer to the plain paper upon reception of heat generated in the resistive base film in the current injection mode;

means for feeding the ink ribbon held by said hold means in a predetermined direction;

heat generating means, having heating points for generating heat in accordance with recording data, for applying heat from the heating points to thermal paper in the thermal paper mode, said heat generating means being brought into contact with the thermal paper in the thermal paper



mode and with the ink ribbon in the current injection mode to apply heat from the heating points to the ink ribbon; and

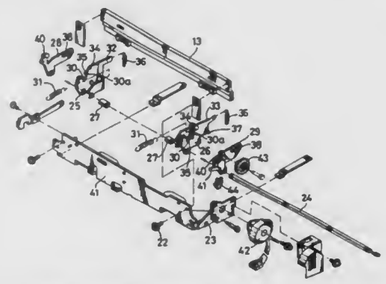
current injection means, having electrodes and being brought into contact with the ink ribbon in the current injection mode, for injecting a current from the electrodes to the ink ribbon in accordance with recording data so as to supply a current to the ink ribbon and to generate heat in the resistive base film of the ink ribbon in the current injection mode, said heat generating means being located at an upstream side of said current injecting means with respect to the predetermined direction in which the ink ribbon is fed.

5,063,395

THERMAL PRINTER HAVING A PLATEN WHICH CAN BE PRESSED AGAINST A THERMAL HEAD

Akira Nuita, and Katsuhiko Kawaguchi, both of Shizuoka, Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

Filed Mar. 2, 1990, Ser. No. 487,447
Claims priority, application Japan, Mar. 6, 1989, 1-25467[U]; Apr. 7, 1989, 1-41261[U]
Int. Cl.[5] G01D *15/10*
U.S. Cl. 346—76 PH **3 Claims**



1. A thermal printer comprising:

a platen having shaft parts on each end thereof;

a head frame;

a thermal head fixedly mounted on said head frame;

a supporting shaft rotatably mounted on said head frame;

first and second supporting levers rotatably mounted on both sides of said supporting shaft, each of said first and second supporting levers comprising an opening for supporting the shaft parts of said platen;

a first energizing means for energizing said supporting levers in a direction of movement toward said thermal head;

first and second stop levers rotatably mounted on said first and second supporting levers, each of said first and second stop levers comprising depression parts for abutting against external peripheral surfaces of said shaft parts of said platen, said first and second stop levers further comprising a pin having a shaft center which is parallel to said supporting shaft;

a second energizing means for energizing said first and second stop levers in order to move said depression parts of said stop levers toward a lower portion of the opening of said first and second supporting levers;

first and second release levers fixedly mounted on both ends of said supporting shaft;

abutment parts disposed on opposing surfaces of said stop levers and said release levers for abutting on each other and transmitting force between said stop levers and said release levers; and

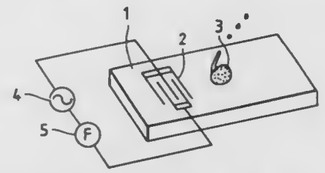
hooks formed on a portion of said openings of each of said first and second supporting levers, said hooks facing, with a predetermined gap, an outer periphery of small diameter parts formed on said shaft parts of said platen.

5,063,396

DROPLETS JETTING DEVICE

Shoko Shiokawa; Yoshikazu Matsui, and Toshihiko Ueda, all of Shizuoka, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Mar. 13, 1990, Ser. No. 492,446
Claims priority, application Japan, Mar. 14, 1989, 1-61289
Int. Cl.[5] B41J *2/04*; G01D *15/16*
U.S. Cl. 346—140 R **6 Claims**



1. A droplets jetting device, comprising:

a substrate having a piezo-electric material for generating a Rayleigh mode elastic surface wave in response to an AC voltage applied thereon, said substrate including a surface for propagation of said wave thereupon;

a pair of input electrodes formed on the surface of said substrate, for applying an AC voltage to said substrate;

AC voltage generator means for generating an AC voltage and applying said AC voltage to said input electrodes;

pulse signal generator means for causing said AC voltage to occur intermittently;

means for placing liquid droplets on the surface of said substrate, said droplets being placed downstream of and propagating in the same direction as the Rayleigh surface wave.

5,063,397

VARIABLE-THICKNESS IMAGING MEMBERS

Frank Jansen, and Inan Chen, both of Webster, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed May 25, 1990, Ser. No. 528,874
Int. Cl.[5] G01D *15/06, 9/00*; G03G *15/06*
U.S. Cl. 346—153.1 **25 Claims**

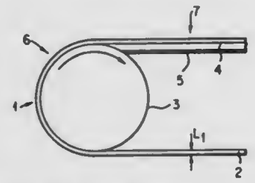
1. An imaging device, comprising:

dielectric means for receiving a charge: p1 conductive means for attracting said charge, said conductive means

VOL 1132 ISS 1 NO 5 1991 UMI

having a first conductive part and a second conductive part; and

spacer means for insuring that at a first position, a distance



form an outer surface of said dielectric means to said first conductive part is different from a distance form said outer surface of said dielectric means to said second conductive part at a second position.

5,063,398

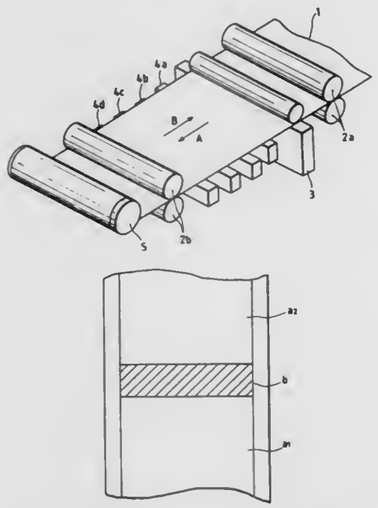
COLOR IMAGE RECORDING APPARATUS

Hiroaki Murai, Chigasaki; Tatsuya Katano, Fujisawa, and Shigeki Kikuchi, Hamakita, all of Japan, assignors to Matsushita Graphic Communication Systems, Inc., Tokyo, Japan

Filed Mar. 6, 1991, Ser. No. 665,127

Int. Cl.[5] G03G *15/01*

U.S. Cl. 346—157 7 Claims



1. A color image recording apparatus for recording a composite color image composed of a plurality of superimposed images of different colors on a recording medium, comprising:

feed means for reciprocally feeding the recording medium in successive strokes;

latent image forming means for forming first latent images on the recording medium in the respective strokes;

a plurality of developing means for developing the first latent images formed on the recording medium into respective visible images with respective developers of different colors which are supplied respectively to said developing means, in the respective strokes; and

control means for controlling said latent image forming means to form second latent images each of a predetermined length on the recording medium after the respective first latent images are formed in the respective strokes by said latent image forming means.

5,063,399

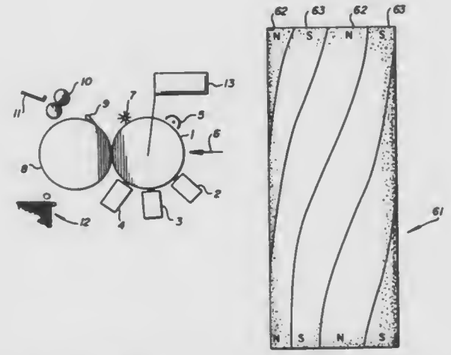
ELECTROPHOTOGRAPHIC APPARATUS HAVING REDUCED DRUM DRIVE FLUTTER

Robert E. Zeman, Webster, and Kevin M. Johnson, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 6, 1990, Ser. No. 563,022

Int. Cl.[5] G03G *15/09*

U.S. Cl. 346—160.1 7 Claims



1. A printing apparatus comprising:

a rotatable metal drum having one or more layers upon which electrostatic images are formable,

electronic means for forming electrostatic images on said drum,

toning means for applying toner to said electrostatic images to form a toner image, said toning means including

a non-magnetic sleeve,

a rotatable magnetic core inside said sleeve,

means for rotating said core to move a magnetic developer through a development zone on said sleeve,

said magnetic core being generally cylindrical and including an arrangement of magnetic poles in which said poles alternate circumferentially and vary along the length of said core so that said metal drum is subjected to magnetic pole transitions which vary in phase along the length of said drum.

5,063,400

LENS-FITTED PHOTOGRAPHIC FILM PACKAGE

Hisashi Takei, Kanagawa; Hiroshi Ohmura, Tokyo; Seimei Ushiro, Tokyo; Mitsuyoshi Mochida, Tokyo; Yoshihiko Nakamura, Kanagawa; Seiji Asano, Saitama, and Toshio Yoshida, Ibaragi, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

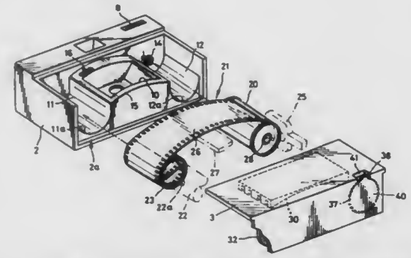
Division of Ser. No. 111,156, Oct. 19, 1987, Pat. No. 4,890,130.

This application Dec. 22, 1989, Ser. No. 454,972

Claims priority, application Japan, Oct. 17, 1986, 61-246979; Jan. 19, 1987, 62-5696; Feb. 12, 1987, 62-30140; Aug. 19, 1987, 62-126190; Jan. 19, 1987, 62-5699

Int. Cl.[5] G03B *17/02*

U.S. Cl. 354—288 17 Claims



1. A lens-fitted photographic film package comprising a light-tight film case with a taking lens fitted thereto, a separate empty light-tight film cartridge having a spool therein rotatable about an axis of rotation, said film cartridge being enclosed in said light-tight film case on one side of said lens, an unexposed rolled film with its one end retained on said spool in said film cartridge, said unexposed rolled film being disposed on the other side of said taking lens with its outermost turn in contact with said film case, said light-tight film case comprising a main case section which has a film cartridge receiving chamber with an opening at its bottom for removably receiving said film cartridge and a rolled film receiving chamber for receiving said rolled film, a rear and bottom case section which is securely fixed to a rear side and said bottom of said main case section and cannot be disassembled therefrom and which closes said chambers, and a third member carried only by a bottom portion of said rear and bottom case section and sealing said opening at the bottom of said film cartridge receiving chamber, said third member being disposed only on said one said of said lens in alignment with said axis and openable to expose said opening of said film cartridge receiving chamber so as to allow said film cartridge to be removed, said film package being devoid of means for advancing a film rolled on a said cartridge from said one side of said lens into a rolled configuration on said other side of said lens.

5,063,401

WET TREATMENT ARRANGEMENT FOR PHOTOGRAPHIC SHEET CARRIERS

Angelika Oberkersch; Anton Pirmann, and Helmut Schausberger, all of Munich, Fed. Rep. of Germany, assignors to Agfa-Gevaert AG, Leverkusen, Fed. Rep. of Germany

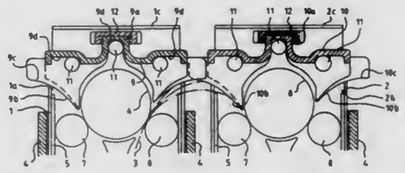
Filed Dec. 10, 1990, Ser. No. 625,224

Claims priority, application Fed. Rep. of Germany, Jan. 4, 1990, 4000114

Int. Cl.[5] G03D *3/08*

U.S. Cl. 354—320 6 Claims

1. A wet treatment arrangement for photographic sheet carriers, comprising at least one liquid tank having an inlet slot and an outlet slot; and an upper side; at least one transporting roller located in said tank for transporting a sheet carrier from said inlet slot to said outlet slot; a cover part covering said upper side of said tank and provided with guiding surfaces for guiding a sheet carrier from said inlet slot to said transporting roller and from said transporting roller to said outlet slot, and also provided with transfer guiding surfaces, said first mentioned guiding surfaces and said transfer guiding surfaces



merging with one another and being formed as guiding ribs extending transversely to a length of said rollers and parallel to one another.

5,063,402

APPARATUS FOR RETRACTING A PHOTO-TAKING LENS

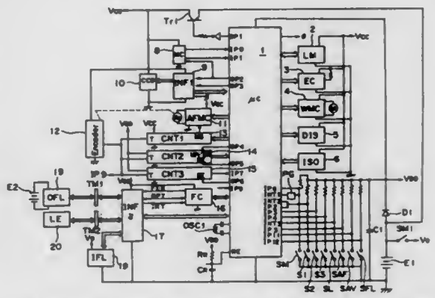
Takahisa Shimada; Toshio Yamaki, both of Osaka; Kenji Tsuji, Kashiwara; Masaaki Nakai, Kawachinagano; Akihiko Fujino, and Hiroshi Ootsuka, both of Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 563,950, Aug. 7, 1990, abandoned, which is a continuation of Ser. No. 421,300, Oct. 10, 1989, abandoned, which is a continuation of Ser. No. 196,817, May 17, 1988, abandoned, which is a continuation of Ser. No. 66,764, Jun. 25, 1987, abandoned. This application Oct. 23, 1990, Ser. No. 602,911

Claims priority, application Japan, Jun. 25, 1986, 61-150478

Int. Cl.[5] G03B *13/36*

U.S. Cl. 354—400 23 Claims



1. A lens retracting apparatus in a photo-taking device which comprises:

a photo-taking lens including a focusing lens;

a focus detecting means;

means for driving the focusing lens so that a front end of the photo-taking lens is selectively retracted and extended by means of the drive of the focusing lens;

first means for controlling the driving means to drive the focusing lens towards an in-focus position on the basis of a result of focus detection carried out by the focus detecting means;

a first switch manually operable to start the focus detecting operation of the focus detecting means;

a second switch selectively switchable between a first position for enabling an operation of said first switch and a second position for disabling the operation of said first switch;

second means in response to the switching of the second switch from the first position to the second position for controlling the driving means to drive the focusing lens so that the front end of the photo-taking lens is retracted;

VOL 1132 ISS 1 NO 5 1991 UMI

means for determining whether or not the focusing lens is located at a predetermined position; and

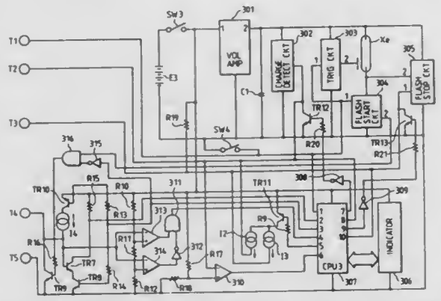
third means for controlling the driving means to stop the movement of the focusing lens caused by the second controlling means when a condition in which the focusing lens is driven to the predetermined position is determined by the determining means.

5,063,403

ELECTRONIC FLASH APPARATUS FOR CAMERA

Norikazu Yokonoma, Tokyo; Nobuyoshi Hagiuda, Kawasaki; Yoshikazu Iida, Chigasaki; Hiroshi Sakamoto, Kawasaki, and Hideki Matsui, Yokohama, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 354,301, May 19, 1989, abandoned.
This application Feb. 25, 1991, Ser. No. 659,547
Claims priority, application Japan, May 23, 1988, 63-125571
Int. Cl.[5] G03B *7/00, 15/03*
U.S. Cl. 354—413 **8 Claims**



1. An electronic flash apparatus for use with a camera which selectively assumes an information transfer state capable of effecting information transfer to said electronic flash apparats or a flash photographing state capable of effecting a flash photographing operation, comprising:

a terminal to be electrically connected to said camera, said terminal inputting a light stop signal from said camera for stopping a flashing operation of said electronic flash apparatus, said electronic flash apparatus transferring information to said camera through said terminal;

current supply means for supplying current to said terminal; and

discriminating means for discriminating whether said camera is in said information transfer state or is in said flash photographing state, said discriminating means causing said current supply means to supply first current to said terminal when said discriminating means discriminates that said camera is in said information transfer state, said discriminating means causing said current supply means to supply second current to said terminal, which is lower than said first current, when said discriminating means discriminates that said camera is in said flash photographing state.

5,063,404

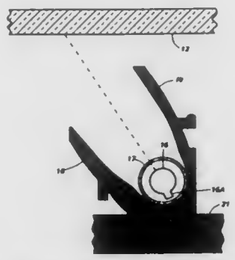
DOCUMENT ILLUMINATION ASSEMBLY ADAPTED TO REDUCE PLATEN OVERHEATING

Richard J. Milillo, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 3, 1990, Ser. No. 620,693
Int. Cl.[5] G03B *27/52*
U.S. Cl. 355—30 **6 Claims**

1. In a document scan/illumination system wherein a document on a document platen is incrementally illuminated by a scan assembly beneath said platen, said scan assembly adapted to reduce heat buildup at the platen and including, in combination

an elongated illumination lamp, and



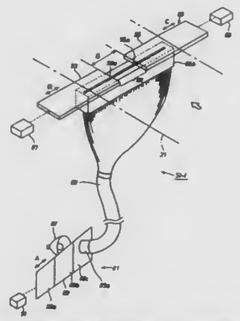
a glass tube annulus open at both ends to create a partially confined interior space between said lamp and annulus.

5,063,405

APPARATUS FOR FORMING IMAGES

Kenji Sakakibara, Ichinomiya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya Aichi, Japan

Filed Sep. 25, 1990, Ser. No. 588,583
Claims priority, application Japan, Oct. 18, 1989, 1-271394
Int. Cl.[5] G03B *27/32, 27/52*
U.S. Cl. 355—32 **23 Claims**



1. An image forming apparatus for forming chromatic images on a copy sheet, comprising:

a light source for illuminating an original;

a photosensitive recording medium;

focusing means for focusing light reflected from the original onto the photosensitive recording medium to form a latent image on the photosensitive recording medium;

supplementary exposing means for irradiating a desired area on the photosensitive recording medium with a desired chromatic light to convert the color of the image only in the desired area, the desired area irradiated by said supplementary exposing means being smaller than the area onto which light is reflected from the original; and

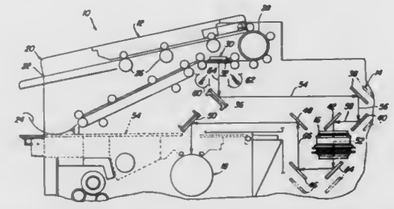
image transferring means for forming chromatic images on the copy sheet corresponding to the latent image on the photosensitive recording medium.

5,063,406

COPYING MACHINE

Paul Braun, and Ronald W. Kwasniewicz, both of Farmington, assignors to Kwaun Manufacturing Company, Walled Lake, Mich.

Filed Nov. 19, 1987, Ser. No. 122,900
Int. Cl.[5] G03B *27/34*
U.S. Cl. 355—57 **4 Claims**



1. A copy machine comprising: a housing **(134)**; original document support means **(32)** for supporting an original document to be copied; mirror and lens means **(14,16)** for reflecting and focusing an image from said support means **(32)** to an image fixing means **(18)**; image fixing means **(18)** for fixing the reflected image on a substrate; and characterized by including a slide track **(13)** within said housing **(134)** and mirror and lens support means mounted in said track **(14,16)** for supporting said mirror **(14)** and lens means **(16)** as a module slideably on said track **(130)** for sliding extension from and retraction back into said housing to expose said entire module outside of said housing.

5,063,407

METHOD AND APPARATUS FOR RECORDING IMAGE

Atsushi Takagi, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Dec. 20, 1990, Ser. No. 630,652
Claims priority, application Japan, Dec. 21, 1989, 1-332208; Dec. 21, 1989, 1-332209
Int. Cl.[5] G03B *27/80*
U.S. Cl. 355—68 **12 Claims**

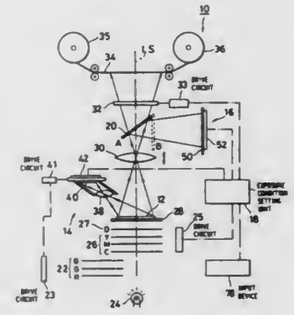
1. A method of recording image which comprises the steps of:

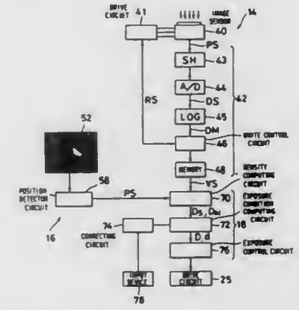
performing photometry on a plurality of pixels into which an original film is divided;

measuring the large-area transmittance density of said original film on the basis of the photometric values for individual pixels;

designating the main area of said original film and measuring the average transmittance density of the designated main area;

determining conditions of exposure as appropriate for said original film on the basis of a linear relationship between the basic density of exposure associated with said large-area transmittance density and the average transmittance density of the main area; and





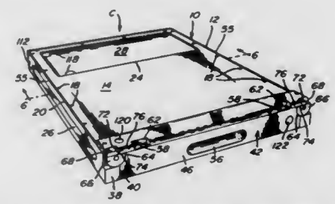
permitting the image information on said original film to be recorded on a light-sensitive material under said appropriate conditions of exposure.

5,063,408

MOTORIZED SHEET FILM CARTRIDGE

Najeeb A. Khalid, Montreal; Larry Adams, Dorval; Stan Schwartz, and Jean Wong, both of Montreal, all of Canada, assignors to Escher-Grad Incorporated, Montreal, Canada

Filed Mar. 22, 1991, Ser. No. 673,333
Int. Cl.[5] G03B *27/58*
U.S. Cl. 355—72 **18 Claims**



1. A motorized sheet film cartridge comprising a housing means for containing at least one sheet film, said housing means defining an opening, a film access door means and a door drive means for displacing said door means between an open position for allowing the sheet film to be removed from said housing means or inserted therein through said opening and a closed position wherein said door means closes said opening, said door drive means being adapted to be actuated by an external

VOL 1132 ISS 1 NO 5 1991 UMI

control means for selectively opening or closing said door means.

5,063,409
IMAGE RECORDING APPARATUS AND EXCHANGING UNIT USED IN THE SAME

Tomohiro Nakajima, Machida, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

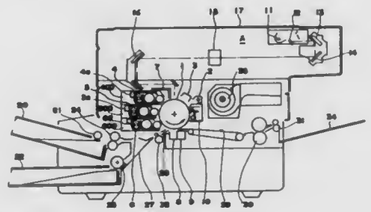
Filed Nov. 8, 1990, Ser. No. 610,551
Claims priority, application Japan, Nov. 9, 1989, 1-130906[U]
Int. Cl.[5] G03G *15/00, 15/21*
U.S. Cl. 355—200 **20 Claims**

1. An image recording apparatus having a photo sensitive member, which apparatus records an image in accordance with an electrophotography process, said image recording apparatus comprising:
a housing;
an optical system provided in said housing, for emitting a light beam used for the electrophotography process;
a stopper member provided in said housing at a predetermined position; and
an exchanging unit detachably provided in said housing and having at least a device used for the electrophotography process, said exchanging unit further comprising,
an optical member,
a supporting mechanism for movably supporting said optical member, and
an elastic member for pressing said optical member onto said stopper member when said exchanging unit is loaded in said housing at a predetermined position,
wherein the light beam emitted from said optical system passes through said optical member in said exchanging unit and is projected onto said photo sensitive member.

5,063,410
IMAGE FORMING APPARATUS HAVING A PLURALITY OF REMOVABLE DEVELOPING DEVICES

Naoyoshi Kinoshita, and Keiji Kusumoto, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Feb. 9, 1990, Ser. No. 477,462
Claims priority, application Japan, Feb. 10, 1989, 1-31955
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—204 **14 Claims**

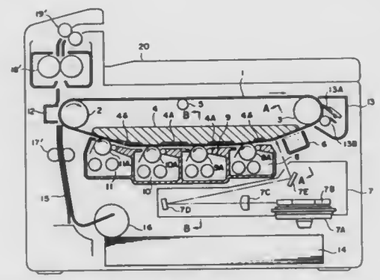


1. An image forming apparatus comprising:
a photoreceptor rotatable in a predetermined direction;
a plurality of developing portions arranged one by one in the direction of the photoreceptor rotation;
a plurality of developing units attachable to the developing portions respectively for accommodating different kinds of developer;
detecting means for detecting attachment of at least one of the plurality of developing units accommodating a specific kind of developer; and
control means responsive to said detecting means for regulating operation of the developing portions to which the developing units accommodating the developer are attached except for at least one of the plurality of developing units accommodating the specific kind of developer.

5,063,411
COLOR IMAGE FORMING APPARATUS HAVING A UNITARY GUIDE PLATE FACING A PLURALITY OF DEVELOPING DEVICES

Satoshi Haneda; Masakazu Fukuchi; Shunji Matsuo, and Shizuo Morita, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Jun. 8, 1990, Ser. No. 535,121
Claims priority, application Japan, Jun. 16, 1989, 1-153743; Jul. 7, 1989, 1-177729; Jul. 25, 1989, 1-192874
Int. Cl.[5] G03G *5/00, 15/01*
U.S. Cl. 355—212 **15 Claims**



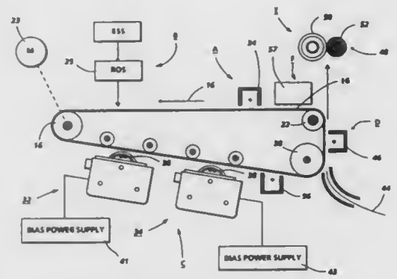
1. A color image forming apparatus, comprising:
a photoreceptor endless belt;
a unitary guide plate having a guide surface for guiding said endless belt, said guide surface including;

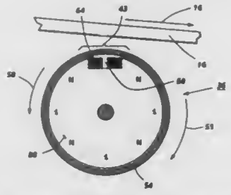
a plurality of contact portions which contact said endless belt; and
at least one non-contact portion which does not contact said endless belt;
a plurality of developing means each positioned to respectively face a different one of said plurality of contact portions; and
said endless belt being mounted on said guide plate to pass between said guide surface and each of said plurality of developing means.

5,063,412
DEVELOPMENT APPARATUS USING AN ELECTROMAGNET TO PREVENT DEVELOPMENT IN THE NON-OPERATIVE MODE

Mark J. Hirsch, Fairport, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 26, 1990, Ser. No. 588,406
Int. Cl.[5] G03G *15/06*
U.S. Cl. 355—259 **10 Claims**



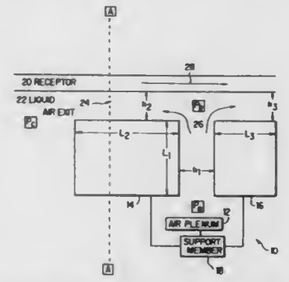


1. An apparatus for developing a latent image recorded on a member with developer material, including:
means for transporting the developer material into a development zone, in the operative mode, and removing developer material from the development zone, in the non-operative mode, so as to develop the latent image recorded on the member with developer material in the operative mode and prevent development thereof in the non-operative mode;
means for attracting the developer material to said transporting means, said attracting means includes a magnet operatively associated with said transporting means to attract developer material thereto, said magnet being adapted to generate a weak magnetic field in the development zone; and
means, operable in the non-operative mode, for changing the attraction in the development zone between the developer material and said transporting means so that the developer material moves with said transporting means away from the development zone, said changing means includes an electromagnet adapted to be energized in the non-operative mode to decrease the magnet field gradients in the development zone.

5,063,413
REMOVAL OF EXCESS LIQUID FROM AN IMAGE RECEPTOR

Gerald A. Domoto, and Aron Sereny, both of Briarcliff Manor, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Jul. 31, 1990, Ser. No. 560,814
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—296 **20 Claims**



1. An apparatus for removing excess liquid from a surface of an image receptor, comprising:
means for effecting air flow in a direction substantially parallel to and opposite the direction of movement of the image receptor, said air flow being effected at a velocity greater than the velocity of movement of said image receptor, said effecting means applying a shearing action to a surface of said image receptor to remove any excess liquid present thereon, said effecting means including members defining flow paths for passage of air and excess liquid, said effecting means being self-compensating so that dimensions of the flow paths can be varied without affecting the applied shearing action.

5,063,414
COPIER ALLOWING SUCCESSIVE COPYING OPERATIONS WHILE AVOIDING CERTAIN WAITING PERIOD

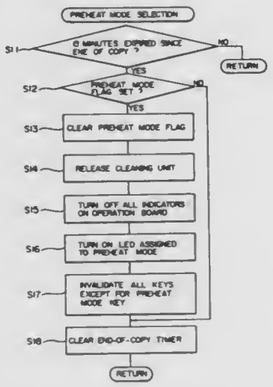
Kouji Shirasugi, Satte, Japan, assignor to Ricoh Company, Ltd., Japan

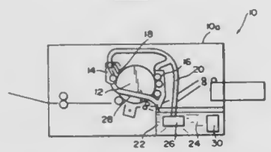
Filed Dec. 15, 1989, Ser. No. 451,232
Claims priority, application Japan, Dec. 28, 1988, 63-329066
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—296 **3 Claims**

1. A copier in which an operation mode is switched from a copy mode to either a power off mode or a preheat mode on the lapse of a predetermined period of time after a copying operation, the copier comprising:
a photoconductive element;
a cleaning unit including a cleaning structure, the cleaning structure being released from the photoconductive element in response to switchover of the operation mode;
temperature sensing means responsive to a temperature of a liquid developer which is fed to the photoconductive element and the cleaning unit; and
control means, responsive to the temperature sensed by the temperature sensing means, for continuing the copy mode

VOL 1132 ISS 1 NO 5 1991 UMI

to avoid a waiting period before a subsequent copying operation when the temperature sensed by the tempera-





ture sensing means is lower than a predetermined temperature.

5,063,415

IMAGE FORMING APPARATUS

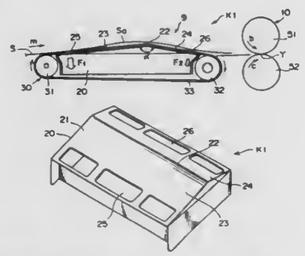
Takayuki Ariyama, Toyokawa, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Oct. 10, 1990, Ser. No. 595,248

Claims priority, application Japan, Oct. 13, 1989, 1-266660; Aug. 10, 1990, 2-212188

Int. Cl.[5] G03G *15/00*

U.S. Cl. 355—312 **12 Claims**



1. An image forming apparatus comprising:
an image forming means for forming a toner image on a photosensitive member;
a transfer means for transferring the toner image on said photosensitive member to a recording paper sheet;
a fixing means for fixing the toner image on the recording paper sheet, onto the recording paper sheet, which is so provided as to be spaced a predetermined distance from said transfer means;
a guide member which has a first inclined face for obliquely upwardly guiding the recording paper sheet having the toner image transferred thereto by said transfer means and a second inclined face for obliquely downwardly guiding to said fixing means, the recording paper sheet guided above the first inclined face;
the first inclined face being formed with a first suction opening, while the second inclined face is formed with a second suction opening;
a transport belt means for transporting the recording paper sheet to said fixing means along the first and second inclined faces, which is wound along the first and second inclined faces and is formed with a plurality of holes; and
a suction means which sucks air above the first inclined face through the holes of said transport belt means and the first suction opening and sucks air above the second inclined face through the holes of said transport belt means and the second suction opening so as to bring the recording paper sheet into close contact with said belt above said first and second inclined faces, respectively.

5,063,416

ELECTROPHOTOGRAPHIC PRINTER USING A CONTINUOUS-FORM RECORDING SHEET

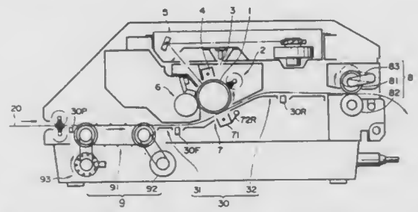
Ryoji Honda, Asaka; Masahiro Kita, Tokyo, and Ikuo Negoro, Sakado, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 11, 1990, Ser. No. 535,477

Claims priority, application Japan, Jun. 13, 1989, 1-149976; Apr. 26, 1990, 2-111210

Int. Cl.[5] G03G *15/00*

U.S. Cl. 355—316 **30 Claims**



16. A printing process employed in a printing device utilizing an electrophotographic system, capable of employing at least a continuous-form recording sheet having a plurality of printing segments on which an image is to be formed, each of said segments defined by a plurality of perforations provided on said continuous-form recording sheet at a predetermined interval, and comprising:
forming an image on said continuous-form recording sheet;
fixing the image formed on said continuous-form recording sheet;
locating a trailing end of a segment on which forming has been completed, at a predetermined position following a position at which fixing is performed; and
locating the trailing end at a position at which the forming is executed, whereby a leading edge of the next succeeding segment is located at said position at which the forming is performed.

5,063,417

MOLECULAR SHIFT REGISTER BASED ON ELECTRON TRANSFER

John J. Hopfield, Pasadena, Calif., assignor to California Institute of Technology, Pasadena, Calif.

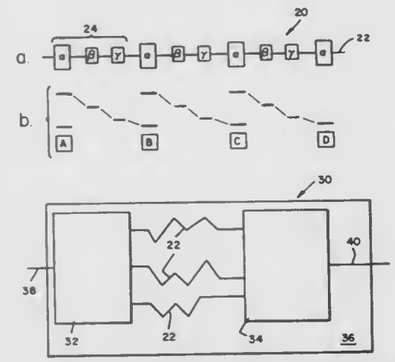
Filed Jul. 18, 1988, Ser. No. 221,021

Int. Cl.[5] H01L *29/28*

U.S. Cl. 357—8 **20 Claims**

1. An electronic shift register comprising (a) a plurality of molecular devices formed on a semiconductor substrate which also supports a VLSI circuit, to which said molecular devices are electrically and logically connected, said molecular devices comprising a polymer made up of a plurality of monomeric

repeat units, each monomeric repeat unit comprising at least three different monomers, with at least one monomer characterized by an electron energy level having a ground state and an upper state to which electrons may be excited and at least one of the remaining monomers characterized by an electron



energy level having a ground state only to permit movement of an electron in a predetermined direction, and (b) pulsed light means for exciting an electron to said upper state when light is one and for permitting said electron to decay to a ground state of an adjacent monomer when light is off.

5,063,418

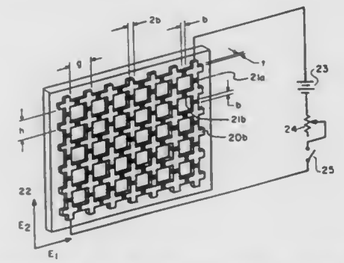
OPTICAL NON-LINEAR ARTIFICIAL DIELECTRICS

Richard R. Shurtz, II, Oakton; Edward J. Sharp, Fredericksburg, and James E. Miller, Woodbridge, all of Va., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Oct. 31, 1989, Ser. No. 430,685

Int. Cl.[5] H01L *29/48, 39/22;* **G02B** *5/23;* **G02F** *1/01*

U.S. Cl. 357—15 **26 Claims**



1. A non-linear artificial dielectric structure responsive to a change in intensity of input radiation to effect a change in the optical index of refraction therein, comprising:
a planar substrate composed of a material exhibiting an optical transparency characteristic at the optical frequency of the input radiation;
a metal lattice network arranged to have a repeatable pattern incident with the input surface of the planar substrate and fabricated of arrayed conductive unit cells having dimensions on the order of $2\lambda/3n$ or less, where λ is the wavelength and n is the substrate index of refraction, which should be the lowest possible, wherein the width of the conductive cell is selected to be in the order of one tenth the unit cell length, and the unit cell thickness should exceed approximately two optical skin depths in order to behave as a metal;
a plurality of non-linear elements incorporated into said metal lattice network by interconnecting various arrayed conductive unit cells in a manner to achieve a non-linear interaction within the resulting artificial dielectric structure effected by the flow of field induced currents therein.

5,063,419

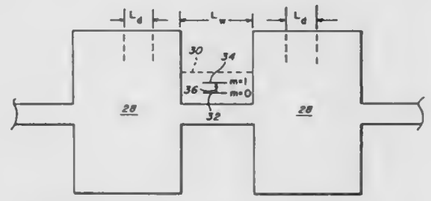
HETEROSTRUCTURE DEVICE USEABLE AS A FAR INFRARED PHOTODETECTOR

Evan R. Glaser, and Benjamin V. Shanabrook, both of Alexandria, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 15, 1988, Ser. No. 271,546

Int. Cl.[5] H01L *29/161, 29/205, 29/225, 27/12*

U.S. Cl. 357—16 **10 Claims**



1. A heterostructure comprising:
at least two barrier layers doped with doping impurities that provide charge carriers;
at least one well layer disposed between said at least two barrier layers;
wherein the width of said at least two barrier layers, the width of said well layer, and the mean distance of said doping impurities from said at least one well layer, are effective to permit charge carriers in said at least one well layer to be Coulomb bound to said doping impurities a sufficient amount to lower said charge carriers in energy below the conduction band of said well to the impurity substate having quantum number m=0.

5,063,420

METHOD FOR MAKING AN LED ARRAY

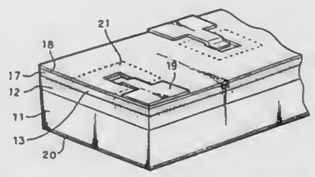
Ki-Joon Kim, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Nov. 24, 1989, Ser. No. 440,673

Claims priority, application Rep. of Korea, Nov. 17, 1988, 1988-15121

Int. Cl.[5] H01L *33/00*

U.S. Cl. 357—17 **35 Claims**



1. A light emitting diode array formed over a semiconductor substrate, comprising:
a luminescent layer of a first conductivity type and a transparent layer of a second conductivity type, said layers forming a heterogeneous P-N junction over said semiconductor substrate;
a cap layer of the second conductivity type over said trans-

VOL 1132 ISS 1 NO 5 1991 UMI

parent layer of the second conductivity type containing impurities for improving electrical contact with an electrode of the second conductivity type;

a diffusion region of the first conductivity type formed spaced apart from said cap layer, inside said transparent layer of the second conductivity type for dividing said transparent layer into a plurality of elements;

an insulating film formed over an entire surface of said transparent layer except said cap layer of the second conductivity type and, next, a second electrode over said cap layer; and

a common electrode of the first conductivity type placed under said semiconductor substrate of the first conductivity type.

5,063,421

SILICON CARBIDE LIGHT EMITTING DIODE HAVING A PN JUNCTION

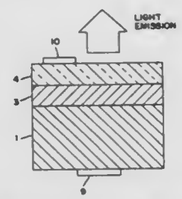
Akira Suzuki, Nara; Katsuki Furukawa, Sakai; Mitsuhiro Shigeta, Joyo, and Yoshihisa Fujii, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Japan

Filed Aug. 7, 1989, Ser. No. 390,600

Claims priority, application Japan, Aug. 8, 1988, 63-197500

Int. Cl.[5] H01L *33/00*

U.S. Cl. 357—17 **3 Claims**



1. A silicon carbide light emitting diode having a pn junction, comprising a semiconductor substrate, a first silicon carbide single-crystal layer of one conductivity formed on said substrate, and a second silicon carbide single-crystal layer of the opposite conductivity formed on said first silicon carbide layer, said first and second silicon carbide layers constituting the pn junction, wherein at least one of said first and second silicon carbide layers contains a tetravalent transition element as a luminescent center.

5,063,422

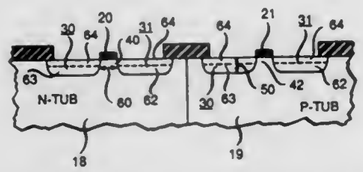
DEVICES HAVING SHALLOW JUNCTIONS

Steven J. Hillenius, Summit; Joseph Lebowitz, Watchung; Ruichen Liu, Warren, and William T. Lynch, Summit, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 209,149, Jun. 20, 1988, abandoned. This application Apr. 26, 1990, Ser. No. 515,550

Int. Cl.[5] H01L *29/10, 27/02, 23/48*

U.S. Cl. 357—23.3 **10 Claims**



1. An article comprising a silicon substrate having an N-tub and a P-tub each of which includes one or more corresponding p-channel MOS and n-channel MOS devices, respectively,

each such p-channel device having a p-type conductivity drain junction dopant region which forms a pn junction with the N-tub,

a metal silicide layer contacting the drain junction dopant region, whereby an interface is formed between the metal silicide layer and the drain junction dopant region,

said drain junction dopant region having an average depth, measure between said interface and said pn junction, equal to 1200 Å or less,

said drain junction dopant region having a dopant concentration which is highest at said interface,

the drain junction dopant region having an activation energy of reverse leakage current across its pn junction,

the dopant concentration in the drain junction dopant region being such that the activation energy of reverse leakage current across said pn junction is less than about 0.85 eV.

5,063,423

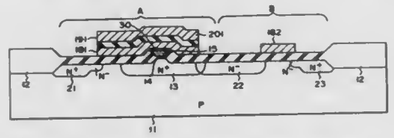
SEMICONDUCTOR MEMORY DEVICE OF A FLOATING GATE TUNNEL OXIDE TYPE

Tetsuo Fujii, Toyohashi; Minekazu Sakai, Aichi, and Akira Kuroyanagi, Okazaki, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Continuation-in-part of Ser. No. 344,605, Apr. 28, 1989, Pat. No. 5,017,979. This application Aug. 15, 1990, Ser. No. 567,760

Int. Cl.[5] H01L *29/68, 29/34, 29/78;* **G11C** *17/00*

U.S. Cl. 357—23.5 **9 Claims**



1. A semiconductor memory device comprising:

a semiconductor substrate;

a tunnel insulating film, formed on the surface of the semiconductor substrate, having a three-layer structure wherein an oxide film is interposed between nitrided oxide films;

a gate oxide film which is put in direct contact with the surface of the semiconductor substrate, and which extends outwards from a peripheral portion of the tunnel insulating film;

a floating gate on the tunnel insulating film, said floating gate being divided at least into a first region and a second region, said first region having a low impurity-concentration and being situated in contact with the tunnel insulating film, and said second region having an impurity-concentration higher than that of the first region;

a film interposed between the first and second regions of the floating gate, said film having a such thickness that the film prevents diffusion of an impurity from the second region into the first region and enables the movement of carriers between the first and second regions; and

a control gate formed above the floating gate with the insulating layer interposed between, said control gate, when supplied with a voltage, allowing carriers for data storage to flow from the semiconductor substrate into the floating gate through the tunnel insulating film,

wherein said tunnel insulating film, said floating gate and said control gate form a semiconductor device, and a region including the gate oxide film forms a MOS transistor.

5,063,424

UPROM MEMORY CELL INTEGRABLE WITH A TABLECLOTH MATRIX EPROM

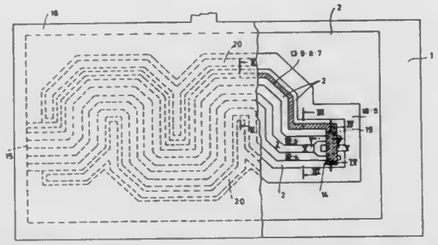
Massimo Melanotte, Milan, and Orio Bellezza, Curno, both of Italy, assignors to SGS-Thomson Microelectronics s.r.l., Agrate Brianza, Italy

Filed Apr. 4, 1990, Ser. No. 503,931

Claims priority, application Italy, Apr. 10, 1989, 20083 A/89

Int. Cl.[5] H01L *29/68, 29/78, 27/01, 29/00*

U.S. Cl. 357—23.5 **6 Claims**



1. An UPROM memory cell for table-cloth matrix of EPROM memory cells, comprising a semiconductor device enclosed in an ultraviolet ray protecting casing provided with a lateral access, said semiconductor device comprising a semiconductor substrate, parallel source and drain lines alternated with each other in a substrate surface, field oxide areas interposed between and self-aligned with said source and drain lines exception being made for an uncovered active area of the substrate surface arranged far from said casing access and extending transversally to said source and drain lines, floating gate areas interposed between said source and drain lines at said active area and provided with lateral extensions placed on said field oxide areas, dielectric and barrier polysilicon areas superimposed on and self-aligned with said floating gate areas and said lateral extensions thereof, and a control gate line superimposed on and self-aligned with said barrier polysilicon areas to electrically connect them to each other, said source and drain lines and said control gate line extending in substantially parallel way from said active area to said casing access along a labyrinth path preventing any entering ultraviolet rays from reaching said active area.

5,063,425

SEMICONDUCTOR MEMORY DEVICE WITH CAPACITOR OVER NON-VOLATILE MEMORY CELL GATE STRUCTURE

Yoshimitsu Yamauchi, Nara, and Keizo Sakiyama, Kashihara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Feb. 20, 1990, Ser. No. 481,179

Claims priority, application Japan, Feb. 23, 1989, 1-44143

Int. Cl.[5] H01L *29/78, 29/44*

U.S. Cl. 357—23.6 **15 Claims**

1. A semiconductor memory device, comprising:

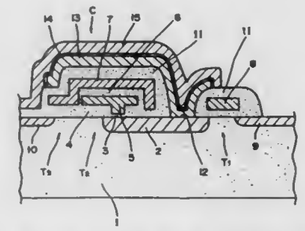
a semiconductor substrate;

means for providing a volatile semiconductor storage;

means for providing a nonvolatile semiconductor storage;

means for controlling said volatile and nonvolatile semiconductor storage means so as to store data in either one of said volatile and nonvolatile semiconductor storage means; and

a capacitor that is provided in association with said nonvolatile semiconductor storage means for storing data therein, said capacitor being formed in a stock structure such that a data storage node formed by a polysilicon layer is held in ohmic contact with a drain area of said nonvolatile semiconductor storage means, an insulation film and a capacitor electrode layer being sequentially laminated one over the other on said nonvolatile semiconductor storage means so that said capacitor is formed over a control gate



and a floating gate of said nonvolatile semiconductor storage means.

5,063,426

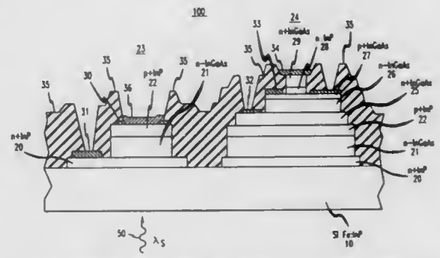
INP/INGAAS MONOLITHIC INTEGRATED PHOTODETECTOR AND HETEROJUNCTION BIPOLAR TRANSISTOR

S. Chandrasekhar, Matawan, and Bartley C. Johnson, Cranbury, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jul. 30, 1990, Ser. No. 559,818

Int. Cl.[5] H01L *27/14*

U.S. Cl. 357—30 **10 Claims**



1. A monolithic integrated photoreceiver comprising:

a non-patterned semi-insulating InP substrate;

a first mesa structure formed on said substrate including a first plurality of InP/InGaAs semiconductor layers for forming a p-i-n photodiode; and

a second mesa structure formed on said substrate including a second plurality of InP/InGaAs semiconductor layers deposited over a third plurality of InP/GaAs semiconductor layers, wherein said second plurality of InP/InGaAs semiconductor layers forms a heterostructure bipolar transistor, said first, second and third pluralities of InP/InGaAs semiconductor layers being deposited by a substantially uninterrupted epitaxial growth process, and said first plurality of InP/InGaAs semiconductor layers being substantially identical to said third plurality of InP/InGaAs semiconductor layers.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,427

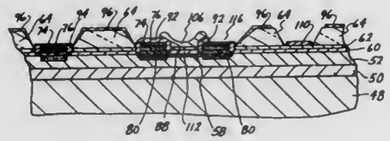
PLANAR BIPOLAR TRANSISTORS INCLUDING HETEROJUNCTION TRANSISTORS

John W. Tally, Rolling Hills Estates; Benedict B. O'Brien, Manhattan Beach; William Hant, Los Angeles, and Kiog L. Hu, Torrance, all of Calif., assignors to Northrop Corporation, Hawthorne, Calif.

Continuation of Ser. No. 234,995, Aug. 22, 1988, abandoned, which is a division of Ser. No. 107,617, Oct. 13, 1987, Pat. No. 4,839,303. This application Mar. 7, 1990, Ser. No. 490,012

Int. Cl.[5] H01L *29/72, 29/161, 29/205*

U.S. Cl. 357—35 28 Claims



11. A fully planar bipolar transistor comprising:
a semiconductor substrate,
a first layer epitaxially grown on said substrate to form a collector,
a base formed at said collector,
a second layer epitaxially grown on said collector and said base, said second layer forming a first surface at the interface with said first layer and second surface spaced away from said first surface,
each of said layers and said base being made of doped Group III-V materials;
a base contact implated into said second layer to extend from the second surface of the second layer to the base,
said base contact being formed into a closed ring surrounding and defining an isolated emitter in said second layer,
an emitter contact formed on said second surface of said second layer at said emitter, and
a collector contact formed on said second surface of the said second layer outside said base contact for electrical connection to said collector.

5,063,428

SEMICONDUCTOR ELEMENT HAVING A P-ZONE ON THE ANODE SIDE AND AN ADJACENT, WEAKLY DOPED N-BASE ZONE

Heinrich Schlangenotto, Neu-Isenburg, and Karl H. Sommer, Warstein, both of Fed. Rep. of Germany, assignors to eupec Europäische Gesellschaft für Leistungshalbleiter mbH & Co. KG, Warstein-Belecke, Fed. Rep. of Germany

PCT No. PCT/EP87/00544, § 371 Date Jun. 10, 1988, § 102(e) Date Jun. 10, 1988, PCT Pub. No. WO88/02555, PCT Pub. Date Apr. 7, 1988

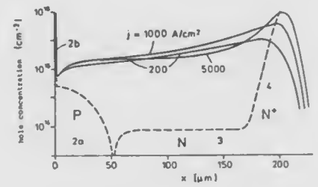
PCT Filed Sep. 25, 1987, Ser. No. 210,517

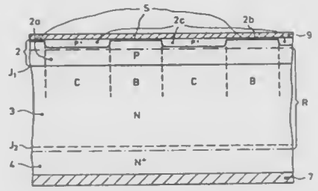
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1986, 3633161

Int. Cl.[5] H01L *29/74, 29/06, 29/88, 27/02*

U.S. Cl. 357—38 20 Claims

1. Semiconductor component having a weakly doped continuous interior p-zone which is provided on its surface with an ohmic contact layer, a weakly doped n-base zone adjacent to said weakly doped p-zone, a highly doped n^+-zone arranged adjacent to said n-base zone, and a plurality of p^+-surface





zones arranged entirely within partial regions of said weakly doped p-zone.

5,063,429

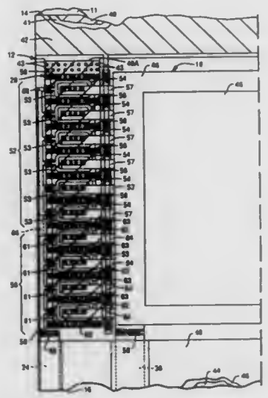
HIGH DENSITY INPUT/OUTPUT CELL ARRANGEMENT FOR INTEGRATED CIRCUITS

Harold S. Crafts, Fort Collins, Colo., assignor to NCR Corporation, Dayton, Ohio

Filed Sep. 17, 1990, Ser. No. 583,754

Int. Cl.[5] H01L *27/02*

U.S. Cl. 357—40 8 Claims



1. An input/output cell arrangement on an integrated circuit substrate, comprising:
a first outer power bus located around a periphery of said integrated circuit substrate on a first layer;
a first inner power bus located within said first outer power bus encompassing an inner portion of said integrated circuit substrate on said first layer;
a second outer power bus located around the periphery on a second layer vertically above said first outer power bus;
a second inner power bus located on said second layer vertically above said first inner power bus;
a plurality of pads located on said integrated circuit substrate

between said outer power buses and said inner power buses; and
a plurality of input/output cells, each connected to a respective pad, also located between the outer power buses and the inner power buses.

5,063,430

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE HAVING STANDARD CELLS INCLUDING INTERNAL WIRING REGION

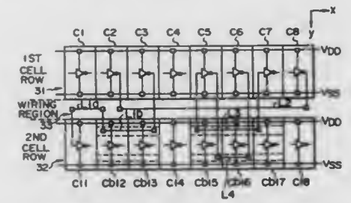
Shojiro Mori, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 476,577, Feb. 7, 1990, abandoned. This application Jan. 30, 1991, Ser. No. 649,139

Claims priority, application Japan, Apr. 27, 1989, 1-108713

Int. Cl.[5] H01L *27/10*

U.S. Cl. 357—45 5 Claims



1. A semiconductor integrated device comprising:
a plurality of standard cell rows extending in a first direction, each row including first standard cells;
a wiring region, which is arranged between two adjacent ones of said standard cell rows and in which cell connection wirings are formed;
wherein at least one said standard cell row includes at least one second standard cell; and
said at least one second standard cell contains an internal wiring region containing a cell connection wiring arranged in said first direction and having two ends, one of said two ends being coupled to one of the wirings formed in said wiring region, and the other of said two ends being coupled to another of the wirings formed in said wiring region; said second cell contains a positive power source line region in which a positive power source line is formed; and said second cell contains a negative power source line region in which a negative power source line is formed.

5,063,431

SEMICONDUCTOR DEVICE HAVING A TWO-LAYER GATE STRUCTURE

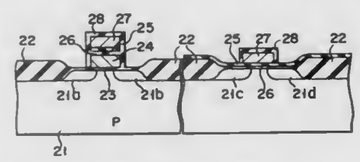
Yohichi Ohshima, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 29, 1988, Ser. No. 226,098

Claims priority, application Japan, Jul. 31, 1987, 62-191548

Int. Cl.[5] H01L *29/68, 29/34*

U.S. Cl. 357—54 4 Claims



1. A semiconductor device comprising:
a first field oxide layer, formed in a memory cell transistor formation region, and a first gate oxide film of a first transistor, formed in said memory cell transistor formation region;
a floating gate electrode of said first transistor, formed on said first gate oxide film of said first transistor;
a two-layer insulating film consisting of a silicon oxynitride film and a silicon oxide film formed on said floating gate electrode;
a control gate electrode of said first transistor, formed on said two-layer insulating film;
a second field oxide layer of a peripheral circuit transistor formation region and a second gate oxide film of a second transistor, having the same structure as and consisting of the same materials as said two-layer insulating film of said first transistor; and
a gate electrode of said second transistor, formed on said second gate oxide film.

5,063,432

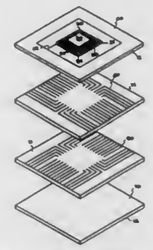
INTEGRATED CIRCUIT LEAD ASSEMBLY STRUCTURE WITH FIRST AND SECOND LEAD PATTERNS SPACED APART IN PARALLEL PLANES WITH A PART OF EACH LEAD IN ONE LEAD PATTERN PERPENDICULAR TO A PART OF EACH LEAD IN THE OTHER LEAD PATTERN

Albert T. Mu, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Continuation of Ser. No. 354,647, May 22, 1989, abandoned. This application Jul. 16, 1990, Ser. No. 552,351

Int. Cl.[5] H01L *23/48, 29/44, 29/52, 29/60*

U.S. Cl. 357—70 19 Claims



1. An integrated circuit lead assembly structure comprising at least one generally rectangular pc board having a first lead pattern comprising a plurality of leads disposed in a first plane parallel to and adjacent one surface of said pc board and a second lead pattern comprising a plurality of leads disposed in a second plane parallel to said first plane and adjacent the opposite surface of said pc board with at least a part of every lead in said first lead pattern disposed adjacent said one surface of said pc board extending laterally in said first plane perpendicular to corresponding parts of every lead in said second lead pattern extending laterally in said second plane disposed adjacent said opposite surface of said pc board to reduce crosstalk and coupling between said leads in said first lead pattern and said leads in said second lead pattern.

5,063,433

SEMICONDUCTOR DEVICE HAVING MULTI-LAYERED WIRING STRUCTURE

Kenji Matsuo, Yokohama; Tadashi Nonaka, Kawasaki, and Ikuo Tsuchiya, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Apr. 13, 1990, Ser. No. 508,692

Claims priority, application Japan, Apr. 26, 1989, 1-104608

Int. Cl.[5] A01L *23/48;* H01L *23/52*

U.S. Cl. 357—71 12 Claims

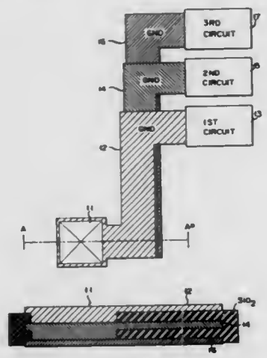
1. A semiconductor device having a multi-layered structure, comprising:
a pad applied with a predetermined potential;
a plurality of circuits each having a predetermined function,

VOL 1132 ISS 1 NO 5 1991 UMI

said plurality of circuits including a first circuit and a second circuit, one of said first and second circuits being at least partially analog;

a plurality of lines electrically connecting said pad to said circuits;

an insulating interlayer between said pad and said plurality of circuits for electrically isolating said plurality of lines from each other;



said plurality of lines including a first line electrically connecting a ground terminal of said first circuit to said pad and a second line, located under said first line, electrically connecting a ground terminal of said second circuit to said pad; and

said insulating interlayer being sandwiched between said first line and said second line.

5,063,434

PLASTIC MOLDED TYPE POWER SEMICONDUCTOR DEVICE

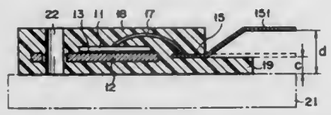
Takao Emoto, Yokosuka, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 18, 1990, Ser. No. 584,043

Claims priority, application Japan, Sep. 22, 1989, 1-247268

Int. Cl.[5] H01L *23/28*

U.S. Cl. 357—72 **8 Claims**



1. A plastic molded type power semiconductor device comprising:

a heat dissipation member of a metal having heat conductivity:

a semiconductor chip, mounted on the heat dissipation member so as to conduct heat to the heat dissipation member, the semiconductor chip including a heat generating semiconductor element, and terminals;

lead members, each electrically connected to one of the terminals;

a sealing plastic body including a side surface, a lower surface, and a main body disposed around the heat dissipation member, the semiconductor chip, and the lead members, the main body including a plastic sealing material;

outer leads, each connected to a respective one of the lead members, each outer lead including a first outer lead portion, and a second outer lead portion extending from the main body; and

a plastic table integrated with the sealing plastic body, extending from the side surface of the sealing plastic body main body and contacting the outer leads, wherein the second outer lead portions are vertically removed from the plastic table and bent in a direction away from the lower surface of the sealing plastic body.

5,063,435

SEMICONDUCTOR DEVICE

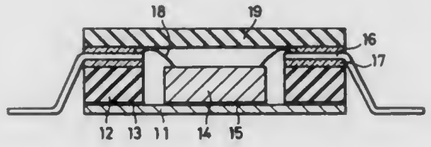
Satoru Okamoto, Hyogo; Kazufumi Terazi, Tokyo; Seiichi Nishino, Tokyo, and Manabu Bonkohara, Tokyo, all of Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka and NEC Corporation, Tokyo, both of, Japan

Continuation of Ser. No. 144,092, Jan. 15, 1988, abandoned. This application Nov. 22, 1989, Ser. No. 441,356

Claims priority, application Japan, Jan. 16, 1987, 62-7686

Int. Cl.[5] H01L *73/02*

U.S. Cl. 357—74 **11 Claims**



1. A semiconductor casing having a total thickness no greater than 1.0 mm for use with a semiconductor device having a thin structure which permits transmission of ultraviolet rays to a semiconductor chip within said casing, said casing comprising:

a substrate formed by a thin metal plate having a thickness no more than 0.05 mm on which said semiconductor chip is mounted;

a ceramic frame fixed peripherally to said substrate, said frame having a thickness in a range of from 0.3 to 0.5 mm;

a ceramic cap which covers said semiconductor chip, said cap being mounted on said ceramic frame so as to allow ultraviolet rays therethrough and having a thickness between 0.1 an 0.5 mm; and

leads having a thickness between 0.03 and 0.1 mm sandwiched between said ceramic frame and said ceramic cap which extend outward from said substrate and which are electrically connected to said semiconductor chip.

5,063,436

PRESSURE-CONTACTED SEMICONDUCTOR COMPONENT

Horst Grüning, Baden, and Helmut Keser, Birr, both of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland

Continuation of Ser. No. 459,314, Dec. 29, 1989, abandoned. This application Feb. 27, 1991, Ser. No. 660,988

Claims priority, application Switzerland, Feb. 2, 1989, 358/89

Int. Cl.[5] H01L *29/74, 23/48, 29/40, 23/42*

U.S. Cl. 357—79 **8 Claims**

1. A pressure-contacted power-semiconductor component comprising:

a substantially disk-like semiconductor substrate having an anode side surface and a cathode side surface;

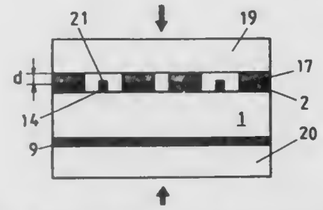
a series of differently doped layers positioned inside said semiconductor substrate between said anode side surface and said cathode side surface, and forming a field-controlled thyristor;

said field-controlled thyristor having, on said cathode side, a large number of cathode fingers, which are elongate with a first length in one direction, and which project out of a deeper-lying gate level;

an anode contact in the form of a metallization layer extending on said anode side surface of said semiconductor substrate;

a cathode contact extending over said cathode fingers on said cathode side surface of said semiconductor substrate;

an anode compression plate and a cathode compression plate, respectively positioned at said anode and cathode contacts, between which said semiconductor substrate, with said anode and cathode contacts, is positioned and held by clamping; and



a thin metal foil arranged between said cathode-side compression plate and said cathode contact, said thin metal foil being soldered to said cathode contact over an entire surface thereof to provide homogeneous pressure distribution, wherein said metal foil is constructed in the form of a fine screen with a large number of screen holes distributed over a surface thereof, the holes being filled with solder so that pressure of the compression plates is transmitted from the foil substantially directly onto the substrate.

5,063,437

METHOD AND APPARATUS FOR PROCESSING A COLOR VIDEO SIGNAL

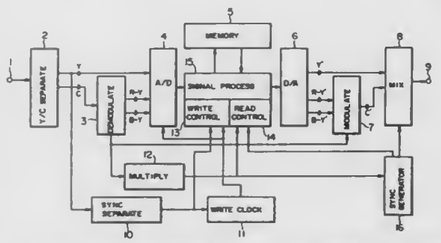
Hitoaki Owashi, Katsuta; Hiroyasu Ohtsubo, Yokohama; Masataka Sekiya, Mito; Kohji Misabe; Hideo Nishijima, both of Katsuta; Michio Masuda, Yokohama, and Morito Rokuda, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 28, 1989, Ser. No. 344,402

Claims priority, application Japan, Apr. 30, 1988, 63-105401; Aug. 5, 1988, 63-194635

Int. Cl.[5] H04N *9/64*

U.S. Cl. 358—22 **24 Claims**



1. A method of processing a color video signal comprising the steps of:

separating a composite color video signal into a luminance signal and a chrominance signal;

producing a color subcarrier;

demodulating the separated chrominance signal into color difference signals;

storing the separated luminance signal and the color difference signals in memory means;

reading out the stored luminance signal and color difference signals from said memory means in units of one-field period, said field period being adjusted to be extended or shortened in length in reading out said memory means thereby to fix the phase relation between a residual chrominance signal component in the luminance signal read out of said memory means and a chrominance signal which is produced by modulating the color subcarrier with color difference signals read out of said memory means;

performing an intended signal processing for the signals read out of said memory means;

modulating the color subcarrier with processed color difference signals to produce the chrominance signal; and

mixing the chrominance signal with the processed luminance signal to produce a composite color video signal.

5,063,438

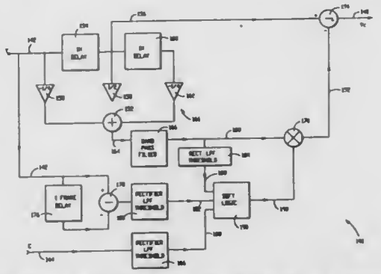
THREE DIMENSIONAL ENCODING SYSTEM FOR COLOR TELEVISION

Yves C. Faroudja, 26595 Anacapa Dr., Los Altos Hills, Calif. 94022

Filed Apr. 20, 1990, Ser. No. 511,644

Int. Cl.[5] H04N *9/78*

U.S. Cl. 358—31 **14 Claims**



1. A method for controlling the operation of a luminance comb filter in a color television system including the steps of:

chrominance-type comb filter processing of at least that portion of a luminance component of a quadrature modulated color subcarrier television signal interleaved in the spectrum of the color subcarrier pass band and band pass filtering the luminance component to limit it to the spectrum of said color subcarrier pass band to provide a band pass filtered and combined luminance component,

subjecting the band pass filtered and combed luminance component to a composite control which controls output of said band pass filtered and combed luminance component,

generating the composite control by the steps of generating a motion control component as a function of motion present in the television signal and generating a chroma control component as a function of amplitude of a chroma component of the quadrature modulated color subcarrier television signal, and

subtracting said band pass filtered and combed luminance component as passed by said composite control from a delay matched original luminance component to provide a combed original luminance component whenever said band pass filtered and combed luminance component is passed, and to provide a non-combed original luminance component whenever said band pass filtered and combed luminance component is not passed.

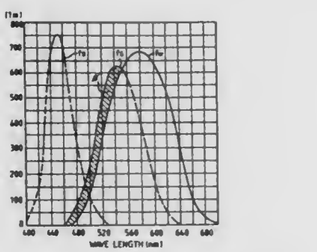
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,439

SOLID STATE PICKUP SYSTEM HAVING IMPROVED COLOR REPRODUCIBILITY

Masatoshi Tabei, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jun. 7, 1990, Ser. No. 534,563
Claims priority, application Japan, Jun. 8, 1989, 1-143971; Jul. 24, 1989, 1-188844; Aug. 16, 1989, 1-210195
Int. Cl.[5] H04N 9/07
U.S. Cl. 358—41 11 Claims



1. A solid state pickup system in which an image is picked up by a plurality of photodetector elements for producing respective complementary color signals corresponding to stimulus values of respective colors in a complementary color system, and in which primary color signals in a three primary color (RGB) system are derived from said complementary color signals and are applied as inputs to a composing processing means which performs a color mixture operation thereby to realize color reproduction, said pickup system further comprising:

another photodetector element having a spectral sensitivity corresponding to a spectral area of an intermediate color between blue (B) and green (G) in said three primary color (RGB) system; and

first subtracting means for subtracting a signal, produced in said other photodetector element, from said complementary color signals at a predetermined rate to form a new red (R') color signal which is applied as an input to said composing processing means.

5,063,440

STILL/MOVING PICTURE SELECTION CONTROL CIRCUIT FOR VIDEO PHONE SYSTEM

Sam P. Hong, Kyungsangbook, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 30, 1990, Ser. No. 559,165
Claims priority, application Rep. of Korea, Jul. 31, 1989, 11264/1989
Int. Cl.[5] H04N 7/14
U.S. Cl. 358—85 6 Claims

1. A still/moving picture selection control circuit for a video phone system comprising:

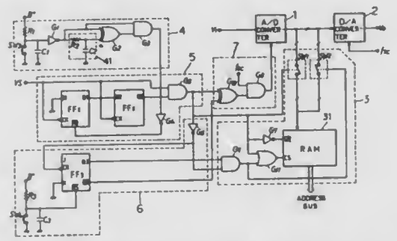
an analog/digital converter for converting input video signals to digital signals synchronized with a subcarrier frequency signal;

a digital/analog converter for converting and outputting the output signals of the analog/digital converter to analog signals synchronized with the subcarrier frequency signal;

a still selection unit for outputting pulse signals in response to the closing of a still switch;

a single-frame signal generating unit for generating single-frame signals synchronized with a vertical synchronizing signal when pulse signals are output from the still selection unit;

a moving picture signal generating unit for continuously outputting moving picture control signals in response to the closing of a moving picture switch and for stopping the output of moving picture control signals by the single-frame signals of the single-frame signal generating unit;



a still/moving picture control unit for applying the subcarrier frequency signal to the analog/digital converter only when the single-frame signals are output from the single-frame signal generating unit or the moving picture control signals are output from the moving picture signal generating unit; and

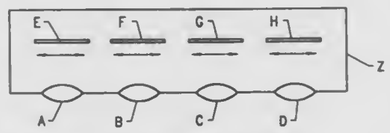
a memory section for storing the output signals of the analog/digital converter in a RAM when the single-frame signals are output from the single-frame signal generating unit and for applying the signals stored in the RAM to the digital/analog converter when the single-frame signals are not output from the single-frame signal generating unit and the moving picture control signals are not output from the moving picture signal generating unit.

5,063,441

STEREOSCOPIC VIDEO CAMERAS WITH IMAGE SENSORS HAVING VARIABLE EFFECTIVE POSITION

Lenny Lipton, Greenbrae, and Lawrence D. Meyers, Mill Valley, both of Calif., assignors to StereoGraphics Corporation, San Rafael, Calif.

Filed Oct. 11, 1990, Ser. No. 595,595
Int. Cl.[5] H04N 13/00
U.S. Cl. 358—88 24 Claims



1. A stereoscopic video camera, including:

a housing;

a left lens having a first optical axis and a right lens having a second optical axis, wherein the left lens and the right lens are fixedly mounted in the housing with the first optical axis substantially parallel to the second optical axis;

a left image sensor mounted in the housing along the first optical axis and a right image sensor mounted in the housing along the second optical axis; and

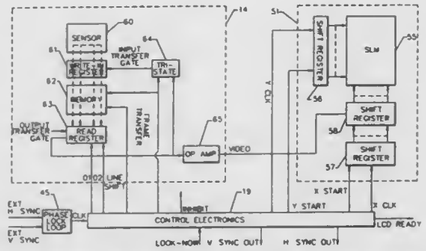
means for controlling the effective position of a first one of the left image sensor and the right image sensor to selectively expose said first one of the left image sensor and the right image sensor to different portions of an image focused by a corresponding one of the left lens and the right lens.

5,063,442

IMAGE CONVERTER

Roeland M.T. Hekker, Fairfield, Iowa, and Ishak M. Livny, San Jose, Calif., assignors to E. I. DuPont de Nemours & Company, Wilmington, Del.

Filed Feb. 6, 1990, Ser. No. 475,928
Int. Cl.[5] H04N 7/18
U.S. Cl. 358—93 47 Claims



1. An image conversion method for converting a coherent image to one of a coherent image and an incoherent image, comprising the steps of:

providing a first coherent two dimensional electromagnetic radiation image;

converting said first coherent two dimensional electromagnetic radiation image into a digital signal;

applying said digital signal to a two dimensional spatial light modulator; and

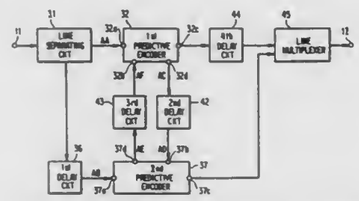
impinging one of coherent and incoherent electromagnetic radiation onto said two dimensional spatial modulator to produce a corresponding second one of a coherent and an incoherent two dimensional electromagnetic radiation image from said first coherent two dimensional electromagnetic radiation image.

5,063,443

CODEC SYSTEM ENCODING AND DECODING AN IMAGE SIGNAL AT A HIGH SPEED

Masayuki Okajima, Tokyo, and Toru Shibuya, Miyagi, both of Japan, assignors to NEC Corporation, Tokyo, Japan

Filed May 18, 1990, Ser. No. 524,900
Claims priority, application Japan, May 18, 1989, 1-125634
Int. Cl.[5] H04N 7/12
U.S. Cl. 358—133 6 Claims



1. A predictive encoding device operable in response to an input image signal to encode said input image signal into an output encoded signal, said input image signal being divisible into an odd number line signal and an even number line signal, said predictive encoding device comprising:

line separating means responsive to said input image signal for separating said input image signal into said odd number line signal and said even number line signal;

first predictive encoding means coupled to said line separating means and responsive to a selected one of said odd and said even number line signals for carrying out predictive encoding of said selected one of the odd and the even number line signals to produce a first encoded signal and a first local decoded signal;

first delay means coupled to said line separating means for delaying a remaining one of said odd and said even number line signals to produce a delayed line signal;

second predictive encoding means responsive to said delayed line signal for carrying out predictive encoding of said delayed line signal to produce a second encoded signal and a second local decoded signal;

second delay means coupled to said first predictive encoding means and responsive to said first local decoded signal for delaying the first local decoded signal to supply said second predictive encoding means with a first delayed local decoded signal and to make said second predictive encoding means carry out said predictive encoding on the basis of said first delayed local decoded signal;

third delay means coupled to said second predictive encoding means for delaying said second local decoded signal to supply said first predictive encoding means with a second delayed local decoded signal and to make said first predictive encoding means carry out said predictive encoding on the basis of said second delayed local decoded signal;

fourth delay means coupled to said first predictive encoding means and responsive to said first encoded signal for delaying said first encoded signal in relation to said second encoded signal to produce a first delayed encoded signal; and

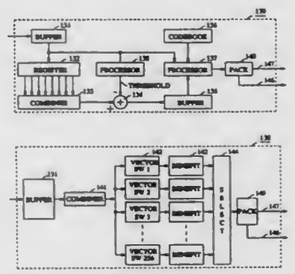
multiplexing means for multiplexing said first delayed encoded signal and said second encoded signal to alternatingly produce the first delayed encoded signal and said second encoded signal as said output encoded signal.

5,063,444

HIGH DEFINITION TELEVISION ARRANGEMENT WITH SIGNAL SELECTIONS ADAPTED TO THE AVAILABLE TRANSMISSION CAPACITY

Scott C. Knauer, Mountainside; Arun N. Netravali, Westfield; Eric D. Petajan, Millburn; Robert J. Safranek, New Providence, and Peter H. Westerink, Millburn, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Mar. 19, 1990, Ser. No. 495,523
Int. Cl.[5] H04N 7/13, 7/133, 7/137
U.S. Cl. 358—133 23 Claims



1. A method for developing a video signal for a frame interval of a video camera observing an image, comprising the steps of:

responsive to a signal developed by said video camera, developing a plurality of video samples of a frame for transmitting during said frame interval,

when said step of developing produces a plurality of video

VOL 1132 ISS 1 NO 5 1991 UMI

samples in excess of the number of samples that can be transmitted in said frame interval, selecting from said plurality of video samples only a subset of said samples to be transmitted that, when transmitted, occupies essentially a predefined fraction of said frame interval wherein the selection is based on the relative value of the selected samples to the image quality, and

conditioning said subset of samples for transmission.

5,063,445

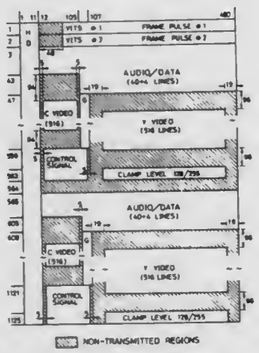
MULTIPLE SUB-SAMPLING TRANSMITTING/RECEIVING SYSTEM PERFORMING INTERFIELD AND INTERFRAME OFFSET SUB-SAMPLING OF A BROAD BANDWIDTH TELEVISION SIGNAL

Taiji Nishizawa; Yutaka Tanaka; Seiichi Gohshi; Junji Kumada; Yuichi Iwadate; Kazuhiko Shibuya; Toshihiko Susaki; Yukihiro Nishida; Minoru Honda; Taiichiro Kurita; Yoshinori Izumi; Makoto Okui; Isao Kondo; Ryoichi Yajima, and Jun'ichi Ishida, all of Tokyo, Japan, assignors to Nippon Hoso Kyokai, Tokyo, Japan

Filed Apr. 19, 1990, Ser. No. 511,374

Int. Cl.[5] H04N *7/12*

U.S. Cl. 358—138 **55 Claims**



1. An encoder for converting a second television signal into a third television signal, said second television signal being a broad bandwidth television signal having greater number of horizontal scanning lines and broader frequency bandwidth than those of a first television signal, said third television signal being a narrow bandwidth multiple sub-sampled time division multiplexed television signal the bandwidth of which is substantially equal to that of the first television signal, said encoder comprising:

multiple sub-sampling encoding means for converting, with bandwidth compression, a fourth television signal into a fifth television signal by using the multiple sub-sampling time division multiplexing technique, said fourth television signal having a greater number of horizontal scanning lines and broader frequency bandwidth than those of said second television signal, said fifth television signal having broader bandwidth than that of said first television signal and narrower bandwidth than that of said fourth television signal;

first converting means for converting said second television signal inputted to said first converting means into a sixth television signal having a signal format conforming to that of said fourth television signal, and for supplying the converted signal to said multiple sub-sampling encoding means; and

second converting means for converting said fifth television signal outputted from said multiple sub-sampling encoding means into said third television signal.

5,063,446

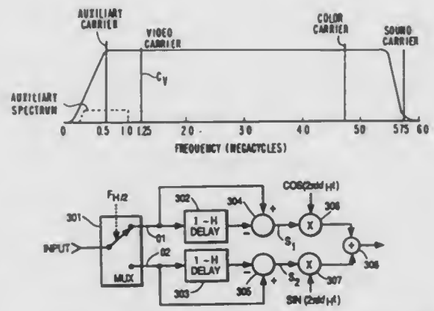
APPARATUS FOR TRANSMITTING AUXILIARY SIGNAL IN A TV CHANNEL

James J. Gibson, Princeton, N.J., assignor to General Electric Company, Princeton, N.J.

Filed Aug. 11, 1989, Ser. No. 392,500

Int. Cl.[5] H04N *7/07, 7/06, 7/04*

U.S. Cl. 358—142 **16 Claims**



1. Apparatus for frequency interleaving an auxiliary signal with a television signal, said auxiliary signal having a substantially continuous frequency bandwidth which is greater than a multiple of the horizontal line frequency of said video signal, said apparatus comprising:

means for providing said auxiliary signal and said video signal;

means for providing a horizontal synchronizing signal related to said video signal;

means including means, responsive to said auxiliary signal and said horizontal synchronizing signal, for apportioning said auxiliary signal to generate first and second signals each of which includes a mutually exclusive portion of said auxiliary signal, and includes polarity inverted portions of said auxiliary signal;

means responsive to said first and second signals and said horizontal synchronizing signal for generating a quadrature phase modulated signal; and

means for combining said quadrature phase modulated signal with said video signal.

5,063,447

INFORMATION PROCESSING APPARATUS HAVING A COMMON A/D CONVERTER FOR THE IMAGE AND AUDIO SIGNALS

Nobuhiro Takeda, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 22, 1989, Ser. No. 396,970

Claims priority, application Japan, Aug. 23, 1988, 63-207254

Int. Cl.[5] H04N *7/093*

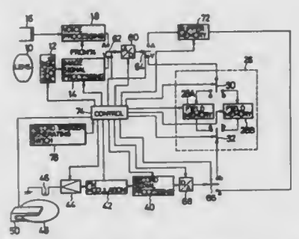
U.S. Cl. 358—145 **15 Claims**

1. An information processing apparatus comprising:

a) first means for supplying an image signal during an effective period and an ineffective period, and an audio signal;

b) common A/D converting means for A/D converting both said image signal and said audio signal;

c) second means for supplying said image signal to said A/D converting means during said effective period and for supplying said audio signal to the A/D converting means during said ineffective period; and



d) memory means for storing the signal which was A/D converted by said A/D converting means.

5,063,448

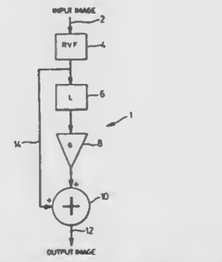
APPARATUS AND METHOD FOR TRANSFORMING A DIGITIZED SIGNAL OF AN IMAGE

Ian Jaffray, Toronto, and John F. Bronskill, Scarborough, both of Canada, assignors to Imageware Research and Development Inc., Toronto, Canada

Filed Jul. 31, 1989, Ser. No. 387,049

Int. Cl.[5] H04N *5/14*

U.S. Cl. 358—160 **6 Claims**



1. An apparatus, for transforming a digitized signal of an image to give a brush stroke effect, the apparatus comprising: a main input; a first rank value filter having an input for an original digitized signal, connected to the main input of the apparatus; a Laplacian unit having an input connected to an output of the rank value filter and an output; a gain unit with variable gain and connected to the output of the Laplacian unit; a summation unit having one input connected to an output of the gain unit and an output forming an output of the apparatus; and a bypass line connected between the output of the first rank value filter and another input of the summation unit.

5,063,449

SOLID-STATE IMAGE SENSOR EMPLOYING A GATE AND DIODE FOR BIAS CHARGE INJECTION

Hidenori Shibata, Yokohama; Ikuko Inoue, Kawasaki, and Nozomu Harada, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 16, 1989, Ser. No. 437,260

Claims priority, application Japan, Nov. 18, 1988, 63-290148; Jan. 25, 1989, 1-15511; Oct. 16, 1989, 1-266160

Int. Cl.[5] H04N *3/14, 5/335*

U.S. Cl. 358—213.11 **15 Claims**

1. A solid-state image sensor comprising:

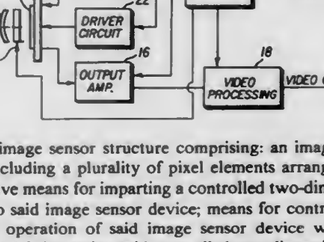
a semiconductor substrate;

a plurality of arrays of signal charge storage diodes formed in said semiconductor substrate;

a plurality of signal charge read-out sections formed neighboring to said arrays of the signal charge storage diodes, in said semiconductor substrate;

a plurality of signal charge transfer sections formed neighboring said signal charge read-out sections in said semiconductor substrate; and

a plurality of bias-charge injecting gates and diodes, provided neighboring to said signal charge transfer sections, for injecting bias charges into said signal charge storage diodes via said signal charge read-out sections;



wherein plural pixel electrodes and said signal charge storage diodes are arranged in a matrix form, said signal charge transfer sections comprise a plurality of signal charge transfer arrays arranged in a row along said arranged signal charge storage diodes, said bias-charge injecting gates and diodes are provided in association with said signal charge storage diodes, and after the signal charges are read out from said signal charge storage diodes, said bias charges are injected into all of said signal charge strange diodes for every other row of said signal charge storage diodes.

5,063,450

METHOD AND APPARATUS FOR PREVENTING ALIASING IN AN ELECTRONIC STILL CAMERA

Jeffrey A. Pritchard, Arleta, Calif., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 28, 1990, Ser. No. 619,092

Int. Cl.[5] H04N *3/14, 5/335, 5/30, 3/12*

U.S. Cl. 358—213.28 **11 Claims**

1. An image sensor structure comprising: an image sensor device including a plurality of pixel elements arranged in an array; drive means for imparting a controlled two-dimensional motion to said image sensor device; means for controlling an exposure operation of said image sensor device while said drive means is imparting said controlled two-dimensional motion, wherein said controlled two-dimensional motion causes light incident on said image sensor device during said exposure operation to be distributed among neighboring pixel elements of said array to prevent aliasing.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,451

HAND HELD RECORDING APPARATUS WITH WINDOW ON LOWER BODY PORTION FOR VIEWING RECORDING POSITION

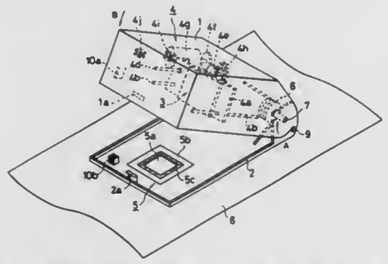
Ryozo Yanagisawa, Matsudo; Hiroshi Tanioka; Kiyoshi Kaneko, both of Yokohama; Toshiaki Harada; Kikuo Yoshikawa, both of Kawasaki; Noboru Koumura, Narashino, and Toshiharu Inui, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 6, 1989, Ser. No. 375,981

Claims priority, application Japan, Jul. 11, 1988, 63-170847; Jul. 18, 1988, 63-177047

Int. Cl.[5] B41J *3/39, 2/32, 2/05*

U.S. Cl. 346—143 **24 Claims**



1. A recording apparatus for effecting recording on a recording medium, comprising:

an upper body comprising a recording means for effecting recording on the recording medium in conformity with an image signal, and scanning means for scanning said recording means; and

a lower body having a mounting section for mounting at least a portion of said lower body on at least a portion of the recording medium, said lower body also having a viewing section through which a recording position of said recording means on the recording medium can be viewed,

said upper body and said lower body being relatively movable to opened and closed positions.

5,063,452

MAGNETIC RECORDING AND/OR REPRODUCING APPARATUS HAVING MEANS FOR PREVENTING AUDIO-TO-VIDEO CROSSTALK AND NOISE GENERATION

Seiji Higurashi, Fuchu, Japan, assignor to Victor Company of Japan Ltd., Kanagawa, Japan

Continuation of Ser. No. 147,715, Jan. 25, 1988, abandoned. This application Jan. 26, 1990, Ser. No. 478,701

Claims priority, application Japan, Jan. 27, 1987, 62-16762; Oct. 16, 1987, 62-261319

Int. Cl.[5] H04N *5/782*

U.S. Cl. 360—19.1 **18 Claims**

1. A magnetic recording apparatus comprising:

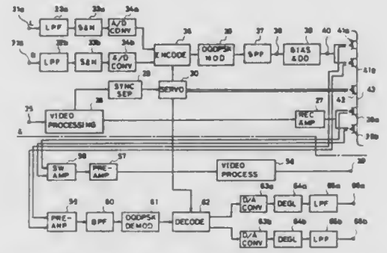
audio signal processing means for converting an input analog audio signal into a digital audio signal;

modulating means for subjecting the digital audio signal to a modulation selected from a multi-phase differential phase shift modulation (DPSK) and an offset-multi-phase differential shift keying modulation (ODPSK) to produce a modulated digital audio signal;

adding means for adding a high-frequency bias signal to the modulated digital audio signal;

audio signal recording means for recording the modulated digital audio signal with the high-frequency bias signal added thereto on an audio track formed in a deep layer portion of a magnetic layer of a magnetic tape; and

video signal recording means for recording an input video signal on a video track formed in a surface layer portion of the magnetic tape, the video track being formed subsequent to the forming of the audio track, the video track being formed and the audio track respectively being formed by corresponding heads having different azimuth angles, said input video signal including a luminance signal and a carrier chrominance signal which is frequency converted into a range lower than that of the luminance signal so that a frequency band of the modulated digital audio is higher than a frequency band of the frequency



converted carrier chrominance, said high-frequency bias signal being added to the modulated digital audio signal in order to prevent a noise caused by a cross modulation distortion generated by the non-linearity of the magnetic tape and the modulated digital audio signal itself, said noise degrading the frequency converted carrier chrominance signal in said range in which the azimuth loss effect is less affected, and said noise being reproduced as a crosstalk from the audio track when the video track is scanned.

5,063,453

DIGITAL SIGNAL RECORDING APPARATUS

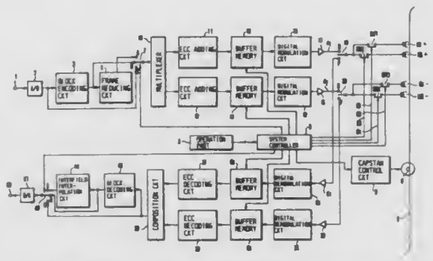
Katsuji Yoshimura, Kanagawa; Akio Aoki, Tokyo; Makoto Shimokoriyama, Kanagawa; Motokazu Kashida, Tokyo; Shinichi Yamashita, and Kenichi Nagasawa, both of Kanagawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 200,625, May 31, 1988, abandoned. This application Jan. 28, 1991, Ser. No. 647,683

Claims priority, application Japan, Jun. 8, 1987, 62-143875; Jun. 9, 1987, 62-144748; Jul. 31, 1987, 62-192267

Int. Cl.[5] G11B *5/09*

U.S. Cl. 360—32 **20 Claims**



1. A digital information signal recording apparatus comprising:

(a) head means including at least one pair of heads which are arranged to have different azimuth angles and to rotate at adjacent rotating phases to each other;

(b) data compressing means for reducing the amount of digital data;

(c) selection means for selectively producing one of a first digital data sequence to be supplied to said data compressing means and a second digital data sequence outputted by said data compressing means;

(d) signal processing means, arranged to receive the digital data sequence produced from said selection means for supplying two channels of recording signals in parallel to said pair of heads such that a given amount of data is periodically recorded on a recording medium by said pair of heads at a time; and

(e) mode switching means for switching an operation mode of said apparatus between a plurality of modes, including:

a first mode in which said selection means produces the first data sequence and said signal processing means supplies in parallel said head means with the two channels of recording signals including the given amount of data for every given period of time t, and

a second mode in which said selection means produces the second data sequence and said signal processing means supplies in parallel said head means with the two channels of recording signals including the given amount of data for every given period of time nt, wherein "n" represents an integer which is at least 2.

5,063,454

AUTOMATIC ADJUSTMENT METHOD AND SYSTEM FOR SERVO MOTOR CIRCUIT OF A MAGNETIC DISK APPARATUS

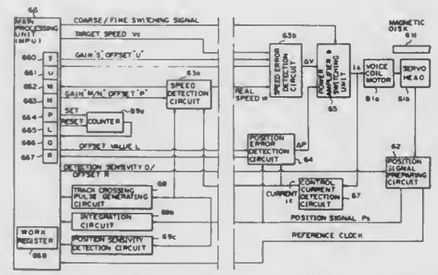
Shuichi Hashimoto, Tokyo, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 3, 1990, Ser. No. 460,657

Claims priority, application Japan, Jan. 10, 1989, 1-003183; Jan. 10, 1989, 1-003184; Jan. 10, 1989, 1-003185; Jan. 10, 1989, 1-003186; Mar. 13, 1989, 1-060472; Mar. 18, 1989, 1-067201

Int. Cl.[5] G11B *5/55, 5/596, 13/00*

U.S. Cl. 360—78.04 **14 Claims**



9. An automatic adjustment method for a servo circuit of a magnetic disk apparatus, the servo circuit including a position signal preparing circuit for detecting a position signal from servo information of a magnetic head which reads the servo information recorded on a servo surface of a magnetic disk, a speed control circuit for performing speed control on a drive source which moves the magnetic head in a seek operation based on the position signal, and a position control circuit for performing position control on the drive source based on the position signal, said method comprising the steps of:

(a) preparing a gate signal by slicing the position signal, while performing the uniform speed seek operation on the magnetic head, and counting a time ratio of the slope portion of the position signal from the gate signal; and

(b) changing the detection sensitivity of the position signal preparing circuit so that the counted time ratio of the slope portion becomes a predetermined value.

5,063,455

MODE SELECTING MECHANISM FOR A TAPE RECORDER

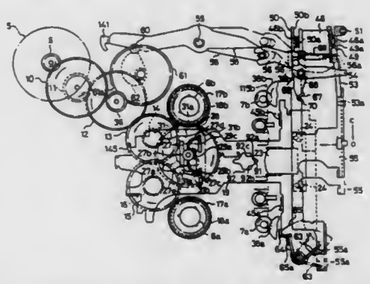
Toshio Yoshimura, Kanagawa, Japan, assignor to Tanashin Denki Co., Ltd., Tokyo, Japan

Filed Sep. 22, 1989, Ser. No. 410,908

Claims priority, application Japan, Feb. 7, 1989, 1-13339[U]

Int. Cl.[5] G11B *15/18*

U.S. Cl. 360—96.5 **2 Claims**



1. A mode selecting mechanism for a tape recorder capable of actuating a ejector mechanism and a head moving mechanism by utlizing the turning force from a tape transporting motor, which comprises:

(a) a rotation transmitting system having a gear for transmitting the rotation of the tape transporting motor to a pair of reel supports;

(b) a cam gear having a non-toothed section and a cam which engages with the gear in the rotation transmitting system at a position other than the non-toothed section;

(c) a rocking lever engaged with the cam of the cam gear for performing a rocking motion which is coupled to the rotation of the cam gear;

(d) an ejector mechanism capable of ejecting a cassette tape from the reel supports;

(e) an electromagnet for EJECT motion capable of engaging a portion of the ejector mechanism with the rocking lever at the time of conduction and actuating the ejector mechanism by the rocking motion of the rocking lever;

(f) a head moving mechanism capable of moving a magnetic head into PLAY position against the tension of a head-return spring; and

(g) an electromagnet for PLAY motion capable of engaging the head moving mechanism with the rocking lever and moving the head moving mechanism to the operative position by the rocking motion of the rocking lever, and holding the head moving mechanism at PLAY position at the time of conduction;

wherein the non-toothed section of the cam gear is engaged with the gear in the rotation transmitting system when the rotation of the cam gear causes the head moving mechanism to

VOL 1132 ISS 1 NO 5 1991 UMI

be in the operative position, and when the electromagnet for PLAY is turned off, the return force of the head moving mechanism is transmitted via the rocking lever to the cam gear to enable the cam gear to mesh with the gear in the rotation transmitting system.

5,063,456

VIDEO SIGNAL PROCESSOR

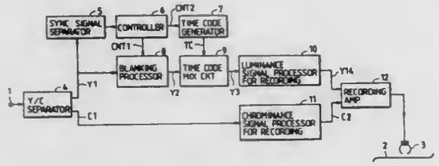
Tadasu Horiuchi, Yokohama; Hideo Nishijima, and Shoji Ohno, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 3, 1989, Ser. No. 389,297

Claims priority, application Japan, Aug. 12, 1988, 63-199829

Int. Cl.[5] H04N *9/79*

U.S. Cl. 358—310 **3 Claims**



1. A video signal processor comprising:

an input terminal connected to receive a video signal;

a Y/C separator for separating the video signal received at the input terminal into a luminance signal and a chrominance signal and for outputting the luminance signal and the chrominance signal;

a sync signal separator connected to the Y/C separator for extracting a synchronizing signal from the luminance signal output by the Y/C separator;

a blanking processor connected to receive a first control signal and the luminance signal output by said Y/C separator;

a time code generator connected to receive a second control signal for generating a time code;

a controller which is responsive to the synchronizing signal extracted by said sync signal separator for outputting the first control signal for controlling said blanking processor and the second control signal for controlling said time code generator, said controller controlling said blanking processor by way of the first control signal so that said blanking processor removes information signals other than the synchronizing signal from the luminance signal inserted in a vertical blanking period of the received video signal, and further for controlling said time code generator by way of the second control signal so that the time code generated by said time code generator is inserted in the luminance signal from which the information signals have been removed;

a time code mix circuit connected to receive the time code generated by said time code generator and the luminance signal from which the information signals have been removed from said blanking processor for mixing the time code and the luminance signal from which the information signals have been removed, said time code mix circuit outputting a mixed signal resulting from the mixing of the time code and the luminance signal from which the information signals have been removed;

signal processing means for converting the mixed signal and the chrominance signal into signals suitable for recording, respectively, and for outputting the signals suitable for recording; and

means for amplifying at least one of the signals suitable for recording output by said signal processing means prior to recording said at least one signal.

5,063,457

WIDE-BAND VIDEO SIGNAL RECORDING APPARATUS BY USING FREQUENCY INTERLEAVE

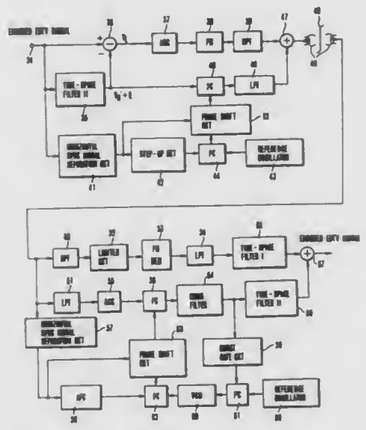
Hisashi Ishikawa, Kanagawa; Susumu Kozuki, Tokyo; Koji Takahashi, and Katsuji Yoshimura, both of Kanagawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 121,651, Nov. 17, 1987, abandoned. This application Sep. 12, 1990, Ser. No. 581,418

Claims priority, application Japan, Nov. 19, 1986, 61-275564; Nov. 20, 1986, 61-278091; Apr. 13, 1987, 62-091457; Apr. 14, 1987, 62-091386; Apr. 27, 1987, 62-104921; Apr. 28, 1987, 62-107008

Int. Cl.[5] H04N *9/82*

U.S. Cl. 358—330 **10 Claims**



I. A video signal recording apparatus comprising:

a) input means arranged to be capable of selectively receiving a first video signal consisting of a carrier chrominance signal, a low-band luminance signal which is limited to a given low frequency band and a high-band luminance signal which is frequency interleaved with the low-band luminance signal or a second video signal consisting of a luminance signal having a narrower band than the band of said first video signal and a chrominance signal which is frequency interleaved with said luminance signal;

b) a first filter arranged to limit the band of said low-band luminance signal included in said first video signal or that of said luminance signal included in said second video signal;

c) modulating means arranged to frequency modulate the signal which is band limited by said first filter;

d) a second filter arranged to limit the bands of the high-band luminance signal and the chrominance signal included in said first video signal or that of the chrominance signal included in said second video signal;

e) converting means arranged to frequency convert the signal which is band limited by said second filter to the low band of said frequency modulated signal modulated by said modulating means;

f) multiplexing means for multiplexing said frequency converted signal converted by said converting means with said frequency modulated signal;

g) recording means for recording on a recording medium a multiplexed signal obtained by the multiplexing action of said multiplexing means; and

h) discriminating means for making a discrimination as to whether the signal received by said input means is said first video signal or said second video signal.

5,063,458

ELECTRONIC STILL CAMERA WITH STANDBY SWITCHES OPERABLE TO ENABLE THE CAMERA FOR RECORDING AN IMAGE UPON ACTUATION OF A RECORDING SWITCH

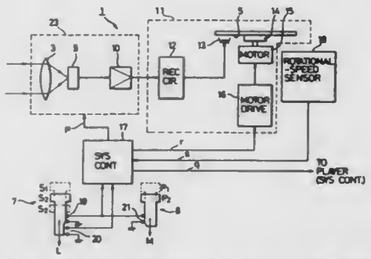
Takashi Fukushima, Tokyo, and Takashi Hishinuma, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 15, 1989, Ser. No. 407,742

Claims priority, application Japan, Sep. 27, 1988, 63-241594

Int. Cl.[5] H04N *5/781*

U.S. Cl. 358—335 **4 Claims**



1. In an electronic still camera of the type having image pickup means for receiving an optical image and generating electrical image signals representative thereof, and recording means responsive to a record control signal for recording the image signals on a magnetic medium and which includes a transducer and a spindle motor operable by operating energy from a source thereof for rotatably driving said magnetic medium relative to said transducer; the combination of

first standby switch means actuable for causing said operating energy to be supplied from said source to said spindle motor so as to rotate said magnetic medium and thereby enable said recording means for recording of said image signals on said magnetic medium,

second standby switch means actuable independently of said first standby switch means for causing said operating energy to be supplied from said source to said spindle motor and thereby also enabling said recording means,

recording switch means actuable for causing said record control signal to be supplied to said recording means after enabling thereof by actuation of one of said first and second standby switches for said recording of the image signals on said magnetic medium, and

shutter release means including a common driving element movable from a quiescent position to a first position for actuating one of said first and second standby switch means and further movable from said first position to a second position to actuate said recording switch means.

5,063,459

FACSIMILE APPARATUS

Munehiro Nakatani; Hirokazu Yamada, and Masamichi Kishi, all of Osaka, Japan, assignors to Minolta Camera Co., Ltd., Osaka, Japan

Filed Feb. 21, 1990, Ser. No. 482,880

Claims priority, application Japan, Feb. 23, 1989, 1-44705

Int. Cl.[5] H04M *1/00*

U.S. Cl. 358—404 **20 Claims**

1. A facsimile apparatus for receiving a data transmitted through a line, the apparatus comprising:

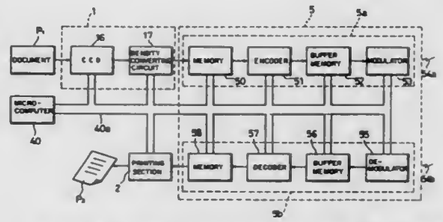
means for storing a data transmitted from memory an addresser;

capacity detecting means for detecting an amount of data stored in said memory means;

image forming means for forming a toner image on a recording paper in accordance with the data;

thermal fixing means for fixing the toner image on the recording paper by heating; and

temperature controlling means for controlling said thermal fixing means to have an operating mode temperature which is high enough to fix the image on the recording



paper in accordance with a detection result of said capacity detecting means.

5,063,460

ELECTRONIC CAMERA FOR LINE-BY-LINE IMAGING OF DOCUMENTS

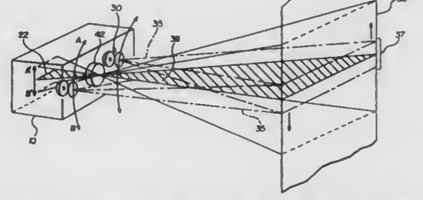
Ulrich Mutze; Gerhard Quaaz, both of Stuttgart, Fed. Rep. of Germany; The A. Vuong, Cleveland Heights, Ohio, and Wolfgang Kiesewetter, Waiblingen-Neustadt, Fed. Rep. of Germany, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 13, 1990, Ser. No. 553,486

Claims priority, application Fed. Rep. of Germany, Jul. 15, 1989, 3923521

Int. Cl.[5] H04N *5/30*

U.S. Cl. 358—474 **17 Claims**



1. Electronic camera for line-by-line imaging of documents or the like on an elongate solid-state image sensor, in particular a CCD line sensor, said camera comprising an illumination unit provided with optical elements as well as a camera lens, characterized in that for the imaging of large-size documents (**50**), the illumination unit (**30, 130, 230**) together with its optical elements (**32, 34, 132, 232**) is pivotable for producing a light strip (**37**) on the document (**50**) and in that the CCD line sensor (**22, 122, 222**) is movable, in response to said pivotal movement of the illumination unit (**30, 130, 230**), within the image plane of the lens (**42, 142, 244**) such that the light strip (**37**) can be imaged on the CCD line sensor (**22, 122, 222**).

5,063,461

PACKAGING OF COMPONENTS FOR IMAGE LIFT

Gary Copenhaver, Canton; Johan Bakker, Union Lake, and John Vala, Plymouth, all of Mich., assignors to Unisys Corporation (Formerly Burroughs Corp.), Detroit, Mich.

Filed Oct. 10, 1989, Ser. No. 419,045

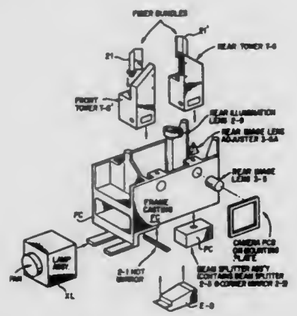
Int. Cl.[5] H04N *1/00*

U.S. Cl. 358—474 **21 Claims**

1. A method of integrating an array of cooperating optical and thermal components adapted to be used with prescribed transport-imaging means disposed along a prescribed up-pivoting transport-platform with a plurality of coupling-apertures; this method comprising the steps of:

VOL 1132 ISS 1 NO 5 1991 UMI

providing a single mount-casting MC carrying prescribed load means and including a plurality of coupling-extensions, each adapted to be co-located with respective one of said coupling apertures under said platform and including mount-site means; providing at one optical-tower unit enclosing and positioning a cooperating array of optical components, each said unit adapted to engage, and be



mounted on, one said mount-site means; providing a heat generating Spectral Radiation Source means arranged and adapted to be attached to said casting MC and providing Heat-Dissipation means disposed in infra-red receiving relation with said Source means and adapted to trap and dissipate this infra-red radiation wherein the Dissipation means is attached to said Source means and said Casting MC.

5,063,462

LED ARRAY AND PARTITIVE DRIVING METHOD THEREFOR USING OVERLAPPING ACTIVATION PERIODS

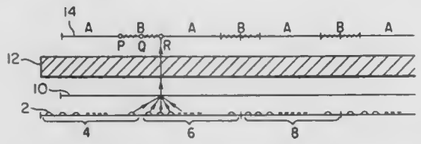
Katsumi Nakagawa; Tatsundo Kawai, and Yasuo Kuroda, all of Kanagawa, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 303,063, Jan. 30, 1989, abandoned, which is a continuation of Ser. No. 135,534, Dec. 17, 1987, abandoned, which is a continuation of Ser. No. 946,178, Dec. 23, 1986, abandoned, which is a continuation of Ser. No. 712,027, Mar. 15, 1985, abandoned. This application Dec. 5, 1989, Ser. No. 445,929

Claims priority, application Japan, Mar. 21, 1984, 59-52338

Int. Cl.[5] H04N *1/04*

U.S. Cl. 358—475 **13 Claims**



1. A partitive driving method for an LED array having a plurality of LED blocks each of which can independently be turned on, said method comprising the steps of:

turning on, after the lapse of a time period T1 after a block b is turned on, a succeeding block c;

extinguishing, after the lapse of a time period T2 after the block b is turned on, another block a which has been in a turned on state since the time before said block b was illuminated; and

variably setting the time period T2 in accordance with the output of a line sensor which receives light from the LED array.

5,063,463

LOADING MECHANISM INCLUDING A LINKAGE MECHANISM, AND RECORDING AND/OR REPRODUCING APPARATUS COMPRISING SUCH A LOADING MECHANISM

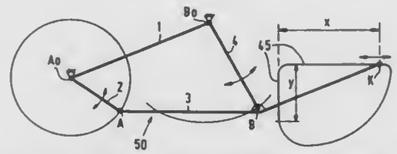
Franciscus A. J. M. Kox, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 17, 1989, Ser. No. 325,584

Claims priority, application Netherlands, Mar. 25, 1988, 8800751

Int. Cl.[5] G11B *5/008*

U.S. Cl. 360—96.5 **6 Claims**



1. A loading mechanism for a recording and/or reproducing apparatus (23), which loading mechanism serves to transfer an information carrier (26) supported by a support (25) between a loading position and an operational position, wherein said loading mechanism comprises means for moving said support (25), and thereby said information carrier (26), in both a first direction and a second direction, substantially orthogonal to said first direction, which means comprises at least a first linkage mechanism including at least two linked members which are pivotally connected to each other at adjacent ends of said link members, one of said link members being pivotally connected to said support (25), and wherein said first linkage mechanism comprises at least four link members, including:

a first member (1) which is rigidly connected to a frame (24) of the apparatus (23),

a second member (2) constructed as a crank which is connectable to drive means and which has one end pivotally connected to one end of the first member (1),

a third member (3) which has one end pivotally connected to the other end of the second member (2), either directly or via an intermediate member, and which has its other end pivotally connected to said support (25),

a fourth member (4) which has one end pivotally connected to the third member (3) and which has its other end pivotally connected to the other end of the first member (1), the lengths of said four members and the location of the pivot between the third member (3) and the fourth member (4) being such that pivoting of said second member (2) by said drive means can produce movement of the support (25), and therefore of the information carrier (26), in said first and second directions.

5,063,464

LOW PROFILE SUSPENSION

Hans Astheimer, Winterbach; Helma Brumme; Werner Heck, both of Mainz; Klaus Kissel, Russelsheim, and Hubert Schuy, Mainz, all of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 8, 1990, Ser. No. 520,566

Int. Cl.[5] G11B *5/60, 21/21*

U.S. Cl. 360—104 **17 Claims**

1. A magnetic head suspension in a magnetic disk storage device, wherein at least one magnetic head suspension is associated with a magnetic disk recording surface, comprising

a slider which, upon adequate rotation of the confronting magnetic disk, is maintained above the magnetic disk surface by an air cushion;

a magnetic head fixed to said slider;

a flexure fixed to said slider;

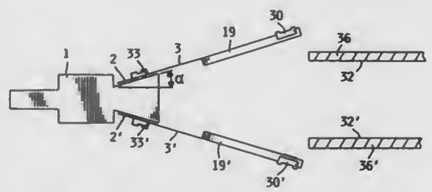
a suspension arm fixed to said flexure having a longitudinal

axis and engaging said flexure to exert a load force on said slider through said flexure; and

an arm portion connected to and supporting said suspension arm;

the free end of said suspension arm on the side averted from the magnetic disk surface being provided with a relatively stiff raised portion which forms a recess and extends in the direction of the longitudinal axis of said suspension arm,

a tongue portion of said flexure disposed within said recess



adjacent the raised portion upper upper region and movable parallel thereto,

said slider being fixed to said tongue surface facing the opening of said recess, said tongue being parallel to and above the surface of the portion thereof attached to said suspension arm at a spacing which is less than the depth of said recess, and

said flexure being connected to said suspension arm such that the means used to fix said slider to said flexure is positioned in the recess portion of said suspension arm.

5,063,465

HEAD SUPPORTING MECHANISM OF A RECORDING/REPRODUCING APPARATUS

Masahiko Fujioka, Fuji, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 24,555, Mar. 11, 1987, abandoned. This application Nov. 27, 1989, Ser. No. 442,397

Claims priority, application Japan, Mar. 25, 1986, 61-66281

Int. Cl.[5] G11B *5/48, 21/16*

U.S. Cl. 360—104 **5 Claims**



1. A head supporting mechanism of an apparatus for recording and reproducing data from a disk recording medium comprising:

a first head means for recording data on and reproducing data from one surface of the disk recording medium;

first supporting means for supporting the first head means at one end thereof;

a second head means for recording data on and reproducing data from the other surface of the disk recording medium;

second supporting means for supporting the second head means at one end thereof, said second supporting means including a head supporting portion for supporting said second head means and a leaf spring means for flexibly supporting said head supporting portion; and

at least one member formed of a weldable material and embedded in said first supporting means at the other end thereof, said embedded member being partly exposed for fixedly receiving said leaf spring means, said leaf spring means being welded to the embedded member for connecting said first and second supporting members.

5,063,466

ROTARY HEAD TYPE MAGNETIC RECORDING AND REPRODUCING APPARATUS

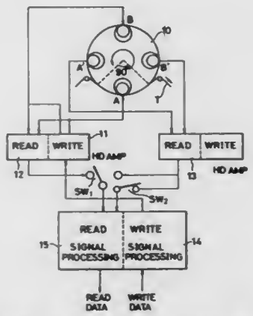
Tatsumaro Yamashita, Shibata, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Nov. 22, 1989, Ser. No. 441,684

Claims priority, application Japan, Dec. 5, 1988, 63-308460

Int. Cl.[5] G11B *5/52*

U.S. Cl. 360—107 **12 Claims**



1. A rotary head type magnetic recording and reproducing apparatus for use with a magnetic tape having index information comprising:

a rotary drum adapted for contacting the magnetic tape;

a pair of magnetic heads for recording and reproduction mounted on said rotary drum;

a pair of magnetic heads for reproduction alone mounted on said rotary drum;

head amplifiers connected to said heads for reading the index information by both said magnetic heads for recording and reproduction and said magnetic heads for reproduction alone in a high speed search mode; and

a reproduced signal processing circuit connected to said head amplifiers.

5,063,467

MAGNETIC HEAD WITH SATURABLE GAP AND MATRIX DEVICE COMPRISING A MULTIPLICITY OF SUCH HEADS

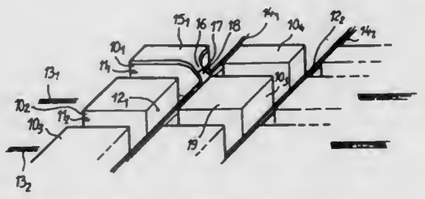
Joseph Colinean, Bures sur Yvette, France, and Jurgen Machui, Munich, Fed. Rep. of Germany, assignors to Thomson-CSF, Puteaux, France

Filed Oct. 27, 1989, Ser. No. 427,369

Claims priority, application France, Nov. 15, 1988, 88 14806

Int. Cl.[5] G11B *5/235, 5/197*

U.S. Cl. 360—119 **11 Claims**



1. A matrix magnetic head device comprising:

a plurality of magnetic heads;

conductors associated with each of said plurality of magnetic heads and extending in rows and columns for producing a magnetic field within the magnetic heads when an excitation current flows through the conductors;

wherein each of the magnetic heads comprises two magnetic

VOL 1132 ISS 1 NO 5 1991 UMI

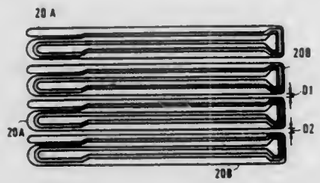
poles separated by a gap comprising a magnetic material having a saturation value less than a saturation value of the poles, the gap being saturated only at a predetermined threshold first intensity of excitation current and the poles being saturated at a predetermined threshold second intensity of excitation current which is substantially equal to three times that of the first intensity, such that when the gap is not saturated, the magnetic field remains confined within the gap.

5,063,468

COMPATIBLE MAGNETIC HEAD ASSEMBLY

Donald T. Best, Lafayette Hill, Pa., assignor to North American Philips Corporation, New York, N.Y.

Filed May 8, 1990, Ser. No. 520,791
Int. Cl.[5] G11B *5/17, 5/265*
U.S. Cl. 360—123 **20 Claims**



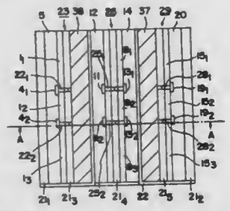
1. A magnetic head assembly for reading from and writing to a plurality of tracks on a magnetic medium, said medium and assembly being relatively moveable in a longitudinal direction, comprising:
a plurality of pairs of reading poles;
a plurality of pairs of read loops each adjacent and magnetically coupled to an associated pair of said reading poles;
a plurality of writing poles, each pair of said reading poles being aligned with a different corresponding one of said writing poles; and
a plurality of pairs of write loops each pair of write loops being adjacent and magnetically coupled to an affiliated one of said writing poles, each pair of write loops being selectively driveable with a pair of currents in either the same or opposite sense.

5,063,469

COMPOSITE MAGNETIC HEAD ASSEMBLY HAVING REDUCED CROSS FEED BETWEEN WAITING AND READING HEADS

Takahiko Tandai, Aomori, Japan, assignor to Nakamichi Corporation, Tokyo and Nakamichi Fukushima Corporation, Fukushima, both of, Japan

Filed Nov. 17, 1989, Ser. No. 438,704
Claims priority, application Japan, Nov. 18, 1988, 63-291716
Int. Cl.[5] G11B *5/127, 5/115*
U.S. Cl. 360—128 **7 Claims**



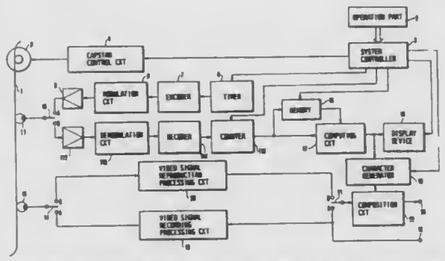
1. A composite magnetic head comprising:
a writing head assembly including a first ring head composed of a first half provided with a coil and a second half secured to said first half;
first and second shielding members of magnetic material arranged on opposite sides of said writing head assembly;
a first reading head assembly arranged on the side of said first shielding member and including a second ring head composed of third and fourth halves secured to each other, each provided with a coil;
third and fourth shielding members of magnetic material arranged on opposite sides of said first reading head assembly, said first and fourth shielding members being arranged in opposition to each other with a predetermined gap therebetween;
a second reading head assembly arranged on the side of said second shielding member and including a third ring head composed of fifth and sixth halves secured to each other, each provided with a coil;
fifth and sixth shielding members of magnetic material arranged on opposite sides of said second reading head assembly, said second and sixth shielding members being arranged in opposition to each other with a predetermined gap therebetween; and
a thin plate of magnetic material attached to front faces of said fourth shielding member and said fourth half of said first reading head assembly.

5,063,470

INFORMATION SIGNAL REPRODUCING APPARATUS CAPABLE OF GRASPING REPRODUCING POSITION ON A TAPE-SHAPED RECORDING MEDIUM

Kelichi Fukuzawa, and Yoshiki Ishii, both of Kanagawa, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 10, 1989, Ser. No. 377,537
Claims priority, application Japan, Jul. 18, 1988, 63-177185
Int. Cl.[5] G11B *15/00, 27/2*
U.S. Cl. 360—137 **10 Claims**



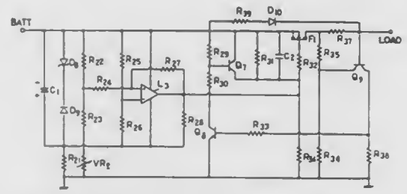
8. An information signal reproducing apparatus, comprising:
a) reproducing means for reproducing an information signal from a tape-shaped recording medium;
b) time information reproducing means for reproducing time information recorded on said tape-shaped recording medium;
c) first extracting means for designating a first position of said tape-shaped recording medium and for extracting time information according to said first position;
d) detecting means for detecting inconsecutive points of said time information reproduced by said time information reproducing means;
e) second extracting means for extracting, in response to detection by said detecting means of each of said inconsecutive points, parts of said time information reproduced immediately before and immediately after each of said inconsecutive points;
f) first computing means for computing first information indicative of a difference between the part of said time information reproduced immediately before an inconsecutive point and said time information according to said first position;
g) second computing means for computing second information indicative of a difference between the part of said time information reproduced immediately after said inconsecutive point and a part of time information currently reproduced; and
h) third computing means for obtaining third information by adding together said first information and said second information.

5,063,471

BATTERY PROTECTION CIRCUIT

Tae-Hong Park, Inchun, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Aug. 18, 1989, Ser. No. 395,492
Int. Cl.[5] H02H *7/10*
U.S. Cl. 361—18 **3 Claims**



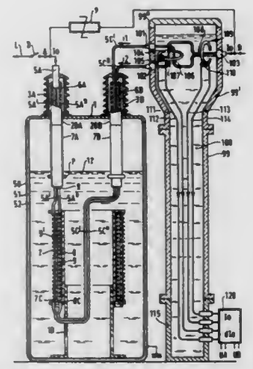
1. A battery protection circuit, comprising:
means for receiving an output voltage of a battery;
a comparator;
a field-effect transistor;
a first resistor coupled to a gate of said field-effect transistor;
a first plurality of resistors and a variable resistor to a positive input port of said comparator;
a feedback resistor;
means coupled between said receiving means and said negative input port, for applying a first reference potential to said negative input port;
a first transistor;
a first resistor;
the comparator having an output port connected to a gate of said field-effect-transistor through said first resistor so as to provide a particular hysteresis characteristic;
a third plurality of resistors connected with a collector of said first transistor;
a load terminal;
a second transistor;
a fourth plurality of resistors connected between said load terminal and a drain of said first transistor, said first transistor being turned on or off depending on a voltage across said fourth plurality of resistors, and said third plurality of resistors being connected with a base of said second transistor;
a third transistor;
a base of said third transistor being connected through a second resistor to a collector of the second transistor and the emitter of the second transistor being connectable to a second reference potential;
whereby when the third transistor is turned on, a voltage between the gate and a source of the field-effect transistor is changed to equal the voltage between the collector and the emitter of the third transistor plus a voltage across said first resistor, so that the battery is protected from excess currents.

5,063,472

DEVICE FOR DETECTING SUPERCONDUCTOR QUENCHING AND APPLICATION TO A SUPERCONDUCTING CURRENT LIMITER

Pham van Doan, Meyzieu; Jean-Pierre Dupraz, Lyons, and Alain Février, Maurepas, all of France, assignors to GEC Alsthom SA, Paris, France

Filed Apr. 2, 1990, Ser. No. 502,730
Claims priority, application France, Apr. 4, 1989, 89 04410
Int. Cl.[5] H02H *9/02*
U.S. Cl. 361—19 **18 Claims**



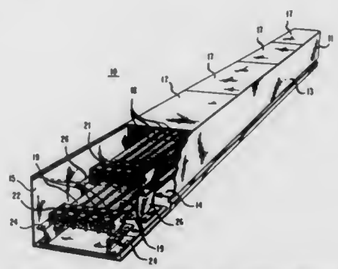
1. A device for detecting quenching of a portion of a superconductor element comprising: two identical superconducting conductors coupled to non-superconducting conductors in each of which a current flows, and electrically connected in parallel, and means for detecting a threshold value of one of a difference of intensity and a phase-difference between said currents flowing in said device indicative of quenching of a portion of said superconductor element.

5,063,473

MODULAR ELECTRICAL SERVICE DISTRIBUTION SYSTEM

James R. Hall, Dracut, Mass.; Lorin E. Hunter, and Terry D. Wilson, both of Roswell, Ga., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 6, 1989, Ser. No. 431,792
Int. Cl.[5] H02G *3/28*
U.S. Cl. 361—93 **6 Claims**



1. An electrical service module for interconnection with other similar service modules to provide a continuous electrical service line, said service module comprising:
a section of duct having a first predetermined length;
duct section attaching means for attaching said duct section to a duct section of an adjacent similar module;

VOL
1132
ISS
1
NO
5
1991
UMI

feeder wire connecting means rigidly fastened to and positioned within said section of duct, said connecting means including a first plurality of mutually insulated individual wire connectors arranged in a first tier and at least a second plurality of mutually insulated individual wire connectors arranged in a second tier positioned above and horizontally displaced relative to said first tier of wire connectors; and

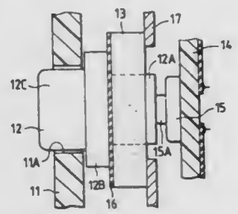
a plurality of insulated electrical feeder wires each having a second predetermined length, each of said feeder wires having one end connected to one of said individual wire connectors and the other end bared of insulation, said second predetermined length being such that said bared ends of said feeder wires protrude from said duct section so that each of said feeder wires is readily connectable to a corresponding wire connector in an adjacent similar module.

5,063,474

APPARATUS FOR, AND METHOD OF, DISCHARGING STATIC ELECTRICITY IN A DISPLAY AND PUSH-BUTTON SWITCH

Ken Igarashi, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jun. 2, 1989, Ser. No. 360,632
Claims priority, application Japan, Jun. 29, 1988, 63-87403[U]
Int. Cl.[5] H05F *3/02*
U.S. Cl. 361—220 **7 Claims**



1. A static electricity discharging device used in a switch for an electrical equipment comprising:

(a) a push button having a body portion penetrating into said electrical equipment and being movable into and out of an operative position so as to operate the switch of the electrical equipment;

(b) an elastic member in mating relationship with said body portion such that said elastic member is maintained in position with respect to said push button, said elastic member normally maintaining said push button out of said operative position, said elastic member being elastically deformable by said push button when said push button is moved to said operative position; and

(c) an electrically-conductive layer disposed on a surface of said elastic member and also in mating relation with said body portion, said electrically-conductive layer being electrically grounded whereby external static electricity applied to said push button is passed directly to the ground through said electrically-conductive layer wherein said body portion of said push button includes an elongated body which has a flange formed therearound intermediate opposite ends thereof, a front portion extending forwardly form said flange, and a rear portion extending rearwardly from said flange, said elastic member having an annular shape, said electrically-conductive layer being of an annular shape and being affixed to one side of said elastic member, said rear portion of said push button body extending through said electrically-conductive layer and said elastic member with said electrically-conductive member held in contact with one side of said flange facing away from said front portion of said push button body, and the other side of said elastic member adapted to be mated with a support wall of the electrical equipment.

3. A static electricity discharging device for use in an electrical display device with electrical elements comprising:

a panel;

a transparent plate put in said panel, an area portion of said transparent plate being used as a window for viewing said electrical element;

an elastic member interposed between said panel and said electrical elements in said display device to maintain contact with both said panel and said electrical elements, said elastic member being provided at locations proximate a periphery defined by said area portion; and,

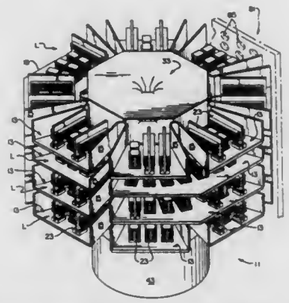
an electrically-conductive layer disposed on a surface of said elastic member between said elastic member and said electrical elements, said electrically-conductive layer being electrically grounded whereby external static electricity applied to said transparent plate is passed to the ground through said electrically-conductive layer.

5,063,475

MULTILEVELED ELECTRONIC ASSEMBLY WITH COOLING MEANS

Albert L. Balan, Endwell, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 19, 1990, Ser. No. 495,863
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—384 **19 Claims**



1. In an multileveled electronic assembly including a plurality of spacedly positioned substrates located at different levels within said assembly and each including thereon a plurality of heat generating electronic components, said assembly including means to provide cooling of said electronic components, the improvement wherein said cooling means comprises a plurality of individual duct members centrally oriented within said assembly, each of said duct members directing cooling fluid onto said electronic components on a respective one of said substrates to cool said electronic components.

5,063,476

APPARATUS FOR CONTROLLED AIR-IMPINGEMENT MODULE COOLING

Talal T. Hamadah, Littleton, Mass.; Douglas N. Ryder, Amherst, N.H., and Harvey S. Friedman, Sudbury, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

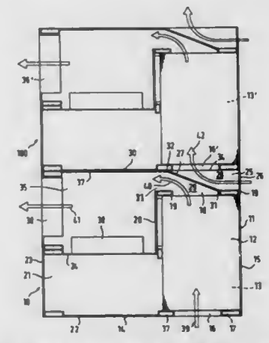
Filed Dec. 5, 1989, Ser. No. 446,258
Int. Cl.[5] H02B *1/00*
U.S. Cl. 361—384 **35 Claims**

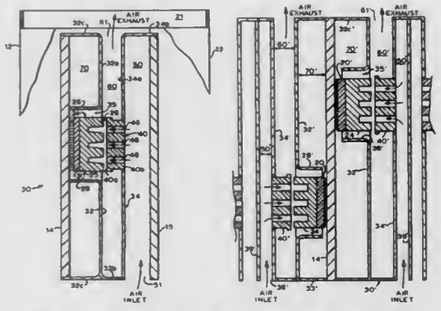
1. Cooling apparatus for removing the heat from heat dissipating electronic components mounted to a first circuit board configured for insertion into a backplane, said apparatus comprising:

wall means for substantially thermally isolating each of said electronic components one from the other;

inlet means for directing cooling air to said electronic components, said inlet means having nozzle means configured, dimensioned and arranged for alignment with each of said electronic components;

the top of each front reception area aligned with the respective first air inlet, an air space (25) between the top of each front reception area and the top of the respective frame, a baffle (27) in each air space dividing the space into front (28) and rear (29) air passages, a second air inlet (26) in the front of each frame communicating with the respective front air passage (28), a first air outlet (34) from said front air passage (28) formed in the top of each frame in alignment with the respective first air inlet (16, 16'), a rear reception area (35) in each frame behind the respective front reception area and communicating with the respective rear air passage (29), each rear reception area extending from the top of the respective frame to a level below the top of the respective front reception area, a second air outlet in the back of each frame communicating with the respective rear reception area, and a fan (36, 36') associated with each second outlet for causing air to flow through the respective frame, the fan (36) of the lower frame being effective for causing air to flow through the first air inlet (16) of the lower frame, the front reception area (13) of the lower frame, the rear air passage (29) of the lower frame, the rear reception area (35) of the lower frame and the second air outlet of the lower frame, and the fan (36') of the upper frame being effective for causing air to flow through the second air inlet (26) of the lower frame, the front air passage (28) of the lower frame and the first air outlet (34) of the lower frame and hence through the first air inlet (16') of the upper frame, the front reception area (13') of the upper frame, the rear air passage of the upper frame, the rear reception area of the upper frame and the second air outlet of the upper frame.





exhaust means for isolating and removing heated air from said electronic components, said exhaust means arranged between said inlet means and said first circuit board; and

air-moving means for drawing cooling air into said inlet means and removing heated air from said exhaust means.

5,063,477

FRAME FOR CIRCUIT BOARDS WITH ELECTRONIC COMPONENTS

Wolfgang Paggen, Starnberg, and Josef Neblich, Wartenberg, both of Fed. Rep. of Germany, assignors to Knurr-Mechanik fur die Elektronik Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Nov. 7, 1989, Ser. No. 432,507
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1988, 3837744
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—384 **5 Claims**

1. A ventilated storage assembly for electric circuit boards comprising at least two stacked like frames (10, 100) including a lower frame (10) and an upper frame (100), each frame comprising a base (14), a top (30), a front (15), a back (23) and sides, the base of the upper frame (100) being supported on the top (30) of the lower frame, each frame including a front reception area (13, 13') at the front of the respective frame for vertically disposed circuit boards, each front reception area extending upwardly from the base of the respective frame, a first air inlet (16, 16') in the base of each frame communicating with the respective front reception area (13, 13'), an air opening (18) at

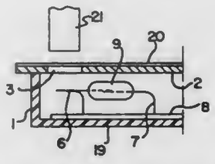
---

5,063,478

ELECTRICAL OR ELECTRONIC CONTROL KEY PAD

Bernard Danglot, 12 allee des Bruyeres, 95250 Beauchamp, France

PCT No. PCT/FR88/00280, § 371 Date Apr. 3, 1990, § 102(e) Date Apr. 3, 1990, PCT Pub. No. WO89/12310, PCT Pub. Date Dec. 14, 1989
PCT Filed Jun. 3, 1988, Ser. No. 460,964
Int. Cl.[5] H05K *1/18, 5/06*
U.S. Cl. 361—405 **9 Claims**



1. An electrical or electronic control key pad comprising:

a case;

VOL 1132 ISS 1 NO 5 1991 UMI

a front panel mounted on the case, the front panel having a plurality of apertures passing therethrough, the front panel having a non-apertured portion for blocking magnetic flux from a magnet and having the plurality of apertures for allowing the magnetic flux from the magnet to pass therethrough;

a printed circuit on a base portion of the case; and

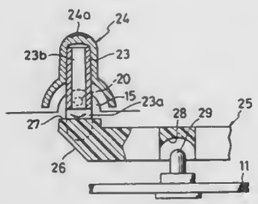
a plurality of detector means connected to the printed circuit for detecting the magnetic flux passing through the apertures, the detector means each having a main body including blades which are sensitive to a magnetic field, each blade being extended by a pin, one portion of at least one of said pins being located under one of the plurality of apertures, while said main body and another portion of said pins located under the non-apertured portion of the front panel.

5,063,479

ILLUMINATING SWITCH APPARATUS

Yukihiko Satoh, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Sep. 7, 1990, Ser. No. 580,404
Claims priority, application Japan, Dec. 11, 1989, 1-142033
Int. Cl.[5] F21V *8/00*
U.S. Cl. 362—32 **4 Claims**



1. An illuminating switch apparatus comprising:

a case **10**;

a light source **29** disposed on said case **10**;

a plurality of switches **12**, **13** disposed on said case **10** and spaced from said light source **29**, each of said plurality of switches **12**, **13** comprising a bearing portion **15** and switch operating members **23**, **31** pivotally disposed on said bearing portions **15** about an axis, said switch operating members **23**, **31** defining light conducting paths **23***b*; and

a light conducting body **25** disposed on said case **10** comprising a plurality of arms extending from a point adjacent said light source **29** to said switch operating members **23**, **31**, said arms having an upper surface projecting portion **27** and at least one reflecting surface **25***a*, **26** such that light from said light source **29** is reflected by said at least one reflecting surface **25***a*, **26** and through said upper surface projecting portion **27** such that said light is directed through said light conduction paths **23***b*.

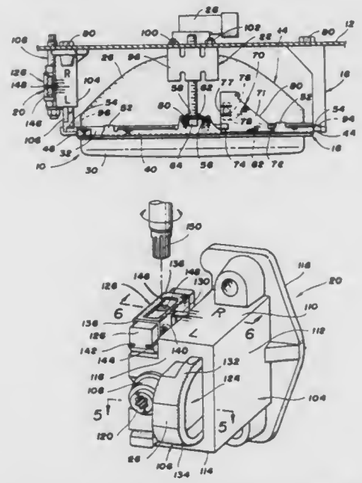
5,063,480

VEHICLE HEADLAMP ADJUSTMENT DEVICE

David R. McMahan; William E. Magengast, and Luis A. Mateos, all of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich.

Filed Aug. 13, 1990, Ser. No. 566,905
Int. Cl.[5] B60Q *1/02*
U.S. Cl. 362—61 **3 Claims**

1. In combination with a headlamp assembly having a lamp unit supporting a light source and adapted to be adjusted in a vertical plane and in a horizontal plane relative to a support panel for aiming the light beam emitted by said lamp unit, a first adjustment device located between said support panel and a first portion of said lamp unit for adjusting the position of said lamp unit in said vertical plane, a second adjustment device located between said support panel and a second portion of said lamp unit for adjusting said lamp unit in a horizontal plane, said second adjustment device comprising a housing fixed to said support panel and supporting a relatively movable pivot member which provides a pivot point for one end of said headlamp unit, a screw rotatably supported by said housing and threadably connected to said pivot member for moving the latter fore and aft of said housing for adjusting the position of said one end of said lamp unit for aiming purposes, indicia formed on said housing for indicating the adjusted aim position of said lamp unit in said horizontal plane, and a position indicator adjustably carried by said pivot member adjacent to said indicia so that upon establishing the desired aimed position of said lamp unit by rotating said screw, said position indicator is subsequently moved relative to said pivot member in line with a zero ("0") marking of said indicia so as to indicate the adjusted position of said lamp unit in said horizontal plane, said position indicator comprising a slide member provided with a pointer, said slide member having a top section with an elongated slot formed therein, one side wall of said slot having a plurality of teeth adopted to be engaged by a hand tool for moving said slide member relative to said indicia.



5,063,481

PIVOT ASSEMBLY FOR VEHICLE HEADLIGHT POSITION ADJUSTMENT

John P. Martin, Timberlake, Ohio, assignor to Eaton Corporation, Cleveland, Ohio

Filed Oct. 15, 1990, Ser. No. 597,655
Int. Cl.[5] B60Q *1/02*
U.S. Cl. 362—61 **4 Claims**

1. A releasable pivot assembly for providing a stationary pivot point for positioning a vehicle headlight mounted upon a movable frame relative to a fixed frame, said assembly comprising a one piece ball stud and a retainer clip, said ball stud including;

a flange;

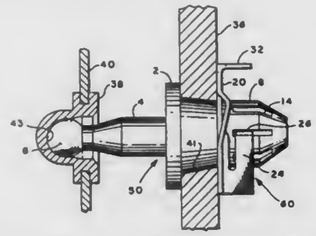
a first elongate portion extending substantially transversely from one side of the flange to a free-end thereof having a ball-like configuration adapted for pivotal engagement with a selective one of the fixed and movable frames;

a second substantially cylindrical portion extending substantially transversely from the opposite side of the flange in substantial axial alignment with the first portion to a free-end thereof, said second portion having an annular groove

disposed in the outer surface thereabout in predetermined spaced-apart relationship to the flange;

said outer surface between the annular groove and the free-end having a plurality of circumferentially spaced grooves disposed therein in substantial transverse relationship to the annular groove;

said retainer clip having a base portion having an open-ended slot at one end surrounded by an edge of the base member adapted to be received into the annular groove, and at least one resilient arm extending from the base member and configured such that a free-end thereof is receivable into one of the ball stud circumferentially spaced grooves when the retainer clip slot edge is received into the annular groove;



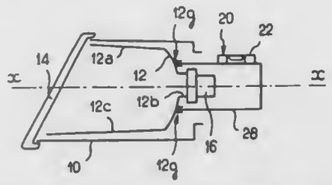
said assembly operative such that, when the ball stud second portion is inserted through an opening in the selected one of the fixed and movable frames with the flange abutting against one side thereof, the ball stud first portion extends away therefrom towards the other of said fixed and movable frames for pivotal engagement therewith and the ball stud second portion annular groove is positioned adjacent the opposite side of the selected frame and operable to receive the retainer clip slot edge thereinto to secure the ball stud against axial movement relative to the frame opening and the resilient arm free-end is engagable with one of the ball stud second portion circumferentially spaced grooves to secure the ball stud against rotation relative to the frame opening.

5,063,482

MOTOR VEHICLE HEADLIGHT INCLUDING AN INDICATOR DEVICE FOR INDICATING THE ELEVATION DIRECTION OF ITS REFLECTOR

Patrice Collot, Pantin; Jean-Marie Brel, Claye-Souilly, and Guy Dehaene, Bagnolet, all of France, assignors to Valeo Vision, Bobigny Cedex, France

Filed Feb. 19, 1991, Ser. No. 657,510
Claims priority, application France, Feb. 20, 1990, 90 02027; Jun. 25, 1990, 90 07939
Int. Cl.[5] F21M *3/20*
U.S. Cl. 362—66 **10 Claims**



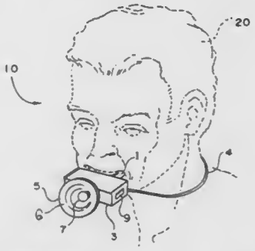
1. A motor vehicle headlight comprising a light source, a reflector having a lamp supporting collar and a rear face, a housing, and a front glass, and also comprising an indicator device for indicating the elevation direction of the reflector, the indicator device being of the type comprising a spirit level mounted on said reflector in a plane which is essentially vertical and parallel to the optical axis defined by said reflector, the spirit level being in a predetermined angular relationship with said optical axis, wherein the spirit level is mounted on a hollow support having an end edge which is mounted adjacent an indicator support collar means which abuts against the rear face of the reflector around a lamp mounted in the reflector and at a distance from said lamp supporting collar.

5,063,483

BATTERY POWERED LIGHT WITH MOUTHPIECE

John Feilmeier, and Rosemary Feilmeier, both of 3136 S. Lakeport Rd., Sioux City, Iowa 51106

Filed Oct. 26, 1990, Ser. No. 603,389
Int. Cl.[5] F21L *15/08*
U.S. Cl. 362—103 **6 Claims**



1. A light comprising:

a) a housing containing a power source and illumination means selectively electrically connectable to said power source;

b) a mouthpiece connected to said housing and including a curved channel generally conforming to a user's bite and adapted to receive said user's teeth therein; and

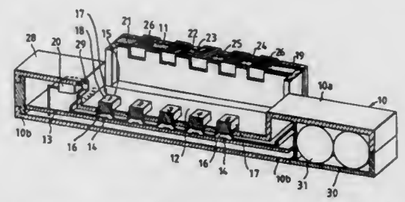
c) cord attachment means interposed between said mouthpiece and housing for attaching a cord thereto.

5,063,484

REMOTE CONTROL UNIT

Kouji Tanaka, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Apr. 12, 1991, Ser. No. 684,617
Claims priority, application Japan, Jul. 26, 1990, 2-78721[U]
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—109 **4 Claims**



1. A remote control unit, comprising a body case having a recess defined by an upper wall thereof and having a rising portion provided by provision of said recess, a plurality of push-button switches provided for individual manual operation on said upper wall thereof at said recess, a door mounted for pivotal motion on said body case between a closed position in which said door is fitted in said recess and covers over said push-button switches and an open position in which said push-button switches are capable of being manually operated, a plurality of push-buttons disposed for individual manual operation on said door in such a manner as to oppose, when said door is in the closed position, to said push-button switches so

VOL 1132 ISS 1 NO 5 1991 UMI

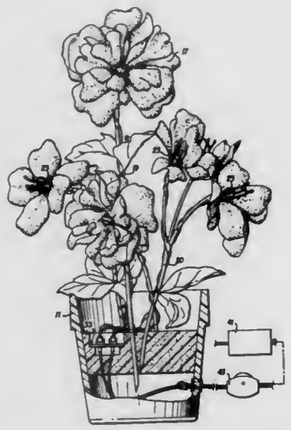
that each of said push-button switches may be operated by operation of a corresponding one of said push-buttons, said rising portion of said body case having a light admitting hole perforated in a side wall thereof adjacent said recess, a light emitting element accommodated in said rising portion of said body case such that light emitted therefrom may be admitted into said recess through said light admitting hole so that, when said door is in the open position, such light may be projected to display portions of said push-button switches, and a light conducting member provided on a rear face of said door for introducing, when said door is in the closed position, light emitted from said light emitting element and admitted by way of said light admitting hole into said recess to display portions of said push-buttons on said door.

5,063,485

ILLUMINATED ARTIFICIAL FLOWERS

Edward H. Harris, 216 Hillcrest, Henderson, Nev. 89015

Filed Dec. 18, 1989, Ser. No. 451,980
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—122 **1 Claim**



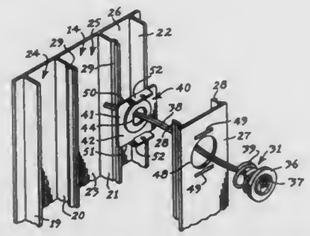
1. An illuminated artificial floral arrangement comprising
a hollow container;
a platform of penetrable material secured within said container between the top and bottom thereof;
an electrical terminal block mounted within said platform and accessible from the upper side thereof;
a plurality of artificial flowers having petals and a stem, each of said stems having a pointed tip so that they can be selectively removably inserted through said platform whereby said flowers are supported by said platform;
a plurality of low voltage lamps secured within said artificial flowers;
electrical leads wound about said stems and interconnecting said low voltage lamps to said electrical terminal block;
a low voltage transformer;
electrical leads connected to and extending from said terminal block through said container and connected to said low-voltage transformer;
means for connecting said low voltage transformer to a standard electrical outlet; and
insulated decorative cover material extending above said platform and said terminal block for concealing the platform and block.

5,063,486

MOUNTING APPARATUS FOR A FLUORESCENT LAMP HOLDER

Thomas L. Cummings, III, Nashville, and Ned S. Al-Orfali, Murfreesboro, both of Tenn., assignors to Cummings Incorporated, The International Sign Service, Nashville, Tenn.

Filed Oct. 29, 1990, Ser. No. 604,100
Int. Cl.[5] F21S *3/00*
U.S. Cl. 362—217 **11 Claims**



1. A mounting apparatus for a fluorescent lamp holder having a body portion of non-circular cross-section and an enlarged head adapted to detachably receive one end of a fluorescent lamp, an electrical wire connected to said body portion, and a pair of spring clips on opposite sides of said body portion, comprising:
(a) a mounting plate having a front surface and a rear surface and a central hole therethrough larger than the largest cross-section of said lamp holder to permit the passage of said lamp holder through said central hole,
(b) a pair of elongated slots extending through said mounting plate adjacent opposite sides of said central hole,
(c) an attachment bracket comprising a plate member having front and rear surfaces and an attachment hole therethrough, said attachment hole having a non-circular shape of a size permitting insertion of the body portion of the lamp holder through said attachment hole from front-to-rear, the spring clips on said body portion being compressed by said attachment hole as said body portion is inserted through said attachment hole, said spring clips snapping outward behind and engaging said plate member when said body portion is fully inserted in said attachment bracket in a mounting position,
(d) a pair of latch tongues projecting forward from said plate member spaced apart on opposite sides of said attachment hole, said latch tongues having the same spacing as said elongated slots and adapted to be received in said elongated slots as said attachment bracket is moved forward toward said mounting plate, each of said latch tongues having a retainer member engaging said rear surface of said mounting plate after said latch tongues are fully received in said slots in said mounting position, and
(e) the head of said lamp holder projecting forward through said central hole in said mounting position.

5,063,487

MAIN AND AUXILIARY TRANSFORMER RECTIFIER SYSTEM FOR MINIMIZING LINE HARMONICS

Leopold J. Johnson, Valley Center, and Russell E. Hammond, La Jolla, both of Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Mar. 22, 1990, Ser. No. 497,387
Int. Cl.[5] H02M *1/14, 5/14, 7/06*
U.S. Cl. 363—3 **10 Claims**

1. A transformer system comprising:
a main transformer having at least one leg with said leg having a primary main winding and a plurality of secondary main winding therearound, one turn of said secondary main windings inducing one step of voltage change to a waveform passed through said at least one of said legs of said main transformer; and
an auxiliary transformer having at least one leg with a primary auxiliary winding therearound, said primary auxiliary winding being operatively coupled in series with one of said secondary main windings with said at least one leg of said auxiliary transformer also having a plurality of secondary auxiliary windings therearound, one turn of said secondary auxiliary windings inducing a fraction of said one step of voltage change to a waveform passed through said at least one of said legs of said auxiliary transformer.

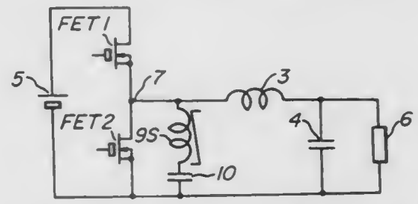
5,063,488

SWITCHING POWER SOURCE MEANS

Kosuke Harada, Fukuoka, and Hiroshi Sakamoto, Ohnojyo, both of Japan, assignors to Kyushu University, Fukuoka, Japan

Continuation-in-part of Ser. No. 323,381, Mar. 14, 1989. This application May 30, 1990, Ser. No. 530,814
Claims priority, application Japan, Sep. 16, 1988, 63-230133; Sep. 12, 1989, 1-234577
Int. Cl.[5] H02M *3/337*
U.S. Cl. 363—16 **14 Claims**

1. A switching power source, comprising:
a DC voltage source;
a first switch element connected to said DC voltage source;
low-pass filter means having an output end for connection to a load and an input end selectively connectable to said DC voltage source through said first switch element;
a second switch element connected in parallel relative to the input end of said low-pass filter means, said first and second switch elements each comprising a MOS-FET having parasitic capacitors and being turned on and off so that an output signal of desired frequency is produced at the output end of said low-pass filer means;
a reactor connected in parallel with said second switch element for charging and discharging said parasitic capacitors during a switching operation hen said first switch element is switched off and said seconds witch element is switched on, and vice versa, said reactor including a saturable core for giving a non-linear property to said reactor; and
a capacitor connected in series with said reactor so that the series connection of said reactor and said capacitor is in parallel with said second switch element, wherein said first and second switch elements are directly connected together at a common connection point, and the series connection of said reactor and said capacitor is connected directly to said common connection point.

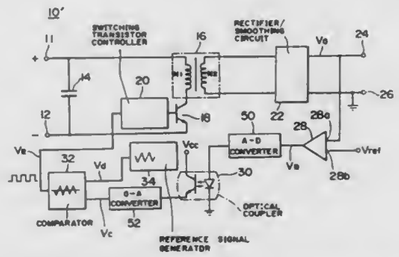


5,063,489

SWITCHING REGULATOR HAVING IMPROVED SWITCHING CONTROL ARRANGEMENT

Katsuhiko Inaba, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 6, 1990, Ser. No. 505,391
Claims priority, application Japan, Apr. 6, 1989, 1-85707
Int. Cl.[5] H02M *3/335*
U.S. Cl. 363—21 **3 Claims**



1. A switching regulator, comprising:
a transformer, said transformer having a primary winding and a secondary winding, said primary winding being coupled to receive an unregulated dc voltage;
an electrical switching means, said electrical switching means being coupled to said primary winding for intermittently operating said transformer;
a first controller, said first controller being coupled to control said electrical switching means by varying a duty cycle thereof;
a rectifier, coupled to said secondary winding, for producing a dc output to be derived as an output of said switching regulator;
an error amplifier, coupled to receive the dc output of said rectifier and a first reference signal, for generating an

VOL 1132 ISS 1 NO 5 1991 UMI

error signal indicating an amplitude difference therebetween;

an A-D converter, coupled to receive said error signal, for generating a digital error signal corresponding to said error signal;

an optical coupler, said optical coupler being coupled to receive said digital error signal;

a D-A converter, coupled to receive the output of said optical coupler, for generating an analog error signal corresponding to the digital error signal; and

a second controller, said second controller being coupled to control said electrical switching means via said first controller in accordance with said analog error signal.

5,063,490

REGULATED CHOPPER AND INVERTER WITH SHARED SWITCHES

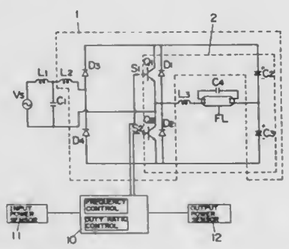
Minoru Maehara, Kadoma, and Haruo Nagase, Nara, both of Japan, assignors to Matsushita Electric Works Ltd., Kadoma, Japan

Filed Apr. 24, 1990, Ser. No. 514,052

Claims priority, application Japan, Apr. 25, 1989, 1-105181; May 26, 1989, 1-134397; Jul. 26, 1989, 1-193431; Jul. 26, 1989, 1-193435

Int. Cl.[5] H02M *5/458*

U.S. Cl. 363—37 **11 Claims**



1. A power supply, comprising:

a source of AC voltage;

a chopper circuit, including

(a) a pair of first and second switching elements operatively connected to said AC voltage source, and

(b) capacitor means, operatively connected to the first and second switching elements, for smoothening a periodically interrupted voltage from said AC voltage source through the first and second switching elements so as to provide a resulting smoothened DC voltage thereat;

an inverter circuit means, including the first and second switching elements in common with said chopper circuit, for driving the first and second switching elements to turn on and off so as to provide from the DC voltage of the capacitor means an AC voltage to a load connected to said inverter circuit means at first and second load connection points; and

power control means, operatively connected to inputs of the first and second switching elements, for varying at least one of a switching frequency and a duty ratio for the first and second switching elements so as to provide the periodically interrupted voltage from said AC voltage source by turning on and off the first and second switching elements in accordance with a chopper input power and an inverter output power, said power control means equalizing the chopper input and inverter output powers.

5,063,491

SWITCHING REGULAR UNDERVOLTAGE DETECTOR

Nakamura Shigeo, Yamanashi, Japan, assignor to Fanuc Ltd., Minamitsuru, Japan

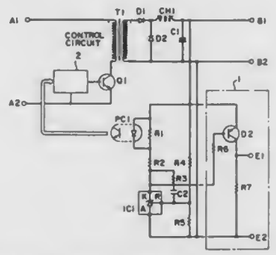
PCT No. PCT/JP89/00525, § 371 Date Jan. 12, 1990, § 102(e) Date Jan. 12, 1990, PCT Pub. No. WO89/12348, PCT Pub. Date Dec. 14, 1989

PCT Filed May 25, 1989, Ser. No. 459,812

Claims priority, application Japan, Jun. 9, 1988, 63-142452

Int. Cl.[5] H02M *3/335*

U.S. Cl. 363—56 **6 Claims**



1. A switching regulator output change detector for a switching regulator including an error detection circuit, arranged such that a current or voltage is increased and output when an output voltage at an output of the switching regulator rises above a predetermined value, and that a current or voltage is not output when the output voltage falls below the predetermined value, and a feedback circuit at the output of the switching regulator, for controlling a control circuit of a switching transistor in response to an output signal from an output of said error detection circuit, said switching regulator output change detector comprising:

a detector including only one transistor coupled by a collector and an emitter to the output of the switching regulator, said detector being operated by using the output of said error detection circuit as a control input.

5,063,492

MOTION CONTROL APPARATUS WITH FUNCTION TO SELF-FORM A SERIES OF MOTIONS

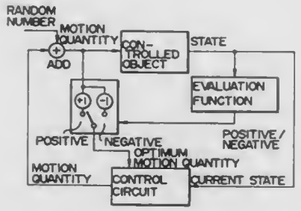
Haruo Yoda, Tokyo; Takafumi Miyatake, Hachioji, and Hitoshi Matsushima, Tachikawa, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 15, 1989, Ser. No. 436,725

Claims priority, application Japan, Nov. 18, 1988, 63-289989

Int. Cl.[5] G06F *15/46*

U.S. Cl. 364—167.01 **16 Claims**



1. A motion control apparatus having a control circuit for controlling an object, the control circuit being inputted with a current state of said object and outputting a motion quantity by which the object is driven, comprising:

first means for changing the value of the motion quantity by adding a randomly variable quantity to the motion quantity;

second means for quantifying, by using an evaluation function, the merit of change in the current state of an object caused by application of the changed motion quantity to the object;

third means for calculating an optimum motion quantity on the basis of the changed motion quantity if the evaluation function value determined by second means is "positive", and on the basis of the changed motion quantity multiplied by −1 if the evaluation function value is "negative"; and

fourth means for correcting the values of transformation parameters of the control circuit so that an output of the control circuit takes a value nearer to the optimum motion quantity calculated by third means than the motion quantity now being outputted from the control circuit;

whereby said parameters are corrected while a motion control system is actually driven, to ultimately and automatically form a series of motions starting from a initial state to a target state within said control circuit.

5,063,493

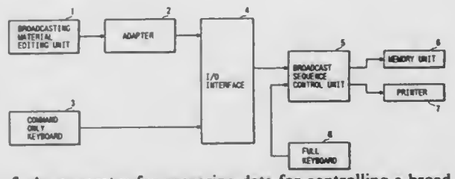
METHOD OF PREPARING BROADCAST SEQUENCE CONTROL DATA AND APPARATUS FOR IMPLEMENTING SAID METHOD

Shigeo Shioiri, and Kunio Kanda, both of Chiba, Japan, assignors to Somar Corporation, Tokyo, Japan

Filed May 19, 1989, Ser. No. 353,930

Int. Cl.[5] G05B *19/04*; G11B *27/02*

U.S. Cl. 364—192 **2 Claims**



2. An apparatus for preparing data for controlling a broadcasting sequence, which apparatus comprises: a broadcasting material editing unit that edits a broadcasting material such as a broadcasting telecine film or broadcasting video tape, an adapted with which the broadcasting material related information from said broadcasting material editing unit is converted to time-related data; a command only keyboard for preparing broadcast sequence control data; an I/O device that feeds a broadcast sequence control unit with an output signal from said command only keyboard and an output signal from said adapter; the broadcast sequence control unit which performs the necessary operations for preparing broadcast sequence control data; and an output device for storing or recording the broadcast sequence control data which has been processed with said broadcast sequence control unit.

5,063,494

PROGRAMMABLE DATA COMMUNICATIONS SYSTEM

Dennis J. Davidowski, Warminster; Michael J. Saunders, and Steven M. O'Brien, both of Norristown, all of Pa., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Apr. 12, 1989, Ser. No. 336,980

Int. Cl.[5] G06F *9/00, 3/00, 13/00*

U.S. Cl. 395—800 **8 Claims**

1. A high speed external data communications controller for receiving data from a main memory to be transferred to a smart terminal, comprising:

a host computer system comprising an input/output control processor coupled to a main memory through a common system bus means,

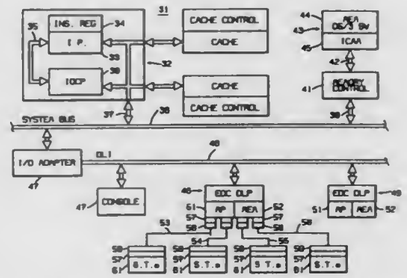
said main memory having data stored therein to be transmitted to a smart terminal,

an input/output adapter coupled between said common system bus means and a common data link interface bus,

a plurality of smart terminals coupled to said common data link interface bus,

an enhanced data communications data link processor (EDC DLP) of the type having a programmable microprocessor and a dedicated memory, for storing protocols, terminal configurations and other parameters defining the data communications system said EDC DLP being coupled between said smart terminals and said data link interface bus,

said EDC DLP providing means for receiving information from said main memory of said host computer including



data and a designated smart terminal address for receiving said data in a format unacceptable by said designated smart terminal,

said dedicated memory providing means for storing said received data,

said EDC DLP further providing means for utilizing the information stored in said dedicated memory and for formatting and pre-packaging said received data in a format acceptable by said smart terminal,

said formatted pre-packaged data including a plurality of prefix code characters and a suffix code character, and

means for transmitting said pre-packaged acceptable format text to said designated smart terminal.

5,063,495

METHOD OF ASSOCIATING DOCUMENT PROCESSING STATES WITH AN ACTION MARKET

Margaret G. MacPhail, Austin, Tex., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 21, 1988, Ser. No. 289,992

Int. Cl.[5] G06F *7/10*

U.S. Cl. 395—650 **10 Claims**

1. A method of marking a document stored within a data processing system for action, said method comprising the steps performed by said data processing system of:

inserting a begin action marker control code within said document denoting the beginning of a portion of said document on which action is to be performed;

inserting an end action marker control code within said document denoting the end of a portion of said document on which action is to be performed;

creating an action marker data object within said document and linked to a portion of said document bounded by said begin and end action marker codes, said object including

(a) a specification of a first action to be performed on said document,

(b) an identification of a first user responsible to perform said first action on said document,

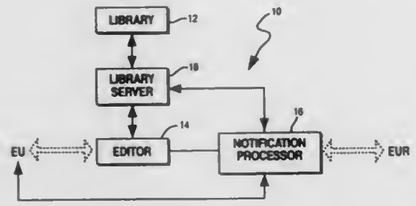
(c) a notification requirement indicating whether a second user will be notified upon reaching a particular status of the action,

(d) a specification of said particular status for triggering a notification, and

VOL 1132 ISS 1 NO 5 1991 UMI

(e) an identification of a second user to receive said notification;

automatically assigning an identifier for an action to be performed on said document;



storing said identifier for said action with said action marker data object; and

displaying, on a visual display device of said data processing system, said action marker data object to a requesting end user.

5,063,496

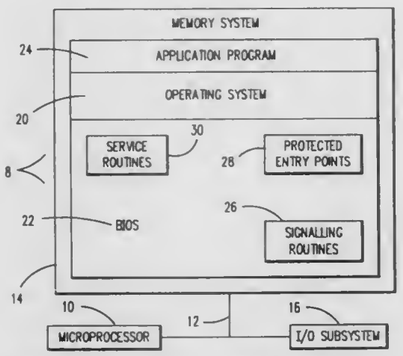
SIGNALING ATTEMPTED TRANSFER TO PROTECTED ENTRY POINT BIOS ROUTINE

Richard A. Dayan; Douglas R. Geisler; Scott G. Kinnear, all of Boca Raton; James F. Macon, Jr., Boynton Beach, and William H. Schwartz, Delray Beach, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 1, 1988, Ser. No. 201,651

Int. Cl.[5] G06F *9/00, 12/00*

U.S. Cl. 395—700 **1 Claim**



1. In a data processing system having a microprocessor; I/O device; and a memory system for storing a plurality of BIOS routines for controlling operation of said I/O devices, a plurality of application programs including interrupt instructions and hard coded instructions for initiating transfer of control to said BIOS routines, and a multitasking operating system including a plurality of interrupt instructions in a application programs for calling said BIOS routine; said memory system having a plurality of protected entry points to which control is transferred by said hard coded instructions, the improvement comprising:

first means in said memory system for storing a signalling routine for alerting said operating system of attempting access to said BIOS routines through said protected entry points;

second means in said memory system means for storing at said protected entry points jump instructions operative when control is transferred thereto by said hard coded instructions to transfer control to said signalling routine;

said operating system being operable in response to being alerted by said signalling routine to control use of an I/O device, the operation of which is controlled by one of said BIOS routines, and operable in response to said signalling routine to transfer control to said BIOS routines; and

said application programs including information associated with said hard coded instructions to uniquely identify which specific BIOS routines are to be accessed.

5,063,497

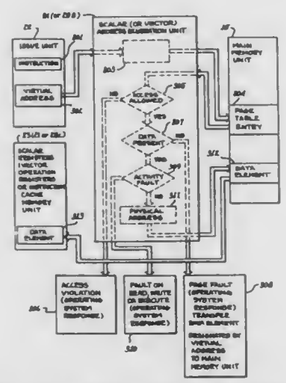
APPARATUS AND METHOD FOR RECOVERING FROM MISSING PAGE FAULTS IN VECTOR DATA PROCESSING OPERATIONS

David N. Cutler, Bellevue; David A. Orbits, Redmond, both of Wash.; Dileep Bhandarkar, Shrewsbury, Mass.; Wayne Cardoza, Merrimack, N.H., and Richard T. Witek, Littleton, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Jul. 1, 1987, Ser. No. 69,372

Int. Cl.[5] G06F *12/00*

U.S. Cl. 395—800 **32 Claims**



1. A digital data processing unit for connection to a main memory unit including a plurality of storage locations, each identified by a physical address, for storing vector operands and vector instructions, one type of said vector instructions being a computational instruction for initiating a computational operation, and another type of said vector instructions being a transfer vector instruction for initiating a transfer operation and identifying a virtual address, said digital data processing unit comprising:

A. a vector register for storing vector operands;

B. a vector execution unit for performing vector operations identified by vector instructions of the computational type in connection with vector operands in said vector register;

C. a vector address generating unit for performing, in response to receipt of an instruction of the transfer vector instruction type, an address translation operation to (1) generate a physical address in response to the virtual address identified by the transfer vector instruction corresponding to a physical address in said main memory unit, to enable a vector operand to be transferred between the

storage location identified by said physical address and said vector register, and (2) generate a page fault indication if said virtual address identified by said transfer vector instruction does not correspond to a physical address in said main memory unit; and

D. an instruction issue unit for interactively retrieving vector instructions from said main memory unit and performing an instruction issue operation to transfer an instruction of said computational instruction type to said vector execution unit and to transfer an instruction of said transfer vector instruction type to said vector address generating unit to enable it to perform the address translation operation, said instruction issue unit being responsive to a page fault indication from said vector address generating unit resulting from one of said vector instructions to (1) terminate performing instruction issue operations while permitting said execution unit to continue to perform vector operations identified by other ones of said vector instructions that have already been issued and (2) generate restart information to identify the vector instruction which resulted in the page fault indication.

5,063,498

DATA PROCESSING DEVICE WITH DIRECT MEMORY ACCESS FUNCTION PROCESSED AS AN MICRO-CODE VECTORED INTERRUPT

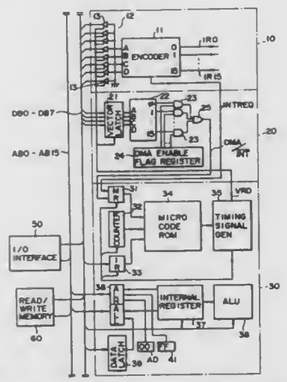
Ziro Hirahara, Yokohama, and Akihito Abe, Kawasaki, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 29,764, Mar. 24, 1987, abandoned. This application Jul. 20, 1989, Ser. No. 383,266

Claims priority, application Japan, Mar. 27, 1986, 61-69215

Int. Cl.[5] G06F *13/28, 9/22, 13/24*

U.S. Cl. 395—425 **5 Claims**



1. A data processing device allowing a direct memory-access operation to be performed between a read/write memory and an I/O interface, said data processing device comprising:

interrupt detecting means for detecting an interrupt signal and for generating a vector corresponding to the detected interrupt signal;

control signal generating means for generating, in response to said vector, a control signal indicating whether said interrupt signal is a normal interrupt signal or a direct memory-access interrupt signal;

logical operation processing means, having a ROM storing micro-code instructions for executing a normal operation, a normal interrupt operation, and a direct memory-access operation, for sequentially reading out the micro-code instructions in order to control the execution of the normal operation and the normal interrupt operation, and for sequentially reading out the micro-code instructions in order to control the execution of the direct memory access operation when a control signal is generated by said control signal generating means in accordance with the interrupt signal requesting the direct memory access operation; and

parameter memory means for, upon the execution of said direct memory-access operation, storing parameters for use by said logical operation processing means, for reading said parameters responsive to said vector, and for supplying said parameters to said logical operation processing means.

5,063,499

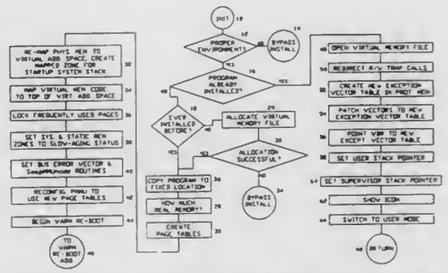
METHOD FOR A VIRTUAL MEMORY SYSTEM BY REDIRECTING ACCESS FOR USER STACK INSTEAD OF SUPERVISOR STACK DURING NORMAL SUPERVISOR MODE PROCESSING

Jonathan F. Garber, Oakland, Calif., assignor to Connectix, Inc., Menlo Park, Calif.

Filed Jan. 9, 1989, Ser. No. 294,831

Int. Cl.[5] G06F *12/02*

U.S. Cl. 395—500 **11 Claims**



11. A method of utilizign physical memory and peripheral storage in a computer system running uner an operating system, wherein the computer system includes a suitable microprocessor capable of coacting with memory management logic either internal or external to the microprocessor, and an amount of physical memory, and wherein the computer system is capable of operating in both user and supervisor modes, as virtual memory comprising the steps of:

allocating a portion of the peripheral storage as a virtual memory file,

determining the amount of the physical memory resident in the computer system,

setting the memory management logic to address at least part of the physical memory and at least part of the virtual memory file as virtual memory space, whereby there is a first portion of the virtual memory space in the physical memory and a second portion of the virtual memory space in the peripheral storage,

establishing a supervisor stack in the physical memory,

reconfiguring the computer system to continue processing, normally performed in supervisor mode, in the user mode, including establishing at least one user stack in the virtual memory space in response to an attempt by the operating system to establish a stack and forcing the operating system or at least one currently executing application program to use the at least one user stack instead of the supervisor stack as if the operating system or the at least one currently executing application program was still operating in the normal supervisor mode by redirecting the microprocessor to use the at least one user stack when the operating system or the at least one currently executing application program attempts to address any stack during processing normally performed in supervisor mode, and

swapping between the first and second portions of the vir-

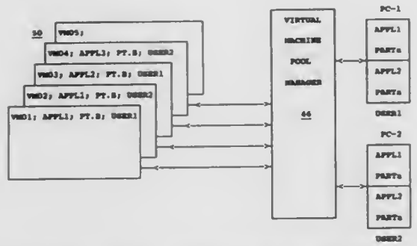
VOL 1132 ISS 1 NO 5 1991 UMI

tual memory space, in accordance with a predetermined criteria, non-critical information.

5,063,500
SYSTEM FOR EXECUTING SEGMENTS OF APPLICATION PROGRAM CONCURRENTLY/SERIALLY ON DIFFERENT/SAME VIRTUAL MACHINE

David U. Shorter, Lewisville, Tex., assignor to IBM Corp., Armonk, N.J.

Filed Sep. 29, 1988, Ser. No. 250,632
Int. Cl.[5] G06F *9/06, 9/30, 9/38, 15/16*
U.S. Cl. 395—200 **7 Claims**



1. A method to preserve system resources during the execution of distributed application programs in an SNA type data processing network that supports program to program communication between an Intelligent Work Station (IWS) and a host processor in accordance with SNA Logical Unit 6.2 protocols when a Virtual Machine Pool Manager exists at said host processor and functions to,

(1) create a pool of virtual machines at said host processor that are brought to a run ready state prior to any said program to program communication,

(2) dynamically assign an idle run ready virtual machine to process each said request from said IWS involving one said application program so that sequential said request are assigned to different ones of said idle virtual machines and run concurrently, and

3) provide a Pool Manager Data Structure for use by said Pool Manager during said step of dynamically assigning said idle run ready virtual machines in said pool; said method comprising the following steps,

A) providing an Operating System for said IWS which attaches an process identifier (PRID) and a thread identifier (THRID) to predefined segments of said resident application program that include LU 6.2 type conversation requests,

B) transmitting said PRID and THRID identifiers to said host at the time said request is transmitted to said host to permit said Virtual Machine Pool Manager to decide based on said transmitted identifiers and previously received THRID identifiers whether to assign said request to an active or idle virtual machine in said pool,

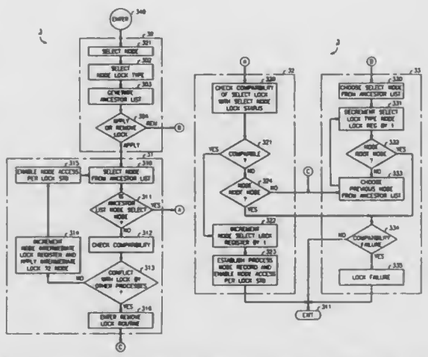
C) executing said segments concurrently on different assigned virtual machines at said host when said segments of said application program have different THRIDs, and

D) executing said segments serially on the same assigned virtual machine when said segments of said application program have the same THRIDs.

5,063,501
INFORMATION CONTROL SYSTEM FOR SELECTIVELY TRANSFERRING A TREE LOCK FROM A PARENT NODE TO A CHILD NODE THEREBY FREEING OTHER NODES FOR CONCURRENT ACCESS

John D. Jordan, Jr., Worthington, Ohio, assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 18, 1989, Ser. No. 452,096
Int. Cl.[5] G06F *15/40*
U.S. Cl. 395—725 **14 Claims**



8. A computer implemented method for controlling concurrent process operations against a complex infrastructure comprising tree structures of complex object nodes of information comprising the steps of

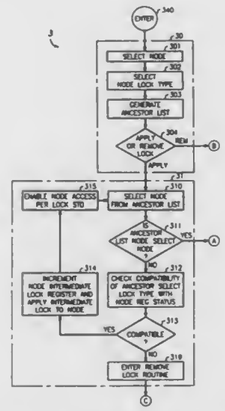
selectively applying in response to a request of one of the process a tree lock to a node and intermediate tree locks to each ancestral node of said node to lock said node and ancestral nodes and ones of child nodes located in a tree structure of said locked node, and

transporting in response to a subsequent request of said process said applied tree lock from said node to ones of said child nodes located in said tree structure thereby freeing said node and other child nodes located in said tree structure of said node for access by concurrently running ones of the processes.

5,063,502
INFORMATION CONTROL SYSTEM FOR COUNTING LOCK APPLICATION AGAINST COMPOSITE INFORMATION INFRASTRUCTURE

John D. Jordan, Jr., Worthington, Ohio, assignor to AT&T Bell Laborabories, Murray Hill, N.J.

Filed Dec. 18, 1989, Ser. No. 452,095
Int. Cl.[5] G06F *15/40*
U.S. Cl. 395—725 **17 Claims**



8. Apparatus for controlling concurrent process operations against a complex infrastructure comprising tree structures of complex object nodes wherein said apparatus comprises

means responsive to a process requesting one of node and tree reserve, exclusive and share locks for a node for selecting said node and generating a list of ancestral nodes related to and located in a tree structure of said selected node,

means operative upon selecting said node and generating said list of ancestral nodes for comparing a compatibility of an intermediate lock corresponding with said requested lock for each listed ancestral node with a current lock status of the ancestral node,

means operative upon determination of said compatibility of said intermediate lock with each ancestral node current lock status for applying said intermediate lock to the ancestral node and incrementing an accumulative count of a register corresponding with the ancestral node to record application of said intermediate lock corresponding with said requested lock,

means enabled upon incrementing all ancestral node registers and upon comparing a compatibility of said requested lock with said selected node current lock status for incrementing an accumulative count of a register corresponding with said selected node to record said requested lock as pending against said selected node and for locking said selected node in accordance with said requested lock,

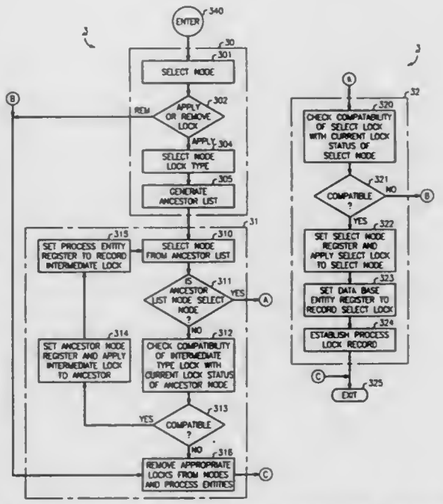
means responsive to a process requesting a removal of said requested lock from said selected locked node for entering a remove lock sequence by selecting said locked node and generating a list of intermediate locked ancestral nodes located in the tree structure of said selected locked node, and

means operative upon selecting said locked node and generating said list of intermediate locked ancestral nodes for removing said selected and intermediate locks from said selected and each listed ancestral locked node and decrementing said accumulative count of each register corresponding with said selected and listed ancestral locked nodes as an indication that said requested lock and intermediate locks are removed and no longer pending against said previously locked selected and listed ancestral nodes.

5,063,503
INFORMATION CONTROL SYSTEM FOR SELECTIVELY LOCKING AN ENTITY WITH REQUESTED INTERMEDIATE RESERVE EXCLUSIVE AND SHARE LOCKS

John D. Jordan, Jr., Worthington, Ohio, assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 18, 1989, Ser. No. 452,094
Int. Cl.[5] G06F *15/40*
U.S. Cl. 395—725 **12 Claims**



6. Apparatus for controlling concurrent process operations against conceptual structures each formed of entities embodied on a complex infrastructure comprising tree structures of complex object nodes wherein said apparatus comprises

means responsive to a process operation requesting one of node and tree reserve, exclusive and share locks for an entity for selecting an infrastructure node embodying said entity and generating a list of infrastructure ancestral nodes related to said selected node,

means operative upon selecting said node and generating said list of ancestral nodes for comparing a compatibility of an intermediate lock corresponding with said requested entity lock with a current lock status of each listed infrastructure ancestral node,

means operative upon determination of compatibility of said intermediate lock with said current lock status of each infrastructure ancestral node for applying said intermediate lock to each of said listed infrastructure ancestral

VOL 1132 ISS 1 NO 5 1991 UMI

nodes and for setting registers corresponding with entities embodied on said ancestral nodes to record application of said intermediate lock thereto, and

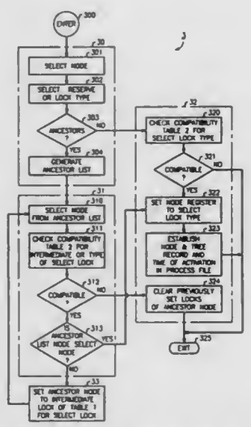
means enabled upon applying said intermediate lock to all said listed infrastructure ancestral nodes for determining compatibility of said requested lock with a current lock status of said selected infrastructure node and upon determining said compatibility for applying said requested lock to said infrastructure node and setting a register corresponding with said entity embodied on said infrastructure node to record an application of said selected lock thereto to enable process operation access to entity information stored on said locked infrastructure node.

5,063,504

INFORMATION CONTROL SYSTEM FOR RESERVE LOCKING INFRASTRUCTURE NODES FOR SUBSEQUENT EXCLUSIVE AND SHARE LOCKING BY THE SYSTEM

John D. Jordan, Jr., Worthington, Ohio, assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 18, 1989, Ser. No. 452,093
Int. Cl.[5] G06F *15/40*
U.S. Cl. 395—725 **16 Claims**



8. Apparatus for controlling concurrent process operations against a complex infrastructure comprising tree structures of complex object nodes wherein said apparatus comprises

means responsive to a process operation requesting a lock for selecting a node and tree structure and generating a list of ancestral nodes related to said selected node and tree structure,

means operative upon selecting said node and generating said list of ancestral nodes for comparing a compatibility of an intermediate lock corresponding with said requested lock of each listed ancestral node with a currently recorded ancestral node lock status,

means operative upon determination of compatibility of said intermediate lock with each ancestral node current recorded lock status for applying said intermediate lock to said ancestral node,

means enabled upon recording said intermediate lock as pending for all said ancestral nodes for comparing said requested lock with a current lock status of said selected node and when compatible therewith for locking said selected node in accordance with said requested lock,

means operative upon detecting a reserve lock recorded in a node and tree structure for preventing other ones of the processes from obtaining exclusive and other reserve locks on said node and tree structure having recorded said reserve lock, and

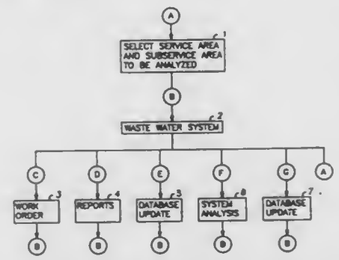
means operative upon detecting a reserve lock recorded in a node and tree structure of the infrastructure for enabling said other processes to apply share locks on said node and tree structures having recorded said reserve lock thereby enabling said other processes to concurrently read information from said reserve locked node and tree structure nodes.

5,063,505

COMPUTER AIDED MANAGEMENT SYSTEM FOR PUBLIC UTILITY WASTEWATER COLLECTION SYSTEMS

Gerry E. Pate; Ronald L. Mullinax, both of Houston; Alexander C. Sutton, Kingwood, and Jeff E. Ross, Houston, all of Tex., assignors to Pate Systems, Inc., Tex.

Filed Jun. 16, 1989, Ser. No. 368,046
Int. Cl.[5] G06F *15/20*
U.S. Cl. 364—400 **25 Claims**



1. A computer implemented method for managing a public utility wastewater collection system, the steps of which comprise:

(a) establishing a computer-accessible database, the database including wastewater collection system parameters, the collection system parameters including pipe system parameters comprised of the location, with respect to a coordinate system, of sewer pipe and manholes, the elevation of the pipe and manholes, and pipe and manhole diameter; and the collection system parameters including predicted customer wastewater input into the system along the pipe;

(b) selecting an area of the wastewater collection system for analysis;

(c) selectively reviewing portions of the database information related to the selected area;

(d) selectively modifying database parameters;

(e) determining at least one wastewater flow for a portion of the pipe system under analysis;

(f) determining at least one surface hydraulic grade for a portion of the pipe system under analysis; and

(g) comparing the surface hydraulic grade against a predetermined criteria.

5,063,506

COST OPTIMIZATION SYSTEM FOR SUPPLYING PARTS

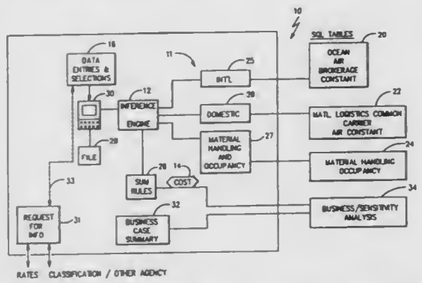
John C. Brockwell, Endicott, N.Y., and Edward J. Collins, Boulder, Colo., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Oct. 23, 1989, Ser. No. 425,615
Int. Cl.[5] G06F *15/24*
U.S. Cl. 364—402 **17 Claims**

1. A computer system for estimating the cost of supplying parts to a manufacturing facility at one or more delivery frequencies and a selected supply method, said system comprising:

first database definition means for defining a first database to simultaneously store cost information for a plurality of alternate supply methods;

option entry means for user selection of at least one of said supply methods for said parts, said supply method impacting the cost of supplying said parts to said manufacturing facility, said option entry means permitting a user to select a nonzero percentage of air transportation and a nonzero percentage of land transportation for said parts over the same leg of a supply route;



data entry means for user entry of delivery frequency data indicating one or more preferred frequencies of delivery to base a cost estimation;

storage means, coupled to said option entry means and said data entry means, for storing said selections and data; and

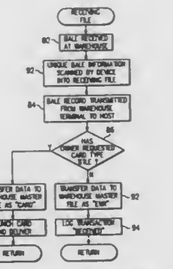
processing means, coupled to said first database and said storage means, for estimating the cost of supplying said parts at said one or more frequencies of delivery and the selected supply method.

5,063,507

GOODS DATABASE EMPLOYING ELECTRONIC TITLE OR DOCUMENTARY-TYPE TITLE

James D. Lindsey; Charles D. Hutton; Joe W. Tubb; Carol L. Shipman, and Albert S. Kyle, III, all of Lubbock, Tex., assignors to Plains Cotton Cooperative Association, Lubbock, Tex.

Filed Sep. 14, 1990, Ser. No. 582,551
Int. Cl.[5] G06F *15/40, 15/21*
U.S. Cl. 364—408 **38 Claims**



1. A system for trading goods, comprising:

a program-controlled computer;

a data base accessible by said computer, said data base being adapted for storing information concerning the goods;

a multi-field record associated with each of the goods, each said record having a field indicating whether the respective goods are represented by an electronic title or by a documentary title;

a plurality of terminals for accessing said data base and for trading the goods; and

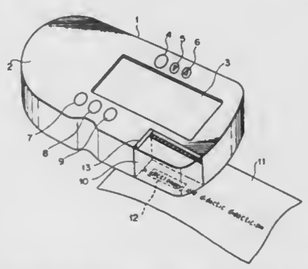
said program-controlled computer causing either an authentic documentary title to be created if the data base indicates the goods are to be represented by documentary title, or causes an authentic electronic title to be created with respect to the goods if the data base so indicates, whereby only one type of title exists at any one time with respect to the goods.

5,063,508

TRANSLATION SYSTEM WITH OPTICAL READING MEANS INCLUDING A MOVEABLE READ HEAD

Yoshimi Yamada; Kazuo Ito, and Hideo Tanimoto, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Mar. 14, 1990, Ser. No. 496,192
Claims priority, application Japan, Mar. 22, 1989, 1-69930
Int. Cl.[5] G06K *9/00*
U.S. Cl. 364—419 **8 Claims**



1. A portable electronic dictionary which reads an objective word in a source language by optical scanning and displays information in a target language about the objective word, comprising:

a case;

optical character reading means, having a read range, for optically scanning the objective word on a document while the case is held stationary on the document with the objective word located within the read range of the optical character reading means, the optical character reading means being movably mounted with the case; and

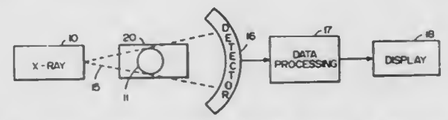
moving means for moving the optical character reading means inside the case.

5,063,509

METHOD FOR DETERMINING DENSITY OF SAMPLES OF MATERIALS EMPLOYING X-RAY ENERGY ATTENUATION MEASUREMENTS

Mary E. Coles, Addison, and Ernest L. Muegge, Grand Prairie, both of Tex., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Jan. 26, 1990, Ser. No. 470,478
Int. Cl.[5] G01D *18/00*
U.S. Cl. 364—420 **10 Claims**



1. A method for determining the bulk density of a sample of interest, comprising the steps of:

(a) selecting a first plurality of samples of a first variety of materials having different known densities, the materials of said first plurality having relatively low atomic numbers, such that said samples attenuate X-rays incident thereon due to Compton scattering;

(b) irradiating each of said first plurality of samples in turn

VOL 1132 ISS 1 NO 5 1991 UMI

with at least first and second beams X-rays, from sources emitting beams of X-rays at differing energies;

(c) employing detector means to collect X-rays of said beams passing through said samples;

(d) measuring amounts of X-rays collected by the detector means to determine the attenuation of the beams of X-rays of differing energies by each of the first plurality of samples;

(e) determining the parameters defining a linear relation between the attenuation of the X-rays due to Compton scattering in the first plurality of samples and the bulk densities of the samples;

(f) selecting a second plurality of samples of a second variety of materials having different known densities, the materials of said second plurality of samples having relatively high atomic numbers such that said second plurality of samples attenuate X-rays incident thereon due to both Compton scattering and photoelectric absorption;

(g) irradiating each of said second plurality of samples in turn with at least first and second beams of X-rays from sources emitting beams of X-rays at differing energies;

(h) employing detector means to collect X-rays passing through the samples of said second plurality of samples;

(i) measuring the amount of X-rays collected by the detector means to determine the attenuate of the beams of X-rays of differing energies of each of the second plurality of samples;

(j) determining parameters defining a linear relation between the attenuation of X-rays due to photoelectric absorption in the second plurality of samples and the energy of the X-rays;

(k) using the linear relation between the attenuation of X-rays due to photoelectric absorption and the energy of the X-rays determined in step (j), and the linear relationship between the absorption of X-rays due to Compton scattering in a material sample and the bulk density of the material of the sample determined in step (e), to define a linear relation defining the bulk density of the materials of the second plurality of samples as a function of the measured total attenuation of the two beams X-rays at two different energies by the given material; and

(l) determining the bulk density of a section of a sample of interest by:

(1) irradiating the sample of interest with first and second beams of X-rays from sources emitting beams of X-rays at two differing energies;

(2) employing detector means to collect X-rays passing through the section of the sample of interest;

(3) measuring the amount of X-rays collected to determine the total attenuation of the beams of X-rays by the section of the sample of interest; and

(4) employing the relationship defined in step (k) to determine the bulk density of the section of the sample of interest;

(m) performing said step (l) with respect to a number of sections of the sample of interest;

(n) carrying out said steps (l) and (m) repetitively with the source and detector disposed in differing positions with respect to the sample of interest; and

(o) generating a computed tomographic image of a cross-section of the sample of interest, employing the values for the bulk density ρ of the plural portions of the sample of interest which are determined in each performance of steps (l), (m) and (n).

5,063,510

PROCESS FOR THE ADAPTIVE CONTROL OF AN INTERNAL-COMBUSTION ENGINE AND/OR ANOTHER DRIVE COMPONENT OF A MOTOR VEHICLE

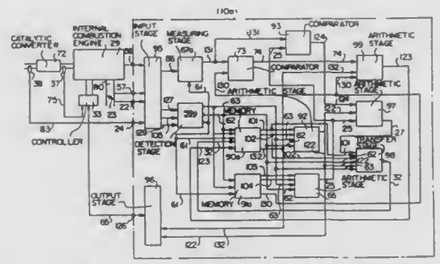
Gunter Jürgens, Waiblingen; Udo Sürig, Stuttgart, and Lothar Lang, Esslingen, all of Fed. Rep. of Germany, assignors to Daimler-Benz AG, Fed. Rep. of Germany

Filed Jul. 31, 1989, Ser. No. 387,530

Claims priority, application Fed. Rep. of Germany, Jul. 29, 1988, 3825749

Int. Cl.[5] B60K *41/08*

U.S. Cl. 364—424.1 **22 Claims**



1. A process for adaptive control of a drive component in a motor vehicle having an internal-combustion engine, the drive component having a critical time interval with respect to a controlled variable for a predefined operating behavior of the drive component at selected operating points, the process comprising the steps of:

detecting an occurrence of a non-steady operating state of the drive component using a detection means (59);

obtaining a selected set value for the critical time interval from a memory means (91) upon detecting said non-steady operating state for one of the selected operating points, said memory means storing a first characteristic map of set values assigned to the selected operating points of the internal-combustion engine including speed and load information on the selected operating points;

obtaining an actual value for the critical time interval from a measuring means (67) upon detecting said non-steady operating state for the one selected operating point;

comparing said selected set value with the actual value in a comparison means (73) and determining whether any deviation exceeds a threshold value;

calculating a selected updated correction value for controlling the controlled variable with regard to the predefined operating behavior using an arithmetic means (99) if said deviation exceeds the threshold value;

entering (123) said selected updated correction value into a second characteristic map for correction values assigned to the selected operating points of the internal combustion engine and using said selected updated correction value to control the controlled variable (132) for a subsequent non-steady operating state of the drive component at its assigned selected operating point wherein a new selected updated correction value is entered for each occurrence of a subsequent non-steady operating state having a deviation exceeding the threshold value;

interpolating selected set values received from said memory means (91) for selected operating points neighboring a non-selected operating point in a second arithmetic means (66) to obtain a non-selected set value ($t_{set(ZW)}$) (25) for a non-steady operating state occurring at the non-selected operating point;

interpolating selected correction values received from a second memory means (90) for selected operating points neighboring the non-selected operating point in a third arithmetic means (92) to obtain a non-selected instantaneous correction value (K_{ZW}) (122) for the non-steady operating state occurring at the non-selected operating point;

controlling said controlled variable (122) with said non-selected instantaneous correction value;

comparing said non-selected set value ($t_{set(ZW)}$) with the actual value in a second comparison means (93) and determining whether any deviation exceeds the threshold value;

calculating a theoretical new correction value ($K_{new(ZW)}$) in a fourth arithmetic means (97) for the non-selected operating point when the deviation exceeds the threshold value;

calculating a transferred correction value ($K_{new(u)}$) in a transfer stage means (98) from the theoretical new correction value ($K_{new(ZW)}$) taking into account positional deviation of the non-selected operating point relative to the neighboring selective operating points;

entering in the second characteristic map said transferred correction value ($K_{new(u)}$) at one of said neighboring selected operating points; and

employing the selected updated correction value and the non-selected instantaneous correction value for controlling the drive component of the motor vehicle.

5,063,511

ENHANCED MISSED SHIFT RECOVERY FOR SEMI-AUTOMATIC SHIFT IMPLEMENTATION CONTROL SYSTEM

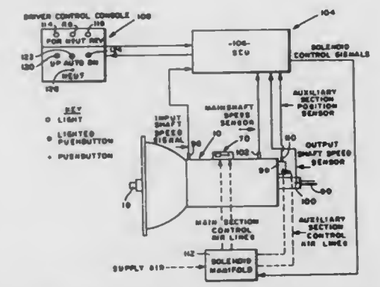
William J. Mack, Clarkston, and Ronald K. Markyvech, Allen Park, both of Mich., assignors to Eaton Corporation, Cleveland, Ohio

Filed Jun. 19, 1989, Ser. No. 368,492

The portion of the term of this patent subsequent to Feb. 5, 2008, has been disclaimed.

Int. Cl.[5] B60K *41/18*

U.S. Cl. 364—424.1 **20 Claims**



1. A control system (104) for controlling the implementation of selected shifts of a mechanical change gear transmission system comprising a fuel throttle controlled engine (E), a multi-speed change gear mechanical transmission (10), a master friction clutch (C) drivingly interposed between the engine and the transmission, a first sensor (98) for providing a first input signal indicative of transmission input shaft (16) rotational speed, a second sensor (100) for providing a second input signal indicative of the rotational speed of a transmission shaft (90) independently rotatable relative to the transmission input shaft under at least certain transmission operating conditions and a transmission actuator (112, 70, 96) for controlling shifting of the transmission, said control system characterized by;

means (120, 124/132) for selecting an upshift or a downshift from a currently engaged transmission ratio or from neutral to a selected ratio, and providing a third input signal indicative therefor;

a central processing unit (106) for receiving said first, second and third input signals and for processing the same in accordance with predetermined logic rules to issue command output signals, said central processing unit including;

means responsive to (i) a selection of a shift from a currently engaged ratio or from neutral into a selected ratio and (ii) confirmation of a transmission neutral condition for (i) initiating the start up of a timing member, (ii) and thereafter sensing substantial synchronization of the transmission and (iii) thereafter for issuing command output signals to said actuator to enable the transmission to be shifted into the selected ratio;

said means sensing substantial synchronization of said transmission by comparing said first signal to a first reference range if the timer indicates a time period less than a reference time and comparing said first signal to a second reference range if the timer indicates a time period greater than the reference time, said first and second ranges determined as a function of the selected ratio to be engaged and the current value of said second input signal, said second range being larger than said first range.

5,063,512

CONTROL UNIT OF ACTIVE SUSPENSION SYSTEM OF VEHICLE

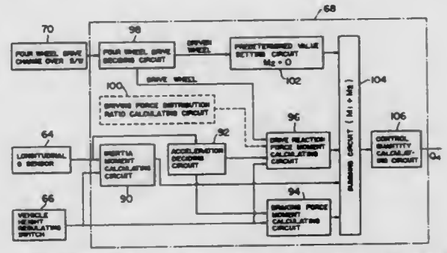
Katsuyoshi Kamimura, Tochigi; Atsushi Mine, and Yutaka Hiwatashi, both of Gunma, all of Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 22, 1989, Ser. No. 410,843

Claims priority, application Japan, Sep. 30, 1988, 63-246241

Int. Cl.[5] B60G *17/01*

U.S. Cl. 364—424.05 **9 Claims**



1. A control unit for an active suspension system of a vehicle having a plurality of suspension units adapted to corresponding wheels and supporting a vehicle body by pressure of a fluid, each suspension unit including a suspension arm adapted to connect to the vehicle body for vertical pivotal movement about a pivotal center, the active suspension system having vertical relative displacement sensing means for sensing the vertical relative displacement between masses above and below each suspension unit to generate a vertical relative displacement signal, vertical g sensing means for sensing vertical acceleration of the vehicle body to generate a vertical g signal, fluid charging and discharging means for selectively charging the fluid into and discharging the fluid from each suspension unit, first control instruction quantity calculating means for calculating first control instruction quantity of the fluid to be charged into and discharged from each suspension unit in response to the vertical relative displacement signal and the vertical g signal and for producing a first control instruction quantity signal representing the first control instruction quantity and fluid charge and discharge control means responsive to the first control instruction quantity for producing a control signal to the fluid charging and discharging means, the improvement which comprises:

longitudinal g sensing means for sensing longitudinal acceleration of the vehicle body to generate a longitudinal g signal;

first moment calculating means for calculating a first moment about the pivotal center of each suspension arm due

VOL 1132 ISS 1 NO 5 1991 UMI

to the inertia force of the vehicle body from said longitudinal g signal and a set vehicle height signal;

first deciding means for deciding whether the vehicle is accelerated or decelerated to generate a decision signal indicating one of both acceleration and deceleration of the vehicle;

second moment calculating means for calculating a second movement about the pivotal center of each suspension arm due to the braking force exerted on the vehicle and the set vehicle height signal when the decision signal indicates deceleration of the vehicle and for calculating the second movement about the pivotal center of each suspension arm with respect to a corresponding drive wheel due to a drive reaction force against a driving force exerted to the vehicle and the set vehicle height signal when the decision signal indicates acceleration;

suspension reaction force variation calculating means for calculating the suspension reaction force variation for each suspension unit from the first and second moments to generate a suspension reaction force variation signal representing the suspension reaction force variation;

control instruction quantity calculating means for calculating a second control instruction quantity of the fluid to be charged into and discharged from each suspension unit in response to the suspension reaction force variation to generate a control instruction quantity signal; and

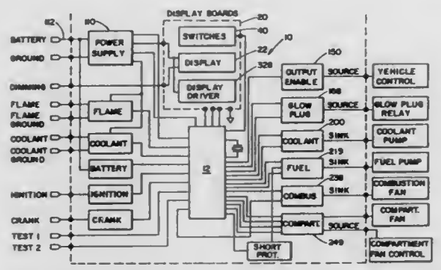
summing means responsive to the first and second control instruction quantity signal for adding the first control instruction quantity to the second control instruction quantity and for producing a total control instruction quantity to the fluid charge and discharge control means, wherein the total control instruction quantity of the fluid controls the vehicle body in the normal position.

5,063,513

VEHICLE PREHEATER CONTROL

David W. Shank, Big Rapids, and Nadi S. Findikli, Reed City, both of Mich., assignors to Nartron Corporation, Reed City, Mich.

Filed Jun. 15, 1990, Ser. No. 538,900
Int. Cl.[5] B60H *1/22*; G05D *23/00*
U.S. Cl. 364—424.05 **14 Claims**



8. A method of heating a motor vehicle with an auxiliary heater prior to starting a motor vehicle engine comprising the steps of:

a. setting a motor vehicle start time corresponding to a projected start of said motor vehicle engine;

b. at a predetermined time prior to said start time sensing an ambient temperature; and

c. based on said sensed ambient temperature activating said auxiliary heater at a time prior to said start time to heat said motor vehicle.

12. Apparatus comprising:

a. an auxiliary heating system for transferring heat energy to a motor vehicle engine cooling system comprising:

i. a combustion heater having an igniter which, when energized causes a fuel to burn and give off energy for heating a coolant within said cooling system; and

ii. a pump for circulating heated coolant through said cooling system to transfer heat away from said coolant;

b. an igniter circuit for energizing said igniter;

c. control circuitry including an output for activating said igniter circuit at a time before an anticipated vehicle start time based upon sensed temperature;

d. a sensor for monitoring an ambient temperature and coupling a signal corresponding to the ambient temperature to said control circuit;

e. an input unit mounted a vehicle passenger compartment for transmitting a projected vehicle start time to said control circuit; and

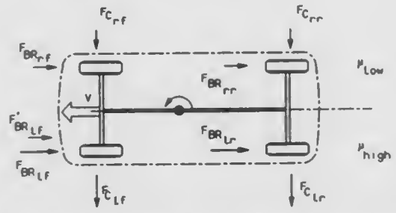
f. said control circuit determining an igniter activation time based upon sensed temperature and projected vehicle start time.

5,063,514

ABS YAW CONTROL

Philip M. Headley, Brighton, and Prakash K. Kulkarni, Novi, both of Mich., assignors to General Motors Corporation, Detroit, Mich. and Delco Electronics Corp., Kokomo, Ind.

Filed Jun. 19, 1990, Ser. No. 540,250
Int. Cl.[5] G06F *15/50*; B60T *8/58, 8/64*
U.S. Cl. 364—426.02 **12 Claims**



8. A system for controlling brake pressure applied to respective brakes of left and right wheels of an axle of a vehicle traveling over a road surface, the system comprising in combination:

means for measuring slip between each of the left and right wheels and the road surface;

means for detecting an incipient lockup condition of each wheel resulting from the measured slip between that wheel and the road surface exceeding a respective slip threshold of that wheel;

means for detecting a yaw condition of the vehicle resulting from the wheels being braked on respective portions of the road surface having different friction coefficients;

means for determining the wheel being braked on the portion of the road surface having the highest friction coefficient;

means for decreasing the slip threshold of the wheel being braked on the portion of the road surface having the highest friction coefficient, when a yaw condition is detected;

means for individually decreasing the brake pressure applied to the brake of each wheel in response to a detected incipient lockup condition of that wheel to allow wheel recovery from the incipient lockup condition; and

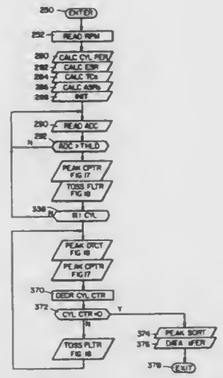
means for individually increasing brake pressure to the brake of each wheel following recovery of that wheel from the incipient lockup condition.

5,063,515

AUTOMOTIVE ENGINE SIGNAL DIGITIZATION

Neil W. Kunst; James D. Fraser, and Josephina Amaro, all of Tucson, Ariz., assignors to Clean Air Technologies Inc., New York, N.Y.

Filed Jun. 30, 1989, Ser. No. 374,026
Int. Cl.[5] G01M *15/00*
U.S. Cl. 364—431.01 **17 Claims**



1. Apparatus for digitizing a cyclical automotive cylinder ignition signal having a maximum value occurring at spark and varying frequency and amplitude thereafter, comprising:

sensor means, for providing a sensed signal indicative of the actual value of an automotive cylinder ignition parameter; and

signal processing means, responsive to said sensed signal, for sampling of said sensed signal at first predetermined time intervals and providing signals indicative of the value of said sensed signal sampled thereat, for comparing each said sampled first interval signal to a predetermined threshold signal to determine a transition occurrence of said sensed signal towards a maximum spark value, for sampling of said sensed signal, following said sensed signal transition occurrence, at said second intervals for a predetermined number of said second intervals and providing signals indicative of the value of said sensed signal sampled thereat, for determining a maximum spark value signal from among said sampled second interval signals, for sampling of said sensed signal, following said predetermined number of second intervals, at said third intervals and providing signals indicative of the value of said sensed signal sampled thereat, said first, second and third intervals being shorter in duration than a fourth predetermined time interval, and for determining a maximum displacement signal during each said fourth interval as the one of said sampled third interval signals sampled during an associated one of said fourth intervals having the greatest absolute value displacement from a maximum displacement signal determined during a preceding one of said fourth intervals.

5,063,516

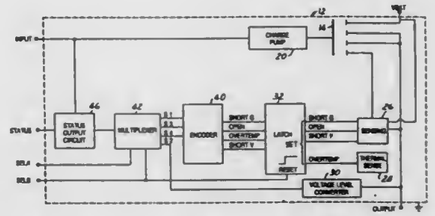
SMART POWER DRIVER SYSTEM FOR A MOTOR VEHICLE

Saad A. Jamoua, Oak Park; Melvin J. Sarnowsky, Livonia, both of Mich., and Karl R. Heck, Pheonix, Ariz., assignors to Ford Motor Company, Dearborn, Mich.

Filed Aug. 21, 1989, Ser. No. 396,206
Int. Cl.[5] G01R *31/02*
U.S. Cl. 364—431.11 **4 Claims**

1. An apparatus for determining fault operation in systems which couple electrical power to actuators within a motor vehicle, comprising:

power driver means mounted on a module having a signal input pin, a status output pin, and a status input in, said power driver means including switching means responsive to application of electrical energy to said signal input pin for the coupling of electrical power to the actuator, said power driver means including monitoring means for monitoring a plurality of electrical operating parameters of said switching means and for providing a corresponding plurality of fault type indications to said status output pin in response to application of a first sampling signal to said status input pin, said monitoring means also including feedback means for providing a proportion of the coupled electrical power to said status output pin in response to application of a second sampling signal to said status input pin;



performing monitoring means for periodically sampling said plurality of fault type indications from said status output pin upon applying said first sampling signal to said status input pin during vehicular operation and providing corresponding output indications; and

self test means for generating a self test mode upon initial vehicle key on and providing said second sampling signal to said status input pin, said self test means providing an electrical self test signal to said signal input pin for a predetermined time insufficient to actuate the actuator during said self test mode, said self test means storing electrical power occurring at said status output pin during said predetermined time in a first storage location and storing electrical power occurring at said status output pin after said predetermined time in a second memory location, said self test means subsequently providing an exclusive nor comparison of said first memory location to second memory location to provide a self test fault indication and providing a corresponding self test output indication.

5,063,517

PROFILE REVISING METHOD

Masaki Seki; Takashi Takegahara, both of Tokyo, and Takeshi Arakaki, Yamanashi, all of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

PCT No. PCT/JP88/01261, § 371 Date Aug. 14, 1989, § 102(e) Date Aug. 14, 1989, PCT Pub. No. WO89/06005, PCT Pub. Date Jun. 29, 1989
PCT Filed Dec. 13, 1988, Ser. No. 397,453
Claims priority, application Japan, Dec. 17, 1987, 62-319389
Int. Cl.[5] G05B *19/18*
U.S. Cl. 364—474.22 **12 Claims**

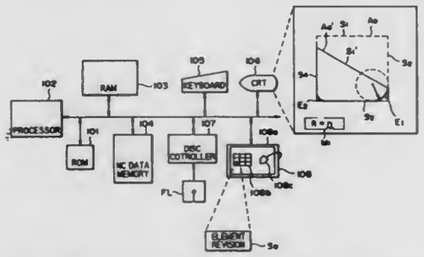
1. A profile revising method for revising a profile having figure elements, the profile defines a corner shape having a chamfered shape, rounded shape or the like, said method comprising the steps of:

(a) displaying, on a display screen, a revised profile which does not include the corner shape when the figure elements other than those corresponding to the corner shape are revised;

(b) checking whether insertion is possible when the corner

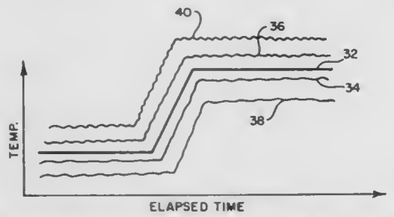
VOL 1132 ISS 1 NO 5 1991 UMI

shape is inserted into the revised profile and generating an error if insertion is not possible;
(c) displaying dimensions of the corner shape where the error occurred on the display screen and painting the corner shape where the error occurred in a color different



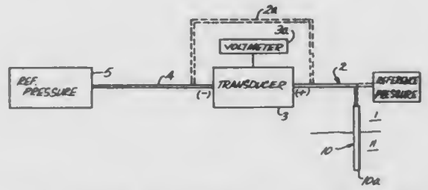
from that of other portions of the profile when the error is generated in step (b);
(d) inserting, when the corner shape where the error occurred is revised, a revised corner shape into the revised profile and displaying the same.

5,063,518
ALARM SYSTEM FOR A CRYSTAL GROWING FURNACE
Victor Curreri, Steauket; John Klein, Port Washington, and Janine Dubois, Shirley, all of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, N.Y.
Filed Nov. 16, 1989, Ser. No. 437,420
Int. Cl.[5] G06F *15/46*; H05B *1/02*
U.S. Cl. 364—503 **2 Claims**



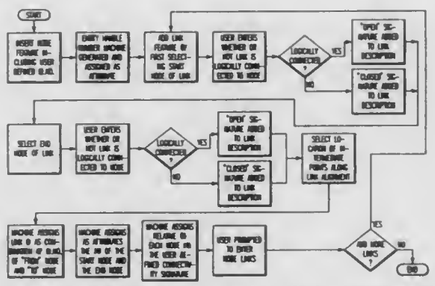
1. A method for monitoring adjacent temperature zones of a furnace exhibiting a spacial normal temperature profile, the method comprising the steps:
storing the normal temperature profile in memory;
storing a first pair of additional temperature profiles in memory, these profiles mimicking the normal profile and establishing permissible operational positive and negative temperature tolerances relative to the normal temperature profile;
storing a second pair of temperature profiles in memory, these profiles mimicking the normal profile and overlying the first profile pair for establishing positive and negative temperature limits respectively greater in value than the corresponding profiles of the first pair;
sequentially measuring the temperature in each of the zones;
comparing each measured zone temperature with the first pair of profiles, a measured value outside this pair establishing at least a warning condition;
generating a signal for announcing the warning condition;
comparing each measured zone temperature with the second pair of profiles, a measured value outside this pair establishing a shut down condition; and
shutting down the furnace upon occurrence of a shut down condition.

5,063,519
LANDFILL GAS PRODUCTION TESTING AND EXTRACTION METHOD
Stanley W. Zison, Irvine, Calif., assignor to Pacific Energy, Commerce, Calif.
Filed Sep. 18, 1989, Ser. No. 408,715
Int. Cl.[5] G01N *7/14*; E21B *43/22*
U.S. Cl. 364—510 **24 Claims**



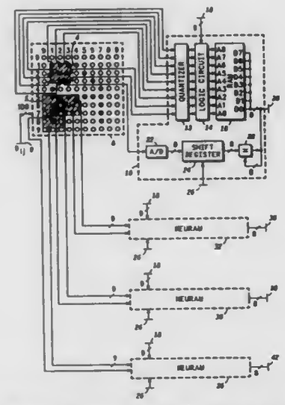
1. A method of determining flow of a gas component through a surface of ground, the method comprising the steps of:
measuring a gas pressure at a selected depth below the surface multiple times at each of a first plurality of locations with respect to the surface over a predetermined period to obtain a temporal average gas pressure for the predetermined period at each of the first plurality of locations and a spatial distribution of the average gas pressure;
determining pneumatic permeability of the ground at a second plurality of locations with respect to the surface to obtain a spatial distribution of permeability;
measuring a gas component at a third plurality of locations to obtain a spatial distribution thereof; and
determining gas component flow through the surface based on the temporal average gas pressures and their spatial distribution and the spatial distributions of permeability and gas component.

5,063,520
COMPUTER AIDED PROCESS FOR NETWORK ANALYSIS
Dennis H. Klein, 347 Hazel Ave., Mill Valley, Calif. 94941
Filed Jul. 6, 1990, Ser. No. 549,066
Int. Cl.[5] G06F *15/60*
U.S. Cl. 364—512 **20 Claims**



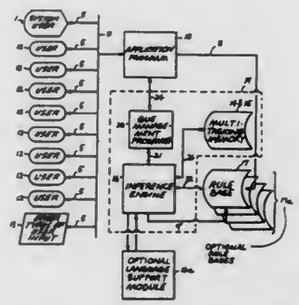
1. A process for the creation of a graphic network display within a computer system containing a video display, comprising the steps of:
(a) inserting a node feature onto a graphic display, and assigning a user ID number to the feature;
(b) assigning a machine readable entity handle number to the inserted node feature;
(c) inserting additional node features into said graphic display, and assigning both user ID numbers and machine readable entity handle numbers to each of the inserted features
(d) adding linking features between and connecting the inserted nodes;
(e) selecting the start node of a link and entering the connectivity condition, either open or closed of the node to link connection;
(f) selecting the end node of a link and entering its connectivity conditions, either open or closed;
(g) selecting an intermediate point along a link alignment and assigning a link user ID number, and attributes to that point;
(h) automatically assigning an entity handle number to intermediate point;
(i) repeating steps (a) through (h) until the network is graphically completely described.

5,063,521
NEURAM: NEURAL NETWORK WITH RAM
William M. Peterson, Scottsdale; Christopher N. Hume, Mesa, and Robert H. Leivian, Chandler, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Nov. 3, 1989, Ser. No. 431,424
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—27 **13 Claims**



3. An apparatus for storing an input signal matrix applied at a plurality of inputs thereof, comprising:
first means coupled to the plurality of inputs of the apparatus for receiving and quantizing the input signal matrix into a first digital address at an output;
second means having an input coupled to said output of said first means and responsive to a digital address control signal for sequentially generating a plurality of second digital addresses at an output from said first digital address, said plurality of second digital addresses including said first digital address and predetermined variations thereof perturbed by at least one bit;
memory means having an address input coupled to said output of said second means for receiving said plurality of second digital addresses and having a data port coupled for reading data from an addressable memory location within said memory means and writing data to said addressable memory location within said memory means;
third means having an input coupled to one of the plurality of inputs of the apparatus for receiving a first signal of the input signal matrix and providing a digital output signal at an output;
fourth means coupled to said output of said third means for receiving said digital output signal of said third means and responsive to a weight signal for providing a weighted digital output signal; and
fifth means for summing said weighted digital output signal as applied at a first input with said data read from said addressable memory location as applied at a second input from said data port of said memory means, said fifth means having an output coupled to said data port of said memory means for providing said data written to said addressable memory location.

5,063,522
MULTI-USER, ARTIFICIAL INTELLIGENT EXPERT SYSTEM
Ralph A. Winters, Sherman Oaks, Calif., assignor to Intellisystems, Inc., Chatsworth, Calif.
Continuation of Ser. No. 168,253, Mar. 15, 1988, abandoned. This application Jul. 10, 1990, Ser. No. 551,764
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—51 **16 Claims**



1. A method, utilizing a computer, for creating an expert system accessible by a plurality of users, said expert system comprising at least one rule base, said at least one rule base comprising knowledge for solving problems, said expert system for providing said rule base knowledge from said at least one rule base to said plurality of users, said method comprising the steps:
coordinating communications between said plurality of users and said expert system, said communications comprising at least one inquiry and at least one response to and from said at least one rule base;
placing each said at least one inquiry of each said at least one response in a packet for temporary storage, said packet including identification information for at least one user of said plurality of users, said identification information including an identifier of said at least one rule base, an identifier of said at least one user, and an identifier of the current rule base state and event;
processing each said at least one inquiry or each said at least one response in said packet entirely before processing a next packet,
buffering said at least one response or said at least one inquiry in said packet in a first and a second queue, where said first queue buffers said at least one inquiry or said at least one response from at least one of said plurality of users to said at least one rule base, and said second queue buffers said at least one inquiry or said at least one response from said at least one rule base to said at least one user;
for each of said packets, inferencing said at least one inquiry or said at least one response of said packets stored on said first queue buffer with said knowledge contained in said at least one rule base.

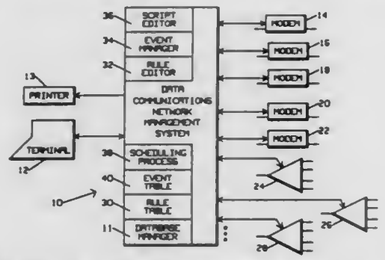
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,523

NETWORK MANAGEMENT SYSTEM WITH EVENT RULE HANDLING

Milan J. Vrenjak, Coral Springs, Fla., assignor to Racal Data Communications Inc., Sunrise, Fla.

Filed Nov. 16, 1989, Ser. No. 438,375
Int. Cl.[5] G06F *15/16, 13/42*
U.S. Cl. 364—514 **16 Claims**



8. A method for establishing and using a rule to react to a network event occurring in a data communication network, comprising in combination the steps of:

a network management system user defining a criterion associated with said network event upon occurrence of which an action will be taken;

a network management system user defining a SCRIPT of commands to be invoked upon occurrence of said event meeting said criterion in order to produce said action;

receiving an event message from an object in said network;

in a computer based data communication network management system, said network management system having been developed by a designer to operate in a predetermined normal manner for use by said network management system user, comparing attributes of said event message with said user defined criterion; and

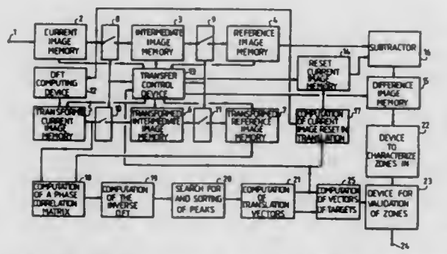
if said attributes match said user defined criterion, invoking said SCRIPT of commands to effect customized operation of said predetermined normal manner of operation of network management system.

5,063,524

METHOD FOR ESTIMATING THE MOTION OF AT LEAST ONE TARGET IN A SEQUENCE OF IMAGES AND DEVICE TO IMPLEMENT THIS METHOD

Alain Ferre, Cesson Sevigne; Christophe Chevance, Rennes, and Jean Quignon, Crepy en Valois, all of France, assignors to Thomson-CSF, Puteaux, France and Cummings Incorporated, The International Sign Service, Nashville, Tenn.

Filed Nov. 9, 1989, Ser. No. 433,790
Claims priority, application France, Nov. 10, 1988, 88 14677
Int. Cl.[5] G06F *15/70;* H04N *5/14*
U.S. Cl. 364—516 **3 Claims**



1. A method for estimating the motion of at least one target in a sequence of images, the motion of this target and the motion of the background of the images being comparable to translations, said method consisting in the steps of:

sampling each image, then representing each sample by the value of its luminance;

computing, for each image, a matrix of coefficients transformed by the two-dimensional discrete Fourier transform;

computing a phase correlation matrix, each coefficient of which is equal to the product of a transformed coefficient of a first image, by the conjugate of a homologous transformed coefficient of a second image, divided by the square of the modulus of this product;

computing an inverse transformed matrix of the phase correlation matrix, in applying the inverse Fourier transform to the phase correlation matrix;

making a first comparison, with a predetermined threshold value, of the coefficients of the inverse transformed matrix of the phase correlation matrix and searching for that coefficient which has the greatest modulus, this coefficient corresponding to a translation of the image background, while the other coefficients having a modulus greater than the value of the first threshold correspond to possible targets;

then estimating a translation vector for each possible target and a translation vector of the image background, in a reference position related to the first image, on the basis of the order (x) of the row and of the order (y) of the column in which there is located the coefficient corresponding respectively to each target and to the background of the image, in the inverse transformed matrix of the phase correlation matrix;

resetting the background of the first image in relation to the background of the second image, as a function of the translation vector estimated for the background;

computing the absolute values of the differences in luminance between the first image, the background of which has been reset, and the second image, these values of differences in luminance constituting an image called a difference image;

comparing the absolute values of the differences in luminance with a second predetermined threshold value; each pixel with a difference in luminance greater than the second threshold value being considered as a pixel in motion;

attributing each pixel in motion to a zone formed by pixels that are in motion and are adjoining;

computing a speed vector for each zone, in computing a vector of translation of this zone from a first difference image to a second difference image;

computing a speed vector for each target, as a function of the translation vector estimated for this target and as a function of translation vector estimated for the image background;

concluding that a zone belongs to a target when its speed vector coincides with the speed vector of a target.

5,063,525

PICTURE PROCESSING APPARATUS INCLUDING DATA CONVERSION TABLE FOR PERFORMING CONVOLUTIONAL PROCESSING

Mitsuo Kurakake; Shoichi Otsuka, both of Hino, and Yutaka Muraoka, Hachioji, all of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

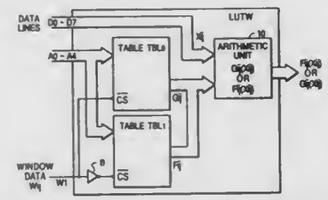
Continuation of Ser. No. 130,237, Nov. 25, 1987, abandoned. This application Jul. 9, 1990, Ser. No. 549,237
Claims priority, application Japan, May 27, 1986, 61-121994
Int. Cl.[5] G06F *15/66;* G06K *9/54*
U.S. Cl. 395—157 **8 Claims**

1. A picture processing apparatus including a data conversion table for performing convolutional processing for effecting data processing by selecting a particular operator from a plurality of operators for performing predetermined operations, such as digitization, density conversion, or image reversal, on pixel data forming a pciture which is stored in a frame memory, and for simultaneously effecting mask processing with window data, said picture processing apparatus comprising:

data lines for providing data;

a plurality of data conversion tables in which a plurality of operators corresponding to address positions of the pixel data are arrayed and stored;

address input lines, coupled to said data conversion tables, for inputting address data which correspond to addresses of pixel data output from the frame memory, to each of said data conversion tables;



window data lines, coupled to said data conversion tables, for window data for providing window data to first predetermined ones of said data conversion tables and inverted window data to second predetermined ones of said data conversion tables; and

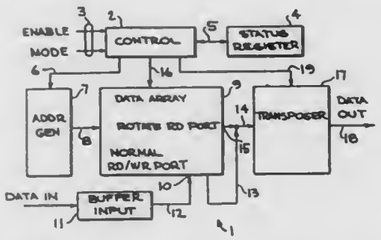
arithmetic means coupled to said plurality of data conversion tables and said data lines, for receiving the output data from said data conversion tables and the data from said data lines, and for processing and outputting the output data.

5,063,526

BIT MAP ROTATION PROCESSOR

Koichi Kagawa, Fuchu, Japan; Chung-Li Yu, San Jose, Calif.; Shinkyo Kaku, San Jose, Calif., and Vinod Menon, Sunnyvale, Calif., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Jun. 3, 1987, Ser. No. 57,850
Int. Cl.[5] G06F *15/40, 15/62*
U.S. Cl. 395—155 **23 Claims**



19. An apparatus comprising:

storing means, having a first output port and a second output port, for storing data, the storing means including an array of data locations storing respective units of the data, the data locations being accessible through the first output port and the second output port, the first output port accessing normal sets of data locations in response to array addresses, and the second output port accessing rotated sets of data locations in response to array addresses, wherein the array includes at least $R+1$ normal sets, and a normal set includes a word of data having $N+1$ units, NU_n, for n equal to 0 through N, and a rotated set includes award of data having $R+1$ units, where a given rotated set includes one unit NU_n, from each of $R+1$ normal sets; and

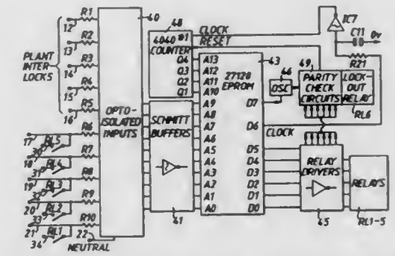
generating means, connected to the storing means, for generating sequences of array addresses for accessing the data through the first output port and the second output sort.

5,063,527

MONITOR SYSTEM

Barry L. Price, and Christopher J. Thornhill, both of Solihull, England, assignors to British Gas plc, London, England

Continuation of Ser. No. 149,527, Jan. 28, 1988, abandoned. This application Mar. 26, 1990, Ser. No. 500,232
Claims priority, application United Kingdom, Jan. 29, 1987, 8701964
Int. Cl.[5] F23Q *23/00*
U.S. Cl. 364—550 **30 Claims**



1. A monitor system for monitoring a microprocessor based control device having an output for effecting control of a system by means of control information therefrom in dependence on reference information received from system sensors of physical parameters in safety critical situations, said monitor system being configured without the requirement of a further microprocessor and including first input means for receiving said control information from the output of the microprocessor based control device; second input means for receiving reference information from the system sensors;

memory means having address inputs continuously receiving both the control information and the reference information form the first and second input means respectively to define in combination an accessed memory address wherein the contents of said accessed memory address is used for continuously determining whether the control information from the device corresponds to that expected in view of the reference information; and means for overriding the control information if any error in this control information is detected.

5,063,528

RECORD POSITION MEASURING APPARATUS

Hiroshi Miwa, Amagasaki; Atuko Miyoshi, Fukuyama; Syungi Satou, Fukuyama, and Masayuki Kaseda, Fukuyama, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Jul. 28, 1989, Ser. No. 386,120
Int. Cl.[5] B41F *5/08*
U.S. Cl. 364—559 **13 Claims**

1. A recorded pattern position measuring apparatus comprising:

a recording medium having at least one color pattern defined by a number of different color elements;

a light source which irradiates light onto said recording medium;

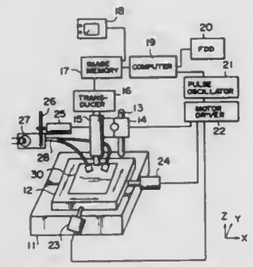
a light filtering means for dividing light from said source and reflected from the pattern on said recording medium into a plurality of predetermined wavelength bands;

two-dimensional imaging means for recording images of the color pattern and providing image intensity information for each of the different colors in the form of change between "0" and "1", determined according to whether

VOL 1132 ISS 1 NO 5 1991 UMI

light of the predetermined wavelength bands has an intensity value that exceeds a preset threshold intensity value;

an image memory which stores the image intensity information in the form of "0" or "1" as words in memory matrix; and



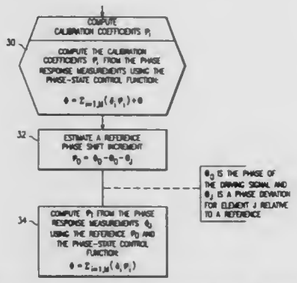
means for determining boundaries of each of the different color elements using boundary data points and for calculating printing displacement of the different colors based upon location of the boundaries.

5,063,529

METHOD FOR CALIBRATING A PHASED ARRAY ANTENNA

Charles W. Chapoton, Plano, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Dec. 29, 1989, Ser. No. 459,046
Int. Cl.[5] G01S 7/40
U.S. Cl. 364—571.02 **27 Claims**



27. A method of calibrating a phased array antenna with N phase shift elements, each having a predetermined number of calibration coefficients and a phase response characterized by a phase-state control function $\Phi_J = f(\phi_{i=1,M}, c)$, comprising the steps:

inputting calibration signals to the antenna, causing I and Q aperture response;

for a selected phase shift element, selecting a set X of control words so as to minimize the R_I and R_Q residual components of the aperture response attributable to the non-selected elements;

for each control word X, measuring the resultant I and Q aperture responses to an input calibration signal;

estimating said R_I and R_Q residual components of the aperture response, and the signal output amplitude for the selected element, from the I and Q aperture responses using the identity $(I_x - R_I)^2 + (Q_x - R_Q)^2 = S^2$;

for the selected element, selecting a set Y of control words;

selecting control words for the non-selected elements such that a selected phase increment is added to the residual vector R_I/R_Q to rotate it to be substantially orthogonal to the phase response vector;

for each control word Y, measuring the resultant I and Q aperture responses to an input calibration signal;

adjusting the phase of the input calibration signals to rotate the residual vector R_I/R_Q and the phase response vector such that the vector outputs appear primarily in respective I and Q channels;

measuring the phase responses Φ_J from the I and Q aperture responses using the R_I and R_Q residual components and the S signal amplitude, and using at least one of the inverse functions

$$\Phi_J = \cos^{-1}((I_y - R_I)/S)$$

$$\Phi_J = \sin^{-1}((Q_y - R_Q)/S)$$

computing calibration coefficients for the selected element from said phase response measurements using the phase state control function; and

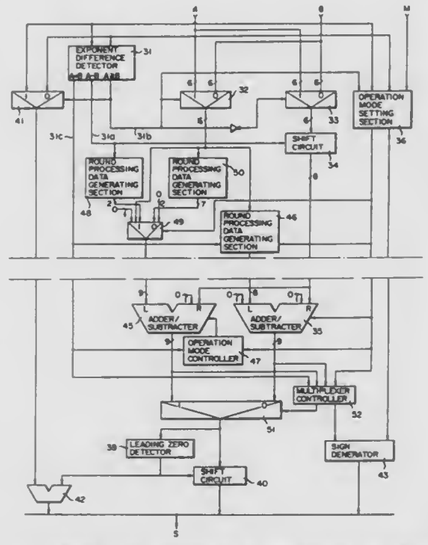
correcting phase response errors during phase steering operations using said calibration coefficients.

5,063,530

METHOD OF ADDING/SUBTRACTING FLOATING-POINT REPRESENTATION DATA AND APPARATUS FOR THE SAME

Tadashi Ishikawa, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 31, 1989, Ser. No. 359,145
Claims priority, application Japan, May 31, 1988, 63-132977
Int. Cl.[5] G06F 7/38
U.S. Cl. 364—748 **6 Claims**



1. A floating point representation data adding/subtracting apparatus comprising:

operation mode setting means for setting one of addition and subtraction modes as an operation mode in accordance with first and second operation data and an input operation instruction, each of the first and second operation data being normalized floating-point representation data and having a sign, an exponential part, and a mantissa part, the operation mode being selected in accordance with a magnitude relation between the exponential parts of the first and second operation data and the operation instruction;

first selecting means for selecting the mantissa part of the first operation data as a first mantissa part when the exponential part of the first operation data is equal to or larger than the exponential part of the second operation data;

second selecting means for selecting the mantissa part of the second operation data as a second mantissa part when the exponential part of the first operation data is equal to or larger than the exponential part of the second operation data;

shifting means for shifting the second mantissa part of the second operation data to lower digits with respect to a floating-point in accordance with a difference between the exponential parts of the first and second operation data, and selectively adding shifted-out digits as first guard digits to the shifted second mantissa part in accordance with the difference to obtain first processing data;

operation mode control means for generating an operation mode control instruction in accordance with the operation mode and the magnitude relation between the exponential parts of the first and second operation data;

first processing data preparing means for adding first logic guard digits as second guard digits to the first mantissa part when the exponential part difference between the first and second operation data is not 0 or the addition mode is set, the logic guard digits which the most significant bit of bits of an nth digit is 1, and zero guard digits to the first mantissa part when the exponential part difference is 0 in the subtraction mode, to obtain second processing data;

second processing data preparing means for adding second logic guard digits as third guard digits to the first mantissa part when the exponential part difference between the first and second operation data is 2 or more in the subtraction mode, the second logic guard digits which the most significant bit of bits of an nth digit is 1, and zero guard digits to the first mantissa part when the exponential part difference is 0 or 1 in the subtraction mode or the addition mode is set, and adding third logic guard digits to a lowermost digit of the first mantissa part in the addition mode, the third logic guard digits which the most significant bit of bits of an nth digit is 1, to obtain third processing data;

first adding/subtracting means for executing a first operation of the plurality of operations on the first and second processing data and selectively executing rounding at a first predetermined digit in accordance with the operation mode;

second adding/subtracting means for executing a second operation of the plurality of operations on the first and third processing data simultaneously with said first adding/subtracting means and selectively executing rounding at a second or third predetermined digit in accordance with the operation mode control instruction; and

selecting means for selecting one of results of the plurality of operations as a resultant mantissa part in accordance with the operation mode and the magnitude relation between the exponential parts of the first and second operation data, an operation resultant data of the first and second operation data including a resultant sign, a resultant exponential part, and the resultant mantissa part, and

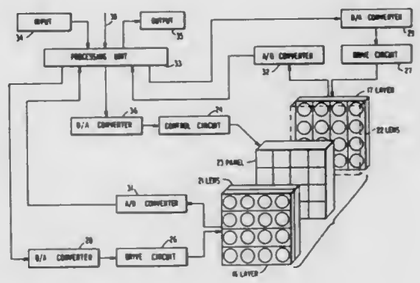
wherein each digit is hexadecimal.

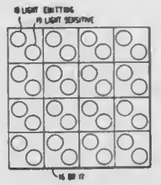
5,063,531

OPTICAL NEURAL NET TRAINABLE IN RAPID TIME

Shigeru Kawai, and Keiichi Kubota, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Aug. 28, 1989, Ser. No. 399,185
Claims priority, application Japan, Aug. 26, 1988, 63-213125; Aug. 26, 1988, 63-213126; Aug. 26, 1988, 63-213128; Aug. 26, 1988, 63-213130
Int. Cl.[5] G06G 7/16
U.S. Cl. 395—25 **5 Claims**





1. An optical computer comprising:

a first and a second layer, each comprising pairs of light emitting and light sensitive elements in rows and columns, the light emitting elements being connected along the rows and the columns in said first and said second layers, respectively, the light sensitive elements being connected along the rows and the columns in said first and said second layers, respectively, the pairs in said first layer and the pairs in said second layer being in one-to-one correspondence to define a plurality of optical paths with each optical path defined between one of the pairs in said first layer and one of the pairs in said second layer that corresponds to said one of the pairs in said first layer;

first means connected to the rows of the light emitting elements of said first layer for making the light emitting elements of said first layer emit first primary amounts of light along said optical paths;

second means connected to the columns of the light emitting elements of said second layer for making the light emitting elements of said second layer emit second primary amounts of light along said optical paths;

a panel comprising optical intensity controlling elements in said optical paths, respectively, for controlling said first primary amounts of light into first controlled amounts of light and said second primary amounts of light into second controlled amounts of light; and

control means, connected to the rows of the light sensitive elements of said first layer, the columns of the light sensitive elements, of said second layer, and said controlling elements for controlling said controlling elements in proportion to the first controlled amounts of light received by the light sensitive elements of said second layer, respectively, and the second controlled amounts of light received by the light sensitive elements of said first layer, respectively.

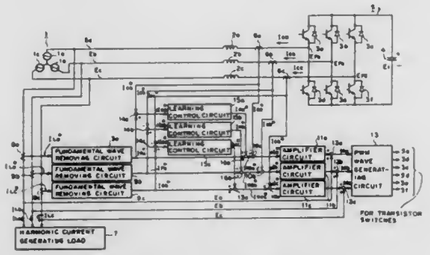
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,532

ACTIVE FILTER DEVICE

Masatoshi Takeda; Tomohiko Aritsuka, and Yoshitaka Tachibana, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 16, 1988, Ser. No. 285,611
Claims priority, application Japan, Mar. 4, 1988, 63-52035
Int. Cl.[5] H02M *7/539*
U.S. Cl. 364—825 **3 Claims**



1. An active filter device, comprising:
an active filter circuit for generating an output current as a function of a current command value;
a harmonic current generating load for generating a harmonic current in response to said output current;
first deviation calculation means for calculating a deviation between said output current and said harmonic current and outputting the result as a deviation value;
a control circuit, comprising a first memory for storing a deviation value delayed by a prescribed amount of time and a second memory for storing a deviation value corresponding to a previous period of said harmonic current, and a first arithmetic circuit for combining the delayed and previous deviation values to produce a compensation value and storing the compensation value in said second memory as said previous deviation value;
a second arithmetic circuit for adding said compensation value to said harmonic current to produce a compensated harmonic current; and
second deviation calculation means for calculating a deviation between said output current and said compensated harmonic current to produce said current command value.

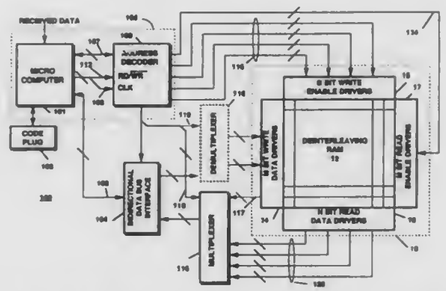
5,063,533

RECONFIGURABLE DEINTERLEAVER/INTERLEAVER FOR BLOCK ORIENTED DATA

Richard A. Erhart, Boynton Beach; Barry W. Herold, and Joan S. DeLuca, both of Boca Raton, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 10, 1989, Ser. No. 335,394
Int. Cl.[5] G06F *12/00*
U.S. Cl. 395—425 **24 Claims**

1. A random access memory comprising:
a plurality of memory cells configured as an array of N bit rows by M bit columns (where M and N are positive integers), each memory cell having an input for writing a data bit, and an output for reading the data bit;
a plurality of write enable devices, each having a write enable input, a write data input, and a write data output, said write data output of each device being coupled to an individual one of said memory cell inputs;
M data input lines, each of said data input lines being coupled to a row of write data inputs;
N write enable input lines, each of said write enable input lines being coupled to a column of write enable inputs;
a plurality of read enable devices, each having a read enable input, a read data input, and a read data output, said read data input of each device being coupled to an individual one of said memory cell outputs;
N data output lines, each of said data output lines being coupled to a column of read data outputs; and



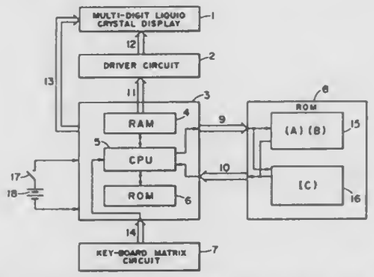
M read enable input lines, each of said read enable input lines being coupled to a row of read enable inputs.

5,063,534

ELECTRONIC TRANSLATOR CAPABLE OF PRODUCING A SENTENCE BY USING AN ENTERED WORD AS A KEY WORD

Juji Kishimoto, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 917,249, Oct. 8, 1986, abandoned, which is a continuation of Ser. No. 778,272, Sep. 12, 1985, abandoned, which is a continuation of Ser. No. 707,165, Feb. 28, 1985, abandoned, which is a continuation of Ser. No. 294,862, Sep. 1, 1981, abandoned. This application Oct. 12, 1989, Ser. No. 420,730
Claims priority, application Japan, Sep. 8, 1980, 55-123484
Int. Cl.[5] G06F *15/38; G06G 7/60*
U.S. Cl. 364—419 **6 Claims**



1. An electronic translator capable of producing a sentence by using an entered word as a key word, said translator comprising:
input means for entering a plurality of words;
memory means comprising:
means for storing words of a first language and memory address data for each said first-language word;
means for storing words of a second language and memory address data for each said second-language word, the first and second languages being distinct from each other;
means for storing sentences of the first language and memory address data associated therewith and associated with one or more first-language words; and
means for storing sentences of the second language and memory address data associated therewith and associated with one or more second-language words, said second language sentences corresponding respectively to the sentences of the first language,

wherein at least two first language words have a common memory address data associated therewith and associated with at least one common first language sentence;
access controlling means for controlling access to said memory means, comprising:
means for selecting and reading out upon input of a first-language word by said input means, first-language sentences associated with memory address data associated with said input first-language word;
means for selecting and reading out upon input of either of said first-language words associated with the common memory address data, said at least one common first language sentence;
means for selecting and reading out upon input of a plurality of first-language words, at least one first language sentence associated with memory address data comprising memory address data associated with each of said plurality of first-language words;
sentence translation instruction means for accessing the second-language sentence corresponding to a first-language sentence which a user of said translator wishes to translate, from among the first-language sentences read out by said access controlling means; and
display means for displaying a first-language word entered by said input means and for displaying said first language sentences associated with memory address data associated with said input first-language word and selected and read out by said access controlling means.

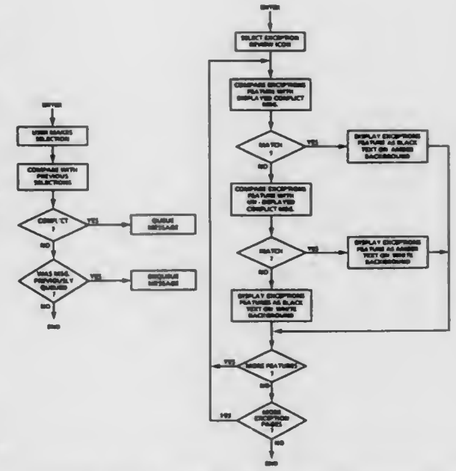
5,063,535

PROGRAMMING CONFLICT IDENTIFICATION SYSTEM FOR REPRODUCTION MACHINES

Craig W. Jacobs, Fairport, and Joseph L. Filion, Rochester, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Nov. 16, 1988, Ser. No. 272,041
Int. Cl.[5] G06F *15/00, 3/14, 11/08*
U.S. Cl. 395—575 **3 Claims**

1. A method for programming a reproduction machine and identifying programming conflicts that occur, comprising:
a) using an interactive display with touch display screen, inputting desired program selections;
b) where a program selection error is made, generating an error message;
c) queuing said error message with other error messages for different programming selections in a predetermined order in an error message queue table;
d) displaying at least one error message from said queue table on said touch display screen;
e) selectively displaying a job table on said touch display screen in which the program selections made are displayed;
f) highlighting the program selections displayed in said job table for said one error message by a first visual identifier;
g) highlighting the program selections displayed in said job table for other error messages in said queue table by a second visual identifier;
h) in response to correction of said program selection error;
1) deleting said one error message from said queue table and from said touch display screen,
2) terminating highlighting of the program selections for said one error message by said first visual identifier in said job table;
3) displaying the next error message in said queue table on said touch display screen,
4) changing highlighting of the program selections displayed in said job table for said next error message from said second visual identifier to said first visual identifier; and



j) repeating step h until all of said program selection errors are corrected.

5,063,536

MICROPROGRAMMABLE ASYNCHRONOUS CONTROLLERS FOR DIGITAL ELECTRONIC SYSTEMS

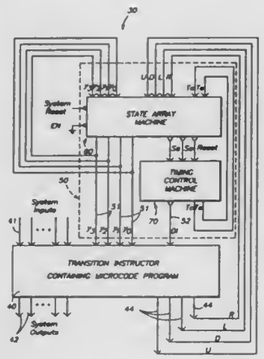
Richard F. Tinder, Pullman, and Richard I. Klaus, Vancouver, both of Wash., assignors to Washington State University Research Foundation, Inc., Pullman, Wash.

Filed Mar. 11, 1988, Ser. No. 167,311
Int. Cl.[5] G06F *7/00*
U.S. Cl. 395—775 **56 Claims**

1. An electronic asynchronous digital controller, comprising:
means for receiving information indicative of at least one system input;
means for storing a present state code which is indicative of a present state which the controller has assumed from a plurality of possible states;
means for transitioning said means for storing a present state code, from one state code to another state code;
means for analyzing the present state code to determine a state class associated with the present state from at least two possible state classes;
means for analyzing the present state code and system inputs to determine whether transition instructions should issue;
means for issuing transition instructions indicating any desired state transition which should be made;
transition control means for detecting the issuance of any transition instruction and assuring that any previous transition has been sufficiently completed and then providing a transition command signal to said means for transition-

VOL 1132 ISS 1 NO 5 1991 UMI

ing to thus cause said means for storing a present state code to transition from the present state which is classified in a first state class, into a new present state which is



classified in a second state class different from said first state class; and

means for translating the new present state code into appropriate output signals used to control related equipment.

5,063,537

REPROGRAMMABLE LOGIC FUSE BASED ON A 6-DEVICE SRAM CELL FOR LOGIC ARRAYS

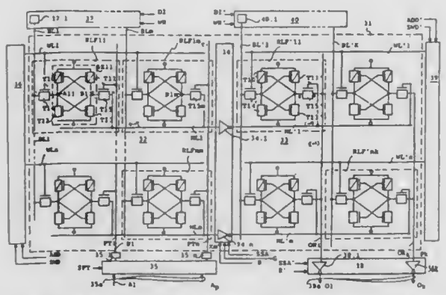
Chekib Akrout, Ris Orangis; Pierre Coppens, Savigny le Temple; Yves Gautier, Lesigny, and Pierre-Yves Urena, Vence, all of France, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 29, 1989, Ser. No. 414,339

Claims priority, application European Pat. Off., Oct. 28, 1988, 88480069

Int. Cl.[5] G11C *7/00, 11/412, 17/16*

U.S. Cl. 365—96 **10 Claims**



2. A Reloadable Programmable Logic Array or RPLA comprising:

a) a logic AND array including:

a plurality of first electrically isolated word lines carrying first word signals;

a plurality of first electrically isolated bit lines carrying first bit signals;

said first word and bit lines together forming a first matrix of non-conductive intersections;

a plurality of first input lines carrying first digital input signals;

a plurality of first output lines carrying first output signals;

said first input and output lines together forming a second matrix of non-conductive intersections;

b) a logic OR array including;

a plurality of second electrically isolated word lines carrying second word signals;

a plurality of second electrically isolated bit lines carrying second bit signals;

said second word and bit lines together forming a third matrix of non-conductive intersections;

a plurality of second input lines carrying second digital input signals;

a plurality of second output lines carrying output signals;

said second input and output lines together forming a fourth matrix of non-conductive intersections;

c) a plurality of reprogrammable logic fuses disposed at each respective couple of said first and second and said third and fourth intersections, at least one of said reprogrammable logic fuses in the AND array and in the OR array comprising:

a static RAM cell biased between first and second voltages having first and second common nodes to store control data therein;

a first FET device having a first source electrode connected to one said bit line, a first drain electrode connected to said first common node, and a first gate electrode connected to the corresponding said word line; and

a second FET device having a second electrode connected to said second common node, a third electrode connected to said input line, and a fourth electrode connected to said output line.

5,063,538

OPTOELECTRONIC SIGNAL RECORDING MEDIUM AND METHOD OF MAKING SAME

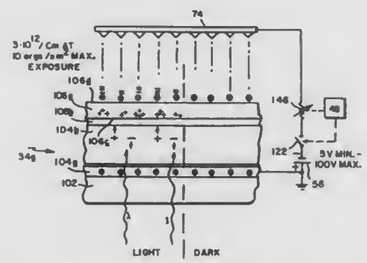
Manfred R. Kuehnle, Waldesruh Rte. 103A, New London, N.H. 03257

Filed Aug. 30, 1989, Ser. No. 400,852

The portion of the term of this patent subsequent to Aug. 29, 2006, has been disclaimed.

Int. Cl.[5] G11C *13/00*

U.S. Cl. 365—106 **19 Claims**



1. In a plural layer optoelectronic recording medium in sheet or strip form of the type including a base layer having a surface and a light modulating layer added to said surface of the base layer the improvement wherein the base layer is a thin monocrystal of an inorganic material and whose crystal orientation and surface perfection are such as to enable the growth on said surface of a thin light modulating layer composed of an inorganic crystalline material with a very high degree of perfection from nucleation sites on said surface so that the entire medium has a coherent crystal morphology.

5,063,539

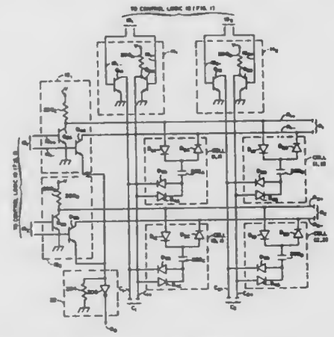
FERROELECTRIC MEMORY WITH DIODE ISOLATION

Krishna Rallapalli, San Jose, Calif., assignor to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 265,384, Oct. 31, 1988, abandoned. This application Oct. 5, 1990, Ser. No. 593,528

Int. Cl.[5] G11C *11/22*

U.S. Cl. 365—145 **11 Claims**



1. An improved memory comprising:

(a) a first row control line and a second row control line;

(b) a first column control line and a second column control line;

(c) a ferroelectric capacitor having a first terminal and a second terminal, wherein:

(i) said first terminal is connected to the first row control line via a first diode having its cathode coupled to the first terminal;

(ii) said first terminal is connected to the second row control line via a second diode having its anode coupled to the first terminal;

(iii) said second terminal is coupled to the second column control line via a third diode having its anode coupled to the second terminal; and

(iv) said second terminal is coupled to the first column control line via a fourth diode having its cathode coupled to the second terminal.

5,063,540

SEMICONDUCTOR MEMORY CIRCUIT WITH DIODE LOAD CIRCUITS

Hiroyuki Takahashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

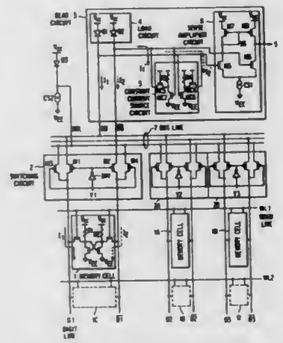
Filed Feb. 8, 1991, Ser. No. 652,725

Claims priority, application Japan, Feb. 8, 1990, 2-30159

Int. Cl.[5] G11C *11/36*

U.S. Cl. 365—175 **4 Claims**

1. A semiconductor memory circuit transmitting information in a memory cell connected to a selected word line and a selected digit line pair to a sense amplifier through a data bus line pair, wherein the information of said memory cell is read by sensing a potential difference generated at load diodes by supplying a cell current through either of said digit line pair in accordance with memory data of said memory cell, said load diodes being respectively connected to said digit line pair or



data bus line pair as load elements to supply the information stored in said memory cell to said sense amplifier.

5,063,541

BEAM FORMING METHOD AND APPARATUS THEREFOR IN ULTRASONIC IMAGING SYSTEM

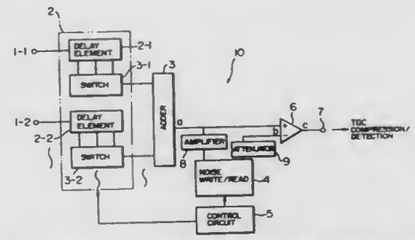
Shin-ichi Kondo, Kodaira; Kageyoshi Katakura, Tokyo, and Hiroshi Ikeda, Hachioji, all of Japan, assignors to Hitachi Medical Corp., Tokyo, Japan

Filed Mar. 29, 1990, Ser. No. 500,907

Claims priority, application Japan, Mar. 31, 1989, 1-082336

Int. Cl.[5] G03B *42/06*

U.S. Cl. 367—7 **28 Claims**



1. A beam forming method in an ultrasonic imaging system, said method comprising the steps of:

(a) actuating delay switches for dynamic focusing to operate in a section in which no ultrasonic wave transmission/-reception is performed;

(b) adding the respective outputs of said delay switches to each other by means of an adder;

(c) storing a switching noise signal into a memory means, said switching noise signal being generated from said delay switches and appearing at the output of said adder;

(d) transmitting an ultrasonic wave by means of an array of transducers so as to receive an echo signal of said transmitted ultrasonic wave and for switching said delay switches so as to obtain a reception wave beam;

(e) adding the respective outputs of said delay switches to each other by means of said adder;

(f) reading said stored noise signal out of said memory means; and

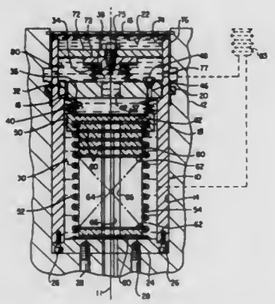
(g) calculating a difference between the output signal of said adder and the read-out noise signal to thereby obtain a signal which is a reception signal from which said switching noise so far superimposed thereon has been eliminated.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,542
PIEZOELECTRIC TRANSDUCER WITH DISPLACEMENT AMPLIFIER

Steven G. Petermann, Plano; Keith W. Katahara, Allen, and Herbert A. Wolcott, II, Dallas, all of Tex., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed May 17, 1989, Ser. No. 354,067
Int. Cl.[5] H04R 17/00
U.S. Cl. 367—166 8 Claims



1. A signal generating transducer useful in acoustic logging tools and the like comprising:

actuator means comprising at least one piezoelectric element which is operable to be elongated in one direction in response to an electrical signal imparted to said piezoelectric element;

a displacement member; and

amplifier means interconnecting said actuator means and said displacement member, said amplifier means including a first axially extensible bellows member defining a first liquid-filled chamber, a second axially extensible bellows member defining a second liquid-filled chamber, and means forming a passage interconnecting said first and second chambers for communicating liquid between said chambers and operable to effect linear movement of said displacement member greater than the elongation of said piezoelectric element in response to an electrical signal imposed on said piezoelectric element.

5,063,543
TIMER PROGRAMMING APPARATUS

Kenichi Shibuya; Hirotsugu Okubo, both of Tokyo, and Yukio Furudate, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

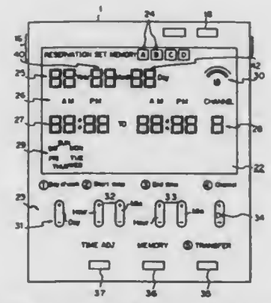
Division of Ser. No. 360,420, Jun. 2, 1989. This application Jul. 23, 1990, Ser. No. 556,177
Claims priority, application Japan, Jun. 6, 1988, 63-139069; Jun. 8, 1988, 63-141368
Int. Cl.[5] G04B 17/24; G04C 9/00
U.S. Cl. 368—29 8 Claims

1. A timer apparatus having a date display section comprising:

means for setting the date display to a desired date;

said display section comprising segmented display units, in which each segment thereof is controllably energized, alone or in combination; and

operating means for changing the energizing of the segments to form a plurality of abstract segment pattern displays, wherein said plurality of abstract segment pattern displays

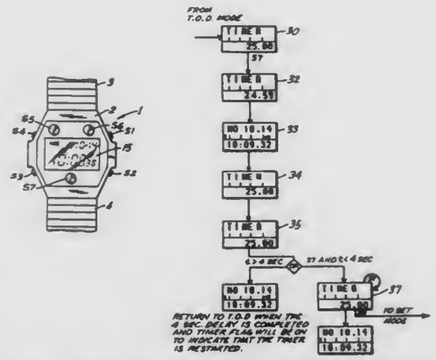


are rapidly and sequentially output for a period time until the setting of the desired date is finished.

5,063,544
PROGRAM TO ALTER ALARM SETTING IN A MULTIMODE ALARM TIMEPIECE

Tom Thinesen, Sunnyvale, Calif., assignor to Timex Corporation, Waterbury, Conn.

Filed Mar. 28, 1990, Ser. No. 500,327
Int. Cl.[5] G04B 32/02
U.S. Cl. 368—74 5 Claims



1. In a multimode electronic timepiece having a display, an audible alarm device, a plurality of manually actuated switches, and an integrated circuit programmed to provide a plurality of modes including a first mode in which an alarm sounding setting is displayed, said alarm sounding setting being alterable in response to actuation of a selected setting switch, and a second mode in which said alarm sounding setting is not displayed, but in which said audible alarm device may be disabled by actuation of a selected disabling switch, and alarm control means responsive to said alarm sounding setting for initiating sound from said audible alarm device and for terminating sound by a first actuation of said selected disabling switch when the audible alarm device is active, the improvement comprising:

pop-up mode means responsive to said alarm control means when the timepiece is in said second mode for causing the timepiece to change to said first mode and to display said alarm sounding setting in said first mode,

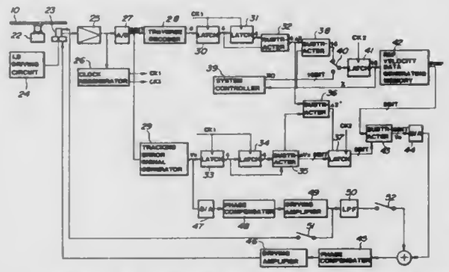
means for altering said alarm sounding setting within a preselected time while in said first mode by actuation of said selected setting switch, and

timer means for causing the timepiece to return to said second mode after said preselected time with an unaltered alarm sounding setting if said selected setting switch has not been actuated within said preselected time.

5,063,545
ACCESS SPEED DETECTING MEANS FOR DISC PLAYER

Norio Nishida, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 5, 1989, Ser. No. 446,443
Claims priority, application Japan, Dec. 8, 1988, 63-310568
Int. Cl.[5] G11B 7/00
U.S. Cl. 369—32 14 Claims



1. Apparatus for detecting the speed with which a light beam of an optical head accesses a selected one of several data tracks on an optical disc of the type having recorded in said tracks traverse data representing respective track numbers, said traverse data being read by said optical head, said apparatus comprising:

traverse data detection means for detecting traverse data read from said recording tracks to produce traverse data signals indicative of light beam scanning position;

first speed data forming means for detecting deviations in said traverse data signal produced by said traverse data detection means at predetermined time intervals for forming M upper order data bits representing access speed;

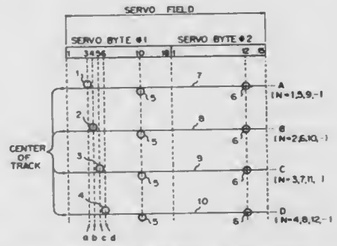
tracking error means for producing tracking error data signals proportionate to a deviation of said light beam from a record track on said optical disc; and

second speed data forming means for detecting deviations in said tracking error data signals produced by said tracking error means for forming N lower order data bits representing access speed.

5,063,546
OPTIC DISC WITH SERVO PATTERN AND APPARATUS FOR ACCESSING THE OPTICAL DISC

Osamu Ito; Masaharu Ogawa; Kyosuke Yoshimoto; Kunimaro Tanaka; Teruo Furukawa, and Yoshiki Nakajima, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 11, 1988, Ser. No. 166,671
Claims priority, application Japan, Mar. 13, 1987, 62-59537; Jun. 2, 1987, 62-138585; Jun. 16, 1987, 62-149586
Int. Cl.[5] G11B 7/085
U.S. Cl. 369—32 12 Claims



1. An optical disc and apparatus for accessing the optical disc wherein the optical disc includes a plurality of information tracks, each information track having a servo field including a pair of wobbled pits and a clock pit serving as a reference pit for information data,

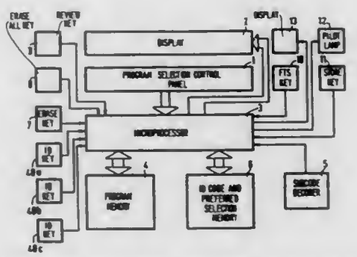
the optical disc further including at least three different types of servo field in a predetermined sequence, one type for every one or more contiguous information tracks,

said accessing apparatus including a movable portion of an optical head and direction detection means for detecting the moving direction of the movable portion from the sequence of changes in the type of servo field.

5,063,547
APPARATUS FOR AUTOMATICALLY REPRODUCING A USER-DEFINED PREFERRED SELECTION FROM A RECORD CARRIER

Pieter H. Custers, Eindhoven, Netherlands, and Ludo M. J. Stulens, Hasselt, Belgium, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 221,685, Jul. 20, 1988, abandoned, which is a continuation-in-part of Ser. No. 745,558, Jun. 17, 1985, Pat. No. 4,779,252. This application Jul. 20, 1990, Ser. No. 559,444
Claims priority, application Netherlands, Jul. 2, 1984, 8402095; Oct. 21, 1987, 8703086
Int. Cl.[5] G11B 7/00
U.S. Cl. 369—32 3 Claims



1. An apparatus for reading information stored on a record carrier, comprising: reading means for reading the record carrier, means for controlling the read means, identification

VOL 1132 ISS 1 NO 5 1991 UMI

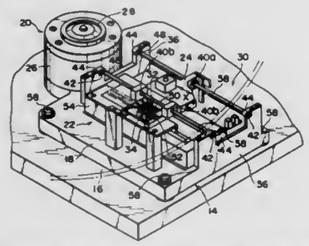
means for detecting a record-carrier identification of a record carrier before it is played, storage means for storing the record carrier identifications together with the corresponding preferred-selection programs for a plurality of record carriers, selection means responsive to the detected record carrier identification to select or not to select a preferred-selection program stored in the storage means, and means for setting the control means in such a way that parts of the information are read in the sequence defined by the selected preferred-selection program, characterized in that the apparatus comprises means for entering a user identification, the storage means being adapted to store, for at least one specific record-carrier identification, a plurality of preferred-selection programs associated with different user identifications in such a manner as to define the relationship between the user identification and the associated preferred-selection program, the selection means being adapted to detect whether for the combination of the detected record-carrier identification and the entered user identification a preferred-selection program is stored in the storage means and to select said preferred program if the presence of such a program is detected.

5,063,548

INFORMATION PROCESSING APPARATUS

Hiroshi Yamashita, Kawasaki, and Akihiko Doi, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed May 3, 1989, Ser. No. 346,776
Claims priority, application Japan, May 13, 1988, 63-116713
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.14 **3 Claims**



1. An apparatus for processing information on an optical disk, comprising:

a first base;

optical head means for directing a light beam onto the optical disk and receiving the light beam reflected from the disk to generate an information signal;

means for supporting the optical head means to be movable in the radial direction of the optical disk, said supporting means including guide shafts, bearing means on the optical head means for slidably engaging said guide shafts, and support members on the base to support the ends of the guide shafts;

first insulating means for electrically insulating the optical head means from the base to prevent external noise from being transmitted to the optical head means through the base, said first insulating means being arranged between the ends of the guide shafts and the corresponding support members;

a second base on which said first base is secured by a plurality of fixing members passing through the first base and screwed into the second base; and

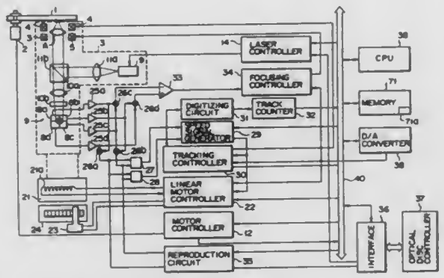
second insulating means for electrically insulating the base from the main base to prevent external noise from being transmitted from the second base to the first base, said second insulating means includes first insulating members interposed between the first base and the second base, and second insulating members interposed between the fixing members and the first base.

5,063,549

OPTICAL DISK APPARATUS

Mikio Yamamuro, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 26, 1989, Ser. No. 371,052
Claims priority, application Japan, Jun. 30, 1988, 63-163971
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.28 **9 Claims**



1. An optical disk apparatus comprising:

focus means for focusing a laser beam onto an optical disk having tracks thereon;

laser beam detecting means for detecting a laser beam reflected from said tracks of said optical disk and generating a detection signal;

moving means for moving said focusing means in a direction orthogonal to the axis of the laser beam;

tracking error signal generating means for generating a tracking error signal in accordance with the detection signal generated by said detecting means;

driving means responding to the tracking error signal to generate a signal used by said moving means to move said focusing means so that the laser beam traces a target track on said optical disk;

differentiating means for differentiating the tracking error signal from said tracking error generating means;

timing signal generating means for generating a timing signal in accordance with a position of the laser beam crossing the tracks;

means for sampling and holding the differentiated signal from said differentiating means in response to the timing signal from said timing signal generating means, and outputting a signal representative of the relative speed of said optical disk and said focusing means;

processing means for calculating a position difference signal corresponding to the position difference between a target track and the track where said laser beam is currently applied;

memory means for storing various speed control data corresponding to then number of tracks to be crossed by said laser beam to place the laser beam at the target track and outputting a predetermined speed control data in response to the position difference signal; and

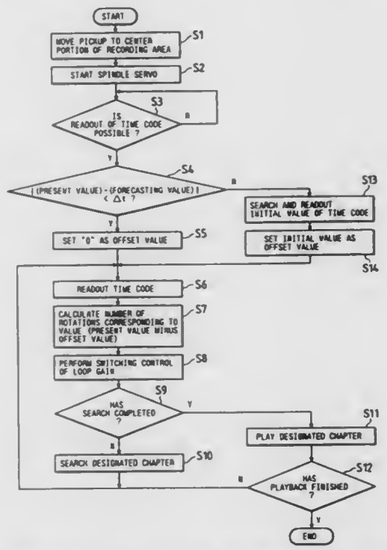
means for deenergizing said driving means when said processing means is energized and driving said moving means to move said focusing means and access the target track with said laser beam in response to a laser beam movement signal, a speed control data signal, the signal output from said sampling and holding means and the speed control data output from said memory means.

5,063,550

LOOP-GAIN CONTROL SYSTEM IN A SPINDLE SERVO LOOP

Haruo Watari, and Sigeru Yasuda, both of Saitama, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Oct. 4, 1989, Ser. No. 417,161
Claims priority, application Japan, Oct. 12, 1988, 63-256431
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.36 **5 Claims**



1. In a spindle servo loop of disc playback system for playing back discs having recorded thereon time codes representing addresses, said system and said loop being of the type having a pickup head for reading data from said disc, pickup head moving means for moving said pickup head radially of said disc, address means for developing an address corresponding to said data read by said pickup head, processor means responsive to input control signals and address signals for controlling movement of said pickup head and for providing gain control signals to control gain of an equalizer in said spindle servo loop to control the gain of amplification of a loop error signal, the improvement comprising, under control of said processor, the steps of:

(a) moving said pickup head radially to a predetermined start position of said disc and turning on said spindle servo and reading a predetermined start position address from said disc;

(b) comparing said predetermined start position address with a calculated value representing an expected start position address to determine if said addresses differ by a predetermined distance by determining a difference between said address;

(c) setting as a start offset value a predetermined value if said difference is within said predetermined distance, and setting as a start offset value said difference if said difference is outside said predetermined distance; and

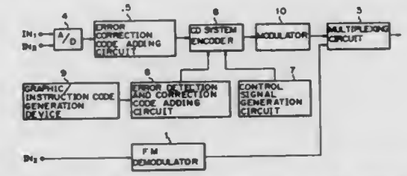
(d) controlling said spindle servo loop during search and playback operations and the gain of said equalizer in accordance with a second difference produced by subtracting said start offset value produced by said setting step from continuously read address data from said disc.

5,063,551

METHOD AND APPARATUS OF RECORDING AND REPRODUCING PICTURE INFORMATION AND RECORDING MEDIUM

Junichi Yoshio; Sumio Hosaka; Hisao Matsuoka; Youichirou Tsuda; Shoichi Katagiri, all of Tokorozawa, and Satoru Nomura, Yamanashi, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo and Pioneer Video Corporation, Yamanashi, both of, Japan

Filed Jan. 31, 1989, Ser. No. 304,282
Claims priority, application Japan, Apr. 25, 1988, 63-102175
Int. Cl.[5] H04N *5/93*
U.S. Cl. 369—48 **10 Claims**



1. A method of recording and reproducing information comprising the steps of;

inserting graphic codes including picture information, character codes, and an identification codes as a subcode to a digital audio signal to form a coded information signal, wherein said identification code indicates the coding system of said character codes;

recording said coded information signal on said recording medium; and

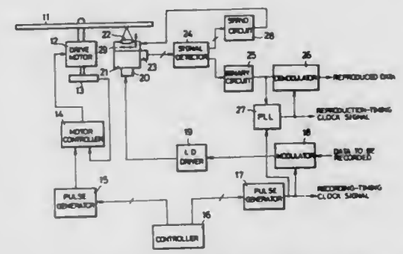
reproducing, at the time of playback of said recording medium, said picture information from said graphic codes and characters from said character codes in accordance with the coding system determined by said identification code.

5,063,552

OPTICAL DISK APPARATUS WITH DATA TRANSFER RATE AND ROTATIONAL SPEED VARIABLE BY ANNULAR ZONES

Toshihiro Shigemori, Yokohama, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Jul. 5, 1989, Ser. No. 375,573
Claims priority, application Japan, Jul. 6, 1988, 63-168135
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—50 **16 Claims**



1. A method for controlling an information recording and/or reproduction speed "f" and a rotation speed "n" of an optical disk used in an information recording and/or reproduction device, said optical disk having a plurality of tracks in the form of concentric circles or a spiral, said information recording and/or reproduction device being adapted to access said tracks by means of a light beam while rotating said optical disk, thereby to optically record information on or reproduce information from said tracks, said method comprising the steps of:

VOL
1132
ISS
1
NO
5
1991
UMI

dividing said tracks into a plurality of concentric annular blocks which are different in radius from each other;

changing said information recording and/or reproduction speed "f" in accordance with the radius of a track to be accessed in such a manner that said recording and/or reproduction speed "f" is constant within a block but different as between said blocks depending on the block radii; and

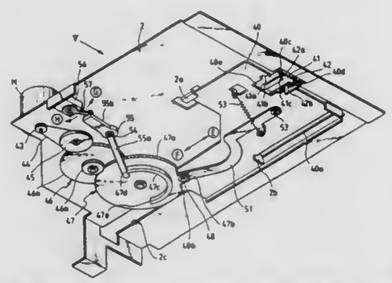
changing said rotation speed "n" of said optical disk in such a manner that f/(n·r) is constant, where "r" is the radius of said track to be accessed.

5,063,553

CARTRIDGE GUIDING DEVICE FOR DISK PLAYER

Shoji Suzuki, and Kenji Yatsu, both of Iwaki, Japan, assignors to Alpine Electronics Inc., Tokyo, Japan

Filed Aug. 16, 1990, Ser. No. 568,570
Claims priority, application Japan, Oct. 4, 1989, 1-260550
Int. Cl.[5] G11B *33/02, 17/22*
U.S. Cl. 369—77.1 **4 Claims**



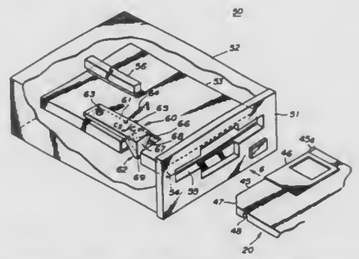
1. A cartridge guiding device for a disk player which includes a mounting section onto which a disk cartridge in which a plurality of disks are accommodated is to be mounted, and a disk driving section for driving a disk selectively taken out of a disk cartridge mounted on said mounting section, comprising a drawing-in member provided in mounting section such that said drawing-in member is driven by a motor to move toward the interior of said mounting section and is engaged, during such movement, with a stepped portion of a disk cartridge mounted on said mounting section to draw in the disk cartridge toward the interior of said mounting section, and a discharging member provided in said mounting section such that said discharging member is driven by said motor to move toward the outside of said mounting section and is engaged, during such movement, with part of a disk cartridge mounted on said mounting section to discharge the disk cartridge from said mounting section, wherein said mounting section has a cutout corresponding to a locus of movement of said drawing-in member and includes a restraining member provided thereon, and said drawing-in member is normally urged toward the interior of said mounting section by a spring such that, when a disk cartridge is mounted onto said mounting section, said drawing-in member is moved into said mounting section by way of said cut out of said mounting section by the urging force of said spring, but when no disk cartridge is mounted on said mounting section, said restraining member of said mounting section engages with said drawing-in member to restrain movement of said drawing in member by the urging force of said spring.

5,063,554

MAGNETO-OPTIC DISK UNIT HAVING MEANS FOR PREVENTING ERRONEOUS INSERTION OF DISK CARTRIDGE

Keiji Uehara, Iruma, Japan, assignor to TEAC Corporation, Japan

Filed Jan. 22, 1990, Ser. No. 467,927
Claims priority, application Japan, Jan. 24, 1989, 1-6568
Int. Cl.[5] G11B *33/00, 33/06*
U.S. Cl. 369—77.2 **10 Claims**



1. A magneto-optic disk unit for playing a magneto-optic disk which is accommodated within a magneto-optic disk cartridge, said magneto-optic disk cartridge having a generally rectangular shape with a front edge, first and second surfaces confronting respective data recording surfaces of the magneto-optic disk, first and second sides, a sloping portion formed in the front edge adjacent said first side of the magneto-optic disk cartridge and a depression formed in the second surface along said second side of the magneto-optic disk cartridge, said magneto-optic disk cartridge having a size and structure similar to those of a magnetic disk cartridge which accommodates a magnetic disk and has a thickness t2 which is smaller than a thickness t1 of said magneto-optic disk cartridge, said magnetic disk cartridge having a generally rectangular shape with a front edge, first and second surfaces confronting respective data recording surfaces of the magnetic disk, first and second sides, and a depression formed in the second surface along said second side of the magnetic disk cartridge, said magneto-optic disk unit comprising:

a casing (52) having an opening through which a disk cartridge is inserted into and extracted from said casing;

a cartridge holder (53) having an inserting opening for receiving the disk cartridge which is inserted through the opening of said casing; and

an erroneous insertion preventing mechanism (60) which is provided on said cartridge holder, said erroneous insertion preventing mechanism comprising a single erroneous insertion preventing element (62) which is provided in an inserting path of the disk cartridge and confronts the sloping surface of a magneto-optic disk cartridge inserted through the opening of said casing in a first orientation for permitting the insertion of a magneto-optic disk cartridge to a predetermined position within said cartridge holder when the magneto-optic disk cartridge is inserted in said first orientation,

said erroneous insertion preventing element (62) being pivotally provided on said cartridge holder and having a sloping portion (68) which cooperates with the sloping portion of a magneto-optic disk cartridge and urging means (64) for urging said erroneous insertion preventing element in a predetermined direction (C1) with an urging force, said sloping portion of said erroneous insertion preventing element being pushed by the sloping portion of a magneto-optic disk cartridge inserted in said first orientation so that said erroneous insertion preventing part is removed from the inserting path of the magneto-optic disk cartridge against the urging force of said urging means in a direction (C2) opposite to said predetermined direction,

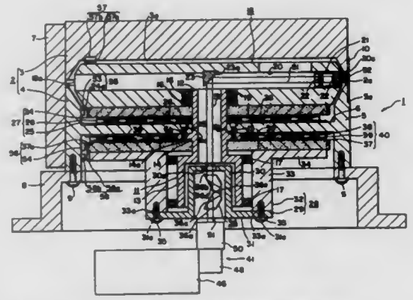
said erroneous insertion preventing element (62) engaging one of the front edge adjacent the second side and the first depression of a magneto-optic disk cartridge inserted through the opening of said casing in a second orientation and prohibiting the insertion of the magneto-optic disk cartridge to said predetermined position within said cartridge holder when the magneto-optic disk cartridge is inserted in said second orientation.

5,063,555

ROTARY OPTICAL HEAD

Hiroshi Miyoshi, Tokyo; Yoshiteru Kamatani, Kanagawa; Tadashi Ozue, Kanagawa; Tatsuya Narahara, Kanagawa, and Kiyoshi Ohsato, Chiba, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 26, 1990, Ser. No. 618,116
Claims priority, application Japan, Nov. 27, 1989, 1-306866
Int. Cl.[5] G11B *3/74, 7/00*
U.S. Cl. 369—97 **9 Claims**



1. A rotary optical head apparatus comprising:

objective lens means;

beam generating means for generating a beam for propagation to said objective lens means along a beam path;

first rotary means mounting said objective lens means;

image rotator means;

second rotary means mounting said image rotator means in said beam path;

support shaft means for commonly supporting said first and second rotary means for rotation about a common axis;

first driving means for rotating said first rotary means together with said objective lens means about said axis at a given rotational speed; and

second driving means for rotating said second rotary means together with said image rotator means about said axis at a speed equal to one-half said given rotational speed.

5,063,556

OPTICAL INFORMATION RECORDING MEDIUM PROVIDING REFLECTED LIGHT AT TWO DIFFERENT WAVELENGTHS, RECORDING APPARATUS UTILIZING THE SAME

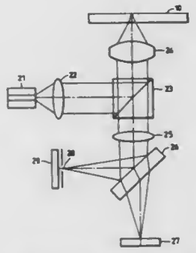
Kiyofumi Chikuma, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Division of Ser. No. 327,884, Mar. 23, 1989, Pat. No. 4,927,681.
This application Mar. 7, 1990, Ser. No. 489,636
Claims priority, application Japan, Aug. 12, 1988, 63-202542
Int. Cl.[5] G11B *7/00, 7/24*
U.S. Cl. 369—112 **5 Claims**

1. An apparatus for reproducing optical information from a recording medium having a transparent substrate means, a reflective layer means for providing a first reflected light at a first wavelength based on a scanning light and island means disposed between the substrate means and the reflective layer means for providing a second reflected light at a wavelength different from that of the first reflected light, the island means being disposed in an array, said apparatus comprising:

illuminating optical system means for producing a small spot of said scanning light for scanning said array of said recording medium;

separating optical system means for separating an overall reflected light from said recording medium into said first reflected light corresponding to reflected said scanning light, and said second reflected light corresponding to light emitted from a light-emitting material of said island means;



first light-receiving means for receiving said first reflected light;

second light-receiving means for receiving said second reflected light; wherein

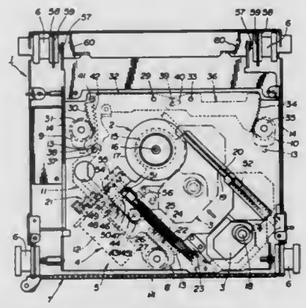
said reproducing apparatus generates a focus error signal on a basis of an output of said first light-receiving means, and generates a signal corresponding to recorded information on a basis of an output of said second light-receiving means and generates a tracking error signal in response thereto.

5,063,557

DISC DRIVE APPARATUS

Ryoji Takamatsu, Kanagawa; Osamu Naitou, Tokyo; Hiroyuki Urushibata, Kanagawa, and Masahiro Sato, Iwate, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 12, 1989, Ser. No. 364,122
Claims priority, application Japan, Jun. 21, 1988, 63-152659
Int. Cl.[5] G11B *17/30*
U.S. Cl. 369—219 **17 Claims**



1. A disc drive apparatus comprising:

a base plate, with which means for rotatingly driving a disc is provided;

a stationary frame supporting said base plate through a vibration damping means;

a head for transferring information between said disc and said head;

means for driving said head along a radial direction of said

VOL 1132 ISS 1 NO 5 1991 UMI

disc driven by said disc driving means, said head driving means including a motor for driving said head; and

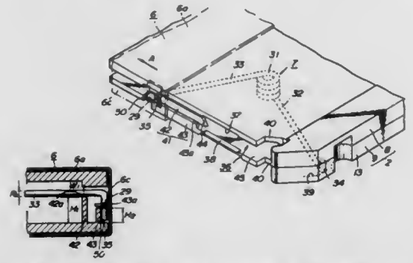
locking means movable between a locking position for restricting movement of said base plate relative to said stationary frame and an unlocking position for permitting movement of said base plate relative to said stationary frame, said locking means mechanically cooperating with said head driving means to be operated between said locking position and said unlocking position by said motor of said head driving means.

5,063,558

DISK CARTRIDGE

Kenji Takahashi, Miyagi, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed May 30, 1990, Ser. No. 530,317
Claims priority, application Japan, Jun. 5, 1989, 1-142562
Int. Cl.[5] G11B *23/02, 23/03*
U.S. Cl. 369—291 **5 Claims**



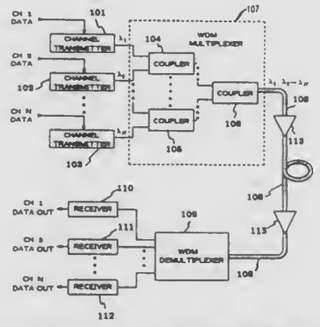
1. In a disk cartridge which includes a cartridge body, a record disk rotatable in said cartridge body and having a signal recording area and a central chucking area, openings in the cartridge body through which said signal recording area and chucking area of said record disk may be exposed, a shutter slidably mounted on said cartridge body for movement across a front of the latter between opened and closed positions in which said openings in the cartridge body are uncovered and covered, respectively, and a torsion spring of resilient wire shaped to form a coil from which angularly movable first and second arms extend to bent ends acting against the cartridge body and the shutter, respectively, for biasing the shutter to said closed position; said cartridge body includes means defining a first spring retainer in a corner at the front of said body, a slot-like opening extending along said front of the body from said corner and through which said bent end of the first spring arm is engageable with said first spring retainer in the body, said slot-like opening including a relatively wide portion adjacent said corner and through which said torsion spring is bodily insertable into said body with said spring arms flexed toward each other after engagement of said bent end with said first spring retainer, a second spring retainer extending from said shutter into said slot-like opening, an outer rib extending along said slot-like opening from said relatively wide portion thereof and reaching substantially to a path of movement of said second spring retainer with said shutter and presenting an outer face directed forwardly, and an inner rib extending parallel to said outer rib and spaced inwardly therefrom to clear said second spring retainer and having an edge surface higher than said outer rib for narrowing the respective portion of the slot-like opening to a dimension only slightly greater than the diameter of said resilient wire, so that, when said spring arms are released after the bodily insertion of the torsion spring into the cartridge body, said spring arms move resiliently apart for causing said bent end of the second spring arm to move slidably along said outer face and into secure engagement with said second spring retainer while said second spring arm moves through the narrowed portion of said slot-like opening for preventing disengagement of the bent end of said second spring arm from said outer face of the outer rib.

5,063,559

OPTIMIZED WAVELENGTH-DIVISION-MULTIPLEXED LIGHTWAVE COMMUNICATION SYSTEM

Dietrich Marcuse, Lincroft, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Feb. 28, 1990, Ser. No. 486,490
Int. Cl.[5] H04J *1/00;* **H04B** *10/00*
U.S. Cl. 359—127 **10 Claims**



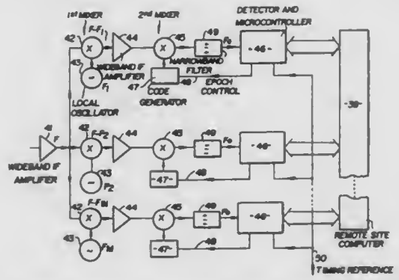
1. Transmitter apparatus for generating lightwave signals to be wavelength-division-multiplexed in an optical fiber having a mean zero dispersion wavelength associated therewith, said transmitter apparatus comprising at least first and second channel transmitters, each transmitter including a light source and a modulating means optically coupled together, each said light source for generating a lightwave signal substantially at a carrier wavelength, said carrier wavelength for said first channel transmitter being at least 0.4 nm below said zero dispersion wavelength, a difference between said carrier wavelengths for said at least first and second channel transmitters being both greater than or equal to 2 nm and less than or equal to 3 nm.

5,063,560

SPREAD-SPECTRUM MULTIPLEXED TRANSMISSION SYSTEM

Michael J. Yerbury, St. Ives, and Gregory C. Hurst, Glebe, both of Australia, assignors to Advanced Systems Research Pty. Limited, Pymble, Australia

PCT No. PCT/AU87/00020, § 371 Date Aug. 4, 1988, § 102(e) Date Aug. 4, 1988, PCT Pub. No. WO87/04883, PCT Pub. Date Aug. 13, 1987
PCT Filed Jan. 27, 1987, Ser. No. 265,858
Int. Cl.[5] H04J *13/00;* **H04L** *27/30*
U.S. Cl. 370—18 **46 Claims**



1. A multi-channel spread-spectrum transmission system,

wherein a plurality of spread-spectrum signals are frequency division multiplexed to provide multiple transmission channels, comprising:

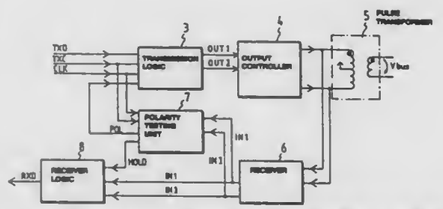
a plurality of transmitters each for transmitting a signal having a plurality of spaced spectral lines or bands produced by modulating a carrier with a pseudo-noise code, such that the transmitted signal of each channel has an information bandwidth which is significantly less than its spectral line or band spacing and the spread-spectrum signals each have centre frequencies which are spaced, respectively, by frequency increments selected to cause the spectral lines or bands of the respective transmitted signals to be interleaved, the selected frequency increments being less than the transmitter bandwidth of each signal.

5,063,561

PROCEDURE AND APPARATUS FOR TRANSMITTING BINARY MESSAGES IN A SERIAL COMMUNICATION BUS

Selin Kimmo, Hyvinkaa, Finland, assignor to Kone Elevator GmbH, Switzerland

Filed Sep. 27, 1989, Ser. No. 413,523
Claims priority, application Finland, Sep. 30, 1988, 884500
Int. Cl.[5] H04L *12/28*
U.S. Cl. 370—85.2 **11 Claims**



1. A procedure for transmitting binary signals on a serial communication bus, several transmitting stations being connected to said bus and each station monitoring signals present on the bus, wherein:

when the bus is free, any station may transmit an output signal; and

in a signal collision situation, when several transmitting stations attempt to transmit simultaneously an output signal, a station which has the highest priority is allowed to transmit, while any station having a lower priority, which when transmitting said output signal of a logic state assigned a recessive status receives an input signal of a logic state assigned a dominating status, will cancel its transmission attempt;

wherein the polarity of said input signal is detected by each station connected to the bus and the same detected polarity is assumed by each station when transmitting said output signal.

5,063,562

FLOW CONTROL FOR HIGH SPEED NETWORKS

Tsipora P. Barzilai, Millwood; Mon-Song Chen, Katonah; Bharath K. Kadaba, Peekskill, and Marc A. Kaplan, Purdys, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 23, 1990, Ser. No. 527,609
Int. Cl.[5] H04J *3/24, 3/16*
U.S. Cl. 370—94.1 **15 Claims**

1. In a packet transmission network, a method of adjusting the window size in a session between a sender and a receiver on a link of said network, said method comprising:

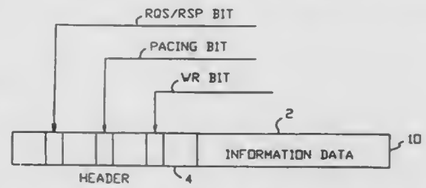
transmitting a pacing response to said sender indicating the size of a subsequent window to be transmitted in a session between said sender and said receiver, said size of said subsequent window being a number of packets that said sender can transmit in a subsequent window,

said subsequent window size (WS) being determined by decreasing a previous window size if when said window size is to be calculated, either $QL \neq 0$, or $QL=0$ and a pacing request was not received within a specified time interval, said window size thus being determined according to the following formula:

$$WS=max(W_{min}, CNT-QL+B),$$

where CNT is the number of packets received by said receiver from said sender during a round trip delay which is the time needed for a first packet to be transmitted from said sender to said receiver plus the time needed for a second packet to be transmitted from said receiver to said sender after said first packet is received by said receiver, where QL is the number of packets stored in a queue of said receiver for future transmission to another node of said network, where W_{min} is a prespecified parameter denoting a minimum window size, and where B is also a prespecified parameter,

said subsequent window size being determined by increasing a previous window size if when said subsequent window size is to be calculated, $QL=0$ and a pacing request was received in said specified time interval, said subsequent window size thus assuming a value between CNT and W_{max}, where W_{max} is a prespecified parameter.

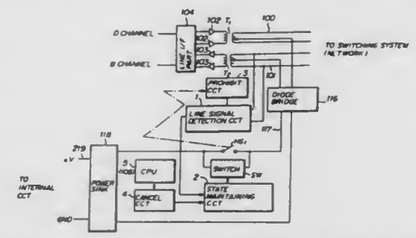


5,063,563

COMMUNICATION TERMINAL HAVING MEANS FOR CONTROLLING POWER TRANSFER

Koji Ikeda, Kawasaka, and Mikio Nakayama, Tokyo, both of Japan, assignors to Fujitsu Limited, Kanagawa, Japan

Filed Sep. 6, 1990, Ser. No. 578,358
Claims priority, application Japan, Sep. 14, 1989, 1-238722
Int. Cl.[5] H04J *3/12*
U.S. Cl. 370—110.1 **31 Claims**



1. A communication terminal which is coupled to a communication network via transmitting and receiving signal lines and a switching system, said communication terminal comprising:

a power input line coupled to the transmitting and receiving signal lines;

a power sink for supplying power;

VOL 1132 ISS 1 NO 5 1991 UMI

switching means coupled between said power input line and said power sink;

a hook switch coupled between said power input line and said power sink in parallel to said switching means;

detection circuit means coupled to the receiving signal line for detecting a signal on the receiving signal line;

state maintaining circuit means coupled to said switching means and said detection circuit means for closing said switching means and for maintaining said switching means in a closed state by carrying out a state maintaining operation when a signal is detected by said detection circuit means; and

prohibit circuit means coupled to said detection circuit means for prohibiting a signal detection of said detection circuit means.

5,063,564

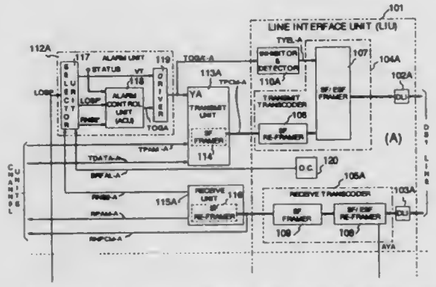
YELLOW ALARM CONTROL IN DS1 SF AND DS1 ESF TRANSCODING

John H. Crandall, Newton, N.H.; Stephen J. Davis, Methuen, and Brett S. Reynolds, Salisbury, both of Mass., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Mar. 9, 1990, Ser. No. 491,368

Int. Cl.[5] H04J *3/12*

U.S. Cl. 370—110.1 **16 Claims**



1. A digital line interface unit for interfacing a digital channel bank to at least one DS1 digital transmission line comprising:

at least a first transmit transcoder including means for formatting channel signals into a DS1 Super Frame format having a predetermined number of time slots in a frame and a predetermined number of frames in a Super Frame, means for formatting channel signals into a DS1 Extended Super Frame format signal including a data link, means for inserting prescribed yellow alarm information into said data link of a DS1 Extended Super Frame signal being formatted and means for inserting prescribed yellow alarm information in a predetermined bit position of time slots of a DS1 Super Frame signal being formatted; and

means for originating a first control signal to inhibit insertion of said prescribed yellow alarm information into said predetermined bit position of time slots of the DS1 Super Frame formatted signal when said at least first transmit transcoder is set to supply the DS1 Extended Super Frame signal being formatted as an output to said at least one DS1 digital transmission line.

5,063,565

SINGLE-ERROR DETECTING AND CORRECTING SYSTEM

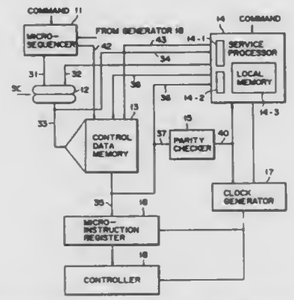
Takayoshi Ohashi, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 289,126, Dec. 23, 1988, abandoned. This application Apr. 23, 1991, Ser. No. 688,718

Claims priority, application Japan, Dec. 28, 1987, 62-334719

Int. Cl.[5] G06F *11/10*

U.S. Cl. 371—40.2 **12 Claims**



1. A system for detecting and correcting single-bit error, comprising:

first storage means for storing data and outputting the data in response to an input address in a read mode, the data comprising control data and check data;

error detecting means for checking in accordance with the check data whether the control data in the data read from said first storage means contains an error and generating an error detect signal in accordance with the result of the error checking; and

correcting means, responsive to the error detect signal from said error detecting means and having second storage means for storing a single error correction-double error detection (SEC-DED) code, for correction the data from said first storage means in accordance with the SEC-DED code, setting said first storage means to a write mode and writing corrected data into said first storage means.

5,063,566

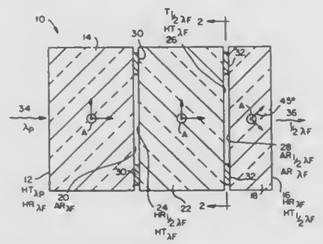
INTERNALLY-DOUBLED, COMPOSITE-CAVITY MICROLASER

George J. Dixon, Orlando, Fla., assignor to Amoco Corporation, Chicago, Ill.

Filed Apr. 30, 1990, Ser. No. 516,459

Int. Cl.[5] H01S *3/10*

U.S. Cl. 372—22 **22 Claims**



2. A microlaser, comprising:

a. a gain medium having one face which is adapted to be close coupled to a source of optical pumping radiation and which is highly reflective to laser light at a fundamental wavelength and having an opposite face for high transmission of laser light at said fundamental wavelength;

b. harmonic conversion means having a close face which is located adjacent to said opposite face of said gain medium and which has high transmission at said fundamental wavelength and high reflectivity at a harmonic of said fundamental wavelength, and having an opposite parallel face which has high transmission at said fundamental wavelength and some transmission at said harmonic;

c. control means, located adjacent to said opposite face of said harmonic conversion means, for adjusting the phase of said fundamental wavelength to maximize harmonic conversion, for emitting optical radiation at said harmonic, and for reflecting laser light at said fundamental frequency; and.

d. coated spacer rail means, carried by at least one of said faces of said harmonic conversion means and said gain medium, for separating said harmonic conversion means from said gain medium, wherein said coated spacer rail means comprises at least one strip of evaporated Al_2O_3 for separating said harmonic conversion means from said gain medium.

5,063,567

PHOTORECEPTOR FOR FREQUENCY-MODULATED OPTICAL SIGNALS

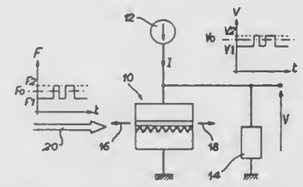
Hisao Nakajima, Paris, France, assignor to L'Etat Francais represente par le Ministre des Postes, des Telecommunications et de l'Espace (Centre National d'Etudes des Telecommunications), Issy les Moulineaux, France

Filed Sep. 14, 1990, Ser. No. 582,157

Claims priority, application France, Sep. 27, 1989, 89 12646

Int. Cl.[5] H01S *3/10*

U.S. Cl. 372—28 **9 Claims**



1. A photoreceptor for frequency modulated optical signals, comprising:

a semiconductor laser having an active layer, a threshold current level, a natural operating frequency, a polarization current source, feeding laser current from at least one first terminal through said semiconductor laser to at least one second terminal, wherein said laser current is at least twice said threshold current level, said semiconductor laser being in an oscillating state;

means for injecting a frequency modulated optical beam having an injection lock frequency into said active layer; thereby injection locking said semiconductor laser at said injection lock frequency;

voltage measuring means for measuring voltage variations between said first terminals and said second terminals; wherein said voltage variation is linearly proportional to the difference between said injection lock frequency and said natural frequency over the range of frequency that said semiconductor laser is injection locked to said frequency modulated optical beam.

5,063,568

WAVELENGTH STABILIZED LIGHT SOURCE

Kazuharu Chiba, Yokohama; Yoshifumi Nakajima, and Hideo Sumiyoshi, both of Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

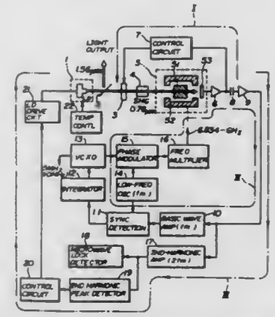
PCT No. PCT/JP89/00899, § 371 Date May 4, 1990, § 102(e) Date May 4, 1990, PCT Pub. No. WO90/03054, PCT Pub. Date Mar. 22, 1990

PCT Filed Aug. 1, 1989, Ser. No. 474,098

Claims priority, application Japan, Sep. 5, 1988, 63-221816

Int. Cl.[5] H01S *3/10*

U.S. Cl. 372—32 **20 Claims**



1. A wavelength stabilized light source comprising:

laser beam emitting means for emitting a laser beam provided as an output light of said light source;

harmonic generating means for generating a harmonic light of a frequency which is n times (n is an integer equal to or larger than 2) the frequency of said laser beam;

resonator means having a resonance cell including a resonance substance, for generating a double resonance in said resonance cell by irradiating said harmonic light supplied from said harmonic generating means onto said resonance substance and by irradiating a microwave having an alternating component onto said resonance cell, and for generating a double resonance signal based on said double resonance;

microwave controlling means, coupled to said resonator means, for controlling said microwave to be irradiated onto said resonance cell so that the frequency of said microwave is equal to a predetermined microwave resonance frequency based on said double resonance signal supplied from said resonator means; and

laser beam wavelength controlling means, coupled to said resonator means and said laser beam emitting means, for controlling said laser beam emitting means so that the wavelength of said harmonic light generated by said harmonic generating means is equal to a resonance wavelength of said resonance substance provided in said resonance cell based on said double resonance signal.

5,063,569

VERTICAL-CAVITY SURFACE-EMITTING LASER WITH NON-EPITAXIAL MULTILAYERED DIELECTRIC REFLECTORS LOCATED ON BOTH SURFACES

Ya-Hong Xie, Flemington, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 19, 1990, Ser. No. 630,464

Int. Cl.[5] H01S *3/19*

U.S. Cl. 372—45 **12 Claims**

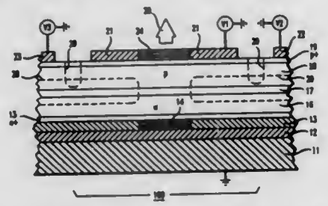
1. In a vertical-cavity semiconductor laser structure:

(a) a first epitaxially grown semiconductor buffer layer having a planar top surface;

(b) a second epitaxially grown semiconductor buffer layer having a planar bottom surface;

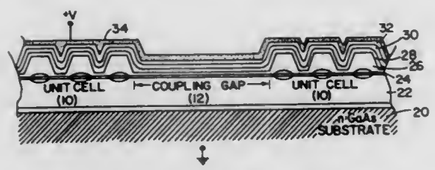
VOL 1132 ISS 1 NO 5 1991 UMI

(c) an epitaxially grown semiconductive active layer sandwiched between the first and second buffer layers;
(d) a first multilayered dielectric reflector located on the top surface of the first buffer layer; and



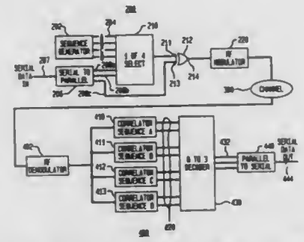
(e) a second multilayered dielectric reflector located on the bottom surface of the second buffer layer,
the first and second reflectors being non-epitaxial with respect to the first and second buffer layers, respectively.

5,063,570
SEMICONDUCTOR LASER ARRAYS USING LEAKY WAVE INTERARRAY COUPLING
Dan Botez, Redondo Beach; Luke J. Mawst, Torrance, and Gary L. Peterson, Long Beach, all of Calif., assignors to TRW Inc., Redondo Beach, Calif.
Filed Oct. 29, 1990, Ser. No. 604,315
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—50 **8 Claims**



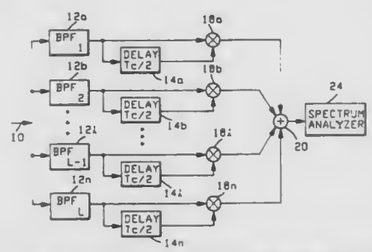
1. A semiconductor laser array structure, comprising:
means for producing lasing action in the structure, including a substrate, an active semiconductor layer and adjacent cladding layers successively formed on the substrate, at least two electrodes formed on opposite faces of the substrate, for applying a voltage across the active layer, and a pair of reflective facets, at least one of which is an emitting facet, formed at opposite ends of the array structure;
a plurality of negative-index waveguides with parallel longitudinal axes, the waveguides being arranged in a smaller number of array cells, which operate in or near a 0°-phase-shift-array-mode resonance condition in which there is strong coupling between all waveguides in each array cell and a high degree of array cell coherence; and
a plurality of interarray regions, each of which is wider than interelement spacings between the waveguides in each array cell, and separates adjacent array cells, wherein each interarray region has a lateral width chosen to produce a 0°-phase-shift-array-mode resonance condition in the entire device, in which there is strong coupling between the array cells, a high degree of device coherence among all of the array cells, and a virtually uniform near-field intensity profile;
and wherein the structure further includes in the interarray regions means for introducing losses, which inhibit operation in array modes other than the 0°-phase-shift mode, whereby high optical powers are achieved without adversely affecting array mode discrimination.

5,063,571
METHOD AND APPARATUS FOR INCREASING THE DATA RATE FOR A GIVEN SYMBOL RATE IN A SPREAD SPECTRUM SYSTEM
Jan P. Vancraeynest, White Plains, N.Y., assignor to NYNEX Corporation, White Plains, N.Y.
Filed Dec. 27, 1989, Ser. No. 457,276
Int. Cl.[5] H04L *27/30*
U.S. Cl. 375—1 **20 Claims**



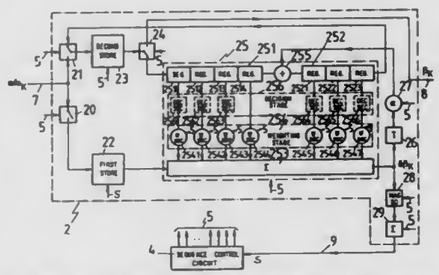
8. A coding circuit for coding a stream of data bits in a spread spectrum format comprising,
selection means for simultaneously receiving a plurality of data bits from said data bit stream and for selecting a particular spreading sequence out of a plurality of predetermined spreading sequences as a function of the bit values in said plurality of data bits, and
transmitting means for transmitting said plurality of data bits as spread by said particular spreading sequence to a remote location.

5,063,572
CHANNELIZED DELAY AND MIX CHIP RATE DETECTOR
Ronald S. Leahy, and Patrick J. Smith, both of Salt Lake City, Utah, assignors to Unisys Corporation, Blue Bell, Pa.
Filed Jun. 4, 1990, Ser. No. 533,183
Int. Cl.[5] H04K *1/00*
U.S. Cl. 375—1 **11 Claims**



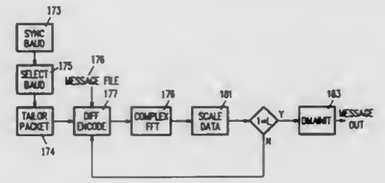
1. A chip rate detector for detection of the chip rate of coded bits of a direct sequence frequency hopped input signal comprising:
(a) channelizing means having sections for splitting said input signal for transmission into L separate sub-bands of frequency ranges;
(b) delay means, in each sub-band of said channelizing means for delaying said sub-band signal by a fixed constant to obtain a delayed sub-band signal;
(c) mixing means for multiplying said delayed sub-band signal with said sub-band signal to provide a sub-band product signal;
(d) summation means for totalizing the sum of each sub-band product signal to generate a final output chip rate signal.

5,063,573
METHOD FOR THE EQUALIZATION OF DISPERSIVE, LINEAR OR APPROXIMATELY LINEAR CHANNELS FOR THE TRANSMISSION OF DIGITAL SIGNALS AND ARRANGEMENT FOR CARRYING OUT THE METHOD
Ulrich Langewellpott, Thalfingen, Fed. Rep. of Germany, assignor to Licentia Patent Verwaltungs-GmbH, Frankfurt, Fed. Rep. of Germany
Filed Aug. 21, 1989, Ser. No. 408,509
Claims priority, application Fed. Rep. of Germany, Dec. 24, 1987, 3744075
Int. Cl.[5] H03H *21/00*
U.S. Cl. 375—14 **20 Claims**



1. A method for the equalization of dispersive, linear or approximately linear channels, particularly radio channels, for transmitting digital signals by means of an matched filter and a following equalizer, comprising the steps of:
providing a matched filter (1) which is matched to the entire transmission channel;
filtering, in the matched filter (1), a received signal r(t) characterized by a data sequence a_k to produce a time-discrete signal sequence mfo_k at the output of the matched filter (1), which automatically determines the optimum sampling times for the time-discrete signal sequence mfo_k; and
equalizing the time-discrete signal sequence mfo_k in sections in the equalizer (2) by means of an iteration procedure with relaxation, with said procedure comprising the steps of:
subdividing the signal sequence mfo_k into shorter mutually overlapping sections and storing the sections individually in a first and second store (22, 23) of the equalizer (2);
equalizing the shorter mutually overlapping sections of signal sequence mfo_k stored in each case in an equalization filter (25) of the equalizer (2);
feeding the data stored in the second store (23) to the input of a first shift register (251) which is connected in series with a second shift register (252);
feeding, in each clock interval of one iteration cycle, the data stored in the individual register locations (2511–2514; 2521–2523) of the first and second shift registers (251; 252) via weighting sections (2541–1547) of a weighting stage (254) to a summation section (253), where they are summed together;
feeding back the data $\delta\beta_k$ summed together at the output of the summation section (253) with a time delay and additional weighting (relaxation) to the input of the second shift register (252);
generating in the equalization filter (25), during each iteration cycle, new estimated values β_k of the data sequence a_k which are in each case output at the output of the second shift register (252) and are subsequently stored in the second store (23) and during this process overwrite the data hitherto stored;
summing together in each iteration cycle the square of the magnitude formed from the processed data $\delta\beta_k$ at the output of the summation section (253) and the individual magnitude squares and using the sum signal s to determine the relaxation factor α for the processed data $\delta\beta_k$ fed back and as criterion for the termination of the iteration process; and
after termination of the iteration process, outputting the estimated values β_k, last stored in the second store (23), of the data sequence a_k at the output (8) of the equalizer (2) and subsequently storing the next section of the output signal sequence mfo_k of the matched filter (1) in the two stores (22, 23).

5,063,574
MULTI-FREQUENCY DIFFERENTIALLY ENCODED DIGITAL COMMUNICATION FOR HIGH DATA RATE TRANSMISSION THROUGH UNEQUALIZED CHANNELS
Paul H. Moose, P.O. Box 4181, Carmel, Calif. 93921
Filed Mar. 6, 1990, Ser. No. 490,769
Int. Cl.[5] H03M *7/00*; H04L *27/10*
U.S. Cl. 375—27 **30 Claims**



1. Apparatus for encoding a data signal on a plurality of carrier frequencies for transmission over a transmission channel, said apparatus comprising:
encoding means for differentially encoding a plurality of first digital words into a plurality of second digital words, each of said second digital words being a modulation value corresponding to one of said plurality of first digital words, each said modulation value being a predetermined function of said corresponding first digital word and a different one of said first digital words;
transform means coupled to said encoding means for transforming said plurality of modulation values into a digital signal representative of a plurality of predetermined digital carrier frequencies, each of said plurality of predetermined digital carrier frequencies modulated by a corresponding one of said plurality of modulation values; and
data transfer means coupled to said transform means for coupling said digital signal to a transmission channel and for converting said digital signal to an analog signal for transmission over a transmission channel, said analog signal being a sum of a plurality of modulated predetermined analog carrier frequencies corresponding to said plurality of predetermined digital carrier frequencies.

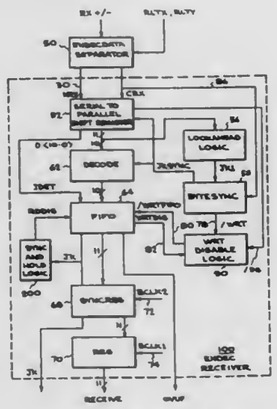
5,063,575
APPARATUS AND METHOD FOR PROPER BYTE ALIGNMENT IN AN ENCODER/DECODER
Kadiresan Annamalai, Milpitas, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.
Filed Apr. 17, 1989, Ser. No. 339,722
Int. Cl.[5] H04L *5/24*
U.S. Cl. 375—108 **12 Claims**

10. In an Encoder/Decoder (ENDEC) receiver in a node of a data communication network, an apparatus for ensuring that data received from other network nodes is accurately decoded without generating a fragment byte, said apparatus comprising:
first detecting means for detecting receipt of a first predetermined data signal from another network node;
second detecting means for detecting receipt of a second

VOL 1132 ISS 1 NO 5 1991 UMI

predetermined data signal from said another network node; and

a logic circuit for controlling writing of received data within said receiver, wherein



said logic circuit disables writing of received data in response to the detection of said first predetermined data signal by said first detecting means, and

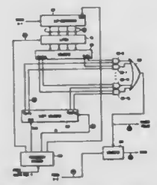
said logic circuit enables writing of received data in response to the detection of said second predetermined data signal by said second detecting means.

5,063,576

CODING AND DECODING METHOD FOR ASYNCHRONOUS DATA SIGNALS AND AN APPARATUS THEREFOR

Mikiro Eguchi, and Hideto Sato, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Dec. 28, 1989, Ser. No. 458,020
Claims priority, application Japan, Dec. 28, 1988, 63-334301
Int. Cl.[5] H04L *7/04*
U.S. Cl. 375—111 **13 Claims**



11. A decoding method for a coded data signal sent with a phase difference signal which represents a phase difference associated with the coded data signal, said decoding method comprising the steps of:

decoding said phase difference signal to produce a decoded phase difference signal;

delaying a reference clock pulse signal having a predetermined frequency by a time representative of said decoded phase difference signal to produce a decoder timing signal; and

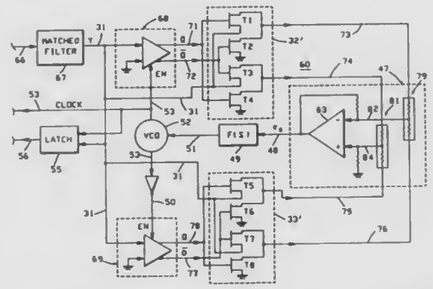
decoding said coded data signal to produce a decoded data signal, in response to said decoder timing signal.

5,063,577

HIGH-SPEED BIT SYNCHRONIZER

Glean A. Arbanas, Salt Lake City; Jeffery M. Thornock, Layton, both of Utah, and Christopher R. Keate, Chandler, Ariz., assignors to Unisys Corporation, Blue Bell, Pa.

Filed Dec. 12, 1989, Ser. No. 449,683
Int. Cl.[5] H03D *3/24*
U.S. Cl. 375—120 **9 Claims**



1. A high-speed bit synchronizer circuit for generating a recovered clock and synchronized data from a data stream, comprising:

phase detector means coupled to an input data stream having zero crossing data,

said phase detector means being enabled by said recovered clock comprising a pair of recovered clock enabled comparators each having a real (Q) and an inverted ($\overline{Q}$) data output,

a pair of electronic switches coupled to said input data stream, and each one of said electronic switches being further coupled to the Q and $\overline{Q}$ data output of one of said associated pairs of comparators each having a positive and a negative output line,

a negative summing circuit having input terminals connected to the negative output lines of each of said pair of electronic switches to provide a summed negative output,

a positive summing circuit having input terminals connected to the positive output lines of each of said pair of electronic switches to provide a summed positive output,

a summing amplifier having a positive input coupled to said summed positive output of said positive summing circuit and a negative input coupled to said summed negative output of said negative summing circuit to provide an error signal output indicative of the phase difference between said input data stream and said recovered clock,

voltage controller oscillator (VCO) means having its input coupled to said error signal output from said summing amplifier for providing said recovered clock as an output, and

data recover means having inputs coupled to said input data stream and to said recovered clock signal to provide synchronized bit data as output signals.

5,063,578

DIGITAL LOGIC CIRCUITS FOR FREQUENCY MULTIPLICATION

Philip W. Diodato, Asbury, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Sep. 24, 1990, Ser. No. 586,659
Int. Cl.[5] H03K *21/08, 23/00;* H03B *19/00*
U.S. Cl. 377—47 **20 Claims**

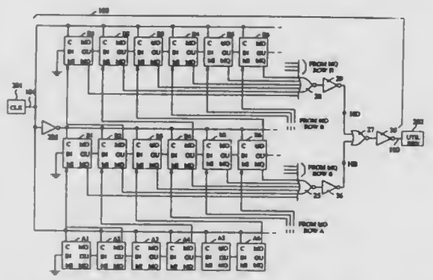
1. A frequency multiplier circuit comprising:

(a) a first cascaded chain (A1 A2 A3 . . .) of clocked delay elements (**12, 13**), each such delay element having an intermediate node (R) and an output terminal (OU), and

each having essentially the same time delay d in response to a change in an input applied thereto;

(b) a first set of clocked latches (**14, 15, 16** in e.g., **A2, A4, A6,** . . .) the node (R) of the ni'th one of the clocked delay elements in the first chain (A1 A2 A3 . . .) being connected to an input terminal of the n'th one of the clocked latches (**14, 15, 16** in e.g., **A2, A4, A6,** . . .) where n is a running integer and i is a fixed integer;

(c) a second cascaded chain (B1 B2 B3 . . .) of clocked delay elements (**12, 13**), each having an intermediate node (R) and an output terminal (OU) and having the same time delay d in response to a change in an input applied thereto;



(d) a first set of logic gates (**11** in **B1, B2, B3,** . . .), the nk'th one of each having one input terminal (MI) thereof connected to an output terminal (MO) of the n'th one of the clocked latches in the first set of latches (**14, 15, 16** in e.g., **A2, A4, A6,** . . .), and the n'th one of each having another input terminal connected to the output terminal (OU) of the (n−1)'th one of the clocked delay elements (**12** and **13** in **B1 B2 B3** . . .) in the second cascaded chain;

(e) a first multiple input logic gate (**25**); and

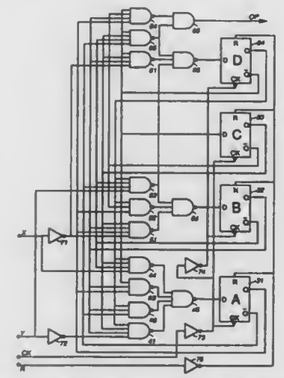
(f) means for connecting an output terminal of each of the logic gates (**11**) in the first set thereof to a separate one of the input terminals of the multiple input logic gate (**25**).

5,063,579

SCALER FOR SYNCHRONOUS DIGITAL CLOCK

Lawrence H. Sasaki, Manotick, and Sun-Shiu D. Chan, Kanata, both of Canada, assignors to Northern Telecom L[i]mited, Montreal, Canada

Filed May 11, 1990, Ser. No. 524,398
Int. Cl.[5] H03K *21/38*
U.S. Cl. 377—48 **4 Claims**



1. A scaler having a selectively variable modulus, for receiving input clock pulses and generating a train of output pulses, the scaler comprising:

a first set of D-type flip-flops responsive only to rising edges of said input clock pulses;

a second set of D-type flip-flops responsive only to falling edges of said input clock pulses;

a plurality of gates interconnected between the outputs and D-inputs of the flip-flops to control said scaler's state; and

means for providing at least one control signal,

wherein said scaler's state transits, on each half cycle of said input clock pulses, along one of two state transition loops, each loop generating output pulses having identical repetition rates, the output pulses of one loop being shifted in phase relative to the other loop by an odd number of half cycles of said input clock pulses; and

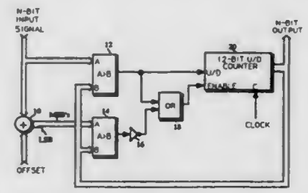
said scaler's state transits in response to said control signal, from one of said two loops to the other through at least one intermediate state, so as to generate at least one output pulse at an alternative repetition rate, which differs from said identical repetition rates by the odd number of half cycles of the input clock pulses.

5,063,580

APPARATUS FOR CONDITIONING A CONTROL SIGNAL

Barth A. Canfield, Indianapolis, Ind., and Russell T. Fling, Naperville, Ill., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed May 7, 1990, Ser. No. 520,204
Int. Cl.[5] H03K *21/02*
U.S. Cl. 377—55 **6 Claims**



1. Signal conditioning apparatus comprising:

an input terminal for receiving an input signal;

an output terminal for providing an output signal;

a source of offset signal;

means coupled to said input terminal and said source, for summing said offset signal and said input signal to provide an offset input signal;

means, responsive to said input and output signals, for providing a first signal having first and second states when said input signal is greater and lesser than said output signal respectively;

means, responsive to said offset input signal and said output signal, for providing a second signal having second and first states when said offset input signal is greater and lesser than said output signal respectively;

means for generating said output signal, including means for storing said output signal, and responsive to the state exhibited by said first signal, for incrementing or decrementing said output signal if either of said first and second signals exhibit a predetermined one of said first and second states.

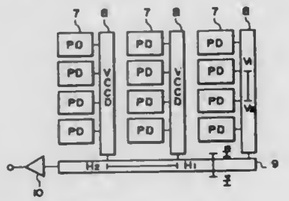
VOL 1132 ISS 1 NO 5 1991 UMI

5,063,581

SEMICONDUCTOR IMAGING DEVICE HAVING A PLURALITY OF PHOTODIODES AND CHARGE COUPLED DEVICES

Hajime Akimoto, Hachioji; Toshifumi Ozaki, Koganei; Kazuya Tokumasu, Kodaira; Hideyuki Ono, and Haruhiko Tanaka, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 25, 1990, Ser. No. 557,699
Claims priority, application Japan, Jul. 31, 1989, 1-196568
Int. Cl.[5] H01L *27/148*
U.S. Cl. 377—58 22 Claims



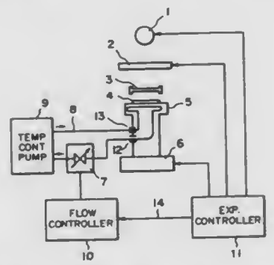
1. A semiconductor device, comprising:
a semiconductor substrate;
a plurality of photo liodes provided on said semiconductor substrate;
vertical charge coupled devices (CCDs) provided on said semiconductor substrate and transferring signal charges of said photodiodes; and
a horizontal charge coupled device (CCD) provided on said semiconductor substrate and transferring signal charges received from said vertical CCDs,
wherein said horizontal CCD includes:
a semiconductor region of a first conductivity type provided on said semiconductor substrate which is of a second conductivity type;
a semiconductor region of the second conductivity type, wherein a channel for charge transfer is formed, provided on said semiconductor region of the first conductivity type;
a plurality of electrodes formed on said semiconductor region of the second conductivity type through an insulating film;
first means for applying a predetermined voltage to said plurality of electrodes successively for transferring signal charges composed of a majority carrier in the semiconductor region of the second conductivity type in a depletion region formed under these electrodes; and
second means for applying between said semiconductor region of the first conductivity type and said semiconductor substrate a predetermined voltage so as to produce a depletion region at an interface between said semiconductor substrate and said semiconductor region of the first conductivity type,
the depletion region formed under said electrodes and the depletion region provided at the interface between said semiconductor region of the first conductivity type and said semiconductor substrate meet each other under each one of said plurality of electrodes to thereby enhance the electric field produced for charge transfer in a transfer direction, through the channel, of said signal charges in the depletion region of said semiconductor region of the second conductivity type under said plurality of electrodes, and
wherein said vertical CCDs, which respectively include a corresponding plurality of electrodes, are characterized such that in each one thereof there is produced a depletion region corresponding to the channel which is configured to not meet, under each one of the plurality of electrodes thereof, the depletion region produced at an interface between a corresponding semiconductor region of the first conductivity type and said semiconductor substrate, which interface underlies the channels of said vertical CCDs.

5,063,582

LIQUID COOLED X-RAY LITHOGRAPHIC EXPOSURE APPARATUS

Tetsuzo Mori, Atsugi; Eiji Sakamoto, Sagamihara; Shinichi Hara, Atsugi; Koji Uda, Yokohama; Isamo Shimoda, Zama; Shunichi Uzawa, Tokyo, and Kunitaka Ozawa, Isehara, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 401,653, Aug. 31, 1989, abandoned.
This application Feb. 20, 1991, Ser. No. 658,434
Claims priority, application Japan, Sep. 2, 1988, 63-218520; May 30, 1989, 1-138809
Int. Cl.[5] G21K *5/00*; G03B *27/52*
U.S. Cl. 378—34 17 Claims



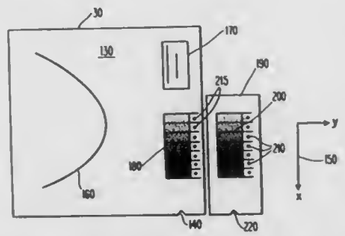
1. A lithographic exposure apparatus, comprising:
a chuck for supporting a member for exposure;
exposure means for exposing the member to exposure energy;
supply means for supplying a temperature controlling medium to said supporting chuck through a medium passage;
flow control means located in said passage; and
control means for controlling said flow control means to provide differing flow rates of the medium supplied to said chuck between a time when the member is exposed to the exposure energy and a time when the member is not exposed thereto, such that the flow rate is less when the member is being exposed than when the member is not being exposed.

5,063,583

METHOD AND APPARATUS FOR TESTING RADIOGRAPHIC FILM PROCESSORS

Benjamin M. Galkin, Cherry Hill, N.J., assignor to Thomas Jefferson University, Philadelphia, Pa.

Filed Nov. 24, 1989, Ser. No. 441,567
Int. Cl.[5] G01D *18/00*
U.S. Cl. 378—207 25 Claims



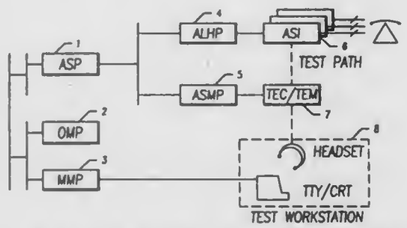
1. A method of determining performance of a film processor which develops a radiographic image of a structure of interest on a film having an emulsion, comprising the steps of:
shielding a first portion of the film along one edge of the film from x-ray energy used for imaging of the structure of interest, which edge is furthest from the structure of interest;
impressing a first calibrated test pattern on the first portion of the film, said first pattern comprising a first calibrated graded stepwise density pattern having density positions, said density pattern produced by visible light, and a first plurality of symbols, located adjacent said first calibrated graded density pattern, wherein each symbol indicates the magnitude of one of said density positions;
providing a control film of similar emulsion as the emulsion of said film;
impressing a second calibrated test pattern along one edge of said control film said second calibrated test pattern comprising a second calibrated graded stepwise density pattern having density positions, said density pattern produced by visible light, and a second plurality of symbols, located adjacent said second calibrated graded density pattern, wherein each symbol indicates the magnitude of one of said density positions, wherein the step of impressing said first calibrated test pattern and said second calibrated test pattern are identical;
processing the film in a film processor to develop the first calibrated test pattern on the first portion of the film and the radiographic image of the structure of interest on the second portion of the film;
processing said control film to develop the second calibrated test pattern; and
measuring the performance of the film processor used to develope the film by visually comparing and noting the symbols associated with those density positions between the first calibrated test pattern on the film and the second calibrated test pattern on the control film which match.

5,063,584

METHOD FOR TESTING SUBSCRIBER'S EQUIPMENT

Jae S. Lee, Jungku Daejeon; Tae I. Kim, and Young S. Kim, both of Daeduckku Daejeon, all of Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Seoul and Korea Telecommunications Authority, Yuseong-Ku Daejeon, both of, Rep. of Korea

Filed Jul. 6, 1990, Ser. No. 549,146
Claims priority, application Rep. of Korea, Jul. 8, 1989, 1989-9752
Int. Cl.[5] H04M *1/24, 3/24*; H04B *3/48*
U.S. Cl. 379—29 3 Claims



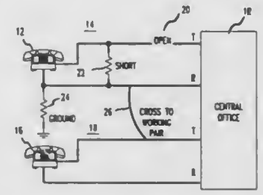
1. In an electronic exchanger comprising a testing board, a Man Machine Processor to control the input and the output of the testing board which performs interface functions with an operator, an Operation Management and Maintenance Processor, an Access Switching Processor to control a subscriber's equipment and a line, a test equipment for performing test of the subscriber's equipment, an Access Switching Management Processor for providing between the test equipment and the Access Switching Processor, an Analog Subscriber Interface Processor for processing an analog line, and an Analog Subscriber Interface Hardware Unit for making an interface with the subscriber, a method for testing the subscriber's equipment comprising steps for:
analyzing commands provided by the operator, and delivering the results to the Operation Management and Maintenance Processor;
delivering the commands to the Access Switching Processor and asking the Access Switching Maintenance Processor to interconnect the test equipment in case the execution of the test is verified to be possible after checking the status of the processors and the test equipment;
asking the Analog Subscriber Interface Hardware Unit to connect the subscriber's equipment in case the line is not on service after checking the subscriber's line, and delivering a testing execution command to the test equipment; and
recovering the subscriber's line to the service status after receiving the result of the test from the test equipment, sending the result of the test to the Operation Management and Maintenance Processor, and showing the result to the operator.

5,063,585

TELEPHONE SUBSCRIBER LINE FAULT DETECTOR

Roy A. Shapiro, Montclair, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Sep. 27, 1990, Ser. No. 589,286
Int. Cl.[5] H01M *1/24*
U.S. Cl. 379—30 8 Claims



1. A method of testing a telephone subscriber loop having a tip conductor and a ring conductor for a customer provided equipment telephone termination
comprising the steps of
measuring the impedance between the tip conductor and a ground terminal,
measuring the impedance between the ring conductor and the ground terminal,
measuring the impedance between the tip conductor and the ring conductor,
comparing the tip-ground impedance and ring-ground impedance with the tip-to-ring impedance to obtain two ratio values; and
comparing said two ratio values with a fixed ratio value to determine the presence of a customer provided equipment telephone termination on said telephone subscriber loop.

5,063,586

APPARATUS FOR SEMICONDUCTOR LITHOGRAPHY

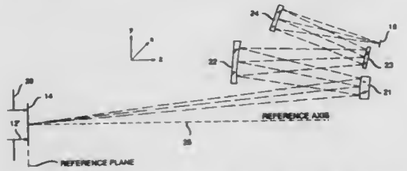
Tanya E. Jewell, Bridgewater, N.J., and J. Michael Rodgers, Pasadena, Calif., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation-in-part of Ser. No. 420,967, Oct. 13, 1989, abandoned. This application May 30, 1990, Ser. No. 528,532
Int. Cl.[5] G21K *5/00*; G02B *5/10*
U.S. Cl. 378—34 6 Claims

1. Apparatus adapted for semiconductor lithography comprising
(a) means for holding an essentially flat mask member, the mask member to be exposed to process radiation during at least part of the time the apparatus is used,

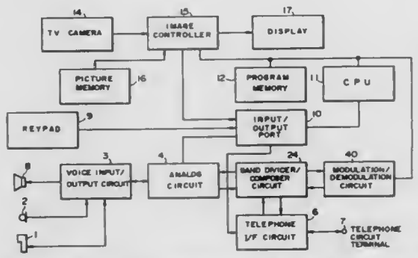
VOL 1132 ISS 1 NO 5 1991 UMI

(b) means for holding a semiconductor member in predetermined relationship with respect to the mask member, and
(c) projection system means adapted for forming a reduced size process radiation image of a predetermined region of the mask member on a surface of the semiconductor member, or on a processing layer disposed on the surface of the semiconductor member,
characterized in that
(d) the projection system means are adapted for use with process radiation of wavelength below about 30 nm;
(e) associated with the projection system means is an image



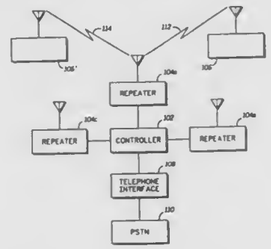
field and a resolution over the image field, the image field having two dimensions, designated a and b, with a ≧b, b≳0.1a, and b≳5 mm; and the resolution over the image field is higher than about 0.25 μm; and
(f) the projection system means contains four, and only four, curved mirrors for the process radiation that form a finite conjugate "optical" system that is telecentric at the short conjugate, the curved mirrors being, from long to short conjugate, a first convex, a first concave, a second convex and a second concave mirror, the mirrors selected such that the image of the predetermined region of the mask member is an essentially flat, diffraction limited image.

5,063,587
TRANSMISSION SYSTEM FOR STILL-PICTURE TV TELEPHONE
Takayoshi Semasa, and Yutaka Ueno, both of Kamakura, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 29, 1990, Ser. No. 500,890
Claims priority, application Japan, Mar. 30, 1989, 1-79676
Int. Cl.[5] H04M *11/00*
U.S. Cl. 379—53 **14 Claims**



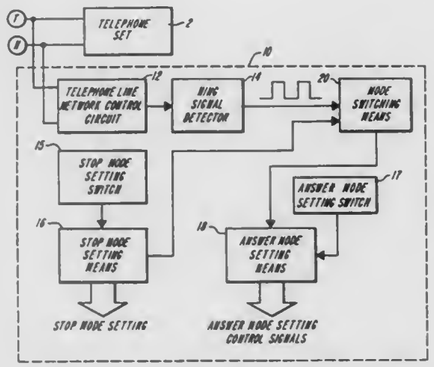
1. A still-picture TV telephone system for transmitting and receiving, via a telephone circuit, a still picture taken by a camera, comprising:
(a) a voice band filter means for eliminating a special band signal of a voice signal introduced from a transmitting means;
(b) a low-pass filter means for restricting a still picture signal in band, cut-off frequencies of said low-pass filter means being set to less than or equal to ½ of the restricted band of said voice band filter means;
(c) a phase/amplitude modulation means for modulating the phase and amplitude of the still picture signal, high frequency components of which have been eliminated, by a carrier signal, frequencies of the carrier signal being set to substantially central frequencies of the signal-free band of said voice band filter means, a baud rate frequency being set substantially to the restricted band width of said voice band filter means; and
(d) a composer means for composing a picture transmission signal of modulated phase and amplitude in the narrow band and a voice transmission signal of the restricted band to divide frequency bands of the picture and voice signals and, at the same time, to transmit the picture and voice signals.

5,063,588
COMMUNICATION SYSTEM PROVIDING AUTOMATIC IDENTIFICATION OF CALLING PARTIES
Stelios J. Patsiokas; Brian Keith A. Johnson, both of Plantation, and Pierre E. Audet, Oakland Park, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Continuation of Ser. No. 274,234, Nov. 21, 1988, abandoned.
This application Aug. 4, 1989, Ser. No. 393,114
Int. Cl.[5] H04M *1/57*
U.S. Cl. 379—57 **18 Claims**



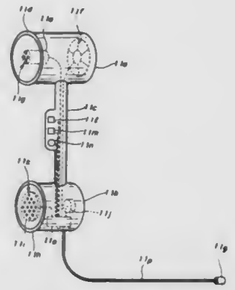
18. In an RF communication system having a central unit and a plurality of portable subscriber transceiver units each having a unit identification code associated therewith, said central unit being interconnected with a wireline telephone network for receiving calls from a telephone party, a method for identifying a calling telephone party to a called portable subscriber transceiver unit, comprising the steps of:
at the central unit:
(a) receiving a signal from said calling telephone party;
(b) processing said signal to determine said calling telephone party's name;
(c) transmitting information representing said calling telephone party's name to at least one subscriber unit;
(d) receiving said code representing said command to record a message from said calling telephone party;
(e) transmitting a signal to said calling telephone party indicating that said message may be recorded from said calling telephone party;
at a portable subscriber transceiver unit:
(a) receiving said information representing said calling telephone party's name;
(b) displaying said calling telephone party's name; and,
(c) transmitting a code to the central unit representing said command for the central unit to record said message from said calling telephone party.

5,063,589
AUTOMATIC TELEPHONE ANSWERING MACHINE WITH RING SIGNAL RESPONSIVE MODE CHANGING ARRANGEMENT
Masayuki Tsushima, Chofu, Japan, assignor to Tandy Electronics Japan, Ltd., Chofu, Japan
Continuation of Ser. No. 943,225, Dec. 18, 1986, abandoned.
This application Nov. 30, 1989, Ser. No. 445,117
Claims priority, application Japan, Dec. 24, 1985, 60-198852
Int. Cl.[5] H04M *1/64*
U.S. Cl. 379—82 **1 Claim**



1. A telephone answering machine capable of being remotely activated comprising:
(a) switch means for selectively setting the machine in one of a plurality of modes in each of which the machine is powered on and operational, which modes include a stop mode in which the machine does not answer incoming calls and an automatic answer mode in which the machine answers incoming calls and records incoming messages,
(b) means for answering incoming calls when said machine is in said automatic answer mode,
(c) a microcomputer responsive to actuation of said switch means for providing control signals which set the machine in the selected mode,
(d) a ring signal detector for providing a train of output pulses derived from detected ring signals, each of said pulses having a first signal level generated when said ring signal detector detects ringing voltage and a second signal level when said ring signal detector detects telephone line voltage,
(e) stop mode setting means in the microcomputer for providing a stop signal when the machine is in the stop mode,
(f) mode switching means having a first input coupled to the output of the ring signal detector and a second input coupled to said stop mode setting means to receive said stop signal, said mode switching means comprising means for determining the duration of said first and second levels of said pulses, said mode switching means being responsive to said determining means to operate a counter means which counts the duration of said detected ring signals, for generating a mode switching output signal responsive to said counter reaching a specified count and said stop signal being provided, and
(g) answer mode setting means in said microcomputer responsive to said mode switching output signal from the mode switching means for setting the machine in the automatic answer mode, whereby the machine is able during the same incoming phone call to switch from the stop mode to the automatic answer mode and then answer the telephone call.

5,063,590
ACOUSTIC COUPLER AND DATA TRANSMISSION APPARATUS USING THE SAME
Takaho Koshishi, Tokyo, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan
Filed Jun. 26, 1990, Ser. No. 543,481
Claims priority, application Japan, Jun. 29, 1989, 1-75558; Dec. 15, 1989, 1-144165
Int. Cl.[5] H04M *11/00*
U.S. Cl. 379—99 **31 Claims**



1. An acoustic coupler comprising:
a receive part housing having a first end and a second end;
a transmit part housing having a first end and a second end;
a coupling member mechanically coupling said receive part housing and said transmit part housing;
a first microphone fastened to the first end of said receive part and receiving an acoustic signal from a transmitter portion of a handset of a telephone when said acoustic coupler is set to said handset;
a first speaker fastened to the second end of said receive part and outputting an acoustic signal to an operator;
a second speaker fastened to the first end of said transmit part and outputting an acoustic signal to a receiver portion of the handset;
a second microphone fastened to the second end of said transmit part and inputting an acoustic signal from the operator; and
coupling means for electrically coupling said first microphone, said second microphone, said first speaker and said second speaker to a data transmission apparatus.

5,063,591
TOLL TICKETING RECORD GENERATION FOR BILLING OF INTERSYSTEM HANDOFF CALLS IN A MOBILE TELEPHONE SYSTEM
Dominique Jodoin, Chateuguay, Canada, assignor to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden
Filed Oct. 26, 1990, Ser. No. 604,796
Int. Cl.[5] H04M *15/04, 15/16*; H04Q *7/02*
U.S. Cl. 379—115 **6 Claims**

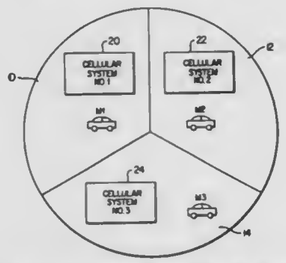
1. A method for producing a toll ticketing record for a call with a mobile subscriber moving within the cells of a cellular mobile radio communications network which includes at least two different exchanges, an anchor exchange in which the mobile was located when the call began and a serving exchange into which the mobile moves while the call is in progress, said method comprising:
generating within said anchor exchange a toll ticketing record in response to the initiation of a call to which said mobile is a party, said record including a call identification number and a number identifying said mobile;
entering a start time in said toll ticketing record in response to an answer by the called party of said initiated call;
attempting a first handoff of the radio circuit of said mobile from said anchor exchange to said serving in response to

VOL
1132
ISS
1
NO
5
1991
UMI

said mobile moving from the cells of one exchange to the other;

allocating a section of said toll ticketing record for information related to an intersystem call in response of said handoff being successfully completed;

entering a designation in the intersystem call section of said toll ticketing record as to the identity of the exchange to which the handoff was completed;



entering a start time in the intersystem call section of said toll ticketing record;

entering a stop time in the intersystem call section of said toll ticketing record in response to either the successful completion of a second handoff of the mobile from the serving to another exchange or to termination of the call;

entering a stop time in the toll ticketing record in response to termination of the call; and

outputting and releasing the toll ticketing record.

5,063,592

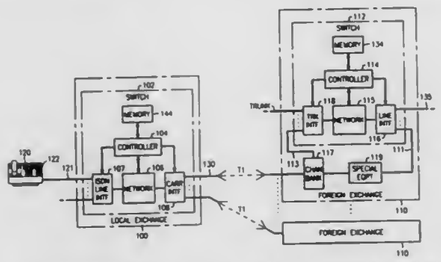
CONTROL OF NON-LOCALLY SWITCHED TELECOMMUNICATION SERVICES

Stephen J. Cannella, Edison, and Ali R. Zaringhalam, North Caldwell, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 29, 1989, Ser. No. 443,303

Int. Cl.[5] H04M *7/00*

U.S. Cl. 379—207 **22 Claims**



1. An arrangement for providing a connection from a first exchange to a remotely located telephone terminal, comprising:

a second exchange;

transmission means for interconnecting said first and said second exchanges;

said first exchange comprising first subscriber line interface means for connection to subscriber lines and means for establishing a direct unswitched connection from said first subscriber line interface means to said transmission means;

said second exchange comprising facilities interface means for connection to said transmission means, second subscriber line interface means for connection to a subscriber line connected to said remote terminal, network means for selective interconnecting said second line interface means and said facilities interface means and means responsive to origination signals on said subscriber line connected to said terminal for controlling said network to establish an interconnecting path between said second line interface means and said facilities interface means and for transmitting to said first exchange signals indicative of an origination at said remote terminal;

whereby a connection is selectively established between a subscriber line of said first exchange and said remotely located terminal via said second exchange and said second exchange transmits to said first exchange signals indicating an origination at said terminal.

5,063,593

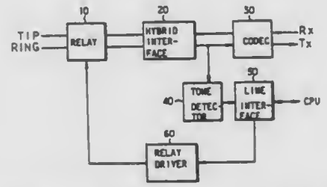
TONE-TYPE RECOGNITION METHOD

Oh-Seol Kwon, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Aug. 23, 1989, Ser. No. 397,254

Int. Cl.[5] H04M *1/00*

U.S. Cl. 379—386 **14 Claims**



7. A tone type recognition system for a central office line switching system, comprising:

a relay for connecting said recognition system to said central office line switching system;

a relay driver for driving said relay;

a hybrid interface receiving first signals from said relay for sending to a subscriber based on operation of the relay;

a tone detector for checking tones in signals received from said hybrid interface, for producing a second signal of high logic level if a tone is detected, and for producing a third signal of low logic level if no tone is detected;

a line interface for delivering said second or third signals from said tone detector to a microprocessor; and

a codec for converting analog voice signals received from said hybrid interface into digital signals.

5,063,594

VIDEO SIGNAL SCRAMBLING SYSTEM

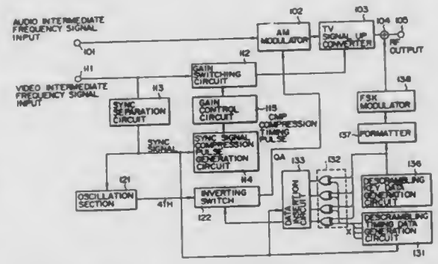
Shouji Uehara, Konosu, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 30, 1990, Ser. No. 501,725

Claims priority, application Japan, Mar. 31, 1989, 1-83603

Int. Cl.[5] H04N *7/167*

U.S. Cl. 380—15 **20 Claims**



1. A video signal scrambling system comprising:

a transmission unit including:

a first signal source for generating an audio intermediate frequency signal;

a second signal source for generating a video intermediate frequency signal including a sync signal;

compression pulse generating means for generating a compression pulse in synchronism with the sync signal of the video intermediate frequency signal generated from said second signal source;

level compressing means for level-compressing a sync signal component of the video intermediate frequency signal in response to the compression pulse generated by said compression pulse generating means and outputting a level-compressed signal;

sine wave generating means for generating a first sine wave having a frequency n times a frequency of the sync signal in synchronism with the sync signal generated from said second signal source;

control data generating means for generating a second sine wave obtained by controlling a phase of the first sine wave generated by said sine wave generating means, said second sine wave including data representing a position at which the sync signal component is level-compressed;

superposing means for superposing the second sine wave from said control data generating means on the audio intermediate frequency signal from said first signal source and outputting a superposed signal; and

outputting means for outputting the level-compressed signal from said level compressing means and the superposed signal from said superposing means; and

a receiving unit including:

receiving means for receiving the level-compressed signal and the superposed signal output from said outputting means;

detecting means for detecting the level-compressed signal and the superposed signal received by said receiving means and extracting the second sine wave from the superposed signal;

compression position detecting means for discriminating a change in phase of the second sine wave extracted by said detecting means, detecting the position of the sync signal component compressed by said level compressing means based on a discrimination result, and outputting a detection signal;

expansion pulse generating means for generating an expansion pulse at a timing determined on the basis of the second sine wave extracted by said detecting means and the detection signal output from said compression position detecting means; and

level expanding means for expanding the level-compressed sync signal component of the level-compressed signal received by said receiving means in response to the expansion pulse generated from said expansion pulse generating means.

5,063,595

OPTICAL COMMUNICATIONS NETWORK

John W. Ballance, Woodbridge, England, assignor to British Telecommunications Public Limited Company, Great Britain

PCT No. PCT/GB88/01050, § 371 Date May 21, 1990, § 102(e) Date May 21, 1990, PCT Pub. No. WO89/05078, PCT Pub. Date Jun. 1, 1989

PCT Filed Nov. 28, 1988, Ser. No. 488,046

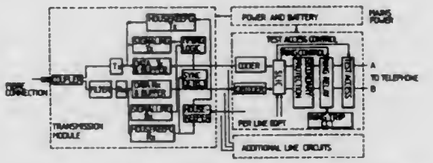
Claims priority, application United Kingdom, Nov. 27, 1987, 8727846

Int. Cl.[5] H04L *9/02*; H04K *1/00*

U.S. Cl. 380—48 **4 Claims**

1. A central station for a digital communications network, said central station comprising:

means for transmitting digital data to outstations in the form of a stream of frames, each frame comprising a first portion containing a digital synchronisation signal and digital housekeeping data for the outstations, and a second portion containing digital traffic data for the outstations, and scrambling means for scrambling the contents of said first



portions by a first predetermined binary sequence of digital signals, and for scrambling the contents of said second portions by a second predetermined binary sequence of digital signals.

5,063,596

ENCRYPTION PRINTED CIRCUIT BOARD

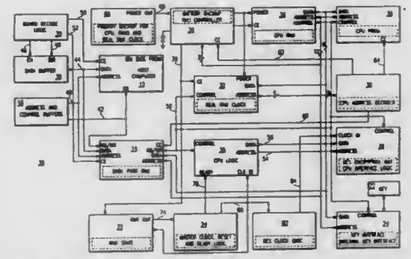
John Dyke, West Valley, Utah, assignor to MIU Automation Corporation, Santa Barbara, Calif.

Continuation of Ser. No. 314,916, Feb. 24, 1989, Pat. No. 4,910,776. This application Mar. 19, 1990, Ser. No. 495,335

The portion of the term of this patent subsequent to Mar. 20, 2007, has been disclaimed.

Int. Cl.[5] H04L *9/00*

U.S. Cl. 380—49 **23 Claims**



1. Expander board apparatus for encrypting and decrypting data resident on a host computer having an expansion slot, said expander board apparatus comprising:

board means locatable in said expansion slot;

ciphering means included with said board means and having:

first means for storing data transferred from the host computer to said expander board apparatus for encryption,

second means for encrypting and decrypting data stored in said first means,

third means for controlling the operation of said expander board apparatus by executing operating instructions stored in a source thereof,

fourth means for storing operating instructions to be executed by said third means, and

fifth means for obtaining key information from a key card reader for said third means;

sixth means included with said board means and connectable between the host computer and said ciphering means, said sixth means for permitting an amount of data to be written thereto by either of the host computer and said ciphering means while simultaneously allowing the data to be read by the other of said ciphering means and the host computer;

wherein said sixth means is connectable to the host computer expansion slot, for permitting the simultaneous but independent operation of the host computer and said expander board apparatus.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,597

MUTING CIRCUIT IN A DIGITAL AUDIO SYSTEM

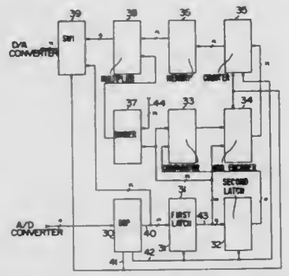
Jung-Hoon Seo, Seoul, and Sung-Mo Seo, Suwon, both of Rep. of Korea, assignors to SamSung Electronics Co., Ltd., Kyung Ki-Do, Rep. of Korea

Filed Aug. 18, 1989, Ser. No. 395,508

Claims priority, application Rep. of Korea, Aug. 23, 1988, 1988-10699

Int. Cl.[5] **G10L** *5/00*; **G06F** *11/10*

U.S. Cl. 381—47 **17 Claims**



1. A muting circuit for use in a digital audio system, comprising:

digital signal processor means for outputting a word clock signal, a mute control signal and a digital data word which is a digital speech signal from an analog-to-digital converter;

first latch means for receiving the digital data word and the word clock signal and for latching the digital data word in response to the word clock signal;

second latch means for latching and delaying the digital data word from the first latch means based upon the word clock signal;

comparator means for generating a comparison signal by comparing the digital data word of the first and second latch means to detect whether an amplitude of a waveform of the speech signal is in an increasing state or in a decreasing state;

address encoder means for receiving the comparison signal and most significant bit data of said digital data word of the first latch means, which is a code data, in response to the mute control signal and for generating a preset address;

counter means for receiving the preset address from the address encoder means and for generating incremented sequential addresses incremented by one at given times beginning with the preset address in response to the word clock signal from the digital signal processor means;

memory means for reading first digital data stored in advance at addresses corresponding to each of the sequential addresses of the counter means, incremented by one for a given time;

divider means for generating second digital data by dividing the digital data word, input from the first latch means to a first input port, by a fixed data inputted to a second input port;

multiplier means for generating third digital data by multiplying the first digital data read by the memory means and the second digital data generated by the divider means; and

first switching means for receiving the mute control signal and the digital data word generated from the digital signal processor means and the third digital data from the multiplier means, for selecting and outputting selectively the digital data word or the third digital data in response to a logic state of the mute control signal.

5,063,598

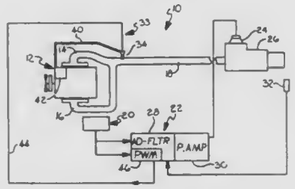
ACTIVE NOISE CONTROL SYSTEM WITH TWO STAGE CONDITIONING

Earl R. Geddes, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Apr. 25, 1990, Ser. No. 514,386

Int. Cl.[5] **G10K** *11/16*

U.S. Cl. 381—71 **9 Claims**



1. An active noise attenuation muffler for a motor vehicle engine exhaust conduit comprising:

a tracking source for generating a tracking signal representative of an input pulse train;

a transducer coupled to said conduit;

electronic control means for driving said transducer in response to said tracking signal and producing an output pulse train having a phase opposite to said input pulse train at a predetermined point along said conduit; and

means for pneumatically reducing the crest factor of said input pulse train.

5,063,599

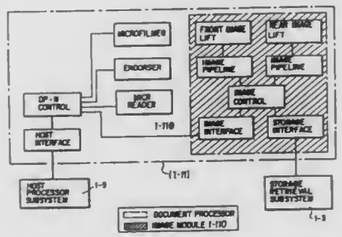
ELECTRONIC IMAGE LIFT

David Concannon, Farmington Hills; Gary Copenhaver, Canton; Johan Bakker, Union Lake; John Vala, Plymouth; Gerald Banks, Ann Arbor, and Clive Catchpole, Birmingham, all of Mich., assignors to Unisys Corporation, Detroit, Mich.

Filed Oct. 10, 1989, Ser. No. 419,574

Int. Cl.[5] **G06K** *9/00*

U.S. Cl. 382—7 **10 Claims**



1. A document processing system wherein documents are to be transported at high speed unidirectionally along a prescribed transport path past a pair of offset front and rear image-lift sites for scanning the entirety of respective front and rear document faces, this system comprising:

transport means for continuously transporting documents past said sites at high speed, and without pause; singular, common energy-source means for directing lift-energy at both said sites, in parallel; energy-conveying means between said energy-source means and both said sites for guiding said lift-energy to each said site; a pair of identical energy-shaping gate means, one disposed at each of said sites, each acting to channel imaging energy there; and heat-dissipation means disposed operatively adjacent said energy-source means and acting to extract IR energy therefrom and dissipate it so as to shield the said sites and said energy conveying means from adverse IR effects; this heat-dissipation means comprising an IR-trap.

5,063,600

HYBRID INFORMATION MANAGEMENT SYSTEM FOR HANDWRITING AND TEXT

Donald D. Norwood, P.O. Box 2284, Sunnyvale, Calif. 94087

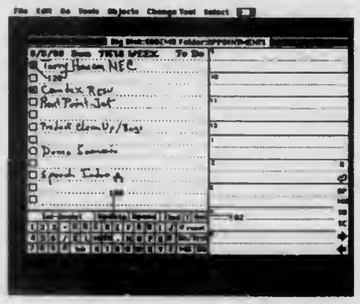
Filed May 14, 1990, Ser. No. 523,230

Int. Cl.[5] **G06K** *9/00*

U.S. Cl. 382—13 **22 Claims**

MICROFICHE APPENDIX INCLUDED

(2 Microfiche, 115 Pages)



1. A computer information system for handwriting and text, comprising:

a) a computer including a non-volatile storage area and a display;

b) means, including a digitizing pen for indicating positional coordinate information of said pen as an image on said display when said pen is moved, and for initiating a plurality of commands to said computer based upon the position of said image on said display;

c) means for entering digital information into said computer;

d) means for entering handwritten and text information into said storage area and displaying said information on said display;

e) means for creating, in said storage area, handwriting files which accept handwritten information as well as text and which can be calendar-sequenced upon user direction, and can have date indicia and positional format areas, said date indicia and said positional format areas being in a calendar format;

f) means for manipulating said handwritten and text information within and between said handwriting files in a plurality of different ways in accordance with said respective plurality of commands;

g) means for indexing, storing, retrieving, copying and deleting said handwriting files in said computer;

h) means for creating a program object image on said display, said program object image representing a visual element of a programming system, which is created by a command to said programming system, which appears as an image on said display, which possesses one of a plurality of programmer-controllable physical shapes or sizes, including that of a button object image, which can be moved to any location on said display, which can have program commands associated with it such that a program associated with said program object image can be activated by a user to perform specific program actions;

an improvement comprising:

i) means for allowing said user (1) to create, and place one or more of said program object images on an image of one of said handwriting files on said display, and (2) to associated one or more of said program object images with any specific section of said handwritten information; whereby labor savings or other beneficial actions produced by said user's activation of said program object image associated with said specified handwritten information can be derived repeatedly without repeated creation of said program object image or the commands that it automates;

j) means which can be activated by said user to move as a group only said specific sections of handwritten information and some or all of said program object images associated with said specified section of handwritten information to a specific location within or across said handwriting files which accept handwriting, such that the associations between said specific section of handwritten information and said program object images are preserved; whereby the substantial labor to recreate said linkages can be eliminated which otherwise would be necessary for said user to derive the benefit of said associations in another file location or in a different file; and

k) means for identifying precisely said specific section of handwritten information which may be carried out by one of a plurality of techniques, including encirclement of the desired material by the user with a line drawing cursor.

5,063,601

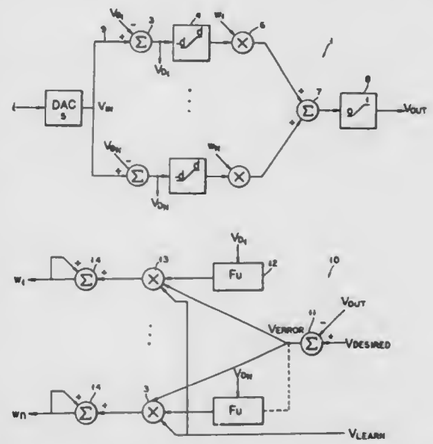
FAST-LEARNING NEURAL NETWORK SYSTEM FOR ADAPTIVE PATTERN RECOGNITION APPARATUS

John Hayduk, 15 Partridge Rd., White Plains, N.Y. 10605

Filed Sep. 2, 1988, Ser. No. 240,746

Int. Cl.[5] **G06K** *9/62*

U.S. Cl. 382—14 **1 Claim**



1. A neural network system comprising:

a recall circuit including input means and output means and a plurality of parallel comparator circuits connected to said input means, each said comparator including a summing circuit for summing an input signal from said input means with an offset voltage, a threshold detector coupled to said summing circuit for detecting when the summer output is within a preselected range and a multiplier for multiplies the threshold circuit output by a weight "wherein said threshold circuit generates a threshold output which equals to the summer output and other wise equals to one of high and low threshold level".

a series resistor circuit for generating said offset voltages; and

a feedback circuit including a plurality of function blocks, each function block being coupled to one of said comparator circuits for operating on a comparator signal from one said comparator circuit in accordance with a preselected function, said feedback circuit generating said weights for said multiplies;

wherein said feedback circuit has feedback input means for receiving a learning signal and connected to said input means and output means for an output signal, said feed-

VOL 1132 ISS 1 NO 5 1991 UMI

back circuit recursively calculating said weights in the presence of said learning signal by changing said weights until said output signal equals a reference signal said feedback input circuit includes feedback summer for receiving said output signal and said reference signal, said feedback input circuit includes feedback summer for receiving said output signal and said reference signal, said feedback summer generating an error signal equal to the difference between said output and said reference signals, and feedback multipliers for multiplying the outputs of said function blocks with said error signal in the presence of said learn signal, said function block operates on each said comparator signal in accordance with the equation:

$$F_{ik}(V_{dk})=\eta SGN(V_{dk})e^{-P/d|Vdk|}$$

where $0<\eta\leqq 1$ is called the learning constant, SGN is the signum function and returns the signal of the argument, K ranges from 1 to n. and P is a shape constant which governs the shape of the response.

5,063,602

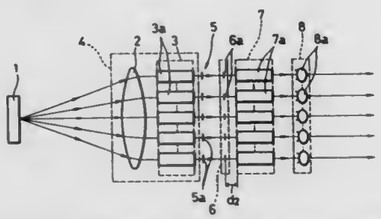
IMAGE CORRELATION CALCULATION APPARATUS

Norman A. Peppers, Belmont; James R. Young, Palo Alto; Gerald A. Pierce, Redwood City, all of Calif., and Hisami Nishi, Nishinomiya, Japan, assignors to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Continuation of Ser. No. 206,572, Jun. 14, 1988, abandoned, which is a continuation-in-part of Ser. No. 38,634, Apr. 14, 1987, abandoned. This application Mar. 26, 1991, Ser. No. 679,161

Int. Cl.[5] G06K 9/74

U.S. Cl. 382—32 12 Claims



1. An image correlation calculation apparatus comprising:

a multiplier for optically multiplying an image subjected to correlation calculations to form a plurality of optical pattern images of a substantially identical shape;

a plurality of reference masks respectively having reference patterns subjected to correlation calculations with the optical pattern images, said reference masks being arranged at a position spaced apart by a predetermined distance from said plurality of optical pattern images in one-to-one correspondence therewith so that beams from all points of each optical pattern image are incident on all points of the corresponding reference pattern;

a plurality of condenser lenses which are arranged to have parallel optical axes at a predetermined position in one-to-one correspondence with said reference masks for condensing the beams of each optical pattern image passing through said reference masks whereby an optical correlation calculation between said optical pattern image and said reference pattern can be performed instantaneously, said predetermined distance satisfying the inequality $D<2d_1\{p/(1-p)\}$ where d_1 is the distance from said multiplier to said optical pattern images and p is the ratio of the size of said optical pattern images to the size of the aperture of said condenser lenses; and

photodetecting means for detecting the beams which are emitted from the plurality of condenser lenses, whereby an optical correlation calculation between said optical pattern image and said reference pattern is performed instantaneously without having to shift said reference masks with respect to the optical pattern image.

5,063,603

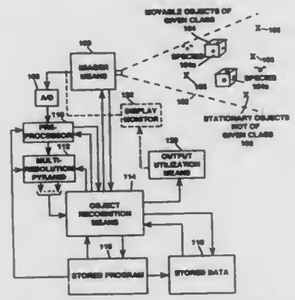
DYNAMIC METHOD FOR RECOGNIZING OBJECTS AND IMAGE PROCESSING SYSTEM THEREFOR

Peter J. Burt, Princeton Township, Mercer County, N.J., assignor to David Sarnoff Research Center, Inc., Del.

Filed Nov. 6, 1989, Ser. No. 432,013

Int. Cl.[5] G06K 9/00

U.S. Cl. 382—37 19 Claims



1. A dynamic image-processing method for recognizing objects of a given class graphically represented in a time series of successive relatively high-resolution frames of image data; said method being responsive to (A) a stored program for controlling said image-processing and for specifying a set of decision criteria, and (B) stored data;

wherein objects of said given class all possess a group of known generic attributes which, taken as a whole, distinguish objects of said given class from objects not of said given class; and

wherein said stored data initially defines a limited number of separate features related to said group of generic attributes, any of which initially stored features is likely to be present in a sequence of one or more successive frames of image data if an object of said given class is graphically represented in that sequence;

said method comprising the steps of:

a) under the control of said stored program and in response to at least a first one of said separate features initially defined by said stored data, making a first determination in accordance with said decision criteria as to a first probability that one or more relatively early-occurring frames of said time series may include as part of said image data thereof at least said first one of said separate features of objects of said given class;

b) in response to said first probability being at least equal to a first predetermined threshold value, adding data defining at least the relative location of said part within the relatively early-occurring frames of said sequence to said stored data, thereby enhancing said stored data;

c) under the control of said stored program and in response to said enhanced stored data, making a second determination in accordance with said decision criteria as to a second probability that one or more relatively later-occurring frames of said time series verifies said part as including at least a second one of said separate features in addition to said first feature;

d) in response to said second probability being above a second predetermined threshold, recognizing said part as being a graphical representation of an object of said given class;

e) in response to said second probability being below a third predetermined threshold which third predetermined threshold is significantly below said second predetermined threshold, recognizing said part as not being a graphical representation of an object of said given class;

f) in response to said second probability being in a range between said second and third probabilities, adding further data defined by the verification of step c) to said stored data, thereby further enhancing said stored data; and

g) if said second probability is in said range, recursively repeating steps c) and f) for relatively later and later occurring sequences of one or more frames of said time series until the probability determined by such repeated step d) either rises above said second predetermined threshold or falls below said third predetermined threshold.

5,063,604

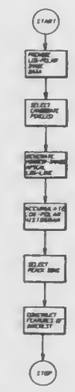
METHOD AND MEANS FOR RECOGNIZING PATTERNS REPRESENTED IN LOGARITHMIC POLAR COORDINATES

Carl F. R. Weiman, Westport, Conn., assignor to Transitions Research Corporation, Danbury, Conn.

Filed Nov. 8, 1989, Ser. No. 434,100

Int. Cl.[5] G06K 9/36

U.S. Cl. 382—41 25 Claims



1. A method of processing image data to detect the presence of an extended feature or features of interest therein, the method comprising the steps of:

providing an image represented in a logarithmic polar (log-polar) coordinate system;

selecting image points which are candidates for membership in the feature of interest;

for each selected image point, constructing a curve in the same logarithmic polar coordinate system as the image, the curve characterizing the locus of possible locations of the feature of interest consistent with the selected image point;

accumulating a histogram whose bins coincide with points in the same logarithmic polar coordinate system as the image, which bins contain counts of the number of constructed curves intersecting at the location of the bin; and

selecting bins having greatest counts as representing the locations of definitive points for characterizing the location of the extended feature of interest within the image.

5,063,605

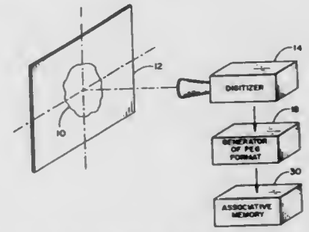
METHOD FOR SCALE AND ROTATION INVARIANT PATTERN RECOGNITION

Tariq Samad, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Jun. 4, 1990, Ser. No. 549,871

Int. Cl.[5] G06K 9/00

U.S. Cl. 382—44 11 Claims



1. A method for preparing an image of an object for representation is an associative memory comprising the steps of:

preparing on a rectilinear grid of source cells a digitized image of said object within a background which is centered relative to its "center of mass",

preparing a polar grid format having a circumference fully contained within said background and large enough to fully contain any object to be represented and destination cells formed by a plurality of sectors of equal angles and a plurality of rings spaced at different radii from the center of said circumference,

mapping said image from said rectilinear grid to said polar grid and determining for each of said destination cells the number of said source cells within its bounds occupied by said object, and

designating as active each of said destination cells for which said number exceeds a predetermined criterion.

5,063,606

METHOD OF AND DEVICE FOR DETECTING AN IMAGE AREA IN AN IMAGE PROCESSOR

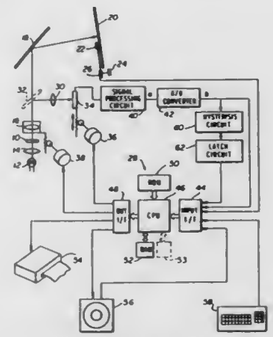
Tetsuya Takamori, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 25, 1989, Ser. No. 398,560

Claims priority, application Japan, Aug. 26, 1988, 63-210800

Int. Cl.[5] G06K 9/20, 9/48, 9/00

U.S. Cl. 382—48 6 Claims



3. An image processor for selecting and reading a designated image area as a desired image area from plural image areas included in a frame of a microfilm through scanning operations, said processor comprising:

VOL 1132 ISS 1 NO 5 1991 UMI

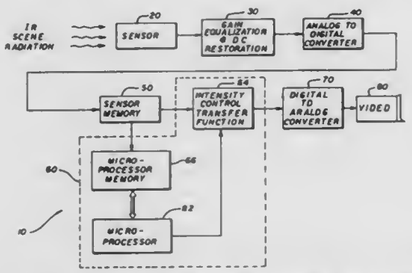
image sensor means for scanning said frame including said plural image areas;
image area detecting circuit means for detecting said plural image areas from marginal portions of said frame;
a latch circuit for determining only a single designated image area, including a pre-set position in the frame, from said plural image areas as said desired image area;
memory means for storing an address of the periphery of said designated image area; and
mask means for extracting the designated image area defined by said address.

5,063,607

IMAGE CONTRAST ENHANCEMENT TECHNIQUE

Patrick FitzHenry, Los Angeles, and Lawrence A. Scanlan, Westchester, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Oct. 24, 1988, Ser. No. 261,812
Int. Cl.[5] G06K 9/38
U.S. Cl. 382—50 9 Claims



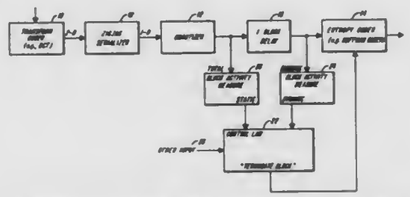
1. An image contrast enhancement technique for adjusting the intensity of an image of a scene, said image being realized from electrical signals generated in response to radiation received from a plurality of regions within a field of view of said scene, comprising the steps of:
a) filling a first matrix with a plurality of digital entries corresponding to each of said electrical signals, said plurality of digital entries having a maximum and a minimum value with the difference between the maximum and minimum digital entries defining a first dynamic range;
b) sampling said first matrix to create a first sample set of said plurality of digital entries, said sample set having a second dynamic range substantially similar to said first dynamic range;
c) constructing a histogram of said first sample set of digital entries;
d) at least approximating the integral of said histogram to generate a first transfer function, said first transfer function having a value at each of said plurality of digital entries of said first matrix;
e) generating a second matrix having a plurality of digital entries obtained by multiplying each of said plurality of digital entries of said first matrix by the value of said first transfer function at each of said entries; and
f) generating said image by driving a display with signals derived from said plurality of digital entries of said second matrix.

5,063,608

ADAPTIVE ZONAL CODER

Shepard L. Siegel, Derry, N.H., assignor to Datacube Inc., Peabody, Mass.

Filed Nov. 3, 1989, Ser. No. 431,548
Int. Cl.[5] G06K 9/00
U.S. Cl. 382—56 9 Claims



1. A method for image data compression comprising the steps of:
transforming a two-dimensional block of image data in a spatial domain to resulting data in a frequency domain represented as a two-dimensional array of activity coefficients;
serializing said entire two-dimensional array of coefficients, yielding a one-dimensional array of coefficients with a leading coefficient and an original trailing coefficient;
quantizing said one-dimensional array of coefficients;
selecting a portion of said one-dimensional array of coefficients beginning with said leading coefficient and ending with a new trailing coefficient that is closer to the leading coefficient than said original trailing coefficient, wherein said portion is selected by a process comprising the steps of:
obtaining a measure of total activity of said one-dimensional array of coefficients,
determining in real time a measure of activity of successive sub-portions of said one-dimensional array, and adding said measure of activity to a running total,
performing a comparison in real time of said running total to a setable level based on said measure of total activity, and
designating a new trailing coefficient according to said comparison;
appending an end-of-block symbol after said new trailing coefficient; and
encoding only said portion with an entropy coder.

5,063,609

STEAM GENERATOR

D'Arcy Lorimer, Santa Clara, Calif., assignor to Applied Materials, Inc., Santa Clara, Calif.

Filed Oct. 11, 1989, Ser. No. 419,865
Int. Cl.[5] F22B 1/28
U.S. Cl. 392—401 25 Claims

1. A steam generator comprising,
a plurality of stacked, interconnected, vertically-oriented liquid-holding chambers, there being a top chamber and a bottom chamber, each chamber having a sidewall and a bottom wall,
means for introducing water into the top chamber,
means within the sidewall of each of said chambers above the bottom chamber for communicating overflow water from a higher chamber to a lower chamber, the bottom chamber having a drain means for removing water reaching the bottom chamber,
means for heating the water in each chamber to create steam in each of said chambers, said heating means immersed in liquid in each chamber,



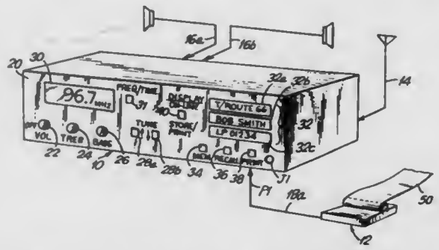
means for conducting said steam from a lower chamber to the chambers above, the steam migrating upwardly to a collection zone,
means for releasing said steam from said collection zone.

5,063,610

BROADCASTING SYSTEM WITH SUPPLEMENTAL DATA TRANSMISSION AND STORAGE

David Alwadish, New York, N.Y., assignor to Ing Communications, Inc., New York, N.Y.

Continuation of Ser. No. 413,536, Sep. 27, 1989, abandoned. This application Feb. 28, 1991, Ser. No. 663,298
Int. Cl.[5] H04B 7/00
U.S. Cl. 455—45 30 Claims



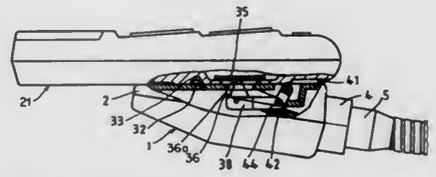
1. A method of broadcasting whereby supplemental information is encoded for transmission together with program material, comprising the steps of:
reproducing at a broadcast site a source of program material;
processing the reproduced program material for transmission over a broadcast carrier signal;
inserting encoded items of information associated with the program material into the carrier signal upon transmission of the program material;
receiving the transmitted carrier signal and reproducing the program material at a receiver;
decoding, at said receiver, the information items inserted into the carrier signal in association with the program material;
providing said receiver with display means for displaying the decoded items of information;
providing said receiver with memory means;
selecting desired decoded items of information associated with the program material for storage in the memory means by entering a memory command to the receiver;
storing the desired decoded items of information in the memory means;
selecting one of a first and a second display mode for the display means by actuating a manual selecting means;
displaying on said display means information items as decoded from the carrier signal in said decoding step, when the first display mode is selected; and
displaying on said display means the decoded items of information that are stored in said memory means after entering a recall command to the receiver, when the second display mode is selected.

5,063,611

THEFT-PROTECTED VEHICULAR ACCESSORY APPARATUS, PARTICULARLY CAR RADIO AND AUDIO EQUIPMENT

Shinichi Kitabayashi, Tokyo, Japan, assignor to Blaupunkt Werke GmbH, Hildesheim, Fed. Rep. of Germany

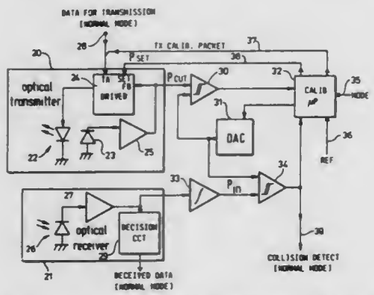
Filed Jul. 21, 1988, Ser. No. 222,271
Claims priority, application Fed. Rep. of Germany, Aug. 28, 1987, 8711687
Int. Cl.[5] H04B 1/08
U.S. Cl. 455—348 15 Claims



1. The combination of
a vehicular accessory apparatus, particularly car radio and audio equipment (R) with
a two-part control unit (1, 21) for said apparatus,
wherein said accessory apparatus is secured in the vehicle (V) and
wherein, in order to render said accessory apparatus operable, said control unit (1, 21) must be assembled with said accessory apparatus in said vehicle, and
wherein said two-part control unit comprises
an essentially stationary connection part (1) mechanically secured to the vehicle (V) and means (5, 43) for electrically coupling the connection part to said accessory apparatus; and
a portable control part (21), formed with generally smooth outer surfaces to facilitate transport in an owner's pocket, and which includes a housing (22, 23) having control elements (28, 43) necessary for operation of said accessory apparatus located thereon,
interengaging attachment means (8, 9; 24, 25) for selectively separably mechanically connecting together said connection and control parts (21); and
electrical coupling means (35, 36*a*) positioned, respectively, on said control part (21) and said connection part (1) to permit control of said apparatus (R) when the connection part and the control part are interengaged, while allowing separation of said control part and said connection part and removal of said control part from the connection part, said coupling means including means (38, 40, 41) for automatically extending terminal elements (36*a*) during interengagement of said control and connection parts and for automatically retracting said terminal elements (36*a*) into a housing (2, 3) upon disengagement of said control and connection elements.

VOL 1132 ISS 1 NO 5 1991 UMI

5,063,612
NETWORK TRANSCEIVER
Nicholas W. McKeown, Berkeley, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Aug. 3, 1990, Ser. No. 562,333
Claims priority, application European Pat. Off., Aug. 11, 1989, 89308191.9
Int. Cl.[5] H04B *10/08*
U.S. Cl. 455—607 11 Claims



1. A transceiver for a station of a network of the type in which a plurality of stations are connected via links to a network common point through which a transmission received from any one of said stations passes on its way to any other of said stations, said transceiver being operative both in a normal mode, in which it serves for the transmission and reception of data over said network, and in a calibration mode, and comprising:

a transmitter with an adjustable output power level;

a receiver; and

adjustment means connected to said transmitter and operative when the transceiver is in said calibration mode to set the output power level of said transmitter such that the resultant power produced at said network common point is at a desired level, said adjustment means comprising:

first monitoring means for generating a first power level signal indicative of the output power level of said transmitter,

second monitoring means for generating a second power-level signal indicative of the received power level at said receiver,

reference setting means for providing a reference signal indicative of a desired power level at said network common point, and

control means connected to receive said first and second power-level signals and said reference signal, said control means being operative, when the transceiver is in said calibration mode, to adjust the output of said transmitter using a calibration signal determined by utilizing said first and second power-level signals and the reference signal to determine the transmitter output power level required to produce a power level at said network common point corresponding to the level represented by the reference signal and thereafter setting the transmitter output power level to this determined level using said calibration signal.

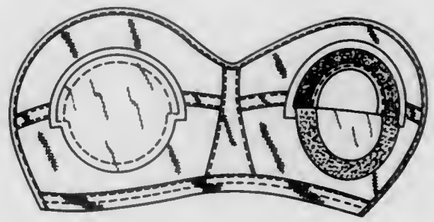
DESIGNS

NOVEMBER 5, 1991

321,270
SATURN-SHAPED PASTA
Edward J. Meyers, Jr., Roselle Park, N.J.; Deborah L. Bernardini, Mahopac, N.Y.; Frank Ceglia, and Eileen Fogarty, both of New York, N.Y., assignors to CPC International Inc., Englewood Cliffs, N.J.
Filed Dec. 22, 1989, Ser. No. 456,137
Term of patent 14 years
U.S. Cl. D1—106



321,271
LION-SHAPED PASTA
Edward J. Meyers, Jr., Roselle Park, N.J.; Deborah L. Bernardini, Mahopac, N.Y.; Frank Ceglia, and Eileen Fogarty, both of New York, N.Y., assignors to CPC International Inc., Englewood Cliffs, N.J.
Filed Dec. 22, 1989, Ser. No. 456,138
Term of patent 14 years
U.S. Cl. D1—107

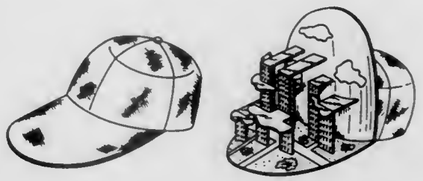


321,272
VAMPIRE-SHAPED PASTA
Edward J. Meyers, Jr., Roselle Park, N.J., and Deborah L. Bernardini, Mahopac, N.Y., assignors to CPC International Inc., Englewood Cliffs, N.J.
Filed Dec. 29, 1989, Ser. No. 459,113
Term of patent 14 years
U.S. Cl. D1—109



321,273
NURSING BRA CUP OR THE LIKE
Elinor R. Hull, 736 Meadow Branch Rd., Westminster, Md. 21151
Filed Jan. 18, 1989, Ser. No. 298,065
Term of patent 14 years
U.S. Cl. D2—24

321,274
NOVELTY HAT
Kyoung M. Hur, 405 Park Ave., Apt. N, Rutherford, N.J. 07070
Filed Dec. 19, 1988, Ser. No. 285,948
Term of patent 14 years
U.S. Cl. D2—248



VOL 1132 ISS 1 NO 5 1991 UMI

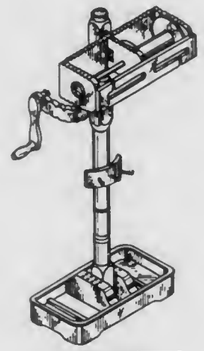
321,275
TREAD SURFACE AND PERIPHERY OF A FOOTWEAR UNIT SOLE
Arnold S. Austin, Brookfield, Mass., assignor to Quabaug Corporation, North Brookfield, Mass.
Filed Mar. 27, 1989, Ser. No. 328,692
The portion of the term of this patent subsequent to Jun. 5, 2004, has been disclaimed.
Term of patent 14 years
U.S. Cl. D2—320



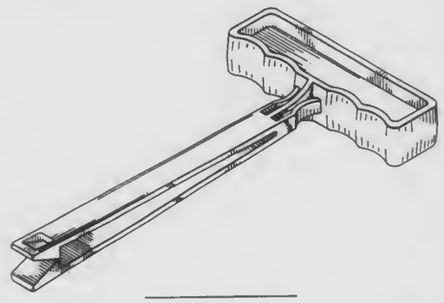
321,276
NECKTIE
Arthur N. Weeks, 254 Colony Green Dr., Bloomingdale, Ill. 60108
Continuation-in-part of Ser. No. 821,468, Jan. 22, 1986, abandoned. This application Oct. 18, 1988, Ser. No. 259,097
Term of patent 14 years
U.S. Cl. D2—605



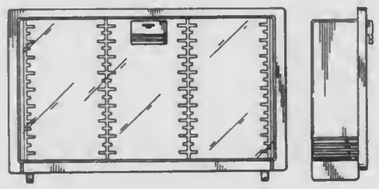
321,277
YARN HOLDER OR SIMILAR ARTICLE
John T. Tussing, and Ronald D. Tussing, both of Rte. 1, Box 229T, Rusk, Tex. 75785
Filed Sep. 14, 1988, Ser. No. 244,256
Term of patent 14 years
U.S. Cl. D3—26



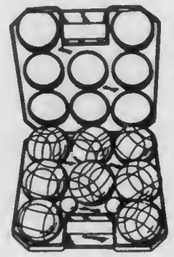
321,278
SKI BOOT TOTE
Robert J. Holcomb, E. 317 Silver Pines Ct., Colbert, Wash. 99005
Filed Aug. 24, 1988, Ser. No. 236,133
Term of patent 14 years
U.S. Cl. D3—36



321,279
STORAGE UNIT FOR AUDIO TAPES, COMPACT DISKS, VIDEO TAPES OR SIMILAR ARTICLES
Andrew Mark, Stamford, Conn., assignor to Rogers Manufacturing Company, Inc., Rockfall, Conn.
Filed Nov. 15, 1989, Ser. No. 438,670
Term of patent 14 years
U.S. Cl. D3—35



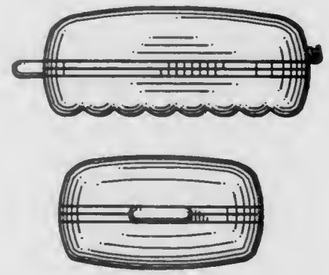
321,280
COMBINED BALL HOLDER AND SET OF GAME BALLS
Mario D'Angeli, 2722 Lucile Dr., Stockton, Calif. 95209
Filed Jun. 26, 1989, Ser. No. 371,017
Term of patent 14 years
U.S. Cl. D3—36



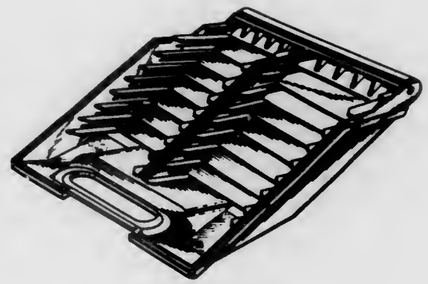
321,281
FLY ROD CASE
Dennis Cooper, Site 12, R.R. #1, Winfield, B.C., Canada V0H 2C0
Filed Jul. 15, 1988, Ser. No. 219,131
Term of patent 14 years
U.S. Cl. D3—38



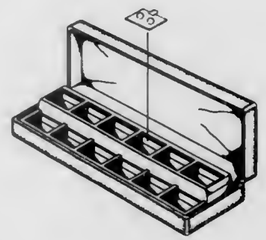
321,282
CARRYING CASE FOR AN INFLATABLE WASH BASIN
John F. Sigmon, 319 S. Madison St., Marion, N.C. 28752
Filed Oct. 19, 1987, Ser. No. 110,509
Term of patent 14 years
U.S. Cl. D3—39



321,283
CARRYING CASE TRAY BOTTOM FOR CASSETTES OR THE LIKE
Thomas J. Melk, Chicago, Ill., assignor to Outer Circle Products, Ltd., Chicago, Ill.
Filed Nov. 21, 1988, Ser. No. 274,031
Term of patent 14 years
U.S. Cl. D3—74

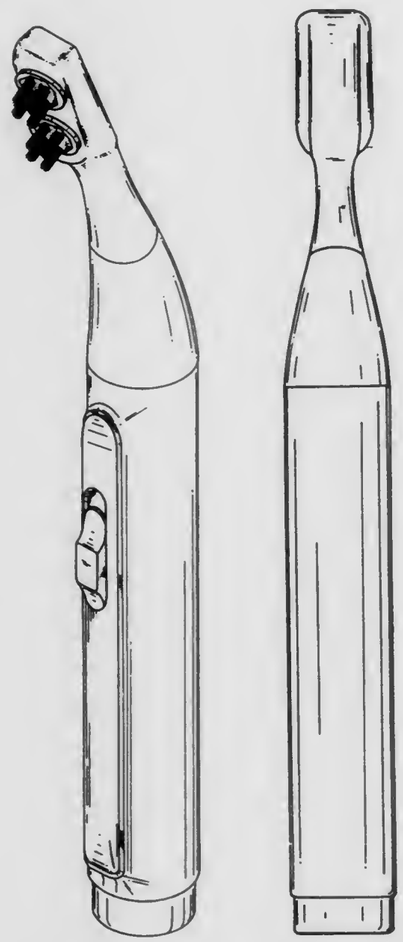


321,284
JEWELRY BOX AND INTERIOR THEREFOR
Kenneth S. Marsella, Johnston, R.I., and Frank Layne, Ft. Lauderdale, Fla., assignors to Ken Mar Inc., Cranston, R.I.
Filed Mar. 20, 1989, Ser. No. 326,529
Term of patent 14 years
U.S. Cl. D3—75

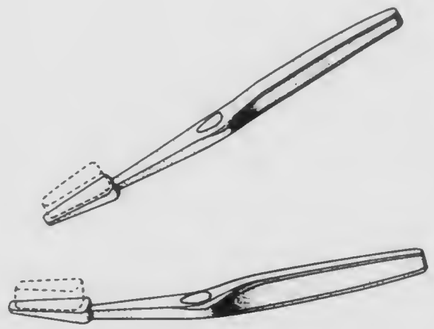


VOL
1132
ISS
1
NO
5
1991
UMI

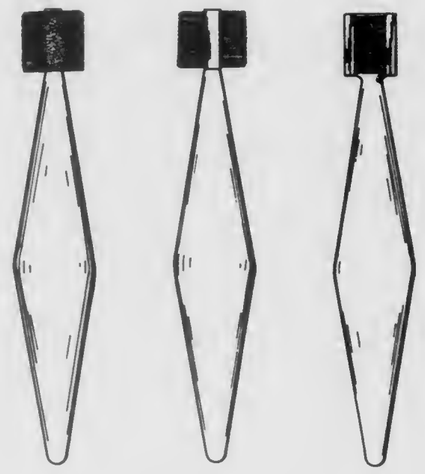
321,285
ELECTRIC TOOTHBRUSH
Akira Hirabayashi, Ikusaka, Japan, assignor to Kabushiki Kaisha Izumi Seiki Seisakusho, Matsumoto, Japan
Filed Jun. 30, 1989, Ser. No. 373,482
Claims priority, application Japan, Mar. 6, 1989, 1-8108
Term of patent 14 years
U.S. Cl. D4—101



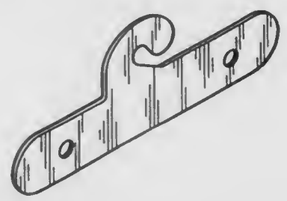
321,286
BRUSH HANDLE
Thomas B. Aldrich, Spring Valley, N.Y., assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Nov. 30, 1988, Ser. No. 278,074
Term of patent 14 years
U.S. Cl. D4—104



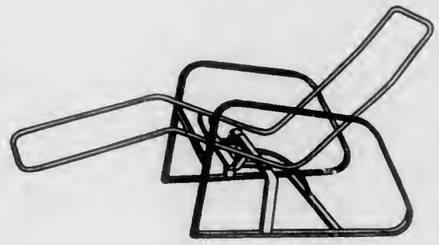
321,287
TOOTHBRUSH
Douglas R. Woll, and Margo Y. Woll, both of 3311 Woodview Lake Rd., West Bloomfield, Mich. 48033
Filed Sep. 2, 1988, Ser. No. 240,230
Term of patent 14 years
U.S. Cl. D4—106



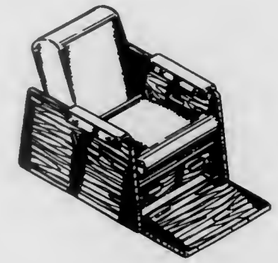
321,288
HOSIERY DISPLAY HANGER
William H. Nichol, Jr., 123 W. 7th St., P.O. Box 550, Hopkinsville, Ky. 42240
Filed May 3, 1989, Ser. No. 347,286
Term of patent 14 years
U.S. Cl. D6—315



321,289
CHAISE FRAME
Herbert C. Saiger, Troy, Ohio, assignor to Crown Leisure Products, Inc., Owosso, Mich.
Filed Sep. 9, 1988, Ser. No. 243,643
Term of patent 14 years
U.S. Cl. D6—361

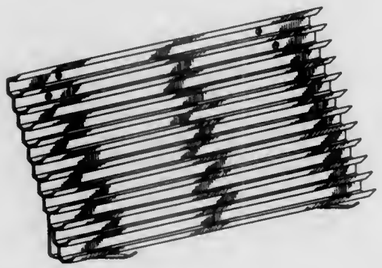


321,290
COMBINED CHAIR AND RETRACTABLE FOOTREST
William B. Laird, c/o Blockhouse Co., Inc., 121 First Ave., Red Lion, Pa. 17351
Filed Jun. 17, 1988, Ser. No. 211,526
Term of patent 14 years
U.S. Cl. D6—367



VOL 1132 ISS 1 NO 5 1991 UMI

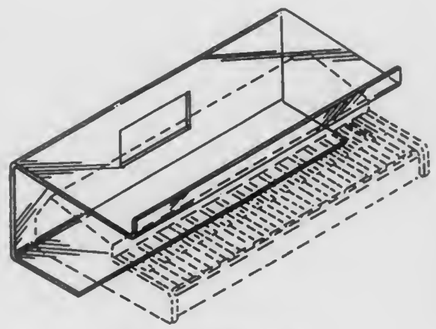
321,291
STORAGE RACK FOR COMPACT DISCS, CASSETTES AND THE LIKE
Stephen P. Shoemaker, Jr., 123 International Boardwalk, Redondo Beach, Calif. 90277, and Eric L. Brashear, 1663 Industrial Ave., Unit H, Norco, Calif. 91760
Filed Nov. 21, 1989, Ser. No. 439,568
Term of patent 14 years
U.S. Cl. D6—407



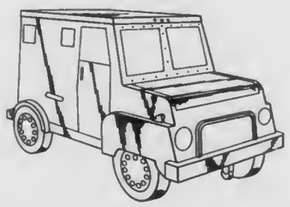
321,292
PORTABLE DRESSING ROOM
Deborah A. Gabriel, Rte. 3, Box 99, McComb, Miss. 39648
Filed Aug. 10, 1987, Ser. No. 83,300
Term of patent 14 years
U.S. Cl. D6—417



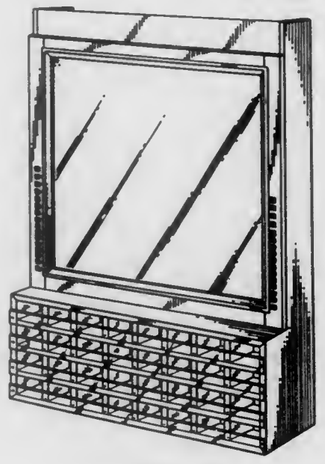
321,293
KEYBOARD STAND
Michael G. Kucsak, 367 Carteret Ave., Carteret, N.J. 07006
Filed Aug. 24, 1988, Ser. No. 235,987
Term of patent 14 years
U.S. Cl. D6—419



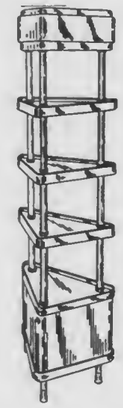
321,294
TOY CHEST
William M. Ross, 6603 Church St., Apt. D-1, Riverdale, Ga. 30274
Filed Jun. 12, 1989, Ser. No. 364,990
Term of patent 14 years
U.S. Cl. D6—434



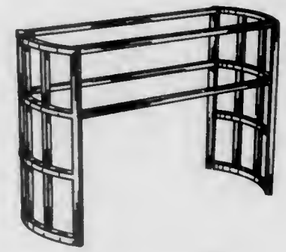
321,295
ADVERTISING CABINET
Sylvia Noebler, Mosman, Australia, assignor to Jean Perrier, Mosman, Australia
Filed Feb. 26, 1988, Ser. No. 162,348
Term of patent 14 years
U.S. Cl. D6—444



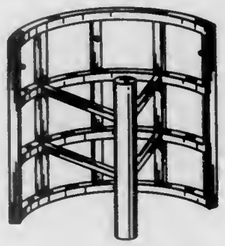
321,296
DISPLAY STAND
Walter R. Miranda, Chicago, Ill., assignor to RTC Industries, Inc., Chicago, Ill.
Filed Apr. 11, 1988, Ser. No. 180,274
Term of patent 14 years
U.S. Cl. D6—461



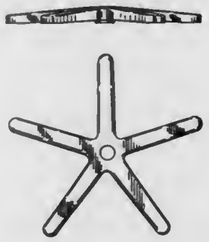
321,297
TABLE BASE
Robert C. Winzeler, III, Fremont, Ind., assignor to Design Institute of America, Jasper, Ind.
Filed Feb. 23, 1989, Ser. No. 314,594
Term of patent 14 years
U.S. Cl. D6—495



321,298
TABLE BASE
Robert C. Winzeler, III, Fremont, Ind., assignor to Design Institute America, Inc., Montpelier, Ohio
Filed Feb. 23, 1989, Ser. No. 314,596
Term of patent 14 years
U.S. Cl. D6—495

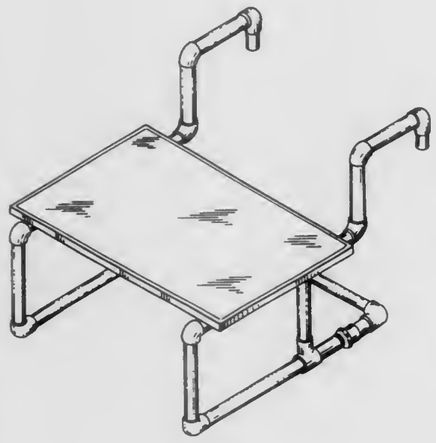


321,299
CHAIR BASE
Jerome C. Caruso, Lake Forest, Ill.; Christopher G. Estkowski, Coloma, Mich., and Leonard V. Lastuck, Granger, Ind., assignors to Shepherd Products U.S., Inc., St. Joseph, Mich.
Filed Aug. 22, 1988, Ser. No. 234,499
The portion of the term of this patent subsequent to Nov. 7, 2003, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—498

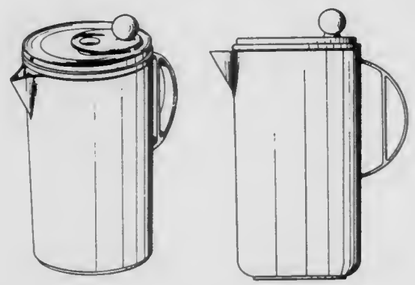


VOL 1132 ISS 1 NO 5 1991 UMI

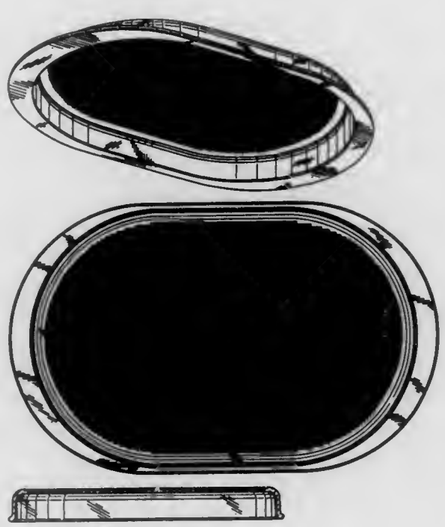
321,300
PORTABLE TRAY
Stephen Postic, 1496 Pembroke St., Bridgeport, Conn. 06608
Filed Jul. 18, 1988, Ser. No. 220,826
Term of patent 14 years
U.S. Cl. D6—511



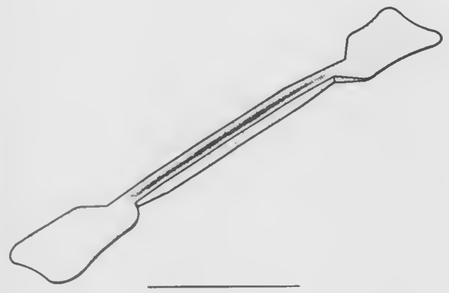
321,301
COMBINED DRINK MIXER AND PITCHER
Emerson J. Purkapile, Chicago, Ill., assignor to The Coca-Cola Company, Atlanta, Ga.
Filed Nov. 23, 1988, Ser. No. 275,734
Term of patent 14 years
U.S. Cl. D7—376



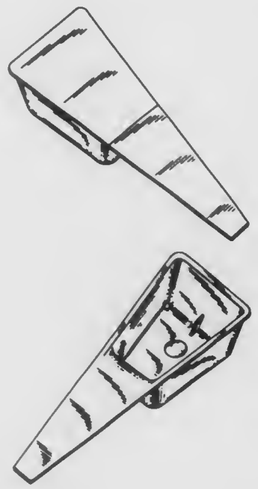
321,302
TRAY COVER OR THE LIKE
Larry G. Zimmerman, North Smithfield, R.I., assignor to Dart Industries Inc., Deerfield, Ill.
Filed Jan. 23, 1989, Ser. No. 300,678
Term of patent 14 years
U.S. Cl. D7—392.1



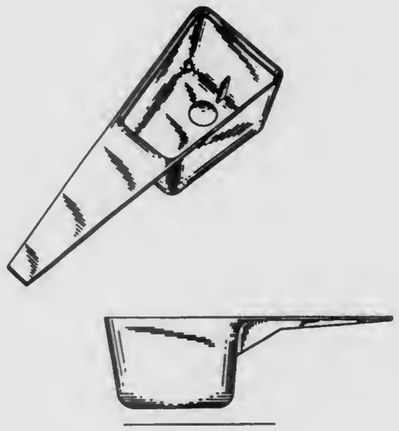
321,303
SCRAPER FOR JARS OF BABY FOOD
Gloria S. Augustino, and Gary R. Augustino, both of 2905 Garfield Pl., Antioch, Calif. 94509
Filed Sep. 21, 1989, Ser. No. 410,229
Term of patent 14 years
U.S. Cl. D7—688



321,304
COMBINED SCOOP AND COVER THEREFOR
Sky Underwood, Brooklyn, N.Y.; Robert Marks, Short Hills, N.J.; David Laubach, New York, N.Y., and Harvey Samo, Maplewood, N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.
Filed Jan. 31, 1990, Ser. No. 473,286
Term of patent 14 years
U.S. Cl. D7—691



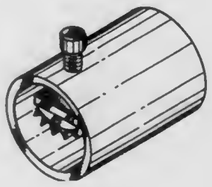
321,305
SCOOP
Sky Underwood, Brooklyn, N.Y.; Robert Marks, Short Hills, N.J.; David Laubach, New York, N.Y., and Harvey Samo, Maplewood, N.J., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.
Filed Dec. 29, 1989, Ser. No. 459,112
Term of patent 14 years
U.S. Cl. D7—691



321,306
CASSEROLE CADDY
Marvin L. Behar, 15022 - 35th Ave. West #2, Lynnwood, Wash. 98037
Filed Feb. 14, 1989, Ser. No. 310,087
Term of patent 14 years
U.S. Cl. D7—607



321,307
LUG NUT REMOVER
Roy L. Breece, P.O. Box 173, Centerville, Tenn. 37033
Filed Mar. 14, 1988, Ser. No. 167,427
Term of patent 14 years
U.S. Cl. D8—14



VOL 1132 ISS 1 NO 5 1991 UMI

321,308
COMPUTER HOUSING REMOVAL TOOL
Douglas W. Kingsbury, P.O. Box 66754, Houston, Tex. 77266
Filed Oct. 16, 1986, Ser. No. 919,829
Term of patent 14 years
U.S. Cl. D8—14



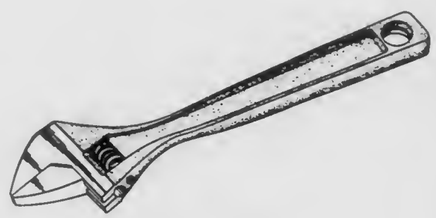
321,309
GREASE GUN
Lyle G. Myers, Fremont, Mich., assignor to LubeCon Maintenance Systems, Inc., Fremont, Mich.
Filed Apr. 3, 1989, Ser. No. 332,223
Term of patent 14 years
U.S. Cl. D15—150



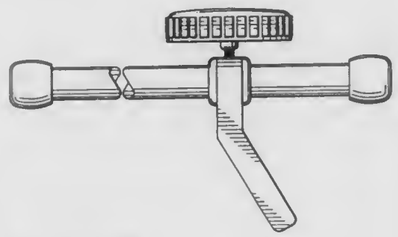
321,310
ADJUSTABLE WRENCH
Masami Toyoshima, Hachioji, Japan, assignor to Top Kogyo Co., Ltd., Niigata, Japan
Filed Mar. 20, 1989, Ser. No. 326,048
Claims priority, application Japan, Dec. 28, 1988, 63-51139
Term of patent 14 years
U.S. Cl. D8—22



321,311
ADJUSTABLE WRENCH
Masami Toyoshima, Hachioji, Japan, assignor to Top Kogyo Co., Ltd., Niigata, Japan
Filed Mar. 20, 1989, Ser. No. 326,049
Claims priority, application Japan, Dec. 28, 1988, 63-51138
Term of patent 14 years
U.S. Cl. D8—22

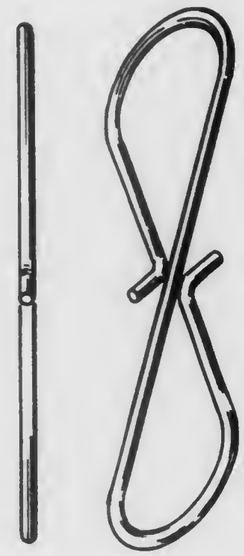


321,312
VEHICLE BRAKE LOCK FOR USE WHILE LOADING OR UNLOADING A BOAT FROM A TRAILER ON AN INCLINE
Bruce L. Williamson, P.O. Box 3601, Richmond, Va. 23235
Filed May 23, 1989, Ser. No. 355,373
Term of patent 14 years
U.S. Cl. D8—339



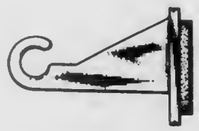


321,313
SUPPORT HOOK
John P. Russell, Centerpoint, and Terry Carroll, Dora, both of Ala., assignors to Infection Control Products, Inc., Gardendale, Ala.
Filed Jul. 31, 1989, Ser. No. 386,682
Term of patent 14 years
U.S. Cl. D8—370

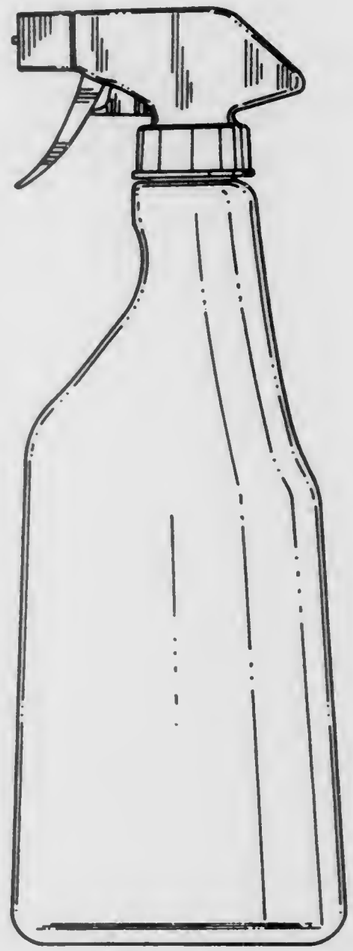


321,314
SUPPORT FOR DECORATIVE STRAND
Lonnie F. Gary, Lubbock, Tex., assignor to Gary Products Group, Inc., Lubbock, Tex.
Filed Jul. 28, 1989, Ser. No. 387,092
The portion of the term of this patent subsequent to May 28, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D8—373





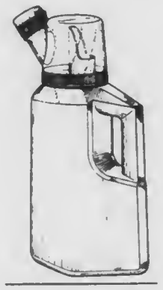
321,315
COMBINED CONTAINER AND SPRAY NOZZLE
Hans Halm, Herne, and Paul-Otto Weltgen, Hilden, both of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany
Filed Aug. 25, 1988, Ser. No. 236,688
Claims priority, application World Int. Prop. O., Feb. 25, 1988, DM/010364
Term of patent 14 years
U.S. Cl. D9—300



VOL 1132 ISS 1 NO 5 1991 UMI

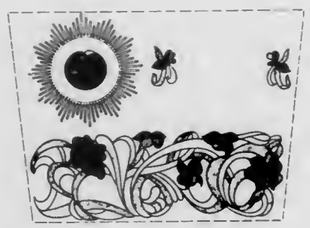
321,316
SURFACE ORNAMENTATION FOR A BOTTLE
Franco Alberti, Benevento BN, Italy, assignor to S.P.A. Strega Alberti Benevanto (S.A.B.), Benevento BN, Italy
Filed Nov. 13, 1989, Ser. No. 433,708
Term of patent 14 years
U.S. Cl. D9—307

321,317
COMBINED CONTAINER AND DISPENSER
Adam Sherman, Brooklyn, N.Y., and Peter Stagl, Morris Plains, N.J., assignors to Colgate-Palmolive Company, Piscataway, N.J.
Filed Jan. 2, 1990, Ser. No. 460,220
Term of patent 14 years
U.S. Cl. D9—337



321,318
CONTAINER
Harvey R. Gunter, Bridge City, Tex., assignor to Cardinal Packaging, Inc., Streetsboro, Ohio
Filed Apr. 14, 1988, Ser. No. 182,071
Term of patent 14 years
U.S. Cl. D9—352

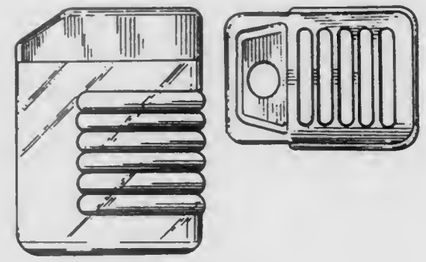




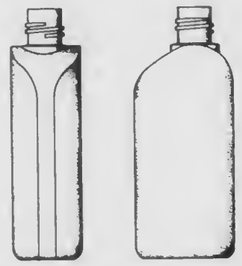
321,319
CONTAINER FOR DISPENSING LIQUID CLEANSING AGENTS OR SIMILAR ARTICLE
Orlandi Giuseppe, Milan, Italy, assignor to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany
Filed Dec. 27, 1988, Ser. No. 291,912
Claims priority, application Italy, Jun. 28, 1988, 21502 B/88
Term of patent 14 years
U.S. Cl. D9—366



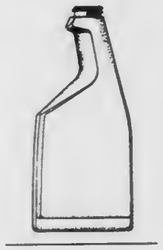
321,320
LIQUID DETERGENT DISPENSER WITH LID OR SIMILAR ARTICLE
Hans Halm, Herne, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen, Fed. Rep. of Germany
Filed Apr. 18, 1989, Ser. No. 340,314
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1988, DMA000856
Term of patent 14 years
U.S. Cl. D9—366



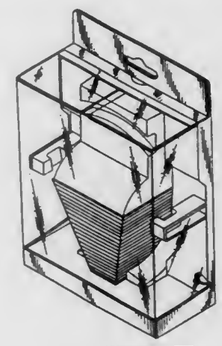
321,321
BOTTLE
Frank R. Wilgus, Powell, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Jan. 19, 1990, Ser. No. 467,606
Term of patent 14 years
U.S. Cl. D9—375



321,322
BOTTLE
Paul D. Fuchs, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio
Filed Feb. 14, 1990, Ser. No. 479,885
Term of patent 14 years
U.S. Cl. D9—375



321,323
PACKING BOX FOR HEADPHONE
Yuhko Nakamura, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed Dec. 19, 1989, Ser. No. 452,327
Claims priority, application Japan, Jun. 28, 1989, 1-23901
Term of patent 14 years
U.S. Cl. D9—415



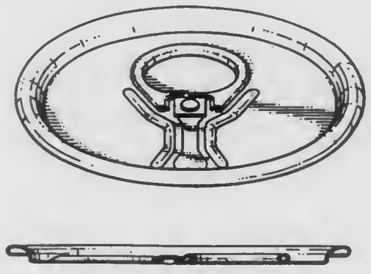
321,324
CONTAINER
Dennis J. Budzbanowski, R.D. #5, Box 232 Nancy Dr., Meadville, Pa. 16335
Filed May 30, 1989, Ser. No. 358,199
Term of patent 14 years
U.S. Cl. D9—425



VOL 1132 ISS 1 NO 5 1991 UMI

321,325
PAINT CAN RIM PROTECTOR
R. Peter Petrus, P.O. Box 533, Liverpool, N.Y. 13088
Filed Jul. 18, 1988, Ser. No. 220,816
Term of patent 14 years
U.S. Cl. D9—435

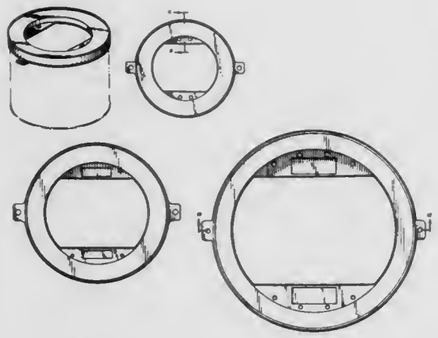
321,326
END PANEL FOR CANS
Robert M. Harwood, West Glamorgan, Scotland, assignor to CMB Foodcan plc, England
Filed Jan. 27, 1989, Ser. No. 303,777
Claims priority, application United Kingdom, Jul. 29, 1988, 1052675
Term of patent 14 years
U.S. Cl. D9—438

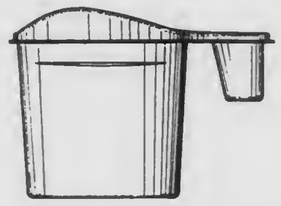


321,327
WRIST WATCH
Daniel S. O'Connell, 5423-H Spanish Oak La., Agoura, Calif. 91301
Filed Jan. 8, 1990, Ser. No. 461,789
Term of patent 14 years
U.S. Cl. D10—33



321,328
MEASURING CUP
Jacky P. Duquet, Herbeville, France, assignor to The Procter & Gambie Company, Cincinnati, Ohio
Filed Nov. 17, 1988, Ser. No. 272,653
Claims priority, application France, May 17, 1988, 883222
Term of patent 14 years
U.S. Cl. D10—46.2

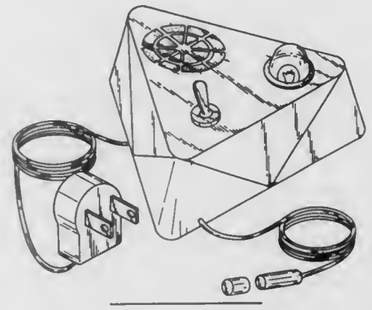




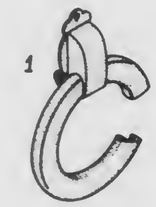
321,329
ELECTRONIC LOCATING TRANSMITTER FOR LOST CHILDREN OR THE LIKE
Burton W. Barnett, and Mary Barnett, both of 1111 Lane Ave., Titusville, Fla. 32780-3908
Filed May 4, 1989, Ser. No. 347,281
Term of patent 14 years
U.S. Cl. D10—104



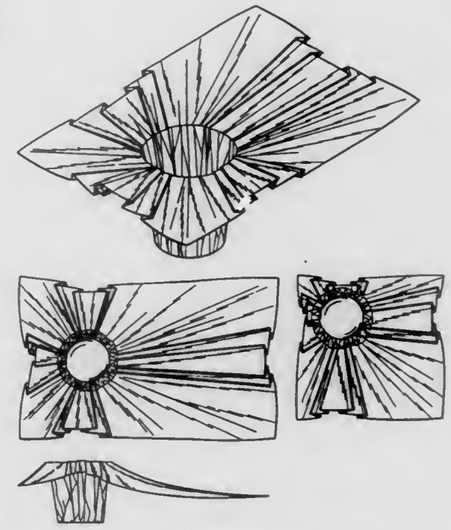
321,330
ALARM FOR PATIENTS IN HOSPITALS OR THE LIKE
Robert E. Gagnon, 31 Conlon Street, Winnipeg, Manitoba, Canada R2C-4K6, and Raymond Gagnon, 51 Sandrington Dr., Winnipeg, Manitoba, Canada R2N-2J2
Filed Jul. 13, 1989, Ser. No. 379,151
Term of patent 14 years
U.S. Cl. D10—106



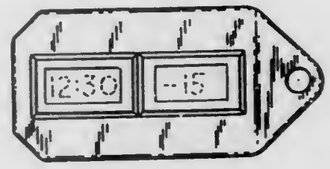
321,331
EARRINGS
Christine Royer, New York, N.Y., assignor to Halston Enterprises, Inc., New York, N.Y.
Filed Jun. 1, 1989, Ser. No. 360,163
Term of patent 14 years
U.S. Cl. D11—43



321,332
FLOWER POT COVER
Donald E. Weder; Erwin Weder, deceased, both of Highland, Ill. by Donald E. Weder and Wanda M. Weder, co-executors; Wanda M. Weder, Highland, Calif.; Franklin J. Craig, Valley Park, Mo.; Wilma M. Donnelly, Highland, Ill.; Phyllis J. Bolk, Highland, Ill.; John W. Bergstrand, Highland, Ill., and Robert C. Abrams, Edwardsville, Ill., assignors to Highland Supply Corporation, Highland, Ill.
Continuation-in-part of Ser. No. 613,053, May 22, 1984, Pat. No. Des. 293,224. This application Oct. 13, 1987, Ser. No. 108,351
Term of patent 14 years
U.S. Cl. D11—164

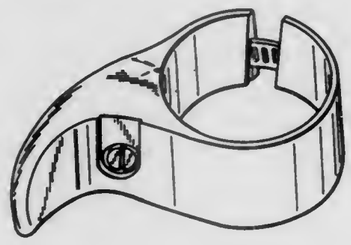


321,333
PULL TAB FOR SLIDE FASTENERS
Scott T. Soule, 90 Main St., Fryeburg, Me. 04037
Filed Feb. 26, 1988, Ser. No. 162,352
Term of patent 14 years
U.S. Cl. D11—221



VOL 1132 ISS 1 NO 5 1991 UMI

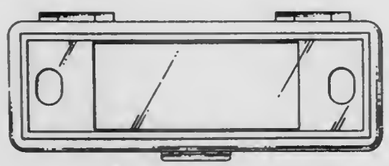
321,334
BICYCLE DRIVE CHAIN GUIDE
John W. Greenlaw, 4120 Morgan Territory Rd., Clayton, Calif. 94517
Filed Dec. 14, 1989, Ser. No. 450,843
Term of patent 14 years
U.S. Cl. D12—114



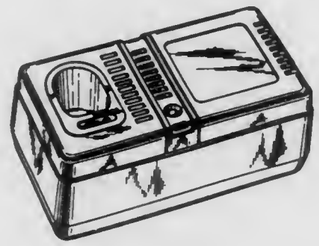
321,335
WHEEL CHAIR
Takaaki Aoki, Osaka, and Fumiko Sato, Kanagawa, both of Japan, assignors to Nitto Boseki Co., Ltd., Fukushima, Japan
Filed Oct. 19, 1989, Ser. No. 424,371
Claims priority, application Japan, Apr. 28, 1989, 1-16106
Term of patent 14 years
U.S. Cl. D12—131



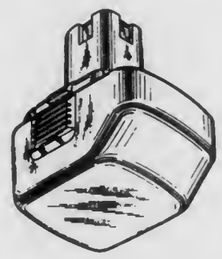
321,336
RADIO COVER
Fred O. Hoese, Bulverde, Tex., assignor to Hoese Corporation, Bulverde, Tex.
Filed May 8, 1989, Ser. No. 349,338
Term of patent 14 years
U.S. Cl. D12—192



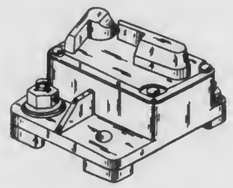
321,337
BATTERY CHARGER
Masakazu Sakamoto; Naoki Kikuchi, both of Tokyo, and Noboru Nakanishi, Hiroshima, all of Japan, assignors to Ryobi Ltd., Hiroshima, Japan
Filed Dec. 1, 1989, Ser. No. 444,332
Claims priority, application Japan, Jun. 2, 1989, 1-20587
Term of patent 14 years
U.S. Cl. D13—108



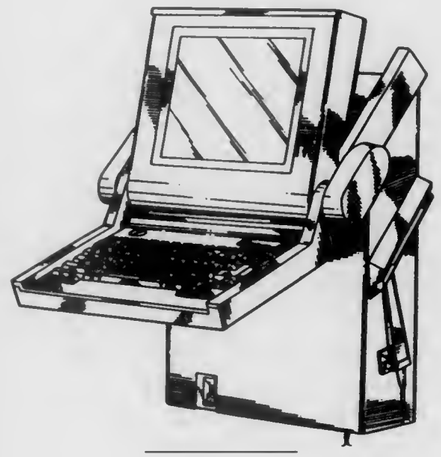
321,338
STORAGE BATTERY FOR ELECTRIC TOOLS
Masakazu Sakamoto; Naoki Kikuchi, both of Tokyo, and Noboru Nakanishi, Hiroshima, all of Japan, assignors to Ryobi Ltd., Hiroshima, Japan
Filed Nov. 30, 1989, Ser. No. 443,410
Claims priority, application Japan, Jun. 2, 1989, 1-20588
Term of patent 14 years
U.S. Cl. D13—108



321,339
FIREWALL MOUNT HIGH AMP CIRCUIT BREAKER
Thomas J. Stack, Chicago, and Jacek M. Korczynski, Niles, both of Ill., assignors to Cooper Industries, Inc., Houston, Tex.
Filed Sep. 28, 1989, Ser. No. 414,182
Term of patent 14 years
U.S. Cl. D13—160



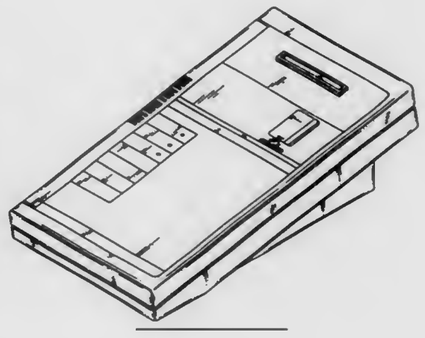
321,340
DATA INPUT/OUTPUT TERMINAL FOR MONITORING PATIENTS
Dino M. Savio, Clearwater, Fla., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Nov. 15, 1988, Ser. No. 271,480
Term of patent 14 years
U.S. Cl. D14—100



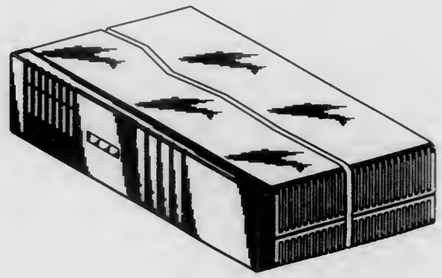
321,341
COMPUTER HOUSING
Anh Bao, Orange, and Yu-Zong Lin, Fountain Valley, both of Calif., assignors to CSS Laboratories, Inc., Irvine, Calif.
Filed Jun. 2, 1989, Ser. No. 360,751
Term of patent 14 years
U.S. Cl. D14—102



321,342
HOUSING FOR MAGNETIC STRIP READER OR SIMILAR ARTICLE
Volker Diehl, Neuweiler, and Günter Kuczewski, Denkendorf, both of Fed. Rep. of Germany, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 25, 1989, Ser. No. 302,537
Claims priority, application Fed. Rep. of Germany, Aug. 20, 1988, M 88 00 620.4
Term of patent 14 years
U.S. Cl. D14—107

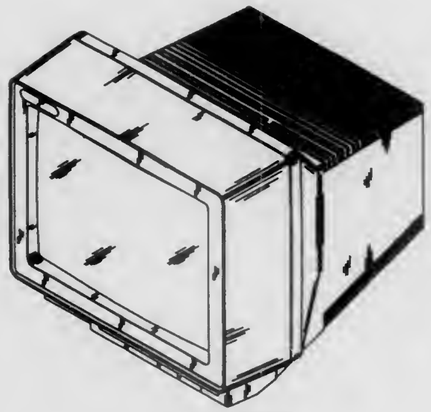


321,343
MODEM FOR DIGITAL COMMUNICATIONS
David L. Feer, Medina, Ohio, and Daniel L. Williams, Norwood, Mass., assignors to Codex Corporation, Mansfield, Mass.
Filed Dec. 22, 1989, Ser. No. 455,119
Term of patent 14 years
U.S. Cl. D14—107

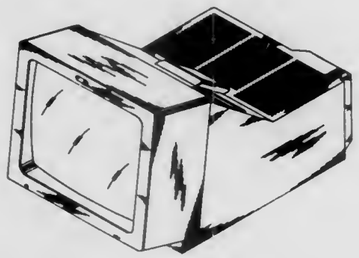


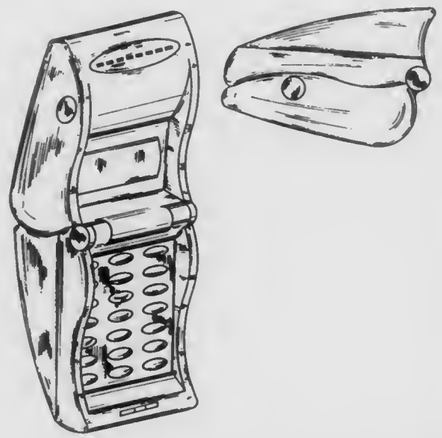
VOL 1132 ISS 1 NO 5 1991 UMI

321,344
COMPUTER DISPLAY
Robert E. Steinbugler, Raleigh, N.C.; Richard Sapper, Montagnola, Switzerland; Timothy D. Wetzel, Santa Clara, Calif., and Roger C. Williams, Raleigh, N.C., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 7, 1989, Ser. No. 390,261
Term of patent 14 years
U.S. Cl. D14—113

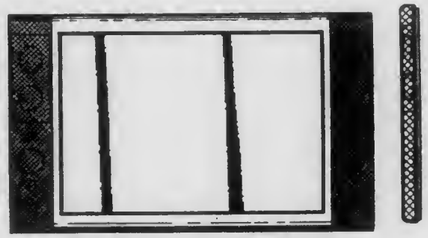


321,345
COMPUTER CRT MONITOR
Larry S. Foster, Lexington, Ky.; Richard F. Sapper, Montagnola, Switzerland; Steven A. Silverstein, and James P. Wang, both of Lexington, Ky., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Oct. 11, 1989, Ser. No. 419,855
Term of patent 14 years
U.S. Cl. D14—113



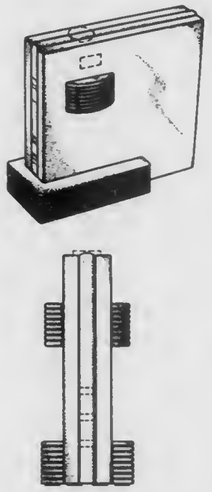


321,346
COMBINED PROJECTION SCREEN AND SPEAKERS
Masakazu Sugiyama, Woodcliff Lake, N.J., assignor to Sharp Corporation, Osaka, Japan
Filed Dec. 5, 1989, Ser. No. 446,164
Term of patent 14 years
U.S. Cl. D14—129

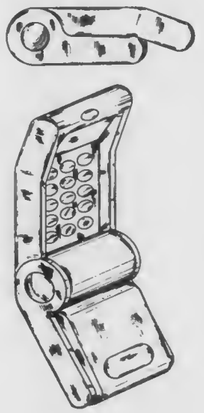


321,347
PORTABLE CELLULAR HANDSET TELEPHONE
Tony Colida, 2672 Bedford Road, Montréal, Québec, Canada H3S-1G1
Filed Apr. 23, 1990, Ser. No. 513,165
Term of patent 14 years
U.S. Cl. D14—138

321,348
TELEPHONE ANSWERING INSTRUMENT
Daniel K. Harden, San Jose, Calif., and John B. Havener, Fountaintown, Ind., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Sep. 14, 1990, Ser. No. 583,769
Term of patent 14 years
U.S. Cl. D14—141

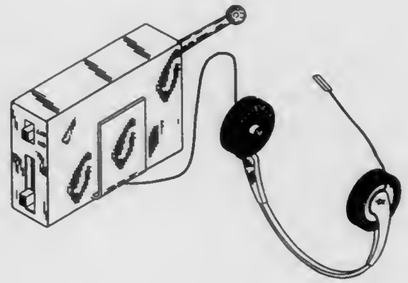


321,349
CELLULAR PORTABLE HANDSET TELEPHONE
Tony Colida, 2672 Bedford Rd., Montreal, Quebec, Canada H3S-1G1
Filed May 10, 1990, Ser. No. 521,660
Term of patent 14 years
U.S. Cl. D14—138



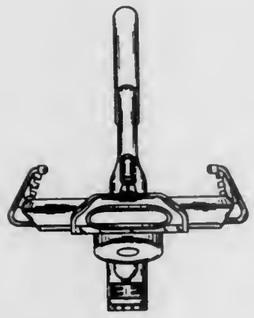
321,350
REMOTE RADIOTELEPHONE HEADSET
Patrick G. Phelan, 2044 Shore Road, R.R. 3, Eastern Passage, Nova Scotia, Canada B3G-1H5
Filed Jun. 15, 1990, Ser. No. 538,477
Term of patent 14 years
U.S. Cl. D14—223

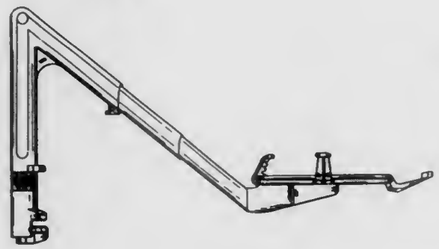




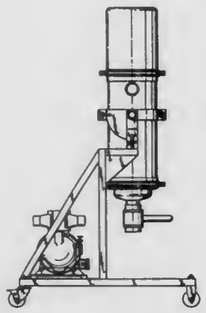
VOL 1132 ISS 1 NO 5 1991 UMI

321,351
PIVOTABLE TELEPHONE STAND
Balthasar Kirchner, Eferding, Austria, assignor to Ernst Stadelmann Gesellschaft m.b.H., Eferding, Austria
Filed Mar. 7, 1990, Ser. No. 490,131
Claims priority, application Austria, Sep. 8, 1989, 27630
Term of patent 14 years
U.S. Cl. D14—251

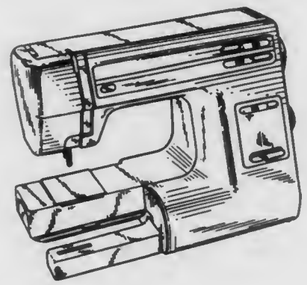




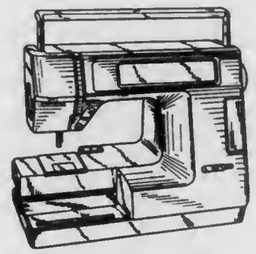
321,352
MOBILE IN-LINE STRAINER FOR PAINTS AND RESINS OR THE LIKE
Nicholas R. Vann, Sunbury-on-Thames, United Kingdom, assignor to Russell Finex Limited, London, United Kingdom
Filed Oct. 12, 1988, Ser. No. 257,024
Term of patent 14 years
U.S. Cl. D15—7



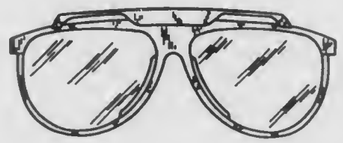
321,353
SEWING MACHINE
Yoshiaki Eguchi, and Nobufusa Kuroki, both of Tokyo, Japan, assignors to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Dec. 27, 1989, Ser. No. 457,539
Term of patent 14 years
U.S. Cl. D15—69



321,354
SEWING MACHINE
Nobufusa Kuroki, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Oct. 27, 1989, Ser. No. 428,320
Claims priority, application Japan, Feb. 23, 1989, 1-32360
Term of patent 14 years
U.S. Cl. D15—70



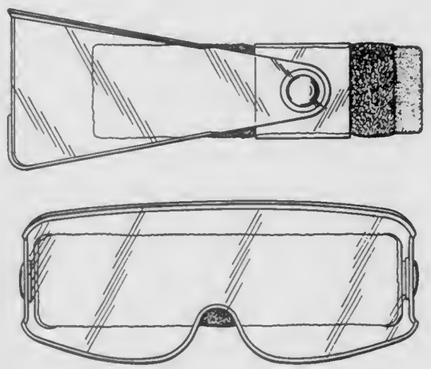
321,355
COMBINED EYEGLASSES AND SHIELDING CASSETTE THEREFOR
Stephan C. Allendorf, Hoboken, N.J., and Thomas M. Dair, Valley Cottage, N.Y., assignors to Corning Incorporated, Corning, N.Y.
Filed Nov. 22, 1989, Ser. No. 440,294
Term of patent 14 years
U.S. Cl. D16—102



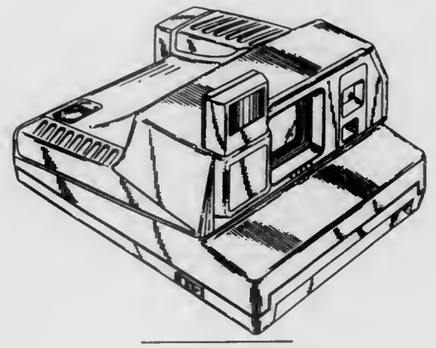
321,356
SPECTACLE FRAMES
Jean-Michel Daubignard, Villiers sur Marne; Pascal Pauly, Amilly, and Philippe Pora, Lognes, all of France, assignors to Essilor International (Compagnie Generale D'Optique), Creteil, France
Filed Oct. 30, 1989, Ser. No. 431,313
Claims priority, application France, Apr. 28, 1989, 892928
Term of patent 14 years
U.S. Cl. D16—102



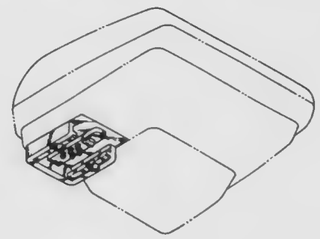
321,357
SUN VISOR
Robyn Karp, 102 Stratford Rd., Harrison, N.Y. 10528
Filed May 25, 1989, Ser. No. 357,582
Term of patent 14 years
U.S. Cl. D16—107



321,358
POP-UP STROBE CAMERA OR SIMILAR ARTICLE
John H. Betts, New York, N.Y., assignor to Polaroid Corporation, Cambridge, Mass.
Filed Mar. 14, 1988, Ser. No. 167,430
The portion of the term of this patent subsequent to Sep. 17, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D16—211

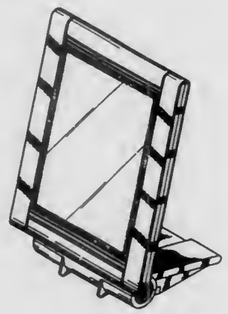


321,359
MOUNTING MEMBER FOR A CAMERA ACCESSORY
Tatsuro Izumi, and Makoto Yanai, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Sep. 22, 1988, Ser. No. 247,926
Claims priority, application Japan, Aug. 24, 1988, 63-33651; Aug. 24, 1988, 63-33652
Term of patent 14 years
U.S. Cl. D16—219

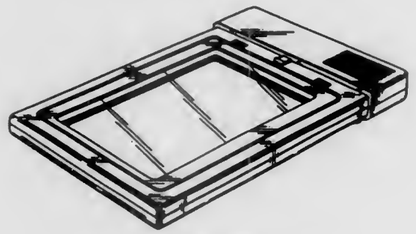


VOL 1132 ISS 1 NO 5 1991 UMI

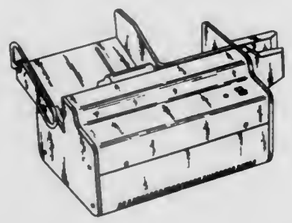
321,360
FOLDABLE ADVERTISEMENT SLIDE PROJECTOR
Billy Cheng, Taipei, Taiwan, assignor to Easterntec, Inc., Taipei, Taiwan
Filed Jul. 7, 1989, Ser. No. 376,406
Term of patent 14 years
U.S. Cl. D16—229



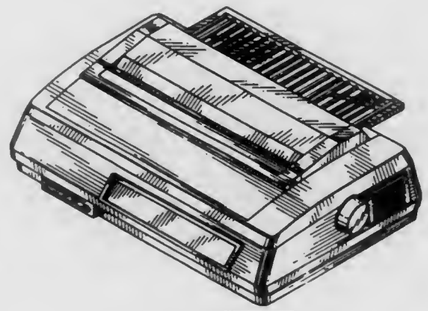
321,361
DISPLAY UNIT FOR AN OVERHEAD PROJECTOR
Masaaki Iino, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Feb. 24, 1989, Ser. No. 315,039
Claims priority, application Japan, Sep. 13, 1988, 63-35997
Term of patent 14 years
U.S. Cl. D16—235



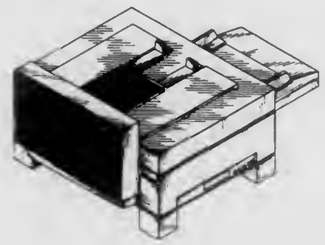
321,362
DOCUMENT FEEDER
Emilio B. Martin, Madrid, Spain, assignor to Amper, S.A., Madrid, Spain
Filed Jun. 2, 1989, Ser. No. 360,757
Term of patent 14 years
U.S. Cl. D18—49



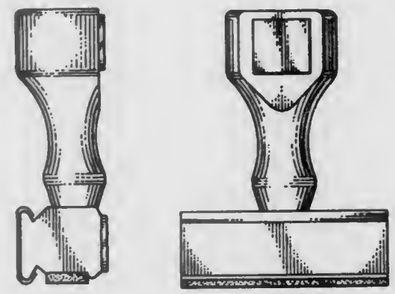
321,363
COMPUTER OUTPUT PRINTER
Takashi Hirose; Yoshihiro Kasahara, and Yukio Terauchi, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Feb. 9, 1990, Ser. No. 478,174
Claims priority, application Japan, Aug. 11, 1989, 1-29594
Term of patent 14 years
U.S. Cl. D18—54



321,364
COMPUTER OUTPUT PRINTER
Masayoshi Eto; Hiroshi Hidaka; Friedrich K. Frenkler, and Norikatsu Morita, all of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan
Filed Mar. 9, 1990, Ser. No. 494,003
Claims priority, application Japan, Sep. 11, 1989, 1-33387
Term of patent 14 years
U.S. Cl. D18—55



321,365
COMBINED HAND STAMP AND MAGNETIC STRIP ATTACHMENT
Charles R. Bostick, 833 W. 11th St., San Pedro, Calif. 90731
Filed Sep. 18, 1989, Ser. No. 408,320
Term of patent 14 years
U.S. Cl. D18—15



321,366
CURVED FONT
Peter N. Yianilos, Fort Lauderdale, Fla., assignor to Franklin Electronic Publishers, Incorporated, Mt. Holly, N.J.
Filed Jun. 16, 1989, Ser. No. 367,219
Term of patent 14 years
U.S. Cl. D18—24

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz

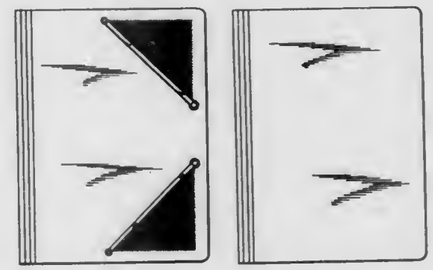
321,367
ITALIC SINHALESE FONT
Sisira Ranasinghe, 2002 Beechmont Dr., Fort Wayne, Ind. 46825
Filed Sep. 7, 1988, Ser. No. 241,550
The portion of the term of this patent subsequent to Sep. 10, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D18—25



321,368
PAPER TRIMMER WITH STORAGE COMPARTMENTS FOR OFFICE SUPPLIES
Steven J. Beno, c/o Ideal School Supply Corporation, 2245 Delany Rd., Waukegan, Ill. 60087
Filed Mar. 22, 1989, Ser. No. 327,157
Term of patent 14 years
U.S. Cl. D18—34



321,369
STATIONERY FOLDER OR THE LIKE
Tracey Tooker, 18 Mercer St., New York, N.Y. 10013
Filed Mar. 30, 1988, Ser. No. 175,136
Term of patent 14 years
U.S. Cl. D19—26

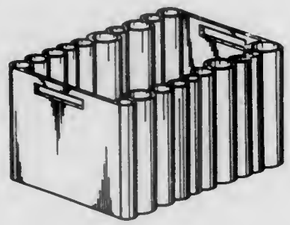


VOL 1132 ISS 1 NO 5 1991 UMI

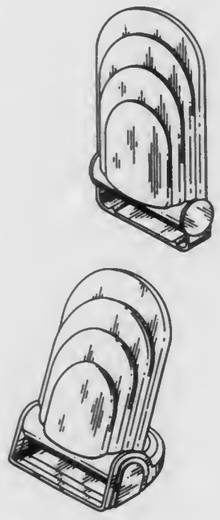
321,370
SIMULATED BASKETBALL PLAYER
Michael Curtis, 911 Skeet Club Rd., High Point, N.C. 27260
Filed Dec. 27, 1988, Ser. No. 289,795
Term of patent 14 years
U.S. Cl. D19—62



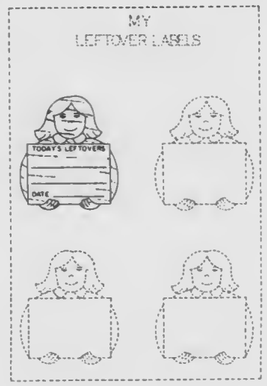
321,371
MULTI-PURPOSE ORGANIZER
Carl J. Galante, 1837 Dixie Beach Blvd., Sanibel Island, Fla. 33957
Continuation-in-part of Ser. No. 208,025, Jul. 17, 1988. This application Oct. 13, 1988, Ser. No. 257,304
Term of patent 14 years
U.S. Cl. D19—77



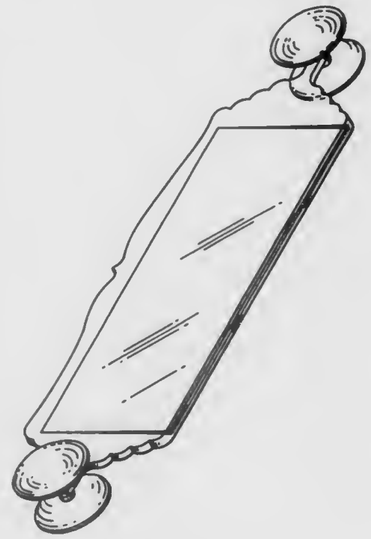
321,372
MESSAGE HOLDER
Mel Evenson, San Pedro, Calif., assignor to Eldon Industries, Inc., Inglewood, Calif.
Filed May 30, 1989, Ser. No. 357,250
Term of patent 14 years
U.S. Cl. D19—90



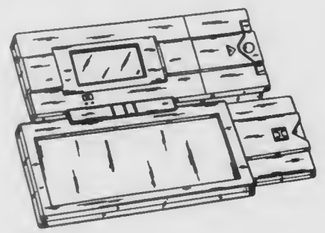
321,373
LABEL FOR REFRIGERATOR CONTAINERS OR THE LIKE
Henry Fankhauser, 1306 Dilston Pl., Silver Spring, Md. 20903
Filed Nov. 20, 1989, Ser. No. 438,227
Term of patent 14 years
U.S. Cl. D20—11



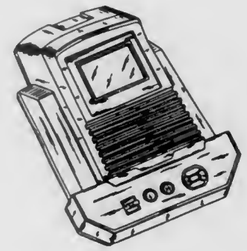
321,374
WINDSHIELD STICKER HOLDER
Van Whitlock, and Shirley Whitlock, both of 811 Forest Green Dr., Corapolis, Pa. 15108
Filed May 25, 1989, Ser. No. 356,397
Term of patent 14 years
U.S. Cl. D20—42



321,375
HOUSING FOR ELECTRONIC GAME OR THE LIKE
Chi-Kit Leung, Tai Koo Shing, Hong Kong, assignor to Video Technology Industries, Inc., Wheeling, Ill.
Filed Mar. 21, 1989, Ser. No. 326,267
Claims priority, application United Kingdom, Oct. 27, 1988, 1054580
Term of patent 14 years
U.S. Cl. D21—13



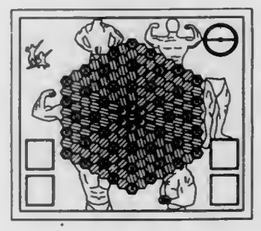
321,376
HOUSING FOR ELECTRONIC GAME OR THE LIKE
Chi-Kit Leung, Tai Koo Shing, Hong Kong, assignor to Video Technologies Industries, Inc., Wheeling, Ill.
Filed Mar. 21, 1989, Ser. No. 326,268
Claims priority, application United Kingdom, Oct. 27, 1988, 1,054,581
Term of patent 14 years
U.S. Cl. D21—13



321,377
HOUSING FOR ELECTRONIC GAME OR THE LIKE
Man-Ho Ko, Kowloon, Hong Kong, assignor to Video Technology Industries, Inc., Wheeling, Ill.
Filed Mar. 21, 1989, Ser. No. 326,269
Claims priority, application United Kingdom, Oct. 27, 1988, 1054579
Term of patent 14 years
U.S. Cl. D21—13

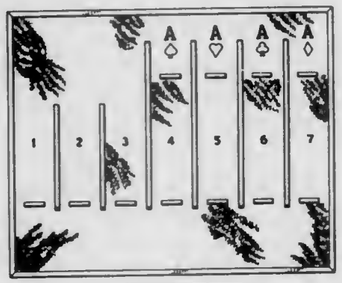


321,378
GAME BOARD
Joseph T. Taormina, San Diego, Calif., and Lyndon K. Murray, Flagstaff, Ariz., assignors to Taormina & Murray Productions, San Diego, Calif.
Filed Aug. 14, 1989, Ser. No. 393,319
Term of patent 14 years
U.S. Cl. D21—30

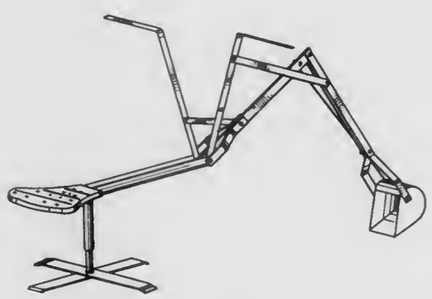


VOL 1132 ISS 1 NO 5 1991 UMI

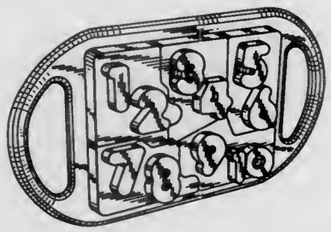
321,379
SOLITAIRE PLAYING BOARD
Ronald C. Brown, 15707 W. 128th St., Olathe, Kans. 66062
Filed May 4, 1989, Ser. No. 347,236
Term of patent 14 years
U.S. Cl. D21—57



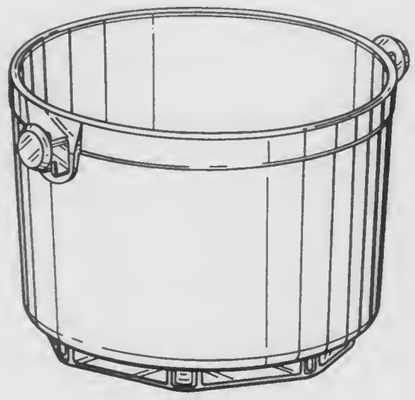
321,380
SANDBOX BACKHOE TOY
Gilbert A. Dewing, R. #1, Box 1630, Enosburg Falls, Vt. 05450
Filed Sep. 29, 1989, Ser. No. 414,432
Term of patent 14 years
U.S. Cl. D21—71



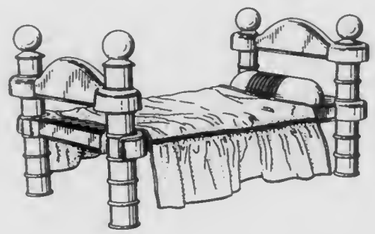
321,381
TOY PUZZLE
Nancy D. Slayton, Cumberland, R.I., assignor to Dart Industries Inc., Deerfield, Ill.
Filed Jul. 31, 1989, Ser. No. 387,686
Term of patent 14 years
U.S. Cl. D21—105



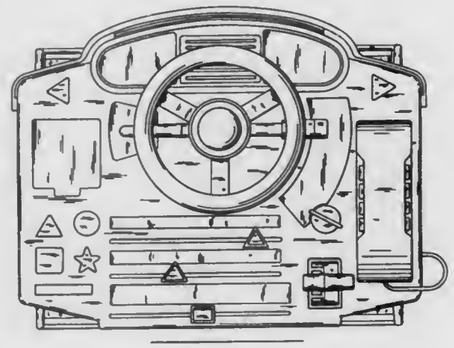
321,382
SAND PAIL TOY OR THE LIKE
Douglas M. Laib, Blackstone, Mass., and Patrick W. Brown, North Olmsted, Ohio, assignors to Dart Industries Inc., Deerfield, Ill.
Filed Mar. 3, 1989, Ser. No. 319,508
Term of patent 14 years
U.S. Cl. D21—120



321,383
TOY BED
Alain Monneret, Voiteur, France, assignor to Monneret Jouets, Lons Le Saunier, France
Filed Jul. 21, 1989, Ser. No. 382,837
Claims priority, application World Int. Prop. O., Feb. 8, 1989, DM/012788
Term of patent 14 years
U.S. Cl. D21—123



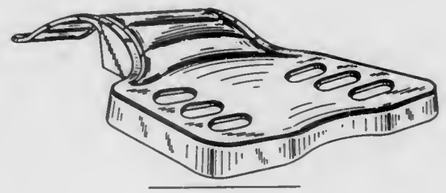
321,384
ELECTRONIC DRIVING TOY
David T. Cheung, New Territories, and Thomas M. Ko, Kowloon, both of Hong Kong, assignors to Video Technology Industries, Inc., Wheeling, Ill.
Filed May 3, 1989, Ser. No. 346,818
Claims priority, application United Kingdom, Nov. 15, 1988, 1054997
Term of patent 14 years
U.S. Cl. D21—142



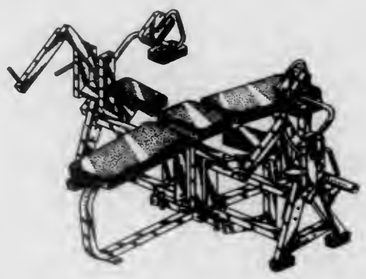
321,385
STUFFED DINOSAUR ANIMAL FIGURE
Kimberly Hudson, Henderson, Nev., assignor to Kid's Biz, Inc., San Diego, Calif.
Filed May 2, 1989, Ser. No. 346,616
Term of patent 14 years
U.S. Cl. D21—148



321,386
SUPPORT FOR SIT-UP EXERCISE OR SIMILAR ARTICLE
Richard Reichman, Jamison, Pa., assignor to Dynamic Classics, Ltd., New York, N.Y.
Filed May 24, 1989, Ser. No. 356,923
Term of patent 14 years
U.S. Cl. D21—191

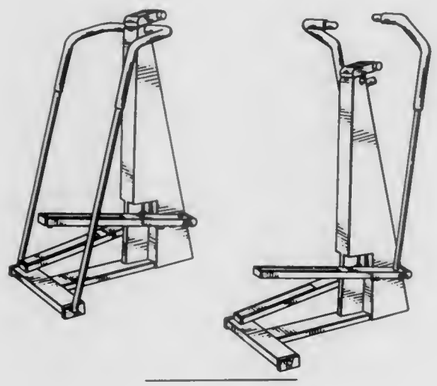


321,387
ISOLATERAL SHOULDER CUFF PHYSICAL EXERCISER
Gary A. Jones, Falmouth, Ky., assignor to Hammer Corporation, Cincinnati, Ohio
Filed Sep. 19, 1989, Ser. No. 409,167
Term of patent 14 years
U.S. Cl. D21—195



VOL 1132 ISS 1 NO 5 1991 UMI

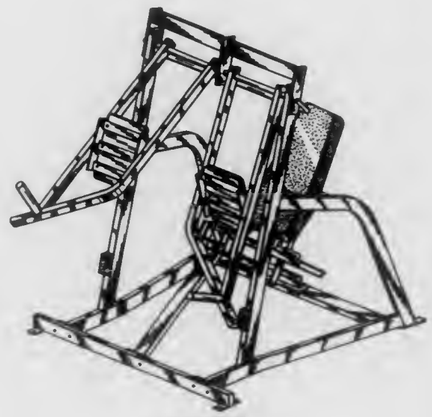
321,388
STEPPING EXERCISE MACHINE
William T. Dalebout, Logan, Utah, assignor to Proform Fitness Products, Inc., Logan, Utah
Filed Nov. 6, 1989, Ser. No. 432,145
Term of patent 14 years
U.S. Cl. D21—195



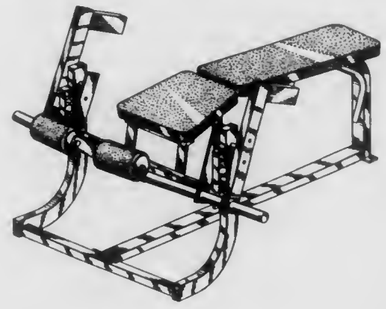
321,389
LEG EXTENSION PHYSICAL EXERCISER
Gary A. Jones, Falmouth, Ky., assignor to Hammer Corporation, Cincinnati, Ohio
Filed Dec. 15, 1989, Ser. No. 451,354
Term of patent 14 years
U.S. Cl. D21—195



321,390
LEG PRESS PHYSICAL EXERCISER
Gary A. Jones, Falmouth, Ky., assignor to Hammer Corporation, Cincinnati, Ohio
Filed Dec. 15, 1989, Ser. No. 451,355
Term of patent 14 years
U.S. Cl. D21—195



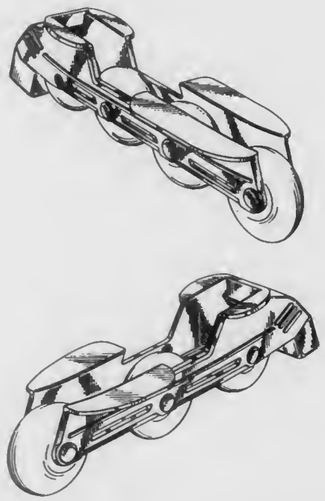
321,391
LEG CURL PHYSICAL EXERCISER
Gary A. Jones, Falmouth, Ky., assignor to Hammer Corporation, Cincinnati, Ohio
Filed Dec. 15, 1989, Ser. No. 452,311
Term of patent 14 years
U.S. Cl. D21—195



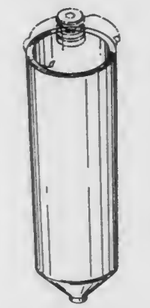
321,392
COMBINED BASKETBALL GOAL, HEIGHT MEASURER AND CLOTHESHORSE OR THE LIKE
Darco Chen, No. 16, Chung Cheng 3rd Rd., Pu Li Chen, Nan Ton Hsien, Taiwan
Filed Apr. 24, 1989, Ser. No. 342,428
Term of patent 14 years
U.S. Cl. D21—201



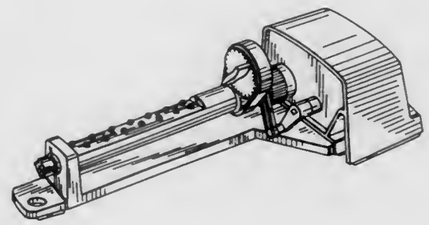
321,393
SLOTTED ROLLER SKATE
Brennan J. Olson, Minneapolis, Minn., and Charles R. Frigard, Holland, Mich., assignors to Rollerblade, Inc., Minnetonka, Minn.
Filed Aug. 23, 1989, Ser. No. 397,305
Term of patent 14 years
U.S. Cl. D21—226



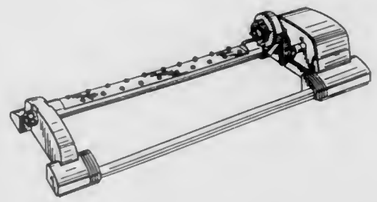
321,394
QUICK-CHANGE FILTER CARTRIDGE
Raymond M. Petrucci, Middlebury; Bruce G. Taylor, Kensington; Edward C. Giordano, Manchester, all of Conn.; James M. Padilla, Covina Heights, and Carl Palmer, La Habra Heights, both of Calif., assignors to Cuno, Incorporate, Meriden, Conn.
Filed Nov. 27, 1989, Ser. No. 412,874
Term of patent 14 years
U.S. Cl. D23—209



321,395
OSCILLATING SPRINKLER
Stephen P. Whitehead, Elgin, Ill., assignor to Suncast Corporation, Batavia, Ill.
Filed Jul. 19, 1990, Ser. No. 555,743
Term of patent 14 years
U.S. Cl. D23—216

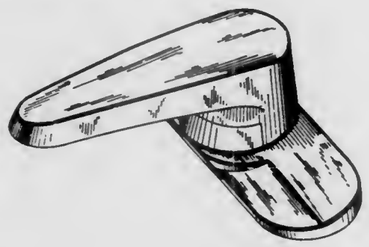


321,396
OSCILLATING SPRINKLER
Stephen P. Whitehead, Elgin, Ill., assignor to Suncast Corporation, Batavia, Ill.
Filed Jul. 19, 1990, Ser. No. 555,993
Term of patent 14 years
U.S. Cl. D23—216



VOL 1132 ISS 1 NO 5 1991 UMI

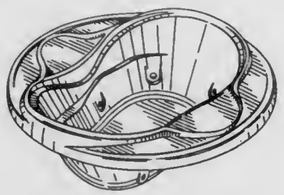
321,397
FAUCET
Todd D. Dannenberg, Sheboygan, Wis. 53081, assignor to Kohler Co., Kohler, Wis.
Filed Nov. 14, 1988, Ser. No. 271,194
Term of patent 14 years
U.S. Cl. D23—238



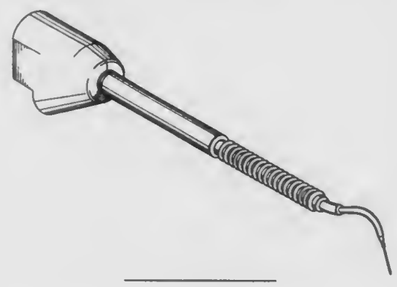
321,398
FAUCET
Gerhard E. Joerger, Seckenheimer Landstrasse 270-280, 6800 Mannheim 25, Fed. Rep. of Germany
Filed Mar. 10, 1988, Ser. No. 166,844
Claims priority, application Fed. Rep. of Germany, Sep. 17, 1987, 1364
Term of patent 14 years
U.S. Cl. D23—241



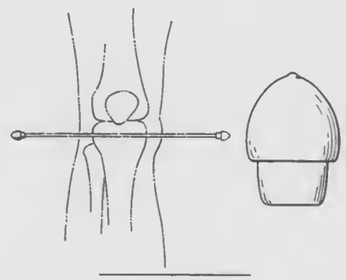
321,399
BATH TUB
Joseph Primucci; Vello Hubel, and Alexander M. Gardiner, all of Toronto, Canada, assignors to Mirolin Industries Inc., Toronto, Canada
Filed May 31, 1989, Ser. No. 359,434
Term of patent 14 years
U.S. Cl. D23—277



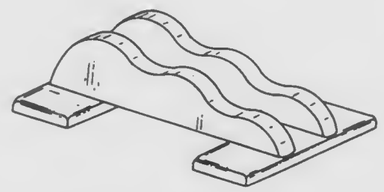
321,400
PERIODONTAL PROBE
Ralph A. Beckman; Henry D. Sharpe, III, both of Providence; Len Curado, East Greenwich, and James W. Barfoot, Providence, all of R.I., assignors to Bausch & Lomb Professional Dental Products, Inc., Rochester, N.Y.
Continuation of Ser. No. 315,131, Feb. 24, 1989, Pat. No. 4,995,403. This application Apr. 9, 1990, Ser. No. 506,706
Term of patent 14 years
U.S. Cl. D24—140



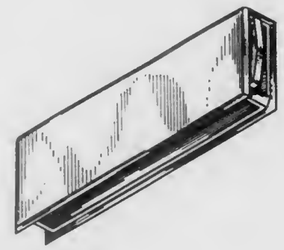
321,401
SURGICAL PIN TIP
Timothy M. Scanlan, St. Paul, and Kenneth R. Blake, Brooklyn Park, both of Minn., assignors to Scanlan International, Inc., St. Paul, Minn.
Filed Dec. 27, 1988, Ser. No. 289,798
Term of patent 14 years
U.S. Cl. D24—147



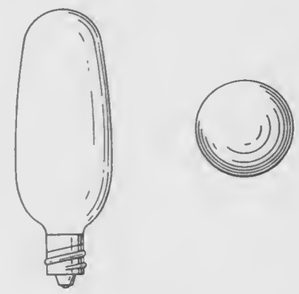
321,402
SPINAL THERAPY BOARD
Tomezo Hoshino, Ft. Lauderdale, Fla., assignor to Hoshino Health Products, Inc., Fort Lauderdale, Fla.
Filed Mar. 20, 1989, Ser. No. 325,479
Term of patent 14 years
U.S. Cl. D24—188



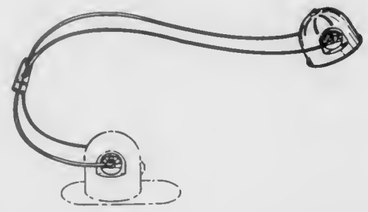
321,403
WINDOW SASH TAKEOUT COVER
Dennis Westphal, Galva, and Jonathan Piles, McPherson, both of Kans., assignors to CertainTeed Corporation, Valley Forge, Pa.
Filed Sep. 19, 1988, Ser. No. 246,526
Term of patent 14 years
U.S. Cl. D25—52



321,404
LIGHT BULB
Jesse R. Falini, West Chester, Pa., assignor to Falburg Films Corporation, West Chester, Pa.
Filed Mar. 29, 1990, Ser. No. 501,629
Term of patent 14 years
U.S. Cl. D26—2



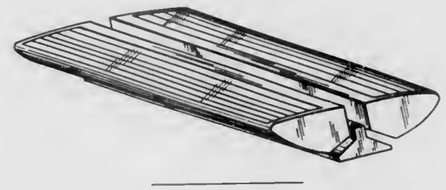
321,405
ADJUSTABLE LAMP
Haim Shwisha, Westport, Conn., assignor to Electrix, Inc., New Haven, Conn.
Filed Sep. 27, 1989, Ser. No. 413,047
Term of patent 14 years
U.S. Cl. D26—65



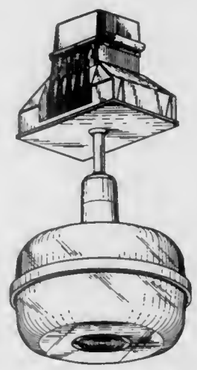
321,406
EXTERIOR LIGHTING FIXTURE
Edwin G. Schlesselman, Cincinnati, Ohio, assignor to LSI Industries Inc., Cincinnati, Ohio
Filed Sep. 13, 1990, Ser. No. 581,873
Term of patent 14 years
U.S. Cl. D26—67



321,407
LUMINAIRE FOR A WALL PARTITION OR THE LIKE
Charles Heidmann, Strasbourg, France, assignor to Steelcase Strafor, Strasbourg, France
Filed Feb. 22, 1989, Ser. No. 314,420
Claims priority, application France, Aug. 30, 1988, 885497
Term of patent 14 years
U.S. Cl. D26—72

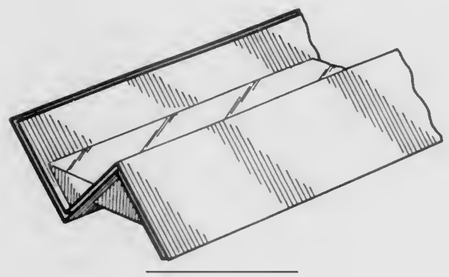


321,408
LUMINAIRE
James S. Hughes, Columbus; Robert L. Ewing, Granville; Herbert A. Fouke, and Bonnie J. Brohard, both of Newark, all of Ohio, assignors to Holophane Company, Inc., Newark, Ohio
Filed Sep. 28, 1987, Ser. No. 101,477
Term of patent 14 years
U.S. Cl. D26—85

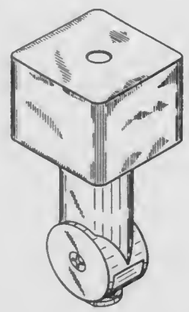


VOL 1132 ISS 1 NO 5 1991 UMI

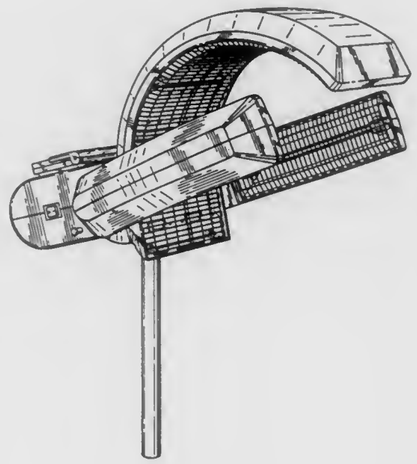
321,409
CEILING LIGHTING FIXTURE
Brigitte Bischof, Kohlstrasse 23, 4920 Lemgo 1, and Horst-Dieter Schmelzer, Forthofstrasse 23, 4815 Schloss Holte-Stukenbrock, both of Fed. Rep. of Germany
Filed Oct. 21, 1988, Ser. No. 260,760
Term of patent 14 years
U.S. Cl. D26—91



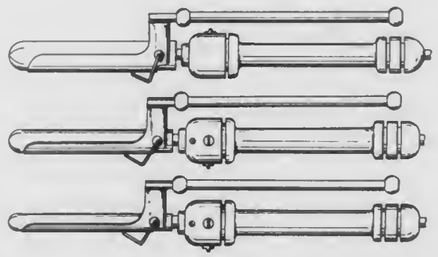
321,410
COMBINED SWIVEL ARM AND CONNECTOR FOR A TRACK LIGHTING FIXTURE
Bruce N. Layne, Wheaton, Ill., assignor to Cooper Industries, Inc., Houston, Tex.
Filed Apr. 7, 1989, Ser. No. 334,950
Term of patent 14 years
U.S. Cl. D26—138



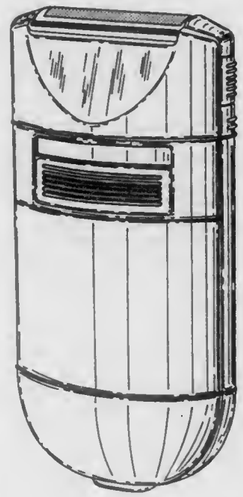
321,411
HAIR DRYER
Reiner Moll, Schwäbisch Gmünd, Fed. Rep. of Germany, assignor to Olymp Karl Herzog GmbH & Co., Stuttgart, Fed. Rep. of Germany
Filed Mar. 5, 1990, Ser. No. 488,751
Claims priority, application Fed. Rep. of Germany, Sep. 6, 1989, 8906255
Term of patent 14 years
U.S. Cl. D28—17



321,412
CURLING IRON
James G. Montagnino; Betty Butzko; Daniel Santhouse; Tim Hanlon, and Steve Power, all of El Paso, Tex., assignors to Helen of Troy, El Paso, Tex.
Filed Jan. 17, 1990, Ser. No. 466,697
Term of patent 14 years
U.S. Cl. D28—35



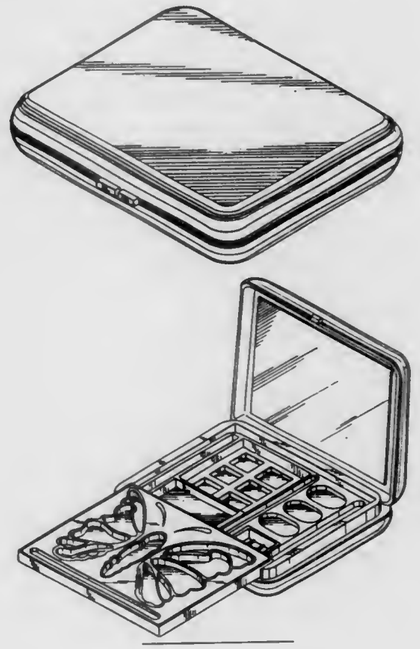
321,413
DRY SHAVER
Marten F. Elkerbout, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Mar. 20, 1989, Ser. No. 326,867
Claims priority, application Int'l Pat. Institute, Sep. 28, 1988, DM/001.831
Term of patent 14 years
U.S. Cl. D28—51



321,414
FINGERNAIL DECAL
Ofelia M. Mullen, 3751 Ida Dr., Columbus, Ga. 31906
Filed Jun. 13, 1988, Ser. No. 205,903
Term of patent 14 years
U.S. Cl. D28—56



321,415
COSMETIC CASE OR SIMILAR ARTICLE
Fo-Chun Chen, Chang-Hua, Taiwan, assignor to Chuan Hsiang Tang Chemical Co. Ltd., Chang-Hau, Taiwan
Filed Dec. 22, 1989, Ser. No. 454,841
Term of patent 14 years
U.S. Cl. D28—80

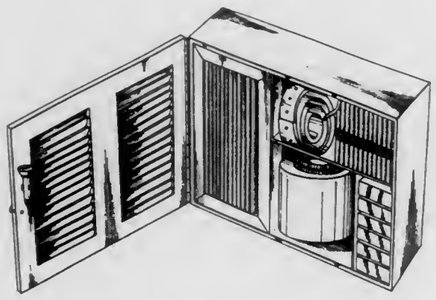


321,416
COSMETIC CASE
Karena Bakic, Varese, Italy, assignor to Cosmede Anstalt, Vaduz, Liechtenstein
Division of Ser. No. 354,425, May 19, 1989. This application Mar. 18, 1991, Ser. No. 670,597
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1988, 8803527[U]
Term of patent 14 years
U.S. Cl. D28—83



VOL 1132 ISS 1 NO 5 1991 UMI

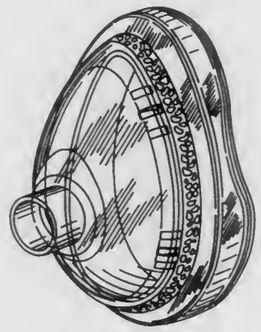
321,417
FIRE SAFETY KIT
Louise J. Flannagan, 4219 Northstrand Dr., Decatur, Ga. 30035
Filed Nov. 27, 1989, Ser. No. 441,418
Term of patent 14 years
U.S. Cl. D29—2



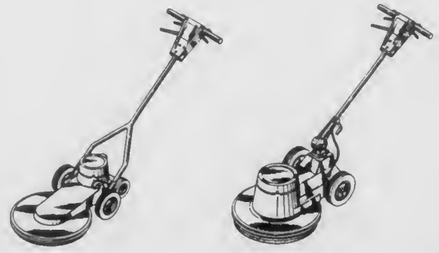
321,418
SQUEEZE BAG RESUSCITATOR
Roger J. Dolida, Overland Park, and Kyle Adriance, Merriam, both of Kans., assignors to Puritan-Bennett Corporation, Lenexa, Kans.
Filed Nov. 3, 1989, Ser. No. 431,629
Term of patent 14 years
U.S. Cl. D29—7



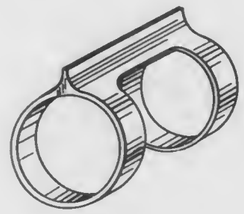
321,419
FACE MASK
Dean R. Wallace, Fort Myers, Fla., assignor to Intertech Resources Inc., Lincolnshire, Ill.
Filed Nov. 9, 1989, Ser. No. 435,290
Term of patent 14 years
U.S. Cl. D29—8



321,420
FLOOR POLISHING MACHINE
Peter W. Von Vett, Englewood, and Eugene L. Bothun, Loveland, both of Colo., assignors to Windsor Industries, Inc., Englewood, Colo.
Filed Feb. 9, 1990, Ser. No. 479,061
Term of patent 14 years
U.S. Cl. D32—15



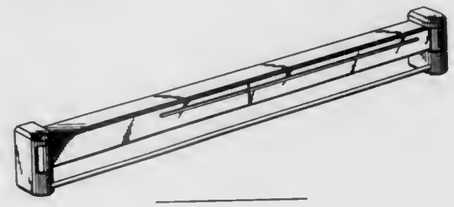
321,421
FINGER-OPERATED SQUEEGEE
Steven Zettle, 1774 NE. Pheasant, Bend, Oreg. 97701
Filed Jan. 23, 1990, Ser. No. 468,958
Term of patent 14 years
U.S. Cl. D32—41



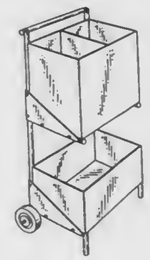
321,422
SCRAPER TO CLEAN THE FINS OF HEAT EXCHANGERS OR THE LIKE
Russell D. Smith, Irvine, Calif., assignor to General Electric Company, Louisville, Ky.
Filed Nov. 2, 1989, Ser. No. 431,012
Term of patent 14 years
U.S. Cl. D32—46



321,423
LAUNDRY DRYING RACK
Heinz J. Ohm, Limburg, Fed. Rep. of Germany, assignor to Leifheit AG, Nassau, Fed. Rep. of Germany
Filed Jul. 7, 1989, Ser. No. 376,863
Claims priority, application Fed. Rep. of Germany, Jan. 20, 1989, 8900375[U]
Term of patent 14 years
U.S. Cl. D32—58



321,424
CART
Kathleen C. Isham, 2610 SE. Ada La., Milwaukie, Oreg. 97267
Filed Mar. 31, 1989, Ser. No. 332,940
Term of patent 14 years
U.S. Cl. D34—21



VOL
1132
ISS
1
NO
5
1991
UMI

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF NOVEMBER, 1991

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. H. Robbins Company, Incorporated: *See—*
Cale, Albert D., Jr.; and Gero, Thomas W., 5,063,228, Cl. 574-253.000.

A. H. Robins Company, Inc.: *See—*
Walsh, David A., 5,063,235, Cl. 514-317.000.

A.K. Technical Laboratory, Inc.: *See—*
Takeuchi, Setsuyuki, 5,062,787, Cl. 425-522.000.

A. O. Smith Corp.: *See—*
Deisinger, John J., 5,063,374, Cl. 340-642.000.
Schurter, Robert M.; and Palmerton, Robert H., 5,062,455, Cl. 138-30.000.

A-1 Engineering, Inc.: *See—*
Neuman, Clayton L., 5,062,952, Cl. 210-232.000.

A. P. Green Industries, Inc.: *See—*
Stevens, Robert B.; and Hunter, Orville, Jr., 5,063,180, Cl. 501-38.000.

Aaxon Industrial, Inc.: *See—*
Kennedy, Michael R., 5,062,868, Cl. 55-97.000.

Abbott Laboratories: *See—*
Bieniarz, Christopher; Welch, J. Christopher; Barnes, Grady; and Schlesinger, Carol A., 5,063,109, Cl. 428-378.000.
Kramer, David E.; Muetterties, Andrew J.; and Szempruch, Walter T., 5,062,774, Cl. 417-413.000.
Rosenberg, Saul H.; Spina, Kenneth P.; and Crowley, Steven R., 5,063,208, Cl. 514-19.000.

Abe, Akihito: *See—*
Hirahara, Ziro; and Abe, Akihito, 5,063,498, Cl. 395-425.000.

Abe, Akira; Fujita, Yoshihiro; and Mihayashi, Keiji, to Fuji Photo Film Co., Ltd. Method for processing silver halide photographic photosensitive materials. 5,063,131, Cl. 430-372.000.

Abe, Akira: *See—*
Hirose, Takeshi; Abe, Akira; and Nakazyo, Kiyoshi, 5,063,143, Cl. 430-419.000.

Abe, Fumio: *See—*
Mizuno, Hiroshige; Abe, Fumio; and Harada, Takashi, 5,063,029, Cl. 422-175.000.

Abe, Yukio: *See—*
Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, 5,063,042, Cl. 423-447.400.

Abodishish, Hani A. M.; Adams, R. James; and White, Joseph B., to Westinghouse Electric Corp. Process for chloride removal from sponge metal. 5,062,887, Cl. 75-425.000.

Abreu, Mary E.; Rzeszotarski, Waclaw; Kyle, Donald J.; Hiner, Roger N.; and Elliott, Richard L., to Nova Pharmaceutical Corporation. Corticotropin-releasing factor antagonism compounds. 5,063,245, Cl. 514-404.000.

Accufar Golf Co., Ltd.: *See—*
Lee, Young-Bum, 5,062,644, Cl. 273-232.000.

Ach Group, Inc.: *See—*
Carmeli, Dov, 5,063,163, Cl. 436-94.000.

Ackeret, Walter: *See—*
Mondini, Gian-Carlo; and Ackeret, Walter, 5,062,183, Cl. 19-225.000.

Ackermann, Ulrich; Kersten, Ralf T.; Etzkorn, Heinz-Werner; Paquet, Volker; and Rutze, Uwe, to Schott Glaswerke. CVD coating process for producing coatings and apparatus for carrying out the process. 5,062,508, Cl. 118-723.000.

Adachi, Keiichi: *See—*
Inagaki, Yoshio; and Adachi, Keiichi, 5,063,146, Cl. 430-522.000.

Adachi, Shigeto: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Adamic, Raymond J.; Wickramanayake, Palitha; Hindagolla, Suraj L.; Radke, Garold E.; and Halko, David J., to Hewlett-Packard Company. Ink formulations by mixing anionic waterfast dyes containing two or more carboxyl groups. 5,062,893, Cl. 106-22.000.

Adams, Larry: *See—*
Khalid, Najeeb A.; Adams, Larry; Schwartz, Stan; and Wong, Jean, 5,063,408, Cl. 355-72.000.

Adams, R. James: *See—*
Abodishish, Hani A. M.; Adams, R. James; and White, Joseph B., 5,062,887, Cl. 75-425.000.

Adee, Raymond A. Folding agricultural implement. 5,062,489, Cl. 172-311.000.

Adell Corporation: *See—*
Schotthoefer, Gerald R., 5,062,665, Cl. 280-770.000.

Adell, Loren: *See—*
Adell, Loren S., 5,063,082, Cl. 427-2.000.

Adell, Loren S., to Adell, Loren; and Adell, Michael. Method of making coated metallic orthodontic arch wire. 5,063,082, Cl. 427-2.000.

Adell, Michael: *See—*
Adell, Loren S., 5,063,082, Cl. 427-2.000.

Adler-Golden, Steven; and Matthew, Michael W., to Spectral Sciences, Inc. Surface contamination sensor. 5,062,707, Cl. 356-311.000.

Advanced Graphics Technologies, Inc.: *See—*
Kemp, James R., 5,062,362, Cl. 101-348.000.

Advanced Micro Devices, Inc.: *See—*
Annamalai, Kadiresan, 5,063,575, Cl. 375-108.000.
Kagawa, Koichi; Yu, Chung-Li; Kaku, Shinkyo; and Menon, Vinod, 5,063,526, Cl. 395-155.000.
Mu, Albert T., 5,063,432, Cl. 357-70.000.

Advanced Prosthestetics Development Corporation: *See—*
Berringer, William A.; and Sulima, Edward J., Jr., 5,062,857, Cl. 623-25.000.

Advanced Systems Research Pty. Limited: *See—*
Yerbury, Michael J.; and Hurst, Gregory C., 5,063,560, Cl. 370-18.000.

Aebersold, Hans, to Elpatronic AG. Device for profiling an electrode roller. 5,062,189, Cl. 29-33.00R.

Aeroquip Corporation: *See—*
Cakmakci, Mehmet Y., 5,063,014, Cl. 264-151.000.

Agency of Industrial Science and Technology: *See—*
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.

Agfa-Gevaert AG: *See—*
Oberkersch, Angelika; Pirmann, Anton; and Schausberger, Helmut, 5,063,401, Cl. 354-320.000.

Agfa Gevaert Aktiengesellschaft: *See—*
Wernicke, Ubbo, 5,063,144, Cl. 430-436.000.

AGFA-Gevaert, N.V.: *See—*
De Keyzer, Rene M.; Odeurs, Raymond L.; and De brabandere, Luc A., 5,063,136, Cl. 430-248.000.

Agricultural Genetics Company, Limited: *See—*
Burges, Denis H.; and Jarrett, Paul, 5,063,055, Cl. 424-93.000.

Aguilar, Alfonso. Auto theft alarm. 5,063,369, Cl. 340-429.000.

Ainali, Markku: *See—*
Pulliainen, Martti; Savisalo, Hannu; and Ainali, Markku, 5,062,932, Cl. 204-130.000.

Air Products and Chemicals, Inc.: *See—*
Ellison, Thomas L.; Roberts, David A.; Ivankovits, John C.; and Norman, John A. T., 5,062,902, Cl. 148-23.000.
Herman, Frederick L.; Savoca, Ann C. L.; and Listemann, Mark L., 5,062,998, Cl. 260-665.00R.
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.

Aisan Kogyo Kabushiki Kaisha: *See—*
Makimura, Toshiro, 5,062,573, Cl. 239-533.120.

Aiyoshizawa, Yasushi: *See—*
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.

Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, to G-C Dental Industrial Corp. Dental glass ionomer cement compositions. 5,063,257, Cl. 523-116.000.

Akahori, Kimihiko: *See—*
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Akatsu, Yohsuke: *See—*
Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, 5,062,660, Cl. 280-707.000.

Aketa, Kazuyo: *See—*
Fujita, Takeshi; Isoda, Chuzo; and Aketa, Kazuyo, 5,062,986, Cl. 252-134.000.

Akimoto, Hajime; Ozaki, Toshifumi; Tokumasu, Kazuya; Ono, Hideyuki; and Tanaka, Haruhiko, to Hitachi, Ltd. Semiconductor imaging device having a plurality of photodiodes and charge coupled devices. 5,063,581, Cl. 377-58.000.

Akiyama, Takeo, to Nissan Motor Co., Ltd. Apparatus for determining a rotational speed of a vehicle wheel. 5,063,345, Cl. 324-173.000.

Akkumulator-Es Szarazelemgyar: *See—*
Keri, Jozsef, 5,062,574, Cl. 241-22.000.

Akrout, Chekib; Coppens, Pierre; Gautier, Yves; and Urena, Pierre-Yves, to International Business Machines Corporation. Reprogramm-

VOL 1132 ISS 1 NO 5 1991 UMI

able logic fuse based on a 6-device SRAM cell for logic arrays. 5,063,537, Cl. 365-96.000.

Akzo NV: *See—*
Horikx, Cornelis M.; and Jaspers, Martinus J., 5,062,920, Cl. 156-380.400.

Al-Orfali, Ned S.: *See—*
Cummings, Thomas L., III; and Al-Orfali, Ned S., 5,063,486, Cl. 362-217.000.

Al-Sioufi, Habib; and Koudsi, Antoine J. IV needle holder. 5,062,837, Cl. 604-240.000.

Alberta Oil Sands Technology and Research Authority: *See—*
Graham, John P., 5,062,482, Cl. 166-250.000.
Kisman, Kenneth E.; and Russell, Boyd, 5,062,483, Cl. 166-263.000.

Albrecht, Richard E.: *See—*
Kriegel, Jon M.; and Albrecht, Richard E., 5,062,599, Cl. 271-35.000.

Alcan International Limited: *See—*
Hudson, Tom J.; McIntyre, John; Tremblay, Pierre; Allaire, Claude; and Gnyra, Bohdan, 5,062,929, Cl. 204-67.000.
Smith, Gary J., 5,062,928, Cl. 204-15.000.

ALCATEL CIT: *See—*
Jamet, Daniel; and Guiberteau, Christian, 5,062,804, Cl. 439-394.000.

Alcatel Espace: *See—*
Capel, Antoine; and Marpinard, Jean-Claude, 5,063,338, Cl. 318-685.000.

Aldersley, Alan; and Hayes, Ronald, to British Aerospace plc. Control apparatus. 5,062,596, Cl. 244-234.000.

Aleshin, Nikolai P.; Baranov, Vladimir J.; Dolgov, Vyacheslav M.; Yarovoi, Alexandr A.; and Preobrazhensky, Oleg A. Scanning device for ultrasonic quality control of articles. 5,062,301, Cl. 73-629.000.

Alesi, Daniel E.: *See—*
Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., 5,062,563, Cl. 227-176.000.

Alexander, William, to American Colloid. Moisture-impervious panel capable of delayed, rapid hydration including water channels filled with water-removal material. 5,063,100, Cl. 428-137.000.

Allaire, Claude: *See—*
Hudson, Tom J.; McIntyre, John; Tremblay, Pierre; Allaire, Claude; and Gnyra, Bohdan, 5,062,929, Cl. 204-67.000.

Allais, Jean-Philippe P. B.; Guillermond, Alain R.; and Rouyer, Pascal G., to Societe Anonyme Dite Hispano Suiza. Trunnion assembly. 5,062,347, Cl. 89-37.070.

Allen-Bradley Company, Inc.: *See—*
Baechtel, Donald F.; Svarovsky, James E.; and Rehm, Thomas, 5,063,335, Cl. 318-609.000.
Stroud, James W., III; and Dodds, John F., 5,062,785, Cl. 425-145.000.

Allen, William H., to Allen, William H. Battery cable connector. 5,062,812, Cl. 439-756.000.

Allied-Signal Inc.: *See—*
—Bishop, Robert J.; Fontecchio, Robert P.; and Zelenak, Daniel G., Jr., 5,062,664, Cl. 280-743.000.
—Black, Raymond J.; and Han, Benjamin C., 5,062,503, Cl. 188-71.500.
—Lupton, F. Stephen; DeFilippi, Louis J.; and Goodman, James R., 5,062,956, Cl. 210-611.000.
—Ramanan, V. R. V.; and Smith, Carl H., 5,062,909, Cl. 148-304.000.

Alpine Electronics Inc.: *See—*
Suzuki, Shoji; and Yatsu, Kenji, 5,063,553, Cl. 369-77.100.
Wasimoto, Takasi; and Kimura, Morio, 5,062,818, Cl. 445-22.000.

Alps Electric Co., Ltd.: *See—*
Ohsumi, Yasuhisa, 5,063,382, Cl. 341-15.000.
Satoh, Yukihiko, 5,063,479, Cl. 362-32.000.
Tanaka, Kouji, 5,063,484, Cl. 362-109.000.
Yamashita, Tatsumaro, 5,063,466, Cl. 360-107.000.

Alusuisse-Lonza Services Ltd.: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,063,007, Cl. 264-44.000.

Alwadish, David, to Ing Communications, Inc. Broadcasting system with supplemental data transmission and storage. 5,063,610, Cl. 455-45.000.

Amada Company, Limited: *See—*
Ogasawara, Kazui, 5,062,333, Cl. 83-94.000.

Amano, Masaaki, to Mitsubishi Denki Kabushiki Kaisha. Elevator controlling apparatus. 5,062,502, Cl. 187-124.000.

Amaro, Josephina: *See—*
Kunst, Neil W.; Fraser, James D.; and Amaro, Josephina, 5,063,515, Cl. 364-431.010.

Amemori, Kunio: *See—*
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

American Air Liquide: *See—*
Leondaridis, Paul S.; Von Drasek, William A.; and Jursich, Gregory M., 5,063,035, Cl. 423-241.000.

American Colloid: *See—*
Alexander, William, 5,063,100, Cl. 428-137.000.

American Cyanamid Company: *See—*
—Guaciaro, Michael A., 5,062,881, Cl. 71-92.000.

American Maize-Products Company: *See—*
Bergishagen, Finn, 5,063,251, Cl. 521-84.100.

Amoco Corporation: *See—*
—Dixon, George J., 5,063,566, Cl. 372-22.000.
—Harris, James E., 5,063,265, Cl. 524-126.000.
—Slee, James D., 5,062,709, Cl. 356-335.000.

AMP Incorporated: *See—*
Bakermans, Johannes C. W., 5,062,289, Cl. 72-383.000.
Grabbe, Dimitry G., 5,062,802, Cl. 439-72.000.
Hackman, John A., 5,062,811, Cl. 439-620.000.
Hosler, Robert C., Sr., 5,062,808, Cl. 439-580.000.
Long, Alden O., Jr., 5,062,201, Cl. 29-741.000.
Sakamoto, Katsuhiko; Kawaguchi, Akira; and Ishikawa, Yasuhiro, 5,062,809, Cl. 439-581.000.

Amrich, Robert C.: *See—*
Deglis, Janis W.; and Amrich, Robert C., 5,062,653, Cl. 280-648.000.

Anand, Vidhu; Sampath, Sanjay; Davis, Clarke D.; and Houck, David L., to GTE Products Corporation. Method for preparing powders of nickel alloy and molybdenum for thermal spray coatings. 5,063,021, Cl. 419-12.000.

Anchor Hocking Packaging Company: *See—*
Ochs, Charles S., 5,062,538, Cl. 215-260.000.

Anderson, Dora. Disposable training panty with controlled wetness release. 5,062,839, Cl. 604-385.100.

Anderson, Richard L., to Sematech, Inc. Intelligent mass flow controller. 5,062,446, Cl. 137-468.000.

Anderson, Ricky. Animal waste collection pit flushing apparatus and method. 5,062,387, Cl. 119-28.000.

Anderson, W. Kyle, to Sundstrand Corporation. Preloaded permanent magnet rotor assembly. 5,063,318, Cl. 310-156.000.

Andersons, The: *See—*
Leedy, K. Duane; and Peiffer, Norman A., 5,062,954, Cl. 210-502.100.

Ando, Akio: *See—*
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.

Ando, Tatsuo: *See—*
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.

Andrews, Jeffrey F., to Minnesota Mining and Manufacturing Company. Nonirritating teat dip and method. 5,063,249, Cl. 514-673.000.

Andrieu, Jean-Pierre: *See—*
Gault, Dominique; Andrieu, Jean-Pierre; and Henri, Jean-Claude, 5,063,388, Cl. 342-185.000.

Annamalai, Kadiresan, to Advanced Micro Devices, Inc. Apparatus and method for proper byte alignment in an encoder/decoder. 5,063,575, Cl. 375-108.000.

Anzai, Kazuo: *See—*
Sato, Hideki; Mizunoya, Nobuyuki; Asai, Hironori; Anzai, Kazuo; and Hatano, Tsuyoshi, 5,063,121, Cl. 428-698.000.

Aoki, Akio: *See—*
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, 5,063,453, Cl. 360-32.000.

Aoki, Kouzi: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Aoki, Shinichiro: *See—*
Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, 5,062,705, Cl. 356-124.000.

Aoki, Yoshiharu; and Hamano, Toshikatsu, to Asahi Glass Company, Ltd. Method and apparatus for recovering an acid from an acid-containing waste liquor. 5,062,960, Cl. 210-638.000.

Apelian, Minas R.; and Kennedy, Clinton R., to Mobil Oil Corporation. Modification of bifunctional catalyst activity in hydroprocessing. 5,062,943, Cl. 208-59.000.

Appleby, John M.: *See—*
Griffiths, Guy G. V.; Bolsworth, James; and Appleby, John M., 5,062,182, Cl. 16-368.000.

Applied Materials, Inc.: *See—*
Lorimer, D'Arcy, 5,063,609, Cl. 392-401.000.

Arai, Akio: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Arai, Fuminori; Igarashi, Takeshi; and Tanaka, Mitsutoshi, to Fuji Photo Film Co., Ltd. Integral multilayer analytical element. 5,063,153, Cl. 435-26.000.

Arai, Junpei: *See—*
Kichizo, Maeno; Arai, Junpei; and Aso, Hideo, 5,062,373, Cl. 112-113.000.

Arai, Takashi, to Canon Kabushiki Kaisha. Molding device for molding optical elements. 5,062,786, Cl. 425-174.000.

Arakaki, Takeshi: *See—*
Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, 5,063,517, Cl. 364-474.220.

Arakawa Kagaku Kogyo Kabushiki Kaisha: *See—*
Nakajima, Masato; Yokotani, Kenji; and Ikeda, Atsushi, 5,062,922, Cl. 162-158.000.

Arbanas, Glenn A.; Thornock, Jeffery M.; and Keate, Christopher R., to Unisys Corporation. High-speed bit synchronizer. 5,063,577, Cl. 375-120.000.

Areospatiale: *See—*
Fuchs, Jean-Francois; Auberon, Marcel; Odru, Pierre; and Sparks, Charles, 5,062,914, Cl. 156-172.000.

Arisawa, Masatoshi: *See—*
Kamegai, Jun; and Arisawa, Masatoshi, 5,062,989, Cl. 252-174.170.

Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, to Gunei Kagaku Kogyo Kabushiki Kaisha. Process for the production of carbon fibers. 5,063,042, Cl. 423-447.400.

Aritsuka, Tomohiko: *See—*
Takeda, Masatoshi; Aritsuka, Tomohiko; and Tachibana, Yoshitaka, 5,063,532, Cl. 364-825.000.

Ariyama, Takayuki, to Minolta Camera Kabushiki Kaisha. Image forming apparatus. 5,063,415, Cl. 355-312.000.

Armand, Michel: *See—*
Gauthier, Michel; Armand, Michel; and Muller, Daniel, 5,063,124, Cl. 429-192.000.

Armstrong World Industries, Inc.: *See—*
Mentzer, Nancy E., 5,063,093, Cl. 428-15.000.

Arno, Raymond P.; and Carnes, Scott C., to Rayco Enterprises, Inc. Temperature sensing control for refrigeration system. 5,062,571, Cl. 236-43.00A.

Arnold, Lothar: *See—*
Broecker, Franz J.; Arnold, Lothar; and Grafen, Paul, 5,063,194, Cl. 502-314.000.

Arnold, Wesley D., Jr.; Bond, Walter D.; and Lauf, Robert J., to Cooper Power Systems, Inc. Process for fabricating doped zinc oxide microsphere gel. 5,062,993, Cl. 257-518.000.

Arold, Klaus; and Bruhnke, Ulrich, to Mercedes-Benz AG. Heating or air conditioning equipment for the passenger compartment of a motor vehicle. 5,062,353, Cl. 98-2.110.

Arora, Om P.: *See—*
Rao, A. Srinivasa; and Arora, Om P., 5,063,201, Cl. 505-1.000.

Arp, George F.: *See—*
Legge, Richard C.; and Arp, George F., 5,063,094, Cl. 428-35.700.

Arroyo, Jose C., Jr. Cactus thorn removing tool. 5,062,210, Cl. 30-317.000.

Arthur Guinness Son and Company (Great Britian) Limited: *See—*
Hedderick, John B.; Rutty, Brian R.; Page, David G.; and Walshe, John J., 5,062,548, Cl. 222-190.000.

Artzberger, Thomas G., to M-B-W Inc. Compactor and blade attachment for loader. 5,062,228, Cl. 37-117.500.

Asaba, Eiki; Tanabe, Yoshihito; and Tagami, Kiyoshi, to Fanuc Ltd. Slit disposition structure of fixed slit disk in pulse encoder. 5,063,295, Cl. 250-231.140.

Asahi Glass Company, Ltd.: *See—*
Aoki, Yoshiharu; and Hamano, Toshikatsu, 5,062,960, Cl. 210-638.000.

Asahi Kogaku Kogyo K.K.: *See—*
Funathu, Gouzi, 5,062,698, Cl. 359-414.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Honda, Ryoji; Kita, Masahiro; and Negoro, Ikuo, 5,063,416, Cl. 355-316.000.
Marui, Masatoshi; Inage, Tomonori; Matsui, Yuji; and Ishizuka, Tazuko, 5,062,692, Cl. 359-45.000.

Asahi Seisakusho Company Limited: *See—*
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.

Asai, Hironori: *See—*
Sato, Hideki; Mizunoya, Nobuyuki; Asai, Hironori; Anzai, Kazuo; and Hatano, Tsuyoshi, 5,063,121, Cl. 428-698.000.

Asai, Masamichi: *See—*
Sakai, Hiroshi; Asai, Masamichi; Hayashi, Kenzo; Sakurai, Kazunori; and Watanabe, Kazuhiko, 5,062,554, Cl. 222-600.000.

Asakura, Toshikazu: *See—*
Takeshima, Akira; Asakura, Toshikazu; Takahashi, Akihiko; Kobayashi, Shigeo; and Hayashi, Shoichi, 5,062,491, Cl. 173-12.000.

Asano, Mitsugu: *See—*
Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, 5,062,723, Cl. 400-120.000.

Asano, Seiji: *See—*
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.

Asao, Haruhiko: *See—*
Sukekawa, Izumi; Asao, Haruhiko; Kohno, Hiroshi; Sugawara, Yukio; and Nogami, Keiji, 5,062,614, Cl. 266-216.000.

Asay, Roger H., to Radiological & Chemical Technology, Inc. Calibration of flowmeters using a dissolved argon tracer technique. 5,062,291, Cl. 73-3.000.

Asea Brown Boveri Aktiengesellschaft: *See—*
Rohr, Franz-Josef, 5,063,122, Cl. 429-32.000.

Asea Brown Boveri Ltd.: *See—*
Gruning, Horst; and Keser, Helmut, 5,063,436, Cl. 357-79.000.

Ashby, Robert E., to Moore Business Forms, Inc. Mailer with die cut insert and self-imaging area. 5,062,570, Cl. 229-71.000.

Aso, Hideo: *See—*
Kichizo, Maeno; Arai, Junpei; and Aso, Hideo, 5,062,373, Cl. 112-113.000.

Aspects, Inc.: *See—*
Bescherer, Robert E.; and Colvin, Barry D., 5,062,390, Cl. 119-72.000.

Aspera S.r.l.: *See—*
Lanfranco, Antonello, 5,062,200, Cl. 29-732.000.

Astheimer, Hans; Brumme, Helma; Heck, Werner; Kissel, Klaus; and Schuy, Hubert, to International Business Machines Corporation. Low profile suspension. 5,063,464, Cl. 360-104.000.

AT&T Bell Laborabories: *See—*
—Jordan, John D., Jr., 5,063,502, Cl. 395-725.000.

AT&T Bell Laboratories: *See—*
—Cannella, Stephen J.; and Zaringhalam, Ali R., 5,063,592, Cl. 379-207.000.
—Chandrasekhar, S.; and Johnson, Bartley C., 5,063,426, Cl. 357-30.000.
—Clayton, Jane B.; and Miller, Calvin M., 5,062,684, Cl. 385-27.000.
—Crandall, John H.; Davis, Stephen J.; and Reynolds, Brett S., 5,063,564, Cl. 370-110.100.
—Diodato, Philip W., 5,063,578, Cl. 377-47.000.
—Hall, James R.; Hunter, Lorin E.; and Wilson, Terry D., 5,063,473, Cl. 361-93.000.
—Hillenius, Steven J.; Lebowitz, Joseph; Liu, Ruichen; and Lynch, William T., 5,063,422, Cl. 357-23.300.
—Jewell, Tanya E.; and Rodgers, J. Michael, 5,063,586, Cl. 378-34.000.
—Jordan, John D., Jr., 5,063,501, Cl. 395-725.000.
—Jordan, John D., Jr., 5,063,503, Cl. 395-725.000.
—Jordan, John D., Jr., 5,063,504, Cl. 395-725.000.
—Knauer, Scott C.; Netravali, Arun N.; Petajan, Eric D.; Safranek, Robert J.; and Westerink, Peter H., 5,063,444, Cl. 358-133.000.
—Leonowich, Robert H., 5,063,359, Cl. 331-116.0FE.
—Marcuse, Dietrich, 5,063,559, Cl. 359-127.000.
—Shapiro, Roy A., 5,063,585, Cl. 379-30.000.
—Xie, Ya-Hong, 5,063,569, Cl. 372-45.000.

AT&T Laboratories: *See—*
Choi, Jae H., 5,063,017, Cl. 264-328.600.

Atlantic Pharmaceutical Products Ltd.: *See—*
Bourbon, Pierre; Lagny, Pierre; and Billot, Pierre, 5,063,064, Cl. 424-673.000.

Atlantic Richfield Company: *See—*
Petermann, Steven G.; Katahara, Keith W.; and Wolcott, Herbert A., II, 5,063,542, Cl. 367-166.000.

Atlas, Gerard, to Societe Europeenne de Propulsion. Mechanical stabilization system using counter-rotation and a single motor. 5,063,336, Cl. 318-611.000.

Atwood Industries, Inc.: *See—*
Kloster, John M., 5,062,351, Cl. 98-2.090.

Auberon, Marcel: *See—*
Fuchs, Jean-Francois; Auberon, Marcel; Odru, Pierre; and Sparks, Charles, 5,062,914, Cl. 156-172.000.

Audeh, Costandi A., to Mobil Oil Corporation. Process for preparing an extreme pressure lubricating oil additive. 5,062,976, Cl. 252-45.000.

Audet, Pierre E.: *See—*
Patsiokas, Stelios J.; Johnson, Brian Keith A.; and Audet, Pierre E., 5,063,588, Cl. 379-57.000.

Aufderheide, Brian E.; Robrecht, Michael J.; and Kelley, Wayne R., to W. H. Brady Co. Method for the manufacture of electrical membrane panels having circuits on flexible plastic films. 5,062,916, Cl. 156-269.000.

Aulbach, Paul L.; Frank, Dorothy M.; and Roth, David S., to Brown & Williamson Tobacco Corporation. Cigarette paper. 5,062,434, Cl. 131-336.000.

Ausimont S.r.L.: *See—*
Lenti, Daria; and Visca, Mario, 5,063,092, Cl. 427-393.000.

Ausnit, Steven: *See—*
Van Erden, Donald L.; McDonald, Daniel P.; and Ausnit, Steven, 5,063,069, Cl. 426-122.000.

Australian Meat & Live-Stock Research & Development Corp.: *See—*
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

Automobiles Citroen: *See—*
Saliba, Bernard, 5,062,317, Cl. 74-560.000.

Automobiles Peuqeot: *See—*
Saliba, Bernard, 5,062,317, Cl. 74-560.000.

Avery Dennison Corporation: *See—*
Nieuwenhuize, O. V.; de Grunt, F.; de Vissser, S.; and Vos, R., 5,063,106, Cl. 428-343.000.

Avey, I. D. Jean. Head protector for use with hard head gear. 5,062,163, Cl. 2-424.000.

Avtron, Inc.: *See—*
Hostetler, Robert D., 5,062,391, Cl. 119-72.000.

Axis USA, Inc.: *See—*
Rossi, Alessandro, 5,063,279, Cl. 219-86.510.

Azorin, Patrick: *See—*
Germanaud, Laurent; Azorin, Patrick; and Lhopital Michel, 5,062,977, Cl. 252-48.200.

Azuma, Yusaku: *See—*
Tanita, Takeo; Kigami, Hiroyuki; and Azuma, Yusaku, 5,063,334, Cl. 318-568.100.

Babler, Fridolin, to Ciba-Geigy Corporation. Coating compositions containing molybdenum disulfide. 5,063,258, Cl. 523-171.000.

Bacon, Forrest C.; and Hadden, William A., to Kliklok Corporation. Combined film feeding stripping and sealing for bag forming and method. 5,062,253, Cl. 53-451.000.

Baechtel, Donald F.; Svarovsky, James E.; and Rehm, Thomas, to Allen-Bradley Company, Inc. Two-input control with independent proportional and integral gains for velocity error and velocity feedforward including velocity command limiting. 5,063,335, Cl. 318-609.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Baeck, Andre C.; Busch, Alfred; and Oh, Young S., to Procter & Gamble Co., The. Fabric conditioning compositions: natural hectorite clay and binding and dispersing agent. 5,062,972, Cl. 252-8.800.

Bailey, Thomas F.; and Campbell, John E., to MASX Energy Services Group, Inc. Valve body for oilfield applications. 5,062,450, Cl. 137-533.210.

Bailey, Thomas F.; and Moeller, Larry F., to MASX Energy Services Group, Inc. Stripper rubbers for drilling heads. 5,062,479, Cl. 166-84.000.

Bailly, Jean-Claude A.; and Collomb, Joelle, to BP Chemicals Limited. Composition comprising prepolymer powder and pulverulent inorganic material. 5,063,110, Cl. 428-402.000.

Bainbridge, Wilfred N.: *See*—
Parsons, David; Bainbridge, Wilfred N.; Young, Alastair J.; and Temperley, Harry D., 5,062,320, Cl. 74-650.000.

Bair, Clayton H., to United States of America, National Aeronautics and Space Administration. Birefringent filter design. 5,062,694, Cl. 359-498.000.

Baker, Andrew R.: *See*—
Purnell, Charles G.; and Baker, Andrew R., 5,062,908, Cl. 148-332.000.

Baker, Slade H. Hacksaw blade with bi-directional teeth. 5,062,338, Cl. 83-848.000.

Bakermans, Johannes C. W., to AMP Incorporated. Bending tooling for bending flat blanks. 5,062,289, Cl. 72-383.000.

Bakirov, Murat B.; Getman, Alexandr F.; Gribov, Boris I.; Bordjugovsky, Andrei A.; and Klimenok, Alexandra P., to Nauchno-Proizvodstvennoe Objedinenie. Apparatus for measuring hardness of materials. 5,062,293, Cl. 73-81.000.

Bakke, William R. Spool support apparatus. 5,062,581, Cl. 242-129.600.

Bakker, Johan: *See*—
Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, 5,063,599, Cl. 382-7.000.
Copenhaver, Gary; Bakker, Johan; and Vala, John, 5,063,461, Cl. 358-474.000.

Bal Dit Sollier, Claire: *See*—
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

Balan, Albert L., to International Business Machines Corporation. Multileveled electronic assembly with cooling means. 5,063,475, Cl. 361-384.000.

Ball, Christopher J.: *See*—
Saadi, Robert E.; Becker, Allen R.; Ball, Christopher J.; and Steffan, John, 5,062,453, Cl. 137-624.110.

Ballance, John W., to British Telecommunications Public Limited Company. Optical communications network. 5,063,595, Cl. 380-48.000.

Ballerstein, John E., to Standard Steel Rail Technology. Tubular welded railing system. 5,062,732, Cl. 403-174.000.

Bansch, James D.: *See*—
James, Paul; Kuemmel, Theodore J.; Wurm, Michael G.; Banach, James D.; and Fulton, David, 5,062,432, Cl. 128-736.000.

Bando Kabushiki Kaisha: *See*—
Nakagaki, Toshio, 5,062,780, Cl. 425-39.000.

Banks, Gerald: *See*—
Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, 5,063,599, Cl. 382-7.000.

Baranov, Vladimir J.: *See*—
Aleshin, Nikolai P.; Baranov, Vladimir J.; Dolgov, Vyacheslav M.; Yarovoi, Alexandr A.; and Preobrazhensky, Oleg A., 5,062,301, Cl. 73-629.000.

Barbaro, Ralph S.: *See*—
Michal, Vratislav M.; and Barbaro, Ralph S., 5,062,331, Cl. 83-37.000.

Barbu, Stephane; and Le Pailleur, Laurent, to U.S. Philips Corporation. Delay circuit with adjustable delay. 5,063,312, Cl. 307-603.000.

Bardai, Zaher: *See*—
Longo, Robert T.; Bardai, Zaher; Manoly, Arthur E.; Forman, Ralph; and Rolph, Randy K., 5,063,323, Cl. 313-309.000.

Barnabie, Edward J.; and Duke, John D., Jr., to Pennsylvania Crusher Corporation. Comminutor with impact, shear and screening sections. 5,062,575, Cl. 241-73.000.

Barnes, Grady: *See*—
Bieniarz, Christopher; Welch, J. Christopher; Barnes, Grady; and Schlesinger, Carol A., 5,063,109, Cl. 428-378.000.

Barnes, William E. Laparoscopic retractor. 5,062,847, Cl. 606-194.000.

Baroid Technology, Inc.: *See*—
Khan, Farooq A., 5,062,349, Cl. 91-436.000.

Baron Industries, Inc.: *See*—
Etlinger, Leon D., 5,062,370, Cl. 108-51.300.

Barringer, Eric .: *See*—
Gruber, William C.; and Barringer, Eric ., 5,062,891, Cl. 106-20.000.

Barrow, Ross; Elias, Martin C.; Lyons, Peter R. A.; Jacob, Peter G.; and Rashleigh, Scott C., to Commonwealth of Australia. Optical sensors and optical fibre networks for such sensors. 5,062,686, Cl. 385-33.000.

Barth, Philip W.: *See*—
Petersen, Kurt E.; Barth, Philip W.; Bryzek, Janusz; and Mallon, Joseph R., Jr., 5,062,302, Cl. 73-754.000.

Bartizan Corporation: *See*—
Kabelsky, Mikhail, 5,062,361, Cl. 101-269.000.

Bartolo, Robert G.: *See*—
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., 5,062,971, Cl. 252-8.600.

Barzilai, Tsipora P.; Chen, Mon-Song; Kadaba, Bharath K.; and Kaplan, Marc A., to International Business Machines Corporation. Flow control for high speed networks. 5,063,562, Cl. 370-94.100.

Baseline Products, Inc.: *See*—
Roberts, Simon; Battista, John A.; and Rhodes, Alex, 5,062,323, Cl. 81-15.700.

BASF Aktiengesellschaft: *See*—
Bauer, Peter; Konrad, Rainer; Morgenstern, Herbert; and Schuch, Horst, 5,063,016, Cl. 264-211.210.
Broecker, Franz J.; Arnold, Lothar; and Grafen, Paul, 5,063,194, Cl. 502-314.000.
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.
Kroker, Joerg; and Vargiu, Silvio, 5,063,261, Cl. 523-402.000.
Leyendecker, Joachim; Kuenast, Christoph; and Hofmeister, Peter, 5,063,232, Cl. 514-247.000.
Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, 5,062,884, Cl. 71-95.000.
Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, 5,062,879, Cl. 71-92.000.

BASF Corporation: *See*—
Turcotte, David E.; and Coker, Daniel E., 5,062,987, Cl. 252-156.000.

Basten, Mark J.: *See*—
Trace, Adrian L.; and Basten, Mark J., 5,063,287, Cl. 250-214.0AG.

Bateman, Glenn, to Tektronix, Inc. Optical time domain reflectometer having pre and post front panel connector testing capabilities. 5,062,704, Cl. 356-73.100.

Bateman, Jess R. Hydrofoil and surfboard type assembly. 5,062,378, Cl. 114-274.000.

Bateson, George F.; Chresand, Thomas J.; Moore, Joel D.; and Nayes, Terrence L., to BioTrol, Inc. Method for water purification. 5,062,958, Cl. 210-611.000.

Batson, Donald R.: *See*—
Butler, Johnny L.; Wakeland, Richard E.; Batson, Donald R.; and Metzger, Robert E., 5,062,439, Cl. 137-15.000.

Battelle Memorial Institute: *See*—
—Gonzalez-Oliver, Carlos, 5,063,003, Cl. 264-14.000.

Battista, John A.: *See*—
Roberts, Simon; Battista, John A.; and Rhodes, Alex, 5,062,323, Cl. 81-15.700.

Bauer, Bernhard; Reichle, Heinz; and Stolz, Robert, to SKF GmbH. Roller bearing cage. 5,062,719, Cl. 384-450.000.

Bauer, Peter; Konrad, Rainer; Morgenstern, Herbert; and Schuch, Horst, to BASF Aktiengesellschaft. Production of hardwearing and shock-resistant extrudates of ultra-high molecular weight polyethylene and apparatus for this purpose. 5,063,016, Cl. 264-211.210.

Bayer Aktiengesellschaft: *See*—
Brandes, Wilhelm; Hanssler, Gerd; Reinecke, Paul; Scheinpflug, Hans; and Holmwood, Graham, 5,063,241, Cl. 514-383.000.
Gansen, Peter; Wolfgramm, Rudi; Wolf, Klaus D.; and Lindsey, John J., 5,063,253, Cl. 521-159.000.
Ruckes, Andreas; Brock, Martin; and Weider, Richard, 5,063,252, Cl. 521-108.000.
Schwenner, Eckhard; Stegelmeier, Hartmut; Kazda, Stanislav; and Knorr, Andreas, 5,063,239, Cl. 514-357.000.

Bayles, Frederick L., Jr.; Walsh, Reed H.; and Tipton, Craig D., to Lubrizol Corporation, The. Functional fluid with borated epoxides, carboxylic solubilizers, zinc salts, and calcium complexes. 5,062,975, Cl. 252-33.000.

Bazer, Fuller W., to University of Florida. Use of supplemental dietary riboflavin to increase fertility and/or prolificacy in animals. 5,063,226, Cl. 514-251.000.

Bazterrica, Enrique J. V.; and Bazterrica, Enrique T. V. Composition and method for the treatment of genital dysplasia. 5,063,065, Cl. 424-637.000.

Bazterrica, Enrique T. V.: *See*—
Bazterrica, Enrique J. V.; and Bazterrica, Enrique T. V., 5,063,065, Cl. 424-637.000.

Beaty, John S.; and Rolfe, Jonathan L., to Thermo Electron Technologies Corporation. Method and apparatus for manufacturing ultrafine particles. 5,062,936, Cl. 204-164.000.

Beavis, Ronald C.: *See*—
Schlag, Edward W.; Lindner, Josef; Beavis, Ronald C.; and Grotemeyer, Jurgen, 5,062,935, Cl. 204-157.410.

Beck, Marlene C.: *See*—
Spellman, Joseph X.; Beck, Marlene C.; and Connell, Victoria, 5,063,057, Cl. 424-401.000.

Becker, Allen R.: *See*—
Saadi, Robert E.; Becker, Allen R.; Ball, Christopher J.; and Steffan, John, 5,062,453, Cl. 137-624.110.

Beckman Industrial Corporation: *See*—
Gubisch, Roland W., 5,063,353, Cl. 324-710.000.

Beckner, Edward A. Sheet rolling machine guard apparatus. 5,062,319, Cl. 74-612.000.

Beco Produktutveckling: *See*—
Sjoblom, Bengt I. G., 5,062,286, Cl. 72-305.000.

Bedford, Raymond E.; and LaBarge, William J., to General Motors Corporation. Base metal automotive exhaust catalysts with improved activity and stability and method of making the catalysts. 5,063,193, Cl. 502-304.000.

Bedi, Ram D.; and van der Griendt, Adrianus J., to K. J. Manufacturing. Apparatus and method for changing oil in an internal combustion engine with optional flushing. 5,062,398, Cl. 123-196.00R.

Beecham Group p.l.c.: *See*—
Hindley, Richard M., 5,063,240, Cl. 514-369.000.
Sanger, Gareth J.; and Marr, Helen E., 5,063,231, Cl. 514-214.000.

Beers, Nicolaas C. M.: *See*—
Muijs, Herman M.; Beers, Nicolaas C. M.; and Roefs, Sebastianus P. F. M., 5,062,970, Cl. 252-8.554.

Begue, Joseph E. Survey nail. 5,062,753, Cl. 411-470.000.

Behm, Gary E.: *See*—
Sarnosky, Joseph R.; Wolbrink, David W.; Klug, Alan G.; and Behm, Gary E., 5,062,410, Cl. 126-299.00D.

Beijing China Research Institute of Beijing Yanshan Petrochemical Corporation: *See*—
Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, 5,063,195, Cl. 502-341.000.

Belfiore, Kathleen A.: *See*—
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., 5,062,971, Cl. 252-8.600.

Belford, James R. Mechanism for converting reciprocatory motion into rotary motion in an engine. 5,062,394, Cl. 123-56.0AC.

Bell Communications Research, Inc.: *See*—
—Goldthorp, Jeffery M.; and Yeomans, James S., 5,063,351, Cl. 324-628.000.

Bellek, Michael L.: *See*—
Drazba, Martin J.; Bellek, Michael L.; Dranoff, Samuel; and Hahn, Paul, 5,062,701, Cl. 351-160.00R.

Bellezza, Orio: *See*—
Melanotte, Massimo; and Bellezza, Orio, 5,063,424, Cl. 357-23.500.

Beloit Corporation: *See*—
McCarten, Paul; and Slagowski, Eugene, 5,062,924, Cl. 162-358.000.

Bemisderfer, Charles H.; and Wanner, James A., to Sundstrand Heat Transfer, Inc. Chevron lanced fin design with unequal leg lengths for a heat exchanger. 5,062,475, Cl. 165-151.000.

Bengtsson, Erik A., to Eka Nobel AB. Process in the production of hydrogen peroxide. 5,063,043, Cl. 423-588.000.

Benjak, Leo: *See*—
Myler, Ronald J.; and Benjak, Leo, 5,062,255, Cl. 54-7.000.

Benner, Mark M.: *See*—
Unterborn, Ralph J.; McClain, Michael J.; and Benner, Mark M., 5,062,176, Cl. 15-250.230.

Bennett, Herbert W.: *See*—
Marcinkowski, John; Bennett, Herbert W.; and Niwa, Kenji, 5,062,963, Cl. 210-712.000.

Bennitt, Robert A., to Dresser-Rand Company. Frame, crankshaft and crosshead assembly, and a crankshaft and crosshead frame, for a reciprocating-piston machine. 5,062,311, Cl. 74-44.000.

Benson, John T.: *See*—
Ferrara, Peter J.; and Benson, John T., 5,063,079, Cl. 426-627.000.

Benz, Detlef: *See*—
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Beratan, David N.; and Perry, Joseph W., to United States of America, National Aeronautics and Administration. All-optical photochromic spatial light modulators based on photoinduced electron transfer in rigid matrices. 5,062,693, Cl. 359-241.000.

Bergishagen, Finn, to American Maize-Products Company. Blowing and curing of resins and plastics materials with cyclodextrin complexes. 5,063,251, Cl. 521-84.100.

Berglund, Andrew; James, James A.; and Easley, James B., to Zonco, Inc. Aquatic sporting device. 5,062,816, Cl. 440-101.000.

Bergmeier, Gerd, to Erich Bergmeier Maschinenfabrik. Method for centering an egg yolk during cooking. 5,063,071, Cl. 426-298.000.

Bergsma, Rudolph, to G. T. Products, Inc. Fuel level responsive vapor vent valve. 5,062,444, Cl. 137-202.000.

Berneron, Roger; and de Gelis, Pierre, to Institut de Recherches de la Siderurgie Francaise. Process for the improvement of the corrosion resistance of metallic materials. 5,062,900, Cl. 148-4.000.

Bernou, Jean-Louis; Dufau, Frederic; Geahel, Isabelle; and Hache, Jean, to Framatome; and Bertin & Cie. Filtration apparatus comprising an ultrasonic cleaning device and corresponding cleaning process. 5,062,965, Cl. 210-748.000.

Bernstein, Joel E., to Cisco Limited Partnership. Compositions and method for treating painful, inflammatory or allergic disorders. 5,063,060, Cl. 424-422.000.

Berreby, Edgar. Process for removing nitrates from water. 5,062,957, Cl. 210-611.000.

Berringer, William A.; and Sulima, Edward J., Jr., to Advanced Prosthestetics Development Corporation. Myoelectrically controlled knee joint locking device. 5,062,857, Cl. 623-25.000.

Berry, Troy R.; and Mills, Larry R. Training device. 5,062,642, Cl. 273-183.00B.

Bertin & Cie: *See*—
Bernou, Jean-Louis; Dufau, Frederic; Geahel, Isabelle; and Hache, Jean, 5,062,965, Cl. 210-748.000.

Bescherer, Robert E.; and Colvin, Barry D., to Aspects, Inc. Bird feeder. 5,062,390, Cl. 119-72.000.

Best, Donald T., to North American Philips Corporation. Compatible magnetic head assembly. 5,063,468, Cl. 360-123.000.

Best, Willie H., to Haden-Schweitzer Corporation. High efficiency linear gas burner assembly. 5,062,788, Cl. 431-7.000.

Betz Laboratories, Inc.: *See*—
Brown, J. Michael; McDowell, John F.; and Chang, Kin-Tai, 5,062,962, Cl. 210-698.000.
Conlan, John T.; and Whitekettle, Wilson K., 5,063,248, Cl. 514-665.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,211, Cl. 514-75.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,212, Cl. 514-75.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,215, Cl. 514-75.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,216, Cl. 514-75.000.
McCullough, T. Miles, 5,062,992, Cl. 252-394.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,213, Cl. 514-75.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,214, Cl. 514-75.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,217, Cl. 514-75.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,218, Cl. 514-75.000.

Beyea, Dana M.; and Meehan, Kathleen, to Polaroid Corporation. Si/Au/Ni alloyed ohmic contact to n-GaAs and fabricating process therefor. 5,063,174, Cl. 437-184.000.

Bhandarkar, Dileep: *See*—
Cutler, David N.; Orbits, David A.; Bhandarkar, Dileep; Cardoza, Wayne; and Witek, Richard T., 5,063,497, Cl. 395-800.000.

Bianchi, William J. Method of playing a jigsaw puzzle board game. 5,062,637, Cl. 273-157.00R.

Bibbey, Carter S.; and Williams, Jack L. Golfing aid. 5,062,643, Cl. 273-188.00A.

Bieniarz, Christopher; Welch, J. Christopher; Barnes, Grady; and Schlesinger, Carol A., to Abbott Laboratories. Covalent attachment of antibodies and antigens to solid phases using extended length heterobifunctional coupling agents. 5,063,109, Cl. 428-378.000.

Bikestream, Inc.: *See*—
Runkel, Kevin D., 5,062,591, Cl. 224-148.000.

Bille, Josef F., to Intelligent Surgical Lasers, Inc. Device for mapping corneal topography. 5,062,702, Cl. 351-212.000.

Billet, Philippe; and Demarchi, Jean-Louis, to Salomon S.A. Shoe or boot having a heating device. 5,062,222, Cl. 36-2.600.

Billings, Calvert. Disinfectant nail polish remover. 5,063,049, Cl. 424-61.000.

Billot, Pierre: *See*—
Bourbon, Pierre; Lagny, Pierre; and Billot, Pierre, 5,063,064, Cl. 424-673.000.

Binder & Co. Aktiengesellschaft: *See*—
Hausmann, Herbert, 5,062,949, Cl. 209-310.000.

Binder, Rolf, to Werner und Kolb Werkzeugmaschinen GmbH. Machining center. 5,062,195, Cl. 29-568.000.

Binder, Stephen F.; and Lanter, Kent J., to Purina Mills, Inc. Concentrated liquid feed supplement containing positionally stabilized eat and method. 5,063,067, Cl. 426-69.000.

Bindomatic AB: *See*—
Bolin, Goran; Latvakangas, Urpo; and Sabelstrom, Jan, 5,062,754, Cl. 412-4.000.

Bingham, Curt G., to Proform Fitness Products, Inc. Reciprocator for a stepper exercise machine. 5,062,627, Cl. 272-70.000.

Biometallics, Inc.: *See*—
Kuehn, Christa G.; Rossi, Debra J.; and Isied, Stephan S., 5,063,151, Cl. 435-7.330.

BioTrol, Inc.: *See*—
Bateson, George F.; Chresand, Thomas J.; Moore, Joel D.; and Nayes, Terrence L., 5,062,958, Cl. 210-611.000.

Birchall, James D.; and Clegg, William J., to Imperial Chemical Industries PLC. Silicon carbide fibre and production thereof. 5,063,107, Cl. 428-367.000.

Bishop, Robert J.; Fontecchio, Robert P.; and Zelenak, Daniel G., Jr., to Allied-Signal Inc. Air bag assembly. 5,062,664, Cl. 280-743.000.

Black & Decker, Inc.: *See*—
Mason, John G.; Miller, John W.; Sauerwein, William D.; and Vick, Stephen L., 5,063,319, Cl. 310-210.000.

Black, Raymond J.; and Han, Benjamin C., to Allied-Signal Inc. Ablative brake bushing for axle thermal protection. 5,062,503, Cl. 188-71.500.

Blackmon, James B.; and Drubka, Robert E., to McDonnell Douglas Corporation. Turbulent droplet generator with boom mounted pitot pump collector. 5,062,472, Cl. 165-41.000.

Blades, Michael W.: *See*—
Liang, Dong C.; and Blades, Michael W., 5,062,708, Cl. 356-316.000.

Blaimschein, Gottfried; and Dietachmayr, Harald, to GMF Gesellschaft fur Fertigungstechnik und Maschinenbau Aktiengesellschaft. Cutting machine for cutting flat workpieces. 5,062,332, Cl. 83-74.000.

Blair, Connie D. Enclosure for curling iron or similar article. 5,062,529, Cl. 206-349.000.

Blaker, James L. Sundial apparatus. 5,062,212, Cl. 33-270.000.

Blanchard, Jean-Luc: *See*—
Duret, Pierre; and Blanchard, Jean-Luc, 5,062,396, Cl. 123-73.0BA.

Blaupunkt Werke GmbH: *See*—
Kitabayashi, Shinichi, 5,063,611, Cl. 455-348.000.

Block Systems Inc.: *See*—
Woolford, Michael E.; and Sievert, Dick J., 5,062,610, Cl. 249-52.000.

Bloks, Hubertus M. H. A., to Fokker Special Products B.V. Protective housing for apparatus. 5,063,273, Cl. 174-35.00R.

Bobba, Ram S., to National Semiconductor Corporation. System and method for testing analog to digital converter embedded in microcontroller. 5,063,383, Cl. 341-120.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Bobbowski, Louis G.; and Kon, Richard H., to Stanley Works, The. Continuous hinge with improved bearing design. 5,062,181, Cl. 16-354.000.

Boefringer Mannheim GmbH: *See*—
Stockinger, Hubertus, 5,063,157, Cl. 435-240.200.

Boehringer Mannheim GmbH: *See*—
Ross, Carl H.; Machat, Rudolf; Haring, Werner; and Lettenbauer, Gustav, 5,062,959, Cl. 210-635.000.

Boeing Company, The: *See*—
Novak, Philip F.; Shannon, Robert D.; Pinckney, Robert L.; and Humphreys, James R., Jr., 5,063,384, Cl. 342-1.000.

Boeing of Canada Ltd.: *See*—
Garland, Douglas, 5,062,588, Cl. 244-23.00D.

Boge AG: *See*—
Sommer, Norbert, 5,062,616, Cl. 267-64.170.

Bolanos, Henry: *See*—
Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., 5,062,563, Cl. 227-176.000.

Boleslawski, Marek P.: *See*—
Eisch, John J.; and Boleslawski, Marek P., 5,063,083, Cl. 427-53.100.

Bolin, Goran; Latvakangas, Urpo; and Sabelstrom, Jan, to Bindomatic AB. Booklet, method and apparatus for producing the same. 5,062,754, Cl. 412-4.000.

Bolsworth, James: *See*—
Griffiths, Guy G. V.; Bolsworth, James; and Appleby, John M., 5,062,182, Cl. 16-368.000.

Bolza-Schunemann, Hans B.: *See*—
Germann, Albrecht J.; Bolza-Schunemann, Hans B.; Schaede, Johannes G.; and Lapp, Joachim A. H., 5,062,360, Cl. 101-152.000.

Bond, Walter D.: *See*—
Arnold, Wesley D., Jr.; Bond, Walter D.; and Lauf, Robert J., 5,062,993, Cl. 257-518.000.

Bonkohara, Manabu: *See*—
Okamoto, Satoru; Terazi, Kazufumi; Nishino, Seiichi; and Bonkohara, Manabu, 5,063,435, Cl. 357-74.000.

Bonnefous, Odile, to U.S. Philips Corporation. Device for measuring the speed of blood flows by ultrasonic echography at an increased measuring speed. 5,062,430, Cl. 128-661.090.

Booth, Bruce L.: *See*—
Furmanak, Robert J.; Booth, Bruce L.; and Foreman, Thomas K., 5,062,681, Cl. 385-50.000.

Borden, Inc.: *See*—
Gillmore, Stephen R.; Merritt, Carleton G.; Chawan, Dhyaneshwar B.; and Matuszak, Edward A., 5,063,072, Cl. 426-557.000.

Bordjugovsky, Andrei A.: *See*—
Bakirov, Murat B.; Getman, Alexandr F.; Gribov, Boris I.; Bordjugovsky, Andrei A.; and Klimenok, Alexandra P., 5,062,293, Cl. 73-81.000.

Borkar, Shekhar, to Intel Corporation. Output driver with static and transient parts. 5,063,308, Cl. 307-443.000.

Borowiec, Joseph C.: *See*—
El-Hamamsy, Sayed-Amr A.; and Borowiec, Joseph C., 5,063,332, Cl. 315-248.000.

Borrelli, Nicholas F.; and Smith, Dennis W., to Corning Incorporated. Method for making an optical device. 5,062,877, Cl. 65-30.130.

Botez, Dan; Mawst, Luke J.; and Peterson, Gary L., to TRW Inc. Semiconductor laser arrays using leaky wave interarray coupling. 5,063,570, Cl. 372-50.000.

Bourbon, Pierre; Lagny, Pierre; and Billot, Pierre, to Atlantic Pharmaceutical Products Ltd. Method for inhibiting or destroying spermatozoa. 5,063,064, Cl. 424-673.000.

Bourdeau, Alain; and de Volder, Claude, to Thomson-CSF. Device for the detection of the signals of transponders interrogated by a secondary radar in the presence of multiple-path phenomena. 5,063,386, Cl. 342-40.000.

Bowman, Charles D., to United States of America, Energy. Nuclear reactivity control using laser induced polarization. 5,063,019, Cl. 376-331.000.

Boyce, Phillip R.: *See*—
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

Boyd, Winnett. Brake actuator for bicycles and the like. 5,062,511, Cl. 192-5.000.

Boyko, Nadina: *See*—
Reiter, Roger; Boyko, Stanley; and Boyko, Nadina, 5,062,572, Cl. 239-899.000.

Boyko, Stanley: *See*—
Reiter, Roger; Boyko, Stanley; and Boyko, Nadina, 5,062,572, Cl. 239-899.000.

BP Chemicals Limited: *See*—
Bailly, Jean-Claude A.; and Collomb, Joelle, 5,063,110, Cl. 428-402.000.

Brack, Chris: *See*—
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Brandes, Wilhelm; Hanssler, Gerd; Reinecke, Paul; Scheinpflug, Hans; and Holmwood, Graham, to Bayer Aktiengesellschaft. Fungicidal agents. 5,063,241, Cl. 514-383.000.

Brandt, Inc.: *See*—
Winkler, Theodore, 5,062,598, Cl. 271-6.000.

Branemark, Per-Ingvar, to Medevelop AB. Anchoring element for supporting a joint mechanism of a finger or other reconstructed joint. 5,062,851, Cl. 623-18.000.

Braun, Paul; and Kwasniewicz, Ronald W., to Kwaun Manufacturing Company. Copying machine. 5,063,406, Cl. 355-57.000.

Braverman, Robert J.; and Shklyarov, Isaak M., to R. J. Braverman Corp. Pen gun. 5,062,230, Cl. 42-1.090.

Braverman, Robert J.; and Shklyarov, Isaak M., to R. J. Braverman Corp. Duel profile pen gun. 5,062,231, Cl. 42-1.090.

Breckenfeld, Paul W.; Nettles, James A.; Rogers, Duane E.; and Broughton, George, to Outboard Marine Corporation. Internal combustion engine. 5,062,403, Cl. 123-413.000.

Breckwoldt, Jorn: *See*—
Hohl, Frank; and Breckwoldt, Jorn, 5,062,889, Cl. 106-197.200.

Bredel, Patrick: *See*—
Terracol, Claude; Bredel, Patrick; and Guillet, Jean-Laurent, 5,062,525, Cl. 198-468.600.

Brel, Jean-Marie: *See*—
Collot, Patrice; Brel, Jean-Marie; and Dehaene, Guy, 5,063,482, Cl. 362-66.000.

Brico Engineering Limited: *See*—
Purnell, Charles G.; and Baker, Andrew R., 5,062,908, Cl. 148-332.000.

Bridge, Peter; and Goodwin, Frederick K., to United States of America, Health and Human Services. Compositions having use as treatment of neuropsychiatric deficits. 5,063,206, Cl. 514-16.000.

Bridgestone Corporation: *See*—
—Kaida, Masaaki, 5,062,578, Cl. 242-3.000.

Bridgestone/Firestone, Inc.: *See*—
Tompkins, Dale A.; and Sicka, Richard W., 5,062,782, Cl. 425-113.000.

Briet, Gilles: *See*—
Potier, Michel; and Briet, Gilles, 5,062,478, Cl. 165-178.000.

Brill, Gunter: *See*—
Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, 5,062,879, Cl. 71-92.000.

Bristol-Myers Squibb Company: *See*—
Schelhas, Klaus-Dieter, 5,062,849, Cl. 623-16.000.

British Aerospace plc: *See*—
Aldersley, Alan; and Hayes, Ronald, 5,062,596, Cl. 244-234.000.

British Alcan Aluminium PLC: *See*—
Cobden, Ronald C.; and Shiels, Alan J., 5,062,369, Cl. 105-396.000.

British Gas plc: *See*—
Price, Barry L.; and Thornhill, Christopher J., 5,063,527, Cl. 364-550.000.

British Telecommunications Public Limited Company: *See*—
Ballance, John W., 5,063,595, Cl. 380-48.000.

Broadbent, Eliot K., to North American Philips Corp., Signetics Division. Method for manufacturing a planar electrical interconnection utilizing isotropic deposition of conductive material. 5,063,175, Cl. 437-192.000.

Broan Mfg. Co., Inc.: *See*—
Sarnosky, Joseph R.; Wolbrink, David W.; Klug, Alan G.; and Behm, Gary E., 5,062,410, Cl. 126-299.00D.

Brock, Martin: *See*—
Ruckes, Andreas; Brock, Martin; and Weider, Richard, 5,063,252, Cl. 521-108.000.

Brockwell, John C.; and Collins, Edward J., to International Business Machines Corp. Cost optimization system for supplying parts. 5,063,506, Cl. 364-402.000.

Brodie, Ivor; Gernick, Henry R.; Holland, Christopher E.; and Mossner, Helmut A., to Coloray Display Corporation. Field emission cathode based flat panel display having polyimide spacers. 5,063,327, Cl. 313-482.000.

Broeck, Vanden; and De Marchi, Olivier. Connecting device for two members of an artificial joint. 5,062,858, Cl. 623-43.000.

Broecker, Franz J.; Arnold, Lothar; and Grafen, Paul, to BASF Aktiengesellschaft. Palladium catalyst. 5,063,194, Cl. 502-314.000.

Bromley, Scott, to Scott Tech International, Inc. Internal cutting head for drifting pipe. 5,062,187, Cl. 29-33.00T.

Bronan, Denis A.; and Whetsel, James E., to Erico Products, Inc,. Welding process and mixture of reactants for use in such process. 5,062,903, Cl. 148-24.000.

Bronskill, John F.: *See*—
Jaffray, Ian; and Bronskill, John F., 5,063,448, Cl. 358-160.000.

Brother Kogyo Kabushiki Kaisha: *See*—
Nozaki, Yoshihisa; Inden, Takashi; and Takemura, Tohur, 5,062,524, Cl. 198-465.400.
Sakakibara, Kenji, 5,063,405, Cl. 355-32.000.

Broughton, George: *See*—
Breckenfeld, Paul W.; Nettles, James A.; Rogers, Duane E.; and Broughton, George, 5,062,403, Cl. 123-413.000.

Brown, Derek A.; Worth, John N.; and Santaniello, Brian F., to W. R. Grace & Co.-Conn. Method and apparatus for inspecting workpieces. 5,062,711, Cl. 356-394.000.

Brown, Franklin C. Safety device for a firearm. 5,062,233, Cl. 42-70.110.

Brown, Ivonne: *See*—
Verdon, Debra; Tietjen, Marlene; and Brown, Ivonne, 5,063,050, Cl. 424-63.000.

Brown, J. Michael; McDowell, John F.; and Chang, Kin-Tai, to Betz Laboratories, Inc. Methods of controlling scale formation in aqueous systems. 5,062,962, Cl. 210-698.000.

Brown, Linda: *See*—
Suckling, Colin J.; Halling, Peter J.; Johnston, Grant A.; and Brown, Linda, 5,063,149, Cl. 435-4.000.

Brown, Neil, to Vereinigte Aluminum-Werke Aktiengesellschaft. Process for the production of boehmite. 5,063,033, Cl. 423-112.000.

Brown, Omar L.; and Wynn, David K., to Dayton Reliable Tool & Mfg. Co. Method and apparatus for making and transferring shells for cans. 5,062,287, Cl. 72-336.000.

Brown, Robert J.: *See*—
Wiencek, Donald C.; and Brown, Robert J., 5,062,202, Cl. 29-749.000.

Brown & Williamson Tobacco Corporation: *See*—
Aulbach, Paul L.; Frank, Dorothy M.; and Roth, David S., 5,062,434, Cl. 131-336.000.

Brubaker, Bryce D.: *See*—
Myers, Robert I.; Brubaker, Bryce D.; and Overall, Robert E., 5,062,206, Cl. 29-890.010.

Bruderer AG: *See*—
Messner, Helmut, 5,062,561, Cl. 226-152.000.

Brueggemann, Harry P., to Xerox Corporation. Optical scanner with reduced end of scan wobble having an even number of beam reflections. 5,063,292, Cl. 250-236.000.

Bruhn, Rainer, to SWF Auto-Electric GmbH. Electric motor, especially an electric small-power motor for driving wiper systems of motor vehicles. 5,063,317, Cl. 310-91.000.

Bruhnke, Ulrich: *See*—
Arold, Klaus; and Bruhnke, Ulrich, 5,062,353, Cl. 98-2.110.

Bruker-Franzen Analytik GmbH: *See*—
Schlag, Edward W.; Lindner, Josef; Beavis, Ronald C.; and Grotemeyer, Jurgen, 5,062,935, Cl. 204-157.410.

Brumfield, David: *See*—
Jamison, Russell D.; Brumfield, David; and Treharne, Richard, 5,062,844, Cl. 606-54.000.

Brumme, Helma: *See*—
Astheimer, Hans; Brumme, Helma; Heck, Werner; Kissel, Klaus; and Schuy, Hubert, 5,063,464, Cl. 360-104.000.

Brusasco, Enzo, to Roltra, Morse S.p.A. Vehicle door. 5,062,240, Cl. 49-348.000.

Bryant, Henry U.; and Clemens, James A., to Eli Lilly and Company. Method of inhibiting demineralization of bone. 5,063,234, Cl. 514-288.000.

Bryzek, Janusz: *See*—
Petersen, Kurt E.; Barth, Philip W.; Bryzek, Janusz; and Mallon, Joseph R., Jr., 5,062,302, Cl. 73-754.000.

Buchanan, Harry C.; and Victor, Keith R., to General Motors Corporation. Windshield wiper with adjustable wiping pressure. 5,062,175, Cl. 15-103.000.

Budd, Kenton D., to Minnesota Mining and Manufacturing Company. Method of depositing thin films of high temperature Bi-Sr-Ca-Cu-O-based ceramic oxide superconductors. 5,063,199, Cl. 505-1.000.

Buehring, Ian K., to Rank Taylor Hobson Limited. Optical grating with interpolator having multiplying means to produce quadrature signals. 5,063,291, Cl. 250-231.160.

Buhot, John W.: *See*—
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

Bullard, Horace. Vacuum teeth cleaning system. 5,062,413, Cl. 128-66.000.

Bulldog Beratungs-und Vertriebs-GmbH: *See*—
Cholid, Yanbo; Theordorsen, Trygve; and Wilhelmi, Jurgen, 5,062,733, Cl. 403-189.000.

Bullock, Michael A.: *See*—
Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., 5,062,716, Cl. 383-9.000.

Burchette, Herbert L.: *See*—
Worley, Kevin L.; Mayers, John L.; and Burchette, Herbert L., 5,062,767, Cl. 415-209.300.

Burda, Dan S. Rotary shear-type shredder cutter with rectangular feed tooth. 5,062,576, Cl. 241-167.000.

Burges, Denis H.; and Jarrett, Paul, to Agricultural Genetics Company, Limited. Preparation of strains of *Bacillus thuringiensis* having an improved activity against certain lepidopterous pests and novel strain produced thereby. 5,063,055, Cl. 424-93.000.

Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., to Sud-Chemie Aktingesellschaft. Catalyst based on crystalline aluminosilicate. 5,063,187, Cl. 502-71.000.

Burk, Michael: *See*—
Dalebout, William T.; and Burk, Michael, 5,062,632, Cl. 272-129.000.

Burke, Mervin G. Sulky. 5,062,652, Cl. 280-64.000.

Burkinshaw, Brian D.: *See*—
Dorr, Lawrence D.; Burkinshaw, Brian D.; and Skraba, Joseph S., 5,062,852, Cl. 623-20.000.

Burlington Industries, Inc.: *See*—
Neustat, Paula; and Marchiony, Larry, 5,062,534, Cl. 211-48.000.

Burndy Corporation: *See*—
Hoover, John B., 5,062,290, Cl. 72-416.000.

Burns, James A.; and Reischel, Joseph G., to Minnesota Mining and Manufacturing Company. Respiratory mask having a soft, compliant facepiece and a thin, rigid insert and method of making. 5,062,421, Cl. 128-205.270.

Burns, Marsha L., to MarShel Corporation. Refrigerator or freezer freshening device and process. 5,062,272, Cl. 62-78.000.

Burshteyn, Alexander: *See*—
Siiman, Olavi; and Burshteyn, Alexander, 5,062,991, Cl. 252-315.200.

Burt, Peter J., to David Sarnoff Research Center, Inc. Dynamic method for recognizing objects and image processing system therefor. 5,063,603, Cl. 382-37.000.

Burtch, John E.: *See*—
Hill, James A.; and Burtch, John E., 5,062,568, Cl. 229-1.50B.

Busato, Giampaolo: *See*—
Tedesco, Raffaele; Busato, Giampaolo; and Sinatora, Giampaolo, 5,063,099, Cl. 428-109.000.

Busch, Alfred: *See*—
Baeck, Andre C.; Busch, Alfred; and Oh, Young S., 5,062,972, Cl. 252-8.800.

Buschow, Kurt H. J.; de Mooij, Dirk B.; and Jacobs, Theodora H., to U.S. Philips Corp. Hard magnetic material and magnet manufactured from such hard magnetic material. 5,062,907, Cl. 148-301.000.

Butler, Johnny L.; Wakeland, Richard E.; Batson, Donald R.; and Metzger, Robert E., to Spinsafe, Inc. Method and apparatus to facilitate the injection of sealant into a pressurized fluid member. 5,062,439, Cl. 137-15.000.

Butler, Kenneth: *See*—
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Buzy-Vigneau, Jean-Paul, to Lorraine Distribution Buzy-Vigneau. Automatic dispenser for bakery products and the like. 5,062,544, Cl. 221-130.000.

Buzzella, David, to Metal Tech, Inc. Insulating panel system, panels and connectors therefor. 5,062,250, Cl. 52-584.000.

Byalik, Ludmila: *See*—
Robertson, Diane M.; and Byalik, Ludmila, 5,063,104, Cl. 428-286.000.

C. & E. Fein GmbH & Co.: *See*—
Wieland, Dietrich; Kalb, Martin; Grupp, Werner; and Nothofer, Michael, 5,062,743, Cl. 408-6.000.

C. E. Johansson AB: *See*—
Gustafsson, Carl-Erik; and Pettersson, Bo, 5,062,214, Cl. 33-706.000.

Cabot Corporation: *See*—
Menashi, Jameel; and Koehlert, Kenneth C., 5,063,179, Cl. 501-12.000.

Cady, Byron C.: *See*—
Story, Carl E.; Nichols, Jerry A.; and Cady, Byron C., 5,062,770, Cl. 417-46.000.

Cain, Michael B.; Desorcie, Robert B.; Kannabiran, Rengan; Kar, Gitimoy; and Urruti, Eric H., to Corning Incorporated. Coated optical fibers and cables and method. 5,062,685, Cl. 350-96.230.

Cakmakci, Mehmet Y., to Aeroquip Corporation. Metbod for molding trim strips by extrusion molding in an open mold. 5,063,014, Cl. 264-151.000.

Cale, Albert D., Jr.; and Gero, Thomas W., to A. H. Robbins Company, Incorporated. 4-(substitutedaminoetbyl)-3,4-dihydro-2-alkylpyrimido[1,6-a]benzimidazol-1(2H)-ones as antiarrhythmic agents. 5,063,228, Cl. 574-253.000.

Calgon Carbon Corporation: *See*—
Doughty, David T.; and Groose, James E., 5,063,196, Cl. 502-417.000.

Calgon Corporation: *See*—
Muia, Ramon A.; and Donlan, Rodney M., 5,062,967, Cl. 210-755.000.

California Institute of Technology: *See*—
—Hopfield, John J., 5,063,417, Cl. 357-8.000.

Callaway, Edgar H., Jr.: *See*—
Williams, William R.; and Callaway, Edgar H., Jr., 5,063,357, Cl. 331-49.000.

Camberfield Manufacturing Limited: *See*—
Campbell, Raymond D., 5,062,617, Cl. 267-132.000.

Cameron, Robert W. Vehicle seatbelt having an integral airbag. 5,062,662, Cl. 280-733.000.

Campbell, Henry F.: *See*—
Pelletier, Jeffrey C.; Youssefyeh, Raymond D.; and Campbell, Henry F., 5,063,230, Cl. 514-213.000.

Campbell, John E.: *See*—
Bailey, Thomas F.; and Campbell, John E., 5,062,450, Cl. 137-533.210.

Campbell, Raymond D., to Camberfield Manufacturing Limited. Shock absorbing support post. 5,062,617, Cl. 267-132.000.

Campos, William. Saw guide apparatus. 5,062,339, Cl. 83-763.000.

Camshaft Machine Company: *See*—
Lewan, Philip C., 5,062,953, Cl. 210-232.000.

Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence of Her Majesty's Canadian Government: *See*—
Legare, Pierre; and Pike, David W., 5,062,874, Cl. 55-337.000.

Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., to Honeywell Inc. Temperature compensating control system for adjusting primary propellant chamber volume. 5,062,366, Cl. 102-430.000.

Canfield, Barth A.; and Fling, Russell T., to Thomson Consumer Electronics, Inc. Apparatus for conditioning a control signal. 5,063,580, Cl. 377-55.000.

Canistraro, Howard: *See*—
Poillon, Nannette; Canistraro, Howard; and Sienko, Ronald F., 5,062,641, Cl. 273-181.00C.

VOL 1132 ISS 1 NO 5 1991 UMI

Cannella, Stephen J.; and Zaringhalam, Ali R., to AT&T Bell Laboratories. Control of non-locally switched telecommunication services. 5,063,592, Cl. 379-207.000.

Canon Kabushiki Kaisha: *See—*
Arai, Takashi, 5,062,786, Cl. 425-174.000.
Fukuzawa, Keiichi; and Ishii, Yoshiki, 5,063,470, Cl. 360-137.000.
Inagawa, Hideho; and Nojo, Shigenobu, 5,063,280, Cl. 219-121.700.
Ishikawa, Hisashi; Kozuki, Susumu; Takahashi, Koji; and Yoshimura, Katsuji, 5,063,457, Cl. 358-330.000.
Kataoka, Kenichi; Nishimoto, Yoshifumi; and Igaki, Masahiko, 5,062,622, Cl. 271-270.000.
Kishimoto, Juji, 5,063,534, Cl. 364-419.000.
Komuro, Hirokazu, 5,062,937, Cl. 204-192.150.
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.
Nakagawa, Katsumi; Kawai, Tatsundo; and Kuroda, Yasuo, 5,063,462, Cl. 358-475.000.
Takeda, Nobuhiro, 5,063,447, Cl. 358-145.000.
Tanita, Takeo; Kigami, Hiroyuki; and Azuma, Yusaku, 5,063,334, Cl. 318-568.100.
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, 5,063,453, Cl. 360-32.000.

Cantafio, Frank A., Jr. Prosthetic attachment. 5,062,860, Cl. 623-63.000.

Canterberry, J. B.; and Flanigan, David A., to Thiokol Corporation. Rapid burning propellent charge for automobile air bag inflators, rocket motors, and igniters therefor. 5,062,365, Cl. 102-322.000.

Cantio, Salvador: *See—*
Mercurio, Joseph F.; and Cantio, Salvador, 5,062,194, Cl. 29-451.000.

Capel, Antoine; and Marpinard, Jean-Claude, to Alcatel Espace. Power module for electronic control of a DC motor. 5,063,338, Cl. 318-685.000.

Cappelmann, Karl: *See—*
Kruger, Christof; and Cappelmann, Karl, 5,063,080, Cl. 426-660.000.

Cappucci, Joseph D., to Merrimac Industries, Inc. Microwave stripline circuitry. 5,063,365, Cl. 333-121.000.

Carboni, Luigi, to Luciano Bonansea; and I.R.T.I. Istituto Di Ricera E Trasferimenti Tecnologic Alle Imprese srl, a part interest to each. Exhaust gas depurator having a catalytic activity, and silencer, for internal combustion engines. 5,062,263, Cl. 60-299.000.

Cardoza, Wayne: *See—*
Cutler, David N.; Orbits, David A.; Bhandarkar, Dileep; Cardoza, Wayne; and Witek, Richard T., 5,063,497, Cl. 395-800.000.

Carduck, Franz-Josef; Wuest, Willi; Harth, Hubert; and Liebs, Harald, to Henkel Kommanditgesellschaft auf Aktien. Process for the chlorination and sulfochlorination of organic compounds. 5,062,997, Cl. 260-400.000.

Caris, Hubertus A.: *See—*
van Groningen, Wilhelmus D. H.; and Caris, Hubertus A., 5,063,302, Cl. 307-271.000.

Carlsson, Ulf, to Johnson Pump AB. Pump seal arrangement accessible from the base plate. 5,062,777, Cl. 418-104.000.

Carmeli, Dov, to Ach Group, Inc. Method of detecting counterfeit paper currency. 5,063,163, Cl. 436-94.000.

Carnes, Scott C.: *See—*
Arno, Raymond P.; and Carnes, Scott C., 5,062,571, Cl. 236-43.00A.

Carney, Michael D.: *See—*
Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., 5,063,392, Cl. 346-46.000.

Carpenter, Vincent N.; and LaRocca, William J., to Dura Mechanical Components, Inc. Shifter mounted brake-transmission interlock. 5,062,509, Cl. 192-4.00A.

Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., to General Signal Corporation. Color change system for multicolor strip chart recorders. 5,063,392, Cl. 346-46.000.

Carr, Luther J. Locking ring tool. 5,062,191, Cl. 29-229.000.

Carrar: *See—*
Germain, Jean-Claude, 5,062,543, Cl. 221-30.000.

Carrie, Susan E.: *See—*
Lien, Sheue-Ling; Shantz, Michael J.; Carrie, Susan E.; Loo, Jim V.; and Elrod, David, 5,063,375, Cl. 340-703.000.

Carrier Corporation: *See—*
DeSantis, John J., 5,063,314, Cl. 310-71.000.
Heitmann, Erric L.; and Shaw, David N., 5,062,277, Cl. 62-193.000.
Shaw, David N., 5,062,274, Cl. 62-117.000.

Carter Holt Harvey Plastic Products Group Limited: *See—*
Pryor, Raymond J.; Pharoah, James F.; and Duirs, Graham F., 5,062,829, Cl. 604-57.000.

Carter, Robert E., to Teldix GmbH. Torsional vibration drive. 5,063,321, Cl. 310-323.000.

Carter, William A., to HEM Research, Inc. Modulation of aids virus-related events by double-stranded RNAs. 5,063,209, Cl. 514-44.000.

Caschera, Joseph, to United States of America, Air Force. Radar warning receiver compressed memory histogrammer. 5,063,385, Cl. 342-13.000.

Casio Computer Co., Ltd.: *See—*
Nagatsuma, Shigeyuki, 5,062,342, Cl. 84-744.000.

Catchpole, Clive: *See—*
Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, 5,063,599, Cl. 382-7.000.

Cavanagh Company: *See—*
Cavanagh, Paul A., 5,063,068, Cl. 426-94.000.

Cavanagh, Paul A., to Cavanagh Company. Method of producing laminated wafers. 5,063,068, Cl. 426-94.000.

Central Mine Equipment: *See—*
Rassieur, Charles L., 5,062,490, Cl. 173-104.000.

Centre National de la Recherche Scientifique: *See—*
Leprince, Philippe; Chollet, Patrick; and Saada, Serge, 5,063,330, Cl. 315-111.210.

Centre National de la Recherche Scientifique (CNRS): *See—*
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

Ceramics Process Systems Corporation: *See—*
Gruber, William C.; and Barringer, Eric ., 5,062,891, Cl. 106-20.000.

Chacin U., Jesus E.; and Vadasz F., Amnon M., to Intevep, S.A. Self actuated intake valve assembly for insert subsurface reciprocating pumps. 5,062,480, Cl. 166-108.000.

Chacin U., Jesus E.: *See—*
Vadasz F., Amnon M.; and Chacin U., Jesus E., 5,062,451, Cl. 137-533.170.

Chamberlain, Terence R.: *See—*
Schwartz, Russell J.; Zwirgzdas, Anthony C.; and Chamberlain, Terence R., 5,062,894, Cl. 106-23.000.

Champion International Corporation: *See—*
Hannigan, Judson, 5,062,216, Cl. 34-16.000.

Champlain Cable Corporation: *See—*
McRae, Howard F., 5,063,266, Cl. 524-269.000.

Chan, Sun-Shiu D.: *See—*
Sasaki, Lawrence H.; and Chan, Sun-Shiu D., 5,063,579, Cl. 377-48.000.

Chance, Britton, to Nim Incorporated. Method and device for in vivo diagnosis detecting IR emission by body organ. 5,062,428, Cl. 128-664.000.

Chanda, Pranab K.: *See—*
Wong-Stahl, Flossie; Chanda, Pranab K.; and Ghrayeb, John, 5,063,053, Cl. 424-89.000.

Chandler, John W. Compartmentalized refuse container. 5,062,539, Cl. 220-4.270.

Chandrasekhar, S.; and Johnson, Bartley C., to AT&T Bell Laboratories. InP/InGaAs monolithic integrated photodetector and heterojunction bipolar transistor. 5,063,426, Cl. 357-30.000.

Chang, C. I. Multi-function chair. 5,062,650, Cl. 297-129.000.

Chang, Joseph. Microbial products used for treatment of hepatitis. 5,063,054, Cl. 424-92.000.

Chang, Kin-Tai: *See—*
Brown, J. Michael; McDowell, John F.; and Chang, Kin-Tai, 5,062,962, Cl. 210-698.000.

Chang, Ming-Ju; Hsu, Yuan-Hsun; Kuo, Mei-Hui; and Soong, Tai-Sen, to Development Center for Biotechnology. Process for the isolation of antifungal agents (5-methoxy-7-hydroxyflavan from dragon's blood resin and its use in agriculture. 5,063,244, Cl. 514-456.000.

Chang, Ronald G. Numeric mouse one hand controllable computer peripheral pointing device. 5,063,376, Cl. 340-706.000.

Chanter, Edward G.; and Randleman, Randy J., to Those Characters from Cleveland, Inc. Toy simulator. 5,062,647, Cl. 273-442.000.

Chapoton, Charles W., to Texas Instruments Incorporated. Method for calibrating a phased array antenna. 5,063,529, Cl. 364-571.020.

Charles, Richard J.: *See—*
Ngo, Khai D.; and Charles, Richard J., 5,062,197, Cl. 29-606.000.

Chawan, Dhyaneshwar B.: *See—*
Gillmore, Stephen R.; Merritt, Carleton G.; Chawan, Dhyaneshwar B.; and Matuszak, Edward A., 5,063,072, Cl. 426-557.000.

Chebath, Judith: *See—*
Revel, Michel; and Chebath, Judith, 5,063,159, Cl. 435-252.300.

Chen, Cindy: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.

Chen, Inan: *See—*
Jansen, Frank; and Chen, Inan, 5,063,397, Cl. 346-153.100.

Chen, Irvin S. Y.: *See—*
Slamon, Dennis J.; and Chen, Irvin S. Y., 5,063,150, Cl. 435-5.000.

Chen, Jen; and Hutchison, Alan J., to Ciba-Geigy Corporation. N9-cyclopentyl-substituted adenine derivatives useful as adenosine receptor agonists. 5,063,233, Cl. 514-266.000.

Chen, Kun-Long; and Hsu, Yung-Yu, to Dow Corning Corporation. Compositions and their use for treating fibers. 5,063,260, Cl. 523-213.000.

Chen, Ming-Tang. Jig-boring device. 5,062,747, Cl. 408-115.00R.

Chen, Mon-Song: *See—*
Barzilai, Tsipora P.; Chen, Mon-Song; Kadaba, Bharath K.; and Kaplan, Marc A., 5,063,562, Cl. 370-94.100.

Chen, Sy-Hwa; and Sung, Chien-Min, to Norton Company. Chemically bonded superabrasive grit. 5,062,865, Cl. 51-295.000.

Cherry, Phillip D. Method and apparatus for controlling the speed of boats. 5,062,379, Cl. 114-311.000.

Chestnutt, Billy D. Distress signal. 5,062,380, Cl. 116-28.00R.

Chevance, Christophe: *See—*
Ferre, Alain; Chevance, Christophe; and Quignon, Jean, 5,063,524, Cl. 364-516.000.

Chevron Research and Technology Company: *See—*
Sciamanna, Steven F., 5,062,955, Cl. 210-512.100.

Chiaramonte, Vincent: *See—*
Duncan, Frank L.; and Chiaramonte, Vincent, 5,062,799, Cl. 433-215.000.

Chiba, Kazuharu; Nakajima, Yoshifumi; and Sumiyoshi, Hideo, to Fujitsu Limited. Wavelength stabilized light source. 5,063,568, Cl. 372-32.000.

Chiba, Moichi, to Nippon Seiko Kabushiki Kaisha. Rolling bearing with sleeve. 5,062,721, Cl. 384-536.000.

Chiba, Yoshitaka: *See—*
Matsumoto, Shunichiro; Inui, Tsutomu; Ichiyasu, Rokuo; and Chiba, Yoshitaka, 5,062,885, Cl. 75-255.000.

Chiba, Yoshiteru: *See—*
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Chikuma, Kiyofumi, to Pioneer Electronic Corporation. Optical information recording medium providing reflected light at two different wavelengths, recording apparatus utilizing the same. 5,063,556, Cl. 369-112.000.

China Petrochemical Corporation: *See—*
Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, 5,063,195, Cl. 502-341.000.

Chisso Corporation: *See—*
Nakajima, Hirokazu, 5,063,264, Cl. 524-118.000.

Chitty, Clive L.; and Whatmore, Roger W., to GEC Plessey Telecommunications Limited. Coin validation apparatus. 5,062,518, Cl. 194-317.000.

Chiu, Hsiu-Hui, to Sunshon Molding Co., Ltd. Wheel unit for a slidable infant chair. 5,062,178, Cl. 16-38.000.

Chivas Products Limited: *See—*
Phelps, Richard A.; and Lorence, Brian S., 5,062,608, Cl. 248-289.100.

Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, to Suntory, Ltd. Derivative of caffeic acid and pharmaceutical composition containing the same. 5,063,243, Cl. 514-438.000.

Cho, Suk-rae, to Samsung Electron Devices Co., Ltd. Dynamic focus electron gun. 5,063,326, Cl. 313-414.000.

Choi, Jae H., to AT&T Laboratories. Flexible articles formed from polyurethanes by RIM processes. 5,063,017, Cl. 264-328.600.

Choi, Kee-Ju: *See—*
Turkevich, Leonid A.; and Choi, Kee-Ju, 5,063,301, Cl. 250-574.000.

Cholid, Yanuo; Theordorsen, Trygve; and Wilhelmi, Jurgen, to Bulldog Beratungs-und Vertriebs-GmbH. Joining element for beams. 5,062,733, Cl. 403-189.000.

Chollet, Patrick: *See—*
Leprince, Philippe; Chollet, Patrick; and Saada, Serge, 5,063,330, Cl. 315-111.210.

Chresand, Thomas J.: *See—*
Bateson, George F.; Chresand, Thomas J.; Moore, Joel D.; and Nayes, Terrence L., 5,062,958, Cl. 210-611.000.

Christensen, Robert W., to Epitaxy Systems, Inc. Induction heated pancake epitaxial reactor. 5,062,386, Cl. 118-725.000.

Christianson, Kim L.: *See—*
Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., 5,062,366, Cl. 102-430.000.

Chu, Pochen: *See—*
Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., 5,063,038, Cl. 423-328.000.

Chugai Seiyaku Kabushiki Kaisha: *See—*
Nishii, Yasuho; and Takita, Yumiko, 5,063,221, Cl. 514-167.000.

Chuman, Tatsuji; and Ono, Mikio, to Japan Tobacco Inc. Method of attracting *Tribolium confusum J.* using 2,6-dimethyl-1-octanol. 5,063,058, Cl. 424-405.000.

Chyou, Yang-Chih: *See—*
Liu, Yun-Yu; Shih, Hsiao-Lei; Chyou, Yang-Chih; and Laiw, Ming-Shing, 5,062,805, Cl. 439-404.000.

Ciba-Geigy Corporation: *See—*
Babler, Fridolin, 5,063,258, Cl. 523-171.000.
Chen, Jen; and Hutchison, Alan J., 5,063,233, Cl. 514-266.000.
Gsell, Laurenz, 5,063,236, Cl. 514-318.000.

Cimarosti, Luigi R. Clutch control device. 5,062,515, Cl. 192-91.00A.

Cisco Limited Partnership: *See—*
Bernstein, Joel E., 5,063,060, Cl. 424-422.000.

City of Hope: *See—*
Morton, Jay, 5,062,542, Cl. 220-269.000.

Clappier, Robert R.: *See—*
Van Buskirk, Robert S.; and Clappier, Robert R., 5,062,304, Cl. 73-861.000.

Clark, Earl M.: *See—*
Lee, Kung H.; and Clark, Earl M., 5,062,273, Cl. 62-85.000.

Clark, James E.; and Keur, Robert I., to Videojet Systems International, Inc. Ink jet nozzle with dual fluid resonances. 5,063,393, Cl. 346-75.000.

Clayton, Jane B.; and Miller, Calvin M., to AT&T Bell Laboratories. Optical fiber filter. 5,062,684, Cl. 385-27.000.

Clean Air Technologies Inc.: *See—*
Kunst, Neil W.; Fraser, James D.; and Amaro, Josephina, 5,063,515, Cl. 364-431.010.

Cleary, James D.; and Eckert, Robert P., to Minnesota Mining and Manufacturing Company. Debonding instrument for orthodontic brackets. 5,062,793, Cl. 433-3.000.

Clegg, William J.: *See—*
Birchall, James D.; and Clegg, William J., 5,063,107, Cl. 428-367.000.

Clemence, Francois; Frechet, Daniel; Hamon, Gilles; and Jouquey, Simone, to Roussel Uclaf. Benzothiazepines. 5,063,225, Cl. 514-211.000.

Clemens, James A.: *See—*
Bryant, Henry U.; and Clemens, James A., 5,063,234, Cl. 514-288.000.

Clinton Industries, Inc.: *See—*
Wokeck, Arthur C.; and Opuszenski, Theodore, 5,062,374, Cl. 112-130.000.

Clyde Corporation: *See—*
Hockman, Edward N., 5,062,521, Cl. 198-389.000.

Cobden, Ronald C.; and Shiels, Alan J., to British Alcan Aluminium PLC. Frame structure. 5,062,369, Cl. 105-396.000.

Coca-Cola Company, The: *See—*
Whigham, Roger C.; and Hoover, George H., 5,062,555, Cl. 222-641.000.

Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., to Procter & Gamble Company, The. Starch with silicone gel for ease of ironing and improved fabric appearance after ironing. 5,062,971, Cl. 252-8.600.

Coherent, Inc.: *See—*
Tiffany, William B., 5,062,842, Cl. 606-3.000.

Coker, Daniel E.: *See—*
Turcotte, David E.; and Coker, Daniel E., 5,062,987, Cl. 252-156.000.

Cold Jet, Inc.: *See—*
Lloyd, Daniel L.; and Cooke, Eugene L., 5,063,015, Cl. 264-161.000.

Cole, David M.: *See—*
Gould, Larry D.; and Cole, David M., 5,062,303, Cl. 73-798.000.

Coleman-Kammula, Seetha; and Gillemans, Johannes C. M., to Shell Oil Company. Process for producing reinforced polymer compositions. 5,063,088, Cl. 427-352.000.

Coleman, Lewis: *See—*
Rosenfeld, Elieser Z.; and Coleman, Lewis, 5,063,275, Cl. 250-343.000.

Coles, Mary E.; and Muegge, Ernest L., to Mobil Oil Corporation. Method for determining density of samples of materials employing X-ray energy attenuation measurements. 5,063,509, Cl. 364-420.000.

Colineau, Joseph; and Machui, Jurgen, to Thomson-CSF. Magnetic head with saturable gap and matrix device comprising a multiplicity of such heads. 5,063,467, Cl. 360-119.000.

Collins, Edward J.: *See—*
Brockwell, John C.; and Collins, Edward J., 5,063,506, Cl. 364-402.000.

Collins, Michael C.; and Collins, Walter W. Multifunction tool. 5,062,173, Cl. 7-118.000.

Collins, Walter W.: *See—*
Collins, Michael C.; and Collins, Walter W., 5,062,173, Cl. 7-118.000.

Collomb, Joelle: *See—*
Bailly, Jean-Claude A.; and Collomb, Joelle, 5,063,110, Cl. 428-402.000.

Collot, Patrice; Brel, Jean-Marie; and Dehaene, Guy, to Valeo Vision. Motor vehicle headlight including an indicator device for indicating the elevation direction of its reflector. 5,063,482, Cl. 362-66.000.

Coloray Display Corporation: *See—*
Brodie, Ivor; Gernick, Henry R.; Holland, Christopher E.; and Moessner, Helmut A., 5,063,327, Cl. 313-482.000.

Colvin, Barry D.: *See—*
Bescherer, Robert E.; and Colvin, Barry D., 5,062,390, Cl. 119-72.000.

Com Dev Ltd.: *See—*
Tsoi, Paul Y., 5,063,364, Cl. 333-107.000.

Comer, Lloyd: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Commissariat a l'Energie Atomique: *See—*
Doury-Berthod, Michele; and Giampaoli, Pierre, 5,062,961, Cl. 210-656.000.

Commonwealth of Australia: *See—*
Barrow, Ross; Elias, Martin C.; Lyons, Peter R. A.; Jacob, Peter G.; and Rashleigh, Scott C., 5,062,686, Cl. 385-33.000.

Commonwealth Scientific & Industrial Research Organisation: *See—*
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

Compagnie Europeenne de Composants Electroniques LCC: *See—*
Deroux-Dauphin, Patrice, 5,062,196, Cl. 29-603.000.

COMSAT: *See—*
Geller, Bernard D.; Tyler, Johann U.; Holdeman, Louis B.; Phelleps, Fred R.; and Laird, George F., III, 5,063,177, Cl. 437-209.000.

Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, to Unisys Corporation. Electronic image lift. 5,063,599, Cl. 382-7.000.

Conlan, John T.; and Whitekettle, Wilson K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of glutaraldehyde and 2-(decylthio) ethanamine. 5,063,248, Cl. 514-665.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Connectix, Inc.: *See—*
Garber, Jonathan F., 5,063,499, Cl. 395-500.000.

Connell, Victoria: *See—*
Spellman, Joseph X.; Beck, Marlene C.; and Connell, Victoria, 5,063,057, Cl. 424-401.000.

Connolly, Kevin J.; D'Aleo, James M.; and Griffith, Clifford J., to Garden Way Incorporated. Leaf tamper for chipper/shredder. 5,062,329, Cl. 81-488.000.

Conoco Inc.: *See—*
Jones, Richard L., 5,063,271, Cl. 524-351.000.

Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., to Kimberly-Clark Corp.; and Paramount Packaging Corp. Staged release bag and method for making. 5,062,716, Cl. 383-9.000.

Cook, David C.: *See—*
Hynds, Ernest J.; Stowe, Keith A.; and Cook, David C., 5,062,656, Cl. 280-689.000.

Cook, Harold T., Jr.; and Fielding, Mimi S., to Marco Seattle, Inc. Artificial bait for fish and shellfish. 5,062,235, Cl. 43-42.000.

Cooke, Eugene L.: *See—*
Lloyd, Daniel L.; and Cooke, Eugene L., 5,063,015, Cl. 264-161.000.

Cooke, Horise M.; and Deiss, Richard F., to Parker-Hannifin Corporation. Kink-resistant, small bend radius hose with polyfluorocarbon liner. 5,062,456, Cl. 138-125.000.

Cooper, Douglas W.: *See—*
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.

Cooper Industries: *See—*
Urban, Paul L., 5,062,564, Cl. 228-9.000.

Cooper Industries, Inc.: *See—*
Deremo, Edwin J., 5,062,746, Cl. 408-79.000.
Schlitt, George J., 5,062,215, Cl. 33-755.000.

Cooper, Kelvin; Fray, Michael J.; Richardson, Kenneth; and Steele, John, to Pfizer Inc. 1,4-dihydro-2-(4-[benzimidazol-1-yl]phenyl)-pyridines as platelet activating factor antagonists. 5,063,237, Cl. 514-338.000.

Cooper, Larry: *See—*
Whitesel, J. Warren; and Cooper, Larry, 5,062,408, Cl. 126-41.00R.

Cooper Power Systems, Inc.: *See—*
Arnold, Wesley D., Jr.; Bond, Walter D.; and Lauf, Robert J., 5,062,993, Cl. 257-518.000.

Copenhaver, Gary; Bakker, Johan; and Vala, John, to Unisys Corporation (Formerly Burroughs Corp.). Packaging of components for image lift. 5,063,461, Cl. 358-474.000.

Copenhaver, Gary: *See—*
Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, 5,063,599, Cl. 382-7.000.

Coppens, Pierre: *See—*
Akrout, Chekib; Coppens, Pierre; Gautier, Yves; and Urena, Pierre-Yves, 5,063,537, Cl. 365-96.000.

Coppier, Herve ; Pourailly, Jean-Louis; and Roger, Joseph, to Thomson-CSF. Electromagnetic energy radiation pick-up. 5,063,363, Cl. 333-33.000.

Corcoran, John. High density storage facility. 5,062,242, Cl. 52-36.000.

Cordis Corporation: *See—*
Fontirroche, Carlos A.; and Truckai, Csaba, 5,063,018, Cl. 264-514.000.

Core-Vent Corporation: *See—*
Niznick, Gerald A., 5,062,800, Cl. 433-229.000.

Corin, James D.: *See—*
Kuslich, Stephen D.; and Corin, James D., 5,062,845, Cl. 606-80.000.

Corning Incorporated: *See—*
Borrelli, Nicholas F.; and Smith, Dennis W., 5,062,877, Cl. 65-30.130.
Cain, Michael B.; Desorcie, Robert B.; Kannabiran, Rengan; Kar, Gitimoy; and Urruti, Eric H., 5,062,685, Cl. 350-96.230.
Hampton, Leslie E.; and Thompson, David F., 5,062,911, Cl 156-89.000.

Coulter Corporation: *See—*
Siiman, Olavi; and Burshteyn, Alexander, 5,062,991, Cl. 252-315.200.

Cowen, Timothy B., to Mentor Corporation. Prosthesis with improved pump. 5,062,417, Cl. 128-79.000.

Cox, Karen L.; Seno, Eugene T.; and Wild, Gene M., to Eli Lilly and Company. Method for producing 2'''-O-demethyltylosin. 5,063,155, Cl. 435-76.000.

Coy, Gerald L.: *See—*
Kress, Glenn F.; and Coy, Gerald L., 5,062,602, Cl. 271-104.000.

Coy, Walter G. Medicine caddy or tray. 5,062,531, Cl. 206-564.000.

Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., to I-Stat Corporation. Method of manufacturing a plurality of uniform microfabricated sensing devices having an immobilized ligand receptor. 5,063,081, Cl. 427-2.000.

Crabb, Charles C.: *See—*
Wanat, Robert A.; and Crabb, Charles C., 5,063,259, Cl. 523-201.000.

Crafts, Harold S., to NCR Corporation. High density input/output cell arrangement for integrated circuits. 5,063,429, Cl. 357-40.000.

Crandall, John H.; Davis, Stephen J.; and Reynolds, Brett S., to AT&T Bell Laboratories. Yellow alarm control in DS1 SF and DS1 ESF transcoding. 5,063,564, Cl. 370-110.100.

Creative Products Resource Associates, Ltd.: *See—*
Kellett, George W., 5,062,973, Cl. 252-8.750.

Crist, Michael A. Volleyball training apparatus. 5,062,646, Cl. 273-411.000.

Crossley, P. Anthony: *See—*
Nishihara, H. Keith; Crossley, P. Anthony; Hunt, Neil D.; and Tenenbaum, J. Martin, 5,062,567, Cl. 228-105.000.

Crowley, Steven R.: *See—*
Rosenberg, Saul H.; Spina, Kenneth P.; and Crowley, Steven R., 5,063,208, Cl. 514-19.000.

CTB, Inc.: *See—*
Krehl, Michael E., 5,062,389, Cl. 119-57.600.

Cully, Jan: *See—*
Vollbrecht, Heinz-Rudiger; Cully, Jan; and Wiesmuller, Johann, 5,063,077, Cl. 426-614.000.

Cummings Incorporated, The International Sign Service: *See—*
Cummings, Thomas L., III; and Al-Orfali, Ned S., 5,063,486, Cl. 362-217.000.
Ferre, Alain; Chevance, Christophe; and Quignon, Jean, 5,063,524, Cl. 364-516.000.

Cummings, Thomas L., III; and Al-Orfali, Ned S., to Cummings Incorporated, The International Sign Service. Mounting apparatus for a fluorescent lamp holder. 5,063,486, Cl. 362-217.000.

Curreri, Victor; Klein, John; and Dubois, Janine, to Grumman Aerospace Corporation. Alarm system for a crystal growing furnace. 5,063,518, Cl. 364-503.000.

Curry, Joseph R. Counting device. 5,063,285, Cl. 235-114.000.

Curtis Manufacturing Company, Inc.: *See—*
Hames, Edward L.; and Howitt, Robert, 5,062,609, Cl. 248-676.000.

Custers, Pieter H.; and Stulens, Ludo M. J., to U.S. Philips Corporation. Apparatus for automatically reproducing a user-defined preferred selection from a record carrier. 5,063,547, Cl. 369-32.000.

Cutler, David N.; Orbits, David A.; Bhandarkar, Dileep; Cardoza, Wayne; and Witek, Richard T., to Digital Equipment Corporation. Apparatus and method for recovering from missing page faults in vector data processing operations. 5,063,497, Cl. 395-800.000.

Da Costa, Caio M. F. N., to Expressa Brasileira de Compressores S.A.-Embraco. Outlet valve for a rolling piston rotary compressor. 5,062,779, Cl. 418-270.000.

Dai-Ichi Kogyo Seiyaku Co., Ltd.: *See—*
Fujita, Takeshi; Isoda, Chuzo; and Aketa, Kazuyo, 5,062,986, Cl. 252-134.000.

Daiichi Denso Buhin Co., Ltd.: *See—*
Takano, T.; Kosuga, Y.; and Sinzawa, K., 5,063,277, Cl. 200-531.000.

Daimler-Benz AG: *See—*
Jurgens, Gunter; Surig, Udo; and Lang, Lothar, 5,063,510, Cl. 364-424.100.

Dainichiseika Color & Chemicals Mfg. Co., Ltd.: *See—*
Hoshino, Akira; Saji, Mikio; and Yamaguchi, Isamu, 5,063,256, Cl. 523-102.000.

Dainippon Ink and Chemicals, Inc.: *See—*
Kiyonari, Toshiyuki; Hirabayashi, Satoshi; Kidokoro, Naoto; and Takimoto, Futoshi, 5,063,137, Cl. 430-292.000.

Dalebout, William T.; and Jensen, Jon, to Proform Fitness Products, Inc. Treadmill speed adjustment. 5,062,626, Cl. 272-69.000.

Dalebout, William T.; and Burk, Michael, to Proform Fitness Products, Inc. User programmable exercise machine. 5,062,632, Cl. 272-129.000.

D'Aleo, James M.: *See—*
Connolly, Kevin J.; D'Aleo, James M.; and Griffith, Clifford J., 5,062,329, Cl. 81-488.000.

Daly, Paul D., to Siemens Automotive L.P. Intake manifold/fuel rail and method. 5,062,405, Cl. 123-468.000.

Danfoss A/S: *See—*
Hansen, Henry; Studsgaard, Leif; and Laursen, Erik, 5,062,305, Cl. 73-861.120.
Stenstrom, Theiss; Molbaek, Jens J.; Hyldig, Poul E.; and Straede, Bjarne, 5,062,442, Cl. 137-110.000.

Danglot, Bernard. Electrical or electronic control key pad. 5,063,478, Cl. 361-405.000.

Daniel, Mark L.: *See—*
Hardenbrook, James M.; Williams, Richard E.; and Daniel, Mark L., 5,063,297, Cl. 250-458.100.

Dansk Industri Syndikat A/S: *See—*
Greve Hansen, Niels F.; and Greve Hansen, Jorn H., 5,062,346, Cl. 89-14.100.
Mortensen, Anders, 5,062,465, Cl. 164-4.100.

DaSalvo, Stanley A. Portable ramp. 5,062,174, Cl. 14-69.500.

Datacube Inc.: *See—*
Siegel, Shepard L., 5,063,608, Cl. 382-56.000.

Datta, Rathin: *See—*
Glassner, David A.; Jain, Mahendra K.; and Datta, Rathin, 5,063,156, Cl. 435-150.000.

Dau, William S.; and Jaen-Guardia, Ernest, Jr. Barbell clamp. 5,062,631, Cl. 272-123.000.

d'Autume, Georges, to Jupiter Telescope Co., Inc. Pivotless equatorial table for a telescope. 5,062,699, Cl. 359-430.000.

Davenport, Jerry W.: *See—*
Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., 5,062,716, Cl. 383-9.000.

Daverio AG: *See—*
Maier, Willy, 5,062,763, Cl. 414-787.000.

David R. Webb Co., Inc.: *See—*
Weil, George, 5,062,218, Cl. 34-114.000.

David Sarnoff Research Center, Inc.: *See—*
Burt, Peter J., 5,063,603, Cl. 382-37.000.
Roach, William R., 5,063,378, Cl. 340-784.000.

Davidowski, Dennis J.; Saunders, Michael J.; and O'Brien, Steven M., to Unisys Corporation. Programmable data communications system. 5,063,494, Cl. 395-800.000.

Davies, Bruce, to Water Regeneration Systems, Inc. Electrolytic liquid purification apparatus. 5,062,940, Cl. 204-228.000.

Davis, Clarke D.: *See—*
Anand, Vidhu; Sampath, Sanjay; Davis, Clarke D.; and Houck, David L., 5,063,021, Cl. 419-12.000.

Davis, Graham: *See—*
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., to Lever Brothers Company, Division of Conopco, Inc. Apparatus and method for detecting inhomogeneities in ... ni-plastic substances through ultrasound. 5,062,299, Cl. 73-609.000.

Davis, Stephen J.: *See—*
Crandall, John H.; Davis, Stephen J.; and Reynolds, Brett S., 5,063,564, Cl. 370-110.100.

Davison, Ellard D., Jr.; and Rabhi, Lounes, to General Motors Corporation. Transmission breather control valve and vent. 5,062,447, Cl. 137-493.000.

Dayan, Richard A.; Geisler, Douglas R.; Kinnear, Scott G.; Macon, James F., Jr.; and Schwartz, William H., to International Business Machines Corporation. Signaling attempted transfer to protected entry point bios routine. 5,063,496, Cl. 395-700.000.

Dayton Reliable Tool & Mfg. Co.: *See—*
Brown, Omar L.; and Wynn, David K., 5,062,287, Cl. 72-336.000.

De la Rue Giorgi S.A.: *See—*
Giori, Gualtiero, 5,062,359, Cl. 101-152.000.

De la Rue Giori S.A.: *See—*
Germann, Albrecht J.; Bolza-Schunemann, Hans B.; Schaede, Johannes G.; and Lapp, Joachim A. H., 5,062,360, Cl. 101-152.000.

Dean, Bryan L.: *See—*
Reiling, Victor G.; and Dean, Bryan L., 5,062,341, Cl. 84-702.000.

de Boer, Jan: *See—*
Roovers, Wilhemus M. M.; and de Boer, Jan, 5,062,984, Cl. 525-67.000.

De brabandere, Luc A.: *See—*
De Keyzer, Rene M.; Odeurs, Raymond L.; and De brabandere, Luc A., 5,063,136, Cl. 430-248.000.

De Bruin, Leendert; Verhaar, Robertus D. J.; and Van Laarhoven, Josephus M. F. G., to U.S. Philips Corporation. Selectively plating conductive pillars in manufacturing a semiconductor device. 5,063,169, Cl. 437-41.000.

de Chastel, Ann, executrix: *See—*
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

de Chastel, David J., deceased: *See—*
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

DeFilippi, Louis J.: *See—*
Lupton, F. Stephen; DeFilippi, Louis J.; and Goodman, James R., 5,062,956, Cl. 210-611.000.

de Gelis, Pierre: *See—*
Berneron, Roger; and de Gelis, Pierre, 5,062,900, Cl. 148-4.000.

Degen, Helmut: *See—*
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.

De Gier, Gertrudis M. G.; and Sytstra, Jan R., to Verachtert Beheer B.V. Device for breaking objects consisting of concrete or similar material. 5,062,227, Cl. 37-117.500.

Deglis, Janis W.; and Amrich, Robert C. Multipurpose recreational cart. 5,062,653, Cl. 280-648.000.

de Grunt, F.: *See—*
Nieuwenhuize, O. V.; de Grunt, F.; de Vissser, S.; and Vos, R., 5,063,106, Cl. 428-343.000.

Degussa Corporation: *See—*
Hulse, Sid D.; Maurice, D. V.; Ward, Nelson E.; and Wicker, David L., 5,063,066, Cl. 426-2.000.

Dehaene, Guy: *See—*
Collot, Patrice; Brel, Jean-Marie; and Dehaene, Guy, 5,063,482, Cl. 362-66.000.

Deig, Don: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Deisinger, John J., to A. O. Smith Corp. Simultaneous signal devices testing in response to periodic function of an operating device in a system. 5,063,374, Cl. 340-642.000.

Deiss, Richard F.: *See—*
Cooke, Horise M.; and Deiss, Richard F., 5,062,456, Cl. 138-125.000.

De Keyzer, Rene M.; Odeurs, Raymond L.; and De brabandere, Luc A., to AGFA-Gevaert, N.V. Processing liquid for use in DTR-photography with two toners. 5,063,136, Cl. 430-248.000.

DeLand, Daniel L., to Masco Industries, Inc. Varying radius helical cable spool for powered vehicle door systems. 5,062,241, Cl. 49-460.000.

Delco Electronics Corp.: *See—*
Headley, Philip M.; and Kulkarni, Prakash K., 5,063,514, Cl. 364-426.020.
Linke, Scott L., 5,063,344, Cl. 324-115.000.

DeLine, Steven K. Router and guide apparatus. 5,062,460, Cl. 144-136.00C.

Delta Dispensing, Inc.: *See—*
Goldstein, Charles; and Glynn, Kenneth P., 5,062,551, Cl. 222-390.000.

DeLuca, Joan S.: *See—*
Erhart, Richard A.; Herold, Barry W.; and DeLuca, Joan S., 5,063,533, Cl. 395-425.000.

Demarchi, Jean-Louis: *See—*
Billet, Philippe; and Demarchi, Jean-Louis, 5,062,222, Cl. 36-2.600.

De Marchi, Olivier: *See—*
Broeck, Vanden; and De Marchi, Olivier, 5,062,858, Cl. 623-43.000.

de Mooij, Dirk B.: *See—*
Buschow, Kurt H. J.; de Mooij, Dirk B.; and Jacobs, Theodora H., 5,062,907, Cl. 148-301.000.

Demurger et cie: *See—*
Demurger, Jean P., 5,062,328, Cl. 81-186.000.

Demurger, Jean P., to Demurger et cie. Plastic wrench with metal insert. 5,062,328, Cl. 81-186.000.

Den-Tal-Ez, Inc.: *See—*
Gonser, Donald I., 5,062,797, Cl. 433-118.000.

Denki Kagaku Kogyo Kabushiki Kaisha: *See—*
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.

Dent, Nigel A. Telescopic beam. 5,062,245, Cl. 52-118.000.

Denton, Robert D.: *See—*
Haut, Richard C.; Thomas, Eugene R.; and Denton, Robert D., 5,062,270, Cl. 62-12.000.

Derata Corporation: *See—*
Dunlap, Kenneth W., 5,062,830, Cl. 604-68.000.

Deremo, Edwin J., to Cooper Industries, Inc. Clamping attachment for portable drills. 5,062,746, Cl. 408-79.000.

Deroux-Dauphin, Patrice, to Compagnie Europeenne de Composants Electroniques LCC. Method of manufacturing the pole pieces and the gap of magnetic heads in thin layers. 5,062,196, Cl. 29-603.000.

DeSantis, John J., to Carrier Corporation. Miswire-proof interconnecting terminal block. 5,063,314, Cl. 310-71.000.

Desorcie, Robert B.: *See—*
Cain, Michael B.; Desorcie, Robert B.; Kannabiran, Rengan; Kar, Gitimoy; and Urruti, Eric H., 5,062,685, Cl. 350-96.230.

Deutsche Gesellschaft fur Wiederaufarbeitung von Kernbrennstoffen mbH: *See—*
Rohleder, Norbert; Praxl, Hubert; and Gobel-Rick, Dietrich, 5,062,458, Cl. 141-80.000.

Development Center for Biotechnology: *See—*
Chang, Ming-Ju; Hsu, Yuan-Hsun; Kuo, Mei-Hui; and Soong, Tai-Sen, 5,063,244, Cl. 514-456.000.

DeVilbiss (Canada) Limited: *See—*
Marcinkowski, John; Bennett, Herbert W.; and Niwa, Kenji, 5,062,963, Cl. 210-712.000.

de Vissser, S.: *See—*
Nieuwenhuize, O. V.; de Grunt, F.; de Vissser, S.; and Vos, R., 5,063,106, Cl. 428-343.000.

de Volder, Claude: *See—*
Bourdeau, Alain; and de Volder, Claude, 5,063,386, Cl. 342-40.000.

Dexter Corporation, The: *See—*
Robertson, Diane M.; and Byalik, Ludmila, 5,063,104, Cl. 428-286.000.

Dey, Michael J.: *See—*
Selkirk, Alastair B.; and Dey, Michael J., 5,063,220, Cl. 514-161.000.

Di Amico, Paul A. Motorized twisting pasta fork. 5,062,211, Cl. 30-322.000.

Diamond S.A.: *See—*
Marazzi, Silvio, 5,062,682, Cl. 385-85.000.

Diaz, Stephen H.: *See—*
Tomita, Akira; Diaz, Stephen H.; Dubrow, Robert S.; and Feldman, Michael, 5,062,254, Cl. 53-467.000.

DiBello, Louis M., to Owens-Illinois Plastic Products Inc. Degradable bottle and can carrier coated with ultraviolet absorber. 5,063,111, Cl. 428-411.100.

Diesel Kiki Co. L.T.D.: *See—*
Ichihashi, Koji; and Yasuma, Jun-ichi, 5,062,454, Cl. 137-625.610.

Diesel Kiki Co. Ltd.: *See—*
Peterson, Miles, 5,062,464, Cl. 160-193.000.

Dietachmayr, Harald: *See—*
Blaimschein, Gottfried; and Dietachmayr, Harald, 5,062,332, Cl. 83-74.000.

Difco Laboratories: *See—*
Wannlund, Jon C., 5,063,090, Cl. 427-384.000.

Digital Equipment Corporation: *See—*
Cutler, David N.; Orbits, David A.; Bhandarkar, Dileep; Cardoza, Wayne; and Witek, Richard T., 5,063,497, Cl. 395-800.000.
Hamadah, Talal T.; Ryder, Douglas N.; and Friedman, Harvey S., 5,063,476, Cl. 361-384.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Dillon, John, Jr., to Johnson & Johnson Medical, Inc. Raglan sleeve surgical gown. 5,062,160, Cl. 2-114.000.

Dillon, John R.; and O'Connor, James D., to Shipley Company Inc. Electrolytic permanganate generation. 5,062,930, Cl. 204-82.000.

Diodato, Philip W., to AT&T Bell Laboratories. Digital logic circuits for frequency multiplication. 5,063,578, Cl. 377-47.000.

DiPrima, James J.; and Porter, Frank K., Jr., to Raytheon Company. Venting and sealing mechanism. 5,062,590, Cl. 244-118.500.

Di Shang, Lian: *See*—
Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, 5,063,195, Cl. 502-341.000.

Dishart, Kenneth T.; and Wolff, Mark C., to Du Pont de Nemours, E. I., and Company. Cleaning composition of dibasic ester, hydrocarbon solvent and compatibilizing component. 5,062,988, Cl. 252-170.000.

Dittmer, Marlan A. Ventilated multiple pane skylight. 5,062,247, Cl. 52-200.000.

Dixon, George J., to Amoco Corporation. Internally-doubled, composite-cavity microlaser. 5,063,566, Cl. 372-22.000.

Dlugokecki, Andrew N., to Parker Hannifin Corporation. Commutator for orbiting gerotor-type pumps and motors. 5,062,776, Cl. 418-61.300.

DMT Marinetechnik GmbH: *See*—
Tegel, Marek, deceased; and Wenzel, Dieter, 5,062,345, Cl. 89-1.817.

Dr. Ing. h.c.F. Porsche AG: *See*—
Maier, Ulrich; and Raff, Friedrich, 5,062,314, Cl. 74-475.000.

Dodds, John F.: *See*—
Stroud, James W., III; and Dodds, John F., 5,062,785, Cl. 425-145.000.

Doheny, Anthony J., Jr., to Kendall Company, The. Preparing heat shrinkable wraps. 5,063,005, Cl. 264-22.000.

Doherty, Annette M.; Hamilton, Harriet W.; Hodges, John C.; Repine, Joseph T.; and Sircar, Ila, to Warner-Lambert Company. Renin inhibitors, method for using them, and compositions containing them. 5,063,207, Cl. 514-18.000.

Doi, Akihiko: *See*—
Yamashita, Hiroshi; and Doi, Akihiko, 5,063,548, Cl. 369-44.140.

Doi, Toshiya: *See*—
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Dolgov, Vyacheslav M.: *See*—
Aleshin, Nikolai P.; Baranov, Vladimir J.; Dolgov, Vyacheslav M.; Yarovoi, Alexandr A.; and Preobrazhensky, Oleg A., 5,062,301, Cl. 73-629.000.

Dominick, Thomas S.: *See*—
Vale, Christopher R.; Dominick, Thomas S.; Via, William R.; and Knapp, Gene P., Sr., 5,063,358, Cl. 331-60.000.

Domoto, Gerald A.; and Sereny, Aron, to Xerox Corporation. Removal of excess liquid from an image receptor. 5,063,413, Cl. 355-296.000.

Donlan, Rodney M.: *See*—
Muia, Ramon A.; and Donlan, Rodney M., 5,062,967, Cl. 210-755.000.

Donofrio, Deborah K.; and Whitekettle, Wilson K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and (N,N-dimethyl-N'-phenyl-N'-fluorochloromethylthio)-sulphamide. 5,063,211, Cl. 514-75.000.

Donofrio, Deborah K.; and Whitekettle, Wilson K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of N-tributyl tetradecyl phosphonium chloride and B-bromo-B-nitrostyrene. 5,063,212, Cl. 514-75.000.

Donofrio, Deborah K.; and Whitekettle, Wilson K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and 3,5-D-thiadiazine thione. 5,063,215, Cl. 514-75.000.

Donofrio, Deborah K.; and Whitekettle, Wilson K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and bis(-tributyl) tin oxide. 5,063,216, Cl. 514-75.000.

Donofrio, Deborah K.: *See*—
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,213, Cl. 514-75.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,214, Cl. 514-75.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,217, Cl. 514-75.000.
Whitekettle, Wilson K.; and Donofrio, Deborah K., 5,063,218, Cl. 514-75.000.

Dornier Luftfahrt GmbH: *See*—
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Dorr, Lawrence D.; Burkinshaw, Brian D.; and Skraba, Joseph S., to Intermedics Orthopedics, Inc. Tibial prosthesis with independent medial and laterl baseplates. 5,062,852, Cl. 623-20.000.

Doryokuro Kakunenryo Kaihatsu Jigyodan: *See*—
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.

Dotson, Ronald L.; and Moore, Sanders H., to Olin Corporation. Process for decomposing solutions of hydroxylammonium salts. 5,062,966, Cl. 210-753.000.

Doughty, David T.; and Groose, James E., to Calgon Carbon Corporation. Chromium-free impregnated activated carbon for adsorption of toxic gases and/or vapors. 5,063,196, Cl. 502-417.000.

Doury-Berthod, Michele; and Giampaoli, Pierre, to Commissariat a l'Energie Atomique. Process for the determination of the concentration of an ionic or ionizable solute in ion exchange chromatography. 5,062,961, Cl. 210-656.000.

Dow Brands Inc.: *See*—
Smith, David A.; and LaCombe, James A., 5,062,603, Cl. 271-195.000.

Dow Chemical Company, The: *See*—
Smith, David A.; and Woody, Clark M., 5,062,623, Cl. 271-283.000.
Smith, David A.; and Geiger, Herbert B., 5,062,825, Cl. 493-194.000.

Dow Company, The: *See*—
Farquharson, Stuart; and Keillor, Peter T., III, 5,062,713, Cl. 356-402.000.

Dow Corning Corporation: *See*—
Chen, Kun-Long; and Hsu, Yung-Yu, 5,063,260, Cl. 523-213.000.
Hanneman, Larry F.; Gentle, Theresa E.; and Sharp, Kenneth G., 5,063,267, Cl. 524-284.000.
Kohl, Gretchen S.; Giwa-Agbomeirele, Patricia A.; and Vincent, Judith M., 5,063,044, Cl. 424-70.000.
Lee, Chi-Long; Lutz, Michael A.; and VanWert, Bernard, 5,063,102, Cl. 428-209.000.

DowBrands Inc.: *See*—
Smith, David A.; and Woody, Clark M., 5,062,549, Cl. 222-377.000.

Dr.Ing.h.c.F. Porsche Aktiengesellschaft: *See*—
Sommerer, Karl, 5,062,655, Cl. 280-674.000.

Dragerwerk Aktiengesellschaft: *See*—
Wallroth, Carl F.; Falb, Wolfgang; and Mohr, Helmut, 5,062,999, Cl. 261-39.100.

Draiswerke GmbH: *See*—
Schmitt, Philipp; and Stehr, Norbert, 5,062,577, Cl. 241-171.000.

Drake, Charles A., to Phillips Petroleum Company. Alkali metal and alkali metal carbonate catalytic systems and catalytic processes. 5,063,191, Cl. 502-174.000.

Dranoff, Samuel: *See*—
Drazba, Martin J.; Bellek, Michael L.; Dranoff, Samuel; and Hahn, Paul, 5,062,701, Cl. 351-160.00R.

Drayer, William L.: *See*—
Ostrand, James C.; and Drayer, William L., 5,062,473, Cl. 165-42.000.

Drazba, Martin J.; Bellek, Michael L.; Dranoff, Samuel; and Hahn, Paul, to Wesley-Jessen Corporation. Asymmetric contact lens. 5,062,701, Cl. 351-160.00R.

Dresser Industries, Inc.: *See*—
Eckman, Richard E., 5,062,745, Cl. 408-17.000.

Dresser-Rand Company: *See*—
Bennitt, Robert A., 5,062,311, Cl. 74-44.000.

Droll Yankees, Inc.: *See*—
Kilham, Peter, 5,062,388, Cl. 119-52.200.

Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., to Centre National de la Recherche Scientifique (CNRS); and Institut des Vaisseaux et du Sang (IVS). Method of preventing or treating thrombosis using kappa-caseinoglycopeptide as active ingredient. 5,063,203, Cl. 514-8.000.

Drubka, Robert E.: *See*—
Blackmon, James B.; and Drubka, Robert E., 5,062,472, Cl. 165-41.000.

Drummond, George S.: *See*—
Kappas, Attallah; and Drummond, George S., 5,063,223, Cl. 514-185.000.

Dubief, Claude: *See*—
Grollier, Jean F.; Dubief, Claude; and Dupuis, Christine, 5,063,051, Cl. 424-70.000.
Grollier, Jean F.; and Dubief, Claude, 5,063,052, Cl. 424-70.000.

Dubois, Janine: *See*—
Curreri, Victor; Klein, John; and Dubois, Janine, 5,063,518, Cl. 364-503.000.

Dubrow, Robert S.: *See*—
Tomita, Akira; Diaz, Stephen H.; Dubrow, Robert S.; and Feldman, Michael, 5,062,254, Cl. 53-467.000.

Ducharme, Edgar R. Insulating insert for the cores of building blocks. 5,062,244, Cl. 52-98.000.

Dudley, Kevin F., to Electric Power Research Institute, Inc. Humidity control for variable speed air conditioner. 5,062,276, Cl. 62-176.600.

Dufau, Frederic: *See*—
Bernou, Jean-Louis; Dufau, Frederic; Geahel, Isabelle; and Hache, Jean, 5,062,965, Cl. 210-748.000.

Dufresne, Pierre; and Raatz, Francis, to Institut Francais du Petrole. Catalytic dewaxing process. 5,062,946, Cl. 208-115.000.

Duggan, Robert B.: *See*—
Goins, James V.; Duggan, Robert B.; Pier, William J.; and Wienhoft, Roger, 5,062,354, Cl. 98-62.000.

Duirs, Graham F.: *See*—
Pryor, Raymond J.; Pharoah, James F.; and Duirs, Graham F., 5,062,829, Cl. 604-57.000.

Duke, John D., Jr.: *See*—
Barnabie, Edward J.; and Duke, John D., Jr., 5,062,575, Cl. 241-73.000.

Duncan, Dana L.: *See*—
Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., 5,062,299, Cl. 73-609.000.

Duncan, Frank L.; and Chiaramonte, Vincent. Interface matrix for dental restoration. 5,062,799, Cl. 433-215.000.

Dunlap, Kenneth W., to Derata Corporation. Dry disposable nozzle assembly for medical jet injector. 5,062,830, Cl. 604-68.000.

Dunwoody, Andrew B., to University of British Columbia, The. Fluid actuator. 5,062,268, Cl. 60-533.000.

Du Pont de Nemours, E. I., and Company: *See*—
Dishart, Kenneth T.; and Wolff, Mark C., 5,062,988, Cl. 252-170.000.
Falcoff, Allan F.; and West, Norman M., 5,062,298, Cl. 73-597.000.
Furmanak, Robert J.; Booth, Bruce L.; and Foreman, Thomas K., 5,062,681, Cl. 385-50.000.
Hayes, Richard A.; Kosinski, Leonard E. R.; and Wagman, Mark E., 5,063,263, Cl. 524-101.000.
Hekker, Roeland M.T.; and Livny, Ishak M., 5,063,442, Cl. 358-93.000.
Lee, Kung H.; and Clark, Earl M., 5,062,273, Cl. 62-85.000.
Merriman, Burt T., Jr.; and Goff, David L., 5,063,115, Cl. 428-447.000.

Dupraz, Jean-Pierre: *See*—
van Doan, Pham; Dupraz, Jean-Pierre; and Fevrier, Alain, 5,063,472, Cl. 361-19.000.

Dupuis, Christine: *See*—
Grollier, Jean F.; Dubief, Claude; and Dupuis, Christine, 5,063,051, Cl. 424-70.000.

Dura Mechanical Components, Inc.: *See*—
Carpenter, Vincent N.; and LaRocca, William J., 5,062,509, Cl. 192-4.00A.

Duret, Pierre; and Blanchard, Jean-Luc, to Institut Francais du Petrole. Device and method for introducing a carburetted mixture under presssure into the cylinder of an engine. 5,062,396, Cl. 123-73.0BA.

Durselen, Heinz; Schuffler, Arnulf; and Meyer, Gunter, to Krupp Koppers GmbH. Method of reducing the nitrogen dioxide content of flue gas from a coke oven with dual heating flues by a combination of external flue gas feed back and internal flue gas recirculation. 5,062,925, Cl. 201-41.000.

Dustex Corporation: *See*—
Klimczak, William J., 5,062,867, Cl. 55-96.000.

Dwivedi, Ratnesh K.; and Kennedy, Christopher R., to Lanxide Technology Company, LP. Modified ceramic structures and methods of making the same. 5,063,185, Cl. 501-126.000.

Dyer, John; Mathews, Grace; and Major, Matthew M., to Johnson & Johnson Medical, Inc. Napped nonwoven fabric having high bulk and absorbency. 5,062,418, Cl. 128-156.000.

Dyke, John, to MIU Automation Corporation. Encryption printed circuit board. 5,063,596, Cl. 380-49.000.

Dyson, James, to Notetry Limited. Shut-off device for cyclonic vacuum cleaner. 5,062,870, Cl. 55-213.000.

E-Ming, C. Automatic door protective reversing switch with worm gear. 5,063,316, Cl. 310-83.000.

Easley, James B.: *See*—
Berglund, Andrew; James, James A.; and Easley, James B., 5,062,816, Cl. 440-101.000.

Eastern Co., Ltd.: *See*—
Yamamoto, Iwawo; and Ohta, Kazuchika, 5,062,990, Cl. 252-299.610.

Eastman Kodak Company: *See*—
Kriegel, Jon M.; and Albrecht, Richard E., 5,062,599, Cl. 271-35.000.
Lee, J. Kelly, 5,063,367, Cl. 335-284.000.
Michal, Vratislav M.; and Barbaro, Ralph S., 5,062,331, Cl. 83-37.000.
Mutze, Ulrich; Quanz, Gerhard; Vuong, The A.; and Kiesewetter, Wolfgang, 5,063,460, Cl. 358-474.000.
Pierce, Zona R.; Tyagi, Dinesh; and Wilson, John C., 5,063,132, Cl. 430-109.000.
Pritchard, Jeffrey A., 5,063,450, Cl. 358-213.280.
Wenskus, James J., Jr.; and Miller, Alan B., 5,063,008, Cl. 264-40.500.
Zeman, Robert E.; and Johnson, Kevin M., 5,063,399, Cl. 346-160.100.

Eaton Corporation: *See*—
Fletcher, Melvern W., 5,062,313, Cl. 74-335.000.
Hatton, Bruce M., 5,062,611, Cl. 251-129.110.
Larson, Jay M., 5,062,397, Cl. 123-188.00P.
Mack, William J.; and Markyvech, Ronald K., 5,063,511, Cl. 364-424.100.
Martin, John P., 5,063,481, Cl. 362-61.000.
White, Jay D., 5,062,506, Cl. 188-329.000.
Woodard, Tony O., 5,063,276, Cl. 200-529.000.

Eaton, David K., to Jade Systems, Inc. Probe inlet apparatus and method. 5,062,310, Cl. 73-866.500.

Ebara Corporation: *See*—
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, 5,062,271, Cl. 62-55.500.

Eck, Herbert; Fleischmann, Gerald; Horst, Hohl; and Weber, Helmut, to Wacker-Chemie GmbH. Process for strengthening the adhesion of polymeric substances to carbonate surfaces. 5,063,087, Cl. 427-302.000.

Eckert, Karl-Ludwig: *See*—
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,063,007, Cl. 264-44.000.

Eckert, Richard M.: *See*—
Johnson, Gary E.; and Eckert, Richard M., 5,062,337, Cl. 83-552.000.

Eckert, Robert P.: *See*—
Cleary, James D.; and Eckert, Robert P., 5,062,793, Cl. 433-3.000.

Eckman, Richard E., to Dresser Industries, Inc. Mechanical peck drill and method. 5,062,745, Cl. 408-17.000.

Ecolab Inc.: *See*—
Scharf, Rolf; and Schmitz, Karl-Heinz, 5,062,979, Cl. 252-49.300.

Edahiro, Takeshi; Takehara, Shin; Morita, Toshiki; and Kumada, Hiroyoshi, to Mazda Motor Corporation. Suspension apparatus of a vehicle. 5,062,659, Cl. 280-707.000.

Edelhaeuser, Erhard; Schmid, Hans-Dieter; Speckner, Ludwig; Wutz, Karl; and Steffen, Horst, to Robert Bosch GmbH. Electromagnetic relay. 5,063,366, Cl. 335-271.000.

Edmonson, David A.; Ivett, Peter R.; Johnson, Kenneth E.; Mirzamaani, Seyyed M. T.; and Ward, James F., Jr., to International Business Machines Corporation. Thin film magentic media. 5,063,120, Cl. 428-694.000.

Edward Weck Incorporated: *See*—
Oh, Seik; and McKinney, Ray, Jr., 5,062,846, Cl. 606-158.000.

Edwards, Jeffery D., to Intellect Electronics Ltd. Proximity sensing device. 5,063,306, Cl. 307-308.000.

Efferding, Larry E., to Westinghouse Electric Corp. Low cost, minimum weight fuel assembly storage cask and method of construction thereof. 5,063,299, Cl. 250-507.100.

Efficient Thermal Reactors, Inc.: *See*—
Lavorel, Henri, 5,062,371, Cl. 110-214.000.

Ege, Sigmund. Automated carrier-strip splicer. 5,062,566, Cl. 228-102.000.

Eguchi, Mikiro; and Sato, Hideto, to NEC Corporation. Coding and decoding method for asynchronous data signals and an apparatus therefor. 5,063,576, Cl. 375-111.000.

Ehrentraut, Otto: *See*—
Lenhard-Backhaus, Hugo; Ehrentraut, Otto; and Haager, Ottmar, 5,062,718, Cl. 384-294.000.

Eichelberger, F. Jay, Jr.: *See*—
Miller, Robert E.; and Eichelberger, F. Jay, Jr., 5,062,500, Cl. 184-106.000.

Eichenauer, R. Dale. Large round bale handling apparatus. 5,062,757, Cl. 414-24.500.

Eicken, Karl: *See*—
Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, 5,062,884, Cl. 71-95.000.

Eisch, John J.; and Boleslawski, Marek P., to Research Foundation of the State University of New York, The. Photolytic deposition of metal from solution onto a substrate. 5,063,083, Cl. 427-53.100.

Eisenreich, Norbert: *See*—
Engel, Walter; Eisenreich, Norbert; and Thiel, Klaus-Dieter, 5,063,036, Cl. 423-266.000.

Eiskop, Robert K.: *See*—
Voll, Martin A.; and Eiskop, Robert K., 5,062,309, Cl. 73-864.440.

Eka Nobel AB: *See*—
Bengtsson, Erik A., 5,063,043, Cl. 423-588.000.
Wanngård, Carl J. F., 5,063,041, Cl. 423-476.000.

Eldracher, John: *See*—
Jones, Joel W.; and Eldracher, John, 5,062,188, Cl. 29-33.00P.

Electric Power Research Institute, Inc.: *See*—
Dudley, Kevin F., 5,062,276, Cl. 62-176.600.

Electronics & Space Corporation: *See*—
Hobson, Gregory L.; Luetkemeyer, Kent; and Wootton, John R., 5,062,586, Cl. 244-3.120.

Electronics and Telecommunications Research Institute: *See*—
Lee, Jae S.; Kim, Tae I.; and Kim, Young S., 5,063,584, Cl. 379-29.000.

Elf France: *See*—
Germanaud, Laurent; Azorin, Patrick; and Lhopital Michel, 5,062,977, Cl. 252-48.200.

El-Hamamsy, Sayed-Amr A.; and Borowiec, Joseph C., to General Electric Company. Feedback control system for a high-efficiency class-D power amplifier circuit. 5,063,332, Cl. 315-248.000.

Elhaus, Friedrich W., to Elhaus Industrieanlagen GmbH. Hot shearing apparatus. 5,062,336, Cl. 83-198.000.

Elhaus Industrieanlagen GmbH: *See*—
Elhaus, Friedrich W., 5,062,336, Cl. 83-198.000.

Eli Lilly and Company: *See*—
Bryant, Henry U.; and Clemens, James A., 5,063,234, Cl. 514-288.000.
Cox, Karen L.; Seno, Eugene T.; and Wild, Gene M., 5,063,155, Cl. 435-76.000.
Mosber, Gerold L.; and Mullen, Michael V., 5,063,224, Cl. 514-202.000.
Schoner, Brigitte E.; and Schoner, Ronald G., 5,063,158, Cl. 435-252.300.

Elias, Martin C.: *See*—
Barrow, Ross; Elias, Martin C.; Lyons, Peter R. A.; Jacob, Peter G.; and Rashleigh, Scott C., 5,062,686, Cl. 385-33.000.

Elion, Elaine A.: *See*—
Fink, Gerald R.; Trueheart, Joshua; and Elion, Elaine A., 5,063,154, Cl. 435-69.100.

Elizabeth Arden Co., Division of Conopco, Inc.: *See*—
Spellman, Joseph X.; Beck, Marlene C.; and Connell, Victoria, 5,063,057, Cl. 424-401.000.

Ellenberger & Poensgen GmbH: *See*—
Onderka, Oswald; and Krasser, Fritz, 5,062,668, Cl. 292-25.000.

Elliott, Richard L.: *See*—
Abreu, Mary E.; Rzeszotarski, Waclaw; Kyle, Donald J.; Hiner, Roger N.; and Elliott, Richard L., 5,063,245, Cl. 514-404.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Ellison, Thomas L.; Roberts, David A.; Ivankovits, John C.; and Norman, John A. T., to Air Products and Chemicals, Inc. Fluxing agents comprising β-diketone and β-ketoimine ligands and a process for using the same. 5,062,902, Cl. 148-23.000.

Elpatronic AG: *See—*
Aebersold, Hans, 5,062,189, Cl. 29-33.00R.

Elrod, David: *See—*
Lien, Sheue-Ling; Shantz, Michael J.; Carrie, Susan E.; Loo, Jim V.; and Elrod, David, 5,063,375, Cl. 340-703.000.

Emoto, Takao, to Kabushiki Kaisha Toshiba. Plastic molded type power semiconductor device. 5,063,434, Cl. 357-72.000.

EMS Products, Inc.: *See—*
Ulbrich, Paul; and Tran, Thanh, 5,062,426, Cl. 128-640.000.

Emsellem, David. Hair barrette incorporating an ornamental pin. 5,062,436, Cl. 132-279.000.

Endo, Tetsu: *See—*
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.

Endotherapeutics: *See—*
Van Buskirk, Robert S.; and Clappier, Robert R., 5,062,304, Cl. 73-861.000.

Engel, Timothy S.; and Iverson, Robert A., to Nordictrack, Inc. Bodybuilding exercise apparatus. 5,062,633, Cl. 272-132.000.

Engel, Walter; Eisenreich, Norbert; and Thiel, Klaus-Dieter, to Fraunhofer-Gesellschaft zur Forderung der angenwandten Forschng e.V. Process for producing phase-stabilized ammonium nitrate. 5,063,036, Cl. 423-266.000.

Engelhardt, Dale F.: *See—*
Smith, Stephen; and Engelhardt, Dale F., 5,062,393, Cl. 123-41.720.

Engheta, Nader: *See—*
Jaggard, Dwight L.; and Engheta, Nader, 5,063,391, Cl. 343-703.000.

Epitaxy Systems, Inc.: *See—*
Christensen, Robert W., 5,062,386, Cl. 118-725.000.

Eppler, Larry D. Safety device for firearms. 5,062,232, Cl. 42-70.110.

Erhart, Richard A.; Herold, Barry W.; and DeLuca, Joan S., to Motorola, Inc. Reconfigurable deinterleaver/interleaver for block oriented data. 5,063,533, Cl. 395-425.000.

Erich Bergmeier Maschinenfabrik: *See—*
Bergmeier, Gerd, 5,063,071, Cl. 426-298.000.

Erico Products, Inc.: *See—*
Bronan, Denis A.; and Whetsel, James E., 5,062,903, Cl. 148-24.000.

Ernest, Reinhold: *See—*
McPherson, Malcolm; and Ernest, Reinhold, 5,062,919, Cl. 156-356.000.

Escher-Grad Incorporated: *See—*
Khalid, Najeeb A.; Adams, Larry; Schwartz, Stan; and Wong, Jean, 5,063,408, Cl. 355-72.000.

ESM International, Inc.: *See—*
Zivley, George A., 5,062,532, Cl. 209-581.000.

Essex Specialty Products, Inc.: *See—*
Hung, Ju-Ming, 5,063,269, Cl. 524-296.000.

Essig, Dennis E.: *See—*
Wirtz, John W.; Yanik, David; Rader, Robert R.; Mendoza, Roel; and Essig, Dennis E., 5,062,762, Cl. 414-786.000.

ETI-TEC Maschinenbau GmbH: *See—*
Zodrow, Rudolf, 5,062,917, Cl. 156-568.000.
Zodrow, Rudolf, 5,062,918, Cl. 156-578.000.

Etlinger, Leon D., to Baron Industries, Inc. Slip sheet having permanently bent pull tab and method of making the same. 5,062,370, Cl. 108-51.300.

Ettehadieh, Reza. Magnetic assembly for enhancing fuel combustion. 5,063,368, Cl. 335-301.000.

Etzbach, Karl-Heinz: *See—*
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.

Etzkorn, Heinz-Werner: *See—*
Ackermann, Ulrich; Kersten, Ralf T.; Etzkorn, Heinz-Werner; Paquet, Volker; and Rutze, Uwe, 5,062,508, Cl. 118-723.000.

eupec Europaische Gesellschaft fur Leistungshalbleiter mbH & Co. KG: *See—*
Schlangenotto, Heinrich; and Sommer, Karl H., 5,063,428, Cl. 357-38.000.

Euritech: *See—*
Glachet, Charles, 5,062,761, Cl. 414-729.000.

Eurovo S.r.l.: *See—*
Fazion, Patrizio, 5,062,221, Cl. 34-204.000.

Evergreen Industries, Inc.: *See—*
Wong, Johnson N. S., 5,063,026, Cl. 422-102.000.

Evin, Jean. Electric motor regulation to obtain desired speed curve. 5,063,337, Cl. 318-617.000.

Expressa Brasileira de Compressores S.A.-Embraco: *See—*
Da Costa, Caio M. F. N., 5,062,779, Cl. 418-270.000.

Exxon Chemical Patents Inc.: *See—*
Luker, Norman E., 5,063,002, Cl. 264-12.000.
Young, Donald G., 5,063,268, Cl. 524-286.000.

Exxon Production Research Company: *See—*
Haut, Richard C.; Thomas, Eugene R.; and Denton, Robert D., 5,062,270, Cl. 62-12.000.

Exxon Research and Engineering Co.: *See—*
Ho, W. S. Winston, 5,062,866, Cl. 55-16.000.
Schucker, Robert C., 5,063,186, Cl. 502-4.000.

F. P. Bourgault Industries: *See—*
Reiter, Roger; Boyko, Stanley; and Boyko, Nadina, 5,062,572, Cl. 239-899.000.

Fabris, Hubert J.: *See—*
Hargis, I. Glen; Fabris, Hubert J.; Wilson, John A.; and Livigni, Russell A., 5,063,190, Cl. 502-157.000.

Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, to Robert Bosch GmbH. Liquid crystal indicator, preferably for motor vehicles. 5,063,379, Cl. 340-784.000.

Falb, Wolfgang: *See—*
Wallroth, Carl F.; Falb, Wolfgang; and Mohr, Helmut, 5,062,999, Cl. 261-39.100.

Falcoff, Allan F.; and West, Norman M., to Du Pont de Nemours, E. I., and Company. Non-contact wet or dry film thickness measuring device using eddy current and ultrasonic sensors. 5,062,298, Cl. 73-597.000.

Falcoff, Monte L., to United Technologies Automotive. Overhead console. 5,062,559, Cl. 224-311.000.

Falk, David O.: *See—*
Schroeder, Donald E., Jr.; and Falk, David O., 5,062,484, Cl. 166-278.000.

Fanuc Ltd.: *See—*
Asaba, Eiki; Tanabe, Yoshihito; and Tagami, Kiyoshi, 5,063,295, Cl. 250-231.140.
Inaba, Yoshiharu; Naito, Hideo; Kamiguchi, Masao; Neko, Noriaki; and Sakakibara, Shinsuke, 5,062,784, Cl. 425-143.000.
Kurakake, Mitsuo; Otsuka, Shoichi; and Muraoka, Yutaka, 5,063,525, Cl. 395-157.000.
Mizuno, Toru; and Morikawa, Shigehiro, 5,063,281, Cl. 219-125.120.
Nakamura, Kosei; and Numai, Kazuhisa, 5,062,744, Cl. 408-8.000.
Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, 5,063,517, Cl. 364-474.220.
Shigeo, Nakamura, 5,063,491, Cl. 363-56.000.

Farnworth, Warren M.: *See—*
Wood, Alan G.; Farnworth, Warren M.; and McGill, George P., 5,062,565, Cl. 228-9.000.

Faroudja, Yves C. Three dimensional encoding system for color television. 5,063,438, Cl. 358-31.000.

Farquharson, Stuart; and Keillor, Peter T., III, to Dow Company, The. Method for determining the residence time distribution of a polymer extruder. 5,062,713, Cl. 356-402.000.

Fazion, Patrizio, to Eurovo S.r.l. Drying system for pasta or similar products. 5,062,221, Cl. 34-204.000.

Feilmeier, John; and Feilmeier, Rosemary. Battery powered light with mouthpiece. 5,063,483, Cl. 362-103.000.

Feilmeier, Rosemary: *See—*
Feilmeier, John; and Feilmeier, Rosemary, 5,063,483, Cl. 362-103.000.

Feldman, Michael: *See—*
Tomita, Akira; Diaz, Stephen H.; Dubrow, Robert S.; and Feldman, Michael, 5,062,254, Cl. 53-467.000.

Fenske, Dankwart C.; Kuo, Elizabeth A.; and Tully, Wilfred R., to Roussel Ulcaf. Imidazolo [1,2-a]pyrimidines and medical use thereof. 5,063,229, Cl. 514-258.000.

Ferrara, Peter J.; and Benson, John T. Method of producing shelf stable wheat germ. 5,063,079, Cl. 426-627.000.

Ferre, Alain; Chevance, Christophe; and Quignon, Jean, to Thomson-CSF; and Cummings Incorporated, The International Sign Service. Method for estimating the motion of at least one target in a sequence of images and device to implement this method. 5,063,524, Cl. 364-516.000.

Fevrier, Alain: *See—*
van Doan, Pham; Dupraz, Jean-Pierre; and Fevrier, Alain, 5,063,472, Cl. 361-19.000.

Fiat, Ann-Taiic D.: *See—*
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

Fichtel & Sachs AG: *See—*
Grosspietsch, Wolfgang; and Scheer, Erich, 5,062,513, Cl. 192-70.170.

Fickes, Edward A.: *See—*
Fickes, William H.; and Fickes, Edward A., 5,062,533, Cl. 211-12.000.

Fickes, William H.; and Fickes, Edward A., to Fickes, William H. Bag holder for recyclable material. 5,062,533, Cl. 211-12.000.

Fielding, Mimi S.: *See—*
Cook, Harold T., Jr.; and Fielding, Mimi S., 5,062,235, Cl. 43-42.000.

Filion, Joseph L.: *See—*
Jacobs, Craig W.; and Filion, Joseph L., 5,063,535, Cl. 395-575.000.

Findikli, Nadi S.: *See—*
Shank, David W.; and Findikli, Nadi S., 5,063,513, Cl. 364-424.050.

Fink, Gerald R.; Trueheart, Joshua; and Elion, Elaine A., to Whitehead Institute for Biomedical Research. Pheromone - inducible yeast promoter. 5,063,154, Cl. 435-69.100.

Fink, Heinz, to Palitex Project Company GmbH. Method and apparatus for transporting a yarn package to a yarn processing machine. 5,062,261, Cl. 57-281.000.

Finlayson, Roger M.; Scharmann, Harry; and Vermaas, Leo F., to Van den Bergh Foods Co., Division of Conopco, Inc. Multifunctional, fat-continuous emulsions with a reduced fat content. 5,063,076, Cl. 426-602.000.

Finley, John W.: *See—*
Klemann, Lawrence P.; and Finley, John W., 5,063,070, Cl. 426-271.000.
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., 5,063,075, Cl. 426-601.000.

Firelli Armstrong Tire Corporation: *See—*
Szyms, Walter; and Valaitis, Joseph W., 5,062,781, Cl. 425-52.000.

Fischer, Anton: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,063,007, Cl. 264-44.000.

Fischer, Jens-Dieter: *See—*
Gross, Heinz; Fischer, Jens-Dieter; Siol, Werner; Sufke, Thomas; and Rhein, Thomas, 5,063,112, Cl. 428-412.000.

Fischer, Tilman; Sitzler, Hans-Dietrich; and Ufermann, Werner, to G. Siempelkamp GmbH & Co. Making pressed board. 5,063,010, Cl. 264-109.000.

Fish, Gerald. Fishing lure. 5,062,236, Cl. 43-42.500.

Fisher Controls International, Inc.: *See—*
Woollums, David E.; and Rice, Donald D., 5,062,449, Cl. 137-505.460.

FitzHenry, Patrick; and Scanlan, Lawrence A., to Hughes Aircraft Company. Image contrast enhancement technique. 5,063,607, Cl. 382-50.000.

Fitzpatrick, Mark E.; and Gouldsberry, Gary R., to Gazelle Microcircuits, Inc. Current pump structure. 5,063,343, Cl. 323-317.000.

Flanigan, David A.: *See—*
Canterberry, J. B.; and Flanigan, David A., 5,062,365, Cl. 102-322.000.

Fleischmann, Gerald: *See—*
Eck, Herbert; Fleischmann, Gerald; Horst, Hohl; and Weber, Helmut, 5,063,087, Cl. 427-302.000.

Fletcher, Melvern W., to Eaton Corporation. Manual control for extended range splitter type compound transmission. 5,062,313, Cl. 74-335.000.

Fling, Russell T.: *See—*
Canfield, Barth A.; and Fling, Russell T., 5,063,580, Cl. 377-55.000.

Flo-Con Systems, Inc.: *See—*
King, Patrick D., 5,062,553, Cl. 222-590.000.

Foehse, Karen B., to General Mills, Inc. Method of dry milling and preparing high soluble fiber barley fraction. 5,063,078, Cl. 426-618.000.

Foisie, Robert A.: *See—*
Welsch, Bernhard J., 5,062,764, Cl. 414-796.000.

Fokker Special Products B.V.: *See—*
Bloks, Hubertus M. H. A., 5,063,273, Cl. 174-35.00R.

Foley, Thomas P.; and Mosciatti, Roger, to MFM Technology, Inc. Vacuum chuck rotary seal. 5,062,384, Cl. 118-500.000.

Fontecchio, Robert P.: *See—*
Bishop, Robert J.; Fontecchio, Robert P.; and Zelenak, Daniel G., Jr., 5,062,664, Cl. 280-743.000.

Fontirroche, Carlos A.; and Truckai, Csaba, to Cordis Corporation. Extrusion method. 5,063,018, Cl. 264-514.000.

Ford Motor Company: *See—*
Geddes, Earl R., 5,063,598, Cl. 381-71.000.
Jamoua, Saad A.; Sarnowsky, Melvin J.; and Heck, Karl R., 5,063,516, Cl. 364-431.110.

Ford New Holland, Inc.: *See—*
Miller, Robert E.; and Eichelberger, F. Jay, Jr., 5,062,500, Cl. 184-106.000.

Fordees Manufacturing: *See—*
Petrachkoff, Peter, 5,062,613, Cl. 266-44.000.

Foreman, Thomas K.: *See—*
Furmanak, Robert J.; Booth, Bruce L.; and Foreman, Thomas K., 5,062,681, Cl. 385-50.000.

Forman, Ralph: *See—*
Longo, Robert T.; Bardai, Zaher; Manoly, Arthur E.; Forman, Ralph; and Rolph, Randy K., 5,063,323, Cl. 313-309.000.

Forte, Mark R. Bipolar femoral implant. 5,062,853, Cl. 623-22.000.

Fowler, Joe R.: *See—*
Miller, Jack E.; Fowler, Joe R.; Fox, Stewart A.; and Lane, Bryan, 5,062,667, Cl. 285-381.000.

Fox, Anthony, to Fox, Marcella M. Bale ejector for a trash compactor. 5,062,358, Cl. 100-218.000.

Fox, Marcella M.: *See—*
Fox, Anthony, 5,062,358, Cl. 100-218.000.

Fox, Stewart A.: *See—*
Miller, Jack E.; Fowler, Joe R.; Fox, Stewart A.; and Lane, Bryan, 5,062,667, Cl. 285-381.000.

Framatome: *See—*
Bernou, Jean-Louis; Dufau, Frederic; Geahel, Isabelle; and Hache, Jean, 5,062,965, Cl. 210-748.000.

Frank, Dorothy M.: *See—*
Aulbach, Paul L.; Frank, Dorothy M.; and Roth, David S., 5,062,434, Cl. 131-336.000.

Frankowski, Armella. Cookie baking apparatus. 5,062,356, Cl. 99-428.000.

Franz Buettner AG: *See—*
Hogarth, Ian W.; and Kiewning, Friedhelm, 5,062,725, Cl. 400-195.000.

Fraser, James D.: *See—*
Kunst, Neil W.; Fraser, James D.; and Amaro, Josephina, 5,063,515, Cl. 364-431.010.

Fraser, Michael J., to Refurbished Turbine Components Limited. Method of manufacture and repair of turbine blades. 5,062,205, Cl. 29-889.700.

Fraunhofer-Gesellschaft zur Forderung der angenwandten Forschng e.V.: *See—*
Engel, Walter; Eisenreich, Norbert; and Thiel, Klaus-Dieter, 5,063,036, Cl. 423-266.000.

Fray, Michael J.: *See—*
Cooper, Kelvin; Fray, Michael J.; Richardson, Kenneth; and Steele, John, 5,063,237, Cl. 514-338.000.

Frazee, John G.; and Malcolm, Roger J. Hemostatic clip and applicator therefor. 5,062,848, Cl. 606-213.000.

Frechet, Daniel: *See—*
Clemence, Francois; Frechet, Daniel; Hamon, Gilles; and Jouquey, Simone, 5,063,225, Cl. 514-211.000.

Freitas, Joseph D., Jr.; Tatsumi, Yoshikazu; and Furukawa, Hiroyuki, to Matsushita Electric Corporation of America. Irradiator for dosimeter badges. 5,063,298, Cl. 250-497.100.

Frenette, Real N.; and Lawrence, Peter D., to University of British Columbia, The. Hydraulic control system. 5,062,264, Cl. 60-427.000.

Freudenberg Nonwovens Limited Partnership: *See—*
Grynaeus, Peter S.; Hollingsworth, Anthony; and Petkiewicz, Chester J., 5,063,101, Cl. 428-172.000.

Friedman, Harvey S.: *See—*
Hamadah, Talal T.; Ryder, Douglas N.; and Friedman, Harvey S., 5,063,476, Cl. 361-384.000.

Friend, Timothy R.: *See—*
Peterson, Steven H.; and Friend, Timothy R., 5,062,714, Cl. 356-406.000.

Fuchs, Jean-Francois; Auberon, Marcel; Odru, Pierre; and Sparks, Charles, to Areospatiale; and Institut Francais du Petrole. Method for affixing a metallic tip to a tube made of composite wound material. 5,062,914, Cl. 156-172.000.

Fuji Jukogyo Kabushiki Kaisha: *See—*
Kamimura, Katsuyoshi; Mine, Atsushi; and Hiwatashi, Yutaka, 5,063,512, Cl. 364-424.050.
Minegishi, Masami, 5,062,400, Cl. 123-198.0DB.
Ohno, Akira; Muraoka, Kunihiko; and Nakazato, Wataru, 5,062,806, Cl. 439-490.000.

Fuji Photo Film Co., Ltd.: *See—*
Abe, Akira; Fujita, Yoshihiro; and Mihayashi, Keiji, 5,063,131, Cl. 430-372.000.
Arai, Fuminori; Igarashi, Takeshi; and Tanaka, Mitsutoshi, 5,063,153, Cl. 435-26.000.
Hayashi, Hiroshi, 5,063,139, Cl. 430-377.000.
Hirose, Takeshi; Abe, Akira; and Nakazyo, Kiyoshi, 5,063,143, Cl. 430-419.000.
Inagaki, Yoshio; and Adachi, Keiichi, 5,063,146, Cl. 430-522.000.
Ishida, Toshio; Ushimaru, Akira; and Nishikawa, Yasuo, 5,063,119, Cl. 428-694.000.
Ishikawa, Takatoshi, 5,063,142, Cl. 430-400.000.
Kato, Eiichi; and Ishii, Kazuo, 5,063,130, Cl. 439-96.000.
Nakamura, Takashi, 5,063,141, Cl. 430-398.000.
Ryoke, Katsumi; Takahashi, Masatoshi; and Nishikawa, Yasuo, 5,063,105, Cl. 428-336.000.
Sakanoue, Ken, 5,063,145, Cl. 430-505.000.
Tabei, Masatoshi, 5,063,439, Cl. 358-41.000.
Takagi, Atsushi, 5,063,407, Cl. 355-68.000.
Takamori, Tetsuya, 5,063,606, Cl. 382-48.000.
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.
Toriuchi, Masaharu; and Kondo, Hirokazu, 5,063,135, Cl. 430-214.000.
Yoden, Kenichi, 5,062,904, Cl. 148-105.000.
Yokoya, Hiroaki; Tachikawa, Hiromichi; and Watarai, Syu, 5,063,129, Cl. 430-83.000.
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Maekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, 5,063,147, Cl. 430-523.000.

Fuji Xerox Co., Ltd.: *See—*
Kubo, Tsutomu; Terao, Kazuo; Yamamuro, Takashi; Kajimoto, Masashi; and Tsukagoshi, Kazuhiko, 5,063,133, Cl. 430-122.000.

Fujii, Tetsuo; Sakai, Minekazu; and Kuroyanagi, Akira, to Nippondenso Co., Ltd. Semiconductor memory device of a floating gate tunnel oxide type. 5,063,423, Cl. 357-23.500.

Fujii, Yoshihisa: *See—*
Suzuki, Akira; Furukawa, Katsuki; Shigeta, Mitsuhiro; and Fujii, Yoshihisa, 5,063,421, Cl. 357-17.000.

Fujikura, Takashi: *See—*
Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, 5,063,246, Cl. 514-517.000.

Fujimura, Itaru: *See—*
Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, 5,062,660, Cl. 280-707.000.

Fujino, Akihiko: *See—*
Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, 5,063,402, Cl. 354-400.000.

Fujioka, Masahiko, to Kabushiki Kaisha Toshiba. Head supporting mechanism of a recording/reproducing apparatus. 5,063,465, Cl. 360-104.000.

Fujita, Koreaki: *See—*
Minami, Hiroshi; and Fujita, Koreaki, 5,063,305, Cl. 307-304.000.

Fujita, Takeshi; Isoda, Chuzo; and Aketa, Kazuyo, to Dai-Ichi Kogyo Seiyaku Co., Ltd. Film-shape soap. 5,062,986, Cl. 252-134.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Fujita, Yoshihiro: *See—*
Abe, Akira; Fujita, Yoshihiro; and Mihayashi, Keiji, 5,063,131, Cl. 430-372.000.

Fujitsu Limited: *See—*
Chiba, Kazuharu; Nakajima, Yoshifumi; and Sumiyoshi, Hideo, 5,063,568, Cl. 372-32.000.
Hashimoto, Shuichi, 5,063,454, Cl. 360-78.040.
Iizuka, Shinichi, 5,062,724, Cl. 400-121.000.
Ikeda, Koji; and Nakayama, Mikio, 5,063,563, Cl. 370-110.100.
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.
Nishio, Yukio; and Hirose, Kazonori, 5,062,385, Cl. 118-653.000.
Wada, Kunihiko, 5,063,113, Cl. 428-446.000.

Fukada, Hirotaka; Kondoh, Koichi; and Tsuchida, Tsuyoshi, to Mazda Motor Corporation. Structure for mounting air cleaner of engine. 5,062,496, Cl. 180-291.000.

Fukuchi, Masakazu: *See—*
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,063,411, Cl. 355-212.000.

Fukui, Norio: *See—*
Shigeno, Yoshiharu; Murata, Michihiro; Nishino, Yu; Fukui, Norio; and Yamamoto, Keizou, 5,063,347, Cl. 324-235.000.

Fukunaga, Yukio: *See—*
Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, 5,062,660, Cl. 280-707.000.

Fukushima, Naoto: *See—*
Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, 5,062,660, Cl. 280-707.000.

Fukushima, Takashi; and Hishinuma, Takashi, to Sony Corporation. Electronic still camera with standby switches operable to enable the camera for recording an image upon actuation of a recording switch. 5,063,458, Cl. 358-335.000.

Fukushima, Yasuo: *See—*
Miura, Haruo; Fukushima, Yasuo; Nishida, Hideo; Kobayashi, Hiromi; and Takagi, Takeo, 5,062,766, Cl. 415-199.100.

Fukuyama, Hirofumi: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Fukuyama, Kensuke: *See—*
Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, 5,062,660, Cl. 280-707.000.

Fukuzawa, Keitchi; and Ishii, Yoshiki, to Canon Kabushiki Kaisha. Information signal reproducing apparatus capable of grasping reproducing position on a tape-shaped recording medium. 5,063,470, Cl. 360-137.000.

Fulton, David: *See—*
James, Paul; Kuemmel, Theodore J.; Wurm, Michael G.; Banach, James D.; and Fulton, David, 5,062,432, Cl. 128-736.000.

Funathu, Gouzi, to Asahi Kogaku Kogyo K.K. Focusing device for a binocular instrument. 5,062,698, Cl. 359-414.000.

Furmanak, Robert J.; Booth, Bruce L.; and Foreman, Thomas K., to Du Pont de Nemours, E. I., and Company. Slot-coupling of optical waveguide to optical waveguide devices. 5,062,681, Cl. 385-50.000.

Furudate, Yukio: *See—*
Shibuya, Kenichi; Okubo, Hirotsugu; and Furudate, Yukio, 5,063,543, Cl. 368-29.000.

Furukawa Electric Co., Ltd., The: *See—*
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.

Furukawa, Hiroyuki: *See—*
Freitas, Joseph D., Jr.; Tatsumi, Yoshikazu; and Furukawa, Hiroyuki, 5,063,298, Cl. 250-497.100.

Furukawa, Hisao: *See—*
Nambu, Toshiro; Kawaguchi, Hirotoshi; Furukawa, Hisao; and Kato, Yasushi, 5,063,114, Cl. 428-447.000.

Furukawa, Katsuki: *See—*
Suzuki, Akira; Furukawa, Katsuki; Shigeta, Mitsuhiro; and Fujii, Yoshihisa, 5,063,421, Cl. 357-17.000.

Furukawa, Teruo: *See—*
Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, 5,063,546, Cl. 369-32.000.

Furukawa, Yukito: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

G-C Dental Industrial Corp.: *See—*
Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, 5,063,257, Cl. 523-116.000.

G-C Toshi Kogyo Corporation: *See—*
Hasegawa, Akira; Mori, Hiroshi; Takahashi, Tatsuhiko; and Sano, Yasuyuki, 5,063,255, Cl. 522-96.000.

G. Siempelkamp GmbH & Co.: *See—*
Fischer, Tilman; Sitzler, Hans-Dietrich; and Ufermann, Werner, 5,063,010, Cl. 264-109.000.

G. T. Products, Inc.: *See—*
Bergsma, Rudolph, 5,062,444, Cl. 137-202.000.

Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, to Alusuisse-Lonza Services Ltd. Process for manufacturing a ceramic foam body. 5,063,007, Cl. 264-44.000.

GAC International, Inc.: *See—*
Miura, Fujio, 5,062,794, Cl. 433-10.000.

Gagnon, Ernest P.: *See—*
Pavoz, Marcel; and Gagnon, Ernest P., 5,062,501, Cl. 187-112.000.

Galbo, Vincent J., to U-Haul International, Inc. Closure cap. 5,062,541, Cl. 220-212.000.

Gali, Carl E. Lead acid battery rejuvenator and charger. 5,063,341, Cl. 320-21.000.

Galkin, Benjamin M., to Thomas Jefferson University. Method and apparatus for testing radiographic film processors. 5,063,583, Cl. 378-207.000.

Galvan, Paul A.: *See—*
Goddard, Charles W.; Lucas, John T.; and Galvan, Paul A., 5,062,593, Cl. 244-169.000.

Gann, Gary: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Gansen, Peter; Wolfgramm, Rudi; Wolf, Klaus D.; and Lindsey, John J., to Bayer Aktiengesellschaft; and Mobay Corporation. Process for the production of cold-setting flexible polyurethane foams with excellent damping properties. 5,063,253, Cl. 521-159.000.

Garber, Jonathan F., to Connectix, Inc. Method for a correlating virtual memory systems by redirecting access for used stock instead of supervisor stock during normal supervisor mode processing. 5,063,499, Cl. 395-500.000.

Garcera, Daniel; and Gillot, Jacques, to Societe des Ceramiques Techniques. Method of assembling a rigid element in a module, the element having a membrane for separation, filtration or catalytic transformation purposes. 5,062,910, Cl. 156-82.000.

Garden Way Incorporated: *See—*
Connolly, Kevin J.; D'Aleo, James M.; and Griffith, Clifford J., 5,062,329, Cl. 81-488.000.

Gardiner, John P.: *See—*
Lewis, Thomas E.; Williams, Richard A.; Gardiner, John P.; and Kline, John F., 5,062,364, Cl. 101-467.000.

Garland, Douglas, to Boeing of Canada Ltd. Segmented rotatable nozzles. 5,062,588, Cl. 244-23.00D.

Garofalo, Albert: *See—*
Wu, Shang-Ren; and Garofalo, Albert, 5,062,995, Cl. 252-546.000.

Gartner, Joseph, Jr.: *See—*
Heyn, Bennington R.; and Gartner, Joseph, Jr., 5,062,628, Cl. 272-75.000.

Gasser, Marcel; and Latta, Ernst E., to International Business Machines Corporation. Method for mirror passivation of semiconductor laser diodes. 5,063,173, Cl. 437-129.000.

Gaudin, Carl J. Self sealing domed sewer cover assembly. 5,062,735, Cl. 404-25.000.

Gault, Dominique; Andrieu, Jean-Pierre; and Henri, Jean-Claude, to Thomson-CSF. Method for the assigning of radar recurrences to radials to be displayed and image digital converter to implement said method. 5,063,388, Cl. 342-185.000.

Gauthier, Michel; Armand, Michel; and Muller, Daniel, to Societe Nationale Elf Aquitane; and Hydro-Quebec. Ionically conductive material. 5,063,124, Cl. 429-192.000.

Gautier, Yves: *See—*
Akrout, Chekib; Coppens, Pierre; Gautier, Yves; and Urena, Pierre-Yves, 5,063,537, Cl. 365-96.000.

Gazelle Microcircuits, Inc.: *See—*
Fitzpatrick, Mark E.; and Gouldsberry, Gary R., 5,063,343, Cl. 323-317.000.

Geahel, Isabelle: *See—*
Bernou, Jean-Louis; Dufau, Frederic; Geahel, Isabelle; and Hache, Jean, 5,062,965, Cl. 210-748.000.

Gebhard Balluff Fabrik feinmechanischer Erzeugnisse GmbH & Co.: *See—*
Kroll, Peter, 5,062,810, Cl. 439-589.000.

GEC Alsthom SA: *See—*
van Doan, Pham; Dupraz, Jean-Pierre; and Fevrier, Alain, 5,063,472, Cl. 361-19.000.

GEC Plessey Telecommunications Limited: *See—*
Chitty, Clive L.; and Whatmore, Roger W., 5,062,518, Cl. 194-317.000.

Geddes, Earl R., to Ford Motor Company. Active noise control system with two stage conditioning. 5,063,598, Cl. 381-71.000.

Geiger, Herbert B.: *See—*
Smith, David A.; and Geiger, Herbert B., 5,062,825, Cl. 493-194.000.

Geisler, Douglas R.: *See—*
Dayan, Richard A.; Geisler, Douglas R.; Kinnear, Scott G.; Macon, James F., Jr.; and Schwartz, William H., 5,063,496, Cl. 395-700.000.

Geiste, Robert J.: *See—*
Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., 5,062,563, Cl. 227-176.000.

Geller, Bernard D.; Tyler, Johann U.; Holdeman, Louis B.; Phelleps, Fred R.; and Laird, George F., III, to COMSAT. Method of packaging microwave semiconductor components and integrated circuits. 5,063,177, Cl. 437-209.000.

Gemba, Yuko: *See—*
Nagasawa, Takeshi; Gemba, Yuko; Nakamura, Yoshio; and Kuroiwa, Katsumasa, 5,063,152, Cl. 435-24.000.

GenCorp Inc.: *See—*
Hargis, I. Glen; Fabris, Hubert J.; Wilson, John A.; and Livigni, Russell A., 5,063,190, Cl. 502-157.000.

General Electric Company: *See—*
El-Hamamsy, Sayed-Amr A.; and Borowiec, Joseph C., 5,063,332, Cl. 315-248.000.
Gibson, James J., 5,063,446, Cl. 358-142.000.
Gluntz, Douglas M., 5,063,020, Cl. 376-371.000.
Ngo, Khai D.; and Charles, Richard J., 5,062,197, Cl. 29-606.000.
Rasmussen, Paul C., 5,063,315, Cl. 310-71.000.
Roemer, Peter B.; Mueller, Otward M.; Park, John N.; and McMurray, William, 5,063,349, Cl. 324-322.000.
Roovers, Wilhemus M. M.; and de Boer, Jan, 5,062,984, Cl. 525-67.000.
Smith, Lowell S.; and Piel, Edward J., Jr., 5,062,429, Cl. 128-661.010.
Whetten, Nathan R., 5,062,690, Cl. 359-59.000.

General Electric Company p.l.c., The: *See—*
Meakin, Douglas B., 5,063,086, Cl. 427-255.300.

General Mills, Inc.: *See—*
Foehse, Karen B., 5,063,078, Cl. 426-618.000.

General Motors Corporation: *See—*
Bedford, Raymond E.; and LaBarge, William J., 5,063,193, Cl. 502-304.000.
Buchanan, Harry C.; and Victor, Keith R., 5,062,175, Cl. 15-103.000.
Davison, Ellard D., Jr.; and Rabhi, Lounes, 5,062,447, Cl. 137-493.000.
Goforth, William R., 5,062,208, Cl. 29-898.049.
Griffiths, Guy G. V.; Bolsworth, James; and Appleby, John M., 5,062,182, Cl. 16-368.000.
Headley, Philip M.; and Kulkarni, Prakash K., 5,063,514, Cl. 364-426.020.
Hogan, Martin J.; and Hogan, Martin A., 5,063,346, Cl. 324-173.000.
Hynds, Ernest J.; Stowe, Keith A.; and Cook, David C., 5,062,656, Cl. 280-689.000.
Joshi, Shrikant M., 5,062,474, Cl. 165-109.100.
Kadle, Prasad S., 5,062,477, Cl. 165-174.000.
Kennedy, Lawrence C.; and Lambert, Harvey J., 5,062,514, Cl. 192-82.00T.
Koenig, Melissa M.; and Vukovich, William J., 5,062,321, Cl. 74-866.000.
Kubisch, John G.; Mercer, James B.; Schaeff, Wilmer G.; and Wenzel, Thomas E., 5,062,466, Cl. 164-7.100.
Kubisch, John G.; and Wilczynski, Paul D., 5,062,467, Cl. 164-7.100.
Lederman, Frederick E., 5,062,512, Cl. 192-45.000.
Lenz, Roger L., 5,062,523, Cl. 198-463.400.
Majeed, Kamal N., 5,062,657, Cl. 280-707.000.
Majeed, Kamal N., 5,062,658, Cl. 280-707.000.
Martone, Christopher J., 5,062,620, Cl. 267-260.000.
McMahan, David R.; Magengast, William E.; and Mateos, Luis A., 5,063,480, Cl. 362-61.000.
Mercurio, Joseph F.; and Cantio, Salvador, 5,062,194, Cl. 29-451.000.
Muchmore, Robert A.; and Roth, William H., 5,062,517, Cl. 192-106.200.
Ostrand, James C., 5,062,352, Cl. 98-2.080.
Ostrand, James C.; and Drayer, William L., 5,062,473, Cl. 165-42.000.
Ryan, Richard P.; Shaffer, Glenn W.; Halstead, Gary A.; Smith, David M.; and Joshi, Shrikant M., 5,062,476, Cl. 165-173.000.
Smith, Stephen; and Engelhardt, Dale F., 5,062,393, Cl. 123-41.720.
Unterborn, Ralph J.; McClain, Michael J.; and Benner, Mark M., 5,062,176, Cl. 15-250.230.
Yamamoto, Mayjue A., 5,062,504, Cl. 188-79.560.

General Signal Corporation: *See—*
Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., 5,063,392, Cl. 346-46.000.

Gentle, Theresa E.: *See—*
Hanneman, Larry F.; Gentle, Theresa E.; and Sharp, Kenneth G., 5,063,267, Cl. 524-284.000.

George, Kevin R.: *See—*
Wesson, David S.; and George, Kevin R., 5,062,485, Cl. 166-297.000.

Gerker, Thomas F., to Sparton Corporation. Bowline knot in a braided line. 5,062,344, Cl. 87-8.000.

Germain, Jean-Claude, to Carrar. Food pellet dispensing appliance. 5,062,543, Cl. 221-30.000.

Germanaud, Laurent; Azorin, Patrick; and Lhopital Michel, to Elf France. Sulphur-containing additives to lubricants with antiwear and extreme-pressure effect and the processes for their preparation and compositions containing the said additives. 5,062,977, Cl. 252-48.200.

Germann, Albrecht J.; Bolza-Schunemann, Hans B.; Schaede, Johannes G.; and Lapp, Joachim A. H., to De la Rue Giori S.A. Combined rotary web-fed printing machine, especially for the printing of securities. 5,062,360, Cl. 101-152.000.

Gernick, Henry R.: *See—*
Brodie, Ivor; Gernick, Henry R.; Holland, Christopher E.; and Moessner, Helmut A., 5,063,327, Cl. 313-482.000.

Gero, Thomas W.: *See—*
Cale, Albert D., Jr.; and Gero, Thomas W., 5,063,228, Cl. 574-253.000.

Gestion A. et Y. Gilbert Inc.: *See—*
Tremblay, Michel, deceased, 5,062,376, Cl. 114-230.000.

Getman, Alexandr F.: *See—*
Bakirov, Murat B.; Getman, Alexandr F.; Gribov, Boris I.; Bordjugovsky, Andrei A.; and Klimenok, Alexandra P., 5,062,293, Cl. 73-81.000.

Ghrayeb, John: *See—*
Wong-Stahl, Flossie; Chanda, Pranab K.; and Ghrayeb, John, 5,063,053, Cl. 424-89.000.

Giampaoli, Pierre: *See—*
Doury-Berthod, Michele; and Giampaoli, Pierre, 5,062,961, Cl. 210-656.000.

Gibbon, Robert M., to JMK International, Inc. Method of manufacturing elastomeric engine components. 5,063,012, Cl. 264-129.000.

Gibson, James J., to General Electric Company. Apparatus for transmitting auxiliary signal in a TV channel. 5,063,446, Cl. 358-142.000.

Gill, Manzur, to Texas Instruments Incorporated. Method of making a diffusionless virtual drain and source conductor/oxide semiconductor field effect transistor. 5,063,171, Cl. 437-41.000.

Gillemans, Johannes C. M.: *See—*
Coleman-Kammula, Seetha; and Gillemans, Johannes C. M., 5,063,088, Cl. 427-352.000.

Gillett, Jimmie D., to Ranco Incorporated of Delaware. Door ajar alarm for refrigeration unit. 5,063,372, Cl. 340-547.000.

Gilliland, Malcolm T. Apparatus and method for optimizing a welding operation. 5,063,282, Cl. 219-130.510.

Gillmore, Stephen R.; Merritt, Carleton G.; Chawan, Dhyaneshwar B.; and Matuszak, Edward A., to Borden, Inc. One-step flavored pasta products and processes for preparing fast cooking pasta products. 5,063,072, Cl. 426-557.000.

Gillot, Jacques: *See—*
Garcera, Daniel; and Gillot, Jacques, 5,062,910, Cl. 156-82.000.

Giori, Gualtiero, to De la Rue Giorgi S.A. Intaglio printing machine for the printing of currency papers. 5,062,359, Cl. 101-152.000.

Gitman, Gregory M. Aspirating combustion system. 5,062,789, Cl. 431-9.000.

Giwa-Agbomeirele, Patricia A.: *See—*
Kohl, Gretchen S.; Giwa-Agbomeirele, Patricia A., and Vincent, Judith M., 5,063,044, Cl. 424-70.000.

Glachet, Charles, to Euritech. Telescopic manipulation arm. 5,062,761, Cl. 414-729.000.

Glaenzer Spicer: *See —*
Moulinet, Francois, 5,062,821, Cl. 464-111.000.

Glaser, Evan R.; and Shanabrook, Benjamin V., to United States of America, Navy. Heterostructure device useable as a far infrared photodetector. 5,063,419, Cl. 357-16.000.

Glassner, David A.; Jain, Mahendra K.; and Datta, Rathin. Process for the fermentative production of acetone, butanol and ethanol. 5,063,156, Cl. 435-150.000.

Glukhov, Michael, to Sabre Industries, Inc. Drain valve used in aircraft. 5,062,441, Cl. 137-81.100.

Gluntz, Douglas M., to General Electric Company. Steam-water separating construction for boiling water nuclear reactors. 5,063,020, Cl. 376-371.000.

Glynn, Kenneth P.: *See—*
Goldstein, Charles; and Glynn, Kenneth P., 5,062,551, Cl. 222-390.000.

GMF Gesellschaft fur Fertigungstechnik und Maschinenbau Aktiengesellschaft: *See—*
Blaimschein, Gottfried; and Dietachmayr, Harald, 5,062,332, Cl. 83-74.000.

Gnyra, Bohdan: *See—*
Hudson, Tom J.; McIntyre, John; Tremblay, Pierre; Allaire, Claude; and Gnyra, Bohdan, 5,062,929, Cl. 204-67.000.

Go, Kouichiro: *See—*
Namimatsu, Akio; and Go, Kouichiro, 5,063,045, Cl. 424-9.000.

Gobel-Rick, Dietrich: *See—*
Rohleder, Norbert; Praxl, Hubert; and Gobel-Rick, Dietrich, 5,062,458, Cl. 141-80.000.

Goddard, Charles W.; Lucas, John T.; and Galvan, Paul A., to United States of America, Navy. Solid-propellant-powered maneuvering system for spacecraft. 5,062,593, Cl. 244-169.000.

Goddard, Georg: *See—*
Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, 5,063,379, Cl. 340-784.000.

Goetz, Frederick E.; Miller, Michael S.; and Shelton, Homer, Jr., to International Business Machines Corporation. Door latch for a computer housing. 5,062,671, Cl. 292-175.000.

Goetz, Norbert: *See—*
Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, 5,062,884, Cl. 71-95.000.

Goetz, Roland, to Sulzer Brothers Limited. Abrasive dental strip. 5,063,118, Cl. 428-614.000.

Goff, David L.: *See—*
Merriman, Burt T., Jr.; and Goff, David L., 5,063,115, Cl. 428-447.000.

Goforth, William R., to General Motors Corporation. Method of molding a bearing separator. 5,062,208, Cl. 29-898.049.

VOL 1132 ISS 1 NO 5 1991 UMI

Gohshi, Seiichi: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Goins, James V.; Duggan, Robert B.; Pier, William J.; and Wienhoft, Roger, to Marley Company, The. Side wall vent/air termination unit for boilers. 5,062,354, Cl. 98-62.000.

Golden Needles Knitting and Glove Co., Inc.: *See—*
Sutton, Roger I., 5,062,161, Cl. 2-169.000.

Goldschmidt, Steven H. Power-driven or manually-operated wrench puller for tightening or loosening threadedly-engaged work pieces. 5,062,326, Cl. 81-57.320.

Goldstar Co., Ltd.: *See—*
Hong, Sam P., 5,063,440, Cl. 358-85.000.

Goldstein, Charles; and Glynn, Kenneth P., to Delta Dispensing, Inc. Postless pushup container. 5,062,551, Cl. 222-390.000.

Goldstein, Mark K., to Quantum Group, Inc. Biomimetic sensor that simulates human response to airborne toxins. 5,063,164, Cl. 436-169.000.

Goldthorp, Jeffery M.; and Yeomans, James S., to Bell Communications Research, Inc. Digital signal processing relating to near-end crosstalk cable measurements. 5,063,351, Cl. 324-628.000.

Gomringer, Gary G., to InterVentional Technologies, Inc. Seal for rotating torque tube with seal valve. 5,062,648, Cl. 277-112.000.

Gonser, Donald I., to Den-Tal-Ez, Inc. Alloy bearing for dental scaler. 5,062,797, Cl. 433-118.000.

Gonzalez-Oliver, Carlos, to Battelle Memorial Institute. Method for manufacturing amorphous silica objects. 5,063,003, Cl. 264-14.000.

Goodman, James R.: *See—*
Lupton, F. Stephen; DeFilippi, Louis J.; and Goodman, James R., 5,062,956, Cl. 210-611.000.

Goodman, Meri; and Schondorf, Phyllis. Fitness and nutrition game apparatus and method of play. 5,062,645, Cl. 273-249.000.

Goodwin, Frederick K.: *See—*
Bridge, Peter; and Goodwin, Frederick K., 5,063,206, Cl. 514-16.000.

Goodyear Tire & Rubber Company, The: *See—*
Majerus, Norbert; and Rambacher, John S., 5,062,783, Cl. 425-115.000.
Rye, Grover W.; Kindry, David A.; and Weber, Carolyn T., 5,062,462, Cl. 152-548.000.

Gormley, David E.: *See—*
Oliphant, Sameul C.; and Gormley, David E., 5,062,281, Cl. 62-457.100.

Gorza, Roberto, to Nordica S.p.A. Ski boot closure device having a lever with a sliding tensioning arrangement. 5,062,225, Cl. 36-117.000.

Gorza, Roberto: *See—*
Sartor, Mariano; and Gorza, Roberto, 5,062,226, Cl. 36-117.000.

Goto, Atsuo; Okumura, Fumio; and Ito, Kazuhiko, to Mitsubishi Paper Mills Limited. Heat-sensitive recording material. 5,063,197, Cl. 503-209.000.

Goto, Toshio: *See—*
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Gotoh, Hiroya; and Kobayashi, Kazuo, to Jidosha Kiki Co., Ltd. Seal unit for brake booster. 5,062,348, Cl. 91-369.200.

Gotoh, Shigeyuki; Yokota, Kazunori; and Suzuki, Isao, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Apparatus for detecting torque of rotating shaft. 5,062,306, Cl. 73-862.330.

Gotsugi, Sigeru: *See—*
Kitagawa, Nobuhiro; and Gotsugi, Sigeru, 5,062,237, Cl. 43-86.000.

Gould, Larry D.; and Cole, David M., to United States of America, Army. Encapsulated actuator for testing of specimens. 5,062,303, Cl. 73-798.000.

Gouldsberry, Gary R.: *See—*
Fitzpatrick, Mark E.; and Gouldsberry, Gary R., 5,063,343, Cl. 323-317.000.

Grabbe, Dimitry G., to AMP Incorporated. Contact module for a low height multi-chip carrier socket. 5,062,802, Cl. 439-72.000.

Graco Inc.: *See—*
Hemming, Dale R.; Lunzer, Lawrence J.; and Lind, Robert J., 5,063,350, Cl. 324-457.000.

Graf, Carl R., to Pennsylvania Crusher Corporation. Mill screen apparatus. 5,062,601, Cl. 241-79.300.

Grafen, Paul: *See—*
Broecker, Franz J.; Arnold, Lothar; and Grafen, Paul, 5,063,194, Cl. 502-314.000.

Grafotec Kotterer GmbH: *See—*
McPherson, Malcolm; and Ernest, Reinhold, 5,062,919, Cl. 156-356.000.

Graham, John P., to Alberta Oil Sands Technology and Research Authority. Piezometer actuator device and method for its installation in a borehole. 5,062,482, Cl. 166-250.000.

Graham, Lawrence D.: *See—*
Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., 5,062,468, Cl. 164-122.200.
Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., 5,062,469, Cl. 164-122.200.

Grasso's Koninklijke Machinefabrieken N.V.: *See—*
Jansen, Halbe A., 5,062,862, Cl. 23-295.00R.

Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., to United States Surgical Corporation. Fascia stapler. 5,062,563, Cl. 227-176.000.

Green, Richard T. Portable blind. 5,062,234, Cl. 43-1.000.

Greenspan, D.: *See—*
Greenspan, Douglas H.; and Low, Phillip A., 5,063,062, Cl. 424-443.000.

Greenspan, Douglas H.; and Low, Phillip A., to Greenspan, D.; and Ingram, W. Cleaning compositions with orange oil. 5,063,062, Cl. 424-443.000.

Greiwe, Hansdieter, to Patzner GmbH & Co. Run-through grill with non-uniform heat distribution about the roll surface. 5,062,355, Cl. 99-349.000.

Greve Hansen, Jorn H.: *See—*
Greve Hansen, Niels F.; and Greve Hansen, Jorn H., 5,062,346, Cl. 89-14.100.

Greve Hansen, Niels F.; and Greve Hansen, Jorn H., to Dansk Industri Syndikat A/S. Heat protective covering for a pipe and a rod-shaped article, especially for gun barrels. 5,062,346, Cl. 89-14.100.

Greven, Richard. Cutting and positioning apparatus. 5,062,340, Cl. 83-95.000.

Gribov, Boris I.: *See—*
Bakirov, Murat B.; Getman, Alexandr F.; Gribov, Boris I.; Bordjugovsky, Andrei A.; and Klimenok, Alexandra P., 5,062,293, Cl. 73-81.000.

Griffith, Clifford J.: *See—*
Connolly, Kevin J.; D'Aleo, James M.; and Griffith, Clifford J., 5,062,329, Cl. 81-488.000.

Griffiths, Guy G. V.; Bolsworth, James; and Appleby, John M., to General Motors Corporation. Three link, six point hinge assembly for deck lid. 5,062,182, Cl. 16-368.000.

Griffiths, John D. Catheter for use in the surgical correction of a nasolacrimal duct obstruction. 5,062,831, Cl. 604-104.000.

Grim, Tracy E., to Royce Medical Company. Simplified orthopaedic back support. 5,062,414, Cl. 128-68.100.

Grois, Igor; and Margolin, Mark, to Molex Incorporated. Strain relief connector for optical fiber. 5,062,683, Cl. 385-87.000.

Grollier, Jean F.; Dubief, Claude; and Dupuis, Christine, to L'Oreal. Cosmetic hair-care composition based on polyorganosiloxanes containing a hydroxyalkyl functional group. 5,063,051, Cl. 424-70.000.

Grollier, Jean F.; and Dubief, Claude, to L'Oreal. Cosmetic and dermatological application of polysiloxanes containing a diester functional group and compositions employed. 5,063,052, Cl. 424-70.000.

Grollier, Jean-Francois, to L'Oreal. Dentifrice compositions having anti-caries activity and containing a polycationic polymer fluoride. 5,063,046, Cl. 424-52.000.

Groos, Horst. Horizontal metal extrusion press. 5,062,285, Cl. 72-272.000.

Groose, James E.: *See—*
Doughty, David T.; and Groose, James E., 5,063,196, Cl. 502-417.000.

Gross, Heinz; Fischer, Jens-Dieter; Siol, Werner; Sufke, Thomas; and Rhein, Thomas, to Rohm GmbH Chemische Fabrik. Impact-resistant methacrylate protective layer for polycarbonate, containing UV absorber. 5,063,112, Cl. 428-412.000.

Gross, Joseph; and Zucker, Shlomo, to Product Development (S.G.Z.) Ltd. Device for dispensing a liquid particularly useful for delivering medicaments at a predetermined rate. 5,062,834, Cl. 604-143.000.

Grossman, Emanuel. Lock monitor. 5,062,670, Cl. 292-137.000.

Grosspietsch, Wolfgang; and Scheer, Erich, to Fichtel & Sachs AG. Hub guidance for friction clutch. 5,062,513, Cl. 192-70.170.

Grotemeyer, Jurgen: *See—*
Schlag, Edward W.; Lindner, Josef; Beavis, Ronald C.; and Grotemeyer, Jurgen, 5,062,935, Cl. 204-157.410.

Gruber, William C.; and Barringer, Eric ., to Ceramics Process Systems Corporation. Metallic inks for co-sintering process. 5,062,891, Cl. 106-20.000.

Grumman Aerospace Corporation: *See—*
Curreri, Victor; Klein, John; and Dubois, Janine, 5,063,518, Cl. 364-503.000.

Gruning, Horst; and Keser, Helmut, to Asea Brown Boveri Ltd. Pressure-contacted semiconductor component. 5,063,436, Cl. 357-79.000.

Grunwald, Henry C., to ITT Corporation. Dispenser cathode with emitting surface parallel to ion flow. 5,063,324, Cl. 313-346.0DC.

Grupp, Werner: *See—*
Wieland, Dietrich; Kalb, Martin; Grupp, Werner; and Nothofer, Michael, 5,062,743, Cl. 408-6.000.

Grynaeus, Peter S.; Hollingsworth, Anthony; and Petkiewicz, Chester J., to Freudenberg Nonwovens Limited Partnership. Interlining. 5,063,101, Cl. 428-172.000.

Gsell, Laurenz, to Ciba-Geigy Corporation. Pyridyl substituted guanidines useful as insecticides. 5,063,236, Cl. 514-318.000.

GTE Products Corporation: *See—*
Anand, Vidhu; Sampath, Sanjay; Davis, Clarke D.; and Houck, David L., 5,063,021, Cl. 419-12.000.

Guaciaro, Michael A., to American Cyanamid Company. 2-(1-substituted-2-imidazolin-2-yl)benzoic and nicotinic acids and a method for their preparation. 5,062,881, Cl. 71-92.000.

Guazzoni, Luigi: *See—*
Owens, Charles R.; and Guazzoni, Luigi, 5,062,913, Cl. 156-154.000.

Gubisch, Roland W., to Beckman Industrial Corporation. Method for accurate measurement of transmission line impedance by correcting gross impedance for the "dribble-up" effect. 5,063,353, Cl. 324-710.000.

Gudaitis, Algrid M.: *See—*
Oyer, Michael W.; and Gudaitis, Algrid M., 5,063,371, Cl. 340-541.000.

Gueguin, Michel, to QIT-Fer et Titane, Inc. Method of preparing a synthetic rutile from a titaniferous slag containing magnesium values. 5,063,032, Cl. 423-84.000.

Guiberteau, Christian: *See—*
Jamet, Daniel; and Guiberteau, Christian, 5,062,804, Cl. 439-394.000.

Guillermond, Alain R.: *See—*
Allais, Jean-Philippe P. B.; Guillermond, Alain R.; and Rouyer, Pascal G., 5,062,347, Cl. 89-37.070.

Guillet, Jean-Laurent: *See—*
Terracol, Claude; Bredel, Patrick; and Guillet, Jean-Laurent, 5,062,525, Cl. 198-468.600.

Gullett, Paul D. M., to Sterling Design International. Control of 'U' tubing in the flow of cement in oil well casings. 5,062,481, Cl. 166-153.000.

Gunei Kagaku Kogyo Kabushiki Kaisha: *See—*
Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, 5,063,042, Cl. 423-447.400.

Gunther, Werner T., to Minnesota Mining and Manufacturing Company. Process and device for application of a carrying grip during the automatic sealing of cartons. 5,062,251, Cl. 53-134.100.

Guss, Robert J., III, to Woodhead Industries, Inc. Lighted electrical connector permitting multi directional viewing. 5,062,807, Cl. 439-490.000.

Gustafsson, Carl-Erik; and Pettersson, Bo, to C. E. Johansson AB. Absolute measurement scale system. 5,062,214, Cl. 33-706.000.

Gyobu, Ichiro: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Haager, Ottmar: *See—*
Lenhard-Backhaus, Hugo; Ehrentraut, Otto; and Haager, Ottmar, 5,062,718, Cl. 384-294.000.

Habboosh, Samir W.: *See—*
Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., 5,062,299, Cl. 73-609.000.

Hache, Jean: *See—*
Bernou, Jean-Louis; Dufau, Frederic; Geahel, Isabelle; and Hache, Jean, 5,062,965, Cl. 210-748.000.

Hackman, John A., to AMP Incorporated. Capacitive coupled connector for PCB grounding. 5,062,811, Cl. 439-620.000.

Hadden, William A.: *See—*
Bacon, Forrest C.; and Hadden, William A., 5,062,253, Cl. 53-451.000.

Haden-Schweitzer Corporation: *See—*
Best, Willie H., 5,062,788, Cl. 431-7.000.

Haga, Masakazu: *See—*
Tanaka, Hideaki; Hirata, Toichi; Sugiyama, Genroku; Haga, Masakazu; and Kajita, Yusuke, 5,062,350, Cl. 91-448.000.

Hagen, Floyd W., to Rosemount Inc. Water separator for air data sensor. 5,062,869, Cl. 55-159.000.

Hager, Peter: *See—*
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Hagiuda, Nobuyoshi: *See—*
Yokonuma, Norikazu; Hagiuda, Nobuyoshi; Iida, Yoshikazu; Sakamoto, Hiroshi; and Matsui, Hideki, 5,063,403, Cl. 354-413.000.

Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, to BASF Aktiengesellschaft. Novel navy and black disperse dye mixtures including amino-phenyl thiophene azo disperse dye and red, yellow or orange disperse dyes. 5,062,861, Cl. 8-639.000.

Hahn, Paul: *See—*
Drazba, Martin J.; Bellek, Michael L.; Dranoff, Samuel; and Hahn, Paul, 5,062,701, Cl. 351-160.00R.

Haid, Regis, Jr.: *See—*
MacMillan, Michael; and Haid, Regis, Jr., 5,062,850, Cl. 623-17.000.

Haley, Patrick F. Practice device for golfers. 5,062,640, Cl. 273-176.00F.

Halko, David J., to Hewlett-Packard Company. Ink additives for improved ink-jet performance. 5,062,892, Cl. 106-22.000.

Halko, David J.: *See—*
Adamic, Raymond J.; Wickramanayake, Palitha; Hindagolla, Suraj L.; Radke, Garold E.; and Halko, David J., 5,062,893, Cl. 106-22.000.

Hall, David A.; and Marjancik, John R., to Rexnord Corporation. Replacement bearing for worn shafts. 5,062,720, Cl. 384-484.000.

Hall, James R.; Hunter, Lorin E.; and Wilson, Terry D., to AT&T Bell Laboratories. Modular electrical service distribution system. 5,063,473, Cl. 361-93.000.

Hall, James R.: *See—*
Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., 5,062,299, Cl. 73-609.000.

Halliburton Company: *See—*
Holtmyer, Marlin D.; Hunt, Charles V.; and Harms, Weldon M., 5,062,969, Cl. 252-8.551.
Wesson, David S.; and George, Kevin R., 5,062,485, Cl. 166-297.000.

Halling, Peter J.: *See—*
Suckling, Colin J.; Halling, Peter J.; Johnston, Grant A.; and Brown, Linda, 5,063,149, Cl. 435-4.000.

Halstead, Gary A.: *See—*
Ryan, Richard P.; Shaffer, Glenn W.; Halstead, Gary A.; Smith, David M.; and Joshi, Shrikant M., 5,062,476, Cl. 165-173.000.

Hamadah, Talal T.; Ryder, Douglas N.; and Friedman, Harvey S., to Digital Equipment Corporation. Apparatus for controlled air-impingement module cooling. 5,063,476, Cl. 361-384.000.

Hamaguchi, Mikiko: *See—*
Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, 5,063,243, Cl. 514-438.000.

Hamamoto, Hideotoshi: *See—*
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.

Hamamura, Chiyo: *See—*
Ikeda, Hideo; Hamamura, Chiyo; Satoh, Hiroshi; and Utsui, Yoshihiko, 5,062,307, Cl. 73-862.360.

Hamano, Toshikatsu: *See—*
Aoki, Yoshiharu; and Hamano, Toshikatsu, 5,062,960, Cl. 210-638.000.

Hames, Edward L.; and Howitt, Robert, to Curtis Manufacturing Company, Inc. Combined keyboard storage, monitor support and document storage shelf apparatus. 5,062,609, Cl. 248-676.000.

Hamilton, Harriet W.: *See—*
Doherty, Annette M.; Hamilton, Harriet W.; Hodges, John C.; Repine, Joseph T.; and Sircar, Ila, 5,063,207, Cl. 514-18.000.

Hamilton, Vincent E.: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.

Hammond, Russell E.: *See—*
Johnson, Leopold J.; and Hammond, Russell E., 5,063,487, Cl. 363-3.000.

Hammons, Alva C.; Sanders, James R.; and Ulrich, Franklin J. Yoke nut tightening wrench. 5,062,327, Cl. 81-124.300.

Hamon, Gilles: *See—*
Clemence, Francois; Frechet, Daniel; Hamon, Gilles; and Jouquey, Simone, 5,063,225, Cl. 514-211.000.

Hampton, Leslie E.; and Thompson, David F., to Corning Incorporated. Preparation of ceramic honeycomb structure having selectively sealed channels. 5,062,911, Cl. 156-89.000.

Han, Benjamin C.: *See—*
Black, Raymond J.; and Han, Benjamin C., 5,062,503, Cl. 188-71.500.

Hanatani, Yasuyuki: *See—*
Nakatani, Kaname; Hanatani, Yasuyuki; and Mizuta, Yasufumi, 5,063,126, Cl. 430-59.000.

Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, to Konica Corporation. Color image forming apparatus having a unitary guide plate facing a plurality of developing devices. 5,063,411, Cl. 355-212.000.

Hanejko, Francis G.: *See—*
Rutz, Howard; and Hanejko, Francis G., 5,063,011, Cl. 264-126.000.

Hanneman, Larry F.; Gentle, Theresa E.; and Sharp, Kenneth G., to Dow Corning Corporation. Hydrogen silsesquioxane resin fractions and their use as coating materials. 5,063,267, Cl. 524-284.000.

Hannigan, Judson, to Champion International Corporation. Single tiered multi-cylinder paper dryer apparatus. 5,062,216, Cl. 34-16.000.

Hansen, Guenter: *See—*
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.

Hansen, Henry; Studsgaard, Leif; and Laursen, Erik, to Danfoss A/S. Method of making a measuring tube for an electromagnetic flow meter, and the measuring tube. 5,062,305, Cl. 73-861.120.

Hanssler, Gerd: *See—*
Brandes, Wilhelm; Hanssler, Gerd; Reinecke, Paul; Scheinpflug, Hans; and Holmwood, Graham, 5,063,241, Cl. 514-383.000.

Hant, William: *See—*
Tully, John W.; O'Brien, Benedict B.; Hant, William; and Hu, King L., 5,063,427, Cl. 357-35.000.

Hapyo Yugen Kaisha: *See—*
Ohtsuka, Hiroshi, 5,062,435, Cl. 132-108.000.

Hara, Shinichi: *See—*
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Sbunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.

Harada, Hiroshi: *See—*
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.

Harada, Kosuke; and Sakamoto, Hiroshi, to Kyushu University. Switching power source means. 5,063,488, Cl. 363-16.000.

Harada, Masazumi: *See—*
Takamura, Toshiyuki; Kurihashi, Kazunari; and Harada, Masazumi, 5,062,545, Cl. 221-152.000.

Harada, Nozomu: *See—*
Shibata, Hidenori; Inoue, Ikuko; and Harada, Nozomu, 5,063,449, Cl. 358-213.110.

Harada, Takashi: *See—*
Mizuno, Hiroshige; Abe, Fumio; and Harada, Takashi, 5,063,029, Cl. 422-175.000.

VOL
1132
ISS
1
NO
5
1991
UMI

Harada, Toshiaki: *See—*
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.

Hardenbrook, James M.; Williams, Richard E.; and Daniel, Mark L., to Minnesota Mining and Manufacturing Company. Apparatus for detecting fluorescence of a luminescent material. 5,063,297, Cl. 250-458.100.

Hargis, I. Glen; Fabris, Hubert J.; Wilson, John A.; and Livigni, Russell A., to GenCorp Inc. Anionic initiator system for polymerizing monomers. 5,063,190, Cl. 502-157.000.

Haring, Werner: *See—*
Ross, Carl H.; Machat, Rudolf; Haring, Werner; and Lettenbauer, Gustav, 5,062,959, Cl. 210-635.000.

Harjunmaa, Hannu: *See—*
Partanen, Paul; Seppanen, Helena; and Harjunmaa, Hannu, 5,063,024, Cl. 422-65.000.

Harmon, Thomas D.; and Morrison, Kenneth G., to International Paper Company. Apparatus and method for producing semi-converted diskette liners. 5,062,582, Cl. 242-56.400.

Harms, Weldon M.: *See—*
Holtmyer, Marlin D.; Hunt, Charles V.; and Harms, Weldon M., 5,062,969, Cl. 252-8.551.

Harrel, Charlena: *See—*
McArthur, James R.; Harrel, John; and Mayberry, John, 5,062,756, Cl. 414-22.510.

Harrel, John: *See—*
McArthur, James R.; Harrel, John; and Mayberry, John, 5,062,756, Cl. 414-22.510.

Harris, Edward H. Illuminated artificial flowers. 5,063,485, Cl. 362-122.000.

Harris, James E., to Amoco Corporation. Stabilized poly(aryl ether ketone) compositions. 5,063,265, Cl. 524-126.000.

Harris, James I. Copy machine remover of paper clips and staples. 5,062,672, Cl. 294-65.500.

Harris, Robert D.; and Putnam, Brett J., to Speed Queen Company. Air flow apparatus for clothes dryer. 5,062,219, Cl. 34-133.000.

Harrisburg, Inc.: *See—*
Johnson, Jerry E., 5,062,452, Cl. 137-533.250.

Hart, Michael G.: *See—*
Wong, Roger W.; Vifian, Hugo; and Hart, Michael G., 5,062,703, Cl. 356-73.100.

Harth, Hubert: *See—*
Carduck, Franz-Josef; Wuest, Willi; Harth, Hubert; and Liebs, Harald, 5,062,997, Cl. 260-400.000.

Haruta, Yasumasa, to Mitsubishi Denki Kabushiki Kaisha. Escalator system with convertible step unit. 5,062,519, Cl. 190-333.000.

Hasegawa, Akira; Mori, Hiroshi; Takahashi, Tatsuhiko; and Sano, Yasuyuki, to G-C Toshi Kogyo Corporation. Photopolymerizable type resin compositions for dental purposes. 5,063,255, Cl. 522-96.000.

Hasegawa, Yoshitomo; and Tsuchiya, Teruyuki, to SMC Corporation. Gas filter element. 5,062,864, Cl. 55-495.000.

Hashimoto, Nobuo; Suzuki, Kunioki; and Saijo, Teruaki, to 501 Toray Industries, Inc. Method of measuring a profile of an object and an apparatus for carrying out the method. 5,062,297, Cl. 73-597.000.

Hashimoto, Shinichi: *See—*
Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, 5,063,246, Cl. 514-517.000.

Hashimoto, Shuichi, to Fujitsu Limited. Automatic adjustment method and system for servo motor circuit of a magnetic disk apparatus. 5,063,454, Cl. 360-78.040.

Haskel, Inc.: *See—*
Kelly, John W., 5,062,199, Cl. 29-727.000.

Hatano, Tsuyoshi: *See—*
Sato, Hideki; Mizunoya, Nobuyuki; Asai, Hironori; Anzai, Kazuo; and Hatano, Tsuyoshi, 5,063,121, Cl. 428-698.000.

Hatton, Bruce M., to Eaton Corporation. Servo operated valve assembly. 5,062,611, Cl. 251-129.110.

Hattori, Hitoshi; Sakata, Hirotsugu; Hayano, Makoto; Okuda, Masayuki; and Morozumi, Naoya, to Kabushiki Kaisha Toshiba. Helical blade type compressor with thurst loss compensation. 5,062,778, Cl. 418-220.000.

Hattori, Masateru: *See—*
Tsuge, Kazuto; Hattori, Masateru; Kondo, Kazuo; and Shibata, Yoshimasa, 5,062,798, Cl. 433-201.100.

Haug, Edward W., to Pfauter-MAAG Cutting Tools Limited Partnership. Angular interlock for the replaceable wafer of a shaper cutter. 5,062,742, Cl. 407-28.000.

Hauser, George M.: *See—*
Maitz, Carlos A.; and Hauser, George M., 5,062,835, Cl. 604-153.000.

Hausmann, Herbert, to Binder & Co. Aktiengesellschaft. Deformable sieve mat screening apparatus having raised sieve mat rims. 5,062,949, Cl. 209-310.000.

Haut, Richard C.; Thomas, Eugene R.; and Denton, Robert D., to Exxon Production Research Company. Method and apparatus to start-up controlled freezing zone process and purify the product stream. 5,062,270, Cl. 62-12.000.

Hayano, Makoto: *See—*
Hattori, Hitoshi; Sakata, Hirotsugu; Hayano, Makoto; Okuda, Masayuki; and Morozumi, Naoya, 5,062,778, Cl. 418-220.000.

Hayase, Shuzi: *See—*
Horiguchi, Rumiko; Hayase, Shuzi; and Onishi, Yasunobu, 5,063,134, Cl. 430-192.000.

Hayashi, Hiroshi, to Fuji Photo Film Co., Ltd. Silver halide color photographic light-sensitive material capable of being processed at ultrahigh speed and process for the formation of color images using thereof. 5,063,139, Cl. 430-377.000.

Hayashi, Kenzo: *See—*
Sakai, Hiroshi; Asai, Masamichi; Hayashi, Kenzo; Sakurai, Kazunori; and Watanabe, Kazuhiko, 5,062,554, Cl. 222-600.000.

Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, to Nippon Koki, Co., Ltd. Air bag inflation gas generator. 5,062,367, Cl. 102-530.000.

Hayashi, Shigeki, to Shimadzu Corporation. Electron-optical system for making a pseudoparallel micro electron-beam. 5,063,296, Cl. 250-396.0ML.

Hayashi, Shoichi: *See—*
Takeshima, Akira; Asakura, Toshikazu; Takahashi, Akihiko; Kobayashi, Shigeo; and Hayashi, Shoichi, 5,062,491, Cl. 173-12.000.

Hayashi, Yoshiaki, to Yoshino Kogyosho Co., Ltd. Bottle-shaped container with base cap. 5,062,537, Cl. 215-12.100.

Hayduk, John. Fast-learning neural network system for adaptive pattern recognition apparatus. 5,063,601, Cl. 382-14.000.

Hayes, Richard A.; Kosinski, Leonard E. R.; and Wagman, Mark E., to Du Pont de Nemours, E. I., and Company. Polyacetal compositions containing a non-meltable polymer stabilizer improved with a minor amount of at least one meltable co-stabilizer and at least one primary antioxidant. 5,063,263, Cl. 524-101.000.

Hayes, Ronald: *See—*
Aldersley, Alan; and Hayes, Ronald, 5,062,596, Cl. 244-234.000.

Haynes International, Inc.: *See—*
Sridhar, Narasi, 5,063,023, Cl. 420-442.000.

Headley, Philip M.; and Kulkarni, Prakash K., to General Motors Corporation; and Delco Electronics Corp. ABS yaw control. 5,063,514, Cl. 364-426.020.

Health Research, Inc.: *See—*
Potter, William R., 5,062,431, Cl. 128-665.000.

Heck, Karl R.: *See—*
Jamoua, Saad A.; Sarnowsky, Melvin J.; and Heck, Karl R., 5,063,516, Cl. 364-431.110.

Heck, Werner: *See—*
Astheimer, Hans; Brumme, Helma; Heck, Werner; Kissel, Klaus; and Schuy, Hubert, 5,063,464, Cl. 360-104.000.

Hedderick, John B.; Rutty, Brian R.; Page, David G.; and Walshe, John J., to Arthur Guinness Son and Company (Great Britian) Limited. Beverage dispensing system. 5,062,548, Cl. 222-190.000.

Heiml, Roland: *See—*
Sticht, Walter; and Heiml, Roland, 5,062,368, Cl. 104-172.300.

Heinrich, Jurgen: *See—*
Neff, Franz H.; and Heinrich, Jurgen, 5,062,584, Cl. 244-3.150.

Heitmann, Erric L.; and Shaw, David N., to Carrier Corporation. Combined oil heater and level sensor. 5,062,277, Cl. 62-193.000.

Hekal, Ihal M. Peelably sealed plastic packages and method of preparing same. 5,062,569, Cl. 229-3.50R.

Hekker, Roeland M.T.; and Livny, Ishak M., to Du Pont de Nemours, E. I., and Company. Image converter. 5,063,442, Cl. 358-93.000.

Helton, Arch W. Method and apparatus for watering potted plants. 5,062,239, Cl. 47-79.000.

HEM Research, Inc.: *See—*
Carter, William A., 5,063,209, Cl. 514-44.000.

Hemming, Dale R.; Lunzer, Lawrence J.; and Lind, Robert J., to Graco Inc. Electrostatic spray gun voltage and current monitor. 5,063,350, Cl. 324-457.000.

Hendricks, Kenneth J. Game data board. 5,062,381, Cl. 116-225.000.

Henkel Corporation: *See—*
Lindert, Andreas; Pierce, John R.; and McCormick, David R., 5,063,089, Cl. 427-354.000.

Henkel Kommanditgesellschaft auf Aktien: *See—*
Carduck, Franz-Josef; Wuest, Willi; Harth, Hubert; and Liebs, Harald, 5,062,997, Cl. 260-400.000.

Henri, Jean-Claude: *See—*
Gault, Dominique; Andrieu, Jean-Pierre; and Henri, Jean-Claude, 5,063,388, Cl. 342-185.000.

Herman, Frederick L.; Savoca, Ann C. L.; and Listemann, Mark L., to Air Products and Chemicals, Inc. Preparation of metallated and substituted alkynes. 5,062,998, Cl. 260-665.00R.

Herman, Philip A.; and McCarthy, William F., to International Business Machines Corporation. Suppression of electrical interferences from an electronic circuit. 5,063,362, Cl. 333-12.000.

Herold, Barry W.: *See—*
Erhart, Richard A.; Herold, Barry W.; and DeLuca, Joan S., 5,063,533, Cl. 395-425.000.

Heubel, Walter. Spout for different size cans. 5,062,552, Cl. 222-570.000.

Hewlett-Packard Company: *See—*
Adamic, Raymond J.; Wickramanayake, Palitha; Hindagolla, Suraj L.; Radke, Garold E.; and Halko, David J., 5,062,893, Cl. 106-22.000.
Halko, David J., 5,062,892, Cl. 106-22.000.
McKeown, Nicholas W., 5,063,612, Cl. 455-607.000.
Wong, Roger W.; Vifian, Hugo; and Hart, Michael G., 5,062,703, Cl. 356-73.100.

Heyn, Bennington R.; and Gartner, Joseph, Jr. Exercising device. 5,062,628, Cl. 272-75.000.

Higaki, Yuzo: *See—*
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Maekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, 5,063,147, Cl. 430-523.000.

Higgins, Larry: *See—*
Kennedy, Earl W.; Oexman, Robert D.; and Higgins, Larry, 5,062,169, Cl. 5-449.000.

Higurashi, Seiji, to Victor Company of Japan Ltd. Magnetic recording and/or reproducing apparatus having means for preventing audio-to-video crosstalk and noise generation. 5,063,452, Cl. 360-19.100.

Hildebrand, Thomas, to Huels Aktiengesellschaft. Polymeric costabilizers for molding compositions based on polymers of vinyl chloride. 5,063,262, Cl. 524-97.000.

Hill, James A.; and Burtch, John E., to Owens-Illinois Plastic Products Inc. Thermoplastic cup and method and apparatus for making. 5,062,568, Cl. 229-1.50B.

Hillenius, Steven J.; Lebowitz, Joseph; Liu, Ruichen; and Lynch, William T., to AT&T Bell Laboratories. Devices having shallow junctions. 5,063,422, Cl. 357-23.300.

Hilsenbeck, Henry; and Muck, Jack E., to Hilsenbeck, Henry. Double action check valve. 5,062,448, Cl. 137-498.000.

Hindagolla, Suraj L.: *See—*
Adamic, Raymond J.; Wickramanayake, Palitha; Hindagolla, Suraj L.; Radke, Garold E.; and Halko, David J., 5,062,893, Cl. 106-22.000.

Hindley, Richard M., to Beecham Group p.l.c. Novel compounds. 5,063,240, Cl. 514-369.000.

Hiner, Roger N.: *See—*
Abreu, Mary E.; Rzeszotarski, Waclaw; Kyle, Donald J.; Hiner, Roger N.; and Elliott, Richard L., 5,063,245, Cl. 514-404.000.

Hirabayashi, Satoshi: *See—*
Kiyonari, Toshiyuki; Hirabayashi, Satoshi; Kidokoro, Naoto; and Takimoto, Futoshi, 5,063,137, Cl. 430-292.000.

Hirahara, Ziro; and Abe, Akihito, to Kabushiki Kaisha Toshiba. Data processing device with direct memory access function processed as an micro-code vectored interrupt. 5,063,498, Cl. 395-425.000.

Hirano, Isao: *See—*
Kawashima, Ichiro; Seki, Mitsuo; and Hirano, Isao, 5,062,279, Cl. 62-235.000.

Hirata, Toichi: *See—*
Tanaka, Hideaki; Hirata, Toichi; Sugiyama, Genroku; Haga, Masakazu; and Kajita, Yusuke, 5,062,350, Cl. 91-448.000.

Hirata, Toshio; Ogura, Kenji; and Mizutani, Takehito, to Nippondenso Co., Ltd. Automotive air conditioner. 5,062,275, Cl. 62-174.000.

Hirose, Kazonori: *See—*
Nishio, Yukio; and Hirose, Kazonori, 5,062,385, Cl. 118-653.000.

Hirose, Takeshi; Abe, Akira; and Nakazyo, Kiyoshi, to Fuji Photo Film Co., Ltd. Process for forming color image. 5,063,143, Cl. 430-419.000.

Hirose, Toshifumi: *See—*
Yukimoto, Sadao; Hirose, Toshifumi; Wakabayashi, Hiroshi; and Isayama, Katsuhiko, 5,063,270, Cl. 524-306.000.

Hirota, Kazuo: *See—*
Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, 5,063,257, Cl. 523-116.000.

Hirota, Kusato; Ohbayashi, Gentaro; and Nakanishi, Toshiharu, to Toray Industries, Inc. Optical recording medium. 5,063,097, Cl. 428-65.000.

Hirsch, Mark J., to Xerox Corporation. Development apparatus using an electromagnet to prevent development in the non-operative mode. 5,063,412, Cl. 355-259.000.

Hishinuma, Takashi: *See—*
Fukushima, Takashi; and Hishinuma, Takashi, 5,063,458, Cl. 358-335.000.

Hitachi Construction Machinery Co., Ltd.: *See—*
Tanaka, Hideaki; Hirata, Toichi; Sugiyama, Genroku; Haga, Masakazu; and Kajita, Yusuke, 5,062,350, Cl. 91-448.000.

Hitachi Koki Co., Ltd.: *See—*
Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, 5,062,723, Cl. 400-120.000.

Hitachi, Ltd.: *See—*
Akimoto, Hajime; Ozaki, Toshifumi; Tokumasu, Kazuya; Ono, Hideyuki; and Tanaka, Haruhiko, 5,063,581, Cl. 377-58.000.
Horiuchi, Tadasu; Nishijima, Hideo; and Ohno, Shoji, 5,063,456, Cl. 358-310.000.
Kambara, Hideki; Nishikawa, Tetsuo; Sumitani, Tomoaki; Nagai, Keiichi; and Ito, Yoshitoshi, 5,062,942, Cl. 204-299.00R.
Miura, Haruo; Fukushima, Yasuo; Nishida, Hideo; Kobayashi, Hiromi; and Takagi, Takeo, 5,062,766, Cl. 415-199.100.
Nakata, Toshihiko; and Kembo, Yukio, 5,062,715, Cl. 356-432.000.
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.
Okamoto, Yukio, 5,063,329, Cl. 315-111.210.
Okuyama, Kousuke, 5,063,170, Cl. 437-41.000.
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.
Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, 5,062,723, Cl. 400-120.000.
Watanabe, Takashi; and Ishizuka, Tatsuro, 5,063,320, Cl. 310-270.000.
Yoda, Haruo; Miyatake, Takafumi; and Matsushima, Hitoshi, 5,063,492, Cl. 364-167.010.

Hitachi Medical Corp.: *See—*
Kondo, Shin-ichi; Katakura, Kageyoshi; and Ikeda, Hiroshi, 5,063,541, Cl. 367-7.000.

Hitachi Metals, Ltd.: *See—*
Matsumoto, Shunichiro; Inui, Tsutomu; Ichiyasu, Rokuo; and Chiba, Yoshitaka, 5,062,885, Cl. 75-255.000.
Uchida, Norimasa, 5,063,116, Cl. 428-606.000.

Hitachi Tokyo Electronics Co. Ltd.: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Hitt, Otis H. Supplementary impact device for a golf club. 5,062,639, Cl. 273-171.000.

Hiwatashi, Yutaka: *See—*
Kamimura, Katsuyoshi; Mine, Atsushi; and Hiwatashi, Yutaka, 5,063,512, Cl. 364-424.050.

Hiyama, Takayuki: *See—*
Katsuragi, Kohei; and Hiyama, Takayuki, 5,062,736, Cl. 404-72.000.

Ho, W. S. Winston, to Exxon Research and Engineering Co. Polymeric membrane and process for separation of aliphatically unsaturated hydrocarbons. 5,062,866, Cl. 55-16.000.

Hobson, Gregory L.; Luetkemeyer, Kent; and Wootton, John R., to Electronics & Space Corporation. Missile tracking, guidance and control apparatus. 5,062,586, Cl. 244-3.120.

Hockman, Edward N., to Clyde Corporation. Article orienting apparatus. 5,062,521, Cl. 198-389.000.

Hodges, John C.: *See—*
Doherty, Annette M.; Hamilton, Harriet W.; Hodges, John C.; Repine, Joseph T.; and Sircar, Ila, 5,063,207, Cl. 514-18.000.

Hoeganaes Corporation: *See—*
Rutz, Howard; and Hanejko, Francis G., 5,063,011, Cl. 264-126.000.

Hoffman, Allan C. Method and apparatus for fabricating a seamless hollow rubber core for a ball. 5,062,912, Cl. 156-145.000.

Hoffmann-La Roche Inc.: *See—*
Kiefer, Hansruedi, 5,063,162, Cl. 435-270.000.
Schildknecht, Eugene G.; and Untawale, Govind G., 5,063,219, Cl. 514-157.000.

Hofmeister, Peter: *See—*
Leyendecker, Joachim; Kuenast, Christoph; and Hofmeister, Peter, 5,063,232, Cl. 514-247.000.

Hogan, Martin A.: *See—*
Hogan, Martin J.; and Hogan, Martin A., 5,063,346, Cl. 324-173.000.

Hogan, Martin J.; and Hogan, Martin A., to General Motors Corporation. Wheel speed sensor for remote installation. 5,063,346, Cl. 324-173.000.

Hogarth, Ian W.; and Kiewning, Friedhelm, to Franz Buettner AG. Typewriter or printer ribbon and method for its manufacture. 5,062,725, Cl. 400-195.000.

Hohl, Frank; and Breckwoldt, Jorn, to Wolff Walsrode AG. Process for the preparation of hydrocolloid mixtures having improved dispersibility. 5,062,889, Cl. 106-197.200.

Holbrook, Russell W.; and MacDonald, Scott A., to Pitney Bowes Inc. Replaceable belt cartridge for an envelope feed apparatus. 5,062,600, Cl. 271-35.000.

Holdeman, Louis B.: *See—*
Geller, Bernard D.; Tyler, Johann U.; Holdeman, Louis B.; Phelleps, Fred R.; and Laird, George F., III, 5,063,177, Cl. 437-209.000.

Holland, Christopher E.: *See—*
Brodie, Ivor; Gernick, Henry R.; Holland, Christopher E.; and Moessner, Helmut A., 5,063,327, Cl. 313-482.000.

Hollandse Signaalapparaten B.V.: *See—*
Reits, Bernard J., 5,063,389, Cl. 342-359.000.

Hollingsworth, Anthony: *See—*
Grynaeus, Peter S.; Hollingsworth, Anthony; and Petkiewicz, Chester J., 5,063,101, Cl. 428-172.000.

Holmes, Paul E., to Olin Corporation. Identification, characterization, and method of production of a novel microbial lipase. 5,063,160, Cl. 435-253.300.

Holmwood, Graham: *See—*
Brandes, Wilhelm; Hanssler, Gerd; Reinecke, Paul; Scheinpflug, Hans; and Holmwood, Graham, 5,063,241, Cl. 514-383.000.

Holt, Debra S.: *See—*
Holt, John N.; and Holt, Debra S., 5,062,840, Cl. 604-385.100.

Holt, John N.; and Holt, Debra S. Disposable diapers. 5,062,840, Cl. 604-385.100.

Holtmyer, Marlin D.; Hunt, Charles V.; and Harms, Weldon M., to Halliburton Company. Crosslinkable interpolymers. 5,062,969, Cl. 252-8.551.

Honda Giken Kogyo Kabushiki Kaisha: *See—*
Konno, Mitsuo; Noro, Hisashi; and Katsura, Naotero, 5,063,278, Cl. 219-86.100.
Nakayama, Hiroshi; and Yumoto, Toshiyuki, 5,062,822, Cl. 475-200.000.
Takeshima, Akira; Asakura, Toshikazu; Takahashi, Akihiko; Kobayashi, Shigeo; and Hayashi, Shoichi, 5,062,491, Cl. 173-12.000.

Honda, Kazuo: *See—*
Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, 5,063,246, Cl. 514-517.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Honda, Minoru: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Honda, Ryoji; Kita, Masahiro; and Negoro, Ikuo, to Asahi Kogaku Kogyo Kabushiki Kaisha. Electrophotographic printer using a continuous-form recording sheet. 5,063,416, Cl. 355-316.000.

Honeywell Inc.: *See—*
Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., 5,062,366, Cl. 102-430.000.
Samad, Tariq, 5,063,605, Cl. 382-44.000.

Hong, Sam P., to Goldstar Co., Ltd. Still/moving picture selection control circuit for video phone system. 5,063,440, Cl. 358-85.000.

Honma, Yuusuke: *See—*
Nomura, Takuji; Miki, Shogo; Sakauchi, Takashi; Sato, Yoshitaka; and Honma, Yuusuke, 5,062,981, Cl. 252-62.540.

Honnell, Richard E.: *See—*
Petrovic, John J.; and Honnell, Richard E., 5,063,182, Cl. 501-96.000.

Hooker, Daniel N., to University of North Carolina at Chapel Hill, The. Portable apparatus for rapid reduction of elevated body core temperature. 5,062,424, Cl. 128-379.000.

Hoover, George H.: *See—*
Whigham, Roger C.; and Hoover, George H., 5,062,555, Cl. 222-641.000.

Hoover, John B., to Burndy Corporation. Hydraulic crimping press for electrical connectors. 5,062,290, Cl. 72-416.000.

Hopfield, John J., to California Institute of Technology. Molecular shift register based on electron transfer. 5,063,417, Cl. 357-8.000.

Hori, Nohumitsu: *See—*
Sugita, Kazuhiko; Hori, Nohumitsu; and Nakane, Yasumasa, 5,063,322, Cl. 310-341.000.

Horiguchi, Rumiko; Hayase, Shuzi; and Onishi, Yasunobu, to Kabushiki Kaisha Toshiba. Photosensitive composition. 5,063,134, Cl. 430-192.000.

Horiguchi, Shiro: *See—*
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Horikx, Cornelis M.; and Jaspers, Martinus J., to Akzo NV. Apparatus for making a tightly closed loop of a tape of thermoplastic material around an object. 5,062,920, Cl. 156-380.400.

Horiuchi, Tadasu; Nishijima, Hideo; and Ohno, Shoji, to Hitachi, Ltd. Video signal processor. 5,063,456, Cl. 358-310.000.

Horst, Hohl: *See—*
Eck, Herbert; Fleischmann, Gerald; Horst, Hohl; and Weber, Helmut, 5,063,087, Cl. 427-302.000.

Horwell, David C.; and Rees, David C., to Warner-Lambert Company. 7-((substituted)amino)-8-((substituted)carbonyl)-methylamino-1-oxaspiro[4,5]decanes as diuretics antiinflammatory, and cerebrovascular agents. 5,063,242, Cl. 514-414.000.

Hosaka, Sumio: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.

Hoshino, Akira; Saji, Mikio; and Yamaguchi, Isamu, to Dainichiseika Color & Chemicals Mfg. Co., Ltd. Deodorizing resin compositions and formed deodorizing articles. 5,063,256, Cl. 523-102.000.

Hoshino Gakki Co. Ltd.: *See—*
Hoshino, Yoshihiro, 5,062,606, Cl. 248-171.000.

Hoshino, Yoshihiro, to Hoshino Gakki Co. Ltd. Adjustably tiltable tripod stand. 5,062,606, Cl. 248-171.000.

Hosler, Robert C., Sr., to AMP Incorporated. Adapter for interconnecting socket connectors for triaxial cable. 5,062,808, Cl. 439-580.000.

Hosoya, Yoshihiro: *See—*
Nishimoto, Akihiko; Hosoya, Yoshihiro; Tomita, Kunikazu; Urabe, Toshiaki; and Jitsukawa, Masaharu, 5,062,906, Cl. 148-111.000.

Hospital for Joint Diseases: *See—*
Kummer, Frederick J., 5,062,433, Cl. 128-888.000.

Hostetler, Robert D., to Avtron, Inc. Bracket filler for animal watering device. 5,062,391, Cl. 119-72.000.

Houck, David L.: *See—*
Anand, Vidhu; Sampath, Sanjay; Davis, Clarke D.; and Houck, David L., 5,063,021, Cl. 419-12.000.

Howard, James K., to International Business Machines Corporation. High coercivity low noise cobalt alloy magnetic recording medium and its manufacturing process. 5,062,938, Cl. 204-192.200.

Howard, Moses W.: *See—*
Howard, Perry C., deceased; and Howard, Moses W., 5,062,803, Cl. 439-160.000.

Howard, Perry C., deceased; and by Howard, Moses W. Plug puller. 5,062,803, Cl. 439-160.000.

Howard, Roy T. Concealed tie clasp. 5,062,185, Cl. 24-49.0CC.

Howitt, Robert: *See—*
Hames, Edward L.; and Howitt, Robert, 5,062,609, Cl. 248-676.000.

Hsu, Chi-Hsueh; Huang, Chin-Fen; and Wang, Chun-Hsien. Apparatus for securing a confined space with a laser emission. 5,063,288, Cl. 250-221.000.

Hsu, Yuan-Hsun: *See—*
Chang, Ming-Ju; Hsu, Yuan-Hsun; Kuo, Mei-Hui; and Soong, Tai-Sen, 5,063,244, Cl. 514-456.000.

Hsu, Yung-Yu: *See—*
Chen, Kun-Long; and Hsu, Yung-Yu, 5,063,260, Cl. 523-213.000.

Hu, King L.: *See—*
Tully, John W.; O'Brien, Benedict B.; Hant, William; and Hu, King L., 5,063,427, Cl. 357-35.000.

Hu, Mae W.; Schulkamp, Kirk; Lin, Cheng-I; and Ullman, Edwin F., to Syntex (U.S.A.) Inc. Geminal diphenyl derivatives and their use in immunoassays. 5,063,165, Cl. 436-500.000.

Huang, Chin-Fen: *See—*
Hsu, Chi-Hsueh; Huang, Chin-Fen; and Wang, Chun-Hsien, 5,063,288, Cl. 250-221.000.

Huang, Ming-Tai. Handle assembly for doll carriages. 5,062,179, Cl. 16-111.00R.

Huang, Wu-Song; Khandros, Igor Y.; Saraf, Ravi; and Shi, Leathen, to International Business Machines Corporation. Solder/polymer composite paste and method. 5,062,896, Cl. 106-287.190.

Hudson, Tom J.; McIntyre, John; Tremblay, Pierre; Allaire, Claude; and Gnyra, Bohdan, to Alcan International Limited. Linings for aluminum reduction cells. 5,062,929, Cl. 204-67.000.

Huels Aktiengesellschaft: *See—*
Hildebrand, Thomas, 5,063,262, Cl. 524-97.000.
Ruff, Klaus, 5,063,040, Cl. 423-342.000.

Hughes Aircraft Company. *See—*
FitzHenry, Patrick; and Scanlan, Lawrence A., 5,063,607, Cl. 382-50.000.
Longo, Robert T.; Bardai, Zaher; Manoly, Arthur E.; Forman, Ralph; and Rolph, Randy K., 5,063,323, Cl. 313-309.000.

Hughes, Dale L.: *See—*
Sawyer, Alan G.; Hughes, Dale L.; and Petree, Edwyn H., 5,062,192, Cl. 29-426.400.

Hughes, John B.; and Moulding, Kenneth W., to U.S. Philips Corporation. Temperature threshold sensing circuit. 5,063,342, Cl. 323-315.000.

Huhmann, Reinhard, to RSA Entgrat-Technik Rainer Schmidt. Brush head for deburring and brushing machines. 5,062,177, Cl. 15-88.200.

Hulse, Sid D.; Maurice, D. V.; Ward, Nelson E.; and Wicker, David L., to Degussa Corporation. Dietary modifiction to alleviate toxicity in livestock caused by mycotoxins. 5,063,066, Cl. 426-2.000.

Humble, John D.; Searles, Raymond C.; Ruggles, John D.; and Jacobowitz, Judah L., to Mobil Oil Corporation. Process and apparatus for regeneration of FCC catalyst. 5,063,028, Cl. 422-144.000.

Hume, Christopher N.: *See—*
Peterson, William M.; Hume, Christopher N.; and Leivian, Robert H., 5,063,521, Cl. 395-27.000.

Humphreys, James R., Jr.: *See—*
Novak, Philip F.; Shannon, Robert D.; Pinckney, Robert L.; and Humphreys, James R., Jr., 5,063,384, Cl. 342-1.000.

Hung, Ju-Ming, to Essex Specialty Products, Inc. One-part primerless adhesive. 5,063,269, Cl. 524-296.000.

Hunt, Charles V.: *See—*
Holtmyer, Marlin D.; Hunt, Charles V.; and Harms, Weldon M., 5,062,969, Cl. 252-8.551.

Hunt, Neil D.: *See—*
Nishihara, H. Keith; Crossley, P. Anthony; Hunt, Neil D.; and Tenenbaum, J. Martin, 5,062,567, Cl. 228-105.000.

Hunt, Seth C.: *See—*
Lemon, Walter B., III, 5,062,871, Cl. 55-259.000.

Hunter Douglas International NV: *See—*
Oosterhof, Lukas, 5,062,750, Cl. 409-132.000.

Hunter, Lorin E.: *See—*
Hall, James R.; Hunter, Lorin E.; and Wilson, Terry D., 5,063,473, Cl. 361-93.000.

Hunter, Orville, Jr.: *See—*
Stevens, Robert B.; and Hunter, Orville, Jr., 5,063,180, Cl. 501-38.000.

Hurst, Gregory C.: *See—*
Yerbury, Michael J.; and Hurst, Gregory C., 5,063,560, Cl. 370-18.000.

Hutchinson, S.A.: *See—*
Potier, Michel; and Briet, Gilles, 5,062,478, Cl. 165-178.000.

Hutchison, Alan J.: *See—*
Chen, Jen; and Hutchison, Alan J., 5,063,233, Cl. 514-266.000.

Hutton, Charles D.: *See—*
Lindsey, James D.; Hutton, Charles D.; Tubb, Joe W.; Shipman, Carol L.; and Kyle, Albert S., III, 5,063,507, Cl. 364-408.000.

Hvizdos, Edward L.: *See—*
Senior, Robert B.; and Hvizdos, Edward L., 5,062,357, Cl. 100-53.000.

Hydro-Quebec: *See—*
Gauthier, Michel; Armand, Michel; and Muller, Daniel, 5,063,124, Cl. 429-192.000.

Hydromatik GmbH: *See—*
Stolzer, Rainer, 5,062,267, Cl. 60-493.000.

Hyldig, Poul E.: *See—*
Stenstrom, Theiss; Molbaek, Jens J.; Hyldig, Poul E.; and Straede, Bjarne, 5,062,442, Cl. 137-110.000.

Hynds, Ernest J.; Stowe, Keith A.; and Cook, David C., to General Motors Corporation. Flexible link assembly for a vehicle suspension system. 5,062,656, Cl. 280-689.000.

Hyoty, Paavo; and Saiha, Erik, to Oy Tampella AB. Method for regulating the feed or combustion conditions of concentrated waste liquors in a soda recovery unit. 5,062,921, Cl. 162-31.000.

Hyundai Electronics Industries Co., Ltd.: *See—*
Lee, Won G.; and Kang, Mi Y., 5,063,176, Cl. 437-195.000.

I.R.T.I. Istituto Di Ricera E Trasferimenti Tecnologic Alle Imprese srl: *See—*
Carboni, Luigi, 5,062,263, Cl. 60-299.000.

I-Stat Corporation: *See—*
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Ichihashi, Koji; and Yasuma, Jun-ichi, to Diesel Kiki Co. L.T.D. Spool control valve. 5,062,454, Cl. 137-625.610.

Ichiyasu, Rokuo: *See—*
Matsumoto, Shunichiro; Inui, Tsutomu; Ichiyasu, Rokuo; and Chiba, Yoshitaka, 5,062,885, Cl. 75-255.000.

Idouji, Shigeki: *See—*
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.

Igaki, Masahiko: *See—*
Kataoka, Kenichi; Nishimoto, Yoshifumi; and Igaki, Masahiko, 5,062,622, Cl. 271-270.000.

Igarashi, Ken, to Pioneer Electronic Corporation. Apparatus for, and method of, discharging static electricity in a display and push-button switch. 5,063,474, Cl. 361-220.000.

Igarashi, Takeshi: *See—*
Arai, Fuminori; Igarashi, Takeshi; and Tanaka, Mitsutoshi, 5,063,153, Cl. 435-26.000.

Igarashi, Yoshiaki: *See—*
Oshima, Mitsuaki; Izaki, Masataka; Kajino, Jirou; Igarashi, Yoshiaki; and Mitani, Hiroshi, 5,062,696, Cl. 359-554.000.

Iida, Tsukasa: *See—*
Kawazoe, Tetsu; and Iida, Tsukasa, 5,062,948, Cl. 208-251.00R.

Iida, Yoshikazu: *See—*
Yokonuma, Norikazu; Hagiuda, Nobuyoshi; Iida, Yoshikazu; Sakamoto, Hiroshi; and Matsui, Hideki, 5,063,403, Cl. 354-413.000.

Iizuka, Shinichi, to Fujitsu Limited. Method of magnifying a bit map font data in a horizontal direction. 5,062,724, Cl. 400-121.000.

Iizuka, Toshi: *See—*
Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, 5,063,042, Cl. 423-447.400.

Ikeda, Atsushi: *See—*
Nakajima, Masato; Yokotani, Kenji; and Ikeda, Atsushi, 5,062,922, Cl. 162-158.000.

Ikeda, Hayato: *See—*
Kawai, Katsunori; Ikeda, Hayato; Yokomachi, Naoya; and Kawai, Toshihiro, 5,062,773, Cl. 417-269.000.

Ikeda, Hideo; Hamamura, Chiyo; Satoh, Hiroshi; and Utsui, Yoshihiko, to Mitsubishi Denki Kabushiki Kaisha. Strain detector. 5,062,307, Cl. 73-862.360.

Ikeda, Hiroshi: *See—*
Kondo, Shin-ichi; Katakura, Kageyoshi; and Ikeda, Hiroshi, 5,063,541, Cl. 367-7.000.

Ikeda, Koji; and Nakayama, Mikio, to Fujitsu Limited. Communication terminal having means for controlling power transfer. 5,063,563, Cl. 370-110.100.

Ikeda, Satoshi: *See—*
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.

Imageware Research and Development Inc.: *See—*
Jaffray, Ian; and Bronskill, John F., 5,063,448, Cl. 358-160.000.

Imai, Akihiro; Kawakami, Tetsuji; Matsuda, Hiromu; Yubakami, Keiichi; and Taguchi, Nobuyoshi, to Matsushita Electric Industrial Co., Ltd. Dye transfer type thermal printing sheets. 5,063,198, Cl. 503-227.000.

Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, to Yamanouchi Pharmaceutical Co., Ltd. Phenethylamine derivative compositions and use. 5,063,246, Cl. 514-517.000.

Imamura, Saburo; and Izawa, Tatsuo, to Nippon Telegraph and Telephone Corporation. Plate plastics optical waveguide. 5,062,680, Cl. 385-131.000.

Imperatori, Diana. Water-free skin cleaning composition in the form of a tablet. 5,062,994, Cl. 252-545.000.

Imperial Chemical Industries PLC: *See—*
Birchall, James D.; and Clegg, William J., 5,063,107, Cl. 428-367.000.
Suckling, Colin J.; Halling, Peter J.; Johnston, Grant A.; and Brown, Linda, 5,063,149, Cl. 435-4.000.

Inaba, Katsuhiko, to NEC Corporation. Switching regulator having improved switching control arrangement. 5,063,489, Cl. 363-21.000.

Inaba, Yoshiharu; Naito, Hideo; Kamiguchi, Masao; Neko, Noriaki; and Sakakibara, Shinsuke, to Fanuc Ltd. Molding condition recording apparatus for an injection molding machine. 5,062,784, Cl. 425-143.000.

Inagaki, Yoshio; and Adachi, Keiichi, to Fuji Photo Film Co., Ltd. Silver halide photographic material. 5,063,146, Cl. 430-522.000.

Inagawa, Hideho; and Nojo, Shigenobu, to Canon Kabushiki Kaisha. Method and apparatus for forming holes into printed circuit board. 5,063,280, Cl. 219-121.700.

Inage, Tomonori: *See—*
Marui, Masatoshi; Inage, Tomonori; Matsui, Yuji; and Ishizuka, Tazuko, 5,062,692, Cl. 359-45.000.

Inden, Takashi: *See—*
Nozaki, Yoshihisa; Inden, Takashi; and Takemura, Tohur, 5,062,524, Cl. 198-465.400.

Index-Werke Komm.-Ges. Hahn & Tessky: *See—*
Trautmann, Guenther H.; and Link, Helmut F., 5,062,330, Cl. 82-147.000.

Indiana Tube Corporation: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Industrial Materials Technology, Inc.: *See—*
Zick, Daniel H., 5,063,022, Cl. 419-49.000.

Ing Communications, Inc.: *See—*
Alwadish, David, 5,063,610, Cl. 455-45.000.

Ingram, W.: *See—*
Greenspan, Douglas H.; and Low, Phillip A., 5,063,062, Cl. 424-443.000.

Innova Products, Inc.: *See—*
Johnson, Gregory K., 5,062,223, Cl. 36-7.10R.

Innovated, Inc.: *See—*
Senior, Robert B.; and Hvizdos, Edward L., 5,062,357, Cl. 100-53.000.

Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, to Fujitsu Limited. Process for setting a cut printing sheet. 5,062,726, Cl. 400-630.000.

Inoue, Ikuko: *See—*
Shibata, Hidenori; Inoue, Ikuko; and Harada, Nozomu, 5,063,449, Cl. 358-213.110.

Inoue, Ken-ichi: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Inoue, Koji: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Inoue, Masaru: *See—*
Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, 5,062,312, Cl. 74-89.140.

Inoue, Shinichi, to Yamato Scale Company, Limited. Electronic weighing scale. 5,062,492, Cl. 177-25.140.

Inoue, Shinya: *See—*
Sekiya, Tetsuo; Inoue, Shinya; Taniguchi, Masao; Umezu, Kohei; and Suzuki, Kazuo, 5,063,247, Cl. 514-585.000.

Inoue, Yasuo: *See—*
Kanba, Masaru; Inoue, Yasuo; Mukai, Sadayoshi; Kikkawa, Masanari; and Suga, Yasunori, 5,062,292, Cl. 73-19.010.

Institut de Recherches de la Siderurgie Francaise: *See—*
Berneron, Roger; and de Gelis, Pierre, 5,062,900, Cl. 148-4.000.

Institut des Vaisseaux et du Sang (IVS): *See—*
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

Institut Francais du Petrole: *See—*
Dufresne, Pierre; and Raatz, Francis, 5,062,946, Cl. 208-115.000.
Duret, Pierre; and Blanchard, Jean-Luc, 5,062,396, Cl. 123-73.0BA.
Fuchs, Jean-Francois; Auberon, Marcel; Odru, Pierre; and Sparks, Charles, 5,062,914, Cl. 156-172.000.

Institut Khimii Akademii Nauk Estonskoi SSR: *See—*
Voll, Martin A.; and Eiskop, Robert K., 5,062,309, Cl. 73-864.440.

Intel Corporation: *See—*
Borkar, Shekhar, 5,063,308, Cl. 307-443.000.

Intellect Electronics Ltd.: *See—*
Edwards, Jeffery D., 5,063,306, Cl. 307-308.000.

Intelligent Surgical Lasers, Inc.: *See—*
Bille, Josef F., 5,062,702, Cl. 351-212.000.

Intellisystems, Inc.: *See—*
Winters, Ralph A., 5,063,522, Cl. 395-51.000.

Intermedics Orthopedics, Inc.: *See—*
Dorr, Lawrence D.; Burkinshaw, Brian D.; and Skraba, Joseph S., 5,062,852, Cl. 623-20.000.

International Business Machines Corporation: *See—*
Akrout, Chekib; Coppens, Pierre; Gautier, Yves; and Urena, Pierre-Yves, 5,063,537, Cl. 365-96.000.
Astheimer, Hans; Brumme, Helma; Heck, Werner; Kissel, Klaus; and Schuy, Hubert, 5,063,464, Cl. 360-104.000.
Balan, Albert L., 5,063,475, Cl. 361-384.000.
Barzilai, Tsipora P.; Chen, Mon-Song; Kadaba, Bharath K.; and Kaplan, Marc A., 5,063,562, Cl. 370-94.100.
Brockwell, John C.; and Collins, Edward J., 5,063,506, Cl. 364-402.000.
Dayan, Richard A.; Geisler, Douglas R.; Kinnear, Scott G.; Macon, James F., Jr.; and Schwartz, William H., 5,063,496, Cl. 395-700.000.
Edmonson, David A.; Ivett, Peter R.; Johnson, Kenneth E.; Mirzamaani, Seyyed M. T.; and Ward, James F., Jr., 5,063,120, Cl. 428-694.000.
Gasser, Marcel; and Latta, Ernst E., 5,063,173, Cl. 437-129.000.
Goetz, Frederick E.; Miller, Michael S.; and Shelton, Homer, Jr., 5,062,671, Cl. 292-175.000.

VOL
1132
ISS
1
NO
5
1991
UMI

Herman, Philip A.; and McCarthy, William F., 5,063,362, Cl. 333-12.000.
Howard, James K., 5,062,938, Cl. 204-192.200.
Huang, Wu-Song; Khandros, Igor Y.; Saraf, Ravi; and Shi, Leathen, 5,062,896, Cl. 106-287.190.
Kallmeyer, Michael; and Wagner, Dietmar, 5,063,300, Cl. 250-561.000.
MacPhail, Margaret G., 5,063,495, Cl. 395-650.000.
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.
Shorter, David U., 5,063,500, Cl. 395-200.000.

International Composites Corporation: *See—*
Thompson, William L., 5,062,193, Cl. 29-426.600.

International Paper Company: *See—*
Harmon, Thomas D.; and Morrison, Kenneth G., 5,062,582, Cl. 242-56.400.

InterVentional Technologies, Inc.: *See—*
Gomringer, Gary G., 5,062,648, Cl. 277-112.000.

Intevep, S.A.: *See—*
Chacin U., Jesus E.; and Vadasz F., Amnon M., 5,062,480, Cl. 166-108.000.
Vadasz F., Amnon M.; and Chacin U., Jesus E., 5,062,451, Cl. 137-533.170.

Inui, Toshiharu: *See—*
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.

Inui, Tsutomu: *See—*
Matsumoto, Shunichiro; Inui, Tsutomu; Ichiyasu, Rokuo; and Chiba, Yoshitaka, 5,062,885, Cl. 75-255.000.

Ironside, John M.: *See—*
Scotson, Peter G.; and Ironside, John M., 5,062,404, Cl. 123-399.000.

Isao, Onuki: *See—*
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.

Isayama, Katsuhiko: *See—*
Yukimoto, Sadao; Hirose, Toshifumi; Wakabayashi, Hiroshi; and Isayama, Katsuhiko, 5,063,270, Cl. 524-306.000.

Isen, Robert R.: *See—*
Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., 5,062,716, Cl. 383-9.000.

Ishibashi, Kiyotaka: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Ishida, Jun'ichi: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Ishida, Toshio; Ushimaru, Akira; and Nishikawa, Yasuo, to Fuji Photo Film Co., Ltd. Magnetic recording medium comprising a fluorine contsining oligomer surfactant in or on the magnetic layer. 5,063,119, Cl. 428-694.000.

Ishiguro, Atsushi: *See—*
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.

Ishii, Kazuo: *See—*
Kato, Eiichi; and Ishii, Kazuo, 5,063,130, Cl. 439-96.000.

Ishii, Yoshiki: *See—*
Fukuzawa, Keiichi; and Ishii, Yoshiki, 5,063,470, Cl. 360-137.000.

Ishikawa Gasket Co., Ltd.: *See—*
Udagawa, Tsunekazu, 5,062,649, Cl. 277-235.00B.

Ishikawa, Hisashi; Kozuki, Susumu; Takahashi, Koji; and Yoshimura, Katsuji, to Canon Kabushiki Kaisha. Wide-band video signal recording apparatus by using frequency interleave. 5,063,457, Cl. 358-330.000.

Ishikawa, Masao: *See—*
Kuse, Satoru; Ishikawa, Masao; Koboshi, Shigeharu; Ishikawa, Minoru; and Yagi, Toshihiko, 5,063,140, Cl. 430-393.000.

Ishikawa, Minoru: *See—*
Kuse, Satoru; Ishikawa, Masao; Koboshi, Shigeharu; Ishikawa, Minoru; and Yagi, Toshihiko, 5,063,140, Cl. 430-393.000.

Ishikawa, Tadashi, to Kabushiki Kaisha Toshiba. Method of adding-/subtracting floating-point representation data and apparatus for the same. 5,063,530, Cl. 364-748.000.

Ishikawa, Takatoshi, to Fuji Photo Film Co., Ltd. Process for processing silver halide color photographic materials. 5,063,142, Cl. 430-400.000.

Ishikawa, Yasuhiro: *See—*
Sakamoto, Katsuhiko; Kawaguchi, Akira; and Ishikawa, Yasuhiro, 5,062,809, Cl. 439-581.000.

Ishizuka, Tatsuro: *See—*
Watanabe, Takashi; and Ishizuka, Tatsuro, 5,063,320, Cl. 310-270.000.

Ishizuka, Tazuko: *See—*
Marui, Masatoshi; Inage, Tomonori; Matsui, Yuji; and Ishizuka, Tazuko, 5,062,692, Cl. 359-45.000.

Isied, Stephan S.: *See—*
Kuehn, Christa G.; Rossi, Debra J.; and Isied, Stephan S., 5,063,151, Cl. 435-7.330.

Isoda, Chuzo: *See—*
Fujita, Takeshi; Isoda, Chuzo; and Aketa, Kazuyo, 5,062,986, Cl. 252-134.000.

Isono, Kunihiro: *See—*
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Itabashi, Akihisa, to Ricoh Company, Ltd. fθ Lens system in optical scanner. 5,062,679, Cl. 359-206.000.

Itak, Jeanne: *See—*
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Ito Corporation: *See—*
Ito, Tatsuharu, 5,063,025, Cl. 422-100.000.

Ito, Kazuhiko: *See—*
Goto, Atsuo; Okumura, Fumio; and Ito, Kazuhiko, 5,063,197, Cl. 503-209.000.

Ito, Kazuo: *See—*
Yamada, Yoshimi; Ito, Kazuo; and Tanimoto, Hideo, 5,063,508, Cl. 364-419.000.

Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, to Mitsubishi Denki Kabushiki Kaisha. Optic disc with servo pattern and apparatus for accessing the optical disc. 5,063,546, Cl. 369-32.000.

Ito, Saburo, to Sanshin Kogyo Kabushiki Kaisha. Vessel running information display control system. 5,063,381, Cl. 340-984.000.

Ito, Tatsuharu, to Ito Corporation. Analytical microsyringe with a superelastic plunger. 5,063,025, Cl. 422-100.000.

Ito, Yoshitoshi: *See—*
Kambara, Hideki; Nishikawa, Tetsuo; Sumitani, Tomoaki; Nagai, Keiichi; and Ito, Yoshitoshi, 5,062,942, Cl. 204-299.00R.

ITT Corporation: *See—*
Grunwald, Henry C., 5,063,324, Cl. 313-346.0DC.

ITW Plastiglide: *See—*
Johnson, John I., 5,063,274, Cl. 174-158.00F.

Ivankovits, John C.: *See—*
Ellison, Thomas L.; Roberts, David A.; Ivankovits, John C.; and Norman, John A. T., 5,062,902, Cl. 148-23.000.

Iverson, Robert A.: *See—*
Engel, Timothy S.; and Iverson, Robert A., 5,062,633, Cl. 272-132.000.

Ivett, Peter R.: *See—*
Edmonson, David A.; Ivett, Peter R.; Johnson, Kenneth E.; Mirzamaani, Seyyed M. T.; and Ward, James F., Jr., 5,063,120, Cl. 428-694.000.

Iwadate, Yuichi: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Iwamoto, Yoshiaki: *See—*
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Makekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, 5,063,147, Cl. 430-523.000.

Iwasaki, Satoshi, to Minolta Camera Kabushiki Kaisha. Zoom lens system for use in a microfilm projection apparatus. 5,062,695, Cl. 359-689.000.

Iwata, Toshio, to Mitsubishi Denki K.K. Apparatus for detecting pressure in cylinder of internal combustion engine. 5,062,294, Cl. 73-115.000.

IXYS Corporation: *See—*
Zommer, Nathan, 5,063,307, Cl. 307-310.000.

Iyengar, Narasimhan, to Texas Instruments Incorporated. Integrated circuit with improved on-chip power supply control. 5,063,304, Cl. 307-296.600.

Izaki, Masataka: *See—*
Oshima, Mitsuaki; Izaki, Masataka; Kajino, Jirou; Igarashi, Yoshiaki; and Mitani, Hiroshi, 5,062,696, Cl. 359-554.000.

Izawa, Tatsuo: *See—*
Imamura, Saburo; and Izawa, Tatsuo, 5,062,680, Cl. 385-131.000.

Izumi, Tetsuji: *See—*
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Izumi, Yoshinori: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

J. I. Case Company: *See—*
Lykken, Thomas G.; and Kemper, Philip T., 5,062,316, Cl. 74-529.000.

J. M. Voith GmbH: *See—*
Ortner, Herbert; and Pfalzer, Lothar, 5,062,964, Cl. 210-740.000.

Jacob, Peter G.: *See—*
Barrow, Ross; Elias, Martin C.; Lyons, Peter R. A.; Jacob, Peter G.; and Rashleigh, Scott C., 5,062,686, Cl. 385-33.000.

Jacobowitz, Judah L.: *See—*
Humble, John D.; Searles, Raymond C.; Ruggles, John D.; and Jacobowitz, Judah L., 5,063,028, Cl. 422-144.000.

Jacobs, Craig W.; and Filion, Joseph L., to Xerox Corporation. Programming conflict identification system for reproduction machines. 5,063,535, Cl. 395-575.000.

Jacobs, Howard S., to Nordisk Gentofte A/S. Process for treating infertility. 5,063,204, Cl. 514-8.000.

Jacobs, Theodora H.: *See—*
Buschow, Kurt H. J.; de Mooij, Dirk B.; and Jacobs, Theodora H., 5,062,907, Cl. 148-301.000.

Jade Systems, Inc.: *See—*
Eaton, David K., 5,062,310, Cl. 73-866.500.

Jaeger, Marc J., to University of Florida. Heat transfer system without mass transfer. 5,062,471, Cl. 165-8.000.

Jaen-Guardia, Ernest, Jr.: *See—*
Dau, William S.; and Jaen-Guardia, Ernest, Jr., 5,062,631, Cl. 272-123.000.

Jaffray, Ian; and Bronskill, John F., to Imageware Research and Development Inc. Apparatus and method for transforming a digitized signal of an image. 5,063,448, Cl. 358-160.000.

Jaggard, Dwight L.; and Engheta, Nader, to University of Penn., The Trustees of the. Method of measuring chiral parameters of a chiral material. 5,063,391, Cl. 343-703.000.

Jain, Mahendra K.: *See—*
Glassner, David A.; Jain, Mahendra K.; and Datta, Rathin, 5,063,156, Cl. 435-150.000.

Jakub, Beatrice. Patient's hospital gown. 5,062,159, Cl. 2-114.000.

James, James A.: *See—*
Berglund, Andrew; James, James A.; and Easley, James B., 5,062,816, Cl. 440-101.000.

James, Paul; Kuemmel, Theodore J.; Wurm, Michael G.; Banach, James D.; and Fulton, David, to LaBelle Industries, Inc. Method and apparatus for monitoring personal core temperature. 5,062,432, Cl. 128-736.000.

Jamet, Daniel; and Guiberteau, Christian, to ALCATEL CIT. Metal housing for an electrical connector. 5,062,804, Cl. 439-394.000.

Jamison, Russell D.; Brumfield, David; and Treharne, Richard, to Smith & Nephew Richards Inc. Method and apparatus for the fixation of bone fractures, limb lengthening and the correction of deformities. 5,062,844, Cl. 606-54.000.

Jamous, Saad A.; Sarnowsky, Melvin J.; and Heck, Karl R., to Ford Motor Company. Smart power driver system for a motor vehicle. 5,063,516, Cl. 364-431.110.

Janke, Lance N.: *See—*
Rudnick, Alan S.; and Janke, Lance N., 5,062,526, Cl. 206-6.100.

Janome Sewing Machine Co. Ltd.: *See—*
Orii, Akira; and Watanabe, Haruhisa, 5,063,339, Cl. 318-696.000.

Jansen, Frank; and Chen, Inan, to Xerox Corporation. Variable-thickness imaging members. 5,063,397, Cl. 346-153.100.

Jansen, Halbe A., to Grasso's Koninklijke Machinefabrieken N.V. Process and apparatus for recovering a pure substance from a liquid mixture by crystallization. 5,062,862, Cl. 23-295.00R.

Japan Aviation Electronics Industry, Limited: *See—*
Ohno, Akira; Muraoka, Kunihiko; and Nakazato, Wataru, 5,062,806, Cl. 439-490.000.
Okada, Kenichi; Nishino, Masashi; and Tanigawa, Shu, 5,062,710, Cl. 356-350.000.

Japan Tobacco Inc.: *See—*
Chuman, Tatsuji; and Ono, Mikio, 5,063,058, Cl. 424-405.000.
Sagawa, Takayoshi; Tani, Shichisei; and Kato, Katsuo, 5,062,522, Cl. 198-400.000.

Jarrett, Paul: *See—*
Burges, Denis H.; and Jarrett, Paul, 5,063,055, Cl. 424-93.000.

Jasinski, Joseph E.; Lingle, Charles H.; Pollitt, Richard F.; and Shuman, David W., to Lexmark International, Inc. Combined mouse and trackball. 5,063,289, Cl. 250-221.000.

Jaspers, Martinus J.: *See—*
Horikx, Cornelis M.; and Jaspers, Martinus J., 5,062,920, Cl. 156-380.400.

Jay, Eric C.; and Nordquist, Michael H., to Jay Medical, Ltd. Wheelchair back system. 5,062,677, Cl. 297-444.000.

Jay Medical, Ltd.: *See—*
Jay, Eric C.; and Nordquist, Michael H., 5,062,677, Cl. 297-444.000.

Jenkins, Robert A. Container recycling apparatus. 5,062,540, Cl. 220-23.830.

Jenkins, Robert H., Jr.: *See—*
Migdal, Cyril A.; and Jenkins, Robert H., Jr., 5,062,980, Cl. 252-51.50A.

Jensen, Jon: *See—*
Dalebout, William T.; and Jensen, Jon, 5,062,626, Cl. 272-69.000.

Jensen, Thomas H., to PPG Industries, Inc. Method and apparatus for forming round glass fibers. 5,062,876, Cl. 65-1.000.

Jewell, Tanya E.; and Rodgers, J. Michael. to AT&T Bell Laboratories. Apparatus for semiconductor lithography. 5,063,586, Cl. 378-34.000.

Jeyarajan, Arunachalam: *See—*
Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., 5,062,468, Cl. 164-122.200.
Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., 5,062,469, Cl. 164-122.200.

Jidosha Denki Kogyo K.K.: *See—*
Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, 5,062,312, Cl. 74-89.140.

Jidosha Kiki Co., Ltd.: *See—*
Gotoh, Hiroya; and Kobayashi, Kazuo, 5,062,348, Cl. 91-369.200.

Jin, Guo Quan: *See—*
Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, 5,063,195, Cl. 502-341.000.

Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, to China Petrochemical Corporation; and Beijing China Research Institute of Beijing Yanshan Petrochemical Corporation. High efficiency silver catalyst for the production of ethylene oxide via ethylene oxidation. 5,063,195, Cl. 502-341.000.

Jitsukawa, Masaharu: *See—*
Nishimoto, Akihiko; Hosoya, Yoshihiro; Tomita, Kunikazu; Urabe, Toshiaki; and Jitsukawa, Masaharu, 5,062,906, Cl. 148-111.000.

JMK International, Inc.: *See—*
Gibbon, Robert M., 5,063,012, Cl. 264-129.000.

Jodoin, Dominique, to Telefonaktiebolaget L M Ericsson. Toll ticketing record generation for billing of intersystem handoff calls in a mobile telephone system. 5,063,591, Cl. 379-115.000.

Johenning, John B., to Strata Flotation, Inc. Waterbed mattress and corner structure with tethered insert. 5,062,170, Cl. 5-450.000.

John D. Brush & Co., Inc.: *See—*
Legge, Richard C.; and Arp, George F., 5,063,094, Cl. 428-35.700.

Johnson, Bartley C.: *See—*
Chandrasekhar, S.; and Johnson, Bartley C., 5,063,426, Cl. 357-30.000.

Johnson, Brian Keith A.: *See—*
Patsiokas, Stelios J.; Johnson, Brian Keith A.; and Audet, Pierre E., 5,063,588, Cl. 379-57.000.

Johnson, Douglas C.: *See—*
Shekleton, Jack R.; and Johnson, Douglas C., 5,062,262, Cl. 60-39.360.

Johnson, Gary E.; and Eckert, Richard M., to Strippit, Inc. Indexable multi-tool for punch press. 5,062,337, Cl. 83-552.000.

Johnson, Gerald E.: *See—*
Nguyen, Dat; Sansevero, Frank; Johnson, Gerald E.; and Rivera, James A., 5,062,520, Cl. 198-335.000.

Johnson, Gregory K., to Innova Products, Inc. Adjustable shoe covering. 5,062,223, Cl. 36-7.10R.

Johnson, Jerry E., to Harrisburg, Inc. Valve member and method of making such a member. 5,062,452, Cl. 137-533.250.

Johnson, John I., to ITW Plastiglide. Electric fence insulator. 5,063,274, Cl. 174-158.00F.

Johnson & Johnson Medical, Inc.: *See—*
Dillon, John, Jr., 5,062,160, Cl. 2-114.000.
Dyer, John; Mathews, Grace; and Major, Matthew M., 5,062,418, Cl. 128-156.000.

Johnson, Kenneth E.: *See—*
Edmonson, David A.; Ivett, Peter R.; Johnson, Kenneth E.; Mirzamaani, Seyyed M. T.; and Ward, James F., Jr., 5,063,120, Cl. 428-694.000.

Johnson, Kevin M.: *See—*
Zeman, Robert E.; and Johnson, Kevin M., 5,063,399, Cl. 346-160.100.

Johnson, Leopold J.; and Hammond, Russell E., to United States of America, Navy. Main and auxiliary transformer rectifier system for minimizing line harmonics. 5,063,487, Cl. 363-3.000.

Johnson Pump AB: *See—*
Carlsson, Ulf, 5,062,777, Cl. 418-104.000.

Johnston, Grant A.: *See—*
Suckling, Colin J.; Halling, Peter J.; Johnston, Grant A.; and Brown, Linda, 5,063,149, Cl. 435-4.000.

Jolles, Pierre: *See—*
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

Jones, Joel W.; and Eldracher, John, to Tri-Way Machine Ltd. Transfer apparatus for moving pallets using hydraulic lift. 5,062,188, Cl. 29-33.00P.

Jones, Richard L., to Conoco Inc. Hot melt wax compositions. 5,063,271, Cl. 524-351.000.

Jones, Winton D.: *See—*
Sunkara, Sai P.; and Jones, Winton D., 5,063,238, Cl. 514-340.000.

Jordan, John D., Jr., to AT&T Bell Laboratories. Information control system for selectively transferring a tree lock from a parent node to a child node thereby freeing other nodes for concurrent access. 5,063,501, Cl. 395-725.000.

Jordan, John D., Jr., to AT&T Bell Laborabories. Information control system for counting lock application against composite information infrastructure. 5,063,502, Cl. 395-725.000.

Jordan, John D., Jr., to AT&T Bell Laboratories. Information control system for selectively locking an entity with requested intermediate reserve exclusive and share locks. 5,063,503, Cl. 395-725.000.

Jordan, John D., Jr., to AT&T Bell Laboratories. Information control system for reserve locking infrastructure nodes for subsequent exclusive and share locking by the system. 5,063,504, Cl. 395-725.000.

Joshi, Shrikant M., to General Motors Corporation. Oil cooler. 5,062,474, Cl. 165-109.100.

Joshi, Shrikant M.: *See—*
Ryan, Richard P.; Shaffer, Glenn W.; Halstead, Gary A.; Smith, David M.; and Joshi, Shrikant M., 5,062,476, Cl. 165-173.000.

Jouquey, Simone: *See—*
Clemence, Francois; Frechet, Daniel; Hamon, Gilles; and Jouquey, Simone, 5,063,225, Cl. 514-211.000.

Jowett, Peter. Raney catalyst composition. 5,063,189, Cl. 502-150.000.

Juki Corporation: *See—*
Kichizo, Maeno; Arai, Junpei; and Aso, Hideo, 5,062,373, Cl. 112-113.000.

VOL
1132
ISS
1
NO
5
1991
UMI

Junier, Marius R., to Triten Corporation. Water cooled gate valve. 5,062,445, Cl. 137-340.000.
Jupiter Telescope Co., Inc.: *See*—
d'Autume, Georges, 5,062,699, Cl. 359-430.000.
Jurgens, Gunter; Surig, Udo; and Lang, Lothar, to Daimler-Benz AG. Process for the adaptive control of an internal-combustion engine and/or another drive component of a motor vehicle. 5,063,510, Cl. 364-424.100.
Jursich, Gregory M.: *See*—
Leondaridis, Paul S.; Von Drasek, William A.; and Jursich, Gregory M., 5,063,035, Cl. 423-241.000.
K. J. Manufacturing: *See*—
Bedi, Ram D.; and van der Griendt, Adrianus J., 5,062,398, Cl. 123-196.00R.
Kabelsky, Mikhail, to Bartizan Corporation. Credit card imprinter with one-piece slider. 5,062,361, Cl. 101-269.000.
Kabushiki Kaisha Asahi Denshi Kenkyujyo: *See*—
Wakura, Shinji, 5,063,380, Cl. 340-825.540.
Kabushiki Kaisha Kobe Seiko Sho: *See*—
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.
Yoshimatsu, Hideaki, 5,062,266, Cl. 60-466.000.
Kabushiki Kaisha Tominaga Jyushi Kobyosho: *See*—
Tominaga, Kazutoshi, 5,062,951, Cl. 210-169.000.
Kabushiki Kaisha Toshiba: *See*—
Emoto, Takao, 5,063,434, Cl. 357-72.000.
Fujioka, Masahiko, 5,063,465, Cl. 360-104.000.
Hattori, Hitoshi; Sakata, Hirotsugu; Hayano, Makoto; Okuda, Masayuki; and Morozumi, Naoya, 5,062,778, Cl. 418-220.000.
Hirahara, Ziro; and Abe, Akihito, 5,063,498, Cl. 395-425.000.
Horiguchi, Rumiko; Hayase, Shuzi; and Onishi, Yasunobu, 5,063,134, Cl. 430-192.000.
Ishikawa, Tadashi, 5,063,530, Cl. 364-748.000.
Kishimoto, Hitoshi, 5,062,592, Cl. 244-164.000.
Kuhara, Shigehide; and Satoh, Kozo, 5,063,348, Cl. 324-307.000.
Matsuo, Kenji; Nonaka, Tadashi; and Tsuchiya, Ikuo, 5,063,433, Cl. 357-71.000.
Mori, Shojiro, 5,063,430, Cl. 357-45.000.
Nagato, Hitoshi, 5,063,394, Cl. 346-76.0PH.
Ohashi, Takayoshi, 5,063,565, Cl. 371-40.200.
Ohshima, Yohichi, 5,063,431, Cl. 357-54.000.
Okazaki, Kiyoshi, 5,062,412, Cl. 128-24.0EL.
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, 5,062,271, Cl. 62-55.500.
Sakuta, Shigeru; and Ueda, Katsunobu, 5,062,712, Cl. 356-400.000.
Sato, Hideki; Mizunoya, Nobuyuki; Asai, Hironori; Anzai, Kazuo; and Hatano, Tsuyoshi, 5,063,121, Cl. 428-698.000.
Sato, Mitsuo, 5,063,031, Cl. 422-245.000.
Seo, Yasutsugu; and Sugawara, Motoaki, 5,062,427, Cl. 128-661.100.
Shibata, Hidenori; Inoue, Ikuko; and Harada, Nozomu, 5,063,449, Cl. 358-213.110.
Sugiyama, Akiyoshi, 5,062,278, Cl. 62-230.000.
Sunada, Satoru, 5,063,284, Cl. 219-497.000.
Uehara, Shouji, 5,063,594, Cl. 380-15.000.
Yamamuro, Mikio, 5,063,549, Cl. 369-44.280.
Yamashita, Hiroshi; and Doi, Akihiko, 5,063,548, Cl. 369-44.140.
Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Gotoh, Shigeyuki; Yokota, Kazunori; and Suzuki, Isao, 5,062,306, Cl. 73-862.330.
Okamoto, Tsukasa; and Ohta, Shuji, 5,062,494, Cl. 180-132.000.
Kabushiki Kaisha Toyoda Jidoshokku Seisakusho: *See*—
Kawai, Katsunori; Ikeda, Hayato; Yokomachi, Naoya; and Kawai, Toshihiro, 5,062,773, Cl. 417-269.000.
Kabushiki Kaisha Toyota Chuo Kenkyusho: *See*—
Mimura, Nobuharu, 5,062,673, Cl. 294-111.000.
Kabushikigaisha Toyo Seisakusho: *See*—
Kawashima, Ichiro; Seki, Mitsuo; and Hirano, Isao, 5,062,279, Cl. 62-235.000.
Kadaba, Bharath K.: *See*—
Barzilai, Tsipora P.; Chen, Mon-Song; Kadaba, Bharath K.; and Kaplan, Marc A., 5,063,562, Cl. 370-94.100.
Kadle, Prasad S., to General Motors Corporation. High efficiency heat exchanger with divider rib leak paths. 5,062,477, Cl. 165-174.000.
Kadokura, Kenzi: *See*—
Sugita, Shuichi; Mizukura, Noboru; Kohno, Junichi; Kadokura, Kenzi; and Tomotake, Atsushi, 5,063,148, Cl. 430-551.000.
Kaempf, Karl: *See*—
Zahner, Paul; and Kaempf, Karl, 5,062,547, Cl. 222-144.500.
Kagawa, Koichi; Yu, Chung-Li; Kaku, Shinkyo; and Menon, Vinod, to Advanced Micro Devices, Inc. Bit map rotation processor. 5,063,526, Cl. 395-155.000.
Kageyama, Shubei; Kageyama, Toshihiko; Nakazato, Youichi; and Mitsuya, Yoshihide, to Kotobuki & Co., Ltd. Writing tool. 5,062,727, Cl. 401-52.000.
Kageyama, Toshihiko: *See*—
Kageyama, Shubei; Kageyama, Toshihiko; Nakazato, Youichi; and Mitsuya, Yoshihide, 5,062,727, Cl. 401-52.000.
Kahn, Marvin L.; and O'Mahony, John S., to Rich Products Corporation. Low fat low cholesterol milk products. 5,063,074, Cl. 426-585.000.
Kaida, Masaaki, to Bridgestone Corporation. Yarn winder. 5,062,578, Cl. 242-3.000.
Kajimoto, Masashi: *See*—
Kubo, Tsutomu; Terao, Kazuo; Yamamuro, Takashi; Kajimoto, Masashi; and Tsukagoshi, Kazuhiko, 5,063,133, Cl. 430-122.000.
Kajino, Jirou: *See*—
Oshima, Mitsuaki; Izaki, Masataka; Kajino, Jirou; Igarashi, Yoshiaki; and Mitani, Hiroshi, 5,062,696, Cl. 359-554.000.
Kajita, Yusuke: *See*—
Tanaka, Hideaki; Hirata, Toichi; Sugiyama, Genroku; Haga, Masakazu; and Kajita, Yusuke, 5,062,350, Cl. 91-448.000.
Kakimoto, Toshihiko; and Murakami, Takuya, to Nissan Motor Company, Limited. Bush assembly. 5,062,654, Cl. 280-673.000.
Kaku, Shinkyo: *See*—
Kagawa, Koichi; Yu, Chung-Li; Kaku, Shinkyo; and Menon, Vinod. 5,063,526, Cl. 395-155.000.
Kakuta, Yoshio: *See*—
Kamanaka, Ryusuke; and Kakuta, Yoshio, 5,062,409, Cl. 126-99.00R.
Kalb, Martin: *See*—
Wieland, Dietrich; Kalb, Martin; Grupp, Werner; and Nothofer, Michael, 5,062,743, Cl. 408-6.000.
Kalenowsky, John A., to Motorola, Inc. Capacitive power supply having charge equalization circuit. 5,063,340, Cl. 320-1.000.
Kallmeyer, Michael; and Wagner, Dietmar, to International Business Machines Corporation. Method and apparatus for determining line centers in a microminiature element. 5,063,300, Cl. 250-561.000.
Kamanaka, Ryusuke; and Kakuta, Yoshio, to Nepon Company, Ltd. Hot-air furnace. 5,062,409, Cl. 126-99.00R.
Kamata, Eitaro, to Shoei Kako Kabushiki Kaisha. Shield plate-mounting structure in helmet. 5,062,162, Cl. 2-424.000.
Kamatani, Yoshiteru: *See*—
Miyoshi, Hiroshi; Kamatani, Yoshiteru; Ozue, Tadashi; Narahara, Tatsuya; and Ohsato, Kiyoshi, 5,063,555, Cl. 369-97.000.
Kambara, Hideki; Nishikawa, Tetsuo; Sumitani, Tomoaki; Nagai, Keiichi; and Ito, Yoshitoshi, to Hitachi, Ltd. Fluorescence detection type electrophoresis apparatus. 5,062,942, Cl. 204-299.00R.
Kamegai, Jun; and Arisawa, Masatoshi, to Kao Corporation. Detergent composition. 5,062,989, Cl. 252-174.170.
Kamiguchi, Masao: *See*—
Inaba, Yoshiharu; Naito, Hideo; Kamiguchi, Masao; Neko, Noriaki; and Sakakibara, Shinsuke, 5,062,784, Cl. 425-143.000.
Kamiji, Koichi: *See*—
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.
Kamimura, Katsuyoshi; Mine, Atsushi; and Hiwatashi, Yutaka, to Fuji Jukogyo Kabushiki Kaisha. Control unit of active suspension system of vehicle. 5,063,512, Cl. 364-424.050.
Kanba, Masaru; Inoue, Yasuo; Mukai, Sadayoshi; Kikkawa, Masanari; and Suga, Yasunori, to Nissin Electric Co., Ltd. Device for measuring gas dissolved in oil. 5,062,292, Cl. 73-19.010.
Kanda, Kunio: *See*—
Shioiri, Shigeo; and Kanda, Kunio, 5,063,493, Cl. 364-192.000.
Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Nambu, Toshiro; Kawaguchi, Hirotoshi; Furukawa, Hisao; and Kato, Yasushi, 5,063,114, Cl. 428-447.000.
Nomura, Takuji; Miki, Shogo; Sakauchi, Takashi; Sato, Yoshitaka; and Honma, Yuusuke, 5,062,981, Cl. 252-62.540.
Yukimoto, Sadao; Hirose, Toshifumi; Wakabayashi, Hiroshi; and Isayama, Katsuhiko, 5,063,270, Cl. 524-306.000.
Kaneko, Kiyoshi: *See*—
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.
Kaneko, Yukio: *See*—
Tomii, Hiroyasu; and Kaneko, Yukio, 5,062,730, Cl. 403-57.000.
Kaneko, Yutaka, to Ricoh Company, Ltd. Line image sensor with plural elements arranged at a predetermined pitch according to thermal expansion. 5,063,286, Cl. 250-208.100.
Kang, Mi Y.: *See*—
Lee, Won G.; and Kang, Mi Y., 5,063,176, Cl. 437-195.000.
Kannabiran, Rengan: *See*—
Cain, Michael B.; Desorcie, Robert B.; Kannabiran, Rengan; Kar, Gitimoy; and Urruti, Eric H., 5,062,685, Cl. 350-96.230.
Kao Corporation: *See*—
Kamegai, Jun; and Arisawa, Masatoshi, 5,062,989, Cl. 252-174.170.
Kaplan, David R.: *See*—
Miller, Brian S.; and Kaplan, David R., 5,062,203, Cl. 29-852.000.
Miller, Brian S.; and Kaplan, David R., 5,062,204, Cl. 29-852.000.
Kaplan, Marc A.: *See*—
Barzilai, Tsipora P.; Chen, Mon-Song; Kadaba, Bharath K.; and Kaplan, Marc A., 5,063,562, Cl. 370-94.100.
Kappas, Attallah; and Drummond, George S., to Rockefeller University, The. Method of controlling androstene levels in vivo with cobalt porphyrins. 5,063,223, Cl. 514-185.000.
Kar, Gitimoy: *See*—
Cain, Michael B.; Desorcie, Robert B.; Kannabiran, Rengan; Kar, Gitimoy; and Urruti, Eric H., 5,062,685, Cl. 350-96.230.

Karabin, Tadeusz; and Mundy, Roy E., to MAJCO Building Specialties, L.P. Low pressure drop fireplace heat exchanger. 5,062,411, Cl. 126-523.000.
Karl Lautenschlager GmbH & Co. KG: *See*—
Lautenschlager, Karl, Jr., 5,062,180, Cl. 16-257.000.
Karlsson, Roger S. Device at a filter hose. 5,062,873, Cl. 55-302.000.
Karol, Thomas J., to R. T. Vanderbilt Company, Inc. Fuel compositions containing polyalkylated 1,3,4-thiadiazoles. 5,062,863, Cl. 44-341.000.
Kaseda, Masayuki: *See*—
Miwa, Hiroshi; Miyoshi, Atuko; Satou, Syungi; and Kaseda, Masayuki, 5,063,528, Cl. 364-559.000.
Kaser, Peter: *See*—
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,063,007, Cl. 264-44.000.
Kashida, Motokazu: *See*—
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, 5,063,453, Cl. 360-32.000.
Katagiri, Shoichi: *See*—
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.
Katahara, Keith W.: *See*—
Petermann, Steven G.; Katahara, Keith W.; and Wolcott, Herbert A., II, 5,063,542, Cl. 367-166.000.
Katakura, Kageyoshi: *See*—
Kondo, Shin-ichi; Katakura, Kageyoshi; and Ikeda, Hiroshi, 5,063,541, Cl. 367-7.000.
Katano, Tatsuya: *See*—
Murai, Hiroaki; Katano, Tatsuya; and Kikuchi, Shigeki, 5,063,398, Cl. 346-157.000.
Kataoka, Kenichi; Nishimoto, Yoshifumi; and Igaki, Masahiko, to Canon Kabushiki Kaisha. Vibratory sheet feeder which uses phase adjustment to control the sheet feeding speed. 5,062,622, Cl. 271-270.000.
Kato, Eiichi; and Ishii, Kazuo, to Fuji Photo Film Co., Ltd. Electrophotographic light-sensitive material. 5,063,130, Cl. 439-96.000.
Kato, Katsuo: *See*—
Sagawa, Takayoshi; Tani, Shichisei; and Kato, Katsuo, 5,062,522, Cl. 198-400.000.
Kato, Takahiko: *See*—
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.
Kato, Yasushi: *See*—
Nambu, Toshiro; Kawaguchi, Hirotoshi; Furukawa, Hisao; and Kato, Yasushi, 5,063,114, Cl. 428-447.000.
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, to Mitsubishi Kasei Corporation. Carbon fiber-reinforced hydraulic composite material. 5,062,897, Cl. 106-696.000.
Katsura, Naotero: *See*—
Konno, Mitsuo; Noro, Hisashi; and Katsura, Naotero, 5,063,278, Cl. 219-86.100.
Katsuragi, Kohei; and Hiyama, Takayuki, to Nihon Chikasui Kaihatsu Kabushiki Kaisha. Snow melting method utilizing heat retaining function of underground aquifer without sprinkling water. 5,062,736, Cl. 404-72.000.
Katun Corporation: *See*—
Meagher, Brian R., 5,062,580, Cl. 242-125.200.
Kawada, Hitoshi: *See*—
Ohtsubo, Toshiro; Tsuda, Shigenori; Kawada, Hitoshi; Shinjo, Goro; and Tsuji, Kozo, 5,063,059, Cl. 424-408.000.
Kawaguchi, Akira: *See*—
Sakamoto, Katsuhiko; Kawaguchi, Akira; and Ishikawa, Yasuhiro, 5,062,809, Cl. 439-581.000.
Kawaguchi, Hiroshi: *See*—
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.
Kawaguchi, Hirotoshi: *See*—
Nambu, Toshiro; Kawaguchi, Hirotoshi; Furukawa, Hisao; and Kato, Yasushi, 5,063,114, Cl. 428-447.000.
Kawaguchi, Katsuhiko: *See*—
Nuita, Akira; and Kawaguchi, Katsuhiko, 5,063,395, Cl. 346-76.0PH.
Kawaguchi, Masaaki: *See*—
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.
Kawai, Katsunori; Ikeda, Hayato; Yokomachi, Naoya; and Kawai, Toshihiro, to Kabushiki Kaisha Toyoda Jidoshokku Seisakusho. Swash plate type refrigerant compressor with a separator of refrigerant gas and lubricant oil. 5,062,773, Cl. 417-269.000.
Kawai, Norio: *See*—
Yamada, Yasuhiko; Tomio, Minaki; Miyamae, Toshiyuki; and Kawai, Norio, 5,062,618, Cl. 267-140.400.
Kawai, Shigeru; and Kubota, Keiichi, to NEC Corporation. Optical neural net trainable in rapid time. 5,063,531, Cl. 395-25.000.
Kawai, Tatsundo: *See*—
Nakagawa, Katsumi; Kawai, Tatsundo; and Kuroda, Yasuo, 5,063,462, Cl. 358-475.000.
Kawai, Toshihiro: *See*—
Kawai, Katsunori; Ikeda, Hayato; Yokomachi, Naoya; and Kawai, Toshihiro, 5,062,773, Cl. 417-269.000.
Kawakami, Tetsuji: *See*—
Imai, Akihiro; Kawakami, Tetsuji; Matsuda, Hiromu; Yubakami, Keiichi; and Taguchi, Nobuyoshi, 5,063,198, Cl. 503-227.000.
Kawakita, Hiroaki: *See*—
Samejima, Kazuo; and Kawakita, Hiroaki, 5,062,258, Cl. 56-202.000.
Kawamura, Shigeyoshi: *See*—
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.
Kawashima, Ichiro; Seki, Mitsuo; and Hirano, Isao, to Kabushikigaisha Toyo Seisakusho; and Marubeni Kabushikigaisha. Artificial snowfall system. 5,062,279, Cl. 62-235.000.
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, to Kabushiki Kaisha Kobe Seiko Sho. Converged ion beam apparatus. 5,063,294, Cl. 250-309.000.
Kawazoe, Tetsu; and Iida, Tsukasa, to Mitsui Petrochemical Industries, Ltd. Mercury removal from liquid hydrocarbon compound. 5,062,948, Cl. 208-251.00R.
Kay Seven Co., Ltd.: *See*—
Tomii, Hiroyasu; and Kaneko, Yukio, 5,062,730, Cl. 403-57.000.
Kaylor, Jannette G.: *See*—
Kaylor, Joseph B., 5,062,996, Cl. 252-610.000.
Kaylor, Joseph B., to Kaylor, Jannette G. Methods and compositions for sorbing flammable liquids. 5,062,996, Cl. 252-610.000.
Kazda, Stanislav: *See*—
Schwenner, Eckhard; Stegelmeier, Hartmut; Kazda, Stanislav; and Knorr, Andreas, 5,063,239, Cl. 514-357.000.
Keate, Christopher R.: *See*—
Arbanas, Glenn A.; Thornock, Jeffery M.; and Keate, Christopher R., 5,063,577, Cl. 375-120.000.
Keilhack, Hans O. Textile fabric dryer and method. 5,062,220, Cl. 34-155.000.
Keillor, Peter T., III: *See*—
Farquharson, Stuart; and Keillor, Peter T., III, 5,062,713, Cl. 356-402.000.
Kellett, George W., to Creative Products Resource Associates, Ltd. Stearate-based dryer-added fabric modifier sheet. 5,062,973, Cl. 252-8.750.
Kelley, Wayne R.: *See*—
Aufderheide, Brian E.; Robrecht, Michael J.; and Kelley, Wayne R., 5,062,916, Cl. 156-269.000.
Kelly, John W., to Haskel, Inc. Apparatus for radially expanding and anchoring sleeves within tubes. 5,062,199, Cl. 29-727.000.
Kembo, Yukio: *See*—
Nakata, Toshihiko; and Kembo, Yukio, 5,062,715, Cl. 356-432.000.
Kemp, James R., to Advanced Graphics Technologies, Inc. Oscillating printing press roller having a plurality of separate annular pistons. 5,062,362, Cl. 101-348.000.
Kemp, Richard A., to Shell Oil Company. Sulfiding of hydrogel derived catalysts. 5,062,947, Cl. 208-216.00R.
Kemper, Philip T.: *See*—
Lykken, Thomas G.; and Kemper, Philip T., 5,062,316, Cl. 74-529.000.
Kendall Company, The: *See*—
Doheny, Anthony J., Jr., 5,063,005, Cl. 264-22.000.
Wendell, Amy M., 5,062,836, Cl. 604-167.000.
Kennedy, Christopher R.: *See*—
Dwivedi, Ratnesh K.; and Kennedy, Christopher R., 5,063,185, Cl. 501-126.000.
Kennedy, Clinton R.: *See*—
Apelian, Minas R.; and Kennedy, Clinton R., 5,062,943, Cl. 208-59.000.
Kennedy, Earl W.; Oexman, Robert D.; and Higgins, Larry, to Leggett & Platt, Incorporated. Clinical bed. 5,062,169, Cl. 5-449.000.
Kennedy, James L.: *See*—
Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., 5,062,366, Cl. 102-430.000.
Kennedy, Lawrence C.; and Lambert, Harvey J., to General Motors Corporation. Insulating retainer for a viscous fluid clutch. 5,062,514, Cl. 192-82.00T.
Kennedy, Michael R., to Aaxon Industrial, Inc. Method and apparatus for unloading mobile vacuum loaders. 5,062,868, Cl. 55-97.000.
Kephart, Alan R., to United States of America, Energy. Electrochemical polishing of thread fastener test specimens of nickel-chromium iron alloys. 5,062,931, Cl. 204-129.700.
Keri, Jozsef, to Akkumulator-Es Szarazelemgyar. Process for the preparation of active-mass of improved quality from active-mass wastes formed during the production of lead accumulators. 5,062,574, Cl. 241-22.000.
Kerr, David T.: *See*—
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.
Kerr, Harry D. Bedside toilet incorporating overhead hoist. 5,062,165, Cl. 4-480.000.

VOL
1132
ISS
1
NO
5
1991
UMI

Kersey, Alan D., to United States of America, Navy. All-optical fiber faraday rotation current sensor with heterodyne detection technique. 5,063,290, Cl. 250-227.170.

Kersten, Ralf T.: *See—*
Ackermann, Ulrich; Kersten, Ralf T.; Etzkorn, Heinz-Werner; Paquet, Volker; and Rutze, Uwe, 5,062,508, Cl. 118-723.000.

Keser, Helmut: *See—*
Gruning, Horst; and Keser, Helmut, 5,063,436, Cl. 357-79.000.

Keur, Robert I.: *See—*
Clark, James E.; and Keur, Robert I., 5,063,393, Cl. 346-75.000.

Keytec, Inc.: *See—*
Sun, Brian Y., 5,062,198, Cl. 29-622.000.

Khalid, Najeeb A.; Adams, Larry; Schwartz, Stan; and Wong, Jean, to Escher-Grad Incorporated. Motorized sheet film cartridge. 5,063,408, Cl. 355-72.000.

Khan, Farooq A., to Baroid Technology, Inc. Fluid economizer control valve system for blowout preventers. 5,062,349, Cl. 91-436.000.

Khandros, Igor Y.: *See—*
Huang, Wu-Song; Khandros, Igor Y.; Saraf, Ravi; and Shi, Leathen, 5,062,896, Cl. 106-287.190.

Kichizo, Maeno; Arai, Junpei; and Aso, Hideo, to Juki Corporation. Button transferring device. 5,062,373, Cl. 112-113.000.

Kidokoro, Naoto: *See—*
Kiyonari, Toshiyuki; Hirabayashi, Satoshi; Kidokoro, Naoto; and Takimoto, Futoshi, 5,063,137, Cl. 430-292.000.

Kiefer, Hansruedi, to Hoffmann-La Roche Inc. Process for isolating nucleic acids utilizing protease digestion. 5,063,162, Cl. 435-270.000.

Kiesewetter, Wolfgang: *See—*
Mutze, Ulrich; Quanz, Gerhard; Vuong, The A.; and Kiesewetter, Wolfgang, 5,063,460, Cl. 358-474.000.

Kiewning, Friedhelm: *See—*
Hogarth, Ian W.; and Kiewning, Friedhelm, 5,062,725, Cl. 400-195.000.

Kigami, Hiroyuki: *See—*
Tanita, Takeo; Kigami, Hiroyuki; and Azuma, Yusaku, 5,063,334, Cl. 318-568.100.

Kikkawa, Masanari: *See—*
Kanba, Masaru; Inoue, Yasuo; Mukai, Sadayoshi; Kikkawa, Masanari; and Suga, Yasunori, 5,062,292, Cl. 73-19.010.

Kikuchi, Shigeki: *See—*
Murai, Hiroaki; Katano, Tatsuya; and Kikuchi, Shigeki, 5,063,398, Cl. 346-157.000.

Kikuda, Shigeru; Miyamoto, Hiroshi; and Yamada, Michihiro, to Mitsubishi Denki Kabushiki Kaisha. Delay circuit employing different threshold FET's. 5,063,313, Cl. 307-605.000.

Kilham, Peter, to Droll Yankees, Inc. Bird feeder. 5,062,388, Cl. 119-52.200.

Killilea, Timothy R.; and Sattler, David W. Apparatus for cleaning cutting table support surface. 5,062,334, Cl. 83-99.000.

Kim, Ki-Joon, to SamSung Electronics Co., Ltd. Method for making an LED array. 5,063,420, Cl. 357-17.000.

Kim, Tae I.: *See—*
Lee, Jae S.; Kim, Tae I.; and Kim, Young S., 5,063,584, Cl. 379-29.000.

Kim, Young J.: *See—*
Lee, Chang H.; and Kim, Young J., 5,062,164, Cl. 4-194.000.

Kim, Young S.: *See—*
Lee, Jae S.; Kim, Tae I.; and Kim, Young S., 5,063,584, Cl. 379-29.000.

Kimberly-Clark Corp.: *See—*
Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., 5,062,716, Cl. 383-9.000.
Sasse, Philip A., 5,063,272, Cl. 524-377.000.

Kimmo, Selin, to Kone Elevator GmbH. Procedure and apparatus for transmitting binary messages in a serial communication bus. 5,063,561, Cl. 370-85.200.

Kimura, Makoto: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Kimura, Morio: *See—*
Wasimoto, Takasi; and Kimura, Morio, 5,062,818, Cl. 445-22.000.

Kindry, David A.: *See—*
Rye, Grover W.; Kindry, David A.; and Weber, Carolyn T., 5,062,462, Cl. 152-548.000.

Kinebuchi, Tatsuo: *See—*
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,982, Cl. 252-62.570.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,983, Cl. 252-62.570.

Kinetic Concepts, Inc.: *See—*
Vrzalik, John H., 5,062,171, Cl. 5-455.000.

King, Patrick D., to Flo-Con Systems, Inc. Cantilever spring mount for sliding gate valve and method. 5,062,553, Cl. 222-590.000.

Kingett, Betty M.; Kingett, Donald L., executor; and Kingett, III, executor Albert E. Horse tail cover and method. 5,062,256, Cl. 54-78.000.

Kingett, Donald L., executor: *See—*
Kingett, Betty M.; Kingett, Donald L., executor; and Kingett, III, executor Albert E., 5,062,256, Cl. 54-78.000.

Kingett, III, executor Albert E.: *See—*
Kingett, Betty M.; Kingett, Donald L., executor; and Kingett, III, executor Albert E., 5,062,256, Cl. 54-78.000.

Kinkade, Donald J., to Kinkade Family Partnership. Offset anatomical mouthpiece. 5,062,422, Cl. 128-207.140.

Kinkade Family Partnership: *See—*
Kinkade, Donald J., 5,062,422, Cl. 128-207.140.

Kinnear, Scott G.: *See—*
Dayan, Richard A.; Geisler, Douglas R.; Kinnear, Scott G.; Macon, James F., Jr.; and Schwartz, William H., 5,063,496, Cl. 395-700.000.

Kinoshita, Naoyoshi; and Kusumoto, Keiji, to Minolta Camera Kabushiki Kaisha. Image forming apparatus having a plurality of removable developing devices. 5,063,410, Cl. 355-204.000.

Kioritz Corporation: *See—*
Nagashima, Akira, 5,062,875, Cl. 55-493.000.

Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., to Mobil Oil Corp. Zeolite synthesis using an alcohol or like molecule. 5,063,038, Cl. 423-328.000.

Kishi, Masamichi: *See—*
Nakatani, Munehiro; Yamada, Hirokazu; and Kishi, Masamichi, 5,063,459, Cl. 358-404.000.

Kishida, Shigeru, to ODSK Company, Limited. Shank structure for annular hole cutter. 5,062,748, Cl. 408-206.000.

Kishimoto, Hitoshi, to Kabushiki Kaisha Toshiba. Orientation control apparatus for space vehicle. 5,062,592, Cl. 244-164.000.

Kishimoto, Juji, to Canon Kabusbiki Kaisha. Electronic translator capable of producing a sentence by using an entered word as a key word. 5,063,534, Cl. 364-419.000.

Kishimoto, Junichi: *See—*
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.

Kisman, Kenneth E.; and Russell, Boyd, to Alberta Oil Sands Technology and Research Authority. Treatment for reducing water coning in an oil reservoir. 5,062,483, Cl. 166-263.000.

Kisner, Howard A. Holder for detachably mounting a receptable on a ladder. 5,062,607, Cl. 248-211.000.

Kissel, Klaus: *See—*
Astheimer, Hans; Brumme, Helma; Heck, Werner; Kissel, Klaus; and Schuy, Hubert, 5,063,464, Cl. 360-104.000.

Kita, Masahiro: *See—*
Honda, Ryoji; Kita, Masahiro; and Negoro, Ikuo, 5,063,416, Cl. 355-316.000.

Kitabayashi, Shinichi, to Blaupunkt Werke GmbH. Theft-protected vehicular accessory apparatus, particularly car radio and audio equipment. 5,063,611, Cl. 455-348.000.

Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, to Somar Corporation; and Nippondenso Co., Ltd. Expandable powder coating composition, method of coating a substrate with heat-insulating foam and composite material obtained thereby. 5,063,095, Cl. 428-35.800.

Kitagawa, Katsuji: *See—*
Kubo, Masao; Miyake, Tetsuo; Matsuzaki, Kunimitsu; and Kitagawa, Katsuji, 5,062,284, Cl. 72-46.000.

Kitagawa, Nobuhiro; and Gotsugi, Sigeru. Noosing bear trap. 5,062,237, Cl. 43-86.000.

Kitagawa, Yoshinori: *See—*
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Kitahara, Satoshi: *See—*
Shiozaki, Tsugio; Kitahara, Satoshi; Koizumi, Osamu; and Sugiura, Ikuzo, 5,062,722, Cl. 400-120.000.

Kitamura, Koichiro, to Kitamura Machinery Co., Ltd. Pallet changer. 5,062,190, Cl. 29-33.00P.

Kitamura Machinery Co., Ltd.: *See—*
Kitamura, Koichiro, 5,062,190, Cl. 29-33.00P.

Kitayama, Ichiro: *See—*
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Kittaka, Kiyoshi: *See—*
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.

Kiyonari, Toshiyuki; Hirabayashi, Satoshi; Kidokoro, Naoto; and Takimoto, Futoshi, to Dainippon Ink and Chemicals, Inc. Laser-marking method and resin composition for laser-marking. 5,063,137, Cl. 430-292.000.

Klaus, Richard I.: *See—*
Tinder, Richard F.; and Klaus, Richard I., 5,063,536, Cl. 395-775.000.

Klein, Dennis H. Computer aided process for network analysis. 5,063,520, Cl. 364-512.000.

Klein, John: *See—*
Curreri, Victor; Klein, John; and Dubois, Janine, 5,063,518, Cl. 364-503.000.

Kleinhans, Josef, to Robert Bosch GmbH. Circuit arrangement with a flow probe operated in a bridge circuit. 5,063,352, Cl. 324-706.000.

Klemann, Lawrence P.; and Finley, John W., to Nabisco Brands, Inc. Processes for separation of sterol compounds from fluid mixtures using substantially insoluble compounds. 5,063,070, Cl. 426-271.000.

Klemann, Lawrence P.: *See—*
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., 5,063,075, Cl. 426-601.000.

Kliklok Corporation: *See—*
Bacon, Forrest C.; and Hadden, William A., 5,062,253, Cl. 53-451.000.

Klimczak, William J., to Dustex Corporation. Method of retrofitting a dust collecting apparatus. 5,062,867, Cl. 55-96.000.

Klimenok, Alexandra P.: *See—*
Bakirov, Murat B.; Getman, Alexandr F.; Gribov, Boris I.; Bordjugovsky, Andrei A.; and Klimenok, Alexandra P., 5,062,293, Cl. 73-81.000.

Kline, John F.: *See—*
Lewis, Thomas E.; Williams, Richard A.; Gardiner, John P.; and Kline, John F., 5,062,364, Cl. 101-467.000.

Klocke, Donald J.: *See—*
Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., 5,063,038, Cl. 423-328.000.

Klockner, Albrecht. Zigzag breakwater. 5,062,739, Cl. 405-21.000.

Kloster, John M., to Atwood Industries, Inc. Air diffuser for a motor vehicle. 5,062,351, Cl. 98-2.090.

Klug, Alan G.: *See—*
Sarnosky, Joseph R.; Wolbrink, David W.; Klug, Alan G.; and Behm, Gary E., 5,062,410, Cl. 126-299.00D.

Knapp, Gene P., Sr.: *See—*
Vale, Christopher R.; Dominick, Thomas S.; Via, William R.; and Knapp, Gene P., Sr., 5,063,358, Cl. 331-60.000.

Knauer, Scott C.; Netravali, Arun N.; Petajan, Eric D.; Safranek, Robert J.; and Westerink, Peter H., to AT&T Bell Laboratories. High definition television arrangement with signal selections adapted to the available transmission capacity. 5,063,444, Cl. 358-133.000.

Knorr, Andreas: *See—*
Schwenner, Eckhard; Stegelmeier, Hartmut; Kazda, Stanislav; and Knorr, Andreas, 5,063,239, Cl. 514-357.000.

Knurr-Mechanik fur die Elektronik Aktiengesellschaft: *See—*
Paggen, Wolfgang; and Neblich, Josef, 5,063,477, Cl. 361-384.000.

Kobari, Kouichi: *See—*
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.

Kobayashi, Akira: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Kobayashi, Hiromi: *See—*
Miura, Haruo; Fukushima, Yasuo; Nishida, Hideo; Kobayashi, Hiromi; and Takagi, Takeo, 5,062,766, Cl. 415-199.100.

Kobayashi, Kazuo: *See—*
Gotoh, Hiroya; and Kobayashi, Kazuo, 5,062,348, Cl. 91-369.200.
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.

Kobayashi, Noboru, to Yamaha Hatsudoki Kabushiki Kaisha. Shift control for small watercraft. 5,062,815, Cl. 440-41.000.

Kobayashi, Shigeo: *See—*
Takeshima, Akira; Asakura, Toshikazu; Takahashi, Akihiko; Kobayashi, Shigeo; and Hayashi, Shoichi, 5,062,491, Cl. 173-12.000.

Kober, Reiner: *See—*
Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, 5,062,879, Cl. 71-92.000.

Koboshi, Shigeharu: *See—*
Kuse, Satoru; Ishikawa, Masao; Koboshi, Shigeharu; Ishikawa, Minoru; and Yagi, Toshihiko, 5,063,140, Cl. 430-393.000.

Kochloefl, Karl: *See—*
Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., 5,063,187, Cl. 502-71.000.

Kocib, Vera M. Cover-up for infants. 5,062,168, Cl. 5-413.000.

Koehler, Dale R. Electrostatically actuatable light modulating device. 5,062,689, Cl. 359-230.000.

Koehlert, Kenneth C.: *See—*
Menashi, Jameel; and Koehlert, Kenneth C., 5,063,179, Cl. 501-12.000.

Koenig, Melissa M.; and Vukovich, William J., to General Motors Corporation. Control apparatus for regulating engagement of a fluid operated torque transmitting device. 5,062,321, Cl. 74-866.000.

Kohara, Teiji; Oshima, Masayoshi; and Natsuume, Tadao, to Nippon Zeon Co., Ltd. Optical disk. 5,063,096, Cl. 421-64.000.

Kohl, Gretchen S.; Giwa-Agbomeirele, Patricia A.; and Vincent, Judith M., to Dow Corning Corporation. Carboxy and carboxy-glycol ether and ester functional siloxane containing hair conditioners and shampoos. 5,063,044, Cl. 424-70.000.

Kohno, Hiroshi: *See—*
Sukekawa, Izumi; Asao, Haruhiko; Kohno, Hiroshi; Sugawara, Yukio; and Nogami, Keiji, 5,062,614, Cl. 266-216.000.

Kohno, Junichi: *See—*
Sugita, Shuichi; Mizukura, Noboru; Kohno, Junichi; Kadokura, Kenzi; and Tomotake, Atsushi, 5,063,148, Cl. 430-551.000.

Koizumi, Osamu: *See—*
Shiozaki, Tsugio; Kitahara, Satoshi; Koizumi, Osamu; and Sugiura, Ikuzo, 5,062,722, Cl. 400-120.000.

Kolesky, Eugene H. Construction square. 5,062,213, Cl. 33-479.000.

Komatsu, Fumiaki: *See—*
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.

Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, to SS Pharmaceutical Co., Ltd. Antiinflammatory dexamethasone 17α-cyclopropanecarboxylates with reduced systemic activity. 5,063,222, Cl. 514-180.000.

Komuro, Hirokazu, to Canon Kabushiki Kaisha. Process for preparing an ink jet head. 5,062,937, Cl. 204-192.150.

Kon, Richard H.: *See—*
Bobbowski, Louis G.; and Kon, Richard H., 5,062,181, Cl. 16-354.000.

Kondo, Hirokazu: *See—*
Toriuchi, Masaharu; and Kondo, Hirokazu, 5,063,135, Cl. 430-214.000.

Kondo, Isao: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Kondo, Katsumi: *See—*
Ozawa, Sinya; Kondo, Katsumi; and Saito, Kajin, 5,062,886, Cl. 75-371.000.

Kondo, Kazuo: *See—*
Tsuge, Kazuto; Hattori, Masateru; Kondo, Kazuo; and Shibata, Yoshimasa, 5,062,798, Cl. 433-201.100.

Kondo, Shin-ichi; Katakura, Kageyoshi; and Ikeda, Hiroshi, to Hitachi Medical Corp. Beam forming method and apparatus therefor in ultrasonic imaging system. 5,063,541, Cl. 367-7.000.

Kondo, Toshihito: *See—*
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Kondo, Tsuneshi: *See—*
Nagakura, Hodaka; and Kondo, Tsuneshi, 5,062,399, Cl. 123-198.00D.

Kondoh, Koichi: *See—*
Fukada, Hirotaka; Kondoh, Koichi; and Tsuchida, Tsuyoshi, 5,062,496, Cl. 180-291.000.

Kone Elevator GmbH: *See—*
Kimmo, Selin, 5,063,561, Cl. 370-85.200.

Konica Corporation: *See—*
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,063,411, Cl. 355-212.000.
Kuse, Satoru; Ishikawa, Masao; Koboshi, Shigeharu; Ishikawa, Minoru; and Yagi, Toshihiko, 5,063,140, Cl. 430-393.000.
Sugita, Shuichi; Mizukura, Noboru; Kohno, Junichi; Kadokura, Kenzi; and Tomotake, Atsushi, 5,063,148, Cl. 430-551.000.

Konig, Charles E., to United States of America, Army. Non-dispersive acoustic transport time delay beam steering antenna. 5,063,390, Cl. 342-375.000.

Konno, Mitsuo; Noro, Hisashi; and Katsura, Naotero, to Honda Giken Kogyo Kabushiki Kaisha. Method and apparatus for supplying electric power to resistance welding gun. 5,063,278, Cl. 219-86.100.

Konrad, Rainer: *See—*
Bauer, Peter; Konrad, Rainer; Morgenstern, Herbert; and Schuch, Horst, 5,063,016, Cl. 264-211.210.

Kopin Corporation: *See—*
Narayan, Jagdish, 5,063,202, Cl. 505-1.000.

Korabiak, Walter. Tremor-responsive shut-off valve. 5,062,440, Cl. 137-38.000.

Korea Telecommunications Authority: *See—*
Lee, Jae S.; Kim, Tae I.; and Kim, Young S., 5,063,584, Cl. 379-29.000.

Koshiishi, Takaho, to Ricoh Company, Ltd. Acoustic coupler and data transmission apparatus using the same. 5,063,590, Cl. 379-99.000.

Kosinski, Leonard E. R.: *See—*
Hayes, Richard A.; Kosinski, Leonard E. R.; and Wagman, Mark E., 5,063,263, Cl. 524-101.000.

Kosuga, Y.: *See—*
Takano, T.; Kosuga, Y.; and Sinzawa, K., 5,063,277, Cl. 200-531.000.

Kotobuki & Co., Ltd.: *See—*
Kageyama, Shubei; Kageyama, Toshihiko; Nakazato, Youichi; and Mitsuya, Yoshihide, 5,062,727, Cl. 401-52.000.

Koudsi, Antoine J.: *See—*
Al-Sioufi, Habib; and Koudsi, Antoine J., 5,062,837, Cl. 604-240.000.

Koumura, Noboru: *See—*
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.

Kox, Franciscus A. J. M., to U.S. Philips Corporation. Loading mechanism including a linkage mechanism, and recording and/or reproducing apparatus comprising such a loading mechanism. 5,063,463, Cl. 360-96.500.

Kozuki, Susumu: *See—*
Ishikawa, Hisashi; Kozuki, Susumu; Takahashi, Koji; and Yoshimura, Katsuji, 5,063,457, Cl. 358-330.000.

Kraft General Foods, Inc.: *See—*
Kratochvil, John F., 5,063,073, Cl. 426-573.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Krallmann, Reinhold: *See*—
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.

Kramer, David E.; Muetterties, Andrew J.; and Szempruch, Walter T., to Abbott Laboratories. Solution pumping system including disposable pump cassette. 5,062,774, Cl. 417-413.000.

Krasser, Fritz: *See*—
Onderka, Oswald; and Krasser, Fritz, 5,062,668, Cl. 292-25.000.

Kratochvil, John F., to Kraft General Foods, Inc. C-Gel composite food products. 5,063,073, Cl. 426-573.000.

Krauss-Maffei A.G.: *See*—
Schneider, Fritz W., 5,063,027, Cl. 422-133.000.

Krehl, Michael E., to CTB, Inc. Feed car apparatus. 5,062,389, Cl. 119-57.600.

Krenecki, Tom. Overflow control apparatus for water closets. 5,062,166, Cl. 4-427.000.

Kress, Glenn F.; and Coy, Gerald L., to Xerox Corporation. Double feeding prevention in a bottom sheet document feeder. 5,062,602, Cl. 271-104.000.

Kriegel, Jon M.; and Albrecht, Richard E., to Eastman Kodak Company. Sheet separating mechanism and apparatus for use therein. 5,062,599, Cl. 271-35.000.

Kroker, Joerg; and Vargiu, Silvio, to BASF Aktiengesellschaft. Size for carbon fibers and glass fibers. 5,063,261, Cl. 523-402.000.

Kroll, Peter, to Gebhard Balluff Fabrik feinmechanischer Erzeugnisse GmbH & Co. Plug insert for a metal tube housing. 5,062,810, Cl. 439-589.000.

Kruer, Mark A., to United States of America, National Aeronautics and Space Administration. Wide acceptance angle, high concentration ratio, optical collector. 5,062,899, Cl. 136-259.000.

Kruger, Christof; and Cappelmann, Karl, to Suomen Xyrofin Oy. Sugar-free crust chocolates. 5,063,080, Cl. 426-660.000.

Krupp Koppers GmbH: *See*—
Durselen, Heinz; Schuffler, Arnulf; and Meyer, Gunter, 5,062,925, Cl. 201-41.000.

Krupp Polysius AG: *See*—
Schaberg, Frank; Martens, Heribert; and Pohlmann, Peter, 5,062,615, Cl. 266-217.000.

Kubisch, John G.; Mercer, James B.; Schaeff, Wilmer G.; and Wenzel, Thomas E., to General Motors Corporation. Countergravity casting apparatus and method. 5,062,466, Cl. 164-7.100.

Kubisch, John G.; and Wilczynski, Paul D., to General Motors Corporation. Vacuum countergravity casting apparatus and method. 5,062,467, Cl. 164-7.100.

Kubo, Kazuhiro: *See*—
Nomoto, Yuji; Takai, Haruki; Ohno, Tetsuji; and Kubo, Kazuhiro, 5,063,227, Cl. 514-252.000.

Kubo, Masao; Miyake, Tetsuo; Matsuzaki, Kunimitsu; and Kitagawa, Katsuji, to Somar Corporation. Method of fabricating a bent metal body with hardenable resin coating. 5,062,284, Cl. 72-46.000.

Kubo, Tsutomu; Terao, Kazuo; Yamamuro, Takashi; Kajimoto, Masashi; and Tsukagoshi, Kazuhiko, to Fuji Xerox Co., Ltd. Electrophotographic developing system comprising toner having specific particle size distribution. 5,063,133, Cl. 430-122.000.

Kubota, Keiichi: *See*—
Kawai, Shigeru; and Kubota, Keiichi, 5,063,531, Cl. 395-25.000.

Kubota LTD: *See*—
Samejima, Kazuo; and Kawakita, Hiroaki, 5,062,258, Cl. 56-202.000.

Kuehn, Christa G.; Rossi, Debra J.; and Isied, Stephan S., to Biometallics, Inc. Immunoassay method and kit. 5,063,151, Cl. 435-7.330.

Kuehnle, Manfred R. Optoelectronic signal recording medium and method of making same. 5,063,538, Cl. 365-106.000.

Kuemmel, Theodore J.: *See*—
James, Paul; Kuemmel, Theodore J.; Wurm, Michael G.; Banach, James D.; and Fulton, David, 5,062,432, Cl. 128-736.000.

Kuenast, Christoph: *See*—
Leyendecker, Joachim; Kuenast, Christoph; and Hofmeister, Peter, 5,063,232, Cl. 514-247.000.

Kuhara, Shigehide; and Satoh, Kozo, to Kabushiki Kaisha Toshiba. Magnetic resonance imaging system. 5,063,348, Cl. 324-307.000.

Kulkarni, Prakash K.: *See*—
Headley, Philip M.; and Kulkarni, Prakash K., 5,063,514, Cl. 364-426.020.

Kumada, Hiroyoshi: *See*—
Edahiro, Takeshi; Takehara, Shin; Morita, Toshiki; and Kumada, Hiroyoshi, 5,062,659, Cl. 280-707.000.

Kumada, Junji: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Kumagai, Takenori, to Shimizu Construction Co., Ltd. Openable roof. 5,062,243, Cl. 52-66.000.

Kumagai, Tatsuya: *See*—
Tomita, Yukio; Yamaba, Ryota; and Kumagai, Tatsuya, 5,062,905, Cl. 148-111.000.

Kummer, Frederick J., to Hospital for Joint Diseases. Protector pad. 5,062,433, Cl. 128-888.000.

Kunert, Heinz, to Saint-Gobain Vitrage. Glass pane intended direct bonding, especially automobile glass pane. 5,062,248, Cl. 52-208.000.

Kunst, Neil W.; Fraser, James D.; and Amaro, Josephina, to Clean Air Technologies Inc. Automotive engine signal digitization. 5,063,515, Cl. 364-431.010.

Kuo, Elizabeth A.: *See*—
Fenske, Dankwart C.; Kuo, Elizabeth A.; and Tully, Wilfred R., 5,063,229, Cl. 514-258.000.

Kuo, Mei-Hui: *See*—
Chang, Ming-Ju; Hsu, Yuan-Hsun; Kuo, Mei-Hui; and Soong, Tai-Sen, 5,063,244, Cl. 514-456.000.

Kuo, Youti. Dentifrice dispensing toothbrush with replaceable cartridge. 5,062,728, Cl. 401-176.000.

Kupcikevicius, Vytautas, to Viskase Corporation. Vacuum packaging method and apparatus. 5,062,252, Cl. 53-434.000.

Kupper, Hanspeter: *See*—
Lauper, Alfred; Kupper, Hanspeter; and Rieder, Daniel, 5,063,354, Cl. 328-14.000.

Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, to Nihon Tokushu Noyaku Seizo K K. Spiro-benzyl-3-substituted pyridines. 5,062,883, Cl. 71-94.000.

Kuraishi, Tadayuki: *See*—
Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, 5,063,222, Cl. 514-180.000.

Kurakake, Mitsuo; Otsuka, Shoichi; and Muraoka, Yutaka, to Fanuc Ltd. Picture processing apparatus including data conversion table for performing convolutional processing. 5,063,525, Cl. 395-157.000.

Kuramoto, Nobuyuki: *See*—
Taniguchi, Hitofumi; and Kuramoto, Nobuyuki, 5,063,183, Cl. 501-96.000.

Kurihashi, Kazunari: *See*—
Takamura, Toshiyuki; Kurihashi, Kazunari; and Harada, Masazumi, 5,062,545, Cl. 221-152.000.

Kurita, Taiichiro: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Kuriyama, Fumio: *See*—
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, 5,062,271, Cl. 62-55.500.

Kuroda, Yasuo: *See*—
Nakagawa, Katsumi; Kawai, Tatsundo; and Kuroda, Yasuo, 5,063,462, Cl. 358-475.000.

Kuroiwa, Katsumasa: *See*—
Nagasawa, Takeshi; Gemba, Yuko; Nakamura, Yoshio; and Kuroiwa, Katsumasa, 5,063,152, Cl. 435-24.000.

Kuroyanagi, Akira: *See*—
Fujii, Tetsuo; Sakai, Minekazu; and Kuroyanagi, Akira, 5,063,423, Cl. 357-23.500.

Kusaka, Tadao: *See*—
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Kusakai, Shigenobu: *See*—
Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, 5,063,257, Cl. 523-116.000.

Kusayanagi, Yukiharu: *See*—
Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, 5,063,257, Cl. 523-116.000.

Kuse, Satoru; Ishikawa, Masao; Koboshi, Shigeharu; Ishikawa, Minoru; and Yagi, Toshihiko, to Konica Corporation. Method for processing silver halide color photographic light-sensitive materials. 5,063,140, Cl. 430-393.000.

Kuslich, Stephen D.; and Corin, James D., to Spine-Tech, Inc. Method of making an intervertebral reamer. 5,062,845, Cl. 606-80.000.

Kusumoto, Keiji: *See*—
Kinoshita, Naoyoshi; and Kusumoto, Keiji, 5,063,410, Cl. 355-204.000.

Kwack, Eug Y.: *See*—
Shakkottai, Parthasarathy; and Kwack, Eug Y., 5,062,295, Cl. 73-290.00V.

Kwasniewicz, Ronald W.: *See*—
Braun, Paul; and Kwasniewicz, Ronald W., 5,063,406, Cl. 355-57.000.

Kwaun Manufacturing Company: *See*—
Braun, Paul; and Kwasniewicz, Ronald W., 5,063,406, Cl. 355-57.000.

Kwon, Oh-Seol, to SamSung Electronics Co., Ltd. Tone-type recognition method. 5,063,593, Cl. 379-386.000.

Kyle, Albert S., III: *See*—
Lindsey, James D.; Hutton, Charles D.; Tubb, Joe W.; Shipman, Carol L.; and Kyle, Albert S., III, 5,063,507, Cl. 364-408.000.

Kyle, Donald J.: *See*—
Abreu, Mary E.; Rzeszotarski, Waclaw; Kyle, Donald J.; Hiner, Roger N.; and Elliott, Richard L., 5,063,245, Cl. 514-404.000.

Kyowa Hakko Kogyo Co., Ltd.: *See*—
Nomoto, Yuji; Takai, Haruki; Ohno, Tetsuji; and Kubo, Kazuhiro, 5,063,227, Cl. 514-252.000.

Kyushu University: *See*—
Harada, Kosuke; and Sakamoto, Hiroshi, 5,063,488, Cl. 363-16.000.

L. Molteni & C. dei F.lli Alitti S.p.A.: *See*—
Seghi, Giovanni, 5,062,832, Cl. 604-110.000.

LaBarge, William J.: *See*—
Bedford, Raymond E.; and LaBarge, William J., 5,063,193, Cl. 502-304.000.

LaBelle Industries, Inc.: *See*—
James, Paul; Kuemmel, Theodore J.; Wurm, Michael G.; Banach, James D.; and Fulton, David, 5,062,432, Cl. 128-736.000.

Labsystems OY: *See*—
Partanen, Paul; Seppanen, Helena; and Harjunmaa, Hannu, 5,063,024, Cl. 422-65.000.

LaCombe, James A.: *See*—
Smith, David A.; and LaCombe, James A., 5,062,603, Cl. 271-195.000.

Ladebeck, Jurgen: *See*—
Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., 5,063,187, Cl. 502-71.000.

Lagny, Pierre: *See*—
Bourbon, Pierre; Lagny, Pierre; and Billot, Pierre, 5,063,064, Cl. 424-673.000.

Laird, George F., III: *See*—
Geller, Bernard D.; Tyler, Johann U.; Holdeman, Louis B.; Phelleps, Fred R.; and Laird, George F., III, 5,063,177, Cl. 437-209.000.

Laiw, Ming-Shing: *See*—
Liu, Yun-Yu; Shih, Hsiao-Lei; Chyou, Yang-Chih; and Laiw, Ming-Shing, 5,062,805, Cl. 439-404.000.

Lamb, Jerry: *See*—
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Lambert, Harvey J.: *See*—
Kennedy, Lawrence C.; and Lambert, Harvey J., 5,062,514, Cl. 192-82.00T.

Lane, Bryan: *See*—
Miller, Jack E.; Fowler, Joe R.; Fox, Stewart A.; and Lane, Bryan, 5,062,667, Cl. 285-381.000.

Lanfranco, Antonello, to Aspera S.r.l. Device for the assembly of small electrical machines. 5,062,200, Cl. 29-732.000.

Lang, Lothar: *See*—
Jurgens, Gunter; Surig, Udo; and Lang, Lothar, 5,063,510, Cl. 364-424.100.

Lange, Louis G., III; and Spilburg, Curtis A. Use of sulfated polysaccharides to decrease cholesterol and fatty acid absorption. 5,063,210, Cl. 514-54.000.

Langewellpott, Ulrich, to Licentia Patent Verwaltungs-GmbH. Method for the equalization of dispersive, linear or approximately linear channels for the transmission of digital signals and arrangement for carrying out the method. 5,063,573, Cl. 375-14.000.

Lanter, Kent J.: *See*—
Binder, Stephen F.; and Lanter, Kent J., 5,063,067, Cl. 426-69.000.

Lanxide Technology Company, LP: *See*—
Dwivedi, Ratnesh K.; and Kennedy, Christopher R., 5,063,185, Cl. 501-126.000.

Lanz Oensingen AG: *See*—
Muhlethaler, Erhard, 5,062,605, Cl. 248-68.100.

Lapp, Joachim A. H.: *See*—
Germann, Albrecht J.; Bolza-Schunemann, Hans B.; Schaede, Johannes G.; and Lapp, Joachim A. H., 5,062,360, Cl. 101-152.000.

LaRocca, William J.: *See*—
Carpenter, Vincent N.; and LaRocca, William J., 5,062,509, Cl. 192-4.00A.

Larson, Jay M., to Eaton Corporation. Valve stem seal. 5,062,397, Cl. 123-188.00P.

Larsson, Sven-Olof: *See*—
Sjarne, Anders O. G.; and Larsson, Sven-Olof, 5,062,505, Cl. 188-153.00R.

Latta, Ernst E.: *See*—
Gasser, Marcel; and Latta, Ernst E., 5,063,173, Cl. 437-129.000.

Latvakangas, Urpo: *See*—
Bolin, Goran; Latvakangas, Urpo; and Sabelstrom, Jan, 5,062,754, Cl. 412-4.000.

Lauf, Robert J.: *See*—
Arnold, Wesley D., Jr.; Bond, Walter D.; and Lauf, Robert J., 5,062,993, Cl. 257-518.000.

Lauks, Imants R.: *See*—
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Lauper, Alfred; Kupper, Hanspeter; and Rieder, Daniel, to Siemens-Albis Aktiengesellschaft. Frequency synthesizing device. 5,063,354, Cl. 328-14.000.

Laursen, Erik: *See*—
Hansen, Henry; Studsgaard, Leif; and Laursen, Erik, 5,062,305, Cl. 73-861.120.

Lautenschlager, Karl, Jr., to Karl Lautenschlager GmbH & Co. KG. Mounting plate for cabinet hinges. 5,062,180, Cl. 16-257.000.

Lavash, Bruce W., to Procter & Gamble Company, The. Filtering and disposal system for pet litter. 5,062,392, Cl. 119-167.000.

Lavorel, Henri, to Efficient Thermal Reactors, Inc. Thermal reactor for heaters and fuel generators. 5,062,371, Cl. 110-214.000.

Lawrence, Peter D.; and Ross, Robert V., to MacMillan Bloedel Limited. Articulated arm control. 5,062,755, Cl. 414-4.000.

Lawrence, Peter D.: *See*—
Frenette, Real N.; and Lawrence, Peter D., 5,062,264, Cl. 60-427.000.

Leahy, Ronald S.; and Smith, Patrick J., to Unisys Corporation. Channelized delay and mix chip rate detector. 5,063,572, Cl. 375-1.000.

Lebowitz, Joseph: *See*—
Hillenius, Steven J.; Lebowitz, Joseph; Liu, Ruichen; and Lynch, William T., 5,063,422, Cl. 357-23.300.

Lederman, Frederick E., to General Motors Corporation. Roller clutch cage with push on installation. 5,062,512, Cl. 192-45.000.

Lee, Chang H.; and Kim, Young J. Automatic mixing faucet. 5,062,164, Cl. 4-194.000.

Lee, Chi-Long; Lutz, Michael A.; and VanWert, Bernard, to Dow Corning Corporation. Radiation curable organosiloxane gel compositions. 5,063,102, Cl. 428-209.000.

Lee, J. Kelly, to Eastman Kodak Company. Method and apparatus for producing complex magnetization patterns in hard magnetic materials. 5,063,367, Cl. 335-284.000.

Lee, Jae S.; Kim, Tae I.; and Kim, Young S., to Electronics and Telecommunications Research Institute; and Korea Telecommunications Authority. Method for testing subscriber's equipment. 5,063,584, Cl. 379-29.000.

Lee, Kung H.; and Clark, Earl M., to Du Pont de Nemours, E. I., and Company. Method and apparatus for removal of gas from refrigeration system. 5,062,273, Cl. 62-85.000.

Lee, Won G.; and Kang, Mi Y., to Hyundai Electronics Industries Co., Ltd. Fabrication of contact hole using an etch barrier layer. 5,063,176, Cl. 437-195.000.

Lee, Young-Bum, to Accufar Golf Co., Ltd. Golf ball. 5,062,644, Cl. 273-232.000.

Leedy, K. Duane; and Peiffer, Norman A., to Andersons, The. Cellulose absorbent product and method of manufacture. 5,062,954, Cl. 210-502.100.

Legare, Pierre; and Pike, David W., to Canada, Her Majesty the Queen in right of, as represented by the Minister of National Defence of Her Majesty's Canadian Government. Filter sealing apparatus. 5,062,874, Cl. 55-337.000.

Legge, Richard C.; and Arp, George F., to John D. Brush & Co., Inc. Draped parison blow molded box. 5,063,094, Cl. 428-35.700.

Leggett & Platt, Incorporated: *See*—
Kennedy, Earl W.; Oexman, Robert D.; and Higgins, Larry, 5,062,169, Cl. 5-449.000.
Stewart, Ralph D., 5,062,172, Cl. 5-474.000.

Leib, Tiberiu M.; and Sapre, Ajit V., to Mobil Oil Corporation. Catalytic cracking process with multiple catalyst outlets. 5,062,944, Cl. 208-113.000.

Leitner, S.p.A.: *See*—
Platter, Helmuth; and Webhofer, Artur, 5,062,493, Cl. 180-9.520.

Leivian, Robert H.: *See*—
Peterson, William M.; Hume, Christopher N.; and Leivian, Robert H., 5,063,521, Cl. 395-27.000.

Lemon, Walter B., III, to Hunt, Seth C. System for localizing a portion of a structure for treatment. 5,062,871, Cl. 55-259.000.

Lenhard-Backhaus, Hugo; Ehrentraut, Otto; and Haager, Ottmar, to Miba Gleitlager Aktiengesellschaft. One-half part of a sliding surface bearing. 5,062,718, Cl. 384-294.000.

Lennox Industries Inc.: *See*—
Loberger, Gregory C.; and Slind, Jay L., 5,062,790, Cl. 431-114.000.

Lenti, Daria; and Visca, Mario, to Ausimont S.r.L. Use of perfluoropolyethers in the form of an aqueous microemulsion for protecting stony materials from atmospheric agents. 5,063,092, Cl. 427-393.000.

Lenz, Roger L., to General Motors Corporation. Conveyor for shaft-like parts. 5,062,523, Cl. 198-463.400.

Leondaridis, Paul S.; Von Drasek, William A.; and Jursich, Gregory M., to American Air Liquide. Enhanced performance of alumina for the removal of low-level fluorine from gas streams. 5,063,035, Cl. 423-241.000.

Leonowich, Robert H., to AT&T Bell Laboratories. Low-jitter oscillator. 5,063,359, Cl. 331-116.0FE.

Le Pailleur, Laurent: *See*—
Barbu, Stephane; and Le Pailleur, Laurent, 5,063,312, Cl. 307-603.000.

Leprince, Philippe; Chollet, Patrick; and Saada, Serge, to Centre National de la Recherche Scientifique. Plasma reactor. 5,063,330, Cl. 315-111.210.

L'Etat Francais represente par le Ministre des Postes, des Telecommunications et de l'Espace (Centre National d'Edudes des Telecommunications): *See*—
Nakajima, Hisao, 5,063,567, Cl. 372-28.000.

Lettenbauer, Gustav: *See*—
Ross, Carl H.; Machat, Rudolf; Haring, Werner; and Lettenbauer, Gustav, 5,062,959, Cl. 210-635.000.

Leupold, Herbert A., to United States of America, Army. Fabrication of permanent magnet toroidal rings. 5,063,004, Cl. 264-22.000.

Lever Brothers Company, Division of Conopco, Inc.: *See*—
Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., 5,062,299, Cl. 73-609.000.
Wu, Shang-Ren; and Garofalo, Albert, 5,062,995, Cl. 252-546.000.

Levine, Walter. Sealed swivel for respiratory apparatus. 5,062,420, Cl. 128-204.180.

VOL 1132 ISS 1 NO 5 1991 UMI

Levy Toledano, Sylviane: *See—*
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

Lewan, Philip C., to Camshaft Machine Company. Belt type oil skimmer with horizontial rollers. 5,062,953, Cl. 210-232.000.

Lewis, Thomas E.; Williams, Richard A.; Gardiner, John P.; and Kline, John F., to Presstek, Inc. Plasma-jet imaging method. 5,062,364, Cl. 101-467.000.

Lexmark International, Inc.: *See—*
Jasinski, Joseph E.; Lingle, Charles H.; Pollitt, Richard F.; and Shuman, David W., 5,063,289, Cl. 250-221.000.

Leyendecker, Joachim; Kuenast, Christoph; and Hofmeister, Peter, to BASF Aktiengesellschaft. 2-tert-butyl-4-chloro-5-(4-tert-butylbenzylthio)-3(2H)-pyridazinone for cotrolling snails and slugs. 5,063,232, Cl. 514-247.000.

Lhopital Michel: *See—*
Germanaud, Laurent; Azorin, Patrick; and Lhopital Michel, 5,062,977, Cl. 252-48.200.

Liang, Dong C.; and Blades, Michael W., to University of British Columbia. Capacitively coupled plasma detector for gas chromatography. 5,062,708, Cl. 356-316.000.

Libbert, Dan: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Licentia Patent Verwaltungs-GmbH: *See—*
Langewellpott, Ulrich, 5,063,573, Cl. 375-14.000.

Liebel, Henry L., to Shippers Paper Products Company. Economy void filler. 5,062,751, Cl. 410-154.000.

Liebs, Harald: *See—*
Carduck, Franz-Josef; Wuest, Willi; Harth, Hubert; and Liebs, Harald, 5,062,997, Cl. 260-400.000.

Lien, Sheue-Ling; Shantz, Michael J.; Carrie, Susan E.; Loo, Jim V.; and Elrod, David, to Sun Microsystems, Inc. Method and apparatus for shading images. 5,063,375, Cl. 340-703.000.

Lighthouse Manufacturing Co., Inc.: *See—*
Van Meter, Keitb E., 5,062,974, Cl. 252-11.000.

Lim, Joon Young: *See—*
Ra, Jong Oh; and Lim, Joon Young, 5,062,823, Cl. 475-330.000.

Limburg, William W.: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, 5,063,125, Cl. 430-59.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.

Lin, Cheng-I: *See—*
Hu, Mae W.; Schulkamp, Kirk; Lin, Cheng-I; and Ullman, Edwin F., 5,063,165, Cl. 436-500.000.

Lind, Robert J.: *See—*
Hemming, Dale R.; Lunzer, Lawrence J.; and Lind, Robert J., 5,063,350, Cl. 324-457.000.

Linden-Smith, Neil A.; and Rowley, Andrew T., to Thorn Emi plc. Discharge tube arrangement. 5,063,333, Cl. 315-326.000.

Lindert, Andreas; Pierce, John R.; and McCormick, David R., to Henkel Corporation. Hydroxylamine or amine oxide containing polyphenolic compounds and uses thereof. 5,063,089, Cl. 427-354.000.

Lindner, Josef: *See—*
Schlag, Edward W.; Lindner, Josef; Beavis, Ronald C.; and Grotemeyer, Jurgen, 5,062,935, Cl. 204-157.410.

Lindsey, James D.; Hutton, Charles D.; Tubb, Joe W.; Shipman, Carol L.; and Kyle, Albert S., III, to Plains Cotton Cooperative Association. Goods database employing electronic title or documentary-type title. 5,063,507, Cl. 364-408.000.

Lindsey, John J.: *See—*
Gansen, Peter; Wolfgramm, Rudi; Wolf, Klaus D.; and Lindsey, John J., 5,063,253, Cl. 521-159.000.

Lindsley, George R. Fishing rod bolder with fish alert. 5,063,373, Cl. 340-573.000.

Lingle, Charles H.: *See—*
Jasinski, Joseph E.; Lingle, Charles H.; Pollitt, Richard F.; and Shuman, David W., 5,063,289, Cl. 250-221.000.

Link, Helmut F.: *See—*
Trautmann, Guenther H.; and Link, Helmut F., 5,062,330, Cl. 82-147.000.

Linke, Scott L., to Delco Electronics Corporation. Mode selectable interface circuit for an air core gage controller. 5,063,344, Cl. 324-115.000.

Liou, Charg-Shing. Gas blowtorch. 5,062,791, Cl. 431-266.000.

Lipps, Gary D.; and Wood, Stephen D., to Martin Marietta Corporation. High accuracy bank-to-turn autopilot. 5,062,583, Cl. 244-3.150.

Lipscombe, Brian R., to Ultra Hydraulics Limited. Rotary drive mechanisms. 5,062,259, Cl. 56-255.000.

Lipton, Lenny; and Meyers, Lawrence D., to StereoGraphics Corporation. Stereoscopic video cameras with image sensors having variable effective position. 5,063,441, Cl. 358-88.000.

Listemann, Mark L.: *See—*
Herman, Frederick L.; Savoca, Ann C. L.; and Listemann, Mark L., 5,062,998, Cl. 260-665.00R.

Liu, Ruichen: *See—*
Hillenius, Steven J.; Lebowitz, Joseph; Liu, Ruichen; and Lynch, William T., 5,063,422, Cl. 357-23.300.

Liu, Yun-Yu; Shih, Hsiao-Lei; Chyou, Yang-Chih; and Laiw, Ming-Shing, to Pan-International Industrial Corp. Structure of cable connector for matching with IC mounting seat. 5,062,805, Cl. 439-404.000.

Liu, Yun-Yu; and Lu, Juinn-Horng, to Pan-International Industrial Corp. Structure of receptacle terminal material strip. 5,062,813, Cl. 439-857.000.

Livigni, Russell A.: *See—*
Hargis, I. Glen; Fabris, Hubert J.; Wilson, John A.; and Livigni, Russell A., 5,063,190, Cl. 502-157.000.

Livny, Ishak M.: *See—*
Hekker, Roeland M.T.; and Livny, Ishak M., 5,063,442, Cl. 358-93.000.

Lloyd, Daniel L.; and Cooke, Eugene L., to Cold Jet, Inc. Method for deflashing articles. 5,063,015, Cl. 264-161.000.

Loberger, Gregory C.; and Slind, Jay L., to Lennox Industries Inc. Burner sound reduction enclosure. 5,062,790, Cl. 431-114.000.

Lochmiller, Alan W. Small terrace generating machine with lateral dammers. 5,062,488, Cl. 172-1.000.

Loctite Corporation: *See—*
Nakos, Steven T., 5,063,254, Cl. 522-43.000.

Long, Alden O., Jr., to AMP Incorporated. Insertion/extraction tool for substrate package. 5,062,201, Cl. 29-741.000.

Longo, Robert T.; Bardai, Zaher; Manoly, Arthur E.; Forman, Ralph; and Rolph, Randy K., to Hughes Aircraft Company. Field emitter structure providing passageways for venting of outgassed materials from active electronic area. 5,063,323, Cl. 313-309.000.

Loo, Jim V.: *See—*
Lien, Sheue-Ling; Shantz, Michael J.; Carrie, Susan E.; Loo, Jim V.; and Elrod, David, 5,063,375, Cl. 340-703.000.

L'Oreal: *See—*
Grollier, Jean F.; Dubief, Claude; and Dupuis, Christine, 5,063,051, Cl. 424-70.000.
Grollier, Jean F.; and Dubief, Claude, 5,063,052, Cl. 424-70.000.
Grollier, Jean-Francois, 5,063,046, Cl. 424-52.000.

Lorence, Brian S.: *See—*
Phelps, Richard A.; and Lorence, Brian S., 5,062,608, Cl. 248-289.100.

Lorimer, D'Arcy, to Applied Materials, Inc. Steam generator. 5,063,609, Cl. 392-401.000.

Lorraine Distribution Buzy-Vigneau: *See—*
Buzy-Vigneau, Jean-Paul, 5,062,544, Cl. 221-130.000.

Low, Phillip A.: *See—*
Greenspan, Douglas H.; and Low, Phillip A., 5,063,062, Cl. 424-443.000.

Lu, Juinn-Horng: *See—*
Liu, Yun-Yu; and Lu, Juinn-Horng, 5,062,813, Cl. 439-857.000.

Lubrizol Corporation, The: *See—*
Bayles, Frederick L., Jr.; Walsh, Reed H.; and Tipton, Craig D., 5,062,975, Cl. 252-33.000.

Lucas Industries: *See—*
Trace, Adrian L.; and Basten, Mark J., 5,063,287, Cl. 250-214.0AG.

Lucas Industries Public Limited Company: *See—*
Scotson, Peter G.; and Ironside, John M., 5,062,404, Cl. 123-399.000.

Lucas, John T.: *See—*
Goddard, Charles W.; Lucas, John T.; and Galvan, Paul A., 5,062,593, Cl. 244-169.000.

Luciano Bonansea: *See—*
Carboni, Luigi, 5,062,263, Cl. 60-299.000.

Luetkemeyer, Kent: *See—*
Hobson, Gregory L.; Luetkemeyer, Kent; and Wootton, John R., 5,062,586, Cl. 244-3.120.

Luker, Norman E., to Exxon Chemical Patents Inc. Method for producing an elastomeric crumb using gas to first cut an extruded hot, sticky elastomeric extrudate material, form the crumb, and then convey it away. 5,063,002, Cl. 264-12.000.

Lunzer, Lawrence J.: *See—*
Hemming, Dale R.; Lunzer, Lawrence J.; and Lind, Robert J., 5,063,350, Cl. 324-457.000.

Luo, Guo Chun: *See—*
Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, 5,063,195, Cl. 502-341.000.

Lupton, F. Stephen; DeFilippi, Louis J.; and Goodman, James R., to Allied-Signal Inc. Bioremediation of chromium (VI) contaminated aqueous systems by sulfate reducing bacteria. 5,062,956, Cl. 210-611.000.

Lutz, Michael A.: *See—*
Lee, Chi-Long; Lutz, Michael A.; and VanWert, Bernard, 5,063,102, Cl. 428-209.000.

Lykken, Thomas G.; and Kemper, Philip T., to J. I. Case Company. Handle position control apparatus. 5,062,316, Cl. 74-529.000.

Lynch, William T.: *See—*
Hillenius, Steven J.; Lebowitz, Joseph; Liu, Ruichen; and Lynch, William T., 5,063,422, Cl. 357-23.300.

Lyons, Peter R. A.: *See—*
Barrow, Ross; Elias, Martin C.; Lyons, Peter R. A.; Jacob, Peter G.; and Rashleigh, Scott C., 5,062,686, Cl. 385-33.000.

M-B-W Inc.: *See—*
Artzberger, Thomas G., 5,062,228, Cl. 37-117.500.

MacDonald, Scott A.: *See—*
Holbrook, Russell W.; and MacDonald, Scott A., 5,062,600, Cl. 271-35.000.

Machat, Rudolf: *See—*
Ross, Carl H.; Machat, Rudolf; Haring, Werner; and Lettenbauer, Gustav, 5,062,959, Cl. 210-635.000.

Machui, Jurgen: *See—*
Colineau, Joseph; and Machui, Jurgen, 5,063,467, Cl. 360-119.000.

Mack, William J.; and Markyvech, Ronald K., to Eaton Corporation. Enhanced missed shift recovery for semi-automatic shift implementation control system. 5,063,511, Cl. 364-424.100.

Mackal, Glenn H. Snap rivet safety lock for inflators. 5,062,546, Cl. 222-3.000.

Mackey, Donald A., to PPG Industries, Inc. Zero diameter locator post. 5,062,621, Cl. 269-305.000.

MacMillan Bloedel Limited: *See—*
Lawrence, Peter D.; and Ross, Robert V., 5,062,755, Cl. 414-4.000.

MacMillan, Donald M. Lockable/unlockable pivoted connection apparatus. 5,062,731, Cl. 403-96.000.

MacMillan, Michael; and Haid, Regis, Jr., to University of Florida. Axially-fixed vertebral body prosthesis and method of fixation. 5,062,850, Cl. 623-17.000.

Macon, James F., Jr.: *See—*
Dayan, Richard A.; Geisler, Douglas R.; Kinnear, Scott G.; Macon, James F., Jr.; and Schwartz, William H., 5,063,496, Cl. 395-700.000.

MacPhail, Margaret G., to International Business Machines Corporation. Method of associating document processing states with an action market. 5,063,495, Cl. 395-650.000.

Maeda Industries, Ltd.: *See—*
Yamazaki, Toshimasa, 5,062,318, Cl. 74-594.200.

Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, to Osaka Gas Limited; and Asahi Seisakusho Company Limited. Solvent recovery apparatus. 5,062,926, Cl. 202-183.000.

Maehara, Minoru; and Nagase, Haruo, to Matsushita Electric Works Ltd. Regulated chopper and inverter with shared switches. 5,063,490, Cl. 363-37.000.

Maekawa, Takashi: *See—*
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.

Maekawa, Yukio: *See—*
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Maekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, 5,063,147, Cl. 430-523.000.

Magee, Charles. Hand table and carrying rack. 5,062,674, Cl. 294-143.000.

Magengast, William E.: *See—*
McMahan, David R.; Magengast, William E.; and Mateos, Luis A., 5,063,480, Cl. 362-61.000.

Maghon, Helmut, to Siemens Aktiengesellschaft. Hybrid burner for a pre-mixing operation with gas and/or oil, in particular for gas turbine systems. 5,062,792, Cl. 431-284.000.

Magnussen, Haakon T., Jr., to Rainin Instrument Co., Inc. High pressure fluid sample flow cell with circumferential window edge seal. 5,062,706, Cl. 356-246.000.

Mahony, Thomas H., III. Interference fixation screw with integral instrumentation. 5,062,843, Cl. 606-53.000.

Mahvi, A. Pascal; and Mahvi, Caryl. Infant care bag. 5,062,557, Cl. 224-153.000.

Mahvi, Caryl: *See—*
Mahvi, A. Pascal; and Mahvi, Caryl, 5,062,557, Cl. 224-153.000.

Maier, Ulrich; and Raff, Friedrich, to Dr. Ing. h.c.F. Porsche AG. Shifting arrangement for a motor vehicle transmission. 5,062,314, Cl. 74-475.000.

Maier, Willy, to Daverio AG. Stacker, especially for an offset plate transporter. 5,062,763, Cl. 414-787.000.

Maitz, Carlos A.; and Hauser, George M. Aspirator device for body fluids. 5,062,835, Cl. 604-153.000.

MAJCO Building Specialties, L.P.: *See—*
Karabin, Tadeusz; and Mundy, Roy E., 5,062,411, Cl. 126-523.000.

Majeed, Kamal N., to General Motors Corporation. On/off semi-active suspension control. 5,062,657, Cl. 280-707.000.

Majeed, Kamal N., to General Motors Corporation. Vehicle suspension control with real time gain switching. 5,062,658, Cl. 280-707.000.

Majerus, Norbert; and Rambacher, John S., to Goodyear Tire & Rubber Company, The. Apparatus for injection molding tire treads. 5,062,783, Cl. 425-115.000.

Major, Matthew M.: *See—*
Dyer, John; Mathews, Grace; and Major, Matthew M., 5,062,418, Cl. 128-156.000.

Makielski, James A. Boat anchor line control. 5,062,375, Cl. 114-210.000.

Makimura, Toshiro, to Aisan Kogyo Kabushiki Kaisha. Nozzle structure in electromagnetic fuel injector. 5,062,573, Cl. 239-533.120.

Malcolm, Roger J.: *See—*
Frazee, John G.; and Malcolm, Roger J., 5,062,848, Cl. 606-213.000.

Mallon, Joseph R., Jr.: *See—*
Petersen, Kurt E.; Barth, Philip W.; Bryzek, Janusz; and Mallon, Joseph R., Jr., 5,062,302, Cl. 73-754.000.

Mallory, Mitchell K. Toy vehicle apparatus. 5,062,819, Cl. 446-462.000.

Malpass, Dennis B.; and Wang, Bor-Ping E., to Texas Alkyls, Inc. Catalyst component for ethylene polyermization and copolymerization. 5,063,188, Cl. 502-116.000.

Mammino, Joseph: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, 5,063,125, Cl. 430-59.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.

Man Roland Druckmaschinen AG: *See—*
Reichel, Klaus T., 5,062,363, Cl. 101-415.100.

Manley, Martin H., to National Semiconductor Corporation. Manufacture of a split-gate EPROM cell using polysilicon spacers. 5,063,172, Cl. 437-43.000.

Manoly, Arthur E.: *See—*
Longo, Robert T.; Bardai, Zaher; Manoly, Arthur E.; Forman, Ralph; and Rolph, Randy K., 5,063,323, Cl. 313-309.000.

Mantovani, Marco; and Rossetto, Giorgio. Device for locking a blood centrifugation cell on a chuck. 5,062,826, Cl. 494-85.000.

Marathon Oil Company: *See—*
Schroeder, Donald E., Jr.; and Falk, David O., 5,062,484, Cl. 166-278.000.

Marazzi, Silvio, to Diamond S.A. Connector for an optical fiber. 5,062,682, Cl. 385-85.000.

Marchiony, Larry: *See—*
Neustat, Paula; and Marchiony, Larry, 5,062,534, Cl. 211-48.000.

Marcinkowski, John; Bennett, Herbert W.; and Niwa, Kenji, to DeVilbiss (Canada) Limited. Method and apparatus for removing sludge from a spray booth. 5,062,963, Cl. 210-712.000.

Marco Seattle, Inc: *See—*
Cook, Harold T., Jr.; and Fielding, Mimi S., 5,062,235, Cl. 43-42.000.

Marcuse, Dietrich, to AT&T Bell Laboratories. Optimized wavelength-division-multiplexed lightwave communication system. 5,063,559, Cl. 359-127.000.

Margolin, Mark: *See—*
Grois, Igor; and Margolin, Mark, 5,062,683, Cl. 385-87.000.

Maric, Radovan R., to Union Carbide Canada Limited. Automatic changeover manifold. 5,062,443, Cl. 137-113.000.

Marjancik, John R.: *See—*
Hall, David A.; and Marjancik, John R., 5,062,720, Cl. 384-484.000.

Markunas, Albert L., to Sundstrand Corporation. Hydromechanical control of differential pressure across a variable displacement hydraulic motor. 5,062,265, Cl. 60-450.000.

Markyvech, Ronald K.: *See—*
Mack, William J.; and Markyvech, Ronald K., 5,063,511, Cl. 364-424.100.

Marler, David O.: *See—*
Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., 5,063,038, Cl. 423-328.000.

Marley Company, The: *See—*
Goins, James V.; Duggan, Robert B.; Pier, William J.; and Wienhoft, Roger, 5,062,354, Cl. 98-62.000.

Marpinard, Jean-Claude: *See—*
Capel, Antoine; and Marpinard, Jean-Claude, 5,063,338, Cl. 318-685.000.

Marr, Helen E.: *See—*
Sanger, Gareth J.; and Marr, Helen E., 5,063,231, Cl. 514-214.000.

Marriage, Peter V., to Rolls-Royce plc. Cooled turbomachinery components. 5,062,768, Cl. 416-97.00R.

Mars, Suzanne P. Adjustable chair. 5,062,676, Cl. 297-338.000.

MarShel Corporation: *See—*
Burns, Marsha L., 5,062,272, Cl. 62-78.000.

Martens, Heribert: *See—*
Schaberg, Frank; Martens, Heribert; and Pohlmann, Peter, 5,062,615, Cl. 266-217.000.

Martin Archery, Inc.: *See—*
Newbold, George T., 5,062,407, Cl. 124-44.500.

Martin, John P., to Eaton Corporation. Pivot assembly for vehicle headlight position adjustment. 5,063,481, Cl. 362-61.000.

Martin, Lendell, Sr. Air conditioning apparatus. 5,062,280, Cl. 62-291.000.

Martin, Luther W.; and Smith, Richard L. Method of making live gas main insertions. 5,062,207, Cl. 29-890.140.

Martin Marietta Corporation: *See—*
Lipps, Gary D.; and Wood, Stephen D., 5,062,583, Cl. 244-3.150.

Martin, Martial G. E.; and Nuttin, Pierre L. V., to Syntone. Method of forming a new pile after discharge of a completed pile in a pile-forming machine associated in particular with a printer and device for carrying out this method. 5,062,597, Cl. 270-39.000.

Martone, Christopher J., to General Motors Corporation. Flexible link and method for a vehicular suspension system. 5,062,620, Cl. 267-260.000.

Martorano, Richard, to Rohm and Haas Company. Method for use of aqueous elastomeric coatings. 5,063,091, Cl. 427-385.500.

Marubeni Kabushikigaisha: *See—*
Kawashima, Ichiro; Seki, Mitsuo; and Hirano, Isao, 5,062,279, Cl. 62-235.000.

Marui, Masatoshi; Inage, Tomonori; Matsui, Yuji; and Ishizuka, Tazuko, to Asahi Kogaku Kogyo Kabushiki Kaisha. Exposure apparatus. 5,062,692, Cl. 359-45.000.

Masco Industries, Inc.: *See—*
DeLand, Daniel L., 5,062,241, Cl. 49-460.000.

Mase, Masahiro: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Mason, John G.; Miller, John W.; Sauerwein, William D.; and Vick, Stephen L., to Black & Decker, Inc. Universal motor with secondary winding wound with the run field winding. 5,063,319, Cl. 310-210.000.

Mason, Robert F. Dental flossing tool. 5,062,437, Cl. 132-323.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Masterson, Don: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Masuda, Michio: *See—*
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.

MASX Energy Services Group, Inc.: *See—*
Bailey, Thomas F.; and Campbell, John E., 5,062,450, Cl. 137-533.210.
Bailey, Thomas F.; and Moeller, Larry F., 5,062,479, Cl. 166-84.000.

Mateos, Luis A.: *See—*
McMahan, David R.; Magengast, William E.; and Mateos, Luis A., 5,063,480, Cl. 362-61.000.

Mathews, Grace: *See—*
Dyer, John; Mathews, Grace; and Major, Matthew M., 5,062,418, Cl. 128-156.000.

Matson, Charles J.; and Velasquez, David J., to Minnesota Mining and Manufacturing Company. Equine aerosol drug delivery method and apparatus. 5,062,423, Cl. 128-207.150.

Matsuda, Hiromu: *See—*
Imai, Akihiro; Kawakami, Tetsuji; Matsuda, Hiromu; Yubakami, Keiichi; and Taguchi, Nobuyoshi, 5,063,198, Cl. 503-227.000.
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Matsuda, Takumi, to Seikosha Co., Ltd. Feeder. 5,062,382, Cl. 119-51.040.

Matsufuji, Mitoshi: *See—*
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.

Matsui, Hideki: *See—*
Yokonuma, Norikazu; Hagiuda, Nobuyoshi; Iida, Yoshikazu; Sakamoto, Hiroshi; and Matsui, Hideki, 5,063,403, Cl. 354-413.000.

Matsui, Yoshikazu: *See—*
Shiokawa, Shoko; Matsui, Yoshikazu; and Ueda, Toshihiko, 5,063,396, Cl. 346-140.00R.

Matsui, Yuji: *See—*
Marui, Masatoshi; Inage, Tomonori; Matsui, Yuji; and Ishizuka, Tazuko, 5,062,692, Cl. 359-45.000.

Matsumoto, Hidetoshi: *See—*
Sasaki, Kazuo; Matsumoto, Hidetoshi; and Ohoka, Taneji, 5,063,355, Cl. 328-129.100.

Matsumoto, Masashi: *See—*
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.

Matsumoto, Shunichiro; Inui, Tsutomu; Ichiyasu, Rokuo; and Chiba, Yoshitaka, to Hitachi Metals, Ltd. Rare earth metal-iron group metal target, alloy powder therefor and method of producing same. 5,062,885, Cl. 75-255.000.

Matsumoto, Toshimi: *See—*
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Matsuo, Kenji; Nonaka, Tadashi; and Tsuchiya, Ikuo, to Kabushiki Kaisha Toshiba. Semiconductor device having multi-layered wiring structure. 5,063,433, Cl. 357-71.000.

Matsuo, Shunji: *See—*
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,063,411, Cl. 355-212.000.

Matsuoka, Hisao: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.

Matsushima, Hitoshi: *See—*
Yoda, Haruo; Miyatake, Takafumi; and Matsushima, Hitoshi, 5,063,492, Cl. 364-167.010.

Matsushita Electric Corporation of America: *See—*
Freitas, Joseph D., Jr.; Tatsumi, Yoshikazu; and Furukawa, Hiroyuki, 5,063,298, Cl. 250-497.100.

Matsushita Electric Industrial Co., Ltd.: *See—*
Imai, Akihiro; Kawakami, Tetsuji; Matsuda, Hiromu; Yubakami, Keiichi; and Taguchi, Nobuyoshi, 5,063,198, Cl. 503-227.000.
Oshima, Mitsuaki; Izaki, Masataka; Kajino, Jirou; Igarashi, Yoshiaki; and Mitani, Hiroshi, 5,062,696, Cl. 359-554.000.
Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, 5,062,705, Cl. 356-124.000.

Matsushita Electric Works Ltd.: *See—*
Maehara, Minoru; and Nagase, Haruo, 5,063,490, Cl. 363-37.000.

Matsushita Graphic Communication Systems, Inc.: *See—*
Murai, Hiroaki; Katano, Tatsuya; and Kikuchi, Shigeki, 5,063,398, Cl. 346-157.000.

Matsushita, Tomohisa: *See—*
Yazaki, Takashi; Matsushita, Tomohisa; and Nagase, Tsutomu, 5,063,061, Cl. 424-427.000.

Matsushita, Yasuo: *See—*
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.

Matsuzaki, Kunimitsu: *See—*
Kubo, Masao; Miyake, Tetsuo; Matsuzaki, Kunimitsu; and Kitagawa, Katsuji, 5,062,284, Cl. 72-46.000.

Matthew, Michael W.: *See—*
Adler-Golden, Steven; and Matthew, Michael W., 5,062,707, Cl. 356-311.000.

Matuszak, Edward A.: *See—*
Gillmore, Stephen R.; Merritt, Carleton G.; Chawan, Dhyaneshwar B.; and Matuszak, Edward A., 5,063,072, Cl. 426-557.000.

Maurer, Albert: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,063,007, Cl. 264-44.000.

Maurice, D. V.: *See—*
Hulse, Sid D.; Maurice, D. V.; Ward, Nelson E.; and Wicker, David L., 5,063,066, Cl. 426-2.000.

Mawst, Luke J.: *See—*
Botez, Dan; Mawst, Luke J.; and Peterson, Gary L., 5,063,570, Cl. 372-50.000.

Maxworthy, Tony, to University of Southern California. Delta wing with lift enhancing flap. 5,062,595, Cl. 244-214.000.

Mayberry, John: *See—*
McArthur, James R.; Harrel, John; and Mayberry, John, 5,062,756, Cl. 414-22.510.

Mayers, John L.: *See—*
Worley, Kevin L.; Mayers, John L.; and Burchette, Herbert L., 5,062,767, Cl. 415-209.300.

Mazda Motor Corporation: *See—*
Edahiro, Takeshi; Takehara, Shin; Morita, Toshiki; and Kumada, Hiroyoshi, 5,062,659, Cl. 280-707.000.
Fukada, Hirotaka; Kondoh, Koichi; and Tsuchida, Tsuyoshi, 5,062,496, Cl. 180-291.000.
Murakami, Hiroshi; and Yamagata, Kazuko, 5,063,192, Cl. 502-303.000.
Yamane, Takakazu; Tanimoto, Yoshio; and Nakahama, Tadamitsu, 5,063,085, Cl. 427-240.000.

Mazoyer, Elisobeth M.: *See—*
Drouet, Ludovic O.; Bal Dit Sollier, Claire; Mazoyer, Elisobeth M.; Levy Toledano, Sylviane; Jolles, Pierre; and Fiat, Ann-Taiic D., 5,063,203, Cl. 514-8.000.

McArthur, Alastair: *See—*
Newton, Trevor W.; and McArthur, Alastair, 5,062,882, Cl. 71-93.000.

McArthur, James R.; Harrel, John; and Mayberry, John, to Harrel, John; and Harrel, Charlena, a part interest. Device for positioning and stabbing casing from a remote selectively variable location. 5,062,756, Cl. 414-22.510.

McCarten, Paul; and Slagowski, Eugene, to Beloit Corporation. Blanket for an extended nip press with anisotropic woven base layers. 5,062,924, Cl. 162-358.000.

McCarthy, William F.: *See—*
Herman, Philip A.; and McCarthy, William F., 5,063,362, Cl. 333-12.000.

McCauley, Durham S.; and Sullivan, Jeffrey R., to McGard, Inc. Pipe plug and centering construction for centering ridged key in mating groove in pipe plug or nut. 5,062,325, Cl. 81-436.000.

McClain, Michael J.: *See—*
Unterborn, Ralph J.; McClain, Michael J.; and Benner, Mark M., 5,062,176, Cl. 15-250.230.

McClenahan, Charles H. Firefighter's barrier penetrator and agent injector. 5,062,486, Cl. 169-70.000.

McClennen, Bill M.: *See—*
Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., 5,063,392, Cl. 346-46.000.

McConachy, H. Reginald. High tower wind generating system. 5,062,765, Cl. 415-4.300.

McCormick, David R.: *See—*
Lindert, Andreas; Pierce, John R.; and McCormick, David R., 5,063,089, Cl. 427-354.000.

McCullough, T. Miles, to Betz Laboratories, Inc. Emulsion minimizing corrosion inhibitor for naphtha/water systems. 5,062,992, Cl. 252-394.000.

McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., to Air Products and Chemicals, Inc.; and International Business Machines Corporation. Surface cleaning using a cryogenic aerosol. 5,062,898, Cl. 134-7.000.

McDonald, Daniel P.: *See—*
Van Erden, Donald L.; McDonald, Daniel P.; and Ausnit, Steven, 5,063,069, Cl. 426-122.000.

McDonnell Douglas Corporation: *See—*
Blackmon, James B.; and Drubka, Robert E., 5,062,472, Cl. 165-41.000.
Timmons, Robert W., 5,062,457, Cl. 138-125.000.

McDowell, John F.: *See—*
Brown, J. Michael; McDowell, John F.; and Chang, Kin-Tai, 5,062,962, Cl. 210-698.000.

McGard, Inc.: *See—*
McCauley, Durham S.; and Sullivan, Jeffrey R., 5,062,325, Cl. 81-436.000.

McGill, George P.: *See—*
Wood, Alan G.; Farnworth, Warren M.; and McGill, George P., 5,062,565, Cl. 228-9.000.

McHugh, John: *See—*
McManigal, Donald P.; Yaksic, David G.; and McHugh, John, 5,062,669, Cl. 292-60.000.

McIntyre, John: *See—*
Hudson, Tom J.; McIntyre, John; Tremblay, Pierre; Allaire, Claude; and Gnyra, Bohdan, 5,062,929, Cl. 204-67.000.

McKeown, Nicholas W., to Hewlett-Packard Company. Network transceiver. 5,063,612, Cl. 455-607.000.

McKinney, Ray, Jr.: *See—*
Oh, Seik; and McKinney, Ray, Jr., 5,062,846, Cl. 606-158.000.

McMahan, David R.; Magengast, William E.; and Mateos, Luis A., to General Motors Corporation. Vehicle headlamp adjustment device. 5,063,480, Cl. 362-61.000.

McManigal, Donald P.; Yaksic, David G.; and McHugh, John. Secured locking device. 5,062,669, Cl. 292-60.000.

McMurray, William: *See—*
Roemer, Peter B.; Mueller, Otward M.; Park, John N.; and McMurray, William, 5,063,349, Cl. 324-322.000.

McPherson, Malcolm; and Ernest, Reinhold, to Grafotec Kotterer GmbH. Method and an apparatus for bonding together at least two running lengths of material. 5,062,919, Cl. 156-356.000.

McRae, Howard F., to Champlain Cable Corporation. Nonhalogenated insulation with high oxygen index. 5,063,266, Cl. 524-269.000.

McWilliams, John P.: *See—*
Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., 5,063,038, Cl. 423-328.000.

Meagher, Brian R., to Katun Corporation. Spool with resilient tab for storing and dispensing filamentary material. 5,062,580, Cl. 242-125.200.

Meakin, Douglas B., to General Electric Company p.l.c., The. Vacuum deposition process and apparatus for producing films having high uniformity. 5,063,086, Cl. 427-255.300.

Medevelop AB: *See—*
Branemark, Per-Ingvar, 5,062,851, Cl. 623-18.000.

Medex, Inc.: *See—*
Toomey, John C., 5,063,178, Cl. 422-82.070.

Meehan, Kathleen: *See—*
Beyea, Dana M.; and Meehan, Kathleen, 5,063,174, Cl. 437-184.000.

Melanotte, Massimo; and Bellezza, Orio, to SGS-Thomson Microelectronics s.r.l. UPROM memory cell integrable with a tablecloth matrix EPROM. 5,063,424, Cl. 357-23.500.

Menashi, Jameel; and Koehlert, Kenneth C., to Cabot Corporation. Process for making non-porous micron-sized high purity silica. 5,063,179, Cl. 501-12.000.

Mendoza, Roel: *See—*
Wirtz, John W.; Yanik, David; Rader, Robert R.; Mendoza, Roel; and Essig, Dennis E., 5,062,762, Cl. 414-786.000.

Menon, Vinod: *See—*
Kagawa, Koichi; Yu, Chung-Li; Kaku, Shinkyo; and Menon, Vinod, 5,063,526, Cl. 395-155.000.

Mentor Corporation: *See—*
Cowen, Timothy B., 5,062,417, Cl. 128-79.000.

Mentzer, Nancy E., to Armstrong World Industries, Inc. Simulated marble and process of preparation. 5,063,093, Cl. 428-15.000.

Mercedes-Benz AG: *See—*
Arold, Klaus; and Bruhnke, Ulrich, 5,062,353, Cl. 98-2.110.

Mercer, James B.: *See—*
Kubisch, John G.; Mercer, James B.; Schaeff, Wilmer G.; and Wenzel, Thomas E., 5,062,466, Cl. 164-7.100.

Mercurio, Joseph F.; and Cantio, Salvador, to General Motors Corporation. Method for installing O-ring seals. 5,062,194, Cl. 29-451.000.

Merlin Gerin: *See—*
Terracol, Claude; Bredel, Patrick; and Guillet, Jean-Laurent, 5,062,525, Cl. 198-468.600.

Merrell Dow Pharmaceuticals Inc.: *See—*
Sunkara, Sai P.; and Jones, Winton D., 5,063,238, Cl. 514-340.000.

Merrimac Industries, Inc.: *See—*
Cappucci, Joseph D., 5,063,365, Cl. 333-121.000.

Merriman, Burt T., Jr.; and Goff, David L., to Du Pont de Nemours, E. I., and Company. Electronic device coated with a polyimide coating composition. 5,063,115, Cl. 428-447.000.

Merritt, Carleton G.: *See—*
Gillmore, Stephen R.; Merritt, Carleton G.; Chawan, Dhyaneshwar B.; and Matuszak, Edward A., 5,063,072, Cl. 426-557.000.

Messner, Helmut, to Bruderer AG. Apparatus for controlling the feed of an intermittent web-feeding apparatus. 5,062,561, Cl. 226-152.000.

Metal Tech, Inc.: *See—*
Buzzella, David, 5,062,250, Cl. 52-584.000.

Metrohm AG: *See—*
Zahner, Paul; and Kaempf, Karl, 5,062,547, Cl. 222-144.500.

Metzger, Robert E.: *See—*
Butler, Johnny L.; Wakeland, Richard E.; Batson, Donald R.; and Metzger, Robert E., 5,062,439, Cl. 137-15.000.

Meyer, Dieter: *See—*
Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, 5,063,379, Cl. 340-784.000.

Meyer, Gunter: *See—*
Durselen, Heinz; Schuffler, Arnulf; and Meyer, Gunter, 5,062,925, Cl. 201-41.000.

Meyer, Norbert: *See—*
Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, 5,062,884, Cl. 71-95.000.

Meyers, Lawrence D.: *See—*
Lipton, Lenny; and Meyers, Lawrence D., 5,063,441, Cl. 358-88.000.

MFM Technology, Inc.: *See—*
Foley, Thomas P.; and Mosciatti, Roger, 5,062,384, Cl. 118-500.000.

Miba Gleitlager Aktiengesellschaft: *See—*
Lenhard-Backhaus, Hugo; Ehrentraut, Otto; and Haager, Ottmar, 5,062,718, Cl. 384-294.000.

Michael, James V., to Senco Products, Inc. Portable power fastening tool. 5,062,562, Cl. 227-111.000.

Michal, Vratislav M.; and Barbaro, Ralph S., to Eastman Kodak Company. Apparatus and method for edge notching a continuously moving web. 5,062,331, Cl. 83-37.000.

Micheletti, Bejrouth M. Washing apparatus and process. 5,062,438, Cl. 134-9.000.

Micron Technology, Inc.: *See—*
Wood, Alan G.; Farnworth, Warren M.; and McGill, George P., 5,062,565, Cl. 228-9.000.

Middleby Corporation: *See—*
Whitesel, J. Warren; and Cooper, Larry, 5,062,408, Cl. 126-41.00R.

Mier, Randall M.: *See—*
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Migdal, Cyril A.; and Jenkins, Robert H., Jr., to Texaco Inc. Polymeric step ladder polysuccinimide compositions suitable for lubricating oil dispersants and fuel additives. 5,062,980, Cl. 252-51.50A.

Migliori, Albert, to United States of America, Energy. Resonant ultrasound spectroscopy. 5,062,296, Cl. 73-579.000.

Mihayashi, Keiji: *See—*
Abe, Akira; Fujita, Yoshihiro; and Mihayashi, Keiji, 5,063,131, Cl. 430-372.000.

Mikhail, Ameer G., to United States of America, Army. Detached and attached thermal spoilers for kinetic energy projectile fins. 5,062,585, Cl. 244-3.240.

Miki, Shogo: *See—*
Nomura, Takuji; Miki, Shogo; Sakauchi, Takashi; Sato, Yoshitaka; and Honma, Yuusuke, 5,062,981, Cl. 252-62.540.

Milillo, Richard J., to Xerox Corporation. Document illumination assembly adapted to reduce platen overheating. 5,063,404, Cl. 355-30.000.

Miller, Alan B.: *See—*
Wenskus, James J., Jr.; and Miller, Alan B., 5,063,008, Cl. 264-40.500.

Miller, Brian S.; and Kaplan, David R., to United States of America, Army. Method of making a flexible membrane circuit tester. 5,062,203, Cl. 29-852.000.

Miller, Brian S.; and Kaplan, David R., to United States of America, Army. Method of making a flexible membrane circuit tester. 5,062,204, Cl. 29-852.000.

Miller, Calvin M.: *See—*
Clayton, Jane B.; and Miller, Calvin M., 5,062,684, Cl. 385-27.000.

Miller, Jack E.; Fowler, Joe R.; Fox, Stewart A.; and Lane, Bryan, to National-Oilwell. Connection seal. 5,062,667, Cl. 285-381.000.

Miller, James E.: *See—*
Shurtz, Richard R., II; Sharp, Edward J.; and Miller, James E., 5,063,418, Cl. 357-15.000.

Miller, John W.: *See—*
Mason, John G.; Miller, John W.; Sauerwein, William D.; and Vick, Stephen L., 5,063,319, Cl. 310-210.000.

Miller, Michael S.: *See—*
Goetz, Frederick E.; Miller, Michael S.; and Shelton, Homer, Jr., 5,062,671, Cl. 292-175.000.

Miller, Nigel D., to Smith & Nephew plc. Hypoadherent dressings comprising liquid pervious polymer coating of polyurethane containing siloxane residues. 5,063,063, Cl. 424-445.000.

Miller, Randolph D. Pole-latch attachment for jet ski. 5,062,377, Cl. 114-270.000.

Miller, Robert E.; and Eichelberger, F. Jay, Jr., to Ford New Holland, Inc. Low profile cart for the insitu collection filteration and recycle of fluids from machinery. 5,062,500, Cl. 184-106.000.

Millipore Corporation: *See—*
Rising, Donald B.; and Montminy, Emile O., 5,062,308, Cl. 73-864.410.

Mills, Larry R.: *See—*
Berry, Troy R.; and Mills, Larry R., 5,062,642, Cl. 273-183.00B.

Mimura, Nobuharu, to Kabushiki Kaisha Toyota Chuo Kenkyusho. Articulated hand. 5,062,673, Cl. 294-111.000.

Minabe, Kohji: *See—*
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.

Minami, Hiroshi; and Fujita, Koreaki, to Mitsubishi Denki Kabushik Kaisha. Current mirror amplifier circuit. 5,063,305, Cl. 307-304.000.

Mincher, William H. Security rail. 5,062,612, Cl. 256-11.000.

Mine, Atsushi: *See—*
Kamimura, Katsuyoshi; Mine, Atsushi; and Hiwatashi, Yutaka, 5,063,512, Cl. 364-424.050.

Minegishi, Masami, to Fuji Jukogyo Kabushiki Kaisha. Diesel engine shut-down device. 5,062,400, Cl. 123-198.0DB.

VOL 1132 ISS 1 NO 5 1991 UMI

Minnesota Mining and Manufacturing Company: *See—*
Andrews, Jeffrey F., 5,063,249, Cl. 514-673.000.
Budd, Kenton D., 5,063,199, Cl. 505-1.000.
Burns, James A.; and Reischel, Joseph G., 5,062,421, Cl. 128-205.270.
Cleary, James D.; and Eckert, Robert P., 5,062,793, Cl. 433-3.000.
Gunther, Werner T., 5,062,251, Cl. 53-134.100.
Hardenbrook, James M.; Williams, Richard E.; and Daniel, Mark L., 5,063,297, Cl. 250-458.100.
Matson, Charles J.; and Velasquez, David J., 5,062,423, Cl. 128-207.150.
Tristani-Kendra, Miguel G.; and Papapolymerou, George, 5,062,691, Cl. 359-56.000.

Minolta Camera Co., Ltd.: *See—*
Nakatani, Munehiro; Yamada, Hirokazu; and Kishi, Masamichi, 5,063,459, Cl. 358-404.000.

Minolta Camera Kabushiki Kaisha: *See—*
Ariyama, Takayuki, 5,063,415, Cl. 355-312.000.
Iwasaki, Satoshi, 5,062,695, Cl. 359-689.000.
Kinoshita, Naoyoshi; and Kusumoto, Keiji, 5,063,410, Cl. 355-204.000.
Oka, Tateki; and Yokoyama, Tomoaki, 5,063,127, Cl. 430-45.000.
Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, 5,063,402, Cl. 354-400.000.

Mirzamaani, Seyyed M. T.: *See—*
Edmonson, David A.; Ivett, Peter R.; Johnson, Kenneth E.; Mirzamaani, Seyyed M. T.; and Ward, James F., Jr., 5,063,120, Cl. 428-694.000.

Missler, Patrick. Horizontal band-saw. 5,062,335, Cl. 83-168.000.

Mita Industrial Co., Ltd.: *See—*
Nakatani, Kaname; Hanatani, Yasuyuki; and Mizuta, Yasufumi, 5,063,126, Cl. 430-59.000.

Mitani, Hiroshi: *See—*
Oshima, Mitsuaki; Izaki, Masataka; Kajino, Jirou; Igarashi, Yoshiaki; and Mitani, Hiroshi, 5,062,696, Cl. 359-554.000.

Mitchell, Phillip R. Portable microscope apparatus. 5,062,697, Cl. 359-379.000.

Mitsubishi Denki Kabushik Kaisha: *See—*
Minami, Hiroshi; and Fujita, Koreaki, 5,063,305, Cl. 307-304.000.

Mitsubishi Denki K.K.: *See—*
Iwata, Toshio, 5,062,294, Cl. 73-115.000.

Mitsubishi Denki Kabushiki Kaisha: *See—*
Amano, Masaaki, 5,062,502, Cl. 187-124.000.
Haruta, Yasumasa, 5,062,519, Cl. 190-333.000.
Ikeda, Hideo; Hamamura, Chiyo; Satoh, Hiroshi; and Utsui, Yoshihiko, 5,062,307, Cl. 73-862.360.
Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, 5,063,546, Cl. 369-32.000.
Kil.ida, Shigeru; Miyamoto, Hiroshi; and Yamada, Michihiro, 5,063,313, Cl. 307-605.000.
Miwa, Hiroshi; Miyoshi, Atuko; Satou, Syungi; and Kaseda, Masayuki, 5,063,528, Cl. 364-559.000.
Semasa, Takayoshi; and Ueno, Yutaka, 5,063,587, Cl. 379-53.000.
Shimura, Teruyuki, 5,063,167, Cl. 437-31.000.
Takeda, Masatoshi; Aritsuka, Tomohiko; and Tachibana, Yoshitaka, 5,063,532, Cl. 364-825.000.

Mitsubishi Gas Chemical Company Inc.: *See—*
Murayama, Katsutoshi; and Nagai, Hideaki, 5,063,250, Cl. 518-704.000.

Mitsubishi Jukogyo Kabushiki Kaisha: *See—*
Murayama, Katsutoshi; and Nagai, Hideaki, 5,063,250, Cl. 518-704.000.

Mitsubishi Kasei Corporation: *See—*
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.
Sekiya, Tetsuo; Inoue, Shinya; Taniguchi, Masao; Umezu, Kohei; and Suzuki, Kazuo, 5,063,247, Cl. 514-585.000.

Mitsubishi Kinzoku Kabushiki Kaisha: *See—*
Sukekawa, Izumi; Asao, Haruhiko; Kohno, Hiroshi; Sugawara, Yukio; and Nogami, Keiji, 5,062,614, Cl. 266-216.000.

Mitsubishi Paper Mills Limited: *See—*
Goto, Atsuo; Okumura, Fumio; and Ito, Kazuhiko, 5,063,197, Cl. 503-209.000.

Mitsui Petrochemical Industries, Ltd.: *See—*
Kawazoe, Tetsu; and Iida, Tsukasa, 5,062,948, Cl. 208-251.00R.

Mitsuya, Yoshihide: *See—*
Kageyama, Shubei; Kageyama, Toshihiko; Nakazato, Youichi; and Mitsuya, Yoshihide, 5,062,727, Cl. 401-52.000.

Mitsuyama, Masuhiro. Compact file for letters and other documents. 5,062,530, Cl. 206-425.000.

MIU Automation Corporation: *See—*
Dyke, John, 5,063,596, Cl. 380-49.000.

Miura, Fujio, to GAC International, Inc. Orthodontic appliance with shoulder support for ligature. 5,062,794, Cl. 433-10.000.

Miura, Haruo; Fukushima, Yasuo; Nishida, Hideo; Kobayashi, Hiromi; and Takagi, Takeo, to Hitachi, Ltd. Turbo compressor. 5,062,766, Cl. 415-199.100.

Miwa, Hiroshi; Miyoshi, Atuko; Satou, Syungi; and Kaseda, Masayuki, to Mitsubishi Denki Kabushiki Kaisha. Record position measuring apparatus. 5,063,528, Cl. 364-559.000.

Mix, Thomas W. Packing elements. 5,063,000, Cl. 261-94.000.

Miyagawa, Naoomi; Yoshida, Chiyoaki; Toda, Kazuyuki; and Nakamura, Yukiyasu, to Yamazaki Mazak Kabushiki Kaisha. Press brake and a workpiece measuring method in the press brake. 5,062,283, Cl. 72-10.000.

Miyake, Tetsuo: *See—*
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.
Kubo, Masao; Miyake, Tetsuo; Matsuzaki, Kunimitsu; and Kitagawa, Katsuji, 5,062,284, Cl. 72-46.000.

Miyamae, Toshiyuki: *See—*
Yamada, Yasuhiko; Tomio, Minaki; Miyamae, Toshiyuki; and Kawai, Norio, 5,062,618, Cl. 267-140.400.

Miyamoto, Hiroshi: *See—*
Kikuda, Shigeru; Miyamoto, Hiroshi; and Yamada, Michihiro, 5,063,313, Cl. 307-605.000.

Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, to Kabushiki Kaisha Kobe Seiko Sho; and Doryokuro Kakunenryo Kaihatsu Jigyodan. Method of compacting radioactive metal wastes. 5,063,001, Cl. 264-0.500.

Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, to Pentel Kabushiki Kaisha. Water-based ink composition for ball-point pen. 5,062,890, Cl. 106-27.000.

Miyatake, Takafumi: *See—*
Yoda, Haruo; Miyatake, Takafumi; and Matsushima, Hitoshi, 5,063,492, Cl. 364-167.010.

Miyoshi, Atuko: *See—*
Miwa, Hiroshi; Miyoshi, Atuko; Satou, Syungi; and Kaseda, Masayuki, 5,063,528, Cl. 364-559.000.

Miyoshi, Hiroshi; Kamatani, Yoshiteru; Ozue, Tadashi; Narahara, Tatsuya; and Ohsato, Kiyoshi, to Sony Corporation. Rotary optical head. 5,063,555, Cl. 369-97.000.

Mizukura, Noboru: *See—*
Sugita, Shuichi; Mizukura, Noboru; Kohno, Junichi; Kadokura, Kenzi; and Tomotake, Atsushi, 5,063,148, Cl. 430-551.000.

Mizuno, Hiroshige; Abe, Fumio; and Harada, Takashi, to NGk Insulators, Ltd. Resistance adjusting type heater and catalytic converter. 5,063,029, Cl. 422-175.000.

Mizuno, Toru; and Morikawa, Shigehiro, to Fanuc Ltd. Weaving welding method. 5,063,281, Cl. 219-125.120.

Mizunoya, Nobuyuki: *See—*
Sato, Hideki; Mizunoya, Nobuyuki; Asai, Hironori; Anzai, Kazuo; and Hatano, Tsuyoshi, 5,063,121, Cl. 428-698.000.

Mizuta, Yasufumi: *See—*
Nakatani, Kaname; Hanatani, Yasuyuki; and Mizuta, Yasufumi, 5,063,126, Cl. 430-59.000.

Mizutani, Shoji; and Taneda, Nobuo, to Teijin Limited. Process for preparation of hollow fibers for fluid separator construction. 5,063,009, Cl. 264-49.000.

Mizutani, Takehito: *See—*
Hirata, Toshio; Ogura, Kenji; and Mizutani, Takehito, 5,062,275, Cl. 62-174.000.

Mobay Corporation: *See—*
Gansen, Peter; Wolfgramm, Rudi; Wolf, Klaus D.; and Lindsey, John J., 5,063,253, Cl. 521-159.000.

Mobil Oil Corporation: *See—*
Apelian, Minas R.; and Kennedy, Clinton R., 5,062,943, Cl. 208-59.000.
Audeh, Costandi A., 5,062,976, Cl. 252-45.000.
Coles, Mary E.; and Muegge, Ernest L., 5,063,509, Cl. 364-420.000.
Humble, John D.; Searles, Raymond C.; Ruggles, John D.; and Jacobowitz, Judah L., 5,063,028, Cl. 422-144.000.
Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., 5,063,038, Cl. 423-328.000.
Leib, Tiberiu M.; and Sapre, Ajit V., 5,062,944, Cl. 208-113.000.
Pappal, David A.; and Schipper, Paul H., 5,062,945, Cl. 208-113.000.
Rubin, Mae K., 5,063,037, Cl. 423-277.000.
Valyocsik, Ernest W., 5,063,039, Cl. 423-329.000.

Mochida, Haruo: *See—*
Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, 5,062,312, Cl. 74-89.140.

Mochida, Mitsuyoshi: *See—*
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.

Moeller, Larry F.: *See—*
Bailey, Thomas F.; and Moeller, Larry F., 5,062,479, Cl. 166-84.000.

Moessner, Helmut A.: *See—*
Brodie, Ivor; Gernick, Henry R.; Holland, Christopher E.; and Moessner, Helmut A., 5,063,327, Cl. 313-482.000.

Mohr, Helmut: *See—*
Wallroth, Carl F.; Falb, Wolfgang; and Mohr, Helmut, 5,062,999, Cl. 261-39.100.

Molbaek, Jens J.: *See—*
Stenstrom, Theiss; Molbaek, Jens J.; Hyldig, Poul E.; and Straede, Bjarne, 5,062,442, Cl. 137-110.000.

Molex Incorporated: *See—*
Grois, Igor; and Margolin, Mark, 5,062,683, Cl. 385-87.000.

Mondini, Gian-Carlo; and Ackeret, Walter, to Rieter Machine Works Limited. Lap feed plate connected to oscillating nippers in a combing machine. 5,062,183, Cl. 19-225.000.

Monnier, Christian, to Societe d'Applications Generales d'Electricite et de Mecanique Sagem. Instrument danel assembly for motor vehicle dashboard. 5,062,604, Cl. 248-27.100.

Monsanto Company: *See—*
Patterson, Dennis R., 5,062,880, Cl. 71-92.000.

Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., to PCC Airfoils, Inc. Mold and method for casting a single crystal metal article. 5,062,468, Cl. 164-122.200.

Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., to PCC Airfoils, Inc. Mold and method for casting a single crystal metal article. 5,062,469, Cl. 164-122.200.

Montefibre S.p.A.: *See—*
Tedesco, Raffaele; Busato, Giampaolo; and Sinatora, Giampaolo, 5,063,099, Cl. 428-109.000.

Montminy, Emile O.: *See—*
Rising, Donald B.; and Montminy, Emile O., 5,062,308, Cl. 73-864.410.

Mooney, John B.; and Sher, Arden, to SRI International. Method of forming a low dislocation density semiconductor device. 5,063,166, Cl. 437-22.000.

Moore Business Forms, Inc.: *See—*
Ashby, Robert E., 5,062,570, Cl. 229-71.000.

Moore, Joel D.: *See—*
Bateson, George F.; Chresand, Thomas J.; Moore, Joel D.; and Nayes, Terrence L., 5,062,958, Cl. 210-611.000.

Moore, Sanders H.: *See—*
Dotson, Ronald L.; and Moore, Sanders H., 5,062,966, Cl. 210-753.000.

Moose, Paul H. Multi-frequency differentially encoded digital communication for high data rate transmission through unequalized channels. 5,063,574, Cl. 375-27.000.

Morgan, Leslie, to Wiggins Teape Group Limited, The. Rope system for a paper machine coating or size press section. 5,062,923, Cl. 162-265.000.

Morgenstern, Herbert: *See—*
Bauer, Peter; Konrad, Rainer; Morgenstern, Herbert; and Schuch, Horst, 5,063,016, Cl. 264-211.210.

Mori, Hiroshi: *See—*
Hasegawa, Akira; Mori, Hiroshi; Takahashi, Tatsuhiko; and Sano, Yasuyuki, 5,063,255, Cl. 522-96.000.

Mori, Shojiro, to Kabushiki Kaisha Toshiba. Semiconductor integrated circuit device having standard cells including internal wiring region. 5,063,430, Cl. 357-45.000.

Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, to Canon Kabushiki Kaisha. Liquid cooled X-ray lithographic exposure apparatus. 5,063,582, Cl. 378-34.000.

Moriguchi, Kazutomo: *See—*
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.

Morikawa, Shigehiro: *See—*
Mizuno, Toru; and Morikawa, Shigehiro, 5,063,281, Cl. 219-125.120.

Morimoto, Tadaoki: *See—*
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Morita, Ikuo: *See—*
Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, 5,063,243, Cl. 514-438.000.

Morita, Shizuo: *See—*
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,063,411, Cl. 355-212.000.

Morita, Toshiki: *See—*
Edahiro, Takeshi; Takehara, Shin; Morita, Toshiki; and Kumada, Hiroyoshi, 5,062,659, Cl. 280-707.000.

Morozumi, Naoya: *See—*
Hattori, Hitoshi; Sakata, Hirotsugu; Hayano, Makoto; Okuda, Masayuki; and Morozumi, Naoya, 5,062,778, Cl. 418-220.000.

Morris, William M. Mowing apparatus. 5,062,257, Cl. 56-11.100.

Morrison, Kenneth G.: *See—*
Harmon, Thomas D.; and Morrison, Kenneth G., 5,062,582, Cl. 242-56.400.

Mortensen, Anders, to Dansk Industri Syndikat A/S. Procedure for conveying molds, and a plant for that purpose. 5,062,465, Cl. 164-4.100.

Morton, Jay, to City of Hope; and Morton, Lucille T. Easy-open and reclosable container. 5,062,542, Cl. 220-269.000.

Morton, Lucille T.: *See—*
Morton, Jay, 5,062,542, Cl. 220-269.000.

Mosciatti, Roger: *See—*
Foley, Thomas P.; and Mosciatti, Roger, 5,062,384, Cl. 118-500.000.

Mosher, Gerold L.; and Mullen, Michael V., to Eli Lilly and Company. R-cefuroxime axetil. 5,063,224, Cl. 514-202.000.

Motorola, Inc.: *See—*
Erhart, Richard A.; Herold, Barry W.; and DeLuca, Joan S., 5,063,533, Cl. 395-425.000.
Kalenowsky, John A., 5,063,340, Cl. 320-1.000.
Patsiokas, Stelios J.; Johnson, Brian Keith A.; and Audet, Pierre E., 5,063,588, Cl. 379-57.000.
Peterson, William M.; Hume, Christopher N.; and Leivian, Robert H., 5,063,521, Cl. 395-27.000.
Sigmon, Bernard E., 5,063,360, Cl. 331-175.000.
Swapp, Mavin C., 5,063,311, Cl. 307-603.000.
Williams, William R.; and Callaway, Edgar H., Jr., 5,063,357, Cl. 331-49.000.

Moulding, Kenneth W.: *See—*
Hughes, John B.; and Moulding, Kenneth W., 5,063,342, Cl. 323-315.000.

Moulinet, Francois, to Glaenzer Spicer. Arrangement of a protective cover on the socket of a transmission joint. 5,062,821, Cl. 464-111.000.

Mower, Vaughn L., to Unisys Corporation. Doppler frequency compensation circuit. 5,063,387, Cl. 342-103.000.

Mowry, William H.; Schuelke, James H.; and White, Robert L., to Standard Register Company, The. Financial instrument and method of making. 5,062,666, Cl. 283-67.000.

Mu, Albert T., to Advanced Micro Devices, Inc. Integrated circuit lead assembly structure with first and second lead patterns spaced apart in parallel planes with a part of each lead in one lead pattern perpendicular to a part of each lead in the other lead pattern. 5,063,432, Cl. 357-70.000.

Muchmore, Robert A.; and Roth, William H., to General Motors Corporation. Tuned damper for a torque converter clutch. 5,062,517, Cl. 192-106.200.

Muck, Jack E.: *See—*
Hilsenbeck, Henry; and Muck, Jack E., 5,062,448, Cl. 137-498.000.

Muegge, Ernest L.: *See—*
Coles, Mary E.; and Muegge, Ernest L., 5,063,509, Cl. 364-420.000.

Mueller, Josef: *See—*
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Mueller, Otward M.: *See—*
Roemer, Peter B.; Mueller, Otward M.; Park, John N.; and McMurray, William, 5,063,349, Cl. 324-322.000.

Muetterties, Andrew J.: *See—*
Kramer, David E.; Muetterties, Andrew J.; and Szempruch, Walter T., 5,062,774, Cl. 417-413.000.

Muhlethaler, Erhard, to Lanz Oensingen AG. Cable-laying conduit. 5,062,605, Cl. 248-68.100.

Muia, Ramon A.; and Donlan, Rodney M., to Calgon Corporation. Method for controlling zebra mussels using didecyl dimethyl ammonium halides. 5,062,967, Cl. 210-755.000.

Muijs, Herman M.; Beers, Nicolaas C. M.; and Roefs, Sebastianus P. F. M., to Shell Oil Company. Surfactant composition. 5,062,970, Cl. 252-8.554.

Mukai, Sadayoshi: *See—*
Kanba, Masaru; Inoue, Yasuo; Mukai, Sadayoshi; Kikkawa, Masanari; and Suga, Yasunori, 5,062,292, Cl. 73-19.010.

Mullen, Michael V.: *See—*
Mosher, Gerold L.; and Mullen, Michael V., 5,063,224, Cl. 514-202.000.

Muller, Daniel: *See—*
Gauthier, Michel; Armand, Michel; and Muller, Daniel, 5,063,124, Cl. 429-192.000.

Mullinax, Ronald L.: *See—*
Pate, Gerry E.; Mullinax, Ronald L.; Sutton, Alexander C.; and Ross, Jeff E., 5,063,505, Cl. 364-400.000.

Mundy, Roy E.: *See—*
Karabin, Tadeusz; and Mundy, Roy E., 5,062,411, Cl. 126-523.000.

Murai, Hiroaki; Katano, Tatsuya; and Kikuchi, Shigeki, to Matsushita Graphic Communication Systems, Inc. Color image recording apparatus. 5,063,398, Cl. 346-157.000.

Murai, Yukio: *See—*
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, 5,062,271, Cl. 62-55.500.

Murakami, Hiroshi; and Yamagata, Kazuko, to Mazda Motor Corporation. Catalyst for purification of exhaust gases. 5,063,192, Cl. 502-303.000.

Murakami, Takuya: *See—*
Kakimoto, Toshihiko; and Murakami, Takuya, 5,062,654, Cl. 280-673.000.

Muramatsu, Kimio: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Muraoka, Kunihiko: *See—*
Ohno, Akira; Muraoka, Kunihiko; and Nakazato, Wataru, 5,062,806, Cl. 439-490.000.

Muraoka, Yutaka: *See—*
Kurakake, Mitsuo; Otsuka, Shoichi; and Muraoka, Yutaka, 5,063,525, Cl. 395-157.000.

Murata Mfg. Co., Ltd.: *See—*
Shigeno, Yoshiharu; Murata, Michihiro; Nishino, Yu; Fukui, Norio; and Yamamoto, Keizou, 5,063,347, Cl. 324-235.000.

Murata, Michihiro: *See—*
Shigeno, Yoshiharu; Murata, Michihiro; Nishino, Yu; Fukui, Norio; and Yamamoto, Keizou, 5,063,347, Cl. 324-235.000.

Murayama, Katsutoshi; and Nagai, Hideaki, to Mitsubishi Gas Chemical Company Inc.; and Mitsubishi Jukogyo Kabushiki Kaisha. Process for the production of methanol. 5,063,250, Cl. 518-704.000.

Murota, Seiitsu: *See—*
Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, 5,063,243, Cl. 514-438.000.

Mussinellil, Gian L., to Oronzio deNora S.A. Method and apparatus for cathodic protection. 5,062,934, Cl. 204-147.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Muta, Theodore J. Headband towel. 5,062,157, Cl. 2-171.000.

Mutze, Ulrich; Quanz, Gerhard; Vuong, The A.; and Kiesewetter, Wolfgang, to Eastman Kodak Company. Electronic camera for line-by-line imaging of documents. 5,063,460, Cl. 358-474.000.

Myers, Robert I.; Brubaker, Bryce D.; and Overall, Robert E., to Thiokol Corporation. Removable rocket motor igniter. 5,062,206, Cl. 29-890.010.

Myler, Ronald J.; and Benjak, Leo. Bridle bit. 5,062,255, Cl. 54-7.000.

Nabeya Kogyo Co., Ltd.: *See*—
Sato, Masahide, 5,062,619, Cl. 267-154.000.

Nabisco Brands, Inc.: *See*—
Klemann, Lawrence P.; and Finley, John W., 5,063,070, Cl. 426-271.000.
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., 5,063,075, Cl. 426-601.000.

Naeder, Max, to Otto Bock Orthopaedische Industrie Besitz- und Verwaltungs-Kommanditgesellschaft. Prosthetic foot having Z shaped insert. 5,062,859, Cl. 623-55.000.

Nagai, Hideaki: *See*—
Murayama, Katsutoshi; and Nagai, Hideaki, 5,063,250, Cl. 518-704.000.

Nagai, Keiichi: *See*—
Kambara, Hideki; Nishikawa, Tetsuo; Sumitani, Tomoaki; Nagai, Keiichi; and Ito, Yoshitoshi, 5,062,942, Cl. 204-299.00R.

Nagai, Shigeru: *See*—
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.

Nagakura, Hodaka; and Kondo, Tsuneshi, to Sanshin Kogyo Kabushiki Kaisha. Piston protection system for internal combustion engine. 5,062,399, Cl. 123-198.00D.

Nagaoka, Takashi: *See*—
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Nagasawa, Kenichi: *See*—
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, 5,063,453, Cl. 360-32.000.

Nagasawa, Takeshi; Gemba, Yuko; Nakamura, Yoshio; and Kuroiwa, Katsumasa, to Nitto Boseki Co., Ltd. Synthetic peptidic substrate for determination of trypsin and α_1-antitrypsin. 5,063,152, Cl. 435-24.000.

Nagase, Haruo: *See*—
Maehara, Minoru; and Nagase, Haruo, 5,063,490, Cl. 363-37.000.

Nagase, Tsutomu: *See*—
Yazaki, Takashi; Matsushita, Tomohisa; and Nagase, Tsutomu, 5,063,061, Cl. 424-427.000.

Nagashima, Akira, to Kioritz Corporation. Air cleaner. 5,062,875, Cl. 55-493.000.

Nagato, Hitoshi, to Kabushiki Kaisha Toshiba. Thermal recording apparatus and print head. 5,063,394, Cl. 346-76.0PH.

Nagatsuma, Shigeyuki, to Casio Computer Co., Ltd. Piano action device for electronic keyboard musical instruments. 5,062,342, Cl. 84-744.000.

Naito, Hideo: *See*—
Inaba, Yoshiharu; Naito, Hideo; Kamiguchi, Masao; Neko, Noriaki; and Sakakibara, Shinsuke, 5,062,784, Cl. 425-143.000.

Naitou, Osamu: *See*—
Takamatsu, Ryoji; Naitou, Osamu; Urushibata, Hiroyuki; and Sato, Masahiro, 5,063,557, Cl. 369-219.000.

Nakagaki, Toshio, to Bando Kabushiki Kaisha. Vulcanization apparatus. 5,062,780, Cl. 425-39.000.

Nakagawa, Akio: *See*—
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Nakagawa, Katsumi; Kawai, Tatsundo; and Kuroda, Yasuo, to Canon Kabushiki Kaisha. LED array and partitive driving method therefor using overlapping activation periods. 5,063,462, Cl. 358-475.000.

Nakahama, Tadamitsu: *See*—
Yamane, Takakazu; Tanimoto, Yoshio; and Nakahama, Tadamitsu, 5,063,085, Cl. 427-240.000.

Nakai, Masaaki: *See*—
Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, 5,063,402, Cl. 354-400.000.

Nakajima, Hirokazu, to Chisso Corporation. Crystalline polyolefin composition. 5,063,264, Cl. 524-118.000.

Nakajima, Hisao, to L'Etat Francais represente par le Ministre des Postes, des Telecommunications et de l'Espace (Centre National d'Edudes des Telecommunications). Photoreceptor for frequency-modulated optical signals. 5,063,567, Cl. 372-28.000.

Nakajima, Masato; Yokotani, Kenji; and Ikeda, Atsushi, to Arakawa Kagaku Kogyo Kabushiki Kaisha. Sizing paper with α-hydroxycarboxylic acid. 5,062,922, Cl. 162-158.000.

Nakajima, Sakuya: *See*—
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Nakajima, Tomohiro, to Ricoh Company, Ltd. Image recording apparatus and exchanging unit used in the same. 5,063,409, Cl. 355-200.000.

Nakajima, Yoshifumi: *See*—
Chiba, Kazuharu; Nakajima, Yoshifumi; and Sumiyoshi, Hideo, 5,063,568, Cl. 372-32.000.

Nakajima, Yoshiki: *See*—
Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, 5,063,546, Cl. 369-32.000.

Nakamichi Corporation: *See*—
Noguchi, Yasuhiro, 5,062,579, Cl. 242-68.300.
Tandai, Takahiko, 5,063,469, Cl. 360-128.000.

Nakamichi Fukushima Corporation: *See*—
Tandai, Takahiko, 5,063,469, Cl. 360-128.000.

Nakamura, Kosei; and Numai, Kazuhisa, to Fanuc Ltd. Apparatus for confirming movement of tap when rigid tapping. 5,062,744, Cl. 408-8.000.

Nakamura, Moriyasu: *See*—
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.

Nakamura, Takashi, to Fuji Photo Film Co., Ltd. Method of processing silver halide photosensitive material. 5,063,141, Cl. 430-398.000.

Nakamura, Yoshihiko: *See*—
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.

Nakamura, Yoshio: *See*—
Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, 5,063,042, Cl. 423-447.400.
Nagasawa, Takeshi; Gemba, Yuko; Nakamura, Yoshio; and Kuroiwa, Katsumasa, 5,063,152, Cl. 435-24.000.

Nakamura, Yukiyasu: *See*—
Miyagawa, Naoomi; Yoshida, Chiyoaki; Toda, Kazuyuki; and Nakamura, Yukiyasu, 5,062,283, Cl. 72-10.000.

Nakane, Toshio: *See*—
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Nakane, Yasumasa: *See*—
Sugita, Kazuhiko; Hori, Nohumitsu; and Nakane, Yasumasa, 5,063,322, Cl. 310-341.000.

Nakanishi, Toshiharu: *See*—
Hirota, Kusato; Ohbayashi, Gentaro; and Nakanishi, Toshiharu, 5,063,097, Cl. 428-65.000.

Nakanishi, Yoshito: *See*—
Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, 5,062,705, Cl. 356-124.000.

Nakano, Akio. Ultrasonic machining method. 5,062,933, Cl. 204-129.460.

Nakao, Fumio: *See*—
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.

Nakata, Toshihiko; and Kembo, Yukio, to Hitachi, Ltd. Method and apparatus for detecting photoacoustic signal and method for detecting internal defect of semiconductor device. 5,062,715, Cl. 356-432.000.

Nakatani, Kaname; Hanatani, Yasuyuki; and Mizuta, Yasufumi, to Mita Industrial Co., Ltd. Electrophotographic photosensitive material. 5,063,126, Cl. 430-59.000.

Nakatani, Munehiro; Yamada, Hirokazu; and Kishi, Masamichi, to Minolta Camera Co., Ltd. Facsimile apparatus. 5,063,459, Cl. 358-404.000.

Nakayama, Hiroshi; and Yumoto, Toshiyuki, to Honda Giken Kogyo Kabushiki Kaisha. Drive system with intermediate shaft for automobiles. 5,062,822, Cl. 475-200.000.

Nakayama, Mikio: *See*—
Ikeda, Koji; and Nakayama, Mikio, 5,063,563, Cl. 370-110.100.

Nakazato, Wataru: *See*—
Ohno, Akira; Muraoka, Kunihiko; and Nakazato, Wataru, 5,062,806, Cl. 439-490.000.

Nakazato, Youichi: *See*—
Kageyama, Shubei; Kageyama, Toshihiko; Nakazato, Youichi; and Mitsuya, Yoshihide, 5,062,727, Cl. 401-52.000.

Nakazyo, Kiyoshi: *See*—
Hirose, Takeshi; Abe, Akira; and Nakazyo, Kiyoshi, 5,063,143, Cl. 430-419.000.

Nakos, Steven T., to Loctite Corporation. MTQ/polysiloxane hybrid resins, method of making the same, and coating/potting compositions containing the same. 5,063,254, Cl. 522-43.000.

Nalowaniec, Krzysztof; and Simmler, Kurt, to Paul Hartmann Aktiengesellschaft. Absorbent disposeable article. 5,062,838, Cl. 604-366.000.

Nambu, Toshiro; Kawaguchi, Hirotoshi; Furukawa, Hisao; and Kato, Yasushi, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Coated material. 5,063,114, Cl. 428-447.000.

Namimatsu, Akio; and Go, Kouichiro, to Nippon Zoki Pharmaceutical Co., Ltd. Method for evaluating antiallergic substances. 5,063,045, Cl. 424-9.000.

Nannette Poillon: *See*—
Poillon, Nannette; Canistraro, Howard; and Sienko, Ronald F., 5,062,641, Cl. 273-181.00C.

Narahara, Tatsuya: *See*—
Miyoshi, Hiroshi; Kamatani, Yoshiteru; Ozue, Tadashi; Narahara, Tatsuya; and Ohsato, Kiyoshi, 5,063,555, Cl. 369-97.000.

Narayan, Jagdish, to Kopin Corporation. High transition temperature superconductors. 5,063,202, Cl. 505-1.000.

Nartron Corporation: *See*—
Shank, David W.; and Findikli, Nadi S., 5,063,513, Cl. 364-424.050.

Nasta International, Inc.: *See*—
Reiling, Victor G.; and Dean, Bryan L., 5,062,341, Cl. 84-702.000.

National-Oilwell: *See*—
Miller, Jack E.; Fowler, Joe R.; Fox, Stewart A.; and Lane, Bryan, 5,062,667, Cl. 285-381.000.

National Research Development Corporation: *See*—
Peters, Timothy J.; and Raja, Kishor B., 5,063,205, Cl. 514-12.000.

National Semiconductor Corporation: *See*—
Bobba, Ram S., 5,063,383, Cl. 341-120.000.
Manley, Martin H., 5,063,172, Cl. 437-43.000.
Vora, Madhukar B., 5,063,168, Cl. 437-31.000.

Natsuume, Tadao: *See*—
Kohara, Teiji; Oshima, Masayoshi; and Natsuume, Tadao, 5,063,096, Cl. 421-64.000.

Nauchno-Proizvodstvennoe Objedinenie: *See*—
Bakirov, Murat B.; Getman, Alexandr F.; Gribov, Boris I.; Bordjugovsky, Andrei A.; and Klimenok, Alexandra P., 5,062,293, Cl. 73-81.000.

Nayes, Terrence L.: *See*—
Bateson, George F.; Chresand, Thomas J.; Moore, Joel D.; and Nayes, Terrence L., 5,062,958, Cl. 210-611.000.

NCR Corporation: *See*—
Crafts, Harold S., 5,063,429, Cl. 357-40.000.

Neblich, Josef: *See*—
Paggen, Wolfgang; and Neblich, Josef, 5,063,477, Cl. 361-384.000.

NEC Corporation: *See*—
Eguchi, Mikiro; and Sato, Hideto, 5,063,576, Cl. 375-111.000.
Inaba, Katsuhiko, 5,063,489, Cl. 363-21.000.
Kawai, Shigeru; and Kubota, Keiichi, 5,063,531, Cl. 395-25.000.
Okajima, Masayuki; and Shibuya, Toru, 5,063,443, Cl. 358-133.000.
Okamoto, Satoru; Terazi, Kazufumi; Nishino, Seiichi; and Bonkohara, Manabu, 5,063,435, Cl. 357-74.000.
Shinozaki, Eiji, 5,063,310, Cl. 307-570.000.
Takahashi, Hiroyuki, 5,063,540, Cl. 365-175.000.

Neff, Franz H.; and Heinrich, Jurgen, to TZN Forschungs, und Entwicklungszentrum Unterluss GmbH. Target detection method for flying bodies provided with search head. 5,062,584, Cl. 244-3.150.

Negoro, Ikuo: *See*—
Honda, Ryoji; Kita, Masahiro; and Negoro, Ikuo, 5,063,416, Cl. 355-316.000.

Neko, Noriaki: *See*—
Inaba, Yoshiharu; Naito, Hideo; Kamiguchi, Masao; Neko, Noriaki; and Sakakibara, Shinsuke, 5,062,784, Cl. 425-143.000.

Nelson, Riley H., to 859545 Ontario Ltd. Gymnastic training device. 5,062,630, Cl. 272-111.000.

Nelson, Riley H. Method of preventing adherence of insect residues to vehicular surfaces. 5,063,084, Cl. 427-154.000.

Nelson, Thomas E. Animal litter containing an improved clay. 5,062,383, Cl. 119-173.000.

Nemoto, Hiroyuki: *See*—
Okuda, Eiji; and Nemoto, Hiroyuki, 5,062,688, Cl. 359-619.000.

Nepon Company, Ltd: *See*—
Kamanaka, Ryusuke; and Kakuta, Yoshio, 5,062,409, Cl. 126-99.00R.

Netravali, Arun N.: *See*—
Knauer, Scott C.; Netravali, Arun N.; Petajan, Eric D.; Safranek, Robert J.; and Westerink, Peter H., 5,063,444, Cl. 358-133.000.

Nettles, James A.: *See*—
Breckenfeld, Paul W.; Nettles, James A.; Rogers, Duane E.; and Broughton, George, 5,062,403, Cl. 123-413.000.

Neuman, Clayton L., to A-1 Engineering, Inc. Injection molding filter. 5,062,952, Cl. 210-232.000.

Neustat, Paula; and Marchiony, Larry, to Burlington Industries, Inc. Fabric sample display. 5,062,534, Cl. 211-48.000.

Newbold, George T., to Martin Archery, Inc. Arrow rest and arrow launcher adjustment apparatus. 5,062,407, Cl. 124-44.500.

Newton, Trevor W.; and McArthur, Alastair, to Shell International Research Maatschappij B. V. Triazine herbicides. 5,062,882, Cl. 71-93.000.

NGk Insulators, Ltd.: *See*—
Mizuno, Hiroshige; Abe, Fumio; and Harada, Takashi, 5,063,029, Cl. 422-175.000.

NGK Spark Plug Co., Ltd.: *See*—
Tsuge, Kazuto; Hattori, Masateru; Kondo, Kazuo; and Shibata, Yoshimasa, 5,062,798, Cl. 433-201.100.

Ngo, Khai D.; and Charles, Richard J., to General Electric Company. Dual-permeability core structure for use in high-frequency magnetic components. 5,062,197, Cl. 29-606.000.

Nguyen, Dat; Sansevero, Frank; Johnson, Gerald E.; and Rivera, James A., to Otis Elevator Company. Self adjustable handrail drive with separate drive chains. 5,062,520, Cl. 198-335.000.

Nichias Corporation: *See*—
Niwa, Takahiro; and Shimizu, Yasuo, 5,063,098, Cl. 428-76.000.

Nichols, Jerry A.: *See*—
Story, Carl E.; Nichols, Jerry A.; and Cady, Byron C., 5,062,770, Cl. 417-46.000.

Nieuwenhuize, O. V.; de Grunt, F.; de Vissser, S.; and Vos, R., to Avery Dennison Corporation. Thermoplastic plasticizer-resistant film and pressure-sensitive adhesive film comprising the plasticizer-resistant film. 5,063,106, Cl. 428-343.000.

Nihon Chikasui Kaihatsu Kabushiki Kaisha: *See*—
Katsuragi, Kohei; and Hiyama, Takayuki, 5,062,736, Cl. 404-72.000.

Nihon Tokushu Noyaku Seizo K.K.: *See*—
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Niigata, Kunihiro: *See*—
Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, 5,063,246, Cl. 514-517.000.

Nikon Corporation: *See*—
Yokonuma, Norikazu; Hagiuda, Nobuyoshi; Iida, Yoshikazu; Sakamoto, Hiroshi; and Matsui, Hideki, 5,063,403, Cl. 354-413.000.

Nim Incorporated: *See*—
Chance, Britton, 5,062,428, Cl. 128-664.000.

Nippon Hoso Kyokai: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Nippon Koki, Co., Ltd.: *See*—
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.

Nippon Piston Ring Co., Ltd.: *See*—
Tomii, Hiroyasu; and Kaneko, Yukio, 5,062,730, Cl. 403-57.000.

Nippon Seiko Kabushiki Kaisha: *See*—
Chiba, Moichi, 5,062,721, Cl. 384-536.000.

Nippon Sheet Glass Co., Ltd.: *See*—
Okuda, Eiji; and Nemoto, Hiroyuki, 5,062,688, Cl. 359-619.000.
Peppers, Norman A.; Young, James R.; Pierce, Gerald A.; and Nishi, Hisami, 5,063,602, Cl. 382-32.000.

Nippon Steel Corporation: *See*—
Tomita, Yukio; Yamaba, Ryota; and Kumagai, Tatsuya, 5,062,905, Cl. 148-111.000.

Nippon Telegraph and Telephone Corporation: *See*—
Imamura, Saburo; and Izawa, Tatsuo, 5,062,680, Cl. 385-131.000.

Nippon Zeon Co., Ltd.: *See*—
Kohara, Teiji; Oshima, Masayoshi; and Natsuume, Tadao, 5,063,096, Cl. 421-64.000.
Sugawara, Tomoo; and Yamato, Motoyuki, 5,063,103, Cl. 428-285.000.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,982, Cl. 252-62.570.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,983, Cl. 252-62.570.

Nippon Zoki Pharmaceuti :al Co., Ltd.: *See*—
Namimatsu, Akio; and Go, Kouichiro, 5,063,045, Cl. 424-9.000.

Nippondenso Co., Ltd.: *See*—
Fujii, Tetsuo; Sakai, Minekazu; and Kuroyanagi, Akira, 5,063,423, Cl. 357-23.500.
Hirata, Toshio; Ogura, Kenji; and Mizutani, Takehito, 5,062,275, Cl. 62-174.000.
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.

Nishi, Hisami: *See*—
Peppers, Norman A.; Young, James R.; Pierce, Gerald A.; and Nishi, Hisami, 5,063,602, Cl. 382-32.000.

Nishida, Hideo: *See*—
Miura, Haruo; Fukushima, Yasuo; Nishida, Hideo; Kobayashi, Hiromi; and Takagi, Takeo, 5,062,766, Cl. 415-199.100.

Nishida, Norio, to Sony Corporation. Access speed detecting means for disc player. 5,063,545, Cl. 369-32.000.

Nishida, Yukihiro: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Nishihara, H. Keith; Crossley, P. Anthony; Hunt, Neil D.; and Tenenbaum, J. Martin, to Schlumberger Technologies, Inc. Lead design to facilitate post-reflow solder joint quality inspection. 5,062,567, Cl. 228-105.000.

Nishii, Yasuho; and Takita, Yumiko, to Chugai Seiyaku Kabushiki Kaisha. Treatment for hyperparathyroidism with use of vitamin D derivatives. 5,063,221, Cl. 514-167.000.

Nishijima, Hideo: *See*—
Horiuchi, Tadasu; Nishijima, Hideo; and Ohno, Shoji, 5,063,456, Cl. 358-310.000.
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.

Nishikawa, Hiroshi: *See*—
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Nishikawa, Tetsuo: *See*—
Kambara, Hideki; Nishikawa, Tetsuo; Sumitani, Tomoaki; Nagai, Keiichi; and Ito, Yoshitoshi, 5,062,942, Cl. 204-299.00R.
Nishikawa, Yasuo: *See*—
Ishida, Toshio; Ushimaru, Akira; and Nishikawa, Yasuo, 5,063,119, Cl. 428-694.000.
Ryoke, Katsumi; Takahashi, Masatoshi; and Nishikawa, Yasuo, 5,063,105, Cl. 428-336.000.
Nishimoto, Akihiko; Hosoya, Yoshihiro; Tomita, Kunikazu; Urabe, Toshiaki; and Jitsukawa, Masaharu, to NKK Corporation. Method of making non-oriented electrical steel sheets. 5,062,906, Cl. 148-111.000.
Nishimoto, Yoshifumi: *See*—
Kataoka, Kenichi; Nishimoto, Yoshifumi; and Igaki, Masahiko, 5,062,622, Cl. 271-270.000.
Nishino, Masashi: *See*—
Okada, Kenichi; Nishino, Masashi; and Tanigawa, Shu, 5,062,710, Cl. 356-350.000.
Nishino, Seiichi: *See*—
Okamoto, Satoru; Terazi, Kazufumi; Nishino, Seiichi; and Bonkohara, Manabu, 5,063,435, Cl. 357-74.000.
Nishino, Yu: *See*—
Shigeno, Yoshiharu; Murata, Michihiro; Nishino, Yu; Fukui, Norio; and Yamamoto, Keizou, 5,063,347, Cl. 324-235.000.
Nishio, Yukio; and Hirose, Kazonori, to Fujitsu Limited. Open-cell foam developing roller. 5,062,385, Cl. 118-653.000.
Nishiura, Yosuke: *See*—
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Maekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, 5,063,147, Cl. 430-523.000.
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, to Nippon Hoso Kyokai. Multiple sub-sampling transmitting/receiving system performing interfield and interframe offset sub-sampling of a broad bandwidth television signal. 5,063,445, Cl. 358-138.000.
Nissan Motor Co., Ltd.: *See*—
Akiyama, Takeo, 5,063,345, Cl. 324-173.000.
Kakimoto, Toshihiko; and Murakami, Takuya, 5,062,654, Cl. 280-673.000.
Ogata, Hisashi, 5,062,497, Cl. 180-300.000.
Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, 5,062,660, Cl. 280-707.000.
Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, 5,062,312, Cl. 74-89.140.
Nisshin Chemical Industry Co., Ltd.: *See*—
Saitoh, Izumi; and Sasaki, Yoshio, 5,063,048, Cl. 424-59.000.
Nissin Electric Co., Ltd.: *See*—
Kanba, Masaru; Inoue, Yasuo; Mukai, Sadayoshi; Kikkawa, Masanari; and Suga, Yasunori, 5,062,292, Cl. 73-19.010.
Nitto Boseki Co., Ltd.: *See*—
Nagasawa, Takeshi; Gemba, Yuko; Nakamura, Yoshio; and Kuroiwa, Katsumasa, 5,063,152, Cl. 435-24.000.
Niwa, Kenji: *See*—
Marcinkowski, John; Bennett, Herbert W.; and Niwa, Kenji, 5,062,963, Cl. 210-712.000.
Niwa, Takahiro; and Shimizu, Yasuo, to Nichias Corporation. Vibration damping materials and soundproofing structures using such damping materials. 5,063,098, Cl. 428-76.000.
Niznick, Gerald A., to Core-Vent Corporation. Dental implant handle, and dental implant package including a dental implant handle. 5,062,800, Cl. 433-229.000.
NKK Corporation: *See*—
Nishimoto, Akihiko; Hosoya, Yoshihiro; Tomita, Kunikazu; Urabe, Toshiaki; and Jitsukawa, Masaharu, 5,062,906, Cl. 148-111.000.
Nobel Kemi AB: *See*—
Sjoberg, Per, 5,062,343, Cl. 86-20.100.
Noble, Philip C.; and Padgett, Mary B., to Pfizer Hospital Products Group. Prosthetic device and method of implantation. 5,062,854, Cl. 623-23.000.
Nobue, Kazuo: *See*—
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.
Nogami, Keiji: *See*—
Sukekawa, Izumi; Asao, Haruhiko; Kohno, Hiroshi; Sugawara, Yukio; and Nogami, Keiji, 5,062,614, Cl. 266-216.000.
Noguchi, Makoto, to Yokohama Rubber Co., Ltd., The. Pneumatic tire having a tread pattern for reducing noise. 5,062,461, Cl. 152-209.00R.
Noguchi, Yasuhiro, to Nakamichi Corporation. Reel shaft in magnetic tape cassette recording and/or reproducing. 5,062,579, Cl. 242-68.300.
Nojo, Shigenobu: *See*—
Inagawa, Hideho; and Nojo, Shigenobu, 5,063,280, Cl. 219-121.700.
Nomoto, Yuji; Takai, Haruki; Ohno, Tetsuji; and Kubo, Kazuhiro, to Kyowa Hakko Kogyo Co., Ltd. Quinazoline-substituted pyridazinone derivatives having cardiotonic activity. 5,063,227, Cl. 514-252.000.
Nomura, Satoru: *See*—
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.
Nomura, Takuji; Miki, Shogo; Sakauchi, Takashi; Sato, Yoshitaka; and Honma, Yuusuke, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Magnet and method for manufacturing the same. 5,062,981, Cl. 252-62.540.
Nonaka, Tadashi: *See*—
Matsuo, Kenji; Nonaka, Tadashi; and Tsuchiya, Ikuo, 5,063,433, Cl. 357-71.000.
Nordica S.p.A.: *See*—
Gorza, Roberto, 5,062,225, Cl. 36-117.000.
Sartor, Mariano; and Gorza, Roberto, 5,062,226, Cl. 36-117.000.
Tacchetto, Maurizio, 5,062,224, Cl. 36-117.000.
Nordictrack, Inc.: *See*—
Engel, Timothy S.; and Iverson, Robert A., 5,062,633, Cl. 272-132.000.
Nordisk Gentofte A/S: *See*—
Jacobs, Howard S., 5,063,204, Cl. 514-8.000.
Nordquist, Michael H.: *See*—
Jay, Eric C.; and Nordquist, Michael H., 5,062,677, Cl. 297-444.000.
Norman, John A. T.: *See*—
Ellison, Thomas L.; Roberts, David A.; Ivankovits, John C.; and Norman, John A. T., 5,062,902, Cl. 148-23.000.
Noro, Hisashi: *See*—
Konno, Mitsuo; Noro, Hisashi; and Katsura, Naotero, 5,063,278, Cl. 219-86.100.
North American Philips Corporation: *See*—
Best, Donald T., 5,063,468, Cl. 360-123.000.
Nostwick, Allan A., 5,063,331, Cl. 315-219.000.
North American Philips Corp., Signetics Division: *See*—
Broadbent, Eliot K., 5,063,175, Cl. 437-192.000.
North Carolina State University: *See*—
Shih, Jason C. H.; and Williams, C. Michael, 5,063,161, Cl. 435-252.500.
Northern Telecom Limited: *See*—
Sasaki, Lawrence H.; and Chan, Sun-Shiu D., 5,063,579, Cl. 377-48.000.
Northrop Corporation: *See*—
Tully, John W.; O'Brien, Benedict B.; Hant, William; and Hu, King L., 5,063,427, Cl. 357-35.000.
Norton Company: *See*—
Chen, Sy-Hwa; and Sung, Chien-Min, 5,062,865, Cl. 51-295.000.
Norwood, Donald D. Hybrid information management system for handwriting and text. 5,063,600, Cl. 382-13.000.
Nosan, Francis J.: *See*—
Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., 5,062,366, Cl. 102-430.000.
Nostwick, Allan A., to North American Philips Corporation. High frequency oscillator-inverter circuit for discharge lamps. 5,063,331, Cl. 315-219.000.
Notetry Limited: *See*—
Dyson, James, 5,062,870, Cl. 55-213.000.
Nothofer, Michael: *See*—
Wieland, Dietrich; Kalb, Martin; Grupp, Werner; and Nothofer, Michael, 5,062,743, Cl. 408-6.000.
Nova Pharmaceutical Corporation: *See*—
Abreu, Mary E.; Rzeszotarski, Waclaw; Kyle, Donald J.; Hiner, Roger N.; and Elliott, Richard L., 5,063,245, Cl. 514-404.000.
Novak, Philip F.; Shannon, Robert D.; Pinckney, Robert L.; and Humphreys, James R., Jr., to Boeing Company, The. Aircraft construction. 5,063,384, Cl. 342-1.000.
Nozaki, Yoshihisa; Inden, Takashi; and Takemura, Tohur, to Brother Kogyo Kabushiki Kaisha. Course changing device for conveyer system. 5,062,524, Cl. 198-465.400.
Nudelman, Dennis L.: *See*—
Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., 5,062,299, Cl. 73-609.000.
Nuita, Akira; and Kawaguchi, Katsuhiko, to Tokyo Electric Co., Ltd. Thermal printer having a platen which can be pressed against a thermal head. 5,063,395, Cl. 346-76.0PH.
Numai, Kazuhisa: *See*—
Nakamura, Kosei; and Numai, Kazuhisa, 5,062,744, Cl. 408-8.000.
Nuttin, Pierre L. V.: *See*—
Martin, Martial G. E.; and Nuttin, Pierre L. V., 5,062,597, Cl. 270-39.000.
NYNEX Corporation: *See*—
Vancraeynest, Jan P., 5,063,571, Cl. 375-1.000.
Oberkersch, Angelika; Pirmann, Anton; and Schausberger, Helmut, to Agfa-Gevaert AG. Wet treatment arrangement for photographic sheet carriers. 5,063,401, Cl. 354-320.000.
O'Brien, Benedict B.: *See*—
Tully, John W.; O'Brien, Benedict B.; Hant, William; and Hu, King L., 5,063,427, Cl. 357-35.000.
O'Brien, Steven M.: *See*—
Davidowski, Dennis J.; Saunders, Michael J.; and O'Brien, Steven M., 5,063,494, Cl. 395-800.000.
OCG Microelectronic Materials, Inc.: *See*—
Salamy, Thomas E., 5,063,138, Cl. 430-326.000.
Ochs, Charles S., to Anchor Hocking Packaging Company. Package with pressure venting closure accepting different types of insert disks for different food products. 5,062,538, Cl. 215-260.000.
Ockovic, Richard C.: *See*—
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.
O'Connor, James D.: *See*—
Dillon, John R.; and O'Connor, James D., 5,062,930, Cl. 204-82.000.

Odeurs, Raymond L.: *See*—
De Keyzer, Rene M.; Odeurs, Raymond L.; and De brabandere, Luc A., 5,063,136, Cl. 430-248.000.
Odru, Pierre: *See*—
Fuchs, Jean-Francois; Auberon, Marcel; Odru, Pierre; and Sparks, Charles, 5,062,914, Cl. 156-172.000.
ODSK Company, Limited: *See*—
Kishida, Shigeru, 5,062,748, Cl. 408-206.000.
Oexman, Robert D.: *See*—
Kennedy, Earl W.; Oexman, Robert D.; and Higgins, Larry, 5,062,169, Cl. 5-449.000.
Ogasawara, Kazui, to Amada Company, Limited. Shearing machine. 5,062,333, Cl. 83-94.000.
Ogata, Hisashi, to Nissan Motor Company, Limited. System for controlling spring coefficient of engine mount. 5,062,497, Cl. 180-300.000.
Ogawa, Ichitaro: *See*—
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.
Ogawa, Masaharu: *See*—
Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, 5,063,546, Cl. 369-32.000.
Ogawa, Yoichiro: *See*—
Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, 5,063,222, Cl. 514-180.000.
Ogura, Kenji: *See*—
Hirata, Toshio; Ogura, Kenji; and Mizutani, Takehito, 5,062,275, Cl. 62-174.000.
Oh, Seik; and McKinney, Ray, Jr., to Edward Weck Incorporated. Penetrating plastic ligating clip. 5,062,846, Cl. 606-158.000.
Oh, Young S.: *See*—
Baeck, Andre C.; Busch, Alfred; and Oh, Young S., 5,062,972, Cl. 252-8.800.
Ohashi, Takayoshi, to Kabushiki Kaisha Toshiba. Single-error detecting and correcting system. 5,063,565, Cl. 371-40.200.
Ohbayashi, Gentaro: *See*—
Hirota, Kusato; Ohbayashi, Gentaro; and Nakanishi, Toshiharu, 5,063,097, Cl. 428-65.000.
Ohmura, Hiroshi: *See*—
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.
Ohno, Akira; Muraoka, Kunihiko; and Nakazato, Wataru, to Japan Aviation Electronics Industry, Limited; and Fuji Jukogyo Kabushiki Kaisha. Electric connector. 5,062,806, Cl. 439-490.000.
Ohno, Shoji: *See*—
Horiuchi, Tadasu; Nishijima, Hideo; and Ohno, Shoji, 5,063,456, Cl. 358-310.000.
Ohno, Tetsuji: *See*—
Nomoto, Yuji; Takai, Haruki; Ohno, Tetsuji; and Kubo, Kazuhiro, 5,063,227, Cl. 514-252.000.
Ohoka, Taneji: *See*—
Sasaki, Kazuo; Matsumoto, Hidetoshi; and Ohoka, Taneji, 5,063,355, Cl. 328-129.100.
Ohsato, Kiyoshi: *See*—
Miyoshi, Hiroshi; Kamatani, Yoshiteru; Ozue, Tadashi; Narahara, Tatsuya; and Ohsato, Kiyoshi, 5,063,555, Cl. 369-97.000.
Ohshima, Yohichi, to Kabushiki Kaisha Toshiba. Semiconductor device having a two-layer gate structure. 5,063,431, Cl. 357-54.000.
Ohsuga, Masaru; and Takahashi, Kaoru, to Yamaha Hatsudoki Katushiki Kaisha. Separator for fuel cell. 5,063,123, Cl. 429-38.000.
Ohsumi, Yasuhisa, to Alps Electric Co., Ltd. Construction for mounting a cap to a magnetic type rotary encoder. 5,063,382, Cl. 341-15.000.
Ohta, Kazuchika: *See*—
Yamamoto, Iwawo; and Ohta, Kazuchika, 5,062,990, Cl. 252-299.610.
Ohta, Shuji: *See*—
Okamoto, Tsukasa; and Ohta, Shuji, 5,062,494, Cl. 180-132.000.
Ohtsubo, Hiroyasu: *See*—
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.
Ohtsubo, Toshiro; Tsuda, Shigenori; Kawada, Hitoshi; Shinjo, Goro; and Tsuji, Kozo, to Sumitomo Chemical Co., Ltd. Microencapsulated cockroach-controlling composition. 5,063,059, Cl. 424-408.000.
Ohtsuka, Hiroshi, to Hapyo Yugen Kaisha. Hair comb with absorbant pad. 5,062,435, Cl. 132-108.000.
Oka, Mitsuko; and Okumura, Yoshiharu, to Toray Industries, Inc. Protective sheets having self-adhesive property used for wearing on clothes and keeping them clean. 5,062,158, Cl. 2-46.000.
Oka, Tateki; and Yokoyama, Tomoaki, to Minolta Camera Kabushiki Kaisha. Method for forming multi-color images. 5,063,127, Cl. 430-45.000.
Okada, Kenichi; Nishino, Masashi; and Tanigawa, Shu, to Japan Aviation Electronics Industry Limited. Linear phase ramp fiber optic gyro. 5,062,710, Cl. 356-350.000.
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, to Hitachi, Ltd. Ceramic superconductor article. 5,063,200, Cl. 505-1.000.
Okajima, Masayuki; and Shibuya, Toru, to NEC Corporation. Codec system encoding and decoding an image signal at a high speed. 5,063,443, Cl. 358-133.000.
Okamoto, Satoru; Terazi, Kazufumi; Nishino, Seiichi; and Bonkohara, Manabu, to Sumitomo Electric Industries, Ltd.; and NEC Corporation. Semiconductor device. 5,063,435, Cl. 357-74.000.
Okamoto, Tsukasa; and Ohta, Shuji, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Hydraulic power steering apparatus for industrial vehicle. 5,062,494, Cl. 180-132.000.
Okamoto, Yukio, to Hitachi, Ltd. Microwave plasma source apparatus. 5,063,329, Cl. 315-111.210.
Okawa, Junji: *See*—
Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, 5,063,222, Cl. 514-180.000.
Okayama, Akira: *See*—
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.
Okazaki, Kiyoshi, to Kabushiki Kaisha Toshiba. Shock wave generating apparatus forming wide concretion-disintegrating region by focused shock wave. 5,062,412, Cl. 128-24.0EL.
Oki Electric Industry Co., Ltd.: *See*—
Yamada, Yoshimi; Ito, Kazuo; and Tanimoto, Hideo, 5,063,508, Cl. 364-419.000.
Oku, Hidehisa: *See*—
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.
Okubo, Hirotsugu: *See*—
Shibuya, Kenichi; Okubo, Hirotsugu; and Furudate, Yukio, 5,063,543, Cl. 368-29.000.
Okuda, Eiji; and Nemoto, Hiroyuki, to Nippon Sheet Glass Co., Ltd. Flat plate optical element and method for preparing the same. 5,062,688, Cl. 359-619.000.
Okuda, Masayuki: *See*—
Hattori, Hitoshi; Sakata, Hirotsugu; Hayano, Makoto; Okuda, Masayuki; and Morozumi, Naoya, 5,062,778, Cl. 418-220.000.
Okui, Makoto: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.
Okumura, Fumio: *See*—
Goto, Atsuo; Okumura, Fumio; and Ito, Kazuhiko, 5,063,197, Cl. 503-209.000.
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, to Kabushiki Kaisha Toshiba; and Ebara Corporation. Evacuation apparatus and evacuation method. 5,062,271, Cl. 62-55.500.
Okumura, Yoshiharu: *See*—
Oka, Mitsuko; and Okumura, Yoshiharu, 5,062,158, Cl. 2-46.000.
Okuyama, Kousuke, to Hitachi, Ltd. Semiconductor integrated circuit device and a method of producing the same. 5,063,170, Cl. 437-41.000.
Olin Corporation: *See*—
Dotson, Ronald L.; and Moore, Sanders H., 5,062,966, Cl. 210-753.000.
Holmes, Paul E., 5,063,160, Cl. 435-253.300.
Oliphant, Sameul C.; and Gormley, David E., to Samuel C. Oliphant. Air conditioning device. 5,062,281, Cl. 62-457.100.
O'Mahony, John S.: *See*—
Kahn, Marvin L.; and O'Mahony, John S., 5,063,074, Cl. 426-585.000.
Omata, Kenichi: *See*—
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.
Omine, Tsutomu: *See*—
Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, 5,062,723, Cl. 400-120.000.
Omron Corporation: *See*—
Sasaki, Kazuo; Matsumoto, Hidetoshi; and Ohoka, Taneji, 5,063,355, Cl. 328-129.100.
Onderka, Oswald; and Krasser, Fritz, to Ellenberger & Poensgen GmbH. Safety lock for the doors of electrical applicances. 5,062,668, Cl. 292-25.000.
Onishi, Yasunobu: *See*—
Horiguchi, Rumiko; Hayase, Shuzi; and Onishi, Yasunobu, 5,063,134, Cl. 430-192.000.
Ono, Hideyuki: *See*—
Akimoto, Hajime; Ozaki, Toshifumi; Tokumasu, Kazuya; Ono, Hideyuki; and Tanaka, Haruhiko, 5,063,581, Cl. 377-58.000.
Ono, Mikio: *See*—
Chuman, Tatsuji; and Ono, Mikio, 5,063,058, Cl. 424-405.000.
Oosterhof, Lukas, to Hunter Douglas International NV. Sandwich panel cutting method and machine tool. 5,062,750, Cl. 409-132.000.
Ootaguro, Hirofumi: *See*—
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Ootsuka, Hiroshi: *See*—
Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, 5,063,402, Cl. 354-400.000.

Opuszenski, Theodore: *See*—
Wokeck, Arthur C.; and Opuszenski, Theodore, 5,062,374, Cl. 112-130.000.

Oran, Charlie: *See*—
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Orazi, William. Bathroom cabinet. 5,063,283, Cl. 219-218.000.

Orbits, David A.: *See*—
Cutler, David N.; Orbits, David A.; Bhandarkar, Dileep; Cardoza, Wayne; and Witek, Richard T., 5,063,497, Cl. 395-800.000.

Orii, Akira; and Watanabe, Haruhisa, to Janome Sewing Machine Co. Ltd. Stepping motor driving device. 5,063,339, Cl. 318-696.000.

Oronzio deNora S.A.: *See*—
Mussinellil, Gian L., 5,062,934, Cl. 204-147.000.

Orth, Jeffrey L., to Rocky Mountain Research, Inc. Roller pump in an extracorporeal support system. 5,062,775, Cl. 417-477.000.

Ortner, Herbert; and Pfalzer, Lothar, to J. M. Voith GmbH. Process for control of a flotation system. 5,062,964, Cl. 210-740.000.

Ortolano, Ralph J. Connector for turbine element. 5,062,769, Cl. 416-217.000.

Osaka Gas Limited: *See*—
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.

Oshima, Masayoshi: *See*—
Kohara, Teiji; Oshima, Masayoshi; and Natsuume, Tadao, 5,063,096, Cl. 421-64.000.

Oshima, Mitsuaki; Izaki, Masataka; Kajino, Jirou; Igarashi, Yoshiaki; and Mitani, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Camera apparatus. 5,062,696, Cl. 359-554.000.

Ossid Corporation: *See*—
Tolson, Sidney S., 5,062,217, Cl. 34-22.000.

Ostlind, Douglas A.: *See*—
Vanzee, David G.; and Ostlind, Douglas A., 5,062,734, Cl. 403-313.000.

Ostrand, James C., to General Motors Corporation. Motor vehicle heating, ventilating and air conditioning system with combined mode/temperature door. 5,062,352, Cl. 98-2.080.

Ostrand, James C.; and Drayer, William L., to General Motors Corporation. Motor vehicle passenger compartment heating, ventilating and air conditioning system. 5,062,473, Cl. 165-42.000.

Otis Elevator Company: *See*—
Nguyen, Dat; Sansevero, Frank; Johnson, Gerald E.; and Rivera, James A., 5,062,520, Cl. 198-335.000.
Pavoz, Marcel; and Gagnon, Ernest P., 5,062,501, Cl. 187-112.000.

Otsuka, Shoichi: *See*—
Kurakake, Mitsuo; Otsuka, Shoichi; and Muraoka, Yutaka, 5,063,525, Cl. 395-157.000.

Otto Bock Orthopaedische Industrie Besitz- und Verwaltungs-Kommanditgesellschaft: *See*—
Naeder, Max, 5,062,859, Cl. 623-55.000.

Outboard Marine Corporation: *See*—
Breckenfeld, Paul W.; Nettles, James A.; Rogers, Duane E.; and Broughton, George, 5,062,403, Cl. 123-413.000.
Prince, Anthony P., 5,062,516, Cl. 192-0.096.

Overall, Robert E.: *See*—
Myers, Robert I.; Brubaker, Bryce D.; and Overall, Robert E., 5,062,206, Cl. 29-890.010.

Overend, Steven F.: *See*—
Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., 5,062,366, Cl. 102-430.000.

Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, to Hitachi, Ltd. Method and apparatus for processing a color video signal. 5,063,437, Cl. 358-22.000.

Owens, Charles R.; and Guazzoni, Luigi, to Owens, Charles R. Laminated tile product and method for producing the same. 5,062,913, Cl. 156-154.000.

Owens-Illinois Plastic Products Inc.: *See*—
DiBello, Louis M., 5,063,111, Cl. 428-411.100.
Hill, James A.; and Burtch, John E., 5,062,568, Cl. 229-1.50B.

Owens, Joe M. Roller screed. 5,062,738, Cl. 404-114.000.

Oy Tampella AB: *See*—
Hyoty, Paavo; and Saiha, Erik, 5,062,921, Cl. 162-31.000.

Oyer, Michael W.; and Gudaitis, Algrid M. Aircraft security system. 5,063,371, Cl. 340-541.000.

Ozaki, Toshifumi: *See*—
Akimoto, Hajime; Ozaki, Toshifumi; Tokumasu, Kazuya; Ono, Hideyuki; and Tanaka, Haruhiko, 5,063,581, Cl. 377-58.000.

Ozawa, Kunitaka: *See*—
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.

Ozawa, Sinya; Kondo, Katsumi; and Saito, Kajin, to Showa Alumi Powder K.K. Process for producing metal powder having controlled particle size distribution for metallic pigments. 5,062,886, Cl. 75-371.000.

Ozue, Tadashi: *See*—
Miyoshi, Hiroshi; Kamatani, Yoshiteru; Ozue, Tadashi; Narahara, Tatsuya; and Ohsato, Kiyoshi, 5,063,555, Cl. 369-97.000.

Pacific Energy: *See*—
Zison, Stanley W., 5,063,519, Cl. 364-510.000.

Padgett, Mary B.: *See*—
Noble, Philip C.; and Padgett, Mary B., 5,062,854, Cl. 623-23.000.

Padgett, Ray T. Rear suspension system for motorcycles. 5,062,495, Cl. 180-227.000.

Page, David G.: *See*—
Hedderick, John B.; Rutty, Brian R.; Page, David G.; and Walshe, John J., 5,062,548, Cl. 222-190.000.

Paggen, Wolfgang; and Neblich, Josef, to Knurr-Mechanik fur die Elektronik Aktiengesellschaft. Frame for circuit boards with electronic components. 5,063,477, Cl. 361-384.000.

Palitex Project Company GmbH: *See*—
Fink, Heinz, 5,062,261, Cl. 57-281.000.

Palmerton, Robert H.: *See*—
Schurter, Robert M.; and Palmerton, Robert H., 5,062,455, Cl. 138-30.000.

Pan-International Industrial Corp.: *See*—
Liu, Yun-Yu; Shih, Hsiao-Lei; Chyou, Yang-Chih; and Laiw, Ming-Shing, 5,062,805, Cl. 439-404.000.
Liu, Yun-Yu; and Lu, Juinn-Horng, 5,062,813, Cl. 439-857.000.

Panduit Corp.: *See*—
Wiencek, Donald C.; and Brown, Robert J., 5,062,202, Cl. 29-749.000.

Papapolymerou, George: *See*—
Tristani-Kendra, Miguel G.; and Papapolymerou, George, 5,062,691, Cl. 359-56.000.

Pappal, David A.; and Schipper, Paul H., to Mobil Oil Corporation. Method of FCC spent catalyst stripping for improved efficiency and reduced hydrocarbon flow to regenerator. 5,062,945, Cl. 208-113.000.

Paquet, Francine, heiress: *See*—
Tremblay, Michel, deceased, 5,062,376, Cl. 114-230.000.

Paquet, Volker: *See*—
Ackermann, Ulrich; Kersten, Ralf T.; Etzkorn, Heinz-Werner; Paquet, Volker; and Rutze, Uwe, 5,062,508, Cl. 118-723.000.

Paramount Packaging Corp.: *See*—
Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., 5,062,716, Cl. 383-9.000.

Park, John N.: *See*—
Roemer, Peter B.; Mueller, Otward M.; Park, John N.; and McMurray, William, 5,063,349, Cl. 324-322.000.

Park, Tae-Hong, to SamSung Electronics Co., Ltd. Battery protection circuit. 5,063,471, Cl. 361-18.000.

Parker-Hannifin Corporation: *See*—
Cooke, Horise M.; and Deiss, Richard F., 5,062,456, Cl. 138-125.000.
Dlugokecki, Andrew N., 5,062,776, Cl. 418-61.300.

Parsons, David; Bainbridge, Wilfred N.; Young, Alastair J.; and Temperley, Harry D., to 501 Automotive Products Plc. Differential mechanism. 5,062,320, Cl. 74-650.000.

Partanen, Paul; Seppanen, Helena; and Harjunmaa, Hannu, to Labsystems OY. Method and apparatus for immunological determinations. 5,063,024, Cl. 422-65.000.

Pate, Gerry E.; Mullinax, Ronald L.; Sutton, Alexander C.; and Ross, Jeff E., to Pate Systems, Inc. Computer aided management system for public utility wastewater collection systems. 5,063,505, Cl. 364-400.000.

Pate Systems, Inc.: *See*—
Pate, Gerry E.; Mullinax, Ronald L.; Sutton, Alexander C.; and Ross, Jeff E., 5,063,505, Cl. 364-400.000.

Patsiokas, Stelios J.; Johnson, Brian Keith A.; and Audet, Pierre E., to Motorola, Inc. Communication system providing automatic identification of calling parties. 5,063,588, Cl. 379-57.000.

Patterson, Dennis R., to Monsanto Company. 1-aryl-1,4-dihydro-4-oxo-5-carboxypyridazine derivatives and their use as plant growth regulators and hybridizing agents. 5,062,880, Cl. 71-92.000.

Patzner GmbH & Co.: *See*—
Greiwe, Hansdieter, 5,062,355, Cl. 99-349.000.

Paul Hartmann Aktiengesellschaft: *See*—
Nalowaniec, Krzysztof; and Simmler, Kurt, 5,062,838, Cl. 604-366.000.

Pavoz, Marcel; and Gagnon, Ernest P., to Otis Elevator Company. Elevator with linear motor counterweight assembly. 5,062,501, Cl. 187-112.000.

Payne, Le Roy. Laminate forming and applying apparatus and method and product therefrom. 5,062,740, Cl. 405-270.000.

PCC Airfoils, Inc.: *See*—
Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., 5,062,468, Cl. 164-122.200.
Monte, Louis H.; Jeyarajan, Arunachalam; and Graham, Lawrence D., 5,062,469, Cl. 164-122.200.

Peiffer, Norman A.: *See*—
Leedy, K. Duane; and Peiffer, Norman A., 5,062,954, Cl. 210-502.100.

Pelletier, Jeffrey C.; Youssefyeh, Raymond D.; and Campbell, Henry F., to Rhone-Poulenc Rorer Pharmaceuticals Inc. Substituted saturated and unsaturated indole quinoline and benzazepine carboxamides and their use as pharmacological agents. 5,063,230, Cl. 514-213.000.

Pennsylvania Crusher Corporation: *See*—
Barnabie, Edward J.; and Duke, John D., Jr., 5,062,575, Cl. 241-73.000.
Graf, Carl R., 5,062,601, Cl. 241-79.300.

Pentel Kabushiki Kaisha: *See*—
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.

Peppers, Norman A.; Young, James R.; Pierce, Gerald A.; and Nishi, Hisami, to Nippon Sheet Glass Co., Ltd. Image correlation calculation apparatus. 5,063,602, Cl. 382-32.000.

Perler, Robert F. Non-reusable disposable syringe and locking device. 5,062,833, Cl. 604-110.000.

Perry, Joseph W.: *See*—
Beratan, David N.; and Perry, Joseph W., 5,062,693, Cl. 359-241.000.

Petajan, Eric D.: *See*—
Knauer, Scott C.; Netravali, Arun N.; Petajan, Eric D.; Safranek, Robert J.; and Westerink, Peter H., 5,063,444, Cl. 358-133.000.

Petermann, Hans: *See*—
Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, 5,063,379, Cl. 340-784.000.

Petermann, Steven G.; Katahara, Keith W.; and Wolcott, Herbert A., II, to Atlantic Richfield Company. Piezoelectric transducer with displacement amplifier. 5,063,542, Cl. 367-166.000.

Peters, Margaret A. Window cornice and method for hanging curtains. 5,062,463, Cl. 160-38.000.

Peters, Timothy J.; and Raja, Kishor B., to National Research Development Corporation. Uptake of iron by the body. 5,063,205, Cl. 514-12.000.

Petersen, Kurt E.; Barth, Philip W.; Bryzek, Janusz; and Mallon, Joseph R., Jr., to Schlumberger Industries, Inc. Laminated semiconductor sensor with overpressure protection. 5,062,302, Cl. 73-754.000.

Peterson, Gary L.: *See*—
Botez, Dan; Mawst, Luke J.; and Peterson, Gary L., 5,063,570, Cl. 372-50.000.

Peterson, Miles, to Diesel Kiki Co. Ltd. Vertically collapsible wall partitions. 5,062,464, Cl. 160-193.000.

Peterson, Steven H.; and Friend, Timothy R., to X-Rite, Incorporated. Apparatus and method for pattern recognition. 5,062,714, Cl. 356-406.000.

Peterson, William M.; Hume, Christopher N.; and Leivian, Robert H., to Motorola, Inc. Neuram: neural network with ram. 5,063,521, Cl. 395-27.000.

Petkiewicz, Chester J.: *See*—
Grynaeus, Peter S.; Hollingsworth, Anthony; and Petkiewicz, Chester J., 5,063,101, Cl. 428-172.000.

Petrachkoff, Peter, to Fordees Manufacturing. Two speed hoist drive assembly. 5,062,613, Cl. 266-44.000.

Petree, Edwyn H.: *See*—
Sawyer, Alan G.; Hughes, Dale L.; and Petree, Edwyn H., 5,062,192, Cl. 29-426.400.

Petrovic, John J.; and Honnell, Richard E., to United States of America, Energy. Zirconia-molybdenum disilicide composites. 5,063,182, Cl. 501-96.000.

Pettersson, Bo: *See*—
Gustafsson, Carl-Erik; and Pettersson, Bo, 5,062,214, Cl. 33-706.000.

Pfalzer, Lothar: *See*—
Ortner, Herbert; and Pfalzer, Lothar, 5,062,964, Cl. 210-740.000.

Pfauter-MAAG Cutting Tools Limited Partnership: *See*—
Haug, Edward W., 5,062,742, Cl. 407-28.000.

Pfizer Hospital Products Group: *See*—
Noble, Philip C.; and Padgett, Mary B., 5,062,854, Cl. 623-23.000.

Pfizer Inc.: *See*—
Cooper, Kelvin; Fray, Michael J.; Richardson, Kenneth; and Steele, John, 5,063,237, Cl. 514-338.000.

Pharoah, James F.: *See*—
Pryor, Raymond J.; Pharoah, James F.; and Duirs, Graham F., 5,062,829, Cl. 604-57.000.

Phelleps, Fred R.: *See*—
Geller, Bernard D.; Tyler, Johann U.; Holdeman, Louis B.; Phelleps, Fred R.; and Laird, George F., III, 5,063,177, Cl. 437-209.000.

Phelps, Richard A.; and Lorence, Brian S., to Chivas Products Limited. Visor mount. 5,062,608, Cl. 248-289.100.

Phillips Petroleum Company: *See*—
Drake, Charles A., 5,063,191, Cl. 502-174.000.

Piel, Edward J., Jr.: *See*—
Smith, Lowell S.; and Piel, Edward J., Jr., 5,062,429, Cl. 128-661.010.

Pieperhoff, Hans J., to Zoller-Kipper GmbH. Safety circuit arrangement for lifting/tilting or tilting devices. 5,062,759, Cl. 414-408.000.

Pier, William J.: *See*—
Goins, James V.; Duggan, Robert B.; Pier, William J.; and Wienhoft, Roger, 5,062,354, Cl. 98-62.000.

Pierce, Gerald A.: *See*—
Peppers, Norman A.; Young, James R.; Pierce, Gerald A.; and Nishi, Hisami, 5,063,602, Cl. 382-32.000.

Pierce, John R.: *See*—
Lindert, Andreas; Pierce, John R.; and McCormick, David R., 5,063,089, Cl. 427-354.000.

Pierce, Zona R.; Tyagi, Dinesh; and Wilson, John C., to Eastman Kodak Company. Xerographic phototypesetting system and toner useful therein. 5,063,132, Cl. 430-109.000.

Pike, David W.: *See*—
Legare, Pierre; and Pike, David W., 5,062,874, Cl. 55-337.000.

Pinckney, Robert L.: *See*—
Novak, Philip F.; Shannon, Robert D.; Pinckney, Robert L.; and Humphreys, James R., Jr., 5,063,384, Cl. 342-1.000.

Pioneer Electronic Corporation: *See*—
Chikuma, Kiyofumi, 5,063,556, Cl. 369-112.000.
Igarashi, Ken, 5,063,474, Cl. 361-220.000.
Watari, Haruo; and Yasuda, Sigeru, 5,063,550, Cl. 369-44.360.
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.

Pioneer Video Corporation: *See*—
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.

Pirkl, Bernhard: *See*—
Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, 5,063,379, Cl. 340-784.000.

Pirmann, Anton: *See*—
Oberkersch, Angelika; Pirmann, Anton; and Schausberger, Helmut, 5,063,401, Cl. 354-320.000.

Pirovano, Camillo. Cable with radial elements for conveying materials behaving as fluids through ducts. 5,062,741, Cl. 406-76.000.

Pitney Bowes Inc.: *See*—
Holbrook, Russell W.; and MacDonald, Scott A., 5,062,600, Cl. 271-35.000.

Piznik, Sylvia: *See*—
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Plains Cotton Cooperative Association: *See*—
Lindsey, James D.; Hutton, Charles D.; Tubb, Joe W.; Shipman, Carol L.; and Kyle, Albert S., III, 5,063,507, Cl. 364-408.000.

Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, to BASF Aktiengesellschaft. N-substituted 3,4,5,6-tetrahydrophthalimides and their intermediates. 5,062,884, Cl. 71-95.000.

Platter, Helmuth; and Webhofer, Artur, to Leitner, S.p.A. Tracked vehicle and in particular one for the preparation of ski slopes. 5,062,493, Cl. 180-9.520.

Pneumafil Corporation: *See*—
Williams, Roger D., 5,062,872, Cl. 55-302.000.

Pockrandt, Frank J. Chemical composition, and methods of constructing and utilizing same. 5,062,895, Cl. 106-36.000.

Poenitzsch, Werner: *See*—
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Pohlmann, Peter: *See*—
Schaberg, Frank; Martens, Heribert; and Pohlmann, Peter, 5,062,615, Cl. 266-217.000.

Poillon, Nannette; Canistraro, Howard; and Sienko, Ronald F., to Nannette Poillon. Projectile trajectory determination system. 5,062,641, Cl. 273-181.00C.

Polaroid Corporation: *See*—
Beyea, Dana M.; and Meehan, Kathleen, 5,063,174, Cl. 437-184.000.

Pollitt, Richard F.: *See*—
Jasinski, Joseph E.; Lingle, Charles H.; Pollitt, Richard F.; and Shuman, David W., 5,063,289, Cl. 250-221.000.

Porter, Frank K., Jr.: *See*—
DiPrima, James J.; and Porter, Frank K., Jr., 5,062,590, Cl. 244-118.500.

Potier, Michel; and Briet, Gilles, to Hutchinson, S.A.; and Valeo Thermique Moteur, S.A. Snap-fastening assembly device for motor vehicle heat exchangers. 5,062,478, Cl. 165-178.000.

Potter, Frank. Side-sliding storage rack for 3480 cartridges. 5,062,535, Cl. 211-162.000.

Potter, William R., to Health Research, Inc. In vivo fluorescence photometer. 5,062,431, Cl. 128-665.000.

Potts, Jack M.: *See*—
Weatherby, John H.; and Potts, Jack M., 5,062,415, Cl. 128-76.00R.

Pourailly, Jean-Louis: *See*—
Coppier, Herve ; Pourailly, Jean-Louis; and Roger, Joseph, 5,063,363, Cl. 333-33.000.

PPG Industries, Inc.: *See*—
Jensen, Thomas H., 5,062,876, Cl. 65-1.000.
Mackey, Donald A., 5,062,621, Cl. 269-305.000.

Praxl, Hubert: *See*—
Rohleder, Norbert; Praxl, Hubert; and Gobel-Rick, Dietrich, 5,062,458, Cl. 141-80.000.

Preibsch, Wolfgang: *See*—
Weber, Frank; and Preibsch, Wolfgang, 5,062,978, Cl. 252-49.300.

Preobrazhensky, Oleg A.: *See*—
Aleshin, Nikolai P.; Baranov, Vladimir J.; Dolgov, Vyacheslav M.; Yarovoi, Alexandr A.; and Preobrazhensky, Oleg A., 5,062,301, Cl. 73-629.000.

Presstek, Inc.: *See*—
Lewis, Thomas E.; Williams, Richard A.; Gardiner, John P.; and Kline, John F., 5,062,364, Cl. 101-467.000.

Price, Barry L.; and Thornhill, Christopher J., to British Gas plc. Monitor system. 5,063,527, Cl. 364-550.000.

Prince, Anthony P., to Outboard Marine Corporation. Single lever control. 5,062,516, Cl. 192-0.096.

VOL 1132 ISS 1 NO 5 1991 UMI

Pritchard, Jeffrey A., to Eastman Kodak Company. Method and apparatus for preventing aliasing in an electronic still camera. 5,063,450, Cl. 358-213.280.

Procter & Gamble Co., The: *See—*
Baeck, Andre C.; Busch, Alfred; and Oh, Young S., 5,062,972, Cl. 252-8.800.
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., 5,062,971, Cl. 252-8.600.
Lavash, Bruce W., 5,062,392, Cl. 119-167.000.

Product Development (S.G.Z.) Ltd: *See—*
Gross, Joseph; and Zucker, Shlomo, 5,062,834, Cl. 604-143.000.

Proform Fitness Products, Inc.: *See—*
Bingham, Curt G., 5,062,627, Cl. 272-70.000.
Dalebout, William T.; and Jensen, Jon, 5,062,626, Cl. 272-69.000.
Dalebout, William T.; and Burk, Michael, 5,062,632, Cl. 272-129.000.

Prokopius, Josef P. Multifunction gearing mechanism. 5,062,824, Cl. 475-342.000.

Pryor, Raymond J.; Pharoah, James F.; and Duirs, Graham F., to Carter Holt Harvey Plastic Products Group Limited. Relates to devices for administering a substance such as a drug or chemical or the like. 5,062,829, Cl. 604-57.000.

Pulliainen, Martti; Savisalo, Hannu; and Ainali, Markku, to Savcor-Consulting Oy. Procedure and means for separating plastic particles electrically from solutions, in particular from cellulose and paper fibre solutions. 5,062,932, Cl. 204-130.000.

Pundra Indostries Limited: *See—*
Westwinkel, Florian, 5,062,678, Cl. 312-221.000.

Purina Mills, Inc.: *See—*
Binder, Stephen F.; and Lanter, Kent J., 5,063,067, Cl. 426-69.000.

Purnell, Charles G.; and Baker, Andrew R., to Brico Engineering Limited. Valve guide. 5,062,908, Cl. 148-332.000.

Putnam, Brett J.: *See—*
Harris, Robert D.; and Putnam, Brett J., 5,062,219, Cl. 34-133.000.

QIT-Fer et Titane, Inc.: *See—*
Gueguin, Michel, 5,063,032, Cl. 423-84.000.

Quantum Group, Inc.: *See—*
Goldstein, Mark K., 5,063,164, Cl. 436-169.000.

Quanz, Gerhard: *See—*
Mutze, Ulrich; Quanz, Gerhard; Vuong, The A.; and Kiesewetter, Wolfgang, 5,063,460, Cl. 358-474.000.

Quignon, Jean: *See—*
Ferre, Alain; Chevance, Christophe; and Quignon, Jean, 5,063,524, Cl. 364-516.000.

R. J. Braverman Corp.: *See—*
Braverman, Robert J.; and Shklyarov, Isaak M., 5,062,230, Cl. 42-1.090.
Braverman, Robert J.; and Shklyarov, Isaak M., 5,062,231, Cl. 42-1.090.

R. T. Vanderbilt Company, Inc.: *See—*
Karol, Thomas J., 5,062,863, Cl. 44-341.000.

Ra, Jong Oh; and Lim, Joon Young. Continuously variable transmission with controlling brakes. 5,062,823, Cl. 475-330.000.

Raatz, Francis: *See—*
Dufresne, Pierre; and Raatz, Francis, 5,062,946, Cl. 208-115.000.

Rabhi, Lounes: *See—*
Davison, Ellard D., Jr.; and Rabhi, Lounes, 5,062,447, Cl. 137-493.000.

Racal Data Communications Inc.: *See—*
Sackman, Edward J.; and Wray, Donald L., 5,063,303, Cl. 307-296.100.
Vrenjak, Milan J., 5,063,523, Cl. 364-514.000.

Raczykowski, Daniel G.: *See—*
Siria, Darrell L.; Sommerfeld, Lorran; and Raczykowski, Daniel G., 5,062,487, Cl. 169-91.000.

Rader, Robert R.: *See—*
Wirtz, John W.; Yanik, David; Rader, Robert R.; Mendoza, Roel; and Essig, Dennis E., 5,062,762, Cl. 414-786.000.

Radiological & Chemical Technology, Inc.: *See—*
Asay, Roger H., 5,062,291, Cl. 73-3.000.

Radke, Garold E.: *See—*
Adamic, Raymond J.; Wickramanayake, Palitha; Hindagolla, Suraj L.; Radke, Garold E.; and Halko, David J., 5,062,893, Cl. 106-22.000.

Raff, Friedrich: *See—*
Maier, Ulrich; and Raff, Friedrich, 5,062,314, Cl. 74-475.000.

Ragland, Frank R., Jr., to Thomson Consumer Electronics Inc. Color picture tube having improved shadow mask-frame assembly support. 5,063,325, Cl. 313-405.000.

Rahn, Peter R. Thread protector and tip maintenance device for a billiard cue. 5,062,636, Cl. 273-68.000.

Rainin Instrument Co., Inc.: *See—*
Magnussen, Haakon T., Jr., 5,062,706, Cl. 356-246.000.

Rais, Elliot. Use indicator for a disposable razor. 5,062,209, Cl. 30-41.700.

Raja, Kishor B.: *See—*
Peters, Timothy J.; and Raja, Kishor B., 5,063,205, Cl. 514-12.000.

Rallapalli, Krishna, to Raytheon Company. Ferroelectric memory with diode isolation. 5,063,539, Cl. 365-145.000.

Ramanan, V. R. V.; and Smith, Carl H., to Allied-Signal Inc. Iron rich metallic glasses having saturation induction and superior soft ferromagnetic properties at high magnetization rates. 5,062,909, Cl. 148-304.000.

Rambacher, John S.: *See—*
Majerus, Norbert; and Rambacher, John S., 5,062,783, Cl. 425-115.000.

Rampolla, Donald S.; and Speer, Elmer, to United States of America, Energy. Quick-sealing design for radiological containment. 5,062,186, Cl. 24-389.000.

Ramsbro, Borje K. H., to System 3R USA, Inc. Vise. 5,063,013, Cl. 269-136.000.

Ranco Incorporated of Delaware: *See—*
Gillett, Jimmie D., 5,063,372, Cl. 340-547.000.

Randleman, Randy J.: *See—*
Chanter, Edward G.; and Randleman, Randy J., 5,062,647, Cl. 273-442.000.

Rank Taylor Hobson Limited: *See—*
Buehring, Ian K., 5,063,291, Cl. 250-231.160.

Rankin, Russel J.; de Chastel, David J., deceased (by de Chastel, Ann, executrix); Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., to Commonwealth Scientific & Industrial Research Organisation; and Australian Meat & Live-Stock Research & Development Corp. Automatic animal processing. 5,062,820, Cl. 452-187.000.

Rao, A. Srinivasa; and Arora, Om P., to United States of America, Navy. Method to produce $YBa_2Cu_3O_{6+x}$ superconducting wires or tapes. 5,063,201, Cl. 505-1.000.

Rashleigh, Scott C.: *See—*
Barrow, Ross; Elias, Martin C.; Lyons, Peter R. A.; Jacob, Peter G.; and Rashleigh, Scott C., 5,062,686, Cl. 385-33.000.

Rasmussen, Paul C., to General Electric Company. Electrical coil connector for dynamoelectric machine windings. 5,063,315, Cl. 310-71.000.

Rassieur, Charles L., to Central Mine Equipment. Kelly bar coupling. 5,062,490, Cl. 173-104.000.

Ratcliff, Keith: *See—*
Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., 5,062,563, Cl. 227-176.000.

Raychem Corporation: *See—*
Tomita, Akira; Diaz, Stephen H.; Dubrow, Robert S.; and Feldman, Michael, 5,062,254, Cl. 53-467.000.

Rayco Enterprises, Inc.: *See—*
Arno, Raymond P.; and Carnes, Scott C., 5,062,571, Cl. 236-43.00A.

Raytheon Company: *See—*
DiPrima, James J.; and Porter, Frank K., Jr., 5,062,590, Cl. 244-118.500.
Rallapalli, Krishna, 5,063,539, Cl. 365-145.000.
Smith, Irl W.; and Schindler, Manfred J., 5,063,361, Cl. 332-103.000.

Reed, Victoria K. Riding capsule device. 5,062,624, Cl. 272-1.00R.

Rees, David C.: *See—*
Horwell, David C.; and Rees, David C., 5,063,242, Cl. 514-414.000.

Refurbished Turbine Components Limited: *See—*
Fraser, Michael J., 5,062,205, Cl. 29-889.700.

Rehm, Thomas: *See—*
Baechtel, Donald F.; Svarovsky, James E.; and Rehm, Thomas, 5,063,335, Cl. 318-609.000.

Reich, Richard: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Reichel, Klaus T., to Man Roland Druckmaschinen AG. Flexible printing plate attachment system. 5,062,363, Cl. 101-415.100.

Reichelt, Helmut: *See—*
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.

Reichle, Anton: *See—*
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Reichle, Heinz: *See—*
Bauer, Bernhard; Reichle, Heinz; and Stolz, Robert, 5,062,719, Cl. 384-450.000.

Reiling, Victor G.; and Dean, Bryan L., to Nasta International, Inc. Portable drum sound simulator generating multiple sounds. 5,062,341, Cl. 84-702.000.

Reinecke, Paul: *See—*
Brandes, Wilhelm; Hanssler, Gerd; Reinecke, Paul; Scheinpflug, Hans; and Holmwood, Graham, 5,063,241, Cl. 514-383.000.

Reischel, Joseph G.: *See—*
Burns, James A.; and Reischel, Joseph G., 5,062,421, Cl. 128-205.270.

Reiter, Roger; Boyko, Stanley; and Boyko, Nadina, to F. P. Bourgault Industries. Spray shield. 5,062,572, Cl. 239-899.000.

Reits, Bernard J., to Hollandse Signaalapparaten B.V. Antenna system with adjustable beam width and beam orientation. 5,063,389, Cl. 342-359.000.

Repine, Joseph T.: *See—*
Doherty, Annette M.; Hamilton, Harriet W.; Hodges, John C.; Repine, Joseph T.; and Sircar, Ila, 5,063,207, Cl. 514-18.000.

Repperger, Daniel W., to United States of America, Air Force. Flight control system with tactile feedback. 5,062,594, Cl. 244-175.000.

Research Foundation of the State University of New York, The: *See—*
Eisch, John J.; and Boleslawski, Marek P., 5,063,083, Cl. 427-53.100.

Revel, Michel; and Chebath, Judith, to Yeda Research and Development Co., Ltd. Interferon-induced (2'-5') oligo a synthetase gene, mRNA, cDNA and enzymes having (2'-5') oligo a synthetase activity. 5,063,159, Cl. 435-252.300.

Revlon, Inc.: *See—*
Verdon, Debra; Tietjen, Marlene; and Brown, Ivonne, 5,063,050, Cl. 424-63.000.

Rexnord Corporation: *See—*
Hall, David A.; and Marjancik, John R., 5,062,720, Cl. 384-484.000.

Reynolds, Brett S.: *See—*
Crandall, John H.; Davis, Stephen J.; and Reynolds, Brett S., 5,063,564, Cl. 370-110.100.

Reynolds, George, to Taylor, Ronald F. Outboard motor. 5,062,814, Cl. 440-31.000.

Rhein, Thomas: *See—*
Gross, Heinz; Fischer, Jens-Dieter; Siol, Werner; Sufke, Thomas; and Rhein, Thomas, 5,063,112, Cl. 428-412.000.

Rhoden, Buddy; and Singletary, John. ATV guard apparatus. 5,062,675, Cl. 296-1.100.

Rhodes, Alex: *See—*
Roberts, Simon; Battista, John A.; and Rhodes, Alex, 5,062,323, Cl. 81-15.700.

Rhone-Poulenc Rorer Pharmaceuticals Inc.: *See—*
Pelletier, Jeffrey C.; Youssefyeh, Raymond D.; and Campbell, Henry F., 5,063,230, Cl. 514-213.000.

Rice, Donald D.: *See—*
Woollums, David E.; and Rice, Donald D., 5,062,449, Cl. 137-505.460.

Rich, Arthur; and Van House, James C., to University of Michigan, The. Positron microscopy. 5,063,293, Cl. 250-308.000.

Rich Products Corporation: *See—*
Kahn, Marvin L.; and O'Mahony, John S., 5,063,074, Cl. 426-585.000.

Richardson, Kenneth: *See—*
Cooper, Kelvin; Fray, Michael J.; Richardson, Kenneth; and Steele, John, 5,063,237, Cl. 514-338.000.

Ricoh Company, Ltd.: *See—*
Itabashi, Akihisa, 5,062,679, Cl. 359-206.000.
Kaneko, Yutaka, 5,063,286, Cl. 250-208.100.
Koshiishi, Takaho, 5,063,590, Cl. 379-99.000.
Nakajima, Tomohiro, 5,063,409, Cl. 355-200.000.
Shigemori, Toshihiro, 5,063,552, Cl. 369-50.000.
Shirasugi, Kouji, 5,063,414, Cl. 355-296.000.

Riddell, Wilfred E.: *See—*
Conrad, Daniel J.; Davenport, Jerry W.; Isen, Robert R.; Bullock, Michael A.; and Riddell, Wilfred E., 5,062,716, Cl. 383-9.000.

Rider, Donald L. Nebulizer with valved "T" assembly. 5,062,419, Cl. 128-200.210.

Rieder, Daniel: *See—*
Lauper, Alfred; Kupper, Hanspeter; and Rieder, Daniel, 5,063,354, Cl. 328-14.000.

Rieter Machine Works Limited: *See—*
Mondini, Gian-Carlo; and Ackeret, Walter, 5,062,183, Cl. 19-225.000.

Rikker, Leslie D. Method and apparatus for treating gaseous material from evaporative pattern casting. 5,062,470, Cl. 164-457.000.

Rincoe, Richard G. Artifical limb with movement controlled by reversing electromagnet polarity. 5,062,855, Cl. 623-24.000.

Rising, Donald B.; and Montminy, Emile O., to Millipore Corporation. Filter punch and filter collection system. 5,062,308, Cl. 73-864.410.

Ritter, Robert A. Lined hazardous waste incinerator. 5,062,372, Cl. 110-242.000.

Rivera, James A.: *See—*
Nguyen, Dat; Sansevero, Frank; Johnson, Gerald E.; and Rivera, James A., 5,062,520, Cl. 198-335.000.

Roach, William R., to David Sarnoff Research Center, Inc. Scanned liquid crystal display with select scanner redundancy. 5,063,378, Cl. 340-784.000.

Robert Bosch GmbH: *See—*
Edelhaeuser, Erhard; Schmid, Hans-Dieter; Speckner, Ludwig; Wutz, Karl; and Steffen, Horst, 5,063,366, Cl. 335-271.000.
Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, 5,063,379, Cl. 340-784.000.
Kleinhans, Josef, 5,063,352, Cl. 324-706.000.

Roberts, David A.: *See—*
Ellison, Thomas L.; Roberts, David A.; Ivankovits, John C.; and Norman, John A. T., 5,062,902, Cl. 148-23.000.

Roberts, Simon; Battista, John A.; and Rhodes, Alex, to Baseline Products, Inc. Tire repair plug and installation tool. 5,062,323, Cl. 81-15.700.

Robertson, David H. Attachment for crossbow that shoots arrows to enable the crossbow to shoot slugs. 5,062,406, Cl. 124-25.000.

Robertson, Diane M.; and Byalik, Ludmila, to Dexter Corporation, The. Fibrous base web bonding system and method. 5,063,104, Cl. 428-286.000.

Robotic Displays Corporation: *See—*
Smith, Glenn W., 5,063,377, Cl. 340-764.000.

Robrecht, Michael J.: *See—*
Aufderheide, Brian E.; Robrecht, Michael J.; and Kelley, Wayne R., 5,062,916, Cl. 156-269.000.

Roche, Andre , to Vibrachoc. Vibration and shock absorber device. 5,062,507, Cl. 188-378.000.

Rockefeller University, The: *See—*
Kappas, Attallah; and Drummond, George S., 5,063,223, Cl. 514-185.000.

Rocky Mountain Research, Inc.: *See—*
Orth, Jeffrey L., 5,062,775, Cl. 417-477.000.

Rodgers, J. Michael: *See—*
Jewell, Tanya E.; and Rodgers, J. Michael, 5,063,586, Cl. 378-34.000.

Roefs, Sebastianus P. F. M.: *See—*
Muijs, Herman M.; Beers, Nicolaas C. M.; and Roefs, Sebastianus P. F. M., 5,062,970, Cl. 252-8.554.

Roehm, Earl: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Roemer, Peter B.; Mueller, Otward M.; Park, John N.; and McMurray, William, to General Electric Company. Transformer-coupled gradient speed-up circuit. 5,063,349, Cl. 324-322.000.

Roger, Joseph: *See—*
Coppier, Herve ; Pourailly, Jean-Louis; and Roger, Joseph, 5,063,363, Cl. 333-33.000.

Rogers, Duane E.: *See—*
Breckenfeld, Paul W.; Nettles, James A.; Rogers, Duane E.; and Broughton, George, 5,062,403, Cl. 123-413.000.

Rohleder, Norbert; Praxl, Hubert; and Gobel-Rick, Dietrich, to Deutsche Gesellschaft fur Wiederaufarbeitung von Kernbrennstoffen mbH. Annular vessel for receivng radioactive solutions containing solids. 5,062,458, Cl. 141-80.000.

Rohm GmbH Chemische Fabrik: *See—*
Gross, Heinz; Fischer, Jens-Dieter; Siol, Werner; Sufke, Thomas; and Rhein, Thomas, 5,063,112, Cl. 428-412.000.

Rohm and Haas Company: *See—*
Martorano, Richard, 5,063,091, Cl. 427-385.500.
Wanat, Robert A.; and Crabb, Charles C., 5,063,259, Cl. 523-201.000.

Rohr, Franz-Josef, to Asea Brown Boveri Aktiengesellschaft. Fuel cell assembly comprising permanently combined fuel cells. 5,063,122, Cl. 429-32.000.

Rokuda, Morito: *See—*
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.

Roland, Charles M.; and Sonnenschein, Mark F., to United States of America, Navy. Selective metallization of carbonyl-containing polymer films. 5,062,939, Cl. 204-192.170.

Rolfe, Jonathan L.: *See—*
Beaty, John S.; and Rolfe, Jonathan L., 5,062,936, Cl. 204-164.000.

Rolls-Royce plc: *See—*
Marriage, Peter V., 5,062,768, Cl. 416-97.00R.

Rolph, Randy K.: *See—*
Longo, Robert T.; Bardai, Zaher; Manoly, Arthur E.; Forman, Ralph; and Rolph, Randy K., 5,063,323, Cl. 313-309.000.

Roltra, Morse S.p.A.: *See—*
Brusasco, Enzo, 5,062,240, Cl. 49-348.000.

Romano, James J.: *See—*
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,062,167, Cl. 5-61.000.

Rong, Wang C. Automobile steering lock with a rod anti-releasing mechanism. 5,062,282, Cl. 70-209.000.

Roos, Sture G., to Telefonaktiebolaget L M Ericsson. Function unit in which circuit boards are mounted on a center plane by way of distribution boards. 5,062,801, Cl. 439-61.000.

Roovers, Wilhemus M. M.; and de Boer, Jan, to General Electric Company. Polymer mixture which comprises an aromatic polycarbonate and a polyalkylene terephthalate, and articles formed therefrom. 5,062,984, Cl. 525-67.000.

Rosemount Inc.: *See—*
Hagen, Floyd W., 5,062,869, Cl. 55-159.000.

Rosenberg, Neil A. Dental handpiece. 5,062,796, Cl. 433-82.000.

Rosenberg, Saul H.; Spina, Kenneth P.; and Crowley, Steven R., to Abbott Laboratories. Peptidyl aminodiol renin inhibitors. 5,063,208, Cl. 514-19.000.

Rosenfeld, Eliezer Z.; and Coleman, Lewis, to Spegas Industries Ltd. Method and apparatus for gas analysis. 5,063,275, Cl. 250-343.000.

Ross, Carl H.; Machat, Rudolf; Haring, Werner; and Lettenbauer, Gustav, to Boehringer Mannheim GmbH. Process for the enrichment and/or isolation of heart glycosides with the use of non-polar absorber resins. 5,062,959, Cl. 210-635.000.

Ross, Jeff E.: *See—*
Pate, Gerry E.; Mullinax, Ronald L.; Sutton, Alexander C.; and Ross, Jeff E., 5,063,505, Cl. 364-400.000

Ross, Robert V.: *See—*
Lawrence, Peter D.; and Ross, Robert V., 5,062,755, Cl. 414-4.000.

Rossetto, Giorgio: *See—*
Mantovani, Marco; and Rossetto, Giorgio, 5,062,826, Cl. 494-85.000.

Rossi, Alessandro, to Axis USA, Inc. Methods and apparatus for fusing armature and stator wires. 5,063,279, Cl. 219-86.510.

Rossi, Debra J.: *See—*
Kuehn, Christa G.; Rossi, Debra J.; and Isied, Stephan S., 5,063,151, Cl. 435-7.330.

Roth, David S.: *See—*
Aulbach, Paul L.; Frank, Dorothy M.; and Roth, David S., 5,062,434, Cl. 131-336.000.

Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, to Dornier Luftfahrt GmbH. Fiber reinforced pressure bulkhead with integrated frame. 5,062,589, Cl. 244-117.00R.

VOL 1132 ISS 1 NO 5 1991 UMI

Roth, William H.: *See—*
Muchmore, Robert A.; and Roth, William H., 5,062,517, Cl. 192-106.200.

Roussel Uclaf: *See—*
Clemence, Francois; Frechet, Daniel; Hamon, Gilles; and Jouquey, Simone, 5,063,225, Cl. 514-211.000.

Roussel Ulcaf: *See—*
Fenske, Dankwart C.; Kuo, Elizabeth A.; and Tully, Wilfred R., 5,063,229, Cl. 514-258.000.

Rouyer, Pascal G.: *See—*
Allais, Jean-Philippe P. B.; Guillermond, Alain R.; and Rouyer, Pascal G., 5,062,347, Cl. 89-37.070.

Rowland, David E., to Rowland, Janice L. Clip for holding elongated devices. 5,062,184, Cl. 24-16.0PB.

Rowland, Janice L.: *See—*
Rowland, David E., 5,062,184, Cl. 24-16.0PB.

Rowley, Andrew T.: *See—*
Linden-Smith, Neil A.; and Rowley, Andrew T., 5,063,333, Cl. 315-326.000.

Royce Medical Company: *See—*
Grim, Tracy E., 5,062,414, Cl. 128-68.100.

RSA Entgrat-Technik Rainer Schmidt: *See—*
Huhmann, Reinhard, 5,062,177, Cl. 15-88.200.

Rubin, Mae K., to Mobil Oil Corp. Crystalline borosilicate. 5,063,037, Cl. 423-277.000.

Ruckes, Andreas; Brock, Martin; and Weider, Richard, to Bayer Aktiengesellschaft. Process for the production of plastics by the polyisocyanate polyaddition process and catalysts suitable for this process. 5,063,252, Cl. 521-108.000.

Rudnick, Alan S.; and Janke, Lance N. Jewelry display device. 5,062,526, Cl. 206-6.100.

Ruff, Klaus, to Huels Aktiengesellschaft. Method for increasing the yield of trichlorosilane in the fluidized-bed hydrochlorination of silicon. 5,063,040, Cl. 423-342.000.

Ruggles, John D.: *See—*
Humble, John D.; Searles, Raymond C.; Ruggles, John D.; and Jacobowitz, Judah L., 5,063,028, Cl. 422-144.000.

Runkel, Kevin D., to Bikestream, Inc. Pressurized potable beverage drinking system. 5,062,591, Cl. 224-148.000.

Russell, Boyd: *See—*
Kisman, Kenneth E.; and Russell, Boyd, 5,062,483, Cl. 166-263.000.

Rutty, Brian R.: *See—*
Hedderick, John B.; Rutty, Brian R.; Page, David G.; and Walshe, John J., 5,062,548, Cl. 222-190.000.

Rutz, Howard; and Hanejko, Francis G., to Hoeganaes Corporation. Doubly-coated iron particles. 5,063,011, Cl. 264-126.000.

Rutze, Uwe: *See—*
Ackermann, Ulrich; Kersten, Ralf T.; Etzkorn, Heinz-Werner; Paquet, Volker; and Rutze, Uwe, 5,062,508, Cl. 118-723.000.

Ryan, Richard P.; Shaffer, Glenn W.; Halstead, Gary A.; Smith, David M.; and Joshi, Shrikant M., to General Motors Corporation. Heat exchanger with an extruded tank. 5,062,476, Cl. 165-173.000.

Ryder, Douglas N.: *See—*
Hamadah, Talal T.; Ryder, Douglas N.; and Friedman, Harvey S., 5,063,476, Cl. 361-384.000.

Rye, Grover W.; Kindry, David A.; and Weber, Carolyn T., to Goodyear Tire & Rubber Company, The. Pneumatic tire made by butt-splicing structural members and a method therefor. 5,062,462, Cl. 152-548.000.

Ryoke, Katsumi; Takahashi, Masatoshi; and Nishikawa, Yasuo, to Fuji Photo Film Co., Ltd. Magnetic recording medium in which certain physical properties of the magnetic layer and the backcoat layer are specified. 5,063,105, Cl. 428-336.000.

Rzeszotarski, Waclaw: *See—*
Abreu, Mary E.; Rzeszotarski, Waclaw; Kyle, Donald J.; Hiner, Roger N.; and Elliott, Richard L., 5,063,245, Cl. 514-404.000.

Saada, Serge: *See—*
Leprince, Philippe; Chollet, Patrick; and Saada, Serge, 5,063,330, Cl. 315-111.210.

Saadi, Robert E.; Becker, Allen R.; Ball, Christopher J.; and Steffan, John, to Zurn Industries, Inc. On demand sensor flush valve. 5,062,453, Cl. 137-624.110.

SAB Nordic AB: *See—*
Sjarne, Anders O. G.; and Larsson, Sven-Olof, 5,062,505, Cl. 188-153.00R.

Sabelstrom, Jan: *See—*
Bolin, Goran; Latvakangas, Urpo; and Sabelstrom, Jan, 5,062,754, Cl. 412-4.000.

Sabre Industries, Inc.: *See—*
Glukhov, Michael, 5,062,441, Cl. 137-81.100.

Sackman, Edward J.; and Wray, Donald L., to Racal Data Communications Inc. Soft start circuit. 5,063,303, Cl. 307-296.100.

Safranek, Robert J.: *See—*
Knauer, Scott C.; Netravali, Arun N.; Petajan, Eric D.; Safranek, Robert J.; and Westerink, Peter H., 5,063,444, Cl. 358-133.000.

Sagawa, Takayoshi; Tani, Shichisei; and Kato, Katsuo, to Japan Tobacco Inc. Device for aligning articles having different diameters at their head and tails along a selected direction of movement while concurrently orienting their heads either forwardly or rearwardly relative to that direction. 5,062,522, Cl. 198-400.000.

Saiha, Erik: *See—*
Hyoty, Paavo; and Saiha, Erik, 5,062,921, Cl. 162-31.000.

Saijo, Teruaki: *See—*
Hashimoto, Nobuo; Suzuki, Kunioki; and Saijo, Teruaki, 5,062,297, Cl. 73-597.000.

Saint-Gobain Vitrage: *See—*
Kunert, Heinz, 5,062,248, Cl. 52-208.000.

Saito, Kajin: *See—*
Ozawa, Sinya; Kondo, Katsumi; and Saito, Kajin, 5,062,886, Cl. 75-371.000.

Saitoh, Izumi; and Sasaki, Yoshio, to Shionogi & Co., Ltd.; and Nisshin Chemical Industry Co., Ltd. UV light-absorbing skin-protecting composition. 5,063,048, Cl. 424-59.000.

Saji, Mikio: *See—*
Hoshino, Akira; Saji, Mikio; and Yamaguchi, Isamu, 5,063,256, Cl. 523-102.000.

Sakai, Hiromichi: *See—*
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.

Sakai, Hiroshi; Asai, Masamichi; Hayashi, Kenzo; Sakurai, Kazunori; and Watanabe, Kazuhiko, to Toshiba Ceramics Co., Ltd. Sliding nozzle device. 5,062,554, Cl. 222-600.000.

Sakai, Hitoshi: *See—*
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.

Sakai, Minekazu: *See—*
Fujii, Tetsuo; Sakai, Minekazu; and Kuroyanagi, Akira, 5,063,423, Cl. 357-23.500.

Sakai, Tadamiti: *See—*
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.

Sakakibara, Kenji, to Brother Kogyo Kabushiki Kaisha. Apparatus for forming images. 5,063,405, Cl. 355-32.000.

Sakakibara, Shinsuke: *See—*
Inaba, Yoshiharu; Naito, Hideo; Kamiguchi, Masao; Neko, Noriaki; and Sakakibara, Shinsuke, 5,062,784, Cl. 425-143.000.

Sakakibara, Tetsuya: *See—*
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.

Sakamoto, Eiji: *See—*
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.

Sakamoto, Hiroaki: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Sakamoto, Hiroshi: *See—*
Harada, Kosuke; and Sakamoto, Hiroshi, 5,063,488, Cl. 363-16.000.
Yokonuma, Norikazu; Hagiuda, Nobuyoshi; Iida, Yoshikazu; Sakamoto, Hiroshi; and Matsui, Hideki, 5,063,403, Cl. 354-413.000.

Sakamoto, Katsuhiko; Kawaguchi, Akira; and Ishikawa, Yasuhiro, to AMP Incorporated. High-frequency connector and method of manufacturing thereof. 5,062,809, Cl. 439-581.000.

Sakanoue, Ken, to Fuji Photo Film Co., Ltd. Silver halide color photographic material. 5,063,145, Cl. 430-505.000.

Sakata, Hirotsugu: *See—*
Hattori, Hitoshi; Sakata, Hirotsugu; Hayano, Makoto; Okuda, Masayuki; and Morozumi, Naoya, 5,062,778, Cl. 418-220.000.

Sakauchi, Takashi: *See—*
Nomura, Takuji; Miki, Shogo; Sakauchi, Takashi; Sato, Yoshitaka; and Honma, Yuusuke, 5,062,981, Cl. 252-62.540.

Sakiyama, Keizo: *See—*
Yamauchi, Yoshimitsu; and Sakiyama, Keizo, 5,063,425, Cl. 357-23.600.

Sakurai, Kazunori: *See—*
Sakai, Hiroshi; Asai, Masamichi; Hayashi, Kenzo; Sakurai, Kazunori; and Watanabe, Kazuhiko, 5,062,554, Cl. 222-600.000.

Sakuta, Shigeru; and Ueda, Katsunobu, to Kabushiki Kaisha Toshiba. Aligning apparatus with a coarse/fine movement controller and an ultrafine movement controller. 5,062,712, Cl. 356-400.000.

Salamy, Thomas E., to OCG Microelectronic Materials, Inc. Positive-working photoresist process employing a selected mixture of ethyl lactate and ethyl 3-ethoxy propionate as casting solvent during photoresist coating. 5,063,138, Cl. 430-326.000.

Saliba, Bernard, to Automobiles Peuqeot; and Automobiles Citroen. Braking device for automotive vehicle fitted with an electric motor. 5,062,317, Cl. 74-560.000.

Salomon S.A.: *See—*
Billet, Philippe; and Demarchi, Jean-Louis, 5,062,222, Cl. 36-2.600.

Samad, Tariq, to Honeywell Inc. Method for scale and rotation invariant pattern recognition. 5,063,605, Cl. 382-44.000.

Samaniego, Felix, to Transport Technology Corporation. Material handling system. 5,062,760, Cl. 414-542.000.

Samejima, Kazuo; and Kawakita, Hiroaki, to Kubota LTD. Terrain traversing apparatus having means for transferring grass clippings to collection box. 5,062,258, Cl. 56-202.000.

Sampath, Sanjay: *See—*
Anand, Vidhu; Sampath, Sanjay; Davis, Clarke D.; and Houck, David L., 5,063,021, Cl. 419-12.000.

Samsung Electron Devices Co., Ltd.: *See—*
Cho, Suk-rae, 5,063,326, Cl. 313-414.000.

SamSung Electronics Co., Ltd.: *See—*
Kim, Ki-Joon, 5,063,420, Cl. 357-17.000.
Kwon, Oh-Seol, 5,063,593, Cl. 379-386.000.

Park, Tae-Hong, 5,063,471, Cl. 361-18.000.
Seo, Jung-Hoon; and Seo, Sung-Mo, 5,063,597, Cl. 381-47.000.

Samuel C. Oliphant: *See—*
Oliphant, Samcul C.; and Gormley, David E., 5,062,281, Cl. 62-457.100.

Samuels, Terry G. Powered height changer for improved power curber. 5,062,737, Cl. 404-98.000.

Sanden Corporation: *See—*
Shimizu, Shigemi; and Takai, Kazuhiko, 5,062,772, Cl. 417-269.000.
Takamura, Toshiyuki; Kurihashi, Kazunari; and Harada, Masazumi, 5,062,545, Cl. 221-152.000.

Sanders, James R.: *See—*
Hammons, Alva C.; Sanders, James R.; and Ulrich, Franklin J., 5,062,327, Cl. 81-124.300.

Sanger, Gareth J.; and Marr, Helen E., to Beecham Group p.l.c. Method of treatment of visceral pain. 5,063,231, Cl. 514-214.000.

Sano, Katusya: *See—*
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.

Sano, Yasuyuki: *See—*
Hasegawa, Akira; Mori, Hiroshi; Takahashi, Tatsuhiko; and Sano, Yasuyuki, 5,063,255, Cl. 522-96.000.

Sansevero, Frank: *See—*
Nguyen, Dat; Sansevero, Frank; Johnson, Gerald E.; and Rivera, James A., 5,062,520, Cl. 198-335.000.

Sanshin Kogyo Kabushiki Kaisha: *See—*
Ito, Saburo, 5,063,381, Cl. 340-984.000.
Nagakura, Hodaka; and Kondo, Tsuneshi, 5,062,399, Cl. 123-198.00D.
Suganuma, Yasuo, 5,062,401, Cl. 123-333.000.

Sansho Seiyaku Co., Ltd.: *See—*
Yamamoto, Shinji, 5,063,056, Cl. 424-401.000.

Santaniello, Brian F.: *See—*
Brown, Derek A.; Worth, John N.; and Santaniello, Brian F., 5,062,711, Cl. 356-394.000.

Sanyo Electric Co., Ltd.: *See—*
Takemasa, Kazuo, 5,062,985, Cl. 252-67.000.

Sapre, Ajit V.: *See—*
Leib, Tiberiu M.; and Sapre, Ajit V., 5,062,944, Cl. 208-113.000.

Sapsford, Gary S., to STC PLC. Carbon coating of optical fibres. 5,062,687, Cl. 350-96.300.

Saraf, Ravi: *See—*
Huang, Wu-Song; Khandros, Igor Y.; Saraf, Ravi; and Shi, Leathen, 5,062,896, Cl. 106-287.190.

Sarnosky, Joseph R.; Wolbrink, David W.; Klug, Alan G.; and Behm, Gary E., to Broan Mfg. Co., Inc. Downdraft range ventilator. 5,062,410, Cl. 126-299.00D.

Sarnowsky, Melvin J.: *See—*
Jamoua, Saad A.; Sarnowsky, Melvin J.; and Heck, Karl R., 5,063,516, Cl. 364-431.110.

Sartor, Mariano; and Gorza, Roberto, to Nordica S.p.A. Heel securing device, particularly for ski boots. 5,062,226, Cl. 36-117.000.

Sasaki, Kazuo; Matsumoto, Hidetoshi; and Ohoka, Taneji, to Omron Corporation. Timer circuit. 5,063,355, Cl. 328-129.100.

Sasaki, Lawrence H.; and Chan, Sun-Shiu D., to Northern Telecom Limited. Scaler for synchronous digital clock. 5,063,579, Cl. 377-48.000.

Sasaki, Yoshio: *See—*
Saitoh, Izumi; and Sasaki, Yoshio, 5,063,048, Cl. 424-59.000.

Sasse, Philip A., to Kimberly-Clark Corporation. Polymeric web compositions for use in absorbent articles. 5,063,272, Cl. 524-377.000.

Sato, Hideki; Mizunoya, Nobuyuki; Asai, Hironori; Anzai, Kazuo; and Hatano, Tsuyoshi, to Kabushiki Kaisha Toshiba. Circuit substrate comprising nitride type ceramics, method for preparing it, and metallizing composition for use in it. 5,063,121, Cl. 428-698.000.

Sato, Hideto: *See—*
Eguchi, Mikiro; and Sato, Hideto, 5,063,576, Cl. 375-111.000.

Sato, Masahide, to Nabeya Kogyo Co., Ltd. Non-linear spring. 5,062,619, Cl. 267-154.000.

Sato, Masahiro: *See—*
Takamatsu, Ryoji; Naitou, Osamu; Urushibata, Hiroyuki; and Sato, Masahiro, 5,063,557, Cl. 369-219.000.

Sato, Mitsuo, to Kabushiki Kaisha Toshiba. Apparatus for growing vapor phase layer on semiconductor substrate. 5,063,031, Cl. 422-245.000.

Sato, Norimasa: *See—*
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.

Sato, Susumu: *See—*
Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, 5,063,222, Cl. 514-180.000.

Sato, Takayo: *See—*
Kurahashi, Yoshio; Goto, Toshio; Isono, Kunihiro; Kitagawa, Yoshinori; Izumi, Tetsuji; Kondo, Toshihito; and Sato, Takayo, 5,062,883, Cl. 71-94.000.

Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, to Matsushita Electric Industrial Co., Ltd. Apparatus for evaluating a lens. 5,062,705, Cl. 356-124.000.

Sato, Yoshitaka: *See—*
Nomura, Takuji; Miki, Shogo; Sakauchi, Takashi; Sato, Yoshitaka; and Honma, Yuusuke, 5,062,981, Cl. 252-62.540.

Satoh, Hiroshi: *See—*
Ikeda, Hideo; Hamamura, Chiyo; Satoh, Hiroshi; and Utsui, Yoshihiko, 5,062,307, Cl. 73-862.360.
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Satoh, Kozo: *See—*
Kuhara, Shigehide; and Satoh, Kozo, 5,063,348, Cl. 324-307.000.

Satoh, Masaharu; Fukushima, Naoto; Fukunaga, Yukio; Akatsu, Yohsuke; Fujimura, Itaru; and Fukuyama, Kensuke, to Nissan Motor Company, Limited. Pressure medium fluid circuit for active suspension system with variable fluid source discharge rate depending upon magnitude of stroke in relative displacement between vehicular body and suspension member. 5,062,660, Cl. 280-707.000.

Satoh, Takeshi, to Takata Corporation. Module cover of air bag system. 5,062,663, Cl. 280-743.000.

Satoh, Yukihiko, to Alps Electric Co., Ltd. Illuminating switch apparatus. 5,063,479, Cl. 362-32.000.

Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, to Hitachi, Ltd.; and Hitachi Tokyo Electronics Co. Ltd. Vacuum system with a secondary gas also connected to the roughing pump for a semiconductor processing chamber. 5,062,771, Cl. 417-201.000.

Satou, Syungi: *See—*
Miwa, Hiroshi; Miyoshi, Atuko; Satou, Syungi; and Kaseda, Masayuki, 5,063,528, Cl. 364-559.000.

Sattler, David W.: *See—*
Killilea, Timothy R.; and Sattler, David W., 5,062,334, Cl. 83-99.000.

Sauerwein, William D.: *See—*
Mason, John G.; Miller, John W.; Sauerwein, William D.; and Vick, Stephen L., 5,063,319, Cl. 310-210.000.

Saunders, Michael J.: *See—*
Davidowski, Dennis J.; Saunders, Michael J.; and O'Brien, Steven M., 5,063,494, Cl. 395-800.000.

Saupe, Thomas: *See—*
Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, 5,062,879, Cl. 71-92.000.

Savcor-Consulting Oy: *See—*
Pulliainen, Martti; Savisalo, Hannu; and Ainali, Markku, 5,062,932, Cl. 204-130.000.

Saviano, Thomas A. Hand hammer. 5,062,324, Cl. 81-20.000.

Savisalo, Hannu: *See—*
Pulliainen, Martti; Savisalo, Hannu; and Ainali, Markku, 5,062,932, Cl. 204-130.000.

Savoca, Ann C. L.: *See—*
Herman, Frederick L.; Savoca, Ann C. L.; and Listemann, Mark L., 5,062,998, Cl. 260-665.00R.

Sawabe, Hidenori: *See—*
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,982, Cl. 252-62.570.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,983, Cl. 252-62.570.

Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, to Kabushiki Kaisha Kobe Seiko SHO. Teaching playback swing-phase-controlled above-knee prosthesis. 5,062,856, Cl. 623-24.000.

Sawyer, Alan G.; Hughes, Dale L.; and Petree, Edwyn H., to Sawyer, Alan G.; and Hughes, Dale L. Cable stripping tool. 5,062,192, Cl. 29-426.400.

Scally, Charles R.: *See—*
Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., 5,063,392, Cl. 346-46.000.

Scanlan, Lawrence A.: *See—*
FitzHenry, Patrick; and Scanlan, Lawrence A., 5,063,607, Cl. 382-50.000.

Schaberg, Frank; Martens, Heribert; and Pohlmann, Peter, to Krupp Polysius AG. Apparatus for the introduction of reagents in powder form into a melting pan. 5,062,615, Cl. 266-217.000.

Schaede, Johannes G.: *See—*
Germann, Albrecht J.; Bolza-Schunemann, Hans B.; Schaede, Johannes G.; and Lapp, Joachim A. H., 5,062,360, Cl. 101-152.000.

Schaeff, Wilmer G.: *See—*
Kubisch, John G.; Mercer, James B.; Schaeff, Wilmer G.; and Wenzel, Thomas E., 5,062,466, Cl. 164-7.100.

Scharf, Rolf; and Schmitz, Karl-Heinz, to Ecolab Inc. Soap free conveyor lubricant that gives clear solutions in water comprising alkoxyphosphate ester, alkyl benzene sulfonate and carboxylic acid. 5,062,979, Cl. 252-49.300.

Scharmann, Harry: *See—*
Finlayson, Roger M.; Scharmann, Harry; and Vermaas, Leo F., 5,063,076, Cl. 426-602.000.

Schausberger, Helmut: *See—*
Oberkersch, Angelika; Pirmann, Anton; and Schausberger, Helmut, 5,063,401, Cl. 354-320.000.

Scheer, Erich: *See—*
Grosspietsch, Wolfgang; and Scheer, Erich, 5,062,513, Cl. 192-70.170.

VOL
1132
ISS
1
NO
5
1991
UMI

Schefczik, Ernst: *See—*
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.

Scheinpflug, Hans: *See—*
Brandes, Wilhelm; Hanssler, Gerd; Reinecke, Paul; Scheinpflug, Hans; and Holmwood, Graham, 5,063,241, Cl. 514-383.000.

Schelhas, Klaus-Dieter, to Bristol-Myers Squibb Company. Joint for coupling two elongated prosthesis sections. 5,062,849, Cl. 623-16.000.

Schildknecht, Eugene G.; and Untawale, Govind G., to Hoffmann-La Roche Inc. Anticoccidial composition. 5,063,219, Cl. 514-157.000.

Schindler, Manfred J.: *See—*
Smith, Irl W.; and Schindler, Manfred J., 5,063,361, Cl. 332-103.000.

Schipper, Paul H.: *See—*
Pappal, David A.; and Schipper, Paul H., 5,062,945, Cl. 208-113.000.

Schlag, Edward W.; Lindner, Josef; Beavis, Ronald C.; and Grotemeyer, Jurgen, to Bruker-Franzen Analytik GmbH. Method of vaporizing a sample substance. 5,062,935, Cl. 204-157.410.

Schlangenotto, Heinrich; and Sommer, Karl H., to eupec Europaische Gesellschaft fur Leistungshalbleiter mbH & Co. KG. Semiconductor element having a p-zone on the anode side and an adjacent, weakly doped n-base zone. 5,063,428, Cl. 357-38.000.

Schlesinger, Carol A.: *See—*
Bieniarz, Christopher; Welch, J. Christopher; Barnes, Grady; and Schlesinger, Carol A., 5,063,109, Cl. 428-378.000.

Schlitt, George J., to Cooper Industries, Inc. Continuous tape measure. 5,062,215, Cl. 33-755.000.

Schlumberger Industries, Inc.: *See—*
Petersen, Kurt E.; Barth, Philip W.; Bryzek, Janusz; and Mallon, Joseph R., Jr., 5,062,302, Cl. 73-754.000.

Schlumberger Technologies, Inc.: *See—*
Nishihara, H. Keith; Crossley, P. Anthony; Hunt, Neil D.; and Tenenbaum, J. Martin, 5,062,567, Cl. 228-105.000.

Schmid, Hans-Dieter: *See—*
Edelhaeuser, Erhard; Schmid, Hans-Dieter; Speckner, Ludwig; Wutz, Karl; and Steffen, Horst, 5,063,366, Cl. 335-271.000.

Schmidt, Friedrich: *See—*
Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., 5,063,187, Cl. 502-71.000.

Schmitt, Philipp; and Stehr, Norbert, to Draiswerke GmbH. Agitator mill. 5,062,577, Cl. 241-171.000.

Schmitz, Karl-Heinz: *See—*
Scharf, Rolf; and Schmitz, Karl-Heinz, 5,062,979, Cl. 252-49.300.

Schneider, Fritz W., to Krauss-Maffei A.G. Apparatus for mixing at least two reactive plastic materials. 5,063,027, Cl. 422-133.000.

Schneider, Michael: *See—*
Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., 5,063,187, Cl. 502-71.000.

Schondorf, Phyllis: *See—*
Goodman, Meri; and Schondorf, Phyllis, 5,062,645, Cl. 273-249.000.

Schoner, Brigitte E.; and Schoner, Ronald G., to Eli Lilly and Company. Recombinant DNA expression vector comprising both transcriptional and translational activating sequences. 5,063,158, Cl. 435-252.300.

Schoner, Ronald G.: *See—*
Schoner, Brigitte E.; and Schoner, Ronald G., 5,063,158, Cl. 435-252.300.

Schott Glaswerke: *See—*
Ackermann, Ulrich; Kersten, Ralf T.; Etzkorn, Heinz-Werner; Paquet, Volker; and Rutze, Uwe, 5,062,508, Cl. 118-723.000.

Schotthoefer, Gerald R., to Adell Corporation. Door edge guard with J cross section. 5,062,665, Cl. 280-770.000.

Schroeder, Donald E., Jr.; and Falk, David O., to Marathon Oil Company. Method of gravel packing a subterranean well. 5,062,484, Cl. 166-278.000.

Schrupp, Earl H. System for hermetically dispensing and diluting a concentrated chemical. 5,062,459, Cl. 141-91.000.

Schuch, Horst: *See—*
Bauer, Peter; Konrad, Rainer; Morgenstern, Herbert; and Schuch, Horst, 5,063,016, Cl. 264-211.210.

Schucker, Robert C., to Exxon Research & Engineering Company. Highly aromatic polyurea/urethane membranes and their use of the separation of aromatics from non-aromatics. 5,063,186, Cl. 502-4.000.

Schuelke, James H.: *See—*
Mowry, William H.; Schuelke, James H.; and White, Robert L., 5,062,666, Cl. 283-67.000.

Schuffler, Arnulf: *See—*
Durselen, Heinz; Schuffler, Arnulf; and Meyer, Gunter, 5,062,925, Cl. 201-41.000.

Schulkamp, Kirk: *See—*
Hu, Mae W.; Schulkamp, Kirk; Lin, Cheng-I; and Ullman, Edwin F., 5,063,165, Cl. 436-500.000.

Schurter, Robert M.; and Palmerton, Robert H., to A. O. Smith Corporation. Pressure vessel with diaphragm compression seal. 5,062,455, Cl. 138-30.000.

Schuy, Hubert: *See—*
Astheimer, Hans; Brumme, Helma; Heck, Werner; Kissel, Klaus; and Schuy, Hubert, 5,063,464, Cl. 360-104.000.

Schwartz, Russell J.; Zwirgzdas, Anthony C.; and Chamberlain, Terence R., to Sun Chemical Corporation. Poly (alkylene oxide)-modified diarylide pigment composition. 5,062,894, Cl. 106-23.000.

Schwartz, Stan: *See—*
Khalid, Najeeb A.; Adams, Larry; Schwartz, Stan; and Wong, Jean, 5,063,408, Cl. 355-72.000.

Schwartz, William H.: *See—*
Dayan, Richard A.; Geisler, Douglas R.; Kinnear, Scott G.; Macon, James F., Jr.; and Schwartz, William H., 5,063,496, Cl. 395-700.000.

Schwarz, Alexander: *See—*
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.

Schwenner, Eckhard; Stegelmeier, Hartmut; Kazda, Stanislav; and Knorr, Andreas, to Bayer Aktiengesellschaft. Amino-esters of dihydropyridines useful for improving circulation in patients. 5,063,239, Cl. 514-357.000.

Sciamanna, Steven F., to Chevron Research and Technology Company. Rotating sleeve hydrocyclone. 5,062,955, Cl. 210-512.100.

Scotson, Peter G.; and Ironside, John M., to Lucas Industries Public Limited Company. Engine throttle control system. 5,062,404, Cl. 123-399.000.

Scott Tech International, Inc.: *See—*
Bromley, Scott, 5,062,187, Cl. 29-33.00T.

Searles, Raymond C.: *See—*
Humble, John D.; Searles, Raymond C.; Ruggles, John D.; and Jacobowitz, Judah L., 5,063,028, Cl. 422-144.000.

Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, to BASF Aktiengesellschaft. 8-azolylmethylquinolines and herbicidal use thereof. 5,062,879, Cl. 71-92.000.

Seghi, Giovanni, to L. Molteni & C. dei F.lli Alitti S.p.A. Anticontagion device for injecting dental anesthetic solutions contained in cartridges. 5,062,832, Cl. 604-110.000.

Seiko Epson Corporation: *See—*
—Shiokawa, Shoko; Matsui, Yoshikazu; and Ueda, Toshihiko, 5,063,396, Cl. 346-140.00R.

Seiko Instruments Inc.: *See—*
—Watanabe, Shunji, 5,062,888, Cl. 75-739.000.

Seikosha Co., Ltd.: *See—*
—Matsuda, Takumi, 5,062,382, Cl. 119-51.040.

Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, to Fanuc Ltd. Profile revising method. 5,063,517, Cl. 364-474.220.

Seki, Mitsuo: *See—*
Kawashima, Ichiro; Seki, Mitsuo; and Hirano, Isao, 5,062,279, Cl. 62-235.000.

Sekiya, Masataka: *See—*
Owashi, Hitoaki; Ohtsubo, Hiroyasu; Sekiya, Masataka; Minabe, Kohji; Nishijima, Hideo; Masuda, Michio; and Rokuda, Morito, 5,063,437, Cl. 358-22.000.

Sekiya, Tetsuo; Inoue, Shinya; Taniguchi, Masao; Umezu, Kohei; and Suzuki, Kazuo, to Mitsubishi Kasei Corporation. Diphenylurea derivatives. 5,063,247, Cl. 514-585.000.

Selkirk, Alastair B.; and Dey, Michael J., to Syntex Pharmaceuticals, Ltd. Parenteral formulations of 1-diphenylmethyl-4-((2-(4-methylphenyl)-5-methyl-1H-imidazol-4-yl)methyl)piperazine. 5,063,220, Cl. 514-161.000.

Sellstrom Manufacturing Company: *See—*
Siegal, Burton L., 5,062,156, Cl. 2-8.000.

Semasa, Takayoshi; and Ueno, Yutaka, to Mitsubishi Denki Kabushiki Kaisha. Transmission system for still-picture TV telephone. 5,063,587, Cl. 379-53.000.

Sematech, Inc.: *See—*
Anderson, Richard L., 5,062,446, Cl. 137-468.000.

Senco Products, Inc.: *See—*
Michael, James V., 5,062,562, Cl. 227-111.000.

Senior, Robert B.; and Hvizdos, Edward L., to Innovated, Inc. Pneumatic press. 5,062,357, Cl. 100-53.000.

Seno, Eugene T.: *See—*
Cox, Karen L.; Seno, Eugene T.; and Wild, Gene M., 5,063,155, Cl. 435-76.000.

Seo, Jeong Y.: *See—*
Yoon, Seok G.; and Seo, Jeong Y., 5,062,915, Cl. 156-252.000.

Seo, Jung-Hoon; and Seo, Sung-Mo, to SamSung Electronics Co., Ltd. Muting circuit in a digital audio system. 5,063,597, Cl. 381-47.000.

Seo, Sung-Mo: *See—*
Seo, Jung-Hoon; and Seo, Sung-Mo, 5,063,597, Cl. 381-47.000.

Seo, Yasutsugu; and Sugawara, Motoaki, to Kabushiki Kaisha Toshiba; and Sugawara, Motoaki. Ultrasonic doppler apparatus. 5,062,427, Cl. 128-661.100.

Seppanen, Helena: *See—*
Partanen, Paul; Seppanen, Helena; and Harjunmaa, Hannu, 5,063,024, Cl. 422-65.000.

Sereny, Aron: *See—*
Domoto, Gerald A.; and Sereny, Aron, 5,063,413, Cl. 355-296.000.

Severa, William D.: *See—*
Strauch, Eric C.; and Severa, William D., 5,062,634, Cl. 273-67.00R.

SGS-Thomson Microelectronics s.r.l.: *See—*
Melanotte, Massimo; and Bellezza, Orio, 5,063,424, Cl. 357-23.500.

Shaffer, Glenn W.: *See—*
Ryan, Richard P.; Shaffer, Glenn W.; Halstead, Gary A.; Smith, David M.; and Joshi, Shrikant M., 5,062,476, Cl. 165-173.000.

Shakkottai, Parthasarathy; and Kwack, Eug Y., to Sparktech. Dual tube sonic level gage. 5,062,295, Cl. 73-290.00V.

Shanabrook, Benjamin V.: *See—*
Glaser, Evan R.; and Shanabrook, Benjamin V., 5,063,419, Cl. 357-16.000.

Shank, David W.; and Findikli, Nadi S., to Nartron Corporation. Vehicle preheater control. 5,063,513, Cl. 364-424.050.

Shannon, Robert D.: *See—*
Novak, Philip F.; Shannon, Robert D.; Pinckney, Robert L.; and Humphreys, James R., Jr., 5,063,384, Cl. 342-1.000.

Shantz, Michael J.: *See—*
Lien, Sheue-Ling; Shantz, Michael J.; Carrie, Susan E.; Loo, Jim V.; and Elrod, David, 5,063,375, Cl. 340-703.000.

Shapiro, Roy A., to AT&T Bell Laboratories. Telephone subscriber line fault detector. 5,063,585, Cl. 379-30.000.

Sharp, Edward J.: *See—*
Shurtz, Richard R., II; Sharp, Edward J.; and Miller, James E., 5,063,418, Cl. 357-15.000.

Sharp Kabushiki Kaisha: *See—*
Suzuki, Akira; Furukawa, Katsuki; Shigeta, Mitsuhiro; and Fujii, Yoshihisa, 5,063,421, Cl. 357-17.000.
Yamauchi, Yoshimitsu; and Sakiyama, Keizo, 5,063,425, Cl. 357-23.600.

Sharp, Kenneth G.: *See—*
Hanneman, Larry F.; Gentle, Theresa E.; and Sharp, Kenneth G., 5,063,267, Cl. 524-284.000.

Shaw, David N., to Carrier Corporation. Unloading system for two compressors. 5,062,274, Cl. 62-117.000.

Shaw, David N.: *See—*
Heitmann, Erric L.; and Shaw, David N., 5,062,277, Cl. 62-193.000.

Sheets, Harold D. Tool coupler. 5,062,749, Cl. 408-240.000.

Shekell, Jerry: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Shekleton, Jack R.; and Johnson, Douglas C., to Sundstrand Corporation. Cooling of turbine nozzles. 5,062,262, Cl. 60-39.360.

Shell International Research Maatschappij B. V.: *See—*
Newton, Trevor W.; and McArthur, Alastair, 5,062,882, Cl. 71-93.000.

Shell Oil Company: *See—*
Coleman-Kammula, Seetha; and Gillemans, Johannes C. M., 5,063,088, Cl. 427-352.000.
Kemp, Richard A., 5,062,947, Cl. 208-216.00R.
Muijs, Herman M.; Beers, Nicolaas C. M.; and Roefs, Sebastianus P. F. M., 5,062,970, Cl. 252-8.554.

Shelton, Homer, Jr.: *See—*
Goetz, Frederick E.; Miller, Michael S.; and Shelton, Homer, Jr., 5,062,671, Cl. 292-175.000.

Sher, Arden: *See—*
Mooney, John B.; and Sher, Arden, 5,063,166, Cl. 437-22.000.

Sheu, Shyh-Her; and Tsui, Yu-Ming. Rearview directional control device for rearview mirror. 5,062,700, Cl. 359-508.000.

Shi, Leathen: *See—*
Huang, Wu-Song; Khandros, Igor Y.; Saraf, Ravi; and Shi, Leathen, 5,062,896, Cl. 106-287.190.

Shibata, Hidenori; Inoue, Ikuko; and Harada, Nozomu, to Kabushiki Kaisha Toshiba. Solid-state image sensor employing a gate and diode for bias charge injection. 5,063,449, Cl. 358-213.110.

Shibata, Yoshimasa: *See—*
Tsuge, Kazuto; Hattori, Masateru; Kondo, Kazuo; and Shibata, Yoshimasa, 5,062,798, Cl. 433-201.100.

Shibuya, Kazuhiko: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Shibuya, Kenichi; Okubo, Hirotsugu; and Furudate, Yukio, to Sony Corporation. Timer programming apparatus. 5,063,543, Cl. 368-29.000.

Shibuya, Toru: *See—*
Okajima, Masayuki; and Shibuya, Toru, 5,063,443, Cl. 358-133.000.

Shieh, Wen-Yau. Prefab filter tank with warning function. 5,062,950, Cl. 210-86.000.

Shiels, Alan J.: *See—*
Cobden, Ronald C.; and Shiels, Alan J., 5,062,369, Cl. 105-396.000.

Shigemori, Toshihiro, to Ricoh Company, Ltd. Optical disk apparatus with data transfer rate and rotational speed variable by annular zones. 5,063,552, Cl. 369-50.000.

Shigeno, Yoshiharu; Murata, Michihiro; Nishino, Yu; Fukui, Norio; and Yamamoto, Keizou, to Murata Mfg. Co., Ltd. Magnetic sensor having a base with magnetoresistors and a magnet mounted on the base. 5,063,347, Cl. 324-235.000.

Shigeo, Nakamura, to Fanuc Ltd. Switching regular undervoltage detector. 5,063,491, Cl. 363-56.000.

Shigeta, Mitsuhiro: *See—*
Suzuki, Akira; Furukawa, Katsuki; Shigeta, Mitsuhiro; and Fujii, Yoshihisa, 5,063,421, Cl. 357-17.000.

Shih, Hsiao-Lei: *See—*
Liu, Yun-Yu; Shih, Hsiao-Lei; Chyou, Yang-Chih; and Laiw, Ming-Shing, 5,062,805, Cl. 439-404.000.

Shih, Jason C. H.; and Williams, C. Michael, to North Carolina State University. Method of degrading keratinaceous material and bacteria useful therefor. 5,063,161, Cl. 435-252.500.

Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, to Minolta Camera Kabushiki Kaisha. Apparatus for retracting a photo-taking lens. 5,063,402, Cl. 354-400.000.

Shimadzu Corporation: *See—*
Hayashi, Shigeki, 5,063,296, Cl. 250-396.0ML.

Shimazaki, Masaki: *See—*
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.

Shimizu Construction Co., Ltd.: *See—*
Kumagai, Takenori, 5,062,243, Cl. 52-66.000.

Shimizu, Shigemi; and Takai, Kazuhiko, to Sanden Corporation. Slant plate type compressor. 5,062,772, Cl. 417-269.000.

Shimizu, Takaaki: *See—*
Takita, Masatoshi; and Shimizu, Takaaki, 5,063,181, Cl. 501-54.000.

Shimizu, Toshiharu, to Yamaha Hatsudoki Kabushiki Kaisha. Shifting device for lawn mower and the like. 5,062,510, Cl. 192-4.00C.

Shimizu, Yasuo: *See—*
Niwa, Takahiro; and Shimizu, Yasuo, 5,063,098, Cl. 428-76.000.

Shimoda, Isamu: *See—*
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.

Shimokoriyama, Makoto: *See—*
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, 5,063,453, Cl. 360-32.000.

Shimura, Teruyuki, to Mitsubishi Denki Kabushiki Kaisha. Method of producing a bipolar transistor with spacers. 5,063,167, Cl. 437-31.000.

Shin-Etsu Chemical Co., Ltd.: *See—*
Takita, Masatoshi; and Shimizu, Takaaki, 5,063,181, Cl. 501-54.000.

Shinjo, Goro: *See—*
Ohtsubo, Toshiro; Tsuda, Shigenori; Kawada, Hitoshi; Shinjo, Goro; and Tsuji, Kozo, 5,063,059, Cl. 424-408.000.

Shinnihon Jushikako Co., Ltd.: *See—*
Tahara, Tetsuo, 5,063,006, Cl. 264-35.000.

Shinozaki, Eiji, to NEC Corporation. Transistor write current switching circuit for magnetic recording. 5,063,310, Cl. 307-570.000.

Shioda, Michio: *See—*
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.

Shioiri, Shigeo; and Kanda, Kunio, to Somar Corporation. Method of preparing broadcast sequence control data and apparatus for implementing said method. 5,063,493, Cl. 364-192.000.

Shiokawa, Shoko; Matsui, Yoshikazu; and Ueda, Toshihiko, to Seiko Epson Corporation. Droplets jetting device. 5,063,396, Cl. 346-140.00R.

Shionogi & Co., Ltd.: *See—*
Saitoh, Izumi; and Sasaki, Yoshio, 5,063,048, Cl. 424-59.000.

Shiotsuki, Masao: *See—*
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.

Shiozaki, Tsugio; Kitahara, Satoshi; Koizumi, Osamu; and Sugiura, Ikuzo, to Tokyo Electric Co., Ltd. Thermal printer with reciprocal paper feed control. 5,062,722, Cl. 400-120.000.

Shipley Company Inc.: *See—*
Dillon, John R.; and O'Connor, James D., 5,062,930, Cl. 204-82.000.

Shipman, Carol L.: *See—*
Lindsey, James D.; Hutton, Charles D.; Tubb, Joe W.; Shipman, Carol L.; and Kyle, Albert S., III, 5,063,507, Cl. 364-408.000.

Shippers Paper Products Company: *See—*
Liebel, Henry L., 5,062,751, Cl. 410-154.000.

Shira, Chester S. Method of making a golf club head and the article produced thereby. 5,062,638, Cl. 273-167.00R.

Shirasugi, Kouji, to Ricoh Company, Ltd. Copier allowing successive copying operations while avoiding certain waiting period. 5,063,414, Cl. 355-296.000.

Shklyarov, Isaak M.: *See—*
Braverman, Robert J.; and Shklyarov, Isaak M., 5,062,230, Cl. 42-1.090.
Braverman, Robert J.; and Shklyarov, Isaak M., 5,062,231, Cl. 42-1.090.

Shockley, Dru. Shopping bag with handle. 5,062,717, Cl. 383-20.000.

Shoei Kako Kabushiki Kaisha: *See—*
Kamata, Eitaro, 5,062,162, Cl. 2-424.000.

Shorter, David U., to International Business Machines Corporation. System for executing segments of application program concurrently/serially on different/same virtual machine. 5,063,500, Cl. 395-200.000.

Showa Alumi Powder K.K.: *See—*
Ozawa, Sinya; Kondo, Katsumi; and Saito, Kajin, 5,062,886, Cl. 75-371.000.

Shuman, David W.: *See—*
Jasinski, Joseph E.; Lingle, Charles H.; Pollitt, Richard F.; and Shuman, David W., 5,063,289, Cl. 250-221.000.

Shurtz, Richard R., II; Sharp, Edward J.; and Miller, James E., to United States of America, Army. Optical non-linear artificial dielectrics. 5,063,418, Cl. 357-15.000.

Sicka, Richard W.: *See—*
Tompkins, Dale A.; and Sicka, Richard W., 5,062,782, Cl. 425-113.000.

Siegal, Burton L., to Sellstrom Manufacturing Company. Face shield filter plate retention. 5,062,156, Cl. 2-8.000.

Siegel, Israel. Disposable body cooler. 5,062,269, Cl. 62-4.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Siegel, Ronald A., to University of California, The Regents of the. Implantable, self-regulating mechanochemical insulin pump. 5,062,841, Cl. 604-891.100.

Siegel, Shepard L., to Datacube Inc. Adaptive zonal coder. 5,063,608, Cl. 382-56.000.

Siemens Aktiengesellschaft: *See*—
Maghon, Helmut, 5,062,792, Cl. 431-284.000.

Siemens-Albis Aktiengesellschaft: *See*—
Lauper, Alfred; Kupper, Hanspeter; and Rieder, Daniel, 5,063,354, Cl. 328-14.000.

Siemens Automotive L.P.: *See*—
Daly, Paul D., 5,062,405, Cl. 123-468.000.

Sienko, Ronald F.: *See*—
Poillon, Nannette; Canistraro, Howard; and Sienko, Ronald F., 5,062,641, Cl. 273-181.00C.

Sievert, Dick J.: *See*—
Woolford, Michael E.; and Sievert, Dick J., 5,062,610, Cl. 249-52.000.

Sigmon, Bernard E., to Motorola, Inc. Pulse repetition frequency pushing compensation circuit. 5,063,360, Cl. 331-175.000.

Siiman, Olavi; and Burshteyn, Alexander, to Coulter Corporation. In situ use of gelatin in the preparation of uniform ferrite particles. 5,062,991, Cl. 252-315.200.

Silicon Systems, Inc.: *See*—
Yamasaki, Richard G., 5,063,309, Cl. 307-521.000.

Simmler, Kurt: *See*—
Nalowaniec, Krzysztof; and Simmler, Kurt, 5,062,838, Cl. 604-366.000.

Sinatora, Giampaolo: *See*—
Tedesco, Raffaele; Busato, Giampaolo; and Sinatora, Giampaolo, 5,063,099, Cl. 428-109.000.

Singh, Bharat H. Selective flow dispensing container. 5,062,550, Cl. 222-80.000.

Singletary, John: *See*—
Rhoden, Buddy; and Singletary, John, 5,062,675, Cl. 296-1.100.

Sinko, John E. Universal lawn mower blade sharpening machine. 5,062,322, Cl. 76-82.100.

Sinzawa, K.: *See*—
Takano, T.; Kosuga, Y.; and Sinzawa, K., 5,063,277, Cl. 200-531.000.

Siol, Werner: *See*—
Gross, Heinz; Fischer, Jens-Dieter; Siol, Werner; Sufke, Thomas; and Rhein, Thomas, 5,063,112, Cl. 428-412.000.

Sircar, Ila: *See*—
Doherty, Annette M.; Hamilton, Harriet W.; Hodges, John C.; Repine, Joseph T.; and Sircar, Ila, 5,063,207, Cl. 514-18.000.

Siria, Darrel Lee: *See*—
Siria, Darrell L.; Sommerfeld, Lorran; and Raczykowski, Daniel G., 5,062,487, Cl. 169-91.000.

Siria, Darrell L.; Sommerfeld, Lorran; and Raczykowski, Daniel G., to Siria, Darrel Lee. Hand-portable fire fighting positive pressure water misting and ventilation blower. 5,062,487, Cl. 169-91.000.

Sitzler, Hans-Dietrich: *See*—
Fischer, Tilman; Sitzler, Hans-Dietrich; and Ufermann, Werner, 5,063,010, Cl. 264-109.000.

Sjarne, Anders O. G.; and Larsson, Sven-Olof, to SAB Nordic AB. Brake block holder arrangement. 5,062,505, Cl. 188-153.00R.

Sjoberg, Per, to Nobel Kemi AB. Method and a device for filling a space in an ammunition unit with explosive. 5,062,343, Cl. 86-20.100.

Sjoblom, Bengt I. G., to Beco Produktutveckling. Method and apparatus for bending corrugated sheet. 5,062,286, Cl. 72-305.000.

SKF GmbH: *See*—
Bauer, Bernhard; Reichle, Heinz; and Stolz, Robert, 5,062,719, Cl. 384-450.000.

Skraba, Joseph S.: *See*—
Dorr, Lawrence D.; Burkinshaw, Brian D.; and Skraba, Joseph S., 5,062,852, Cl. 623-20.000.

SKW Trostberg Aktiengesellschaft: *See*—
Vollbrecht, Heinz-Rudiger; Cully, Jan; and Wiesmuller, Johann, 5,063,077, Cl. 426-614.000.

Slagowski, Eugene: *See*—
McCarten, Paul; and Slagowski, Eugene, 5,062,924, Cl. 162-358.000.

Slamon, Dennis J.; and Chen, Irvin S. Y., to University of California, The Regents of The. Retroviral polypeptides associated with human cellular transformation. 5,063,150, Cl. 435-5.000.

Slee, James D., to Amoco Corporation. Process for monitoring particle size and moisture content of finely divided material. 5,062,709, Cl. 356-335.000.

Slind, Jay L.: *See*—
Loberger, Gregory C.; and Slind, Jay L., 5,062,790, Cl. 431-114.000.

Smagner, John D. Furnace crown means and method. 5,062,249, Cl. 52-320.000.

SMC Corporation: *See*—
Hasegawa, Yoshitomo; and Tsuchiya, Teruyuki, 5,062,864, Cl. 55-495.000.

Smit, Nicolaas: *See*—
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Smith, Carl H.: *See*—
Ramanan, V. R. V.; and Smith, Carl H., 5,062,909, Cl. 148-304.000.

Smith, David A.; and Woody, Clark M., to DowBrands Inc. Hand held, dip-tube style liquid dispenser. 5,062,549, Cl. 222-377.000.

Smith, David A.; and LaCombe, James A., to Dow Brands Inc. Vacuum drum purge method and apparatus. 5,062,603, Cl. 271-195.000.

Smith, David A.; and Woody, Clark M., to Dow Chemical Company, The. Multiple delivery system. 5,062,623, Cl. 271-283.000.

Smith, David A.; and Geiger, Herbert B., to Dow Chemical Company, The. Apparatus and method for the production of flexible products. 5,062,825, Cl. 493-194.000.

Smith, David A.: *See*—
Candland, Calvin T.; Christianson, Kim L.; Kennedy, James L.; Smith, David A.; Nosan, Francis J.; and Overend, Steven F., 5,062,366, Cl. 102-430.000.

Smith, David M.: *See*—
Ryan, Richard P.; Shaffer, Glenn W.; Halstead, Gary A.; Smith, David M.; and Joshi, Shrikant M., 5,062,476, Cl. 165-173.000.

Smith, Dennis W.: *See*—
Borrelli, Nicholas F.; and Smith, Dennis W., 5,062,877, Cl. 65-30.130.

Smith, Gary J., to Alcan International Limited. Process for producing color change devices incorporating latent indicia and the resulting devices. 5,062,928, Cl. 204-15.000.

Smith, Glenn; and Smith, Roseanna. Rose thorn stripper. 5,062,238, Cl. 47-1.010.

Smith, Glenn W., to Robotic Displays Corporation. Display system. 5,063,377, Cl. 340-764.000.

Smith, Irl W.; and Schindler, Manfred J., to Raytheon Company. Serrodyne modulator. 5,063,361, Cl. 332-103.000.

Smith, Lowell S.; and Piel, Edward J., Jr., to General Electric Company. Ultrasound imaging system probe with alternate transducer polling for common-mode noise rejection. 5,062,429, Cl. 128-661.010.

Smith & Nephew plc: *See*—
Miller, Nigel D., 5,063,063, Cl. 424-445.000.

Smith & Nephew Richards Inc.: *See*—
Jamison, Russell D.; Brumfield, David; and Treharne, Richard, 5,062,844, Cl. 606-54.000.

Smith, Patrick J.: *See*—
Leahy, Ronald S.; and Smith, Patrick J., 5,063,572, Cl. 375-1.000.

Smith, Richard L.: *See*—
Martin, Luther W.; and Smith, Richard L., 5,062,207, Cl. 29-890.140.

Smith, Roseanna: *See*—
Smith, Glenn; and Smith, Roseanna, 5,062,238, Cl. 47-1.010.

Smith, Stephen; and Engelhardt, Dale F., to General Motors Corporation. Engine cylinder liner, seals and assembly therewith. 5,062,393, Cl. 123-41.720.

Smith, Steven C. Hypodermic syringe needle detection alarm. 5,063,370, Cl. 340-540.000.

Sobukawa, Hiroshi: *See*—
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, 5,062,271, Cl. 62-55.500.

Societe Anonyme Dite Hispano Suiza: *See*—
Allais, Jean-Philippe P. B.; Guillermond, Alain R.; and Rouyer, Pascal G., 5,062,347, Cl. 89-37.070.

Societe d'Applications Generales d'Electricite et de Mecanique Sagem: *See*—
Monnier, Christian, 5,062,604, Cl. 248-27.100.

Societe des Ceramiques Techniques: *See*—
Garcera, Daniel; and Gillot, Jacques, 5,062,910, Cl. 156-82.000.

Societe Europeenne de Propulsion: *See*—
Atlas, Gerard, 5,063,336, Cl. 318-611.000.

Societe LAB: *See*—
Vicard, Jean-Francois, 5,063,034, Cl. 423-235.000.

Societe Nationale Elf Aquitane: *See*—
Gauthier, Michel; Armand, Michel; and Muller, Daniel, 5,063,124, Cl. 429-192.000.

Somar Corporation: *See*—
Kitagawa, Katsuji; Moriguchi, Kazutomo; Miyake, Tetsuo; Sano, Katusya; Kittaka, Kiyoshi; and Sakakibara, Tetsuya, 5,063,095, Cl. 428-35.800.
Kubo, Masao; Miyake, Tetsuo; Matsuzaki, Kunimitsu; and Kitagawa, Katsuji, 5,062,284, Cl. 72-46.000.
Shioiri, Shigeo; and Kanda, Kunio, 5,063,493, Cl. 364-192.000.

Sommer, Karl H.: *See*—
Schlangenotto, Heinrich; and Sommer, Karl H., 5,063,428, Cl. 357-38.000.

Sommer, Norbert, to Boge AG. Self-pumping hydropneumatic shock absorbing strut. 5,062,616, Cl. 267-64.170.

Sommerer, Karl, to Dr.Ing.h.c.F. Porsche Aktiengesellschaft. Wheel suspension system having a lower bearing with two ball joints. 5,062,655, Cl. 280-674.000.

Sommerfeld, Lorran: *See*—
Siria, Darrell L.; Sommerfeld, Lorran; and Raczykowski, Daniel G., 5,062,487, Cl. 169-91.000.

Sonnenschein, Mark F.: *See*—
Roland, Charles M.; and Sonnenschein, Mark F., 5,062,939, Cl. 204-192.170.

Sony Corporation: *See*—
Fukushima, Takashi; and Hishinuma, Takashi, 5,063,458, Cl. 358-335.000.
Miyoshi, Hiroshi; Kamatani, Yoshiteru; Ozue, Tadashi; Narahara, Tatsuya; and Ohsato, Kiyoshi, 5,063,555, Cl. 369-97.000.
Nishida, Norio, 5,063,545, Cl. 369-32.000.
Shibuya, Kenichi; Okubo, Hirotsugu; and Furudate, Yukio, 5,063,543, Cl. 368-29.000.
Takahashi, Kenji, 5,063,558, Cl. 369-291.000.
Takamatsu, Ryoji; Naitou, Osamu; Urushibata, Hiroyuki; and Sato, Masahiro, 5,063,557, Cl. 369-219.000.

Soong, Tai-Sen: *See*—
Chang, Ming-Ju; Hsu, Yuan-Hsun; Kuo, Mei-Hui; and Soong, Tai-Sen, 5,063,244, Cl. 514-456.000.

Sparks, Charles: *See*—
Fuchs, Jean-Francois; Auberon, Marcel; Odru, Pierre; and Sparks, Charles, 5,062,914, Cl. 156-172.000.

Sparktech: *See*—
Shakkottai, Parthasarathy; and Kwack, Eug Y., 5,062,295, Cl. 73-290.00V.

Sparton Corporation: *See*—
Gerker, Thomas F., 5,062,344, Cl. 87-8.000.

Speckner, Ludwig: *See*—
Edelhaeuser, Erhard; Schmid, Hans-Dieter; Speckner, Ludwig; Wutz, Karl; and Steffen, Horst, 5,063,366, Cl. 335-271.000.

Spectral Sciences, Inc.: *See*—
Adler-Golden, Steven; and Matthew, Michael W., 5,062,707, Cl. 356-311.000.

Speed Queen Company: *See*—
Harris, Robert D.; and Putnam, Brett J., 5,062,219, Cl. 34-133.000.

Speer, Elmer: *See*—
Rampolla, Donald S.; and Speer, Elmer, 5,062,186, Cl. 24-389.000.

Spegas Industries Ltd.: *See*—
Rosenfeld, Elieser Z.; and Coleman, Lewis, 5,063,275, Cl. 250-343.000.

Spellman, Joseph X.; Beck, Marlene C.; and Connell, Victoria, to Elizabeth Arden Co., Division of Conopco, Inc. Cosmetic capsules. 5,063,057, Cl. 424-401.000.

Spiewak, John W.: *See*—
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, 5,063,125, Cl. 430-59.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.

Spilburg, Curtis A.: *See*—
Lange, Louis G., III; and Spilburg, Curtis A., 5,063,210, Cl. 514-54.000.

Spina, Kenneth P.: *See*—
Rosenberg, Saul H.; Spina, Kenneth P.; and Crowley, Steven R., 5,063,208, Cl. 514-19.000.

Spine-Tech, Inc.: *See*—
Kuslich, Stephen D.; and Corin, James D., 5,062,845, Cl. 606-80.000.

Spinsafe, Inc.: *See*—
Butler, Johnny L.; Wakeland, Richard E.; Batson, Donald R.; and Metzger, Robert E., 5,062,439, Cl. 137-15.000.

SRI International: *See*—
Mooney, John B.; and Sher, Arden, 5,063,166, Cl. 437-22.000.

Sridhar, Narasi, to Haynes International, Inc. Corrosion resistant Ni-Cr- Si- Cu alloys. 5,063,023, Cl. 420-442.000.

SS Pharmaceutical Co., Ltd.: *See*—
Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, 5,063,222, Cl. 514-180.000.

SSI Medical Services, Inc.: *See*—
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,062,167, Cl. 5-61.000.

Standard Oil Company, The: *See*—
Turkevich, Leonid A.; and Choi, Kee-Ju, 5,063,301, Cl. 250-574.000.

Standard Register Company, The: *See*—
Mowry, William H.; Schuelke, James H.; and White, Robert L., 5,062,666, Cl. 283-67.000.

Standard Steel Rail Technology: *See*—
Ballerstein, John E., 5,062,732, Cl. 403-174.000.

Stang, Michael A. Food tray and bib system. 5,062,558, Cl. 224-270.000.

Stanley Electric Co., Ltd.: *See*—
Wasimoto, Takasi; and Kimura, Morio, 5,062,818, Cl. 445-22.000.

Stanley Works, The: *See*—
Bobbowski, Louis G.; and Kon, Richard H., 5,062,181, Cl. 16-354.000.

STC PLC: *See*—
Sapsford, Gary S., 5,062,687, Cl. 350-96.300.

Steele, John: *See*—
Cooper, Kelvin; Fray, Michael J.; Richardson, Kenneth; and Steele, John, 5,063,237, Cl. 514-338.000.

Steffan, John: *See*—
Saadi, Robert E.; Becker, Allen R.; Ball, Christopher J.; and Steffan, John, 5,062,453, Cl. 137-624.110.

Steffen, Horst: *See*—
Edelhaeuser, Erhard; Schmid, Hans-Dieter; Speckner, Ludwig; Wutz, Karl; and Steffen, Horst, 5,063,366, Cl. 335-271.000.

Stegelmeier, Hartmut: *See*—
Schwenner, Eckhard; Stegelmeier, Hartmut; Kazda, Stanislav; and Knorr, Andreas, 5,063,239, Cl. 514-357.000.

Stehr, Norbert: *See*—
Schmitt, Philipp; and Stehr, Norbert, 5,062,577, Cl. 241-171.000.

Steiner, Susan: *See*—
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Stenstrom, Theiss; Molbaek, Jens J.; Hyldig, Poul E.; and Straede, Bjarne, to Danfoss A/S. Apparatus for monitoring a fluid conduit system for leakage points. 5,062,442, Cl. 137-110.000.

StereoGraphics Corporation: *See*—
Lipton, Lenny; and Meyers, Lawrence D., 5,063,441, Cl. 358-88.000.

Sterling Design International: *See*—
Gullett, Paul D. M., 5,062,481, Cl. 166-153.000.

Stevens, Robert B.; and Hunter, Orville, Jr., to A. P. Green Industries, Inc. Low silica ceramic fiber. 5,063,180, Cl. 501-38.000.

Stewart, Ralph D., to Leggett & Platt, Incorporated. Bedding mattress spring assembly having border edge support. 5,062,172, Cl. 5-474.000.

Sticht, Walter; and Heiml, Roland, to STIWA-Gertigungstechnik Sticht Gesellschaft m.b.H. Assembly line for working and mounting structural parts. 5,062,368, Cl. 104-172.300.

STIWA-Gertigungstechnik Sticht Gesellschaft m.b.H.: *See*—
Sticht, Walter; and Heiml, Roland, 5,062,368, Cl. 104-172.300.

Stockinger, Hubertus, to Boefringer Mannheim GmbH. Serum-free culture medium for mammalian cells. 5,063,157, Cl. 435-240.200.

Stolpmann, James R.: *See*—
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,062,167, Cl. 5-61.000.

Stolz, Robert: *See*—
Bauer, Bernhard; Reichle, Heinz; and Stolz, Robert, 5,062,719, Cl. 384-450.000.

Stolzer, Rainer, to Hydromatik GmbH. Hydrostatic transmission containing an axial piston motor located in a recess of a valve controlled axial piston pump. 5,062,267, Cl. 60-493.000.

Story, Carl E.; Nichols, Jerry A.; and Cady, Byron C., to Systems Chemistry, Inc. Fluid pumping apparatus and system with leak detection and containment. 5,062,770, Cl. 417-46.000.

Stout, Timothy R., to T and G Technologies, Inc. Method of operating a still. 5,062,927, Cl. 203-89.000.

Stowe, Keith A.: *See*—
Hynds, Ernest J.; Stowe, Keith A.; and Cook, David C., 5,062,656, Cl. 280-689.000.

Straede, Bjarne: *See*—
Stenstrom, Theiss; Molbaek, Jens J.; Hyldig, Poul E.; and Straede, Bjarne, 5,062,442, Cl. 137-110.000.

Strata Flotation, Inc.: *See*—
Johenning, John B., 5,062,170, Cl. 5-450.000.

Strauch, Eric C.; and Severa, William D., to Wilson Sporting Goods Co. Squash racket. 5,062,634, Cl. 273-67.00R.

Strippit, Inc.: *See*—
Johnson, Gary E.; and Eckert, Richard M., 5,062,337, Cl. 83-552.000.

Stroud, James W., III; and Dodds, John F., to Allen-Bradley Company, Inc. Injection molding controller with process variable learning. 5,062,785, Cl. 425-145.000.

Stop Industries, Inc.: *See*—
Weatherby, John H.; and Potts, Jack M., 5,062,415, Cl. 128-76.00R.

Stucks, Albert A. Penile erection system. 5,062,416, Cl. 128-79.000.

Studsgaard, Leif: *See*—
Hansen, Henry; Studsgaard, Leif; and Laursen, Erik, 5,062,305, Cl. 73-861.120.

Stulens, Ludo M. J.: *See*—
Custers, Pieter H.; and Stulens, Ludo M. J., 5,063,547, Cl. 369-32.000.

Suckling, Colin J.; Halling, Peter J.; Johnston, Grant A.; and Brown, Linda, to Imperial Chemical Industries PLC. Performing an enzyme-catalyzed reaction. 5,063,149, Cl. 435-4.000.

Sud-Chemie Aktingesellschaft: *See*—
Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., 5,063,187, Cl. 502-71.000.

Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, to Furukawa Electric Co., Ltd., The; and Nippondenso Co., Ltd. Copper fin material for heat-exchanger and method of producing the same. 5,063,117, Cl. 428-610.000.

Sue, Jiinjen A., to Union Carbide Coatings Service Technology Corporation. Electrolytic process for stripping a metal coating from a titanium based metal substrate. 5,062,941, Cl. 204-146.000.

Sufke, Thomas: *See*—
Gross, Heinz; Fischer, Jens-Dieter; Siol, Werner; Sufke, Thomas; and Rhein, Thomas, 5,063,112, Cl. 428-412.000.

Suga, Yasunori: *See*—
Kanba, Masaru; Inoue, Yasuo; Mukai, Sadayoshi; Kikkawa, Masanari; and Suga, Yasunori, 5,062,292, Cl. 73-19.010.

Suganuma, Yasuo, to Sanshin Kogyo Kabushiki Kaisha. Fuel supplying device for marine propulsion unit. 5,062,401, Cl. 123-333.000.

Sugawara, Motoaki: *See*—
Seo, Yasutsugu; and Sugawara, Motoaki, 5,062,427, Cl. 128-661.100.

Sugawara, Tomoo; and Yamato, Motoyuki, to Nippon Zeon Co., Ltd. Reinforced polymeric matrix. 5,063,103, Cl. 428-285.000.

Sugawara, Yukio: *See*—
Sukekawa, Izumi; Asao, Haruhiko; Kohno, Hiroshi; Sugawara, Yukio; and Nogami, Keiji, 5,062,614, Cl. 266-216.000.

Sugita, Kazuhiko; Hori, Nobumitsu; and Nakane, Yasumasa, to Toyoda Koki Kabushiki Kaisha. Feed mechanism with a sliding member guided by a hydrostatic bearing. 5,063,322, Cl. 310-341.000.

Sugita, Shuichi; Mizukura, Noboru; Kohno, Junichi; Kadokura, Kenzi; and Tomotake, Atsushi, to Konica Corporation. Silver halide light-sensitive photographic material. 5,063,148, Cl. 430-551.000.

Sugiura, Ikuzo: *See*—
Shiozaki, Tsugio; Kitahara, Satoshi; Koizumi, Osamu; and Sugiura, Ikuzo, 5,062,722, Cl. 400-120.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Sugiyama, Akiyoshi, to Kabushiki Kaisha Toshiba. Air-conditioning apparatus including an indoor unit and an outdoor unit having its compressor driven by a three-phase AC power supply. 5,062,278, Cl. 62-230.000.

Sugiyama, Genroku: *See*—
Tanaka, Hideaki; Hirata, Toichi; Sugiyama, Genroku; Haga, Masakazu; and Kajita, Yusuke, 5,062,350, Cl. 91-448.000.

Sugiyama, Yoshiyuki: *See*—
Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, 5,062,705, Cl. 356-124.000.

Sukekawa, Izumi; Asao, Haruhiko; Kohno, Hiroshi; Sugawara, Yukio; and Nogami, Keiji, to Mitsubishi Kinzoku Kabushiki Kaisha. Apparatus and method for manufacturing copper-base alloy. 5,062,614, Cl. 266-216.000.

Sulima, Edward J., Jr.: *See*—
Berringer, William A.; and Sulima, Edward J., Jr., 5,062,857, Cl. 623-25.000.

Sullivan, Jeffrey R.: *See*—
McCauley, Durham S.; and Sullivan, Jeffrey R., 5,062,325, Cl. 81-436.000.

Sulzer Brothers Limited: *See*—
Goetz, Roland, 5,063,118, Cl. 428-614.000.

Sumitani, Tomoaki: *See*—
Kambara, Hideki; Nishikawa, Tetsuo; Sumitani, Tomoaki; Nagai, Keiichi; and Ito, Yoshitoshi, 5,062,942, Cl. 204-299.00R.

Sumitomo Chemical Co., Ltd.: *See*—
Ohtsubo, Toshiro; Tsuda, Shigenori; Kawada, Hitoshi; Shinjo, Goro; and Tsuji, Kozo, 5,063,059, Cl. 424-408.000.

Sumitomo Electric Industries, Ltd.: *See*—
Okamoto, Satoru; Terazi, Kazufumi; Nishino, Seiichi; and Bonkohara, Manabu, 5,063,435, Cl. 357-74.000.

Sumitomo Light Metal Industries, Ltd.: *See*—
Tanaka, Hiroki; and Tsuchida, Shin, 5,062,901, Cl. 148-11.50A.

Sumiyoshi, Hideo: *See*—
Chiba, Kazuharu; Nakajima, Yoshifumi; and Sumiyoshi, Hideo, 5,063,568, Cl. 372-32.000.

Sun, Brian Y., to Keytec, Inc. Method of making a transparent touch screen switch assembly. 5,062,198, Cl. 29-622.000.

Sun Chemical Corporation: *See*—
Schwartz, Russell J.; Zwirgzdas, Anthony C.; and Chamberlain, Terence R., 5,062,894, Cl. 106-23.000.

Sun Microsystems, Inc.: *See*—
Lien, Sheue-Ling; Shantz, Michael J.; Carrie, Susan E.; Loo, Jim V.; and Elrod, David, 5,063,375, Cl. 340-703.000.

Sunada, Satoru, to Kabushiki Kaisha Toshiba. Heating cooker with temperature control system. 5,063,284, Cl. 219-497.000.

Sundstrand Corporation: *See*—
Anderson, W. Kyle, 5,063,318, Cl. 310-156.000.
Markunas, Albert L., 5,062,265, Cl. 60-450.000.
Shekleton, Jack R.; and Johnson, Douglas C., 5,062,262, Cl. 60-39.360.

Sundstrand Heat Transfer, Inc.: *See*—
Bernisderfer, Charles H.; and Wanner, James A., 5,062,475, Cl. 165-151.000.

Sung, Chien-Min: *See*—
Chen, Sy-Hwa; and Sung, Chien-Min, 5,062,865, Cl. 51-295.000.

Sunkara, Sai P.; and Jones, Winton D., to Merrell Dow Pharmaceuticals Inc. Prevention of glycoprotein enveloped virus infectivity by pyridinyloxazole-2-ones. 5,063,238, Cl. 514-340.000.

Sunshon Molding Co., Ltd.: *See*—
Chiu, Hsiu-Hui, 5,062,178, Cl. 16-38.000.

Suntory, Ltd.: *See*—
Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, 5,063,243, Cl. 514-438.000.

Suomen Xyrofin Oy: *See*—
Kruger, Christof; and Cappelmann, Karl, 5,063,080, Cl. 426-660.000.

Surig, Udo: *See*—
Jurgens, Gunter; Surig, Udo; and Lang, Lothar, 5,063,510, Cl. 364-424.100.

Susa, Sumio: *See*—
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.

Susaki, Toshihiko: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Sutton, Alexander C.: *See*—
Pate, Gerry E.; Mullinax, Ronald L.; Sutton, Alexander C.; and Ross, Jeff E., 5,063,505, Cl. 364-400.000.

Sutton, Roger I., to Golden Needles Knitting and Glove Co., Inc. Method of making garment, garment and strand material. 5,062,161, Cl. 2-169.000.

Sutton, William T.: *See*—
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,062,167, Cl. 5-61.000.

Suzuki, Akira; Furukawa, Katsuki; Shigeta, Mitsuhiro; and Fujii, Yoshihisa, to Sharp Kabushiki Kaisha. Silicon carbide light emitting diode having a pn junction. 5,063,421, Cl. 357-17.000.

Suzuki, Isao: *See*—
Gotoh, Shigeyuki; Yokota, Kazunori; and Suzuki, Isao, 5,062,306, Cl. 73-862.330.

Suzuki, Kazuo: *See*—
Sekiya, Tetsuo; Inoue, Shinya; Taniguchi, Masao; Umezu, Kohei; and Suzuki, Kazuo, 5,063,247, Cl. 514-585.000.

Suzuki, Kazuya: *See*—
Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, 5,062,312, Cl. 74-89.140.

Suzuki, Kunioki: *See*—
Hashimoto, Nobuo; Suzuki, Kunioki; and Saijo, Teruaki, 5,062,297, Cl. 73-597.000.

Suzuki, Norio: *See*—
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Suzuki, Shoji; and Yatsu, Kenji, to Alpine Electronics Inc. Cartridge guiding device for disk player. 5,063,553, Cl. 369-77.100.

Svarovsky, James E.: *See*—
Baechtel, Donald F.; Svarovsky, James E.; and Rehm, Thomas, 5,063,335, Cl. 318-609.000.

Swapp, Mavin C., to Motorola, Inc. Programmable time delay circuit for digital logic circuits. 5,063,311, Cl. 307-603.000.

Swedemede AB: *See*—
Wiksell, Hans, 5,062,827, Cl. 604-22.000.

Sweetman, Robert J. Process and apparatus for removing organic contaminants from a fluid. 5,063,030, Cl. 422-189.000.

SWF Auto-Electric GmbH: *See*—
Bruhn, Rainer, 5,063,317, Cl. 310-91.000.

Sykes, Christopher C. Partition structures and frame elements therefor. 5,062,246, Cl. 52-126.400.

Syntex Pharmaceuticals, Ltd.: *See*—
Selkirk, Alastair B.; and Dey, Michael J., 5,063,220, Cl. 514-161.000.

Syntex (U.S.A.) Inc.: *See*—
Hu, Mae W.; Schulkamp, Kirk; Lin, Cheng-I; and Ullman, Edwin F., 5,063,165, Cl. 436-500.000.

Syntone: *See*—
Martin, Martial G. E.; and Nuttin, Pierre L. V., 5,062,597, Cl. 270-39.000.

System 3R USA, Inc.: *See*—
Ramsbro, Borje K. H., 5,063,013, Cl. 269-136.000.

Systems Chemistry, Inc.: *See*—
Story, Carl E.; Nichols, Jerry A.; and Cady, Byron C., 5,062,770, Cl. 417-46.000.

Sytstra, Jan R.: *See*—
De Gier, Gertrudis M. G.; and Sytstra, Jan R., 5,062,227, Cl. 37-117.500.

Szempruch, Walter T.: *See*—
Kramer, David E.; Muetterties, Andrew J.; and Szempruch, Walter T., 5,062,774, Cl. 417-413.000.

Szyms, Walter; and Valaitis, Joseph W., to Firelli Armstrong Tire Corporation. Reinforced tire curing bladder. 5,062,781, Cl. 425-52.000.

T and G Technologies, Inc.: *See*—
Stout, Timothy R., 5,062,927, Cl. 203-89.000.

Tabei, Masatoshi, to Fuji Photo Film Co., Ltd. Solid state pickup system having improved color reproducibility. 5,063,439, Cl. 358-41.000.

Tacchetto, Maurizio, to Nordica S.p.A. Ski boot with variable-inclination upper spoiler. 5,062,224, Cl. 36-117.000.

Tachibana, Yoshitaka: *See*—
Takeda, Masatoshi; Aritsuka, Tomohiko; and Tachibana, Yoshitaka, 5,063,532, Cl. 364-825.000.

Tachikawa, Hiromichi: *See*—
Yokoya, Hiroaki; Tachikawa, Hiromichi; and Watarai, Syu, 5,063,129, Cl. 430-83.000.

Tagami, Kiyoshi: *See*—
Asaba, Eiki; Tanabe, Yoshihito; and Tagami, Kiyoshi, 5,063,295, Cl. 250-231.140.

Taguchi, Hiroya: *See*—
Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, 5,062,723, Cl. 400-120.000.

Taguchi, Nobuyoshi: *See*—
Imai, Akihiro; Kawakami, Tetsuji; Matsuda, Hiromu; Yubakami, Keiichi; and Taguchi, Nobuyoshi, 5,063,198, Cl. 503-227.000.

Tahara, Tetsuo, to Shinnihon Jushikako Co., Ltd. Methods for repairing cracks in concrete structures. 5,063,006, Cl. 264-35.000.

Taido, Naokata: *See*—
Komoto, Teruo; Okawa, Junji; Ogawa, Yoichiro; Sato, Susumu; Taido, Naokata; and Kuraishi, Tadayuki, 5,063,222, Cl. 514-180.000.

Taiyo Seiki Iron Works Co., Ltd.: *See*—
Takaguchi, Hiroyuki, 5,062,752, Cl. 411-347.000.

Takada, Katsuhiko: *See*—
Suda, Hideo; Sato, Norimasa; Takada, Katsuhiko; Susa, Sumio; Aiyoshizawa, Yasushi; and Omata, Kenichi, 5,063,117, Cl. 428-610.000.

Takagi, Atsushi, to Fuji Photo Film Co., Ltd. Method and apparatus for recording image. 5,063,407, Cl. 355-68.000.

Takagi, Ikuji: *See*—
Miyao, Hidehiko; Ikeda, Satoshi; Shiotsuki, Masao; Kawamura, Shigeyoshi; Komatsu, Fumiaki; Takagi, Ikuji; and Sakai, Tadamiti, 5,063,001, Cl. 264-0.500.

Takagi, Takeo: *See*—
Miura, Haruo; Fukushima, Yasuo; Nishida, Hideo; Kobayashi, Hiromi; and Takagi, Takeo, 5,062,766, Cl. 415-199.100.

Takaguchi, Hiroyuki, to Taiyo Seiki Iron Works Co., Ltd. Container coupling device. 5,062,752, Cl. 411-347.000.

Takahashi, Akihiko: *See*—
Takeshima, Akira; Asakura, Toshikazu; Takahashi, Akihiko; Kobayashi, Shigeo; and Hayashi, Shoichi, 5,062,491, Cl. 173-12.000.

Takahashi, Hiroshi: *See*—
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.

Takahashi, Hiroyuki, to NEC Corporation. Semiconductor memory circuit with diode load circuits. 5,063,540, Cl. 365-175.000.

Takahashi, Kaoru: *See*—
Ohsuga, Masaru; and Takahashi, Kaoru, 5,063,123, Cl. 429-38.000.

Takahashi, Keisuke: *See*—
Katsumata, Haruo; Sakai, Hiromichi; Takahashi, Keisuke; Ootaguro, Hirofumi; Matsumoto, Masashi; Nakamura, Moriyasu; and Ando, Tatsuo, 5,062,897, Cl. 106-696.000.

Takahashi, Kenji, to Sony Corporation. Disk cartridge. 5,063,558, Cl. 369-291.000.

Takahashi, Koji: *See*—
Ishikawa, Hisashi; Kozuki, Susumu; Takahashi, Koji; and Yoshimura, Katsuji, 5,063,457, Cl. 358-330.000.

Takahashi, Masatoshi: *See*—
Ryoke, Katsumi; Takahashi, Masatoshi; and Nishikawa, Yasuo, 5,063,105, Cl. 428-336.000.

Takahashi, Sakae: *See*—
Hayashi, Minoru; Matsufuji, Mitoshi; Takahashi, Sakae; Kamiji, Koichi; Kobari, Kouichi; Kishimoto, Junichi; Shioda, Michio; and Kawaguchi, Masaaki, 5,062,367, Cl. 102-530.000.

Takahashi, Sunao: *See*—
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Takahashi, Tatsuhiko: *See*—
Hasegawa, Akira; Mori, Hiroshi; Takahashi, Tatsuhiko; and Sano, Yasuyuki, 5,063,255, Cl. 522-96.000.

Takai, Haruki: *See*—
Nomoto, Yuji; Takai, Haruki; Ohno, Tetsuji; and Kubo, Kazuhiro, 5,063,227, Cl. 514-252.000.

Takai, Kazuhiko: *See*—
Shimizu, Shigemi; and Takai, Kazuhiko, 5,062,772, Cl. 417-269.000.

Takamatsu, Ryoji; Naitou, Osamu; Urushibata, Hiroyuki; and Sato, Masahiro, to Sony Corporation. Disc drive apparatus. 5,063,557, Cl. 369-219.000.

Takamori, Tetsuya, to Fuji Photo Film Co., Ltd. Method of and device for detecting an image area in an image processor. 5,063,606, Cl. 382-48.000.

Takamura, Toshiyuki; Kurihashi, Kazunari; and Harada, Masazumi, to Sanden Corporation. Automatic vending machine dispensing mechanism. 5,062,545, Cl. 221-152.000.

Takano, T.; Kosuga, Y.; and Sinzawa, K., to Daiichi Denso Buhin Co., Ltd. Waterproof and dustproof push switch. 5,063,277, Cl. 200-531.000.

Takata Corporation: *See*—
Satoh, Takeshi, 5,062,663, Cl. 280-743.000.

Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, to Hitachi, Ltd.; and Hitachi Koki Co., Ltd. Printing apparatus. 5,062,723, Cl. 400-120.000.

Takeda, Masaru: *See*—
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.

Takeda, Masatoshi; Aritsuka, Tomohiko; and Tachibana, Yoshitaka, to Mitsubishi Denki Kabushiki Kaisha. Active filter device. 5,063,532, Cl. 364-825.000.

Takeda, Nobuhiro, to Canon Kabushiki Kaisha. Information processing apparatus having a common A/D converter for the image and audio signals. 5,063,447, Cl. 358-145.000.

Takeda, Yuji, to Toyota Jidosha Kabushiki Kaisha. Knocking control apparatus of internal combustion engine. 5,062,402, Cl. 123-425.000.

Takegahara, Takashi: *See*—
Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, 5,063,517, Cl. 364-474.220.

Takehara, Shin: *See*—
Edahiro, Takeshi; Takehara, Shin; Morita, Toshiki; and Kumada, Hiroyoshi, 5,062,659, Cl. 280-707.000.

Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, to Fuji Photo Film Co., Ltd. Lens-fitted photographic film package. 5,063,400, Cl. 354-288.000.

Takemasa, Kazuo, to Sanyo Electric Co., Ltd. Refrigerant composition containing dichloromonofluoromethane. 5,062,985, Cl. 252-67.000.

Takemoto, Tetsuya: *See*—
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.

Takemura, Tohur: *See*—
Nozaki, Yoshihisa; Inden, Takashi; and Takemura, Tohur, 5,062,524, Cl. 198-465.400.

Takenaka, Toichi: *See*—
Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, 5,063,246, Cl. 514-517.000.

Takeshima, Akira; Asakura, Toshikazu; Takahashi, Akihiko; Kobayashi, Shigeo; and Hayashi, Shoichi, to Honda Giken Kogyo Kabushiki Kaisha. Apparatus for controlling nut runner. 5,062,491, Cl. 173-12.000.

Takeuchi, Hiroyuki: *See*—
Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, 5,062,705, Cl. 356-124.000.

Takeuchi, Setsuyuki, to A.K. Technical Laboratory, Inc. Rotary type injection orientation blow molding machine. 5,062,787, Cl. 425-522.000.

Takigami, Machiko: *See*—
Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, 5,063,042, Cl. 423-447.400.

Takigami, Shoji: *See*—
Arita, Yoshikazu; Iizuka, Toshi; Abe, Yukio; Nakamura, Yoshio; Takigami, Shoji; and Takigami, Machiko, 5,063,042, Cl. 423-447.400.

Takimoto, Futoshi: *See*—
Kiyonari, Toshiyuki; Hirabayashi, Satoshi; Kidokoro, Naoto; and Takimoto, Futoshi, 5,063,137, Cl. 430-292.000.

Takita, Masatoshi; and Shimizu, Takaaki, to Shin-Etsu Chemical Co., Ltd. Synthetic silica glass article for dopant-diffusion process in semiconductors. 5,063,181, Cl. 501-54.000.

Takita, Yumiko: *See*—
Nishii, Yasuho; and Takita, Yumiko, 5,063,221, Cl. 514-167.000.

Tamaoka, Mie: *See*—
Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, 5,063,243, Cl. 514-438.000.

Tanabe, Yoshihito: *See*—
Asaba, Eiki; Tanabe, Yoshihito; and Tagami, Kiyoshi, 5,063,295, Cl. 250-231.140.

Tanaka, Haruhiko: *See*—
Akimoto, Hajime; Ozaki, Toshifumi; Tokumasu, Kazuya; Ono, Hideyuki; and Tanaka, Haruhiko, 5,063,581, Cl. 377-58.000.

Tanaka, Hideaki; Hirata, Toichi; Sugiyama, Genroku; Haga, Masakazu; and Kajita, Yusuke, to Hitachi Construction Machinery Co., Ltd. Hydraulic drive system for civil Engineering and construction machine. 5,062,350, Cl. 91-448.000.

Tanaka, Hiroki; and Tauchida, Shin, to Sumitomo Light Metal Industries, Ltd. Method of producing hardened aluminum alloy sheets having superior corrosion resistance. 5,062,901, Cl. 148-11.50A.

Tanaka, Kazuhide: *See*—
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.

Tanaka, Kouji, to Alps Electric Co., Ltd. Remote control unit. 5,063,484, Cl. 362-109.000.

Tanaka, Kunimaro: *See*—
Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, 5,063,546, Cl. 369-32.000.

Tanaka, Masaki: *See*—
Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, 5,062,312, Cl. 74-89.140.

Tanaka, Mitsutoshi: *See*—
Arai, Fuminori; Igarashi, Takeshi; and Tanaka, Mitsutoshi, 5,063,153, Cl. 435-26.000.

Tanaka, Yutaka: *See*—
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.

Tanashin Denki Co., Ltd.: *See*—
Yoshimura, Toshio, 5,063,455, Cl. 360-96.500.

Tandai, Takahiko, to Nakamichi Corporation; and Nakamichi Fukushima Corporation. Composite magnetic head assembly having reduced cross feed between waiting and reading heads. 5,063,469, Cl. 360-128.000.

Tandy Electronics Japan, Ltd.: *See*—
Tsushima, Masayuki, 5,063,589, Cl. 379-82.000.

Taneda, Nobuo: *See*—
Mizutani, Shoji; and Taneda, Nobuo, 5,063,009, Cl. 264-49.000.

Tani, Shichisei: *See*—
Sagawa, Takayoshi; Tani, Shichisei; and Kato, Katsuo, 5,062,522, Cl. 198-400.000.

Tanigawa, Shu: *See*—
Okada, Kenichi; Nishino, Masashi; and Tanigawa, Shu, 5,062,710, Cl. 356-350.000.

Taniguchi, Hitofumi; and Kuramoto, Nobuyuki, to Tokuyama Soda Kabushiki Kaisha. Sinterable aluminum nitride composition, sintered body from this composition and process for producing the sintered body. 5,063,183, Cl. 501-96.000.

Taniguchi, Masao: *See*—
Sekiya, Tetsuo; Inoue, Shinya; Taniguchi, Masao; Umezu, Kohei; and Suzuki, Kazuo, 5,063,247, Cl. 514-585.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Tanimoto, Hideo: *See—*
Yamada, Yoshimi; Ito, Kazuo; and Tanimoto, Hideo, 5,063,508, Cl. 364-419.000.

Tanimoto, Yoshio: *See—*
Yamane, Takakazu; Tanimoto, Yoshio; and Nakahama, Tadamitsu, 5,063,085, Cl. 427-240.000.

Tanioka, Hiroshi: *See—*
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.

Tanita, Takeo; Kigami, Hiroyuki; and Azuma, Yusaku, to Canon Kabushiki Kaisha. Orthogonal two-axis moving apparatus. 5,063,334, Cl. 318-568.100.

Tateno, Manabu, to Toyota Jidosha Kabushiki Kaisha. Two-stroke internal combustion engine. 5,062,395, Cl. 123-65.0VD.

Tatsumi, Yoshikazu: *See—*
Freitas, Joseph D., Jr.; Tatsumi, Yoshikazu; and Furukawa, Hiroyuki, 5,063,298, Cl. 250-497.100.

Taylor, Ronald F.: *See—*
Reynolds, George, 5,062,814, Cl. 440-31.000.

TEAC Corporation: *See—*
Uehara, Keiji, 5,063,554, Cl. 369-77.200.

Tedesco, Raffaele; Busato, Giampaolo; and Sinatora, Giampaolo, to Montefibre S.p.A. Non-woven mat consisting of acrylic continuous filaments showing high modulus impregnated with an inorganic matrix. 5,063,099, Cl. 428-109.000.

Tegel, Anita, heir: *See—*
Tegel, Marek, deceased; and Wenzel, Dieter, 5,062,345, Cl. 89-1.817.

Tegel, Marek, deceased (by Tegel, Anita, heir); and Wenzel, Dieter, to DMT Marinetechnik GmbH. Cap for a rocket exit opening. 5,062,345, Cl. 89-1.817.

Teijin Limited: *See—*
Mizutani, Shoji; and Taneda, Nobuo, 5,063,009, Cl. 264-49.000.

Tektronix, Inc.: *See—*
Bateman, Glenn, 5,062,704, Cl. 356-73.100.

Teldix GmbH: *See—*
Carter, Robert E., 5,063,321, Cl. 310-323.000.

Telefonaktiebolaget L M Ericsson: *See—*
Jodoin, Dominique, 5,063,591, Cl. 379-115.000.
Roos, Sture G., 5,062,801, Cl. 439-61.000.

Temperley, Harry D.: *See—*
Parsons, David; Bainbridge, Wilfred N.; Young, Alastair J.; and Temperley, Harry D., 5,062,320, Cl. 74-650.000.

Tenenbaum, J. Martin: *See—*
Nishihara, H. Keith; Crossley, P. Anthony; Hunt, Neil D.; and Tenenbaum, J. Martin, 5,062,567, Cl. 228-105.000.

Terao, Kazuo: *See—*
Kubo, Tsutomu; Terao, Kazuo; Yamamuro, Takashi; Kajimoto, Masashi; and Tsukagoshi, Kazuhiko, 5,063,133, Cl. 430-122.000.

Terazi, Kazufumi: *See—*
Okamoto, Satoru; Terazi, Kazufumi; Nishino, Seiichi; and Bonkohara, Manabu, 5,063,435, Cl. 357-74.000.

Terracol, Claude; Bredel, Patrick; and Guillet, Jean-Laurent, to Merlin Gerin. Production machine incorporationg a high-speed lift and carry device with double walking beam, and the production system implementing this type of machine. 5,062,525, Cl. 198-468.600.

Teske, Reiner: *See—*
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.

Texaco Inc.: *See—*
Migdal, Cyril A.; and Jenkins, Robert H., Jr., 5,062,980, Cl. 252-51.50A.

Texas Alkyls, Inc.: *See—*
Malpass, Dennis B.; and Wang, Bor-Ping E., 5,063,188, Cl. 502-116.000.

Texas Instruments Incorporated: *See—*
Chapoton, Charles W., 5,063,529, Cl. 364-571.020.
Gill, Manzur, 5,063,171, Cl. 437-41.000.
Iyengar, Narasimhan, 5,063,304, Cl. 307-296.600.

Theordorsen, Trygve: *See—*
Cholid, Yanbo; Theordorsen, Trygve; and Wilhelmi, Jurgen, 5,062,733, Cl. 403-189.000.

Thermo Electron Technologies Corporation: *See—*
Beaty, John S.; and Rolfe, Jonathan L., 5,062,936, Cl. 204-164.000.

Thiel, Klaus-Dieter: *See—*
Engel, Walter; Eisenreich, Norbert; and Thiel, Klaus-Dieter, 5,063,036, Cl. 423-266.000.

Thinesen, Tom, to Timex Corporation. Program to alter alarm setting in a multimode alarm timepiece. 5,063,544, Cl. 368-74.000.

Thiokol Corporation: *See—*
Canterberry, J. B.; and Flanigan, David A., 5,062,365, Cl. 102-322.000.
Myers, Robert I.; Brubaker, Bryce D.; and Overall, Robert E., 5,062,206, Cl. 29-890.010.

Thomas, Eugene R.: *See—*
Haut, Richard C.; Thomas, Eugene R.; and Denton, Robert D., 5,062,270, Cl. 62-12.000.

Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., to SSI Medical Services, Inc. Bimodal turning method. 5,062,167, Cl. 5-61.000.

Thomas Jefferson University: *See—*
Galkin, Benjamin M., 5,063,583, Cl. 378-207.000.

Thompson, David F.: *See—*
Hampton, Leslie E.; and Thompson, David F., 5,062,911, Cl. 156-89.000.

Thompson, William L., to International Composites Corporation. Method for mounting and dismounting rigid sleeves onto and from a cylinder. 5,062,193, Cl. 29-426.600.

Thomson Consumer Electronics, Inc.: *See—*
Canfield, Barth A.; and Fling, Russell T., 5,063,580, Cl. 377-55.000.
Ragland, Frank R., Jr., 5,063,325, Cl. 313-405.000.

Thomson-CSF: *See—*
Bourdeau, Alain; and de Volder, Claude, 5,063,386, Cl. 342-40.000.
Colineau, Joseph; and Machui, Jurgen, 5,063,467, Cl. 360-119.000.
Coppier, Herve ; Pourailly, Jean-Louis; and Roger, Joseph, 5,063,363, Cl. 333-33.000.
Ferre, Alain; Chevance, Christophe; and Quignon, Jean, 5,063,524, Cl. 364-516.000.
Gault, Dominique; Andrieu, Jean-Pierre; and Henri, Jean-Claude, 5,063,388, Cl. 342-185.000.

Thorn Emi plc: *See—*
Linden-Smith, Neil A.; and Rowley, Andrew T., 5,063,333, Cl. 315-326.000.

Thornhill, Christopher J.: *See—*
Price, Barry L.; and Thornhill, Christopher J., 5,063,527, Cl. 364-550.000.

Thornock, Jeffery M.: *See—*
Arbanas, Glenn A.; Thornock, Jeffery M.; and Keate, Christopher R., 5,063,577, Cl. 375-120.000.

Thornton, Constance J.: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, 5,063,125, Cl. 430-59.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.

Those Characters from Cleveland, Inc.: *See—*
Chanter, Edward G.; and Randleman, Randy J., 5,062,647, Cl. 273-442.000.

Tietjen, Marlene: *See—*
Verdon, Debra; Tietjen, Marlene; and Brown, Ivonne, 5,063,050, Cl. 424-63.000.

Tiffany, William B., to Coherent, Inc. Isotopic CO_2 laser and method of use for medical treatment. 5,062,842, Cl. 606-3.000.

Timex Corporation: *See—*
Thinesen, Tom, 5,063,544, Cl. 368-74.000.

Timmons, Robert W., to McDonnell Douglas Corporation. Corrugated air hose assembly. 5,062,457, Cl. 138-125.000.

Tinder, Richard F.; and Klaus, Richard I., to Washington State University Research Foundation, Inc. Microprogrammable asynchronous controllers for digital electronic systems. 5,063,536, Cl. 395-775.000.

Tipton, Craig D.: *See—*
Bayles, Frederick L., Jr.; Walsh, Reed H.; and Tipton, Craig D., 5,062,975, Cl. 252-33.000.

Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, to Indiana Tube Corporation. Method and apparatus for forming bends in a tube. 5,062,288, Cl. 72-383.000.

Tobias, Jaromir. Hydrostatic power transfer system with isolating accumulator. 5,062,498, Cl. 180-308.000.

Tobiason, Timothy W., to Toby's Chemical Company. Method and apparatus for clearing flora from sewer lines. 5,062,878, Cl. 71-65.000.

Toby's Chemical Company: *See—*
Tobiason, Timothy W., 5,062,878, Cl. 71-65.000.

Toda, Kazuyuki: *See—*
Miyagawa, Naoomi; Yoshida, Chiyoaki; Toda, Kazuyuki; and Nakamura, Yukiyasu, 5,062,283, Cl. 72-10.000.

Tokumasu, Kazuya: *See—*
Akimoto, Hajime; Ozaki, Toshifumi; Tokumasu, Kazuya; Ono, Hideyuki; and Tanaka, Haruhiko, 5,063,581, Cl. 377-58.000.

Tokushige, Keizo: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.

Tokuyama Soda Kabushiki Kaisha: *See—*
Taniguchi, Hitofumi; and Kuramoto, Nobuyuki, 5,063,183, Cl. 501-96.000.

Tokyo Electric Co., Ltd.: *See—*
Nuita, Akira; and Kawaguchi, Katsuhiko, 5,063,395, Cl. 346-76.0PH.
Shiozaki, Tsugio; Kitahara, Satoshi; Koizumi, Osamu; and Sugiura, Ikuzo, 5,062,722, Cl. 400-120.000.

Tokyo Tanabe Company: *See—*
Yazaki, Takashi; Matsushita, Tomohisa; and Nagase, Tsutomu, 5,063,061, Cl. 424-427.000.

Tolson, Sidney S., to Ossid Corporation. Selective sequential shrink apparatus and process. 5,062,217, Cl. 34-22.000.

Tomii, Hiroyasu; and Kaneko, Yukio, to Nippon Piston Ring Co., Ltd.; and Kay Seven Co., Ltd. Universal joint. 5,062,730, Cl. 403-57.000.

Tominaga, Kazutoshi, to Kabushiki Kaisha Tominaga Jyushi Kobyosho. Filtering device for household aquariums. 5,062,951, Cl. 210-169.000.

Tomio, Minaki: *See—*
Yamada, Yasuhiko; Tomio, Minaki; Miyamae, Toshiyuki; and Kawai, Norio, 5,062,618, Cl. 267-140.400.

Tomioka, Kentaro: *See—*
Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, 5,063,257, Cl. 523-116.000.

Tomita, Akira; Diaz, Stephen H.; Dubrow, Robert S.; and Feldman, Michael, to Raychem Corporation. Method for making an optical fiber coating dispenser package. 5,062,254, Cl. 53-467.000.

Tomita, Kunikazu: *See—*
Nishimoto, Akihiko; Hosoya, Yoshihiro; Tomita, Kunikazu; Urabe, Toshiaki; and Jitsukawa, Masaharu, 5,062,906, Cl. 148-111.000.

Tomita, Yukio; Yamaba, Ryota; and Kumagai, Tatsuya, to Nippon Steel Corporation, a. Method of producing non-oriented magnetic steel plate having high magnetic flux density. 5,062,905, Cl. 148-111.000.

Tomiyama, Shigeo: *See—*
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.

Tomotake, Atsushi: *See—*
Sugita, Shuichi; Mizukura, Noboru; Kohno, Junichi; Kadokura, Kenzi; and Tomotake, Atsushi, 5,063,148, Cl. 430-551.000.

Tompkins, Dale A.; and Sicka, Richard W., to Bridgestone/Firestone, Inc. Coextrusion apparatus for varying the inner and/or outer profile of a tubular extrudate. 5,062,782, Cl. 425-113.000.

Tonutti, Carletto, to Tonutti S.p.A. Pull type bifold hay rake. 5,062,260, Cl. 56-380.000.

Tonutti S.p.A.: *See—*
Tonutti, Carletto, 5,062,260, Cl. 56-380.000.

Toomey, John C., to Medex, Inc. Freeze-dried blood gas sensor. 5,063,178, Cl. 422-82.070.

Toray Industries, Inc.: *See—*
Hirota, Kusato; Ohbayashi, Gentaro; and Nakanishi, Toshiharu, 5,063,097, Cl. 428-65.000.
Oka, Mitsuko; and Okumura, Yoshiharu, 5,062,158, Cl. 2-46.000.

Toriuchi, Masaharu; and Kondo, Hirokazu, to Fuji Photo Film Co., Ltd. Color diffusion transfer photographic light-sensitive material. 5,063,135, Cl. 430-214.000.

Tosaki, Satoshi: *See—*
Akahane, Shoji; Tosaki, Satoshi; Kusayanagi, Yukiharu; Kusakai, Shigenobu; Hirota, Kazuo; and Tomioka, Kentaro, 5,063,257, Cl. 523-116.000.

Toshiba Ceramics Co., Ltd.: *See—*
Sakai, Hiroshi; Asai, Masamichi; Hayashi, Kenzo; Sakurai, Kazunori; and Watanabe, Kazuhiko, 5,062,554, Cl. 222-600.000.

Toy, William O., Jr.: *See—*
Titzer, Keith; Oran, Charlie; Reich, Richard; Gann, Gary; Toy, William O., Jr.; Lamb, Jerry; Brack, Chris; Comer, Lloyd; Libbert, Dan; Masterson, Don; Shekell, Jerry; Deig, Don; Butler, Kenneth; and Roehm, Earl, 5,062,288, Cl. 72-383.000.

Toyo Tire & Rubber Co., Ltd.: *See—*
Yamada, Yasuhiko; Tomio, Minaki; Miyamae, Toshiyuki; and Kawai, Norio, 5,062,618, Cl. 267-140.400.

Toyoda Koki Kabushiki Kaisha: *See—*
Sugita, Kazuhiko; Hori, Nohumitsu; and Nakane, Yasumasa, 5,063,322, Cl. 310-341.000.

Toyota Jidosha Kabushiki Kaisha: *See—*
Takeda, Yuji, 5,062.402, Cl. 123-425.000.
Tateno, Manabu, 5,062,395, Cl. 123-65.0VD.

Trace, Adrian L.; and Basten, Mark J., to Lucas Industries. Processing circuit for optical combustion monitor. 5,063,287, Cl. 250-214.0AG.

Tran, Thanh: *See—*
Ulbrich, Paul; and Tran, Thanh, 5,062,426, Cl. 128-640.000.

Transitions Research Corporation: *See—*
Weiman, Carl F. R., 5,063,604, Cl. 382-41.000.

Transport Technology Corporation: *See—*
Samaniego, Felix, 5,062,760, Cl. 414-542.000.

Trautmann, Guenther H.; and Link, Helmut F., to Index-Werke Komm.-Ges. Hahn & Tessky. Machine tool with a cooled motor spindle. 5,062,330, Cl. 82-147.000.

Treharne, Richard: *See—*
Jamison, Russell D.; Brumfield, David; and Treharne, Richard, 5,062,844, Cl. 606-54.000.

Tremblay, Michel, deceased (by Paquet, Francine, heiress), to Gestion A. et Y. Gilbert Inc. Anchoring device for light boat. 5,062,376, Cl. 114-230.000.

Tremblay, Pierre: *See—*
Hudson, Tom J.; McIntyre, John; Tremblay, Pierre; Allaire, Claude; and Gnyra, Bohdan, 5,062,929, Cl. 204-67.000.

Tri-Way Machine Ltd.: *See—*
Jones, Joel W.; and Eldracher, John, 5,062,188, Cl. 29-33.00P.

Trillwood, Richard E., to Wentgate Dynaweld, Inc. Shuttle system for rapidly manipulating a workpiece into and out of an atmospherically controlled chamber for doing work thereon in the chamber. 5,062,758, Cl. 414-217.000.

Tristani-Kendra, Miguel G.; and Papapolymerou, George, to Minnesota Mining and Manufacturing Company. Liquid crystal device with grey scale. 5,062,691, Cl. 359-56.000.

Tritchler, Robert W.: *See—*
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

Triten Corporation: *See—*
Junier, Marius R., 5,062,445, Cl. 137-340.000.

Truckai, Csaba: *See—*
Fontirroche, Carlos A.; and Truckai, Csaba, 5,063,018, Cl. 264-514.000.

Trueheart, Joshua: *See—*
Fink, Gerald R.; Trueheart, Joshua; and Elion, Elaine A., 5,063,154, Cl. 435-69.100.

TRW Inc.: *See—*
Botez, Dan; Mawst, Luke J.; and Peterson, Gary L., 5,063,570, Cl. 372-50.000.

Tsai, Huang S., to Tung Keng Col, Ltd.; and Tung Keng Col, Ltd. Rotatable hanger assembly. 5,062,536, Cl. 211-162.000.

Tse, Kam Y.; and Wong, Leonard J. Number generating device with magnetic biasing means. 5,062,635, Cl. 273-144.00A.

Tsoi, Paul Y., to Com Dev Ltd. C-, T- and S-switches that are mechanically operated by a rotary actuator. 5,063,364, Cl. 333-107.000.

Tsuchida, Shin: *See—*
Tanaka, Hiroki; and Tsuchida, Shin, 5,062,901, Cl. 148-11.50A.

Tsuchida, Tsuyoshi: *See—*
Fukada, Hirotaka; Kondoh, Koichi; and Tsuchida, Tsuyoshi, 5,062,496, Cl. 180-291.000.

Tsuchiya, Ikuo: *See—*
Matsuo, Kenji; Nonaka, Tadashi; and Tsuchiya, Ikuo, 5,063,433, Cl. 357-71.000.

Tsuchiya, Teruyuki: *See—*
Hasegawa, Yoshitomo; and Tsuchiya, Teruyuki, 5,062,864, Cl. 55-495.000.

Tsuda, Shigenori: *See—*
Ohtsubo, Toshiro; Tsuda, Shigenori; Kawada, Hitoshi; Shinjo, Goro; and Tsuji, Kozo, 5,063,059, Cl. 424-408.000.

Tsuda, Youichirou: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,063,551, Cl. 369-48.000.

Tsuge, Kazuto; Hattori, Masateru; Kondo, Kazuo; and Shibata, Yoshimasa, to NGK Spark Plug Co., Ltd. SiC based artificial dental implant. 5,062,798, Cl. 433-201.100.

Tsui, Yu-Ming: *See—*
Sheu, Shyh-Her; and Tsui, Yu-Ming, 5,062,700, Cl. 359-508.000.

Tsuji, Kenji: *See—*
Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, 5,063,402, Cl. 354-400.000.

Tsuji, Kozo: *See—*
Ohtsubo, Toshiro; Tsuda, Shigenori; Kawada, Hitoshi; Shinjo, Goro; and Tsuji, Kozo, 5,063,059, Cl. 424-408.000.

Tsujimura, Manabu: *See—*
Okumura, Katsuya; Kuriyama, Fumio; Murai, Yukio; Tsujimura, Manabu; and Sobukawa, Hiroshi, 5,062,271, Cl. 62-55.500.

Tsukagoshi, Kazuhiko: *See—*
Kubo, Tsutomu; Terao, Kazuo; Yamamuro, Takashi; Kajimoto, Masashi; and Tsukagoshi, Kazuhiko, 5,063,133, Cl. 430-122.000.

Tsushima, Masayuki, to Tandy Electronics Japan, Ltd. Automatic telephone answering machine with ring signal responsive mode changing arrangement. 5,063,589, Cl. 379-82.000.

Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, to Agency of Industrial Science and Technology; and Denki Kagaku Kogyo Kabushiki Kaisha. Pressureless sintered body of boron nitride. 5,063,184, Cl. 501-96.000.

Tu, Ching-Chuan. Side rails fastening mechanism for telescopic aluminum step ladders. 5,062,499, Cl. 182-166.000.

Tubb, Joe W.: *See—*
Lindsey, James D.; Hutton, Charles D.; Tubb, Joe W.; Shipman, Carol L.; and Kyle, Albert S., III, 5,063,507, Cl. 364-408.000.

Tucker, Annabelle D. Expansible internal pressure cold packs and perineal ice pad. 5,062,425, Cl. 128-401.000.

Tully, John W.; O'Brien, Benedict B.; Hant, William; and Hu, King L., to Northrop Corporation. Planar bipolar transistors including heterojunction transistors. 5,063,427, Cl. 357-35.000.

Tully, Wilfred R.: *See—*
Fenske, Dankwart C.; Kuo, Elizabeth A.; and Tully, Wilfred R., 5,063,229, Cl. 514-258.000.

Tung Keng Col, Ltd.: *See—*
Tsai, Huang S., 5,062,536, Cl. 211-162.000.
Tsai, Huang S., 5,062,536, Cl. 211-162.000.

Turcotte, David E.; and Coker, Daniel E., to BASF Corporation. Cooling system cleaning solutions. 5,062,987, Cl. 252-156.000.

Turkevich, Leonid A.; and Choi, Kee-Ju, to Standard Oil Company, The. Noninvasive method and apparatus using coherent backscattering for process control. 5,063,301, Cl. 250-574.000.

Tyagi, Dinesh: *See—*
Pierce, Zona R.; Tyagi, Dinesh; and Wilson, John C., 5,063,132, Cl. 430-109.000.

Tyler, Johann U.: *See—*
Geller, Bernard D.; Tyler, Johann U.; Holdeman, Louis B.; Phelleps, Fred R.; and Laird, George F., III, 5,063,177, Cl. 437-209.000.

TZN Forschungs, und Entwicklungszentrum Unterluss GmbH: *See—*
Neff, Franz H.; and Heinrich, Jurgen, 5,062,584, Cl. 244-3.150.

U-Haul International, Inc.: *See—*
Galbo, Vincent J., 5,062,541, Cl. 220-212.000.

Uchida, Norimasa, to Hitachi Metals, Ltd. Wire for dot printer. 5,063,116, Cl. 428-606.000.

VOL
1132
ISS
1
NO
5
1991
UMI

Uchiyama, Kaneastu: *See*—
Inomata, Mitsugu; Nakao, Fumio; Maekawa, Takashi; Uchiyama, Kaneastu; Endo, Tetsu; Nobue, Kazuo; Shimazaki, Masaki; and Idouji, Shigeki, 5,062,726, Cl. 400-630.000.
Uda, Koji: *See*—
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.
Udagawa, Tsunekazu, to Ishikawa Gasket Co., Ltd. Steel laminate gasket with wide sealing area. 5,062,649, Cl. 277-235.00B.
Ueda, Katsunobu: *See*—
Sakuta, Shigeru; and Ueda, Katsunobu, 5,062,712, Cl. 356-400.000.
Ueda, Masaru: *See*—
Cho, Hidetsura; Ueda, Masaru; Tamaoka, Mie; Hamaguchi, Mikiko; Murota, Seiitsu; and Morita, Ikuo, 5,063,243, Cl. 514-438.000.
Ueda, Shinjiroo: *See*—
Satou, Akihiko; Kusaka, Tadao; Tomiyama, Shigeo; Aoki, Kouzi; Gyobu, Ichiro; Muramatsu, Kimio; Sakamoto, Hiroaki; Ueda, Shinjiroo; Mase, Masahiro; and Nagaoka, Takashi, 5,062,771, Cl. 417-201.000.
Ueda, Toshihiko: *See*—
Shiokawa, Shoko; Matsui, Yoshikazu; and Ueda, Toshihiko, 5,063,396, Cl. 346-140.00R.
Uehara, Keiji, to TEAC Corporation. Magneto-optic disk unit having means for preventing erroneous insertion of disk cartridge. 5,063,554, Cl. 369-77.200.
Uehara, Shouji, to Kabushiki Kaisha Toshiba. Video signal scrambling system. 5,063,594, Cl. 380-15.000.
Ueno, Yutaka: *See*—
Semasa, Takayoshi; and Ueno, Yutaka, 5,063,587, Cl. 379-53.000.
Ufermann, Werner: *See*—
Fischer, Tilman; Sitzler, Hans-Dietrich; and Ufermann, Werner, 5,063,010, Cl. 264-109.000.
Ulbrich, Paul; and Tran, Thanh, to EMS Products, Inc. Fetal heart monitor leg plate electrode. 5,062,426, Cl. 128-640.000.
Ullman, Edwin F.: *See*—
Hu, Mae W.; Schulkamp, Kirk; Lin, Cheng-I; and Ullman, Edwin F., 5,063,165, Cl. 436-500.000.
Ulrich, Franklin J.: *See*—
Hammons, Alva C.; Sanders, James R.; and Ulrich, Franklin J., 5,062,327, Cl. 81-124.300.
Ultra Hydraulics Limited: *See*—
Lipscombe, Brian R., 5,062,259, Cl. 56-255.000.
Umezu, Kohei: *See*—
Sekiya, Tetsuo; Inoue, Shinya; Taniguchi, Masao; Umezu, Kohei; and Suzuki, Kazuo, 5,063,247, Cl. 514-585.000.
Unifi, Inc.: *See*—
Whetstone, James H., 5,063,108, Cl. 428-369.000.
Unilever Patent Holdings BV: *See*—
Weber, Frank; and Preibsch, Wolfgang, 5,062,978, Cl. 252-49.300.
Union Carbide Canada Limited: *See*—
Maric, Radovan R., 5,062,443, Cl. 137-113.000.
Union Carbide Coatings Service Technology Corporation: *See*—
Sue, Jiinjen A., 5,062,941, Cl. 204-146.000.
Unisys Corporation: *See*—
Arbanas, Glenn A.; Thornock, Jeffery M.; and Keate, Christopher R., 5,063,577, Cl. 375-120.000.
Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, 5,063,599, Cl. 382-7.000.
Davidowski, Dennis J.; Saunders, Michael J.; and O'Brien, Steven M., 5,063,494, Cl. 395-800.000.
Leahy, Ronald S.; and Smith, Patrick J., 5,063,572, Cl. 375-1.000.
Mower, Vaughn L., 5,063,387, Cl. 342-103.000.
Unisys Corporation (Formerly Burroughs Corp.): *See*—
Copenhaver, Gary; Bakker, Johan; and Vala, John, 5,063,461, Cl. 358-474.000.
United States of America
Air Force: *See*—
Caschera, Joseph, 5,063,385, Cl. 342-13.000.
Repperger, Daniel W., 5,062,594, Cl. 244-175.000.
Worley, Kevin L.; Mayers, John L.; and Burchette, Herbert L., 5,062,767, Cl. 415-209.300.
Army: *See*—
Gould, Larry D.; and Cole, David M., 5,062,303, Cl. 73-798.000.
Konig, Charles E., 5,063,390, Cl. 342-375.000.
Leupold, Herbert A., 5,063,004, Cl. 264-22.000.
Mikhail, Ameer G., 5,062,585, Cl. 244-3.240.
Miller, Brian S.; and Kaplan, David R., 5,062,203, Cl. 29-852.000.
Miller, Brian S.; and Kaplan, David R., 5,062,204, Cl. 29-852.000.
Shurtz, Richard R., II; Sharp, Edward J.; and Miller, James E., 5,063,418, Cl. 357-15.000.
Energy: *See*—
Bowman, Charles D., 5,063,019, Cl. 376-331.000.
Kephart, Alan R., 5,062,931, Cl. 204-129.700.
Migliori, Albert, 5,062,296, Cl. 73-579.000.
Petrovic, John J.; and Honnell, Richard E., 5,063,182, Cl. 501-96.000.
Rampolla, Donald S.; and Speer, Elmer, 5,062,186, Cl. 24-389.000.
Health and Human Services: *See*—
Bridge, Peter; and Goodwin, Frederick K., 5,063,206, Cl. 514-16.000.
Health & Human Services: *See*—
Wong-Stahl, Flossie; Chanda, Pranab K.; and Ghrayeb, John, 5,063,053, Cl. 424-89.000.
National Aeronautics and Administration: *See*—
Beratan, David N.; and Perry, Joseph W., 5,062,693, Cl. 359-241.000.
National Aeronautics and Space Administration: *See*—
Bair, Clayton H., 5,062,694, Cl. 359-498.000.
Kruer, Mark A., 5,062,899, Cl. 136-259.000.
Navy: *See*—
Glaser, Evan R.; and Shanabrook, Benjamin V., 5,063,419, Cl. 357-16.000.
Goddard, Charles W.; Lucas, John T.; and Galvan, Paul A., 5,062,593, Cl. 244-169.000.
Johnson, Leopold J.; and Hammond, Russell E., 5,063,487, Cl. 363-3.000.
Kersey, Alan D., 5,063,290, Cl. 250-227.170.
Rao, A. Srinivasa; and Arora, Om P., 5,063,201, Cl. 505-1.000.
Roland, Charles M.; and Sonnenschein, Mark F., 5,062,939, Cl. 204-192.170.
U.S. Philips Corporation: *See*—
Barbu, Stephane; and Le Pailleur, Laurent, 5,063,312, Cl. 307-603.000.
Bonnefous, Odile, 5,062,430, Cl. 128-661.090.
Buschow, Kurt H. J.; de Mooij, Dirk B.; and Jacobs, Theodora H., 5,062,907, Cl. 148-301.000.
Custers, Pieter H.; and Stulens, Ludo M. J., 5,063,547, Cl. 369-32.000.
De Bruin, Leendert; Verhaar, Robertus D. J.; and Van Laarhoven, Josephus M. F. G., 5,063,169, Cl. 437-41.000.
Hughes, John B.; and Moulding, Kenneth W., 5,063,342, Cl. 323-315.000.
Kox, Franciscus A. J. M., 5,063,463, Cl. 360-96.500.
van Groningen, Wilhelmus D. H.; and Caris, Hubertus A., 5,063,302, Cl. 307-271.000.
Voorman, Johannes O., 5,063,356, Cl. 330-306.000.
United States Surgical Corporation: *See*—
Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., 5,062,563, Cl. 227-176.000.
United Technologies Automotive: *See*—
Falcoff, Monte L., 5,062,559, Cl. 224-311.000.
University of British Columbia, The: *See*—
Dunwoody, Andrew B., 5,062,268, Cl. 60-533.000.
Frenette, Real N.; and Lawrence, Peter D., 5,062,264, Cl. 60-427.000.
Liang, Dong C.; and Blades, Michael W., 5,062,708, Cl. 356-316.000.
University of California, The Regents of the: *See*—
Siegel, Ronald A., 5,062,841, Cl. 604-891.100.
Slamon, Dennis J.; and Chen, Irvin S. Y., 5,063,150, Cl. 435-5.000.
University of Florida: *See*—
Bazer, Fuller W., 5,063,226, Cl. 514-251.000.
Jaeger, Marc J., 5,062,471, Cl. 165-8.000.
MacMillan, Michael; and Haid, Regis, Jr., 5,062,850, Cl. 623-17.000.
University of Michigan, The: *See*—
Rich, Arthur; and Van House, James C., 5,063,293, Cl. 250-308.000.
University of North Carolina at Chapel Hill, The: *See*—
Hooker, Daniel N., 5,062,424, Cl. 128-379.000.
University of Penn., The Trustees of the: *See*—
Jaggard, Dwight L.; and Engheta, Nader, 5,063,391, Cl. 343-703.000.
University of Southern California: *See*—
Maxworthy, Tony, 5,062,595, Cl. 244-214.000.
Untawale, Govind G.: *See*—
Schildknecht, Eugene G.; and Untawale, Govind G., 5,063,219, Cl. 514-157.000.
Unterborn, Ralph J.; McClain, Michael J.; and Benner, Mark M., to General Motors Corporation. Wiper with self compensating blade park position. 5,062,176, Cl. 15-250.230.
Urabe, Toshiaki: *See*—
Nishimoto, Akihiko; Hosoya, Yoshihiro; Tomita, Kunikazu; Urabe, Toshiaki; and Jitsukawa, Masaharu, 5,062,906, Cl. 148-111.000.
Urata, Hidenobu: *See*—
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,982, Cl. 252-62.570.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, 5,062,983, Cl. 252-62.570.
Urban, Paul L., to Cooper Industries. Rapid response soldering station. 5,062,564, Cl. 228-9.000.
Urena, Pierre-Yves: *See*—
Akrout, Chekib; Coppens, Pierre; Gautier, Yves; and Urena, Pierre-Yves, 5,063,537, Cl. 365-96.000.
Urruti, Eric H.: *See*—
Cain, Michael B.; Desorcie, Robert B.; Kannabiran, Rengan; Kar, Gitimoy; and Urruti, Eric H., 5,062,685, Cl. 350-96.230.
Urushibata, Hiroyuki: *See*—
Takamatsu, Ryoji; Naitou, Osamu; Urushibata, Hiroyuki; and Sato, Masahiro, 5,063,557, Cl. 369-219.000.
Ushimaru, Akira: *See*—
Ishida, Toshio; Ushimaru, Akira; and Nishikawa, Yasuo, 5,063,119, Cl. 428-694.000.
Ushiro, Seimei: *See*—
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.
Utsui, Yoshihiko: *See*—
Ikeda, Hideo; Hamamura, Chiyo; Satoh, Hiroshi; and Utsui, Yoshihiko, 5,062,307, Cl. 73-862.360.

Uzawa, Shunichi: *See*—
Mori, Tetsuzo; Sakamoto, Eiji; Hara, Shinichi; Uda, Koji; Shimoda, Isamu; Uzawa, Shunichi; and Ozawa, Kunitaka, 5,063,582, Cl. 378-34.000.
Vadasz F., Amnon M.; and Chacin U., Jesus E., to Intevep, S.A. Maximum flow single plug retention valve. 5,062,451, Cl. 137-533.170.
Vadasz F., Amnon M.: *See*—
Chacin U., Jesus E.; and Vadasz F., Amnon M., 5,062,480, Cl. 166-108.000.
Vala, John: *See*—
Concannon, David; Copenhaver, Gary; Bakker, Johan; Vala, John; Banks, Gerald; and Catchpole, Clive, 5,063,599, Cl. 382-7.000.
Copenhaver, Gary; Bakker, Johan; and Vala, John, 5,063,461, Cl. 358-474.000.
Valaitis, Joseph W.: *See*—
Szyms, Walter; and Valaitis, Joseph W., 5,062,781, Cl. 425-52.000.
Vale, Christopher R.; Dominick, Thomas S.; Via, William R.; and Knapp, Gene P., Sr., to Westinghouse Electric Corp. Ultra low noise crystal oscillator circuit. 5,063,358, Cl. 331-60.000.
Valeo Thermique Moteur, S.A.: *See*—
Potier, Michel; and Briet, Gilles, 5,062,478, Cl. 165-178.000.
Valeo Vision: *See*—
Collot, Patrice; Brel, Jean-Marie; and Dehaene, Guy, 5,063,482, Cl. 362-66.000.
Vallee, Jean P. Device for the ultrasonic non-destructive testing of tubes. 5,062,300, Cl. 73-623.000.
Valyocsik, Ernest W., to Mobil Oil Corp. Synthesis of kenyaite-type layered silicate material and its polymeric chalcogenide intercalates. 5,063,039, Cl. 423-329.000.
Van den Bergh Foods Co., Division of Conopco, Inc.: *See*—
Finlayson, Roger M.; Scharmann, Harry; and Vermaas, Leo F., 5,063,076, Cl. 426-602.000.
Van Buskirk, Robert S.; and Clappier, Robert R., to Endotherapeutics. Urine collection monitor with temperature sensing. 5,062,304, Cl. 73-861.000.
Vancraeynest, Jan P., to NYNEX Corporation. Method and apparatus for increasing the data rate for a given symbol rate in a spread spectrum system. 5,063,571, Cl. 375-1.000.
van der Griendt, Adrianus J.: *See*—
Bedi, Ram D.; and van der Griendt, Adrianus J., 5,062,398, Cl. 123-196.00R.
Van Der Werf, Paul: *See*—
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.
van Doan, Pham; Dupraz, Jean-Pierre; and Fevrier, Alain, to GEC Alsthom SA. Device for detecting superconductor quenching and application to a superconducting current limiter. 5,063,472, Cl. 361-19.000.
Van Erden, Donald L.; McDonald, Daniel P.; and Ausnit, Steven, to Zip-Pak Incorporated. Zippered closure for thermoformed package. 5,063,069, Cl. 426-122.000.
van Groningen, Wilhelmus D. H.; and Caris, Hubertus A., to U.S. Philips Corporation. Wide band trigger system having switchable signal paths for extending the effective frequency range. 5,063,302, Cl. 307-271.000.
Van House, James C.: *See*—
Rich, Arthur; and Van House, James C., 5,063,293, Cl. 250-308.000.
Van Laarhoven, Josephus M. F. G.: *See*—
De Bruin, Leendert; Verhaar, Robertus D. J.; and Van Laarhoven, Josephus M. F. G., 5,063,169, Cl. 437-41.000.
Van Meter, Keith E., to Lighthouse Manufacturing Co., Inc. Munitions lubricant and protector. 5,062,974, Cl. 252-11.000.
VanWert, Bernard: *See*—
Lee, Chi-Long; Lutz, Michael A.; and VanWert, Bernard, 5,063,102, Cl. 428-209.000.
Vanzee, David G.; and Ostlind, Douglas A. Shaft coupling device. 5,062,734, Cl. 403-313.000.
Vargiu, Silvio: *See*—
Kroker, Joerg; and Vargiu, Silvio, 5,063,261, Cl. 523-402.000.
Varieur, Michael J. Jogging baby carriage. 5,062,651, Cl. 280-1.500.
Vartuli, James C.: *See*—
Kirker, Garry W.; Klocke, Donald J.; Vartuli, James C.; Chu, Pochen; Marler, David O.; and McWilliams, John P., 5,063,038, Cl. 423-328.000.
Vaughan, Jeffrey R. Surfing simulator. 5,062,629, Cl. 272-97.000.
Velasquez, David J.: *See*—
Matson, Charles J.; and Velasquez, David J., 5,062,423, Cl. 128-207.150.
Verachtert Beheer B.V.: *See*—
De Gier, Gertrudis M. G.; and Sytstra, Jan R., 5,062,227, Cl. 37-117.500.
Verdon, Debra; Tietjen, Marlene; and Brown, Ivonne, to Revlon, Inc. Tableted powder cosmetics. 5,063,050, Cl. 424-63.000.
Vereinigte Aluminum-Werke Aktiengesellschaft: *See*—
Brown, Neil, 5,063,033, Cl. 423-112.000.
Verhaar, Robertus D. J.: *See*—
De Bruin, Leendert; Verhaar, Robertus D. J.; and Van Laarhoven, Josephus M. F. G., 5,063,169, Cl. 437-41.000.
Vermaas, Leo F.: *See*—
Finlayson, Roger M.; Scharmann, Harry; and Vermaas, Leo F., 5,063,076, Cl. 426-602.000.
Via, William R.: *See*—
Vale, Christopher R.; Dominick, Thomas S.; Via, William R.; and Knapp, Gene P., Sr., 5,063,358, Cl. 331-60.000.
Vibrachoc: *See*—
Roche, Andre , 5,062,507, Cl. 188-378.000.
Vicard, Jean-Francois, to Societe LAB. Process for purifying by the wet method fumes containing nitrogen oxides. 5,063,034, Cl. 423-235.000.
Vick, Stephen L.: *See*—
Mason, John G.; Miller, John W.; Sauerwein, William D.; and Vick, Stephen L., 5,063,319, Cl. 310-210.000.
Victor Company of Japan Ltd.: *See*—
Higurashi, Seiji, 5,063,452, Cl. 360-19.100.
Victor, Keith R.: *See*—
Buchanan, Harry C.; and Victor, Keith R., 5,062,175, Cl. 15-103.000.
Videojet Systems International, Inc.: *See*—
Clark, James E.; and Keur, Robert I., 5,063,393, Cl. 346-75.000.
Vifian, Hugo: *See*—
Wong, Roger W.; Vifian, Hugo; and Hart, Michael G., 5,062,703, Cl. 356-73.100.
Vincent, Judith M.: *See*—
Kohl, Gretchen S.; Giwa-Agbomeirele, Patricia A.; and Vincent, Judith M., 5,063,044, Cl. 424-70.000.
Visca, Mario: *See*—
Lenti, Daria; and Visca, Mario, 5,063,092, Cl. 427-393.000.
Viskase Corporation: *See*—
Kupcikevicius, Vytautas, 5,062,252, Cl. 53-434.000.
Volkoday, George: *See*—
Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., 5,063,392, Cl. 346-46.000.
Voll, Martin A.; and Eiskop, Robert K., to Institut Khimii Akademii Nauk Estonskoi SSR. Device for taking samples of bottom sediments from water basins. 5,062,309, Cl. 73-864.440.
Vollbrecht, Heinz-Rudiger; Cully, Jan; and Wiesmuller, Johann, to SKW Trostberg Aktiengesellschaft. Process for the removal of cholesterol and cholesterol esters from egg yolk. 5,063,077, Cl. 426-614.000.
Von Drasek, William A.: *See*—
Leondaridis, Paul S.; Von Drasek, William A.; and Jursich, Gregory M., 5,063,035, Cl. 423-241.000.
Vonk, Jan C. M. Hand exerciser. 5,062,625, Cl. 272-67.000.
Voorman, Johannes O., to U.S. Philips Corporation. Balanced filter circuit having a controllable balanced current multiplier. 5,063,356, Cl. 330-306.000.
Vora, Madhukar B., to National Semiconductor Corporation. Process for making bipolar transistor with polysilicon stringer base contact. 5,063,168, Cl. 437-31.000.
Vos, R.: *See*—
Nieuwenhuize, O. V.; de Grunt, F.; de Vissser, S.; and Vos, R., 5,063,106, Cl. 428-343.000.
Vrenjak, Milan J., to Racal Data Communications Inc. Network management system with event rule handling. 5,063,523, Cl. 364-514.000.
Vrzalik, John H., to Kinetic Concepts, Inc. Patient support air bags and related system with connectors for detachable mounting of the bags. 5,062,171, Cl. 5-455.000.
Vukovich, William J.: *See*—
Koenig, Melissa M.; and Vukovich, William J., 5,062,321, Cl. 74-866.000.
Vuong, The A.: *See*—
Mutze, Ulrich; Quanz, Gerhard; Vuong, The A.; and Kiesewetter, Wolfgang, 5,063,460, Cl. 358-474.000.
W. H. Brady Co.: *See*—
Aufderheide, Brian E.; Robrecht, Michael J.; and Kelley, Wayne R., 5,062,916, Cl. 156-269.000.
W. R. Grace & Co.-Conn.: *See*—
—Brown, Derek A.; Worth, John N.; and Santaniello, Brian F., 5,062,711, Cl. 356-394.000.
W. Willputz Kunststoffverarbeitungs GmbH: *See*—
Willputz, Wilhelm, 5,062,556, Cl. 223-96.000.
Wacker-Chemie GmbH: *See*—
Eck, Herbert; Fleischmann, Gerald; Horst, Hohl; and Weber, Helmut, 5,063,087, Cl. 427-302.000.
Wada, Kunihiko, to Fujitsu Limited. Substrate having semiconductor-on-insulator structure with gettering sites and production method thereof. 5,063,113, Cl. 428-446.000.
Wagenblast, Gerhard: *See*—
Hahn, Erwin; Hansen, Guenter; Etzbach, Karl-Heinz; Reichelt, Helmut; Schefczik, Ernst; Degen, Helmut; Krallmann, Reinhold; and Wagenblast, Gerhard, 5,062,861, Cl. 8-639.000.
Wagman, Mark E.: *See*—
Hayes, Richard A.; Kosinski, Leonard E. R.; and Wagman, Mark E., 5,063,263, Cl. 524-101.000.
Wagner, Dietmar: *See*—
Kallmeyer, Michael; and Wagner, Dietmar, 5,063,300, Cl. 250-561.000.
Wakabayashi, Hiroshi: *See*—
Yukimoto, Sadao; Hirose, Toshifumi; Wakabayashi, Hiroshi; and Isayama, Katsuhiko, 5,063,270, Cl. 524-306.000.
Wakeland, Richard E.: *See*—
Butler, Johnny L.; Wakeland, Richard E.; Batson, Donald R.; and Metzger, Robert E., 5,062,439, Cl. 137-15.000.
Wakura, Shinji, to Kabushiki Kaisha Asahi Denshi Kenkyujyo. Discrete object searching apparatus for search of discrete files and the like. 5,063,380, Cl. 340-825.540.
Wallroth, Carl F.; Falb, Wolfgang; and Mohr, Helmut, to Dragerwerk Aktiengesellschaft. Vaporizer for an anesthetic medium. 5,062,999, Cl. 261-39.100.

VOL 1132 ISS 1 NO 5 1991 UMI

Walsh, David A., to A. H. Robins Company, Inc. 4-[(diaryl)hydromethyl]-1-piperidinealkanols and esters and carbamates thereof useful in the treatment of allergic disorders. 5,063,235, Cl. 514-317.000.

Walsh, Reed H.: *See*—
Bayles, Frederick L., Jr.; Walsh, Reed H.; and Tipton, Craig D., 5,062,975, Cl. 252-33.000.

Walsh, Thomas J.: *See*—
Carr, Daniel J.; Scally, Charles R.; McClennen, Bill M.; Carney, Michael D.; Volkoday, George; and Walsh, Thomas J., 5,063,392, Cl. 346-46.000.

Walshe, John J.: *See*—
Hedderick, John B.; Rutty, Brian R.; Page, David G.; and Walshe, John J., 5,062,548, Cl. 222-190.000.

Walton, John F. Energy saving circuit for discharge tubes. 5,063,328, Cl. 315-96.000.

Waltz, Roger L. Hypodermic syringe. 5,062,828, Cl. 604-51.000.

Wanat, Robert A.; and Crabb, Charles C., to Rohm and Haas Company. Clear, impact-resistant plastics. 5,063,259, Cl. 523-201.000.

Wang, Bor-Ping E.: *See*—
Malpass, Dennis B.; and Wang, Bor-Ping E., 5,063,188, Cl. 502-116.000.

Wang, Chun-Hsien: *See*—
Hsu, Chi-Hsueh; Huang, Chin-Fen; and Wang, Chun-Hsien, 5,063,288, Cl. 250-221.000.

Wanner, James A.: *See*—
Bemisderfer, Charles H.; and Wanner, James A., 5,062,475, Cl. 165-151.000.

Wanngård, Carl J. F., to Eka Nobel AB. Process for the reduction of perchlorate in electrolytes used for the production of chlorate. 5,063,041, Cl. 423-476.000.

Wannlund, Jon C., to Difco Laboratories. Lecithin as a wettability enhancing coating for plastic. 5,063,090, Cl. 427-384.000.

Ward, James F., Jr.: *See*—
Edmonson, David A.; Ivett, Peter R.; Johnson, Kenneth E.; Mirzamaani, Seyyed M. T.; and Ward, James F., Jr., 5,063,120, Cl. 428-694.000.

Ward, Nelson E.: *See*—
Hulse, Sid D.; Maurice, D. V.; Ward, Nelson E.; and Wicker, David L., 5,063,066, Cl. 426-2.000.

Warner-Lambert Company: *See*—
Doherty, Annette M.; Hamilton, Harriet W.; Hodges, John C.; Repine, Joseph T.; and Sircar, Ila, 5,063,207, Cl. 514-18.000.
Horwell, David C.; and Rees, David C., 5,063,242, Cl. 514-414.000.

Warning, Theodore A. Apparatus and process for filtering fluids. 5,062,968, Cl. 210-771.000.

Wasden, Kent J. Flexible protective bicycle cover for transport on a vehicle carrier. 5,062,560, Cl. 224-328.000.

Washington State University Research Foundation, Inc.: *See*—
Tinder, Richard F.; and Klaus, Richard I., 5,063,536, Cl. 395-775.000.

Wasimoto, Takasi; and Kimura, Morio, to Stanley Electric Co., Ltd.; and Alpine Electronics Inc. Miniature bulb assembly and method of producing the same. 5,062,818, Cl. 445-22.000.

Watanabe, Haruhisa: *See*—
Orii, Akira; and Watanabe, Haruhisa, 5,063,339, Cl. 318-696.000.

Watanabe, Kazuhiko: *See*—
Sakai, Hiroshi; Asai, Masamichi; Hayashi, Kenzo; Sakurai, Kazunori; and Watanabe, Kazuhiko, 5,062,554, Cl. 222-600.000.

Watanabe, Shunji, to Seiko Instruments Inc. Method of producing precipitate of rare earth ferromagnetic alloy. 5,062,888, Cl. 75-739.000.

Watanabe, Takashi; and Ishizuka, Tatsuro, to Hitachi, Ltd. Feeder lead wire of rotor for electric machine. 5,063,320, Cl. 310-270.000.

Watanuki, Yoshio; Mochida, Haruo; Inoue, Masaru; Suzuki, Kazuya; and Tanaka, Masaki, to Nissan Motor Co., Ltd.; and Jidosha Denki Kogyo K.K. Actuator. 5,062,312, Cl. 74-89.140.

Watarai, Syu: *See*—
Yokoya, Hiroaki; Tachikawa, Hiromichi; and Watarai, Syu, 5,063,129, Cl. 430-83.000.

Watari, Haruo; and Yasuda, Sigeru, to Pioneer Electronic Corporation. Loop-gain control system in a spindle servo loop. 5,063,550, Cl. 369-44.360.

Water Regeneration Systems, Inc.: *See*—
Davies, Bruce, 5,062,940, Cl. 204-228.000.

Wearne, Harry G. Boomstick. 5,062,817, Cl. 441-45.000.

Weatherby, John H.; and Potts, Jack M., to Sttop Industries, Inc. Cervical traction orthotic device. 5,062,415, Cl. 128-76.00R.

Weber, Carolyn T.: *See*—
Rye, Grover W.; Kindry, David A.; and Weber, Carolyn T., 5,062,462, Cl. 152-548.000.

Weber, Frank; and Preibsch, Wolfgang, to Unilever Patent Holdings BV. Aqueous lubricant solutions based on fatty alkyl amines. 5,062,978, Cl. 252-49.300.

Weber, Helmut: *See*—
Eck, Herbert; Fleischmann, Gerald; Horst, Hohl; and Weber, Helmut, 5,063,087, Cl. 427-302.000.

Webhofer, Artur: *See*—
Platter, Helmuth; and Webhofer, Artur, 5,062,493, Cl. 180-9.520.

Weider, Richard: *See*—
Ruckes, Andreas; Brock, Martin; and Weider, Richard, 5,063,252, Cl. 521-108.000.

Weil, George, to David R. Webb Co., Inc. Screen dryer. 5,062,218, Cl. 34-114.000.

Weiman, Carl F. R., to Transitions Research Corporation. Method and means for recognizing patterns represented in logarithmic polar coordinates. 5,063,604, Cl. 382-41.000.

Welch, J. Christopher: *See*—
Bieniarz, Christopher; Welch, J. Christopher; Barnes, Grady; and Schlesinger, Carol A., 5,063,109, Cl. 428-378.000.

Welsch, Bernhard J., to Foisie, Robert A. Method and apparatus using electrostatic charges to stabilize the upper sheets of a stack of paper. 5,062,764, Cl. 414-796.000.

Wendell, Amy M., to Kendall Company, The. Placement device for a catheter and guide wire. 5,062,836, Cl. 604-167.000.

Wenskus, James J., Jr.; and Miller, Alan B., to Eastman Kodak Company. Method for precision volumetric control of a moldable material in an injection molding process. 5,063,008, Cl. 264-40.500.

Wentgate Dynaweld, Inc.: *See*—
Trillwood, Richard E., 5,062,758, Cl. 414-217.000.

Wenzel, Dieter: *See*—
Tegel, Marek, deceased; and Wenzel, Dieter, 5,062,345, Cl. 89-1.817.

Wenzel, Thomas E.: *See*—
Kubisch, John G.; Mercer, James B.; Schaeff, Wilmer G.; and Wenzel, Thomas E., 5,062,466, Cl. 164-7.100.

Werjefelt, Christina. Postcard calendar. 5,062,229, Cl. 40-107.000.

Werner und Kolb Werkzeugmaschinen GmbH: *See*—
Binder, Rolf, 5,062,195, Cl. 29-568.000.

Wernicke, Hans J.: *See*—
Burgfels, Gotz; Kochloefl, Karl; Ladebeck, Jurgen; Schmidt, Friedrich; Schneider, Michael; and Wernicke, Hans J., 5,063,187, Cl. 502-71.000.

Wernicke, Kenneth G. Landing gear for a tail sitting airplane. 5,062,587, Cl. 244-7.00B.

Wernicke, Ubbo, to Agfa Gevaert Aktiengesellschaft. Photographic color developer solution and a process for the development of a color photographic material. 5,063,144, Cl. 430-436.000.

Wescombe, Graeme L.: *See*—
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

Wesley-Jessen Corporation: *See*—
Drazba, Martin J.; Bellek, Michael L.; Dranoff, Samuel; and Hahn, Paul, 5,062,701, Cl. 351-160.00R.

Wesson, David S.; and George, Kevin R., to Halliburton Company. Variable time delay firing head. 5,062,485, Cl. 166-297.000.

West, Norman M.: *See*—
Falcoff, Allan F.; and West, Norman M., 5,062,298, Cl. 73-597.000.

Westerink, Peter H.: *See*—
Knauer, Scott C.; Netravali, Arun N.; Petajan, Eric D.; Safranek, Robert J.; and Westerink, Peter H., 5,063,444, Cl. 358-133.000.

Westerman, Frank E. Foldable, leakproof multi-mode carton construction. 5,062,527, Cl. 229-117.000.

Westinghouse Electric Corp.: *See*—
—Abodishish, Hani A. M.; Adams, R. James; and White, Joseph B., 5,062,887, Cl. 75-425.000.
—Efferding, Larry E., 5,063,299, Cl. 250-507.100.
—Vale, Christopher R.; Dominick, Thomas S.; Via, William R.; and Knapp, Gene P., Sr., 5,063,358, Cl. 331-60.000.

Westkamper, Michael J.: *See*—
Davis, Ray E.; Duncan, Dana L.; Habboosh, Samir W.; Hall, James R.; Nudelman, Dennis L.; and Westkamper, Michael J., 5,062,299, Cl. 73-609.000.

Westphalen, Karl-Otto: *See*—
Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, 5,062,879, Cl. 71-92.000.

Westwinkel, Florian, to Pundra Indostries Limited. Flexible anti-tipping mechanism. 5,062,678, Cl. 312-221.000.

Whatmore, Roger W.: *See*—
Chitty, Clive L.; and Whatmore, Roger W., 5,062,518, Cl. 194-317.000.

Whetsel, James E.: *See*—
Bronan, Denis A.; and Whetsel, James E., 5,062,903, Cl. 148-24.000.

Whetstone, James H., to Unifi, Inc. Continuous multi-filament polyester substrate readily adherable to a vinyl sheet. 5,063,108, Cl. 428-369.000.

Whetten, Nathan R., to General Electric Company. Liquid crystal display with redundant FETS and redundant crossovers connected by laser-fusible links. 5,062,690, Cl. 359-59.000.

Whigham, Roger C.; and Hoover, George H., to Coca-Cola Company, The. Microprocessor based ratio adjustment and portion control system for postmix beverage dispensing valves. 5,062,555, Cl. 222-641.000.

Whitaker, Bobby V., Jr. Heated golf bag apparatus. 5,062,528, Cl. 206-315.300.

White, Jay D., to Eaton Corporation. Rotary drum brake assembly bracket. 5,062,506, Cl. 188-329.000.

White, Joseph B.: *See*—
Abodishish, Hani A. M.; Adams, R. James; and White, Joseph B., 5,062,887, Cl. 75-425.000.

White, Raymond M.: *See*—
Rankin, Russel J.; de Chastel, David J., deceased; Wescombe, Graeme L.; Kerr, David T.; Boyce, Phillip R.; White, Raymond M.; Tritchler, Robert W.; and Buhot, John W., 5,062,820, Cl. 452-187.000.

White, Robert L.: *See*—
Mowry, William H.; Schuelke, James H.; and White, Robert L., 5,062,666, Cl. 283-67.000.

Whitehead Institute for Biomedical Research: *See*—
Fink, Gerald R.; Trueheart, Joshua; and Elion, Elaine A., 5,063,154, Cl. 435-69.100.

Whitekettle, Wilson K.; and Donofrio, Deborah K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and bromochlorohydantoin. 5,063,213, Cl. 514-75.000.

Whitekettle, Wilson K.; and Donofrio, Deborah K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and sodium hypochlorite. 5,063,214, Cl. 514-75.000.

Whitekettle, Wilson K.; and Donofrio, Deborah K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and a mixture of 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiozolin-3-one. 5,063,217, Cl. 514-75.000.

Whitekettle, Wilson K.; and Donofrio, Deborah K., to Betz Laboratories, Inc. Biocidal compositions and use thereof containing a synergistic mixture of n-tributyl tetradecyl phosphonium chloride and trichloro-s-triazine trione. 5,063,218, Cl. 514-75.000.

Whitekettle, Wilson K.: *See*—
Conlan, John T.; and Whitekettle, Wilson K., 5,063,248, Cl. 514-665.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,211, Cl. 514-75.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,212, Cl. 514-75.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,215, Cl. 514-75.000.
Donofrio, Deborah K.; and Whitekettle, Wilson K., 5,063,216, Cl. 514-75.000.

Whitesel, J. Warren; and Cooper, Larry, to Middleby Corporation. Charbroiler. 5,062,408, Cl. 126-41.00R.

Wicker, David L.: *See*—
Hulse, Sid D.; Maurice, D. V.; Ward, Nelson E.; and Wicker, David L., 5,063,066, Cl. 426-2.000.

Wickramanayake, Palitha: *See*—
Adamic, Raymond J.; Wickramanayake, Palitha; Hindagolla, Suraj L.; Radke, Garold E.; and Halko, David J., 5,062,893, Cl. 106-22.000.

Wieck, Henry J.: *See*—
Cozzette, Stephen N.; Davis, Graham; Itak, Jeanne; Lauks, Imants R.; Mier, Randall M.; Piznik, Sylvia; Smit, Nicolaas; Steiner, Susan; Van Der Werf, Paul; and Wieck, Henry J., 5,063,081, Cl. 427-2.000.

Wiedemann, Werner: *See*—
Fabry, Ehrenfried; Goddard, Georg; Meyer, Dieter; Petermann, Hans; Pirkl, Bernhard; and Wiedemann, Werner, 5,063,379, Cl. 340-784.000.

Wieland, Dietrich; Kalb, Martin; Grupp, Werner; and Nothofer, Michael, to C. & E. Fein GmbH & Co. Drilling device. 5,062,743, Cl. 408-6.000.

Wiencek, Donald C.; and Brown, Robert J., to Panduit Corp. Twisted cable positioning tray. 5,062,202, Cl. 29-749.000.

Wienhoft, Roger: *See*—
Goins, James V.; Duggan, Robert B.; Pier, William J.; and Wienhoft, Roger, 5,062,354, Cl. 98-62.000.

Wiesmuller, Johann: *See*—
Vollbrecht, Heinz-Rudiger; Cully, Jan; and Wiesmuller, Johann, 5,063,077, Cl. 426-614.000.

Wiggins Teape Group Limited, The: *See*—
Morgan, Leslie, 5,062,923, Cl. 162-265.000.

Wiksell, Hans, to Swedemede AB. Device in ultrasonic aspirators. 5,062,827, Cl. 604-22.000.

Wilczynski, Paul D.: *See*—
Kubisch, John G.; and Wilczynski, Paul D., 5,062,467, Cl. 164-7.100.

Wild, Gene M.: *See*—
Cox, Karen L.; Seno, Eugene T.; and Wild, Gene M., 5,063,155, Cl. 435-76.000.

Wild, Jochen: *See*—
Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, 5,062,884, Cl. 71-95.000.

Wilhelmi, Jurgen: *See*—
Cholid, Yanbo; Theordorsen, Trygve; and Wilhelmi, Jurgen, 5,062,733, Cl. 403-189.000.

Williams, C. Michael: *See*—
Shih, Jason C. H.; and Williams, C. Michael, 5,063,161, Cl. 435-252.500.

Williams, Jack L.: *See*—
Bibbey, Carter S.; and Williams, Jack L., 5,062,643, Cl. 273-188.00A.

Williams, Richard A.: *See*—
Lewis, Thomas E.; Williams, Richard A.; Gardiner, John P.; and Kline, John F., 5,062,364, Cl. 101-467.000.

Williams, Richard E.: *See*—
Hardenbrook, James M.; Williams, Richard E.; and Daniel, Mark L., 5,063,297, Cl. 250-458.100.

Williams, Roger D., to Pneumafil Corporation. Air filter with horizontal filter elements. 5,062,872, Cl. 55-302.000.

Williams, William R.; and Callaway, Edgar H., Jr., to Motorola, Inc. Stable, reliable oscillator system using automatic oscillator substitution. 5,063,357, Cl. 331-49.000.

Willputz, Wilhelm, to W. Willputz Kunststoffverarbeitungs GmbH. Molded plastic garment hanger with integral clips. 5,062,556, Cl. 223-96.000.

Wilson, John A.: *See*—
Hargis, I. Glen; Fabris, Hubert J.; Wilson, John A.; and Livigni, Russell A., 5,063,190, Cl. 502-157.000.

Wilson, John C.: *See*—
Pierce, Zona R.; Tyagi, Dinesh; and Wilson, John C., 5,063,132, Cl. 430-109.000.

Wilson Sporting Goods Co.: *See*—
Strauch, Eric C.; and Severa, William D., 5,062,634, Cl. 273-67.00R.

Wilson, Terry D.: *See*—
Hall, James R.; Hunter, Lorin E.; and Wilson, Terry D., 5,063,473, Cl. 361-93.000.

Winget, Larry J. Automotive air bag cover having a horn switch formed therein. 5,062,661, Cl. 280-731.000.

Winkler, Theodore, to Brandt, Inc. Delivery system for under the counter currency dispenser. 5,062,598, Cl. 271-6.000.

Winters, Ralph A., to Intellisystems, Inc. Multi-user, artificial intelligent expert system. 5,063,522, Cl. 395-51.000.

Wirtz, John W.; Yanik, David; Rader, Robert R.; Mendoza, Roel; and Essig, Dennis E., to Wirtz Manufacturing Company, Inc. Battery plate stacker method. 5,062,762, Cl. 414-786.000.

Wirtz Manufacturing Company, Inc.: *See*—
Wirtz, John W.; Yanik, David; Rader, Robert R.; Mendoza, Roel; and Essig, Dennis E., 5,062,762, Cl. 414-786.000.

Witek, Richard T.: *See*—
Cutler, David N.; Orbits, David A.; Bhandarkar, Dileep; Cardoza, Wayne; and Witek, Richard T., 5,063,497, Cl. 395-800.000.

Wokeck, Arthur C.; and Opuszenski, Theodore, to Clinton Industries, Inc. Rotary thread cutter for a sewing machine. 5,062,374, Cl. 112-130.000.

Wolbrink, David W.: *See*—
Sarnosky, Joseph R.; Wolbrink, David W.; Klug, Alan G.; and Behm, Gary E., 5,062,410, Cl. 126-299.00D.

Wolcott, Herbert A., II: *See*—
Petermann, Steven G.; Katahara, Keith W.; and Wolcott, Herbert A., II, 5,063,542, Cl. 367-166.000.

Wolf, Klaus D.: *See*—
Gansen, Peter; Wolfgramm, Rudi; Wolf, Klaus D.; and Lindsey, John J., 5,063,253, Cl. 521-159.000.

Wolfe, Henry L.: *See*—
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.

Wolff, Mark C.: *See*—
Dishart, Kenneth T.; and Wolff, Mark C., 5,062,988, Cl. 252-170.000.

Wolff Walsrode AG: *See*—
Hohl, Frank; and Breckwoldt, Jorn, 5,062,889, Cl. 106-197.200.

Wolfgramm, Rudi: *See*—
Gansen, Peter; Wolfgramm, Rudi; Wolf, Klaus D.; and Lindsey, John J., 5,063,253, Cl. 521-159.000.

Wong, Jean: *See*—
Khalid, Najeeb A.; Adams, Larry; Schwartz, Stan; and Wong, Jean, 5,063,408, Cl. 355-72.000.

Wong, Johnson N. S., to Evergreen Industries, Inc. Egg collecting apparatus. 5,063,026, Cl. 422-102.000.

Wong, Leonard J.: *See*—
Tse, Kam Y.; and Wong, Leonard J., 5,062,635, Cl. 273-144.00A.

Wong, Roger W.; Vifian, Hugo; and Hart, Michael G., to Hewlett-Packard Company. Method and apparatus for measuring the length of, or distances to discontinuities in, an optical transmission medium. 5,062,703, Cl. 356-73.100.

Wong-Stahl, Flossie; Chanda, Pranab K.; and Ghrayeb, John, to United States of America, Health & Human Services. Isolation and purification of the R18 antigen of HTLV-III. 5,063,053, Cl. 424-89.000.

Wood, Alan G.; Farnworth, Warren M.; and McGill, George P., to Micron Technology, Inc. Method for combining die attach and wirebond in the assembly of a semiconductor package. 5,062,565, Cl. 228-9.000.

Wood, Stephen D.: *See*—
Lipps, Gary D.; and Wood, Stephen D., 5,062,583, Cl. 244-3.150.

Woodard, Tony O., to Eaton Corporation. Pushbutton switch with rotational contact wiping action. 5,063,276, Cl. 200-529.000.

Woodhead Industries, Inc.: *See*—
Guss, Robert J., III, 5,062,807, Cl. 439-490.000.

Woody, Clark M.: *See*—
Smith, David A.; and Woody, Clark M., 5,062,549, Cl. 222-377.000.
Smith, David A.; and Woody, Clark M., 5,062,623, Cl. 271-283.000.

Woog, Philippe G. E. Therapeutically caring for the mouth and throat. 5,062,795, Cl. 433-80.000.

Woolford, Michael E.; and Sievert, Dick J., to Block Systems Inc. Composite masonry block mold for use in block molding machines. 5,062,610, Cl. 249-52.000.

Woollums, David E.; and Rice, Donald D., to Fisher Controls International, Inc. Vibration dampener for direct acting pressure regulator. 5,062,449, Cl. 137-505.460.

Wootton, John R.: *See*—
Hobson, Gregory L.; Luetkemeyer, Kent; and Wootton, John R., 5,062,586, Cl. 244-3.120.

Worley, Kevin L.; Mayers, John L.; and Burchette, Herbert L., to United States of America, Air Force. Segmented composite inner shrouds. 5,062,767, Cl. 415-209.300.

Worth, John N.: *See*—
Brown, Derek A.; Worth, John N.; and Santaniello, Brian F., 5,062,711, Cl. 356-394.000.

Wray, Donald L.: *See*—
Sackman, Edward J.; and Wray, Donald L., 5,063,303, Cl. 307-296.100.

VOL
1132
ISS
1
NO
5
1991
UMI

Wu, Jin J.: *See—*
McDermott, Wayne T.; Ockovic, Richard C.; Wu, Jin J.; Cooper, Douglas W.; Schwarz, Alexander; and Wolfe, Henry L., 5,062,898, Cl. 134-7.000.
Wu, Shang-Ren; and Garofalo, Albert, to Lever Brothers Company, Division of Conopco, Inc. Polymeric carbamate detergent builders. 5,062,995, Cl. 252-546.000.
Wuerzer, Bruno: *See—*
Plath, Peter; Eicken, Karl; Goetz, Norbert; Wild, Jochen; Meyer, Norbert; and Wuerzer, Bruno, 5,062,884, Cl. 71-95.000.
Seele, Rainer; Brill, Gunter; Kober, Reiner; Saupe, Thomas; Westphalen, Karl-Otto; and Wuerzer, Bruno, 5,062,879, Cl. 71-92.000.
Wuest, Willi: *See—*
Carduck, Franz-Josef; Wuest, Willi; Harth, Hubert; and Liebs, Harald, 5,062,997, Cl. 260-400.000.
Wurm, Michael G.: *See—*
James, Paul; Kuemmel, Theodore J.; Wurm, Michael G.; Banach, James D.; and Fulton, David, 5,062,432, Cl. 128-736.000.
Wutz, Karl: *See—*
Edelhaeuser, Erhard; Schmid, Hans-Dieter; Speckner, Ludwig; Wutz, Karl; and Steffen, Horst, 5,063,366, Cl. 335-271.000.
Wynn, David K.: *See—*
Brown, Omar L.; and Wynn, David K., 5,062,287, Cl. 72-336.000.
X-Rite, Incorporated: *See—*
Peterson, Steven H.; and Friend, Timothy R., 5,062,714, Cl. 356-406.000.
Xerox Corporation: *See—*
Brueggemann, Harry P., 5,063,292, Cl. 250-236.000.
Domoto, Gerald A.; and Sereny, Aron, 5,063,413, Cl. 355-296.000.
Hirsch, Mark J., 5,063,412, Cl. 355-259.000.
Jacobs, Craig W.; and Filion, Joseph L., 5,063,535, Cl. 395-575.000.
Jansen, Frank; and Chen, Inan, 5,063,397, Cl. 346-153.100.
Kress, Glenn F.; and Coy, Gerald L., 5,062,602, Cl. 271-104.000.
Milillo, Richard J., 5,063,404, Cl. 355-30.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, 5,063,125, Cl. 430-59.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.
Xie, Ya-Hong, to AT&T Bell Laboratories. Vertical-cavity surface-emitting laser with non-epitaxial multilayered dielectric reflectors located on both surfaces. 5,063,569, Cl. 372-45.000.
Xu, Yong: *See—*
Jin, JiQuan; Di Shang, Lian; Jin, Guo Quan; Xu, Yong; and Luo, Guo Chun, 5,063,195, Cl. 502-341.000.
Yagi, Toshihiko: *See—*
Kuse, Satoru; Ishikawa, Masao; Koboshi, Shigeharu; Ishikawa, Minoru; and Yagi, Toshihiko, 5,063,140, Cl. 430-393.000.
Yajima, Ryoichi: *See—*
Nishizawa, Taiji; Tanaka, Yutaka; Gohshi, Seiichi; Kumada, Junji; Iwadate, Yuichi; Shibuya, Kazuhiko; Susaki, Toshihiko; Nishida, Yukihiro; Honda, Minoru; Kurita, Taiichiro; Izumi, Yoshinori; Okui, Makoto; Kondo, Isao; Yajima, Ryoichi; and Ishida, Jun'ichi, 5,063,445, Cl. 358-138.000.
Yaksic, David G.: *See—*
McManigal, Donald P.; Yaksic, David G.; and McHugh, John, 5,062,669, Cl. 292-60.000.
Yamaba, Ryota: *See—*
Tomita, Yukio; Yamaba, Ryota; and Kumagai, Tatsuya, 5,062,905, Cl. 148-111.000.
Yamada, Hirokazu: *See—*
Nakatani, Munehiro; Yamada, Hirokazu; and Kishi, Masamichi, 5,063,459, Cl. 358-404.000.
Yamada, Kaneo: *See—*
Kawata, Yutaka; Inoue, Ken-ichi; Ishibashi, Kiyotaka; Kobayashi, Akira; Inoue, Koji; Suzuki, Norio; Arai, Akio; Yamada, Kaneo; Tokushige, Keizo; Fukuyama, Hirofumi; Adachi, Shigeto; Furukawa, Yukito; Takahashi, Sunao; and Kimura, Makoto, 5,063,294, Cl. 250-309.000.
Yamada, Michihiro: *See—*
Kikuda, Shigeru; Miyamoto, Hiroshi; and Yamada, Michihiro, 5,063,313, Cl. 307-605.000.
Yamada, Ryosuke: *See—*
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Maekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, 5,063,147, Cl. 430-523.000.
Yamada, Yasuhiko; Tomio, Minaki; Miyamae, Toshiyuki; and Kawai, Norio, to Toyo Tire & Rubber Co., Ltd. Vibration-insulative support member with cords. 5,062,618, Cl. 267-140.400.
Yamada, Yoshimi; Ito, Kazuo; and Tanimoto, Hideo, to Oki Electric Industry Co., Ltd. Translation system with optical reading means including a moveable read head. 5,063,508, Cl. 364-419.000.
Yamagata, Kazuko: *See—*
Murakami, Hiroshi; and Yamagata, Kazuko, 5,063,192, Cl. 502-303.000.
Yamaguchi, Harukazu: *See—*
Maeda, Takeshi; Kawaguchi, Hiroshi; Yamaguchi, Harukazu; Sakai, Hitoshi; Ando, Akio; Matsushita, Yasuo; and Takemoto, Tetsuya, 5,062,926, Cl. 202-183.000.
Yamaguchi, Isamu: *See—*
Hoshino, Akira; Saji, Mikio; and Yamaguchi, Isamu, 5,063,256, Cl. 523-102.000.
Yamaguchi, Makoto: *See—*
Miyashita, Hiroshi; Hamamoto, Hideotoshi; Nagai, Shigeru; Yamaguchi, Makoto; Isao, Onuki; Takahashi, Hiroshi; and Ishiguro, Atsushi, 5,062,890, Cl. 106-27.000.
Yamaha Hatsudoki Kabushiki Kaisha: *See—*
Kobayashi, Noboru, 5,062,815, Cl. 440-41.000.
Shimizu, Toshiharu, 5,062,510, Cl. 192-4.00C.
Yamaha Hatsudoki Katushiki Kaisha: *See—*
Ohsuga, Masaru; and Takahashi, Kaoru, 5,063,123, Cl. 429-38.000.
Yamaki, Toshio: *See—*
Shimada, Takahisa; Yamaki, Toshio; Tsuji, Kenji; Nakai, Masaaki; Fujino, Akihiko; and Ootsuka, Hiroshi, 5,063,402, Cl. 354-400.000.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, to Nippon Zeon Co., Ltd. Magnetic powder for magnetic recording media. 5,062,982, Cl. 252-62.570.
Yamamoto, Haruhisa; Urata, Hidenobu; Kinebuchi, Tatsuo; and Sawabe, Hidenori, to Nippon Zeon Co., Ltd. Magnetic powder for magnetic recording media. 5,062,983, Cl. 252-62.570.
Yamamoto, Iwawo; and Ohta, Kazuchika, to Eastern Co., Ltd.; and Yamamoto, Iwawo, a part interest. Discotic octasubstituted tetrapyrazinotetraazaporphyrazines. 5,062,990, Cl. 252-299.610.
Yamamoto, Keizou: *See—*
Shigeno, Yoshiharu; Murata, Michihiro; Nishino, Yu; Fukui, Norio; and Yamamoto, Keizou, 5,063,347, Cl. 324-235.000.
Yamamoto, Masaki: *See—*
Sato, Takeo; Yamamoto, Masaki; Aoki, Shinichiro; Sugiyama, Yoshiyuki; Nakanishi, Yoshito; and Takeuchi, Hiroyuki, 5,062,705, Cl. 356-124.000.
Yamamoto, Mayjue A., to General Motors Corporation. Drum brake assembly having parking brake actuator adjuster with automatic brake adjustment during the service braking mode of operation. 5,062,504, Cl. 188-79.560.
Yamamoto, Mitsuhiro. Combination of car washing brush and duster utilizing feather of waterfowls. 5,062,729, Cl. 401-287.000.
Yamamoto, Shinji, to Sansho Seiyaku Co., Ltd. Melanogenesis-inhibiting preparation for external application. 5,063,056, Cl. 424-401.000.
Yamamuro, Mikio, to Kabushiki Kaisha Toshiba. Optical disk apparatus. 5,063,549, Cl. 369-44.280.
Yamamuro, Takashi: *See—*
Kubo, Tsutomu; Terao, Kazuo; Yamamuro, Takashi; Kajimoto, Masashi; and Tsukagoshi, Kazuhiko, 5,063,133, Cl. 430-122.000.
Yamane, Takakazu; Tanimoto, Yoshio; and Nakahama, Tadamitsu, to Mazda Motor Corporation. Coating method. 5,063,085, Cl. 427-240.000.
Yamanouchi Pharmaceutical Co., Ltd.: *See—*
Imai, Kazuo; Niigata, Kunihiro; Fujikura, Takashi; Hashimoto, Shinichi; Takenaka, Toichi; and Honda, Kazuo, 5,063,246, Cl. 514-517.000.
Yamasaki, Richard G., to Silicon Systems, Inc. High frequency continuous time filter. 5,063,309, Cl. 307-521.000.
Yamashita, Hiroshi; and Doi, Akihiko, to Kabushiki Kaisha Toshiba. Information processing apparatus. 5,063,548, Cl. 369-44.140.
Yamashita, Shinichi: *See—*
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, 5,063,453, Cl. 360-32.000.
Yamashita, Tatsumaro, to Alps Electric Co., Ltd. Rotary head type magnetic recording and reproducing apparatus. 5,063,466, Cl. 360-107.000.
Yamato, Motoyuki: *See—*
Sugawara, Tomoo; and Yamato, Motoyuki, 5,063,103, Cl. 428-285.000.
Yamato Scale Company, Limited: *See—*
Inoue, Shinichi, 5,062,492, Cl. 177-25.140.
Yamauchi, Yoshimitsu; and Sakiyama, Keizo, to Sharp Kabushiki Kaisha. Semiconductor memory device with capacitor over non-volatile memory cell gate structure. 5,063,425, Cl. 357-23.600.
Yamazaki Mazak Kabushiki Kaisha: *See—*
Miyagawa, Naoomi; Yoshida, Chiyoaki; Toda, Kazuyuki; and Nakamura, Yukiyasu, 5,062,283, Cl. 72-10.000.
Yamazaki, Toshimasa, to Maeda Industries, Ltd. Bicycle gear crank assembly. 5,062,318, Cl. 74-594.200.
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, to Canon Kabushiki Kaisha. Hand held recording apparatus with window on lower body portion for viewing recording position. 5,063,451, Cl. 346-143.000.
Yanai, Yoshimi: *See—*
Okada, Michiya; Morimoto, Tadaoki; Okayama, Akira; Yanai, Yoshimi; Satoh, Hiroshi; Matsumoto, Toshimi; Chiba, Yoshiteru; Akahori, Kimihiko; Kato, Takahiko; Doi, Toshiya; and Tanaka, Kazuhide, 5,063,200, Cl. 505-1.000.
Yanik, David: *See—*
Wirtz, John W.; Yanik, David; Rader, Robert R.; Mendoza, Roel; and Essig, Dennis E., 5,062,762, Cl. 414-786.000.
Yanus, John F.: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, 5,063,125, Cl. 430-59.000.
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., to Nabisco Brands, Inc. Amide ether derivatives as low calorie fat mimetics. 5,063,075, Cl. 426-601.000.

Yarovoi, Alexandr A.: *See—*
Aleshin, Nikolai P.; Baranov, Vladimir J.; Dolgov, Vyacheslav M.; Yarovoi, Alexandr A.; and Preobrazhensky, Oleg A., 5,062,301, Cl. 73-629.000.
Yasuda, Sigeru: *See—*
Watari, Haruo; and Yasuda, Sigeru, 5,063,550, Cl. 369-44.360.
Yasuma, Jun-ichi: *See—*
Ichihashi, Koji; and Yasuma, Jun-ichi, 5,062,454, Cl. 137-625.610.
Yasunaga, Hiroaki: *See—*
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.
Yatsu, Kenji: *See—*
Suzuki, Shoji; and Yatsu, Kenji, 5,063,553, Cl. 369-77.100.
Yazaki, Takashi; Matsushita, Tomohisa; and Nagase, Tsutomu, to Tokyo Tanabe Company. Aqueous preparation of pyrido(1,2-a)pyrimidine compound. 5,063,061, Cl. 424-427.000.
Yeda Research and Development Co., Ltd.: *See—*
Revel, Michel; and Chebath, Judith, 5,063,159, Cl. 435-252.300.
Yeomans, James S.: *See—*
Goldthorp, Jeffery M.; and Yeomans, James S., 5,063,351, Cl. 324-628.000.
Yerbury, Michael J.; and Hurst, Gregory C., to Advanced Systems Research Pty. Limited. Spread-spectrum multiplexed transmission system. 5,063,560, Cl. 370-18.000.
Yoda, Haruo; Miyatake, Takafumi; and Matsushima, Hitoshi, to Hitachi, Ltd. Motion control apparatus with function to self-form a series of motions. 5,063,492, Cl. 364-167.010.
Yoden, Kenichi, to Fuji Photo Film Co., Ltd. Treatment of ferromagnetic metal powders and magnetic recording media using the same. 5,062,904, Cl. 148-105.000.
Yokohama Rubber Co., Ltd., The: *See—*
Noguchi, Makoto, 5,062,461, Cl. 152-209.00R.
Yokomachi, Naoya: *See—*
Kawai, Katsunori; Ikeda, Hayato; Yokomachi, Naoya; and Kawai, Toshihiro, 5,062,773, Cl. 417-269.000.
Yokonuma, Norikazu; Hagiuda, Nobuyoshi; Iida, Yoshikazu; Sakamoto, Hiroshi; and Matsui, Hideki, to Nikon Corporation. Electronic flash apparatus for camera. 5,063,403, Cl. 354-413.000.
Yokota, Kazunori: *See—*
Gotoh, Shigeyuki; Yokota, Kazunori; and Suzuki, Isao, 5,062,306, Cl. 73-862.330.
Yokotani, Kenji: *See—*
Nakajima, Masato; Yokotani, Kenji; and Ikeda, Atsushi, 5,062,922, Cl. 162-158.000.
Yokoya, Hiroaki; Tachikawa, Hiromichi; and Watarai, Syu, to Fuji Photo Film Co., Ltd. Electrophotographic printing plate precursor. 5,063,129, Cl. 430-83.000.
Yokoyama, Tomoaki: *See—*
Oka, Tateki; and Yokoyama, Tomoaki, 5,063,127, Cl. 430-45.000.
Yoneyama, Masakazu; Yamada, Ryosuke; Nishiura, Yosuke; Maekawa, Yukio; Higaki, Yuzo; and Iwamoto, Yoshiaki, to Fuji Photo Film Co., Ltd. Silver halide photographic light-sensitive material containing aliphatic carboxylic ester. 5,063,147, Cl. 430-523.000.
Yoon, Seok G.; and Seo, Jeong Y. Lumber door and method for manufacturing thereof. 5,062,915, Cl. 156-252.000.
Yoshida, Chiyoaki: *See—*
Miyagawa, Naoomi; Yoshida, Chiyoaki; Toda, Kazuyuki; and Nakamura, Yukiyasu, 5,062,283, Cl. 72-10.000.
Yoshida, Hisayoshi: *See—*
Tsuyoshi, Hagio; Kobayashi, Kazuo; Yoshida, Hisayoshi; Ogawa, Ichitaro; Harada, Hiroshi; Yasunaga, Hiroaki; and Nishikawa, Hiroshi, 5,063,184, Cl. 501-96.000.
Yoshida, Katsuhiko: *See—*
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.
Yoshida, Takashi: *See—*
Takeda, Fumio; Yoshida, Takashi; Taguchi, Hiroya; Omine, Tsutomu; and Asano, Mitsugu, 5,062,723, Cl. 400-120.000.
Yoshida, Toshio: *See—*
Takei, Hisashi; Ohmura, Hiroshi; Ushiro, Seimei; Mochida, Mitsuyoshi; Nakamura, Yoshihiko; Asano, Seiji; and Yoshida, Toshio, 5,063,400, Cl. 354-288.000.
Yoshigai, Kenichi, to Yoshigai Kikai Kinzoku Co., Ltd. Device for preventing disengagement of an inner wire of a Bowden cable from a bicycle brake operating lever. 5,062,315, Cl. 74-502.200.
Yoshigai Kikai Kinzoku Co., Ltd.: *See—*
Yoshigai, Kenichi, 5,062,315, Cl. 74-502.200.
Yoshikawa, Kikuo: *See—*
Yanagisawa, Ryozo; Tanioka, Hiroshi; Kaneko, Kiyoshi; Harada, Toshiaki; Yoshikawa, Kikuo; Koumura, Noboru; and Inui, Toshiharu, 5,063,451, Cl. 346-143.000.
Yoshimatsu, Hideaki, to Kabushiki Kaisha Kobe Seiko Sho. Slewing control device for crane. 5,062,266, Cl. 60-466.000.
Yoshimoto, Kyosuke: *See—*
Ito, Osamu; Ogawa, Masaharu; Yoshimoto, Kyosuke; Tanaka, Kunimaro; Furukawa, Teruo; and Nakajima, Yoshiki, 5,063,546, Cl. 369-32.000.
Yoshimura, Katsuji; Aoki, Akio; Shimokoriyama, Makoto; Kashida, Motokazu; Yamashita, Shinichi; and Nagasawa, Kenichi, to Canon Kabushiki Kaisha. Digital signal recording apparatus. 5,063,453, Cl. 360-32.000.
Yoshimura, Katsuji: *See—*
Ishikawa, Hisashi; Kozuki, Susumu; Takahashi, Koji; and Yoshimura, Katsuji, 5,063,457, Cl. 358-330.000.
Yoshimura, Toshio, to Tanashin Denki Co., Ltd. Mode selecting mechanism for a tape recorder. 5,063,455, Cl. 360-96.500.
Yoshino Kogyosho Co., Ltd.: *See—*
Hayashi, Yoshiaki, 5,062,537, Cl. 215-12.100.
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, to Pioneer Electronic Corporation; and Pioneer Video Corporation. Method and apparatus of recording and reproducing picture information and recording medium. 5,063,551, Cl. 369-48.000.
Young, Alastair J.: *See—*
Parsons, David; Bainbridge, Wilfred N.; Young, Alastair J.; and Temperley, Harry D., 5,062,320, Cl. 74-650.000.
Young, Donald G., to Exxon Chemical Patents Inc. Composition for tire treads (E-235). 5,063,268, Cl. 524-286.000.
Young, James R.: *See—*
Peppers, Norman A.; Young, James R.; Pierce, Gerald A.; and Nishi, Hisami, 5,063,602, Cl. 382-32.000.
Young, Wayne P.: *See—*
Green, David T.; Young, Wayne P.; Bolanos, Henry; Geiste, Robert J.; Ratcliff, Keith; and Alesi, Daniel E., 5,062,563, Cl. 227-176.000.
Youssefyeh, Raymond D.: *See—*
Pelletier, Jeffrey C.; Youssefyeh, Raymond D.; and Campbell, Henry F., 5,063,230, Cl. 514-213.000.
Yu, Chung-Li: *See—*
Kagawa, Koichi; Yu, Chung-Li; Kaku, Shinkyo; and Menon, Vinod, 5,063,526, Cl. 395-155.000.
Yu, Robert C. U.: *See—*
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, 5,063,128, Cl. 430-63.000.
Yubakami, Keiichi: *See—*
Imai, Akihiro; Kawakami, Tetsuji; Matsuda, Hiromu; Yubakami, Keiichi; and Taguchi, Nobuyoshi, 5,063,198, Cl. 503-227.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Yanus, John F.; Limburg, William W.; and Mammino, Joseph, to Xerox Corporation. Electrically conductive layer for electrical devices. 5,063,125, Cl. 430-59.000.
Yuh, Huoy-Jen; Spiewak, John W.; Thornton, Constance J.; Mammino, Joseph; Yu, Robert C. U.; Hamilton, Vincent E.; Limburg, William W.; and Chen, Cindy, to Xerox Corporation. Conductive and blocking layers for electrophotographic imaging members. 5,063,128, Cl. 430-63.000.
Yuki, Shigeru: *See—*
Sawamura, Seishi; Nakajima, Sakuya; Amemori, Kunio; Oku, Hidehisa; Nakagawa, Akio; Kitayama, Ichiro; Matsuda, Hiromu; Yoshida, Katsuhiko; Takeda, Masaru; Nakane, Toshio; Horiguchi, Shiro; and Yuki, Shigeru, 5,062,856, Cl. 623-24.000.
Yukimoto, Sadao; Hirose, Toshifumi; Wakabayashi, Hiroshi; and Isayama, Katsuhiko, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Curable composition. 5,063,270, Cl. 524-306.000.
Yumoto, Toshiyuki: *See—*
Nakayama, Hiroshi; and Yumoto, Toshiyuki, 5,062,822, Cl. 475-200.000.
Zahner, Paul; and Kaempf, Karl, to Metrohm AG. Volume measurement and dosage device. 5,062,547, Cl. 222-144.500.
Zaringhalam, Ali R.: *See—*
Cannella, Stephen J.; and Zaringhalam, Ali R., 5,063,592, Cl. 379-207.000.
Zelenak, Daniel G., Jr.: *See—*
Bishop, Robert J.; Fontecchio, Robert P.; and Zelenak, Daniel G., Jr., 5,062,664, Cl. 280-743.000.
Zeman, Robert E.; and Johnson, Kevin M., to Eastman Kodak Company. Electrophotographic apparatus having reduced drum drive flutter. 5,063,399, Cl. 346-160.100.
Zick, Daniel H., to Industrial Materials Technology, Inc. Method for uniaxial bip compaction. 5,063,022, Cl. 419-49.000.
Zimmermann, Peter: *See—*
Roth, Siegfried; Benz, Detlef; Reichle, Anton; Teske, Reiner; Zimmermann, Peter; Hager, Peter; Mueller, Josef; and Poenitzsch, Werner, 5,062,589, Cl. 244-117.00R.
Zip-Pak Incorporated: *See—*
Van Erden, Donald L.; McDonald, Daniel P.; and Ausnit, Steven, 5,063,069, Cl. 426-122.000.
Zison, Stanley W., to Pacific Energy. Landfill gas production testing and extraction method. 5,063,519, Cl. 364-510.000.
Zivley, George A., to ESM International, Inc. Sorting machine including photo site processing. 5,062,532, Cl. 209-581.000.
Zodrow, Rudolf, to ETI-TEC Maschinenbau GmbH. Support element for the followers of a cam drive of a drive mechanism and a labelling station equipped with a support element. 5,062,917, Cl. 156-568.000.
Zodrow, Rudolf, to ETI-TEC Maschinenbau GmbH. Glue segments which can be attachable to a drive shaft of a labelling machine. 5,062,918, Cl. 156-578.000.
Zoller-Kipper GmbH: *See—*
Pieperhoff, Hans J., 5,062,759, Cl. 414-408.000.
Zommer, Nathan, to IXYS Corporation. Insulated gate transistor devices with temperature and current sensor. 5,063,307, Cl. 307-310.000.
Zonco, Inc.: *See—*
Berglund, Andrew; James, James A.; and Easley, James B., 5,062,816, Cl. 440-101.000.
Zucker, Shlomo: *See—*
Gross, Joseph; and Zucker, Shlomo, 5,062,834, Cl. 604-143.000.

VOL
1132
ISS
1
NO
5
1991
UMI

Zurn Industries, Inc.: *See*—
Saadi, Robert E.; Becker, Allen R.; Ball, Christopher J.; and Steffan, John, 5,062,453, Cl. 137-624.110.
Zwirgzdas, Anthony C.: *See*—
Schwartz, Russell J.; Zwirgzdas, Anthony C.; and Chamberlain, Terence R., 5,062,894, Cl. 106-23.000.
501 Automotive Products Plc: *See*—
Parsons, David; Bainbridge, Wilfred N.; Young, Alastair J.; and Temperley, Harry D., 5,062,320, Cl. 74-650.000.
501 Toray Industries, Inc.: *See*—
Hashimoto, Nobuo; Suzuki, Kunioki; and Saijo, Teruaki, 5,062,297, Cl. 73-597.000.
859545 Ontario Ltd.: *See*—
Nelson, Riley H., 5,062,630, Cl. 272-111.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 5TH DAY OF NOVEMBER, 1991

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Brunswick Corporation: *See*—
Rumble, Joseph W.; and Sprague, William G., Re. 33,735, Cl. 273-80.00R.
Clarke, John P., to United States of America, Army. Periodic permanent magnet structure with increased useful field. Re. 33,736, Cl. 335-210.000.
Hendrikx, Wilhelmus J. M.; Moolenaar, Antonie J.; and Houben, Jan P. Device for driving a drilling and/or impacting tool. Re. 33,733, Cl. 173-109.000.
Hida, Yoshinori; Kozakai, Shohei; Katayama, Seiji; and Meguriya, Noriyuki, to Shin-Etsu Chemical Co., Ltd. Optical fiber coated with an organopolysiloxane curable actinic rays. Re. 33,737, Cl. 385-141.000.
Houben, Jan P.: *See*—
Hendrikx, Wilhelmus J. M.; Moolenaar, Antonie J.; and Houben, Jan P., Re. 33,733, Cl. 173-109.000.
Index-Werke GmbH & Co. KG Hahn & Tessky: *See*—
Link, Helmut F., Re. 33,732, Cl. 29-558.000.
Katayama, Seiji: *See*—
Hida, Yoshinori; Kozakai, Shohei; Katayama, Seiji; and Meguriya, Noriyuki, Re. 33,737, Cl. 385-141.000.
Kozakai, Shohei: *See*—
Hida, Yoshinori; Kozakai, Shohei; Katayama, Seiji; and Meguriya, Noriyuki, Re. 33,737, Cl. 385-141.000.
Link, Helmut F., to Index-Werke GmbH & Co. KG Hahn & Tessky. Method of machining a workpiece in a turret lathe and an NC lathe for performing this method. Re. 33,732, Cl. 29-558.000.
Meguriya, Noriyuki: *See*—
Hida, Yoshinori; Kozakai, Shohei; Katayama, Seiji; and Meguriya, Noriyuki, Re. 33,737, Cl. 385-141.000.
Moolenaar, Antonie J.: *See*—
Hendrikx, Wilhelmus J. M.; Moolenaar, Antonie J.; and Houben, Jan P., Re. 33,733, Cl. 173-109.000.
Rumble, Joseph W.; and Sprague, William G., to Brunswick Corporation. Golf club shaft. Re. 33,735, Cl. 273-80.00R.
Shin-Etsu Chemical Co., Ltd.: *See*—
Hida, Yoshinori; Kozakai, Shohei; Katayama, Seiji; and Meguriya, Noriyuki, Re. 33,737, Cl. 385-141.000.
Sprague, William G.: *See*—
Rumble, Joseph W.; and Sprague, William G., Re. 33,735, Cl. 273-80.00R.
United States of America
Army: *See*—
Clarke, John P., Re. 33,736, Cl. 335-210.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Clay, Stanton T., to Nimslo Corporation. Tamperproof security card. B1 4,869,946, 11-5-91, Cl. 428-167.000.
Greig, Nigel H.; Sweeney, Daniel J.; and Rapoport, Stanley I., to United States of America, Health and Human Services. Enhancing drug delivery to the brain. B1 4,835,182, 11-5-91, Cl. 514-538.000.
Lamy, Bernard: *See*—
Schneider, Michel; and Lamy, Bernard, B1 4,229,360, Cl. 260-403.000.
Liposome Company, Inc.: *See*—
Schneider, Michel; and Lamy, Bernard, B1 4,229,360, Cl. 260-403.000.
Nimslo Corporation: *See*—
Clay, Stanton T., B1 4,869,946, Cl. 428-167.000.
Rapoport, Stanley I.: *See*—
Greig, Nigel H.; Sweeney, Daniel J.; and Rapoport, Stanley I., B1 4,835,182, Cl. 514-538.000.
Schneider, Michel; and Lamy, Bernard, to Liposome Company, Inc. Process for the dehydration of a colloidal dispersion of liposomes. B1 4,229,360, 11-5-91, Cl. 260-403.000.
Sweeney, Daniel J.: *See*—
Greig, Nigel H.; Sweeney, Daniel J.; and Rapoport, Stanley I., B1 4,835,182, Cl. 514-538.000.
United States of America
Health and Human Services: *See*—
Greig, Nigel H.; Sweeney, Daniel J.; and Rapoport, Stanley I., B1 4,835,182, Cl. 514-538.000.

LIST OF DESIGN PATENTEES

Abrams, Robert C.: *See*—
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.
Adriance, Kyle: *See*—
Dolida, Roger J.; and Adriance, Kyle, 321,418, Cl. D29-7.000.
Alberti, Franco, to S.P.A. Strega Alberti Benevanto (S.A.B.). Surface ornamentation for a bottle. 321,316, 11-5-91, Cl. D9-307.000.
Aldrich, Thomas B., to Procter & Gamble Company, The. Brush handle. 321,286, 11-5-91, Cl. D4-104.000.
Allendorf, Stephan C.; and Dair, Thomas M., to Corning Incorporated. Combined eyeglasses and shielding cassette therefor. 321,355, 11-5-91, Cl. D16-102.000.
Amper, S.A.: *See*—
Martin, Emilio B., 321,362, Cl. D18-49.000.
Aoki, Takaaki; and Sato, Fumiko, to Nitto Boseki Co., Ltd. Wheel chair. 321,335, 11-5-91, Cl. D12-131.000.
AT&T Bell Laboratories: *See*—
Hørden, Daniel K.; and Havener, John B., 321,348, Cl. D14-141.000.
Augustino, Gary R.: *See*—
Augustino, Gloria S.; and Augustino, Gary R., 321,303, Cl. D7-688.000.
Augustino, Gloria S.; and Augustino, Gary R. Scraper for jars of baby food. 321,303, 11-5-91, Cl. D7-688.000.
Austin, Arnold S., to Quabaug Corporation. Tread surface and periphery of a footwear unit sole. 321,275, 11-5-91, Cl. D2-320.000.
Bakic, Karena, to Cosmede Anstalt. Cosmetic case. 321,416, 11-5-91, Cl. D28-83.000.
Bao, Anh; and Lin, Yu-Zong, to CSS Laboratories, Inc. Computer housing. 321,341, 11-5-91, Cl. D14-102.000.
Barfoot, James W.: *See*—
Beckman, Ralph A.; Sharpe, Henry D., III; Curado, Len; and Barfoot, James W., 321,400, Cl. D24-140.000.
Barnett, Burton W.; and Barnett, Mary. Electronic locating transmitter for lost children or the like. 321,329, 11-5-91, Cl. D10-104.000.
Barnett, Mary: *See*—
Barnett, Burton W.; and Barnett, Mary, 321,329, Cl. D10-104.000.
Bausch & Lomb Professional Dental Products, Inc.: *See*—
Beckman, Ralph A.; Sharpe, Henry D., III; Curado, Len; and Barfoot, James W., 321,400, Cl. D24-140.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Beckman, Ralph A.; Sharpe, Henry D., III; Curado, Len; and Barfoot, James W., to Bausch & Lomb Professional Dental Products, Inc. Periodontal probe. 321,400, 11-5-91, Cl. D24-140.000.

Behar, Marvin L. Casserole caddy. 321,306, 11-5-91, Cl. D7-607.000.

Beno, Steven J. Paper trimmer with storage compartments for office supplies. 321,368, 11-5-91, Cl. D18-34.000.

Bergstrand, John W.: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Bernardini, Deborah L.: *See—*
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,270, Cl. D1-106.000.
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,271, Cl. D1-107.000.
Meyers, Edward J., Jr.; and Bernardini, Deborah L., 321,272, Cl. D1-109.000.

Betts, John H., to Polaroid Corporation. Pop-up strobe camera or similar article. 321,358, 11-5-91, Cl. D16-211.000.

Bischof, Brigitte; and Schmelzer, Horst-Dieter. Ceiling lighting fixture. 321,409, 11-5-91, Cl. D26-91.000.

Blake, Kenneth R.: *See—*
Scanlan, Timothy M.; and Blake, Kenneth R., 321,401, Cl. D24-147.000.

Bolk, Phyllis J.: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Bostick, Charles R. Combined hand stamp and magnetic strip attachment. 321,365, 11-5-91, Cl. D18-15.000.

Bothun, Eugene L.: *See—*
Von Vett, Peter W.; and Bothun, Eugene L., 321,420, Cl. D32-15.000.

Brashear, Eric L.: *See—*
Shoemaker, Stephen P., Jr.; and Brashear, Eric L., 321,291, Cl. D6-407.000.

Breece, Roy L. Lug nut remover. 321,307, 11-5-91, Cl. D8-14.000.

Brohard, Bonnie J.: *See—*
Hughes, James S.; Ewing, Robert L.; Fouke, Herbert A.; and Brohard, Bonnie J., 321,408, Cl. D26-85.000.

Brown, Patrick W.: *See—*
Laib, Douglas M.; and Brown, Patrick W., 321,382, Cl. D21-120.000.

Brown, Ronald C. Solitaire playing board. 321,379, 11-5-91, Cl. D21-57.000.

Budzbanowski, Dennis J. Container. 321,324, 11-5-91, Cl. D9-425.000.

Butzko, Betty: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,412, Cl. D28-35.000.

Cardinal Packaging, Inc.: *See—*
Gunter, Harvey R., 321,318, Cl. D9-352.000.

Carroll, Terry: *See—*
Russell, John P.; and Carroll, Terry, 321,313, Cl. D8-370.000.

Caruso, Jerome C.; Estkowski, Christopher G.; and Lastuck, Lennard V., to Shepherd Products U.S., Inc. Chair base. 321,299, 11-5-91, Cl. D6-498.000.

Ceglia, Frank: *See—*
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,270, Cl. D1-106.000.
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,271, Cl. D1-107.000.

CertainTeed Corporation: *See—*
Westphal, Dennis; and Piles, Jonathan, 321,403, Cl. D25-52.000.

Chen, Darco. Combined basketball goal, height measurer and clothes-horse or the like. 321,392, 11-5-91, Cl. D21-201.000.

Chen, Fo-Chun, to Chuan Hsiang Tang Chemical Co. Ltd. Cosmetic case or similar article. 321,415, 11-5-91, Cl. D28-80.000.

Cheng, Billy, to Easterntec, Inc. Foldable advertisement slide projector. 321,360, 11-5-91, Cl. D16-229.000.

Cheung, David T.; and Ko, Thomas M., to Video Technology Industries, Inc. Electronic driving toy. 321,384, 11-5-91, Cl. D21-142.000.

Chuan Hsiang Tang Chemical Co. Ltd.: *See—*
Chen, Fo-Chun, 321,415, Cl. D28-80.000.

CMB Foodcan plc: *See—*
Harwood, Robert M., 321,326, Cl. D9-438.000.

Coca-Cola Company, The: *See—*
Purkapile, Emerson J., 321,301, Cl. D7-376.000.

Codex Corporation: *See—*
Feer, David L.; and Williams, Daniel L., 321,343, Cl. D14-107.000.

Colgate-Palmolive Company: *See—*
Sherman, Adam; and Stagl, Peter, 321,317, Cl. D9-337.000.

Colida, Tony. Portable cellular handset telephone. 321,347, 11-5-91, Cl. D14-138.000.

Colida, Tony. Cellular portable handset telephone. 321,349, 11-5-91, Cl. D14-138.000.

Cooper, Dennis. Fly rod case. 321,281, 11-5-91, Cl. D3-38.000.

Cooper Industries, Inc.: *See—*
Layne, Bruce N., 321,410, Cl. D26-138.000.
Stack, Thomas J.; and Korczynski, Jacek M., 321,339, Cl. D13-160.000.

Corning Incorporated: *See—*
Allendorf, Stephan C.; and Dair, Thomas M., 321,355, Cl. D16-102.000.

Cosmede Anstalt: *See—*
Bakic, Karena, 321,416, Cl. D28-83.000.

CPC International Inc.: *See—*
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,270, Cl. D1-106.000.
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,271, Cl. D1-107.000.
Meyers, Edward J., Jr.; and Bernardini, Deborah L., 321,272, Cl. D1-109.000.

Craig, Franklin J.: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Crown Leisure Products, Inc.: *See—*
Saiger, Herbert C., 321,289, Cl. D6-361.000.

CSS Laboratories, Inc.: *See—*
Bao, Anh; and Lin, Yu-Zong, 321,341, Cl. D14-102.000.

Cuno, Incorporate: *See—*
Petrucci, Raymond M.; Taylor, Bruce G.; Giordano, Edward C.; Padilla, James M.; and Palmer, Carl, 321,394, Cl. D23-209.000.

Curado, Len: *See—*
Beckman, Ralph A.; Sharpe, Henry D., III; Curado, Len; and Barfoot, James W., 321,400, Cl. D24-140.000.

Curtis, Michael. Simulated basketball player. 321,370, 11-5-91, Cl. D19-62.000.

Dair, Thomas M.: *See—*
Allendorf, Stephan C.; and Dair, Thomas M., 321,355, Cl. D16-102.000.

Dalebout, William T., to Proform Fitness Products, Inc. Stepping exercise machine. 321,388, 11-5-91, Cl. D21-195.000.

D'Angeli, Mario. Combined ball holder and set of game balls. 321,280, 11-5-91, Cl. D3-36.000.

Dannenberg, Todd D., to Kohler Co. Faucet. 321,397, 11-5-91, Cl. D23-238.000.

Dart Industries Inc.: *See—*
Laib, Douglas M.; and Brown, Patrick W., 321,382, Cl. D21-120.000.
Slayton, Nancy D., 321,381, Cl. D21-105.000.
Zimmerman, Larry G., 321,302, Cl. D7-392.100.

Daubignard, Jean-Michel; Pauly, Pascal; and Pora, Philippe, to Essilor International (Compagnie Generale d'Optique). Spectacle frames. 321,356, 11-5-91, Cl. D16-102.000.

Design Institute America, Inc.: *See—*
Winzeler, Robert C., III, 321,298, Cl. D6-495.000.

Design Institute of America: *See—*
Winzeler, Robert C., III, 321,297, Cl. D6-495.000.

Dewing, Gilbert A. Sandbox backhoe toy. 321,380, 11-5-91, Cl. D21-71.000.

Diehl, Volker; and Kuczewski, Gunter, to International Business Machines Corporation. Housing for magnetic strip reader or similar article. 321,342, 11-5-91, Cl. D14-107.000.

Dolida, Roger J.; and Adriance, Kyle, to Puritan-Bennett Corporation. Squeeze bag resuscitator. 321,418, 11-5-91, Cl. D29-7.000.

Donnelly, Wilma M.: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Duquet, Jacky P., to Procter & Gamble Company, The. Measuring cup. 321,328, 11-5-91, Cl. D10-46.200.

Dynamic Classics, Ltd.: *See—*
Reichman, Richard, 321,386, Cl. D21-191.000.

Easterntec, Inc.: *See—*
Cheng, Billy, 321,360, Cl. D16-229.000.

Eguchi, Yoshiaki; and Kuroki, Nobufusa, to Janome Sewing Machine Co. Ltd. Sewing machine. 321,353, 11-5-91, Cl. D15-69.000.

Eldon Industries, Inc.: *See—*
Evenson, Mel, 321,372, Cl. D19-90.000.

Electrix, Inc.: *See—*
Shwisha, Haim, 321,405, Cl. D26-65.000.

Elkerbout, Marten F., to U.S. Philips Corporation. Dry shaver. 321,413, 11-5-91, Cl. D28-51.000.

Ernst Stadelmann Gesellschaft m.b.H.: *See—*
Kirchner, Balthasar, 321,351, Cl. D14-251.000.

Essilor International (Compagnie Generale d'Optique): *See—*
Daubignard, Jean-Michel; Pauly, Pascal; and Pora, Philippe, 321,356, Cl. D16-102.000.

Estkowski, Christopher G.: *See—*
Caruso, Jerome C.; Estkowski, Christopher G.; and Lastuck, Lennard V., 321,299, Cl. D6-498.000.

Eto, Masayoshi; Hidaka, Hiroshi; Frenkler, Friedrich K.; and Morita, Norikatsu, to NEC Corporation. Computer output printer. 321,364, 11-5-91, Cl. D18-55.000.

Evenson, Mel, to Eldon Industries, Inc. Message holder. 321,372, 11-5-91, Cl. D19-90.000.

Ewing, Robert L.: *See—*
Hughes, James S.; Ewing, Robert L.; Fouke, Herbert A.; and Brohard, Bonnie J., 321,408, Cl. D26-85.000.

Falburg Films Corporation: *See—*
Falini, Jesse R., 321,404, Cl. D26-2.000.

Falini, Jesse R., to Falburg Films Corporation. Light bulb. 321,404, 11-5-91, Cl. D26-2.000.

Fankhauser, Henry. Label for refrigerator containers or the like. 321,373, 11-5-91, Cl. D20-11.000.

Feer, David L.; and Williams, Daniel L., to Codex Corporation. Modem for digital communications. 321,343, 11-5-91, Cl. D14-107.000.

Flannagan, Louise J. Fire safety kit. 321,417, 11-5-91, Cl. D29-2.000.

Fogarty, Eileen: *See—*
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,270, Cl. D1-106.000.
Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, 321,271, Cl. D1-107.000.

Foster, Larry S.; Sapper, Richard F.; Silverstein, Steven A.; and Wang, James P., to International Business Machines Corporation. Computer crt monitor. 321,345, 11-5-91, Cl. D14-113.000.

Fouke, Herbert A.: *See—*
Hughes, James S.; Ewing, Robert L.; Fouke, Herbert A.; and Brohard, Bonnie J., 321,408, Cl. D26-85.000.

Franklin Electronic Publishers, Incorporated: *See—*
Yianilos, Peter N., 321,366, Cl. D18-24.000.

Frenkler, Friedrich K.: *See—*
Eto, Masayoshi; Hidaka, Hiroshi; Frenkler, Friedrich K.; and Morita, Norikatsu, 321,364, Cl. D18-55.000.

Frigard, Charles R.: *See—*
Olson, Brennan J.; and Frigard, Charles R., 321,393, Cl. D21-226.000.

Fuchs, Paul D., to Procter & Gamble Company, The. Bottle. 321,322, 11-5-91, Cl. D9-375.000.

Gabriel, Deborah A. Portable dressing room. 321,292, 11-5-91, Cl. D6-417.000.

Gagnon, Raymond: *See—*
Gagnon, Robert E.; and Gagnon, Raymond, 321,330, Cl. D10-106.000.

Gagnon, Robert E.; and Gagnon, Raymond. Alarm for patients in hospitals or the like. 321,330, 11-5-91, Cl. D10-106.000.

Galante, Carl J. Multi-purpose organizer. 321,371, 11-5-91, Cl. D19-77.000.

Gardiner, Alexander M.: *See—*
Primucci, Joseph; Hubel, Vello; and Gardiner, Alexander M., 321,399, Cl. D23-277.000.

Gary, Lonnie F., to Gary Products Group, Inc. Support for decorative strand. 321,314, 11-5-91, Cl. D8-373.000.

Gary Products Group, Inc.: *See—*
Gary, Lonnie F., 321,314, Cl. D8-373.000.

General Electric Company: *See—*
Smith, Russell D., 321,422, Cl. D32-46.000.

Giordano, Edward C.: *See—*
Petrucci, Raymond M.; Taylor, Bruce G.; Giordano, Edward C.; Padilla, James M.; and Palmer, Carl, 321,394, Cl. D23-209.000.

Giuseppe, Orlandi, to Henkel Kommanditgesellschaft auf Aktien. Container for dispensing liquid cleansing agents or similar article. 321,319, 11-5-91, Cl. D9-366.000.

Greenlaw, John W. Bicycle drive chain guide. 321,334, 11-5-91, Cl. D12-114.000.

Gunter, Harvey R., to Cardinal Packaging, Inc. Container. 321,318, 11-5-91, Cl. D9-352.000.

Halm, Hans; and Weltgen, Paul-Otto, to Henkel Kommanditgesellschaft auf Aktien. Combined container and spray nozzle. 321,315, 11-5-91, Cl. D9-300.000.

Halm, Hans, to Henkel Kommanditgesellschaft auf Aktien. Liquid detergent dispenser with lid or similar article. 321,320, 11-5-91, Cl. D9-366.000.

Halston Enterprises, Inc.: *See—*
Royer, Christine, 321,331, Cl. D11-43.000.

Hammer Corporation: *See—*
Jones, Gary A., 321,387, Cl. D21-195.000.
Jones, Gary A., 321,389, Cl. D21-195.000.
Jones, Gary A., 321,390, Cl. D21-195.000.
Jones, Gary A., 321,391, Cl. D21-195.000.

Hanlon, Tim: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,412, Cl. D28-35.000.

Harden, Daniel K.; and Havener, John B., to AT&T Bell Laboratories. Telephone answering instrument. 321,348, 11-5-91, Cl. D14-141.000.

Harwood, Robert M., to CMB Foodcan plc. End panel for cans. 321,326, 11-5-91, Cl. D9-438.000.

Havener, John B.: *See—*
Harden, Daniel K.; and Havener, John B., 321,348, Cl. D14-141.000.

Heidmann, Charles, to Steelcase Strafor. Luminaire for a wall partition or the like. 321,407, 11-5-91, Cl. D26-72.000.

Helen of Troy: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,412, Cl. D28-35.000.

Henkel Kommanditgesellschaft auf Aktien: *See—*
Giuseppe, Orlandi, 321,319, Cl. D9-366.000.
Halm, Hans; and Weltgen, Paul-Otto, 321,315, Cl. D9-300.000.
Halm, Hans, 321,320, Cl. D9-366.000.

Hidaka, Hiroshi: *See—*
Eto, Masayoshi; Hidaka, Hiroshi; Frenkler, Friedrich K.; and Morita, Norikatsu, 321,364, Cl. D18-55.000.

Highland Supply Corporation: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Hirabayashi, Akira, to Kabushiki Kaisha Izumi Seiki Seisakusho. Electric toothbrush. 321,285, 11-5-91, Cl. D4-101.000.

Hirose, Takashi; Kasahara, Yoshihiro; and Terauchi, Yukio, to NEC Corporation. Computer output printer. 321,363, 11-5-91, Cl. D18-54.000.

Hoese Corporation: *See—*
Hoese, Fred O., 321,336, Cl. D12-192.000.

Hoese, Fred O., to Hoese Corporation. Radio cover. 321,336, 11-5-91, Cl. D12-192.000.

Holcomb, Robert J. Ski boot tote. 321,278, 11-5-91, Cl. D3-36.000.

Holophane Company, Inc.: *See—*
Hughes, James S.; Ewing, Robert L.; Fouke, Herbert A.; and Brohard, Bonnie J., 321,408, Cl. D26-85.000.

Hoshino Health Products, Inc.: *See—*
Hoshino, Tomezo, 321,402, Cl. D24-188.000.

Hoshino, Tomezo, to Hoshino Health Products, Inc. Spinal therapy board. 321,402, 11-5-91, Cl. D24-188.000.

Hubel, Vello: *See—*
Primucci, Joseph; Hubel, Vello; and Gardiner, Alexander M., 321,399, Cl. D23-277.000.

Hudson, Kimberly, to Kid's Biz, Inc. Stuffed dinosaur animal figure. 321,385, 11-5-91, Cl. D21-148.000.

Hughes, James S.; Ewing, Robert L.; Fouke, Herbert A.; and Brohard, Bonnie J., to Holophane Company, Inc. Luminaire. 321,408, 11-5-91, Cl. D26-85.000.

Hull, Elinor R. Nursing bra cup or the like. 321,273, 11-5-91, Cl. D2-24.000.

Hur, Kyoung M. Novelty hat. 321,274, 11-5-91, Cl. D2-248.000.

Iino, Masaaki, to Kabushiki Kaisha Toshiba. Display unit for an overhead projector. 321,361, 11-5-91, Cl. D16-235.000.

Infection Control Products, Inc.: *See—*
Russell, John P.; and Carroll, Terry, 321,313, Cl. D8-370.000.

International Business Machines Corporation: *See—*
Diehl, Volker; and Kuczewski, Gunter, 321,342, Cl. D14-107.000.
Foster, Larry S.; Sapper, Richard F.; Silverstein, Steven A.; and Wang, James P., 321,345, Cl. D14-113.000.
Savio, Dino M., 321,340, Cl. D14-100.000.
Steinbugler, Robert E.; Sapper, Richard; Wetzel, Timothy D.; and Williams, Roger C., 321,344, Cl. D14-113.000.

Intertech Resources Inc.: *See—*
Wallace, Dean R., 321,419, Cl. D29-8.000.

Isham, Kathleen C. Cart. 321,424, 11-5-91, Cl. D34-21.000.

Izumi, Tatsuro; and Yanai, Makoto, to Minolta Camera Kabushiki Kaisha. Mounting member for a camera accessory. 321,359, 11-5-91, Cl. D16-219.000.

Janome Sewing Machine Co. Ltd.: *See—*
Eguchi, Yoshiaki; and Kuroki, Nobufusa, 321,353, Cl. D15-69.000.
Kuroki, Nobufusa, 321,354, Cl. D15-70.000.

Joerger, Gerhard E. Faucet. 321,398, 11-5-91, Cl. D23-241.000.

Jones, Gary A., to Hammer Corporation. Isolateral shoulder cuff physical exerciser. 321,387, 11-5-91, Cl. D21-195.000.

Jones, Gary A., to Hammer Corporation. Leg extension physical exerciser. 321,389, 11-5-91, Cl. D21-195.000.

Jones, Gary A., to Hammer Corporation. Leg press physical exerciser. 321,390, 11-5-91, Cl. D21-195.000.

Jones, Gary A., to Hammer Corporation. Leg curl physical exerciser. 321,391, 11-5-91, Cl. D21-195.000.

Kabushiki Kaisha Izumi Seiki Seisakusho: *See—*
Hirabayashi, Akira, 321,285, Cl. D4-101.000.

Kabushiki Kaisha Toshiba: *See—*
Iino, Masaaki, 321,361, Cl. D16-235.000.

Karp, Robyn. Sun visor. 321,357, 11-5-91, Cl. D16-107.000.

Kasahara, Yoshihiro: *See—*
Hirose, Takashi; Kasahara, Yoshihiro; and Terauchi, Yukio, 321,363, Cl. D18-54.000.

Ken Mar Inc.: *See—*
Marsella, Kenneth S.; and Layne, Frank, 321,284, Cl. D3-75.000.

Kid's Biz, Inc.: *See—*
Hudson, Kimberly, 321,385, Cl. D21-148.000.

Kikuchi, Naoki: *See—*
Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, 321,337, Cl. D13-108.000.
Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, 321,338, Cl. D13-108.000.

Kingsbury, Douglas W. Computer housing removal tool. 321,308, 11-5-91, Cl. D8-14.000.

Kirchner, Balthasar, to Ernst Stadelmann Gesellschaft m.b.H. Pivotable telephone stand. 321,351, 11-5-91, Cl. D14-251.000.

Ko, Man-Ho, to Video Technology Industries, Inc. Housing for electronic game or the like. 321,377, 11-5-91, Cl. D21-13.000.

Ko, Thomas M.: *See—*
Cheung, David T.; and Ko, Thomas M., 321,384, Cl. D21-142.000.

Kohler Co.: *See—*
Dannenberg, Todd D., 321,397, Cl. D23-238.000.

Korczynski, Jacek M.: *See—*
Stack, Thomas J.; and Korczynski, Jacek M., 321,339, Cl. D13-160.000.

Kucsak, Michael G. Keyboard stand. 321,293, 11-5-91, Cl. D6-419.000.

Kuczewski, Gunter: *See—*
Diehl, Volker; and Kuczewski, Gunter, 321,342, Cl. D14-107.000.

Kuroki, Nobufusa, to Janome Sewing Machine Co. Ltd. Sewing machine. 321,354, 11-5-91, Cl. D15-70.000.

Kuroki, Nobufusa: *See—*
Eguchi, Yoshiaki; and Kuroki, Nobufusa, 321,353, Cl. D15-69.000.

Laib, Douglas M.; and Brown, Patrick W., to Dart Industries Inc. Sand pail toy or the like. 321,382, 11-5-91, Cl. D21-120.000.

Laird, William B. Combined chair and retractable footrest. 321,290, 11-5-91, Cl. D6-367.000.

VOL 1132 ISS 1 NO 5 1991 UMI

Lastuck, Lennard V.: *See—*
Caruso, Jerome C.; Estkowski, Christopher G.; and Lastuck, Lennard V., 321,299, Cl. D6-498.000.

Laubach, David: *See—*
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,304, Cl. D7-691.000.
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,305, Cl. D7-691.000.

Layne, Bruce N., to Cooper Industries, Inc. Combined swivel arm and connector for a track lighting fixture. 321,410, 11-5-91, Cl. D26-138.000.

Layne, Frank: *See—*
Marsella, Kenneth S.; and Layne, Frank, 321,284, Cl. D3-75.000.

Leifheit AG: *See—*
Ohm, Heinz J., 321,423, Cl. D32-58.000.

Leung, Chi-Kit, to Video Technology Industries, Inc. Housing for electronic game or the like. 321,375, 11-5-91, Cl. D21-13.000.

Leung, Chi-Kit, to Video Technologies Industries, Inc. Housing for electronic game or the like. 321,376, 11-5-91, Cl. D21-13.000.

Lever Brothers Company, Division of Conopco, Inc.: *See—*
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,304, Cl. D7-691.000.
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,305, Cl. D7-691.000.

Lin, Yu-Zong: *See—*
Bao, Anh; and Lin, Yu-Zong, 321,341, Cl. D14-102.000.

LSI Industries Inc.: *See—*
Schlesselman, Edwin G., 321,406, Cl. D26-67.000.

LubeCon Maintenance Systems, Inc.: *See—*
Myers, Lyle G., 321,309, Cl. D15-150.000.

Mark, Andrew, to Rogers Manufacturing Company, Inc. Storage unit for audio tapes, compact disks, video tapes or similar articles. 321,279, 11-5-91, Cl. D3-35.000.

Marks, Robert: *See—*
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,304, Cl. D7-691.000.
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,305, Cl. D7-691.000.

Marsella, Kenneth S.; and Layne, Frank, to Ken Mar Inc. Jewelry box and interior therefor. 321,284, 11-5-91, Cl. D3-75.000.

Martin, Emilio B., to Amper, S.A. Document feeder. 321,362, 11-5-91, Cl. D18-49.000.

Melk, Thomas J., to Outer Circle Products, Ltd. Carrying case tray bottom for cassettes or the like. 321,283, 11-5-91, Cl. D3-74.000.

Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, to CPC International Inc. Saturn-shaped pasta. 321,270, 11-5-91, Cl. D1-106.000.

Meyers, Edward J., Jr.; Bernardini, Deborah L.; Ceglia, Frank; and Fogarty, Eileen, to CPC International Inc. Lion-shaped pasta. 321,271, 11-5-91, Cl. D1-107.000.

Meyers, Edward J., Jr.; and Bernardini, Deborah L., to CPC International Inc. Vampire-shaped pasta. 321,272, 11-5-91, Cl. D1-109.000.

Minolta Camera Kabushiki Kaisha: *See—*
Izumi, Tatsuro; and Yanai, Makoto, 321,359, Cl. D16-219.000.

Miranda, Walter R., to RTC Industries, Inc. Display stand. 321,296, 11-5-91, Cl. D6-461.000.

Mirolin Industries Inc.: *See—*
Primucci, Joseph; Hubel, Vello; and Gardiner, Alexander M., 321,399, Cl. D23-277.000.

Moll, Reiner, to Olymp Karl Herzog GmbH & Co. Hair dryer. 321,411, 11-5-91, Cl. D28-17.000.

Monneret, Alain, to Monneret Jouets. Toy bed. 321,383, 11-5-91, Cl. D21-123.000.

Monneret Jouets: *See—*
Monneret, Alain, 321,383, Cl. D21-123.000.

Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, to Helen of Troy. Curling iron. 321,412, 11-5-91, Cl. D28-35.000.

Morita, Norikatsu: *See—*
Eto, Masayoshi; Hidaka, Hiroshi; Frenkler, Friedrich K.; and Morita, Norikatsu, 321,364, Cl. D18-55.000.

Mullen, Ofelia M. Fingernail decal. 321,414, 11-5-91, Cl. D28-56.000.

Murray, Lyndon K.: *See—*
Taormina, Joseph T.; and Murray, Lyndon K., 321,378, Cl. D21-30.000.

Myers, Lyle G., to LubeCon Maintenance Systems, Inc. Grease gun. 321,309, 11-5-91, Cl. D15-150.000.

Nakamura, Yuhko, to Sony Corporation. Packing box for headphone. 321,323, 11-5-91, Cl. D9-415.000.

Nakanishi, Noboru: *See—*
Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, 321,337, Cl. D13-108.000.
Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, 321,338, Cl. D13-108.000.

NEC Corporation: *See—*
Eto, Masayoshi; Hidaka, Hiroshi; Frenkler, Friedrich K.; and Morita, Norikatsu, 321,364, Cl. D18-55.000.
Hirose, Takashi; Kasahara, Yoshihiro; and Terauchi, Yukio, 321,363, Cl. D18-54.000.

Nichol, William H., Jr. Hosiery display hanger. 321,288, 11-5-91, Cl. D6-315.000.

Nitto Boseki Co., Ltd.: *See—*
Aoki, Takaaki; and Sato, Fumiko, 321,335, Cl. D12-131.000.

Nuebler, Sylvia, to Perrier, Jean. Advertising cabinet. 321,295, 11-5-91, Cl. D6-444.000.

O'Connell, Daniel S. Wrist watch. 321,327, 11-5-91, Cl. D10-33.000.

Ohm, Heinz J., to Leifheit AG. Laundry drying rack. 321,423, 11-5-91, Cl. D32-58.000.

Olson, Brennan J.; and Frigard, Charles R., to Rollerblade, Inc. Slotted roller skate. 321,393, 11-5-91, Cl. D21-226.000.

Olymp Karl Herzog GmbH & Co.: *See—*
Moll, Reiner, 321,411, Cl. D28-17.000.

Outer Circle Products, Ltd.: *See—*
Melk, Thomas J., 321,283, Cl. D3-74.000.

Padilla, James M.: *See—*
Petrucci, Raymond M.; Taylor, Bruce G.; Giordano, Edward C.; Padilla, James M.; and Palmer, Carl, 321,394, Cl. D23-209.000.

Palmer, Carl: *See—*
Petrucci, Raymond M.; Taylor, Bruce G.; Giordano, Edward C.; Padilla, James M.; and Palmer, Carl, 321,394, Cl. D23-209.000.

Pauly, Pascal: *See—*
Daubignard, Jean-Michel; Pauly, Pascal; and Pora, Philippe, 321,356, Cl. D16-102.000.

Perrier, Jean: *See—*
Nuebler, Sylvia, 321,295, Cl. D6-444.000.

Petrucci, Raymond M.; Taylor, Bruce G.; Giordano, Edward C.; Padilla, James M.; and Palmer, Carl, to Cuno, Incorporate. Quick-change filter cartridge. 321,394, 11-5-91, Cl. D23-209.000.

Petrus, R. Peter. Paint can rim protector. 321,325, 11-5-91, Cl. D9-435.000.

Phelan, Patrick G. Remote radiotelephone headset. 321,350, 11-5-91, Cl. D14-223.000.

Piles, Jonathan: *See—*
Westphal, Dennis; and Piles, Jonathan, 321,403, Cl. D25-52.000.

Polaroid Corporation: *See—*
Betts, John H., 321,358, Cl. D16-211.000.

Pora, Philippe: *See—*
Daubignard, Jean-Michel; Pauly, Pascal; and Pora, Philippe, 321,356, Cl. D16-102.000.

Postic, Stephen. Portable tray. 321,300, 11-5-91, Cl. D6-511.000.

Power, Steve: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,412, Cl. D28-35.000.

Primucci, Joseph; Hubel, Vello; and Gardiner, Alexander M., to Mirolin Industries Inc. Bath tub. 321,399, 11-5-91, Cl. D23-277.000.

Procter & Gamble Company, The: *See—*
Aldrich, Thomas B., 321,286, Cl. D4-104.000.
Duquet, Jacky P., 321,328, Cl. D10-46.200.
Fuchs, Paul D., 321,322, Cl. D9-375.000.
Wilgus, Frank R., 321,321, Cl. D9-375.000.

Proform Fitness Products, Inc.: *See—*
Dalebout, William T., 321,388, Cl. D21-195.000.

Puritan-Bennett Corporation: *See—*
Dolida, Roger J.; and Adriance, Kyle, 321,418, Cl. D29-7.000.

Purkapile, Emerson J., to Coca-Cola Company, The. Combined drink mixer and pitcher. 321,301, 11-5-91, Cl. D7-376.000.

Quabaug Corporation: *See—*
Austin, Arnold S., 321,275, Cl. D2-320.000.

Ranasinghe, Sisira. Italic Sinhalese font. 321,367, 11-5-91, Cl. D18-25.000.

Reichman, Richard, to Dynamic Classics, Ltd. Support for sit-up exercise or similar article. 321,386, 11-5-91, Cl. D21-191.000.

Rogers Manufacturing Company, Inc.: *See—*
Mark, Andrew, 321,279, Cl. D3-35.000.

Rollerblade, Inc.: *See—*
Olson, Brennan J.; and Frigard, Charles R., 321,393, Cl. D21-226.000.

Ross, William M. Toy chest. 321,294, 11-5-91, Cl. D6-434.000.

Royer, Christine, to Halston Enterprises, Inc. Earrings. 321,331, 11-5-91, Cl. D11-43.000.

RTC Industries, Inc.: *See—*
Miranda, Walter R., 321,296, Cl. D6-461.000.

Russell Finex Limited: *See—*
Vann, Nicholas R., 321,352, Cl. D15-7.000.

Russell, John P.; and Carroll, Terry, to Infection Control Products, Inc. Support hook. 321,313, 11-5-91, Cl. D8-370.000.

Ryobi Ltd.: *See—*
Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, 321,337, Cl. D13-108.000.
Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, 321,338, Cl. D13-108.000.

Saiger, Herbert C., to Crown Leisure Products, Inc. Chaise frame. 321,289, 11-5-91, Cl. D6-361.000.

Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, to Ryobi Ltd. Battery charger. 321,337, 11-5-91, Cl. D13-108.000.

Sakamoto, Masakazu; Kikuchi, Naoki; and Nakanishi, Noboru, to Ryobi Ltd. Storage battery for electric tools. 321,338, 11-5-91, Cl. D13-108.000.

Samo, Harvey: *See—*
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,304, Cl. D7-691.000.
Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, 321,305, Cl. D7-691.000.

Santhouse, Daniel: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,412, Cl. D28-35.000.

Sapper, Richard: *See—*
Steinbugler, Robert E.; Sapper, Richard; Wetzel, Timothy D.; and Williams, Roger C., 321,344, Cl. D14-113.000.

Sapper, Richard F.: *See—*
Foster, Larry S.; Sapper, Richard F.; Silverstein, Steven A.; and Wang, James P., 321,345, Cl. D14-113.000.

Sato, Fumiko: *See—*
Aoki, Takaaki; and Sato, Fumiko, 321,335, Cl. D12-131.000.

Savio, Dino M., to International Business Machines Corporation. Data input/output terminal for monitoring patients. 321,340, 11-5-91, Cl. D14-100.000.

Scanlan International, Inc.: *See—*
Scanlan, Timothy M.; and Blake, Kenneth R., 321,401, Cl. D24-147.000.

Scanlan, Timothy M.; and Blake, Kenneth R., to Scanlan International, Inc. Surgical pin tip. 321,401, 11-5-91, Cl. D24-147.000.

Schlesselman, Edwin G., to LSI Industries Inc. Exterior lighting fixture. 321,406, 11-5-91, Cl. D26-67.000.

Schmelzer, Horst-Dieter: *See—*
Bischof, Brigitte; and Schmelzer, Horst-Dieter, 321,409, Cl. D26-91.000.

Sharp Corporation: *See—*
Sugiyama, Masakazu, 321,346, Cl. D14-129.000.

Sharpe, Henry D., III: *See—*
Beckman, Ralph A.; Sharpe, Henry D., III; Curado, Len; and Barfoot, James W., 321,400, Cl. D24-140.000.

Shepherd Products U.S., Inc.: *See—*
Caruso, Jerome C.; Estkowski, Christopher G.; and Lastuck, Lennard V., 321,299, Cl. D6-498.000.

Sherman, Adam; and Stagl, Peter, to Colgate-Palmolive Company. Combined container and dispenser. 321,317, 11-5-91, Cl. D9-337.000.

Shoemaker, Stephen P., Jr.; and Brashear, Eric L. Storage rack for compact discs, cassettes and the like. 321,291, 11-5-91, Cl. D6-407.000.

Shwisha, Haim, to Electrix, Inc. Adjustable lamp. 321,405, 11-5-91, Cl. D26-65.000.

Sigmon, John F. Carrying case for an inflatable wash basin. 321,282, 11-5-91, Cl. D3-39.000.

Silverstein, Steven A.: *See—*
Foster, Larry S.; Sapper, Richard F.; Silverstein, Steven A.; and Wang, James P., 321,345, Cl. D14-113.000.

Slayton, Nancy D., to Dart Industries Inc. Toy puzzle. 321,381, 11-5-91, Cl. D21-105.000.

Smith, Russell D., to General Electric Company. Scraper to clean the fins of heat exchangers or the like. 321,422, 11-5-91, Cl. D32-46.000.

S.P.A. Stregа Alberti Benevanto (S.A.B.): *See—*
Alberti, Franco, 321,316, Cl. D9-307.000.

Sony Corporation: *See—*
Nakamura, Yuhko, 321,323, Cl. D9-415.000.

Soule, Scott T. Pull tab for slide fasteners. 321,333, 11-5-91, Cl. D11-221.000.

Stack, Thomas J.; and Korczynski, Jacek M., to Cooper Industries, Inc. Firewall mount high AMP circuit breaker. 321,339, 11-5-91, Cl. D13-160.000.

Stagl, Peter: *See—*
Sherman, Adam; and Stagl, Peter, 321,317, Cl. D9-337.000.

Steelcase Strafor: *See—*
Heidmann, Charles, 321,407, Cl. D26-72.000.

Steinbugler, Robert E.; Sapper, Richard; Wetzel, Timothy D.; and Williams, Roger C., to International Business Machines Corporation. Computer display. 321,344, 11-5-91, Cl. D14-113.000.

Sugiyama, Masakazu, to Sharp Corporation. Combined projection screen and speakers. 321,346, 11-5-91, Cl. D14-129.000.

Suncast Corporation: *See—*
Whitehead, Stephen P., 321,395, Cl. D23-216.000.
Whitehead, Stephen P., 321,396, Cl. D23-216.000.

Taormina, Joseph T.; and Murray, Lyndon K., to Taormina & Murray Productions. Game board. 321,378, 11-5-91, Cl. D21-30.000.

Taormina & Murray Productions: *See—*
Taormina, Joseph T.; and Murray, Lyndon K., 321,378, Cl. D21-30.000.

Taylor, Bruce G.: *See—*
Petrucci, Raymond M.; Taylor, Bruce G.; Giordano, Edward C.; Padilla, James M.; and Palmer, Carl, 321,394, Cl. D23-209.000.

Terauchi, Yukio: *See—*
Hirose, Takashi; Kasahara, Yoshihiro; and Terauchi, Yukio, 321,363, Cl. D18-54.000.

Tooker, Tracey. Stationery folder or the like. 321,369, 11-5-91, Cl. D19-26.000.

Top Kogyo Co., Ltd.: *See—*
Toyoshima, Masami, 321,310, Cl. D8-22.000.
Toyoshima, Masami, 321,311, Cl. D8-22.000.

Toyoshima, Masami, to Top Kogyo Co., Ltd. Adjustable wrench. 321,310, 11-5-91, Cl. D8-22.000.

Toyoshima, Masami, to Top Kogyo Co., Ltd. Adjustable wrench. 321,311, 11-5-91, Cl. D8-22.000.

Tussing, John T.; and Tussing, Ronald D. Yarn holder or similar article. 321,277, 11-5-91, Cl. D3-26.000.

Tussing, Ronald D.: *See—*
Tussing, John T.; and Tussing, Ronald D., 321,277, Cl. D3-26.000.

Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, to Lever Brothers Company, Division of Conopco, Inc. Combined scoop and cover therefor. 321,304, 11-5-91, Cl. D7-691.000.

Underwood, Sky; Marks, Robert; Laubach, David; and Samo, Harvey, to Lever Brothers Company, Division of Conopco, Inc. Scoop. 321,305, 11-5-91, Cl. D7-691.000.

U.S. Philips Corporation: *See—*
Elkerbout, Marten F., 321,413, Cl. D28-51.000.

Vann, Nicholas R., to Russell Finex Limited. Mobile in-line strainer for paints and resins or the like. 321,352, 11-5-91, Cl. D15-7.000.

Video Technologies Industries, Inc.: *See—*
Leung, Chi-Kit, 321,376, Cl. D21-13.000.

Video Technology Industries, Inc.: *See—*
Cheung, David T.; and Ko, Thomas M., 321,384, Cl. D21-142.000.
Ko, Man-Ho, 321,377, Cl. D21-13.000.
Leung, Chi-Kit, 321,375, Cl. D21-13.000.

Von Vett, Peter W.; and Bothun, Eugene L., to Windsor Industries, Inc. Floor polishing machine. 321,420, 11-5-91, Cl. D32-15.000.

Wallace, Dean R., to Intertech Resources Inc. Face mask. 321,419, 11-5-91, Cl. D29-8.000.

Wang, James P.: *See—*
Foster, Larry S.; Sapper, Richard F.; Silverstein, Steven A.; and Wang, James P., 321,345, Cl. D14-113.000.

Weder, Donald E.; Weder, Erwin, deceased (by Weder, Donald E. Weder and Wanda M., co-executors); Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., to Highland Supply Corporation. Flower pot cover. 321,332, 11-5-91, Cl. D11-164.000.

Weder, Donald E. Weder and Wanda M., co-executors: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Weder, Erwin, deceased: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Weder, Wanda M.: *See—*
Weder, Donald E.; Weder, Erwin, deceased; Weder, Wanda M.; Craig, Franklin J.; Donnelly, Wilma M.; Bolk, Phyllis J.; Bergstrand, John W.; and Abrams, Robert C., 321,332, Cl. D11-164.000.

Weeks, Arthur N. Necktie. 321,276, 11-5-91, Cl. D2-605.000.

Weltgen, Paul-Otto: *See—*
Halm, Hans; and Weltgen, Paul-Otto, 321,315, Cl. D9-300.000.

Westphal, Dennis; and Piles, Jonathan, to CertainTeed Corporation. Window sash takeout cover. 321,403, 11-5-91, Cl. D25-52.000.

Wetzel, Timothy D.: *See—*
Steinbugler, Robert E.; Sapper, Richard; Wetzel, Timothy D.; and Williams, Roger C., 321,344, Cl. D14-113.000.

Whitehead, Stephen P., to Suncast Corporation. Oscillating sprinkler. 321,395, 11-5-91, Cl. D23-216.000.

Whitehead, Stephen P., to Suncast Corporation. Oscillating sprinkler. 321,396, 11-5-91, Cl. D23-216.000.

Whitlock, Shirley: *See—*
Whitlock, Van; and Whitlock, Shirley, 321,374, Cl. D20-42.000.

Whitlock, Van; and Whitlock, Shirley. Windshield sticker holder. 321,374, 11-5-91, Cl. D20-42.000.

Wilgus, Frank R., to Procter & Gamble Company, The. Bottle. 321,321, 11-5-91, Cl. D9-375.000.

Williams, Daniel L.: *See—*
Feer, David L.; and Williams, Daniel L., 321,343, Cl. D14-107.000.

Williams, Roger C.: *See—*
Steinbugler, Robert E.; Sapper, Richard; Wetzel, Timothy D.; and Williams, Roger C., 321,344, Cl. D14-113.000.

Williamson, Bruce L. Vehicle brake lock for use while loading or unloading a boat from a trailer on an incline. 321,312, 11-5-91, Cl. D8-339.000.

Windsor Industries, Inc.: *See—*
Von Vett, Peter W.; and Bothun, Eugene L., 321,420, Cl. D32-15.000.

Winzeler, Robert C., III, to Design Institute of America. Table base. 321,297, 11-5-91, Cl. D6-495.000.

Winzeler, Robert C., III, to Design Institute America, Inc. Table base. 321,298, 11-5-91, Cl. D6-495.000.

Woll, Douglas R.; and Woll, Margo Y. Toothbrush. 321,287, 11-5-91, Cl. D4-106.000.

Woll, Margo Y.: *See—*
Woll, Douglas R.; and Woll, Margo Y., 321,287, Cl. D4-106.000.

Yanai, Makoto: *See—*
Izumi, Tatsuro; and Yanai, Makoto, 321,359, Cl. D16-219.000.

Yianilos, Peter N., to Franklin Electronic Publishers, Incorporated. Curved font. 321,366, 11-5-91, Cl. D18-24.000.

Zettle, Steven. Finger-operated squeegee. 321,421, 11-5-91, Cl. D32-41.000.

Zimmerman, Larry G., to Dart Industries Inc. Tray cover or the like. 321,302, 11-5-91, Cl. D7-392.100.

VOL 1132 ISS 1 NO 5 1991 UMI

LIST OF PLANT PATENTEES

Bauer, Annelise; and Schlindwein, Birgit, to Bauer, Annelise. Variety of strawberry named Florika. 7,701, 11-5-91, Cl. 48.000.
Beck, James W. Orange tree 'Beck Early Navel' . 7,700, 11-5-91, Cl. 45.000.
Holtkamp, Reinhold, Sr. African violet plant named Little Blackfoot Girl. 7,704, 11-5-91, Cl. 69.000.
Holtkamp, Reinhold, Sr. African violet plant named Little Navajo Girl. 7,705, 11-5-91, Cl. 69.000.
Mojonnier, Erwin. Alstroemeria plant named Maria. 7,703, 11-5-91, Cl. 68.000.
Pennington, Russell R., Sr. *Pentas lanceolata* plant named Jessica. 7,702, 11-5-91, Cl. 68.000.
Schlindwein, Birgit: *See—*
Bauer, Annelise; and Schlindwein, Birgit, 7,701, Cl. 48.000.

LIST OF STATUTORY INVENTION REGISTRATIONS

APPLICANTS TO WHOM

STATUTORY INVENTION REGISTRATIONS WERE ISSUED ON THE 5TH DAY OF NOVEMBER, 1991

A. E. Staley Manufacturing Co.: *See—*
Hartman, Guy J., H989, Cl. 530-422.000.
Arasteh, Dariush K.: *See—*
Selkowitz, Stephen E.; Arasteh, Dariush K.; and Hartmann, John L., H975, Cl. 52-172.000.
Benz, August D.: *See—*
Venkatachari, Mukund K.; Benz, August D.; and Huettenhain, Horst, H981, Cl. 44-282.000.
Berggren, Mark A.; and Garton, Lance M. Method for preparing polymeric membranes in-situ and an apparatus for performing this process. H982, 11-5-91, Cl. 264-171.000.
Bronson, Barry S. Video display enhancement. H997, 11-5-91, Cl. 364-521.000.
Brooks, Jeffrey N.; and Mattas, Richard F., to United States of America, Energy. Self-pumping impurity control. H984, 11-5-91, Cl. 376-146.000.
Brown, Houston S.; and Westbrook, Paul A. Polyketone fibers. H983, 11-5-91, Cl. 264-211.170.
Buchanan, Relva C.; and Maurice, Alena K. Temperature stable ceramic dielectric compositions. H987, 11-5-91, Cl. 501-137.000.
Christopulos, John A., to United States of America, Army. Cell compartment for battery matrix. H985, 11-5-91, Cl. 429-99.000.
Codella, Christopher F.; Rovedo, Nivo; and Ogura, Seiki, to International Business Machines Corporation. Field effect-transistor with asymmetrical structure. H986, 11-5-91, Cl. 437-41.000.
Ebejer, Lino P.: *See—*
Gaal, Peter S.; Ebejer, Lino P.; Kareis, James H.; and Schlegel, Gary L., H978, Cl. 108-20.000.
Exxon Chemical Company: *See—*
Kurzbuch, Werner; Mitchell, Larry J.; and Scheller, Andor, H977, Cl. 100-179.000.
Fertel, Lawrence B.; and Lin, Henry C., to Occidental Chemical Corporation. Preparation of fluorobenzenes by the decarboxylation of fluorophthalic acids or benzoic acids. H992, 11-5-91, Cl. 570-142.000.
Fischer, John W.; and Hollins, Richard A., to United States of America, Navy. Synthesis of nitratomethylmethyloxetane (NMMO). H991, 11-5-91, Cl. 549-510.000.
Gaal, Peter S.; Ebejer, Lino P.; Kareis, James H.; and Schlegel, Gary L., to United States of America, Energy. Hot cell examination table. H978, 11-5-91, Cl. 108-20.000.
Garton, Lance M.: *See—*
Berggren, Mark A.; and Garton, Lance M., H982, Cl. 264-171.000.
Gergen, William P.; Machado, Joseph M.; Waters, Dixie G.; and Gingrich, Randall P., to Shell Oil Company. Polymer blends. H988, 11-5-91, Cl. 525-179.000.
Gingrich, Randall P.: *See—*
Gergen, William P.; Machado, Joseph M.; Waters, Dixie G.; and Gingrich, Randall P., H988, Cl. 525-179.000.
Gunn, Jack T.: *See—*
Ohst, David W.; Gunn, Jack T.; and Pavlik, Dennis, H994, Cl. 310-178.000.
Harrison, Cecil P., to Tennessee Valley Authority. Two-stage, single-unit, and energy-efficient granulator dryer. H980, 11-5-91, Cl. 425-222.000.
Hartman, Guy J., to A. E. Staley Manufacturing Co. Purification of hydrolyzed protein by extraction. H989, 11-5-91, Cl. 530-422.000.
Hartmann, John L.: *See—*
Selkowitz, Stephen E.; Arasteh, Dariush K.; and Hartmann, John L., H975, Cl. 52-172.000.
Hollins, Richard A.: *See—*
Fischer, John W.; and Hollins, Richard A., H991, Cl. 549-510.000.
Huettenhain, Horst: *See—*
Venkatachari, Mukund K.; Benz, August D.; and Huettenhain, Horst, H981, Cl. 44-282.000.
International Business Machines Corporation: *See—*
Codella, Christopher F.; Rovedo, Nivo; and Ogura, Seiki, H986, Cl. 437-41.000.
Kareis, James H.: *See—*
Gaal, Peter S.; Ebejer, Lino P.; Kareis, James H.; and Schlegel, Gary L., H978, Cl. 108-20.000.
Kayser, Eleonore G., to United States of America, Navy. Recrystallization of 3-nitro-1,2,4-triazol-5-one from dimethylsulfoxide and methylene chloride. H990, 11-5-91, Cl. 548-263.800.
Kelley, Malcolm E., to United States of America, Air Force. Cockpit vision and protection apparatus. H979, 11-5-91, Cl. 244-129.300.
Kimura, Yoshikazu: *See—*
Mizobuchi, Shotaro; Sasaki, Katsumi; and Kimura, Yoshikazu, H974, Cl. 29-898.041.
Kurzbuch, Werner; Mitchell, Larry J.; and Scheller, Andor, to Exxon Chemical Company. Apparatus and method for inducing blocking in plastic films under known conditions. H977, 11-5-91, Cl. 100-179.000.
Lin, Henry C.: *See—*
Fertel, Lawrence B.; and Lin, Henry C., H992, Cl. 570-142.000.
Lovelady, Kenneth T.: *See—*
McWaters, Lynn D.; and Lovelady, Kenneth T., H996, Cl. 340-728.000.
Machado, Joseph M.: *See—*
Gergen, William P.; Machado, Joseph M.; Waters, Dixie G.; and Gingrich, Randall P., H988, Cl. 525-179.000.
Matta, Joseph E.; and Tytus, Raymond P., to United States of America, Army. Apparatus and method for measuring elongational viscosity of a polymeric solution. H976, 11-5-91, Cl. 73-54.000.
Mattas, Richard F.: *See—*
Brooks, Jeffrey N.; and Mattas, Richard F., H984, Cl. 376-146.000.
Maurice, Alena K.: *See—*
Buchanan, Relva C.; and Maurice, Alena K., H987, Cl. 501-137.000.
McWaters, Lynn D.; and Lovelady, Kenneth T., to Recognition Equipment Incorporated. High resolution page image display system. H996, 11-5-91, Cl. 340-728.000.
Mitchell, Larry J.: *See—*
Kurzbuch, Werner; Mitchell, Larry J.; and Scheller, Andor, H977, Cl. 100-179.000.
Mizobuchi, Shotaro; Sasaki, Katsumi; and Kimura, Yoshikazu. Thrust bearing and method of manufacturing thereof. H974, 11-5-91, Cl. 29-898.041.
Moran, Robert D., to United States of America, Navy. Preamplifier for laser guided projectile. H995, 11-5-91, Cl. 330-278.000.
Occidental Chemical Corporation: *See—*
Fertel, Lawrence B.; and Lin, Henry C., H992, Cl. 570-142.000.
Ogura, Seiki: *See—*
Codella, Christopher F.; Rovedo, Nivo; and Ogura, Seiki, H986, Cl. 437-41.000.
Ohst, David W.; Gunn, Jack T.; and Pavlik, Dennis, to United States of America, Army. Transposed air core homopolar generator conductors. H994, 11-5-91, Cl. 310-178.000.
Pavlik, Dennis: *See—*
Ohst, David W.; Gunn, Jack T.; and Pavlik, Dennis, H994, Cl. 310-178.000.
Recognition Equipment Incorporated: *See—*
McWaters, Lynn D.; and Lovelady, Kenneth T., H996, Cl. 340-728.000.
Rovedo, Nivo: *See—*
Codella, Christopher F.; Rovedo, Nivo; and Ogura, Seiki, H986, Cl. 437-41.000.
Sartore, Richard G., to United States of America, Army. Thin film thickness mapping technique. H993, 11-5-91, Cl. 250-307.000.

Sasaki, Katsumi: *See—*
Mizobuchi, Shotaro; Sasaki, Katsumi; and Kimura, Yoshikazu, H974, Cl. 29-898.041.
Scheller, Andor: *See—*
Kurzbuch, Werner; Mitchell, Larry J.; and Scheller, Andor, H977, Cl. 100-179.000.
Schlegel, Gary L.: *See—*
Gaal, Peter S.; Ebejer, Lino P.; Kareis, James H.; and Schlegel, Gary L., H978, Cl. 108-20.000.
Selkowitz, Stephen E.; Arasteh, Dariush K.; and Hartmann, John L., to United States of America, Energy. Thermal insulated glazing unit. H975, 11-5-91, Cl. 52-172.000.
Shell Oil Company: *See—*
Gergen, William P.; Machado, Joseph M.; Waters, Dixie G.; and Gingrich, Randall P., H988, Cl. 525-179.000.
Tennessee Valley Authority: *See—*
Harrison, Cecil P., H980, Cl. 425-222.000.
Tytus, Raymond P.: *See—*
Matta, Joseph E.; and Tytus, Raymond P., H976, Cl. 73-54.000.
United States of America
Air Force: *See—*
Kelley, Malcolm E., H979, Cl. 244-129.300.
Army: *See—*
Christopulos, John A., H985, Cl. 429-99.000.
Matta, Joseph E.; and Tytus, Raymond P., H976, Cl. 73-54.000.
Ohst, David W.; Gunn, Jack T.; and Pavlik, Dennis, H994, Cl. 310-178.000.
Sartore, Richard G., H993, Cl. 250-307.000.
Energy: *See—*
Brooks, Jeffrey N.; and Mattas, Richard F., H984, Cl. 376-146.000.
Gaal, Peter S.; Ebejer, Lino P.; Kareis, James H.; and Schlegel, Gary L., H978, Cl. 108-20.000.
Selkowitz, Stephen E.; Arasteh, Dariush K.; and Hartmann, John L., H975, Cl. 52-172.000.
Venkatachari, Mukund K.; Benz, August D.; and Huettenhain, Horst, H981, Cl. 44-282.000.
Navy: *See—*
Fischer, John W.; and Hollins, Richard A., H991, Cl. 549-510.000.
Kayser, Eleonore G., H990, Cl. 548-263.800.
Moran, Robert D., H995, Cl. 330-278.000.
Venkatachari, Mukund K.; Benz, August D.; and Huettenhain, Horst, to United States of America, Energy. Process for selective grinding of coal. H981, 11-5-91, Cl. 44-282.000.
Waters, Dixie G.: *See—*
Gergen, William P.; Machado, Joseph M.; Waters, Dixie G.; and Gingrich, Randall P., H988, Cl. 525-179.000.
Westbrook, Paul A.: *See—*
Brown, Houston S.; and Westbrook, Paul A., H983, Cl. 264-211.170.

VOL
1132
ISS
1
NO
5
1991
UMI

CLASSIFICATION OF PATENTS

ISSUED NOVEMBER 5, 1991

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

8	5,062,156
46	5,062,158
114	5,062,159
	5,062,160
169	5,062,161
171	5,062,157
424	5,062,162
	5,062,163

CLASS 4

194	5,062,164
427	5,062,166
480	5,062,165

CLASS 5

61	5,062,167
413	5,062,168
449	5,062,169
450	5,062,170
455	5,062,171
474	5,062,172

CLASS 7

118	5,062,173

CLASS 8

639	5,062,861

CLASS 14

69.5	5,062,174

CLASS 15

88.2	5,062,177
103	5,062,175
250.23	5,062,176

CLASS 16

38	5,062,178
111 R	5,062,179
257	5,062,180
354	5,062,181
368	5,062,182

CLASS 19

225	5,062,183

CLASS 23

295 R	5,062,862

CLASS 24

16 PB	5,062,184
49 CC	5,062,185
389	5,062,186

CLASS 29

33 P	5,062,188
	5,062,190
33 R	5,062,189
33 T	5,062,187
229	5,062,191
426.4	5,062,192
426.6	5,062,193
451	5,062,194
558	Re.33,732
568	5,062,195
603	5,062,196
606	5,062,197
622	5,062,198
727	5,062,199
732	5,062,200
741	5,062,201
749	5,062,202
852	5,062,203
	5,062,204
889.7	5,062,205
890.01	5,062,206
890.14	5,062,207
898.049	5,062,208

CLASS 30

41.7	5,062,209
317	5,062,210
322	5,062,211

CLASS 33

270	5,062,212
479	5,062,213
706	5,062,214
755	5,062,215

CLASS 34

16	5,062,216
22	5,062,217
114	5,062,218
133	5,062,219
155	5,062,220
204	5,062,221

CLASS 36

2.6	5,062,222
7.1 R	5,062,223
117	5,062,224
	5,062,225
	5,062,226

CLASS 37

117.5	5,062,227
	5,062,228

CLASS 40

107	5,062,229

CLASS 42

1.09	5,062,230
	5,062,231
70.11	5,062,232
	5,062,233

CLASS 43

1	5,062,234
42	5,062,235
42.5	5,062,236
86	5,062,237

CLASS 44

341	5,062,863

CLASS 47

1.01	5,062,238
79	5,062,239

CLASS 49

348	5,062,240
460	5,062,241

CLASS 51

295	5,062,865

CLASS 52

36	5,062,242
66	5,062,243
98	5,062,244
118	5,062,245
126.4	5,062,246
200	5,062,247
208	5,062,248
320	5,062,249
584	5,062,250

CLASS 53

134.1	5,062,251
434	5,062,252
451	5,062,253
467	5,062,254

CLASS 54

7	5,062,255
78	5,062,256

CLASS 55

16	5,062,866
96	5,062,867
97	5,062,868
159	5,062,869
213	5,062,870
259	5,062,871
302	5,062,872
	5,062,873
337	5,062,874
493	5,062,875
495	5,062,864

CLASS 56

11.1	5,062,257
202	5,062,258
255	5,062,259
380	5,062,260

CLASS 57

281	5,062,261

CLASS 60

39.36	5,062,262
299	5,062,263
427	5,062,264
450	5,062,265
466	5,062,266
493	5,062,267
533	5,062,268

CLASS 62

4	5,062,269
12	5,062,270
55.5	5,062,271
78	5,062,272
85	5,062,273
117	5,062,274
174	5,062,275
176.6	5,062,276
193	5,062,277
230	5,062,278
235	5,062,279
291	5,062,280
457.1	5,062,281

CLASS 65

1	5,062,876
30.13	5,062,877

CLASS 70

209	5,062,282

CLASS 71

65	5,062,878
92	5,062,879
	5,062,880
	5,062,881
93	5,062,882
94	5,062,883
95	5,062,884

CLASS 72

10	5,062,283
46	5,062,284
272	5,062,285
305	5,062,286
336	5,062,287
383	5,062,288
	5,062,289
416	5,062,290

CLASS 73

3	5,062,291
19.01	5,062,292
81	5,062,293
115	5,062,294
290 V	5,062,295
579	5,062,296
597	5,062,297
	5,062,298
609	5,062,299
623	5,062,300
629	5,062,301
754	5,062,302
798	5,062,303
861	5,062,304
861.12	5,062,305
862.33	5,062,306
862.36	5,062,307
864.41	5,062,308
864.44	5,062,309
866.5	5,062,310

CLASS 74

44	5,062,311
89.14	5,062,312
335	5,062,313
475	5,062,314
502.2	5,062,315
529	5,062,316
560	5,062,317
594.2	5,062,318
612	5,062,319
650	5,062,320
866	5,062,321

CLASS 75

255	5,062,885
371	5,062,886
425	5,062,887
739	5,062,888

CLASS 76

82.1	5,062,322

CLASS 81

15.7	5,062,323
20	5,062,324
57.32	5,062,326
124.3	5,062,327
186	5,062,328
436	5,062,325
488	5,062,329

CLASS 82

147	5,062,330

CLASS 83

37	5,062,331
74	5,062,332
94	5,062,333
95	5,062,340
99	5,062,334
168	5,062,335
198	5,062,336
552	5,062,337
763	5,062,339
848	5,062,338

CLASS 84

702	5,062,341
744	5,062,342

CLASS 86

20.1	5,062,343

CLASS 87

8	5,062,344

CLASS 89

1.817	5,062,345
14.1	5,062,346
37.07	5,062,347

CLASS 91

369.2	5,062,348
436	5,062,349
448	5,062,350

CLASS 98

2.08	5,062,352
2.09	5,062,351
2.11	5,062,353
62	5,062,354

CLASS 99

349	5,062,355
428	5,062,356

CLASS 100

53	5,062,357
218	5,062,358

CLASS 101

152	5,062,359
	5,062,360
269	5,062,361
348	5,062,362
415.1	5,062,363
467	5,062,364

CLASS 102

322	5,062,365
430	5,062,366
530	5,062,367

CLASS 104

172.3	5,062,368

CLASS 105

396	5,062,369

CLASS 106

20	5,062,891
22	5,062,892
	5,062,893
23	5,062,894
27	5,062,890
36	5,062,895
197.2	5,062,889
287.19	5,062,896
696	5,062,897

CLASS 108

51.3	5,062,370

CLASS 110

214	5,062,371
242	5,062,372

CLASS 112

113	5,062,373
130	5,062,374

CLASS 114

210	5,062,375
230	5,062,376
270	5,062,377
274	5,062,378
311	5,062,379

CLASS 116

28 R	5,062,380
225	5,062,381

CLASS 118

500	5,062,384
653	5,062,385
723	5,062,508
725	5,062,386

CLASS 119

28	5,062,387
51.04	5,062,382
52.2	5,062,388
57.6	5,062,389
72	5,062,390
	5,062,391
167	5,062,392
173	5,062,383

CLASS 123

41.72	5,062,393
56 AC	5,062,394
65 VD	5,062,395
73 BA	5,062,396
188 P	5,062,397
196 R	5,062,398
198 D	5,062,399
198 DB	5,062,400
333	5,062,401
399	5,062,404
413	5,062,403
425	5,062,402
468	5,062,405

CLASS 124

25	5,062,406
44.5	5,062,407

CLASS 126

41 R	5,062,408
99 R	5,062,409
299 D	5,062,410
523	5,062,411

CLASS 128

24 OEL	5,062,412
66	5,062,413
68.1	5,062,414
76 R	5,062,415
79	5,062,416
	5,062,417
156	5,062,418
200.21	5,062,419
204.18	5,062,420
205.27	5,062,421
207.14	5,062,422
207.15	5,062,423
379	5,062,424
401	5,062,425
640	5,062,426
661.01	5,062,429
661.09	5,062,430
661.10	5,062,427
664	5,062,428
665	5,062,431
736	5,062,432
888	5,062,433

CLASS 131

336	5,062,434

CLASS 132

108	5,062,435
279	5,062,436
323	5,062,437

CLASS 134

7	5,062,898
9	5,062,438

CLASS 136

259	5,062,899

CLASS 137

15	5,062,439
38	5,062,440
81.1	5,062,441
110	5,062,442
113	5,062,443
202	5,062,444
340	5,062,445
468	5,062,446
493	5,062,447
498	5,062,448
505.46	5,062,449
533.17	5,062,451
533.21	5,062,450
533.25	5,062,452
624.11	5,062,453
625.61	5,062,454

CLASS 138

30	5,062,455
125	5,062,456
	5,062,457

CLASS 141

80	5,062,458
91	5,062,459

CLASS 144

136 C	5,062,460

CLASS 148

4	5,062,900
11.5 A	5,062,901
23	5,062,902
24	5,062,903
105	5,062,904
111	5,062,905
	5,062,906
301	5,062,907
304	5,062,909
332	5,062,908

CLASS 152

209 R	5,062,461
548	5,062,462

CLASS 156

82	5,062,910
89	5,062,911
145	5,062,912
154	5,062,913
172	5,062,914
252	5,062,915
269	5,062,916
356	5,062,919
380.4	5,062,920
568	5,062,917
578	5,062,918

CLASS 160

38	5,062,463
193	5,062,464

CLASS 162

31	5,062,921
158	5,062,922
265	5,062,923
358	5,062,924

CLASS 164

4.1	5,062,465
7.1	5,062,466
	5,062,467
122.2	5,062,468
	5,062,469
457	5,062,470

CLASS 165

8	5,062,471
41	5,062,472
42	5,062,473
109.1	5,062,474
151	5,062,475
173	5,062,476
174	5,062,477
178	5,062,478

CLASS 166

84	5,062,479
108	5,062,480
153	5,062,481
250	5,062,482
263	5,062,483
278	5,062,484
297	5,062,485

CLASS 169

70	5,062,486
91	5,062,487

CLASS 172

1	5,062,488

VOL 1132 ISS 1 NO 5 1991 UMI

311 5,062,489

CLASS 173

12 5,062,491
104 5,062,490
109 Re.33,733

CLASS 174

35 R 5,063,273
158 F 5,063,274

CLASS 177

25.14 5,062,492

CLASS 180

9.52 5,062,493
132 5,062,494
227 5,062,495
291 5,062,496
300 5,062,497
308 5,062,498

CLASS 182

166 5,062,499

CLASS 184

106 5,062,500

CLASS 187

112 5,062,501
124 5,062,502

CLASS 188

71.5 5,062,503
79.56 5,062,504
153 R 5,062,505
329 5,062,506
378 5,062,507

CLASS 190

333 5,062,519

CLASS 192

0.096 5,062,516
4 A 5,062,509
4 C 5,062,510
5 5,062,511
45 5,062,512
70.17 5,062,513
82 T 5,062,514
91 A 5,062,515
106.2 5,062,517

CLASS 194

317 5,062,518

CLASS 198

335 5,062,520
389 5,062,521
400 5,062,522
463.4 5,062,523
465.4 5,062,524
468.6 5,062,525

CLASS 200

529 5,063,276
531.0 5,063,277

CLASS 201

41 5,062,925

CLASS 202

183 5,062,926

CLASS 203

89 5,062,927

CLASS 204

15 5,062,928
67 5,062,929
82 5,062,930
129.46 5,062,933
129.7 5,062,931
130 5,062,932
146 5,062,941
147 5,062,934
157.41 5,062,935
164 5,062,936
192.15 5,062,937
192.17 5,062,939
192.2 5,062,938
228 5,062,940
299 R 5,062,942

CLASS 206

6.1 5,062,526
315.3 5,062,528
349 5,062,529
425 5,062,530
564 5,062,531

CLASS 208

59 5,062,943
113 5,062,944
5,062,945
115 5,062,946
216 R 5,062,947
251 R 5,062,948

CLASS 209

310 5,062,949
581 5,062,532

CLASS 210

86 5,062,950
169 5,062,951
232 5,062,952
5,062,953
502.1 5,062,954
512.1 5,062,955
611 5,062,956
5,062,957
5,062,958
635 5,062,959
638 5,062,960
656 5,062,961
698 5,062,962
712 5,062,963
740 5,062,964
748 5,062,965
753 5,062,966
755 5,062,967
771 5,062,968

CLASS 211

12 5,062,533
48 5,062,534
162 5,062,535
5,062,536

CLASS 215

12.1 5,062,537
260 5,062,538

CLASS 219

86.1 5,063,278
86.51 5,063,279
121.7 5,063,280
125.12 5,063,281
130.51 5,063,282
218 5,063,283
497 5,063,284

CLASS 220

4.27 5,062,539
23.83 5,062,540
212 5,062,541
269 5,062,542

CLASS 221

30 5,062,543
130 5,062,544
152 5,062,545

CLASS 222

3 5,062,546
80 5,062,550
144.5 5,062,547
190 5,062,548
377 5,062,549
390 5,062,551
570 5,062,552
590 5,062,553
600 5,062,554
641 5,062,555

CLASS 223

96 5,062,556

CLASS 224

148 5,062,591
153 5,062,557
270 5,062,558
311 5,062,559
328 5,062,560

CLASS 226

152 5,062,561

CLASS 227

111 5,062,562
176 5,062,563

CLASS 228

9 5,062,564
5,062,565
102 5,062,566
105 5,062,567

CLASS 229

1.5 B 5,062,568
3.5 R 5,062,569
71 5,062,570
117 5,062,527

CLASS 235

114 5,063,285

CLASS 236

43 A 5,062,571

CLASS 239

533.12 5,062,573
899 5,062,572

CLASS 241

22 5,062,574

73 5,062,575
79.3 5,062,601
167 5,062,576
171 5,062,577

CLASS 242

3 5,062,578
56.4 5,062,582
68.3 5,062,579
125.2 5,062,580
129.6 5,062,581

CLASS 244

3.12 5,062,586
3.15 5,062,583
5,062,584
3.24 5,062,585
7 B 5,062,587
23 D 5,062,588
117 R 5,062,589
118.5 5,062,590
164 5,062,592
169 5,062,593
175 5,062,594
214 5,062,595
234 5,062,596

CLASS 248

27.1 5,062,604
68.1 5,062,605
171 5,062,606
211 5,062,607
289.1 5,062,608
676 5,062,609

CLASS 249

52 5,062,610

CLASS 250

208.1 5,063,286
214 AG 5,063,287
221 5,063,288
5,063,289
227.17 5,063,290
231.14 5,063,295
231.16 5,063,291
236 5,063,292
308 5,063,293
309 5,063,294
343 5,063,275
396 ML 5,063,296
458.1 5,063,297
497.1 5,063,298
507.1 5,063,299
561 5,063,300
574 5,063,301

CLASS 251

129.11 5,062,611

CLASS 252

8.551 5,062,969
8.554 5,062,970
8.6 5,062,971
8.75 5,062,973
8.8 5,062,972
11 5,062,974
33 5,062,975
45 5,062,976
48.2 5,062,977
49.3 5,062,978
5,062,979
51.5 A 5,062,980
62.54 5,062,981
62.57 5,062,982
5,062,983
67 5,062,985
134 5,062,986
156 5,062,987
170 5,062,988
174.17 5,062,989
299.61 5,062,990
315.2 5,062,991
394 5,062,992
545 5,062,994
546 5,062,995
610 5,062,996

CLASS 256

11 5,062,612

CLASS 257

518 5,062,993

CLASS 260

400 5,062,997
403 B1 4,229,360
665 R 5,062,998

CLASS 261

39.1 5,062,999
94 5,063,000

CLASS 264

0.5 5,063,001
12 5,063,002
14 5,063,003
22 5,063,004

5,063,005
35 5,063,006
40.5 5,063,008
44 5,063,007
49 5,063,009
109 5,063,010
126 5,063,011
129 5,063,012
151 5,063,014
161 5,063,015
211.21 5,063,016
328.6 5,063,017
514 5,063,018

CLASS 266

44 5,062,613
216 5,062,614
217 5,062,615

CLASS 267

64.17 5,062,616
132 5,062,617
140.4 5,062,618
154 5,062,619
260 5,062,620

CLASS 269

136 5,063,013
305 5,062,621

CLASS 270

39 5,062,597

CLASS 271

6 5,062,598
35 5,062,599
5,062,600
104 5,062,602
195 5,062,603
270 5,062,622
283 5,062,623

CLASS 272

1 R 5,062,624
67 5,062,625
69 5,062,626
70 5,062,627
75 5,062,628
97 5,062,629
111 5,062,630
123 5,062,631
129 5,062,632
132 5,062,633

CLASS 273

67 R 5,062,634
68 5,062,636
80 R Re.33,735
144 A 5,062,635
157 R 5,062,637
167 R 5,062,638
171 5,062,639
176 F 5,062,640
181 C 5,062,641
183 B 5,062,642
188 A 5,062,643
232 5,062,644
249 5,062,645
411 5,062,646
442 5,062,647

CLASS 277

112 5,062,648
235 B 5,062,649

CLASS 280

1.5 5,062,651
64 5,062,652
648 5,062,653
673 5,062,654
674 5,062,655
689 5,062,656
707 5,062,657
5,062,658
5,062,659
5,062,660
731 5,062,661
733 5,062,662
743 5,062,663
5,062,664
770 5,062,665

CLASS 283

67 5,062,666

CLASS 285

381 5,062,667

CLASS 292

25 5,062,668
60 5,062,669
137 5,062,670
175 5,062,671

CLASS 294

65.5 5,062,672
111 5,062,673
143 5,062,674

CLASS 296

1.1 5,062,675

CLASS 297

129 5,062,650
338 5,062,676
444 5,062,677

CLASS 307

271 5,063,302
296.1 5,063,303
296.6 5,063,304
304 5,063,305
308 5,063,306
310 5,063,307
443 5,063,308
521 5,063,309
570 5,063,310
603 5,063,311
5,063,312
605 5,063,313

CLASS 310

71 5,063,314
5,063,315
83 5,063,316
91 5,063,317
156 5,063,318
210 5,063,319
270 5,063,320
323 5,063,321
341 5,063,322

CLASS 312

221 5,062,678

CLASS 313

309 5,063,323
346 DC 5,063,324
405 5,063,325
414 5,063,326
482 5,063,327

CLASS 315

96 5,063,328
111.21 5,063,329
5,063,330
219 5,063,331
248 5,063,332
326 5,063,333

CLASS 318

568.10 5,063,334
609 5,063,335
611 5,063,336
617 5,063,337
685 5,063,338
696 5,063,339

CLASS 320

1 5,063,340
21 5,063,341

CLASS 323

315 5,063,342
317 5,063,343

CLASS 324

115 5,063,344
173 5,063,345
5,063,346
5,063,347
307 5,063,348
322 5,063,349
457 5,063,350
628 5,063,351
706 5,063,352
710 5,063,353

CLASS 328

14 5,063,354
129.1 5,063,355

CLASS 330

306 5,063,356

CLASS 331

49 5,063,357
60 5,063,358
116 FE 5,063,359
175 5,063,360

CLASS 332

103 5,063,361

CLASS 333

12 5,063,362
33 5,063,363
107 5,063,364
121 5,063,365

CLASS 335

210 Re.33,736
271 5,063,366
284 5,063,367
301 5,063,368

CLASS 340

429 5,063,369

540 5,063,370
541 5,063,371
547 5,063,372
573 5,063,373
642 5,063,374
703 5,063,375
706 5,063,376
764 5,063,377
784 5,063,378
5,063,379
825.54 5,063,380
984 5,063,381

CLASS 341

15 5,063,382
120 5,063,383

CLASS 342

1 5,063,384
13 5,063,385
40 5,063,386
103 5,063,387
185 5,063,388
359 5,063,389
375 5,063,390

CLASS 343

703 5,063,391

CLASS 346

46 5,063,392
75 5,063,393
76 PH 5,063,394
5,063,395
140 R 5,063,396
143 5,063,451
153.1 5,063,397
157 5,063,398
160.1 5,063,399

CLASS 350

96.23 5,062,685
96.30 5,062,687

CLASS 351

160 R 5,062,701
212 5,062,702

CLASS 354

288 5,063,400
320 5,063,401
400 5,063,402
413 5,063,403

CLASS 355

30 5,063,404
32 5,063,405
57 5,063,406
68 5,063,407
72 5,063,408
200 5,063,409
204 5,063,410
212 5,063,411
259 5,063,412
296 5,063,413
5,063,414
312 5,063,415
316 5,063,416

CLASS 356

73.1 5,062,703
5,062,704
124 5,062,705
246 5,062,706
311 5,062,707
316 5,062,708
335 5,062,709
350 5,062,710
394 5,062,711
400 5,062,712
402 5,062,713
406 5,062,714
432 5,062,715

CLASS 357

8 5,063,417
15 5,063,418
16 5,063,419
17 5,063,420
5,063,421
23.3 5,063,422
23.5 5,063,423
5,063,424
23.6 5,063,425
30 5,063,426
35 5,063,427
38 5,063,428
40 5,063,429
45 5,063,430
54 5,063,431
70 5,063,432
71 5,063,433
72 5,063,434
74 5,063,435
79 5,063,436

CLASS 358

22 5,063,437
31 5,063,438
41 5,063,439
85 5,063,440
88 5,063,441
93 5,063,442
133 5,063,443
5,063,444
138 5,063,445
142 5,063,446
145 5,063,447
160 5,063,448
213.11 5,063,449
213.28 5,063,450
310 5,063,456
330 5,063,457
335 5,063,458
404 5,063,459
474 5,063,460
5,063,461
475 5,063,462

CLASS 359

45 5,062,692
56 5,062,691
59 5,062,690
127 5,063,559
206 5,062,679
230 5,062,689
241 5,062,693
379 5,062,697
414 5,062,698
430 5,062,699
498 5,062,694
508 5,062,700
554 5,062,696
619 5,062,688
689 5,062,695

CLASS 360

19.1 5,063,452
32 5,063,453
78.04 5,063,454
96.5 5,063,455
5,063,463
104 5,063,464
5,063,465
107 5,063,466
119 5,063,467
123 5,063,468
128 5,063,469
137 5,063,470

CLASS 361

18 5,063,471
19 5,063,472
93 5,063,473
220 5,063,474
384 5,063,475
5,063,476
5,063,477
405 5,063,478

CLASS 362

32 5,063,479
61 5,063,480
5,063,481
66 5,063,482
103 5,063,483
109 5,063,484
122 5,063,485
217 5,063,486

CLASS 363

3 5,063,487
16 5,063,488
21 5,063,489
37 5,063,490
56 5,063,491

CLASS 364

167.01 5,063,492
192 5,063,493
400 5,063,505
402 5,063,506
408 5,063,507
419 5,063,508
5,063,534
420 5,063,509
424.05 5,063,512
5,063,513
424.1 5,063,510
5,063,511
426.02 5,063,514
431.01 5,063,515
431.11 5,063,516
474.22 5,063,517
503 5,063,518
510 5,063,519
512 5,063,520
514 5,063,523
516 5,063,524
550 5,063,527
559 5,063,528
571.02 5,063,529
748 5,063,530

825 5,063,532

CLASS 365

96 5,063,537
106 5,063,538
145 5,063,539
175 5,063,540

CLASS 367

7 5,063,541
166 5,063,542

CLASS 368

29 5,063,543
74 5,063,544

CLASS 369

32 5,063,545
5,063,546
5,063,547
5,063,548
44.14 5,063,549
44.28 5,063,550
44.36 5,063,551
48 5,063,552
50 5,063,553
77.1 5,063,554
77.2 5,063,555
97 5,063,556
112 5,063,557
219 5,063,558
291

CLASS 370

18 5,063,560
85.2 5,063,561
94.1 5,063,562
110.1 5,063,563
5,063,564

CLASS 371

40.2 5,063,565

CLASS 372

22 5,063,566
28 5,063,567
32 5,063,568
45 5,063,569
50 5,063,570

CLASS 375

1 5,063,571
5,063,572
5,063,573
27 5,063,574
108 5,063,575
111 5,063,576
120 5,063,577

CLASS 376

331 5,063,019
371 5,063,020

CLASS 377

47 5,063,578
48 5,063,579
55 5,063,580
58 5,063,581

CLASS 378

34 5,063,582
5,063,586
207 5,063,583

CLASS 379

29 5,063,584
30 5,063,585
53 5,063,587
57 5,063,588
82 5,063,589
99 5,063,590
115 5,063,591
207 5,063,592
386 5,063,593

CLASS 380

15 5,063,594
48 5,063,595
49 5,063,596

CLASS 381

47 5,063,597
71 5,063,598

CLASS 382

7 5,063,599
13 5,063,600
14 5,063,601
32 5,063,602
37 5,063,603
41 5,063,604
44 5,063,605
48 5,063,606
50 5,063,607
56 5,063,608

CLASS 383

9 5,062,716

20 5,062,717

CLASS 384

294 5,062,718
450 5,062,719
484 5,062,720
536 5,062,721

CLASS 385

27 5,062,684
33 5,062,686
50 5,062,681
85 5,062,682
87 5,062,683
131 5,062,680
141 Re.33,737

CLASS 392

401 5,063,609

CLASS 395

25 5,063,531
27 5,063,521
51 5,063,522
155 5,063,526
157 5,063,525
200 5,063,500
425 5,063,498
5,063,533
500 5,063,499
575 5,063,535
650 5,063,495
700 5,063,496
725 5,063,501
5,063,502
5,063,503
5,063,504
775 5,063,536
800 5,063,494
5,063,497

CLASS 400

120 5,062,722
5,062,723
121 5,062,724
195 5,062,725
630 5,062,726

CLASS 401

52 5,062,727
176 5,062,728
287 5,062,729

CLASS 403

57 5,062,730
96 5,062,731
174 5,062,732
189 5,062,733
313 5,062,734

CLASS 404

25 5,062,735
72 5,062,736
98 5,062,737
114 5,062,738

CLASS 405

21 5,062,739
270 5,062,740

CLASS 406

76 5,062,741

CLASS 407

28 5,062,742
6 5,062,743
8 5,062,744
17 5,062,745
79 5,062,746
115 R 5,062,747
206 5,062,748
240 5,062,749

CLASS 409

132 5,062,750

CLASS 410

154 5,062,751

CLASS 411

347 5,062,752
470 5,062,753

CLASS 412

4 5,062,754

CLASS 414

5,062,755
22.51 5,062,756
24.5 5,062,757
217 5,062,758
408 5,062,759
542 5,062,760
729 5,062,761
786 5,062,762
787 5,062,763

796 5,062,764

CLASS 415

4.3 5,062,765
199.1 5,062,766
209.3 5,062,767

CLASS 416

97 R 5,062,768
217 5,062,769

CLASS 417

46 5,062,770
201 5,062,771
269 5,062,772
5,062,773
413 5,062,774
477 5,062,775

CLASS 418

61.3 5,062,776
104 5,062,777
220 5,062,778
270 5,062,779

CLASS 419

12 5,063,021
49 5,063,022

CLASS 420

442 5,063,023

CLASS 421

64 5,063,096

CLASS 422

65 5,063,024
82.07 5,063,178
100 5,063,025
102 5,063,026
133 5,063,027
144 5,063,028
175 5,063,029
189 5,063,030
245 5,063,031

CLASS 423

84 5,063,032
112 5,063,033
235 5,063,034
241 5,063,035
266 5,063,036
277 5,063,037
328 5,063,038
329 5,063,039
342 5,063,040
447.4 5,063,042
476 5,063,041
588 5,063,043

CLASS 424

9 5,063,045
52 5,063,046
59 5,063,048
61 5,063,049
63 5,063,050
70 5,063,044
5,063,051
5,063,052
89 5,063,053
92 5,063,054
93 5,063,055
401 5,063,056
5,063,057
405 5,063,058
408 5,063,059
422 5,063,060
427 5,063,061
443 5,063,062
445 5,063,063
637 5,063,065
673 5,063,064

CLASS 425

39 5,062,780
52 5,062,781
113 5,062,782
115 5,062,783
143 5,062,784
145 5,062,785
174 5,062,786
522 5,062,787

CLASS 426

2 5,063,066
69 5,063,067
94 5,063,068
122 5,063,069
271 5,063,070
298 5,063,071
557 5,063,072
573 5,063,073
585 5,063,074
601 5,063,075
602 5,063,076
614 5,063,077
618 5,063,078
627 5,063,079

660 5,063,080

CLASS 427

2 5,063,081
5,063,082
53.1 5,063,083
154 5,063,084
240 5,063,085
255.3 5,063,086
302 5,063,087
352 5,063,088
354 5,063,089
384 5,063,090
385.5 5,063,091
393 5,063,092

CLASS 428

15 5,063,093
35.7 5,063,094
35.8 5,063,095
65 5,063,097
76 5,063,098
109 5,063,099
137 5,063,100
167 B1 4,869,946
172 5,063,101
209 5,063,102
285 5,063,103
286 5,063,104
336 5,063,105
343 5,063,106
367 5,063,107
369 5,063,108
378 5,063,109
402 5,063,110
411.1 5,063,111
412 5,063,112
446 5,063,113
447 5,063,114
5,063,115
606 5,063,116
610 5,063,117
614 5,063,118
694 5,063,119
5,063,120
5,063,121
698

CLASS 429

32 5,063,122
38 5,063,123
192 5,063,124

CLASS 430

45 5,063,127
59 5,063,125
5,063,126
63 5,063,128
83 5,063,129
109 5,063,132
122 5,063,133
192 5,063,134
214 5,063,135
248 5,063,136
292 5,063,137
326 5,063,138
372 5,063,131
377 5,063,139
393 5,063,140
398 5,063,141
400 5,063,142
419 5,063,143
436 5,063,144
505 5,063,145
522 5,063,146
523 5,063,147
551 5,063,148

CLASS 431

7 5,062,788
9 5,062,789
114 5,062,790
266 5,062,791
284 5,062,792

CLASS 433

3 5,062,793
10 5,062,794
80 5,062,795
82 5,062,796
118 5,062,797
201.1 5,062,798
215 5,062,799
229 5,062,800

CLASS 435

4 5,063,149
5 5,063,150
7.33 5,063,151
24 5,063,152
26 5,063,153
69.1 5,063,154
76 5,063,155
150 5,063,156
240.2 5,063,157
252.3 5,063,158
5,063,159
252.5 5,063,161
253.3 5,063,160

270 5,063,162

CLASS 436

94 5,063,163
169 5,063,164
500 5,063,165

CLASS 437

22 5,063,166
31 5,063,167
5,063,168
41 5,063,169
5,063,170
5,063,171
43 5,063,172
129 5,063,173
184 5,063,174
192 5,063,175
195 5,063,176
209 5,063,177

CLASS 439

61 5,062,801
72 5,062,802
96 5,063,130
160 5,062,803
394 5,062,804
404 5,062,805
490 5,062,806
5,062,807
580 5,062,808
581 5,062,809
589 5,062,810
620 5,062,811
756 5,062,812
857 5,062,813

CLASS 440

31 5,062,814
41 5,062,815
101 5,062,816

CLASS 441

45 5,062,817

CLASS 445

22 5,062,818

CLASS 446

462 5,062,819

CLASS 452

187 5,062,820

CLASS 455

45 5,063,610
348 5,063,611
607 5,063,612

CLASS 464

111 5,062,821

CLASS 475

200 5,062,822
330 5,062,823
342 5,062,824

CLASS 493

194 5,062,825

CLASS 494

85 5,062,826

CLASS 501

12 5,063,179
38 5,063,180
54 5,063,181
96 5,063,182
5,063,183
5,063,184
126 5,063,185

CLASS 502

4 5,063,186
71 5,063,187
116 5,063,188
150 5,063,189
157 5,063,190
174 5,063,191
303 5,063,192
304 5,063,193
314 5,063,194
341 5,063,195
417 5,063,196

CLASS 503

209 5,063,197
227 5,063,198

CLASS 505

1 5,063,199
5,063,200
5,063,201
5,063,202

CLASS 514

8 5,063,203
5,063,204

VOL 1132 ISS 1 NO 5 1991 UMI

CLASSIFICATION OF PATENTS

12	5,063,205	213	5,063,230	585	5,063,247	213	5,063,260		CLASS 574		CLASS 606
16	5,063,206	214	5,063,231	665	5,063,248	402	5,063,261	253	5,063,228	3	5,062,842
18	5,063,207	247	5,063,232	673	5,063,249		CLASS 524		CLASS 604	53	5,062,843
19	5,063,208	251	5,063,226		CLASS 518	97	5,063,262	22	5,062,827	54	5,062,844
44	5,063,209	252	5,063,227	704	5,063,250	101	5,063,263	51	5,062,828	80	5,062,845
54	5,063,210	258	5,063,229		CLASS 521	118	5,063,264	57	5,062,829	158	5,062,846
75	5,063,211	266	5,063,233	84.1	5,063,251	126	5,063,265	68	5,062,830	194	5,062,847
	5,063,212	288	5,063,234	108	5,063,252	269	5,063,266	104	5,062,831	213	5,062,848
	5,063,213	317	5,063,235	159	5,063,253	284	5,063,267	110	5,062,832		CLASS 623
	5,063,214	318	5,063,236		CLASS 522	286	5,063,268		5,062,833	16	5,062,849
	5,063,215	338	5,063,237	43	5,063,254	296	5,063,269	143	5,062,834	17	5,062,850
	5,063,216	340	5,063,238	96	5,063,255	306	5,063,270	153	5,062,835	18	5,062,851
	5,063,217	357	5,063,239		CLASS 523	351	5,063,271	167	5,062,836	20	5,062,852
	5,063,218	369	5,063,240	102	5,063,256	377	5,063,272	240	5,062,837	22	5,062,853
157	5,063,219	383	5,063,241	116	5,063,257		CLASS 525	366	5,062,838	23	5,062,854
161	5,063,220	404	5,063,245	171	5,063,258	67	5,062,984	385.1	5,062,839	24	5,062,855
167	5,063,221	414	5,063,242	201	5,063,259				5,062,840		5,062,856
180	5,063,222	438	5,063,243					891.1	5,062,841	25	5,062,857
185	5,063,223	456	5,063,244							43	5,062,858
202	5,063,224	517	5,063,246							55	5,062,859
211	5,063,225	538	B1 4,835,182							63	5,062,860

CLASSIFICATION OF DESIGNS

D1—	106	321,270		461	321,296		415	321,323		141	321,348		42	321,374	D24—	140	321,400
	107	321,271		495	321,297		425	321,324		223	321,350	D21—	13	321,375		147	321,401
	109	321,272			321,298		435	321,325		251	321,351			321,376		188	321,402
D2—	24	321,273		498	321,299	D10—	438	321,326	D15—	7	321,352			321,377	D25—	52	321,403
	248	321,274		511	321,300		33	321,327		69	321,353		30	321,378	D26—	2	321,404
	320	321,275	D7—	376	321,301		46.2	321,328		70	321,354		57	321,379		65	321,405
	605	321,276		392.1	321,302		104	321,329		150	321,309		71	321,380		67	321,406
D3—	26	321,277		607	321,306		106	321,330	D16—	102	321,355		105	321,381		72	321,407
	35	321,279		688	321,303	D11—	43	321,331			321,356		120	321,382		85	321,408
	36	321,278		691	321,304		164	321,332		107	321,357		123	321,383		91	321,409
		321,280			321,305		221	321,333		211	321,358		142	321,384		138	321,410
	38	321,281	D8—	14	321,307	D12—	114	321,334		219	321,359		148	321,385	D28—	17	321,411
	39	321,282			321,308		131	321,335		229	321,360		191	321,386		35	321,412
	74	321,283		22	321,310		192	321,336		235	321,361		195	321,387		51	321,413
	75	321,284			321,311	D13—	108	321,337	D18—	15	321,365			321,388		56	321,414
D4—	101	321,285		339	321,312			321,338		24	321,366			321,389		80	321,415
	104	321,286		370	321,313		160	321,339		25	321,367			321,390		83	321,416
	106	321,287		373	321,314	D14—	100	321,340		34	321,368			321,391	D29—	2	321,417
D6—	315	321,288	D9—	300	321,315		102	321,341		49	321,362		201	321,392		7	321,418
	361	321,289		307	321,316		107	321,342		54	321,363		226	321,393		8	321,419
	367	321,290		337	321,317			321,343		55	321,364	D23—	209	321,394	D32—	15	321,420
	407	321,291		352	321,318		113	321,344	D19—	26	321,369		216	321,395		41	321,421
	417	321,292		366	321,319			321,345		62	321,370			321,396		46	321,422
	419	321,293			321,320		129	321,346		77	321,371		238	321,397		58	321,423
	434	321,294		375	321,321		138	321,347		90	321,372		241	321,398	D34—	21	321,424
	444	321,295			321,322			321,349	D20—	11	321,373		277	321,399			

CLASSIFICATION OF PLANTS

P.—	45	7,700	48	7,701	68	7,702		7,703	69	7,704	7,705

STATUTORY INVENTION REGISTRATIONS

29—	898.041	H974	100—	179	H977	264—	171	H982	340—	728	H996	429—	99	H985	530—	422	H989
44—	282	H981	108—	20	H978		211.17	H983	364—	521	H997	437—	41	H986	548—	263.8	H990
52—	172	H975	244—	129.3	H979	310—	178	H994	376—	146	H984	501—	137	H987	549—	510	H991
73—	54	H976	250—	307	H993	330—	278	H995	425—	222	H980	525—	179	H988	570—	142	H992

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 :	5,062,206		5,062,769		5,063,607		5,062,850		5,062,634		5,062,847
02 :	5,062,406		5,062,770		5,063,609		5,062,974		5,062,646		5,063,027
04 :	5,062,168		5,062,800		5,063,612		5,062,991		5,062,669	22 :	5,062,735
	5,062,272		5,062,841	08 :	5,062,370		5,063,018		5,062,683		5,062,749
	5,062,377		5,062,842		5,062,422		5,063,084		5,062,701		5,063,002
	5,063,311		5,062,848		5,062,484		5,063,163		5,062,709		5,063,186
	5,063,360		5,062,852		5,062,677		5,063,226		5,062,738		5,063,377
	5,063,373		5,062,899		5,062,843		5,063,283		5,062,742	23 :	5,062,776
	5,063,515		5,062,902		5,062,855		5,063,289		5,062,753	24 :	5,062,394
	5,063,521		5,062,912		5,062,871		5,063,297		5,062,774		5,062,436
05 :	5,062,234		5,062,927		5,063,062		5,063,303		5,062,807		5,062,558
	5,062,527		5,062,938		5,063,285		5,063,357		5,062,956		5,062,585
06 :	5,062,166		5,062,955		5,063,429		5,063,496		5,063,060		5,062,631
	5,062,170		5,063,020	09 :	Re.33,735		5,063,523		5,063,069		5,062,939
	5,062,184		5,063,026		5,062,181		5,063,533		5,063,073		5,063,030
	5,062,185		5,063,049		5,062,299		5,063,566		5,063,100		5,063,053
	5,062,199		5,063,090		5,062,326		5,063,588		5,063,109		5,063,177
	5,062,211		5,063,150		5,062,341	13 :	5,062,173		5,063,208		5,063,201
	5,062,223		5,063,164		5,062,520		5,062,253		5,063,318		5,063,245
	5,062,234		5,063,165		5,062,563		5,062,432		5,063,331		5,063,319
	5,062,262		5,063,166		5,062,569		5,062,495		5,063,340		5,063,358
	5,062,291		5,063,168		5,062,600		5,062,533		5,063,393	25 :	5,062,230
	5,062,295		5,063,172		5,062,624		5,062,555	18 :	5,062,157		5,062,231
	5,062,302		5,063,175		5,062,641		5,062,674		5,062,238		5,062,242
	5,062,304		5,063,248		5,062,645		5,062,675		5,062,288		5,062,244
	5,062,324		5,063,292		5,062,781		5,062,684		5,062,354		5,062,308
	5,062,339		5,063,307		5,062,863		5,062,789		5,062,375		5,062,582
	5,062,340		5,063,309		5,063,057		5,062,996		5,062,389		5,062,590
	5,062,349		5,063,323		5,063,104		5,063,066		5,062,391		5,062,653
	5,062,378		5,063,327		5,063,160		5,063,272		5,062,411		5,062,707
	5,062,386		5,063,343		5,063,254		5,063,282		5,062,475		5,062,796
	5,062,425		5,063,368		5,063,604		4,869,946		5,062,503		5,062,836
	5,062,426		5,063,375	10 :	5,062,681	15 :	5,062,229		5,062,529		5,062,837
	5,062,437		5,063,376		5,062,988	16 :	5,062,540		5,062,720		5,062,891
	5,062,441		5,063,383		5,063,185		5,062,560		5,062,819		5,062,936
	5,062,457		5,063,417	11 :	5,063,206		5,062,565		5,062,941		5,063,000
	5,062,472		5,063,427		4,835,182		5,063,158		5,063,017		5,063,005
	5,062,557		5,063,432	12 :	5,062,197	17 :	5,062,156		5,063,023		5,063,022
	5,062,562		5,063,438		5,062,236		5,062,202		5,063,155		5,063,101
	5,062,567		5,063,441		5,062,247		5,062,207		5,063,224		5,063,154
	5,062,593		5,063,450		5,062,250		5,062,213		5,063,234		5,063,179
	5,062,595		5,063,487		5,062,269		5,062,252		5,063,344		5,063,321
	5,062,629		5,063,499		5,062,344		5,062,265		5,063,480		5,063,353
	5,062,637		5,063,519		5,062,379		5,062,351		5,063,580		5,063,361
	5,062,638		5,063,520		5,062,471		5,062,356	19 :	5,062,387		5,063,371
	5,062,640		5,063,522		5,062,486		5,062,381		5,063,442		5,063,473
	5,062,648		5,063,539		5,062,542		5,062,393		5,063,483		5,063,476
	5,062,693		5,063,544		5,062,546		5,062,420	20 :	5,062,163	26 :	5,062,159
	5,062,702		5,063,570		5,062,583		5,062,470		5,062,463		5,062,172
	5,062,703		5,063,574		5,062,671		5,062,488		5,062,489		5,062,194
	5,062,706		5,063,575		5,062,737		5,062,516		5,062,757		5,062,208
	5,062,734		5,063,600		5,062,767		5,062,553		5,063,384		5,062,241
	5,062,758		5,063,602		5,062,803		5,062,611	21 :	5,062,434		5,062,298

VOL 1132 ISS 1 NO 5 1991 UMI

5,062,321
5,062,323
5,062,352
5,062,357
5,062,397
5,062,398
5,062,405
5,062,444
5,062,447
5,062,466
5,062,467
5,062,473
5,062,506
5,062,509
5,062,521
5,062,523
5,062,531
5,062,549
5,062,559
5,062,603
5,062,608
5,062,620
5,062,623
5,062,656
5,062,661
5,062,664
5,062,714
5,062,762
5,062,825
5,062,895
5,062,953
5,062,987
5,063,014
5,063,044
5,063,089
5,063,102
5,063,156
5,063,193
5,063,207
5,063,251
5,063,267
5,063,293
5,063,406
5,063,461
5,063,511
5,063,513
5,063,514
5,063,516
5,063,598
5,063,599
27 : 5,062,337
5,062,338
5,062,358
5,062,366
5,062,417
5,062,421
5,062,423
5,062,459
5,062,580
5,062,610
5,062,633
5,062,691
5,062,793
5,062,816
5,062,830
5,062,845
5,062,869
5,062,952
5,062,958
5,063,078
5,063,120
5,063,199
5,063,249
5,063,350
5,063,605
28 : 5,062,528
29 : 5,062,169
5,062,210
5,062,490

30 : 5,062,740
31 : 5,062,831
5,062,878
32 : 5,062,419
5,063,485
33 : 5,062,290
5,062,303
5,062,364
5,062,609
5,063,174
5,063,538
5,063,564
5,063,608
34 : Re.33,736
5,062,164
5,062,256
5,062,415
5,062,418
5,062,440
5,062,575
5,062,628
5,062,853
5,062,866
5,062,868
5,062,881
5,062,909
5,062,943
5,062,944
5,062,945
5,062,973
5,062,976
5,062,995
5,063,004
5,063,038
5,063,050
5,063,070
5,063,075
5,063,081
5,063,091
5,063,115
5,063,151
5,063,219
5,063,233
5,063,265
5,063,268
5,063,298
5,063,351
5,063,365
5,063,378
5,063,422
5,063,426
5,063,444
5,063,446
5,063,559
5,063,569
5,063,578
5,063,583
5,063,585
5,063,586
5,063,592
5,063,603
35 : 5,062,187
5,062,296
5,062,689
5,062,760
5,063,019
5,063,182
36 : 5,062,209
5,062,216
5,062,249
5,062,274
5,062,276
5,062,277

5,062,586
5,062,835
5,063,067
5,063,180
5,063,210

5,062,311
5,062,325
5,062,329
5,062,331
5,062,361
5,062,384
5,062,413
5,062,429
5,062,431
5,062,433
5,062,474
5,062,476
5,062,477
5,062,498
5,062,534
5,062,535
5,062,541
5,062,550
5,062,551
5,062,571
5,062,599
5,062,602
5,062,635
5,062,651
5,062,672
5,062,685
5,062,690
5,062,728
5,062,799
5,062,833
5,062,860
5,062,877
5,062,896
5,062,911
5,062,931
5,062,980
5,063,008
5,063,072
5,063,074
5,063,079
5,063,083
5,063,094
5,063,125
5,063,128
5,063,132
5,063,188
5,063,223
5,063,237
5,063,314
5,063,315
5,063,332
5,063,349
5,063,362
5,063,367
5,063,390
5,063,397
5,063,399
5,063,404
5,063,412
5,063,413
5,063,475
5,063,506
5,063,518
5,063,535
5,063,562
5,063,571
5,063,601
5,063,610
37 : 5,062,161
5,062,191
5,062,192
5,062,215
5,062,217
5,062,220
5,062,380
5,062,408
5,062,424
5,062,460

5,062,846
5,062,867
5,062,872
5,063,028
5,063,108
5,063,161
5,063,202
5,063,276
38 : 5,062,316
39 : 5,062,175
5,062,176
5,062,233
5,062,287
5,062,392
5,062,448
5,062,462
5,062,468
5,062,469
5,062,504
5,062,512
5,062,514
5,062,517
5,062,538
5,062,568
5,062,594
5,062,613
5,062,639
5,062,647
5,062,657
5,062,658
5,062,666
5,062,676
5,062,751
5,062,764
5,062,782
5,062,783
5,062,785
5,062,894
5,062,954
5,062,971
5,062,975
5,063,015
5,063,111
5,063,176
5,063,190
5,063,238
5,063,301
5,063,335
5,063,346
5,063,385
5,063,481
5,063,501
5,063,502
5,063,503
5,063,504
40 : 5,062,281
5,062,322
5,062,414
5,062,756
5,062,840
5,062,969
5,063,191
5,063,271
41 : 5,062,576
5,062,704
5,062,892
5,062,893
5,063,308
42 : 5,062,186
5,062,201
5,062,212
5,062,273
5,062,289
5,062,428
5,062,453
5,062,500
5,062,570
5,062,598

5,062,601
5,062,621
5,062,797
5,062,802
5,062,808
5,062,811
5,062,857
5,062,876
5,062,880
5,062,898
5,062,924
5,062,967
5,062,998
5,063,011
5,063,021
5,063,037
5,063,039
5,063,093
5,063,196
5,063,209
5,063,230
5,063,259
5,063,269
5,063,324
5,063,325
5,063,359
5,063,391
5,063,392
5,063,468
5,063,494
44 : 5,062,388
5,062,390
5,062,697
5,063,068
5,063,138
45 : 5,062,167
5,062,374
5,062,564
5,062,746
5,062,788
5,062,903
47 : 5,062,327
5,062,365
5,062,716
5,062,844
5,062,966
5,062,993
5,063,486
48 : 5,062,160
5,062,171
5,062,198
5,062,232
5,062,239
5,062,255
5,062,280
5,062,310
5,062,362
5,062,383
5,062,416
5,062,439
5,062,445
5,062,446
5,062,449
5,062,450
5,062,452
5,062,456
5,062,479
5,062,485
5,062,532
5,062,587
5,062,591
5,062,642
5,062,643
5,062,665
5,062,667
5,062,713
5,062,745
5,062,790

5,062,812
5,062,854
5,062,947
5,062,962
5,062,968
5,062,992
5,063,012
5,063,082
5,063,171
5,063,211
5,063,212
5,063,213
5,063,214
5,063,215
5,063,216
5,063,217
5,063,218
5,063,304
5,063,341
5,063,369
5,063,372
5,063,495
5,063,500
5,063,505
5,063,507
5,063,509
5,063,529
5,063,542
49 : 5,062,626
5,062,627
5,062,632
5,062,775
5,062,865
5,062,887
5,063,387
5,063,572
5,063,577
5,063,596
50 : 5,063,266
51 : 5,062,203
5,062,204
5,062,319
5,062,581
5,062,694
5,062,717
5,062,732
5,062,913
5,063,228
5,063,235
5,063,290
5,063,328
5,063,418
5,063,419
53 : 5,062,193
5,062,235
5,062,407
5,062,487
5,062,539
5,062,662
5,062,828
5,062,940
5,063,299
5,063,370
5,063,497
5,063,536
54 : 5,062,607
5,063,263
55 : 5,062,165
5,062,219
5,062,228
5,062,334
5,062,403
5,062,410
5,062,455
5,062,526
5,062,636
5,062,916
5,063,374

01 :	321,313		321,366	18 :	321,297		321,309		321,357		321,404
06 :	321,280		321,371		321,298	27 :	321,393		321,358	44 :	321,284
	321,291		321,402		321,367		321,401		321,369		321,302
	321,303		321,419	20 :	321,379	28 :	321,292	37 :	321,282		321,381
	321,327	13 :	321,294		321,403	32 :	321,385		321,344		321,400
	321,334		321,414		321,418	34 :	321,270		321,370	47 :	321,307
	321,341		321,417	21 :	321,288		321,271	39 :	321,289	48 :	321,277
	321,348	17 :	321,276		321,345		321,272		321,321		321,308
	321,365		321,283		321,387		321,274		321,322		321,314
	321,372		321,296		321,389		321,293		321,343		321,318
	321,378		321,299		321,390		321,346		321,406		321,336
	321,422		321,301		321,391		321,355		321,408		321,412
08 :	321,420		321,332	23 :	321,333	36 :	321,286	41 :	321,421	49 .	321,388
09 :	321,279		321,339	24 :	321,273		321,304		321,424	50 :	321,380
	321,300		321,368		321,373		321,305	42 :	321,290	51 :	321,312
	321,394		321,395	25 :	321,275		321,317		321,324	53 :	321,278
	321,405		321,396		321,382		321,325		321,374		321,306
12 :	321,329		321,410	26 :	321,287		321,331		321,386	55 :	321,397
	321,340										

PLANT PATENTS

06 :	7,700		7,703	08 :	7,702						

STATUTORY INVENTION REGISTRATIONS

01 :	H980		H994		H989		H993	42 :	H978		H988
06 :	H975		H997	24 :	H976	36 :	H986	48 :	H977		H996
	H981	17 :	H984		H990		H992		H982		
	H991		H987	34 :	H985	39 :	H979		H983	51 :	H995

U.S. GOVERNMENT PRINTING OFFICE : O—1991

VOL
1132
ISS
1
NO
5
1991
UMI

CHANGE OF ADDRESS FORM

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

(or) COUNTRY

PLEASE PRINT OR TYPE

Mail this form to: NEW ADDRESS

Superintendent of Documents
Government Printing Office SSOM
Washington, D.C. 20402

Attach last subscription label here.

SUBSCRIPTION ORDER FORM

SUBSCRIPTION ORDER FORM

ENTER MY SUBSCRIPTION TO:

@ $ Domestic; @ $ Foreign.

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

☐ Remittence Enclosed (Make checks payable to Superintendent of Documents)

☐ Charge to my Deposit Account No. .....

MAIL ORDER FORM TO:
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

VOL
1132

ISS
1

NO
5

1991

UMI

VOL
1132

ISS
1

NO
5

1991

U.S. DEPARTMENT OF COMMERCE
Robert A. Mosbacher, *Secretary*
PATENT AND TRADEMARK OFFICE
Harry F. Manbeck, Jr. *Commissioner*

UMI

VOL
1132

ISS
2

NO
12

1991

UMI

Route to:

EADY BATTERY CO.,
EC' INFO CENTER

NOV 21 1991

P.O. B
ESTLAKE, OHIO 44

U.S.
DEPARTMENT
OF COMMERCE

Patent
and
Trademark
Office

Vol. 1132 Number 2

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

November 12 1991

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

VOL
1132

ISS
2

NO
12

1991

UMI

OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
November 12, 1991 Volume 1132 Number 2

CONTENTS

	Page
Patent and Trademark Office Notices	
Patent Cooperation Treaty (PCT) Information	1132 OG 16
Notice of Maintenance Fees Payable	1132 OG 16
Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees	1132 OG 17
Notification of Acceptance of Delayed Payment of Maintenance Fees	1132 OG 20
Reissue Applications Filed	1132 OG 20
Requests for Reexaminations Filed	1132 OG 21
Patents Available for License or Sale	1132 OG 21
Registration to Practice	1132 OG 21
Patent Certificates of Correction	1132 OG 22
Special Boxes for Mail	1132 OG 23
Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries	1132 OG 24
Patent Examining Corps	1132 OG 26
Reexaminations	537
Reissue Patents Granted (33,738)	539
Plant Patents Granted (7,706)	543
Patents Granted	
General and Mechanical (5,063,613)	545
Chemical (5,064,440)	829
Electrical (5,064,966)	989
Design Patents Granted (321,425)	1154
Index of Patentees	PI 1
Indices of Reissue, Reexamination, Design, Plant Patents	PI 79
Classification of	
Patents (Including Reissues and Reexaminations)	PI 85
Designs, and Plants Applications	PI 89
Geographical Index of Residence of Inventors	
Patents (Including Reissues and Reexaminations)	PI 91
Designs and Plant Applications	PI 93
Change of Address Form and Subscription Order Form	PI 95

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed.
THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.
THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.
GENERAL INFORMATION concerning PATENTS.
GENERAL INFORMATION concerning TRADEMARKS.

COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.50 each; PLANT PATENTS in color, $10.00 each; copies of TRADEMARKS at $1.50 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. P.T.O.

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328

VOL
1132
ISS
2
NO
12
1991
UMI

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1126 O.G. 2, on May 7, 1991.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed on July 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the German mark, and was announced in the *Official Gazette* at 1126 O. G. 76 on May 28, 1991.

International fees were changed on August 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the Swiss franc, and were announced in the *Official Gazette* at 1128 O.G. 46, on July 23, 1991.

Certain domestic PCT fees and charges for International Search and Preliminary Examination have been changed effective Apr. 17, 1989 and were announced in the *Official Gazette* at 1100 O.G. 24 on Mar. 7, 1989.

The current schedule of PCT fees (in U.S. dollars) is as follows:

Transmittal fee:	170.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	550.00
—Corresponding prior U.S. national application filed	380.00
—Supplemental search fee, per additional invention	150.00
European Patent Office as ISA	1320.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	400.00
—Additional examination fee, per additional invention	130.00
—ISA not the USPTO	600.00
—Additional examination fee, per additional invention	200.00
International fees	
Basic fee	490.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	119.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	150.00

U.S. National Stage fees

	Small Entity	Regular
USPTO was IPEA	165.00	330.00
USPTO was ISA but not IPEA	185.00	370.00
USPTO was neither ISA nor IPEA	250.00	500.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	25.00	50.00
—For each independent claim in excess of 3	18.00	36.00
—For each claim in excess of 20	6.00	12.00
—For each application containing a multiple dependent claim	60.00	120.00
—Surcharge for filing national fee or oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	60.00	120.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	30.00	30.00

June 27, 1991

HARRY F. MANBECK, Jr.
Assistant Secretary and Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d), effective Nov. 1, 1984, provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(k) or (l), as amended effective Apr. 17, 1989. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on November 8, 1988 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,782,534 through 4,783,852
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on November 6, 1984 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,480,339 through 4,481,678
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months are set forth in 37 CFR 1.20(e), and (f), as amended Nov. 5, 1990, which are reproduced below:

37 CFR § 1.20 Post-issuance fees and surcharges

"(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant.....$245.00

"(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant.....$495.00"

"(h) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Aug. 27,1982, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§1.9(f)).....$415.00
By other than a small entity.....$830.00"

"(i) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§1.9(f)).....$835.00
By other than a small enttity.....$1670.00"

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(k), (l) and (m), which are reproduced below:

"(k) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months , seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982.....$120.00"

"(l) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Aug. 27, 1982:

By a small entity(§1.9(f)).....$60.00
By other than a small entity.....$120.00"

"(m) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been unavoidable.....$550.00"

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED AUGUST 25, 1991
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
Re. 31,987	06/594,886	9/17/85
(4,402,038)	(06/455,079)	(8/30/83)
4,400,836	06/288,775	8/30/83
4,400,839	06/342,712	8/30/83
4,400,841	06/238,452	8/30/83
4,400,842	06/340,307	8/30/83
4,400,850	06/353,167	8/30/83
4,400,851	06/317,303	8/30/83
4,400,853	06/307,795	8/30/83
4,400,857	06/268,830	8/30/83
4,400,861	06/325,138	8/30/83
4,400,863	06/317,194	8/30/83
4,400,874	06/288,438	8/30/83
4,400,878	06/308,477	8/30/83
4,400,879	06/282,900	8/30/83
4,400,883	06/283,893	8/30/83
4,400,885	06/281,659	8/30/83
4,400,886	06/257,396	8/30/83
4,400,892	06/270,067	8/30/83
4,400,895	06/368,817	8/30/83
4,400,896	06/358,804	8/30/83
4,400,897	06/353,486	8/30/83
4,400,904	06/287,491	8/30/83
4,400,910	06/256,397	8/30/83
4,400,913	06/274,041	8/30/83
4,400,925	06/316,069	8/30/83
4,400,930	06/376,397	8/30/83
4,400,943	06/239,310	8/30/83
4,400,948	06/334,732	8/30/83
4,400,953	06/369,609	8/30/83
4,400,956	06/290,037	8/30/83
4,400,961	06/283,644	8/30/83
4,400,963	06/329,066	8/30/83
4,400,968	06/255,368	8/30/83
4,400,969	06/277,872	8/30/83
4,400,972	06/227,705	8/30/83
4,400,973	06/327,547	8/30/83
4,400,982	06/291,724	8/30/83
4,400,983	06/258,506	8/30/83
4,400,990	06/226,276	8/30/83
4,400,995	06/304,852	8/30/83
4,401,000	06/365,697	8/30/83
4,401,005	06/345,385	8/30/83
4,401,016	06/351,170	8/30/83
4,401,029	06/334,281	8/30/83
4,401,047	06/226,374	8/30/83
4,401,049	06/260,567	8/30/83
4,401,055	06/289,160	8/30/83
4,401,057	06/308,949	8/30/83
4,401,058	06/409,875	8/30/83
4,401,062	06/250,930	8/30/83
4,401,069	06/233,298	8/30/83
4,401,072	06/227,385	8/30/83
4,401,077	06/385,342	8/30/83
4,401,084	06/304,894	8/30/83
4,401,090	06/249,144	8/30/83
4,401,092	06/287,846	8/30/83
4,401,129	06/299,818	8/30/83
4,401,135	06/250,728	8/30/83
4,401,136	06/325,041	8/30/83
4,401,143	06/275,646	8/30/83
4,401,156	06/265,292	8/30/83
4,401,159	06/264,864	8/30/83
4,401,171	06/329,361	8/30/83
4,401,172	06/266,094	8/30/83
4,401,181	06/243,262	8/30/83
4,401,183	06/364,790	8/30/83
4,401,185	06/277,024	8/30/83
4,401,187	06/296,289	8/30/83
4,401,188	06/251,334	8/30/83
4,401,189	06/323,901	8/30/83
4,401,193	06/253,653	8/30/83
4,401,198	06/249,003	8/30/83
4,401,201	06/219,271	8/30/83
4,401,203	06/313,574	8/30/83
4,401,205	06/220,096	8/30/83
4,401,206	06/250,717	8/30/83
4,401,207	06/228,360	8/30/83
4,401,212	06/352,175	8/30/83
4,401,216	06/225,412	8/30/83
4,401,217	06/240,318	8/30/83
4,401,218	06/375,815	8/30/83
4,401,219	06/297,943	8/30/83

VOL
1132
ISS
2
NO
12
1991
UMI

Patent Number	Serial Number	Issue Date
4,401,226	06/343,302	8/30/83
4,401,228	06/365,568	8/30/83
4,401,229	06/361,597	8/30/83
4,401,231	06/383,021	8/30/83
4,401,235	06/252,867	8/30/83
4,401,236	06/244,236	8/30/83
4,401,237	06/225,560	8/30/83
4,401,239	06/270,812	8/30/83
4,401,241	06/226,087	8/30/83
4,401,248	06/269,418	8/30/83
4,401,258	06/308,090	8/30/83
4,401,260	06/328,814	8/30/83
4,401,262	06/389,538	8/30/83
4,401,270	06/292,951	8/30/83
4,401,273	06/243,723	8/30/83
4,401,278	06/247,188	8/30/83
4,401,279	06/296,897	8/30/83
4,401,290	06/246,850	8/30/83
4,401,294	06/341,494	8/30/83
4,401,297	06/297,084	8/30/83
4,401,302	06/260,159	8/30/83
4,401,307	06/301,033	8/30/83
4,401,311	06/242,237	8/30/83
4,401,312	06/378,986	8/30/83
4,401,316	06/243,054	8/30/83
4,401,317	06/270,014	8/30/83
4,401,325	06/251,842	8/30/83
4,401,347	06/273,493	8/30/83
4,401,353	06/291,807	8/30/83
4,401,359	06/316,459	8/30/83
4,401,362	06/282,948	8/30/83
4,401,365	06/232,193	8/30/83
4,401,376	06/358,028	8/30/83
4,401,388	06/373,323	8/30/83
4,401,395	06/238,552	8/30/83
4,401,396	06/236,664	8/30/83
4,401,397	06/253,555	8/30/83
4,401,427	06/220,888	8/30/83
4,401,430	06/254,633	8/30/83
4,401,434	06/275,639	8/30/83
4,401,437	06/334,539	8/30/83
4,401,440	06/351,789	8/30/83
4,401,453	06/373,465	8/30/83
4,401,465	06/421,888	8/30/83
4,401,479	06/242,939	8/30/83
4,401,486	06/266,882	8/30/83
4,401,494	06/350,332	8/30/83
4,401,495	06/306,340	8/30/83
4,401,496	06/458,187	8/30/83
4,401,498	06/236,012	8/30/83
4,401,505	06/364,092	8/30/83
4,401,512	06/355,278	8/30/83
4,401,524	06/277,859	8/30/83
4,401,541	06/381,751	8/30/83
4,401,545	06/332,839	8/30/83
4,401,560	06/394,301	8/30/83
4,401,571	06/346,040	8/30/83
4,401,577	06/351,374	8/30/83
4,401,582	06/331,150	8/30/83
4,401,584	06/379,241	8/30/83
4,401,586	06/298,589	8/30/83
4,401,592	06/321,486	8/30/83
4,401,606	06/299,954	8/30/83
4,401,617	06/232,754	8/30/83
4,401,631	06/218,225	8/30/83
4,401,637	06/234,925	8/30/83
4,401,643	06/313,180	8/30/83
4,401,646	06/261,783	8/30/83
4,401,655	06/337,176	8/30/83
4,401,660	06/330,341	8/30/83
4,401,668	06/307,984	8/30/83
4,401,669	06/311,477	8/30/83
4,401,670	06/311,370	8/30/83
4,401,673	06/228,454	8/30/83
4,401,678	06/319,973	8/30/83
4,401,680	06/240,586	8/30/83
4,401,683	06/280,188	8/30/83
4,401,693	06/321,963	8/30/83
4,401,702	06/334,762	8/30/83
4,401,703	06/313,892	8/30/83
4,401,705	06/359,620	8/30/83
4,401,706	06/315,469	8/30/83
4,401,710	06/356,291	8/30/83
4,401,714	06/395,872	8/30/83
4,401,715	06/350,367	8/30/83
4,401,725	06/415,346	8/30/83
4,401,726	06/332,964	8/30/83
4,401,732	06/342,955	8/30/83
4,401,742	06/360,135	8/30/83
4,401,749	06/348,196	8/30/83
4,401,753	06/376,664	8/30/83
4,401,769	06/391,007	8/30/83
4,401,771	06/399,517	8/30/83
4,401,777	06/312,959	8/30/83
4,401,794	06/312,044	8/30/83
4,401,798	06/370,876	8/30/83
4,401,812	06/307,832	8/30/83
4,401,815	06/231,047	8/30/83
4,401,818	06/219,807	8/30/83
4,401,821	06/279,696	8/30/83
4,401,824	06/355,814	8/30/83
4,401,825	06/285,989	8/30/83
4,401,831	06/382,614	8/30/83
4,401,840	06/285,787	8/30/83
4,401,841	06/228,017	8/30/83
4,401,844	06/324,608	8/30/83
4,401,863	06/292,826	8/30/83
4,401,865	06/300,476	8/30/83
4,401,867	06/313,756	8/30/83
4,401,869	06/308,208	8/30/83
4,401,870	06/320,140	8/30/83
4,401,885	06/309,024	8/30/83
4,401,888	06/318,013	8/30/83
4,401,908	06/352,277	8/30/83
4,401,919	06/283,328	8/30/83
4,401,927	06/254,651	8/30/83
4,401,932	06/229,477	8/30/83
4,401,933	06/315,100	8/30/83
4,401,934	06/291,132	8/30/83
4,401,938	06/220,865	8/30/83
4,401,941	06/327,679	8/30/83
4,401,952	06/285,211	8/30/83
4,401,968	06/221,729	8/30/83
4,401,975	06/323,521	8/30/83
4,401,976	06/225,000	8/30/83
4,401,985	06/313,126	8/30/83
4,401,988	06/297,490	8/30/83
4,401,995	06/221,410	8/30/83
4,402,010	06/457,047	8/30/83
4,402,016	06/256,040	8/30/83
4,402,026	06/236,837	8/30/83
4,402,032	06/243,085	8/30/83
4,402,049	06/246,518	8/30/86
4,402,063	06/306,217	8/30/83
4,402,073	06/242,338	8/30/83
4,402,075	06/277,101	8/30/83
4,402,076	06/222,904	8/30/83
4,402,080	06/254,059	8/30/83
4,402,083	06/349,760	8/30/83
4,402,084	06/284,987	8/30/83
4,689,830	06/855,391	9/01/87
4,689,836	06/885,151	9/01/87
4,689,841	06/914,271	9/01/87
4,689,843	06/902,776	9/01/87
4,689,844	06/857,731	9/01/87
4,689,849	06/850,004	9/01/87
4,689,858	06/873,728	9/01/87
4,689,861	06/869,041	9/01/87
4,689,865	06/918,524	9/01/87
4,689,868	06/856,766	9/01/87
4,689,870	06/843,006	9/01/87
4,689,884	06/867,765	9/01/87
4,689,885	06/868,575	9/01/87
4,689,886	06/846,688	9/01/87
4,689,889	06/733,235	9/01/87
4,689,891	06/925,240	9/01/87

Patent Number	Serial Number	Issue Date
4,689,893	06/893,225	9/01/87
4,689,894	06/800,620	9/01/87
4,689,897	06/923,900	9/01/87
4,689,901	06/662,894	9/01/87
4,689,911	06/617,264	9/01/87
4,689,912	06/878,673	9/01/87
4,689,914	06/770,661	9/01/87
4,689,922	06/830,627	9/01/87
4,689,925	06/910,725	9/01/87
4,689,931	06/835,773	9/01/87
4,689,936	06/894,507	9/01/87
4,689,937	06/904,896	9/01/87
4,689,946	06/832,046	9/01/87
4,689,948	06/861,496	9/01/87
4,689,954	06/795,886	9/01/87
4,689,969	06/860,135	9/01/87
4,689,972	06/781,529	9/01/87
4,689,974	06/854,322	9/01/87
4,689,981	06/880,099	9/01/87
4,689,991	06/862,871	9/01/87
4,689,992	06/809,889	9/01/87
4,689,995	06/807,881	9/01/87
4,689,996	06/719,957	9/01/87
4,689,997	06/813,264	9/01/87
4,689,998	06/907,424	9/01/87
4,690,009	06/802,963	9/01/87
4,690,025	06/771,024	9/01/87
4,690,026	06/768,447	9/01/87
4,690,028	06/853,670	9/01/87
4,690,039	06/936,985	9/01/87
4,690,041	06/841,418	9/01/87
4,690,044	06/923,200	9/01/87
4,690,045	06/753,774	9/01/87
4,690,048	06/740,568	9/01/87
4,690,061	06/800,203	9/01/87
4,690,065	06/815,618	9/01/87
4,690,078	06/909,693	9/01/87
4,690,085	06/883,634	9/01/87
4,690,089	06/821,077	9/01/87
4,690,092	06/871,452	9/01/87
4,690,098	06/792,700	9/01/87
4,690,099	06/802,261	9/01/87
4,690,102	07/005,551	9/01/87
4,690,103	06/848,812	9/01/87
4,690,121	06/818,630	9/01/87
4,690,126	06/885,425	9/01/87
4,690,128	06/904,200	9/01/87
4,690,130	06/811,159	9/01/87
4,690,132	06/849,212	9/01/87
4,690,137	06/797,832	9/01/87
4,690,138	06/926,083	9/01/87
4,690,140	06/846,727	9/01/87
4,690,148	07/005,314	9/01/87
4,690,154	06/740,514	9/01/87
4,690,161	06/746,270	9/01/87
4,690,170	06/888,339	9/01/87
4,690,180	06/669,537	9/01/87
4,690,182	06/843,497	9/01/87
4,690,198	06/780,810	9/01/87
4,690,208	06/825,535	9/01/87
4,690,210	06/750,166	9/01/87
4,690,212	06/352,374	9/01/87
4,690,215	06/864,179	9/01/87
4,690,224	06/812,507	9/01/87
4,690,228	06/839,415	9/01/87
4,690,235	06/795,628	9/01/87
4,690,240	06/718,468	9/01/87
4,690,244	06/826,910	9/01/87
4,690,246	06/754,024	9/01/87
4,690,273	06/833,186	9/01/87
4,690,275	06/907,793	9/01/87
4,690,278	06/874,889	9/01/87
4,690,279	06/839,202	9/01/87
4,690,282	06/804,035	9/01/87
4,690,294	06/771,620	9/01/87
4,690,295	06/744,819	9/01/87
4,690,300	06/947,990	9/01/87
4,690,301	06/826,774	9/01/87
4,690,303	06/779,158	9/01/87
4,690,310	06/807,502	9/01/87
4,690,313	06/947,436	9/01/87
4,690,318	06/913,298	9/01/87
4,690,321	06/907,804	9/01/87
4,690,323	06/901,330	9/01/87
4,690,328	06/762,655	9/01/87
4,690,332	06/652,754	9/01/87
4,690,334	06/705,081	9/01/87
4,690,343	06/817,118	9/01/87
4,690,348	06/780,592	9/01/87
4,690,352	06/890,057	9/01/87
4,690,353	06/739,792	9/01/87
4,690,363	06/901,743	9/01/87
4,690,368	06/723,833	9/01/87
4,690,370	06/427,717	9/01/87
4,690,382	06/812,503	9/01/87
4,690,384	06/631,062	9/01/87
4,690,393	06/786,337	9/01/87
4,690,398	06/828,317	9/01/87
4,690,404	06/812,173	9/01/87
4,690,406	06/808,170	9/01/87
4,690,410	06/890,288	9/01/87
4,690,423	06/846,611	9/01/87
4,690,433	06/738,755	9/01/87
4,690,440	06/814,312	9/01/87
4,690,441	06/779,482	9/01/87
4,690,446	06/869,019	9/01/87
4,690,447	06/941,534	9/01/87
4,690,449	06/821,856	9/01/87
4,690,454	06/749,409	9/01/87
4,690,457	06/880,928	9/01/87
4,690,461	06/845,952	9/01/87
4,690,467	06/447,621	9/01/87
4,690,471	06/864,239	9/01/87
4,690,474	06/847,942	9/01/87
4,690,476	06/924,986	9/01/87
4,690,520	06/859,511	9/01/87
4,690,521	06/821,953	9/01/87
4,690,522	06/750,279	9/01/87
4,690,523	06/752,213	9/01/87
4,690,524	06/700,392	9/01/87
4,690,528	06/656,746	9/01/87
4,690,534	06/914,017	9/01/87
4,690,542	06/812,947	9/01/87
4,690,547	06/908,138	9/01/87
4,690,548	06/767,776	9/01/87
4,690,550	06/764,852	9/01/87
4,690,551	06/725,243	9/01/87
4,690,554	06/936,169	9/01/87
4,690,560	06/717,264	9/01/87
4,690,566	06/939,406	9/01/87
4,690,570	06/864,312	9/01/87
4,690,586	06/814,958	9/01/87
4,690,587	06/789,545	9/01/87
4,690,595	06/828,634	9/01/87
4,690,598	06/752,918	9/01/87
4,690,606	06/798,688	9/01/87
4,690,614	06/794,651	9/01/87
4,690,620	06/714,225	9/01/87
4,690,623	06/806,574	9/01/87
4,690,626	06/785,548	9/01/87
4,690,637	06/831,227	9/01/87
4,690,639	06/937,435	9/01/87
4,690,644	06/812,138	9/01/87
4,690,645	06/771,410	9/01/87
4,690,655	06/880,994	9/01/87
4,690,656	06/749,258	9/01/87
4,690,659	06/726,889	9/01/87
4,690,665	06/795,070	9/01/87
4,690,674	06/861,979	9/01/87
4,690,677	06/780,056	9/01/87
4,690,693	06/804,724	9/01/87
4,690,697	06/831,295	9/01/87
4,690,701	06/852,559	9/01/87
4,690,720	06/819,516	9/01/87
4,690,727	06/895,965	9/01/87
4,690,732	06/842,729	9/01/87

VOL
1132
ISS
2
NO
12
1991
UMI

Patent Number	Serial Number	Issue Date
4,690,745	06/934,978	9/01/87
4,690,751	06/723,963	9/01/87
4,690,752	06/719,343	9/01/87
4,690,753	06/753,914	9/01/87
4,690,763	06/766,053	9/01/87
4,690,773	06/861,741	9/01/87
4,690,777	06/548,104	9/01/87
4,690,778	06/735,955	9/01/87
4,690,794	06/580,570	9/01/87
4,690,797	06/908,165	9/01/87
4,690,801	06/870,320	9/01/87
4,690,812	06/692,563	9/01/87
4,690,813	06/775,659	9/01/87
4,690,814	06/849,925	9/01/87
4,690,835	06/825,125	9/01/87
4,690,844	06/665,295	9/01/87
4,690,879 CRC	06/938,303	9/01/87
4,690,886	06/701,289	9/01/87
4,690,890	06/596,676	9/01/87
4,690,912	06/541,845	9/01/87
4,690,914	06/843,742	9/01/87
4,690,916	06/671,153	9/01/87
4,690,917	06/800,667	9/01/87
4,690,921	06/656,162	9/01/87
4,690,925	06/734,633	9/01/87
4,690,932	06/871,155	9/01/87
4,690,950	06/766,636	9/01/87
4,690,967	06/685,148	9/01/87
4,690,970	06/746,040	9/01/87
4,690,989	06/796,558	9/01/87
4,691,011	06/809,569	9/01/87
4,691,017	06/912,999	9/01/87
4,691,018	06/860,211	9/01/87
4,691,022	06/623,200	9/01/87
4,691,024	06/915,949	9/01/87
4,691,032	06/793,928	9/01/87
4,691,043	06/816,978	9/01/87
4,691,046	07/000,207	9/01/87
4,691,048	06/732,487	9/01/87
4,691,051	06/870,553	9/01/87
4,691,052	06/871,153	9/01/87
4,691,056	06/904,049	9/01/87
4,691,061	06/905,618	9/01/87
4,691,062	06/921,474	9/01/87
4,691,069	06/831,006	9/01/87
4,691,083	06/783,988	9/01/87
4,691,084	06/905,680	9/01/87
4,691,092	06/803,201	9/01/87
4,691,096	06/807,827	9/01/87
4,691,106	06/775,749	9/01/87
4,691,110	06/716,002	9/01/87
4,691,112	06/750,133	9/01/87
4,691,115	06/824,713	9/01/87
4,691,117	06/837,562	9/01/87
4,691,121	06/803,262	9/01/87
4,691,142	06/772,240	9/01/87
4,691,155	06/661,229	9/01/87
4,691,165	06/596,464	9/01/87
4,691,169	06/281,441	9/01/87
4,691,175	06/797,735	9/01/87
4,691,183	06/933,747	9/01/87
4,691,194	06/640,574	9/01/87
4,691,195	06/705,582	9/01/87
4,691,201	06/881,582	9/01/87
4,691,207	06/646,787	9/01/87
4,691,221	06/762,458	9/01/87
4,691,239	06/452,494	9/01/87
4,691,264	06/778,983	9/01/87
4,691,274	06/857,110	9/01/87
4,691,275	06/870,377	9/01/87
4,691,297	06/740,977	9/01/87
4,691,324	06/833,846	9/01/87
4,691,327	06/860,273	9/01/87
4,691,333	06/817,568	9/01/87
4,691,339	06/764,114	9/01/87
4,691,343	06/867,488	9/01/87
4,691,344	06/821,429	9/01/87
4,691,345	06/861,928	9/01/87
4,691,361	06/785,852	9/01/87
4,691,367	06/632,544	9/01/87
4,691,368	06/746,978	9/01/87
4,691,376	06/806,863	9/01/87
4,691,385	06/773,141	9/01/87

NOTIFICATION OF ACCEPTANCE OF DELAYED PAYMENT OF MAINTENANCE FEE (35 U.S.C. 41(c); 37 CFR 1.378)

The patent(s) listed below are considered as not having expired but are subject to the conditions set forth in 35 U.S.C. 41(c)(2), in view of the Petition to Accept Late Payment of the maintenance fees which has been GRANTED BY THE COMMISSIONER OF PATENTS AND TRADEMARKS, as provided for under 35 U.S.C. 41(c)(1) and 37 CFR 1.378.

Patent No.	Serial No.	Patent Date	Application Filing Date	Delayed Payment Acceptance Date
4,358,413	06/227,652	11/09/82	1/23/81	9/24/91
4,625,873	06/605,193	12/02/86	4/30/84	9/24/91

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,496,806, Re. S.N. 07/769,497, Filed Oct. 1, 1991, Cl. 200, ELECTRICAL CONTACT SWITCHING DEVICE, Kozo Maenishi, et. al., Owner of Record: *Omron Tateisi Electronics Co., Ukyo-Kyoto, Japan*, Attorney or Agent: Barry E. Bretschneider, Ex. Gp.: 214

4,587,240, Re. S.N. 07/769,492, Filed Oct. 1, 1991, Cl. 514, PHARMACEUTICAL COMPOSITIONS, Robert C. Hider, et. al., Owner of Record: *National Research Development Corp., London England*, Attorney or Agent: Leonard C. Mitchard, Ex. Gp.: 183

4,819,063, Re. S.N. 07/680,074, Filed April 3, 1991, Cl. 358/075, DATA PROCESSING SYSTEM WITH COMMON CHANNEL FOR IMAGE AND CHARACTER DATA, Susumu Sugiuara, et. al., Owner of Record: *Inventor*, Attorney or Agent: Abigail Cousins, Ex. Gp.: 262

4,856,805, Re. S.N. 07/768,478, Filed Sept. 30, 1991, Cl. 280, FOLDABLE TOW BAR, Darryl B. Davis, Owner of Record: *Inventor*, Attorney or Agent: Christopher Duffy, Ex. Gp.: 316

4,869,238, Re. S.N. 07/727,224, Filed June 25, 1991, Cl. 128/6, ENDOSCOPE FOR USE WITH A DISPOSABLE SHEATH, Eric A. Opie (deceased), et. al., Owner of Record: *Opielab, Inc., Seattle, Wash.*, Attorney or Agent: Edward W. Bulchis, Ex. Gp.: 333

4,871,148, Re. S.N. 07/770,128, Filed Oct. 2, 1991, Cl. 266/230, VORTEX INHIBITOR FOR MOLTEN METAL DISCHARGE, Robert J. Koffron, Owner of Record: *Tetron, Inc., Farmington Hills, Mich.*, Attorney or Agent: Ronald M. Nabozny, Ex. Gp.: 111

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,038,107, Reexam. No. 90/002,464, Requested Oct. 1, 1991, Cl. 437/029, METHOD FOR MAKING TRANSISTOR STRUCTURES, George Marr, et. al., Owner of Record: *Samsung Semiconductor and Telecommunications Ltd., Kyung-Sangbukdo, Korea*, Attorney or Agent: James H. Fox, AT & T Co., Murray Hill, N.J., Ex. Gp.: 114, Requester: AT & T Co., Murray Hill, N.J.

4,133,550, Reexam. No. 90/002,465, Requested Oct. 4, 1991, Cl. 280/210, BICYCLE AND POWER TRANSMISSION SYSTEM, Lawrence G. Brown, Owner of Record: *Inventor, Carson City, Nev.*, Attorney or Agent: Kenneth L. Cage, Willian, Brinks, Olds, Hofer, Gilson & Lione, Washington, DC, Ex. Gp.: 316, Requester: Shimano Industrial Co., Ltd., Sakai, Osaka, Japan

4,647,488, Reexam. No. 90/002,469, Requested Oct. 8, 1991, Cl. 428/116, METHOD AND APPARATUS FOR MOUNTING AND SEALING HONEYCOMB INSULATION MATERIAL, John T. Schnebly, et. al., Owner of Record: *Hunter Douglas, Inc., Maywood, N.J.*, Attorney or Agent: Pennie & Edmonds, New York, N.Y., Ex. Gp.: 158, Requester: Dennison, Meserole, Pollack & Scheiner, Arlington, Va.

4,654,077, Reexam. No. 90/002,457, Requested Oct. 1, 1991, Cl. 075/092, METHOD FOR THE PYROMETALLURGICAL TREATMENT OF FINELY DIVIDED MATERIALS, John F. Pusateri, et. al., Owner of Record: *Horsehead Resource Development Co., Inc., Palmerton, Pa.*, Attorney or Agent: Robert D. Yeager, Kirkpatrick & Lockhart, Pittsburgh, Pa., Ex. Gp.: 111, Requester: Owner

4,675,060, Reexam. No. 90/002,470, Requested Oct. 8, 1991, Cl. 156/065, METHOD FOR MOUNTING AND SEALING HONEYCOMB INSULATION MATERIAL, John T. Schebly, et. al., Owner of Record: *Hunter Douglas, Inc., Maywood, N.J.*, Attorney or Agent: Pennie & Edmonds, New York, N.Y., Ex. Gp.: 130, Requester: Dennison, Meserade, Pollack & Scheiner, Arlington, Va.

4,732,368, Reexam. No. 90/002,458, Requested Oct. 1, 1991, Cl. 266/172, APPARATUS FOR THE PYROMETALLURGICAL TREATMENT OF FINELY DIVIDED MATERIALS, John F. Pusateri, et. al., Owner of Record: *Horsehead Resource Development Co., Inc., Palmerton, Pa.*, Attorney or Agent: Robert D. Yeager, Kirkpatrick & Lockhart, Pittsburgh, Pa., Ex. Gp.: 111, Requester: Owner

4,745,285, Reexam. No. 90/002,459, Requested Oct. 2, 1991, Cl. 250/458, MULTI-COLOR FLUORESCENCE ANALYSIS WITH SINGLE WAVELENGTH EXCITATION, Diether J. Recktenwald, et. al., Owner of Record: *Richard J. Rodrick, Becton Dickinson & Co., Franklin Lakes, N.J.* Attorney or Agent: Inventor, Ex. Gp.: 258, Requester: Owner

4,768,713, Reexam. No. 90/002,456, Requested Oct. 1, 1991, Cl. 239/077, GROVE SPRAYER, Bert E. Roper, Owner of Record: *Inventor, Winter Garden, Fla.*, Attorney or Agent: William H. Hobby, Hobby, Wiggens & Beusse, Orlando, Fla., Ex. Gp.: 314, Requester: Anonymous, Dority & Manning, Greenville, S.C.

4,868,364, Reexam. No. 90/002,466, Requested Oct. 7, 1991, Cl. 219/110, SEAM WELDER WITH FEEDBACK CONTROL TO COMPENSATE FOR VARYING WELDING SPEED, Hitoshi Kawano, et. al. Owner of Record: *Shinko Electric Co., Ltd., Tokyo, Japan and N. P. W. Technical Lab. Co., Mie, Japan*, Attorney or Agent: Shugrue, Mion, Zinn, MacPeak & Seas, Washington, DC, Ex. Gp.: 216, Requester: Soudronic AG, Bergdietikon, Switzerland

4,872,054, Reexam. No. 90/002,467, Requested Oct. 3, 1991, Cl. 358/140, VIDEO INTERFACE FOR CAPTURING VIDEO SIGNAL AND REFORMATTING THE VIDEO SIGNAL, Michael J. Gray, et. al., Owner of Record: *Adaptive Video, Inc., San Rafael, Calif.*, Attorney or Agent: George R. Pettit, Pollack, Vande Sande & Priddy, Washington, DC, Ex. Gp.: 262, Requester Marvin E. Haskin, Bryn Marr, Pa.

4,893,922, Reexam. No. 90/002,468, Requested Oct. 7, 1991, Cl. 356/369, SURFACE ANALYSIS SYSTEM AND METHOD, Robert G. Knollenberg, Owner of Record: *Particle Measuring Sytems, Inc., Boulder, Colo.*, Attorney or Agent: Robert E. Harris, Boulder, Colo., Ex. Gp.: 255, Requester: Censor AG, Vaduz, Lichtenstein

Patent Available for License or Sale

4,233,963 ANTI-FRICTION BEARING, METHOD OF MAKING SAME AND ANTI-FRICTION MATERIAL FOR PERFORMING THIS METHOD, Brue E. Lilling, 11 Martine Ave., White Plains, N.Y. 10601

4,606,929 METHOD OF IONIZED-PLASM SPRAYING AND APPARATUS FOR PERFORMING SAME, Brue E. Lilling, 11 Martine Ave., White Plains, N.Y. 10601

4,740,368 AMYLASE CONTAINING BREATH CLEANSING CONFECTION, Arthur L. Plevy, 146 Rte. 1, North Edison, N.J. 08817

4,961,832 APPARATUS FOR APPLYING FILM COATINGS ONTO SUBSTRATES IN VACUUM, Brue E. Lilling, 11 Martine Ave., White Plains, N.Y. 10601

5,012,550 CASTER WITH BRAKE, Mr. Peter K. Kontler, One Landmark Square, Stamford, Conn. 06901

5,027,921 METHOD AND DEVICE FOR TRANSPORTING AND DISTRIBUTING MATERIALS AND/OR EQUIPMENT AROUND THE PERIPHERY OF A BUILDING, Mr. Neil F. Greenblum, Sandler, Greenblum & Bernstein, 2920 South Glebe Road, Arlington, Va. 22206

5,055,492 METHOD FOR AFFECTING REPRODUCTIVE CYCLE OF INSECT, Martin E. Goldstein, Esq., Darby & Darby, 805 Third Ave., New York, N.Y. 10022-7513

Registration to Practice

The following list contains the names of persons applying for registration to practice before the United States Patent and Trademark Ofice. Final approval for registration is subject to establishing to the satisfaction of the Director of the Office of Enrollment and Discipline that the person seeking registration is of good moral character and repute. [37 CFR 10.7(a)]. Accordingly, any information tending to affect the eligibility of any of the following applicants on moral, ethical, or other grounds should be furnished to the Director, Office of Enrollment and Discipline on or before Dec. 27, 1991.

Jones, MaryBeth O., 8915 Fort Hunt Rd., Alexandria, Va. 22308

Wiseman, Thomas G., 7403 Tomcris Ct., Springfield, Va. 22153

October 16, 1991

CAMERON WEIFFENBACH,
Director, Office of Enrollment and Discipline

VOL
1132
ISS
2
NO
12
1991
UMI

PATENT NOTICES

Certificates of Correction For Week of November 12,1991

PP. 7,245	4,855,913	4,911,743	4,938,198
4,572,600	4,857,351	4,912,072	4,938,593
4,622,349	4,858,465	4,913,861	4,938,679
4,699,513	4,858,982	4,915,983	4,939,256
4,709,353	4,861,407	4,916,068	4,939,696
4,711,920	4,861,650	4,917,557	4,939,841
4,727,443	4,864,331	4,917,685	4,939,876
4,727,538	4,864,599	4,917,827	4,940,973
4,749,197	4,864,755	4,919,994	4,941,918
4,756,823	4,865,429	4,923,328	4,942,478
4,796,208	4,867,500	4,923,452	4,942,896
4,800,591	4,870,073	4,923,822	4,943,801
4,806,197	4,870,081	4,924,097	4,944,728
4,806,736	4,870,297	4,924,485	4,945,184
4,810,800	4,874,690	4,924,677	4,946,530
4,814,306	4,875,198	4,925,057	4,946,710
4,816,263	4,878,740	4,925,528	4,946,834
4,816,445	4,878,852	4,925,788	4,947,823
4,816,568	4,879,416	4,926,258	4,948,604
4,818,756	4,880,325	4,927,461	4,949,470
4,820,022	4,885,126	4,928,255	4,949,543
4,820,557	4,885,903	4,928,434	4,949,655
4,821,722	4,888,606	4,928,437	4,949,705
4,825,923	4,892,790	4,929,425	4,949,754
4,829,098	4,897,510	4,929,426	4,949,943
4,829,133	4,897,773	4,930,429	4,950,127
4,835,172	4,899,403	4,932,389	4,950,401
4,835,223	4,902,845	4,932,842	4,952,428
4,838,572	4,903,692	4,933,684	4,952,559
4,839,918	4,905,420	4,934,578	4,952,742
4,842,981	4,905,859	4,935,573	4,962,568
4,846,671	4,906,476	4,935,869	4,966,911
4,848,934	4,908,270	4,935,921	4,981,539
4,849,365	4,908,329	4,936,642	4,993,009
4,851,414	4,908,527	4,936,791	5,006,980
4,851,589	4,909,490	4,936,834	5,010,002
4,853,930	4,910,810	4,937,375	5,050,598
4,854,015	4,911,673	4,937,394	
4,854,959	4,911,733	4,937,678	

SPECIAL BOXES FOR MAIL

Special PTO mail box numbers should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded directly to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these boxes. If any documents other than the specified type identified for each box are addressed to that box, they will be delayed in reaching the appropriate area for which they are intended.

The following special boxes should be used only for their specified purpose. Address mail as follows:

Box _____
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Box 3	Mail for the Office of personel for NFC
Box 4	Mail for the Assistant Commissioner for External Affairs and the Office of Legislation and International Affairs.
Box 5	"No Fee" mail related to trademarks.
Box 6	Mail for the Office of Procurement
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation*; papers relating to pending litigation shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Va. 22215
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents except: trademark registrations and assignments.
Box 11	Electronic Ordering Service (EOS).
Box 12	Contributions to the Examiner Education Program.
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Invoices directed to the Office of Finance.
Box 15	Mail for the Advisory Commission on Patent Law Reform.
Box 16	Deposit Account Replenishment Checks
Box 171	Vacancy Announcement Applications.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box DAC	Petitions to revive, petitions to accept late payment of fees, petitions to defer issue, and petitions to withdraw an application from issue.
Box Assignment	All assignment documents except those filed with new applications.
Box DD	Mail related to Disclosure Documents.
Box EEO	Mail for the Office of Equal Employment Programs.
Box FWC	Requests for File Wrapper Continuation Applications (under 37 CFR 1.62)
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box Issue Fee	All Communications following the receipt of a PTOL-85. "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box ITU	All intent to use documents, excluding the initial application and amendments to allege use.
Box M. Fee	Correspondence related to a patent that is subject to the payment of a maintenance fee.
Box Non-Fee-Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box OED	Mail for the Office of Enrollment and Discipline
Box PATENT APPLICATION	New patent application and associated papers and fees.
Box TRADEMARK	New trademark application and associated papers and APPLICATION fees.
Box Pat. Ext.	Applications for patent term extension.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return postcard or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

VOL
1132
ISS
2
NO
12
1991
UMI

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The following libraries, designated as Patent Depository Libraries (PDLs), receive current issues of U.S. Patents and maintain collections of earlier-issued patents. The scope of these collections varies from library to library, ranging from patents of only recent years to all or most of the patents issued since 1790.

These patent collections, which are organized in patent number sequence, are available for use by the public free of charge. Each of the PDLs, in addition, offers supplemental reference publications of the U.S. Patent Classification System, including the *Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions*, and provides technical staff assistance in their use to aid the public, in gaining effctive access to information contained in patents. CASSIS (Classification And Search Support Information System); which provides direct, on-line access to Patent and Trademark Office data, is available at all PDLs. Facilities for making paper copies of patents from either microfilm or paper collections are generally provided for a fee.

Since there are variations in the scope of patent collections among the PDLs and in their hours of service to the public, anyone contemplating use of the patents at a particular library is urged to contact that library, in advance, about its collection and hours in order to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Auburn University Libraries	(205) 844-1747
	Birmingham Public Library	(205) 226-3680
Alaska	Anchorage: Z. J. Loussac Public Library	(907) 261-2916
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 612-3273
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	Sunnyvale Patent Clearinghouse	(408) 730-7290
Colorado	Denver Public Library	(303) 640-8847
Connecticut	New Haven: Science Park Library	(203) 786-5447
Delaware	Newark: University of Delaware Library	(302) 451-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(305) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa: Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 269-2865
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette: Purdue University Libraries	(317) 494-2873
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 689-3155
Kentucky	Louisville Free Public Library	(502) 561-8617
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Engineering Transportation Library, University of Michigan	(313) 764-7494
	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library and Information Center	(612) 372-6570
Misssissippi	Jackson: Mississippi Library Commission	Not Yet Operational
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada-Reno Library	(702) 784-6579
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7782
	Piscataway: Library of Science and Medicine, Rutgers University	(908) 932-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 473-4636
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 714-8529
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Cincinnati and Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138

Reference Collections of U. S. Patents Available for Public Use in Patent Depository Libraries—(continued)

State	*Name of Library*	*Telephone Contact*
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8876
	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-2551
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext.2587
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 367-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

VOL
1132
ISS
2
NO
12
1991
UMI

PATENT EXAMINING CORPS

JAMES E. DENNY, Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 110 — D. E. TALBERT, Director	308-0661	6/7/90
ORGANIC CHEMISTRY, GROUP 120 — JOHN F. TERAPANE, JR., Director	308-1235	11/1/90
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 130 — BARRY S. RICHMAN, Director	308-0651	2/1/91
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 150 — J. O. THOMAS, Director	308-2351	6/8/90
BIOTECHNOLOGY, GROUP 180 — EDWARD E. KUBASIEWICZ, Director	308-0196	2/1/90
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210 — D. G. KELLY, Director	308-1782	3/8/90
SPECIAL LAWS ADMINISTRATION, GROUP 220 — ROBERT E. GARRETT, Director	308-0511	1/22/90
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 230 — GERALD GOLDBERG, Director	308-0754	7/8/89
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 240 — CARLTON CROYLE, Director	308-0771	9/8/90
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 250 — JOSEPH J. ROLLA, Director	308-0956	12/1/90
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 260 — BOBBY R. GRAY, Director	308-0962	6/1/90
DESIGN, GROUP 290 — ROBERT E. GARRETT, Director	308-0511	1/22/89
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 310 — F. R. SCHMIDT, Director	308-1113	11/1/90
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 320 — N. GODICI, Director	308-1148	1/1/91
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 330 — J. J. LOVE, Director	308-0858	10/1/90
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 340 — JOHN KITTLE, Director	308-0861	12/7/90
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 350 — A. L. SMITH, Director	308-0651	10/1/90

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during October 1991 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

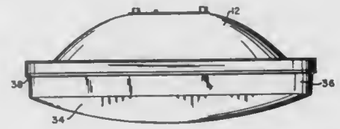
Patents ..... Numbers 3,838,466 to 3,845,503 inclusive
Plant Patents ..... 3,628 to 3,643

REEXAMINATIONS

NOVEMBER 12, 1991

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,866,329 (1588th)
WIDE ANGLE WARNING LIGHT
Robert A. Ferenc, Middletown, Conn., assignor to Whelen Technologies, Inc.
Reexamination Request No. 90/002,071, Jun. 29, 1990.
Reexamination Certificate for Patent No. 4,866,329, issued Sep. 12, 1989, Ser. No. 239,203, Aug. 31, 1988.
Continuation of Ser. No. 487,033, Apr. 21, 1983, Pat. No. 4,792,717
Int. Cl.[5] H01J *5/16*
U.S. Cl. 313—113

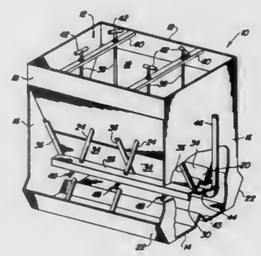


AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1-15** is confirmed.

1. A wide angle light source comprising:
means defining a reflector, said reflector defining means including:
a first end section, said first end section having a concave reflective surface which at least in part defines a first portion of a paraboloid of revolution about a first axis, said concave reflective surface of said first end section extending inwardly from a forward edge which is at least in part arcuate;
a second end section, said second end section having a concave reflective surface which at least in part defines a portion of a paraboloid of revolution about a second axis, said second axis being oriented generally parallelly to said first axis, said concave reflective surface of said second end section extending inwardly from a forward edge which is co-planar with the forward edge of said first end section; and
a linear intermediate section having a concave reflective surface, said intermediate section being integral with and extending between said end sections, said intermediate section having a rear wall portion which interconnects a pair of parallel side wall portions, said rear wall portion at least in part having a profile which is a paraboloid having a focal point defining a straight line intersecting said first and second axes, said side wall portions of said intermediate section defining a pair of parallel linear forward edges which are generally co-planar with said forward edges of said first and second end sections;
a leans means adapted to be secured to said reflector defining means, said lens means and reflector-defining means cooperating to form a chamber bounded in part by said reflective surfaces; and
light emitter means disposed in said chamber, said light emitter means comprising a gaseous discharge tube having a pair of leg portions and an elongated linear intermediate portion which interconnects first ends of said leg portions, said leg portions extending outwardly from said light emitter means intermediate portion to said reflector-defining means whereby said light emitter is supported from said reflector-defining means by said legs, said linear intermediate portion of said light emitter means defining an axis which is oriented generally parallel to said reflector-defining means intermediate section forward edges, said light emitter means intermediate portion axis being positioned inwardly toward said reflector means intermediate section rear wall portion with respect to the plane in which said forward edges of said reflector defining means sections lie.

B1 4,911,727 (1589th)
ANIMAL FEEDER
Brent A. King, Victoria, Ill., assignor to King Systems, Inc., Ill.
Reexamination Request No. 90/002,203, Nov. 14, 1990.
Reexamination Certificate for Patent No. 4,911,727, issued Mar. 27, 1990, Ser. No. 330,401, Mar. 29, 1988.
Int. Cl.[5] A01K *5/01*
U.S. Cl. 119—53



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1, 2, 3** and **4** is confirmed.

1. An animal feeder comprising:
an elongated trough having a bottom;
an elongated hopper located above the bottom of said trough;
said hopper having an inclined sidewall extending downwardly and inwardly toward a hopper bottom discharge opening;
a shelf spaced below said hopper bottom discharge opening and above the bottom of said trough;
said hopper comprising means for storing feed and for dispensing feed through said hopper bottom discharge opening;
said shelf comprising means for receiving and holding feed dispensed from said hopper through said discharge opening;
said shelf and said inclined hopper side wall comprising means cooperating to permit an animal to sweep feed from said shelf into said trough while substantially preventing the animal from feeding directly from said shelf;
and means for permitting an animal to feed directly from said trough.

VOL
1132
ISS
2
NO
12
1991
UMI

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 33,738

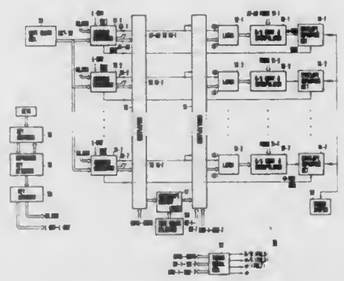
ELECTRONIC MUSICAL INSTRUMENT OF WAVEFORM MEMORY READING TYPE

Takatoshi Okumura, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Original No. 4,377,960, dated Mar. 29, 1983, Ser. No. 145,111, Apr. 30, 1980. Continuation of Ser. No. 620,391, Jun. 13, 1984, abandoned. Application for reissue Feb. 7, 1986, Ser. No. 828,081

Int. Cl.[5] G10H *1/08, 1/12, 7/04*

U.S. Cl. 84—605 **9 Claims**



13. In a time division multiplex polyphonic musical tone generation system wherein separate selected tones to be generated are assigned to different time division multiplex time slots with respect to other tones including non-harmonically related tones, the improvement comprising:

a first latch into which tone waveshape samples corresponding to different tones are stored on said time division multiplex basis;

a second latch into which the stored samples from said first latch are transferred in pitch synchronism with the musical tone being generated, tone generation being accomplished using the contents of said second latch to generate a tone whose components are harmonic with the pitch of the tone.

Re. 33,739

ELECTRONIC MUSICAL INSTRUMENT

Susumu Takashima, Tachikawa; Toyotarou Tokimoto, Ichinomiya, and Kazuyuki Kurosawa, Tokyo, all of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Original No. 4,633,748, dated Jan. 6, 1987, Ser. No. 583,091, Feb. 23, 1984. Continuation of Ser. No. 291,435, Dec. 28, 1988, abandoned. Application for reissue Dec. 12, 1989, Ser. No. 453,040

Claims priority, application Japan, Feb. 27, 1983, 58-31284; Feb. 27, 1983, 58-31285; Feb. 27, 1983, 58-31286; Jan. 27, 1984, 59-13075; Jan. 27, 1984, 59-13076; Jan. 27, 1984, 59-13077

Int. Cl.[5] G10H *7/00*

U.S. Cl. 84—603 **28 Claims**

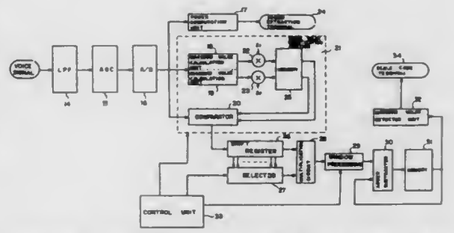
25. An electronic musical instrument comprising:

conversion means for converting a musical sound to an electrical signal;

analog-to-digital converter means for converting said electrical signal to digital data corresponding to an amplitude value of the musical sound;

quantization means for quantizing said digital data outputted from said analog-to-digital converter means, based on an amplitude value of the musical sound, and for producing a digital quantization data signal;

pitch extraction means coupled to said quantization means for extracting pitch data from said digital quantization data signal, and for producing an output corresponding to the extracted pitch data; and



designating means coupled to said pitch extraction means for designating the pitch of a musical tone to be obtained based on the extracted pitch data.

Re. 33,740

POSITION DETECTING DEVICE

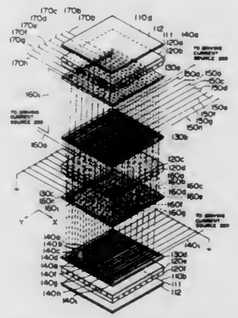
Yoshinori Taguchi, and Tsuguya Yamanami, both of Saitama, Japan, assignors to Wacom Co., Ltd., Saitama, Japan

Original No. 4,704,501, dated Nov. 3, 1987, Ser. No. 813,446, Dec. 26, 1985. Application for reissue Nov. 3, 1989, Ser. No. 447,327

Claims priority, application Japan, Dec. 28, 1984, 59-278838; Dec. 28, 1984, 59-278839; Dec. 29, 1984, 59-199384

Int. Cl.[5] G08C *21/00*

U.S. Cl. 178—19 **35 Claims**



14. Apparatus for detecting and displaying the position of an implement on a display surface, the implement including a structure interacting with a position detecting AC field derived from the apparatus, comprising a housing, an electronic two-coordinate direction display configured as a plate in the housing, the display including the display surface as an exterior face of the housing, an octive light source having a light emitting surface positioned in the housing for illuminating the display surface, a panel positioned in the housing behind the display for detecting the position of the implement on the display surface, the position detecting panel including means for establishing and detecting AC fields in two coordinate directions, the AC fields interacting with the structure of the implement to cause conductors in the position sensor to derive signals indicative of the position of the implement on the display surface, means responsive to the derived signals for activating the display so the position of the implement on the display surface is displayed on the display surface, the display surface and

VOL 1132 ISS 2 NO 12 1991 UMI

position detecting panel being superposed and lying in different parallel planes.

Re. 33,741

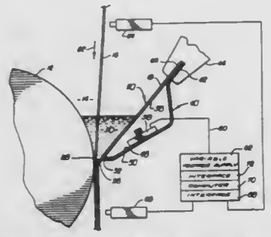
APPARATUS AND METHOD FOR CONTROLLING THE AMOUNT OF COATINGS ON PAPER OR OTHER MATERIALS

Matt Boissevain, Los Altos, Calif., assignor to Measurex Corporation, Cupertino, Calif.

Original No. 4,732,776, dated Mar. 22, 1988, Ser. No. 17,833, Feb. 24, 1987. Application for reissue Jul. 21, 1989, Ser. No. 384,130

Int. Cl.[5] B05D *3/12*

U.S. Cl. 427—10 **25 Claims**



14. A method for applying a uniform [thickness] *amount* of a coating material to a web material from a continuous roll comprising *the steps of:*

selecting [a thickness] *an amount* of the coating material to be applied to said web material at each of a plurality of selected cross-directional positions;

monitoring the [thickness] *amount* of the web material at said plurality of selected cross-directional positions across said web material before coating material is placed on said web material and producing first signals representative thereof;

placing coating material on said web material;

transporting web material from said roll on which said coating material has been placed through a slot formed by a surface and a metering element to remove excess coating material placed on said web material, the separation of said metering element and said surface at each of the selected cross-direction positions determining the [total thickness] *amount* of said web material and coating material passing through said slot at that selected cross-directional position, *said metering element including a bimetallic member whose temperature sensitive movement controls the width of the slot at each of the selected cross-directional positions;*

monitoring the [thickness] *amount* of said web material and coating material at said plurality of selected cross-directional positions after said web material has been transported through said slot and producing second signals representative thereof;

comparing in a device the corresponding first and second signals to determine the [thickness] *amount* of coating material applied at each selected cross-directional position and producing third signals representative thereof;

generating fourth signals representing the said selected [thicknesses] *amounts;*

comparing in a device the corresponding third and fourth signals to determine the difference between the [thickness] *amount* of the coating material applied at each selected cross-directional position with the [thickness] *amount* of the coating selected to be applied, and producing control signals therefrom for each selected cross-directional position; and

applying said control signals to corresponding means for controlling the [separation] *temperature* of said [metering element and said surface] *bimetallic member* at each selected cross-directional position while web material is being transported through said slot to change the [thickness] *amount* of the coating material applied in order that the coating material applied be the selected [thickness] *amount* at each selected cross-directional position.

Re. 33,742

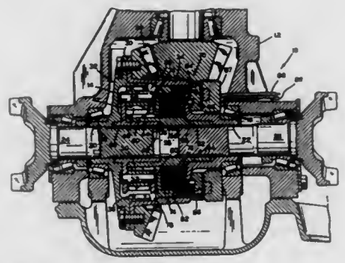
LOCKING DIFFERENTIAL WITH ELECTROMAGNETIC ACTUATED CLUTCH

Martin G. Blessing, Ft. Wayne, Ind.; Charles F. Heine, Holland, and Richard L. Pifer, Bowling Green, both of Ohio, assignors to Dana Corporation, Toledo, Ohio

Original No. 4,781,078, dated Nov. 1, 1988, Ser. No. 9,831, Feb. 2, 1987. Application for reissue Nov. 1, 1990, Ser. No. 608,001

Int. Cl.[5] F16H *1/44*

U.S. Cl. 475—150 **32 Claims**



18. A differential assembly comprising:

a rotatable case having an annular gear formed therein;

first and second drive axles journalled in said case for rotation relative thereto;

a sun gear connected to said first drive axle for rotation therewith;

a carrier connected to said second drive axle for rotation therewith;

a plurality of pairs of planetary gears supported on said carrier, a first gear of each of said pairs meshing with said annular gear and a second gear of each of said pairs meshing with said sun gear;

cam means responsive to rotation of one of said carrier and said sun gear relative to said cam means for generating a clutch engaging force;

clutch means responsive to said clutch engaging force for limiting relative rotation between said first and second drive axles; and

means for selectively connecting said cam means to said case for rotation therewith.

Re. 33,743

ON-GLASS ANTENNA

Herbert R. Blaese, 3314 Olcott Ave., Chicago, Ill. 60634

Original No. 4,658,259, dated Apr. 14, 1987, Ser. No. 708,667, Mar. 6, 1985. Application for reissue Oct. 6, 1988, Ser. No. 254,260

Int. Cl.[5] H01Q *1/32*

U.S. Cl. 343—715 **15 Claims**

15. In an antenna for mounting on a motor vehicle's glass plate with a radiator extending from a first side of the glass plate and with electrical wiring extending from the opposite, second side of the glass plate whereby energy is transferred through the glass plate and the drilling of a hole for connecting the radiator to the electrical wiring is unnecessary, the improvement comprising, in combination:

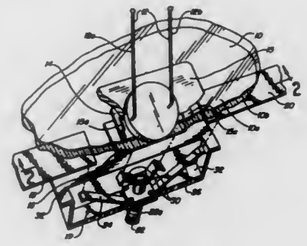
a current fed radiator extending in a first direction and connected to an electrically conductive outer RF transfer member, said outer transfer member being adapted for affixation to said first side of the glass plate;

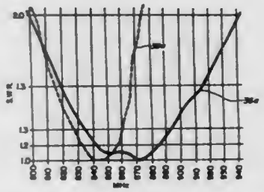
an electrically conductive RF inner transfer member adapted for affixation to said second side of the glass plate in alignment with said outer transfer member, said electrical wiring adapted for location on said second side of the glass plate including a said wire and a ground wire;

means for coupling said main wire to said inner transfer member;

an electrically conductive field-cancelling member adapted for location on said second side of the glass plate adjacent to but in electrically spaced relation to said inner transfer member and extending in a direction that is significantly different from said first direction;

said field cancelling member having a first non-volume containing portion thereof on one side of the inner transfer member and a non-volume containing and substantially balanced second portion on the other side of the inner transfer member; said field-cancelling member being operative to cancel the electromagnetic field in the plane of the field-cancelling member; and





means for coupling said ground wire to said field-cancelling member.

VOL
1132
ISS
2
NO
12
1991
UMI

PLANT PATENTS

GRANTED NOVEMBER 12, 1991

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

7,706

HYBRID TEAROSE PLANT NAMED 'SMOOTH PRINCE'

Harvey D. Davidson, #3 El Verano Rd., Orinda, Calif. 94563

Filed Jun. 11, 1990, Ser. No. 536,357
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—20 **1 Claim**

1. A new and distinct thornless variety of rose plant of the Hybrid Tea class, substantially as shown and described.

7,707

GRAPEVINE NAMED 'PAM'

William G. Ison, Rte. 1, Box 19, Hwy. 19, Brooks, Ga. 30205

Filed Mar. 10, 1988, Ser. No. 166,248
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—47 **1 Claim**

I. The new and distinct variety of the specified plant, as described and illustrated.

7,708

ALSTROEMERIA PLANT NAMED DIANA

Erwin Mojonnier, Encinitas, Calif.

Filed Jul. 24, 1990, Ser. No. 556,431
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of Alstroemeria plant named Diana, as illustrated and described.

7,709

AFRICAN VIOLET PLANT NAMED LITTLE APACHE GIRL

Reinhold Holtkamp, Sr., Blumenstrasse 28, D 4242 Rees-Haffen, Fed. Rep. of Germany

Filed Aug. 10, 1990, Ser. No. 565,067
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet named Littled Apache Girl, as described and illustrated, and particularly characterized by its mid-size growth habit (13–15 cm in diameter); pink, semi-double to single flowers; strong stems which curve toward the center to form a compact bouquet above the leaves; profuse flowering; medium green, spear- to heart-shaped leaves; flowering 10–11 weeks after planting of unrooted shoot, and by its long lasting and non-dropping flowers.

7,710

POINSETTIA PLANT '268 PINK'

Franz Fruehwirth, Encinitas, Calif., assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.

Filed May 24, 1990, Ser. No. 528,232
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—86 **1 Claim**

1. A new and distinct Poinsettia cultivar, substantially as herein shown and described, characterized by its early large, erect and bright pink flower bracts and self-branching traits.

7,711

POINSETTIA PLANT '15-88'

Franz Fruehwirth, Encinitas, Calif., assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.

Filed May 24, 1990, Ser. No. 528,235
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—86 **1 Claim**

1. A new and distinct Poinsettia cultivar, substantially as herein shown and described, characterized by its bicolored pink flower bracts.

7,712

SPATHIPHYLLUM PLANT NAMED SNOW WHITE

Nico J. Kuipers, De Kwakel, Netherlands, assignor to Reginald Deroose, Belgium

Filed May 7, 1990, Ser. No. 520,356
Int. Cl.[5] H01H *5/00*

U.S. Cl. Plt.—88 **1 Claim**

1. A new and distinct Spathiphyllum plant named Snow White, as described. and illustrated.

7,713

***NEOREGELIA CAROLINAE* PLANT NAMED DEVROE**

Nico J. Kuipers, De Kwakel, Netherlands, assignor to Reginald Deroose, Belgium

Filed May 7, 1990, Ser. No. 520,354
Int. Cl.[5] A01H *5/00*

U.S. Cl. Plt.—88 **1 Claim**

1. A new and distinct cultivar of *Neoregelia carolinae* named Devroe, as described and illustrated.

VOL
1132
ISS
2
NO
12
1991
UMI

PATENTS

GRANTED NOV. 12, 1991

ERRATA

For CLASS	See PATENT NO.
74-411	5,063,808
74-459	5,063,809
74-473	5,063,810
74-513	5,063,811
74-575	5,063,812
74-866	5,063,813
74-866	5,063,814
74-867	5,063,815
74-868	5,063,816
74-878	5,063,817
128-746	5,063,946
220-626	5,064,055
606-154	5,064,057
220-359	5,064,073
385-014	5,064,263
385-130	5,064,264
385-130	5,064,265
385-132	5,064,266
385-050	5,064,267
385-087	5,064,268
385-115	5,064,269
385-013	5,064,270
385-033	5,064,271
356-028	5,064,280
356-030	5,064,281
356-040	5,064,282
356-073	5,064,283
356-121	5,064,284
356-141	5,064,285
356-153	5,064,286
356-246	5,064,287
356-350	5,064,288
356-351	5,064,289
356-356	5,064,290
356-372	5,064,291
241-003	5,064,407
60-611	5,064,423
359-330	5,065,046
359-333	5,065,108
346-140	5,065,158
395-800	5,065,308
395-425	5,065,310
395-575	5,065,311

VOL
1132
ISS
2
NO
12
1991
UMI

395-575 5,065,312
395-275 5,065,313
395-325 5,065,314
395-097 5,065,337
395-051 5,065,338
395-024 5,065,339
395-134 5,065,342
395-162 5,065,343
395-134 5,065,344
395-154 5,065,345
395-128 5,065,346
395-159 5,065,347
395-575 5,065,354
395-800 5,065,355
395-800 5,065,356
395-200 5,065,357
395-800 5,065,359
395-800 5,065,360
359-184 5,065,454
359-159 5,065,455
359-187 5,065,456
359-032 5,067,792
385-127 5,067,793
359-824 5,067,794
359-084 5,067,795
359-088 5,067,796
359-076 5,067,797
359-286 5,067,798
359-490 5,067,799
359-642 5,067,800
359-666 5,067,801
359-700 5,067,802
359-708 5,067,803
359-369 5,067,804
359-235 5,067,805
65-003 5,067,975
148-421 5,068,003
507-103 5,068,041
514-215 5,068,325
514-256 5,068,337
562-453 5,068,384
359-328 5,068,546
357-016 5,068,756
395-700 5,068,780
395-325 5,068,781
395-425 5,068,782
395-575 5,068,783
395-275 5,068,784

395-325 5,068,785
395-800 5,068,786
395-025 5,068,801
395-133 5,068,802
395-150 5,068,803
395-147 5,068,804
395-164 5,068,805
395-113 5,068,806
395-115 5,068,807
395-119 5,068,808
395-145 5,068,809
395-275 5,068,820
395-800 5,068,821
395-775 5,068,822
395-500 5,068,823
395-800 5,068,824
359-118 5,068,847
373-002 5,068,860
373-164 5,068,886

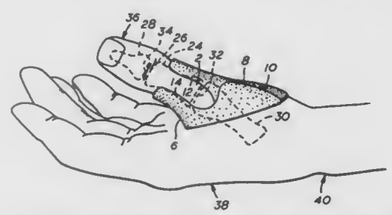
VOL
1132
ISS
2
NO
12
1991
UMI

PATENTS

GRANTED NOVEMBER 12, 1991

GENERAL AND MECHANICAL

5,063,613
THUMB PROTECTOR
Michael G. Brown, P.O. Box 8249, Houston, Tex. 77387
Continuation-in-part of Ser. No. 135,996, Dec. 21, 1987. This application Apr. 30, 1990, Ser. No. 516,820
Int. Cl.[5] A61F *5/37;* **A41D** *13/08*
U.S. Cl. 2—21 **8 Claims**



1. A thumb protector characterized as a rigid structure conformed to fit a human hand and adapted to removably engage and surround a portion of a thumb of a human hand comprising:

(a) an ulnar portion having a predetermined acute angle therein and adapted to extend continuously about the ulnar aspect of the proximal phalanx of the thumb and to extend to a predetermined terminus adjacent to the interphalangeal joint of said thumb and

(b) a radial portion continuous with said ulnar portion and adapted to extend about a portion of the radial aspect of said thumb and to extend to a predetermined terminus adjacent to the interphalangeal joint of said thumb; said ulnar portion and said radial portion being separated by a dorsal slot and flared about said terminus thereby providing a specified fixed flexion of the metacarpalphalangeal joint, substantially full flexion of the interphalangeal joint and inhibiting radial deviation of the thumb at the metacarpalphalangeal joint by three point fixation whereby the user is protected against rupture of the thumb metacarpalphalangeal joint ulnar collateral ligament.

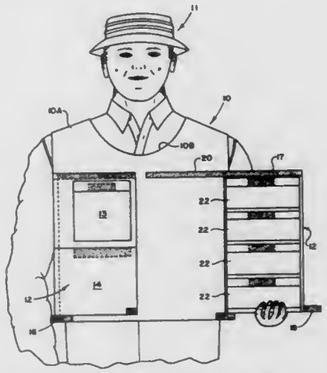
5,063,614
REVERSIBLE GARMENT HAVING DETACHABLE POCKETS
Kenneth E. McSheffery, R.D. 5 Box 156, Uniontown, Pa. 15401
Filed Jan. 29, 1991, Ser. No. 647,480
Int. Cl.[5] A41D *13/00, 27/20*
U.S. Cl. 2—94 **10 Claims**

1. A garment for carrying items, the garment comprising:

a quantity of fabric having an opening for permitting passage of a user's head therethrough and defining front and rear portions for covering front and rear sides of a torsal region of the user;

at least one storage container;

at least one flap hingedly attached to at least one of the front and rear portions and including an interior and an exterior surface; and



a fastener for securing at least one of the storage containers to the interior surface of at least one of the flaps.

5,063,615
COEXTRUDED PLASTIC BELT STRAP, BUCKLE AND BELT
Michael Chernuchin, New York, N.Y., and Richard Satin, Swampscott, Mass., assignors to Fashion Technologies, Inc., Waltham, Mass.
Continuation-in-part of Ser. No. 464,947, Jan. 16, 1990, which is a division of Ser. No. 276,677, Nov. 28, 1988, Pat. No. 4,912,828.
This application Aug. 24, 1990, Ser. No. 572,479
Int. Cl.[5] A41F *3/02, 9/00, 15/00*
U.S. Cl. 2—338 **28 Claims**



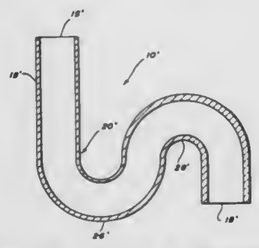
14. A finished belt strap simulating a leather belt strap comprising

(A) an unfinished flexible molded plastic strap for a belt coextruded with a thin front layer of light color plastic having a thickness of about 10–30 mils and a continuous relatively thick back layer of relatively dark color plastic having a thickness of at least 100 mils; said front layer being embossed to a depth less than the thickness thereof so that at least areas thereof are in relief relative to other areas thereof; and

(B) a film of finish disposed on the exposed surface of said front layer having a thickness of less than 1 mil, said film being of varying thickness according to the degree of relief of said strap, applied to the front of said molded plastic strap in a post-molding finishing operation, and closer in color to said back layer than said front layer, said molded plastic strap and film together define aligned apertures extending therethrough as belt holes, the surfaces defining the circumferences of said belt holes being of the same color as said back layer substantially throughout.

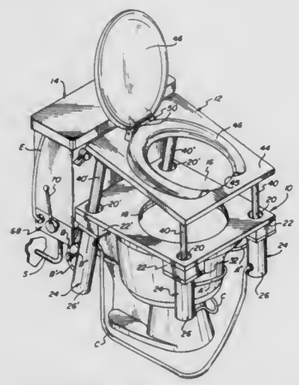
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,616
FLEXIBLE DRAINAGE TRAP
Jeremiah J. Bresnahan, 6311 Juniata, St. Louis, Mo. 63139
Filed Sep. 17, 1990, Ser. No. 583,661
Int. Cl.[5] E03C *1/284;* F16K *13/00*
U.S. Cl. 4—191 6 Claims



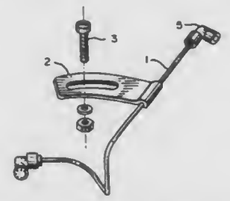
1. A drainage trap comprising a self-supporting, flexible tubing having a generally S-shaped configuration with first and second oppositely directed generally U-shaped bends; said tubing having a first and upper end removably attachable to a drain outlet and a second and lower end removably attachable to a discharge pipe; said first U-shaped bend forming a trap portion and said tubing being manually manipulatable to allow the trap portion to be movable vertically towards the first end and horizontally towards the second end to a position wherein the first U-shaped bend is inverted above the second U-shaped bend whereby the contents of the trap portion can be drained into the discharge pipe through the second end.

5,063,617
HYDRAULIC TOILET SEAT
Walter J. Ward, 94 Risley St., East Hartford; Ellwyn St. Louis, 244 Old Springfield Rd., Stafford Springs, Conn. 06076, and Frederick A. Ward, Rte. 1, Box 40B, Cairo, Mo. 65239
Filed Sep. 17, 1990, Ser. No. 583,197
Int. Cl.[5] A47K *13/10*
U.S. Cl. 4—251 15 Claims



1. An hydraulic toilet seat assembly, comprising a toilet seat member having forward, rearward and laterally opposite side portions; and hydraulic operating means including at least one front motor and one back motor, said motors having means for connecting them to an hydraulic supply for simultaneous operation, and each having a piston, movable through a travel length between a fully retracted position and a fully extended position, the travel length of said back motor piston being substantially greater than that of said front motor piston, said pistons of said front and back motors being operatively connected to said forward and rearward portions of said seat member, respectively, said operating means disposing said seat member in a lowered position and a generally horizontal attitude with said pistons in said fully retracted positions thereof, and disposing said seat member in an elevated position and a forwardly tilted attitude in said fully extended positions of said pistons.

5,063,618
PERSONAL HYGIENE DEVICE
Abbas F. Souka, 1318 Slatestone Ct., Raleigh, N.C. 27615
Continuation-in-part of Ser. No. 479,367, Feb. 12, 1990, abandoned. This application Sep. 12, 1990, Ser. No. 582,651
Int. Cl.[5] A47K *3/20*
U.S. Cl. 4—420.4 3 Claims



1. A personal hygiene device for use with a toilet bowl having an upper rim and a seat hinged to a rear portion of the bowl, said seat hinge being secured to said bowl by at least one bolt retainer, said personal hygiene device comprising:

a water carrying tube having an inlet end adapted to be connected to a source of water, said tube being configured to extend over the toilet bowl rim and down into the bowl, said tube further being configured to extend toward said rear portion of the toilet bowl generally conforming to the contour thereof under the rim, said tube terminating in an outlet end adapted to be positioned substantially at the rear center of the toilet bowl, said outlet end having a forwardly directed showerhead connected thereto; and,

a positioning bracket for securing said water carrying tube to the toilet bowl, said bracket being substantially planar and having an arcuate slot in a first end portion thereof, said bracket first end portion adapted to be positioned between the toilet seat hinge and toilet bowl and secured to the toilet bowl by the bolt retainer passing through said slot, said bracket having an opposing second end portion terminating in a downwardly open C-shaped clamp engaging said tube at said portion extending over the toilet bowl rim when said bracket first end portion is secured to the bowl;

whereby said arcuate slot enables adjustable positioning of said water carrying tube to accommodate various toilet bowl shapes to position said showerhead at said substantially centered position.

5,063,619
VACUUM BREAKER FOR BIDET
Gilbert W. Ross, Zionsville; Scott C. Baker, Lebanon, and Svend Demant, Frankfort, all of Ind., assignors to U.S. Tap, Inc., Frankfort, Ind.
Filed Jun. 1, 1990, Ser. No. 532,024
Int. Cl.[5] A47K *3/22*
U.S. Cl. 4—443 18 Claims

1. A vacuum breaker assembly for a bidet, comprising:

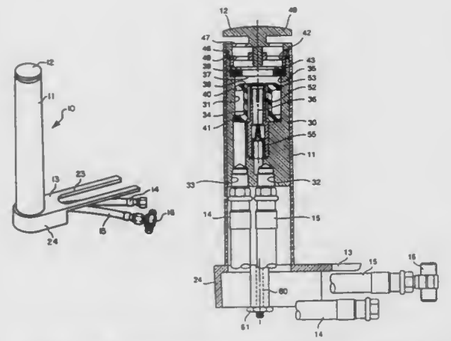
a vacuum breaker body defining a fluid passageway having an inlet, an outlet and a vacuum breaker opening communicating exteriorly of said vacuum breaker assembly to ambient air;

a piston valve movably received within the fluid passageway of said vacuum breaker body, said piston valve moving between a first position wherein the vacuum breaker

opening is open and a second position wherein the vacuum breaker opening is closed;

a valve seal associated with said piston valve and the vacuum breaker opening in said vacuum breaker body, said piston valve defining a seating surface sized and shaped to close said vacuum breaker opening by sealing contact with said valve seal;

a duckbill valve fixedly received within the fluid passageway of said vacuum breaker body in communication with said piston valve;

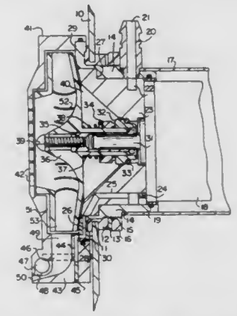


first and second flexible conduits connected to the vacuum breaker body inlet and outlet in fluid communication with the fluid passageway; and

a tubular housing connected to and extending from said vacuum breaker body, said tubular housing extending around said flexible conduits along at least a portion of the lengths thereof.

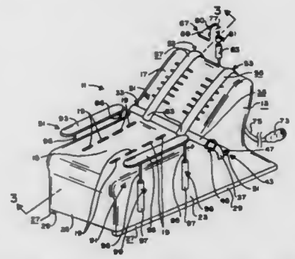
5,063,620
BATH WITH SWIRL NOZZLES
Heinz-Werner Mersmann, Ahlen, Fed. Rep. of Germany, assignor to Franz Kaldewei GmbH & Co., Fed. Rep. of Germany
PCT No. PCT/DE88/00782, § 371 Date Sep. 10, 1990, § 102(e) Date Sep. 10, 1990, PCT Pub. No. WO89/06120, PCT Pub. Date Jul. 13, 1989
PCT Filed Dec. 24, 1988, Ser. No. 536,614
Claims priority, application Fed. Rep. of Germany, Jan. 9, 1988, 3800400
Int. Cl.[5] A61H *33/02*
U.S. Cl. 4—542 18 Claims

1. In a whirlpool bathtub having devices generating jets of at least one of water and air which can be directed into an interior of a tub from several positions on at least one of a side wall and a bottom wall of the tub, where one individual, drivable device of said devices corresponds to each said position, said device being mounted within the tub side wall and includes driving means positioned exterior of the tub and further includes a nozzle housing having a pump chamber and an impeller positioned within the nozzle housing and operatively connected to the driving means, the pump chamber being sealed watertight towards the exterior of the tub and opening towards the tub interior, the nozzle housing further having a nozzle cover with centrally positioned suction openings and peripherally positioned nozzle means, the improvement comprising:



the impeller (36) axially takes in water from the tub interior through the suction openings and supplies the water radially through feed conduit means (53) to the nozzle means in the nozzle cover (41).

5,063,621
BATH CHAIR
Ceola Sellars, 5194 Cresser, Memphis, Tenn. 38116
Filed Jul. 2, 1990, Ser. No. 547,053
Int. Cl.[5] A47K *3/02*
U.S. Cl. 4—568 3 Claims



1. A bath chair for being positioned within a standard bathtub and for supporting a bather in a seated position in said standard bathtub, said bath chair comprising:

a. a body including:

i. a seat portion for supporting said bather's buttocks; and,

ii. a back portion for supporting said bather's back; said body having a plurality of apertures through said seat portion for allowing water to pass therethrough; said body having a plurality of apertures through said back portion for allowing water to pass therethrough; said seat portion being fixed relative to said back portion; the plane of said back portion of said body of said bath chair being tilted at least 30 degrees upward from the plane of said seat portion of said body of said bath chair for supporting said bather in a seated position; and,

b. arm rest means attached to said body of said bath chair for supporting said bather's arms, said arm rest means being adjustable in height.

VOL 1132 ISS 2 NO 12 1991 UMI

5,063,622

WATER SUPPLY CONTROL SYSTEM

Osamu Tsutsui; Takao Yoshida, and Shoji Inoue, all of Kanagawa, Japan, assignors to Toto Ltd., Japan

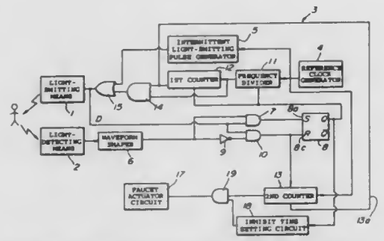
PCT No. PCT/JP90/00149, § 371 Date Oct. 4, 1990, § 102(e) Date Oct. 4, 1990, PCT Pub. No. WO90/09491, PCT Pub. Date Aug. 23, 1990

PCT Filed Feb. 7, 1990, Ser. No. 582,226

Claims priority, application Japan, Feb. 7, 1989, 1-28029

Int. Cl.[5] E03C *1/05*

U.S. Cl. 4—623 **14 Claims**



1. A water supply control system having light-emitting means for periodically emitting light, light-detecting means for detecting light emitted from the light-emitting means and reflected from a portion of the body of a user, and control means for controlling a faucet to supply water based on a detected signal from the light-detecting means, wherein said control means comprises auxiliary light-emitting means for enabling said light-emitting means to effect a plurality of light emissions at a period shorter than the period at which the light is periodically emitted thereby, when a user is detected on the basis of the detected signal from said light-detecting means, and decision means for counting the number of times in which the light is detected by said light-detecting means, among the light emissions caused by said auxiliary light-emitting means, and for controlling said faucet based on the counted number.

5,063,623

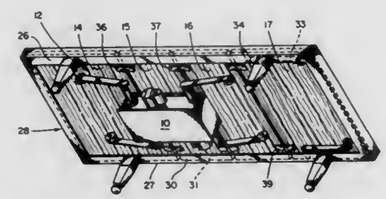
POWER MODULE FOR AN ARICULATED BED

Leeland M. Bathrick, 6820 New Hampshire Trail, Crystal Lake, Ill. 60014; Michael W. Chizek, 1521 Walter Ave., Racine, Wis. 53403, and Glenn Brittain, 2613 Drucker La., McHenry, Ill. 60060

Filed Oct. 15, 1990, Ser. No. 597,525

Int. Cl.[5] A61G *7/05*

U.S. Cl. 5—67 **13 Claims**



1. A unitary power module for an articulated mattress support adapted to fit into a standard bed frame having recesses adapted to receive a mattress, comprising: housing means, motor means supported on the housing means, gearing in the housing means adapted to be driven by the motor means, an output rocker shaft mounted and soley supported in the housing means driven by the gearing, said rocker shaft extending laterally outwardly from the housing means outside the housing means, arm means fixed to the rocker shaft having a distal end with slide means adapted to engage a movable member in the mattress support to swing the movable member up and down, and control means to reversely operate the motor to raise and lower the movable member in the mattress support, means on the housing means for completely supporting the power module on the bed, said power module being unsupported on the rocker shaft, whereby the power module can be installed on and removed as a unit from the bed without disassembling the frame.

5,063,624

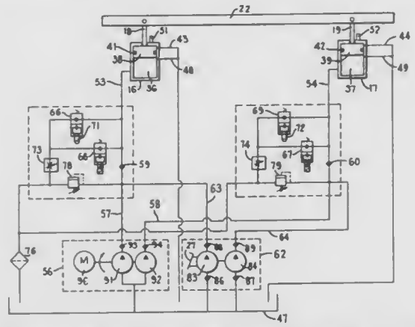
MANUAL/ELECTRIC TWIN JACK BED

Frank E. Smith, Battle Creek, and Stephen C. Travis, Paw Paw Township, Van Buren County, both of Mich., assignors to Stryker Corporation, Kalamazoo, Mich.

Filed May 8, 1990, Ser. No. 521,144

Int. Cl.[5] A61G *1/00*

U.S. Cl. 5—63 **14 Claims**



13. An apparatus comprising: a base; a support member having an upwardly facing support surface; spaced fluid actuated first and second cylinders which each have one end supported on said base and a further end supported on said support member and which facilitate vertical movement of said support member relative to said base; and electrically actuated fluid pump means for simultaneously supplying fluid to each of said first and second cylinders so that said further ends of said first and second cylinders move simultaneously upwardly; wherein said pump means includes two pumps which each supply fluid to a respective one of said first and second cylinders and a single electric motor having a drive shaft which is drivingly coupled to each of the pumps.

5,063,625

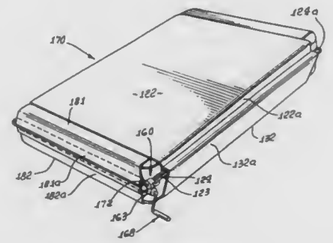
ADJUSTABLE TENSIONING OF A MATTRESS

Leroy R. Perry, 1301 E. Rubio St., Altadena, Calif. 91001

Continuation-in-part of Ser. No. 335,508, Apr. 10, 1989, Pat. No. 5,027,459. This application May 15, 1990, Ser. No. 523,480

Int. Cl.[5] A47C *27/045*

U.S. Cl. 5—475 **23 Claims**



22. A mattress having, in combination,

a) first and second tensionable sleeping sections,

b) and means to selectively adjust the hardness of at least one of said sleeping sections,

c) said b) means comprising a rotor operatively connected with one of said sections, a rotor housing and means carried by the housing and operatively connectible with the rotor for blocking rotor rotation when said one section is tensioned and for allowing rotor rotation as during lessened tensioning of said one section, said housing carried by said mattress.

5,063,626

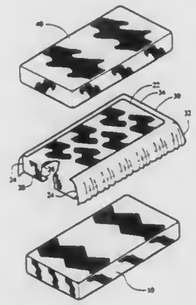
DUST RUFFLE

Mary L. Carlos, 4500 Roland Ave., Dallas, Tex. 75219

Filed Nov. 13, 1990, Ser. No. 611,673

Int. Cl.[5] A47G *9/02*

U.S. Cl. 5—493 **6 Claims**



1. A unitary dust ruffle adapted to be positioned on a box spring which supports a mattress comprising: a section of fabric with dimensions slightly larger than the box spring, said fabric covering the horizontal top surface and vertical sides of the box spring and having peripheral edges extending beneath the bottom of the box spring, elastic means attached to the peripheral edges of the section of fabric to enable the section of fabric to substantially conform to the shape of the box spring, a first section of decorative fabric secured to the section of fabric along the perimeter of the horizontal surface of the box spring, and descending vertically towards the floor above which the box spring is supported; and a second section of decorative fabric, comprised of a U-shaped strip superimposed on and attached to the section of fabric along the perimeter of the horizontal surface of the box spring, and along a line spaced inwardly towards the center of the boxspring, this line corresponding to the width of the strip.

5,063,627

DRYWALL TOOL

Dominic A. Marra, 260 Columbus Ave., Pawtucket, R.I. 02861

Filed Oct. 15, 1990, Ser. No. 597,513

Int. Cl.[5] B44C *7/00*

U.S. Cl. 7—105 **3 Claims**

1. A drywall tool comprising, in combination,

a rigid taping blade, the taping blade including an elongate forward terminal end, and

a handle integrally mounted to the taping blade remote from the elongate edge, with the handle longitudinally aligned and orthogonally oriented relative to the elongate edge, and

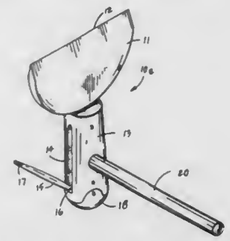
the handle including a first side and a second side, with the first side including an elongate longitudinal slot directed therewithin, and

an elongate shaft including a pivot axle pivotally mounting the elongate shaft within the elongate slot, and

a screw driver blade mounted to an outer terminal end of the elongate shaft remote from the pivot axle, and

further including a cup-shaped metallic cover member fixedly mounted to a rear terminal end of the handle remote from the taping blade, and

including a further elongate slot directed through the second side of the handle, with the second slot including a knife blade pivotally mounted and complementarily receivable



within the further elongate slot, with the cutting edge formed to an outer terminal end of the knife blade, and including a threaded bore orthogonally directed through the elongate handle orthogonally oriented relative to the longitudinal axis of the handle, and a longitudinally aligned auxiliary handle including a threaded lower terminal end, with the threaded lower terminal end complementarily receivable within the threaded bore.

5,063,628

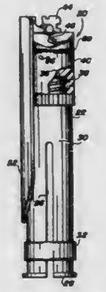
SURVIVAL DEVICE

Larry E. Campbell, 27575 Elderview Dr., Valencia, Calif. 91355

Filed Mar. 5, 1990, Ser. No. 488,175

Int. Cl.[5] A01B *1/00*

U.S. Cl. 7—116 **12 Claims**



1. An improved survival device, said device comprising, in combination:

a) a hollow tubular elongated main body having a curved side and opposite front and rear ends;

b) a head detachably secured to said main body at said front end;

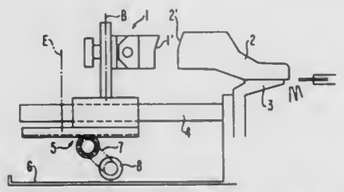
c) an elongated blade pivotably connected to said head and movable between a storage position parallel to and adjacent to said side, an intermediate lockable position extending laterally at about a 90° angle to the longitudinal axis of said main body, and a fully extended lockable position projecting forwardly of said head parallel to said longitudinal axis, said blade being usable as a utensil, digging implement, knife blade, spear and grappling book;

d) wherein said blade is connected to a locking plate pivotally secured to said head, said locking plate bearing a first notch on the periphery thereof releasably engageable in a cross pin in said head to lock said blade into said interme-

VOL 1132 ISS 2 NO 12 1991 UMI

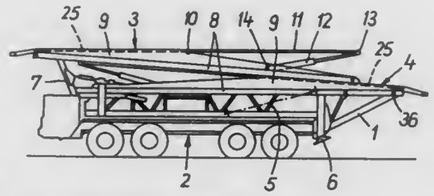
diate position and wherein said locking plate bears a second notch on the periphery thereof oriented 90° from said first notch and releasably engageable with said cross pin to lock said blade into said fully extended position.

5,063,629
HEEL SUPPORT DEVICE WITH REDUCED MOVEMENT OF SUPPORT
Tilo Löffler, Pirmasens, Fed. Rep. of Germany, assignor to Schön & Cie. AG, Pirmasens, Fed. Rep. of Germany
Filed Jan. 31, 1990, Ser. No. 473,157
Claims priority, application Fed. Rep. of Germany, Jan. 31, 1989, 3902737
Int. Cl.[5] A43D *21/00*
U.S. Cl. 12—12.4 **6 Claims**



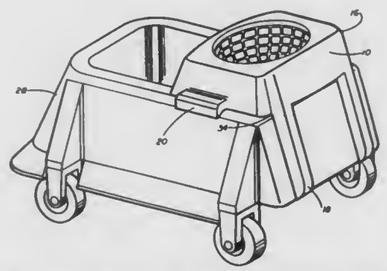
1. In a heel support device for use in a shoe making machine for conducting a plurality of successive lasting cycles each including lasting a toe and sides of a shoe upper tensioned over a last seated on a last support, said heel support device including a heel support to be movable along a fixed guide of the machine, and drive means for moving said heel support along the guide in a first direction from an unloading position to be spaced from the last to a supporting position to be in contact with and supporting a heel portion of the upper tensioned about the last and, after completion of lasting, moving said heel support along the guide in an opposite second direction to return said heel support to said unloading position, whereupon such last and lasted upper are removed from the last support and a new last and upper to be lasted are positioned thereon for a subsequent lasting cycle, the improvement of means for, upon completion of one lasting cycle, reducing the distance of movement of said heel support in said first direction required to reach said supporting position for the new last and upper of the subsequent lasting cycle, said reducing means comprising:
means, operatively connected to said drive means, for causing said drive means to move said heel support in said first direction from said unloading position to a loading position between said unloading position and the said supporting position required for the said subsequent lasting cycle, such that when the new last and upper for the said subsequent lasting cycle then are positioned on the last support said drive means is operated to move said heel support in said first direction from said loading position to the said supporting position required for the said subsequent lasting cycle, said causing means comprising automatically operable control means for determining said loading position as a function of the said supporting position of said heel support in a previous lasting cycle; and
the improvement further comprising manually operable control means, operatively connected to said drive means, for selectively moving said heel support to a manually determined said loading position.

5,063,630
MOVABLE BRIDGE AND SYSTEM FOR LAYING THE BRIDGE
Hans-Norbert Wiedeck, Mülheim/Ruhr, Fed. Rep. of Germany, assignor to Krupp Industrietechnik GmbH, Duisburg, Fed. Rep. of Germany
Filed Apr. 6, 1990, Ser. No. 505,690
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1989, 3911266
Int. Cl.[5] E01D *15/12*
U.S. Cl. 14—2.4 **13 Claims**



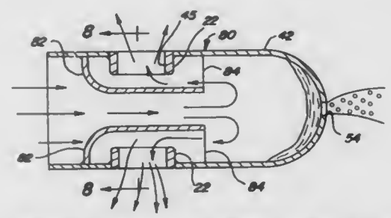
1. A movable bridge comprising:
a bridge section having an upper face with a roadway thereon and a hinge having a horizontal axis perpendicular to the longitudinal direction of the bridge; and
a lower chord fixed to and extending along the length of said bridge section, said bridge section including an end region pivotally attached at said hinge.

5,063,631
JANITORIAL APPARATUS
Mary E. Parker, P.O. Box 20543, Houston, Tex. 77225
Filed Jun. 25, 1990, Ser. No. 544,121
Int. Cl.[5] A47L *13/58*
U.S. Cl. 15—263 **7 Claims**



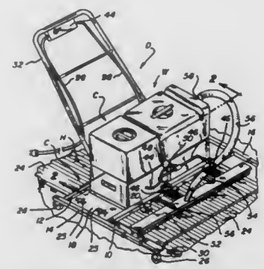
1. A mop receptacle for use with a mop bucket comprising an inner body, and
an outer body connected to the inner body and having a plurality of split legs each having an inner leg and an outer leg, the inner legs to be engaged within the mop bucket and the outer legs to be on the exterior of the mop bucket, and a plurality of support surfaces spaced from said split legs to engage the upper surface of the bucket at points spaced from said split legs to provide a stable support for the receptacle on the bucket,
said inner body forming a bowl with a plurality of openings therethrough.

5,063,632
SOOTBLOWER WITH CONDENSATE SEPARATOR
John E. Clark, North Olmsted, Ohio, and Jack D. Shenker, Kinnleon, N.J., assignors to The Babcock & Wilcox Company, New Orleans, La.
Filed Dec. 4, 1990, Ser. No. 624,722
Int. Cl.[5] F23J *3/00*
U.S. Cl. 15—316.1 **15 Claims**



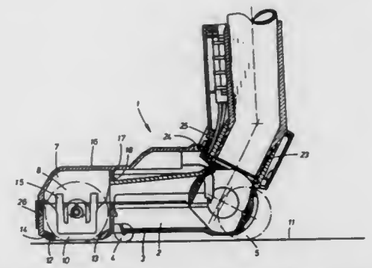
1. A sootblower nozzle block assembly carried by a sootblower lance tube for projecting a jet of a sootblowing medium such as steam or a steam/air mixture against internal surfaces of a heat exchanger for causing soot or slag encrustations to be removed from said internal surfaces, comprising:
nozzle block housing means having a hollow interior passage for the flow of said sootblowing medium,
condensate separator means within said nozzle block housing for separating out condensate of said sootblowing medium present in said lance tube,
cleaning nozzle means carried by said nozzle block housing for projecting said jet of sootblowing medium against said internal surfaces, and
condensate ejection means for allowing condensate separated by said condensate separator means to escape said lance tube and being prevented from being projected through said cleaning nozzle means.

5,063,633
FLUID HANDLING APPARATUS FOR BOWLING LANE CLEANING DEVICE
Donald E. Ingermann, Arvada; Ronald L. Smith, Boulder; Stephen F. Caffrey, Arvada, and Lonney J. Steinhoff, Evergreen, all of Colo., assignors to Century International Corporation, Golden, Colo.
Continuation-in-part of Ser. No. 371,295, Jun. 26, 1989, Pat. No. 4,920,604. This application Jan. 29, 1990, Ser. No. 471,507
Int. Cl.[5] A47L *9/00*
U.S. Cl. 15—320 **11 Claims**



1. A vacuum bowling lane stripper comprising:
a carriage for movement along a bowling alley from a foul line to the pit, said carriage having a forward portion and a rear portion;
cleaner applicator means in said forward portion;
a cleaner reservoir;
means for supplying cleaner from said reservoir to said applicator means for applying cleaner to the bowling alley ahead of said carriage as said carriage is moved along the lane;
a vacuum means for removing cleaner and dirt from the surface of the lane, said vacuum means having a vacuum head extending transversely of said forward portion of said carriage and in an operative lane-engaging position said vacuum means further including
a waste tank mounted in the rear portion of said carriage, said tank having a top, a bottom, spaced forward and rear side walls and spaced opposite end walls and having an inlet in one of said end walls and an outlet in said bottom wall;
a vacuum hose connected between said vacuum head and said inlet of said waste tank; and
a vacuum motor connected to said outlet of said waste tank to draw a vacuum from said head through said vacuum hose and said waste tank.

5,063,634
FLOOR NOZZLE FOR A VACUUM CLEANER
Siegfried Häfele, Esslingen-Zell, and Gernot Jacob, Weissach, both of Fed. Rep. of Germany, assignors to Progress Elektrogerate GmbH, Nurtingen, Fed. Rep. of Germany
Filed Jan. 31, 1990, Ser. No. 472,834
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1989, 3904396
Int. Cl.[5] A47L *5/36*
U.S. Cl. 15—377 **10 Claims**



1. A floor nozzle for vacuum cleaners, in particular floor nozzle with a driven, roller-like cleaning means which is rotatably supported in the suction chamber of the nozzle housing and which partially protrudes through a slot disposed in the bottom of the housing, that nozzle housing having a substantially closed bottom and in its upper portion an opening, through which the suction chamber and the mechanical driving members of the cleaning means are accessible when the floor nozzle is in the operation position, said opening being closed by a cover which is hinged on the nozzle housing by at least one film hinge, characterized in that the cover is hinged on the forward front face of the nozzle housing, that one part of each film hinge is fastened to the cover, and that the other part of the film hinge is connected with at least one latch means which is adapted to engage by a click-stop arrangement into a corresponding clearance in the housing front face.

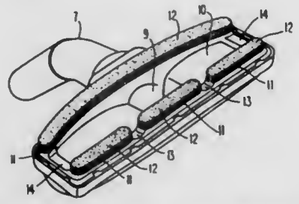
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,635

SUCTION HEAD FOR ATTACHMENT TO A VACUUM CLEANER

Mitsuo Ishii, and Yoshitaka Murata, both of Shiga, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 7, 1990, Ser. No. 519,614
Claims priority, application Japan, May 8, 1989, 1-114714; Jun. 14, 1989, 1-151765; Aug. 18, 1989, 1-213396; Jan. 12, 1990, 2-5012; Jan. 17, 1990, 2-7408
Int. Cl.[5] A47L 9/06
U.S. Cl. 15—398 2 Claims



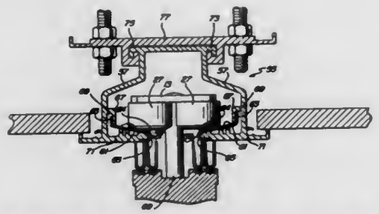
1. A suction head for attachment to a vacuum cleaner, the suction head comprising a suction port including a brush supporting ridge on its periphery, the brush supporting ridge including a front side and a rear side with respect to the suction port a brush of cut piles of woven cloth disposed on the brush supporting ridge, wherein a first segment of the brush mounted on the front side of the brush supporting ridge comprises a plurality of brush portions spaced from each other by air passages, and the first segment of the brush on the front side of the brush supporting ridge and a second segment of the brush mounted on the rear side of the brush supporting ridge are spaced from each other by air passages extending perpendicularly to the direction in which air is induced into the suction head.

5,063,636

TRACK SYSTEM FOR OPERABLE WALL

Warren S. Dickson, Brea, Calif., assignor to Advanced Equipment Corporation, Fullerton, Calif.

Filed Sep. 7, 1990, Ser. No. 579,409
Int. Cl.[5] E05D 15/06
U.S. Cl. 16—98 20 Claims



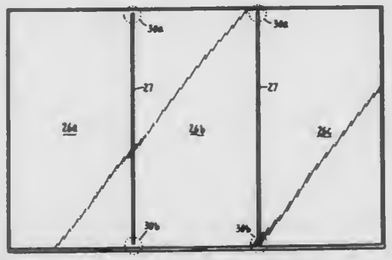
1. An operable wall system for movably supportiug an operable wall comprising:
a carriage assembly having at least four substantially horizontally rotating carriage wheels and at least four vertical shafts, said carriage wheels being horizontally spaced from one another and each carriage wheel being mounted on a respective vertical shaft and having a beveled bottom surface; and
guide track means for providing first and second riding track surfaces for rollably supporting, at any given time, less than all though at least a pair of said carriage wheels, whereby said carriage assembly may smoothly negotiate a turn or transition in said guide track means, each of said first and second riding track surfaces being angled downward and defining a central groove therebetween.

5,063,637

LAMINATED ARTICLE WITH HINGE AND METHOD FOR MANUFACTURING LAMINATED ARTICLES

Daggett H. Howard, Jr., and Donald F. Wood, both of San Francisco, Calif.

Continuation of Ser. No. 325,556, Mar. 17, 1989, abandoned.
This application Oct. 16, 1990, Ser. No. 599,276
Int. Cl.[5] B42D 3/00
U.S. Cl. 16—225 11 Claims



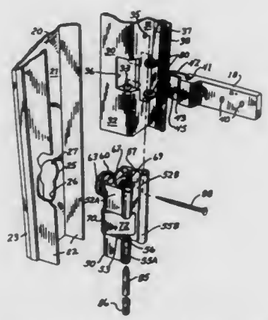
1. A hingedly joined laminated article, comprising:
a) two or more leaves, each having a thickness, spaced apart so as to form one or more gaps having a width;
b) a bottom sheet of laminating film having a thickness and contracting one side of said two or more leaves;
c) a top sheet of laminating film having a thickness, contacting the other side of said two or more leaves and contacting said bottom sheet of laminating film at said one or more gaps to form one or more webs,
wherein said gap width is equal to or greater than the combined thickness of twice the thickness of one leave and four times the thickness of said laminating film, and wherein said thickness of each leave is between approximately five and fifteen times said thickness of each sheet of said laminating film, so that said article is substantially flat when in a horizontal open or closed position.

5,063,638

HINGE ASSEMBLY

John R. Howard, West Chicago, and Charles E. Nichols, Woodridge, both of Ill., assignors to Sterling Plumbing Group, Inc., Schaumburg, Ill.

Filed Aug. 17, 1990, Ser. No. 568,935
Int. Cl.[5] E05D 7/04
U.S. Cl. 16—238 12 Claims



1. A hinge assembly for mounting a door, comprising:

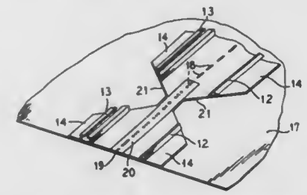
a wall jamb;
a jamb cover adjustably positioned relative to the wall jamb, the jamb cover having a body portion, flanges extending from the body portion, and a cut-out area;
a bracket positioned between the wall jamb and jamb cover so as to be secured to the jamb cover and shrouded thereby;
means connected to the bracket for adjustably mounting the bracket relative to the wall jamb;
a hinge member extending through the cut-out area and being pivotally mounted relative to the jamb cover, the hinge member having a control arm extending between the wall jamb and jamb cover;
resilient means positioned between the wall jamb and jamb cover for contacting the control arm for imparting a pivotal force on the hinge member, said resilient means and control arm being shrouded by said jamb cover.

5,063,639

ZIPPERED CLOSURE FOR PACKAGES

Hugo Boeckmann, and Daniel P. McDonald, both of Arlington Heights, Ill., assignors to Zip-Pak Incorporated, Northbrook, Ill.

Filed Feb. 23, 1990, Ser. No. 483,677
The portion of the term of this patent subsequent to Jan. 30, 2007, has been disclaimed.
Int. Cl.[5] B65D 5/54
U.S. Cl. 24—30.5 R 21 Claims



1. Zippered material for packages, comprising:
a thermoplastic zipper strip having longitudinally extending complementary reclosably interlockable zipper profiles with a web separating the profiles;
said strip being notched out to said web from opposite sides at package section intervals and with limited respective areas of said web providing links connecting the sections of the strip at the notches;
a sheet of package making material engaged by the web;
said links being sealed and flattened onto said sheet material;
said web and said material having matching lines of weakening; and
said web being hermetically bonded to said material and at least the line of weakening of said web being hermetically sealed to prevent leakage through said lines of weakening, but enabling tear-open separation along said lines of weakening.

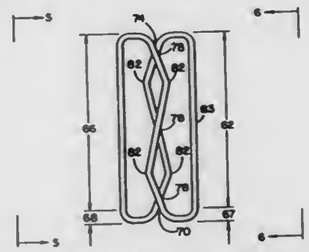
5,063,640

ENDLESS FILAMENT PAPER CLIP

Charles T. Link, 6227 Pattypeart Way, Carmichael, Calif. 95608

Filed Oct. 26, 1990, Ser. No. 604,055
Int. Cl.[5] B42F 1/02; A44B 21/00
U.S. Cl. 24—67.9 20 Claims

10. A generally symmetrical, flattened, and elongated clamping apparatus for securing to at least one sheet of thin material comprising an endless filament shaped to provide two oppositely facing pincers, wherein each of said oppositely facing pincers comprises:
a) a first pincer finger member comprising:
a first tip segment having first and second ends;
a first outer edge segment having first and second ends extending by said first outer edge segment first end from said first tip segment first end along a first outer edge of said apparatus;
a first inner gripping segment having first and second ends extending by said first inner gripping segment first end from said first tip segment second end along a sheet gripping region;
b) a second pincer finger member comprising:
a second tip segment having first and second ends;
a second outer edge segment having first and second ends extending by said second outer edge segment first end from said second tip segment first end along a second outer edge of said apparatus;
a second inner gripping segment having first and second ends extending by said second inner gripping segment first end from said second tip segment second end along said sheet gripping region; and



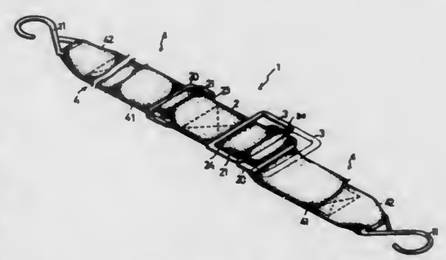
c) a resilient hinge region comprising first and second torsional hinges with each said first and said second hinges having first and second ends wherein said first torsional hinge first end is continuous with said first outer edge segment second end, said first torsional hinge second end is continuous with said second inner gripping segment second end, said second torsional hinge first end is continuous with said second outer edge segment second end, and said second torsional hinge second end is continuous with said first inner gripping segment second end whereby said first and second torsional hinges urge said first and said second pincer finger members together along said sheet gripping region between said first and said second inner gripping segments thereby securing said thin material.

5,063,641

BUCKLE FOR LOCKING STRAPS

Chiang C. Chuan, 4 Fl., No. 23, Alley 1, Lane 285, Sec. 1, Wen Hua Rd., Taipei Hsien, Taiwan

Filed Dec. 11, 1990, Ser. No. 625,463
Int. Cl.[5] A44B 11/00
U.S. Cl. 24—197 1 Claim

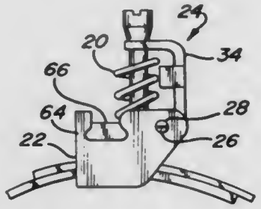


1. A buckle for locking straps used for fastening goods comprising:
a belt having two loop ends; an upper rectangular ring and a lower rectangular ring enclosed in each one of said loop ends, and each said lower and upper rectangular rings

VOL 1132 ISS 2 NO 12 1991 UMI

being wound by a strap for fastening goods; and a rectangular loosening ring having a long flat side being enclosed in one of said straps such that said strap which encloses said long flat side being locked when said loosening ring is in a horizontal position, and said strap being allowed to slacken when said loosening ring is in a vertical position.

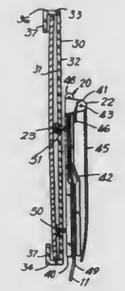
5,063,642
QUICK RELEASE BAND CLAMP
Andras Toth, 24171 Dan Apt. 104B, Mt. Clemens, Mich. 48043
Filed Apr. 19, 1990, Ser. No. 511,308
Int. Cl.[5] B65D *63/00*
U.S. Cl. 24—274 R 20 Claims



1. A quick release band clamp comprising:
a mounting bracket having a pair of spatially separated side support members attached in a longitudinal direction to said mounting bracket, each of said spatially separated side support members having a circular aperture disposed therein, said circular apertures being symmetrically positioned on said spatially separated side support members in relation to each other;
a pivoting bracket pivotally disposed between said pair of spatially separated side support members, said pivoting bracket having a top portion, a front leg portion extending from one end of said top portion and a rear leg portion extending from the other end of said top portion, said rear leg portion having a pair of trunnions disposed adjacent to said top portion which pivotably engage said circular apertures so as to connect said pivoting bracket to said mounting bracket, said pair of trunnions and said circular apertures cooperating to substantially prevent longitudinal displacement of said pivoting bracket in relation to said mounting bracket, said pivoting bracket being pivotable between an open position and a closed position;
a flexible band having a fixed end portion attached to said mounting bracket and a free end portion slidably receivable under said pivoting bracket and between said pair of spatially separated side support members of said mounting bracket, said free end portion having a plurality of transverse teeth; and
a worm screw rotatably attached to said pivoting bracket between said front and rear leg portions, said worm screw being disposed generally parallel to said top portion and displaced from said top portion a distance greater than the distance said pair of trunnions are displaced from said top portion, said worm screw having a helical thread engagable with said plurality of transverse teeth provided in said free end portion of said flexible band when said pivoting bracket is in said closed position and means for rotating said worm screw.

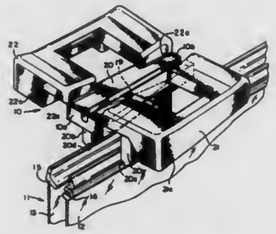
5,063,643
APPAREL BELT RETAINING DEVICE
Amy G. Siegel, 1155 Warburton Ave., Yonkers, N.Y. 10701
Filed Dec. 14, 1990, Ser. No. 627,487
Int. Cl.[5] A44B *21/00*
U.S. Cl. 24—335 1 Claim

1. A device for maintaining the relative position of an apparel belt in relatively fixed relation to the upper edge of a garment having an upper free edge terminating in the plane of the waist of a wearer comprising: an outer generally planar belt engaging element of effective height corresponding to the width of an engaged belt, said belt engaging element including a main wall of molded synthetic resinous material defining upper and lower edges, and integral narrow channel forming means at said edges extending substantially the entire length of said edges; said main wall having inner and outer surfaces, said



channel forming means overlying said outer surface; and a garment engaging element secured to said inner surface in fixed relation, said garment engaging element including a downwardly facing clip engaging opposite surfaces of said garment adjacent said upper edge; said planar belt engaging element completely overlying said garment engaging element to conceal the latter from view during use.

5,063,644
FOLDABLE ZIPPER SLIDER WITH COMPRESSION-TYPE LATCH
F. John Herrington, Holcomb, and Eric A. St. Phillips, Fairport, both of N.Y., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Mar. 22, 1991, Ser. No. 673,711
Int. Cl.[5] A44B *19/16*
U.S. Cl. 24—400 6 Claims



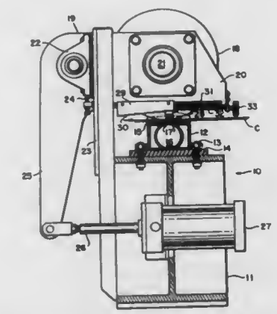
1. A foldable plastic slider for straddling relation with a profiled plastic reclosable fastener comprising reclosable interlocking male and female elements, the straddling slider for closing or opening the reclosable fastener elements comprising a separator finger and interlocking complementary structure formed from plastic for moving along the fastener, the complementary structure comprising a transverse support member having said separator finger depending therefrom, a pair of legs depending from said support member on opposite sides of said support member and on opposite sides of said finger, a pair of side walls hinged to the opposite sides of said support member on opposite sides of the respective legs, said side walls being foldable relative to said separator finger and having openings therein for receiving said depending legs, and means for interlocking said side walls to said depending legs comprising shoulder structure extending along an edge of each of said depending legs and flexible tongue structure extending along a corresponding edge in each of said side walls, said flexible tongue structure being depressible by the edge of said depending legs and adapted to snap into engagement with the respective shoulders on said legs to provide a compression-type latch for locking said side walls in their folded position.

5,063,645
DOUBLE-MOUTHED CLIP
Agustin G. Crespo, La Calderons s/no. 39500, Cabezon De La Sal (Cantabria), Spain
Filed Apr. 26, 1990, Ser. No. 514,613
Claims priority, application Spain, Apr. 26, 1989, 8901334
Int. Cl.[5] A44B *21/00*
U.S. Cl. 24—501 11 Claims



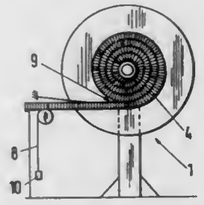
1. A double-mouthed clip comprising:
a pair of identical jaw parts, each of said jaw parts having a symmetrical, elongated shape with a first end, a second end and a central saw-toothed portion wherein said central portion has a substantially constant thickness and said jaw part tapers in thickness from said central portion to said first end and said second end; and
means for urging said jaw parts together so that said saw-toothed toothed portions face each other and act as pivots on both ends of said clip.

5,063,646
MEANS AND METHOD FOR EXTRACTING MOISTURE FROM A TRAVELING WEB OF TEXTILE MATERIAL
Dieter F. Zeiffer, Iron Station, N.C., and John S. Samilo, Ringgold, Ga., assignors to Gaston County Dyeing Machine Co., Stanley, N.C.
Filed Jul. 27, 1990, Ser. No. 558,669
Int. Cl.[5] D06B *15/00, 1/16, 5/08;* D21F *3/10*
U.S. Cl. 28—167 7 Claims



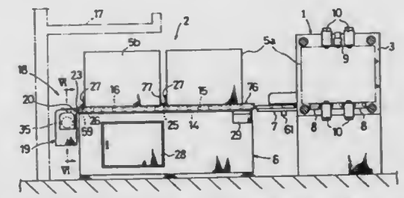
1. Means for extracting moisture from a traveling web of textile material containing high-moisture content processing fluid, comprising fluid applicator means extending transversely across a path of the traveling web, said fluid applicator means having a fluid distribution manifold extending transversely of one side of the web path and having opening means facing the traveling web and communicating between an interior of said manifold and the traveling web for application therethrough of low-moisture content fluid from the manifold into the traveling web to displace high-moisture content processing fluid from the traveling web, and flow restricting means extending across the path of the traveling web and facing another side of the web in opposition to said fluid application means closely downstream from said opening means for confining low-moisture content fluid flow from said applicator means into and through the traveling web, thereby causing displacement of high-moisture content fluid from the traveling web with low-moisture content fluid.

5,063,647
METHOD FOR HANDLING AND FURTHER PROCESSING A HONEYCOMB BAND
Christoph Rohrer, Binningen, and Hans Schmidlin, Aesch, both of Switzerland, assignors to Hans Schmidlin, Aesch, Switzerland
Filed Jul. 31, 1989, Ser. No. 387,272
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1988, 3825861
Int. Cl.[5] B21D *31/04*
U.S. Cl. 29—6.1 16 Claims



1. A method of handling and further processing a continuously produced, unstretched honeycomb band, comprising the following process steps:
(a) winding an unstretched honeycomb band onto a reel;
(b) unwinding the unstretched honeycomb band from the reel and stretching it into a desired final shape thereby producing a continuous, stretched honeycomb band; and
(c) cutting desired partial lengths from the continuous, stretched honeycomb band.

5,063,648
APPARATUS AND METHOD FOR REPLACING WORKING-OBJECT OF PROCESSING MACHINE
Keitaro Yonezawa; Ichiro Miyata, and Tsutomu Shirakawa, all of Amagasakishi, Japan, assignors to Kabushiki Kaisha Kosmek, Amagasakishi, Japan
Filed Nov. 22, 1989, Ser. No. 440,315
Claims priority, application Japan, Nov. 29, 1988, 63-156342[U]; Nov. 29, 1988, 63-303334
Int. Cl.[5] B29F *1/00*
U.S. Cl. 29—33 K 6 Claims



1. An apparatus for replacing a machine part of a processing machine comprising:
a machine part replacing support (6) on which at least one machine part (5*a*) (5*b*) having an engaged portion (25) (26) is placed;
a machine part moving passage (12) provided in the machine

VOL 1132 ISS 2 NO 12 1991 UMI

part replacing support (6) so as to extend toward the processing machine;

a push/pull drive means (18) for pushing and pulling the engaged portion (25) (26) of the machine part (5*a*) (5*b*) toward and away from the processing machine so as to bring in and bring out the machine part (5*a*) (5*b*) with respect to the processing machine (1);

said push/pull drive means (18) comprising:

a push/pull drive device (19);

a push/pull transmission member (21) which is bendable and storable, having opposite fore and back ends and being connected at it back end to the push/pull drive device (19);

a push/pull engaging member pedestal (20) connected to the fore end of the push/pull transmission member (21);

a guide rail (22) provided in the machine part replacing support (6) along the machine part moving passage (12) so as to guide the pushing and the pulling for the push/pull transmission member (21) and the engaging member pedestal (20); and

a push/pull drive engaging member (23) which is supported by the engaging member pedestal (20) so as to swing in a generally vertical plane and provided on a foreside swinging portion with an engaging portion (59) facing upward and adapted to be moved between an upper engagement position (X) and a lower disengagement position (Y) with respect to the engaged portion (25) (26) of the machine part (5*a*) (5*b*);

spring means (57) interposed between said push/pull engaging member (23) and said engaging member pedestal (20) and adapted to resiliently urge the engaging member (23) toward the upper engagement position (X) and to be changed over to the lower disengagement position (Y) by means of an actuator (61) against the resilient force of the spring means (57);

an actuator (61) attached to a fixed portion of the machine part replacing apparatus having means operatively associated with the push/pull engaging member (23) to move it between its upper engagement position (X) and its lower disengagement position (Y);

said push/pull engaging member (23) being provided at a leading end portion on the foreside of the engaging portion (59) with a cam surface (58) inclined forward and downward and adapted to be brought into contact with the lower surface of the engaged portion (25) (26); and

said engaging portion (59) being adapted to be shifted below the height position of the engaged portion (25) (26) under the changed over condition to the disengagement position (Y) and at least to face upward so as to be engaged with the engaged portion (25) (26) from below under the changed over condition to the engagement position (X).

5,063,649

ROLL ASSEMBLY WITH ROTATABLE SHELL FOR USE IN CALENDERS AND LIKE MACHINES

Reinhard Wenzel, and Richard Rauf, both of Krefeld, Fed. Rep. of Germany, assignors to Kleinewefers GmbH, Krefeld, Fed. Rep. of Germany

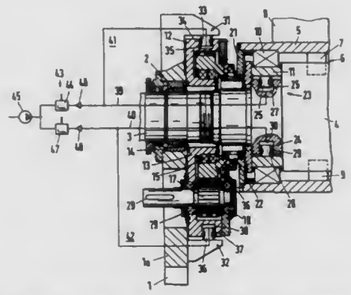
Filed Jan. 24, 1991, Ser. No. 645,596

Claims priority, application Fed. Rep. of Germany, Jan. 27, 1990, 4002387

Int. Cl.[5] B21B *31/16*

U.S. Cl. 29—116.1 **24 Claims**

1. A roll assembly for use in calenders or similar machines, comprising an elongated carrier; a cylindrical shell spacedly surrounding and movable radially relative to said carrier; a support movable relative to said carrier substantially radially of said shell; means for rotating said shell including a rotary torque transmitting element carried by said support and a rotary torque receiving element carried by said shell and driven by said torque transmitting element; means for monitoring the position of said shell relative to said carrier, including at least one first cylinder and piston unit having a first piston movable with said shell; and means for adjusting said support relative to said carrier, including at least one second cylinder and piston unit having a second piston, and a fluid-containing circuit connecting said units, said pistons having first and



second cross-sectional areas, respectively, and the ratio of said cross-sectional areas being such that each radial movement of said shell relative to said carrier entails a substantially equal radial movement of said support relative to said carrier.

5,063,650

METHOD OF SERRATION-FITTING ASSEMBLING STEERING ASSEMBLY

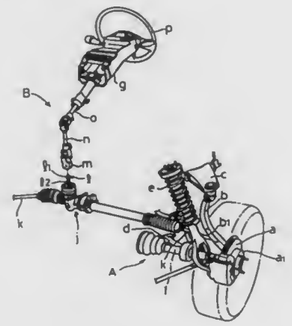
Kenji Nemoto; Kuninobu Uchida; Keiichiro Gunji; Nagatoshi Murata, and Iwao Maruyama, all of Sayama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

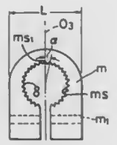
Filed Jun. 13, 1990, Ser. No. 538,063

Claims priority, application Japan, Jun. 17, 1989, 1-155547

Int. Cl.[5] B23Q *17/00*; B62D *1/18*

U.S. Cl. 29—407 **2 Claims**





1. A method of assembling a steering assembly having a socket connected to a steering shaft via a steering joint which socket is to be serration-fitted to an input shaft of a gearbox mounted on a suspension assembly having wheels, said method comprising the steps of:

measuring a phase of the socket of the steering assembly at the time when a steering wheel is aligned in a neutral posture while the steering assembly is maintained in an articulated condition similar to that in which the steering assembly is assembled to a car body and while the steering wheel is removably serration-fitted to the steering shaft of the steering assembly;

adjusting a phase of the input shaft such that the input shaft can be serration-fitted into the socket which is in the phase measured in the preceding step, the step of input shaft phase measured in the preceding step, the step of input shaft phase adjustment including a step of rotating the input shaft within an angular range corresponding to one half pitch of the serrations of the input shaft in either direction from a neutral position in which the steering angles to the right and to the left are equal;

adjusting the alignment of the right and the left wheels to a condition in which the car can run straight, while the input shaft is maintained in said adjusted phase;

engaging a guide member which determines the phase of the socket relative to the input shaft;

assembling the suspension assembly and the steering assembly with the steering wheel detached therefrom to the car body; and

serration-fitting, with the guide member, the socket of the steering assembly to the input shaft of the suspension assembly by guiding the socket with the guide member such that the phase of the socket becomes substantially equal to said measured phase when the input shaft is in said adjusted phase.

5,063,651

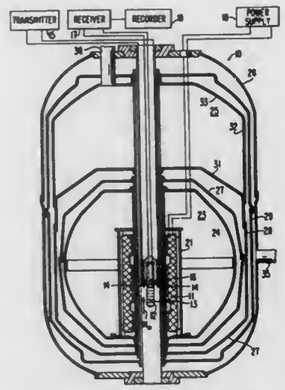
METHOD OF MANUFACTURING A LOW EMISSIVITY LIQUID NITROGEN DEWAR

George D. Kneip, Jr., Menlo Park; George Chmyz, Palo Alto, and Marvin H. Anderson, Mountain View, all of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Continuation of Ser. No. 136,500, Dec. 28, 1987, abandoned, which is a continuation of Ser. No. 437,080, Oct. 29, 1982, abandoned, which is a division of Ser. No. 879,290, Feb. 21, 1978, abandoned. This application Jun. 21, 1989, Ser. No. 370,084

Int. Cl.[5] B21D *39/00*

U.S. Cl. 29—455.1 **8 Claims**



1. A method of manufacturing a for a liquid at cryogenic temperature Dewar from a can of spun sheet aluminum alloy having a very high percentage of aluminum and from a shell of spun sheet aluminum having a very high percentage of aluminum comprising polishing an exterior surface of the can to a lustrous high gloss thereby substantially removing all tool marks, polishing an interior surface of the shell to a lustrous high gloss thereby substantially removing all tool marks, said exterior and interior surfaces exhibiting a value of ρ_0 for radiant emissivity at said cryogenic temperature, chemically treating the exterior surface of the can with a liquid etchant of nitric acid and hydrofluoric acid until the can exterior surface has a non-pitted, smooth, matted, smut free and etched appearance that is free from discoloration and stains, chemically treating the interior surface of the shell with a liquid etchant of nitric acid and hydrofluoric acid until the shell interior surface has a non-pitted, smooth, matted, smut free and etched appearance that is free from discoloration and stains, thereby diminishing said lustrous high gloss and reducing the radiant emissivity for said surfaces at said cryogenic temperature substantially in relation to ρ_0 absent corresponding said steps of chemically treating, then assembling the Dewar so that the shell surrounds the can, and evacuating the space between the shell and the can, said etchant approximately 4 percent by volume of hydrofluoric acid and 20 percent by volume of nitric acid and the remainder, deionized water.

5,063,652

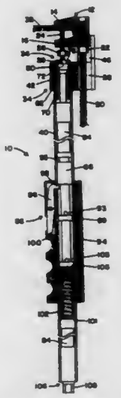
METHOD FOR INSTALLING TOP BEAM "C" CLAMPS

Ronald O. Roberge, 1521 Shenandoah Dr., Cedar Park, Tex. 78613

Filed Jun. 4, 1990, Ser. No. 532,437

Int. Cl.[5] B23P *19/06, 19/08*; B25B *13/06*

U.S. Cl. 29—525.2 **13 Claims**



1. A method for operating a clamp having a clamp body including a jaw through which is threaded a bolt with an end portion by which the bolt is rotated about its longitudinal axis to thread and to tighten toward an opposing jaw on the clamp body; and also having a nut with a diameter larger than the bolt end portion; and assembled to operate when the nut is threadedly received on a portion of the bolt adjacent to the bolt end portion, and the bolt is threaded through the jaw to position the bolt end portion and the nut outside a grip area between the two jaws, the method comprising the steps of:

(a) positioning and maintaining the clamp body in a clamp operating position adjacent to clamp supporting means thereby preventing rotation of the clamp body relative to the clamp supporting means in response to the rotation of the clamp bolt and nut about the bolt longitudinal axis;

(b) holding the clamp in an installation position, with the clamp supporting means;

(c) drivingly engaging the clamp bolt end portion with socket means connected to the clamp supporting means;

(d) rotating the socket means while drivingly engaged with the bolt end portion thereby rotating the clamp bolt to a desired position while the clamp body is maintained in the clamp operating position adjacent to the clamp supporting means;

(e) drivingly engaging the clamp nut with the socket means; and

VOL
1132
ISS
2
NO
12
1991
UMI

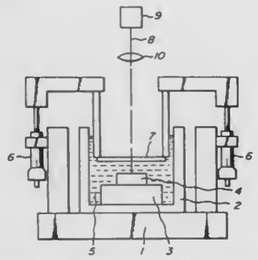
(f) rotating the socket means while drivingly engaged with the clamp nut thereby rotating the nut to a desired position while the clamp body is maintained in the clamp operating position adjacent to the clamp supporting means.

5,063,653

METHOD OF PRODUCING A CORE FOR A MAGNETIC HEAD

Hideto Sandaiji, Kasugai; Koji Ikeda, and Yuji Onishi, both of Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Sep. 10, 1990, Ser. No. 579,582
Claims priority, application Japan, Sep. 8, 1989, 1-231665
Int. Cl.[5] G11B *5/42*
U.S. Cl. 29—603 **3 Claims**



1. A method of producing a core for a magnetic head, comprising the steps of:

forming a composite, gapped bar comprising ferrite and high magnetic permeable alloy;

providing a metal film on at least an upper surface of said composite, gapped bar, said metal film comprising a metal selected from the group consisting of Zn, Cr, Fe, Cd, Co, Ni, Sn and Pb;

subjecting said composite, gapped bar to laser-induced etching in an alkali metal hydroxide aqueous solution to form a plurality of spaced grooves through said metal film and into said upper surface, said grooves defining at least one magnetic gap in said upper surface;

removing said metal film from said composite, gapped bar; and

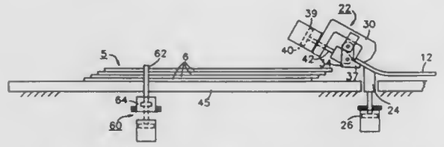
cutting at least one magnetic core from said composite, gapped bar, said at least one magnetic core including at least one magnetic track.

5,063,654

METHOD FOR MAKING PACKETS OF AMORPHOUS METAL STRIP FOR TRANSFORMER-CORE MANUFACTURE

Willi Klappert, and David R. Freeman, both of Hickory, N.C., assignors to General Electric Company, King of Prussia, Pa.

Filed Dec. 12, 1990, Ser. No. 626,213
Int. Cl.[5] H01F *41/02*
U.S. Cl. 29—609 **10 Claims**



1. A method of making packets of amorphous metal strip adapted to be wrapped about the arbor of a transformer-core-making machine, each packet comprising a plurality of groups of strip, each group comprising many thin layers of strip, each layer having two longitudinally-extending edges at opposite sides of the layer and two-transversely extending edges at opposite ends of the layer, the longitudinally-extending edges at each side of the layers of each group being substantially aligned and the transversely-extending edges at each end of the layers in each group being substantially aligned, said method comprising:

(a) providing a composite strip comprising many thin layers of amorphous metal strip stacked in superposed relationship,

(b) advancing the leading end of said multi-layer composite strip forward,

(c) after the step of (b), cutting said multi-layer composite strip at a location spaced rearwardly of the leading edge of said composite strip, thereby detaching from said leading end a first section of multi-layer amorphous metal strip and also creating a new leading end just behind said cutting location, (c) axially advancing said detached section to a position axially spaced from and adjacent said cutting location,

(d) clamping said detached section to a supporting surface in said advanced position,

(e) advancing the new leading end of said composite strip forward,

(f) after the step of (e), cutting said composite strip at a location spaced rearwardly of the new leading edge of said multi-layer composite strip, thereby detaching from said new leading end an additional section of multi-layer amorphous metal strip and creating another new leading end just behind said latter cutting location,

(g) axially advancing said additional section over the top of the immediately-preceding detached section,

(h) unclamping the immediately-preceding detached section and then clamping the additional detached section to said supporting surface atop and in stacked relationship to the immediately-preceding detached section,

(i) repeating steps substantially as defined in (e), (f), (g) and (h) with respect to each succeeding new leading end or section until a predetermined number of sections of multi-layer strip have been detached from said composite strip and stacked upon said supporting surface to form a packet for wrapping about said arbor, and in which the method is further characterized by:

(j) each group being formed from one or more of said sections with the layers of each group stacked in substantially aligned relationship, and

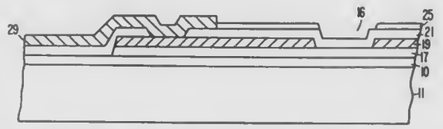
(k) the leading edge of the additional sections of composite strip being advanced during the aforesaid additional-section advancing steps into positions that locate the adjacent transversely-extending edges of adjacent groups in staggered relationship with respect to each other.

5,063,655

METHOD TO INTEGRATE DRIVE/CONTROL DEVICES AND INK JET ON DEMAND DEVICES IN A SINGLE PRINTHEAD CHIP

Patrick Lamey, Manassas, and Richard Kachmarik, Bealeton, both of Va., assignors to International Business Machines Corp., Armonk, N.Y.

Division of Ser. No. 503,353, Apr. 2, 1990. This application Mar. 20, 1991, Ser. No. 672,224
Int. Cl.[5] H01C *17/00*; B41J *2/05*; G01D *15/16*
U.S. Cl. 29—611 **7 Claims**



1. A method for fabricating a vertically integrated thermal ink jet printhead wherein at least a portion of a thermal ink jet device is disposed over an pulse driver device on a semiconductor substrate, said method comprising the steps of:

providing said pulse driver device on a semiconductor substrate;

depositing a thermal barrier layer over said pulse driver device;

planarizing said thermal barrier layer;

fabricating said thermal ink jet device on said planarized thermal barrier layer over said pulse driver device; and

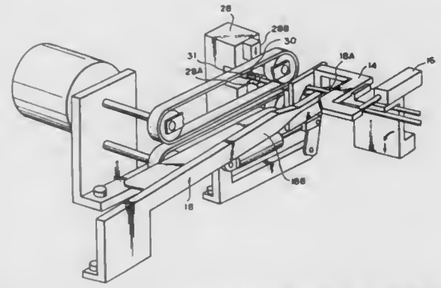
etching contact holes through said thermal barrier layer to allow electrical contact between said pulse driver device and said thermal ink jet device and between said pulse driver device and a circuit which couples said integrated printhead to a thermal ink jet printer.

5,063,656

APPARATUS FOR MAKING A WIRE HARNESS

Koji Hirano, Matsuda, and Hiroshi Yamashita, Kunitachi, both of Japan, assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 19, 1990, Ser. No. 540,030
Claims priority, application Japan, Jun. 27, 1989, 1-164894
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—749 **4 Claims**



1. An apparatus for forming a wire harness (23) from a pair of wires (2, 3) and to orientate the wires (2, 3) in a specific orientation, said apparatus comprising:

a pair of jaw means (12) for orientating a pair of wires (2, 3) in a specific relation to each other and to hold said wires (2, 3) adjacent to each other and in said specific relation;

an identification member (14) having spreader means (14A) thereon for insertion between said adjacent wires after said jaw means has oriented the pair of wires to maintain said orientation therebetween (2, 3) to maintain said orientation therebetween;

terminating means (10, 28) for terminating one ends of said wires (2, 3) to a common terminal (C) to form a wire harness (23) after the spreader means has spread the wires;

transfer means (24) for transferring said wire harness (23) normally to the longitudinal axis thereof and from said jaw means (12) after the one ends of the wires have been terminated to the common terminal; and

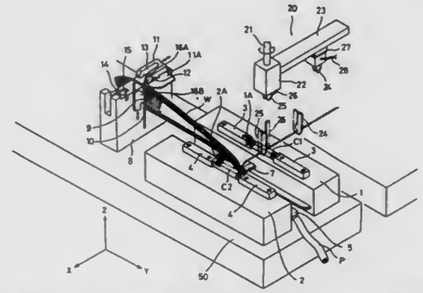
a guide member (18) for receiving said wire harness, said guide member (18) including a front edge (18A) facing said spreader means (14A) and adapted to be inserted between said wires (2,3) to maintain the orientation therebetween before a withdrawal of said spreader means.

5,063,657

APPARATUS FOR LOADING MULTICONDUCTOR CABLE ON CONNECTOR HALF

Hideyuki Ishioka, Tokyo, Japan, assignor to Hirose Electric Co., Ltd., Tokyo, Japan

Filed Jan. 28, 1991, Ser. No. 646,219
Int. Cl.[5] H01R *43/04*
U.S. Cl. 29—753 **2 Claims**



1. Apparatus for loading respective conductors of a multiconductor cable on retention channels of a connector half, which comprises:

(a) a connector holder for holding a connector half so that retention channels of said connector half are exposed;

(b) a cable holder movable in a direction perpendicular to said connector holder for bolding said multiconductor cable beside said connector holder;

(c) receiver means for receiving said respective conductors one upon another, said receiver means including:

a receiver slot extending downwardly from a top surface of said receiver means and having a width substantially equal to a diameter of said respective conductors for receiving said respective conductors one upon another; and

a biasing member provided at a bottom of said receiver slot for biasing upwardly said respective conductors within said receiver slot;

(d) transfer means movable on said receiver means in a direction perpendicular to said receiver slot and having a transfer channel parallel to said receiver slot for receiving an uppermost conductor;

(e) conductor receiving means for receiving said uppermost conductor when said transfer means is in an advanced position, said conductor receiving means including:

a receiver channel extending in parallel to said receiver slot on said receiver means for receiving said uppermost conductor when said transfer means is in said advanced position; and

an escapement slot extending in a direction perpendicular to said receiver slot and having a depth greater than said diameter of said respective conductors;

(f) carrier means for bringing said uppermost conductor from said receiver means to said connector holder, said carrier means including:

a carrier arm with an end portion pivoted to said carrier means;

a pair of grippers; one fixed at said end portion of said carrier arm and the other movable along said carrier arm and gripping said uppermost conductor and contacting with a wire of said uppermost conductor for identifying a position of said uppermost conductor on said connector half when said transfer means is in said advanced position; and

a conductor pusher provided beside said fixed gripper for pushing said uppermost conductor into a retention channel of said connector half at said identified position; and

(g) a conductor guide provided beside said connector holder and having guide slits at positions which corresponds to

VOL 1132 ISS 2 NO 12 1991 UMI

said retention channels, thereby providing a straight portion for each conductor to facilitate subsequent operation.

5,063,658

EMBOSSING FOIL AND A METHOD OF MAKING

Alfred H. Wild, Fürth, Fed. Rep. of Germany, assignor to Leonard Kurz GmbH & Co., Fürth, Fed. Rep. of Germany

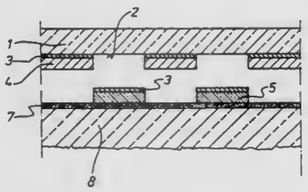
PCT No. PCT/DE88/00403, § 371 Date Dec. 8, 1989, § 102(e) Date Dec. 8, 1989, PCT Pub. No. WO89/00373, PCT Pub. Date Jan. 12, 1989

PCT Filed Jan. 7, 1988, Ser. No. 457,751

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1987, 3722508

Int. Cl.[5] H05K *3/32*; B32B *15/04*

U.S. Cl. 29—846 **21 Claims**



1. An embossing foil, which comprises:
a carrier foil;
an electrically conductive attachment layer disposed over the whole surface of said carrier foil;
a masking layer in negative image format disposed on said electrically conductive layer, said masking layer being formed of a material preventing galvanic deposition and of selectively adhesive properties for said attachment layer;
a galvanically deposited metal layer on said electrically conductive layer in areas between said masking layer, said metal layer being of a thickness sufficient to constitute conductor tracks; and
a bonding layer disposed on said combined masking layer and said metal layer, said bonding layer formed of a material being of selectively adhesive properties for said metal layer.

11. A method for manufacturing an embossing foil having transferable conductor tracks, which comprises:
a) applying a continuous conductive attachment layer to a carrier foil;
b) selectively applying a masking layer in negative image format to said attachment layer of step a), said masking layer being formed of a material preventing galvanic deposition;
c) galvanically depositing a metal layer on said attachment layer not selectively covered by said masking layer, said metal layer being of a thickness sufficient to form conductor tracks; and
d) applying a bonding layer onto the resulting metal and masking layers of step c), said bonding layer having selective adhesive properties for said metal layer thereby forming said embossing foil.

5,063,659

METHOD OF JOINING A SOLDERED CONNECTOR TO A SHIELDED COAXIAL CABLE

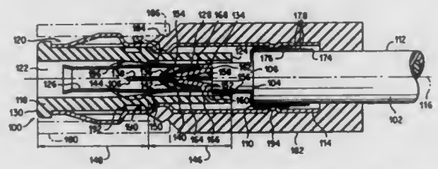
John O. Wright, York, Pa., assignor to GTE Products Corporation, Stamford, Conn.

Division of Ser. No. 588,781, Sep. 27, 1990, Pat. No. 5,021,010. This application Mar. 18, 1991, Ser. No. 670,622

Int. Cl.[5] H01R *43/02*

U.S. Cl. 29—860 **7 Claims**

1. A method of joining a connector to a shielded coaxial cable comprising the steps of:
stripping an end of said cable to expose a length of an inner lead and a length of shield layer;
folding said length of shield layer back upon an outer surface of said cable;
inserting a non-conductive bushing, having a longitudinal bore extending therethrough along a longitudinal axis of said bushing, into a first end of an elongated metal tubular connector housing;
affixing said first end of said housing to said bushing;
inserting said end of said cable to an opposite second end of said housing such that said length of inner lead extends



into one end of said longitudinal bore along said longitudinal axis;
affixing said opposite second end of said housing to said cable;
inserting a metal tubular ferrule, having an inner portion which protrudes toward said longitudinal axis and which includes a solder strip, into an opposite other end of said longitudinal bore along said longitudinal axis until said solder strip is adjacent an outer surface of said inner lead; and
reflowing said solder to electrically and mechanically connect said ferrule to said inner lead.

5,063,660

METHOD FOR MANUFACTURING PREFORMS COATED WITH HARD SOLDER FOR REPAIRING INTERCONNECT INTERRUPTIONS

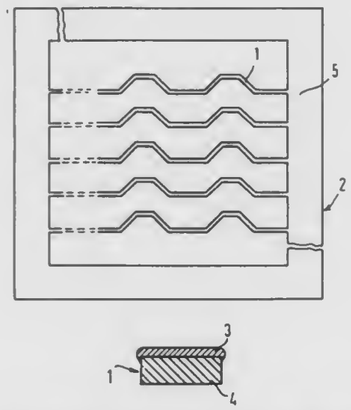
Gerhard Fiedelius, Berg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 16, 1989, Ser. No. 324,021

Claims priority, application Fed. Rep. of Germany, May 26, 1988, 3817902

Int. Cl.[5] H01R *43/00*

U.S. Cl. 29—885 **8 Claims**



1. A method for manufacturing preforms coated with hard solder for repairing interconnect interruptions, particularly for

repairing meander-shaped interconnects, comprising the steps of:
first etching preforms from a metal band and, subsequently,
applying a hard solder layer to at least one surface of the preforms by sputtering.

5,063,661

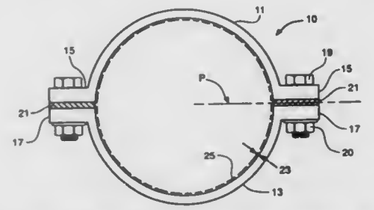
METHOD OF FABRICATING A SPLIT COMPRESSOR CASE

Mitchell H. Lindsay, Palm City, Fla., assignor to The United States of America as represented by the Secretary of the Air Force., Washington, D.C.

Filed Jul. 5, 1990, Ser. No. 548,656

Int. Cl.[5] F01D *25/24*

U.S. Cl. 29—888.02 **4 Claims**



1. A method for fabrication of a split compressor case for a gas turbine engine, comprising the steps of:
(a) providing two axial sections defining a split compressor case, said axial sections each having a pair of flanges along the axial extent thereof;
(b) assembling said two axial sections along corresponding said flanges with a flat shim disposed between each corresponding pair of flanges in a first assembly of said two axial sections;
(c) machining said first assembly to a preselected contour;
(d) determining, as a function of axial extent of said first assembly, the degree of ovalization f said first assembly when heated to the hot operating temperature of said engine;
(e) providing a pair of tapered shims each having thickness which varies along the length and width thereof in correspondence with the determination of said degree of ovalization of said first assembly as a function of axial extent of said first assembly whereby said ovalization is substantially eliminated at said hot operating temperature of said engine in a second assembly of said axial sections with said tapered shims disposed between corresponding said flanges; and
(f) assembly said axial sections with said tapered shims disposed between corresponding said flanges of said axial sections.

5,063,662

METHOD OF FORMING A HOLLOW BLADE

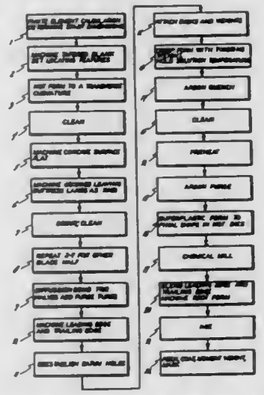
David Porter, Niantic; James R. Dillner, Amston; Peter E. Leibfried, Vernon; William R. Reimels, Manchester, and J. George Asfalg, Cromwell, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Continuation of Ser. No. 497,283, Mar. 22, 1990, abandoned. This application Jan. 15, 1991, Ser. No. 641,327

Int. Cl.[5] B21D *53/78*

U.S. Cl. 29—889.72 **35 Claims**

1. A method of forming a hollow internally reinforced titanium alloy blade, having a longitudinal axis, with predictable metal flow comprising:
forming a hollow untwisted blade of lenticular cross section and having axially extending ribs connecting opposite walls of the blade;
creep deforming said untwisted blade without compressive loading on said untwisted blade other than at the very ends, and without axial restraint of said untwisted blade other than at one end, to a twisted blade by,
placing said hollow untwisted blade on a shaped die half,
heating said hollow untwisted blade to a temperature level at which creep takes place with gravity force deforming said untwisted blade into contact with said die, and
simultaneously applying twisting moments at each end of said hollow untwisted blade;
final hot forming said twisted blade to a final form blade by:
placing said twisted blade between a pair of final form dies,



heating said twisted blade to at least the temperature at which creep takes place, but less than the phase transformation temperature,
closing said final form dies, and
applying an internal pressure with said final form dies closed;
the twisted blade formed in the creep deforming step having at least 80 percent of the twist of the final form blade;
cooling said final form blade; and
blending the leading and trailing edges of said final form blade.

5,063,663

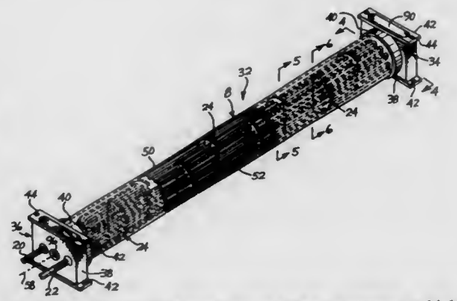
BARRELTYPE FLUID HEAT EXCHANGER

Richard Casterline, 14413 SE. 162nd Pl., Renton, Wash. 98058

Filed Oct. 16, 1989, Ser. No. 421,678

Int. Cl.[5] B23P *15/26*

U.S. Cl. 29—890.043 **42 Claims**



1. In the process of manufacturing a heat exchanger which comprises in structure:
a header box having relatively opposing first and second sidewalls, a top, a bottom, and first and second openings in

VOL 1132 ISS 2 NO 12 1991 UMI

the first sidewall and one of the top, bottom, and remaining sidewalls, respectively,

an elongated open ended tubular housing, an open end portion of which is connected to the first sidewall of the box at the first opening therein to form a barrel in which to circulate a first fluid through the heat exchanger to or from the second opening of the box, and

a fluid flow cartridge for circulating a second fluid in heat transfer relationship with the first fluid in the barrel,

said cartridge having a center line coinciding with the longitudinal axis of the housing and the point at which the axis passes through the first opening in the box, and comprising a series of plate-like baffles telescopically engaged in the housing in spaced parallel array with one another transverse the axis of the housing so as to permit the first fluid to circulate in the housing longitudinally thereof, and having openings therein which register with one another along lines substantially parallel to the axis of the housing, and a series of tubes telescopically engaged in the openings of the baffles along the aforesaid lines and interconnected with one another in a reentrant flow circuit having generally parallel inlet and outlet flow pipes at one end portion of the cartridge adjacent the header box,

the steps of:

providing a header box of the aforesaid type wherein the second sidewall of the box has a pair of spaced apertures therein opposite the first opening in the box,

reciprocating the aforesaid cartridge and header box in relation to one another with the center line of the cartridge and the point of the first opening in such coincidence with one another as to insert the one end portion of the cartridge in the first opening,

inserting the inlet and outlet flow pipes of the one end portion of the cartridge in the apertures in the second sidewall of the box,

connecting the inlet and outlet flow pipes in fluid tight manner to the second sidewall of the box so that the cartridge operatively projects therefrom through the first opening into the housing

reciprocating the housing and the cartridge in relation to one another with the aforesaid lines of the tubes and the longitudinal axis of the housing sufficiently parallel to one another to telescopically engage the series of baffles in the housing,

reciprocating the housing and the header box in relation to one another with the longitudinal axis of the housing and the point of the first opening in such coincidence with one another as to insert the open end portion of the housing in the first opening of the box, and

connecting the open end portion of the housing in fluid tight manner to the first sidewall of the box so that the cartridge is operatively supported on the box when projected from the second sidewall thereof in the housing.

5,063,664

PROCESS FOR MANUFACTURING WHEEL HUB

Jung-Yi Huang, 293 Pei Tun Road, Taichung, Taiwan

Filed Apr. 24, 1990, Ser. No. 513,799

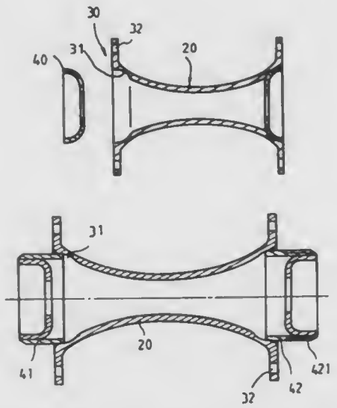
Int. Cl.[5] B21K *1/40*

U.S. Cl. 29—894.361 **2 Claims**

1. A process for manufacturing a wheel hub comprising an axle tube and a plurality of bearing receiving bowls, comprising the steps of:

making a hollow cylindrical iron tube to form a plurality of partially finished axle tubes that are shaped to have a plurality of small wave portions and large wave portions in a predetermined distance on the upper and lower portion of said iron tube intervally by swaging; wherein, the wave form of said upper portion of said iron tube being sequentially in a fixed frequency and in a distance slightly longer than the longitudinal length of said axle tube, while the wave form of said lower portion of said iron tube being opposite from the wave form of said upper portion of said iron tube; then cutting said iron tube as a plurality of single piece partially finished axle tubes from the highest point of said upper portion to the lowest point of the wave form of said lower wave portion; therefore, each said partially finished axle tube having a small wave portion around its middle and two large wave portions flaring at its both ends in a trumpet shape;

stamping said both large wave portions to form two hub flanges respectively; each said hub flange having a bowl receiving recess at its annular portion and a face plate with a plurality of spoke holes formed; thus said axle tube is completely formed;



pressing two bearing receiving bowls stamped to form said bearing receiving bowls in a bowl shape to provide an axle hole in the bottom center to insert into said two bowl receiving recesses respectively such that said axle holes of the bearing receiving bowls being aligned with the axis of said bowl receiving recesses and defined as the rear portions of said bearing receiving recesses; wherein the diameter of the inner front portion of each said bowl receiving recess being slightly smaller than the diameter of the outer rear portion of each said bearing receiving bowl for permitting said two bearing receiving bowls to be respectively pressed into said two bowl receiving recesses firmly together and defining a front wheel hub.

5,063,665

PROCEDURE FOR THE CONTINUOUS MANUFACTURE OF WALL ELEMENTS

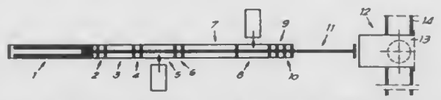
J. Van Den Eynde, Lier, Belgium, assignor to Plafittco, naamloze vennootschap, Lier, Belgium

Filed Jun. 12, 1990, Ser. No. 536,510

Claims priority, application Belgium, Jun. 16, 1989, 8900654

Int. Cl.[5] B23P *17/00*

U.S. Cl. 29—897.312 **5 Claims**



1. A process for continuously assembling walls while they are being conveyed in a vertical position through a transport system, comprising the steps of:

(a) placing upper beams of said walls vertically above lower beams thereof;

(b) connecting the upper beams end-to-end in order to form one single continuous upper beam and also connecting the lower beams end-to-end in order to form one single continuous lower beam, said connections being made without taking into consideration the length of the walls to be constructed;

(c) installing at least one of windows and doors in said walls;

(d) placing vertical posts into said walls;

(e) placing a first covering on one side of said walls; then

(f) installing at least one of electricity wires, sanitary pipes, and utility pipes in said walls;

(g) installing insulation materials in said walls;

(h) placing a second covering on another side of said walls;

(i) sawing locations of windows and doors out of said first and second coverings; and

(j) sawing each of said walls to a predetermined length.

5,063,666

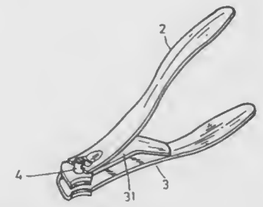
NAIL CLIPPER

Jaw-Shiunn Tsay, No. 40, Niu-Chou Tzu, Ling-Nan Village, Dung-Shan Hsiang, Tainan Hsien, Taiwan

Filed May 30, 1991, Ser. No. 707,610

Int. Cl.[5] A45D *29/00*

U.S. Cl. 30—28 **1 Claim**



1. A nail clipper comprising:

a) an elongate lever including a front end, an upper surface and a curved rear section, a U-shaped notch at the front end, a crosswise bar behind the notch, and a projection on the upper surface behind the crosswise bar;

b) a lower body having a front end and a curved rear section, the curved rear sections of the lever and lower body being of substantially the same curvature and disposable in an overlapping relationship, a pin hole at the front end of the lower body and a pair of separate curved cutting edges extending upwardly on opposite sides of the front end adjacent the pin hole;

c) an upper body including a front end and an elastic bent-down rear section, a pin hole at the front end and a pair of separate curved cutting edges extending downwardly on opposite sides of the front end, the cutting edges of the upper body corresponding to the cutting edges of the lower body to define two pairs of opposed cutting edges;

d) a joint pin of rod-shaped configuration having upper and lower ends, a C-shaped notch formed between the upper and lower ends, and a stop edge at the lower end; and

e) the joint pin being insertable through the pin holes of the upper and lower bodies for engaging the stop edge against the lower body and the C-shaped notch around the crosswise bar of the lever to assemble the clipper together, whereby the lever is rotatable about the joint pin and disposable between an upwardly extending position of use and a downwardly extending folded position for storage in which the curved rear sections of the lever and lower body are disposed in the overlapping relationship, and the elastic bent-down rear section of the upper body serving to restore the upper body and the lever to their original positions after the lever is pressed downwardly towards the lower body during a clipping operation.

5,063,667

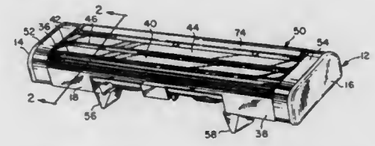
SHAVING SYSTEM

Chester F. Jacobson, Southboro, Mass., assignor to The Gillette Company, Boston, Mass.

Filed Sep. 28, 1990, Ser. No. 589,673

Int. Cl.[5] B26B *19/44*

U.S. Cl. 30—41 **15 Claims**



1. A shaving system comprising body structure, said body structure having guard surface structure at a front portion thereof and opposed portions forming a gap at a rear portion thereof,

blade structure carried by said body structure rearwardly of said guard surface structure and forwardly of said gap, said blade structure having a cutting edge extending along the length of said body structure, and

a shaving aid member carried on said support structure behind said blade structure,

said member having a dispensing head portion with a skin-engaging surface, an extension portion, a narrow neck region within said gap, and a retaining portion on the side of said narrow neck region opposite said head portion, said retaining portion having a larger dimension than the width of said gap, said extension portion increasing in width along a first axis passing through said narrow neck region and said retaining portion, and said dispensing head portion having a dimension along an axis perpendicular to said first axis more than twice as long as the widest part of said retaining portion.

5,063,668

RAZOR HEAD, ESPECIALLY RAZOR BLADE UNIT, OF A WET RAZOR

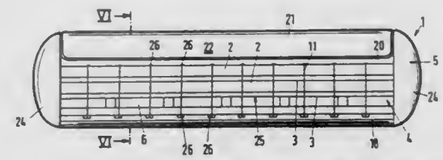
Wolfgang Althaus, Wuppertal, Fed. Rep. of Germany, assignor to Wilkinson Sword Gesellschaft mit beschränkter Haftung, Solingen, Fed. Rep. of Germany

Filed Apr. 4, 1991, Ser. No. 682,199

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1990, 9004760[U]

Int. Cl.[5] B26B *21/14*

U.S. Cl. 30--77 **16 Claims**



1. A razor head, and especially a razor blade unit, disposed at the front end of a handle of a wet razor, comprising:

a plastic body having an upper side that defines a surface for engaging the skin of a user, with said plastic body also having a front side and a back side;

razor blade means disposed in said plastic body;

a wire, portions of which, in the vicinity of said upper side of said plastic body, extend over cutting edges of said razor blade means at a distance from one another and parallel to a direction of shaving; and

guide elements distributed over the length of said plastic body in the vicinity of both said front and back sides thereof, with said guide elements being provided for guid-

VOL 1132 ISS 2 NO 12 1991 UMI

ing said wire in a zigzagged manner back and forth over said upper side of said plastic body.

5,063,669

RAZOR HEAD, ESPECIALLY RAZOR BLADE UNIT, OF A WET RAZOR

Wolfgang Althaus, Wuppertal, Fed. Rep. of Germany, assignor to Wilkinson Sword Gesellschaft mit beschränkter Haftung, Solingen, Fed. Rep. of Germany

Filed Apr. 4, 1991, Ser. No. 682,194

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1990, 9004762[U]

Int. Cl.[5] B26B *21/14*

U.S. Cl. 30—77 **8 Claims**



1. A razor head, and especially a razor blade unit, disposed at the front end of a handle of a wet razor, comprising:

a plastic body that comprises a base member and an upper part, with said upper part being disposed on and secured to said base member and fixing a razor blade means in place between said base member and said upper part, whereby said base member has a support means for receiving said razor blade means, and said upper part is a frame-like member comprising a guide strip at a front side of said plastic body and a cover at a back side of said plastic body, with said guide strip and said cover being interconnected via side strips while leaving a central opening in the vicinity of cutting edges of said razor blade means.

5,063,670

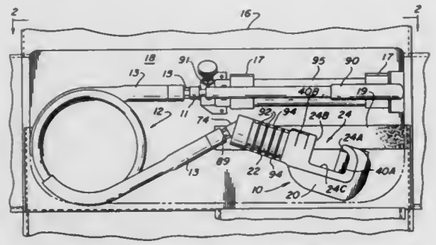
PORTABLE CUTTER TOOL

H. Alfred Eberhardt, Paoli, and Daniel J. Carlsen, Philadelphia, both of Pa., assignors to Hale Fire Pump Company, Conshohocken, Pa.

Filed Oct. 3, 1990, Ser. No. 592,706

Int. Cl.[5] B26B *15/00, 13/00;* F16L *27/00*

U.S. Cl. 30—228 **15 Claims**



1. A portable cutter tool constructed and arranged to be maneuverable for extricating a victim that is trapped in place by the foot pedal of a vehicle by cutting the same to free the trapped victim comprising:

an elongated housing including a head portion and a cylinder portion,

said heat portion being constructed to define an open mouth for encompassing an article to be cut,

a first cutting member mounted in said head portion at one end of said housing and having a cutting tip facing inwardly,

a second cutting member mounted in said head portion in alignment with said first cutting member and having a cutting tip facing said cutting tip of said first cutting member, said second cutting member being mounted for movement from an open position spaced apart from said first cutting member across said open mouth toward said first cutting member during a cutting movement,

said housing providing means for guiding said second cutting member through said cutting movement thereof,

said cylinder portion of said housing having a cylindrical bore formed therein extending in alignment with said second cutting member,

an actuating piston mounted for sliding movement within said cylindrical bore through an actuating movement from a first position to a second position,

said actuating piston being operatively engaged with said second cutting member for actuating the same through said cutting movement thereof as said piston is actuated from said first to said second position thereof,

a supply hose for supplying fluid under a high pressure to the interior of said cylindrical bore on one side of said piston, said supply hose having a fluid flow connection on the downstream end thereof,

means for connecting the downstream end of said supply hose to said housing,

said hose connecting means including a swivel member and means for mounting said swivel member in said cylinder portion of said housing adjacent said cylindrical bore for rotation about an axis,

said swivel member having a flow fitting connection for engaging said fluid flow connection on the downstream end of said hose in a fluid tight manner so that said supply hose and said swivel member are mounted for conjoint relative rotational movement with respect to the cylinder portion o said housing, said swivel member including a passage means for the flow of said high pressure fluid from the downstream end of said supply hose to the interior of said cylindrical bore on one side of said piston,

said fitting connection being constructed and arranged to support said fluid flow connection and the downstream end of said supply hose to extend at an angle to said rotational axis of said swivel member to thereby improve the maneuverability of said cutting tool within tight spaces.

5,063,671

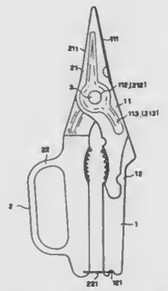
KITCHEN SHEARS WITH HIDING SPRING

Johnny Huang, 7F-1, No. 101, Sec. 2, Ho-Ping, Taipei, Taiwan

Filed Jan. 31, 1991, Ser. No. 648,652

Int. Cl.[5] B26B *13/00*

U.S. Cl. 30—262 **2 Claims**



1. A pair of kitchen shears with hiding spring, comprising two parts pivoted together to form two handles and two cutting blades, said two handles having one a retainer loop and the other a retaining notch for holding said retainer loop permitting said two parts to be closely retained together, said two cutting blades having each a pivot hole at the center for fastening a pivot to pivotably secure said two parts together, and characterized in that said two cutting blades have each a recess facing against each other for holding a torsion spring, said recess comprising a circular portion at the middle in which said pivot hole is made, and two elongated portions obliquely extending therefrom at two opposite ends, said torsion spring being firmly retained in said recess by said pivot.

5,063,672

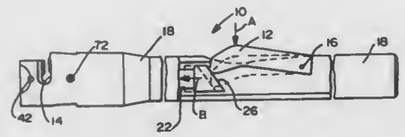
HAND-HELD TOOL FOR SCORING AND SEVERING AN OPTICAL FIBER

Igor Grois, and Mark Margolin, both of Lincolnwood, Ill., assignors to Molex Incorporated, Lisle, Ill.

Filed Jul. 9, 1990, Ser. No. 549,877

Int. Cl.[5] B26B *3/03, 3/06;* B26D *7/00*

U.S. Cl. 30—272.1 **20 Claims**



1. A hand-held tool for scoring and severing a portion of a free end of an optical fiber, comprising:

an elongate, generally hollow body having a longitudinal axis extending lengthwise thereof and defining a graspable handle for the tool;

plunger means in the hollow body for reciprocal movement therewithin in a path generally in the direction of said longitudinal axis;

fiber support means at one end of the body for supporting the free end an optical fiber transverse to said longitudinal axis;

said fiber support means includes means for placing the free end of the optical fiber in tension;

scoring means operatively associated with the plunger means and movable therewith towards said fiber support means for scoring the optical fiber extending across said path whereby tensile force applied to the fiber severs the fiber; and

actuator means on the body, operatively associated with the plunger means and exposed, at least in part, exteriorly of the body remote from said one end for manual actuation while grasping the body to move the plunger means and scoring means axially towards the fiber support means.

5,063,673

VEGETATION CUTTERS

Craig D. Webster, Newcastle-upon-Tyne, England, assignor to Black & Decker, Newark, Del.

Filed Sep. 7, 1990, Ser. No. 579,640

Claims priority, application United Kingdom, Sep. 11, 1989, 8920498

Int. Cl.[5] A01D *50/00*

U.S. Cl. 30—276 **25 Claims**

10. A device for cutting vegetation, comprising:

(i) a housing rotatable about an axis;

(ii) a spool within and rotatable with the housing and storing a supply of flexible line having an end extending through an aperture in the housing into a cutting plane normal to said axis; and

(iii) means for causing relative rotation between said spool and said housing whenever the length of line extending into said cutting plane is less than a predetermined length, to cause additional line to be fed into said cutting plane;

wherein said means comprises:

(a) a series of locking faces associated with said spool and rotatable therewith about said axis, said locking faces being angularly spaced apart around said axis inside said housing;

(b) a balance bar pivotally mounted on the housing, said



balance bar having a member for engagement with said locking faces; and

(c) means for positively engaging said member onto said locking faces.

5,063,674

VEGETABLE SLICER

Geoffrey D. Rowell, Padstow, Australia, assignor to Tatham Cutlery Manufacturing Company Pty Limited, New South Wales, Australia

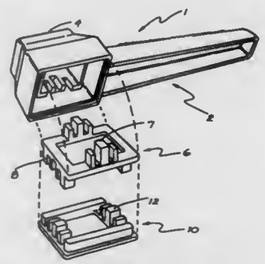
PCT No. PCT/AU89/00145, § 371 Date Sep. 25, 1990, § 102(e) Date Sep. 25, 1990, PCT Pub. No. WO89/09683, PCT Pub. Date Oct. 19, 1989

PCT Filed Apr. 5, 1989, Ser. No. 585,093

Claims priority, application Australia, Apr. 5, 1988, PI7590

Int. Cl.[5] B26B *3/04, 3/03, 3/02*

U.S. Cl. 30—305 **5 Claims**



1. A vegetable cutting device, comprising:

a main body member, having a window therethrough provided with a set of downwardly extending teeth on a pair of opposed sides thereof, and having a handle extending therefrom;

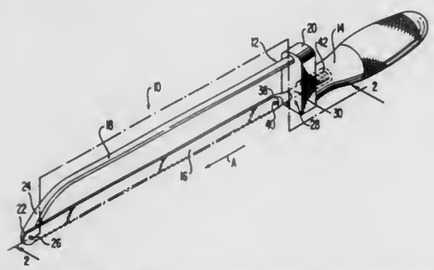
at least one intermediate member adapted to engage said main body member, provided with a window therethrough, and having, a first set of upwardly extending teeth provided on a first pair of opposed side thereof, and, a second set of downwardly extending teeth provided on a second pair of opposed sides thereof in a direction transverse to said first set of teeth;

a bottom member adapted to engaged with said intermediate body member, provided with a window therethrough and having a set of upwardly extending teeth on a pair of opposed sides thereto; and,

at least two transverse sets of blades, each adapted to engage between each of said upwardly and downwardly extending sets of teeth, respectively.

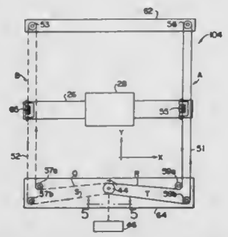
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,675
LOW PROFILE HACKSAW
Peter Michas, 3015 Shadid Dr., Colton, Calif. 92324, and Fred Neal, Jr., Rte. 3, Box 455, Marshall, Tex. 75670
Filed Sep. 14, 1989, Ser. No. 407,454
Int. Cl.[5] B27B *21/06*
U.S. Cl. 30—513 11 Claims



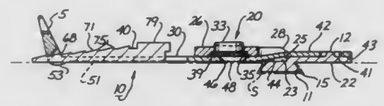
1. A hand held saw utilizing a hacksaw blade for cutting comprising:
a handle;
a vertical support post;
a fastener for connecting said handle and said support post, said fastener including a first means for connecting said blade to said saw;
a cross support bar attached at a first end to said support post, said cross support bar having a second means for connecting said blade to said saw at a second end of said support bar, wherein said support bar is substantially parallel to said blade when said blade is connected to said saw, except for an arcuate section of said support bar that is angled toward said blade when said blade is connected to said second end of said support bar;
said support post having a generally rectangular cross section and being of solid metal except for a slot for receiving said fastener;
said slot including a circular portion and a rectangular portion; and wherein said fastener has a substantially cylindrical body that passes through said circular slot portion and a pin extending from said body that passes through said rectangular slot portion to properly align said fastener in said support post.

5,063,676
CABLE DRIVE SYSTEM FOR CARRIAGE MOVEMENT AND METHOD OF USE
Heinz J. Gerber, West Hartford, Conn., assignor to Gerber Garment Technology, Inc., Tolland, Conn.
Filed Feb. 13, 1990, Ser. No. 479,343
Int. Cl.[5] B43L *13/00*
U.S. Cl. 33—1 M 19 Claims



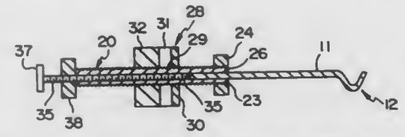
1. A positioning system for moving a carriage relative to a material support surface, said positioning system comprising:
a support;
a carriage movable on said support and relative to a material support surface;
a drum mounted for rotation on said support and driven by drive means in either rotational direction;
a first cable secured to said drum and forming a first loop secured at a point along its length to one end of said carriage;
a second cable secured to said drum and forming a second loop secured at a point along its length to the opposite end of said carriage; and
means for wrapping each of said first and said second cables in substantially equal turns about said drum and maintaining said equal turns of said first and second cables on said drum when it is rotated in either direction.

5,063,677
GUN SIGHT ADJUSTABLE FOR WINDAGE AND DISTANCE
Ray C. Millett, 7275 Murdy Cir., Huntington Beach, Calif. 92647
Filed Jan. 5, 1990, Ser. No. 461,259
Int. Cl.[5] F41G *1/28*
U.S. Cl. 33—252 10 Claims



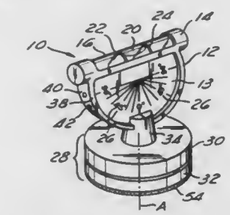
1. An adjustable rear sight for a gun comprising:
a rear sight fixed base for rigid attachment to the gun;
an elongated rear sight movable base disposed in longitudinal alignment with said fixed base, said movable base having a sight blade for helping to sight the gun;
a cam device having a manually rotatable member mounted on said fixed base for retaining releasably the bases in a given longitudinal alignment relative to one another;
means on said fixed base for journalling for rotation about a fixed axis of rotation said manually rotatable member, said means including an opening for receiving said cam device and including fixed teeth projecting into said opening;
said cam device having a skirt member including a plurality of skirt teeth for engaging said fixed teeth, said cam device further having a cam member for driving said movable base relative to said fixed base in response to the axial rotation of said manually rotatable member;
cam following means on said movable base for receiving said cam member to enable it to drive the movable base in a reciprocative path of travel relative to said fixed axis of rotation so that said bases can be moved relative to one another into an adjusted position and to retain them releasably thereat;
said skirt member having a central axis disposed in a spaced apart relationship relative to the axis of said cam member to cause said cam member to move in an eccentric path of travel relative to said fixed axis as said rotatable member rotates;
said movable base having a spring portion for urging resiliently said skirt teeth and said fixed teeth into releasable engagement for retaining the bases releasably in an adjusted position, and for permitting said cam device to be moved against the force of said spring portion to permit free axial relative rotation of said skirt teeth and said fixed teeth into an adjusted position so that said cam device can be released to permit said spring portion to urge said skirt teeth and said fixed teeth into engagement therebetween.

5,063,678
ARCHERY BOW SIGHT, MOUNT AND QUIVER HOLDER
Miroslav A. Simo, 370 N. Delaplaine Rd., Riverside, Ill. 60546
Filed Apr. 6, 1987, Ser. No. 46,395
Int. Cl.[5] F41G *1/00*
U.S. Cl. 33—265 26 Claims



14. In an archery bow sight of the type having a sight pin retained in a sight mount attachable to an archery bow, the improvement consisting of said sight pin having a generally V-shaped open sight at one end, said generally V-shaped open sight being the sole sight, and said generally V-shaped open sight comprising two angled sides joined by a curved base portion.

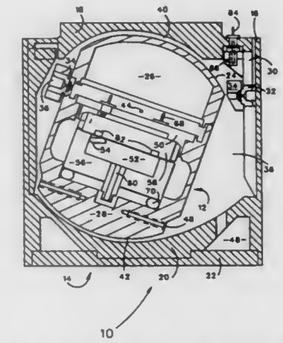
5,063,679
PROTRACTOR BUBBLE LEVEL
Bruce E. Schwandt, 33871 El Encanto Ave., Dana Point, Calif. 92729
Filed Oct. 10, 1990, Ser. No. 595,303
Int. Cl.[5] G01C *9/28*
U.S. Cl. 33—347 12 Claims



1. An adjustable protractor bubble level comprising:
a protractor portion having angular graduations thereon;
an elongate bubble level rigidly mounted to said protractor portion.
a base member defining a central axis extending therethrough, said base member comprising:
(a) a protractor securing portion, said protractor portion being pivotally mounted to said securing portion;
(b) a mounting portion having a generally planar lower surface; and
(c) a snap connector for rotatably and releasably attaching said mounting portion to said securing portion in a manner wherein said securing portion is rotatable about said central axis;
means for affixing said lower surface of said mounting portion to a work surface.

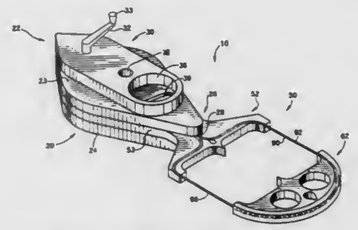
5,063,680
SELF-ERECTING TILTMETER
Thomas M. Wirt, Irvine; Ludd A. Trozpek, Claremont; James W. Broslus, Mission Viejo; Randolph A. Johnson, Oragne, all of Calif.; Hugh N. Baertlein, Jamestown, R.I., and Eric W. Newman, Placentia, Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Nov. 19, 1990, Ser. No. 615,752
Int. Cl.[5] G01C *9/14*
U.S. Cl. 33—397 20 Claims

1. A self-erecting tiltmeter comprising:
(a) a housing defining a fluid cavity;
(b) a vertical seeking assembly supported on a gimbal within the fluid cavity;
(c) a viscous fluid in the fluid cavity, providing a fluid coupling between the housing and the vertical seeking assembly; and



(d) means mounted on the vertical seeking assembly, for measuring the angle of tilt between the vertical seeking assembly and the vertical direction.

5,063,681
DUAL CHALK LINE MARKER
Oliver A. Bradley, 1185 Park Center Dr., Vista, Calif. 92083
Filed Mar. 18, 1991, Ser. No. 670,686
Int. Cl.[5] B44D *3/38*
U.S. Cl. 33—414 15 Claims



1. A dual chalk line marker comprising:
a chalk line assembly including:
spool means for reeling two chalk lines;
a first chalk line wound on said spool means; said first chalk line having an outer end;
a second chalk line wound on said spool means; said second chalk line having an outer end;
crank means connected to said spool means for rotating said spool means to wind up said lines on said spool means;
box means, confining said spool means and providing a bearing therefore and for confining a body of powdered chalk and including aperture means for passage of said chalk lines; and
a pair of spreader means including:
first spreader means means attached to said chalk lines for receiving said lines from said spool means; said first spreader including ports through which said lines pass including:
first port means from which said said first chalk line emerges; and
second port means, separated from said first spreader

VOL 1132 ISS 2 NO 12 1991 UMI

first port means, from which said second chalk line emerges; and

second spreader means including:

a first end port connected to said first chalk line outer end; and

a second end port, separated from said first end port, connected to said second chalk line outer end.

5,063,682

AERODYNAMIC CALIPER GAUGE

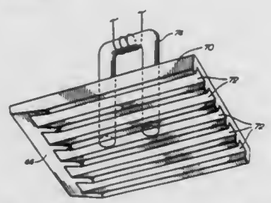
Mathew G. Boissevain, Los Altos; Michael K. Norton, Los Gatos; Anthony D. Foskett, San Jose, and Tobias J. Boissevain, Mountain View, all of Calif., assignors to Measurex Corporation, Cupertino, Calif.

Continuation-in-part of Ser. No. 339,506, Apr. 17, 1989, Pat. No. 4,901,445. This application Aug. 30, 1989, Ser. No. 401,097

The portion of the term of this patent subsequent to Feb. 20, 2007, has been disclaimed.

Int. Cl.[5] **G01B** *7/04, 7/10*

U.S. Cl. 33—501.02 **11 Claims**



1. A caplier gauge for measuring a physical property of a moving sheet material having a boundary layer, the gauge comprising:

a first base;

an extendible member having one end connected to the base;

a first pad mounted to the end of the extendible member opposite the first base; and

first aerodynamic means for reducing the force exerted by the boundary layer which tends to force the first pad away from the moving sheet.

5,063,683

SUPPORT ASSEMBLIES

James Bury, Allestree, United Kingdom, assignor to LK Limited, Derby, England

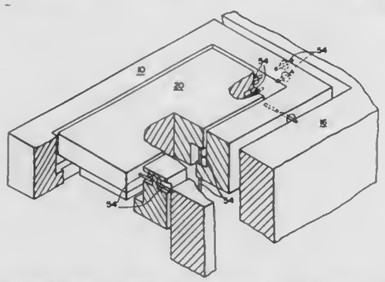
PCT No. PCT/GB89/00346, § 371 Date Apr. 5, 1989, § 102(e) Date Oct. 5, 1990, PCT Pub. No. WO89/09676, PCT Pub. Date Oct. 10, 1989

PCT Filed Apr. 5, 1989, Ser. No. 576,510

Claims priority, application United Kingdom, Apr. 8, 1988, 8808282

Int. Cl.[5] **G01B** *5/00;* **B23Q** *1/00*

U.S. Cl. 33—573 **18 Claims**



1. An apparatus for supporting a plurality of elements on a foundation, said elements comprising a workpiece structure for supporting a workpiece and a base structure, said apparatus comprising a first means having a plurality of components for supporting either the workpiece structure or the base structure defining a supported element on said foundation. and a second means for mounting the other of the workpiece structure of the base structure defining a mounted element on the supported element, said first supporting means restraining said supported element against both linear and angular movement relative to said foundation, and said second mounting means comprising six elongate bars for restraining the mounted element against linear movement along and rotation about three mutually perpendicular axes relative to said supported element, thereby obviating relative movement between the elements and said foundation.

5,063,684

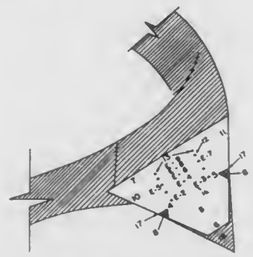
MARKING TEMPLATE FOR PLACEMENT OF COLLAR INSIGNIA

Kersten Winters, 715 N. 42nd St., #107B, Grand Forks, N. Dak. 58203

Filed Sep. 11, 1990, Ser. No. 580,865

Int. Cl.[5] **A41H** *3/01*

U.S. Cl. 33—653 **8 Claims**



1. A template for marking the position for the placement of collar insignia comprising a thin, rigid, planar member with rank indicia printed thereon, edge positioning cutouts located at a predetermined distance along each of two sides of said member, and a plurality of pilot passage means precut into the surface of said member at said rank indicia for allowing said collar insignia with two sharp pointed spikes to pierce the surface of said member, said member is a triangle with the apex cutoff giving said member two bases of different lengths while still retaining its triangular shape having said cutouts located at predetermined distances along each of two sides between said two bases with a plurality of said passage means precut into surface of said member relative to said cutouts, being adapted to be lain over collar, the slant of both sides of said member being disposed to agree, but not conform to the shape of the collar; the improvement wherein said passage means are arranged in sets of two at predetermined intervals to correspond to the spacing between the spikes of said insignia, being located on said surface of said member relative to said cutouts for a plurality of ranks, said template being adapted to be lain over a collar being positioned so that collar material is flush with top outer edges of said cutouts and said template bisects the angle of the point of collar and, said passage means further characterized as being die-cut incisions on the surface of said member adapted to permit said collar insignia to be forcibly pushed through the surface of said member when pressure is exerted, causing two spike created puncture holes in said member, wherein said holes being limited in size and having such a degree of constriction so as to be able to lock said device securely in place, providing support and stability to said device being adapted as a marking means for making two small holes in said collar material to mark the location for placement of the collar insignia thereafter, whereby said template is able to adapt said device as an integral second member to mark the precise location of collar insignia when said template is positioned on said collar by being moved along collar edges until top outer edges of said cutouts are flush with collar material, leaving two small holes therein for the placement of collar insignia thereafter.

5,063,685

TAPE SCALE APPLICATOR

Robert B. Morrison, Badminton; Brian C. R. Henning, Thornbury; Stephen E. Lummes, Strond, and David R. McMurtry, Wotton-Under-Edge, all of United Kingdom, assignors to Renishaw plc, Wotton-Under-Edge, United Kingdom

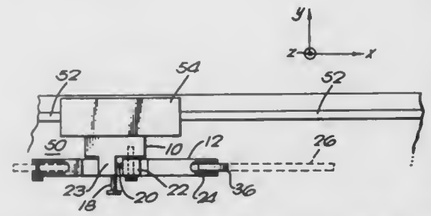
PCT No. PCT/GB89/01021, § 371 Date Apr. 30, 1990, § 102(e) Date Apr. 30, 1990, PCT Pub. No. WO90/02919, PCT Pub. Date Mar. 22, 1990

PCT Filed Sep. 1, 1989, Ser. No. 474,075

Claims priority, application United Kingdom, Sep. 2, 1988, 8820777

Int. Cl.[5] **G01B** *3/10, 21/00;* **B32B** *31/00*

U.S. Cl. 33—701 **18 Claims**



1. A method of applying a tape scale to a coordinate positioning machine, the machine having two members movable relative to each other along a first axis, one of the members providing a substrate for supporting the tape scale, and the other of the members providing a mounting for retaining a read head in register with the tape scale when supported by the substrate,

the method comprising the steps of:

mounting an applicator to said other member for aligning the scale relative to the substrate;

passing the scale through the applicator and moving the two members relative to each other, thereby to align the scale along the extent of the relative movement; and

affixing the aligned part of the scale to the substrate.

5,063,686

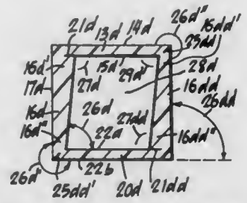
SELF-SUPPORTING FLEXIBLE EXTENDABLE TAPE MEASURE

Andrew L. Peloquin, 606 - 3rd St., Fair Lawn, N.J. 07410

Filed Oct. 15, 1989, Ser. No. 598,849

Int. Cl.[5] **G01B** *3/10*

U.S. Cl. 33—757 **19 Claims**



1. A self-supporting flexible extendable tape device comprising in combination: a substantially rigid first elongated tape of flexible composition having opposite upper and lower faces, having opposite first and second edges, having a longitudinal axis along a length of the first elongated tape with the upper and lower faces extending as a width between said opposite first and second edges along the longitudinal axis, having length-indicating indicia arranged along the longitudinal axis, and having a transverse axis constituting said width of the first elongated tape, and at least a first substantially upright flange relative to and extending from said first elongated tape, said first substantially upright flange being of said flexible composition and substantially continuous with said flexible composition of said first elongated tape at at-least one of said first and second edges such that said first flange braces and supports said first elongated tape against bending along said longitudinal axis from weight of extended portions of the first elongated tape when in an extended state, and a second substantially upright flange of said flexible composition continuous with a remaining other of said first and second edges such that said second substantially upright flange further supports and braces said first elongated tape along said longitudinal axis when in an extended state, said first substantially upright flange having opposite first substantially upright side faces and in which said first substantially upright flange and said one of said first and second edges form a first corner junction forming a first inner-shaped corner and oppositely a first outer-shaped corner, said first corner junction being structured such that said first substantially upright flange is bendable at said first corner junction to a position at which the first substantially upright flange is positioned with said first substantially upright side faces substantially in linear alignment with said upper face, and said second substantially upright flange having opposite second substantially upright side faces and in which said second substantially upright flange and said other of said first and second edges form a second corner junction forming a second inner-shaped corner and oppositely a second outer-shaped corner of substantially 270 degrees, in which each of said first and second substantially upright flanges have respectively first and second proximal and distal ends, and including a second elongated tape as an elongated connecting wall of said flexible composition interconnecting and continuous with said flexible composition of said first and second substantially upright flanges at said first and second distal ends thereof such that said elongated connecting wall, said first elongated tape and said first and second substantially upright flanges form a four-sided elongated tube, said second corner junction being structured such that said second substantially upright flange is bendable at said second corner junction to a position at which the second substantially upright flange is positioned with said second substantially upright side faces substantially in linear alignment with said elongated connecting wall, and is positioned with one of said second substantially upright side faces substantially parallel with said upper face with a remaining other of said second upright side faces substantially flush with said upper face, said first substantially upright flange at said first proximal end thereof being of increased thickness and said first inner-shaped corner junction of the first proximal end and said first edge, forms a first inner slot running along said first edge such that said first substantially upright flange is prevented from bending to reduce said first inner-shaped corner to a lesser inner angle with said upper face.

5,063,687

ADJUSTABLE MEASURING PARALLELS

Frank A. Olshefsky, Schenectady, N.Y., assignor to Equipment Development Services, Schenectady, N.Y.

Filed Sep. 27, 1990, Ser. No. 588,817

Int. Cl.[5] **G01B** *5/14, 7/14*

U.S. Cl. 33—827 **18 Claims**

1. Apparatus for measuring the distance between two opposing substantially flat surfaces, comprising:

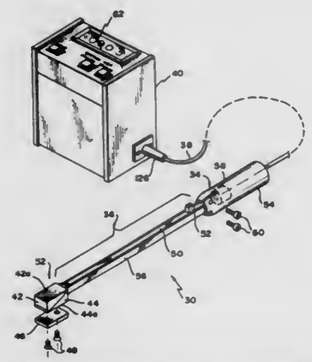
a head assembly including opposed parallel surfaces movable relative to each other along an incline;

stationary extender means connected to one of said parallel surfaces and extending along a longitudinal axis;

movable extender means connected to the other of said parallel surfaces and working cooperatively with said stationary extender means for moving said other parallel surface relative to said one parallel surface along said incline in a direction orthogonal to said parallel surfaces; and

VOL 1132 ISS 2 NO 12 1991 UMI

means coupled to said movable extender means for converting the movement thereof to an indication of the relative movement of said parallel surfaces to thereby measure the distance between said two substantially flat surfaces when



said head assembly is inserted therebetween and said movable extender means is moved along the longitudinal axis to effectively position each of said parallel surfaces contiguous to a corresponding one of said two substantially flat surfaces.

5,063,688

HAIR DRIER HOOD

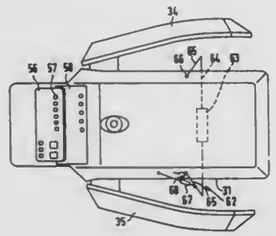
Rainer Moll, Schwäbisch-Gmünd; Peter Kinast, Friolzheim, and Hans Gessner, Kirchheim/Teck, all of Fed. Rep. of Germany, assignors to OLYMP Karl Herzog GmbH & Co., Stuttgart, Fed. Rep. of Germany

Filed Dec. 6, 1989, Ser. No. 446,617

Claims priority, application Fed. Rep. of Germany, Dec. 6, 1988, 8815146; Sep. 23, 1989, 8911354

Int. Cl.[5] A45D *20/00*

U.S. Cl. 34—97 12 Claims



1. A hair drier hood comprising a laterally open cap (1) having a first end arranged to be located approximately adjacent the neck of a person and a second end arranged to be located over the forward portion of the person's head and said cap curving approximately in a sickle shaped upwardly from the first end to the second end, heating elements (8) located with said cap (1) extending transversely of the first end - second end direction and disposed in spaced relation, a pair of arms (4, 5) extending from said first end and each located laterally outwardly from an opposite side of and below said cap generally alongside the head of the person, at least one heating element (12) in each said arm (4, 5), a box shaped projection (2) extending outwardly from the first end of said cap in the direction away from the second end, a blower (13) located within said projection (2) and arranged to direct air into said cap (1), means (10) in said cap for forming air outlet orifices (9) spaced apart between said first and second ends for directing air over said heating elements (8) into a space bounded by said cap (1) and arms (4, 5), said cap having at least one air duct (15, 16, 44) on an opposite side of said air inlet orifices (9) from said heating elements (8) and extending in the direction from the first end toward the second end and communicating between said blower (13) and said air outlet orifices (9).

5,063,689

SINGLE WIRE DRYER GROUP WITH ADJUSTABLE REVERSING ROLLS

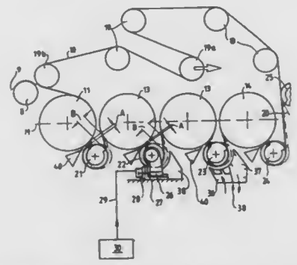
Hans-Peter Sollinger, Heidenheim, Fed. Rep. of Germany, assignor to J.M. Voith GmbH, Fed. Rep. of Germany

Filed Jul. 10, 1990, Ser. No. 550,621

Claims priority, application Fed. Rep. of Germany, May 18, 1990, 4015942

Int. Cl.[5] F26B *11/02*

U.S. Cl. 34—115 20 Claims



1. A single wire drying group for a machine for producing a fibrous web of paper, comprising:

a plurality of heatable drying cylinders having axes; a respective reversing roll associated with each of the drying cylinders;

an endless web support belt for supporting the web; the drying cylinders and the reversing rolls being respectively so positioned and the support belt being passed over the drying cylinders and the reversing rolls such that the endless support belt travels together with the web to be dried over one of the drying cylinders, then over one of the reversing rolls, and then over another of the drying cylinders;

at least a first one of the reversing rolls has before it in the path of the endless belt a first web delivering one of the drying cylinders and has after it in the path of the endless belt a second web receiving one of the drying cylinders;

movable bearing means for supporting the first reversing roll and for enabling the first reversing roll to be movable with respect to the first web delivering drying cylinder for selectively varying the distance between the reversing roll and the first web delivering drying cylinder, the bearing means supporting the first reversing roll for movement in directions at least approximately parallel to a central plane determined by the axes of the first web delivering and the second web receiving drying cylinders.

5,063,690

SHOE OR BOOT HEATER WITH SHOELACE MOUNTED POWER SOURCE

Stephen Slenker, 26 Cummings Rd., Tyngsboro, Mass. 01879

Filed Jan. 17, 1990, Ser. No. 466,213

Int. Cl.[5] A43B *7/02*

U.S. Cl. 36—2.6 9 Claims

1. A system for heating an article of footwear having a sole, sides, a heel and toe area, comprising:

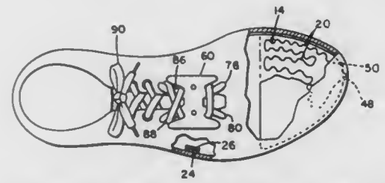
a removable insole extending from the heel area to the toe area of the footwear article,

a heating element disposed upon the surface of said insole,

electrical leads extending from said heating element and directed beneath said insole to an area of said footwear which experiences relatively low pressure from dynamic loads generated by normal activities of a user of said footwear,

a compact power source means, said power source means being provided with contact means externally thereof,

said electrical leads being provided with connector means at their ends adapted to provide for electrical connections



externally of said footwear article and centrally therefrom,

an enclasping means comprising a relatively rigid mounting bracket having means for enclasping laces which may be employed to secure the footwear article to the foot of the wearer, said power source and power source contact means mounted on said enclasping means in a location thereon that does not interfere with said normal activities of the user and that allows said power source to be connected to said connector means.

5,063,691

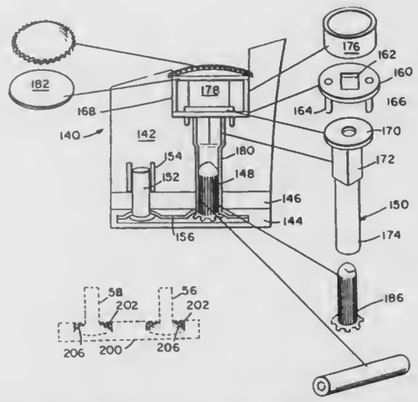
SHOCK ABSORBANT HEEL

Richard J. Haug, 19 Sweetbriar La., Hampton, N.H. 03842

Continuation-in-part of Ser. No. 337,396, Apr. 13, 1989, Pat. No. 4,953,310. This application Apr. 11, 1990, Ser. No. 507,954

Int. Cl.[5] A43B *21/26, 21/47*

U.S. Cl. 36—35 R 14 Claims



1. A heel construction for shoes comprising a heel block having a bottom surface and a top surface and a lift, a primary bore extending through said bottom surface, an elongated load transmitting means extending from the upper portion of the bore and through the bottom of the heel block, at least one secondary bore extending from the bottom surface into the heel block, a secondary post cooperating with the secondary bore adapted to move within said bore, means to transmit torque secured in the lift and moveably connected to the load transmitting means and to the secondary post whereby the lift is adapted for relative pivotal and vertical movement with reference to the heel block, said means to transmit comprising at least one washer-like element having an upper and lower surface, the upper surface having at least one rib extending therefrom, which rib prevents rotation of the washer in the lift.

5,063,692

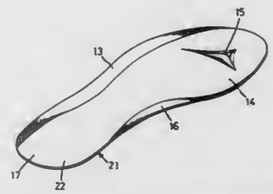
FOOTWEAR AND INSOLE PAD THEREOF

Junko Suginaka, Sunhaimu shinsaibashi 607, 10-12, nishishinsaibashi 1-chome, Chuo-ku, Osaka-shi, Japan

Filed May 24, 1990, Ser. No. 528,193

Int. Cl.[5] A43B *13/38;* A61F *5/00*

U.S. Cl. 36—43 4 Claims



1. An article of footwear comprising an outsole; an upper fixed to the outsole; and an insole extending over said outsole; said insole having an upper surface on which a foot of a wearer of the footwear will rest, an outer periphery in a shape generally corresponding to the outline of a foot, an inside arch extrusion extending along and exposed at the upper surface of the insole at a location adjacent one portion of the outer periphery of the insole corresponding to the plantar arch of the foot, an outside arch extrusion extending along and exposed at the upper surface of the insole at a location adjacent another portion of the outer periphery of the insole corresponding to the outside arch of the foot, and a third extrusion exposed at the upper surface of the insole at a location corresponding to the concavity between the first and second toes of the foot; said outside arch extrusion increasing in thickness toward said another portion of the outer periphery of the insole so as to support an outward shifting of weight exerted by a foot of a wearer of the footwear, said inside arch extrusion increasing in thickness toward the said one portion of the outer periphery of the insole so as to support and moderately stimulate the plantar arch of a foot of a wearer of the footwear, and said third extrusion forming a protrusion having a generally triangular pyramidal shape so as to inhibit a foot of a wearer of the footwear from slipping forward and sidewards relative to the insole.

5,063,693

ALPINE SKI BOOT HAVING A SUPPORTING FLEXION ELEMENT

Joseph Morell, Annecy, and Louis Benoit, Frangy, both of France, assignors to Salomon S.A., Annecy Cedex, France

Filed Jun. 4, 1986, Ser. No. 870,532

Claims priority, application France, Jun. 12, 1985, 85 09179

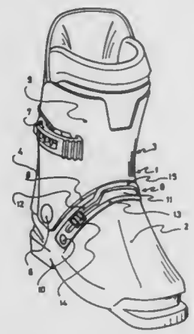
Int. Cl.[5] A43B *5/04*

U.S. Cl. 36—121 3 Claims

1. A ski boot comprising a rigid shell base and a cuff journalled to an upper surface of said shell base, said cuff having a lower edge, said ski boot further comprising at least one flexion element which is mounted on an upper surface of said shell base and which comprises means for continuously supporting said lower edge of said cuff at least at a point along the longitudinal axis of said ski boot, wherein said at least one flexion element has first and second ends, each of said ends being adapted to be attached to said shell base along opposite sides of said boot, wherein said flexion element comprises an upper

VOL 1132 ISS 2 NO 12 1991 UMI

flexion arm, a lower arm and a central slot, at least one slidable cursor being positioned within said slot and being adapted to



be adjustably positioned between said first and second ends of said flexion element, and wherein said slot has a central portion which is wider than the remainder of said slot.

5,063,695

REPLACEABLE WEAR ELEMENT AND METHOD

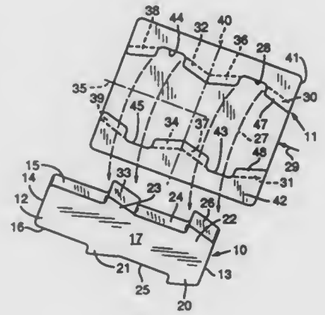
Terry L. Briscoe, Portland, and Paul C. Sprunger, Dundee, both of Oreg., assignors to ESCO Corporation, Portland, Oreg.

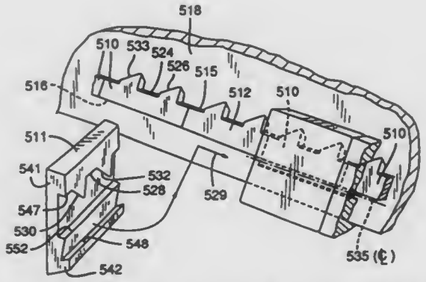
Continuation-in-part of Ser. No. 478,359, Feb. 12, 1990, Pat. No. 5,005,304, and a continuation-in-part of Ser. No. 528,087, May 24, 1990, Pat. No. 4,995,176. This application Dec. 20, 1990, Ser. No. 627,509

The portion of the term of this patent subsequent to Feb. 26, 2008, has been disclaimed.

Int. Cl.[5] E02F *9/28*

U.S. Cl. 37—141 R 10 Claims





1. A replaceable wear element (**11, 411, 511**) for installation on the wearable part (**18, 518**) of a structure engageable with abrasive material comprising:

a unitary relatively elongated, generally rectangular plate-like body (**12', 412'**) having end walls (**13', 413', 14', 414'**), sidewalls (**15', 415', 16', 416'**) and top and bottom surfaces (**17', 417', 19', 419'**), one of said surfaces (**19', 419'**) being adapted to engage said abrasive material,

the other (**17', 417'**) of said top and bottom surfaces being adapted to be positioned in confronting relation to said wearable part by movement generally along its longitudinal centerline (**35, 435, 535**),

said other surface (**17', 417'**) adjacent both sidewalls (**15', 415', 16', 416'**) being equipped with transversely-spaced integral portions (**41, 441, 42, 442, 541, 542**) providing opposing walls (**47, 447, 48, 448, 547, 548**),

a first (**47, 447, 547**) of said opposing walls having a pair of longitudinally spaced apart dovetail surfaces (**30, 430, 530, 32, 432, 532**) inclined at a positive angle to said centerline in the plane of said other surface (**35, 435, 535**),

the second (**48, 148, 548**) of said opposing walls having a dovetail surface (**37, 434, 548**) positioned intermediate the adjacent ends of said first opposing wall pair of dovetail surfaces (**30, 430, 530, 32, 432, 532**).

5,063,694

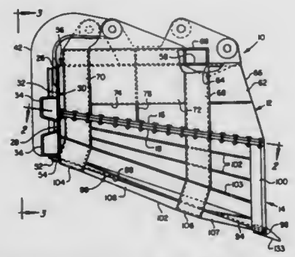
LIGHTWEIGHT EXCAVATOR DIPPER WITH REPLACEABLE TOP AND BOTTOM SECTIONS

Robert A. McCreary, Jr., Gillette, Wyo., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Feb. 6, 1991, Ser. No. 651,163

Int. Cl.[5] E02F *5/02*

U.S. Cl. 37—103 24 Claims



20. A fabricated top body member for an excavating dipper comprising a generally hollow box having a front opening and a rear dump opening and being characterized by said top body member and a bottom body member adapted to be detachably connected to said top body member, said top body member including:

a fabricated metal plate defining a top wall and depending sidewall portions; and

a forwardly projecting lip part forming part of said top wall and side walls of said top body member and being formed of metal plate having a thickness greater than the plate defining the remainder of said top body member.

5,063,696

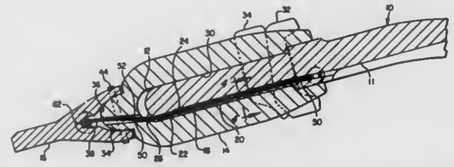
EXCAVATOR BUCKET TOOTH RETENTION DEVICE

Kelly M. Smith, Gillette, Wyo., assignor to Atlantic Richfield Company, Los Angeles, Calif.

Filed Feb. 13, 1991, Ser. No. 655,009

Int. Cl.[5] E02F *9/28*

U.S. Cl. 37—141 T 11 Claims



1. In an excavator bucket having a lip portion, at least one digging tooth secured to said lip portion and means for securing said digging tooth on said lip portion, means for retaining said tooth loosely connected to said lip portion, said means for retaining including a passage formed in said lip portion, recess means in said tooth, an elongated, flexible cable including a fitting at substantially opposite ends of said cable, respectively, and retaining means on each of said lip portion and said tooth for engagement with said fittings, respectively, to retain said tooth loosely connected to said lip portion in the event of failure of said securing means.

5,063,697

SMOOTHING IRON WITH A DEMINERALIZING CARTRIDGE

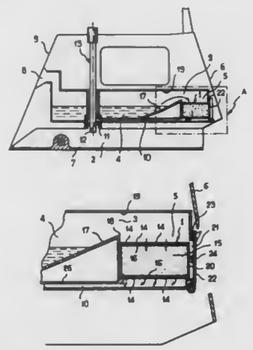
Daniel Valente, Vienne; Jean L. Branrolini, Saint-Etienne, and Frederic Volle, Lyon, all of France, assignors to SEB S.A., Selongey, France

Filed Jun. 8, 1990, Ser. No. 535,461

Claims priority, application France, Jun. 8, 1989, 8907580

Int. Cl.[5] D06F *75/18;* C02F *5/00*

U.S. Cl. 38—75 15 Claims



1. A smoothing iron comprising:

a heated soleplate;

a vaporization chamber overlying said soleplate;

a water storage container having an outlet; and

a cartridge containing material for demineralizing water passed from said outlet to said vaporization chamber, said cartridge being located in a region of the iron substantially isolated from the heat of said soleplate.

5,063,698

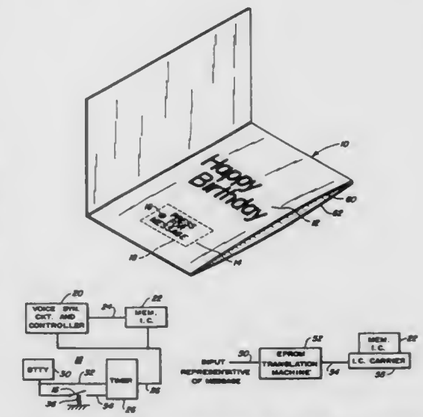
GREETING CARD WITH ELECTRONIC SOUND RECORDING

Ellen B. Johnson, and Daryl Ivey, both of 9925 NW. 25 Ave., Miami, Fla. 33147

Continuation of Ser. No. 94,349, Sep. 8, 1987, abandoned. This application Nov. 28, 1988, Ser. No. 277,480

Int. Cl.[5] G09F *1/00*

U.S. Cl. 40—124.1 3 Claims



1. The method of creating an individually personalized greeting card assembly including a carrier portion with an electronic sound recording embodying a personalized message, comprising the steps of:

communicating by telephone from a remote location with a programmed answering machine at a centralized location and establising a telephone circuit between the locations, said machine being programmed to provide spaced sets of outgoing messages and receive spaced sets of incoming messages,

communicating from the centralized location to the remote location a first set of outgoing messages advising that upon a certain audible signal, the user should provide billing information including identity, address, and telephone number,

recording said billing information provided by the user via telephone from the remote location at the centralized location,

communicating a second set of instructions from the centralized location requesting information as to the identity and address of the intended recipient of the card,

recording said recipient information provided by the user via telephone from the remote location at the centralized location,

communicating a third set of instructions from the centralized location via telephone to the remote location advising the user of data about the type of message which can be provided upon an audible signal,

recording the message given via telephone from the remote location to the centralized location,

preparing an appropriate greeting card including the steps of:

converting said personalized message stored in the answering machine from an auditory state into representative electronic signals including inputing the electronic signals in an erasable programmable read-only translation means,

processing the electronic signals in an integrated circuit carrier, and storing and fixing said electronic signals in a memory integrated circuit,

detaching the memory integrated circuit and electrically connecting the memory integrated circuit in a circuit

VOL 1132 ISS 2 NO 12 1991 UMI

means including a voice synthesizer means, controller means, timer means, battery means, and a normally open switch means, and

attaching said circuit means to said card assembly carrier portion with a switch means accessible for closing the circuit means.

5,063,699

BREAK-OPEN FIREARM WITH READILY EXCHANGEABLE FIRING PIN

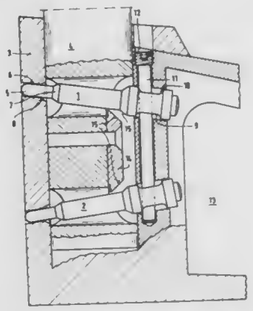
Horst Blaser, Ziegelstadel 324, 7972 Isny im Allgäu, Fed. Rep. of Germany

Filed Jan. 14, 1991, Ser. No. 640,872

Claims priority, application Fed. Rep. of Germany, Jan. 13, 1990, 4000818

Int. Cl.[5] F41A *3/00*

U.S. Cl. 42—41 9 Claims



1. A break-open firearm with at least one barrel, a breech housing with removable lock, each barrel being associated with a firing pin guided in the breech housing, and a device by means of which the tips of the firing pins are retracted into the breech housing during the opening or closing of the barrel, characterized in that each firing pin has a notch, a stud guided in the breech housing engaging into the notch in such a way that each firing pin, with the stud inserted, cannot be removed from the breech housing; that the notch has such a width that the necessary movement of each firing pin in the breech housing is not impeded by the stud; and that the stud can be dismounted from and mounted in the breech housing in a simple way.

5,063,700

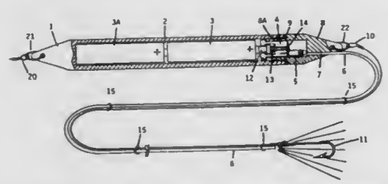
FISH BAIT AND LURE ILLUMINATOR

David L. Kiefer, 1535 Voorhees, Manhattan Beach, Calif. 90266, and Leon S. Milhon, 12332 Allin St., Culver City, Calif. 90230

Filed Mar. 29, 1990, Ser. No. 501,235

Int. Cl.[5] A01K *85/00*

U.S. Cl. 43—17.6 3 Claims



1. In a bait or lure illuminating apparatus of the type having:

an elongated waterproof housing having an enclosed chamber,

an electrical battery situated in the chamber,

a light source situated in the chamber,

a means for completing an electrical circuit between the battery and the light source; the improvement comprising:

a. an optical fiber extending through the housing at one end thereof, the interior end of the optical fiber being mounted in the housing in close proximity to the light source, the optical fiber external to the housing being of sufficient length to provide remote illumination so as to provide the aspect that the housing is not in the vicinity of the bait or lure;

b. a fishing leader attached to the housing and a hook that holds the bait or lure wherein the length of optical fiber is attached at several points along and near the end of said fishing leader such that the exterior end of the optical fiber acts as a lens to provide illumination of the bait or lure; and

c. means for securing a fishing line to the other end of said housing.

5,063,701

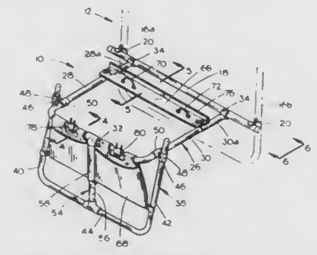
FISHING ROD HOLDING ATTACHMENT FOR COLLAPSIBLE CHAIR

John O. Ottens, 420 Forest, Crete, Nebr. 68333

Filed Dec. 5, 1990, Ser. No. 622,749

Int. Cl.[5] A01K *97/10*

U.S. Cl. 43—21.2 7 Claims



1. A fishing rod holder, comprising:

a generally U-shaped first frame means having right and left generally parallel leg members with first and second ends, and a base leg member connecting said first ends of said right and left leg members;

a support frame means having an upper end operably connected to said first frame means and a lower end adapted for ground support;

said support frame means being operably connected to said first frame means so as to selectively support said first frame base member at selective distances above the ground;

fishing rod retaining means connected to said first frame means, for retaining the handle of a fishing rod in position relative to said first frame means;

said support means including right and left leg members having upper and lower ends, the upper ends of said support frame leg members being operably connected to the first frame right and left legs, respectively;

said support frame means further including a base leg member connected between the lower ends of said support frame right and left legs to form a generally U-shaped support frame, such that said support frame right and left legs move in unison;

said right and left support frame legs being rotatably connected to said first frame means, such that said support frame means will rotate about an axis passing between the rotatable connection of said support frame right and left legs to said first frame means;

stop means connected between said support frame means and said first frame means, to prevent rotational movement of the support frame means with respect to the first frame means beyond a predetermined position; and

said stop means including a selectively extensible arm member pivotally connected at its lower end to said support frame base leg, and pivotally connected at its upper end to said first frame base leg, said extensible arm member being selectively extensible to retain said first frame base leg at a predetermined distance from the support frame base leg.

5,063,702

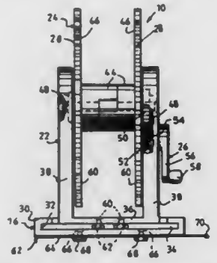
DEVICE FOR STORING AND DISPENSING A TROTLINE

Larry Williams, 1309 Alice, Longview, Tex. 75604

Filed Dec. 26, 1990, Ser. No. 633,802

Int. Cl.[5] A01K *97/06*

U.S. Cl. 43—27.4 6 Claims



1. A device for storing and dispensing a trotline having hooks comprising:

a) a base mounted onto a transom/bow of a boat;

b) a U-shaped frame mounted to said base

c) a reel rotatably mounted on said U-shaped frame;

d) a crank handle assembly rotatably mounted on said U-shaped frame for turning said reel counterclockwise to store the trotline and clockwise to dispense the trotline; and

e) means on said reel for retaining the hooks of the trotline when the trotline is stored onto said reel, further comprising a bracket that includes:

a pair of flat adjustment bars mounted to the underside of said base, each said bar having a round pin extending at a right angle from one exposed end thereof; and

a pair of U-shaped housings, each mounted spaced apart onto the transom/bow of the boat so that said base can fit therebetween with the round pins extending into one of said U-shaped housings to retain said device thereto.

5,063,703

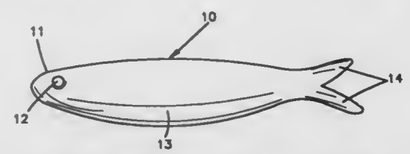
ARTIFICIAL FISH BAIT

Patriek F. Riley, 926 Cherokee Trail, Willoughby, Ohio 44094

Filed Jun. 15, 1990, Ser. No. 540,676

Int. Cl.[5] A01K *85/00*

U.S. Cl. 43—42.06 9 Claims



1. An artificial fish bait comprising a body of soft plastic in the shape of a bait fish, said plastic containing a freeze-dried granular mixture of natural blend, said plastic permitting leaching of the scent of said natural blend whereby said fish bait simulates a natural bait, said natural blend being a blend of mullet, pin fish, sardines, shrimp, squid, and clams.

5,063,704

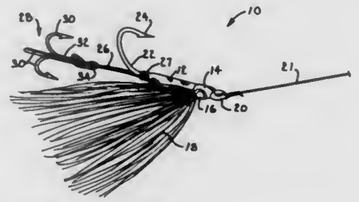
FISHING FLY WITH SLIDING TREBLE HOOK

Randall M. Phillips, N. 4113 Willow, Spokane, Wash. 99206

Filed Aug. 13, 1990, Ser. No. 565,937

Int. Cl.[5] A01K *85/00*

U.S. Cl. 43—42.25 4 Claims



1. A fishing fly comprising:

a fly body having opposite ends;

a hook on one end of said body;

means on the other end of said body for attaching a fishing line to the fly body;

a treble hook having an eye on one end and multiple hooks on another end, said treble hook having a shank extending between said eye and hooks;

a flexible line extending from said one end of the body, said flexible line presenting a loop; and

a slideable slip connection between said flexible line and said treble hook wherein said loop is extended through said eye and is looped around said shank at a location between the eye and hooks to allow the shank to slide within said loop.

5,063,705

FISHING LURE

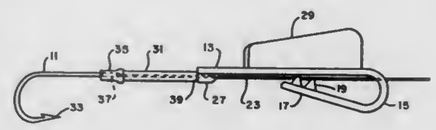
Richard B. Pool, 1343 Summit Rd., Lafayette, Calif. 94549

Continuation of Ser. No. 450,357, Dec. 16, 1982, Pat. No. 4,976,061. This application May 7, 1990, Ser. No. 519,656

The portion of the term of this patent subsequent to Dec. 4, 2007, has been disclaimed.

Int. Cl.[5] A01K *83/00*

U.S. Cl. 43—44.6 3 Claims



1. An improved fishing lure comprising

a spinner having a clamp for holding the head of a baitfish, means for permitting the fishing line or leader to pass through said spinner including a guide at the rear of the spinner,

an angled plate secured to said clamp of said spinner at a position with respect to the means for the fishing line or leader to pass through the spinner which causes the spinner to rotate in the water as the lure is pulled through it, and

a pliable, semi-rigid, salt water and temperature variation resistant spacer for supporting a fishhook at a predetermined distance from said spinner with the barb of said fishhook proximate the tail of a baitfish, said spacer being elongated with the rear end being formed to grip the eye end of the fishhook while surrounding the fishing line or leader tied to said fishhook eye such that the fishhook is maintained in the same longitudinal line as said spacer, the front end of said spacer being formed to bear against the spinner at the point where said guide for said fishing line

VOL 1132 ISS 2 NO 12 1991 UMI

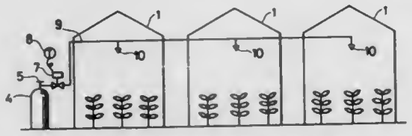
is formed on said spinner, said spacer permitting the entire lure to rotate as a semi-rigid unit.

5,063,706

DEVICE FOR EXTERMINATING PESTS AND METHOD OF EXTERMINATING PEST USING THIS DEVICE

Seietsu Aki, Osaka; Takaaki Ito, Nishinomiya; Yasuo Abe, Toyonaka; Ichiro Inoue, Hino, and Hiroyuki Miyachi, Tokyo, all of Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka and Erika Carbon Dioxide Company, Ltd., Tokyo, both of, Japan

Filed Jan. 4, 1991, Ser. No. 637,555
Claims priority, application Japan, Jan. 23, 1990, 2-14315
Int. Cl.[5] A01M *13/00*
U.S. Cl. 43—125 6 Claims



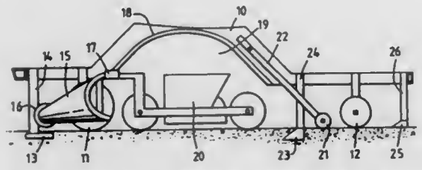
1. A device for exterminating pests comprising:
a cylinder filled with liquified carbon dioxide in which at least one pesticide is dissolved;
piping coupled to said cylinder; and
a plurality of capillary nozzles affixed to said piping,
said capillary nozzles being designed such that, with regard to adjacent capillary nozzles, the ratio of a nozzle exit area of a capillary nozzle close to said cylinder, to a nozzle exit area of a capillary nozzle remote from said cylinder, is set between 1:1.3 and 1:1.8.

5,063,707

AGRICULTURAL SHEET LIFTER

David N. Antill, New Milton, and Harold G. Mustey, Lymington, both of England, assignors to The Minister of Agriculture, Fisheries and Food in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Mar. 20, 1990, Ser. No. 503,421
Claims priority, application United Kingdom, Jul. 20, 1987, 8717114
Int. Cl.[5] A01G *7/00*
U.S. Cl. 47—9 14 Claims



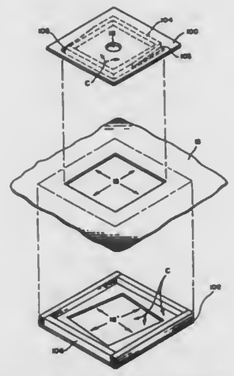
1. An agricultural sheet lifting device for lifting buried edges of an agricultural sheet, said device including a frame mounted on wheels and means for conveying agricultural machinery, said device further comprising: means for lifting said buried edges, means for guiding the sheet over the agricultural machinery and means for repositioning and reburying said edges.

5,063,708

HORTICULTURAL LAYOUT GROUND COVER ASSEMBLY

Robert E. Smith, R.D. #1 Smith Rd., Verona, N.Y. 13478

Continuation-in-part of Ser. No. 325,215, Mar. 17, 1989. This application Nov. 3, 1989, Ser. No. 431,299
Int. Cl.[5] A01G *23/02*
U.S. Cl. 47—33 5 Claims



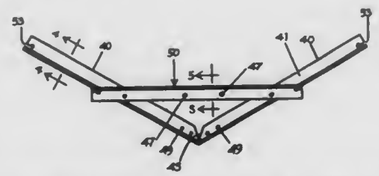
1. In a foraminous, opaque and water impervious ground cover having therein a plurality of essentially square foramens which communicate with all ground under said cover, the improvement for acquiring and later dispensing with a foramen diminishing and closing feature comprising a completely foramen-covering, removeable and scalably attachable top plate of opaque, water impervious material alternately having a small top plate hole therein and which communicates with the ground through the foramen, said plate of sufficient area to be superpositioned on and overlappingly cover the foramen of said ground cover which is to be diminished in size or closed and later reacquired by detaching said plate from the cover, said plate possessing a continuous essentially square top plate projection means depending from one surface thereof, said top plate projection means being of slightly smaller periphery than said foramen so that it will fit closely through the foramen, and said top plate projection further having therewith fixing means for removably securing said top plate to said ground cover, said fixing means comprising a groove in at least two opposing corners of said top plate projection at a juncture with said top plate surface and receptive therein of edges of a foramen.

5,063,709

"V" TRELLIS SUPPORT DEVICE

Howard E. Whittaker, 184 Missouri Flat Rd., Grants Pass, Oreg. 97527

Filed Oct. 22, 1990, Ser. No. 600,854
Int. Cl.[5] A01G *17/06*
U.S. Cl. 47—46 1 Claim



1. In a trellis arrangement for supporting vine-like growing plants, the combination of
a supporting stake adapted to be driven into the ground,

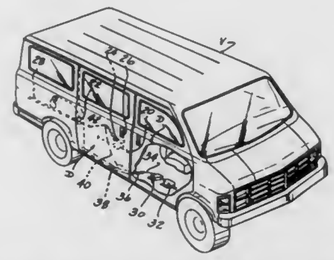
metallic arm members having inner and outer ends secured to the stake,
said arm members forming a V as seen in side elevation,
a cross member having outer ends, said cross member been arranged horizontally and extending between the arm members,
wire receiving slots formed in the outer ends of the arm members and cross member,
said arm members being physically joined at the inner ends thereof as seen in side elevational view,
said physical joinder accommodating arcuate movement of the respective arms about the locale of physical joinder to allow the width of the trellis arrangement to be reduced or increased,
means for securing the outer ends of the cross member to the respective arm members,
the width of the trellis arrangement being variable depending upon the length of the cross member employed in the arrangement.

5,063,710

POWER DRIVE FOR SLIDING DOOR

William W. Schap, Muskegon, Mich., assignor to ITT Corporation, New York, N.Y.

Filed Sep. 24, 1990, Ser. No. 587,295
Int. Cl.[5] E05F *15/00*
U.S. Cl. 49—280 14 Claims



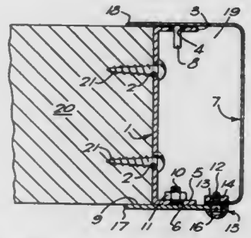
1. In a sliding door mounted in a door frame for sliding movement along a fixed path between a closed position wherein said door is positioned within a door opening in said frame and an open position wherein said door is withdrawn clear of said opening, releasable latch means on said door for latching said door to said frame when said door is in said closed position, and power means operable to drive said door between said open and said closed positions;
the improvement wherein said power means comprises elongate guide track means fixedly mounted on said frame and defining a slide path extending in adjacent parallel relationship to said fixed path, a slider slidably received in said track means for guided sliding movement along said slide path between a first end limit and a second end limit, an elongate flexible push/pull cable slidably received in said guide track means and fixedly secured at one end of said slider, said cable having a length in excess of the length of said slide path between said first and second end limits of movement of said slider and said cable extending from said slider to project outwardly from one end of said track means, reversible power drive means mounted on said frame adjacent said one end of said track means and coupled to said cable for driving said cable and slider along said track means to drive said slider between said first and second end limits, a door abutment fixedly mounted on said door and projecting into the path of movement of said slider between said slider and said one end of said track means to transmit movement of said slider toward said one end of said track means to said door, and one way motion transmitting means coupled between said slider and said door for transmitting motion of said slider toward the opposite end of said track means to said door, said slider being located at said first end limit when said door is in said closed position and being located at said second end limit when said door is in said open position.

5,063,711

DOOR FRAME STRUCTURE

Kirk J. Huelin, "Woodside", Scragged Oak Lane, Detling, Maidstone, Kent, ME14 4HJ, England

PCT No. PCT/GB88/00299, § 371 Date Aug. 3, 1989, § 102(e) Date Aug. 3, 1989, PCT Pub. No. WO88/08478, PCT Pub. Date Nov. 3, 1988
PCT Filed Apr. 19, 1988, Ser. No. 382,647
Claims priority, application United Kingdom, Apr. 29, 1987, 8710118; Taiwan, Apr. 1, 1988, 77102119; Canada, Apr. 5, 1988, 563215; European Pat. Off., Apr. 15, 1988, 88-01159
Int. Cl.[5] E06B *1/04*
U.S. Cl. 49—504 5 Claims



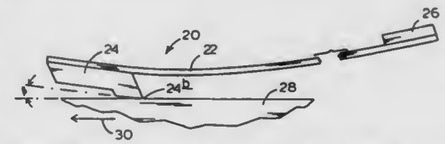
1. A sealable frame structure for a closable opening, said frame structure comprising a sub-frame which is substantially U-shaped in cross -section consisting of a web and two limbs extending respectively from the sides of the web essentially perpendicular thereto, the web being adapted to be secured to a wall around the edges of said opening with the limbs extending into the opening away from the wall; a strip of material secured to one limb and extending in one direction beyond the web to overlie part of the wall to which the web is secured and extending in the other direction beyond the outer edge of the limb to which it is secured; a frame shroud fixed to the other limb of the sub-frame and to the strip, said shroud extending beyond the said other limb to overlie part of the wall to which the web is secured and being provided with a series of studs and the said other limb of the sub-frame being provided with a series of holes in which the studs are engageable; and a sealing member comprising a profiled strip of resilient material which is fitted over an edge of said first-mentioned strip of material and part of which is held between said strip and the frame shroud to form a gas-tight seal with a closing member.

5,063,712

MICRO-BURNISHING FLEX HEAD STRUCTURE

Harold J. Hamilton, Santa Clara, and Leonard E. Harr, San Jose, both of Calif., assignors to Censtor Corp., San Jose, Calif.

Filed Apr. 2, 1990, Ser. No. 503,276
Int. Cl.[5] B24B *39/06, 7/04;* B21C *37/30*
U.S. Cl. 51—67 27 Claims



1. An integrated, unitary micro-burnishing head structure

VOL 1132 ISS 2 NO 12 1991 UMI

for use with the surface of rigid magnetic recording media comprising

an elongate flexure body, and

an abrader head joined to said body adjacent one end thereof, adapted for abrasive, sliding contact with such a surface,

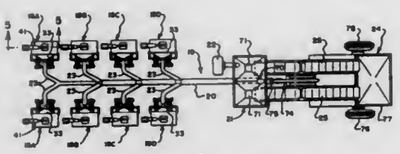
said head structure having an overall length of about 0.4-inches, an overall width of about 0.01- to about 0.02-inches, a flexure-body thickness of about 0.001- to about 0.003-inches, an abrader-head thickness of about 0.004-inches, and an abrader-head mass of about 100-micrograms.

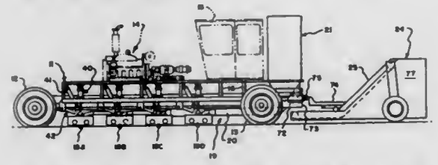
5,063,713

SURFACE ABRADING AND PARTICLE COLLECTION DEVICE

Gerald A. Buchheit, Jr., Orchard Park, N.Y., assignor to Accent Stripe Inc., Orchard Park, N.Y.

Filed Dec. 20, 1990, Ser. No. 630,559
Int. Cl.[5] E01C *23/08*
U.S. Cl. 51—170 R **3 Claims**





1. A device for abrading into particles a surface to be abraded and for collecting said particles comprising:

a transport frame having a left side and a right side, left and right front steerable rotatable wheels, left and right rear rotatable drive wheels, a cab for enclosing an operator; a motor for powering said support frame, drive wheels and moving said support frame along a surface to be abraded;

one or more abraders, arranged along the left and right sides of said transport frame and suspended vertically downwardly below said transport frame to said surface to be abraded; said abraders further comprising a housing containing one or more circular rotatable abrader grinders, adapted to contact said surface to be abraded and to be rotated at a high speed;

one or more actuators adapted to raise and lower each of said abraders above and to said surface to be abraded;

an abrader pressure control actuator adapted to selectively vary the vertical pressure exerted by the contact of said abrader grinder with said surface to be abraded;

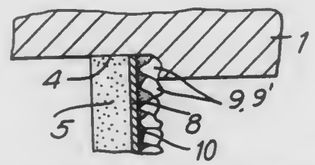
a particle collection system for collecting and containing said abraded particles, said collection system positioned on said transport frame and comprising a bag house and fan, a main connector pipe communicating with said bag house and extending away therefrom; a plurality of flex connectors, communicating with said main connector pipe and adapted to communicate with each one of said abraders; said bag house and fan further adapted to create a suction through said main and flex connector pipes to said abraders for suctioning said abraded particles into said bag house; a storage hopper having a top opening, and communicating with said bag house and further comprising a conveyor from said bag house to said hopper top adapted to carry said suctioned particles into said hopper; said hopper further adapted to engage said transport frame and to travel therewith.

5,063,714

GRINDING WHEEL FOR DEEP GRINDING

Hans-Robert Meyer, Hamburg, Fed. Rep. of Germany, assignor to Firma Ernst Winter & Sohn (GmbH & Co.), Hamburg, Fed. Rep. of Germany

Filed Apr. 4, 1989, Ser. No. 334,288
Claims priority, application Fed. Rep. of Germany, Apr. 7, 1988, 3811584
Int. Cl.[5] B24D *5/00*
U.S. Cl. 51—209 R **11 Claims**



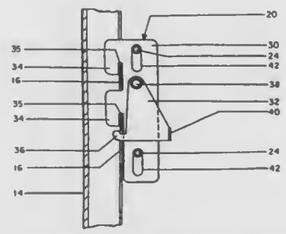
1. A rotatable grinding wheel having a center axis of rotation and a front face for engaging a workpiece when the grinding wheel is moved in a feeding direction relative to the workpiece during a deep grinding operation, comprising a first diamond coating secured to said front face and including a plurality of fine grain diamonds; a second diamond coating secured to a free end face of said first diamond coating and including a plurality of diamonds of a relatively large size, said second diamond coating being arranged forwardly of said first diamond coating in the feeding direction, said large size diamonds being arranged in a single layer in the feeding direction in direct contact with one another and held in a galvanically deposited binder; and a powder-metallurgy produced intermediate layer which is arranged between said coatings, said second coating being arranged on said intermediate layer.

5,063,715

WALL SYSTEM AND EQUIPMENT TILE THEREFOR

Steven F. Goodman, Wyoming, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.

Filed Feb. 14, 1990, Ser. No. 479,973
Int. Cl.[5] A47B *47/00*
U.S. Cl. 52—36 **13 Claims**



1. A wall system having a rigid frame with vertically spaced slots and tiles removably mounted to the frame, the improvement which comprises:

at least one tile mounted to the frame at least in part through a retention clip having a hanger portion with hooks to mount to the frame through the slots;

hanger clips separate from the retention clip and immovably mounted on said tile for supporting said tile on said frame;

means mounting the retention clip to the tile for limited vertical movement between frame-engaging and non-engaging positions when the hanger clips are seated on the frame;

a locking flange pivotably mounted to the retention clip hanger portion for movement between an unlocking position and a locking position, the locking flange having a tab adapted to fit within one of the frame slots;

the shape and placement of the locking flange is such that the locking flange tab is seated in a frame slot when the hanger portion hooks are seated in the frame slots and the locking flange is in the locking position;

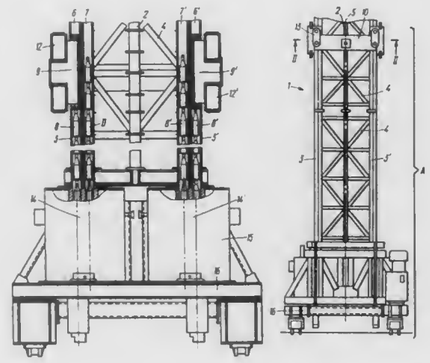
whereby the tile can be first supported by the frame through the hanger clips, the retention clip hanger portion is then positioned in the frame slots and can be pulled downwardly with respect to the frame without movement of the tiles with respect to the frame to seat the retention clip on the frame and thereby retain the tile on the frame, and whereby the retention clip can be locked in seated position on the frame.

5,063,716

HOISTING APPARATUS

Mark M. Raikhlin, Volgo-gradsky prospekt, 9, kv. 89, Moscow, U.S.S.R.

PCT No. PCT/SU/89/0004, § 371 Date Oct. 15, 1990, § 102(e) Date Oct. 15, 1990, PCT Pub. No. WO90/09334, PCT Pub. Date Aug. 23, 1990
PCT Filed Feb. 17, 1989, Ser. No. 582,914
Int. Cl.[5] E04H *12/18*
U.S. Cl. 52—114 **1 Claim**



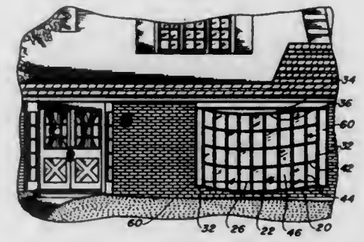
1. A hoisting apparatus in the form of a mast (1) consisting of four vertical rods (2,2', 3,3') interconnected by a lattice (4) two of said rods having internal spaces accommodating strength members (8,8') capable of moving along the rods (3,3'), one of said members in each rod (3,3') being connected with the corresponding brackets (9,9') which, in turn, are fastened to the cargo suspension (10) characterized in that the rods (3,3') with the strength members (8,8') and the rods (2,2') are arranged in pairs, symmetrically to the vertical axis (5) of symmetry of the mast (1) and the cargo suspension (10) is, essentially, a rectangular frame enveloping the mast (1) and formed by two parallel beams (11,11'), each rigidly connected in its center with the corresponding bracket (9,9'), and by two parallel rocker arms (12,12') whose ends are articulated to the ends of the beams (11,11').

5,063,717

SASHLESS BAY WINDOW

Susan S. Quaranta, and Michael E. Quaranta, both of 2700 Puente St., Fullerton, Calif. 92635

Filed Feb. 9, 1990, Ser. No. 477,427
Int. Cl.[5] E06B *1/38*
U.S. Cl. 52—201 **15 Claims**



1. A sashless horizontally curved bay window enclosing an opening in a building comprising:

(a) a stool-like sill having a curved front, a straight back and parallel ends fixably attached within the building opening unsupportably cantilevered therefrom;

(b) a pair of jambs having a lower and a upper extremity attached on each lower extremity to the end of each sill, likewise to the building opening, defining vertical structure;

(c) a header having a curved front, a straight back and parallel ends abuttingly affixed at the ends to the upper extremity of said jambs and fixably attached within the building opening the combination defining a frame;

(d) a plurality of horizontal curved muntins interposed parallel between said sill and header fixably joined to said jambs creating a horizontal sub-divided weight supporting structure;

(e) a plurality of vertical straight muntins interposed parallel between said jambs fixably joined to said sill and header creating a vertical sub-divided matrix in combination with the horizontal muntins; and,

(f) a plurality of curved window panes, having an outside and an inside edge, mounted into the framed matrix unitedly forming a curved bay window without the use of a sash.

5,063,718

CURTAIN WALL FOR A BUILDING

Al Nonis, 1764 Rathburn Road, Unit 22, Mississanga, Ontario, Canada L4W 2N8

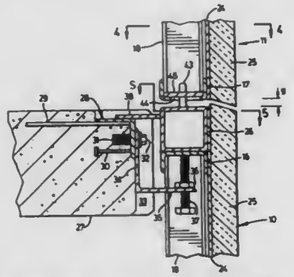
Filed Dec. 20, 1990, Ser. No. 630,555
Claims priority, application Canada, May 28, 1990, 2017669
Int. Cl.[5] E04B *2/88*
U.S. Cl. 52—235 **28 Claims**

1. A curtain wall module for a building, comprising:

a frame having a top chord, a bottom chord and a plurality of transverse studs spaced at intervals along the length of the chords defining a plurality of panels, the top end of

VOL 1132 ISS 2 NO 12 1991 UMI

each stud being connected to the top chord and the bottom end of each stud being connected to the bottom chord, the top chord being a single downwardly open channel section, the bottom chord being a single upwardly open channel section, and with one chord being reinforced with a beam of strength greater than said channel section;



sheet form cladding mounted to the frame; and

adjustable restraint means connected at two or more places along the top of the frame to the building structure for transferring the weight of the wall module, and the loads imposed upon the module, to the building structure.

5,063,719

COLUMN BASE STRUCTURE

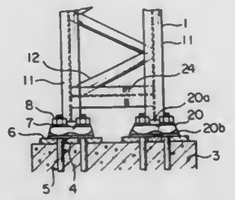
Hideshige Matsuo; Isamu Yamamoto; Osamu Narishige; Michio Itoh, all of Kitakyushu; Kuniaki Sato, Hiratsuka; Yoshihiro Nakamura, Tama; Akio Tomita, Tokyo; Toshikazu Yamada, Akishima, and Yoshikazu Maeda, Tokyo, all of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Dec. 9, 1988, Ser. No. 282,372

Claims priority, application Japan, Sep. 7, 1988, 63-223877; Sep. 7, 1988, 63-223878; Oct. 21, 1988, 63-265674

Int. Cl.[5] E02D *27/00*

U.S. Cl. 52—296 **5 Claims**



1. A column base structure comprising a column having a pair of main column members each of said main column members being formed by steel of H-section constituted by a pair of parallel flanges integrally joined by a web extending perpendicularly therebetween, the main column members being located spaced apart by a predetermined distance and in parallel relation with respective flanges of one column in coplanar relation with respective flanges of the other column and, connecting members disposed in such a manner as to integrally connect said main column members, and a pair of column base metal fittings joined to the lower part of said column in such a manner as to correspond to said main column members; said column base metal fittings being fixedly fitted to a concrete foundation via anchor bolts and nuts; in that a horizontal member formed by steel of H-section constituted by a pair of parallel flanges integrally joined by a web having the same width as the web of each of the main column members, said horizontal member, extending perpendicularly between said main column members and having the same width as the webs of the column members, is disposed in parallel with a floor surface, said horizontal member being fixedly fitted between said main column members in the vicinity of said column base metal fittings with the respective flanges and web of the horizontal member being connected at one end to the respective flanges and web of one column member and, at the other end, to respective flanges and web of the other column member so as to fill a rectangularly shaped area between the column members, and the following equation holds:

$$A \geqq 0.1 \frac{\sigma_{\gamma o}}{\sigma_{\gamma}} A_o$$

where

A_o: cross-sectional area of a main column member

A: cross-sectional area of a horizontal member

$\sigma_{\gamma o}$: yield point of a main column member

σ_{γ}: yield point of a horizontal member.

5,063,720

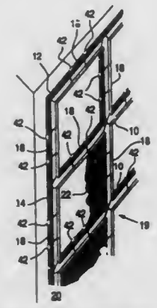
PVC UNIT ASSEMBLY JOINTS

Gabriel F. Bifano, Miami, and Erenio Reyes, Hialeah, both of Fla., assignors to Vinyl Corporation, Miami, Fla.

Filed Apr. 30, 1990, Ser. No. 517,652

Int. Cl.[5] E04B *1/41*

U.S. Cl. 52—309.1 **28 Claims**



1. A screed joint assembly, comprising:

a first screed section and a second screed section, wherein each section includes a mitered end and the mitered end of the first section abuts the mitered end of the second section;

a backing adhered to the first and second screed sections sealing the junction between the screed sections; and

means for bonding the first screed section to the second screed section.

5,063,721

BRACKET FOR ATTACHMENT OF WALL LININGS

John A. Larsson, Kammakargatan 25, 1tr., Stockholm, Sweden S-111 60

PCT No. PCT/SE88/00417, § 371 Date Feb. 26, 1990, § 102(e) Date Feb. 26, 1990, PCT Pub. No. WO89/01550, PCT Pub. Date Feb. 23, 1989

PCT Filed Aug. 16, 1988, Ser. No. 460,884

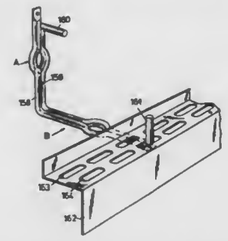
Claims priority, application Sweden, Aug. 20, 1987, 8703240

Int. Cl.[5] E04B *1/38*

U.S. Cl. 52—379 **11 Claims**

1. An angled support device having a first leg adapted to be fastened to a surface and a second leg adapted to support and retain in place relative to said surface at least one material, said angled support device comprising:

a first wire and a second wire welded together side by side, each wire having a first end and an opposite second end and being bent therebetween into an angled bracket member, a first length of said first wire and a first length of said second wire extending to said first end and forming a first leg of said angled bracket member, and a second length of said first wire and a second length of said second wire extending to said opposite second end and forming a second leg of said angled bracket member, said first length of said first wire and said first length of said second wire



extending away from each other at a position along said first leg to provide a first aperture through said first leg;

means at said second length of said first wire for supporting said material, including a segment of said first wire at said opposite second end which is substantially straight; and

means at said second length of said second wire for retaining said material relative to said first wire, including a segment of said second wire at said opposite second end which comprises a first bent portion.

5,063,722

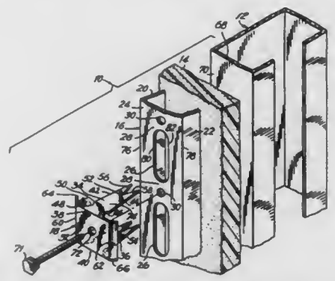
GRIPSTAY CHANNEL VENEER ANCHOR ASSEMBLY

Ronald P. Hohmann, Syosset, N.Y., assignor to Hohmann Enterprises, Inc., Hauppauge, N.Y.

Filed Mar. 31, 1989, Ser. No. 331,236

Int. Cl.[5] E04B *5/00*

U.S. Cl. 52—410 **33 Claims**



1. A veneer anchor assembly for use in the interconnection of an inner wythe and an outer wythe of an edifice, wherein said inner wythe comprises a plurality of support members forming the frame of the edifice,

said veneer anchor asembly comprising a vertically extending channel member, and a securement clip member,

said channel member comprising a pair of spaced apart flange portions, and a web portion,

said web portion being connected between the side edges of said flange portions,

said web portion including a plurality of apertures formed therein,

said securement clip member comprising a base portion, and a pair of arm members,

each of said arm members including locking means,

said arm members projecting into said apertures of said channel member in a manner whereby said locking means lockingly engage said securement clip member with respect to said channel member, and

securing means connected to said securement clip member and said channel member for securement of said members to one of said support members and thus to said inner wythe.

5,063,723

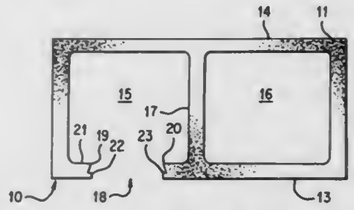
MASONRY INSPECTION BLOCK

Eli J. Yoder, 7500 Richardson Rd., Sarasota, Fla. 34240

Filed Dec. 6, 1990, Ser. No. 623,058

Int. Cl.[5] E04B *1/04*

U.S. Cl. 52—606 **6 Claims**



1. In a concrete construction block having at least one hollow core extending between an upper surface and lower surface thereof and which includes a facing surface which extends between the upper and lower surfaces, the improvement comprising an opening formed through said facing surface of the block and extending from said upper surface to said lower surface thereof, a pair of side edges disposed along opposite sides of said opening, said side edges extending from adjacent said at least one hollow core toward said facing surface of the block, said side edges having outermost flanges which extend generally in opposing relationship with respect to one another adjacent said facing surface of the block whereby said side edges and said flanges thereof function as a seat to retain a separate barrier member therebetween after the block has been placed.

5,063,724

ANCHOR FOR FIXING ROD IN CONCRETE AND THE LIKE

Robert W. vanden Boogaart, Mezenlaan, 4 N1-5130 Zaltbommel, Netherlands

Filed Dec. 5, 1988, Ser. No. 279,945

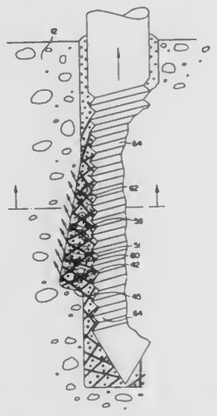
Int. Cl.[5] E21D *20/02*

U.S. Cl. 52—704 **35 Claims**

1. Hardenable composite material for fixing an anchor rods with surface projections in a borehole bounded by a wall, characterized in that elongated metal elements are incorporated within said composite material, said elongated metal elements comprising a multiplicity of rigid needles having opposite ends with an intermediate portion therebetween, said needles being of sufficient length and orientation within said composite material within said borehole that said opposite ends

VOL 1132 ISS 2 NO 12 1991 UMI

of at least some said needles are in contact with the wall while said intermediate portions of at least some of said needles are in



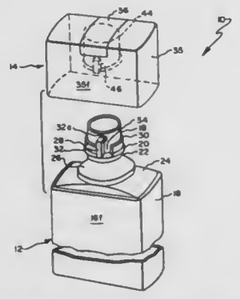
contact with the anchor rod, to provide force transfer paths from the anchor rod to the wall.

5,063,725

METHOD AND APPARATUS FOR APPLYING RECTANGULAR CLOSURES TO RECTANGULAR CONTAINERS

James V. Kent, Alden, and Theodore E. Westbrook, Sr., Amherst, both of N.Y., assignors to Figgie International, Inc., Willoughby, Ohio

Filed Feb. 26, 1991, Ser. No. 661,544
Int. Cl.[5] B65B 7/28; B67B 3/20, 3/28, 5/00
U.S. Cl. 53—485 10 Claims



1. A process for assembling stake-on closures each having a generally rectangular cross-sectional exterior portion onto containers each having a generally rectangular cross-sectional body and a cylindrical neck wherein the closures and containers may be delivered to the assembly area either with the front of the rectangular portion of the closure aligned with the front of the container body or with the back of the rectangular portion of the closure aligned with the front of the container body, the cylindrical neck being provided with an exterior stop and the closure having a cylindrical portion adapted to be staked-on the neck of the container, the interior surface of the cylindrical portion of the closure being provided with a stop which, when engaging the stop in the neck of the container will ensure that the front of the rectangular portion of the closure will be in alignment with the front of the container body, and wherein the container and closure are assembled together by a pressing motion; the process comprising the following steps:

providing a chuck assembly having a closure engagable portion, the chuck assembly having a centerline concentric with the centerline of the container during assembly of the closure onto the container;

picking up a closure with the closure engagable portion of the chuck assembly with the closure either in an aligned position where the front of the rectangular portion is aligned with the front of the container body or wherein the closure is in a 180° out-of-alignment position;

moving the chuck assembly and closure axially towards to the container until the closure and container are partially telescoped together;

rotating the chuck assembly 360°, the rotation of the closure and closure engagement portion of the chuck assembly being stopped when the container and closure are in proper rotational alignment as determined by the engagement of the closure stop with the container stop;

pressing the closure onto the container after the chuck assembly has rotated 360°; and

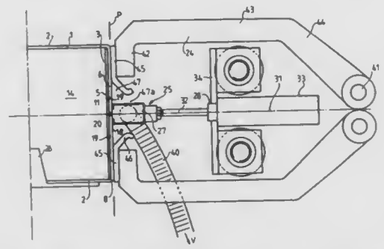
moving the chuck assembly axially away from the container.

5,063,726

METHOD AND DEVICE FOR FORMING, CLOSING AND RECIPROCALLY FASTENING THE FLAPS OF A BOX SUCH AS AN AMERICAN CARDBOARD BOX

Jean-Louis Boisseau, Bucheres, France, assignor to Vega Automation, France

Filed Oct. 2, 1990, Ser. No. 591,873
Claims priority, application France, Oct. 2, 1989, 89 12835
Int. Cl.[5] B65B 7/20, 51/02
U.S. Cl. 53—491 41 Claims



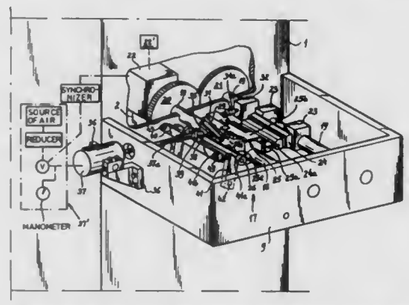
1. In a method for forming, closing and reciprocally fastening the flaps of a box selected from a group of an American cardboard box, an American halfbox, a Dutch-box, and an equivalent box, the box comprising a pair of internal flaps situated on a side of an internal volume of the box and a pair of external flaps which cover the internal flaps, the method including the steps of bringing the internal flaps into their final position, depositing glue on fastening zones of the internal flaps, bringing the external flaps at least substantially into their final position with the glue fastening zones being in reciprocal contact and with facing free edges of the external flaps being spaced apart by a slot-shaped passage extending therebetween, then temporarily exerting a force on the two pairs of flaps, which force is appropriate to hold the flaps together and to maintain the fixed contact between the reciprocal fastening zones for a period required for an appropriate setting of the glue, the improvements comprising the step of temporarily exerting a force on the two pairs of flaps locking the flaps in their final position in order to prevent them from tending to return toward their initial position and being accomplished by applying a suction from the outside of the box through said slot-shaped passage limited by the two facing free edges of the pair of external flaps, said suction causing the internal flaps to be applied and held against the exterior flaps.

5,063,727

PACKAGING MACHINE FOR MANUFACTURE, FILLING AND SEALING OF SACHETS

Ferruccio Patelli, Bologna, Italy, assignor to M.A.P.A. S.r.l., Quarto Inferiore, Italy

Filed Jun. 20, 1990, Ser. No. 540,849
Claims priority, application Italy, May 3, 1990, 3476 A/90
Int. Cl.[5] B65B 9/20, 51/30, 51/14, 51/16
U.S. Cl. 53—552 5 Claims



1. A packaging machine for producing sachets comprising:

a frame having a base;

supporting means for supporting a spool of a pressure and heat-sealable packaging material mounted on said frame;

transporting means operatively connected with said supporting means for advancing said packaging material intermittently toward said base at a predetermined length of each of successive intermittent movements along a path;

metering means for dosing a material to be packaged along said path;

shaping means on said frame downstream of said metering means for folding said packaging material in a tubular form, said shaping means being provided with a tube extending along a tube axis;

first pressure and heat sealing means on said frame along said path for axially sealing two longitudinal superimposed edges of said packaging material pressed against said tube;

second pressure and heat sealing means downstream of said first sealing means and below said tube on said frame for sealing said packaging material transverse to said tube axis at said predetermined length, said second sealing means including a first pressure and heat sealing jaw and a second pressure and heat sealing jaw movable between a closed and opened position thereof, said first sealing jaw including first and second portions movable relative to one another;

actuation means for providing a continuous rotary machine cycle including a reduction gear variable-speed intermittence drive unit operatively connected with said jaws and defining a dwell period within said machine cycle, said jaws being counterotatable about respective axes of rotation extending perpendicular to said tube axis and being adjacent one another in said closed position with said second portion bearing against said packaging material;

adjusting means operatively connected with said drive unit for controlling a duration of said dwell period, so that a heat sealing time is adjusted as a function of a thickness of said packaging material;

control means for adjusting a thrust action on at least said first jaw, said control means including a fluid dynamic cylinder operatively connected with said second portion of said first jaw; and

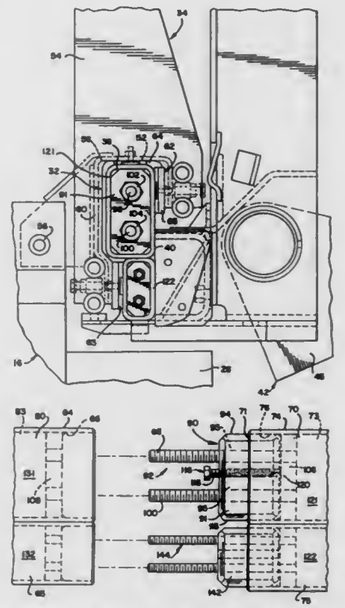
regulating means for controlling a force applied from said fluid cylinder, so that said thrust action is regulated as a function of the thickness of said packaging material.

5,063,728

APPARATUS FOR MOUNTING A ROW UNIT FOR LATERAL MOVEMENT

Lee F. Garter, Western Springs, and Michael J. Covington, LaGrange, both of Ill., assignors to J. I. Case Company, Racine, Wis.

Filed Dec. 3, 1990, Ser. No. 621,322
Int. Cl.[5] A01D 46/08, 67/00
U.S. Cl. 56—13.5 13 Claims



5. An apparatus for mounting a row unit for lateral movement relative to a fore-and-aft chassis of an agricultural implement, said row unit mounting apparatus comprising:

a laterally elongated tool bar assembly connected to said chassis and defining a continuous support surface between opposite ends thereof, said tool bar assembly including a main frame and an extension frame affixed in end-to-end relation relative to each other;

means for supporting the row unit on said tool bar assembly and allowing for lateral sliding movement along the support surface thereof; and

means for selectively attaching said extension frame and said main frame to each other, said attaching means including means for aligning said frames relative to each other to define said continuous support surface of said tool bar assembly thereby permitting said row unit support means to slide therealong and beyond the first end of said main frame.

5,063,729

COTTON HARVESTER BLOCKAGE DETECTION METHOD AND FLOW SENSOR THEREFOR

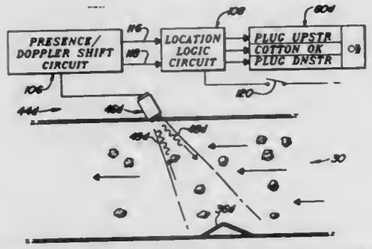
Robert E. Fox, Minburn, and James J. Phelan, Bettendorf, both of Iowa, assignors to Deere & Company, Moline, Ill.

Filed Sep. 19, 1990, Ser. No. 584,675
Int. Cl.[5] A01D 46/10
U.S. Cl. 56—30 24 Claims

1. In a cotton harvester having a row unit with a row-receiving area and a cotton conveying system for removing cotton from the row unit, the cotton conveying system including a

VOL 1132 ISS 2 NO 12 1991 UMI

path defined in part by path boundary structure, the path having an opened condition wherein cotton freely moves and a blocked condition, an offset area located adjacent the path boundary structure and offset from the cotton path, the offset area being generally free of cotton when the system is in the



opened condition but receiving cotton when the cotton path becomes blocked, and detector means including means for radiating a signal towards the offset area and means responsive to reflective of the radiated signal from cotton in the offset area for providing a blockage indication.

5,063,730

OPENABLE ROOF APPARATUS

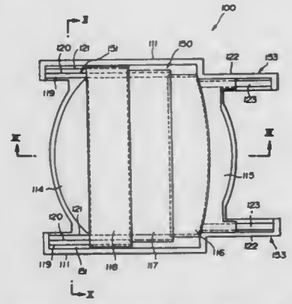
Hiroki Muramoto, Hiroshima, and Kenichi Sugizaki, Tokyo, both of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha and Shimizu Construction Co., Ltd., both of, Japan

Filed Mar. 29, 1990, Ser. No. 502,170

Claims priority, application Japan, Mar. 30, 1989, 1-79259; Mar. 30, 1989, 1-79260; Mar. 30, 1989, 1-79263; Mar. 30, 1989, 1-79264

Int. Cl.[5] E04B 7/16

U.S. Cl. 52—66 29 Claims



1. An openable roof apparatus for a space having a central axis, comprising:

a pair of stationary parallel support structures arranged respectively on both sides of said space and extending in parallel relation to each other;

a first and a second movable roof structures having their respective both ends which are supported respectively by said pair of stationary support structures for movement therealong; and

a pair of guide means arranged respectively on said pair of stationary support structures and extending perpendicularly to a plane including the central axis of said space, said first and second movable roof structures being movable toward and away from each other along said pair of guide means,

wherein said first movable roof structure includes a plurality of movable roof units having their respective axes which extend perpendicularly to said pair of guide means,

wherein said first and second movable roof structures are movable between a closed position where said movable roof units of said first movable roof structure cooperate with said second movable roof structure to close said space, and an open position where said movable roof units of said first movable roof structure are moved away from said second movable roof structure to open said space,

wherein, in said open position, said movable roof units of said first movable roof structure are overlapped with each other,

wherein said second movable roof structure includes a plurality of movable roof units which, in said open position, are overlapped with each other,

wherein said pair of stationary support structures extend in one direction in parallel relation to each other, said pair of stationary support structures being formed respectively with surface means extending in said one direction,

wherein said openable roof apparatus further includes a pair of truck means supported respectively by said surface means of the respective stationary support structures and movable respectively along said surface means, the both ends of said respective first and second movable roof structures being supported respectively by said pair of truck means, and a pair of load-equalizing means arranged respectively between said pair of truck means and the both ends of the respective first and second movable roof structure for equalizing loads applied respectively to said pair of truck means, and

wherein each end of each of the first and second movable roof structures has an inverted T-shaped engaging means, and each of the stationary support structures has guide rail means, said inverted T-shaped engaging means being engaged with said guide rail means to prevent the truck means from floating away from the stationary support structures.

5,063,731

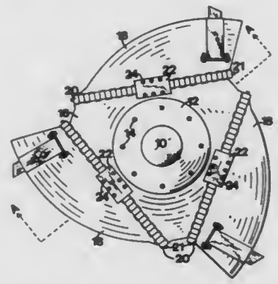
BRUSH AND TREE CUTTER BLADE

Harold L. Hull, 401 Canyon Way #43, Sparks, Nev. 89434, and Wendell Johnson, 8049 E. Coronado Rd., Scollsdale, Ariz. 85257

Filed Sep. 17, 1990, Ser. No. 583,695

Int. Cl.[5] A01D 34/73

U.S. Cl. 56—295 7 Claims



1. A generally circular cutter blade for the cutting of brush and trees or the like, the improvement for such a cutter blade, comprising: a substantially triangular first mounting plate suitably mounted to and cooperating with a rotatable shaft, second mounting plates suitably hinged along each of the three straight edges of said triangular first mounting plate for pivoting relative to the first mounting plate about respective hinged axes, substantially rectangular cages, means to mount each of said cages to each of said second mounting plates, each of said cages having a first and second end, said first end being removably secured to one of said second mounting plates, said second end having a substantially rectangular opening, a substantially rectangular cutter tooth slidably mounted in each of said cages with its cutting edge protruding from said cage through said substantially rectangular opening of said second end of said cage, retaining means on one distal end of said cutter tooth to capture and hold said rectangular tooth in said cage in a position substantially parallel to the respective mounting plate, a spring, said spring being contained by said cage, one end of said spring engaging said first removably secured end of said cage while the other end of said spring engages said retaining means of said cutter tooth, whereby said cutter tooth is urged by said spring to extend outward from said cage and from the respective second mounting plate, limiting means to limit the amount of pivotal movement of said mounting plates relative to said triangular first mounting plate; said rotatable shaft, said triangular first mounting plate, said second mounting plates, said cages, said teeth, said springs and said limiting means cooperating together, whereby, when said shaft is rotated, said cutter teeth when engaging an obstacle can deflect inwardly, upwardly and downwardly.

5,063,732

METHOD FOR REPOWERING EXISTING ELECTRIC POWER PLANT

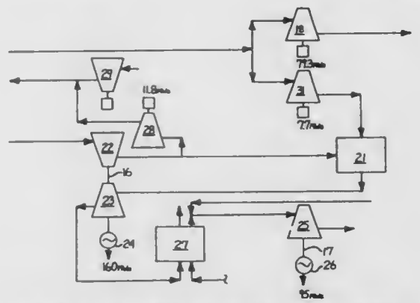
Albert Calderon, Bowling Green, Ohio, assignor to Calderon Automation, Inc., Bowling Green, Ohio

Division of Ser. No. 198,862, May 26, 1988, Pat. No. 4,609,541.

This application May 22, 1990, Ser. No. 527,053

Int. Cl.[5] F02G 3/00; F02C 6/04

U.S. Cl. 60—39.02 20 Claims



1. A method of increasing the efficiency of an existing coal-burning facility while reducing emissions from same in a cost-effective manner comprising the following steps:

a) Installing a coal processing means capable of pyrolyzing coal under pressure to produce a raw rich gas and a hot char, and said processing means being also capable of gasifying the hot char to produce a raw lean gas;

b) Installing a hot gas processing means capable of desulfurizing and cracking, said raw rich gas under pressure to yield a syngas which is substantially made up of H_2 and CO in composition;

c) Installing facilities that are capable of converting said syngas into a marketable chemical;

d) Installing a hot gas processing means capable of desulfurizing said hot lean gas under pressure to yield a clean, hot, low-Btu gas;

e) Replacing the pulverized coal burners of the boiler contained in said facility with burners adapted to the burning of low-Btu gas in order to burn low-Btu gas instead of pulverized coal in said boiler;

f) Splitting said clean, hot low-Btu gas into a first stream and a second stream;

g) Expanding the low-Btu gas in said first stream to accommodate the pressure requirement of said boiler;

h) Combusting the expanded low-Btu gas in said boiler to produce steam which in turn generates electricity by turning the steam turbine tied to the generator which exist in said facility;

i) Combusting the low-Btu gas in said second stream in a newly installed gas combustion turbine to generate additional electric power to make up for the derate sustained by said boiler when low-Btu gas is burned instead of coal in said boiler.

5,063,733

ENGINE COOLING SYSTEM PROTECTION DEVICE

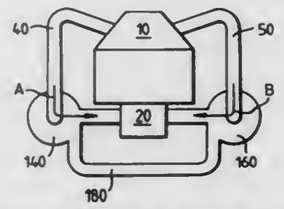
Nigel P. Jackson, Melbourne, and Geoffrey P. Virr, Hemel Hempstead, both of England, assignors to Rolls-Royce, plc, London, England

Filed Sep. 4, 1990, Ser. No. 577,120

Claims priority, application United Kingdom, Sep. 13, 1989, 8920695

Int. Cl.[5] F02C 3/04; F04D 29/00

U.S. Cl. 60—39.75 5 Claims



1. An engine cooling system for supplying a flow of cooling fluid from a source to a turbine in a flow direction, comprising:

a plurality of supply pipes for carrying the flow of cooling fluid between the source and the turbine;

a corresponding plurality of stemming means for stemming backflow of cooling fluid to inhibit a backflow of cooling fluid in a supply pipe in a direction opposite to the flow direction, each stemming means including a first port connected to a corresponding supply pipe of said plurality of supply pipes, a second port connected to said turbine, and a flow control port connected to a corresponding flow control of an adjacent one of the corresponding plurality of stemming means;

each means for stemming backflow being responsive to pressure of the flow of cooling fluid in the plurality of supply pipes to prevent backfiow in its corresponding supply pipe upon flow of fluid into said control port and permit the flow of cooling fluid from said first port to said second port in the flow direction when there is no flow of fluid into said control port.

5,063,734

METHOD FOR PROVIDING REAL-TIME CONTROL OF A GASEOUS PROPELLANT ROCKET PROPULSION SYSTEM

Brian G. Morris, Houston, Tex., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Jan. 26, 1990, Ser. No. 470,480

Int. Cl.[5] F02K 9/58

U.S. Cl. 60—204 8 Claims

1. A method for selectively controlling a propulsion system to efficiently supply gaseous propellants to a rocket engine and comprising the steps of:

defining selected operating ranges for the combustion chamber pressure as well as the propellant consumption ratio which are respectively representative of the efficient operation of the rocket engine;

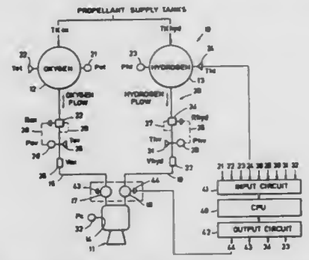
obtaining successive real-time measurements of the combustion chamber pressure as well as successive real-time

VOL 1132 ISS 2 NO 12 1991 UMI

measurements of the mass flow rate of each of the gaseous propellants being supplied to the combustion chamber of the rocket engine;

periodically correlating successive real-time measurements of the combustion chamber pressure for determining whether said successive measurements are within the selected operating range for the combustion chamber pressure and correspondingly adjusting the mass flow rates of the gaseous propellants as needed for maintaining the combustion chamber pressure within its selected operating range;

periodically correlating successive real-time measurements of the mass flow rates of the gaseous propellants for determining whether the current propellant consumption ratio is within the selected operating range for the propellant consumption ratio and then correspondingly adjusting the



mass flow rates of the gaseous propellants as needed for maintaining the propellant consumption ratio within its selected operating range wherein said step of correlating said successive real-time measurements of the mass flow rates of the gaseous propellants is carried out only so long as the rocket engine is operating within a selected operating range of combustion chamber pressures; and

whenever one of said correlations indicates that one of said selected operating ranges must be modified to maintain the rocket engine operating efficiency, computing a correction factor required for adjusting the mass flow rate of at least one of the gaseous propellants to return the rocket engine to its predetermined level of efficiency and thereafter modifying the mass flow rate of at least said one gaseous propellant to subsequently operate the rocket engine efficiently within a new selected operating range of combustion chamber pressures.

5,063,735

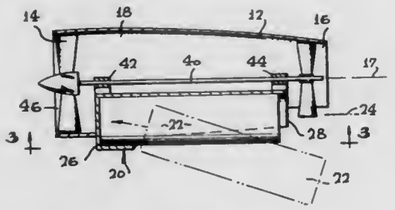
ROCKET-POWERED DUCTED FAN ENGINE

Richard D. Colgren, 2923 E. Avenue R-11; Christopher C. Criss, 2929 E. Avenue R-11, and Russell J. Criss, 37671 Lasker Ave., all of, Palmdale, Calif. 93550

Filed Oct. 18, 1990, Ser. No. 599,722

Int. Cl.[5] F02K *5/00*

U.S. Cl. 60—246 **5 Claims**



1. A propulsion system comprising:

a hollow housing having a longitudinal axis and an inlet end and exhaust nozzle end;

a shaft rotatively mounted along the longitudinal axis within said housing extending from said inlet end to said exhaust nozzle end;

a thrust producing fan attached to one end of said shaft in proximity to said inlet end of said housing;

a turbine, having a plurality of blades, attached to the opposite end of said shaft in proximity to the exhaust nozzle end of said housing, said turbine for driving said fan;

a solid propellant rocket motor detachably mounted to said housing, said motor mounted to said housing with the exhaust nozzle thereof positioned such that when said motor is ignited, the direction of thrust of said motor is parallel with and offset from the longitudinal axis of said housing and at least a portion of any exhaust gases therefrom are intercepted by said blades of and drive said turbine whereby all the exhaust gases exiting said housing provide forward thrust.

5,063,736

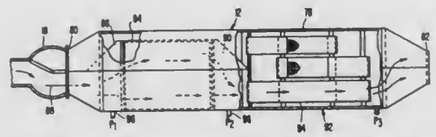
PARTICULATE FILTER TRAP LOAD REGENERATION SYSTEM

Walter J. Hough, and Paul R. Miller, both of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Aug. 2, 1989, Ser. No. 388,675

Int. Cl.[5] F01N *3/02*

U.S. Cl. 60—286 **22 Claims**



1. Apparatus for determining when to regenerate a particulate filter trap used to collect particulates from an exhaust gas stream of an internal combustion engine, comprising

regenerative means operable in response to a control signal to regenerate the trap by causing the trapped particles to burn away;

trap differential pressure sensing means for generating a trap differential pressure signal indicative of the fluid pressure drop in the exhaust gas stream as it passes through the particulate filter trap;

flow rate sensing means located downstream of said particulate filter trap for generating a signal related to the volume flow rate of the exhaust gas stream downstream of the particulate filter trap; and

control signal generating means connected with said trap differential pressure sensing means and with said flow rate sensing means for determining the mass loading of particulates within the particulate filter trap and for generating said control signal when the mass loading reaches a predetermined limit in a manner which is insensitive to exhaust gas leaks upstream of the particulate filter.

5,063,737

PARTICULATE TRAP SYSTEM FOR AN INTERNAL COMBUSTION ENGINE

Jose M. Lopez-Crevillen, Westland, and Arjun D. Tuteja, Novi, both of Mich., assignors to General Motors Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 428,387, Oct. 27, 1989, Pat. No. 4,987,738. This application Aug. 31, 1990, Ser. No. 575,915

Int. Cl.[5] F01N *3/02*

U.S. Cl. 60—286 **12 Claims**

1. An exhaust cleaner and burner system for use in the exhaust system of an internal combustion engine comprising:

exhaust filter means having an inlet and an outlet;

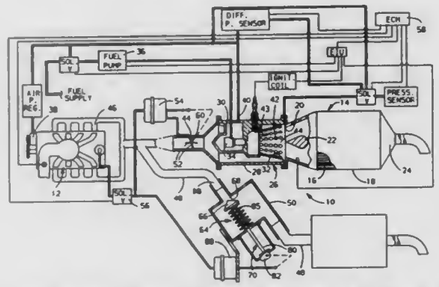
a burner, having an outlet upstream of said filter means and operable to raise the temperature of said filter means;

an exhaust conduit for conducting exhaust gas from the engine to the inlet of said burner;

an exhaust pressure regulating valve disposed within the exhaust conduit, upstream of said burner, and actuable to restrict exhaust gas flow through said burner and raise the pressure upstream of said valve;

a bypass conduit for diverting exhaust gas around said burner and filter means when said exhaust pressure regulating valve is in said restricted position;

a pressure relief valve disposed within said bypass conduit having a valve member biased towards a normally closed position and a locking means positionable in a first, locked mode to maintain said valve in said normally closed position and a second, unlocked mode to allow said valve to open against said biasing means;



control means operable to position said EPR valve in a nonrestrictive position and said locking means of said pressure relief valve in said locked mode to direct exhaust gas exiting the engine through said filter means, and operable to position said exhaust pressure regulating valve in said restrictive position and said locking means of said pressure relief valve in an unlocked position to restrict the flow of exhaust gas through said burner and said filter means thereby increasing exhaust system pressure upstream of said exhaust pressure regulating valve to a predetermined level sufficient to overcome said pressure relief valve and allow exhaust gas to enter said bypass conduit;

wherein said pressure relief valve maintains a predetermined pressure in said exhaust conduit upstream of said exhaust pressure regulating valve to provide a substantially constant supply of exhaust gas to said burner through said restricted exhaust pressure regulating valve.

5,063,738

PRESSURE GENERATION AND RESPONSIVE MECHANISM WITH HIGH VISCOUS FLUID

Hiroaki Asano, and Masaji Yamamoto, both of Okazaki, Japan, assignors to Toyoda Koki Kabushiki Kaisha, Kariya, Japan

Filed Sep. 28, 1988, Ser. No. 250,091

Claims priority, application Japan, Sep. 28, 1987, 62-243248

Int. Cl.[5] F16D *31/00*; B60K *17/35*

U.S. Cl. 60—329 **4 Claims**

1. A pressure generation and responsive mechanism comprising:

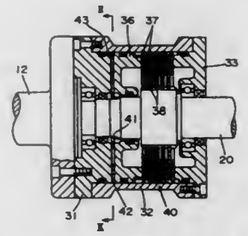
a first rotary shaft rotatable about an axis;

a secondary rotary shaft provided in axial alignment with said first rotary shaft and rotatable about said axis;

a cylinder housing secured to one end of said first rotary shaft in coaxial relation with said second rotary shaft and having a first end surface transverse to said axis;

a piston member received in said cylinder housing to be axially movable but non-rotatable relative to said cylinder housing and having a second end surface facing said first end surface in order to define a cylindrical space having a predetermined width in the direction of said axis;

a rotor drivingly rotatable by said second rotary shaft and disposed within said space, said rotor having at least two blades having a thickness substantially equal to the width of said space in order to define at least two closed space



sections partitioned in a circumferential direction, between said first and second end surfaces; and

a high viscous fluid filled within said at least two closed space sections for generating a pressure when compulsorily displaced by said at least two blades against its viscosity, said pressure serving to axially move said piston member.

5,063,739

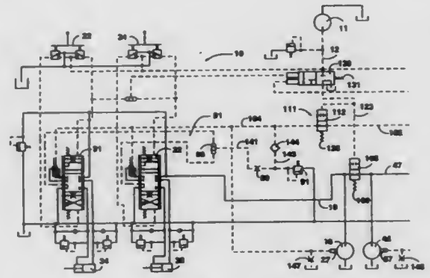
LOAD SENSING HYDRAULIC CONTROL SYSTEM

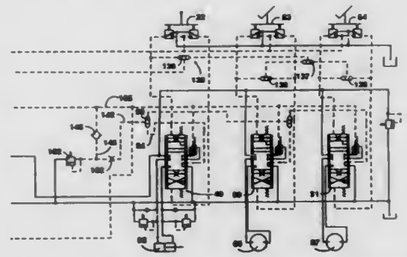
Donald L. Bianchetta, Coal City, and Gregory W. Heinz, Minooka, both of Ill., assignors to Caterpillar Inc., Peoria, Ill.

Filed Feb. 19, 1991, Ser. No. 656,661

Int. Cl.[5] F16D *31/02*

U.S. Cl. 60—421 **15 Claims**





1. A hydraulic control system having a source of pressurized pilot fluid comprising:

first and second hydraulic circuits, each circuit including a variable displacement pump having a pressure responsive displacement controller, a supply conduit connected to

VOL
1132
ISS
2
NO
12
1991
UMI

the pump, a plurality of pressure compensated pilot operated control valves connected to the supply conduit, a plurality of pilot control valves connected to the source of pilot fluid, a pair of pilot lines connecting each of the pilot control valves to a respective one of the control valves to transmit pressurized pilot fluid thereto, and signal means for sensing the load pressures at the control valves and delivering a control signal corresponding to the highest load pressure of the circuit to a control line;

a combiner valve connected to the supply conduits of both hydraulic circuits and being movable between a first position at which the supply conduits are in communication with each other and a second position at which the supply conduits are isolated from each other;

valve means connected to the control lines of both hydraulic circuits and being movable between a first position at which the higher control signal in the control lines is delivered to the displacement controller of both pumps and a second position at which the control signal in the control line of one of the hydraulic circuits is blocked from the displacement controller of the pump of the other circuit;

means for normally maintaining the combiner valve and the valve means at their first position; and

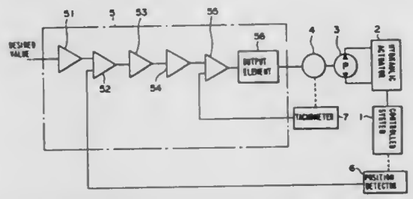
means for selectively moving the combiner valve and the valve means to their second positions only when the summed highest pressures from one of preselected ones of the pilot lines of the first circuit and from one of preselected ones of the pilot lines of the second circuit exceed a predetermined magnitude which is greater than the maximum pilot pressure individually transmitted through any single one of the preselected pilot lines.

5,063,740

ELECTROHYDRAULIC SERVODEVICE FOR POSITION CONTROL

Takeshi Aihara, Tama, Japan, assignor to Nireco Corporation, Tokyo, Japan

Filed Sep. 13, 1989, Ser. No. 406,495
Claims priority, application Japan, Feb. 22, 1989, 1-42513
Int. Cl.[5] F15B *9/03*
U.S. Cl. 60—432 **9 Claims**



1. An electrohydraulic servodevice comprising:

(a) a hydraulic actuator for position control of a controlled system;

(b) a hydraulic pump rotatable in both directions for driving said hydraulic actuator;

(c) an electric motor for driving said hydraulic pump in both directions;

(d) a position detector for detection of the position of said controlled system;

(e) a tachometer for measurement of the rotatory speed of said electric motor;

(f) a position-deviation operation element for deriving a deviation of the position detected by said position detector from a desired value;

(g) a gain-variable amplifier for amplifying the output of said position-deviation operation element with a gain characteristic curve of predetermined shape;

(h) a speed-deviation operation element for deriving a deviation of said rotatory speed from the output of said gain-variable amplifier; and

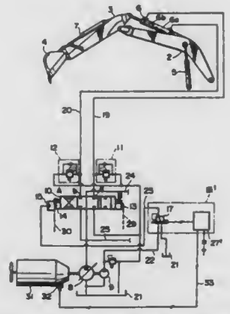
(i) an output element for feeding the rotatory direction and driving power to said electric motor based on the output of said speed-deviation operation element.

5,063,741

ENGINE-SPEED RESPONSIVE CAVITATION PREVENTING SYSTEM

Satoshi Miyaoka, Hiroshima, Japan, assignor to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Division of Ser. No. 326,017, Mar. 20, 1989, Pat. No. 5,005,466.
This application Dec. 14, 1990, Ser. No. 627,420
Claims priority, application Japan, Apr. 7, 1988, 63-86500
Int. Cl.[5] F15B *21/08*
U.S. Cl. 60—461 **1 Claim**



1. A hydraulic operating circuit of a power shovel including a hydraulic cylinder for driving a working component, comprising:

a hydraulic change-over valve having a spool moving from a neutral position to forward and reverse directions for selectively supplying said cylinder with a discharge oil pressure of a hydraulic pump driven from an engine;

a pair of first signal receiving portions provided on said hydraulic change-over valve and comprising means actuatable for moving said spool in the forward and reverse directions away from a neutral position, respectively, and a second signal receiving portion provided on said hydraulic change-over valve and comprising means for pulling back said spool toward said neutral position;

a sensor means for detecting the rotational speed of the engine;

a signal producing means responsive to said sensor means for producing a signal for pulling back said spool toward said neutral position;

signal supplying means for supplying said signal from said signal producing means to said second signal receiving portion of said hydraulic change-over valve so as to move said spool toward said neutral position in opposition to said means for moving said spool in the forward and reverse directions; and

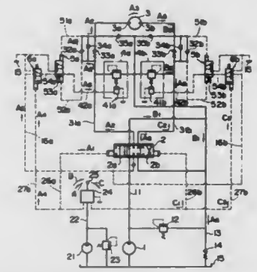
means separate from said second signal receiving portion for returning said hydraulic change-over valve to the neutral position when said first signal receiving portions are not actuated.

5,063,742

METHOD OF CONTROLLING SWING MOTION OF A REVOLVING SUPERSTRUCTURE AND HYDRAULIC CONTROL SYSTEM FOR CARRYING OUT SAME

Hideaki Yoshimatsu, Akashi, Japan, assignor to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Jul. 26, 1989, Ser. No. 385,197
Int. Cl.[5] E02F *9/12, 9/20, 9/22, 3/32*
U.S. Cl. 60—466 **4 Claims**



1. A hydraulic control system for controlling the slewing operation of a slewing mechanism for slewing a revolving superstructure, comprising:

a hydraulic pump;

a swing mode selector valve fluidically connected to said hydraulic pump;

a hydraulic motor for driving the slewing mechanism;

two supply-and-discharge lines, each of said supply-and-discharge lines being connected between said swing mode selector valve and a respective port of said hydraulic motor for selectively supplying pressurized fluid to a supply side port of said hydraulic pump when said system is in a driving operating mode;

a main relief valve common to both of said supply-and-discharge lines;

a pair of relief valves capable of being set for a high set relief pressure higher than the set relief pressure of the main relief valve and for a low set relief pressure lower than the set relief pressure of the main relief valve, each of said relief valves being provided in a respective one of said supply-and-discharge lines;

rotating direction detecting means for detecting the rotating direction of the hydraulic motor; and

set relief pressure changing means for setting the relief valve associated with the supply side of the hydraulic motor for a higher set relief pressure than the set relief pressure of said main relief valve in response to a detection signal provided by the rotating direction detecting means, and for setting said relief valve associated with the discharge side of the hydraulic motor for a lower set relief pressure than the set relief pressure of said main relief valve, when said hydraulic is operating in the driving mode.

5,063,743

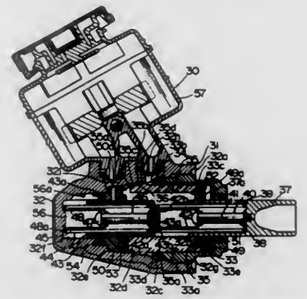
MASTER CYLINDER WITH PARTS ASSEMBLED FOR EASY REMOVAL

Kohei Mori, and Riichirou Sugimoto, both of Higashimatsuyama, Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed May 7, 1990, Ser. No. 519,792
Claims priority, application Japan, May 17, 1989, 1-56631[U]; Jun. 16, 1989, 1-70455
Int. Cl.[5] B60T *11/20*; F01B *29/00*
U.S. Cl. 60—562 **19 Claims**

1. A master cylinder comprising a body and a cap which is threadably attached on said body to form a cylinder housing, a synthetic resin sleeve received in said cap to locate the sleeve in said cylinder housing a piston freely slidably passing through said sleeve for locating the piston inside said cylinder housing, a plurality of lugs defined on the outer periphery of said sleeve and an annular groove defined on the entire inner periphery of said cap, said sleeve being attached to the cap by engaging said lug in said groove, and a plurality of recesses being defined on the inner periphery of said cap, the recesses being generally parallel to a longitudinal axis of the cap and extending inwardly from an open end thereof, only some of the plurality of lugs being arranged in a corresponding relationship with the recesses.

2. A tandem type master cylinder comprising a primary piston and a secondary piston arranged in tandem via urging means having a spring mounted upon a telescoping type retainer, said retainer being fixed at one end thereof on said primary piston, and a pawl being formed on an opposite end of said retainer, a secondary piston recess being defined in the end portion of said secondary piston and said pawl being received



in the recess in order to connect said primary piston and said secondary piston.

7. A tandem type master cylinder comprising a primary piston and a secondary piston arranged in tandem with an intervention of urging means having a spring mounted upon a telescoping type retainer, said secondary piston is formed with a secondary piston recess for receiving the end of said spring adjacent to said secondary piston, an annular groove is defined on the inner peripheral wall of the secondary piston recess, a flange is formed at the end of said retainer adjacent to said secondary piston, the coil diameter of said spring at an end adjacent to the secondary piston is larger than that t the other portion, the end of the spring adjacent to said secondary piston is received in the annular groove in said secondary piston, and the flange of the retainer adjacent to said secondary piston is thereby sandwiched between the spring and said secondary piston.

5,063,744

ACTUATOR FOR CONTROLLING INTAKE PRESSURE IN SEQUENTIAL TURBO-SYSTEM

Shinobu Ishiyama, Numazu; Teruo Kumai, Gotenba; Kazuyoshi Ishisaka; Toshiyuki Maehara, both of Susono; Makoto Fujimori, and Kimio Nemoto, both of Obu, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha and Aisen Industry Co., Ltd., both of, Japan

Filed Oct. 2, 1989, Ser. No. 415,918
Claims priority, application Japan, Oct. 6, 1988, 63-250928; Nov. 21, 1988, 630150690[U]; Nov. 22, 1988, 63-152861[U]; Feb. 21, 1989, 1-18402[U]
Int. Cl.[5] F02B *37/12*
U.S. Cl. 60—600 **25 Claims**

1. An internal combustion engine comprising:

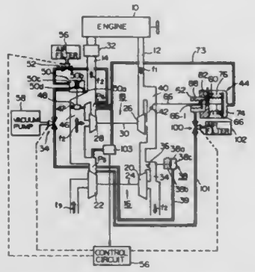
(a) an engine body;

(b) an intake system connected to the engine body for an introduction of a combustible mixture of gas thereto;

(c) an exhaust system connected to the engine body for a removal of combustion gas therefrom;

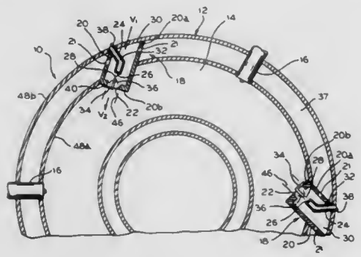
VOL 1132 ISS 2 NO 12 1991 UMI

(d) a first stage large volume turbocharger having a turbine wheel arranged in the exhaust system and driven by a flow of exhaust gas and a compressor arranged in the intake system and mechanically connected to the turbine to pressurize the intake air;
(e) a second stage small volume turbocharger having a turbine arranged in the exhaust system upstream of the turbine wheel of the first stage large volume turbocharger in the direction of the flow of exhaust gas, and driven by the flow of exhaust gas, and a compressor arranged in the intake system downstream of the compressor of the first stage large volume turbocharger in the direction of the flow of intake air to further pressurize the intake air;
(f) an exhaust bypass passageway connected to the exhaust system and bypassing the turbine of the second stage small volume turbocharger;



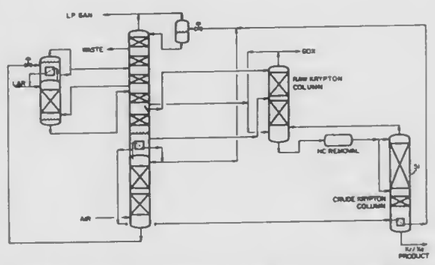
(g) an exhaust bypass control valve arranged in said exhaust bypass passageway for controlling an amount of exhaust gas bypassing the second stage small volume turbocharger; and
(h) bypass control means, responsive to the intake pressure downstream from each compressor of the first and second stage turbochargers, for controlling the exhaust bypass control valve in such a manner that the bypass control valve opens at a first rate as a function of increasing engine speed after said pressure downstream from the compressor of the second stage turbocharger reaches a predetermined value, and opens at a second rate, greater than the first rate, after the intake pressure downstream from the compressor of the first stage turbocharger reaches said predetermined value.

5,063,745
TURBINE ENGINE WITH PIN INJECTOR
Jack R. Shekleton, San Diego; Steven A. Sachrison, LaJolla, and Michael W. Sledd, Vista, all of Calif., assignors to Sundstrand Corporation, Rockford, Ill.
Filed Jul. 13, 1989, Ser. No. 379,548
Int. Cl.[5] F02C *1/00*
U.S. Cl. 60—737 **18 Claims**



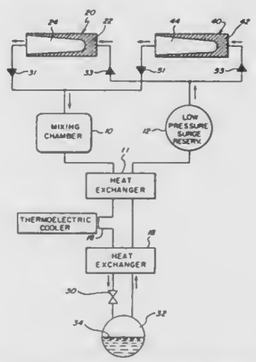
1. A fuel injector spray nozzle for a combustor, comprising:
a body including an in air tube coupled to a source of air under pressure and having an exit orifice, a fuel supply tube within said air tube and coupled to a source of fuel and having an exit orifice internally of said air tube upstream of said exit orifice of said air tube, and a fuel impingement surface within said air tube in confronting relation to said exit orifice of said fuel supply tube, said exit orifice of said fuel supply tube being disposed generally concentric with said exit orifice of said air tube, said impingement surface being disposed concentric with and intermediate said exit orifices of said air tube and said fuel supply tube to intercept fuel from said exit orifice of said fuel supply tube upstream of said exit orifice of said air tube to produce a generally conical spray or film of fuel atomized by air flowing through said air tube at a point upstream of said exit orifice thereof, said exit orifice of said air tube accelerating and discharging said atomized fuel and air directly into said combustor.

5,063,746
CRYOGENIC PROCESS FOR THE PRODUCTION OF METHANE-FREE, KRYPTON/XENON PRODUCT
Rakesh Agrawal, Allentown, and Brian E. Farrell, Fogelsville, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.
Filed Feb. 5, 1991, Ser. No. 650,523
Int. Cl.[5] F25J *3/04*
U.S. Cl. 62—22 **3 Claims**



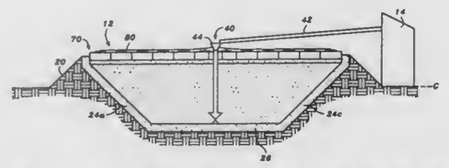
1. In a process for separating a feed gas containing krypton, xenon, oxygen and methane in a cryogenic distillation column wherein the feed gas is fed to an intermediate location of the distillation column for fractionation into a methane-free, krypton and xenon bottoms liquid and a methane-rich waste overhead, wherein liquid reflux for the column is provided by introducing a liquid feed to an upper location in the column above the intermediate feed location, and wherein vapor reflux is provided to the column by introducing a gaseous bottom feed to an lower location in the column below the intermediate feed location, the improvement for increasing recovery of krypton and xenon and producing a krypton and xenon product containing less than 1 ppm methane comprises using a gaseous stream containing at least 2% oxygen and less than 1 ppm methane as the gaseous bottom feed and operating the column so that the vapor to liquid flow ratio in the column is less than 0.15.

5,063,747
MULTICOMPONENT GAS SORPTION JOULE-THOMSON REFRIGERATION
Jack A. Jones, Los Angeles; S. Walter Petrick, La Canada, and Steven Bard, Northridge, all of Calif., assignors to United States of America as represented by the United States National Aeronautics and Space Administration, Washington, D.C.
Filed Jun. 28, 1990, Ser. No. 545,236
Int. Cl.[5] F17C *11/00*
U.S. Cl. 62—461 **16 Claims**



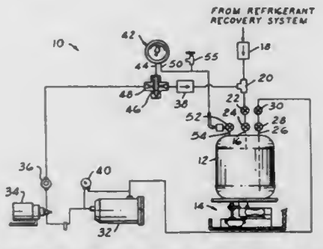
1. A cryogenic cooling apparatus comprising:
a multicomponent gas containing at least a first component gas and a second component gas, said second component gas having a lower boiling point than said first component gas;
a Joule-Thomson valve for partially liquefying said multicomponent gas as it passes therethrough; and
a sorption compressor for providing said Joule-Thomson valve with said multicomponent gas at elevated pressure, said sorption compressor containing a sorbent having a greater affinity for sorbing and desorbing said first component gas than said second component gas, whereby said first component gas operates as a propellant for said second component gas.

5,063,748
THERMAL STORAGE TANK SYSTEM AND METHOD
Thomas L. Davis; Robert N. Elliott, III, both of Raleigh, and Carsie K. Denning, Coats, all of N.C., assignors to Carolina Power & Light Company, Raleigh and North Carolina Alternative Energy Corporation, Research Triangle Park, both of, N.C.
Filed Jun. 25, 1990, Ser. No. 543,360
Int. Cl.[5] F25C *5/18*
U.S. Cl. 62—59 **23 Claims**



10. A method of introducing ice into a thermal storage tank and building a submerged ice mass therefrom, said method comprising of steps of:
maintaining the tank in a flooded state;
introducing ice into the tank at a single point that is submerged in the tank;
continuously building an agglomerated ice mass from the ice emerging from the single point of introduction; and
providing a ballast at the top of the tank to maintain the ice mass submerged in the water.

5,063,749
REFRIGERANT HANDLING SYSTEM WITH AIR PURGE AND MULTIPLE REFRIGERANT CAPABILITIES
Kenneth W. Manz, Paulding, Ohio, assignor to Kent-Moore Corporation, Warren, Mich.
Continuation-in-part of Ser. No. 463,449, Jan. 11, 1990, Pat. No. 5,005,369, which is a continuation-in-part of Ser. No. 405,236, Sep. 11, 1989, abandoned. This application Sep. 4, 1990, Ser. No. 576,952
Int. Cl.[5] F25B *45/00, 43/04*
U.S. Cl. 62—149 **5 Claims**



1. In a refrigerant handling system that includes a first closed volume, and means for feeding refrigerant in liquid phase to said volume so as to capture air in said volume over said refrigerant, said refrigerant being characterized by a liquid/vapor saturation pressure that varies as a function of refrigerant type and temperature, means for purging air captured in said volume comprising:
first means coupled to said refrigerant feeding means externally of said closed volume for developing a first fluid pressure as a function of saturation pressure of refrigerant in liquid phase fed to said volume,
second means coupled to said first closed volume for developing a second fluid pressure as a function of refrigerant-/air vapor pressure in said volume,
a differential pressure gauge having first and second inputs coupled to said first and second means, and means for indicating a pressure differential therebetween, and
means coupled to said volume for venting air in said volume when said pressure differential exceeds a preselected threshold,
said differential pressure gauge comprising a double-needle gauge including first and second indicator needles mounted for independent rotation about a common axis, first and second means respectively coupled to said first and second needles and responsive to said first and second inputs for positioning said needles about said axis as a function of said first and second pressures, and a faceplate positioned adjacent to said needles bearing indicia oriented circumferentially of said axis and coordinated with angular positions of said needles for indicating said first and second pressures.

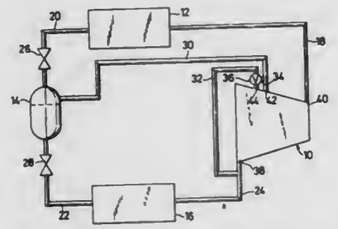
VOL
1132
ISS
2
NO
12
1991
UMI

5,063,750

ROTARY POSITIVE DISPLACEMENT COMPRESSOR AND REFRIGERATION PLANT

Arnold Englund, Spånga, Sweden, assignor to Svenska Rotor Maskiner AB, Stockholm, Sweden

PCT No. PCT/SE89/00299, § 371 Date Nov. 27, 1990, § 102(e) Date Nov. 27, 1990, PCT Pub. No. WO89/12752, PCT Pub. Date Dec. 28, 1989
PCT Filed May 29, 1989, Ser. No. 613,561
Claims priority, application Sweden, Jun. 17, 1988, 8802274
Int. Cl.[5] F01C *1/16*
U.S. Cl. 62—196.3 16 Claims



1. A rotary positive displacement compressor (**10**) comprising:
at least one rotor (**54**, **56**) forming compression chambers in a working space (**58**);
an inlet port (**38**) communicating with a low pressure channel (**24**);
an outlet port (**40**) communicating with a high pressure channel (**18**);
intermediate port means (**42**) communicating with an intermediate pressure channel (30);
bleed port means (**44**) selectively connectable to said low pressure channel (**24**) through a return channel (**32**);
said intermediate port means (**42**) and said bleed port means (**44**) being located such that they face a compression chamber within said working space (**58**), which compression chamber is sealed from communication with said inlet port (**38**) as well as from said outlet port (**40**) by said at least one rotor (**54**, **56**); and
valve means (**36**), selectively adjustable between two end positions for formation of different flow paths, wherein in said first end position, said valve means (**36**) opens up a direct by-pass communication between said intermediate pressure channel (**30**) and said return channel (**32**) and opens said bleed port means (**44**), forming a first flow path as a by-pass flow path between said intermediate pressure channel (**30**) and said return channel (**32**), a second flow path between said working space (**58**) and said first flow path through said intermediate port means (**42**) and a third flow path between said working space (**58**) and said return channel through said bleed port means (**44**), and wherein in said second end position, said valve means (**36**) blocks said direct communication between said intermediate pressure channel (**30**) and said return channel (**32**) and closes said bleed port means (**44**), forming a flow path between said intermediate pressure channel (**30**) and said working space (**58**) through said intermediate port means (**42**).

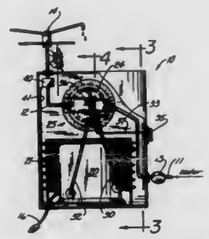
5,063,751

APPARATUS FOR REFRIGERATING DRINKING WATER

William G. Lightner, Sr., 7211 SE. 87th Ave., Portland, Oreg. 97266

Filed Mar. 13, 1990, Ser. No. 492,751
Int. Cl.[5] F25D *17/02*
U.S. Cl. 62—201 6 Claims

1. An improved apparatus for cooling drinking water in combination with a conventional refrigeration system including a compressor, a condenser, and an evaporator, the improvement comprising:
a container having insulated walls and a sealed chamber disposed therein;
said evaporator comprising a substantially helically shaped coil disposed in said chamber, said evaporator having an inlet and an outlet;
a substantially helically shaped water pipe disposed in said chamber and inside of said helically shaped evaporator coil so as to allow equal cooling displacement throughout



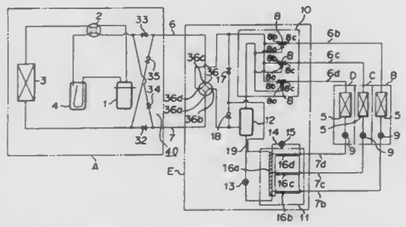
the entire water pipe, said water pipe having an inlet and an outlet;
whereby a longer length of water pipe and therefore a larger volume of water will be maintained cold by using a helically shaped water pipe that if a straight length of water pipe were to be used in said chamber; and,
a pressure switch and a thermostat means for sensing the temperature within said container and turning said compressor on or off in response to said temperature or water pressure drop.

5,063,752

AIR CONDITIONING APPARATUS

Takashi Nakamura; Hidekazu Tani, and Tomobiko Kasai, all of Wakayama, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 5, 1990, Ser. No. 593,887
Claims priority, application Japan, Oct. 6, 1989, 1-262358
Int. Cl.[5] F25B *41/04*
U.S. Cl. 62—225 10 Claims



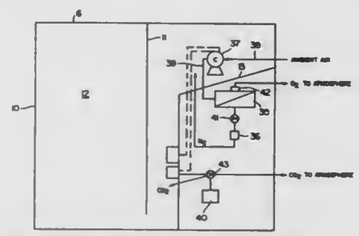
1. An air conditioning apparatus comprising:
a single heat source device including a compressor, a reversing valve, an outdoor heat exchanger and an accumulator;
a plurality of indoor units including indoor heat exchangers and first flow controllers;
a first main pipe and a second main pipe for connecting between the heat source device and the indoor units, the first main pipe having a greater diameter than the second main pipe;
a first branch joint which can selectively connect one end of the indoor heat exchanger of each indoor unit to either one of the first main pipe and the second main pipe;
a second branch joint which is connected to the other end of the indoor heat exchanger of each indoor unit through the first flow controllers, and which is also connected to the second main pipe through a second flow controller;
the first branch joint and the second branch joint being connected together through the second flow controller;
a junction device which includes the first branch joint, the second flow controller and the second branch joint, and which is interposed between the heat source device and the indoor units; and
valve means provided between the first main pipe and the second main pipe in the heat source device, which can selectively switch the side of the first main pipe to lower pressure and the side of the second main pipe to higher pressure.

5,063,753

APPARATUS FOR STORING PRODUCE

Richard E. Woodruff, 291, Zabala Rd., Salinas, Calif. 93908

Filed Nov. 13, 1989, Ser. No. 435,329
Claims priority, application New Zealand, Nov. 11, 1988, 226929
Int. Cl.[5] B60H *1/32*
U.S. Cl. 62—239 13 Claims



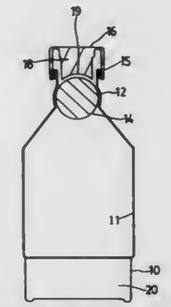
1. Apparatus for storing produce comprising:
a substantially sealable container having a hollow interior for containing the produce;
nitrogen rich gas generating means having an inlet means communicating with ambient air surrounding said container and a delivery means communicating with said hollow interior so that said gas generating means generates nitrogen rich gas from the ambient air and delivers said nitrogen rich gas to said hollow interior;
oxygen level adjusting means in said delivery means for varying the oxygen content of said nitrogen rich gas delivered to said hollow interior;
first monitoring means operatively connected to said container and said nitrogen rich gas generating means for detecting the oxygen level within said container and controlling the operation of said nitrogen rich gas generating means when said oxygen level is other than a predetermined level;
dry-ice storage means;
carbon dioxide gas control means connected to said dry-ice storage means and said hollow interior for delivering carbon dioxide gas from said dry-ice storage means to said hollow interior; and
second monitoring means connected to said container and said carbon dioxide gas control means for detecting carbon dioxide gas level in said container and operating said carbon dioxide gas control means when said carbon dioxide gas level is below a predetermined level.

5,063,754

INSTANT COOLING CAN

Tien-Fa Chou, No. 117, Lane San Ting, Shui Li Hsiang, Nan Tou Hsien, Taiwan

Filed Oct. 30, 1990, Ser. No. 605,336
Int. Cl.[5] F17C *13/00*
U.S. Cl. 62—457.9 4 Claims



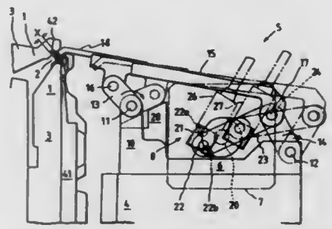
1. An instant cooling can, comprising an inner container received in and isolated from an outer container for containing beverage or foods, said outer container having contained therein an instant cooling media isolated from said inner container, said inner and outer container having each a bottle neck incorporated with each other and covered with a cap, said inner container having a plurality of air boles made on its bottle neck for passing therethrough of air, and a sealing means fastened in said neck portion to seal said air holes, and characterized in that said sealing means can be moved away from said air holes after said cap is removed from said neck portion, permitting outside air to flow through said air hole into said outer container to cause said instant cooling media to generate cooling gas for mixing with the beverage or foods contained inside said inner container.

5,063,755

FABRIC PRESSER FOR V-BED FLAT KNITTING MACHINE

Masahiro Shima, and Toshinori Nakamori, both of Wakayama, Japan, assignors to Shima Seiki Mfg. Ltd., Wakayama, Japan

Filed May 23, 1990, Ser. No. 527,560
Claims priority, application Japan, Jun. 2, 1989, 1-140645
Int. Cl.[5] D04B *15/28*
U.S. Cl. 66—90 5 Claims



1. A fabric presser for a V-bed flat knitting machine, comprising a presser bar, a presser bar supporting arm having the presser bar at an end thereof, a support member having said presser bar supporting arm supported for rocking motion by way of a rocking member such that said presser bar may be moved toward and away from a needle bed spacing portion of said knitting machine, and a motor mounted on said support member for rocking said rocking member, said presser bar supporting arm being supported for a pivotal motion by means

VOL 1132 ISS 2 NO 12 1991 UMI

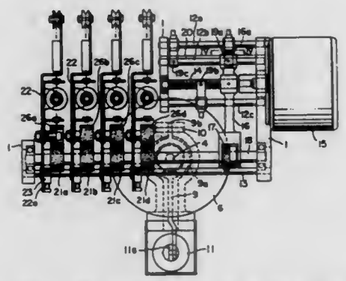
of a third shaft and a fourth shaft, respectively, at ends of first and second rocking arms which are supported on the support member by means of a first shaft and a second shaft.

5,063,756

ELASTIC YARN FEEDING DEVICE

Tsutomu Rikiishi, Bunsui, Japan, assignor to Nagata Seiki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 30, 1990, Ser. No. 465,070
Claims priority, application Japan, Jan. 2, 1988, 63-73646
Int. Cl.[5] D04B *15/50*
U.S. Cl. 66—132 R 4 Claims



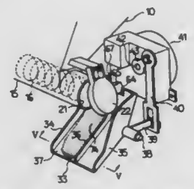
1. An elastic yarn feeding device including a rotary plate, means for rotating the rotary plate, a drive roller pressed against a surface of the rotary plate for rotation in the tangential direction of the rotary plate by rotation of the rotary plate, means for displacing the drive roller in a radial direction of the rotary plate to vary a revolution of the drive roller, and means for feeding an elastic yarn by the rotation of the drive roller, characterized in that the elastic yarn feeding device comprises: a drive shaft being rotatable together with the drive roller, supporting the drive roller to be axially movable and passing a center axis of the rotary plate to extend in parallel with a surface of the rotary plate; a plurality of feed rollers secured to the drive shaft at intervals; pinch rollers equal in number to the feed rollers and elastically urged against respective feed rollers; and elastic yarn feeding means for feeding the elastic yarn in a state held between each pair of the feed roller and the pinch roller.

5,063,757

DETERGENT DISPENSER FOR CLOTHES WASHING MACHINES OR THE LIKE

Yoshio Ikeda, Aichi, and Kiyoshi Okazaki, Seto, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Apr. 30, 1990, Ser. No. 516,782
Claims priority, application Japan, May 13, 1989, 1-120120; May 15, 1989, 1-120977; May 15, 1989, 1-120978; May 16, 1989, 1-123656
Int. Cl.[5] D06F *29/00*
U.S. Cl. 68—17 R 6 Claims



1. A detergent dispenser, for use in a clothes washing machine or the like for dispensing detergent into a clothes washing tub, comprising:

a) a detergent container for containing a predetermined amount of powdered detergent;

b) a detergent discharge passageway which communicates with the detergent container through the bottom of the detergent container so that the powdered detergent is fed from the container to the passageway, the detergent discharge passageway having a discharge outlet at one end;

c) detergent discharging means for feeding the powdered detergent in the detergent discharge passageway to the discharge outlet at a detergent dispensing step;

d) a closure member mounted at the discharge outlet and moveable between a usual, closed position at which it closes the discharge outlet and an opened position at which it opens the discharge outlet at the detergent dispensing step;

e) a detergent fall preventing member mounted beneath the discharge outlet so as to be moved between first and second positions, the detergent fall preventing member receiving the detergent from the discharge outlet when occupying the first position, thereby preventing the detergent discharged from the discharge outlet from falling to the tub, and the detergent fall preventing member, when at the second position, allowing the detergent discharged from the discharge outlet to be dispensed to the tub; and

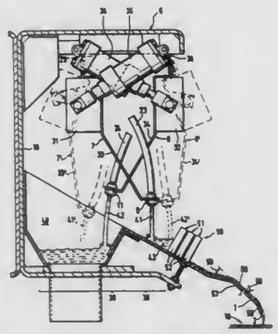
f) operating means for reciprocally moving the detergent fall preventing member between the first and second positions.

5,063,758

APPARATUS FOR APPLYING A TREATMENT FLUID HAVING PIVOTAL NOZZLE COMBS

Alfred Keller, Willich; Julius Kohnen, Tönisvorst, and Wolfgang Kurschatke, Krefeld, all of Fed. Rep. of Germany, assignors to Eduard Küsters Maschinenfabrik GmbH & Co., Krefeld, Fed. Rep. of Germany

Filed May 16, 1990, Ser. No. 524,355
Claims priority, application Fed. Rep. of Germany, May 16, 1989, 3915844
Int. Cl.[5] D06B *1/06*
U.S. Cl. 68—205 R 15 Claims



1. Apparatus for applying a treatment fluid onto a web of material comprising:

a support structure;

a run-off member connected to said support structure in a position allowing a web of material to be treated in the apparatus to pass underneath said run-off member, said run-off member having upper and lower horizontal edges extending transverse to a web to be treated by the apparatus and defining ends of a substantially flat, rectangular run-off surface having an upper portion and lower portion, said run-off surface sloping downwardly such that said lower horizontal edge is situated directly above a web to be treated by the apparatus when such a web passes underneath the run-off member;

a plurality of nozzles distributed in a direction transverse to a web to be treated by the apparatus, said nozzles being carried by said support structure so as to be located in a first position above the upper portion of the run-off surface whereby treatment fluid conducted to said nozzles can be applied onto the upper portion of the run-off surface;

means supporting at least one of said plurality of nozzles for movement away from said run-off surface to a second position in which treatment fluid conducted to said at least one nozzle is directed away from said run-off surface; and

means supporting at least one of said plurality of nozzles for movement away from said run-off surface to a second position in which treatment fluid conducted to said at least one nozzle is directed away from said run-off surface; and

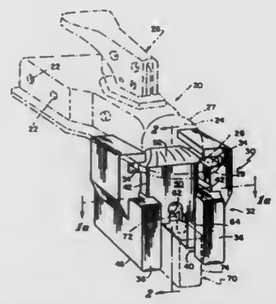
means for moving said at least one of said plurality of nozzles while treatment fluid is being conducted to said nozzles.

5,063,759

SECURITY DEVICE FOR A TRAILER HITCH OR SIMILAR ARTICLE

Victor W. Nee; Jonathan J. Cook, and Michael N. Bruno, all of South Bend, Ind., assignors to International Trade & Technologies, Inc., South Bend, Ind.

Filed Aug. 10, 1990, Ser. No. 566,120
Int. Cl.[5] E05B *73/00*
U.S. Cl. 70—14 29 Claims



1. A security device for a trailer hitch, said trailer hitch having a peripheral flange and a coupling opening, comprising:

a body member which engages with said peripheral flange of said trailer hitch to restrict vertical movement of said security device in relation to said trailer hitch;

said body member having two downwardly projecting substantially parallel legs;

a projection element which slides vertically between said legs for entering into said coupling opening in said trailer hitch to restrict horizontal movement of said security device in relation to said trailer hitch;

a first means connected to, but independent of, said body member for removably retaining said security device in position on said trailer hitch;

said first means includes a shackle and a lock body and said shackle is removably retained within said lock body;

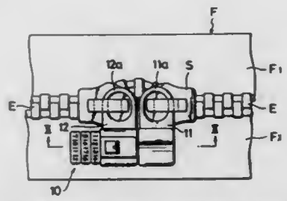
said body member includes a second means for precluding access to said shackle when said shackle is secured to said lock body in said security device.

5,063,760

DIAL LOCK ASSEMBLY

Yoshiyuki Horita; Hiroshi Mizuno, both of Toyama, and Kiyoyasu Wake, Kawasaki, all of Japan, assignors to Yoshida Kogyo K. K., Tokyo, Japan

Filed Oct. 2, 1989, Ser. No. 415,730
Claims priority, application Japan, Oct. 18, 1988, 63-136260
Int. Cl.[5] E05B *67/38*
U.S. Cl. 70—23 10 Claims



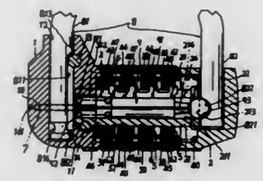
1. A dial lock assembly which comprises a male part having a plunger with a lock groove and a female part having a cylindrical casing for releasably receiving said plunger, a lock tumbler pivotally mounted in said casing and having a lock prong engageable in said lock groove and an engaging portion, and rotary means operatively associated with said lock tumbler and frictionally driven by a dial carrying indicia thereon and comprising a plurality of discs capable of inching rotation relatively to one another within said casing and mounted on a shaft extending outwardly of said casing and rotatably connected to said dial so as to provide a receptive space for said plunger adjacent to said dics, said means having notches arranged to come into and out of alignment with one another for respectively allowing and prohibiting entry of said engaging portion.

5,063,761

SIMPLY-CONSTRUCTED COMBINATION PADLOCK

Chong-Kuan Ling, c/o Sinox Co., Ltd., P.O. Box 53-58, Taipei, Taiwan

Filed Jan. 3, 1991, Ser. No. 710,757
Int. Cl.[5] E05B *37/06*
U.S. Cl. 70—25 2 Claims



1. A combination padlock comprising:

a first lock body having a first shackle hole vertically formed therein for slidably holding a first leg member of a shackle in said first shackle hole and having a spindle socket horizontally formed in an inner side portion of said first lock body;

a second lock body having a second shackle hole vertically formed in said second shackle body for slidably holding a second leg member of said shackle in said second shackle hole, and a hollow spindle protruding inwardly from said second lock body to be engageably secured with said spindle socket of said first lock body for combining said second lock body with said first lock body;

a plurality of sleeves longitudinally rotatably mounted on said hollow spindle;

a plurality of dials rotatably secured between said two lock bodies and respectively engageable with said sleeves;

a locking means slidably held in said hollow spindle, nor-

VOL 1132 ISS 2 NO 12 1991 UMI

mally locking said second leg member of said shackle in said second lock body as retarded by said sleeves for locking said padlock, and operatively depressed for unlocking the shackle when not retarded by the sleeves for opening the padlock; and

a combination-changing means formed in said first lock body for operatively disengaging said sleeves from said dials when unlocking said locking means for a free rotation of said dials for resetting a new combination;

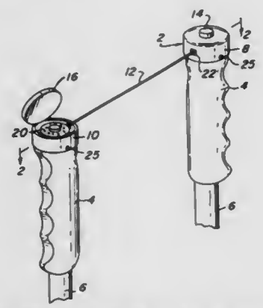
said locking means including a locking bolt generally cylindrical shaped slidably engageable with a central bolt hole longitudinally formed in said hollow spindle of said second lock body, a plurality of projections longitudinally formed and equally spaced on said locking bolt slidably engageable with a longitudinal slot formed in said hollow spindle and engageable with an opening slot formed in an inner ring in each said sleeve, a bolt tensioning spring resiliently retained between said spindle socket of said first lock body and a first end portion of said locking bolt proximate said first lock body, and a locking ball rotatably retained on a second end portion of said locking bolt opposite to said first end portion for engageably locking an arcuate recess formed in a lower end portion of said second leg member of said shackle as resiliently urged by said bolt tensioning spring, each said projection on said locking bolt being operatively retarded on said inner ring of each said sleeve for preventing a depression and retraction of said locking bolt towards said first lock body for locking said second leg member of said shackle in said second lock body; and upon an engagement of said projection with said opening slot of each said sleeve, said locking ball and bolt being depressible for disengaging said second leg member of said shackle for opening the padlock; and said combination-changing means including: at least a pin longitudinally formed in the first lock body slidably held in a pin hole formed through the body first lock having an innermost end of the pin normally touching an annular shoulder portion of said sleeve, and a contracted pin end formed on an outer end of the pin opposite to the innermost end slidably engageable with a contracted pin hole formed in an outer side portion of the first lock body, and a pin shoulder portion defined between the pin and the contracted pin end engageable with an annular seat portion formed between said contracted pin hole and said pin hole.

5,063,762

RETRACTABLE LOCKING ASSEMBLY

Catherine M. Vandeweghe, 21 Russell Rd., Ringwood, N.J. 07456

Filed Jun. 27, 1990, Ser. No. 544,708
Int. Cl.[5] E05B *73/00*
U.S. Cl. 70—30 **16 Claims**



1. A locking assembly external to, and mounted on, a portable or riding device, said assembly comprising:

(a) a storage member mounted on a first element of said device;

(b) a receptor member mounted on a second element of said device;

(c) a means for mounting said members on said elements;

(d) a means for securing said device to a stationary object when said device is not in use;

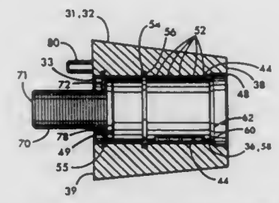
(e) a means for equalizing the weight of, said members and repositioning the centers of gravity of said members, said equalizing and repositioning means comprising at least one shim placed in said storage or receptor member so that said centers of gravity are at the same positions relative to said elements.

5,063,763

LOCKING DEVICE FOR BOAT SONAR UNITS AND THE LIKE

Clyde T. Johnson, P.O. Drawer 100, Escanaba, Mich. 49829

Filed Oct. 3, 1990, Ser. No. 592,370
Int. Cl.[5] E05B *73/00*
U.S. Cl. 70—58 **14 Claims**



1. A locking device adapted to lock an instrument to an instrument bracket, wherein the instrument is of the type which has threaded holes in opposed sides of the instrument body, and the instrument bracket has openings which align with the threaded holes, so that a threaded stud of the locking device may be passed through the bracket opening and threadedly engaged within the threaded holes to support the instrument in the bracket, the locking device comprising:

(a) a casing having a hollow interior and a rearward face;

(b) a tumbler housing mounted for rotation within the hollow interior of the casing and locking means for allowing rotation of the tumbler housing when a proper key is inserted in the housing and preventing rotation of the housing when the key is withdrawn;

(c) a threaded stud unit including

(i) a threaded stud, and

(ii) a head connected to the threaded stud and to the rearward end of the tumbler housing, so that when the key is inserted in the tumbler housing and turned, the threaded stud rotates and may be threadedly engaged within a threaded hole of the instrument;

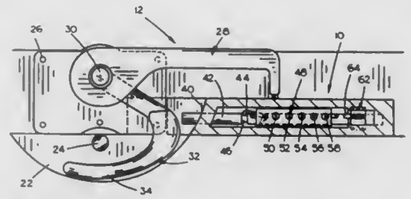
(d) a stop member comprising a pin extending from the rearward face of the casing which is adapted to fit within an opening in the instrument bracket when the threaded stud is fully engaged within the instrument threaded hole, so that when the key is removed from the tumbler housing, the locking device cannot be unscrewed from the instrument because the stop member is in the bracket opening and the instrument is held securely in the instrument bracket.

5,063,764

ROLL-UP DOOR LOCK

Lynn F. Amis, Valley, Nebr.; Jacob T. Crittenden, San Diego, Calif.; Raymond J. Dyer, Lincoln, Nebr.; John P. Glynn, Lincoln, Nebr.; Richard H. Hall, Bellevue, Nebr.; Dave L. Huebner, Lincoln, Nebr.; Brian W. Olsen, Beaver Crossing, Nebr.; Sam C. O'Connor, Lincoln, Nebr.; Charles E. Robideaux, Bellevue, Nebr.; David E. Seeley; Steven J. Sousek, both of Lincoln, Nebr.; Mark A. Wightman, North Platte, Nebr., and Ronald E. Wintermute, Aurora, Ill., assignors to Convoy Security Company, Omaha, Nebr.

Filed Feb. 9, 1989, Ser. No. 307,909
Int. Cl.[5] E05B *65/08;* **E05C** *3/04*
U.S. Cl. 70—100 **6 Claims**



1. In combination:

a van body having a floor and a vertically movable roll-up door adapted to be lowered into engagement with the floor to close an opening in the van body, said floor having a recess formed therein extending downwardly thereinto and a longitudinally extending pin means positioned within said recess;

a locking handle pivotally secured, about a horizontal axis, to said door adjacent the exterior lower edge thereof, said handle being pivotally movable between first and second positions;

said locking handle having an arcuate hook member associated therewith for pivotal movement with said handle, said hook member being positioned beneath said pin means when said handle is in its first position, to prevent the raising of said roll-up door, said hook member being pivoted out from under said pin means when said handle is in its second position, to allow the raising of said roll-up door; and

a selectively actuated lock means secured to the exterior surface of said door laterally of said locking handle and including a horizontally movable dead bolt operable between locked and unlocked conditions, said dead bolt being immovably locked in the pivotal path of said arcuate hook member when in its locked condition to prevent the movement of said locking handle to its second position, and said dead bolt being horizontally movable by contact from said arcuate hook member when in its unlocked condition to allow movement of said locking handle to its second position.

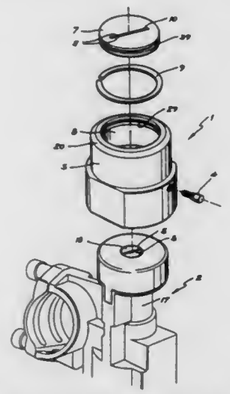
5,063,765

LOCK PROTECTOR

Ross D. Squire, 75 Liverpool Road, Burwood Heights, Australia N.S.W. 2136 , and Ian H. Squire, 337 Fifteenth Avenue, Hoxton Park, Australia N.S.W. 2171

PCT No. PCT/AU87/00271, § 371 Date Mar. 21, 1989, § 102(e) Date Mar. 21, 1989, PCT Pub. No. WO88/01333, PCT Pub. Date Feb. 25, 1988
PCT Filed Aug. 17, 1987, Ser. No. 327,968
Claims priority, application Australia, Aug. 15, 1986, PH7527
Int. Cl.[5] E05B *15/16*
U.S. Cl. 70—417 **9 Claims**

1. A lock protector adapted to protect the barrel of a key operated lock, said protector comprising a sleeve shaped to fit over said barrel, retaining means comprising a threaded radially-directed fastener arranged to engage said barrel to secure said sleeve directly to said barrel against relative longitudinal movement therebetween, one end of said barrel having a keyway therein for operation of said lock, and the corresponding end of said sleeve having a flat disc-like keyway protector rotatably mounted therein and overlying said keyway, said protector having a narrow slot therethrough the width of said



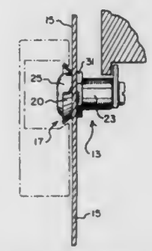
slot and the distance between the outermost portion of said slot and said keyway being selected to permit the shank of the operating key to pass through the slot and into the keyway but prevent the insertion of objects other than the key into said keyway.

5,063,766

LOCKABLE KEYWAY COVER

Paul Appelbaum, Box 27006, Denver, Colo. 80227

Filed Aug. 20, 1990, Ser. No. 570,012
Int. Cl.[5] E05B *17/14*
U.S. Cl. 70—428 **2 Claims**



1. Lockable keyway cover apparatus for a cam lock having a generally cylindrical body with an outer end portion containing a keyway, said cover apparatus comprising:

a) annular skirt, co-axial with said cylindrical body and mounted to said cylindrical body adjacent said outer end portion, said skirt having a circumferentially extending flange portion;

b) generally rectangular lock means having walls enclosing locking mechanism and having a front wall with an opening adapted to receive said flange portion, and said lock means having within said opening a first shaped latching head spaced apart from a second shaped latching head, said lock means having an open configuration in which said latching heads are spaced apart sufficiently to accommodate said flange portion and said lock means having a locked configuration in which said first and second shaped latching heads are brought together to embrace said

VOL 1132 ISS 2 NO 12 1991 UMI

flange portion to hold said lock against outward movement relative to said cam lock; and

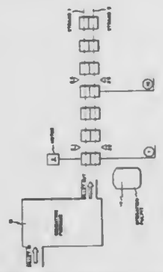
c) wherein said shaped latching heads in locked configuration are adapted to slidably embrace said circumferential flange portion to permit complete rotation of said lock means about the axis of said cam lock cylindrical body and hold against outward movement of said lock means.

5,063,767

APPARATUS FOR CONTROLLING TIME GAPS BETWEEN BILLETS IN ROLLING MILLS

José A. C. Drummond, BR 040 -RM 769 - Dias Tavares, Juiz De Fora- Minas Gerais, Brazil

Filed May 9, 1989, Ser. No. 349,492
Claims priority, application Brazil, May 10, 1988, PI8802266
Int. Cl.[5] B21B *37/00*
U.S. Cl. 72—11 **5 Claims**



1. Apparatus for enabling control of the time gap intervals between successive metal billets in a rolling mill by providing an indication of when to introduce subsequent billets, said mill having a drive motor for moving successive billets from a reheating furnace past a plurality of rolling stands arranged to include one or more strand paths, said apparatus comprising:

(a) means for sensing predetermined changes in the current of said drive motor and for converting said sensed changes into entrance and exit signals corresponding to the entrance and exit of billets to and from a first stand of said mill;

(b) at least one preset timer circuit for counting down a presetable time interval corresponding to a desired gap interval upon receipt of an exit signal of said sensing and converting means, and for producing an end of desired interval signal;

(c) signalling means responsive to said end of desired interval signal for initiating an indication of the desired moment to introduce a billet into said rolling mill first stand;

(d) a plurality of hot metal sensors for sensing the presence of billets at first and second locations along said plurality of mill stands and in said one or more strand paths for initiating a real time count in at least one chronometer, said count corresponding to the real time presence of said sensed billets within said locations; and

(e) selector means responsive to said sensing means and to said hot metal sensors for selecting and enabling said at least one reset timer and said at least one chronometer consistent with billet presence in said one or more strand paths.

5,063,768

SPRING-LOADED TEETH FOR COMMINUTER ROLLS

John H. Hughes, Montesano, Wash., assignor to ComCorp, Inc., Montesano, Wash.

Division of Ser. No. 298,454, Jan. 18, 1989. This application Oct. 24, 1990, Ser. No. 602,742
Int. Cl.[5] B02C *18/18;* B21D *37/00;* B21K *21/12;* B23P *13/04*
U.S. Cl. 72—379.2 **6 Claims**

1. A method of forming a tooth for a comminuter roll, said tooth having a point for comminuting solids, the method including the steps of rolling a sheet of spring steel to a substan-



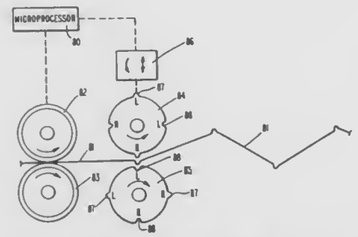
tially cylindrical shape and forming one end of said rolled spring steel into said point.

5,063,769

METAL HONEYCOMB CATALYST SUPPORT HAVING A DOUBLE TAPER

William B. Retallick, West Chester, Pa., assignor to W. R. Grace & Co.-Conn., New York, N.Y.

Division of Ser. No. 191,612, May 9, 1988, Pat. No. 5,025,649, which is a division of Ser. No. 23,700, Mar. 9, 1987, Pat. No. 4,765,047, which is a division of Ser. No. 905,071, Sep. 8, 1986, Pat. No. 4,673,553. This application Jan. 11, 1991, Ser. No. 640,095
Int. Cl.[5] B21D *13/04*
U.S. Cl. 72—379.6 **5 Claims**



1. A method of forming crease lines on a metal strip at predetermined intervals, the strip being adapted to be folded back and forth upon itself into a honeycomb catalyst support, comprising the steps of:

a) storing a predetermined sequence of numbers representing the intervals between adjacent crease lines,

b) feeding the strip between a pair of creasing rollers, both of the creasing rollers having at least two ridges and two grooves, the ridges on one roller being adapted to mate with the grooves on the other, the ridges and grooves on both rollers forming alternately right-handed and left-handed spirals,

c) closing the creasing rollers around the strip when a ridge is positioned to form a crease line in a desired location determined by said intervals, and

d) opening the creasing rollers after the crease line has been formed, wherein the strip is continuously moving during the opening and closing steps.

5,063,770

CRIMPING TOOL

Ching-Jen Chen, No. 33-1, Luh-Tyi St., Panchiao City, Taipei Hsien, Taiwan

Filed Jun. 29, 1990, Ser. No. 545,814
Int. Cl.[5] B21D *7/06*
U.S. Cl. 72—410 **7 Claims**

1. A crimping tool, comprising:

an elongated first handle member having a first front portion, a first middle portion and a first rear portion, said first front portion having a first pivot hole;

a pair of head plates pivoted on said first front portion for moving between a crimping position and a releasing position with respect to said first front portion, each of said head plates having a second pivot hole to be aligned with said first pivot hole and further having a third pivot hole offset from said second pivot hole, said first handle member being disposed between said head plates;

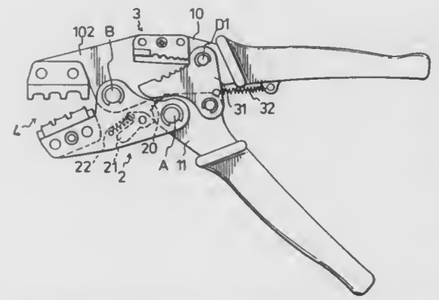
a first pivot pin member passing through said first and said second pivot holes;

an elongated second handle member having a second front middle portion and a second rear portion, said second handle member being pivoted on said head plates at said second front middle portion to allow movement of said second rear portion away from an towards said first rear portion of said first handle member, said second handle member being disposed between said head plates, said second handle member having a fourth pivot hole to be aligned with said third pivot hole, said second handle member offset from said fourth pivot hole, said second handle member further having a curved tooth section formed on said second, front middle portion adjacent to said fourth pivot hole;

a second pivot pin member passing through said third and said fourth pivot holes;

a first jaw member attached to said front portion of said first handle member;

a second jaw member attached between said head plates;



a pawl member resiliently mounted between said head plates and engaging said curved toothed section of said second handle member when said second handle member moves toward said first handle member;

said pawl member being biased by a pawl extension spring being connected on one end to said pawl member and another end connected to a pin located between said head plates;

a first stripping plate fixed to said first handle member between said first front and in said rear first middle portions, said first stripping plate having one side formed with a plurality of first stripping grooves;

said first handle member further having a rectangular opening in said first middle portion adjacent to said first stripping plate, a plurality of second stripping grooves formed in said rectangular opening and aligned with said first stripping grooves, and a sixth pivot hole near said rectangular opening;

a second stripping plate pivoted to said second handle member at said fifth pivot hole and to said first handle member at said sixth pivot hole, said second stripping plate having one end with third stripping grooves which matches said first stripping grooves of said first stripping plate; and

an extension spring having one end connected to said second stripping plate adjacent to said fifth pivot hole and another end connected to said first handle member.

5,063,771

METHOD OF FUMIGATING BULK CEREAL GRAINS

Michel Vacquer, Rouen, France, assignor to Desinsectisation Moderne, Rouen, France

Filed Feb. 14, 1990, Ser. No. 479,853
Claims priority, application France, Feb. 17, 1989, 89 02113
Int. Cl.[5] G01M *3/04*
U.S. Cl. 73—40.7 **3 Claims**

1. Method of fumigating bulk cereal grains while in storage, comprising the steps of:

(a) providing a closed empty compartment having internal and external walls in which compartment said cereal grain is to be stored;

(b) initially exposing the internal walls of said empty compartment and the space within said compartment to a first fumigant to disinfect the compartment;

(c) said first fumigant being providing in sufficient volume to leave a residue film deposit of fumigant on said internal walls;

(d) inspecting the external walls of said compartment to ascertain the degree of air-tightness of said empty compartment during said initial fumigation by seeking to detect leaks;

(e) repairing any leaks detected during said initial fumigation and inspection;

(f) thereafter loading said compartment with bulk cereal grain; and

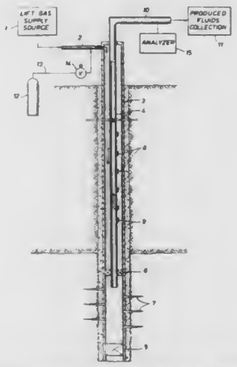
(g) closing said compartment and exposing said grain to a second fumigant to disinfect said bulk cereal grain with said second fumigant as well as with said residue of said first fumigant.

5,063,772

METHOD FOR TROUBLESHOOTING GAS-LIFT WELLS

Scott L. Wellington; Jeffrey F. Simmons, and Edwin A. Richardson, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 323,600, Mar. 14, 1989, Pat. No. 4,972,704. This application Jun. 22, 1990, Ser. No. 542,371
Int. Cl.[5] G01M *3/04*
U.S. Cl. 73—40.7 **4 Claims**



1. A method for identifying a leak in a casing in a gas-lift well in a subterranean reservoir comprising:

injecting into lift-gas supplied to the well a quantity of an injected fluid, which is at least one of (1) a tracer and (2) a component which generates a tracer, the tracer being sufficient to be detected in a produced fluid recovered from the well;

monitoring a proportion of the tracer in the produced fluid as a function of time;

quantifying the amount of the tracer returning from the well;

VOL 1132 ISS 2 NO 12 1991 UMI

determining that the amount of the tracer returning from the well is less than the amount that would return without any loss of the tracer, thereby identifying a leak in the casing.

5,063,773

DYNAMOMETER

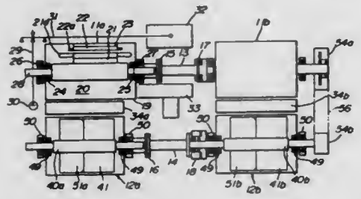
Sadao Fujimori; Akira Yamamoto, and Satoru Taueda, all of Tokyo, Japan, assignors to Kabushiki Kaisha Meidensha, Tokyo, Japan

Filed Aug. 30, 1990, Ser. No. 575,235

Claims priority, application Japan, Aug. 31, 1989, 1-102350[U]; Aug. 31, 1989, 1-225528; Sep. 19, 1989, 1-242597; Sep. 20, 1989, 1-243883; Sep. 27, 1989, 1-113016[U]; Oct. 5, 1989, 1-261023; Feb. 2, 1990, 2-16513[U]

Int. Cl.[5] G01L *3/02*

U.S. Cl. 73—117 25 Claims



1. A chassis dynamometer for testing performance of an automotive vehicle, comprising:

a first roller supported on a swingable shaft and housing therein stator and rotor forming a dynamometer;

a second roller coupled with said first roller for synchronous rotation therewith;

a flywheel detachably and coaxially disposed within the interior space of said second roller for rotation therewith; and

means, associated with said flywheel, for detachably retaining said flywheel within said interior space of said second roller, said retaining means restricting axial displacement of said flywheel relative to said second roller.

5,063,774

TIRE PRESSURE SENSOR FOR MOTOR VEHICLES

Johannes Burkard, and Wolfgang Weltin, both of Nürnberg, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

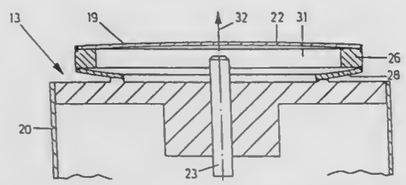
PCT No. PCT/DE89/00021, § 371 Date Sep. 18, 1990, § 102(e) Date Sep. 18, 1990, PCT Pub. No. WO89/10274, PCT Pub. Date Nov. 2, 1989

PCT Filed Jan. 18, 1989, Ser. No. 576,383

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1988, 3813846

Int. Cl.[5] B60C *23/04*

U.S. Cl. 73—146.5 3 Claims



1. In a tire pressure sensor for a motor vehicle comprising a housing and a pressure switch which extends at the circumference of a wheel rim of a vehicle wheel in a radial direction toward an interior of a tire mounted on said wheel rim, said pressure switch comprising a switching contact fixed relative to said housing and a reference pressure chamber provided with an electrically conducting contact diaphragm closing said pressure chamber on a side of said pressure chamber closest to the interior of the tire and positioned substantially parallel to the wheel rim, said contact diaphragm cooperating with said switching contact as a function of relative tire pressure, so that said conducting contact diaphragm is lifted as a function of speed of said tire by a mass which is movable in a radial direction by centrifugal force for speed-dependent raising of a switching threshold of the pressure switch, the improvement wherein the reference pressure chamber (19) is closed on another side of said pressure chamber opposite said side closest to the interior of the tire by a ring diaphragm (28) having an outer peripheral rim (29) and an inner rim (29'), said ring diaphragm (28) being connected at the inner rim with the housing of the pressure switch and at the outer rim with the contact diaphragm (22) via a mass ring (26).

5,063,775

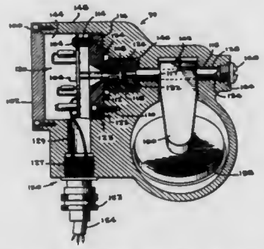
METHOD AND SYSTEM FOR CONTROLLING A MECHANICAL PUMP TO MONITOR AND OPTIMIZE BOTH RESERVOIR AND EQUIPMENT PERFORMANCE

Frank J. Walker, Sr., 8340 Northeast 2nd Ave., Miami, Fla. 33138, and Frank J. Walker, Jr., 5711 S. Utica Ave., Tulsa, Okla. 74105

Continuation of Ser. No. 87,505, Aug. 19, 1987, abandoned, which is a continuation-in-part of Ser. No. 901,692, Aug. 29, 1986, now Re.

Int. Cl.[5] G01F *1/28*

U.S. Cl. 73—155 18 Claims



1. In a system for preventing damage resultant from pump-off of a well pump for pumping an essentially incompressible fluid mixture made up of a substantially homogeneous mingling of solids, liquids and gases, said liquids constituting the major portion of said mixture, the relative proportions of said solids, liquids and gases being subject to change over time, from a well casing replenished by the fluid mixture from a surrounding earth formation, a flow-rate sensor for measuring in real time the volumetric flow-rate of the fluid mixture, said sensor comprising:

housing means having an internal fluid passageway, and inlet and outlet ports, said passageway for directing said fluid mixture between said inlet and outlet ports;

a backpressure valve means in fluid communication with said passageway for maintaining a wellhead discharge pressure at or above the highest bottom hole pressure that will act upon the downhole inlet of the well pump at any time during a regular pump operating cycle as said mixture passes through said passageway;

a barrier wall defined within said passageway, said wall including a fixed area orifice through which all of said mixture passes from said inlet port to said outlet port;

a smooth seating surface surrounding the outlet side of said orifice;

a flow-sensing element mounted for movement within said passageway and operative between first and second positions, said element oriented to assure that the movement of said element from said first position is proportional to the velocity of said mixture as said mixture passes through said passageway from said inlet port to said outlet port, said element including a substantially planar surface that completely covers said fixed area orifice when said element is in said first position, said planar surface having a sealing surface that mates with said seating surface for providing a tight seal when said element is in said first position; and

transducer means for producing an electrical signal that is continuously proportional to the real time movement of said sensing element.

5,063,776

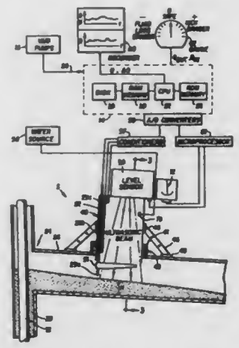
METHOD AND SYSTEM FOR MEASUREMENT OF FLUID FLOW IN A DRILLING RIG RETURN LINE

Klaus J. Zanker, Houston, and Jacques Orban, Sugar Land, both of Tex., assignors to Anadrill, Inc., Sugar Land, Tex.

Filed Dec. 14, 1989, Ser. No. 450,807

Int. Cl.[5] G01F *1/66*

U.S. Cl. 73—155 33 Claims



1. A system for obtaining an indication of volumetric flow of a drilling mud exiting a well bore through an annulus between a drill pipe and the well bore and up to a bell nipple and out to a drilling rig return line connected to said bell nipple at an angle such that said drilling mud partially fills said return line and is in supercritical flow in said return line, said return line having a known physical configuration, said system comprising:

a) a non-intrusive mud level sensor means located in or in proximity to said return line for sensing the height of the mud flowing in the return line without affecting mud flow and for providing signals indicative thereof; and

b) means responsive to said level sensor signals, and in conjunction with return line configuration, for providing an indication of the flow-out volume of the mud from said well bore.

5,063,777

METHOD AND DEVICE FOR DETERMINING THE SPEED OF A HELICOPTER WITH RESPECT TO THE AIR

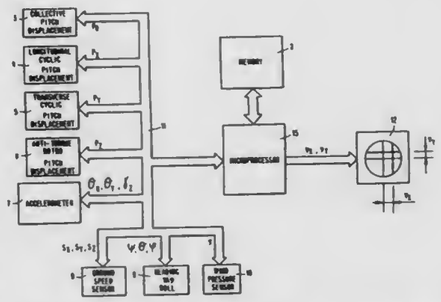
J. P. Arethens, and P. Goumier-Beraud, both of Valence, France, assignors to Sextant Avionique, France

Filed Jun. 5, 1990, Ser. No. 532,331

Claims priority, application France, Jun. 7, 1989, 89 07514

Int. Cl.[5] G01C *21/10*

U.S. Cl. 73—178 H 13 Claims



1. Method for determining the speed of a helicopter with respect to the air for piloting same, which helicopter has a longitudinal axis OX a transverse axis 0Y and a vertical axis OZ, with a lift rotor whose collective pitch P_O, longitudinal cyclic pitch P_X and transverse cyclic pitch P_Y are controllable, as well as an anti-torque rotor whose pitch P_Z is controllable, in which method the two components V_X and V_Y of this speed along the two axes OX, OY are determined, respectively, as a function of the controlled values of said pitches P_O, P_X, P_Y and P_Z, of the angles of bank θ_X, θ_Y of the helicopter about axes OY and OX respectively, and of the acceleration value γ_z of the helicopter along axis OZ, wherein:

during a first step, a calibration flight is made, causing the helicopter to pass through a plurality of N different flight configurations, for each of which both a plurality of magnitudes for estimating the speeds V_X and V_Y and the values of the pitches P_O, P_X, P_Y and P_Z, of the angles θ_X, θ_Y and of the acceleration γ_Z are measured,

during a second step, said speeds V_X and V_Y are estimated for each flight configuration, a first matrix is calculated of the correlation coefficients of all the possible pairs of variables of a first set of variables comprising the estimated speed V_X and variables constructed from the pitches P_O, P_X, P_Y and P_Z, from angles θ_X, θ_Y and from the acceleration γ_Z, and a second matrix is calculated comparably with the first one but relative to a second set of variables comprising the estimated speed V_Y and said constructed variables,

during a third step, using said first matrix, the constructed variable of the first set the most correlated with the estimated speed V_X is determined, from this estimated speed V_X is subtracted said most correlated constructed variable multiplied by a multiplicative coefficient chosen so that the estimated speed thus modified is totally decorrelated from the most correlated constructed variable, the error committed is calculated by admitting that the modified value is zero, a first modified matrix is calculated like said first matrix was calculated but replacing the estimated speed V_X by the modified estimated speed, and the operation is repeated until a number n_x of constructed variables of the first set have been subtracted from the estimated speed V_X, sufficient so that the error committed, assuming that the modified value is zero, is less than a threshold, so as to obtain, for the value of the estimated speed V_X, a calculation formula as a function of the n_x constructed variables of the first set, and the procedure is the same for the second matrix, so as to obtain a similar calculation formula for V_Y as a function of n_y constructed variables of the second set, and

during a fourth step, in normal flight, the values of the pitches P_O, P_X, P_Y and P_Z, of the angles θ_x, θ_y and of the acceleration γ_Z are measured, the speeds V_X and V_Y are calculated by applying the calculation formulae defined during the third step and in response to the values measured during the fourth step, and the calculated values V_X and V_Y are displayed for use by the pilot of the helicopter.

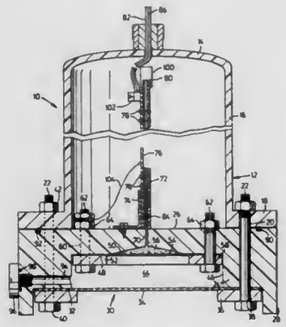
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,778

APPARATUS FOR MEASURING THE LEVEL OF A LIQUID IN A WETWELL

Johannes N. Jorritsma, 37 Yonge Street N., Aurora, Ontario, Canada L4G 1N6

Filed Jul. 2, 1990, Ser. No. 546,746
Int. Cl.[5] G01F *23/22, 23/00*
U.S. Cl. 73—299 **8 Claims**



1. An apparatus for measuring the level of a liquid in a wetwell, comprising:

tubular means defining an upstanding conduit,

a first chamber at the bottom of said conduit and communicating therewith,

a second chamber adjacent said first chamber and separated therefrom by a first impervious, non-rigid membrane,

said second chamber being defined in part by a second impervious, non-rigid membrane in contact with the liquid in the wetwell,

said second chamber containing a first liquid to which both membranes are inert,

said first chamber containing a second liquid to which the first membrane is inert, the second liquid being capable of being forced up the conduit under pressure exerted by the pressure of the liquid in the wetwell through said second and said first membranes,

vent means for ensuring that the portion of the conduit above the second liquid remains at atmospheric pressure, and

a plurality of electrical terminal provided at spaced locations lengthwise of the tubular means for providing signal which is a function of the height of the second liquid in said conduit, which corresponds to the level of the liquid in the wetwell.

5,063,779

NON-DESTRUCTIVE DIMENSIONAL AND FLAW INSPECTION OF THIN WALL TUBE WELDMENTS

James D. Landry; Mark A. Joyce, both of Wilmington, N.C.; John D. Young, Rexford; Robert S. Gilmore, Burnt Hills, both of N.Y., and Frederick C. Schoenig, Jr., Wilmington, N.C., assignors to General Electric Company, San Jose, Calif.

Division of Ser. No. 250,187, Sep. 28, 1988. This application May 17, 1990, Ser. No. 524,415
Int. Cl.[5] G01N *29/26*
U.S. Cl. 73—622 **10 Claims**

1. An inspection station for examining a girth weld section of a thin walled tube, said inspection station comprising, in combination:

A. means for conveying the tube into and out of said inspection station;

B. means for arresting the conveyance of the tube into said inspection station such as to position the weld section at an axial reference position;

C. means for rotating the tube in said reference position about its axis;

D. an ultrasonic transducer;

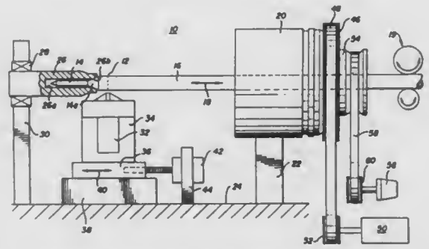
E. means for translating said ultrasonic transducer over a path parallel to the axis of the rotating tube, whereby to execute a predetermined scanning pattern consisting of a multiplicity of axially spaced, circumferential scan lines encompassing the weld section;

F. means for pulsing said ultrasonic transducer to emit ultrasonic weld section-probing energy at a multiplicity of data points distributed along said scan lines throughout said scanning pattern;

G. an angular position encoder driven in synchronism with said tube rotating means for controlling said ultrasonic transducer pulser means and said ultrasonic transducer translating means, whereby to establish the locations of said data points relative to the weld section;

H. means for developing echo signals from the reflections of said ultrasonic probing energy at each said data point;

I. means for detecting said echo signals to derive thickness data indicative of the weld section thickness at each said



data point and amplitude data indicative of the presence of any weld section included feature at each said data point, said thickness data being derived utilizing

1) a first discriminator for detecting probing energy reflections from the outer surface of the weld section,

2) a second discriminator for detecting probing energy reflections from the inner surface of the weld section, and

3) a first converter responsive to said first and second discriminators for converting the time interval between the detections of said outer and inner surface energy reflections into said weld section thickness data; and

J. means for analyzing said thickness and amplitude data for all of said data points to

1) find the amplitude data of maximum magnitude for each distinct weld section included feature and determine whether any of said maximum magnitude amplitude data indicates an included feature size in excess of an acceptable limit, and

2) find the minimum thickness of the weld section and determine whether said minimum thickness is less than an acceptable limit.

5,063,780

ULTRASONIC DIMENSIONAL AND FLAW INSPECTION OF THIN-WALLED TUBULAR ELEMENTS

James D. Landry; Frederick C. Schoenig, Jr., both of Wilmington, N.C., and John D. Young, Rexford, N.Y., assignors to General Electric Company, San Jose, Calif.

Filed Feb. 15, 1990, Ser. No. 480,465
Int. Cl.[5] G01N *29/06*
U.S. Cl. 73—622 **10 Claims**

1. A system for non-destructive flaw and dimensional inspection of thin-walled tubular elements, said system comprising, in combination:

A. a first plurality of ultrasonic transducers for dimensionally inspecting a tubular element along respective helical scanning paths;

B. a second plurality of ultrasonic transducers for flaw inspecting the tubular element along respective helical scanning paths;

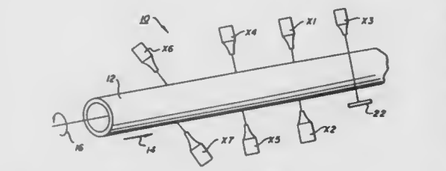
C. a separate driver for respectively electrically exciting each said transducer of said first plurality to emit dimensional probing ultrasonic energy pulses and each said transducer of said second plurality to emit flaw probing ultrasonic energy pulses, all directed at the tubular element through a fluid couplant;

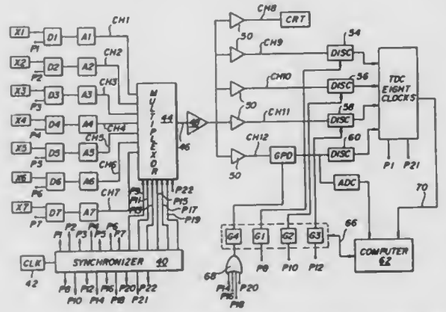
D. a separate RF channel for respectively handling echo signals received by each said transducer of said first and second pluralities;

E. a multiplexor having a separate input connected to each said RF channel and a single output;

F. an amplifier having an input connected to said multiplexor output and an output;

G. a signal splitter having an input connected to said amplifier output and a plurality of outputs;





H. a separate signal detector channel connected to each said splitter output, each said detector channel including a discriminator for generating a time mark signal in response to an echo signal, at least one of said detector channels further including a peak detector for generating a signal indicative of the peak to peak amplitude of an echo signal;

I. separate timing means connected to each said detector channel; and

J. synchronizer means for generating a succession of timing pulses to synchronize

1) the electrical excitation of said transducers of said first and second pluralities by said drivers,

2) the operation of said multiplexor in successively connecting each of its said inputs to its said single output, and

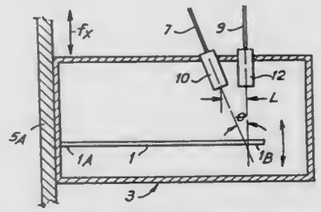
3) said timing means such as to separately indicate the elapsed times between the emissions of said probing ultrasonic energy pulses and the receipts of corresponding ultrasonic energy pulse echoes by each said transducer.

5,063,781

FIBER-OPTIC VIBRATION SENSOR

Giuliano Conforti, Florence; Andrea A. Mencaglia, Siena; Mario Brenci, Pistoia, and Anna G. Mignani, Florence, all of Italy, assignors to Consiglio Nazionale Delle Ricerche, Rome, Italy

Filed Aug. 3, 1989, Ser. No. 389,189
Claims priority, application Italy, Aug. 12, 1988, 9468 A/88; Mar. 1, 1989, 9355 A/89
Int. Cl.[5] G01H *9/00*
U.S. Cl. 73—651 **12 Claims**



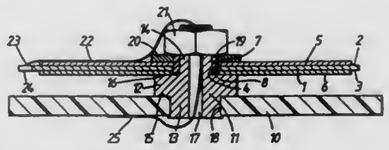
1. A vibration sensor, comprising; a vibrating element in the form of a sheet restrained at one end and having an opposite free end, said free end including diffusion means for receiving incident light radiation, and for sending back reflected rays, of said incident light radiation in a multiplicity of directions; optical fiber means for recording the displacement of the movable part of the vibrating element, said optical fiber means including an optical triangulation system with a first optical fiber and a second optical fiber each of said optical fibers ending in microlenses, said optical fibers having optical axes mutually inclined and converging at said diffusion means of said vibrating element.

5,063,782

ACCELEROMETERS AND ASSOCIATED CONTROL CIRCUITS

Michael A. Kellett, 177 York Rd., Stevenage, Hertfordshire, United Kingdom SG1 4HA

PCT No. PCT/GB88/00474, § 371 Date Dec. 15, 1989, § 102(e) Date Dec. 15, 1989, PCT Pub. No. WO88/10431, PCT Pub. Date Dec. 29, 1988
PCT Filed Jun. 20, 1988, Ser. No. 438,411
Claims priority, application United Kingdom, Jun. 18, 1987, 8714274; Jun. 18, 1987, 8714275
Int. Cl.[5] G01P *11/08*
U.S. Cl. 73—654 **9 Claims**



1. An accelerometer unit comprising:

an electrically conductive plate having a center portion including an opening therethrough and an edge portion,

first and second piezoelectric elements of substantially identical configuration mounted on opposite surfaces of the electrically conductive plate including openings concentric with the opening in the electrically conductive plate,

a post having a longitudinal bore, the post being received through the openings in the piezoelectric elements and electrically conductive plate for supporting the center portion of the plate, the edge portion being free to flex in response to applied acceleration forces, an electrically insulative sleeve being disposed in said openings in the

VOL 1132 ISS 2 NO 12 1991 UMI

piezoelectric elements and electrically conductive plate and surrounding said post, and

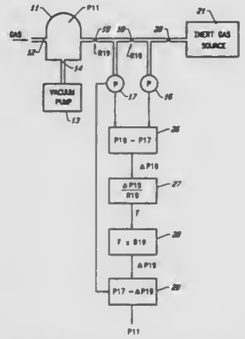
means connecting the first and second piezoelectric elements electrically in parallel for offsetting any electrical signals arising from pyroelectric effects of the piezoelectric elements.

5,063,783

PRESSURE MONITORING AND METHOD

John Zajac, 1137 Angmar Ct., San Jose, Calif. 95121

Filed Aug. 14, 1990, Ser. No. 567,191
Int. Cl.[5] G01L *7/00*
U.S. Cl. 73—714 6 Claims



2. In a system for monitoring pressure in a reactor chamber: first and second pressure sensors, a first flow restrictor connected between the pressure sensors, a second flow restrictor connected between the second pressure sensor and the chamber, means for introducing a small amount of gas into the chamber through the restrictors, means responsive to the relative pressures sensed by the first and second pressure sensors and to the resistance provided by the first flow restrictor for determining the rate of flow through the restrictors, means responsive to the flow rate and the resistance provided by the second flow restrictor for determining the drop in pressure across the second flow restrictor, and means for combining the pressure drop across the second flow restrictor with the pressure sensed by the second sensor to determine the pressure in the chamber.

5,063,784

REFRIGERANT TRANSDUCER ASSEMBLY AND METHOD

Ralph G. Ridenour, 626 Lexington-Ontario Rd., Rte. 12, Mansfield, Ohio 44906

Continuation-in-part of Ser. No. 202,554, Jun. 6, 1988, abandoned. This application Nov. 13, 1989, Ser. No. 435,264
Int. Cl.[5] G01L *9/00, 19/14*
U.S. Cl. 73—756 17 Claims

1. A transducer assembly with a housing having first and second interconnected openings, said assembly comprising, in combination:

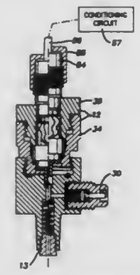
means for installing said housing first opening in a pressurized system for connection to the fluid pressure to be measured;

a cartridge coupled with said housing in said second opening, the cartridge including a cartridge body operatively connectable and disconnectable with the housing, and a cartridge cap operatively connectable and disconnectable and in fluid communication with the cartridge body;

a transducer chamber in one of said housing and said cartridge;

a pressure transducer in said transducer chamber for converting a pressure to an electrical signal;

valve means including a first valve with first and second positions operable to open or close communication between said first opening and said transducer chamber; and



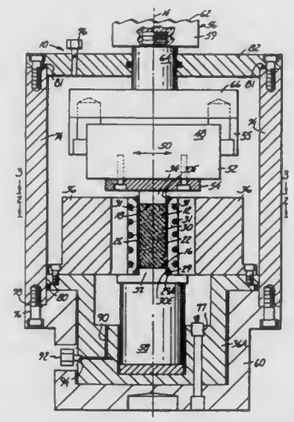
means to open said first valve with said cartridge coupled on said housing and means to close said first valve by starting to disconnect either the cartridge body from the housing or the cartridge cap from the cartridge body.

5,063,785

PLANE-STRAIN APPARATUS

Joseph F. Labuz, St. Paul, Minn.; Ioannis G. Vardoulakis, Athens, Greece, and Andrew Drescher, New Brighton, Minn., assignors to Regents of the University of Minnesota, Minneapolis, Minn.

Filed Aug. 7, 1990, Ser. No. 564,056
Int. Cl.[5] G01N *3/08*
U.S. Cl. 73—821 18 Claims



1. A plane-strain apparatus for testing soft rock and concrete specimens, which have an unconfirmed compressive strength of less than 35 MPa, for failure under load in direction generally along a central axis of the specimen, for a specimen with first and second end surfaces, and four side surfaces, forming a generally rectangular prism cross section configuration, the apparatus comprising:

a bottom support plate supporting the first end surface of the specimen;

a top plate supporting the second end surface of the specimen;

a rigid frame for restraining movement of the specimen to be tested, the specimen movement being restrained in first lateral directions perpendicular to the axis of loading, the specimen being loaded being substantially unrestrained from shifting in second lateral directions perpendicular to the first lateral directions;

means for loading such specimen on the second end surface under a load directed toward the bottom support plate along the central axis of the specimen until such specimen fails in shear and at least two portions of such specimen shift in one of the second lateral directions; and

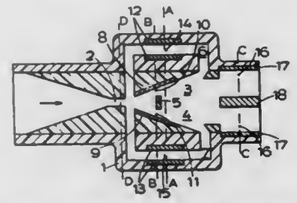
wedges between the frame and the specimen for securing the specimen within the frame in the first lateral directions.

5,063,786

FLUID FLOW METERS

Michael L. Sanderson, Bedfors, and John R. Heritage, Camberley, both of England, assignors to Severn Trent Water Limited, Birmingham, England

Continuation of Ser. No. 472,386, Jan. 31, 1990, abandoned. This application Oct. 12, 1990, Ser. No. 596,419
Claims priority, application United Kingdom, Feb. 1, 1989, 8902173
Int. Cl.[5] G01F *1/20*
U.S. Cl. 73—861.19 10 Claims



1. A meter for measuring the flow of electrically conducting liquids comprising a feedback fluidic oscillator of the kind having structure defining an entry channel and a splitter dividing flow from that entry channel into first and second main channels, and first and second feedback channels leading respectively from said first and second main channels to respective opposite sides of a point in said entry channel, whereby the flow of liquid from said entry channel is switched repeatedly in a regular manner between said main channels alternately, first and second electrodes spaced apart in at least one of said main and feedback channels, means creating a magnetic field across said at least one channel in a direction transverse to said one channel and to a line joining said electrodes, and means responsive to the resultant voltage generated between said first and second electrodes.

5,063,787

VENTURI ARRANGEMENT

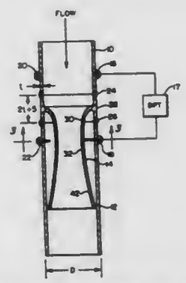
Kamel A. Khuzai, Morgan Hill, and Rameschandra D. Patel, San Jose, both of Calif., assignors to General Electric Company, San Jose, Calif.

Continuation-in-part of Ser. No. 440,152, Nov. 22, 1989, abandoned. This application Sep. 18, 1990, Ser. No. 584,220
Int. Cl.[5] G01F *1/44*
U.S. Cl. 73—861.64 20 Claims

1. A venturi arrangement for use in measuring the flow rate of a fluid passed through a pipe bearing a venturi, which comprises:

a pipe having a diameter, D, supplied in two sections, an upstream section and a downstream section, and fitted with a pair of upstream pressure taps and a pair of downstream pressure taps; and

a venturi comprising an annulus of diameter, D, having edges which are welded to said pipe sections to form an integral fluid-conveying unit, a curvilinear conveying inlet section integrally formed with said annulus, a throat section integrally formed with said curvilinear conveying inlet section and containing a pair of pressure take-off apertures, each of which is connected by a line to said



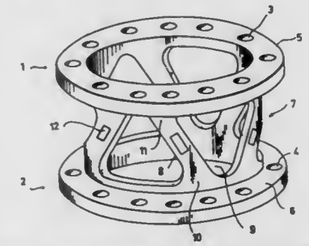
downstream pipe pressure taps, and a diverging diffuser section integrally formed with said throat section.

5,063,788

PROCESS FOR PRODUCING SENSORS FOR MEASURING SPATIAL FORCES AND SENSORS OBTAINED

Ameur Ch'Hayder, Gabes, Tunisia; Didier Durand, and Constantino Diaz, both of Toulouse, France, assignors to Logabex S.A.R.L., Toulouse, France

PCT No. PCT/FR88/00559, § 371 Date May 11, 1990, § 102(e) Date May 11, 1990, PCT Pub. No. WO89/04469, PCT Pub. Date May 18, 1989
PCT Filed Nov. 14, 1988, Ser. No. 460,349
Claims priority, application France, Nov. 13, 1987, 87 16134
Int. Cl.[5] G01L *1/22, 5/16*
U.S. Cl. 73—862.04 6 Claims



3. A sensor for measuring three components of force and three components of moment comprising a unitary mechanical piece having a generally rounded transverse cross-section and comprising two end faces (1, 2) able to be secured respectively to a body generating forces and moments and to a reference body, and a central portion (7) composed of six beams (8) having longitudinally a helical shape, provided with means (12) for measuring the deformations and arranged according to a closed triangular architecture between the two end faces (1, 2).

5,063,789

HIGH VELOCITY GAS PARTICULATE SAMPLING SYSTEM

Wallace C. Tuthill, 422 Tallowood, Seabrook, Tex. 77586

Filed Dec. 11, 1990, Ser. No. 625,344
Int. Cl.[5] G01N *1/00*
U.S. Cl. 73—863.23 11 Claims

1. A high velocity gas sampling apparatus including:

gas sample chamber receiving a dynamic gas flow while in an evacuated condition;

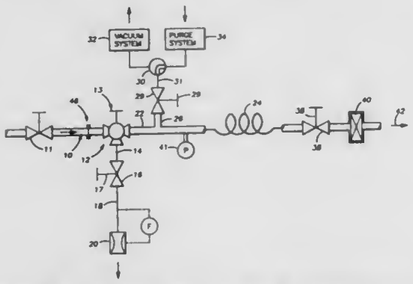
first means for selectively coupling a dynamic gas flow in an

VOL 1132 ISS 2 NO 12 1991 UMI

in-line flow relationship to one end of said gas sample chamber by use of a valve;

second means at the other end of said gas sample chamber for selective discharge of said gas sample chamber by use of a valve;

means for filtering coupled to said second means for receiving a discharge output from said gas sample chamber when said second means are discharged;



means for evacuating said gas sample chamber prior to opening said first means; and

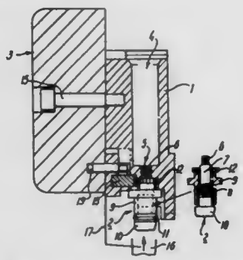
means for removing residual contaminate material from said gas sample chamber after said second means are discharging and passing said contaminate material to said filtering means.

5,063,790

PIPETTE TIP PICKUP APPARATUS

Richard H. M. Freeman, Scotland, Great Britain, and Abram D. Yendall, Troon, Scotland, assignors to Flow Laboratories Limited, Irvine, Scotland

Filed Apr. 11, 1989, Ser. No. 336,036
Claims priority, application Spain, Apr. 12, 1988, 880583
Int. Cl.[5] B01L *3/02*
U.S. Cl. 73—864.14 14 Claims



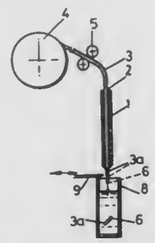
1. Pipette tip pickup apparatus, said apparatus comprising a syringe barrel having a nozzle to which a pipette tip may be attached or from which the pipette tip may be detached, the nozzle having an external annular groove, means to controllably vary the axial width of said annular groove, and an elastomeric O-ring seal disposed in said annular groove, the apparatus being such that upon insertion of the nozzle into a pipette tip, the axial width of the annular groove may be controllably decreased to cause a circumferential expansion of the O-ring seal whereby the nozzle becomes mechanically and sealingly attached to the pipette tip.

5,063,791

SAMPLING OF MATERIAL

William J. Martin, Greater Manchester, England, assignor to National Research Development Corporation, London, England

PCT No. PCT/GB88/00638, § 371 Date Mar. 13, 1989, § 102(e) Date Mar. 13, 1989, PCT Pub. No. WO89/01026, PCT Pub. Date Feb. 9, 1989
PCT Filed Aug. 1, 1988, Ser. No. 326,549
Claims priority, application United Kingdom, Jul. 31, 1987, 8718232
Int. Cl.[5] C12M *1/32;* G01N *1/12*
U.S. Cl. 73—864.31 22 Claims



1. Sampling apparatus comprising a guide element for location of the tip of an elongate sampling element and for guiding axial movement of said sampling element, means for effecting relative movement of the guide element and tip towards and away from a material to be sampled, holding means for holding the sampling element axially relative to the guide element, advancement means for advancing the sampling element axially relative to the guide element, means for moving the sampling element and tip with any sampled material thereon to a sample discharge station having thereat sample-receiving medium and discharge means at the station for discharging the tip away from the sampling element complete with any sampled material on the tip into the medium.

5,063,792

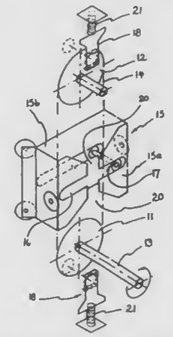
ROTARY/RECIPROCATORY MOTION CONVERTER

William J. Dartnall, and David Langridge, both of Perth, Australia, assignors to Dartnall Engineering & Innovation Pty Ltd., Booragoon, Australia

PCT No. PCT/AU88/00190, § 371 Date May 15, 1990, § 102(e) Date May 15, 1990, PCT Pub. No. WO88/10381, PCT Pub. Date Dec. 29, 1988
PCT Filed Jun. 14, 1988, Ser. No. 477,966
Claims priority, application Australia, Jun. 15, 1987, PI2498
Int. Cl.[5] F16H *19/06*
U.S. Cl. 74—37 16 Claims

1. A continuous rotary to reciprocatory or reciprocatory to rotary motion converter comprising a pair of wheels in spaced co-planar relationship to each other and having an endless flexible drive member received over them, a carrier located about the outer perimeter of the drive member, and a primary slot extending transversly across said carrier and a secondary slot intersecting said primary slot to clear a shaft of at least one of said wheels when the carrier is in proximity to said one of said wheels, and a slider connected to said drive member, said slider extending across the outer width of said drive member and reciprocating within said primary slot from one side thereof to the other side thereof for movement with the drive member and transverse movement relative to an axis extending between the wheels whereby with movement of the drive

member over the wheels, said slider traversing said secondary slot as said drive member passes across said one of said wheels,



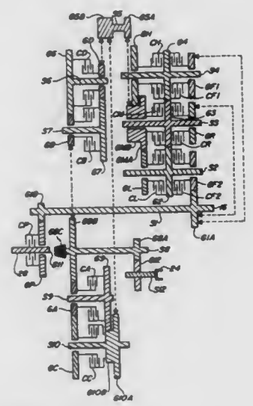
and support means for supporting the slider within the carrier as said slider traverses said secondary slot.

5,063,793

SPEED FORWARD, 12 SPEED REVERSE POWERSHIFT TRANSMISSION

John P. McAskill, Coffeyville, Kans., assignor to Deere & Company, Moline, Ill.

Filed Sep. 6, 1990, Ser. No. 578,705
Int. Cl.[5] F16H *3/08*
U.S. Cl. 74—360 8 Claims



1. A transmission comprising:

a. a housing;

b. a first input shaft rotatably mounted in said housing and having at least one end adapted to receive input motive power;

c. a first gear fixed for rotation with said first shaft;

d. a second shaft rotatably mounted in said housing adjacent to said first shaft;

e. second and third gears rotatably mounted about said second shaft and a fourth gear fixed for rotation with said second shaft, said second gear meshing continuously with said first gear;

f. first and second clutches mounted about said second shaft and engageable with said second and third gears, respectively, to selectively fix said gears for rotation with said second shaft;

g. a third shaft rotatably mounted in said housing adjacent to said first and second shafts;

h. fifth, sixth and seventh gears rotatably mounted about said third shaft and an eighth gear fixed for rotation with said third shaft, said fifth gear meshing continuously with said first gear, said sixth gear meshing continuously with said third gear, and said eighth gear meshing continuously with said fourth gear;

i. third and fourth clutches mounted about said third shaft, said third clutch being engageable with said fifth gear and said fourth clutch being engageable with said sixth and seventh gears to selectively fix said gears for rotation with said third shaft;

j. a fourth shaft rotatably mounted in said housing adjacent to said first and third shafts;

k. ninth and tenth gears rotatably mounted about said fourth shaft and an eleventh gear fixed for rotation with said fourth shaft, said ninth, tenth and eleventh gears meshing continuously with said first, seventh and eighth gears, respectively;

l. fifth and sixth clutches mounted about said fourth shaft and engageable with said ninth and tenth gears, respectively, to selectively fix said gears for rotation with said fourth shaft;

m. a fifth shaft rotatably mounted in said housing adjacent to said third shaft;

n. twelfth and thirteenth gears fixed for rotation with said fifth shaft, said twelfth gear meshing continuously with said seventh gear;

o. a sixth shaft rotatably mounted in said housing adjacent to said fifth shaft;

p. a fourteenth gear rotatably mounted about said sixth shaft and a fifteenth gear fixed for rotation with said sixth shaft, said fourteenth gear meshing continuously with said thirteenth gear;

q. a seventh clutch mounted about said sixth shaft and engageable with said fourteenth gear to selectively fix said gear for rotation with said sixth shaft;

r. a seventh shaft rotatably mounted in said housing adjacent to said sixth shaft;

s. a sixteenth gear fixed for rotation with said seventh shaft and a seventeenth gear rotatably mounted about said seventh shaft, said sixteenth and seventeenth gears meshing continuously with said fourteenth and fifteenth gears, respectively;

t. an eighth clutch mounted about said seventh shaft and engageable with said seventeenth gear to selectively fix said gear for rotation with said seventh shaft;

u. an eighth shaft rotatably mounted in said housing seventh shaft;

v. eighteenth and nineteenth gears fixed for rotation with said eighth shaft, said eighteenth gear meshing continuously with said seventeenth gear and said nineteenth gear providing output motive power;

w. a ninth shaft rotatably mounted in said housing adjacent to said eight shaft;

x. a twentieth gear fixed for rotation with said ninth shaft and a twenty-first gear rotatably mounted about said ninth shaft, said twenty-first gear meshing continuously with said eighteenth gear;

y. a ninth clutch mounted about said ninth shaft and engageable with said twenty-first gear to selectively fix said gear for rotation with said ninth shaft;

z. a tenth shaft rotatably mounted in said housing adjacent to said ninth shaft;

aa. twenty-second and twenty-third gears fixed for rotation with said tenth shaft and a twenty-fourth gear rotatably mounted about said ninth shaft, said twenty-second, twenty-third and twenty-fourth gears meshing continuously with said thirteenth, twentieth and twenty-first gears, respectively; and

ab. a tenth clutch mounted about said tenth shaft and engageable with said twenty-fourth gear to selectively fix said gear for rotation with said tenth shaft.

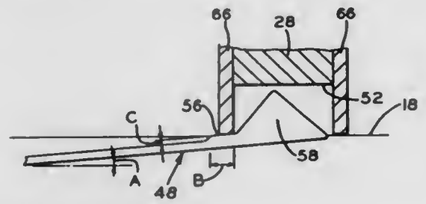
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,794

SHIFT KEY HAVING SHOULDER

Roland L. von Kaler, Tecumseh, assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Apr. 19, 1991, Ser. No. 694,216
Int. Cl.[5] F16H 3/08
U.S. Cl. 74—371 5 Claims



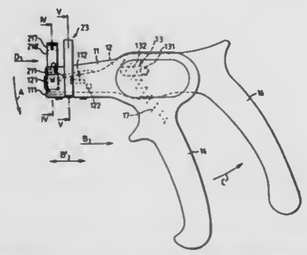
1. A transmission comprising:
a housing;
a plurality of shafts rotatably disposed within said housing, one of said shafts being a shift shaft with a plurality of gears, said shift shaft including an axial channel, each of said gears having a keyway;
a key disposed within said axial channel of said shift shaft, said key including a head portion, an elongated shank portion, and means for radially outwardly biasing said head portion into engagement with one of said keyways;
shifting means for moving said key within said shift shaft and selectively engaging said key head with said keyways; and
means for limiting movement of said key into said keyways, said means for limiting movement comprising a shoulder portion of said key located intermediate said key shank portion and said key head portion, said shoulder portion being thicker in a radial direction than said key shank portion.

5,063,795

STRIPPING TOOL

Josef Krampe, An der Vogelrute 32, 4715 Ascheberg-Herbern, Fed. Rep. of Germany

Filed Oct. 12, 1990, Ser. No. 596,875
Claims priority, application Fed. Rep. of Germany, Oct. 12, 1989, 3934117; Mar. 28, 1990, 4009870
Int. Cl.[5] H02G 1/12
U.S. Cl. 81—9.43 19 Claims



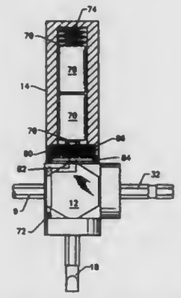
1. A stripping tool for electrical conductors, comprising two legs turnable relative to one another against a spring force; clamping jaws arranged on free ends of said legs; cutters movable to a closed position by said clamping jaws toward a conductor end to strip an insulation, a second one of said legs being movable in an elongated guide of the first one of said legs to turn relative to said first leg and to be moved in an alignment with the latter, one of said clamping jaws being arranged on a free end of said second leg at a side facing away from said first leg, the other of said clamping jaws cooperating with said clamping jaw, a first bracket extending from a web of said first leg and carrying said other clamping jaw and being displaceable relative to said first leg, and a second bracket arranged in a fixed position at a distance from said clamping jaws along said first leg, said second bracket having a web supporting an upper one of said cutters which cooperates with a lower one of said cutters supported by said second leg.

5,063,796

TOOL DRIVER WITH A HANDLE

Jan V. Gennep, 715 Laurel Ave., Menlo Park, Calif. 94025

Continuation-in-part of Ser. No. 274,925, Dec. 22, 1988, Pat. No. 4,920,832. This application Mar. 30, 1990, Ser. No. 502,569
The portion of the term of this patent subsequent to May 1, 2007, has been disclaimed.
Int. Cl.[5] B25B 17/00
U.S. Cl. 81—57.29 35 Claims



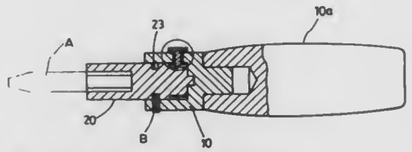
1. A device for driving tools, comprising:
a direct drive shaft enabling attachment of a driving implement to the device;
means for attaching a tool transverse to said drive shaft;
means for converting driving force applied to said direct drive shaft to movement of said attachment means on a driving axis transverse to said direct drive shaft;
a housing encasing the force converting means;
said means for converting driving force including a first bevel gear rotatably mounted in said housing and attached to said direct drive shaft and a second bevel gear meshing in said housing with said first bevel gear and rotatably mounted therein by a bearing, said second bevel gear being attached to said means for attaching a tool transverse to said drive shaft, and said bearing supporting said second bevel gear spaced from said housing; and
a handle attached to said housing and facilitating operation of a tool at said attachment means.

5,063,797

HAND-HELD TOOL FOR ROTATABLY DRIVING A BIT

Daniel C. L. Huang, No. 7, Alley 118, Lane 92, Jen-Hua Road, Ta-Li Hsiang, Taichung Hsien, Taiwan

Filed Jan. 17, 1991, Ser. No. 642,510
Int. Cl.[5] B25B 13/46
U.S. Cl. 81—60 3 Claims



1. A ratchet screwdriver comprising:

a first tubular member having an open end and a closed end, a bore extending from said open end towards said closed end, a central recessed groove being formed on the inner side of said closed end, said closed end being connected to a handle, a radial hole being formed in the wall of said first tubular member and being in communication with said bore of said first tubular member;
a second tubular member having an open end and a closed end, a second bore extending from said open end to said closed end of the same, said second bore receiving a bit for driving a workpiece, a ratchet wheel being co-axially fixed to a face of said closed end, said ratchet wheel having a central protrusion extended therefrom, notches being formed between adjacent teeth of said ratchet wheel, each of said notches having a substantially U-shaped with two sides, an annular groove being formed on the outer surface of the wall of said second tubular member, said second tubular member being rotatably inserted in said first tubular member with said central protrusion being journalled in said recessed groove of said closed end of said first tubular member so that said second tubular member can be co-axially rotated with respect to said first tubular member, one of said notches of said ratchet wheel being aligned with said radial hole of said first tubular member when said second tubular member is rotated through an angle, a pin passing through the wall of said first tubular member and extending into said annular groove of said second tubular member so as to prevent said second tubular member from disengaging axially from said first tubular member;
a locking rod having an upper end and a lower end, said upper end having a radial protrusion extending from the same, said lower end having an oblique side, said locking rod being rotatably and slidably retained in said radial hole of said first tubular member; and
a means provided on said second tubular member adjacent to said radial hole for biasing said radial protrusion of said locking rod to move towards said ratchet wheel, allowing said lower end of said locking rod to be inserted into one of said notches of said ratchet wheel, such that when said locking rod is rotated to a first position wherein said oblique side of the same faces one side of said notch, said teeth of said ratchet wheel cam said oblique side of said locking rod, pushing said rod outward so it retreats into said through-hole when said first tubular member is rotated in a first direction, so that said second tubular member will not rotate with said first tubular member, while said first tubular member is rotated in a second direction opposite to said first direction, a tooth adjacent to said notch will be stopped by the face opposite said oblique side of said lower end of said locking rod so that said second tubular member can be rotated with said first tubular member, and when said locking rod is rotated 90 degrees from said first position so as not to have said oblique side of said lower end facing one side of said notch, said teeth adjacent to said locking rod will be stopped by said lower end of said locking rod, so that said second tubular member can be rotated with said first tubular member.

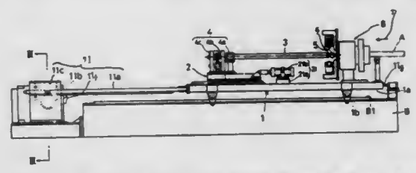
5,063,798

RUNNING CIRCULAR PIPE CUTTING DEVICE

Takeo Kitaoka, and Nagahiro Akiyoshi, both of Amagasaki, Japan, assignors to Nisshin Steel Co., Ltd., Tokyo, Japan

Filed Feb. 22, 1990, Ser. No. 483,493
Claims priority, application Japan, Feb. 23, 1989, 1-43612
Int. Cl.[5] B23B 13/00
U.S. Cl. 82—124 2 Claims

1. A running circular pipe cutting device comprising:
a first carriage movably mounted on a base so that said first carriage reciprocates underneath a circular pipe in parallel with the axial direction of said circular pipe which runs in the axial direction horizontally;
an outer cutter drive mounted on said first carriage, said outer cutter driver having a hollow shaft through which said circular pipe passes, a rotating driver for the hollow shaft, a circular ring with its edge extending outwardly in the radial direction being fixed to the circular pipe outlet of the horizontal shaft, a freely rotatable circular outer cutter mounted to the outer end surface of the circular ring, and a motive means for the outer cutter advancing toward the circular pipe and retreating;
a second carriage movably mounted to reciprocate on said first carriage in parallel with the axial direction of said circular pipe;
a plurality of guide rods extending in a direction opposite to the direction in which said circular pipe advances and in parallel with the axial direction of said circular pipe so that said circular pipe fits on the peripheral surface of said



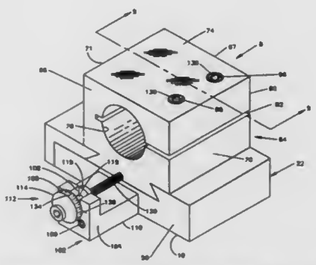
guide rods, said guide rods being positioned in parallel with each other;
a support arm detachably mounting the root ends of the guide rod at the end;
a support shaft secured to the center of the support arm so that the support shaft is positioned at the center of a circle along which the guide rods are arranged;
a rotation part of said support shaft mounted on said second carriage so that the support shaft is rotated intermittently and stopped when each guide rod coincides with the center of the hollow shaft;
a circular inner cutter detachably secured to the front end of said guide rod; and
a guide member detachably secured adjacent to said circular inner cutter on the front end of said guide rod.

5,063,799

TOOLHOLDER FOR BAR MACHINES AND THE LIKE

Darrell K. Brewer, 115 Little Mountain Rd., Huntsville, Ala. 35803

Filed Oct. 1, 1990, Ser. No. 590,948
Int. Cl.[5] B23B 29/04
U.S. Cl. 82—158 14 Claims



1. An adjustable toolholder for mounting on a toolslide of a machining apparatus, said adjustable toolholder comprising:
means for grasping the tool;
means for supporting said tool grasping means including a mount having an upper surface and a lower surface, said upper surface defining a way for slidably supporting and retaining said tool grasping means on said mount;
means for securing said mount to said toolslide;

VOL 1132 ISS 2 NOV 12 1991 UMI

means attached to said mount in engagement with said tool grasping means for controlled longitudinal adjusting movement of said tool grasping means in said way relative to said mount;

said means for grasping said tool comprising a body member having a dove-tailed tang for cooperation with said way of said mount during said controlled longitudinal adjusting movement of said tool grasping means;

said way on said mount comprising a tapered surface forming an integral part of said upper surface of said mount and a separate L-shaped member attached to said mount and having a tapered surface thereon; and

a plurality of dowel pins mounted in one edge of said mount and a plurality of cooperating openings in one leg of said L-shaped member for preventing the upward movement of said L-shaped member relative to said mount.

5,063,800

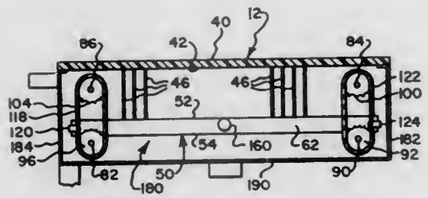
PIN TABLE

Rolf Jung, Waiolingen, Fed. Rep. of Germany; Jack M. Schwartzott, Norcross, Ga.; Robert J. Pieroni, Youngstown, N.Y., and Arnold Tobler, Upton, Mass., assignors to Eastman Machine Company, Buffalo, N.Y.

Filed Sep. 18, 1989, Ser. No. 408,706

Int. Cl.[5] B26D *7/01*; D06H *7/00*

U.S. Cl. 83—14 25 Claims



1. A method of supporting and shaping sheet material such as cloth comprising the steps of:

a) providing a supporting surface having a plurality of pin receiving apertures therein arranged in a grid-like pattern, fluid impervious sealing means for preventing fluid flow through said apertures and a plurality of openings extending through said surface and said sealing means;

b) placing a pattern on said surface;

c) inserting a plurality of pins each having a pointed end into said apertures and through said sealing means, said pins being in number and having an arrangement determined by said pattern;

d) maintaining said pins in said arrangement;

e) moving said pins through said apertures while maintaining said arrangement to locate the pointed ends of said pins substantially at or below said surface;

f) removing said pattern;

g) placing sheet material on said surface while moving said pins through said sheet material to maintain positioning of said sheet material on said surface;

h) placing said pattern on said sheet material in a position determined by the location of said pins;

i) shaping said sheet material according to said pattern; and

j) applying positive pressure through said openings to assist movement of said material along said surface.

5,063,801

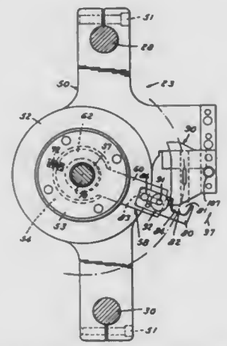
CUT-OFF MACHINE AND METHOD FOR TUBING

Bernard J. Wallis, 2215 Dacosta, Dearborn, Mich. 48128

Continuation-in-part of Ser. No. 300,754, Jan. 23, 1989, Pat. No. 4,939,967. This application Jan. 8, 1990, Ser. No. 462,049

Int. Cl.[5] B23D *21/00*; B26D *1/60*

U.S. Cl. 83—37 26 Claims



1. A method of severing a continuous length of tube stock into individual stock lengths comprising the steps of:

(a) propelling the stock in a continuous uninterrupted motion in the direction of its length along a predefined path,

(b) continually reciprocating a carriage in a direction parallel to said path in synchronism with motion of said stock along said path such that velocity of said carriage is equal to velocity of stock in said path during a portion of the motion of said carriage,

(c) continually rotating a knife blade on said carriage about an axis parallel to said path and synchronized with motion of said stock along said path such that said knife blade intersects said path during said portion of each motion cycle, and

(d) as said knife blade intersects said path, moving said knife blade radially inwardly of said axis, such that as a compound result of rotation and radial movement with respect to said axis, said knife blade moves in a straight line tangential to said axis and transverse to said path as said knife blade intersects said path.

5,063,802

VARIABLE CUTTING-ANGLE CIRCULAR SAW DEVICE

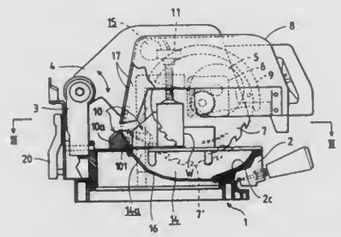
Takeshi Shiotani, and Kouichi Miyamoto, both of Tokyo, Japan, assignors to Ryobi Ltd., Hiroshima, Japan

Filed Oct. 29, 1990, Ser. No. 604,852

Claims priority, application Japan, Nov. 16, 1989, 1-133199[U]

Int. Cl.[5] B27B *5/00*

U.S. Cl. 83—98 2 Claims



1. In a variable cutting-angle circular saw device of the type having:

a rotary table provided rotatably on a base;

a circular saw rotated by driving means and supported on said rotary table in such a manner as to be capable of being lifted and lowered;

a first cover for covering an upper portion of said circular saw;

a fence for bracing a rear surface of a workpiece to be cut, said fence being positioned adjacent a rear end of said base;

a linear slit in said rotary table allowing said circular saw to pass therethrough as said circular saw is lowered;

a longitudinally elongated sawdust accommodating chamber formed on a lower side of said slit;

a sawdust blow-up port communicating with said sawdust accommodating chamber and positioned at a rear end of said slit in an upper surface of said rotary table;

said fence having a curved portion which is curved to avoid interference with said circular saw and forming a rear side of said sawdust blow-up port, a wall surface of said curved portion being in the form of a conical wall surface;

wherein, when said circular saw is lowered and begins to enter said slit, the sawdust in said sawdust accommodating chamber is blown up by an air flow produced by the rotation of said circular saw, in such a manner as to pass by an inner side of a rear end of said outer cover via said sawdust blow-up port; the improvement comprising:

said sawdust accommodating chamber being closed at the bottom thereof by a second cover and having a substantially arcuate bag-like shape as viewed from a side of said device;

a sawdust-guiding frame piece suspended from a lower end of a rear portion of said first cover and extending therefrom and having a length to close a gap between the lower end of the rear portion of said first cover and an upper surface of said curved portion is a central portion of said fence substantially smoothly when said circular saw is lowered to a maximum level, thereby guiding the sawdust blowing up via said blow-up port to the inner side of the rear end of said first cover.

5,063,803

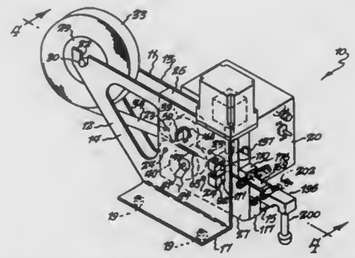
TAPE CUTTING AND DISPENSING MACHINE

Alfred J. Panneri, Cheektowaga, and Louis Terragnoli, Williamsville, both of N.Y., assignors to A. J. Panneri Enterprises, Inc., Buffalo, N.Y.

Filed Jul. 31, 1990, Ser. No. 560,101

Int. Cl.[5] B65B *13/04*

U.S. Cl. 83—203 36 Claims



1. A tape cutting and dispensing machine comprising a frame, first and second frame sides on said frame, first and second spacer blocks having opposite sides, means connecting said first frame said to sides of said first and second spacer blocks, means connecting said second frame side to the opposite sides of said first and second spacer blocks, a tape channel between said first and second spacer blocks, tape roll mounting means for mounting a roll of tape relative to said spacer blocks, first and second recesses in said first and second spacer blocks, respectively, a drive roll, a nip roll, means mounting said drive roll for rotation in said first recess of said first spacer block, a nip roll shaft mounting said nip roll and having opposite ends mounted relative to said first and second frame sides for positioning said nip roll in said second recess of said second spacer block in opposition to said drive roll to define a tape path therebetween in substantial alignment with said tape channel, nip roll moving means for selectively moving said nip roll shaft and said nip roll away from said drive roll to enlarge said tape path for threading said tape therethrough and for moving said nip roll toward said drive roll to clamp said tape therebetween, knife means, means mounting said knife means relative to said frame on an opposite side of said drive roll and said nip roll from said tape roll mounting means, first motor means for selectively actuating said knife means to sever a portion of said tape from said roll, and second motor means for selectively driving said drive roll to advance a portion of said tape through said tape channel.

5,063,804

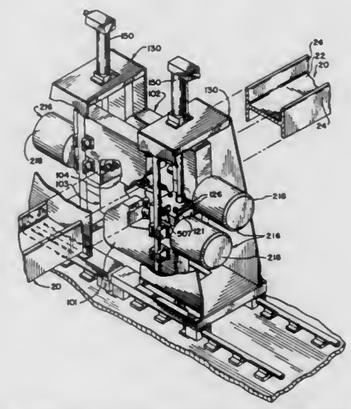
OFFSET PUNCH PRESS ASSEMBLY FOR STRUCTURAL BEAMS

James M. Magnuson, Kankakee, Ill., assignor to Peddinghaus Corporation, Bradley, Ill.

Filed Mar. 20, 1990, Ser. No. 496,429

Int. Cl.[5] B26F *1/02*; B26D *5/02*

U.S. Cl. 83—368 10 Claims



1. An assembly of punch presses for punching holes in first and second opposed flanges joined by a web in a structural beam, said assembly comprising:

four punch presses and main support means for supporting said presses adjacent a predetermined conveying path for said beam, said punch presses being arranged in paris with a first pair located laterally at a first side of said conveying path so as to punch the first flange from a first side of the beam and with a second pair located laterally at a second side of said conveying path so as to punch the second flange from a second side of the beam;

said first pair of punch presses including first and second punch presses arranged on, and supported by, said main support means in a configuration relatively offset from each other in

(1) a direction transverse to said conveying path so as to accommodate the punching of the first flange on first and second sides of the web, and

(2) a direction lengthwise along said conveying path;

said second pair of punch presses including first and second punch presses arranged on, and supported by, said main support means in a configuration relatively offset from each other in

(1) a direction transverse to said conveying path so as to

VOL 1132 ISS 2 NO 12 1991 UMI

accommodate the punching of the second flange on the first and second sides of the web, respectively, and

(2) a direction lengthwise along said conveying path; and said offset configuration of said second pair having an opposite hand relationship with said first pair so as to permit the punch presses of said first pair to be positioned in an overlapping relationship with the punch presses of said second pair.

5,063,805

COMPOUND MITER SAW

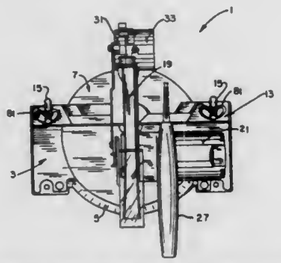
Richard B. Brundage, St. Louis County, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Nov. 8, 1989, Ser. No. 433,147

The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.

Int. Cl.[5] B27B *5/24, 27/06*

U.S. Cl. 83—468.3 21 Claims



1. A compound miter saw apparatus comprising, a supporting frame, a turntable selectively rotatably mounted on said supporting frame, a power driven saw blade pivotally mounted on said turntable along a predetermined path relative to said turntable, said turntable having saw blade slot means for receiving the power driven saw blade therein, said turntable being selectively rotated on said supporting frame to various desired miter positions of said power driven saw blade, a work supporting fence mounted on said supporting frame and including a pair of work engaging surfaces longitudinally aligned across the saw blade slot means, said work supporting fence including means for simultaneous coordinated longitudinal and transverse movement relative to said power driven saw blade so as to maintain said work supporting fence in a predetermined relative position to said power driven saw blade as said turntable and included power driven saw blade are selectively rotated on said supporting frame to various desired miter positions, and said means for simultaneous coordinated longitudinal and transverse movement including cooperative cam means associated with opposite ends of said work supporting fence to provide said aforesaid simultaneous coordinated longitudinal and transverse movement of said work supporting fence relative to the power driven saw blade.

5,063,806

ANTI-KICK FORWARD DEVICE FOR RADIAL ARM SAWS

Alfred B. Mayfield, Rural Route, Halstead, Kans. 67056

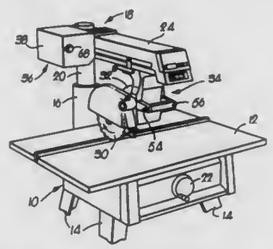
Filed Jun. 28, 1990, Ser. No. 545,279

Int. Cl.[5] B27B *5/20*

U.S. Cl. 83—471.3 16 Claims

1. In a radial arm saw including a mounting arm, a carriage mounted on the arm for linear movement in first and second directions along the arm, the carriage being adapted to support a saw blade for rotational movement relative of the carriage about an axis of rotation extending in a direction transverse to the linear direction of travel of the carriage, and power means for rotating the saw blade about the axis of rotation for carrying out a sawing operation, the inprovement comprising:

kick-preventing means for limiting the maximum speed at which the carriage may be moved in the first direction along the mounting arm to a predetermined speed, the kick-preventing means permitting unrestricted movement of the carriage in the first direction at any speed equal to



or less than the predetermined speed while preventing movement of the carriage in the first direction at a speed greater than the predetermined speed, the kick-preventing means permitting unrestricted movement of the carriage in the second direction at any speed.

5,063,807

SAW SUCH AS A JIG SAW OR SCROLL SAW

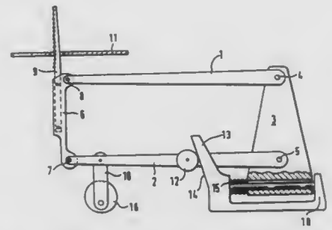
Helmut Abel, Monte Carlo Sun, 74, Bd. d'Italie, Monaco 98000

Filed Jul. 26, 1990, Ser. No. 557,760

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1989, 3925008

Int. Cl.[5] B26D *7/26;* B27B *11/08*

U.S. Cl. 83—647 10 Claims



1. A saw for cutting material at a cut edge, comprising:

a drive means;

a parallelogram of pivotally connected rods including two longitudinal side arms adapted for movement in a longitudinal direction, and a saw blade pivotally connected to one end of one of the longitudinal side arms and disposed in a predetermined axis;

a cam means connected to at least one of the longitudinal side arms and driven by the drive means to effect reciprocating movement of the saw blade in an arc via the longitudinal side arms, through a cycle consisting of a work stroke and a return stroke whereby the saw blade is displaced a lateral distance relative to the cut edge;

at least one fixed member having at least one guide surface disposed at a predetermined angle relative to the predetermined axis of the saw blade;

at least one guide element connected to at least one of the longitudinal side arms cooperatively engaging and moving relative to said guide surface during the reciprocating movement of the saw blade thereby limiting the lateral distance of said blade to a predetermined small displacement during its cycle.

5,063,808

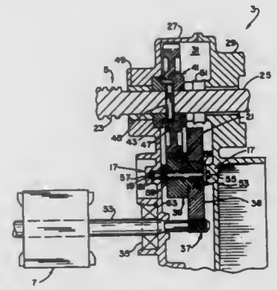
LINEAR ACTUATOR IMPROVEMENT TO PREVENT "BACK DRIVING"

Jason J. Hill, Manchester, Mo., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Apr. 23, 1990, Ser. No. 512,354

Int. Cl.[5] F16H *57/10*

U.S. Cl. 74—411.5 8 Claims



1. A linear actuator comprising:

a lead screw and a housing in which a portion of the lead screw is received;

a reversible motor for selectively drawing the lead screw in either direction depending upon the direction of motor rotation;

a gear mechanism interconnecting the motor and the lead screw for rotation of the lead screw in response to motor rotation, the gear mechanism comprising a drive gear, a driven gear, and at least one intermediate gear; and,

brake means acting to increase the rotational resistance of the intermediate gear to substantially eliminate the back drive potential thereof, the brake means including spring means acting on the intermediate gear to exert a constant force thereon which is sufficient to overcome back driving forces transmitted back through the gear mechanism, the spring means including a spring washer mounted on a shaft adjacent one wall of the housing.

5,063,809

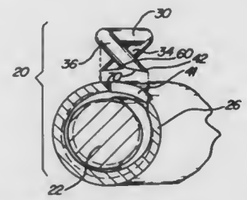
RETURN TUBE ARRANGEMENT FOR BALL SCREW ASSEMBLY

Theodore R. Schlenker, Troy, Mich., assignor to Dana Corporation, Toledo, Ohio

Filed Oct. 15, 1990, Ser. No. 597,143

Int. Cl.[5] F16H *55/17*

U.S. Cl. 74—459 16 Claims



1. A ball screw assembly comprising:

an elongated screw extending along an axis and having an external helical groove;

a nut defining a wall and having an internal bore with an internal helical groove corresponding to said external helical groove, said screw received in said internal bore;

a plurality of ball bearings received between said internal and external grooves, said ball bearings adapted to move through said grooves from a first end of said internal helical groove to a second end of said internal helical groove, said internal helical groove defining helix angles at both said first and second ends, said nut having apertures extending through the wall at said first and second ends;

a return tube having a minor leg received in each of said apertures, each said minor leg having a forwardmost point extending to said first and second ends of said internal groove, respectively, and having openings communicating with said ends to receive balls from one of said first and second ends, and to return said balls to the other of said first and second ends, each said leg extending at an angle parallel to said helix angle and tangent to said helical groove at a respective one of said ends; and

at least one of said apertures being shaped to at least exclude a portion of said nut that said forwardmost point of the associated minor leg will pass through if said return tube were perpendicularly moved away from said axis.

5,063,810

SHIFT MECHANISM

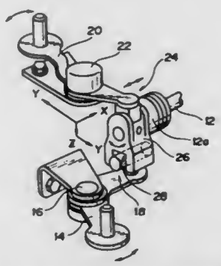
Isao Fujii, Shizuoka, Japan, assignor to Suzuki Jisoshi Kogyo Kabushiki Kaisha, Shizuoka, Japan

Filed Jun. 19, 1990, Ser. No. 540,321

Claims priority, application Japan, Jun. 29, 1989, 1-167674

Int. Cl.[5] B60K *23/00*

U.S. Cl. 74—473 R 5 Claims



1. In a shift arrangement for a speed change gear mounted in a horizontal posture on a horizontal engine which is mounted adjacent the rear of a four wheel drive vehicle, said shift arrangement comprising an elongate shift cable extending generally between the front and rear of the vehicle, an elongate select cable extending generally between the front and rear of the vehicle, a shift and select shaft associated with the change speed gear and supported for both linear reciprocation and angular oscillation, and a shift mechanism for coupling the shift and select cables to the shift and select shaft, the shift mechanism including a shift lever supported for pivoting movement about a generally vertical axis and being coupled to the rearward end of the shift cable, a select lever supported for pivoting movement about a generally vertical axis and connected to the rearward end of the select cable, a first mechanism coupling said shift lever to said shift and select shaft for transmitting rotational movement of said shift lever to angular displacement of said shaft, a second mechanism coupling said select lever to said shift and select shaft for transmitting rotational motion of the select lever to linear axial motion of the shaft, and said first mechanism including a forked arm secured to and projecting radially of said shaft and being slidably engaged with an intermediate member, said intermediate member being pivotally supported on and carried by said shift lever for pivoting movement on the shift lever about a generally vertical axis which is spaced radially from the vertical pivot axis of the shift lever.

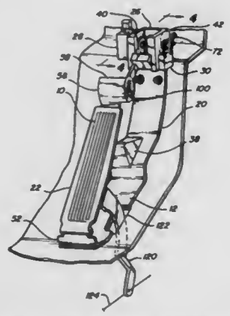
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,811

ACCELERATOR PEDAL ASSEMBLY

Ronald A. Smith, Milford, and Joseph M. Pace, Livonia, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Jul. 9, 1990, Ser. No. 550,257
Int. Cl.[5] G05G 1/14; F02D 41/10
U.S. Cl. 74—513 11 Claims



11. An accelerator pedal assembly adapted to be installed as a completely assembled and pre-adjusted assembly onto the floor of a vehicle cab comprising:

a base bracket member;

a housing portion carried by said base bracket member at one end thereof;

an elongate accelerator pedal rotatably secured to said base bracket member at the opposite end thereof;

electronic means secured to said housing portion for producing an electrically generated output signal in proportion to the location of said accelerator pedal in any position from an idle position to the wide open throttle position;

follower means secured to and extending between said accelerator pedal and said electronic means;

said housing portion being supported by said base bracket member in an elevated position located above the upper extremities of said accelerator pedal, whereby the electronic means will be free of particulates or other contaminants commonly carried by the accelerator pedal or otherwise transferred to the pedal assembly by the operator; and

said housing portion remaining rigidly fixed in a single position throughout the operational extent of said accelerator pedal, said electronic means including electrical wiring extended therefrom for transmitting the output of said electronic means, said electrical writing remaining in fixed position relative to said housing portion.

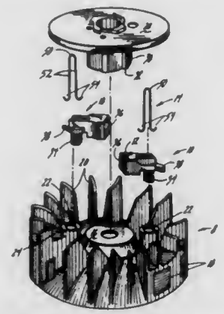
5,063,812

PAWL ASSEMBLY FOR MANUAL STARTING OF SMALL INTERNAL COMBUSTION ENGINES

Real L. Mercier, West Springfield, Mass., assignor to R. E. Phelon Company, Inc., East Longmeadow, Mass.

Filed Sep. 28, 1990, Ser. No. 589,411
Int. Cl.[5] G05G 1/00
U.S. Cl. 74—575 8 Claims

1. In a starting mechanism for small engines having a pulley combined with a ratchet wheel rotatable with the pulley, a flywheel rotatable by the engine and at least one pawl assembly drivingly interconnecting the ratchet with the flywheel, improvement to said pawl assembly comprising an integral pawl pivotably disposed on the flywheel, a torsion spring fitted onto said pawl, said torsion spring including means for securing the pawl onto the flywheel and means for biasing said pawl into driving engagement with said ratchet wheel.

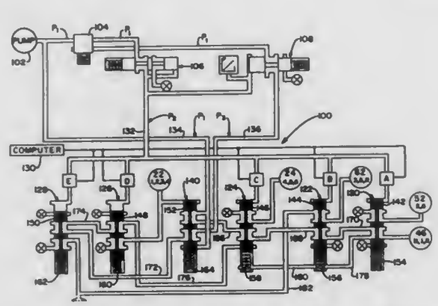


5,063,813

HYDRAULIC CONTROL SYSTEM FOR VEHICULAR AUTOMATIC TRANSMISSION

Carl A. Lentz, Mooresville, Ind., assignor to General Motors Corporation, Detroit, Mich.

Filed Jul. 20, 1989, Ser. No. 382,456
Int. Cl.[5] B60K 41/18
U.S. Cl. 74—866 3 Claims



1. A hydraulic control system for the automatic transmission of a vehicle wherein the transmission includes a plurality of torque transfer devices which can be engaged and disengaged in response to fluid pressure provided by a pump, the sequence of engagement and disengagement of the torque transfer devices being determined by a pre-programmed, on-board computer so as to provide a neutral, reverse, and a plurality of forward drive ratios, the control system interconnected between the pump and the torque transfer devices and comprising, in combination:

a plurality of conduits;

a plurality of fluid operated relay valves interconnected in a cascaded arrangement by said conduits, particular relay valves having outputs connected to effect the operational status of specific torque transfer devices;

a plurality of solenoid valves;

each solenoid valve having an electrical control input, a fluid pressure inlet and a fluid pressure outlet;

a pressure regulating valve having an inlet and an outlet;

said pressure regulating valve receiving line pressure from the pump at said regulating valve inlet;

said regulating valve outlet connected to the fluid pressure inlets of said solenoid valves;

said electrical input of each solenoid valve connected to receive a control input from the computer and said outlet of each solenoid valve connected to actuate one of said relay valves;

a single, pulse width, pressure modulating valve receiving line pressure from the pump and providing a modulated output pressure;

and, a control valve having first and second inlets;

said first inlet of said control valve receiving modulated pressure from said modulating valve;

said second inlet of said control valve receiving line pressure from the pump;

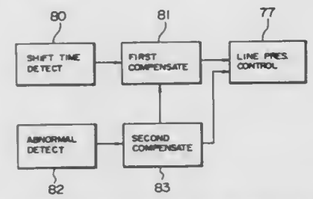
said control valve having an outlet interconnected by said conduits through selected of said cascaded relay valves such that modulated pressure is fed from said control valve to the torque transfer devices in accordance with the computer control signals to said solenoid valves and such that line pressure is selectively fed to particular torque transfer devices in accordance with computer control signals to said solenoid valves.

5,063,814

LINE PRESSURE CONTROL SYSTEM FOR AUTOMATIC TRANSMISSION

Fumiaki Baba, Higashi-Hiroshima; Hiroshi Yoshimura, Hiroshima; Takuji Fujiwara, Hiroshima, and Kozo Ishii, Hiroshima, all of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Aug. 20, 1990, Ser. No. 569,994
Claims priority, application Japan, Aug. 23, 1989, 1-217014; Aug. 29, 1989, 1-222574; Dec. 22, 1989, 1-333732
Int. Cl.[5] B60K 41/08
U.S. Cl. 74—866 11 Claims



1. A line pressure control system for an automatic transmission comprising:

a shift stage transmission gear mechanism having a plurality of power transmitting paths of different speed ratios,

line pressure control means for controlling a line pressure for operating frictional elements of the transmission gear mechanism associated with each other to establish a desirable shift gear stage,

shift period detecting means for detecting a time period for a shift operation accomplished by the frictional elements operated by the line pressure,

first compensating means for controlling the line pressure in terms of a learning control in a manner that the time period for the shift operation is controlled to a target value,

abnormality detecting means for detecting an abrupt change in operating condition of the transmission, and

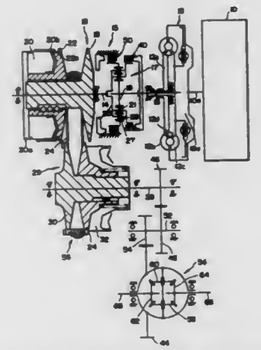
second compensating means for compensating the line pressure prior to compensation of the line pressure by the first compensating means when the abrupt change is detected.

5,063,815

LINE PRESSURE CONTROL FOR V-BELT TYPE CONTINUOUSLY VARIABLE TRANSMISSION

Toshikazu Oshidari, Yokohama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Apr. 11, 1989, Ser. No. 336,422
Claims priority, application Japan, Apr. 11, 1988, 63-47739
Int. Cl.[5] B60K 41/12
U.S. Cl. 74—867 5 Claims



1. In a V-belt type continuously variable transmission:

a torque converter shiftable between a lock-up state and a non lock-up state;

a driver pulley drivingly connected to said torque converter;

a follower pulley;

a V-belt drivingly interconnecting said driver and follower pulleys, at least one of said driver and follower pulleys being hydraulically actuated in response to a predetermined hydraulic fluid pressure to induce a force which the V-belt is gripped with by the pulley;

means for generating a signal indicative of whether the torque converter is in the lock-up state or the non lock-up state; and

means for generating said predetermined hydraulic fluid pressure, said predetermined hydraulic pressure generating means including means responsive to said signal for increasing said predetermined hydraulic fluid pressure from a first level to a second level that is higher than said first level when said signal indicates that said torque converter is in the non lock-up state, said increasing means being inoperative when said signal indicates that said torque converter is in the lock-up state to leave said predetermined hydraulic pressure at said first level.

5,063,816

HYDRAULIC CONTROL APPARATUS FOR VEHICLE CONTINUOUSLY VARIABLE TRANSMISSION, HAVING TWO SHIFT CONTROL VALVES SELECTIVELY ENABLED DEPENDING UPON SELECTED POSITION OF CLUTCH DEVICE BETWEEN ENGINE AND DRIVE WHEEL

Yoshinobu Soga, and Masami Sugaya, both of Susono, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Japan

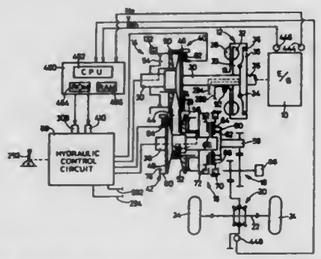
Filed Dec. 17, 1990, Ser. No. 628,427
Claims priority, application Japan, Dec. 25, 1989, 1-335971
Int. Cl.[5] B60K 41/12
U.S. Cl. 74—868 9 Claims

1. A hydraulic control apparatus for controlling a speed ratio of a continuously variable transmission for a motor vehicle having an engine, a drive wheel, a power transmitting line connecting the engine and the drive wheel, a clutch device disposed in said power transmitting line in series connection with said transmission, and a shift lever, said transmission

VOL 1132 ISS 2 NO 12 1991 UMI

including an input and an output shaft and a hydraulic actuator, and said clutch device including an input and an output shaft and having a neutral position for disconnecting said power transmitting line, said shift lever having a drive position for driving the vehicle and a neutral position for placing said clutch device in said neutral position, said apparatus comprising:

a first shift control valve operating to produce an output for controlling said hydraulic actuator to change said speed ratio, based on a required output pressure corresponding to a currently required acceleration value of the vehicle, and a first input shaft speed pressure corresponding to a speed of said input shaft of said transmission;



a second shift control valve device operating to produce an output for controlling said hydraulic actuator to change said speed ratio, based on a second input shaft speed pressure corresponding to a speed of said input shaft of said clutch device and an output shaft speed pressure corresponding to a speed of said output shaft of said clutch device, so as to reduce a difference between the speeds of said input and output shafts of said clutch device; and

a switching valve device for applying said output of said first shift control valve device to said hydraulic actuator when said shift lever is operated to said drive position, and applying said output of said second shift control valve device to said hydraulic actuator when said shift lever is operated to said neutral position.

5,063,817

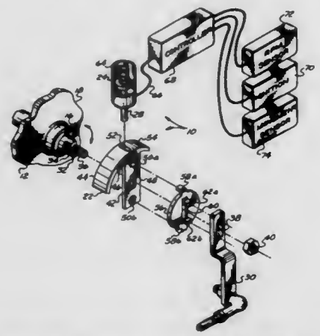
LOCKOUT SYSTEM FOR AUTOMATIC TRANSMISSION

Donald L. Bogert, 3608 W. Campbell Ave., Phoenix, Ariz. 85019

Filed Feb. 27, 1990, Ser. No. 485,597

Int. Cl.[5] F16H *57/06*

U.S. Cl. 74—878 **7 Claims**



1. A transmission locking apparatus for use in connection with an automatic transmission included in a vehicle and coupled to an engine, said automatic transmission having a housing and a rotatable shifter shaft extending through said housing, said shifter shaft having an elongated protrusion on an end thereof for engagement with a shift linkage of said vehicle, and said shifter shaft selecting a forward gear when rotated in a first direction from a neutral position and a reverse gear when rotated in a second direction from said neutral position, said apparatus comprising:

a first plate having an elongated notch which mates with said elongated protrusion of said shifter shaft and having first and second holes located on opposing sides of said notch;

a second plate, extending substantially in an axial direction of said shifter shaft, said second plate having a hole formed therein, said second plate being rigidly attached to said first plate, and said second plate being curved to extend over an arc relative to an axis of said shaft;

a generally planar member having first and second fingers protruding in a first direction, said first and second fingers configured to mate with said first and second holes, and third and fourth fingers protruding in a second direction, said second direction generally opposing said first direction, and said third and fourth fingers being positioned on opposing sides of said notch for engagement with said shift linkage;

an actuator mountable to said housing and having a plunger, said actuator and said plates being mutually configured so that when said actuator and said plates are mounted to said housing and to said shifter shaft, respectively, said plunger extends toward said second plate, and when said shifter shaft is in said neutral position, said plunger extends through said second plate hole to prevent substantial rotation of said shifter shaft in either of said first and second directions.

5,063,818

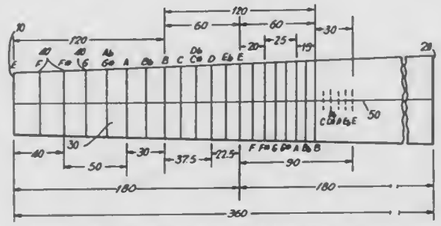
FINGERBOARD FOR A FRETTED AND STRINGED INSTRUMENT

Jorge R. Salazar, 115-17 123 St., Sonth Ozone Park, N.Y. 11420

Filed Oct. 30, 1990, Ser. No. 606,004

Int. Cl.[5] G10D *3/06*

U.S. Cl. 84—314 R **2 Claims**



1. A fingerboard construction for a stringed instrument such as a guitar, said guitar having a nut, a bridge, a neck connecting said nut and said bridge, and a fingerboard mounted on said neck and extending from said nut to said bridge, said fingerboard comprising a plurality of frets sequentially mounted transversely on said fingerboard such that 1) twelve frets comprising a first fret through a twelfth fret correspond to an octave of half-tones and said twelfth fret is mounted equidistant between an inside face of said nut and an inside face of said bridge as measured along a symmetric center line on said fingerboard extending from the inside face of said nut to the inside face of said bridge, 2) each fret corresponding to an interval of a fourth degree is mounted equidistant between frets corresponding to respective intervals of fifth degrees as measured along said symmetric center line, and 3) each of said first fret through said twelfth fret corresponding to a given half-tone is mounted at a distance from said nut equal to twice the distance from said twelfth fret to a fret corresponding to the given half-tone up one octave.

5,063,819

CYMBAL RECEIVING MECHANISM OF HIGH HAT STAND

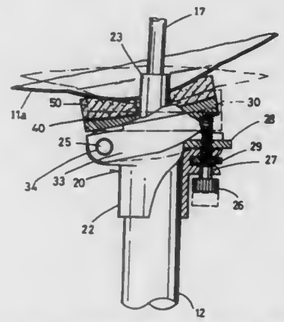
Yoshihiro Hoshino, Nagoya, Japan, assignor to Hoshino Gakki Co., Ltd., Japan

Filed Aug. 28, 1990, Ser. No. 574,276

Claims priority, application Japan, Mar. 26, 1990, 2-30801[U]

Int. Cl.[5] G10D *13/02*

U.S. Cl. 84—422.3 **7 Claims**



1. A cymbal receiving mechanism for a high hat stand, wherein the cymbal to be received has a bottom side that is generally convex in shape, the mechanism comprising:

a cymbal receiving plate having a cymbal receiving side which is generally concavely shaped to receive the convex side of the cymbal;

a main receiving body disposed on the opposite side of the cymbal receiving plate from the concave cymbal receiving side;

the body, the cymbal receiving plate and the cymbal having a center;

a pivot journal between the cymbal receiving plate and the main receiving body such that the cymbal receiving plate may be pivoted to different tilt orientations with respect to the body, and tilting means between the body and the plate for tilting the plate around the journal with respect to the main body to a selected extent of tilt.

5,063,820

ELECTRONIC MUSICAL INSTRUMENT WHICH AUTOMATICALLY ADJUSTS A PERFORMANCE DEPENDING ON THE TYPE OF PLAYER

Hideo Yamada, Hamamatsu, Japan, assignor to Yamaha Corporation, Hamamatsu, Japan

Filed Nov. 20, 1989, Ser. No. 439,091

Claims priority, application Japan, Nov. 18, 1988, 63-292003

Int. Cl.[5] G10H *1/06, 1/18, 1/46*

U.S. Cl. 84—609 **10 Claims**

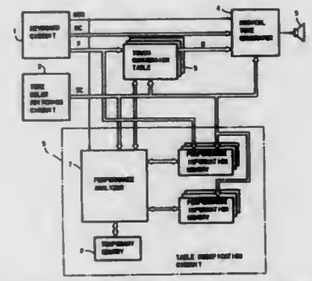
1. An electronic musical instrument for generating a musical tone comprising:

performance operation means for outputting performance information in response to a performance by a player;

converting means for converting said performance information into musical tone control data, the converting means determining a characteristic of said musical tone in accordance with a first characteristic of conversion;

storage means for storing a predetermined portion of said performance information;

calculating means for calculating a second characteristic of conversion in accordance with the predetermined portion of the performance information stored in the storage means, and



control means for controlling the converting means to determine the characteristic of the musical tone in accordance with the second characteristic of conversion.

5,063,821

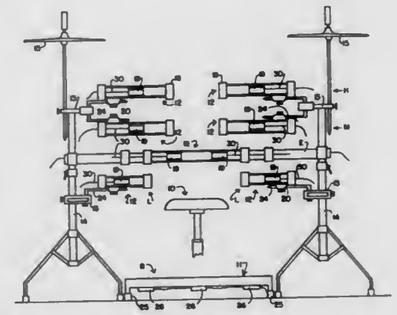
MOUNTING ARRANGEMENT FOR PERCUSSION INSTRUMENTS

A. Kainin Battle, Charlie Co., 3rd Batallion, 17th Regiment, Fort Ord, Calif. 93941

Filed Nov. 15, 1989, Ser. No. 436,715

Int. Cl.[5] G10H *3/00, 1/32;* G10G *5/00;* G10D *13/08*

U.S. Cl. 84—723 **15 Claims**



1. A percussion instrument comprising:

a percussion element having a percussion surface,

said element comprising means for vibrating when tapped by a shoe,

transducer means for converting mechanical vibrations of said element into electrical signals,

drum means adjacent said percussion element, so that said drum means may be struck by a percussionist with drumsticks and said surface may be struck by the feet of said percussionist, and

means for mounting said percussion surface horizontally.

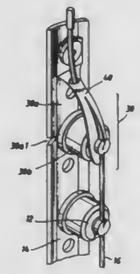
VOL
1132
ISS
2
NO
12
1991
UMI

5,063,822

PERFORATING GUN ASSEMBLY INCLUDING A CARRIER HAVING A FIRST SECTION ADAPTED TO SEPARATE FROM A SECOND SECTION WHEN A CHARGE ON THE SECOND SECTION DETONATES

Jorge E. Lopez de Cardenas, Houston, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex.

Filed Aug. 9, 1990, Ser. No. 565,383
Int. Cl.[5] E21B *43/117*; F42B *1/02*
U.S. Cl. 89—1.15 8 Claims



3. A perforating gun assembly adapted to be disposed in a borehole, comprising:

a carrier, said carrier including a first section and a second section connected to said first section, said second section including a geometrically weakened portion;

at least one charge mounted on said first section of said carrier;

at least one additional charge mounted on said second section of said carrier, said at least one additional charge adapted to detonate,

said first section of said carrier separating from said second section along a line including said geometrically weakened portion when said at least one additional charge on said second

section detonates thereby allowing said first section of said carrier to drop to a bottom of said borehole.

5,063,823

LAUNCH CONTAINER FOR MULTIPLE STORES USING ELECTRICALLY-ACTUATED PADDLE ASSEMBLIES

Frank P. Marshall, Penns Park; Bruce W. Travor, Holland, and Timothy L. Kraynak, Hatboro, all of Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

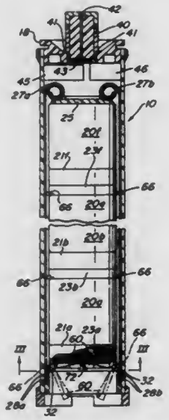
Filed Oct. 30, 1990, Ser. No. 605,904
Int. Cl.[5] B64D *1/04*
U.S. Cl. 89—1.51 7 Claims

1. A transporting and dispensing device to allow storage, transportation and dispensing of a plurality of stores, comprising:

a. container means for connection into an aircraft at a breech end and adapted to accept an electrical charge and dispense stores at an oppositely-disposed discharge end;

b. a plurality of release means for alternatingly closing and opening and thereby allowing individual stores to be ejected from the discharge end;

c. force means inside said container means providing a biasing force onto said stores; and



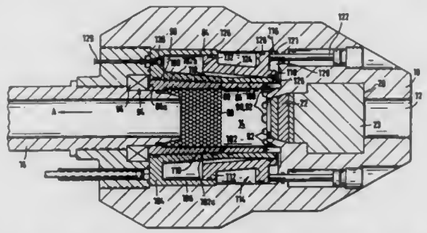
d. electronic control means connected to a carrying vehicle to send electric pulses to, and activate, said release means.

5,063,824

FLUID PROPELLANT INJECTION DEVICE FOR A GUN AND A FLUID PROPELLANT GUN ITSELF

Adolf Nordmann, Erkrath, and Erich Zielinski, Haan, both of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Dec. 24, 1986, Ser. No. 948,092
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1985, 3546235
Int. Cl.[5] F41A *1/04*
U.S. Cl. 89—7 33 Claims



1. In an injection device for fluid propellants for a fluid propellant gun having a combustion chamber, the device including at least one pump chamber for receiving a propellant; a pump piston movable in the pump chamber; an injector surface arranged at least partially around the combustion chamber approximately radially to the direction of ejection of a projectile from the gun, the injector surface having apertures through which propellant can flow between the pump chamber and the combustion chamber; and means for providing a measured opening and closing of the apertures in the injector surface; the improvement wherein:

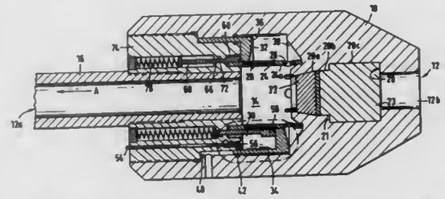
said means for providing a measured opening and closing of said apertures in said injector surface comprises a slide which is relatively movable with respect to said injector surface, and which is provided with passage openings for controllably communicating with the apertures in said injector surface; and further including means for generating a pressure for displacing said slide.

5,063,825

INJECTION DEVICE FOR FLUID PROPELLANTS FOR A GUN AND A FLUID PROPELLANT GUN ITSELF

Adolf Nordmann, Erkrath, and Erich Zielinski, Haan, both of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Dec. 24, 1986, Ser. No. 948,091
Claims priority, application Fed. Rep. of Germany, Dec. 28, 1985, 3546234
Int. Cl.[5] F41A *1/04*
U.S. Cl. 89—7 30 Claims



1. In an injection device for fluid propellants for a fluid propellant gun having a combustion chamber, the injection device including: at least one pump chamber for accommodating a propellant; a pump piston movable in the pump chamber; an injector surface which at least partially surrounds the combustion chamber and is disposed approximately radially of the combustion chamber with respect to the direction of ejection of a projectile from the gu, the injector surface having apertures through which propellant can flow between the pump chamber and the combustion chamber; and a movable slide disposed in said pump chamber adjacent said injector surface for opening and closing said apertures; the improvement wherein:

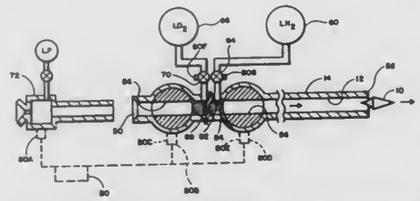
said slide and said pump piston are mutually freely movable components relative to each other and to said injector surface; and further including means, responsive to a gas pressure produced in the combustion chamber, for developing a pressure for displacing said slide.

5,063,826

ARMAMENT SYSTEM

Melvin J. Bulman, Colchester, Vt., assignor to General Electric Company, Pittsfield, Mass.

Continuation of Ser. No. 871,034, Jun. 5, 1986, abandoned. This application Oct. 17, 1988, Ser. No. 259,381
Int. Cl.[5] F41F *1/00*
U.S. Cl. 89—8 13 Claims



1. An armament system comprising:

a launch tube for a projectile, said launch tube having an aft end for receiving said projectile, a forward end and an inner tube surface;

means for filling said tube with a combustible gaseous propellant;

a projectile having an external surface configuration selected to provide a ramjet effect, including compression, ignition, combustion and expansion, between said external surface configuration and said inner tube surface when said projectile is inserted at a velocity above a minimum velocity into said tube fueled with combustible gaseous propellant;

said projectile surface configuration having a maximum diameter which is smaller than the minimum diameter of said inner tube surface to provide an annular space therebetween;

said projectile external surface configuration including:

a vertex located on the axis of said projectile;

first and second annular surface transitions;

a leading portion having a concave surface of rotation originating at said vertex and having a progressively increasing diameter between said vertex and said first transition;

an intermediate portion having a convex surface of rotation between said first and second transitions, said convex surface progressively increasing in diameter to said maximum diameter and thereafter decreasing in diameter to said second transition; and

a trailing portion having a concave surface of rotation originating at said second transition and progressively decreasing in diameter;

wherein, in conjunction with said inner tube surface:

said leading portion provides said compression of said gas;

said intermediate portion provides said ignition and combustion of said gas; and

said trailing portion provides said expansion of said gas;

said launch tube being provided with:

first valve means for closing and opening said launch tube disposed near said tube aft end; and

second valve means axially spaced from said first valve means for closing and opening said launch tube,

said first and said second valve means defining a pressure chamber in said launch tube for receiving and containing combustible gaseous propellant from said filling means;

said filling means including:

a source of fuel gas;

third valve means coupled to said fuel gas source;

first tangentially directed nozzle means coupling said third valve means to said pressure chamber to provide a chordal path for the injection of fuel gas into said chamber,

a source of oxidizer gas,

fourth valve means coupled to said oxidizer gas source,

second tangentially directed nozzle means coupling said fourth valve means to said pressure chamber to provide a chordal path for the injection of oxidizer gas into said chamber; and

control means to sequentially

(i) open and close said third valve means, and thereafter to

(ii) open and close said fourth valve means.

5,063,827

MUZZLE BLAST DEFLECTOR

Roy Williamson, 8345 Park Byrd Rd., Lakeland, Fla. 33809

Filed May 29, 1990, Ser. No. 529,389
Int. Cl.[5] F41A *21/26*
U.S. Cl. 89—14.3 4 Claims

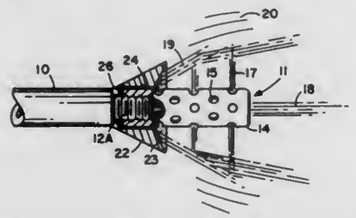
1. In a rifle barrel having a threaded muzzle for attachment of a recoil arrestor, said arrestor having a cylindrical body, a bore, a plurality of sets of openings through said body, and a threaded end of said bore, the improvement comprising:

a blast deflector having a shield including a conical rear surface, a conical front surface, a cylindrical central bore, and an annular lip at a small end of said conical rear surface;

wherein said deflector is disposed over said threaded muzzle, said cylindrical body of said arrestor is inserted through said cylindrical central bore, and said body

VOL
1132
ISS
2
NO
12
1991
UMI

threaded onto said muzzle resulting in an outer forward edge of said deflector extending over at least one set of



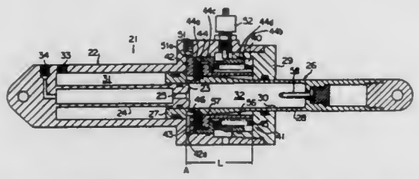
said openings of said arrestor, thereby securing said deflector on said muzzle.

5,063,828

ACTUATOR WITH A LOCK MECHANISM

Toshio Kamimura, Gifu, Japan, assignor to Teijin Seiki Co., Ltd., Osaka, Japan

Filed Mar. 14, 1989, Ser. No. 323,561
Claims priority, application Japan, Mar. 23, 1988, 63-37787[U]
Int. Cl.[5] F15B *15/26*
U.S. Cl. 92—26 5 Claims



1. An actuator comprising a cylinder having a longitudinal bore formed therein, a piston slidably and sealingly inserted into said cylinder and a lock mechanism for temporarily locking said piston, wherein

said cylinder comprises:

a cylinder body having said longitudinal bore formed therein;

a cylinder head formed at a front end of said cylinder body and accommodating said lock mechanism; and

a front wall connected to said cylinder head at a position opposite to said front end of said cylinder body and having a hole formed therein, a distance between said end of said cylinder body and an inner surface of said front wall is set at a predetermined length,

said piston comprises:

a piston head slidably and sealingly inserted into said bore of said cylinder body;

a piston rod projecting from said piston head and slidably inserted into said hole of said front wall; and

a key groove formed on said piston rod at a position near said piston head, said piston has a longitudinal hole formed within said piston head and said piston rod,

a diameter of said piston rod gradually decreases from a backward position, which is adjacent to said key groove, to a forward position, which is spaced from said piston head by a distance substantially equal to said predetermined length, when it is observed along said piston rod, and

said lock mechanism comprises:

a key which slides on said decreased portion of said piston rod until said piston reaches an extended stroke end and which is engageable with said key groove on said piston rod when said piston moves forwardly to said extended stroke end thereof.

5. An actuator comprising:

a cylinder;

an inner cylinder, coaxial with said cylinder, having a closing wall at a front end thereof and connected to said cylinder at a back end thereof;

a hollow piston slidably inserted between an inner surface of said cylinder and an outer surface of said inner cylinder and having a bottom wall at its front end;

a snubbing piston projecting from said bottom wall of said piston in the direction of said back end; and

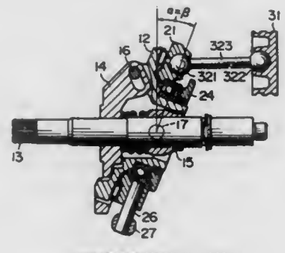
said closing wall of said inner cylinder having a penetrating hole through which said snubbing piston is penetrated forming a restrictive passage there between.

5,063,829

VARIABLE DISPLACEMENT SWASH PLATE TYPE COMPRESSOR

Kunihiko Takao, Tsuchiura; Kenji Tojo, Ibaraki; Isao Hayase, Katsuta; Yukio Takahashi, Katsuta, and Masaru Ito, Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 7, 1990, Ser. No. 563,716
Claims priority, application Japan, Aug. 9, 1989, 1-204668
Int. Cl.[5] F01B *3/00*
U.S. Cl. 92—71 21 Claims



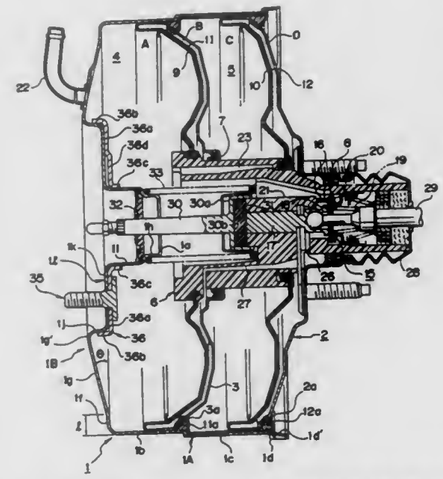
1. A variable displacement swash plate type compressor, comprising: a main shaft adapted to be driven by a driving power source; a drive plate fixed to the main shaft; a swash plate main part tiltable engaging through an engaging portion with the drive plate so as to be tiltable with respect to the axis of the main shaft and to make a precessional rotation in accordance with the rotation of the main shaft; a piston support rotatably carried by the swash plate main part so as to make a precessional rotation together with the swash plate main part; pistons having one ends engaging with the piston support so as to reciprocatingly move in respective cylinders in accordance with the precessional rotation of the swash plate main part; and means for causing a change in the angle of tilt of the swash plate main part with respect to the axis of the main shaft so as to effect a control of displacement, wherein the swash plate has a balancing portion which cancels an unbalance of mass produced about the axis of the main shaft by the engaging portion at a predetermined angle of tilt of the swash plate so as to locate the center of gravity of the swash plate main part substantially on the axis of the main shaft.

5,063,830

BRAKE BOOSTER

Masaru Konishi, Saitama, Japan, assignor to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed Feb. 5, 1991, Ser. No. 651,029
Claims priority, application Japan, Mar. 5, 1990, 2-53448
Int. Cl.[5] F01B *11/00*; F15B *9/10*
U.S. Cl. 92—169.2 12 Claims



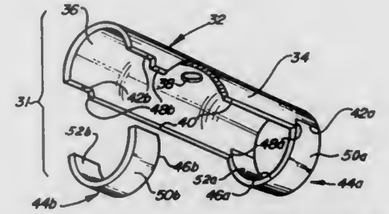
1. A brake booster including a front shell having a mounting surface connected to a master cylinder, and a reinforcing plate which is connected to and extending along the inside of the mounting surface of the front shell; characterized in that the front shell comprises a first cylindrical section disposed radially outermost, a frustoconical section extending from the front end of the first cylindrical section and disposed radially inward thereof and disposed so as to be inclined forwardly at a given angle with respect to a plane which is perpendicular to the axis of the front shell, a second cylindrical section folded back to extend rearwardly from the front end of the frustoconical section, and an end face formed by folding the rear end of the second cylindrical section radially inward and providing said mounting surface which is to be connected with a master cylinder, the reinforcing plate comprising an end face defined as an annular flat surface, and a cylindrical portion which extends from the outer periphery of the end face axially forwardly through a given distance, the reinforcing plate being fitted around the second cylindrical section of the front shell so that the end face of the reinforcing plate is disposed in overlapping relationship with the end face of the front shell and the cylindrical portion of the reinforcing plate is held in close contact with the outer peripheral surface of the second cylindrical section of the front shell.

5,063,831

PISTON PIN BEARING

Clifford D. Byard, Westport, Ind., assignor to ML-KS Bearings, Inc., Greensburg, Ind.

Filed Feb. 20, 1990, Ser. No. 481,174
Int. Cl.[5] F16J *1/16, 1/08*
U.S. Cl. 92—187 16 Claims



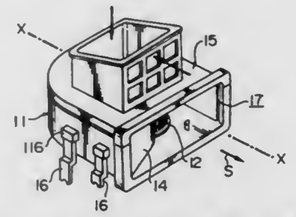
2. A bearing received within a cylindrical piston bore in a piston assembly comprising a part-cylindrical upper segment and a pair of axially-spaced part-cylindrical lower segments, characterized by axially-spaced shoulders formed in the ends of the upper segment for receiving a portion of each of the lower segments to limit movement of the lower segments toward each other.

5,063,832

BLOWER UNIT FOR AUTOMOBILE AIR CONDITIONER

Mitsuaki Mirumachi, Mito, and Hiroaki Mizoguchi, Ibaraki, both of Japan, assignors to Hitachi, Ltd., Tokyo and Hitachi Automotive Engineering Co., Ltd., Ibaraki, both of, Japan

Filed Oct. 12, 1990, Ser. No. 596,511
Claims priority, application Japan, Oct. 20, 1989, 1-271701
Int. Cl.[5] B60H *1/24*
U.S. Cl. 98—2 8 Claims



1. A blower unit for an automobile air conditioner, the blower unit including a fan for introducing air into the blower unit through an air intake unit and for forcibly discharging air introduced to a casing of the automobile air conditioner through a discharge opening, the blower unit comprising:

a scroll casing including a side wall, arranged around the fan, and a bottom wall closing the side wall, the bottom wall having means for defining a fan opening formed therethrough for accommodating the fan in the scroll casing;

a nose member; and

attaching means for attaching the nose member to the scroll casing;

wherein the side wall of the scroll casing is formed in a shape symmetrical about a center line thereof, said center line being disposed in parallel to an air stream line in the vicinity of the discharge opening, said side wall having opposed facing ends at the discharge opening; and

wherein the nose member is mounted within the scroll casing close to one of the opposed facing ends of the side wall by said attaching means.

VOL 1132 ISS 2 NO 12 1991 UMI

5,063,833

AIR SPOUT DEVICE FOR A VENTILATING ARRANGEMENT

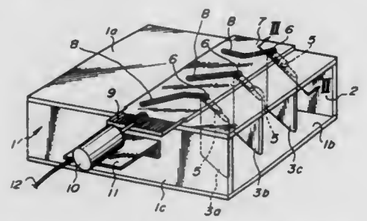
Junichiro Hara, Yokohama; Mitsuru Taguchi, Yokosuka, and Hideo Takahashi, Yokohama, all of Japan, assignors to Nissan Motor Co., Ltd., Japan

Filed Sep. 26, 1989, Ser. No. 412,480

Claims priority, application Japan, Sep. 26, 1988, 63-125502[U]; Mar. 7, 1989, 1-25855[U]; Jul. 25, 1989, 1-192224

Int. Cl.[5] B60H *1/34*; F24F *7/06, 13/12*

U.S. Cl. 98—2 **20 Claims**



1. An air spout device for a ventilating arrangement comprising:
- a housing including walls defining an open-ended bore;
- a plurality of fins arranged in said bore and rotatably mounted on said housing;
- a control member mounted on said housing for linear movement in a predetermined direction;
- means for urging said control member to move in said predetermined direction;
- a plurality of grooves formed in said control member, at least two of said grooves extending in different manners with respect to said predetermined direction; and
- a plurality of lever mechanisms for converting the linear movement of said control member into rotational movement of said fins, each of said lever mechanisms having a first portion connected to one of said fins and having a second portion having a pin engaged with one of said grooves.

5,063,834

FOCUSSED VENTILATION PROCEDURE AND FOCUSSED VENTILATION MEANS

Erkki Aalto, Kausala; Teuvo Pellinen, Villähde, and Jouko Eloranta, Kausala, all of Finland, assignors to Halton Oy, Finland

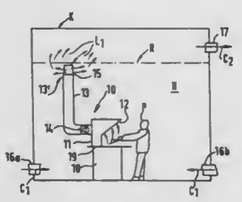
PCT No. PCT/FI89/00102, § 371 Date Feb. 9, 1990, § 102(e) Date Feb. 9, 1990, PCT Pub. No. WO89/11928, PCT Pub. Date Dec. 14, 1989

PCT Filed Jun. 3, 1989, Ser. No. 460,898

Claims priority, application Finland, Jun. 10, 1988, 882762; Jun. 10, 1988, 882763

Int. Cl.[5] F23J *11/00*

U.S. Cl. 98—115.1 **1 Claim**



1. A focussed suction ventilation apparatus comprising:
- an intake member having a suction aperture therein for focussing suction therethrough on a source of impurities within a work space having a certain volume and located within a room having a larger volume;
- a discharge duct connected to said intake member and extending therefrom to the vicinity of an impurity boundary layer above said work space and within said room;
- a blower located within said discharge duct for providing suction therein whereby impurities drawn from said work space are conveyed through said discharge duct and discharged therefrom in the vicinity of said impurity boundary layer to collect above said impurity boundary layer, and further comprising
- a disperser unit mounted at the end of said discharge duct and functioning to distribute air uniformly below said impurity boundary layer so as to avoid the mixing of impure air from above said impurity boundary layer with the air from the rest of said room.

5,063,835

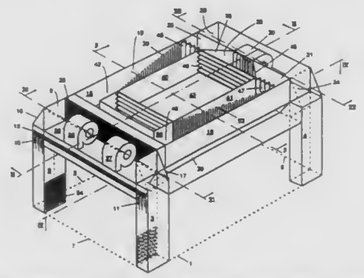
PROCESSING BOOTH WITH VARIABLE VENTILATION

Ludwig G. Rockx, Boekel, Netherlands, assignor to Plaatwerkerij D.W. Slotboom B.V., Akkatwijk, Netherlands

Filed Jun. 15, 1990, Ser. No. 538,881

Int. Cl.[5] B05B *15/12*; B05C *15/00*

U.S. Cl. 98—115.2 **12 Claims**



1. A treatment booth with variable ventilation comprising:
- walls which are arranged into pairs, the walls being spaced in substantially parallel relation, the pairs of walls being mutually substantially perpendicular, at least a part of one of the walls being constructed as a door for access to and from the treatment both, the treatment booth having a chamber defined by an interior portion of the walls, at least a first pair of walls being short, at least a second pair of walls being long;
- a roof portion having an upper side and a lower side, the lower side of the roof adjoined to the walls, the lower side the roof functioning as a ceiling for the chamber, a large portion of the lower side of the roof having a grid which allows air to pass therethrough, the roof portion having a means for displacing air through the grid in a substantially vertical downward direction, the roof portion having an elongated box shape, the roof portion divided into at least a first compartment and a second compartment in communication with each other, the first compartment and the second compartment extending parallel to the first pair of walls, the roof portion having a roofing chamber between the first and second compartment, the first compartment having at least one fan being disposed inside, the second compartment having at least one fan disposed inside, the roofing chamber being divided by partitions to form a first substantially horizontal bottom compartment bounded by the lower side of the roof portion and a second substantially horizontal top compartment bounded by the upper side of the roof portion, the first and second substantially horizontal compartments being divided by vertical partitions into a plurality of mutually parallel subcompartments, the plurality of mutually parallel subcompartments each having a boundary parallel to the second pair of the walls.

5,063,836

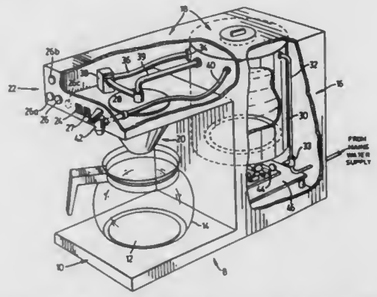
COFFEE MAKING MACHINE AND COMPONENTS THEREOF

Dahyabhai U. Patel, Vancouver, Canada, assignor to Cafe 98 Industries Ltd., Vancouver, Canada

Filed Jan. 25, 1989, Ser. No. 301,116

Int. Cl.[5] A47J *31/00*

U.S. Cl. 99—281 **14 Claims**



1. A coffee making machine of the type adapted to be connected to a mains water supply and to deliver hot water during a brewing cycle to ground coffee supported in a removable filter element, said coffee making machine comprising:
- a reservoir for water heating and storage;
- valved inlet means adapted to connect the reservoir to mains water supply;
- outlet means operable to deliver hot water from the reservoir to contact ground coffee;
- an electrical heating element operable to heat the contents of the reservoir;
- lower level sensing means adapted to sense a pre-determined water level condition in the reservoir;
- upper level sensing means disposed above the lower level sensing means and adapted to sense an overfill water level condition in the reservoir;
- temperature sensing means for monitoring the temperature of the reservoir contents; and
- control means in communication with said temperature sensing means and operable to enable the heating element in response to signals received from the temperature sensing means to maintain the reservoir contents within a pre-determined temperature range and also adapted to open the valved inlet means for water supply to the reservoir in response to signals received from said lower level sensing means when said water is below said pre-determined water levl condition, said control means further being responsive to signals received from said upper level sensing means to close said valved inlet means in the event of a malfunction of said lower level sensing means and upon detection of said overfill water level condition.

5,063,837

BEVERAGE BREWING APPARATUS WITH DRIP PREVENTING MECHANISM

Hans-Jürgen Precht, Solingen, Fed. Rep. of Germany, assignor to Robert Krups Stiftung & Co. KG, Solingen, Fed. Rep. of Germany

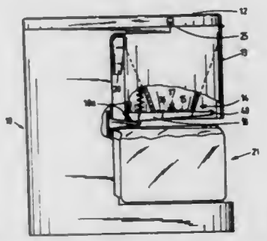
Filed Aug. 28, 1990, Ser. No. 574,341

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1989, 3928785

Int. Cl.[5] A47J *31/24*

U.S. Cl. 99—295 **34 Claims**

1. Apparatus for brewing hot beverages by contacting a heated liquid with a flavoring agent, comprising a housing including a support; a liquid-confining container carried by said housing; a holder for a supply of flavoring agent, said holder being mounted on said housing and having at least one outlet disposed above and spaced apart from said support; liquid heating means in said housing; means for conveying heated liquid from said heating means to said holder so that the liquid contacts the flavoring agent and the resulting beverage tends to leave said holder by way of said at least one outlet; a valving element movable with reference to said holder between first and second positions in which said at least one outlet is respectively sealed and exposed; a vessel movable onto and off said support and having a top, a rim surrounding said top and a spout provided in and extending downwardly from said rim; and means for moving said valving element to said second position in automatic response to placing of the vessel onto said support, including a mobile actuator carried by said housing and directly contacting said rim from above irrespective of the orientation of said spout while the vessel rests on said support.



5,063,838

PORTABLE APPARATUS FOR BREWING HOT BEVERAGES

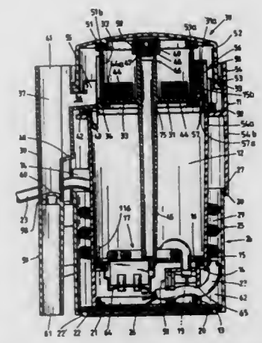
Manfred Matuschek, Solingen, Fed. Rep. of Germany, assignor to Robert Krups Stiftung & Co. KG, Solingen, Fed. Rep. of Germany

Filed Aug. 28, 1990, Ser. No. 574,443

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1989, 3928475

Int. Cl.[5] A47J *31/10*

U.S. Cl. 99—307 **41 Claims**



1. A portable apparatus for brewing hot beverages, comprising a housing having a liquid-receiving first chamber; a liquid-permeable filter assembly arranged to confine a supply of flavoring agent, said filter assembly being provided in said housing and defining a beverage-receiving second chamber having an outlet; electrically operated means for heating the liquid in said first chamber; means for conveying heated liquid

VOL 1132 ISS 2 NO 12 1991 UMI

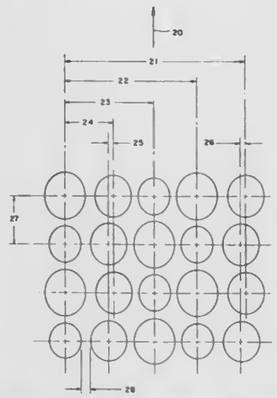
from said first chamber into contact with flavoring agent in said filter assembly and attendant conversion into hot beverage which gathers in said second chamber; a vessel movable relative to said housing between a first position in which said housing extends into said vessel and a second position in which said vessel receives hot beverage from the second chamber by way of said outlet., said vessel and said housing defining a third chamber in the first position of said vessel; and an electric conductor connected with said heating means in said housing, extending from said housing and being receivable in said third chamber in the first position of said vessel.

5,063,839

CUTTING DIE FOR FORMING A PLURALITY OF THIN UNIFORMLY BAKEABLE EDIBLE ASSORTMENTS

Richard R. McFeaters, Hackensack; Daniel A. Koppa, Bloomfield, both of N.J., and Theodore P. Babiak, Staten Island, N.Y., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Division of Ser. No. 58,918, Jun. 5, 1987, Pat. No. 4,865,862.
This application Jun. 19, 1989, Ser. No. 367,731
Int. Cl.[5] A47J *43/20*
U.S. Cl. 99—353 **23 Claims**



1. A cutting die comprising a plurality of cutters arranged for cutting plural arrays of different size and weight dough pieces from a sheet of dough, wherein each said array has a substantially uniform weight distribution whereby the array of dough pieces can be uniformly baked by the application of heat, said cutting die comprising a plurality of substantially parallel, spaced-apart sets of cutters, each of said sets of cutters comprising first and second substantially parallel subsets of cutter, wherein each subset is comprised of an equal number of different size cutters adapted for cutting different weight and size dough pieces, said first subset having its cutters arranged in a row in descending order by size, said second subset having its cutters arranged in a row substantially parallel to the first subset in ascending order by size, whereby the largest cutter of each subset is adjacent the smaller cutter of the other subset.

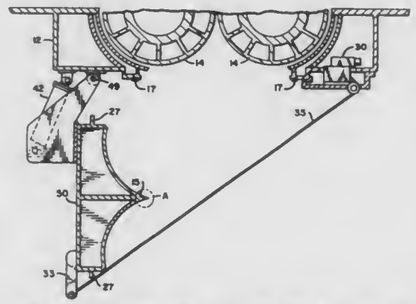
5,063,840

PULP PRESS VAT PROVIDING ENHANCED BOTTOM ACCESS

Andrew S. Vote, Lexington, Mass., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.

Filed Jul. 27, 1990, Ser. No. 560,850
Int. Cl.[5] B30B *9/20*
U.S. Cl. 100—121 **4 Claims**

1. A pulp dewatering press comprising:
a pair of adjacent perforated cylindrical rolls defining a continuously converging nip therebetween;
a vat shell adjacent the rolls; and
a pivotal door means on the shell bottom for providing access to the nip and having a nip wedge with a shape



substantially conforming to the nip and a portion of the adjacent perforated cylindrical rolls except for a reverse arc on one side of said nip wedge near a region of convergence thereof.

5,063,841

RECIPROCATING PISTON PRESS

Jürgen Simonis, Wolfenbüttel, Fed. Rep. of Germany, assignor to Gebrüder Welger GmbH & Co. Kommanditgesellschaft

Filed Jun. 14, 1990, Ser. No. 538,203
Claims priority, application Fed. Rep. of Germany, Jun. 14, 1989, 3919434
Int. Cl.[5] B30B *7/04, 1/00, 9/30*
U.S. Cl. 100—142 **9 Claims**

1. Reciprocating piston press comprising an elongated compaction channel having a first end and a second end, said compaction channel having an arc-shaped section extending in the elongated direction from adjacent the first end toward the second end, a compressing piston located within said arcuate section, means connected to said piston for reciprocating said piston therein along a path moving toward and away from the second end of said compaction channel, said arcuate section has a fill opening for receiving material therein in the path of said reciprocating piston, means for conveying the material through said fill opening into said arcuate section into the path of said reciprocating piston in a timed relationship with the reciprocation of said piston, wherein the improvement comprises that said means for conveying the material includes conveyor prongs and means for moving said prongs toward and away from said fill opening at varying velocities and moving said prongs along an approximately kidney-shaped orbit, said orbit has a rounded first end located in the fill openings and a rounded second end spaced outwardly from the fill opening, said orbit having a first section extending from the second end to the first end where said prongs move toward said fill opening and a second section extending from the first

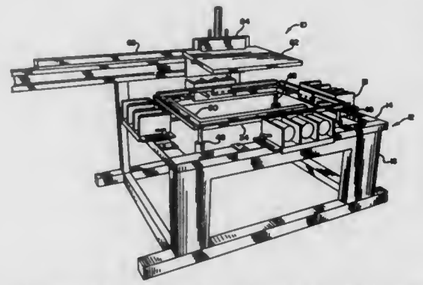
end to the second end where said prongs move away from said fill opening and the velocity of said prongs is considerably higher in said first section as said prongs approach said fill opening, said means for moving said prongs comprises a first crank and rocker linkage mechanism comprising a non-uniformly rotating crank connected to a first end of said prongs and a coupling bar connected to the first end of said prongs and extending therefrom at an angle to said crank, a crank drive connected to said crank at a distance spaced from the first end of said prongs and comprising a rolling gear train, said rolling gear train comprising one of elliptical and eccentric gear wheels in meshed engagement.

5,063,842

SCREEN TENSIONING AND FRAMING DEVICE AND METHOD THEREFOR

Joseph Clarke, Naperville, Ill., assignor to M & R Printing Equipment, Inc., Glen Ellyn, Ill.

Filed Oct. 2, 1990, Ser. No. 591,711
Int. Cl.[5] B05C *17/08;* B41F *23/04*
U.S. Cl. 101—127.1 **28 Claims**



1. A device for tensioning and framing a screen having two pairs of opposing edge portions comprising:
a main frame assembly;
two opposing pairs of bars, each of said bars having an outer face, said opposing bars being generally parallel to each other;
means for attaching an edge portion of the screen to each of said bars;
means for pulling each of said bars to create tension in the screen; and,
means for heating the screen, said heating means comprising a heating plate.

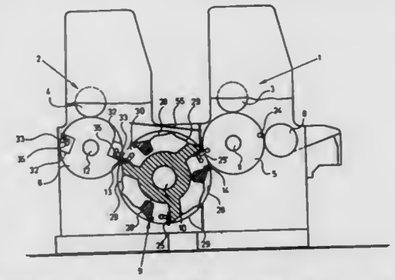
5,063,843

SHEET-FED ROTARY PRINTING MACHINE FOR PRODUCING SINGLE-SIDED MULTI-COLOR PRINTING OR PERFECTOR PRINTING

Willi Becker, Bammental, Fed. Rep. of Germany, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Fed. Rep. of Germany

Continuation of Ser. No. 442,410, Nov. 27, 1989, abandoned, which is a continuation of Ser. No. 174,090, Mar. 28, 1988, abandoned. This application Sep. 10, 1990, Ser. No. 581,076
Claims priority, application Fed. Rep. of Germany, Mar. 28, 1987, 3710257
Int. Cl.[5] B41F *21/10, 502*
U.S. Cl. 101—183 **8 Claims**

1. Sheet-fed rotary printing machine for producing single-sided multi-color printing or perfector printing comprising a first and a second printing unit, respectively including an impression cylinder, a single sheet-transfer cylinder disposed in travel direction of a sheet between said impression cylinder of said first and said second printing unit, said single sheet-transfer cylinder and said impression cylinder of said second printing unit having a transfer gap therebetween, said transfer gap having a width larger in relation to a given width of a gap between the single sheet-transfer cylinder and said impression cylinder of said first printing unit, a gripper system mounted in said impression cylinder of said second printing unit and including means extensible into the circumference of said single sheet-transfer cylinder for bridging the enlarged width of said transfer gap, means for moving said gripper system out of the



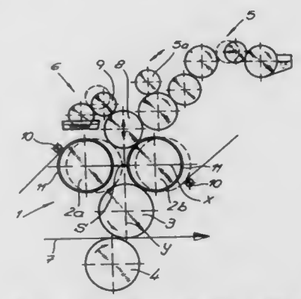
circumference of said single sheet-transfer cylinder so as to grip a leading or trailing edge of the sheet and transfer the gripped sheet to the outer cylindrical surface of said impression cylinder of said second printing unit, and means for driving the sheet-transfer cylinder and said impression cylinder of said second printing unit at identical circumferential speeds.

5,063,844

OFFSET ROTARY MACHINE WITH AT LEAST ONE PRINTING UNIT

Thomas E. Fausel, Ostfildern, Fed. Rep. of Germany, assignor to Simom S.A., Zug, Switzerland

Filed Dec. 11, 1989, Ser. No. 448,758
Claims priority, application Fed. Rep. of Germany, May 27, 1989, 3917340
Int. Cl.[5] B41F *13/24*
U.S. Cl. 101—247 **12 Claims**



1. In an offset rotary machine including at least one printing unit with a plate cylinder, a rubber blanket cylinder and an impression cylinder, and an inking mechanism and a dampening mechanism for the plate cylinder, the printing unit including first and second plate cylinders arranged at a predetermined distance from each other, means for moving the first and second plate cylinders on a common coordinate between a first position and a second position, the inking mechanism including an inking roller, the first plate cylinder being in contact with the rubber blanket cylinder and the inking roller when the plate cylinders are in the first position and the second plate cylinder being in contact with the rubber blanket cylinder and the inking roller when the plate cylinders are in the second position, the improvement comprising the dampening mechanism including a dampening roller, the dampening roller being

VOL 1132 ISS 2 NO 12 1991 UMI

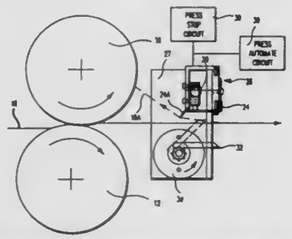
in direct contact with the inking roller, wherein a cylinder gap is defined between the two plate cylinders, further comprising means for adjusting the inking roller relative to the cylinder gap between the plate cylinders.

5,063,845

ANTI-WRAP FOR HIGH SPEED PRINTING PRESS

Frank Perretta, Marlboro, N.Y., assignor to Perretta Graphics Corporation, Poughkeepsie, N.Y.

Filed Feb. 16, 1990, Ser. No. 480,776
Int. Cl.[5] B41F *1/6, 13/60*
U.S. Cl. 101—484 **22 Claims**



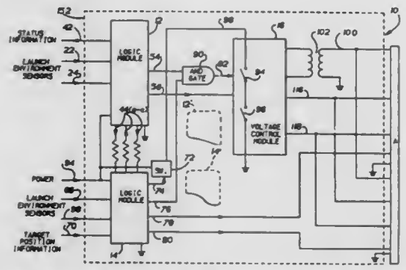
19. The method of protecting a printing press in the event of a web break resulting in a wrap on a blanket cylinder comprising, providing a feeler finger having a cutting edge to sever the web, mounting said feeler finger for limited displacement responsive to breakage of the web, providing a switch in the path of displacement of said feeler finger, and actuating said switch responsive to displacement of said feeler finger caused by the beginning of a wrap.

5,063,846

MODULAR, ELECTRONIC SAFE-ARM DEVICE

Kenneth E. Willis, Redwood City, and Robert R. Durrell, Moss Beach, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 21, 1989, Ser. No. 454,561
Int. Cl.[5] F23Q *7/22*
U.S. Cl. 102—215 **15 Claims**



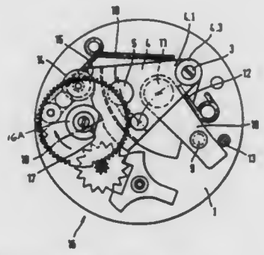
1. A universal apparatus for igniting a primary explosive, said apparatus comprising:
(a) at least one standard firing means for igniting said primary explosive upon receipt of both a high voltage output signal and a trigger signal;
(b) a standard voltage control means for generating said high voltage output signal in response to an arming signal; and
(c) first application specific logic means for generating said arming signal so that the voltage control means can generate the high voltage signal for arming the firing means and, thereafter, for generating said trigger signal to ignite the primary explosive;
whereby the apparatus can be sued to detonate different devices by replacing said application specific logic means with a different application specific logic means particularly associated with the device to be detonated.

5,063,847

FUSE FOR A PROJECTILE

Andreas Halasig, Denkingen; Wolfgang Schillinger, Schiltach, and Hans Breithaupt, Hornberg, all of Fed. Rep. of Germany, assignors to Gebruder Junghans GmbH, Schramberg, Fed. Rep. of Germany

Filed Oct. 12, 1990, Ser. No. 596,502
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1989, 3935180
Int. Cl.[5] F42C *15/188*
U.S. Cl. 102—271 **6 Claims**



1. A fuse for a projectile, comprising:
a housing carrying first ignition means,
a rotor mounted for rotation about an axis of rotation, said rotor comprising first and second legs spaced apart in a direction parallel to said axis of rotation to define a recess therebetween, said first leg carrying second ignition means, and said second leg carrying a detonator aligned with said second ignition means,
means for rotating said rotor from a safety position in which said second ignition means and said detonator are non-aligned relative to said first ignition means to a live position in which said second ignition means and said detonator are aligned with said and first ignition means along an ignition axis, and
means selectively providing ignition delay comprising
a support carrying a retardation charge in a portion of said support, said support arranged such that said portion thereof is disposed within said recess so as to be protected by said first and second legs, means mounting said support for displacement within said recess between a first position in which said retardation charge is out of alignment with said ignition axis, and a second position in which said retardation charge is aligned with said ignition axis, and displacing means for displacing said support between said first and second positions.

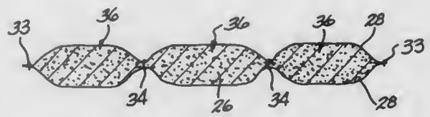
5,063,848

IGNITER BAG

Mark A. Tucker, Buncombe, and Robert M. Musgrave, Marion, both of Ill., assignors to Olin Corporation, Cheshire, Conn.

Filed Oct. 16, 1990, Ser. No. 598,314
Int. Cl.[5] F42B *5/30, 5/38*
U.S. Cl. 102—282 **11 Claims**

1. An igniter bag containing a propellant ignition charge comprising:
a pair of generally annular fabric sheets having concentric inner and outer generally circular edges joined together forming a toroidal cavity therebetween and a plurality of baffle means for dividing said cavity into separate adjacent compartments, each of said means extending from said inner edges to said outer edges.

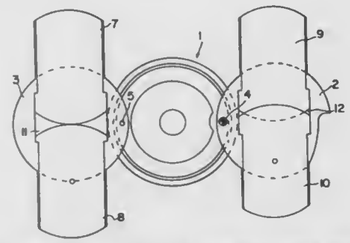


5,063,849

SUBWARHEAD

Jan Axinger, Storfors, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden

Filed Oct. 19, 1990, Ser. No. 599,851
Claims priority, application Sweden, Oct. 20, 1989, 8903473
Int. Cl.[5] F42B *10/50*
U.S. Cl. 102—388 **2 Claims**



1. A subwarhead adapted to be separated from a missile over a target area, said subwarhead comprising:
an active part, a target detector and an aerofoil, the target detector and the aerofoil being pivotably mounted each on its own bearing shaft, parallel with the line of symmetry of the active part, for allowing pivoting out of the target detector and the aerofoil from a folded position to an unfolded position at the side of the active part in order to allow a controlled movement of scanning of the target area, both the target detector and the aerofoil being provided with at least one displaceably mounted means for increasing the braking area for controlling the rate of descent of the subwarhead; said at least one displaceably mounted means being an additional aerofoil arranged to be displaceable in a slot provided in the target detector and in the aerofoil, respectively.

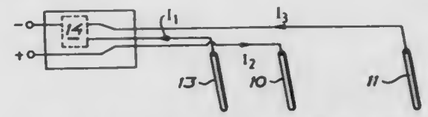
2. A subwarhead adapted to be separated from a missile over a target area, said subwarhead comprising:
an active part, a target detector and an aerofoil, the target detector and the aerofoil being pivotably mounted each on its own bearing shaft parallel with the line or symmetry of the active part in order to allow pivoting out of the target detector and the aerofoil from a folded position to a unfolded position at the side of the active part in order to allow a controlled movement of scanning of the target area, both the target detector and the aerofoil being provided with a pair of additional aerofoils, each pair being displaceable from a folded overlapping position to an unfolded position in a slot provided in the target detector and in the aerofoil, respectively.

5,063,850

METHOD AND SYSTEM FOR MINE SWEEPING

Thord Olsson, Bjärred; Tomas Öhrwall, Ängelholm, and Mats Gustavsson, Landskrona, all of Sweden, assignors to SA Marine AB, Landskrona, Sweden

PCT No. PCT/SE88/00531, § 371 Date Jun. 19, 1990, § 102(e) Date Jun. 19, 1990, PCT Pub. No. WO89/03788, PCT Pub. Date May 5, 1989
PCT Filed Oct. 13, 1988, Ser. No. 473,987
Claims priority, application Sweden, Oct. 20, 1987, 8704069
Int. Cl.[5] B63G *7/06*
U.S. Cl. 102—402 **5 Claims**



1. Method for sweeping marine mines having a magnetic sensor, according to which spaced electrodes (10, 11, 13) are towed by a vessel (12), and said electrodes (10, 11, 13) are supplied with electric current from the vessel (12) to set up a magnetic field in the water surrounding said electrodes (10, 11, 13) characterised in that at least three electrodes (10, 11, 13) are utilized and that each electrode (10, 11, 13) separately is supplied with electric current, the strength of the current being individually controllable while maintaining a predetermined relationship between the current supplied to the electrode (13) arranged most closely to the vessel and the current supplied to the electrode (11) arranged most distant of the vessel.

5,063,851

EXPENDABLE BREECH GUN ROUND

William M. Moscrip, King George City, Va., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 28, 1975, Ser. No. 626,675
Int. Cl.[5] F42B *5/18*
U.S. Cl. 102—433 **8 Claims**



1. A round for expendable breech guns comprising:
a hollow cylindrical one-shot breechcase closed at one end thereof;
a propellant liner bonded to the inner wall of said breechcase and extending substantially throughout its length;
a projectile disposed within and support by said liner; and
means fixed in the closed end of said breechcase for facilitating ignition of said propellant.

5,063,852

FORWARD FULL CALIBER CONTROL TUBE FOR A CASED TELESCOPED AMMUNITION ROUND

J. Bruce Warren, Plymouth, Minn., assignor to Alliant Techsystems Inc., Edina, Minn.

Filed Nov. 14, 1990, Ser. No. 613,255
Int. Cl.[5] F42B *5/045*
U.S. Cl. 102—434 **14 Claims**

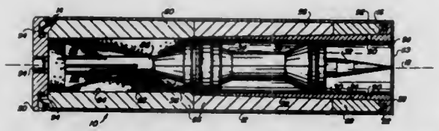
1. A cased telescoped ammunition round comprising:
a casing having a front portion and a rear portion;
a real seal closing the rear portion of the casing;
a front seal secured to the front end of the casing;
a fin stabilized penetrator;

VOL 1132 ISS 2 NO 12 1991 UMI

a sabot mounted on the penetrator, the sabot having a forward bourrelet and an aft bourrelet, an obturator band mounted on the aft bourrelet, and retention means located on the aft bourrelet aft of the obturator band;

a forward full caliber tapered control tube positioned within the casing and secured to the front seal, the control tube having an aft end, a front end and side walls which increase in thickness from the aft end of the control tube to the front end of the control tube, the sabot being positioned in the control tube with the obturator band of the aft bourrelet within the control tube;

retention means positioned within the control tube for cooperating with the retention means of the aft bourrelet to



retain the sabot and the penetrator within the control tube during normal handling;

a first consolidated ring of main propellant positioned around the control tube within the casing;

a second consolidated ring of main propellant positioned within the casing between the rear seal and the first ring of the main propellant;

a booster propellant positioned in the space defined by an inner surface of the second propellant ring, the rear seal, the sabot and the penetrator; and

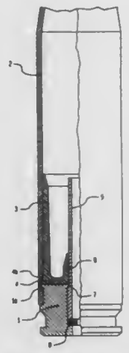
primer means mounted in the rear seal for igniting the booster, propellant; the booster propellant, when initiated, igniting the main propellant.

5,063,853

CARTRIDGE CASE

Elmar Bilgeri, Steyr, Austria, assignor to Steyr-Daimler-Puch AG, Vienna, Austria

Filed Feb. 19, 1991, Ser. No. 657,635
Claims priority, application Austria, Feb. 27, 1990, 452/90
Int. Cl.[5] F42B *5/30*
U.S. Cl. 102—467 3 Claims



1. A cartridge case, comprising

a base piece made from a metal, said base piece having an inner face,

a sleeve casing mounted on said base piece, said sleeve casing being made from a plastic material, said sleeve casing having an inner surface,

a non-integral tubular section disposed along the inner surface of said sleeve casing, sadi tubular section being made from a plastic material, said tubular section including a flange which extends along said inner face of said base piece,

snap lock means disposed on said base piece, said sleeve casing, and said tubular section for connecting said base piece, said sleeve casing and said tubular section together, and

a flash tube mounted on said base piece, said tubular section further including a lip extending from said flange along an outer side surface of the flash tube.

5,063,854

PROPELLING CAGE DISCARDING SABOT FOR A SPIN-STABILIZED SUBCALIBER PROJECTILE

Bernard Bisping, Ratingen; Michael Vagedes; Sigfried Kessler, both of Düsseldorf, and Ulrich Theis, Mülheim, all of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Fed. Rep. of Germany

Filed Aug. 16, 1989, Ser. No. 394,733
Claims priority, application Fed. Rep. of Germany, Aug. 16, 1988, 3827739
Int. Cl.[5] F42B *13/16*
U.S. Cl. 102—520 20 Claims

1. A propelling cage discarding sabot for a spin-stabilized subcaliber projectile, comprising:

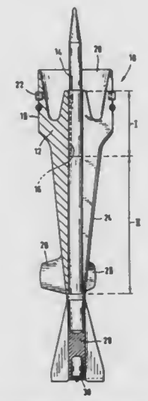
a plastic material which is shaped and which is comprised of a polyamide and from about 5% to about 30% by weight of carbon fibers, which carbon fibers are substantially solid fibers, the plastic material having a specific weight which does not exceed 1.11 g/cm^3, a tensile strength which is greater than 120 N/mm^2, and a maximum water absorption which does not exceed 0.8% so that the propelling cage discarding sabot has mechanical characteristics which are substantially constant and has substantial dimensional trueness.

5,063,855

PROJECTILE ARRANGEMENT

Rainer Diel, Düsseldorf; Achim Sippel, Ratingen; Jürgen Meyer, Cologne, and Heinz-Josef Kruse, Ratingen, all of Fed. Rep. of Germany, assignors to Rheinmetall GmbH, Düsseldorf, Fed. Rep. of Germany

Filed Oct. 16, 1990, Ser. No. 600,414
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1989, 3937665
Int. Cl.[5] F42B *12/06, 14/06*
U.S. Cl. 102—521 17 Claims



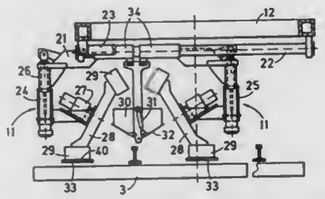
1. In a projectile arrangement including a subcaliber projectile body, a segmented, discardable propelling cage sabot having at least one radially extending flange and a gas pressure receiving surface extending rearwardly from said flange, with said propelling cage sabot at least partially surrounding a portion of the length of an outer cylindrical surface of said projectile body to provide a common form locking zone extending along the surrounded portion, and means, disposed within said form locking zone, for transmitting the acceleration forces from said propelling cage sabot to said projectile body, with said means for transmitting being composed, at least in part, of one of corresponding thread grooves and annular grooves structurally worked into said outer surface of said projectile body and into an interior surface of said propelling cage sabot; the improvement wherein: said common form locking zone is divided into at least first and second locking zone regions extending over its length; said first form locking zone region is disposed in front of said second form locking zone region, and extends rearwardly beyond said radially extending flange to a length adjacent said outer pressure receiving surface; the portions of said interior surface of said propelling cage sabot and of said outer surface of said projectile body within said first form locking zone region are provided with said corresponding grooves; the portion of said outer surface of said projectile body within said second form locking zone region, beneath said exterior gas pressure receiving surface of said propelling cage sabot, is provided only with microgrooves; and, the portion of said interior surface of said propelling cage within said second form locking zone region is smooth.

5,063,856

MACHINE FOR PICKING UP TIE PLATES

Josef Theurer, Vienna, and Herbert Wörgötter, Linz, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft M.B.H., Vienna, Austria

Filed Oct. 16, 1990, Ser. No. 598,556
Int. Cl.[5] E01B *29/10*
U.S. Cl. 104—9 6 Claims



1. A machine for picking up and storing tie plates of a railroad track comprising ties and two rails supported thereon, which comprises the combination of

(a) a machine frame,

(b) undercarriages supporting the machine frame for mobility on the track,

(c) a drive for moving the machine frame along the track in an operating direction,

(d) at least two tie plate pick-up devices transversely spaced from each other on the machine frame, the tie plate pick-up devices being vertically adjustable between a lower pick-up position wherein their transverse spacing corresponds to the track gage and an upper tie plate depositing position,

(f) at least one storage device arranged on the machine frame for receiving the tie plates from the pick-up devices in their upper tie plate depositing position,

(g) a transversely displaceable device mounted on the machine frame for transversely displacing a track tie within a range of about 30 cm to about 100 cm,

(h) a drive for transversely displacing the track tie displacing device,

(i) a vertically adjustable rail lifting device mounted on the machine frame adjacent the track tie displacing device, and

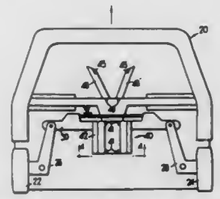
(j) a drive for vertically adjusting the rail lifting device.

5,063,857

COMPREHENSIVE UNIT TRANSPORATION SYSTEM

Waldemar F. Kissel, Jr., 4321 NW. 66th Terr., Gainesville, Fla. 32606

Continuation-in-part of Ser. No. 82,839, Aug. 6, 1987, abandoned, which is a continuation of Ser. No. 629,123, Aug. 14, 1984, Pat. No. 4,685,398. This application Sep. 29, 1988, Ser. No. 251,344
Int. Cl.[5] B61K *1/00*
U.S. Cl. 104—88 4 Claims



1. A transportation system, comprising:

a network of guideways comprising through guideways crossing one another at different levels to define a plurality of intersections, each of said through guideways comprising a T-shaped raised guiderail anchored to a roadbed surface, said guideways being segregated into a plurality of level-of-service zones according to a predetermined, substantially constant, traffic speed;

said network of guideways further comprising at least one tangential loop transfer guideway interconnecting said through guideways at each of said intersections, each of said tangential loop transfer guideways including a T-shaped raised guiderail secured upon one of a plurality of roadbed surfaces and having at least one point of tangency with one of said through guideways, said point of tangency being characterized by a merge rail segment, a loop rail segment unconnected to said through guideway, and an exit rail segment;

a plurality of self-propelled vehicles adapted for unidirectional travel about said network of through guideways and tangential loop transfer guideways, said vehicles each including a downwardly extending guide rail shoe enveloping said raised guiderail so as to physically constrain each of said vehicles upon said guideway, each shoe further comprising means for electronically sensing said raised guide rail such that said vehicle tracks said raised guiderail;

said vehicles being designated for travel within one or more of said level-of-service zones;

means for selectively guiding said vehicles from a point of origin to a point of destination within said network of guideways, said guiding means including means for selectively guiding a first vehicle on one of said tangential loop transfer guideways such that upon said first vehicle and said second vehicle reaching said point of tangency at the same time, said first vehicle moves at constant speed along said through guideway and said second vehicle is directed around said tangential loop transfer guideway via said loop rail segment at constant speed;

each one of said level-of-service zones including means for permitting only said designated vehicles to enter such said level-of-service zone, said permitting means comprising

a level-of-service screening key;

a vehicle mounted component comprising a horizontal member attached to said vehicle; and

a guideway mounted component comprising a raised rail member located immediately prior to said merging point and parallel to said raised guiderail, whereby contact of said horizontal member mounted on said vehicle with said

VOL 1132 ISS 2 NO 12 1991 UMI

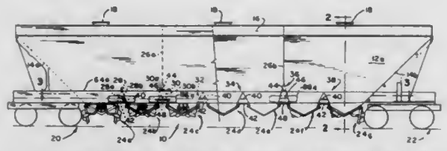
raised rail member prevents entrance of said non-designated vehicle into said zones, the distance of said raised rail member from said raised guide rail dependent upon which level of service zone said continuous guideway intersects.

5,063,858

COVERED HOPPER RAILWAY CAR WITH DROP BOTTOM DOORS AND SUBSTANTIALLY VERTICAL OUTLETS TO MAXIMIZE DISCHARGE AREA

Richard H. Dugge, Des Peres, Mo., assignor to ACF Industries, Incorporated, Earth City, Mo.

Filed Oct. 30, 1989, Ser. No. 428,630
Int. Cl.[5] B61D *7/02, 7/16*
U.S. Cl. 105—253 **16 Claims**



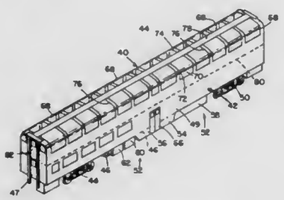
1. A covered hopper railway car for transporting ladings including a pair of parallel, spaced apart side walls;
opposed end walls;
a roof covering the car and having at least one opening therein for loading lading into the car;
a plurality of drop-bottom outlets for discharging lading from the car, each outlet having a pair of doors which are selectable openable, the length and width of each outlet being sufficient to substantially prevent lading from bridging over the outlet thereby facilitating discharge of lading;
means for attaching the outlets to the side walls of the car and including a pair of spaced apart sheets extending transverse to the longitudinal axis of the car and attached to the inner surface of the respective side walls of the car at the base thereof for attaching the outlets to the bottom of the car, the spacing between the sheets, at the bottom edge thereof being equal to the width of the outlet, the sheets for the respective adjacent ends of adjacent outlet being connected at their respective upper ends with the sheets being substantially vertical when attached to the side walls of the car thereby to maximize the discharge are provided by the outlets; and,
vibrating means including a pair of vibrator pads attached each side of the car for connecting a vibrator to the pad to shake the car and loosen the lading therein.

5,063,859

DOUBLE-LEVEL RAILROAD CAR HAVING A FLAT CENTER SILL

Thomas G. Rader, 7708 89th Pl. SE., Mercer Island, Wash. 98040

Filed Oct. 7, 1988, Ser. No. 255,068
Int. Cl.[5] B61D *1/00*
U.S. Cl. 105—340 **18 Claims**



1. A railroad car apparatus comprising:
a first railroad car having a first end and a second end and having wheels at each end adapted to contact a pair of rails below said railroad car;
a frame of said first railroad car including a center sill, said center sill extending generally horizontal between support points above said wheels at said first end of said railroad car to wheels at said second end of said railroad car;
a first floor region positioned above said center sill of said first railroad car;
a first doorway opening into said first level floor region at said first end of said first car;
a second floor region positioned above said first floor region of said first railroad car;
a second doorway opening into said second level floor region at said first end of said first railroad car;
a second railroad car coupled to said first railroad car, said second railroad car having a first end and a second end and having wheels at each end adapted to contact a pair of rails below said second railroad car;
a frame of said second railroad car including a center sill, said center sill extending generally horizontally between support points above said wheels at said first end of said second railroad car to wheels at the second end of said second railroad car;
a first floor region positioned above said center sill of said second railroad car;
a first doorway opening into said first level floor region at said first end of said second railroad car;
a second floor region positioned vertically above said first floor region;
a second doorway opening into said second level floor region at said first end of said second car, said second railroad car being coupled at its respective first end to said first railroad car at its respective first end, coupling the floor regions of said cars together at said first level, thus forming a first common passageway between said first and second railroad cars at respective first floor regions; and
a second common passageway between said first and second railroad cars at respective second floor regions being formed, permitting different users to pass from said first railroad car to said second railroad car at said first passageway or at said second passageway independent of each other.

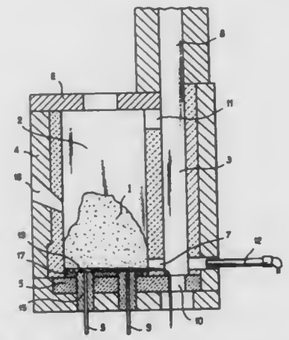
5,063,860

METHOD AND APPARATUS FOR MELTING MATERIALS CONTAINING INORGANIC MATERIAL FIBERS BY THE SUPPLY OF OXYGEN RICH GAS

Strnad Vojtech, Helsingborg, Sweden, assignor to Isover Saint-Gobain, Courbevoie, France

Filed Feb. 16, 1990, Ser. No. 480,827
Claims priority, application Sweden, Feb. 23, 1989, 8900635
Int. Cl.[5] F23G *5/00*
U.S. Cl. 110—256 **2 Claims**

1. A method of melting an inorganic material which is mixed with an organic substance, comprising the steps of:
heating the inorganic material and organic substance in a furnace to a temperature sufficient for the organic material to combust; and
feeding sufficient oxygen enriched gas, having an oxygen content of at least 40% by volume, to the furnace such that the combustion of the organic substance produces sufficient heat to melt the inorganic material, wherein the inorganic material comprises inorganic fibers and the feeding step comprises feeding said oxygen enriched gas adjacent a boundary layer between the melted inorganic material and unmelted inorganic material on top of the melted inorganic material.

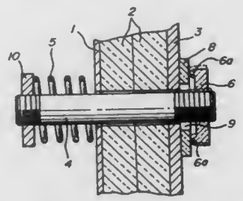


5,063,861

CERAMIC FIBER FURNACE

Keikichi Imogawa, Ichinomiya, and Kazuo Nakasako, Nagoya, both of Japan, assignors to NGK Insulators, Ltd., Aichi, Japan

Continuation of Ser. No. 565,672, Aug. 10, 1990, abandoned.
This application Mar. 11, 1991, Ser. No. 666,441
Claims priority, application Japan, Aug. 11, 1989, 1-208664
Int. Cl.[5] F23M *5/00*
U.S. Cl. 110—336 **5 Claims**



1. A ceramic fiber furnace having a furnace wall of a structure composed of a substrate member, a wall of ceramic fibers applied on the inner surface of the substrate member, a ceramic fiber board applied on the inner surface of the wall of the ceramic fibers, and a ceramic pin penetrating through the furnace wall, comprising a ceramic plate interposed between a ceramic nut and the ceramic board, the ceramic plate having a penetration hole which has a larger diameter than the diameter of the ceramic pin for allowing free displacement of the ceramic pin therein.

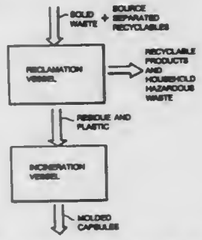
5,063,862

SOLID WASTE RECLAMATION AND PROCESSING METHOD

Udi E. Saly, Newton Center, Mass., assignor to Flexible Environmental Systems, Inc., Boston, Mass.

Filed Jun. 1, 1990, Ser. No. 532,194
Int. Cl.[5] F23G *5/00*
U.S. Cl. 110—346 **22 Claims**

1. A method of treating solid waste offshore comprising the steps of:
loading said solid waste onto a first oceangoing vessel;
separating said solid waste into recyclable waste and non-recyclable waste on said first vessel;



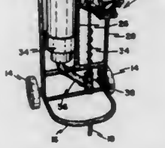
transferring said non-recyclable waste onto a second oceangoing vessel; and
incinerating said non-recyclable waste on said second vessel.

5,063,863

TREE FERTILIZING TOOL USING AN AUGER AND MEASURING MEANS

Floyd F. Peterson, 7471 Main St. W., Webster, Wis. 54893

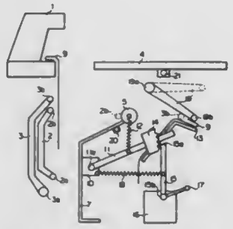
Filed Aug. 7, 1990, Ser. No. 563,488
Int. Cl.[5] A01C *5/02, 21/00*
U.S. Cl. 111—93 **8 Claims**



1. An apparatus for fertilizing soil comprising:
a frame;
auger means movably mounted on said frame for drilling into the ground;
means connected to said frame for storing fertilizer;
means for pre-measuring a predetermined amount of fertilizer from said storing means; and
means for feeding the predetermined amount of fertilizer from said pre-measuring means to a location which is proximate said auger means, said pre-measuring means comprising means defining a measuring chamber which is positioned beneath said storing means, said measuring chamber comprising a hollow drum which is mounted for rotation within a cylindrical socket, first means for opening a passage between said storing means and said measuring chamber so that said measuring chamber is allowed to fill, and second means for opening a passage between said measuring chamber and said feeding means, said second means comprising a feed opening defined in said socket which is in communication with said feeding means, and a second opening defined in said drum for communicating with said feed opening when said drum is in a second angular position, whereby a measured amount of fertilizer is allowed to pass into said feeding means.

VOL
1132
ISS
2
NO
12
1991
UMI

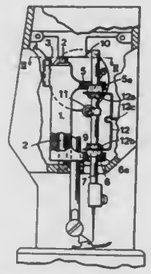
5,063,864
WORKPIECE STACKER IN SEWING MACHINE
Tetsuo Iizuka; Tokiji Jin, and Hideho Sasamoto, all of Chofu, Japan, assignors to Juki Corporation, Tokyo, Japan
Filed Sep. 13, 1990, Ser. No. 581,769
Int. Cl.[5] D05B *33/00*
U.S. Cl. 112—121.29 **2 Claims**



1. A workpiece stacker for a sewing machine having a workpiece table, comprising:
a stacking panel for stacking thereon a workpiece;
means for receiving thereon a lower end of said first workpiece;
first means for pushing the lower end of said workpiece to said receiving means to clamp the workpiece between said receiving means and said first pushing means;
means for transporting a middle portion of said workpiece on said stacking panel;
second means provided under said workpiece table for pushing an upper end of said workpiece to said stacking panel;
means for supporting said stacking panel so that said stacking panel continuously and gradually moves downward as said second pushing means pushes the workpiece to said stacking panel; and
means for moving said stacking panel to an initial position;
wherein said supporting means comprises a supporting lever rotatably mounted on said sewing machine and means for allowing downward movement of said stacking panel while restricting upward movement thereof;
wherein said allowing means comprises a rack mounted on said supporting lever and a lever mounted on said sewing machine, said lever including a pawl engaging with said rack.

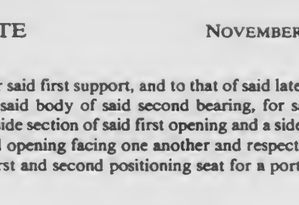
5,063,865
ZIG-ZAG SEWING MACHINE WITH AN OSCILLATING CRADLE FOR SLIDINGLY MOUNTING A NEEDLE BAR
Antonio Jimenez, Meyrin, and Michel Combepine, Les Avanchets, both of Switzerland, assignors to Mefina S.A., Switzerland
Filed Nov. 30, 1989, Ser. No. 443,359
Claims priority, application Switzerland, Nov. 30, 1988, 4439/88
Int. Cl.[5] D05B *3/02*
U.S. Cl. 112—221 **6 Claims**

1. A zig-zag sewing machine, including a needle bar mounted to slide in a first and second bearing associated with a first and second support, respectively, means driving the first support in a plane extending transversely to said needle bar in alternating reciprocating motion of predetermined amplitude in such a manner as to impose upon said needle bar a corresponding jogging motion, each said bearing being formed from a body having a rectilinear passage for guiding said needle bar in a sliding motion, at least a portion of a lateral surface of said bearing having a shape corresponding to that of an annular segment of a sphere, said first and second supports having a first and a second opening, respectively, said first and second openings being in alignment and offering passage to said needle bar, at least one annular section of an inner side of said first and second openings, respectively, having a profile corresponding to that of said lateral surface portion of said body of said first bearing, for said first support, and to that of said lateral surface portion of said body of said second bearing, for said second support, a side section of said first opening and a side section of said second opening facing one another and respectively comprising a first and second positioning seat for a portion of said



spherical body of said first bearing, and said second bearing respectively, at least one elastic device being placed in a buttressing arrangement between said bearings, resting against the bodies of both bearings, respectively, and tensioned sufficiently to hold each bearing on the seat of its respective support.

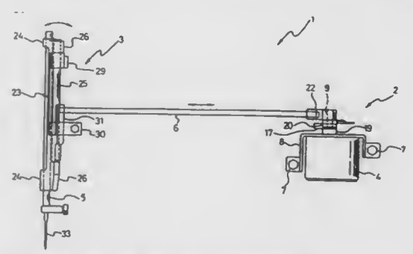
5,063,866
SEWING MACHINE
Antonio Jimenez, Meyrin, and Michel Combepine, Les Avanchets, both of Switzerland, assignors to Mefina S.A., Switzerland
Filed Nov. 30, 1989, Ser. No. 443,673
Int. Cl.[5] B65H *57/00*; D05B *49/00, 75/00*
U.S. Cl. 112—302 **4 Claims**



1. A sewing machine, having a casing with a support for a sewing thread spool and comprising a base, a column placed on said base and carrying an arm projecting laterally and extending above said base, said arm having at least a needle bar provided with a sewing needle, a mechanism for driving said needle bar in an axial reciprocating motion, first means defining a path for thread taken from said spool to the sewing needle, a thread tension device including second means for pinching the thread at a first intermediate point of said path, a thread tightening means disposed in a receptacle of said arm and including a take-up rocking lever having a hooked portion,

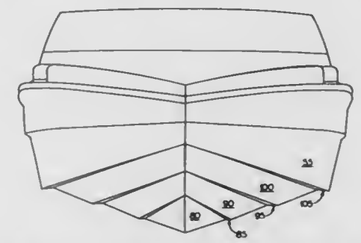
and third means controlling the rocking movement of said lever from a first end position to a second end position and vice versa, in synchronism with axial motion of said needle bar, said arm of the casing having a lower face from which said needle bar projects, an upper face opposed to the lower face, first and second lateral faces joining said upper and lower faces of the arm, respectively, and a frontal face located at a free end of the arm, edges of said frontal face being defined by said upper, lower and lateral faces of the arm, said first means including devices for guiding the thread between said spool and a first zone of said upper face of the arm corresponding to said first intermediate point of said path for thread, and a first channel receiving thread emerging from said thread guide devices and including a first and a second channel segment, said channel segments being contiguous and extending one within the extension of the other, said first channel segment extending on said upper face of said arm, between said first zone of said upper face and said frontal face of the arm, and said second channel segment extending on said frontal face of the arm, from a first edge of said frontal face adjacent to said upper face of said arm, to a second edge of said frontal face, adjacent to said lower face of said arm, said pinching means being disposed at least partly inside said first channel segment, on said first zone of said upper face of said arm, at least a portion of the wall of said receptacle and at least a portion of the wall of the first channel segment being common to said receptacle and said first channel, said first channel segment communicating with said receptacle via a connecting window cut in said first wall portion of said first channel segment, and said thread tightening means being disposed in said receptacle of said arm so that, upon rocking of said lever from said first end position to said second end position under control of said third means, at least said hooked portion of said lever periodically traverses said connecting window and penetrates to the first channel within reach of said thread segment to grasp the thread, and upon subsequent rocking of said lever from said second end position to said first end position, a part of said thread segment grasped by said hooked portion is carried up by said hooked portion of said lever into said receptacle through said connecting window.

5,063,867
ZIGZAG SEWING MACHINE
Fujio Horie, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Dec. 12, 1989, Ser. No. 448,892
Claims priority, application Japan, Dec. 20, 1988, 63-322292
Int. Cl.[5] D05B *3/02*
U.S. Cl. 112—443 **12 Claims**



1. A zigzag sewing machine comprising:
a needle bar;
a needle attached to the needle bar for sewing a fabric;
needle bar vertical drive means for moving the needle and needle bar up and down;
feeding means for feeding the fabric in a forward and back feed direction;
crossfeeding means for moving the fabric in increments of a minimum crossfeeding pitch in a first direction and a second direction, the first and second directions being orthogonal to the forward and back feed direction, while the needle is moved above the fabric by the needle bar vertical drive means; and
needle bar lateral drive means for moving the needle and needle bar in increments of a minimum laterally moving pitch in the first direction and the second direction while the needle is moved above the fabric by the needle bar vertical drive means, wherein the minimum laterally moving pitch is greater than the minimum crossfeeding pitch,
the crossfeeding means comprises a feed dog, a crossfeed step motor and a crossfeed transmission, the crossfeed transmission connects the crossfeed step motor with the feed dog such that the crossfeed transmission transmits motion of the crossfeed step motor to the feed dog in a first transmission ratio; and
the needle bar lateral drive means comprises a lateral step motor and a lateral drive transmission where the lateral drive transmission connects the lateral step motor with the needle bar such that the lateral drive transmission transmits motion of the lateral step motor to the needle bar in a second transmission ratio, and wherein the first transmission ratio is smaller than the second transmission ratio.

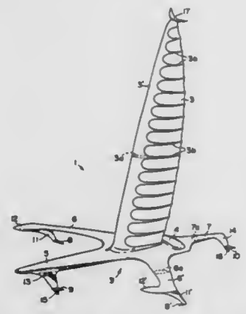
5,063,868
BOAT HULL FOR V-BOTTOM POWERBOATS
James A. Fink, Jr., Rte. 5, Box 491, Hartsville, S.C. 29550
Filed Jnl. 6, 1990, Ser. No. 549,339
Int. Cl.[5] B63B *1/18*
U.S. Cl. 114—56 **13 Claims**



1. A one-piece powerboat hull comprising a forward nose, a stern which includes a transom, and a bottom which extends forwardly from said transom to said nose and which includes an outside surface which is intended to contact the water,
said outside surface of said bottom having a generally V-shaped outline in transverse cross-section so as to define a centerline keel which extends forwardly from said transom and merges into a bow line aft of said nose, and opposite sides,
said opposite sides being generally symmetrical about said centerline keel and bow line, and with each side including
(a) a plurality of running surfaces extending from said transom to said bow line, and with said running surfaces defining generally straight, substantially parallel lines which are laterally offset from each other when viewed in transverse cross-section, and
(b) a plurality of lifting surfaces, including a lifting surface extending laterally between each adjacent pair of running surfaces along substantially the full length of said bottom from said transom to said bow and defining a generally straight line when viewed in transverse cross-section, and with each said lifting surface additionally defining an angle, relative to the horizontal, in the range from about 0° to 5°, either positive or negative.

VOL
1132
ISS
2
NO
12
1991
UMI

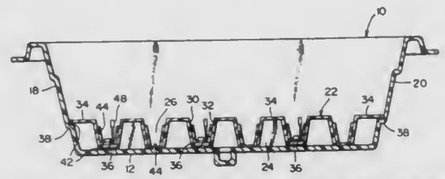
5,063,869
WING TYPE SAILING YACHT
Ernst-August Bielefeldt, Hollenstedt, Fed. Rep. of Germany, assignor to Deutsche Airbus GmbH, Hamburg, Fed. Rep. of Germany
Filed Sep. 15, 1989, Ser. No. 407,550
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1988, 3831468
Int. Cl.[5] B63B *1/22*
U.S. Cl. 114—61 **16 Claims**



1. A wing type sailing yacht, comprising a hull (2), a mast (3*a*), and a sail (3) carried by said mast, said hull having a bow (5) with a bow keel (13) and a stern (7) with a stern keel (14), said bow keel (13) having first buoyancy control surfaces (9) at its lower end, said stern keel (14) having second buoyancy control surfaces (10) at its lower end, an outrigger arm (6, 6') attached laterally to each side of said hull (2), an approximately downwardly projecting fin strut (11, 11') acting as a lateral steering wing at the end of each of said outrigger arms (6, 6'), a third buoyancy control surface (8) at one of said fin struts (11), and a fourth buoyancy control surface (8') at the other of said fin struts (11'), said first, second, third and fourth buoyancy control surfaces (9, 10, 8, 8') forming a four-point wing system for producing lift, for steering, and for stabilizing, said outrigger arms (6, 6') comprising narrow elastic surface wing type carriers having a negative sweepback, pontoons (12, 12') attached to ends of said wing type carriers (6, 6'), said third and fourth buoyancy control surfaces (8, 8') and said fin struts (11, 11') forming together an L-shape, said bow keel (13) having a high speed bow rudder (15) secured to said bow keel (13) below said first buoyancy control surfaces (9) to form a first cross-configuration (13, 9, 15), said stern keel (14) having a high speed stern rudder (16) secured to said stern keel (14) below said second buoyancy control surfaces (10) to form a second cross-configuration (14, 10, 16).

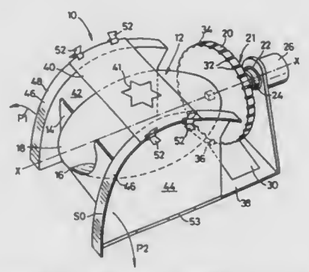
5,063,870
BOAT BOTTOM CONSTRUCTION
Warren Wagner, 48 Cypress Rd., Covington, La. 70433
Filed Jan. 23, 1991, Ser. No. 644,599
Int. Cl.[5] B63B *5/24*
U.S. Cl. 114—357 **20 Claims**

1. A boat hull including upstanding longitudinal opposite sides, a bottom extending between and interconnecting said opposite sides and including inner and outer surfaces, a combined floor and bottom reinforcing and floatation assembly, said assembly including a generally horizontal, elongated, stiff and corrugated panel disposed longitudinally in said hull between said sides and including a plurality of elongated, generally parallel, longitudinally extending and laterally spaced apart downwardly opening channel members each including upstanding opposite side flanges having upper and lower margins and an upper bight portion extending between and interconnecting said upper margins, said lower margins conforming to the contour of and abutting against the underlying inner surface portions of said bottom, said assembly also including web portions spaced longitudinally of said panel and extending between and interconnecting lower margins of adjacent channel members, side flanges and web portions defining downwardly opening channel members between adjacent upwardly opening channel members, said lower margins and web portions being bonded to said inner surface, a rigid floor disposed



over and secured to said bight portions, and foam floatation disposed in and substantially filling the interiors of said channel members, said foam floatation comprising rigid foam floatation with adherent properties whereby said foam floatation defines reinforcement between said side flanges and between said floor and bottom and also serves to adhere said floor and side flanges to said bottom and said side flanges and rigid floor to said bottom.

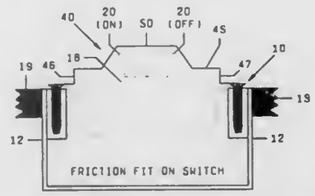
5,063,871
APPARATUS FOR HOLDING AND ROTATING AN OBJECT
Denis Chambers, 60 Huntingtower Road, Grantham, England NG31 7AN
Filed Feb. 7, 1990, Ser. No. 476,584
Int. Cl.[5] B05C *13/02, 17/08*
U.S. Cl. 118—13 **8 Claims**



1. Apparatus for holding an egg-shaped object to enable a pattern to be applied thereto, said apparatus comprising:
a base;
a rotating member rotatably mounted on the base for rotation about an axis;
a reaction support means mounted on the base at a position axially spaced from the rotating member;
the rotating member and reaction support means co-operating to support an egg-shaped object therebetween for rotation about said axis;
first and second template support members attached to the base on opposite sides of said axis such that the template support members extend along opposite sides of an egg-shaped object when mounted between said rotating member and reaction support means;
the template support members each having a template support surface to enable a template to be supported at opposed ends to overlie an egg-shaped object mounted between said rotating member and reaction support means;

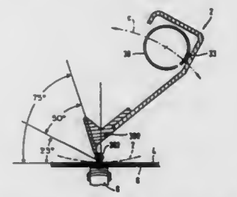
said rotating member comprising a hand wheel including a centrally located object-engaging member for drivingly connecting the wheel to the object;
the hand wheel being cooperable with a detent means for selectively hold the hand wheel at one of a plurality of radially defined positions; and
the reaction support means comprising a plate member having a recess formed in its upper edge for rotatably receiving an end of the egg-shaped object.

5,063,872
PROTECTIVE COVER FOR ELECTRICAL FIXTURE
Patricia Maus, and Ralph Sievert, both of R.D. #1, Box 716, Lenhartsville, Pa. 19534
Filed Jun. 26, 1990, Ser. No. 543,488
Int. Cl.[5] B05C *21/00*
U.S. Cl. 118—213 **5 Claims**



1. A multi-purpose protective device for protecting at least one of an electrical fixture selected from a group consisting of an electrical switching fixture and an outlet, during treatment of a surface on which said electrical switching fixture or said outlet is mounted with a predetermined treatment agent, wherein said electrical switching fixture includes internal elements mounted behind said surface, a toggle switch exposed at the surface to permit operation of an apparatus coupled to the fixture, and a fixture cover normally mounted on the fixture to cover said internal elements of said fixture and a portion of the surface around a periphery of the fixture while permitting said toggle switch to be exposed, and wherein said outlet includes internal elements mounted behind said surface, a plug-in portion exposed at the surface to permit connection of an apparatus to said outlet, and an outlet cover normally mounted on said outlet to cover said internal elements and to cover a portion of the surface around a periphery of the outlet while permitting said plug-in portion of said outlet to be exposed, wherein said device comprises:
a protective cover for temporarily replacing either said fixture cover or said outlet cover during said treatment of the surface, wherein said protective cover includes:
means for covering said internal elements of either said electrical switch fixture or said outlet to protect said internal elements from contact with said treatment agent during said surface treatment;
means for covering said toggle switch of said electrical switch fixture to protect it from said surface treatment; and
means for covering said plug-in portion of said outlet to protect it from said surface treatment,
wherein said means for covering said toggle switch is configured to frictionally fit over and frictionally engage said toggle switch to secure said protective cover to said electrical switch fixture during said surface treatment, and
wherein said means for covering said plug-in portion of said outlet is configured to frictionally fit over and frictionally engage said plug-in portion to secure said protective cover to said outlet during said surface treatment,
whereby said multi-purpose protective device can be used selectively to protect either an electrical switch fixture or an outlet during treatment of said surface.

5,063,873
DOCTOR DEVICE
Johannes Zimmer, Ebentaler Strasse 133, 9020 Klagenfurt, Austria
Division of Ser. No. 255,604, Oct. 11, 1988, Pat. No. 4,920,914. This application Mar. 29, 1990, Ser. No. 501,258
Claims priority, application European Pat. Off., Oct. 10, 1987, 87730126.7; Oct. 10, 1987, 87730128.3; Fed. Rep. of Germany, Oct. 10, 1987, 3734747[U]; Oct. 10, 1987, 8713788[U]; Oct. 10, 1987, 8713789[U]
Int. Cl.[5] B05C *11/04;* B41F *15/44*
U.S. Cl. 118—414 **7 Claims**



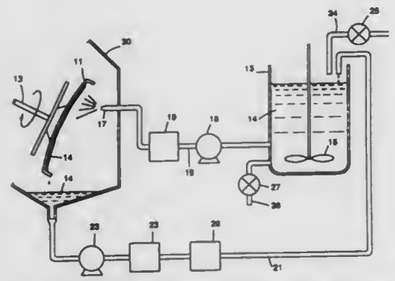
1. An apparatus for applying materials having different viscosities to an application surface, comprising:
an angularly adjustable doctor device having a magnetically pressable roll doctor;
a mount and mount-moving means for moving the mount;
said doctor device having a profile member having at least one profile surface facing the application surface and extending in a plane parallel to a longitudinal axis defined by the roll doctor; and
a retaining member having the form of a retaining strip and having opposite ends, wherein one end of the retaining member is supported by the mount and the other end is fixed to the profile member;
said mount being arranged to be moved by said mount-moving means in a pivotable manner about the longitudinal axis defined by said roll doctor so that the profile member engages the doctor while pivoting through a range of approximately 25 to 75 degrees as defined by an angle formed between the profile surface plane and the application surface, the apex of the angle lying on a pressing line defined as the line of contact between said roll doctor and said application surface, and wherein the profile member and mount are pivotable about the longitudinal axis of the roll doctor such that the shape and size of a substance accumulation area formed between the profile surface and the application surface can be varied.

5,063,874
CARBON SLURRY REGENERATION APPARATUS
Robert E. Dodds, San Diego, Calif.; Tsutomu Inose, and Yoshimitsu Kato, both of Aichi, Japan, assignors to Sony Corporation, Japan
Division of Ser. No. 396,847, Aug. 22, 1989, Pat. No. 4,939,000. This application May 15, 1990, Ser. No. 523,586
Int. Cl.[5] B05D *5/06;* B01D *15/04*
U.S. Cl. 118—602 **5 Claims**

1. An apparatus for producing a black matrix-type phosphor screen of a cathode ray tube comprising:
(a) carbon coating means for coating a carbon slurry on a cathode ray tube panel;
(b) a tank for containing said carbon slurry;
(c) a supplying system for supplying said carbon slurry from said carbon slurry tank into said carbon coating means;
(d) a collecting system for collecting excess carbon slurry produced from said carbon coating means into said carbon slurry tank; and

VOL 1132 ISS 2 NO 12 1991 UMI

(e) carbon slurry regenerating means using an ion-exchange resin,



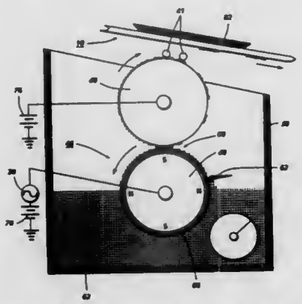
wherein said regenerating means is provided in at least one of said supplying system, said collecting system and said carbon slurry tank.

5,063,875

DEVELOPMENT APPARATUS HAVING A TRANSPORT ROLL ROTATING AT LEAST TWICE THE SURFACE VELOCITY OF A DONOR ROLL

Jeffrey J. Folkins, Rochester, and Joseph G. Schram, Liverpool, both of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Mar. 19, 1990, Ser. No. 495,178
Int. Cl.[5] G03G *15/06*
U.S. Cl. 118—651 24 Claims



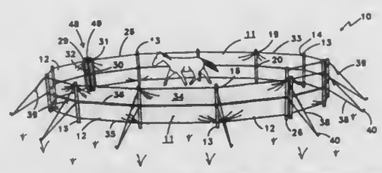
1. An apparatus for developing a latent image, including;
a housing defining a chamber for storing a supply of developer material therein;
a donor roll mounted at least partially in the chamber of said housing, said donor roll being adapted to advance developer material to the latent image;
a magnetic transport roll mounted in the chamber of said housing and being positioned adjacent said donor roll, said transport roll being adapted to advance developer material to said donor roll;
means for rotating said transport roll and said donor roll so that the surface velocity of said transport roll is at least twice the surface velocity of said donor roll; and
means for applying an alternating electric field between said donor roll and said transport roll to assist in transferring at least a portion of the developer material from said transport roll to said donor roll.

5,063,876

MEANS AND METHODS FOR TRAINING AND CONTAINING ANIMALS

Stephen W. Harris, Cottonwood, Ariz., assignor to William C. Velvin, Scottsdale, Ariz.

Filed Jul. 6, 1990, Ser. No. 549,582
Int. Cl.[5] A01K *1/02*
U.S. Cl. 119—20 14 Claims



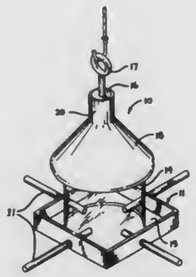
1. A rope corral assembly comprising an elongated generally rectangular netting section having a proximal end, a distal end, and central longitudinal axis extending therebetween; rope means extending between said proximal end and said distal end adjacent said central longitudinal axis, a plurality of pole members disposed transversely of said netting section and secured thereto in spaced generally parallel relationship to each other; means for connecting said proximal and distal end to enclose an area within said enclosed netting section; and means disposed outside of said area for maintaining each said pole member in a substantially upright position upon the ground to complete the corral assembly.

5,063,877

BIRD FEEDER APPARATUS

Michael S. Riggi, 39 Parkhaven Dr., Tonawanda, N.Y. 14150

Filed Jan. 22, 1991, Ser. No. 644,279
Int. Cl.[5] A01K *39/00*
U.S. Cl. 119—52.2 4 Claims



1. A bird feeder apparatus comprising, in combination,
a container, the container including an elongate floor and a continuous wall mounted to the floor in surrounding relationship relative to the floor, wherein the continuous wall includes a plurality of planar wall members defining a square configuration, and
a hopper defined about a central axis, wherein the central axis is orthogonally oriented relative to the floor and positioned medially relative to the floor, and the hopper includes a cylindrical body defined by a lower terminal edge, the lower terminal edge spaced above the floor, and
the hopper includes a neck portion, the neck portion defined by a second diameter, wherein the cylindrical body is defined by a first diameter, and wherein the second diameter is less than the first diameter, and
a cap member mounted to a terminal end of the neck orthogonally oriented relative to the hopper access, and
a support loop mounted on the cap, and
wherein the neck, the cap, and the support loop are each equal to the second diameter, and

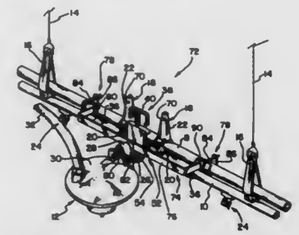
a fill aperture directed through the cylindrical body defined by a predetermined diameter, and
a funnel, wherein the funnel includes a conical body and funnel neck, and
the conical body is positioned overlying the cylindrical body in a first position, wherein the first position the funnel neck is positioned in surrounding relationship relative to the neck.

5,063,878

SUPPORT ASSEMBLY FOR SIDE MOUNT REGULATORS

Robert H. Hostetler, Goshen, Ind., assignor to Avtron, Inc., Elkhart, Ind.

Filed Sep. 6, 1990, Ser. No. 579,150
Int. Cl.[5] A01K *39*
U.S. Cl. 119—72.5 23 Claims



1. A watering system for fowl or small animals, said watering system including a water supply and a supporting structure, said watering system comprising:
an elongate ballast member coupled to the supporting structure, said ballast member including two ends and an intermediate portion;
a tubular water supply conduit rigidly attached to said ballast member;
a plurality of dispensing valves for providing water to the fowl or small animals, each said dispensing valve in fluid communication with said conduit, each said dispensing valve including means for permitting liquid flow when actuated by a fowl or small animal;
regulator means for regulating the water provided to said dispensing valves, said regulator means coupled to the water supply, said regulator means being in fluid communication with said conduit; and
mounting means for connecting said regulator means to said intermediate portion of said ballast member, said mounting means including a support bracket means for supporting said regulator means, and said mounting means also including at least one clamp attaching said support bracket means to one of said ballast member and said conduit.

5,063,879

CHILD RESTRAINT METHOD AND APPARATUS FOR AIRCRAFT AND OTHER VEHICLES

John H. Vorbau, 32472 Azores Rd., Laguna Niguel, Calif. 92677

Filed Nov. 20, 1989, Ser. No. 439,439
Int. Cl.[5] A62B *35/00*
U.S. Cl. 119—96 7 Claims

1. A child safety restraint apparatus for holding a child on the lap of an adult travel companion seated in a moving vehicle, said apparatus comprising:
a harness positionable about at least a portion of the body of the child, said harness comprising:
a plurality of shoulder strap members having first and second ends, each said shoulder strap member being positionable over a shoulder of the child in such manner that the first end of each said shoulder strap is disposed over the anterior thorax of the child while the second end of each said shoulder strap member is disposed over the posterior thoras of the child;
at least one crotch strap member having first and second ends, each said crotch strap member being positionable between the legs and under the crotch of the child such that the first end of the crotch strap member is disposed generally over the lower abdomen of the child and the second end of the crotch strap member is disposed generally over the lower back of the child;
at least one back strap member attached to and extending between the second end of said at least one shoulder strap member nd the second end of said at least one crotch strap member; and
at least one front strap member attached to and extending between the first end of said at least one crotch strap member nd the first end of said at least one shoulder strap member;



said shoulder strap member, crotch strap member, back strap member, and front strap member being sized, configured, and interconnected to form a harness-like apparatus disposable about the body of a child and attachable to a stationarily anchored object;
at least one attachment member movably mounted on said harness for attaching said harness to the lap seat belt worn by the adult, said attachment member being movable on said harness between (a) a "routine " position wherein the child is held in a generally seated position on the lap of the adult travel companion and (b) a "crash ready " position wherein the child is held in a generally supine lying position on the lap of the adult travel companion with the child's buttocks being adjacent the waist of the seated adult;
said at least one attachment member being slidably mounted on and movable over at least a portion of said back strap.

5,063,880

AUTOMATIC SPRAYING DEVICE FOR FARM ANIMALS

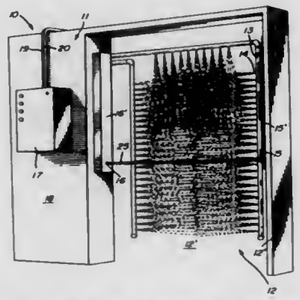
Rock J. Bouthillier, Montreal, Canada, assignor to Bug Atomateck Inc., St-Hubert, Canada

Filed Dec. 3, 1990, Ser. No. 623,105
Int. Cl.[5] A01K *29/00*
U.S. Cl. 119—159 4 Claims

1. An automatic spraying device for farm animals, said device comprising a framework defining a passage through which farm animals are directed one-by-one, electronic detection means associated with said passage and connected to electronic control circuit means to provide a detection signal thereto when a farm animal enters said passage, spray nozzles oriented with respect to said passage to spray animals passing through said passage, pump means to supply a chemically treated liquid to said spray nozzles under pressure, said pump means being actuated by said control circuit means upon reception of said detection signal, valve means to connect said pump means to said spray nozzles, a chemically treated liquid reser-

VOL 1132 ISS 2 NO 12 1991 UMI

voir connected to said pump means, automatic pump deactuation means including timing means to deactuate said pump means after a predetermined time lapse after reception of a valve closing signal where said valve means is closed to shut off said spray nozzles, sensing means in said reservoir and connected to said control circuit means to indicate the level of liquid in said reservoir when said liquid reaches a predetermined level, said sensing means comprises a variable resistance sensing element providing a level indication signal to an integrated circuit which provides a biasing signal to a D.C. current amplifier transistor which drives a light emitting diode to indicate that a predetermined low liquid level has been reached in said reservoir, said detection means being comprised of an infrared transmitter and receiver spaced apart across said inlet opening to generate an infrared beam across said inlet opening,



said detection signal being generated by said receiver when said beam is obstructed, said valve closing signal being constituted by the return of said obstructed beam, said detection signal providing a control signal to bias a D.C. current amplifier transistor to actuate a control relay to open a valve of said valve means, said control signal also biasing a further D.C. current amplifier transistor to actuate a further control relay to connect a supply to said pump means to make same operational, said further D.C. current amplifier transistor being connected to a standby circuit having a time delay circuit which is deactuated by the presence of said control signal, said time delay circuit being comprised of a charging capacitor connected to an integrated circuit which controls said further D.C. current amplifier transistor to deenergize said further control relay to remove the supply to said pump means.

5,063,881

CERAMIC ENGINE

Hideo Kawamura, Samukawa, Japan, assignor to Isuzu Motors Limited, Tokyo, Japan

Filed Jun. 25, 1990, Ser. No. 542,506

Claims priority, application Japan, Jul. 17, 1989, 1-182454

Int. Cl.[5] F02B *75/12*

U.S. Cl. 123—1 A **6 Claims**

1. A ceramic engine comprising:

a cylinder block,

ceramic cylinder liners fitted in bores in said cylinder block so as to form cylinders,

crank chambers formed with a lower portion of said cylinder block at the lower sides of said cylinder liners,

a cylinder head fixed to said cylinder block,

exhaust ports formed in said cylinder head,

exhaust valves provided for opening and closing said exhaust ports,

suction ports formed at the lower circumferential portions of said cylinder liners,

first suction passages allowing said suction ports and said crank chambers to communicate with each other,

pistons adapted to be moved reciprocatingly in said cylinder liners,

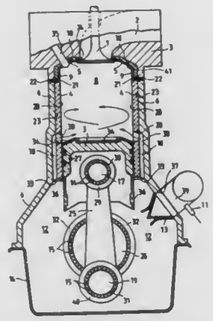
piston pins set in said pistons,

connecting rods joined rotatably at the smaller-diameter portions at one end part of each thereof to said piston pins,

a crankshaft joined rotatably to larger diameter portions at the other end part of each of said connecting rods so as to extend in said crank chambers, and supported rotatably at both end portions thereof on said cylinder block,

rolling bearings consisting of ceramic rolling elements installed in rotary sliding parts of said crankshaft and said larger-diameter portions of said connecting rods, rotary sliding parts at which said crankshaft is supported rotatably on a lower portion of said cylinder block, rotary sliding parts of said piston pins and said smaller-diameter portions of said connecting rods,

second suction passages through which suction air is introduced into said crank chambers,



fuel supply means for supplying fuel from said second suction passages into said cylinders through said crank chambers and said first suction passages,

ignition means provided in said combustion chambers and adapted to ignite said fuel; and

means for burning alcohol as said fuel, and whereby said fuel supply means further comprises means to suck the alcohol therethrough into said crank chambers for lubricating said ceramic rolling bearings of said crank shaft and said connecting rods with the alcohol, and means for then supplying the alcohol from said crank chambers to said cylinders through said first suction passages to lubricate the sliding surfaces of said said ceramic cylinder liners and said pistons, the alcohol then being ignited and burnt by said ignition means.

5,063,882

OIL SEPARATOR FOR GASES FROM A CRANKCASE OF AN INTERNAL-COMBUSTION ENGINE

Alfred Koch, Weissach, and Dieter Stephan, Eberdingen, both of Fed. Rep. of Germany, assignors to Dr. Ing.h.c.F. Porsche Aktiengesellschaft, Fed. Rep. of Germany

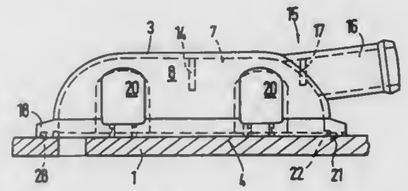
Filed Dec. 11, 1990, Ser. No. 625,353

Claims priority, application Fed. Rep. of Germany, Jan. 3, 1990, 4000060

Int. Cl.[5] F01M *13/00*

U.S. Cl. 123—41.86 **9 Claims**

1. An oil separator for gases from a crankcase of an internal-combustion engine, comprises a multipart housing adapted to be held on the crankcase, an insert arranged in the housing, wherein the exterior surface of the insert, together with an internal wall of the housing, form a first deceleration path in series with a second deceleration path for the gases, the deceleration paths being essentially of semicircular shape and being



partly separated from one another by a transversely extending wall of the housing.

5,063,883

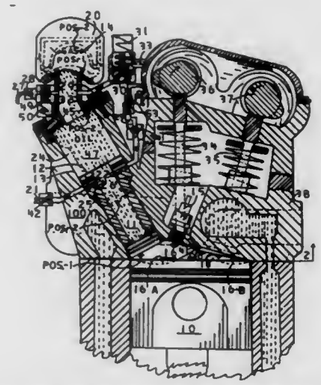
DETONATION CONTROL DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Billy E. Dingess, 117 Rail Road Ave., Ferrellsburg, W. Va. 25524

Continuation-in-part of Ser. No. 299,543, Jan. 19, 1989. This application Mar. 2, 1990, Ser. No. 487,256

Int. Cl.[5] F02B *75/04*

U.S. Cl. 123—48 R **9 Claims**



1. An internal combustion engine having a variable compression ratio comprising:

a power cylinder with an engine piston connected to a crankshaft, said cylinder having a head,

a head cylinder in said power cylinder head comprising a compensator cylinder adjacent said power cylinder which is connected by a seat to a larger displacement cylinder,

a hollow compensator piston having a base with a seat, and slidable within said cylinder so that said seats can contact each other, said base having inlet and outlet holes for circulating cooling oil through said compensator piston, said compensator piston having oil rings at either end,

a first set of inlet and outlet oil lines opening into said displacement cylinder and adjacent to said head cylinder seat to as to communicate with said inlet and outlet holes, with said inlet line opening facing said inlet hole and outlet line opening facing said outlet hole.

5,063,884

AIR INTAKE SYSTEM OF AN INTERNAL-COMBUSTION ENGINE

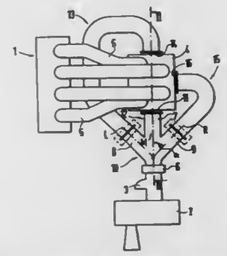
Erwin Rutschmann, Tiefenbronn, and Hans-Georg Breuer, Neuhausen-Steinegg, both of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany

Filed Oct. 1, 1990, Ser. No. 590,795

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1989, 3932738

Int. Cl.[5] F02M *35/10*

U.S. Cl. 123—52 M **18 Claims**



1. An air intake system of an internal-combustion engine having at least one bank of cylinders in which the intake air flows from an air filter to each bank of cylinders through a measuring device preferably constructed as an air mass sensor and through a throttle housing and from there is guided into a collecting tank which is connected to a cylinder head of the internal-combustion engine by means of suction pipes, wherein a branching is arranged between the throttle housing and the collecting tank, from which branching a plurality of pipe sockets are connected to the collecting tank in such a manner that the intake air flows into the collecting tank from different directions, the plurality of pipe sockets including a first pipe socket connected to a first inlet opening of the collecting tank by a direct intake line and a second pipe socket connected to a second inlet opening of the collecting tank by a bypass line, the center of the second inlet opening being disposed on an extension of the longitudinal center axis of the first pipe socket and on a side of the collecting tank which is opposite the first inlet opening.

5,063,885

INTAKE SYSTEM FOR V-TYPE ENGINE

Shinji Yoshioka, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Aug. 14, 1990, Ser. No. 567,410

Claims priority, application Japan, Aug. 18, 1989, 1-211413

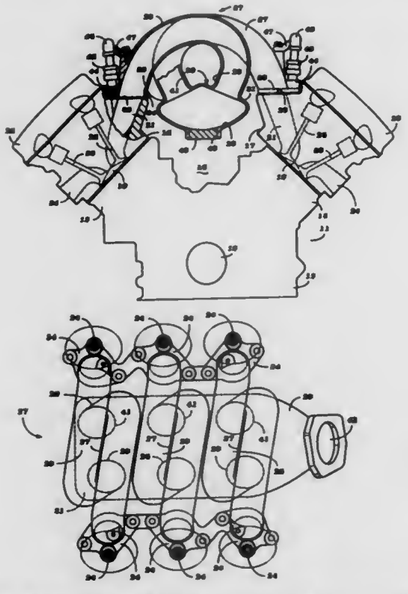
Int. Cl.[5] F02M *35/10*

U.S. Cl. 123—52 MV **32 Claims**

1. An induction system for an internal combustion engine having a pair of angularly disposed cylinders defining a valley therebetween, a plenum chamber extending longitudinally of said engine and through said valley, each of said cylinders having an intake port extending adjacent said valley, a first intake pipe extending from one of said intake ports of one of said cylinders into said valley and entering said plenum chamber on the side thereof adjacent the other of said cylinders, and a second intake pipe extending from the intake port of the

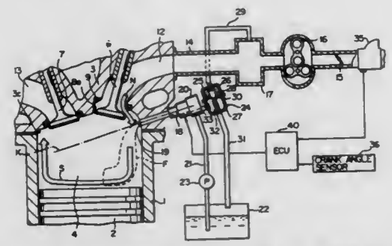
VOL 1132 ISS 2 NO 12 1991 UMI

other cylinder across said valley and entering said plenum chamber adjacent said one cylinder and under said first intake



pipe, the entry of said first intake pipe into said plenum chamber lying under said second intake pipe.

5,063,886
TWO-STROKE ENGINE
Masanobu Kanamaru, Susono; Norihiko Nakamura, Mishima; Toshio Tanahashi, Sunono; Yoshio Kido, Gotenba; Toshio Ito, and Katsuhiko Hirose, both of Susono, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi, Japan
Filed Aug. 31, 1990, Ser. No. 575,660
Claims priority, application Japan, Sep. 18, 1989, 1-240153; Sep. 20, 1989, 1-241831
Int. Cl.[5] F02B *75/02*
U.S. Cl. 123—65 VD 15 Claims



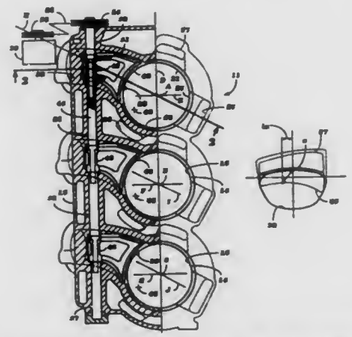
1. A two-stroke engine having a cylinder, an intake valve and an exhaust valve arranged on an inner wall of a cylinder head and an intake passage connected to the cylinder via the intake valve, a pressure in the cylinder being lower than a scavenging pressure in the intake passage during a first portion of an opening period during which the intake valve is open and the pressure in the cylinder being substantially equal to the scavenging pressure in the intake passage during a latter portion of the opening period, said two-stroke engine comprising:

fuel injection means arranged in the cylinder for injecting fuel into the cylinder;

a pressure regulator for regulating a fuel pressure supplied to said fuel injection means on the basis of the scavenging pressure in the intake passage to thereby increase said fuel pressure in accordance with an increase of the scavenging pressure; and

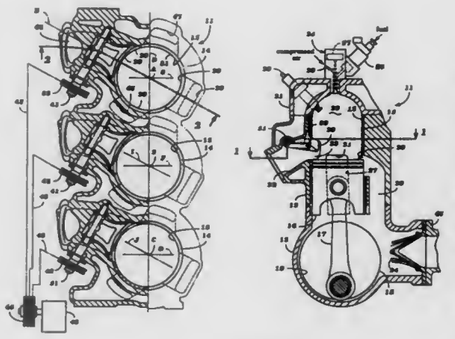
control means for controlling said fuel injection means to inject fuel into the cylinder during the latter portion of the opening period.

5,063,887
EXHAUST CONTROL VALVE SYSTEM FOR PARALLEL MULTI-CYLINDER TWO-CYCLE ENGINE
Toshikazu Ozawa, and Yu Motoyama, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaishi, Iwata, Japan
Filed Aug. 13, 1990, Ser. No. 566,967
Claims priority, application Japan, Aug. 14, 1989, 1-207915; Aug. 14, 1989, 1-207916
Int. Cl.[5] F02B *33/04*
U.S. Cl. 123—65 PE 28 Claims



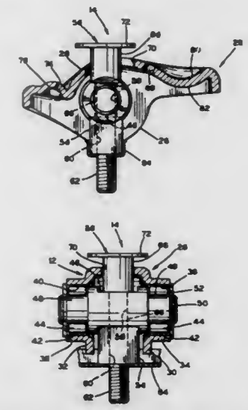
1. A multi-cylinder, two-cycle, crankcase compression internal combustion engine having a cylinder block assembly defining a pair of adjacent cylinder bores having their axes lying in a common plane, a crankcase member positioned at one end of said cylinder block, scavenge port means comprising at least one scavenge passage extending from said crankcase to the respective cylinder bore, an exhaust port for each cylinder bore for discharging exhaust gases from the respective cylinder bore to the atmosphere, each of said exhaust ports being disposed so that a line passing from the respective cylinder bore axis through the center of the exhaust port is disposed in non-perpendicular relationship to the said common plane and at an acute angle measured in the same direction to a perpendicular plane containing the respective cylinder bore axis, a pivoted exhaust control valve for controlling the effective area and timing of opening of each of said exhaust ports, and a common control valve shaft supported for rotation by said cylinder block about an axis parallel to the common plane and operatively connected to each of said exhaust control valves.

5,063,888
EXHAUST CONTROL VALVE SYSTEM FOR PARALLEL MULTI-CYLINDER TWO-CYCLE ENGINE
Toshikazu Ozawa, and Yu Motoyama, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan
Filed Aug. 13, 1990, Ser. No. 566,968
Claims priority, application Japan, Aug. 14, 1989, 1-207914; Jun. 27, 1990, 2-166607
Int. Cl.[5] F02B *33/04*
U.S. Cl. 123—65 PE 45 Claims



1. A multi-cylinder, two-cycle, crankcase compression, internal combustion engine comprising a cylinder block assembly defining a pair of adjacent cylinder bores having their axes lying in a common plane, a crankcase at one end of said cylinder block, scavenge port means comprising at least one scavenge passage extending from said crankcase to a respective one of said cylinder bores, an exhaust port extending from each of said cylinder bores or discharge of exhaust gases from the respective cylinder bore to the atmosphere, each of said exhaust ports being disposed primarily within the same quadrant defined by said plane and a plane perpendicular thereto and also extending through the respective cylinder bore axis, an exhaust control valve means for varying the effective area and timing of opening of said exhaust ports.

5,063,889
ROCKER ARM WITH LUBRICATION PROVISIONS
Stanley J. Pryba; Jesse V. Mills, both of Toledo, and Sherkoh A. Abbas, Maumee, all of Ohio, assignors to Henley Manufacturing Holding Company, Inc., Hampton, N.H.
Filed Aug. 24, 1990, Ser. No. 571,790
Int. Cl.[5] F01L *1/18*
U.S. Cl. 123—90.39 10 Claims



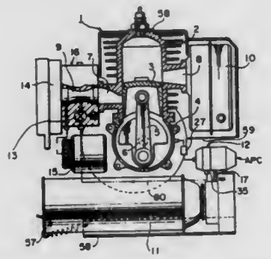
1. A cold-formed rocker arm comprising a onepiece metal body of generally inverted U-shaped cross section throughout most of its length, said body having a top wall and two side walls extending downwardly therefrom and being integral therewith, said side walls having annular flanges extending outwardly therefrom and forming aligned bores to receive bearings, said body having means at one end to engage an end of a push rod, and said body having an upwardly-facing recess in the top wall at the other end thereof, the bottom surface of said top wall below said recess forming a pad to engage an end of a valve stem, said recess having a shallow portion and a deeper portion, said deeper portion being closer to said other end than said shallow portion, said top wall having a lubrication passage extending therethrough communicating with said shallow portion of said recess and with said pad, with oil being retained at least in said deeper portion for any position the rocker arm is in when the engine is stopped.

5,063,890
2-CYCLE INTERNAL COMBUSTION ENGINE
Yoshiaki Hironaka, Sayama, Japan, assignor to Kioritz Corporation, Tokyo, Japan
Continuation of Ser. No. 266,484, Nov. 2, 1988, abandoned. This application Jun. 1, 1990, Ser. No. 532,151
Claims priority, application Japan, Nov. 18, 1987, 62-175058[U]
Int. Cl.[5] F02F *1/00*
U.S. Cl. 123—145 A 5 Claims

1. An internal combustion engine capable of operating with a gas fuel such as a liquefied gas, comprising: an intake port communicated with a venturitube so as to be able to supply a mixture of air and fuel mixed in said venturitube into a crank chamber in a crankcase of said engine so as to be precompressed; and a glow plug as igniting means mounted on the cylinder of said engine so as to be exposed into a combustion

VOL 1132 ISS 2 NO 12 1991 UMI

chamber in said engine, capable of igniting said precompressed mixture introduced into said combustion chamber from said crank chamber when electrically heated to a red-heat condi-

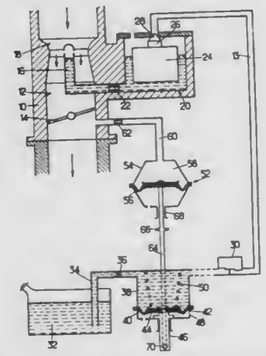


tion, and further capable of maintaining said red-heat condition by heat generated as a result of combustion in the combustion chamber.

5,063,891
FUEL SUPPLY DEVICE FOR AN INTERNAL COMBUSTION ENGINE

Guy Noisier, Brunoy, France, assignor to Solex, Nanterre Cedex, France

Filed Oct. 23, 1989, Ser. No. 425,336
Claims priority, application France, Nov. 7, 1988, 88 14496
Int. Cl.[5] F02M *1/16*
U.S. Cl. 123—187.5 R **5 Claims**

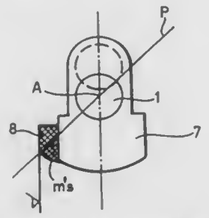


1. A fuel supply device for an internal combustion engine, comprising:
- a constant level chamber,
- an engine-driven fuel pump having an outlet connected to said constant level chamber and an inlet connected to a fuel reservoir through a pipe provided with non-return valve means,
- a chamber located on said pipe between said non-return valve means and pump, defined by movable wall means movable between a first position where said chamber has a maximum volume and a second position where said chamber has a minimum volume,
- return means continuously biasing said movable wall means toward said first position, and
- driving means responsive to the depression at a point of an intake duct of the engine located downstream of a driver-controlled throttle member to move said movable wall means toward said second position.

5,063,892
SYSTEM FOR BALANCING A FOUR-STROKE INTERNAL COMBUSTION ENGINE

Giovanni Maiorana, Biella, Italy, assignor to Fiat Auto SPA, Turin, Italy

Filed Sep. 11, 1990, Ser. No. 580,452
Claims priority, application Italy, Sep. 11, 1989, 67755 A/89
Int. Cl.[5] F02B *75/06*
U.S. Cl. 123—192 B **2 Claims**

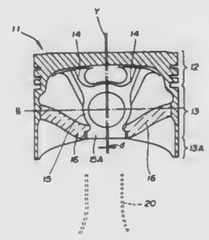


1. A system for balancing a four-stroke internal combustion engine, particularly with five cylinders in line, including a crankshaft with crank pins which are angularly spaced around the axis of the crankshaft and provided with balancing counterweights, said crankshaft and balancing counterweight defining rotating masses during rotation thereof, wherein two of the balancing counterweight have asymmetric geometry defined by an additional lateral mass for each, the respective centers of gravity of the two additional lateral masses being located in the plane containing the resultant moment of the rotary components of the first-order alternating forces and the centrifugal forces of the rotating masses.

5,063,893
PISTON STRUCTURE FOR INTERNAL COMBUSTION ENGINE

Naohiro Iwaya, Kanagawa, Japan, assignor to Atsugi Unisia Corporation, Kanagawa, Japan

Filed May 22, 1990, Ser. No. 526,670
Claims priority, application Japan, May 22, 1989, 1-58088[U]
Int. Cl.[5] F02F *3/00*
U.S. Cl. 123—193 P **7 Claims**

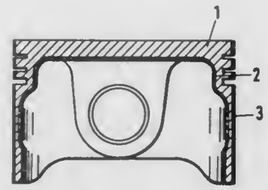


1. A piston structure for an internal combustion engine comprising:
- a piston body including a hollow skirt, said piston body having a longitudinal center line extending in a direction of reciprocating motion during combustion;
- pin boss portions provided in the skirt portion into which a piston pin is inserted for attaching said piston body to a connecting rod, said pin boss portions having a common longitudinal axis; and
- a rib portion projecting from an inner wall of said skirt portion to reinforce the rigidity of a first portion said skirt, said rib portion extending from a first area of said inner wall of said skirt to a second area, wherein said first area includes at least the cross point where a line, perpendicularly passing the longitudinal axis of the pin boss and the longitudinal center line of said piston body, intersects the inner wall of the piston skirt and the second area includes at least a bottom portion of said pin boss portion;
- wherein a second portion of the skirt defined between the first area and a bottom of the skirt has a rigidity lower than the rigidity of the first portion of the skirt.

5,063,894
PRESSURE-DIECAST LIGHT-ALLOY PISTON FOR INTERNAL COMBUSTION ENGINES

Siegfried Mielke, Neckarsulm; Wolfgang Henning, Obersulm; Franz Weiss, Neckarsulm, and Karl Gölder, Obersulm, all of Fed. Rep. of Germany, assignors to Kolbenschmidt Aktiengesellschaft, Neckarsulm, Fed. Rep. of Germany; Nissan Motor Co. Ltd., Yokusuka and Atsugi Motor Parts Co. Ltd., Atsugi, both of, Japan

Filed Nov. 5, 1990, Ser. No. 609,294
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1989, 3937616
Int. Cl.[5] F02F *3/00*
U.S. Cl. 123—193 P **10 Claims**



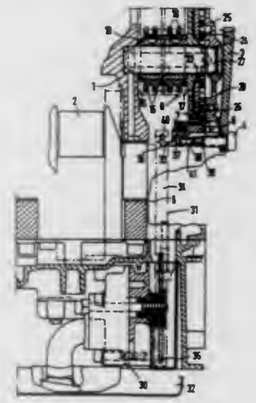
1. In a pressure-diecast light-alloy piston for internal combustion engines, which piston comprises shaped fibrous bodies which are partly embedded in at least one of the piston head, ring zone, piston pin bosses and skirt of the piston, which bodies comprise short ceramic fibers, lying in a common plane and in said plane having a random orientation, the improvement wherein the piston (1) is made of a high-temperature magnesium alloy, the piston skirt at least on its sliding surfaces has a chemically applied or electrodeposited metallic sliding layer (3) which has a thickness of about 10 to 30 μm and a hardness of about 740 to 850 $HV_{0.01}$, and the inside surface of the piston is coated with a thin plastic paint layer (2) or an anodized magnesium oxide layer.

5,063,895
OIL PUMP DRIVE ARRANGEMENT FOR A PISTON INTERNAL-COMBUSTION ENGINE AND METHOD OF MAKING SAME

Herbert Ampferer, Sachsenheim, Fed. Rep. of Germany, assignor to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 546,882, Jul. 2, 1990, abandoned. This application Oct. 16, 1990, Ser. No. 598,150
Claims priority, application Fed. Rep. of Germany, Jul. 1, 1989, 3921715
Int. Cl.[5] F01M *1/02*
U.S. Cl. 123—196 R **18 Claims**

1. An arrangement for driving two oil pumps arranged on a piston internal-combustion engine of the type having a main oil pump for supplying the engine lubricating-oil circulating system of the internal-combustion engine and a second oil pump, valves of the internal-combustion engine being actuated by camshafts which are driven by a crankshaft, wherein the second oil pump supplies only hydraulic pressure to a hydraulic camshaft rotating device, wherein the main oil pump and the second oil pump are driven by means of respective separate, main and second drives by the crankshaft disposed a the crankcase, and wherein the main and second drives are situated at

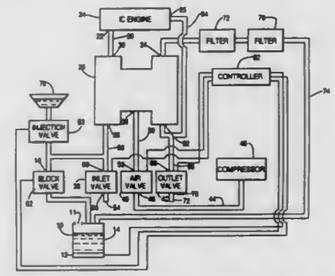


the same axial location of the crankshaft as a camshaft drive originating from the crankshaft.

5,063,896
CHAMBER AND ENGINE CLEANING APPARATUS AND METHOD

Charles K. Hyatt, Chapin, and Irvin H. Cornelison, III, Lexington, both of S.C., assignors to Auto Dialysis, Inc., Irmo, S.C.

Filed Aug. 17, 1990, Ser. No. 568,870
Int. Cl.[5] F02B *77/00*
U.S. Cl. 123—198 A **22 Claims**



1. An apparatus for cleaning chambers such as those of engines and transmissions, the apparatus comprising:
- a reservoir
- a quantity of synthetic cleaning fluid disposed in said reservoir;
- first channel means for fluidly connecting said reservoir with a first opening in the chamber;
- second channel means for fluidly connecting said reservoir to a second opening in the chamber;
- pump means for pumping said synthetic cleaning fluid from said reservoir through said first channel means, into and through the chamber and then back to said reservoir through said second channel means; and
- means for injecting lubricant into the chamber.

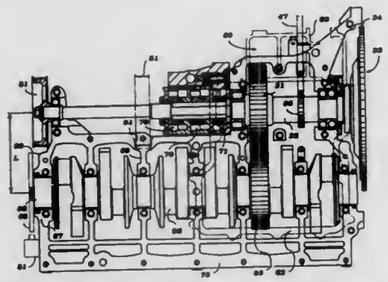
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,897

ACCESSORY DRIVE ARRANGEMENT FOR ENGINE

Kaoru Okui, and Manabu Kobayashi, both of Iwata, Japan, assignors to Yamaha Hatsudoki Kabushiki Kaisha Yamaha Motor Co., Ltd., Iwata, Japan

Continuation-in-part of Ser. No. 270,357, Nov. 14, 1988, Pat. No. 5,024,287, and a continuation-in-part of Ser. No. 346,545, May 2, 1989. This application Jul. 5, 1990, Ser. No. 548,019
Claims priority, application Japan, Jul. 6, 1989, 1-174676
Int. Cl.[5] F02B 77/00
U.S. Cl. 123—198 R 18 Claims



1. An internal combustion engine for a motor vehicle, said having an engine body rotatably journaling an output shaft, an accessory shaft driven by said engine output shaft internally of said engine body and between the end of said output shaft and having a portion exposed externally of said engine body, and an accessory drive affixed to said exposed accessory shaft portion at a longitudinal point of the engine between the ends of the engine output shaft for driving an accessory external of said engine body, and a transmission for said motor vehicle driven from the end of said accessory shaft opposite to where said accessory drive is positioned.

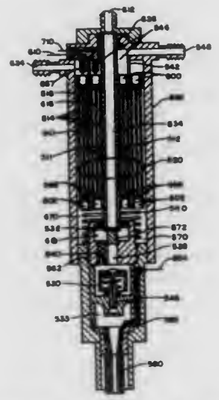
5,063,898

PULSED HYDRAULICALLY-ACTUATED FUEL INJECTOR IGNITOR SYSTEM

George D. Elliott, 14902 Clovercrest Dr., Huntsville, Ala. 35803

Continuation-in-part of Ser. No. 329,519, Mar. 28, 1989, Pat. No. 4,955,340, which is a continuation-in-part of Ser. No. 104,847, Oct. 5, 1987, Pat. No. 4,911,123, which is a continuatioo-in-part of Ser. No. 904,378, Sep. 8, 1986, Pat. No. 4,700,678. This application Sep. 10, 1990, Ser. No. 580,129
Int. Cl.[5] F02D 41/04; F02M 47/00
U.S. Cl. 123—297 8 Claims

1. An electronically controlled fuel injector for an internal combustion engine having combustion chambers and cmprising:
- an unthrottled air intake;
- first means for injecting the fuel into a given combustion chamber;
- second means for igniting said fuel before it enters said given combustion chamber, so that said fuel is burning as it enters said combustion chamber; and
- third means for electronically controlling the output power of the engine by electronically regulating the quantity of



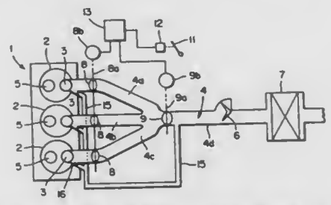
fuel injected during each injection of fuel into said given combustion chamber.

5,063,899

INTAKE SYSTEM FOR MULTI-CYLINDER INTERNAL COMBUSTION ENGINE

Mitsuo Hitomi, Hiroshima; Kiyotaka Mamiya, and Tomomi Watanabe, both of Higashihiroshima, all of Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Dec. 4, 1990, Ser. No. 620,863
Claims priority, application Japan, Dec. 6, 1989, 1-317155
Int. Cl.[5] F02M 3/00; F02B 75/18
U.S. Cl. 123—339 13 Claims



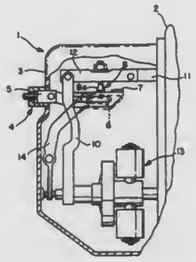
1. An intake system for a multi-cylinder internal combustion engine provided with a valve overlap period wherein a time required for an intake valve to open before a cylinder reaches a top dead center has been set longer that a time required to close after said cylinder has reached said top dead center, said intake system comprising:
- an intake manifold comprising a common intake passage and separate intake passages, each said separate intake passage branching off from said common intake passage and being connected to an intake port of each cylinder of said internal combustion engine;
- an upstream throttle valve disposed in said common intake passage before branching of said separate intake passages;
- a downstream throttle valve disposed in each said separate intake passage; and
- control means for controlling said upstream and downstream throttle valves to throttle intake air into said cylinder by said downstream throttle valve in a light engine load range and by said upstream throttle valve in a heavier engine load range.

5,063,900

MECHANICAL SPEED GOVERNOR FOR A FUEL INJECTION PUMP OF AIR-COMPRESSING AUTO-IGNITION INTERNAL COMBUSTION ENGINES

Ulrich Augustin, Kernen, Fed. Rep. of Germany, assignor to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Dec. 4, 1990, Ser. No. 621,977
Claims priority, application Fed. Rep. of Germany, Jan. 23, 1990, 4001789
Int. Cl.[5] F02D 31/00
U.S. Cl. 123—373 3 Claims



1. A mechanical speed governor for a fuel injection pump of air-compressing, auto-ignition internal combustion engines, the fuel injection pump having a quantity control member, the governor comprising:
- a flyweight arrangement with an adaptation device effecting a net positive adaptation;
- an articulated fork having a counterstop, said articulated fork coupled to the quantity control member;
- a bracket having a full-load stop and shiftable between a starting position corresponding to a starting speed and a full load position corresponding to a full-load speed such that said full-load stop interacts with said counterstop on said articulated fork; and
- a spring-loaded rocker lever coupled to said bracket, said rocker lever shifting said bracket between said starting position and said full-load position as a function of speed;
- wherein said counterstop includes a stop track on which said full-load stop slides as a function of speed, said stop track effecting a net negative adaptation of the mechanical speed governor.

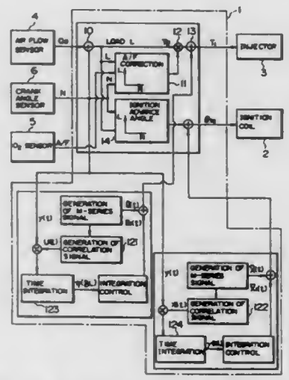
5,063,901

DIAGNOSIS SYSTEM AND OPTIMUM CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Masayoshi Kaneyasu, Hitachi; Nobuo Kurihara, Hitachiota; Kouji Kitano, and Mitsuo Kayano, both of Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 28, 1990, Ser. No. 573,789
Claims priority, application Japan, Sep. 6, 1989, 1-229185
Int. Cl.[5] F02D 41/22
U.S. Cl. 123—419 24 Claims

1. A method for diagnosing an internal combustion engine having a control system for calculating a fuel flow quantity signal and an ignition timing signal to be supplied to the internal combustion engine in accordance with a revolution number and load of the internal combustion engine, comprising the steps of:
- superposing search signals for fine adjusting a fuel flow quantity value and an ignition timing respectively on said fuel flow quantity signal and said ignition timing signal;
- applying the fuel flow quantity signal and the ignition timing signal superposed with said search signal to said internal combustion engine;
- detecting a value of a parameter for showing revolution number or an operation state of said internal combustion engine in response to said superposed signal;
- detecting a correlation between said detected value and said search signal; and



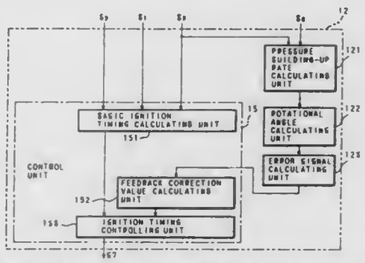
- diagnosing said internal combustion engine based on said detected correlation.

5,063,902

IGNITION TIMING CONTROLLING APPARATUS FOR INTERNAL COMBUSTION ENGINE

Noriyuki Inoue; Satoru Ohkubo, both of Amagasaki; Toshio Iwata, and Akira Demizu, both of Himeji, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 15, 1990, Ser. No. 493,670
Claims priority, application Japan, Mar. 15, 1989, 1-65219; Mar. 15, 1989, 1-65221; Mar. 15, 1989, 1-65222
Int. Cl.[5] F02P 5/145
U.S. Cl. 123—425 11 Claims



1. An ignition timing controlling apparatus for an internal combustion engine comprising,
- rotational angle detecting means for detecting a rotational angle of said internal combustion engine,
- pressure building-up rate calculating means for calculating pressure building-up rate in a cylinder of said internal combustion engine,
- means for calculating the rotational angle at which the calculated pressure building-up rate is the maximum,
- deviation value calculating means for calculating the deviation value between the target value of the rotational angle and the rotational angle calculated by said means; and
- controlling means for controlling ignition timing in order that said deviation value is made to be zero.

VOL 1132 ISS 2 NO 12 1991 UMI

5,063,903

METHOD AND ARRANGEMENT FOR CONTROLLING THE METERING OF FUEL IN AN INTERNAL COMBUSTION ENGINE

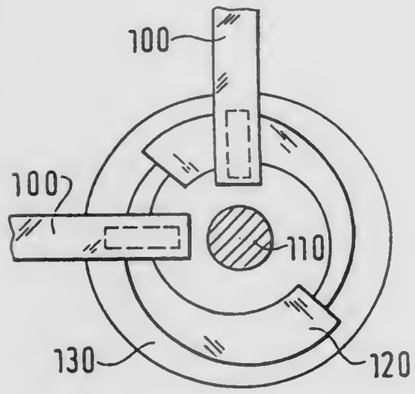
Josef Wahl, Stuttgart; Alf Löffler, Markgröningen-Talhausen; Hermann Grieshaber, Aichtal-Aich; Wilhelm Polach, Möglingen; Ewald Eblen; Joachim Tauscher, both of Stuttgart; Helmut Laufer, Gerlingen; Ulrich Flaig, Markgröningen; Johannes Locher, Stuttgart; Manfred Birk, Oberriexingen; Gerhard Engel, Stuttgart; Alfred Schmitt, Ditzingen, all of Fed. Rep. of Germany; Pierre Lauvin, Francheville, France; Fridolin Piwonka, Markgröningen, Fed. Rep. of Germany; Anton Karle, VS-Villingen, Fed. Rep. of Germany, and Hermann Kull, Stuttgart, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jul. 12, 1990, Ser. No. 551,402

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1989, 3922859

Int. Cl.[5] F02M *37/04*

U.S. Cl. 123—500 8 Claims



1. A system for controlling the metering of fuel to an internal combustion engine such as a diesel engine having a drive shaft for driving a pump, the system comprising:

sensor means for providing sensor signals indicative of respective operating parameters of the engine;

a fuel pump driven by the drive shaft;

an electromagnetically actuated valve responsive to first and second drive pulses for fixing injection start and injection end, respectively;

measuring means for detecting the angular position W of said drive shaft and for generating an analog signal U proportional to said angular position W;

a control unit connected to said sensor means for receiving said sensor signals to provide voltage values U1 and U2 dependent upon said sensor signals with said voltage values U1 and U2 corresponding to respective angular positions W1 and W2 of said drive shaft; and,

said control unit also being connected to said measuring means for receiving said analog signal U for emitting said first drive pulse when said analog signal U corresponds to U1 and said second drive pulse when said analog signal U corresponds to U2 whereby fuel is metered to the engine when said analog signal U lies between said voltage values U1 and U2.

5,063,904

MECHANICALLY DRIVEN SUPERCHARGER FOR AN INTERNAL COMBUSTION ENGINE

Siegfried Winkelmann, Tettnang; Karl Schlichtig, Friedrichshafen, both of Fed. Rep. of Germany, and Harald Breisch, Kressbronn, Austria, assignors to Zahnradfabrik Friedrichshafen, AG, Friedrichshafen, Fed. Rep. of Germany

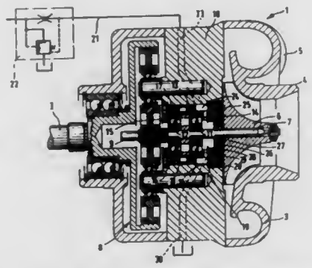
PCT No. PCT/EP88/00782, § 371 Date Feb. 20, 1990, § 102(e) Date Feb. 20, 1990, PCT Pub. No. WO89/02536, PCT Pub. Date Mar. 23, 1989

PCT Filed Aug. 31, 1988, Ser. No. 460,910

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1987, 3729888

Int. Cl.[5] F02B *33/00*

U.S. Cl. 123—559.1 10 Claims



1. In a mechanically driven supercharger including a fixed housing (10) containing a chamber (18) and a primary shaft (2) driven by an internal combustion engine, a rotor shaft (7) coaxial with and driven by the primary shaft via a planetary gear (8) and sun gear (9) assembly to rotate a rotor (6), the improvement which comprises

(a) means for supporting said rotor shaft within the supercharger housing chamber, said supporting means having radial (17) and axial (19) play relative to said housing and comprising spaced angular ball bearings (11, 12); and

(b) damping means for suspending said angular ball bearings in a floating manner within an annular gap defined by the radial play, said damping means including

(1) a flow of lubricating oil for said angular ball bearings; and

(2) a flexible ring (20) for sealing said annular gap.

5,063,905

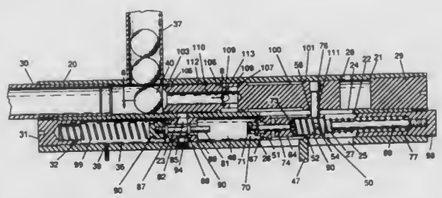
PNEUMATIC GUN

Kenneth R. Farrell, 19202 SE 184th St., Renton, Wash. 98058

Filed Sep. 6, 1990, Ser. No. 579,057

Int. Cl.[5] F41B *11/00*

U.S. Cl. 124—72 27 Claims



1. An improved gas powered gun comprising:

a frame;

a barrel mounted forward on the frame;

projectile feed means mounted to the frame for providing a projectile to the gun;

projectile feed sealing means for substantially preventing loss of gas through the projectile feed means;

a compressed gas reservoir;

a main valve for releasing gas from the compressed gas reservoir;

a striker chamber having an input port and an exhaust port;

a striker, slidable within the striker chamber between a cocked position and a position of impact on the main valve which impact actuates the main valve;

the striker effectively sealing the striker chamber when near the main valve;

bias means for urging the striker from the cocked position to the position of impact on the main valve;

trigger means;

a sear in the trigger means for releasably restraining the striker in the cocked position;

means for manually moving the striker to the cocked position;

a main channel having a main input port for receiving compressed gas released by the main valve,

a first output port for providing compressed gas to expel a projectile from the gun, and a second output port for providing compressed gas to the striker chamber input port;

wherein the improvement comprises:

a unidirectional secondary valve between the second output port of the main channel and the input port of the striker chamber for allowing compressed gas to pass into the striker chamber and preventing compressed gas from escaping from the striker chamber back to the main channel.

5,063,906

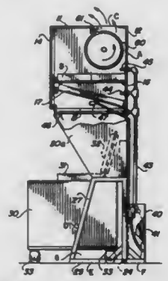
AIR FILTER FOR COOKING APPARATUS

Raymond W. Rogers, Mauldin, and William F. Harnesberger, Pelzer, both of S.C., assignors to Standex International Corporation, Salem, N.H.

Continuation of Ser. No. 280,025, Dec. 2, 1988, abandoned. This application Oct. 12, 1990, Ser. No. 597,111

Int. Cl.[5] F24C *15/20*

U.S. Cl. 126—299 D 1 Claim



1. Apparatus for filtering air from a food cooking apparatus utilized within a building comprising:

a hood extending over said cooking apparatus for receiving heated air containing contaminants flowing upwardly therefrom during a cooking operation;

an air filtering system within said hood for removing said contaminants from said heated air, said air filter system including a filter and, spaced thereabove, a prefilter and electrostatic ionizer, said hood also having an opening therein for returning said heated air into said building after said contaminants have been removed;

a support structure for carrying said hood above said cooking apparatus straddling said cooking apparatus, said support structure including a base with spaced forwardly extending horizontal supports between which the cooking apparatus may be positioned and spaced rearwardly extending horizontal supports;

a fire extinguisher carried within a housing mounted and extending between the rearwardly extending supports at the base providing a counterbalancing of the weight of the hood on the opposite side of the vertical support and adding stability to the apparatus; and

a first fire extinguisher nozzle located between the filter and cooking apparatus, a second fire extinguisher nozzle located between the filter apparatus and the pre-filter and a third nozzle located above the ionizer with piping coupling the first, second and third nozzles to the fire extinguisher.

5,063,907

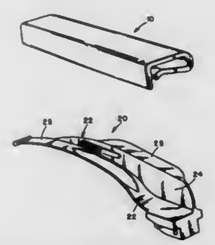
DISPOSABLE AND/OR STERILIZABLE CUSHIONING DEVICE FOR A LARYNGOSCOPE

Belmont S. Musicant, 3260 Club Dr., Los Angeles, Calif. 90064, and William W. Musicant, 17650 Tarzana St., Encino, Calif. 91316

Filed Jun. 14, 1989, Ser. No. 366,140

Int. Cl.[5] A61B *1/26*

U.S. Cl. 128—10 1 Claim



1. A disposable and/or sterilizable cushioning device for use with a plurality of different types of laryngoscopes each of which includes a blade having a lateral shelf which has a top surface land-area which may come into contact with a patient's teeth, gums and lips, causing dental damage or possibly the bruising of his gums and/or his lips, said disposable and/or sterilizable cushioning device comprising:

a. an elongated clip which is formed from a soft and resilient material and which is adapted to wrap snugly around the top surface land area of the blade whereby said elongated clip comes in contact with a patient's teeth or his gums thereby protecting his teeth and gums, said elongated clip having a first side surface, a second side surface, a bottom surface and a top surface and also having a longitudinal slit on said bottom surface adjacent to said first side surface, said elongated clip adapted to be slidably and/or removably installed to the top surface land-area of the blade so that said bottom surface is adjacent to the top surface land area whereby said disposable and/or sterilizable cushioning device protects the upper teeth, lips and gums of the patient by cushioning any pressure or contact with upper teeth, lips and gums during endotracheal intubation.

5,063,908

ADAPTER FOR CERVICAL SPECULUM

Jason H. Collins, 1344 Covington Hwy., Slidell, La. 70460

Filed Jun. 2, 1989, Ser. No. 360,257

Int. Cl.[5] A61B *1/32*

U.S. Cl. 128—17 5 Claims

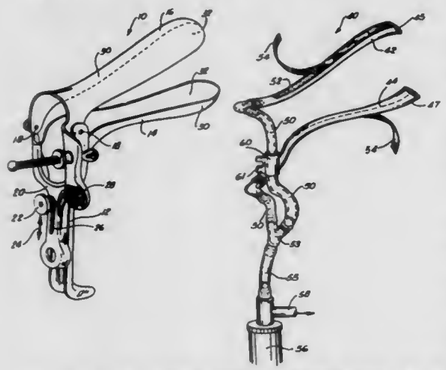
1. An adapter for a vaginal speculum, having an upper blade member, a lower blade member in substantial parallel relationship with the other blade member and a handle member such that the upper and lower blade members move between open

VOL 1132 ISS 2 NO 12 1991 UMI

and closed positions relative to one another, the adapter comprising:

(a) a first upper evacuator tube comprising an adhesive means on an outer surface of said first tube for attaching said tube to an under surface of the upper blade member;

(b) a second lower evacuator tube comprising an adhesive means on an outer surface of said second tube for attaching said tube to an under surface of the lower blade member, each of the first and second evacuator tubes having a first open end portion locatable at a distal end of each of the blade members respectively;



(c) means for establishing a suction within each of the upper and lower tubes, for drawing fluids into the ends of the upper and lower tubes, so that the fluids can be evacuated from the vaginal area during laser surgery, and

means for securing the adapter to the speculum in addition to the adhesive means on the upper and lower tube members.

5,063,909

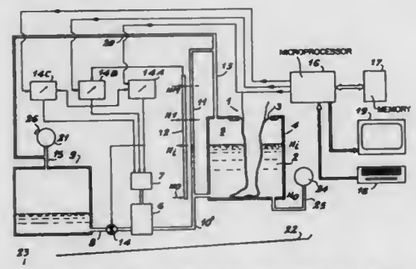
Patent Not Issued For This Number

5,063,910

APPARATUS FOR TREATING VASCULAR, METABOLIC AND FUNCTIONAL IMBALANCE AND EDEMA OF A HUMAN LIMB

Claude-Julien Cartier, 11, rue Bourdillon, F-36000 Chateauroux, France

Filed Nov. 16, 1989, Ser. No. 437,303
Claims priority, application France, Nov. 18, 1988, 88 14987
Int. Cl.[5] A61H *9/00*
U.S. Cl. 128—24 R **11 Claims**



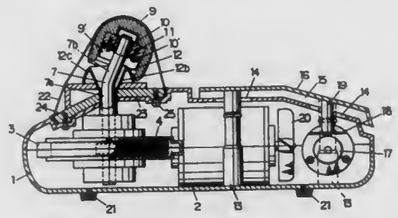
1. An apparatus for treating vascular, metabolic and functional imbalance and edema of a limb by variation in pressure of a high-density fluid around said limb, comprising at least one fluid-tight flexible protective bag into which the limb to be treated in introduced, at least one fluid-tight filling bag which surrounds the protective bag so as to form an interval with said protective bag, said bags being placed vertically or inclined, a filling enclosure being thus delimited by the two bags within said interval, displacement means connected by ducts to the enclosure for producing an upward displacement of fluid within said enclosure between a bottom level and a top level, then for producing a downward displacement of the fluid between the top level and the bottom level, level determination means for determining levels of fluid within the closure and having an output providing a level detection signal, maintaining means having an output providing a control signal connected to the displacement means for producing upward and downward displacements of fluid within the enclosure so as to maintain the fluid within the enclosure at the top level and/or at the bottom level and/or at intermediate levels between the top and bottom levels or bottom and top levels, during respectively predetermined periods of time, level adjustment means for adjusting the levels of fluid within the enclosure having an output providing a control signal, this output being connected to the displacement means and to the maintaining means and an input connected to the output of the level determination means in order to adjust the levels of fluid within the enclosure, wherein said apparatus comprises in addition speed-regulating means having an output providing a control signal and connected to the displacement means for producing upward and downward displacements of fluid within the enclosure and having an input connected to the output of the level adjustment means in order to adjust the speed of upward and/or downward displacement of fluid between the bottom level and the top level and/or between the top level and the bottom level and/or between the intermediate levels.

5,063,911

MASSAGE MACHINE

Akihiko Teranishi, Nagoya, Japan, assignor to Teranishi Electric Works Ltd., Aichi, Japan

Filed Feb. 20, 1990, Ser. No. 481,564
Claims priority, application Japan, Feb. 24, 1989, 1-44386
Int. Cl.[5] A61H *1/00, 7/00*
U.S. Cl. 128—32 **19 Claims**



1. A massage machine comprising:

a housing having a top plate;

a pair of rotary shafts rotatably mounted to said housing and extending from inside of said housing through said top plate of said housing, each of said rotary shafts including a vertical shaft portion at a lower end thereof adapted to rotate about a vertical axis, and an oblique shaft portion extending upwardly from said vertical shaft portion at an oblique angle relative thereof;

a pair of kneading balls mounted to upper ends of said pair of rotary shafts, respectively;

rotating means for rotating said rotary shafts such that said kneading balls revolve about said vertical axis along a path; and

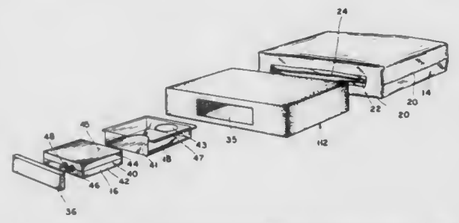
a pair of sleeves mounted about said pair of rotary shafts, respectively, each of said sleeves including a vertical cylindrically shaped bushing portion surrounding said vertical shaft portion of one of said rotary shafts, a conically shaped taper portion surrounding said oblique shaft portion of said one of said rotary shafts, and a partially spherically shaped cover piece extending outwardly and downwardly from a top edge of said taper portion and surrounding said taper portion, said cover piece being mounted such that the one of said kneading balls mounted to said one of said rotary shafts circulates along an outer surface of said cover piece when said one of said rotary shafts is rotated by said rotating means.

5,063,912

SLEEP INDUCING DEVICE

John S. Hughes, 11 Bunyana Avenue, East Wahroonga, NSW 2076, Australia

Filed Jul. 16, 1990, Ser. No. 552,944
Int. Cl.[5] A61M *21/00*
U.S. Cl. 128—33 **15 Claims**



1. A baby sleep inducer and calming device free of any connection to an energy source, comprising:

a self-contained source of energy;

housing means for preventing injury to a baby and containing said self-contained source of energy and sound developer means coupled thereto for producing a sound having the characteristic of a sound heard by a baby in a womb during the last four months of pregnancy and having a soothing, calming and sleep-inducing effect on a newborn infant when energized by said source of energy, said source of energy being free of external leads extending from said housing;

said housing means including protective casing means to conceal and prevent unwanted access to said sound developer means and said source of energy;

said protective casing means including:

a first casing for said sound developer means and an internal speaker comprising a housing formed of a hard plastic material for enclosing said self-contained source of energy, said sound developer means, said speaker and all circuitry associated with said self-contained source of energy, said sound developer means and said speaker, said housing formed of said hard plastic material having control means externally thereof for controlling the sound duration and volume of the sound emitted from said sound developer means;

a foam protective material somewhat softer than said first casing encompassing said housing formed of said hard plastic material for preventing injury to an infant when contacting said device, said foam plastic material having an access portion to provide access to said control means; and

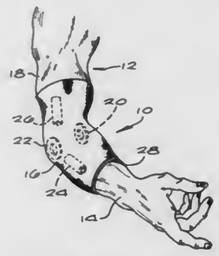
a second casing formed of a material softer than said first casing and said foam plastic material, including an outer covering formed of a waterproof plastic material and having an opening for access thereinto for insertion of said first casing formed of said hard plastic material and said foam protective material encompassing said hard plastic material of said first casing, and means for closing of said opening to prevent unwanted access thereinto and to prevent contamination of the interior of said first casing.

5,063,913

ELBOW BRACE AND METHOD FOR PREVENTING OR ATTENUATING TENNIS ELBOW

Franklin H. Nyi, 23409 Broadwell Ave., Torrance, Calif. 90502

Filed Nov. 29, 1990, Ser. No. 619,620
Int. Cl.[5] A61F *5/10*
U.S. Cl. 128—77 **22 Claims**



1. An elbow brace for preventing or attenuating tennis elbow comprising:

first and second shock absorbing elements;

first and second pressure transmitting elements;

means for maintaining said first and second shock absorbing elements and said first and second pressure transmitting elements in contact with the arm of the user;

said first shock absorbing element adapted to be placed in contact with the arm of the user directly over the medial epicondyle of the user when held in position by said means for maintaining;

said second shock absorbing element adapted to be placed in contact with the arm of the user directly over the lateral epicondyle of the user when held in position by said means for maintaining;

said first pressure transmitting element adapted to be placed in contact with the arm of the user so as to apply pressure to the tendon that extends from the extensor digitorum muscle and is attached to the humerus of the user when said first pressure transmitting element is held in position by said means for maintaining;

and said second pressure transmitting element adapted to be placed in contact with the arm of the user so as to apply pressure to the tendon that extends from the triceps brachii muscle and is attached to the olecranon of the user when said first pressure transmitting element is held in position by said means for maintaining.

5,063,914

PENILE PROSTHESIS

Timothy B. Cowen, Andover, Minn., assignor to Mentor Corporation, Minneapolis, Minn.

Filed May 30, 1990, Ser. No. 530,339
Int. Cl.[5] A61F *2/26*
U.S. Cl. 128—79 **4 Claims**

1. A penile prosthesis comprising:

a. a base mount;

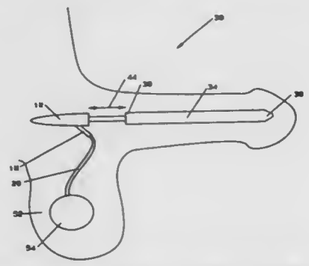
b. an inflatable stiffening cylinder of flexible body implantable material;

c. a source of pressurized fluid in fluid communication with said inflatable stiffening cylinder; and,

d. means coupled to said inflatable stiffening cylinder for decreasing the effective length of said inflatable stiffening

VOL 1132 ISS 2 NO 12 1991 UMI

cylinder whenever said pressurized fluid is removed from said inflatable stiffening cylinder, including spring means



for encouraging said inflatable stiffening cylinder to fold over.

5,063,915

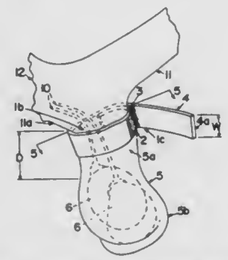
MALE GENITAL DEVICE AND METHOD FOR CONTROL OF EJACULATION

Robert L. Wyckoff, 2099 W. Lincoln Ave., Napa, Calif. 94558

Filed Dec. 18, 1989, Ser. No. 451,940

Int. Cl.[5] A61F *5/00, 6/02*

U.S. Cl. 128—79 **5 Claims**



1. A method for delaying ejaculation by a male organ, the organ having a base with a scrotum depending therefrom, the scrotum having testicles located in a lower portion thereof, the testicles normally being distal from said base by a particular distance; comprising the steps of:

a) providing an openable and closable flexible annulus-forming member having a width substantially equal to said distance,

b) prior to sexual activity which raises the testicles to a position proximate said base, placing said annulus-forming member solely circumscrotally while said member is open and entirely located between the base and the testicles within said lower portion of the scrotum,

c) juxtaposing an end of said member and an intermediate portion thereof to form, solely circumscrotally below the base, an annulus of a size sufficiently small to confine the testicles to said lower portion of the scrotum, yet sufficiently large to avoid any clamping of the scrotum and its contents;

d) closing said annulus by disengageable connection of said end and said intermediate portion of the member, said closing holding the testicles as confined,

e) disengaging said connection to open the annulus when desired to free the testicles for ascent during sexual activity, thereby permitting a delayed ejaculation, and

f) concomitantly removing said annulus-forming member in the entirely to a location remote from said scrotum.

5,063,916

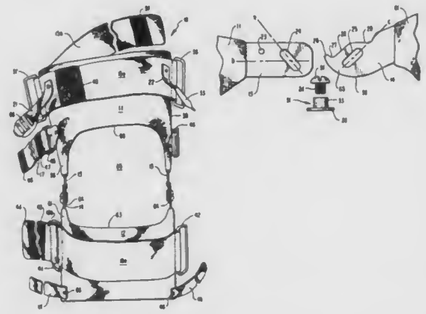
KNEE BRACE HAVING FREECENTRIC LOCKING HINGE

E. Paul France, Salt Lake City; Richard L. Ellingson, Draper, and Lonnie E. Paulos, Salt Lake City, all of Utah, assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jun. 1, 1990, Ser. No. 531,927

Int. Cl.[5] A61F *3/00*

U.S. Cl. 128—80 C **11 Claims**



1. A knee brace comprising:

upper and lower cuff means for positioning said brace on a user's leg, said upper cuff means being positionable about the thigh area of the user's leg and said lower cuff means being positionable about the shin area of the user's leg,

upper and lower hinge arm means for hingeably attaching said upper cuff means to said lower cuff means, said upper hinge arm means being attached to said upper cuff means and said lower hinge arm means being attached to said lower cuff means,

said upper and lower hinge arm means being rotatably attached to each other by free-floating connector means which have a single hinge axis and which attach said upper hinge arm means to said lower hinge arm means in a manner which allows free rotation and translation of said upper hinge arm means relative to said lower hinge arm means, and which also allows relative rotation and translation of said free floating connector means relative to said upper and lower hinge arm means.

5,063,917

LIMB BRACE OR IMMOBILIZER

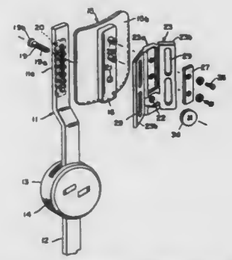
David E. Young, Watlington, and Kenneth P. Davis, High Wycombe, both of England, assignors to Protectair Limited, Abingdon, England

Filed Jul. 5, 1990, Ser. No. 548,612

Claims priority, application United Kingdom, Aug. 14, 1989, 8918519; Aug. 25, 1989, 8919400

Int. Cl.[5] A61F *5/00*

U.S. Cl. 128—80 R **10 Claims**



1. A limb brace/immobiliser comprising at least two rigid support arms adapted to extend medially and laterally along opposite sides of a patient's limb; first and second limb-contacting plates of arcuate transverse cross-section connected to said arms; said first and second limb-contacting plates having concave inner surfaces disposed in facing relation for engaging medial and lateral sides, respectively, of the limb; and first and second traction plates associated with said limb-contacting plates, with said first traction plate being disposed medially outwardly relative to said first limb-contacting plate and said second traction plate being disposed laterally outwardly relative to said second limb-contacting plate; each traction anterior and posterior wing portions extending plate having a pair of anteriorly and posteriorly relative to one of said support arms and being spaced outwardly from the limb-contacting plate associated therewith; said wing portions including hinge means for allowing spring-like inward flexing of said wing portions, the span of said wing portions of each traction plate being substantially less than the anterior-posterior dimension of said associated limb-contacting plate; and flexible strap means in the form of anterior and posterior straps for separately joining said anterior wing portions of the respective traction plates and said posterior wing portion of said plates for securing said support arms along opposite sides of a patient's limb.

5,063,918

MULTI-MODE DISTRACTION SYSTEM FOR ANKLE ARTHROSCOPY

James F. Guhl, 13455 Elmhurst Dr. Pky., Elm Grove, Wis. 53122

Filed May 14, 1990, Ser. No. 523,132

Int. Cl.[5] A61F *5/04, 5/37, 13/00*

U.S. Cl. 128—84 R **17 Claims**

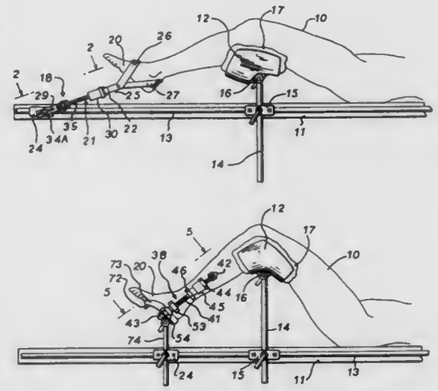
1. A distraction system for ankle arthroscopy comprising in combination:

means for supporting a patient in a generally supine position;

means for adjustably supporting the leg of the patient posteriorly of the knee joint to maintain the leg in a selected position between slightly flexed and acutely flexed said leg supporting means attached directly to the patient supporting means below the knee;

non-invasive distraction means including a first end adapted to be attached to the foot of the patient and a second end adjustably attached to said patient supporting means for providing a selectively variable tensile force on the ankle joint sufficient to provide an initial level of ankle joint distraction force, said second end being attached to said patient supporting means independently of said leg supporting means and spaced from the bottom of the foot of the patient in a direction generally axially of the lower leg, such that the entire area surrounding the ankle is unobstructed for substantially unrestricted access thereto; and,

skeletal distraction means having a proximal end adapted to be pinned to the lower tibia of the leg and a distal end



adapted to be pinned to the heel bone for providing a selectively variable tensile force on the ankle joint sufficient to provide a greater level of ankle joint distraction force than said non-invasive means, said skeletal distraction means attachable directly in said unobstructed area.

5,063,919

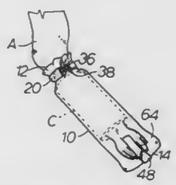
PROTECTIVE SLEEVE

Doris C. Silverberg, 508 Coeur de Royale, Apt. 403, St. Louis, Mo. 63141

Filed Sep. 5, 1989, Ser. No. 403,087

Int. Cl.[5] A61F *13/00*

U.S. Cl. 128—82 **19 Claims**



1. A wearable member for protecting an extremity of a user enclosed or otherwise associated with a cast, splint, a surgical dressing, or other bandage treatment, comprising:

means for protecting an extremity, the extremity protecting means defining an extremity receiving cavity;

means for securing the protecting means about the extremity, the securing means adjustable about the extremity of the user, and a securing means receiving means extending generally around the circumference of the protecting means;

means for receiving the securing means, the receiving means associated with the extremity protecting means, the receiving means further defining access means for accessing the securing means in order to secure the extremity protecting means to the extremity of the user; and

means for fastening securing means, the fastening means including a generally dumb bell shaped member having opposing protuberances connected by an intermediate

VOL 1132 ISS 2 NO 12 1991 UMI

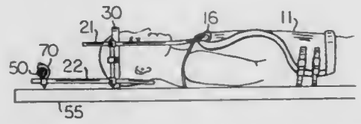
shaft member, wherein the securing means wrap around the intermediate shaft and below the protuberances so as to fasten the securing means in place with a desired and adjustable tension.

5,063,920

HALO FIXATION DEVICE AND METHOD OF USE

W. Philip Moore, 1250 Willow Branch Ave., Jacksonville, Fla. 32205

Filed Sep. 11, 1990, Ser. No. 580,603
Int. Cl.[5] A61F *5/01*
U.S. Cl. 128—87 B 6 Claims



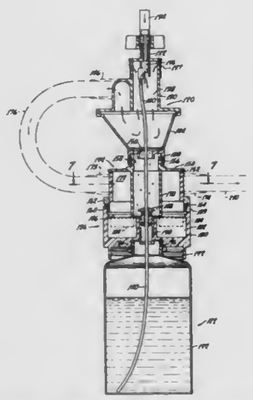
1. A device for cervical immobilization of an injured person, in combination with a bed frame having a horizontal rigid frame member positioned at one end of said bed frame, comprising:
- an annular member adapted to be securely attached to a person's head;
- vest means consisting of an anterior section having means to secure said vest to the person's torso;
- anterior support rods attached to said vest;
- posterior support rods attached to said horizontal rigid bed frame member by frame attachment means;
- cross members attached to said annular member, each said cross member also being attached to one of said anterior support rods and one of s id posterior support rods.

5,063,921

NEBULIZER HEATER

Blair E. Howe, Rancho Santa Margarita, Calif., assignor to Cimco, Inc., Costa Mesa, Calif.

Continuation-in-part of Ser. No. 280,550, Dec. 6, 1988, which is a continuation-in-part of Ser. No. 120,080, Nov. 12, 1987, Pat. No. 4,819,625. This application Oct. 16, 1989, Ser. No. 422,310
Int. Cl.[5] A61M *11/00*
U.S. Cl. 128—200.14 27 Claims



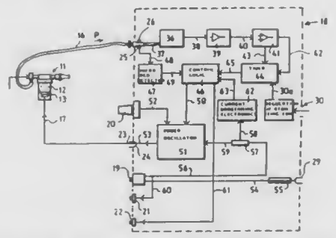
1. A nebulizer for producing an aerosol stream having entrained moisture particles, said nebulizer comprising:
- a container for confining a quantity of liquid,
- a mixing body having an aerosol mixing chamber and an aerosol discharge port,
- means in the mixing body for projecting a stream of gas into said mixing chamber,
- means in the mixing chamber for drawing liquid from the container and mixing such liquid with said stream of gas within said mixing body to provide an aerosol in said mixing chamber,
- a heater housing having a heater mounting chamber, and a heater in said heater mounting chamber, said heater having a heated platen,
- an accumulator housing connected to said heater housing and cooperating with said heated platen to define an aerosol accumulator chamber,
- a precipitate flow tube extending from the aerosol mixing chamber through the accumulator chamber to define a peripheral accumulator passage within the aerosol accumulator chamber, said tube being configured to flow precipitate from said aerosol mixing chamber to said heated platen,
- a restricted precipitate flow gap between said flow tube and said accumulator chamber,
- conduit means connected between the aerosol discharge port and the peripheral accumulator passage for flowing aerosol from the aerosol mixing chamber to the accumulator passage, and
- an output port in said peripheral accumulator passage for providing a heater aerosol stream for inhalation therapy,
- said means for drawing liquid comprising a suction tube extending from said mixing body through said flow tube and through said heater housing into said container.

5,063,922

ULTRASONIC ATOMIZER

Taisto Häkkinen, Hämeenlinna, Finland, assignor to Etala-Hameen Keuhkovammayhdistys R.Y., Finland

PCT No. PCT/FI88/00176, § 371 Date Aug. 7, 1989, § 102(e) Date Aug. 7, 1989, PCT Pub. No. WO89/06147, PCT Pub. Date Jul. 13, 1989
PCT Filed Oct. 27, 1988, Ser. No. 382,657
Claims priority, application Finland, Dec. 31, 1987, 875797
Int. Cl.[5] A61M *11/00, 15/00*
U.S. Cl. 128—200.16 1 Claim



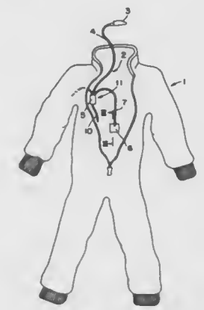
1. An ultrasonic atomizer for an inhalation treatment apparatus for patients suffering from respiratory diseases, said ultrasonic atomizer comprising an atomizer device provided with a liquid container and an ultrasonic oscillator, said ultrasonic oscillator comprising an oscillating crystal connected to said liquid container, said atomizer device being provided with a duct for direct connection to a patient and an air-inlet duct, a detector connected to the atomizer device which detects changes in pressure resulting from inhalation and exhalation of the patient, and initiating atomizing at the beginning of an inhalation stage, a regulating device connected to the atomizer device and regulating the operation of the ultrasonic oscillator, an electrical connection means interconnecting the regulating device and the atomizing device, said electrical connection means supplying an electrical oscillation to the crystal in the ultrasonic oscillator, whereby said electrical oscillation is converted to oscillation of the crystal, and further comprising a timing device for regulating the maximum time of operation of said ultrasonic oscillator, said timing device connected to said detector and switching on said ultrasonic oscillator at least when the inhalation stage of the patient begins;
- a control means connected between the detector and the timing device, whereby a signal arriving from the detector is adapted to start counting on the timing device from the beginning of the inhalation stage, said regulator device being connected to the timing device, said timing device adapted to be preset to provide a maximum time of oscillation for a particular patient during which time said liquid is atomized into the patient, said regulator turning off said oscillator when said timing device counts to said preset maximum time; and further comprising
- a duct connected between said atomizer device and said detector for transmitting said changes resulting from inhalation and exhalation of the patient; and
- a connector attached to one end of the duct, and an infrared detector, which detects whether the duct connected to the detector and transmits negative pressure has been connected to the regulator device, and if the connector attached to the duct has not been connected to the regulator device, the infrared detector detects this, and the apparatus atomizes constantly.

5,063,923

COLD WEATHER GARMENT WITH RESPIRATION MEANS

Robert Peroni, Viale Stazione 3, I-39100 Bolzono, Italy

Filed Aug. 17, 1990, Ser. No. 568,789
Int. Cl.[5] A62B *18/08*
U.S. Cl. 128—201.13 4 Claims



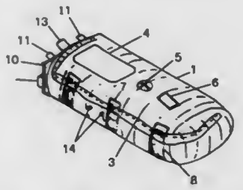
1. A process for recovering body heat yielded directly or indirectly by a human body enclosed within a garment and utilizing the recovered heat for heating air which is to be breathed by the person wearing the garment, and characterized by the steps of providing a garment having an inner, air permeable layer, and outer air-tight thermally impermeable layer with a layer of moisture absorbent filling material interposed between said inner and outer layers,
- forming a chamber in an opening in said layer of filling material, said chamber being bound at one side by said inner layer, and at its opposite side by said outer layer having therein a one-way valve for admitting fresh air to said chamber from the exterior of said garment,
- providing in said garment a collecting vessel which communicates through a flexible tube with the mouth of the person wearing the garment, and
- connecting the interior of said vessel with said chamber through at least one other tube, whereby the body heat generated in said chamber warms the fresh air entering said chamber prior to conveyance thereof through said vessel to the mouth of the person wearing the garment.

5,063,924

PROTECTIVE DEVICE, INDIVIDUAL, PORTABLE, WITH TOTAL INSULATION AND CONTROLLED ATMOSPHERE

Dino Galvan, Rome; Gianfranco Marcoaldi, Bracciano; Elvio Antolini, and Sabatino DeMeo, both of Rome, all of Italy, assignors to Comitato Nazionale per la Ricerca e per lo Sviluppo dell'Energia Nucleare e delle Energie Alternative, Rome and Grenfil S.r.l., Imola, both of, Italy

Filed Sep. 7, 1990, Ser. No. 578,825
Int. Cl.[5] A61G *10/02;* A62B *31/00*
U.S. Cl. 128—202.12 6 Claims



1. A portable and collapsible hyperbaric chamber assembly adapted to accommodate a patient's entire body, said chamber comprising:
- a flexible body capsule of a material substantially impermeable to gas, vapor fumes, aerosols and dust and resistant to tearing;
- said flexible body capsule having an interior compartment;
- handles attached to said body capsule;
- rapid sealing means for opening and closing said flexible body capsule and respectively exposing or isolating said interior compartment from the ambient;
- a window of a flexible, transparent material integral with said flexible body capsule;
- a box-shaped frame fixed to said flexible body capsule;
- an air filtering and pressurization means mounted on said box-shaped frame for pressurizing said interior compartment, said air filtering and pressurization means further comprises at least one filter, a microturbine, a sealed explosion-resistant micromotor, and an electric power source connected to said micromotor,
- said air filtering and pressurization means being connected in airtight, fluid communication with said interior compartment; and
- an over pressure valve sealingly attached to said flexible body capsule.

5,063,925

CONTROLLABLE EXPIRATION VALVE ARRANGEMENT FOR A VENTILATING APPARATUS

Helge Frank, Lübeck; Eric Hecker, Stockelsdorf; Reinhard Eifrig, Lübeck; Dieter Weismann, Gross Grönau, and Peter Gebhardt, Stockelsdorf, all of Fed. Rep. of Germany, assignors to Drägerwerk Aktiengesellschaft, Lübeck

Filed Jun. 30, 1989, Ser. No. 374,066
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1988, 3822950
Int. Cl.[5] A62B *9/02;* A61M *16/00*
U.S. Cl. 128—205.24 5 Claims

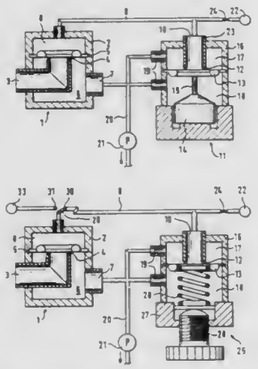
3. A controllable expiration valve arrangement for a ventilating apparatus, the arrangement comprising:
- an expiration valve having an expiration valve housing and membrane valve means for partitioning said housing into a control chamber and a membrane chamber;
- said membrane valve means being switchable between a closed position during inspiration and an open position during expiration;
- a control valve for providing a changeable pressure to said control chamber for actuating said membrane valve means to switch between said positions, said control valve hav-

VOL 1132 ISS 2 NO 12 1991 UMI

ing a control valve housing and closure means for partitioning said control valve housing into first and second chambers;

control gas line means communicating with said control chamber and said closure means for supplying a control gas under pressure thereto;

said closure means including valve seat means communicating with said control gas line means; a closure member for closing said valve seat means; and, force applying means for applying a first force to said closure member during said inspiration and for applying a second force to said closure member during expiration which is less than said first force thereby changing the pressure of said control gas applied to said membrane valve means;



underpressure means for generating an underpressure in at least one of said first and second chambers of said control valve and in said membrane chamber of said expiration valve;

said closure member being a control membrane partitioning said control chamber housing into said first and second chambers;

said force applying means being an actuator for actuating said control membrane; and,

said underpressure means being connected to both of said first and second chambers for generating an underpressure therein.

5,063,926

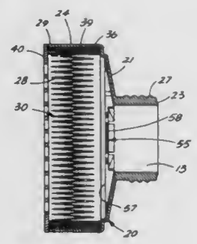
RESPIRATOR CARTRIDGE WITH SEALANT DISPERSION MEMBER

R. David Forsgren, Bloomington; Henry J. Drasner, III, Edina, and Roy E. Fielder, St. Louis Park, all of Minn., assignors to Donaldson Company, Inc., Bloomington, Minn.

Filed Apr. 12, 1990, Ser. No. 508,856

Int. Cl.[5] A62B *18/08, 7/10, 23/02, 19/00*

U.S. Cl. 128—206.17 **10 Claims**



1. A respirator cartridge comprising:

(a) a substantially cylindrical body element having a first end, a second end, and a periphery defining side wall segment;

(b) a cooperatively shaped cover element affixed to said second end of said body element;

(c) a sealant dispersion member mounted in an orifice of one of said body or cover elements; and

(d) a substantially between said body and cover elements, said filter element having substantially parallel inner and outer filtering surfaces and a peripheral edge between said inner and outer surfaces, one of said inner or outer surfaces aligned substantially parallel with and proximate to said dispersion member, said peripheral edge secured to said side wall segment by uniformly dispersed and cured sealant.

5,063,927

RATE-RESPONSIVE PACEMAKER

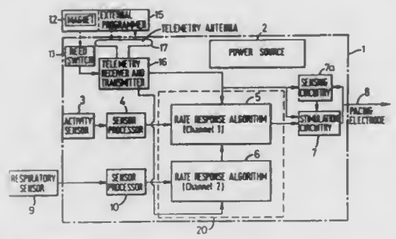
Stuart C. Webb, 5 Lingholm Way, Barnet, Hertfordshire, United Kingdom; Leland M. Lewis, 43 Prince George Avenue, Oakwood, London, United Kingdom N14 4TL , and Jayne A. Morris-Thurgood, 20 Pym Walk, Thame, Oxfordshire, United Kingdom

Filed Feb. 16, 1989, Ser. No. 311,638

Claims priority, application United Kingdom, Feb. 17, 1988, 8803613; Aug. 12, 1988, 8819268

Int. Cl.[5] A61N *1/00*

U.S. Cl. 128—419 PG **22 Claims**



1. A pacemaker comprising:

sensing means for providing a first signal which changes relatively rapidly in response to changes in a patient's exercise level but may inaccurately represent the pacing rate appropriate to said exercise level, and a second signal that changes from a normal condition relatively slowly in response to changes in exercise level but which, after having changed from said normal condition, relatively accurately represents a required pacing rate; and

control means for generating a pacing signal to control pacing rate in response to said sensing means, said pacing signal being operative to provide:

(A) a relatively low pacing rate when said first signal has a value less than a threshold;

(B) a predetermined pacing rate higher than said relatively low pacing rate when the first signal exceeds said threshold and the second signal has a value indicative of a pacing rate less than said predetermined pacing rate; and

(C) a pacing rate substantially equal to that indicated by the value of said second signal when the first signal exceeds said threshold and the second signal indicates a rate higher than said predetermined pacing rate, regardless of the amount by which said first signal may exceed said threshold.

5,063,928

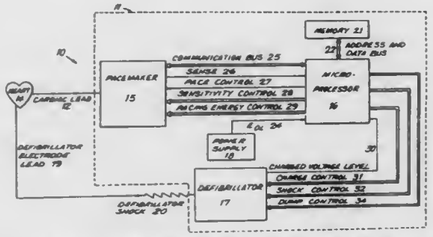
APPARATUS AND METHOD FOR DETECTING AND TREATING CARDIAC TACHYARRHYTHMIAS

Richard Grevis, Rose Bay; Lorain K. Holley, Waterfall; Philip J. Maker, North Ryde; Geoffrey A. Drane, Annandale; Andrew Parle, Chippendale; Andrew Sands, Marsfield; Rodney Parkin, Mosman, and Paul Dyson, Chatswood, all of Australia, assignors to Telectronics Pacing Systems, Inc., Englewood, Colo.

Filed Jul. 5, 1990, Ser. No. 548,056

Int. Cl.[5] A61N *1/362*

U.S. Cl. 128—419 D **76 Claims**



1. An apparatus for determining whether a cardiac tachyarrhythmia exists, comprising:

absolute change of interval detection means for monitoring a heart;

absolute interval detection means for evaluating a tachycardia if indicated by said absolute change of interval detection means;

setting means for setting a confirmation threshold if a tachycardia is indicated by said absolute interval detection means; said confirmation threshold being determined by at least one of an absolute detection interval, tachycardia cycle length, and the average sinus interval of the heart;

means for comparing cardiac cycle length to the confirmation threshold and for confirming the presence of a tachyarrhythmia if the cardiac cycle length is below the confirmation threshold; and,

very short interval detection means for detecting a tachyarrhythmia if a tachyarrhythmia is not indicated by said absolute change of interval detection means.

5,063,929

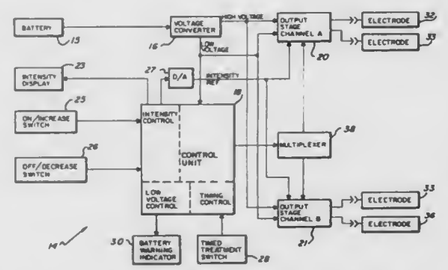
ELECTRONIC STIMULATING DEVICE HAVING TIMED TREATMENT OF VARYING INTENSITY AND METHOD THEREFOR

James T. Bartelt, Longmont; Frank W. Harris, Boulder, and Alan R. Owens, Longmont, all of Colo., assignors to Staodyn, Inc., Longmont, Colo.

Filed Aug. 25, 1989, Ser. No. 398,734

Int. Cl.[5] A61N *1/18*

U.S. Cl. 128—421 **36 Claims**



1. An electronic stimulating device for providing electrical stimulation at automatically varied intensities, said device comprising:

generating means for generating electrical stimulation the intensity of which is variable, said generating means providing said generated electrical stimulation as an output signal suitable for application to a user receiving said output signal;

control means connected with said generating means for automatically controlling the intensity of said generated electrical stimulation, said control means causing said generated electrical stimulation to be progressively increased during first and second successive time periods with substantially the entire range of levels of intensities of said generated electrical stimulation being lower during said first period relative to substantially the entire range of levels of intensities of said generated electrical stimulation during said second period, and with the rate of increase of intensity during said first period being different from the rate of increase of intensity during said second period; and

actuating means connected with said control means to institute said automatic control of said intensity by said control means.

5,063,930

DISPOSABLE PROBE FOR THE DETERMINATION OF VAGINAL PH AND OTHER INDICES

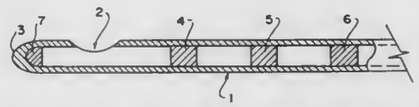
Prospero Nucci, Via Orio Vergani, 12, 20125 Milan, Italy

Filed Mar. 6, 1990, Ser. No. 489,089

Claims priority, application Italy, Mar. 7, 1989, 20688/89[U]

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—632 **10 Claims**



1. A disposable probe for use in vaginal clinical-diagnostical determinations which comprises

an elongated conduit member, said conduit member being made of a transparent plastic material and having at least one closed end portion, an external surface and an internal surface, said internal surface defining an enclosed space,

an oval hole, said oval hole being disposed in said conduit member near said closed end portion and extending between said external and internal surfaces for collecting biological fluids, and

at least one medial indicator for clinical-diagnostical determinations, each said medical indicator being disposed within said enclosed space.

5,063,931

METHOD AND APPARATUS FOR SIGNAL DEPENDENT GAIN CONTROL

Steven C. Leavitt, Hampstead, N.H., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 5, 1990, Ser. No. 609,312

Int. Cl.[5] A61B *8/00*

U.S. Cl. 128—661.07 **19 Claims**

1. A gain control circuit for use in a system which generates a plurality of scan lines at a given angle said line passing through at least one medium to determine velocity of movement of a predetermined one of the mediums at said angle, the circuit comprising;

means for generating a training line at said given angle and for receiving echo signals in response thereto;

means responsive to received echo signals from the training line for generating a signal which varies with the medium

VOL 1132 ISS 2 NO 12 1991 UMI

through which the training line is passed at selected time points along the line;

means responsive to the generated signal at said selected time points for storing selected values; and



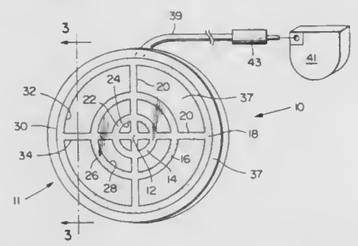
means for utilizing the value stored for a given one of said selected time points to control the gain for each scan line at the given angle for the given one of the selected time points.

5,063,932

CONTROLLED DISCHARGE DEFIBRILLATION ELECTRODE

Roger W. Dahl, Andover, and Ronald W. Heil, Jr., Roseville, both of Minn., assignors to Mieczyslaw Mirowski, Owings Mills, Md.

Filed Oct. 3, 1989, Ser. No. 416,421
Int. Cl.[5] A61N *1/05*
U.S. Cl. 128—639 9 Claims



1. An electrode for implantation on or about the heart for connection to a defibrillation/cardioversion system, said electrode comprising:

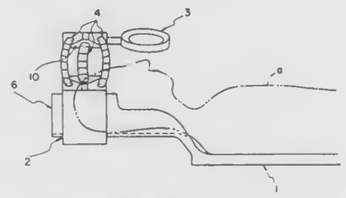
a discharge surface region having a predetermined surface area for delivering energy to the heart, said discharge surface region being a fixed planar surface and comprising a plurality of independent electrically conductive segments each for discharging directly to the heart, said conductive segments having a plurality of electrically conductive edges and being arranged in said discharge surface region so that conductive edges of adjacent conductive segments do not overlap for maintaining a gap between conductive edges and forcing electrical discharge at said conductive edges to control the electrical discharge across said discharge surface region, said conductive segments being electrically in common and adapted to be connected to said defibrillation cardioversion system.

5,063,933

MAGNETIC RESONANCE IMAGING APPARATUS

Ryoichi Takahashi, Tochigi, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 212,313, Jun. 27, 1988, abandoned. This application Jun. 13, 1990, Ser. No. 536,999
Claims priority, application Japan, Jun. 29, 1987, 62-159661
Int. Cl.[5] A61B *5/055*
U.S. Cl. 128—653.5 12 Claims



1. A magnetic resonance imaging apparatus comprising:

means for providing a uniform magnetic field to a subject;

means for providing a gradient magnetic field to said subject;

a table to hold said subject;

coil means for applying an exciting magnetic field to said subject to produce a magnetic resonance phenomenon causing a magnetic resonance signal containing information on internal conditions of said subject and for detecting said signal;

a holding means for holding said coil means;

a plurality of flexible members having sufficient strength to position said holding means and said coil means entirely in space above said table; and

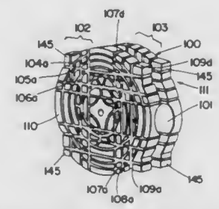
a fixing means for fixing said plurality of flexible members to said table.

5,063,934

PERMANENT MAGNET ARRANGEMENT

Uri Rapoport, Oak Park, and Richard Panosh, Lisle, both of Ill., assignors to Advanced Techtronics, Inc., Downers Grove, Ill.

Continuation-in-part of Ser. No. 106,114, Oct. 7, 1987, Pat. No. 4,998,776. This application Nov. 29, 1988, Ser. No. 277,209
Int. Cl.[5] A61B *5/055*
U.S. Cl. 128—653.5 9 Claims



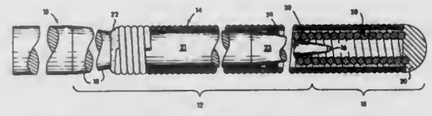
1. Apparatus for providing a magnetic field across a gap and including a ferromagnetic housing enclosing a pair of opposed permanent magnets having magnetic poles of opposite magnetic polarity facing toward one another on opposite sides of a gap in which a test zone is defined for receiving test samples, a substantially solid core of non-ferromagnetic material positioned in said gas and having an axial hole therethrough in which said test zone is located, at least one lateral hole in said housing aligned with at least one lateral hole in said core that intersects and provides access to said test zone, and a plurality of shim coils for adjusting the strength and uniformity of the magnetic field in said test zone and said core having a plurality of grooves receiving said plurality of shim coils.

5,063,935

CATHETER GUIDEWIRE WITH VARYING RADIOPACITY

Richard A. Gambale, Tyngsboro, Mass., assignor to C. R. Bard, Inc., Murray Hill, N.J.

Continuation of Ser. No. 344,017, Apr. 27, 1989, abandoned. This application Jan. 18, 1991, Ser. No. 644,487
Int. Cl.[5] A61B *6/00*
U.S. Cl. 128—657 16 Claims



1. A guidewire for use with a catheter comprising:

an elongate flexible shaft;

an outer helical coil mounted to and about the distal portion of the shaft, the distal tip of the outer coil extending distally beyond the distal tip of the shaft;

a smoothly rounded outer tip member attached to the distal end of the outer coil;

an inner helical coil contained within the distal end of the outer coil, the inner coil being attached at its proximal end to the distal end of the shaft and, at its distal end to the tip member;

both of said coils being formed from a highly radiopaque material;

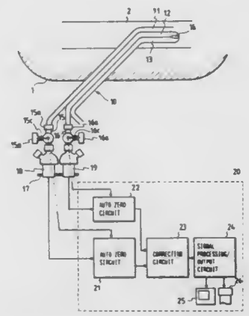
the outer coil being formed from wire that is of lesser thickness, measured in a radial direction from the center of the coil than that of the wire from which the inner coil is formed.

5,063,936

INTERNAL PRESSURE MEASURING DEVICE USING CATHETER WITH MULTIPLE LUMENS

Masamitu Sato, Akita, and Masami Tanishima, Tokyo, both of Japan, assignors to Nihon Kohden Corporation, Tokyo, Japan

Filed Mar. 23, 1990, Ser. No. 498,070
Int. Cl.[5] A61B *5/02*
U.S. Cl. 128—674 8 Claims



1. An internal pressure measuring device comprising:

a pressure measuring catheter constituted by a membrane and at least three lumens which are: a pressure measuring lumen having an open distal end; a height-correcting liquid fill lumen having a closed distal end and being suitable to be filled with a liquid; and a height-correcting atmosphere-opening lumen having a closed distal end and having said membrane being disposed between said height-correcting liquid fill lumen and said height-correcting atmosphere-opening lumen, said height-correcting atmosphere-opening lumen having said membrane at a surface thereof in contact with a desired pressure measuring reference point, in an object, said membrane being impermeable to said liquid and permeable to air, a proximal end of said atmosphere-opening lumen being open to the atmosphere at the time of the measurement;

two pressure measuring transducers, a first transducer connecting to said proximal end of said pressure measuring lumen, and a second transducer connecting to said proximal end of said height-correcting liquid fill lumen, respectively; and

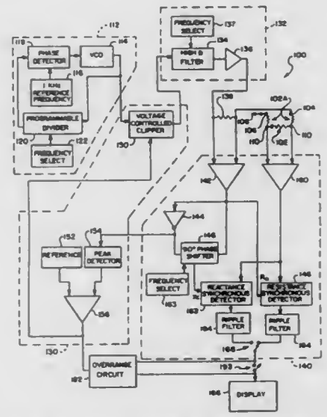
height-correcting pressure measuring circuit means connecting to said first and second transducers, respectively for electrically adjusting two electric output values corresponding to said pressure values of said first and second transducers, and for outputting a signal to a displaying or recording device.

5,063,937

MULTIPLE FREQUENCY BIO-IMPEDANCE MEASUREMENT SYSTEM

Bertram N. Ezenwa, Centerville, and William P. Couch, Fairborn, both of Ohio, assignors to Wright State University, Dayton, Ohio

Filed Sep. 12, 1990, Ser. No. 581,579
Int. Cl.[5] A61B *5/05*
U.S. Cl. 128—723 19 Claims



1. A multiple frequency system for the noninvasive examination of living tissue by measuring the impedance of the tissue at any one of a plurality of frequencies, said system being adapted to be connected to the living tissue to be examined by electrode means and comprising:

signal generator means for generating a stable frequency output signal which can be selectively varied over a range of frequencies;

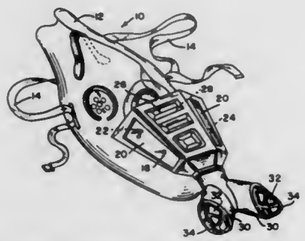
electrode drive means for applying a substantially constant current examination signal derived from said stable frequency output signal to said electrode means;

current control means connected between said signal generator means and said electrode drive means for regulating the current level of said constant current examination signal; and

signal processor means for monitoring an impedance signal generated in response to said constant current examination signal and generating an impedance signal representative of the impedance of said tissue, said signal processor means being coupled to said current control means to complete a current control feedback loop for maintaining the current level of said constant current examination signal.

VOL 1132 ISS 2 NO 12 1991 UMI

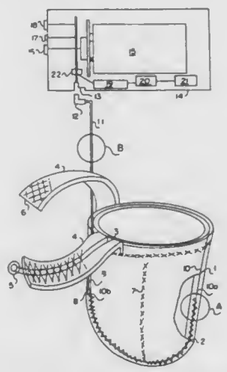
5,063,938
RESPIRATION-SIGNALLING DEVICE
Donald C. Beck, 18 Wood Glen Way, Boonton, N.J. 07005, and Peter R. Mick, 4 Stonybrook Trail, Kinnelon, N.J. 07405
Filed Nov. 1, 1990, Ser. No. 607,675
Int. Cl.[5] A61B *5/08*
U.S. Cl. 128—724 12 Claims



1. A respiration-signalling device, comprising:
a housing; wherein
said housing comprises a face mask;
said face mask comprises (a) means for enclosing therewithin both the nasal and oral breathing passages of a patient, and (b) an electrical -circuitry enclosure;
said enclosure confines therewithin a pair of thermistors which are disposed to accommodate a conduct of a patient's breathing thereacross;
said enclosure further confines therewithin (a) a battery, and (b) means coupling said thermistors to said battery for heating of said thermistors to a stable temperature which is higher than the temperature of such patient's inhaled and exhaled breath;
one thermistor of said pair thereof comprises means responsive to a conduct of such patient's exhaled breath thereacross to cause (a) a cooling of said one thermistor, and (b) an increase in electrical resistance of said one thermistor;
the other thermistor of said pair thereof comprises means responsive to a conduct of such patient's inhaled breath thereacross to cause (a) a cooling of said other thermistor, and (b) an increase in electrical resistance of said other thermistor; and further including
sensory indicator means also confined within said enclosure, and coupled to said thermistors, responsive to an increase in electrical resistance of said thermistors for providing a sensory indication of such patient's breathing performance.

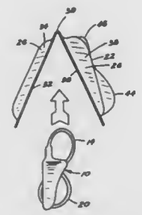
5,063,939
MALE CONTRACEPTIVE DEVICE
Wayne T. Walston, 505 S. 24th St., Arlington, Va. 22202
Filed Sep. 5, 1990, Ser. No. 577,747
Int. Cl.[5] A61F *6/02*
U.S. Cl. 128—842 16 Claims

1. A contraception device for a human male, comprising:
a flexible sack for receiving a scrotum;
resistive heating elements for heating the scrotum formed as part of said flexible sack;
means for controlling said resistive heating elements such that the scrotum is heated to a predetermined temperature range for a predetermined time period in order to suppress spermatogenesis in the scrotum to render the human male sterile;
said control means including:
a control switch for turning on the device and coupling current to said resistive heating elements;
a thermistor arranged within said flexible sack for registering temperatures within the sack;
a rheostat coupled to said resistive heating elements for regulating the current; and
a telethermometer coupled to the thermistor for indicating when the predetermined temperature range is reached



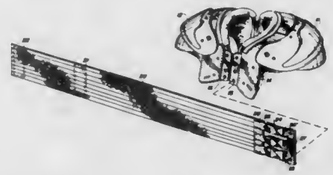
such that said rheostat can regulate the strength of the current to the resistive heating elements.

5,063,940
MOUTHGUARD PACKAGING
Loren S. Adell, and Michael Adell, both of 200 Adell Blvd., Sunnyvale, Tex. 75182
Filed Oct. 26, 1989, Ser. No. 427,823
Int. Cl.[5] A61C *5/14*
U.S. Cl. 128—861 20 Claims



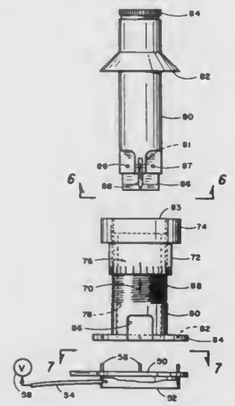
1. A packaged mouthguard wherein the mouthguard is of the type which comprises a U-shaped body having a tethering strap extending away from a location at the front of the U-shaped body which is nearer a lower edge of the body than an upper edge of the body, said packaged mouthguard comprising a loop formed at the distal end of the tethering strap by looping the extreme distal end of the tethering strap back onto the strap, said loop being disposed to nest in the U-shaped body by being folded into an S-shaped curve which begins at a location spaced frontally from the front of the body, which extends over the upper edge of the body, and which ends by merging into the nested loop, and an enclosure enveloping the mouthguard and confining said strap so as to retain the strap folded in the S-shaped curve and the loop nested in the U-shaped body.

5,063,941
APPARATUS FOR REDUCING THE OCCURRENCE OF SHOULDER DISLOCATION SUBLUXATION DURING ATHLETIC ACTIVITY
Christopher A. White, 2323 W. Dunlap Ave., #211, Phoenix, Ariz. 85021
Filed Nov. 26, 1990, Ser. No. 618,062
Int. Cl.[5] A61B *19/00*; A61F *5/37, 5/02*
U.S. Cl. 128—869 5 Claims



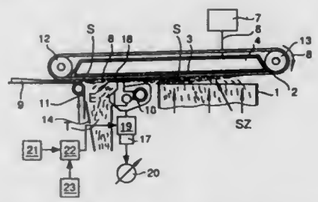
1. Apparatus to be used with an athletic shoulder pad assembly for reducing the possibility of a subluxation of the shoulder while permitting movement of the upper arm, said apparatus comprising:
a) an elongated elastic member for wrapping about the upper arm, said member having first and second ends and length and width dimensions, said length being dimensioned to permit an internal wrapping of the upper arm;
b) engaging means affixed to said elastic member proximate to the first end thereof for removably engaging an adjacent portion of the elastic member when said member is wrapped about the upper arm; and
c) attachment means provided at the second end of said elastic member and including a plurality of spaced grommets for securing said second end to the assembly at a location inwardly spaced from the shoulder, the wrapping of said first end about the upper arm limiting abduction and rotation thereof and thereby reducing the possibility of subluxation of the shoulder.

5,063,942
METHOD FOR SURGICALLY RE-PROFILING THE CORNEA
Lauren G. Kilmer, and Alvin E. Reynolds, both of Tulsa, Okla., assignors to Corneal Contouring, Inc., Tulsa, Okla.
Filed Dec. 14, 1989, Ser. No. 450,672
Int. Cl.[5] A61F *9/00*
U.S. Cl. 128—898 5 Claims



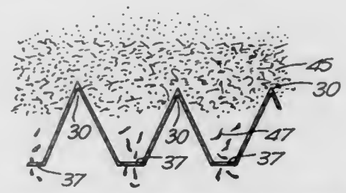
2. A method of correcting refractive error in an eye having a cornea with a center axis comprising the steps of:
positioning a sharpened knife edge blade tangentially to and against a top of said cornea at its center axis,
rotating or oscillating said knife edge about said axis so as to scrape said cornea with said knife edge until said refractive error has been substantially corrected.

5,063,943
METHOD OF AND APPARATUS FOR MONITORING THE QUALITY OF A TOBACCO STREAM
Waldemar Wochnowski, Hamburg-Meiendorf, Fed. Rep. of Germany, assignor to Korber AG, Hamburg, Fed. Rep. of Germany
Filed May 17, 1990, Ser. No. 525,081
Claims priority, application Fed. Rep. of Germany, May 20, 1989, 3916486
Int. Cl.[5] A24C *5/32*
U.S. Cl. 131—84.4 27 Claims



1. A method of monitoring the quality of a stream which is a blend of several tobaccos, which is transported by a conveyor and which contains a surplus of tobacco, comprising the steps maintaining the mass flow of tobacco on the conveyor at an at least substantially constant value; removing the surplus from the stream on the conveyor; and monitoring the ratio of several tobaccos in the blend.

5,063,944
METHOD AND APPARATUS FOR SEPARATION OF OBJECTIONABLE PARTICLES FROM TOBACCO MATERIAL
Michael P. Parker, Leightoo Buzzard, England, assignor to Rothmans International Tobacco (UK) Limited, United Kingdom
Filed Sep. 22, 1989, Ser. No. 411,134
Claims priority, application United Kingdom, Sep. 28, 1988, 8822723
Int. Cl.[5] A24B *3/06, 3/18*
U.S. Cl. 131—109.2 13 Claims



1. Apparatus for the separation of objectionable particles from tabacco material which comprises a deck adapted to receive thereon tabacco material, means for vibrating said deck, means for providing an air flow through the deck to fluidize the tabacco material, said deck having a convoluted and at least partly perforated surface which provides peaks and troughs, the air velocity of said fluidizing air and said peaks and troughs providing stratified air velocities over the deck to cause the tabacco material to form a carpet at least a portion of which is below the peaks but spaced above the bottom of the

VOL 1132 ISS 2 NO 12 1991 UMI

troughs and which together with the vibration of the deck agitates the carpet and causes the dust to be released and rise and heavy particles to sink, said carpet moving lengthwise along said troughs during operation toward a discharge location, means for removing the dust, and means for removing the heavy particles through the deck.

5,063,945

TOBACCO FILTER STOCK

Taizo Sugihara, Oumihachiman; Hiromu Sonoda, Shiga, and Klyonori Shiiba, Moriyama, all of Japan, assignors to Chisso Corporation, Ohsaka, Japan

Filed Mar. 28, 1990, Ser. No. 500,574
Claims priority, application Japan, Mar. 31, 1989, 1-82136
Int. Cl.[5] A24D *3/02, 3/06;* **B32B** *3/00;* **D02G** *3/00*
U.S. Cl. 131—332 **6 Claims**

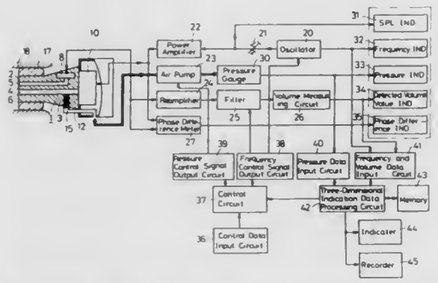
1. A tobacco filter stock, for use in the production of a tobacco filter, said tobacco filter stock comprising:
- a tow of crystalline polyolefin filaments having a single filament denier of 1 to 6 d/filament;
- a total denier of 30,000 to 60,000 D 40 to 60 crimps/25 mm filament;
- a crimp elastic modulus of 2.5 to 5.0; and
- a frictional coefficient between filaments of 0.20 to 0.37, and a height ratio (height/width) of 0.01 to 0.1.

5,063,946

MEASURING METHOD, MEASURING APPARATUS AND INDICATION METHOD OF THE DYNAMICAL CHARACTERISTICS OF MIDDLE EAR

Hiroshi Wada, Sendai, Japan, assignor to Nagashima Medical Instruments Co., Ltd., Japan

Filed Oct. 18, 1989, Ser. No. 423,476
Claims priority, application Japan, Oct. 20, 1988, 63-264310
Int. Cl.[5] A61B *5/00*
U.S. Cl. 128—746 **9 Claims**



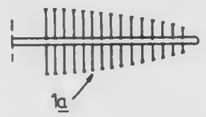
9. A middle ear dynamical characteristics measuring apparatus, comprising:
- a probe body;
- two sound induction holes in the probe body, one of said induction holes having means for connecting said one hole to an air pump operable to control an internal pressure of an external auditory meatus;
- generator means for supplying an audio signal;
- transducer means receiving said audio signal and, in response, supplying an audible sound signal with a predetermined sound pressure and transmitted into the external auditory meatus through one of the sound induction holes in said probe body;
- a microphone in said probe body for sensing an internal pressure of the external meatus;
- means responsive to an output from said microphone for detecting and measuring a change in said internal pressure of said external auditory meatus and, in response, providing corresponding pressure data; and
- a control circuit for controlling (i) a pressure of said air pump, (ii) a frequency of said audio signal, and (iii) a three-dimensional data processing circuit for displaying a three-dimensional representation of pressure data.

5,063,947

BRUSH FOR APPLYING A MAKE-UP PRODUCT

Jean-Louis Gueret, Paris, France, assignor to L'Oreal, Paris, France

Continuation of Ser. No. 417,719, Oct. 5, 1989, Pat. No. 5,020,551. This application Jan. 24, 1991, Ser. No. 645,406
Claims priority, application France, Oct. 12, 1988, 88 13409
Int. Cl.[5] A45D *40/26*
U.S. Cl. 132—218 **12 Claims**



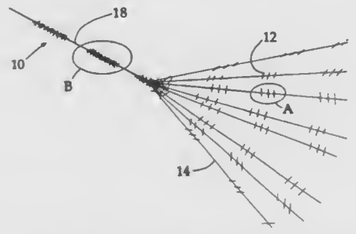
1. A brush for applying a make-up product, comprising a multiplicity of bristles mounted on a core having a longitudinal axis and oriented transversely relative to said longitudinal axis of said core, wherein at least some of said bristles have at their ends small shredded hooks, said bristles having said small, shredded hooks having a diameter beetween 0.1 mm and 0.3 mm, and comprising mixed bristles having hardnesses which are different when dry but the same hardnesses when the bristles are moistened by the product.

5,063,948

BRISTLED DENTAL FLOSS

O. H. Perry Lloyd, P.O. Box 3127, Jekyll Island, Ga. 31520

Filed Apr. 11, 1990, Ser. No. 508,271
Int. Cl.[5] A61C *15/00*
U.S. Cl. 132—321 **16 Claims**



1. A dental floss comprising:
- a plurality of sub-fibers secured together into a self supporting strand, and
- a plurality of self supporting bristles, said bristles are individually attached to each of said sub fibers by a knot.

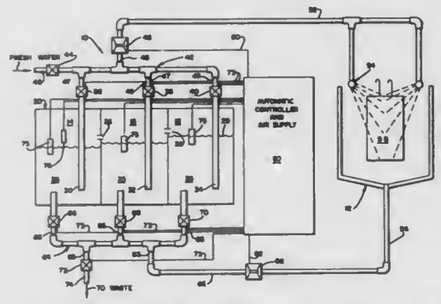
5,063,949

APPARATUS FOR SPRAY RINSING CHEMICALLY TREATED ARTICLES

William Yates, 847 S. Sapphire La., Anaheim Hills, Calif. 92807

Filed May 21, 1990, Ser. No. 525,998
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—60 **18 Claims**

1. An apparatus for rinsing chemically treated workpieces, comprising:
- a plurality of reservoirs wherein a rinse solution is stored;
- a single spray-rinse tank connected so as to communicate with said reservoirs to receive said rinse solution from each of said reservoirs for spray-rinsing the workpiece positioned within said spray-rinse tank;
- means positioned with said spray-rinse tank for spraying said workpiece;
- a first flow means for discharging the rinse solution from said reservoirs to said spray-rinse tank in a selective "on" and "off" overlapping sequential operation;



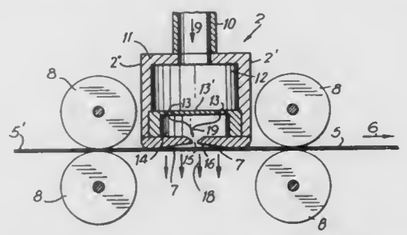
- a second flow means for returning the rinse solution from said spray-rinse tank back to said reservoirs in an overlapping sequential operation;
- means for operating said first and second flow means; and
- means for automatically controlling the sequential operation of said first and second flow means.

5,063,950

APPARATUS AND METHOD FOR TREATING AND/OR CLEANING OF OBJECTS, PARTICULARLY CIRCUIT BOARDS

Manfred Kallweit, and Horst Bläsing, both of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed May 23, 1990, Ser. No. 528,573
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—64 R **5 Claims**



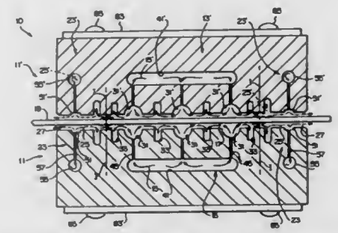
1. In an apparatus for one of treating, cleaning and treating and cleaning an object having a width B, especially a circuit board, with a flood flow of a fluid, said apparatus comprising means for moving said object along a path through said apparatus in a workpiece feed direction and at least one flood flow device having a length L and two opposing longitudinal sides positioned along said path, the improvement wherein each of said flood flow devices is located above said path to reduce apparatus expense and minimize assembly cost, and further comprising a fluid damming means contacting said path on each of said opposing longitudinal sides of each of said flood flow devices to define a fluid pool region above said path so that in operation a fluid pool arises in said fluid pool region between each of said flood flow devices and said fluid damming means for said flood flow device, and wherein said flood flow device comprises a plurality of fluid feed pipes, a fluid receiving chamber of a larger diameter than that of said fluid feed pipes, said fluid receiving chamber being connected to the feed pipes so as to be able to receive fluid therefrom, a perforated mask located downstream from the feed pipes in the receiving chamber, said perforated mask being provided with a plurality of through-going holes, and a distributor chamber provided with a single outlet mouth located downstream of the perforated mask, said distributor chamber with said outlet mouth and said path defining a flooded space for fluid adjacent said path, and the fluid receiving chamber, the distributor chamber, the outlet mouth and the flooded space extending over the entire length L of the flood flow device, said plurality of feed pipes connected with the fluid receiving chamber also being distributed over the entire length L and the holes of said perforated mask being distributed over the entire length L of the flood flow device, wherein the length L of the flood flow device is approximately at least equal to the width B of the object.

5,063,951

FLUID TREATMENT DEVICE

Steven L. Bard, Endwell; David N. Christensen, Johnson City, both of N.Y.; John J. Glenning, Montrose, Pa.; James A. Nicoletti, and Mark W. Urdanick, both of Endicott, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jul. 19, 1990, Ser. No. 554,487
Int. Cl.[5] B08B *3/08*
U.S. Cl. 134—64 R **17 Claims**



1. A device for applying fluid to a substrate comprising first and second movable head members located substantially adjacent each other and adapted for having said substrate located substantially therebetween, each of said head members including therein means for directing a first fluid at an established first pressure against a first, predetermined location on said substrate and means for directing a second fluid at an established second pressure against a second, predetermined location on said substrate adjacent said first location to substantially limit said first fluid to impingement substantially only on said first location and define a precise line of demarcation between said first and second fluids, said established pressure of said second fluid substantially equal to or greater than said first pressure at the location of intersection between said first and second fluids, each of said head members directing said first and second fluids therefrom onto opposite surfaces of said substrate to maintain said substrate at a spaced location from each of said head members during application of said fluid, and means for permitting said first and second head members to move in substantially opposing directions relative to each other during said fluid application so as to enable said substrate to be maintained at said spaced location therebetween.

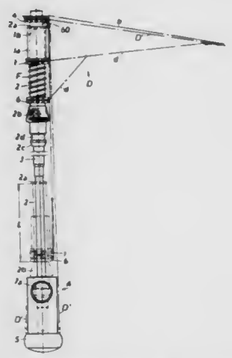
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,952

SELF OPENING UMBRELLA

Joachim Seidel, Solingen, and Klaus Stiller, Langenfeld, both of Fed. Rep. of Germany, assignors to Kortenbach Verwaltungs- und Betiligungsgesellschaft mbH & Co., Soligen, Fed. Rep. of Germany

Filed Oct. 10, 1989, Ser. No. 422,078
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1989, 390825
Int. Cl.[5] A45B *25/14*
U.S. Cl. 135—22 6 Claims



1. In a self-opening umbrella having a stick and a main slide and an auxilary slide to actuate a frame structure comprising cover-supporting ribs hinged to a cap at the upper end of the stick and struts hingedly connected to each other, said struts having ends respectively hinged to said main and auxilary slides, a compression spring disposed about said stick and compressed on said stick between the slides for automatically urging said slides apart and opening the frame structure, said frame structure being closable by a grip sleeve pulling said slides together toward a lower end of said stick, a handle on the lower end of said stick, said grip sleeve and said handle including cooperating latch means for holding the umbrella frame structure in a closed condition, the improvement in which said grip sleeve comprises a tubular member freely rotatable on said stick and extending through said slides, said grip sleeve having an upper carrier abutingly engagble on the upper end of said auxilary slide, said compression spring being coiled about an intermediate portion of said tubular member between said slides, said grip sleeve having means limiting downward movement of said main slide therebelow, said auxilary and main slides having relative movement toward each other on said tubular member whereby manual closing of the frame structure is achieved by the freely rotatable grip sleeve moving on said stick through said main slide while pulling downwardly on said auxilary slide at the upper end of the grip sleeve while compressing said compression spring between said auxilary and main slides without torsional forces of said compression spring being imposed on said gripping sleeve.

5,063,953

QUICKLY OPENABLE UMBRELLA WITH MULTIPLE FOLDS

Kuei-Jen Wu, c/o Hung Hsing Patent Service Center, P.O. Box 55-1670, Taipei (10477), Taiwan

Filed Apr. 26, 1991, Ser. No. 691,737
Int. Cl.[5] A45B *19/00*
U.S. Cl. 135—25.3 7 Claims

1. An umbrella comprising:
an inner top rib pivotally secured to an upper notch formed on an upper portion of a central shaft;
a stretcher rib pivotally secured to a lower runner slidably held on said central shaft;
an inner linking rib pivotally secured to an outer portion of the inner top rib;
a first intermediate top rib pivotally secured to said inner linking rib and said stretcher rib;
an inner flexible reinforcing rib pivotally secured to said stretcher rib;
a second intermediate top rib pivotally secured to said first intermediate top rib and said inner flexible reinforcing rib;
an outer flexible reinforcing rib pivotally secured to said first intermediate top rib;
an outer top rib pivotally secured to said second intermediate top rib and said outer flexible reinforcing rib; and
an umbrella cloth secured on a plurality of said top ribs;
the improvement which comprises:



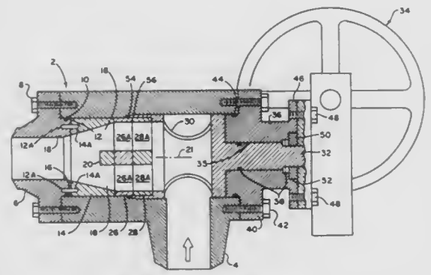
said first intermediate top rib including an inner section having a downwardly-opened groove with a cross section of generally inversed-U-shaped for foldably receiving said inner flexible reinforcing rib into said downwardly-opened groove; and an outer section partially combinably secured with said inner section having an upwardly-opened groove with a cross section generally U shaped for foldably receiving said outer flexible reinforcing rib;
said inner flexible reinforcing rib having its middle portion slidably held in a first coupling fastened on a middle portion of said first intermediate top rib; and
said outer flexible reinforcing rib having a middle portion of said outer reinforcing rib slidably held in a second coupling fastened on a middle portion of said second intermediate top rib.

5,063,954

MULTIPLE ORIFICE VALVE WITH REDUCED OPERATOR TORQUE

Fred W. Hendrick, Cerritos, Calif., assignor to Automatic Control Components, Boulder, Colo.

Continuation-in-part of Ser. No. 417,064, Oct. 4, 1989, abandoned. This application Jun. 18, 1990, Ser. No. 539,229
Int. Cl.[5] F16K *3/08, 11/074*
U.S. Cl. 137—625.31 26 Claims



1. A valve including the combination of:

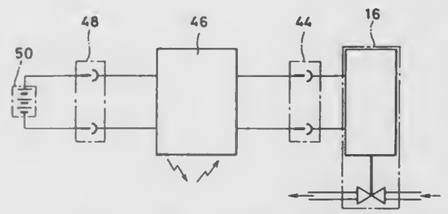
a valve body having an internal cavity with an inlet and outlet for fluid;
an upstream disk rotatably supported in the cavity of said valve body and having a fluid passageway for conducting fluid;
means for rotating said upstream disk;
a downstream disk arranged in a face-to-face and confronting relation with said upstream disk in the cavity of said valve body, said downstream disk having a fluid passageway for conducting fluid from the fluid passageway in said upstream disk;
a tubular insert supported in said valve body and having a fluid passageway, said tubular insert being interlocked at a first end thereof with said downstream disk and serving to conduct fluid from the fluid passageway in the downstream disk to said outlet, said tubular insert further having a frusto-conical interior wall tapering radially inwardly from said first end of said tubular insert toward a second end thereof;
support means spanning the fluid passageway of said tubular insert, said support means including a raised portion for contacting a central portion of the downstream face of said downstream disk, said raised portion protruding outwardly from said first end of said tubular member; and
means for interlocking said tubular insert with said valve body.

5,063,955

METHOD OF DRIVING AN AUTOMATIC ON-OFF VALVE FOR A WATER PASSAGEWAY

Shigeru Sakakibara, Aichi, Japan, assignor to Inax Corporation, Tokoname, Japan

Filed Jul. 3, 1990, Ser. No. 547,213
Claims priority, application Japan, Aug. 25, 1989, 1-219568
Int. Cl.[5] F16K *31/02*
U.S. Cl. 137—1 3 Claims



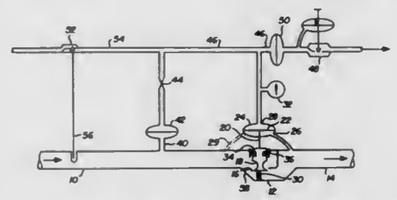
1. A method of driving an automatic on-off valve for a water passageway, said automatic on-off valve including an electromagnetic valve for opening and closing said water passageway, a sensor unit for detecting an object and a control unit for controlling supply/cut-off of driving electric power supplied from a power supply to said electromagnetic valve in response to a signal transmitted from said sensor unit, said method comprising the steps of:
permitting said control unit to control an operation of said electromagnetic valve in a normal state;
connecting a manual driving unit to said electromagnetic valve;
manually supplying said electromagnetic valve with driving power given from the manual driving unit, said driving power from the manual driving unit being in the form of pulses and having a pulse continuity time longer than that of the driving electric power supplied through the control unit; and
thus forcibly driving said electromagnetic valve.

5,063,956

FLUID DELIVERY PRESSURE CONTROL SYSTEM

John P. Borcuch, Williamsville, and Norman H. White, East Amerst, both of N.Y., assignors to Union Carbide Industrial Gases Technology Corporation, Danbury, Conn.

Filed Oct. 31, 1990, Ser. No. 607,295
Int. Cl.[5] G05D *16/06*
U.S. Cl. 137—14 29 Claims



1. A system for controlling process fluid flow from a source conduit to a consumer conduit to maintain a set delivery pressure at varying demand, said system comprising:
(a) a main regulator having:
(1) an inlet port for connection to the source conduit;
(2) an outlet port for connection to the consumer conduit;
(3) an orifice communicating with said inlet port and said outlet port;
(4) a loading port;
(5) a plug adapted for positioning to vary the opening of said orifice; and
(6) plug positioning means for positioning said plug in response to the difference in pressure of fluid in said outlet port and pressure of fluid in said loading port;
(b) a flow restrictor an inlet and an outlet;
(c) a control fluid conduit for connecting saidinlet of said flow restrictor to a source of control fluid;
(d) a control fluid conduit connecting from said outlet of said flow restrictor to said loading port on said main regulator;
(e) a back-pressure regulator having:
(1) an outlet port open to a low pressure sink;
(2) an inlet port;
(3) a housed diaphragm adjustably loaded on one side by an adjustable spring and on the other side by communication with the fluid in said inlet port of said back-pressure regulator; and
(4) a valve between said inlet port and said outlet port operated by said diaphragm; and
(f) a control fluid conduit connecting said inlet port on said back-pressure regulator with said loading port on said main regulator.

5,063,957

METHOD OF RENDERING LAID PIPELINE FLEXIBLE AND PIPE JOINT SUITED FOR EXECUTING THIS METHOD

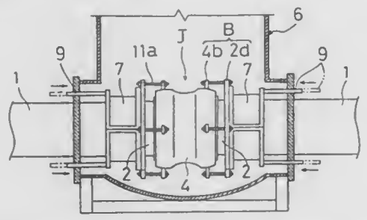
Masatoshi Yano, Suita; Koichi Matsui, Hyogo, and Tadashi Fukushima, Tondabayashi, all of Japan, assignors to Yano Giken Co., Ltd., Osaka, Japan

Filed Nov. 30, 1990, Ser. No. 621,309
Int. Cl.[5] F16L *27/04*
U.S. Cl. 137—15 2 Claims

1. A method of rendering an existing pipeline flexible, comprising the steps of cutting out an intermediate portion of a pipe in a ring form, inserting a pipe joint into a cutout position, the pipe joint including a plurality of sleeves interconnected in a fluid-tight condition to be oscillatable relative to one another, and connecting the pipe joint to the pipe,
wherein the pipe joint is inserted into said cut-out position and connected to said pipe, with said plurality of sleeves

VOL
1132
ISS
2
NO
12
1991
UMI

substantially fixed to one another while being interconnected in the fluid-tight condition to be oscillatable relative to one another, and thereafter said plurality of sleeves are released from the fixed state.

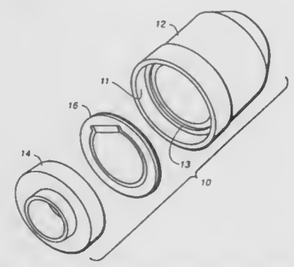


5,063,958

BURST DIAPHRAGM SEQUENCE VALVE

Bradley D. Wisneskie, Irvine; Sheldon Hyman, Costa Mesa, and Charles E. Hallum, Irvine, all of Calif., assignors to The United States of Americas as represented by the Secretary of the Navy, Washington, D.C.

Filed Jan. 24, 1991, Ser. No. 647,312
Int. Cl.[5] F16K *17/15*
U.S. Cl. 137—68.1 6 Claims



1. A burst diaphragm sequence valve made entirely of weldable refractory metal and welded together, comprising:

a generally cylindrical hollow body having an outlet on one end disposed to be fluidly connected to a gas manifold, and a major and a minor counterbore within an opposite end;

a generally flat round inlet cap having a central inlet disposed to be fluidly connected to a gas generator, said inlet cap disposed to fit within the major counterbore of said body and to be welded thereto;

a generally flat round back pressure support plate disposed to fit within the minor counterbore of said body and to be welded thereto, said support plate having a slot cut entirely through the thickness of said plate, the slot generally following the outline of a circle centered on said plate and extending around an arc length of approximately eighty percent of the circumference of the circle, said support plate additionally having on the side of said plate further from said body outlet a straight recess cut partially through the thickness of said plate and bridging the gap between slot ends which extend outwardly normal to and across corresponding ends of the recess; and

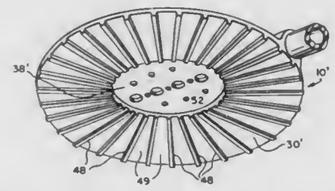
a thin generally flat round burst diaphragm disposed to fit against the side of said support plate nearer said body outlet and connected to said relatively thicker support plate by two concentric weld circles, the outer weld circle extending out beyond a region occupied by the slot and the recess in said plate, the inner weld circle being to the inside of said region, said burst diaphragm additionally having a semi-circular scribe groove cut into the side nearer said body outlet and extending partially through the thickness of said diaphragm, said groove following the outline of a circular arc lying between said slot and said outer weld circle.

5,063,959

METHOD AND APPARATUS FOR FREE-STANDING WATER REMOVAL FROM ROOF AND SIPHON HEAD THEREFORE

David T. Peterson, Rte. 4, Box 156, Barrington, Ill. 60010

Filed Jul. 17, 1990, Ser. No. 553,525
Int. Cl.[5] F04F *10/00*
U.S. Cl. 137—153 10 Claims



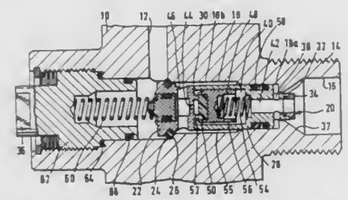
1. A low profile flat type siphon head for siphoning a flat roof surface comprising a relatively flat wide foot flange adapted to rest flatwise on a roof to be drained, the flat wide foot flange being annular and wide to slow water flow inwardly beneath the flat wide foot flange to the dome shaped head portion, a dome shaped head portion centrally located and integrally formed with the relatively flat foot flange, the dome shaped head portion having a height at least several times greater than said flat wide foot flange, the relatively flat foot flange extending outwardly in a relatively flat plane beyond the head portion and surrounding the head portion in all directions, the head portion being closed on its top side and having an interior cavity, an opening on an underside of the head portion in communication with the cavity, an opening on an underside of the head portion in communication with the cavity for receiving fluids to be siphoned, and a horizontally elongated discharge nozzle in fluid receiving communication with said interior cavity and extending radially away from said head portion atop said foot flange, the discharge nozzle being integrally formed with the head portion and the foot flange and being in supported co-planar assembly therewith.

5,063,960

SAFETY CARTRIDGE FOR COMPRESSED OR LIQUEFIED GAS

Paul Kremer, Walferdange, Luxembourg, assignor to Ceodeux S.A., Luxembourg, Luxembourg

Filed Jan. 31, 1991, Ser. No. 648,582
Claims priority, application Luxembourg, Jan. 31, 1990, 87670
Int. Cl.[5] B65B *1/04*
U.S. Cl. 137—269 7 Claims



1. Safety cartridge for compressed or liquefied gas, comprising a body (**10**) with an inlet channel (**12**) and an outlet channel (**16**) via a connecting pipe (**14**), an essentially cylindrical chamber (**18**) at the intersection of the inlet channel (**12**) and outlet

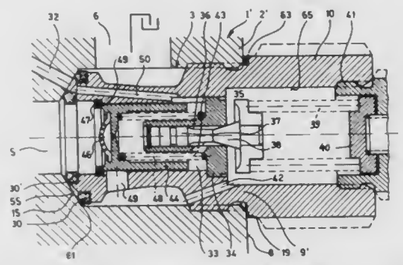
channel (**16**), in the axial extension of the latter, an actuating element (**20**) sliding axially in the said chamber (**18**) and comprising a closing member (**22**) stressed sealingly onto a seat (**26**) under the action of a closing spring (**60**), and a valve (**40**) subjected to the action of a calibrated spring (**54**) for containing a residual pressure, characterised in that the said actuating element (**20**) is designed in the form of a non-return valve and consists of a substantially cylindrical piston (**28**) with a widened base (**22**) forming the closing member and a front part equipped with a peripheral gasket (**58**) which, in the open position and closed position of the non-return valve, is seated sealingly in a narrowed portion (**18***a*) of the said chamber (**18**), in that the said element (**20**) is displaceable from the closing position towards the opening position of the non-return valve counter to the action of the closing spring (**60**) as a result of the connection of a first type of connector (**70**) to the said connecting pipe and in that it is displaceable beyond the said opening position towards a position of filling and short-circuiting of the residual-pressure valve (**48**) in which the said element (**20**) and its peripheral gasket (**58**) are located in a widened portion (**18***b*) of the said chamber (**18**), as a result of the connection of a second type of connector (**74**) to the said connecting pipe (**14**).

5,063,961

SCREW-TYPE VALVE HOUSING

Rudolf Brunner, Baldham, Fed. Rep. of Germany, assignor to Heilmeier & Weinlein Fabrik Fur Oel-Hydraulik GmbH & Co. KG, Munich, Fed. Rep. of Germany

PCT No. PCT/EP88/00513, § 371 Date Jul. 13, 1990, § 102(e) Date Jul. 13, 1990, PCT Pub. No. WO88/09890, PCT Pub. Date Dec. 15, 1988
PCT Filed Jun. 8, 1988, Ser. No. 449,881
Claims priority, application Fed. Rep. of Germany, Jun. 10, 1987, 3719354
Int. Cl.[5] F16J *15/06*
U.S. Cl. 137—454.5 14 Claims



5. A connection according to claim **4**, characterized in that the material of the supporting body (**2**, **2'**, **2''**, **2'''**) is aluminum, a light metal alloy, cast iron or steel.

5,063,962

APPARATUS FOR THE CONTROLLED VENTILATION OF ROOMS

Heinz Fahrni, and Max Rüegg, both of Wald, Switzerland, assignors to Hesco Pilgersteg AG, Ruti, Switzerland

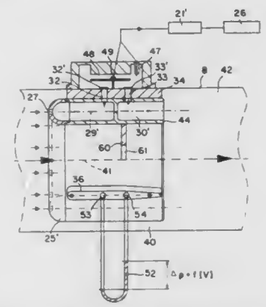
Filed Jul. 20, 1990, Ser. No. 556,533
Claims priority, application Switzerland, Jul. 21, 1989, 02720/89
Int. Cl.[5] G05D *7/00*
U.S. Cl. 137—487 5 Claims

1. An apparatus for controlling the volume of air delivered through a duct to a room, comprising:

(a) a control member for regulating the air flow cross section of a duct;

(b) a control drive to control the movement of said control member;

(c) a flow body, said flow body comprising a pair of axially concentric hollow cylinders, each with an edge upstream of the direction of air flow and a downstream edge, said hollow cylinders connected together at their upstream edges by a convex ring-shaped wall, a ring-shaped partition wall disposed between said pair of hollow cylinders intermediate said downstream and upstream edges, said convex wall and said partition wall defining a first pressure chamber, the volume downstream of said partition wall between said pair of hollow cylinders defining a second pressure chamber, said convex wall of said first pressure chamber having a plurality of intake apertures defined therethrough to communicate with said first pressure chamber, said second pressure chamber being at least partially opened between said downstream edges of said pair of hollow cylinders; and



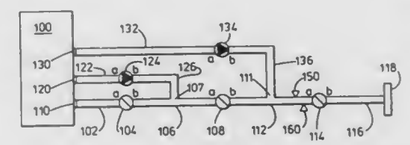
(d) a measuring device connected by air tunnels to said first and second pressure chambers, said measuring device having an air flow passage passing therethrough and communicating with said air tunnels, said measuring device measuring air flow rates through the duct by measuring said pressure differences between said first and second pressure chambers, wherein said measuring device directs said control device to operate said control member, thereby allowing the volume of air delivered through the duct to be regulated.

5,063,963

ENGINE BLEED AIR SUPPLY SYSTEM

Alan W. Smith, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Aug. 9, 1990, Ser. No. 565,007
Int. Cl.[5] F02C *6/08*
U.S. Cl. 137—606 16 Claims



1. A bleed air system arrangement for a compressor including a number of bleed ports, a plurality of controllable valves and a plurality of check valves, each of said controllable and check valves having an input and an output, said bleed air system comprising:

a first bleed pipe connecting a first bleed port in said compressor to an input of a first controllable valve;

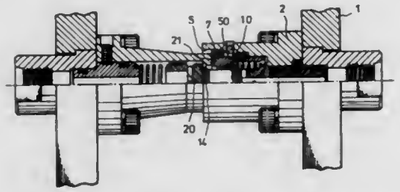
an output of said first controllable valve being connected to an input of a second controllable valve by a second bleed pipe;

an output of said second controllable valve being connected to an input of a third controllable valve by a third bleed pipe;

VOL 1132 ISS 2 NO 12 1991 UMI

a fourth bleed pipe connecting a second bleed port to an input of a first check valve;
an output of said first check valve being connected to said second bleed pipe by a fifth bleed pipe;
a sixth bleed pipe being connecting a third bleed port to an input of a second check valve; and
an output of said second check valve being connected to said third bleed pipe by a seventh bleed pipe.

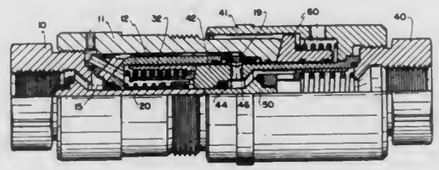
5,063,964
PIPE COUPLING USED WITH AUTOMATIC CONNECTING AND DISCONNECTING DEVICE
Toshihiko Onishi, Kakogawa, and Katsumi Tomioka, Kobe, both of Japan, assignors to Nippon Air Brake Kabushiki Kaisha, Kobe, Japan
Filed Dec. 5, 1990, Ser. No. 622,475
Claims priority, application Japan, Dec. 7, 1989, 1-141687
Int. Cl.[5] F16L *37/28*
U.S. Cl. 137—614.03 **5 Claims**



1. A pipe coupling comprising a cylindrical first main body having a connection opening in a front end face thereof an inner hole connecting with said connection opening, a second main body having a front end portion of an outer diameter which can fit in said connection opening and a second valve hole in a front end face thereof, said first and second main bodies arranged to face each other on a common axis and adapted to allow mutual approaching and departing movement, a valve seat disposed in said first main body and urged toward said connection opening by a first spring, said valve seat having a first valve hole in a front end face thereof and being slidable along said axis, a first check valve of a small diameter adapted to close said first valve hole of said valve seat from the outside thereof, a second check valve of a larger diameter adapted to be urged by a spring to close said second valve hole from the inside thereof, and an annular sealing member disposed on one of the front end faces for forming an annular tight sealing zone when said first and second main bodies are in their connected state;
wherein said inner hole of said first main body is separated by a first step into a first portion connecting with said connection opening and a second portion having an inner diameter less than said first portion, and the outer surface of said valve seat is separated by a second step into a front end portion slidably fitting in said first portion of said inner hole and a rear portion slidably fitting in said second portion of said inner hole, so as to form an air cavity between said first and second steps, the outer diameter of said rear portion of said valve seat being greater than the inner diameter of said annular sealing zone.

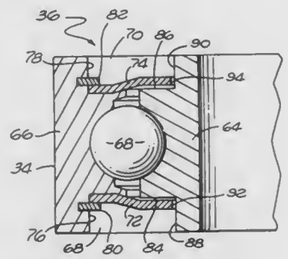
5,063,965
QUICK DISCONNECT COUPLING
Wayne Wilcox, Union City, Pa., assignor to Snap-Tite, Inc., Union City, Pa.
Continuation of Ser. No. 354,611, May 19, 1989, abandoned. This application Jul. 5, 1990, Ser. No. 548,191
Int. Cl.[5] F16L *37/28*
U.S. Cl. 137—614.03 **7 Claims**

1. An improved coupler for joining a first and a second source of a fluid, comprising
a coupler assembly comprising coupler body means, coupler valve means and coupler sleeve means, said coupler body means having a coupler passage therein for said fluid, said coupler passage having a first coupler fluid port between it and said first fluid source, and having a second coupler fluid port, said coupler valve means being urged by first spring means to close said first coupler fluid port, and said coupler sleeve means being urged by second spring means to close said second coupler fluid port; and
a nipple assembly comprising nipple body means, nipple valve means, and nipple sleeve means said nipple body means having a nipple passage therein for said fluid, said



nipple passage having a first nipple fluid port between it and said second fluid source and having a second nipple fluid port, said nipple valve means being urged by third spring means to close said first nipple fluid port, and said nipple sleeve means being urged by fourth spring means to close said second nipple fluid port;
said nipple assembly being insertable into said coupler assembly against the action of said first through fourth spring means to a position in which all said fluid ports are open and said second coupler and nipple fluid ports are in communication.

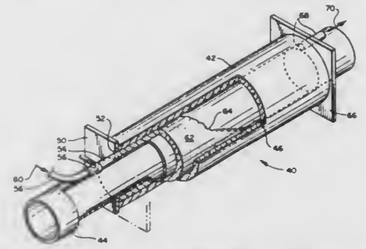
5,063,966
DIRECT DRIVE SERVOVALVE HAVING BEARING FILTER
Russell P. Amico, Castaic, and George M. Klier, Granada Hills, both of Calif., assignors to HR Textron Inc., Valencia, Calif.
Filed Sep. 27, 1990, Ser. No. 588,919
Int. Cl.[5] F15B *13/044*
U.S. Cl. 137—625.65 **5 Claims**



1. A direct drive servovalve comprising;
(1) a valve housing defining a bore therein;
(2) a valve spool reciprocally received within said bore for movement to control fluid flow therethrough from a supply port;
(3) motor means including a rotor section having a drive member for engagement with said valve spool at a predetermined position to move said valve spool in said bore; and
(4) unsealed bearing means supporting said rotor section comprising:
(a) an inner and an outer bearing race, each having a first and a second end, with a plurality of bearing means disposed therebetween, said inner bearing race engaging said rotor;

(b) a first dirt shield means carried by one of said inner and outer races at said first end between said fluid adjacent said valve spool and said rotor section;
(c) a second dirt shield means carried by one of said inner and outer races at said second end; and
(d) each of said first and second dirt shield means being spaced from the other of said first and second races by an amount to permit flow of said fluid through said unsealed bearing means while trapping containment particles entrained in said fluid.

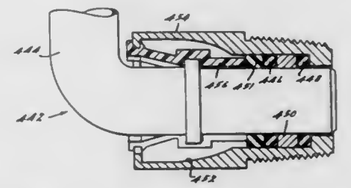
5,063,967
PUMPABLE CEMENT GROUT
Patrick J. Stephens, 1276 Chuckanut Dr., Bellingham, Wash. 98225
Filed Dec. 6, 1989, Ser. No. 446,612
Int. Cl.[5] F16L *55/18*
U.S. Cl. 138—98 **7 Claims**



1. A method for grouting an annular cavity formed intermediate a tubular external member having a longitudinal extent and an internal member disposed in said tubular external member, said method comprising:
forming a pumpable cement grout, said grout comprising:
portland cement;
water in an amount sufficient so that the water-to-portland cement ratio of said grout is from about 0.6 to about 0.68 by weight; and
pre-generated aqueous foam in an amount sufficient to adjust the wet density of said grout to a value of from about 55 to about 72 pounds per cubic foot; and
pumping said pumpable cement grout into said annular cavity so that said grout fills said cavity by flowing in a generally longitudinal direction through said tubular external member.

5,063,968
SWIVELABLE QUICK CONNECTOR ASSEMBLY
Donald D. Bartholomew, Marine City, Mich., assignor to Proprietary Technology, Inc., Southfield, Mich.
Division of Ser. No. 251,038, Sep. 26, 1988, Pat. No. 4,915,136, which is a continuation of Ser. No. 127,532, Dec. 2, 1987, abandoned, which is a continuation of Ser. No. 748,307, Jun. 24, 1985, abandoned, which is a division of Ser. No. 360,201, Mar. 22, 1982, Pat. No. 4,601,497, which is a continuation-in-part of Ser. No. 201,711, Oct. 29, 1980, Pat. No. 4,423,892. This application Jun. 2, 1989, Ser. No. 360,407
The portion of the term of this patent subsequent to Jul. 22, 2003, has been disclaimed.
Int. Cl.[5] F16L *9/22*
U.S. Cl. 138—109 **4 Claims**

1. A connector assembly for use in communicating a fluid media, said assembly comprising:
a conduit;
a housing;
a retainer element;
a sealing element;
said conduit being generally tubular shaped and including a first axially-extending portion having a relatively smooth cylindrical exterior surface and disposed adjacent a terminal end of said conduit, a second axially-extending portion of enlarged diameter disposed axially outwardly from said first axially-extending portion and adapted for engagement with said retainer element, a third axially-extending portion disposed axially outwardly from said second axially-extending portion and having an outer diameter smaller than the outer diameter of said second axially-extending portion;
said sealing element being of an annular configuration and disposed in axial registry with said first axially-extending portion of said conduit and having an inner diameter sealingly engaged with the exterior surface thereof;
said housing having an axial bore adapted for receiving at least a portion of said conduit, said bore including a first portion communicable with a fluid passage and adapted to receive the terminal end of said conduit, a second portion adapted for sealing engagement with the outer diameter of said sealing element, and a third portion adapted to operatively receive said retainer element, said third portion having means defining at least one radially-extending surface cooperable with said retainer element for securing the same within said bore and preventing disassembly of said conduit from said housing;



said retainer element including at least one relatively deformable portion extending substantially parallel to the axis of said conduit, at least one relatively non-axially deformable portion extending between the axially outerside of said second axially-extending portion of said conduit and said radially-extending surface of said housing and thereby maintaining said retainer element within said bore and preventing withdrawal of said conduit from said housing, and said relatively deformable portion of said retainer element being sufficiently long and deformable to allow sufficient radial movement of said relatively non-axially deformable portion to permit said non-axially deformable portion to be biased radially outwardly by said second axially-extending portion of said conduit as said conduit is inserted into said bore, and to cause said relatively non-axially deformable portion to snap radially inwardly adjacent the axially outer side of said second axially-extending portion when said conduit is positioned in place within said bore; and
said conduit having first and second flow path portions arranged at an angle to one another, whereby said assembly comprises an elbow connector.

5,063,969
SELF-ERECTING SPIRAL METAL TUBE WITH ONE TEXTURED SIDE
Kenneth J. Snyder, Perkasie, Pa., assignor to Ametek, Inc., New York, N.Y.
Filed Feb. 27, 1990, Ser. No. 485,965
Int. Cl.[5] F16L *9/16*
U.S. Cl. 138—154 **16 Claims**

1. A self-erecting, coiled metal tube comprising
a helically wound ribbon of spring material having an inside surface and an outside surface,
the ribbon having adjacent turns stressed to coil in tight overlapping and telescoping engagement, and
means for limiting the extension of the ribbon tube when the

VOL
1132
ISS
2
NO
12
1991
UMI

ribbon tube expands from an initial coiled position to an extended position,

the extension limiting means including a textured surface formed on one surface of the ribbon and a smoother surface on another surface of the ribbon with the textured surface being rougher than the smoother surface, so that,



as the tube is extended, the textured surface of one turn of ribbon bears against the smooth surface of another turn of ribbon to create more friction between the adjacent turns of ribbon than there would be between two smooth surfaces and control the length of extension of the ribbon tube.

5,063,970

LOOM WITH DEVICE FOR AUTOMATICALLY EXCHANGING CLOTH BEAMS

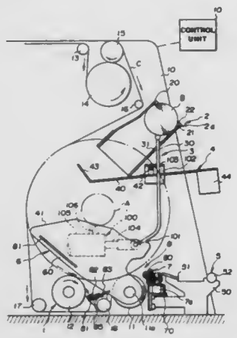
Kazuhiro Tanaka, Tachikawa; Shuichi Kojima, Tokyo; Susumu Kaneko, Akikawa, and Takayuki Chikuma, Musashino, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jun. 7, 1990, Ser. No. 534,638

Claims priority, application Japan, Jun. 8, 1989, 1-144121; Aug. 10, 1989, 1-207504

Int. Cl.[5] D04D *49/20*

U.S. Cl. 139—1 R **30 Claims**



1. A loom comprising:

driving means for driving a first cloth beam to rotate and wind woven fabric thereon;

ejecting means for ejecting said first cloth beam from said driving means when a predetermined length of woven fabric is wound thereon;

a cloth beam support stand for supporting said first cloth beam ejected from said driving means;

a cloth beam holder for holding a second cloth beam and having supplying means operable in timed relation to said ejecting means for supplying said second cloth beam from said holder to said driving means;

cutter means for cutting the woven fabric and thereby separating the same from said first cloth beam while forming a loom side cut end portion in the cloth beam; and

winding means for winding the loom side cut end portion of the woven fabric on said second cloth beam supplied to said driving means and having blowing means for blowing fluid in a first direction for placing the loom side cut end portion of the woven fabric on said second cloth beam and in a second direction different from said first direction, for holding the loom side cut end portion of the woven fabric on said second cloth beam.

5,063,971

CLUTCH ELEMENT FOR A HEALD SHAFT COUPLING

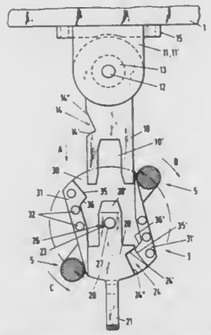
Hans Peter, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jun. 25, 1990, Ser. No. 543,661

Claims priority, application Switzerland, Jul. 7, 1989, 02545/90

Int. Cl.[5] D03C *13/00*

U.S. Cl. 139—87 **10 Claims**



1. A coupling arrangement for a heald shaft comprising

a first coupling element for securement to a heald shaft, said element having at least one external bearing surface;

a second coupling element for mounting on a push rod and having at least one external bearing surface;

a clutch element pivotally mounted on said second coupling element about a pivot axis spaced from said bearing surfaces, said clutch element having engagement surfaces spaced from said pivot axis for matingly engaging said bearing surfaces of said coupling elements; and

a pivotally -mounted tool for rotating said clutch element about said pivot axis to couple said coupling elements to each other.

5,063,972

PROJECTILE ACCELERATOR FOR A LOOM

Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Aug. 27, 1990, Ser. No. 573,470

Claims priority, application Switzerland, Sep. 15, 1989, 03364/89

Int. Cl.[5] D03D *49/32*

U.S. Cl. 139—145 **18 Claims**

1. A projectile accelerator for a loom comprising

a drive shaft;

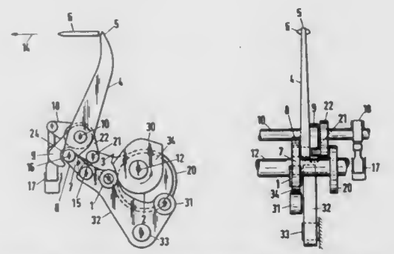
a cam mounted on said drive shaft for rotation therewith;

an accelerating shaft;

a picking lever mounted on said accelerating shaft for movement therewith from a picking position to an end position to pick a projectile;

a pivotally mounted cam follower lever for following said cam during rotation of said drive shaft;

a coupling transmission connected to and betweenone end of said cam follower lever and one end of said picking lever, said transmission including a link movable from a first end position corresponding to said picking position to a second end position corresponding to said end position to said picking lever; and



tensioning means connected to said drive shaft for rotating said accelerating shaft in a direction to move said picking lever from said end position thereof into an intermediate position toward said picking position and said link from said second end position toward said first end position thereof.

5,063,973

REED DENT WITH OPTICAL WEFT DETECTING DEVICE

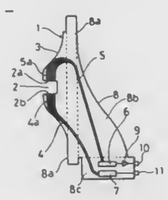
Satoru Kitamura, Matsutou; Shigehira Minami; Yoshihiko Habu, both of Kanazawa; Sigeru Iuchi, Kawasaki, and Yoshikazu Fujinaga, Toyohashi, all of Japan, assignors to Kabushiki Gaisha Ishikawa Seisakusho, Ltd., Kanazawa and Mitsubishi Rayon Co., Ltd., Tokyo, both of, Japan

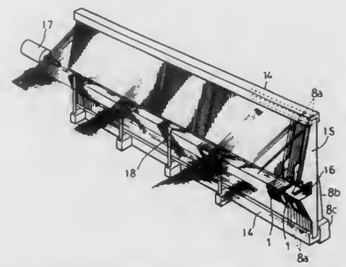
Filed Mar. 7, 1990, Ser. No. 489,673

Claims priority, application Japan, Mar. 8, 1989, 1-056659

Int. Cl.[5] D03D *51/34*

U.S. Cl. 139—370.2 **9 Claims**





1. A weft detecting device in which a weft passing through a weft guide groove provided in a reed of a loom is detected by a light passing through the weft guide groove, comprising:

a thin plate shaped sensor body provided with a recess having substantially the same shape as the shape of a recess of a reed dent and adapted to be inserted between the dents,

a light emitting optical fiber bundle and a light receiving optical fiber bundle each having a plurality of optical fibers, the optical fiber bundles being arranged in a line or lines respectively on a light emitting end and a light receiving end positioned on opposed end faces of the recess of the thin plate shaped sensor body with the weft guide groove being located therebetween,

a light receiving module connected to a light outlet end of the light receiving optical fiber bundle,

a light emitting module connected to a light inlet end of the light emitting optical fiber bundle, and

a support member for integrating the thin plate shaped sensor body, the optical fiber bundles, the light emitting module and the light receiving module, said support member being removably inserted on a frame of the reed.

5,063,974

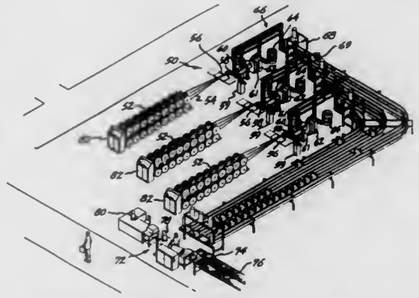
AUTOMATIC WIRE CUT, COIL, AND TIE SYSTEM

Richard J. Buckwitz, Issaquah, and Donald W. Spencer, Snobomish, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Oct. 11, 1990, Ser. No. 596,985

Int. Cl.[5] B21F *3/04*

U.S. Cl. 140—92.2 **35 Claims**



1. A system for automatically coiling, cutting, and handling one of a plurality of wires, comprising:

a. means for selecting one of the plurality of wires to be cut and coiled;

b. coiling means for forming the wire into at least one coiled loop, by winding the wire around a rotatable spindle;

c. means for sensing the length of the wire as it is wound around the spindle;

d. control means, connected to the means for sensing the length of the wire and to the coiling means, and operative to stop the coiling means when a predetermined length of the wire has been coiled;

e. cutting means, for cutting the wire after the predetermined length is coiled;

f. tying means, for securing the loops of the wire so that they do not uncoil; and

g. pick and place means for:

i. removing the loops of the coiled and cut wire from the spindle;

ii. moving the coiled wire to the tying means; and

iii. moving the wire, after the loops are secured by the tying means, to a receiving station.

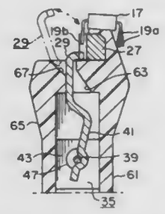
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,975

HAND HELD LEAD STRAIGHTENER

Frank V. Linker, Springfield, Pa., assignor to American Tech Manufacturing, Corp., Glenolden, Pa.

Filed May 4, 1990, Ser. No. 510,297
Int. Cl.[5] B21F *1/02*
U.S. Cl. 140—123 3 Claims



1. A device for straightening leads of an electronic component comprising:

a housing;

a fixed separation blade mounted at one end of the housing having a series of side by side first teeth defining therebetween spaces for receiving leads;

a movable wiper blade having a series of second teeth actuatable through a straightening cycle wherein they interengage in the spaces of said fixed separation blade to straighten leads from a first position wherein the teeth are spaced apart to permit positioning of an electronic component on a seat of said separation blade and a second position at the end of said straightening cycle;

a trigger mounted in said housing and operatively connected to said movable wiper blade;

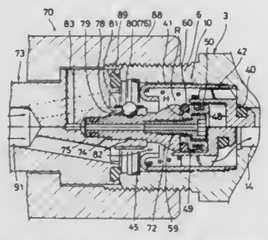
biasing means normally urging said trigger to position the movable blade in said first position, said wiper blade movable by said trigger to said second position wherein said blade is moved completely through the leads to permit removal of the electronic component from the seat before release of the trigger which returns said removable wiper blade to said first position.

5,063,976

ATTACHMENT OF GAS CHARGER FOR GAS CONTAINER

Akira Oi, and Keitaro Yonezawa, both of Amagasaki, Japan, assignors to Kabushiki Kaisha NERIKI, Amagasaki, Japan

Filed Oct. 1, 1990, Ser. No. 591,239
Claims priority, application Japan, Sep. 29, 1989, 1-256361
Int. Cl.[5] B65B *31/06*
U.S. Cl. 141—18 7 Claims



1. In an attachment of a gas charger for a gas container, adapted to be mounted to a valve device with a check valve having a valve box at the time of fresh gas charging and to allow the charge gas to flow into the gas container when the spring-closed type check valve being forcedly opened by means of a pressure of the charge gas, said check valve having a check valve member and a valve-opening gap, said check valve member having a received pressure removing cylinder room opened in such a condition as facing the attachment, and said valve-opening gap being adapted to allow the check valve member to move for valve-opening toward the attachment, the improvement comprising:

a gas charging mouthpiece having a leading end portion and being detachably sealingly secured to said valve box,

a piston supporting member being provided in the leading end portion of said gas charging mouthpiece in such a condition as being movable together therewith in the attaching and detaching direction of the gas charging mouthpiece with respect to the valve box,

a valve-opening piston being supported by said piston supporting member in such a condition as being freely movable in the diametrical direction as well as being detachably fitted into said received pressure removing cylinder room,

a first sealing member being interposed in a fitting clearance between said received pressure removing cylinder room and said valve-opening piston to seal said cylinder room,

a second sealing member being interposed between said valve-opening piston and said piston supporting member to seal therebetween, and wherein

said first sealing member and said second sealing member are arranged in order in the valve-opening direction of the check valve member, and

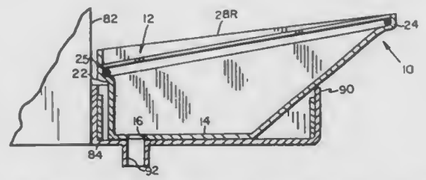
said valve-opening piston is deviationally swingably supported by the piston supporting member through the second sealing member.

5,063,977

BEVERAGE RECEPTACLE TRAY FOR EXTRA-LARGE RECEPTACLES

Terrance G. Belland, Champlin, Minn., assignor to IMI Cornelius Inc., Anoka, Mino.

Division of Ser. No. 96,983, Sep. 14, 1987, Pat. No. 4,944,332, which is a continuation-in-part of Ser. No. 880,464, Jun. 30, 1986, Pat. No. 4,738,285. This application Jan. 29, 1990, Ser. No. 471,827
Int. Cl.[5] B65B *3/04*
U.S. Cl. 141—86 6 Claims



1. A receptacle tray for permitting the filling of oversized receptacles by a beverage dispenser designed for the filling of standard sized receptacles, the dispenser having a front surface, the front surface having a perimeter defined by a top edge and a bottom edge opposite therefrom and first and second side edges opposite from each other and extending transversely to, and between the top and bottom edges, and the dispenser having a plurality of beverage dispensing valves secured to the front surface extending therefrom from the first side edge to the second side edge and adjacent the top edge thereof, the valves for dispensing beverage downwardly therefrom in a direction towards the bottom edge, and the dispenser having a receiving tray extending transversely from and adjacent the front surface bottom edge and substantially from the front surface first side edge to the second side edge and having a width extending from the dispenser front surface to a receiving tray front edge wherein the receiving tray width and length define a receiving tray surface area below the valves, the receiving tray for the receiving and draining away of any beverage dropping directly from the valves or as the result of overflowing and the like of standard sized receptacles, the receptacle tray comprising:

a tray portion, the tray portion having a top surface area the perimeter of which is defined by a first perimeter edge and a second perimeter edge opposite therefrom and a back perimeter edge opposite from a nose perimeter edge, the back and nose tray portion perimeter edges extending transversely to and between the tray portion side edges, and the tray portion having a central sump, the sump having a sump volume defined by a sump floor and sump perimeter walls extending upwardly from the sump floor to a sump perimeter edge, and the tray portion having means for cooperating with the receiving tray for securing the receptacle tray to the receiving tray, and the tray portion first and second edges defining tray portion wings the wings extending outwardly of the receiving tray first and second edges when the tray portion is secured to the receiving tray and the tray nose edge extending in a direction from the tray portion back edge wherein the tray nose edge extends outwardly from the receiving tray front edge when the tray portion is secured to the receiving tray, and the tray portion first and second edges and nose edge having respective floor portions extending therefrom to the sump perimeter edge,

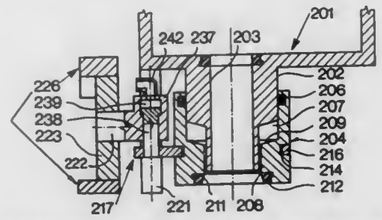
a receptacle support portion, the support portion substantially flat and generally coextensive with the tray portion top surface area and the receptacle support having means for cooperating with the tray portion perimeter edges for releasable securing therewith and the support having a plurality of openings for permitting the passing of beverage easily therethrough and into the tray portion, and the tray portion wings and nose edge extending from the receiving tray so that the tray portion surface area is substantially greater than the receiving tray surface area whereby over sized containers can be placed on the receptacle rest and easily supported thereon.

5,063,978

APPARATUS FOR FILLING CONTAINERS

Jacek Walusiak, Hamburg, Fed. Rep. of Germany, assignor to alfill Getränketechnik GmbH, Hamburg, Fed. Rep. of Germany

Filed Jun. 22, 1990, Ser. No. 542,719
Claims priority, application Fed. Rep. of Germany, Jun. 27, 1989, 3920977
Int. Cl.[5] B67C *3/26*; B65B *43/42*
U.S. Cl. 141—263 6 Claims



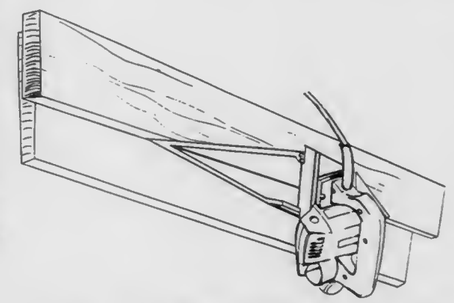
1. Apparatus for admitting flowable materials into moving containers having material-receiving portions surrounding inlets for flowable materials, comprising at least one material-supplying member; means for moving the at least one member along a predetermined path; means for advancing successive containers into positions of register with said at least one member; a combined centering and sealing device mounted on said at least one member for displacement toward and away from engagement with the material-receiving portion of a container which is in register with said at least one member; means for displacing said device; and energy storing means operating between said device and said displacing means to effect a movement of said device into engagement with the material-receiving portion of a container which is in register with said at least one member, said displacing means comprising a cam adjacent said path and a follower adjacent said energy storing means, said follower being movable with said at least one member and tracking said cam only in predetermined portions of said path said device comprises a sleeve having an external recess and a motion-receiving portion form-lockingly received in said recess, said energy storing means comprising a cylinder and piston unit between said displacing means and said motion receiving portion.

5,063,979

ACU-PLANER ATTACHMENT

Joe C. Johnson, Box 67, Springer, Okla. 73458

Filed Dec. 1, 1989, Ser. No. 444,404
Int. Cl.[5] B27C *9/02*
U.S. Cl. 144—1 F 3 Claims



1. A guide tool accessory fore hand tools comprising: guide fence means defining at least two guide sides, each said guide side having opposite ends of which one respective end of each is attached to the other at an angle;

A removable shoe, said shoe comprising on one side thereof a base and upstanding sides for supporting a hand tool, and having means on the opposite side opposite side thereof for removable attachment to the opposite ends of said guide sides;

means for securing said tool to said shoe; and

means for securing said shoe to said guide fence means, whereby said fence means and said shoe from an integral unit for slidable supporting said tool at an angle relative to a workpiece to be engaged by said tool.

5,063,980

CUTTER HEAD ASSEMBLY

David A. Schultz, R.D. 5, Box 59, Valatie, N.Y. 12184

Filed Oct. 19, 1989, Ser. No. 423,834
Int. Cl.[5] B27B *33/00*
U.S. Cl. 144—223 13 Claims

1. A cutter head assembly for cutting a round on a wood product comprising:

A. a cutter body having:

1) a base portion,

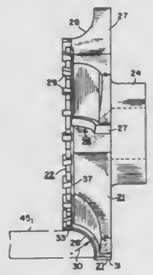
2) at least a wing on the base portion with a cutter tip having an original cutting edge in an arcuate form having a first radius of curvature,

B. a circular saw blade removably secured to said body, having cutting teeth having an outer cutting edge, said outer cutting edge forming a continuous, uninterrupted cutting edge with said body cutting edge, and

C. a plurality of shims that can be positioned between said cutter body and said saw blade;

VOL
1132
ISS
2
NO
12
1991
UMI

wherein said shims are selectively added or removed from between said body and saw blade to compensate for any



change in the first radius of curvature when the cutter body wing cutting edge is sharpened to a second radius of curvature.

5,063,981

METHOD AND MEANS OF CONVEYANCE OF SOLID MATTER IN PIECES OR PARTICLES

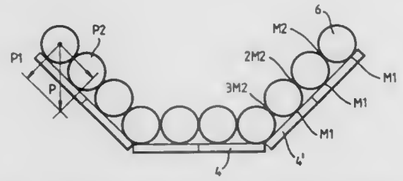
Arvo Jonkka, Pori, Finland, assignor to Rauma-Repola Oy, Pori, Finland

Filed Jun. 28, 1990, Ser. No. 544,917

Claims priority, application Finland, Jul. 3, 1989, 893230; Sep. 18, 1989, 894387; Mar. 21, 1990, 901423

Int. Cl.[5] B27L *1/00*; B65G *25/00*

U.S. Cl. 144—341 **17 Claims**



2. A means for conveying pieces of material comprising:

frame means;

a plurality of oblong shaped transfer elements positioned substantially parallel to each other along a conveying direction on said frame means to form a conveyor with a predetermined surface area, said transfer elements being movable in a forward and return motion along a line parallel to said conveying direction such that said conveyor has a forward moving surface area and a return moving surface area at any particular period of time; said forward moving surface area being in contact with said pieces of material and being larger than said return moving surface area at any particular period of time;

means for moving each of said plurality of transfer elements at a return speed of movement that is greater than a forward speed of movement; and

outermost transfer elements of said conveyor being inclined relative to a horizontal plane such that said outermost transfer elements slope towards a center of said conveyor.

5,063,982

HAND TOOL FOR FORMING A POCKET MORTISE AND METHOD

Max W. Durney, P.O. Box 660, Penngrove, Calif. 94951

Filed Aug. 21, 1990, Ser. No. 570,390

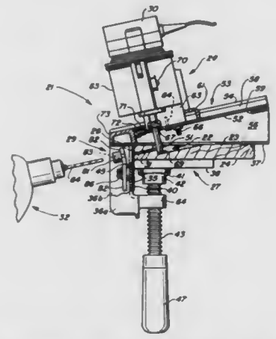
Int. Cl.[5] B27C *1/00*; B27M *1/08*

U.S. Cl. 144—365 **18 Claims**

1. A hand tool assembly useful in forming a pocket mortise in a surface of a workpiece proximate an edge thereof comprising:

a clamp assembly formed for releasable clamping of said hand tool to said workpiece proximate said edge; and

router means movably mounted to said clamp assembly by mounting means and having a router bit with an axis of



rotation oriented transverse to said surface when said clamp assembly is clamped to said workpiece, said mounting means mounting said router means to said clamp assembly for manual displacement in a direction transverse to said edge and for displacement of said router bit to cut into said workpiece to form a pocket mortise proximate said edge.

5,063,983

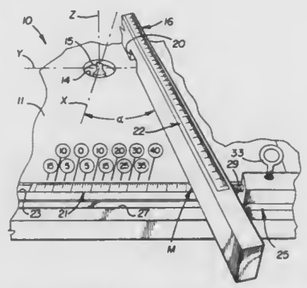
ROUTER TABLE WITH SWING ARM MEASURING SCALE, BLOCK AND METHOD

David Barry, 49 Lomita Dr., Mill Valley, Calif. 94941

Filed Jun. 11, 1990, Ser. No. 535,727

Int. Cl.[5] B27F *1/06*

U.S. Cl. 144—371 **42 Claims**



29. A method for making a router table or adapting an existing work table to accommodate an adjustable fence comprising the steps of

forming a fence to comprise an elongated fence member having a pivot pin secured thereon,

drilling a hole in the platen of a work table, having an opening formed therethrough adapted to receive and expose a router bit above said platen, and

pivotally mounting said pin in said hole to permit swinging movements of said fence member over said platen to selectively vary and adjust the distance between said router bit and said fence means.

5,063,984

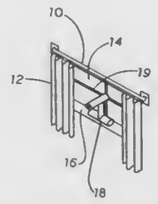
SOLAR HEATING DRAPERY OPENING INDCATOR

Albert G. Cherveny, 18655 Willow Ave., Country Club Hills, Ill. 60478

Filed Mar. 13, 1991, Ser. No. 668,970

Int. Cl.[5] E05F *15/20*

U.S. Cl. 160—7 **15 Claims**



1. An apparatus for detecting heat flow through a window and window covering so as to conserve energy, said apparatus comprising:

a support structure constructed and arranged for mounting proximate said window;

a plurality of temperature sensing means mounted on said support structure, a first one of said temperature sensing means being supported proximate said window and a second one of said temperature sensing means being supported within said room and a sufficient distance from said window so as to allow said window covering to be closed on said window;

means for comparing the temperature of said first and second temperature sensing means;

means for indicating when said first temperature sensing means is warmer than said second temperature sensing means, thereby indicated that said window covering should be opened; and

a power supply for operating said apparatus.

5,063,985

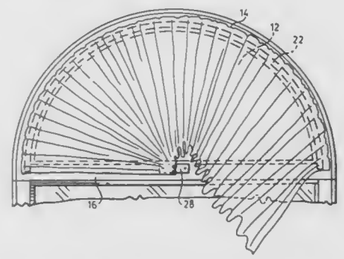
METHOD AND APPARATUS FOR THE INSTALLATION OF SECTOR-SHAPED CURTAINS ON CORRESPONDINGLY SECTOR-SHAPED WINDOWS

Romolo T. Bozzo, 775 King Street East, Hamilton, Ontario, L8N 1A7, Canada

Filed Jun. 15, 1990, Ser. No. 538,614

Int. Cl.[5] A47H *1/00*

U.S. Cl. 160—330 **21 Claims**



1. A method for the installation of a sector shaped curtain on a sector-shaped window having a casing with a curved perimeter portion and a straight chordal perimeter portion between the ends of the curved perimeter portion, the method comprising the steps of:

attaching to the window casing curved perimeter portion a length of one part of a two-part fastening material so as to extend from one end of the portion to the other;

providing a length of flexible curtain material;

gathering the flexible curtain material along one edge thereof until its gathered length is equal to that of the window curved perimeter portion;

attaching to the gathered curtain edge along its entire length a length of the other part of the two-part fastening material;

attaching the one part of the fastening material to the other part to attach the gathered curtain material to the window casing curved perimeter portion so as to extend from one end thereof to the other;

tensioning the gathered curtain material perpendicularly to the gathered edge and while so tensioned gathering its free edge and impaling it on an impaling member of a securing member disposed at least approximately at the middle of the length of the casing straight chordal perimeter portion.

5,063,986

METHOD FOR MANUFACTURING ALLOY ROD HAVING GIANT MAGNETOSTRICTION

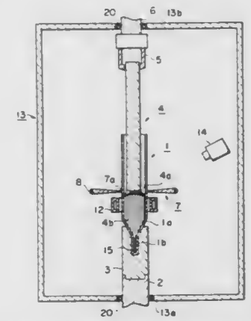
Katsuhiko Murakami; Nobuo Yamagami, both of Tokyo; Toshiyuki Nakanishi; Iwao Nakano, both of Yokosuka; Keiichi Kobayashi, and Takashi Yoshikawa, both of Tokyo, all of Japan, assignors to NKK Corporation, Tokyo; Japan Marine Science and Technology Center, Yokosuka and Oki Electric Industry Co., Ltd., Tokyo, all of, Japan

Filed Jun. 18, 1990, Ser. No. 539,604

Claims priority, application Japan, Jun. 30, 1989, 1-168453

Int. Cl.[5] B22D *27/04*

U.S. Cl. 164—122.2 **12 Claims**



1. A method for manufacturing an alloy rod having giant magnetostriction, which comprises the steps of:

supplying a rod-shaped alloy material, comprising at least two rare earth metals comprising terbium and dysprosium and at least one transition metal, into a crucible in an inert gas atmosphere under a pressure of 0.2 to 10 atmospheres;

heating said rod-shaped alloy material in said crucible in the circumferential direction thereof by means of an annular high-frequency heating coil having a frequency of 0.1 to 3 MHz and arranged so as to surround said crucible, said high-frequency heating coil having an inside diameter of 1.1 to 1.6 times as large as an outside diameter of said crucible, continuously moving said crucible downwardly at a speed of 0.2 to 8.5 mm/minute through said heating coil so as to heat from the lower end toward the upper end of said alloy material in the axial direction thereof to locally and sequentially melt a section of said alloy material in the axial direction thereof, and then locally and sequentially solidifying the resultant molten section of said alloy material in said crucible, thereby manufacturing an alloy rod having giant magnetostriction comprising a single-crystal structure or a unidirectional-solidification structure in the axial direction thereof.

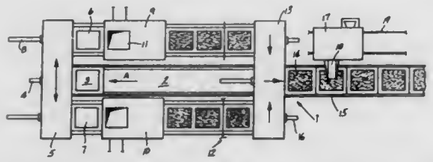
VOL 1132 ISS 2 NO 12 1991 UMI

5,063,987

APPARATUS FOR COOLING MOLDS

Wendelin Welmann, Klettgau, Fed. Rep. of Germany, assignor to George Fischer AG, Schaffhausen, Switzerland

Division of Ser. No. 401,945, Sep. 1, 1989, Pat. No. 4,982,778.
This application May 14, 1990, Ser. No. 522,805
The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.
Int. Cl.[5] B22C *9/20*
U.S. Cl. 164—324 1 Claim



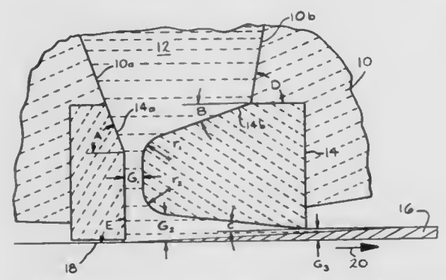
1. An apparatus for circulating molds in a molding plant wherein the molding boxes are fed with molding sand from a molding machine so as to form a sand mold and thereafter metal is cast from a casting station into said sand comprising a primary cooling line for cooling said cast mold, ejector means downstream of said primary cooling line for receiving the preliminarily cooled casting, said ejector means including means for removing said cast metal and surrounding sand mold from said molding box in feeding said cast metal and surrounding sand mold to a secondary cooling line downstream of said ejector station in an abutting manner such that said cast metal and surrounding sand mold directly contact each other, said secondary cooling line comprises a horizontal conveyor and lateral guide wall means whereby said cast metal and surrounding sand molds are supported laterally by said guide walls, said horizontal conveyor and said abutting cast metal and surrounding sand molds such that said sand molds are held in a dimensionally stable manner about the metal castings to insure that the metal castings are stable during transport along the secondary cooling line whereby said metal castings are completely solidified.

5,063,988

METHOD AND APPARATUS FOR STRIP CASTING

Donald W. Follstaedt, Middletown, Ohio; John C. Powell, Pittsburgh, Pa.; Richard C. Sussman, West Chester, and Robert S. Williams, Fairfield, both of Ohio, assignors to Armco Inc., Middletown, Ohio

Filed Jun. 22, 1990, Ser. No. 543,613
Int. Cl.[5] B22D *11/06*
U.S. Cl. 164—463 13 Claims



1. An apparatus for continuously casting metal strip comprising:
a) a tundish for receiving and holding molten metal having a rear tundish wall and a front tundish wall for supplying said molten metal;
b) a cooled rotating substrate which is at least as wide as said metal strip; and
c) a nozzle connected to said tundish comprising a rear teeming nozzle wall being at an approach angle of 45° to 120° to said substrate and connected to said rear tundish wall, a front teeming nozzle wall connected to said front tundish wall, a nozzle slot gap between said rear and front teeming nozzle walls of about 0.01 to 0.3 inches and a converging opening at the point of exit with an exit nozzle gap less than said nozzle slot gap.

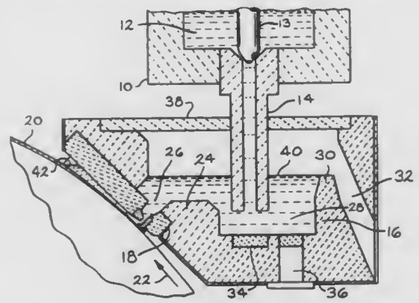
11. A method of continuously casting metallic strip including the steps of:
a) providing a source of molten metal;
b) supplying a casting nozzle with said molten metal wherein said casting nozzle has a nozzle slot opening of about 0.01 to 0.3 inches;
c) positioning a cooled rotating substrate at a distance at least the height of the desired strip thickness at the point of strip exit from said nozzle; and
d) casting said metallic strip from said casting nozzle onto said rotating substrate through a converging opening at the point of exit between said casting nozzle and said substrate which is less than said nozzle slot opening whereby said casting method provides a smooth metal flow onto said substrate due to increased restriction between said casting nozzle and said rotating substrate.

5,063,989

METHOD AND APPARATUS FOR PLANAR DRAG STRIP CASTING

John C. Powell, Pittsburgh, Pa., and Steven L. Campbell, Middletown, Ohio, assignors to Armco Inc., Middletown, Ohio

Filed Jun. 22, 1990, Ser. No. 543,614
Int. Cl.[5] B22D *11/06*
U.S. Cl. 164—463 26 Claims



1. A method for producing strip continuously cast from a melt, said method comprising the steps of:
a) containing said melt in a pouring box;
b) maintaining a controlled level of said melt in said pouring box to provide a desired static head pressure;
c) casting said melt from said pouring box through a planar flow nozzle;
d) providing a rotatable casting substrate to receive said melt;
e) containing said melt on said substrate using nozzle extension containment means;
f) maintaining a level of said melt in said nozzle extension containment means to provide a melt level on said substrate which is above said melt level in said pouring box; and
g) solidifying said melt to form a continuous cast strip.

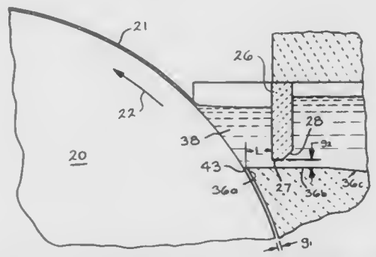
17. A planar drag strip casting apparatus comprising:
a) a pouring box for supplying molten metal;
b) a casting nozzle connected to said pouring box for casting said molten metal;
c) a cooled rotating substrate which is positioned to receive said molten metal from said nozzle at a position before the top of said substrate; and
d) a nozzle extension means to support said molten metal on said substrate to extend said molten metal contact with said substrate wherein said nozzle extension means increase the level of said molten metal to a level above said molten metal level in said pouring box.

5,063,990

METHOD AND APPARATUS FOR IMPROVED MELT FLOW DURING CONTINUOUS STRIP CASTING

Donald W. Follstaedt, Middletown; Edward L. King, Trenton, and Ken C. Schneider, Dayton, all of Ohio, assignors to Armco Inc., Middletown, Ohio

Filed Jun. 22, 1990, Ser. No. 543,612
Int. Cl.[5] B22D *11/06*
U.S. Cl. 164—463 24 Claims



1. A method of open channel strip casting molten material through a casting nozzle onto a rotating substrate with reduced freezing of the molten material along refractory surfaces of said casting nozzle and for providing improved uniform molten material flow onto said substrate, said method comprising the steps of:
a) providing a container vessel having a refractory floor and refractory sidewalls for holding said molten material;
b) providing a casting nozzle having refractory walls connected to said container vessel;
c) providing a cooled rotating substrate which is spaced from nozzle sufficiently far to insure said nozzle does not contact said substrate and close enough to said nozzle to insure the molten material does not leak between said nozzle and said substrate;
d) providing a nozzle casting weir which is positioned about 0.25 to about 2 inches (about 6 to about 50 mm) from said substrate, said weir having a bottom central gap between said weir and said nozzle floor up to about 0.75 inches (about 20 mm) and bottom weir edges tapered to increase the gaps at said edges to provide an increased localized flow of molten material along said nozzle refractory walls to increase the volume of localized hot material to reduce sticking and provide a more uniform casting flow across the width of said nozzle.

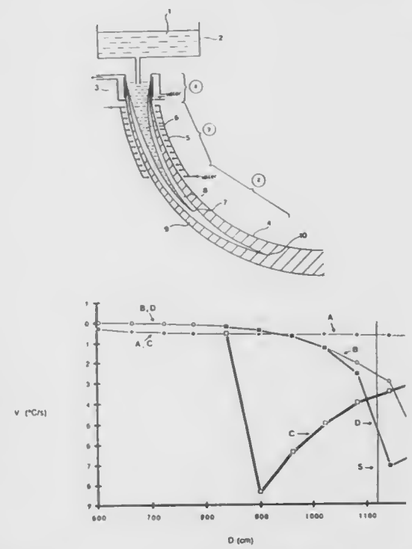
13. An apparatus for open channel strip casting comprising:
a) a container vessel for storing molten material;
b) a cooled rotating substrate;
c) a refractory nozzle connected to said container vessel and positioned about 0.001 to about 0.03 inches (about 0.025 to about 0.75 mm) from said substrate, said nozzle having an outer surface conforming to the shape of said substrate; and
d) a weir positioned within said nozzle at about 0.25 to about 2 inches (about 6 to about 50 mm) from said substrate and spaced about 0.05 to 0.75 inches (about 1 to about 19 mm) above the nozzle floor in the central portion and spaced at least about 15% further from the floor at the edges of said weir.

5,063,991

PROCESS FOR COOLING A CONTINUOUSLY CAST METAL PRODUCT

Manuel Bobadilla, Chatel-Saint-Germain; Jean-Marc Jolivet, Rurange-lés-Thionville, and Michel Martinot, Chatel-Saint-Germain, all of France, assignors to IRSID, Maizieres-les-Metz, France

Continuation-in-part of Ser. No. 350,488, May 11, 1989, abandoned. This application Aug. 3, 1990, Ser. No. 563,685
Claims priority, application France, May 13, 1988, 88 06743
Int. Cl.[5] B22D *11/124*
U.S. Cl. 164—468 10 Claims



1. In a process for cooling a metal product during continuous casting of said product, said process comprising the steps of
(a) in a bottomless mold defining the size of said product, primary cooling of metal in a liquid state, producing a solidified outer shell surrounding a liquid core of said product;
(b) secondary cooling by applying a cooling medium to a free surface of said outer shell out of said mold, to perform progressive metallic solidification toward an interior of said product, said solidification causing development of a phase of pasty solidification between said solidified outer shell and said liquid core;
(c) stopping said secondary cooling before complete solidification of said product and while a said liquid core of said product still remains; and
the improvement comprising
(d) forced cooling of said product to supplement said natural cooling, said forced cooling being conducted in a zone extending along a casting machine between a first point where said core of said product is in said pasty solidification phase and where, in the absence of said forced cooling, the speed of decrease of the temperature of said pasty solidification phase would begin to exceed the speed of decrease of temperature of a surface of said product, and a second point at which the proportion of solid material

VOL 1132 ISS 2 NO 12 1991 UMI

within the liquid phase of said pasty core is at least 60% by weight;

(e) whereby differential thermal contraction between said core in said pasty solidification phase of said product and said solidified outer shell results in a permanent squeezing effect by said outer shell on said core in said pasty solidification phase.

5,063,992

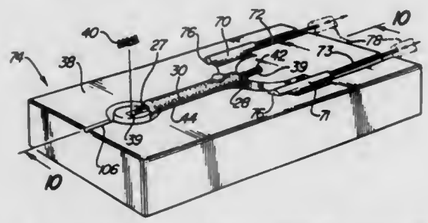
HOLLOW CONNECTING ROD

Robert Mrdjenovich, Brighton, and David A. Yeager, Plymouth, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Division of Ser. No. 388,101, Jul. 3, 1989. This application Feb. 6, 1991, Ser. No. 651,161

Int. Cl.[5] B22C *9/02*

U.S. Cl. 164—516 **10 Claims**



1. A process for casting a hollow connecting rod for use in an engine, the connecting rod comprising an elongate tubular shank member, the process comprising the steps of:

preparing an elongate core having an axially extending locating member positioned at each end thereof and a pair of disk-shaped protuberances extending radially from the core, the core defining a hollow section in the elongate tubular shank member, each locating member defining a passage extending axially from the hollow section, and the disk-shaped protuberances defining a central aperture extending radially from the hollow section;

securing the core in a die by a pair of axially disposed retainers that engage the locating members of the core so that the core cooperates with the die to define a cavity therebetween for forming a pattern of the connecting rod;

injecting a molding material into the cavity between the core and the die, and cooling the molding material to form the pattern of the connecting rod, the molding material substantially encapsulating the core;

removing the pattern from the die;

coating the pattern with a refractory material to form a shell mold which encrusts the pattern, the shell mold, the axially extending locating members and the radially extending disk-shaped protuberances of the core cooperating with the shell mold to secure the core precisely therewithin to facilitate precise dimensional control of the connecting rod;

heating the shell mold to meld the molding material for removal thereof from the shell mold;

filling the cavity between the core and the shell mold with molten metal and cooing the metal to form a near net shape of the connecting rod; and

separating the shell mod from the solidified metal and removing the core from the hollow section of the connecting rod to eliminate unwanted material therefrom.

5,063,993

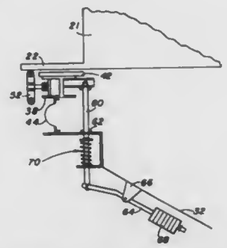
AIR HEATER WITH AUTOMATIC SEALING

Douglas A. Huston, North Canton, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Division of Ser. No. 602,440, Oct. 22, 1990. This application Apr. 29, 1991, Ser. No. 693,189

Int. Cl.[5] F28D *17/04*

U.S. Cl. 165—4 **6 Claims**



1. A sealing arrangement for a regenerative air heater having a stator with a peripheral flange, and hot and cold end hoods mounted for rotation over respective opposite surfaces of the stator, the arrangement comprising:

a seal frame for extending adjacent at least part of the stator flange;

an expansion joint assembly connected between the cold end hood and the seal frame for movably mounting the seal frame to the cold end hood;

at least one seal shoe connected to the frame and positioned at a selected gap from the stator flange;

at least one wheel mounted for rotation to the frame and near the shoe, the wheel rolling along the flange for maintaining the selected gap; and

biasing means connected between the cold end hood and the frame for urging the seal shoe toward the stator flange for reducing a size of the selected gap against the influence of the wheel for maintaining the selected gap, said biasing means including a lever pivotally mounted to an exterior surface of the cold end hood, a weight at one end of the lever, a bolt slidably mounted through an aperture in the cold end hood at an opposite end of the lever, connected between the lever and the frame, and a spring engaged between the bolt and the cold end hood for increasing the biasing force urging the seal shoe toward the stator flange.

5,063,994

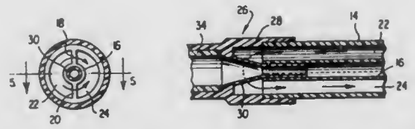
REFLUX FLUID HEATED PATIENT LINE

Wesley H. Verkaart, Duxbury, Mass., assignor to Level 1 Technologies, Inc., Rockland, Mass.

Filed Jun. 26, 1990, Ser. No. 543,390

Int. Cl.[5] F28D *7/10*

U.S. Cl. 165—154 **17 Claims**



1. A heat exchanger comprising a first tube carrying a first fluid, a second tube spaced from and surrounding said first tube for carrying a second fluid, partition means for dividing the space between said first and second tubes into first and second channels for carrying said second fluid, and first end cap means adjacent a first end of said first tube and a first end of said second tube for receiving said second fluid which has flowed through said first channel and for redirecting said second fluid to flow into said second channel, wherein said partition means terminates substantially flush with said first end of said first tube and said first end cap means are separate elements.

5,063,995

CERAMIC HEAT EXCHANGER

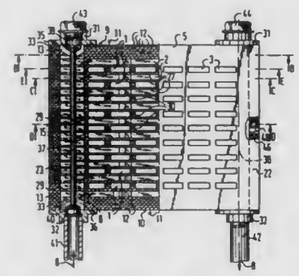
Siegfried Förster, Ottenfeld, and Peter Quell, Birkenweg, both of Fed. Rep. of Germany, assignors to Forschungszentrum Jülich GmbH, Jülich, Fed. Rep. of Germany

Filed Mar. 23, 1990, Ser. No. 498,220

Claims priority, application Fed. Rep. of Germany, Mar. 25, 1989, 3909996

Int. Cl.[5] F28F *3/08*

U.S. Cl. 165—166 **15 Claims**



1. A heat exchanger comprising:

first chamber means defining first passageway means and second passageway means, said first passageway means defining a first cross-section, said second passageway means defining a second cross-section, said first chamber means, said first passageway means and said second passageway means each being configured to facilitate fluid passage therethrough;

second chamber means configured to facilitate fluid passage therethrough;

first port means in fluid communication with said first passageway means to facilitate fluid passage from said first port means to said first passageway means; and

second port means in fluid communication with said second passageway means to said second port means;

said first chamber means and said second chamber means being relatively positioned to facilitate heat transfer therebetween and to restrict fluid passage therebetween;

fluid communication means disposed between said first passageway means and said second passageway means;

said first passageway means and said second passageway means being in fluid communication with one another via said fluid communication means to facilitate fluid passage from said first passageway means to said second passageway means;

said first passageway means configured with a first end adjacent said first port means, said first passageway means configured with a second end positioned in spaced-apart relation with respect to said first end;

said fluid communication means having a first side portion and a second side portion;

said first passageway means being disposed along said first side portion of said fluid communication means;

said first passageway means being configured to provide fluid flow from said first port means along said first side portion;

orifice means being disposed at said second end position of said first passageway means;

said orifice means being disposed to admit fluid flow to said fluid communication means in a direction transverse to flow of the fluid in said first passageway means;

said second passageway means configured with a third end adjacent said second port means, said second passageway means configured with a fourth end positioned in spaced-apart relation with respect to said third end;

said cross-section of said first passageway means defining a first dimension adjacent said first end, said cross-section of said first passageway means defining a second dimension adjacent said second end, said first dimension being greater than said second dimension;

said first passageway means narrowing in the direction from said first end toward said second end;

spacer means for being interposed between said first chamber means and said second chamber means for restricting fluid passage therebetween;

a plurality of first chamber means, a plurality of second chamber means and a plurality of spacer means said first chamber and said second chamber means being alternately interposed one with the other;

at least one spacer means is for being interposed between each of said first and second chamber means;

said first chamber means, said first passageway means and said second passageway means each are configured for liquid passage therethrough;

said second chamber means is configured for gas passage therethrough;

said first chamber means defines interior cavity means, said interior cavity means having a central portion interposed between and in fluid communication with a first passageway means and said second passageway means, said first communication means comprising said central portion of said interior cavity means;

third passageway means for said passage of gas therethrough.

5,063,996

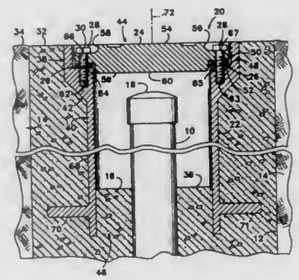
APPARATUS FOR PROTECTING AN ENVIRONMENTAL MONITORING WELL HEAD

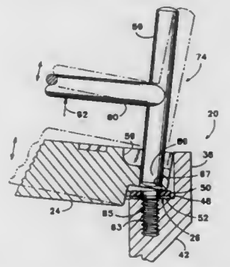
Donald A. Kenner, Rte. 3, Box 220A, Sherwood, Oreg. 97006

Continuation-in-part of Ser. No. 397,010, Aug. 22, 1989, Pat. No. 5,010,957. This application Aug. 10, 1990, Ser. No. 565,139

Int. Cl.[5] E21B *33/03*

U.S. Cl. 166—75.1 **8 Claims**





1. In an environmental monitoring well having a well pipe

VOL 1132 ISS 2 NO 12 1991 UMI

disposed in a well bore with an upper end thereof extending toward the surface of the earth, a housing comprising:

(a) an enclosure having an outer surface, an upper opening for providing access to said upper end of said well pipe and a lower opening, said enclosure being of unitary construction and being disposed in said well bore around the upper end of said well pipe, the upper opening of said enclosure being substantially flush with the surface of the earth, and a ledge positioned adjacent to the upper opening of said enclosure, said ledge having a threaded bore of a predetermined inside diameter from thread to thread;

(b) a cover, adapted to be disposed within said enclosure at the upper opening thereof and supported on said ledge, said cover having a substantially flat upper surface flush with the upper opening of said enclosure when installed therein, said cover also having an aperture in alignment with said threaded bore when said cover is supported on said ledge, a lower portion of said aperture having an inside diameter greater than the predetermined inside diameter of said threaded bore;

(c) sealing means disposed in said well bore between said outer surface of said enclosure and the inner surface of said well bore, and between the outer surface of said well pipe and the inner surface of said well bore a predetermined distance beneath said enclosure, so as to substantially fill the space therebetween, said sealing means comprising a material that allows it to flow into the space outside and below said enclosure so as to seal off the interior of said enclosure, except for the well pipe, at its lower opening;

(d) an elongate threaded fastener for attaching said cover to said ledge with said fastener extending through said aperture and being matingly received in and engaged by said threaded bore, said fastener having a head wider across in at least one direction than the inside diameter of said lower portion of said aperture; and

(e) a tool for installing said cover on and for removing said cover from said enclosure, said tool including a handle and a rod extending transversely to said handle, said rod having a diameter larger than said predetermined inside diameter of said threaded bore and smaller than the inside diameter of said lower portion of said aperture, whereby said cover can be lifted from said enclosure by inserting said rod in said cover aperture and lifting on said handle, said tool also including a wrench portion attached to said handle and having an opening conforming to and matable with said head for turning said fastener in said threaded bore, an upper portion of said aperture being sufficiently wide to receive said wrench portion and sufficiently deep that the top of said head can be disposed substantially flush with the top of said cover when installed.

5,063,997

METHOD OF PREVENTING PRECIPITATION OF IRON COMPOUNDS DURING ACID TREATMENT OF WELLS

Sylvia K. Pachla; Robert S. Taylor, and John R. Delorey, all of Calgary, Canada, assignors to Nowsco Well Service Ltd., Alberta, Canada

Filed Jan. 4, 1990, Ser. No. 461,119
Claims priority, application Canada, Jan. 4, 1989, 587477
Int. Cl.[5] E21B *43/27*
U.S. Cl. 166—279 **21 Claims**

1. A process of reducing sludge formation during the acid treatment of a subterranean formation with a treatment acid, comprising adding to the acid solution used for such treatment

a) at least one of (i) phosphinic acid and (ii) a salt thereof which is soluble in said acid used for treating said formation and which does not form a precipitate during treatment, and

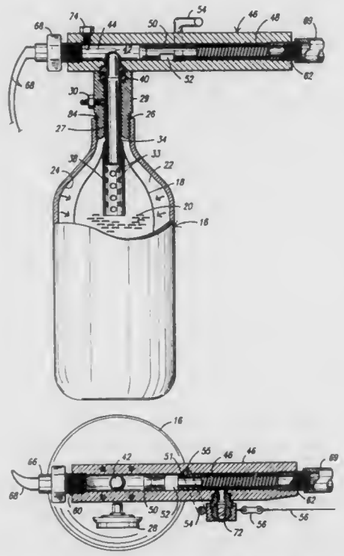
b) a catalytic amount of a source of cupric or cuprous ion in a form soluble in said treatment acid, and wherein said cupric or cuprous ion is added as a salt which does not form a sludge or precipitate with the oil in said subterranean formation.

5,063,998

FIRE EXTINGUISHER APPARATUS

Robert L. Quinn, 3505 75th St., N., St. Petersburg, Fla. 33710

Filed Nov. 19, 1990, Ser. No. 615,082
Int. Cl.[5] A62C *37/12*
U.S. Cl. 169—65 **16 Claims**



1. An automatic fire extinguisher apparatus with a necked container open at one end, enclosing a fire extinguishing composition, the apparatus comprising in addition,

(a) a soft plastic bag having a necked down opening, the bag resistant to decomposition from the fire extinguishing composition, the bag retained within the container and storing the fire extinguishing composition away from contact with an inner wall of the container,

(b) a pressure gauge housing secured to the open end of the container, the gauge housing engaged to the container at a first end and at a second end to an actuating header, the pressure gauge housing having a pressure gauge and a means for inserting a pressurized gas into the container integral with the housing,

(c) the pressure gauge housing having an inner channel containing a device for supporting the opening in the bag at a first end and a nipple at a second end, the nipple mounted within an interior channel of the actuating header, the actuating header having a spring actuated cutting ram restrained within the interior channel, the interior channel leading to at least one exterior nozzle,

(d) a trigger element mounted on the exterior of the actuating header and engaging through a bore into the interior of the header with the cutting ram to prevent its movement,

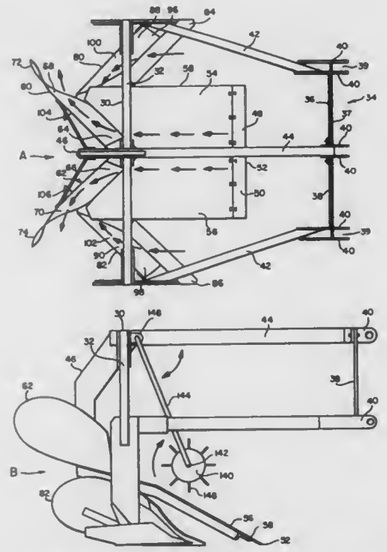
(e) a heat sensitive link for retaining the trigger element in a locked position, the link separating upon detection of heat from a fire to release the trigger element and disengage it from the cutting device, whereby the cutting device slices through the nipple to allow the fire extinguishing composition to exit the container and the nozzle to spray on the fire to suppress the fire.

5,063,999

MOLDBOARD PLOW APPARATUS FOR SWITCHING SOIL STRIPS FROM ONE FURROW TO ANOTHER

Lester M. Packham, 3932 Christmas Tree La., Bakersfield, Calif. 93306

Filed Dec. 31, 1990, Ser. No. 639,038
Int. Cl.[5] A01B *79/00, 15/02, 23/04*
U.S. Cl. 172—1 **21 Claims**



1. A moldboard plow apparatus for creating furrows and shifting a soil strip removed from one furrow to another and re-orienting the soil strip, said moldboard plow apparatus comprising:

a) a first moldboard plow for removing a first soil strip from a ground surface and thereby forming a first furrow therein,

b) a second moldboard plow for removing a second soil strip from a ground surface and thereby forming a second furrow therein,

c) said first moldboard plow having a first moldboard surface with a section of the first moldboard surface which has a surface contour and orientation such that it causes the first soil strip to be introduced into said second furrow, and

d) said second moldboard having a second moldboard surface with a section of the second moldboard surface which also has a surface contour and orientation such that it causes the second soil strip to be introduced into said first furrow.

5,064,000

METHOD OF AND APPARATUS FOR CUTTING SOD WHICH ROLLS IN A SEMI-FLACCID SHEET INTO SOD ROLL

Gary H. Dover, Bucyrus, and Larry D. Meyer, Louisburg, both of Kans., assignors to Bucyrus Equipment Co., Inc., Bucyrus, Kans.

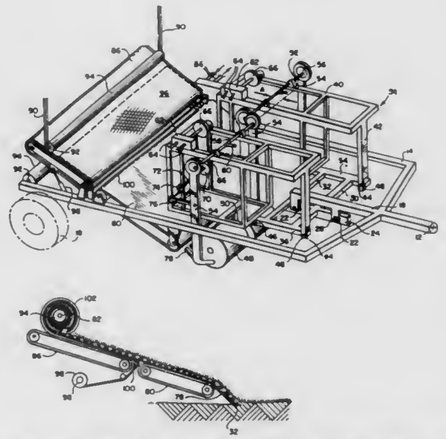
Filed Oct. 30, 1990, Ser. No. 605,569
Int. Cl.[5] A01B *45/04, 63/14*
U.S. Cl. 172—19 **20 Claims**

8. An apparatus for forming sod, comprising:

a main frame;

means allowing movement of said main frame with respect to the ground in a cutting direction;

means, connected to said main frame, for cutting at least one strip of sod from the ground, the strip of sod having top and bottom sides;



means, connected to said main frame, for placing at least one at least semi-flaccid sheet in contact with the bottom side of the at least one strip of sod; and

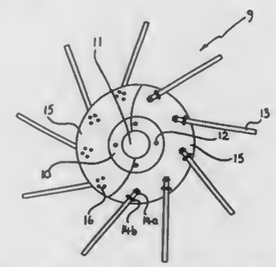
means, connected to said main frame, for rolling the sod, with the sheet in contact therewith, into a spiral configuration with the sheet exterior.

5,064,001

ROTARY SOIL WORKING TOOL

John C. Walker, Merredin, Australia, assignor to Walkers Merredin Pty Ltd, Merredin, Australia

Filed Jun. 26, 1990, Ser. No. 543,965
Int. Cl.[5] A01B *21/04, 23/02*
U.S. Cl. 172—556 **10 Claims**



1. A rotary soil working tool comprising a rotatable support member having an engaging portion, a plurality of soil working elements, each of said working elements having a soil engaging portion and a mounting portion including a waisted section, and securing means for detachably securing the mounting portion of each soil working element to the engaging portion of the support member such that the soil engaging portion thereof extends outwardly of said support member, said securing means comprising first fastening means for engaging and detachably securing said waisted section of said

VOL
1132
ISS
2
NO
12
1991
UMI

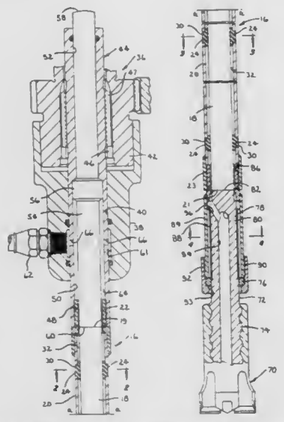
mounting portion to said engaging portion of said support member and second fastening means for engaging and detachably securing a non-waisted section of said mounting portion to said engaging portion of said support member at a location spaced from said waisted section such that said soil working element is detachable from the engaging portion by removing said first fastening means and loosening said second fastening means thereby permitting said soil working element to be removable from its mounting on said support member with said second fastening means in place.

5,064,002

CONCENTRIC DRILL ROD ASSEMBLIES FOR PERCUSSION ROCK DRILLS

William N. Patterson, 7244 S. Garfield, Littleton, Colo. 80122

Filed Apr. 23, 1987, Ser. No. 41,704
Int. Cl.[5] E21B *17/00;* E21C *3/06*
U.S. Cl. 173—80 3 Claims



1. A drill rod assembly for transmitting percussion impact blows and rotation to a rock penetrating bit, said drill rod assembly comprising:

an elongated substantially cylindrical rod member of substantially constant diameter having an impact blow receiving surface at one end and means at its opposite end for connecting said rod member to said bit; and

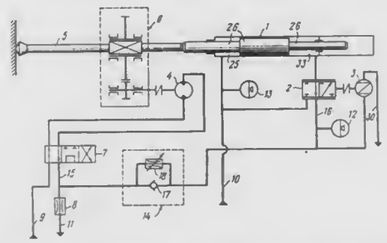
an elongated tubular coupling member disposed in sleeved relationship around said rod member, said coupling member having means at one end for driveably connecting said coupling member to means for rotating said drill rod assembly, means on said coupling member for retaining said drill rod assembly in driving engagement with a drill motor and means at the opposite end of said coupling member for imparting rotation to said bit without imposing torque on said rod member throughout at least a major portion of the length of said rod member comprising cooperating splines formed on said coupling member and said rod member at the respective ends of said coupling member and said rod member adjacent to said bit.

5,064,003

HYDRAULIC DRILLING MACHINE

Jury I. Neroznikov, ulitsa 40 let Kazakhstana, 40, kv. 41, Karaganda; Nikolai N. Shvets, ulitsa 8 Marta, 47, kv. 62, Dnepropetrovskaya oblast, Zheltye Vody; Ivan P. Rudakov, ulitsa Gogolya, 47, kv. 57, Karaganda; Andrei I. Shevchenko, ulitsa Franko, 32, kv. 56, Dnepropetrovskaya oblast, Zheltye Vody; Valentin N. Fanshtein, Stepnogorsk, 1 mikroraion, 63, kv. 10, Tselinogradskaya oblast; Vladimir A. Medyanik, ulitsa Shevchenko, 17, kv. 51, Dnepropetrovskaya oblast, Zheltye Vody, and Nikolai A. Mushtakov, ulitsa Erzhanova, 43, kv. 44, Karaganda, all of U.S.S.R.

PCT No. PCT/SU89/00090, § 371 Date Dec. 26, 1989, § 102(e) Date Dec. 26, 1989, PCT Pub. No. WO89/10465, PCT Pub. Date Nov. 2, 1989
PCT Filed Apr. 11, 1989, Ser. No. 449,873
Claims priority, application U.S.S.R., Apr. 26, 1988, 4416113; Jul. 20, 1988, 4464093
Int. Cl.[5] B23B *45/16*
U.S. Cl. 173—106 2 Claims



1. A hydraulic drilling machine comprising a drill tool, a hydraulic motor for rotating the drill tool connected thereto through a reduction gear, and having pressure and discharge lines, and a hydraulic percussive mechanism having pressure and discharge lines connected to this mechanism via a rotatable fluid distributor, and a drive for rotating the fluid distributor, the machine further comprising a fluid flow governor made up of a non-return valve and a flow throttling valve, the inlet of the flow governor being connected to a discharge line of the hydraulic motor for rotating the drill tool through a control slide valve built into the discharge line, and with the discharge line of the hydraulic motor through a flow restrictor, whereas the outlet of the flow governor is connected to the discharge line of the hydraulic percussive mechanism and to the inlet of the drive for rotating the fluid distributor, said drive being in the form of a hydraulic turbine, a hydraulic accumulator being provided in the discharge line of the hydraulic percussive mechanism.

5,064,004

DRILL ROD FOR PERCUSSION DRILLING

Lars-Gunnar Lundell, Sandviken, Sweden, assignor to Sandvik AB, Sweden

Continuation of Ser. No. 108,089, Oct. 14, 1987, Pat. No. 4,872,515. This application Jul. 25, 1989, Ser. No. 384,658
Claims priority, application Sweden, Oct. 15, 1986, 8604373-4
The portion of the term of this patent subsequent to Oct. 10, 2006, has been disclaimed.
Int. Cl.[5] B65D *9/00*
U.S. Cl. 173—132 20 Claims

1. A force-transmitting element in percussion drill rod assemblies, comprising a cylindrical metal body including an integral thread, and a lining disposed on said thread, said lining comprising a metallic material softer than said thread, said



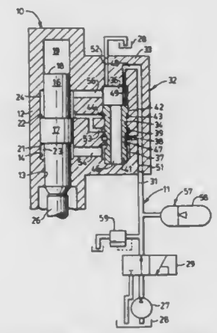
lining being metallurgically bonded by melting the metallic material to said thread.

5,064,005

IMPACT HAMMER AND CONTROL ARRANGEMENT THEREFOR

John J. Krone, Dunlap, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Apr. 30, 1990, Ser. No. 516,861
Int. Cl.[5] B25D *9/18*
U.S. Cl. 173—134 2 Claims



1. An impact hammer and control arrangement therefor, comprising:

a hydraulic impact hammer having a housing, a piston slidably disposed in the housing and having a pair of fluid engagement surfaces thereon, a variable volume gas chamber defined by the housing and one of the fluid engagement surfaces and filled with a pressurized gas, and a variable volume hydraulic chamber defined by the housing and the other of the fluid engagement surfaces;

a source of pressurized fluid;

a supply conduit connected to the source of pressurized fluid;

an actuating valve connected to the variable volume hydraulic chamber and to the supply conduit and being moveable between a first position at which pressurized fluid from the source of pressurized fluid is directed into the hydraulic chamber to retract the piston against the bias of the pressurized gas in the gas chamber and a second position at which the hydraulic chamber is vented and fluid flow from the source of pressurized fluid through the actuating valve is blocked; and

means for storing pressurized fluid from the source of pressurized fluid when the actuating valve is in the second position and for supplementing the flow of pressurized fluid from the source of pressurized fluid when the actuating valve is in the first position said means including an accumulator connected to the supply conduit, and

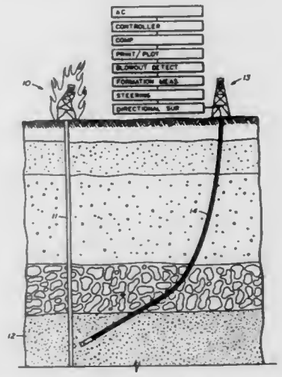
is preloaded sufficient to prevent the entrance of fluid thereinto during the time when the piston is being retracted against the gas charge in the gas chamber.

5,064,006

DOWNHOLE COMBINATION TOOL

Robert L. Waters, Austin; George F. Roberts, Georgetown; Philip H. Walters, Austin; Howard C. Clark; Don D. Fitzgerald, both of Houston, all of Tex., and Otis V. Stelly, II, Lafayette, La., assignors to Magrange, Inc, Houston, Tex.

Filed Oct. 28, 1988, Ser. No. 264,445
Int. Cl.[5] E21B *7/04, 47/022, 47/09*
U.S. Cl. 175—45 2 Claims



1. A system for guiding and drilling a subterranean borehole to intercept a subterranean ferromagnetic body exhibiting target magnetic field comprising:

(1) a subsurface tool comprising a non-magnetic housing, a first sensing means within said housing for continuously measuring the earth's gravity field, a second sensing means within said housing for continuously measuring the components of a magnetic field along mutually orthogonal axes simultaneously at two locations in said borehole; said tool further comprising means for transferring electrical current from a location inside said drill string into the earth formation being drilled, said tool being installed in a drill string proximate a drill collar wherein said means for transferring electrical current from an electrical supply conductor comprises:

(a) at least one current conducting pin extending through and electrically insulated from said drill string;

(b) formation contactor means extending from said current conducting pin for electrically transmitting current into the wall of the borehole drilled; and

(c) guide and latch means comprising a pair of elongated guide legs formed at a juncture with a pin latch receptacle depending downwardly from said guide leg juncture, said guide and latch means being connected to said electrical supply conductor and supported by said wireline and being disposed to establish guiding and releasable latching relation with said current conducting pin as said guide and latch means is moved downwardly by said wireline;

(2) transmission and receiving means mounted in said housing and operatively connected to first and second sensing means for transmitting said gravity and magnetic field measurements to the surface while drilling and for receiving guidance control information transmitted to said tool; and

(3) surface equipment in communication with said housing transmission and receiving means comprising processing means for continuously calculating azimuth and inclination of said borehole and position of said borehole relative to said subterranean body using the measurements of said first and said second sensing means.

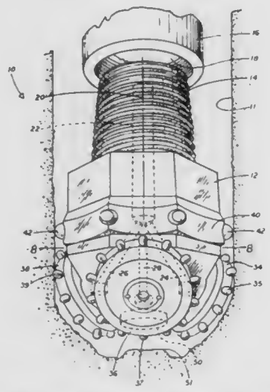
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,007

THREE DISC DRILL BIT

Oscar W. Kaalstad, Winter Springs, Fla., assignor to Norvic S.A., Geneve, Switzerland

Continuation of Ser. No. 275,726, Nov. 23, 1988, abandoned.
This application Jun. 19, 1990, Ser. No. 540,161
Int. Cl.[5] E21B *10/12*
U.S. Cl. 175—334 24 Claims



1. A drill bit for use in drilling a well bore, comprising

a main drill body adapted to be rotated about a substantially vertically disposed axis of rotation and having therein a duct extending longitudinally along said axis for supplying a drill fluid under pressure to the well bore,

three generally circular, rotatable cutting discs mounted on the outside of said main drill body at equally spaced locations, said cutting discs each having cutting elements disposed in a ring-shaped array, each of said cutting discs having an axis of rotation disposed at an acute angle to the vertically disposed axis about which said main drill body rotates, and with the axis of rotation of each cutting disc being slightly offset laterally in a rearward direction from the vertically disposed axis of the main drill body, in relation to the direction of rotation of said main drill body, thus to cause said cutting discs to be positioned to be particularly effective in the well bore.

an upper portion of said main drill body being of polygonal configuration having a plurality of cutting means thereon, said cutting means being disposed in a spaced array around a maximum diameter location of said polygonal configuration of said main drill body, the use of said cutting means at said maximum diameter location on said main drill body assuring a desired size of well bore diameter, despite some wear of the cutting discs with use.

5,064,008

HYDRAULIC CONTROL SYSTEM FOR WEIGHING

Ronald Smith, Narrabeen, Australia, assignor to Wray-Tech Instruments, Inc., Downers Grove, Ill.

Division of Ser. No. 488,679, Mar. 5, 1990. This application Nov. 16, 1990, Ser. No. 614,870
Int. Cl.[5] G01G *19/08, 19/10*
U.S. Cl. 177—1 5 Claims

1. A method for accurately weighing a load lifted by an hydraulically operated lifting device of the type having lift arms hydraulically operated to lift a loaded container and empty it; said method comprising the steps of:

lifting a container means with lift arm means of an hydraulic system means;

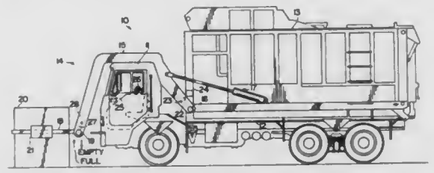
operating the hydraulic system means to cause the lift arm means to lift the container means to a reference position;

generating a signal when the lift arm means have lifted said container means to the reference position;

tapping off and bypassing hydraulic fluid from a lift circuit of the hydraulic system means of the lifting device;

lowering said lift arm means at a slower rate than the normal rate of descent of the hydraulic system means;

generating a signal when said lift arm means have lowered said container means to a weighing position;



generating an analog electric signal from transducer means communicating with said tapped-off hydraulic fluid;

receiving said analog electrical signal generated by the transducer means at an analog/digital converter means for generating a digital record; and,

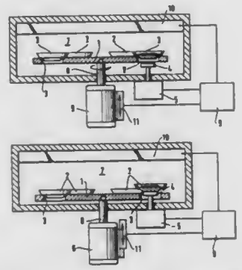
activating said hydraulic system means to cause said lift arm means to lift said container means to an emptying position for unloading contents therefrom.

5,064,009

DEVICE FOR THE DETERMINATION OF DRY SUBSTANCE

Franz-Josef Melcher, Hardegsen; Thomas Pertsch, Göttingen; Wilfried Spannagel, Göttingen, and Christian Oldendorf, Göttingen, all of Fed. Rep. of Germany, assignors to Sartorius AG, Göttingen, Fed. Rep. of Germany

Filed Jul. 27, 1990, Ser. No. 558,461
Int. Cl.[5] G01G *19/00*
U.S. Cl. 177—245 9 Claims



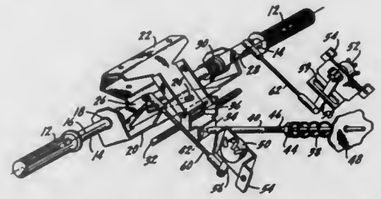
1. A device for the determination of dry substance of specimens with a microwave heater (**10**) and with a balance (**5**) whose balance scale (**4,40**) is located within the microwave heater area (**7**), comprising a rotary disk (**1,21,31**) located inside the microwave heater area (**7**) which disk is adapted and constructed to carry a plurality of specimen dishes (**2,22,32**), elevating means to raise sequentially one of said specimen dishes (**2,22,32**) from the rotary disk and position it on the balance scale (**4,40**).

5,064,010

SPEED AND STEERING CONTROL FOR SCRUBBERS AND THE LIKE

Richard D. Masbruch, Ransomville, and Arthur A. Andrews, Alden, both of N.Y., assignors to Tennant Company, Minneapolis, Minn.

Filed Jun. 21, 1989, Ser. No. 369,129
Int. Cl.[5] B62D *11/04*
U.S. Cl. 180—6.5 14 Claims



1. In a floor maintenance machine with a longitudinal axis to be operated by a person walking behind it and adapted for forward or reverse travel over a floor, the combination of a frame supported at least in part by two drive wheels, each drive wheel being driven individually by an electric motor, each motor being capable of forward or reverse rotation, the two motors being controlled equally or differentially by one manual control, said manual control comprising a straight elongated member with along axis disposed axially centrally of the elongated member and transverse to the longitudinal axis of the machine, the elongated member being adapted to be gripped near its ends by an operator, said elongated member being movable with a first rotary motion in which it may be rotated in some degree about its long axis and movable with a second rotary motion in which it may be pivoted in some degree about a second axis in the vertical plane of the longitudinal axis of the machine, said elongated member being operatively connected to both motors so that by application of its first motion alone both motors can be operated at equal speeds in either forward or reverse rotation, or by application of its second motion alone one motor can be operated in forward rotation and the other motor in reverse rotation or by application of its first and second motions simultaneously both motors can be operated in forward or reverse rotation by at differential speeds, the speeds of the motors in every case being variable proportional to the degree of movement or movements applied to the elongated member.

5,064,011

CRAWLER-PROPELLED TRUCK

Takeo Ogano; Hiroshi Sueshige, both of Saitama; Toru Fukuda, Tokyo, and Junji Okuda, Saitama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 829,805, Feb. 14, 1986, abandoned.
This application Feb. 23, 1988, Ser. No. 161,318
Claims priority, application Japan, Feb. 14, 1985, 60-27305; Feb. 14, 1985, 60-27306
Int. Cl.[5] B60K *5/06;* B62B *5/02;* B62D *11/08*
U.S. Cl. 180—9.22 6 Claims

1. A crawler-propelled truck comprising:

a chassis frame assembly;

an engine mounted on said chassis frame assembly and having a substantially vertical crankshaft;

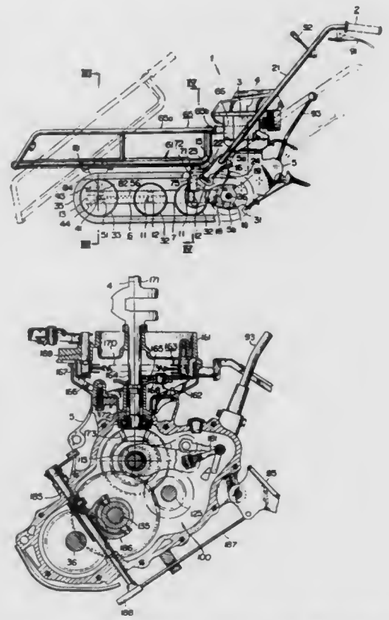
a gear transmission case having an upper portion coupled to said engine and housing a gear transmission operatively coupled to said engine;

drive wheels supported on a lower portion of said gear transmission case and rotatable by said engine through said gear transmission;

driven wheels rotatably supported on said chassis frame assembly forwardly of said drive wheels;

crawlers trained around said drive and driven wheels; and

a load carrying table mounted on said chassis frame assembly above said crawlers, said chassis frame assembly comprising a plurality of longitudinal frames and a plurality of



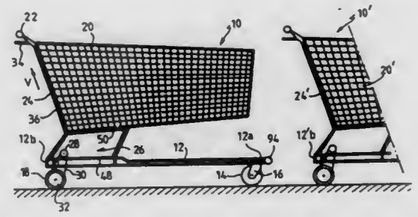
transverse cross members connected to said longitudinal frames.

5,064,012

SYSTEM FOR MOTORIZING A SHOPPING CART OR TROLLY, OR THE LIKE

Martine Losego, 23, rue Denis Papin - F 19100, Brive, France

Filed Oct. 17, 1989, Ser. No. 422,510
Int. Cl.[5] B62B *51/04*
U.S. Cl. 180—19.1 18 Claims



14. A system for motorizing a shopping cart or the like, said cart comprising a chassis provided with wheels, a push bar, and load-carrying means, said chassis having a front end and a rear end such that the front end is suitable for being nested in the rear end of an identical cart preceding it in a row of carts, the system comprising:

a) a drive unit including an electric motor and a motor control circuit;

b) a manual control member situated close to the push bar and suitable for acting on the control circuit for controlling both forwards and backwards displacement of the cart;

VOL 1132 ISS 2 NO 12 1991 UMI

c) transmission means between the motor and at least one wheel of the cart;
d) a rechargeable storage battery for powering the motor;
e) a feed bar suitable for recharging the battery from a fixed electrical charger, the recharging bar is formed by a flat spring which is fixed to the drive unit by insulating mechanical means and which projects beyond the front and the rear of the drive unit, said bar having a front end and a rear end such that its front end is suitable for forming an electrical contact with the rear end of the bar of the preceding cart in a row, with the recharging bar of the first cart in a row being connected directly to the charger;
f) means for providing an electrical connection between said bar and the positive terminal of the battery, when said electrical contact is established between the two above-mentioned bars; and
g) a permanent electrical connection between ground constituted by the chassis and the negative terminal of the battery.

5,064,013

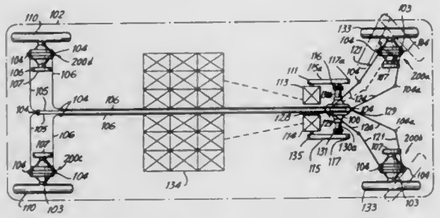
HYDRAULICALLY DRIVEN ELECTRICALLY POWERED VEHICLE WITH ENERGY RECAPTURE

Erwin Lenz, 180 Cabrini Blvd., New York, N.Y. 10033

Continuation-in-part of Ser. No. 533,485, Jun. 5, 1990, abandoned, and a continuation-in-part of Ser. No. 240,036, Sep. 2, 1988, Pat. No. 4,947,646. This application Nov. 29, 1990, Ser. No. 620,362

Int. Cl.[5] B60K *1/04*

U.S. Cl. 180—65.3 **12 Claims**



1. A hydraulic electric motor vehicle having a plurality of wheels driven by an electro-hydraulic system, the system comprising an electric motor, disengagable motor coupling means, a central turbo-rotator hydraulic motor having two hydraulic fluid pressure ports and being mechanically linked to be driven by the electric motor through the motor coupling means; a plurality of hydraulic rotor wheel motors each having a pair of hydraulic fluid pressure ports and each being mechanically linked to a wheel to drive the wheel when operating as a motor, or to be driven by the rotation of the wheel when operating as a pump; fluid flow conduits interconnecting each of the two ports on the central motor to respective ones of the pair of ports on each of the wheel motors; disengagable generator coupling means; an electric generator being mechanically linked to be driven by the hydraulic motor through the generator coupling means; electric storage means; and switch means, the switch means being designed to place the electric storage means in disconnectable and alternative electrical connection with the electric motor and the generator and to alternatively engage and disengage the motor and generator coupling means, such that the generator coupling means is disengaged when the storage means is in electrical connection with the electric motor, and the motor coupling means is disengaged when the storage means is in electrical connection with the generator.

5,064,014

METHOD OF CONTROLLING POWER STEERING SYSTEM

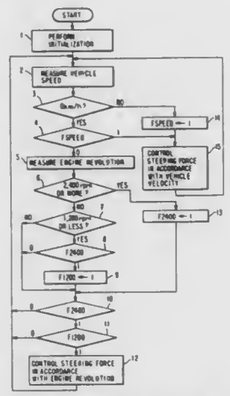
Kouichi Ishizaka, and Yukihisa Kosugi, both of Saitama, Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed Nov. 6, 1989, Ser. No. 432,783

Claims priority, application Japan, Nov. 14, 1988, 63-285858

Int. Cl.[5] B62D *6/02*

U.S. Cl. 180—79.1 **2 Claims**



1. A method for controlling a steering force of a power steering system of a vehicle having an engine with a variable engine revolution, said method comprising the steps of:
a) measuring the velocity of said vehicle and generating a vehicle velocity signal having a non-zero value when the vehicle is moving and having a zero value when the vehicle is stationary;
b) controlling the steering force in accordance with the velocity of said vehicle only when said vehicle velocity signal has said non-zero value; and
c) controlling the steering force in accordance with the engine revolution when said vehicle velocity signal has said zero value after said engine revolution becomes less than a first predetermined value after said engine revolution became greater than a second predetermined value, said second predetermined value being greater than said first predetermined value, wherein a minimum steering force is supplied until said engine revolution becomes greater than a third predetermined value, said third predetermined value being greater than said first predetermined value and less than said second predetermined value.

5,064,015

SYSTEM AND METHOD FOR AUTOMATICALLY CONTROLLING VEHICLE SPEED TO A DESIRED CRUISE SPEED

Isao Yamamoto; Hiroshi Inoue; Kazuyuki Mori; Koichi Suzuki; Kinichiro Nakano; Hiroyuki Nomura; Kiyoshi Yoshida, and Yoshiyuki Etoh, all of Kanagawa, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

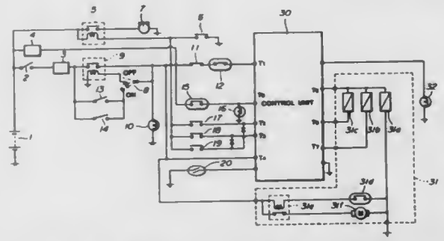
Continuation of Ser. No. 262,857, Oct. 26, 1988, abandoned. This application Mar. 27, 1991, Ser. No. 676,479

Claims priority, application Japan, Oct. 27, 1987, 62-163193[U]

Int. Cl.[5] B60K *31/06*

U.S. Cl. 180—176 **5 Claims**

1. A system for automatically controlling a vehicle speed to a desired cruise speed, the system comprising:
a) first means for detecting the vehicle speed;
b) second means for setting a current vehicle speed as the desired cruise speed and for providing a command signal indicative of the desired cruise speed;
c) third means, responsive to the command signal from the second means, for adjusting an operating variable of a vehicular engine driving force adjusting mechanism according to a difference between the vehicle speed detected by the first means and a set vehicle speed such that the vehicle speed coincides with the desired cruise speed, operating power for the third means being supplied from a vehicular battery via an ignition switch and a relay;
d) fourth means for detecting whether the vehicle speed is above or below a predetermined vehicle speed, the fourth means having a first switch, the first switch being turned on when the vehicle speed is above the predetermined vehicle speed and being turned off when the vehicle speed is below the predetermined vehicle speed; and
e) a main switch, connected to a relay contact of the relay, to operatively energize the relay, wherein power from the vehicular battery via the ignition switch and the relay to the third means is carried out when the main switch is placed in its ON position to energize the relay when the first switch is turned on, and once the power supply to the third means is carried out via the main switch in its ON position, power supply to the third means is continued via the relay even when the first switch is, in turn, turned off.



5,064,016

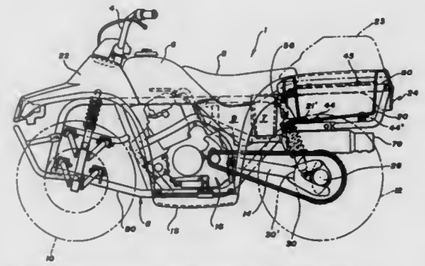
SADDLE TYPE VEHICLE HAVING A STORAGE RECEPTACLE

Kazuhiro Iwai, Saitama; Shinji Matsubayashi, Tokyo; Ikuo Ariga, Saitama, all of Japan, and Kazuhiko Saito, Rancho Palos Verdes, Calif., assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 336,702, Apr. 12, 1989, abandoned. This application Jul. 20, 1990, Ser. No. 555,374

Int. Cl.[5] B62B *61/08;* **B60R** *5/04*

U.S. Cl. 180—215 **18 Claims**



11. A saddle type, off-road vehicle, comprising:
a rigid main frame;
an engine supported by said main frame;
a saddle type seat supported on an upper portion of said main frame;
at least one front wheel supported by said main frame;
a pair of rear wheels connected to a rear axle and disposed on opposite sides of said main frame;
a rear frame portion extending rigidly rearwardly from said main frame;
a storage receptacle supported by said rear frame portion above said rear axle and adapted to selectively store articles therein;
said storage receptacle having a large access opening defined in an upper surface thereof, and a front portion of said storage receptacle substantially abutting said seat such that said opening is disposed adjacent a rear end of said seat;
said opening being positioned at a level lower than the upper surface of said seat; and
a lid for selectively covering said opening of said receptacle, said lid including means for cooperating with said seat to maintain the lid in a closed position.

5,064,017

FOUR-WHEEL DRIVE MOTOR VEHICLE OF TRANSVERSELY-DISPOSED ENGINE TYPE

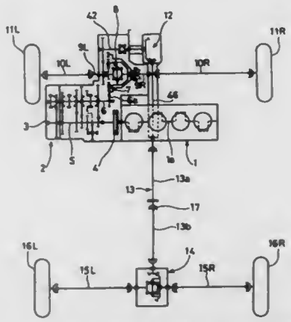
Reiji Kikuchi; Naomune Moriyama; Takahito Yokouchi, and Koichi Yamamoto, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Japan

Filed Mar. 28, 1990, Ser. No. 500,422

Claims priority, application Japan, Mar. 28, 1989, 1-76148

Int. Cl.[5] B60K *17/344, 5/04*

U.S. Cl. 180—248 **7 Claims**



1. A four-wheel-drive motor vehicle comprising:
a front differential and a center differential, said differentials being located in a front part of said vehicle and being coaxial with an axle line of front wheels of said vehicle;
an engine disposed transversely in said front part;
a transmission driven by said engine and disposed in said front part, said engine and transmission driving said front and center differentials and being positioned rearwardly of said front and center differentials; and
a transfer shaft, driven by said center differential, for transmitting power from said engine to rear wheels of said vehicle, said transfer shaft being transversely disposed in said front part and positioned forwardly of said engine, said transfer shaft being positioned below said output shaft and rearward of said front wheel axle line.

5,064,018

ARRANGEMENT OF A REAR-AXLE TRANSMISSION

Ernst-Ekkehard Encke, Altbach, Fed. Rep. of Germany, assignor to Daimler-Benz AG, Stuttgart, Fed. Rep. of Germany

Filed Jun. 5, 1990, Ser. No. 533,437

Claims priority, application Fed. Rep. of Germany, Jun. 22, 1989, 3920442

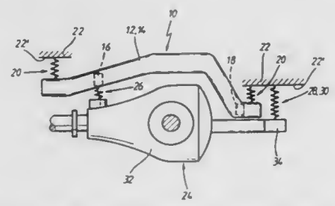
Int. Cl.[5] B60K *17/04*

U.S. Cl. 180—360 **10 Claims**

1. A rear-axle transmission arrangement in a rear axle sup-

VOL 1132 ISS 2 NO 12 1991 UMI

port region on an underside of a passenger car body, in which the transmission is flexibly supported on an input side at the rear-axle support and on an output side at two fastening points spaced in a transverse direction of the vehicle, wherein fasten-



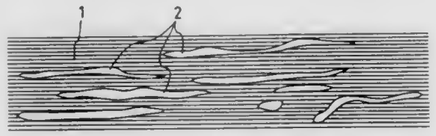
ing points at the output side support bearings fixed to the body independently of the rear-axle support, wherein the output-side support bearings are coaxial to rear, body-side flexible support bearings of the rear-axle support.

5,064,019

ELECTROACOUSTIC DIAPHRAGM AND METHOD FOR MAKING SAME

Mutsuaki Murakami, Tokyo, and Susumu Yoshimura, Yokohama, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd. and Research Development Corporation of Japan, both of, Japan

Filed Apr. 7, 1989, Ser. No. 334,519
Claims priority, application Japan, Apr. 8, 1988, 63-87517
Int. Cl.[5] G10K *13/00*; H04R *7/00*
U.S. Cl. 181—170 **5 Claims**



D

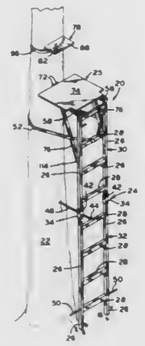
1. An electroacoustic diaphragm which comprises a pyrolitic graphite film having a modulus of elasticity and rigidity suitable to exhibit electroacoustic characteristics obtained from a polymer selected from the group consisting of polyoxadiazole, an aromatic polyimide obtained by polycondensation of pyromellitic acid and an aromatic diamine, polybenzthiazole, and an aromatic diamine, polybenzthiazole, polybenzbisthiazole, polybenzoxazole, polybenzbisoxazole, poly(-pyromellitimide), poly(m-phenyleneisophthalamide), poly(m-phenylenebenzoimidazole), poly(m-phenylenebenzobisimidazole), polythiazole and poly-p-phenylenevinylene, and a discontinuous layer of a polymer resin formed on and in the graphite film, wherein said discontinuous layer is in the form of islands formed on and in the graphite film, wherein said discontinuous layer is made of a polymer selected from an epoxy resin, an organosiloxane resin, a cyanoacrylate resin and a furan resin, wherein said polymer is an epoxy resin and is used in an amount of from 0.5 to 15 wt % of the graphite film, and said electroacoustic diaphragm has a tensile strength of from 180 to 500 Mpa, a Young's modulus of from 380 to 680 GPa., and said electroacoustic diaphragm has a measured sound velocity from 12.2 to 17.9 Km/sec.

5,064,020

DEVICE FOR HUNTING LARGE AND SMALL GAME

Bruce A. Eagleson, 109 South St., Lagrange, Ind. 46761

Filed Nov. 19, 1990, Ser. No. 615,067
Int. Cl.[5] A01M *31/02*
U.S. Cl. 182—20 **18 Claims**



1. A hunter's apparatus selectively convertible between a tree stand position and a reclined sitting position, said apparatus comprising:

a base member;

a support member pivotally connected to said base member;

said base member being extendable when said apparatus is inverted to said tree stand position to elevate said support member to serve as a support platform for the hunter, and said base member including step means for permitting the hunter to climb to said support member;

a brace member connected to and extending away from said base member to abut the trunk of a tree; and

means for clamping said support member and brace member against the trunk of a tree;

wherein when said apparatus is inverted to said reclined sitting position with said base member extending generally horizontally, said support member is capable of pivoting relative to said base member to a reclined position forming an obtuse angle with said base member, whereby the hunter seated on said base member generally assumes said reclined position.

5,064,021

WINDOW ESCAPE

Ronald F. Bauer, 245 Shelly Dr., Sheboygan Falls, Wis. 53085

Filed Apr. 20, 1990, Ser. No. 512,172
Int. Cl.[5] A62B *1/16*
U.S. Cl. 182—73 **3 Claims**

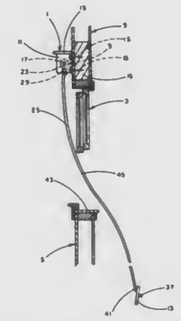
1. A window escape comprising:

a. a housing having a back wall, opposed side walls, and an open bottom;

b. sleeve means extending between and rotatably supported by the housing side walls;

c. a cover removably retained on opposite the back wall; and

d. an elongated rope having a first end tied to the sleeve means and a second end attached to the cover, the rope intermediate the first and second ends being wound on the sleeve means and stored inside the housing when the cover is retained on the housing,



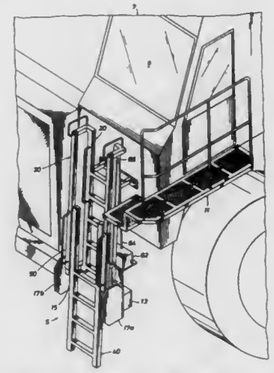
so that the cover can be quickly removed from the housing to thereby unwind the rope from the sleeve means with the rope passing through the housing open bottom.

5,064,022

LADDER APPARATUS AND METHOD FOR LARGE MOBILE EQUIPMENT

George W. Graham, Wilkinson, W. Va., assignor to Marrowbone Development Company, Naugatuck, W. Va.

Filed May 30, 1989, Ser. No. 358,314
Int. Cl.[5] E06C *5/04*
U.S. Cl. 182—85 **16 Claims**



1. Apparatus for providing access to an operator station on a large mobile vehicle, comprising:

a ladder fixedly mounted on such a vehicle, said ladder having substantially parallel side stringers and transverse treads,

a frame element fixedly attached to said fixedly mounted ladder and spaced therefrom, said frame element having parallel stringers that are aligned with and spaced from the stringers of said ladder,

a retractable ladder slidably disposed on the stringers of said frame element,

means for raising and lowering said retractable ladder, and

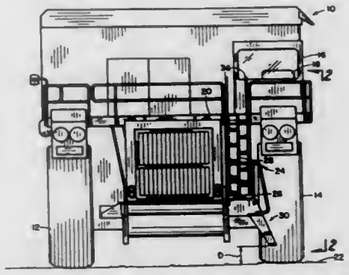
means for controlling said means for raising and lowering.

5,064,023

FLEXIBLE LADDER FOR USE ON MOVING CONVEYANCES

Frederick W. Loeber, Tulsa, Okla., assignor to Terex Corporation, Green Bay, Wis.

Filed Nov. 26, 1990, Ser. No. 617,992
Int. Cl.[5] B60R *3/02*; E06C *5/26*
U.S. Cl. 182—90 **9 Claims**



1. A ladder for use on moving conveyances providing frontal stability but lateral flexibility, comprising:

a first, a second and a third strut members each formed of flexible material and each being supported in a generally vertical plane, the strut members being generally parallel to each other with the second strut member between the first and third strut members, the spacing between the first and second strut members being at least sufficient to receive the foot of a user therebetween and the spacing between the second and third strut members being substantially equal to that between the first and second strut members, each strut member being generally flat with opposed first and second sides, with a forward edge and a rearward edge, and each having an upper end and a lower end;

a first set of steps comprising at least one step, each step being generally horizontal and having opposed first and second ends, the first end of each step of the first set being secured to said first strut member and the second end of each step of the first set being secured to said second strut member, the steps being vertically spaced apart from each other;

a second set of steps comprising at least two steps, each step being generally horizontal and having opposed first and second ends, the first end of each step of the second set being secured to said second strut member and the second end of each step of the second set being secured to said third strut member, the steps being vertically spaced apart from each other; and

means of attachment of said upper end of each of said strut members to a moving conveyance.

5,064,024

LADDER LEG EXTENDER APPARATUS WITH IMPROVED VERTICAL ADJUSTMENT MEANS

Leonard J. Barham, 4824 Mount Vernon Church Rd., Burlington, N.C. 27217

Filed Mar. 25, 1991, Ser. No. 674,615
Int. Cl.[5] E06C *7/44*
U.S. Cl. 182—201 **8 Claims**

1. A vertically adjustable ladder leg extender apparatus adapted to be secured to the lower portion of the ladder leg so that the ladder may be leveled and used on an inclined support surface, comprising:

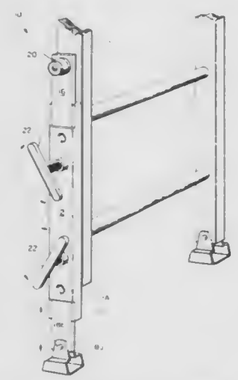
an elongate sleeve having mounting means for securing said sleeve to the lower portion of the ladder leg;

an elongate support leg having a length greater than said elongate sleeve and being slidably carried thereby, the lower end of said support leg being slidably extendible

VOL 1132 ISS 2 NO 12 1991 UMI

beyond the lower end of said sleeve and having a pivotably mounted support foot thereon for engaging a surface on which the ladder is positioned; and

vertical adjustment means providing for slidable adjustment of said support leg to a desired extended position relative to said sleeve and securement at the extended position, said adjustment means comprising at least one rotatable bolt threadingly received within an aperture defined by one side of said elongate sleeve so that the bolt face is adjacent one side of said elongate support leg and may be



rotated into contact and away from contact therewith, and an elongate file element positioned within said elongate sleeve adjacent the opposing side thereof so that the ridged cutting surface of the file element is adjacent the opposing side of said elongate support leg;

whereby said support leg may be slidably adjusted by loosening the rotatable bolt and said support leg may then be secured at a desired extended position by tightening the rotatable bolt so as to immovably engage said support leg between the rotatable bolt and the file element.

5,064,025

GEAR LUBRICATION

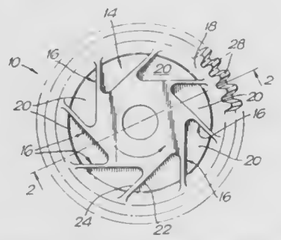
Martyn Richards, Burton, England, assignor to Rolls-Royce, plc, London, England

Filed Sep. 24, 1990, Ser. No. 587,101

Claims priority, application United Kingdom, Oct. 18, 1989, 8923517

Int. Cl.[5] F16H *57/04*

U.S. Cl. 184—6.12 3 Claims



1. A gear lubrication system comprising lubricant reservoir means defined in part by a face of at least one gear wheel which in rotating operation meshes with one or more other gear wheels, and in part by ribs which extend from a boss positioned centrally of said at least one gear wheel, across said face to define with said face, pockets in which lubricant collects on cessation of operational rotation of said meshing gears, said boss having a cylindrical stem and the associated gear wheel having a bore which receives said stem in fixed positioned relationship, and wherein said ribs extend in directions which on rotation of said at least one gear wheel, ensures that a moving force is exerted thereby on lubricant in said pockets, in the plane of said face and in a direction away from the axis of rotation, said boss and associated ribs being removable fixed to said at least one gear wheel for operation therewith.

5,064,026

ELEVATOR MONITOR APPARATUS

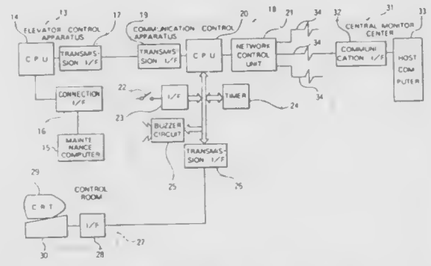
Yasuhiro Negata, Inazawa, and Toshiaki Kawahara, Tokyo, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Jun. 12, 1990, Ser. No. 536,717

Claims priority, application Japan, Jun. 13, 1989, 1-150232

Int. Cl.[5] B66B *3/00*

U.S. Cl. 187—130 4 Claims



1. An elevator monitor apparatus, comprising:

elevator control means for controlling the driving of an elevator;

individual control means for controlling the status of elevators building by building;

central monitor means for centrally monitoring the status of the elevators in a plurality of buildings;

job start signal generation means for generating a job starting signal when an elevator maintenance and check-up job is started;

job completion signal generation means for generating a job completion signal when a elevator maintenance and check-up job is finished;

communication control means for communicating with said elevator control means according to an instruction from said individual control means, said communication control means sounding an alarm after a first predetermined time period has elapsed following detection of a job starting signal from said job start signal generating means, said communication control means outputting an abnormality signal to said central monitor means when a job completion signal from said job completion signal generation means is not detected after a second predetermined time period has elapsed following the sounding of the alarm.

5,064,027

BRAKE SHOE FOR BICYCLES

Shogo Akamatsu, Izumi, Japan, assignor to Maeda Industries, Ltd., Osaka, Japan

Filed Oct. 23, 1990, Ser. No. 601,318

Claims priority, application Japan, Oct. 23, 1989, 1-124358[U]

Int. Cl.[5] F16D *65/00*

U.S. Cl. 188—73.1 5 Claims

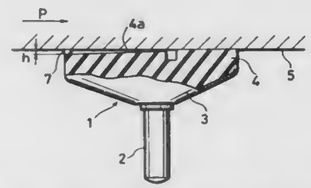
1. A bicycle brake shoe for attachment to a brake arm, the brake shoe being pressed against a wheel rim for braking, the brake shoe comprising:

a shoe holder; and

a shoe block held by the shoe holder, the shoe block having

a braking face which comes into surface-to-surface contact with the wheel rim at the time of braking, the braking face having a leading edge and a trailing edge, the leading edge being located ahead of the trailing edge with respect to forward rotation of the wheel;

wherein the braking face of the shoe block is provided with a projection means at a position offset toward the trailing



edge, the projection means providing a first contact point while a portion of the braking face offset toward the leading edge provides a second contact point, whereby the projection means serves as a gauge for positioning the braking face at an appropriate inclination angle with respect to the wheel rim surface at the time of attaching the brake shoe to the brake arm, the projection means being collapsible at the time of braking.

5,064,028

LEAF SPRING FOR HOLDING DOWN THE BRAKE-LINING CARRIER OF A DISC BRAKE

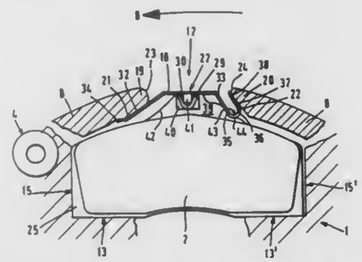
Paul Antony, Burstadt, and Wilfried Strauss, Wald-Michelbach, both of Fed. Rep. of Germany, assignors to Deutsche Perrot-Bremse GmbH, Mannheim, Fed. Rep. of Germany

Filed Mar. 22, 1990, Ser. No. 497,607

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1989, 3910154

Int. Cl.[5] F16D *65/00*

U.S. Cl. 188—73.38 4 Claims



1. Leaf spring for holding down brake-lining carriers on opposite sides of a disc of a caliper disc brake, said disc brake having an entrance side and an exit side relative to the direction of travel of the disc, wherein each brake lining carrier has a friction-lining thereon and a friction-lining-free section extending radially outwardly, two support surfaces are arranged on radially inner surfaces on both sides of and defining an opening of a caliper unit, the friction-lining-free section of the brake-lining carrier being accommodated in the opening, the leaf spring comprising:

a holding section;

first and second uneven shanks extending substantially oppositely to each other and transversely at an angle from said holding section towards the brake-lining carrier;

said first shank extending in a direction towards the entrance side of the disc brake and having a portion bent away from the brake-lining carrier radially outwardly and an end portion engaging against a portion of one of said two support surfaces;

said second shank having a portion thereon engaging against at least a portion of the other of said two support surfaces;

a first protruding shoulder on said friction-lining-free section on the side of said brake-lining carrier facing toward the friction-lining;

a recess in said brake-lining carrier on the side thereof facing away from said friction-lining;

two sides on said holding section;

an angled tongue on each of said two sides of said holding section, said tongues being identical;

an opening in at least one of said tongues engageable with said first protruding shoulder;

the other of said tongues being abuttingly engageable in said recess;

a second protruding shoulder on said friction-lining-free section, said first shoulder protruding from said second shoulder; and

said at least one of said tongues having said opening therein abuttingly engageable against said second shoulder.

5,064,029

EDDY CURRENT RETARDER

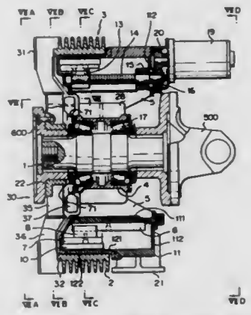
Kenji Araki; Jyunichi Miyamae, both of Nara; Takashi Kobayashi, and Akira Saito, both of Osaka, all of Japan, assignors to Sumitomo Metal Industries, Ltd. and Sumitomo Special Metals Co., Ltd., both of Osaka, Japan

Filed Aug. 29, 1989, Ser. No. 400,101

Claims priority, application Japan, Oct. 31, 1988, 63-142508[U]; Feb. 1, 1989, 1-11596[U]; Feb. 7, 1989, 1-13222[U]

Int. Cl.[5] B60L *7/28*

U.S. Cl. 188—267 4 Claims



1. An eddy current reduction gear comprising:

a rotor (3) fixed to one end of a rotating shaft (1);

a support ring (7) coaxial with said rotor (3) and axially slidably mounted on a fixed main body (5, 6, 11, 21) with a predetermined gap being secured between said rotor (3) and said support ring;

a plurality of permanent magnets (10) mounted on an external circumferential surface of said support ring (7) in such a manner that magnetic poles of the magnets are aligned with a direction parallel to the axis of said support ring (7) and the polarities of any adjacent permanent magnets of said plurality of permanent magnets (10) become opposite to each other; and

a shifting mechanism (13, 14, 16, 18, 19, 20) for axially shifting said support ring (7) between a first position where pole surfaces of all of said permanent magnets (10) confront an internal circumferential surface of said rotor (3) and a second position where said pole surfaces of all of said permanent magnets (10) substantially deviate from said internal circumferential surface of said rotor (3);

a fan (30) having axial blades (35) and radial blades (36)

VOL
1132
ISS
2
NO
12
1991
UMI

formed, respectively, radially inwardly and radially outwardly of a support member (31) connecting a boss portion (22) of said rotor (3) and a cylindrical portion (32) of said rotor;

stator blades (37) formed close to said axial blades (35) on a bearing member (4) supporting said rotating shaft (1) in such a manner as to extend along the circumference thereof; and

cooling fins (28) radially disposed on an external circumferential surface of said bearing member (4).

5,064,030

IMPACT DAMPING UNIT

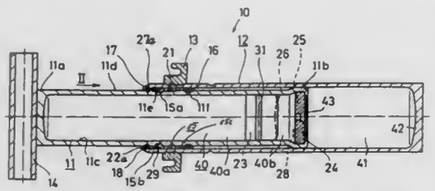
Felix Wössner, Schweinfurt, Fed. Rep. of Germany, assignor to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jun. 7, 1990, Ser. No. 534,836

Claims priority, application Fed. Rep. of Germany, Jun. 19, 1989, 3919945

Int. Cl.[5] F16F *9/22, 9/06, 9/36*

U.S. Cl. 188—297 17 Claims



1. An impact damping unit (10) comprising an internal tube member (11) having an axis, a first end portion (11*a*) and a second end portion (11*b*), said internal tube member (11) being closed adjacent said first end portion (11*a*) and being provided with first support means (14) adjacent said first end portion (11*a*) for supporting engagement with a first construction unit, a cavity (40) being defined within said internal tube member (11) axially between said first and said second end portions (11*a*, 11*b*), a floating separating piston (23) being provided within said cavity (40), said floating separating piston (23) defining two working chambers (40*a*, 40*b*) within said cavity (40), namely a first working chamber (40*a*) adjacent said first end portion (11*a*) and a second working chamber (40*b*)adjacent said second end portion (11*b*), external tube member (12) surrounding said internal tube member (11) and slidably mounted on said internal first tube member (11) for telescopic movement with respect thereto along said axis, said external tube member (12) having a closed end (42) adjacent said second end portion (11*b*) of said internal tube member (11), a further working chamber (41) defined within said external tube member (12) axially between said second end portion (11*b*) of said internal tube member (11) and said closed end (42) of said external tube member (12), restricted flow passage means (43) being provided between said second working chamber (40*b*) and said further working chamber (41), a damping fluid being contained within said further working chamber (41), said second working chamber (40*b*) being accessible to said damping fluid through said restricted flow passage means (43), balancing means being provided within said first working chamber (40*a*) to bias said floating separating piston (23) towards said second end portion (11*b*), abutment means (15, 17) being provided on said internal tube member (11) and on said external tube member (12) for cooperatively defining a rest position of said external tube member (12) with respect to said internal tube member (11), wherein in said rest position said further working chamber (41) has a maximum volume, said balancing means biasing said external tube member (12) through said floating separating piston (23) and said damping fluid towards said rest position in which said abutment means (15 on said internal tube member (11) and said abutment means (17) on said external tube member (12) are in mutual abutment condition, sealing means (16) being provided between said internal tube member (11) and said external tube member (12) for preventing escape of damping fluid out of said further working chamber (41), second support means (13) being provided on said external tube member (12) for supporting engagement with a further construction unit, said internal tube member (11) being provided with a slide bush (15) on a radially outer surface (11*d*) of said internal tube member (11), said slide bush (15) being axially fixed with respect to the internal tube member (11) and having a terminal portion (15*b*) remote from said second end portion (11*b*) of said internal tube member (11), said terminal portion (15*b*) acting as abutment means of said internal tube member (11), said external tube member (12) being provided with a shoulder portion (17) of reduced diameter adjacent a further end of said external tube member (12), said shoulder portion (17) acting as abutment means of said external tube member (12), with said terminal portion (15*b*) and said shoulder portion (17) defining an abutment zone, said sealing means (16) comprising an annular sealing member (16) adjacent a further terminal portion (15*c*) of said slide bush (15) located near said second end portion (11*b*), said annular sealing member (16) being destroyable at a predetermined temperature beyond which a risk of explosion of the impact damping unit (10) exists, said slide bush (15) defining a fluid escape path together with at least one of said internal tube member (11) and said external tube member (12), when said annular sealing member (16) has been destroyed at said predetermined temperature, said fluid escape path being connectable to the atmosphere via at least one of a radial bore (22*b*) extending through said external tube member (12) at a location along the axial length of said slide bush (15), an orifice extending across said abutment zone between said shoulder portion (17) and said terminal portion (15*b*) of said slide bush (15), said orifice being defined by at least one of a slot (22*a*) of said shoulder portion (17) and at least one recess (19, 27) of said terminal portion (15*b*), said orifice surviving when said shoulder portion (17) and said terminal portion enter into metallic sealing contact in said abutment zone, and said slide bush (15) having an axially extending groove (21).

5,064,031

MOTOR OPERATED ACTUATOR WITH POSITION ENCODER FOR STOPPING ACTUATOR AT DESIRED POSITION

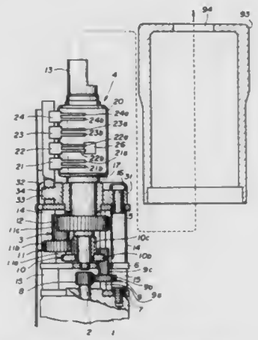
Shinobu Kakizaki, Kanagawa, Japan, assignor to Atsugi Unisia Corporation, Kanagawa, Japan

Filed Sep. 18, 1989, Ser. No. 408,255

Claims priority, application Japan, Sep. 20, 1988, 63-235633

Int. Cl.[5] F16F *9/46;* H01H *1/44;* G05B *19/29*

U.S. Cl. 188—299 6 Claims



1. A motor operated actuator comprising:

a power source motor for generating a driving torque for driving a workpiece, said power source motor having an output shaft;

a speed reducer engaging said output shaft of the power source motor and having an output shaft connected to said workpiece, said speed reducer serving to reduce rotation speed of said workpiece relative to that of said output shaft of the power source motor; and

a position encoder for causing said workpiece to be stopped at a plurality of predetermined angular positions, said position encoder including an essentially cylindrical member arranged around and rotating with said output shaft of the speed reducer, and a plurality of switch elements respectively adapted to break an electric power supply circuit at corresponding predetermined angular positions of said workpiece, said switch elements being arranged on said cylindrical member in axially offset positions relative to each other.

5,064,032

DAMPING FORCE ADJUSTING HYDRAULIC SHOCK ABSORBER

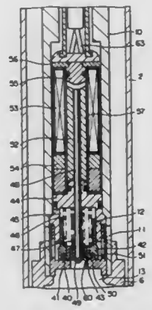
Masahiro Ashiba, Kanagawa, Japan, assignor to Tokico Ltd., Kanagawa, Japan

Filed Mar. 2, 1990, Ser. No. 496,205

Claims priority, application Japan, Apr. 20, 1989, 1-100982

Int. Cl.[5] F16F *9/46*

U.S. Cl. 188—299 5 Claims



1. A hydraulic shock absorber comprising:

a cylinder;

a piston slidably fitted within said cylinder and partitioning said cylinder into two chambers;

a damping force generating mechanism defining a plurality of passages along which hydraulic fluid may flow between said chambers, and regulating means for regulating the flow of hydraulic fluid through said passages as said piston is slid in said cylinder so as to generate a damping force; and

damping force regulating valve means for selectively opening and closing one of said passages to adjust the damping force,

said damping force regulating valve means including a valve seat member defining a valve seat thereon,

a plurality of valve bodies movable between respective first positions at which said valve bodies are respectively discretely seated on said valve seat and block said one of the passages and respective second positions at which said valve bodies are respectively located off of said valve seat and open said one of the passages,

spring means connected to each of said valve bodies for normally biasing said valve bodies to said first positions thereof at which the valve bodies are seated on said valve seat,

a plunger comprising magnetic material and axially slidable in the valve means,

said valve bodies including first and second valve bodies movable in the axial direction of said plunger between said first and second positions, said first valve body defining an orifice therethrough located in a path extending through said one of said passages, and said second valve body interposed between said orifice and an end of said one of said passages when in the first position thereof, said second valve body engaged with said plunger and configured to engage said first valve body when moved in the axial direction of said plunger off of said valve seat by a predetermined amount, and

solenoid means for selectively moving said second valve body in the axial direction of said plunger by more than said predetermined amount to successively move said second and said first valve bodies from the first to the second positions thereof,

said solenoid means including a solenoid into which the magnetic material of said plunger extends, said solenoid moving said plunger axially under a force corresponding to the magnitude of current supplied thereto.

5,064,033

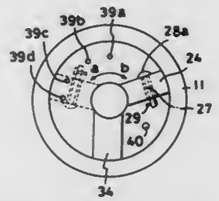
ROTARY DAMPER

Yasuo Koike, Tokyo, and Kikuo Nakamura, Chiba, both of Japan, assignors to Enidine Co., Ltd., Japan

Continuation of Ser. No. 391,150, Aug. 8, 1989, abandoned. This application Mar. 13, 1991, Ser. No. 668,736

Int. Cl.[5] F16F *9/14;* E05F *3/22*

U.S. Cl. 188—306 8 Claims



1. A rotary damper comprising

a receiving member within which a vacant chamber is defined;

a stationary partition member secured within the vacant chamber, the stationary partition member having a dividing wall for dividing the vacant chamber of the said receiving member into a fluid chamber and a communicating chamber, the dividing wall being provided with a through hole;

a dividing vane within the receiving member for dividing the fluid chamber, the dividing vane having first and second sides;

a stationary member positioned within the receiving member for securing the said stationary partition member in the receiving member;

a movable partition member rotatable within the receiving member, the movable partition member comprising a movable vane for dividing the said fluid chamber into first and second fluid chambers, the first fluid chamber being defined between the first side of the dividing vane and the movable vane and the second fluid chamber being defined between the second side of the dividing vane and the movable vane, the through hole being always in fluid communication between the first fluid chamber and the said communication chamber, the movable partition member having a shaft arranged for rotation within the said stationary partition member;

a transmitting member for transmitting rotary power directly from exteriorly of the rotary damper to the said movable partition member;

a non-compressible working fluid filling the said fluid chamber and the communicating chamber, the working fluid being contacted by the movable vane and being pressurized by the movable vane when the movable partition member receives the said exterior rotary power; and

a plurality of accurately spaced orifices provided in the

VOL 1132 ISS 2 NO 12 1991 UMI

stationary partition member, the orifices being positioned to be in fluid communication between the second fluid chamber and the said communicating chamber, the orifices being positioned to be serially covered by the movable vane as the movable partition member is rotated,

whereby said working fluid may pass from said first fluid chamber to the second fluid chamber via said through hole, said plurality of orifices and said communicating chamber.

5,064,034

SPREADING-WEDGE DEVICE, PARTICULARLY FOR MOTOR-VEHICLE BRAKES

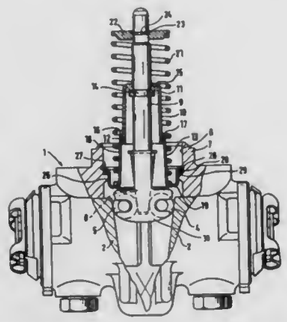
Bernd Rupprecht, Edingen-Neckarhausen, and Reinbard Baumgärtner, Mannheim, both of Fed. Rep. of Germany, assignors to Deutsche Perrot-Bremse GmbH, Mannheim, Fed. Rep. of Germany

Filed Jun. 11, 1990, Ser. No. 535,497

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1989, 3920161

Int. Cl.[5] F16D *51/00*

U.S. Cl. 188—343 **9 Claims**



1. In a spreading-wedge device for motor-vehicle brakes, including a housing attached to a brake carrier, two coaxial pressure members displaceably mounted in the housing and abutting against brake-operating members, a spreading wedge reciprocally operable between said two pressure members and extending through an opening in the housing, a spreading-wedge shaft extending from the spreading wedge for reciprocating said spreading wedge, cage means reciprocally operable between said pressure members, rollers rotatably carried by the cage means and disposed between and engaging with the spreading wedge and pressure members so that displacement of the shaft inwardly of the housing displaces the cage means inwardly and spreads the pressure members apart thereby operating the brakes, and a sealing unit between the spreading-wedge shaft and the opening in the housing, the improvement comprising:

a flexible sealing cover having a shape substantially in the form of a frustoconical roller bellows;

a smaller diameter ring-shaped rim at one end of said roller bellows sealingly connected to the spreading wedge shaft;

a spring plate engaging the housing in the opening thereof;

a larger diameter ring-shaped rim at the other end of said roller bellows connected to said spring plate;

retracting spring means surrounding part of the spreading wedge when in a retracted position and part of the spreading wedge shaft and disposed between said spring plate and the spreading wedge shaft for resiliently urging the spreading wedge and shaft toward the retracted position when the brakes are not operated;

an annular groove in the spreading-wedge shaft for receiving said smaller diameter roller-bellows rim;

a diversion area on said roller bellows between said rims thereof and positioned near one of said rims when the spreading wedge is at the limits of its reciprocating movement; and

said roller bellows having a length between the other of said rims and said diversion area at least equal to one-half the length of the maximum possible reciprocating movement of the spreading wedge.

5,064,035

COASTER BRAKE PROVIDED WITH REVERSING FUNCTION

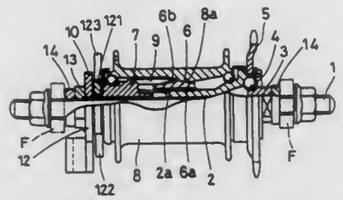
Kimihiro Tsuchie, 35-1, Kinugasa Tenjinmori-cho, Kita-ku, Kyoto-shi, Japan

Filed Jul. 16, 1990, Ser. No. 554,990

Claims priority, application Japan, Oct. 25, 1988, 63-268814

Int. Cl.[5] F16D *41/24, 67/02*

U.S. Cl. 192—6 R **2 Claims**



1. A coaster brake of a construction provided with a clutch cone screw-fitted to a driving body, to be axially movable in correspondence with the turning direction f the driving body and a brake cone which actuates a brake member through its cooperative action with said clutch cone, when said clutch cone approaches it in accompaniment with said driving body being turned in a reverse direction such that brake is applied on the hub shell by operating said brake member, when said driving body is turned in said reverse direction, wherein there is provided a unidirectional clutch comprising a ratchet mechanism which does not permit said brake cone to turn in a forward direction, but can permit its turning in said reverse direction, and wherein the ratchet mechanism of the unidirectional clutch comprises: a ratchet gear having teeth, two claws which are displaced relative to each other by half of a pitch of the ratchet gear which engage with the teeth of the ratchet gear and a spring provided between said two claws for biasing said two claws into engagement with said teeth of said ratchet gear.

5,064,036

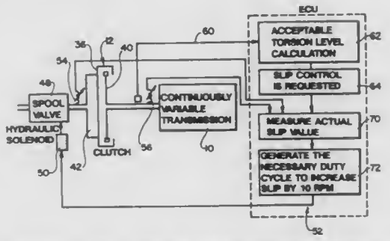
ADAPTIVE TORIONAL DAMPING DEVICE FOR A CONTINUOUSLY VARIABLE TRANSMISSION

Karl F. Schneider, Ithaca, N.Y., assignor to Borg-Warner Automotive, Inc., Sterling Heights, Mich.

Filed May 24, 1990, Ser. No. 528,291

Int. Cl.[5] F16D *7/02, 25/14*

U.S. Cl. 192—0.032 **11 Claims**



1. A clutch control system for a continuously variable transmission having a torque input means, a torque output means, a belt and sheave system and a slippable start clutch means for transmitting torque to said belt and sheave system, said slippable start clutch means being operatively located between said torque input means and said belt and sheave system, said control system comprising:

means for providing a first value representative of a limiting value of torsional vibrations transmitted to said belt and sheave system;

means for providing a first signal representative of actual torsional vibrations transmitted to said belt and sheave system;

means for comparing said first signal with said first value;

clutch slip feedback means for providing a second signal representative of the actual slip across said start clutch; and

clutch adjustment means for modifying slip across said slippable start clutch means in an incremental amount, said clutch adjustment means responsive to said comparing means and said clutch slip feedback means to reduce torsional vibrations.

5,064,037

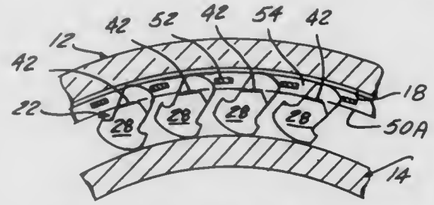
ONE-WAY ACTING SPRAG CLUTCH WITH CENTRIFUGAL DISENGAGEMENT FROM THE OUTER RACE

Thomas F. Long, Jr., 15127 Windmill Pointe Dr., Grosse Pointe Park, Mich. 48230

Filed Mar. 1, 1990, Ser. No. 486,793

Int. Cl.[5] F16D *41/07, 43/14*

U.S. Cl. 192—41 A **4 Claims**



1. A one way acting centrifugally released clutch of the type including an outer raceway, an inner raceway, with an annular space therebetween, a series of sprags substantially uniformly distributed in said annular space each sprag having an inner and an outer end adjacent to said inner and outer raceways respectively, each of said sprags inner and outer edges having respective curved surfaces shaped to reduce the effective height of each of said sprags by tilting of the sprags in one direction upon rotation of said inner raceway relative said outer raceway in one direction, to allow overrunning, and to increase the effective height of said sprags by tilting of the sprags in the other direction upon relative rotation of said inner raceway in the opposite direction to cause wedging of said sprags between said inner and outer raceways, means urging said sprags to be tilted away from said one direction to urge said sprags into contact with said inner and outer raceways, a retainer cage disposed in said annular space having spaced openings each receiving the outer end of one of said sprags, each of said sprags formed with at least one surface recessed radially, and at least one annular ring rotating with said inner raceway and having an inside diameter engaging said at least one radially recessed surface, means causing said retainer cage to be urged to rotate with said inner raceway, said outer curved surface of each of said sprags shaped to reduce the effective height of said sprags as to bring said outer ends out of engagement with said outer raceway by a predetermined degree of tilting in said one direction of tilt of said sprags at a predetermined rotative speed of said inner raceway to produce disengagement therewith at said predetermined speed of said inner raceway, engagement of said at least one radially recessed surface of each sprag with said inside diameter of said annular ring restraining outward movement of said sprags at disengagement with said outer raceway, each of said sprags characterized by an upper portion having generally radially extending opposite sides extending to said outer curved surface, and said retainer cage spaced openings formed by space bars positioned on either side of the upper portions of each sprag, each of said sprags further having a bottom curved rocker portion formed on its inner end, each of said rocker portions having opposite circumferentially projecting leading and trailing lips, said rocker portion extending circumferentially to be substantially wider than the width of said upper portion, said lips asymmetrically shaped, with the leading lip having substantially greater mass than the trailing lip, so as to tend to case greater tilting of said sprags in said one direction of tilt of said sprags with greater rotative speed of said inner raceway.

5,064,038

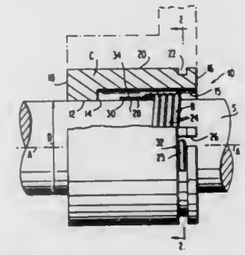
OVERRUNNING CLUTCH WITH IMPROVED SPRING COIL AND MOUNTING OF SAME

J. William Batchelder, R.R. 1, Box 71-A, Charlestown, N.H. 03603

Filed Feb. 6, 1991, Ser. No. 651,167

Int. Cl.[5] F16D *43/02*

U.S. Cl. 192—41 S **14 Claims**



1. In an overrunning clutch comprising:

a rotatable shaft member,

a rotatable cylindrical bushing member concentrically mounted on said shaft member and having an inner diameter slightly larger than the outer diameter of the shaft member, and a coil spring concentrically interposed between such shaft member and said bushing member, having one portion positively affixed to one of said members and at least one free end in frictional contact with the other member,

such that by applying power to one of said members to drive the other member by frictional drag through said spring by snubbing of the coil spring about said driven member, the driven member is required to rotate as fast as a driving member but the driven member is free to rotate faster than the driving member and can overrun the same, the improvement, wherein;

the helical coil spring having turns proximate to a free end whose shaved radial faces such that the diameter of the coil spring turns remote from the free end is relatively large to absorb heavy clutch loads without compromising the frictional engagement capability of the free end of the coil spring.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,039

AUTOMATIC TRANSMISSION WITH SENSOR FAULT DETECTOR

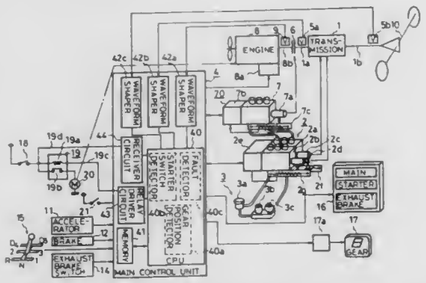
Masuhiro Otsuka; Hiromi Kono; Yuji Satoh, and Hiroyuki Soda, all of Saitama, Japan, assignors to Zexel Corporation, Tokyo, Japan

Filed Feb. 1, 1991, Ser. No. 649,412

Claims priority, application Japan, Feb. 6, 1990, 2-26316; Feb. 8, 1990, 2-28906

Int. Cl.[5] B60K *41/28*

U.S. Cl. 192—0.052 8 Claims



1. An automatic transmission with a sensor fault detector, comprising:

a starter switch;

a clutch for transmitting an output of an engine;

a clutch control unit for controlling engagement of said clutch;

a transmission;

a first detector for detecting an rpm of said engine;

a second detector for detecting an output rpm of said clutch;

a gear position detector for detecting a gear position of said transmission;

a control unit for controlling said clutch control unit based on outputs of said respective detectors and enables said starter switch to operate when said transmission is in a neutral position;

said control unit including a starter switch detector for determining whether said starter switch is on and a fault determination unit for determining whether said first detector is faulty;

said fault determination unit controls said clutch control unit to engage said clutch temporarily if there is no output from said first detector with said starter switch on and determines that said first detector is faulty if there is an output from said second detector.

5,064,040

SPLINED CLUTCH DRUM MOUNTING

Douglas R. Johnson, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Feb. 14, 1991, Ser. No. 655,617

Int. Cl.[5] F16D *1/06, 25/12*

U.S. Cl. 192—85 AA 6 Claims

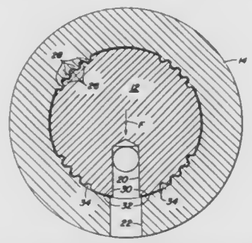
1. A transmission component having a first member and a shaft, comprising:

a first member passage formed in said first member and opening in a surface of said first member adjacent to said shaft;

a first shaft passage formed in said shaft and opening in a surface of said shaft adjacent to said first member passage;

a plurality of first member splines formed in said first member, at least some of said first member splines having angled sides;

a plurality of shaft splines formed in said shaft and meshing with said first member splines, at least some of said shaft splines having angled sides meshing with corresponding angled sides of said first member splines, and wherein the number and positions of said first member splines and said shaft splines is such as to provide an imbalance in the radial forces generated by said angled sides upon application of torque thereto to create a net force pressing the surface of said first member around said first member passage sealingly against the surface of said shaft around said first shaft passage.



5,064,041

AUTOMOTIVE FRICTION CLUTCH WITH TORSION DAMPING DEVICE

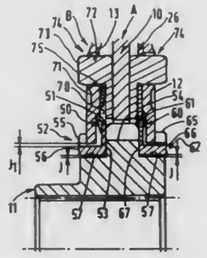
Michel Graton, Paris, and Dieter Rohrle, Montmorency, both of France, assignors to Valeo, Paris, France

Filed Jun. 23, 1989, Ser. No. 370,830

Claims priority, application France, Jun. 30, 1988, 88 08810; Dec. 2, 1988, 88 15814

Int. Cl.[5] F16D *3/14*

U.S. Cl. 192—106.2 4 Claims



1. A torsion damping device for association with a friction clutch and comprising driving part, a driven part, first resilient means and friction means for coupling said driving part with said driven part, mounting means mounting said driving part and driven part together and defining a predetermined sector of relative angular displacement of one of said parts with respect to the other, whereby said parts are coaxial and relatively rotatable within the limits of said sector and against the action of said first resilient means and friction means, one of said parts comprising a damper plate, the other of said parts comprising two guide rings, said guide rings being arranged on either side of the damper plate, the driven part further comprising a hub, means for mounting either the guide rings or the damper plate freely with respect to the hub, at least two axially acting second resilient means confined between the guide rings and disposed on either side respectively of the damper plate, wherein each said second resilient means bears on a respective one of the guide rings whereby to exert a biassing force on the damper plate or the hub and a gripping force on the latter, and means defining a radial clearance between the hub and said one of said coaxial parts of the torsion damping device which is freely mounted with respect to the hub, whereby the hub is mounted floatingly with respect to said one of said coaxial part, said device having means mounting the guide rings freely with respect to the hub and means mounting the damper plate with respect to the hub and defining a circumferential and radial clearance therebetween, each said second resilient means bearing directly or indirectly on the corresponding guide ring and acting directly or indirectly on the hub, the hub having a radial flange against which the second resilient means so bear, and means defining a radial clearance between the guide rings and the hub.

5,064,042

TORSIONALLY ELASTIC CLUTCH

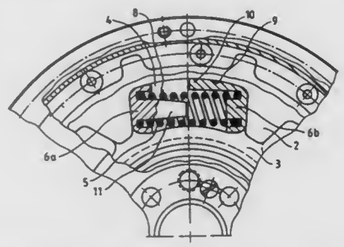
Viktor Kuhne, Bopfingen; Hark Twisselmann, Heidenheim, and Franz Brenner, Nattheim, all of Fed. Rep. of Germany, assignors to J. M. Voith GmbH, Heidenheim, Fed. Rep. of Germany

Filed Apr. 27, 1990, Ser. No. 516,085

Claims priority, application Fed. Rep. of Germany, May 22, 1989, 3916575

Int. Cl.[5] F16D *3/12, 3/66, 13/64*

U.S. Cl. 192—106.2 4 Claims



1. A torsionally elastic clutch comprising:

a pair of clutch halves nested in disk fashion whereby one clutch half is received within the other clutch half, said halves including window-type cutouts,

circumferentially arranged elongate helical springs housed within said cutouts and having opposite end portions, said springs having respective axes that are oriented in a tangential direction,

each said spring having a length that is sufficiently larger than its diameter that said spring would normally be subject to buckling when compressed or subjected to high centrifugal forces,

a pair of guide means connected to respective clutch halves and positioned respectively at the end portions of each of said springs,

the guide means positioned at one end portion of said spring comprising an inner guide body disposed within said one end portion of said spring and being in close proximity therewith, and further comprising an outer spring centering piece disposed outside of said spring one end portion, said outer centering piece being fixedly connected to said inner guide body,

the guide means positioned at the other end portion of said spring comprising an outer guide body disposed outside of said other spring end portion and being in close proximity therewith, and further comprising an inner spring centering piece disposed within said spring other end portion, said inner spring centering piece being fixedly connected to said outer guide body,

said inner and outer guide bodies extending along said spring a substantially greater extent than respective said outer and inner centering pieces and terminating in ends that are in sufficiently close proximity to each other that a center portion of said spring is restrained from buckling.

5,064,043

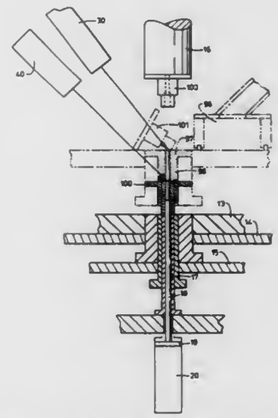
VISION SYSTEM

John L. Macdonald, Cincinnati, Ohio, assignor to Cincinnati Incorporated, Ohio

Filed Apr. 10, 1990, Ser. No. 507,706

Int. Cl.[5] F16D *71/00*

U.S. Cl. 192—125 A 19 Claims



1. A vision system for detecting a fault condition in a machine which repeats identical production cycles of operation, said vision system comprising:

(a) first means for determining a gross level of reflected light reflected from a predetermined location within said machine at a predetermined point during said production cycle, said first means being operable during a teach cycle and thereafter during each production cycle;

(b) second means for comparing the gross level of reflected light determined during a production cycle with the gross level of reflected light determined during said teach cycle; and

(c) third means for inhibiting the operation of said machine when the gross level of reflected light determined during a production cycle differs from the gross level of reflected light determined during said teach cycle by more than a predetermined amount.

5,064,044

INDEXING APPARATUS

Tetsuya Oketani; Toshio Ito, and Yoshiaki Mase, all of Gifu, Japan, assignors to Howa Machinery, Ltd., Aichi, Japan

Filed Mar. 28, 1991, Ser. No. 676,805

Claims priority, application Japan, Apr. 2, 1990, 1-88979

Int. Cl.[5] F16D *71/00*

U.S. Cl. 192—141 11 Claims

1. An indexing apparatus for a rotary table having a support shaft rotatably supported by a base, in which terminal positions of rotary indexing of the rotary table is determined by abutment of a stopper member provided on the rotary table against respective positioning means provided on the base, the indexing apparatus comprising:

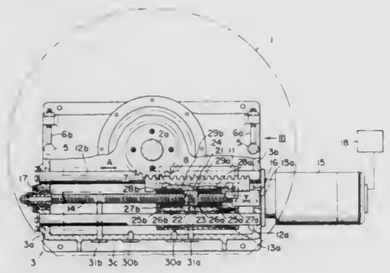
a rack-pinion mechanism including a rack and a pinion meshing with the rack and mounted around the support shaft of the rotary table for rotating the rotary table by shifting movement of the rack;

a feed screw shaft supported in the base to be rotatable, said feed screw shaft extending in parallel with the rack in the direction of the shifting movement thereof;

an electric motor equipped with braking means and a drive shaft operatively connected to said feed screw shaft so as to drive the same;

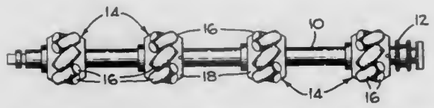
VOL
1132
ISS
2
NO
12
1991
UMI

a feed nut mounted on said feed screw shaft in screw-engaged manner, said rack and said feed nut being arranged so that either one of the rack and the feed nut has integral means disposed at both sides of the other with spaces left on the both sides in a direction parallel to the direction of the shifting movement of the rack; and



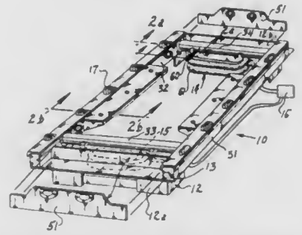
spring means disposed within said respective spaces, said spring means being elastically deformable in said direction parallel to the direction of the shifting movement of the rack upon relative movement of the feed nut and the rack.

5,064,045
MATERIAL HANDLING CONVEYOR
Michael A. Leon, Orlando, Fla., assignor to FMC Corporation, Chicago, Ill.
Continuation of Ser. No. 379,022, Jul. 12, 1989, abandoned. This application Jan. 15, 1991, Ser. No. 641,319
Int. Cl.[5] B65G *13/00*
U.S. Cl. 193—35 MD **3 Claims**



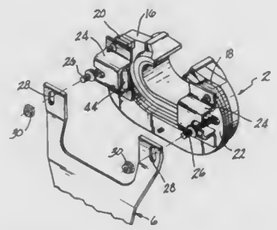
1. A cluster for use in a material handing conveyor having a number of driven shafts comprising:
- a body member for non-rotational mounting on one of said driven shafts;
- a plurality of rollers, each of which has a central bore;
- a pair of legs formed on said body member for mounting each roller on the periphery of said body member;
- pair of bushings, one bushing being pressed into and recessed below each end of the central bore of each roller;
- a roller shaft, made of a material which will not oxidize and which has a low coefficient of friction with respect to said bushings, extending through each of said pair of legs and said bushings of each roller at an angle to said driven shaft and retained in said pair of legs; and
- a washer interposed on said roller shaft at each end of the roller, each washer being incapable of engaging the bushing and engageable directly by, but independently rotatable relative to, the roller and being formed of a hard material having a low coefficient of friction with respect to the roller.

5,064,046
FLEXIBLE CONVEYING DEVICE
Adam M. Janotik, Grosse Ile, Mich., and Derek F. Gentle, Danbury, United Kingdom, assignors to Ford Motor Company, Dearborn, Mich.
Filed Oct. 15, 1990, Ser. No. 597,213
Int. Cl.[5] B65G *11/00*
U.S. Cl. 193—35 SS **10 Claims**



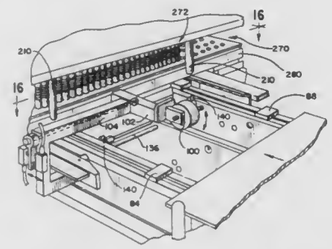
1. A modulated conveyor shuttling system to transfer a pallet therealong, comprising:
- (a) a series of pedestals aligned along a predetermined path;
- (b) a carrier supported on each of said pedestals and having a plurality of bearings to movingly support said pallet; and
- (c) locomotion means to effect sequential lifting, tilting, and lowering of adjacent carriers on adjacent modules to steppingly move said pallet along said path, said locomotion means comprising dual chamber inflatable bladders superimposed with one chamber upon another, said plural chambers being independently inflatable to be additive in selecting a desired vertical elevation.

5,064,047
ESCALATOR HANDRAIL REENTRY GUARD
Detlev B. Moldenhauer, Stadthagen, and Willy Adrian, Obernkirchen, both of Fed. Rep. of Germany, assignors to Otis Elevator Company, Farmington, Conn.
Filed Mar. 13, 1991, Ser. No. 668,528
Int. Cl.[5] B65G *17/00*
U.S. Cl. 198—338 **5 Claims**



1. In combination with a people mover, a moving handrail reentry guard assembly comprising:
- a) a bracket fixed to a truss on the people mover;
- b) an elastomeric bumper disposed about the handrail at the reentry, said bumper being spaced from the handrail a predetermined distance to define a relatively constant gap between the handrail and the bumper;
- c) roller means straddling the handrail for rolling engagement with opposite sides of the handrail; and
- d) mounting means connecting the bumper and roller means to the bracket, said mounting means allowing lateral motion of the bumper relative to the bracket in response to shifting of the handrail sensed by the roller means whereby the gap is maintained and the handrail is prevented from abrading the bumper.

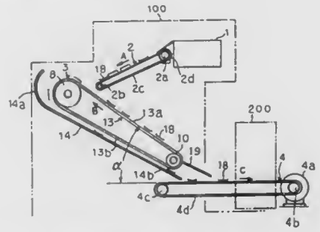
5,064,048
BOARD CONVEYOR
Mark H. Becker, Vista, Calif., assignor to Doorway Mfg. Co., Vista, Calif.
Continuation-in-part of Ser. No. 476,177, Feb. 7, 1990. This application May 31, 1990, Ser. No. 531,018
Int. Cl.[5] B65G *17/08*
U.S. Cl. 198—345.1 **7 Claims**



1. A conveyor for conveying a board of a given width into a zone in which it is desired to register the board in a longitudinal sense, the conveyor comprising
- (a) means for conveying the board along a longitudinal path, into the zone, and
- (b) means for registering the board in he zone, in a longitudinal sense, the registering means comprising two board-registering elements arranged to be normally removed from the longitudinal path and to be selectively insertable into the longitudinal path, ahead of the board, so that the board-registering elements can engage the board when inserted into the longitudinal path, the board-registering element being biased so as to urge the board backwardly when inserted into the longitudinal path,

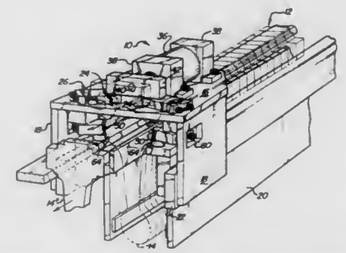
wherein the board-registering elements are arranged to be rotatably insertable into the longitudinal path from respective positions below the longitudinal path.

5,064,049
DEVICE FOR LINING UP PARTS
Mitsuru Saito, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Oct. 31, 1990, Ser. No. 606,704
Claims priority, application Japan, Nov. 2, 1989, 1-284790
Int. Cl.[5] B65G *47/24*
U.S. Cl. 198—399 **5 Claims**



1. A device for lining up parts having different shapes of upper and lower surfaces thereof and transported from a part feeder to a further transporting device located beneath said part feeder, said lining-up device comprising part running path means having one end arranged adjacent to the part feeder; and means for lining up the parts and transporting the parts from said part running path means to the further transporting device which is positioned lower than said part running path means, said lining-up and transporting means including two spaced rotatable rollers located, respectively, in vicinity of another end of said part running path means and the further transporting device, a belt wound between said two spaced rotatable rollers and forming thereby a slope surface on its upper run, said belt having means thereon for catching protrudent parts formed on the lower surface portion of the belt and permitting the parts with protrudent parts formed on the upper surfaces of the parts to slide down the slope surface to the further transporting means of the parts to thereby retain the parts on the slope surfaces, drive means for driving said belt in a direction of said slope surface opposite to a descending direction of said belt, and means extending along said slope surface below a lower run of said belt for receiving parts turned over by said belt.

5,064,050
METER ASSEMBLY FOR ACCUMULATING CONVEYORS
Jeffery A. Stadler, Fenton, Mich., assignor to Excel Corporation, Fenton, Mich.
Filed Feb. 25, 1991, Ser. No. 660,726
Int. Cl.[5] B65G *47/26*
U.S. Cl. 198—459 **5 Claims**



1. A meter assembly for separately advancing parts one at a time on an accumulating conveyor comprising:
- a pair of opposed metering blocks pivotally mounted on substantially vertical axes;
- each metering block having a forward and a rear boss for successively engaging a single part from a row of parts on an accumulating conveyor; and
- pivot means for pivotally moving said metering blocks in synchronism from a loading position, in which said accumulating conveyor can advance a part past said rear bosses into contact with said forward bosses, to a discharge position, in which said rear bosses contact said part moving said part past said forward bosses to an advanced position, said rear bosses restraining advancement of the next part on said conveyor.

5,064,051
METHODS OF AND APPARATUS FOR TRANSFERRING PLATE-LIKE ARTICLES FROM ONE LOCATION TO ANOTHER
Robert F. Blundy, Columbia, S.C., assignor to American Telephone and Telegraph Company, New York, N.Y.
Filed Jul. 24, 1990, Ser. No. 557,258
Int. Cl.[5] B22D *5/02*
U.S. Cl. 198—466.1 **13 Claims**

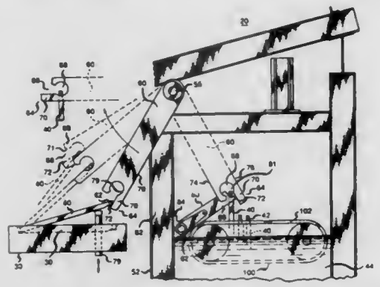
1. An apparatus for transferring successive plate-like articles each of which includes oppositely and outwardly extending lugs at one end thereof from a first location to a second location, said apparatus comprising:
- a pair of spaced transfer arms which are mounted for rotation and which have free end portions adapted to be moved in an arcuate path through a pickup position whereat one end of each successive article in a casting mold is disposed, the end portion of each arm including a cutout which has a predetermined profile and which is

VOL 1132 ISS 2 NO 12 1991 UMI

effective to capture a lug of the article in the pickup position as said transfer arms are moved therethrough to cause the lugs to be supported thereon and the article to be picked up and carried along an arcuate path by said transfer arms;

a conveyor spaced from the pickup position whereat each successive article is received from a casting mold; and

a pair of pickoff arms which are spaced apart a distance less than the spacing between said transfer arms to allow said pickoff arms to become disposed between said transfer arms as said transfer arms are moved rotatably toward said conveyor and which have supporting portions disposed in arcuate paths of the free end portion of the transfer arms having the lugs supported thereon, said pickoff



arms being mounted for pivotal movement between a pickoff position and a dropoff position adjacent to said conveyor and each having a free end portion adapted to cooperate with the profile of said cutout of an associated transfer arm to engage a lug of each successive article as said transfer arms are moved rotatably past the pickoff position and to cause the lug to be supported in engagement with a surface which defines the end portion of said each pickoff arm; and

means responsive to the removal of an article from said transfer arms and support on said pickoff arms for causing said pickoff arms to be moved rotatably from the pickoff position to the dropoff position to cause the lugs of the article to become engaged with said conveyor.

5,064,052

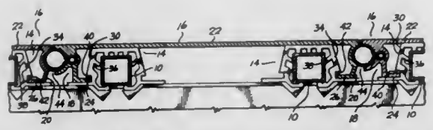
RECIPROCATING CONVEYOR FLOOR MEMBERS AND SEALS

Raymond K. Foster, P.O. Box 1, Madras, Oreg. 97741

Filed Apr. 8, 1991, Ser. No. 682,458

Int. Cl.[5] B65G *25/00*

U.S. Cl. 198—750 **20 Claims**



1. In a reciprocating floor conveyor which includes a plurality of side-by-side elongated floor members which are advanced in a first direction to convey a load and retracted in the opposite direction, the improvement comprising:

each floor member having a first side, a second side and an upper load supporting portion;

an elongated inflatable seal member between adjacent floor members, each inflatable seal member including a base portion connected to the first side of a first floor member, and a sealing portion confronting the second side of an adjacent second floor member; and

a conduit for delivering fluid into and out from the inflatable seal member,

wherein said sealing portion of the inflatable seal member is urged into sealing contact with the second side of the second floor member when the inflatable seal member is inflated, and being out of sealing contact with said second side when the inflatable seal member is deflated.

5,064,053

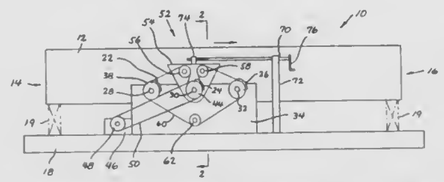
VIBRATORY DRIVE SYSTEM FOR A VIBRATORY CONVEYOR APPARATUS AND A CONVEYOR APPARATUS HAVING SAME

Stephen T. Baker, Louisville, Ky., assignor to Carrier Vibrating Equipment, Inc., Louisville, Ky.

Filed Oct. 24, 1990, Ser. No. 602,700

Int. Cl.[5] B65G *27/32*

U.S. Cl. 198—753 **9 Claims**



1. A vibratory drive system for a vibratory conveyor apparatus for selectively adjusting the conveying speed from zero to a maximum, and for selectively changing the conveying direction of the vibratory conveyor apparatus between forward and reverse while the vibrating drive system is operating comprising:

three eccentric weights disposed in side-by-side relationship at relative phase angles to each other;

means for mounting the eccentric weights for rotation about parallel axes;

means for attaching the rotatable weights to the conveyor apparatus to impart a resulting vibratory force thereto as the weights are rotated,

drive means for rotating the outermost weights about their respective axis of rotation in a first direction and rotating the intermediate weight about its axis of rotation in a second direction opposite to the first direction of the outermost weights;

phase angle adjustment means for selectively changing the relative phase angle between the outermost eccentric weights and intermediate eccentric weight thereby selectively changing the magnitude and direction of the resulting vibratory force generated by the rotating eccentric weights to the conveyor apparatus.

5,064,054

OVERLAPPING FLAT SURFACE TRANSPORT CARRIER CONVEYOR

Kurt H. Hoppmann, Falls Church, and Philip S. Anderson, Sumerduck, both of Va., assignors to Hoppmann Corporation, Chantilly, Va.

Continuation-in-part of Ser. No. 356,944, May 25, 1989, Pat. No. 5,038,921. This application Nov. 28, 1990, Ser. No. 618,984

Int. Cl.[5] B65G *17/24*

U.S. Cl. 198—779 **15 Claims**

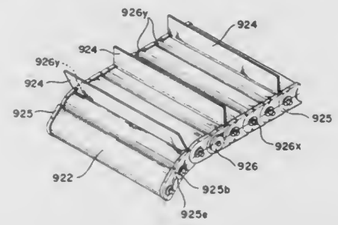
1. An endless conveyor for moving material form a first position to a second position comprising:

a guide including a first and second track spaced apart a predetermined distance for defining a continuous path of travel;

a plurality of discrete substantially flat surface transport carriers, each substantially flat surface transport carrier including a first end disposed adjacent to said first track and a second end disposed adjacent to said second track,

said substantially flat surface transport carrier being positioned in a side-by-side relationship;

a first spacer mounted on said first end of said substantially flat surface transport carrier and a second spacer mounted on said second end of said substantially flat surface transport carrier, said first and second spacers prevent contact of said substantially flat surface transport carriers disposed



adjacent to each other for normally preventing rotation of said substantially flat surface transport carriers while permitting limited pivotal movement; and

drive means for engaging and pushing said substantially flat surface transport carriers and imparting movement thereto along said continuous path of travel defined by said guide.

5,064,055

COOKWARE

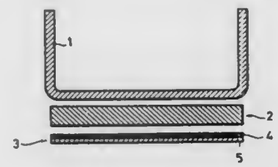
Hans Bessenbach, Bad Kreuznach, and Michael Crummenauer, Idar-Oberstein, both of Fed. Rep. of Germany, assignors to Fissler GmbH, Idar-Oberstein, Fed. Rep. of Germany

Continuation of Ser. No. 158,738, Feb. 23, 1988, abandoned. This application Dec. 5, 1989, Ser. No. 446,454

Claims priority, application Fed. Rep. of Germany, Aug. 24, 1987, 3722156; Jan. 13, 1988, 3800745

Int. Cl.[5] A47J *36/02*

U.S. Cl. 220—626 **21 Claims**



1. A cooking utensil of a type used for a pot or a frypan comprising a stainless steel container liner having a comparatively low wall thickness and a comparatively thick bottom plate composed of a metal selected from the group consisting of aluminum and aluminum alloys, said comparatively thick bottom plate in direct contact with the outside bottom of said container liner and a magnetizable nickel alloy bottom disc disposed in direct contact with the outside of said comparatively thick bottom plate said magnetizable nickel alloy consisting of Ni: 70–85%; Cr: up to 6%; Mo: up to 6%; Cu: up to 14%; Mn: up to 6%; Si: up to 1.5%: C: up to 0.7% and the rest Fe, said magnetizable nickel alloy bottom disc joined in direct contact with said bottom plate by a hammer press.

5,064,056

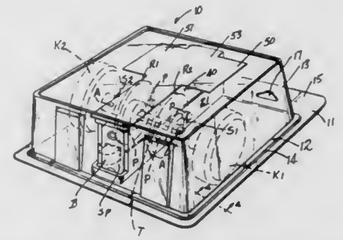
PACKAGING SYSTEM

Timothy F. Gresh, Winsted, Conn., assignor to Harrow Products, Inc., Mich.

Filed Aug. 3, 1990, Ser. No. 563,040

Int. Cl.[5] B65D *75/02, 85/00*

U.S. Cl. 206—45.19 **20 Claims**



1. A packaging system for an item to be displayed comprising a bottom member of molded plastic having a generally rectangular ridge defined thereon, a cover member having a hollow interior, a top wall and side walls having a bottom flange adapted to fit over and be secured to said ridge, said cover member being of transparent molded plastic, an interior member having a generally rectangular peripheral flange and an elevated support portion adapted to receive thereon the item to be displayed, said periphery dimensioned to fit within said ridge and position said interior member within the ridge on said bottom member, a securing member adapted to be fitted to said support portion to secure the item to be displayed therebetween, said support portion and said securing member having a combined dimension in the direction of the distance between the top wall of said cover member and said bottom member which is substantially the same as the distance between said top wall and said bottom member.

5,064,057

SUPPORT FOR ANASTOMOSING OR CONNECTING LIVING ORGANS

Makoto Iwatsuki, Yokosuka, and Toshio Hayashi, Kyoto, both of Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Continuation of Ser. No. 187,461, Apr. 28, 1988, abandoned. This application Mar. 30, 1990, Ser. No. 501,363

Claims priority, application Japan, Apr. 30, 1987, 62-107125; Feb. 16, 1988, 63-33505

Int. Cl.[5] A61B *17/04;* **A61F** *2/04*

U.S. Cl. 606—154 **8 Claims**

1. An anastomosing support for anastomosing or connecting organs in a living body, said support consisting essentially of a mixture of a monosaccharide and a polysaccharide, wherein said mixture dissolves in said living body in less than 10 minutes but more than a couple of minutes.

5,064,058

LIQUID DISPENSER FOR APPLICATOR

Suzy C. Hirzel, 933 Shellwood Way, Sacramento, Calif. 95831

Filed Jan. 12, 1989, Ser. No. 296,064

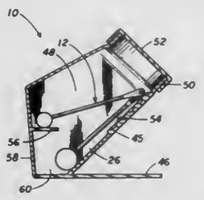
Int. Cl.[5] A46B *17/00;* **B65D** *81/24*

U.S. Cl. 206—209 **3 Claims**

1. A dispenser having a flat, horizontal lower base and a bottom well, and an applicator storage portion comprised of at least a portion of the bottom well, the applicator storage portion defined by a portion of said lower base, a back end panel, an upper panel, two opposing side panels and a sloped panel opposite said back end panel, said sloped panel defining, with an adjacent exterior surface of the dispenser, a generally "V" shape in side elevation, said applicator storage portion having an opening and a lid therefor located at an upper end of the applicator storage portion, the applicator storage portion in-

VOL 1132 ISS 2 NO 12 1991 UMI

cluding therein a grid located on the interior of said sloped panel, said grid extending down towards the bottom well, the



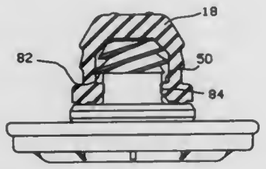
applicator storage portion further including an upper interior shelf extending from said back end panel for resting an applicator above said bottom well, said grid having a rough surface.

5,064,059

DUAL CONTAINER SYSTEM WITH EXTRACTOR FOR STOPPER

John S. Ziegler, Arlington Heights, and Sheldon M. Wecker, Libertyville, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Feb. 5, 1991, Ser. No. 650,518
Int. Cl.[5] B65D *51/00;* **A61M** *5/14*
U.S. Cl. 206—221 **13 Claims**



1. In combination, an extractor means for a flexible diluent container and a removable resilient stopper for closing a second engageable container;

said removable stopper having an undercut recess in an exposed end of said stopper, said undercut recess comprising an entrance opening having a first diameter and an undercut portion having a second larger diameter;

said extractor means including an engagement portion protruding along an axis for engaging said stopper within said undercut recess for removal of the stopper from said second container when said second container is engaged with said diluent container, said engagement portion comprising helical threaded means having tapering diametrical dimensions such that a leading end of said helical threaded means has a diameter less than the first diameter of said undercut recess and a following portion of said helical threaded means has a diameter at least approximately equal to the second diameter of said undercut recess.

5,064,060

KIT FOR HOLDING CAPS ONTO CONTAINERS

John J. Connell, R.R. #1, Box 2319, Hyde Park, Vt. 05655, and Whitaker Hartt, R.R. #3, Box 2350, Morrisville, Vt. 05661

Filed Aug. 27, 1990, Ser. No. 572,390
Int. Cl.[5] B65D *73/00, 85/00*
U.S. Cl. 206—227 **7 Claims**

1. A kit for holding caps onto containers comprising:

A) a monolithic, one-piece backing element having a rear surface and a front surface, and waxy material covering said front surface;

B) a plurality of rectangular mounting strips releasably mounted on said backing element, each mounting strip including

(a) two ends and two sides which intersect said ends and form corners at such intersections,

(b) a length dimension extending between said two ends,

(c) a width dimension extending between said two sides,

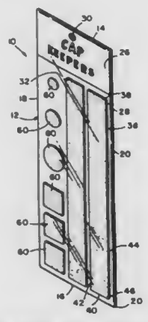
(d) said length dimension being substantially longer than said with dimension,

(e) a front surface,

(f) a rear surface,

(g) a contact adhesive on said mounting strip rear surface, said contact adhesive releasably adhering to said waxy material covered backing element front surface and is adapted to be permanently, adhered to a container of a container/cap combination,

(h) a hook-and-loop fastener means on said mounting strip front surface;



C) a plurality of cap attaching elements releasably mounted on said backing element, each cap attaching element including

(1) a front surface,

(2) a rear surface,

(3) a contact adhesive on said rear surface, said contact adhesive releasably adhering to said waxy material covered backing element front surface and is adapted to be permanently adhered to a cap of a container/cap combination,

(4) a hook-and-loop fastener means on said cap attaching element front surface; and

D) a transparent covering attached to said backing element and covering said backing element front surface and said mounting strips and cap attaching elements releasably mounted on said backing element front surface.

5,064,061

HOOK ASSEMBLY FOR PORTABLE CONTAINERS

H. Edward Moxley, West Hills, Calif., assignor to Ultrahook, Inc., Laguna Beach, Calif.

Filed Jun. 7, 1990, Ser. No. 534,249
Int. Cl.[5] A45C *5/12, 13/00;* **B65D** *85/18*
U.S. Cl. 206—289 **17 Claims**

1. A garment bag including

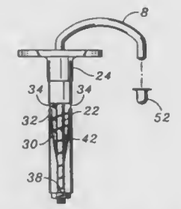
an enclosure for receiving garments,

means to hold the garment within the enclosure,

a hook element having an elongated shaft,

a cylindrical member dimensioned to receive the shaft of the hook, permitting the shaft to be moved within the cylindrical member such that the hook travels between a retracted position and an extended position relative to the cylindrical member,

a spring means within the cylindrical member urging the shaft down into the cylindrical member and the hook into its retracted position, and



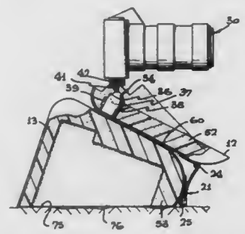
means to automatically orient the hook as it retracts to thereby position the hook in a predetermined alignment with the enclosure.

5,064,062

CAMERA-SUPPORTING CARRYING CASE

Stephen W. Miller, 3131 Montrose Ave., La Crescenta, Calif. 91214

Filed Apr. 23, 1990, Ser. No. 513,234
Int. Cl.[5] B65D *85/38*
U.S. Cl. 206—316.2 **10 Claims**



1. A camera case adaptable for stably supporting a camera on a generally horizontal surface for taking photographs, said case comprising:

a substantially rigid first shell;

a substantially rigid second shell adapted for mating to said first shell, said first and second shells when in mated relationship defining a protective enclosure for a camera, said second shell being further adapted to provide a stable freestanding upright base when placed on a generally horizontal surface;

connecting means for connecting said first and second shells, said connecting means allowing relative rotation of said shells between said mated relationship and a camera supporting relationship wherein said first shell is mounted to, and supported by said second shell;

camera mounting means for mounting a camera to said first shell, said camera mounting means being adjustable to position a said camera selectively for taking photographs and for containment within the enclosure defined by said shells when said shells are in said mated relationship, said camera mounting means including gimbal means affording a said camera mounted thereon freedom of rotation in at least two directions;

a carrying strap attached to said first shell for supporting said camera case; and

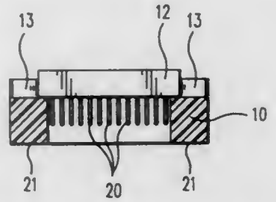
releasable closure means for retaining said first and second shells in said mated relationship.

5,064,063

TUBE ASSEMBLY FOR PIN GRID ARRAY MODULES

Anthony Manca, Wappingers Falls, and Henry Mayron, Poughkeepsie, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 8, 1990, Ser. No. 564,247
Int. Cl.[5] B65D *73/02*
U.S. Cl. 206—328 **19 Claims**



1. A carrier for packaged integrated circuit chips comprising:

a carrying tube;

a chip-carrying strip slidably disposed in said carrying tube, said strip having a top, a bottom, a front end, a rear end, and a plurality of pin-receiving cavities spaced along the length of said strip;

a bumper located at each end of said chip-carrying strip and a bumper located between adjacent said pin-receiving cavities; and

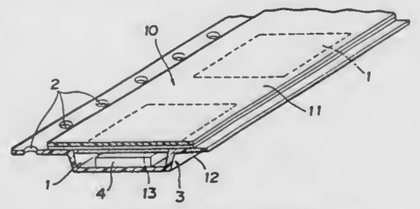
module compartments in said tube being defined above each of said pin-receiving cavities, a first end and a second end of each of said module compartments each being defined by one of said bumpers.

5,064,064

COVER TAPE FOR SEALING CHIP-HOLDING PARTS OF CARRIER TAPE

Kazumi Itou; Kazuyoshi Gbe, and Toshio Minagawa, all of Saitama, Japan, assignors to Lintec Corporation, Tokyo, Japan

Division of Ser. No. 447,440, Dec. 7, 1989, Pat. No. 4,994,300, which is a division of Ser. No. 224,016, Jul. 25, 1988, Pat. No. 4,929,486. This application Nov. 6, 1990, Ser. No. 587,091
Claims priority, application Japan, Jul. 24, 1987, 62-184985; Jul. 24, 1987, 62-184986
The portion of the term of this patent subsequent to May 29, 2007, has been disclaimed.
Int. Cl.[5] B65D *85/38*
U.S. Cl. 206—330 **3 Claims**



1. A device for packing chips comprising:

a carrier tape having chip-holding parts provided intermittently and longitudinally of said carrier tape; and

a cover tape on said carrier tape for sealing chips in said chip-holding parts, said cover tape including:

a base tape,

an adhesive layer formed on only one surface of the base tape, and

a non-adhesive layer containing an oxidation-cured ink and

VOL
1132
ISS
2
NO
12
1991
UMI

pattern-printed on the adhesive layer centrally along the longitudinal direction of the base tape so that the non-adhesive layer has a width greater than that of the chips and covering said chip-holding parts, and less than that of the adhesive layer with the parts of said adhesive layer which are free of said non-adhesive layer adhered to said carrier tape.

2. A device for packing chips comprising a carrier tape having chip-holding parts provided intermittently and longitudinally of said carrier tape; and

a cover tape on said carrier tape for sealing chips in said chip-holding parts, said cover tape including:

a base tape,

an adhesive layer formed on only one surface of the base tape, and

a non-adhesive layer containing an antistatic agent and pattern-printed on the adhesive layer centrally along the longitudinal direction of the base tape so that the non-adhesive layer has a width greater than that of the chips and covering said chips and holding parts, and less than that of the adhesive layer with the parts of said adhesive layer which are free of said non-adhesive layer adhered to said carrier tape.

3. A device for packing chips comprising:

a carrier tape having chip-holding parts provided intermittently and longitudinally of said carrier tape; and

a cover tape on said carrier tape for sealing chips in said chip-holding parts, said cover tape including:

a base tape,

an adhesive layer formed on only one surface of the base tape, and

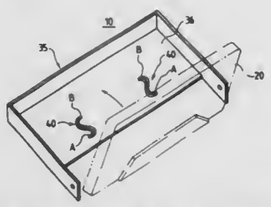
a non-adhesive layer containing a radiation-cured ink and pattern-printed on the adhesive layer centrally along the longitudinal direction of the base tape so that the non-adhesive layer has a width greater than that of the chips and covering said chip-holding parts, and less than that of the adhesive layer with the parts of said adhesive layer which are free of said non-adhesive layer adhered to said carrier tape.

5,064,065

CASE FOR ACCOMMODATING A MAGNETIC TAPE CASSETTE

Daisuke Takahashi, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 18, 1990, Ser. No. 584,025
Claims priority, application Japan, Sep. 20, 1989, 1-109164[U]; Aug. 21, 1990, 2-86739[U]
Int. Cl.[5] B65D *85/672*
U.S. Cl. 206—387 **15 Claims**



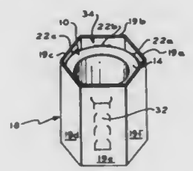
1. In a case in which a cover having a pocket for accommodating one end of a magnetic tape cassette and a casing portion having a pair of stoppers for preventing the rotation of a pair of hubs by engaging spokes of the pair of hubs are pivotally secured to each other in the manner of a door, the improvement wherein each of said stoppers has at least a portion thereof located between adjacent ones of said spokes and has at least one bent or curved portion extending substantially along an inner peripheral edge of said hub in proximity to said inner peripheral edge, and said bent or curved portion is provided with an inclined upper end surface for rotating and urging said hub in a predetermined direction contained in said cassette by contacting said spokes when said casing portion and said cover are closed with respect to each other.

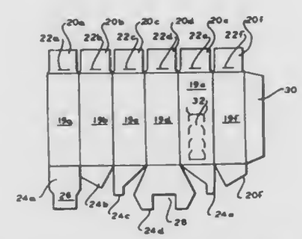
5,064,066

PACKAGE FOR SPOOLED PRODUCTS

Robert E. Barnes, Hinsdale, Ill., assignor to Litton Systems, Inc., Des Plaines, Ill.

Filed Mar. 25, 1991, Ser. No. 674,180
Int. Cl.[5] B65D *85/67*
U.S. Cl. 206—395 **7 Claims**





1. A protective cover for a product contained on a spool, said spool having a core and flanges having edges, said flanges being fastened to the top and bottom of said core, the protective cover surrounding the spool and being comprised of:

A. A plurality of rectangular side pieces for surrounding the length of said spool, said side pieces forming a cavity when folded to receive the spool, each of said side pieces being slightly longer than the length of said spool, each of said side pieces having a top edge and a bottom edge; and

B. At least two tabs, each of said tabs comprising an extension of one of said side pieces at the top edge of said side pieces, each of said tabs having a horizontal slot, each of said tabs being folded over into the cavity of said protective cover to place the horizontal slot on each tab within said cavity when said tabs are folded into said cavity, said horizontal slots being located to receive the edge of one of said flanges when said spool is placed within the cavity formed by said protective cover to retain said spool within said protective cover.

5,064,067

CHRISTMAS LIGHT ORGANIZER

James D. McAllister, and Molly J. McAllister, both of 2365 Birch La., Eugene, Oreg. 97403

Filed Sep. 17, 1990, Ser. No. 583,690
Int. Cl.[5] B65D *85/42*
U.S. Cl. 206—420 **6 Claims**

1. A Christmas light organizer, in combination with an electrical light string having a plurality of electric bulbs joined by electric cord, the organizer comprising:

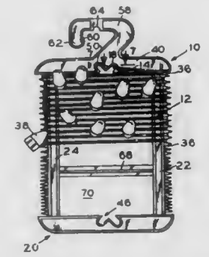
a. a planar frame having two opposing sides;

b. a plurality of tooth-like projections

(1) extending outwardly in linear series from each of the opposing sides;

(2) each said projection, having a base on a said side and having an outer end, being formed with an outer surface which converges from the base to the outer end;

(3) said projections being formed, and spaced from an adjacent projection, so that the respective bases are separated by a distance less than a least thickness of the electric cord and the respective outer ends are separated by a distance greater than a greatest thickness of the electric cord;



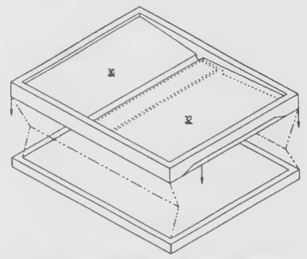
(4) so that the electric cord may be inserted between the outer ends of two adjacent projections and with continuing insertion become wedged between said adjacent projections.

5,064,068

LETTER BY LEGAL FOLDING BASKET

Tony L. Sheng, 38 Cornell Ave., Livingston, N.J. 07032

Filed Jan. 11, 1991, Ser. No. 640,485
Int. Cl.[5] B65D *6/18*
U.S. Cl. 206—425 **2 Claims**



1. A rectangular folding basket which can be manufactured in a "letter by legal" size, comprising:

a top frame which is rectangular and open-centered and which has two parallel long sides;

a bottom plate which has exterior dimensions that correspond to those of the frame and likewise has two parallel long sides, each of said long sides of the bottom plate corresponding with one of the long sides of the top frame;

two opposed folding sides, each side being hingedly secured between one of the long sides of the frame and a corresponding one of the long sides of the plate; and

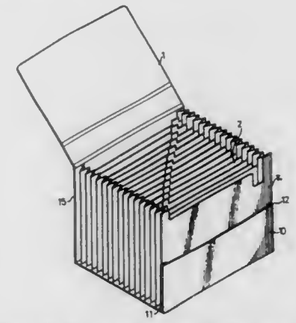
two end panels, each end panel having a hinged end and a free end and pivotally secured at its hinged end to the frame in a manner that each panel closes off the basket at one end between the frame, plate and sides when the basket is unfolded and pivots parallel to the plate when the basket is folded, the free ends of the end panels being recessed and mating together in a manner that said free ends overlap when the basket is folded.

5,064,069

ACCORDION-LIKE FILE

Ken-Jui Su, No. 102, Lane 52, Fu-Te Rd., Shu Wang Tsun, Ta-Li Shiang, Taichung Hsien, Taiwan

Filed Mar. 4, 1991, Ser. No. 663,738
Int. Cl.[5] B65D *85/00*
U.S. Cl. 206—425 **3 Claims**



1. An improved accordion-like file comprising a cover and envelopes, wherein said cover and said envelopes are integrally formed as a foldable multiple-sectioned cover, characterized in:

one end of said cover is folded inward to form a folded piece and a block piece with a foldable mechanism provided therebetween; a bottom end of said block piece is secured to said envelopes such that to extend said envelopes, said block piece is moved outward to be secured to said folded piece.

5,064,070

PACKAGING CONTAINER FOR CONTAINING DEVELOPER SHEETS THEREIN AND METHOD OF PACKAGING SUCH SHEETS

Shunichi Higashiyama, Yokkaichi, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Japan

Filed Jul. 9, 1990, Ser. No. 549,965
Claims priority, application Japan, Jul. 25, 1989, 1-192206
Int. Cl.[5] B65D *81/20*
U.S. Cl. 206—455 **22 Claims**



1. A packaging container comprising a container and developer sheets in a stacked state within the container and developer sheets in a stacked state within the container with remaining space inside the container, wherein the remaining space is completely filled with a non-oxidative gas and the container is hermetically sealed.

13. A packaging method for storing developer sheets in a container, comprising the steps of:

providing a container;

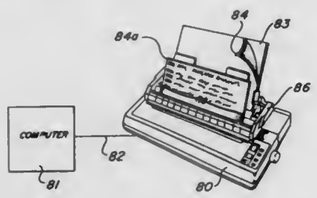
stacking the developer sheets in the container so as to leave a space inside the container;

filling the space completely with a nonoxidative gas, and

hermetically sealing the container.

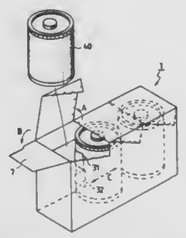
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,071
CONTAINER APPARATUS
Franklin W. Kerfoot, Jr., Newtown Square, Pa., assignor to Kerfoot Corporation, Newtown Square, Pa.
Filed Apr. 5, 1990, Ser. No. 504,888
Int. Cl.[5] B65D *85/56*
U.S. Cl. 206—534 **15 Claims**



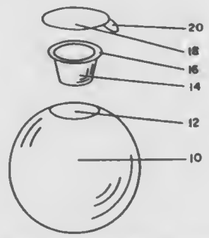
1. An apparatus comprising:
(a) a first transparent or alternately semi-transparent sheet;
(b) a second flexible and opaque backing sheet wherein said second sheet provides a greater height dimension than said first sheet;
(c) said first sheet being attached to said second sheet to form at least one upwardly facing pocket for viewing various contents identified by markings; and
(d) said combined first and second sheet having a thickness for facile positioning within a carriage of a computer printer assembly for receiving printed matter upon at least said second sheet.

5,064,072
PACKAGING CARTON
Masayuki Nakamura, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Jul. 3, 1990, Ser. No. 547,358
Claims priority, application Japan, Jul. 3, 1989, 1-77623[U]
Int. Cl.[5] B65D *25/04, 5/54*
U.S. Cl. 229—120.03 **7 Claims**



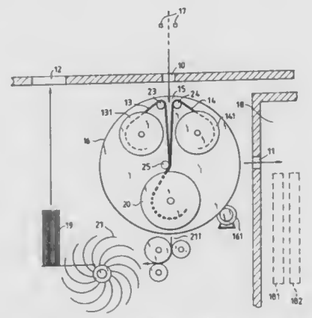
1. A packaging carton of the type including a top, two opposite side boards, and a bottom, and for holding a plurality of articles, said packaging carton comprising:
tear lines in said carton defining openings therein for determining spaces occupied by a plurality of articles, respectively, through which individual articles of said plurality of articles are removed from said packaging carton when said respective tear lines are broken; and
wall means projecting into said packaging carton and partitioning the spaces in said carton to maintain said plurality of articles in alignment with each of said openings, respectively;
wherein said wall means comprises separator elements extending perpendicularly from one of said boards between positions occupied by said articles; and
wherein said tear lines in said carton comprise first tear lines in said top defining rectangular portions in said top and corresponding to said separator elements and second tear lines in an upper portion of one of said boards acting as a rear board and defining triangular portions which correspond respectively to said rectangular portions.

5,064,073
ONE PIECE CAPSULE WITH OPTIONAL INSERT AND TAPE SEAL
Jeffrey A. Folland, 4103 Monroe St., Minneapolis, Minn. 55421, assignor to Jeffrey Alan Folland, Minneapolis, Minn.
Filed Jul. 24, 1990, Ser. No. 557,198
Int. Cl.[5] B43M *7/00;* **B65D** *1/04, 41/00*
U.S. Cl. 220—359 **1 Claim**



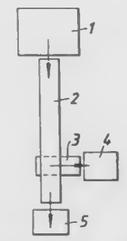
1. A capsule for dispensing products from a bulk vending machine comprising:
a spherical shape as a means for reducing friction and resistance during operation of said vending machine,
one piece construction as a means to eliminate separation during operation, and facilitate the filling of said capsule by mechanical means,
a single hole as a means to provide access to contained products, and provide a rim on which to rest
an optional insert as a means to contain and isolate a second product within said spherical container, thereby vending two products simultaneously,
a tape seal as a means to simultaneously seal said spherical container and said optional insert.

5,064,074
ARRANGEMENT FOR DEPOSITING VALUABLE DOCUMENTS, SUCH AS BANK NOTES, CHEQUES
Gösta Edin, Rönninge, and Hans Zettergren, Solna, both of Sweden, assignors to Inter Innovation AB, Stockholm, Sweden
Filed Jul. 6, 1990, Ser. No. 549,453
Claims priority, application Sweden, Jul. 20, 1989, 8902581
Int. Cl.[5] B07C *5/36*
U.S. Cl. 209—534 **5 Claims**



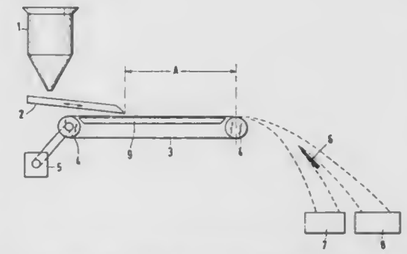
1. An arrangement for feeding valuable documents from a first opening (10) of at least two openings to at least as second opening (11) of said openings, comprising:
command means (34) located adjacent at least one of said openings and effective to control the functions of the arrangement externally thereof; and storage means for the intermediate storage of valuable documents while feeding valuable documents from the opening (31) to another opening (11) of said openings, characterized in that the storage means (131-141-20) includes two mutually coacting belts (13, 14), first and second belt reels (131, 141), each for individually winding and unwinding one of the two mutually coacting belts (13, 14), a common belt reel (20) for temporarily winding up both the belts (13, 14) together, and rollers for guiding the belts (13, 14) between the respective first and second belt reels (131, 141) and the common belt reel (20), which rollers are positioned for guiding the belts (13, 14) prior to being wound together onto the common belt reel (20) to form a common third infeed-and-outfeed opening (15) for receiving a series of valuable documents passing sequentially from one opening of said at least two openings for temporary storage of the documents between the two belts (13, 14); and in that the arrangement includes a pivotal housing (16) and the storage means (131-141-20) is located in the pivotal housing (16) which functions to enable the common opening (15) of said storage means to be adjusted positionally in relation to the selected one opening (11) of said at least two openings in response to a command from said command means (34).

5,064,075
SEPARATION OF NON-MAGNETIC ELECTRICALLY CONDUCTIVE ITEMS BY ELECTROMAGNETIC EDDY CURRENT GENERATION
Peter T. Reid, North Lodge, Bayford, Hertfordshire, England
Continuation of Ser. No. 417,975, Nov. 6, 1989, abandoned. This application Mar. 26, 1991, Ser. No. 679,176
Claims priority, application United Kingdom, Oct. 6, 1988, 8823495
Int. Cl.[5] B07C *5/344;* **B03C** *1/23*
U.S. Cl. 209—636 **11 Claims**



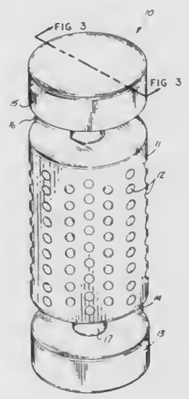
1. A method of separating specific predetermined non-magnetic electrically conductive items having a predetermined combination of configuration, dimensions, mass and composition from a flow of material containing such items and other non-magnetic electrically conductive material having the same composition but which do not have the predetermined combination; comprising the steps of passing the flow of material adjacent to an electromagnetic induction motor; and controlling the flux field generated by the motor by adjusting the power of the electrical supply to the motor and by adjusting the frequency of the electrical supply to the motor whereby to create electrical currents within the specific predetermined electrically conductive items which react with the generated electromagnetic flux field causing the creation of a directional force upon the specific predetermined items such as to move only the specific predetermined electrically conductive items out of and away from the flow of material while allowing the other material to continue to travel in the flow of material.

5,064,076
SORTING PROCESS AND APPARATUS
Egon Braun; Albert Kliog, both of Frankfurt am Main; Karl Heil, Eschborn, and Hans-Peter Sattler, Bad Homburg, all of Fed. Rep. of Germany, assignors to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany
Filed Nov. 5, 1990, Ser. No. 609,293
Claims priority, application Fed. Rep. of Germany, Nov. 9, 1989, 3937265
Int. Cl.[5] B07B *13/11;* **B07C** *9/00*
U.S. Cl. 209—700 **13 Claims**



1. A process for sorting the particles of mixed particulate materials in dependence on their material composition with utilization of their different coefficients of sliding friction, comprising forming a monolayer of the particles on an endless belt, revolving such belt, the belt from the feed point to the downstream discharge edge having a length portion having a length which in dependence on the velocity of the revolving belt is such that only those particles of the mixed material which have the highest coefficient of sliding friction will be accelerated to the velocity of the belt while moving on said length portion and that all particles having a relatively lower coefficient of sliding friction will have a lower velocity at the discharge edge, whereby particles will be discharged from the belt, will fly along different trajectories and separately collecting the discharged particles.

5,064,077
DISPLAY TREE APPARATUS
Bobby R. Mitchell, 5711 Tawney, Amarillo, Tex. 79106
Filed May 2, 1991, Ser. No. 694,771
Int. Cl.[5] A47F *7/00*
U.S. Cl. 211—60.1 **4 Claims**



1. A display tree apparatus, comprising in combination,

VOL 1132 ISS 2 NO 12 1991 UMI

a cylindrical central outer body, the cylindrical central body including a coaxially directed support axle directed coaxially of the cylindrical central body and extending exteriorly of the central outer body, and

an upper base mounted to an upper terminal end of the support axle defining an upper gap between the upper base and the central outer body, and

a lower base mounted to a lower terminal end of the support axle spaced from the central outer body defining a lower gap, wherein the upper and lower gaps provide manual access to the support axle for manual manipulation of the apparatus, and

the central outer body including a matrix of first bores directed therethrough, and

further including a cylindrical central inner body, the cylindrical central inner body including a matrix of second bores directed therethrough, and

each of said first bores is coaxially aligned with one of said second bores defining a pair of bores, and

a rod-like member receivable within each of said pair of bores.

5,064,078

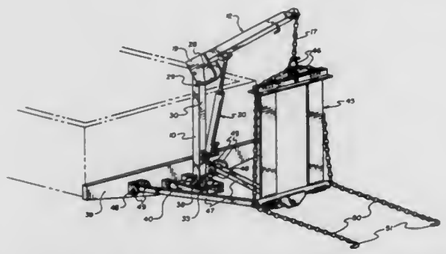
COMBINATION PORTABLE HOIST, CRANE, AND VEHICLE TOWING APPARATUS

John C. Van Staveren, 12433 S. 2320 West, Riverton, Utah 84065

Continuation of Ser. No. 412,455, Sep. 26, 1989, abandoned. This application Feb. 4, 1991, Ser. No. 650,402

Int. Cl.[5] **B66C** *23/44*

U.S. Cl. 212—180 **10 Claims**



1. A combination portable hoist, vehicle mounted crane and vehicle mounted automobile towing mechanism, comprising:

(a) a support assembly (40);

(b) a fixed length vertical mast removably mountable upon said support assembly and rotatable about the longitudinal axis of said vertical mast;

(c) a boom pivotally attached to said vertical mast in a manner to pivot in a vertical plane about a horizontal pivot axis, said boom including a chain or cable and hook mounted to the free end thereof;

(d) a modified vehicle bumper (39) mountable to a conventional vehicle;

(e) a towing mechanism (45) for attaching onto and lifting one end of a motor vehicle, said towing mechanism being removably mountable onto, and totally supported by, said modified vehicle bumper and said boom; and

(f) power telescoping extension means for pivoting said boom about said horizontal pivot axis of said vertical mast, said extension means being pivotally mounted to said vertical mast at one end thereof and to said boom at the other end thereof wherein said support assembly comprises a support platform which is supported from said modified vehicle bumper by at least two legs.

5,064,079

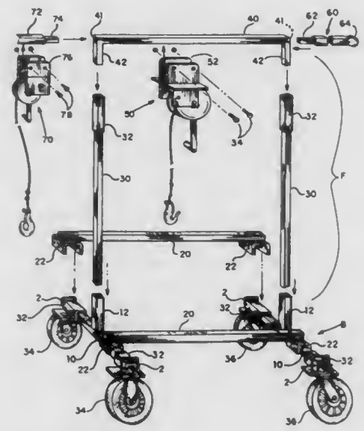
KNOCKDOWN HOIST WITH DOUBLE WINCHES

C. Dewayne Bowerman, 7210 W. 39th, Amarillo, Tex. 79109

Filed Dec. 27, 1990, Ser. No. 634,717

Int. Cl.[5] **B66C** *23/26*

U.S. Cl. 212—182 **6 Claims**



1. A hoist comprising:

a plurality of elongated base members, each of said members having opposite ends, means for connecting said ends to form a generally horizontal rectangular base with an open interior area;

a plurality of wheels, means for attaching said wheels to said rectangular base for moving said base over a supporting surface;

a plurality of vertical leg members with upper and lower ends, means for connecting the lower end of said leg members to said base;

horizontal bar means for connecting the upper ends of said leg members, said leg members and said horizontal bar means forming an upper frame;

a primary winch including a flexible element thereon for lifting objects, means on said primary winch for mounting same on said horizontal bar means in a plurality of vertically spaced positions, at least one of said positions being operative for lifting objects through said open interior area of said base and at least one of said positions being operative for lifting objects beyond said open interior area;

an extension bar with first and second ends, means for mounting said first end of said extension bar to said upper frame to extend said second end thereof in a first generally horizontal direction to a location beyond the interior area of said base, a pulley mounted on said second end, said pulley being operative to guide said flexible element from said primary winch to an object to be lifted beyond the interior area of said base;

a winch bar, means for attaching said winch bar to said upper frame to extend said winch bar in a second generally horizontal direction that is opposite to said first direction, to a location beyond the interior area of said base; and

a secondary winch with means adapted to support a load attached thereto, means for mounting said secondary winch to said winch bar for movement of said load to selected spaced positions thereon to provide a counterbalance force for objects that are lifted beyond said interior area by said primary winch.

5,064,080

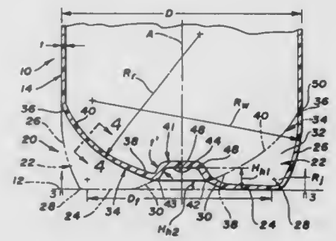
PLASTIC BLOW MOLDED FREESTANDING CONTAINER

William C. Young, Superior Township, Washtenaw County, Mich., and Richard C. Darr, Seville, Ohio, assignors to Plastipak Packaging, Inc., Plymouth, Mich.

Filed Nov. 15, 1990, Ser. No. 614,220

Int. Cl.[5] **B65D** *1/02, 1/42, 23/00*

U.S. Cl. 215—1 C **20 Claims**



1. In a plastic blow molded container having a central axis A and including a cylindrical body portion that extends vertically about the central axis A with a diameter D, an upper end closure unitary with the upper extremity of the cylindrical body portion and including a dispensing spout, and a freestanding base structure unitary with the cylindrical body portion to close the lower extremity thereof, said freestanding base structure comprising:

a plurality of downwardly projecting hollow legs spaced circumferentially from each other with respect to the body portion; each leg having a lower flat foot coplanar with the feet of the other legs to cooperate therewith in supporting the container in an upright position; the lower flat feet having an outer diameter D_f that is at least 0.75 of the diameter D of the cylindrical body portion to provide good stability against tipping; each leg also having an outer wall that extends from the outer extremity of the flat foot thereof to the cylindrical body portion; the flat foot and the outer wall of each leg having an abruptly curved junction with a radius of curvature R_j less than 0.05 of the diameter D of the cylindrical body portion; each leg also having a planar inner connecting portion that is inclined and extends upwardly and inwardly from the inner extremity of the flat foot thereof; and each leg also having a pair of side walls that cooperate with the flat foot, the outer wall and the inner planar connecting portion to lose the leg;

a plurality of curved ribs spaced circumferentially from each other between the downwardly projecting legs and connecting the adjacent side walls of the legs; each rib having an outer upper end that extends upwardly and is connected to the cylindrical body portion of the container; each rib also having an inner lower end located between the inner connecting portions of the legs on opposite sides thereof and extending downwardly and inwardly toward the central axis A of the container; and each rib also having a curved intermediate portion that extends between the outer and inner ends thereof with an outwardly convex shape; and

a generally round hub that is located along the central axis A with the legs and curved ribs extending radially therefrom; said hub having a diameter D_h in the range of about 0.15 to 0.25 of the diameter D of the cylindrical body portion; and the hub having connections to the upwardly extending planar inner connecting portions of the legs and the hub also having connections to the downwardly extending inner ends of the curved ribs.

5,064,081

PRESSURE RESISTANT POLYGONAL BOTTLE-SHAPED CONTAINER HAVING A POLYGONAL BOTTOM

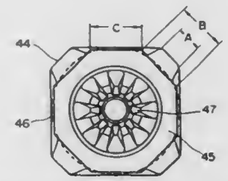
Yoshiaki Hayasbi, and Yukio Koshidaka, both of Matsudo, Japan, assignors to Yoshino Kogyosho Co., Ltd., Tokyn, Japan

Continuation of Ser. No. 401,116, Aug. 31, 1989, abandoned, which is a division of Ser. No. 155,732, Feb. 16, 1988, Pat. No. 4,877,141. This application Mar. 28, 1991, Ser. No. 679,143

Claims priority, application Japan, Feb. 17, 1987, 62-34007; Feb. 17, 1987, 62-34008

Int. Cl.[5] **B65D** *23/00*

U.S. Cl. 215—1 C **7 Claims**



1. A pressure-resistant bottle-shaped container having a body with an outer surface including panels surrounded by outer sheaths, each panel having a longitudinal height and a transverse width ad including stress absorbing zones defined by vertexes recessed from the outer surface of the panel toward an interior of the container and bending lines formed in V shape and inverted V shape in mirror-image confronting relationship from the vertexes toward the outer sheaths, wherein

the cross-sectional shape of the body of said container is polygonal, having a number of body sides, and

the cross-sectional shape of a bottom of a peripheral end of a bottom wall of the container is regular polygonal, having a number of bottom sides equal to an integer times said number of body sides of said body, said integer being greater than one, so that each portion of the bottom is uniformly oriented.

5,064,082

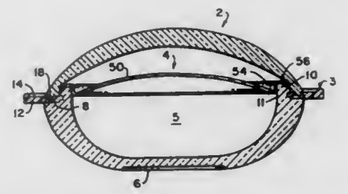
COMPARTMENTED CONTAINER HAVING A SEAL MEMBER AND MAGNIFYING LID

Michael H. Lombardi, Stamford, Conn., and Susan R. Wacker, New York, N.Y., assignors to Elizabeth Arden Company, Division of Conopco, Inc., New York, N.Y.

Filed Apr. 27, 1990, Ser. No. 515,389

Int. Cl.[5] **B65D** *1/10, 25/04, 25/54, 51/14*

U.S. Cl. 215—6 **14 Claims**



1. A container comprising:

a receptacle with an upper open end, said receptacle forming a lower portion of said container and having an area therewithin for receiving a substance;

a lid forming an upper portion of said container;

a ring member surrounding said upper open end of said receptacle and supporting said lid, said lid having a plurality of catch projections oriented downwardly to secure

VOL 1132 ISS 2 NO 12 1991 UMI

said lid to said ring member, said catch projections including radially outwardly extendign portions forming hooks, said ring member on an upper surface thereof having thereinto spacedly formed a plurality of elongate grooves dimensioned to form-fittingly receive said hooks, said grooves each being formed through a pair of curved parallel walls cut transversely through said ring member to define a receiving area, said walls changing direction within said ring member moving outward away from said receiving area at an acute angle to said upper surface wherein said angle serves to engage said hooks and at a distance thereafter, being redirected transverse to said ring member; and

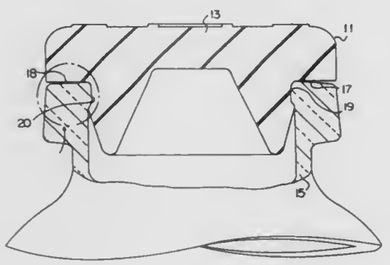
a seal member positioned between said receptacle and said lid defining a first and second compartment within said container, said seal member completely covering said upper open end of said receptacle, said first compartment including said receiving area.

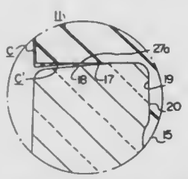
5,064,083

CLOSURE DEVICE

Barbara Alexander, Collegeville; Patty H. Kiang, Paoli; Richard Lusch, Phoenixville, and Val Romberg, Parkerford, all of Pa., assignors to The West Company, Incorporated, Phoenixville, Pa.

Filed Mar. 8, 1990, Ser. No. 493,144
Int. Cl.[5] B65D *39/18*
U.S. Cl. 215—247 **5 Claims**





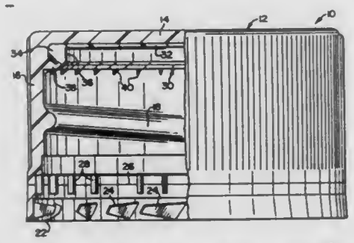
1. A device for use with containers, comprising an elastomeric member sized to engage the container, said member having a first portion for contact with said container to form a seal and a second portion having a polyparaxylylene coating of from 0.1 to 25.0 microns in thickness to form a barrier between said member and the contents of said container, said first and second portion having a boundary area wherein said coating has a decreasing cross section from said coated to said uncoated portion.

5,064,084

COMPOSITE CLOSURE WITH SEAL PROPORTIONING LIP

Stepheu W. McBride, Brownsburg, and Ralph Whitney, Indianapolis, both of Ind., assignors to H-C Industries, Inc., Crawfordsville, Ind.

Filed Aug. 27, 1990, Ser. No. 572,868
Int. Cl.[5] B65D *53/04*
U.S. Cl. 215—350 **10 Claims**



1. A composite closure for a container, comprising:

an outer closure cap having a top wall portion, an annular skirt portion depending from said top wall portion, and annular liner-retaining lip means projecting inwardly from said annular skirt portion in closely spaced relation to said top wall portion; and

a sealing liner positioned adjacent said top wall portion and retained by said annular lip means, said sealing liner including an annular sealing bead portion positioned adjacent said annular lip means and having a generally inwardly facing sealing surface,

said lip means defining an annular guide surface means facing generally away from said top wall portion for guiding said closure onto the associated container for sealing engagement of said inwardly facing sealing surface with the associated container,

said sealing bead portion of said liner defining an annular surface extending between said annular guide surface means and the inwardly facing sealing surface of said bead portion, said guide surface means converging inwardly and upwardly toward said top wall portion, said annular surface of said sealing liner converging inwardly and upwardly toward said top wall portion and comprising a continuation of the inwardly converging annular guide surface means of said annular lip means to define a frusto-conical surface therewith.

5,064,085

STOPPER FOR ASEPTIC CONTAINERS

Martin Ellenberg, Langhirano, Fed. Rep. of Germany, assignor to El.PO S.r.l., Mulazzano Ponte, Italy

Filed Oct. 11, 1990, Ser. No. 596,051
Claims priority, applicatioo Italy, Oct. 18, 1989, 40154 A/89
Int. Cl.[5] B65D *39/00*
U.S. Cl. 215—355 **5 Claims**



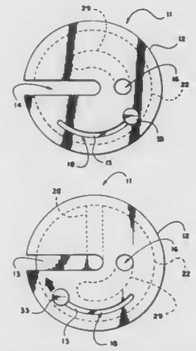
1. A stopper for an aseptic container, the stopper contacting a mouth of the container in an area of contact when stoppered, comprising a plug molded from plastic material and substantially cylindrical in embodiment, the stopper having a flash formed on the plug during molding, the stopper exhibiting a plurality of annular projections and reentrants compassing its external circular periphery of which the shape is substantially identical and complementary to that of similar profiles afforded internally by the mouth of the container to be stoppered, wherein the flash is annular and occupies an area remote from the area of contact between the plug and the mouth of the container.

5,064,086

CONTAINER LID

James E. McEntee, 1250 Lochshyre Way, Lawrenceville, Ga. 30245

Filed Jan. 31, 1991, Ser. No. 648,737
Int. Cl.[5] B65D *51/18*
U.S. Cl. 220—253 **6 Claims**



1. A multi-piece container lid comprising:

a circular upper lid element and a circular lower lid element each having a central axis,

the lid elements each having a planar upper surface and a planar lower surface and wherein the lid elements are mounted in overlapping juxtaposed axial alignment with one another,

the lower lid element being matingly engaged with the upper lid element and being mounted thereto to effect relative circumferential movement between the respective lid elements,

means mounted in cooperative engagement between the lower lid element and the upper lid element to effect relative movement between the lid elements,

the upper element having a peripheral down turned edge, the downturned edge having a re-entrant lip projecting inwardly toward the center of the upper lid element and wherein the lip extends approximately parallel to the lower surface of the upper lid element,

the upper lid element having a slot formed through the peripheral downturned edge and the re-entrant lip, and extending inwardly toward the axis of the upper lid element.

5,064,087

SELF-OPENING CAN LID WITH IMPROVED CONTOUR OF SCORE

Douglas F. Koch, Springboro, Ohio, assignor to Koch Systems Incorporated, Dayton, Ohio

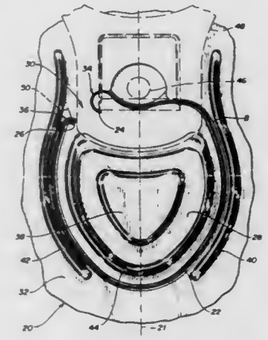
Filed Nov. 21, 1990, Ser. No. 616,984
Int. Cl.[5] B65D *17/32*
U.S. Cl. 220—269 **12 Claims**

1. An easy-open container end comprising:

an end wall adapted for attachment to a container body; and

a displacable panel defined in said end wall by a rupturable score line having first and second ends, and an unscored hinge area defined between said first and second ends connecting said panel to said end wall;

said rupturable score line further including first and second tail portions at said first and second ends, respectively, curving inward towards said hinge area;



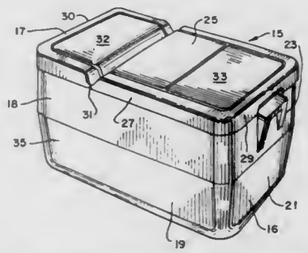
whereby an opening tab may be pivoted to exert axial pressure on a portion of said panel and rupture said score line, separating said panel from said end wall, and displacing said panel by bending said hinge area.

5,064,088

PICNIC COOLER WITH LID HAVING INTEGRALLY MOLDED HINGE

William J. Steffes, Wichita, Kans., assignor to Coleman Outdoor Products, Inc., Wichita, Kans.

Filed Jul. 25, 1990, Ser. No. 557,967
Int. Cl.[5] B65D *39/00*
U.S. Cl. 220—339 **3 Claims**

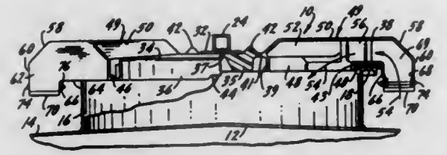


1. A container comprising an open-topped generally rectangular container body having a bottom wall, a pair of generally parallel side walls, and a pair of generally parallel end walls extending between the side walls, and a removable lid for closing the top of the container body, the lid being integrally blow molded from plastic and being generally rectangular and having a pair of elongated generally parallel side walls and a pair of generally parallel end walls extending between the side walls and a hinge portion which extends across the lid between the side walls and divides the lid into first and second lid portions which are hingedly attached, each of said first and second lid portions having spaced-apart top and bottom walls and a side wall which connects the top and bottom walls, said hinge portion comprising a web of integrally molded plastic extending between the first and second lid portions, and attaching means on the container body and on the first lid portion for removably attaching the first lid portion to the container body whereby the second lid portion can be pivoted about the hinge

VOL 1132 ISS 2 NO 12 1991 UMI

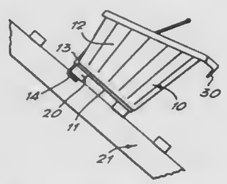
portion to provide access to the container body without removing the first lid portion from the container body, and latch means on the container body and on the second portion for releasably latching the second lid portion to the container body.

5,064,089
VENTED HATCH COVER
Francis R. Schultz, Woodridge, Ill., assignor to Salco Products Inc., Romeoville, Ill.
Filed Mar. 8, 1990, Ser. No. 491,337
The portion of the term of this patent subsequent to Apr. 11, 2006, has been disclaimed.
Int. Cl.[5] B65D *51/16*; B01D *50/00, 39/08*
U.S. Cl. 220—372 **34 Claims**



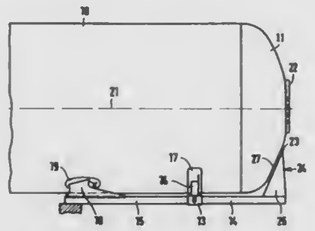
1. A vented hatch cover engageable with the coaming of a hatch opening of a compartment to removably cover said opening, comprising:
a) a cover body having a sealing ring and being sized to fit over the compartment hatch opening, said sealing ring being adapted to engage the coaming of the hatch opening;
b) at least two air outlet openings defined by said cover body, the minimum cross-sectional area defined by the total of all said air outlet openings being not less than 30 square inches; and
c) at least two hood members connected to said cover body, each defining an air passage having an air intake opening and a plenum extending from said air intake opening to one of said air outlet passages, and wherein each air passage defines a point of minimum cross-sectional area and the aggregate cross-sectional area of all said minimum areas is not less than 30 square inches.

5,064,090
BUCKETS
Lee M. Farrier, 39 Orchard Way, Sutton Surrey, United Kingdom
Filed Oct. 29, 1990, Ser. No. 604,209
Claims priority, application United Kingdom, Nov. 3, 1989, 8924858
Int. Cl.[5] B65D *25/00*
U.S. Cl. 220—482 **10 Claims**



1. A bucket having a base and a side wall extending therefrom, and a first clip member permanently mounted on the side wall of the bucket adjacent to the base of the bucket and adapted to hook over a generally horizontal bar, such as a roof baton or a ladder rung, to retain the bucket in a position on a sloping surface, such as a roof or ladder, with its base resting on that surface.

5,064,091
SWAP TANK
Helmut Gerhard, Weltefeld, Fed. Rep. of Germany, assignor to Westerwaelder Eisenwerk Gerhard GmbH, Fed. Rep. of Germany
Filed Aug. 14, 1990, Ser. No. 567,055
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1989, 8909771[U]
Int. Cl.[5] B65D *90/12*
U.S. Cl. 220—628 **11 Claims**

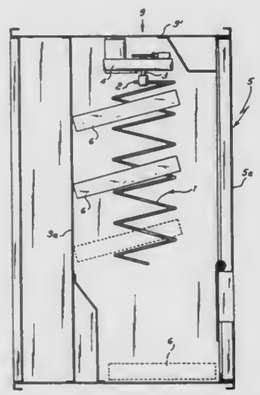


1. A swap tank comprising:
a cylindrical main portion defining a tank axis and having a pair of tank ends,
a pair of base frame structures associated with said tank ends and each including a transverse bar and a pair of diagonal struts extending from the ends of said transverse bar toward said tank end and being interconnected in the region of said tank end, and
a pair of saddle arrangements each including a support member disposed between one of said tank ends and the associated base frame structure and including a pair of triangular wall elements extending at an angle with respect to each other each of said triangular wall elements having a first edge connected to the first edge of the respective other triangular wall element, a second edge extending substantially parallel to a corresponding diagonal strut and being connected thereto, and a third edge connected to the respective tank end.

5,064,092
DEVICE FOR AN AUTOMATIC DISPENSING OF PACKAGED PRODUCTS
Lucio Grossi, Via Sylva 30, Bergamo, Italy
Filed May 21, 1990, Ser. No. 526,227
Claims priority, applicatiou Italy, Jun. 1, 1989, 20731 A/89
Int. Cl.[5] G07F *11/24*
U.S. Cl. 221—75 **5 Claims**

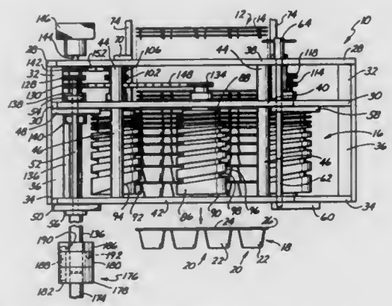
1. A device for dispensing packaged products, said device comprising:
a housing formed with a pair of spaced apart vertical side walls bridged by a top cross wall;
at least one pair of sliding walls between said side walls extending downwardly from said cross wall and forming a dispensing chamber having generally a U-shaped cross-section and formed with a top and a discharge bottom;
a motor mounted on the housing with an output shaft extending into said chamber and terminating close to the top thereof;
at least one elongated helical coil centered on a vertical axis and formed with a helix angle and operatively connected with said shaft in said chamber, said helical coil being formed with a plurality of turns between said top and bottom of said chamber and receiving a product to be dispensed between adjacent turns, said coil having a diameter larger than at least one dimension of the product, the product having a length larger than said one dimension;
means forming a first duct receiving said coil in said chamber and including:
a vertical first wall extending parallel to said sliding walls

and being formed with a recess extending outwardly toward one of said sliding walls and receiving a portion of said helical coil thereby preventing misalignment of said coil between said top and bottom of the chamber, and
a vertical guiding wall extending perpendicular to said first wall and being in contact with the other one of said sliding



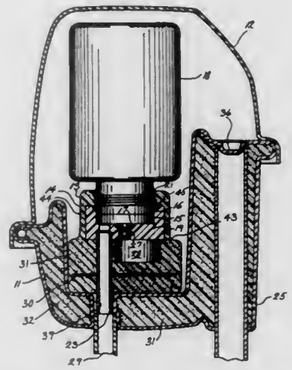
walls, said guiding wall of said duct abutting the products received between said turns and urged against said guiding wall by gravity acting thereon, so that said products are guided toward said discharge bottom of said chamber by rotation of said coil and are prevented from rotating by said guiding wall.

5,064,093
PRODUCT CUP DENESTER
Steven D. Davis, Yuciapa, and Samuel O. Sanchez, Jr., Redlands, both of Calif., assignors to W. A. Lane, Inc., San Bernardino, Calif.
Filed Apr. 16, 1990, Ser. No. 509,724
Int. Cl.[5] B65H *3/28*
U.S. Cl. 221—222 **17 Claims**



1. A denesting device comprising:
a housing;
feed means for containing a stack of nested articles, said feed means located on said housing;
helical screw means for engaging and separating nested articles, said helical screw means including a variable screw thread thereon;
said variable screw thread having a variable pitch that increases from a first lesser pitch portion to a second greater pitch portion;
said helical screw means rotatively located on said housing with said first lesser pitch portion of said variable screw thread located in operative association with said feed means in a position to engage nested articles stacked in said feed means;
drive means for rotating said helical screw means whereby upon rotation of said helical screw means said first lesser pitch portion of said variable screw thread engages articles stacked in said feed means and with continued rotation of said helical screw means said articles are moved along said helical screw means from said lesser thread pitch portion to said greater thread pitch portion with separation and denesting of adjacent articles initiating and then increasing as said articles move along said helical screw means from said lesser thread pitch portion to said greater thread pitch portion;
said helical screw means including a plurality of elongated helical screws;
each of said elongated helical screws including a variable pitch screw thread thereon; and
said variable screw thread on each of said plurality of elongated helical screws being shaped as a square thread in cross section.

5,064,094
PELLET DISPENSING UNIT
William N. Roos, Colgate, and Frank A. Blatnik, Butler, both of Wis., assignors to Autotrol Corporation, Milwaukee, Wis.
Filed Oct. 30, 1989, Ser. No. 428,562
Int. Cl.[5] B65G *59/00*
U.S. Cl. 221—265 **13 Claims**



1. A pellet dispenser unit comprising:
a motor and a rotor assembly, said assembly including attachment means for a pellet container and being constructed and arranged to be inverted so as to be easily attached to said container when said container is in an upright position;
a pellet discharge tube extending from said motor and rotor assembly;
electrical connection means disposed on said motor and rotor assembly; and
a housing member for detachably receiving said combined motor and rotor assembly, said housing member including a pellet discharge tube and electrical connection means, said electrical connection means of said housing member and said motor and rotor assembly constructed and arranged for alignment when said pellet discharge tube of said housing member is aligned with said pellet discharge tube of said motor and rotor assembly.

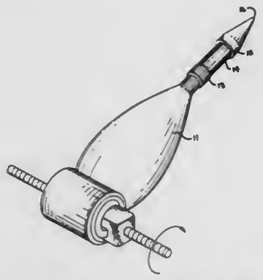
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,095

WATER CANNON APPARATUS

Michael J. Camerino, 11242 Trailside Ct., San Diego, Calif. 92127

Filed Mar. 15, 1990, Ser. No. 493,689
Int. Cl.[5] B65D *37/00*
U.S. Cl. 222—99 1 Claim



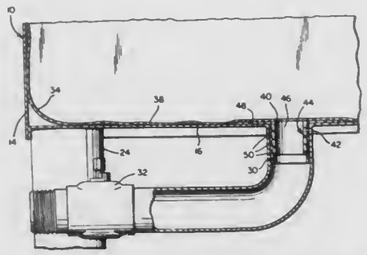
1. A water cannon apparatus, comprising in combination,
an elastomeric magazine body defined by a generally cylindrical configuration, the body including a body rearward end and a body forward end, the body rearward end including a closure member, and
the body forward end including a flexible coupling, and
a rigid, elongate cylindrical housing coaxially aligned relative to the elastomeric body, the cylindrical housing including a housing rearward end secured to the coupling and the body forward end, and
the housing forward end including a valve member secured thereon, the valve member rotatably mounted to the body forward end, and
the valve including a nozzle, the rotative mounting of the valve effects selective fluid flow through the nozzle, and
wherein the cylindrical housing includes a slotted conical projection, the slotted conical projection mounted to the housing forward end and in operative association with the nozzle to vary fluid flow through the nozzle upon rotation of the valve relative to the housing forward end, and
wherein the housing forward end includes an externally threaded portion, and the valve includes an internally threaded portion cooperative with the externally threaded portion, and
wherein the closure member includes a knot, and
further including a flexible securement sleeve, the flexible securement sleeve defined by a predetermined internal diameter substantially equal to an external predetermined diameter defined by the valve for effecting fluid-tight securement of the valve interiorly of the securement sleeve, and the securement sleeve including an internally threaded coupling member to secure the coupling member to a source of pressurized fluid, and
further including a slotted elongate block, the slotted elongate block including a longitudinally aligned through-extending enclosed slot formed medially and completely through the block, the slot receiving the body adjacent the knot, and the body mounted for rotative winding of the flexible body externally thereof, and
wherein the elongate block is defined by a longitudinal length greater than the predetermined diameter, and a body diameter defined by the elastomeric body, and
wherein the elongate block includes a first and second handle, each first and second handle orthogonally and integrally mounted to an opposed end portion of the elongate block, and wherein the first and second handle are longitudinally aligned relative to one another to enhance manual rotation of the elongate block about the body.

5,064,096

TANK LINER-TO-OUTLET NECK SEAL

Peter A. Illing; Phillip L. Lanier, and Reginald W. Ensminger, all of West Monroe, La., assignors to Shield Pack, Inc., West Monroe, La.

Filed Aug. 1, 1990, Ser. No. 560,991
Int. Cl.[5] B65D *35/56*
U.S. Cl. 222—105 5 Claims



1. In combination, a tank including side walls having lower margins interconnected by a bottom wall extending and secured between said lower margins, said bottom wall including a rigid, tubular downwardly projecting outlet neck, said outlet neck including a flow control means downstream from said bottom wall, a flexible plastic liner disposed in and at least generally conforming to the interior shape of said tank and including peripheral sides and an integral bottom extending between and connecting said sides, said bottom having an outlet opening therethrough registered with said outlet neck, and outlet fitting including a tubular nipple having a radially outwardly projecting flange on one end, said fitting being constructed of at least semi-rigid plastic material and having its flange disposed in lapped relation with and sealingly secured to portions of said bottom extending about said outlet opening with the other end of said nipple projecting downwardly from said bottom and into said outlet neck, and a rubber-like material sleeve tightly telescoped over said nipple and tightly wedgingly telescoped into said outlet neck with said sleeve radially compressed between the outer surfaces of said nipple and the inner surfaces of said outlet neck to form a fluid tight seal between said nipple and outlet neck, said nipple and sleeve being slightly downwardly tapered, said flange underlying said portions of said bottom extending about said opening.

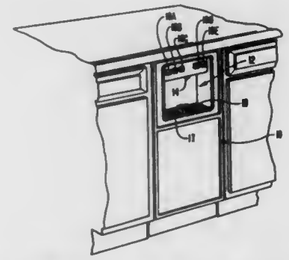
5,064,097

COMPACT WATER PURIFICATION AND BEVERAGE DISPENSING APPARATUS

Larry Brog, Mission Viejo, Calif., and William H. Lichfield, Corinne, Utah, assignors to Water Center International Ltd., San Diego, Calif.

Filed Oct. 10, 1990, Ser. No. 595,260
Int. Cl.[5] B67D *3/00*
U.S. Cl. 222—129 38 Claims

1. A compact apparatus for dispensing beverages comprising:
first means for dispensing hot water at a beverage dispensing station;
second means for dispensing chilled water at the beverage dispensing station; and
third means for dispensing carbonated water at the beverage dispensing station such that a user can immediately fill a container with hot, chilled, or carbonated water from the compact apparatus without moving the container from the beverage dispensing station.

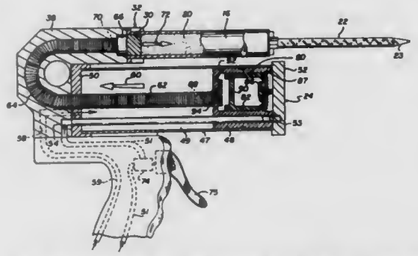


5,064,098

DUAL COMPONENT DISPENSER GUN

Charles G. Hutter, III, Carson City, and Raymond R. Hill, Stagecoach, both of Nev., assignors to Physical Systems, Inc., Carson City, Nev.

Filed Feb. 23, 1990, Ser. No. 484,157
Int. Cl.[5] B67D *5/52*
U.S. Cl. 222—137 20 Claims



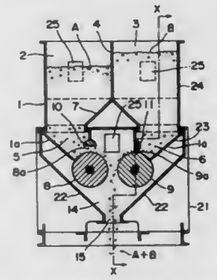
1. A dispenser gun for dispensing a flowable component composition from a cartridge having at least one barrel charged with a flowable component and a nozzle for passage of the flowable component from the barrel for dispensing, said dispensing gun comprising:
a power piston unit including a main pressure cylinder and a power piston reciprocal within said cylinder along a first direction;
head means defining a fixture adapted to receive and support the cartridge with the cartridge barrel oriented to extend generally along a second direction;
means for displacing said power piston within said main pressure cylinder;
a piston plunger adapted for reception into the cartridge barrel to dispense the flowable component through the nozzle; and
a flexible coiled spring piston rod coupled at one end to said power piston and at an opposite end to said piston plunger, said piston rod extending from said power piston through a curved guide passage formed in said head means to said piston plunger, such that advancing displacement of said power piston within said cylinder correspondingly advances said piston plunger within said cartridge barrel to dispense the flowable component through the nozzle, and retraction displacement of said power piston within said cylinder correspondingly retracts said piston plunger from said cartridge barrel.

5,064,099

FEEDING DEVICE FOR PARTICULATE MATERIALS

Motonari Iwako, Tokyo, Japan, assignor to Kabushiki Kaisha Funken Powtechs, Tokyo, Japan

Filed Feb. 12, 1990, Ser. No. 478,500
Claims priority, application Japan, Oct. 2, 1989, 1-29685
Int. Cl.[5] B67D *5/60*
U.S. Cl. 222—142 15 Claims



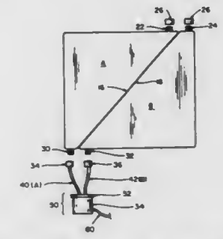
1. A device for continuous feeding of particulate material, comprising:
a hopper having an inclined bottom surface;
first partition means for dividing an interior of said hopper into a plurality of receptacle sections adapted to receive discrete quantities of the particulate material, respectively, each of said receptacle sections having an outlet at a bottom end thereof;
a plurality of feed rollers mounted in parallel with said partition means and with one another adjacent said outlets of said receptacle sections, respectively;
drive means for simultaneously rotating each of said plurality of feed rollers at a single predetermined speed;
a plurality of control gates mounted parallel and adjacent to said plurality of feed rollers, respectively, each of said plurality of control gates having a semi-circular cross section and being adapted to rotate about an axis, a plurality of feed channels being defined between said plurality of feed rollers and said plurality of control gates, respectively; and
control means for independently rotating each of said plurality of control gates to independently adjust a degree of opening of each of said plurality of feed channels, respectively.

5,064,100

DEVICE FOR CREATING FLUID GRADIENTS

Andrew Mural, 1038-J Provence Dr., St. Louis, Mo. 63125

Filed Mar. 22, 1990, Ser. No. 497,433
Int. Cl.[5] B67D *5/60*
U.S. Cl. 222—143 18 Claims



14. A device comprising at least two separable containers, each having:
a. a bottom portion adjoined to a side wall in a manner

VOL 1132 ISS 2 NO 12 1991 UMI

capable of holding liquid, wherein a portion of the side wall is non-vertical;

b. means for draining the container to which it is attached; and,

c. means for venting the container to avoid the creation of a vacuum as the container is drained;

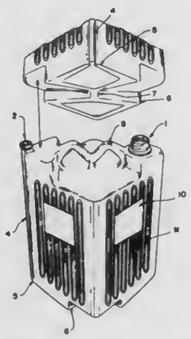
wherein the non-vertical portions of the side walls of the containers provide the containers with complementary shapes such that when liquids having different compositions are simultaneously drained from the containers into a receiving device which maintains hydrostatic equilibrium between the containers, the liquids will form a mixture in the receiving device having a desired gradient which depends upon the complementary shapes of the containers.

5,064,101

FIVE GALLON NESTABLE PLASTIC SYRUP CONTAINER

Simon J. Richter, Marietta, Ga., and Frank G. Hohmann, Denville, N.J., assignors to The Coca-Cola Company, Atlanta, Ga.

Filed Oct. 31, 1989, Ser. No. 429,553
Int. Cl.[5] B67D *5/60*
U.S. Cl. 222—143 **10 Claims**



6. A system for supplying liquid concentrate to a post-mix beverage dispenser comprising:

a) a disposable container for storing and dispensing the liquid concentrate including,

a top end defining a first opening through which said container may be filled and a second opening through which concentrate may be withdrawn,

vent means associated with said first opening for controlling the flow of air into the container as concentrate is withdrawn from said second opening,

a base end for supporting said container in an upright position,

sidewalls connecting said base end to said top end,

a conduit extending along said sidewalls outboard of said container from the top end to the bottom end, said conduit defining said second opening at said top end of said container, said conduit being in liquid communication with the inside of said container at the bottom end thereof, and

valve actuator means within said second opening;

b) a coupling having a valve therein, said coupling being connectable to said second opening and said valve being openable by the valve actuator means in response to the connection of said coupling to said second opening;

c) a conduit connected to said coupling at one end and to an input of a pump at the other end; and

d) dispenser valve means connected to an output of said pump;

d) dispenser valve means connected to an output of said pump;

wherein said top end has a first characteristic shape and said bottom end has a second characteristic shape such that a bottom end of one container is nestable within the top end of another container for vertical stacking and storage of a plurality of containers, said second characteristic shape including opposing base sections spaced apart by opposing recessed areas, and a flow-through channel connecting the opposing base sections to enable complete drainage of concentrate from the container via said conduit when said container is in an upright orientation.

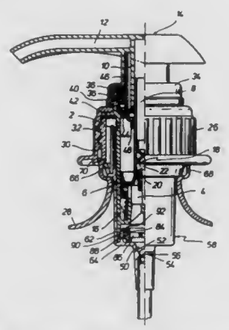
10. The system of claim 6 wherein said first opening is formed in an upstanding cylindrical neck portion of said top end, said neck portion having an external finish engageable by a protective cap.

5,064,102

NON-REUSABLE DISPENSING PUMP CONTAINER WITH REUSABLE DISPENSING PUMP

Pere P. Montaner, Esplugues De Llobregat, Spain, assignor to Monturas S.A., Barcelona, Spain

Filed Mar. 13, 1990, Ser. No. 492,772
Claims priority, application Spain, Mar. 29, 1989, 8901093
Int. Cl.[5] B67D *5/40*
U.S. Cl. 222—147 **10 Claims**



1. A dispensing pump for a fluid contained in a container, comprising:

a) a first group of members including—

a cylinder defining a pumping chamber,

a piston adapted to slide within said cylinder,

means for actuating said piston,

a resilient member engaging said piston,

first communication means between the pumping chamber and the external environment,

a first valve for regulating said first communication means, and

a member for coupling with the container, and

b) a second group of members including—

second communication means between the pumping chamber and the container,

a cup-shaped member having an open end, a side portion and a bottom portion in which there is formed a passage forming part of said second communication means, and

a second valve for regulating said second communication means,

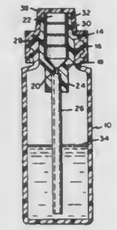
wherein said cylinder has a first open end insertable into said open end of said cup-shaped member and received by said side portion thereof, said first group and said second group respectively form first and second units, the members of each of which are practically inseparably assembled together, said second unit and container including retaining means for practically inseparably attaching the second unit to the container, said first and second units being separably connected together by said coupling member and downstream of said second valve there is a device restraining access to said second valve, said restraining device being associated with said bottom portion of said cup-shaped member.

5,064,103

FOAM DISPENSER HAVING A PLURALITY OF SIEVES

Robert A. Bennett, Easton, Conn., assignor to RJS Industries, Inc., Marlboro, N.J.

Filed May 23, 1990, Ser. No. 527,431
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—190 **5 Claims**



1. A foam dispenser comprising:

an elongated squeezable relatively small vertical container containing liquid, the container having a top disposed open neck and being otherwise sealed;

a vertical hollow dip tube open at both ends and disposed in the container, the lower end of the tube extending into said liquid;

an elongated vertical member having hollow upper and lower sections which communicate with each other, the upper section having a cylindrical shape with an upper end having a relatively large opening constituting a discharge orifice, the lower section having the shape of an inverted truncated cone with a lower horizontal surface in place of an apex, the horizontal surface having a relatively small opening, the lower section having means below the relatively small opening for receiving the upper and of said dip tube, the upper end of the tube communicating with the relatively small opening, the member being sealed in the neck with the large opening disposed above the neck; and

at least two vertically spaced horizontal sieves being sealed one below the other in the orifice, the upper one of the sieves being a fine sieve, the lower one of the sieves being a coarser sieve, the number of sieves increasing with increasing density of the liquid.

5,064,104

APPARATUS FOR VENDING A PRODUCT

Edward L. Milton; Russell G. Landon, both of Idaho Falls, and Byard A. Cox, Ucon, all of Id., assignors to MilancoLimited, Inc., Idaho Falls, Id.

Continuation of Ser. No. 264,206, Oct. 28, 1988, abandoned.
This application Aug. 9, 1990, Ser. No. 565,279
Int. Cl.[5] G01F *11/24*; G07F *13/02*
U.S. Cl. 222—306 **1 Claim**

1. A coin-operated vending machine for dispensing a predetermined amount of product, comprising:

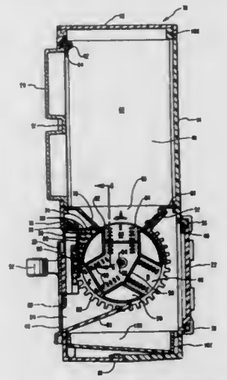
a reservoir for holding a product, the reservoir having an opening through which product may exit the reservoir;

a dispensing chute;

a wheel having a perimeter and at least one cup, the cup having an opening, the wheel being axially mounted to rotate axially in a vertical plane such that as the wheel rotates the cup may move through a first position wherein the cup is in open connection with the reservoir and a second position wherein the cup is in open connection with dispensing chute;

a coin mechanism which, when actuated, rotates the wheel; and

a plurality of projections configured in the form of bristles, each projection having a free end, the projections configured such that the free end of each projection extends to the perimeter of the wheel such that as the wheel is rotated from the first position to the second position and



wherein each bristle is flexibly mounted such that any product extending above the opening of the cup may pass through the projections as the wheel is rotated from the first position to the second position, the portion of the opening of the cup which is not in open connection with the reservoir is blocked when a portion of the cup is in open connection with the reservoir; and

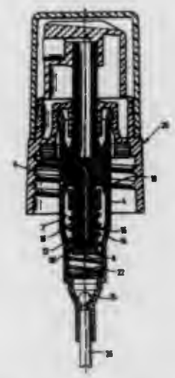
a scraper flexibly mounted adjacent the plurality of bristles.

5,064,105

DECOMPRESSION DEVICE FOR SUCTION PUMPS

Pere P. Montaner, Barcelona, Spain, assignor to Monturas, S.A., Barcelona, Spain

Filed Feb. 4, 1991, Ser. No. 650,176
Claims priority, application Spain, Mar. 29, 1990, 9000891
Int. Cl.[5] B05B *11/02*
U.S. Cl. 222—321 **4 Claims**



1. A decompression device for suction pumps which comprises a pumping chamber with a cylinder defining an axis and a plunger provided with a resilient lower lip, the plunger being slidingly engaged in said cylinder between an upper, rest position and a lower end-of-stroke position, in which said lower lip

VOL 1132 ISS 2 NO 12 1991 UMI

reaches a lower limit level in said cylinder, the device comprising at least one protuberance on the surface of said pumping chamber extending on both sides of said lower limit level, said protuberance having a lower edge and an upper edge, the upper edge gently fairing to the pumping chamber surface, the protuberance being formed with at least one continuous slot extending between said edges.

5,064,106

METERED DISPENSING PACKAGE

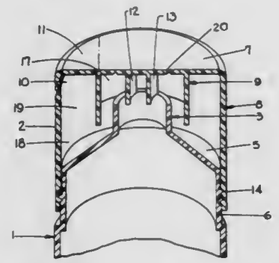
Michael E. Butler, New Malden, United Kingdom; David V. Cann, Stonehill, and Lee Burrowes, Horsell, both of England, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jul. 20, 1990, Ser. No. 556,609

Claims priority, application United Kingdom, Jul. 26, 1989, 8917070

Int. Cl.[5] G01F *11/26*

U.S. Cl. 222—456 11 Claims



1. A package for dispensing premeasured quantities of a granular or powdered fluent material, the package comprising:

a) an elongate container having sloping shoulders and an open, upstanding neck, the container being surmounted by

b) an overcap having a topwall, a dispensing orifice, an outer skirt, and an inner skirt separate form a partially a contiguous with the outer skirt and which surrounds the container neck in overlapping, laterally-spaced relationship thereto, and

c) a normal plane of tilt which includes the longitudinal axis of the container and the midpoint of the dispensing orifice,

wherein a preliminary measuring section is defined above the container neck bounded by the topwall and the inner skirt, a main measuring section is formed bounded by the sloping shoulders and the outer skirt, and an outlet passage is located between the inner and outer skirts, communicating with the dispensing orifice, and wherein the lateral separation of the inner skirt and container neck is such as to constrict flow of material from the preliminary measuring section to the main measuring section during inversion of the package and to permit such flow on restoring the package to its normal upright position, said package including means for deflecting the flow of material from the preliminary measuring section in a direction sideways to the normal plane of tilt of the package as the package is restored after inversion to its normal upright position wherein the deflecting means comprises one or more baffles which project downwardly towards the container neck.

5,064,107

TENNIS BALL HOLDER

Douglas D. Ascarrunz, Templeton, Calif., assignor to EWT Corporation, Irvine, Calif.

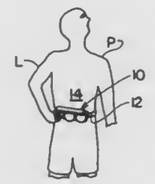
Filed Oct. 23, 1987, Ser. No. 113,466

Int. Cl.[5] A63B *71/00*

U.S. Cl. 224—247 2 Claims

1. Apparatus that can be carried by a tennis player to receive and dispense elastic tennis balls of a predetermined size, comprising:

a rigid substantially cylindrical tube having an axis and having open ends and a slot extending along the length of



said tube, said tube having an inside diameter slightly less than said ball predetermined size, to resiliently compress said tennis balls while they lie in the tube, and said open ends being devoid of obstructions to the passage of balls therethrough.

5,064,108

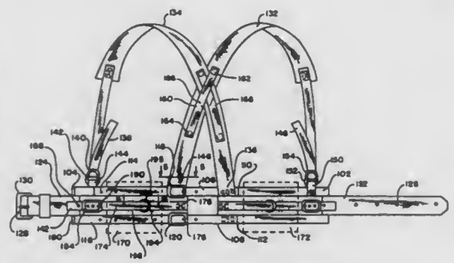
LOAD-BEARING BELT

Robert W. Headley, 11020 Walpole Rd., Crooksville, Ohio 43731

Continuation-in-part of Ser. No. 292,016, Dec. 30, 1988, Pat. No. 4,916,594. This application Apr. 9, 1990, Ser. No. 506,627

Int. Cl.[5] A45F *5/00*

U.S. Cl. 224—253 11 Claims



1. A weight-distributing harness comprising:

a. a load;

b. a belt for securing said load and distributing said load on a user comprising:

1) a first belt section and a second belt section,

2) a means for securing said sections around said user,

3) a means for varying the space between said first and said second sections at the back of said user comprising one or more straps attached to said first belt section and means for adjustably fastening said strap or straps to said second belt section;

4) a means for securing said load to said belt; and

5) two suspension shoulder straps with a first shoulder strap attached to the front of said first belt section and to the rear of said second belt section and a second shoulder strap attached to the front of said second belt section and to the rear of said first belt section.

5,064,109

HAND-HELD VIDEO CAMERA SUPPORT

Paul T. Caster, 2821 E. Belleview, Milwaukee, Wis. 53211

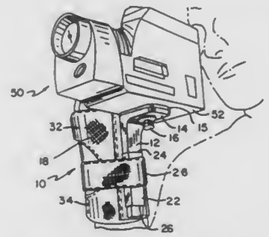
Filed Aug. 31, 1990, Ser. No. 576,007

Int. Cl.[5] A45F *5/00, 3/14*

U.S. Cl. 224—267 9 Claims

1. A support for a lightweight, portable hand-held video camera of the type having a tripod mount in its base, the support comprising:

a. a band for encircling the arm and wrist of the user, the band including a pair of elongate tabs secured to and extending outwardly from a first side edge of the band, an elongate strap secured to and extending outwardly from a second side edge of the band opposite the first side edge, and securing means mounted on the band for receiving and securing the tabs and the strap when said tabs and strap are wrapped about the arm and wrist of the user;



b. means disposed between the band and the arm and wrist of the user for providing a snug tight fit between the band and the arm and wrist of the user to minimize relative movement therebetween; and

c. a support brace secured to the band and adapted to be connected to the camera for supporting the camera.

5,064,110

FIXTURE FOR FASTENING A STRIPPING, A BLANK SEPARATING OR A SIMILAR TOOL

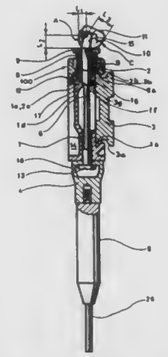
Marcel Yerly, Jouxtens, Switzerland, assignor to Bobst SA, Switzerland

Filed Oct. 3, 1990, Ser. No. 592,367

Claims priority, application Switzerland, Oct. 3, 1989, 03605/89

Int. Cl.[5] B26D *7/18*

U.S. Cl. 225—97 11 Claims



1. In a device for fastening a tool on an adjustable crossbar of a waste stripping and blank separating station within a sheet processing machine, said fastening device comprising a rod-shaped tie bar provided with a headed first end, said tie bar carrying successively a freely shiftable support engageable with the headed end of the tie bar, first and second guides being provided at least with a first supporting surface extending at a slanting angle with regard to the axis of the tie bar and designed to act jointly with two corresponding guide surfaces of a crossbar of the station, tightening means fitted on a second end of the tie bar designed to push the guides toward the headed end of the tie bar in order to bring about a variation of the contact pressure thereby enabling the execution of a fitting and dismantling of the tool, a shifting of the fastening device and the tool relative to the crossbar and a locking of the tool in a desired position, the improvements comprising the second guide having a shape of a jaw and being provided with a second slanting support surface, said second slanting support surface being positioned opposite the first supporting surface of the second guide with regard to the axis of the tie bar and designed to enter into contact with a second slanted supporting surface of the first guide in such a way as when tightening takes place, a third supporting surface of the first guide will be shifted in a direction extending essentially perpendicular to the axis of the tie bar and will be held in contact with a guiding surface of the crossbar, both guides being provided with means for interlocking the rotary shifting of the first guide relative to the second guide on the tie bar, said tightening means having three cam surfaces, each being determined with regard to one of the above-mentioned operations, and resilient means for absorbing the tightening strength and controlling the tightening strength being arranged between an action point of the tightening means and the second guide.

5,064,111

PERMANENT WIRE SPLICING BY AN EXPLOSIVE JOINING PROCESS

Laurence J. Bement, Newport News, and Anne C. Kushnick, Williamsburg, both of Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Oct. 2, 1990, Ser. No. 591,645

Int. Cl.[5] B23K *20/08*

U.S. Cl. 228—107 18 Claims

1. An apparatus for miniaturized explosive joining of two or more prepositioned metallic wires having at least one strand each, comprising:

(a) a prebent U-shaped strap of a plate of metal bonding to the wires;

(b) a standoff means separating the wires from the strap;

(c) a ribbon explosive positioned over each side of the strap;

(d) an adhesive means holding the ribbon explosive in position over the strap; and

(e) a detonating means initiating the ribbon explosives.

5,064,112

JOINTING TI-A1 ALLOY MEMBER AND STRUCTURAL STEEL MEMBER

Susumu Isobe; Toshiharu Noda, both of Nagoya, and Hiroshi Hirayama, Hadano, all of Japan, assignors to Fuji Valve Co., Tokyo and Daido Tokushuko Kabushiki Kaisha, Nagoya, both of, Japan

Filed Nov. 8, 1989, Ser. No. 433,253

Claims priority, application Japan, Nov. 11, 1988, 63-285279

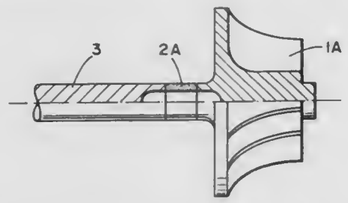
Int. Cl.[5] B23K *20/12*

U.S. Cl. 228—112 11 Claims

1. A method of jointing a member of Ti-Al which mainly consists of an intermetallic compound, Ti-Al, and a member of a structural steel, comprising jointing said two members with an intermediate member made of an austenitic stainless steel or

VOL
1132
ISS
2
NO
12
1991
UMI

a heat resistant steel, or a Ni-based or Co-based superalloy therebetween, the jointing of the intermediate member and the

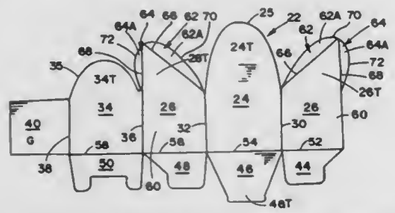


structural steel member being carried out at least by friction welding.

5,064,113
CARTON

David E. Hauber; Monica Jacobs; W. Richard Davis, all of Winston-Salem, N.C.; Tom Rushing, Denville, and Robert A. Fanara, Lawrenceville, both of N.J.; Gilbert L. Horton, Kernersville, N.C.; Richard M. Porter, Hartsville, S.C., assignors to Sara Lee Corporation, Winston-Salem, N.C.

Filed May 6, 1991, Ser. No. 696,109
Int. Cl.[5] B65D *5/02*
U.S. Cl. 229—8 14 Claims



1. A carton for packaging apparel comprising a rear panel, a pair of substantially symmetrical side panels connected to said rear panel, each of said side panels including a first vertically extending portion and a second portion curved inwardly, a frontal panel having a first vertically extending portion and a second upper portion extending rearwardly towards the top of said rear panel for closing the top of the carton, each of said side panel second portions including a pair of tabs for securing said side panels to said rear panel and said side panels to said frontal panel, and flap means for closing the bottom of said carton.

5,064,114
MAILER

Harold Cravens, 6521 Winston Dr., Woodridge, Ill. 60517

Filed Jul. 23, 1990, Ser. No. 556,666
Int. Cl.[5] B65D *5/02*
U.S. Cl. 229—40 10 Claims

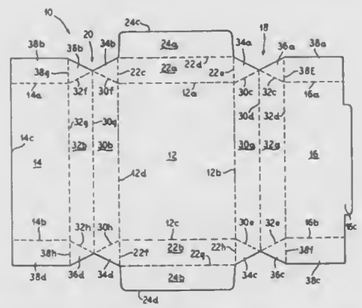
1. A mailing container comprising a unitary sheet-form member scored and cut to form

a main body panel having an end panel at each end thereof and foldable to provide end walls for the container,

an outwardly gussetted side panel connected to said main body panel at each side thereof, each said side panel having two components with a score line therebetween and together with one another having a dimension greater than that of said end panels,

whereby said side panel will fold into a triangularly configured buffer projecting outwardly of said main body panel,

a secondary panel connected to each said side panel and foldable inwardly to overlie said main body panel, and

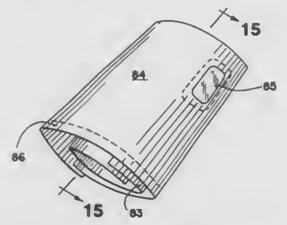


a flap extending from each said end panel for being folded back in a reverse direction to overlie said secondary panels thereby to lock the panels in an assembled position.

5,064,115
MAILER AND METHOD AND APPARATUS FOR MAKING

Donald J. Steidinger, Barrington, Ill., assignor to Wallace Computer Services, Inc., Hillside, Ill.

Filed Aug. 6, 1990, Ser. No. 563,404
Int. Cl.[5] B65D *27/04, 27/06*
U.S. Cl. 229—304 10 Claims



1. A mailer assembly comprising a rectangular outer ply having longitudinally extending free, generally straight sides and free, generally straight transverse ends, said outer ply having two transverse folds intermediate said ends to provide a pair of fold pockets, and an insert ply having longitudinal extending sides and straight transverse ends and positioned in said fold pockets and extending therebetween, said insert ply being relatively elongated and being equipped with computer generated information and also being equipped with a pair of transverse folds intermediate said insert ply ends, said insert ply folds being positioned within the fold pockets of said outer ply and conforming generally thereto, said outer ply two transverse folds defining an intermediate panel therebetween, said panel being equipped with window means, said insert ply being equipped with addressee information aligned with said window means,

said insert ply two transverse folds defining end panels, said end panels being in contacting relation, one of said insert ply end panels being in contact relation with said outer ply intermediate panel,

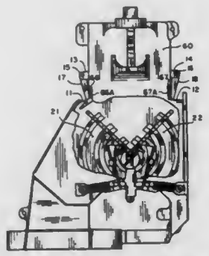
said outer ply intermediate panel being flanked by a pair of end panels, one of said outer ply end panels being in contacting relation with said insert ply the other of said outer ply end panels constituting a closure flap and being in contacting relation with said one outer ply end panel,

said outer ply having inner and outer faces with the inner face being equipped with adhesive along the outer ply longitudinally extending sides.

5,064,116
COIN HOPPER RELAY

Gerald B. McGough, Huntsville; Timothy M. Stanford, Arab, and Charles J. Bass, New Hope, all of Ala., assignors to Quadrum Telecommunications, Inc., Arab, Ala.

Filed May 17, 1990, Ser. No. 524,570
Int. Cl.[5] B65G *11/04*
U.S. Cl. 232—57.5 9 Claims



1. A coin escrow mechanism for use in a coin telephone, adapted for temporarily storing, and then refunding, or in the alternative collecting coins deposited in said coin telephone, said coin escrow mechanism comprising a relay, a hopper including a chute and collect and refund channels for the temporary storage of coins, said chute including at least one corner joining at least one of said channels, the improvement comprising:

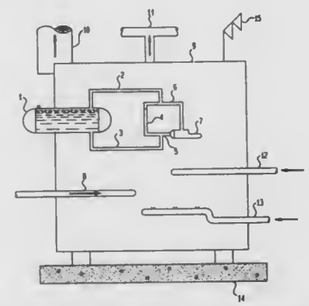
a movable plate located at said corner operated in response to an excessive amount of coinage being deposited in said chute and transmitted into said one of said channels whereby said movable plate is moved from a first position to a second position facilitating the further deposit of additional coinage in said one channel;

and said hopper further including a notch through which a trigger switch actuator extends from said chute to an adjacent external location in proximity to a trigger switch located on said relay.

5,064,117
DOMESTIC BOILER FEED WATER GRAVITY SUPPLY

Robert A. Wilson, 10 Hillside Pl., Cranford, N.J. 07016

Filed Mar. 1, 1989, Ser. No. 317,687
Int. Cl.[5] F24D *1/00*
U.S. Cl. 237—67 1 Claim

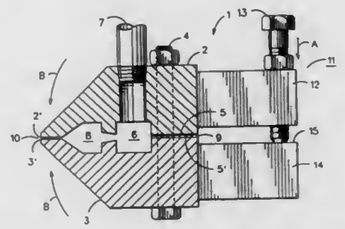


1. A water level maintenance system for a steam generating boiler in a home heating steam heating system said water level maintenance system comprising a steam generating boiler with a water level measuring device that supplies steam to radiators for home heating said radiators having a return conduit leading directly back to said stem generating boiler, an external water tank having a water level and said external tank being external of said steam generating boiler, said external tank is positioned in a vertical location such that the water level in the external tank and the water level in the steam generation boiler are at the same level when the heating system is operating in a steady state condition, said external tank having an unrestricted pipe extending from its top to the top of the said steam generating boiler water level measuring device and said external tank having an unrestricted pipe from its bottom to the bottom of the steam generating boiler water level measuring device, said external tank having a water capacity that causes the flow of water by gravity from the external tank by way of the external tank bottom conduit to the steam generation boiler when the steam generating boiler water level drops below the level of the water level of the external tank, said external tank also receives a flow of water from the steam generating system by way of pipe connected to the bottom of the steam generating boiler.

5,064,118
METHOD AND APPARATUS FOR CONTROLLING THE THICKNESS OF A HOT-DIP COATING

Charles Lauricella, Blasdell, N.Y., assignor to Bethlehem Steel Corporation, Bethlehem, Pa.

Filed Dec. 26, 1990, Ser. No. 634,249
Int. Cl.[5] B05B *1/32*
U.S. Cl. 239—1 13 Claims



6. A method for assembling and adjusting the gas discharge opening of a jet wipe nozzle comprising the steps of:

a) inserting a flat shim between a first nozzle half and a second nozzle half and attaching said first and said second nozzle halves and said flat shim together with a plurality of fasteners inserted through holes provided,

b) torquing equally each said fastener and adjusting to parallel a first adjustable edge and a second adjustable edge of a gas discharge opening,

c) tightening a center jack screw of a plurality of jack screws of a jack block extending from said first nozzle half to bear against a jack seat extending from said second nozzle half and moving said first adjustable edge and said second adjustable edge toward each other,

d) tightening a pair of side jack screws to bear against corresponding jack seats,

e) checking gap measurement along the width of said gap profile, and

f) repeating steps (c), (d) and (e) until a desired gap profile is achieved.

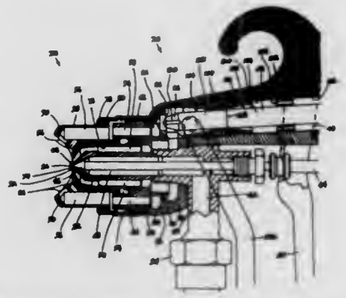
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,119

HIGH-VOLUME LOW PRESSURE AIR SPRAY GUN

Robert R. Mellette, Jamestown, Colo., assignor to Binks Manufacturing Company, Franklin Park, Ill.

Continuation of Ser. No. 529,498, May 22, 1990, abandoned, which is a continuation of Ser. No. 306,517, Feb. 3, 1989, abandoned. This application Mar. 12, 1991, Ser. No. 668,732
Int. Cl.[5] B05B *1/02, 1/30*
U.S. Cl. 239—8 64 Claims



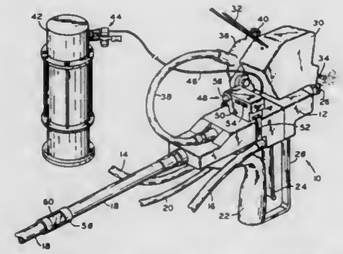
1. A method of spraying liquid coating material, comprising the steps of providing liquid coating material to a fluid orifice in a spray head; supplying air to an air supply passage for the spray head; delivering air from the air supply passage to an atomizing air orifice in the spray head to atomize the coating material into a spray; selectively delivering air from the air supply passage to side port air orifices in the spray head for impingement against and to shape the spray; adjusting the volume flow rate of air delivered to the side port orifices to vary the shape of the spray; and, in response to and concurrently with performance of said adjusting step, correspondingly adjustably controlling the volume flow rate of air through the air supply passage in accordance with the volume flow rate of air delivered to the side port orifices for maintaining substantially constant the volume flow rate and pressure of air delivered to the atomizing air orifice.

5,064,120

FIBERGLASS SPRAY-UP APPARATUS HAVING DISPLAY OF CUMULATIVE AMOUNT OF MATERIAL DISPENSED

Noel E. Luttrell, Jr., R. R. #2, Box 200-4, Freemont, Ind. 46737

Filed Nov. 29, 1989, Ser. No. 442,596
Int. Cl.[5] G01F *1/02*
U.S. Cl. 239—74 27 Claims



1. A spray-up apparatus operable by a human operator to spray liquid onto an open mold located proximate the operator, the apparatus comprising:

a manually controlled spray gun for spraying hardenable liquid resin into a mold, said gun including a spray nozzle;

pump means communicating with the spray nozzle for pumping the liquid resin to the spray nozzle;

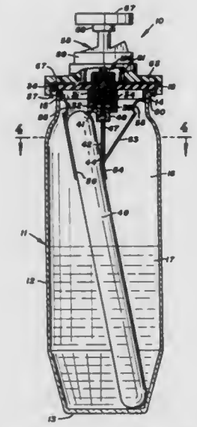
display means, responsive to pumping of said pump means, for displaying a visually perceptible indicia indicative of a cumulative amount of liquid resin pumped to the spray nozzle by said pump means, the indicia of said display means being mounted to said spray gun and sized so as to be continuously visible and intelligible to the operator during operation of said spray gun.

5,064,121

DISPENSER

Lee R. Bolduc, 6416 Gainsborough Dr., Raleigh, N.C. 27612

Continuation-in-part of Ser. No. 419,508, Oct. 10, 1989, Pat. No. 5,012,978, and Ser. No. 251,806, Oct. 3, 1988, Pat. No. 4,941,615. This application Jul. 16, 1990, Ser. No. 552,789
Int. Cl.[5] B67B *7/24*
U.S. Cl. 239—309 49 Claims



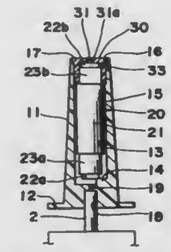
1. A dispenser comprising: a container having a bottom wall, an open top, and a chamber for storing a propellant and first material under pressure, a cap mounted on the container closing said open top, a housing extended into the chamber through said open top, said housing having a passage, control valve means mounted on the cap and housing operable to control the flow of propellant and materials from said passage, said control valve means being normally closed and having a moveable member extended into the passage which can be moved to open said valve means whereby propellant and materials are dispensed from the container, a porous filter mounted on the housing to prevent foreign particles from flowing into the passage whereby when said valve means is open the propellant and materials in said chamber flow through the filter into the passage, frangible ampule means located within said chamber storing a second material separate from the first material until the ampule means is broken, holder means mounted on the container and extended into said chamber having a side wall and a sleeve with a passage accommodating a portion of the ampule means, push rod means connected to the moveable member extended through hole means in the housing and filer adjacent said passage of the sleeve, said side walls of the holder means adapted to engage and guide the push rod means into engagement with the ampule means when the moveable member is first moved to open the valve means thereby breaking the ampule means whereby the second material is mixed with the first material in said chamber.

5,064,122

DISPOSABLE NOZZLE ADAPTER FOR INTRANASAL SPRAY CONTAINERS

Takuzo Kamishita, Takatsuki, and Toshiaki Takagi, Toyama, both of Japan, assignors to Toko Yakuhin Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Aug. 10, 1990, Ser. No. 565,234
Claims priority, application Japan, Aug. 11, 1989, 1-208628; Oct. 24, 1989, 1-276630
Int. Cl.[5] B05B *1/34*
U.S. Cl. 239—396 5 Claims



1. A disposable nozzle adapter for intranasal administration of a viscous medical solution in combination with a spray container, which comprises;

a cylindrical body having at its one end a cylindrical chamber including an opening and at the other end a central bore for attachment of said spray container, said bore being communicated with said chamber through a passage;

a rod provided on at least one of its ends with a small-sized portion and middle-sized portion and arranged in the chamber of said body to form at least one channel between its external surface and the inner surface of said chamber; and

a nozzle tip having a top wall and a cylindrical portion extending therefrom, said top wall being provided with a central spray opening including a tapered recess, and swirl grooves extending from said tapered recess to the inner surface of said cylindrical portion, said swirl grooves having a minimum cross-sectional area of said tapered recess and increasing outwardly, the cross-sectional area of each of said swirl grooves being 0.03 to 0.08 mm^2 at the minimum, said nozzle tip being fitted in the opening of said chamber and engaged with the middle-sized portion of said rod to form an annular channel surrounding said small-sized portion and being communicated with said grooves.

5,064,123

INSECTICIDE DISPENSING APPARATUS

Salvatore F. Aiello; Edward J. Lazzeroni, Sr., both of Caledonia; John F. Ouella, Racine; Cyril Ouella, Racine; William J. Maurino, Kenosha; Donald F. Karasek, Racine, and Jeffrey K. Brown, Wind Point, all of Wis., assignors to S. C. Johnson & Son, Inc., Racine, Wis.

Filed May 10, 1990, Ser. No. 521,507
Int. Cl.[5] B05B *5/025, 1/08, 7/08*
U.S. Cl. 239—706 2 Claims

1. A self-contained insect control device comprising:

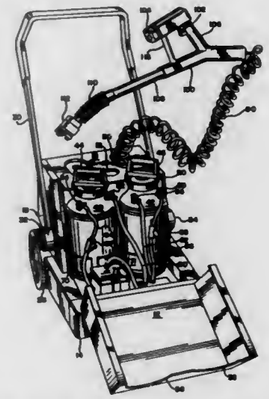
A) a mobile platform which includes:

i) a first supply means for a first pesticide;

ii) a second supply means for a second pesticide; and

iii) air pressure supply means;

B) a delivery wand for spraying pesticides in communication with the first supply means, the second supply means, and the pressure supply means; the wand including means to selectively dispense the first pesticide, the second pesticide or both the first and second pesticides; the wand further including means to pulse the flow of the first pesticide and to mix the first pesticide with air; and the



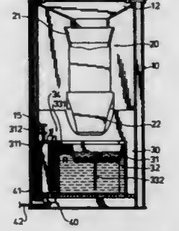
wand further including means to place an electrostatic charge on the first pesticide as it is sprayed from the wand.

5,064,124

MEDICAL WASTE DISPOSAL SYSTEM

Wu-Shan Chang, No. 131, O-Mei St., Taipei City, Taiwan

Filed Feb. 13, 1991, Ser. No. 654,816
Int. Cl.[5] B02C *19/12*
U.S. Cl. 241—33 6 Claims



1. A disposal system for the grinding, sorting, and sanitization of medical waste with sanitizing liquid, said system comprising:

a hollow housing, which has a top end, a bottom end, and a side wall interconnecting said two ends, having an entrance with a liquid inlet for said medical waste provided near said top end, and an exit provided at said side wall and near said bottom end;

a grinding means for grinding said medical waste disposed in said housing including a top inlet portion connected to said entrance of said housing, and a bottom outlet portion, the ground medical waste including lighter and heavier fragments after being ground;

a receiving means provided in said housing including a first container provided under said outlet portion of said grinding means, said first container pivotally connected to said housing so as to be rotated out of said exit of said housing, said first container having a top open end, a bottom liquid outlet, a strainer therein, and a sensor to determine the level of said liquid contained therein; a second container removably mounted in said first container having a top open end opening to said outlet portion of said grinding

VOL
1132
ISS
2
NO
12
1991
UMI

means for receiving said liquid, said lighter and heavier fragments of medical waste; means for guiding said liquid and said lighter fragments of medical waste from said second container into said first container including means for preventing said lighter fragments of medical waste in said first container from flowing back said second container; and means for communicating said liquid in said first and second containers to obtain equal levels of liquid in both said first container and said second container;

means for returning said liquid from said first container to said entrance of said housing;

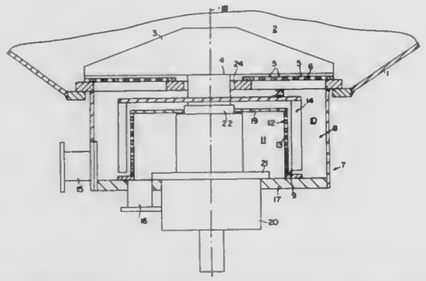
means for discharging said liquid out from said first container;

an electrical control means provided in said housing for activating said grinding means for a first predetermined period of time, delivering said liquid from said liquid inlet to said entrance of said housing when said medical waste poured into said entrance is ground by said grinding means, stopping the flow of said liquid from said liquid inlet to said entrance and activating said returning means when said sensor determines that the liquid level in said first container has reached a desired level, deactivating said returning means when said grinding means is deactivated after the first predetermined period of time, and actuating said discharging means when said medical waste is soaked in said liquid contained in said receiving means after a second predetermined period of time.

5,064,125
PULPER

Jouko Hautala, Tempere, Finland, assignor to Oy Tampella Ab, Tampere, Finland

Filed Jun. 5, 1990, Ser. No. 533,417
Claims priority, application Finland, Jun. 5, 1989, 892737
Int. Cl.[5] B02C *23/36*
U.S. Cl. 241—46.17 **14 Claims**



1. An apparatus for pulping and screening materials containing fiber pulp, said apparatus comprising: an upper part defining a pulping section for breaking down said materials and a lower part defining a screening section for prescreening said broken materials;

said pulping section including:

a feeding chamber delimited by a housing, a rotor unit positioned in said feeding chamber, a drive unit for rotation of said rotor unit and a first perforated screenplate in a bottom portion of said pulping section through which an accepted portion of said broken material is fed into said screening section;

said screening section including:

a space also delimited by a housing and positioned on the opposite side of said first perforated screenplate, a stationary partition wall for dividing said space into a first partial space and a second partial space;

at least a portion of said partition wall including a second perforated screenplate;

said first partial space being in communication with said feeding chamber for receiving said accepted portion of said material through said first screenplate;

said second partial space being in communication with said first partial space through said second screenplate for receiving material accepted by said second screenplate;

a first partial discharge outlet in communication with said first space for discharging the portion of material rejected by said second screenplate;

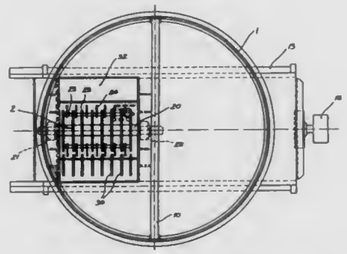
a second discharge outlet in communication with said second partial space for discharge of the portion of said material accepted by said second screenplate; and

a cleaning device provided in said first partial space and rotatable with respect to said second screenplate of said partition wall.

5,064,126
SHREDDER

Colin J. Hickey, Haselbrook, Australia, and Max R. Rajewski, Haywood, Calif., assignors to Formark Pty. Limited, Australia

PCT No. PCT/AU88/00135, § 371 Date Jan. 8, 1990, § 102(e) Date Jan. 8, 1990, PCT Pub. No. WO88/08750, PCT Pub. Date Nov. 17, 1988
PCT Filed May 6, 1988, Ser. No. 455,401
Claims priority, application Australia, May 6, 1987, PI 1756
Int. Cl.[5] B02C *13/04, 13/286*
U.S. Cl. 241—73 **12 Claims**



1. A shredder for shredding bulk waster paper cardboard, packaging material, microfilm, microfiche and other sheet material, comprising

a receiving hopper for receiving material to be shredded which is rotatably mounted for rotation about a vertical axis, and having a stationary floor;

a rotary hammer-mill disposed below the hopper floor and protruding through a hammer-mill inlet into the hopper for shredding material contained in the hopper, the hammer-mill comprising a plurality of flails loosely mounted to the circumference of a body rotatably mounted about a generally horizontal axis;

a set of fingers interdigitated with the flails and mounted on the stationary hopper floor adjacent the inlet, the fingers extending toward the hammer-mill only on the side of the hammer-mill where rotation of the hammer-mill tends to force material downwardly out of the hopper, the balance of the inlet being completely unobstructed; a perforated screen partially enclosing the hammer-mill below the hopper floor and through which the shredded material passes when it has reached a chosen level of comminution;

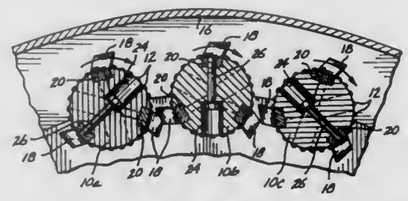
reciprocating pusher means disposed in a horizontally extending duct arranged to receive the shredded material from the screen and to compact the shredded material, before discharging it from the duct past a non-return flap hingedly mounted at an outlet from the duct, said pusher means operating along a horizontal axis; and

drive means arranged to drive the rotatable hopper, rotary hammer-mill and reciprocating pusher.

5,064,127
ROLL FOR COMMINUTER

John H. Hughes, Montesano, Wash., assignor to ComCorp, Inc., Montesano, Wash.

Continuation of Ser. No. 191,020, May 6, 1988, abandoned. This application Oct. 19, 1989, Ser. No. 425,508
Int. Cl.[5] B02C *4/30*
U.S. Cl. 241—253 **7 Claims**

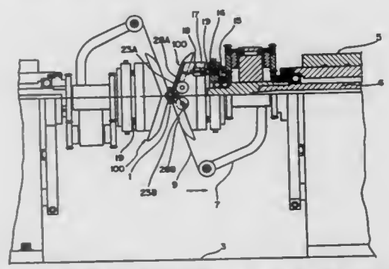


1. In a comminuter for solids having a series of upright abrasive rolls rotatably mounted therein defining a comminuting chamber, the improvement wherein at least one of said abrasive rolls has a plurality of exposed, radially directed product pick-up apertures formed in the surface of said at least one abrasive roll and extending into said at least one abrasive roll a distance less than the diameter of said at least one abrasive roll.

5,064,128
WIRE GUIDING APPARATUS IN COIL WINDING MACHINE

Hideaki Iwase, Toyohashi, Japan, assignor to Asmo Co., Ltd., Shizuoka, Japan

Filed Feb. 2, 1990, Ser. No. 474,335
Claims priority, application Japan, Feb. 3, 1989, 1-26086
Int. Cl.[5] H02K *15/04*
U.S. Cl. 242—7.05 B **19 Claims**



1. A wire guiding apparatus in a coil winding machine which is adapted to wind continuously by a flier a wire around an armature iron core with a slot provided therein, comprising

a pair of wire guide means for guiding the wire into the slot of the iron core by the flier,

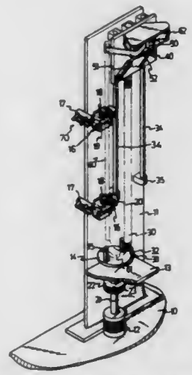
wire guide lever means for opening and closing the wire guide means in accordance with the outer diameter variation of the iron core to set the wire guide means at the position of the slot of the iron core, and

work receiver means adapted to be traced in contact with the outer peripheral face of the iron core so as to be open and close on engagement with the iron core.

5,064,129
APPARATUS FOR WINDING TWO-FACE ADHESIVE TAPE ON A CLUB SHAFT OF A GOLF CLUB

Kuo H. Hsu, 1 Fl., No. 1-2, Lane 30, Sec.2, Hsin Sheng S. Rd., Taipei, Taiwan

Filed May 31, 1990, Ser. No. 531,880
Int. Cl.[5] B32B *1/00*
U.S. Cl. 242—7.01 **4 Claims**



1. An apparatus for winding two-face adhesive tape to a club shaft of a golf club for installation of a grip of the golf club comprising:

a base;

a vertical wall mounted on said base, two vertical guiding bars fixedly mounted on a first side of said vertical wall at two ends thereof, a screw bar rotatably mounted on said vertical wall at an upper end thereof and parallel to and between said two vertical guiding bars, a first shaft below a lower end of said screw bar, the first shaft being rotatably mounted on said vertical wall and coaxial with said screw bar, a first pulley mounted on said first shaft, said lower end of said screw bar being provided with a first electromagnetic clutch said first electromagnetic clutch selectively coupling said screw bar to said first pulley;

a holding assembly provided on said vertical wall for holding the club shaft in a vertical orientation during the winding of the adhesive tape while the club shaft is rotatable about its longitudinal axis;

a vertical plate having two hollow sliding means and a hollow inner-threaded means mounted on a rear surface of the vertical plate facing said first side of said vertical wall, said two hollow sliding means having through bores through which vertical guide bars pass, and said hollow inner-threaded means having a threaded bore which threadedly engages said screw bars, such that said vertical plate is vertically movable upon a rotation of said screw bar and guided by said two vertical guiding bars to prevent said vertical plate from swiveling;

a supplying means for supplying said two-face adhesive tape mounted on an upper portion of a front side of said vertical plate adjacent an upper end of the club shaft, an arcuate slot on a lower portion of said front side of said vertical plate, a cylinder mounted on said front surface of said vertical plate, the cylinder receiving a piston which is attached to said supplying means, such that an end of said supplying means, which is spaced from the mounting of the supplying means, is movable along said arcuate slot by means of said cylinder:

a mounting plate mounted to a lower portion of said first side of said vertical wall and extending horizontally, a horizontal rotating disc above said mounting plate including means for supporting and rotating a lower end of the club shaft on an upper surface of said rotating disc, a main shaft

VOL 1132 ISS 2 NO 12 1991 UMI

mounted to an underside of said rotating disc at a first end of the main shaft and penetrating through said mounting plate;

a driving means with a vertical output shaft mounted on said base, a distal end of said output shaft being attached to a second electromagnetic clutch, a second pulley on said output shaft of said driving means and connected to said first pulley by means of a power transmission belt, said output shaft being selectively engageable with said second shaft by means of said second electromagnetic clutch; whereby

in a first stage, said output shaft engages with said second shaft by means of said second electromagnetic clutch and said driving means rotates to a pre-set extent for circularly winding said two-face adhesive tape on said upper end of the club shaft while said supplying means is at a horizontal position and said screw bar does not rotate;

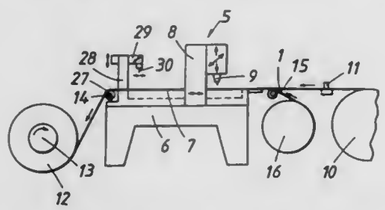
in a second stage, said screw bar engages with said first pulley by means of said first electromagnetic clutch while said output shaft engages with said second shaft such that said driving means rotates to a pre-set extent for helically winding said two-face adhesive tape on said club shaft from said first end while said supplying means is inclined at an desired angle by means of said cylinder.

5,064,130

CUTTING PLANT FOR CUTTING BLANKS OUT OF A STARTING STRIP

Gottfried Blaimschein, Steyr, Austria; Robert A. Postier, Corona, Calif., and D. J. Pilkington, Kettering, England, assignors to GFM Holding Aktiengesellschaft, Steyr, Austria

Filed Oct. 5, 1989, Ser. No. 417,265
Int. Cl.[5] B26D *7/06;* **B65H** *27/00*
U.S. Cl. 242—56 R **10 Claims**



1. A plant for cutting blanks out of a starting strip, comprising

a cutting deck comprising a flap arranged to be swung down and having a free end constituting a receiving edge and a delivery edge, and a top surface extending between said receiving and delivery edges, the top surface being subjected to a vacuum from below,

a cutting carriage mounted to be movable over said top surface and comprising a cutting tool operable to cut from above into a starting strip lying on said top surface to an adjustable depth to produce processed material from said starting strip,

a starting strip dispenser disposed adjacent to said receiving edge and comprising a magazine rotatably mounting at least two supply rolls of said starting strip to dispense respective starting strips from said supply rolls across said receiving edge onto said top surface, the magazine being selectively movable to move each of said supply rolls to a predetermined dispensing position,

said strip dispenser further comprising clamping means for clamping a leading end of said starting strip of each of said supply rolls, when it is in said dispensing position, so that said leading end protrudes from said clamping means generally toward said receiving edge of said top surface, and further comprising

a joining station adjacent to said receiving edge and operable to join said leading end and a trailing end of a preceding starting strip lying on said cutting deck,

a take-up device adjacent to said delivery edge and rotatably mounting a take-up roll consisting of at least part of said processed material,

braking means for braking said starting strip as it is dispensed from a respective one of said supply rolls to said top surface,

take-up roll drive means for rotating said take-up roll to wind up said processed material so as to cause said starting strip to be dispensed from said supply roll across said receiving edge onto said top surface and said processed material to be delivered from said top surface across said delivery edge to said take-up roll,

length-measuring means for measuring the length in which said processed material has been delivered from said top surface across said delivery edge toward said take-up roll, and

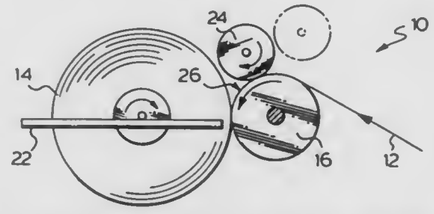
said take-up roll drive means being arranged to be arrested when said length-measuring means indicates that a predetermined length of said processed material has been delivered from said top surface across said delivery edge.

5,064,131

PAPER-MAKING MACHINE REELING OPERATION

Franciscus A. van Biesen, and Christopher J. English, both of St. Catharines, Canada, assignors to Quebec and Ontario Paper Company Ltd., Thorold, Canada

Filed Jul. 6, 1990, Ser. No. 549,123
Claims priority, application Canada, Jun. 5, 1990, 2018289
Int. Cl.[5] B65H *19/30*
U.S. Cl. 242—65 **8 Claims**



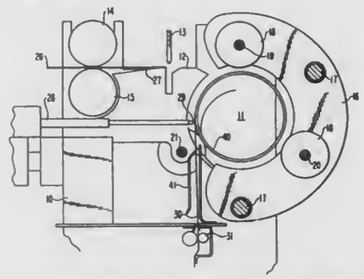
1. In a paper-making machine reeling section comprising:
driving drum means,
a winding reel, and
means for moving said reel (i) from a rest position adjacent to but not engaging said driving drum means upstream, in the intended direction of paper web movement on said diving drum means, of a main winding position, (ii) through a contact position in engagement with the paper web and the driving drum reel means, and (iii) to the main winding position, the improvement which comprises:
centre wind assist means for applying a driving torque to said winding reel comprising:
(a) belt means for selectively engaging the winding reel in driving relation,
(b) driving means for said belt means,
(c) means for providing and maintaining said belt means in said driving relation to said winding reel (i) at said rest position, (ii) during movement of said winding reel by said moving means from said rest position through said contact position to said main winding position, and (iii) for a predetermined period of time in said main winding position, and
(d) means for retracting said belt means from said driving relation to a location to receive a next winding reel in its rest position.

5,064,132

DEVICE FOR TAKING-UP A WIDTH OF FLEXIBLE MATERIAL, PAPER IN PARTICULAR, TO FORM A ROLL

Wolf D. Merz, Nord 78, 9044 Wald Ar, Switzerland

Continuation-in-part of PCT/EP89/00388, Apr. 11, 1989. This application Dec. 12, 1989, Ser. No. 448,096
Int. Cl.[5] B65H *18/06, 18/16, 19/29*
U.S. Cl. 242—66 **6 Claims**



1. A device for taking up a width of a flexible material in a roll, whereby the rolling area is provided with an entry slot formed by first and second frames whose position can be changed between an open position, for dispensing, and a closed position, for take-up, said second frame being rotatable about an axis, and wherein each of the frames are held by two bearing blocks spaced on opposite sides by a predetermined distance from each other, between which powered rolling elements are disposed at and resting against the circumference of the roll that is being formed, wherein:

the first frame is fixed, said first frame having rolling elements including a first roller, and a second roller disposed a circumferential distance from said first roller;

the axis of said first roller being coincident with the axis about which said second frame rotates, said axis being located above the take-up slot;

said second frame having a rolling element including a third roller which is disposed a circumferential distance from said first and second rollers;

said first and second frames form an inner hull which provides a boundary for the rolling area, whereby said first, second and third rollers extend into the rolling area; and

wherein each of said rollers include a shaft which holds drive disks spaced axially from each other and fixed to the shaft, and wherein said second frame is provided with arched bows connected by rods, whereby the drive disks of said first and third roller are disposed between said arched bows.

5,064,133

DRIVING FORCE TRANSMITTING APPARATUS

Tsuyoshi Suzuki, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Jan. 25, 1990, Ser. No. 470,240
Claims priority, application Japan, Jan. 31, 1989, 1-11339[U]
Int. Cl.[5] B65H *18/00;* **F16D** *7/02*
U.S. Cl. 242—67.3 R **11 Claims**

1. A copy machine which utilizes a continuous sheet for making an image of a manuscript on a copy sheet comprising:

means for supplying and taking-up a continuous sheet, said means including a supplying shaft and a take-up shaft;

means for winding the continuous sheet about said take-up shaft, said means for winding being disposed on said take-up shaft and comprising:

a drive shaft;

means, disposed between said drive shaft and said take-up shaft, for transmitting driving force caused by said drive shaft to said take-up shaft;

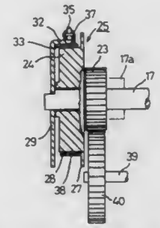
wherein said means for transmitting driving force includes:

a rotation drum having an outer peripheral surface rotated by driving force from said drive shaft;

a rotation member for transmitting rotation of said rotation drum to said take-up shaft, first and second fasteners protruding from a peripheral surface of said rotation member;

an elastic member having first and second ends;

a friction pad having a predetermined frictional coefficient and elastically contacting said outer peripheral surface of said rotation drum through said elastic member; and



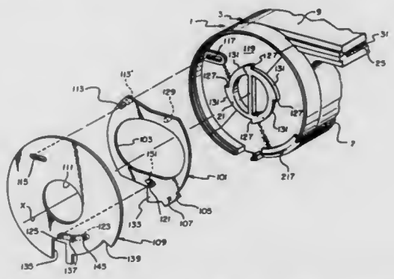
a belt for forcing said friction pad into contact with said outer peripheral surface of said rotation drum, said belt having an opening formed at each end thereof, one of said two openings being attached to said first fastener, the other of said two openings being attached to said first end of said elastic member, said second end of said elastic member being attached to said second fastener, said friction pad being located between said belt and said outer peripheral surface of said rotation drum; wherein said belt, said elastic member, and said friction pad rotate with rotation of said rotation member.

5,064,134

FILM CASSETTE WITH FILM EXPOSURE STATUS INDICATOR

Daniel M. Pagano, Henrietta, and Stephen H. Miller, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 520,309, May 7, 1990, Pat. No. 4,987,437. This application Jun. 13, 1990, Ser. No. 537,837
The portion of the term of this patent subsequent to Dec. 18, 2007, has been disclaimed.
Int. Cl.[5] G03B *17/26, 1/00*
U.S. Cl. 242—71.100 **12 Claims**



1. A film cassette comprising a film spool supported inside a lighttight cassette shell for rotation to thrust a filmstrip coiled about said spool automatically to the exterior of said shell and a film exposure status indicator supported for movement with respect to said shell from an unexposed position for providing a visible indication that said filmstrip is unexposed to an ex-

VOL 1132 ISS 2 NO 12 1991 UMI

posed position for providing a visible indication that the filmstrip is exposed, is characterized in that:

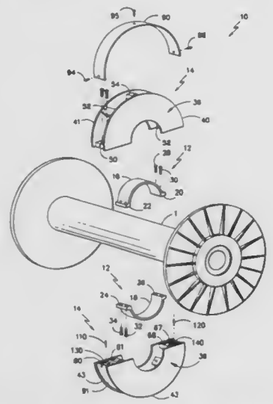
said film cassette including said status indicator has mutually engageable means engageable with each other for locking the status indicator in its unexposed position to prevent the status indicator from being moved to its exposed position but which are capable of being disengaged from each other for unlocking the status indicator to permit the status indicator to be moved from the unexposed position to the exposed position.

5,064,135

BEAM COLLAR

Norman R. Williamson, and John L. Elliott, both of Spartanburg, S.C., assignors to Milliken Research Corporation, Spartanburg, S.C.

Filed Oct. 31, 1990, Ser. No. 606,299
Int. Cl.[5] B65H *75/18, 75/24*
U.S. Cl. 242—118.4 **28 Claims**



1. A collar for partitioning a beam comprising:
(a) a first c-shaped member;
(b) a second c-shaped member;
(c) a first means to removedly attach said second c-shaped member to said first c-shaped member to form a first ring;
(d) a third c-shaped member;
(e) a fourth c-shaped member;
(f) a second means to removedly attach said fourth c-shaped member to said third c-shaped member to form a second ring; and
(g) a third means to removedly attach said second ring to said first ring.

5,064,136

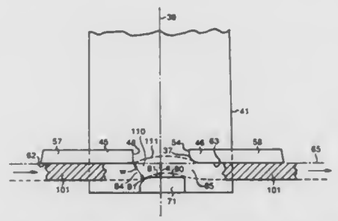
PAYOUT TUBE FOR CONTAINER PACKAGED COILED FILAMENT

Rodney J. Hunt, Omaha, Nebr., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Aug. 24, 1990, Ser. No. 572,812
Int. Cl.[5] B65H *57/12, 57/18, 55/00, 49/08*
U.S. Cl. 242—157 R **13 Claims**

1. A payout tube for a filament disposed in a coil in a container having an outlet hole for such tube in a container wall, said tube comprising:

a tubular sleeve having an axis and having entrance and exit ends for said filament, a pair of stop portions angularly displaced from each other around said sleeve and projecting at such exit end radially away from the periphery of said sleeve and having thereon respective stop surfaces on one axial side thereof, a locking tab projecting radially away from such periphery and disposed around said sleeve at an angular position intermediate those of said stop portions, said tab having a guide surface spaced by respective gaps from said stop surfaces, and said stop portions and tab defining a passage for relative movement therethrough of a section of said wall adjacent said hole



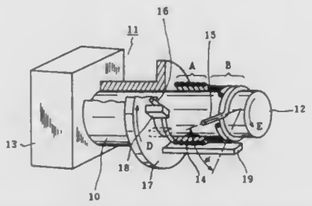
into one of said gaps and by said tab and out of the other of said gaps, said passage in the extent of such movement being at least partly bounded on opposite sides by, respectively, said stop surfaces and said guide surface, at least a portion of said guide surface of said tab being a rounded surface area providing a camber for said tab.

5,064,137

FIXED TORQUE SPRING CLUTCH AND A WINDER HAVING THE SAME

Fumito Komatsu, 1632-12, Nomura, Ooaza Hirooka, Shiojiri-shi, Nagano-ken, Japan

Filed Apr. 30, 1990, Ser. No. 516,595
Claims priority, application Japan, May 9, 1989, 1-115697
Int. Cl.[5] B65H *16/10;* **G11B** *15/32;* **F16D** *11/06*
U.S. Cl. 242—201 **20 Claims**



1. A spring clutch for providing a prescribed fixed torque to a shaft, comprising:

a first rotor having a shaft section, said shaft section having an outer circumferential surface;

a coil spring engaging said shaft section, said coil spring including a clamping section engaging said shaft section and a non-clamping section arranged in spaced relation with said shaft section, said clamping section having a first engagement end section and said non-clamping section having a second engagement end section;

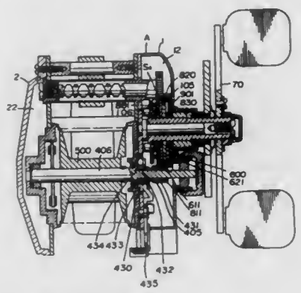
a second rotor arranged in cooperative relationship with said first rotor, said second rotor having a holding piece for engaging said second engagement end section to move said non-clamping section of said coil spring into engagement with said shaft section to increase torque applied to said shaft section, and said second rotor having a releasing piece arranged in spaced relation to said holding piece for engaging said first engagement end section to loosen said clamping section of said coil spring to decrease torque applied to said shaft section, said holding piece and said releasing piece cooperating to increase torque applied by said non-clamping section and to decrease torque applied by said clamping section for applying a prescribed fixed total torque by said coil spring to said shaft section.

5,064,138

FISHING REEL HAVING IMPROVED COVER AND SEAL STRUCTURE FOR A DRAG MECHANISM

Jun Sato, Sakai, Japan, assignor to Shimano Industrial Company, Limited, Osaka, Japan

Continuation of Ser. No. 351,595, May 15, 1989, abandoned, which is a division of Ser. No. 126,353, Nov. 30, 1987, Pat. No. 4,852,826. This application Sep. 10, 1990, Ser. No. 581,133
Claims priority, application Japan, Dec. 28, 1986, 61-315240; Dec. 28, 1986, 61-315241
Int. Cl.[5] A01K *89/015*
U.S. Cl. 242—268 **3 Claims**



1. A fishing reel comprising:
a reel body;
a spool shaft supported rotatably relative to said reel body;
a spool having a pair of flanges and supported to said spool shaft;
a drive mechanism for driving said spool, said drive mechanism including:
(a) a driving shaft having one axial end supporting a handle;
(b) a master gear;
(c) a drag mechanism having a braking member and a drag disc for transmitting a driving force from said driving shaft to said master gear, said drag mechanism being supported to said driving shaft; and
(d) a clutch means interposed in a driving force transmitting route from said master gear to said spool for allowing said spool to rotate freely with respect to said drag mechanism when said clutch is in an off-operation mode independently of an operation mode of said drag mechanism; and
means for housing said braking member and said drag disc within a closed, sealed inner space, said housing means including a cover and a sealing means, said cover and said sealing means being being interposed between said driving shaft and said master gear.

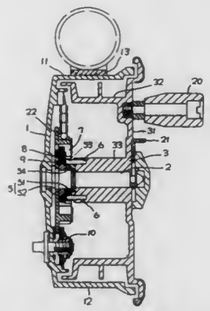
5,064,139

FISHING REEL WITH CLICK-FREE ANTI-REVERSE MECHANISM

Junichi Toda, Sakai, Japan, assignor to Shimano Industrial Company Limited, Osaka, Japan

Filed Jan. 29, 1990, Ser. No. 471,781
Claims priority, application Japan, Jan. 30, 1989, 1-10038[U]
Int. Cl.[5] A01K *89/02*
U.S. Cl. 242—295 **5 Claims**

1. A fishing reel comprising:
a reel body;
a spool rotatably supported to said reel body;
a spool braking plate for braking said spool;
a unidirectional rotation transmitting mechanism disposed between said spool and said spool braking plate, said mechanism having anti-reverse teeth and a stopper claw, said mechanism preventing reverse rotation of said spool through engagement between said anti-reverse teeth and said stopper claw; and
a stopper-claw control member attached to a rotary member opposing to said spool braking plate to be rotatable within a predetermined angular range, said control member having a control portion engageable with said stopper claw for controlling engagement and disengagement of said stopper claw;
said control portion of said stopper-claw control member



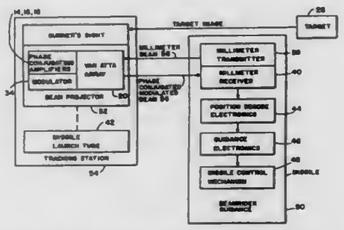
including a bulging portion for releasing said stopper claw with forward rotation of said spool and a depressing portion for engaging said stopper claw with reverse rotation of said spool;
said stopper claw including a claw portion having a width greater than a tooth width of said anti-reverse teeth, said bulging portion coming into contact with a widthwise lower face of said claw portion and said depressing portion coming into contact with an upper face of said claw portion.

5,064,140

COVERT MILLIMETER WAVE BEAM PROJECTOR

William C. Pittman; Walter E. Miller, Jr., and Michael R. Christian, all of Huntsville, Ala., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

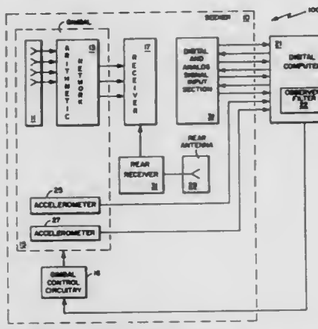
Filed Oct. 9, 1990, Ser. No. 594,506
Int. Cl.[5] F41G *7/24, 7/28*
U.S. Cl. 244—3.13 **2 Claims**



1. A method for guiding a missile toward a target while the missile is in flight, comprising the steps of:
visually tracking a target from a target tracking station,
issuing a millimeter wave beam from the missile in flight toward the tracking station,
receiving the millimeter wave beam at the tracking station,
performing amplification on the received beam at the tracking station,
performing phase conjugation on the received beam at the tracking station,
modulating the phase-conjugated amplified beam to impreg-

nate said beam with angular offset of said beam from the line-of-sight of the target,
redirecting the modulated beam along its original optical path back to the missile,
receiving the redirected beam by the missile, and
generating guidance signals in the missile in response to the received redirected beam to guide the missile in the direction to reduce said angular offset.

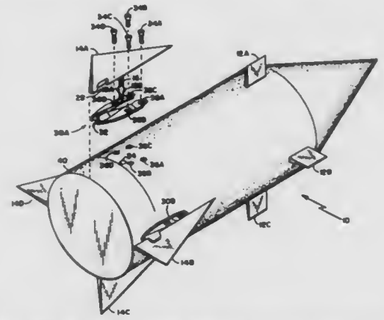
5,064,141
COMBINED SENSOR GUIDANCE SYSTEM
F. William Nesline, Jr., Lexington, Mass., assignor to Raytheon Company, Lexington, Mass.
Filed Feb. 16, 1990, Ser. No. 483,141
Int. Cl.[5] G05D *1/08*
U.S. Cl. 244—3.15 6 Claims



1. A guidance system comprising:
first means, responsive to a lateral acceleration signal, a measured line-of-sight rate signal, a measured range rate signal and a range signal, for providing an estimated line-of-sight rate signal, the first means further comprising:
(a) means, responsive to the measured line-of-sight rate signal and the estimated line-of-sight rate signal, for producing a difference output signal; and
(b) means, responsive to the difference output signal, for producing an error signal which is applied to the first providing means to minimize the difference output signal.

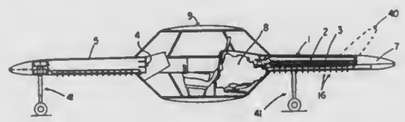
5,064,142
APPARATUS FOR WING ATTACHMENT
Robert H. Lailer, Jr., Chelmsford; Frank K. Porter, Jr., Billerica; Laura M. Colananni, Townsend, all of Mass., and David B. Lussier, Annandale, Va., assignors to Raytheon Company, Lexington, Mass.
Filed Aug. 27, 1990, Ser. No. 573,420
Int. Cl.[5] F42B *10/06*
U.S. Cl. 244—3.24 9 Claims

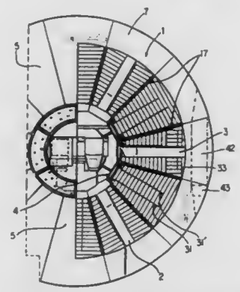
1. A member for mounting a wing to a missile, the member comprising:
(a) a first portion having a groove disposed therein, the groove being adapted to have inserted therein the wing; and
(b) a second portion extending from the first portion, said second portion comprising means adaptable for securing said second portion to a surface of the missile, with said



first and second portions adapted to be mounted external to the missile.

5,064,143
AIRCRAFT, HAVING A PAIR OF COUNTER ROTATING ROTORS
Franz Bucher, Basel, Switzerland, assignor to Sky Disk Holding SA, Fribourg, Switzerland
Filed Apr. 6, 1990, Ser. No. 505,787
Claims priority, application Switzerland, Apr. 19, 1989, 1492/89
Int. Cl.[5] B64C *29/00*
U.S. Cl. 244—23 C 11 Claims

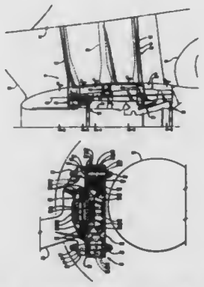




1. An aircraft for hovering and horizontal forward flight, having a housing with a flight axis defining a forward flight direction, at least a pair of rotatively driven, coaxial rotors located within said housing for generating a rotor air stream and a multiplicity of adjustable air guiding means arranged in said rotor air stream, said housing along said flight axis being shaped as an airfoil section with an upper surface and a lower surface, said upper surface comprising a circular air inlet coaxial with said pair of rotors and said lower surface comprising a circular air outlet coaxial with said pair of rotors, said circular air outlet being divided into a plurality of blade array sections, each comprising a plurality of elongate blade members having a longitudinal swivelling axis and forming air guiding surfaces, wherein for each blade array section the blade members are collectively adjustable in their angular position relative to said

air stream about their swivelling axis and wherein in a part of said blade array sections, adjacent blade members are adjustable in opposite sense to assume complementary angular positions between an opened and a closed position for controlling the lifting forces without generating a substantial horizontal component of the air stream passing said part of blade array sections.

5,064,144
ENGINE MOUNTING ASSEMBLY
Wan T. Chee, Bellevue, Wash., assignor to The Boeing Company, Seattle, Wash.
Continuation of Ser. No. 488,417, Mar. 1, 1990, abandoned, which is a continuation of Ser. No. 366,152, Jun. 13, 1989, abandoned, which is a division of Ser. No. 52,761, May 19, 1987, abandoned. This application Aug. 10, 1990, Ser. No. 566,852
Int. Cl.[5] B64D *27/12*
U.S. Cl. 244—54 16 Claims



1. In an engine mounting assembly having a longitudinal axis, a horizontal transverse axis, a vertical axis, a forward end and a rear end, said assembly comprising:
a. an engine housing having a longitudinally extending engine axis and adapted to carry transverse loads and thrust loads, said housing also being adapted to carry engine developed torque loads and to transmit such torque loads at a predetermined torque transmitting housing location along said engine axis,
b. an engine mounting means operatively connected to said engine housing to carry said transverse loads, thrust loads, and torque loads, said engine mounting means comprising:
i. a base support structure adapted to carry said transverse loads and thrust loads and having a predetermined torque load receiving location at which said base support structure is particularly configured and arranged to carry said torque loads,
ii. a longitudinally extending torque beam having a lengthwise axis and being mounted to said base support structure, said beam having,
iii. connecting means comprising a plurality of connecting assemblies connecting the torque beam to the engine housing and connecting the torque beam to the base support structure,
an improvement where at least one of said connecting assemblies comprises:
a. a first connecting structure defining first and second spaced shock isolating recesses,
b. first and second shock isolation means positioned in said first and second recesses, respectively,
c. a second connecting structure,
d. first and second bolt means, each having a first portion extending through said first and second recesses, respectively, and having an operative shock isolating connection with said first connecting structure through said first and second shock isolation means, respectively,
e. said first and second bolt means each having a second portion connecting to said connecting structure, and
f. a shock isolation insert positioned in at least one of said first and second shock isolating recesses, said shock isolation insert comprising a peripheral wall structure having a middle plate defining first and second laterally spaced inert recesses receiving said first and second shock isolation portions of the respective shock isolation means, with said bolt means extending through said first and second portions and a through opening in said middle plate,
whereby shock loads imparted on one of said connecting structures are transmitted through said first and second shock isolation means and said shock isolation insert to the other of said connecting structures thereby isolating transmission of shock loads.

5,064,145
MODEL AIRPLANE WITH TAIL ASSEMBLY
Claus Wagener, Dietenhofen, Fed. Rep. of Germany, assignor to Fritz Wagener GmbH
Filed Sep. 20, 1990, Ser. No. 585,663
Claims priority, application Fed. Rep. of Germany, Oct. 19, 1989, 3934840
Int. Cl.[5] B64C *9/02*; A63H *27/18*
U.S. Cl. 244—87 5 Claims



1. A model airplane with a tail fin assembly, comprising: a fuselage formed with a tail end and horizontally subdivided into an upper fuselage portion and a lower fuselage portion;
a vertical stabilizing surface and two horizontal stabilizing surfaces attached to the tail end of the fuselage, the vertical stabilizing surface having a root which extends into the fuselage through a recess in the upper fuselage portion, and each of the horizontal stabilizing surfaces has a root which extends into the fuselage through a recess in a side of the fuselage;
devices provided for connecting the upper and lower fuselage portions with each other and for fixing the vertical stabilizing surface and the horizontal stabilizing surfaces on the fuselage;
a duct open towards the tail end of the fuselage and extending through areas of the upper and lower fuselage portions and at least one of the stabilizing surface roots; and
pin means fittingly inserted into said duct so that the upper fuselage portion, the lower fuselage portion, the vertical stabilizing surface, and the horizontal stabilizing surfaces are pressed against each other with a press fit.

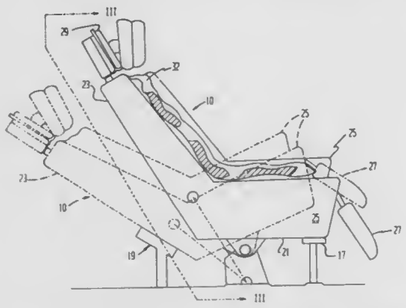
5,064,146
PIVOTING SEAT FOR FIGHTER AIRCRAFT
Chi Tung, Plymouth Meeting, Pa., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.
Filed Sep. 26, 1990, Ser. No. 589,703
Int. Cl.[5] B64D *25/02*
U.S. Cl. 244—122 R 8 Claims

1. A seat for a pilot of an aircraft being in an initial predetermined position in the cockpit of the aircraft, comprising:
a seat back oriented in the substantially vertical direction, and
a seat pan oriented in the substantially horizontal direction, said seat being attached to the floor of the cockpit by pivot means located forward of the combined pilot and seat center of gravity; and
self-sustaining reaction means attached between a second

VOL 1132 ISS 2 NO 12 1991 UMI

VOL 1132 ISS 2 NO 12 1991 UMI

predetermined location on the floor, aft of said pivot means, and said seat, such that on occurance of an acceleration force that moves the center of gravity away from said initial position in the direction of the force and adds



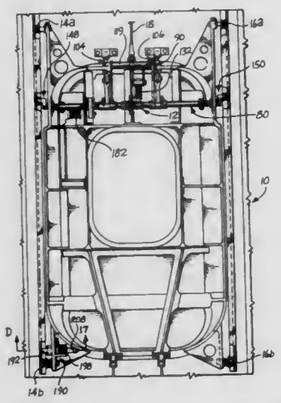
energy to said self-sustaining means, said seat is restored back to substantially the initial position by said reaction means, without addition of energy from an external source, upon a lessoning of the acceleration force.

5,064,147

UPWARDLY OPENING PLUG-TYPE DOOR FOR USE AS AN OVER-WING EMERGENCY HATCH

Donald R. Noble, Issaquah, and Alex Maraghe, Seattle, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Feb. 12, 1990, Ser. No. 478,430
Int. Cl.[5] B64C *1/14*
U.S. Cl. 244—129.5 **10 Claims**



1. A latching mechanism for use on board an aircraft in connection with an upwardly opening plug-type door system, said door system including a door having laterally mounted side rollers, and a pair of substantially parallel guide rails mounted to the fuselage of said aircraft on laterally opposite sides of said door, said door's side rollers being in rolling engagement with said rails, for guiding upward opening and downward closing movements of said door, the latching mechanism comprising:

a torque shaft rotatably mounted to said door and extending transversely across said door;

a handle connected to said torque shaft for rotating the same, said handle being accessible from an interior side of said door, and wherein said torque shaft and said handle are both carried by said door as it opens and closes; and

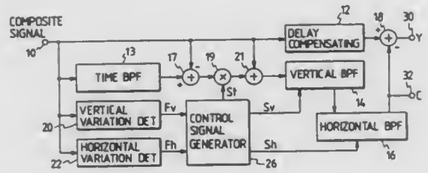
at least one latch pin member retractably mounted to said door adjacent an upper portion of said door, said latch pin member being axially movable in a direction that is generally perpendicular to the axis of rotation of said torque shaft, and said latch pin member being connected to said torque shaft in a manner so that said pin member retracts in response to clockwise rotation of said torque shaft, said pin member being normally extended when said door is closed, and in such position, said pin member being in engagement with a catch that is fixedly connected to fuselage structure immediately above said door, to prevent upward opening movement of said door, and wherein said clockwise rotation of said torque shaft includes clockwise rotation of said torque shaft from a first to a second position, and including a spring connected to said torque shaft in a manner so that said spring first opposes at least the beginning of said clockwise rotation, and then assists at least the end of said clockwise rotation.

5,064,148

NAVIGABLE FLAT KITE

Christian Kunze, Wieteralles 33, 3410 Northeim, and Till Habermann, Weenderlandstrasse 86, 3400 Göttingen, both of Fed. Rep. of Germany

Filed Jun. 6, 1990, Ser. No. 534,634
Claims priority, application Fed. Rep. of Germany, Jun. 6, 1989, 8906900[U]; Mar. 7, 1990, 4007159
Int. Cl.[5] B64C *31/06*
U.S. Cl. 244—153 R **19 Claims**



1. A navigable flat kite assembly, comprising:

at least two individual planar kites, each of said kites having:

a crossbar,

a longitudinal bar extending crosswise to said crossbar,

a sail mounted on said crossbar and said longitudinal bar, the sails of said kites being of the same shape and area, and

at least one respective balance individual to the respective kite and having balance lines connected to the respective kite on at least one side of the respective crossbar,

at least one of said sails of one of said kites being individually pivotable about a pivot axis defined by the respective crossbar with respect to another of said kites;

linkage means for interconnecting said crossbars of said kites so that said kites can lie in a plane; and

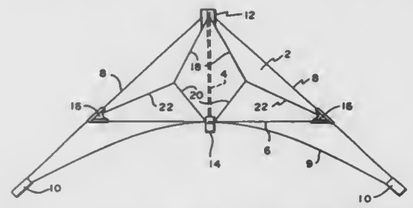
navigation lines connected to said assembly for controlling flying thereof, said navigation lines including at least one of said navigation lines being connected to the balance of said one of said kites for turning said one of said kites about said axis relative to said other of said kites.

5,064,149

KITE WITH CONNECTORS FORMED OF SHEET MATERIAL

Jonathan J. Prouty, P.O. Box 3065, Boulder, Colo. 80307

Continuation-in-part of Ser. No. 319,681, Mar. 7, 1989. This application Jan. 10, 1990, Ser. No. 463,021
Int. Cl.[5] B64C *31/06*
U.S. Cl. 244—155 A **24 Claims**



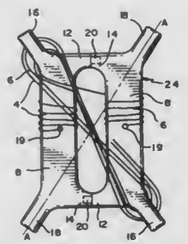
1. A kite having a sail, a pair of wing struts, a cross strut having two end portions, and wing connector means for connecting the end portions of the cross strut to the wing struts, each of said wing connector means being a plurality of interconnected panels of flexible sheet material, first and second said panels of said wing connector means lying against opposite surfaces of the sail, a seam connecting said two panels to each other and to the sail, said wing connector means including an elongated pocket formed of flexible sheet material and having an axis which lies at an angle to said wing strut, said cross strut having its end portions inserted in said elongated pockets.

5,064,150

CONTROL HANDLES FOR STUNT KITES

Jonathan J. Prouty, Loveland, Colo., assignor to Skynasaur Inc., Louisville, Colo.

Filed Oct. 18, 1990, Ser. No. 599,367
Int. Cl.[5] B64C *31/06*
U.S. Cl. 244—155 A **7 Claims**



1. Two handles for controlling a stunt kite, coupling means for detachably connecting said handles together so they form a winding frame, each of said handles having a first projection, said first projections extending out from the winding frame in opposite directions to provide winding posts around which a string can be wound,

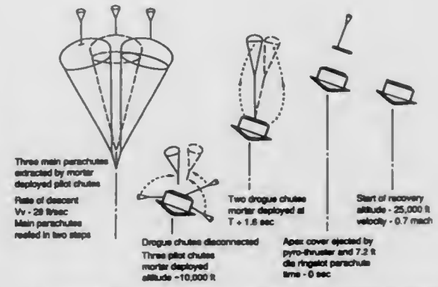
each of said handles having a second projection, said second projections extending outwardly in opposite directions to provide pivot posts which define a rotational axis about which the frame may be rotated, said winding posts lying on opposite sides of said rotational axis so that said frame, when held by the pivot posts, will rotate about said rotational axis when string is pulled therefrom, said winding frame being generally rectangular, and said projections extending diagonally out from corners of said winding frame.

5,064,151

ASSURED CREW RETURN VEHICLE

Christopher J. Cerimele, Houston; Robert C. Ried, Friendswood; Wayne L. Peterson, Webster; George A. Zupp, Jr., Friendwood, all of Tex.; Michael J. Stagnaro, Canoga Park, Calif., and Brian P. Ross, Louisville, Ky., assignors to The United States of Americas as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Dec. 28, 1989, Ser. No. 458,476
Int. Cl.[5] B64G *1/62*
U.S. Cl. 244—160 **6 Claims**



1. A method for safely and economically returning a human crew to earth from an earth orbiting craft, using a return vehicle attached to the orbiting craft and specially adapted for such use, comprising the steps;

a) entering the return vehicle from the orbiting craft;

b) starting individual crew breathing air supply;

c) activating automatic controls of the return vehicle;

d) initializing an inertial measuring unit aboard the return vehicle using state vector and attitude data obtained from the orbiting craft;

e) releasing the return vehicle from the orbiting craft;

f) updating periodically return vehicle state vectors and attitude using only onboard data;

g) initiating automatically a reaction control system to maneuver the return vehicle away from the orbiting craft to preclude recontact between the return vehicle and the orbiting craft;

h) entering crew weight into return vehicle computer;

i) selecting manually one of a number of predetermined landing sites on the surface of the earth as a landing target;

j) establishing automatically a return vehicle pre- burn attitude;

k) calculating automatically a deorbit burn initiation time;

l) firing automatically a deorbit thruster;

m) maintaining automatically the proper return vehicle attitude throughout deorbit burn;

n) terminating deorbit burn after elapse of appropriate time interval to effect desired ballistic trajectory for placing the return vehicle on the surface of the earth near the selected landing site;

o) jettisoning the deorbit thruster;

p) maneuvering the return vehicle automatically to ensure return vehicle trajectory and deorbit thruster trajectory do not intersect;

q) establishing and maintaining automatically return vehicle entry attitude;

r) initiating return vehicle roll rate; and

s) deploying parachutes for decelerating return vehicle to acceptable impact velocity.

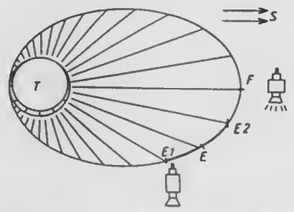
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,152

METHOD OF DETERMINING AND CONTROLLING THE ATTITUDE OF A SPIN-STABILIZED SATELLITE IN AN ELLIPTICAL TRANSFER ORBIT

Patrick A. Maute, Valbonne, France, assignor to Aerospatiale Societe Nationale Industrielle, Paris, France

Filed Dec. 5, 1989, Ser. No. 446,254
Claims priority, application France, Dec. 23, 1988, 8817120
Int. Cl.[5] B64G 1/24
U.S. Cl. 244—164 10 Claims



1. Method of determining and controlling the attitude of a satellite carrying terrestrial and solar sensors and spin-stabilized about an axis V—V prior to its transfer from an elliptical transfer orbit to a circular geostationary orbit by means of an apogee motor firing, said attitude being defined relative to an inertial X-Y-Z frame of reference the Z axis of which is directed towards geographical North, by a declination α between said axis V—V and the X-Y plane and by a right ascension β between the projection of said axis V—V onto said X-Y plane and the X axis, in which method, after injection of said satellite by a launch vehicle into said transfer orbit at its perigee, with an initial attitude approximating the predetermined final attitude for said apogee motor firing,

said right ascension β of said satellite is modified to confer on it an intermediate attitude such that the earth is in the field of view of said terrestrial sensors for a position of said satellite in said transfer orbit offset at least 10° from the apogee of said transfer orbit,

the declination α of the rotation axis of said satellite is measured and then adjusted to the value required for said apogee motor firing,

maintaining this declination constant, said right ascension is adjusted on the basis of solar sensor measurements so as to bring said satellite into its final attitude, and

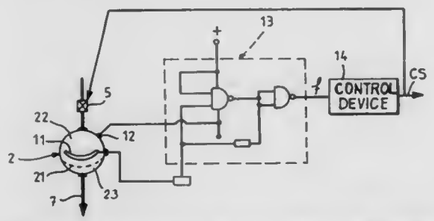
said apogee motor firing is commanded.

5,064,153

SYSTEM FOR DETERMINING THE DEPLETION OF PROPELLANT TANKS ONBOARD A SPACECRAFT

Philippe Gindre, Leiderdorp; Peter Hähnel, Oegstgeest, and Hartmut Heimke, Leiden, all of Netherlands, assignors to Agence Spatiale Europeenne

Filed Aug. 21, 1989, Ser. No. 396,422
Claims priority, application France, Aug. 22, 1988, 88 11236
Int. Cl.[5] B64G 1/40
U.S. Cl. 244—172 5 Claims



1. A method for determining when a main propellant tank of a spacecraft is empty and for initiating propellant feed from an auxiliary propellant tank for placing the spacecraft into a new orbit, the method comprising the steps of:

connecting a surface tension device to an outlet of the main propellant tank;

detecting gas bubbles appearing at an inlet of the surface tension device;

producing a depletion detect signal in response to the detecting of gas bubbles; and

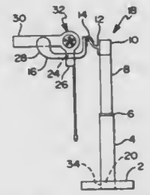
controlling a valve at an outlet of the auxiliary propellant tank by using the depletion detect signal, for feeding a sufficient amount of propellant to place the spacecraft in a new orbit.

5,064,154

STAND AND HOLDER FOR HAIR DRYER

Derek Payne, 687 Tall Oaks Blvd., Auburn Hills, Mich. 48057

Filed Apr. 23, 1990, Ser. No. 512,349
Int. Cl.[5] A47F 5/00
U.S. Cl. 248—121 1 Claim



1. An improved stand and holder for supporting a hand held electric hair dryer upon an adjustable stand, said dryer having a substantially gun-like configuration including a handle portion and a barrel portion, the improvement, comprising:

(a) a first hook-like member operably engaged with the stand;

(b) a second hook-like member operably engaged with the first hook-like member;

(c) a holder operably engaged with the second hook-like member;

(d) wherein said holder has a first upwardly curving portion;

(e) wherein said holder has a second upwardly curving portion;

(f) wherein said second hook-like member is operably engaged with the second upwardly curving portion of the holder;

(g) wherein said first and second hook-like members are configured to be releasably engaged with one another;

(h) wherein said holder has an aperture defined between the first and second upwardly curving portions;

(i) wherein said aperture in the holder is configured to permit the insertion of the handle portion of the hair dryer; and

(j) wherein said first upwardly curving portion of the holder has a depression defined therein configured to support the barrel portion of the hair dryer.

5,064,155

TANK STABILIZER

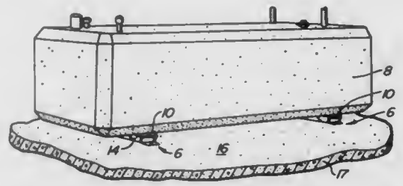
Ralph Bambacigno, Modesto, and Thomas R. Lindquist, Denair, both of Calif., assignors to Convault, Inc., Denair, Calif.

Filed Feb. 28, 1990, Ser. No. 486,326
Int. Cl.[5] A47G 23/02
U.S. Cl. 248—146 16 Claims

1. A tank stabilizer for an above ground storage tank of the type having a bottom support, the bottom support having a bottom surface and a circumferential side wall, the bottom support resting on a support surface, the stabilizer comprising:

a lateral support having an upwardly extending portion configured to lie adjacent the circumferential side wall; and

means for securing the lateral support to the support surface



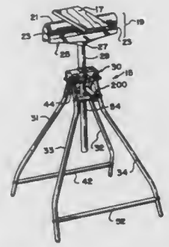
to restrict horizontal movement of the tank in at least one direction, said lateral support securing means including a flange secured to the lateral support, said flange configured to lie adjacent the support surface.

5,064,156

ADJUSTABLE HEIGHT WORK SUPPORT

Milton E. Handler, Northbrook; Richard Sylvan, Glenview; Herbert Baisch, Palatine, and Michael Naranjo, Des Plains, all of Ill., assignors to Hirsb Company, Skokie, Ill.

Filed Apr. 12, 1990, Ser. No. 508,805
Int. Cl.[5] F16M 11/38
U.S. Cl. 248—168 11 Claims



1. A support apparatus for work pieces comprising:

a base including first and second leg means for extending upwardly from a floor;

a junction means for receiving and pivotably holding said first and second leg means for pivoting movement between a closed position and an open position;

said first and second leg means each including a pair of leg members which are connected together by a cross member below said junction means, each of said leg members having an upper terminal portion extending upwardly beyond said cross member to said junction means;

releasable latch means for holding said first and second leg means in a selected one of said closed and opened positions; and

a vertically adjustable work piece support assembly carried by said junction means;

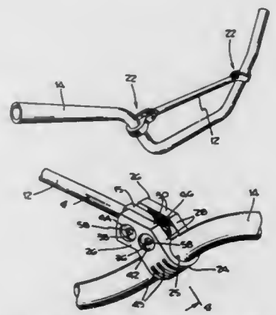
said releasable latch means includes a latch member pivotably mounted to said cross member of said first leg means, said latch member defining a first engaging means for engaging and holding said second leg means cross member when said leg assemblies are in said closed position, and said latch member also defining a second engaging means for engaging and holding said second leg means cross member when said leg assemblies are in said open position.

5,064,157

MOUNTING BRACKET FOR HANDLEBAR CROSSBAR

James M. O'Neal, Chatsworth, Calif., assignor to Jim O'Neal Distributing, Inc., Chatsworth, Calif.

Filed May 1, 1990, Ser. No. 517,584
Int. Cl.[5] A47B 96/06
U.S. Cl. 248—230 20 Claims



1. A mounting bracket used to mount a crossbar to a handlebar, said crossbar having a lug at each end thereof with an aperture passing through each of said lugs, comprising:

a sleeve portion removably fitting around said handlebar;

clevis arms integrally formed with said sleeve portion and extending from said sleeve portion, said clevis arms having first and second pairs of apertures passing therethrough and integrally formed straight arm portions and angled arm portions, said angled arm portions being at an angle with respect to said straight arm portions, said angle selected so that said mounting bracket is adapted to fit said crossbar and said handlebar;

first fastening means engaging said first pair of apertures in said clevis arms for removably clamping said sleeve portion to said handlebar; and

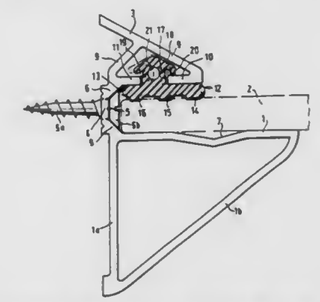
second fastening means engaging said second pair of apertures in said clevis arms and said aperture in a corresponding one of said lugs of said crossbar for removably securing said one lug between said clevis arms.

5,064,158

SHELF SUPPORT

Keith Brazier, Shoeburyness; Andrew L. Lee, Surrey, and Clifford J. Roberts, London, all of Great Britain, assignors to Cliffhanger (Export) Limited, United Kingdom

Continuation-in-part of Ser. No. 865,850, May 22, 1986, abandoned. This application Mar. 17, 1987, Ser. No. 26,942
Int. Cl.[5] A47G 29/02
U.S. Cl. 248—250 26 Claims



1. An elongate shelf support for extending along a substan-

VOL
1132
ISS
2
NO
12
1991
UMI

tial part of the rear of a rectangular-section shelf and holding the shelf as a cantilever, the shelf support comprising:

a rigid support member upon which the underside of the rear part of the shelf will rest, said support member having a front part;

a rigid retaining member for retaining the top of the rear part of the shelf, which retaining member has a front to rear extent which is substantially less than the front to rear extent of the support member;

an elastically-deformable member running along the underside of the retaining member, for engaging the top of the rear part of the shelf and elastically deforming when the shelf is in position, the elastically deformable member comprising, as seen in vertical section, a main part having at least one downwards protuberance which is substantially narrower (front to rear) than the main part; and

a rigid member which interconnects the support and retaining members, whereby the shelf support can be fixed to a vertical wall and thereby mount the shelf on the wall, and the support member projecting substantially further from the wall than the retaining member so that the elastically-deformable member is disposed substantially to the rear of said front part of the support member;

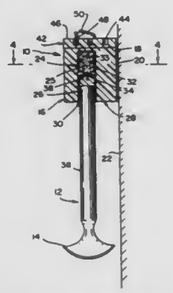
said main part comprising at least a front said protuberance and a rear said protuberance, said front protuberance being effectively wider, front to rear, than said rear protuberance.

5,064,159

ARTICLE HOLDER UTILIZING MAGNETOSTATIC INTERACTION

Arthur Kotick, 333 Pearl St., New York, N.Y. 10038

Filed Jan. 22, 1990, Ser. No. 468,365
Int. Cl.[5] A47K *5/00*
U.S. Cl. 248—309.4 **9 Claims**



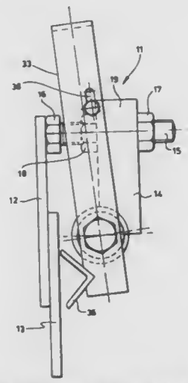
1. An article holder utilizing magnetostatic interaction comprising a mounting block, a magnetic core embedded within said block, bore means for providing access to the magnetic core, said bore means being adapted for guidingly accommodating an elongate article, said article being releasably retained within said bore by magnetostatic interaction with the magnetic core, counting means for denoting each occurrence of either engagement or disengagement of the article with the mounting block, the counting means including a module having a matrix of openings, said module being affixed to the block, and a pin member, said pin member being adapted for insertion within a selected opening for monitoring article usage.

5,064,160

CLAMPING DEVICE

John A. Brumby, St. Austell, England, assignor to Ace Conveyor Equipment Limited, Doncaster, England

Filed Apr. 18, 1990, Ser. No. 510,878
Claims priority, application United Kingdom, Apr. 28, 1989, 8909841; Nov. 14, 1989, 8925668
Int. Cl.[5] A47F *5/00*
U.S. Cl. 248—316.5 **12 Claims**



1. In a clamping device for holding a panel such as a conveyor belt skirt rubber in position, said clamping device comprising:

a support body,

means for attaching said support body to a fixed support such as a conveyor feed boot or skirt board,

a clamp arm,

means pivotally connecting said clamp arm to said support body, and

resilient biasing means for urging said clamp arm to turn about said pivotal connection means

the improvement wherein said resilient biasing means comprises a helical coil stressed in torsion to apply the required resilient biasing to hold said clamp arm in a required position, and

a body of resilient material having a substantially cylindrical surface against which the turns of said helical coil engage when they change diameter as torsional forces are exerted thereon.

5,064,161

UNIVERSAL CEILING MOUNT ASSEMBLY FOR TELEVISION MONITOR

Timothy W. Anderson, 720 W. Oak St., Fort Collins, Colo. 80521

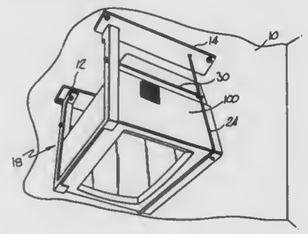
Filed Jan. 10, 1991, Ser. No. 639,907
Int. Cl.[5] A47H *1/10*
U.S. Cl. 248—317 **3 Claims**

1. A ceiling mount assembly for suspending a television monitor in a fixed position from a ceiling such that the screen of the television monitor is horizontal for viewing by a person in a supine position beneath the television monitor, the television monitor being of the type having a recessed slot across a front surface thereof proximate one edge of the television monitor, the ceiling mount assembly comprising:

support means anchored to the ceiling;

U-shaped frame means mounted to said support means in a fixed dependent position, said U-shaped frame means having a right angle cross section for cradling said television monitor along an edge thereof that is away from said recessed slot;

U-shaped bail means hingedly connected to said support means in a dependent position spaced apart from said U-shaped frame means, said U-shaped bail means being positioned in alignment with said recessed slot for engagement therewith; and



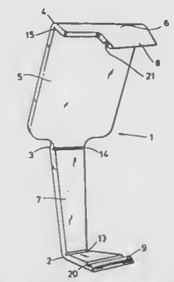
a pair of J-hook rods adapted for connection in a horizontal position between said U-shaped frame means and said U-shaped bail means.

5,064,162

PORTABLE-TELEPHONE MOUNTING BRACKET

Björn Jondelius, Upplandsgatan 84, 113 44 Stockholm, Sweden

Filed Jan. 2, 1990, Ser. No. 459,660
Claims priority, application Sweden, Jun. 20, 1989, 8902234
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—548 **6 Claims**



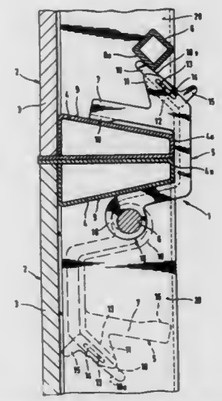
1. A portable-telephone mounting bracket for installation in vehicles, said bracket having an elongated essentially upright configuration and including one or more bends at lateral bend lines and being made of a flat sheet-like material, said bracket including a flat intermediate part with front and rear faces (5) from which an upper arm part (6) and a lower arm part (7), each extend rearwardly from a different said lateral bend line, the terminal ends (8, 9) of respective arm parts being beveled and having lateral shapes providing attachment appendages adapted to be fitted into and thereby secured in associated slots in the vehicle instrument panel, such as in the air intake located on the instrument panel, so that the mounting bracket can be secured to the vehicle instrument panel by means of said ends, and the intermediate flat part of said mounting bracket providing support for the receiver-cradle of a portable telephone, and wherein lateral grooves (13–15) are located in said sheet material at least adjacent said bends (2–4) and extending at least partially along the length of said bends; said grooves (13–15) having a depth which equals at least one-quarter the thickness of the sheet-like material to thereby provide weakened bend lines which enable said bend lines to function as hinges between said intermediate flat part and parts of said upper and lower arm parts and permit bending between said intermediate part and said upper and lower arm parts when said bracket is subjected to abnormal forces in a direction from the front face toward the rear face of said bracket which will force the bracket parts to fold on said bend lines and move toward and upward relative to the vehicle panel resulting in a fail-safe release of said bracket and attachment appendages from said slots in said vehicle panel.

5,064,163

CONNECTING DEVICE FOR SHUTTERING PANELS

Josef Merkel, Steinach, Fed. Rep. of Germany, assignor to Josef Maier, Steinach, Fed. Rep. of Germany

PCT No. PCT/DE88/00440, § 371 Date Jan. 29, 1990, § 102(e) Date Jan. 29, 1990, PCT Pub. No. WO89/01083, PCT Pub. Date Feb. 9, 1989
PCT Filed Jul. 16, 1988, Ser. No. 459,710
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1987, 3724873
Int. Cl.[5] E04G *17/00*
U.S. Cl. 249—47 **22 Claims**



1. A pouring form, comprising a first panel having a first flange which is located at an edge of said first panel and is at least approximately perpendicular to a major surface of said first panel; a second panel having a second flange which is located at an edge of said second panel and is at lest approximately perpendicular to a major surface of said second panel, said flanges abutting one another; and a connecting device for holding said flanges in abutment, said device including a clamping member designed to at least partially embrace said flanges, and said clamping member having first and second surface portions which are respectively in surface-to-surface contact with oppositely facing sides of said flanges when said flanges are embraced by said clamping member, said device further including means mounting said clamping member for pivotal movement between a clamping position in which said clamping member embraces said flanges and a released position in which said flanges are released from said clamping member, and said mounting means defining a pivot axis which is disposed to a first side of, and is substantially parallel to, said flanges, said device additionally including an elongated abutment disposed to a second side of, and being substantially parallel to, said flanges, and said clamping member including an arm which is located on said second side of said flanges in said clamping position and has a free end, said device also including a locking element mounted on said arm for sliding movement along a path extending generally towards and away from said free end, and said locking element being movable between a retracted position and an extended position in which said locking element constitutes an extension of said arm, said locking element being wedged against said abutment when said clamping member is in said clamping position and said locking element is in said extended position.

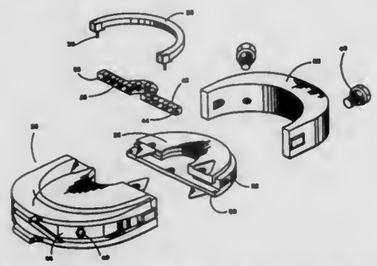
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,164

BOP SEAL WITH IMPROVED METAL INSERTS

Tri C. Le, Sugar Land, Tex., assignor to Baroid Technology, Inc., Houston, Tex.

Continuation of Ser. No. 568,600, Aug. 16, 1990, Pat. No. 5,011,110. This application Jan. 16, 1991, Ser. No. 641,856
The portion of the term of this patent subsequent to Apr. 30, 2008, has been disclaimed.
Int. Cl.[5] E21B 33/06
U.S. Cl. 251—1.1 20 Claims



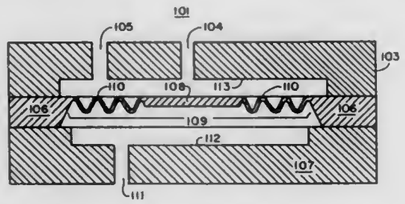
1. A sealing assembly for a ram block of a blowout preventer for sealing with a pipe or the like within a well bore, the sealing assembly comprising:
a resilient seal having a generally arcuate portion adapted for engagement with the pipe;
a plurality of rigid inserts each at least substantially embedded within the seal and circumferentially arranged about the arcuate portion of the seal;
each insert including an upper flange, a lower flange, and a rib fixedly interconnecting the upper and lower flanges;
at least one of the upper flange and lower flange of each insert having a radially innermost surface for pressing the seal into sealing engagement with the pipe;
each insert having a slot within at least one of the upper and lower flanges, the slot having an opening adjacent a side of the flange and forming a cavity defined by the flange; and
each insert further having a male interconnecting member extending circumferentially outward from an opposing side of the flange for sliding engagement within the slot of an adjacent member, such that the circumferentially spaced inserts are independently movable with respect to each other and are interconnected while the blowout preventer closes about the pipe.

5,064,165

SEMICONDUCTOR TRANSDUCER OR ACTUATOR UTILIZING CORRUGATED SUPPORTS

John H. Jerman, Palo Alto, Calif., assignor to IC Sensors, Inc., Milpitas, Calif.

Filed Apr. 7, 1989, Ser. No. 335,185
Int. Cl.[5] F16K 31/126
U.S. Cl. 251—61.1 10 Claims



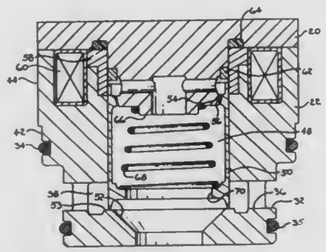
1. A semiconductor actuator, comprising:
a semiconductor layer having a centrally positioned, substantially rigid deflecting member, a support member and a plurality of corrugations having an etch stop impurity coupled between said substantially rigid deflecting member and said support member; and
means for displacing said substantially rigid deflecting member.

5,064,166

SOLENOID VALVE WITH HIGH FLOW CAPACITY AND LOW ENERGY CONSUMPTION

Michael M. Schechter, Farmington Hills, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Sep. 20, 1990, Ser. No. 585,322
Int. Cl.[5] F16K 31/06
U.S. Cl. 251—129.15 14 Claims



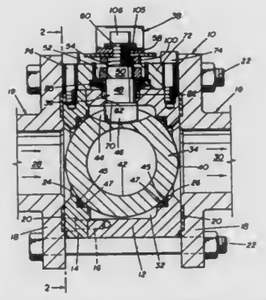
2. A solenoid valve comprising:
a hollow body defining a chamber and including at least one inlet port and an outlet port in fluid communication with said chamber;
a magnetic tubular sleeve plunger slidable in said chamber and having an annular end aligned for engagement with a valve seat surface around said outlet port;
a coil carried by said body in a longitudinally displaced location from said sleeve whereby said coil induces an electromagnetic force urging said sleeve away from said valve seat surface;
a stop for limiting sleeve displacement away from said valve seat surface; and
a spring resiliently urging said sleeve against said valve seat surface.

5,064,167

ADJUSTABLE PACKING ASSEMBLY FOR VALVE STEM

Woody C. DiPalma, Katy, Tex., assignor to Fike Corporation

Filed Oct. 31, 1990, Ser. No. 606,131
Int. Cl.[5] F16K 5/04
U.S. Cl. 251—214 15 Claims



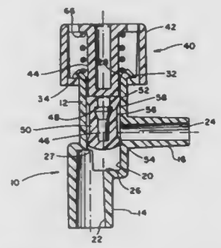
1. In a ball valve having a body defining an enlarged diameter valve chamber with a ball valve member mounted therein, and a stem extending through an opening in said body and connected to said ball valve member for rotation of said ball valve member between open and closed positions;
an outer plate mounted on said body having a bore in alignment with said opening in said body for receiving said stem, said bore defining a large diameter bore portion on its inner side adjacent said valve body and a small diameter bore portion on its outer side;
a packing within said opening in said body about said stem;
a Belleville spring mounted within said large diameter bore portion of said plate about said stem and biased between said plate and said packing, said Belleville spring having an inner marginal portion for exerting a continuous compressive loading against said packing and having an outer diameter substantially greater than the outer diameter of said packing for defining an outer marginal portion radially outwardly of said packing; and
manually adjustable means extending through said outer plate having an outer end accessible externally of the ball valve and having an inner end for exerting a predetermined compressive loading against said outer marginal portion of said Belleville spring thereby effecting a predetermined loading of said packing.

5,064,168

SPOOL VALVE WITH OFFSET OUTLET

Kenneth Raines, Bethlehem, and John D. Grimm, Germansville, both of Pa., assignors to Burron Medical, Inc.

Filed Jan. 23, 1991, Ser. No. 644,766
Int. Cl.[5] F16K 3/24
U.S. Cl. 251—322 7 Claims



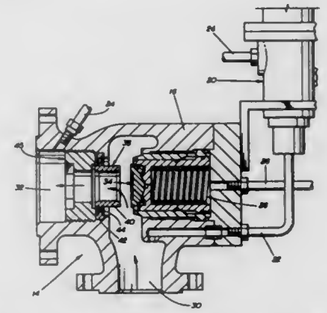
1. A valve comprising
a one-piece plastic body having a central cylindrical portion extending along a first axis, a tubular outlet portion extending along a second axis parallel to and offset from the first, said central portion and said outlet portion having bores which intersect only over a portion of the length of each, and a tubular inlet extending along a third axis perpendicular to the first axis and above the intersected portion of the central bore that an uninterrupted 360° band portion of the central bore, forming a seat remains between the outlet and the inlet, and
a plunger assembly including a resilient, circumferential lip thereon, and a circumferential recess adjacent thereto of lesser diameter than said central bore, said plunger being movable between a closed position in which the lip abuts the 360° band, and an open position in which the lip extends into the intersected portion of the bore, and the recess provides a flow channel between the outlet and the inlet.

5,064,169

SHOCK ABSORBING MEANS FOR FLOW CONTROL DEVICES

Jack B. Alberts, and Michael D. McNeely, both of Houston, Tex., assignors to Keystone International Holdings Corp.

Continuation-in-part of Ser. No. 502,047, Mar. 30, 1990, Pat. No. 5,011,116. This application Jan. 22, 1991, Ser. No. 643,485
Int. Cl.[5] F16K 25/00, 31/102, 17/04
U.S. Cl. 251—334 16 Claims



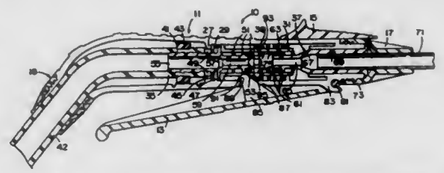
1. In a fluid operated valve having a body including a flow passage therethrough;
a hard annular seat ring mounted within the valve body about the flow passage;
a fluid pressure responsive reciprocable valve member mounted within the valve body for movement between open and closed positions relative to said flow passage and adapted to seat in closed position on said hard seat ring and to exert an impact force against said hard seat ring when seating thereon;
a flexible connecting member having inner and outer peripheral portions with said inner peripheral portion being connected to said hard seat ring about the entire outer periphery of said seat ring and extending in a generally radial direction outwardly therefrom to said outer peripheral portion; and
anchoring means connected to said outer peripheral portion of said flexible member to permit flexing of said connecting member after initial contact of said reciprocable valve member with said hard seat ring to absorb impact loads resulting from contact of said valve member against said hard seat ring, said flexible member flexing relative to said anchoring means upon impact of said valve member against said hard seat ring and axial movement of said hard seat ring resulting from such impact.

5,064,170

SPRAYER SHUTOFF VALVE

Robert G. Feyen, Grand Rapids, Mich., assignor to Root-Lowell Corporation, Lowell, Mich.

Filed May 14, 1991, Ser. No. 699,777
Int. Cl.[5] F16K 31/00, 35/00
U.S. Cl. 251—344 21 Claims



1. A valve for controlling the flow of a liquid comprising:

VOL 1132 ISS 2 NO 12 1991 UMI

a tubular housing;

a tubular upstream input member supported in said housing and defining an inlet passage therethrough;

a tubular downstream outlet member supported in said housing defining an outlet passage therethrough and being spaced from said input member to create a space between said input and outlet members;

a valve sleeve slidably mounted on said input and outlet member;

a valve plug supported in said valve sleeve, said valve plug being aligned with said input member for closing said passage through said input member when positioned adjacent said input member;

said valve sleeve being slidable between a first position with said plug adjacent said input member, closing said input passage, and a second position in which said plug is spaced from both said input member and said outlet member, said sleeve encompassing said input and outlet members in both said first and second positions to define a fluid flow passage between said input and outlet passage in both said first and second positions and at all positions therebetween;

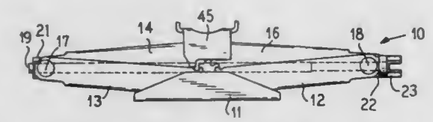
there being an opening between said valve plug and the interior surface of said valve sleeve whereby when said valve plug is in a position spaced from said input member and said outlet member, fluid can flow from said inlet passage, through said valve sleeve, past said valve plug and out of said valve sleeve through said outlet passage.

5,064,171

DRIVE HEAD FOR A SCISSORS JACK

Darryl L. Engel, LaOtto, Ind., assignor to Universal Tool & Stamping Co., Inc., Butler, Ind.

Filed Sep. 24, 1990, Ser. No. 587,068
Int. Cl.[5] B66F *3/12*
U.S. Cl. 254—126 **4 Claims**



1. A scissor jack formed with a base and two pair of lower links with first ends pivotally attached to said base, a lifting cap and two pair of upper links pivotally attached to said lifting cap, second ends of one pair of said lower links pivotally attached to second ends of one pair of said upper links, second ends of another pair of said lower links pivotally attached to second ends of another pair of said upper links, a threaded collar mounted on the pivot of the second ends of said one pairs of upper and lower links, a thrust baring mounted on the pivot of said second ends of said other pairs of said upper and lower links, a threaded shaft receivable through said thrust bearing and threadedly received in said threaded collar, and a thumb screw attached to the end of said threaded shaft adjacent said thrust bearing for turning said threaded shaft so as to raise and lower said jack, wherein said thumb screw is formed with an opening into which a lug wrence can be inserted so as to turn said threaded shaft, and wherein said thumb screw if formed with flexible walls about said opening so that said lug wrench can turn relative to said threaded shaft under overload conditions.

5,064,172

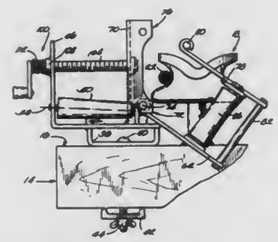
STRINGING BLOCK

William R. Hereford, 145 Gold St., Ishpeming, Mich. 49849

Filed Mar. 23, 1990, Ser. No. 499,598
Int. Cl.[5] A63B *35/03*
U.S. Cl. 254—134.3 PA **20 Claims**

1. A stringing block for use on a utility pole having means defining a crossarm support and cable insulating means on the crossarm support, the stringing block comprising

a frame including a base plate, means for releasably securing said base plate on the crossarm at a location outwardly of the insulator, a first roller means supported by said base plate and having an outer surface inclined downwardly toward the insulator and being adapted to support thereon a cable, and



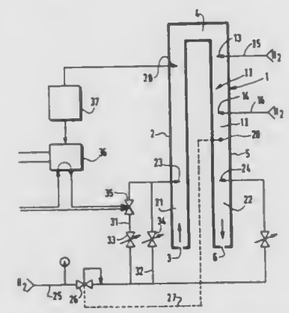
means supported by said frame for moving the cable into engagement with the insulator, the means for moving the cable including a carriage slidably mounted for movement relative to the base plate and having second roller means including a generally vertical axis of rotation and being adapted to support the cable, and means for moving said vertical axis of said second roller means horizontally relative to the insulator.

5,064,173

PROCESS AND DEVICE FOR THE ANNEALING TREATMENT OF METAL STRIPS

Olivier Ecalle, Versailles, and Valéry Vinckx, Biganos, both of France, assignors to L'Air Liquide, Societe Anonyme Pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France

Division of Ser. No. 323,564, Mar. 14, 1989. This application Jun. 8, 1990, Ser. No. 535,128
Claims priority, application France, Mar. 16, 1988, 88 03372; Mar. 16, 1988, 88 03373
Int. Cl.[5] C21B *7/24*
U.S. Cl. 266—80 **5 Claims**



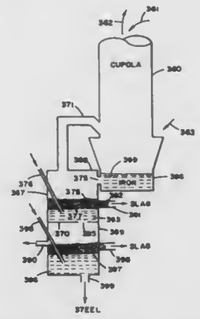
1. Plant for an annealing treatment of metal articles, comprising a furnace including interconnected relation: an entrance end zone for the metal articles to be treated, a heating zone, a cooling zone following the heating zone relative to the direction of travel of the articles through the furnace, and an exit end zone for the treated metal articles, means for injecting gas having a high hydrogen content into said heating zone, means for injecting a dense inert gas in the vicinity of both of said end zones of the furnace, an inert gas supply conduit for supplying said inert gas to one of said end zones, a flow regulator device interposed in said inert gas supply conduit, and a hydrogen analyzer for analyzing the hydrogen content in the vicinity of said heating zone and for controlling said regulator device as a function of said hydrogen content to vary the injection of said inert gas.

5,064,174

APPARATUS FOR PRODUCTION OF ENERGY AND IRON MATERIALS, INCLUDING STEEL

John M. Lehto, Cokato, Minn., and Raymond L. Smith, Green Valley, Ariz., assignors to Northern States Power Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 423,615, Oct. 16, 1989, which is a continuation of Ser. No. 91,427, Aug. 31, 1987, abandoned. This application Feb. 8, 1988, Ser. No. 153,242
Int. Cl.[5] F27B *1/02*
U.S. Cl. 266—160 **18 Claims**



1. An arrangement for use in a process for the production of steel; said arrangement comprising:

(a) a cupola having a bottom section for collection of molten metal material therein;

(b) a multi-chamber refining unit in flow communication with said cupola bottom section, said multi-chamber refining unit including first and second vertically disposed reaction chambers isolated from one another;

(i) said first reaction chamber being an upper chamber and including means providing for selective flow communication with said cupola bottom section;

(ii) said second reaction chamber being a lower chamber, relative to said upper chamber, generally disposed beneath said upper chamber and including means for molten metal flow from said multi-chamber refining unit;

(iii) at least one of said first and second reaction chambers including means for selective introduction of refining materials into molten metal material positioned therein, to facilitate steel production; and,

(c) said multi-chamber refining unit includes means providing for selective flow of said molten metal material being refined therein between said first and second reaction chambers.

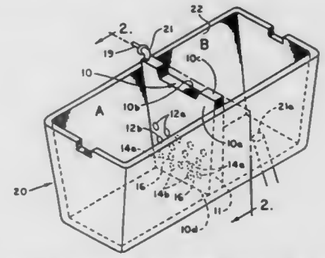
5,064,175

METHOD AND DEVICES FOR REMOVING ALUMINA AND OTHER INCLUSIONS FROM STEEL CONTAINED IN TUNDISHES

Madjid Soofi, St. Charles, Ill., assignor to Magneco/Metrel, Inc., Addison, Ill.

Division of Ser. No. 597,628, Oct. 15, 1990. This application Jan. 4, 1991, Ser. No. 637,419
Int. Cl.[5] C21B *3/00*
U.S. Cl. 266—229 **4 Claims**

1. A method for collecting and removing alumina and other impurities from molten steel present in a tundish which comprises placing within the tundish one or more ceramic baffles which contain a plurality of holes for controlling the flow of molten metal and having a front and back face with these baffles containing on one or both of their faces but not extending through the baffle depressions or embossments of sufficient



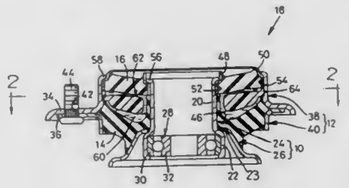
size and number to increase the surface area of the face upon which they are imposed by at least 5% and then contacting these baffles with molten steel containing the alumina and other impurities whereby these impurities are deposited upon and are retained on the baffles.

5,064,176

UPPER SUPPORT FOR SHOCK ABSORBER IN SUSPENSION SYSTEM

Katsuhiro Goto, Komaki, Japan, assignor to Tokai Rubber Industries, Ltd., Aichi, Japan

Filed Apr. 4, 1990, Ser. No. 503,944
Claims priority, application Japan, Apr. 14, 1989, 1-95800
Int. Cl.[5] B60G *15/04*; F16F *7/10*
U.S. Cl. 267—140.1 **10 Claims**



1. An upper support for a suspension system, which is interposed between a body of a vehicle and a shock absorber of the vehicle, for elastically connecting the vehicle body and the shock absorber, comprising:

a generally cylindrical inner rigid member to which said shock absorber is fixed;

a generally cylindrical outer rigid member which is disposed radially outwardly of said inner rigid member and fixed to said body of the vehicle;

at least one generally annular elastic body interposed between said inner and outer rigid members for elastically connecting the inner and outer rigid members, said at least one elastic body at least partially defining at least one fluid chamber which is filled with a non-compressible fluid and which is subject to a dynamic vibrational load that is applied between said inner and outer rigid members; and

at least one resonance member each of which is accommodated in the corresponding one of said at least one fluid chamber, each said resonance member having an outer configuration substantially corresponding to an inner shape of said corresponding one fluid chamber, and being secured to one of said inner rigid member and said outer rigid member, each said resonance member cooperating with an inner wall surface of the corresponding fluid chamber to define a resonance portion which has prede-

VOL 1132 ISS 2 NO 12 1991 UMI

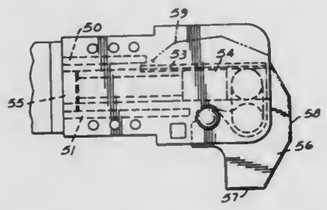
termined dimensions, and through which said non-compressible fluid is forced to flow upon application of said dynamic vibrational load.

5,064,177

POWER CLAMP WITH ENCLOSED TRACK

Larry M. Witt, Rochester, and Bruce K. Sberman, Lapeer, both of Mich., assignors to Delaware Capital Formation, Wilmington, Del.

Continuation-in-part of Ser. No. 465,395, Jan. 16, 1990, abandoned. This application Dec. 3, 1990, Ser. No. 620,436
Int. Cl.[5] B23Q *3/08*
U.S. Cl. 269—32 **21 Claims**



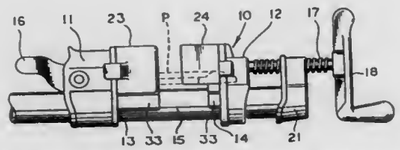
1. Power clamp comprising clamp base provided with a pair of laterally spaced longitudinally extending guide tracks having opposed facing sides open, track follower means engaging said guide tracks, clamp arm means pivotally connected to said base intermediate said guide tracks, actuating linkage having spaced pivots, said pivots respectively confined to said guide tracks by connection to said track follower means and having an actuating connection with said clamp arm means, coupling means (**54**, **54*a***) connected to a reciprocable power source said coupling means having connection means for moving said track follower means said coupling means cooperating with said linkage to provide pivotal movement of said clamp arm means to respective clamp and release positions, characterized by complete enclosure means for said guide tracks, said enclosure means comprising a combination of fixed track cover means connected to said base and movable track cover means connected to said track follower means together with said clamp arm means such that when said reciprocating power source extends said coupling means said connection means moves said track follower means and thus said movable track cover means into place to create said complete enclosure means.

5,064,178

MITERED FACE FOR THE JAWS OF A CLAMP, AND A CLAMP EMPLOYING A MITERED FACE

Roderick L. Nimtz, Garrettsville, Ohio, assignor to Warren Tool Corporation, Hiram, Ohio

Continuation of Ser. No. 511,931, Apr. 16, 1990, Pat. No. 5,002,264. This application Oct. 5, 1990, Ser. No. 593,901
Int. Cl.[5] B25B *1/24*
U.S. Cl. 269—41 **4 Claims**



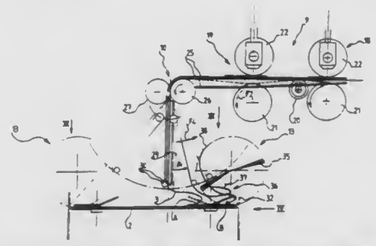
1. A clamping assembly for clamping articles, such as a work piece, comprising
a linear bar having polygonal cross-section;
opposed first and second jaw means having first and second bases, each said first and second bases having an inside area adapted for slidable engagement with said linear bar;
said linear bar slidably supporting said first and second bases of said first and second jaw means through said inside areas thereof;
means for locking and unlocking said first jaw means in a predetermined position on said linear bar;
means for applying and relieving pressure on the work piece by linearly advancing said second jaw means on said bar toward and away from said first jaw means;
said first and second jaw means further comprising first and second jaw faces extending from said first and second bases;
first and second clamp bodies for receiving a work piece therebetween, said first clamp body having a first mitered face and a third base connected to each other, said second clamp body having a second mitered face and a fourth base attached to each other, each said third and fourth bases having an inside area with substantially 180° polygonal configuration which is adapted for slidable engagement with said linear bar;
said first and second mitered faces are matching each other,
said first mitered face is removably connected to said first jaw face in such a manner that said third base is slidably supported by said linear bar through said inside area of the third base, said second mitered face is removably connected to said second jaw face in such a manner that said fourth base is slidably supported by said linear bar through said inside area of the fourth base, wherein said linear bar, and said inside areas of said first, second, third and fourth bases have a common longitudinal axis.

5,064,179

METHOD OF FORMING ZIGZAG-SHAPED PILES FROM A CONTINUOUS BAND OF A FLEXIBLE MATERIAL AND MACHINE FOR CARRYING OUT THIS METHOD

Martial G. Martin, Villejuif, France, assignor to Syntone, Bruxelles, Belgium

Continuation of Ser. No. 282,266, Dec. 9, 1988, abandoned. This application Apr. 11, 1991, Ser. No. 673,169
Claims priority, application France, Dec. 10, 1987, 87 17241
Int. Cl.[5] B41L *1/32*
U.S. Cl. 270—39 **24 Claims**



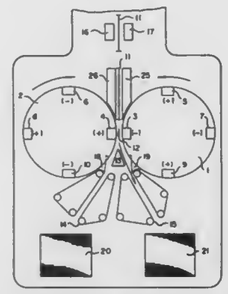
1. A method for forming piles from a continuous band of a flexible material comprising the steps of:
providing the continuous band with transverse folding lines such that a folding flap is defined between adjacent folding lines;
conveying the continuous band in a forward direction along a path that is in the vicinity of a stationary rupture device;
folding the continuous band along said transverse folding lines and depositing the folded flaps on a support and a pile forming station that is downstream from said path such that said folding flaps are arranged in a zigzag configuration and stacked in the form of a pile;
rupturing the continuous band at a predetermined folding line between two flaps, the downward flap being designed to become the last flap of a pile that is about to be formed and the upward flap being designed to become the first flap of a new pile to be formed;
determining the instant of time when said predetermined rupture folding line arrives in a zone substantially in front of said rupture device;
deviating the continuous band with said rupture folding line being in said zone in front of said rupture device, in a direction substantially perpendicular to said path at a location near to said rupture device such that the region of the continuous band encompassing said predetermined rupture folding line is forced against said rupture device and subjected to traction forces that rupture said continuous band along said predetermined folding line, thereby separating said first and last flaps, without stopping the forward motion of the continuous band;
maintaining said first and last flaps in close proximity to one another as said separate band continues forward towards a pile forming station;
depositing said last flap on said pile being formed to form a complete pile and removing said complete pile from said pile forming station; and
positioning said first flap for forming said new pile.

5,064,180

ELECTROSTATIC DIVERTER

Mark A. Wingate, Rochester, N.H., assignor to Harris Graphics Corporation, Dover, N.H.

Filed Apr. 9, 1990, Ser. No. 507,244
Int. Cl.[5] B42C *1/04*
U.S. Cl. 270—47 **14 Claims**



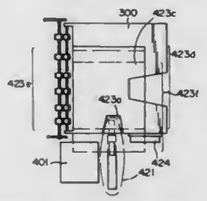
1. In a folder of a web-fed rotary printing machine, a device for separating a stream of signatures into a plurality of secondary streams thereof, the device comprising means for applying an electrostatic charge of a given type to a signature, two rotatable diverter cylinders disposed alongside one another and carrying thereon electrostatically chargeable elements extending substantially parallel to respective axes of said diverter cylinders and being electrically charged alternatingly with a charge of said given type and with a charge opposite to said given type at a gap between said diverter cylinders, means for conducting the signature to said diverter cylinders, and means for removing the signature from said diverter cylinders and for further guiding the signature to a delivery.

5,064,181

PAPER HANDLING APPARATUS

Masatoshi Hosoi; Tsutomn Ichinose; Masashi Shimada, all of Nagoya; Shin Umeda, and Hirobumi Yoshino, both of Tokyo, all of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Jan. 12, 1990, Ser. No. 464,193
Claims priority, application Japan, Jan. 19, 1989, 1-8452; Jan. 19, 1989, 1-8460; Dec. 5, 1989, 1-314219
Int. Cl.[5] B42B *1/02*
U.S. Cl. 270—53 **9 Claims**



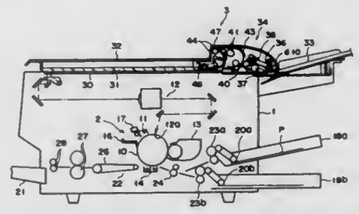
1. A paper handling apparatus comprising:
a plurality of bins for receiving paper sheets;
positioning means for positioning each sheet of paper distributed to said plurality of bins into a stack at a predetermined stacking position on a given bin;
stapling means for binding the paper sheets loaded on said plurality of bins to form a bound stack, the stapling means being movable between each of the plurality of bins and including stack positioning means for moving the stack between the predetermined position and a stapling position; and
control means for causing said stack positioning means to act on the paper sheets even after said paper sheets have been bound by said stapling means so that the bound stack is returned to the predetermined position.

5,064,182

AUTOMATIC ORIGINAL FEEDING DEVICE WITH FEEDING ROLLER

Akihito Tokutsu, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 24, 1990, Ser. No. 571,973
Claims priority, application Japan, Sep. 8, 1989, 1-234449
Int. Cl.[5] B65H *5/22*
U.S. Cl. 271—3 **10 Claims**



1. An automatic original feeding device for feeding originals placed at a first position to a second position through an original table of an image forming apparatus, said device comprising:
means for picking up the originals from the first position;
a feed roller for rotating in a first direction to feed the picked-up original onto the original table and for rotating in a second direction opposite to the first direction to deliver the fed original from the original table, said feed roller being movable between an operating position where the feed roller is in contact with the original table so as to deliver the original onto or from the original table, and a

VOL 1132 ISS 2 NO 12 1991 UMI

non-operating position were the feed roller is separated from the original table;

drive means for rotating the feed roller in the first and second directions;

means for discharging the original delivered from the original table to the second position;

means for reversing the original delivered from the original table and transporting the reversed original again to the feed roller;

means for guiding the original delivered from the original table to the discharging means and the reversing means;

first detection means arranged in the guiding means, for detecting each original, delivered from the original table, at the discharging means and at the reversing means; and

means for moving the feed roller to the non-operating position when the original is detected by the first detection means.

5,064,183

SUCTION TYPE SHEET FEEDING DEVICE

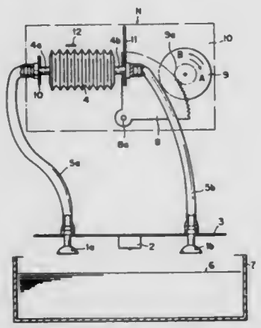
Hideo Nishigaki, and Shigeyuki Hayashi, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Sep. 12, 1990, Ser. No. 581,058

Claims priority, application Japan, Oct. 31, 1989, 1-127790[U]; Oct. 31, 1989, 1-283480; Oct. 31, 1989, 1-285323

Int. Cl.[5] B65H *3/08*

U.S. Cl. 271—10 **9 Claims**



1. A sheet feeding device for feeding an uppermost sheet of a sheet stack to a predetermined position comprising:

at least one suction cup unit movable toward and away from the uppermost sheet for attracting the uppermost sheet;

a moving means mounting thereon said at least one suction cup unit for moving said at least one suction cup unit toward the uppermost sheet and toward the predetermined position;

a negative pressure generating unit connected to said at least one suction cup unit for generating a negative pressure within at least one suction cup comprising said at least one suction cup unit, the negative pressure generation unit comprising a bellows shrinkable and expandable in its axial direction, and drive means for selectively providing the shrinkage and expansion of the bellows, wherein said bellows has a first and a second end and said at least one suction cup unit comprises tow suction cups to which the uppermost sheet is attracted and the sheet feeding device further comprises two flexible tubulary members each having a first end connected to a respective one of the first and second end of the bellows and a second end connected to one of the suction cups.

5,064,184

FEEDER

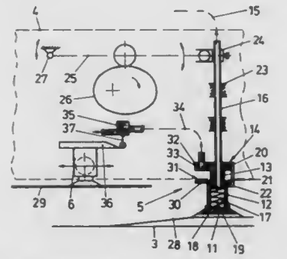
Rudolf Liepert, Augsburg, Fed. Rep. of Germany, assignor to Georg Spiess GmbH, Gersthofen, Fed. Rep. of Germany

Filed Mar. 27, 1990, Ser. No. 500,774

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1989, 3912241

Int. Cl.[5] B65H *3/08*

U.S. Cl. 271—14 **9 Claims**



1. A feeder comprising

a suction device which is placed over a stack of items to be fed, and includes a separating device with at least one telescoping and vertically reciprocable lifting suction holder, having a sucker, which when the sucker is covered over is able to be retracted against the action of a returning force by the action of vacuum present at such sucker and said lifting suction holder having overlapping surfaces for telescopically engaging parts;

a conveyor device which has at least one reciprocating entraining sucking device and is adapted to have such item transferred to it from the separating device;

at least one hold nozzle which is placed adjacent to overlapping surfaces of the telescopically engaging parts of each lifting suction holder and is adapted to be put under vacuum varying with the movement of entraining suction holder, but in a manner independent of the sucker; and

a means having an abutting surface associated with the nozzle and resting against same in the retracted position.

5,064,185

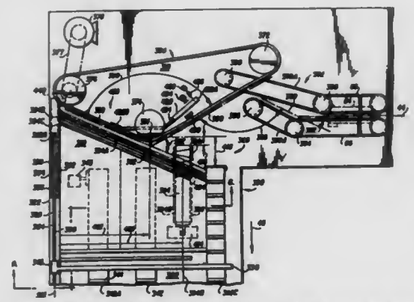
METHOD AND APPARATUS FOR FEEDING AND STACKING ARTICLES

Mario Ricciardi, Glenview, Ill., assignor to Bell & Howell Phillipsburg Company, Allentown, Pa.

Continuation of Ser. No. 298,542, Jan. 1, 1989, Pat. No. 4,955,596. This application May 14, 1990, Ser. No. 522,906

Int. Cl.[5] B65H *29/44*

U.S. Cl. 271—181 **17 Claims**



1. Apparatus for stacking a plurality of flat articles on edge, said apparatus comprising:

means for defining a discharge magazine wherein at least a previously-stacked flat article is orientable on edge and wherein a plurality of flat articles are storable on edge in stacked configuration, said means for defining said discharge magazine including abutment means contactable by a leading edge of a flat article in said magazine defining means;

introductory conveying means for directing a flat article on its edge along a linear introductory path whereby a leading edge of said flat article contacts stacker conveying means;

said stacker conveying means directing said flat article on its edge along a path toward said means for defining said discharge magazine, said path toward said means for defining said discharge magazine having at least a first linear path segment which is oriented at an obtuse angle with respect to said linear introductory path for directing a leading edge of said flat article toward a mid-section of a previously stacked flat article stored in said discharge magazine defining means and a second linear path segment downstream from said first linear path segment along a direction of conveyance, whereby said flat article is interposed between said previously-stacked article and said stacker conveying means, said stacker conveying means including a belt extending around three pulleys, one of said pulleys having a tangential surface thereof which provides a bend point between said first linear path segment and said second linear path segment, said bend point being located further downstream with respect to a direction of conveyance in said means for defining said magazine than an upstream edge of said abutment means; said stacker conveying means displacing a trailing edge of said flat article about at least an acute angle with respect to said first linear path segment as said flat article is interposed between said previously-stacked article and said second linear path segment of said stacker conveying means.

5,064,186

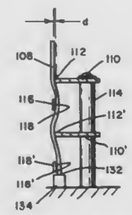
DOCUMENT TRANSPORT APPARATUS

Dwight G. Westover, Sierra Madre, Calif., assignor to TransTechnology Corporation, Sherman Oaks, Calif.

Division of Ser. No. 225,232, Jul. 28, 1988, Pat. No. 4,927,132. This application Mar. 27, 1990, Ser. No. 499,727

Int. Cl.[5] B65H *29/18, 29/70*

U.S. Cl. 271—188 **8 Claims**



1. Apparatus for transporting a sheet along a path, comprising in combination:

a first plate member having a sheet engaging edge along said path for engaging said sheet on one side of said sheet;

a second plate member having a sheet engaging edge along said path for engaging said sheet on said one side of said sheet;

a first elastic drive belt having a sheet engaging flat surface and unsupported along said path for engaging said sheet on the other side of said sheet;

a second elastic drive belt having a sheet engaging flat surface and unsupported along said path for engaging said sheet on said other side of said sheet;

said plate members and said belts situated with said first plate member edge, said first belt surface, said second plate member edge and said second belt surface arranged in successive vertically spaced relation and such that said belts urge said sheet against said plate member edges when said sheet is engaged by said belt surfaces and said plate member edges; and

means for driving said belts along said path.

5,064,187

CHAIN CONVEYOR FOR PAPER SHEETS AND THE LIKE

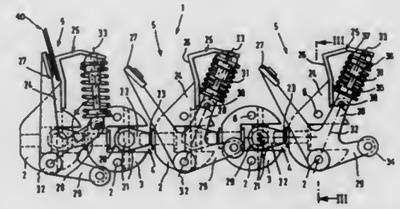
Hans Müller, Zofingen, Switzerland, assignor to Grapha-Holding AG, Hergiswil, Switzerland

Filed Feb. 28, 1990, Ser. No. 486,512

Claims priority, application Switzerland, Mar. 7, 1989, 843/89

Int. Cl.[5] B65H *29/04*

U.S. Cl. 271—204 **16 Claims**



1. A conveyor, comprising a link chain having a plurality of neighboring links, means for movably coupling the neighboring links to each other, and follower means on said links; and guide means for said follower devices, including an elongated track having a central longitudinal axis and two symmetry planes normal to each other and crossing one another at said axis.

5,064,188

AUTOMATIC DOCUMENT CONVEYING DEVICE WHICH OPENS SO JAMS MAY BE CLEARED

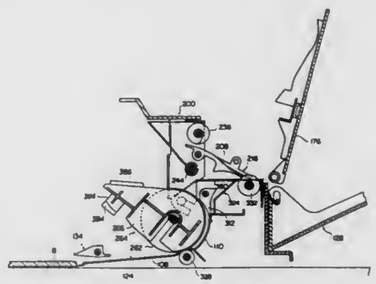
Tsuyoshi Nagao, Osaka; Yoichiro Irie, Suita; Yoshiyuki Takeda, Osaka, and Yasuhiko Kida, Hirakata, all of Japan, assignors to Mita Industrial Co., Ltd., Osaka, Japan

Filed Jul. 10, 1990, Ser. No. 550,853

Claims priority, application Japan, Jul. 10, 1989, 1-175523

Int. Cl.[5] B65H *29/60*

U.S. Cl. 271—301 **13 Claims**



11. An automatic document conveying device to be applied to an image-processing machine in which a transparent plate on which to place a document to be processed is disposed on the upper surface of a housing, which comprises

a document table,

a document introduction passage extending from the document table to one end edge of the transparent plate,

a document receiving table,

VOL 1132 ISS 2 NO 12 1991 UMI

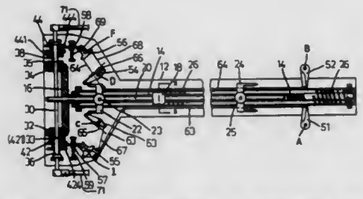
a document delivering passage extending from the other end edge of the transparent plate to the document receiving tray.
a document delivering means for delivering a plurality of documents placed on the document table one by one to the document introduction passage,
a document introduction means for introducing the document delivered to the document introduction passage onto the transparent plate,
a document conveying means for conveying the document along the transparent plate, and
a document delivering means for discharging the document delivered to the document delivering passage by the document delivering means to the document receiving tray through the document delivering passage; wherein
the document delivering means is provided with a main roller to be rotatably driven in a predetermined direction and an auxiliary roller cooperating with it,
a biasing spring for bringing the auxiliary roller into press contact with the main roller and a press-contact releasing means for moving the auxiliary roller in a direction to isolate it from the main roller against the action of the biasing spring,
an opening-closing member is mounted openably and closably to define part of the document delivering passage, and
when the opening-closing member is held in the closed state, the auxiliary roller is maintained in press contact with the main roller by the action of the biasing spring, and when the opening-closing member is maintained in the open state, the action of the press-contact releasing means maintains the auxiliary roller in a non-acting state whereby it does not substantially act on the main roller.

5,064,189

EXERCISE APPARATUS FOR GENERATING HARMONIC RESISTANCE TO AN EXERCISER

Jiang Shiuh-Shinn, No. 179, Sec. 2, Chung Hua Rd., Taichung, Taiwan

Filed Nov. 15, 1989, Ser. No. 436,740
Int. Cl.[5] A63B *21/00*
U.S. Cl. 272—72 **2 Claims**



1. An exercise apparatus capable of generating harmonic resistance to an exercising user, comprising:
a base;
a guiding screw rod journalled on the base for reversible rotation about its own longitudinal axis; said guiding screw rod having two ends and a mid-section disposed intermediate said ends;
a first bevel gear secured on one said end of said guiding screw rod;
a compression coil spring encircling said mid-section of said guiding screw rod and having one end axially fixed in relation of the other said end of said guiding screw rod;
an axially movable block mounted on an opposite end of said compression coil spring and threadedly mounted on said guiding screw rod so as to be axially reversibly advanced along said longitudinal axis as said guiding screw rod is correspondingly reversibly rotated, whereby said compression coil spring is correspondingly variably compressed as said guiding screw rod is reversingly rotated;
a straight rod axially movably arranged on said base so as to be parallel to said guiding screw rod, said axially movable block being fixed on said straight rod at an intermediate location between two opposite ends of said straight rod;
two collision elements, including one mounted on said straight rod between said block and a forward end of said straight rod and the other mounted on said straight rod between said block and a rear end of said straight rod;
a transverse shaft journalled on said base for rotation about its own longitudinal axis, which is arranged perpendicularly to said longitudinal axis of said guiding screw rod;
spline sleeve means mounted on said transverse shaft for rotation therewith;
second and third bevel gears journalled on said transverse shaft, each having a respective clutch means;
first and second clutch members axially shiftably mounted on said spline sleeve means for rotation with said transverse shaft;
first and second shifting means respectively operatively associated with said first and second clutch members, respectively for shifting said first clutch member into and out of operative engagement with said clutch means of said second bevel gear, and said second clutch member into and out of operative engagement with said clutch means of said third bevel gear;
first and second rocking levers arranged to be engaged and rocked by said other collision element upon rearward axial travel of said straight rod due to rotation of said guiding screw rod in one direction;
third and fourth rocking levers arranged to be engaged and rocked by said one collision element upon forward axial travel of said straight rod due to rotation of said guiding screw rod in a direction opposite to said one direction;
cable means operatively associating said first shifting means with said first and third rocking levers and said second shifting means with said second and fourth rocking levers, so that as said first and second rocking levers are engaged and rocked by said other collision element said third bevel gear is operatively engaged with said first bevel gear, and said fourth bevel gear is disengaged from said first bevel gear, and, as said third and fourth rocking levers are engaged and rocked by said one collision element said fourth bevel gear is operatively engaged with said first bevel gear, and said third bevel gear is disengaged from said first bevel gear; and
means actuable by an exercising user for rotating said transverse shaft, so that as said user continues to exercise and thereby rotate said transverse shaft, said guiding screw rod is rotated in said one direction thereby causing said spring to become progressively more compressed and thus offer progressively greater resistance to further rotation of said transverse shaft, until said first and second rocking levers are rocked by said other collision element, and then said guiding screw is rotated in said other direction thereby causing said spring to become progressively less compressed and thus offer progressively less resistance to further rotation of said transverse shaft, until said third and fourth rocking levers are rocked by said one collision element, so that as exercising time progresses simple harmonic resistance is provided to the user as the user uses the actuable means to rotate the transverse shaft.

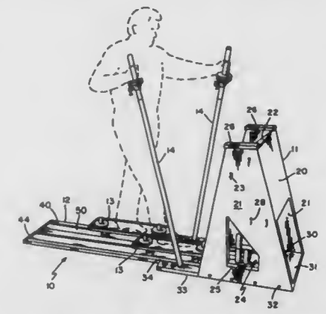
5,064,190

CROSS-COUNTRY SKIING AND EXERCISING MACHINE

Peter P. Holt, 2104 Centennial Dr., St. Cloud, Minn. 56301

Filed Feb. 23, 1990, Ser. No. 484,103
Int. Cl.[5] A63B *69/18*
U.S. Cl. 272—97 **18 Claims**

1. A cross country skiing and exercising machine comprising:
an elongate skiing platform with a pair of tracks channelled lengthwise therein, each of the tracks comprising a fibrous carpet,
a pair of skates ridable in the tracks, each of the skates including an upper, foot-supporting surface, each of the skates including means for receiving an apertured dead weight disk for increasing the mass of each of the skates, each of the skates further comprising a roller for rolling on the carpet of each of the tracks, the carpet of the tracks providing resistance to the rollers with a minimum of noise,
a pair of relatively heavy poles for simulating cross-country skiing, each of the poles including a handle and a distal end, each of the poles being a solid metal rod from the handle to the distal end, each of the handles comprising



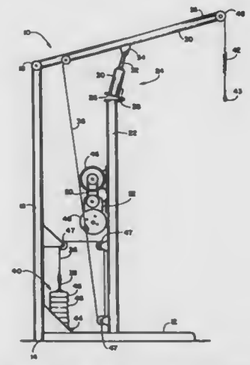
means for receivign an apertured, dead weight disk for further increasing the mass of each of the poles,
locating means for locating and freely receiving the distal end of each of the poles and disposable on both sides of the platform such that each of the poles is manipulatable parallel to and transversely of the tracks and readily and freely insertable in and removable from teh locating means, and
a stand with upper and lower portions, the platform being disposable within the stand, and the locating means being affixed to the stand.

5,064,191

GRAVITY FORCE REBOUND EXERCISER

William S. Johnson, 37203 SE. Gibson Rd., Washougal, Wash. 98671

Filed Jun. 28, 1990, Ser. No. 544,916
Int. Cl.[5] A63B *21/06*
U.S. Cl. 272—117 **9 Claims**



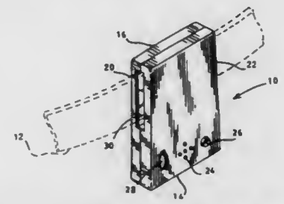
1. A gravity force rebound exerciser comprising:
a cable means for supporting a person at one end and a counterbalance weight at the other end;
a cable support means for supporting said cable between ends, said support means being selectively elevatable at the person supporting end of said cable for selectively elevating a person attached to said cable, said cable support means comprises a base support member for resting on a support surface, a first vertical member fixedly attached to said base member and extending vertically therefrom, a boom pivotally attached to the distal end of said first vertical member, a second vertical member shorter in length than said first vertical member attached to said base member spaced from said first vertical member, an extendible member pivotly attached along one edge of said second vertical member and pivotly attached at its opposite end to said boom intermediated the ends of said boom whereby when said translatable member is translated said boom is pivoted about its pivotal attachment to said first vertical member; and
means for periodically translating said cable back and forth relative to said cable support whereby when said cable translates in a first direction a person attached to the person supporting end of the cable is elevated and said weight is lowered and when said cable translates in a second opposite direction said person is lowered and said weight are elevated.

5,064,192

EXERCISING INDICATOR

Arthur A. Smith, 6023 Cougar Dr., Knoxville, Tenn. 37921

Continuation-in-part of Ser. No. 498,709, Mar. 26, 1990, abandoned. This application Dec. 24, 1990, Ser. No. 632,475
Int. Cl.[5] A63B *23/00*; A61B *5/08*
U.S. Cl. 272—125 **15 Claims**



12. A device for monitoring body muscle movement, said device to be installed upon a conventional belt-like member to encircle a portion of a user's body where said muscle movement is to be monitored, which comprises:
a housing member, said housing member provided with a passageway for receiving said belt-like member therethrough;
a switch operator positioned within said passageway, said switch operator having a convex contour surface for contact with said belt-like member, said switch operator having one edge thereof fixed within said housing member and an opposite edge movable upon pressure being applied to said convex contoured surface by said belt-like member as said belt-like member is tensioned by said muscle movement, said switch operator having a first electrical switch contact;
a second electrical switch contact positioned within said housing member and aligned for engaging said first switch contact;
a d.c. battery for providing a source of electrical current positioned within said housing member;
a blinking light emitting diode with a built-in timing circuit positioned in said housing member and visible from exterior said housing member;
a piezo buzzer with a built-in driver circuit for producing sound positioned within said housing member;
circuit means within said housing member connecting, in series, said battery, said blinking light emitting diode, said piezo buzzer, said first switch contact and said second switch contact;

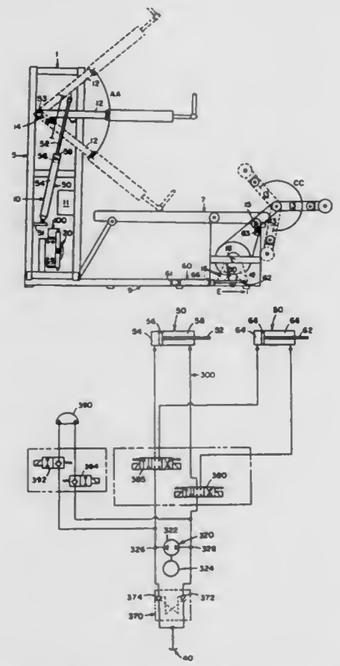
VOL
1132
ISS
2
NO
12
1991
UMI

a rotatable shaft member within said housing member, said shaft member having exterior threads;
a thumbwheel attached to said rotatable shaft member, at least a portion of said thumbwheel being exterior to said housing member, whereby rotation of said thumbwheel by a user of said device rotates said shaft member; and
a travelling nut member threadably engaged with said treads of said shaft member whereby rotation of said shaft member causes said travelling nut member to move axially along said shaft member, said second switch contact being attached to said travelling nut member whereby movement of said travelling nut member causes movement of said second switch contact relative to said first switch contact.

5,064,193
AUTOMATIC FORCE GENERATING AND CONTROL SYSTEM

Robert L. Sainte, Winchester, Ky.; Steven E. Sarns, Arvada, and Steven R. Frank, Golden, both of Colo., assignors to Walker Fitness Systems, Inc., Reston, Va.

Filed Nov. 13, 1989, Ser. No. 439,932
Int. Cl.[5] A63B *21/008*
U.S. Cl. 272—130 **39 Claims**

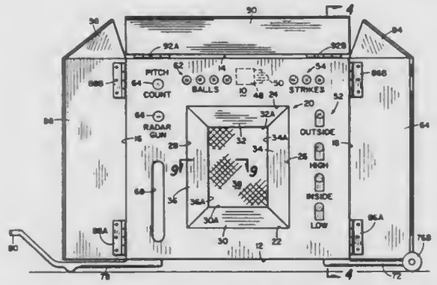


1. An exercise machine, comprising:
a base adapted to remain substantially stationary during use of the exercise machine;
a first hydraulic assembly, including a first cylinder having a first end and a second end, a first piston positioned within said first cylinder to move between said first and second first cylinder ends, and a first rod having an arm end and a piston end, wherein said piston end is connected to said first piston, said hydraulic assembly having a base end and being pivotally connected at its base end to said base;
said first arm pivotally connected to said base and pivotally connected to said arm end of said first rod so that as said first arm is pivoted with respect to said base, said first rod and said first piston move within said first cylinder;
first setting means for positioning said first rod and said first piston at a starting point within said first cylinder and simultaneously effecting a low resistance to movement of said first rod and said first piston within said first cylinder in a direction of movement either towards said first end or towards said second end of said first cylinder said first setting means further comprising a pump connected in series between said first end and said second end of said first cylinder, said pump having a first port and a second port, said first port and said second port connected to said first end and said second end respectively; and
pressurizing means for providing pressurized fluid to a first end of said first cylinder thereby creating a high resistance to movement of said first piston and said first rod in said first cylinder in the direction of said first end once a starting point is set.

5,064,194
APPARATUS FOR USE IN PRACTICING PITCHING OF BASEBALLS

Dickie R. Bixler, and Matthew R. Bixler, both of Rte. 1, Box 33, Dacoma, Okla. 73731

Filed Jan. 18, 1991, Ser. No. 643,529
Int. Cl.[5] A63B *69/00*
U.S. Cl. 273—26 A **9 Claims**

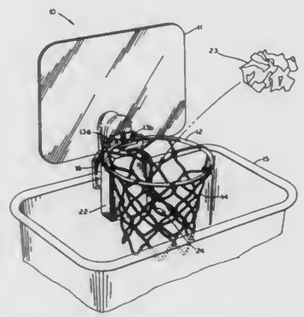


1. An apparatus for use in practicing pitching of baseballs to enable the user to improve pitching accuracy and to indicate pitched balls delivered within a strike zone, comprising:
a vertical backboard member having a rectangular opening therethrough conforming in width defined by an inside vertical edge and an outside vertical edge and in height defined by a horizontal top edge and a horizontal bottom edge to simulate a typical strike zone as employed in the game of baseball;
means to impede a baseball after it has passed through said opening;
means attached to said backboard adjacent said opening inside vertical edge to detect the impingement of a baseball thereagainst and for indicating an "inside" pitch;
means attached to said backboard adjacent said opening outside vertical edge to detect the impingement of a baseball thereagainst for indicating an "outside" pitch;
means attached to said backboard adjacent said opening top horizontal edge to detect the impingement of a baseball thereagainst for indicating a "high" pitch; and
means attached to said backboard adjacent said opening bottom horizontal edge to detect the impingement of a baseball thereagainst for indicating a "low" pitch.

5,064,195
NOVELTY BASKETBALL GOAL PRODUCING SOUND EFFECTS ON MADE SHOT

David S. McMahan, Huntersville, N.C.; Richard Tso, and Jackson Lee, both of Taipei, Taiwan, assignors to Express Yourself, Inc., Charlotte, N.C.

Filed Mar. 21, 1991, Ser. No. 672,952
Int. Cl.[5] A63B *63/08*
U.S. Cl. 275—374 **15 Claims**

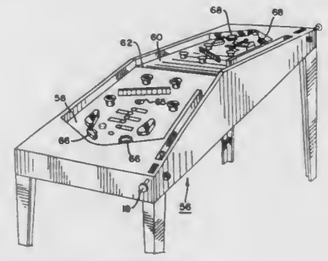


1. A novelty basketball goal comprising:
a hoop;
a net secured to the hoop;
an electrical switch for generating a signal responsive to an object passing through the hoop, the electrical switch comprising
a housing;
a first conductor and a second conductor positioned within the housing; and
means for suspending the first conductor within the housing in a closely spaced-apart relation from the second conductor so that the first and second conductors come into contact responsive to a predetermined force applied to the housing;
means for suspending the electrical switch from the net; and
means for generating sound effects responsible to the signal from the electrical switch.

5,064,196
PINBALL MACHINE HAVING PIVOTED DOUBLE-INCLINED PLAYING SURFACE

Alvin J. Gottlieb, 290 Cottage Hill, Elmhurst, Ill. 60126

Continuation-in-part of Ser. No. 392,050, Aug. 10, 1989, Pat. No. 4,971,322. This application Aug. 13, 1990, Ser. No. 566,630
Int. Cl.[5] A63D *3/02*; A63F *7/00*
U.S. Cl. 273—121 A **20 Claims**

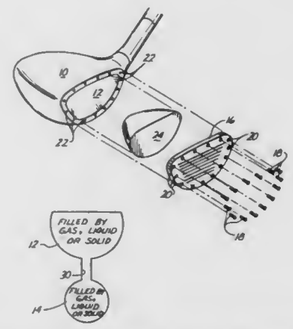


1. A pinball game, comprising:
a projectile;
at least two surfaces on which the projectile travels, the surfaces having a first position wherein each surface is disposed at a first angle with respect to the horizontal, and each surface having an upper edge and a lower edge, the upper edge meeting to form an apex that the projectile may travel over to move from one surface to another in the first position;
a drive mechanism to move the apex to and from a second position wherein each surface is disposed at a second angle with respect to the horizontal; and
at least one projectile engaging mechanism operable by a player to project the projectile across the surfaces.

5,064,197
METHOD AND MEANS TO ADJUST SOUND CHARACTERISTICS OF CLUB HEAD UPON IMPACT WITH GOLF BALL

Laurence D. Eddy, 4414 Terreno Ct., San Diego, Calif. 92124

Filed Apr. 8, 1991, Ser. No. 682,128
Int. Cl.[5] A63B *53/04*
U.S. Cl. 273—167 H **11 Claims**



1. The improvement in a head of a wood, comprising:
(a) said head having a face and having a first forward chamber opening to said face and a resilient face plate capable of deflecting under impact with a golf ball covering said first chamber and means securing said face plate in place on said head whereby said face plate in striking a golf ball acts like a trampoline that transfers an additional impulse to the golf ball during impact and whereby said face plate acts in respect to said first chamber like the membrane of a kettledrum in producing a sound upon impact with the golf ball that is determined partly by the physical characteristics of said face plate and by the size and shape of said first chamber, and
(b) said head having a second rear chamber disposed rearwardly of said first chamber and a throat connecting said second chamber to said first chamber whereby said second chamber and said throat have the function of a Helmholtz resonator modifying said sound propagated in said first chamber upon striking a golf ball.

5,064,198
PUTTING AID FOR GOLFERS

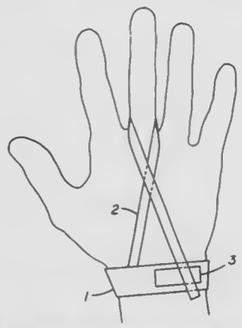
Gerald S. Szabo, 806 Broadfield Dr., Newark, Del. 19713

Filed Jun. 8, 1990, Ser. No. 535,543
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—189 R **1 Claim**

1. A device for use by a golfer while putting a golf ball consisting of an elongated wrist band having opposite ends for encircling a golfer's wrist, means at the opposite ends of said wrist band for adjustably securing said wrist band to the wrist of the golfer's trailing hand during a putting stroke, an elongated finger strap having a first attached end and a second free end, said first end of said finger strap being attached to said wrist band, the length of said finger strap being such that with

VOL 1132 ISS 2 NO 12 1991 UMI

said wrist band attached to the wrist of the golfer's trailing hand during a putting stroke, said strap may be extended from the back side of the golfer's wrist toward, and counter-clockwise around the middle finger of the golfer's trailing hand, and back to a predetermined location on said wrist band, said location being adjacent said first attached end of said finger



strap and spaced a slight distance therefrom in a clockwise direction, means at said predetermined location and at the second free end of said finger strap for adjustably securing said second free end to said wrist band, whereby the wrist of the golfer's trailing hand may be locked in a slightly flexed position and will not easily break during the putting stroke.

5,064,199
GOLF BALL
Joseph Morell, Annecy le Vieux, France, assignor to Taylor Made Golf Company, Inc., Carlsbad, Calif.
Filed Jan. 25, 1991, Ser. No. 645,637
Claims priority, application France, Jan. 25, 1990, 90 00857
Int. Cl.[5] A63B *37/14*
U.S. Cl. 273—232 **16 Claims**

1. A golf ball comprising:

a peripheral surface having the general shape of a sphere and a plurality of dimples provided in said peripheral surface, said dimples defining, by virtue of respective intersections between said dimples and said peripheral surface, circles of intersection distributed in a repeating pattern and generally bounded within elemental surfaces defined by arcs of six equatorial circles of said sphere;

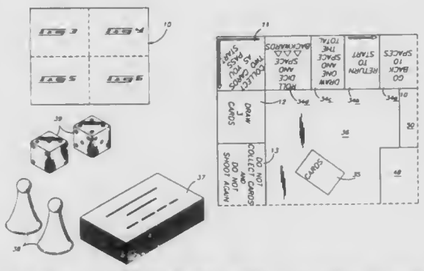
said six equatorial circles being distributed into three groups of two equatorial circles, the two equatorial circles of each of said groups being associated, respectively, with one of three equatorial planes, said three equatorial planes intersecting, two by two, at right angles, along axes which themselves intersect, two by two, at right angles, at the center of said sphere, each of said two equatorial circles of said three groups of equatorial circles intersecting a respective one of said axes and being mutually symmetrical with a respective one of said equatorial planes, and each of the two equatorial circles of each of said three groups being angularly offset with respect to a respective equatorial plane by an angle α which is greater than zero, less than 45°, and not equal to 31° 43′ 03″, thereby defining said elemental surfaces as follows:

twelve identical first elemental surfaces in the form of spherical irregular pentagons;

eight identical second elemental surfaces in the form of spherical equilateral triangles; and

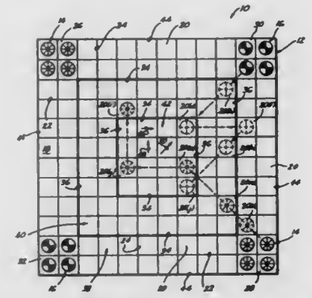
twelve identical third elemental surfaces in the form of spherical isosceles triangles.

5,064,200
METHOD OF PLAYING A BOARD GAME
Fernando Martinez, 1387 Pennygent, Channelview, Tex. 77530
Filed Mar. 21, 1991, Ser. No. 673,009
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—243 **3 Claims**



1. A method of playing a board game comprising the steps of providing a game board, and providing a perimeter path of spaces defining a playing path along a perimeter of the game board, and designating a single space for a start space and designating a further space as a gateway space, and providing a further plurality of spaces on the game board interiorly of the playing path, with the further plurality of spaces in communication only with the gateway space to permit entrance into the further plurality of spaces through the gateway space and exit from the further plurality of spaces through the gateway space, and providing a token for each player, and providing a plurality of dice for directing the token for each player about the playing path and the further plurality of spaces, and further providing a deck of playing cards and designating individual cards within the deck of playing cards from 1–10, and designating the further plurality of spaces 1–10 wherein each player is provided a predetermined number of playing cards and each player is directed to position the predetermined value of playing cards of the playing cards 1–10 upon a space of the further plurality of spaces of like designation of 1–10, and wherein the players must initially fill the further plurality of spaces 1–9 with a like designated playing card prior to positioning of the playing card designated as 10 upon a further space designated as 10.

5,064,201
METHOD OF PLAYING A BOARD GAME
Mark R. Smith, 1401 NW. 185th, Edmond, Okla. 73034
Filed Apr. 11, 1990, Ser. No. 507,999
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—258 **2 Claims**



1. A method for playing a game board apparatus wherein the game board apparatus consists of a game board having a playing surface and a predetermined number of movable game pieces, the playing surface consisting of a plurality of squares defined by orthogonally disposed grid lines which extend in first and second directions and boundary markings coincident with selected grid lines for dividing the playing surface into a plurality of subset areas of the playing surface, one of the subset areas being a perimeter subset area, a second subset area being an intermediate subset area and a third subset area being a center subset area, the method comprising:

assigning a movement value to each of the subset areas such that each subset area has a different movement value;

positioning movable game pieces on designated starter squares located in the perimeter subset area; and

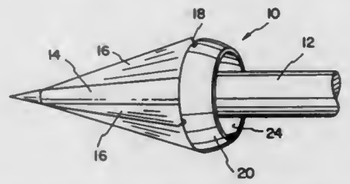
moving selected game pieces, in player turn, selected distances along the game board in one of the first direction, the second direction and a diagonal direction, the selected distance traveled being determined by the value of the subset area in which the game piece is located prior to being moved in order to attain one of a first winning goal and a second winning goal, the first winning goal being the capture of a majority of an opponent's game pieces by moving a game piece by coterminous moves to land on a square occupied by an opponent's game piece which results in capture of the opponent's game piece, the second winning goal being the first to position game pieces in one of an aligned first direction row, an aligned second direction row and an aligned diagonal row in the third subset area by coterminous moves of one's game pieces.

5,064,202
BROADHEAD GUIDE RING FOR AN ARROW
Keith Barner, 101 Sunset Blvd., Bozeman, Mont. 59715
Filed Apr. 29, 1991, Ser. No. 692,667
Int. Cl.[5] F42B *6/08*
U.S. Cl. 273—421 **2 Claims**

1. A broadhead guide ring for use with a broadhead having a blade with a tail edge mounted to an arrow shaft having a forward end and a tail end, the shaft receiving the broadhead at the forward end with the tail edge of the blade facing the tail end, the broadhead guide ring comprising;

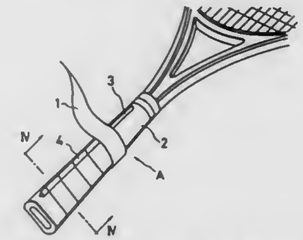
a ring encircling the shaft, the ring having a forward edge and a rearward edge;

the ring being shaped to have a smaller inside diameter at the rearward edge than an inside diameter at the forward edge, the smaller inside diameter sized to be larger than the arrow shaft; and



a connecting means for connecting the tail edge of the blade to the forward edge of the ring whereby the ring will remain in position on the blade during flight.

5,064,203
TENNIS RACKET
Shuhei Hattori, Parasuto Kamikitazawa 305, 1-39-15 Shimo-Takaido, Suginami-ku, Tokyo, Japan
Continuation of Ser. No. 241,474, Sep. 7, 1988, abandoned. This application Jan. 22, 1991, Ser. No. 643,082
Int. Cl.[5] A63B *49/08*
U.S. Cl. 273—73 J **7 Claims**



1. A grip portion of a tennis racket to be held by a user's hand, wherein said grip portion comprises:

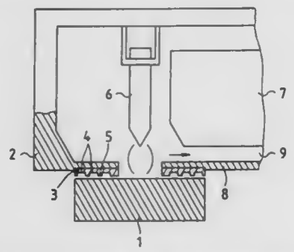
only two raised ribs which are disposed along ridges at diagonally opposite portions of a cross section of said grip portion and extend over generally the entire length of said grip portion, wherein said grip portion is firmly held in said hand in a gripping position that remains the same during a forehand stroke and a backhand stroke, thereby enabling the user to determine and maintain an optimum grip which is applicable in both said forehand stroke and said backhand stroke, and said raised ribs prevent rotation of said racket within said hand.

5,064,204
ANALYZER SEALING MEMBER
Marja-Leena Järvinen, and Jouko A. K. Koskinen, both of Helsinki, Finland, assignors to Outokumpu Oy, Helsinki, Finland
Continuation of Ser. No. 368,657, Jun. 20, 1989, abandoned. This application Jan. 22, 1991, Ser. No. 644,403
Claims priority, application Finland, Jun. 22, 1988, 883013
Int. Cl.[5] F16J *15/447*
U.S. Cl. 277—53 **11 Claims**

1. An improved analyzer comprising a probe body that defines a measurement chamber for receiving a gas, said probe body being surrounded by an external atmosphere, and an aperture to which a sample is presented for analysis in an atmosphere of the gas that is received in the measurement, chamber, and a sealing member for establishing a substantially

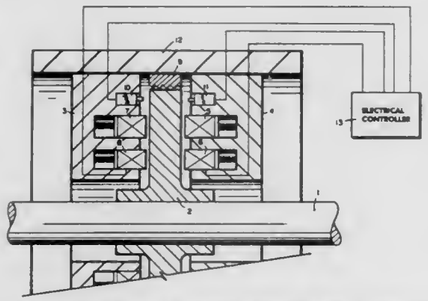
VOL 1132 ISS 2 NOV 12 1991 UMI

gas-tight seal between the probe body and the sample which acts to separate the gas in said measurement chamber from the



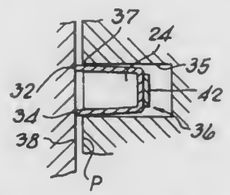
external atmosphere, wherein the improvement resides in that the sealing member is a semi-labyrinth sealing member.

5,064,205
ACTIVE MAGNETIC SEAL
Robert P. Whitford, Sterling, Mass., assignor to General Electric Company, Schenectady, N.Y.
Filed May 23, 1990, Ser. No. 527,520
Int. Cl.[5] F16J *9/00*
U.S. Cl. 277—80 **19 Claims**



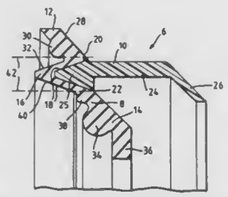
1. A magnetic seal for a rotating shaft, said seal comprising:
- a rotating ring fixed to the shaft, said ring having opposing side surfaces extending in the radial direction with an end surface connecting said side surfaces;
- stator elements extending circumferentially around said shaft on at least one side of said ring with radially extending surfaces spaced from and facing said side surfaces of said ring;
- said stator elements including circumferential grooves in the radially extending surfaces facing the side surfaces of said ring;
- electrical windings formed in said grooves and extending beyond said radially extending surfaces toward the side surfaces of said ring to form pairs of seal gaps for controlling the leakage between the rotating ring and stator elements; and
- an electrical control loop for supplying power to said windings for magnetically correcting axial displacements between said ring and said stator elements to maintain said gaps between said windings and said ring.

5,064,206
PISTON RING
Ludovico Bruni, Turin, Italy, assignor to Borgo-Nova SpA, Turin, Italy
Filed May 1, 1990, Ser. No. 517,032
Claims priority, application Italy, May 8, 1989, 67334 A/89
Int. Cl.[5] F16J *9/06*
U.S. Cl. 277—140 **11 Claims**



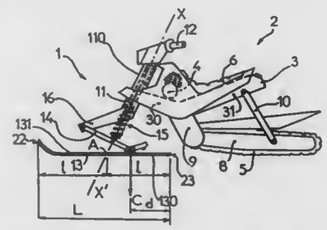
1. A 2-piece oil-control piston ring, the ring comprising a first piece having a pair of axially spacedapart side rails, the side rails each having a radially outer periphery for forming a substantially continuous uninterrupted rubbing face with a cooperating cylinder wall and having a radially inner periphery, said inner peripheries being connected together by axially directed bridging members extending intermittently around at least a part of the inner circumferential length of said rails, a separate second piece in the form of an expander lying against the radially inner faces of the axially directed bridging members for expanding said side rails radially outwardly against a cooperating cylinder wall and having spring portions which lie between the inner, radially extending faces of the side rails, wherein the side rails diverge from said bridging members by up to 20° such that the axially outer faces of said rails will bear against and form a gas seal with portions of radial side faces of a cooperating piston ring groove in which said 2-piece ring is mounted.

5,064,207
SEALING RING FOR SEALING A PIPE JOINT
Christer Bengtsson, Värnamo, Sweden, assignor to Forsheda AB, Forsheda, Sweden
Continuation of Ser. No. 301,505, Jan. 24, 1989, abandoned. This application Dec. 14, 1990, Ser. No. 629,066
Claims priority, application Sweden, Feb. 3, 1988, 8800348
Int. Cl.[5] F16J *15/02;* **F16L** *21/02*
U.S. Cl. 277—207 A **7 Claims**



1. A sealing ring for sealing a pipe joint in an annular space between a socket end and a spigot end introduced therein, comprising:
- an annular sealing element; and
- a substantially annular reinforcing element, said sealing element being of an elastically yieldable sealing material and said reinforcing element being of a material which is rigid in relation to the elastically yieldable sealing material;
- said sealing element including a connection portion having an inner connection surface;
- said reinforcing element including an outer connection surface being fixedly connected with said inner connection surface;
- said connection surfaces forming a connection interface therebetween, said sealing element connection portion having an axially outer surface that is congruent with said outer connection surface of said reinforcing element and is axially displaced from said connection surface of said reinforcing element a distance equal to the axial thickness of said sealing element connection portion at said inner connection surface, whereby the axially outer surface of said sealing element connection portion and the outer connection surface of said reinforcing element can be injection moulded by means of a single mould cavity surface;
- said sealing element further including one of an inner and outer sealing portion connected to said connection portion and extending generally in a radial direction relative to said connection portion for sealing against a surface of a pipe joint.

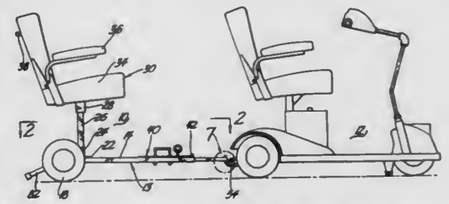
5,064,208
FRONT SUSPENSION AND STEERING ASSEMBLY FOR A SNOW-BIKE
Jean-Claude Bibollet, Thones, France, assignor to Bibollet S.A., Chablais, France
Filed May 17, 1989, Ser. No. 352,918
Claims priority, application France, May 17, 1988, 88 07130
Int. Cl.[5] B62B *17/00*
U.S. Cl. 280—21.1 **22 Claims**



1. A vehicle comprising a front steering assembly journalled on a rear support assembly around an axis, said steering assembly comprising a steering column having a handlebar connected to an upper end and a ski connected to a lower end, said ski being connected to said steering column by an intermediate journalled arm, said intermediate arm extending towards the bottom and towards the rear of said vehicle, said intermediate arm having a front end which is journalled around a transverse axis with respect to said steering column, said intermediate arm also having a rear end which is journalled around a transverse axis on said ski, and a suspension assembly connecting said intermediate journalled arm to said steering column at a point on the intermediate arm spaced from said front end and from said rear end of said intermediate arm.

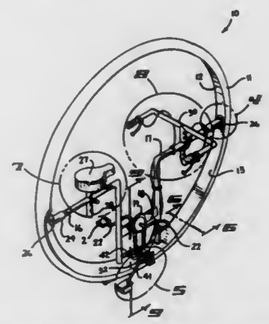
5,064,209
COMBINED TRAILER/WHEELCHAIR
Erich G. Kurschat, 1660 Rochester Rd., Box 203, Lakeville, Mich. 48036
Filed Dec. 3, 1990, Ser. No. 621,013
Int. Cl.[5] B60K *27/00;* **B62M** *1/14;* **B62B** *7/00*
U.S. Cl. 280—204 **9 Claims**

1. A combined trailer/wheelchair comprising a frame (13), a pair of laterally spaced and aligned wheels (18) rotatably supported proximate the rear end of said frame, said wheels having a common axis of rotation extending normally to a longitudinal frame axis (15), a pedestal (26) mounted upon said frame and longitudinally spaced forwardly of the axis of rotation of said wheels, a passenger seat (30) supported upon said pedestal, said frame including a foot support portion (40) disposed proximate the forward end of said frame, a tow bar (48) mounted along the longitudinal axis of said frame, means (50) for retaining said tow bar in a position projecting forwardly of said frame, a pair of caster-type wheels (46) transversely spaced and mounted upon said frame proximate the forward end of said



frame, said caster-type wheels being movable to be non supportive of said frame when the tow bar is in its forwardly projecting position, and a hitch device (56) secured to the forward end of said tow bar and adapted to be removably connected to a towing cart.

5,064,210
UNICYCLE APPARATUS
Rex Gibbons, Rte. 5, Box 17, New London, Wis. 54961
Filed Jul. 20, 1990, Ser. No. 555,183
Int. Cl.[5] B62K *1/00*
U.S. Cl. 280—206 **5 Claims**



1. A unicycle apparatus comprising, in combination,
- an annular continuous wheel, including a semi-circular interior rim, wherein the annular wheel is rotatably mounted relative to the inteior rim, and
- a first frame member mounted fixedly to the interior rim spaced from a second frame member fixedly mounted to the interior rim, wherein the first and second frame members are spaced relative to one another, and
- a drive sprocket fixedly mounted between the first and second frame members, and
- a seat mounted to the first frame member, and
- a handle bar mounted to the second frame member, and
- a driven sprocket mounted underlying the drive sprocket, and
- the driven sprocket including a bottom sprocket, the bottom sprocket in cooperative relationship with a gear means, wherein the gear means is positioned for operative association with the bottom sprocket to effect relative rotation of the annular wheel relative to the interior rim, and
- wherein the annular wheel includes a continuous annular groove directed through an interior surface of the annular wheel, with the gear means including a continuous annular gear rack mounted within the continuous groove of the

VOL
1132
ISS
2
NO
12
1991
UMI

annular wheel, and the gear rack in inter-engaged relationship with the bottom sprocket, and

including a continuous chain directed about the drive sprocket and the driven sprocket, and

wherein the first frame member includes an "L" shaped frame and the second frame member includes an "L" shaped frame, and the first and second "L" shaped frames each include a first and second respective horizontal frame leg, and wherein the first and second horizontal frame legs are diametrically aligned relative to one another and fixedly mounted to the interior rim, and the first and second "L" shaped frame each include a vertical frame leg, wherein the first and second vertical frame legs are parallel relative to one another, and a spanner frame leg orthogonally mounted between the first and second vertical frame legs, and a crank member rotataly mounted through the spanner frame leg, and the drive sprocket fixedly mounted to the crank member, and the crank member including a peddle platform rotatably mounted to each terminal end of the crank member to effect relative rotation of the crank member relative to the spanner frame leg, and

wherein the first horizontal frame leg includes the seat mounted adjustably thereto, the seat including an apertured seat post, and the apertured seat post cooperating with a positioning pin, the positioning pin selectively positionable through the first horizontal frame leg and the apertured seat post to vertically position the seat relative to the first horizontal frame leg, and the handle bar defined by a "U" shaped handle bar member including an apertured handle bar post directed through the second horizontal frame leg, with a further positioning pin directed through the apertured handle bar post and the second horizontal frame leg to vertically position the "U" shaped handle bar relative to the second horizontal frame leg.

5,064,211

WHEELCHAIR WITH TILT COMPENSATING SIDE FRAMES

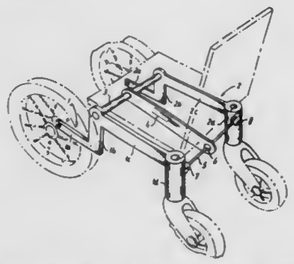
Aloysius G. Huttenhuis, Denekamp, and Henricus T. J. Janssen, Oldenzaal, both of Netherlands, assignors to Huka Developments B.V., Oldenzaal, Netherlands

Continuation of Ser. No. 163,612, Mar. 3, 1988, abandoned. This application Apr. 9, 1990, Ser. No. 475,228

Claims priority, application Netherlands, Mar. 6, 1987, 8700549

Int. Cl.[5] B62M *1/14*

U.S. Cl. 280—250.1 **4 Claims**



1. In a wheelchair having a pair of opposed, longitudinally-extending side frames, a front and a rear wheel connected to each of said side frames, a middle frame disposed between said side frames and a seat mounted on said middle frame, the improvement comprising

means for connecting said middle frame to said side frames whereby tilting one of said side frames in one direction causes the opposing side frame to tilt through the same angle in the opposite direction while the middle frame remains stationary,

said connecting means comprising a first rigid cross shaft comprising part of said middle frame extending between said side frames and about which said side frames pivot, and

a second cross shaft longitudinally spaced from said first cross shaft, said second cross shaft comprising a two armed lever, each arm connecting at one end to one said side frame through a ball joint and at the other end to said stationary middle frame through a ball joint.

5,064,212

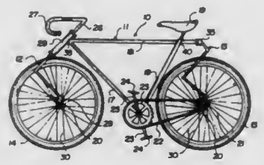
BICYCLE UTILIZING THE VECTOR SYSTEM

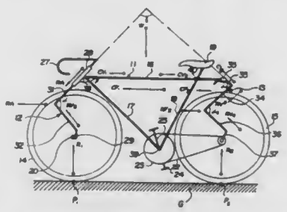
Jae Shin Yun, 103 Cambridge La., Glendale Heights, Ill. 60139

Filed Dec. 27, 1990, Ser. No. 634,592

Int. Cl.[5] B62K *3/02, 19/00*; B62M *1/02*

U.S. Cl. 280—261 **11 Claims**





1. A bicycle having a front steering wheel and a single driven rear wheel which comprises:

a triangular frame containing a front joint portion, a rear joint portion, and a bottom joint portion,

a front fork with a first end rotatably connected to said front joint portion of the triangular frame, said front fork having a front bent portion with a 90° bend and an extended vertical arm at a second end thereof, said extended vertical arm attached to a front axle of said front steering wheel, whereby the front fork, the front bent portion, and the extended vertical arm are a composite structure so that the front fork is connected to the front steering wheel,

a rear fork having a W-shaped configuration and outwardly connected to said rear joint portion of the triangle frame, said rear fork having a pair of rear bent portions with a 90° bend opposite and same as said front bent portion of said front fork, respectively, and defining an upper portion, an upper middle portion, a lower middle portion, and a lower portion wherein the length of the upper and lower portions are shorter than those of the upper and lower middle portions and said rear fork being pivotably attached to a rear axle of said single driven rear wheel,

a handle bar extending from said first end of the top of the front fork through said front joint, and

a driven chain engaged with a pedal sprocket which is mounted to said bottom joint of the triangle frame, said driven chain operatively engaged with a rear wheel sprocket which is mounted on said single driven rear wheel wherein the triangular frame, front fork, and rear fork of the bicycle comprise a vector system including component and resultant forces which collectively provide a forward force when weight is placed on the top of the triangular frame so that the bicycle may be smoothly driven forward with little effort being required by the rider.

5,064,213

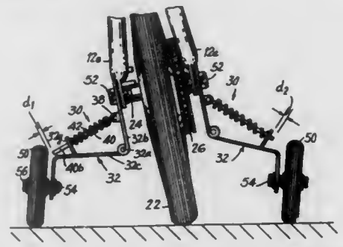
SELF-STABILIZING TRAINING WHEELS FOR A BICYCLE

Paul Storch, 4 Parkwood Dr., Great Neck, N.Y. 11023

Filed Jul. 23, 1990, Ser. No. 556,301

Int. Cl.[5] B62H *1/12*

U.S. Cl. 280—301 **9 Claims**



1. A stabilizing device for a bicycle having a frame and a rear wheel axle comprising a pair of hinges each having a hinge pin hingedly connecting a generally upright hinge portion fixedly secured to the frame on respective opposite sides of the rear wheel axle, and an outwardly extending floating hinge portion having a first end hingedly connected to an associated upright hinge portion and having a second end forming a wheel support portion; a training wheel attached to the wheel support portion of each hinge; and biasing means acting between associated hinge portions of each hinge for providing restoring forces on one side of the bicycle to which the bicycle tilts on making a turn while assuring that the training wheel on the other side of the bicycle remains in contact with the ground, said biasing means comprising a compression spring which remains under compression in all positions of the bicycle during normal use including turns, whereby both training wheels are always maintained in contact with the ground whether in the upright condition or when tilted during a turn thereby stabilizing the bicycle and providing smoother and safer turns.

5,064,214

CROSS-COUNTRY SKI

Jean-Luc Diard; Philippe Grandjacques, and Gilles Recher, all of Annecy, France, assignors to Salomon S.A., Annecy, France

PCT No. PCT/FR88/00060, § 371 Date Oct. 5, 1988, § 102(e) Date Oct. 5, 1988, PCT Pub. No. WO88/05675, PCT Pub. Date Aug. 11, 1988

PCT Filed Feb. 4, 1988, Ser. No. 275,138

Claims priority, application France, Feb. 5, 1987, 87 01420

The portion of the term of this patent subsequent to Mar. 27, 2007, has been disclaimed.

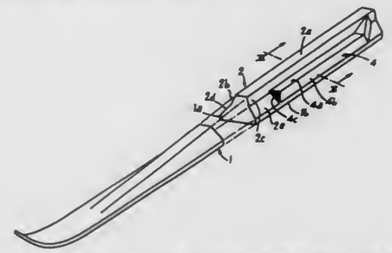
Int. Cl.[5] A63C *5/04*

U.S. Cl. 280—607 **17 Claims**

1. A cross-country ski comprising:

an upwardly projecting, longitudinally extending rib, said rib having an upper surface and at least a pair of side surfaces;

at least two profiles, non-unitary with respect to said rib, affixed to respective ones of said pair of said side surfaces of said rib, each of said profiles comprising an upper surface and being positioned on said ski for supporting at least a portion of the sole of a ski shoe on said upper profile surface, wherein each of said side surfaces of said rib is inclined, and wherein each of said profiles further comprises an inner surface which is affixed to respective ones of said inclined surfaces of said rib, and wherein said



upper surface of said rib projects upwardly beyond said upper surface of said profiles.

5,064,215

SAFETY SKI BINDING

Platter Ferdinand, Laas, Italy, and Rosenich Paul, Wien, Austria, assignors to TMC Corporation, Baar/Zug, Switzerland

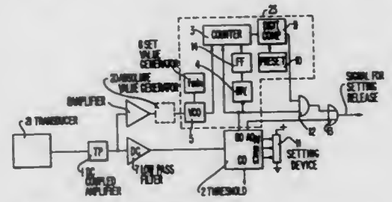
PCT No. PCT/EP89/00082, § 371 Date Oct. 3, 1989, § 102(e) Date Oct. 3, 1989, PCT Pub. No. WO89/07476, PCT Pub. Date Aug. 24, 1989

PCT Filed Feb. 1, 1989, Ser. No. 423,443

Claims priority, application Austria, Feb. 19, 1988, 405/88

Int. Cl.[5] A63C *9/08*

U.S. Cl. 280—612 **6 Claims**



1. A ski binding comprising:

converting means for converting forces acting on the ski binding into an electric signal;

means for triggering said ski binding; and

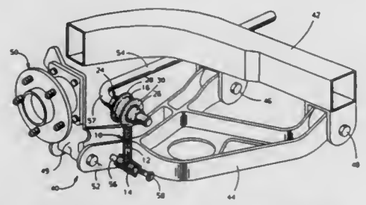
an evaluation circuit electrically connected to said converting means and said triggering means, said evaluation circuit including

a timing circuit having a controllable frequency oscillator, said timing circuit for receiving said electric signal from said converting means and for generating a triggering signal in response thereto, said timing circuit further including a comparator and a counter, said comparator and said counter being electrically connected to said oscillator, said counter for counting pulses of said oscillator, and said comparator for generating said triggering signal when said counted number of pulses exceeds said predetermined value; and

a threshold circuit for receiving said electric signal from said converting means, and for generating a first output signal for transmission to said timing circuit and second output signal for transmission to said triggering means, said threshold circuit for generating said first output signal when said electric signal of said converting means is greater than a first threshold value, said threshold circuit for generating said second output signal when said electric signal of said converting means is above a second threshold value less than said first threshold value.

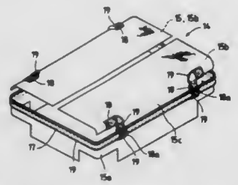
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,216
END LINK ASSEMBLY FOR AN AUTOMOTIVE VEHICLE SUSPENSION SYSTEM
Ernest J. Hynds, Saginaw, Mich., assignor to General Motors Corporation, Detroit, Mich.
Filed Aug. 6, 1990, Ser. No. 562,976
Int. Cl.[5] B60G *11/18*
U.S. Cl. 280—689 8 Claims



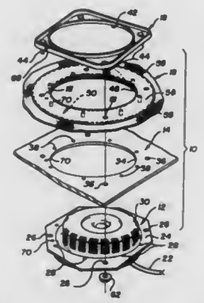
1. A suspension system for a vehicle, comprising:
(a) means for mounting a wheel assembly;
(b) a control arm pivotally connected to the wheel assembly mounting means;
(c) means for pivotally mounting the control arm to a vehicle frame;
(d) a stabilizer bar having a central elongated portion and at least one bent end; and
(e) a linkage assembly, for connecting the stabilizer bar to the control arm, having
(i) an elongated link terminating at one end in means for removably connecting the link to the control arm at the other end in a ring portion;
(ii) an elastomeric bushing including a tubular body having an axial passageway and a pair of flexible, annular walls defining a groove therebetween for receiving the ring portion of the link.

5,064,217
COVER FOR AIR BAG UNIT
Kouji Shiraki, Gifu, Japan, assignor to Toyoda Gosei Co., Ltd., Nishikasugai, Japan
Filed Jul. 27, 1990, Ser. No. 558,433
Claims priority, application Japan, Aug. 8, 1989, 1-93064[U]
Int. Cl.[5] B60R *21/20*
U.S. Cl. 280—743 16 Claims



1. An insert for a cover for an air bag unit comprising:
a flexible net including first and second upper portions, and a side portion; and
a flexible reinforcing band assembly coupled to said flexible net, said reinforcing band assembly including a horizontal band element coupled to and extending along and about the entire side portion of said flexible net and plurality of vertical band elements, each said vertical band element having a first longitudinal end and a second longitudinal end, said first longitudinal end of each said vertical band being coupled to an upper portion end in adjacent to said side portion, said second longitudinal end of each said vertical band being bent back so as to surround said horizontal band, said horizontal band, said side portion of said net and said bent back portions of said vertical bands being coupled together.

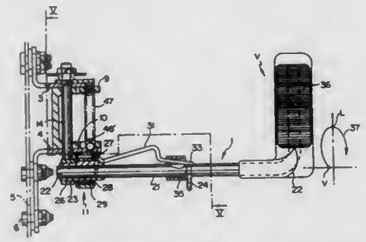
5,064,218
AIR CUSHION RESTRAINT DEVICE HAVING REINFORCED INFLATION ATTACHMENT
James Hartmeyer, St. Clair Shores, Mich., assignor to Takata, Inc., Auburn Hills, Mich.
Continuation-in-part of Ser. No. 392,642, Aug. 11, 1989, Pat. No. 4,988,119, which is a continuation-in-part of Ser. No. 257,971, Oct. 14, 1988, abandoned. This application Jul. 30, 1990, Ser. No. 559,662
Int. Cl.[5] B60R *21/08*
U.S. Cl. 280—743 28 Claims



1. An air cushion occupant restraint system for a motor vehicle of the type having an inflator for generating an inflation gas, comprising:
an air bag defining an internal volume which is filled with said inflation gas in the event of vehicle impact, said air bag including an inflation gas opening for enabling said inflator to discharge said inflation gas into said air bag, said air bag including a retainer ring affixed to said air bag generally circumscribing said inflation gas opening and having a plurality of posts arranged around said retainer ring, and
mounting means for securing said air bag to said vehicle including a support structure coupled to said motor vehicle and a clamping ring which cooperate to clamp said air bag and said retainer ring between said support structure and said clamping ring around said inflation gas opening, and wherein at least one of said support structure or said clamping ring includes a plurality of apertures which receive said retainer ring posts.

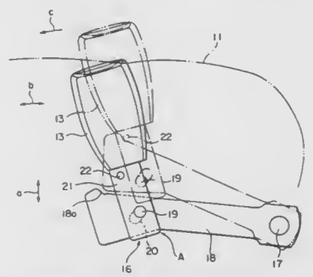
5,064,219
ARRANGEMENT FOR LOCKING AN ADJUSTABLE SAFETY STEERING COLUMN FOR MOTOR VEHICLES
Walter Schaible, Hemmingen, and Franz-Rudolf Wlerschem, Weissach, both of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany
Filed Aug. 3, 1990, Ser. No. 562,603
Claims priority, application Fed. Rep. of Germany, Aug. 3, 1989, 3925706
Int. Cl.[5] B62D *1/18*
U.S. Cl. 280—775 8 Claims

1. An arrangement for locking an adjustable safety steering column for motor vehicles that is arranged to be tiltable and lockable with respect to the vehicle body, comprising:
consoles coupled to the vehicle body and having guiding slots arranged approximately in a vertical plane, the steering column being tiltable between said consoles;
an operating lever having an operating rod;
an adjustable clamping device which locks the safety column with respect to the vehicle body, and including an eccentric element arranged in parallel to the axis of the steering column and axially on said rod;



a pull rod having an end side receiving device in which a free end of the operating rod is pivoted, said pull rod extending transversely with respect to the axis of the steering column through said guiding slots.

5,064,220
SEAT BELT DEVICE
Kiyoshi Ogawa, Fujisawa, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 20, 1990, Ser. No. 540,949
Claims priority, application Japan, Jun. 28, 1989, 1-75749[U]
Int. Cl.[5] B60R *22/00*
U.S. Cl. 280—801 8 Claims

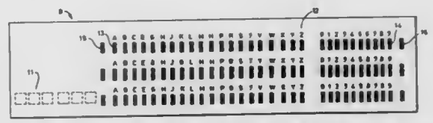


1. A seat belt device for an automotive vehicle having a body, and seats arranged within said body, the device comprising a safety belt, a buckle by which said safety belt is releasably retained, said buckle being arranged at one of said seats at a lateral side thereof, expansion and retraction-type linkage means for supporting said buckle, said linkage means having first and second stays, said first stay having one end thereof pivoted to said body of said vehicle, said second stay engaging said first stay for pivotal movement relative thereto, said second stay having said buckle secured thereto, wherein said linkage means comprises:
an engaging protuberance provided on one of said first and second stays,
an engaging recess formed in the other of said first and second stays, said engaging recess being elongated in a direction in which the other of said first and second stays pivotally moves, said engaging protuberance being engaged in said engaging recess for sliding movement there along while said first and second stays pivotally move in a direction in which said linkage means extends, and
stopper means provided on one of said first and second stays for stopping further pivotal movement of said first and second stays in the direction in which said linkage means extends, said stopper means being disposed so as to abut the other of said first and second stays when said first and second stays pivotally move by a predetermined amount in the direction in which said linkage means extends,
wherein said stopper means abuts the other of said first and second stays substantially simultaneously when said engaging protuberance abuts against one end of said engaging recess.

5,064,221
METHOD FOR DISTINGUISHING PRINTED ORIGINALS FROM COPIES
Friedrich-Viktor Miehe, and Stephan Günther, both of Berlin, Fed. Rep. of Germany, assignors to Francotyp-Postalia GmbH, Berlin, Fed. Rep. of Germany
Filed Mar. 2, 1990, Ser. No. 487,526
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1989, 3906945
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—67 8 Claims

1. Method for making printed originals distinguishable from copies, which comprises:
(a) using an ink ribbon as a printing medium for printing originals;
(b) adding a substance to the ink ribbon in the form of a marking;
(c) printing an original with the marked ink ribbon for producing invisible distinguishable markings in the printed original being recognizable solely by means of special scanners.

5,064,222
BAR CODE APPLICATOR
Jean-Marc Legault, Aylmer, Canada, assignor to Canada Post Corp., Ontario, Canada
Filed Nov. 20, 1989, Ser. No. 439,279
Int. Cl.[5] G09F *03/00*
U.S. Cl. 283—71 7 Claims



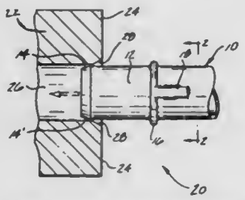
1. A bar code applicator comprising a translucent sheet having on one side thereon an array of pressure-transferrable figures comprising an array of bars of even shape and opacity positioned to designate individual letters or numbers, said bars being adapted to be transferred to an envelope or package and there read by an optical character reader.

5,064,223
THROTTLE MODULATOR ASSEMBLIES AND THERMOPLASTIC FLUID DIRECTION TUBES FOR INSERTION THEREIN
Todd A. Gross, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 6, 1989, Ser. No. 418,426
Int. Cl.[5] F16L *35/00*
U.S. Cl. 285—93 20 Claims

1. A throttle modulator assembly for an automobile engine comprising:
a) a throttle modulator body having a wall,
b) at least one bore formed in said wall of said throttle modulator body, and
c) a thermoplastic fluid direction tube having an end tube portion being press fit into said bore, said thermoplastic fluid direction tube comprising an annular and hollow thermoplastic tube capable of directing the flow of fluids from the throttle modulator toward other parts of said automobile engine, said thermoplastic tube further includes an annular press ring located around said thermoplastic tube and extending radially outward therefrom at a

VOL 1132 ISS 2 NO 12 1991 UMI

spaced point on said end tube portion, and at least one press wing extending radially outward from said thermoplastic tube and extending axially beyond said press ring



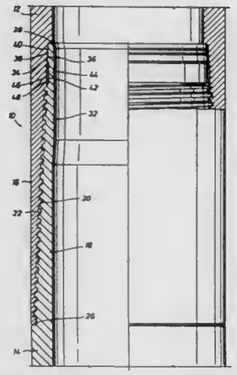
along the longitudinal dimension of said thermoplastic tube, said thermoplastic tube having a coefficient of thermal expansion about the same as that of said throttle modulator body.

5,064,224

OIL FIELD TUBULAR CONNECTION

Wen-Tong Tai, Houston, Tex., assignor to Baroid Technology, Inc., Houston, Tex.

Continuation of Ser. No. 320,718, Mar. 8, 1989, Pat. No. 4,946,201. This application Feb. 16, 1990, Ser. No. 480,804
The portion of the term of this patent subsequent to Aug. 7, 2007, has been disclaimed.
Int. Cl.[5] F16L *25/00*
U.S. Cl. 285—94 **13 Claims**



1. An oil field tubular connection for coaxially joining lengths of tubular members at a well site, each tubular member having a tubular body and a flow path interior of the tubular body for transmitting high pressure fluids along a tubular axis through joined tubular members, the tubular connection comprising:

a box member having a box end terminal surface, internal threads along an inner periphery thereof, and a frustoconical metal interior sealing surface spaced axially opposite the box end terminal surface with respect to the internal threads;

a pin member having a pin end terminal surface, external threads along an outer periphery thereof for mating engagement with the internal threads of the box member, and a frustoconical metal exterior sealing surface spaced axially between the external threads and the pin end terminal surface for fluid-tight sealing engagement with the interior sealing surface on the box member to seal the mated threads from the high pressure fluids within the joined tubular members; and

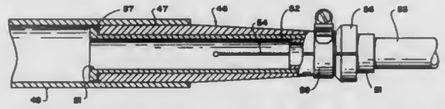
an antigalling groove spaced axially along the frustoconical exterior sealing surface of the pin member and projecting radially inward thereof, the antigalling groove circumferentially encircling the exterior sealing surface within a common plane perpendicular to the tubular axis and sealed from the high pressure fluids by sealing engagement of the box member sealing surface and pin member sealing surface.

5,064,225

COUPLING DEVICE AND METHOD FOR TUBULAR ELEMENTS

Anthony D. Williams, 1929 Washington St., San Carlos, Calif. 94070, and Adam Nye, Los Altos, Calif., assignors to Anthony D. Williams, San Carlos, Calif.

Continuation-in-part of Ser. No. 179,062, Apr. 8, 1988, Pat. No. 4,819,969. This application Apr. 11, 1989, Ser. No. 336,671
The portion of the term of this patent subsequent to Apr. 11, 2006, has been disclaimed.
Int. Cl.[5] F16L *25/00*
U.S. Cl. 285—177 **15 Claims**



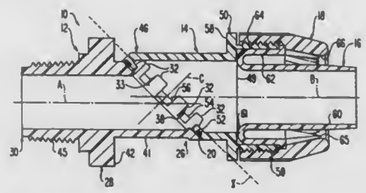
1. In a device for joining together first and second tubular elements: an axially elongated outer sleeve having a tapered portion toward one end thereof for press fit engagement with the inner wall of the first tubular element and a longitudinally split portion toward the other end thereof, an inner sleeve having a tapered portion toward one end thereof for press fit engagement with the outer wall of the second tubular element and a laterally projecting flange toward the other end thereof, said inner sleeve being adapted to be slidably received within said outer sleeve with the laterally projecting flange abutting against the tapered end of the outer sleeve to limit relative movement of the sleeves in one direction, and means engagable with the split portion of the outer sleeve for clamping the two sleeves together.

5,064,226

NONMETALLIC CONDUIT FITTING WITH TRANSVERSE BIASING ABUTMENTS

Daniel E. Klas, North Kingstown, R.I., assignor to Hubbell Incorporated, Orange, Conn.

Filed May 30, 1990, Ser. No. 530,283
Int. Cl.[5] F16L *27/00*
U.S. Cl. 285—184 **36 Claims**



1. A conduit fitting for receiving electrical wires therethrough, the combination comprising:

a first tubular member having a first end portion, a middle portion and a second end portion with a first longitudinal axis extending between said first and second end portions;

a second tubular member having a first end portion, a middle portion and a second end portion with a second longitudinal axis extending between said first and second end portions of said second tubular member; and

means, coupled to said first and second tubular members, for rotatably and incrementally coupling said first end portions of said first and second tubular members together about an axis of rotation extending transversely to said first and second longitudinal axes and for resisting relative translational movement of said first and second tubular members away from one another, said means for rotatably and incrementally coupling including

a first surface coupled to said first end portion of said first tubular member,

a second surface coupled to said first end portion of said second tubular member and facing in a direction opposite to said first surface for slidable engagement with said first surface,

said first and second surfaces defining a plane of rotation which is substantially perpendicular to said axis of rotation, and

said first tubular member having connecting means, integrally formed as a unitary part of said first tubular member, for resiliently coupling said first surface to said first end portion of said first tubular member for permitting transverse biasing, said first tubular member, said connecting means and said first surface being a one piece construction,

said second tubular member having a unitary, integrally formed annular flange with means for engaging and contacting said connecting means of said first tubular member to incrementally prevent relative rotation between said first and second tubular members until a rotational force is applied to transversely bias said connecting means relative to said annular flange, said means for engaging and contacting including a plurality of spaced apart inwardly extending abutments said second tubular member, said annular flange and said engaging means being a one piece construction,

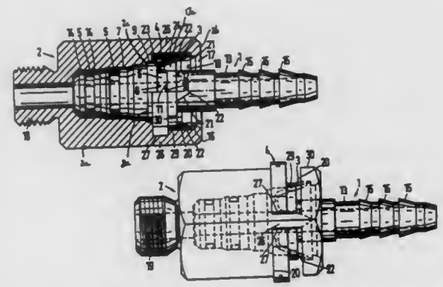
whereby said first and second tubular members can be rotated incrementally relative to each other between a first position where said first and second longitudinal axes are substantially parallel to form a substantially straight passageway between said first and second tubular members and a plurality of angular positions where said first and second longitudinal axes are not substantially parallel.

5,064,227

CONNECTOR FOR HOSES AND THE LIKE

Ralf Spors, Bruchköbel; Gerhard Wachter, Büdingen; Ralf Hohmann, Bruchköbel, and Heinz Sauer, Ronneburg, all of Fed. Rep. of Germany, assignors to Rasmussen GmbH, Maintal, Fed. Rep. of Germany

Filed Oct. 2, 1990, Ser. No. 591,837
Claims priority, application Fed. Rep. of Germany, Oct. 7, 1989, 3933589
Int. Cl.[5] F16L *39/04*
U.S. Cl. 285—319 **19 Claims**



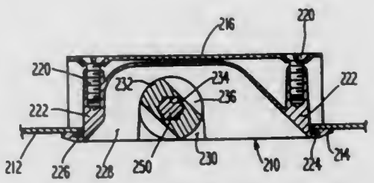
1. A quick release connector for conduits, comprising a tubular male component including a rear portion connectable to a first conduit and a front portion; a tubular female component including a rear part connectable with a second conduit and a front part defining an internal chamber for said front portion, said front part having an axial inlet communicating with said chamber, at least one detent disposed at said inlet and having a substantially radial flank confronting said rear part, and at least two windows extending circumferentially of said front part and communicating with said chamber behind said detent; a resilient radially deformable annular retaining member provided on said front portion of said male component to undergo deformation during advancement through said inlet and into said chamber and to engage said flank when received in said chamber; and means for disengaging said retaining member from said flank to permit extraction of said front portion from said front part by way of said inlet, including an annular deforming member provided in said chamber said annular deforming member having radially outward portions extending into and movable relative to said windows longitudinally of said female component between a retracted position remote from said inlet and an extended position nearer to said inlet, said deforming member maintaining said retaining member radially inwardly of said flank in the extended position so that the front portion of said male component and said retaining member can be extracted from said front part.

5,064,228

REMOTE LATCH MECHANISM

Robert H. Bisbing, Delaware County, Pa., assignor to South Co. Inc., Concordville, Pa.

Continuation-in-part of Ser. No. 149,571, Jan. 28, 1988, Pat. No. 4,880,261. This application Sep. 28, 1989, Ser. No. 413,969
Int. Cl.[5] E05C *9/08*
U.S. Cl. 292—54 **14 Claims**



1. A remote latching mechanism comprising:

a) a longitudinal connecting member rotatably movable about a longitudinal axis thereof;

b) actuator means for rotating said connecting member about its longitudinal axis;

c) a latch assembly operably connected to said connecting member for movement between latched and unlatched conditions in response to rotational movement of said connecting member;

d) wherein said actuator means comprises a rotatable actuator fixedly connected to said connecting member, whereby upon application of torque to said actuator, said connecting member is rotated about its longitudinal axis, wherein said actuator comprises a substantially cylindrical member having an aperture therein and wherein said connecting member is disposed within said aperture, said substantially cylindrical member having tool-engagable recesses on a peripheral surface thereof to facilitate the transmission of torque to said actuator; said actuator means further comprising a cup adapted for being inserted within an aperture in a closure member, and means for retaining said cup within an aperture in a closure member, wherein said actuator is pivotally connected to said cup, and wherein said means for retaining said cup within an aperture in a closure member comprises a spring clip.

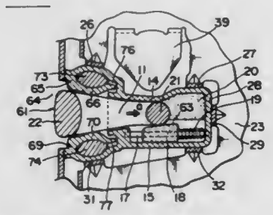
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,229

LOCK DEVICE FOR VEHICLE

Yoshikazu Hamada, and Yozo Ogino, both of Utsunomiya, Japan, assignors to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 26, 1990, Ser. No. 514,821
Claims priority, application Japan, Apr. 27, 1989, 1-108458; Apr. 28, 1989, 1-110929
Int. Cl.[5] E05C 3/26
U.S. Cl. 292—216 6 Claims



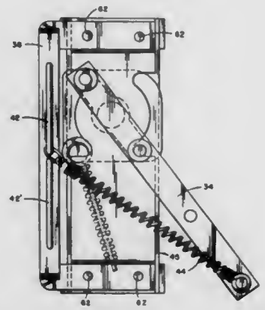
1. A lock device for a vehicle comprising:
a synthetic resin body fixed to a door and having a recess formed on its side;
a latch fitted rotatably into said recess;
a striker fixed to a car body and having a front leg portion having a small diameter and meshing with said latch, a rear leg portion having a large diameter and a wedge-like bridge portion connecting tips of said leg portions and having a thin front side and a thick rear side;
a guide groove formed on said body and permitting the entrance of said striker;
front side clamp means for clamping a front side portion of said striker, disposed on the front side of said guide groove; and
rear side clamp means for clamping a rear side portion of said striker, disposed on the rear side of said striker wherein said front side means is independent of said rear side clamp means whereby each can be operated independently of the other.

5,064,230

LOCKING MECHANISM

William L. Ornduff, Sr., Gordonsville, Va., assignor to Kirtley Distributing Company, Inc., Charlottesville, Va.

Filed Mar. 22, 1991, Ser. No. 673,533
Int. Cl.[5] E05C 9/16
U.S. Cl. 292—223 4 Claims



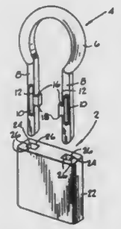
1. A latching mechanism for roll-up type doors on a vehicle truck body, the doors being held in a closed position by flanges extending from a rotatable rod, the rod extending through the truck body adjacent a top edge of the doors, a first lever arm coupled to one end of the rod for enabling rotation of the rod, and a second lever arm coupled between the first lever arm and the latching mechanism for controlling the relative rotational position of the rod in response to actuation of the latching mechanism, the latching mechanism comprising a housing assembly for attachment to the truck body, a rotatable support mounted in said housing, a third lever arm attached to said support and extending from said latching mechanism, an end of said third lever arm being connected to said second lever arm for effecting movement thereof in response to rotation of said support, first and second stops for limiting rotation of said support, a tension spring having one end connected adjacent said end of said third lever arm, and means for connecting a second end of said spring in sliding engagement with said housing assembly, said spring being operative to maintain said support against a selected one of said stops by sliding on said connecting means such that said spring tensions said third lever arm toward said selected one of said stops.

5,064,231

APPARATUS AND METHOD FOR MOLDING THREE DIMENSIONAL ARTICLES

Peter G. Mangone, Jr., 28600 Buchanan Dr., Evergreen, Colo. 80439

Continuation-in-part of Ser. No. 348,515, May 8, 1989, Pat. No. 4,956,142. This application Jun. 21, 1990, Ser. No. 542,195
Int. Cl.[5] B65D 33/34, 63/00
U.S. Cl. 292—319 8 Claims



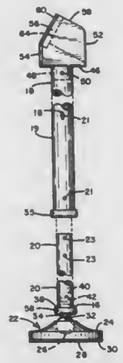
1. A uni-directional lock comprising:
a body portion having at least one passageway extending therethrough;
said passageway having an entrance portion and an exit portion;
said passageway having at least one internal indentation formed therein and located between said entrance portion and said exit portion;
a link portion having a head portion and at least one integral leg portion;
said head portion having a cross-sectional configuration greater than the cross-sectional configuration of said passageway so that is cannot be moved into said passageway and contacts said body portion when said at least one integral leg portion has been inserted into said passageway;
said at least one integral leg portion having a longitudinal axis and an outer surface;
said at least one integral leg portion having a longitudinally extending slot formed therein so that at least a portion of said at least one integral leg portion opposite to said slot is relatively thin and flexible;
a hook portion extending outwardly from said outer surface of said at least a portion of said at least one integral leg portion so that said hook portion moves inwardly when a force is applied thereto and resiles back when said force is removed;
said entrance portion and said hook portion being dimensioned so that said at least one integral leg portion can be inserted into said entrance portion and moved in one direction into said body portion until said hook portion moves into said internal indentation to prevent withdrawal of said at least one integral leg portion from said body portion;
said exit portion and said hook portion being dimensioned so that, when said head portion is separated from said at least one integral leg portion, said at least one integral leg portion can be pushed through said exit portion; and
said exit portion and said hook portion being dimensioned so that said hook portion cannot be moved through said exit portion into said body portion.

5,064,232

ENTRY DOOR SECURITY BAR

Craig D. Quarberg, 6908 Candlewood Cir., Brooklyn Park, Minn. 55445

Filed Mar. 25, 1991, Ser. No. 674,083
Int. Cl.[5] E05C 17/54
U.S. Cl. 292—339 10 Claims



1. A security device for barring forced entry into a room through a door, the door having a lockset with a knob and an escutcheon surrounding said knob, said device comprising:
(a) a pole member having upper and lower ends;
(b) a foot member secured to the lower end of said pole member;
(c) a head member secured to the upper end of said pole member, said head member including
(i) a block having one face thereof defining a planar surface oriented at a predetermined angle to the longitudinal axis of aid pole member with an arcuate recess formed inwardly of said one face for receiving said escutcheon therein, and
(ii) an arcuate groove of semicircular cross-section formed in said block and intersecting said planar surface at a right angle for receiving said knob therein when said planar surface buts said door and said foot member abuts the floor of said room.

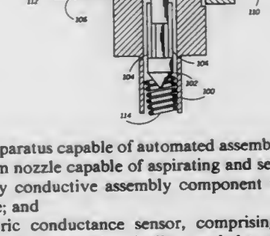
5,064,233

DISPOSABLE COLLECTION DEVICE FOR ANIMAL LITTER

Donald G. Sloan, 17411 Chatsworth St., Ste. 100, Granada Hills, Calif. 91344

Filed Apr. 4, 1990, Ser. No. 504,533
Int. Cl.[5] A01K 29/00; E01H 1/12
U.S. Cl. 294—1.3 13 Claims

1. A disposable collection device for animal litter, comprising:
a shovel blade having a front edge and a rear edge;
a shovel handle extending through and supported by the rear edge of the shovel blade, wherein the shovel handle is movable between a first position wherein it substantially overlies a portion of the shovel blade, and a second position wherein it firmly engages the rear edge of the shovel blade and extends rearwardly therefrom, the shovel handle including a first end positioned just rearwardly of the rear edge of the shovel blade when the shovel handle lies in its first position, such that the first end of the shovel handle may be grasped and pulled rearwardly to place the shovel handle in its second position, and wherein the shovel handle further includes a second end opposite the first end, which second end includes means for firmly connecting the second end of the shovel handle to the rear edge of the shovel blade, wherein the connecting means includes an enlarged stop flange formed at the second end



of the shovel handle, and a resilient stud spaced from the stop flange a distance which approximately corresponds with the cross-sectional width of the rear edge of the shovel blade, such that a portion of the rear edge of the shovel blade can be captured between the stop flange and the resilient stud; and
a collection bag fixed to the rear edge of the shovel blade, wherein the collection bag may be withdrawn from around the shovel blade as animal litter is deposited thereon, and subsequently pulled over the shovel blade to envelope the shovel blade and any animal litter deposited thereon.

5,064,234

VACUUM NOZZLE AND CONDUCTANCE SENSOR

Andy Marozsan, Boca Raton, and Robert Leon, Miami, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

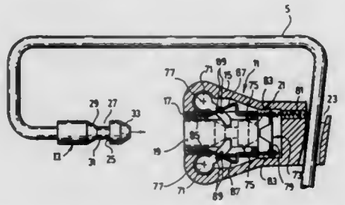
Filed Aug. 2, 1990, Ser. No. 563,136
Int. Cl.[5] B66C 1/02; B25J 15/06, 19/02
U.S. Cl. 294—64.1 17 Claims

1. An apparatus capable of automated assembly, comprising:
a vacuum nozzle capable of aspirating and securing an electrically conductive assembly component to the vacuum nozzle; and
an electric conductance sensor, comprising at least one electrical contact electrically coupled to the electrically conductive assembly component, for detecting the presence of the electrically conductive assembly component at

VOL 1132 ISS 2 NO 12 1991 UMI

the vacuum nozzle by sensing an electrical current path between the at least one electrical contact and the electrically conductive assembly component.

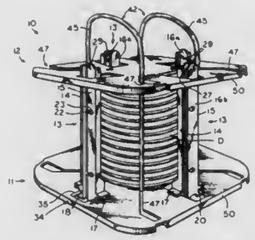
5,064,235
AUTOMATIC SLING LOCK
Michel Lessard, Hébertville, Canada, assignor to Less Micanik, Inc, Hébertville, Canada
Continuation-in-part of Ser. No. 466,652, Jan. 17, 1990, abandoned. This application Jun. 25, 1990, Ser. No. 542,985
Int. Cl.[5] B66C *1/38*
U.S. Cl. 294—82.14 **26 Claims**



1. A lock, capable of being automatically bolted and released, for use as a knot running along a loop made by a sling wound around a load to be dragged, said lock comprising:
- a locking bolt to be secured to one end of said sling and formed with a radial lock face;
- a keeper for said bolt;
- a first means on said keeper including a claw movable between a retracted position allowing insertion of said bolt in said keeper and an active position where said claw is in locking engagement with said lock face, when said bolt is inserted in said keeper;
- wherein said first keeper means further include resilient means acting on said claw for drawing said bolt toward full insertion thereof in said keeper with said claw being in said locking engagement; and
- second means on said keeper including at least one lock member movable between a retracted position where said lock member allows insertion of said bolt in said keeper and an active position where said lock member stands upstream of said lock face when said bolt is inserted in said keeper;
- wherein said second keeper means further include damping means acting on said lock member for retarding radial movement thereof, toward said retracted position, sufficiently to cause locking engagement of said lock member with said lock face when said bolt is shifted abruptly in a direction outward of said keeper, thereby preventing withdrawal of said bolt.

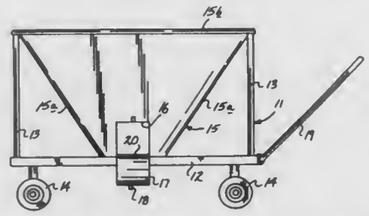
5,064,236
DISH CARRIER
John Stanfield, 425 Riverhill Dr., Atlanta, Ga. 30328
Filed Nov. 9, 1990, Ser. No. 610,926
Int. Cl.[5] A47G *00/00*
U.S. Cl. 294—161 **6 Claims**

1. A dish carrier comprising a base having a central portion and a plurality of slots that extend outwardly from and about said central portion; a stanchion slidably mounted in each of said slots with each of said stanchions having two opposed side grooves in slidable engagement with a portion of said base that straddles said slot and with each of said stanchions having two elongated upright sections that overlap each other; and means for rigidly mounting said stanchions to said base at selected distances from said central portion along said slots to accommodate and straddle stacks of dishes of different sizes stacked upon said base which includes fastening means for releasably fastening said two sections to each other at different overlapping positions relative to each other for stanchion width variation, whereby the stanchions may be slid to selected locations along the slots and rigidly mounted to the base by spreading



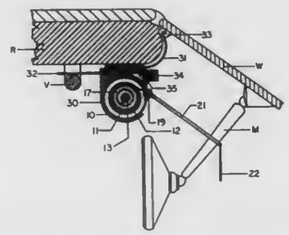
their sections into snug engagement with the portions of the base that straddle the slots and fastening the stanchion sections rigidly together.

5,064,237
HOPPER AND LINER APPARATUS
Norman D. Cline, 5155 W. Brooks Rd., St. Louis, Mich. 48880
Filed Mar. 15, 1991, Ser. No. 669,899
Int. Cl.[5] B62D *33/00*; B65D *25/16*
U.S. Cl. 296—39.1 **5 Claims**



1. A hopper and liner apparatus comprising, in combination,
- a vehicle member, the vehicle member including a platform, the platform including a platform top surface and a platform bottom surface, the platform top surface including converted trapezoidal hopper mounted thereon, the hopper including a hopper floor fixedly mounted to the platform top surface medially of the platform top surface, with the hopper including trapezoidal hopper side walls and a trapezoidal hopper forward wall, the trapezoidal hopper forward wall including a hopper opening adjacent the platform top surface, and
- a hopper door overlying the hopper opening, with the hopper door pivotally mounted to the hopper forward wall to overlie the hopper opening, and
- the hopper further including a hopper upper perimeter edge of a generally rectangular configuration, and the hopper defining a predetermined internal configuration, and
- a liner defined by an external configuration equal to the predetermined configuration, with the liner including a liner opening aligned with the hopper opening, and the liner including a liner upper terminal end defining a channel, and the channel complementarily receiving the hopper upper terminal end therewithin, and the liner formed of a polymeric material.

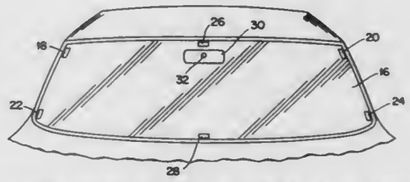
5,064,238
UMBRA, THE WINDSHIELD SUNSHADE ASSEMBLY
Mauni Mohtasham, 20 Rowes Wharf #402, Boston, Mass. 02110
Filed Sep. 19, 1989, Ser. No. 409,333
Int. Cl.[5] B60J *3/02*
U.S. Cl. 296—97.6 **4 Claims**



1. For mounting to a roof and windshield of a motor vehicle, a windshield sunshade assembly comprising:
- a plurality of support units adapted to be mounted to the roof and windshield,
- each one of said plurality of support units including a bracket having an adhesive means on its tip for adhering said bracket to an upper edge of the windshield,
- a pair of pincers connected to and extending from each of said support units opposite said bracket,
- said pair of pincers including opposing jaw members being normally biased in a closed, gripping position for secure attachment to a sunvisor attachment stem extending from said roof so as to secure the support unit thereto,
- a cylindrical elongate shade housing adapted to be connected to and supported by said plurality of support units so as to extend at least partially along the length of said roof in parallel spaced relation thereto,
- a roller shaft extending axially through an interior portion of said shade housing,
- a shade roller rotatably mounted about said roller shaft within said interior portion of said shade housing, and including retracting means to bias said shade roller to a normally wound position, and
- a retractable shade member connected along an upper edge to said shade roller and adapted to be moved between a retracted, rolled up position on said shade roller and a fully extended position in covering, light blocking relation to an inner surface of the windshield.

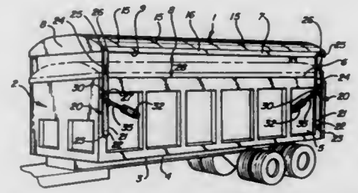
5,064,239
SUNSCREEN FOR MOTOR VEHICLES
Charles P. Folcik, 69 Northwest Dr. #55, Plainville, Conn. 06062
Continuation of Ser. No. 419,726, Oct. 11, 1989, abandoned. This application Sep. 6, 1990, Ser. No. 579,280
Int. Cl.[5] B60J *3/00*
U.S. Cl. 296—97.7 **39 Claims**

1. A sunscreen for a nonretractable motor vehicle window, comprising:
- a sheet of flexible and stretchable, elastic material that is substantially opaque to solar radiation; and
- a plurality of means mounted on the motor vehicle for adhering the sheet of material to the window, said adhering means being spaced from each other so that there are gaps between each of said adhering means to facilitate mounting the stretchable, elastic material;
- said sheet of material being constructed such that any portion of the sheet will adhere to the adhering means upon contact therewith;
- wherein said sheet of material may be repeatedly adhered to the plurality of adhering means and removed therefrom



without damage to either the material or the adhering means.

5,064,240
DISPLACEMENT COVER FOR A TRUCK BODY OPENED-TOP BED
Thomas N. Kuss, and Donald L. Horne, both of Prestonsburg, Ky., assignors to Truck Covers Inc., Prestonsburg, Ky.
Filed Mar. 4, 1991, Ser. No. 664,279
Int. Cl.[5] B60J *7/08*
U.S. Cl. 296—100 **20 Claims**



1. A vertically displaceable cover for a truck body open-top container bed having a bed bottom and bed walls with the uppermost portions of the bed walls forming a bed top perimeter, said cover including, in combination:
- (a) a rigid frame having frame members, the lowermost portion of said frame members forming a bottom perimeter, said frame bottom perimeter having a configuration which substantially corresponds to said bed top perimeter;
- (b) a cover means attached to said frame members and spanning said frame;
- (c) a pair of lifting means disposed on each opposite side of said truck bed, each lifting means having a lower leg with a lower leg end pivotably attached to a bed wall, and an upper leg with an upper leg end pivotably attached to a frame member, and a hinge between said legs, wherein, when said frame is in a lowered position, said frame is substantially adjacent to said bed top perimeter and the legs of said lifting means are in a somewhat horizontal or inclined and at least partially folded configuration around said hinge, and when said frame is in a raised position, said frame is substantially vertically displaced from said bed top perimeter and the legs of said lifting means are in a substantially vertical and unfolded configuration;
- (d) a vertically disposed stop means for each lifting means attached to a bed wall for receiving a leg of said lifting means when said frame is in the raised position;
- (e) a fluid pressure actuated cylinder associated with each of said lifting means, wherein a first end thereof is pivotably attached to a bed wall, and a second end thereof is pivotably attached to the lower leg of said lifting means, and wherein one of said first ends and said second ends is an extendable cylinder rod; and
- (f) fluid pressure means for supplying pressurized fluid to each of said cylinders for causing said cylinder rod to extend, for causing said frame in the lowered position to

VOL 1132 ISS 2 NO 12 1991 UMI

be moved to the raised position, for causing a portion of each of said pair of lifting means to be received into its respective vertically disposed stop means, and for continuing to urge that portion of said pair of lifting means into said stop means, whereby the cover is moved to and maintained in the raised position.

5,064,241

CLOSING DEVICE FOR CONVERTIBLE VEHICLES

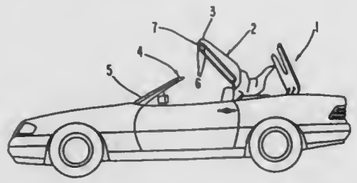
Rolf Öhrle, Herrenberg, Fed. Rep. of Germany, assignor to Daimler-Benz AG, Fed. Rep. of Germany

Filed Jul. 10, 1990, Ser. No. 550,441

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1989, 3924295

Int. Cl.[5] B60J *7/18*

U.S. Cl. 296—121 **9 Claims**



1. A pull-to device for a vehicle closing component which, in its closing position, is interlocked with a counter-component, comprising a closure operatively arranged on one of the closing component and counter-component and which, with the closing component open, is maintained in a release position, a lock stud arranged on the other of the closing component and counter-component and interacting with the closure as a result of the closing advance of the closing component, a drive for the closure to pull the lock stud grasped by the closure out of a prelocked initial position into a completely locked end position, a closure insertion orifice through which the lock stud passes being surrounded by a depression centering the lock stud as it is running on a catch coupling comprising a coupling element and a displaceable element operatively arranged for positively coupling the closing component to the counter-component early in a closing-movement phase occurring before the lock stud is inserted into the closure, said coupling element being arranged on the closing component, and said displaceable element arranged on the counter-component for interaction with the coupling element arranged on the closing component, wherein the coupling and displaceable elements are movable relative to one another until the lock stud is pressed down into its prelocked initial position by a pull-to advance of the coupling element.

5,064,242

ROLLOVER PROTECTION CAB FOR LARGE OFF-ROAD MACHINES

Steven J. Fujan, Sand Springs, and Frederick W. Loeber, Tulsa, both of Okla., assignors to Terex Corporation, Green Bay, Wis.

Filed Nov. 1, 1990, Ser. No. 607,905

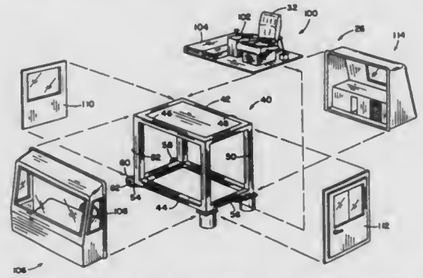
Int. Cl.[5] B62D *33/06*

U.S. Cl. 296—190 **16 Claims**

1. A cab for rollover protection of a driver of a large off-road machine, the machine having a frame with a longitudinal axis in the direction of normal travel, the machine having opposed sides spaced from a vertical plane of the longitudinal axis and a front, the cab comprising:

a cab superstructure providing an interior space for an operator, the superstructure having a bottom with an outer edge, an inner edge and a front, the cab superstructure being positioned on a machine frame with the bottom outer edge adjacent a machine side, and the front in the direction of the machine front;

means of pivotally attaching said cab superstructure inner edge to a machine frame about an axis of pivotation sub-



stantially parallel to the machine frame longitudinal axis and limited displacement shock absorption means attaching said cab superstructure outer edge to the machine frame.

5,064,243

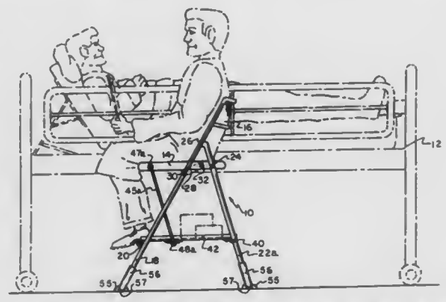
APPARATUS AND METHOD FOR USE IN HOSPITALS TO PROMOTE PATIENT-CAREGIVER CONTACT

Kay D. Quain, 221 Upper Valley Rd., North Wales, Pa. 19454

Continuation-in-part of Ser. No. 336,428, Apr. 11, 1989, abandoned. This application Aug. 2, 1990, Ser. No. 561,796

Int. Cl.[5] A47C *4/00*

U.S. Cl. 297—58 **18 Claims**



1. A collapsible chair for use in hospitals for facilitating contact between patients confined to a bed and caregivers and support personnel which comprises:

a seat, a supportive back, front legs, rear legs, and a pivotal brace;

said seat being 22 to 28 inches high;

a front transverse support bar connecting said front legs intermediate their ends;

a rear transverse support bar connecting back legs intermediate their ends;

said seat pivotally connected to said rear legs;

said brace pivotally connected to said rear transverse support bar;

connecting rod means pivotally connecting said seat and said brace;

said brace being pivotal with said seat about their connections to the rear transverse support bar and the rear legs respectively, between

a retracted position in which said seat, brace, and front and rear legs lie in a generally vertical plane, and

an operative position in which said front legs are disposed forward of said rear legs, said seat is supported on said front legs, and said brace is supported on said front transverse support bar, said brace projecting forward of said transverse support bar.

5,064,244

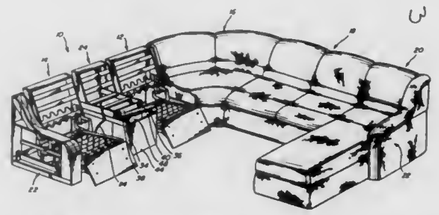
RECLINING SOFA

James Sproule, Grand Rapids, Mich., assignor to The Gentry Gallery, Inc., Ripley, Miss.

Filed Jan. 3, 1991, Ser. No. 637,313

Int. Cl.[5] A47C *1/02*

U.S. Cl. 297—68 **21 Claims**



1. A sectional sofa comprising:

a pair of reclining seats disposed in parallel relationship with one another in a double reclining seat sofa section. said double reclining seat sofa section being without an arm at one end whereby a second sofa section of the sectional sofa can be placed in abutting relationship with the end of the double reclining seat sofa section without an arm so as to form a continuation thereof,

each of said reclining seats having a backrest and seat cushion and movable between upright and reclined positions, said backrests and seat cushions of the pair of reclining sets lying in respective common planes when the seats are in the same positions,

a fixed console disposed in the double reclining seat sofa section between the pair of reclining seats and with the console and reclining seats together comprising a unitary structure,

said console including an armrest portion for each of the reclining seats, said arm rests remaining fixed when the reclining seats move from one to another of their positions,

and a pair of control means, one for each reclining seat; mounted on the double reclining seat sofa section and each readily accessible to an occupant of its respective reclining seat and when actuated causing the respective reclining seat to move from the upright to the reclined position.

5,064,245

CHILD CAR SEAT PILLOW CONSTRUCTION

Gina L. Stephens, 1242 Aberdeen Dr., Broomfield, Colo. 80020

Filed Oct. 9, 1990, Ser. No. 594,627

Int. Cl.[5] A47C *7/36*

U.S. Cl. 295—397 **1 Claim**

1. A child car seat pillow construction for use in combination with a car seat, wherein the car seat includes a generally horizontal seat member fixed mounted to a vertical back support member, and

the seat member and the back support member defining a generally "L" shaped member that includes a right side and a left side, wherein right side includes a right side retainer wall and the left side includes a left side retainer wall, and

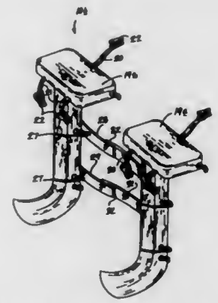
the pillow construction includes an elongate deformable flexible tube member, the tube member includes a tube upper end, and the tube upper end orthogonally has mounted thereto a cushion pillow member, and

wherein the pillow member includes a right side and a left side, wherein the right side includes at least one flexible strap and the left side includes at least one further flexible strap, and each flexible strap includes a clip mounted thereto to permit securement of each clip to the car seat and to the individual mounted within the car seat, and each clip includes a plurality of spring-biased jaws normally biased together in a closed configuration, and

wherein the cushion pillow member is defined by an inflatable bladder, the inflatable bladder includes an inflation valve mounted at an end thereof to permit inflation of the inflation bladder to a desired pressure, and

wherein the inflatable bladder includes a first hook and loop fastener surface mounted to a bottom surface of the inflatable bladder, and the flexible tube includes a plurality of pneumatic chambers, and

wherein the plurality of pneumatic chambers includes a top pneumatic chamber, a medial chamber, and a bottom pneumatic chamber, the top pneumatic chamber includes a second hook and loop fastener surface formed at each end thereof, and the top pneumatic chamber is securable



to the first hook and loop fastener surface formed to the bottom surface of the inflatable bladder, and

wherein the top pneumatic chamber and the medial pneumatic chamber include a respective first upper and first lower lateral belt orthogonally mounted thereto, and each lateral belt includes a belt hook and loop fastener surface formed at a free terminal end of each lateral belt, and further including further cushion pillow member, and a further top pneumatic chamber, a further medial pneumatic chamber and a further pneumatic chamber mounted to the further cushion pillow member, and the further top pneumatic chamber including a second upper lateral belt, the further medial pneumatic chamber including a second lower lateral belt, wherein the second upper and lower lateral belts each include a belt hook and loop fastener surface mounted at a free terminal end thereof to permit securement of the first upper lateral belt to the second upper lateral belt to define a generally "H" shaped pillow construction member.

5,064,246

POSITIONING AND BLOCKAGE DEVICE OF A SEAT BACK ARMATURE ON A SEAT BASE ARMATURE MOUNTED AUTOMATICALLY IN A VEHICLE

Yves Pipon, and Georges Droulon, both of Saint Georges des Groseillers, France, assignors to A. & M. Cousin-Etablissments Cousin Freres, Orne, France

Filed Nov. 9, 1989, Ser. No. 433,935

Claims priority, application France, Nov. 10, 1988, 88 14698; Sep. 26, 1989, 89 12596

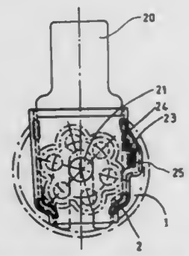
Int. Cl.[5] A47C *7/00*

U.S. Cl. 297—443 **12 Claims**

1. A positioning and blockage device of a seat back armature on a seat base armature mounted in a vehicle in which rear ends of the seat base armature include fixation members, wherein each fixation member is mounted on an inclination

VOL 1132 ISS 2 NO 12 1991 UMI

setting mechanism for setting inclination of the seat back armature and is formed of a casing so shaped to receive a dagger fixed to each lower end of the seat back armature, said dagger being held within the casing by being wedged with assistance



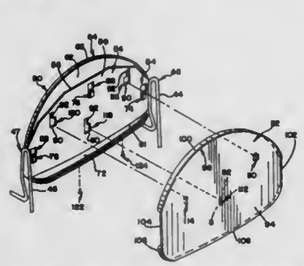
of a part made of a serrated roller mounted on a pin, whereby said roller can rotate freely inside openings formed in the casing and is pushed by at least one spring for wedging the roller between said dagger and said casing.

5,064,247

WIRE ROD OFFICE FURNITURE STACKING CHAIR

Craig A. Clark, Montgomery, Ill., and Robert J. Poortvliet, Jenison, Mich., assignors to Allsteel Inc., Aurora, Ill.

Filed May 23, 1990, Ser. No. 528,317
Int. Cl.[5] A47C *7/00*
U.S. Cl. 297—445 **7 Claims**



1. A chair of the wire rod type including a seat and a back, said chair comprising:

a pair of endless rodding members each disposed at the respective left and right sides of the chair, with each member of said pair defining along the respective left and right sides of the chair a lower quadrilaterally contoured base frame having a lower floor engaging runner and an upper runner above the lower runner that supports the chair seat between them,

said endless rodding members adjacent the rear of the chair each defining a similar vertically oriented upright loop,

with the chair back being supported by and between said loops,

and with the chair back comprising an assembly including:

a mounting pan fixed between said loops,

an inner opaque back member,

an outer opaque back member,

said back members being of similar sizing and being disposed in interfitting relation on either side of said mounting pan in encapsulating relation thereto to define oppositely facing, outer surfaces,

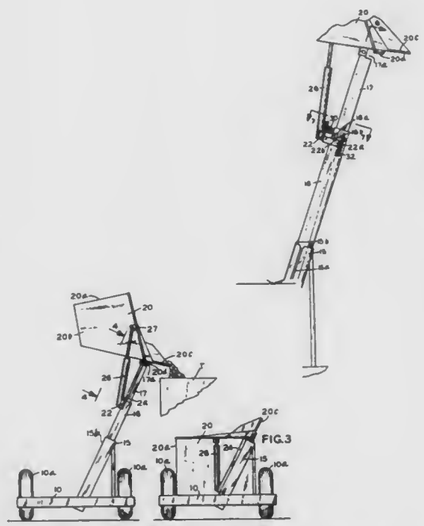
said back members and said mounting pan including interfitting means masked by said back members for fixing said back members to said mounting pan.

5,064,248

HIGH LIFT DUMP BOX

Sheldon D. Tegtmeier, Colfax, N. Dak., assignor to Tegtmeier & Sons, Inc., West Fargo, N. Dak.

Filed Oct. 4, 1990, Ser. No. 592,830
Int. Cl.[5] B60P *1/34*
U.S. Cl. 298—11 **5 Claims**



1. A high lift dump box comprising

a base structure, including a pair of hollow stationary strut members rigidly mounted thereon and disposed in inclined relation thereto,

at least a pair of extensible strut members having upper and lower ends and including a lower extensible strut member extensibly supported in each hollow stationary strut member with a corresponding upper extensible strut member being telescopically mounted in each lower extensible strut member,

interlocking stop means for positively locking each said lower extensible strut members and its corresponding upper extensible strut member when the upper extensible member is in a fully extended position to provide a substantially rigid extended strut assembly supported by said hollow stationary strut member,

a dump box having side panels and being pivotally mounted at the upper ends of the upper extensible strut members with means for pivotally moving the box from a normal lowered load receiving and carrying position into a dumping position when the extensible members are raised into fully extended position, and

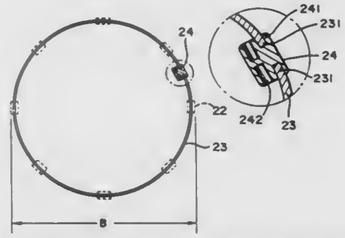
means for forcibly projecting the two extensible members of each strut assembly into elevated position.

5,064,249

DISC WHEEL COVER

Chun-Mao Hung, P.O. Box 1032, Tainan, Taiwan

Filed Apr. 9, 1990, Ser. No. 506,229
Int. Cl.[5] B60B *7/12*
U.S. Cl. 301—37 P **1 Claim**



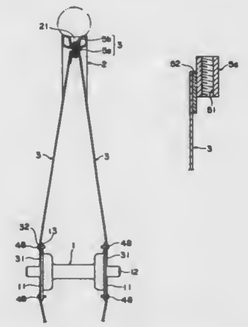
1. A disc wheel cover comprising a side ring joiner shaped as a curved rectangle and having two pairs of lengthwise holes of different depths and a disc wheel side ring made of a slender round bar and having free ends joined together by inserting selectably in either of the two pairs of lengthwise holes provided in the side ring joiner so that the disc wheel side ring diameter can be varied to match the wheel despite any small error in the wheel diameter.

5,064,250

WHEEL FOR LIGHT VEHICLE AND DISC USED THEREFOR

Tadashi Yashiro, Nara, and Takafumi Nishimoto, Ichihara, both of Japan, assignors to Sugino Cycle Industries, Ltd., Nara and Nippon Steel Chemical Co., Ltd., Tokyo, both of, Japan

Filed Jun. 13, 1989, Ser. No. 365,649
Claims priority, application Japan, Jun. 17, 1988, 63-150468; Jul. 20, 1988, 63-095932[U]; Sep. 1, 1988, 63-115246[U]; Sep. 22, 1988, 63-124612[U]; Dec. 8, 1988, 63-159922[U]; Dec. 8, 1988, 63-310509; Dec. 28, 1988, 63-171076[U]; Feb. 15, 1989, 1-017031[U]; Feb. 15, 1989, 1-037146
Int. Cl.[5] B60B *3/00*
U.S. Cl. 301—63 DS **8 Claims**



1. A wheel for light vehicles, comprising:

a hub including a rotating shaft;

a rim surrounding the hub at a predetermined distance;

a pair of disc members with each disc member composed of at least one smooth surfaced, sheet member stretched between said hub and said rim for coupling the former with the latter; and

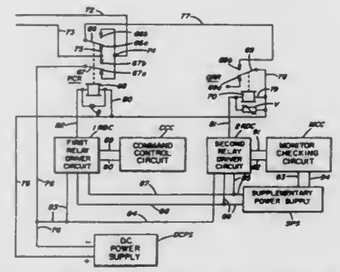
each of said disc members has an opening defined at the center thereof to fit said hub, an inner circumferential edge detachably coupled with said hub and an outer circumferential edge detachably fixed to said rim by screw threading means and said disc member is stretched by a tensile force applied by said screw threading means and corresponding to the extent of threading of said screw threading means.

5,064,251

ELECTROPNEUMATIC AIR BRAKE CONTROL SYSTEM FOR RAILWAY VEHICLES

Michael E. Romansky, North Huntingdon, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed Apr. 2, 1990, Ser. No. 502,949
Int. Cl.[5] B60T *13/70*
U.S. Cl. 303—3 **20 Claims**



1. An electropneumatic air brake control system for railway vehicles, comprising, a pneumatic module portion having a brake pipe cut-off valve connected to a relay valve, a bistable electromagnetic device having a valve portion connected to said brake pipe cut-off valve, an electric pole changing relay connected to a coil of said bistable electromagnetic device, said electric pole changing relay includes a coil connected to a source of d.c. voltage, an electric quick release relay having a coil connected to said source of d.c. voltage, said electric quick release relay having contacts connectable to contacts of said electric pole changing relay, and relay driver means for causing the energization and deenergization of said coils of said electric pole changing relay and said electric quick release relay in accordance with the outputs received from a command control circuit and a monitor checking circuit.

5,064,252

BRAKE FLUID PRESSURE CONTROLLER

Fumio Fujimori, Anjo; Masayoshi Tanikawa; Takashi Nagashima, both of Aichi; Kiyonobu Nagamori, Kariya, and Hideo Onuki, Chiryu, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha and Toyota Jidosha Kabushiki Kaisha, both of Aichi, Japan

Filed Mar. 20, 1990, Ser. No. 496,267
Claims priority, application Japan, Mar. 21, 1989, 1-31706[U]
Int. Cl.[5] B60T *8/26*; F16K *15/14*
U.S. Cl. 303—9.73 **7 Claims**

1. A brake fluid pressure controller comprising:

a housing having an inlet, an outlet and a chamber which communicates the inlet with the outlet;

a piston arranged in the chamber, the piston having a longitudinal axis and a valve head positioned between the inlet and the outlet;

an annular sealing member disposed between an internal wall of the chamber and the piston, the sealing member having a plurality of elastic protrusions on a first surface thereof that face away from the valve head;

a lip portion formed on an outer perimeter of the sealing member and being in contact with the internal wall of the chamber;

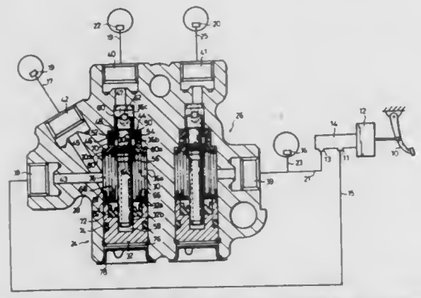
a valve seat formed on a second surface of the sealing member and adapted to receive the valve head of the piston;

the sealing member being arranged such that when the valve

VOL
1132
ISS
2
NO
12
1991
UMI

head is pressed against the valve seat, the valve seat cuts off a first communication path between the inlet and the outlet, and the lip portion permits a communication from the outlet to the inlet but shuts off a communication from the inlet to the outlet along a second communication path;

a spring arranged in the chamber for urging the piston in a direction in which the valve head is separated from the valve seat; and



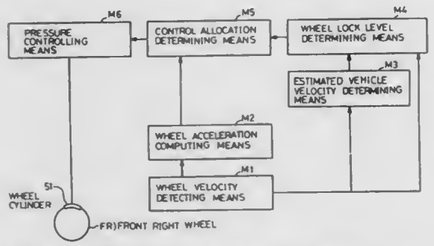
a regulating member disposed in the chamber for engagement with the protrusions on the sealing member, the regulating member being arranged to engage the wall of the chamber to regulate a load applied to the protrusions and thereby regulate movement of the sealing member in a direction longitudinally of the piston.

5,064,253

ANTI-SKID CONTROLLING APPARATUS

Kazutaka Kuwana; Tsuyoshi Yoshida; Hiroyuki Ichikawa, and Kenji Tozu, all of Aichi, Japan, assignors to Aisin Seiki K.K., Aichi, Japan

Filed Sep. 28, 1990, Ser. No. 590,701
Claims priority, application Japan, Sep. 30, 1989, 1-256848
Int. Cl.[5] B60T *8/70*
U.S. Cl. 303—106 **3 Claims**



1. An anti-skid controlling apparatus comprising:

a wheel cylinder means which is attached to each of the wheels of a vehicle and which applies a braking force thereto;

a wheel velocity detecting means for detecting a wheel velocity of said each wheel;

a wheel acceleration computing means for computing a wheel acceleration based on said wheel velocity detected by said wheel velocity detecting means;

an estimated vehicle velocity determining means for determining an estimated vehicle velocity based on said wheel velocity;

a wheel lock level determining means for determining a level of wheel lock based on said estimated vehicle velocity and on said wheel velocity;

a control allocation determining means for determining one kind of time allocation for a pressure increasing time and an increased pressure holding time, as well as another kind of time allocation for a pressure decreasing time and a decreased pressure holding time, said pressure increasing time being a period of time in which the brake fluid pressure in said wheel cylinder means is increased, said increased pressure holding time being a period of time in which said increased brake fluid pressure is maintained, said pressure decreasing time being a period of time in which said brake fluid pressure is decreased, said decreased pressure holding time being a period of time in which said decreased brake fluid pressure is maintained, said time allocation being based on the correlation between said wheel acceleration and said wheel lock level; and

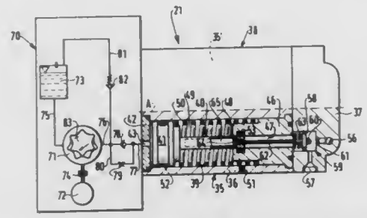
a pressure controlling means for controlling over time at least one of the increasing, holding and decreasing of said brake fluid pressure based on said time allocation for said pressure increasing time and said increased pressure holding time as well as on said time allocation for said pressure decreasing time and said decreased pressure holding time.

5,064,254

HYDRAULIC BRAKE SYSTEM WITH REVERSIBLE PUMP FOR TRACTION CONTROL

Roland Benzinger; Heinz Siegel, both of Stuttgart; Erhard Ellendt, Hemmingen; Ewald Huebl, Schwieberdingen; Rolf Igelmann, Gerlingen, and Walter Steinhauser, Schwieberdingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jun. 22, 1990, Ser. No. 542,137
Claims priority, application Fed. Rep. of Germany, Jul. 18, 1989, 3923742
Int. Cl.[5] B60T *8/50, 13/20*
U.S. Cl. 303—113 TR **12 Claims**



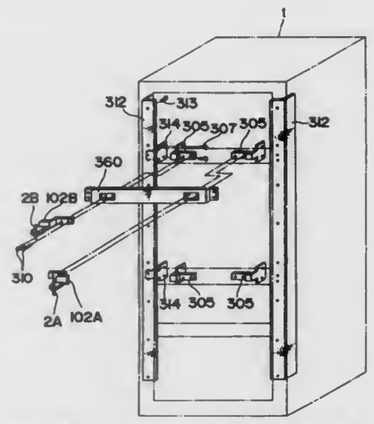
1. A hydraulic brake system (**10**) for a vehicle having a master brake cylinder (**11**), a drive slip apparatus (**22**) including a control unit (**29**) for limiting drive slip at drivable vehicle wheels by controlling brake pressure applied to wheel brakes (**19, 20**) associated with these vehicle wheels, said drive slip apparatus includes a pressure modulator (**35**), including a housing (**38**), said pressure modulator (**35**) has a spring-loaded stepped position (**40**), which generates brake pressure for one of said wheels during drive slip, said stepped piston includes a large piston surface area which is acted upon by pressure fluid pumped by a motor-drive pump (**71**) from a supply container (**73**), the pump being embodied with reversible pumping directions and having a pressure fluid flowing through it both during a working stroke and a return stroke of the stepped piston (**40**), a valve assembly (**59**) is actuated by the stepped piston (**40**) as a function of the position of said stepped piston during drive slip control whereby the valve assembly closes off communication between the master brake cylinder and a wheel brake (**20**) and brake pressure fluid is fed via said valve assembly (**59**) into a brake line (**16.1**) extending between the master brake cylinder (**11**) and a wheel brake (**20**) to stop any drive slip, and said brake pressure at the wheel brake (**20**) is dimensioned by controlling the drive motor (**72**).

5,064,255

OPENING/CLOSING DEVICE OF A DOOR MEMBER

Yoshio Inui; Masayoshi Osaka, both of Nara; Mitsuo Tanaka, Sakai; Masao Miyamoto, Osaka; Tooru Hasegawa; Masuo Kamitaka, both of Nara; Hidekazu Kai, Osaka, and Hiroshi Kamikubo, Kawahinagano, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 347,924, May 5, 1989, Pat. No. 4,947,583.
This application May 14, 1990, Ser. No. 523,224
Claims priority, application Japan, May 10, 1988, 63-114248; Jun. 22, 1988, 63-154055; Sep. 24, 1988, 63-239362; Nov. 21, 1988, 63-294150; Dec. 5, 1988, 63-158259; Dec. 5, 1988, 63-158260; Dec. 5, 1988, 63-158352; Dec. 5, 1988, 63-307118; Dec. 5, 1988, 63-307168; Dec. 26, 1988, 63-329930; Dec. 29, 1988, 63-169228
Int. Cl.[5] E05D *7/02*
U.S. Cl. 312—405 **12 Claims**



1. An opening/closing device for a door member, the door member being provided on a main body having an opening defined therein with a right and left side, the main body having an external shell and the device comprising:

reinforced members extending along at least a portion of the right and left sides of the main body and being mounted on an inner wall portion of the external shell of the main body;

a plurality of mounting plates secured to the reinforced members, each of the reinforced members having at least one mounting plate secured thereon;

at least two hinge plates, each hinge plate having hinge pins projected therefrom, the hinge plates being affixed to the mounting plates and being at right and left sides of the main body;

at least one engaging groove defined on both right and left sides of the door member, the hinge pin of the hinge plate on the right side of the main body being insertable into the engaging groove on the right side of the door member and the hinge pin of the hinge plate on the left side of the main body being insertable into the engaging groove on the left side of the door member when the door member is closed, the door being optionally openable from a right and left side thereof; and

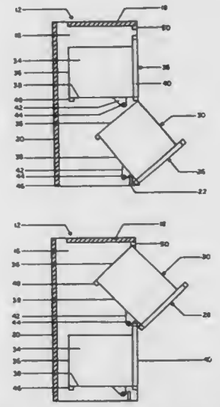
means provided on said door member for engaging the hinge pins when the hinge pings are inserted into the grooves on the right and left sides of the door member, said means for engaging further releasing at least one of the hinge pins from one of the grooves while continuing to engage the other hinge pins such that the door member is optionally openable from the right and left sides thereof.

5,064,256

LATERAL FILE CABINET

Donald A. Shepherd, Spring Lake, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.

Filed May 17, 1990, Ser. No. 525,887
Int. Cl.[5] E05C *7/06*
U.S. Cl. 312—221 **10 Claims**



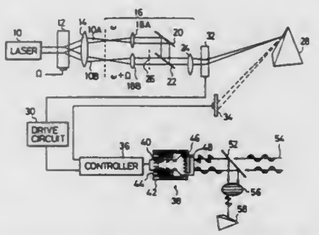
1. A lateral file cabinet comprising a casing, at least two drawers, including a lower drawer and a next upper drawer, each of said drawers is of boxlike construction and includes a front panel having a top edge and a lower edge, an open top portion, a back panel and a bottom panel, and a hinge for each drawer, said hinges mounting said drawers to said casing for tilting movement partially out of said casing to provide access to the interior of each drawer, and cooperating means between said drawers restricting outward tilting movement to only one of said two drawers at a time, said cooperating means include the back panel of said lower drawer in cooperation with the lower edge of said front panel of said upper drawer when said lower drawer is in the open position.

5,064,257

OPTICAL HETERODYNE SCANNING TYPE HOLOGRAPHY DEVICE

Kazunori Shinoda, Hamamatsu, Japan; Ming H. Wu, Woodbridge, N.J.; Yoshiji Suzuki, Inasa, Japan, and Ting-Chung Poon, 515 Cranwell Cir., Blacksburg, Va. 24060, assignors to Hamamatsu Photonics K.K., Japan and Ting-Chung Poon, Blacksburg, Va.

Filed Apr. 6, 1990, Ser. No. 505,605
Int. Cl.[5] G03H *1/10, 1/14*
U.S. Cl. 350—3.67 **5 Claims**



1. An optical heterodyne scanning holography device comprising:

VOL 1132 ISS 2 NO 12 1991 UMI

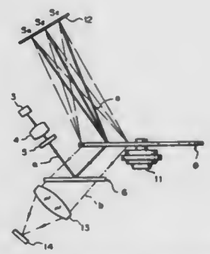
a light source for emitting an optical beam;
a frequency shifter for converting the optical beam to two optical beams each having temporally different frequencies;
an interferometer for superimposing one of the two optical beams as a spherical wave and the other as a plane wave;
a scanner for scanning an object with the superimposed optical beams;
a photodetector for capturing scattered waves of the optical beams from the object; and
a spatial light modulator for coherently converting a signal from the photodetector.

5,064,258

INFORMATION READING DEVICE

Toshiyuki Inokuchi, Yokohama, and Nobuyuki Baba, Sagamihara, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Dec. 5, 1989, Ser. No. 446,371
Claims priority, application Japan, Dec. 9, 1988, 63-311587; Dec. 9, 1988, 63-311588; Jan. 9, 1989, 1-2322; Feb. 21, 1989, 1-40902; Feb. 21, 1989, 1-40903
Int. Cl.[5] G02B *26/10*
U.S. Cl. 350—3.71 7 Claims



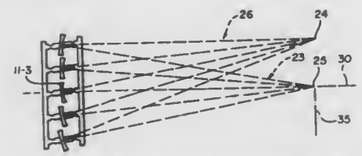
1. An information reading device comprising:
a semiconductor laser source for emitting a semiconductor laser beam;
a first condenser lens for converging said emitted laser beam to form an irradiation beam;
a beam shaping means for shaping said formed irradiation beam;
a hologram disk for deflecting said shaped irradiation beam;
an optical path separation means arranged so as to separate said shaped irradiation beam and a reflection beam from each other, said reflection beam being reflected from a surface irradiated by said deflected irradiation beam and being then deflected toward said optical path separation means by said hologram disk, said optical path separation means including a reflection portion disposed at a central portion of said optical path separation means for reflecting said shaped irradiation beam toward said hologram disk, and having the substantially same area as a cross-sectional area of said shaped irradiation beam, said cross-sectional area being defined by said optical path separation means when said shaped irradiation beam is made incident on said optical path separation means, said optical path separation means further including a transmission portion connected continuously to an outer circumference of said reflection portion so as to permit said reflection beam deflected toward said optical path separation means to be transmitted;
a second condenser lens arranged on an optical path of said transmitted reflection beam for converging said transmitted reflection beam; and
an optical sensor means for detecting said converged reflection beam.

5,064,259

APPARATUS FOR SCANNING A PHOTO-STIMULABLE PHOSPHOR SHEET

Lee F. Frank, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 446,246, Dec. 5, 1989, abandoned. This application Sep. 27, 1990, Ser. No. 588,779
Int. Cl.[5] G02B *26/08*
U.S. Cl. 350—6.5 5 Claims



4. Apparatus for scanning a photostimulable phosphor sheet, comprising:
a. means for forming a beam of stimulating radiation;
b. photodetector means for sensing radiation emitted from said sheet; and
c. scanner means for scanning said beam of stimulating radiation across said sheet to define a moving scanning spot and for focusing light emitted from said phosphor sheet at said scanning spot onto said photodetector means, said scanner means including,
1) a plurality of focusing mirror segments, and
2) mounting means for mounting said mirror segments to focus light emitted from a spot on said sheet onto said photodetector means and moveable for scanning said spot across said sheet, said beam of stimulating radiation being directed onto one of said mirror segments to focus on said spot; wherein said mounting means include a plurality of mirror support linkages having a first end connected to a support frame by respective flexure members, and a second end connected to a mirror drive linkage by respective flexure members; and wherein said support frame, mirror support linkages, flexures and mirror drive linkage are formed from a single sheet of flexible material.

5,064,260

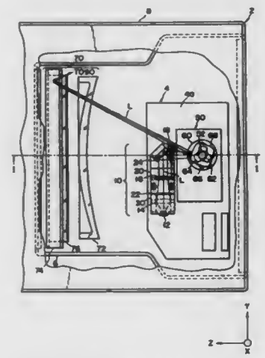
OPTICAL SCANNING UNIT OPERATING UNDER CHANGING TEMPERATURE AND MOISTURE CONDITIONS

Takashi Shiraishi, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 22, 1990, Ser. No. 570,847
Claims priority, application Japan, Aug. 31, 1989, 1-225448
Int. Cl.[5] G02B *26/10*
U.S. Cl. 350—6.8 9 Claims

1. An optical scanning unit operated under varying temperature and moisture conditions, comprising:
means for generating a light beam;
means for converting the generated light beam into a convergent light beam, said converting means including a first plastic lens which has power of one polarity in a main scanning direction, and a second plastic lens which has power of a different polarity from said one polarity in the main scanning direction, said first and second lenses having focal lengths which vary in complementary to each other in response to temperature and moisture changes;
means for directing the light beam emerged from the converting means toward an object, so as to scan the object with the light beam; and

means for guiding the convergent light beam directed toward the object while processing the convergent light



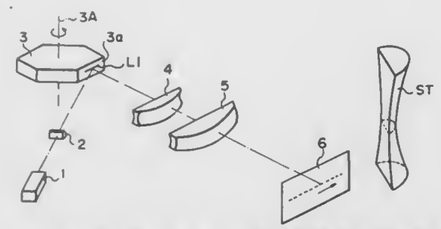
beam to have a cross section of predetermined size and shape.

5,064,261

FθLENS SYSTEMS IN OPTICAL SCANNER

Akihisa Itabashi, Mitaka, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed May 25, 1990, Ser. No. 528,619
Claims priority, application Japan, May 31, 1989, 1-137804
Int. Cl.[5] G02B *26/08, 3/04*
U.S. Cl. 359—206 8 Claims



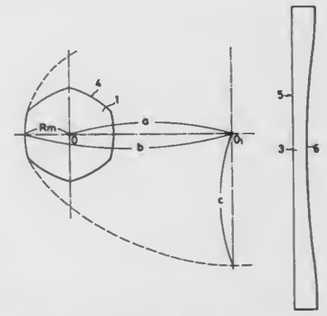
1. An $f\theta$ lens system in an optical scanner in which an approximately parallel light beam from a light source device is formed as a line image extending in a main scan-corresponding direction and is deflected at an equal angular velocity by a rotary polygon mirror having a reflecting face in the vicinity of the position of the formed line image and the deflected light beam is formed by an image forming lens system as an image in the shape of a spot on a scanned face to optically scan the scanned face at an approximately equal speed, said image forming lens system forming the light beam deflected by the rotary polygon mirror as an image on the scanned face, said $f\theta$ lens system comprising:
functional means having a function for setting a reflecting position of the rotary polygon mirror and the scanned face in an approximately conjugate relation in geometrical optics with respect to a cross scanning direction, said functional means having an $f\theta$ function with respect to a main scanning direction; and
two groups of first and second lenses sequentially arranged from the side of the rotary polygon mirror toward the scanned face side;
said lenses having first to fourth lens faces which are counted from the side of said rotary polygon mirror and respectively have shapes of an arc, an arc, a straight line and an arc on a deflecting plane sequentially from the first lens face toward the fourth lens face;
said first lens face being constructed by a spherical face;
said second lens face being constructed by a concave saddle type toric face having a radius of curvature on a deflecting perpendicular plane increased as this toric face is separated from an optical axis;
said third lens face being constructed by a concave cylindrical face having refracting power only on the deflecting perpendicular plane; and
said fourth lens face being constructed by a convex toric face having large curvature on the deflecting perpendicular plane.

5,064,262

POSTOBJECTIVE OPTICAL DEFLECTOR

Yasuo Matsumoto; Kazunori Murakami; Tomonori Ikumi, all of Shizuoka, and Yasuo Iwafune, Tokyo, all of Japan, assignors to Tokyo Electric Co., Ltd., Tokyo, Japan

Filed Sep. 22, 1988, Ser. No. 247,656
Claims priority, application Japan, Sep. 22, 1987, 62-238534; Oct. 29, 1987, 62-274438; Oct. 29, 1987, 62-274439; Oct. 29, 1987, 62-274440; Dec. 25, 1987, 62-328908; Jan. 7, 1988, 63-1517
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—205 4 Claims



1. A postobjective optical scanner comprising:
a polygonal optical deflector having a plurality of convex reflecting surfaces for reflecting light emitted from a light source, each formed of a curved surface other than a portion of the circumference of a circular cylinder; and
a pseudocylindrical lens disposed between the polygonal optical deflector and an objective surface, and having a curved surface formed of a portion of the circumference of a circular cylinder and having its power in the feed direction, and a surface formed of a curved surface of even degree and having its power in the scanning direction.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,263

MULTIPLEXING APPARATUS FOR THE DIRECT OPTICAL RECEPTION OF A PLURALITY OF OPTICAL WAVELENGTHS

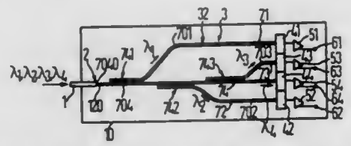
Karl-Ulrich Stein, Unterhaching, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Feb. 9, 1990, Ser. No. 477,534

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1989, 3904752

Int. Cl.[5] G02B *6/12*; H04J *1/00*

U.S. Cl. 385—14 **11 Claims**



1. In an apparatus for direct optical reception of a plurality of wavelengths being received in a common channel, said apparatus having means for distributing the plurality of wavelengths in a plurality of separate channels leading to different opto-electrical detectors, the improvements comprising said means for distributing including a waveguiding wavelength demultiplexer integrated on a substrate of a semiconductor material for guiding and distributing the incoming wavelengths into the various channels, said demultiplexer comprising a structure of dielectric waveguides being arranged to form wavelengths selective directional couplers with one coupler for each wavelength.

5,064,264

PHOTOREFRACTIVE MATERIALS

Stephen P. Ducharme, Lincoln, Nebr.; William E. Moerner, San Jose, Calif.; John C. Scott, Los Gatos, Calif., and Robert J. Twieg, San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 26, 1990, Ser. No. 604,560

Int. Cl.[5] G02B *1/04*

U.S. Cl. 385—130 **17 Claims**

1. An amorphous photorefractive material comprising a polymer, a non-linear optical chromophore and a charge transport agent, said material having a diffraction efficiency greater than 10^{-8} and a photoconductivity greater than 10^{-14} inverse-ohm-centimeter per watt per square centimeter.

5,064,265

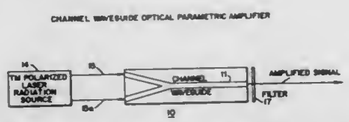
OPTICAL PARAMETRIC AMPLIFIER

Garo Khanarian, Union City, N.J., and Robert Norwood, Bethelehem, Pa., assignors to Hoechst Celanese Corp., Somerville, N.J.

Filed Jun. 4, 1990, Ser. No. 533,188

Int. Cl.[5] G02F *1/39*

U.S. Cl. 385—130 **12 Claims**



3. An integrated optical parameter amplifier which comprises (1) a light signal source with a wavelength of about 0.5–4 μm, and (2) a laser beam source with a wavelength of about 0.6–1.3 μm and a power level of about 50–1000 mw, in coupled combination with (3) an optical waveguide comprising a two-dimensional channel structure for single mode wave transmission, and the channel waveguiding matrix comprises a side chain polymer medium which has an external field-induced noncentrosymmetric molecular orientation of side chains and a nonlinear optical coefficient d of at least about 10 pm/V, and which has a spatial periodic structure for quasi-phase matching of propagating waves; wherein the coherence length l_c of the waveguide periodic polymer medium is in the range of about 10–100 μm, and is defined by the equation:

$$l_c = \frac{\pi}{\Delta\beta}$$

where $\Delta\beta$ is the propagation constant difference which is equal to $\beta(\omega_p)-\beta(\omega_s)-\beta(\omega_i)$, ω_p is the pump frequency, ω_s is the signal frequency, and ω_i is the idler frequency; and wherein the output wave energy under operating conditions comprises the incident laser beam, a generated idler beam, and an amplified signal beam with a gain G of about 10–1000.

5,064,266

CIRCULAR CHANNEL WAVEGUIDES AND LENSES FORMED FROM RECTANGULAR CHANNEL WAVEGUIDES

Cheng-ko J. Sun, Worthington; Shin Sumida, Columbus; Shigeki Sakaguchi, Worthington, and Tadashi Miyashita, Upper Arlington, all of Ohio, assignors to Photonic Integration Research, Inc., Columbus, Ohio

Filed Jul. 5, 1990, Ser. No. 548,008

Int. Cl.[5] G02B *6/10*

U.S. Cl. 385—132 **13 Claims**



13. An optical circuit assembly, comprising:

a substrate suitable for forming a waveguide thereon;

a substantially circular cross-section channel waveguide formed on said substrate, said circular channel waveguide formed from a planar waveguide comprising a doped core layer on a cladding layer; and

a lens formed from a short block waveguide on said substrate and in alignment with said planar waveguide, said lens and said circular cross-section channel waveguide formed simultaneously by application of heat to said assembly to soften said short block waveguide and said planar waveguide thereby forming said substantially spherical lens and said substantially circular cross-section waveguide.

5,064,267

METHOD OF MANUFACTURING AN OPTICAL FUSED-FIBER COUPLER AND THE COUPLER MANUFACTURED THEREBY

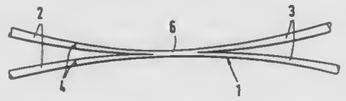
Rolf Rossberg, Schwieberdingen, Fed. Rep. of Germany, assignor to Alcatel N.V., Amsterdam, Netherlands

Filed Sep. 10, 1990, Ser. No. 580,920

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1989, 3930035

Int. Cl.[5] G02B *6/26*

U.S. Cl. 385—50 **10 Claims**



1. Method of manufacturing a polarization-selective fused-fiber coupler having two or more input fibers and two or more output fibers connected to a coupling region formed from two parallel, nonbirefringent, matched-cladding single-mode fibers, comprising the steps:

prior to and during the formation of the coupling region:

feeding linearly polarized light of a selected wavelength into one of the input fibers, and detecting said light at the output ends of the fibers; and

forming a coupling region in which the two fibers are fused together by:

applying heat in the coupling region,

drawing out the coupling region until the light detected at the two output ends stabilizes and an equal amount of light is detected from each output fiber, and then

turning off the source of heat.

5,064,268

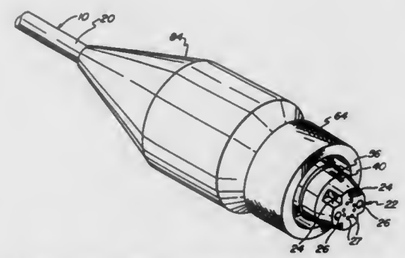
HIGH PRESSURE FIBER OPTIC CONNECTOR PLUG

Roger L. Morency, Voluntown, and Gerald E. Holmberg, Quaker Hill, both of Conn., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Dec. 7, 1990, Ser. No. 625,720

Int. Cl.[5] G02B *6/44*

U.S. Cl. 385—87 **21 Claims**



1. A fiber optic cable connection for high pressure environments comprising:

a fiber optic cable having (i) a multiplicity of fiber optic strands extending axially therein, (ii) a strength member extending axially in spaced relationship thereabout, (iii) an outer jacket, and (iv) a filler matrix within said strength member and in which said strands are encased;

a precision connector member of generally circular cross section having an outer face configured to mate with a cooperating connector member and an inner face having an axially extending recess, said connector member having axially extending passages extending from the transverse wall of said recess to said outer face of said connector member, said strands extending axially outwardly of said strength member and filler matrix of said cable and through said passages to said outer face of said connector member;

a generally cylindrical preload insert member extending axially about said outwardly extending portion of said strands and having its outer end extending into said recess of said connector member and a peripheral shoulder abutting the inner face of said connector member, said strength member having its outer end portion extending outwardly of the end of said jacket and onto the inner end portion of said insert member;

a body member of circular cross section dispensed axially about said insert member and having its outer end extending over the inner end portion of the connector member, said body member having a radially outwardly extending flange about the periphery thereof;

a nut threadably engaged on said insert member and abutting against the inner end of said body member, said nut being tightened on said insert member against said body member to tension the insert member above a predetermined value;

a relatively rigid resin filler in said insert member about said strands; and

a sealing boot extending about said cable jacket over said strength member and nut and onto said body member.

5,064,269

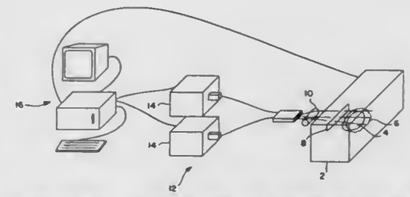
LIGHT COLLECTION METHOD AND APPARATUS

Edward G. Rogers, Mountain View, and Herbert E. Litvak, Palo Alto, both of Calif., assignors to Xinix, Inc., Santa Clara, Calif.

Filed May 18, 1990, Ser. No. 525,467

Int. Cl.[5] G02B *6/04*

U.S. Cl. 385—115 **5 Claims**



1. In an optical emission monitoring system having a light detector, an improved light collection system for sensing emissions from an extended anisotropic light source comprising:

(a) an anamorphic lens positioned so that light from said light source impinges upon said lens, and having one of its focal lengths selected to have an f/number equal to or smaller than said detector thereby providing an approximate fuzzy line image which can be transmitted efficiently to the aperture of said detector;

(b) a fiberoptic bundle for transmitting light from said lens to said detector;

(c) said fiberoptic bundle characterized by having

(i) a diameter not greater than the width of said fuzzy line;

(ii) a numerical aperture greater than that of said detector; and

(iii) positioned to overfill the limiting area of the etendue of said detector.

5,064,270

OPTICAL FIBER SENSOR

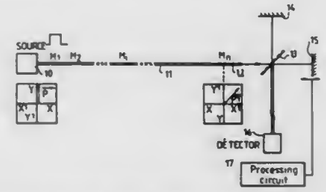
Marc Turpin, Bures sur Yvette; Jean-Michel Vignolle, Bourg la Reine; Marie-Noël Charasse, Orsay, and Jean-Pierre Le Pesant, Gif sur Yvette, all of France, assignors to Thomson-CSF, Puteaux, France

Filed Dec. 19, 1990, Ser. No. 630,294

Claims priority, application France, Dec. 19, 1989, 89 16790

Int. Cl.[5] G02B *6/02*; G01B *9/02*; G01D *5/34*; G01L *1/24*

U.S. Cl. 350—96.29 **12 Claims**



1. An optical fiber sensor comprising:

a pulse-modulated, linearly polarized wideband optical source of the superluminescent diode type,

a single-mode birefringent optical fiber sensor, the input face of which is coupled to the source, the axis of polarization of the source being aligned with a neutral axis of the fiber;

at least one device, for creating polarization coupling points,

VOL 1132 ISS 2 NO 12 1991 UMI

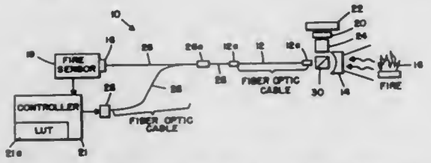
that is placed on the optical fiber and, in being subjected to a stress, creates a coupling point in the fiber;
polarization means that are coupled to the output face of the fiber to align the polarizations of the waves transmitted by the fiber,
a spectroscopic analysis device coupled to the output of the polarization means, to analyze the radiation transmitted and to form the transmission function of the sensor,
and processing means which, through the transmission function, extract the measurement of strain corresponding to the coupling point.

5,064,271

FIBER OPTIC FLAME AND OVERHEAT SENSING SYSTEM WITH SELF TEST

Mark T. Kern; John M. Wetzork, both of Goleta; Kenneth A. Shamordola, Santa Barbara, and Gregory L. Tangonan, Oxnard, all of Calif., assignors to Santa Barbara Research Center, Goleta, Calif.

Filed Mar. 14, 1989, Ser. No. 322,866
Int. Cl.[5] G02B 6/02, 6/16
U.S. Cl. 385—33 10 Claims



1. A fire detection system having a fiber optic conductor for conveying radiation at least from a distal end to a proximal end thereof, said system, comprising:
first means, optically coupled to said proximal end of said fiber optic conductor, for detecting within a first and second spectral band the radiation conveyed from said distal end of said fiber optic conductor;
second means, optically coupled to said distal end of said fiber optic conductor, for emitting radiation within at least said second spectral band for conveyance along said fiber optic conductor detection by said first means, said emitted radiation having at least one characteristic which is a function of a temperature of said second means; and
third means, optically coupled to said second means through said fiber optic conductor, for generating radiation for inducing said second means to emit the radiation within said second spectral band.

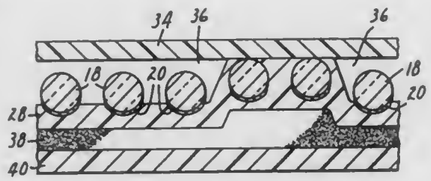
5,064,272

ENCAPSULATED-LENS RETROREFLECTIVE SHEETING AND METHOD OF MAKING

Terry R. Bailey, Woodbury; Roger R. Kult, Maplewood; Howard R. Tolliver, Woodbury, and Arthur D. Dickson, St. Paul, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 89,944, Aug. 26, 1987, Pat. No. 4,897,136. This application Jan. 25, 1990, Ser. No. 470,338
Int. Cl.[5] G02B 5/128, 5/136
U.S. Cl. 359—541 14 Claims

1. Encapsulated-lens retroreflective sheeting comprising a binder layer in which substantially a monolayer of lenses is partially embedded, a specularly reflective layer underlying the lenses, and a cover film sealed to the binder layer along a network of interconnecting lines forming hermetically sealed



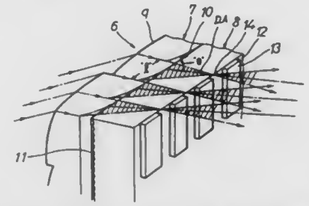
cells within which the lenses are encapsulated and have an air interface, wherein the improvement comprises:
the binder layer is a HMW thermoplastic film.

5,064,273

REAR PROJECTION SCREEN WITH DOUBLE SHEET

Dong H. Lee, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Oct. 24, 1990, Ser. No. 602,663
Claims priority, application Rep. of Korea, Oct. 24, 1989, 15308/1989
Int. Cl.[5] G03B 21/60
U.S. Cl. 359—457 4 Claims



1. A rear projection screen for projectors, which comprises:
a first sheet including a Fresnel lens formed on the inner surface facing a projection lens of a first transparent sheet made of resin and horizontal lenticular lenses formed on the opposite surface thereof and
a second sheet including a horizontal grating formed on the inner surface facing said projection lens of a second transparent sheet made of resin and a horizontal grating or a fine mat surface layer formed on the outer surface facing an observer as well as a number of vertical black stripes layer formed, whereby the first sheet and the second sheet are assembled so as to face each other for improving the whole screen brightness and brightness uniformity and preventing contrast deterioration according to the external light.

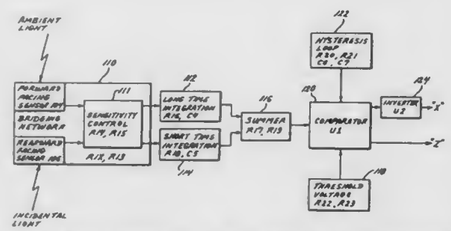
5,064,274

AUTOMATIC AUTOMOBILE REAR VIEW MIRROR ASSEMBLY

Ralph W. Alten, Arnold, Mo., assignor to Siegel-Robert, Inc., St. Louis, Mo.

Continuation-in-part of Ser. No. 89,744, Aug. 26, 1987, Pat. No. 4,828,361. This application Mar. 30, 1989, Ser. No. 331,647
Int. Cl.[5] G02B 7/198
U.S. Cl. 359—604 28 Claims

7. An automobile variable reflectivity mirror assembly for mounting to an automobile structure and for use with an electrical power supply, the assembly being operable to provide at least a relatively higher reflectivity orientation and a relatively lower reflectivity orientation, comprising:
(a) a housing;
(b) a reflective panel associated with said housing for movement between said higher reflectivity and lower reflectivity orientations, said panel providing higher reflectivity in the higher reflectivity orientation, and providing lower reflectivity in the lower reflectivity orientation;
(c) a motor having means to move a drive element in a first or second direction;
(d) means for actuation, said means being associated with said housing, for driving engagement with the drive element to move the panel between the higher and lower reflectivity orientations;
(e) electrical circuit means comprising means for detecting



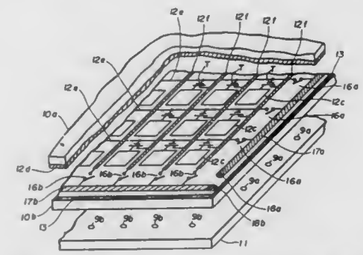
the ambient light level about the automobile, for detecting the incident light level upon the reflective panel, and for generating electrical signals proportionately representative of said light levels, said circuit means further comprising means for directing current through the motor to move the drive element to position the reflective panel in the higher or lower reflectivity position, and an electrical bridge portion having means for automatically adjusting the sensitivity of the automatic circuit so that the level of incident light necessary to move the reflective panel from a high to a low reflectivity position decreases as the ambient light level decreases.

5,064,275

LIQUID CRYSTAL DISPLAY DEVICE HAVING OPTICALLY ACTIVATABLE SWITCH MEANS

Ichiro Tsunoda, Kawasaki, and Toshiyasu Eguchi, Tsukuba, both of Japan, assignors to Victor Company of Japan, Ltd. and Tokai Company, both of, Japan

Continuation of Ser. No. 569,858, Aug. 20, 1990, abandoned, which is a continuation of Ser. No. 204,608, Jun. 9, 1988, Pat. No. 4,952,031. This application Mar. 18, 1991, Ser. No. 671,990
Claims priority, application Japan, Jun. 19, 1987, 62-152460; Jun. 19, 1987, 62-152461; Jul. 8, 1987, 62-170524
Int. Cl.[5] G02F 1/13
U.S. Cl. 359—55 6 Claims



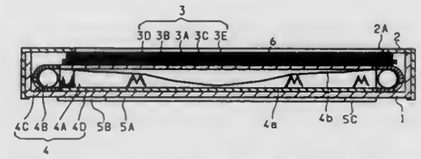
1. A liquid crystal display device for displaying an image by applying a video signal of the image to be displayed on the liquid crystal display device and a scanning signal thereto, comprising:
first and second substrates disposed parallel to each other;
a liquid crystal layer disposed between the first and second substrates, said first and second substrates having surfaces which oppose with each other so as to define the liquid crystal layer therebetween;
electrode means disposed between the first and second substrates and contacting the liquid crystal layer, said electrode means comprising a common electrode provided on the surface of said first substrate, a first group of electrodes provided on the surface of the second substrate and extending parallel to each other in a first direction, a second group of electrodes insulated from the first group of electrodes and provided on the surface of the second substrate so as to extend parallel with each other in a second direction substantially perpendicular to the first direction so that the surface of the second substrate is divided into a plurality of sections by said first and second groups of electrodes, and a plurality of pixel electrodes provided on the surface of the second substrate respectively in said plurality of sections so as to oppose the common electrode across the liquid crystal layer;
a plurality of driving means provided on the surface of the second substrate so as to be connected to said first and second groups of electrodes respectively in correspondence to the pixel electrodes for driving the pixel electrode; and
optically activatable switch means disposed between the first and second substrates and connected to said electrode means for selectively supplying said scanning signal and video signal to said electrode means to excite said liquid crystal layer for displaying said image.

5,064,276

LIGHT SOURCE FOR PLANAR ILLUMINATION IN LIQUID CRYSTAL DEVICE

Syuusuke Endo; Naofumi Aoyama; Toshihiko Yabuuchi, and Teruo Seki, all of Mobara, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 30, 1989, Ser. No. 374,148
Claims priority, application Japan, Jul. 1, 1988, 63-162502
The portion of the term of this patent subsequent to Mar. 20, 2007, has been disclaimed.
Int. Cl.[5] G02F 1/13; F21V 7/04
U.S. Cl. 359—49 13 Claims



1. A light source device comprising, a transparent plate, a reflecting plate disposed adjacent a first surface of said transparent plate, and at least one light source disposed at each of first and second end faces of said transparent plate, a second surface of said transparent plate opposite said first surface, said second surface including an inclined and curved surface portion with a thinnest portion of said transparent plate at the center area of said transparent plate between the two end faces.

5,064,277

OPERATION OF A LIGHT MODULATOR OF THE PLANAR ELECTRODE TYPE

Richard N. Blazey, Penfield, and David M. Pultorak, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

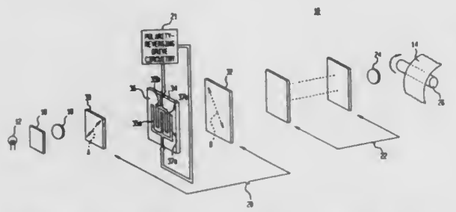
Filed Jan. 28, 1991, Ser. No. 646,116
Int. Cl.[5] G02F 1/05, 1/13; G02B 6/10
U.S. Cl. 359—276 10 Claims

1. An electro-optic light modulator comprising:
a body of an electro-optic material having a pair of opposed surfaces;

VOL 1132 ISS 2 NO 12 1991 UMI

a pair of conductive electrodes on at least one of said surfaces of said body;

means connected to said electrodes for applying a voltage thereacross; and



means for reversing the polarity of the voltage applied to said electrodes at a frequency of about 1 Hz or less to thereby substantially eliminate drift of the voltage-transmissivity of the light modulator and reduce damage to the electrodes.

5,064,278

OPTICAL EQUIPMENT MOUNTING DEVICE

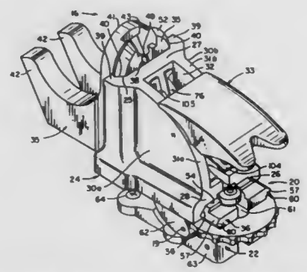
Walter Thomanek, Montreal, Canada, assignor to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Mar. 20, 1989, Ser. No. 325,748

Claims priority, application Canada, May 12, 1988, 566575

Int. Cl.[5] G02B *23/00, 27/02*

U.S. Cl. 359—480 29 Claims



15. A mounting device for adjustably positioning optical equipment on a viewer's head, said mounting device being mountable on a head support assembly worn by the viewer, said mounting device comprising a pair of guide means each including a slide member and track means for permitting relative back and forward movement of the slide member along a single axis in a direction of the longitudinal axis of the track means, a housing member, a base means having attachment means for connecting to said optical equipment, a first of said guide means being disposed between said housing member and said head support assembly, and a second of said guide means being disposed between the housing member and said base means, one of said first and second guide means being oriented to permit relative movement on a vertical axis normal to a line of vision of the viewer and the other being oriented to permit relative movement on a horizontal axis parallel to said line of vision, and releasable locking means associated with each guide means for preventing the relative movement in said guide means whereby on release of said lock means a level of the optical equipment and the distance of the optical equipment in front of the viewer may be selectively adjusted.

5,064,279

BINOCULAR TELESCOPE INCLUDING A DOUBLE-JOINTED BRIDGE AND CENTRAL JOINT FOCUSING

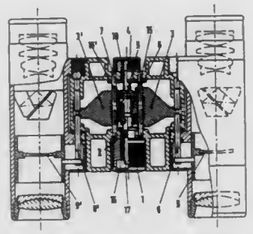
Bernhard Riedl, Tirol, Austria, assignor to D. Swarovski & Co., Wattens, Austria

Filed Aug. 29, 1990, Ser. No. 575,402

Claims priority, application Fed. Rep. of Germany, Sep. 7, 1989, 3929825

Int. Cl.[5] G02B *7/06, 7/17*

U.S. Cl. 350—554 2 Claims



1. A binocular telescope having a double-jointed bridge and a central joint focusing means for focusing and diopter adjustment wherein a focusing wheel (1) engages a displaceable bridge (3, 3') via a threaded spindle (2), and the objectives are connected with the displaceable bridge (3, 3') via first and second clutch shafts (8, 8') for the purpose of focusing, and a diopter adjustment wheel (4) engages the second clutch shaft (8') to change the position of an objective for diopter adjustment, characterized in that the bridge comprises a first member (3) firmly connected with the threaded spindle (2), and a second member (3') connected with the first member (3) by a thread (6) via a center clutch shaft (5) driven by the diopter adjustment wheel (4), the second bridge member (3') being taken along by the center clutch shaft (5) in the axial direction relative to the first bridge member (3).

5,064,280

METHOD OF MEASURING THE VELOCITY AND/OR LENGTH OF ENDLESS WEBS OF TEXTILE MATERIAL AND APPARATUS FOR CARRYING OUT THE METHOD

Werner Ringens, Krefeld-Forstwald; Franz J. Schmitz, Krefeld, and Eckhard Schollmeyer, Kempen, all of Fed. Rep. of Germany, assignors to Deutsches Texilforschungs-zentrum Nord West e.v.

PCT No. PCT/DE88/00143, § 371 Date Jan. 16, 1989, § 102(e) Date Jan. 16, 1989, PCT Pub. No. WO88/07208, PCT Pub. Date Sep. 22, 1988

PCT Filed Mar. 15, 1988, Ser. No. 276,327

Claims priority, application Fed. Rep. of Germany, Mar. 18, 1987, 3708773; Mar. 2, 1988, 3806608

Int. Cl.[5] G01S *17/58*

U.S. Cl. 356—28.5 27 Claims

1. A method of measuring at least one of the velocity and length of an endless web of textile goods comprising the steps of:

generating a beam of laser light having energy density of between 4 mW/cm^2 and 15 mW/cm^2;

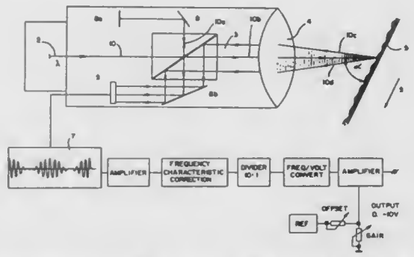
forming a reference light beam and a web irradiation light beam from the beam of laser light;

irradiating the web of textile goods with the irradiation light beam;

obtaining the light reflected from the web of textile goods and forming same into a reflected light beam;

reducing the intensity of the reference light beam in accordance with the intensity of the reflected light beam by applying the reference light beam to a reflection means that reflects a portion of the applied light;

applying, in superimposition, the reduced intensity reference light beam and the reflected light beam to a common photo detector; and



determining from the frequency characteristics of the photo detector output at least one of the velocity and length of the web of textile goods.

5,064,281

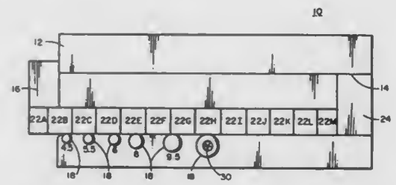
METHOD AND APPARATUS FOR SIMPLIFYING AND IMPROVING CONSISTENCY OF COLOR GRADING OF GEMSTONES

Charles E. Davis, 1412 Watrous Dr., Titusville, Fla. 32780

Continuation of Ser. No. 548,292, Jul. 3, 1990, Pat. No. 5,005,971. This application Mar. 14, 1991, Ser. No. 669,603

Int. Cl.[5] G01N *21/87*

U.S. Cl. 356—30 7 Claims



1. Apparatus for grading gemstones within a color range comprising:

a plurality of chips arranged in end-to-end relationship, each of the chips having a hue falling between the hue of each adjacent chip; and

apparatus for holding said chips in said end-to-end relationship; said apparatus having a uniformly white coloratin for reflecting white light, said chips being held in said apparatus such that said white light is reflected into said chips, said apparatus including a reflecting surface for reflecting said white light toward a gemstone positioned generally adjacent said chips substantially simultaneously with said reflection of white light into said chips whereby coloration of said gemstone may be compared with coloration of said chips.

5,064,282

PHOTOMETRIC APPARATUS AND METHOD FOR MEASURING HEMOGLOBIN

Richard H. Curtis, Gorham, Me., assignor to Artel, Inc., South Windham, Mass.

Filed Sep. 26, 1989, Ser. No. 412,899

Int. Cl.[5] G01N *33/49, 21/03*

U.S. Cl. 356—40 24 Claims

1. A cuvette for making a photometric measurement of a liquid sample comprising:

a unitary body of a rigid, solid material having opposing upper and lower faces and opposing first and second side edges;

a flow through slot disposed between the upper and lower faces and extending between the first and second side edges;

the slot being of a predetermined size such that a liquid sample may be drawn into the slot by capillary action and wherein a liquid cleaning solution will flow through and clean the slot when the body is inserted into and moved through the solution; and

the body being optically transparent to allow photometric measurements to be made of a liquid sample in the slot.

20. A method of measuring the hemoglobin content of the blood comprising:



measuring the intensity of light passing through a blood sample at a first wavelength passband at which the absorbance of oxyhemoglobin and deoxyhemoglobin are approximately equal and are less than about fifty percent of their maximum absorbance;

measuring the intensity of light passing through a blood sample at a second passband wavelength at which both oxyhemoglobin and deoxyhemoglobin absorb substantially no light; and

determining the ratio of the absorbances at the first and second wavelengths.

5,064,283

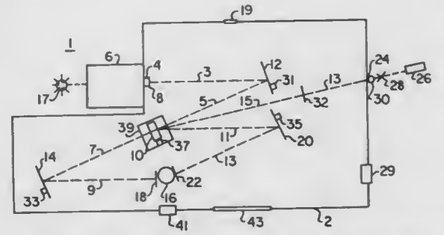
SPECTROSCOPY CHARACTERIZATION MODULE

Richard L. Tober, Laurel, Md., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Sep. 14, 1989, Ser. No. 407,186

Int. Cl.[5] G01N *21/01;* G01J *3/42*

U.S. Cl. 356—73 15 Claims



1. A spectroscopy characterization module having a particular configuration comprisng:

a light tight housing for performing spectroscopy measurements having a firt optical port for passing monochromatic radiation therethrough;

means for holding a material sample disposed within said light tight housing;

VOL 1132 ISS 2 NO 12 1991 UMI

first image focusing means for producing an image of the monochromatic radiation passing through the first optical port onto the material sample;

a detector mount disposed within said housing for holding a detector in a first position for detecting radiation transmitted through the material sample for holding the detector in a second position for detecting radiation reflected off the material sample;

second image focusing means for producing an image of radiatioo transmitted through the material sample onto the detector in the first position; and

third image focusing means for producing an image of radiation reflected off the material sample onto the detector in the second position;

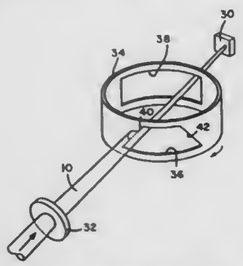
whereby various spectroscopic measurements can be performed on the material sample without changing the configuration of the characterization module.

5,064,284

APPARATUS FOR MEASURING THE MODE QUALITY OF A LASER BEAM

Johnston, Jr. Thomas F., Auburn, and Gerald H. Williams, Meadow Vista, both of Calif., assignors to Coherent, Inc., Palo Alto, Calif.

Filed Apr. 26, 1990, Ser. No. 515,250
Int. Cl.[5] G01J *1/00*
U.S. Cl. 356—121 **10 Claims**



1. An apparatus for measuring the mode quality of a laser beam comprising:

lens means for focusing the beam and creating a transformed beam waist;

support means carrying an aperture for transmitting the beam, said support means functioning to translate the aperture through the beam at two different locations along the propagation axis thereof;

means for adjusting the position of said lens means with respect to said support;

means for measuring the power of the beam transmitted through the aperture; and

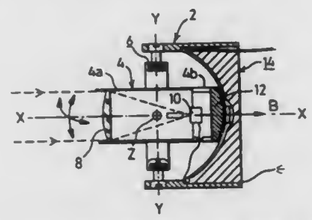
processor means connected to said adjusting means and said measuring means, said processor means for determining the diameter of the beam based upon variations in transmitted power of the beam, said processor means generating a signal that is supplied to said adjusting means for varying the position of the lens means a distance at least as large as the spacing between the two positions of the aperture with respect to said lens means, and wherein the processor means functions to determine the location of the transformed beam waist based on the measurement of the variations of the transmitted power of the beam as the aperture passes through the beam at the two positions of the aperture as the position of the lens is varied, with said determination including the splicing of the measurements taken at the two positions of the aperture to generate an axial profile of the transformed beam that extends a distance equal to twice the spacing between the two positions of the aperture, said processor further calculating the diameter of the beam at two locations, said processor means for deriving the mode quality of the beam using an equation that relates mode quality with the two measured beam diameters and their locations relative to the transformed beam waist.

5,064,285

POSITION-CONTROLLED ELECTROMAGNETIC ASSEMBLY

Gavriel J. Iddan, Haifa, Israel, assignor to State of Israel, Ministry of Defense, Haifa, Israel

Filed May 25, 1990, Ser. No. 528,394
Int. Cl.[5] G01B *11/26*
U.S. Cl. 356—141 **13 Claims**



1. An electromagnetic assembly, comprising: a housing; an electromagnetic device having at least one end enclosed by said housing and having its longitudinal axis oriented along a first orthogonal axis with respect to said housing; mounting means pivotally mounting said electromagnetic device to said housing permitting pivotal movement of said electromagnetic device about second and third orthogonal axes with respect to the housing, and preventing rotary movement of said electromagnetic device about said first longitudinal axis; a magnetic body secured to said electromagnetic device at the end thereof enclosed by said housing and producing a magnetic field coaxial with said first orthogonal axis; first coil means secured to said housing so as to be magnetically coupled to said magnetic body and oriented such that current through said first coil means produces a magnetic field along said second orthogonal axis; second coil means secured to said housing so as to be magnetically coupled to said magnetic body and oriented such that current through the second coil means produces a magnetic field along said third orthogonal axis; and a current source for applying electrical current to said first and second coil means such that the magnetic fields produced thereby, interacting with the magnetic field produced by said magnetic body, produce a torque controlling the position of said electromagnetic device with respect to said second and third orthogonal axes; said current source applying the current to said first and second coil means in pulses having pulse widths corresponding to the torque to be applied to the electromagnetic device.

5,064,286

OPTICAL ALIGNMENT SYSTEM UTILIZING ALIGNMENT SPOT PRODUCED BY IMAGE INVERTER

Chiayu Ai, and John B. Hayes, both of Tucson, Ariz., assignors to Wyko Corporation, Tucson, Ariz.

Filed May 31, 1990, Ser. No. 531,025
Int. Cl.[5] G01B *11/26*
U.S. Cl. 356—153 **18 Claims**

1. A method of aligning a beam of light with an axis, comprising the steps of:

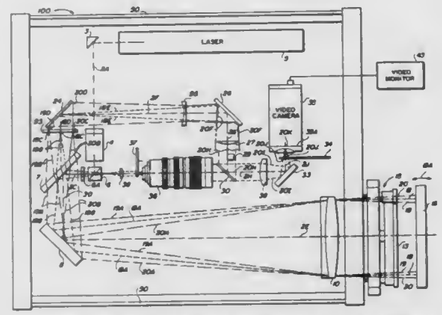
(a) directing the beam onto a diffuse screen to form a spot image thereon;

(b) collimating rays of the spot image emanating from the diffuse screen;

(c) focusing some of the collimated rays onto a detector to form a non-inverted image spot;

(d) inverting a portion of the collimated rays by means of an image inverter aligned with the axis;

(e) focusing some of the inverted rays onto the detector to form an inverted image spot; and



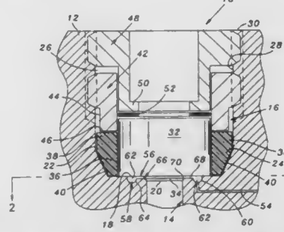
(f) moving the beam of light to cause the inverted image spot and the non-inverted image spot to coincide on the detector whereby the beam of light is aligned with the axis.

5,064,287

SAMPLE FLOW CELL WITH CIRCUMFERENTIALLY UNIFORM RADIAL FLOW PATTERN AT ITS ENTRANCE AND/OR EXIT PORTS

Haakon T. Magnussen, Jr., Orinda, Calif., assignor to Rainin Instrument Co., Inc., Emeryville, Calif.

Filed Apr. 16, 1990, Ser. No. 510,053
Int. Cl.[5] G01N *21/05*
U.S. Cl. 356—246 **8 Claims**



2. A fluid sample flow cell characterized by circumferentially uniform radial fluid flow into an entry port to a fluid passageway through the cell and/or circumferentially uniform radial fluid flow from an exit port from the fluid passageway to a fluid outlet for the cell, comprising:

a cell body having a fluid passageway therethrough;

a window seated over entry and exit ports to and from the fluid passageway; and

fluid distributor means for distributing fluid circumferentially around and in a circumferentially uniform and radial pattern into the entry port and/or from the exit port, the fluid distributor means comprising

an annular gap between an annular face surrounding at least one of the entry and exit ports and an opposing annular face on the window seated over the one port, the gap defining a relatively high fluid flow impedance annulus surrounding the one port and

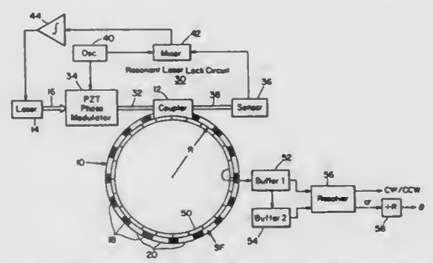
outer annular channel means having a portion of a radially innermost annular side thereof open to and contiguous with an outermost radial edge portion of the annular gap, the channel defining a relatively low fluid flow impedance annulus between and open on an inner annular side to the high fluid flow impedance annulus, a fluid inlet or outlet being connected to the outer channel means whereby fluid flows into or from and circumferentially around the outer channel and in a circumferentially uniform radial pattern through the annular gap into or from the one port.

5,064,288

SCATTERED LIGHT MULTI-BRILLOUIN GYROSCOPE

William A. Dyes, Haverhill, and Farhad Hakimi, Watertown, both of Mass., assignors to The Charles Stark Draper Laboratory, Cambridge, Mass.

Filed Dec. 7, 1990, Ser. No. 623,588
Int. Cl.[5] G01C *19/72*
U.S. Cl. 356—350 **12 Claims**



1. A scattered light multi-Brillouin guided wave gyroscope, comprising:

a coherent light source;

an optical waveguide, responsive to said coherent light source, for generating a Brillouin inertially stationary, synchronized fringe from two counter-rotating Brillouin moving fringes, each derived from a pair of Brillouin waves separated by twice the Brillouin shift; and

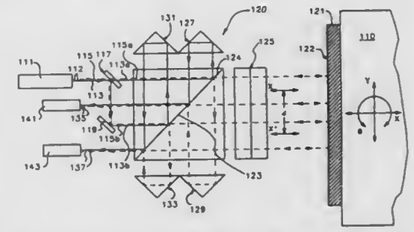
means, for detecting relative rotation between the Brillouin stationary synchronized fringe and said waveguide.

5,064,289

LINEAR-AND-ANGULAR MEASURING PLANE MIRROR INTERFEROMETER

John J. Bockman, Santa Clara, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Feb. 23, 1989, Ser. No. 314,348
Int. Cl.[5] G01B *9/02*
U.S. Cl. 356—351 **8 Claims**



1. An interferometer for measuring the linear motion of an object along a first axis and the angular motion of the object around a second axis orthogonal to the first axis, using a single integral optical assembly, comprising:

light source means for producing a coherent light beam;

reflecting means mounted on a movable measurement plane located on the object, for reflecting the beam;

integral optical assembly means for directing the beam along a first path between the optical means and the reflecting means, and along a second path between the optical means and the reflecting means, the first path incident on the

VOL 1132 ISS 2 NO 12 1991 UMI

reflecting means at only two points around a first location and the second path incident on the reflecting means at only two points around a location, the first and second locations separated by a distance d;

means for determining the change in the length of the first path;

means for determining the difference between the change in the length of the first path and the change in the length of the second path, and for calculating the angular motion of the object based on the result.

5,064,290

OPTO-ELECTRONIC SCALE-READING APPARATUS WHEREIN PHASE-SEPARATED SECONDARY ORDERS OF DIFFRACTION ARE GENERATED

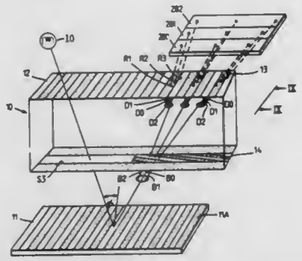
David R. McMurtry, Wotton-Under-Edge, and William F. N. Stephens, Badminton, both of United Kingdom, assignors to Renishaw plc, Gloucestershire, United Kingdom

Continuation-in-part of Ser. No. 382,686, filed as PCT/GB88/01081 Dec. 12, 1988, abandoned. This application Apr. 12, 1990, Ser. No. 531,402

Claims priority, application United Kingdom, Dec. 12, 1987, 8729066; Apr. 15, 1989, 8908593; Jun. 7, 1989, 8913039

Int. Cl.[5] G01B 9/02

U.S. Cl. 356—356 53 Claims



1. Opto-electronic scale reading apparatus comprising:

first grating means defining a scale;

a read head, said read head being displaceable relative to the scale,

second and third grating means provided on the read head, said first, second and third grating means each having a periodic structure defined by spaced lines;

a light source provided on the read head for illuminating one of said first and second grating means, the other of said first and second grating means interacting with light transmitted through said one of said first and second grating means for generating a periodic light pattern in the plane of the third grating means, said periodic light pattern having movement relative to said third grating means in accordance with said displacement thereby generating a corresponding light modulation; and

phase-separating means for separating said modulation into a plurality of phases comprising fourth grating means positioned between said third and said one of the first and second grating means for generating a plurality of said periodic light patterns, said periodic light patterns cooperating with said third grating means to generate a plurality of said light modulations having a phase-shifted relationship.

5,064,291

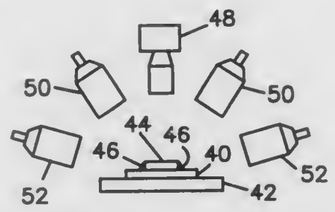
METHOD AND APPARATUS FOR INSPECTION OF SOLDER JOINTS UTILIZING SHAPE DETERMINATION FROM SHADING

Kurt Reiser, Hawthorne, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Apr. 3, 1990, Ser. No. 504,460

Int. Cl.[5] G01B 11/00; H04N 7/00

U.S. Cl. 356—372 32 Claims



1. A method for determining the height of a solder fillet at a predetermined point on a wall thereof, comprising the steps of:

(a) storing an array of predetermined incremental solder surface height change values, each being a function of first and second predetermined reflected light intensity values resulting from illumination of a solder surface from first and second angles at predetermined incremental values of solder surface tilt and swing respectively;

(b) optically scanning the solder fillet from the base of the wall to said predetermined point while illuminating the fillet from the first angle, and sensing first reflected light intensity values at incremental points of said scan respectively;

(c) optically scanning the fillet from a base of the wall to said predetermined point while illuminating the fillet from the second angle, and sensing second reflected light intensity values at the incremental points of said scan respectively;

(d) accessing the array to obtain incremental height change values corresponding to the sensed first and second reflected light intensity values at the incremental points of said scan respectively; and

(e) summing the accessed height change values to obtain the height of the solder fillet at said predetermined point.

5,064,292

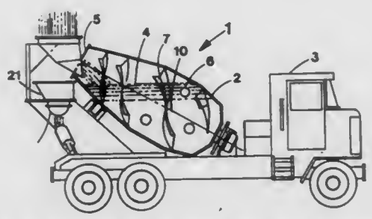
METHOD AND APPARATUS FOR PREPARING AND USING A CEMENT SLURRY

John S. Sutton, P.O. Box 677, Keller, Tex. 76248

Filed Sep. 19, 1989, Ser. No. 409,162

Int. Cl.[5] B28C 5/20

U.S. Cl. 366—2 11 Claims



1. In an apparatus for preparing and using a cement and chemical hydration retarder slurry with a cement mixing drum having internal means for moving said slurry within and subsequently out of said drum, a plurality of small heavy objects in said slurry that are adapted to rotate randomly within said drum and to crush dry nodules of cement within said slurry, wherein said drum includes a discharge end, the improvement comprising: a heavy object rejecting retainer installed at said discharge end and adapted to permit passage of said cement slurry therethrough, and further adapted to prevent passage of said heavy objects therethrough, while reversing the direction of travel of said heavy objects back into the cement slurry.

5,064,293

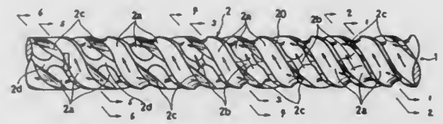
ROTARY KNEADING SCREW

Kensaku Nakamura, 272-1, Bessho-cho, Matsubara-shi, Osaka, Japan

Filed Dec. 28, 1990, Ser. No. 636,073

Int. Cl.[5] B01F 7/08

U.S. Cl. 366—324 2 Claims



2. A rotary kneading screw comprising a plurality of kneading recesses formed in peripheral surfaces of a kneading section at a fixed helical pitch along a helical direction, flight lands formed between adjacent pairs of said kneading recesses, and communicating passages formed in said flight lands at a helical pitch greater than the helical pitch of said kneading recesses; and further comprising flow passages formed between adjacent pairs of said kneading recesses in the helical direction, said flow passages being formed progressively shallower and narrower from a material introductive end to a terminal end while said communicating passages formed on said flight lands arae formed progressively deeper and broader from the material introductive end to the terminal end.

5,064,294

PROCESS AND APPARATUS FOR INVESTIGATING AND CONTROLLING CHANGES OF STATE OF A LIQUID OR GELLED MEDIUM BY DIFFERENTIAL THERMAL ANALYSIS

Olivier Cerf, Paris; Jean-Pierre Pain, Le Meux, and Gérard Antonini, Paris, all of France, assignors to Institut National de la Recherche Agronomique, Paris, France

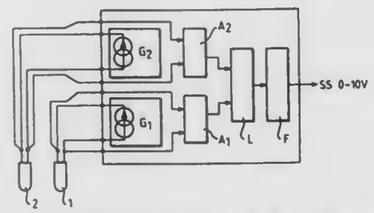
PCT No. PCT/FR89/00022, § 371 Date Sep. 18, 1990, § 102(e) Date Sep. 18, 1990, PCT Pub. No. WO89/06794, PCT Pub. Date Jul. 27, 1989

PCT Filed Jan. 25, 1989, Ser. No. 543,789

Claims priority, application France, Jan. 25, 1988, 88/00803

Int. Cl.[5] G01N 25/04

U.S. Cl. 374—16 10 Claims



1. A process for investigating changes of state of a liquid or gelled medium by differential measurement of the thermal characteristics of the medium, the improvement comprising the following steps:

measuring the temperature of the medium by means of a first probe (1) delivering a first signal indicating the temperature of this medium,

contributing energy to the medium in the form of heat by means of a second probe (2) which delivers a signal indicating the temperature of this second probe (2),

after amplification, combining the abovementioned signals in a correcting stage (L) which corrects the signal delivered by the second probe (2) taking into account the signal delivered by the first probe (1) to deliver information strictly indicating the change of state of the medium.

5,064,295

DEVICE FOR CONTINUOUSLY MEASURING THE TEMPERATURE OF A MOLTEN METAL

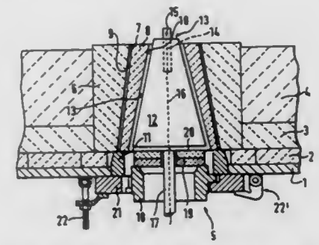
Fernand Thill, Esch/Alzette, and Carlo Schoumacher, Niedercorn, both of Luxembourg, assignors to Arbed S.A., Luxembourg

Filed May 8, 1990, Ser. No. 520,531

Claims priority, application Luxembourg, May 17, 1989, 87522

Int. Cl.[5] G01K 1/12, 1/00

U.S. Cl. 374—139 8 Claims



1. A device for monitoring the temperature of a molten metal, said molten metal being disposed within a metallurgical vessel having a refractory lining, comprising:

tubular probe means having a closed end for contacting said molten metal, said probe means exhibiting high thermal conductivity and high electrical resistivity;

refractory support means for mounting said probe means within a passage through the refractory lining of said metallurgical vessel, said support means and said passage having complimentary frustoconical profiles;

refractory sleeve means for defining the passage through the refractory lining of metallurgical vessel, said sleeve means including an inner surface defining said passage and an outer surface for contacting said lining, wherein said refractory lining includes a refractory brick member including an inner surface for receiving the sleeve means, said inner surface of said brick member and said outer surface of said sleeve member have complimentary frustoconical profiles, the frustoconical profiles of the support means and the inner surface of the sleeve means exhibit a first angle of inclination, the frustoconical profiles of the outer surface of the sleeve and the inner surface of the brick member exhibit a second angle of inclination and the second angle of inclination is greater than the first angle of inclination; and

sensor means, disposed within said tubular probe means and in contact with said closed end, for sensing the temperature of the closed end.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,296

INTEGRATED SEMICONDUCTOR CIRCUIT FOR THERMAL MEASUREMENTS

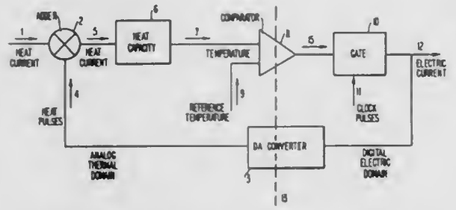
Johan H. Huijsing, Schipluiden, and Frank R. Riedijk, Pijnacker, both of Netherlands, assignors to Bronkhorst High-Tech B.V., Ruurlo, Netherlands

Filed Jun. 22, 1990, Ser. No. 542,177

Claims priority, application Netherlands, Jun. 23, 1989, 8901602

Int. Cl.[5] G01K *7/00, 17/04;* **G01F** *1/68*

U.S. Cl. 374—163 **2 Claims**



1. Integrated semiconductor circuit for measurements of thermal signals, comprising

a thermal signal comparator (8) having a first thermal input, a second thermal input and an electrical digital output;

a feedback loop connected between the output and the first input of the comparator, said feedback loop comprising a digital-analog (DA) signal converter (3) which provides an analog thermal output;

an adder unit for heat currents having an output connected to a heat capacity having a temperature output connected to the first thermal input of said comparator;

said feedback loop comprising a gating unit having a first input connected to the output of the comparator, a second input connected to a clock pulse and a digital electric output connected to the input of the digital-analog (DA) converter.

5,064,297

STATIC PRESSURE GAS BEARING WITH THROTTLING CONTROL VALVE IN HOUSING

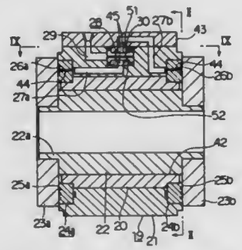
Mamoru Tanaka, Yokohama; Masayuki Suzuki, Maebashi, and Koichi Kawakami, Yokohama, all of Japan, assignors to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 21, 1991, Ser. No. 658,777

Claims priority, application Japan, Feb. 26, 1990, 2-042690; Feb. 26, 1990, 2-042691; Feb. 26, 1990, 2-042692

Int. Cl.[5] F16C *32/06*

U.S. Cl. 384—100 **3 Claims**



1. A static pressure gas bearing comprising:

a housing having a bearing surface and a feed gas flow channel;

a rotating member which opposes said bearing surface on said housing through a bearing gap therebetween;

a slotted groove formed in said surface of said bearing and communicated with a source of supply of a compressed gas via said feed gas flow channel incorporated in said housing;

and a throttling control valve having a plate spring and provided between said slotted groove and said gas supply source when incorporated in said housing;

wherein said throttling control valve controls the volume of said compressed gas supplied to said slotted groove, based on the elastic displacement of said plate spring.

5,064,298

MACHINE PARTS HAVING MINUTE RANDOM RECESSES

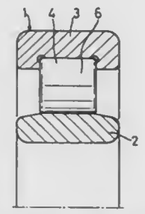
Kenji Hibi, Yoro, and Toshihide Goto, Morimachi, both of Japan, assignors to NTN Corporation, Osaka, Japan

Filed Nov. 29, 1990, Ser. No. 619,587

Claims priority, application Japan, Nov. 30, 1989, 1-314050

Int. Cl.[5] F16C *33/12, 33/64*

U.S. Cl. 384—625 **5 Claims**



1. A machine part having a rolling surface adapted to make a rolling contact, said rolling surface being formed with a plurality of minute recesses at random, a SK value being less than zero both in the longitudinal and circumferential directions, and the area ratio of said recesses to the whole rolling surface being 10–40 percent, said SK value representing skewness of a distribution curve showing surface roughness in the longitudinal and circumferential directions.

5,064,299

OPTOCOUPLER APPARATUS

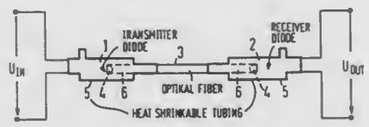
Guenther Hirschmann, Munich; Guenter Waitl, and Franz Schellhorn, both of Regensburg, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Continuation of Ser. No. 58,315, Jun. 5, 1987, abandoned. This application Mar. 1, 1989, Ser. No. 318,458

Claims priority, application Fed. Rep. of Germany, Aug. 8, 1986, 3626826

Int. Cl.[5] G02B *6/36, 7/26*

U.S. Cl. 385—33 **8 Claims**



1. A component for providing an optical connection for optical signal transmission between a light transmitter and a light receiver in which a light beam waveguide is coupled in the transmission path for light transmission, comprising:

light transmitter means and light receiver means having an integrated lens and an integrated hollow cylinder such that one end of the light beam waveguide is inserted in each respective hollow cylinder and wherein the light transmitter and the light receiver are connected with the light beam waveguide by heat-shrinkable tubing means such that the coupled ends of the light beam waveguide abut the integrated lens in the light transmitter and the integrated lens in the light receiver, and form integral components having a single casing in which said hollow cylinder and said lens are integrated, and wherein there is a direct optical coupling between said lens and the end of said light beam waveguide in said hollow cylinder.

5,064,300

THERMAL PRICE TAG PRINTER THERMAL HEAD SUPPORT STRUCTURE

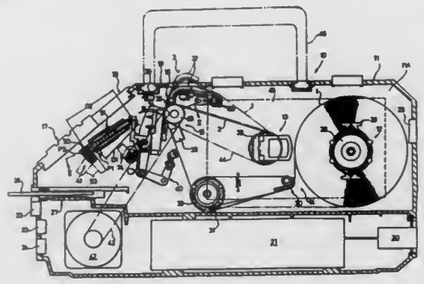
Tadao Kashiwaba, Iwate, Japan, assignor to Kabushiki Kaisha Sato, Japan

Filed Jun. 8, 1989, Ser. No. 363,959

Claims priority, application Japan, Jun. 9, 1988, 63-142525

Int. Cl.[5] B41J *11/20*

U.S. Cl. 400—56 **22 Claims**



1. A thermal printer, comprising:

a platen;

a thermal print head juxtaposed to the platen;

a printing region defined between the print head and the platen, the printing region being aligned with a width dimension of a medium to-be-printed by the print head; and

printing pressure equalizing means for enabling the thermal print head to pivot in a predetermined plane and in a manner which results in the application to the medium-to-be-printed of a uniform printing pressure along substantially the entirety of the width dimension of the medium;

the pressure equalizing means comprising:

a support member for supporting the thermal print head, the support member including a print head attachment member to which the thermal print head is attached and a print head pressing member for enabling pressing of the print head attachment member and the thermal print head in a direction toward the platen;

a fixed spindle for rotatably supporting the support member thereon; and

a pivot member between the support member and the fixed spindle for pivotably supporting the print head attachment member in such a way that it is able to pivot about the pivot member within the predetermined plane.

5,064,301

THERMAL PRINTER

Tadashi Nakamura, Morioka, and Toshiyuki Yamamoto, Takizawa, both of Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Apr. 3, 1990, Ser. No. 504,160

Claims priority, application Japan, Apr. 3, 1989, 1-84479

Int. Cl.[5] B41J *2/00*

U.S. Cl. 400—120 **4 Claims**

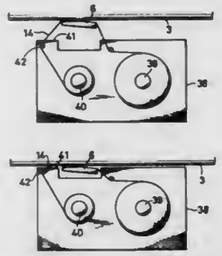
1. A thermal printer for printing on a printing surface, said thermal printer comprising:

a ribbon cassette housing an ink ribbon;

a movable carriage, wherein said ribbon cassette is either a ribbon cassette for hot release mode printing or alternatively a ribbon cassette for cold release mode printing, said ribbon cassette being selectively mounted and arranged on said carriage to be movable toward and away from said printing surface;

a drive means for moving said ribbon cassette mounted on said carriage toward and away from said printing surface;

a sensing means for detecting whether said ribbon cassette mounted on said carriage is one for hot release mode printing or for cold release mode printing; and



a control means for detecting the type of cassette detected by said sensing means and for selectively transmitting a signal to said drive means so that said drive means moves said carriage to a first or a second position where said positions are reached once the carriage stops after moving toward and away from said printing surface respectively, according to the type of ribbon cassette mounted.

5,064,302

TEMPERATURE CONTROL IN A WIRE DOT PRINTER

Jiro Tanuma; Hideaki Ishimizu; Tadashi Kasai, and Chihiro Komori, all of Minato, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Apr. 26, 1990, Ser. No. 514,838

Claims priority, application Japan, May 1, 1989, 1-112565

Int. Cl.[5] B41J *2/30*

U.S. Cl. 400—124 **5 Claims**



1. A wire dot printer comprising:

a dot print head having multiple print wires which strike printing paper;

a drive means for driving said dot print head;

a temperature detection means for detecting a temperature of said dot print head;

a measurement means for measuring an elapsed time from when a detection temperature of said temperature detection means exceeds a previously set alarm temperature; and

a control means for controlling by changing over, in accordance with a measurement result of said measurement means, between normal-printing, in which all print wires can be driven, and reduced-character-printing, in which a decreased number of spontaneously driven print wires are used;

wherein, when a detection temperature of said temperature detection means exceeds said alarm temperature, said control means causes said drive means to drive said dot print head in such a way so as to lower the temperature of said dot print head and, when the detection temperature of

VOL 1132 ISS 2 NO 12 1991 UMI

said temperature detection means goes below said alarm temperature, said control means executes reduced-character-printing for a definite duration based on an elapsed time starting when the detection temperature of said temperature detection means exceeds said alarm temperature and ending when said detection temperature becomes less than said alarm temperature.

5,064,303

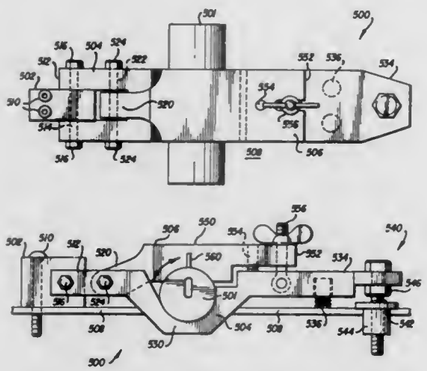
PRINTHEAD MOUNT ASSEMBLY

Mario Ricciardi, Glenview, Ill., assignor to Bell & Howell Phillipsburg Company, Allentown, Pa.

Continuation of Ser. No. 298,542, Jan. 18, 1989, Pat. No. 4,955,596. This application Jul. 3, 1990, Ser. No. 547,249

Int. Cl.[5] B41J *2/01*

U.S. Cl. 400—175 **10 Claims**



1. An apparatus for mounting a printhead relative to a horizontal surface, said apparatus comprising:

an anchor block mounted on said horizontal surface;

a bottom clamp member, said bottom clamp member having a first region pivotally attached to said anchor block at a first pivot axis, a central region for contacting at least a part of said printhead, and a distal region;

vertical adjustment means connected to said distal region of said bottom clamp member for pivoting the bottom clamp member about the first axis to adjust the vertical height of said bottom clamp member relative to said horizontal surface;

a top clamp member for sandwiching said printhead between said bottom clamp member and said top clamp member, said top clamp member being pivotally connected to said bottom clamp member at a second pivot axis distinct from the first pivot axis.

5,064,304

PRINTER HAVING AN INK RIBBON SHIFT APPARATUS

Yoshiaki Hosokawa; Masaki Kanoh; Takashi Maekawa, and Hirofumi Nakayasu, all of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 491,170, Mar. 9, 1990, abandoned. This application Feb. 7, 1991, Ser. No. 652,377

Claims priority, application Japan, Mar. 10, 1989, 1-59445

Int. Cl.[5] B41J *33/14*

U.S. Cl. 400—225 **5 Claims**

1. A printer having an ink ribbon shift apparatus comprising:

a base unit;

a platen supported substantially horizontally on said base unit;

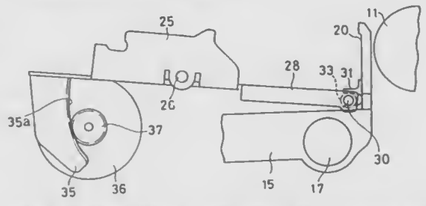
a carrier unit having a printer head and a ribbon guide, said ribbon guide being movable in the upward and downward directions and said carrier unit being mounted on said base unit to move along said platen;

up and down shift means to shift up and down an ink ribbon cassette having an ink ribbon containing a plurality of color bands of different colors across the direction of its width;

said up and down shift means comprising;

an ink ribbon cassette support frame having an arm portion on each side thereof extending toward said platen, said frame being pivotably supported on said base unit and upon which said ink ribbon cassette is mounted; and

a mechanism for pivoting said frame so that said ink ribbon cassette is shifted up and down;



a shaft disposed parallel to said platen and extending along the entire range of movement of said carrier unit; said shaft being attached to and mounted between said frame arm portions and adapted to shift up and down together with said ink ribbon cassette; and

an engagement mechanism provided on said ribbon guide to engage said shaft so that free movement of said ribbon guide in the direction of movement of said carrier unit is allowed and free movement in the up and down direction between said ribbon guide and said shaft is restricted;

whereby said up an down shift means moves said ink ribbon cassette up and down, said ribbon guide is thereby shifted up and down via said shaft, and a predetermined color band of said ink ribbon is positioned on a printing line.

5,064,305

PIN PLATEN MECHANISM

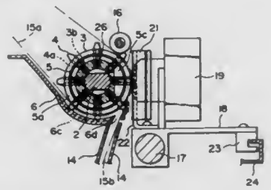
Kiyoshi Matsuda, and Minoru Mizutani, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Mar. 23, 1987, Ser. No. 29,222

Claims priority, application Japan, Mar. 28, 1986, 61-44708[U]

Int. Cl.[5] B41J *11/28*

U.S. Cl. 400—616.3 **4 Claims**



1. A pin platen mechanism comprising:

a platen for permitting a medium having therein sprocket holes to be wound therearound and for supporting the same;

non-rotatably mounted bearings rotatably supporting opposite ends of a central shaft of said platen;

sprocket wheels mounted on opposite ends of said central shaft of said platen and integrally rotatable therewith;

cam members mounted adjacent respective said bearings and engaged therewith so as not to be rotatable with said platen, each said cam member having formed therein an annular cam groove, and each said cam groove having an inwardly widened portion;

a plurality of sprocket pins inserted in respective retaining holes extending radially inwardly from the periphery of each said sprocket wheel, each said sprocket pin having an inner base portion having a projection extending into said cam groove of the respective said cam member, whereby upon rotation of said platen and said sprocket wheels relative to said cam members said projections of said sprocket pins follow said cam grooves of respective said cam members, and each said sprocket pin having an outer tip end projecting from said periphery of the respective said sprocket wheel, whereby said sprocket pins of said sprocket wheels are adapted to fit into sprocket holes of the medium and, upon rotation of said platen and said sprocket wheels, feed the medium;

spring means mounted in each said retaining hole for continually biasing the respective said sprocket pin outwardly; and

each said sprocket pin being movable inwardly against the biasing force of the respective said spring means when said projection of said each sprocket pin is located within said widened portion of the respective said cam groove.

5,064,306

DEVICE FOR APPLICATION OF A LIQUID OR PASTY PRODUCT TO A SURFACE

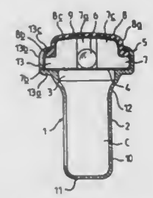
Jean-Louis Gueret, Paris, France, assignor to L'Oreal, Paris, France

Filed Nov. 1, 1990, Ser. No. 607,660

Claims priority, application France, Nov. 30, 1989, 89 15781

Int. Cl.[5] A46B *11/02;* **A45D** *40/00*

U.S. Cl. 401—133 **13 Claims**



1. A device for the application of a liquid or pasty product, comprising a receptacle having a dispensing opening, a deformable applicator attached about said opening and separated from said receptacle by a tearable cover, said receptacle including means for perforating said cover disposed between said cover and said applicator, said means for perforating comprising a mobile, rounded body, said device including a retaining element for said rounded body to retain said body in a selected position relative to said cover and to allow a user to apply pressure to said deformable applicator to move said body to perforate said cover at said selected position whereupon said body will fall into said receptacle.

5,064,307

Patent Not Issued For This Number

5,064,308

GRAVITY DRAINAGE SYSTEM FOR ATHLETIC FIELDS AND METHOD THEREFOR

Daniel R. Almond, 7551 South Franklin St., Littleton, Colo. 80122; Joseph M. Stroemel, 4625 E. Louisiana Ave., E303, Denver, Colo. 80222, and Stuart M. Cameron, 6308 S. Gallup Ct., Littleton, Colo. 80120

Filed Mar. 15, 1991, Ser. No. 669,768

Int. Cl.[5] E02B *13/00*

U.S. Cl. 405—43 **35 Claims**

1. A gravity drainage system for a level-graded natural grass athletic field, said system comprising:

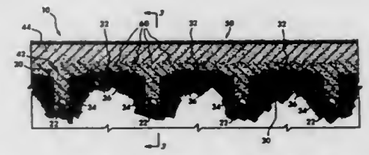
a level, compacted subgrade;

drainage means at the lowest point of said subgrade for draining water from the site of said field;

collector drain pipe means, connected to end drainage means, placed in a trench formed in said subgrade and sloping downward toward said drainage means for collecting runoff;

a plurality of parallel trenches formed in said subgrade spaced a predetermined distance from one another;

perforated drain pipes, connected to said collector drain pipe means, placed in each of said trenches sloping downward toward said collector drain pipe means and sloping downward toward said drainage means;



a layer of pea gravel placed around and above said perforated drain pipe forming a level-graded upper layer, said pea gravel layer having a drainage rate of at least 12 inches per hour;

a level layer of a non-layering mixture placed above said pea gravel layer and having a drainage rate of at least 12 inches per hour, said non-layering mixture formed of approximately ninety percent sand and ten percent peat moss; and

a layer of natural grass on the top of said sand and peat moss mixture layer forming a flat, level-graded athletic field.

5,064,309

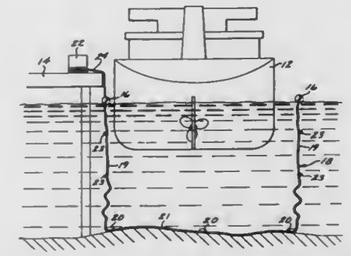
DOCKSIDE SPILL CONTAINMENT SYSTEM

Gerald M. Dickie, 2178 Lomina Ave.; Steve L. Liles, 1925 Pattiz Ave., both of Long Beach, Calif. 90815, and Alan H. Woldvedt, 12574 Bellder Dr., Downey, Calif. 90242

Filed Jul. 12, 1990, Ser. No. 551,462

Int. Cl.[5] E02B *15/06*

U.S. Cl. 405—64 **8 Claims**



I. A spill containment system for containing spillage of cargo from a ship moored above a preselected area of seafloor, comprising:

an inflatable boom configured and dimensioned to surround such ship at the water's surface when inflated;

an impermeable liner, contiguously attached to said boom and dimensioned to extend from the water's surface to the seafloor;

means for securing said liner to the seafloor such that a portion of said liner is in contiguous contact with the seafloor at all times; and

means for alternately inflating and deflating said boom whereby, upon inflation of the boom, the boom and attached liner rises to form an impermeable barrier about the ship and upon deflation, the entire system sinks so as not to obstruct the passage of such ship thereover.

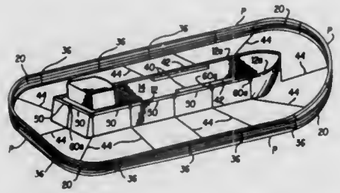
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,310

SHIPBOARD ENVIRONMENTAL BARRIER SYSTEM AND METHOD

Stephen T. Sullivan, 427 Lincoln Ave., Falls Church, Va. 22046

Filed Feb. 21, 1990, Ser. No. 482,765
Int. Cl.[5] E02B *15/04*
U.S. Cl. 405—69 19 Claims



1. A system for containing a contaminant in water in the vicinity of a water vehicle, the system comprising:

barrier means for operating in a deployed mode at a perimeter in the water around and spaced from the vehicle to contain the contaminant; and

projecting means disposed on the vehicle and operatively coupled to the barrier means for accelerating the barrier means outwardly from the vehicle to project the barrier means over the water toward the perimeter during the deployed mode so that the barrier means moves in a substantially free fall trajectory after the acceleration.

5,064,311

MINE ROOF SUPPORT STRUCTURE AND METHOD

Roger Giroux, Azilda, Canada, and Raymond L. Wright, Syracuse, N.Y., assignors to The Eastern Company, Naugatuck, Conn.

Filed Apr. 5, 1990, Ser. No. 504,608
Claims priority, application Canada, Mar. 8, 1990, 2011774
Int. Cl.[5] F21D *21/02*
U.S. Cl. 405—259.1 15 Claims



1. A support/reinforcing assembly for a rock structure adjacent an underground passageway having a bore hole of predetermined diameter therein, said assembly comprising, in combination:

a) an elongated rod threaded for at least a predetermined portion of its length from each end to provide a tensionable bolt;

b) a mechanical expansion anchor including a radially expansible shell and a tapered camming plug threadedly engaged with one end of said bolt positioned within said bore hole;

c) a bearing support plate having a central opening through which the other end of said bolt loosely passes adjacent the open end of said bore hole;

d) a washer element having a central opening through which said other end of said bolt loosely passes;

e) a frangible jam nut threadedly engaged with said other end of said bolt to retain said support plate and washer element thereon, said washer element being positioned between said support plate and an upper surface of said jam nut; and

f) a tensioning nut threadedly engaged with said other end of said bolt and threaded into firm engagement with a lower surface of said jam nut a substantial distance from the end of the threads on said other end of said bolt to permit thread travel of said tensioning nut upon application thereto of a torque sufficient to break or strip said jam nut free of its threaded engagement and consequent tensioning of said bolt,

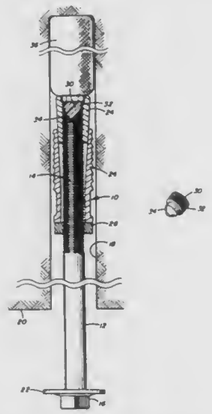
---

5,064,312

DELAY STOPPER FOR A MINE ROOF ANCHOR AND METHOD OF MANUFACTURE THEREOF

Frank Calandra, Jr., Pittsburgh, Pa., and Jerry Frease, Lexington, Ky., assignors to Jennmar Corporation, Pittsburgh, Pa.

Division of Ser. No. 384,123, Jul. 20, 1989, abandoned, which is a continuation of Ser. No. 243,928, Sep. 13, 1988, abandoned.
This application Jul. 24, 1990, Ser. No. 559,154
Int. Cl.[5] F16B *31/02*; E21D *20/02*; B21D *53/24*
U.S. Cl. 405—259.5 3 Claims



1. The method of manufacturing a threaded receiving member for a mine roof anchor having a delay stopper therein to prevent rotation of said receiving member relative to a threaded mine roof bolt threaded into said threaded receiving member comprising:

positioning said threaded receiving member with internal threads forming said threaded passage in a vertical position;

positioning a mold element having an opening with an annular upper surface, a cylindrical intermediate surface and a conical lower surface closing said mold element within a portion of said receiving member threaded passage below the point where said delay stopper is to be located;

pouring liquid epoxy resin into said receiving member above said mold element;

directing the liquid epoxy resin into the opening of the mold element to the closed end thereof to fill said mold element in said threaded passage of said receiving member with epoxy resin;

allowing said epoxy resin to harden and forming an epoxy resin delay stopper having an upper cylindrical surface, an intermediate cylindrical surface and a conical lower surface;

said delay stopper having a threaded portion mating with a portion of said threads of said receiving member threaded passage thereby threadedly securing said delay stopper in said receiving member;

removing said mold element from said threaded receiving member with said conical portion of said delay stopper spaced from said threaded portion of said receiving member; and

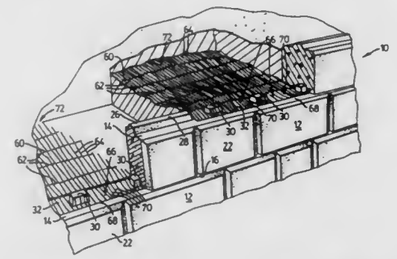
obstructing said threaded passage at a preselected location within said receiving member by said delay stopper.

5,064,313

EMBANKMENT REINFORCING STRUCTURES

Angelo Risi, and Antonio Risi, both of Richmond Hill, Canada, assignors to Rothbury Investments Limited, Gormley, Canada

Filed Sep. 20, 1990, Ser. No. 585,874
Claims priority, application Canada, May 25, 1990, 2017518
Int. Cl.[5] E02D *29/02*
U.S. Cl. 405—284 24 Claims



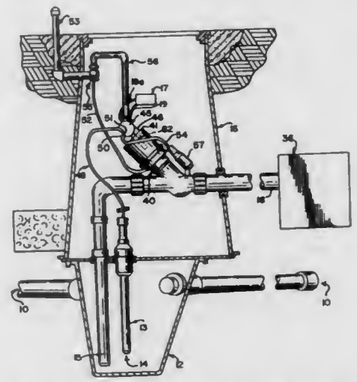
1. In an interlocking facing block for a gravity retaining wall derived from like facing blocks to be stacked in interlocked and overlapped relation in horizontal courses and wherein such gravity retaining wall is adapted to be anchored against dislodgement by securing one or more appropriate suitably tensioned lengths of a selected soil reinforcing grid thereto to extend rearwardly therefrom into the embankment to be contained thereby, said facing block having a body portion with an axis terminating in opposed end surfaces and bounded by front and rear facings and by generally parallel upper and lower surfaces, said body portion including first recess means extending axially thereof and opening to one of said upper and lower surfaces and presenting projection means extending axially thereof and upstanding from the other of said upper and lower surfaces, said first recess means and said projection means having an overall configuration and extent so as to establish an interlock therebetween in axial sliding fit when respective upper and lower surfaces of like facing blocks are disposed in contiguous relation for stacking in overlapped relation in horizontal courses, said projection means including means for interengaging with a grid edge section of a selected soil reinforcing grid to be presented thereto, and a further recess means included within at least one of said upper and lower surfaces and opening to at least said rear facing thereof, said further recess means having an extent such that when like facing blocks are stacked in interlocked and overlapped relation with respective upper and lower surfaces thereof in contiguous relation an interengaged grid edge section is accommodated therewithin.

5,064,314

VACUUM SEWERAGE SYSTEM WITH INCREASED LIFT CAPABILITIES HAVING ELECTRIC AIR ADMISSION CONTROLLERS

John M. Grooms, and Mark A. Jones, both of Rochester, Ind., assignors to Burton Mechanical Contractors, Inc., Rochester, Ind.

Continuation-in-part of Ser. No. 491,255, Mar. 9, 1990. This application Nov. 19, 1990, Ser. No. 615,088
Int. Cl.[5] B01D *1/00*
U.S. Cl. 406—22 30 Claims



1. An improved vacuum system for transporting waste liquids from a source at a given air pressure, including an air admission controller for automatically regulating the opening and closing of a control valve connected to a vacuum transport conduit to admit atmospheric pressure into the conduit, comprising:

a. vacuum collection means for receiving waste liquids and having a pressure less than the pressure of the source;

b. a control valve for injecting the waste liquids, having an inlet coupled to the source of waste liquids and having an outlet for injecting the waste liquids and air;

c. conduit means coupled to the vacuum collection means and coupled to the outlet of the control valve, said conduit means having at least one riser, low point, and downslope, and being laid out in a saw-toothed fashion between the collection means and the injection means outlet so that when no flow occurs, waste liquids may collect in the low point, and there is minimal intermittent closure of said conduit means over time to permit minimal drop in vacuum or subatmospheric pressure throughout said conduit means such that there is more than adequate vacuum or subatmospheric pressure available to operate said control valve; and

d. an air admission controller, comprising:

i. a timer unit having a first activated condition and a second inactivated condition;

ii. a source of vacuum or subatmospheric pressure;

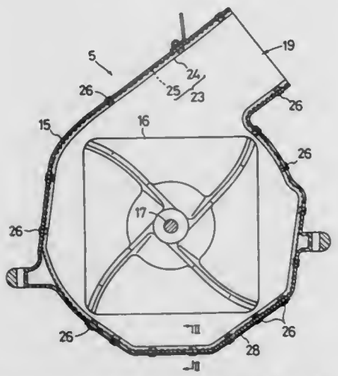
iii. a source of atmospheric pressure;

iv. means, operatively in communication with said timer unit, for establishing communication of one of these pressure condition with the control valve, which, in response thereto, either opens or closes the valve to commence or terminate an air transport cycle within the transport conduit, wherein vacuum or subatmospheric pressure is delivered while said timer is in one condition, and wherein atmospheric pressure is delivered while said timer is in another condition; and

v. a housing for containing the components of the air admission controller.

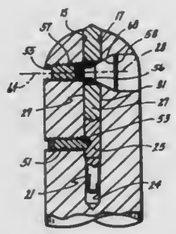
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,315
BLOWER
Kazuo Samejima; Masatake Murakawa; Junichi Kitamura, all of Osaka, Japan; Yoshiaki Matsuda, and Colin Fulford, both of Compton, Calif., assignors to Kubota Corporation, Osaka, Japan
Continuation-in-part of Ser. No. 531,995, Jun. 1, 1990, abandoned. This application Oct. 23, 1990, Ser. No. 602,883
Int. Cl.[5] A01D *33/02*
U.S. Cl. 406—100 3 Claims



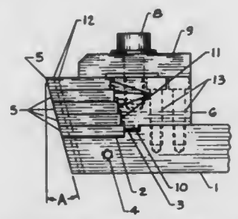
1. A blower comprising a housing for a fan, and a liner extending along peripheral inside walls of said housing for the fan, said liner including a lining material formed of an elastic resin, and a core formed of a plastically deformable metal and embedded in said lining material throughout an entire length of said lining material, said lining material being thinned at positions where said liner is to be bent.

5,064,316
BALL NOSE MILLING TOOL
Stojan Stojanovski, 1950 Birchwood, Troy, Mich. 48084
Continuation-in-part of Ser. No. 588,453, Sep. 26, 1990. This application Feb. 5, 1991, Ser. No. 650,777
Int. Cl.[5] B23P *15/34;* B23C *5/22*
U.S. Cl. 407—40 3 Claims



1. A milling tool comprising:
a rotary spindle having an axial slot extending within a plane coincident with the spindle diameter, said slot defining two opposed flat side faces and an interconnecting bottom face;
a circular cutter plate having a peripheral cutting edge, and first and second side faces; said cutter plate being adapted for removable disposition within said axial slot so that the side faces of the cutter plate lie against the side faces of the slot;
first and second diametrically-spaced segmental recesses in said first cutter plate side face forming first and second chord-oriented shoulders inset from said first cutter plate side face;
third and fourth diametrically-spaced segmental recesses in said second cutter plate side face forming third and fourth chord-oriented shoulders inset from said second cutter plate side face;
and a cutter plate holder means that includes a holder plate disposed in said slot between the slot bottom face and the cutter plate peripheral edge; said holder plate having two spaced flat convergent end edges in parallel planes defining a V-shaped edge structure matable to one of the chord-oriented shoulders on the first cutter plate side face and to one of the chord-oriented shoulders on the second cutter plate side face;
said spindle having a cylindrical hole extending from the slot bottom face on the spindle axis; said holder plate having a cylindrical post extending therefrom into the cylindrical hole to orient the cutter plate holder means to the spindle.

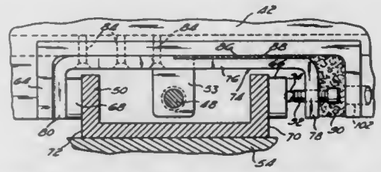
5,064,317
MASS PRODUCED TOOLS
James J. Gardner, 700 E. Fifth Ave., Lancaster, Ohio 43130
Filed Jan. 23, 1990, Ser. No. 469,072
Int. Cl.[5] B23P *15/28*
U.S. Cl. 407—70 7 Claims



1. A tool assembly for producing a plurality of interchangeable cutters and for use in a machine tool, which comprises:
a tool holder having a tool support surface adapted to receive a plurality of expendable inserts which are situated to engage a rotating member and a mounting portion for mounting said tool holder in a machine tool;
wherein each said inserts has a rotating member engaging end and a locating portion;
lateral alignment means for providing lateral positioning of each of said inserts adjacent said tool support surface;
locating means for locating a plurality of inserts on said tool holder;
said locating means having a plurality of locator surfaces each adapted to engage one of said locating portions on each of said inserts; so that the rotating member engaging end of each of said inserts is in flush alignment with each of the other rotating member engaging ends of said inserts forming a common relief angle
wherein each of said locator surfaces is positioned in an incrementally stepped relation to the preceding locator surface and clamping means for clamping said inserts in said tool assembly.
and clamping means for clamping said inserts in said tool assembly.

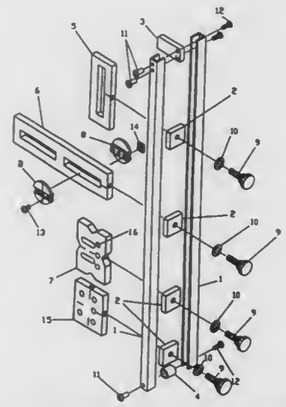
5,064,318
PRECISION GUIDANCE APPARATUS
Robert J. Cirillo, Torrance, Calif., assignor to Excellon Automation, Torrance, Calif.
Continuation of Ser. No. 157,869, Feb. 19, 1988, abandoned. This application Aug. 31, 1990, Ser. No. 577,055
Int. Cl.[5] B23B *39/16*
U.S. Cl. 408—69 8 Claims

1. In a machine tool having at least one cutting tool for performing a desired machining operation on a workpiece, a base, a work table on which said workpiece rests, and moving means for movably mounting said work table to said base and positioning said workpiece relative to said cutting tool, said moving means including a guiding member on said base having a first guide surface and a second guide surface, said first and second surfaces being substantially planar and substantially parallel to one another, a first bearing which reduces friction between said work table and said first guide surface, a second bearing which reduces friction between said work table and said second guide surface, the improvement comprising:
a caliper interposed between said work table and said base, having first and second rigid portions and a cantilever portion extending therebetween, said first rigid portion being fixed with respect to said work table, said cantilever



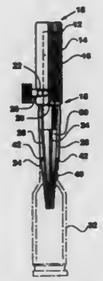
portion having a first end integral with said first rigid portion and a second end integral with said second rigid portion and spaced from said work table wherein said first bearing is mounted on said first rigid portion and said second bearing is mounted on said second rigid portion;
a preload member; and
means joining said preload member to said second rigid portion whereby said preload member urges said second bearing into engagement with said second guide surface and causes deflection of said cantilever portion at said second end to accommodate irregularities in said second guide surface and lack of true parallelism between said first guide surface and said second guide surface.

5,064,319
HARDWARE INSTALLATION TOOL
Colin W. Ericksen, 13428 The Square, Poway, Calif. 92064
Filed Mar. 4, 1991, Ser. No. 663,554
Int. Cl.[5] B23B *47/28*
U.S. Cl. 408—115 R 2 Claims



1. A hardware installation device for locating holes for hardware on a workpiece or cabinet carcass, said device comprising tow parallel guide rail members, said members being provided with fastener attachment means at each end, said members positioned apart by a spacing means at one end and a device positioning means on the opposite end, template positioning means adjustably movable between said guide rails, a plurality of templates for locating pilot holes for hardware attachment screws, each template having a plurality of edges and attachment means on one or more edges, clamping means on the template positioning means for engaging the attachment means such that the templates may be attached to the guide rails in a plurality of orientations, said templates provided with either (a) guide means to accept adjustable bushings, the bushings having fastener attachment means to secure the bushings in adjusted locations, said adjustable bushings and said templates being provided with reference lines for vertical and horizontal positioning, or (b) fixed guide holes to drill holes to duplicate conventional hardware locations, or (c) both fixed guide holes and adjustable bushings.

5,064,320
CONTROLLED DEPTH CARTRIDGE CASE CAMFERING TOOL
Kenneth E. Markle, 2525 Primrose La., York, Pa. 17404
Filed Jun. 3, 1991, Ser. No. 709,106
Int. Cl.[5] B23B *45/06*
U.S. Cl. 408—202 8 Claims



1. A controlled depth cartridge case chamfering tool for accomplishing adjustably set repeatedly uniform taper chamfering of the mouth interior of a sized and trimmed cartridge case to provide a consistently unifrom radially aligned and squarely disposed truncated conically shaped gradual taper therewithin respectively from case-to-case within a run lot and thereby facilitate bullet tip placement and seating in accomplishing cartridge loading or reloading operations, comprising:
(a) an elongated handle provided with a reamer shaft receiving opening;
(b) a reaming cutter tool having integral thereto a chucking shaft adapted to be slidably supported within said reamer shaft receiving opening;
(c) a means in said handle to lockably secure said chucking shaft at a variably set adjusted position within said elongated handle; and
(d) a plurality of radially spaced reaming cutter tool depth stop guides extending from the base of said elongated handle cooperatively with said reaming cutter tool and adapted to adjustably limit the depth of case mouth interior depth of chamfering cut thereof.

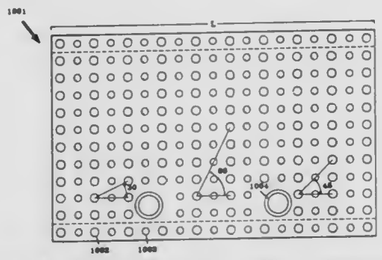
5,064,321
TOOLING PLATE
Gary D. Barnes, 1363 Woodelf Dr., San Jose, Calif. 95121
Filed Jul. 3, 1990, Ser. No. 547,974
Int. Cl.[5] B23C *9/00;* B23Q *3/00*
U.S. Cl. 409—219 11 Claims

1. An apparatus that can be quickly configured into a variety of jigs, said device comprising:
a tooling plate of width W and length L through a top surface of which have been formed a plurality of unthreaded alignment holes of substantially equal diameter and a plurality of threaded holes of substantially equal

VOL 1132 ISS 2 NO 12 1991 UMI

diameter, said holes being arranged in a rectangular array of equally spaced holes having a plurality of columns containing only unthreaded holes and a plurality of columns containing only threaded holes, wherein any pair of adjacent columns consists of a column of threaded holes and a column of unthreaded holes, whereby, in any pair of nearest columns of unthreaded holes, three holes can be selected that form a right triangle containing an angle selected from the set consisting of 30°, 45° and 60°;

a plurality of alignment pins, each adapted to fit closely into one of said unthreaded holes such that there is substantially no wobble of a pin in an unthreaded hole and such



that each pin can be easily removed by hand from one of said unthreaded holes, thereby enabling these pins to be quickly inserted and/or removed from said unthreaded holes while retaining a sufficiently close fit that these pins serve as accurate alignment pins for a workpiece;

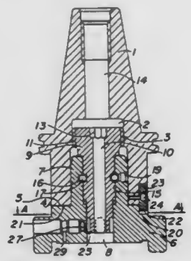
a plurality of bolts with threads that can screw into the threaded holes; and at least one clamp having an opening therethrough through which one of said bolts can be inserted and threaded into a threaded hole of the tooling plate, whereby alignment pins can be inserted into selected holes of the tooling plate to form a jig and whereby said at least one clamp can hold a workpiece rigidly against the tooling plate.

5,064,322

JOINT FOR MODULAR TOOLHOLDER DEVICE OF A TOOL MACHINE FOR THE WORKING OF METALS AND OTHER

Gianluigi Pisani, Via Pisana, 122, Scandicci (Firenze), Italy

Filed Nov. 30, 1989, Ser. No. 443,891
Claims priority, application Italy, Nov. 30, 1988, 9535 A/88
Int. Cl.[5] B23C *5/26*
U.S. Cl. 409—234 **3 Claims**



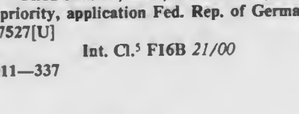
1. A tool holder connection arrangement for a modular tool holder device of a tool machine for connecting a first hollow element, provided with an internal threading and having a cylindrical axial seat, to a second hollow element provided with a shank insertable in the cylindrical axial seat of the first element, comprising: a shaft having threading engageable with the internal threading of the first hollow element, said shaft defining a seat for receiving a clamping wrench; tongue means for torsionally blocking the second element relative to the first element; crown of balls means for axially blocking the second element with respect to said shaft, said shaft including a circumferential groove and said shank including a circumferential groove for receiving said crown of balls means, said crown of ball means for releasing or blocking the second element relative to the first element upon rotation of said shaft in a direction with respect to said first element; and, dowel means for torsional blocking of said second element relative to said shaft, said dowel means including a radial bore through said second element and a head element engaging a groove formed in said shaft, said head element being maintained in engagement with said groove by an elastic pin.

5,064,323

SELF-THREADING FASTENER

Timothy J. R. Barnsdale, Alcester, United Kingdom, assignor to Tappex Thread Inserts Limited, Warwickshire, England

Filed Feb. 20, 1991, Ser. No. 658,238
Int. Cl.[5] F16B *37/12*
U.S. Cl. 411—178 **8 Claims**



1. A self-threading fastener which comprises a generally cylindrical body about which is formed a thread and flutes formed in the thread and extending longitudinally of the axis of the fastener body, the flutes intersecting the threads to define cutting edges at the intersections and located at the sides of the flutes and the leading edges of the threads, said cutting edges acting to cut threads during use of the fastener, the radially outer edge of the thread between said flutes having substantially constant radius,

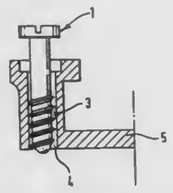
wherein the improvement comprises providing two sets of flutes, one set of flutes extending deeper into the threads in the radial direction than the other set of flutes and both sets of flutes defining cutting edges at their intersections with the thread.

5,064,324

FASTENING SCREW FOR ASSEMBLY PLATES

Max Ragaller, Krün, Fed. Rep. of Germany, assignor to Marker Deutschland GmbH, Munich, Fed. Rep. of Germany

Filed Jun. 19, 1990, Ser. No. 540,379
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1989, 8907527[U]
Int. Cl.[5] F16B *21/00*
U.S. Cl. 411—337 **4 Claims**



1. A threaded fastener having a head portion and a shaft portion provided with a retention element forming an integral part of said fastener and projecting outwardly from a point

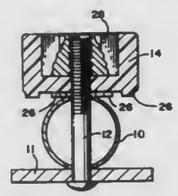
located on the circumference of the shaft portion of the fastener and intermediate adjacent turns of the thread of said fastener, said retention element comprising a drop of substantially elastic, plastic material adhered to a threaded portion of the shaft portion of said fastener.

5,064,325

THUMBNUT CONSTRUCTION

John W. McRoskey, Rancho Santa Fe, Calif., assignor to Republic Tool & Manufacturing Corp., Carlsbad, Calif.

Filed Apr. 16, 1991, Ser. No. 685,684
Int. Cl.[5] F16B *33/00, 37/16*
U.S. Cl. 411—368 **8 Claims**



1. A thumbnut for use with a threaded bolt traversing a first member and a second member, comprising

a portion of said first member having a convex surface,

said threaded bolt extending from the apex of said convex surface,

a series of spaced apart projections circumferentially arranged on a bottom surface of said thumbnut with respect to a central threaded aperture thereof, said projections successively engaging said convex surface when said thumbnut is rotated about said bolt member to engage said convex surface, whereby opposed projections of adjacent pairs of said projections will successively straddle the apex of said convex surface to thereby define a plural number of stable positions for said thumbnut with respect to said convex surface.

5,064,326

TAMPER PROOF SERVICE BOLT

Robert E. Davis, 4281 Linda La., and Frank R. England, 4819 Old Mooringsport Rd., both of Shreveport, La. 71107

Filed Jun. 4, 1990, Ser. No. 533,173
Int. Cl.[5] F16B *21/18, 33/00*
U.S. Cl. 411—368 **8 Claims**



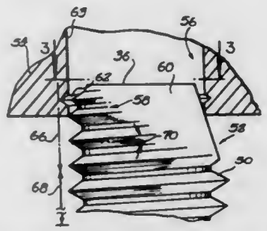
1. A tamper proof service bolt comprising a base member having a head on one end and internal threads provided in the opposite end thereof, a collar having an internal collar bore coextensive with the length of said collar for receiving said opposite end of said base member, a flange disposed in said collar bore and a flange opening provided in said flange, said flange opening communicating with said collar bore for limiting the travel of said opposite end of said base member into one end of said collar and a connecting bolt having a tamper proof head and a threaded shank adapted for insertion in the opposite end of said collar bore with said threaded shank engaging said internal threads of said base member and securing said collar on said base member in tamper proof relationship.

5,064,327

OBLIQUE POINT FASTENER

Barry J. Hughes, Wickford, R.I., assignor to Research Engineering & Manufacturing, Inc., Middletown, R.I.

Filed Sep. 10, 1990, Ser. No. 580,204
Int. Cl.[5] F16B *25/00*
U.S. Cl. 411—386 **14 Claims**



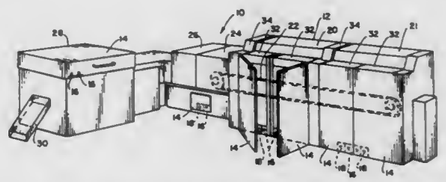
1. A cross-threading resistant screw fastener, said fastener comprising a shank portion, a conical tip portion formed on and extending from said shank portion; said shank portion defining a shank axis extending therethrough, and said conical tip portion defining a tip axis extending therethrough; said tip being formed such that said tip axis defines an angle oblique to said shank axis; shank threads formed on said shank portion and at least partial threads formed on at least a portion of said conical tip portion.

5,064,328

SAFETY INTERLOCK SYSTEM

John W. Raker, North Olmsted, Ohio, assignor to K. S. Macey Machine Company, Inc., Cleveland, Ohio

Filed Dec. 29, 1989, Ser. No. 459,139
Int. Cl.[5] B42C *1/00*
U.S. Cl. 412—12 **5 Claims**



1. A safety interlock system for use with an apparatus having a movable mechanism surrounded by a safety guarding, the system comprising:

a plurality of serially-connected disabling switch means for disabling motion of the movable mechanism, each of the plurality of disabling switch means being disposed in access areas of the apparatus providing an opening through the safety guarding and each generating a disable signal wherein the respective accessed area is in a predetermined unsafe condition;

a plurality of serially-connected jog switch means, each jog switch means of the plurality being disposed in the access areas of the apparatus and each being operatively associated with a one of the plurality of disabling switches sharing a common access area as a disable-jog switch means pair, each jog switch means generating a jog signal when actuated; and,

VOL 1132 ISS 2 NO 12 1991 UMI

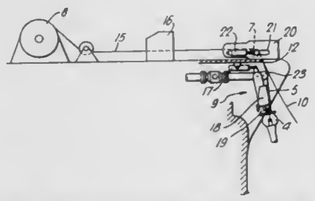
control means for activating the movable mechanism when each of at least two disable/jog switch means pairs are sensed having a presence of the disable signal and the jog signal.

5,064,329

LOADING ARRANGEMENT FOR LOADING FLUIDS ONTO A SHIP AT SEA

Bjørn J. Brenna, Kristiansand, Norway, assignor to MCG A.S., Arendal, Norway

Filed Jan. 28, 1991, Ser. No. 646,418
Claims priority, application Norway, Jan. 30, 1990, 900426
Int. Cl.[5] B63B *27/43*
U.S. Cl. 414—137.7 **3 Claims**



1. A loading arrangement for loading fluids onto a ship at sea, comprising:
- a coupling manifold on board said ship,
- a loading hose with a coupling head for connection with said coupling manifold,
- a pulling line connected at one end to a winch on board said ship, and comprising a loading fork with two diverging parts which are at their respective ends connected with said coupling head on mutually opposed sides of said coupling head,
- a guide pulley on board said ship and above said coupling manifold for guiding said pulling line on board said ship and towards said winch,
- a bearing means for said coupling manifold to slew said coupling means towards and away from said loading fork about a horizontal axis,
- a manipulatable hook means included on said coupling manifold for gripping cooperation with said coupling head, and driving means for swinging said coupling manifold and said manipulatable hook means so that said coupling head may be aligned with and lifted towards said coupling manifold and connected with the latter, whereby said guide pulley is mounted for controllable motion in the direction of said pulling line in a direction towards and from said winch, and

said coupling manifold comprises a guide means in the form of a curved screen, which in a vertical plane has a trapezoid shape and passes through a triangular area of said loading fork formed by said two diverging parts, and which may contact the loading fork and fix the loading fork in a fork plane formed by said triangular area when said manifold is slewed.

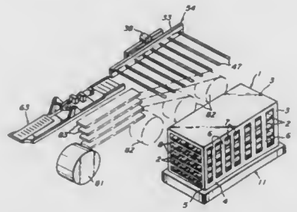
5,064,330

BELT-SHAPED MEMBER TAKING-OUT AND TRANSFER APPARATUS

Yuzo Kumagai, Niiza, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

Filed Jul. 25, 1990, Ser. No. 557,350
Claims priority, application Japan, Jul. 25, 1989, 1-192050
Int. Cl.[5] B65G *67/02*
U.S. Cl. 414—331 **7 Claims**

1. A belt-shaped member transfer apparatus for taking belt-shaped members one-by-one out of a container and for transferring the belt-shaped members to a server of a tire building machine, said container having a top, a bottom, two sides and two ends, at least one of said ends being open for removal of the belt-shaped members therethrough, said container further having a plurality of vertically arranged shelves, the belt-shaped members being arranged side-by-side and parallel with each other on each of the shelves, said apparatus comprising:
- a lifter for supporting the container thereon and for intermittently raising and lowering the container;
- a roller conveyor including a carriage arranged on one side of the container and movable transversely to the belt-shaped members;



- a plurality of elongated rollers rotatably supported by the carriage and extending transversely to the belt-shaped members, said rollers being spaced from each other in a longitudinal direction of the belt-shaped members; and

means for rotatably driving the rollers;

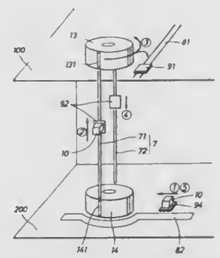
whereby the rollers may enter the container through openings in a side thereof and discharge a belt-shaped member from said container through said open end by rotation of said rollers.

5,064,331

VERTICAL CONVEYING APPARATUS

Hitoshi Yamaguchi, and Keiji Andoh, both of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Apr. 25, 1990, Ser. No. 514,395
Claims priority, application Japan, May 8, 1989, 1-14806
Int. Cl.[5] B65G *67/02*
U.S. Cl. 414—344 **11 Claims**



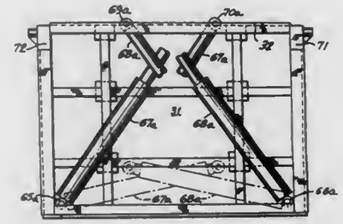
1. A vertical conveying apparatus for vertically conveying an article upward and downward between at least two horizontal surfaces having different vertical positions, comprising a plurality of vertical tracks for coupling the horizontal surfaces to each other, vertical conveying trucks capable of vertically moving upward and downward along said vertical tracks, horizontal conveying trucks capable of moving on the horizontal surfaces, and coupling unit means, respectively arranged on the horizontal surfaces, for transferring the article between said vertical conveying trucks and said horizontal conveying trucks, each of said vertical tracks including, throughout its entire length, a primary portion of a linear motor, the primary portion being vertically divided into a plurality of sections, each of which is connected to an independently controlled power source and said vertical conveying truck including a secondary portion of said linear motor.

5,064,332

MOTOR-DRIVEN GARBAGE TRUCK COMPRISING A DETACHABLE CONTAINER

Gustav D. Edelhoff, Iserlohn, Fed. Rep. of Germany, and Fred T. Smith, Palos Verdes Pen, Calif., assignors to Edelhoff Polytechnik GmbH & Co., Iserlohn, Fed. Rep. of Germany

Continuation of Ser. No. 108,811, Oct. 14, 1987, abandoned, which is a continuation-in-part of Ser. No. 733,865, May 1, 1985, Pat. No. 4,715,767. This application Jan. 11, 1990, Ser. No. 464,648
Claims priority, application Fed. Rep. of Germany, May 29, 1984, 3420058
The portion of the term of this patent subsequent to Dec. 29, 2004, has been disclaimed.
Int. Cl.[5] B66F *3/04*
U.S. Cl. 414—408 **3 Claims**



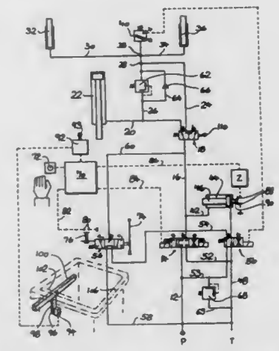
1. A motor-driven garbage truck including a driver's cab, said truck comprising a container having a filling opening for receiving garbage,
- a pouring unit fixed to the truck between said driver's cab and said container, extending above said driver's cab and including a receiving chamber having a receiving opening,
- lifting and tilting means for receiving and emptying garbage from a garbage can into said receiving chamber through said receiving opening, and
- conveying and compacting means for transporting garbage that has been received through said receiving opening into said container through said filling opening, characterized by the fact that said receiving opening is disposed between the driver's cab of aid truck and said container and a conveying and compacting chamber is disposed below said receiving opening, said conveying and compacting chamber having a compacting platen disposed therein which has cross sectional dimensions that conform to the cross sectional dimensions of said conveying and compacting chamber and which is provided with drive means and is guided to reciprocate substantially horizontally in said conveying and compacting chamber, and a cover plate, joined to the upper edge portion of said compacting platen and extending at a right angle thereto and slidably guided in tracks located above and extending over said driver's cab, reciprocably disposed over said conveying and compacting chamber and reciprocating substantially horizontally thereover, whereby said conveying and compacting chamber is reciprocably opened and closed as said compacting platen is reciprocated in said conveying and compacting chamber and said drive means is protected from becoming soiled by additional garbage falling into said conveying and compacting chamber.

5,064,333

APPARATUS FOR EMPTYING CONTAINERS, PARTICULARLY REFUSE CONTAINERS

Renate Würtz, Erligheim, Fed. Rep. of Germany, assignor to Otto Lift-Systeme GmbH, Cologne, Fed. Rep. of Germany

PCT No. PCT/DE88/00633, § 371 Date May 8, 1990, § 102(e) Date May 8, 1990, PCT Pub. No. WO89/03794, PCT Pub. Date May 5, 1989
PCT Filed Oct. 15, 1988, Ser. No. 477,992
Claims priority, application Fed. Rep. of Germany, Oct. 20, 1987, 3735420
Int. Cl.[5] B65F *3/04*
U.S. Cl. 414—408 **14 Claims**



1. Apparatus for emptying a container, particularly a refuse container, comprising:
- at least one lifting and tipping apparatus, which is provided with a lifting and tipping frame to receive the container to be emptied;
- lifting and tipping means operatively connected to the lifting and tipping apparatus for moving the lifting and tipping apparatus to empty the container;
- a pressure medium power circuit to actuate the lifting and tipping frame;
- said lifting and tipping apparatus including mounting means therefor on a larger container;
- an electrical control device to activate the pressure medium power circuit;
- an actuating device for activating the electrical control device;
- a switch device for affecting the lifting and tipping motion of the lifting and tipping frame, wherein the switch device can be actuated by the container received on the lifting and tipping frame and is operative for the further lifting and tipping motion in such a way that the lifting and tipping motion is effected only if a container on the lifting and tipping frame is in predeterminable alignment;
- said actuating device initiating said motion and maintaining said motion as an automatically proceeding lifting and tipping motion;
- said switch device containing two contact elements;
- both of said contact elements are present on the lifting and tipping apparatus such that they are movable in the plane of the lifting and tipping motion synchronously with the lifting and tipping motion;
- the first of the two contact elements is firmly attached to the lifting and tipping apparatus;
- the second of the two contact elements is firmly attached to a weigh beam which is pivotable about a shaft mounted on the lifting and tipping apparatus lying in the plane of the lifting and tipping motion; and
- said weigh beam having a pivoting position, and said pivoting position, and hence, the pivoting alignment of the second contact element being affected by contact with the

VOL
1132
ISS
2
NO
12
1991
UMI

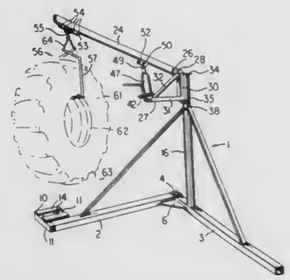
container such that when the container is in the prescribed position on the lifting and tipping frame, both of the contact elements are located in the opposed contact position,

so that the switch device can act on the further lifting and tipping motion such that, after a predetermined lifting and tipping motion path of the lifting and tipping frame has been traveled, a further motion of the frame occurs only when the two contact elements are located in the contact position.

5,064,334
WHEEL CLAMP

Lorne A. Cooley, Box 126, Pincher Creek Alberta T0K 1W0, Canada

Filed Apr. 17, 1989, Ser. No. 338,612
Int. Cl.[5] B66C *23/06*
U.S. Cl. 414—428 **7 Claims**

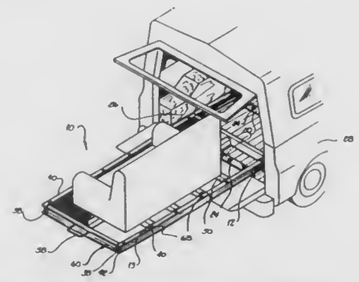


1. An apparatus for lifting a large vehicle wheel comprising a tire mounted on a rim, the apparatus comprising first jaw means; second jaw means connected to said first jaw means such that the first and second jaw means can straddle the upper portion of the wheel with the wheel in its upstanding position; first roller means on said first jaw means for engaging the upper part of the rim of the wheel on one side of the wheel; second roller means on said second jaw means for engaging the upper part of the rim of the wheel on the other side of the wheel; and lift means connected to upper ends of said first and second jaw means for lifting both said jaw means, said first jaw means having at least one first roller with its axis oriented generally horizontally for engaging an underside of the upper part of the rim of the wheel and a second roller oriented generally normal to the first roller for engaging an adjacent side surface of the wheel, said second jaw means having rollers corresponding to those of said first jaw means for engaging an underside of the upper part of the rim and an adjacent side surface of the wheel at the other side of the wheel, said first and second rollers of each jaw means constituting said roller means of the respective jaw means, the connection between said jaw means comprising pivot means pivotally connecting said first and second jaw means in scissors fashion such that said jaw means and said rollers are movable inwardly toward and outwardly away from a straddled wheel, and said lift means being connected to said upper ends of said first and second jaw means such that a lifting force by said lift means urges said first and second jaw means inwardly toward a straddled wheel.

5,064,335
APPARATUS FOR HANDLING CARGO

Ghislain J. Bergeron, and Bernard Bergeron, both of Alberta, Canada, assignors to Denis Tardif, Alberta, Canada, a part interest

Filed Apr. 3, 1990, Ser. No. 507,135
Claims priority, application Canada, Jun. 14, 1989, 602718
Int. Cl.[5] B60P *1/00*
U.S. Cl. 414—522 **6 Claims**



1. An apparatus for handling cargo, comprising:

a. a pair of elongate supports;

b. means for securing the supports horizontally in parallel spaced relation to a cargo box of a delivery vehicle;

c. a rectangular platform having longitudinal edges which engage the supports thereby coupling the platform to the supports such that the platform is movable between a position extending from the supports and a position retracted within the supports; and

d. means for limiting the movement of the platform in the extended position thereby preventing the separation of the platform from the supports

e. the supports being of channel iron "C" shaped in cross-section, and the edges of the platform being of channel iron "C" shaped in cross-section, the channel iron from which the supports and the edges of the platform is constructed having a side wall, an upper wall and a lower wall, the supports having a first end which telescopically receives the platform and a second end, rollers being rotatably secured to the side wall at the first end of the supports, the platform having a first end which is telescopically received in the supports and a second end, rollers being rotatably secured to the side wall at the first end of the platform, a space being provided in the upper walls of the edges of the platform adjacent the rollers such that the rollers bear against the upper walls of the supports, a space being provided in the upper walls of the supports adjacent the rollers such that the rollers bear against the upper walls of the edges of the platform, a space being provided in the lower end wall of the edges of the platform adjacent the rollers, whereby upon coupling the platform and the supports, the rollers of the supports may be inserted through the space in the lower wall.

5,064,336
WINCH ASSEMBLY FOR BOAT TRAILER

Byron L. Godbersen, Lake LaJune Estates, Ida Grove, Iowa 51445

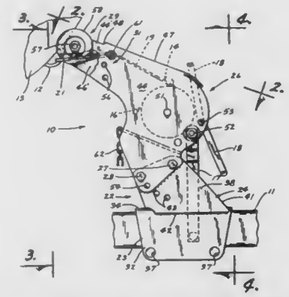
Filed Aug. 13, 1990, Ser. No. 565,696
Int. Cl.[5] B60P *3/10*
U.S. Cl. 414—559 **6 Claims**

1. A winch assembly for mounting on a boat trailer having a tongue element, and for pulling connection to the bow eye of a boat being loaded onto the trailer, the winch assembly comprising:

winch means including a rotatable drum, and having an elongated strap wrapped about said drum and with one end thereof free for detachable connection to the bow eye;

post means detachably mounted on the tongue element and including an upright section extended above the tongue element;

casing means adjustably mounted on said post means for pivotal movement about a normally horizontal axis, said casing means substantially encasing said winch means;



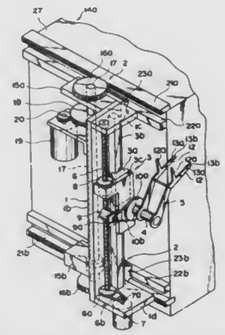
bow stop means rotatably mounted on said casing means and adapted to engage the bow of the boat above the bow eye upon operation of the winch means; and

strap aligning means connected to said casing means and interposed between said winch drum and said bow stop means whereby to maintain said strap substantially aligned with the bow stop means during pulling of the boat upon the trailer by the winch means.

5,064,337
HANDLING APPARATUS FOR TRANSFERRING CARRIERS AND A METHOD OF TRANSFERRING CARRIERS

Teruo Asakawa, Yamanashi, and Tetsu Obsawa, Kofu, both of Japan, assignors to Tokyo Electron Limited, Tokyo, Japan

Continuation of Ser. No. 221,090, Jul. 19, 1988, abandoned. This application Jul. 12, 1990, Ser. No. 552,852
Int. Cl.[5] B65G *1/133*
U.S. Cl. 414—639 **20 Claims**



1. A handling apparatus operable in a clean room, comprising:

transferring means for transferring a box-like carrier between a storage compartment and a loading/unloading stage in said clean room, said transferring means including an arm member which has a prongshaped loading portion by means of which said arm member picks up the box-like carrier and a main arm portion curved like a boomerang;

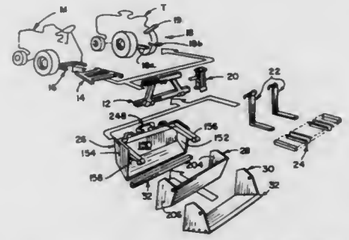
rocking means, provided in a portion which is lower than said prongshaped loading portion, for rocking said arm member; and

moving means for moving said transferring means to the loading/unloading stage, picking up the box-like carrier placed on the loading/unloading stage, moving the carrier so as to be overhead of the rocking means via said arm member, and moving said transferring means to the storage compartment where the arm member is rocked so as to discharge the carrier from the loading portion.

5,064,338
IMPLEMENT MOUNTING APPARATUS FOR TRACTORS AND MOWERS

Phillip G. Lawrence, Spring Lake, Mich., assignor to Lawrence Inc., Spring Lake, Mich.

Filed Dec. 22, 1989, Ser. No. 455,960
Int. Cl.[5] E02F *3/04*
U.S. Cl. 414—685 **29 Claims**



14. An implement mounting apparatus for use with vehicles such as tractors and riding front mowers comprising:

a support frame for mounting and holding at least one work implement during use, said support frame having at least one support member and support means for positioning and supporting at least one work implement on said support frame for access and use on one side of said support frame;

hitch means on said support frame for mounting said support frame on a mount on at least one of a tractor, a front mower and a tow bar;

a housing body removably mounted on said support frame; said housing body including a body panel and a pair of spaced end panels, one end panel at either end of said body panel, said panels defining an open scoop-shaped assembly; said housing body also including mounting means for removably connecting and supporting said housing body on said support means, and connecting means for attaching an additional implement to said housing body to form at least one of a hopper, scoop and plow;

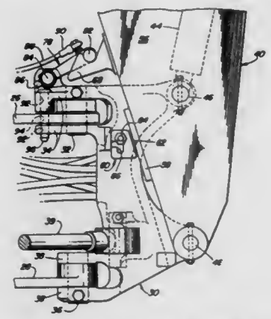
a hopper member pivotally mounted on said housing body, said hopper member having a body panel and a pair of spaced end panels, one end panel at either end of said body panel, said panels defining an open scoop-shaped assembly which opens toward said housing body; said connecting means including pivot means for pivotally attaching said hopper member in opposition to said housing body to from a clam-shell opening hopper assembly and latch means for releasing said hopper member to open at the bottom of said hopper assembly by allowing the bottom of said hopper member to swing away from the bottom of said housing body; and

said connecting means further including a pair of support arms for supporting said hopper member, one arm extending outwardly from each of said housing body end panels, said hopper member end panels each including a pivot member extending inwardly therefrom for engaging an upwardly and outwardly opening slot in one of said support arms whereby said hopper member pivots about said pivot members in said slots; said housing body panel and hopper body panel being inclined downwardly and in-

VOL
1132
ISS
2
NO
12
1991
UMI

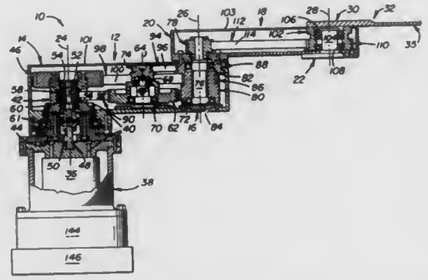
wardly toward one another whereby when said latch means is released, the weight of said hopper member and any material in said hopper assembly will pivotally open said hopper assembly to release the material downwardly.

5,064,339
BACKHOE BOOM LOCK
Steven W. Ahlers, Dubuque, Iowa, assignor to Deere & Company, Moline, Ill.
Filed Jan. 2, 1991, Ser. No. 636,657
Int. Cl.[5] C02F *3/32*
U.S. Cl. 414—687 8 Claims



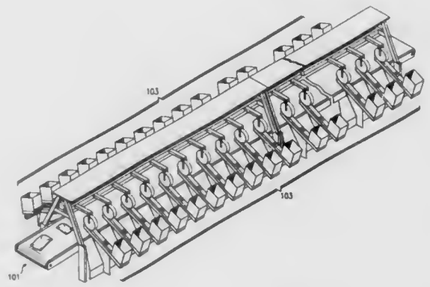
1. In a vehicle mounted backhoe having a swing frame pivotally mounted on the vehicle, a boom swingably mounted on the swing frame on a horizontal pivot for movement between a generally vertical transport position and selected working positions, and a hydraulic cylinder operative between the boom and the swing frame for positioning the boom, an improved locking device for selectively locking the boom to the swing frame in the transport position comprising:
a horizontal latch pivot mounted on the swing frame parallel to the boom pivot;
a latch member swingably mounted on the latch pivot for shifting between first and second positions and including horizontal pin means generally parallel to the latch pivot; and
a lock member mounted on the boom and including upwardly open socket means adapted to receive and hold the pin means when the boom is in its transport position and the latch member is in its first position to lock the boom to the swing frame, the pin means clearing the socket in its second position;
cam means on the lock member adjacent to the socket means and operatively engageable with the pin means to shift the latch member into its second position as the boom is shifted from a working position into its transport position, the pin means clearing the cam means when the boom reaches its transport position so that the pin means is free to drop into the socket means;
control means operatively connected to the latch member for shifting it from its first to its second position;
a stop member mounted on the swing frame and engageable with the boom to limit the movement of the boom beyond its transport position as the boom shifts from a working position into its transport position; and
means for adjusting the position of the stop member on the swing frame.

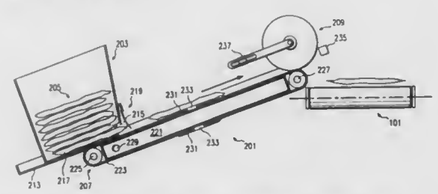
5,064,340
PRECISION ARM MECHANISM
Genco Genov; Lubomir Skrobak, both of Sunnyvale; Izya Kremerman, San Francisco, and Grzegorz Kielczewski, San Bruno, all of Calif., assignors to Genmark Automation, Sunnyvale, Calif.
Filed Jan. 23, 1989, Ser. No. 299,754
Int. Cl.[5] B25J *18/00*
U.S. Cl. 414—744.5 32 Claims



17. An arm structure, comprising:
a first longitudinally extending link having a proximal end portion and a distal end portion;
a second longitudinally extending link having a proximal end portion and a distal end portion, said second link having an equal effective length as said first link;
an end effector;
a relatively static structure located at said proximal end portion of said first link;
static first pivot link for mounting said proximal end portion of said first link to said relatively static structure for free rotation about a first pivot axis;
second pivot means for mounting said proximal end portion of said second link to said distal end portion of said first link for rotation about a second pivot axis parallel to said first pivot axis;
third pivot means for mounting said end effector to said distal end portion of said second link for rotation about a third pivot axis parallel to said first pivot axis;
motor means;
a drive wheel coaxial with said first pivot axis and driven by said motor means, said drive wheel being free from connection with said first pivot means; and
first pivot axis rotating means for applying a rotational force from said second pivot axis to said first pivot axis to rotate said first link about said first pivot axis; and
second pivot axis rotating means for applying a rotational force from said drive wheel to said second pivot axis to rotate said links about said second pivot axis;
third pivot axis rotating means for applying a rotational force from said second pivot axis to said third pivot axis to rotate said end effector about said third pivot axis;
wherein said rotating means includes coordinating means for coordinating the pivoting of said first link about said first pivot axis, said second link about said second pivot axis at relative rotation ratios of 1:2:1 such that said third axis moves linearly along a line passing through and perpendicular to said first pivot axis and to said third pivot axis and said end effector is maintained at a selected angle to said line.

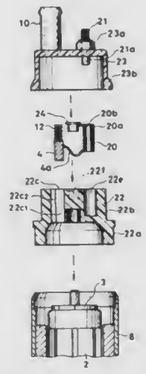
5,064,341
VACUUM BEAM PRODUCT DISPENSER AND SINGULATOR
James M. Pippin, Keller, Tarrant County, Tex., assignor to ElectroCom Automation, Inc., Arlington, Tex.
Filed Feb. 20, 1990, Ser. No. 481,340
Int. Cl.[5] B65H *3/08;* B65G *59/00*
U.S. Cl. 414—797.6 19 Claims





11. A vacuum beam product singulator comprising:
a vacuum beam including a vacuum manifold coupled to a vacuum source, the vacuum manifold having a longitudinal slot defined in an upper surface thereof;
a selectively controlled conveyor belt mounted for movement along the longitudinal length of the vacuum manifold, the conveyor belt having a slidable surface and an attached friction exciter pad said exciter pad including a vacuum opening defined therein and positioned for movement over the slot as the exciter pad and conveyor belt travel along the upper surface of the vacuum manifold;
means for holding a stack of products to be singulated adjacent to the conveyor belt surface at an upstream input end of the vacuum manifold such that the center of gravity for each product in the stack of products is offset from the longitudinal center of the conveyor belt;
means for sensing product location and product overlapping and generating signals indicative thereof; and
control means responsive to a product input signal and signals from said means for sensing to generate control signals for selectively controlling the rate of movement of the conveyor belt to pick the bottom product from said stack of products and hold the picked bottom product by means of said vacuum beam during downstream movement toward a downstream output end of said conveyor belt, any product pulled from the stack and not held by the vacuum beam dropping from the conveyor belt.

5,064,342
IN-TANK TYPE MOTOR-OPERATED PUMP
Shingo Iwai, Fukuyama, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 18, 1990, Ser. No. 510,571
Int. Cl.[5] F01D *1/00, 5/00*
U.S. Cl. 415—55.1 2 Claims



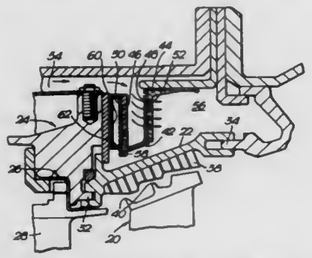
1. An in-tank type motor-operated pump comprising:
a casing;
a motor which is mounted in said casing to cause pump action and has a commutator;
a bracket which is fixedly mounted to said casing to rotatably hold a rotor of said motor and has a pair of through-holes and a pair of non-through-holes each having a bottom;
a pair of brushes, each of which is slidably held in each of said through-holes and makes an electrical contact with said commutator;
a pair of electric-noise suppressors, each of which is electrically connected to each of said brushes and is mounted in each of said non-through holes; and
a cover which is provided on said bracket to cover at least said through-holes and said non-through holes and which holds said brushes in said through-holes and said electric-noise suppressors in said non-through holes.

5,064,343
GAS TURBINE ENGINE WITH TURBINE TIP CLEARANCE CONTROL DEVICE AND METHOD OF OPERATION
Stephen J. Mills, 6 Boswell Court, Union Street, Ashbourne, Derbyshire, England
Filed Jul. 13, 1990, Ser. No. 552,133
Claims priority, application United Kingdom, Aug. 24, 1989, 8919252
Int. Cl.[5] F01D *11/00, 25/00*
U.S. Cl. 415—173.3 6 Claims

1. A gas turbine engine including a blade tip clearance control system comprising an annular fixed control ring and further fixed structure downstream thereof, a ring of segmented blade shroud members supported between said fixed control ring and said further fixed structure in close spaced relationship with the tips of a stage of rotatable blades, double walled hollow valve means comprising an annular member the walls of which have patterns of holes therethrough and is constructed from a material which has a coefficient of expansion which differs from that of said control ring and supported for relative sliding movement between inlet walls to a first path which enables passage of cooling air to said control ring, and a second path which enables by-passing of said control ring by said cooling air, communication between a cooling air supply

VOL 1132 ISS 2 NO 12 1991 UMI

and said first and second paths being enabled via a said pattern hole in one or other of said walls of said annular member



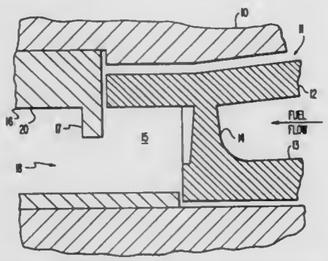
moving into alignment with holes in one or other of said inlet walls as a result of expansion or contraction of said annular member.

5,064,344

PARTIAL THROAT DIFFUSER

John Kassel, Roscoe, and Steve C. Remstad, Rockford, both of Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Nov. 1, 1989, Ser. No. 430,013
Int. Cl.[5] F04D *29/44*
U.S. Cl. 415—224.5 34 Claims



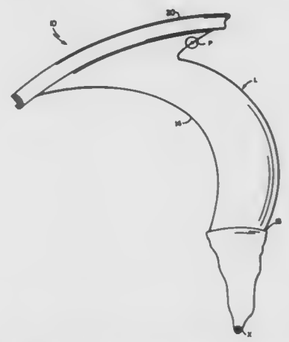
1. A centrifugal fluid handling apparatus comprising a housing means, an impeller means rotatably mounted in said housing means, an annular diffuser ring means disposed around a periphery of the impeller means, at least one passage means provided in the annular diffuser ring means for discharging a fluid at subsonic flow velocity from the impeller means and passive control means provided in a diffuser throat means of the at least one passage means at an entrance area of the at least one passage means for preventing an instability of fluid discharge pressure through the at least one passage means under low flow operating conditions of the fluid handling apparatus, wherein said passive control means includes radially inwardly directed projection means for reducing a cross-sectional area of the entrance area of the at least one passage means, said radially inwardly directed projection means being fixedly provided at an endface of the annular diffuser ring means disposed in opposition to an outer periphery of the impeller means, wherein said radially inwardly directed projection means defines a vaneless space with the outer periphery of the impeller means for receiving fluid from the impeller means.

5,064,345

MULTI-SWEEP BLADE WITH ABRUPT SWEEP TRANSITION

Richard Kimball, South Berwick, assignor to Airflow Research and Manufacturing Corporation, Watertown, Mass.

Filed Nov. 16, 1989, Ser. No. 438,774
Int. Cl.[5] F04D *29/38*
U.S. Cl. 416—169 A 10 Claims



1. A fan comprising an inner hub designed to rotate in a predetermined rotation direction, the hub being attached to blades extending outwardly from the hub to blade tips, the blades being characterized by:

(a) an outer forwardly swept blade region having a leading edge sweep angle θ that is swept in the predetermined rotational direction at an angle of at least 20°;

(b) a rearwardly swept inner blade region in which the leading edge sweep angle θ is swept away from the predetermined rotational direction;

(c) a transition blade region extending from the outer blade region to the inner blade region, the length of the transition blade region is no greater than 0.01 R, where the transition blade region is measured from an outer blade region where θ is at least 20° to an inner blade region that is rearwardly swept so that the leading edge sweep angle θ is $-10°$ or less, and where R=the fan radius; and

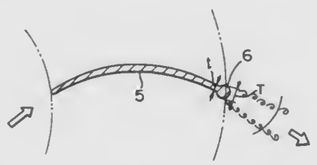
(d) a blade chord which increases with increasing radius in the outer blade region.

5,064,346

IMPELLER OF MULTIBLADE BLOWER

Masahiro Atarashi, Kusatsu; Ito: Shotaro, Shiga; Kiyoshi Sano, Otsu; Yoshiaki Hayashi, and Kenichi Uno, both of Gifu, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka and Pacific Industrial Company, Gifu, both of, Japan

Continuation of Ser. No. 364,992, Jun. 12, 1989, abandoned.
This application May 15, 1990, Ser. No. 523,179
Claims priority, application Japan, Jun. 17, 1988, 63-150786
Int. Cl.[5] F01D *5/14*
U.S. Cl. 416—178 1 Claim



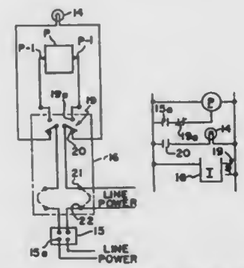
1. An impeller of a multiblade blower having an outer peripheral side and at least two circular end plates or partition plates spaced apart from each other, said plates each having an outer peripheral portion, and a plurality of blades disposed between said outer peripheral portions of said partition plates and each of said blades having an outer peripheral end, front and rear surfaces and a thickness, said each blade being formed with a cylindrical portion having a uniform cross-sectional area at said outer peripheral end thereof on the outer peripheral side of said impeller so as to extend through the overall length of said blade, said cylindrical portion having a diameter which is larger than the thickness of said blade at said outer peripheral end thereof, and said cylindrical portion being projected from both front and rear surfaces of said blade at said outer peripheral end of the same.

5,064,347

PRESSURE RESPONSIVE FLUID PUMP SHUT OFF AND ALARM SYSTEM

Ronnie L. LaValley, Sr., 5856 Mogg Rd., Prescott, Mich. 48756

Filed Nov. 26, 1990, Ser. No. 617,669
Int. Cl.[5] F04B *49/08*
U.S. Cl. 417—9 6 Claims



1. A pressure responsive pump shut off and alarm system for buildings having water use appliances and components supplied by the pump through a water line comprising:

a. A water line connected to water using appliances;

b. A normally inactive pump system, responsive to a minimum pressure in the water line to become operative to pump water from a well, or other supply source, and responsive to a maximum predetermined pressure to be rendered inoperative;

c. Interval timing means, settable to time for a predetermined period, connected to said pump to monitor the time of operation of said pump when it is activated to pump water and to automatically retime for a subsequent operation of said pump if said predetermined interval is not exceeded; and

d. a manually resettable component operable to deenergize said interval timing means and pump if said period is exceeded.

5,064,348

DETERMINATION OF WELL PUMPING SYSTEM DOWNTIME

Fount E. McKee, and Douglas M. Crume, both of Houston, Tex., assignors to Delta X Corporation, Houston, Tex.

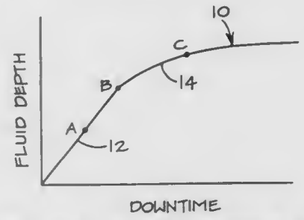
Filed Sep. 21, 1990, Ser. No. 586,177
Int. Cl.[5] F04B *47/00*
U.S. Cl. 417—12 11 Claims

1. In a liquid well pumping system which is provided with a downtime between pumpoff cycles, the method of determining the optimum downtime comprising,

providing a first downtime for a predetermined amount of time,

running the pump until pumpoff occurs while measuring the runtime,

continuing, for a plurality of tests, the last two steps, while increasing the downtime for each test,



determining when the relationship between runtime and downtime becomes non-linear, and

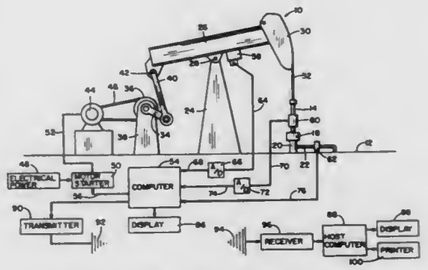
selecting a downtime before the non-linearly relationship.

5,064,349

METHOD OF MONITORING AND CONTROLLING A PUMPED WELL

John M. Turner, Floria Vista; Jan L. Nethers, Farmington, and Robert M. Knight, Santa Fe, all of N. Mex., assignors to Barton Industries, Inc., Shawnee, Okla.

Filed Feb. 22, 1990, Ser. No. 483,917
Int. Cl.[5] F04B *49/02*
U.S. Cl. 417—53 9 Claims



1. A method of controlling a pumped well having a rod string extending from a pumping unit located at the earth's surface to a subterranean pump, the rod string being sequentially reciprocated through up and down strokes, the well producing pumped fluid flowing from the well through a collection pipe, the method comprising the steps of:

(1) measuring the displacement of the rod string;

(2) measuring the load on the rod string through a selected portion of the first portion of the downstroke;

(3) monitoring the fluid flow through the collection pipe to determine when the well is pumped-off;

(4) recording the load on the rod string detected in step (2) during pumped-off conditions;

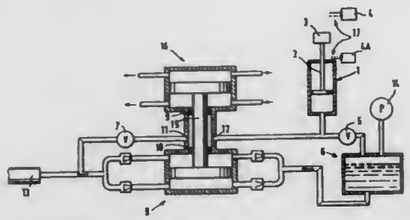
(5) establishing a target pumped-off as a selected percentage of the load recorded in step (4);

(6) periodically imitating a pumping cycle; and

(7) terminating each pumping cycle when the load detected in step (2) equals or exceeds the established target pumped-off load obtained in step (5).

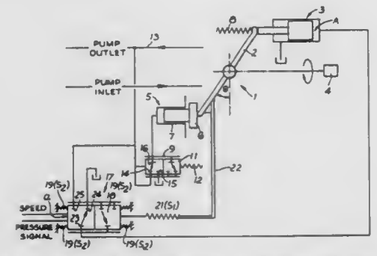
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,350
PUMP STATION
Sigmund Ege, Oslo, Norway, assignor to Alcatel STK A/S, Oslo, Norway
Filed Apr. 16, 1990, Ser. No. 509,096
Claims priority, application Norway, May 16, 1989, 891946
Int. Cl.[5] F04B 39/00
U.S. Cl. 417—63 5 Claims



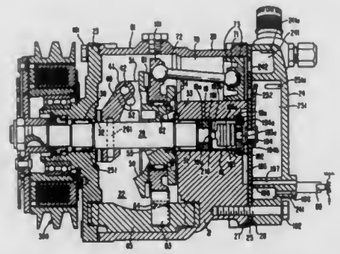
1. In a reciprocating air or gas driven oil pump comprising a piston having a head and a rod, a first cylindrical body within which the piston head is movably disposed, a second cylindrical body connected to a central opening of the first cylindrical body and two piston rod seals coaxially mounted on respective opposite ends of the second cylindrical body through with the piston rod reciprocates, the improvement comprising an inlet opening and an outlet opening disposed on the second cylindrical body between the two piston rod seals, said inlet opening being connected, via a first valve to the high pressure side of the pump and said outlet opening being connected via a second valve to the top of a storage tank, kept under a vacuum, from which the pump is drawing oil.

5,064,351
VARIABLE DISPLACEMENT PUMPS
Peter M. Hamey, Emsworth, and Ronald B. Walters, Wembley, both of England, assignors to Vickers Systems Limited, England
Filed Oct. 27, 1989, Ser. No. 428,117
Claims priority, application United Kingdom, Nov. 2, 1988, 8825614; Mar. 30, 1989, 8907145
Int. Cl.[5] F04B 1/26
U.S. Cl. 417—222 R 34 Claims



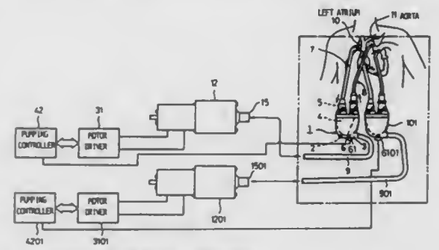
1. An emergency hydraulic supply system comprising:
a) a source of hydraulic fluid,
b) a rotary variable-displacement hydraulic pump coupled to said source and operable to supply hydraulic fluid under pressure,
c) a rotary prime mover coupled to said pump and operable to drive the same,
d) pressure-compensated control means coupled to said pump and operable alone, in a first regime of operation of the system, to vary the displacement of said pump, said first regime of operation corresponding to a first rotational speed of said prime mover, and
e) a speed control loop comprising said control means, said pump and said prime mover, and additionally comprising:
i. combined speed sensor and speed governor means operable to provide a signal representative of the rotational speed of said prime mover,
ii. override means coupled to receive said signal and arranged to be inoperable during said first regime of operation and arranged to be rendered operative to override said control means during a second regime of operation of the system corresponding to a second rotational speed of said prime mover, said second rotational speed being lower than said first rotational speed, whereby said pump is maintained at a substantially constant speed during said second regime with the override means varying the displacement of said pump to match available prime mover power.

5,064,352
SLANT PLATE TYPE COMPRESSOR WITH VARIABLE DISPALCEMENT MECHANISM
Terauchi Kiyoshi, Gunma, Japan, assignor to Sanden Corporation, Gunma, Japan
Continuation of Ser. No. 342,079, Apr. 24, 1989. This application Mar. 27, 1991, Ser. No. 675,517
Claims priority, application Japan, Apr. 23, 1988, 63-54123
Int. Cl.[5] F04B 1/26
U.S. Cl. 417—222 S 13 Claims



1. In a slant plate type compressor including a compressor housing enclosing a crank chamber, a suction chamber and a discharge chamber therein, said compressor housing comprising a cylinder block having a plurality of cylinders, a piston slidably fitted within each of said cylinders, a drive means coupled to said pistons for reciprocating said pistons within said cylinders, said drive means including a drive shaft rotatably supported in said housing, coupling means for drivingly coupling said pistons with said drive shaft and for converting rotary motion of said drive shaft into reciprocating motion of said pistons, said coupling means including a slant plate having a surface disposed at a slant angle relative to a plane perpendicular to said drive shaft, the slant angle changing in response to a change in pressure in said crank chamber to change the capacity of said compressor, a communication path linking said crank chamber with said suction chamber, a valve control mechanism controlling the opening and closing of said communication path to cause a change in pressure in said crank chamber, said valve control mechanism including a first valve control means operating in response to a continuous external signal for continuously controlling the link between said crank and said suction chambers through said path to thereby maintain the capacity of the compressor at a certain level, said first valve control means controlling the link by either allowing or preventing fluid to flow therethrough, the improvement comprising:
said valve control mechanism comprising a second valve control means disposed in series in said communication path with said first valve control means, said second valve control means responsive to said suction pressure for controlling the link between said crank and said suction chambers through said path, said second valve control means closing said communication path when the pressure in said suction chamber falls below a predetermined value thereby overriding and preventing said first valve control means from controlling the opening and closing of said path in response to said external signal.

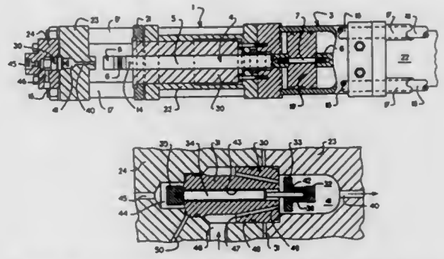
5,064,353
PRESSURE RESPONSIVE LINEAR MOTOR DRIVEN PUMP
Kinji Tsukahara, Seki, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Aichi, Japan
Filed Feb. 2, 1990, Ser. No. 474,325
Claims priority, application Japan, Feb. 3, 1989, 1-25371
Int. Cl.[5] F04B 49/00; G05B 11/00
U.S. Cl. 417—383 7 Claims



1. Pumping apparatus comprising
a liquid pump including an electric linear motor, and a reciprocable member communicating with a fluid output port and driven for reciprocating motion by the linear motor to deflate/inflate a fluid space in which a non-compressible liquid is contained;
pressure detecting means for detecting a pressure at the fluid output port;
energization means for alternately energizing the coil to the positive/negative polarity;
current detecting means for detecting the current which passes through the coil;
and current control means for defining the current levels which are used by the energization means to energize the coil to the positive/negative polarity, the current control means operating such that at least during one of the energization to the positive/negative polarity, it integrates the current detected by the current detecting means until an integrated current valve reaches a given value, whereupon the polarity of energization is reversed, the current control means also operating such that during at least one of the energization to the positive/negative polarity, the energization means is caused to increase the current level which is used to energize the coil to a given value gradually, and the gradual increase is interruped whenever the pressure detected by the pressure detecting means has gone out of a given range in the process of the gradual increase.

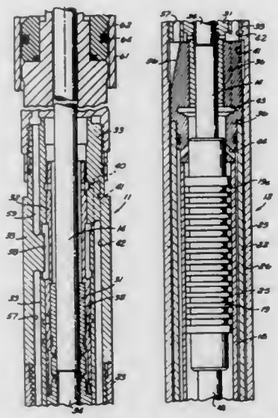
5,064,354
HIGH PRESSURE FLUID PUMP
Walter W. Robertson, 8415 Old State Rd., Cranesville, Pa. 16410, and Jason L. Robertson, 13150 Fry Rd., Edinboro, Pa. 16412
Filed Jun. 4, 1990, Ser. No. 532,457
Int. Cl.[5] F04B 21/08, 39/14
U.S. Cl. 417—403 15 Claims

1. An improved pump of the type having a piston having one end extending into a cylinder and a packing attached to the end, an end flange having a passageway therethrough and attached to the cylinder and means for reciprocating the piston toward and away from the end flange, a housing containing the means for reciprocating the piston, and tie rods connecting the end flange, cylinder and the housing together wherein the improvement comprises a telescoping cylinder having:
(a) a housing cylinder attached to the housing, the housing cylinder having a length such that when the piston is fully extended toward the end flange, the packing on the piston will be beyond the housing cylinder, and



(b) an end cylinder removably attached at one end to the end flange having a central bore through which the piston reciprocates and having an opposite end which fits into the housing cylinder, the end cylinder being sized so that when disconnected from the end flange, the end cylinder can be telescoped into the housing cylinder to expose the packing.

5,064,355
MULTIPLE ENGINE DEEP WELL PUMP
John M. Kelleher, La Palma, Calif., and David B. Dillon, Anchorage, Ak., assignors to Trico Industries, Inc., Huntington Park, Calif.
Filed Mar. 29, 1990, Ser. No. 501,595
Int. Cl.[5] F02B 35/02
U.S. Cl. 417—404 7 Claims

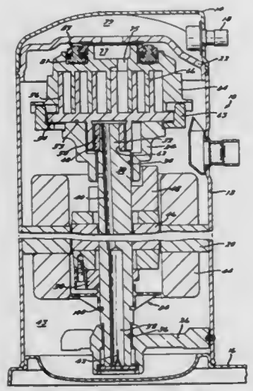


1. In a deep well pump having at least one fluid pump with a pump cylinder and a pump piston reciprocating in said pump cylinder and carried on a piston rod, for positioning in a bottom hole assembly for an open power fluid system and having an inner wall, the improvement including in combination:

VOL 1132 ISS 2 NO 12 1991 UMI

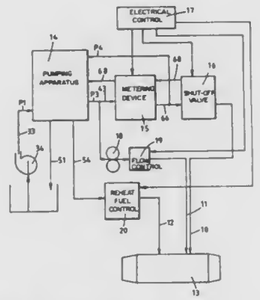
first and second fluid powered motors, with each of said motors having a motor cylinder and a motor piston reciprocating in the motor cylinder, with said first and second motor pistons carried on said piston rod;
first means for delivering a power fluid to one end of said first motor cylinder;
second means for delivering a power fluid to one end of said second motor cylinder;
a first sleeve positioned around said first motor cylinder defining a power fluid path between said first sleeve and said first cylinder from said one end of first cylinder to said one end of said second cylinder;
a second sleeve positioned around said first sleeve defining a first exhaust fluid path between said second sleeve and said first sleeve from the other end of said first motor cylinder;
a third sleeve positioned around said second motor cylinder defining a second exhaust fluid path between said third sleeve and said second cylinder from the other end of said second cylinder;
coupling means interconnecting said first and second exhaust fluid paths;
annular seal groove means in the outer periphery of the pump for receiving seal ring means for sealing engagement of the pump with said bottom hole assembly inner wall at a single location;
third means for defining a third exhaust fluid path from said first and second exhaust fluid paths, said third exhaust fluid path including a path between said second and third sleeves and said bottom hole assembly inner wall, and means defining an outlet opening into said bottom hole assembly below said seal ring means in said annular seal groove means for flow of spent power fluid from said motors into a well casing and mixing with the well production fluid from the fluid pumps,
with the only seal below said seal ring means being at the lower end of said deep well pump below the fluid pump thereof.

5,064,356
COUNTERWEIGHT SHIELD FOR REFRIGERATION COMPRESSOR
James F. Horn, Sidney, Ohio, assignor to Copeland Corporation, Sidney, Ohio
Filed Oct. 1, 1990, Ser. No. 591,442
Int. Cl.[5] F04B *17/00*; F03C *2/00*
U.S. Cl. 417—410 **15 Claims**



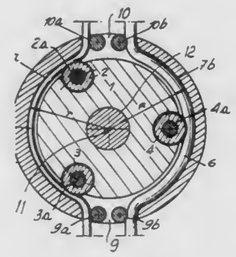
1. A scroll-type refrigeration compressor comprising:
an outer shell;
compressor means disposed in an upper portion of said shell, said compressor means including first and second interleaved scroll members supported for relative orbital movement therebetween so as to define moving fluid pockets of changing volume;
motor means disposed within said shell below said compressor means and including a stator having end turns and a rotor;
a lubricant sump containing a supply of lubricant disposed in the lower portion of said shell;
a drive shaft drivingly connected to said compressor means and having a lower end extending into said sump, said rotor being secured to said drive shaft and operative to rotatably drive same, said rotor having a lower end portion extending below the normal non-operating upper level of said lubricant and said drive shaft having an annular groove positioned below said rotor; and
shield means positioned closely adjacent and in underlying relationship to said rotor, said shield means including integrally formed resilient radially outwardly deflectable means operative to facilitate assembly of said shield means to said shaft and thereafter cooperating with said annular groove in said shaft to support said shield means on said shaft,
said rotor being operative to expel lubricant from said area between said shield and said rotor during rotation thereof and said shield being operative to restrict return flow of oil into said area whereby power consumption of said motor is reduced.

5,064,357
FUEL SUPPLY APPARATUS
Trevor S. Smith, Sutton Coldfield, Great Britain, assignor to Lucas Industries public limited company, Birmingham, England
Filed Jan. 26, 1990, Ser. No. 470,726
Claims priority, application United Kingdom, Feb. 10, 1989, 8903070
Int. Cl.[5] F04B *23/04*
U.S. Cl. 417—428 **5 Claims**



1. A fuel supply apparatus comprising:
a first centrifugal pump;
a second, smaller centrifugal pump;
a supply passage to said first pump,
a first delivery conduit communicating with an outlet of said second pump;
a flow metering device in said delivery conduit; and
a valve arrangement operable between first and second positions, said first position where an outlet of said first pump communicates with an inlet passage of said second pump and is isolated from said first delivery conduit, and said second position where the outlet of said first pump is isolated from the inlet passage of said second pump, the inlet of said first pump is isolated from said supply passage and the inlet passage of said second pump is connected to said supply passage, said valve arrangement including:
a first valve responsive to an increase in a pressure difference across said second pump, relative to the sum of a required metering pressure difference across said flow metering device, and to a difference between the pressure in a part of said delivery conduit downstream of said metering device and the pressure of said supply passage; and
a second valve, responsive to an increase in the pressure at the outlet of said first pump, for connecting said first pump outlet to the inlet of said second pump, and for isolating said supply passage from the inlet of said second pump.

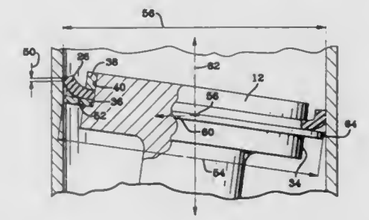
5,064,358
PERISTALTIC PUMP ADAPTED TO OPERATE SIMULTANEOUSLY ON TWO LINES
Alessandro Calari, Via Trieste, 8, Mirandola (Modena), Italy
Filed Jun. 13, 1989, Ser. No. 366,042
Claims priority, application Italy, Jun. 14, 1988, 20961 A/88
Int. Cl.[5] F04B *43/08*
U.S. Cl. 417—475 **1 Claim**



1. A peristaltic pump adapted to operate simultaneously on two different sized flexible fluid carrying lines having different wall thicknesses, comprising:
a fixed hollow body having a central axis and an interior with a generally cylindrically shaped wall surface and having at least one opening therein adapted to receive a first sized fluid line and a second sized fluid line along the wall surface;
a rotatable head having a generally cylindrically shaped periphery and arranged to be rotatable about the central axis within said hollow body;
at least one roller having a first diameter surface and a second diameter surface arranged to be rotatable about an axis parallel to the central axis near the periphery of said rotatable head, with a portion of the periphery of the first diameter surface and the second diameter surface extending beyond the periphery of said rotatable head and adapted to define first and second circular rolling path for progressively compressing the respective first sized fluid line and the second sized fluid line to simultaneously pump fluid through the respective lines.

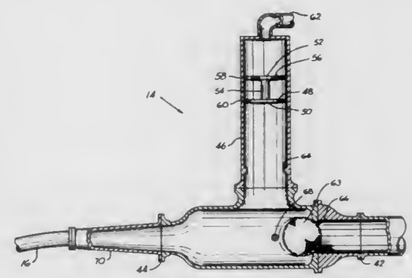
5,064,359
ANNULAR SUPPORT FOR A SEAL FOR A TILT PISTON
Darrill L. Plummer, Charlotte, N.C., assignor to Ingersoll-Rand Company, Woodcliff Lake, N.J.
Filed Jul. 16, 1990, Ser. No. 552,988
Int. Cl.[5] F04B *07/04*
U.S. Cl. 417—489 **20 Claims**

1. A tilt piston reciprocally disposed within a bore formed within a housing, the tilt piston comprising:
a piston head;
a radially extending support mounted circumferentially of the piston head, the support having a first diameter terminating at a first outer circumferential surface, the first outer circumferential surface having an initial diameter equal to or greater than said bore; and
a substantially radially extending seal mounted circumferentially of the piston head and adjacent the support, the seal



having a second diameter greater than the first diameter and terminating at a second outer circumferential surface, the second outer circumferential surface being displaced at an angle in a direction away from the first outer circumferential surface.

5,064,360
SURGE CHAMBER FOR SWING VALVE GROUT PUMPS
Kenneth J. Blum, Parkville, Mo., assignor to Berkel & Co. Contractors, Inc., Bonner Springs, Kans.
Filed Jul. 16, 1990, Ser. No. 553,236
Int. Cl.[5] F04B *7/00*
U.S. Cl. 417—519 **8 Claims**



1. Apparatus for pumping of a viscous, flowable material, comprising:
a pumping device comprising a pair of material-receiving tubes each presenting a material outlet, a reciprocable piston within each tube and alternately shiftable for delivery of material towards and out of said tube outlets, and valve means including a valve outlet and a shiftable valve element in constant communication with said valve outlet and movable for selective communication with said tube outlets; and
surge control apparatus operatively coupled with said valve outlet and comprising
a primary material-conveying body in communication with said valve outlet and adapted for coupling with an elongated material delivery conduit;
an elongated surge chamber connected to and in communication with the interior of said primary body and having an outermost end remote from said body;
a slidable piston presenting an operating face communicating with the interior of said body and an opposed trailing face, said piston being within said chamber and shiftable along the length thereof,
means for filling the portion of said chamber between said piston trailing face and said chamber outermost end with a pressurized fluid,

VOL 1132 ISS 2 NO 12 1991 UMI

said slidable piston comprising a first plate presenting said operating face, a second plate spaced from said first plate and presenting said trailing face, and means interconnecting said spaced first and second plates, there being means for substantially equalizing the pressures within said chamber portion and in the region between said first and second plates;

one-way check valve means within said body for permitting flow of said material from said valve outlet while preventing flow of said material from the body into said valve outlet.

5,064,361

ROTATING PNEUMATIC VANE MOTOR WITH AIR BEARING

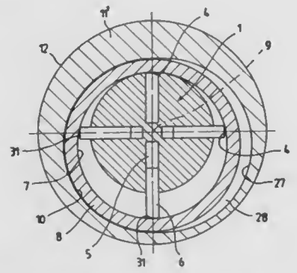
Michael Kristof, Bretten-Diedelsheim, and Josef Mueller, Knittlingen, both of Fed. Rep. of Germany, assignors to Schmid u. Wezel, Maulbronn, Fed. Rep. of Germany

Filed Apr. 5, 1990, Ser. No. 505,221

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1989, 3913908

Int. Cl.[5] F01C *1/344*

U.S. Cl. 418—173 **21 Claims**



1. A compressed-air vane motor comprising:

(a) a housing having a generally cylindrical guide bore located therein;

(b) a rotor rotatably mounted on anti-friction bearings within said housing and having radially extending location slots distributed over the periphery thereof;

(c) a cylindrical outer shell eccentrically encircling said rotor and rotatably mounted within said guide bore via an air bearing comprising a slight radial clearance between an outer surface of said outer shell and said guide bore, wherein said guide bore is widened on only one side to form an air pocket between the housing and said outer surface of said cylindrical outer shell, and wherein the axial length of said air pocket corresponds to the axial length of said outer shell; and

(d) vanes displaceably mounted in said location slots, wherein said vanes have outer sealing edges which are adapted to bear by centrifugal force against an inner surface of said outer shell and to rotate said outer shell within said guide bore due to frictional forces produced therebetween.

5,064,362

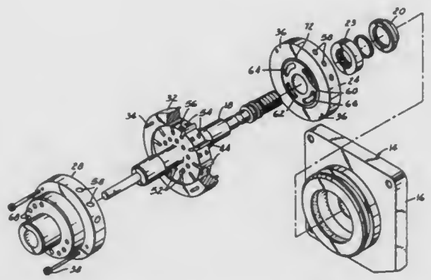
BALANCED DUAL-LOBE VANE PUMP WITH RADIAL INLET AND OUTLET PARTING THROUGH THE PUMP ROTOR

Lowell D. Hansen, Jackson, Miss., assignor to Vickers, Incorporated, Troy, Mich.

Continuation of Ser. No. 356,228, May 24, 1989, abandoned. This application Sep. 28, 1990, Ser. No. 590,336

Int. Cl.[5] F04C *15/02*

U.S. Cl. 418—186 **5 Claims**



1. A balanced dual-lobe rotary hydraulic machine that comprises:

a housing including a pair of plates mounted against rotation within said housing and having opposed flat parallel faces forming a rotor cavity;

a rotor mounted for rotation about a fixed axis within said cavity and having flat parallel side faces opposed to said plate faces, a plurality of radially extending peripheral slots, a plurality of vanes individually slidably mounted in said slots, and a plurality of passages extending radially through said rotor between said slots, each of said passages having an outer end opening at the periphery of said rotor between an adjacent pair of said slots and a pair of inner ends opening at respective ones of said rotor side faces, said open inner ends being at uniform identical radius from said axis on said side faces,

a cam ring mounted against rotation within said housing radially surrounding said rotor and having a radially inwardly directed surface forming a vane track and a pair of symmetrical diametrically opposed fluid pressure cavities between said surface and said rotor,

a fluid inlet including a pair of inlet passages in said housing extending through each of said plates and forming identical diametrically opposed kidney-shaped openings in each of said plate faces, said inlet openings in each of said plate faces being identical and opposed to the inlet openings in the opposing plate face and at uniform radius from said axis equal to said radius of said open inner passage ends so as to be positioned to register with said inner passage ends in said rotor side faces, and

a fluid outlet including a pair of outlet passages in said housing extending through each of said plates and forming identical diametrically opposed kidney-shaped openings in each of said plate faces, said outlet openings in each of said plate faces being identical and opposed to outlet openings in the opposing plate face and at uniform radius from said axis equal to said radius of said open inner passages ends so as to be positioned to register with said inner passage ends in said rotor side faces.

5,064,363

NON-LUBRICATED SCREW MACHINE WITH A ROTOR HAVING A TAPER AND VARIED HELICAL ANGLE

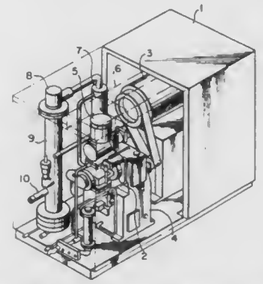
Toshiaki Nagai, Shimizu, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Division of Ser. No. 330,476, Mar. 30, 1989, Pat. No. 4,952,125. This application Mar. 14, 1990, Ser. No. 493,482

Claims priority, application Japan, Apr. 6, 1988, 63-82962

Int. Cl.[5] F04C *18/16*

U.S. Cl. 418—194 **5 Claims**



1. A nonlubricated screw fluid machine comprising:

a main compressor body including a casing means comprising an inlet port and an outlet port;

a male screw rotor and a female screw rotor engageably disposed in said casing means;

drive source means for rotating said male screw rotor and said female screw rotor;

precooler means disposed at an outlet port side of said said main compressor body for precooling a gas to be discharged;

after cooler means disposed downstream of the precooler means for cooling gas discharged from an outlet of said precooler means; and

stopper valve means disposed between said precooler means and said after cooler means for preventing an inverse flow of said gas;

wherein said male screw rotor and said female screw rotor each have a smaller diameter at said outlet port side than a diameter at an inlet port side of said main compressor body; and

wherein at least one of said male screw rotor and said female screw rotor is provided with a tooth profile having different helix angles between a forward plane of one of the rotors and a corresponding rearward plane of the other of said rotors.

5,064,364

APPARATUS FOR THE CONTINUOUS COATING OF CYLINDRICAL WORKPIECES WITH A RESILIENT MATERIAL

Horst Muller-Erwig, Neustadt, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

Filed May 18, 1990, Ser. No. 524,869

Claims priority, application Fed. Rep. of Germany, May 29, 1989, 3917372

Int. Cl.[5] B29C *47/02*

U.S. Cl. 425—114 **7 Claims**

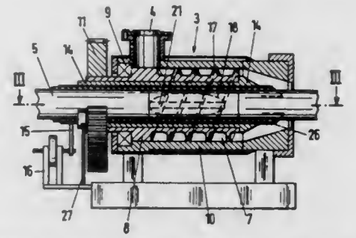
1. An apparatus for the continuous coating of cylindrical workpieces with a resilient material, comprising:

an extrusion device for plasticizing the resilient material, said extrusion device defining an outlet for said plasticized material,

flow channel means communicating with said outlet of said extrusion device, said flow channel means defining an inlet for receiving said plasticized material from said extrusion device and an outlet for said plasticized material, and

coating head means communicating with said flow channel means and defining first inlet means for receiving said plasticized material from said outlet of said flow channel means and second inlet means for receiving said workpiece to be coated; said coating head means comprising hollow barrel means,

plasticized material distributor means rotatably mounted within the hollow interior of said barrel means, and drive means for rotating said distributor means, said distributor means comprising a hollow sleeve having an external surface, and at least one screw flight helically disposed around said external surface and having a predetermined pitch length; said screw flight being rotatable by said drive means for said distributor means, said drive means comprising a drive motor and transmission means driven by said motor, said transmission means cooperatively



engaging said distributor means upstream of said first inlet means defined by said barrel means; hollow tube means co-axially mounted within the hollow interior of said distributor means, said hollow tube means having an upstream end in the region of said transmission means and an opposed downstream end, and means for retaining said upstream end; guide sleeve means having upstream and downstream ends and disposed within said hollow tube means for guiding said workpieces through said coating head means, and means for mounting said guide sleeve means to permit axially displacement of said guide sleeve means with respect to said hollow tube means and for retaining said guide sleeve means at the upstream end thereof in a desired axial location with respect to said hollow tube means, and

wherein said outlet of said flow channel means defines a discharge aperture the cross-section of which has a major dimension corresponding to said pitch length of said screw flight.

5,064,365

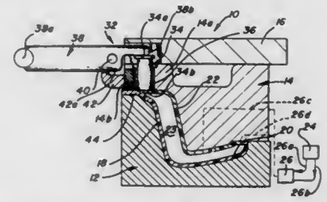
MOLD APPARATUS WITH MOLD BREAKER

Lawrence R. Nichols, Dover, N.H., and Terry M. Yuill, North Berwick, Me., assignors to Davidson Textron Inc., Dover, N.H.

Filed Jul. 12, 1990, Ser. No. 551,294

Int. Cl.[5] B29C *45/42*

U.S. Cl. 425—436 R **3 Claims**



1. Mold apparatus for forming a molded foam part, the

VOL 1132 ISS 2 NO 12 1991 UMI

apparatus including a mold cavity means for molding the molded foam part and a cover which is held against a top of the molded foam part during molding to close the mold cavity means and further comprising:

mold breaker means mounted on said cover for applying a separation force between said cover and the mold cavity means to break adhesion between the top of the molded foam part while holding the molded foam part in the mold cavity means;

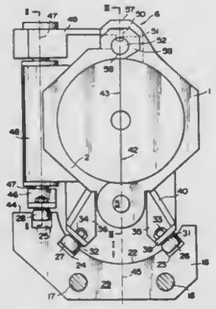
said mold breaker means including a breaking pin movably supported in said cover and having a head portion raised from an upper surface of said cover and a base surface portion located in engagement with said mold cavity means, and a lift handle pivotally supported on said cover for contacting and depressing said breaking pin in said cover to tilt said cover with respect to said mold cavity means and for removing said cover from the top of the molded foam part following breaking of adhesion between the top of the molded foam part and the cover so as to permit the cover to be removed from the mold cavity means without carrying the molded foam part thereon, said lift handle including a grip end and a pry end, said grip end for manually lifting said cover from said mold cavity means and said grip end extending to said pry end adjacent said head portion of said breaking pin, said pry end having an at rest position during part molding and further having an actuated position wherein a force is applied by said pry end against the head portion of said breaking pin, whereby the breaking pin is depressed in the cover to engage and apply a force to the molded foam part in said mold cavity means for separating said cover from the molded foam part as said cover is removed from said mold cavity means.

5,064,366

BLOW MOLD

Hermann Voss Lötsweg, Fed. Rep. Germany, assignor to Nissei ASB Machine Co., Ltd., Nagano, Japan

Filed May 15, 1990, Ser. No. 523,387
Int. Cl.[5] B29C 49/56
U.S. Cl. 425—541 14 Claims



1. A blow mold comprising:

first and second mold halves pivotally mounted about a pivot shaft and including boundary faces which engage with each other to form an internal chamber used to blow mold a hollow article;

locked means on the end of said first mold half opposite to said pivot shaft and positioned to be locked relative to said second mold half when said boundary faces are engaged by each other;

locking means movably supported by the end of said second mold half opposite to said pivot shaft for locking said locked means when the boundary faces are brought into contact with each other and for unlocking said locked means before said boundary faces are separated apart from each other; and

mold drive/control means responsive to the driving force from a single power source for controlling the pivotal movement of said first and second mold halves toward each other and the subsequent locking motion of said locking means, said drive/control means further controlling the unlocking motion of said locking means and the pivotal movement of said first and second mold halves apart from each other;

said mold drive/control means comprising:

a control slider disposed on an opposite side of said pivot shaft to the area in which said first and second mold halves are opened and closed, said control slider having first and second camming faces and being reciprocated by said power source at a position concentrically about said pivot shaft;

mold motion control cam means formed on the first camming face of said control slider which has an arcuate configuration concentrically about said pivot shaft;

lock/unlock control cam means formed on the second camming face of said control slider adjacent to said first camming face thereof;

mold drive cam follower means driven by said mold motion control cam means to create an actuating force for pivotally moving said first and second mold halves toward and apart from each other; and

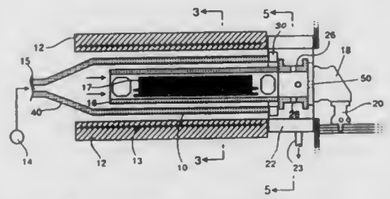
lock/unlock drive cam follower means driven by said lock/unlock control cam means to create an actuating force for locking and unlocking said locking means.

5,064,367

CONICAL GAS INLET FOR THERMAL PROCESSING FURNACE

Ara Philipossian, Stoneham, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Aug. 6, 1990, Ser. No. 563,937
Int. Cl.[5] F27D 7/00; F27B 17/00
U.S. Cl. 432—253 12 Claims



1. A thermal processing furnace, comprising:

a) a furnace tube having an elongated cylindrical heated chamber open at one end for receiving a cylindrical cantilever tube containing a plurality of axially-aligned, spaced-apart semiconductor wafers to be processed;

b) an inlet for introducing reactant and/or inert gasses into the other end of said cylindrical chamber for directing said gasses into an open end of said cantilever tube to flow axially within said cantilever tube by said wafers to the other end of said cantilever tube, said inlet including a substantially cone-shaped portion to provide a smooth transition from the diameter of said inlet to the diameter of said furnace tube to thereby minimize recirculating gas cells adjacent said inlet, wherein said cone-shaped portion has an axial length greater than the diameter of said furnace tube;

c) an outlet for removing said gasses from said one end of said cylindrical cantilever tube including a plurality of circumferentially-spaced openings in the cantilever tube and an exhaust chamber surrounding said openings, the exhaust chamber including a plurality of circumferentially-spaced exhaust ports; and a gas inlet surrounding said

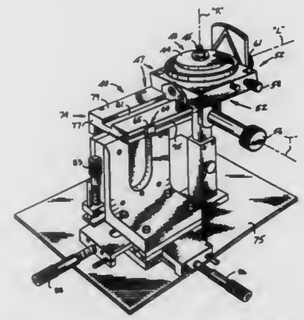
one end of the cylindrical chamber and having a plurality of inwardly-directed gas jets for providing a gas curtain protecting said one end when said cantilever tube is not within said cylindrical chamber.

5,064,368

INDEXING DEVICE FOR PLACEMENT OF ORTHODONTIC BRACKETS

Joseph J. Lavin, W. 508 7th Ave., Spokane, Wash. 99204

Filed Dec. 28, 1989, Ser. No. 458,302
Int. Cl.[5] A61C 3/00
U.S. Cl. 433—2 24 Claims



1. Apparatus for indexing a dental cast including a model of a crown and adjacent gum tissue, to record data that facilitates future placement of an orthodontic bracket on the crown model in the cast, comprising:

a cast mounting device adapted to securely hold the dental cast in a selected orientation;

recording means for producing an index reference on the dental cast adjacent the crown model on the cast held in the selected orientation by the cast mounting device, the index reference physically representing an accumulation of several bits of information related to the orientation of the crown model; and

adjustment means for orienting the cast mounting device and the recording means relative to one another in a prescribed spatial relationship such that the index reference produced on the dental cast by the recording means includes information relating to the orientation of the crown model in an "ideal" position;

wherein the recording means is comprised of a boring device having two bits for mounting drills in substantially parallel relation for boring index holes into the dental cast on bore axes and to bore depths determined by the adjustment means.

5,064,369

ORTHODONTIC DEVICE

Kozo Kawaguchi, Futaba, Japan, assignor to Tomy, Inc., Ohkuma, Japan

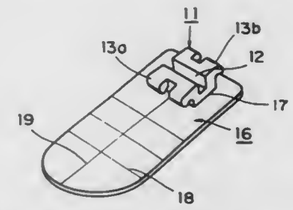
Filed Jan. 27, 1987, Ser. No. 7,018
Int. Cl.[5] A61C 3/00
U.S. Cl. 433—3 20 Claims

1. An orthodontic device comprising:

bracket means for engaging an arch wire therein, having a longitudinal slot formed in a central upper surface thereof, said bracket means being formed of a sintered polycrystal of alumina, and

a plurality of wings carried integrally on opposite sides of said bracket; and

an auxiliary bonding member molded separately from said bracket, said auxiliary bonding member being formed of a soft, transparent, thin plate, having a mounting aperture formed therein for detachably mounting upon said bracket means, said bonding member having graduations thereon for indicating a depth between a reference point on the



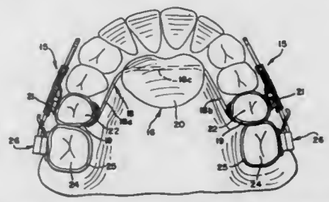
free end of a tooth being subjected to orthodontic treatment and the center of said bracket.

5,064,370

MOLAR DISTALIZING APPLIANCE

Richard D. Jones, 1113 Taylor Ave., Godfrey, Ill. 62035

Filed Apr. 15, 1991, Ser. No. 685,526
Int. Cl.[5] A61C 3/00
U.S. Cl. 433—21 24 Claims



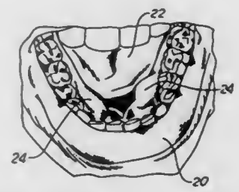
1. A molar distalizing appliance for moving a molar distally, wherein the appliance is to be cantileverly mounted from the molar and extend along the buccal side of the teeth mesial to the molar, said appliance including a main wire for mounting at its distal end to the molar, stabilizing means on the main wire to be connected to the molar for stabilizing the appliance on the molar, spring means on the main wire stopped at the distal end at the molar, means for activating the spring means, and means for tieing the activating means to an anchor tooth mesial to the molar thereby applying a distalizing force to said molar.

5,064,371

DENTAL IMPRESSION TRAY

Marsha F. Smeltzer, 4010 Fairway, Port Huron, Mich. 48060

Filed Mar. 26, 1991, Ser. No. 675,409
Int. Cl.[5] A61C 9/00
U.S. Cl. 433—37 1 Claim

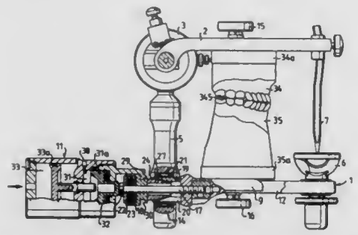


1. A mandibular impression tray for use in dental procedures which comprises a unitary piece including an arched base wall having a central bight and ends at the respective ends of the arch, an outer buccal wall surrounding the outer rim of the base wall disposed essentially at right angles to the base wall, inner containment walls extending from the respective ends of the base arch to the bight of the arched base each comprising:

VOL 1132 ISS 2 NO 12 1991 UMI

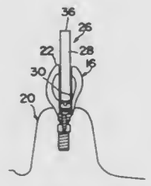
(a) a first rearward section rising upwardly and inwardly at a small angle from the base wall and facing the buccal wall,
(b) an intermediate section forward of the rearward section and rising from the base wall about half the distance of the first rearward section and terminating close to the bight of the arched base,
(c) a ledge extending inwardly from the top of the intermediate section spaced above the base wall and terminating approximately at the end of the intermediate section, and
(d) inner containment walls above said ledge curving inwardly from said first rearward section inside said ledges to a narrowed bight with top edges sweeping from a wide rearward area to a narrowed forward area terminating at said narrowed bight, and
(e) said bight extending from said base and to said narrowed bight at a rising angle toward the rear of the tray.

5,064,372
ARTICULATOR FOR USE IN MAKING DENTURES OR PARTS THEREOF
Svante R. Edwardson, Solna, Sweden, assignor to Dentatus International AB, Hagersten, Sweden
Filed Apr. 27, 1989, Ser. No. 343,609
Int. Cl.[5] A61C *11/00*
U.S. Cl. 433—66 **8 Claims**



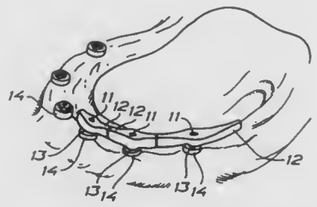
4. An articulator for use in making dentures or parts thereof, comprising an upper principal member and a lower principal member, an upper support means for holding a maxillary cast fixedly mounted on the side of said upper member facing said lower principal member, a lower support means for holding a mandibular cast, said lower support being mounted on said lower principal member and facing said upper principal member, wherein said articulator is provided with an accessory including:
detachable mandibular cast mounting means **(48)** adapted to be mounted detachably on said lower support,
said detachable means including:
i) a first part **(57)**, which is fixedly but detachably mounted in place on said lower support,
ii) means **(64)** on said first part **(57)** for holding said mandibular cast,
iii) a second part **(56)** holding said mandibular cast holding means **(64)** and mounted on said first part **(57)** and having a releasing/locking arrangement **(68, 69, 58, 59, 63, 65)** such that said mandibular cast holding means is freely movable in several directions when said arrangement is in a released mode and lockable in a desired position requiring only a slight holding in place of the cast in relation to each other by an operator during a locking procedure, said releasing/locking arrangement including a first releasing/locking means **(68, 69)** attaching said second part **(56)** to said first part **(57)** thereby making said second part **(56)** slidable in relation to said first part **(57)** when said arrangement is in its released mode, and a second releasing/locking means **(58, 59, 63, 65)** holding said holding means **(64)** movable both angularly and in vertical direction when said second means is in its released mode.

5,064,373
PLUG FORMING REMOVABLE CLOSURE IN OPENINGS OF DENTAL APPLIANCES AND THE LIKE
Peter E. Staubli, San Carlos, Calif., and Edgar K. Staubli, Zurich, Switzerland, assignors to Attachments International, Inc., San Mateo, Calif.
Filed Oct. 31, 1989, Ser. No. 429,756
Int. Cl.[5] A61C *8/00*
U.S. Cl. 433—173 **25 Claims**



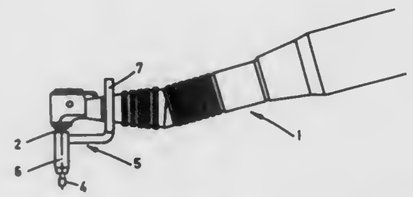
1. A plug for use with dental appliances, the plug being adapted for rapid installation to form a removable closure in occlusal/lingual openings of dental appliances such as artificial teeth or dentures, the occlusal/lingual opening having a substantially uniform diameter with an inner or gingival end and an outer or occlusal/lingual end, the plug comprising
an elongated shaft portion having a diameter selected to mate with the diameter of the occlusal/lingual opening, and
an inner or gingival end of the plug which is enlarged relative to the elongated shaft portion, the enlarged gingival plug end being an annulus with an axial opening extending within the plug to a junction of the inner or gingival plug end and the elongated shaft portion, the shaft portion being solid,
the relative enlargement of the gingival plug end and the thickness of the annulus being selected together with the shaft material to develop a cork type or press-fit engagement of the enlarged gingival plug end with the occlusal/-lingual opening in order to retain the plug firmly in place within the occlusal/lingual opening.

5,064,374
ELEMENT AND METHOD FOR IMPLANT-FIXED PROSTHESIS
Dan Lundgren, Hovås, Sweden, assignor to Nobelpharma AB, Gothenburg, Sweden
PCT No. PCT/SE87/00380, § 371 Date Mar. 21, 1989, § 102(e) Date Mar. 21, 1989, PCT Pub. No. WO88/01489, PCT Pub. Date Mar. 10, 1988
PCT Filed Aug. 28, 1987, Ser. No. 318,923
Claims priority, application Sweden, Aug. 29, 1986, 8603638
Int. Cl.[5] A61C *8/00*
U.S. Cl. 433—173 **10 Claims**



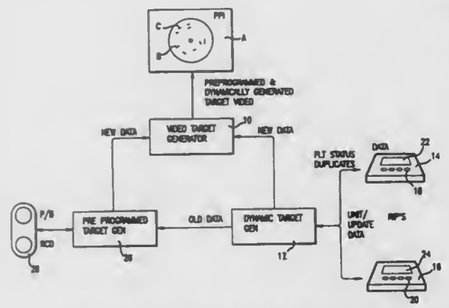
1. Prefabricated construction element for an implant-fixed prosthesis comprising a central portion to be attached to an implant-fixed anchorage element, and to two wing-like portions integral with said central portion projection from substantially diametrically opposite positions of the central portion, each of said wing-like portions terminating at a free end to be connected to the free end of a wing of an adjacent prefabricated construction element.

5,064,375
HOLDER
Lars Jörnéus, Gothenburg, Sweden, assignor to Nobelpharma AB, Goteborg, Sweden
Filed Nov. 13, 1990, Ser. No. 611,830
Claims priority, application Sweden, Nov. 13, 1989, 8903797
Int. Cl.[5] A61C *3/00*
U.S. Cl. 433—229 **6 Claims**



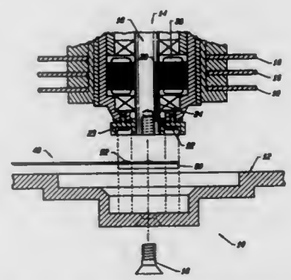
1. A device for holding a tightening tool used for mechanical tightening of a screw joint in a bone-anchored dental implant without imposing stress upon the tissue surrounding the implant, said device comprising:
a first part adapted for receiving a movable part of said tightening tool, said first part being rotationally lockable with respect to the implant and a second part forming an arm which is rigidly connected to said first part and extends substantially perpendicularly thereto, said second part being also provided with a holding portion adapted for holding and rotationally locking a stationary part of the tightening tool such that interaction between said holding part and the stationary part of the tightening tool prevents transmission of the tightening torque through the implant to the surrounding tissue.

5,064,376
PORTABLE COMPACT SIMULATED TARGET MOTION GENERATING SYSTEM
Ronald DeCrescent, Northridge, Calif., assignor to Unisys Corporation, Detroit, Mich.
Filed Apr. 1, 1983, Ser. No. 481,284
Int. Cl.[5] G09B *9/00*
U.S. Cl. 434—2 **10 Claims**



1. A portable compact apparatus for generating simulated motion on a display device, of a plurality of targets, each representing a movable object, for providing training exercises in analyzing and responding to simulated target motion, adapted to compute and generate data to be transmitted to the display device representing the incremental positions, as a function of time, of the targets in simulated motion, comprising:
(a) means for generating target displays, adapted to generate simulated target motion signals, to interface with the display device inputs, and to transmit the simulated target motion signals for driving the display device responsive thereto;
(b) means for generating dynamic target motion, microprocessor-based, adapted to receive controlled target motion data, initiating or modifying motion of controlled targets in real time, and to convert the target motion data into data for input into the target display generating means;
(c) means for remotely generating controlled target motion data in real time, microprocessor based, adapted to enable the operator to interface with, and control the functions of, the dynamic target motion generating means for initiating or modifying motion of the controlled targets in real time; and
(d) a portable compact device for storing previously-displayed dynamic target data received from said dynamic target motion generating means.

5,064,377
COMPRESSION CONTACT ELECTRICAL CONNECTOR ASSEMBLY FOR A DISC DRIVE
Roy L. Wood, Yukon, Okla., assignor to Seagate Technology, Inc., Scotts Valley, Calif.
Filed Dec. 28, 1990, Ser. No. 635,771
Int. Cl.[5] H01R *9/09*
U.S. Cl. 439—67 **12 Claims**



1. In a disc drive, a compression contact electrical connector assembly for connecting at least one external electrical circuit to a disc drive motor comprising:
an elongated, flexible printed circuit cable having a first end and a second end defining a length;
said first end having a pattern of metal contacts;
electrical traces connected to said pattern of metal contacts and extending to said second end of said printed circuit cable, said electrical traces at said second end of said printed circuit cable being connected to said external electrical circuit;
said disc drive motor having a pattern of metal contacts attached to a circuit board and aligned with said pattern of metal contacts on said first end of said printed circuit cable, said pattern of metal contacts on said motor being connected to electronic circuitry within said motor; and
a means for providing compressive force to said first end of said printed circuit cable such that said pattern of metal contacts on said motor are compressively connected to said pattern of metal contacts on said first end of said printed circuit cable.

VOL
1132
ISS
2
NO
12
1991
UMI

5,064,378

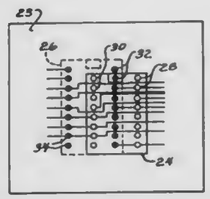
MOUNTING OF DRAMS OF DIFFERENT SIZES AND PINOUTS WITHIN LIMITED FOOTPRINT

Anthony M. Olson, Stevensville, and Babu Rajaram, St. Joseph, both of Mich., assignors to Zenith Data Systems Corporation, Buffalo Grove, Ill.

Continuation of Ser. No. 88,934, Aug. 24, 1987, abandoned. This application Dec. 30, 1988, Ser. No. 294,925

Int. Cl.[5] H05K *1/00*

U.S. Cl. 439—68 **3 Claims**



1. A printed circuit (PC) board arrangement for mounting either a first dynamic random access memory (DRAM) having a first plurality of pinouts including first address and control pinouts or a second DRAM having a second plurality of pinouts including second address and control pinouts and for minimizing PC board area required for mounting either said first DRAM or said second DRAM, wherein said first and second DRAM's are of the same width and each plurality of pinouts is arranged in a pair of spaced, parallel arrays, said PC board arrangement comprising:

a first surface portion of the PC board having first means defining a first plurality of apertures arranged in a pair of spaced, parallel arrays and adapted to receive the first plurality of pinouts of said first DRAM, wherein said first plurality of apertures includes first and second linear, spaced rows of M apertures each; and

a second surface portion of the PC board having second means defining a second plurality of apertures arranged in a pair of spaced, parallel arrays and adapted to receive the second plurality of pinouts of said second DRAM, wherein said first and second surface portions are disposed on the PC board in an overlapping manner and said second plurality of apertures includes third and fourth linear, spaced rows of N apertures each; and

wherein N=M+1 and said third row of apertures is disposed intermediate said first and second rows of apertures, said first, second, third and fourth rows of apertures are generally parallel, the spacing between said first and second rows of apertures is equal to the spacing between said third and fourth rows of apertures, and wherein all of said first apertures receiving said first address pinouts and at least one of said first apertures receiving said first control pinouts are coupled to and in alignment with corresponding pinouts of said second address and in control pinouts and wherein said alignment is generally transverse to said rows of apertures.

5,064,379

PRINTED CIRCUIT BOARD CONTACT

Juergen Ryll, Egelsbach; Michael Gerst, Worms, and Michael Schwäger, Langen, all of Fed. Rep. of Germany, assignors to AMP Incorporated, Harrisburg, Pa.

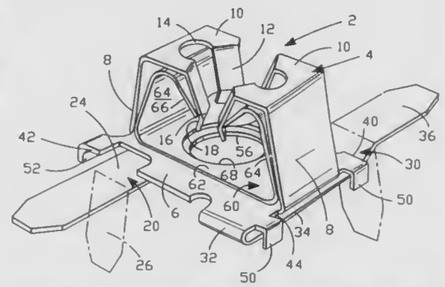
Filed Oct. 30, 1990, Ser. No. 605,604

Claims priority, application United Kingdom, Oct. 30, 1989, 8924359; Nov. 13, 1989, 8925617

Int. Cl.[5] H01R *9/09, 13/187*

U.S. Cl. 439—81 **17 Claims**

1. An electrical socket terminal for mounting to a printed circuit board, the socket terminal having a metal base portion having printed circuit board contacts, and contact members extending from the base portion for receiving a pin contact terminal between contact sections of the contact members, the printed circuit board contacts extend from opposite side edges of the base portion and include resilient spring portions intermediate the side edges of the base portion and the free ends of the printed circuit board contacts, the spring portions are



defined by arms extending from the opposite side edges of the base portion and thereafter reversely bent beneath the base portion, the printed circuit board contacts being thereafter reversely bent downwardly.

5,064,380

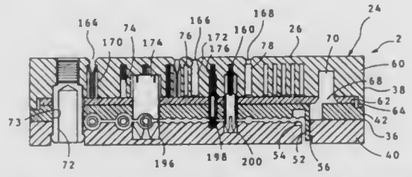
ELECTRICAL TAP AND SPLICE CONNECTOR

James L. Dale, Lawrenceville; Vernon R. Miller, Atlanta, and Lincoln E. Roberts, Decatur, all of Ga., assignors to AMP Incorporated, Harrisburg, Pa.

Continuation-in-part of Ser. No. 400,315, Aug. 28, 1989, Pat. No. 4,997,338. This application Jun. 1, 1990, Ser. No. 532,463

Int. Cl.[5] H01R *25/00*

U.S. Cl. 439—113 **17 Claims**



1. A cable splice assembly for interconnecting a plurality of cable wires in two flat cables, the cable splice assembly comprising:

a first housing;

a plurality of bus conductors located in the first housing;

a plurality of cable contact terminals, each for connecting a cable wire to a corresponding bus conductor;

a cable clamp separate from and attachable to the first housing, the cable clamp having first and second means for receiving a flat cable on opposite ends of the cable clamp, with corresponding cable wires in each cable being aligned end to end, the cable clamp also having apertures intersecting each means for receiving a flat cable, one aperture being positioned in alignment with each cable wire when positioned in the means for receiving a flat cable; and

a partition located in the cable clamp between the first and second means for receiving a flat cable, so that each flat cable can be positioned within the corresponding receiving means with ends of each flat cable abutting the partition, whereby the cable contact terminals establish electrical contact with corresponding cable wires in each flat cable and corresponding cable wires in each flat cable are interconnected through the bus conductors in the first housing.

5,064,381

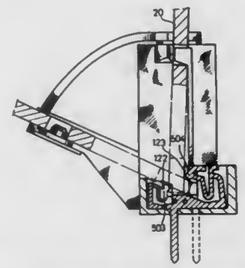
ELECTRIC CONNECTING DEVICE

Yu-Chuan Liu, 2Fl., No. 12, Lane 121, Li Hsing Rd., Sec. 2, San Chung, Taipei, Taiwan

Filed Mar. 4, 1991, Ser. No. 664,354

Int. Cl.[5] H01R *13/54*

U.S. Cl. 439—326 **1 Claim**



1. An electric connecting device comprising:

a base formed with a central insert groove, on two vertical walls of said insert groove being formed front and rear stop blocks at large and small intervals, two vertical locking latches being formed at two ends of said insert groove, a slantly curved locking projection being formed at the top of said locking latch, a U-shaped groove being perpendicularly disposed at two ends of said base, at the open end of said U-shaped groove being formed with six inward extending support ribs, a chamber being formed between said base and said support ribs, a guide post being disposed in said chamber and protruding beyond said base, a clearance being formed between said support ribs and said guide post, on inner sides of two guide post being disposed a recess groove, a channel being formed at the central portion of said recess groove;

an inclined locking latch suitable to be inserted into said U-shaped groove of said base, an engaging plate being disposed at a lateral extending portion of an insert pin so as to engage with said engaging groove of said base, an elastic plate being disposed perpendicularly to a connecting plate on the bottom thereof, said connecting plate being faced upward disposed along an extending portion of said engaging plate, a fixing boss being formed on said elastic plate, an arch board being disposed at the top of said insert pin, a locking projecting portion being formed on said arch board;

a series of connecting members disposed in said through channel of said base, at two ends of said connecting member being formed two protuberances, at central portion of said connecting member being formed a projecting column;

a large interval subsidiary board and a small interval subsidiary board inserted into said insert groove of said base, a recess groove being formed on lower end portion of said subsidiary board, a fixing hole being formed on the upper end portion of said subsidiary board;

a row of electric conducting plates disposed in a receiving hole, said electric conducting plate having a connecting pin, a basic portion, a front contact portion and a rear contact portion, a fastening portion being disposed on said basic portion, a contact groove being disposed between said basic portion and front and rear contact portion, a locating groove being disposed between said electric conducting plates, a bent portion being formed on said rear contact portion; and

a main board disposed on the bottom of said base, two through holes being formed on said main board corresponding to said two guide post of said base.

5,064,382

DETONATOR CONNECTOR SYSTEM

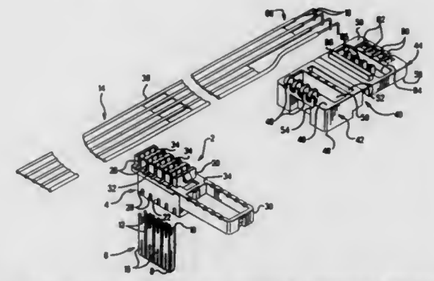
Alan J. Minnis, Hendon, England, assignor to AMP Incorporated, Harrisburg, Pa.

Filed Sep. 6, 1990, Ser. No. 578,366

Claims priority, application United Kingdom, Sep. 8, 1989, 8920371

Int. Cl.[5] H01R *4/24*

U.S. Cl. 439—395 **6 Claims**



1. An environmentally sealed electrical connector assembly for operation in hostile environments, while capable of being readily assembled into complex interconnection systems of like connector assemblies, said assembly comprising:

a first connector housing having a first major surface and a second major surface, terminals positioned in the housing and extending from the first major surface to the second major surface, wherein the first connector housing is provided with a protective substance which surrounds the terminals, thereby insuring that the terminals will not be damaged under hostile types of environmental conditions, wire receiving slots provided at first ends of the terminals, first cable receiving means provided adjacent second ends of the terminals, the first cable receiving means cooperating with multiconductor cable means to provide electrical connection between said cable means and said terminals of the first connector housing;

a second connector housing having a first surface and a second surface, a connector receiving opening extending from the first surface toward the second surface, the connector receiving opening being dimensioned to receive the first connector housing therein, second cable receiving means provided adjacent the connector receiving opening, the second cable receiving means cooperating with a remote end of said cable means to position the cable means in alignment with said opening;

whereby the first connector housing and the second connector housing can be looped about said cable means and mated together as required for purposes of storage or transportation, then unmated for subsequent mating with like connector assemblies while being protected against the hostile conditions of the environment.

5,064,383

MULTIPLE CONDUCTOR CABLE CONNECTOR WITH CLIP AND TOWERS

Ronald P. Locati, Harrisburg, and Carl D. Oberman, New Cumberland, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 14, 1990, Ser. No. 613,348

Int. Cl.[5] H01R *9/11*

U.S. Cl. 439—405 **16 Claims**

1. A multiple conductor cable connector, comprising:

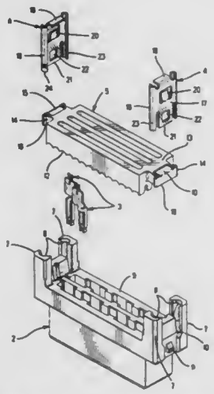
a termination cover having a handle;

a housing having a plurality of insulation displacement contacts; and

a metallic clip, said clip cooperating with the handle of the termination cover, said clip having an upper tab, a back,

VOL
1132
ISS
2
NO
12
1991
UMI

and two sleeves, the upper tab being deformed from an edge of the clip back at substantially a right angle to the clip back, the sleeves being opposite each other and extending from side edges of the clip back substantially in the same direction as the upper tab;



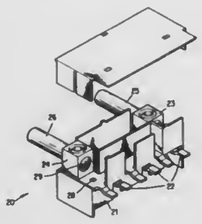
whereby the handle cooperates with and is grasped by the combination of the upper tab, and along the height of the termination cover handle, the clip back and sleeves, said clip further having latch means for latching the termination cover to the clip, said clip and termination cover together defining a termination cover subassembly.

5,064,384

JUMPER ASSEMBLY FOR MULTIPLE BREAKER APPLICATION

William J. Weaver, Lincoln, Nebr., assignor to Square D Company, Palatine, Ill.

Filed Dec. 4, 1990, Ser. No. 622,039
Int. Cl.[5] H01R *31/08, 9/22*
U.S. Cl. 439—511 **15 Claims**



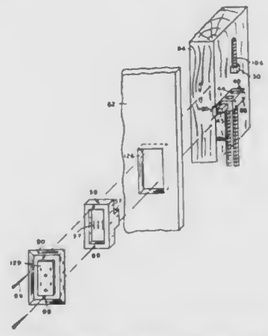
1. A wire-jumper assembly which connects a plurality of circuit breakers, the assembly comprising:
an electrically insulating base;
insulating means coupled to said base;
a first conductor plate positioned below said insulating means and including a first set of extension contacts directed outwardly from the base;
a second conductor plate positioned over said insulating means and including a second set of extension contacts directed outwardly from the base adjacent the first set of extension contacts, wherein said insulating means electrically insulates said first conductor plate from said second conductor plate; and
a plurality of terminal lugs, connected to said first conductor plate and said second conductor plate, respectively.

5,064,385

STATION BAR

Thomas L. Harlow, Jr., 8414 Three Chopt Rd., Richmond, Va. 23229

Continuation-in-part of Ser. No. 262,688, Oct. 26, 1988, Pat. No. 4,976,631. This application Aug. 15, 1990, Ser. No. 567,744
Int. Cl.[5] H01K *13/60*
U.S. Cl. 439—535 **3 Claims**



1. A station bar, composed of a first unit and third unit, said third unit being capable of functioning as an electrical switch and is fastened to the front face of a framing member of a structure through an opening cut in finishing material attached to said framing member, said station bar adapted to electrically connect, by pressure contact of an un-insulated portion of each individual conductor to an associated first contact terminal, at least one un-severed multi-conductor electrical cable to said third unit, said station bar is attached to said framing member with appropriate fastening means without the use of a junction boxes said station bar comprising:
a hinged dielectric first unit having;
a body including;
at least two electrically conductive first contact terminals being held and kept apart from each other by said dielectric material;
at least one first connector jack; at least a primary group of conductor receiving channels, a subsequent group being secondary, each individual channel of said groups being lined with a portion of one of said first contact terminals, with each one of said first contact terminals extending from an individual one of said primary group to an associated one of said secondary group, thereby electrically connecting each of said conductors of said primary group of channels to an associated one of said conductors of said secondary group of channels, when said conductors of first and second cables are placed in said channels, each of said contact terminals of said primary group extend to an associated portion of one surface of said first connector jack;
a lid including;
an identical number of groups of said channels as said body;
means for attaching said hinged first unit to said framing member of said structure;
a dielectric third unit having;
at least one third connector plug; at least two electrically conductive third contact terminals being held and kept apart from each other by said dielectric material, each one of said third contact terminals extending from an associated portion of one surface of said third connector plug to an associated portion of a front surface of said third unit, each of said third contact terminals engaging electrically an associated one of said first contact terminals when said third connector plug is inserted into said first connector of said first unit,

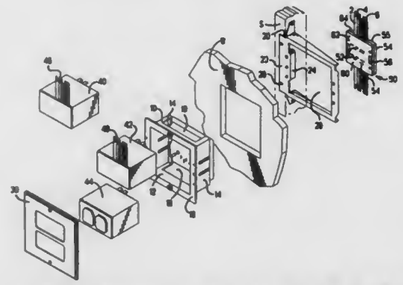
means for attaching said third unit unit to said framing member of said structure; and
at least one electrical switch on the front surface of said third unit, aid third contact terminals of said third unit being extended to an associated one of the terminals of said switch.

5,064,386

CONVENIENCE ELECTRICAL OUTLET ASSEMBLY

James L. Dale, Lawrenceville; Vernon R. Miller, Atlanta, and Lincoln E. Roberts, Decatur, all of Ga., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 27, 1990, Ser. No. 618,766
Int. Cl.[5] H01R *13/60*
U.S. Cl. 439—535 **20 Claims**



1. A wall box assembly for use in an electrical distribution system of a residential type construction, said assembly including at least one electrical cable disposed behind wall panels secured to studs of said construction, including:
a mounting bracket comprising a frame having an opening therein and means for attaching the mounting bracket to one of the studs prior to installation on the wall panels over the studs;
a box having an open front face and means for attaching the cable at the rear of the box, the box including a flange on the front face, said box further including means for positioning the cable parallel to said front face of the box so that electrical components can be inserted through said open front face and plugged into electrical contact with the cable;
and means for attaching the flange to the frame with the flange being positioned on a front surface of one wall panel and the frame being positioned on the rear surface of the wall panel, whereby electrical components can be positioned in the box and the box can be positioned flush with the front surface of the wall panel and can be attached to the stud by the mounting bracket.

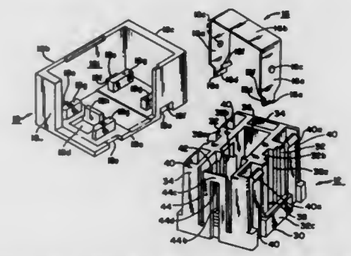
5,064,387

SHIELDED ELECTRICAL JACK CONNECTOR

Brent B. Lybrand, Spartanburg, S.C., assignor to Thomas & Betts Corporation, Bridgewater, N.J.

Filed Jun. 12, 1990, Ser. No. 536,811
Int. Cl.[5] H01R *13/648*
U.S. Cl. 439—607 **18 Claims**

1. A shielded electrical jack connector, comprising:
an insulator defining a cavity therewithin, said insulator including an exterior surface having an aperture formed therethrough, said aperture communicating with said cavity and defining a receptacle for receipt of a plug connector, said insulator including resilient latch means and a base which includes said exterior surface through which said aperture is formed, and a pair of spaced, opposing sidewalls upstanding from said base;
a plurality of electrical contacts supported by said insulator and extending into said cavity, said contacts each terminating in a projecting conductor;
an electrical conductive ground contact supported by said insulator, said ground contact comprising a terminal extending into said cavity for engagement with a plug connector upon receipt thereof into said receptacle and a friction surface projecting therefrom, said ground contact including a pair of opposed legs and a connecting portion, each leg being supported by a respective different one of said opposing sidewalls; and



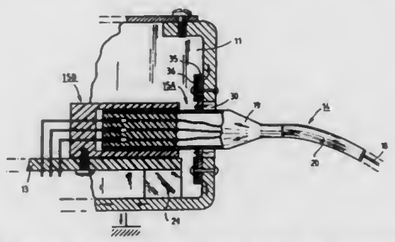
an electrically conductive shield supported on said insulator, said shield comprising cooperative latch structure for releasable retention with said insulator resilient latch means and an interior surface in engagement with said friction surface on said ground contact, said shield comprising a cover surface extending over and communicating with said cavity and having an opening through said cover surface, through which said projecting conductors extend.

5,064,388

SHIELDING CHASSIS FOR PROTECTING AN ELECTRICAL CIRCUIT INSIDE SAID CHASSIS AGAINST THE EFFECTS OF ELECTROMAGNETIC RADIATION

Jean-Marie Paladel, Claix, France, assignor to Bull S.A., Paris, France

Filed Sep. 18, 1990, Ser. No. 584,160
Claims priority, application France, Sep. 19, 1989, 89 12287
Int. Cl.[5] H01R *13/648*
U.S. Cl. 439—607 **10 Claims**



1. A shielding chassis for shielding against electromagnetic radiation, comprising:
a metal chassis for shielding at least one electrical device and containing an opening to permit passage of an external connector;
grounding means for connecting said chassis to an electrical ground;
an elongated shielded connector member for connecting the at least one electrical device shielded in said metal chassis through said opening;
a connector member complementary to said elongated shielded connector for mating therewith, said complemen-

VOL 1132 ISS 2 NO 12 1991 UMI

tary connector member being electrically connected to the at least one electrical device shielded within said metal chassis and aligned with said opening within said chassis to matably receive said elongated shielded connector placed through said opening; and

an elastic conductive coupling element located adjacent said chassis hole and electrically connected to said metal chassis, said coupling element formed of an elastomer into which conducting metal particles have been incorporated and aligned to engage said elongated shielded connector member when said member is inserted into said chassis hole and to establish electrical connection therewith and between said metal chassis and said inserted connector member, whereby electromagnetic radiation arising from parasitic currents travelling through the at least one electrical device, said elongated shielded connector member, and said metal chassis is circumvented,

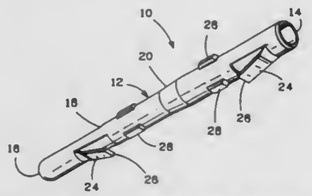
---

5,064,389

ELECTRICAL SLAVE CONNECTOR

David A. Klein, Kernersville, and Daines M. Self, Jr., Oak Ridge, both of N.C., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Jun. 19, 1991, Ser. No. 718,532
Int. Cl.[5] H01R *13/00*
U.S. Cl. 439—651 **3 Claims**



1. An electrical slave connector for use in repeated mating and unmating applications, comprising:

a housing having cavities extending therethrough; and

contacts having a pin at one end and a socket at another end, said contacts further having locking lances projecting obliquely outwardly and located adjacent said socket and said pin with free ends of said lances facing each other, said contacts disposed in said cavities with one end to be mated to either a receptacle header or pin header mounted on a printed circuit board and an opposite end to be mated to either a plug or cap header.

5,064,390

COAXIAL PIN CONNECTOR HAVING AN ARRAY OF CONDUCTIVE HOLLOW CYLINDRICAL STRUCTURES

Shoji Umesato; Yoshikatsu Okada, both of Tokyo, and Katsuhiko Sakamoto, Kanagawa, all of Japan, assignors to NEC Corporation, Tokyo, Japan

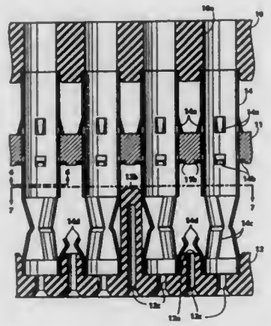
Filed Sep. 12, 1990, Ser. No. 582,661
Claims priority, application Japan, Sep. 12, 1989, 1-236761
Int. Cl.[5] H01R *9/22*
U.S. Cl. 439—721 **7 Claims**

1. A coaxial pin array connector for connecting a plurality of pins of coaxial cables to a plurality of corresponding pins of a circuit board, said pins of the circuit board having equal lengths, comprising:

a first member having a plurality of throughholes corresponding to said coaxial cables;

a second, insulative member spaced from said first member, said second member having a plurality of first throughholes corresponding to said signal pins, a plurality of second throughholes for admitting grounding pins of said circuit board and a plurality of recesses for receiving power pins of said circuit board; and

a plurality of electrically conductive cylindrical hollow structures respectively positioned in the throughholes of said first member and extending to said second member to allow said pins of said coaxial cables to respectively extend through said hollow structures into electrical contact with said signal pins respectively, each of said hollow structures having inwardly bent contact portions for making pressure contact with the pin of a corresponding one of said coaxial cables and an outwardly bent contact portion for forming a pair of contacts with an outwardly bent contact portion of an adjacent hollow structure so that each of said grounding pins is inserted through a corresponding one of said second throughholes of said second member and engages between said paired contacts.

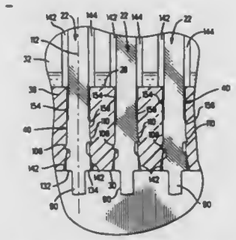


5,064,391

ASYMMETRICAL HIGH DENSITY CONTACT RETENTION

Randolph L. Buchter, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Sep. 27, 1990, Ser. No. 589,157
Int. Cl.[5] H01R *17/41*
U.S. Cl. 439—733 **10 Claims**



1. An electrical connector having an asymmetric contact retention system, comprising:

a dielectric housing defining first and second contact receiving channels, each channel having a side wall;

a rib on said housing separating said first and second channels, said rib extending between said side walls;

a first contact received in said first channel, said first contact defining an axis, said first contact having first and second side edges on opposite sides of said axis, said first side edge having a barb extending therefrom away from said axis, said second side edge having a barb extending therefrom away from said axis, the barb extending from said second side edge at a location spaced along the axis from the barb extending from said first side edge, the barb extending from said first side edge engaging the side wall of said first channel to secure said first contact in said first channel;

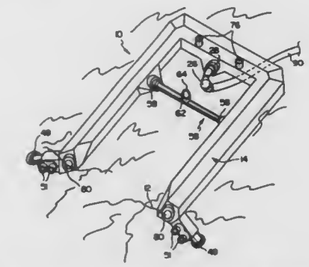
a second contact received in said second channel, said second contact defining an axis, said second contact having first and second side edges on opposite sides of the axis of said second contact, said first side edge of said second contact having a barb extending therefrom away from the axis of said second contact, said second side edge of said second contact having a barb extending therefrom away from the axis of said second contact, the barb extending from said second side edge of said second contact engaging the side wall of said second channel to secure said second contact in said second channel, whereby the first contact has asymmetric barbs thereon and the second contact has asymmetric barbs thereon such that a barb on the first contact and a barb on the second contact engage side walls of the rib between the first and second channels at spaced locations therealong.

5,064,392

SELF-PROPELLED FLOATABLE FIRE NOZZLE

Scott Wonders, 3119 - 59th St., Port Arthur, Tex. 77640

Filed Sep. 24, 1990, Ser. No. 586,959
Int. Cl.[5] B63H *11/00*
U.S. Cl. 440—39 **9 Claims**



1. A self propelled floatable fire nozzle including:

a support housing;

a pair of spaced aligned pressure relief valves to maintain the internal pressure of the support housing at a predetermined level;

means for directing water flow through the housing in a predetermined direction, the water flow directing means including an intermediate member, a first elongated member perpendicularly coupled to one end of the intermediate member, a second elongated member perpendicularly coupled to the other end of the intermediate member, and a horizontally extending member coupled between the first and second elongated members in parallel spaced relationship with the intermediate member;

a water inlet port coupled to the intermediate member;

a water outlet port coupled to the horizontally extending member;

means for supplying water to the water inlet port;

means for directing air flow through the housing in a predetermined direction;

means for supplying air to the air flow directing means;

means for interacting water from the water flow directing means with the air from the air flow directing means to create propulsion; and

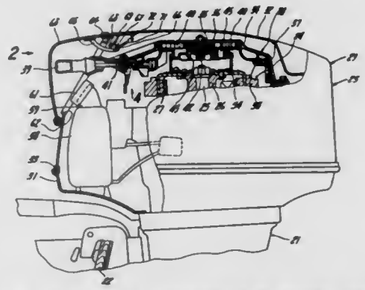
means for controlling the flow of water through the water flow directing means so that water can be directed to the outlet nozzle when in one position and so that water can be directed to the outlet nozzle and the interacting means when in another position to thereby cause propulsion.

5,064,393

PROTECTOR FOR THE STARTING GRIP OF OUTBOARD MOTOR

Seiji Inoue, Shizuoka, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Continuation of Ser. No. 815,574, Jan. 2, 1986, abandoned. This application Sep. 17, 1987, Ser. No. 98,761
Claims priority, application Japan, Jan. 11, 1985, 60-3687
The portion of the term of this patent subsequent to Apr. 28, 2004, has been disclaimed.
Int. Cl.[5] B63H *21/36*
U.S. Cl. 440—77 **8 Claims**



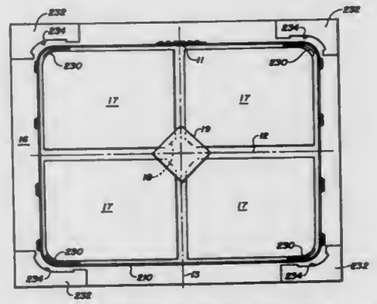
1. In an outboard motor comprised of an internal combustion engine, a protective cowling surrounding said engine, a pull starter for said internal combustion engine contained within said protective cowling, a rope affixed at one end to said pull starter for operating said pull starter, said rope extending through an opening in said protective cowling and having a starting handle affixed to the other end of said rope for manual operated starting, said protective cowling leaving said starter handle exposed for operation without removing said protective cowling and while said protective cowling contains said engine and a cover movably supported by said protective cowling between a closed position wherein said starting handle is concealed, for precluding operation of said starting handle and an opened position wherein said starting handle is accessible for starting said engine.

5,064,394

METHOD OF FORMING A SHRINKFIT IMPLOSION PROTECTION BAND HAVING A CONCAVITY THEREIN

Harry R. Swank, Lancaster, Pa., assignor to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Jun. 5, 1990, Ser. No. 533,638
Int. Cl.[5] H01J *29/87, 9/24*
U.S. Cl. 445—8 **14 Claims**



1. A method of forming a shrinkfit implosion protection band for a substantially rectangular CRT having a faceplate

VOL 1132 ISS 2 NO 12 1991 UMI

panel including a peripheral sidewall, said sidewall having corners with a given radius of curvature extending into flattened portions, a plurality of mounting lugs being disposed between said inner surface of said shrinkfit band and said sidewall, each of said mounting lugs having a base portion and an attachment portion, said method comprising the steps of:

1) forming said band by joining together the ends of at least one strip of material into a substantially rectangular loop having dimensions slightly smaller than the dimensions of said CRT;

b) expanding the dimensions of said band by stretching said band utilizing stretching and forming means having a plurality of bosses and corresponding boss-receiving recesses associated therewith to form a plurality of outwardly directed concavities in said band to accommodate said base portion of each of said mounting lugs and to prevent the lateral displacement thereof;

c) securing said base portion to the overlying band;

d) heating said band so that the dimensions thereof exceed those of said CRT; and

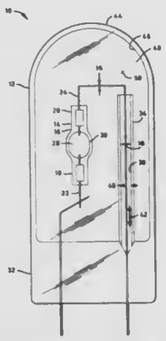
e) disposing said band around said sidewalls of said CRT.

5,064,395

COMPACT OUTER JACKET FOR LOW WATTAGE DISCHARGE LAMP

Michael R. Kling, Stratham, N.H., and Thomas J. Gilligan, III, Salisbury, Mass., assignors to GTE Products Corporation, Danvers, Mass.

Division of Ser. No. 592,000, Oct. 1, 1990. This application Mar. 11, 1991, Ser. No. 667,137
Int. Cl.[5] H01J *9/32, 9/385*
U.S. Cl. 445—27 **12 Claims**



6. A method of forming a double envelope arc discharge lamp formed by performing the steps of:

a) forming a double ended inner lamp capsule with a first lead and a second lead, having one end of the capsule extending over the first lead as a sheath,

b) positioning the inner lamp capsule in an outer envelope thereby defining an intermediate volume between the capsule and envelope, with the first lead positioned in the lead sheath, the sheath and the second lead extending through a seal area of the envelope,

c) heating the seal area of the outer envelope to a pliable state,

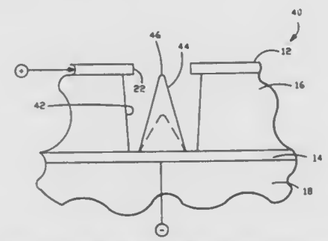
d) sealing the seal area of the outer envelope to the second lead and the lead sheath.

5,064,396

METHOD OF MANUFACTURING AN ELECTRIC FIELD PRODUCING STRUCTURE INCLUDING A FIELD EMISSION CATHODE

Charles A. Spindt, Menlo Park, Calif., assignor to Coloray Display Corporation, Fremont, Calif.

Filed Jan. 29, 1990, Ser. No. 472,336
Int. Cl.[5] H01J *9/02*
U.S. Cl. 445—50 **9 Claims**



1. A method of making and electric field producing structure, comprising the steps of:

(a) providing upper and lower generally planar electrodes spaced apart in parallel confronting relationship to one another with a layer of dielectric material therebetween so as to electrically insulate the electrodes from one another;

(b) forming at least one aperture through said upper electrode and said layer of dielectric material such that the circumferential edge of said upper electrode defining the upper most periphery of said aperture is exposed to a surface segment of said lower electrode defining the bottom of said aperture;

(c) forming a single electrically conductive first protuberance on said surface segment of said lower electrode at the bottom of said aperture, said first protuberance extending upward toward said upper electrode and displaying a height less than the depth of said aperture, whereby its uppermost end lies in a plane parallel with but below said upper electrode; and

(d) forming at least one second electrically conductive protuberance over said first protuberance such that the first and second protuberance together form a single protuberance having an uppermost end which is substantially coplanar with but spaced from the first electrode's circumferential edge defining the uppermost periphery of said aperture.

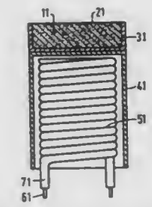
5,064,397

METHOD OF MANUFACTURING SCANDATE CATHODE WITH SCANDIUM OXIDE FILM

Jan Hasker; Jacobus E. Crombeen; Petrus A. M. Van Dorst; Johannes Van Esdonk; Pieter Hokkeling, and Josef J. Van Lith, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 16, 1990, Ser. No. 482,140
Claims priority, application Netherlands, Mar. 29, 1989, 8900765
Int. Cl.[5] H01J *9/04*
U.S. Cl. 445—50 **15 Claims**

1. A method of manufacturing a scandate cathode having a cathode body which comprises a matrix of at least a high-melting point metal and/or alloy and having an emissive surface with a barium compound at least on contact with the matrix material, which compound can supply barium to the emissive surface by a chemical reaction with the matrix material and the cathode body having a top layer comprising scandium coated with a scandium oxide film, said method comprising pressing the matrix from a powder of the high-melting point metal and/or alloy and a powder of a scandium providing material selected from the group consisting of scandium and scandium hydroxide, partially oxidizing the powder of the scandium providing material and then sintering the resultant assembly



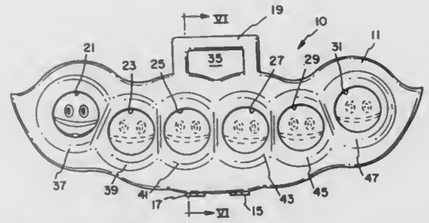
and impregnating the resultant sintered assembly wit the barium compound.

5,064,398

CARRYING CASE FOR PEA CHARACTERS

Lee Richardson, 205 Kenrich Dr., Coraopolis, Pa. 15108

Filed Apr. 19, 1991, Ser. No. 687,598
Int. Cl.[5] A63H *33/00;* **B65D** *69/00*
U.S. Cl. 446—75 **6 Claims**



1. A carrying case, comprising:

a) an elongated housing having a first half and a second half;

b) said first half having a plurality of adjacent generally semi-spherical first recesses therein, each recess having an opening therethrough;

c) said second half having a plurality of adjacent generally semi-spherical second recesses therein;

d) said carrying case having a closed configuration with said halves adjacent one another and with respective first recesses combining with respective second recesses to form respective generally spherical subchambers;

e) each said subchamber being sized and configured to closely receive a toy made to resemble a pea and including character features including a distinct face visible through said opening;

f) said case having a carrying handle;

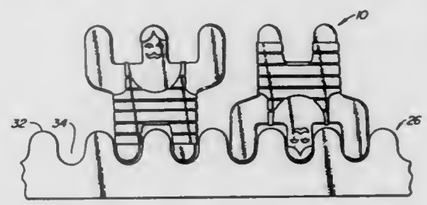
g) said carrying case in said closed configuration thereof, having an outer shape including one generally arcuate side opposite said handle and another side opposite said one side and having a series of undulating curves to either lateral side of and beneath said handle, said sides being connected.

5,064,399

PLAY SET

Daniel B. Klitsner, San Francisco, and D'Miles E. Milsal, Sunol, both of Calif., assignors to Discovery Toys, Inc., Martinez, Calif.

Filed Jun. 29, 1990, Ser. No. 546,300
Int. Cl.[5] A63H *13/10, 29/00, 33/08, 33/06*
U.S. Cl. 446—308 **19 Claims**



1. A toy comprising:

a base;

a catapult mounted on the base and having a launching surface;

a plurality of interlocking figures sized to be launched from said launching surface, said interlocking figures each including:

a torso;

a head extending upwardly from said torso;

first and second arms extending upwardly from said torso, said first and second arms and said head defining first and second regions therebetween; and

first and second legs extending downward from said torso and defining a third region therebetween, wherein said first and second legs of a first said interlocking figure being sized and positioned to fit within said first and second regions of a second said interlocking figure sized to fit within said third region of first said interlocking figure so to permit said first interlocking figure to be supportable on said second interlocking figure; and

said base having an undulated surface with wave crests, said adjacent wave crests defining troughs therebetween, said wave crests and troughs being sized and positioned to fit within at least one of said first and second regions and said third region of said interlocking figures.

5,064,400

APPARATUS FOR GRADING SHRIMP

James J. Stipe, 114 Bowie St., Baytown, Tex. 77520

Filed Apr. 23, 1990, Ser. No. 512,377
The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.
Int. Cl.[5] A22C *29/00*
U.S. Cl. 452—2 **17 Claims**

1. A method for grading shrimp, comprising:

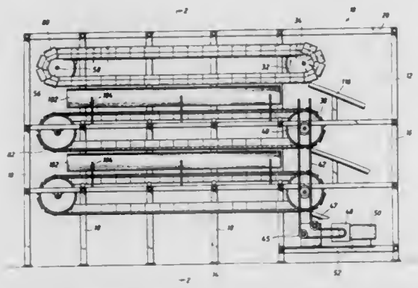
(a) receiving shrimp on a conveyer incorporating a pair of endless conveyer elements revolving about spaced circular derives and having a plurality of opposed pairs of inclined grading pan segments mounted thereon and forming spaced shrimp engaging sections for establishing pivotal supporting engagement with opposed sides of shrimp of a predetermined size range, the spacing of said shrimp engaging sections forming a grading slot,

(b) orienting said shrimp for serial travel along said conveyer and simultaneously conveying supported shrimp along said conveyer;

(c) supporting shrimp of a predetermined size range the minimum of which being determined by the width of said grading slot by opposed pivotal engagement thereof by said shrimp engaging sections of said grading pan segments such that said shrimp are pivotally supported at the joint of the head and body by said shrimp engaging sec-

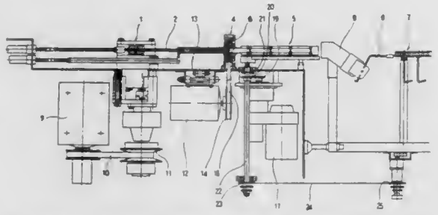
VOL 1132 ISS 2 NO 12 1991 UMI

tions of said grading pan segments, said shrimp being oriented by pivoting under the influence of gravity to head-up, body-down positions, shrimp smaller than said predetermined size range falling through said slot;



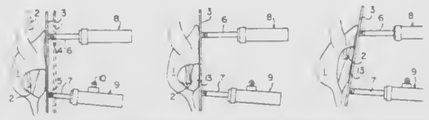
(d) conveying said supported shrimp to a release position by rotation of said endless conveyer elements; and
(e) releasing said supported shrimp at said release position, said shrimp, when released, descending by gravity from said conveyer.

5,064,401
APPARATUS FOR MANUFACTURING SAUSAGES OR THE LIKE
Minoru Kasai, Ebina, and Minoru Nakamura, Tokyo, both of Japan, assignors to Hitec Co., Ltd., Tokyo, Japan
Filed Apr. 26, 1990, Ser. No. 515,174
Claims priority, application Japan, Apr. 27, 1989, 1-108175
Int. Cl.[5] A22C *11/00*
U.S. Cl. 452—46 **15 Claims**



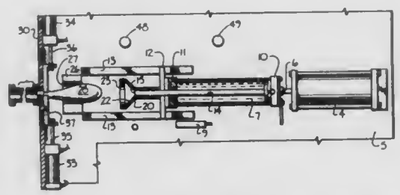
1. An apparatus for manufacturing sausages or the like including a nozzle for stuffing a material such as a meat emulsion into a casing for sausages or the like, a pump for supplying the material into said nozzle, a chuck for rotating the casing stuffed by said nozzle, and a linking device for clamping the stuffed casing discharged from said chuck and forming the casing stuffed with the material into the form of a chain in cooperation with said chuck, said apparatus comprising:
a device for driving said chuck, said device including a housing, a rotary member accommodated rotatably inside said housing and adapted to rotate said chuck with said chuck inserted and fixed therein, a bearing for rotatably supporting said rotary member, sealing means for preventing the entrance of a foreign substance such as the material into said bearing, and rotation transmitting means for driving said rotary member, said bearing having a sealing member for sealing a lubricant for said bearing in said bearing.

5,064,402
APPARATUS FOR INTERNALLY PROCESSING SLAUGHTERED POULTRY
Henderikus Koops, Oostzaan, Netherlands, assignor to Machinefabriek Meyn B.V., Oostzaan, Netherlands
Filed Mar. 29, 1990, Ser. No. 501,592
Claims priority, application Netherlands, May 29, 1989, 8901340
Int. Cl.[5] A22C *21/00*
U.S. Cl. 452—117 **13 Claims**



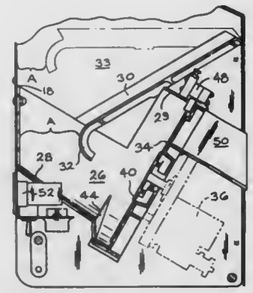
1. Apparatus for internally processing slaughtered poultry of varying sizes and weights, comprising:
(a) a processing device disposed to move into and out of abdominal cavities of poultry of varying sizes and weights;
(b) a counterpressure plate disposed to engage the backs of poultry being processed by said processing device;
(c) support means for supporting said counterpressure plate for movement towards and away from said poultry being processed by said processing device; and
(d) resilient means for moving said support means and said counterpressure plate to engage the backs of poultry being processed by said processing device in different positions depending upon the sizes and weights of said poultry.

5,064,403
APPARATUS FOR SEPARATING MEAT FROM POULTRY BONES
Stanley E. Elsten, Riverton, Kans., assignor to Sterling Manufacturing Company, Inc., Miami, Okla.
Filed Jul. 5, 1990, Ser. No. 548,230
Int. Cl.[5] A22B *3/08*
U.S. Cl. 452—135 **10 Claims**



1. Apparatus for deboning drumstick meat comprising:
(a) a first prime mover;
(b) a second prime mover engageable with said first prime mover and adapted to move due to actuation of said first prime mover;
(c) said second prime mover having a rod projectable therefrom;
(d) a gathering member associated with said second prime mover and movable therewith, said rod being movable through said gathering member upon actuation of said second prime mover; and
(e) means for supporting an animal drumstick in the path of said gathering member;
(f) whereby said gathering member receives drumstick meat therein upon actuation of said first prime mover and the bone of the drumstick is ejected from the meat by movement of said rod through said meat upon actuation of said second prime mover.

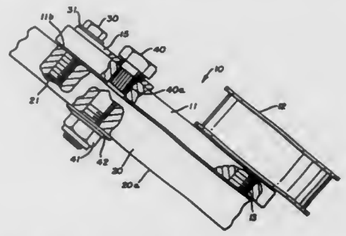
5,064,404
COIN OR TOKEN DISCHARGE APPARATUS
William J. Champion, Holland, Ohio, assignor to Hamilton Scale Corporation, Toledo, Ohio
Filed Mar. 1, 1990, Ser. No. 486,856
Int. Cl.[5] G07D *9/04*
U.S. Cl. 453—17 **6 Claims**



1. A coin or token discharge apparatus comprising, in combination:
a coin reservoir for holding a large volume of coins or tokens;
a upper baffle member positioned in said coin reservoir to define a coin bowl and a flow channel, wherein such coins or tokens held in said coin reservoir move through said flow channel to said coin bowl, said upper baffle member being fixed to a pivot member whereby said upper baffle member can rotate about said pivot member into said coin reservoir and, as a result of such pivoting action, narrow such flow channel between said coin reservoir and said coin bowl; and
a rotating selector disc positioned in said coin bowl, said selector disc being adapted to receive individual coins or tokens and transport such coins or tokens to an exit chute located in the upper quadrant of travel of said selector disc which is beyond the highest point of travel of said selector disc.

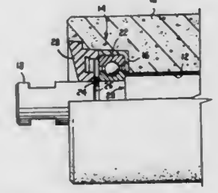
5,064,405
ADJUSTABLE LOCKED CENTER AND DYNAMIC TENSIONER
Richard C. St. John, 731 Bachtel St., SE., North Canton, Ohio 44720
Division of Ser. No. 383,630, Jul. 24, 1989, Pat. No. 4,957,471. This application Sep. 4, 1990, Ser. No. 577,139
Int. Cl.[5] F16H *7/12*
U.S. Cl. 474—133 **14 Claims**

1. A tensioner for setting tension in a belt or chain drive system and adapted for mounting on a stable portion of the drive system, comprising:
a) an elongate tensioner arm having first and second ends;
b) a pulley received on said first end of said arm;
c) a pivot engagable with said second end of said arm and the stable portion of the drive system;
d) friction means disposed about said pivot and in engagement with said arm, said friction means being compressible to apply clamping force between said arm and the stable portion of the drive system;
e) locking means for locking said arm relative to the stable portion of the drive system;



f) a base plate received on the stable portion of the drive system; and
g) a torque plate received on said base plate between said base plate and said tensioner arm.

5,064,406
BELT CONVEYOR PULLEY
Reinhard E. Schütte, 9 Jaspis Avenue, Jukskei Park, Randburg, Johannesburg, Transvaal, South Africa
Filed Sep. 4, 1990, Ser. No. 576,846
Int. Cl.[5] F16H *55/48*; B65H *17/22*
U.S. Cl. 474—166 **15 Claims**



1. A conveyor pulley including:
a roller which is made entirely from a bonded non-magnetic material, said roller having an axis of rotation; and
a shaft located in said roller, on said axis of rotation, said shaft projecting from each end of the roller.

5,064,407
METHOD OF MANUFACTURING A CELLULOSE ABSORBENT PRODUCT
Norman A. Peiffer, Maumee, Ohio, assignor to The Andersons, Maumee, Ohio
Filed Mar. 13, 1990, Ser. No. 492,711
Int. Cl.[5] B02C *11/00*
U.S. Cl. 241—3 **13 Claims**

1. A process for producing an absorbent product comprising the following steps:
A) reducing a naturally occurring cellulose material to an intermediate pulverulent product;
B) pelletizing the intermediate pulverulent product by passage through a die to produce a intermediate pellet product having a nominal diameter of at least 3/16";
C) crumbling the intermediate pellet product to produce compact bodies; and
D) classifying the compact bodies to produce a granular product of said bodies having a given screen size range.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,408

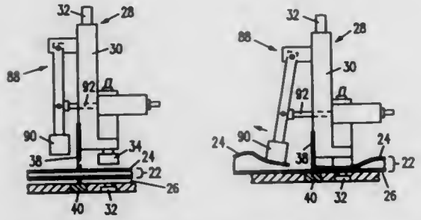
METHOD AND APPARATUS FOR PRODUCING A PLURALITY OF CONTINUOUS BAGS

Daniel N. P. Bridgeman, P.O. Box 1048, San Carlos, Calif. 94070

Continuation of Ser. No. 571,027, Aug. 22, 1990, abandoned, which is a continuation of Ser. No. 291,610, Dec. 29, 1988, abandoned. This application Apr. 11, 1991, Ser. No. 684,443

Int. Cl.[5] B31B *23/14, 27/16*

U.S. Cl. 493—194 9 Claims



1. A method for producing a plurality of continuous bags along a direction of production wherein each bag has a sealed end and a line of perforation opposite to said sealed end, each bag positioned with its sealed end immediately adjacent to the line of perforation of an adjacent bag, said method comprising the steps of:

supplying a continuous length of advancing tubing along said direction of production, said tubing having a first layer and a second layer;

sealing the first and second layers of said tubing together at a first location by a sealing means to form a sealed end of a first bag;

substantially simultaneously thereto, perforating the first and second layers of said tubing at a second location immediately adjacent to said sealed end by a perforating means, to form a line of perforation of a second bag, said second bag immediately adjacent to said first bag;

frictionally engaging said first layer of said tubing by maintaining engaging means substantially perpendicularly to said direction of production near said line of perforation;

severing the first layer of said tubing at said line of perforation without substantially severing the second layer of said tubing by moving said engaging means while engaged with said first layer of said tubing relative to said second layer of said tubing in a direction substantially opposite to said direction of production; and

advancing said tubing along said direction of production past said sealing means and past said perforating means to form said plurality of continuous bags.

5,064,409

METHOD AND APPARATUS FOR FORMING CONTAINERS WITH ROUNDED EDGES

Christopher J. Campbell, Midlothian; Linda S. Latif, Richmond, both of Va., and Herman Graboyes, Norristown, Pa., assignors to Philip Morris Incorporated, New York, N.Y.

Division of Ser. No. 312,860, Feb. 21, 1989, Pat. No. 4,955,531. This application Jul. 2, 1990, Ser. No. 547,562

Int. Cl.[5] B31B *1/25*

U.S. Cl. 493—396 4 Claims

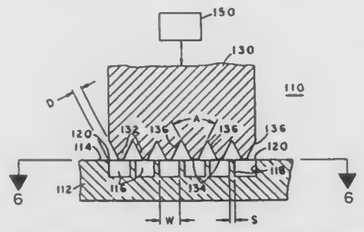
1. A method of making a container having a rounded edge from an initially substantially flat blank having two flat surfaces and a predetermined thickness comprising the steps of:

forming a plurality of parallel, laterally spaced score lines in said blank at the intended location of said edge, each of said score lines being substantially parallel to the longitudinal axis of said edge; and

bending said blank about said longitudinal axis so that said blank bends at each score line, and the edge is therefore rounded by virtue of the bending deflection being distributed over said plurality of score lines, wherein said step of forming a plurality of score lines includes the steps of:

providing a counter plate having a surface which is substantially flat, except for a plurality of longitudinal, substantially parallel, laterally spaced grooves, each of said grooves having side surfaces which are substantially perpendicular to said substantially flat surface of said counter plate;

placing the blank on said counter plate surface so that one of the flat surfaces of the blank contacts the counter plate surface with the longitudinal axis of said edge being substantially parallel to the longitudinal axes of said grooves;



providing a punch having a plurality of longitudinal, substantially parallel, laterally spaced ridges, the number and lateral spacing of said ridges being equal to the number and lateral spacing of said grooves so that each ridge has an associated groove, each of said ridges having a substantially flat apex and side surfaces which are synclinal toward said apex, the spacing between the side surfaces of each groove being slightly greater than twice said predetermined thickness plus the width of the apex of the associated ridge; and

punching the other flat surface of said blank with said punch so that each ridge deforms the adjacent portion of said blank into a respective one of said grooves in order to produce one of said plurality of score lines in said blank.

5,064,410

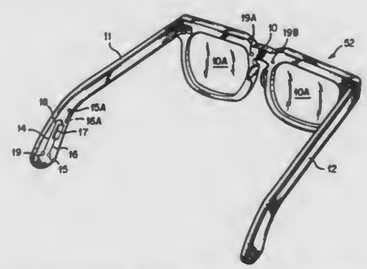
STRESS CONTROL SYSTEM AND METHOD

Richard E. Frenkel, and Barbara G. Frenkel, both of 33 Park Rd., Scarsdale, N.Y. 10583

Continuation-in-part of Ser. No. 680,888, Dec. 12, 1984, abandoned. This application Jun. 9, 1986, Ser. No. 872,143

Int. Cl.[5] A61M *21/00*

U.S. Cl. 600—26 14 Claims



1. A method of controlling stress in an individual comprising the steps of:

(a) testing the individual with an image reflecting device to determine stress associated colors for said individual;

(b) constructing a pair of eyeglasses containing lenses having a color which is stress-calming for the tested individual;

(c) unobtrusively carrying upon said pair of eyeglasses sensing means for determining at least two different stress levels in said individual, and alarm means connected to said sensing means for emitting two distinct signals respectively corresponding to each stress level;

(d) wearing said eyeglasses having said sensing and alarm means by said individual; and

(e) monitoring at least two stress levels in said individual wearing said eyeglasses, and in response to each stress level monitored, unobtrusively emitting color alarms, each respective alarm wherein only said individual is made aware of the alarms, and said alarms are stress-calming.

5,064,411

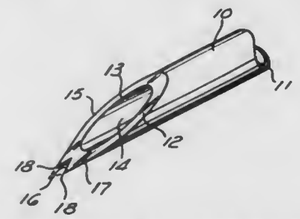
PROTECTIVE MEDICAL DEVICE

Kilbourn Gordon, III, 178 N. Deerwood, Orange, Calif. 92669

Division of Ser. No. 267,029, Nov. 4, 1988, abandoned. This application Jun. 22, 1990, Ser. No. 542,189

Int. Cl.[5] A61B *10/00, 17/00;* A61M *5/00;* F41H *1/02*

U.S. Cl. 604—48 43 Claims



19. A system for preventing skin-penetrating injury to a user of a sharpened invasive medical instrument, comprising in combination:

an article of protective fibrous clothing; and

a sharpened invasive medical instrument having at least two adjacent points in fixed relation to each other at the sharpened portion thereof, wherein said points are exposed to the user during use, and are separated from each other by a valley, wherein the distance between said points and the depth of said valley are sufficiently small that during engagement of said instrument and said clothing, said points entangle in the fibers of said clothing, and the depth of entangled fibers within the valley is equal to or greater than the depth of said valley, thereby preventing penetration of said instrument through said clothing into the skin of the user.

5,064,412

ULTRASONIC AIR-IN-LINE DETECTOR FOR A MEDICATION INFUSION SYSTEM

James L. Henke, Simi Valley, and Paul A. Koenig, Valencia, both of Calif., assignors to Pacesetter Infusion, Ltd., Sylmar, Calif.

Filed Sep. 5, 1989, Ser. No. 403,512

Int. Cl.[5] A61M *31/00*

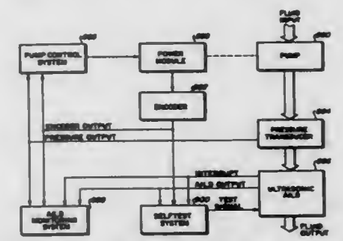
U.S. Cl. 604—65 20 Claims

1. A system for detecting the presence of a significant amount of air in fluid passing through a fluid passageway, comprising:

ultrasonic sensor means disposed adjacent said fluid passageway for providing an air-in-line output signal indicative of whether there is presently air or fluid in said fluid passageway at the location monitored by said ultrasonic sensor means;

means for monitoring the volume pumped through said fluid passageway, said monitoring means providing a volume output signal indicative of the volume pumped;

means, responsive to said air-in-line output signal and said volume output signal, for calculating the volume of air contained in the last predetermined volume pumped



through said fluid passageway, said calculating means providing as an output the volume of air contained in the last predetermined volume pumped; and

means for providing an alarm signal if the output from said calculating means is equal to or greater than a second predetermined volume.

5,064,413

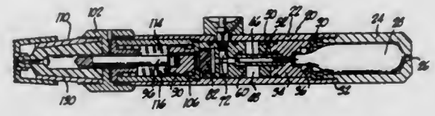
NEEDLELESS HYPODERMIC INJECTION DEVICE

Charles M. McKinnon, Laguna Niguel; Takaaki Nakagawa, Costa Mesa, both of Calif., and Carl E. Wilcox, Portland, Oreg., assignors to Bioject, Inc., Portland, Oreg.

Filed Nov. 9, 1989, Ser. No. 434,250

Int. Cl.[5] A61M *5/30*

U.S. Cl. 604—70 30 Claims



1. An injection device comprising:

a housing;

a plunger driver slidably disposed within said housing;

a pilot valve within said housing connectable to a compressed gas source; and

a main valve having a substantially unbiased main valve piston, said main valve operatively connected to said pilot valve, said pilot valve activatable to open said main valve such that compressed gas may flow by said main valve to drive said plunger driver.

5,064,414

LOCKING CLIP WITH SHEATH AND DILATOR

James E. Revane, Excelsior, Minn., assignor to Angeion Corporation, Plymouth, Minn.

Continuation of Ser. No. 386,204, Jul. 28, 1989, abandoned. This application Jan. 18, 1991, Ser. No. 642,930

Int. Cl.[5] A61M *25/06*

U.S. Cl. 604—165 1 Claim

1. In combination, a dilator with a hub, a sheath with tabs and a locking clip comprising:

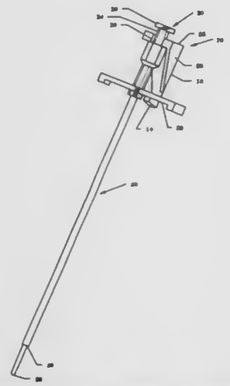
a. a tear-away sheath with tabs at a proximal end;

b. a dilator with a distal tip at a distal end and a hub at a proximal end inserted into said tear-away sheath; and

c. a locking clip including a back support, a snap ring on a snap ring support member at one end and a single only locking tooth at the other end, the snap ring engaged about said hub of said dilator and said locking tooth engaging a one of said tabs of said sheath whereby said

VOL 1132 ISS 2 NO 12 1991 UMI

locking clip releasably secures said hub of said dilator and said tab of said sheath to form an integral dilator-sheath-locking clip unit during an insertion procedure and said



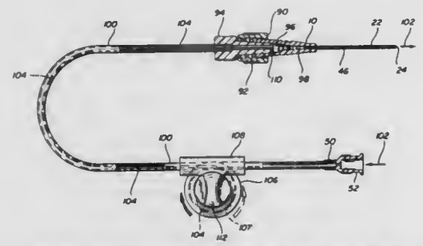
locking clip is releasably snapped away from said hub of said dilator and said tab of said sheath, thereby permitting withdrawal of said dilator after said insertion procedure.

5,064,415

CATHETER OBTURATOR WITH AUTOMATIC FEED AND CONTROL

Anthony J. Walder, Franklin, and Donald D. Solomon, Spring Valley, both of Ohio, assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Continuation-in-part of Ser. No. 427,422, Oct. 26, 1989, Pat. No. 4,976,697. This application Aug. 17, 1990, Ser. No. 568,923
The portion of the term of this patent subsequent to Dec. 11, 2007, has been disclaimed.
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—164 **8 Claims**



1. A catheter assembly for maintaining an infusion catheter in-place over a period of time, said assembly including an obturator rod and associated feeding arrangement therefor for feeding the obturator rod selectively into and out of the occluded position in the lumen of the said in-place catheter, while maintaining sterile conditions, comprising

(a) an infusion catheter;

(b) said catheter having a first end and a second end;

(c) a catheter main body connected to said catheter first end;

(d) said second end of said catheter for insertion into the blood vessel of a patient;

(e) a fluid feed line connected to said catheter main body at the end opposite said catheter;

(f) a lumen extending from said fluid feed line through said catheter main body and said catheter;

(g) an elongated semi-flexible obturator rod;

(h) said obturator rod having a first end and a second end;

(i) an obturator rod feed device positioned in said fluid feed line adjacent said obturator rod first end;

(j) said obturator rod feed device having

(1) a feed device body;

(2) said feed device body having a first end and a second end;

(3) said feed device body having an obturator rod passage extending from said first end to said second end;

(4) said feed device body first and second end connected to said fluid feed line;

(5) said obturator rod passage in flow communication with said fluid feed line which is connected to said catheter main body and said catheter lumen;

(6) means for feeding said obturator rod;

(7) said feeding means positioned on said first end of said feed device body;

(8) said feeding means including an obturator rod mover;

(9) said obturator rod mover connected to said first end of said obturator rod;

(10) said obturator rod mover for moving said second end of said obturator rod from a first position occluding said lumen of said catheter to a second position allowing fluid through and around said obturator rod in said fluid feed line and said lumen of said catheter connected to said fluid feed line;

(11) sealing means on said feeding means for sealing said obturator rod from exposure in said first position or said second disposition; and

(j) a hydrophilic polymer coating on said obturator rod;

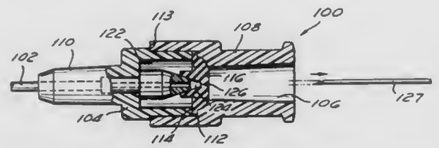
(k) said hydrophilic polymer coating capable of adsorbing a liquid and expanding to seal to said lumen wall of said catheter in the first position of said obturator rod second end.

5,064,416

SELF-OCCLUDING INTRAVASCULAR CANNULA ASSEMBLY

Kent W. Newgard, 1931 Beverly Glen Dr., Santa Ana, Calif. 92705, and Mark G. Gordon, 13591 Malena Dr., Tustin, Calif. 92680

Continuation-in-part of Ser. No. 199,118, May 26, 1988, Pat. No. 4,874,377. This application Jul. 17, 1989, Ser. No. 381,760
Int. Cl.[5] A61M *5/178*
U.S. Cl. 604—167 **11 Claims**



1. A self-occluding cannula assembly comprising:

a generally tubular cannula sheath having a proximal end, a distal end and an inner lumen extending axially therethrough;

a connecting hub formed on the proximal end of said cannula sheath, said connecting hub having an axial bore formed therein, said axial bore being fluidly consistent with the inner lumen of said cannula sheath; and

an occluding means comprising:

a generally frusto conical dilator projection formed within the bore of said connecting hub;

an elastomeric valving member having a peripheral portion and a mid-portion,

said elastomeric valving member being positioned transversely within the bore of said connecting hub, proximal to said dilator projection, with the peripheral portion thereof being axially compressed so as to cause the

exertion of radially inward pressure toward the mid-portion thereof; and

an elastically openable and closable aperture extending axially through the mid-portion of said valving member;

said peripherally compressed valving member being alternately movable between an "occluding" position wherein said openable and closable aperture remains closed so as to substantially preclude fluid flow through said cannula lumen; and a "non-occluding" position wherein the mid-portion of said valving member is advanced over at least a portion of said dilator projection such that the dilator projection exerts sufficient pressure against said valving member to cause said openable and closable aperture to assume an open configuration thereby allowing fluid flow through said cannula lumen; and

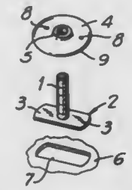
said valving member, when in said "non-occluding" position being sufficiently resilient to automatically return to said "occluding" position when said distally directed pressure is removed therefrom.

5,064,417

DEVICE FOR FASTENING A CATHETER TO A CRANIAL THECA FOR PERFORMING CEREBRO SPINAL FLUID DRAINAGE TO THE OUTSIDE OPERATIONS

Luciano Andreussi, Cagliari, Italy, assignor to Co Pharma Corporation S.R.L., Genoa, Italy

Filed Oct. 11, 1989, Ser. No. 420,093
Claims priority, application Italy, Oct. 11, 1988, 22259A/88
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—175 **4 Claims**



1. A device for fastening a catheter to a cranial theca, particularly for use for ventricular cerebro spinal fluid drainage to the outside in pediatric neurosurgery, comprising:

a screw having a lumen for receiving a catheter;

at least one transverse foot provided at a first end of said screw and arranged to be received and locked in place in an aperture in the cranial theca;

said foot having a length greater than its width, the length of said foot being greater than a length and a width of the aperture, and means for rotating said foot after insertion into the aperture; and

a means for locking said screw in place, said locking means fitted on a second end opposite said first end of said screw to bear on an outer surface of the cranial theca in liquid-tight contact, said locking means being a nut in the form of a concave disc, the concavity of which is directed towards the foot, and said disc having a central threaded hole to threadingly engage the screw.

5,064,418

FILTER MEANS FOR USE WITH SYRINGE AND NEEDLE

James J. Cronin, Mission Viejo, Calif., assignor to Microgon, Inc., Laguna Hills, Calif.

Continuation of Ser. No. 860,104, May 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 762,259, Aug. 5, 1985, abandoned. This application Apr. 4, 1990, Ser. No. 506,546
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—190 **2 Claims**

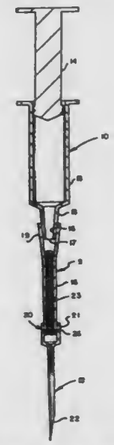
1. A filtering device, adapted to be used with a syringe and a needle, for filtering fluids drawn in or ejected from said syringe, said filtering device comprising:

(a) An elongate tubular body having a first mounting means on one end thereof adapted to be sealingly connected to the needle mounting on said syringe and a second mounting means on the opposite end thereof adapted to be sealingly connected to the cooperative syringe mounting means on said needle;

(b) Elongate microporous hollow filter fibres arranged longitudinally within said tubular body, said fibres being closed at one end thereof and open at the opposite end thereof; and,

(c) Flow blocking material arranged around said fibres for blocking flow through said tubular body other than through the material of said hollow fibres, said flow blocking material being provided at a position in said elongate tubular body to provide with said elongate microporous hollow filter fibres a reservoir of fluid around said hollow filter fibres to promote transverse flow of said fluid through the material of said hollow filter fibers,

(d) Said first mounting means being adapted to be connected to a male needle mounting means of conical configuration of a syringe and said second mounting means being



adapted to be sealingly connected to a female mounting means of conical configuration of a needle, said first and second mounting means being conical in configuration and adapted to mate with corresponding conical portions of said needle mounting means and said needle, the conical angle of said concial mounting being about 1' to 2', said flow blocking material being located in said tubular body adjacent the end of said tubular body having said second mounting means, the open end of said elongate microporous hollow fibres being adjacent the end of said tubular body having said second mounting means, the ratio of length to the outside diameter of said elongate tubular body being in the range of about 5 to 20, the porosity rating of said fibres being in the range of about 0.05 to about 1 micron and the packing density of said fibres being less than about 60%, the porosity of said fibres being greater than about 50%, the effective filtering area of said fibres being about 1 cm to about 10 cm the total length of said filtering device beinb about 0.5 inches to about 4 inches, the outside diameter of said elongate tubular body being about 0.10 inches to about 0.30 inches and, the inside diameter of said elongate tubular body being about 0.05 inch to about 0.20 inches.

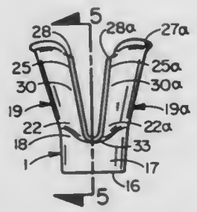
VOL
1132
ISS
2
NO
12
1991
UMI

5,064,419
DISPOSABLE HYPODERMIC SYRINGE
Knud W. Gaarde, DK-3050 Humlebæk, Denmark
PCT No. PCT/DK88/00116, § 371 Date Jan. 11, 1990, § 102(e) Date Jan. 11, 1990, PCT Pub. No. WO89/00435, PCT Pub. Date Jan. 26, 1989
PCT Filed Jul. 8, 1988, Ser. No. 458,637
Claims priority, application Denmark, Jul. 13, 1987, 3619/87
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—195 7 Claims



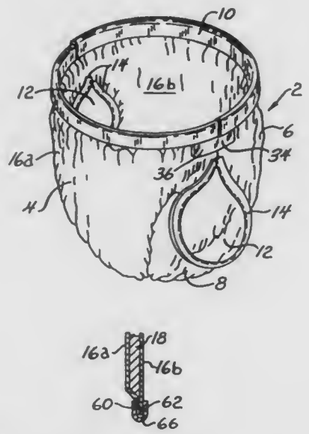
1. A disposable hypodermic syringe with a needle which can be retracted and held inside the syringe, comprising:
a hollow syringe barrel with two ends, containing a piston with an attached piston rod inserted in one end, said piston rod extending out of said end and a spring retainer attached to said syringe barrel at the other end;
a needle having a point at one end and a head attached to the other, said point extending out of said spring retainer;
a liquid chamber within said syringe barrel which has a yielding end wall opposite said piston, with an opening in said yielding end wall that is smaller then said needle head;
a spring within said spring retainer for maintaining pressure between said needle head and said opening in said yielding end wall, wherein the spring force is sufficient to maintain a liquid tight seal between said needle head and said opening of said yielding end wall; and
a cavity in said piston opposite said opening in said yielding end wall which receives said needle when the piston is pushed sufficiently forward to allow the head of the needle to pass through the opening in said yielding end wall.

5,064,420
EYELID OPENER
Gerald P. Clarke, and Jean Keen, both of Oshkosh, Wis., assignors to KC Medical Industries Corporation, Osbkosh, Wis.
Filed Nov. 16, 1990, Ser. No. 615,802
Int. Cl.[5] A61M *35/00*
U.S. Cl. 604—295 9 Claims



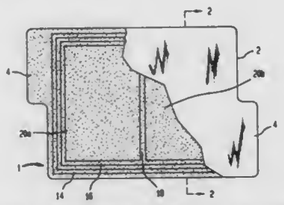
7. In combination with an ophthalmic bottle having a fluid holding chamber; a neck connected to the chamber and terminating in an end surface, the neck being threaded adjacent the end surface thereof; and a tip extending from the neck end surface, the bottle having a central axis formed by the intersection of first and second orthogonal planes,
an eyelid opener comprising:
a. collar means having a predetermined diameter generally concentric with the bottle central axis for removably engaging the threads on the bottle neck; and
b. a pair of wings symmetrical about the first and second orthogonal planes and having widths greater than the diameter of the collar means, the wings having respective first ends joined to the collar means and respective second ends, the first ends of the wings being joined to each other in a shoulder that extends across the collar means and in opposed generally U-shaped overhangs that are coplanar with the shoulder, the shoulder defining a hole therethrough sized to receive the bottle tip, the second ends of the wings terminating in outturned flanges sized and shaped to conform to substantially the contour of the human eyelid.

5,064,421
DISPOSABLE DIAPER WITH PADDED WAISTBAND AND LEGHOLES
Rhonda Tracy, 233 Grandview, Glen Ellyn, Ill. 60137
Continuation-in-part of Ser. No. 93,681, Sep. 8, 1987, abandoned. This application Apr. 30, 1990, Ser. No. 516,473
Int. Cl.[5] A61F *13/15, 13/20*
U.S. Cl. 604—385.1 5 Claims



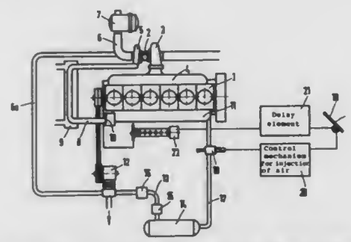
1. A disposable diaper comprising
body means being formed as a single piece having two enlarged opposed end portions and a narrowed intermediate portion disposed between said opposed end portions, said body means being arranged to be worn by an individual, said opposed end portions each having an opposite edge portion,
said body means including a layer of liquid absorbent material,
waist band means being formed on said opposite edge portions of said opposed enlarged end portions and being in contact with said layer of absorbent material,
said waist band means including a border section of plastic material covering said opposite edge portions of said body means,
attachment means affixed to one of said opposed end portions and having members to be affixed to the other of said opposed end portions, said waist band means forming a substantially continuous waist band of predetermined extent to be positioned generally around the waist of the individual,
said waist band means including external padding means extending along each of said opposite edge portions for generally covering the exposed surfaces of said waist band means, said padding means extending substantially the extent of said waist band means when worn by the individual,
said padding means includes strips of material formed from a soft substance and,
said strips of material covering only said border section of said waist band means for forming a soft surface for contact with the skin of the individual.

5,064,422
TWIN PATCH APPLICATOR
John J. Wick, Williston, Vt., assignor to Bertek, Inc., Swanton, Vt.
Filed Oct. 18, 1990, Ser. No. 599,686
Int. Cl.[5] A61F *13/00*
U.S. Cl. 604—307 18 Claims



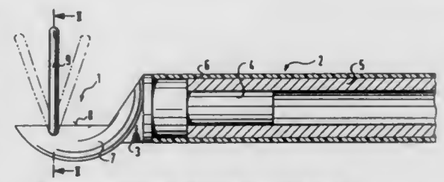
1. A device for applying a plurality of active agents to a patient comprising a removable liner layer including a first surface and a second surface, said first surface of said liner layer comprising a releasable surface, a carrier layer including a first surface and a second surface, and a plurality of active agent carrying members disposed on said first surface of said carrier layer, said first surface of said liner layer being releasably heat sealed to said first surface of said carrier layer at least at a location between said plurality of active agent carrying membes so as to physically separate said plurality of active agents prior to removal of said removable liner layer from said carrier layer, whereby removal of said removable liner layer eliminates said heat seal.

5,064,423
ACCELERATION AID FOR AN INTERNAL COMBUSTION ENGINE HAVING AN EXHAUST-DRIVEN TURBOCHARGER
Jürgen Lorenz; Jürgen Ensner, and Nunzio D'Alfonso, all of Nuremberg, Fed. Rep. of Germany, assignors to MAN Nutzfahrzeuge Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Feb. 27, 1990, Ser. No. 485,601
Claims priority, application Fed. Rep. of Germany, Feb. 28, 1989, 3906312
Int. Cl.[5] F02B *33/44*
U.S. Cl. 60—611 7 Claims



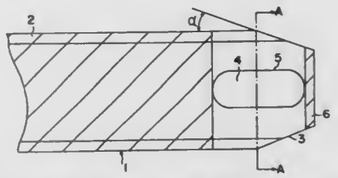
1. In an auxiliary combustion air supply arrangement for an internal combustion engine having a combustion air supercharger that is driven by an exhaust ga turbine and that has disposed in its air line, immediately prior to entry thereof into the intake manifold of said internal combustion engine, an automatic valve that is opened when an air stream flows in the direction toward said intake manifold, whereby during time periods characterized by a lack of sufficient exhaust gas energy, in order to increase the supply of air to said intake manifold, auxiliary combustion air is obtained directly from a compressed air tank and is supplied to said intake manifold via an appropriate control mechanism, the improvement including:
a delay element as part of a fuel injection system, whereby said control mechanism for air injection, as well as said delay element, are actuated by operation of a gas pedal associated with said internal combustion engine, as a result of which the supply of said auxiliary combustion air precedes the fuel injection that is demanded, and an injection of the full fuel injection quantity is not initiated until later, either in a sudden manner or pursuant to a slowly rising increase curve.

5,064,424
ELECTRO-SURGICAL INSTRUMENT
Ehrenfried Bitrolf, Knittlingen-Kleinvillars, Fed. Rep. of Germany, assignor to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany
Filed Mar. 6, 1990, Ser. No. 488,902
Claims priority, application Fed. Rep. of Germany, May 18, 1989, 3916161
Int. Cl.[5] A61B *17/39*
U.S. Cl. 606—46 5 Claims



1. An electro-surgical instrument comprising:
a probe stem having a longitudinal axis and a distal end, and:
an electrode connectable to an HF source and situated at the distal end of the probe stem;
wherein the electrode comprises a part-spherical portion, the part-spherical portion having a substantially planar face, and an annular portion upstanding from said planar face of the part-spherical portion.

5,064,425
ANCHORING MEMBER FOR ANCHORAGE IN BONE TISSUE
Per-Ingvar Brånemark, Mölndal; Einar Jörgensen, Hisingskärra; Lars Jönéus, Gothenburg; Kjell O. Hagberg, Gothenburg; Lennart Lööf, Gothenburg, and Carl A. Morenius, Mölndal, all of Sweden, assignors to The Institute for Applied Biotechnology, Gothenburg, Sweden
Filed Aug. 11, 1987, Ser. No. 84,229
Int. Cl.[5] A61F *5/04;* A61C *8/00*
U.S. Cl. 606—72 12 Claims



1. An elongated generally cylindrical body member adapted for permanent anchoring of its lower end into bone tissue and constructed to support an attached device such as a tooth at its upper end, said body member having;
(a) an external screw thread formed in its outer generally cylindrical surface;
(b) at least one cavity defined therein adjacent its lower end,

VOL 1132 ISS 2 NO 12 1991 UMI

each said cavity forming at its intersection with said screw thread at least one cutting edge for self-tapping as said body member is screwed into the bone tissue;

(c) said at least one cavity defining a total volume within the outer surface of said body member sufficient to retain all the bone tissue material which is removed as a result of the self-tapping operation; and

(d) said generally cylindrical body member having a closed, imperforate bottom end and said at least one cavity stopping short of the lowermost end of said body member so as to maintain the bottom end of said body member imperforate;

whereby the screwing of said body member into a pre-formed receiving aperture formed into said bone tissue causes the resulting particles of bone tissue to collect in said at least one cavity, thereby promoting the securing of said body member into said aperture, while the bottom of said receiving aperture remains free of said bone particles because of the closed imperforate bottom end of said member.

5,064,426

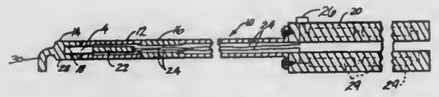
APPARATUS FOR REMOVAL OF BONE CEMENT

Donald L. Huebsch, 3716 Prestwick Dr., Los Angeles, Calif. 90027

Division of Ser. No. 232,506, Aug. 15, 1988, Pat. No. 4,873,969, which is a continuation-in-part of Ser. No. 131,830, Dec. 11, 1987, abandoned. This application Mar. 7, 1989, Ser. No. 319,949

Int. Cl.[5] A61F *7/00;* **A61B** *17/00*

U.S. Cl. 606—92 **16 Claims**



1. A surgical instrument for use in removing bone cement from a bone cavity, comprising:

an elongated shaft of sufficient length to extend far enough into the bone cavity to mold bone cement forming a wall of the cavity,

a bone cement removal tool on a working end of the shaft for use in removing bone cement form the wall of the bone cavity,

a heating element carried by the shaft for transferring heat from the shaft to the bone cement removal tool for heating the tool to a temperature within a range of temperatures sufficient to plasticize the bone cement and thereby deform and weaken it upon direct contact with the heated bone cement removal tool, and

at least one tangential point protection member affixed to and integral with the shaft and in heat transfer communication with the shaft, the tangential point protection member projecting laterally away from an exterior side wall of the shaft adjacent the bone cement removal tool, the tangential point protection member having an exterior wall surface that converges to an outermost peripheral edge that produces point contact when the member is moved into engagement with the wall of a surrounding bone cavity, so that lateral movement of the heated shaft toward the bone wall will cause the outermost peripheral edge of the tangential point protection member to preferentially contact the bone wall to prevent direct contact of the bone wall with the heated shaft sufficiently to prevent damaging heat transfer from the heated shaft to the wall of the bone.

5,064,427

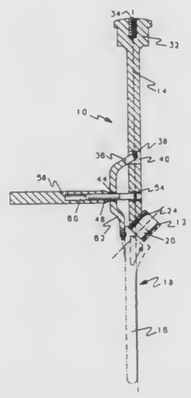
APPARATUS FOR INSERTING AND WITHDRAWING HUMERAL PROSTHESIS

Brian D. Burkinshaw, Pflugerville, Tex., assignor to Intermedics Orthopedics, Inc., Austin, Tex.

Filed May 14, 1991, Ser. No. 700,530

Int. Cl.[5] A61F *2/00, 2/40;* **A61B** *17/56*

U.S. Cl. 606—99 **6 Claims**



1. An apparatus for inserting and withdrawing a humeral prosthesis from a humerus, the apparatus comprising

a shaft for transmitting forces to the prosthesis;

a sleeve mounted on a distal end of said shaft, said sleeve having a central bore oriented at an acute angle with respect to said shaft for receiving a neck of said prosthesis; and

pivoting arm means pivotally connected to said shaft for clamping against said prosthesis.

5,064,428

MEDICAL RETRIEVAL BASKET

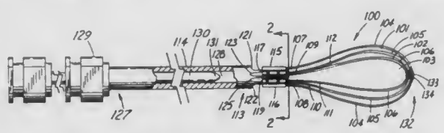
Constantin Cope, Elkins Park, Pa.; Scott E. Boatman, and Joseph W. Roberts, both of Bloomington, Ind., assignors to Cook Incorporated, Bloomington, Ind.

Filed Sep. 18, 1990, Ser. No. 584,474

The portion of the term of this patent subsequent to Oct. 15, 2008 has been disclaimed.

Int. Cl.[5] A61B *17/22*

U.S. Cl. 606—127 **21 Claims**



1. A medical retrieval basket comprising:

a first elongated member having a proximal end, a distal end, and a hollow passageway longitudinally positioned therebetween;

a first superelastic metallic alloy wire having first and second ends attached to said distal end of said first elongated member and forming a first loop extending longitudinally and distally from said distal end of said member; and

a second superelastic metallic alloy wire having first and second ends attached to said distal end of said member, forming a second loop extending longitudinally and distally from said distal end of said member, and interconnected distally to said first loop.

5,064,429

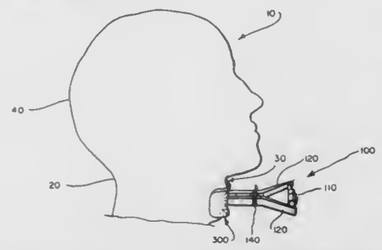
SKIN GATHERING AND HOLDING DEVICE

Glenn N. Waterman, Holladay, and Fredrick A. Gibbs, Salt Lake City, both of Utah, assignors to Diacor, Inc., Salt Lake City, Utah

Filed Nov. 19, 1990, Ser. No. 615,566

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—151 **22 Claims**



1. Skin clamping structure for releasibly holding skin away from a treatment site during medical therapy, said clamping structure comprising:

radiation-transparent dermal grasping means comprising opposed surface means each of substantial area which contiguously engage skin and attachment means;

clamping means comprising connection means by which the clamping means are connected to the attachment means, bias means, bifurcated bias applying means by which the opposed surface means are caused to be biased toward each other and manual actuation means by which the bias applying means are selectively displaced counter to the bias to open the opposed surface means.

5,064,430

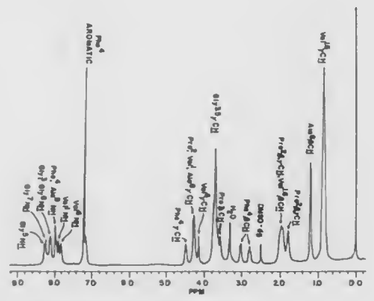
POLYNONAPEPTIDE BIOELASTOMERS HAVING AN INCREASED ELASTIC MODULUS

Dan W. Urry, Birmingham, Ala., assignor to UAB Research Foundation, Birmingham, Ala.

Continuation-in-part of Ser. No. 13,343, Feb. 11, 1987, abandoned, which is a division of Ser. No. 793,225, Oct. 31, 1985, Pat. No. 4,693,718. This application Feb. 23, 1989, Ser. No. 314,115

Int. Cl.[5] A61F *2/06;* **A61K** *37/02*

U.S. Cl. 623—1 **18 Claims**



1. A polynonapeptide of the formula:

$$-X-(\alpha\beta\gamma\delta\epsilon\theta\lambda\pi\rho)_n-Y-$$

wherein:

α is a peptide-forming residue of L-Valine or another peptide-forming residue capable of functioning in position i of a β-turn in a polypeptide;

β is a peptide-forming residue of L-Proline or another peptide-forming residue capable of functioning in position i+1 of a β-turn in a polypeptide;

γ is a peptide-forming residue of L-Glycine or another peptide-forming residue capable of functioning in position i+2 of a β-turn in a polypeptide;

δ is a peptide-forming residue of L-Phenylalanine or another peptide-forming residue capable of functioning in position i+3 of a β-turn in a polypeptide; ϵ is a peptide-forming residue of Glycine or D-Alanine, when functioning as position i' of a subsequent β-turn in a polypeptide when δ is as defined, or ϵ is as defined for α when δ is Glycine or D-Alanine;

θ is a peptide-forming residue of L-Valine or another peptide-forming residue as defined above for α, or when functioning as position (i+1)' of a subsequent β-turn in a polypeptide, θ is a peptideforming residue as defined above for β;

λ is a peptide-forming residue of Glycine, D-Alanine or another peptide-forming residue as defined for γ, when functioning as position (i+2)' of a subsequent β-turn in a polypeptide;

π is a peptide-forming residue of L-Alanine or another peptide-forming residue as defined for δ, when functioning as position (i+3)' in a subsequent β-turn in a polypeptide, or a direct bond; and

ρ is a peptide-forming residue of Glycine, or D-Alanine; another peptide-forming residue as defined for δ, when

wherein X is $\beta\gamma\delta\epsilon\theta\lambda\pi\rho$, $\gamma\delta\epsilon\theta\lambda\pi\rho$, $\delta\epsilon\lambda\pi\rho$, $\epsilon\theta\lambda\pi\rho$, $\theta\lambda\pi\rho$, $\lambda\pi\rho$, $\pi\rho$, ρ or a direct bond; Y is $\alpha\beta\gamma\delta\epsilon\theta\lambda\pi$, $\alpha\beta\gamma\delta\epsilon\theta\lambda$, $\alpha\beta\gamma\delta\epsilon\theta$, $\alpha\beta\gamma\epsilon$, $\alpha\beta\gamma\delta$, $\alpha\beta\gamma$, $\alpha\beta$, α or a direct bond; and n has a value of 1 to about 5,000; and with the proviso that no more than three of residues ϵ, θ, λ, π and ρ are simultaneously a peptide-forming residue of Glycine.

5,064,431

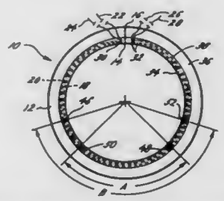
ANNULOPLASTY RING

Charles H. Gilbertson, Mendota Heights; William S. Nettekoven, Stillwater, and Mark W. Cater, St. Louis Park, all of Minn., assignors to St. Jude Medical Incorporated, St. Paul, Minn.

Filed Jan. 16, 1991, Ser. No. 641,914

Int. Cl.[5] A61F *2/24, 2/02*

U.S. Cl. 623—2 **16 Claims**



8. An adjustable annuloplasty ring for an orifice, comprising:

a flexible fabric tube formed in the shape of a ring,

means for dividing the tube into an inner channel and an outer channel which functions as a sewing flange by which the ring may be sutured to tissue surrounding the orifice,

at least one drawstring slidably disposed within the inner channel whereby the size and shape of the ring may be adjusted, and suturing the tube through the outer channel does not interfere with the adjustment of the ring by the drawstring.

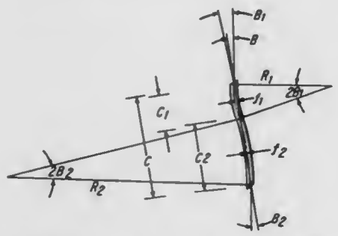
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,432

BICURVED LEAFLET(S) PROSTHETIC HEART VALVE

Thomas H. Reif, Milton, Fla., assignor to Republic Medical Products Inc., Milton, Fla.

Division of Ser. No. 375,253, Jun. 30, 1989, Pat. No. 4,950,287.
This application May 25, 1990, Ser. No. 529,200
Int. Cl.[5] A61F *2/24*
U.S. Cl. 623—2 4 Claims



1. A mechanical artificial heart valve comprising:
a) one or more leaflets,
b) means forming an annular shaped orifice,
c) said leaflets being attached to said means forming the orifice, said attachment via a pivot being eccentrically hinged,
d) said leaflets being bicurved in shape, said curvatures being formed by intersecting circular arcs, with which said circular arcs sweep two chords and each arc forms a small semi-circular shaped air foil with cambers, said two arcs intersecting where two generating circles contact and as the two generating circles contact, the two chords are other than parallel;
e) a tangent to an arc at a leading edge of said leaflets being parallel to forward flow during valve open positioning,
f) a tangent to an arc at a trailing edge of said leaflets also being parallel to forward flow during valve open positioning,
g) a ratio of the chord of the leading edge arc to the chord of trailing edge arc of said leaflets being definitely less than 1, and
h) the forward flow through the heart valve remaining attached to the said leaflet because of the predominantly accelerating flow through the said orifice;
radii of curvatures of intersecting circular arcs being unequal; and
two generating circles for a leaflet intersect at more than one point so that cords c_1 and c_2 are other than parallel to cause the effective angle of attack B to be other than equal to the angle formed by the chords c_1 and c_2.

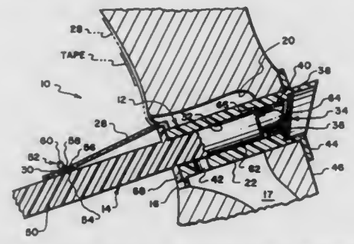
5,064,433

VOICE PROSTHESIS INSERTION ASSEMBLIES

Eric D. Blom, Indianapolis, Ind., and Frederick L. Coe, Santa Barbara, Calif., assignors to Helix Medical, Inc., Santa Barbara, Calif.

Filed Mar. 5, 1990, Ser. No. 487,782
Int. Cl.[5] A61B *1/00*
U.S. Cl. 623—9 18 Claims

1. A voice prosthesis insertion assembly comprising a voice prosthesis device and a placement tool for positioning said device in a fistula connecting a trachea and an esophagus of a patient, said voice prosthesis device having first attachment means formed thereon and said placement tool having second attachment means molded integrally and homogeneously thereon for detachably joining said first attachment means on said device with said second attachment means on said tool during positioning of said device in said fistula wherein said voice prosthesis device includes a longitudinally extending housing with a tab projecting radially outwardly therefrom, said first attachment means on said voice prosthesis device comprising a hole formed on said tab, and said second attachment means on said tool comprising a post molded integrally



and homogeneously thereon, said post being structured and dimensioned to interconnect with said hole.

5,064,434

GENITOURINARY IMPLANT

Terry M. Haber, 25011 Castlewood, El Toro, Calif. 92630

Continuation of Ser. No. 504,761, Apr. 4, 1990, abandoned. This application Jan. 28, 1991, Ser. No. 647,680
Int. Cl.[5] A61F *2/02*
U.S. Cl. 623—11 13 Claims



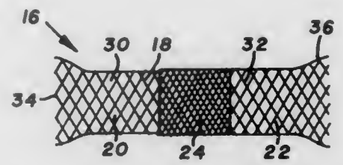
1. An implant for volumetrically increasing the volume of a body portion comprising:
an elastomerically expandable, elongated, generally tubular membrane having an open end;
expansion means disposed within the membrane including a plurality of elongated members extending over a portion of the length of the membrane and means for moving the elongated members radially outward to thereby correspondingly radially expand the membrane;
actuator means operatively coupled with the expansion means for activating the moving means from an exterior of the body tissue while the membrane and the expansion means is surrounded by body tissue; and
release means for permitting the separation of the actuator means from the expansion means after the desired radial expansion of the membrane has been achieved.

5,064,435

SELF-EXPANDING PROSTHESIS HAVING STABLE AXIAL LENGTH

Christopher H. Porter, Woodenville, Wash., assignor to Schneider (USA) Inc., Minneapolis, Minn.

Filed Jun. 28, 1990, Ser. No. 544,923
Int. Cl.[5] A61F *2/04*
U.S. Cl. 623—12 26 Claims



1. A device for fixation in a body cavity, comprising:
a stent including generally tubular and coaxial first and second open weave stent segments slidably engaged along respective first and second axially inward portions overlapping one another to form a medial region of the stent, said stent segments further including respective non-overlapping first and second axially outward regions including respective and opposite first and second ends of the stent;
said stent segments, at least along said axially inward portions, having a predetermined first diameter and a predetermined first axial length, said stent segments being radially compressible to a second diameter less than said first diameter and to a second axial length longer than said first axial length, to facilitate an axial insertion of said stent into a body cavity for delivery to a selected location therealong and subsequent fixation of the stent within the cavity by effecting an engagement of the stent segments with a tissue wall segment defining said body cavity; and
wherein said first and second axially inward portions slide relative to one another to reduce the axial length of said medial region as said stent segments radially expand into said engagement, thus to maintain a substantially constant axial length of said stent during said radial expansion.

5,064,436

BONE PROSTHETIC MATERIAL

Makoto Ogiso; Tetsuro Ogawa; Takeshi Ichitsuka, and Masahide Inoue, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo K.K., Tokyo, Japan

Continuation of Ser. No. 55,083, May 28, 1987, abandoned. This application Jul. 3, 1989, Ser. No. 373,708
Claims priority, application Japan, May 28, 1986, 61-123132
Int. Cl.[5] A61F *2/28*
U.S. Cl. 623—16 5 Claims



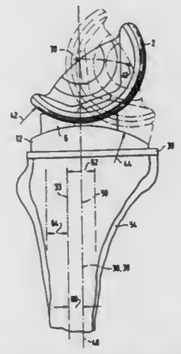
1. A bone prosthetic material composed of porous calcium phosphate group based granules having homogeneous sized open cells with an average pore size of 0.01–10 μm, wherein said granules have on average at least one of said open cells within a surface area of $(10\ \mu m)^2$ and the cells are homogeneously distributed and in direct contact with one another.

5,064,437

KNEE JOINT ENDOPROSTHESIS

Dietrich Stock, Braunschweig; Walter Hund, Oberkirch-Stadelhofen, and Friemut Vizethum, Schwetzingen, all of Fed. Rep. of Germany, assignors to Friedrichsfeld AG Keramik- und Kunststoffwerke, Mannheim, Fed. Rep. of Germany

Filed Feb. 11, 1991, Ser. No. 653,239
Claims priority, application Fed. Rep. of Germany, Feb. 16, 1990, 4004787; Mar. 23, 1990, 4009360
Int. Cl.[5] A61F *2/38*
U.S. Cl. 623—20 15 Claims



1. A knee-joint endoprosthesis comprising a femoral part (2), a meniscus element (8) and a tibial part (12), wherein the femoral part (2) and the tibial part (12) have bearing surfaces which contact associated bearing surfaces (8, 10) on the meniscus element (6); the bearing surface (4) of the femoral part (2) has a spherical configuration and lies in contact with a spherically concave bearing surface (8) of the meniscus element (6); the bearing surface (14) of the tibial part (12) has a convex cylindrical configuration and lies in contact with a coaxial, cylindrically concave bearing surface (10) of the meniscus element (6), whereby the meniscus element (6) is positively guided on the cylindrical bearing surface (14) and secured against rotation relative to the tibial part about an axis extending radially of the cylindrical tibial bearing surface and through the center (32) of the femoral part (2).

5,064,438

ARTIFICIAL JOINTLESS FOOT

Max Naeder, Duderstadt, Fed. Rep. of Germany, assignor to Otto Bock Orthopaedische Industrie Besitz- und Verwaltungs-Kommanditgesellschaft, Duderstadt, Fed. Rep. of Germany

Continuation of Ser. No. 54,447, May 27, 1987, abandoned. This application Nov. 7, 1988, Ser. No. 268,620
Claims priority, application Fed. Rep. of Germany, Dec. 29, 1986, 3644613
Int. Cl.[5] A61F *2/66*
U.S. Cl. 623—55 20 Claims

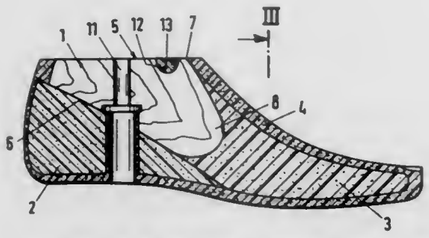
1. An artificial foot comprising:
a) a non-articulate incompressible core which comprises
an underside which slopes upwards from front to rear of said foot,
an upper connecting surface of a given length disposed in an ankle region of said foot for non-articulate ankle attachment of said foot to an artificial leg, and
an extension forwardly extending into an instep region of said foot, said extension decreasing in height towards

VOL 1132 ISS 2 NO 12 1991 UMI

said front, wherein said core extends horizontally from a front edge on said upper connecting surface into said instep region only by an amount corresponding to less than about half of said length on said connecting surface;

b) a heel wedge connected to said underside of said core;

c) a non-articulate, unreinforced, flexible inner foot member adjoining both a front surface of said core within said instep region and a front side of said heel wedge, said inner foot member being flexible for substantial bending within said instep region and extending into a toe region of said



foot, said core, said inner foot member and said heel wedge being interconnected without any articulate joints therebetween; and

d) a soft, easily deformable skin-forming layer completely surrounding said core, said inner foot member and said heel wedge, with the exception of said upper connecting surface of said core, such that the restoring force of said skin-forming layer is less than the restoring force of said inner foot member;

wherein the elastic properties of said foot are determined solely by said inner foot member, said heel wedge and said skin-forming layer.

5,064,439

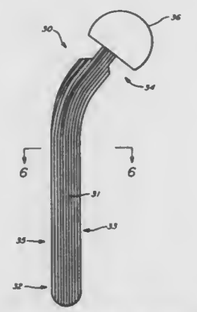
ORTHOPEDIC DEVICE OF BIOCOMPATIBLE POLYMER WITH ORIENTED FIBER REINFORCEMENT

Fu-Kuo Chang, Palo Alto, Calif.; Kenneth Reifsnider, Blacksburg, Va.; James A. Davidson, Germantown, and Frederick S. Georgette, Memphis, both of Tenn., assignors to Richards Medical Company, Memphis, Tenn.

Filed Jan. 20, 1987, Ser. No. 5,091

Int. Cl.[5] A61F *2/28*

U.S. Cl. 623—66 **36 Claims**



1. A method of making a prosthetic device of a composite of reinforcing fibers embedded in a matrix of biocompatible polymeric material, wherein the prosthesis body has an elongate dimension such that in the body the resultant of the forces applied to the prosthetic device is substantially along the axis of the elongate dimension, the method comprising the steps of:

(a) stacking a first plurality of prepregs formed of reinforcing fibers in a polymer matrix onto a receiving surface defining a curve along the elongate dimension of the prepregs, the prepregs each comprising continuous fibers oriented parallel to each other within the plane of the prepreg and impregnated with a biocompatible thermoplastic polymer;

(b) applying heat and pressure to the prepregs to bond them together and form a composite blank; and

(c) shaping the composite blank into a prosthetic device.

5,064,440

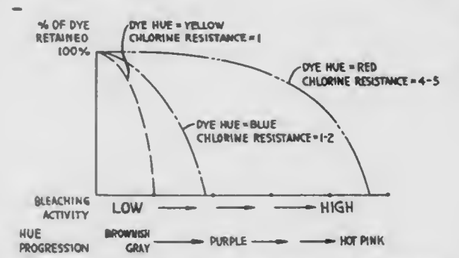
LAUNDRY EVALUATION PIECE INCLUDING BLEACHING ACTIVITY INDICATOR SWATCH

Eugene R. Howard, Breese, and Terry K. Anderson, Edwardsville, both of Ill., assignors to Artex International, Inc., Highland, Ill.

Filed Feb. 12, 1990, Ser. No. 478,829

Int. Cl.[5] D06L *3/06*

U.S. Cl. 8—137 **6 Claims**



1. For use in monitoring laundry solutions, a chlorine concentration indicator comprising

a fabric swatch dyed to an initial color by a combination of dyes with

a first dye of a chosen hue and having a known chlorine resistance and

a second dye of greater clorine resistance than that of the first dye and the hue of said second dye being visually distinguishable from the hue of said first dye,

whereby on inclusion in a laundry solution containing chlorine, hue change of said swatch from the initial color toward the hue of said second dye serves as a visual indicator of the chlorine activity of the laundry solution.

5,064,441

HAIR TREATMENT COMPOSITION, BLEACHING COMPOSITION AND HAIR COLOR TONE MODIFIER COMPOSITION

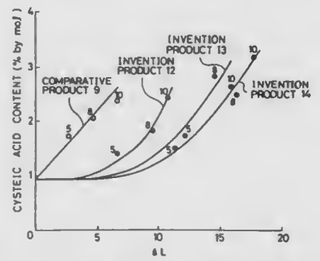
Jiro Kawase, Funabashi; Kazuo Ukaji, Chiba, and Emi Nagashima, Ichikawa, all of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Apr. 19, 1990, Ser. No. 511,216

Claims priority, application Japan, Apr. 24, 1989, 1-103977

Int. Cl.[5] A61K *7/13*; D06L *3/02*

U.S. Cl. 8—405 **4 Claims**

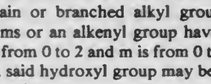


1. A hair color tone modifier composition comprising:

(1) a first hair treatment composition comprised of:

(a) a ferrous salt, and

(b) a non-reducing organic chelate-forming compound having the formula (II):



$$R^1(CO)_nR^2—COOH \quad (II)$$
$$(OH)_m$$

wherein R and R may be the same of different and wherein R represents a hydrogen atom, a straight-chain or branched alkyl group having one to five carbon atoms or an alkenyl group having one to five carbon atoms, and wherein R represents a straight-chain or branched alkyl group having one to five carbon atoms or an alkenyl group having one to five carbon atoms, n is from 0 to 2 and m is from 0 to 6, and wherein when m is 1 to 6, said hydroxyl group may be bound at any position on said R; and

wherein said non-reducing organic chelate-forming compound (II) is capable of forming a chelate compound with a ferrous ion having a pH of from 3 to 6, wherein the stability constant (K_1) between said ferrous ion and said non-reducing organic chelate-forming compound is lower than 3 and wherein said ferrous salt, which is the chelate compound is highly soluble in water; and

(2) a second aqueous composition containing 0.01 to 3% by weight of hydrogen peroxide having a pH from 3 to 6, wherein a direct dye is added to either composition (1) or (2).

5,064,442

PROCESS FOR DYEING KERATINOUS FIBRES AND DYEING COMPOSITION USING AN INDOLE DERIVATIVE, A QUINONE DYE AND AN OXIDIZING SYSTEM

Jean F. Grollier, Paris, France, assignor to L'Oreal, Paris, France

Continuation of Ser. No. 301,398, Jan. 25, 1989, abandoned. This application Jan. 3, 1991, Ser. No. 637,151

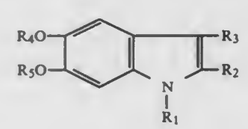
Claims priority, application Luxembourg, Jan. 26, 1988, 87113

Int. Cl.[5] A61K *7/13*

U.S. Cl. 8—407 **39 Claims**

1. A process for dyeing keratinous fibers comprising applying to said fibers at least one composition (A) containing in a medium suitable for dyeing said fibers,

(a) at least one indole derivative having the formula



(I)

wherein

R_1 represents hydrogen, lower alkyl or $—SiR_6R_7R_8$,

R_2 and R_3, each independently, represent hydrogen, lower alkyl, carboxyl, lower alkoxycarbonyl or $—COOSiR_6R_7R_8$,

R_4 and R_5, each independently, represent hydrogen, linear or branched C_1–C_{20} alkyl, formyl, linear or branched C_2–C_{20} acyl, linear or branched C_3–C_{20} alkenoyl, $—SiR_6R_7R_8$, $—P(O)(OR_9)_2$ or R_9OSO_2, or R_4 and R_5 together with the oxygen atoms to which they are attached form a ring optionally containing a carbonyl group, a methylene group, a thiocarbonyl group, a



group or a

VOL 1132 ISS 2 NO 12 1991 UMI



group.

R_9 and R_{10} represent hydrogen or lower alkyl,

R_{11} represents lower alkoxy, monoalkylamino or dialkylamino, and

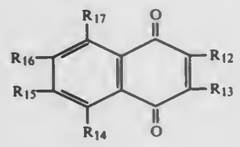
R_6, R_7 and R_8, each independently, represent linear or branched alkyl, and

the acid addition salt thereof with an inorganic or organic acid or the corresponding alkali metal, alkaline earth metal or amine salt thereof,

said indole derivative being present in said composition (A) in an amount ranging from 0.01 to 5 percent by weight based on the total weight of said composition (A),

(b) at least one quinone dye selected from the group consisting of

(i) 1,4-hydroxynaphthoquinone having the formula



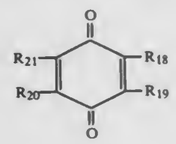
(II)

wherein

when R_{12} represents OH, R_{13} represents hydrogen, halogen, hydroxyl, alkoxy, nitro, alkyl or acyl, and R_{14}, R_{15}, R_{16} and R_{17}, each independently, represent hydrogen, hydroxyl, alkoxy, alkyl or acyl; or

when R_{14} represents OH, R_{12} and R_{13}, each independently, represent hydrogen, methyl, methoxy, nitro or halogen; R_{15} and R_{16}, each independently, represent hydrogen, hydroxyl, methyl or methoxy; and R_{17} represents hydrogen, methyl or methoxy;

(ii) a benzoquinone derivative having the formula



(III)

wherein

R_{18}, R_{19}, R_{20} and R_{21}, each independently, represent hydrogen, hydroxyl, alkoxy, alkyl, hydroxylated alkyl, phenyl, or OH-substituted phenyl, with the provisos that at least one of R_{18}, R_{19}, R_{20} and R_{21} is other than hydrogen and that R_{18} and R_{21}, or R_{19} and R_{20} are not alkyl simultaneously, and that when one of R_{18}, R_{19}, R_{20} and R_{21} represents methyl, hydroxy or methoxy, at least one of the other substituents is other than hydrogen, and that when two of R_{18}, R_{19}, R_{20} and R_{21} are identical and are situated para relative to each other and represent hydroxyl or methoxy, at least one of the other two substituents is other than hydrogen; and

(iii) a hydroxyanthraquinone selected from the group consisting of 1,2-dihydroxyanthraquinone, 1,4-dihydroxyanthraquinone, 1,2,4-trihydroxyanthraquinone, 1,2,7-trihydroxyanthraquinone, 1,2,5,8-tetrahydroxyanthraquinone, 3-carboxyl-1,2,4-trihydroxyanthraquinone, 2-carboxyl-1-methyl-3,5,6,8-tetrahydroxyanthraquinone, 3-sulpho-1,2,4-trihydroxyanthraquinone, 3-sulpho-1,2-dihydroxyanthraquinone, 5,8-dichloro-1,4-dihydroxyanthraquinone and 3-hydroxymethylanthraquinone,

said quinone dye being present in said composition (A) in an amount ranging from 0.01 to 5 percent by weight based on the total weight of said composition (A),

developing a color on said fibers using an oxidizing system selected from the group consisting of:

(i) a source of iodide ions and hydrogen peroxide, in which case said composition (A) contains either (a) a source of iodide ions or (b) hydrogen peroxide and the application of said composition (A) is preceded or followed by the application of composition (B) comprising in a medium suitable for dyeing said fibers

(a') hydrogen peroxide at a pH ranging from 2 to 12 when said composition (A) contains a source of iodide ions, or

(b') a source of iodide ions at a pH ranging from 3 to 11 when said composition (A) contains hydrogen peroxide;

(ii) a nitrite source, in which case the application of said composition (A) is followed by the application of composition (B') comprising an aqueous composition having an acidic pH, said composition (A) or said composition (B') containing at least one said nitrite source;

(iii) an oxidizing agent selected from the group consisting of periodic acid, a periodate, sodium hypochlorite, potassium ferricyanide, silver oxide, Fenton's reagent, lead (IV) oxide, cesium (V) sulphate, ammonium persulfate and ferric chloride, said oxidizing agent being present in said composition (A) or being applied to said fibers simultaneously or sequentially, separately in a composition (B'') comprising a medium suitable for dyeing said fibers and said oxidizing agent; and

(iv) an oxidizing agent selected from the group consisting of a permanganate and a dichromate, said oxidizing agent being present in an aqueous composition (B''') having a pH ranging from 2 to 10, said composition (B''') being applied to said fibers prior to the application of said composition (A) thereto.

5,064,443

PROCESS FOR DYEING TEXTILES IN A NON-UNIFORM FASHION AND RESULTING TEXTILE PRODUCTS

Francesco Ricci, Sanitarcangelo di Romagna, Italy, assignor to Golden Trade S.R.L., Italy

Filed Feb. 2, 1988, Ser. No. 151,479

Claims priority, application Italy, Jul. 6, 1987, 21185 A/87

Int. Cl.[5] D06P *5/00*

U.S. Cl. 8—479 **19 Claims**

1. A method of producing a non-uniformly dyed textile which is in a wet or dry condition comprising the steps of:

(a) impregnating granules of a rigid, coarse, permeably material with a dye;

(b) placing the impregnated granules and the textile together in a rotatable chamber;

(c) dyeing said textile in a dry state by dry-tumbling the textile and the granules together for a period of time sufficient to produce a random dyed effect on the textile; and

(d) recovering the granules following their separation from the randomly-dyed textile.

5,064,444

PROCESS FOR THE ALLOTHERMIC GASIFICATION OF COAL

Helmut Kubiak, Herne; Hans J. Schröter, Mühlheim; Günther Gappa, Gelsenkirchen; Heinrich Kalwitzki, Essen, and Klaus Knop, Geldern, all of Fed. Rep. of Germany, assignors to Bergwerksverband GmbH, Essen, Fed. Rep. of Germany

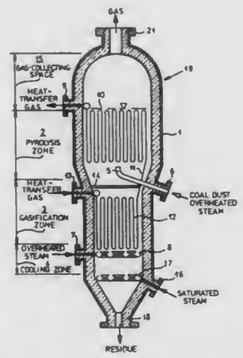
PCT No. PCT/EP87/00605, § 371 Date May 19, 1989, § 102(e) Date May 19, 1989, PCT Pub. No. WO88/02769, PCT Pub. Date Apr. 21, 1988

PCT Filed Oct. 15, 1987, Ser. No. 348,574

Claims priority, application Fed. Rep. of Germany, Oct. 16, 1986, 3635215

Int. Cl.[5] C10J *3/54*

U.S. Cl. 48—202 **8 Claims**



1. A process for gasification of coal under steam pressure as a gasification and fluidization medium in a gas generator with internally arranged heat-exchange tubes, said process comprising:

(a) supplying through said tubes a heat-exchange medium first to a gasification zone and then to a pyrolysis zone of said generator above said gasification zone;

(b) forming a fluidized bed of coal in said pyrolysis zone and supplying said coal from underneath said bed into said pyrolysis zone by entrainment in steam;

(c) pyrolyzing said steam entrained coal in said pyrolysis zone and gasifying pyrolyzed coal in said gasifying zone to produce a raw gas; and

(d) cooling a fuel residue falling from said gasifying zone in a cooling zone below said gasifying zone.

5,064,445

GRINDING TOOL AND METHOD OF MAKING THE SAME

Hiroshi Okajima, and Susumu Sudo, both of Nagoya, Japan, assignors to Sankyo Rikagaku Co., Ltd., Tokyo and Tawekawa Tekko Kabushiki Kaisha, Aichi, both of, Japan

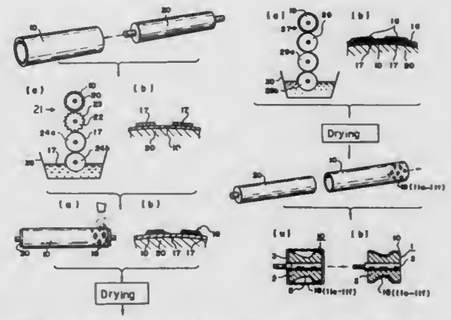
Division of Ser. No. 299,041, Jan. 19, 1989. This application Mar. 5, 1990, Ser. No. 488,115

Claims priority, application Japan, Apr. 2, 1988, 63-81879

Int. Cl.[5] B24D *3/00*

U.S. Cl. 51—293 **4 Claims**

1. The method of making a grinding or sanding tool comprising the steps of providing a rigid base having a surface comforming to the shape of the surface to be ground, applying to the surface of the base a heat shrinkable tube having its surface formed with abrasive material arrayed in a selected pattern and thereafter applying heat to said tube to shrink said tube and cause it to assume the shape conforming to said base and to adhere thereto.



5,064,446

METHOD OF PREPARING HIGH PURITY LIGHT GAS BY MULTIPLE-STEP GAS SEPARATION

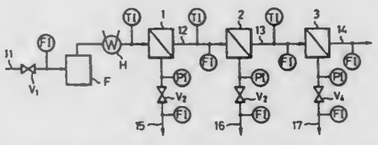
Yoshihiro Kusuki, Ichihara, and Kazuhiko Ishihara, Minato, both of Japan, assignors to Ube Industries, Ltd., Yamaguchi, Japan

Filed May 26, 1988, Ser. No. 199,319

Claims priority, application Japan, May 29, 1987, 62-134303

Int. Cl.[5] B01D *53/22, 71/64*

U.S. Cl. 55—16 **8 Claims**



1. A method for preparing a high purity light gas consisting of a member selected from the group consisting of hydrogen and helium, comprising subjecting a feed gas containing at least 90 molar % of a light gas consisting of a member selected from the group consisting of hydrogen and helium and substantially no carbon dioxide to a gas-separating procedure in 2 to 5 steps through 2 to 5 gas-separating membrane modules, each of said gas-separating membrane modules comprising at least one aromatic imide-polymer gas-separating membrane and having

VOL 1132 ISS 2 NO 12 1991 UMI

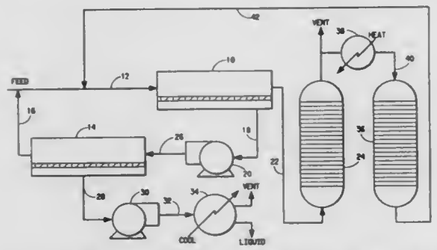
a gas permeating rate ratio P_A/P_{CH4} of 100 or more, wherein P_A represents a permeating rate of hydrogen or helium and P_{CH4} represents a permeating rate of methane gas, in such a manner that a fraction of said feed gas, which has permeated through and has been delivered from a preceding gas-separating membrane module, is fed to a next gas-separating membrane module without increasing the pressure of the delivered fraction of the feed gas.

5,064,447

PROCESS FOR RECOVERING ORGANIC VAPORS FROM AIR

Kung H. Lee, Chadds Ford, Pa., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 500,258, Mar. 27, 1990, abandoned.
This application Feb. 1, 1991, Ser. No. 649,351
Int. Cl.[5] B01D *53/04, 53/22*
U.S. Cl. 55—16 11 Claims



1. A process for separating and recovering organic vapors from a feedstream of organic vapor and air wherein organic vapors are present in the "window concentration" range, being too high for conventional carbon adsorption an tool low for efficeint compression/condensation recovery, comprising the steps of:

(a) providing a semipermeable membrane means for separating organic vapors rom air having a feed side and a permeate side wherein said semipermeable membrane means is characterized as having a selectivity for allowing the passage of organic vapor relative to air or for allowing the passage of air relative to organic vapor of at least 10 and permeablility for the permeate gas of greater than 1×10^{-7} $cm^3(STP).cm.cm^{-2}.cmHg^{-1}.sec^{-1}$;

(b) passing a feed stream of organic vapor and air, wherein said organic vapor is present in the "window concentration" range of about 6 volume percent to about 30 volume percent organic vapor, across the feed side of the semipermeable membrane such that organic vapor or air, but not both, passes preferentially through the membrane to form an organic vapor depleted air stream characterized by an organic vapor concentration below the "window concentration" range and an organic vapor enriched stream characterized by an organic vapor concentration above the "window concentration" range;

(c) subjecting said organic vapor depleted air stream produced in step (b) to carbon adsorption, thus separating and recovering organic vapor therefrom; and

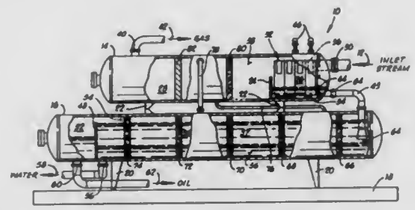
(d) subjecting said enriched stream produced in step (b) to compression and condensation, thus separating and recovering organic vapor therefrom.

5,064,448

SURGE DAMPENING THREE-PHASE PRODUCTION SEPARATOR

Michael S. Choi, Houston, Tex., assignor to Conoco Inc., Ponca City, Okla.

Filed Jan. 9, 1991, Ser. No. 639,485
Int. Cl.[5] B01D *19/00*
U.S. Cl. 55—38 32 Claims



1. A separating system for a fluid stream containing oil, water and gas, said fluid stream having a nominal flow rate and a maximum surge flow rate, comprising:

a horizontally elongated degassing and surge dampening upper vessel, including;

a first weir means for defining an inlet chamber and a liquid overflow chamber in said upper vessel;

a fluid stream inlet communicated with said inlet chamber;

a gas separator means, located in said inlet chamber and operably associated with said inlet, for separating said gas from said fluid stream; and

a gas outlet defined in said upper vessel;

a horizontally elongated liquid separating lower vessel, said lower vessel providing a means for separating said oil from said water, said lower vessel including an oil outlet defined therein and a water outlet defined therein;

an overflow liquid drain line connecting said liquid overflow chamber of said upper vessel with said lower vessel; and

a downcomer tube connecting said inlet chamber of said upper vessel with said lower vessel, said downcomer tube having a fluid flow resistance means defined therein for permitting said nominal flow rate of said fluid stream to pass therethrough at a head no greater than an elevation of said first weir means, and for preventing said maximum surge flow rate from passing therethrough at a head equal to said elevation of said first weir means, so that when said fluid stream is flowing at said maximum surge flow rate a portion of said fluid stream will overflow said first weir means into said liquid overflow chamber and then through said overflow liquid drain line into said lower vessel thus reducing a maximum liquid flow rate through said lower vessel to a value below said maximum surge flow rate of said fluid stream.

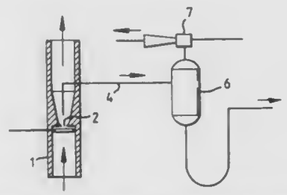
5,064,449

FLUID DEGASSING

Lionel H. Ford, Blackpool, and Stephen A. Taylor, Preston, both of England, assignors to United Kingdom Atomic Energy Authority, England

Filed Sep. 21, 1990, Ser. No. 586,408
Claims priority, application United Kingdom, Sep. 23, 1989, 8921566
Int. Cl.[5] B01D *19/00*
U.S. Cl. 55—52 8 Claims

1. A method of degassing a fluid flow in a fluid flow line which comprises locating a vortex valve, having a vortex chamber with a radial inlet port for main flow, an axial outlet port and a tangential control port for control flow, in the fluid flow line; regulating the pressure drop across the vortex chamber by adjusting the ratio of main flow to control flow so as to



cause cavitation with the release of dissolved gases in the flow at the outlet; and removing said gases from the fluid flow.

5,064,450

GAS ABSORBER METHOD AND APPARATUS

Steven P. Lankton, Wheeling, and Robert B. James, Jr., Northbrook, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed Jan. 2, 1991, Ser. No. 636,784
Int. Cl.[5] B01D *47/00*
U.S. Cl. 55—70 11 Claims

5. A process for removing at least one gaseous component from a flowing gas stream by contacting said gas stream with a lean liquid stream in a gas absorber to absorb at least a portion of said gaseous component to produce a rich liquid stream comprising said gaseous component and a flowing gas stream having a reduced concentration of said gaseous component wherein said process comprises:

(a) passing a first lean liquid stream through at least one inlet communicating with the lower end of a double wall forming an annulus having a means for restricting fluid flow into the bottom of said gas absorber from the bottom of said annulus and a means for fluid flow out of the top of said annulus into said gas absorber wherein at least a portion of said first lean liquid stream flows upwardly through said annulus and overflows from said top of said annulus thereby protecting at least a portion of the outer wall of said gas absorber from contact with said flowing gas stream;

(b) passing a second lean liquid stream through an inlet having a locus in the upper end of said gas absorber;

(c) passing said flowing gas stream through an inlet into said gas absorber;

(d) contacting said second lean liquid stream with said flowing gas stream to produce said rich liquid stream comprising at least a portion of said gaseous component and said flowing gas stream having a reduced concentration of said gaseous component;

(e) recovering said rich liquid stream comprising at least a portion of said gaseous component from an outlet having a locus in the lower end of said gas absorber; and

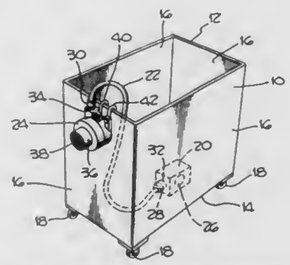
(f) recovering said flowing gas stream having a reduced concentration of said gaseous component from an outlet having a locus in the upper end of said gas absorber.

5,064,451

HAMPER AIR PURIFICATION SYSTEM

Alan J. Phillips, Santa Monica, Calif., assignor to Air Quality Laboratories, Santa Monica, Calif.

Filed Jul. 31, 1990, Ser. No. 562,211
Int. Cl.[5] B01D *53/00*
U.S. Cl. 55—74 11 Claims



10. A method for removing noxious vapors from a dry cleaning hamper, said method comprising the steps of:

placing a nozzle proximate to the bottom of said dry cleaning hamper for receiving noxious vapors from said dry cleaning hamper, said nozzle including an inlet, an outlet and a filter located therebetween for entrapping said noxious vapors, said nozzle outlet being connected to the inlet end of a hose wherein the outlet end of said hose is connected to a blower unit; and

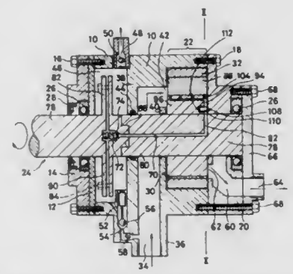
operating said blower unit to draw said noxious vapors into said nozzle inlet wherein purified air exits said nozzle outlet and is drawn through said hose and exhausted by said blower unit.

5,064,452

GAS REMOVABLE PUMP FOR LIQUID

Hisashi Yano, Yokohama; Junsuke Yabumoto, Atsugi, and Akiharu Kitada, Kawasaki, all of Japan, assignors to Mitsubishi Oil Co., Ltd., Tokyo, Japan

Filed Dec. 13, 1990, Ser. No. 627,055
Claims priority, application Japan, Dec. 15, 1989, 1-323843
Int. Cl.[5] B01D *19/00*
U.S. Cl. 55—203 29 Claims



1. A gas removable pump for liquid comprising:

VOL 1132 ISS 2 NO 12 1991 UMI

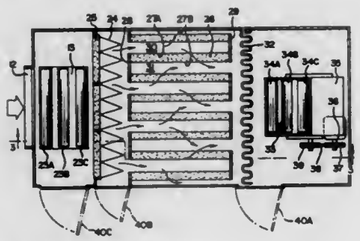
a housing having an inlet for introducing the liquid thereinto and an outlet for feeding the liquid therefrom;
a drive shaft extending into said housing;
a rotary pump disposed within said housing, said rotary pump including a rotor secured to said drive shaft for co-rotation therewith and including vanes defining a plurality of cells with the housing for feeding the liquid, each said cell constituting a separator for gas-rich liquid from liquid upon rotation of said rotor;
ejecting means for ejecting the gas-rich liquid separated in said cells;
passage means formed in said drive shaft and said rotor for connecting said cells with said ejecting means; and
valve means provided in said passage means for opening and closing said passage means, said valve means being operable in response to a pressure in each said cell and means for removing gas from the gas rich liquid and the housing.

5,064,453

AIR FILTER SYSTEM

William W. Jacquish, Elgin, Ill., assignor to International Air Filter, Inc., Elgin, Ill.

Filed Nov. 30, 1989, Ser. No. 444,554
Int. Cl.[5] B01D *41/02*
U.S. Cl. 55—217 **4 Claims**



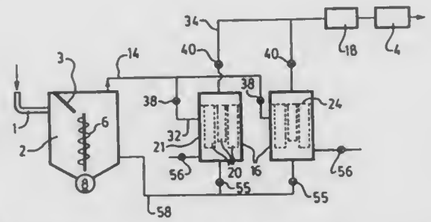
1. An air filter system comprising:
a housing;
a main airflow inlet;
a main airflow outlet;
at least one prefilter;
at least one refillable filter bed;
a filter media outlet;
a filter media inlet;
a bypass airflow inlet;
a bypass airflow inlet valve;
a blower;
and a thermostat;
said filter media outlet being located directly below said refillable filter bed and operable to drain said refillable filter bed when said filter media outlet is open;
said filter media inlet being located above said refillable filter beds and operable to add filter media to said refillable filter beds;
said filter media outlet including closure means closing said filter media outlet when said air filter system if filtering air;
said refillable filter bed containing a filter media;
said filter media having a desorption temperature;
said refillable filter bed having a filter bed temperature; and
said thermostat opening said bypass airflow inlet valve when said filter bed temperature is near said description temperature.

5,064,454

FILTRATION REMOVAL OF MATTER FROM GAS STREAMS, WITH OFF-LINE CLEANING OF FILTERS

James Pittman, 165 Governor's Green Rd., Dundas, Ontario, Canada L9H 6L6

Filed Dec. 12, 1989, Ser. No. 448,845
Claims priority, application Canada, Jan. 3, 1989, 587446
Int. Cl.[5] B01D *46/04*
U.S. Cl. 55—302 **10 Claims**



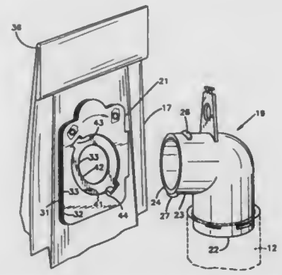
1. Apparatus for the removal of matter entrained in a gas stream in a conduit, comprising:
a displacement chamber having an inlet connected to said conduit to receive said gas stream, a baffle plate disposed therein adjacent said inlet to direct said gas stream somewhat downwardly, a solid matter collecting and discharging area at the bottom thereof for receiving solid matter which falls from said gas stream in said displacement chamber, and a gas stream exit from an upper area thereof;
at least two filter units, each comprising at least one filter mounted in a housing, said filters defining dirty and clean areas upstream and downstream of said filters respectively, said dirty areas being open to the bottom of said housing such that solid matter may fall therefrom to the bottom of said housing, each said housing being connected in parallel to said gas stream exit of said displacement chamber;
an outlet at the bottom of each said filter unit housing for removing said solid matter, and an outlet from a clean area of said filter housing thereof for said gas stream;
for each filter unit, a first valve between it and said displacement chamber gas stream exit for blocking flow through said filter unit when desired for cleaning of said filter unit, a second valve in said filter housing gas stream outlet for actuation in conjunction with said first valve to completely isolate said filter unit from said conduit, a third valve in said solid matter outlet from said filter housing, and a fourth valve connecting the dirty area of said filter housing to a gas source at higher pressure than the pressure in said displacement chamber;
a duct connected between said solid matter outlet and said displacement chamber via said third valve, whereby said solid matter collected near said solid matter outlet may be routed to said displacement chamber by closing said first and second valves to isolate said filter unit and then opening said third and fourth valves; and
pressure-sealed conveying means connected to said solid matter collecting said discharge area in said displacement chamber for removing solid matter from said displacement chamber.

5,064,455

DISPOSABLE DUST BAG FOR VACUUM CLEANERS AND THE LIKE

John R. Lackner, North Ridgeville, Ohio, assignor to The Scott Fetzer Company, Westlake, Ohio

Continuation of Ser. No. 428,220, Oct. 27, 1989, abandoned, which is a continuation of Ser. No. 208,735, Jun. 17, 1988, Pat. No. 4,877,432. This application Oct. 25, 1990, Ser. No. 602,915
Int. Cl.[5] B01D *46/02*
U.S. Cl. 55—375 **3 Claims**



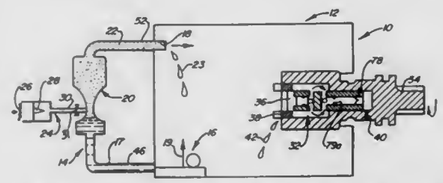
1. A vacuum cleaner providing a connector through which dirt-laden air is discharged, said connector providing a generally cylindrical wall portion having an end and peripherally spaced outwardly extending projections adjacent but axially spaced from said end to define a connector sealing surface between said projections and said end, a disposable dust bag formed of permeable sheet material defining a dust collection chamber, an inlet in said dust bag providing a substantially rigid collar having an opening therein proportioned to fit over said connector and said projections when in a mounting and removal position, said collar being rotatable relative to said connector from said mounting and removal position to an installed position in which portions of said collar engage the sides of said projections remote from said end, and an elastomeric seal around said inlet providing a generally circular opening, said seal engaging said sealing surface of said connector and extending over at least a portion of said projections, said seal being in substantially airtight sealing engagement with the sealing surface of said connector, whereby said seal forms a substantially airtight seal between said dust bag and said connector when said collar is in said installed position, said seal resisting rotation of said collar relative to said connector from said installed positions toward said mounting and removal positions.

5,064,456

LIQUID VAPOR PURGING SYSTEM

Charles J. Gantzer, South Beloit, Ill., assignor to Sundstrand Corporation, Rockford, Ill.

Continuation-in-part of Ser. No. 139,613, Dec. 30, 1987, Pat. No. 4,913,695. This application Oct. 11, 1989, Ser. No. 419,752
Int. Cl.[5] B01D *50/00*
U.S. Cl. 55—385.1 **14 Claims**



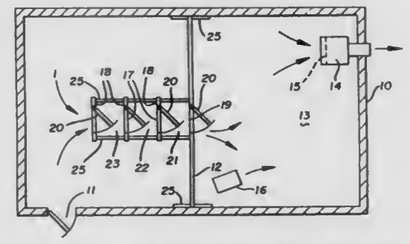
1. A self-contained liquid vapor purging system for use in such electromotive means as integrated drive generators, which include casing means and rotatable shaft means extending into the casing means, comprising:
charge pump circuit means communicating with said casing means and including pump means for circulating liquid from the casing means and charging liquid back to the casing means;
aspirator means in the charge pump circuit means for mixing fresh air with the liquid for delivering an air-liquid mixture to the casing means, the aspirator means including ambient air inlet means having restriction orifice means to limit air flow; and
separator means on said rotatable shaft means for separating liquid and vapor, including vapor-liquid inlet means from the casing means to the separator means, liquid outlet means from the separator means to the casing means and vapor outlet means outside the casing means.

5,064,457

PARTICULATE CONTAINMENT CONTROL SYSTEM

Victor Weber, St. Paul, Minn., assignor to VWE, Inc., St. Paul, Minn.

Filed Feb. 1, 1991, Ser. No. 649,688
Int. Cl.[5] B01D *46/00*
U.S. Cl. 55—385.2 **9 Claims**



1. In a system for establishing a favorable environment for removing dangerous particulate forming solid materials, including asbestos, said system comprising;
wall means defining a work space and enclosing an air space communicating with said work space,
said wall means including at least one inlet for air to enter said air space and an outlet for air to exit from said air space,
said air space defining at least one decontamination chamber,
a filter and air moving means for producing a negative air pressure within said work space and for drawing air into said work space through said inlet and for moving air through said filter and said outlet, the improvement comprising;
said wall means consisting of a plurality of rigid doorway panels and plastic film, doorways in said rigid doorway panels, doors in said doorways, transoms in said rigid panels, movable closures in said transoms, a HEPA filter within said closure, means for moving said HEPA filter within said closure, means urging said doors to closed position in said doorways, a plurality of tubing registering in openings in said rigid doorway panels so as to hold said rigid doorway panels upright and in spaced relation to one another, said plastic film positioned around said rigid doorway panels and said tubing sections to form a continuous wall defining at least one enclosure, means for sealing said plastic film to some of said rigid doorway panels, means for urging said closures in said transom to closed position, an air moving means acting to move said closures to open position when operating.

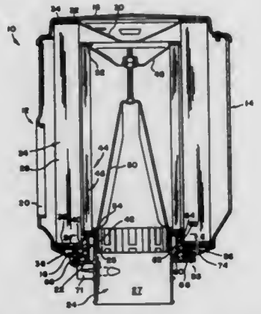
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,458

HEAVY DUTY AIR FILTER WITH MULTIPURPOSE END SEAL

Joseph Machado, Attleboro, Mass., assignor to Allied-Signal Inc., Morristown, N.J.

Filed Mar. 7, 1990, Ser. No. 489,563
Int. Cl.[5] B01D *50/00*
U.S. Cl. 55—482 15 Claims



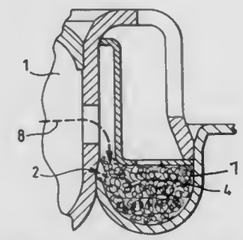
1. Air filter assembly comprising a housing member having a circumferentially extending side wall and a pair of end walls, said housing member having an inlet opening and an outlet opening and defining a flow path between the inlet and outlet openings, primary and secondary coaxial annular filter cartridges within said flow path within said housing member for filtering air communicated between the inlet and outlet openings, one of said openings being located on one of said end walls, and an adapter member separate from said housing member and from each of the primary and secondary filter cartridges, said adapter member being mounted on said one end wall and defining one end wall, and an annular elastomeric sealing member circumscribing said one opening and including a pair of projecting portions, one of said projecting portions sealingly engaging said housing member and said adapter member to provide a seal therebetween, the other projecting portion sealingly engaging each of said filter cartridges.

5,064,459

FILTER ARRANGEMENT FOR AIRBAG GAS GENERATORS

Karl Unterforsthuber, Oberhaching, and Christian Geisreiter, München, both of Fed. Rep. of Germany, assignors to Bayern-Chemie Gesellschaft fur flugchemische Antriebe mbH GmbH, Fed. Rep. of Germany

Filed Jun. 22, 1990, Ser. No. 541,954
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1989, 8909626
Int. Cl.[5] B01D *39/12*
U.S. Cl. 55—512 5 Claims



1. A gas generator apparatus for an airbag of the type utilizing gas-producing propellant charge for generating gas to inflate said airbag, said apparatus comprising a filter having:

a filter chamber exhibiting contoured interior surfaces,

a gas permeable filter material with a large effective filter surface, said filter material being disposed in the filter chamber to substantially completely fill up the filter chamber so as to contact substantially all the contoured interior surfaces thereof,

wherein said filter material comprises circular knitted wire knit rolled back on itself in a lengthwise direction thereof to form a torus and pressed into a solid shape corresponding to the shape of the filter chamber.

5,064,460

BLUE TRANSPARENT GLASS-CERAMIC ARTICLES

Bruce G. Aitken, Erwin, N.Y., assignor to Corning Incorporated, Corning, N.Y.

Filed Oct. 29, 1990, Ser. No. 604,177
Int. Cl.[5] C03C *10/00, 10/14, 10/16*
U.S. Cl. 65—33 6 Claims

1. A method for making a transparent blue-to-black glass-ceramic article exhibiting a linear coefficient of thermal expansion (25°-600° C.) less than 10×10^{-7}/° C. and containing β-quartz solid solution as essentially the sole crystal phase present consisting essentially of the steps:

(a) melting a batch for a glass which is crystallizable in situ consisting essentially, expressed in terms of weight percent on the oxide basis, of 2.5–5% Li_2O, 1–2% MgO, 18–30% Al_2O_3, 2–4% TiO_2, 1–4% ZrO_2, 48–70% SiO_2, 1–12% P_2O_5, and 0–2% ZnO, and a glass reducing agent in an amount at least sufficient to reduce about 0.2–6% of the total titanium content to Ti^{+3} ions, said reducing agent being selected from the group consisting of a hydrogen-containing phosphate, Ti_2O_3, chloride, and a mixture thereof;

(b) cooling said melt to a temperature below the transformation range thereof and simultaneously forming a glass body therefrom; and thereafter

(c) heating said glass body to a temperature between about 850°–950° C. for a period of time sufficient to cause the crystallization in situ of β-quartz solid solution crystals.

5,064,461

BLUE/GRAY TRANSPARENT GLASS-CERAMIC ARTICLES

Robert M. Morena, Caton, and Linda R. Pinckney, Corning, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Oct. 29, 1990, Ser. No. 604,184
Int. Cl.[5] C03C *10/00, 10/14, 10/16*
U.S. Cl. 65—33 5 Claims

1. A method for making a blue or gray transparent glass-ceramic article exhibiting a linear coefficient of thermal expansion (25°–500° C.) less than about 10×10^{-7}/° C. and containing β-quartz solid solution as essentially the sole crystal phase present consisting essentially of the steps:

(a) melting a glass batch which is crystallizable in situ consisting essentially, expressed in terms of weight percent on the oxide basis, of 2.5–3.5% LiO_2, 1.5–2.5% MgO, 17.75–20% Al_2O_3, 64–70% SiO_2, 2–4.5% TiO_2, 1–2% ZrO_2, and 0–2% BaO, and chloride in an amount at least sufficient to reduce about 0.5–2% of the total titanium content to Ti^{+3} ions, wherein alkali metal oxides other than LiO_2, alkaline earth oxides other than MgO and CaO, ZnO, and B_2O_3 are essentially absent therefrom;

(b) cooling said melt to a temperature below the transformation range thereof and simultaneously forming a glass body therefrom; and then

(c) heating said glass body to a temperature between about 850°–950° C. for a period of time sufficient to cause the crystallization in situ of β-quartz solid solution crystals.

5,064,462

TUNGSTEN PENETRATOR

James A. Mullendore, and Susan M. Pegher, both of Towanda, Pa., assignors to GTE Products Corporation, Stamford, Conn.

Filed Oct. 19, 1990, Ser. No. 600,376
Int. Cl.[5] B22F *9/00*
U.S. Cl. 75—248 1 Claim

1. A penetrator having a composition of, in weight percent, 93 tungsten, 5.6 nickel, 1.4 cobalt.

5,064,463

FEEDSTOCK AND PROCESS FOR METAL INJECTION MOLDING

Michael A. Ciomek, 91 Pecksland Rd., Greenwich, Conn. 06830

Filed Jan. 14, 1991, Ser. No. 640,888
Int. Cl.[5] B32B *5/22*
U.S. Cl. 75—314 16 Claims

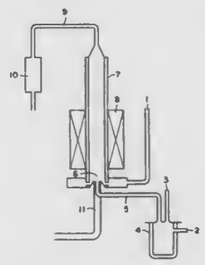
1. In a feedstock for metal injection molding consisting essentially of a metal powder suspended in a binder, the improvement which comprises the metal powder being at least one reactive metal selected from the group consisting of aluminum, magnesium and titanium coated with at least one less reactive metal selected from the group consisting of cobalt, copper, iron, nickel, tin and zinc.

5,064,464

PROCESS FOR PRODUCING ULTRAFINE METAL PARTICLES

Yoshiaki Sawada; Yoshiteru Kageyama, and Tadashi Teramoto, all of Yokkaichi, Japan, assignors to Mitsubishi Petrochemical Company Limited, Tokyo, Japan

Filed Nov. 9, 1989, Ser. No. 453,376
Claims priority, application Japan, Nov. 10, 1988, 63-284760; Mar. 17, 1989, 63-65724; May 26, 1989, 1-133871
The portion of the term of this patent subsequent to Feb. 28, 2006, has been disclaimed.
Int. Cl.[5] B22F *9/30*
U.S. Cl. 75—347 4 Claims



1. A process for producing ultrafine metal particles having an average minor axis diameter below 0.05 μm by gas-phase pyrolysis of a transition metal carbonyl compound diluted with diluent gases, which comprises mixing 0.1 to 30 vol. % of a transition metal compound with a first diluent gas to form a mixed gas of up to 200° C., supplying 1 to 30% by volume of said mixed gas and 96 to 55% by volume of a second diluent gas of at least 400° C., introducing said mixed gas and said second diluent gas into a reaction zone, while flowing 3–15% by volume of a third diluent gas around a current of the mixed gas and in the same flow direction as said current, and

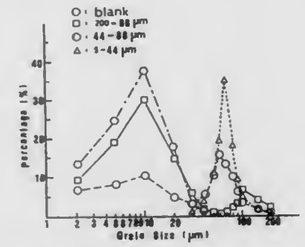
carrying out gas-phase pyrolysis in a magnetic field of at least 100 gauss, wherein said second diluent gas serves as a heat source of the gas phase pyrolysis.

5,064,465

PROCESS FOR PREPARING RARE EARTH-IRON-BORON ALLOY POWDERS

Chi J. Chen, Kaohsiung; Cheng H. Lin, Taipei Hsien; Tin Y. Liu, Hsinchu Hsien, and Ying C. Hung, Taichung Hsien, all of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Nov. 29, 1990, Ser. No. 619,724
Int. Cl.[5] H01F *1/06, 41/02*
U.S. Cl. 75—349 45 Claims



1. A process for preparing a rare earth-iron-boron alloy said process comprising the steps of:

(a) heating in an inert atmosphere a mixture of:

(i) at least one rare earth oxide

(ii) at least one ferroboron-containing compound

(iii) calcium

(iv) iron

(v) a rare earth-iron-boron seed alloy, said seed alloy having substantially the same composition as the rare earth-iron-boron alloy powder to be prepared, said heating occurring under conditions sufficient to form a reduction/ diffusion reaction product said reduction/-diffusion reaction product containing the rare earth-iron-boron alloy;

(b) recovering said reduction/diffusion reaction product in the form of particles having a size of less than about 60 mesh; and

(c) contacting in a second inert atmosphere said reduction/-diffusion reaction product with water under conditions sufficient to separate the rare earth-iron-boron alloy from said reduction/diffusion reaction product.

5,064,466

NON-TOXIC PROCESS FOR RECOVERY OF PHOTOGRAPHIC SILVER

Davis B. Hilton, Box 79, Grand Sabre, Tex. 75140

Continuation of Ser. No. 299,403, Jan. 19, 1989, abandoned. This application Nov. 30, 1990, Ser. No. 622,350
Int. Cl.[5] C22B *3/20*
U.S. Cl. 75—417 11 Claims

1. A process for recovery of silver from silver containing photographic emulsion coated paper or film substrates, comprising:

immersing photographic emulsion-containing silver, silver chloride and animal protein coated substrates in a sodium hypochlorite solution which has sufficient presence of an alkali metal hydoxide to maintain the solution at a pH of about 10–11 which substantially avoids production of free chlorine and silver chloride;

stripping the silver containing emulsion from the substrates while dissolving animal proteins, silver and silver halides contained in the emulsion, thereby forming a solution of animal proteins, silver and silver halides contained in the silver emulsion and a stripped substrate;

separating the stripped substrate from the solution of animal proteins, silver and silver halides;

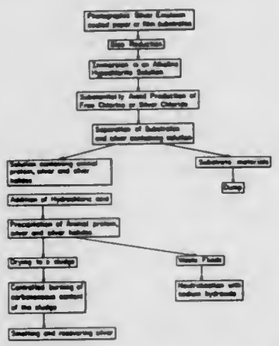
introducing a highly ionized acid selected from the group consisting of hydrochloric acid, nitric acid and sulfiric

VOL 1132 ISS 2 NO 12 1991 UMI

acid to the solution of animal protein, silver and silver halides, thereby forming a precipitate of hydrolyzed animal protein, silver and silver halides and waste fluid;

separating the precipitate from the waste fluid;

neutralizing the waste fluid with sodium hydroxide;



drying the precipitate to a sludge containing hydrolyzed animal protein; silver and silver chloride;

burning the animal protein of the sludge in an oven at a temperature of from about 500° F. to about 600° F., producing a concentrate of silver and silver halide; and smelting the concentrate with flux to form a silver ingot.

5,064,467

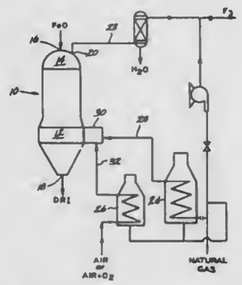
METHOD AND APPARATUS FOR THE DIRECT REDUCTION OF IRON

Oscar G. Dam G., and Henry R. Bueno C., both of Bolivar, Venezuela, assignors to C.V.G. Siderurgica Del Orinoco, C.A., Bolivar, Venezuela

Continuation-in-part of Ser. No. 115,911, Nov. 25, 1987, abandoned. This application Dec. 22, 1989, Ser. No. 455,232

Int. Cl.[5] C21B *13/02, 13/14*

U.S. Cl. 75—495 12 Claims



1. A process for the direct reduction of metal oxides containing iron to obtain a direct reduced iron, said process consisting essentially of:

(a) providing a reforming-reduction reactor having a bed of partially metallized iron oxide material and a bed of direct reduced iron within said reforming-reduction reactor;

(b) feeding metal oxides containing iron to the reforming-reduction reactor;

(c) mixing top gas recycled from said reforming-reduction reactor with natural gas;

(d) preheating said top gas and natural gas mixture to a temperature in the range of from about 650° C. to about 850° C.;

(e) mixing air preheated to a temperature in the range of from about 650° C. to about 850° C. with said preheated top gas and natural gas mixture in a mixing chamber;

(f) partially combusting said mixture to a temperature of between 850° C. to 1100° C. wherein said mixture has a degree of oxidation in the range of from about 0.27 to about 0.32 and a reducing power in the range of from about 2 to 3;

(g) feeding said partially combusted mixture to said direct reduced iron in said reforming-reduction reactor so as to form a reformed reducing gas comprising H_2 and CO and having an oxidation degree in the range of from about 0.05 to about 0.09 in said reforming-reduction reactor; and

(h) contacting said iron oxide metal in said reforming-reduction reactor with said reformed reducing gas so as to effect reduction to obtain a direct reduced iron.

5,064,468

CORROSION PREVENTIVE COATING COMPOSITION

Toshihiro Okai, Katano; Yoshiaki Okumura, Joyo; Mitsuyuki Oda, Kyoto; Takashi Yamamoto, Souraku; Hideo Fukuda, Itami, and Teruaki Kuwajima, Higashiosaka, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Continuation of Ser. No. 90,966, Aug. 31, 1987, abandoned. This application Apr. 7, 1989, Ser. No. 334,546

The portion of the term of this patent subsequent to Aug. 6, 2008, has been disclaimed.

Int. Cl.[5] C04B *14/30, 14/34, 14/36;* C09D *1/00*

U.S. Cl. 106—14.12 5 Claims

1. A corrosion preventive coating composition comprising:

(1) a corrosion preventive pigment which has a pH value of from 5 to 9, consisting essentially of

(a) a phosphorus compound which generates phosphate ions in the presence of water selected from the group consisting of phosphorous pentoxide, ortho-phosphoric acid, a condensed phosphoric acid, an alkaline metal, alkaline earth metal or transition metal phosphate, or an alkaline metal, alkaline earth metal or transition metal condensed phosphate, and

(b) a vanadium compound which generates vanadate ions in the presence of water and oxygen, selected from the group consisting of vanadium (V) oxide, a vanadyl compound, an alkaline metal, an alkaline earth metal or transition metal vanadate, a calcined condensate of alkaline metal, alkaline earth metal or transition metal vanadates, or a heterocondensate of alkaline metal, alkaline earth metal or transition metal vanadates, and

(2) a film forming resin selected from the group consisting of maleic acid modified oils, epoxy resins, modified epoxy resins, alkyd resins, acryl resins, melamine resins, urea resins, blocked isocyanate resins, maleic acid modified polybutadiene resins, polyvinyl butylal, polyvinylalcohol, silicate esters, silicone resins, silicates and chlorinated rubber; said pigment being present in an amount of 0.1 to 50 parts by weight based on 100 parts by weight of a solid content of said coating composition,

said phosphorus and vanadium compound being present in amounts such that the molar ratio of the phosphorus to the vanadium compound in terms of P_2O_5 and V_2O_5, respectively, is 0.3 to 100 and wherein said pigment has an electric conductivity of 100 to 3,000 μS/cm.

5,064,469

PREPARATION OF OXIDATION RESISTANT METAL POWDER

Arthur G. Mack, Naperville, Ill., assignor to Akzo N.V., Netherlands

Filed Oct. 3, 1989, Ser. No. 416,570

Int. Cl.[5] C09K *15/18*

U.S. Cl. 106—14.42 2 Claims

1. A composition for treating the surfaces of metal objects coated with surface layers of non conductive metal compounds to render said surfaces conductive and oxidation resistant, said metal being selected from the group consisting of copper, nickel, cobalt, silver and palladium, said composition consisting essentially of

(i) from 0.01 to 20 wt. % of an organic amine compound having an amine nitrogen atom which forms the amine and having at least one group carrying a functional substituent having coordinative capacity towards atoms of the metal, the amine nitrogen atom and the functional substituent being separated by from two to six other atoms along the interconnecting chain of said amine compound;

(ii) from 0.01 to 20 wt. % of at least one phenolic compound selected from the group of 1,2-di-hydroxy benzene and its ring-substituted derivatives;

(iii) and balance ethylene glycol.

5,064,470

HIGH SOLIDS, LOW VISCOSITY CARBONLESS PAPER GELATIN BASE MICROCAPSULE SYSTEM

Joseph A. Scarpelli, Dayton, Ohio, assignor to Eurand America, Inc., Vandalia, Ohio

Filed Jul. 27, 1989, Ser. No. 385,652

Int. Cl.[5] B01J *13/10;* C09D *11/04*

U.S. Cl. 106—21 8 Claims

1. A high solids, low viscosity aqueous suspension of single oil drop, gelatin base, high payload microcapsules having an average particle size ranging from about 3 to about 10 microns wherein each microcapsule has a microcapsule wall material of low Bloom gelatin, blended with at least two anionic phase inducers comprising sodium hexametaphosphate and at least one additional phase inducer selected from the group consisting of a copolymer of vinyl methyl ether and maleic anhydride, a copolymer of ethylene and maleic anhydride, gum arabic and carboxy methyl cellulose, wherein said microcapsules have in an internal phase of a color-producing oily material and wherein the solids content of said suspension ranges from about 25 weight percent to about 50 weight percent in combination with a low viscosity ranging from about 10 to about 60 centipoises.

5,064,471

SEALING WOOD FINISH

Karen J. Kornman, 9016 Chickamauga St., Tucson, Ariz. 85710, and Michael J. Jorgensen, 44 Llewellyn Ave., Bloomfield, N.J. 07003

Filed Nov. 20, 1989, Ser. No. 439,249

Int. Cl.[5] C08L *91/00;* C09D *15/00*

U.S. Cl. 106—250 3 Claims

1. A sealing wood finish comprising, by volume, approximately 25% jojoba oil, 25% tung oil, 45% isopropanol and 5% methylene chloride.

5,064,472

COMPOSITION

John A. G. Drake, Killiney, and Ian L. Jamieson, Glen of the Downs, both of Ireland, assignors to Foster Wheeler USA Corporation, Clinton, N.J.

Continuation of Ser. No. 042,912, Apr. 27, 1987, abandoned. This application Aug. 14, 1989, Ser. No. 394,306

Claims priority, application Ireland, Apr. 30, 1986, 2667/85

Int. Cl.[5] C08L *95/00*

U.S. Cl. 106—278 10 Claims

1. A composition which consists of at least one of a solvent extract of peat and a pyrolysis product of peat and paving grade petroleum bitumen wherein said solvent extract of peat or pyrolysis product of peat is present in an amount ranging from an amount sufficient to increase the softening point of said petroleum bitumen to 50 percent by weight and the remainder of said composition being said petroleum bitumen.

5,064,473

FILLER FOR HEAT-SENSITIVE RECORDING PAPER AND PROCESS FOR PRODUCING THE SAME

Masao Kubo, Toyama; Akihiro Shiroishi, Tokyo; Ikuo Uno, Kobe, and Takashi Nishiyama, Akou, all of Japan, assignors to Nissan Chemical Industries, Ltd., Tokyo and Shionogi & Co. Ltd., Osaka, both of, Japan

Continuation-in-part of Ser. No. 289,302, Dec. 23, 1988, abandoned. This application Feb. 13, 1990, Ser. No. 479,255

Claims priority, application Japan, Dec. 26, 1987, 62-330686; Oct. 17, 1988, 63-259316

Int. Cl.[5] C01B *33/12*

U.S. Cl. 106—287.34 1 Claim

1. A coating composition for heat-sensitive recording paper which comprises a heat-sensitive dye, a binder and an amorphous silica filler obtained by reacting hydrosilicofluoric acid and/or an alkali salt thereof with an alkali and having a solid acid strength (pk_a) of +6.8 to +3.3, an oil absorption value of 120 to 200 ml/100 g, a nitrogen adsorption specific surface area of 110 to 350 m^2/g (by BET method), and a water vapor adsorption specific surface area of 200 to 300 m^2/g (by BET method).

5,064,474

PROCESS FOR REMOVING FINE PARTICLES FROM ARTICLES OF FLUORINE-CONTAINING RESIN

Hideki Aomi, Katano; Tomizo Soda, Settsu, and Mitsushi Itano, Sendai, all of Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

Filed Sep. 24, 1990, Ser. No. 586,775

Claims priority, application Japan, Sep. 26, 1989, 1-251531

Int. Cl.[5] B08B *3/08*

U.S. Cl. 134—2 7 Claims

1. A method for removing the fine particles deposited on an article of fluorine-containing resin, the method comprising conducting at least one of the procedures of:

(i) maintaining the article of fluorine-containing resin at a temperature ranging from 100° C. to a temperature lower than the melting point of the article,

(ii) maintaining the article in the atmosphere of a gaseous compound containing fluorine, and

(iii) bringing the article into contact with a polar solvent or an aqueous solution of polar solvent in an amount sufficient to remove the fine particles.

5,064,475

PROCESS FOR STRIPPING A LAYER OF PAINT FROM THE SURFACE OF A SUPPORT

Attilio Bernasconi, Alzate di Mono/No, Italy, assignor to Sio, Societa Per L'Industria dell'Ossigeno e di Altri Gas, Milan and Beta Ricerche & Sviluppi di Attilio Bernasconi & C. s.a.s., Alzate di Mono, both of, Italy

Filed Mar. 2, 1989, Ser. No. 317,955

Claims priority, application Italy, Mar. 4, 1988, 19652 A/88

Int. Cl.[5] B08B *7/00, 3/39*

U.S. Cl. 134—4 3 Claims

1. A process for stripping a layer of paint from a surface of a support, comprising:

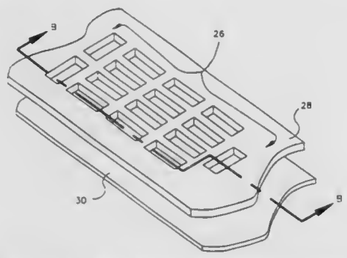
(i) pre-treating said support with one or more acids to oxidize the surface;

(ii) further treating said support by applying thereto a covering product which is at least one member selected from the group consisting of vinyl resin pre-treatment paints and polyurethane resin pre-treatment paints;

VOL 1132 ISS 2 NO 12 1991 UMI

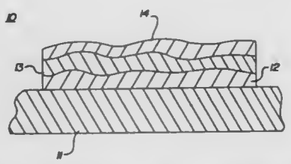
(iii) causing paint to contact said surface and harden thereon;
(iv) stripping said paint after having hardened said support surface by heating said support.

5,064,476
THERMOELECTRIC COOLER AND FABRICATION METHOD
Leonard J. Recine, Sr., 2500 Trophy Dr., Plano, Tex. 75025
Filed Sep. 17, 1990, Ser. No. 583,157
Int. Cl.[5] H01L *35/34, 37/00*
U.S. Cl. 136—201 **15 Claims**



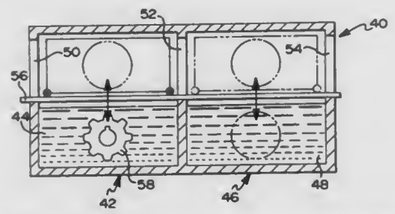
1. A method for fabricating a themoelectric device consisting of the steps of:
attaching a conductive strip to an adhesive tape;
stamping an array of tabs out the conductive strip in a first pattern onto the attached adhesive tape for a first side of the thermoelectric device;
using the adhesive tape as a support, attaching the array of tabs forming the first pattern to a plate of insulating material for a first side plate;
lifting the adhesive tape from the array of tabs to produce a first side plate for a thermoelectric device;
repeating the above steps to produce a second side plate having attached thereto an arrays of tabs forming a second pattern;
positioning legs of first and second type conductivity thermoelectric material to form an alternately disposed array of first and second type thermoelectric legs for the thermoelectric device between the first and second side plates with opposing ends of the legs on appropriate ends of opposing tabs; and
attaching the first and second array of tabs of the first and second side plates to the opposing ends of the legs for forming the thermoelectric device.

5,064,477
RADIANT ENERGY SENSITIVE DEVICE AND METHOD
Alan E. Delahoy, 33 Washington St., Rocky Hill, N.J. 08553
Filed Jan. 16, 1990, Ser. No. 464,792
Int. Cl.[5] H01L *31/06, 31/18*
U.S. Cl. 136—256 **10 Claims**



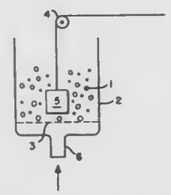
3. A radiant energy sensitive device, comprising a first radiant energy transmissive, electrically conductive layer of tin oxide;
a second radiant energy transmissive, electrically conductive layer of zinc oxide disposed upon said layer of tin oxide;
a radiant energy sensitive layer deposited upon said layer of zinc oxide;
whereby the combination of the two radiant energy transmissive, electrically conductive layers improves the performance of said radiant energy sensitive structure with respect to energy passing through said radiant energy transmissive layer.

5,064,478
METHOD AND APPARATUS FOR SURFACE AUSTEMPERING OF CAST IRON PARTS
Bela V. Kovacs, Bloomfield Hills; John R. Keough, Birmingham, and Douglas M. Pramstaller, Highland, all of Mich., assignors to Applied Process, Livonia, Mich.
Filed Dec. 4, 1989, Ser. No. 444,994
Int. Cl.[5] C21D *8/04*
U.S. Cl. 148—12.4 **24 Claims**



1. A method for producing a selectively surface hardened cast iron part, comprising:
uniformly heating the surface of the cast iron part, without heating the interior of the cast iron part, by immersing the part in a molten matallic bath maintained at a temperature of from about 1500 to about 1800 degrees Fahrenheit for about 10 second to about 5 minutes to form a desired thickness of surface austenite, wherein only the surface of the cast iron part is prepared for hardening;
quenching the surface heated cast iron part in a liquid quenching bath maintained at a temperature of between about 450 to about 800 degrees Fahrenheit for about 10 minutes to about 4 hours; and
cooling the cast iron part before bainite is formed.
such that the interior bulk of the part remains substantially unheated and unhardened, and only the surface is hardened.

5,064,479
THERMAL TREATMENT IN A FLUIDIZED BED
Jaak S. Van den Sype, Scarsdale, N.Y., assignor to Union Carbide Industrial Gases Technology Corporation, Danbury, Conn.
Filed May 31, 1990, Ser. No. 531,072
Int. Cl.[5] C21D *1/53;* **F27B** *15/02*
U.S. Cl. 148—20.3 **25 Claims**



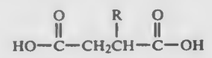
1. A process for thermally treating an article comprising:
providing the article at an initial temperature;
providing a bed with from about 21 to 60 weight percent of particles having a particle size within the range of from about 20 to 100 microns and about 40 to 79 weight percent of particles having a particle size within the range of from about 150 to about 2,000 microns;
at least partially immersing the article in the bed for a period of time;
fluidizing the particles adjacent to the article;
regulating the bed temperature; and withdrawing the thermally treated article from the bed.

5,064,480
WATER WASHABLE SOLDERING PASTE
Stephen M. Dersbem, Santee, and Richard R. Weaver, Poway, both of Calif., assignors to Quantum Materials, Inc., San Diego, Calif.
Filed Aug. 4, 1989, Ser. No. 389,489
Int. Cl.[5] B23K *35/22*
U.S. Cl. 148—22 **11 Claims**

1. A soldering paste comprising:
80 to 95 weight percent solder alloy melting at or below 250° C.; and
5 to 20 weight percent soldering flux comprising 0 to 95 weight percent organic solvent and 5 to 100 weight percent of a metal oxide removing substance selected from the group consisting of formylated polyhydric compounds and mixtures thereof, said polyhydric compounds selected from polyhydroxy aliphatic compounds and polyhydroxy resins.

5,064,481
USE OR ORGANIC ACIDS IN LOW RESIDUE SOLDER PASTES
James L. Davis, Tamarac; Robert W. Pennisi, Boca Raton; Fadia Nounou, Plantation, and Bobby D. Landreth, Davie, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed May 17, 1990, Ser. No. 524,540
Int. Cl.[5] B23K *35/34*
U.S. Cl. 148—23 **22 Claims**

1. A solder paste vehicle comprising:
a solvent; and
a fluxing agent comprising a compound having the formula:



where R is an electron withdrawing group selected from the group consisting of fluorine, chlorine, bromine, iodine, sulfur, hydroxyl, nitrile, and benzyl.

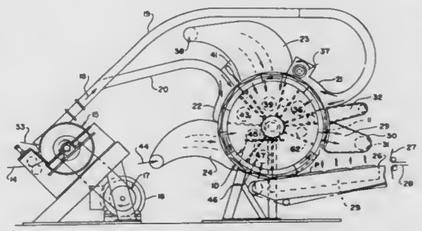
5,064,482
NO-CLEAN SOLDER PASTE VEHICLE
Joel Goobich, Orange Village, and Thomas Cronin, III, North Royalton, both of Ohio, assignors to SCM Metal Products, Inc., Cleveland, Ohio
Filed Nov. 8, 1990, Ser. No. 610,552
Int. Cl.[5] B23K *35/34*
U.S. Cl. 148—24 **20 Claims**

1. A paste vehicle for use in a metal bearing solder paste composition which comprises a heat-polymerizable binder.

5,064,483
GAS GENERATING MASS
Siegfried Zeuner, Munich, Fed. Rep. of Germany, assignor to Bayern-Chemie Gesellschaft fur flugchemische Antriebe mbH, Fed. Rep. of Germany
Filed Sep. 27, 1990, Ser. No. 588,719
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1989, 3935869
Int. Cl.[5] C06G *35/00*
U.S. Cl. 149—35 **6 Claims**

1. A gas generating mass, particularly for inflating airbags for occupant protection systems in motor vehicles, containing at least one alkali azide or alkaline earth azide, an oxidant in at least an amount which is stoichiometric with respect to the oxidation of the alkali metal or the alkaline earth metal of the alkali azide or the alkaline earth azide, as well as a slag forming agent, wherein the oxidant consists exclusively of elementary sulfur, and wherein the ratio of the slag forming agent to the alkali azide or alkaline earth azide is 3-5, divided by the number of the metal atoms or silicon atoms or boron atoms in the molecule of the slag forming agent to 10 mol alkali azide or 5 mol alkaline earth azide.

5,064,484
METHOD OF FORMING AND BONDING FLUFF PADS
Grantland A. Craig, and Gary E. Johnson, both of Green Bay, Wis., assignors to Paper Converting Machine Company, Green Bay, Wis.
Continuation-in-part of Ser. No. 297,482, Jan. 17, 1989, abandoned. This application Aug. 2, 1990, Ser. No. 561,975
Int. Cl.[5] B32B *5/02*
U.S. Cl. 156—62.6 **4 Claims**



1. A method of developing an absorbent fluff pad for a diaper comprising:
providing an annular drum having circumferentially-spaced pad-forming, formaminous pocket means in the peripheral surface thereof,
flowing an air stream containing synthetic binder-equipped fluff fibers radially inwardly of said surface through a first sector of said drum to deposit said fiber sequentially in each pocket means while rotating said drum,
heating air to a temperature above the melting point of said binder and flowing said heated air radially inwardly of said drum through a second sector subsequent in the direction of drum rotation to said first sector to thermally bond said synthetic binder to unify said fluff fibers, repeating said steps of depositing and heating and
removing the pads from said drum.

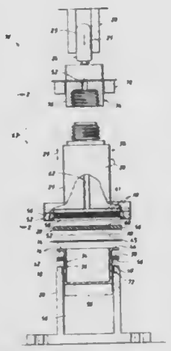
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,485

METHOD FOR THE RESILIENT SPINWELDING OF THERMOPLASTIC ARTICLES

Roy F. Smith, Pearland; John W. Kelley, and William H. Korcz, both of Houston, all of Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Apr. 23, 1990, Ser. No. 513,643
Int. Cl.[5] B29C *65/06*
U.S. Cl. 156—69 2 Claims



1. A method of spinwelding a cup and a complemental lid together, said cup having a flange defined about the upper periphery thereof, said cup flange and lid formed with annular mating surfaces, said method comprising the steps of:

providing:

a cup holder having a cavity for receiving a portion of said cup and having an annular shoulder at the mouth of said cavity,

a resilient ring supported by the annular shoulder of said cup holder, said resilient ring having an end face shaped to support said cup flange,

a spinhead,

a resilient disk operatively engaged to said spinhead,

means for moving said resilient disk toward and away from said resilient ring, and

means for rotatably moving said resilient disk relative to said resilient ring,

operatively engaging said cup and said lid to said resilient ring and said resilient disk respectively such that said annular mating surfaces are facing one another,

rotatably moving said disk relative to said ring, and

moving said disk toward said ring so as to contact said cup flange and lid at said annular mating surfaces to spinweld said cup flange and said lid at said annular mating surfaces.

5,064,486

COLLOIDAL POLYMER DISPERSION FOR INTERNAL SEALING OF PIPES AND PROCESS FOR THE APPLICATION THEREOF

Rolf Kalleubach, and Karl-Heinz Lemmert, both of Mannheim, Fed. Rep. of Germany, assignors to Shell Internationale Research Maatschappij B.V., The Hague, Netherlands

Continuation of Ser. No. 285,239, Dec. 16, 1988, abandoned.
This application Aug. 6, 1990, Ser. No. 563,785
Claims priority, application United Kingdom, Dec. 17, 1987, 8729447
Int. Cl.[5] B32B *35/00*
U.S. Cl. 156—94 6 Claims

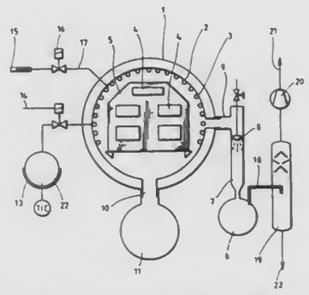
1. A process for internal sealing of threaded pipe connections containing a fibrous material which process comprises applying to the pipe connections a colloidal polymer dispersion comprising (a) from 1% to 40% by weight polyol, and (b) from 99 to 60% by weight of aqueous colloidal polymer dispersion wherein the polymer is insoluble in water, the overall water content being in the range of from 10 to 50% by weight (the percentages being calculated on the total of (a) and (b)), the soak said fibrous material with said polyol and form a film of said polymer at inner pipe surface which prevents said polyol from escaping from said fibrous material.

5,064,487

METHOD OF CLEANING OF COMPONENTS TO WHICH POLYMERS ARE BONDED

Franz Fourné, Bonn, Fed. Rep. of Germany, assignor to Fourne Maschinenbau GmbH, Alfter-Impekoven, Fed. Rep. of Germany

Filed Nov. 13, 1989, Ser. No. 434,936
Claims priority, application Fed. Rep. of Germany, Nov. 10, 1988, 3838188
Int. Cl.[5] B08B *3/08, 3/10*
U.S. Cl. 156—155 13 Claims



1. Process for removing macromolecular material from components to which the material to be removed is intimately bonded, with the components being subjected to a pyrolytic treatment, comprising the steps of:

subjecting a component with material to be removed to a treatment for structural cleavage of the material, by which a fluid is brought into contact and reacted with the material to be removed, with the fluid splitting the macromolecules of the material into smaller molecules while forming a flowable medium, said medium containing a product of this treatment for structural cleavage and the material with the fluid;

separating the flowable medium from the component by allowing it to run off the component; and

subjecting the component to a pyrolytic treatment at a temperature between approximately 400° C. to 530° C. and in a presence of a radical-forming agent, where said pyrolytic treatment temperature is at least 70° C. higher than the temperature of said fluid which is brought into contact and reacted with said material to be removed, so that material still present on the component is pyrolyzed.

5,064,488

APPARATUS AND METHOD FOR SPLICING FILM

Daniel M. Dickey, Denair, Calif., assignor to Trine Manufacturing Company, Inc., Turlock, Calif.

Filed Mar. 27, 1990, Ser. No. 500,177
Int. Cl.[5] B65H *19/14, 19/20, 69/06*
U.S. Cl. 156—159 13 Claims

1. An apparatus for in registration splicing of film material having a repetitive pattern thereon, for use with a film cutter adapted to produce film segments for a film utilization device, comprising:

a. a first roll of film material, having a feed end extending to a film cutter;

b. A second roll of film material having a leading end terminating at a predetermined location therealong, said leading end having one face thereof prepared for adhesive attachment;

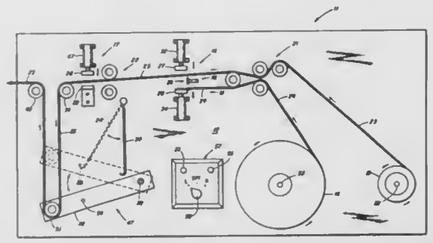
c. encoder means for producing a splicer control signal when the film cutter reaches a predetermined operational position;

d. a film brake station, upstream from the film cutter, and responsive to said splicer control signal, to hold fast the film material from the first roll;

e. spooling means between the film cutter and said brake station, for storing a supply of film material for the film cutter, while a splice is being formed; and

f. splicing means upstream from said brake station and downstream from said rolls, and responsive to said splicer control signal, for manufacturing a trailing end in the film material form the first roll terminating at said predetermined location, and then bringing said trailing end into adhesive engagement with said leading end, forming a splice.

13. A method for in registration splicing of two rolls of film material having a repetitive pattern thereon, for use with a film



cutter adapted to produce film segments for a downstream film utilization device, comprising:

a. passing film material from a first roll of film material to a film cutter;

b. preparing a face of the leading end of a second roll of film material for adhesive attachment to film material;

c. holding the leading end of the second roll within a splicing station, with the prepared face parallel to and adjacent said film material from the first roll;

d. establishing a fixed predetermined length of film material between the film cutter and said splicing station;

e. producing a control signal when the film cutter reaches a predetermined operational position;

f. braking said film material from the first film roll, at a point downstream from said splicing station, in response to said control signal;

g. manufacturing a trailing end for said film material from the first film roll at said splicing station, in response to said control signal; and

h. bringing said trailing end into adhesive engagement with said leading end, forming a splice between said trailing end and said leading end.

5,064,489

METHOD FOR MAKING DISPOSABLE ABSORBENT GARMENTS

Hiroshi Ujimoto, Kawanoe; Hironori Nomura, Iyomishima, and Toshinori Yamamoto, Kawanoe, all of Japan, assignors to Uni-Charm Corporation, Ehime, Japan

Continuation of Ser. No. 286,170, Dec. 19, 1988, abandoned.
This application Feb. 5, 1990, Ser. No. 475,163
Claims priority, application Japan, Dec. 19, 1987, 62-321935
Int. Cl.[5] A61F *13/16;* B29C *65/72*
U.S. Cl. 156—164 4 Claims

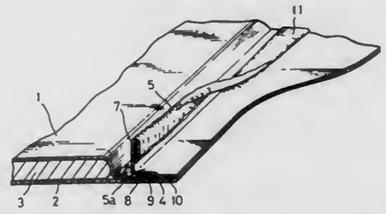
1. A method for making disposable absorbent articles, the method comprising the steps of:

(a) transferring a liquid-permeable continuous topsheet (1) to an assembly point, said topsheet having a topside, a bottom side and spaced apart side edges,

(b) feeding two continuous elastic flaps (5) that each contain an elastic band (7), to spaced apart locations adjacent each of said side edges of said continuous topsheet (1), each elastic band being maintained in a stretched condition;

(c) forming a cover unit having a top side and a bottom side by first heat welding each elastic flap (5) to the continuous topsheet (1) along longitudinal liens (8) adjacent the side edges of said continuous topsheet (1), and thereafter further bonding spaced apart end portions of each flap (5) into oppositely directed essentially flat positions so that the portion of each flap (5) that is between said spaced apart end portions can rise to an essentially vertical position because of the tendency of each elastic band to contract, thereby allowing an intermediate portion of each flap (5) to rise on the bonding line under the elastic contractive force of the elastic band (7);

(d) intermittently disposing absorbent cores (3) on the topside of a liquid-impermeable continuous backsheet (2)



having a topside, bottom side and two side edges, and which is wider than said topsheet (1), to thereby form a continuous backsheet unit having a topside and a bottom side, and then transferring this continuous backsheet unit to an assembly line,

(e) forming on the assembly line a continuous absorbent article by bringing together said previously formed cover unit and said previously formed backsheet unit and then adhesively bonding outer portions of the bottom side of said cover unit to portions of the topside of said continuous backsheet (2), the absorbent cores (3) being interposed centrally between the bottom side of said topsheet (1) and the topside of said backsheet (2); and

(f) said outer side portion of each elastic flap (5) extending laterally beyond the side edge of the topsheet (1) and terminating at least as far as the outer side edge of the backsheet (2); said laterally extending portion of the elastic flap (5) being bonded along a line (10) to the backsheet (2) and the portion of the elastic flap (5) that contains the elastic band (7) being located inwardly of said line (10).

5,064,490

METHODS OF PROVIDING AN OPTICAL FIBER PACKAGE

John T. Chapin, Alpharetta; Charles W. Jackson, Dunwoody; Thomas O. Mensah, Doraville, and Mickey R. Reynolds, Lawrenceville, all of Ga., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Division of Ser. No. 328,930, Mar. 27, 1989, Pat. No. 4,955,688.
This application May 2, 1990, Ser. No. 518,060
Int. Cl.[5] B65H *54/04, 18/28, 55/04;* G02B *6/16*
U.S. Cl. 156—172 14 Claims

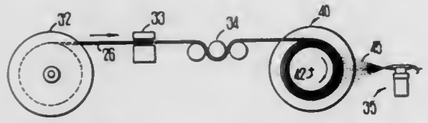
1. A method of providing an optical fiber package, said method comprising the steps of:

causing a plurality of convolutions of optical fiber to be wound in each of a plurality of layers on a bobbin; and

applying an adhesive material to each of said layers of optical fiber, said adhesive material comprising a mixture which includes a silicone adhesive constituent and having a modulus variation which is relatively stable with respect

VOL 1132 ISS 2 NO 12 1991 UMI

to time throughout a relatively wide temperature range at payout speeds which may be as high as about 300 meters per second and a solvent system which is effective to



control the rate of precipitation of said adhesive constituent and thereby control the surface roughness of the convolutions.

5,064,491

PROCESSES FOR THE MANUFACTURE OF CURVED REINFORCING ELEMENTS

Michel Huvey, Bougival, France, assignor to Institut Francais du Petrole, Rueil - Malmaison, France

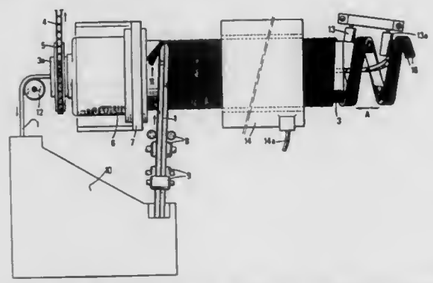
PCT No. PCT/FR87/00112, § 371 Date Dec. 8, 1987, § 102(e) Date Dec. 8, 1987, PCT Pub. No. WO87/06184, PCT Pub. Date Oct. 22, 1987

PCT Filed Apr. 7, 1987, Ser. No. 146,134

Claims priority, application France, Apr. 8, 1986, 86 05093; Apr. 8, 1986, 86 05094; Apr. 8, 1986, 86 05095

Int. Cl.[5] B29D *23/22*

U.S. Cl. 156—173 **6 Claims**



1. Process for continuously manufacturing shaped curved reinforcing bars having one of a constant or non-constant cross section, the bars being fashioned of reinforced stabilizable material the process comprising the steps of providing a shaped supporting mold including a plurality of grooves, winding said shaped supporting mold around a mandrel, placing reinforcing elements impregnated with a stabilizable resin in the respective grooves and stabilizing said stabilizable resin over at least a portion of a length of said mandrel, so as to simultaneously produce a plurality of curved bars with shaped sections of the reinforced stabilizable material on said mandrel.

5,064,492

METHOD FOR PRODUCING DISPOSABLE GARMENT

Andrew J. Friesch, W73 N1030 Poplar Ave., Cedarburg, Wis. 53012

Filed Oct. 3, 1989, Ser. No. 416,041

Int. Cl.[5] B32B *31/00*

U.S. Cl. 156—191 **11 Claims**

1. A method for producing a disposable garment having an absorbent pad therein, which comprises the steps of:

(a) at an elevated temperature preprinting one side of a web of moisture impermeable film with heat activatable adhesive, said adhesive being non-tacky and non-blocking at ambient temperatures and being a free flowing liquid at temperatures of 210° F. and above,

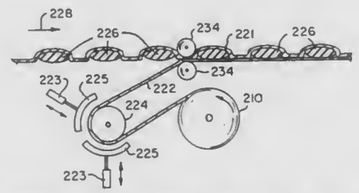
(b) cooling said web below 110° F.,

(c) winding said web into a roll,

(d) unwinding said web from said roll and feeding it to a bonding area

(e) heat activating said adhesive;

(f) positioning a plurality of absorbent pads adjacent said preprinted film;



(g) feeding a web of non-woven material to said bonding area to a position overlying said pads; and

(h) enclosing said pads by bonding said film to said overlying web of nonwoven material, and

(i) cutting the resultant bonded materials to form individual garments.

5,064,493

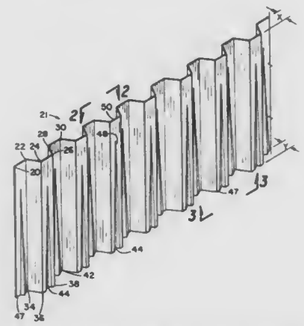
METHOD OF PRODUCING CURVED HONEYCOMB CORE MATERIAL HAVING CRIMPS IN ONE EDGE

James F. Smith, II, Owasso, Okla., assignor to Lansing Overhaul and Repair, Inc., Tulsa, Okla.

Filed Oct. 9, 1990, Ser. No. 594,293

Int. Cl.[5] B32B *3/12*; B31F *1/22, 1/20*

U.S. Cl. 156—207 **3 Claims**



1. A method of forming curved honeycomb core material, comprising the steps of:

shaping a plurality of strips of material into a continuous alternating series of half-hexagonal shapes, each said strip having a first edge and a second edge both extending along the length of said strip;

forming a sequence of tapered crimps in said first edge only of each said strip such as to reduce the linear length of said first edge;

and joining said strips together in a side-to-side manner.

5,064,494

PROCESS FOR THE AT LEAST PARTIAL CURING OF SEALANTS AND ADHESIVES USING PULSED MICROWAVE ENERGY

Edward W. Duck, Gaiberg; Ingolf Scheffler, Wiesloch, and Michael Hirthammer, Heidelberg, all of Fed. Rep. of Germany, assignors to Teroson G.M.B.H., Fed. Rep. of Germany

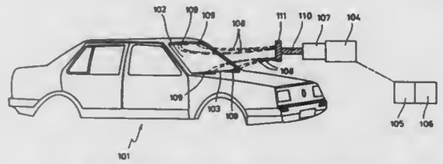
PCT No. PCT/EP88/00516, § 371 Date Mar. 3, 1989, § 102(e) Date Mar. 3, 1989, PCT Pub. No. WO88/09712, PCT Pub. Date Dec. 15, 1988

PCT Filed Jun. 10, 1988, Ser. No. 334,279

Claims priority, application Fed. Rep. of Germany, Jun. 12, 1987, 3719601

Int. Cl.[5] B32B *31/00*; H05B *6/64*

U.S. Cl. 156—273.5 **7 Claims**



1. A process for glazing motor vehicles, the steps comprising: applying a sealant and adhesive composition to either a vehicle frame having one or more metal elements or to a window, inserting the window into the frame adjacent to the metal element, applying microwave energy from a radiational element located to one side of the window opposite the metal element to at least a portion of the composition in a pulse-like manner so that overheating of the portion of the composition to which the microwaves are applied is avoided, so as to heat and initiate curing of at least a portion of the composition, thereby securing the window to the frame wherein the pulse-like manner is that a first group of microwaves is applied during an initial period, followed by an interval period during which continuous microwave energy is applied, and subsequently at least one additional group of microwaves is applied during at least one additional period.

5,064,495

METHOD OF ADHESION WITH A MERCAPTO GROUP CONTAINING ADHESIVE

Ikuo Omura; Junichi Yamauchi, and Mitsunobu Kawashima, all of Kurashiki, Japan, assignors to Kuraray Company, Limited, Kurashiki, Japan

Continuation of Ser. No. 103,685, Oct. 2, 1987, abandoned. This application Jul. 13, 1989, Ser. No. 379,666

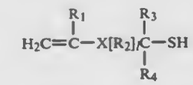
Claims priority, application Japan, Oct. 6, 1986, 61-238946

Int. Cl.[5] C09J *5/00, 141/00*

U.S. Cl. 156—307.3 **8 Claims**

1. In a method of adhering a metal to a second material, the improvement which comprises:

adhering said metal to said second material with an adhesive composition containing a monomer having at least one mercapto group joined to a saturated carbon atom and at least one olefinic double bond and which has the formula:



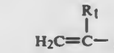
wherein R_1 is hydrogen or methyl; R_2 is a C_1–C_{40} organic group, a C_1–C_{40} organic group containing a



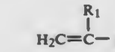
a C_1–C_{40} organic group containing a mercapto group or a C_1–C_{40} organic group containing both a mercapto group and a



R_3 and R_4 each represent a C_1–C_{40} organic group, a C_1–C_{40} organic group substituted by a

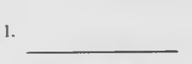


a C_1–C_{40} organic group substituted by a mercapto group or a C_1–C_{40} organic group substituted by both a mercapto group and a



hydrogen, mercapto or halogen; at least two of R_2, R_3 and R_4 may join together to form a cyclic structure when at least one of R_3 and R_4 is an organic group; X is

—COO—, —OOC—, —CONH—, —COS—, —SOC—,



and l is 0 or 1.

5,064,496

METHODS FOR COLLECTING AND LOADING YARNS AND APPARATUSES THEREFOR

Akira Asanuma, Iwakuni, and Tomonori Shida, Kobe, both of Japan, assignors to Teijin Limited, Osaka, Japan

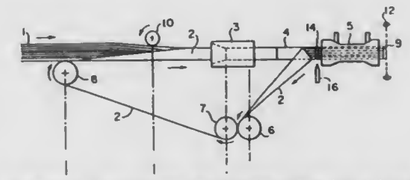
PCT No. PCT/JP88/00317, § 371 Date Sep. 27, 1989, § 102(e) Date Jul. 27, 1989

PCT Filed Mar. 30, 1988, Ser. No. 416,316

Claims priority, application Japan, Mar. 30, 1987, 62-74454

Int. Cl.[5] B32B *31/00*

U.S. Cl. 156—468 **12 Claims**



1. A method of collecting and forming yarns into a bundle, said yarns comprising 2,000 to 200,000 hollow fibers having a permselective wall, said method comprising:

holding said yarns by a running belt means;

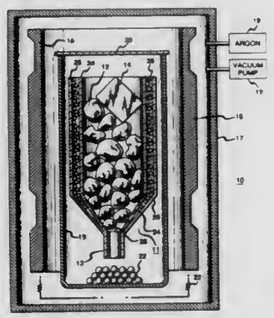
forming a part of said belt means into a cylindrical shape by compressing said part of said belt means,

moving said yarns with the belt means for a predetermined distance while said yarns are held by the belt means,

VOL 1132 ISS 2 NO 12 1991 UMI

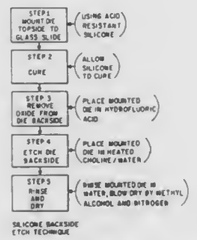
releasing said yarns from the belt means,
loading a bundle of said yarns being released from said belt means into a cylindrical case,
stopping the running belt means,
binding the bundle with an adhesive taping material at a predetermined position between a release position of said yarns being held and an inlet opening of the case, and
cutting said yarns.

5,064,497
CRYSTAL GROWTH METHOD AND APPARATUS
Jim E. Clemans, Trenton, N.J.; Theophilus I. Ejim, Fairless Hills, Pa., and Maria J. Yuen, Hopewell, N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Mar. 9, 1990, Ser. No. 490,903
Int. Cl.[5] C30B *11/14*
U.S. Cl. 156—616.1 **26 Claims**



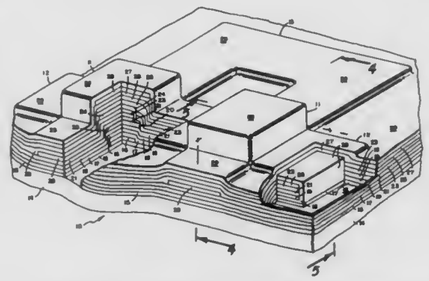
21. Apparatus for making large single crystals of a compound semiconductor material comprising: a crucible for containing a monocrystalline seed crystal of the compound material to be made and a quantity of raw semiconductor material in contact with the seed crystal; means for heating the crucible to melt the raw material and part of the seed crystal; a first wall of the crucible contacting the raw material in its molten state; and means for reducing the temperature of the crucible such that the molten material freezes first at its interface with the seed crystal, and then freezes progressively therefrom, wherein:
the crucible has a second wall for containing between it and the first wall a second material of a type which, when melted, chemically reacts with the material from which the first wall is made.

5,064,498
SILICON BACKSIDE ETCH FOR SEMICONDUCTORS
Patrick E. Miller, Mesquite, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.
Filed Aug. 21, 1990, Ser. No. 570,933
Int. Cl.[5] H01L *21/306*; B44C *1/22*; C03C *15/00, 25/06*
U.S. Cl. 156—626 **16 Claims**



1. A method to remove the silicon substrate of a semiconductor chip comprising the steps of:
removing oxide from the silicon substrate; and
placing the semiconductor device into a solution of choline and water.

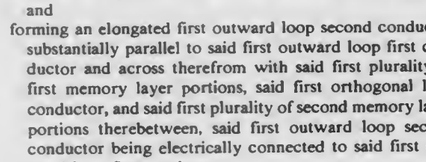
5,064,499
INDUCTIVELY SENSED MAGNETIC MEMORY MANUFACTURING METHOD
Richard B. Fryer, Minnetonka, Minn., assignor to Honeywell Inc., Minneapolis, Minn.
Filed Apr. 9, 1990, Ser. No. 507,682
Int. Cl.[5] B44C *1/22*; C23F *1/02*; C03C *15/00, 25/06*
U.S. Cl. 156—643 **13 Claims**



1. A method for forming a thin-film magnetic memory on a substrate in a monolithic integrated circuit, said method comprising:
forming an elongated first outward loop first conductor supported by said substrate;
forming a first plurality of anisotropic magnetic thin-film first memory layer portions each at a corresponding selected location along said first outward loop first conductor at a side thereof opposite that of said substrate;
forming an elongated first orthogonal loop conductor crossing said first outward loop first conductor at least at two of said first memory layer portions in said first plurality thereof on a side thereof opposite that of said first outward loop first conductor;
forming a first plurality of anisotropic magnetic thin-film second memory layer portions each across said first orthogonal loop conductor from a corresponding one of said first plurality of first memory layer portions but with each extending around and past said first orthogonal loop conductor to be in direct contact with its corresponding one of said first plurality of said first memory layer portions; and
forming an elongated first outward loop second conductor substantially parallel to said first outward loop first conductor and across therefrom with said first plurality of first memory layer portions, said first orthogonal loop conductor, and said first plurality of second memory layer portions therebetween, said first outward loop second conductor being electrically connected to said first outward loop first conductor.

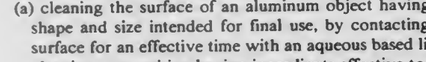
5,064,500
SURFACE CONDITIONER FOR FORMED METAL SURFACES
Sami B. Awad, Drexel Hill, Pa., assignor to Henkel Corporation, Ambler, Pa.
Continuation-in-part of Ser. No. 492,695, Mar. 13, 1990, which is a continuation-in-part of Ser. No. 395,620, Aug. 18, 1989, Pat. No. 4,944,889, which is a continuation-in-part of Ser. No. 57,129, Jun. 1, 1987, Pat. No. 4,859,351. This application Sep. 14, 1990, Ser. No. 583,051
Int. Cl.[5] B44C *1/22*; C23F *1/00*; C09K *13/04*
U.S. Cl. 156—665 **20 Claims**

1. A process comprising steps of:
(a) cleaning the surface of an aluminum object having the shape and size intended for final use, by contacting the surface for an effective time with an aqueous based liquid cleaning composition having ingredients effective to produce a thoroughly degreased, clean surface substantially free from aluminum fines and other solid contamination;
(b) (i) rinsing the surface cleaned as recited in step (a) with additional water and (ii) drying the rinsed surface; and
(c) conveying the object with a cleaned and dried surface produced as recited in steps (a) and b) via high speed automatic conveying equipment,
wherein the improvement comprises contacting the aluminum surface after cleaning and rinsing as recited in steps (a) and (b)(i) but before the drying recited in step (b)(ii), with a liquid composition comprising water and the following components:
(A) a component of water soluble materials selected from the group conforming to general chemical formula I:



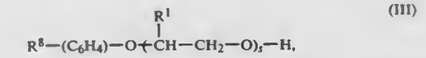
(I)

wherein each of R^1, R^3, and R^6 is independently selected from hydrogen and alkyl groups containing 1–about 4 carbon atoms each of x, y, and z is an integer and is independently selected within the range from 0–about 25; and each of R^2, R^4, and R^5 is independently selected from hydrogen, monovalent cations, monovalent fractions of polyvalent cations, alkyl groups containing 1–about 20 carbon atoms, and aryl and arylalkyl groups containing 1–about 20 carbon atoms, except that at least one of R^2, R^4, and R^5 (i) is not hydrogen and (ii) has at least one alkoxyl group bonded between it and the phosphorous atom in formula I;
(B) a component selected from the group of water soluble salts containing ions that comprise atoms selected from the group consisting of Fe, Zr, Sn, Al, and Ce;
(C) a water soluble metal etching component;
(D) a component selected from molecules conforming to general formula II:



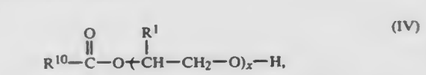
(II)

wherein R^7 is a linear, cyclic, or branched saturated monovalent aliphatic hydrocarbon moiety containing from 1 to 25 carbon atoms; X is selected from the group consisting of hydrogen, halogen, phenyl, and R^1; s is an integer from 1 to 50; and R^1 has the same meaning as for formula I; and
(E) a component selected from molecules conforming to general formula III:



(III)

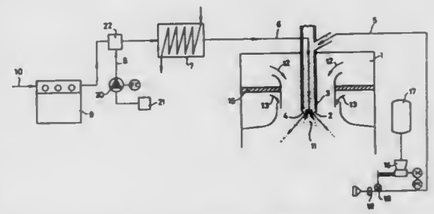
wherein R^8 is a linear, cyclic, or branched saturated monovalent aliphatic hydrocarbon moiety containing from 4 to 25 carbon atoms; (C_6H_4) is an ortho, meta, or para phenylene nucleus; and R^1 and s have the same meaning as for formula II; and, optionally,
(F) a component selected from chelating agents for the metal containing ions of component (B);
(G) a component selected from molecules conforming to general formula IV:



(IV)

wherein R^{10} is a linear or branched, saturated or unsaturated monovalent aliphatic hydrocarbon moiety containing from 1 to 25 carbon atoms; and R^1 and x have the same meaning as in formula I;
the contacting of the aluminum surface with said liquid composition being at an effective temperature for a sufficient time to cause the coefficient of static surface friction of the aluminum object with the surface so treated to be less than 1.5, and the amount of components (D) and (E) present in said liquid composition being sufficient to stabilize the liquid composition against phase separation.

5,064,501
SPRAY DRYING APPARATUS; METHOD FOR PREPARATION OF A SPRAY-DRIED PRODUCT HAVING A DESIRED BULK DENSITY
Antonius C. Boersen, Hillegom, Netherlands, assignor to Stork Friesland B.V., Netherlands
Filed Mar. 13, 1990, Ser. No. 492,998
Claims priority, application Netherlands, Mar. 13, 1989, 8900598
Int. Cl.[5] B05B *1/02*; B05D *1/02*; B29B *9/08*
U.S. Cl. 159—4.08 **13 Claims**



1. Apparatus for the preparation of a foam spray-dried product at least comprising a housing and a nozzle situated therein, in which the nozzle connects to a conduit for supplying liquid

VOL 1132 ISS 2 NO 12 1991 UMI

comprising at least one of the ingredients of the end product and a supply of pressurized gas and/or liquified gas being connected to said conduit, said liquid forming a jet of droplets as it passes through the nozzle, and means are provided to feed a stream of gas comprising dry particulate material to the jet of droplets issued by the nozzle concerned, in which the housing is provided with a tube for feeding in said stream of gas comprising dry particulate material; said tube ending inside the housing and said nozzle being mounted adjustably within said tube and capable of moving along the axis of said tube whereby said stream of gas comprising dried particulate material is ejected from said tube within said housing and said liquid is ejected from said nozzle substantially co-directionally with said stream of gas, while further means are present which allow for the accurate adjustment of the weight amount of liquid; the weight amount of gas to be supplied to said liquid and the weight amount of dry particulate material to predetermined values in correspondence with a bulk density which is desired for the end product.

9. Method of preparation of a foam spray-dried product in which a solution of at least one of the ingredients of the product is fed to a nozzle within a housing whereby a pressurized gas is fed to said solution to cause a foaming of said solution leaving the nozzle as a jet of droplets and whereby a stream of gas comprising a dry particulate material is fed to the jet of droplets, in which the stream of gas comprising a dry particulate material is made to collide with the jet of droplets issued by the nozzle and whereby at least at the intersection of said stream and said jet of droplets the cross-section of said stream has a ring form whereby the axis of the jet of droplets is substantially perpendicular to the plane of such ring and wherein the ratio between the amount of dry particulate material and the amount of solution fed to the nozzle is adjusted to achieve a desired bulk density for the spray-dried product.

5,064,502

MULTI-PLY WEB FORMER

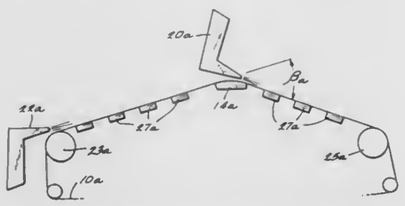
James A. Turner, Lancashire, England, assignor to Beloit Corporation, Beloit, Wis.

Filed Nov. 15, 1989, Ser. No. 436,577

Claims priority, application United Kingdom, Mar. 18, 1989, 890275

Int. Cl.[5] D21F *9/02, 11/04*

U.S. Cl. 162—299 **14 Claims**



1. In a multi-ply paper web forming apparatus having a first looped fourdrinier forming wire disposed to travel in a substantially horizontal forming zone downstream of a primary headbox for emitting a stock slurry jet onto the first forming wire only to form a base ply paper web thereon, and a secondary headbox having a slice opening for emitting a stock slurry jet onto the first forming wire downstream of the primary headbox to form a second ply paper web over the base ply, the combination comprising:

a means for guiding mounted and downstream portions of the first forming wire relative thereto, said means for guiding disposed to define the beginning of a planar, substantially horizontally disposed diverging path of travel of the first forming wire downstream of the secondary headbox;

the secondary headbox is disposed with its slice opening in spaced adjacency with the first forming wire over the means for guiding downstream of the beginning of the diverging path of travel;

said apparatus being structured and arranged so that the stock jet emitted from the secondary headbox slice impinges upon the base ply web on the diverging path of travel of the first forming wire at a low impingement angle of from about 0° to about 6° relative to the portion of the first forming wire downstream of the means for guiding and a short distance ranging up to about 75 mm from the secondary headbox slice opening.

5,064,503

COMBINATION COMPRISING THE PRESS SECTION AND THE INITIAL PART OF THE DRYING SECTION IN A PAPER MAKING MACHINE

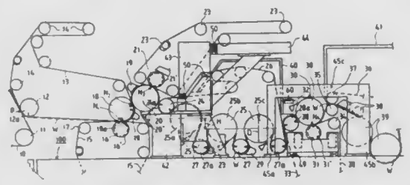
Seppo Tavi, Jyväskylä , Finland, assignor to Valmet Paper Machinery Inc., Finland

Filed Apr. 24, 1990, Ser. No. 513,552

Claims priority, application Finland, May 2, 1989, 892098

Int. Cl.[5] D21F *3/00*

U.S. Cl. 162—359 **9 Claims**



1. A combination in a paper or paperboard making machine, said combination comprising:

a press section comprising a compact press roll arrangement comprising at least three press rolls with each of said at least three press rolls forming a press nip with another of said at least three press rolls and a separate press arrangement comprising at least two press rolls forming a press nip with each other and located remote from said compact press roll arrangement so as to not form a press nip with any of said at least three press rolls, and said separate press arrangement comprising at least one press felt;

a drying section comprising a plurality of cylinder groups, one of said cylinder groups comprising a plurality of pre-drying cylinders and said one of said cylinder groups being located between said compact press roll arrangement and said separate press arrangement; and

a drying wire forming a loop and structured and arranged to facilitate a single wire draw for a paper or paperboard web issuing from said compact press roll arrangement, said plurality of pre-drying cylinders comprising a plurality of upper cylinders which are located outside of said wire loop and which also facilitate said single wire draw for said paper or said paperboard web, and said drying wire structured and arranged to pass said paper or paperboard web substantially as a closed draw onto said at least one press felt of said separate press arrangement;

further comprising first and second frame parts separate from each other, the first of said frame parts being connected to said compact press roll arrangement and the second of said frame parts being connected to said separate press arrangement; and

wherein said second frame part directly connected to said separate press arrangement comprises a C-shaped frame which is open in a downward direction and which C-shaped frame comprises a pair of substantially vertical parts and a substantially horizontal part connecting said pair of substantially vertical parts, and said combination further comprises a foundation of the paper or paperboard making machine and a plurality of base-frame parts

mounted on said foundation and directly connected to respective lower ends of said pair of vertical parts of said C-shaped frame.

5,064,504

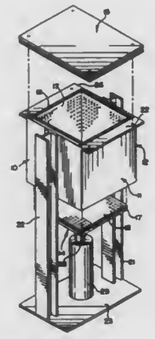
PULP MOLDING PRESS

Stanley J. Shetka, 10247 40th St. West, Box 44D, Webster, Minn. 55088

Division of Ser. No. 324,263, Mar. 14, 1989, Pat. No. 4,994,148. This application Jan. 2, 1991, Ser. No. 635,885

Int. Cl.[5] D21J *3/00*

U.S. Cl. 162—396 **1 Claim**



1. A pulp press comprising:

a molding chamber defined on all sides by sidewalls for receiving an aqueous pulp to be compressed,

each of said sidewalls being comprised of a rigid screen through which water can pass, said screen being the innermost portion of each said sidewall, and a rigid impermeable plate outboard from said screen,

said rigid impermeable plate having channels formed therein facing said screen through which channels liquid can flow to drain,

one of said sidewalls being movable into said molding chamber to serve as a piston,

means for fixing all but said moving sidewall together, and

means to move said movable sidewall into said chamber to compress pulp therein to a desired pressure and pulp density, whereby water and air are forced out of said pulp through said screens and into said rigid plate channels to drain.

5,064,505

LOW-PRESSURE DESALINIZATION DEVICE

Peter M. Borgren, 825 Partridge St., Duluth, Minn. 55811

Continuation-in-part of Ser. No. 396,276, Aug. 21, 1989, abandoned. This application Apr. 16, 1990, Ser. No. 509,366

Int. Cl.[5] B01D *3/10*

U.S. Cl. 202—202 **6 Claims**

1. A distillation apparatus comprising:

(a) a water chamber with an open, submerged end, an open interior and a closed upper portion, the open end being submersible in a water source;

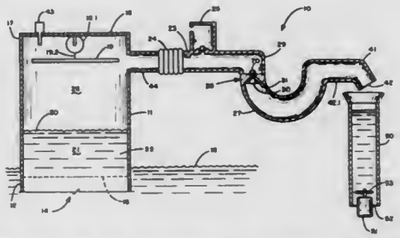
(b) a condensation and collection pipe affixed to and extending from the upper portion of the water chamber;

(c) means for exhausting air from the water chamber to create low-pressure conditions therein at less than atmospheric pressure to decrease surface tension of water in the water chamber and to thereby facilitate the generation of vapor in the water chamber;

(d) means connected in the condensation and collection pipe for condensing vapor generated from the water chamber;

(e) collection means comprising a collection trap connected in the condensation and collection pipe for collecting water condensed by the condensation means, the collection means including a level control means;

(f) distilled water conveying means for conveying the water from the collection means to a turbine, the distilled water conveying means having an upper end and a lower end, the upper end being connected to the collection means



and disposed at approximately the height of the closed upper portion of the water chamber, the lower end of the distilled water conveying means disposed adjacent the turbine, the distilled water conveying means being curved between its upper and lower ends; and

(g) the turbine being driven by water flowing from the lower end of the distilled water conveying means.

5,064,506

PACKED COLUMN WITH BUILT-IN TEMPERATURE MEASURING POINTS

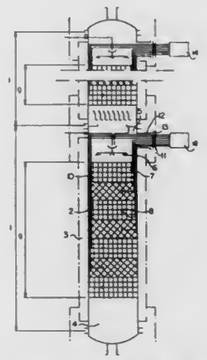
Dieter Sparenberg, Ratingen; Rolf Ullrich, Moenchengladbach, and Herbert Nuding, Ratingen, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen, Fed. Rep. of Germany

Filed Aug. 11, 1989, Ser. No. 392,336

Claims priority, application Fed. Rep. of Germany, Aug. 13, 1988, 3827560

Int. Cl.[5] B01D *3/42*

U.S. Cl. 203—2 **4 Claims**



1. A rectification column, comprising: a column section having a wall, packing arranged in the column section, a plurality of temperature sensing means arranged in the column section during installation of the packing, to contact contents of the column, at a point remote from the column wall, at which point the temperature is to be sensed, each temperature sensing means connected to a lead means to connect the temperature sensing means to a means outside of the column through a single lead means inlet tube, each lead means extends laterally from the point at which the temperature sensing means contacts the contents of the column to the column wall, at the column wall, each lead means is arranged in the periph-

VOL 1132 ISS 2 NO 12 1991 UMI

eral zone between the packing and the column to the single lead means inlet tube in the section and passes through the lead means inlet tube and an inlet tube closure means to the outside of the column section.

3. A method of installing a plurality of temperature sensing means, having leads, in a packed rectification column section having temperature sensing means, located at temperature sensing positions away from a column wall, which comprises:

(a) locating each temperature sensing means at a temperature sensing position in the column, away from the column wall;

(b) arranging the lead of each temperature sensing means to extend from the temperature sensing position laterally to the column wall and along the column wall to pass from the column section through a single lead means inlet tube in the section;

(c) arranging the column packing around each temperature sensing means in the column section so that the leads along the column wall are arranged in the peripheral zone between the packing and the column wall.

5,064,507

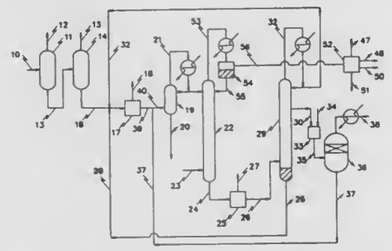
DISTILLATION PROCESS FOR RECOVERY OF HIGH PURITY PHENOL

Michael S. O'Donnell, Colonial Heights, and Lamberto Crescentini, Chester, both of Va., assignors to Allied-Signal Inc., N.J.

Filed Sep. 27, 1990, Ser. No. 588,868

Int. Cl.[5] B01D *3/32;* **C07C** *37/76*

U.S. Cl. 203—34 **28 Claims**



1. In a process for producing high purity phenol wherein alpha-methyl styrene (AMS) is produced as a by-product, the improvement comprising:

recovering a crude phenol product stream which includes AMS produced as a by-product in an amount of at least 0.5 weight percent and no greater than 10 weight percent, based on weight of phenol, and further includes acetol, 2-phenyl-propionaldehyde (2PPA), methyl-benzofuran (MBF), mesityl oxide (MO), and carbonyl impurities;

treating said crude phenol product stream in a first treatment zone with an amine to convert acetol and 2PPA to higher boiling components;

distilling said treated phenol product stream to separate higher boiling components and an overhead stream comprising phenol, AMS, and impurities including MBF, MO, and carbonyl compounds;

steam distilling said overhead stream in a steam distillation column with a water to phenol ratio of at least 0.2:1 and no greater than 1.2:1 to recover a light product comprising phenol, water, AMS, MBF and carbonyl compounds and a heavy product comprising phenol having a reduced quantity of MBF, AMS, and carbonyl compounds, relative to said overhead stream;

said steam distillation step additionally comprising a second amine treatment step whereby an effective amount of an amine is added to the lower portion of said steam distillation column to convert MO and carbonyl impurities to heavy and light impurities;

and distilling the heavy product from the steam distillation step to recover high purity phenol and a bottoms product containing heavies and unreacted amine.

5,064,508

PROCESS FOR THE SEPARATION OF 2-METHYLALKANALS FROM ISOMERS THEREOF

Jurgen Weber, Oberhausen; Peter Lappe, Dinslaken, and Helmut Springer, Oberhausen, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Oberhausen, Fed. Rep. of Germany

Continuation of Ser. No. 325,660, Mar. 20, 1989, abandoned. This application Aug. 28, 1990, Ser. No. 574,609

Claims priority, application Fed. Rep. of Germany, Mar. 31, 1988, 3811039

Int. Cl.[5] B01D *3/34*

U.S. Cl. 203—38 **25 Claims**

1. A process for the separation of 2-methylalkanals from a mixture thereof with at least one alpha unbranched aldehyde isomer thereof comprising distillation of said mixture in the presence of formaldehyde and aldolization catalyst wherein said formaldehyde reacts with said mixture during distillation and wherein a selective aldolization reaction is effected in which the alpha unbranched aldehydes are converted to alpha alkyl acrolein and the 2-methylalkanals are separated therefrom and recovered in excess of 97% purity.

5,064,509

MULTILAYER BELTS FORMED BY ELECTRODEPOSITION

Andrew R. Melnyk, Rochester; Donald S. Sypula; Joseph Mammino, both of Penfield; Ronald Jansen, Rochester; William G. Herbert, Williamson, all of N.Y., and Henry Grey, Santa Clara, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Sep. 28, 1990, Ser. No. 589,687

Int. Cl.[5] C25D *1/02, 13/14*

U.S. Cl. 204—9 **31 Claims**

1. A process for preparing a multilayered belt comprising at least a polymer layer and a conductive layer, said process comprising:

a) providing a mandrel having an electroforming surface;

b) sequentially electrodepositing said polymer layer and said conductive layer on said electroforming surface to form said multilayered belt; and

c) removing said multilayered belt from said mandrel.

5,064,510

METHOD FOR PRODUCING A GALVANICALLY DEPOSITED PROTECTION LAYER AGAINST HOT GAS CORROSION

Martin Thoma, Munich; Monika Bindl, Mitterscheyern, and Josef Linska, Grafing, all of Fed. Rep. of Germany, assignors to MTU Motoren-und Turbinen-Union Muenchen GmbH, Munich, Fed. Rep. of Germany

Filed Oct. 26, 1990, Ser. No. 604,825

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1989, 3935957

Int. Cl.[5] C25D *5/50;* **C25F** *15/00*

U.S. Cl. 204—16 **4 Claims**

1. A method for galvanically depositing a protective coating on a structural component intended for exposure to hot gas, comprising the following steps:

(a) preparing an electrolyte in which a matrix material of cobalt and/or nickel is contained,

(b) providing an alloying powder containing at least one component selected from the group consisting of aluminum, chromium, and yttrium, said alloying powder having powder particles of a substantially spherical configuration with a passivated surface,

(c) suspending said spherical powder particles in said electrolyte,

(d) introducing gas bubbles into a stationary electrolytic bath holding said electrolyte,

(e) immersing said structural component in said stationary electrolytic bath with said gas bubbles therein and rotating said structural component about a substantially horizontal axis while said structural component is immersed in said electrolytic bath, until said structural component has a coating of a desired thickness, and

(f) removing the coated structural component from said electrolytic bath and subjecting the coated structural component to a heat treatment until an alloyed coating is formed.

5,064,511

ELECTROCHEMICAL GRAINING OF ALUMINUM OR ALUMINUM ALLOY SURFACES

Osvaldo Gobbetti, Verona, Italy, assignor to Diaprint S.r.l., Pescantina, Italy

Filed May 24, 1990, Ser. No. 527,904

Claims priority, application Italy, Jun. 5, 1989, 84942 A/89

Int. Cl.[5] C25D *5/44;* **C25F** *3/04*

U.S. Cl. 204—33 **24 Claims**

15. A process of surface roughening or graining comprising electrolytically treating one or more aluminum plates in an aqueous solution of electrolytes, said solution comprising hydrochloric acid in a concentration ranging from 2.5 to 20 g/l and at least one further acid selected from at least an oxy-acid, at least a dicarboxylic acid or its derivatives, and their mixtures, at a concentration of 1 to 100 d/l, wherein said dicarboxylic acid is selected from the group comprising oxalic, malonic, succinic, glutaric, adipic, pimelic, suberic, azelaic, sebacic, maleic, fumaric, phthalic, isophthalic, hemimellitic, trimellitic and trimesic acids, said treating being carried out by applying alternate current at a voltage of 5 to 42 volts, preferably 10 to 30 volts, at a current density of 1.5 to 10 Ampere/sq. dm for a duration ranging from 30" to 5', and at a temperature ranging from 10° to 40° C., preferably from 15° to electrode ranging from 10 to 250 mm.

16. A process according to claim 15, comprising a stage of anodization of the grained plate comprising immersing the plate in an anodizing bath comprising an anodization electrolyte selected from sulfuric, phosphoric, oxalic acids, and a mixture thereof, and passing direct current through the bath.

5,064,512

PROCESS FOR DYEING ANODIZED ALUMINUM

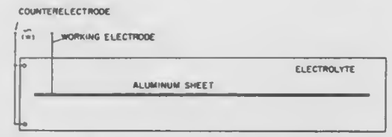
Dieter Brodalla; Juergen Lindener; Loert de Riese-Meyer, all of Duesseldorf; Willi Wuest, Ratingen; Christine Schroeder, Duesseldorf; Willi Buchmeier, and Juergen Foell, both of Duesseldorf, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf, Fed. Rep. of Germany

Filed Jul. 19, 1989, Ser. No. 382,166

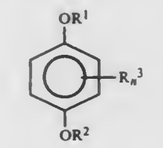
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1988, 3824403

Int. Cl.[5] C25D *11/22*

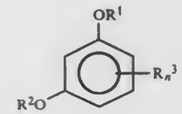
U.S. Cl. 204—37.6 **20 Claims**



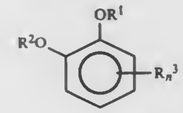
1. In a process for dyeing of an anodized surface of aluminum or an aluminum alloy by subjecting said anodized surface to electrolysis, using an alternating current or an alternating current superimposed on a direct current, in an acidic electrolyte containing tin(II) salts, the improvement wherein said acidic electrolyte comprises from about 0.01 g/l to the solubility limit of at least one water-soluble tin-stabilizing compound selected from the group of compounds having one of the general formulas (I) to (IV):



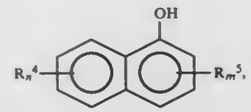
(I)



(II)



(III)



(IV)

wherein each of R^1 and R^2 independently represents hydrogen, alkyl, aryl, alkylaryl, alkylarylsulfonic acid, alkylsulfonic acid, or an alkali metal salt of either type of such a sulfonic acid, each having from 0 to 22 carbon atoms; $R^3{}_n$ represents n substituents, each of which independently may be a hydrogen, alkyl, aryl, or alkylaryl group, each group having from 0 to 22 carbon atoms, and n is an integer from 1 to 4; and each of $R^4{}_n$ and $R^5{}_m$ independently represents n and m substituents respectively, each of which substituents may be a hydrogen, alkyl, aryl, alkylaryl, sulfonic acid, alkylsulfonic acid, or alkylarylsulfonic acid group, or an alkali metal salt of any of these three types of acid groups, each such group having from 0 to 22 carbon atoms; m is an integer from one to three; and at least one of the substituents R^1, R^2, and R^3 is not hydrogen.

5,064,513

DIAPHRAGM FOR MOLTEN BATH SALT ELECTROLYSIS OF METAL HALIDES

Jean Boutin, St. Martin d'Heres; Pierre Brun, Grenoble, and Airy-Pierre Lamaze, Jarrie, all of France, assignors to Compagnie Europeenne du Zirconium Cezus, Courbevoie, France

Filed Feb. 12, 1990, Ser. No. 478,639

Claims priority, application France, Feb. 28, 1989, 89 03120

Int. Cl.[5] C25C *3/00, 3/08*

U.S. Cl. 204—64 R **19 Claims**

19. A process for electrolysis of a metal halide in a molten salt bath, comprising:

a) disposing said metal halide and molten salt bath in a cell comprising an anode and a cathode;

b) separating said anode and cathode with a diaphragm comprising carbon fibers disposed in one plane and in at least one direction, embedded at least partially in a rigid and inert material consisting essentially of graphite, said diaphragm having a porosity between 10% and 60% in the form of apertures of an area between 1 and 50 mm^2;

c) passing an electric current between said anode and said cathode to deposit the metal of said halide at said cathode and generate the halogen of said halide at said anode.

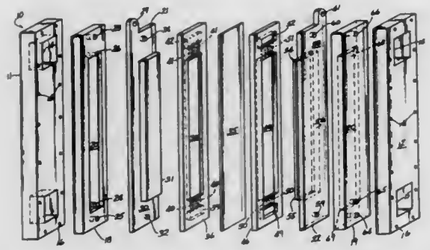
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,514

APPARATUS FOR THE PRODUCTION OF CHLORIC ACID

David W. Cawlfield, and Harry J. Loftis, both of Cleveland, Tenn., assignors to Olin Corporation, Cheshire, Conn.

Filed Mar. 30, 1990, Ser. No. 502,099
Int. Cl.[5] C25B *1/22*
U.S. Cl. 204—103 12 Claims



11. A method of operating a filter press membrane cell having an anolyte compartment and a catholyte compartment separated by an ion selectively permeable membrane comprising the steps of:

(a) circulating an anolyte solution of aqueous hypochlorous acid substantially free of chloride ions into and through the anolyte compartment;

(b) filling the catholyte compartment with a catholyte liquid; and

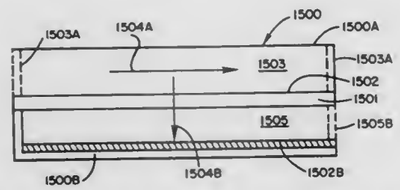
(c) electrolyzing the anolyte solution to oxidize hypochlorous acid to chloric acid and cause H_3O^+ to migrate through the membrane producing an acidic catholyte and a chloric acid anolyte product.

5,064,515

ELECTROFILTER APPARATUS AND PROCESS FOR PREVENTING FILTER FOULING IN CROSSFLOW FILTRATION

Muralidhara Harapanahalli, Dublin, Ohio, assignor to Battelle Memorial Institute, Columbus, Ohio

Continuation of Ser. No. 224,029, Jul. 11, 1988, abandoned, which is a continuation-in-part of Ser. No. 74,738, Jul. 17, 1987, abandoned. This application Jun. 30, 1989, Ser. No. 374,581
The portion of the term of this patent subsequent to Aug. 27, 2008, has been disclaimed.
Int. Cl.[5] C02F *1/46*
U.S. Cl. 204—151 17 Claims



14. A method for separating a liquid from an aqueous suspension while reducing membrane or filter fouling comprising;

a. providing a filter apparatus having an electrofilter disposed therein wherein the electrofilter divides a housing of the apparatus into a crossflow chamber and a filtrate chamber, whereby there is further provided an electrofilter comprising a filter that is conductive and also functions as a first electrode that faces the crossflow chamber and a second electrode disposed in the filtrate chamber, whereby there is further provided a means for supplying a suspension to the crossflow chamber at one end thereof where the means consists of a single inlet supply means located upstream from the electrofilter, and means for removing a portion of the suspension depleted in liquid from another end of the crossflow chamber, wherein there is further provided an outlet means for removing filtrate from the filtrate chamber; and further providing means for supplying electrical energy to the electrofilter;

b. pumping the aqueous suspension into a single inlet supply means located upstream from the electrofilter in the filtering apparatus at a pressure adapted to cause flow of filtrate through the electrofilter;

c. concurrently with step b supplying electrical energy to the electrofilter at a voltage adapted to reduce fouling of the filter;

d. removing filtrate from the filtrate chamber; and

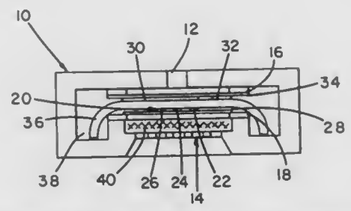
e. removing the aqueous suspension reduced in liquid content from the crossflow chamber.

5,064,516

MEASURING GAS LEVELS

Martin W. Rupich, Framingham, Mass., assignor to Gas Research Institute, Chicago, Ill.

Division of Ser. No. 75,243, Jul. 16, 1987. This application Jun. 27, 1988, Ser. No. 211,576
Int. Cl.[5] G01N *27/26*
U.S. Cl. 204—153.1 10 Claims



1. A method for measuring the amount of a predetermined gas in a gaseous mixture using an electrochemical cell having a working electrode, a counter electrode, and an electrolyte, said method comprising

contacting said gaseous mixture with said working electrode, and means for inhibiting the reduction of oxygen at said working electrode,

adsorbing an anion on said working electrode sufficiently strongly to resist its own displacement by oxygen but not so strongly as to resist its own displacement by said predetermined gas,

while said anion is adsorbed, applying a potential across said electrodes and cycling said applied potential, said cycling including an anodic sweep of said applied potential over a range between a potential level at which said predetermined gas in said gaseous mixture adsorbs onto said working electrode and a potential level at which said adsorbed predetermined gas is oxidized, said applied potential range including potentials at which oxygen is subject to reduction, and

measuring the current resulting from said anodic sweep.

5,064,517

METHOD FOR THE PREPARATION OF FINE PARTICULATE-METAL-CONTAINING COMPOUND

Nobuo Shimo, Chiba, Japan, assignor to Idemitsu Kosan Company Limited, Chiba, Japan

Filed Jan. 11, 1990, Ser. No. 463,392
Claims priority, application Japan, Jan. 18, 1989, 1-7755; Jan. 18, 1989, 1-7756; Jun. 14, 1989, 1-149706
Int. Cl.[5] C01D *1/02;* B05D *3/06*
U.S. Cl. 204—157.51 3 Claims

1. A method for the preparation of a metal oxide in a fine particulate form which comprises the steps of:

(a) admixing a vapor of an exothermically decomposable organometallic compound having a density of the molecules of the compound of at least 10^{15} molecules per cm^3 in the vapor phase with oxygen, air or an oxygen-containing compound in gaseous form capable of reacting with the organometallic compound to form a mixture in the vapor phase, wherein the concentration of said oxygen-containing compound in the vapor phase is at least equimolar to the organometallic compound calculated as molecular oxygen (O_2); and

(b) irradiating at least a pair of the vapor phase with laser beams in a pulse having a width not exceeding 1×10^{-3} second, and having an energy density of at least 10^{-4} joules per cm^2 so as to produce activated species of the organometallic compound which starts an exothermic chain reaction of the organometallic compound with oxygen, air or the oxygen-containing compound to form the fine particles of metal oxide.

5,064,518

METHOD FOR THE SELECTIVE ALPHA HALOGENATION OF ALKYLAROMATIC COMPOUNDS

Marlin E. Walters, West Columbia; George M. St. George, and W. Frank Richey, both of Lake Jackson, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 472,507, Jan. 29, 1990, Pat. No. 4,992,151. This application Nov. 1, 1990, Ser. No. 608,140
Int. Cl.[5] C07C *22/00;* C08G *63/00*
U.S. Cl. 204—57.99 11 Claims

1. A process for producing an aliphatic substituted aromatic compound having a least two alpha- halogen substituents which comprises contacting a reactive hypohalite compound with an aromatic compound, having at least one aliphatic substituent, and which contains at least two alpha-hydrogens, and in which each aliphatic substituent contains at least one beta-hydrogen in the presence of a free radical generating medium wherein the hypohalite compound is an alkali or an alkaline earth metal hypohalite and wherein the reaction is conducted in the presence of a phase-transfer medium.

5,064,519

NEUTRAL AND POSITIVELY CHARGED DYES FOR ELECTROPHORESIS SAMPLE LOADING SOLUTIONS

George Tice, Jr., Wenonah, N.J., and Douglas A. Amorese, Hockessin, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jun. 29, 1990, Ser. No. 546,186
Int. Cl.[5] C25B *1/00, 7/00*
U.S. Cl. 204—182.8 7 Claims

1. A method of electrophoretically separating biomolecules using a slab of a porous electrophoresis gel in buffer, the gel having length and width dimensions and defining plural wells adapted to receive samples for separation, comprising the steps of:

adding a sample of bioorganic molecules to be separated to a solution containing a charged dye wherein the net charge of the dye in solution is neutral or positive, thereby to provide a loading solution,

introducing an aliquot of the loading solution to one of the wells with the aid of the dye, and

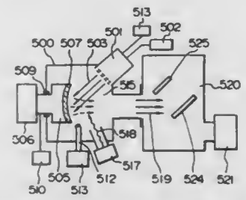
applying a voltage across one of the gel dimensions to cause the bioorganic molecules to migrate through that gel dimension in a first directional sense and the dye molecules either not to migrate in the gel or to migrate in a second directional sense in the opposite direction to the first directional sense, whereby the dye and the bioorganic molecules are driven differently to reduce interference between the dye and the bioorganic molecules.

5,064,520

METHOD AND APPARATUS FOR FORMING A FILM

Kiyoshi Miyake, Katsuta; Yasunori Ohno; Masato Isogai, both of Mito; Yukio Nakagawa, Daito; Takayoshi Seki, Hitachi; Koukichi Ouhata; Kenichi Natsui, both of Hitachi; Terunori Warabisako, Tokyo, and Keiji Arimatsu, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 14, 1990, Ser. No. 480,131
Claims priority, application Japan, Feb. 15, 1989, 1-33594; Jun. 21, 1989, 1-156787
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—192.11 42 Claims



1. A method of forming a film, comprising the steps of:

applying a particle beam to a material substance bonded by either van der Waals forces or hydrogen bonding forces, so as to sputter particles from said material substance, thereby producing particles from the material substance by sputtering;

applying the particles produced by sputtering of said material substance to a substrate; and

forming a film, including at least the particles produced by the sputtering, on said substrate.

5,064,521

APPARATUS FOR ELECTROCHEMICAL MACHINING

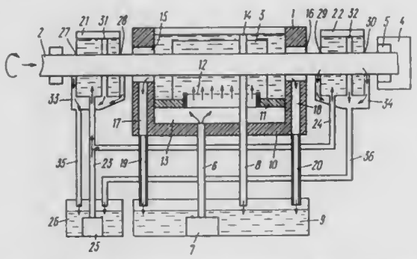
Alexandr V. Stepanenko; Vladimir K. Stanishevsky; Alexandr E. Parshuto; Alexandr A. Kosobutsky; Vsevolod A. Khlebtsevich, all of Minsk; Sergei S. Malyavko, Mogilev; Leonid M. Semenenko, Minsk; Sergei V. Loginov, Minsk, and Grigory E. Slepnev, Minsk, all of U.S.S.R., assignors to Belorussky Politekhnichesky Institut, Minsk, U.S.S.R.

PCT No. PCT/SU88/00208, § 371 Date Jul. 24, 1990, § 102(e) Date Jul. 24, 1990, PCT Pub. No. WO90/04665, PCT Pub. Date Mar. 3, 1990
PCT Filed Oct. 25, 1988, Ser. No. 543,799
Int. Cl.[5] B23H *3/10*
U.S. Cl. 204—224 M 10 Claims

1. An apparatus for electrochemical machining of workpieces, comprising: a first bath for machining workpieces accommodating electrodes, means for feeding the workpieces to the first bath with mechanisms for gripping the workpieces, and a second bath for cleaning electrolyte communicating with the first bath for machining the workpieces by way of a first pipe for feeding the electrolyte provided with a pump and a second pipe for discharging the electrolyte, the first bath for machining the workpieces having a partition arranged in parallel with a bottom to define therebetween a damping chamber communicating with the first pipe for feeding the electrolyte and provided with a group of wire-gauge ejectors equal in number to a number of workpieces being machined, and a

VOL 1132 ISS 2 NO 12 1991 UMI

means for maintaining a preset level of electrolyte inside the first bath, comprising a first overflow pipe extending through



the bottom of the first bath and the partition and communicating with the second pipe for discharging the electrolyte.

5,064,522

FEED THROUGH FOR APPLICATION OF HF ENERGY

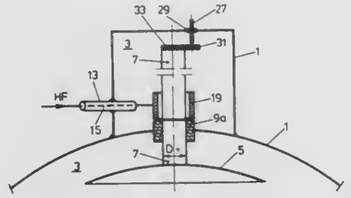
Klaus Wellerdieck, Buchs, Switzerland, assignor to Balzers Aktiengesellschaft, Balzers, Liechtenstein

Filed Nov. 6, 1989, Ser. No. 431,871

Claims priority, application Switzerland, Nov. 7, 1988, 4122/88

Int. Cl.[5] C23C *14/00*; C23F *1/02*

U.S. Cl. 204—298.28 **17 Claims**



1. An apparatus for treating workpieces in a vacuum using an RF gas discharge, comprising:

wall means defining a vacuum chamber;

a carrier arrangement within said chamber for carrying workpieces to be treated, said carrier arrangement having an electroconductive surface area;

a shaft rotatably mounted to said wall means, said carrier arrangement being mounted on said shaft;

an RF energy feed from outside said vacuum chamber into said vacuum chamber;

a first electroconductive circular electrode surface in said vacuum chamber and connected to said RF energy feed;

a second electroconductive circular electrode surface arranged coaxially to and on said shaft, and being electroconductively connected to said electroconductive surface area of said carrier arrangement; and

said first circular electrode surface being spaced from and arranged along said second circular electrode surface so that said second circular electrode surface moves along said first circular electrode surface as said carrier arrangement rotates with said shaft so as to lead RF energy from said RF energy feed to said electroconductive surface area of said carrier arrangement for said RF gas discharge.

5,064,523

PROCESS FOR THE HYDROGENATIVE CONVERSION OF HEAVY OILS AND RESIDUAL OILS, USED OILS AND WASTE OILS, MIXED WITH SEWAGE SLUDGE

Klaus Kretschmar, Dorsten; Ludwig Merz, Recklinghausen, and Klaus Niemann, Oberhausen, all of Fed. Rep. of Germany, assignors to Veba Oel Technologie GmbH, Gelsenkirchen, Fed. Rep. of Germany

Filed Nov. 4, 1988, Ser. No. 267,289

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1987, 3737370

The portion of the term of this patent subsequent to Jul. 17, 2007, has been disclaimed.

Int. Cl.[5] C10G *49/02*

U.S. Cl. 208—112 **15 Claims**

1. A process for the hydrogenative conversion of a mixture of a raw oil and sewage sludge to liquid and gasous hydrocarbon products, comprising the step of:

hydrogenating said mixture in the liquid phase or combined liquid and gas phases with a hydrogen-containing gas, said gas having a hydrogen partial pressure of 50–300 bar, at a temperature of 250°–500° C., with a gas/oil ratio of 100–10,000 m^3/t, wherein said hydrogenation is conducted in the presence of at least one additive selected from the group consisting of anthracite cokes, lignite cokes, carbon blacks, activated cokes, petroleum cokes, furnace dust, dusts from Winkler gasification of coal, red mud, iron oxides, electrostatic filter dusts and cyclone dusts, said additive being present in an amount from 0.5–5 wt. % based on the total amount of said mixture, and said additive comprising (1) two different particle size fractions, a fine particle size fraction having a particle size of 90 microns or less and a coarse particle size fraction having a particle size of 100–2,000 microns, or (2) a continuous particle size distribution having a particle size of 100–2,000 microns, wherein the hydrogenation is carried out with a weight ratio of raw oil to sewage sludge in the range of 10:1 to 1:1.5.

5,064,524

PASSIVATION OF FCC CATALYSTS

David R. Forester, Spring, Tex., assignor to Betz Laboratories, Inc., Trevose, Pa.

Continuation of Ser. No. 208,202, Jun. 17, 1988, Pat. No. 4,913,801. This application Mar. 28, 1990, Ser. No. 500,426

The portion of the term of this patent subsequent to Apr. 3, 2007, has been disclaimed.

Int. Cl.[5] C10G *11/18*

U.S. Cl. 208—121 **12 Claims**

1. In a method for cracking a hydrocarbon which comprises:

a. contacting a hydrocarbon feedstock with a fluidized zeolite-containing cracking catalyst in a cracking zone under cracking condition;

b. recovering the cracked products;

c. passing the cracking catalyst from the cracking zone to a regeneration zone;

d. regenerating the cracking catalyst in the regeneration zone by contact with oxygen-containing gas under regeneration conditions to produce a regenerated catalyst; and

e. introducing the regenerated catalyst to the cracking zone for contact with the hydrocarbon feedstock;

wherein the catalyst during the cracking process is contaminated with nickel contained in a feedstock, wherein nickel increases hydrogen and coke yield at the cracking temperatures and conditions in the cracking zone;

the improvement comprising treating the feedstock containing the nickel contamination with cerium in an amount being from 0.005 to 8,000 ppm based on the concentration of the nickel in the feedstock.

5,064,525

COMBINED HYDROGENOLYSIS PULS OXIDATION PROCESS FOR SWEETENING A SOUR HYDROCARBON FRACTION

Robert R. Frame, Glenview; Jeffery C. Bricker, Buffalo Grove, and Laurence O. Stine, Western Springs, all of Ill., assignors to UOP, Des Plains, Ill.

Filed Feb. 19, 1991, Ser. No. 657,013

Int. Cl.[5] C10G *27/00, 27/04*

U.S. Cl. 208—193 **16 Claims**

1. A process for sweetening a sour hydrocarbon fraction comprising:

(a) reacting mercaptans contained in the sour hydrocarbon fraction with hydrogen in the presence of a selective hydrogenolysis catalyst at hydrogenolysis conditions and for a time sufficient to selectively hydrogenolyse the tertiary mercaptans; and

(b) reacting the mercaptans in the sour hydrocarbon fraction with an oxidizing agent in the presence of a basic component and an oxidation catalyst effective in oxidizing the mercaptans to disulfides;

the steps (a) and (b) carried out in any order to produce a sweetened hydrocarbon fraction.

5,064,526

METHOD FOR THE BASE-CATALYZED DECOMPOSITION OF HALOGENATED AND NON-HALOGENATED ORGANIC COMPOUNDS IN A CONTAMINATED MEDIUM

Charles J. Rogers; Alfred Kornel, both of Cincinnati, and Harold L. Sparks, Fayetteville, all of Ohio, assignors to The United States of America as represented by the Administrator of the Environmental Protection Agency, Washington, D.C.

Continuation-in-part of Ser. No. 515,892, Apr. 27, 1990. This application Nov. 30, 1990, Ser. No. 620,127

Int. Cl.[5] C10G *17/00*

U.S. Cl. 208—262.5 **23 Claims**

1. A method for the reductive decomposition of halogenated or non-halogenated organic contaminant compounds contained in a contaminated medium, comprising

(a) adding an alkali or alkaline earth metal carbonate, bicarbonate or hydroxide to a contaminated medium containing halogenated or non-halogenated organic contaminant compounds, said alkali or alkaline earth metal carbonate, bicarbonate or hydroxide being added as an aqueous solution or as a suspension in a solvent having a boiling point of at least 200° C., or in the form of a solid suspension, said contaminated medium further containing a hydrogen donor compound and a catalytic form of carbon which will form a free radical hydrogen ion;

(b) heating the contaminated medium at a temperature and for a time sufficient to dehydrate the medium;

(c) further heating the medium at a temperature between about 200° and 400° C. for a time sufficient to cause formation of a free radical hydrogen ion therein and effect reductive decomposition of the halogenated or non-halogenated organic contaminant compounds; and

(d) adding an acid to the medium in an amount sufficient to provide the medium with a pH of from about 7 to about 9.

5,064,527

CATALYTIC PROCESS FOR HYDROCONVERSION OF CARBONACEOUS MATERIALS

Gopal H. Singhal, Houston; Bobby L. Wilson, Missouri City; Edward H. Edelson, Seabrook, all of Tex., and Michael A. Mikita, Englewood, Colo., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

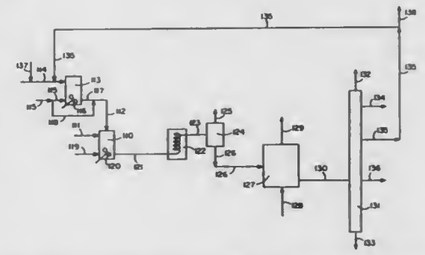
Filed May 8, 1984, Ser. No. 608,308

Int. Cl.[5] C10G *1/06, 1/08*

U.S. Cl. 208—420 **22 Claims**

1. A process for hydroconverting a carbonaceous material selected from the group consisting of coal, lignite and peat; comprising:

(a) forming a mixture of a carbonaceous material selected from the group consisting of coal, lignite and peat and mixtures thereof and a catalyst precursor consisting essentially of a dihydrocarbyl substituted dithiocarbomate of a metal selected from any one of Groups VI-A and VIII-A or a mixture thereof;



(b) subjecting this mixture to hydroconversion at a temperature within the range from about 500° to about 900° F. at a total pressure within the range from about 500 to about 7000 psig and with a hydrogen partial pressure within the range from about 400 to about 5000 psig; and

(c) recovering a lower molecular weight product from the conversion effluent.

5,064,528

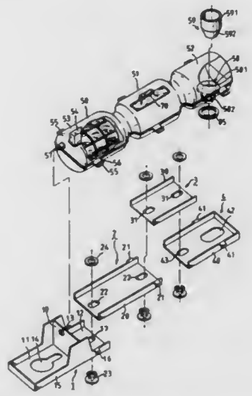
MULTIPLE HOUSING FILTER SYSTEM

Yun-Tung Hsu, No. 9, Floor 2, Alley 2, Lane 437, Nei-Hu Road, Sec. 1, Nei-Hu Dist., Taipei, Taiwan

Filed Feb. 15, 1990, Ser. No. 481,419

Int. Cl.[5] B01D *29/11*

U.S. Cl. 210—8.5 **10 Claims**



1. A filter system comprising:

a front cylinder, formed of material impermeable to water, having:

i) a first end;

ii) a second end having an outlet;

iii) an intake opening located on said first end of said front cylinder; and

iv) a first filter element contained within;

a tubular filter housing, having a second filter said tubular housing being impermeable to water and having an inlet

VOL 1132 ISS 2 NO 12 1991 UMI

end, coupled to said second end of said front cylinder, and an outlet end;

a rear cylinder, formed of a material impermeable to water, and having:

i) a first end having an inlet coupled to said outlet end of said tubular housing;

ii) a second end; and

iii) a drainage opening formed in a side surface of said rear cylinder and located at a level below a level of said intake opening;

a front receiving dish adapted to allow for mounting of a pump thereon and for mounting said front cylinder;

a rear receiving dish for mounting said rear cylinder;

intermediate receiving dish means for mounting said tubular filter housing and for interconnecting said front receiving dish and said rear receiving dish;

a drain tube coupled to said drainage opening; and

a water suction tube coupled to said intake opening wherein said pump forces water into said front cylinder though said water suction tube.

5,064,529

APPARATUS FOR TESTING MEMBRANE FILTERS

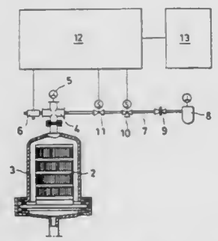
Shigemitsu Hirayama, Yao; Takamichi Akashi, Ikeda; Akio Ikuta, Osaka; Isao Sasaki, Minoo, and Hiroshi Fukuda, Tokyo, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

Division of Ser. No. 291,395, Dec. 27, 1988, Pat. No. 4,872,974, which is a continuation of Ser. No. 45,159, May 4, 1987, abandoned, which is a continuation of Ser. No. 647,886, Sep. 6, 1984, abandoned. This application Aug. 22, 1989, Ser. No. 396,912

Claims priority, application Japan, Sep. 9, 1983, 58-167343; Mar. 19, 1984, 59-53259

Int. Cl.[5] **G01N** *15/08;* **B01D** *13/00*

U.S. Cl. 210—90 **3 Claims**



1. A membrane filter testing apparatus, comprising a gas source connected to a primary side of a membrane filter fixedly accommodated in a housing and wetted with a liquid, a pressure sensor positioned at the primary side of the membrane filter, a valve positioned between the gas source and the primary side of the membrane filter to maintain a constant rate of pressure increase at the primary side of the membrane filter by the gas in a control circuit structured and arranged for controlling and detecting the gas pressure, wherein the control circuit comprises means for automatically judging the acceptability of a filter as to its perfection by checking whether the pressure at the primary side of the membrane filter is within a specified judging range at a predetermined time after the start of pressure increase at the primary side of the membrane filter by the gas.

5,064,530

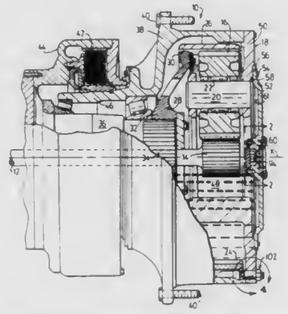
FLUID CONTAMINATION DETECTING APPARATUS

David A. Duff, P.O. Box 246, Chavies, Ky. 51727; Daniel S. Gove, Franklin, Tenn., and Edward E. Schmillen, Metamora, Ill., assignors to Caterpillar Inc., Peoria, Ill. and David A. Duff, Chavies, Ky.

Filed Jun. 4, 1990, Ser. No. 533,208

Int. Cl.[5] **B01D** *35/06*

U.S. Cl. 210—94 **18 Claims**



1. An apparatus for detecting the contamination of a quantity of fluid, comprising

a drive mechanism defining a reservoir;

means for covering one end portion of the reservoir, said covering means having an opening formed therethrough and being positioned for sealing engagement with the reservoir;

a transparent member positioned within the opening in the covering means and being sealingly engaged therewith; and

means for collecting impurities suspended within the fluid, said means being positioned adjacent an inner side of the transparent member in a manner such that said collected impurities are visible when viewed from a point outside the transparent member.

5,064,531

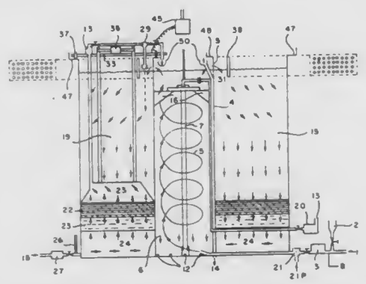
WATER FILTRATION APPARATUS

Lawrence K. Wang; Mu Hao S. Wang, both of Latham; Chong S. Hwang, Flushing, and Harold Rhow, Hartsdale, all of N.Y., assignors to Int'l Environmental Systems, Inc., Pittsfield, Mass. and Globe Environmental Protection, Inc., Flushing, N.Y.

Filed Jul. 26, 1990, Ser. No. 557,806

Int. Cl.[5] **C02F** *1/28*

U.S. Cl. 210—96.1 **4 Claims**



1. An apparatus for treating water comprising in combination:

an inlet pipe with an in-line static mixing member,

means for feeding chemical to said inlet pipe carrying said water,

a built-in filtration chemical monitor monitoring pH, streaming current, turbidity, and optical density and adjusting the feeding of said chemical;

means for connecting said filtration monitor to said inlet pipe,

means for feeding pH buffer chemical to said inlet pipe in response to said monitor,

a cylindrical outer tank having the bottom thereof as an outside wall of said apparatus,

a cylindrical inner open vessel disposed within said outer tank for aeration, flocculation and grit settling,

means for introducing water tangentially into the bottom of said cylindrical inner open vessel,

means for directing clarified effluent from the top of said open vessel into the cylindrical outer tank,

means for removing settled, heavy silts, and sludges from the bottom of said inner open vessel,

a cylindrical inner porous tube disposed within said inner open vessel for aeration and air distribution,

means for introducing air to be uniformly distributed into said water in said inner open vessel through said porous tube to produce aerated flocculated water.

means for measuring the flow rates of said water and various gases in said inlet pipe, open vessel, and porous tube,

releasing means for introducing said aerated flocculated water from said inner open vessel into said cylindrical outer tank for adsorption and filtration,

an adsorption and filtration bed near the bottom of said cylindrical outer tank for downward purification of aerated/flocculated water,

a clear well compartment over the bottom of said cylindrical outer tank for collection of adsorption and filtration purified liquid from said clear well for subsequent disinfection and water conditioning,

a disinfecting means for treating the water from said clear well with dry-chlorine,

a water conditioning means for treating the water from said disinfection means,

backwashing means for periodically cleaning of said adsorption and filtration bed, wherein said backwashing means includes a traveling backwash hood means, pumping means, and separator

a moving carriage having a platform supported between the upper portion of the wall of said outer tank and the upper portion of the wall of said inner tank so as to hold said pumping means, backwash hood means, separator, and driving motors,

means for circular moving said moving carriage together with said pumping means, backwash hood means, separator, and driving motors along outer and inner rails on said apparatus and around the vertical axis of said apparatus,

means for decanting the backwash wastewater from said backwashing means for removal of settled sludge,

means for recycling supernatant water from said decanting means to the inlet pipe, and

means for recycling a portion of water from said clear well into said adsorption and filtration beds for backwashing.

5,064,532

APPARATUS FOR SHIFTING FILTER PLATES IN A FILTER PRESS

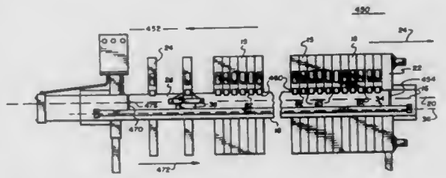
Steven S. Davis, Farmington, Utah, assignor to Envirotech Corporation, Menlo Park, Calif.

Continuation of Ser. No. 312,910, Feb. 21, 1989, Pat. No. 5,006,241, which is a continuation of Ser. No. 936,091, Nov. 28, 1986, Pat. No. 4,806,239. This application Sep. 10, 1990, Ser. No. 580,110

The portion of the term of this patent subsequent to Feb. 21, 2006, has been disclaimed.

Int. Cl.[5] **B01D** *25/34;* **B30B** *7/02*

U.S. Cl. 210—225 **9 Claims**



1. A press means comprising:

a frame;

a support mounted on said frame;

a follower displaceably mounted on said frame spacedly from said support;

at least one plate associated with said frame and positioned between said support and said follower;

a rodless fluid pressure cylinder mounted on said frame;

a carriage, associated with said rodless fluid pressure cylinder, said carriage being displaceable by said rodless fluid pressure cylinder along said frame;

connection means, associated with said carriage for effecting a releasable union with said plate;

wherein said plate may be displaced along said frame by said carriage.

5,064,533

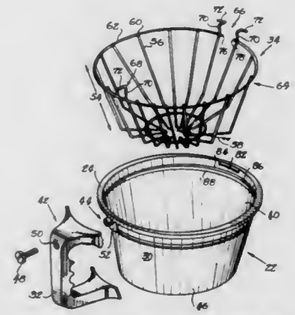
FUNNEL BASKET STRUCTURE

James H. Anson, Auburn, Ill., assignor to Bunn-O-Matic Corporation, Springfield, Ill.

Filed Jun. 28, 1990, Ser. No. 545,475

Int. Cl.[5] **B01D** *29/085*

U.S. Cl. 210—232 **8 Claims**



1. Beverage brewing funnel means having an externally attached handle member for retaining a brewing filter and a beverage brewing substance for infusion with heated water to produce a brewed beverage, said beverage brewing funnel means comprising: a funnel shell formed with a top opening, a drain aperture formed in a bottom surface thereof, and generally continuous sidewalls; attachment means for externally

VOL 1132 ISS 2 NO 12 1991 UMI

attaching said handle to said funnel shell, said attachment means comprising a first member attached to one of an outside surface of said sidewall of said funnel shell and said handle member, and a second member engageable with the other of said outside surface of said sidewall of said funnel shell and said handle member, said first and second members being engageable for removably attaching said handle to said funnel shell; a filter retaining basket including a skeleton-like frame and captive basket retention means attached to an upper portion of said skeleton-like frame for removably attaching said filter retaining basket to an inside of said funnel shell, said captive basket retention means comprising a compressible fork biasedly engageable with a slot formed in an upper portion of said funnel shell, a protruding prong member formed on an upper portion of said skeleton-like frame and spaced apart from said compressible fork and engageable with an aperture cooperatively formed in said funnel shell, and a compressible annular bead formed on an upper portion of said skeleton-like frame and biasedly engageable with an annular groove cooperatively formed on an upper portion of said funnel shell.

5,064,534

FILTER FOR THE PURIFICATION OF TAP WATER

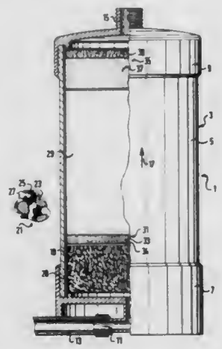
Erich Busch, Walkmühlstrasse 11, 6204, and Michael Busch, Walkmühlstrasse 11, 6294, both of Taunusstein 4, Fed. Rep. of Germany

Filed Jul. 17, 1987, Ser. No. 74,876

Claims priority, application Fed. Rep. of Germany, Jul. 18, 1986, 3624414

Int. Cl.[5] C02F *9/00*

U.S. Cl. 210—266 **16 Claims**



1. A filter useful for the purification of tap water, having a filter housing, a plurality of layers of different filter materials disposed successively in the direction of flow for the purification of the tap water by mechanical filter action and comprising an ion-exchange material, adsorption in an adsorption material and at least one layer being formed by an adsorption filter element, wherein said adsorption filter element consists of a compressed, self-supporting, sintered body of finely dispersed adsorption material, a finely dispersed oligodynamic material and a thermoplastic binder material, wherein said binder material is polyethylene having a molecular weight in the range of 3 to 7×10^6, in the form of particles having a nodular shape and exhibiting viscous elastic properties in a transitional temperature range during heating and being sufficiently sticky on the surface to form a bond with the particles present in the adsorption material, and said adsorption filter element being a mechanical, fine-mesh filter for said tap water.

5,064,535

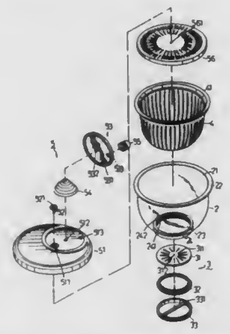
STRAINER FOR WASHED VEGETABLES

Chun-Feng Hsu, No. 31-13, Alley 55, Lane 274, Chung-Cheng S. Rd., Yung-Kang Hsiang, Tainan Hsien, Taiwan

Filed Oct. 25, 1990, Ser. No. 604,090

Int. Cl.[5] B01D *33/00*

U.S. Cl. 210—380.1 **3 Claims**



1. A strainer for washed vegetables including:

a hollow casing having a top open end and a bottom opening;

a screen casing for receiving washed vegetables, said screen casing positioned in said hollow casing;

a rotary member detachably disposed on said top open end of said hollow casing to rotate said screen casing, thereby to strain the water from said washed vegetables received in said screen casing;

wherein the improvement comprising said bottom opening of said hollow casing having an annular flange extending downward, said annular flange having an internal surface in which a space is confined, a disc member having a first and a second side, said first side having a plurality of reservoiring grooves therein, an annular seal member being detachably mounted to said second side of said disc member so as to prevent strained water from said washed vegetables passing through a clearance formed between the periphery of said disc member and said internal surface of said annular flange, said disc member and said annular seal member being disposed in said confined space of said annular flange, an annular ring being screwed to said annular flange to support said disc member and said annular seal member, so that said plurality of reservoiring grooves of said disc member hold strained water from said washed vegetables when said reservoiring grooves of said disc member face upward with respect to said screen casing and said second side of said disc member serves as a closed bottom in said confined space in said annular flange, when said reservoiring grooves of said disc member face downward.

5,064,536

WEDGEWIRE FILTER AND METHOD OF MANUFACTURE

Jack R. Bratten, 5970 St. James Dr., West Bloomfield, Mich. 48033

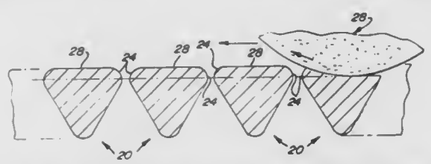
Filed Jul. 3, 1989, Ser. No. 375,370

Int. Cl.[5] B23D *13/04*

U.S. Cl. 210—402 **3 Claims**

1. A method of manufacturing an improved filter of the type in which a series of side by side adjacent wedgewire strands are fixed slightly spaced apart to define filtering space for liquid flow directed through said spaces, the wedgewire having three sides converging with each other to be generally triangularly shaped in section, and oriented with one side of said triangular

shape directly facing the direction of flow of liquid to be filtered and the other two sides extending away from the direction of said liquid flow to create generally diverging gaps between successive wedgewire strands to form a permanent filter media, and in which said wedgewire strands are formed by drawings, so as to form radiused shoulders at the converging sides of said triangularly shape in section wedgewire strands, said radiused shoulders at either end of the one side of



adjacent wedgewire strands forming small convergent regions in said gaps, said method of manufacturing characterized by the step of removing a single even layer of material from each strand of said wedgewire windings across said one side of said wedgewire strands facing said liquid flow, to a depth sufficient to substantially just remove said radiused shoulders at either end of said one side to thereby substantially eliminate said small convergent regions in said gaps.

3. A filter constructed according to the method of claim 1.

5,064,537

SEAMLESS SCREEN CYLINDER WITH LASER CUT OPENINGS

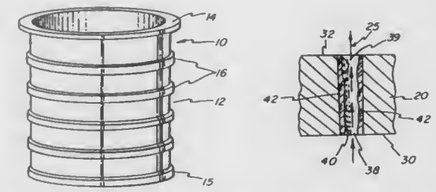
David E. Chupka, Middletown; Joseph P. Constiner, Monroe, and Christopher M. Vitori, Middletown, all of Ohio, assignors to The Black Clawson Company, Middletown, Ohio

Continuation-in-part of Ser. No. 176,500, Apr. 1, 1988, Pat. No. 4,901,417, which is a division of Ser. No. 81,771, Aug. 5, 1987, Pat. No. 4,795,560, which is a continuation-in-part of Ser. No. 39,391, Apr. 16, 1987, abandoned. This application Dec. 14, 1989, Ser. No. 450,873

The portion of the term of this patent subsequent to Jan. 31, 2006, has been disclaimed.

Int. Cl.[5] B01D *39/10*; B23P *15/16*

U.S. Cl. 210—497.01 **9 Claims**



8. The method of manufacturing a screen cylinder for use in removing contaminant particles from papermaking stock in which a metal cylinder body is formed with an intermediate cylindrical section and in which a plurality of closely spaced openings are formed in said section, comprising the steps of:

cylindrically casting said body as an integral seamless metal unit free of internal stresses, and

forming said openings in said intermediate section by directing a laser cutting beam generally radially against a surface of said cylindrical section to burn said openings therethrough, said openings being defined by walls formed of recast metal material.

9. A screen cylinder for use in removing contaminant particles from papermaking stock, comprising:

a centrifugally cast seamless, generally cylindrical body formed of metal material having a pair of end rings and an intermediate section, and

a plurality of closely spaced screening openings leading generally radially through said intermediate section, said openings defined by generally parallel walls formed of recast metal material.

5,064,538

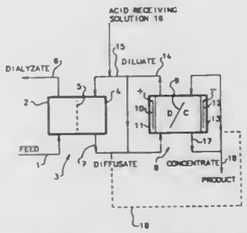
MEMBRANE PROCESS FOR ACID RECOVERY

Daniel A. D. Boeteng, Montrose, Canada, assignor to Cominco Ltd., Vancouver, Canada

Filed Oct. 25, 1990, Ser. No. 603,053

Int. Cl.[5] B01D *61/44*

U.S. Cl. 210—638 **12 Claims**



1. A method for the recovery of acids from aqueous acid solutions containing at least one other dissolved substance comprising the steps of feeding aqueous acid feed solution to a dialysis unit, said unit comprising dialyzate compartments alternating with diffusate compartments separated by acid anion permeable membranes, said dissovled substance being a substance that will not substantially transfer into the diffusate compartments, and said feed solution being fed into said dialyzate compartments forming a dialyzate; transferring acid anions from said feed solution through said membranes into said diffusate compartments to form a diffusate while substantially preventing transfer of said dissolved substance from said dialyzate compartments; withdrawing dialyzate reduced in acid anions and substantially containing said dissolved substance; withdrawing diffusate from said diffusate compartments; passing withdrawn diffusate to an electrodialysis unit comprising a multiplicity of alternating anion and cation permselective membranes defining alternating diluate compartments and concentrate compartments arranged between an anode in an anode compartment and a cathode in a cathode compartment, at least a portion of said withdrawn diffusate being passed to said diluate compartments; applying a direct electrical current between said anode and said cathode; recirculating a diluate stream through said diluate compartments; passing a portion of said recirculating diluate stream to the diffusate compartments of said dialysis unit; recirculating a concentrate stream through said concentrate compartments, said current causing said acid anions to pass from said diluate stream into said concentrate stream; and withdrawing a portion of said recirculating concentrate stream as concentrated acid product.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,539

METHOD OF CHROMATOGRAPHIC SEPARATION

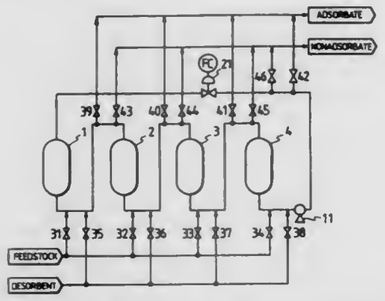
Masatake Tanimura; Masao Tamura, and Takashi Teshima, Tokyo, all of Japan, assignors to Ryoka Techno Engineering & Construction Co., Tokyo, Japan

Continuation of Ser. No. 349,551, May 9, 1989, abandoned. This application Oct. 31, 1990, Ser. No. 608,591

Claims priority, application Japan, May 17, 1988, 63-119784; Dec. 27, 1988, 63-330560

Int. Cl.[5] B01D *15/08*

U.S. Cl. 210—659 4 Claims



1. In a method for separating respective substances in a feedstock fluid with a chromatographic apparatus including a packed bed in which fluid flows cyclically in one direction and which further includes a plurality of fluid inlets and fluid outlets, including a feedstock fluid supply inlet, a nonadsorbate fluid extraction outlet, a desorbent fluid supply inlet, and a adsorbate fluid extraction outlet, disposed in that order along the direction of fluid flow, said bed, taken as a whole, being divided into four zones: an adsorption zone, occupying a space between the feedstock fluid supply inlet and the nonadsorbate fluid extraction outlet; a refining zone, occupying a space between the nonadsorbate fluid extraction outlet and the desorbent fluid supply inlet; a desorption zone, occupying a space between the desorbent fluid supply inlet and the adsorbate fluid extraction outlet; and a concentration zone, occupying a space between the adsorbate fluid extraction outlet and the feedstock fluid supply inlet, one supply inlet/extraction outlet pair being switched to another supply inlet/extraction outlet pair located downstream thereof after a predetermined working time,

the improvement wherein the following two steps are performed within said predetermined working time:

(i) a supply and extraction step in which, as part of the fluid flowing out of the desorption zone is extracted from the packed bed through the adsorbate fluid extraction outlet and the remainder flows into the concentration zone while the fluid flowing out of the concentration zone flows into the adsorption zone, a feedstock fluid and a desorbent fluid are supplied into the packed bed through the feedstock fluid supply inlet and the desorbent fluid supply inlet, respectively, and substantially all of the fluid flowing out of the adsorption zone is extracted from the packed bed through the nonadsorbate fluid extraction outlet, such that an amount of the fluid extracted through the nonadsorbate fluid extraction outlet is greater than an amount of feedstock fluid supplied, and an amount of the fluid extracted through the adsorbate fluid extraction outlet is less than an amount of desorbent fluid supplied; and

(ii) a circulation step in which the fluid in the packed bed is moved downstream without supplying a fluid into or extracting a fluid from the bed.

5,064,540

METHOD FOR USING WATER-TREATING SPONGES

Norman B. Rainer, 2008 Fondulac Rd., Richmond, Va. 23229

Continuation-in-part of Ser. No. 395,535, Aug. 18, 1989. This application Mar. 19, 1991, Ser. No. 672,124

Int. Cl.[5] C02F *1/42*

U.S. Cl. 210—688 5 Claims

1. A water treatment method comprising:

a) forming a bed comprised of a multitude of sponges capable of selectively absorbing dissolved metal ions from aqueous solutions, said sponges being of parallelepiped configuration comprised of paired flat parallel primary surfaces spaced apart by a distance representing an X axis having a length between about 5 and 25 mm, and joined by a sidewall perimeter comprised of four surfaces orthogonally disposed to said primary surfaces and causing said sponge to have at least one plane of symmetry perpendicular to said primary surfaces and including the X axis, the shortest straight line distance spanning said perimeter while perpendicularly intersecting said X axis being considered to be a Y axis, and the longest straight line distance spanning said perimeter while perpendicularly intersecting said X axis being considered to be a Z axis, the sum of the X and Y axes being in the range of 10–60 mm, and the Z axis being less than six times the X axis, and less than 90 mm,

b) compressing said bed so that its total volume is between 10% and 40% less than the volume the bed would occupy under gravity force alone, and

c) passing water to be treated through said bed at a rate of between about 0.05 and 2.0 bed volumes/minute.

5,064,541

DEVICES AND METHODS FOR THE COLLECTION OF A PREDETERMINED VOLUME OF PLASMA OR SERUM

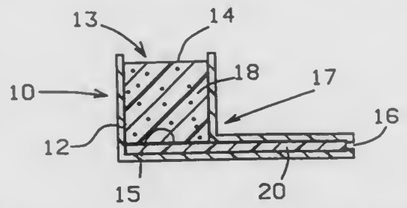
Tzyy-Wen Jeng, Vernon Hills; Kristin D. Elmore, Waukegan; Gary M. Oosta, Gurnee, and Terry A. Pry, Libertyville, all of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Continuation-in-part of Ser. No. 335,064, Apr. 7, 1989, Pat. No. 4,933,092. This application Mar. 27, 1990, Ser. No. 499,864

The portion of the term of this patent subsequent to Jun. 12, 2007, has been disclaimed.

Int. Cl.[5] B01D *37/00, 39/14*

U.S. Cl. 210—767 20 Claims



18. A method for collecting a serum or plasma sample for analysis, comprising:

a) providing a matrix of sintered porous material of fixed dimensions, wherein said matrix is characterized by:

i) a reproducible fluid uptake capacity proportional to the fixed dimensions of said matrix,

ii) a minimal reactivity with plasma or serum components, and

iii) a hydrophilic internal surface, thereby enabling said matrix to collect and retain a predetermined volume of sample for analysis; and a housing means whereby an entry port to said matrix is defined;

b) applying a quantity of serum or plasma to said matrix; and

c) collecting a predetermined volume of plasma or serum in said matrix.

5,064,542

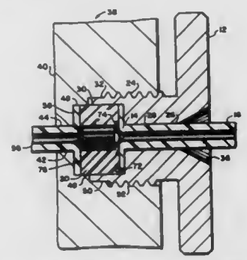
METHOD FOR FILTERING A WHOLE BLOOD SAMPLE USING AN IN-LINE FLUID FILTER FOR AN AUTOMATED ANALYZER

Kent M. Negersmith, Carmel, N.Y., and Gregory A. Farrell, Ridgewood, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Mar. 8, 1990, Ser. No. 430,197

Int. Cl.[5] B01D *29/62*

U.S. Cl. 210—798 4 Claims



1. A method for filtering a whole blood sample comprising the steps of:

a) flowing said whole blood through a filter arrangement which filter arrangement includes a generally cylindrical body portion having opposed first and second faces and provided with a multiplicity of passageways substantially parallel to the longitudinal axis of said body portion extending between said opposed first and second faces, said passageways constructed and arranged to entrap fibrous matter carried in the whole blood sample as the sample flows through said passageways from said first opposed face, said first and second opposed faces spaced apart a distance at least as great as the average length of said fibrous matter so that said fibrous matter will not extend beyond said second face and can be dislodged from said passageways by backflushing;

b) entrapping said fibrous matter within said filter arrangement; and

c) backflushing said filter arrangement to dislodge said entrapped fibrous matter from said passageways.

5,064,543

SILICONE GEL FOR EASE OF IRONING AND BETTER LOOKING GARMENTS AFTER IRONING

Timothy W. Coffindaffer, Loveland; Robert G. Bartolo, Cincinnati, both of Ohio, and Kathleen A. Belfiore, Beaver Falls, Pa., assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jun. 6, 1990, Ser. No. 534,109

The portion of the term of this patent subsequent to Jan. 24, 2006, has been disclaimed.

Int. Cl.[5] D06M *11/00;* C11D *3/00*

U.S. Cl. 252—8.6 34 Claims

1. A liquid fabric care composition comprising:

(1) an emulsified polymeric silicone gel;

wherein said polymeric silicone is curable and has

T (tri-functional units)=$R''SiO_{3/2}$;

Q (quat-functional units)=$SiO_{4/2}$;

D (di-functional units)=$R'_2SiO_{2/2}$; and

M (mono-functional units)=$(RO)R'_2SiO_{1/2}$;

wherein R', R'' is a C_{1-20} alkyl or an amine group selected from cyclic amines, polyamines and alkylamines having from about 2 to about 7 carbon atoms in their alkyl chain; wherein R is a hydrogen or a C_{1-3} alkyl; wherein said polymeric silicone contains from about 3% to about 30% of said T and/or said Q functional units; from about 70% to about 97% of said D functional units; and at least some M functional units up to about 10%; and

(2) an effective amount of another fabric care compound selected from surfactants and fabric softener and mixtures thereof; and

(3) a suitable carrier to deposit an effective amount of said silicone gel on said fabric;

wherein said fabric softener is selected from the group consisting of:

i. quaternary ammonium compounds;

ii. fatty amine fabric softening compounds;

iii. fatty amide compounds;

iv. fatty acids;

v. fatty alcohols; and

vi. mixtures thereof.

5,064,544

LIQUID FABRIC CONDITIONER CONTAINING COMPATIBLE AMINO ALKYL SILICONES

Samuel Lin, Paramus; Gaznabi Khan, Newark; Lucia Salas, North Bergen, all of N.J., and George Policello, Peekskill, N.Y., assignors to Lever Brothers Company, Division of Conopco, Inc., New York, N.Y.

Filed Jun. 1, 1990, Ser. No. 532,430

Int. Cl.[5] D06M *13/325;* C11D *1/62*

U.S. Cl. 252—88 25 Claims

1. A liquid fabric conditioning composition comprising about 1% to about 60% of composite particles consisting of a mutually soluble mixture consisting of:

a) about 1% to about 40% by weight of the conditioning composition of a fabric softening component comprising a cationic quaternary ammonium salt; and

b) about 0.1% to about 20% by weight of the conditioning composition of an organosilicone having a $\%CH_2$ content of about 25% to about 90% and having at least one unit of Formula A:

$$R^1-SiO_{(3-m)/2}$$
$$\quad\quad|$$
$$\quad\quad Rm$$

wherein m is a number from 0 to 2, R is a mono valent hydrocarbon radical and R^1 is selected from the group consisting of:

i) a unit of Formula A1

$$-(CH_2)_a-(N-CH_2CH_2)_b-N-R^2$$
$$\quad\quad\quad

VOL 1132 ISS 2 NO 12 1991 UMI

$$-R^8-CH(OH)-CH_2-,$$

where R^8 is a divalent organic radical having from 1 to 12 carbon atoms.

5,064,545

PROCESS FOR OVERBASING VIA METAL BORATE FORMATION

Thomas F. Steckel, Chagrin Falls, Ohio, assignor to The Lubrizol Corporation, Wickliffe, Ohio

Continuation of Ser. No. 943,297, Dec. 17, 1986, abandoned. This application Aug. 7, 1990, Ser. No. 564,669

Int. Cl.[5] C10M *137/14*

U.S. Cl. 252—32.7 HC **9 Claims**

1. A process of preparing an overbased composition which comprises reacting

(A) a source of an oil soluble carboxylic acid, substituted phenol, or phosphorus acid,

(B) a metal containing compound selected from the group consisting of metal oxides, metal hydroxides, metal halides, metal carbonates, metal borates and mixtures thereof and wherein the metals are selected from the group consisting of transition metals and combinations thereof,

(C) a boron compound selected from the group consisting of boric acid, boron trioxide, boron halides, boron amides, boron esters, in the presence of

(D) a promoter system wherein the process is conducted at a temperature from about ambient to about the decomposition temperature of any component or product and wherein the ratio range of reactants is expressed by the equation

Ratio =

$$\frac{\text{Moles of Boron}}{\frac{\text{Equivalents of (B)}}{\text{Equivalents of (A)}} - \frac{\text{Equivalents of acid in D}}{\text{Equivalents of base in (D)}}}$$

and is from about 0.1 to about 3.0.

5,064,546

LUBRICATING OIL COMPOSITION

Masashi Dasai, Ichihara, Japan, assignor to Idemitsu Kosan Co., Ltd., Tokyo, Japan

Filed Mar. 16, 1988, Ser. No. 168,931

Claims priority, application Japan, Apr. 11, 1987, 62-087933

The portion of the term of this patent subsequent to Oct. 11, 2005, has been disclaimed.

Int. Cl.[5] C10M *129/74, 137/04*

U.S. Cl. 252—32.5 **32 Claims**

1. A lubricating oil composition comprising:

(A) a base oil having a naphthene content of at least 30%, an aromatic content of not more than 2%, and a kinematic viscosity at 100° C. of 1.5 to 30 cSt; and

(B) 0.01 to 5% by weight based on the total weight of the composition of a friction modifier.

5,064,547

LUBRICANT COMPOSITIONS FOR METALS CONTAINING DICARBOXYLIC ACIDS AS A MAJOR CONSTITUENT

David Rubin, San Diego, Calif., assignor to Century Laboratories, Incoporated, Port Washington, N.Y.

Filed Sep. 12, 1990, Ser. No. 581,621

Int. Cl.[5] C10M *105/22, 105/26*

U.S. Cl. 252—56 R **3 Claims**

1. Lubricating compositions comprising from about 60 to about 80% by weight of at least one saturated dicarboxylic acid "having from about 6 to about 32 carbon atoms", and from about 20 to about 40% of a carrier for said dicarboxylic acid, said carrier being selected from the group consisting of paraffin oils, silicone oils, organic ester oils, polyglycol oils, synthetic hydrocarbons and mixtures thereof.

5,064,548

SOLID POLYMERIC ELECTROLYTE

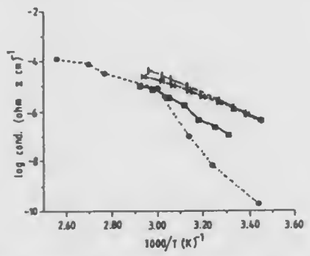
Arnaldo Roggero, San Donato Milanese; Maria Andrei, Berceto; Stefano Passerini, and Bruno Scrosati, both of Rome, all of Italy, assignors to 501 Eniricerche S.p.A., Italy

Filed Aug. 1, 1990, Ser. No. 561,716

Claims priority, application Italy, Aug. 1, 1989, 21406 A/89

Int. Cl.[5] H01G *4/18*; H01M *6/18*

U.S. Cl. 252—62.2 **5 Claims**



1. A solid polymeric electrolyte comprising a solid solution of an ionic compound dissolved in an organic, polymeric matrix of polyether nature, wherein said polyether matrix comprises a mixture consisting of:

a high-molecular-weight poly-(ethyleneoxide); and

the product of polymerization of a vinyl ether having the formula:

$$R-(O-CH_2-CH_2)_n-O-CH=CH_2$$

wherein:

R is a methyl or ethyl radical; and

n is an integer within the range of from 2 to 6,

wherein said polyvinylether has a number average molecular weight within the range of from about 1,000 to about 10,000 and a glass transition temperature (Tg) within the range of from −70° to −85° C., and wherein the weight ratio of said poly-(ethylene oxide) component to said polyvinylether component is within the range of from 10:90 to 90:10.

5,064,549

PREPARATION OF STABILIZED CHROMIUM DIOXIDE WITH SODIUM TETRACARBONYLFERRATE

Michael W. Mueller, Plankstadt; Ekkehard Schwab, Neustadt; Helmut Auweter, Limburgerhof; Rainer Feser, Gruenstadt; Bernhard Boettcher, Weisenheim; Norbert Mueller, Friedelsheim, and Wolfgang Kochanek, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Nov. 20, 1990, Ser. No. 615,861

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1989, 3941578

Int. Cl.[5] C01G *37/27*

U.S. Cl. 252—62.51 **2 Claims**

1. A process for the preparation of stabilized acicular chromium dioxide by reacting oxides of trivalent and hexavalent chromium at from 200° to 600° C. in a high pressure reactor at from 100 to 700 bar in the presence of water with the addition of at least one modifier material to improve magnetic properties or the particle size distribution and subsequent reductive treatment of the surface of the synthesized chromium dioxide in an aqueous suspension with formation of a compound of trivalent chromium on the surfact, wherein $Na_2[Fe(CO)_4]$ in alkaline, aqueous solution is used as the reducing agent.

5,064,550

SUPERPARAMAGNETIC FLUIDS AND METHODS OF MAKING SUPERPARAMAGNETIC FLUIDS

John E. Wyman, Westford, Mass., assignor to Consolidated Chemical Consulting Co., Westford, Mass.

Continuation of Ser. No. 357,988, May 26, 1989, abandoned. This application Jun. 8, 1990, Ser. No. 535,299

Int. Cl.[5] H01F *1/28*

U.S. Cl. 252—62.52 **49 Claims**

1. A superparamagnetic fluid in a stable colloid form comprising:

(a) a non-polar hydrocarbon oil carrier liquid;

(b) magnetic particles coated with at least one acid selected from the group consisting of an organic acid containing only carbon and hydrogen atoms in the chain connected to the carboxyl group, wherein the chain contains at least 19 carbon atoms, and an amino acid acylated with a fatty acid, provided that said organic and amino acids are branched, unsaturated, or both; and

(c) an ashless polymer which increases the viscosity of said superparamagnetic fluid.

5,064,551

DEICING COMPOSITIONS

Roy P. Smith, Hull, assignor to BP Chemicals Limited, London, England

Filed Dec. 11, 1989, Ser. No. 448,694

Claims priority, application United Kingdom, Dec. 20, 1988, 8829701

Int. Cl.[5] C09K *3/18*

U.S. Cl. 252—70 **10 Claims**

1. A deicing composition comprising an aqueous solution of from 45–60% w/w of an alkali metal carboxylate selected from the group consisting of an alkali metal acetate, an alkali metal formate and mixtures thereof from 0.1–0.4% w/w of an alkali metal phosphate, and from 0.2–0.6% w/w of an alkali metal nitrite, said composition having a pH value in the range of 9.5–11.2.

5,064,552

NITRITE- AND PHOSPHATE-FREE ANTIFREEZE BASED ON GLYCOL

Knut Oppenlaender, Ludwigshafen; Juergen Mohr, Gruenstadt; Gert Liebold, Edingen-Neckarhausen, and Guenter Frey, Dannstadt-Schauernheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 409,344, Sep. 19, 1989, abandoned. This application Feb. 26, 1991, Ser. No. 660,267

Claims priority, application Fed. Rep. of Germany, Sep. 24, 1988, 3832592

Int. Cl.[5] C09K *5/00*

U.S. Cl. 252—78.3 **3 Claims**

1. An antifreeze mixture for internal combustion engines based on ethylene glycol and/or propylene glycol which is free of nitrite and phosphate, consisting essentially of

a) 1–5% by weight of an alkali metal salt of a C_4–C_{16}-alkenylsuccinic acid,

b) 0.1–1% by weight of silicate of the formula II

$$(MO)_qSiO_{4-q/2} \quad (II)$$

where

M is an alkali metal and

q is from 0.4 to 4,

c) 0.01–0.2% by weight of a silicate stabilizer,

d) 0–0.5% by weight of an alkali metal nitrate,

e) 0.05–2.0% by weight of benzotriazole or tolutriazole,

f) 0.5–2% by weight of borax,

g) 0.05–1% by weight of NaOH,

h) 0.01–0.15% by weight of an oligo- or polycarboxylic acid having a molecular weight of 1000 to 100,000, and

i) ethylene glycol and/or propylene glycol.

all the percentages being based on the amount of ethylene glycol and/or propylene glycol present in the antifreeze mixture.

5,064,553

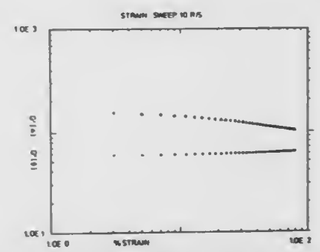
LINEAR-VISCOELASTIC AQUEOUS LIQUID AUTOMATIC DISHWASHER DETERGENT COMPOSITION

Nagaraj Dixit, Kendall Park; Makarand Shevade, Hamilton, and Rhyta Round, Flemington, all of N.J., assignors to Colgate-Palmolive Co., Piscataway, N.J.

Filed May 18, 1989, Ser. No. 353,712

Int. Cl.[5] C11D *3/395, 7/54, 3/26, 7/32*

U.S. Cl. 252—94 **14 Claims**



1. A linear viscoelastic aqueous liquid automatic dishwasher detergent composition comprising water, 0.02 to about 2% by weight of long chain fatty acid or salt thereof, from about 0.1 to 5% by weight of low-foaming chlorine bleach stable, water dispersible automatic dishwasher non-soap organic detergent selected from the group consisting of anionic surfactants, amine oxide surfactants, phosphine oxide surfactants, sulphoxide surfactants and betaine surfactants, from about 10 to 35% by weight of at lest one alkali metal detergent builder salt, from about 3 to 20% by weight of a chlorine bleach compound, and 0.4 to 1.5% cross-linked polyacrylic acid thickening agent having a molecular weight of at least about 500,000 said polyacrylic acid being selected from the group consisting of water-soluble homopolymers of acrylic acid or methacrylic acid, water-dispersible or water-soluble salts, esters, or amides thereof, and water-soluble copolymers of these acids or their salts, ester, or amides with each other or with one or more other ethylenically unsaturated monomers, wherein the aqueous phase includes both sodium and potassium ions at a K/Na weight ratio of from about 1/1 to about 45/1, wherein substantially all of the normally solid components of the composition are dissolved in the aqueous phase, and substantially all of the water in the composition is tightly bound to the cross-linked polyacrylic acid thickening agent, said composition having a bulk density of from 1.32 g/cm^3 to 1.42 g/cm^3 and said composition does not exhibit phase separation and remains homogenous, when said composition is centrifuged at 1000 rpm for 30 minutes.

VOL
1132
ISS
2
NO
12
1991
UMI

5,064,554

PROCESS FOR THE PRODUCTION OF DETERGENTS IN THE FORM OF FUSED BLOCKS CONTAINING ALKALI HYDROXIDES AND, OPTIONALLY, ACTIVE CHLORINE FOR USE IN DISHWASHING MACHINES

Jochen Jacobs, Wuppertal; Theodor Altenschoepfer, Duesseldorf, and Peter Jeschke, Neuss, all of Fed. Rep. of Germany, assignors to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen, Fed. Rep. of Germany

Filed Oct. 9, 1987, Ser. No. 107,235

Claims priority, application Fed. Rep. of Germany, Oct. 13, 1986, 3634812

Int. Cl.[5] C11D *7/18*

U.S. Cl. 252—99 **12 Claims**

1. A process for the continuous preparation of a homogeneous, storage-stable detergent for dishwashing machines in the form of fused blocks containing alkali metal hydroxide, alkali metal silicate, water, penta-alkali metal triphosphate, active chlorine donor, and organic complexing agent; comprising a) separately preparing a melt of less than about 50% by weight of alkali metal silicate, from about 5 to about 50% by weight of alkali metal hydroxide and from about 15 to about 30% by weight of water at a temperature of about 50° C. to about 75° C., adding to said melt less than about 2% by weight of an active chlorine donor and less than about 5% by weight of an organic complexing agent at a temperature of about 70° C. to about 75° C., b) introducing said melt continuously into a flow mixer together with from about b 5 to about 45% by weight of a separately fed penta-alkali metal triphosphate thereby distributing said triphosphate in said melt for less than about one minute, c) pouring the resulting liquid mixture into flexible molds, and d) allowing the mixture to solidify in said molds.

5,064,555

MILD SKIN CLEANSING SOAP BAR WITH HYDRATED CATIONIC POLYMER SKIN CONDITIONER

Ralph F. Medcalf, Jr., West Chester; Martha O. Visscher, Cincinnati; John R. Knochel, Cincinnati, and Richard M. Dahlgren, Cincinnati, all of Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 119,284, Oct. 30, 1987, Pat. No. 4,820,447, which is a continuation of Ser. No. 803,742, Dec. 2, 1985, abandoned. This application Apr. 5, 1989, Ser. No. 333,379

The portion of the term of this patent subsequent to Apr. 11, 2006, has been disclaimed.

Int. Cl.[5] C11D *3/37, 9/30, 17/00*

U.S. Cl. 252—117 **17 Claims**

1. A mild soap bar composition comprising:

(1) 50–90% soap; and

(2) and effective amount of a hydrated cationic polymeric skin conditioner uniformly distributed and incorporated in said soap bar, said cationic polymeric skin conditioner having a molecular weight of from 1000 to 3,000,000, said cationic polymeric skin conditioner comprising from about 0.2% to about 5% of a hydrated cationic guar gum having a 1–2% aqueous solution viscosity of from about 125 cps to about 3500±500 cps at 25° C., wherein said aqueous solution has a pH of about 9 to 11, and from 0% to about 5% of another cationic polymeric skin conditioner selected from the group consisting of:

(I) other cationic polysaccharides;

(II) cationic copolymers of saccharides and synthetic cationic monomers, and

(III) synthetic polymers selected from the group consisting of:

(A) cationic polyakylene imines,

(B) cationic ethoxypolyalkylene imines, and

(C) cationic poly(N-(3-(dimethylammonio)propyl)-N′-(3-(ethyleneoxyethylene dimethylammonio)propyl)urea dichloride); and

(IV) mixtures thereof; and

wherein said bar is substantially free of unhydrated polymeric particles greater than 30 microns; and

(3) from about 7% to about 25% moisture.

5,064,556

GOLF CLUB CLEANING COMPOSITION AND METHOD

Joseph F. Brandes, Tigard, and Robert N. Schumann, Wilsonville, both of Oreg., assignors to Provision, Inc., Vancouver, Wash.

Filed Feb. 13, 1991, Ser. No. 654,769

Int. Cl.[5] C11D *3/08, 7/14;* **C23G** *1/00;* **A63B** *53/12*

U.S. Cl. 252—135 **9 Claims**

1. A composition for cleaning me&al golf club heads consisting essentially of the following components in the indicated approximate weight percentages:

		wt %
(a)	polysaccharide xanthan gum	0.25–5.0
(b)	sodium metasilicate;	0.25–5.0
(c)	sodium ethylene diaminetetraacetate;	0.25–5.0
(d)	lower alkyl ester of a linear primary alcohol containing 9 to 17 carbon atoms	0.25–5.0
(e)	sulfonated distyryl biphenyl;	0.01–0.1
(f)	lower alkyl acid ester of p-hydroxybenzoic acid;	0.01–0.1
(g)	dye; and	.001–.01
	balance deionized water.	

5,064,557

RESIN CLEANER COMPOSITION

Frank Fusiak, Bayonne, N.J., assignor to ISP Investments Inc., Wilmington, Del.

Filed Oct. 15, 1990, Ser. No. 597,901

Int. Cl.[5] C09D *9/00;* **C11D** *7/50;* **B08B** *7/00*

U.S. Cl. 252—162 **12 Claims**

1. A resin cleaner and inhibitor composition for cleaning cured, partially cured and uncured unsaturated polyester or vinyl ester resin while reducing the rate of undesired in situ polymerization of such uncured, unsaturated polyester or vinyl ester resin in the presence of an organic solvent containing a free radical polymerization initiator consisting essentially of N-methyl-2-pyrrolidone solvent and at least about 0.005% by weight of the composition of a substituted phenol free radial polymerization inhibitor therein to suppress the rate of such undesired free radical polymerization with the optional presence of at least one member of the group consisting of diluents, odor masking agents and surfactants.

5,064,558

AZEOTROPE-LIKE COMPOSITIONS OF 1,1,2-TRI-CHLORO-1,2,2-TRIFLUOROETHANE, 1,2-DICHLOROETHYLENE, CYCLOPENTANE, METHANOL, NITROMETHANE AND OPTIONALLY DIISOPROPYLAMINE

Ellen L. Swan, Ransomville; Leonard M. Stachura, Hamburg; Rajat S. Basu, and David P. Wilson, both of Williamsville, all of N.Y., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Jun. 25, 1990, Ser. No. 546,464

Int. Cl.[5] C11D *7/30, 7/50;* **C23G** *5/028;* **B08B** *3/00*

U.S. Cl. 252—171 **27 Claims**

1. Azeotrope-like compositions consisting essentially of from about 50.3 to about 78 weight percent 1,1,2-trichloro-1,2,2-trifluoroethane, from about 14 to about 27 weight percent 1,2-dichloroethylene selected from the group consisting of trans-1,2-dichloroethylene and a mixture of trans-1,2-dichloroethylene and cis-1,2-dichloroethylene wherein said cis-1,2-dichloroethylene is present in an amount from about 5 to about 30 weight percent of said mixture, from about 3 to about 16 weight percent methanol, from about 3 to about 16 weight percent cyclopentane, from about 0.05 to about 0.5 weight percent nitromethane and from about 0 to about 2 weight percent diisopropylamine which boil at about 38.1° C. at 760 mm Hg.

5,064,559

BINARY AZEOTROPIC COMPOSITIONS OF ($CF_3CHFCHFCF_2CF_3$) WITH METHANOL OR ETHANOL OR ISOPROPANOL

Abid N. Merchant, and Carl G. Krespan, both of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 11, 1990, Ser. No. 595,833

Int. Cl.[5] C23G *5/028;* **C09K** *5/04, 5/30;* **C11D** *7/30*

U.S. Cl. 252—171 **17 Claims**

1. An azeotropic composition consisting essentially of:

(a) 89.0–99.0 weight percent 1,1,1,2,3,4,4,5,5,5-decafluoropentane with 1.0–11.0 weight percent methanol, wherein the composition has a boiling point of about 39.9° C. when the pressure is adjusted to substantially atmospheric pressure;

(b) 91.0–99.0 weight percent 1,1,1,2,3,4,5,5,5-decafluoropentane with 1.0–9.0 weight percent ethanol, wherein the composition has a boiling point of about 43.4° C. when the pressure is adjusted to substantially atmospheric pressure; or

(c) 93.0–99.0 weight percent 1,1,1,2,3,4,4,5,5,5-decafluoropentane with 1.0–7.0 weight percent isopropanol, wherein the composition has a boiling point of about 45.5° C. when the pressure is adjusted to substantially atmospheric pressure.

5,064,560

TERNARY AZEOTROPIC COMPOSITIONS OF 43-10MEE ($CF_3CHFCHFCH_2CF_3$) AND TRANS 1,2-DICHLOROETHYLENE WITH METHANOL OR ETHANOL

Abid N. Merchant, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Oct. 11, 1990, Ser. No. 595,834

Int. Cl.[5] C23G *5/028;* **C09K** *5/04, 3/30;* **C11D** *7/30*

U.S. Cl. 252—171 **15 Claims**

1. An azeotropic composition consisting essentially of:

(a) 55–65 weight percent 1,1,1,2,3,4,4,5,5,5-decafluoropentane, 32.5–40 weight percent trans 1,2-dichloroethylene, and 2.5–5 weight percent methanol, wherein the composition has a boiling point of about 35.3° C. when the pressure is adjusted to substantially atmospheric pressure; or

(b) 59–67 weight percent 1,1,1,2,3,4,4,5,5,5-decafluoropentane, 31.5–38 weight percent trans 1,2-dichloroethylene, and about 0.5–3 weight percent ethanol, wherein the composition has a boiling point of about 35.1° C. when the pressure is adjusted to substantially atmospheric pressure.

5,064,561

TWO-PART CLEAN-IN-PLACE SYSTEM

Carol Rouillard, Taylor, Mich., assignor to Diversey Corporation, Mississauga, Canada

Filed May 9, 1990, Ser. No. 520,887

Int. Cl.[5] C11D *3/386, 17/00*

U.S. Cl. 252—174.12 **6 Claims**

1. A two-part cleaning system, for use in preparing a dilute use solution, comprising:

(a) a first concentrated solution comprising:

(1) a hydroxide-based alkaline material,

(2) a defoamer;

(3) a solubilizer or emulsifier;

(4) a water hardness control additive; and

(b) a second concentrated solution in which free water is substantially absent, comprising:

(1) an enzyme which is a protease; and

(2) a carrier which is selected from the group consisting of alcohols, surfactants, polyols, glycols, and mixtures thereof.

5. The system of claim 1, wherein the water hardness control additive is present in an amount ranging from about 0 to 16% by weight, based on the total weight of the first concentrated solution.

6. A two part cleaning system for use in preparing a dilute use solution, comprising:

(a) a first concentrated solution, comprising:

(1) a hydroxide-based alkaline material which is present in an amount ranging from about 2.5 to about 7.5% by weight, based on the total weight of the first concentrated solution;

(2) a polyoxyalkylene nonionic surfactant defoamer which is present in an amount ranging from about 0.5 to about 5% by weight, based on the total weight of the first concentrated solution;

(3) a solubilizer or emulsifier selected from the group consisting of alkaline stable amphoteric surfactants, phosphate esters, fatty acids; modified polycarboxylate compounds, and mixtures thereof, the solubilizer or emulsifier being present in an amount ranging from about 1 to about 6%, by weight, based on the total weight of the first concentrated solution;

(4) a water hardness control additive selected from the group consisting of phosphates, sodium ethylene diamine tetraacetic acid, polyacrylic acids, mixtures of polyacrylic acid and a salt of polyacrylic acid, and mixtures thereof, the water hardness control additive being present in an amount ranging from about 0 to about 16%, by weight based on the total weight of the first concentrated solution; and

(b) a second concentrated solution in which free water is substantially absent, consisting essentially of:

(1) an enzyme which is a protease, the enzyme being present in at least 10 ppm;

(2) a carrier, selected from the group consisting of alcohols, surfactants, polyols, glycols, and mixtures thereof.

5,064,562

STABLE PUMPABLE ZEOLITE/SILICONE SUSPENSIONS

Philippe Jost, Paris, and Marc Malassis, Franconville, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Oct. 9, 1990, Ser. No. 594,558

Claims priority, application France, Oct. 9, 1989, 89 13137

Int. Cl.[5] C11D *3/08, 3/12, 7/14*

U.S. Cl. 252—174.15 **24 Claims**

1. A stable suspension of zeolite particulates, in water, said zeolite suspension having a pumpable low viscosity and comprising an effective viscosity reducing amount of a silicone resin.

5,064,563

PROCESS FOR PRODUCING AND USE OF MALEIC ACID (CO-) POLYMER SALT IMPROVED IN BIODEGRADABILITY

Shigeru Yamaguchi; Tokihiro Yokoi; Shorbu Shioji; Yoshio Irie, all of Himeji, and Teruaki Fujiwara, Nagaokakyo, all of Japan, assignors to Nippon Shokubai Co., Ltd., Osaka, Japan

Filed Apr. 27, 1990, Ser. No. 515,997

Claims priority, application Japan, Apr. 28, 1989, 1-107200

Int. Cl.[5] C11D *7/40;* **C08F** *4/42, 2/10;* **C02F** *5/08*

U.S. Cl. 252—174.23 **21 Claims**

1. A process for producing a maleic acid polymer salt having improved biodegradability which comprises polymerizing a monomer component composed of 75～100 weight % of maleic acid (A) and the remainder another water-soluble ethylenically unsaturated monomer (B) in a medium consisting essentially of an aqueous solution containing 12～150 g of hydrogen peroxide per mole of the monomer component as the polymeri-

VOL 1132 ISS 2 NO 12 1991 UMI

zation catalyzer; 0.3~500 ppm, based on the weight of the monomer component, of at least one kind of polyvalent metal ion selected from the group consisting of a vanadium containing ion, an iron ion, and a copper ion; and an amount of an alkaline substance added prior to polymerization sufficient to neutralize more than 0 and up to 45 mole % of all the acid in the monomer component to thereby produce a polymer salt comprising neutralized maleic acid having improved biodegradability.

5,064,564

OPTICALLY ACTIVE COMPOUND, INTERMEDIATE THEREFOR, PROCESS FOR PRODUCING THE INTERMEDIATE, AND LIQUID-CRYSTAL COMPOSITION

Sadao Takehara; Takeshi Kuriyama; Toru Fujisawa, Saitama; Kayoko Nakamura, Chiba; Tamejiro Hiyama; Kusumoto, Tetsuo, both of Kanagawa, and Akiko Nakayama, Tokyo, all of Japan, assignors to Dainippon Ink and Chemicals, Inc. and Sagami Chemical Research Center, both of Tokyo, Japan

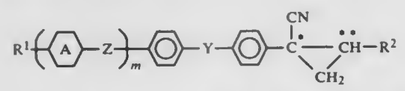
Filed Dec. 20, 1990, Ser. No. 630,591

Claims priority, application Japan, Dec. 22, 1989, 1-331270; Aug. 17, 1990, 2-216506; Oct. 1, 1990, 2-263578

Int. Cl.[5] C09K *19/34; C07C 227/00, 67/76*

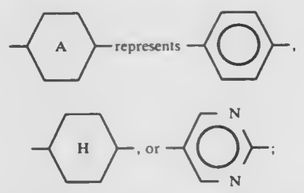
U.S. Cl. 25.2—299.61 **11 Claims**

1. An optically active compound represented by the following general formula (I):



(I)

wherein R^1 represents an alkyl, alkoxyl, or alkoxyalkanoyloxy group which has 1 to 18 carbon atoms and may be substituted with fluorine, chlorine, or cyano group; R^2 represents an alkyl group having 1 to 18 carbon atoms;



m is 0 or 1; Y represents a single bond, $—CH_2O—$, or —COO—; Z represents a single bond or —COO—; and C* and C** each independently represents an asymmetric carbon atom of the (R) or (S) configuration.

5,064,565

CYCLOHEXENYLETHANE COMPOUND

Manabu Uchida, and Yasuyuki Goto, both of Ichihara, Japan, assignors to Chisso Corporation, Osaka, Japan

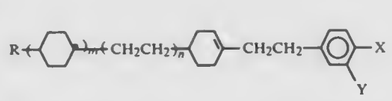
Filed Jul. 5, 1990, Ser. No. 549,138

Claims priority, application Japan, Jul. 26, 1989, 1-191268; Apr. 6, 1990, 2-90190

Int. Cl.[5] C09K *19/52, 19/54*

U.S. Cl. 252—299.001 **11 Claims**

1. A cyclohexenylethane compound represented by the formula [I]



[I]

wherein R is an alkyl group having 1 to 10 carbon atoms, X is an alkyl group or an alkoxy group having 1 to 10 carbon atoms, a cyano group, a bromine atom or a fluorine atom, Y is a hydrogen atom or a fluorine atom, m is 0 or 1, and n is 0 or 1.

5,064,566

SMECTIC LIQUID CRYSTAL PHASES

Reinhard Hopf, Berlin, Fed. Rep. of Germany; Bernhard Scheuble, Yokohama, Japan; Reinhard Hittich, Modautal, Fed. Rep. of Germany; Joachim Krause, Dieburg, Fed. Rep. of Germany; Volker Reiffenrath, Darmstadt, Fed. Rep. of Germany; Eike Poetsch, Mühltal, Fed. Rep. of Germany; Thomas Geelhaar, Mainz, Fed. Rep. of Germany, and Rudolf Eidenschink, Münster, Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit Beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

Continuation of Ser. No. 18,947, Dec. 24, 1986, abandoned. This application Oct. 20, 1989, Ser. No. 426,466

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1985, 3515374

Int. Cl.[5] C09K *19/34*

U.S. Cl. 252—299.61 **47 Claims**

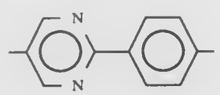
1. In a liquid crystal phase having ferroelectric properties useful for rapidly switching displays and comprising at least two liquid crystalline compounds which form an achiral base mixture having a tiled smectic phase, and a chiral doping substance, the improvement wherein at least one compound of said achiral base mixture is of the formula I

$$R^1\text{-}A^1\text{-}A^2\text{-}R^2 \qquad I$$

wherein

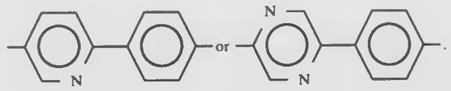
R^1 and R^2 are each alkyl of 1-15 C atoms wherein one or two non-adjacent CH_2 groups can be replaced by —O—, —S—, —CO—, —CO——S—, —S—CO—, and/or —CH=CH—, and

A^1-A^2 is



and wherein at least one compound of said achiral base mixture is of Formula I wherein independently R^1 and R^2 are as defined above and

A^1-A^2 is



5,064,567

NEMATIC LIQUID-CRYSTAL COMPOSITION FOR ACTIVE MATRIX APPLICATION

Fumiaki Funada; Masako Okada; Shuichi Kohzaki, all of Nara, Japan; Bernhard Scheuble, Seeheim-Jugenheim, Fed. Rep. of Germany, and Takamasa Oyama, Kanagawa, Japan, assignors to Sharp Corporation, Osaka, Japan and Merck Patent Gesellschaft mit beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

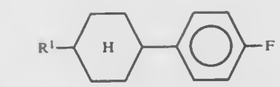
Filed Jul. 5, 1990, Ser. No. 548,342

Claims priority, application European Pat. Off., Jul. 6, 1989, 89112317

Int. Cl.[5] C09K *19/52*

U.S. Cl. 252—299.61 **12 Claims**

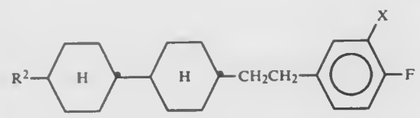
1. A nematic liquid-crystal composition comprising at least three compounds from group 1



(1)

wherein R^1 denotes a straight-chain alkyl group of 5 or more carbon atoms;

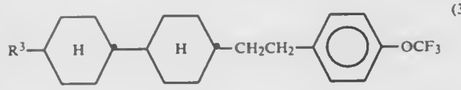
at least one compound from group 2



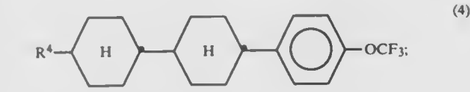
(2)

wherein R^2 denotes a straight-chain alkyl group of 3 carbon atoms and X is H or F;

two compounds of each of the groups 3 and 4

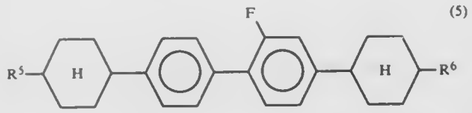


(3)



(4)

and at least three compounds of group 5



(5)

wherein R^3 to R^6 each independently denotes a straight-chain alkyl group of 3 to 5 carbon atoms;

said composition containing

about 25 to 35% by weight of compounds of group 1,

about 10 to 20% by weight of compounds of group 2,

about 15 to 25% by weight of compounds of group 3,

about 20 to 30% by weight of compounds of group 4, and

about 5 to 15% by weight of compounds of group 5.

5,064,568

FERROELECTRIC LIQUID CRYSTAL COMPOSITION

Kanetsugu Terashima; Mitsuyoshi Ichihashi, both of Ichihara; Makoto Kikuchi, Kisarazu; Fusayuki Takeshita, Ichihara, and Kenji Furukawa, Yokosuka, all of Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Nov. 25, 1988, Ser. No. 276,389

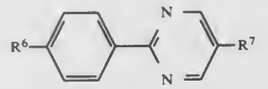
The portion of the term of this patent subsequent to Jan. 9, 2007, has been disclaimed.

Int. Cl.[5] C09K *19/34, 19/52, 19, 12*

U.S. Cl. 252—299.61 **2 Claims**

1. A ferroelectrical liquid crystal composition which comprises a mixture of the following three liquid crystal components A, B and C, and the ratio of these components being 20 to 75% by weight of A, 5 to 30% by weight of B and 5 to 35% by weight of C with respect to the total weight of the three components:

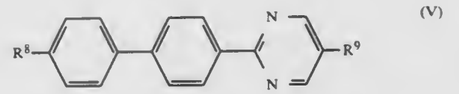
said liquid crystal component A being composed of one or more selected from the group consisting of a compound represented by the general formula (IV)



(IV)

wherein R^6 and R^7 are identical or different and each of them is respectively an alkyl group or an alkoxy group having 1 to 18 carbon atoms,

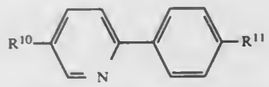
a compound represented by the general formula (V)



(V)

wherein R^8 and R^9 are identical or different and each of them is respectively an alkyl group or an alkoxy group having 1 to 18 carbon atoms,

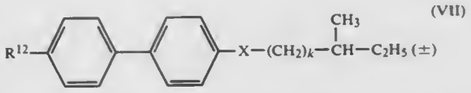
a compound represented by the general formula (VI)



(VI)

wherein R^{10} and R^{11} are identical or different and each of them is respectively an alkyl group or an alkoxy group having 1 to 18 carbon atoms,

and a compound represented by the general formula (VII)

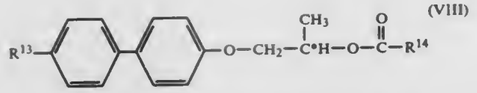


(VII)

wherein R^{12} is an alkyl group or an alkoxy group having 1 to 18 carbon atoms, X is no group or an oxygen atom, k is in the range of 0 to 10, and (±) represents a racemic compound;

said liquid crystal component B being composed of one or more of compounds represented by the general formula (VIII)

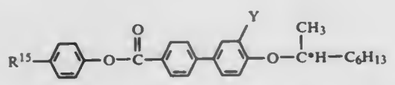
VOL 1132 ISS 2 NO 12 1991 UMI



(VIII)

wherein R^{13} and R^{14} are identical or different and each of them is respectively an alkyl group or an alkoxy group having 1 to 18 carbon atoms, and * indicates an asymmetric carbon atom;

and said liquid crystal component C being composed of one or more of compounds represented by the general formula (IX)



(IX)

wherein R^{15} is an alkyl group or an alkoxy group having 1 to 18 carbon atoms, Y is H, F or CN, and * indicates an asymmetric carbon atom.

5,064,569

OPTICALLY ACTIVE COMPOUNDS

Thomas Geelhaar, Mainz; Andreas Wächtler, Griesheim, both of Fed. Rep. of Germany, and Bernhard Scheuble, Yokohama, Japan, assignors to Merck Patent Gesellschaft Mit Beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

Continuation of Ser. No. 116,944, filed as PCT/DE87/00035 Jan. 31, 1987, abandoned. This application Dec. 7, 1989, Ser. No. 445,104

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1986, 3604905; Sep. 10, 1986, 3630771

Int. Cl.[5] C09K *19/12, 19/52;* **C07C** *41/00, 69/76*

U.S. Cl. 252—299.65 **5 Claims**

1. Optically active compounds of the formula I

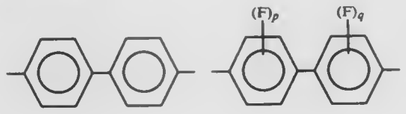
$$R^1—C^*HX—Q—A^4—Z^1—A^2—(Z^2—A^3)_n—X—'—Q'—C^*HY'—R^5 \quad (I)$$

wherein

$R^1—C^*HX—Q—$ and $—X'—Q'—C^*HY—R^5$ are identical optically active radicals selected from the group $—O—C^*HCH_3—COO—n—$ alkyl, $—O—C^*HCH_3—CH_2—O—n—$alkyl, $—COO—C^*HCH_3—COO—n—$alkyl, $—O—CO—C^*HCH_3—O—n—$alkyl, $—OCH_2—C^*HCH_3—O—n—$alkyl, $—COO—C^*HCH_3—CH_2—O—n—$alkyl, $—OC^*HCH_3—CH_2—COO—n—$alkyl, $—COO—C^*HCH_3—CH_2—COO—n—$alkyl, $—OCH_2—C^*HCH_3—COO—n—$alkyl or $—COO—CH_2—C^*HCH_3—COO—n—$alkyl,

alkyl is of 1–12 C atoms,

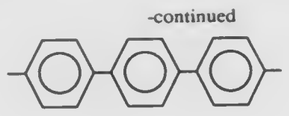
and $—A^4—Z^1—A^2—(Z^2—A^3)_n—$ is a group of the following formulae.



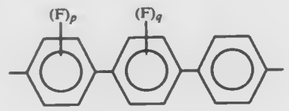
1 2

(p = 1, 2, 3, or 4; q = 0, 1, 2, 3 or 4)

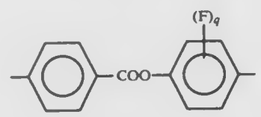
-continued



3



4



11

5,064,570

DISPERSION FLUORESCENT BRIGHTENER PREPARATIONS

Peter Rohringer, Schönenbuch, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 233,381, Aug. 17, 1988, abandoned. This application Jan. 24, 1990, Ser. No. 469,704

Claims priority, application Switzerland, Aug. 26, 1987, 3263/87

Int. Cl.[5] C09K *11/06*

U.S. Cl. 252—301.21 **16 Claims**

1. A dispersion fluorescent brightener preparation comprising:

(a) dispersion fluorescent brightener or a mixture of dispersion fluorescent brighteners;

(b) an agent for dispersing or emulsifying said fluorescent brightener or a mixture of said agents; and

(c) an auxiliary consisting of a water-insoluble aromatic compound of C_{14}–C_{18} fatty alcohol or mixtures thereof, said auxiliary having a melting point between 40° C. and 200° C.; with the proviso that said dispersion fluorescent brightener preparation is substantially free of volatile organic solvent water-soluble acids and organophilic, expanding-lattice clay ion exchanged with alkyl quaternary ammonium ions or hydrogen ions.

5,064,571

MIXTURES OF FATTY AMIDO-AMINES FROM POLYOXYALKYLENEAMINES

George P. Speranza; Carter G. Naylor, both of Austin, and Jiang-Jen Lin, Houston, all of Tex., assignors to Texaco Chemical Company, White Plains, N.Y.

Filed Aug. 11, 1989, Ser. No. 392,313

Int. Cl.[5] B01F *17/16, 17/22;* **C11D** *1/40, 1/52*

U.S. Cl. 252—357 **21 Claims**

1. Mixtures of amido-amines prepared by a process comprising reacting at least one first component comprising at least one compound selected from the group consisting of mono- and dicarboxylic acids and acid esters, with a second component comprising polyoxyalkyleneamine bottoms products, where the reaction is conducted in the temperature range from about 25° to about 280° C. and at a pressure in the range from about atmospheric to about 200 psig.

5,064,572

POLY (LONG-CHAIN NUCLEAR SUBSTITUTED PHENYLENE VINYLENE), PRECURSOR THEREFOR AND HIGHLY CONDUCTIVE COMPOSITION THEREOF

Toshihiro Ohnishi, Itami; Takanobu Noguchi, Otsu, and Tsuyoshi Nakano, Ibaraki, all of Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

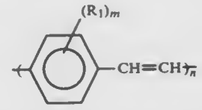
Continuation of Ser. No. 244,267, Sep. 15, 1988, abandoned. This application Nov. 6, 1990, Ser. No. 608,620

Claims priority, application Japan, Sep. 22, 1987, 62-236251; Apr. 4, 1988, 63-81339

Int. Cl.[5] H01B *1/00, 1/06*

U.S. Cl. 252—500 **12 Claims**

1. A poly(long-chain nuclear substituted p-phenylene vinylene) represented by the formula:



wherein R_1 represents a hydrogen group of 7–20 carbon atoms or an alkoxy group of 7–20 carbon atoms, n represents an integer of 5 to 50,000 and m represents 1 or 2.

5,064,573

RESISTIVE PASTE COMPRISING OXIDES OF RUTHENIUM, LEAD, IRON AND ZINC

Shizuharu Watanabe, and Hiroji Tani, both of Kyoto, Japan, assignors to Murata Mfg. Co., Japan

Filed Mar. 2, 1990, Ser. No. 487,624

Claims priority, application Japan, Mar. 2, 1989, 1-50614

Int. Cl.[5] H01B *1/06, 1/08*

U.S. Cl. 252—518 **8 Claims**

1. Resistive paste containing conductive powder, glass frit and organic varnish,

said conductive powder being composed of iron oxide, ruthenium oxide, lead oxide and zinc oxide, and containing 10 to 25 atomic percent of iron oxide in terms of Fe atoms, 25 to 34 atomic percent of ruthenium oxide in terms of Ru atoms, 25 to 34 atomic percent of lead oxide in terms of Pb atoms, and 10 to 25 atomic percent of zinc oxide in terms of Zn atoms.

5,064,574

METHOD AND COMPOSITION FOR PROVIDING ELECTROSTATIC DISCHARGE PROTECTION FOR SPACECRAFT

Susan L. Oldham, Torrance, and Desiree S. Prior, Westchester, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Division of Ser. No. 228,370, Aug. 4, 1989, abandoned. This application Jul. 10, 1989, Ser. No. 377,372

Int. Cl.[5] H01B *1/06*

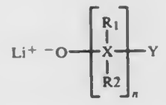
U.S. Cl. 252—518 **22 Claims**

1. A composition for providing a combination of thermal control and electrostatic discharge protection for bodies in the space environment comprising:

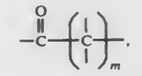
a) a chosen resin that forms a polymer which is an electronic insulator and which is resistant to ultraviolet radiation, high energy particles, and elevated temperature; and

b) a dopant incorporated in said resin in a predetermined amount, said dopant being selected from the group consisting of lithium tetrafluoroborate and a compound having Formula I

Formula 1



where X is selected from the group consisting of:





, and

n=1 to 11,

m=3 to 11,

Y=H, C1 to C4 alkyl, OH, or halogen, Z=H or halogen,

R_1 and R_2 are each a substituent incorporating a moiety found in the polymer chain;

wherein said composition when polymerized provides a polymer layer which is uniformly semiconductive, has a volume resistivity of about 10^6 to 10^{11} ohm-centimeter and a value of solar absorptance/total normal emittance within the range of about 0.305 to 0.595.

5,064,575

METHOD AND DEVICE FOR THE LOADING AND SEALING OF A DOUBLE CONTAINER SYSTEM FOR THE STORAGE OF RADIOACTIVE MATERIAL AND A SEAL FOR THE DOUBLE CONTAINER SYSTEM

Wolfgang Madle, Falltorweg 43, 6906 Leimen; Norbert Gawlik, Neunkirchener Weg 7, 5908 Neunkirchen, and Franz W. Popp, Kuhstrasse 5, D-3002 Wedemark, all of Fed. Rep. of Germany

Division of Ser. No. 99,912, Sep. 22, 1987, Pat. No. 4,847,009. This application Mar. 20, 1989, Ser. No. 325,854

Claims priority, application Fed. Rep. of Germany, Sep. 23, 1986, 3632270

Int. Cl.[5] G21F *9/12, 5/00;* **G21C** *19/00*

U.S. Cl. 252—633 **4 Claims**

1. In a double container system loaded with radioactive material disposed in a sheath comprising an inner container and an outer shielding container, the improvement in which said inner container has a cylindrical wall, an inner cover in the form of a plug screwed into said wall and an outer cover welded to said wall, said weld comprising

a welding gap between said outer cover and said wall, said gap being of increasing width from bottom to top,

the bottom of said gap being formed by a pair of opposed peripheral flanges, one projecting from said outer cover and one projecting from said wall,

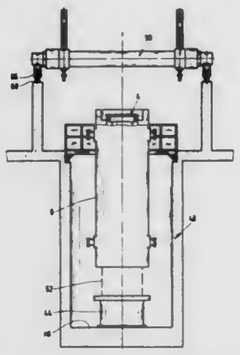
each said flange being canted to provide said gap with a bottom of V-shaped configuration,

a weld disposed within said welding gap having a root layer

VOL 1132 ISS 2 NOV 12 1991 UMI

disposed on said V-shaped bottom and an added layer superimposed on said root layer

said root layer being formed by a tungsten electrode, gas shielded arc welding process and



said added layer being formed by a submerged arc welding process.

5,064,576

STEAM SENSITIVE COMPOSITION AND A STERILIZATION INDICATOR COMPOSITION CONTAINING THE SAME

Kyoko Suto, Sagamihara, Japan, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Aug. 22, 1989, Ser. No. 397,046

Claims priority, application Japan, Aug. 26, 1988, 63-212305

Int. Cl.[5] C07F *15/04*

U.S. Cl. 252—962 12 Claims

1. A steam sensitive composition comprising a metal complex and an exchange ligand, wherein said metal complex is bis(dimethylglyoximato)nickel, bis(2-furyldioximato)nickel, zirconium chloranilate or bis(nioximato)nickel and said exchange ligand is an aminocarboxylic acid which comprises from 1 to 6 carboxylic acid groups and from 1 to 4 amino groups; or citric acid, a salt of citric acid, tartaric acid or a salt of tartaric acid; or a mixture thereof.

5,064,577

METHOD OF SPINNING OPTICAL FIBERS

David S. Soane, Piedmont, Calif., assignor to Soane Technologies, Inc., Livermore, Calif.

Division of Ser. No. 98,533, Sep. 18, 1987, Pat. No. 4,917,455. This application Oct. 6, 1989, Ser. No. 418,143

Int. Cl.[5] B29D *11/00*

U.S. Cl. 264—1.4 7 Claims

1. A method of forming an optical fiber defining an axis, the fiber having a dipolar dopant wherein a predominance of the dipoles of the dopant are oriented in essentially the same direction along the axis of the fiber, the method including the following steps:

(a) providing a vessel having, a spinneret;

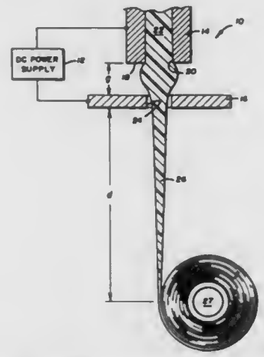
(b) positioning an orificed plate adjacent to but spaced apart and electrically isolated from the vessel provided in step a, the orifice in the plate axially aligned with the orifice in the spinneret;

(c) establishing a substantially constant electric potential between the spinneret and said orificed plate;

(d) forming a prefiber homogenous liquid mixture of at least one dipolar dopant and at least one polymer in the vessel;

(e) extruding the prefiber through the spinneret forming an extrudate;

(f) drawing the extrudate through the orificed plate while the constant electric potential exists to generally align the dipoles predominantly in the same direction; and



(g) elongating simultaneously by drawing the extrudate after it has left the spinneret and while it is still in a fluid state to further align the dipoles predominantly in the same direction.

5,064,578

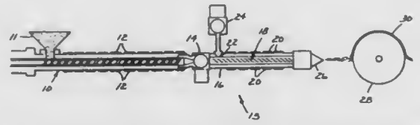
METHOD FOR MAKING A HIGH WET-STRENGTH POLYOLEFIN BLOWN MICROFIBER WEB

Thomas I. Insley, and Daniel E. Meyer, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Division of Ser. No. 341,498, Apr. 21, 1989, Pat. No. 4,933,229. This application Apr. 9, 1990, Ser. No. 506,029

Int. Cl.[5] B29B *9/06*

U.S. Cl. 264—12 6 Claims



1. Method of making a polyolefin web, said method comprising the sequential steps of

a) extruding molten polyolefin resin from an extruder,

b) then blending into the molten polymer a nonionic surfactant in a mixing means at a location adjacent a die and at a temperature such that the surfactant is not significantly degraded,

c) forming the blend from the die into blown microfibers, and

d) collecting the blown microfibers into a coherent web-having a web wet strength at least 130% of its web dry strength.

5,064,579

PROCESS OF PRODUCING AN ORIENTED SILICONE RESIN COATED POLYMERIC FILM

Kenneth D. Kendall, and Darren W. Dean, both of Bridgwater, England, assignors to Courtaulds Films & Packaging (holdings) Ltd., Somerset, England

Filed May 29, 1990, Ser. No. 529,568

Claims priority, application United Kingdom, Jun. 20, 1989, 8914159

Int. Cl.[5] B29C *41/32, 55/04*

U.S. Cl. 264—22 18 Claims

1. A process for the production of an oriented polymeric film which process comprises forming a layer of an ambient temperature curable silicone resin composition on a surface of a polymeric film, stretching the film at an elevated temperature to effect orientation of the film and winding the stretched film into a roll, wherein the silicone resin composition includes a volatile inhibitor for inhibiting curing of the composition while stretching is effected such that the majority of curing of the composition occurs after the film is wound into a roll.

5,064,580

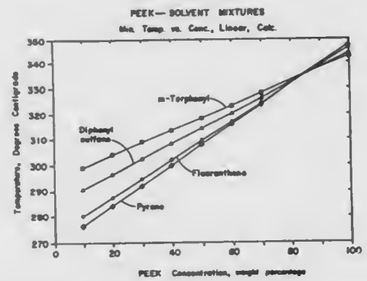
PROCESS FOR MAKING MICROPOROUS MEMBRANES FROM POLY(ETHERETHERKETONE)-TYPE POLYMERS

Henry N. Beck, Walnut Creek; Richard A. Lundgard, Antioch, and Robert D. Mahoney, Danville, all of Calif., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 175,716, Mar. 31, 1988, Pat. No. 4,904,426. This application Jul. 14, 1989, Ser. No. 380,058 The portion of the term of this patent subsequent to Feb. 27, 2007, has been disclaimed.

Int. Cl.[5] B29C *67/20*

U.S. Cl. 264—28 20 Claims



1. A process for preparing a microporous poly(etheretherketone)-type membrane comprising the steps of:

A. forming a mixture of:

(i) at least one unsulfonated poly(etheretherketone)-type polymer, and

(ii) a plasticizer comprising at least one organic compound capable of dissolving at least about 10 weight percent of the poly(etheretherketone)-type polymer as the extrusion or casting temperature;

B. heating the mixture to a temperature at which the mixture becomes a homogeneous fluid;

C. extruding or casting the homogeneous fluid under conditions such that a membrane is formed;

D. quenching or coagulating the membrane by passing the membrane through at least one zone under conditions such that the membrane solidifies; and

E. leaching the membrane by passing the membrane through at least one zone under conditions such that at least a portion of the plasticizer for the poly(etheretherketone)-type membrane is removed from the membrane;

wherein before leaching, during leaching, after leaching, or a combination thereof, the membrane is drawn to increase the flux of fluid through the membrane, while the membrane is at a temperature above about 25° C. and below the melting point of the poly(etheretherketone)-type polymer or the depressed melting point of the poly(etheretherketone)-type polymer and plasticizer mixture.

5,064,581

METHOD OF MAKING ELASTIC CARBON FIBERS

Stephen P. Krupp, Lake Jackson, Tex., and Scott L. Gessner, Vancouver, Wash., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 700,231, Feb. 11, 1985, abandoned. This application Sep. 16, 1986, Ser. No. 907,931

Int. Cl.[5] D01F *9/155*

U.S. Cl. 264—29.2 9 Claims

1. A method of making a carbon fiber having enhanced elongation to break, comprising the steps of:

(a) melt spinning an isotropic fiber through a selected size opening, the melt spinning step utilizing a pitch characterized by having essentially no optically visible anisotropic pitch in an otherwise isotropic pitch, the pitch having less than about 1 percent quinoline insoluble portion, a softening point in the range of about 130° C. to about 300° C., and a Conradson number of 50 or more;

(b) oxidizing the pitch fiber in an oxidant atmosphere until the fiber increases in weight by a specific amount of the oxidant;

(c) removing oxidant from the fiber in the presence of heat up to a temperature and for an interval sufficient to reduce the weight by a specific amount to obtain a fiber having at least 2 percent elongation to break; and thereafter

(d) repetitively stretching the fiber in the elastic range to thereby increase the percent elongation to break by at least about 20 percent.

5,064,582

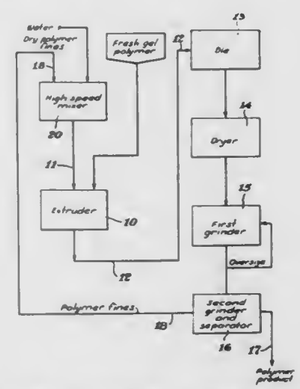
PROCESS AND APPARATUS FOR RECYCLING AQUEOUS FLUID ABSORBENTS FINES

Tod A. Sutton; Karl V. Jacob; Timothy Lim, and Steven P. Sandor, all of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Sep. 15, 1989, Ser. No. 407,840

Int. Cl.[5] C08J *11/06*

U.S. Cl. 264—37 11 Claims



1. A process for reblending dry, difficult to hydrate, polymer fines into a water-swellable viscous polymer material, comprising:

feeding dry fines into a first mixing zone:

spraying water into said mixing zone into contact with said fines such that said fines are partially hydrated:

mixing, substantially simultaneously with said spraying, in said mixing zone said fines and water at high shear such that said fines are substantially hydrated, without substantial agglomeration or gelation, and transported from said first mixing zone: and

blending said hydrated fines with said viscous material in a second mixing zone wherein said fines and viscous mate-

VOL 1132 ISS 2 NO 12 1991 UMI

rial are kneaded together at medium shear such that a substantially uniformly blended product results.

11. A process for making a particulate aqueous fluid absorbent polymer of high capacity and mechanical integrity, comprising:

forming a water-swellable copolymer gel of an α,β-ethylenically unsaturated carboxylic acid monomer and a crosslinking monomer having at least two polymerizable double bonds, said gel at least partially neutralized:

blending said gel at medium shear:

extruding said gel to a form having a surface area suitable for drying:

drying said gel to a solid form:

grinding said dried solid such that a product absorbent polymer of selected particulate size is produced;

recycling oversize particulate for further attriting:

feeding polymer fines, less than said selected particulate size, into a mixing zone:

spraying water into said mixing zone into contact with said fines such that said fines are partially hydrated;

mixing, substantially simultaneously with said spraying, in said mixing zone said fines and water at high shear such that said fines are substantially completely hydrated without agglomeration and transported from said zone:

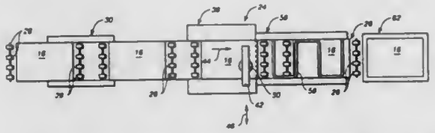
recycling said hydrated fines into said blending step with said copolymer gel wherein said fines and gel are kneaded together at medium shear such that a substantially uniformly blended product results.

5,064,583

METHOD FOR APPLYING MOLD RELEASE COATING TO SEPARATOR PLATES FOR MOLDING PRINTED CIRCUIT BOARDS

John J. Dagostino, Santa Clara, and Gregory L. Lucas, Newark, both of Calif., assignors to Zycon Corporation, Santa Clara, Calif.

Filed Aug. 1, 1989, Ser. No. 388,252
Int. Cl.[5] B28B *7/38, 11/04*
U.S. Cl. 264—39 7 Claims



1. A method of high temperature sequential molding of multiple printed circuit board laminates comprising the steps of

arranging separator mold plates between mold die elements and adjacent laminate surfaces and between facing laminate surfaces of different printed circuit board laminates are simultaneously molded,

integrally applying at least one thin, continuous coat of about one microinch thickness of a silane-based mold release composition to opposite surfaces of each separator mold plate prior to each sequential molding operation for facilitating repeated use of the plates in sequential molding operations and to maintain dimensionally accurate surfaces on the respective printed circuit board laminates while avoiding the need for hard abrasive cleaning of the separator mold plates between sequential molding operations, and

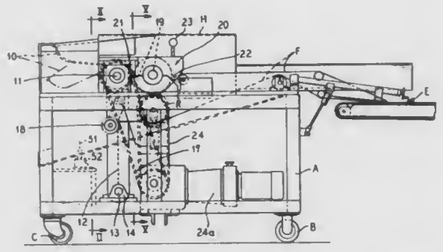
selecting the thickness of the silane-based mold release coating to permit application of an additional coat prior to each sequential molding operation to assure coating continuity on opposite surfaces of the plates without excessive build-up even after use in many sequential molding operations.

5,064,584

ROTARY MOLDING MACHINE

Frederick W. Jefferies, Algonquin, Ill., assignor to Weidenmiller Company, Elk Grove Village, Ill.

Filed Sep. 14, 1989, Ser. No. 407,804
Int. Cl.[5] B29C *33/30*
U.S. Cl. 264—39 12 Claims



12. A method of operating a rotary molding apparatus, comprising:

supporting a die roll on support means for supporting the apparatus and providing the die roll with shaft means for enabling rotation of said die roll at opposite ends and mounting bearing means for engaging said shaft means comprising pillow blocks each of which has a portion carried by said support means and a portion pivotally mounted for clamping engagement with the supported portion;

providing said pillow block portions with generally V-shaped cross section annular clamping cavities, providing said shaft means with complementary generally V-shaped cross section bearing members and engaging said bearing members in said cavities positioning the die roll on said support means;

locking said pivotal bearing portion against displacement in an operating mode when said bearing members are engaged in said cavities;

providing a feed roller mounted on upright arms and urging said feed roller toward the die roll;

providing on said arms means for providing a doctor blade between the feed roller and the die roll and biasing the means for providing a doctor blade toward the die roll;

providing a fluent material support hopper engaging with said feed roller and means carried by said support means for moving said hopper between an operating position engaging said feed roller and a backed-off position, whereby the supply hopper is moved between the feed roller engaging position and the backed-off position to provide clearance for the positioning of the die roll on said support means;

providing means on said support means for driving said die roll;

providing means carried by said support means for driving said feed roller;

providing a magazine for supporting a plurality of die rolls; and

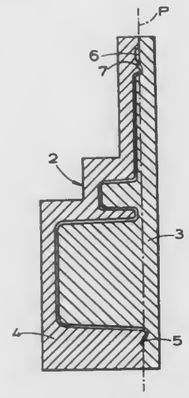
selecting said die roll from said magazine and shifting said die roll from the magazine into working position in said pillow blocks, whereby fluent material is molded during said operating mode and then returning the die roll to the magazine at the end of said operating mode.

5,064,585

PROCESS OF MANUFACTURING A THIN-WALLED PLASTICS MOULDING

Royston B. Cooper, Tipton, and Jonathan G. Leak, Solihull, both of England, assignors to Glynwed Consumer & Building Products Limited, Birmingham, England

Continuation of Ser. No. 323,762, Mar. 15, 1989, abandoned. This application Oct. 31, 1990, Ser. No. 609,112
Claims priority, application United Kingdom, Mar. 17, 1988, 8806299
Int. Cl.[5] B29C *45/73*
U.S. Cl. 264—40.6 10 Claims



1. A process of manufacturing a thin-walled plastics molding having a wall thickness not exceeding approximately 0.4 in. and having a size and shape comparable to a kitchen sink with a drain board, comprising:

providing a mold having two mold halves which meet at a parting plane and having a mold cavity which has the shape of the molding and which extends along the parting plane, the mold further having an entry located in the vicinity of the periphery of the mold cavity;

providing a fluid, de-gassed curable resin composition preheated to a temperature of 50°–120° C. and capable of setting to a form-stable state within sixty minutes;

preheating the mold so that the temperature at each point in the cavity is higher than the temperature of the pre-heat resin at the time the resin is introduced into the cavity and the temperature in the cavity increases linearly from the entry to peripheral regions of the cavity most remote from the entry;

supplying the pre-heated resin to the mold cavity via the entry at a pressure of at least 4 psi so as to substantially fill the mold cavity while gasses are exhausted from the mold as it is filled and are restrained from entering into the mold cavity during setting of the composition in the mold cavity, and supplying additional pre-heated resin to the mold cavity via the entry under pressure until the composition in the cavity is in a form stable state to compensate for shrinkage of the composition in the mold cavity;

removing the resulting molding from said mold cavity when the composition is in a form-stable state; and

performing a subsequent heat treatment on the molding to cure the composition;

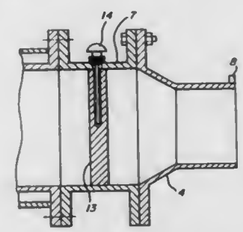
wherein the maximum temperature of the mold cavity is 120°–170° C. and is approximately 10° C. higher than the temperature of the mold cavity at the entry, whereby setting of the composition progresses along the mold cavity from locations remote from the entry back to the entry.

5,064,586

CERAMIC MATERIAL EXTRUDING METHOD AND APPARATUS THEREFOR

Kouzou Higashijima, Nagoya, Japan, assignor to NGK Insulators, Ltd., Tokyo, Japan

Filed Mar. 27, 1990, Ser. No. 499,689
Claims priority, application Japan, Mar. 27, 1989, 1-71980
Int. Cl.[5] B28B *3/24;* B29B *7/72*
U.S. Cl. 264—40.6 9 Claims



1. A method of extruding a formed body in which temperatures of a batch material are regulated, comprising the steps of:

feeding the material into a kneading section having a first auger disposed therein, the material being kneaded and transferred to a vacuum chamber via said first auger;

transferring the material from the vacuum chamber through a batch transfer section and through a temperature measuring drum positioned at a downstream end of a said batch transfer section via a second auger disposed in said batch transfer section, said temperature measuring drum having rods extending entirely across at least central and outer-peripheral portions of a cross-section thereof, said rods each having a streamlined cross-sectional shape and temperature sensors embedded therein;

measuring temperatures at least at central and outer-peripheral portions of the material via said temperature sensors;

controlling temperatures of at least one of said kneading section, said batch transfer section, said first auger and said second auger based upon the temperatures measured by said sensors, for regulating temperatures of the material; and

forming the material into a columnar body.

5,064,587

METHOD FOR EXTRUDING A THERMOPLASTIC PLASTICS MATERIAL FOAM

Joachim Meyke, and Gerhard Martin, both of Hanover, Fed. Rep. of Germany, assignors to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

Filed Jun. 21, 1990, Ser. No. 541,380
Claims priority, application Fed. Rep. of Germany, Jun. 30, 1989, 3921523
Int. Cl.[5] B29C *47/00*
U.S. Cl. 264—50 1 Claim

1. A method of producing a foamed thermoplastic plastics material by extrusion comprising the steps of:

a) admixing a plastics material with a pore regulating agent, said plastics material being selected from the group consisting of polystyrene and polyethylene,

b) introducing said mixture into an extrusion device,

c) fusing, mixing and homogenising said mixture in said extrusion device,

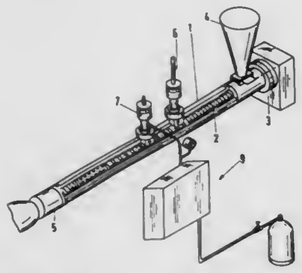
d) injecting a first propellant in the form of gaseous nitrogen into said homogenised mixture in said extrusion device in an amount of from 0.2% to 0.5% by weight relative to the combined weight of the plastics material and pore regulating agent,

e) further mixing and homogenising said mixture and said

VOL 1132 ISS 2 NO 12 1991 UMI

nitrogen in said extrusion device to form an homogenised nitrogen-containing mixture,

f) injecting a second propellant in the form of a liquid, incompletely halo-substituted, hydrocarbon into said homogenised nitrogen-containing mixture, said second propellant being introduced in an amount of from 0.5% to 2% by weight of the combined weight of said plastics material and pore regulating agent, said incompletely halo-substituted hydrocarbon being selected from the group consisting of chlorodifluoromethane, dichlorotrifluoroethane, tetrafluoroethane, dichlorofluoroethane and chlorodifluoroethane,



g) further mixing and homogenising said mixture of said plastics material, pore regulating agent, and propellants in said extrusion device and extruding a mixture thereof through an extrusion head whereby foaming of the plastics material occurs, and

wherein the pressure of the mixture of plastics material, pore regulating agent and propellants in said extrusion head is maintained in excess of 55 bar and the temperature of said mixture is maintained at or above a temperature of 122° C.

5,064,588

METHOD OF MANUFACTURING ELONGATE CERAMIC ARTICLES

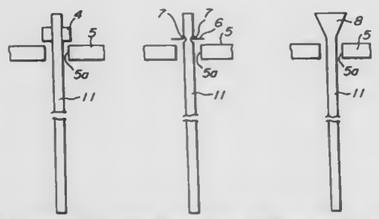
Hidenobu Misawa, Toyoake, Japan, assignor to NGK Insulators, Ltd., Japan

Filed May 8, 1990, Ser. No. 520,772

Claims priority, application Japan, May 15, 1989, 1-120954; May 15, 1989, 1-120955

Int. Cl.[5] F27B *9/14*

U.S. Cl. 264—57 **12 Claims**



1. A method of manufacturing elongate ceramic articles each having a longitudinal direction, which comprises:

preparing an elongate ceramic shaped-body;

holding the shaped-body in a first attitude and subjecting the shaped-body to a pre-firing at a predetermined temperature to form a pre-fired-body; and

subsequently holding the pre-fired-body in a second attitude, which is different from said first attitude and in which the longitudinal direction of the pre-fired-body is oriented in a substantially vertical direction, and subjecting the pre-fired-body to a firing at a temperature not less than said predetermined temperature.

5,064,589

METHOD FOR PRODUCING HIGH DENSITY HEXAAGONAL BORON NITRIDE SINTERED ARTICLE

Kagetaka Ichikawa, and Takao Noda, both of Shiojiri, Japan, assignors to Showa Denko K.K., Tokyo, Japan

Continuation of Ser. No. 459,317, Dec. 29, 1989, abandoned. This application Feb. 26, 1991, Ser. No. 660,264

Int. Cl.[5] F27D *7/02*; C04B *35/58*

U.S. Cl. 264—65 **12 Claims**

1. A method for producing a high density hexagonal boron nitride sintered article, comprising:

a) preparing a mixture consisting essentially of (i) hexagonal boron nitride powder, (ii) 0.1 to 20% by wt., based on the total amount of said mixture, of an alkaline earth metal compound selected from the group consisting of oxides, carbonates, and hydroxides of calcium and oxides, carbonates and hydroxides of magnesium, and (iii) 0.1 to 20% by wt., based on the total amount of said mixture, of boron carbide;

b) shaping said mixture; and

c) firing the shaped mixture at a temperature of at least 1,600° C. in a nitrogen-containing non-oxidizing atmosphere.

5,064,590

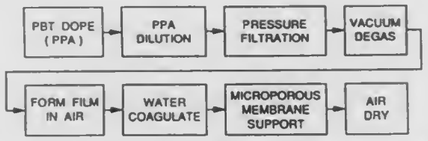
METHOD OF FORMING AN ULTRA-THIN NONLINEAR OPTICAL FILM

Paul J. Marinaccio, E. Orleans, Mass., assignor to The United States of America as represented by the secretary of the Air Force, Washington, D.C.

Filed May 26, 1989, Ser. No. 358,033

Int. Cl.[5] B29D *7/01*

U.S. Cl. 264—102 **9 Claims**



1. A method of forming an ultra-thin nonlinear optical film which is performed in the following sequence of steps:

a) diluting a lyotropic liquid crystalline polymer with a dopant to form a complex mixture,

b) blending said complex mixture with additional dopant to form a concentrated mixture,

c) filtering said concentrated mixture through a high pressure filtration cell,

d) vacuum degassing said concentrated mixture at an elevated temperature,

e) forming a thin film in air on a plate,

f) coagulating said thin film in water, said thin film floating freely in the water after a predetermined time, to allow said dopant to diffuse out of said thin film,

g) picking said thin film up on a support substrate, and

h) drying said thin film in air.

5,064,591

COMPOSITE ASSEMBLY PRESS AND METHOD OF USE

Mark T. Churchland, Vancouver, Canada, assignor to MacMillan Bloedel Limited, British Columbia, Canada

Filed Dec. 29, 1989, Ser. No. 456,657

Int. Cl.[5] B27N *3/12*

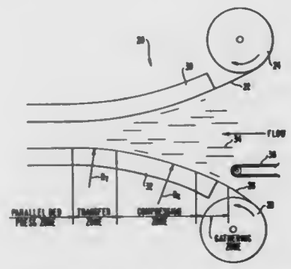
U.S. Cl. 264—109 **23 Claims**

1. A composite pressing apparatus comprising:

a continuous press for pressing composite assemblies;

wherein said continuous press includes defining means for defining a parallel bed press zone, a compression zone wherein lock-up of the composite assemblies occurs, and a transfer zone therebetween, said transfer zone having a transfer zone curvature radius, and said compression zone having a compression zone curvature radius; and

wherein said compression zone curvature radius is longer than said transfer zone curvature radius.



5,064,592

PROCESS OF PRODUCING SURFACE HARDENED WOODY DECORATIVE SHEETS

Minoru Ueda; Hideaki Matsuda, and Koichi Murakami, all of Kagawa, Japan, assignors to Okura Kogyo Kabushiki Kaisha, Japan

Filed Nov. 29, 1989, Ser. No. 442,577

Claims priority, application Japan, Nov. 29, 1988, 63-299513

Int. Cl.[5] C08G *63/48*; C08H *5/04*; C08J *5/06*

U.S. Cl. 264—112 **14 Claims**

1. A process of producing a surface-hardened woody decorative sheet, which comprises forming on a woody sheet a layer of a mixture of (A) a composition mainly composed of an oligoesterified cellulose material having a polymerizable double bond and (B) an oligomer having a polymerizable double bond obtained by reacting a cellulose material, a monoepoxy compound having a polymerizable double bond and a dibasic acid anhydride, and then heat-pressing said woody sheet to simultaneously carry out the plasticization of component (A) and the crosslinking of components (A) and (B) by the polymerization of the polymerizable double bonds of said components (A) and (B).

5,064,593

PROCESS FOR PRODUCING MULTILAYER POLYTETRAFLUOROETHYLENE POROUS MEMBRANE

Shinji Tamaru; Katsutoshi Yamamoto; Osamu Tanaka; Hirofumi Nishibayashi, all of Osaka, and Osamu Inoue, Kyoto, all of Japan, assignors to Daikin Industries Ltd., Osaka, Japan

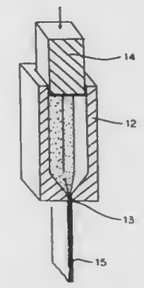
Filed Dec. 6, 1990, Ser. No. 622,899

Claims priority, application Japan, Dec. 7, 1989, 1-320273

Int. Cl.[5] B29C *47/06, 55/00*; B32B *5/26*

U.S. Cl. 264—113 **4 Claims**

1. A process for producing a multilayer polytetrafluoroethylene porous membrane comprising at least two layers having different average pore diameters, said process comprising the steps of: filling the inside of a cylinder of an extruding mold distinctively with at least two kinds of polytetrafluoroethylene fine powders with each of which a liquid lubricant has been mixed; subsequently paste-extruding said powders to obtain a multilayer extrudate, which is then optionally rolled; and then stretching said extrudate or said rolled extrudate at least monoaxially after said liquid lubricant is removed therefrom or without removing said liquid lubricant.



5,064,594

EXTRUSION PROCESS FOR DIFFICULTLY-MELT-PROCESSIBLE POLYMERS

Donnan E. Priester, Wilmington, and Robert E. Tarney, Hockessin, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 417,986, Oct. 6, 1989, abandoned. This application Sep. 20, 1990, Ser. No. 584,337

Int. Cl.[5] B29C *47/94*

U.S. Cl. 264—127 **25 Claims**

1. Extrusion process comprising:

(A) Extruding through an extrusion die a composition comprising a polymer resin containing 0.001 to 1 wt. % of a functionalized fluorinated copolymer comprised of copolymerized units of tetrafluoroethylene and a functional-group-containing monomer that is terminated in a $-CF_2W$ group wherein W is selected from $-SO_2F$, $-SO_2Cl$, $-SO_3M$, —COOR and —COOM, R is a C_{1-3} alkyl radical and M is H, a metal cation or an ammonium or quaternary ammonium cation; and subsequently

(B) extruding through the extrusion die of step (A) a composition comprising a difficultly-melt-processible polymer and 0.001–1 wt. % of a fluoropolymer process aid having a fluorine to carbon ratio of at least 1:2.

5,064,595

PROCESS FOR RETAINING FIBER WHITENESS

Raymond L. Hackert, Salisbury, Md., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 147,159, Jan. 22, 1988, abandoned. This application Aug. 3, 1989, Ser. No. 388,924

Int. Cl.[5] D01F *11/04*

U.S. Cl. 264—130 **8 Claims**

1. A process to improve the whiteness retention of synthetic polymer fibers, involving adding an effective amount of a phenyl phosphinate additive selected from the group consisting of a Group Ia metal phenyl phosphinate salt and a phenyl phosphinic acid, in a process including the steps of melt-spinning the synthetic polymer into filaments, of applying a finish containing an oil lubricant onto the surface of the filaments to facilitate subsequent processing, and of packaging the filaments, the improvement being characterized by applying the phenyl phosphinate additive to the surface of the filaments with said finish.

VOL
1132
ISS
2
NO
12
1991
UMI

5,064,596

PROCESS FOR PREPARING A SLENDER OR THIN CERAMIC GREEN BODY

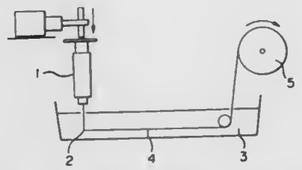
Yukio Chida; Tetsuhiko Mishimura, both of Machida, and Yasuo Oguri, Tokyo, all of Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

Continuation of Ser. No. 58,870, Jun. 5, 1987, abandoned. This application Aug. 28, 1990, Ser. No. 574,527

Claims priority, application Japan, Jun. 6, 1986, 61-131207; Nov. 21, 1986, 61-277942

Int. Cl.[5] C04B *38/04*

U.S. Cl. 264—181 17 Claims



1. A process for preparing a slender or thin ceramic green body, which comprises discharging a raw material slurry comprising a sinterable ceramic powder, dispersed in a binder and a solvent for the binder from a discharge outlet in a slender or thin shape which is not solidified, and immediately contacting it with a solidifying liquid composed of a liquid in which the solvent is soluble and the sinterable ceramic powder and the binder are insoluble or hardly soluble so that the solvent in the slurry is dissolved and removed to solidify the slurry and to form the green body.

5,064,597

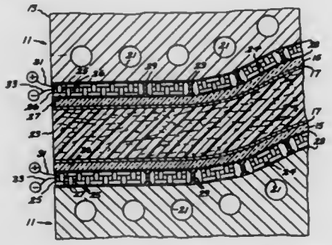
METHOD OF COMPRESSION MOLDING ON HOT SURFACES

Bang M. Kim, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Continuation of Ser. No. 175,078, Mar. 30, 1988, abandoned. This application Nov. 13, 1989, Ser. No. 435,639

Int. Cl.[5] B29C *33/04, 43/02*

U.S. Cl. 264—219 1 Claim



1. A method of compression molding glass reinforced thermoplastic resin sheets into finished parts with smooth surfaces in short cycle times, comprising the steps of:

forming a multilayered mold having a metal core with the general contour of the part to be molded, said core including cooling passageways, said multilayered mold having a plurality of thermoelectric modules fixedly secured to said metal core an insulating layer fixedly secured to the thermoelectric modules, electrical heating means fixedly secured to the insulating layer, and a metal skin layer fixedly secured to said electrical heating means;

continuously cooling said core using a cooling liquid in said passageways;

providing power to the electrical heating means to heat the metal skin layer;

providing current in a first direction to the thermoelectric devices causing the thermoelectric devices to heat the insulating layer;

placing a preheated glass reinforced thermoplastic resin sheet in the mold;

closing the mold and compressing the sheet;

discontinuing power to the electrical heating means after mold closing;

providing current in a second direction opposite to the first to the thermoelectric devices causing them to cool the insulating layer; and

opening the mold when the center of the thermoplastic part is sufficiently cooled.

5,064,598

PROCESS AND APPARATUS FOR MANUFACTURING A PLEATED FILTER INSERT

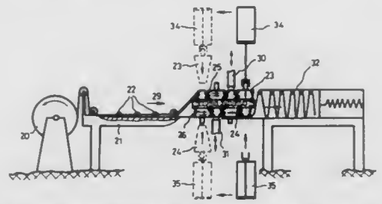
Hanspeter Seiler, Wasserig 29, CH-4653 Obergosgen, Switzerland

Filed Nov. 20, 1990, Ser. No. 615,904

Claims priority, application Switzerland, Nov. 27, 1989, 04237/89; Aug. 16, 1990, 02665/90

Int. Cl.[5] B29C *53/26, 53/28*

U.S. Cl. 264—230 12 Claims



1. A process for manufacturing from filter material a pleated insert to be placed between inflow and outflow sides of a filter, said filter insert including a plurality of elongated ribs in at least filter pleat walls which are on an outflow side of the filter, said ribs being formed from the filter material and being adapted to space adjacent filter pleat walls from each other, the process comprising the steps of:

(a) transporting filter material having a shrinking temperature, a deformation temperature, and a melting temperature in a longitudinal direction;

(b) narrowing the filter material in a direction transverse to the longitudinal direction by the amount of material required for the elongated ribs;

(c) passing the filter material between jaws of a shaping device to form the elongated ribs;

(d) heating the filter material to a temperature which is between the shrinking temperature and deformation temperature of the filter material;

(e) heating the pleat wall edges by at least one heater jaw to a temperature between the deformation temperature and the melting temperature of the filter material to smooth out irregularities caused by at least one of the elongated ribs and the narrowing of the filter material; and

(f) subsequently cooling the filter material to a temperature below the deformation temperature of the filter material;

whereby the elongated ribs are formed when the filter material is free of tension and the pleat wall edges are free of irregularities.

5,064,599

PROCESS FOR PRODUCING AN ANTIBACTERIAL FIBER ARTICLE

Satoshi Ando; Akira Dohno, both of Osaka, and Zenji Hagiwara, Kusatsu, all of Japan, assignors to Kanebo Limited, Tokyo and Hagiwara Giken Limited, Shiga, both of, Japan

Continuation of Ser. No. 139,663, Dec. 30, 1987, abandoned. This application Apr. 24, 1990, Ser. No. 512,566

Claims priority, application Japan, Jan. 8, 1987, 62-1079

Int. Cl.[5] D01F *8/04;* D06C *7/00*

U.S. Cl. 264—237 13 Claims

1. A process for producing an antibacterial fiber article, said process comprising the steps of:

providing a fiber material comprising conjugated fibers comprising a low-melting component and a high-melting component, said low-melting component occupying at least a part of the periphery of the cross-section of the fibers, said conjugated fibers having mixed therein zeolite particles having a specific surface area of at least 150 m^2/g and a SiO_2/Al_2O_3 ratio of at most 14, said zeolite particles retaining therein at ion-exchangeable sites of said zeolite at least one metal ion having antibacterial properties;

shaping said fiber material to form a shaped fiber article;

heating said shaped fiber article at a temperature above the melting point of said low-melting component and below the melting point of said high-melting component, whereby said low-melting component spreads to increase its surface area; and

cooling said article to a temperature below the melting point of said low-melting component.

5,064,600

PROCESS FOR PRODUCTION OF MOLDINGS OR FILMS FROM POLYISOCYANATE POLYADDUCTS BY RIM PROCEDURE

Joachim Wagner; Werner Rasshofer, both of Koeln; Ulrich Eisele, Leverkusen; Eberhard Jürgens, Koeln; Christian Weber, and Erich Meier, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Continuation of Ser. No. 366,060, Jun. 14, 1989, abandoned, which is a continuation-in-part of Ser. No. 249,917, Sep. 27, 1988, abandoned. This application Nov. 14, 1990, Ser. No. 614,798

Claims priority, application Fed. Rep. of Germany, Oct. 6, 1987, 3733756; Jan. 28, 1988, 3802427

Int. Cl.[5] B29C *45/00;* C08G *18/65*

U.S. Cl. 264—328.6 7 Claims

1. A process for the preparation of moldings or films based on polyisocyanate polyadducts comprising thermoplastically molding, at a temperature of at least 50° C. and at a pressure of a least 5 bar, a polyisocyanate polyadduct having a density of at least 0.8 g/cm^3, wherein said polyisocyanate polyadduct is obtained by reacting in a closed mold using the reaction injection molding technique in one or more stages at an isocyanate index of from about 60 to about 140

a) an aromatic polyisocyanate;

b) a compound having a molecular weight of from 1800 to 12,000 and containing on a statistical average at least 2.5 isocyanate-reactive groups; and

c) one or more components selected from

(i) a diamine containing two primary and/or secondary aromatically bound amino groups and having a molecular weight range of from 108 to 400, and

(ii) an aliphatic or cycloaliphatic polyol or an aliphatic or cycloaliphatic polyamine having a molecular weight of from 60 to 1799;

with the proviso that the quantity of component b) is at least 40% by weight based on the total quantity of components a), b), and c), and with the further proviso that at least one of the components (i) or (ii) is used in a quantity such that the total quantity of component c) is at least 5% by weight based on the weight of component b).

5,064,601

Patent Not Issued For This Number

5,064,602

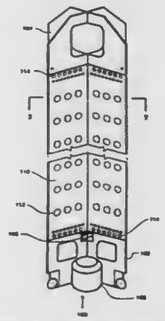
CONTROL ROD FLOW DIVERTERS

James E. Cearley, San Jose; David F. Holland, Morgan Hill; David T. Hurt, and Frederick J. Moody, both of San Jose, all of Calif., assignors to General Electric Company, San Jose, Calif.

Filed Oct. 12, 1990, Ser. No. 596,434

Int. Cl.[5] G21C *7/10*

U.S. Cl. 376—243 7 Claims



1. In a nuclear reactor system including a core containing fissionable fuel elements and a fluid circulation system for circulating heat transfer fluid through said core, said heat transfer fluid being a more effective neutron moderator in a liquid phase than in a vapor phase, said core having control rod passages therethrough into which control rods can be inserted and through which said heat transfer fluid flows, a control rod comprising:

a hollow tube having a wall defining a circumference and a longitudinally extending interior space;

transverse flow means for allowing said fluid to enter and exit said interior space through said wall, said transverse flow means including a longitudinally extending series of pairs of openings, each of said pairs including an inlet and an outlet, each of said outlets generally transversely opposing a respective one of said inlets; and

diverter means for diverting fluid through said outlets from said interior space, said diverter means including a barrier for each of said pairs of openings, each of said barriers at least partially occluding longitudinal fluid flow along said interior space and at least partially occluding transverse fluid flow between each pair of said openings;

whereby heat transfer fluid flowing longitudinally through said interior space is exchanged with fluid flowing through said control rod passage and external to said interior space, whereby the presence of the vapor phase of said fluid in said interior space is diminished and the neutron absorption effectiveness of said control rod is enhanced.

5,064,603

HYDROBALL STRING SENSING SYSTEM

Michael J. Hurwitz, Pittsburgh; Douglas E. Ekeroth, Delmont, and David Squarer, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 24, 1989, Ser. No. 397,824

Int. Cl.[5] G21C *17/00*

U.S. Cl. 376—246 20 Claims

1. A hydroball string sensing system for a nuclear reactor having a core containing a fluid at a fluid pressure, said system comprising:

a tube connectable to the nuclear reactor so that the fluid can flow within said tube at a fluid pressure that is substan-

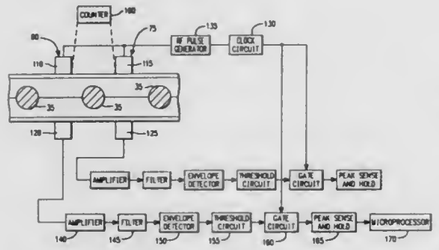
VOL 1132 ISS 2 NO 12 1991 UMI

tially the same as the fluid pressure of the nuclear reactor core;

a hydroball string including—

a string member having objects positioned therealong with a specified spacing, said object including

a plurality of hydroballs, and



bullet members positioned at opposing ends of said string member;

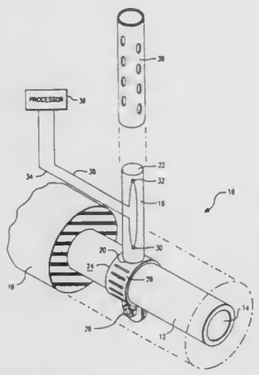
first sensor means, positioned outside a first segment of said tube, for sensing one of said objects being positioned within said first segment, and for providing a sensing signal responsive to said sensing of said first sensing means.

5,064,604

COST EFFECTIVE FLUID LINE STATUS SENSOR SYSTEM

Serge P. Barton, Oviedo, Fla., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 7, 1990, Ser. No. 476,197
Int. Cl.[5] G21C *17/00*
U.S. Cl. 376—246 **19 Claims**



1. A flow status sensor for sensing the flow condition of a fluid conveying pipe, said sensor comprising:

a heat conducting member having one end arranged in thermal communication with the outer periphery of the pipe, the heat conducting member having first and second locations spaced part in a direction transverse to the flow of fluid through the pipe to that the relation between the temperatures at said first and second locations is representative of the rate of flow of fluid through the pipe,

first and second thermocouples having first and second leads connected together to form a junction, with said junctions of said thermocouples each being disposed in thermal communication with a respective one of said first and second locations to provide signals having values dependent on the temperatures of said heat conducting member at said first and second locations, respectively, and

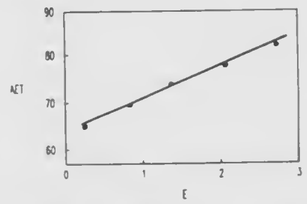
evaluation means operatively connected to said first and second junctions for evaluating signals provided by said first and second junctions to provide an indication of the relation between the temperatures at said first and second locations of said heat conducting member.

5,064,605

APPARATUS FOR DETERMINING THE THERMAL HISTORY OF EQUIPMENT USING SOLID STATE TRACK RECORDERS

Francis H. Ruddy; Ezra P. Lippincott, both of Monroeville; Arnold H. Fero, Plum Borough; Roger B. Schreiber, Penn Township, Westmoreland County, and John G. Seidel, McCandless, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation of Ser. No. 479,060, Feb. 1, 1990, abandoned. This application Feb. 27, 1991, Ser. No. 662,396
Int. Cl.[5] G21C *17/00*
U.S. Cl. 376—247 **21 Claims**



13. In a nuclear power plant having equipment subject to thermal aging, the rate of said thermal aging being capable of characterization by at least one equipment Arrhennius function of temperature, said equipment being subjected to a temperature environment having a predetermined range of temperatures, apparatus for determining the thermal aging which has occurred in said equipment comprising:

a plurality of passive sensors, each of said sensors being formed from a selected material and subject to a thermal aging process within said range of temperatures, the extent of said thermal aging in each respective sensor being quantifiable, the rate at which said thermal aging process progresses in each of said sensors being characterized by a respective Arrhenius function of temperature; and

said selected material not being the same for each of said sensors, whereby the range of activation energy values characterizing said respective Arrhenius functions encompasses the activation energy value characterizing said equipment Arrhenius function.

5,064,606

CHANNEL BOX REMOVING APPARATUS

Seitaro Go, Tsuruga, Japan, assignor to Gotech, Limited, Fukui, Japan

Filed Mar. 21, 1990, Ser. No. 497,015
Int. Cl.[5] G21C *19/00*
U.S. Cl. 376—261 **13 Claims**

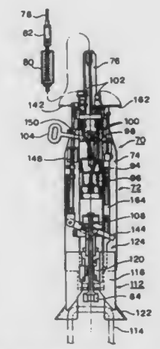
1. An apparatus for removing a channel box from a nuclear fuel assembly having a bail provided on the top thereof, the channel box being generally square in cross section having the fuel assembly mounted therein in a telescopic relationship to each other, the channel box having a pair of clips provided adjacent a pair of diagonally opposed top corners thereof, the channel box removing apparatus comprising:

a frame structure adapted for suspension from a lifting and transporting device;

a pair of releasable hooks pivotally mounted to the lower portion of the frame structure and movable between a first position in which the releasable hooks are in lifting engagement with the clips of the channel box and a second position in which the releasable hooks are released from the lifting engagement with the clips;

an operating mechanism for moving the pair of releasable hooks between the first and second positions; and

bail cap means mounted to the lower portion of the frame structure for vertical movement relative to the frame



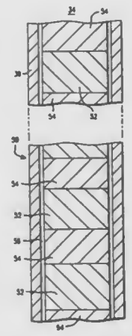
structure, the bail cap means being adapted to cooperate with the bail of the fuel assembly to guide the channel box removing apparatus into an operative position with the fuel assembly during lowering of the apparatus toward the fuel assembly with the pair of releasable hooks in the second position, the operating mechanism being activated to move the pair of releasable hooks into the first position after arrival of the channel box removing apparatus at the operative position.

5,064,607

HYBRID NUCLEAR REACTOR GREY ROD TO OBTAIN REQUIRED REACTIVITY WORTH

John V. Miller, Munhall; William R. Carlson, Scott Township, Allegheny County, and Michael B. Yarbrough, Hempfield Township, Westmoreland County, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Jul. 10, 1989, Ser. No. 377,492
Int. Cl.[5] G21C *7/103, 7/117*
U.S. Cl. 376—333 **6 Claims**



1. A grey rod for use in controlling reactivity of a fuel assembly in a nuclear reactor, comprising:

(a) tubular, elongated, cladding selected from the weak neutron absorbing material group consisting of stainless steel, zirconium and INCONEL;

(b) a first cladding insert including a first plurality of pellets selected from the strong, neutron absorbing material group consisting of hafnium, silver-indium-cadmium, and boron carbide; and

(c) a second cladding insert including a second plurality of pellets selected from the weak neutron absorbing material group consisting of stainless steel, INCONEL, zirconium and ZIRCALOY,

wherein said first and second inserts extend substantially along the length of the cladding, and

wherein pellets from the respective pluralities alternate.

5,064,608

CAMSHAFT AND METHOD FOR PRODUCING THE SAME

Yasuo Suzuki, and Shunsuke Takeguchi, both of Tochigi, Japan, assignors to Nippon Piston Ring Co., Ltd., Tokyo, Japan

Division of Ser. No. 466,836, Jan. 18, 1990, Pat. No. 5,013,611. This application Feb. 5, 1991, Ser. No. 651,730
Int. Cl.[5] B22F *7/00*
U.S. Cl. 419—8 **3 Claims**

1. A method for producing a camshaft comprising the following sequential steps of:

providing metal powders;

compressing the metal powders for forming a compressed powder compact for a cam piece;

assembling the powder compact to a steel pipe:

sintering and joining the powder compact to the steel pipe for producing a camshaft assembly;

effecting bending correction to the camshaft assembly;

annealing the camshaft assembly at a temperature for removing an internal stress which may be generated due to the bending correction step:

grinding the cam piece; and

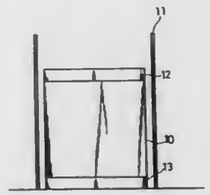
effecting vaporization treatment to the camshaft assembly at a temperature lower than the annealing temperature.

5,064,609

METHOD OF SINTERING A SINTERABLE METAL POWDER HONEYCOMB MONOLITH STRUCTURE

Takashi Harada, Nagoya, and Tsuneaki Ohashi, Ohgaki, both of Japan, assignors to NGK Insulators, Ltd., Japan

Filed Jun. 29, 1990, Ser. No. 545,655
Claims priority, application Japan, Apr. 12, 1990, 2-96867
Int. Cl.[5] B22F *3/00*
U.S. Cl. 419—58 **5 Claims**



1. A method of sintering a sinterable metal powder honeycomb monolith structure, comprising:

sintering said sinterable metal powder honeycomb monolith structure in a reducing atmosphere containing hydrogen where said honeycomb monolith structure is encased in a sintering jig and thereafter removed.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,610

HEAT RESISTANT STEEL FOR USE AS MATERIAL OF ENGINE VALVE

Koji Sato, and Rikizo Watanabe, both of Yasugi, Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Jul. 30, 1990, Ser. No. 559,334

Claims priority, application Japan, Aug. 2, 1989, 1-200942; Mar. 20, 1990, 2-071110

Int. Cl.[5] C22C *38/58*

U.S. Cl. 420—57 5 Claims

1. A heat resistant steel for use as a material of engine valves, having a composition containing, by weight, not less than 0.01% and below 0.20% of carbon, from 0.05% to 1.0% of silicon, from 7.5% to 15.0% of manganese, from 2.0% to 20.0% in total of at least one of nickel and cobalt, from 15.0% to 25.0% of chromium, not more than 3.0% of molybdenum, above 2.0% and not more than 10.0% of tungsten, not less than 0.01% and below 0.50% of niobium, from 0.30% to 0.65% of nitrogen, not more than 0.02% of boron, and the balance iron and incidental elements.

5,064,611

PROCESS FOR PRODUCING COPPER ALLOY

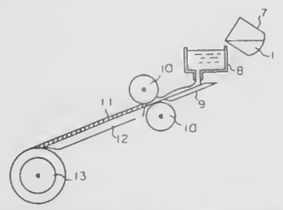
Kimio Hashizume; Keizo Kitakaze, and Takefumi Itou, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 17, 1991, Ser. No. 642,353

Claims priority, application Japan, Apr. 26, 1990, 2-108641

Int. Cl.[5] C22C *1/00, 9/04, 9/06, 9/10*

U.S. Cl. 420—481 6 Claims



1. A method for producing a copper alloy, which comprises steps of: quenching to solidify, at a cooling rate in the range from $10^{2°}$ C./sec. to $10^{5°}$ C./sec., a molten metal consisting essentially of 1.0 to 8% by weight of Ni, 0.1 to 0.8% by weight of P, 0.06 to 1.0% by weight of Si, and a remainder of Cu and unavoidable impurities; and continuously cooling in succession said solidified metal to normal temperature to cause an intermetallic compound of Ni-P and Ni-Si to be finely and uniformly dispersed into the matrix material.

5,064,612

INHIBITOR TREATMENT PROGRAM FOR CHLORINE DIOXIDE CORROSION

James G. Edmondson, Conroe, and E. Paul Holder, Austin, both of Tex., assignors to Betz Laboratories, Inc., Trevose, Pa.

Division of Ser. No. 369,162, Jun. 21, 1989, Pat. No. 4,994,195.

This application Jan. 4, 1991, Ser. No. 638,484

Int. Cl.[5] C23F *11/04*

U.S. Cl. 422—12 7 Claims

1. A method of inhibiting corrosion by chlorine dioxide in oilfield waterflood systems by adding a sufficient amount of a corrosion inhibiting composition comprising a phosphonate, a copolymer consisting of repeating units of acrylic acid/allyl hydroxy propyl sulfonate ether, and a permangante.

5,064,613

SOLID ANTIMICROBIAL

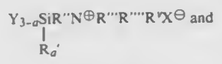
Bruce S. Higgs, Sydney, Australia, and William C. White, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Nov. 3, 1989, Ser. No. 431,415

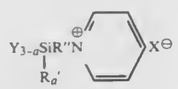
Int. Cl.[5] C23F *11/14*

U.S. Cl. 422—16 10 Claims

1. A method of treating a surface to combat microorganisms comprising reacting an alkanolamine with an organosilicon quaternary ammonium compound to form a solid particulate silatrane compound, dissolving the silatrane in an aqueous medium and forming an antimicrobially active solution of the silatrane, and applying the solution to the surface, the organosilicon quaternary ammonium compound being an organosilane having the formula selected from the group consisting of



and



wherein, in each formula,

Y is R or RO where each R is an alkyl radical of 1 to 4 carbon atoms or hydrogen;

a has a value of 0, 1 or 2;

R' is a methyl or ethyl radical;

R'' is an alkylene group of 1 to 4 carbon atoms;

R''', R'''' and R^{v} are each independently selected from a group consisting of alkyl radicals of 1 to 18 carbon atoms, $-CH_2C_6H_5$, $-CH_2CH_2OH$, $-CH_2OH$, and $-(CH_2)_xNHC(O)R^{vi}$, wherein x has a value of from 2 to 10 and R^{vi} is a perfluoroalkyl radical having from 1 to 12 carbon atoms; and

X is chloride, bromide, fluoride, iodide, acetate or tosylate.

5,064,614

METHOD FOR STERILIZING HEAT-TOLERATING CONTAINERS UNDER CLEAN-ROOM CONDITIONS

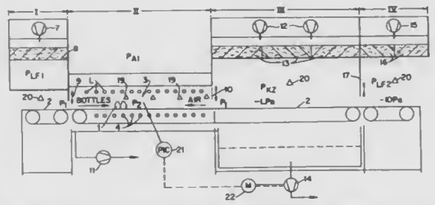
Roland Reiss; Gerd Liskow; Hinrich Gehrke; Walter Luxner; Gerd Schmidt; Dieter Winiarski, all of Berlin; Eckehart Lindner, Odenthal-Hahnenberg; Edgar Sirch, Leverkusen; Eckhard Kalbfleisch, Leverkusen; Hans Laubert, Leverkusen; Peter Kiefer, Odenthal-Glöbusch; Johann Franz, Leverkusen, and Anton Fasse, Pulheim, all of Fed. Rep. of Germany, assignors to Hans Gilovyy Maschinenfabrik "Meteorwerk" GmbH & Co., Berlin, Fed. Rep. of Germany

Filed Oct. 13, 1988, Ser. No. 256,989

Claims priority, application Fed. Rep. of Germany, Oct. 14, 1987, 3734830

Int. Cl.[5] A61L *2/06*

U.S. Cl. 422—22 8 Claims



1. Method for sterilizing heat-tolerating containers under clean-room conditions, in particular, glass bottles for filling

with parenteral medicaments, wherein the containers are, via laminar-flow units, continuously moved into and out of a continuous sterilizer having four successive zones, an inlet zone I, a heating and sterilization zone II, a cooling zone III and an outlet zone IV, each zone having an inlet and an exit end, said sterilizer comprising a radiant oven surrounding zone II to heat the containers which are then cooled in the cooling zone III by HOSCH-filtered air introduced into the cooling zone III under pressure, said radiant oven including two groups of electric powered radiant heat elements, a first of said groups providing a major portion of the desired radiant heat and a second of said groups providing a minor portion of the desired radiant heat, a first and major portion of the HOSCH-filtered air introduced to zone III being removed by a zone III exit fan, and a second and minor portion of the HOSCH-filtered cooling air to zone III being branched off and passed back out from the inlet end of zone III through the radiant oven of zone II in a low-turbulence counterflow from the zone II outlet to the zone II inlet, and said second portion of the cooling air being extracted at the inlet end of the radiant oven zone II by means of a fumes/exit air fan, and wherein said desired clean-room conditions are maintained in zone II by the steps of: maintaining a positive pressure P_2, as compared with atmospheric pressure P_{AT}, in zone II; maintaining said counterflow through zone II having a mean flow velocity below 0.2 m/second; measuring said positive pressure P_2 in zone II; comparing said measured pressure P_2 with a predetermined desired pressure value to be maintained; in response to said comparison, regulating the speed of rotation of the zone III exit air fan for the HOSCH-filtered cooling air so that the deviation Δp of said actual pressure P_2 from said predetermined desired pressure value is minimized; and the additional steps of operating said first portion of the radiant heater elements at constant electric power, and variably controlling electric power to the second portion of the radiant heater elements to eliminate temperature fluctuations and resultant convection flows caused by unsteady operating states of the sterilizer, in order to maintain an undisturbed, low-turbulence counterflow in the radiant oven.

5,064,615

METHOD AND REAGENT FOR DETERMINING THE IONIC STRENGTH OF SPECIFIC GRAVITY OF AQUEOUS LIQUIDS

Dieter Mangold, Maxdorf, and Brigitte Gambke, Mannheim, both of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Filed Jun. 26, 1989, Ser. No. 371,208

Claims priority, application Fed. Rep. of Germany, Jul. 8, 1988, 3823151

Int. Cl.[5] G01N *9/00*

U.S. Cl. 422—56 20 Claims

1. A reagent for determining the ionic strength or specific gravity of an aqueous liquid containing a plurality of different cations comprising:

(i) at least one water soluble pH buffer,

(ii) at least one water soluble complex former which can complex with more than one different cation present in said aqueous liquid and releases at least one proton upon complex formation with a cation, and

(iii) a water soluble pH indicator.

5,064,616

KIT FOR ANALYSIS OF SUBSETS OF SUBPOPULATIONS OF LEUKOCYTES

Jeanne Brosnan, Palo Alto, Calif., and Kenneth Ault, Brunswick, Me., assignors to Becton Dickinson and Company, Franklin Lakes, N.J.

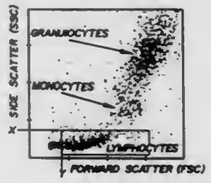
Division of Ser. No. 126,333, Nov. 30, 1987, Pat. No. 4,987,086.

This application Sep. 17, 1990, Ser. No. 583,532

Int. Cl.[5] G01N *33/48, 33/50*

U.S. Cl. 422—61 8 Claims

1. A kit for determination of subsets of a subpopulation of leukocytes in a sample containing a first subpopulation of leukocytes of interest and a second subpopulation of leukocytes which are not of interest, said kit comprising; a first monoclonal antibody which is labeled with a first fluorochrome and which reacts with substantially all leukocytes, a second monoclonal antibody which is labeled with a second fluorochrome and reacts with at least a subset of leukocytes, a third monoclonal antibody which is labeled with a third fluorochrome and which reacts with a first subset of leukocytes within said first subpopulation of interest and a fourth monoclonal antibody which is labeled with a fourth fluorochrome and which reacts with a second subset of leukocytes within said first subpopulation of interest, said first and second fluorochromes and said third and fourth fluourochromes having distinct and different emission spectra.



5,064,617

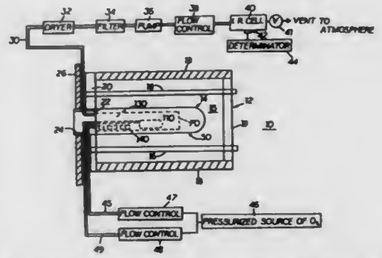
COMBUSTION SYSTEM

Larry S. O'Brien, St. Joseph; Robert G. Warren, Stevensville, and Keith J. Adani, Bridgman, all of Mich., assignors to Leco Corporation, St. Joseph, Mich.

Filed Feb. 16, 1990, Ser. No. 480,777

Int. Cl.[5] G01N *31/12*

U.S. Cl. 422—78 18 Claims



1. A combustion chamber for combusting a liquid or solid specimen to a gaseous state for subsequent analysis to determine the amount of one or more constituent elements contained in the specimen comprising:

a first generally cylindrical elongated combustion tube having a first open end and a second enclosed end and an inner diameter;

a second generally cylindrical combustion tube having first and second open ends, said second tube having an outer diameter less than the inner diameter of said first tube;

means for supporting said first end of said second tube in spaced generally concentric relationship with said first end of said first combustion tube; and

rigid porous plug means coupled to said second end of said second tube so as to mount said second end of said second tube in spaced generally concentric relationship with said second end of said first tube thereby defining a generally cylindrical space between the outer diameter of said first tube and the inner diameter of said second tube so as to cause the flow of gaseous by-products of combustion from a sample positioned within said first tube to exit said apparatus for analysis.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,618

SENSOR ARRANGEMENTS

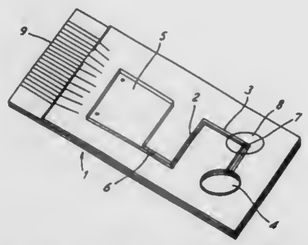
Christopher J. S. Baker, Richmond, and Peter D. Whalley, Slough, both of England, assignors to Thorn EMI plc, London, England

Filed Aug. 26, 1988, Ser. No. 236,911

Claims priority, application United Kingdom, Aug. 29, 1987, 8720470

Int. Cl.[5] G01N *27/00*

U.S. Cl. 422—82.01 7 Claims



1. A disposable cartridge arranged to interface with a host instrument for sensing characteristics of fluids; the cartridge comprising a deformable reservoir; breachable plug means disposed within the passage; at least one sensor device disposed within the passage intermediate the reservoir and the breachable plug means; calibrant fluid held within the reservoir and extending along the passage past the at least one sensor to the breachable plug means; a further reservoir connected to the passage for containing fluid for analysis, the further reservoir including rupturable access means for enabling the fluid for analysis to be introduced into the passage; a container linked to the passage remote from the deformable reservoir; absorbent material disposed within the container; the cartridge arranged such that on deformation of the reservoir, calibrant fluid within the passage breaches the breachable plug means and flows into contact with the absorbent material, which material serves to induce capillary action in the passage, such that on rupturing the rupturable access means, fluid for analysis is drawn into the passage and past the at least one sensor for sensing.

5,064,619

BIOLOGICAL SENSORS

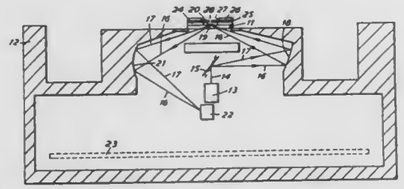
Martin F. Finlan, Aylesbury, England, assignor to Amersham International PLC, Buckinghamshire, England

Filed May 10, 1989, Ser. No. 350,034

Claims priority, application United Kingdom, May 10, 1988, 8811053; May 10, 1988, 8811054

Int. Cl.[5] G01N *21/00*

U.S. Cl. 422—82.05 13 Claims



1. A sensor for use in biological, biochemical or chemical testing, said sensor comprising: a block of material transparent to electromagnetic radiation; a layer of metallic material disposed over at least part of a first surface of said block; a layer of sensitive material disposed over the metallic material; means for introducing onto the sensitive layer so as to react therewith a sample to be analyzed; electromagnetic radiation producing means for producing a beam of electromagnetic radiation; reflective optic means for directing the beam into said transparent block in such a way as to be internally reflected off said at least part of the first surface of said block at an angle of incidence which will cause surface plasmon resonance to occur, said reflective optic means including a reflective element having a generally concave reflecting surface that from a given position will reflect beams of radiation impinging the reflecting surface at different locations thereon toward the same point on said at least one surface but at different respective angles of incidence; and detector means positioned in the sensor for receiving the internally reflected beam and for detecting the characteristics of the surface plasmon resonance that are dependent upon the reaction between the sample and the sensitive layer.

5,064,620

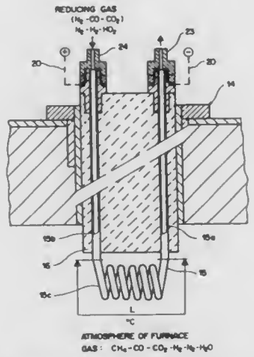
PROBE FOR MEASURING CARBON FLUX

Pierre Beuret, Route de Bure 21, 2900 Porrentruy, Switzerland

Filed May 23, 1990, Ser. No. 527,319

Int. Cl.[5] C21D *11/00*; G01N *27/16*

U.S. Cl. 422—95 4 Claims



1. A probe for measuring carbon flux, comprising:
a U-shaped tubular detector of a ferrous metal, said detector comprised of U-arms each having an end and a U-bend,
a core of insulating material supporting said detector,
a voltage source,
an instrument for measuring electrical resistance,
means for supplying a reducing gas, and
means for exhausting said reducing gas,
the ends of said U-arms of said detector being electrically connected to said voltage source across said instrument and fluidly connected to said means for supplying and for exhausting said reducing gas.

5,064,621

CIRCULATING FLUID-BED COMBUSTION APPARATUS

Kiyoshi Uyama; Koji Yamamoto; Haruhito Tsubol, and Toshihiko Iwasaki, all of Kawasaki, Japan, assignors to NKK Corporation, Tokyo, Japan

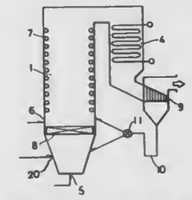
Filed Jan. 18, 1991, Ser. No. 642,306

Claims priority, application Japan, Jan. 19, 1990, 2-009580

Int. Cl.[5] F27B *15/08*

U.S. Cl. 422—144 15 Claims

1. A circulating fluid-bed combustion apparatus, comprising:
a fluid-bed combustion chamber having a primary combustion air inlet and a secondary combustion air inlet, the primary combustion air inlet being arranged at the bottom of said fluid-bed combustion chamber and the secondary combustion air inlet being arranged in an intermediate portion of said fluid-bed combustion chamber;
a labyrinth separator for separating coarse particles from gases, positioned in said fluid-bed combustion chamber below the secondary combustion air inlet;
a heat exchanger, into which combustion gases discharged from said fluid-bed combustion chamber are led;



a multicyclone downstream from said heat exchanger for separating fine particles from gases discharged out of the heat exchanger; and
a distributor for distributing particles separated in the multicyclone to an upper zone of the fluid-bed combustion chamber above the labyrinth separator and to a lower zone of the fluid-bed combustion chamber below the labyrinth separator.

5,064,622

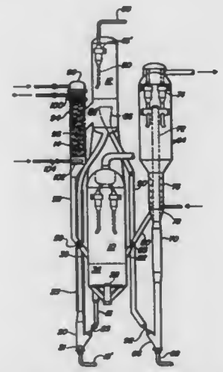
CONVERSION OF STACKED FCC UNIT

Carlos A. Cabrera, Northbrook, Ill., assignor to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 115,737, Nov. 2, 1987, Pat. No. 4,859,424. This application Aug. 18, 1989, Ser. No. 395,880

Int. Cl.[5] F27B *15/16, 15/02*; B01J *8/26*

U.S. Cl. 422—144 2 Claims



2. An apparatus for converting a hydrocarbon feed in a reaction zone using fluidized catalyst particles and continuously regenerating said catalyst particles after contact with said hydrocarbon feed, said apparatus comprising:
(a) a reactor riser conduit for receiving a hydrocarbon feed, said riser conduit having an upstream end in communication with a regenerated catalyst conduit to transfer catalyst particles to said riser conduit and downstream end for discharging a mixture of said hydrocarbon and catalyst particles;
(b) a reactor vessel in communication with said downstream end of said riser conduit, said reactor vessel enclosing means for at least partially separating said hydrocarbons from said catalyst particles;
(c) a stripping vessel in open communication with a lower portion of said reactor vessel for collecting catalyst particles from said reactor vessel;
(d) a spent catalyst conduit having an inlet end in communication with a lower portion of said stripping vessel and an outlet end;
(e) a stacked regeneration tower comprising a lower regeneration vessel and upper regeneration vessel located superadjacent to and concentrically supported from said lower vessel, said upper vessel having a smaller diameter than said lower vessel and said outlet end of said spent catalyst conduit communicating with said lower vessel to receive catalyst particles;
(f) means for distributing an oxygen-containing gas over a lower section of said lower regeneration vessel;
(g) a lower catalyst conduit for withdrawing catalyst particles from said lower regeneration vessel having at least a lower portion positioned external to said lower vessel;
(h) a regenerator riser conduit communicating with the lower end of said lower catalyst conduit for receiving catalyst therefrom and having a lower end positioned external to said upper and lower regeneration vessels and an upper end in communication with said upper regeneration vessel to discharge catalyst particles therein and at least a portion of the external wall of said regenerator riser provides means for cooling catalyst particles;
(i) means for injecting an oxygen-containing gas into a lower portion of said regenerator riser conduit;
(j) a first cooler vessel horizontally offset from and in direct communication with said upper regeneration vessel for circulating catalyst particles from said upper regeneration vessel to said cooler vessel, said cooler vessel having means for indirectly contacting said catalyst particles therein with a cooling fluid and means for distributing a fluidizing medium over a lower portion of said cooler vessel; and
(k) a second cooling vessel located along the flow path between said lower regeneration vessel and said upper regeneration vessel to cool the catalyst particles passing therethrough.

5,064,623

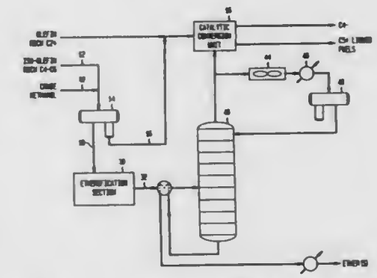
INTEGRATED SYSTEM FOR EXTRACTION OF CRUDE ALCOHOL AND CO-CONVERSION RAFFINATE WITH OLEFIN

Mohsen N. Harandi, Lawrenceville, and Hartley Owen, Belle Mead, both of N.J., assignors to Mobil Oil Corporation, Fsirfax, Va.

Continuation-in-part of Ser. No. 179,726, Apr. 11, 1988, Pat. No. 4,827,056. This application Feb. 9, 1989, Ser. No. 308,237

Int. Cl.[5] B01J *8/04*

U.S. Cl. 422—190 6 Claims



1. A continuous feedstock separation and etherification reactor system for converting crude methanol feedstock to methyl t-alkyl ether comprising:
extractor means for introducing a crude feedstock liquid stream containing a minor about of water and a liquid olefinic hydrocarbon extraction stream under extraction

VOL 1132 ISS 2 NO 12 1991 UMI

conditions favorable to selective extraction o methanol, thereby providing an extract liquid phase rich in methanol and an aqueous liquid raffinate phase lean in methanol;

conduit means for recovering said extract liquid phase and said raffinate phase from said extractor means as separate streams;

first catalytic reactor means operatively connected for contacting the extract phase in a catalytic reaction zone with acid etherification catalyst in an etherification reaction zone under process conditions to convert a major portion of methanol to ether;

effluent separation means for recovering ether product from unconverted olefinic hydrocarbon and methanol; and

second catalytic reactor means operatively connected for contacting said raffinate phase with conversion catalyst in the presence of said unconverted olefinic hydrocarbon and methanol to produce normally liquid hydrocarbon product.

5,064,624

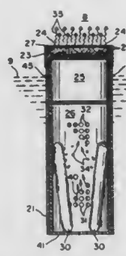
TWO PHASE DISPENSER

Joseph A. King, 16261 South Temple Dr., Minnetonka, Minn. 55343

Filed Sep. 29, 1989, Ser. No. 414,473

Int. Cl.[5] B01D *1/00*

U.S. Cl. 422—264 **15 Claims**



1. A two phase floating dispenser that floats in a liquid medium which is located in a gaseous medium comprising:

a floating member, said floating member having flotation means for providing sufficient buoyancy so that said floating member floats partially submerged in the liquid medium, said floating member having a submerged portion submerged in the liquid medium and an unsubmerged portion exposed to the gaseous medium, said floating member including means for holding at least two different chemicals;

a first chemical located in said means for holding at least two different chemicals with said first chemical being dispersible in the gaseous medium, said means for holding at least two different chemicals operable to permit simultaneous transfer of a second chemical between the liquid medium and the submerged portion of the floating dispenser and said first chemical between the unsubmerged portion of the floating member and the gaseous medium, said means for holding at least two different chemicals in said floating member including first chemical transfer means located in said exposed portion to permit said first chemical dispersible in a gaseous medium to be dispersed from said unsubmerged portion into the gaseous medium, said floating member including second chemical transfer means located in said submerged portion to transfer a second chemical between said submerged portion of said floating member and the liquid medium as said floating member floats in the liquid medium.

5,064,625

METHOD OF REMOVING NITROGEN OXIDES FROM FLUE GASES

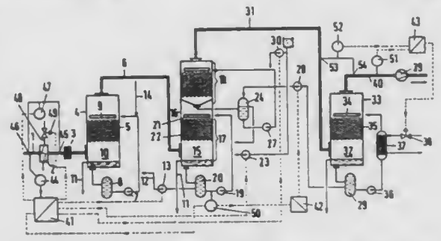
Friedrich Curtius, Schachener Strasse 72, D-8990 Lindau, Fed. Rep. of Germany

Filed Jan. 9, 1990, Ser. No. 459,776

Claims priority, application Switzerland, Jul. 9, 1987, 2608/87-5

Int. Cl.[5] C01B *21/00, 21/40, 21/44, 21/46*

U.S. Cl. 423—235 **19 Claims**



1. In a process for the removal of nitrogen oxides (NO_x) from pretreated flue gases having a nitrogen oxide (NO_x) content which is low by means of a multi-stage washing process employing a nitric acid (HNO_3) solution to which is added hydrogen peroxide (H_2O_2), the process including a first stage in which the pretreated flue gases are received and contacted with nitric acid (HNO_3) vapor to at least partially oxidize nitrogen monoxide (NO) present in the pretreated flue gases to nitrogen dioxide (NO_2) and result in a first stage flue gas, and a second stage in which the first stage flue gas is received and washed with an aqueous nitric acid (HNO_3) solution to which is added H_2O_2 to remove nitrogen dioxide (NO_2) and any remaining nitrogen monoxide (NO) from the first stage flue gas and result in a second stage flue gas, wherein the pretreated flue gases have been treated to free flue gases of contaminants including at least one of sulfur dioxide (SO_2), hydrogen chloride (HCl) and hydrogen fluoride (HF), which contaminants are at least one of H_2O_2-decomposing and corrosive, and wherein the pretreated flue gases have been treated to free the flue gases of solid particles, the improvement comprising:

supplying to the first stage heat sufficient to prevent water (H_2O) condensation from the first stage flue gas;

increasing the concentration of diluted nitric acid (HNO_3) generated in the second stage, when the nitrogen oxide (NO_x) content of the flue gas is above a defined level, by, prior to the second stage, first concentrating the nitric acid in an absorption process and second drawings off the nitric acid which has been concentrated; and

providing a third stage in which the second stage flue gas is received and washed with a diluted, aqueous nitric acid (HNO_3) solution to remove any remaining nitric acid (HNO_3) vapor from the second stage flue gas.

5,064,626

TRIALKYL ARSINE SORBENTS

Marvin M. Johnson; Patricia A. Tooley; Gary A. Delzer; Gerhard P. Nowack; Ted H. Cymbaluk, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 28, 1990, Ser. No. 619,355

Int. Cl.[5] B01D *53/04;* **C07C** *7/12;* **C01G** *28/00*

U.S. Cl. 423—245.1 **20 Claims**

1. A process for at least partially removing trialkyl arsines from fluids comprising the step of contacting a fluid feed which contains at least one trialkyl arsine with a solid sorbent material comprising (a) at least one iron polysulfide and (b) an inorganic support material; wherein said contacting is carried out at such contacting conditions as to obtain a fluid product having a lower trialkyl arsine content than said feed; wherein free oxygen is substantially absent from said feed; and wherein said solid sorbent material has been prepared in the substantial absence of free oxygen so as to substantially exclude elemental sulfur from said solid sorbent material.

5,064,627

CONTINUOUS PROCESS FOR SEPARATING HYDROGEN IN HIGH PURITY FROM A GASEOUS HYDROGEN-CONTAINING MIXTURE

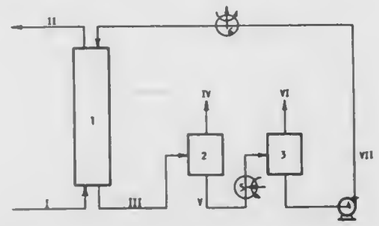
Rudolf L. Zwart, and Johan T. Tinge, both of Sittard, Netherlands, assignors to Stamicarbon B.V., Geleen, Netherlands

Filed Aug. 18, 1989, Ser. No. 395,794

Claims priority, application European Pat. Off., Aug. 22, 1988, 88201784.1

Int. Cl.[5] C01B *3/00, 3/04*

U.S. Cl. 423—248 **6 Claims**



1. A continuous process for separating hydrogen in high purity from a gaseous hydrogen-containing mixture by absorbing in an absorber unit the hydrogen by metal hydride forming particles suspended in an inert liquid and desorbing in a desorber unit the hydrogen from the hydrided particles, characterized in that the suspension of the hydrided particles before entering the desorber unit is treated to remove dissolved gaseous non-hydrogen components by stripping with hydrogen.

5,064,628

NOVEL CERIC OXIDES AND PREPARATION THEREOF

Jean-Yves Chane-Ching, Paris; Jean-Luc Le Loarer, La Rochelle, and Patrick Dupuis, Paris, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Continuation of Ser. No. 30,135, Mar. 26, 1987, abandoned. This application Feb. 22, 1990, Ser. No. 485,852

Claims priority, application France, Mar. 26, 1986, 86 04347

The portion of the term of this patent subsequent to Aug. 22, 2006, has been disclaimed.

Int. Cl.[5] B01J *23/10;* **C01F** *17/00*

U.S. Cl. 423—263 **49 Claims**

1. A ceric oxide which after calcination at a temperature in the range of from 350° to 550+ C. has a specific surface of at least 85 m^2/g, a pore volume of at least 0.15 cm^3/g, and a median pore diameter greater than 50 Å.

5,064,629

TITANIUM-BORON-OXIDE, SYNTHETIC MATERIALS BASED THEREON AND METHOD OF PREPARING THE SAME

Hisatoshi Asaoka, Niigata, Japan, assignor to Makiki Asaoka, Japan

Continuation-in-part of Ser. No. 207,295, Jun. 15, 1988, abandoned. This application Dec. 7, 1990, Ser. No. 624,182

Claims priority, application Japan, Apr. 6, 1988, 63-84363

Int. Cl.[5] C01B *35/12*

U.S. Cl. 423—279 **8 Claims**

1. A synthetic crystalline material having a composition expressed in terms of moles of oxides in the anhydrous state, by the formula:

$$YTiO_2:ZB_2O_3$$

wherein Y is a value between 2 and about 800 and Z is a value greater than 0 but not exceeding 1, and having an X-ray diffraction pattern comprising the x-ray diffraction lines and assigned strengths set forth in Table I below:

TABLE I

Interplanar Spacings, d(A)	Relative Intensity (I/Io)	Assigned Strength
3.522	100	VS
2.902	5	VW
2.432	6	VW
2.379	19	W
2.333	7	VW
2.243	6	VW
1.892	27	M
1.699	9	VW
1.667	16	W
1.625	9	VW
1.568	4	VW
1.480	15	W
1.361	13	W
1.264	7	VW
1.247	2	VW
1.166	4	VW
1.042	4	VW."

5,064,630

ZEOLITE L PREPARATION

Johannes P. Verduijn, Spijkenisse; Mechilium Janssen, Spijkenisse; Cornelis B. De Gruijter, Hoek van Holland; Wicher T. Koetsier, Mijnsheerenland, and Cornelis W. M. Van Oorschot, Rozenburg, all of Netherlands, assignors to Exxon Chemical Patents Inc., Linden, N.J.

Filed Jan. 3, 1989, Ser. No. 292,704

Claims priority, application United Kingdom, Jan. 4, 1988, 8800045

Int. Cl.[5] C01B *33/34*

U.S. Cl. 423—328 **11 Claims**



1. A process for preparing zeolite L in which process an alkaline reaction mixture comprising water, a source of silicon, a source of alkali metal (M) and a source of aluminum or gallium having the following molar ratio (expressed as oxides):

M_2O/SiO_2	0.4 to 0.5;
H_2O/M_2O	15 to 30;
and either SiO_2/Al_2O_3	5 to 8,
or SiO_2/Ga_2O_3	7 to 11

where M is potassium or a mixture of potassium and one or more other alkali metals,

is heated to a temperature of at least 80° C. for a period of time long enough to form zeolite L which is substantially invisible to X-ray diffraction.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,631

PROCESS FOR PREPARATION OF ALUMINUM BORATE WHISKER

Hajime Hata; Hajime Kambara; Seijl Sogabe, and Keizo Oka, all of Marugame, Japan, assignors to Shikoku Chemicals Corporation, Kagawa, Japan

Filed Dec. 19, 1989, Ser. No. 452,504

Claims priority, application Japan, Dec. 19, 1988, 63-320873

The portion of the term of this patent subsequent to Oct. 29, 2008, has been disclaimed.

Int. Cl.[5] C01B *35/12;* C03C *3/145*

U.S. Cl. 423—279 1 Claim

1. A method for preparing a $9Al_2O_3.2B_2O_3$ whisker comprising the steps of

(I) forming a raw materials mixture by mixing and pulverizing

(a) a first aluminum source component selected from the group consisting of aluminum oxide, aluminum hydroxide, aluminum oxyhydroxide, and mixtures thereof,

(b) a second aluminum source component selected from the group consisting of aluminum sulfate, trisodium aluminum trisulfate, tripotassium aluminum trisulfate, hydrates thereof, and mixture thereof,

(c) a boric anhydride supply component comprising at least one compound selected from the group consisting of boron oxides, oxyacids of boron, and alkali metal salts thereof.

(d) a fluxing agent selected from the group consisting of sodium sulfate, potassium sulfate, and mixtures thereof,

wherein the amounts of (a), (b), (c) and (d) are such that, when added to the following step (II)

the proportion of (b) in (a)+(b) is 3 to 40 mole % as aluminum, the molar ratio of aluminum in (a)+(b) to boron in (c) is from 6:4 to 9:2, and the molar ratio of aluminum in (a)+(b) to the alkali metal in (d) is from 1:1 to 1:10,

(II) pressure molding the mixture of step (I) into a tablet, and

(III) heating the tablet at a temperature of from 900° C. to 1200° C. to thereby convert the raw materials into aluminum borate whisker without substantially changing the shape of the tablet.

5,064,632

PROCESS FOR PARTIAL OXIDATION OF $FECL_2$TO $FECL_3$

James P. Bonsack, Aberdeen, Md., assignor to SCM Chemicals, Inc., Baltimore, Md.

Continuation of Ser. No. 207,016, Jun. 13, 1988, abandoned, which is a continuation of Ser. No. 35,778, Apr. 3, 1987, abandoned, which is a continuation-in-part of Ser. No. 832,180, Feb. 21, 1986, abandoned, which is a continuation-in-part of Ser. No. 707,197, Mar. 1, 1985, abandoned, which is a continuation-in-part of Ser. No. 638,908, Aug. 8, 1984, abandoned. This application Jul. 17, 1990, Ser. No. 554,961

Int. Cl.[5] C01G *49/06, 49/10*

U.S. Cl. 423—493 10 Claims

1. A continuous process for the partial oxidation of solid ferrous chloride ($FeCl_2$) to ferric chloride ($FeCl_3$ and/or Fe_2Cl_6) and ferric oxide (Fe_2O_3) in a reactor, which comprises:

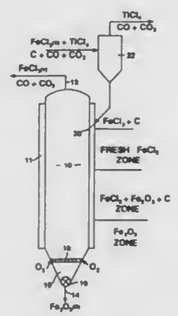
(a) establishing and maintaining a reaction zone having a solid inlet end and a solid outlet end at a temperature of from about 350° C. to about 675° C.;

(b) feeding solid $FeCl_2$ and reactive carbon into the solid inlet end of the zone, the reactive carbon being porous and having a specific surface area of at least 100 m^2g;

(c) feeding a molecular oxygen-containing gas into the solid outlet end of the zone under conditions so that the molecular oxygen flows toward the inlet end of the zone and contacts and reacts with the $FeCl_2$ and the reactive carbon to produce Fe_2O_3 solid, $FeCl_3$ or Fe_2Cl_6 vapor and gaseous carbon oxides;

(d) removing the Fe_2O_3, $FeCl_3$ or Fe_2Cl_6 and carbon oxides so produced from the reaction zone;

(e) controlling the fee rates of the $FeCl_2$, reactive carbon, and molecular oxygen-containing gas and the removal rates of the Fe_2O_3, $FeCl_3$ or Fe_2Cl_6 and the carbon oxides so as to obtain a concentration gradient from the solid inlet end to the solid outlet end of the zone wherein at the solid inlet end the concentrations of $FeCl_2$ and $FeCl_3$ or Fe_2Cl_6 are the highest and the concentration of oxygen is



the lowest and at the solid outlet end the concentration of oxygen is the highest and the concentration of $FeCl_2$ and $FeCl_3$ or Fe_2Cl_6 are the lowest and so that the ferric chloride being removed from the reactor contains less than 0.3 mole % chlorine based upon the amount of Fe_2Cl.

5,064,633

MACROCYCLIC AMINOPHOSPHONIC ACID COMPLEXES, THEIR FORMULATIONS AND USE

Jaime Simon, Angleton; David A. Wilson, Richwood; Joseph R. Garlich, Lake Jackson, all of Tex., and David E. Troutner, Columbia, Mo., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 284,876, Dec. 19, 1988, which is a continuation-in-part of Ser. No. 50,263, May 14, 1987, Pat. No. 4,898,724, which is a continuation-in-part of Ser. No. 803,376, Dec. 4, 1985, abandoned, which is a continuation-in-part of Ser. No. 738,010, May 28, 1985, abandoned, which is a continuation-in-part of Ser. No. 616,985, Jun. 4, 1984, abandoned. This application Dec. 19, 1989, Ser. No. 452,848

The portion of the term of this patent subsequent to Nov. 21, 2006, has been disclaimed.

Int. Cl.[5] A61K *43/00;* C07F *5/00*

U.S. Cl. 424—1.1 36 Claims

1. A composition which comprises a complex having (1) a macrocyclic aminophosphonic acid, containing 1,4,7,10-tetraazacyclododecane as the macrocyclic moiety, or a physiologically acceptable salt thereof, wherein the nitrogen and phosphorous are interconnected by an alkylene or substituted alkylene radical of the formula

(I)



wherein: X and Y are independently selected from the group consisting of hydrogen, hydroxyl, carboxyl, phosphonic, and hydrocarbon radicals having from 1–8 carbon atoms and physiologically acceptable salts of the acid radicals; and n is 1–3, with the proviso that when n>1, and X and Y may be the same as or different from the X and Y of any other carbon atom, and (2) the radionuclide Y-90 , and

wherein the resulting composition is therapeutically effective.

5,064,634

METHOD OF FORMING A RADIOACTIVE METALLIC VAPOR

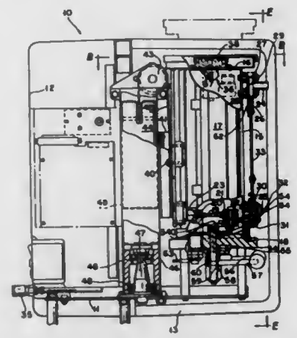
William M. Burch, Duffy, Australia, assignor to I. J. & L. A. Tetley Manuf. Pty. Ltd., Caringbah, Australia

Continuation-in-part of Ser. No. 192,221, May 9, 1988, abandoned, which is a division of Ser. No. 784,847, Oct. 4, 1985, abandoned. This application May 4, 1990, Ser. No. 519,851

Claims priority, application Australia, Oct. 10, 1984, PG7486

Int. Cl.[5] A61B *6/00;* A61K *49/02*

U.S. Cl. 424—1.1 14 Claims



1. A method of forming an inhalable radioactive composition comprising the steps of:

depositing a solid form of technetium onto a carbon crucible; and

heating the carbon crucible to at least 1900° C. in a sealed container.

5,064,635

CLEANER AND DISINFECTANT WITH DYE

Irene Casey, Dept. 1013, P.O. Box 90020, Houston, Tex. 77290

Division of Ser. No. 227,178, Aug. 2, 1988, Pat. No. 4,965,063, which is a continuation-in-part of Ser. No. 936,171, Dec. 1, 1986, Pat. No. 4,793,988. This application Aug. 13, 1990, Ser. No. 566,556

The portion of the term of this patent subsequent to Jul. 7, 2004, has been disclaimed.

Int. Cl.[5] A61K *9/12, 7/46, 7/50;* A01N *25/00*

U.S. Cl. 424—7.1 6 Claims

1. A composition for cleaning and disinfecting a surface comprising

at least one surfactant;

a pH sensitive dye which changes color upon exposure to air;

an alkali means for adjusting the pH of the composition to an alkali pH to produce a color in the composition so that upon neutralization in the air the dye loses color;

a propellant system for foaming the composition;

a germicide;

said composition being a visually colored foam composition with the disappearing pH sensitive dye effectively indicating the delivery of the foam and giving a visual check as to the area contacted when the visually colored foam is applied; and

said composition is packaged sealed airtight in a container adapted for propellant foam delivery of the composition.

5,064,636

PARAMAGNETIC OIL EMULSIONS AS ENTERIC MRI CONTRAST AGENTS

King C. P. Li, 2839 NW. 35th Pl., and Peter G. P. Ang, 2932 NW. 24th Ter., both of Gainesville, Fla. 32605

Filed Oct. 19, 1989, Ser. No. 424,053

Int. Cl.[5] G01N *31/00, 24/00;* A61K *31/20, 31/19*

U.S. Cl. 424—9 35 Claims

1. A paramagnetic oil emulsion for enteric administration, said emulsion comprising: about 5 to about 30 volume percent liquid oil and about 70 to about 95 percent liquid aqueous paramagnetic agent carrier, said aqueous paramagnetic agent carrier having dissolved therein a magnetic resonance imaging contrast effective amount and less than a toxic amount of at least one water soluble paramagnetic agent.

17. In a method of imaging a body cavity of a patient by magnetic resonance after enteric administration to the patient of a magnetic resonance contrast medium, the improvement comprising: administering enterically a paramagnetic oil emulsion, said emulsion comprising: about 5 to about 30 volume percent liquid oil and about 70 to about 95 volume percent liquid aqueous paramagnetic agent carrier, said aqueous paramagnetic agent carrier having dissolved therein a magnetic resonance imaging contrast effective amount and less than a toxic amount of at least one water soluble paramagnetic agent.

5,064,637

SUBSTITUTED SULFONAMIDE DERIVATIVES WHICH INHIBIT ALLERGIC REACTIONS

Timothy J. Sullivan, Dallas, Tex., assignor to Board of Regents, The University of Texas System

Filed May 30, 1989, Ser. No. 358,789

Int. Cl.[5] A61K *31/655, 37/02*

U.S. Cl. 424—9 27 Claims

1. A method for inhibiting allergic reactions to an antibiotic sulfanilamide, the method comprising administering a therapeutically effective amount of an R^1-N^4-sulfanilamide wherein

R^1 is bound through an azo linkage to an antibiotic sulfanilamide;

R^1 is a radical of an amino acid, amino acid a polymer or imidazole; and

said R^1-N^4-sulfanilamide is water-soluble.

5,064,638

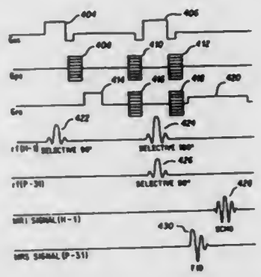
SIMULTANEOUS MULTINUCLEAR MAGNETIC RESONANCE IMAGING AND SPECTROSCOPY

Gregory J. Moore, Cambridge; Mirko I. Hrovat, Brockton, and R. Gilberto Gonzalez, Boston, all of Mass., assignors to Brigham & Women's Hospital, Boston, Mass.

Filed Aug. 11, 1989, Ser. No. 392,853

Int. Cl.[5] G01N *31/00, 24/00;* G01V *3/00*

U.S. Cl. 424—9 15 Claims



1. A method for simultaneously obtaining multinuclear magnetic resonance data from at least first and second nuclear species disposed in a static magnetic field, comprising the steps of:

VOL 1132 ISS 2 NO 12 1991 UMI

(a) generating a pulse sequence comprising a series of rf excitation and magnetic field gradient waveforms;
(b) applying said pulse sequence during an interval concurrently to said at least first and second nuclear species;
(c) acquiring from said pulse sequence applied during said interval first NMR signals of said first nuclear species;
(d) acquiring from said pulse sequence applied during said interval concurrently with the acquisition of said first NMR signals, second NMR signals of said second nuclear species; and
(e) repeating steps (a)–(d), including varying at least one of said rf excitation and magnetic field gradient waveforms to acquire further multinuclear magnetic resonance data from said at least first and second nuclear species.

5,064,639

INSECTICIDAL AEROSOL

Kazunobu Dohara, Sakai; Tadahiro Matsunaga, Kobe; Motomitsu Shiraishi, Amagasaki, and Goro Shinjo, Toyonaka, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 8, 1988, Ser. No. 281,519
Claims priority, application Japan, Dec. 15, 1987, 62-318184
The portion of the term of this patent subsequent to Oct. 8, 2008, has been disclaimed.
Int. Cl.[5] A61L 9/04
U.S. Cl. 424—45 5 Claims

1. A mono-layer liquid phase type water-based insecticidal aerosol which comprises
(A) a base liquid for aerosol containing as an insecticidally active ingredient at least one pyrethroidal compound selected from the group consisting of:
3-phenoxybenzyl 2,2-dimethyl-3-(2,2-dichlorovinyl)-cyclopropanecarboxylate (permethrin),
3-phenoxybenzyl chrysanthemate (phenothrin),
5-benzyl-3-furylmethyl chrysanthemate (resmethrin),
1-ethynyl-2-methyl-2-pentenyl chrysanthemate,
2-(4-ethoxyphenyl)-5-(4-fluoro-3-phenoxy)phenyl-2-methylpentane and
2-[1-methyl-2-(4-phenoxyphenoxy)ethoxy]pyridine (pyriproxyfen),
an organic solvent selected from the group consisting of:
isopropyl alcohol,
n-propyl alcohol,
ethyl alcohol,
propylene glycol,
propylene glycol methyl ether,
dipropylene glycol methyl ether,
tripropylene glycol methyl ether and acetone,
and a buffer solution, which base liquid has a pH of from 7.0 to 11.0, and
(B) dimethyl ether as a propellant.

5,064,640

ANTICARIOGENIC COMPOSITIONS

Carl J. Kleber, and Mark S. Putt, both of Ft. Wayne, Ind., assignors to Purdue Research Foundation, West Lafayette, Ind.

Division of Ser. No. 121,993, Nov. 23, 1987, Pat. No. 4,976,954, which is a continuation-in-part of Ser. No. 937,196, Dec. 2, 1986, abandoned. This application Oct. 3, 1990, Ser. No. 592,060
The portion of the term of this patent subsequent to Dec. 11, 2007, has been disclaimed.
Int. Cl.[5] A61K 7/16, 7/18, 7/30
U.S. Cl. 424—52 11 Claims

1. A palatable anticariogenic composition adapted for application to teeth, said composition having a pH of about 2.5 to about 5.0 and comprising
about 10 to about 50,000 ppm aluminum ions capable of reacting with the teeth,
water, and
a surfactant selected from the group consisting of polyalkoxylated anionic surfactants, cationic polyalkoxyamines, quaternary ammonium salts, and amphoteric surfactants derived from amino acids selected from the group consisting of glycine, cysteine, and phenylalanine, said surfactants being present in an amount effective to stabilize the anticariogenic composition.

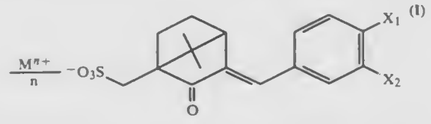
5,064,641

POLYVALENT METAL SALTS OF SULPHONTED DERIVATIVES OF BENZYLIDENECAMPHOR AND THEIR USE FOR PROTECTING THE SKIN AGAINST ULTRAVIOLET RADIATION

Gerard Lang, Saint-Gratien; Serge Forestier, Claye-Souilly; Claudine Morie, Aulnay-sous-Bois, and Alain Lagrange, Chatou, all of France, assignors to L'Oreal, Paris, France

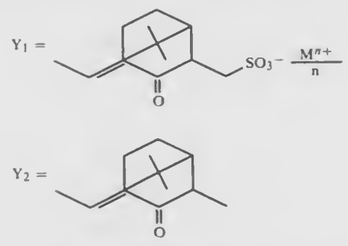
Filed Nov. 22, 1989, Ser. No. 439,977
Claims priority, application Luxembourg, Nov. 22, 1988, 87.394
Int. Cl.[5] A61K 7/44; C07C 309/19; C07F 7/00, 9/80
U.S. Cl. 424—60 13 Claims

1. A polyvalent metal salt of a sulphonated derivative of benzylidene camphor of formula (I):



(I)

wherein M^{n+} is a polyvalent metal cation in which n is 2, 3, or 4; one of X_1 and X_2 is hydrogen and the other is Y_1 or Y_2;



and said salts are insoluble in water.

5. A cosmetic composition for screening out ultraviolet (UV) rays that have wavelengths between 280 and 380 nm, comprising, in a cosmetically acceptable medium, an effective concentration of at least one compound of claim 1, wherein said amount is effective for screening out UV rays that have wavelengths between 280 and 380 nm.

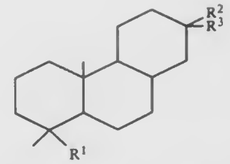
5,064,642

COMPOSITION FOR EXTERNAL APPLICATION

Yoko Kikuchi, Toride; Yukihiro Ohashi, Haga; Yuji Suzuki, Sakura, and Toshiyuki Suzuki, Ichikawa, all of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Sep. 13, 1990, Ser. No. 582,150
Claims priority, application Japan, Sep. 13, 1989, 1-238066
Int. Cl.[5] A61K 7/048, 7/021, 7/06, 7/04
U.S. Cl. 424—61 1 Claim

1. An oily composition for external application comprising a tricyclic saturated hydrocarbon represented by the following formula (I):



(I)

wherein R^1 and R^2 may be the same or different and independently represents a hydrogen atom or a methyl group and R^3 represents an alkyl group having 2–3 carbon atoms, and other carriers acceptable for external application.

5,064,643

METHOD FOR TREATING SICKLE CELL DISEASE

Robert L. Hunter, Tucker, and Alexander Duncan, Dunwoody, both of Ga., assignors to Emory University, Atlanta, Ga.

Continuation of Ser. No. 457,918, Dec. 27, 1989, abandoned, which is a continuation of Ser. No. 403,017, Sep. 5, 1989, abandoned, which is a continuation of Ser. No. 303,791, Jan. 30, 1989, abandoned, which is a division of Ser. No. 45,459, May 7, 1987, Pat. No. 4,801,452, which is a continuation-in-part of Ser. No. 43,888, Apr. 29, 1987, abandoned, which is a continuation of Ser. No. 863,582, May 15, 1986, abandoned. This application Jul. 25, 1990, Ser. No. 560,010
The portion of the term of this patent subsequent to Jun. 6, 2006, has been disclaimed.
Int. Cl.[5] A61K 31/745, 31/725
U.S. Cl. 424—83 11 Claims

1. A method for treating sickle cell anemia in humans comprising the step of injecting into the human with sickle cell anemia a solution containing an anticoagulant and an effective concentration of a surface active copolymer with the following general formula:

$$HO(C_2H_4O)_b(C_3H_6O)_a(C_2H_4O)_bH$$

wherein a is an integer such that the hydrophobe represented by (C_3H_6O) has a molecular weight of between approximately 950 to 4000, and b is an integer such that the hydrophile portion represented by (C_2H_4O) constitutes between approximately 50% to 90% by weight of the compound.

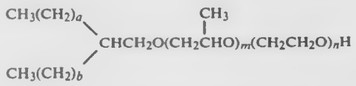
5,064,644

WATER-IN-OIL EMULSION TYPE COSMETIC COMPOSITION

Hideo Nakajima; Kiyoshi Kawada, and Kazuo Tokubo, all of Yokohama, Japan, assignors to Shiseido Company Ltd., Tokyo, Japan

Continuation of Ser. No. 321,599, Mar. 10, 1989, abandoned, which is a continuation of Ser. No. 138,242, Dec. 24, 1987, abandoned, which is a continuation of Ser. No. 769,641, Aug. 26, 1985, abandoned. This application Sep. 24, 1990, Ser. No. 588,520
Claims priority, application Japan, Aug. 27, 1984, 59-178060
Int. Cl.[5] A61K 31/745, 7/021, 31/74
U.S. Cl. 424—83 6 Claims

1. A water-in-oil emulsion type cosmetic composition comprising (i) 0.1% to 20% by weight of a propylene oxide-ethylene oxide addition product having the general formula (I):



(I)

wherein a is an integer of 7 to 19, b is an integer of a+2, m is an average addition mol number of 5 to 30, and n is an average addition mol number of 5 to 30, (ii) 0.01% to 20% by weight of an iron oxide, (iii) 15% to 97% by weight of oil, and (iv) water in a weight ratio of the oil to water of 15:85 to 97:3.

5,064,645

HYPERIMMUNE COMPOSITION FOR PASSIVE IMMUNIZATION OF FISHES AGAINST FURUNCULOSIS CAUSED BY *AEROMONAS SALMONICIDA*

Jean-Louis Fréchette, and Youssef Elazhary, both of St-Hyacinthe, Canada, assignors to Pisciconsult Developpement Inc., Canada

Filed Jul. 27, 1990, Ser. No. 558,599
Int. Cl.[5] A61K 39/00, 39/02, 35/14
U.S. Cl. 424—85.8 3 Claims

1. A composition for passive immunization of fish against furunculosis caused by *Aeromonas salmonicida*, comprising mammal immunoglobulins G specific to *A. salmonicida* in an aqueous solution.

5,064,646

NOVEL INFECTIOUS BURSAL DISEASE VIRUS

David B. Snyder, Seabrook, Md., assignor to The University of Maryland, College Park, Md.

Filed Aug. 2, 1988, Ser. No. 227,311
Int. Cl.[5] A61K 39/12; C12N 7/00
U.S. Cl. 424—89 9 Claims

1. A substantially pure preparation of virus which induces infectious bursal disease (IBD) in poultry, to which monoclonal antibody R63 will not bind when said monoclonal antibody and virus are contacted in an antigen -captured-enzyme-linked immunoassay said virus having IBD inducing characteristics and monoclonal antibody binding characteristics of the virus deposited under the C.N.C.M. No-I-792 and I-793.

5,064,647

MYCOPLASMA VACCINE

Paul K. Storm, Boxmeer, Netherlands, assignor to Akzo N.V., Arnhem, Netherlands

Filed Aug. 12, 1988, Ser. No. 231,913
Claims priority, application Netherlands, Sep. 18, 1987, 8702232
Int. Cl.[5] A61K 39/02; C12N 1/00
U.S. Cl. 424—92 8 Claims

1. Vaccine for combating mycoplasma infection in poultry, comprising an amount of *Mycoplasma gallisepticum* strain effective to protect poultry against *Mycoplasma gallisepticum* infection which is as protective against *Mycoplasma gallisepticum* as the Intervet 6/85 strain, CNCM number I-673, and a pharmaceutical acceptable carrier.

5,064,648

USE OF BACILLUS THURINGIENSIS MICROBE FOR CONTROLLING LESSER MEALWORM, ALPHITOBIUS DIAPERINUS

Leslie A. Hickle; Gregory A. Bradfisch, both of San Diego, and August J. Sick, Oceanside, all of Calif., assignors to Mycogen Corporation, San Diego, Calif.

Continuation-in-part of Ser. No. 164,044, Mar. 4, 1988, Pat. No. 4,996,155. This application Sep. 11, 1990, Ser. No. 580,702
Int. Cl.[5] A01N 63/00; C12N 1/20
U.S. Cl. 424—93 6 Claims

1. A process for controlling the lesser mealworm which comprises contacting said pest, or the environment of said pest, with an effective amount of *Bacillus thuringiensis* PS43F spores or toxin crystals, having the identifying characteristics of NRRL B-18298, or mutants thereof.

VOL 1132 ISS 2 NO 12 1991 UMI

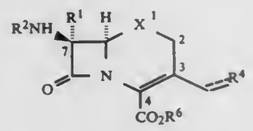
5,064,649

CEPHALOSPORIN DERIVATIVES

George Burton; Stephen C. M. Fell, and John H. Bateson, all of Brockham Park, England, assignors to Beecham Group p.l.c., England

Filed Sep. 14, 1989, Ser. No. 407,231
Claims priority, application United Kingdom, Sep. 16, 1988, 8821797
Int. Cl.[5] C07D *501/24;* A61K *31/545*
U.S. Cl. 424—114 21 Claims

1. A compound of formula (I) or a pharmaceutically acceptable salt thereof;



(I)

wherein

R^1 is hydrogen, methoxy or formamido;

R^2 is acyl;

CO_2R^3 is carboxy or a carboxylate anion, or R^3 is a readily removable carboxy protecting group; R^4 is a butenolide or butanolide ring, unsubstituted or substituted by one or two moieties selected from the group consisting of alkyl of 1 to 6 carbon atoms, dialkylamino of 1 to 6 carbon atoms in each alkyl moiety, alkoxy of 1 to 6 carbon atoms, hydroxy, halogen and aryl, wherein the aryl moiety is phenyl or naphthyl, unsubstituted or substituted with up to five substituents selected from the group consisting of halogen, mercapto, alkyl of 1 to 6 carbon atoms, phenyl, alkoxy of 1 to 6 carbon atoms, hydroxylalkyl of 1 to 6 carbon atoms, mercaptoalkyl of 1 to 6 carbon atoms, haloalkyl of 1 to 6 carbon atoms, hydroxy, amino, nitro, carboxy, alkylcarbonyloxy of 1 to 6 carbon atoms in the alkyl moiety, alkoxycarbonyl of 1 to 6 carbon atoms in the alkoxy moiety, formyl and alkylcarbonyl of 1 to 6 carbon atoms in the alkyl moiety, which may be the same or different, or, wherein two adjacent carbon atoms which are available for substitution define the common bond of phthalidyl unsubstituted or mono- or di- substituted with one or two substituents selected from the group consisting of alkyl of 1 to 6 carbon atoms, alkoxy of 1 to 6 carbon atoms, phenyl and naphthyl, said phenyl or naphthyl being unsubstituted or substituted with up to five substituents selected from the group consisting of halogen, mercapto, alkyl of 1 to 6 carbon atoms, phenyl, alkoxy of 1 to 6 carbon atoms, hydroxyalkyl of 1 to 6 carbon atoms, mercaptoalkyl of 1 to 6 carbon atoms, haloalkyl of 1 to 6 carbon atoms, hydroxy, amino, nitro, carboxy, alkylcarbonyloxy of 1 to 6 carbon atoms in the alkyl moiety, alkoxycarbonyl of 1 to 6 carbon atoms in the alkoxy moiety, formyl and alkylcarbonyl of 1 to 6 carbon atoms in the alkyl moiety;

X is S, SO or SO_2; and the dashed line adjacent to R^4 is an optional double bond.

5,064,650

CONTROLLED-RELEASE SALT SENSITIVE CAPSULE FOR ORAL USE AND ADHESIVE SYSTEM

Chel W. Lew, San Antonio, Tex., assignor to Southwest Research Institute, San Antonio, Tex.

Continuation-in-part of Ser. No. 183,591, Apr. 19, 1988, abandoned. This application Apr. 4, 1989, Ser. No. 333,189
Int. Cl.[5] A61K *9/56, 9/60*
U.S. Cl. 424—435 13 Claims

1. A capsule for oral use comprising:

at least one internal active ingredient which is water soluble;

a non-toxic water insoluble, water dispersible film layer surrounding said internal active ingredient;

a non-toxic shell encapsulating said film surrounding the active ingredient and said shell is insoluble at a preselected salt concentration;

said shell dissolving at a salt concentration present in the human mouth;

said film dispersible in the human mouth; and

a non-toxic adhesive system associated with the outer surface of said shell which permits adhesion of the capsule to selected tissue inside the mouth for a sustained period of time to allow for the dissolution of said shell and said film and release of the active component.

5,064,651

PROCESS FOR THE PREPARATION OF ENZYME CONTAINING HARD CANDY

Keizo Mochizuki, and Naoki Sumi, both of Kawasaki, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan

Filed Sep. 26, 1989, Ser. No. 412,731
Claims priority, application Japan, Sep. 26, 1988, 63-238891
Int. Cl.[5] A61K *9/68, 9/14*
U.S. Cl. 424—440 4 Claims

1. A process for the preparation of a hard candy containing an enzyme, which comprises the steps of:

mixing saccharide materials with water, concentrating the same to make the moisture content of the saccharide material not higher than 3.0% by weight;

cooling the concentrate to cause solidification thereof; crushing the resulting candy mass to make candy particles having a size passing through 100 mesh standard sieve by the Japanese Industrial Standards (JIS);

adding and mixing about 1 part by weight of the enzyme with 100 parts by weight of the candy particles to uniformly disperse the enzyme in a mass of the candy particles;

press shaping the particle mixture into a candy mass;

putting the mass in a pressure vessel;

charging an inert gas into the pressure vessel to set an inner pressure of the vessel at a pressurized state of at least 1 kg/cm^2;

heating the vessel to between about 100–140° C. to cause a partial melt of the candy mass;

cooling the vessel to solidify the partially melted candy mass and to convert the same into the desired candy product in the vessel; and

then releasing the pressure in the vessel to remove the candy product.

5,064,652

WOUND DRESSING

Michael Bay, 3974 Mollens, Vallais, Switzerland

PCT No. PCT/EP88/00361, § 371 Date Nov. 9, 1989, § 102(e) Date Nov. 9, 1989, PCT Pub. No. WO88/08310, PCT Pub. Date Nov. 3, 1988
PCT Filed Apr. 21, 1988, Ser. No. 435,420
Claims priority, application United Kingdom, Apr. 22, 1987, 8709498
Int. Cl.[5] A61L *15/00;* A61K *37/36*
U.S. Cl. 424—445 14 Claims

1. A sterile sealed, moisture-proof flexible package containing a transparent self-supporting sheet-form wound dressing comprising a wholly synthetic hydrophilic water-insoluble cross-linked polymer swollen with an aqueous impregnant liquid in which the polymer before swelling is capable of absorbing 0.9% by weight saline to form a gel containing at least 50% by weight saline and in which the polymer is formed from 50 to 100% hydroxy alkyl (meth) acrylate in which the alkyl group contains 2 to 4 carbon atoms, and 50 to 0% co-monomer.

5,064,653

HYDROPHILIC FOAM COMPOSITIONS

Robert W. Sessions, Hinsdale; Roy D. Carr, Burr Ridge, both of Ill., assignors to Ferris Mfg. Co., Burr Ridge, Ill.

Filed Mar. 29, 1988, Ser. No. 175,036
Int. Cl.[5] A61L *15/16*
U.S. Cl. 424—445 40 Claims

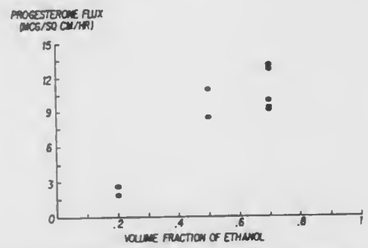
1. A hydrophilic foam composition comprising the in situ reaction product of: a) an isocyanate-capped polyether prepolymer, b) a polymeric hydrophilic agent capable of absorbing water, c) an adjuvant comprising an alcohol selected from the group consisting of water soluble monols, diols and polyhydric alcohols, d) a wetting agent, and e) water, said hydrophilic foam composition releasably carrying said adjuvant so that said foam composition is capable of absorbing an external liquid and tightly carrying said liquid in preference to at least a portion of said adjuvant so that said adjuvant is released in the presence of the external liquid.

5,064,654

MIXED SOLVENT MUTUALLY ENHANCED TRANSDERMAL THERAPEUTIC SYSTEM

Bret Berner, Scarsdale, N.Y.; Charles Ebert, Salt Lake City, Utah; Gerard C. Mazzenga, New City, and John H. Otte, Monsey, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 296,910, Jan. 11, 1989, abandoned, which is a continuation of Ser. No. 133,681, Dec. 16, 1987, abandoned. This application Apr. 20, 1990, Ser. No. 512,639
Int. Cl.[5] A61F *13/02*
U.S. Cl. 424—448 11 Claims



1. A transdermal drug delivery system comprising

(i) an occlusive, impermeable polymeric backing layer;

(ii) a drug depot on one side thereof;

(iii) a removable, occlusive covering layer over said drug depot; and

(iv) an adhesive means by which said delivery system, absent said removable covering layer may be affixed to an intended patient; said drug depot containing a drug formulation comprising a transdermally administrable pharmaceutically acceptable pharmaceutically active agent or a precursor thereof, water and ethanol said active agent or precursor thereof being present in a pharmaceutically effective amount; said ethanol and said water being present in a volume:volume ratio of from 30:70 up to less than 95:5 such that said ethanol, water and drug are delivered to a patient's skin, which patient has applied said system absent said removable covering layer to said patient's skin, in amounts that said drug is delivered in a transdermally administrable efficacious amount, said water has an activity at said patients skin of about 0.4 to about 0.95 and said ethanol, at said patient's skin, has an activity of 0.3 to about 0.9, and wherein, once applied to said patient's skin, said ethanol has a flux from said system to said skin of at least 1500 $mcg/cm^2/hr$ and through said skin of at least 1500 $mcg/cm^2/hr$.

5,064,655

LIPOSOME GEL COMPOSITION AND METHOD

Paul S. Uster, Palo Alto; Jacqueline K. Morano, Montain View, and Francis J. Martin, San Francisco, all of Calif., assignors to Liposome Technology, Inc., Menlo Park, Calif.

Continuation-in-part of Ser. No. 315,392, Feb. 23, 1989, Pat. No. 4,944,948. This application May 23, 1989, Ser. No. 356,262
The portion of the term of this patent subsequent to Jul. 31, 2007, has been disclaimed.
Int. Cl.[5] A61K *37/22*
U.S. Cl. 424—450 33 Claims

1. A liposome gel composition comprising

(a) an aqueous suspension-medium, whose conductivity is no more than that of a fully ionized univalent electrolyte whose concentration is between about 5–10 mM, having a selected pH between about 3.5 and 10.5, and

(b) suspended in the medium, at a concentration of between about 7 to 25 weight percent total lipid, liposomes composed of (i) at least about 5 weight percent changed vesicle-forming lipids which contribute a common net change to the outer surfaces of the liposomes, at the selected pH, and (ii) the balance of neutral vesicle-forming lipids.

5,064,656

UNCOATED PHARMACEUTICAL REACTION TABLET

Gerhard Gergely; Irmgard Gergely, and Thomas Gergely, all of Vienna, Austria, assignors to Dr. Gergely & Co., Switzerland

Filed Aug. 28, 1990, Ser. No. 574,585
Claims priority, application Switzerland, Nov. 14, 1989, 4098/89
Int. Cl.[5] A61K *9/48*
U.S. Cl. 424—463 22 Claims

1. Uncoated, compressed tablet for the preparation of an orally applicable aqueous suspension or solution of a pharmaceutically active substance, comprising in a mixture with one another at least one pharmaceutically active substance, a disintegrant effective amount of at least one water insoluble, water swellable disintegrant which is starch or crosslinked polyvinylpolypyrrolidone and an effervescent effective amount of an effervescent system which generates a gas upon contact with water comprising a first constituent selected from the group consisting of L-tartaric acid, fumaric acid, citric acid, malic acid, monosodium citrate and adipic acid and a second constituent which is an alkali metal or alkaline earth metal carbonate or bicarbonate, wherein the weight ratio of disintegrant to said system is from 0.1:1 to 4:1.

5,064,657

SPIDER TOXINS AND METHODS FOR THEIR USE AS BLOCKERS OF AMINO ACID RECEPTOR FUNCTION

J. R. Hunter Jackson, and Thomas N. Parks, both of Salt Lake City, Utah, assignors to University of Utah, Salt Lake City, Utah

Continuation of Ser. No. 921,218, Oct. 20, 1986, Pat. No. 4,925,664. This application May 11, 1990, Ser. No. 523,608
Int. Cl.[5] C07K *15/00*
U.S. Cl. 424—537 21 Claims

1. A composition functioning as an excitatory amino acid receptor blocker comprising at least one toxin extracted from *Argiope aurantia* spider venom, said at least one toxin being capable of functioning as an excitatory amino acid receptor blocker.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,658

ENCAPSULATED SYNERGISTIC SWEETENING AGENT COMPOSITIONS COMPRISING ASPARTAME AND ACESULFAME-K AND METHODS FOR PREPARING SAME

Subraman R. Cherukuri, Towaco, and Steven M. Faust, Stanhope, both of N.J., assignors to Warner-Lamber Company, Morris Plains, N.J.

Filed Oct. 31, 1990, Ser. No. 606,230
Int. Cl.[5] A23G *3/30*
U.S. Cl. 426—3 **20 Claims**

1. A sweetened chewing gum composition which comprises:

(A) a gum base in an amount of from about 15% to about 85% by weight of the chewing gum composition;

(B) a bulking agent in an amount of from about 25% to about 60% by weight of the chewing gum composition;

(C) a flavoring agent in an amount of from about 0.02% to about 5.0% by weight of the chewing gum composition; and

(D) an encapsulated synergistic sweetening agent composition which comprises:

(a) a synergistic combination of N-L-alpha-aspartyl-L-phenylalanine 1-methyl ester and the potassium salt of 6-methyl-1,2,3-oxathiazin-4(3H)-one-2,2-dioxide, wherein the synergistic combination is present in an amount from about 0.01% to about 50%, by weight of the encapsulated sweetening agent composition;

(b) an emulsifier present in an amount from about 0.5% to about 20%, by weight of the encapsulated sweetening agent composition, and selected from the group consisting of lecithin, esters of stearates, esters of palmitates, esters of oleates, esters of glycerides, sucrose polyesters, polyglycerol esters, and mixtures thereof; and

(c) polyvinyl acetate, having a molecular weight from about 2,000 to about 14,000, present in an amount from about 40% to about 93%, by weight of the encapsulated sweetening agent composition;

wherein N-L-alpha-aspartyl-L-phenylalanine 1-methyl ester is present in an amount from about 0.065% to about 0.095%, by weight of the chewing gum composition.

5,064,659

REACTIVE SUGARS FOR PROTECTION AGAINST CYANIDE ADULTERATION

Michael J. Greenberg, Northbrook, Ill., and Roy L. Whistler, West LaFayette, Ind., assignors to Northwestern Chemical Company, West Chicago, Ill.

Filed May 21, 1990, Ser. No. 526,175
Int. Cl.[5] A23G *3/30*
U.S. Cl. 426—3 **13 Claims**

1. A method of making a food, drug or other oral composition which is capable of neutralizing a later added cyanide adulterant, said composition containing ingestible ingredients, said method comprising:

mixing the ingredients of said composition; and

adding to the ingredients an effective amount of a cyanide reactive agent, said amount being sufficient to neutralize the cyanide promptly, said agent comprising a three-to-five-carbon sugar which has an aldose functionality.

5,064,660

METHOD OF MAKING ULTRA LOW-FAT CHEESE AND RESULTING PRODUCTS

Jules Silver, 7 Ridgewood Rd., Niantic, Conn. 06357

Continuation-in-part of Ser. No. 115,767, Nov. 2, 1987, Pat. No. 4,978,553. This application Dec. 10, 1990, Ser. No. 624,622
The portion of the term of this patent subsequent to Dec. 18, 2007, has been disclaimed.
Int. Cl.[5] A23C *20/00, 19/00*
U.S. Cl. 426—36 **11 Claims**

1. A method for the production of an ultra low-fat cheese food product which comprises:

A) forming a relatively dry moisture containing admixture of an edible protein and fat, said admixture containing at least enough protein sufficient to emulsify the fat, a low level of 2 to 10% fat corresponding to that desired in the finished product, and about 50% to 70% moisture; and

B) plasticizing said admixture to cause a rupture of the fat globule membranes and to reduce the particle size of the protein matrix to form a homogeneous self-emulsifying plastic cheese food mass.

5,064,661

PROCESS FOR MAKING LOW SODIUM SPONGE GOODS AND PRODUCTS OBTAINED THEREBY

Patricia Verduin, Glen Rock, N.J., assignor to Nabisco Brands, Inc., Parsippany, N.J.

Filed Jan. 27, 1989, Ser. No. 302,754
Int. Cl.[5] A21D *2/02*
U.S. Cl. 426—26 **24 Claims**

1. A method for making a low sodium sponge cracker good comprising:

(a) preparing a sponge by a process comprising mixing sponge ingredients comprising flour, water, and yeast and fermenting the mixture;

(b) forming a cracker dough by a process comprising admixing the sponge with dough ingredients comprising flour and an alkaline leavening agent so as to form a cracker dough, the alkaline leavening agent added serving to control the pH of the dough by neutralizing acids produced during the fermentation and the leaven the dough, said alakline leavening agent comprising potassium carbonate and potassium bicarbonate, the molar ration of potassium carbonate to potassium bicarbonate in said alkaline leavening agent being in the range of from about 85:15 to about 50:50; and

(c) baking the dough,

the amounts of potassium carbonate and potassium bicarbonate included in the dough being sufficient to extend the lay time of the dough whereby a pH of from about 6.7 to about 8.0 is obtained in the baked sponge good even after a lay time of at least about 5 hours.

5,064,662

METHOD OF MAKING SALT/FREE SAUERKRAUT

Joseph L. Owades, 3097 Wood Valley Rd., Sonoma, Calif. 95476

Filed Nov. 13, 1990, Ser. No. 612,864
Int. Cl.[5] A23B *7/10*
U.S. Cl. 426—49 **15 Claims**

1. A method of preparing pickled cabbage by a fermentation process, wherein the fermentation step of said process consists essentially of:

fermenting cabbage in the presence of a mixture of ethanol and an ingestible acid selected from the group consisting of acetic acid, lactic acid, malic acid, citric acid, phosphoric acid, and mixtures thereof, wherein said mixture adds between 25 and 45 osmoles to 100 pounds of cabbage.

5,064,663

SODIUM CHLORIDE SUBSTITUTE CONTAINING AUTOLYZED YEAST AND AMMONIUM CHLORIDE

Daniel G. Murray, Naperville, and John R. Shackelford, LaGrange, both of Ill., assignors to Burns Philp Food, Inc., San Francisco, Calif.

Continuation of Ser. No. 831,241, Feb. 19, 1986, abandoned, which is a continuation of Ser. No. 661,112, Oct. 15, 1984, abandoned, which is a continuation of Ser. No. 410,263, Aug. 23, 1982, abandoned. This application Dec. 7, 1989, Ser. No. 449,248
Int. Cl.[5] A23L *1/28, 1/237;* C12P *3/00, 1/02*
U.S. Cl. 426—60 **6 Claims**

4. A dry product for imparting a low bitterness and an intense sodium chloride flavor to human taste prepared by the process steps of:

mixing yeast, at least one exogenous enzyme, ammonium chloride, and a liquid to form a liquid mixture;

stirring said liquid mixture while maintaining an elevated temperature until said yeast is autolyzed, said ammonium chloride being present in an amount to provide by total dry weight of the liquid mixture about one part ammonium chloride to about 4 parts autolyzed yeast; and

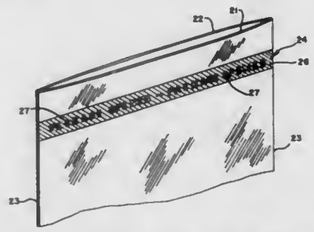
drying said liquid mixture to form said dry product.

5,064,664

PACKAGE HAVING ENGRAVED LETTERING PEEL SEAL TAMPER-EVIDENCE MESSAGE

Gerald O. Hustad, McFarland; Paul A. Zerfas; Madison, both of Wis., assignors to Oscar Mayer Foods Corporation, Madison, Wis.

Filed Apr. 4, 1990, Ser. No. 504,518
Int. Cl.[5] B65D *101/00*
U.S. Cl. 426—87 **16 Claims**



1. In an improved tamper-evident package for hermetically sealing products between generally opposing front and rear panels having a peelable seal securing the generally opposing panels together at a peelable seal area, the peelable seal being openable with digital forces and not reclosable, the improvement comprising:

tamper-evidence means for indicating that the generally opposing panels have been separated at a peelable seal, said tamper-evidence means being substantially within an area defined by the peelable seal;

a background component of said tamper-evidence means within said peelable seal area, said background component being defined as areas where said generally opposing panels are peelably sealed together;

an internal message component of said tamper-evidence means within said peelable seal area, said internal message component having indicia means for informing of seal disruption, said indicia means being unsealed areas bounded by and defined within said background component of the peelable seal, said internal message component being between said generally opposing panels;

said tamper-evidence means has a contact clarity condition such that the internal message component and the background component are substantially the same in appearance, and said peelable seal area including said internal message component, background component and front panel is substantially transparent, when the generally opposing panels are in a sealed state at the peelable seal area;

said background component of the tamper-evidence means has an opacity condition which develops initially upon and persists after disruption of the sealed state of the generally opposing panels at the peelable seal area, which opacity condition does not develop at said internal message component, whereby said internal message component remains substantially transparent, and said opacity condition causes a change in said peelable seal which changes the background component to have an appearance which is no longer substantially transparent and allows detectability of said substantially transparent internal message component of the tamper-evidence means;

said generally opposing panels are flexible films that are sealed together by said peelable seal and by edge seals to form a pouch for hermetically sealing product within the pouch; and

said background component and said internal message component of the tamper-evidence means are formed by a heat sealing bar having indicia areas engraved thereinto, which indicia areas are recessed portions that generally correspond to and form said unsealed area indicia means.

5,064,665

METHOD OF MAKING AND USING A RUMINANT FEED

Terry J. Klopfenstein; Lowell D. Satterlee; Robert A. Britton, all of Lincoln, Nebr., and Ralph N. Cleale, Levittown, Pa., assignors to The Board of Regents of The University of Nebraska, Lincoln, Nebr.

Continuation of Ser. No. 28,971, Mar. 23, 1987, abandoned. This application Jan. 26, 1990, Ser. No. 471,038
The portion of the term of this patent subsequent to Sep. 18, 2007, has been disclaimed.
Int. Cl.[5] A23K *1/18*
U.S. Cl. 426—2 **14 Claims**

1. A method of making a ruminant feed comprising the steps of:

mixing together a reducing carbohydrate and a product containing protein in quantities sufficient to cause a substantial proportion of free amine groups in the protein to react with carbonyl groups in the reducing carbohydrate to form a condensation product which is reversible to protect the protein against microbial degradation in the rumen but permit it to be digested in the post rumen tract of ruminants, wherein at least some of the reducing carbohydrate mixed with the product containing protein is glucose; and

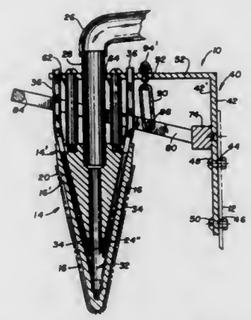
heating the mixture at a temperature, time and pH sufficient to cause a reversible reaction between the reducing carbohydrate and the protein wherein an early reaction product of the Maillard reaction is formed, and wherein the temperature and time are controlled to prevent the conversion of glycosylamine to a 1-amino-1-deoxy-2-ketose so as to avoid conversion of substantial portions of the early reaction product of the Maillard reaction from being converted to intermediate and final products of the Maillard reaction.

5,064,666

APPARATUS FOR FORMING AN INTERIOR CHOCOLATE LAYER ON AN ICE-CREAM CONE

Neale Vos, 1599 Castleton Ave., Staten Island, N.Y. 10302

Filed Mar. 8, 1990, Ser. No. 490,829
Int. Cl.[5] A23G *3/20, 7/02*
U.S. Cl. 426—94 **20 Claims**



1. An apparatus for forming a coating of chocolate on the interior surface of an ice-cream cone, comprising:

a substantially solid mold having an outer cone-like surface for receiving thereover an ice-cream cone, such that the

VOL 1132 ISS 2 NO 12 1991 UMI

interior surface of the ice-cream cone surrounds said outer cone-like surface of said mold; and

means for cooling said outer cone-like surface of said mold, whereby melted chocolate contained in the interior of an ice-cream cone placed over said outer cone-like surface may be cooled and solidified to form an interior coating on the ice-cream cone;

said means for cooling comprising a supply of cold water, and means for supplying said cold water to said mold, said mold comprising water-passageway means for receiving said cold water therein and for directing said cold water back toward said supply, whereby said cold water cools said outer surface to a temperature capable of solidifying melted chocolate.

5,064,667

METHOD FOR SHAPING BACON BELLIES

Timothy G. Mally, Oregon, Wis., assignor to Oscar Mayer Foods Corporation, Madison, Wis.

Division of Ser. No. 285,150, Dec. 15, 1988, Pat. No. 4,967,652.
This application Aug. 16, 1990, Ser. No. 568,437
Int. Cl.[5] A22C 7/00
U.S. Cl. 426—231 13 Claims

1. A method for shaping bacon bellies, comprising:

measuring dimensional parameters of each of a series of bacon bellies conveyed along a designated pathway;

storing said dimensional parameters in an ordered manner with respect to each of said bacon bellies, said storing step employing a control system;

receiving and pressing each of said bacon bellies in an ordered manner by exerting pressure on the bellies by movable walls; and employing the control system for controlling the amount of movement of the movable walls according to said dimensional parameters for each of said bacon bellies, whereby each of said bacon bellies is compressed and reshaped in accordance with its own said dimensional parameters, with said controlling step preventing overcompression and undercompression of each of said bacon bellies.

5,064,668

PROCESS FOR SEPARATION OF STEROL COMPOUNDS FROM FLUID MIXTURES

Lawrence P. Klemann, Somerville, and John W. Finley, Whippany, both of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Jun. 30, 1989, Ser. No. 373,823
The portion of the term of this patent subsequent to Nov. 5, 2008, has been disclaimed.
Int. Cl.[5] A23C 9/14; C12H 1/04
U.S. Cl. 426—271 43 Claims

1. A process for separation of at least one sterol compound from a fluid comestible mixture, said process comprising:

(a) treating an adsorbent in pulverulent form with a first sterol compound capable of becoming adsorbed on the surface of the adsorbent, said treatment being effected under conditions effective to cause the first sterol compound to become reversibly adsorbed on the surface of the adsorbent, thereby producing a sterol-modified adsorbent;

(b) treating the sterol-modified adsorbent produced in step (a) with an excess of a surface-modifying agent, the surface-modifying agent having a reactive group capable of reacting with the surface of the adsorbent, and an elongate hydrophobic portion, the treatment of the sterol-modified adsorbent with the surface-modifying agent being effected under conditions such that the adsorbed first sterol compound is not desorbed from the adsorbent but substantially all of the reactive sites on the surface of the adsorbent not covered by the adsorbed sterol compound react with the surface-modifying agent;

(c) desorbing the first sterol compound from the adsorbent, thereby producing a surface-modified adsorbent; and

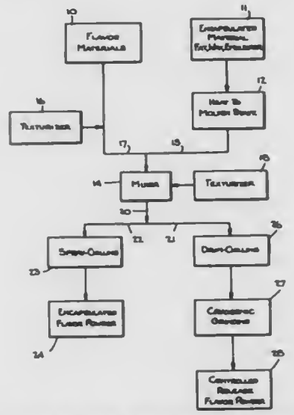
(d) contacting the surface-modified adsorbent from step (c) with the fluid mixture under conditions effective to permit adsorption of at least one second sterol compound on to the adsorbent and separating the surface-modified adsorbent from the fluid mixture, thereby producing a fluid mixture having a reduced content of the at least one second sterol compound.

5,064,669

METHOD OF MAKING CONTROLLED RELEASE FLAVORS

Chee-Teck Tan, Middletown; Young C. Kang, Oakhurst; Marion A. Sudol, Boonton; Chwan K. King, Edison, and Marvin Schulman, Howell, all of N.J., assignors to International Flavors & Fragrances, Inc., New York, N.Y.

Continuation of Ser. No. 407,356, Sep. 14, 1989, abandoned. This application Apr. 3, 1991, Ser. No. 681,479
Int. Cl.[5] A23L 1/22
U.S. Cl. 426—307 14 Claims



1. A process for preparing particulate flowable flavoring powders comprising heating a high melting point normally solid encapsulating material having a melting point of from 130° F. to 195° F., and at least one emulsifier to melt the encapsulating material and emulsifier; admixing the melted encapsulating material and emulsifier; mixing at least one water-containing flavor composition containing at least 15 percent water with a texture conditioning agent which is a silicon dioxide, powdered cellulose, puffed dextrin, maltodextrin, or pregelatinized starch; mixing the flavor composition and texture conditioning agent with the molten mixture of encapsulating agent and emulsifier to obtain a homogeneous mixture in the form of an emulsion; and chilling the flavor composition-containing mixture to provide discrete particles of solid encapsulated flavoring agent, the encapsulating material and emulsifier being different.

5,064,670

LOW-SATURATE FRYING FAT AND METHOD OF FRYING FOOD

James B. Hirsborn; Timothy W. Dake; Edward R. Purves, and Paul Seiden, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Apr. 6, 1990, Ser. No. 505,375
Int. Cl.[5] A23D 9/00
U.S. Cl. 426—607 27 Claims

1. A low-saturate frying fat which comprises:

(a) about 40% to about 80% intermediate-melting fat, said intermediate-melting fat comprising from about 14% to about 35% C_{12}–C_{18} saturated fatty acids; at least about 40% trans-isomers of unsaturated fatty acids by percentage of total fat at least about 46% of all double bonds in the trans configuration; at least about 40% solids (SFC) at 21.1° C. (70° F.); and an iodine value of about 55 to about 75; and

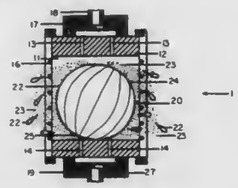
(b) about 20% to about 60% unhydrogenated or partially-hydrogenated base oil, said base oil comprising no more than about 11% C_{12}–C_{18} saturated fatty acids; and an iodine value of about 75 or more.

5,064,671

FLUID IMPINGEMENT METHOD FOR FRUIT EXTRACTING

Ronald W. Kock, Wyoming, Ohio; Peter G. Gosselin, Springfield, Mass., and H. Norman Reiboldt, College Corner, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 7,320,344, Mar. 8, 1989, Pat. No. 4,977,826.
This application Sep. 28, 1990, Ser. No. 590,622
Int. Cl.[5] A23L 1/00
U.S. Cl. 426—481 7 Claims



1. A method of separating juice sacs from the radial membranes of a chunk of fruit, said method comprising the steps of:

(a) inserting said fruit chunk into a fluid impingement chamber;

(b) injecting a pressurized fluid into said chamber;

(c) directing said fluid against said fruit chunk such that said fluid imparts a moment to said fruit chunk causing said fruit chunk to rotate, whereby said juice sacs are stripped from said radial membranes of said fruit chunk, thereby separating said juice sacs from the remaining portion of said fruit chunk; and

(d) collecting said juice sacs.

5,064,672

FUNCTIONAL SUGAR SUBSTITUTES WITH REDUCED CALORIES

Adam W. Mazur, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Division of Ser. No. 339,531, Apr. 20, 1989, which is a continuation-in-part of Ser. No. 190,486, May 5, 1988, abandoned. This application Feb. 11, 1991, Ser. No. 653,333
Int. Cl.[5] A23L 1/236; A21D 2/08
U.S. Cl. 426—531 11 Claims

1. A sugar substitute comprising

(a) from about 1% to about 99.99% of a bulking compound selected from the group consisting of 5-C-hydroxymethyl aldohexose; 1,6-anhydro-5-C-hydroxymethyl-β-D-aldohexopyranose; 1,6-anhydro-5-C-hydroxymethyl-α-L-aldohexopyranose; 5C-hydroxymethyl aldohexosyl polyol; alkyl 5-C-hydroxymethyl aldohexoside, where the alkyl is selected from the group consisting of methyl, ethyl, propyl and isopropyl; 5-C-hydroxymethyl hexitols; 5-C-hydroxymethyl ketohexose; 5-C-hydroxymethyl ketohexosyl polyol; alkyl 5-C-hydroxymethyl ketohexoside, where the alkyl is selected from the group consisting of methyl, ethyl, propyl and isopropyl; 5-C-hydroxymethyl hexitols; di-, tri-, oligo- or polysaccharides having one or more covalent glycosidic bond to a monosaccharide selected from the group 5-C-hydroxymethyl hexoses and their derivatives; and mixtures of these compounds,

(b) from about 0.01% to about 99% of a sweetening compound.

5. A food composition comprising from about 1% to 99% of a bulking compound selected from the group consisting of 5-C-hydroxymethyl aldohexose; 1,6-anhydro-5-C-hydroxymethyl-β-D-aldohexopyranose; 1,6-anhydro-5-C-hydroxymethyl-α-L-aldohexopyranose; 5-C-hydroxymethyl aldohexosyl polyol; alkyl 5-C-hydroxymethyl aldohexoside, where the alkyl is selected from the group consisting of methyl, ethyl, propyl and isopropyl; 5-C-hydroxymethyl hexitols; 5-C-hydroxymethyl ketohexose; 5-C-hydroxymethyl ketohexosyl polyol; alkyl 5-C-hydroxymethyl ketohexoside, where the alkyl is selected from the group consisting of methyl, ethyl, propyl and isopropyl; 5-C-hydroxymethyl hexitols; di-, tri-, oligo- or polysaccharides having one or more covalent glycosidic bond to a monosaccharide selected from the group of 5-C-hydroxymethyl hexoses and their derivatives; and mixtures of these compounds.

5,064,673

COOKED TOMATO FLAVOR COMPOSITION

Ronald G. Buttery, El Cerrito; Roy Teranishi, Kensington; Louisa C. Ling, El Cerrito, and Jean G. Turnbaugh, Berkeley, all of Calif., assignors to The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Dec. 19, 1990, Ser. No. 629,903
Int. Cl.[5] A23L 1/226
U.S. Cl. 426—534 4 Claims

1. A flavoring composition useful for enhancing or imparting a cooked tomato flavor to a food product, which consists of 112–168 parts dimethyl sulfide, 0.8–1.2 parts beta-damascenone, 1.4–2.0 parts 3-methylbutanal, and 112–168 parts 3-methylbutyric acid.

5,064,674

HYPOALLERGENIC MILK PRODUCTS AND PROCESS OF MAKING

Leonard S. Girsh, Melrose Park, Pa., assignor to Immunopath Profile, Inc., Melrose Park, Pa.

Continuation-in-part of Ser. No. 297,451, Jan. 13, 1989, Pat. No. 4,954,361. This application Aug. 3, 1990, Ser. No. 562,777
The portion of the term of this patent subsequent to Sep. 4, 2007, has been disclaimed.
Int. Cl.[5] A23C 9/142
U.S. Cl. 426—580 50 Claims

1. A hypoallergenic milk product comprising:

(a) a permeate of milk substantially free of hyperallergenic protein prepared by filtration of milk through a filtration membrane which will only allow molecules with a molecular weight of less than or equal to about 5 kDa to pass therethrough, said permeate having been prepared without chemical treatment to denature or hydrolyze the protein contained therein prior to filtration; and

(b) added amino acids, added polypeptides having a molecular weight of not more than about 1.5 kDa, or a combination thereof.

5,064,675

HERBAL EXTRACT COMPOSITION

Eigil Jensen, Järna; N. Urban Olsson, Kista; Peter Kaufmann, Järna, and Anders Hagman, Sollentuna, all of Sweden, assignors to Scandinavian Natural Resources Development HB, Jarna, Sweden

Filed Mar. 1, 1991, Ser. No. 662,756
Int. Cl.[5] A23F 3/34
U.S. Cl. 426—597 34 Claims

1. A Herbal Extract Composition comprising a Melissa species extract, an Avena species extract and a Tilia species extract.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,676

FLAKED COFFEE WITH IMPROVED BREWING PROPERTIES

William J. Gore, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jul. 23, 1990, Ser. No. 557,428
Int. Cl.[5] A23F 5/00
U.S. Cl. 426—595 16 Claims

1. Non-decaffeinated roast and ground coffee flakes particularly suited for use in an urn brewer, wherein the flakes have:
(a) an average thickness of from about 0.004 inch to about 0.022 inch;
(b) an average moisture level of from about 3% to about 6% by weight; and
(c) a particle size fines level such that from about 30% to about 50% by weight of the particles pass through a No. 20 U.S. Standard Screen, and from about 20% to about 50% by weight of the particles pass through a No. 40U.S. Standard Screen; and
(d) wherein the average flake thickness ("FT"), average moisture level ("MO"), and particle size fines level ("FF") are adjusted according to the following equation:

$$0.36 \text{ to } 0.96 = 0.686 + (0.0244 \times FT) - (0.0150 \times FF) + (0.0217 \times MO \times FF).$$

2. Decaffeinated roast and ground coffee flakes particularly suited for use in an urn brewer, wherein the flakes have:
(a) an average thickness of from about 0.004 inch to about 0.022 inch;
(b) an average moisture level of from about 3% to about 6% by weight; and
(c) a particle size fines level such that from about 30% to about 50% by weight of the particles pass through a No. 20 U.S. Standard Screen, and from about 20% to about 50% by weight of the particles pass through a No. 40 U.S. Standard Screen; and
(d) wherein the average flake thickness ("FT"), average moisture level ("MO"), and particle size fines level ("FF") are adjusted according to the following equation:

$$0.30 \text{ to } 0.90 = 0.686 + (0.0244 \times FT) - (0.0150 \times FF) + (0.0217 \times MO \times FF).$$

5,064,677

EDIBLE FAT-CONTAINING PRODUCT AND PROCESS FOR PREPARING SAME

Frederick W. Cain, Voorburg, and Leendert H. Wesdorp, Schiedam, both of Netherlands, assignors to Van den Bergh Foods Co., Division of Conopco, Inc., Lisle, Ill.

Continuation of Ser. No. 231,118, Aug. 11, 1988, abandoned.
This application Dec. 27, 1990, Ser. No. 634,778
Claims priority, application Netherlands, Aug. 19, 1987, 8701952; United Kingdom, Mar. 25, 1988, 8807206
Int. Cl.[5] A23D 9/00, 9/02
U.S. Cl. 426—611 15 Claims

1. Edible fat-containing product comprising at least 5 %, calculated by weight of the total amount of fat, of hardstock indigestible polyol fatty-acid polyesters, the product having a differential scanning calorimetry curve showing at least one fat peak above 36° C., and at least one fat peak below 36° C.

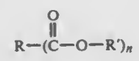
5,064,678

LOW CALORIE FAT MIMETICS

Lawrence P. Klemann, Somerville, and John W. Finley, Whippany, both of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

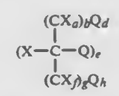
Continuation-in-part of Ser. No. 365,745, Jun. 13, 1989, abandoned, and a continuation-in-part of Ser. No. 411,913, Sep. 25, 1989, Pat. No. 4,963,386. This application Apr. 20, 1990, Ser. No. 511,587
Int. Cl.[5] A23D 7/00; A23L 1/00
U.S. Cl. 426—611 32 Claims

1. An edible composition comprising a fat mimetic compound of the following formula:

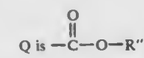


$$R-(C-O-R')_n$$

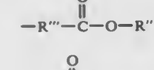
wherein R is a linking covalent bond, aliphatic group, or glycolic group; n is 2 to 6; and each R' comprises a residue defined by the formula:



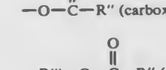
where:
C is a carbon atom;
X is a bridging bonding valence, hydrogen, or substituted or unsubstituted bridging or terminal lower aliphatic group, the various X groups being the same or different, wherein one X is a bridging bonding valence or a substituted or unsubstituted bridging lower aliphatic group;



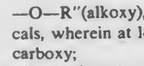
Q is —C—O—R" (carboxylate),



—R'"—C—O—R" (alkylcarboxylate),



—O—C—R" (carboxy),



—R'"—O—C—R" (alkylcarboxy),

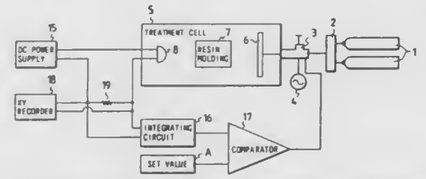
—O—R"(alkoxy), or —R'"—O—R"(alkylalkoxy)radicals, wherein at least one of the Q radicals is other than carboxy;
R" is substituted or unsubstituted aliphatic, ether, or ester group, the various R' and R" groups respectively being the same or different;
R'"is lower alkylene;
wherein there is only one bridging valence or group per R' group;
and where
a=0 to 3;
b=0 to 4;
d=0 to 2;
e=0 to 5;
f=0 to 3;
g=0 to 4;
h=0 to 2,
where at least one of d, e, or h is at least 1.

5,064,679

PLASMA TREATMENT METHOD

Toshiyasu Ito; Toshikazu Funahashi; Yasuhiko Ogisu; Shigeyuki Takahashi, and Masanobu Senda, all of Aichi, Japan, assignors to Toyoda Gosei Co., Ltd., Nishikasugai, Japan

Filed Aug. 27, 1990, Ser. No. 572,624
Claims priority, application Japan, Aug. 31, 1989, 1-225078
Int. Cl.[5] B05D 3/06
U.S. Cl. 427—8 1 Claim



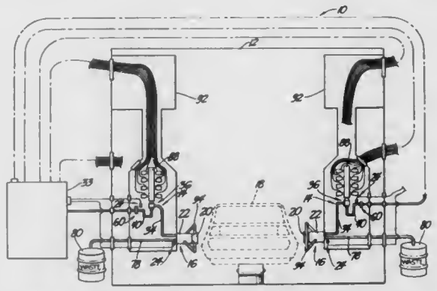
1. A method of treating a resin molding to improve its surface quality, comprising the steps of:
treating said resin molding by applying thereto a plasma gas while the resin molding is disposed in a treatment chamber,
measuring ion density in said chamber,
integrating said density, and
stopping said treating when the integration reaches a predetermined value.

5,064,680

METHOD FOR AUTOMATICALLY SPRAYING LIQUID COATING MATERIAL ONTO A WORKPART

Roger S. Cann, Mt. Clemens, and Richard M. Ostin, Farmington, both of Mich., assignors to Behr Industrial Equipment, Inc., Rochester Hills, Mich.

Division of Ser. No. 324,610, Mar. 17, 1989, Pat. No. 5,014,645.
This application Oct. 25, 1990, Ser. No. 603,154
Int. Cl.[5] B05D 1/02, 1/04
U.S. Cl. 427—8 5 Claims



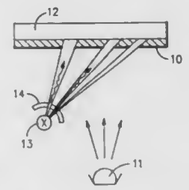
1. A method for automatically spraying liquid coating material onto a work part, comprising the steps of: isolating a space for spray coating; moving alternating flows of liquid and gas through an internal flow passage in the isolated area; discharging liquid from the internal flow passage in the isolated area for spraying onto the work part; and characterized by penetrating the internal flow passage at a predetermined location in the isolated area with an electromagnetic field and sensing changes in the electromagnetic field at the predetermined location resulting from dielectric differences between liquid and gas in the internal flow passage to nonintrusively detect when the head of liquid flow reaches the predetermined location in the internal flow passage.

5,064,681

SELECTIVE DEPOSITION PROCESS FOR PHYSICAL VAPOR DEPOSITION

Christopher J. Berry, Ossining; Jerome J. Cuomo, Lincolndale; C. Richard Guarnieri, Somers, and Dennis S. Yee, Putnam Valley, all of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Continuation of Ser. No. 899,189, Aug. 21, 1986, abandoned.
This application Jun. 8, 1989, Ser. No. 364,071
Int. Cl.[5] B05D 3/06
U.S. Cl. 427—36 19 Claims



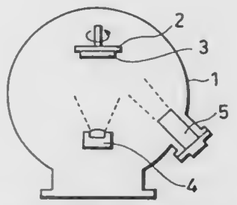
1. A dry method for depositing a material on a substrate having nucleating sites for said material which comprises simultaneously:
(a) ablating said substrate by ablation means for controlling the removal of said nucleating sites from said substrate; and
(b) depositing said material in the vapor phase on said substrate, the removal of said nucleating sites being conducted to minimize or selectively prevent coating of said substrate by said material.

5,064,682

METHOD OF FORMING A PSEUDO-DIAMOND FILM ON A BASE BODY

Seiichi Kiyama, Takatsuki, and Hitoshi Hirano, Nishinomiya, both of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Oct. 23, 1990, Ser. No. 601,627
Claims priority, application Japan, Oct. 26, 1989, 1-280251; Oct. 26, 1989, 1-280252
Int. Cl.[5] B05D 3/06
U.S. Cl. 427—38 16 Claims

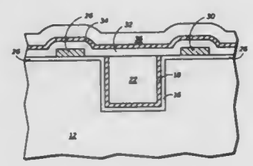


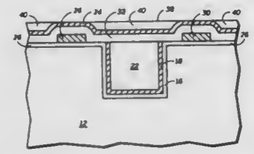
1. A method of forming a pseudo-diamond film on a base body, the method comprising:
a first step of irradiating carbon ions onto a surface of a base body from an assisting ion gun to form a mixture layer comprising base body material atoms and first carbon atoms;
a second step of simultaneously vapor-depositing second carbon atoms from a vapor deposition source and irradiating hydrogen ions from the assisting ion gun onto the mixture layer to form pseudo-diamond cores on the mixture layer; and
a third step of vapor-depositing third carbon atoms from the vapor deposition source and irradiating hydrogen ions from the assisting ion gun onto the pseudo-diamond cores

VOL
1132
ISS
2
NO
12
1991
UMI

to form a pseudo-diamond film on the pseudo-diamond cores.

5,064,683
METHOD FOR POLISH PLANARIZING A SEMICONDUCTOR SUBSTRATE BY USING A BORON NITRIDE POLISH STOP
Stephen S. Poon, and Avgerinos V. Gelatos, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Oct. 29, 1990, Ser. No. 604,855
Int. Cl.[5] B05D *3/06*
U.S. Cl. 427—39 11 Claims

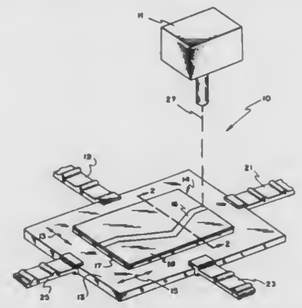




1. A method for polish planarizing a substrate comprising:
providing a substrate having an uneven topography including elevated regions and recessed regions;
providing a boron nitride polish stop on the elevated regions by depositing boron nitride on the substrate using chemical vapor deposition at a deposition temperature no greater than substantially four hundred degrees Centigrade;
depositing a fill material to overlie the boron nitride polish stop and the recessed regions; and
polishing back the fill material until the boron nitride polish stop is reached.

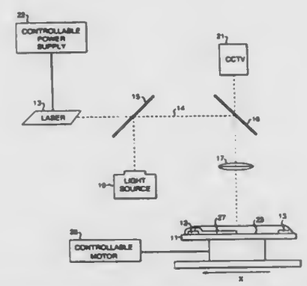
5,064,684
WAVEGUIDES, INTERFEROMETERS, AND METHODS OF THEIR FORMATION
Jose M. Mir, Webster, and John A. Agostinelli, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Aug. 2, 1989, Ser. No. 388,450
Int. Cl.[5] B05D *3/06, 5/12*
U.S. Cl. 427—53.1 51 Claims

1. A method of forming a crystalline ceramic comprising casting a layer of metallo-organic ceramic precursor of electro-optic, ferroelectric or piezoelectric material onto a base and performing a localized heating of a portion of said layer with a



heated imprinting tool to create a patterned area of crystalline ceramic.

5,064,685
ELECTRICAL CONDUCTOR DEPOSITION METHOD
Aml Kestenbaum, West Windsor Township, and Anthony J. Serafino, Cranbury, both of N.J., assignors to AT&T Laboratories, Murray Hill, N.J.
Filed Aug. 23, 1989, Ser. No. 397,700
Int. Cl.[5] B05D *3/06, 5/12;* B32B *35/00*
U.S. Cl. 427—53.1 10 Claims



8. A method for selectively interconnecting first and second bonding pads separated by an insulative substrate or an integrated circuit comprising the steps of:
covering the bonding pads and the intervening insulative substrate with a metal-organic compound;
forming and focusing on the first bonding pad a laser beam having a diameter approximately equal to the desired width of the electrical interconnection;
initially ramping the power of the laser beam to a first constant power, said ramping being to a sufficient power level to pyrolyze the metal-organic compound and cause deposition therefrom of metal onto the first bonding pad;
moving the substrate with respect to the laser beam such that the laser beam scans a path from the first bonding pad to the second bonding pad;
reducing the power of the laser beam from the first constant power to a second constant power that is significantly lower than the first constant power as the laser beam path moves from the first bonding pad to the insulative substrate;
increasing the laser power from the second constant power to the first constant power as the laser beam path moves from the insulative substrate to the second bonding pad;
all movements of the substrate with respect to the laser beam being at speeds lower than a calculated maximum speed

permitted for giving sufficient temperature ramping in the metal-organic compound to permit an ordered deposition of metal therefrom through pyrolyzation of the metal-organic compound.

5,064,686
SUB-VALENT MOLYBDENUM, TUNGSTEN, AND CHROMIUM AMIDES AS SOURCES FOR THERMAL CHEMICAL VAPOR DEPOSITION OF METAL-CONTAINING FILMS
Michael J. McGeary, Meriden, Conn., assignor to Olin Corporation, Cheshire, Conn.
Filed Oct. 29, 1990, Ser. No. 605,718
Int. Cl.[5] C23C *16/06, 16/32*
U.S. Cl. 427—124 11 Claims

1. A thermal CVD process for forming a selected refractory metal-containing film onto a substrate comprising the steps of:
(a) introducing a subvalent refractory metal amide as a reactant gas capable of forming said metal-containing film into a CVD reaction zone containing said substrate on which said metal-containing film is to be formed; said subvalent metal amide having formula (I):

$$[M[NRR']_x]_y \quad (I)$$

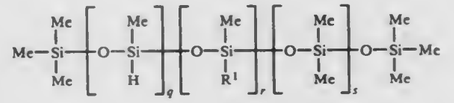
wherein M is molybdenum, tungsten, or chromium;
wherein R and R′ are individually selected from hydrogen and lower alkyl groups having 1–4 carbon atoms, with the proviso that at least one of R or R′ must be a lower alkyl group;
wherein x is selected from 2, 3, 4, or 5; and
wherein y is selected from 1 or 2.
(b) maintaining the temperature of said zone and said substrate at about 200° C. to about 1,000° C.;
(c) maintaining the pressure in said zone at about 0.001 torr to about 100 torr; and
(d) passing said reacting gas or gases by said heated substrate for a period of time sufficient to form said metal-containing film thereon.

5,064,687
METHOD FOR MAKING MAGNETIC RECORDING MEDIA
Akihiro Matsufuji; Kiyomi Ejiri; Mikio Ohno; Masatoshi Kiyama, and Kunihiko Honda, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd, Kanagawa, Japan
Filed Mar. 13, 1991, Ser. No. 668,821
Claims priority, application Japan, Mar. 13, 1990, 2-61518
Int. Cl.[5] B05D *5/12*
U.S. Cl. 427—132 6 Claims

1. A method for making a magnetic recording medium, which comprises the steps of:
i) mixing ferromagnetic grains and a surface treating agent, grinding the resulting mixture, and thus obtaining a ground mixture,
ii) adding a binder and a solvent to the ground mixture, which results from the mixing and grinding process, kneading the resulting mixture, thereafter diluting it, and thus obtaining a kneaded and diluted mixture,
iii) adding an additive and a solvent to the kneaded and diluted mixture, which results from the kneading and diluting process, carrying out a dispersion process on the resulting mixture, and thus obtaining a dispersion mixture, and
iv) thereafter applying the dispersion mixture, which results from the dispersion process, to a non-magnetic substrate.

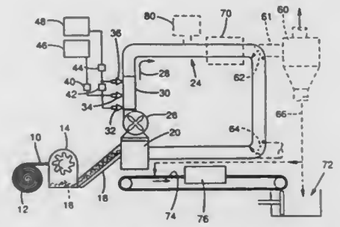
5,064,688
AUTOMOTIVE TOP COAT RESTORING COMPOSITION AND PROCESS
George Trifon, 743 Ridgeview Dr., Lilburn, Ga. 30247
Filed Sep. 24, 1990, Ser. No. 587,098
Int. Cl.[5] B05D *35/00*
U.S. Cl. 427—140 5 Claims

1. A process for restoring painted surfaces to which has been applied a clear top coat which comprises contacting the surface with an effective amount of a reactive composition which comprises;
(a) a silanic hydrogen containing silicone polymer conforming to the following structure;



wherein;
R^1 is selected from lower alkyl having one to eight carbon atoms and phenyl;
q is an integer from 1 to 1,000;
r and s are independently integers from 0 to 1,000;
Me is methyl;
(b) an organic solvent selected from mineral spirits, kerosene, d limonene and 1,1,1 trichloroethane;
and optionally
(c) a catalyst containing tin, zirconium and titanium.

5,064,689
METHOD OF TREATING DISCONTINUOUS FIBERS
Richard H. Young, Sr., Puyallup; Amar N. Neogi; Christel Brunnenkant, both of Seattle; James F. L. Lincoln, Kent, and Michael R. Hansen, Everett, all of Wash., assignors to Weyerhaeuser Company, Tacoma, Wash.
Continuation of Ser. No. 326,190, Mar. 20, 1989. This application Apr. 9, 1990, Ser. No. 508,052
The portion of the term of this patent subsequent to Oct. 15, 2008, has been disclaimed.
Int. Cl.[5] B05D *1/36;* B27N *3/04*
U.S. Cl. 427—202 25 Claims



1. A method of treating discontinuous fibers comprising:
entraining the fibers in a gaseous medium;
applying a liquid binder material to the entrained fibers in an amount which is sufficient to produce fibers in which the binder material is at least about seven percent of the combined dry weight of the binder material and fibers and such that a substantial majority of the binder containing fibers remain unbonded;
adhering a solid particulate material to the liquid binder material on the fibers to thereby bind the solid particulate material to the fibers, a substantial majority of the binder containing fibers remaining unbonded.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,690

METHOD FOR COATING SURFACE OF INACTIVE GRANULES

Mutsuo Sando, Nagoya, and Masanobu Awano, Chikusa, both of Japan, assignors to Agency of Industrial Science & Technology and Ministry of International Trade & Industry, both of Tokyo, Japan

Filed Mar. 12, 1990, Ser. No. 492,060
Claims priority, application Japan, Mar. 28, 1989, 1-76183
Int. Cl.[5] B05D *7/24*
U.S. Cl. 427—215 **14 Claims**

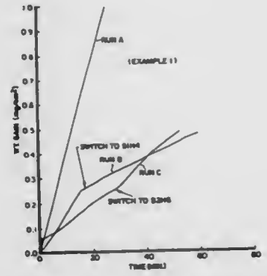
1. A method for coating inactive granules, consisting essentially of causing inactive granules having water adsorbed in advance on the surface thereof to contact a composition comprising a non-hydrophilic organic solvent 0.5 to 20 wt%, based on said solvent, of a metal alkoxide, and a higher fatty acid present in an amount in the range of 0.005 to 0.05 mol per liter of said non-hydrophilic organic solvent, thereby forming on the surface of said inactive granules a dense layer of microfine metal oxide powder formed in consequence of the hydrolysis of said metal alkoxide.

5,064,691

GAS PHASE BOROSILICONIZATION OF FERROUS SURFACES

John F. Kirner, Orefield; Alejandro L. Cabrera, Fogelsville, and John N. Armor, Orefield, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Mar. 2, 1990, Ser. No. 488,541
Int. Cl.[5] C23C *8/06, 8/28, 16/30, 16/46*
U.S. Cl. 427—252 **5 Claims**



1. A method of improving the surface properties of a structure formed from iron or a ferrous alloy which comprises subjecting the surface of said structure to a stream of reducing carrier gas comprising hydrogen to which a gaseous hydride compound of each of silicon and boron have been added together at an elevated temperature below 1200° C. for a time sufficient to diffuse both silicon and boron into said surface.

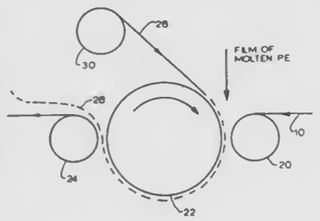
5,064,692

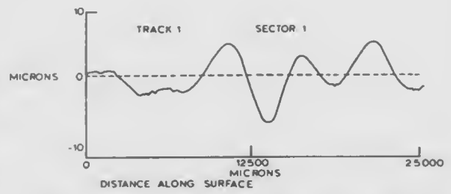
METHOD FOR PRODUCING PAPER PRODUCTS HAVING INCREASED GLOSS IN WHICH SURFACE CHARACTERISTICS OF A RELEASE FILM ARE IMPARTED TO COATED SUBSTRATES

Leroy C. Hofmann, Saddle River, N.J.; Robert W. Hicks, Warwiek; Jasper H. Field, Goshen, both of N.Y., and Stephen H. Monroe, Germantown, Tenn., assignors to International Paper Company, Purchase, N.Y.

Filed Feb. 15, 1990, Ser. No. 480,434
Iot. Cl.[5] B05D *3/12*
U.S. Cl. 427—361 **10 Claims**

1. A method for producing a paper product having a surface with increased gloss, comprising the steps of:
placing a portion of a polymer release film having a smooth and glossy surface substantially free of defects in contact with a supporting surface of a supporting means, said smooth and glossy surface of said polymer release film having non-adhering and release characteristics and facing away from said supporting surface;
providing a substrate having a continuous layer of coating material thereon, said coating material being in an impressionable state;
placing said layer of coating material in contact with said smooth and glossy surface of said portion of said polymer





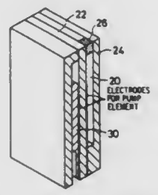
release film while said portion of said polymer release film is in contact with said supporting surface; and
solidifying said coating material during contact with said release film,
whereby a gloss of said smooth and glossy surface of said release film is substantially imparted to a surface of said layer of solidified coating material.

5,064,693

METHOD OF ADJUSTING A GAS SENSOR

Nobuhiro Hayakawa; Tetsusyo Yamada, and Kazunori Yokota, all of Aichi, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Continuation of Ser. No. 235,716, Aug. 22, 1988, abandoned, which is a continuation of Ser. No. 945,993, Dec. 24, 1986, abandoned. This application Oct. 11, 1989, Ser. No. 420,694
Claims priority, application Japan, Dec. 25, 1985, 60-294440
Int. Cl.[5] G01N *27/46*
U.S. Cl. 427—372.2 **22 Claims**



1. In a process for producing a gas sensor that comprises a pump element having a pair of electrodes formed on a solid electrolyte that conducts ions of a gaseous component of interest and a porous material that is capable of limiting gas diffusion and which is interposed between one of said electrodes of said pump element and a gas to be analyzed that contains said gaseous component of interest, an electric current being allowed to flow through said pump element so as to change a concentration of said gaseous component of interest, said gaseous component of interest being permitted to diffuse through said porous material, and said concentration of said gaseous component of interest in said gas to be analyzed being related to a value of said applied current that corresponds to an amount of said gas diffusion so as to measure said concentration of said gaseous component of interest, the improvement wherein said process comprises the steps of:
providing an electrolytic liquid impregnant containing a predetermined concentration of a component that adheres to or binds with said porous material;
applying an electric current to the pump element so as to determine dan ability of said porous material in said gas sensor to limit gas diffusion;
impregnating or dripping said liquid impregnant in said porous material in an amount dependent upon said determination of said ability of said porous material to limit gas diffusion so as to adjust the porosity of the porous body to attain an optimum level of gas diffusion limitation; and
heating or drying said treated porous material so that said component will be adhered or bound to said porous material.

5,064,694

USE OF SILICONE EMULSIONS IN THE WEB PRINTING PROCESS

Ronald P. Gee, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jun. 1, 1990, Ser. No. 531,815
Int. Cl.[5] B05D *3/02;* **C09K** *3/16*
U.S. Cl. 427—387 **6 Claims**

1. An improved method of web printing wherein the method comprises
A) applying ink to a paper surface
B) drying the ink on the paper surface and
C) coating the paper surface with an aqueous silicone polymer emulsion comprising
i) a particle size of less than 200 nanometers,
ii) at least 1.5 weight percent, based on the silicone content, of a cationic surfactant, and
iii) at least 5 weight percent, based on the silicone content, of a nonionic surfactant.

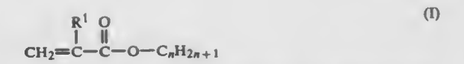
5,064,695

METHOD FOR FORMING COATING FILM

Kazuhiko Hotta; Koichiro Kido, and Shogo Yamamoto, all of Nagoya, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

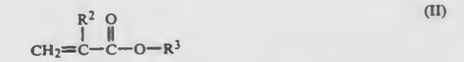
Filed Sep. 12, 1990, Ser. No. 580,969
Int. Cl.[5] B05D *1/36*
U.S. Cl. 427—407.1 **14 Claims**

1. A method for forming a coating film which comprises the steps of coating a member with a coating material containing a pigment for a thermosetting base coat, overcoating the coated member with a coating material for a thermosetting clear coat in a wet-on-wet coating manner, and then thermosetting the uncured coating films simultaneously;
a binder component in said coating material for said base coat comprising
(1) 50 to 90% by weight of an acrylic copolymer (A) having a hydroxyl value of from 40 to 80 mg KOH/g and an acid value of from 0.5 to 30 mg KOH/g and a glass transition temperature of from −40° to 20° C. which is obtained by copolymerizing
(a) 10 to 40% by weight of a hydroxyl group-containing (meth)acrylic ester,
(b) 0.2 to 10% by weight of a carboxyl group-containing vinyl monomer,
(c) 30 to 89.8% by weight of a (meth)acrylic ester represented by the general formula (I)



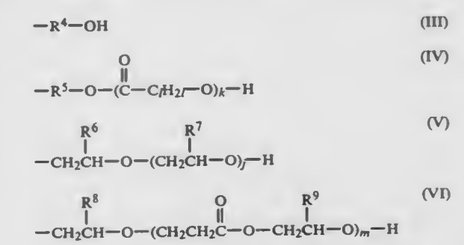
(I)

(wherein R^1 is a hydrogen atom or a methyl group, and n
(d) 0 to 30% by weight of another copolymerizable vinyl monomer, and
(2) 10 to 50% by weight of a curing agent;
a binder component in the coating material for the clear coat comprising
(3) an acrylic copolymer (B) having a hydroxyl value of from 50 to 180 mg KOH/g, an acid value of from 2 to 40 mg KOH/g and a glass transition temperature of from −40° to 20° C. which is obtained by copolymerizing
(e) 5 to 60% by weight of a (meth)acrylic ester containing a fluoroalkyl group or a perfluoroalkyl group,
(f) 10 to 60% by weight of at least one hydroxyl group-containing (meth)acrylic ester represented by the general formula (II)



(II)

(wherein R^2 is a hydrogen atom or a methyl group, R^3 is an organic substituent represented by the formula (III), (IV), (V) or (VI)



(III)

(IV)

(V)

(VI)

wherein each of R^4 and R^5 is a straight-chain or branched alkylene group having 1 to 8 carbon atoms, each of R^6, R^7, R^8 and R^9 is a hydrogen atom or a methyl group, l is an integer of from 2 to 5, j is an integer of from 2 to 10, k is an integer of from 1 to 7, and m is an integer of from 1 to 3),
(g) 0.2 to 10% by weight of a vinyl monomer containing at least one of a carboxylic group, a sulfonic group and a phosphoric acid group,
(h) 15 to 70% by weight of a (meth)acrylic ester represented by the general formula (VII)



(VII)

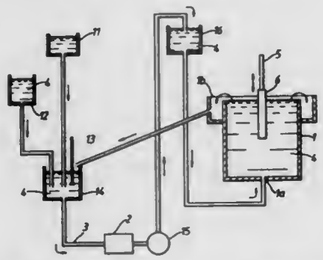
(wherein R^{10} is a hydrogen atom or a methyl group, R^{11} is a hydrocarbon substituent having 4 or more carbon atoms) and
(i) 5 to 50% by weight of another copolymerizable vinyl monomer, and
(4) a polyisocyanate compound (C);
a ratio X/Y of an equivalent (X) of the OH group present in said acrylic copolymer (B) to an equivalent (Y) of the NCO group in said polyisocyanate compound (C) being in the range of from 1/0.5 to 1/1.5.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,696
PIGMENT CONTAINING FILM COATING METHOD UTILIZING A COLLIDING OF TWO FLOW STREAMS

Masashi Takahashi; Yuka Nakamura; Sadao Kajiura, and Koichi Tsunemi, all of Kanagawa, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 19, 1989, Ser. No. 381,803
Claims priority, application Japan, Sep. 8, 1988, 63-223515
Int. Cl.[5] B05D *1/18*
U.S. Cl. 427—430.1 9 Claims

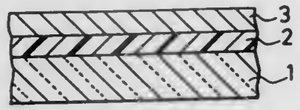


1. A method of forming a pigment containing film on a workpiece, comprising the steps of:
(a) circulating a coating liquid which includes pigment particles through a circulation path;
(b) dividing the circulating coating liquid into two distinct flow streams;
(c) colliding the two flow streams so that the pigment particles impact each other;
(d) dipping the workpiece in the coating liquid during steps (a), (b) and (c); and
(e) raising the workpiece from the coating liquid.

5,064,697
SUBSTRATE WITH A LIQUID CRYSTAL POLYMERIC THIN FILM AND METHOD FOR MANUFACTURING THE SAME

Yasuyuki Takiguchi, Kawasaki; Akihiko Kanemoto, Yokohama; Shigeki Iida, Kawasaki, and Takehiro Toyooka, Yokohama, all of Japan, assignors to Ricoh Company, Ltd. and Nippon Oil Company, Limited, both of Tokyo, Japan

Filed Jun. 4, 1990, Ser. No. 532,681
Claims priority, application Japan, Jun. 6, 1989, 1-143597
Int. Cl.[5] B32B *31/12, 27/28*
U.S. Cl. 428—1 10 Claims



1. A substrate with a liquid crystal polymeric thin film comprising a substrate, an orientation film formed on said substrate and a thermotropic liquid crystal polymeric thin film formed on said orientation film, in which the orientation film comprises a polyimide having a glass transition point of higher than 300° C. obtained by cyclizing a polyamic acid or its derivative coated on said substrate and applying a rubbing treatment.

5,064,698
FOOD PACKAGING IMPROVEMENTS

Steven B. Courtright; Gordon N. McGrew, both of Evanston, and Lindell C. Richey, Lake Zurich, all of Ill., assignors to Wm. Wrigley, Jr. Company, Chicago, Ill.

Filed Feb. 16, 1989, Ser. No. 311,703
Int. Cl.[5] B32B *1/08*
U.S. Cl. 428—35.4 10 Claims

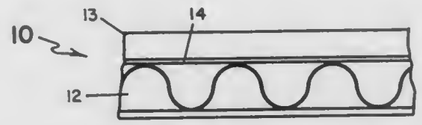


1. A food packaging material that when sealed forms a substantially air-tight enclosure, comprising:
a barrier material that is resistant to air permeation, said barrier material forming an enclosure that can be sealed to enclose a food, said barrier material having an inside surface inside said enclosure; and
a plurality of porous polymeric beads impregnated with a substance that causes elemental oxygen in the sealed enclosure to react to form a substantially unreactive compound, said beads being disposed adjacent the inside surface of said barrier material.

5,064,699
SEMI-RIGID HEAT-SEALABLE LAMINATES WITH PERMANENT ANTISTATIC CHARACTERISTICS

Marvin R. Havens, Greer; Stephen L. Fowler, Moore, both of S.C.; William P. Roberts, Columbia, and Cynthia L. Ebner, Mt. Airy, both of Md., assignors to W. R. Grace & Co.-Conn., Duncan, S.C.

Continuation-in-part of Ser. No. 354,069, May 19, 1989, abandoned. This application Mar. 6, 1990, Ser. No. 489,411
Int. Cl.[5] B65D *25/14;* B32B *23/08, 27/32*
U.S. Cl. 428—35.7 19 Claims



1. A semi-rigid heat-sealable, laminate with permanent antistatic characteristics comprising a semi-rigid deformable substrate having a surface with a surface portion for supporting an item to be packaged, and a heat-sealable, permanently antistatic layer extending over and bonded to said surface, said layer including a modified acid copolymer selected from:
(I) a mixture of (A) a polymer containing carboxyic acid moieties and (B) an antistatically effective amount of a quaternary amine; or from
(II) an acid/base reaction product of (A) a polymer containing carboxylic acid moieties and (C) an antistatically effective amount of an organic base wherein (A), (B), and (C) are defined as follows:
(A) the polymer containing carboxylic acid moieties is a copolymer of (i) an alpha-olefin of the formula $RCH{=}CH_2$ wherein R is H or C_1 to C_{20} alkyl, C_1 to C_{20} alkoxy, or C_6 aryl, and (ii) an alpha,beta-ethylenically unsaturated carboxylic acid, and
(B) the quaternary amine is of the formula

$$[(R^1)(R^2)(R^3)(R^4)N]^+[X]^-$$

wherein
R^1 is selected from H, aryl, or C_1 to C_{50} alkyl optionally having one or more non-contiguous C═O or NHC═O or —S— or —O— in the carbon chain, or the same as R^2;
each of R^2, R^3, and R^4 is the same or different and selected

from H, C_1 to C_{18} alkyl optionally substituted with one or more OH or from $-(R^5{-}O)_a{-}H$ where a is an integer from 1 to 10 and R^5 is ethylene or propylene; and
X is an anion selected from chloride, bromide, iodide, fluoride, nitrate, fluoborate, phosphate, C_1 to C_{20} alkyl phosphate, sulfate, C_1 to C_{20} alkyl sulfate, formate, C_1 to C_{20} alkyl or C_6 to C_{24} alkaryl or aryl sulfonate, acetate, trifluoroacetate, citrate, propionate, or tartrate, and
(C) the organic base is of the formula M^+Y^-, wherein M^+ is $[R^6R^7R^8R^9N]^+$, where R^6, R^7, R^8, and R^9 are independently selected from a C_1 to C_4 alkyl, benzyl, 2-hydroxyethyl, or hydroxypropyl, and $Y|^-$ is selected from hydroxide, C_1 to C_4 alkoxide, bicarbonate, or carbonate.

5,064,700
BLOW MOLDED NYLON 46 PRODUCT

Kenji Yasue; Toshio Tsuji; Takashi Ida, and Shigeru Hayase, all of Uji, Japan, assignors to Stamicarbon B.V., AC Geleen, Netherlands

Filed Oct. 20, 1989, Ser. No. 424,105
Claims priority, application Japan, Oct. 22, 1988, 63-266648
Int. Cl.[5] F16L *1/08*
U.S. Cl. 428—36.92 12 Claims

1. A blow molded nylon 46 product comprising
(A) from 40 to 95 parts by weight of nylon 46
(B) from 3 to 40 parts by weight of at least one nylon member selected from the group consisting of nylon 6, nylon 66 and nylon 6.66 copolymers and
(C) from 2 to 40 parts by weight of a modified polyolefin having at least one functional group selected from the group consisting of carboxylic acid groups, metal carboxylate groups, acid anhydrides, esters and epoxy groups,
with a melt viscosity at 300° C. satisfying the following formulas I and II:

$$5{,}000 \leqq \eta_{300}{}^{10} \leqq 50{,}000 \quad (I)$$

$$4{,}000 \leqq \eta_{300}{}^{100} \leqq 40{,}000 \quad (II)$$

where $\eta_{300}{}^{10}$ is the melt viscosity (poise) at a temperature of 300° C. at a shear rate of 10 (sec^{-1}) and $\eta_{300}{}^{100}$ is the melt viscosity (poise) at a temperature of 300° C. at a shear rate of 100 (sec^{-1}), and A+B+C being 100 parts by weight.

5,064,701
MULTI-SIDED PLACEMAT

Debra Dowd, 324 Jefferson Ave., Salem, Mass. 01970

Filed Oct. 10, 1989, Ser. No. 419,210
Int. Cl.[5] A47G *23/00*
U.S. Cl. 428—46 6 Claims



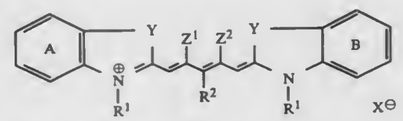
1. A multifaced placemat comprising
at least three sheets of readily foldable placemat material of the same size and shape and each sheet being symmetrical about a center line dividing each sheet into two leaves,
said sheets being superimposed on top of one another in a stack with their centerlines lying coextensive and parallel to one another,
adjacent pairs of said leaves of separate sheets being attached together in a face to face relationship along substantially the entire distance of outer edges of said adjacent pairs of leaves from one junction of the outer edges and the centerline to an opposing junction of the outer edges and the center line so that the leaves together form a page that may be flipped over along the centerline to invert the page,
and a graphic display carried on each of the sheets so that the displays of the sheets may be selectively exposed by orienting any one of a plurality of sheets on the top of the stack.

5,064,702
QUINOXALINEPENTAMETHINE DYES AND OPTICAL RECORDING MEDIUM CONTAINING SAME

Michael Acker, Heidelberg; Peter Neumann, Mannheim; Bernhard Albert, Maxdorf; Sibylle Brosius; Klaus D. Schomann, both of Ludwigshafen, and Harald Kuppelmaier, Goennheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 26, 1990, Ser. No. 603,552
Claims priority, application Fed. Rep. of Germany, Oct. 28, 1989, 3936051
Int. Cl.[5] B32B *3/02*
U.S. Cl. 428—64 6 Claims

1. A quinoxalinepentamethine dye of the formula I



(I)

where
R^1 has identical or different meanings in each appearance, denoting in each case hydrogen, C_1–C_{22}-alkyl, which may be substituted and interrupted by one or more oxygen atoms, or substituted or unsubstituted C_5–C_7-cycloalkyl,
R^2 hydrogen, chlorine, bromine or C_1–C_6-alkyl,
Y has identical or different meanings in each appearance, denoting in each case a radical of the formula $-N{=}C(CH_3)-$ or $-N(R^1)-CO-$, where R^1 is as defined above,
Z^1 and Z^2 are each hydrogen or together are unsubstituted or C_1–C_4-alkyl-substituted C_2–C_3-alkylene,
$X^\ominus$ is an anion and
the rings A and B are identical to or different from each other and independently of each other may be substituted or benzofused.

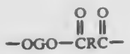
5,064,703
WATERPROOFING OF POLYESTER FIBERFILL

Michael S. Frankosky, Hockessin, and George J. Ostapchenko, Wilmington, both of Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 449,615, Dec. 12, 1989. This application Nov. 14, 1990, Ser. No. 610,438
Int. Cl.[5] B32B *5/24*
U.S. Cl. 428—95 4 Claims

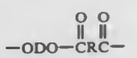
1. A slickened polyester fiberfill batt or a garment or other article filled with slickened polyester fiberfill, wherein the slickened polyester fiberfill is secured to a continuous flexible layer of a waterproof hydrophilic elastomer having a water vapor transmission rate of at least 3500 gm.mil/m2/24hrs, according to ASTM E96-66 (Procedure BW), said hydrophilic elastomer being a copolyetherester elastomer or a mixture of two or more copolyetherester elastomers having a multiplicity of long-chain ester units and short-chain ester units joined head-to-tail through ester linkages, said long-chain ester units being represented by the formula

VOL 1132 ISS 2 NO 12 1991 UMI



(I)

and said short-chain ester units being represented by the formula:



(II)

where G is a divalent radical remaining after the removal of terminal hydroxyl groups from a poly(alkylene oxide) glycol having an average molecular weight of about 400–3500, and further, the amount of ethylene oxide groups incorporated in the copolyetherester or mixture of two or more copolyetheresters by the poly(alkylene oxide) glycol is from about 25–68 weight percent based upon the total weight of the copolyetherester or mixture of two or more copolyetheresters; R is a divalent radical remaining after removing of carboxyl groups from a dicarboxylic acid having a molecular weight less than 300; D is a divalent radical remaining after removal of hydroxyl groups from a diol having a molecular weight less than about 250; and said hydrophilic copolyetherester or mixture of two or more copolyetheresters has from about 25–80 weight percent short-chain ester units.

5,064,704

SHAPED STRUCTURE OF POLYARYLATE COPOLYMERS HAVING HIGH TENSILE ELONGATION AT BREAK

Charles W. Stewart, Newark, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 29, 1989, Ser. No. 414,412
Int. Cl.[5] B32B *27/06*
U.S. Cl. 428—98 **4 Claims**

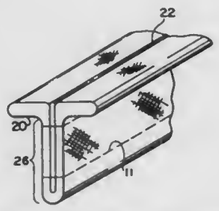
1. Shaped and drawn structures of an amorphous polyarylate copolymer of an aromatic dicarboxylic acid and a diphenol wherein no more than one chain carbon atom per repeat unit is an aliphatic carbon atom, said copolymer having a number average molecular weight greater than 10,000, said shaped and drawn structure being selected from the group consisting of wire insulation, wire jacketing and cable jacketing and having a tensile elongation at break in the drawn direction of greater than 80% at 25° C.

5,064,705

STABILIZING LAMINATE INSERTS FOR RESIN TRANSFER MOLDING

Thomas P. Donovan, Sr., West Haven, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Aug. 28, 1999, Ser. No. 399,677
Int. Cl.[5] B29C *43/18, 45/02*
U.S. Cl. 428—121 **11 Claims**



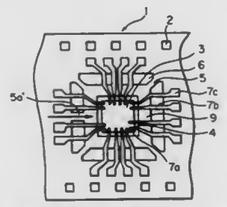
1. A preform assembly for use with a resin transfer molding apparatus which comprises:
(a) a dry fabric preform; and
(b) a thin fiber-reinforced resin impregnated laminate, wherein said laminate is precured for imparting rigidity to said laminate;
(c) said preform folded about said laminate and said preform firmly fastened to said laminate to form a preform assembly having a stiffened and stabilized preform edge;
wherein said edge aids in the insertion of said preform assembly into a cavity of a resin transfer mold apparatus.

5,064,706

CARRIER TAPE INCLUDING MOLTEN RESIN FLOW PATH ELEMENT FOR RESIN PACKAGED SEMICONDUCTOR DEVICES

Tetsuya Ueda; Haruo Shimamoto; Hideya Yagoura; Hiroshi Seki, and Yasuhiro Teraoka, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Dec. 8, 1988, Ser. No. 281,401
Claims priority, application Japan, Dec. 11, 1987, 62-314458
Int. Cl.[5] B32B *3/10;* **H01L** *21/56*
U.S. Cl. 428—131 **1 Claim**



1. A carrier tape for semiconductor devices comprising:
an insulating film including a central opening for receiving a semiconductor chip to be resin-molded, a plurality of outer lead holes disposed around the periphery of the central opening, a supporting portion lying between and defined by the central opening and outer lead holes, and a plurality of bridging portions disposed between respective outer lead holes connecting the supporting portion with the film beyond the outer lead holes; and
a plurality of leads, each having a first end mounted on said film and an opposing second end extending over one of the outer lead holes into the central opening for connection to an electrode of a semiconductor chip disposed in the central opening wherein each of said bridging portions has a width between adjacent outer lead holes, one of said bridging portions having a larger width than the other bridging portions for forming, with resin mold halves, a resin running path extending along the wider bridging portion from said film beyond the outer lead holes to the central opening for preventing molten resin from entering the outer lead holes during resin molding of a semiconductor chip disposed in the central opening.

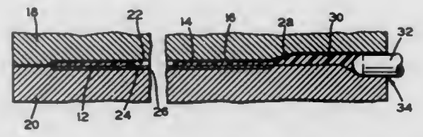
5,064,707

MOLDED COMPOSITES

William R. Weaver, and James E. Matzinger, both of Toledo, Ohio, assignors to Libbey-Owens-Ford Co., Toledo, Ohio

Division of Ser. No. 380,888, Jul. 17, 1989, Pat. No. 4,965,037.
This application Jul. 24, 1990, Ser. No. 557,568
Int. Cl.[5] B32B *15/08, 15/18, 27/06*
U.S. Cl. 428—151 **7 Claims**

1. A molded composite, comprising:
A) a substrate;
B) a surface finishing film; and
C) a layer of reactive molded polymeric material disposed between said substrate and said surface finishing film, said layer formed by injecting polymeric precursors between said substrate and said surface finishing film within a mold cavity causing said surface finishing film to conform to a portion of the mold cavity, the polymeric precursors reacting in-situ to form said layer and simultaneously chemically bond the layer to the surface finishing film.



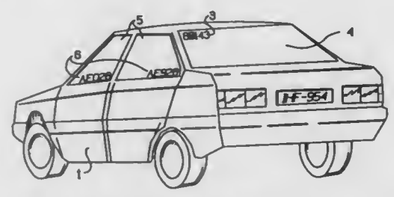
6. The sheet molded composite, according to claim 1, wherein the molded composite has a simulated wood grain finished surface.

5,064,708

GLASS FOR AUTOMOBILES

Alvaro B. Azulay, Calle El Parque EDF Gunta Apto A-11 Urlr. Las Mesetas, Caracas 1061, Venezuela

Filed Apr. 19, 1989, Ser. No. 340,463
Int. Cl.[5] B32B *17/10*
U.S. Cl. 428—156 **8 Claims**



1. Glass in an automobile comprising
a laminated glass window having an outer glass lamina, an inner glass lamina, and a polymeric transparent polymeric web material extending coextensively therebetween,
the glass window having distinguishing parts or sectors 3,6 located at corners of the glass window and being sized in such a way as not to diminish a driver's field of vision, yet including indicia in at least one of the sectors capable of being read from a distance of about 10 meters, and
indicia in one of the glass lamina extending to a depth whereby a surface of the transparent polymeric web material is exposed, forming and defining the sectors as sunken and unremovable sectors therein whereby no underlayer of glass is available for removing away the indicia without providing visibility of telltale sign thereof should an attempt be made to do so.

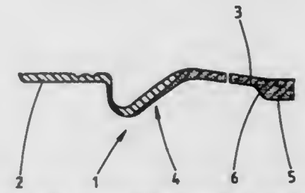
5,064,709

COMPOSITE PART OF FLEXIBLE CELLULAR MATERIAL AND ELASTIC RUBBER MATERIAL

Rolf Tschudin-Mahrer, Lausen, Switzerland, assignor to Irbit Research & Consulting AG, Fribourg, Switzerland

PCT No. PCT/EP88/00818, § 371 Date May 5, 1989, § 102(e) Date May 5, 1989, PCT Pub. No. WO89/02364, PCT Pub. Date Mar. 23, 1989
PCT Filed Sep. 9, 1988, Ser. No. 350,553
Claims priority, application Fed. Rep. of Germany, Sep. 11, 1987, 3730573
Int. Cl.[5] B32B *3/02, 3/26*
U.S. Cl. 428—157 **12 Claims**

1. A composite part of flexible cellular material and elastic, unvulcanized rubber material, wherein
the cellular material is a cellular synthetic material and is compressed with the rubber material under cellular synthetic material hot-stamping conditions to form an attachment therewith, and wherein the cellular synthetic material is compacted in a region of the attachment.



5,064,710

FIRE RETARDANT COMPOSITION

William G. Gosz, 70 Ash St., Hopkinton, Mass. 01748

Filed Dec. 8, 1989, Ser. No. 447,621
Int. Cl.[5] B32B *3/28;* **C09K** *21/00*
U.S. Cl. 428—182 **17 Claims**

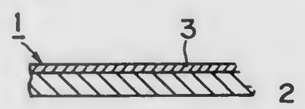
1. A liquid fire retardant composition for treating cellulosic material consisting essentially of aqueous solution of from about 25% to about 50% by weight of at least one ammonium phosphate, from about 1% to about 5% by weight of an alkyl acid phosphate having from two to four carbon atoms, and up to about 5% by weight of a glycol having two to four carbon atoms.

5,064,711

SUBSTRATE OF A HYBRID IC, METHOD OF FORMING A CIRCUIT PATTERN AND APPARATUS OF FORMING THE SAME

Takatoshi Ito; Akihiro Yoshida; Kazunori Shimazaki, all of Kariya, and Shuzo Hattori, 14-1, Aza-Musashizuka, Oaza-Nagakute, Nagakute-cho, Aichi-gun, Aichi-ken, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya and Shuzo Hattori, Aichi, both of, Japan

Division of Ser. No. 68, 914, Jul. 1, 1987, Pat. No. 4,891,242
This application Oct. 17, 1989, Ser. No. 422,761
Claims priority, application Japan, Jul. 5, 1986, 61-158185
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—209 **9 Claims**



1. A hybrid IC substrate comprising an IC substrate body and a non-photosensitive surface layer of a solution- retaining film formed on the substrate body where the solution-retaining film allows a solution that contains an electric-circuit-element-forming material and a solvent therefore upon application thereto to permeate therethrough until it reaches the substrate body while retaining said solution at the position at which the solution initially contacts said retaining film.

5,064,712

LAMINATED LENS STRUCTURE

E. Robert Fretz, Jr., Corning, N.Y., assignor to Corning Incorporated, Corning, N.Y.

Filed Mar. 20, 1989, Ser. No. 325,880
The portion of the term of this patent subsequent to Dec. 27, 2005, has been disclaimed.
Int. Cl.[5] B32B *27/38;* **G02C** *7/10*
U.S. Cl. 428—212 **20 Claims**

1. In a three component laminated lens structure exhibiting

VOL 1132 ISS 2 NO 12 1991 UMI

optical quality transmission which does not delaminate after repeated thermal cyclings over the temperature range −40° to +80° C. and does not delaminate or demonstrate significant haze after exposure to high humidities for extended periods of time, the improvement comprising:

(a) a thin inorganic glass layer having a linear coefficient of thermal expansion within the range of about $60–120\times10^{-7}$/°C. and having reactive groups on its surface bonded to

(b) a rigid organic plastic layer having a linear coefficient of thermal expansion within the range of $200–700\times10^{-7}$/°C. and having reactive groups on its surface through

(c) a flexible epoxy adhesive layer that can be cured in the vicinity of room temperature and containing groups reactive with those on the surfaces of the glass and the rigid plastic layer;

whereby improved bonding of the layers to one another, and consequent improved temperature and moisture resistance, are obtained.

19. In a three component laminated lens structure exhibiting optical quality transmission which does not delaminate after repeated thermal cyclings over the temperature range −40° to +80° C. and does not delaminate or demonstrate significant haze after exposure to high humidities for extended periods of time, said components being:

(a) a thin inorganic glass layer having a linear coefficient of thermal expansion within the range of about $60–120\times10^{-7}$/°C. and being bonded to;

(b) a rigid organic plastic layer having a linear coefficient of thermal expansion within the range of $200–700\times10^{-7}$/°C.; by

(c) a flexible epoxy adhesive layer that can be cured in the vicinity of room temperature and that is intermediate the glass layer and the plastic layer;

the improvement comprising chemically reactive organic groups on the bonding surfaces of each component layer, the organic groups on each surface being chemically reactive with the organic groups on the adjacent layer surface, whereby improved bonding of the layers to one another, and consequent improved temperature and moisture resistance, are obtained.

5,064,713

RESURFACING COMPOSITIONS AND METHODS

Donald C. DuLaney, and Robert H. Lindsay, both of Madison, Wis., assignors to Lindsay Finishes, Inc., Madison, Wis.

Division of Ser. No. 249,456, Sep. 22, 1988, which is a division of Ser. No. 67,730, Jan. 26, 1987, Pat. No. 4,791,159. This application Jan. 14, 1991, Ser. No. 638,164

Int. Cl.[5] **C08K** *5/12;* **B32B** *7/12*

U.S. Cl. 428—214 **17 Claims**

1. A resurfacing coating, comprising:

a first layer of an adhesive composition in a quantity sufficient to bridge imperfections in a surface to be resurfaced and to mount a resurfacing fabric thereto, said adhesive composition having an applied thickness of at least about 14 mils and comprising a liquid dispersion of a polar latex resin binder comprising an emulsion of water and a polyvinyl acetate homopolymer with a polyvinyl alcohol protective colloid, said binder being present in a concentration effective to adhere a resurfacing fabric to a surface wetted with said composition; a chemical plasticizer effective in plasticizing and tackifying said latex resin binder; a solvent comprising a volatile water miscible glycol ether; a thickening agent present in an amount effective to modify the viscosity of said composition so that at atmospheric conditions said first layer will not flow due to the influence of gravity once applied to a surface to be resurfaced; and about 6 to 7½ wt % diatomaceous silica;

a substantially continuous fibrous resurfacing fabric layer juxtaposed said first layer and adhered to thereby, said resurfacing fabric having an outward facing exposed surface having interstices; and

a top layer of said adhesion composition which impregnates said interstices of said outward facing exposed surface of said resurfacing fabric providing said resurfacing composition with a substantially smooth outward facing surface, said adhesion composition having a viscosity sufficient so that, at atmospheric conditions, said top layer of said adhesive composition will not flow due to the influence of gravity when applied to said resurfacing fabric.

5,064,714

INTERNAL TRIM MEMBER FOR AUTOMOBILE

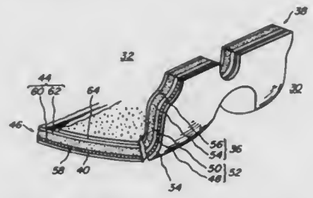
Michiyuki Yamaguchi, Fuchu; Shosuke Suzuki, and Takeo Yokobori, both of Kamakura, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

Filed Oct. 3, 1989, Ser. No. 416,558

Claims priority, application Japan, Oct. 3, 1988, 63-249638

Int. Cl.[5] **B32B** *27/00;* **B29C** *47/00*

U.S. Cl. 428—219 **5 Claims**



1. An internal trim member for automobile comprising; a fiber assembly made from staples having a fiber size distribution center of not more than 30 denier and mixed with a fibrous binder for shaping and solidifying said fiber assembly and shaped at an average apparent density of 0.04–0.15 g/cm^3 in accordance with a shape of a vehicle body panel in the automobile, and a sound insulating sheet layer laminated thereon and having a surface weight of 1.0–8.0 kg/m^2.

5. An internal trim member for automobile comprising a fiber assembly obtained by preliminary shaping staples having a fiber size distribution center of not more than 30 denier with a binder into a flat plate fiber assembly having an apparent density of not more than 0.025 g/cm^3 and compression shaping at a compression ratio of 2-4 in accordance with a shape of a vehicle body panel in the automobile, and a sheet sound insulating layer laminated thereon and having a surface weight of 1.0–8 kg/m^2.

5,064,715

DIELECTRIC COATING FOR RECORDING MEMBER CONTAINING HYDROPHOBIC SILICA

Vincent K. Rasbury, and Charles K. Nordeen, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

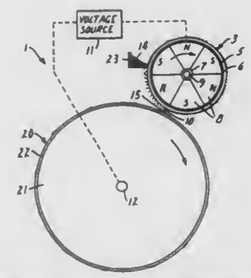
Continuation of Ser. No. 929,650, Nov. 12, 1986, abandoned. This application Mar. 22, 1989, Ser. No. 327,364

The portion of the term of this patent subsequent to May 19, 2004, has been disclaimed.

Int. Cl.[5] **G01D** *15/10;* **B32B** *5/16*

U.S. Cl. 428—331 **12 Claims**

1. A recording member suitable for use in an electrographic recording system for recording toner images on a recording member, said system including first and second opposed electrodes spaced apart to define a recording region therebetween, means for driving the recording member through said recording region, and a means for transporting electrically conductive toner powder from a toner reservoir to said recording region to selectively deposit on said recording member in response to the selective application of voltage pulses across said electrodes, said recording member comprising a conductive substrate bearing a dielectric coating comprising a polymeric material containing hydrophobic silica therein in an amount sufficient to develop triboelectric charge to interfere with the build-up of charge in the dielectric coating, said amount comprising from about 30% up to about 95% by



weight of the dielectric coating, said dielectric coating having a thickness ranging from about 0.05 to about 5.0 micrometers.

5,064,716

BLENDS OF ETHYLENE VINYL ALCOHOL COPOLYMER AND AMORPHOUS POLYAMIDE, AND MULTILAYER CONTAINERS MADE THEREFROM

Richard Tien-Hua Chou, and Gedeon I. Deak, both of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 301,473, Jan. 26, 1989, Pat. No. 4,990,562, which is a continuation-in-part of Ser. No. 88,261, Aug. 24, 1987, abandoned. This application Sep. 7, 1990, Ser. No. 578,410

Int. Cl.[5] **B32B** *5/16*

U.S. Cl. 428—336 **20 Claims**

1. A multiple layer structure wherein at least one of the layers is prepared from a blend consisting essentially of about 50 to about 95 percent by weight of an ethylene vinyl alcohol copolymer having a copolymerized ethylene content of about 20 to about 60 mole percent and a degree of saponification of at least about 90 %, and about 5 to about 50 percent by weight of a polyamide blend consisting essentially of about 30 to about 90 percent by weight of at least one amorphous polyamide characterized by the lack of an endotherm crystalline melting peak as measured by differential scanning calorimetry and further characterized by a glass transition temperature of up to about 160° C., and about 10 to about 70 percent by weight of at least one semicrystalline polyamide which si miscible with the ethylene vinyl alcohol copolymer, said miscibility evidenced by the presence of a single glass transition temperature or a depressed melting point in blends of such semicrystalline polyamide with said ethylene vinyl alcohol copolymer, as measured by differential scanning calorimetry.

5,064,717

ADHESIVE SHEET

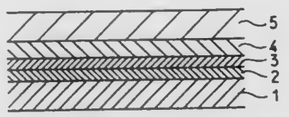
Hideaki Suzuki, Nara; Kenji Hosoyama; Shuichiro Takeda, both of Kobe, and Rinzo Kamikura, Sakai, all of Japan, assignors to Kanzaki Paper Manufacturing Co., Ltd., Tokyo, Japan

Filed Apr. 25, 1990, Ser. No. 514,430

Claims priority, application Japan, Apr. 28, 1989, 1-109771; May 22, 1989, 1-129576

Int. Cl.[5] **B32B** *7/12*

U.S. Cl. 428—352 **12 Claims**



1. An adhesive sheet comprising a release sheet base material, an undercoat layer formed on said release sheet base material, a release agent layer formed on said undercoat layer, an adhesive layer formed on said release agent layer and a surface sheet formed on said adhesive layer, the adhesive sheet being characterized in that said undercoat layer comprises a mixture of a first copolymer and a second copolymer, said first and second copolymers comprising acrylate or methacrylate copolymers, said first copolymer comprising a copolymer prepared by emulsion polymerization of a first monomer mixture in the presence of a first emulsifier having a molecular weight of about 1,000 to about 10,000, said first emulsifier being used in an about of 2 to 10 wt. % based on the total amount of said first monomer mixture, said first copolymer having a glass transition of −60 to 0° C., said first monomer mixture comprising

(a) about 1 to about 20 wt. % of a first ethylenically unsaturated carboxyl-containing monomer,

(b) about 40 to about 90 wt. % of a first $C_4–C_{18}$ alkyl ester monomer of acrylic or methacrylic acid and

(c) 0 to about 40 wt. % of at least one first other monomer copolymerizable with said ethylenically unsaturated carboxyl containing monomer and said $C_4–C_{18}$ alkyl ester of acrylic or methacrylic acid, said second copolymer comprising a copolymer prepared

by emulsion polymerization of a second monomer mixture in the presence of a second emulsifier having a molecular weight of about 1,000 to about 10,000, said second emulsifier being used in an amount of about 2 to about 10 wt. % based on the total amount of said second monomer mixture, and said second copolymer having a glass transition temperature of 45 to 100° C., said second monomer mixture comprising

(d) about 1 to about 20 wt. % of a second ethylenically unsaturated carboxyl-containing monomer,

(e) about 5 to about 40 wt. % of a second $C_4–C_{18}$ alkyl ester monomer of acrylic or methacrylic acid, and

(f) about 50 to about 90 wt. % of at least one second other monomer copolymerizable with said second ethylenically unsaturated carboxyl-containing monomer and said second $C_4–C_{18}$ alkyl ester monomer of acrylic or methacrylic acid,

said release sheet base material and said undercoat layer, as a whole, having a bulk density of up to 1.0 g/cm^3.

5,064,718

INORGANIC PARTICLES

Richard Buscall, Cheshire; Paul J. Scales, South Wirrall; Serena J. Williams, Cheshire, and Jill E. Newton, W. Midlands, all of England, assignors to Imperial Chemical Industries, PLC, London, England

Filed Apr. 27, 1990, Ser. No. 515,747

Claims priority, application United Kingdom, Apr. 27, 1989, 8909730

Int. Cl.[5] **B32B** *15/08;* **B05D** *7/00;* **C08K** *9/00;* **C08L** *43/00*

U.S. Cl. 428—407 **17 Claims**

1. A method for the preparation of a particulate inorganic solid which method comprises at least the step of precipitating from an aqueous medium the particles of the inorganic solid in the presence of a copolymer which comprises repeating units which are derived from:

Component A: a hydrophilic oligomer or polymer bearing an addition-polymerisable olefinically-unsaturated group;

Component B: an olefinically-unsaturated compound capable of copolymerising with Component A and bearing

i) a monobasic acid group or

ii) a dibasic acid group or

iii) a moiety bearing both a carboxylic acid group and a further group capable of involvement in hydrogen bonding therewith.

VOL
1132
ISS
2
NO
12
1991
UMI

5,064,719

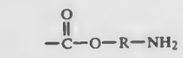
COATING COMPOSITION OF ACRYLIC POLYMERS CONTAINING REACTIVE GROUPS AND AN EPOXY ORGANOSILANE

Herman C. Den Hartog, Rochester; George T. Palmer, Troy, both of Mich., and Ara G. Yeramyan, Media, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

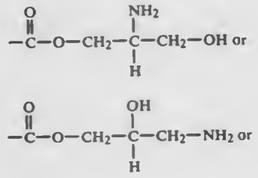
Division of Ser. No. 412,982, Sep. 26, 1989, Pat. No. 4,988,759.
This application Oct. 11, 1990, Ser. No. 595,835
Int. Cl.[5] B32B *9/04*
U.S. Cl. 428—411.1 18 Claims

1. A substrate coated with a dried layer of a coating composition comprising 20–80% by weight of a binder and 80–20% by weight of a solvent for the binder, wherein the binder consists essentially of about:

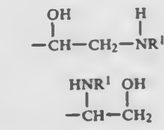
A. 40–778% by weight, based on the weight of the binder, of an acrylic polymer A consisting essentially of polymerized monomers of methyl methacrylate and monomers selected from the group consisting of styrene, alkyl methacrylate and alkyl acrylate each having 1–12 carbon atoms in the alkyl group and said polymer having pending from the carbon-carbon atoms of the polymer backbone reactive groups selected from the group consisting of aminoester groups of the formula



where R is an alkylene group having 2–3 carbon atoms, hydroxyamino ester groups of the formula

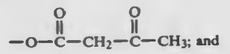


groups of the formula

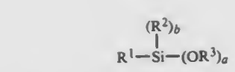


where R^1 is an alkyl group of 1–8 carbon atoms; and

B. 20–40% by weight, based on the weight of the binder, of an acrylic crosslinking polymer B consisting essentially of polymerized monomers of at least 3% by weight, based on the weight of the crosslinking polymer, of a glycidyl constituent selected from the group consisting of glycidyl methacrylate and glycidyl acrylate, and the remainder of the monomers being selected from the group consisting of alkyl methacrylate and alkyl acrylate each having 1–12 carbon atoms in the alkyl groups and optionally contains at least 3% by weight, based on the weight of the crosslinking polymer, of an alkyl acrylate or methacrylate having a pendent group of the formula



C. 2–40% by weight, based on the weight of the binder, of an organosilane compound of the formula



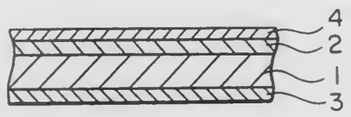
wherein R^1 is an organic group having an epoxy group, R^2 is hydrogen, a hydrocarbon group having 1–6 carbon atoms b is an integer of 0–2, R^3 is a hydrocarbon group having 1–5 carbon atoms or an alkoxyalkyl group, a is an integer of 1–3; wherein said polymers A and B each have a weight average molecular weight of about 5,000–40,000 determined by gel permeation chromatography using polymethyl methacrylate as a standard.

5,064,720

MAGNETIC RECORDING MEDIUM CONTAINING A POLYURETHANE BINDER RESIN HAVING A BETAINE GROUP IN THE FORM OF AN INTERMOLECULAR SALT

Tsutomu Kempo; Atsuko Matsuda, and Narito Goto, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

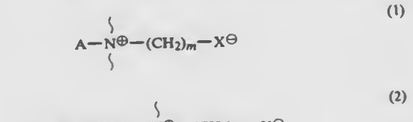
Filed Aug. 22, 1989, Ser. No. 396,658
Claims priority, application Japan, Aug. 25, 1988, 63-211537; Aug. 25, 1988, 63-211538; Aug. 31, 1988, 63-217393; Oct. 18, 1988, 63-263274
Int. Cl.[5] G11B *23/00*
U.S. Cl. 428—423.1 22 Claims



1. A magnetic recording medium comprising a magnetic layer containing a magnetic powder and a binder, wherein said binder comprises a polyurethane resin having an average molecular weight of from about 5,000 to 100,000 and having a betaine group in the form of an intramolecular salt;

said magnetic powder is selected from the group consisting of a ferro-magnetic cobalt-containing iron oxide powder, a ferro-magnetic chromium dioxide powder and a magnetic metal powder containing iron atoms and aluminum atoms in a range of from 100:1 to 100:20 in terms of the number of atoms; and

sad betaine group is represented by the following Formula (1) or (2) in a ratio of from 0.01 mmol/g to 1.0 mmol/g



wherein $X^{\ominus}$ is $-SO_3^{\ominus}$, $-O-SO_3^{\ominus}$, $-COO^{\ominus}-$, $-O-PO_3H^{\ominus}$, $-OPO_3^{\ominus}$ or $-OPO_2H_2^{\ominus}$; A is a hydrogen atom or an alkyl group having 1 to 60 carbon atoms; B is —COO— or —CONH—; R is an alkyl group, an alkenyl group or aryl group, which have 1 to 12 carbon atoms; n and m are independently an integer of 1 to 10; and $\sim N^{\oplus}\sim$ represents the polyurethane chain of said polyurethane resin.

5,064,721

MAGNETIC RECORDING MEDIA

August Lehner, Roedersheim-Gronau; Albert Kohl, Laumersheim; Hermann Roller, Ludwigshafen; Werner Lenz, Duerkheim; Ludwig Kreitner, Heppenheim; Helmut Kopke, Weisenheim; Friedrich Sommermann, Kehl, and Ernst Ricker, Bretzfeld-Gedde, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 31, 1988, Ser. No. 264,342
Claims priority, application Fed. Rep. of Germany, Oct. 31, 1987, 3736998
Int. Cl.[5] G11B *23/00*
U.S. Cl. 428—425.9 3 Claims

1. A magnetic recording medium, consisting of a nonmagnetic base and at least one magnetizable layer which is applied firmly thereon and which comprises a magnetic material finely dispersed in a binder, said binder containing not less than 50% by weight of a polyurethane, wherein the magnetizable layer further contains from 0.1 to 2.0% by weight, based on the amount of magnetizable material, of an isoparaffin having 16 to 40 carbon atoms and 3 to 10 branch junctions.

5,064,722

IN-LINE AMINOSILANE COATED POLYESTER FILM FOR GLAZING PRODUCTS

Howard W. Swofford, Taylors, and Stephen J. Gust, Greenville, both of S.C., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Continuation-in-part of Ser. No. 207,069, Jun. 15, 1988, Pat. No. 4,898,786. This application Jun. 13, 1989, Ser. No. 366,052
The portion of the term of this patent subsequent to Feb. 6, 2007, has been disclaimed.
Int. Cl.[5] B32B *9/04*
U.S. Cl. 428—447 22 Claims

1. An oriented self-supporting high modulus film having a continuous primer coating composition on at least one side thereof, said coating composition comprising the dried residue of a hydrolyzed aminosilane compound having the formula in the unhydrolyzed state:

$$XSi(R^2)_a(R^3)_b$$

wherein X is a radical selected from the group consisting of $H_2NR^1HNR^1$—and $H_2NR^1HNR^1HNR^1$—; the R^2's are the same or different groups selected from the group consisting of C_1 to C_8 alkyl or phenyl; R^2 is a hydrolyzeable group selected from the group consisting of C_1 to C_8 alkoxy, an acetoxy group or a halide; R^3 is a nonreactive, nonhydrolyzeable group selected from the group consisting of C_1 to C_3 alkyl or phenyl; (a) is an integer ranging from 1 to 3; (b) is an integer ranging from 0 to 2, with the sum of (a) and (b) being 3, said primer coating composition applied in-line before heat setting said film at an amount effective to improve the adhesion of other polymers to said film.

5,064,723

METAL TREATMENT

John R. Lawson, Manchester, England, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 436,102, Nov. 13, 1989, abandoned, which is a continuation of Ser. No. 169,571, Mar. 17, 1988, abandoned. This application Feb. 5, 1991, Ser. No. 652,206
Claims priority, application United Kingdom, Apr. 1, 1987, 8707799
Int. Cl.[5] B32B *9/00*
U.S. Cl. 428—457 20 Claims

1. A metal having on at least part of one surface thereof, as an adhesion promoter, a coating of a compound containing a ligand group and a group of the formula:

$$-NRCOR^1{}_aX_bCR^2{=}CHCOR^3$$

or a salt of said compound, wherein:

R is a hydrogen atom or a monovalent hydrocarbyl or substituted hydrocarbyl group;

R^1 is a divalent hydrocarbyl or substituted hydrocarbyl group;

R^2 is a hydrogen atom or an alkyl group;

R^3 is a group —OR or $-NR^2$, wherein the groups R is the $-NR^2$ group may be the same or different;

X is a divalent group —NRO— or —NRCO—;

a is zero or one; and

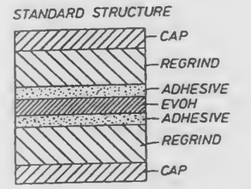
b is zero or one.

5,064,724

INCREASED REGRIND USAGE IN COEXTRUDED STRUCTURES

David E. Ofstein, Williamsburg, Va., assignor to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 444,572, Nov. 30, 1989, abandoned, which is a division of Ser. No. 149,279, Jan. 28, 1988, Pat. No. 4,894,291. This application Oct. 9, 1990, Ser. No. 594,805
Int. Cl.[5] B32B *27/08*
U.S. Cl. 428—501 17 Claims



1. A laminate for use in oxygen barrier applications which comprises:

(a) a protective outer layer made of a material selected from the group consisting of polypropylene, polyethylene and copolymers of propylene and ethylene;

(b) an adhesive layer;

(c) an inner barrier layer comprising a polyketone;

(d) interposed between layers (a) and (b), an intermediate regrind layer formed of a blend of the materials from which (a), (b) and (c) are formed; and

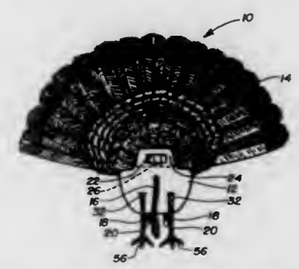
(e) interposed between layers (a) and (d), a buffer layer which is formed from a blend of the materials from which layers (a) and (d) are formed and which comprises from about 5% to about 100% of the material of layer (d).

5,064,725

TURKEY TROPHY MOUNTING KIT

Tex H. Acker, R.D. #4, Lebanon, Pa. 17042

Filed Jan. 25, 1991, Ser. No. 645,810
Int. Cl.[5] B44C *5/04, 5/06;* G09F *19/00*
U.S. Cl. 428—542.4 6 Claims



1. A turkey trophy mounting kit comprising in combination, a plaque component having the configuration of a typical wild

VOL 1132 ISS 2 NO 12 1991 UMI

turkey body silhouette as would be seen from a full front view and being provided with a tail fan receiving recess disposed in the upper rear portion thereof adapted to supportably receive for display mounting a cured and dried spread wild turkey gobbler tail fan, a spaced set of leg slot recesses disposed in the lower front portion of said plaque component to supportably receive by compressive press fit insertion respectively therein for display mounting a dried wild turkey gobbler leg each having spread toes and rearwardly projecting spurs, and a beard retaining recess disposed in the centrally intermediate front portion of said plaque component to supportably receive by compressive press fit insertion therein for display mounting a cured and dried wild turkey gobbler beard so that the mountable affixment of said tail fan and legs and beard as aforesaid respectively position the same accurately in relative anatomical relationship upon said plaque as would have typically appeared on the live wild turkey gobbler from which they came.

5,064,726

HOLLOW COMPOSITE MEMBER

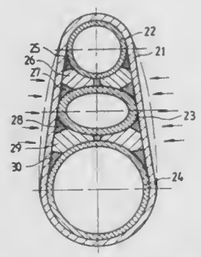
Helmut Swars, Bergisch Gladbach, Fed. Rep. of Germany, assignor to Emitec Gesellschaft für Emissionstechnologie m.b.H., Lohmar, Fed. Rep. of Germany

Filed Nov. 3, 1989, Ser. No. 431,645

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1988, 3837293

Int. Cl.[5] **F16C** *3/00, 3/06;* **F16H** *53/00*

U.S. Cl. 428—586 **4 Claims**



1. A hollow composite member for receiving torque and/or tensile, compressive or bending forces, comprising:

an outer layer; and

inner supporting means accommodating pressure in a radial direction for insuring that in the outer material layer, essentially along its entire axial length, there prevails a circumferentially uniform tensile prestress, the supporting means including several annular or sleeve members (22, 23, 24) arranged so as to rest against the outer layer along parts of its circumference.

5,064,727

ABRADABLE HYBRID CERAMIC WALL STRUCTURES

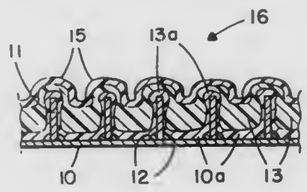
Snbhash K. Naik, Milford, and William H. Doddman, Guilford, both of Conn., assignors to Avco Corporation, Providence, R.I.

Filed Jan. 19, 1990, Ser. No. 467,723

Int. Cl.[5] **F01D** *11/08*

U.S. Cl. 428—593 **14 Claims**

1. Heat resistant abradable wall structure having high resistance to erosion, corrosion and oxidation, comprising a support wall having thereon a cellular element comprising partition cell walls forming a multiplicity of cells opening outwardly from said support wall, said support wall and cellular element comprising metal superalloys, a heat-resistant, oxygen barrier, ceramic core layer comprising at least one heat-resistant oxygen barrier, ceramic composition which fills each of said cells to an extent of between about 80% and 90% of their volume and which tapers up to at least the level of the upper edges of said partition cell walls, to provide a ceramic core layer having an uneven outer surface having areas recessed within each of said cells, and an abradable, porous, heat-resistant surface layer which fills the remaining portion of each of said cells and covers said heat resistant layer and said cellular structure, said abradable layer comprising a porous superalloy layer of



M'CrAlY in which M' is one or more metals selected from the group consisting of nickel, cobalt and iron, and having a thickness, in areas overlying the upper edges of said partition cell walls, of between about 0.01 and 0.06 inch, said abradable layer rendering said cellular structure resistant to erosion, corrosion and oxidation.

5,064,728

ARTICLE WITH INTERNAL WEAR RESISTANT SURFACES

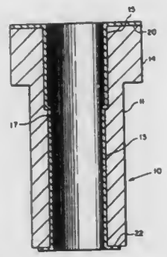
Swaminathan Sunder, Allentown; Diwakar Garg, Macungie, and Paul N. Dyer, Allentown, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Division of Ser. No. 388,104, Jul. 31, 1989, Pat. No. 4,990,372, which is a continuation-in-part of Ser. No. 92,809, Sep. 3, 1987, Pat. No. 4,874,642, which is a continuation-in-part of Ser. No. 153,738, Feb. 8, 1988, Pat. No. 4,855,188. This application Oct. 19, 1990, Ser. No. 600,456

The portion of the term of this patent subsequent to Aug. 8, 2006, has been disclaimed.

Int. Cl.[5] **B32B** *15/04*

U.S. Cl. 428—627 **11 Claims**



1. A structure comprising a body having an internal surface and a uniform, highly erosive and abrasion wear resistant and crack-free coating system deposited by chemical vapor deposition on said internal surface, said coating system comprising a top coating consisting essentially of a mixture of tungsten and tungsten carbide wherein said mixture is selected from the group consisting of W and W_2C, W and W_3C, and mixtures of W and W_2C and W_3C, said top coating being fine grained, non-columnar and having a substantially layered microstructure and a thickness sufficient to confer a desired level of abrasion and wear resistance to the interior of said structure; and an intermediate layer between said internal surface and said top layer comprising substantially pure tungten having a columnar structure and a thickness of at least about 30% of the thickness of said top coating.

5,064,729

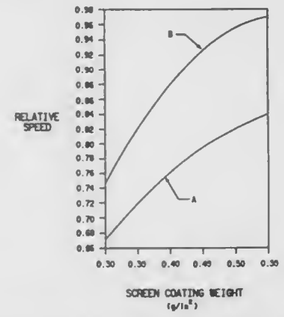
PROCESS OF PREPARING TANTALATE X-RAY INTENSIFYING PHOSPHORS WITH IMPROVED EFFICIENCY

William J. Zegarski, Towanda, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 17, 1990, Ser. No. 627,991

Int. Cl.[5] **G03C** *5/17;* **G21K** *4/00*

U.S. Cl. 428—690 **10 Claims**



1. A process for preparing a phosphor with improved X-ray efficiency and purity prepared from a tantalate phosphor having the monoclinic M' structure selected from the group consisting of:

(a) $YNb_xTa_{1-x}O_4$, where x is 0 to about 0.15;

(b) $LuNb_xTa_{1-x}O_4$, where x is 0 to about 0.20;

(c) $Y_{1-y}Tm_yTaO_4$, where y is 0 to about 0.03;

(d) a solid solution of (a) and (b);

(e) a solid solution of (a) and (c);

(f) $Y_{1-y}Tb_yTaP_4$, where y is about 0.001 to about 0.15;

(g) $Lu_{1-y}Tb_yTaO_4$, where y is about 0.001 to about 0.15;

(h) $Gd_{1-y}Tb_yTaO_4$, where y is about 0.001 to about 0.15;

(i) a solid solution of at least two of (f), (g) and (h);

(j) any of (a) to (i) wherein up to 45 mole percent of the yttrium, lutetium or gadolinium is replaced by lanthanum;

(k) any of (a) to (i) wherein up to 15 mole percent of the yttrium, lutetium or gadolinium is replaced by ytterbium; and

(l) any of (a), (b), (c), (d) and (e) wherein up to 15 mole percent of the yttrium or lutetium is replaced by gadolinium;

the process comprising

(a) intimately mixing stoichiometric quantities of corresponding precursor oxides;

(b) mixing the resultant mixture with a flux capable of producing an alkali metal oxide wherein said flux also contains an effective amount of an alkali metal metasilicate;

(c) firing the flux-containing mixture in an inert container in the range of about 1100° C. to about 1400° C. for at least about 3 hours; and

(d) recovering the phosphor.

5,064,730

MAGNETIC RECORDING MEDIUM

Fumio Takano, Kawasaki, and Eltaro Nakamura, Tokyo, both of Japan, assignors to Nippon Zeon Co., Ltd., Tokyo, Japan

Filed Feb. 15, 1990, Ser. No. 480,444

Claims priority, application Japan, Feb. 16, 1989, 1-36704

The portion of the term of this patent subsequent to Feb. 13, 2007, has been disclaimed.

Int. Cl.[5] **G11B** *23/00*

U.S. Cl. 428—694 **11 Claims**

1. An improvement in a magnetic recording medium having a magnetic layer comprising a vinyl chloride copolymer as a binder and a magnetic powder and formed on a nonmagnetic support, said improvement residing in the vinyl chloride copolymer which has a degree of polymerization of from 200 to 900 and which contains hydroxyl groups and quaternary ammonium salt groups, wherein said hydroxyl groups are derived from at least one monomer selected from the group consisting of a monoallyl or monomethallyl ether of polyhydroxyl compounds, and a monoallyl or monomethally thioether of polyhydroxyl compounds; the content of the hydroxyl groups in the vinyl chloride copolymer being 0.05 to 3.0% by weight based on the weight of the copolymer and the amount of the quaternary ammonium salt groups in the vinyl chloride copolymer being 0.02 to 0.5% by weight calculated as nitrogen of the quaternary ammonium salt groups and based on the weight of the copolymer.

5,064,731

DENTAL PROSTHESES

Takashi Miyazaki; Takashi Inamochi; Masaaki Kitamura, and Shohei Hayashi, all of Tokyo, Japan, assignors to G-C Dental Industrial Corp., Tokyo, Japan

Filed Mar. 21, 1990, Ser. No. 496,943

Claims priority, application Japan, Mar. 29, 1989, 1-74935

Int. Cl.[5] **B32B** *15/00*

U.S. Cl. 428—698 **6 Claims**

1. A dental prosthesis comprising an inner layer portion and an outer layer portion, characterized in that:

said inner layer portion is a sintered product which, after sintering, is composed of:

(i) 40 to 95% by weight of one or more electric conductive ceramic materials selected from the group consisting of nitride ceramics, boride ceramics and carbide ceramics, all having a specific electric resistance of $10^{-1}\Omega$-cm or below, and

(ii) 5 to 60% by weight of at least one of the following (A) and (B):

(A) a dental porcelain material, and

(B) one or more metals selected from the group consisting of Ti, Zr, Au, Pt, Pd, Ag, In and Sn,

and said outer layer portion is a dental porcelain material.

5,064,732

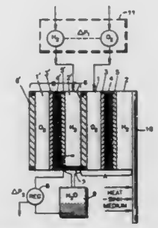
SOLID POLYMER FUEL CELL SYSTEM: HIGH CURRENT DENSITY OPERATION

Alfred P. Meyer, West Simsbury, Conn., assignor to International Fuel Cells Corporation, South Windsor, Conn.

Filed Feb. 9, 1990, Ser. No. 477,792

Int. Cl.[5] **H01M** *8/04*

U.S. Cl. 429—13 **2 Claims**



1. A method of improving the current density of a solid polymer fuel cell systems, said system having at least two solid polymer fuel cells connected electrically through a load, each cell comprising a cathode, an anode, an electrolyte disposed therebetween, a cathode chamber, and an anode chamber means for delivering and regulating fuel to the anode chamber, and means for delivering and regulating oxidant to the cathode chamber, at least one hydrophilic porous element for transferring water from the cathode chamber to the anode chamber, and at least one hydrophilic porous element for removing water from the anode chamber, wherein said improvement

VOL 1132 ISS 2 NO 12 1991 UMI

comprises: removing heat from the system with at least one heat pipe, wherein said heat pipe maintains as low a temperature gradient across said cell as is practical; whereby the combination of said heat pipe and said porous element prevents excess heat from building up and the anode from drying out, respectively, and wherein said initial porous element prevents accumulation of water at the cathode and wets the anode.

5,064,733

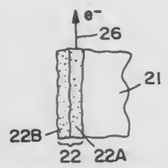
ELECTROCHEMICAL CONVERSION OF CO_2 AND CH_4 TO C_2 HYDROCARBONS IN A SINGLE CELL

Kevin Krist, Palatine, and Anthony F. Sammells, Naperville, both of Ill., assignors to Gas Research Institute, Chicago, Ill.

Continuation-in-part of Ser. No. 413,526, Sep. 27, 1989, Pat. No. 4,997,725. This application Mar. 12, 1990, Ser. No. 491,989

Int. Cl.[5] **H01M** *8/10*

U.S. Cl. 429—17 **27 Claims**



1. A process for concurrent gas phase electrocatalytic oxidative dimerization of methane at the anode on one side of a solid electrolyte and reduction of carbon dioxide to gaseous hydrocarbons at a cathode on the other side of said solid electrolyte, said process comprising:

passing methane containing gas in contact with a rare earth metallic oxide anode layer of an anode comprising a rare earth metallic oxide anode layer in contact with one side of an ionic and electronic conducting metallic oxide perovskite anode layer in contact with one side of a solid electrolyte on its opposite side, said anode catalytically oxidatively dimerizing said methane to C_2 species;

transferring through said solid electrolyte an ionic species selected from the group consisting of an O^{2-} species from said cathode to said anode and a proton mediating ion from said anode to said cathode at cell operating temperatures;

passing carbon dioxide containing gas in contact with one side of an ionic and electronic conducting metal cathode electrocatalyst capable of providing adsorption sites for carbon dioxide and chemisorbed and faradaically generated hydrogen species in proximity to said adsorbed carbon dioxide and capable of catalytic reduction of said carbon dioxide to predominantly C_2 species; and

withdrawing said C_2 species from the region of said anode and said cathode.

5,064,734

CURRENT-TRANSMITTING COMPONENTS FOR STACKED HIGH-TEMPERATURE FUEL CELLS AND METHOD OF PRODUCING THEM

Mohamed Nazmy, Fislisbach, Switzerland, assignor to Asea Brown Boveri Ltd., Baden, Switzerland

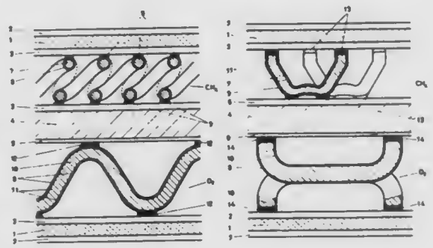
Filed Oct. 11, 1990, Ser. No. 596,035

Claims priority, application Switzerland, Oct. 27, 1989, 3877/89

Int. Cl.[5] **H01M** *8/12*

U.S. Cl. 429—33 **7 Claims**

1. Current-transmitting components for conducting current between adjacent shallow, planar, stacked ceramic high-temperature fuel cells containing solid electrolyte (1) based on doped stabilized zirconium oxide, the oxygen electrode (2) of one fuel cell being electrically conductively connected in each case to the fuel electrode (3) of the subsequent fuel cell and the gap between the electrodes (2; 3) being subdivided by a gas-impervious electrically conducting separating plate (4) into two chambers conducting the different gaseous media comprising fuel (CH_4) and oxygen (O_2) carrier, wherein a separating plate (4) composed of an oxide-dispersion-hardened nickel/chromium alloy carrying a nickel plating (5) on the fuel side and a noble-metal plating (6) on the oxygen side is provided, and wherein, furthermore, current collectors are provided both on the fuel side and on the oxygen side, each current collector comprising a carrier (7; 10) which determines the geometrical shape and is composed of electrically conducting



oxide-dispersion-hardened nickel or nickel/chromium alloy having a high Cr content at least in the surface zones, ThO_2 being present as dispersoid in a content of up to 2% by weight, furthermore of a porous or impervious noble-metal surface layer (9; 12; 13; 14) which is present only at the contact/touching faces and is made of Au or a Pt metal or an alloy of at least two of said metals, and of a continuous layer (8) which is present between carrier (7; 10) and noble-metal surface layer (9; 12; 13; 14) and is made of electrically conductive Cr_2O_3 which simultaneously acts as an oxidation protection and as a diffusion barrier.

5,064,735

CADIUM ELECTRODE AND PROCESS FOR ITS PRODUCTION

Guy G. Rampel, and Vincent J. Puglisi, both of Gainesville, Fla., assignors to Gates Energy Products, Inc., Gainesville, Fla.

Continuation-in-part of Ser. No. 274,262, Nov. 21, 1988, abandoned. This application Jul. 19, 1989, Ser. No. 382,816

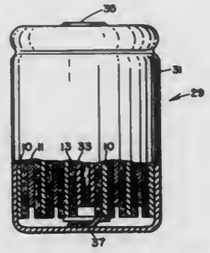
Int. Cl.[5] **H01M** *4/44, 4/26*

U.S. Cl. 429—206 **45 Claims**

1. A cadmium electrode for use in a rechargeable cell employing an alkaline electrolyte, comprising:

an electrically conductive substrate supporting an electrochemically active material;

an interconnecting network of aliphatic alcohol soluble polyamide, the solubility limit of the polyamide in n-propanol being at least about 7.4 percent by weight, linked to the substrate and serving as i) a binder and ii) an anti-agglomerant retarding cadmium agglomeration during use of the electrode; and



a mixture of particulate electrochemically active cadmium material retained in and dispersed through said network and in electrical contact with the substrate during charge and discharge of the electrode.

5,064,736

ELECTROSTATIC METHOD FOR MULTICOLOR IMAGING FROM A SINGLE TONER BATH

Paul V. Grosso, West Hartford; Feagin A. Wing, Jr., Farmington; Michael J. Morgan, Northford; Renate C. Stegmeier, Bethany, all of Conn.; Roger W. Day, Louisville, Ky., and Willard F. Bart, Bristol, Conn., assignors to Olin Corporation, Cheshire, Conn.

Continuation-in-part of Ser. No. 274,542, Nov. 21, 1988, abandoned, which is a continuation-in-part of Ser. No. 171,614, Mar. 23, 1988, Pat. No. 4,869,981. This application Dec. 20, 1989, Ser. No. 453,551

The portion of the term of this patent subsequent to Sep. 26, 2006, has been disclaimed.

Int. Cl.[5] **G03G** *13/01, 9/00;* **G03C** *1/72*

U.S. Cl. 430—42 **22 Claims**

1. A color imaging method which comprises the steps of:

(a) forming a latent image on a photoconductive or dielectric substrate,

(b) electrostatically depositing a blended toner composition onto a charged or uncharged surface of said substrate to form a toned image which is a positive or reverse image as compared to said latent image, said blended toner composition comprising at least two different toners, each of said toners comprising a color precursor contained in photosensitive toner particles,

(c) selectively photohardening or photosoftening at least a portion of said toner particles by imagewise exposure to appropriate wavelengths of radiation to provide harder toner particles and softer, rupturable toner particles,

(d) transferring said harder toner particles and said rupturable toner particles to a copy surface,

(e) rupturing at least a portion of said toner particles on said copy surface to release color precursor(s) from said rupturable toner particles, and

(f) contacting said released color precursor(s) on said copy surface with a developer to form a color image on said copy surface.

5,064,737

ELECTROPHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL

Eiichi Kato, and Kazuo Ishii, both of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 23, 1990, Ser. No. 527,397

Claims priority, application Japan, May 23, 1989, 1-127816; May 23, 1989, 1-127817

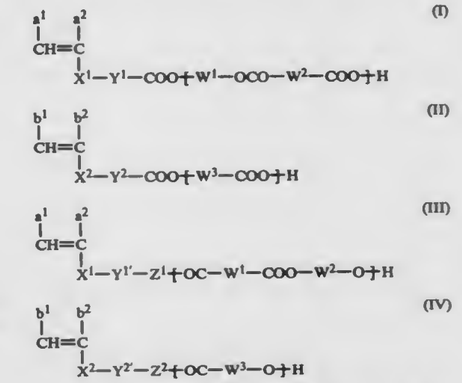
Int. Cl.[5] **G03G** *5/087*

U.S. Cl. 430—96 **8 Claims**

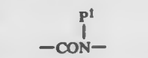
1. An electrophotographic light-sensitive material comprising a support having formed thereon a photoconductive layer containing at least inorganic photoconductive particles and a binder resin, wherein the binder resin comprises at least one kind of a resin (A) shown below and at least one kind of a resin (B) shown below:

Resin (A):

A copolymer having a weight average molecular weight of from 1×10^3 to 2.0×10^4 containing at least one of polyester type macromonomers each having a weight average molecular weight of from 1.0×10^3 to 1.5×10^4 represented by the following formula (I), (II), (III), or (IV):



wherein the bracketed terms each represents a recurring unit; a^1 and a^2, which may be the same or different, each represents a hydrogen atom, a halogen atom, a cyano group, a hydrocarbon group having from 1 to 8 carbon atoms, —COOZ, or —COOZ bonded via a hydrocarbon group having from 1 to 8 carbon atoms (wherein Z represents a hydrocarbon group having from 1 to 18 carbon atoms); X^1 represents a direct bond or, —COO—, —OCO—, $-(CH_2)_{l_1}COO-$, $-(CH_2)_{l_2}OCO-$ (wherein l_1 and l_2 each represents an integer of from 1 to 3),



(wherein P^1 represents a hydrogen atom or a hydrocarbon group having from 1 to 12 carbon atoms), —CONHCONH—, —CONHCOO—, —O—,



or $—SO_2—$; Y^1 represents a group bonding X^1 to —COO—; Y^2 represents a group bonding X^2 to —COO—; $Y^{1'}$ represents a group bonding X^1 to Z^1; $Y^{2'}$ represents a group bonding X^2 to Z^2; Z^1 represents $—CH_2—$, —O—, or —NH—; W^1 and W^2,

VOL 1132 ISS 2 NO 12 1991 UMI

which may be the same or different, each represents a divalent aliphatic group, a divalent aromatic group (each group may have at least one bonding group selected from —O—, —S—,



(wherein P^2 represents a hydrogen atom or a hydrocarbon group having from 1 to 12 carbon atoms), $—SO_2—$, —COO—, —OCO—, —CONHCO—, —NHCONH—,



(wherein P^3 has the same meaning as P^2),



(wherein P^4 has the same meaning as P^2), and



(wherein P^3 and P^4 are as defined above) in the bond or the divalent organic residue thereof); b^1 and b^2 have the same meaning as a^1 and a^2; X^2 has the same meaning as X^1; and W^3 represents a divalent aliphatic group;

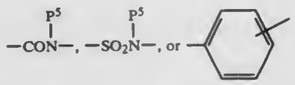
Resin (B)

A resin which is a copolymer comprising (1) at least a monofunctional macromonomer having a weight average molecular weight of not more than 2×10^4, containing at least one of the polymer components shown by the following formulae (VIa) and (VIb), and having a polymerizable double bond group represented by following formula (V) bonded to only one terminal of the polymer main chain thereof, and (2) a monomer represented by the following formula (VII);

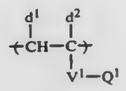


(V)

wherein V^0 represents —COO—, —OCO—, $—CH_2OCO—$, $—CH_2CO—$, —O—, $—SO_2—$, —CO—, —CONHCOO—, —CONHCONH—, $—CONHSO_2—$,



(wherein P^5 represents a hydrogen atom or a hydrocarbon group) and c^1 and c^2, which may be the same or different, each represents a hydrogen atom, a halogen atom, a cyano group, a hydrocarbon group, —COOZ', or —COOZ' bonded via a hydrocarbon group (wherein Z' represents a hydrogen atom or a hydrocarbon group which may be substituted);



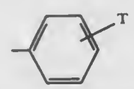
(VIa)

-continued

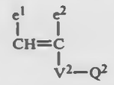


(VIb)

wherein V^1 has the same meaning as V^0 in formula (V) described above; Q^1 represents an aliphatic group having from 1 to 18 carbon atoms or an aromatic group having from 6 to 12 carbon atoms; d^1 and d^2, which may be the same or different, have the same meaning as c^1 and c^2 in formula (V); and Q^0 represents —CN, $—CONH_2$, or



(wherein T represents a hydrogen atom, a hydrocarbon group, an alkoxy group, or —COOZ" (wherein Z" represents an alkyl group, an aralkyl group, or an aryl group));



(VII)

wherein V^2 has the same meaning as V^1 in formula (VIa); Q^2 has the same meaning as Q^1 in formula (VIa); and e^1 and e^2, which may be the same or different, have the same meaning as c^1 and c^2 in formula (V).

5,064,738

LIQUID TONING PROCESS AND APPARATUS

David M. Rakov, Rochester, and Domenic Santilli, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Nov. 20, 1989, Ser. No. 417,147

Int. Cl.[5] G03G *13/10*

U.S. Cl. 430—117 **12 Claims**

11. Apparatus for liquid development of a latent electrostatic image formed in a charge retaining surface comprising in combination:

(a) a member bearing an electrostatic image;

(b) a series of processing stations in sequential relationship to one another,

the first of said stations comprising means for applying a liquid developer upon the surface of said member to develop said image,

the second of said stations comprising a conductive hard, resilient roller having cylindrical surface portions that roll over said surface and are applied against said surface at a pressure of about 20 to about 60 pounds per square inch to remove excess liquid developer from the surface of said member, and

the third of said stations comprising means for applying a rinsing liquid to the surface of said member,

(c) means for guiding and moving said member past said series of processing stations sequentially at a predetermined velocity, and

(d) control means for sequentially actuating and individually operating said stations as said member moves thereover.

5,064,739

METHOD OF DEVELOPING ELECTROSTATIC CHARGE PATTERN WITH MAGNETIC DEVELOPER

Masumi Asanae, Kumagaya; Fumio Kimura, Isesaki, and Ryuji Gotoh, Fukaya, all of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Feb. 8, 1990, Ser. No. 476,782

Claims priority, application Japan, Feb. 13, 1989, 01-033302

Int. Cl.[5] G03G *9/14*

U.S. Cl. 430—122 **6 Claims**

1. A method of developing an electrostatic charge pattern formed on an image carrier surface, the method comprising the steps of supplying a developer consisting of a mixture of a magnetic carrier and a magnetic toner onto a non-magnetic sleeve disposed so as to face the image carrier surface and incorporating a magnetic field producing member, and brushing the image carrier surface with a magnetic brush formed on a peripheral surface of the non-magnetic sleeve to develop the electrostatic charge pattern, the developer being preselected to substantially reduce the "tailing" phenomenon, the magnetic carrier containing iron oxide, the magnetic toner containing magnetite, the content of magnetite in the magnetic toner ranging from 25 to less than 50% by weight; the coercive force of the magnetic toner being not greater than 60 Oe; and the magnetic toner being from 10–95 wt % of the developer.

5,064,740

PHOTOHARDENABLE ELECTROSTATIC ELEMENT WITH IMPROVED ENVIRONMENTAL LATITUDE

Graciela B. Blanchet-Fincher; Catherine T. Chang, and Curtis R. Fincher, Jr., all of Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 351,361, May 12, 1989, Pat. No. 5,006,434.

This application Dec. 3, 1990, Ser. No. 620,895

Int. Cl.[5] G03G *13/14, 13/28*

U.S. Cl. 430—126 **25 Claims**

1. A xeroprinting process comprising

(A) exposing imagewise to actinic radiation a photohardenable electrostatic master comprising

(1) an electrically conductive substrate, and

(2) a layer of photohardenable composition consisting essentially of

(a) at least two organic polymeric binders,

(b) at least one monomeric compound having at least one ethylenically unsaturated group, and

(c) a photoinitiator or photoinitiator system that activates polymerization of the ethylenically unsaturated monomer upon exposure to actinic radiation, the photohardenable composition containing at least one binder having a Tg greater than 80° C. and at least one binder having a Tg less than 70° C. such that the shift in transit time (a_T) of the photohardenable layer in the range $30\% \leqq$ relative humidity $\leqq 60\%$ and 60° F. (15.6° C.) ≦ temperature ≦ 80 F. (26.7° C.) is 15 or less,

(B) charging the photohardenable master electrostatically,

(C) applying an oppositely charged electrostatic toner, and

(D) transferring the toned image to a receptor surface.

5,064,741

POSITIVE WORKING LIGHT-SENSITIVE COMPOSITION CONTAINING A FREE RADICAL GENERATOR AND A DISCOLORING AGENT

Akinobu Koike; Yukio Abe, and Koichi Kawamura, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan

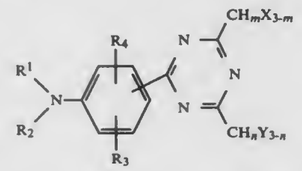
Continuation of Ser. No. 89,833, Aug. 27, 1987, abandoned. This application Jun. 4, 1990, Ser. No. 532,238

Claims priority, application Japan, Aug. 29, 1986, 61-202915

Int. Cl.[5] G03C *1/52, 5/00*

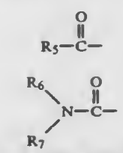
U.S. Cl. 430—191 **17 Claims**

1. A light-sensitive composition which comprises at least one light-sensitive free radical generator represented by the following general formula (I), at least one discoloring agent which interacts with products generated through the photolytic degradation of the light-sensitive free radical generator to change the color tone thereof and a positive light-sensitive component which has increased solubility in a developer after exposure to actinic light, wherein said positive light-sensitive component comprises an o-quinonediazide compound or a composition comprising a compound capable of generating an acid by the action of light and a compound having at least one bond capable of being cleaved with the acid:



[I]

wherein R_1 and R_2 may be the same or different and represent hydrogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aryl group, or a group represented by the following general formula (II) or (III):



[II]

[III]

(in the general formula (II) or (III), R_5 represents a substituted or unsubstituted alkyl group, or a substituted or unsubstituted aryl group; and R_6 and R_7 may be the same or different and represent hydrogen atom, a substituted or unsubstituted alkyl group or a substituted or unsubstituted aryl group); or R_1 and R_2 may form a heterocyclic group consisting of non-metallic atoms together with the nitrogen atom to which they are bonded; R_3 and R_4 may be independently selected from a hydrogen atom, a halogen atom, an alkyl group of an alkoxy group; X and Y may be the same or different and represent chlorine atom or bromine atom; and m and n are an integer of 0, 1 or 2, wherein the light-sensitive free radical generator and the discoloring agent are in admixture, the light-sensitive free radical generator is present in an amount sufficient to change the color tone of the discoloring agent by the photolytic degradation products thereof, and the discoloring agent is present in an amount sufficient to impart a visible contrast between exposed and non-exposed portions of the light sensitive composition upon interaction with the photolytic degradation products of the free radical generator.

5,064,742

DRY IMAGE-FORMING PROCESS USING THERMAL SOLVENTS

Toshiaki Aono, and Koichi Nakamura, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 592,203, Mar. 22, 1984, abandoned. This application Mar. 29, 1990, Ser. No. 504,068

Claims priority, application Japan, Mar. 25, 1983, 58-48753

The portion of the term of this patent subsequent to Sep. 25, 2001, has been disclaimed.

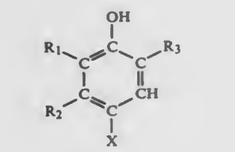
Int. Cl.[5] G03C *5/54*

U.S. Cl. 430—203 **18 Claims**

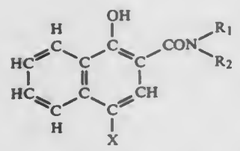
1. A dry image-forming process which comprises transferring to a dye-fixing material a mobile hydrophilic dye formed imagewise at exposure areas of a heat developable light-sensitive material comprising a support having hereon at least a light-sensitive material comprising a support having hereon at least a light-sensitive silver halide, a hydrophilic binder, a

VOL 1132 ISS 2 NO 12 1991 UMI

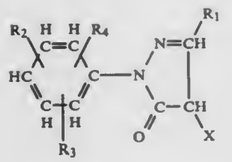
reducing agent for the silver halide, and a non-diffusible 2-equivalent coupler which is dispersed in the hydrophilic binder, said non-diffusible 2-equivalent coupler being a compound which forms a hydrophilic dye by combining with the oxidation product of a reducing agent formed by the reaction of a p-aminophenol derivative or a p-phenylenediamine derivative and a silver halide, said non-diffusible 2-equivalent coupler being selected from the group consisting of compounds of the following formula (I) to (IX):



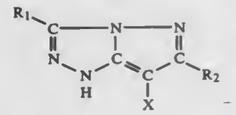
(I)



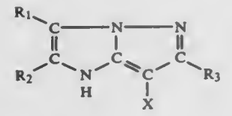
(II)



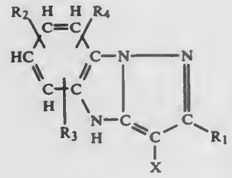
(III)



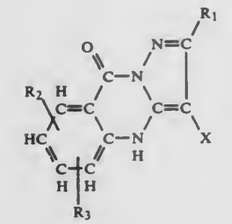
(IV)



(V)

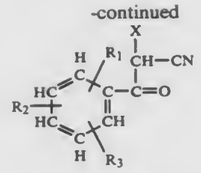


(VI)

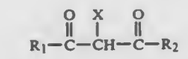


(VII)

-continued

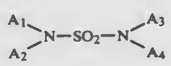


(VIII)



(IX)

wherein R_1 to R_4 each represents a hydrogen atom, an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, an aralkyl group, an alkoxy group, an aryloxy group, an acyl group, an acycloxy group, an acylamino group, an alkoxyalkyl group, an aryloxyalkyl group, an alkoxycarbonyloxy group, an alkoxycarbonylamino group, an alkoxycarbonyl group, a carbamoyl group, a substituted carbamoyl group, an arylamino group, a cycloalkylamino group, a halogen group, a cyano group, an acyloxyalkyl group, a nitro group, an alkylsulfonyl group, an aryl sulfonyl group, a hydroxy group, a carboxy group, a sulfo group, a ureido group, a substituted uriedo group, a sulfamoylamino group, a substituted sulfamoylamino group, an alkylsulfonyloxy group, an arylsulfonyloxy group, an alkylsulfonylamino group, an arylsulfonylamino group, an alkylthio group, an arylthio group, a heterocyclic residue, an amido group, or a quaternary ammonium group; the total carbon atom number of R_1 to R_4 is less than 12 and the carbon atom number of each substitutent is 8 or less; X is a group which is released at the case of combining with the oxidation product of a reducing agent, selected from the group consisting of an alkoxy group, an aryloxy group, an acyloxy group, an alkoxycarbonyloxy group, a carbamoyloxy group, a substituted carbamoyloxy group, an alkylsulfonyloxy group, an arylsulfonyloxy group, an alkylsulfonylamino group, an arylsulfonylamino group, a perfluoroacyclamino group, a sulfamoylamino group, a substituted sulfamoylamino group, an alkylsulfonyl group, an arylsulfonyl group, an alkylthio group, an arylthio group, a heterocyclic thio group, an arylazo group, a heterocyclic residue, and an imido group; and the total carbon atom number of X is 8 or more, by heating the light-sensitive material after imagewise exposure or simultaneously with imagewise exposure together with a dye-fixing material having a dye-fixing layer and said hydrophilic thermal solvent in a coating amount of 20 to 200% by weight, based on the total coating amount of all layers of the light-sensitive material and the dye-fixing material, at a high temperature at which the hydrophilic thermal solvent is in a molten state without supplying a solvent from the outside, and fixing the dye in a dye-fixing layer and wherein said heat developable light-sensitive material further comprises a compound represented by the following general formula:



(A)

wherein A_1, A_2, A_3 and A_4, which may be the same or different, each represents a hydrogen atom or a substitutent selected from an alkyl group, a substituted alkyl group, a cycloalkyl group, an aralkyl group, an aryl group, a substituted aryl group and a heterocyclic group; and A_1 and A_2 or A_3 and A_4 may combine with each other to form a ring, and wherein said hydrophilic thermal solvent is a compound which is in a solid at an ambient temperature but becomes in a liquid state by heating and in which the inorganic property/organic property value is larger than 1 and the solubility in water at ambient temperature is higher than 1.

5,064,743

THERMAL TRANSFER RECORDING MEDIUM

Kunihiro Koshizuka; Toshiaki Tezuka, and Takao Abe, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed May 15, 1989, Ser. No. 352,108
Claims priority, application Japan, May 18, 1988, 63-121622
Int. Cl.[5] G03C *3/00*; B32B *3/00*; B41M *5/20*
U.S. Cl. 430—253 **28 Claims**

1. A thermal transfer recording medium having a support and provided thereon, plural heat softening layers, comprising one of Constitutions (1) and (2);

Constitution (1): a support, a first heat softening layer containing at least a colorant and a fusible material, and a second heat softening layer containing at least a thermoplastic resin and a nonionic surfactant, in this sequence, wherein said second heat softening layer is substantially colorless;

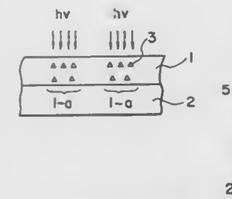
Constitution (2): a support, a first heat softening layer containing at least a colorant and a fusible material, and a second heat softening layer containing at least a thermoplastic resin and a tackifier, in this sequence, wherein said second heat softening layer is substantially colorless.

5,064,744

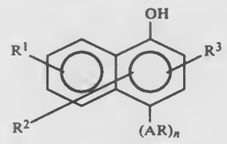
PHOTOSENSITIVE MATERIAL AND IMAGE FORMING METHOD

Tetsuro Fukui; Hiroshi Fukumoto, both of Kawasaki; Masato Katayama, Yokohama; Kozo Arahara, Kawasaki, and Kenji Kagami, Atsugi, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 314,141, Feb. 23, 1989, abandoned. This application Feb. 7, 1990, Ser. No. 477,124
Claims priority, application Japan, Feb. 26, 1988, 63-42185
Int. Cl.[5] G03C *1/72*
U.S. Cl. 430—255 **15 Claims**

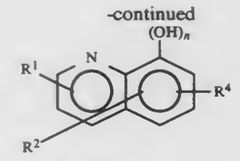


1. An image-forming method using a photosensitive material, comprising a photosensitive and heat-developable element and a polymerizable element, wherein said photosensitive and heat developable element comprises at least a photosensitive silver halide and an organic silver salt, wherein said material contains at least one compound selected from the compound represented by Formula (I), (II) or (III) shown below,

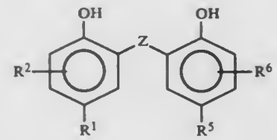


(I)

-continued



(II)



(III)

being adapted to form silver atoms when subjected to an imagewise exposure and heat development, a polymerizable polymer precursor having a melting point of 35° C. or more, said polymerizable polymer precursor being inhibited against polymerization in the presence of said silver atoms, a polymerization initiator contained in an amount of from 0.01 mol to 10 mol per mol of said compound, said polymerization initiator being a photopolymerization initiator; wherein R^1, R^2, R^3, R^5 and R^6 each independently represent a hydrogen atom, a halogen atom, a hydroxyl group, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, an alkoxyl group, or a substituted or unsubstituted cycloalkyl group; R^4 represents a hydrogen atom, a halogen atom, a substituted or unsubstituted alkyl group, a substituted or unsubstituted aralkyl group, a substituted or unsubstituted aryl group, a substituted or unsubstituted cycloalkyl group, a carboxyl group, or a carboxylic acid ester group; A represents an oxygen atom, or a sulfur atom; R represents a hydrogen atom, an unsubstituted alkyl group, or a substituted or unsubstituted aralkyl group; n represent 0 or 1; and Z is a divalent linking group and represents an alkylidene group, an aralkylidene group, or a sulfur atom; and

when said photosensitive material is exposed to light with a wavelength of 400 to 900 nm, heated to 60° to 180° C. and exposed to light with a wavelength of 250 to 700 nm, an area of said polymerizable layer, corresponding to an unexposed area of said photosensitive layer, is polymerized.

5,064,745

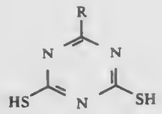
METHOD FOR MAKING LITHOGRAPHIC PRINTING PLATE

Toshiro Kondo; Hidetoshi Miura, and Yasuo Tsubai, all of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Feb. 21, 1989, Ser. No. 313,042
Claims priority, application Japan, Feb. 25, 1988, 63-43096
Int. Cl.[5] G03C *1/06*
U.S. Cl. 430—265 **9 Claims**

1. A process for making a lithographic printing plate utilizing silver image as ink receptive area which comprises subjecting a light-sensitive material for lithographic printing plate to imagewise exposure and development and then treating the whole resulting silver image with an oxidizing agent and a monocyclic compound comprising a nitrogen-containing single ring and having substituents on at least two atoms constituting said ring, said substituents being capable of reacting with silver ion wherein the monocyclic compound is represented by the formula I:

VOL 1132 ISS 2 NO 12 1991 UMI



wherein R is selected from hydrogen, an alkyl group, —OR',



or a mercapto group; wherein R', R^2, and R^3 are selected from hydrogen, an alkyl group, an aryl group, an aralkyl or an alkenyl group.

5,064,746

RADIATION-SENSITIVE MIXTURE FOR PHOTOSENSITIVE COATING MATERIALS AND THE PRODUCTION OF RELIEF PATTERNS AND RELIEF IMAGES

Reinhold Schwalm, Wachenheim, Fed. Rep. of Germany, assignor to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Apr. 14, 1989, Ser. No. 337,923

Claims priority, application Fed. Rep. of Germany, Apr. 14, 1989, 3812325

The portion of the term of this patent subsequent to Nov. 28, 2006, has been disclaimed.

Int. Cl.[5] G03C *1/495, 5/00*

U.S. Cl. 430—270 **8 Claims**

1. A radiation-sensitive mixture containing

(a) a polymeric binder which is insoluble in water but soluble in aqueous alkaline solutions and

(b) an organic compound containing one or more sulfonium salt groups whose solubility in an aqueous alkaline developer is increased by the action of an acid and which contains one or more acid-cleavage groups,

wherein the polymeric binder (a) is a copolymer which contains o-nitrobenzyl groups.

5,064,747

SENSITIZERS FOR PHOTOCROSSLINKABLE POLYMERS

Masanori Imai; Noriaki Watanabe, and Kouichi Kawamura, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

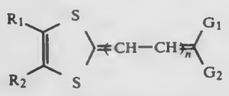
Filed Jul. 19, 1990, Ser. No. 544,469

Claims priority, application Japan, Jul. 24, 1989, 1-190963

Int. Cl.[5] G03F *7/031, 7/038, 7/09*

U.S. Cl. 430—278 **19 Claims**

1. A light-sensitive composition comprising a photo-crosslinkable polymer having a photo-dimerizable unsaturated bond and a sensitizer represented by the following general formula (I):



(1)

wherein R_1 and R_2 each independently represents a hydrogen atom, an alkyl group, a carbocyclic aryl group, or a heterocyclic group, provided that R_1 and R_2 may form a ring together with the carbon atoms to which they are attached;

n represents 0, 1 or 2; and

G_1 and G_2 each independently represents a hydrogen atom, a cyano group, an alkoxycarbonyl group, an aryloxycarbonyl group, an acyl group, an arylcarbonyl group, an alkylthio group, an arylthio group, an alkylsulfonyl group, an arylsulfonyl group or a fluoroalkylsulfonyl group, provided that G_1 and G_2 do not represent a hydrogen atom simultaneously and that G_1 and G_2 may combine to form a ring selected from 1,3-dicarbonyl nuclei, pyrazolinone nuclei, isoxazolinone nuclei, oxyindole nuclei, 2,4,6-triketohexahydropyrimidine nuclei, 2-thio-2,4-thiazolidinedione nuclei, 2-thio-2.4-oxazolidinedione nuclei, thianaphthenone nuclei, 2-thio-2,5-thiazolidinedione nuclei, 2,4-thiazolidinedione nuclei, thiazolidinone nuclei, 4-thiazolinone nuclei, 2-imino-2-oxozolin-4-one nuclei, 2,4-imidazolidinedione nuclei, 2-thio-2,4-imidazolidinedione nuclei, 2-imidazolin-5-one nuclei and furan-5-one nuclei.

17. A presensitized plate comprising an aluminum substrate having a light-sensitive layer comprising the light-sensitive composition in claim 1.

5,064,748

METHOD FOR ANISOTROPICALLY HARDENING A PROTECTIVE COATING FOR INTEGRATED CIRCUIT MANUFACTURE

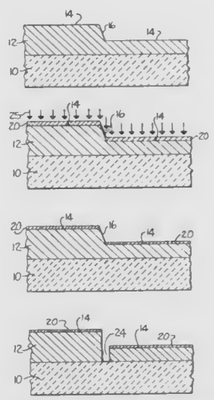
Stephen M. Bobbio, Wake Forest, N.C., assignor to MCNC, Research Triangle Park, N.C.

Continuation-in-part of Ser. No. 294,735, Jan. 6, 1989, abandoned, which is a continuation of Ser. No. 42,932, Apr. 27, 1987, Pat. No. 4,826,754. This application Dec. 21, 1989, Ser. No. 454,759

The portion of the term of this patent subsequent to May 2, 2006, has been disclaimed.

Int. Cl.[5] G03C *5/00*

U.S. Cl. 430—311 **12 Claims**



1. A method for anisotropically hardening a protective coating to provide a well defined feature for integrated circuit manufacture, the method comprising:

forming a non-planar coating on selected areas of a substrate, with a photoresist material that is resistant to selected subsequent processing steps after exposure to incident flux, the sensitivity of the coating to the incident flux being a function of the angle between the incident flux and the coating;

anisotropically hardening the coating by exposing selected portions thereof to a predetermined dosage of directional flux so that first portions of the coating irradiated at a first angle are hardened and second portions of the coating irradiated at a second angle are less hardened; and

forming features for integrated circuit manufacture corresponding to one of said first and second portions of the coating.

5,064,749

DAMPENING WATER COMPOSITION FOR LITHOGRAPHIC PLATE

Hiroshi Matsumoto; Kenji Kunichika, and Toshio Uchida, all of Shizuoka, Japan, assignors to Fuji Photo Film Co., Ltd., Minami-Ashigara, Japan

Filed Jul. 30, 1990, Ser. No. 559,352

Claims priority, application Japan, Aug. 2, 1989, 1-200730

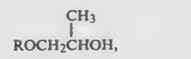
Int. Cl.[5] G03C *5/00*

U.S. Cl. 430—331 **11 Claims**

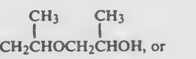
1. A concentrated dampening water for a lithographic printing plate characterized by comprising:

(a) 0.5 to 50% by weight of, as a nonionic surfactant, at least one compound selected from the group consisting of ethylene oxide and/or propylene oxide adduct of 2-ethyl-1,3-hexanediol and ethylene oxide and/or propylene oxide adduct of acetylene alcohol or acetylene glycol,

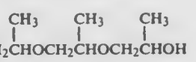
(b) 1 to 30% by weight of 4-hydroxy-4-methyl-2-pentanone and/or a compound of the following formula [I], [II] or [III]:



[I]



[II]



[III]

wherein R represents a methyl group, an ethyl group, a propyl group or a butyl group, and

(c) 30 to 75% by weight of water.

5,064,750

METHOD FOR PROCESSING SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Hideki Naito, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 4, 1989, Ser. No. 673,893

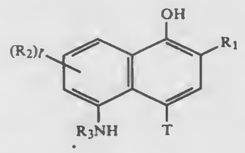
Claims priority, application Japan, Aug. 5, 1988, 63-195763

Int. Cl.[5] G03C *7/02, 7/32, 7/34*

U.S. Cl. 430—393 **13 Claims**

1. In a method for processing a silver halide color photographic material comprising a support having provided thereon at least one hydrophilic colloid layer wherein said material is imagewise exposed and then processed, the improvement comprising:

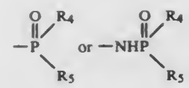
(a) providing in said at least one hydrophilic colloid layer at least one compound of the formula (A)



(A)

wherein,

R_1 represents a halogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an amidino group, a guanidino group or a group represented by —COR_4, —SO_2R_4, —SOR_4, —$NHCOR_4$, —$NHSO_2R_4$, —$NHSOR_4$, by —COR_4, —SO_2R_4, —SOR_4, —$NHCOR_4$, —$NHSO_2R_4$, —$NHSOR_4$,

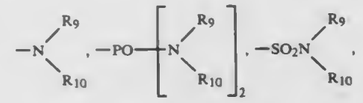


wherein R_4 and R_5, which may be the same or different, each represents an aliphatic group, an aromatic group, a heterocyclic group, an amino group, an aliphatic oxy group or an aromatic oxy group;

R_2 represents a halogen atom, a hydroxyl group, a carboxyl group, a sulfo group, an amino group, a cyano group, a nitro group, an aliphatic group, an aromatic group, a carbonamido group, a sulfonamido group, a carbamoyl group, a sulfamoyl group, a ureido group, an acyl group, an acyloxy group, an aliphatic oxy group, an aromatic oxy group, an aliphatic thio group, an aromatic thio group, an aliphatic sulfonyl group, an aromatic sulfonyl group, an aliphatic sulfinyl group, an aromatic sulfinyl group, an aliphatic oxycarbonyl group, an aromatic oxycarbonyl group, an aliphatic oxycarbonylamino group, an aromatic oxycarbonylamino group, a sulfamoylamino group, a heterocyclic group or an imido group;

l' represents an integer of 0 to 3;

R_3 represents a hydrogen atom or R_6U wherein R_6 represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, —OR_7, —SR_7, —COR_8, —$PO(R_7)_2$, —$PO(—OR_7)_2$, —SO_2R_7, —SO_2OR_7, —CO_2R_7,



or an imido group, and U represents >N—R_9, —CO—, —SO_2—, —SO— or a single bond wherein R_7 represents an aliphatic group, an aromatic group or a heterocyclic group, R_8 represents a hydrogen atom, an aliphatic group, an aromatic group or a heterocyclic group, and R_9 and R_{10}, which may be the same or different, each represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group, an aliphatic sulfonyl group or an aromatic sulfonyl group; and

T represents a hydrogen atom or a group which is capable of elimination by means of a coupling reaction with the oxidized form of a primary aromatic amine developing agent, and

when l' is 2 or 3, the R_2 groups may be the same or different and may bond together to form a ring, R_2 and R_3 or R_3 and T may respectively bond together to form rings, and in any of R_1, R_2, R_3 or T, mutually bonded dimers or polymers may be formed via divalent or higher than divalent groups; and

(b) processing said imagewise exposed photographic material with a bleaching bath containing from 0.25 to 0.5 mol/liter of a (1,3-diaminopropanetetraacetato) iron(III) complex salt within the range of pH from 3.0 to 5.0.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,751

METHOD OF PROCESSING A SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL AND A COLOR DEVELOPER WHERE THE DEVELOPER CONTAINS A HYDRAZINE COMPOUND

Nobutaka Ohki; Kazuto Andoh; Hideaki Naruse; Hiroshi Fujimoto; Jiro Tsukahara; Morio Yagihara, and Takatoshi Ishikawa, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 346,357, Apr. 28, 1989, abandoned, which is a continuation of Ser. No. 77,136, Jul. 23, 1987, abandoned. This application Jan. 23, 1991, Ser. No. 644,863
Claims priority, application Japan, Jul. 23, 1986, 61-173468; Jul. 23, 1986, 61-1711682
Int. Cl.[5] **G03C** *7/30*
U.S. Cl. 430—464 **10 Claims**

1. A method for forming a negative image in a silver halide color photographic material containing an emulsion capable of forming a negative image including the step of developing an imagewise exposed silver halide color photographic material with a color developing solution containing at least one aromatic primary amine developing agent selected from the group consisting of 2-methyl-4-aniline and N-ethyl-N-(β-methanesulfonamidoethyl)-3-methyl-4-aminoaniline and said solution containing substantially no p-aminophenol type developing agent, substantially no color coupler, at most about 2 ml of benzyl alcohol per liter of said developing solution and at least one hydrazide represented by the following formula (I) or (II)

$$R^1—X^1—NHNH—R^2 \quad (I)$$

in which

X^1 represents —CO—, —SO_2— or



R^1 represents a hydroxyl group, a hydroxyamino group, a carbamoyl group, a hydrazinocarbonyl group, an amino group, or a hydrazino group; and R^2 represents a hydrogen atom, an alkyl group, or an aryl group; provided that the R^1 or R^2 groups of at least two of the hydrazide groups may be linked to form a dimer or higher polymer of the hydrazide;

$$R^3—X^2—NHNH—R^4 \quad (II)$$

in which

X^2 represents —CO— or —SO_2—; R^3 represents a hydrogen atom, an alkyl group, an aryl group, a heterocyclic group, an alkoxy group, or an aryloxy group; and R^4 represents a hydrogen atom, an alkyl group or an aryl group; provided that the R^3 or R^4 groups of at least two of the hydrazide groups may be linked to form a dimer or higher polymer of the hydrazide.

5,064,752

SILVER HALIDE PHOTOGRAPHIC MATERIALS

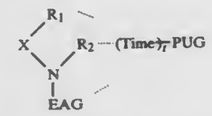
Kazunobu Katoh; Kozo Sato, and Keisuke Shiba, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 194,663, May 16, 1988, abandoned. This application Jun. 25, 1990, Ser. No. 542,685
Claims priority, application Japan, May 15, 1987, 62-118519
Int. Cl.[5] **G03C** *5/54, 7/36, 1/38, 1/42*
U.S. Cl. 430—546 **15 Claims**

1. A silver halide photographic material comprising a support having provided thereon at least two hydrophilic layers, wherein at least one of said hydrophilic layers comprises

water or a hydrophilic colloid and

a compound represented by formula (II) dispersed therein using a solvent consisting essentially of water or a water-soluble organic solvent in an acidic pH range in such a manner that said compound is resistant to interlayer diffusion:



II

wherein

$(Time)_t$-PUG is bonded to at least one of R_1, R_2, or EAG;

dotted lines indicate at least one chemical bond;

Time represents a group capable of releasing the PUG residual group as triggered by the cleavage of the single bond between the nitrogen atom and X, by the successive reaction;

t represents 0 to 1;

PUG represents a photographically useful group;

X represents an oxygen atom —O—, a sulfur atom —S— or a nitrogen containing group —$N(R_3)$—;

R_1, R_2, and R_3 each represents a group except a hydrogen atom, or each may be a chemical bond;

EAG represents a group capable of accepting an electron from a reducing substance that is bonded to the nitrogen atom; and

at least one water-soluble group exists in one molecule of said compound, where a single bond between the nitrogen atom and X is cleaved when EAG accepts an electron.

14. A silver halide photographic material as in claim 1, further comprising at least one color image forming coupler.

5,064,753

HEAT-DEVELOPING PHOTOGRAPHIC MATERIAL

Goto Sohei; Okauchi Ken; Kohno Junichi, and Iwagaki Masaru, all of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Continuation of Ser. No. 336,216, Jun. 15, 1989, abandoned, which is a continuation-in-part of Ser. No. 60,390, May 7, 1987, abandoned. This application Aug. 30, 1990, Ser. No. 576,158
Claims priority, application Japan, Sep. 17, 1985, 60-205129; Sep. 28, 1985, 60-215948; Sep. 17, 1986, PCT/JP86/00483
Int. Cl.[5] **G03C** *1/035, 1/494*
U.S. Cl. 430—567 **8 Claims**

1. A heat-developable light-sensitive photographic material including a light-sensitive silver halide emulsion comprising core/shell type light-sensitive silver halide grains which contain

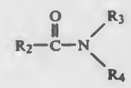
4–20 mol % of silver iodide, said shell having a first silver iodide content at least 2% lower than said core, said core having a second silver iodide content between 4 and 20 mol %, said first silver iodide content being between 0 and 6 mol %; a thickness of said shell being 6 to 20% of that of the silver halide grains, said core/shell type silver halide grains having a spread in grain size distribution of not more than 15%;

a reducing agent; and

at least one of the compounds represented by Formulas (I) to (V) being incorporated in a silver halide emulsion layer containing said light-sensitive silver halide grains and/or in at least one hydrophilic colloidal layer adjacent said silver halide emulsion layer:

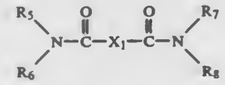
$$[R_1]—(OH)_n \quad (I)$$

where R_1 is a straight-chained, branched or cyclic n-valent hydrocarbon or ether residue having 3 to 10 carbon atoms; and n is an integer of 3 to 10;



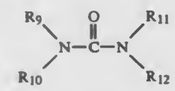
(II)

where R_2, R_3 and R_4 are each a hydrogen atom, an alkyl group having 1 to 12 carbon atoms, or an aryl or heterocyclic group having 6 to 12 carbon atoms;



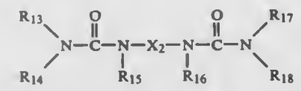
(III)

where R_5, R_6, R_7 and R_8 are each a hydrogen atom, an alkyl group having 1 to 12 carbon atoms, or an aryl or heterocyclic group having 6 to 12 carbon atoms, and X_1 is a simple linkage or a divalent group;



(IV)

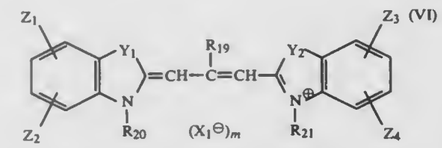
where R_9, R_{10}, R_{11} and R_{12} are each a hydrogen atom, an alkyl group having 1 to 12 carbon atoms, an acyl group or an aryl group having 6 to 12 carbon atoms; provided that one of R_9 and R_{10} may combine with one of R_{11} and R_{12} to form a ring; and



(V)

where R_{13}, R_{14}, R_{16}, R_{17} and R_{18} are each a hydrogen atom, an alkyl group having 1 to 12 carbon atoms, an acyl group or an aryl group having 6 to 12 carbon atoms; and X_2 is a simple linkage or a divalent group;

at least one compound represented by Formula (VI) being incorporated in combination with said at least one of the compounds represented by General Formula (I) to (V) in said silver halide emulsion layer containing said light-sensitive silver halide grains:



(VI)

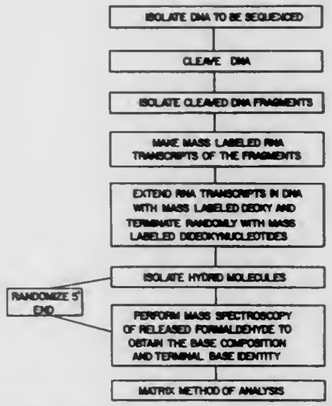
where R_{19} is a hydrogen atom, an alkyl group, an aryl group or a heterocyclic group; R_{20} and R_{21} are each an alkyl group; Y_1 and Y_2 are each an oxygen atom, a sulfur atom or a selenium atom; Z_1, Z_2, Z_3, and Z_4 are each a hydrogen atom, a halogen atom, a hydroxyl group, an alkoxy group, an acyl group, an alkoxycarbonyl group, an alkoxycarbonylamino group, an acylamino group, an aryl group, an alkyl group or a cyano group, provided that Z_1 and Z_2 and/or Z_3 and Z_4 may combine with each other to form a ring; $X_1^{\ominus}$ is an anion; and m is 0 or 1.

5,064,754

GENOMIC SEQUENCING METHOD

Randell L. Mills, R.D. #2, Cochranville, Pa. 19330

Continuation-in-part of Ser. No. 681,842, Dec. 14, 1984, abandoned. This application Nov. 13, 1987, Ser. No. 120,339
Int. Cl.[5] **C12Q** *1/68;* **C12P** *19/34;* **G01N** *33/566, 33/48*
U.S. Cl. 435—6 **29 Claims**



1. A method of sequencing DNA comprising the steps of:

a) preparing from segments of a DNA strand to be sequenced, families of polynucleotides, each family including all polynucleotides, complementary to at least a portion of the DNA segment and at least a portion of the 3′ flanking DNA segment of the DNA strand to be sequenced, of the formula:

$$K_{n'} \ldots K_4K_3K_2K_1X_1X_2X_3X_4 \ldots X_n$$

ranging in length from K_1X_1 to $K_{n'}—X_{n'}$ wherein $K_1K_2K_3K_4 \ldots K_{n'}$ represents the nucleotides 5′ to an internal reference point, the reference point defined as the dividing line between K_1 and X_1; wherein $X_1X_2X_3X_4 \ldots X_n$ represents the nucleotides 3′ to the internal reference point; wherein n and n′ are integers and n+n′, the number of nucleotides in a polynucleotide, is less than or equal to the number of nucleotides in a polynucleotide of length within the analyzable limit of the method for determining base composition and identity of the 3′ terminal nucleotide of a polynucleotide; and wherein each polynucleotide in the family conforms to the criterion that if the polynucleotide contains X_n it also contains X_{n-1}, $X_{n-2} \ldots X_1$; or the criteria that if the polynucleotide contains $K_{n'}$ it also contains $K_{n'-1}$ $K_{n'-2} \ldots K_1$ and if the polynucleotide contains X_n then it also contains X_{n-1}, $X_{n-2} \ldots X_1$; or the criteria that if any two polynucleotides have the same base composition, then they have different terminal bases and if any polynucleotide contains X_n, then it also contains X_{n-1} $X_{n-2} \ldots X_1$;

b) determining the base composition and the identity of the 3′ terminal base of each polynucleotide of each family;

c) determining the base sequence of the longest polynucleotide in each family from the determined base composition and identity of the 3′ terminal base of each polynucleotide in the family and the derived change in base composition and terminal base between polynucleotides in each family; and

d) determining the base sequence of the entire DNA strand to be sequenced based upon the overlapping sequences of the longest polynucleotides in each family.

VOL
1132
ISS
2
NO
12
1991
UMI

5,064,755

TWO-SITE CONFIRMATORY ASSAY

Lawrence V. Howard, Jr., Libertyville, and MaryCaren Craine, Grayslake, both of Ill., assignors to Abott Laboratories, Abbott Park, Ill.

Filed Aug. 4, 1988, Ser. No. 228,363

Int. Cl.[5] G01N *33/53, 33/566;* **C12Q** *1/02, 1/04*

U.S. Cl. 435—7.36 **15 Claims**

1. A method of confirming the presence in a sample of a *Chlamydia* antigen, the method comprising:

(a) contacting a sample with a detector binding agent (DBP) capable of binding to a first site of a *Chlamydia* antigen to give a first measurable signal;

(b) contacting a second confirmatory sample with reagent means comprising a confirmatory binding agent (CBP) capable of binding a second site of said antigen, said binding to the second site preventing binding of the DBP to the first site;

(c) similarly contacting the second confirmatory sample with reagent means containing DBP capable of generating a signal;

(d) separating DBP bound to sample antigen from unbound DBP in the second confirmatory sample; and

(e) measuring a second signal from said second confirmatory sample of bound DBP, whereby a predetermined decrease in signal from sample-bound DBP relative to the first signal confirms the presence of the antigen in the sample.

5,064,756

MICROBIAL SUSCEPTIBILITY ASSAY USING 7-N-(AMINOACYL)-7-AMIDO-4-METHYLCOUMARINS

Anthony H. Carr, 28 Manor Farm Way, Sharnbrook, Bedford; Robert A. Badley, 19 Well Pond Close, both of Sharnbrook, Bedford; Ian Jobling, 25 Lynford Way, Rushden, Northamptonshire, and Thomas J. Sands, 52b Somerford Road, Wellingborough, Northamptonshire, all of Great Britain

Continuation of Ser. No. 115,590, Oct. 26, 1987, abandoned, which is a continuation of Ser. No. 940,223, Dec. 8, 1986, abandoned, which is a continuation of Ser. No. 541,306, Oct. 12, 1983, abandoned, which is a continuation-in-part of Ser. No. 486,001, Apr. 14, 1983, abandoned. This application Jun. 20, 1990, Ser. No. 540,865

Claims priority, application United Kingdom, Apr. 14, 1982, 8210825; Dec. 21, 1982, 8236234

Int. Cl.[5] C12Q *1/18, 1/02*

U.S. Cl. 435—32 **10 Claims**

1. In a method of determining the susceptibility of microorganisms to an antimicrobial substance, comprising culturing the microorganisms in the presence of an antimicrobial substance, contacting the microorganisms with a fluorogenic substrate which is enzymatically hydrolyzable to yield a fluorescent product, and determining growth by measuring the fluorescent product yielded by the hydrolysis of the fluorescent substrate, wherein the improvement comprises using as said fluorogenic substrate a 7-N-(aminoacyl)-7-amido-4-methylcoumarin and exposing the microorganisms to the fluorescent substrate throughout culturing.

5,064,757

T4 DNA FRAGMENT AS A STABILIZER FOR PROTEINS EXPRESSED BY CLONED DNA

Lee D. Simon, Philadelphia, Pa., and Rose B. Fay, Piscataway, N.J., assignors to Rutgers Research and Educational Foundation, New Brunswick, N.J.

Continuation of Ser. No. 178,861, Apr. 6, 1988, abandoned, which is a continuation of Ser. No. 17,016, Feb. 24, 1987, abandoned, which is a continuation of Ser. No. 293,614, Aug. 17, 1981, abandoned. This application Apr. 18, 1990, Ser. No. 512,529

Int. Cl.[5] C12N *15/00*

U.S. Cl. 435—71.2 **12 Claims**

1. An isolated DNA fragment consisting essentially of the nucleotide sequence found in the vicinity of gene 49 of a T-even bacteriophage, wherein the fragment encodes a protein that inhibits degradation of abnormal proteins in a gram-negative bacteria.

2. The fragment of claim 1, wherein the gram-negative bacteria is selected from the group consisting of members of the genera Escherichia, Salmonella, Shigella, Aerobacter, Proteus, Pseudomonas, and Serratia.

12. A method for inhibiting the degradation of abnormal proteins in a gram-negative bacteria which comprises transforming the bacteria with the DNA fragment of claim 1.

5,064,758

METHOD OF PREPARING A MIXTURE OF RIBONUCLEOTIDES

Boris B. Fux; Marina E. Shabanova; Svyatoslav N. Fedorov, all of Moscow; Jury M. Krasnopolsky, Kharkov; Uldis Y. Mixtais, Olaine; Evgeny D. Ermolaev, Olaine, and Mara A. Gailuma, Olaine, all of U.S.S.R., assignors to Institut Moreologii Cheloveka; Mezhotraslevoi Nauchno-Tekhnichesky Komplex "Mikrokhirurgiya Glaza" , both of Moscow and Nauchno-Proizvodstvennoe Objedinenie "Biolar" , Olaine, all of, U.S.S.R.

PCT No. PCT/SU88/00269, § 371 Date Feb. 1, 1990, § 102(e) Date Feb. 1, 1990, PCT Pub. No. WO89/12689, PCT Pub. Date Dec. 28, 1989

PCT Filed Dec. 20, 1988, Ser. No. 460,921

Claims priority, application U.S.S.R., Jun. 14, 1988, 4432648

Int. Cl.[5] C12P *19/30*

U.S. Cl. 435—89 **6 Claims**

1. A method for preparing a ribonucleotide mixture comprising hydrolysis of yeast ribonucleic acid with pancreatic ribonuclease, separation of the ribonucleotide fraction from the obtained hydrolyzate with subsequent isolation of the end product, wherein the hydrolysis of the yeast ribonucleic is carried out at pH 4.5 to 5.5 and the separation of the ribonucleotide fraction from hydrolysate is effected on membranes with pores sized 50 to 150 Å.

5,064,759

NOVEL BIOLOGICAL POLYMER

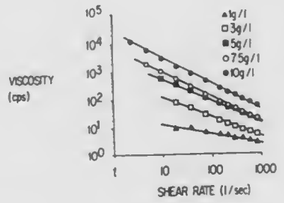
J. M. Lebeault, Villers-sur-Coudun, France; Jung-Hoe Kim, and Joon-Ho Choi, both of Seoul, Rep. of Korea, assignors to Korea Advanced Institute of Science and Technology, Seoul, Rep. of Korea

Filed Mar. 29, 1990, Ser. No. 501,047

Claims priority, application Rep. of Korea, Jun. 10, 1989, 89-8029

Int. Cl.[5] C12P *19/04;* **C12N** *1/20;* **C07H** *1/00;* **C08B** *37/00*

U.S. Cl. 435—101 **10 Claims**



1. A heteropolysaccharide or a derivative thereof, which is identified by the following characteristics:

Molecular weight:	$2–6 \times 10^6$ dalton
UV spectrum:	no nucleic acid 2–10% of protein (Lowry method)
Constituents:	carbohydrate (glucose, 20–40%; galactose, 30–50%; mannose, 20–35%); protein(2–10%); organic acid, 5–15% (pyruvic acid: uronic acid: acetic acid = 4:8:1); and ash, 5–30%
Consistency Index (K):	15,000–20,000 cps for 1% solution

3. A process for producing heteropolysaccharides, comprising:

culturing a *Methylobacterium organophilum* strain or mutants thereof on a culture medium containing a carbon and energy source; a nitrogen source selected from the group consisting of ammonium salts, nitrates, urea, yeast extract, peptone and casamino acid; and phosphates, magnesium and other trace elements.

5,064,760

PROCESS FOR THE PRODUCTION OF AN IMIDAZOLEDIONE COMPOUND BY A STRAIN OF *STREPTOMYCES HYGROSCOPICUS*

Tatsuo Haneishi; Mutsuo Nakajima; Akio Torikata; Takao Okazaki, all of Tokyo; Manbu Tohjigamori, and Katsuhiko Kawakubo, both of Shiga, all of Japan, assignors to Sankyo Company Limited, Tokyo, Japan

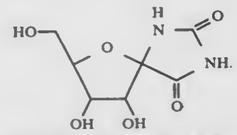
Continuation-in-part of Ser. No. 227,433, Jul. 29, 1988, Pat. No. 4,952,234, which is a continuation-in-part of Ser. No. 825,861, Feb. 4, 1986, abandoned. This application Jun. 13, 1990, Ser. No. 537,510

Claims priority, application Japan, Feb. 5, 1985, 60-20603

Int. Cl.[5] C12P *17/16, 1/06;* **C12N** *1/20*

U.S. Cl. 435—118 **6 Claims**

1. A process for preparing a compound of the formula



which comprises cultivating *Streptomyces hygroscopicus* SANK 63584 (FERM BP-958) under conditions effective to produce a recoverable amount of said compound and recrevicing said compound from the culture medium.

5,064,761

PROCESS FOR THE MANUFACTURE OF 4-ACYLAMINO-3-HYDROXYBUTYRIC ACID ESTERS

Peter Schneider, Bottmingen; Gerardo Ramos, Arlesheim, and Jacques Bersier, Rieben, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

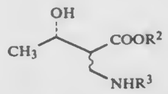
Division of Ser. No. 186,547, Apr. 27, 1988, Pat. No. 4,927,507. This application Mar. 9, 1990, Ser. No. 491,145

Claims priority, application Switzerland, May 4, 1987, 1683/87

Int. Cl.[5] C12P *7/62, 7/42*

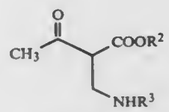
U.S. Cl. 435—135 **7 Claims**

1. A process for the manufacture of a compound of the formula IIIa



(IIIa)

wherein R^2 is lower alkyl and R^3 is lower alkanoyl or arylcarbonyl comprising reducing a compound of formula II



(II)

wherein R^2 is lower alkyl and R^3 is lower alkanoyl or arylcarbonyl or a salt thereof by cutting with *Saccharomyces cerevisiae* under conditions affective for the production of a compound of formula IIIa, and isolation thereof.

5,064,762

INCREASING THE INOSITOL YIELD FROM ALMOND HULLS

Israel N. Rabinowitz, 2534 Foothill Rd., Santa Barbara, Calif. 93105

Continuation of Ser. No. 47,884, May 7, 1987, abandoned. This application Dec. 19, 1990, Ser. No. 630,429

Int. Cl.[5] C12P *1/02*

U.S. Cl. 435—155 **2 Claims**

1. A process for increasing the amount of myoinositol obtainable from almond hulls, said almond hulls not having been wet with water since their harvest to the extent which would activate naturally-occurring strains of fungi on and in said almond hulls; said method comprising the following:

(a) wetting said hulls with water in an amount to activate said naturally-occurring fungi carried by said almond hulls as a consequence of the almond hull's growth on the almond tree and residence time on the orchard floor, and incubating said almond hulls while thus wetted for a time sufficient to permit the mass of said naturally-occurring fungi to increase, and for the amount of myo-inositol to be increased as a consequence of the growth of these fungi; and

(b) after an increase in the concentration of myo-inositol is developed, submerging said almond hulls in water to dissolve sugar and sugar alcohols from said almond hulls thereby to form an almond fruit syrup containing said myo-inositol; and

(c) removing almond hull residue from said almond fruit syrup.

5,064,763

BIOLOGICAL PROCESS FOR PURIFYING WASTE AIR

Rolf Bentz, Basel, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Mar. 27, 1989, Ser. No. 329,169

Claims priority, application Switzerland, Apr. 7, 1988, 1273/88

Int. Cl.[5] B01D *53/34*

U.S. Cl. 435—266 **10 Claims**

1. A process for the biological disposal and purification of waste air which is contaminated with organic solvent fumes with the aid of biofilters, wherein a basic compound, or mixture of basic compounds, which is in the form of a gas and/or is dissolved in a solvent is added to the contaminated waste air before entry into a biofilter.

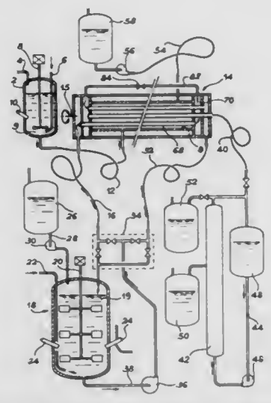
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,764

MINERAL HOLLOW FIBER BIOREACTOR FOR THE CULTIVATION OF ANIMAL CELLS

Bernard Besnainou; Marie-Paule Elluard, both of Aix-En; Pierre Lessart, Volx, and Alain Philippe, Pertuis, all of France, assignors to Commissariat A l'Energie Atomique, Paris, France

PCT No. PCT/FR89/00664, § 371 Date Aug. 13, 1990, § 102(e) Date Aug. 19, 1990, PCT Pub. No. WO90/06990, PCT Pub. Date Jun. 28, 1990
PCT Filed Dec. 19, 1989, Ser. No. 555,436
Claims priority, application France, Dec. 20, 1988, 88 16851
Int. Cl.[5] C12M *3/00*; B01D *63/00, 36/00*
U.S. Cl. 435—285 13 Claims



1. Bioreactor for animal cell culturing comprising: a cellular culture chamber (65), formed by a sleeve (64) and facing walls (78, 80) of two enclosures, respectively, an intake enclosure (60) and a discharge enclosure (62), said chamber containing the cells and a culture medium containing proteins; each enclosure being provided with an internal partition (74, 76) subdividing said each enclosure into a first (60*a*, 62*a*) and a second (60*b*, 62*b*) respectively internal and external chambers;

at least one first porous mineral tube (66) connecting the external chamber (60*b*) of the intake enclosure (60) to the internal chamber (62*a*) of the discharge enclosure (62) and traversing said culture chamber (65) for supplying nutrient medium (19) to the culture medium (9), said first porous mineral tube (66) having on its inner face a first microporous filtering membrane (70) which prevents the passage of macromolecules of the nutrient medium (19) having a high molecular weight, and on its outer face a second microfiltering membrane (72) permitting the passage of low molecular weight molecules and serving as a barrier for the cells and the proteins present in the cellular culture chamber;

at least one second porous mineral tube (68) connecting the internal chamber (60*a*) of the intake enclosure (60) to the external chamber (62*b*) of the discharge enclosure (62), while traversing the cellular culture chamber (65), said second porous mineral tube having a porosity which permits the passage of low molecular weight metabolites from the cellular culture chamber into said second tube (68) having on its outer and inner faces, respectively, said first and second membranes (70, 72);

a connecting pipe (82) between the two internal chambers (60*a*, 62*a*) of the intake and discharge enclosures, having valve means to produce a pressure drop between said two internal chambers for a better material transfer through the first (66) and second (68) porous mineral tubes and which produces a flow in the same direction of the nutrient medium through said first and second porous mineral tubes, for improving the homogeneity of the cell medium in the bioreactor.

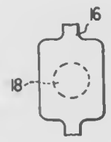
12. Apparatus for the continuous culture of animal cells comprising a mixing chamber (18) for checking and preparing the nutrient medium connected to the bioreactor (14) of claim 1, by flexible pipes (16, 32) and further comprising means (48, 46, 42, 52) for the continuous extraction of substances produced by the cells, said extraction means being connected to the bioreactor (14) by flexible pipes (40).

5,064,765

ASSAY FOR DETERMINING THE PROPENSITY OF A PERSON TO FORM KIDNEY STONES

Nir Karasikov, 3 Biram St., Haifa, and Sara Sarig, 19, Hamaapilim St., Jerusalem, both of Israel

Filed Mar. 1, 1990, Ser. No. 486,848
Claims priority, application Israel, Mar. 2, 1989, 89447
Int. Cl.[5] G01N *15/02, 21/47*
U.S. Cl. 436—4 4 Claims



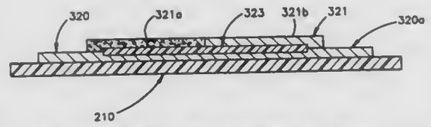
1. An assay for determining the propensity of a person to form kidney stones of a certain type which comprises inserting a urine sample into a transparent container, introducing into such container simultaneously aqueous solutions of soluble compounds which interact to form the compound of the kidney stone, sonicating the sample for a length of time sufficient to eliminate aggregates and determining particle size and number of said compound of the kidney stone over a certain period of time.

5,064,766

METHOD FOR DIFFERENTIATING THE SOURCE OF OCCULT GASTROINTESTINAL BLEEDING

Stephen C. Wardlaw, 128 Sunset Hill Dr., Branford, Conn. 06405, and Robert A. Levine, 31 Pilgrim La., Guilford, Conn. 06437

Filed Oct. 18, 1989, Ser. No. 423,181
Int. Cl.[5] G01N *21/78, 33/72*
U.S. Cl. 436—66 28 Claims



1. A method for detecting the presence and source of fecal occult blood comprising:

providing an absorbant medium which will absorb hematin and/or other hemoglobin breakdown products and hemoglobin;

charging at least a portion of said medium such that said charged medium portion will differentially attract hematin and/or other hemoglobin breakdown products on the one hand and hemoglobin on the other hand;

placing a fecal sample on said charged medium portion;

providing a solvent for hematin and/or other hemoglobin breakdown products and hemoglobin;

placing said solvent on said charged medium portion in the vicinity of said fecal sample in sufficient volume to cause said solvent to migrate through said medium and through any material absorbed from said fecal sample thereby allowing dissolved hematin and/or other hemoglobin breakdown products and hemoglobin to migrate differentially through said medium;

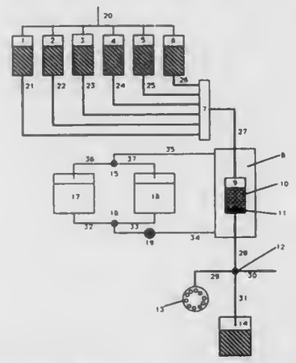
providing means for indicating hematin and/or other hemoglobin breakdown products and hemoglobin and using same to cause a visual indication of either or both in said medium.

5,064,767

CARBOXYL-TERMINAL PROTEIN SEQUENCING METHOD AND KIT

Dean A. Le, Menlo Park, and Kazuhiko Tatemoto, Stanford, both of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Stanford, Calif.

Filed Jun. 21, 1990, Ser. No. 541,526
Int. Cl.[5] G01N *33/68*
U.S. Cl. 436—89 9 Claims



1. A method for carboxyl terminal sequencing of peptides, said method comprising:

having protective groups on other available functionalities with an aryliodonium compound, whereby a geminal-diamino group is formed at the carboxyl terminus of the polypeptide;

heating the polypeptide in the presence of a vicinal amino-thiol to produce a thiazolidine having a side group derived from the carboxyl terminal amino acid of the polypeptide; and

determining the composition of the thiazolidine, to determine the carboxyl terminal amino acid of said polypeptide.

5,064,768

SILVER STAINING TECHNIQUE AND KIT

Nobuyoshi Ebata; Yuko Tanaka, and Akiko Negishi, all of Tokyo, Japan, assignors to Daiichi Pure Chemicals Co., Ltd., Tokyo, Japan

Filed Sep. 12, 1989, Ser. No. 405,479
Claims priority, application Japan, Sep. 16, 1988, 63-232058; Sep. 16, 1988, 63-232059
Int. Cl.[5] G01N *21/77, 33/68*
U.S. Cl. 436—164 16 Claims

1. In a silver staining technique comprising fixing a support medium, which contains a substance to be detected, with a fixing agent, pretreating the thus-fixed support medium with a sensitizer, treating the resultant support medium with a silver staining solution and then developing the thus-treated support medium with a reducing agent, the improvement wherein the fixing agent comprises thiourea, a lower alcohol having 1–4 carbon atoms and an organic acid.

3. In a silver staining technique comprising fixing a support medium, which contains a substance to be detected, with a fixing agent, pretreating the thus-fixed support medium with a sensitizer, treating the resultant support medium with a silver staining solution and then developing the thus-treated support medium with a reducing agent, the improvement wherein the sensitizer comprises thiourea, dithiothreitol and glutaraldehyde.

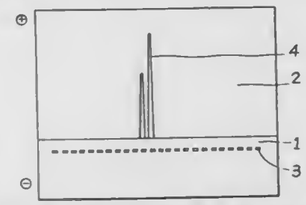
4. In a silver staining technique comprising fixing a support medium, which contains a substance to be detected, with a fixing agent, pretreating the thus-fixed support medium with a sensitizer, treating the resultant support medium with a silver staining solution and then developing the thus-treated support medium with a reducing agent, the improvement wherein the reducing agent comprises a thiosulfate, formaldehyde and citric acid.

5,064,769

IMMUNOASSAY OF APOLIPOPROTEIN-B OF LOW DENSITY LIPOPROTEINS IN PLASMA

Philippe Gambert, and Emmanuel Louvrier, both of Dijon, France, assignors to Société à Responsabilité Limitée dite: Spiral, Dijon, France

Continuation of Ser. No. 543,062, Oct. 18, 1983, abandoned.
This application Feb. 14, 1986, Ser. No. 829,206
Int. Cl.[5] G01N *33/561, 33/53*; C12Q *1/00*; C25B *1/00*
U.S. Cl. 436—516 13 Claims



1. A method for determining the apolipoprotein B (apo B) of low density lipoproteins (LDL) directly in serum in which the LDLs are mixed with other lipoproteins containing apo B, said method comprising

(1) first separating the LDLs from the serum by electrophoresis of said serum in a cathodic layer of polyacrylamide polymer gel having a controlled degree of cross-linking and pore size, so as to block the electrophoretic migration of any lipoprotein having a diameter greater than 30 nm in said gel layer, LDLs migrate through said gel layer and emerge from said gel layer, and then

(2) determining the apolipoprotein B of the LDLs on their emergence from the cathodic layer, by immunoelectrophoresis in an anodic layer of agarose gel containing anti-apolipoprotein B antibodies (anti-apo B), an electric voltage being applied between the said cathodic layer and an end of said anodic layer so that the direction of migration is from said cathodic layer towards said anodic layer;

wherein the polyacrylamide gel contains agarose in a proportion of from 0.05 to 5% by weight of the gel.

13. An electrophoresis support for determining the apolipoprotein B of low density lipoproteins contained in serum, said support comprising

a cathodic portion and an anodic portion disposed side by side, said cathodic portion comprising a layer of polyacrylamide polymer gel having a controlled degree of cross-linking and pore size so as to block the migration of any lipoprotein having a diameter greater than 30 nm in said gel layer while low density lipoproteins migrate through said gel layer and emerge from said gel layer, and said anodic portion comprising a layer of agarose gel containing anti-apo lipoprotein B antibodies,

and means for applying an electric voltage between the end of said cathodic portion and that of said anodic layer;

VOL 1132 ISS 2 NO 12 1991 UMI

wherein the polymer gel contains agarose in a proportion of from 0.05 to 5% by weight of the gel.

5,064,770

ASSAY FOR 1,25-DIHYDROXY VITAMIN D RECEPTOR PROTEIN

Hector F. DeLuca, Deerfield, and Maria E. Sandgren, Madison, both of Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Aug. 1, 1989, Ser. No. 388,203

The portion of the term of this patent subsequent to Mar. 28, 2006, has been disclaimed.

Int. Cl.[5] **G01N** *33/536, 33/566*

U.S. Cl. 436—542 **6 Claims**



1. A binding assay to determine the amount of 1,25-dihydroxy vitamin D receptor in a sample that also has vitamin D transport protein in it, comprising the steps of:

adding to the sample a plurality of a first antibody that is capable of binding at a first epitope on vitamin D receptor protein, a plurality of a second antibody that is capable of binding at a second epitope on vitamin D receptor protein, and also a plurality of a label, such that the sample then has in it a complex of the receptor protein bound to the first antibody, the second antibody, and also the label, and such that the sample also has in it unbound label apart from the complex;

then, using means connectable to the second antibody, separating at least a portion of receptor protein bound to label from unbound label; and

then, measuring the amount of label present in one of the separated fractions;

wherein the separation step is performed using immunoprecipitation.

5,064,771

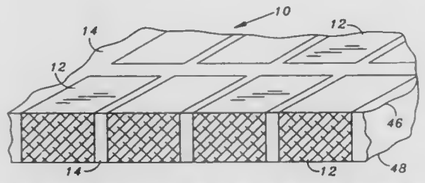
METHOD OF FORMING CRYSTAL ARRAY

Allen L. Solomon, Fullerton, Calif., assignor to Grumman Aerospace Corporation, New York, N.Y.

Filed Apr. 13, 1990, Ser. No. 508,586

Int. Cl.[5] **H01L** *21/76*

U.S. Cl. 437—3 **13 Claims**



1. A method for forming an array of single crystalline seed crystals separated by an insulator, the seed crystals being formed from a single crystalline first CdTe substrate having first and second surfaces, the method comprising:

(a) forming an array of grooves in the first surface of the single crystalline first CdTe substrate, the array of grooves defining a plurality of protrusions upon the first surface of the single crystalline first substrate;

(b) filling the grooves with the insulator; and

(c) removing a sufficient portion of the second surface of the first CdTe substrate to expose the insulator disposed within the grooves;

(d) wherein the step of removing a portion of the second surface results in the formation of an array of single crystalline seed crystals separated by the insulator, the single crystalline seed crystals and the insulator being exposed upon both the first and second surfaces of the array.

7. A method for forming an array of single crystalline seed crystals separated by an insulator, the seed crystals being formed from a single crystalline first substrate having first and second surfaces, the method comprising:

(a) forming an array of grooves in the first surface of the single crystalline first substrate, the array of grooves defining a plurality of protrusions upon the first surface of the single crystalline first substrate;

(b) forming a conductive layer within the grooves formed in the first surface of the single crystalline substrate;

(c) filling the grooves with the insulator: and

(d) removing a sufficient portion of the second surface of the first substrate to expose the insulator disposed within the grooves;

(e) wherein the step of removing a portion of the second surface results in the formation of an array of single crystalline seed crystals separated by the insulator, the single crystalline seed crystals and the insulator being exposed upon both the first and second surfaces of the array.

5,064,772

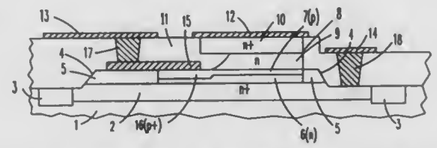
BIPOLAR TRANSISTOR INTEGRATED CIRCUIT TECHNOLOGY

Chakrapani G. Jambotkar, Hopewell Junction, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 238,830, Aug. 31, 1988, Pat. No. 4,967,253. This application Sep. 4, 1990, Ser. No. 577,457

Int. Cl.[5] **H01L** *21/265*

U.S. Cl. 437—31 **10 Claims**



1. In the fabrication of a bipolar transistor of the type wherein in a monocrystalline semiconductor body having at least a buried electrode contacting layer, a first electrode layer, a base layer and a second electrode layer, respectively, in superposed epitaxial relationship, the method comprising:

forming a base area controlling pedestal by

removing first a portion of said layers at least through said second electrode layer exposing thereby said base layer and leaving remaining an area equal to the combined intrinsic and extrinsic base region designed for the transistor being fabricated,

removing second a further portion of said remaining area of said portion of said layers at least through said second electrode layer, said further portion leaving remaining the designed second electrode area of the transistor being fabricated, exposing thereby the portion of said base electrode to be the extrinsic base,

said second removal step including means for locating the extrinsic to intrinsic base interface, and

converting said extrinsic portion of said base to high conductivity,

forming a wiring accommodation pedestal by

removing said base and said first electrode layers down to

said electrode contacting layer in the area outside the combined area of said intrinsic and said extrinsic base regions,

surrounding said superposed base layer and said first electrode layer combination with an isolating material member,

providing a high conductivity base connection to said extrinsic portion of said base in a location extending over a portion of said isolating material member,

providing insulation over the transistor structure, and

providing a global wiring member for each of said first, said second and said base electrodes positioned on and having a connection through said insulation.

5,064,773

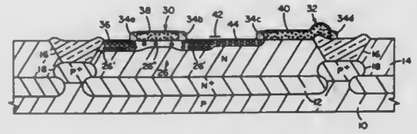
METHOD OF FORMING BIPOLAR TRANSISTOR HAVING CLOSELY SPACED DEVICE REGIONS

Wolfgang M. Feist, Burlington, Mass., assignor to Raytheon Company, Lexington, Mass.

Continuation-in-part of Ser. No. 289,517, Dec. 27, 1988, Pat. No. 4,933,295, which is a continuation of Ser. No. 47,942, May 8, 1987, abandoned. This application Jun. 29, 1989, Ser. No. 373,306

Int. Cl.[5] **H01L** *21/331*

U.S. Cl. 437—31 **13 Claims**



1. A method of forming a bipolar junction transistor in a region of a semiconductor structure comprising the steps of:

a) implanting an active base in the region of the semiconductor structure;

b) simultaneously forming an emitter region on a surface of the region over the active base and forming a collector region on the surface of semiconductor structure;

c) implanting dopant into the surface portions of the region of the semiconductor, forming an inactive base region extending from the emitter region to the collector region;

d) simultaneously forming sidewall spacers adjacent the emitter region and collector region; and

e) forming electrically isolated silicide contacts over the emitter region, the collector region, and the inactive base region, the silicide contact over the inactive base region extending from the sidewall spacer adjacent the emitter region to the sidewall spacer adjacent the collector region.

5,064,774

SELF-ALIGNED BIPOLAR TRANSISTOR PROCESS

Jame R. Pfiester, Austin, Tex., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Feb. 19, 1991, Ser. No. 632,693

Int. Cl.[5] **H01L** *21/265*

U.S. Cl. 427—31 **15 Claims**

1. A process for forming a self-aligned bipolar transistor in a semiconductor device, comprising the steps of:

providing a semiconductor substrate having an active device region and an oxide layer overlying the active device region;

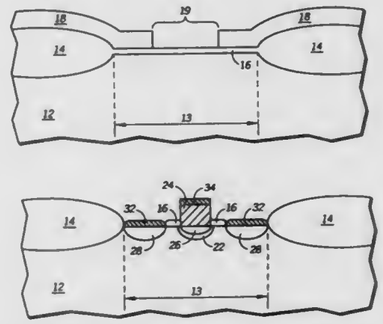
forming a patterned dielectric layer overlying the active device region and the oxide layer and having an opening bounded by a wall which exposes a portion of the oxide layer;

forming a TiN sidewall spacer on the wall of the patterned dielectric layer;

selectively doping the active device region to form a first base region using the TiN sidewall spacer and the patterned dielectric layer as a doping mask;

removing the exposed portion of the oxide layer within the opening using the TiN sidewall spacer and the patterned dielectric layer as an etch mask to form an exposed portion of the active device region;

forming an emitter electrode by selective deposition of a



predetermined material on the exposed portion of the active device region;

removing the patterned dielectric layer;

doping the active device region to form a second base region;

forming a metal silicide contact to each of the second base region and the emitter electrode; and

removing the TiN sidewall spacer.

5,064,775

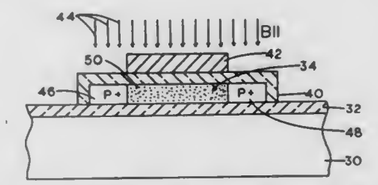
METHOD OF FABRICATING AN IMPROVED POLYCRYSTALLINE SILICON THIN FILM TRANSISTOR

Kuo-Zen Chang, Hsinchu, Taiwan, assignor to Industrial Technology Research Institute, Taiwan

Filed Sep. 4, 1990, Ser. No. 577,156

Int. Cl.[5] **H01L** *21/336*

U.S. Cl. 437—40 **16 Claims**



1. A process of fabricating a field effect transistor on a polycrystalline silicon layer, the resultant transistor characterized in that the dopants forming the source and drain are restrained during processing from diffusing, thereby establishing a more stable channel width, comprising:

(a) forming a polycrystalline silicon layer of a first thickness on an insulating substrate,

(b) implanting both N and P type dopants into said polycrystalline silicon layer in approximately equal concentrations,

(c) forming an insulating layer over the resultant modified polycrystalline layer,

(d) forming a gate electrode over the polycrystalline silicon layer,

(e) and forming source and drain regions in the polycrystalline silicon layer.

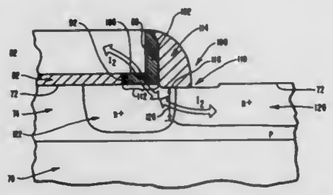
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,776

METHOD OF FORMING BURIED CONTACT BETWEEN POLYSILICON GATE AND DIFFUSION AREA

Martin C. Roberts, Boise, Id., assignor to Micron Technology, Inc., Id.

Filed Oct. 3, 1990, Ser. No. 592,121
Int. Cl.[5] H01L *21/22*
U.S. Cl. 437—41 6 Claims



1. A method for effecting electrical contact between the gate of a transistor device formed at the surface of a substrate and a diffusion region of a first conductivity type located in the surface of the substrate remote from the transistor device, said method comprising the steps:

(a) forming a thin insulative layer on the surface of the substrate;

(b) forming a polysilicon gate on said thin insulative layer;

(c) istropically etching the thin insulative layer to expose the surface of the substrate;

(d) isotropically depositing a polysilicon interconnect layer which contacts an edge of the gate and the surface of the substrate exposed in said step of isotropically etching;

(e) anisotropically etching said polysilicon interconnect layer to remove same from a portion of said surface of the substrate separated from the gate and exposed in said step of isotropically etching, thereby to produce from said polysilicon interconnect layer a polysilicon interconnect structure disposed against the gate and contacting the surface of the substrate, the surface of the substrate contacted by said polysilicon interconnect layer being remote from the diffusion region and defining a surface current pathway interface;

(f) insulating the exposed surface of said polysilicon interconnect structure;

(g) implanting ions of the first conductivity type to introduce an implant region remote from said gate and to produce ions of the first conductivity type in said gate; and

(h) inducing migration of ions of the first conductivity type from the implantation region and from the gate through said polysilicon interconnect structure into the substrate to form in the substrate below said surfaces first and second migration regions of the first conductivity type, said migration regions extending laterally to from a buried current pathway interface having a substantial area of connection between said first and second migration regions.

5,064,777

FABRICATION METHOD FOR A DOUBLE TRENCH MEMORY CELL DEVICE

Sang H. Dhong, Mahopac, and Wei Hwang, Armonk, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Division of Ser. No. 545,225, Jun. 28, 1990. This application Mar. 4, 1991, Ser. No. 664,684
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—52 8 Claims

1. A method for fabricating a double trench semiconductor memory storage structure comprising the steps of:

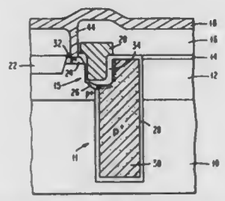
Step 1. forming a first trench having bottom and side walls in a semiconductor substrate including first conductivity epitaxial layer disposed on a silicon layer,

Step 2. forming a layer of dielectric insulating material on said bottom and side walls of said first trench to provide a storage capacitor insulator,

Step 3. implanting second conductivity dopants opposite to said first conductivity in said epitaxial layer to form a well region.

Step 4. filling said first trench with conductive material to provide a storage capacitor plate element,

Step 5. forming a second trench having bottom and side walls in said well region adjacent to and partially disposed in a portion of said first trench filled with said conductive material



Step 6. forming a layer of dielectric insulation on said bottom and side walls of said second trench,

Step 7. filling said second trench with conductive material to form a vertical access transistor device transfer gate and word line,

Step 8. forming a junction in said well region adjacent to said second trench to provide a vertical access transistor source element,

Step 9. forming a junction in said well region adjacent to said first and second trench to provide a vertical access transistor drain element.

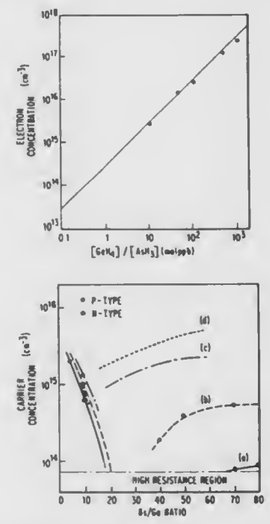
5,064,778

VAPOR-PHASE EPITAXIAL GROWTH METHOD

Takayoshi Maeda, Mie; Masahiko Hata, Osaka; Noboru Fukuhara, Osaka, and Tadeshi Watanabe, Osaka, all of Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Filed Jan. 30, 1990, Ser. No. 472,153
Claims priority, application Japan, Jan. 30, 1989, 1-22244; Mar. 6, 1989, 1-54438
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—81 4 Claims

1. A vapor-phase epitaxial growth method for producing a Groups III-V compound semiconductor containing arsenic by vapor-phase epitaxial growth using arsenic trihydride as an arsenic source, wherein said arsenic trihydride has a volatile



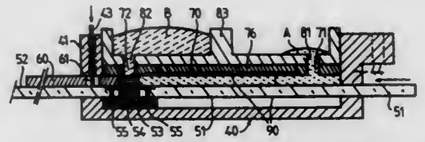
impurity concentration of not more than 1.5 molppb on a germanium tetrahydride conversion.

5,064,780

METHOD OF OBTAINING A TERNARY MONOCRYSTALLINE LAYER BY MEANS OF HETERO-EPITAXY ON A BINARY LAYER AND A CRUCIBLE SUITABLE FOR PUTTING THE METHOD INTO EFFECT

Laurent Grijol; Catherine Le Martret, and Beatrice Baladi, all of Caen, France, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 28, 1989, Ser. No. 329,739
Claims priority, application France, Mar. 29, 1988, 88 04077
Int. Cl.[5] H01L *21/208*
U.S. Cl. 437—130 6 Claims



1. A method of obtaining by liquid hetero-epitaxy at least one first monocrystalline layer of a ternary compound on at least one monocrystalline substrate of a binary composition, in which a first solution saturated with the ternary compound is brought into contact with said substrate, the assembly being raised uniformly to a first temperature, thereafter cooled at a first temperature decreasing rate to a second temperature in such a manner as to effect said epitaxy, said first layer having a thickness equal to at least 100 microns, characterized in that said solution-substrate contact is effected by bringing a lower surface of said substrate into contact with an interface of said solution below the surface of said solution, in that the first temperature is comprised between 850° and 880° C., in that the second temperature is of the order of 700° C. and in that the first temperature decreasing rate is comprised between 0.6° and 1.2° C/mn.

5,064,779

METHOD OF MANUFACTURING POLYCRYSTALLINE SILICON FILM

Seiichi Hasegawa, Kanazawa, Japan, assignor to President of Kanazawa University, Kanazawa, Japan

Filed Jan. 31, 1990, Ser. No. 472,954
Claims priority, application Japan, Feb. 8, 1989, 1-29286
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—109 14 Claims

1. A method of manufacturing a poly-Si film, in which silicon is deposited on a substrate by means of a thermal decomposition of a feed gas and plasma generation, comprising:

the step of arranging said substrate within a reaction apparatus;

the step of introducing into said reaction apparatus a feed gas containing a silane-series gas for thermal decomposition of the feed gas at 500° to 800° C.; and

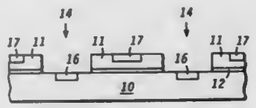
the step of generating plasma within the feed gas by applying power for the plasma generation simultaneously with the thermal decomposition, said power for plasma generation being controlled at a level lower than the power applied for forming a poly-Si film oriented in the <110> direction, so as to form, prior to annealing, a poly-Si film substantially oriented in the <100> direction and having a smooth surface.

5,064,781

METHOD OF FABRICATING INTEGRATED SILICON AND NON-SILICON SEMICONDUCTOR DEVICES

Bertrand F. Cambou, Mesa; H. Ming Liaw, and Mamoru Tomozane, both of Scottsdale, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 31, 1990, Ser. No. 576,543
Int. Cl.[5] H01L *21/18*
U.S. Cl. 437—132 14 Claims



1. A method of fabricating integrated silicon and non-silicon semiconductor devices, comprising the steps of:

providing a silicon wafer;

bonding a non-silicon semiconductor substrate to the silicon wafer;

thinning down the non-silicon semiconductor substrate to a desired thickness; and

removing portions of the non-silicon semiconductor substrate to expose portions of the silicon wafer.

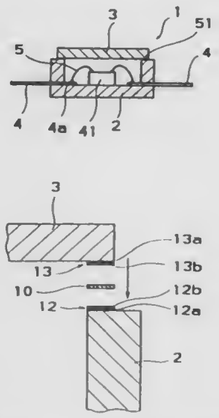
VOL 1132 ISS 2 NO 12 1991 UMI

5,064,782

METHOD OF ADHESIVELY AND HERMETICALLY SEALING A SEMICONDUCTOR PACKAGE LID BY SCRUBBING

Masanori Nishiguchi, Yokohama, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Apr. 6, 1990, Ser. No. 505,591
Claims priority, application Japan, Apr. 17, 1989, 1-96811
Int. Cl.[5] H01L *21/603, 23/10*
U.S. Cl. 437—216 3 Claims



1. A sealing method for a semiconductor device package, comprising:
(a) mounting a semiconductor device chip on a package body having an annular adhesion layer formed thereon, applying an adhesive to said adhesion layer, and thereafter mounting a lid having an annular adhesion layer formed thereon on said package body through a sealing solder film to cause said annular adhesion layer of said package body to overlap said annular adhesion layer of said lid;
(b) urging at least one of said package body and said lid against the other of said package body and said lid to hermetically seal said package body; and
(c) pivoting one of said package body and said lid about a substantially central axis of one of said annular adhesion layer of said lid and said annular adhesion layer of said package body.

5,064,783

PRODUCTION OF SPHERICAL CERAMIC POWDERS

Lydia M. Luckevich, Etobicoke, Canada, assignor to Ortech International, Mississauga, Canada

Filed May 8, 1990, Ser. No. 520,769
Claims priority, application United Kingdom, Aug. 1, 1989, 8917456
Int. Cl.[5] C03C *3/145*
U.S. Cl. 501—12 17 Claims

1. A method of producing ceramic spheres suitable for calcination to ceramic powders, which comprises:
contacting an anhydrous alkanol sol of at least one ceramic oxide precursor with liquid with which said sol is immiscible to form spheres of said sol in said immiscible liquid, and
hydrolyzing said ceramic oxide precursor in said spheres to form ceramic oxide spheres.

5,064,784

GLASS FRIT USEFUL FOR THE PREPARATION OF GLASS BUBBLES, AND GLASS BUBBLES PREPARED BY USING IT

Osamu Saito, Atsugi; Norihiko Yagi, Urawa, and Yoshinori Ito, Kawaguchi, all of Japan, assignors to Tokai Kogyo Co., Ltd., Tokyo, Japan

Filed Apr. 18, 1990, Ser. No. 510,560
Claims priority, application Japan, Apr. 18, 1989, 1-96474; Feb. 20, 1990, 1-27252
Int. Cl.[5] C03C *3/076, 3/093, 3/078, 38/10*
U.S. Cl. 501—33 3 Claims

1. Glass bubbles having a low alkali elution, which has the following composition by weight percent:

SiO_2	60–80	B_2O_3	6–15
Na_2O	2–12.5	ZnO	0–3
K_2O	0–3	Al_2O_3	0–3
Li_2O	0–3	P_2O_5	0–3
Total alkali metal oxides	2–12.5	Sb_2O_3	0–1
		As_2O_3	0–1
CaO	5–15	SO_3	0.05–1
MgO	0–3	B_2O_3/Na_2O	1.2–3.5
Total alkaline earth metal oxides	5–15		

wherein the alkali elution is less than 0.08 meq/g.

5,064,785

ALKALI-RESISTANT GLASS FOR FORMING GLASS FIBERS

Toru Kawamoto, Shiga, and Shigeru Yamamoto, Kyoto, both of Japan, assignors to Nippon Electric Glass Co., Ltd., Otsu, Japan

Filed Aug. 16, 1990, Ser. No. 568,463
Claims priority, application Japan, Aug. 23, 1989, 1-216822
Int. Cl.[5] C03C *3/078, 13/00, 3/085, 3/087*
U.S. Cl. 501—72 1 Claim

1. An alkali-resistant glass for forming glass fibers, which comprises, by weight, 57 to 64% SiO_2, 19 to 24% ZrO_2, 0.5 to 3% Li_2O, 11 to 15% Na_2O, 1 to 5% K_2O, 0.2 to 8% RO, R being Mg, Ca Sr, Ba or Zn, 0.5 to 5% TiO_2, 0 to 1% Al_2O_3 and containing no F_2, the glass having a fiberizing temperature of 1300° C. or less and a devitrification temperature which is by at least 150° C. lower than the fiberizing temperature.

5,064,786

SILANE MODIFIED POLYSILACYCLOBUTASILAZANES

Gary T. Burns, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Division of Ser. No. 277,080, Nov. 28, 1988, Pat. No. 4,929,742, which is a continuation-in-part of Ser. No. 213,380, Jun. 30, 1988, Pat. No. 4,916,200, which is a continuation-in-part of Ser. No. 58,966, Jun. 8, 1987, abandoned. This application Feb. 15, 1990, Ser. No. 480,390
Int. Cl.[5] C08G *77/04, 77/00*
U.S. Cl. 501—88 12 Claims

1. A method of crosslinking a modified polysilacyclobutasilazane polymer prepared by a process comprising:
A) contacting and reacting in an inert, essentially anhydrous atmosphere, a polysilacyclobutasilazane polymer with a compound or mixture of compounds selected from the group consisting of (i) chlorosilanes having the general formula $(R^v)_mSiCl_{4-m}$ and (ii) chlorodisilanes having the general formula $[Si(R^v)_tCl_{3-t}]_2$ where, in the general formulae for chlorosilanes and chlorodisilanes, each R^v is independently selected from the group consisting of hydrogen, alkyl radicals having 1 to 4 carbon atoms, aryl radicals and the vinyl radical; m is 0, 1, or 2; and t is 0 to 2; at a temperature less than 100° C. for a time sufficient to form a partially modified polysilacyclobutasilazane polymer,
B) contacting and reacting the partially modified polysilacyclobutasilazane polymer with dry ammonia, and
C) recovering modified polysilacyclobutasilazane polymer; the method of crosslinking comprising heating the modified polysilacyclobutasilazane polymer in the presence of dry air to a temperature of 180° to 280° C.

5,064,787

RAMMING COMPOSITIONS

Subrata Banerjee, Glen Ellyn, Ill., assignor to Magneco/Metrel, Inc., Addison, Ill.

Filed Nov. 20, 1989, Ser. No. 439,419
Int. Cl.[5] C04B *35/52*
U.S. Cl. 501—89 10 Claims

1. A ramming composition, comprising:
65–80% by weight of mullite;
5–15% by weight of silicon carbide;
2–5% by weight of graphite material;
2–6% by weight of ball clay; and
5–10% by weight of a binder formed from a dispersion of 15–70% by weight silica in water;
mixed to a workability of between 8–15%.

5,064,788

PRODUCTION OF CERAMIC AND CERAMIC-METAL COMPOSITE ARTICLES WITH SURFACE COATINGS

Marc S. Newkirk, Newark, Del., and Adam J. Gesing, Kingston, Ontario, Canada, assignors to Lanxide Technology Company, LP, Newark, Del.

Continuation of Ser. No. 908,124, Sep. 16, 1986, Pat. No. 4,948,764. This application Dec. 12, 1989, Ser. No. 449,526
The portion of the term of this patent subsequent to Dec. 15, 2004, has been disclaimed.
Int. Cl.[5] C04B *35/00*
U.S. Cl. 501—92 8 Claims

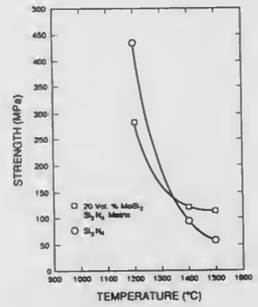
1. A method for producing a self-supporting ceramic body by oxidation of a parent metal to form a polycrystalline material comprising (1) the oxidation reaction product of said parent metal with an oxidant, and, optionally, (2) one or more non-oxidized constituents of the parent metal, the method comprising: heating said parent metal to a temperature above the melting point of said parent metal but below the melting point of the oxidation reaction product to form a body of molten metal and, at said temperature;
(a) reacting said body of molten metal with said oxidant to form said oxidation reaction product, optionally with one or more dopant(s) added,
(b) maintaining at least a portion of said oxidation reaction product in contact with and between said body of molten metal and said oxidant, to draw molten metal through the oxidation reaction product towards the oxidant so that the oxidation reaction product continues to form at the interface between the oxidant and previously formed oxidation reaction product, and, optionally, leaving non-oxidized constituents of said parent metal dispersed through said polycrystalline material,
(c) recovering said ceramic body, and
(d) coating at least a portion of at least one surface of said recovered body with one or more materials which effects desired changes to the properties of said recovered body.

5,064,789

SILICON NITRIDE REINFORCED WITH MOLYBDENUM DISILICIDE

John J. Petrovic, and Richard E. Honnell, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Sep. 27, 1990, Ser. No. 588,874
Int. Cl.[5] C04B *35/58*
U.S. Cl. 501—97 3 Claims



1. A composition of matter consisting of a mixture of silicon nitride and molybdenum disilicide, and up to about 10 weight percent of the mixture of silicon nitride and molybdenum disilicide of a densification aid, where molybdenum disilicide is present in an amount of from about 5 to about 50 volume percent of said mixture.

5,064,790

HIGH DENSITY CORDIERITE CERAMICS FROM ZEOLITE

Robert L. Bedard, Fishkill, and Edith M. Flanigen, White Plains, both of N.Y., assignors to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 452,990, Dec. 19, 1989, Pat. No. 4,980,328. This application Oct. 11, 1990, Ser. No. 596,149
Int. Cl.[5] C04B *35/18, 35/20, 35/22*
U.S. Cl. 501—119 4 Claims

1. A substantially crack free and crystalline cordierite ceramic article the cordierite represented by the empirical formula

$$2.0\pm0.1MgO{:}2Al_2O_3{:}5.0\pm0.2SiO_2$$

and the ceramic article characterized in that it has a density of at least 93% of its theoretical density and has an average grain size of about 10 to about 500 nanometers.

5,064,791

METHOD OF PREPARING CERAMIC COMPOSITE POWDERS AND THE POWDERS OBTAINED THEREBY

Kunio Ohtsuka; Mitsuru Suda, and Johji Koga, all of Saitama, Japan, assignors to Mitsubishi Mining & Cement Co., Ltd., Tokyo, Japan

Filed Jul. 11, 1990, Ser. No. 551,623
Claims priority, application Japan, Jul. 19, 1989, 1-186311
Int. Cl.[5] C04B *33/00*
U.S. Cl. 501—147 18 Claims

1. A method for preparing a ceramic composite powder comprising the steps of:
a. admixing an inorganic powder having cation-exchange properties with a solution containing a metal ion to form a suspension and effect ion exchange of the metal ion to the surface of the inorganic powder;
b. adding a precipitant to the suspension which releases an

VOL 1132 ISS 2 NO 12 1991 UMI

anion capable of forming a precipitate with the metal ion when heated or pressurized;

c. releasing and reacting the anion with the metal ion by heating, pressurizing, or simultaneously heating and pressurizing the solution to precipitate a hydroxide, basic salt, or salt of the metal onto the surface of the inorganic powder; and, then,

d. heating the inorganic powder with the precipitate thereon to convert the precipitate to a metal oxide.

5,064,792

CATALYST FOR THE REDUCTION OF NITROGEN OXIDES, A METHOD FOR ITS PREPARATION AND THE USE THEREOF

Sven G. Järås; Marek T. Tokarz, both of Kungälv, and Börje Persson, Angered, all of Sweden, assignors to Eka Nobel AB, Surte, Sweden

Filed Feb. 26, 1990, Ser. No. 484,809
Claims priority, application Sweden, Feb. 27, 1989, 8900684
Int. Cl.[5] B01J *21/06, 29/04, 23/22*
U.S. Cl. 502—60 **12 Claims**

1. A catalyst for the reduction of nitrogen oxides comprising:

1) a carrier material consisting of small grains of an inorganic oxide,

2) a catalytic layer thereon containing TiO_2 and V_2O_5 in a weight ratio TiO_2: V_2O_5 of 0.15 to 0.25, and obtained by a separate or simultaneous coating of the components on the carrier material, the size of the catalyst particles being in the order of 10–200 μm and the catalyst being intended to operate at a temperature of 150°–220° C.

2. A catalyst as claimed in claim 1, wherein the carrier material consists of small grains of silica or zeolite.

6. A catalyst as claimed in claim 1, wherein the catalyst it also comprises one or more metal oxide promoters which are chosen amongst oxides of metals from groups 1, 6 and 8 of the Periodic Table, preferably Fe_2O_3, MoO_3, Na_2O, K_2O, CuO or Cu_2O.

7. A catalyst as claimed in claim 1, wherein the catalyst also comprises a sulphur dioxide inhibitor consisting of one or more metal oxides from the groups 4 and 6 of the Periodic Table, preferably WO_3 or GeO_x.

5,064,793

CATALYST COMPOSITION CONTAINING A CRYSTALLINE GALLIOSILICATE HAVING THE ERIONITE-TYPE STRUCTURE

Mario L. Occelli, Yorba Linda, Calif., assignor to Union Oil Company of California, Los Angeles, Calif.

Division of Ser. No. 922,272, Oct. 22, 1986, Pat. No. 4,931,266.
This application May 1, 1989, Ser. No. 345,687
Int. Cl.[5] B01J *29/04*
U.S. Cl. 502—61 **18 Claims**

7. A catalyst composition comprising a catalytically active, crystalline, galliosilicate molecular sieve which comprises silicon, gallium and oxygen, wherein said molecular sieve has an X-ray powder diffraction pattern comprising the d-spacings set forth in Table 1, contains less than about 0.10 weight percent alumina, and has a silica-to-gallia mole ratio of 5.5 to 30 when its composition is expressed in terms of oxide mole ratios in the anhydrous state.

8. A catalyst composition as defined by claim 7 further comprising a porous, inorganic refractory oxide component.

9. A catalyst composition as defined by claim 8 further comprising a metal promoter component containing a metal selected from the group consisting of Group IB, Group IIB, Group IIIA, Group IVA, Group VA, Group VIB, Group VIIB and Group VIII of the Periodic Table of Elements.

5,064,794

CATALYST SUPPORTS, CATALYST SYSTEMS, AND OLEFIN DIMERIZATION

Charles A. Drake, Nowata, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Nov. 20, 1989, Ser. No. 439,221
Int. Cl.[5] B01J *29/10, 29/08*
U.S. Cl. 502—74 **14 Claims**

1. A composition comprising:

a) a low sodium zeolite selected from the group consisting of faujasite, type Y, and mixtures thereof and

b) at least one alkali metal hydroxide;

wherein said alkali metal hydroxide is supported on said zeolite, and

wherein said alkali metal hydroxide is present within the range of about 1 to about 25 weight percent, based on the total weight of the zeolite, and

wherein substantially all water is removed.

12. A composition comprising:

a) a zeolite comprising 65.6 weight percent SiO_2, 33.6 weight percent Al_2O_3, 0.15 weight percent Na_2O, 0.18 weight percent Fe_2O_3, and 0.03 weight percent CaO; and

b) potassium hydroxide;

wherein said potassium hydroxide is present within the range of about 1 to about 25 weight percent, based on the total weight of the zeolite; and

wherein said potassium hydroxide is supported on said zeolite.

5,064,795

POLYMERIZATION OF OLEFINS

Max P. McDaniel, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 511,907, Apr. 23, 1990, abandoned, which is a continuation of Ser. No. 826,651, Feb. 6, 1986, abandoned, which is a division of Ser. No. 652,250, Sep. 19, 1984, Pat. No. 4,663,403, which is a division of Ser. No. 464,095, Feb. 4, 1983, Pat. No. 4,477,586, which is a continuation-in-part of Ser. No. 412,059, Aug. 27, 1982, abandoned. This application Dec. 20, 1990, Ser. No. 630,444
Int. Cl.[5] C08F *4/651, 10/02*
U.S. Cl. 502—104 **4 Claims**

1. A process for preparing an olefin polymerization catalyst comprising contacting a first reactant consisting essentially of triphenylphosphite with a second reactant consisting essentially of titanium tetrachloride to produce a catalyst precursor, treating the catalyst precursor with dibutylmagnesium to produce a catalytic component, and treating said catalytic component with titanium tetrachloride.

5,064,796

SUPPORT ADJUVANT FOR IMPROVED VANADIUM POLYMERIZATION CATALYST

Anthony N. Speca, Kingwood, Tex., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Filed Jan. 7, 1991, Ser. No. 639,308
Int. Cl.[5] C08F *4/68*
U.S. Cl. 502—107 **20 Claims**

11. A process for preparing a supported catalyst material, comprising the steps of:

(a) fluoriding a support material comprising silica; and

(b) treating said fluorided support material with (i) a vanadium compound of the general formulas:

$$VCl_x(OR)_{3-x}$$

where "x" is a number from 0 to 3 and R is a hydrocarbon radical,

$$VCl_y(OR)_{4-y}$$

where "y" is a number from 3 to 4 and R is a hydrocarbon radical,

$$V(AcAc)_z(O)_{3-z}$$

where "z" is a number from2 to 3 and (AcAc) is an acetyl acetonate group,

$$VCl_2(AcAc) \quad \text{or} \quad VCl(AcAc)_2$$

where (AcAc) is an acetyl acetonate group, or $VCl_3.nL$ where "n" is a number from 2 to 3 and L is a Lewis base which can form hydrocarbon-soluble complexes with VCl_3;

and wherein there is no substantial reaction of the fluorided support material with another catalyst component prior to contact between the vanadium compound and the fluorided support material.

5,064,797

PROCESS FOR PRODUCING POLYOLEFINS AND POLYOLEFIN CATALYSTS

Phil M. Stricklen, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 35,951, Apr. 3, 1987, Pat. No. 4,939,217.
This application Mar. 6, 1990, Ser. No. 489,389
Int. Cl.[5] C08F *4/646*
U.S. Cl. 502—111 **31 Claims**

6. A process for producing a heterogeneous catalyst comprising: bubbling a wet inert gas through a mixture of

(a) a hydrocarbon solvent,

(b) an amount of an aluminum compound of the formula AlR_3 wherein each R can be the same or different and is selected from alkyl groups having from 1 to 10 carbon atoms, and

(c) at least two different metallocenes selected from mono, di, tri-cyclopentadienyls and substituted cyclopentadienyls of transition metal each having different termination rate constants of olefin polymerization in the presence of hydrogen,

thereby producing a dual metal on aluminoxane polymerization catalyst wherein the temperature and pressure of said mixture is sufficient to maintain said hydrocarbon solvent in liquid phase and produce said aluminoxane support catalyst.

5,064,798

CATALYST FOR OLEFIN POLYMERIZATION

Main Chang, Houston, Tex., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 234,231, Aug. 19, 1988, Pat. No. 4,935,394.
This application Mar. 12, 1990, Ser. No. 492,513
Int. Cl.[5] C08F *4/649*
U.S. Cl. 502—111 **20 Claims**

11. A process for preparing a supported catalyst composition for polymerization of α-olefins which comprises

(a) combining a magnesium dihydrocarbyloxide, dissolved in an inert solvent, and of the formula:

$$Mg(OR^2)_2$$

wherein

R^2 is the same or different and is a hydrocarbyl radical containing at least 6 carbon atoms,

with a transition metal hydrocarbyloxide of the formula:

$$M^2(OR^2)_y$$

wherein

M^2 is a transition metal from Group IVB, VB and VIB of the Periodic Table,

"y" is the valency of the metal M^2, and

R^3 is the same or different and is a hydrocarbyl radical containing 1 to 20 carbon atoms,

to produce a first solution, the respective amounts of each of said magnesium dihydrocarbyloxide and transition metal hydrocarbyloxide being such that the mol ratio of Mg/M^2 in said solution is from about 0.5 to about 50,

(b) combining said first solution with a finely divided porous inorganic oxide support in an inert solvent to produce a slurry mixture, said support being present in from about 1 to about 10,000 parts by weight of said transition metal,

(c) combining with the slurry mixture of step (b) a halogen-containing compound of the formula

$$H_eM^1X^1_bR^1_{(c-b-a)}$$

wherein

M^1 is boron, carbon, silicon or mixtures, thereof,

X^1 is a halogen,

R^1 is a hydrocarbyl radical having 1 to 20 carbon atoms,

"a" is zero when M^1 is boron and is a number greater than zero and less than or equal to 2 when M^1 is silicon or carbon,

"b" is a number equal to or greater than 1 when M^1 is boron and greater than 1 when M^1 is silicon or carbon, and

"c" is the maximum valency of the element M^1, for a period of time effective to permit substantial completion for a period of time effective to permit substantial completion of reaction with the halogen-containing compound to produce a slurry reaction mixture, and

(d) adding to the slurry reaction mixture of step (d), an organometal compound, dissolved in an inert solvent, and of the formula:

$$M^3R^4_{e-f}X_f$$

wherein

M^3 is aluminum, magnesium, zinc or mixtures thereof,

R^4 is a saturated hydrocarbyl radical having from 1 to 14 carbon atoms,

X is hydrogen, a halogen or an alkoxy radical,

"e" is the valency of the metal M^3, and "f" is a number from zero to e−1,

in an amount of from about 0.5 to about 5.0 mols per mol of said transition metal hydrocarbyloxide, to produce the catalyst composition.

15. The process of claim 11 in which said dissolved magnesium dihydrocarbyloxide is a reaction product produced by reacting an alkyl alcohol containing at least 6 carbon atoms with a magnesium dialkyl dissolved in an inert solvent at a ratio of about two mols of alkyl alcohol per mol of magnesium dialky.

5,064,799

COMPONENTS AND CATALYSTS FOR THE POLYMERIZATION OF OLEFINS

Antonio Monte, and Luciano Noristi, both of Ferrara, Italy, assignors to Himont Incorporated, Wilmington, Del.

Filed Jan. 4, 1991, Ser. No. 637,407
Claims priority, application Italy, Jan. 10, 1990, 19030 A/90
Int. Cl.[5] C08F *4/651*
U.S. Cl. 502—115 **10 Claims**

1. A solid catalyst component for the polymerization of olefins comprising the reaction product of a tetravalent titanium halide or alkoxy titanium halide and an electron-donor compound with a solid obtained by reacting a metal oxide containing surface hydroxyl groups, with an organometallic magnesium compound of the formula:

$$MgR_{(2-x)}X_x$$

VOL 1132 ISS 2 NO 12 1991 UMI

where R is a C_{1-20} alkyl, C_{3-20} cycloalkyl, C_{6-20} aryl, C_{7-20} aralkyl or alkaryl radical; X is a halogen, OR or COX' radical where R is as previously defined, X' is a halogen and x is a number from 0.5 to 1.5, wherein at least 80% of the titanium which is present in said catalyst component is in the tetravalent state.

5,064,800

ANIONIC POLYMERIZATION CATALYST COMPOSITIONS

Adriaan A. Van Der Huizen, Amsterdam, Netherlands, assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 527,922, May 24, 1990, Pat. No. 4,996,273. This application Oct. 26, 1990, Ser. No. 604,049

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1989, 8928955

Int. Cl.[5] C08F *4/52*

U.S. Cl. 502—153 16 Claims

1. Anionic polymerization catalyst compositions comprising:
an organolithium compound,
a barium, strontium or calcium alcoholate or thiolate, and
a trialkylaluminum compound having at least 13 carbon atoms per molecule.

5,064,801

PROCESS FOR MANUFACTURING A CARBON CATALYST

Harald Jüntgen, Bonscheidter Str. 79; Karl Knoblauch, Semperstr. 55; Ekkehard Richter, Schmachtenbergstr. 89, and Helmut Kühl, Steeler Str. 540, all of D-4300 Essen, Fed. Rep. of Germany

PCT No. PCT/EP88/00184, § 371 Date Oct. 24, 1989, § 102(e) Date Oct. 24, 1989, PCT Pub. No. WO88/07410, PCT Pub. Date Oct. 6, 1988

PCT Filed Mar. 10, 1988, Ser. No. 434,682

Claims priority, application Fed. Rep. of Germany, Mar. 28, 1987, 3710272

Int. Cl.[5] B01J *21/18, 20/20;* C01B *31/10;* B01D *53/36*

U.S. Cl. 502—180 2 Claims

1. A process for manufacturing a carbon catalyst for NO_x reduction with ammonia, which comprises the steps of:
(a) molding ground, oxidized hard coal mixed with a binder;
(b) carbonizing the ground, oxidized hard coal mixed with a binder at a temperature between 700° and 900° C. to obtain the carbon catalyst; and
(c) following step (b), activating the carbon catalyst at a temperature between 800° and 850° C. with steam over a dwelling time of 45 to 100 minutes so that the carbon catalyst has a mean random reflectance of 4.5 to 5.5% and until an activation degree of 5 to 15% is reached.

5,064,802

METAL COMPLEX COMPOUNDS

James C. Stevens, Midland, Mich., and David R. Neithamer, Concord, Calif., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 407,169, Sep. 14, 1989, abandoned. This application Jul. 3, 1990, Ser. No. 547,728

Int. Cl.[5] C08F *4/64, 4/68, 4/69, 4/62*

U.S. Cl. 502—155 10 Claims

1. A monocyclopentadienyl or substituted monocyclopentadienyl metal complex containing compound useful as an olefin polymerization catalyst corresponding to the formula:

$$CpMX_n^+A^-$$

wherein:
Cp is a single η^5-cyclopentadienyl or η^5-hydrocarbyl substituted cyclopentadienyl group optionally covalently bonded to M through a substituent;
M is a metal of Groups 3–10 or the Lanthanide Series of the Periodic Table bound in an η^5 bonding mode to the cyclopentadienyl or substituted cyclopentadienyl group;
X each occurrence independently is selected from the group consisting of hydride, halo, alkyl, aryl, silyl, germyl, aryloxy, alkoxy, amide, siloxy, neutral Lewis base ligands and combinations thereof having up to 20 non-hydrogen atoms, and optionally one X together with Cp forms a metallocycle with M;
n is one or two depending on the valence of M; and
A^- is a noncoordinating, compatible anion of a Bronsted acid salt.

5,064,803

PREPARATION OF THREE-WAY CATALYSTS WITH HIGHLY DISPERSED CERIA

John G. Nunan, Palatine, Ill., assignor to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Aug. 31, 1990, Ser. No. 576,306

Int. Cl.[5] B01J *31/04*

U.S. Cl. 502—170 18 Claims

1. A method of preparing a catalyst for conversion of the exhaust from internal combustion engines comprising:
(a) impregnating a support with a solution of a cerium compound and at least one organic compound containing hydroxyl and/or carboxylic acid moieties selected from the group consisting of polyols, sugars, and hydroxy carboxylic acids;
(b) drying and calcining the impregnated support of (a) to produce supported ceria crystallites having a size below about 50 Angstroms as measured by X-ray diffraction;
(c) impregnating the calcined product of (b) with one or more solutions of compounds from Group VIII, and optionally catalyst promoters;
(d) drying and calcining the impregnated product of (c) and recovering the product as said conversion catalyst.

5,064,804

MIXED METAL FRAMEWORK COMPOSITIONS FOR MONOALKYLENE GLYCOL PRODUCTION

Hwaili Soo; Bernard C. Ream, and John H. Robson, all of Charleston, W. Va., assignors to Union Carbide Chemicals and Plastics Technology Corporation, Danbury, Conn.

Division of Ser. No. 423,703, Oct. 18, 1989, Pat. No. 4,967,018, which is a continuation of Ser. No. 125,134, Nov. 25, 1987, abandoned. This application May 23, 1990, Ser. No. 527,375

Int. Cl.[5] B01J *21/04, 23/28, 23/30, 23/84*

U.S. Cl. 502—335 7 Claims

1. A mixed metal framework composition having the formula

$$M_x^{2+}Q_y^{3+}(OH)_{2x+3y-nz}E_z^{n-}.aH_2O \quad (III)$$

wherein M is at least one divalent metal cation; Q is at least one trivalent metal cation; E is at least one anion selected from metavanadate, orthovanadate, hydrogen pyrovanadate, pyrovanadate, molybdate, and tungstate and n is the valence of said anion and wherein a is a positive number, M, Q and E are provided such that x/y is a number equal to or greater than 1, z has a value greater than zero and $2x+3y-nz$ is a positive number and M, Q and E are selected to provide a layered structure.

5,064,805

PRODUCTION OF HIGH QUALITY ACTIVATED CARBON

Yoshiro Otowa, Amagasaki, Japan, assignor to Kansai Netsukagaku Kabushiki Kaisha, Amagasaki, Japan

Filed Sep. 29, 1989, Ser. No. 414,788

Claims priority, application Japan, Oct. 1, 1988, 63-248754

Int. Cl.[5] C01B *31/12;* B01J *20/20, 21/18*

U.S. Cl. 502—427 4 Claims

1. A method of producing activated carbon with a large surface area and a low sulfur content which comprises mixing coconut shell char with potassium hydroxide hydrate with a water content of 2 to 25 weight percent in a weight ratio of coconut shell char to potassium hydroxide hydrate of 1:2 through 1:6 and heat-treating the mixture at a temperature which is higher than the temperature at which the potassium hydroxide hydrate melts and is sufficiently high to cause activation of carbon, whereby said heat-treating step yields an activated carbon having a low sulfur content in the absence of any acid washing step for removing sulfur from the activated carbon.

5,064,806

THERMOSENSITIVE RECORDING MATERIALS

Takahiro Torii; Masahiro Miyauchi; Harayoshi Funae, and Tomonori Kiriyama, all of Takasago, Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

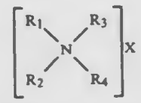
Filed Jun. 29, 1989, Ser. No. 372,811

Claims priority, application Japan, Jun. 30, 1988, 63-164438; Oct. 21, 1988, 63-266895; Oct. 24, 1988, 63-268705

Int. Cl.[5] B41M *5/40*

U.S. Cl. 503—200 6 Claims

1. A thermosensitive recording material comprising a support having provided thereon a thermosensitive recording layer comprising a substantially colorless or light-colored electron donating dye precursor and an electron accepting compound and an intermediate layer having provided between said support and said thermosensitive recording layer,
said intermediate layer containing at least one material selected from the group consisting of:
a compound represented by general formula [I] below, or a substance produced from (1) at least one of clay, calcium carbonate and silica, (2) a bentonite pigment and (3) an alkyl ammonium salt represented by general formula [I],
a combination of an oil-absorbing white pigment with a condensation product of an aromatic aldehyde and a polyvalent alcohol of at least 5 valencies, and,
an N-acylamino acid compound, wherein formula [I] is represented by:



[I]

wherein each of R_1, R_2, R_3 and R_4 independently represents hydrogen or an alkyl group, provided that the sum of carbon atoms for R_1 to R_4 is at least 14; and X represents an anionic atom or atomic group.

5,064,807

COLORING AGENT CARRYING MEDIUM USED IN TWO-PHASE THERMAL RECORDING SYSTEM

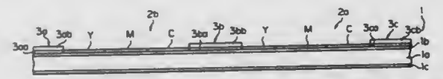
Masato Yoshida, and Niro Watanabe, both of Tokyo, Japan, assignors to Toppan Printing Co., Ltd., Tokyo, Japan

Filed Aug. 22, 1990, Ser. No. 570,763

Claims priority, application Japan, Aug. 23, 1989, 1-216576

Int. Cl.[5] B41M *5/035, 5/26*

U.S. Cl. 503—227 22 Claims



1. A coloring agent carrying medium comprising a heat resistant substrate having a front surface, at least one transfer ink film formed on the front surface of said heat-resistant substrate and containing a color agent transferable to a recording medium in the presence of heat, and at least one sublimation ink film formed on the front surface of said heat-resistant substrate in the vicinity of said transfer ink film and containing at least one dyestuff and at least one binder mainly composed of a crosslinked polyvinyl alcohol.

5,064,808

METHOD OF MANUFACTURING OXIDE SUPERCONDICTORS USING SELF-PROPAGATING HIGH-TEMPERATURE SYNTHESIS

Alexandr G. Merzhanov; Inna P. Borovinskaya; Mikael D. Nersesian, and Andrei G. Peresada, all of Moskovskaya, U.S.S.R., assignors to Institut Strukturnoi Makrokinetiki an SSSR, Chernogolovka, U.S.S.R.

PCT No. PCT/SU88/00113, § 371 Date Nov. 22, 1989, § 102(e) Date Nov. 22, 1989, PCT Pub. No. WO88/09311, PCT Pub. Date Dec. 1, 1988

PCT Filed May 20, 1988, Ser. No. 445,740

Claims priority, application U.S.S.R., May 26, 1987, 4244487

Int. Cl.[5] C01B *13/14;* C01F *11/04;* C01G *3/02*

U.S. Cl. 505—1 27 Claims

1. A process for producing a superconducting oxide material, the process comprising:
providing an exothermic mixture of stoichiometric starting amounts of non-combustible and combustible components, the non-combustible component being a mixture of at least one oxide, halide, nitrate, carbonate or oxalate of at least one rare earth metal selected from the group consisting of scandium, yttrium, and lanthanides; at least one oxide, peroxide, carbonate, nitrate or halide of a metal selected from the group consisting of copper, silver and gold; and at least one oxide, peroxide, carbonate, nitrate or halide of a metal selected from the group consisting of calcium, strontium, barium and radium, and the combustible component being selected from the group consisting of at least one of the rare earth metal; a metal selected from the group consisting of copper, silver and gold; a metal selected from the group consisting of calcium, strontium, barium, and radium; a hydride of the rare earth metal, and a hydride of the metal of the group of calcium, strontium, barium and radium;
placing the exothermic mixture in an oxygen-containing medium having a stoichiometric excess of an oxidizing agent;
locally igniting the exothermic mixture at any point thereof for initiating a reaction thereof; and
maintaining the excess of the oxidizing agent until the reaction is completed, whereby to provide a superconducting oxide material.

5,064,809

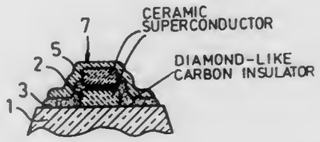
METHOD OF MAKING A JOSEPHSON JUNCTION WITH A DIAMOND-LIKE CARBON INSULATING BARRIER

Aharon Z. Hed, Nashua, N.H., assignor to Troy Investments, Inc., Nashua, N.H.

Filed Dec. 23, 1988, Ser. No. 290,178

Int. Cl.[5] B05D *5/12;* H01L *39/22*

U.S. Cl. 505—1 10 Claims



1. A method of making a Josephson junction, comprising the steps of:
(a) depositing upon a substrate a first layer of high-tempera-

VOL 1132 ISS 2 NO 12 1991 UMI

ture superconductive oxide having a critical temperature above 23 K.;

(b) depositing on said first layer to a thickness in excess of 200 angstroms an insulating layer of diamond-like carbon resistant to cation diffusion therethrough and incapable of interdiffusing with superconductive oxides of the junction;

(c) plasma etching said insulating layer to leave said insulating layer with a thickness of 20 to 100 angstroms on said first layer; to leave a continuous film thereof on said first layer of a thickness of 20 to 100 angstroms; and

(d) depositing on said insulating layer a second layer of high-temperature superconductive oxide having a critical temperature above 23 K. and forming with said first layer and said insulating layer a Josephson junction at a temperature at least equal to one of said critical temperatures.

5,064,810

USE OF BRANCHED CHAIN AMINO ACIDS TO EFFECT DIAPHRAGM CONTRACTILITY AND FATIGUE

Jeffrey Askanazi, 233 Myrtle St., Haworth, N.J. 07641, and Susan Trimbo, 737 Ridge Ave., Evanston, Ill. 60202

Filed Sep. 14, 1990, Ser. No. 583,177

Int. Cl.[5] A61K *31/19, 31/195, 37/00*

U.S. Cl. 514—2 **17 Claims**

1. A method for reducing diaphragm muscle fatigue and improving contractility comprising administering to a patient having poor respiratory muscle function a composition comprising at least the branched chain amino acids, leucine, valine and isoleucine in amounts effective to reduce diaphragm muscle fatigue including branched chain amino acids.

5,064,811

DE-MANNOSYL TEICOPLANIN DERIVATIVES

Angelo Borghi, Milan; Giancarlo Lancini, Pavia, and Piero Antonini, Ariuno, all of Italy, assignors to Gruppo LePetit S.p.A., Milan, Italy

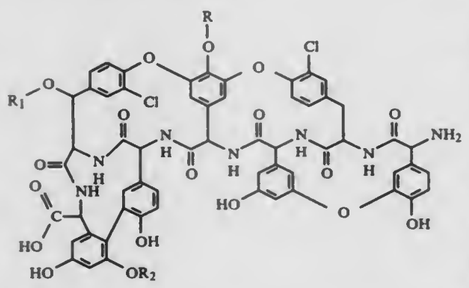
Continuation of Ser. No. 211,955, Jun. 27, 1988, abandoned. This application Feb. 13, 1991, Ser. No. 655,252

Claims priority, application United Kingdom, Jul. 3, 1987, 8715735

Int. Cl.[5] A61K *37/02; C07K 7/54*

U.S. Cl. 514—8 **10 Claims**

1. A compound of the formula:



wherein

R^1 is represented by N-Z(Z-4-decenoyl)-beta-D-2-deoxy-2-amino-glucpyranosyl, N-(8-methyl-[noanoyl] nonanoyl)-beta-D-2-deoxy-2-amino-glucopyranosyl, N-decanoyl-beta-D-2-deoxy-2-amino-glucopyranosyl, N-(8-methyl-decanoyl)-beta-D-2-deoxy-2-amino-glucopyranosyl, or N-(9-methyl-decanoyl)-beta-D-2-deoxy-2-amino-glucopyranosyl;

R_1 is N-acetyl-beta-D-2-deoxy-[2-deoxy-]2-amino-glucopyranosyl;

R_2 is hydrogen;

or an acidic or basic addition salt thereof.

9. A method for the treatment of bacterial infections comprising administering an effective amount of a compound according to claim 1 to a patietn in need thereof.

5,064,812

METAL COMPLEXES OF N-ACETYL-GLUCOSAMINYL-N-ACETYL-MURAMOYL-L-ALANYL-D-ISOGLUTAMINYL-(L)-MESO-DIAMINO-PIMELYL-(D-AMIDE)-(L)-D-ALANYL-D-ALANINE AND THEIR USE IN PHARMACEUTICALS

Bozidar Suskovic; Zlatko Vajtner, and Radmila Naumski, all of Zagreb, Yugoslavia, assignors to Sour Pliva, Yugoslavia

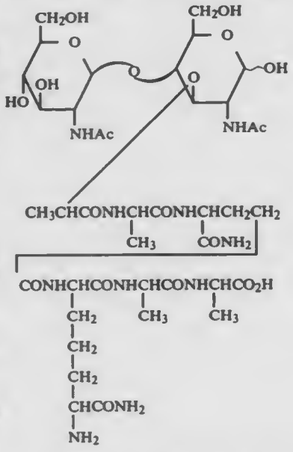
Continuation of Ser. No. 122,824, Nov. 19, 1987. This application Dec. 4, 1989, Ser. No. 443,839

Claims priority, application Yugoslavia, Nov. 16, 1986, 1982/86

Int. Cl.[5] A61K *37/02*

U.S. Cl. 514—8 **9 Claims**

1. A complex of N-acetyl-glucosaminyl-N-acetyl-muramoyl-L-alanyl-D-isoglutaminyl-(L)-meso-diamino-pimelyl-(D-amide)-(L)-D-alanyl-D-alanine of the formula



with bivalent metals chosen from the group comprising Cu^{2+}, Zn^{2+}, Co^{2+}, Ni^{2+} and Cd^{2+} in the molar ratio of the organic ligand:Cu^{2+}=2:1 and the organic ligand:Zn^{2+} or Co^{2+} or Ni^{2+} or Cd^{2+}=1:1.

5,064,813

COMBINATION THERAPY FOR SELECTED SEX STEROID DEPENDENT CANCERS

Fernand Labrie, 2735 Boul. Ilgeois, Ste-Foy, Quebec, Canada G1W 1Z9

Continuation of Ser. No. 146,597, Jan. 21, 1988, abandoned, which is a continuation of Ser. No. 892,214, filed as PCT US85/01454 Feb. 8, 1985, published as WO86/01105 Aug. 25, 1985, Jul. 31, 1986, Pat. No. 4,760,053. This application Nov. 9, 1989, Ser. No. 413,613

The portion of the term of this patent subsequent to Apr. 21, 2087, has been disclaimed.

Int. Cl.[5] A61K *37/02*

U.S. Cl. 514—15 **7 Claims**

1. A combination of pharmaceutical compositions for combination therapy of selected sex steroid dependent cancers in a warm-blooded animal whose hormone output of the testes or ovaries is blocked, the combination consisting of pharmaceutical compositions comprising:

(a) an antiestrogen and at least one inhibitor of sex steroid biosynthesis, or

(b) an antiestrogen and an antiandrogen; or

(c) an antiestrogen and an antiandrogen and at least one inhibitor of sex steroid biosynthesis, or

(d) an antiandrogen and at least one inhibitor of sex steroid biosynthesis.

5,064,814

ANTI-THROMBOTIC PEPTIDE AND PSEUDOPEPTIDE DERIVATIVES

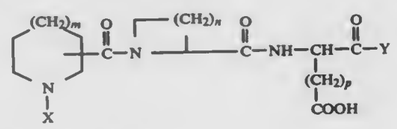
Scott I. Klein, Audubon, and Bruce F. Molino, Hatfield, both of Pa., assignors to Rhone-Poulenc Rorer Pharmaceuticals Inc., Fort Washington, Pa.

Filed Apr. 5, 1990, Ser. No. 505,286

Int. Cl.[5] A61K *37/00, 37/02; C07K 5/00*

U.S. Cl. 514—18 **7 Claims**

1. A compound of the formula



wherein: X is H, amidino or



where R_1 is C_{1-10} alkyl, aryl or aralkyl; Y is OR_2,



or a naturally occurring L-amino acid, bonded to the carbon atom at the α-amino position; R_2 and R_3 are independently: H, C_{1-10} alkyl, aryl, aralkyl or allyl; m is 0 or 1; n is 4; and p is 0, 1, 2 or 3; or a pharmaceutically acceptable salt thereof.

5,064,815

PRIMYCIN-CONTAINING COLLOIDAL BASIC GEL

Peter Szentmiklósi; Tamás Szüts; József Nemes; József Lengyel; Jenö Martos; Peter Sárközi; Erzsébet Babos née Vajas, and Enikö Schreiner née Kovats, all of Budapest, Hungary, assignors to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara RT., Budapest, Hungary

Continuation of Ser. No. 277,424, Nov. 25, 1988, abandoned, which is a continuation-in-part of Ser. No. 935,860, Nov. 26, 1986, abandoned. This application Mar. 26, 1990, Ser. No. 500,236

Claims priority, application Hungary, Nov. 27, 1985, 4526/85; Nov. 14, 1986, 4689/86

Int. Cl.[5] A61K *31/70; C07H 17/08*

U.S. Cl. 514—31 **11 Claims**

3. A colloidal basic gel which comprises:

(a) a primycin-containing gel prepared by dissolving 5 to 12% primycin in 20 to 48% N-methyl-pyrrolidone-2 at a temperature of 70° to 150° C. to form a solution followed by cooling the solution to room temperature;

(b) 10 to 60% of a second antibiotic agent selected from the group consisting of nystatin, doxycycline and gentamycin; and

(c) 15 to 30% water.

5,064,816

HETEROCYCLIC PHOSPHOLIPIDS USEFUL IN TREATING MULTIPLE SCLEROSIS

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz Ltd., Basel, Switzerland

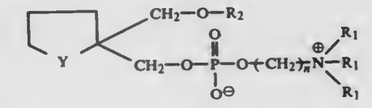
Continuation-in-part of Ser. No. 489,578, Mar. 7, 1990, abandoned, which is a continuation-in-part of Ser. No. 423,323, Oct. 18, 1989, abandoned, which is a continuation-in-part of Ser. No. 392,187, Aug. 10, 1989, abandoned. This application Jun. 5, 1990, Ser. No. 533,246

Int. Cl.[5] A61K *31/665, 31/67*

U.S. Cl. 514—77 **3 Claims**

1. A method of treating multiple sclerosis comprising administering to a subject afflicted therewith a therapeutically effective amount of a compound of formula III:

III



where

R_2, is n-C_{14}-C_{20}alkyl;

each

R_1, independently, is methyl or ethyl;

Y is -O- or -S-;

and n is an integer 2 to 6.

5,064,817

PHOSPHOLIPASE A_2 INHIBITING COMPOSITIONS AND THEIR USE

Saul Yedgar, and Arie Dagan, both of Jerusalem, Israel, assignors to Yissum Research Development Company of Hebrew University of Jerusalem, Jerusalem, Israel

Filed Oct. 21, 1988, Ser. No. 260,588

Claims priority, application Israel, Oct. 23, 1987, 84252

Int. Cl.[5] A61K *37/64*

U.S. Cl. 514—78 **19 Claims**

1. A compound which is an inhibitor of the enzyme phospholipase A_2 (PLA_2) and whose molecular structure comprises a cell-permeable PLA_2-inhibitor moiety covalently bonded directly or indirectly to a physiologically acceptable carrier moiety which is effective to inhibit cell internalization of the cell-permeable PLA_2-inhibitor moiety, with the proviso that the carrier moiety is not dextran hydrazide.

5,064,818

PESTICIDAL PYRIMIDINYL (THIONO) (THIO)-PHOSPHORIC (PHOSPHONIC)ACID (AMIDE) ESTERS

Fritz Maurer, Wuppertal; Jürgen Hartwig, Leverkusen, both of Fed. Rep. of Germany, and Benedikt Becker, Pineta di Laives, Italy, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 16, 1990, Ser. No. 510,363

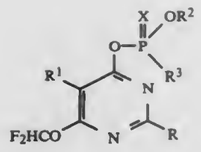
Claims priority, application Fed. Rep. of Germany, May 4, 1989, 3914714

Int. Cl.[5] A01N *57/16, 57/24; C07F 9/6512*

U.S. Cl. 514—86 **11 Claims**

1. A pyrimidine(thiono)(thio)-phosphoric(phosphonic) acid (amide) ester of the formula

VOL 1132 ISS 2 NO 12 1991 UMI



(I)

in which

R represents hydrogen, alkyl having 1 to 4 carbon atoms, alkyl having 1 to 4 carbon atoms which is substituted by alkylsulphonyl having 1 to 2 carbon atoms, alkoxy having 1 to 4 carbon atoms, alkylthio having 1 to 4 carbon atoms, dialkylamino having 1 to 4 carbon atoms in the individual alkyl parts, cycloalkyl having 3 to 6 carbon atoms or phenyl,

R^1 represents hydrogen, alkyl having 1 to 4 carbon atoms or halogen,

R^2 represents alkyl having 1 to 4 carbon atoms,

R^3 represents alkyl having 1 to 4 carbon atoms, alkoxy having 1 to 4 carbon atoms, alkylthio having 1 to 4 carbon atoms, amino, alkylamino having 1 to 4 carbon atoms, dialkylamino having 1 to 4 carbon atoms in the individual alkyl parts or phenyl and

X represents oxygen or sulphur.

9. An insecticidal, acaricidal or nematicidal composition comprising an insecticidally, acaricidally or nematicidally effective amount of a compound according to claim **1** and a diluent.

10. A method of combating insects, acarids or nematodes which comprises applying to such insects, acarids or nematodes or to an insect, acarid or nematode habitat an insecticidally, acaricidally or nematicidally effective amount of a compound according to claim **1**.

5,064,819

SUBSTITUTED PROPANE-PHOSPHINIC ACID COMPOUNDS

Eric K. Baylis, Offerton, England; Helmut Bittiger, Freiburg, Fed. Rep. of Germany; Wolfgang Frösti, Basel, Switzerland; Roger G. Hall, Flixton, England; Ludwig Maier, Arlesheim, Switzerland; Stuart J. Mickel, Lausen, Switzerland, and Hans-Rudolf Olpe, Bottmingen, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

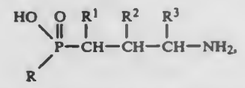
Continuation-in-part of Ser. No. 484,716, Feb. 26, 1990, which is a continuation-in-part of Ser. No. 378,887, Jul. 12, 1989, which is a continuation-in-part of Ser. No. 275,882, Nov. 25, 1988, abandoned. This application Mar. 30, 1990, Ser. No. 502,399

Claims priority, application United Kingdom, Dec. 4, 1987, 8728483

Int. Cl.[5] A61K *31/66, 31/13, 31/045;* **C07F** *9/30*

U.S. Cl. 514—114 **7 Claims**

1. A pharmaceutical composition containing a therapeutically effective amount of a compound of the formula



(I)

wherein R denotes an aliphatic, cycloaliphatic, cycloaliphatic-aliphatic or araliphatic radical having 2 or more carbon atoms, and wherein one of the groups R^1, R^2 and R^3 represents hydrogen or an aliphatic, cycloaliphatic, araliphatic or aromatic radical, another one of R^1, R^2 and R^3 is hydrogen or, wherein R^1 and R^2 are hydroxy, and the remaining one of R^1, R^2 and R^3 is hydrogen, or wherein R denotes methyl, R_1 denotes hydrogen or hydroxy, R_2 denotes an aromatic radical and R_3 represents hydrogen, or of a pharmaceutically acceptable salt thereof in admixture to a conventional pharmaceutical carrier system with the exception of aqueous or water-containing solutions of compounds of the formula I, wherein R is α,α-C_1–C_4alkoxy-C_1–C_4alkyl, one of R^1, R^2 and R^3 is hydrogen, C_1–C_8 alkyl, C_3–C_8-cycloalkyl, phenyl, C_7–C_{10}phenylalkyl, phenyl substituted by halo, C_1–C_4alkyl, C_1–C_4alkoxy and/or trifluoromethyl or C_7–C_{10}phenylalkyl substituted by halo, C_1–C_4alkyl, C_1–C_4alkoxy and/or trifluoromethyl and the other two of R^1, R^2 and R^3 are hydrogen.

5,064,820

ALKYL SUBSTITUTED PHOSPHATES AND PHOSPHONATES AS DISRUPTANTS OF INSECT SEX PHEROMONE-MEDIATED BEHAVIOR

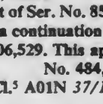
T. Roy Fukuto; Richard S. Vetter; Thomas C. Baker, and Mangel S. Malik, all of Riverside, Calif., assignors to Regents of the University of California, Alameda, Calif.

Filed Dec. 19, 1989, Ser. No. 452,645

Int. Cl.[5] A01N *57/34;* **C07F** *9/42*

U.S. Cl. 514—134 **16 Claims**

1. A compound of general formula I



I

wherein

R1 represents —R3, —OR3 or —$N(R3)_2$, in which R3 is alkyl of 1 to 18 carbon atoms;

R2 represents alkyl of 1 to 18 carbon atoms; and

X represents halogen,

with the proviso that at least one of R2 and R3 is a sex pheromone alkyl chain selected from the group consisting of: cis—CH_3—$(CH_2)_5$—CH=CH—$(CH_2)_2$—; cis—CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_4$; cis—CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_6$—; cis—CH_3—$(CH_2)_2$—CH=CH—$(CH_2)_7$—; trans—CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_6$—; cis—CH_3—$(CH_2)_5$—CH=CH—$(CH_2)_4$—; trans—CH_3—$(CH_2)_5$—CH=CH—$(CH_2)_4$—; trans—CH_3—$(CH_2)_2$—CH=CH—$(CH_2)_7$—; trans—CH_3—CH=CH—$(CH_2)_9$—; cis—CH_3—CH_2—CH=CH—$(CH_2)_8$—; trans—CH_3—CH_2—CH=CH—$(CH_2)_8$—; trans-8, trans-10-CH_3—CH=CH—CH=CH—$(CH_2)_7$—; cis—CH_3—$(CH_2)_7$—CH=CH—$(CH_2)_3$—; cis-4, trans-7-CH_3—$(CH_2)_4$—CH=CH—CH_2—CH=CH—$(CH_2)_3$—; cis—CH_3—$(CH_2)_2$—CH=CH—$(CH_2)_9$—; trans-CH_3—$(CH_2)_4$—CH=CH—$(CH_2)_7$—; cis—CH_3—CH_2—CH=CH—$(CH_2)_{10}$—; trans-CH_3—CH_2—CH=CH—$(CH_2)_{10}$—; cis—CH_3—$(CH_2)_5$—CH=CH—$(CH_2)_6$—; cis—CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_8$—; cis-9, trans-12-CH_3—CH=CH—CH_2—CH=CH—$(CH_2)_8$—; cis-9, trans-11-CH_3—CH_2—CH=CH—CH=CH—$(CH_2)_8$—; cis—CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_{10}$—; cis—CH_3—$(CH_2)_5$—CH=CH—$(CH_2)_8$—; cis-7, cis-11-CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_2$—CH=CH—$(CH_2)_6$—; cis-7, trans-11-CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_2$—CH=CH—$(CH_2)_6$—; and cis-3, cis-13—CH_3—$(CH_2)_3$—CH=CH—$(CH_2)_8$—CH=CH—$(CH_2)_2$—.

5,064,821

METHOD AND COMPOSITIONS FOR OVERCOMING TETRACYCLINE RESISTANCE WITHIN LIVING CELLS

Stuart B. Levy, Boston, Mass., assignor to Trustees of Tufts College, Medford, Mass.

Continuation-in-part of Ser. No. 850,843, Apr. 11, 1986, Pat. No. 5,021,407, which is a continuation of Ser. No. 442,688, Nov. 18, 1982, Pat. No. 4,806,529. This application Feb. 26, 1990, Ser. No. 484,904

Int. Cl.[5] A01N *37/18;* **A61K** *35/00*

U.S. Cl. 514—154 **13 Claims**

1. A method for therapeutically treating a tetracycline resistant cell with tetracycline, said method comprising the steps of:

administering to the cell a predeterminable quantity of at least a first composition selected from the group consisting of 6-deoxy-13-(substituted mercapto) tetracyclines; and

concomitantly administering to the cell a predeterminable quantity of at least a second composition selected from the chemical class consisting of tetracyclines, tetracycline analogues and tetracycline derivatives which are not 6-deoxy-3-(substituted mercapto) tetracyclines.

5,064,822

NOVEL 3-KETO-19-NOR-$\Delta^{4,9}$-STEROIDS

Daniel Philibert, Saint-Hilaire; Jean G. Teutsch, Pantin; Germain Costerousse, Saint-Maurice, and Roger Deraedt, Pavillons-sous-Bois, all of France, assignors to Roussel Uclaf, Paris, France

Continuation-in-part of Ser. No. 859,072, May 2, 1986, which is a division of Ser. No. 746,176, Jun. 18, 1985, abandoned, which is a division of Ser. No. 618,590, Jun. 8, 1984, Pat. No. 4,540,686, which is a continuation of Ser. No. 469,042, Feb. 23, 1983, Pat. No. 4,477,445. This application Nov. 16, 1989, Ser. No. 438,359

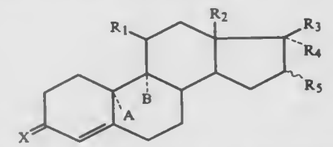
Claims priority, application France, Mar. 1, 1982, 82 03338; Nov. 16, 1988, 88 14868

The portion of the term of this patent subsequent to Oct. 16, 2001, has been disclaimed.

Int. Cl.[5] A61K *31/56, 31/58;* **C07J** *1/00, 17/00*

U.S. Cl. 514—172 **15 Claims**

1. A compound selected from the group consisting of 3-keto-19-nor-$\Delta^{4,9}$-steroids of the formula



I

wherein R_1 is selected from the group consisting of naphthyl, phenylphenyl, alkyl of 1 to 6 carbon atoms, alkenyl of 2 to 6 carbon atoms optionally containing additional unsaturation, phenoxy, furyl, cycloalkyl of 3 to 6 carbon atoms, thienyl optionally substituted with at least one member of the group consisting of halogen and alkyl and haloalkyl of 1 to 6 carbon atoms and phenyl optionally substituted with at least one member of the group consisting of —OH, halogen, $—CF_3$, alkyl and alkoxy of 1 to 6 carbon atoms, alkenyloxy of 2 to 6 carbon atoms, phenoxy and alkylthio of 1 to 6 carbon atoms optionally oxidized to the sulfoxide or sulfone, R_2 is selected from the group consisting of methyl and ethyl, R_3 is selected from the group consisting of hydrogen, optionally substituted alkyl of 1 to 6 carbon atoms, optionally substituted alkenyl and alkynyl of 2 to 6 carbon atoms, —OH, acetyl, hydroxyacetyl, carboxyalkoxy of 2 to 4 carbon atoms optionally esterified or salified and hydroxyalkyl of 1 to 6 carbon atoms optionally esterified, R_4 is selected from the group consisting of alkynyl of 2 to 12 carbon atoms substitued with one member of the group consisting of OH and halogen, R_5 is selected from the group consisting of hydrogen and methyl in the alpha or beta position, X is =O or hydroxyimino or alkoxyimino of 1 to 4 carbon atoms in the syn or anti form and A and B are an epoxy or a second bond in the 9(10) position and their non-toxic, pharmaceutically acceptable acid addition salts.

6. An antiglucocorticoid composition comprising an antiglucocorticoidally effective amount of at least one compound of claim 1 and an inert pharmaceutical carrier.

11. A method of inducing antiglucocorticoid activity in warm-blooded animals comprising administering to warm-blooded animals an antiglucocorticoidally effective amount of at least on compound of claim 1.

5,064,823

PENTACYCLIC TRITERPENOID COMPOUNDS AS TOPOISOMERASE INHIBITORS OR CELL DIFFERENTIATION INDUCERS

Yue-Wei Lee, Research Triangle Park, N.C.; Qi-Cheng Fang, Beijing, Taiwan; Zhen-Guo Wang; De-Hua Li, both of Jilin, Taiwan, and C. E. Cook, Research Triangle Park, N.C., assignors to Research Triangle Institute, Research Triangle, N.C.

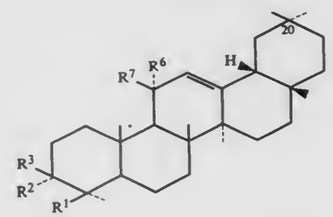
Continuation of Ser. No. 235,903, Aug. 24, 1988, abandoned. This application May 1, 1990, Ser. No. 517,176

Int. Cl.[5] A61K *31/43;* **A01N** *63/00*

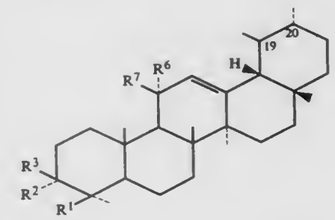
U.S. Cl. 514—198 **14 Claims**

1. A method for inhibiting topoisomerase I, which comprises contacting topoisomerase I *in vitro* or *in vivo* with an inhibitory effective amount of a compound selected from the group consisting of those having the following formulas:

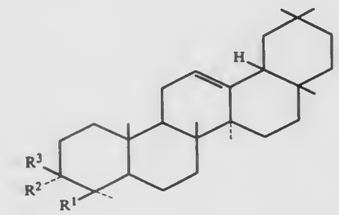
C



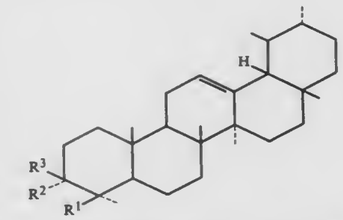
D



E



F



wherein R^1 is -$COOR^4$, is a -H; C_{1-4} alkyl; C_{2-4} alkenyl; C_{3-4} alkynyl; C_6-C_8 aryl which is unsubstituted or is substituted by halogen, methoxy, ethoxy, sulfonamido, amino, mono- or di-C_{1-4}-alkyl-amino, mono- or di-acetylamino, C_{1-4} alkyl, C_{2-4} alkenyl, or

R^1 is -$CONH_2$; -$CONHR^5$; or -$CONR_2^5$, *where R5* is a -CH_3;

VOL 1132 ISS 2 NO 12 1991 UMI

$-CH_2COOH$; $-CH_2CH_2COOH$; C_{2-8} alkyl; C_{2-8} alkenyl; C_{2-8} alkynyl; or C_{6-8} aryl which is unsubstituted or is substituted by halogen, methoxy, ethoxy, sulfonamido, amino, mono- or di-C_{1-4}-alkyl-amino, mono- or di-acetylamino, C_{1-4} alkyl, C_{2-4} alkenyl, and

R^2 and R^3 may be combinations of hydrogen or R^5, with -H, $-OR^4$, $-NH_2$, $-NHR^5$, $-NHR_2^5$,

$$-\overset{O}{\overset{\|}{O}}CR^5 \text{ or } -\overset{O}{\overset{\|}{N}}HCR^5,$$

wherein R^4 and R^5 are as defined above, or

R^2 and R^3 together may be =O or =N-OR^4, wherein R^4 is as defined above, and

R^6 and R^7 may be combinations of hydrogen or R^5, with -H, $-OR^4$, $-NH_2$, $-NHR^5$, $-NHR_2^5$,

$$-\overset{O}{\overset{\|}{O}}CR^5 \text{ or } -\overset{O}{\overset{\|}{N}}HCR^5,$$

wherein R^4 and R^5 are as defined above, or

R^6 and R^7 together may be =O or =N-OR^4, wherein R^4 is as defined above, and

pharmaceutically acceptable salts thereof.

5,064,824

CEPHALOSPORIN COMPOUNDS

David G. Acton, Rudheath; David H. Davies, Sutton, and Jeffrey P. Poyser, Handforth, all of England, assignors to Imperial Chemical Industries PLC, London, England

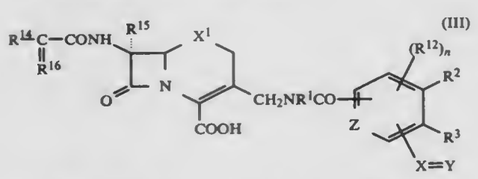
Filed May 5, 1989, Ser. No. 347,567

Claims priority, application United Kingdom, May 10, 1988, 8811056

Int. Cl.[5] **C07D** *501/22;* **A61K** *31/545*

U.S. Cl. 514—202 **8 Claims**

1. A compound of the formula (III):



(III)

or a salt or ester thereof wherein R^1 is hydrogen, C_{1-6} alkyl optionally substituted by any of halo, hydroxy, C_{1-6} alkoxy, carboxy, amino, cyano, C_{1-6} alkanoylamino, phenyl or heteroaryl, or R^1 is C_{2-6} alkenyl; R^2 is hydroxy or an in vivo hydrolysable ester thereof; R^3 is hydroxy or an in vivo hydrolysable ester thereof;

Z is CH or N;

X is a group CR^4, wherein R^4 is hydrogen, optionally substituted C_{1-6}alkyl, aryl, acrylC_{1-6} alkyl, heteroaryl or heteroaryl C_{1-6} alkyl;

Y is a group NOR^5,$NNR^{51}R^6$, NR_7 (when —X=Y is ortho to a hydroxy group) or CR^{8R9}, wherein R^5 is hydrogen, optionally substituted C_{1-6} alkyl, arylC_{1-6} alkyl, heteroaryl C_{1-6} alkyl, optionally substituted C_{2-6} alkenyl, optionally substituted C_{3-7} cycloalkyl, aryl or heteroaryl; R^{51} is hydrogen, optionally substituted C_{1-6} alkyl, arylC_{1-6}alkyl, heteroarylC_{1-6}alkyl, optionally substituted C_{2-6} alkenyl, optionally substituted C_{3-7}cycloalkyl, aryl, heteroaryl, C_{1-6}alkanoyl, arylC_{1-6}alkanoyl, heteroarylC_{1-6} alkanoyl, C_{2-6}alkenoyl, C_{3-7}cycloalkylcarbonyl, arylcarbonyl, heteroarylcarbonyl, carbamoyl, c_{1-6}alkylcarbamoyl, arylcarbamoyl or arylC_{1-6} alkylcarbamoyl; R^6 is hydrogen, C_{1-6} alkyl or arylC_{1-6} alkyl; R^7 is optionally substituted C_{1-6}alkyl, arylC_{1-6}alkyl, heteroaryl C_{1-6} alkyl, optionally substituted C_{2-6} alkenyl, C_{3-7} cycloalkyl, aryl or heteroaryl; R^8 and R^9 are independently halogen, hydrogen, optionally substituted C_{2-6} alkyl, arylC_{1-6}alkyl, heteroarylC_{1-6}alkyl, optionally substituted C_{2-6} alkenyl, C_{3-7}cycloalkyl, aryl, heteroaryl, optionally substituted C_{1-6} alkanoyl, optionally substituted C_{1-6} alkoxycarbonyl, carboxy, arylcarbonyl, heteroarylcarbonyl or aryl C_{1-6} alkoxycarbonyl;

or X=Y is a group —N=N—R^{10} or, when Z is N, X=Y is also a group —N=$CR^{10}R^{11}$ wherein R^{10} is optionally substituted aryl and R^{11} is hydrogen or C_{1-6}alkyl;

R^{12} is C_{1-6} alkyl, halo, hydroxy, hydroxy C_{1-6}alkyl, cyano, trifluoromethyl, nitro, amino, C_{1-6} alkylamino, di-C_{1-6} alkylamino, C_{1-6}alkanoyl, C_{1-6} alkoxy, C_{1-6} alkylthio, C_{1-6} alkanoyloxy, carbamoyl, C_{1-6} alkylcarbamoyl, di-C_{1-6} alkylcarbamoyl, carboxy, carboxy C_{1-6} alkyl, C_{1-6}alkoxycarbonylC_{1-6}alkyl, sulpho, sulphoC_{1-6} alkyl, C_{1-6} alkanesulphonamido, C_{1-6} alkoxycarbonyl, C_{1-6} alkanoylamino, thioureido or amidino, and n is zero to 2,

the optional substitution in R^4 being hydroxy, halo, C_{1-6} alkoxy, amino, C_{1-6} alkylamino or di-C_{1-6} alkylamino;

the optional substitution in R^5 being hydroxy, C_{1-6} alkoxy, halo, carboxy, C_{1-4} alkylcarbamoyl, C_{1-6} alkylthio, C_{1-6} alkylamino, di-C_{1-6} alkylamino, cyano, C_{1-6} alkanesulphonamido, C_{1-6} alkoxycarbonyl or alkanoyl;

the optional substitution for C_{1-6} alkyl, C_{2-6} alkanoyl and C_{3-7} cycloalkyl in R^{51} being hydroxy, C_{1-6} alkoxy, halo, carboxy, C_{1-4} alkylcarbamoyl, di-C_{1-6} alkylcarbamoyl, C_{1-6} alkylthio, amino, C_{1-6} alkylamino, di-C_{1-6} alkylamino, cyano, C_{1-6} alkanesulphonamido, C_{1-6} alkoxycarbonyl or C_{1-6} alkanoyl;

the optional substitution in R^7 for C_{1-6} alkyl and C_{2-6} alkenyl being hydroxy, C_{1-6} alkoxy, halo, carboxy, C_{1-4} alkylcarbamoyl, di-C_{1-6} alkylcarbamoyl, di-C_{1-6} alkylthio, amino, C_{1-6} alkylamino, di-C_{1-6} alkylamino, cyano, C_{1-6} alkanesulphonamido, C_{1-6} alkoxycarbonyl or C_{1-6} alkanoyl;

the optional substitution for C_{1-6} alkyl, C_{2-6} alkenyl, C_{1-6} alkanoyl and C_{1-6} alkylcarbonyl in R^8 and R^9 being hydroxy, C_{1-6} alkoxy, halo, carboxy, C_{1-4} alkylcarbamoyl, di-C_{1-6} alkylcarbamoyl, C_{1-6} alkylthio, amino, C_{1-6} alkylamino, di-C_{1-6} alkylamino, cyano, C_{1-6} alkanesulphonamido, C_{1-6} alkoxycarbonyl or C_{1-6} alkanoyl;

the optional substitution for aryl in R^{10} being hydroxy, C_{1-6} alkoxy, cyano, nitro, C_{1-6} alkyl or C_{1-6} alkylthio;

heteroaryl being a 5- or 6-membered ring containing 1 to 3 atoms selected from nitrogen, oxygen and sulphur optionally substituted by R^{12}; and aryl, when other than R^{10}, being phenyl or naphthyl optionally substituted by R^{12};

X^1 is sulphur or sulphinyl; R^{15} is hydrogen, methoxy or formamido;

R^{14} is 2-aminothiazol-4-yl or 2-aminooxazol-4-yl each optionally substituted in the 5-position by fluorine, chlorine or bromine, or R^{14} is 5-aminisothiazol-3-yl, 5-amino-1,2,4-thiadiazol-3-yl, 3-aminopyrazol-5-yl, 3-aminopyrazol-4-yl, 2-aminopyrimidin-5-yl, 2-aminopyrid-6-yl, 4-aminopyrimidin-2-yl, 2-amino-1,3,4-thiadiazol-5-yl or 5-amino-1-methyl-1,2,4-triazol-3-yl

R^{16} is of the formula =N.O.R^{17} (having the syn configuration about the double bond) wherein R^{17} is hydrogen, (1-6C)alkyl, (3-8C)cycloalkyl, (1-3C)alkyl(3-6C)cycloalkyl, (3-6C)cycloalkyl(1-3C)alkyl, (3-6C)alkenyl, optionally substituted by carboxy, (5-8C)cycloalkenyl, (3-6C)alkynyl, (2-5C)alkylcarbamoyl, phenylcarbamoyl, benzylcarbamoyl, (1-4C) alkylcarbamoyl (1-4C)alkyl, di(1-4Calkylcarbamoyl (1-4C)alkyl, (1-4C)haloalkylcarbamoyl(1-4C)alkyl, (1-3C)haloalyl, (2-6C)hydroxyalkyl, (1-4C)alkoxy(2-4C)alkyl, (1-4C)alkylthio(2-4C)alkyl, (1-4C)alkanesuphinyl (1-4C)alkyl, (1-4C)alkanesulphonyl(1-4C)alkyl, (2-6C)aminoalkyl, (1-4C)alkylamino(1-6C)alkyl, (2-8C)dialkylamino(2-6C)alkyl, (1-5C)cyanoalkyl, 3-amino-3-carboxypropyl, 2-(amidinothio)ethyl, 2-(N-aminoamidinothio)ethyl, tetrahydropyran-2-yl, thietan-3-yl, 2-oxopyrrolidinyl, or 2-oxotetrahydrofuranyl, or R^{17} is of the formula IV:

$$-(CH_2)_q-C(COOH)=CR^{18}R^{19} \quad \text{(IV)}$$

wherein q is one or two and R^{18} and R^{19} are independently hydrogen or C_{1-4}alkyl; or R^{17} is of the formula V:

$$-CR^{20}R^{21}-(CH_2)_r-COR^{22} \quad \text{(V)}$$

wherein r is 0–3, R^{20} is hydrogen, (1-3C)alkyl or methylthio, R^{21} is hydrogen, (1-3C) alkyl, (3-7C) cycloalkyl, cyano, carboxy, (2-5C)carboxyalkyl or methanesulphonylamino, or R^{20} and R^{21} are joined to form, together with the carbon to which they are attached, a (3-7C) carbocyclic ring, and R^{22} is hydroxy, amino, (1-4C)alkoxy, (1-4C) alkylamino or of the formula $NHOR^{23}$ in which R^{23} is hydrogen or (1-4C)alkyl;

or R^{16} may be of the formula =CH.R^{24} wherein R^{24} is hydrogen, halogen, (1-6C)alkyl, (3-7C) cycloalkyl, (2-6C)alkenyl, (3-7C)cycloalkenyl, phenyl or benzyl.

5,064,825

ANGIOTENSIN II ANTAGONISTS

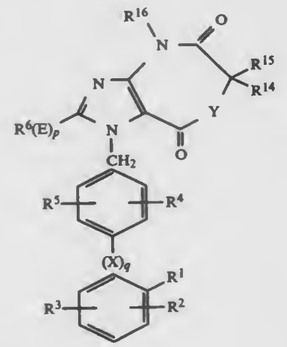
Prasun K. Chakravarty, Edison; William J. Greenlee, Teaneck; Nathan B. Mantlo; Arthur A. Patchett, both of Westfield; William Schoen, Edison, and Thomas F. Walsh, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation-in-part of Ser. No. 360,673, Jun. 1, 1989, abandoned. This application May 16, 1990, Ser. No. 522,662

Int. Cl.[5] **A61K** *31/55;* **C07D** *487/22*

U.S. Cl. 514—221 **9 Claims**

1. A compound of formula (II):



(II)

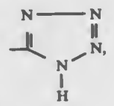
wherein:

R^1 is

(a) carboxy,

(b) C_1–C_4-alkoxycarbonyl,

(c) —$NHSO_2CF_3$, or



(d) —$PO(OR^9)R^9$,

(e) —$PO(OR^9)_2$,

(f) —SO_2NH-heteroaryl,

(g) —CH_2CO_2NH-heteroaryl,

(h) —SO_2NH—CO—R^{25},

(i) —CH_2SO_2NH—CO—R^{25},

(j) —CONH—SO_2R^{25},

(k) —CH_2CONH—SO_2R^{25},

(l) —$NHSO_2NCHO$—R^{25},

(m) —$NHCONHSO_2R^{25}$,

(n) —$SO_2NHCONHR^{25}$;

R^2 and R^3 are independently

(a) hydrogen,

(b) C_1–C_4-alkyl, or

(c) halo;

R^4 and R^5 are independently

(a) hydrogen,

(b) C_1–C_6-alkyl,

(c) C_1–C_6-alkoxy, or

(d) halo;

R^6 is

(a) C_1–C_6-alkyl,

(b) C_1–C_6-alkenyl,

(c) C_1–C_4-alkoxy-C_1–C_6-alkyl,

(d) C_1–C_4-alkylthio-C_1–C_6-alkyl,

(e) C_1–C_4-alkoxy-C_1–C_6-alkenyl, or

(f) C_1–C_4-alkylthio-C_1–C_6-alkenyl;

E is —S—;

p is 0 or 1;

X is



(a)

(b) —S—or

(c) —OCH_2—;

q is 0 or 1;

R^{14} is H;

R^{15} is

(a) H,

(b) C_1–C_6-alkyl,

(c) substituted C_1–C_6-alkyl wherein the substituent is selected from the group consisting of

(i) hydroxy,

(ii) amino,

(iii) guanidino,

(iv) C_1–C_4-alkylthio,

(v) carboxy,

(vi) carboxamido,

(vii) C_1–C_4-alkoxycarbonyl, or



(viii)

OCR^9 wherein R^9 is H, C_1–C_6-alkyl, or phenyl

(d) benzyl,

(e) 4-hydroxybenzyl,

(f) 3-indolylmethyl,

(g) 4-imidazolylmethyl, or

(h) phenyl; and

R^{16} is H or C_1–C_4-alkyl

Y is

(a) —O—,



(b)

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,826

NOVEL TRIAZOLO-PYRIMIDINE DERIVATIVES

Klára Relter née Esses; József Relter, both of 32/B. Mihályfi E. u., Budapest, Hungary 1022 ; Zoltán Budai, 3. Lukács u., Budapest, Hungary; Endre Rivó, 1., Joliot Curie tér, Budapest, Hungary 1126 ; Péter Trinka, 59. Karczag u., Budapest, Hungary 1116 ; Lujza Petöcz, 2, Rákóczi tér, Budapest, Hungary 1084 ; Gábor Gigler, 95. Lenin krt., Budapest, Hungary; István Gyertyán, 9. Összefogás sétány, Budapest, Hungary 1165 , and István Gacsályi, 67. Baross u., Budapest, Hungary 1201

Filed Mar. 2, 1990, Ser. No. 487,412

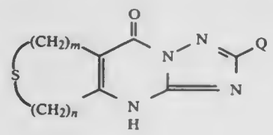
Claims priority, application Hungary, Mar. 3, 1989, 1016/89

Int. Cl.[5] A61K *31/38;* **C07D** *495/04, 413/04*

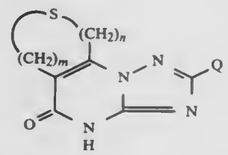
U.S. Cl. 514—233.2 **7 Claims**

1. Triazolo-pyrimidine derivatives of formulae Ia and Ib,

Ia



Ib



wherein

Q represents hydrogen, a 5- or 6-membered heterocyclic group comprising one or two nitrogen and/or oxygen atoms as the heteroatoms and optionally substituted by a C_1–C_4-alkyl group

or a group of formula —SR^1 wherein R^1 is alkyl or aralkyl,

or a group of formula —NR^2R^3 wherein R^2 and R^3 are independently hydrogen, alkyl, alkenyl, cycloalkyl, aralkyl, aryl, or a 5- or 6 membered heterocyclic group comprising one or two nitrogen and/or oxygen atoms as as heteroatoms and optionally substituted by halogen or C_1–C_4 alkyl groups

m and n are independently 0, 1, 2, 3 or 4, with the proviso that if m stands for 0, then n is different from 0, and if both n and m are 1 or m stands for 0 and n is 2, then Q is not a methylthio or morpholino group, their mixtures or pharmaceutically acceptable salts.

5,064,827

POLYHYDROXYBENZYLOXPROPANOLAMINES

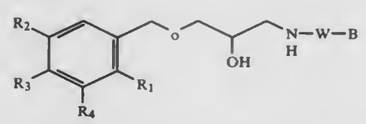
Ghanshyam Patil, Vernon Hills, Ill.; William L. Matier, Hockessin, Del., and Khuong H. X. Mai, Chatworth, Calif., assignors to Du Pont Merck Pharmaceutical Company, Wilmington, Del.

Division of Ser. No. 285,005, Dec. 15, 1988, Pat. No. 4,959,390. This application Aug. 23, 1990, Ser. No. 571,246

Int. Cl.[5] A61K *31/535;* **C07D** *295/14*

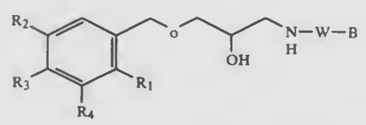
U.S. Cl. 514—237.5 **12 Claims**

1. A compound of the formula



wherein R_1 may be alkyl of from 1 to about 6 carbon atoms, alkenyl of from 2 to about 6 carbon atoms, alkynyl of from 2 to about 10 carbon atoms, cycloalkyl of from 3 to about 8 carbon atoms, alkoxy wherein the alkyl group contains from 1 to about 6 carbon atoms, halo, acetamido, amino, nitro, alkylamino of from 1 to about 6 carbon atoms, hydroxy, hydroxyalkyl of from 1 to about 6 carbon atoms, cyano or arylalkoxy wherein teh alkyl group contains from 1 to about 6 carbon atoms, R_2, R_3 and R_4 are hydrogen or hydroxyl or the combination of either hydrogen or hydroxyl; W represents alkylene of from 1 to about 10 carbon atoms; and B represents —$NHCOR_5$, wherein R_5 represents morpholino or a pharmaceutically acceptable salt thereof.

9. A pharmaceutical composition for treating cardiac conditions which composition contains an effective amount for treating such conditions of a compound having beta-adrenergic activity of the formula.



wherein R_1 may be alkyl of from 1 to about 6 carbon atoms, alkenyl of from 2 to about 6 carbon atoms, alkynyl of from 2 to about 10 carbon atoms, cycloalkyl of from 3 to about 8 carbon atoms, alkoxy wherein the alkyl group contains from 1 to about 6 carbon atoms, halo, acetamido, amino, nitro, alkylamino of from 1 to about 6 carbon atoms, hydroxy, hydroxyalkyl of from 1 to about 6 carbon atoms, cyano or arylalkoxy wherein the alkyl group contains from 1 to about 6 carbon atoms, R_2, R_3 and R_4 are hydrogen or hydroxyl or the combination of either hydrogen or hydroxyl; W represents alkylene of from 1 to about 10 carbon atoms; and B represents—$NHCOR_5$, wherein R_5 represents morpholino or a pharmaceutically acceptable salt thereof, in admixture with a pharmaceutically acceptable carrier or diluent.

5,064,828

FUNGICIDAL MIXTURE

Matthias Zipplies, Hirschberg; Hubert Sauter, Mannheim; Randall E. Gold, Wachenheim; Alan Akers, Heidelberg; Eberhard Ammermann, Ludwigshafen, and Gisela Lorenz, Neustadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jan. 25, 1990, Ser. No. 470,229

Claims priority, application Fed. Rep. of Germany, Jan. 28, 1989, 3902509

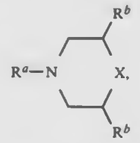
Int. Cl.[5] A01N *33/02, 43/84*

U.S. Cl. 514—239.5 **3 Claims**

1. A fungicidal mixture of

a) a compound of the formula I

I



where

R^a=3-(p-tert-butyl-(phenyl)-2-methylpropyl,

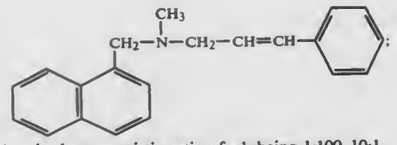
R^b=CH_3 (cis or trans) and

X=O,

and

b) a compound of the formula II

II



wherein the synergistic ratio of a:b being 1:100–10:1.

5,064,829

COMPOSITION OF A B VITAMIN AND MANNITOL AND A METHOD FOR PRODUCTION

Seiji Izuhara, Tondabayashi; Yoshitomi Kakiguchi, Kawanishi, and Kunihiko Yokota, Suita, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Mar. 27, 1990, Ser. No. 500,249

Claims priority, application Japan, Mar. 29, 1989, 1-79076

Int. Cl.[5] A61K *31/495, 31/50, 31/525, 31/045*

U.S. Cl. 514—249 **9 Claims**

1. A composition which consists of (1) a compound belonging to the vitamin B group and having a solubility in water at 20° C. of not more than 5% and (2) mannitol, wherein the content of (1) is within the range of 400 to 2,000 parts by weight per 100 parts by weight of mannitol.

5,064,830

LOWERING OF BLOOD URIC ACID LEVELS

Paden C. Going, Preston, Conn., assignor to Pfizer Inc., New York, N.Y.

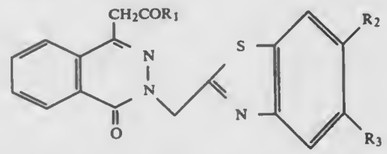
Filed Aug. 2, 1990, Ser. No. 562,096

Int. Cl.[5] A61K *31/38, 31/50, 31/425, 31/495*

U.S. Cl. 514—252 **2 Claims**

1. A method of lowering blood uric acid levels in a mammal in need of such lower levels which comprises administering to said mammal a blood uric acid level lowering amount of a compound of the formula

I



wherein R_1 is hydroxy or a prodrug group, and R_2 and R_3 are independently hydrogen, fluoro, chloro or trifluoromethyl except that R_2 and R_3 are not both hydrogen, or a pharmaceutically acceptable base addition salt of a compound of formula I wherein R_1 is hydroxy.

5,064,831

NAPHTHOTHIOPHENIMINES FOR TREATING NEURONAL DISORDERS CAUSED BY ISCHEMIA

Katherine S. Takaki, Middletown, Conn., assignor to Bristol-Myers Squibb Co., New York, N.Y.

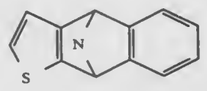
Filed Sep. 14, 1990, Ser. No. 583,627

Int. Cl.[5] A61K *31/495, 31/40;* **C07D** *403/00, 487/00*

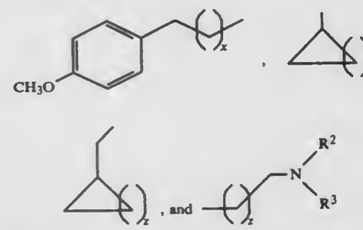
U.S. Cl. 514—255 **18 Claims**

1. Naphthothiophenimines of formula I or pharmaceutically acceptable acid addition salts or solvates thereof;

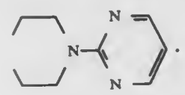
I



wherein R^1 is a straight or branched C_{1-5} alkyl, C_{3-5} alkenyl, benzyl or a radical selected from the group consisting of



in which x is 0 to 2; y is 1, 3 or 4; z is 1 to 3; and R^2 and R^3 are independently C_{1-3} alkyl, hydrogen, or R^2 and R^3 taken together constitute the radical



5,064,832

BIARYL COMPOUNDS

Jaroslav Stanek, Arlesheim; Giorgio Caravatti, Allschwil; Jörg Frei, Hölstein, and Hans-Georg Capraro, Rheinfelden, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 375,760, Jul. 5, 1989, Pat. No. 4,968,804. This application Aug. 16, 1990, Ser. No. 568,371

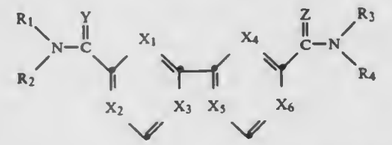
Claims priority, application Switzerland, Jul. 7, 1988, 2588/88

Int. Cl.[5] A61K *31/505;* **C07D** *239/02*

U.S. Cl. 514—256 **10 Claims**

1. A compound of formula I

(I)



wherein two of X_1, X_2, and X_3 are N and the third one of X_1, X_2, and X_3 is CH;

each of X_4, X_5, and X_6 is CH;

Y is NR_5, O, or S;

Z is NR_6, O, or S;

each of the radicals R_2, R_4, R_5, and R_6, independently of the others, is hydrogen or lower alkyl; and

each of the radicals R_1 and R_3, independently of the other, is hydrogen, lower alkyl, C_3–C_8 cycloalkyl, phenyl-lower alkyl, phenyl, naphthyl, carboxy, lower alkoxycarbonyl, carbamoyl, N-lower alkylcarbamoyl, N,N-di-lower alkylcarbamoyl, cyano, hydroxy, lower alkoxy, lower alkanoyloxy, amino, lower alkylamino, or di-lower alkyl amino;

with the proviso that when X_1 and X_3 are nitrogen and X_2 is CH, then Y is NR_5 and Z is NR_6;

or a tautomer or a salt thereof.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,833

SUBSTITUTED QUINAZOLINE DERIVATIVES FOR USE IN GASTROINTESTINAL DISEASES

Robert J. Ife, Stevenage; Thomas H. Brown, Tewin; Colin A. Leach, Stevenage, and David J. Keeling, Harpenden, all of England, assignors to Smithkline Beecham Intercredit B.V., Welwyn Garden City, United Kingdom

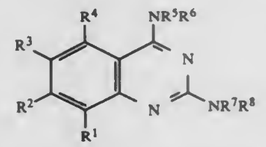
Continuation-in-part of Ser. No. 467,075, Jan. 18, 1990, abandoned, which is a continuation-in-part of Ser. No. 278,064, Nov. 30, 1988, abandoned. This application May 8, 1990, Ser. No. 520,561

Claims priority, application United Kingdom, May 10, 1989, 8910722

Int. Cl.[5] A61K *31/505*; C07D *239/95*

U.S. Cl. 514—260 **40 Claims**

39. A method of treating gastric acid secretion which comprises administering to a mammal in need thereof an effective amount of a compound of structure (IA)



(IA)

R^1 to R^4 are the same or different and are each hydrogen, C_{1-4}alkyl, C_{1-4}alkoxy, phenyl, C_{1-4}alkylthio, C_{1-4}alkanoyl, amino, C_{1-6}alkylamino, diC_{1-4}alkylamino, halogen, trifluoromethyl, hydroxy, hydroxyC_{1-4}-alkyl, carboxyC_{1-4}alkoxy, hydroxyC_{1-4}alkoxy, C_{1-4}alkoxyC_{1-4}alkoxy, $O(CH_2)_mHet$, C_{1-4}-alkylNR^9R^{10} or $O(CH_2)_mNR^9R^{10}$ in which m is 2 to 4 and R^9 and R^{10} are the same or different and are each hydrogen, C_{1-4}alkyl, Het or $—(CH_2)_nAr$, or R^9 and R^{10} together with the nitrogen to which they are attached form a piperidino, morpholino, imadazolyl, pyridyl or pyrrolidine ring; provided that at least two of R^1 to R^4 are hydrogen;

R^5 and R^6 are the same, or different and are each hydrogen, C_{1-4}alkyl, $—(CH_2)_nAr$, or R^5 and R^6 together with the nitrogen atom to which they are attached form a piperidino, morpholino, imidazolyl, pyridyl or pyrrolidine ring;

R^7 and R^8 are the same or different and are each hydrogen, C_{1-4}alkyl, $(CH_2)_nAr^1$, or R^7 and R^8 together with the nitrogen atom to which they are attached form a piperidino, morpholino, imidazolyl, pyridyl or pyrrolidine ring;

n is 0 to 4;

Ar is phenyl;

Ar^1 is phenyl;

Het is pyridyl or imidazolyl,

Ar, Ar^1 and Het may be unsubstituted or substituted by 1 to 3 substituents selected from C_{1-4}alkyl, C_{1-4}alkoxy, C_{1-4}alkylthio, halogen, cyano, amino, hydroxy, carbamoyl, carboxy, C_{1-4}alkanoyl or trifluoromethyl;

or a pharmaceutically acceptable salt thereof.

5,064,834

PIPERIDINE OPIOID ANTAGONISTS

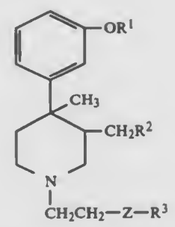
Dennis M. Zimmerman, Mooresville, and Charles H. Mitch, Indianapolis, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Division of Ser. No. 448,800, Dec. 11, 1989, Pat. No. 4,992,450, which is a division of Ser. No. 284,504, Dec. 14, 1988, Pat. No. 4,891,379, which is a continuation of Ser. No. 39,121, Apr. 16, 1987, abandoned. This application Oct. 30, 1990, Ser. No. 605,817

Int. Cl.[5] A61K *31/44*

U.S. Cl. 514—279 **5 Claims**

1. A method of treating depression in humans comprising administering to a human suffering from depression an effective anti-depressant soee of a trans-3,4 isomer of a compound of the formula

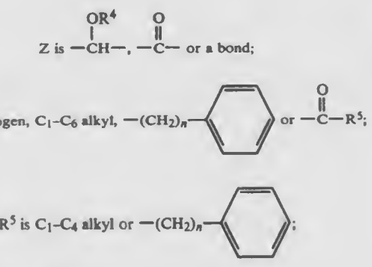


wherein:

R^1 is hydrogen or C_1–C_4 alkanoyl;

R^2 is hydrogen, C_1–C_4 alkyl or C_2–C_6 alkenyl;

R^3 is C_4–C_8 cycloalkyl, C_4–C_8 cycloalkenyl, C_1–C_6 alkyl, C_2–C_6 alkenyl, C_1–C_4 alkyl substituted C_4–C_8 cycloalkyl, C_1–C_4 alkyl substituted C_4–C_8 cycloalkenyl or thiophene.



n is 1, 2 or 3; and

the pharmaceutically acceptable salts thereof.

5,064,835

NEW HYDROXYMACROLIDE DERIVATIVES HAVING IMMUNOSUPPRESSIVE ACTIVITY

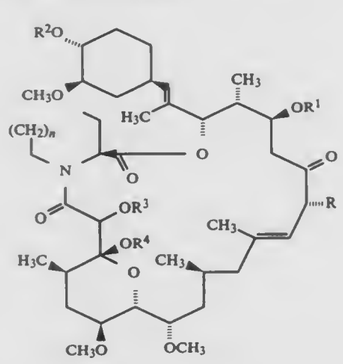
Richard J. Bochis, East Brunswick; Huyn O. Ok, Edison, and Matthew J. Wyvratt, Mountainside, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Mar. 1, 1990, Ser. No. 486,700

Int. Cl.[5] A61K *31/395, 31/695*; C07D *498/16*; C07F *7/01*

U.S. Cl. 514—291 **8 Claims**

1. A compound of formula I:



wherein:

R is methyl, ethyl, propyl or allyl;

R^1 and R^2 are, independently, hydrogen, formyl, acetyl, or propionyl;

R^3 is C_1–C_6 alkanoyl,

R^4 is hydrogen, formyl, acetyl or propionyl;

n is 1 or 2;

or the pharmaceutically acceptable salt thereof.

5. A pharmaceutical composition for the treatment of immunoregulatory disorders or diseases comprising a pharmaceutical carrier and a therapeutically effective amount of the compound of formula I, according to claim 1.

5,064,836

IMIDAZOPYRIDINE FOR USE AS AN ANAESTHETIC

Henri Depoortere, Dampierre, and Pascal George, St Arnoult en Yvelines, both of France, assignors to Synthelabo, Paris, France

Filed Nov. 29, 1990, Ser. No. 619,428

Claims priority, application France, Nov. 30, 1989, 89 15768

Int. Cl.[5] A61K *31/44*

U.S. Cl. 514—300 **2 Claims**

1. A method of anaesthetizing a subject in need of anaesthetizing, which comprises administering to the subject an anaesthetically effective amount of N-[[2-(4-ethylphenyl)-3-imidazo[1,2-a]pyridinyl]methyl]N,3-dimethylbutanamide or a pharmaceutically acceptable acid addition salt thereof.

5,064,837

3-SUBSTITUTED-1-ARYL-2(H)-QUINOLONES AND THEIR PHARMACEUTICAL COMPOSITIONS

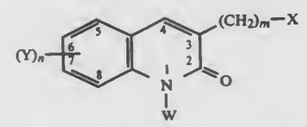
Stuart W. McCombie, Caldwell, N.J., assignor to Schering Corporation, Kenilworth, N.J.

Filed Nov. 13, 1989, Ser. No. 435,148

Int. Cl.[5] A61K *31/47*; C07D *215/227*

U.S. Cl. 514—312 **17 Claims**

1. A compound represented by formula 1: wherein the heteroatom or heteroatoms in said heteroaryl must be nitrogen and wherein said heteroaryl is



(1)

or a pharmaceutically acceptable salt or solvate thereof, wherein:

Y is in the 5-, 6-, 7-, and/or 8-position of the quinolone ring and Y is selected from:

(1) halo;

(2) $—NO_2$;

(3) —CN;

(4) alkyl;

(5) alkyl substituted with one or more halo atoms independently selected from F, Cl, Br, or I;

(6) alkenyl;

(7) alkynyl;

(8) cycloalkyl;

(9) cycloalkenyl;

(10) acyl;

(11) carboxyl;

(12) heterocyclyl;

(13) aryl;

(14) aralkyl;

(15) alkaryl;

(16) heteroaryl;

(17) aroyl;

(18) heteroaroyl;

(19) $—QR^3$, wherein R^3 is selected from alkyl, acyl, aryl, heteroaryl, aroyl, and heteroaroyl as defined above, and wherein Q is selected from S, O, and $—NR^4$ wherein R^4 is selected from:

(a) H;

(b) alkyl;

(c) acyl;

(d) cycloalkyl;

(e) heterocyclyl;

(f) aryl;

(g) alkaryl;

(h) aralkyl;

(i) aroyl

(j) heteroaryl; and

(k) heteroaroyl;

(20) $—OR^5$, wherein R^5 is selected from H, cycloalkyl, heterocyclyl, alkaryl, and aralkyl;

(21) $—CO_2R^{4'}$ wherein $R^{4'}$ is selected from H, alkyl, cycloalkyl, heterocyclyl, aryl, alkaryl, aralkyl and heteroaryl;

(22) $—N(R^4)_2$ wherein each R^4 is the same or different and when one R^4 is hydrogen and the other R^4 is acyl, the acyl group is alkenyl-C(O)-, alkynyl-C(O)- or cyclyalkenyl-C(O)-;

(23) $—S(O)_qR^{4'}$ wherein q is an integer from 1 to 2; wherein $R^{4'}$ is as defined hereinabove;

(24) $—SR^4$;

(25) $—Q_rC(O)R^6Z(R^{4'})_t$ wherein r is an integer from 0 to 1, Z is selected from N, S, and O, R^6 is an alkylene group having from 1 to 6 carbon atoms, t is 1 when Z is S or O, and when Z is N, then t is 2 and each $R^{4'}$ is the same or different;

(26) $—NHC(O)R^4$;

(27) $—NHSO_2R^{4'}$; and

(28) $—SO_2N(R^7)_2$, wherein each R^7 is the same or different and is independently selected from H, alkyl, and aryl;

n is an integer from 0 to 2 and when n is 2, each Y is the same or different;

X is heteroaryl wherein the heteroatom or heteroatoms in said heteroaryl must be nitrogen and wherein said heteroaryl is bound through a nitrogen atom;

m is an integer from 1 to 2;

W is aryl which is bound directly to the nitrogen atom and can optionally be substituted with up to three groups wherein each group is the same or different and is selected from:

(1) —OH;

(2) hydroxymethyl;

(3) alkyl;

(4) halo;

(5) $—NO_2$;

(6) alkoxy;

(7) $—CF_3$;

(8) —CN;

(9) cycloalkyl;

(10) alkynyloxy;

(11) alkenyloxy;

(12) $—S(O)_qR^{4'}$;

(13) $—SR^4$;

(14) $—C(O)R^8$, wherein R^8 is selected from —OH-, $—N(R^4)_2$, and $—OR^9$ and R^9 is alkyl;

(15) $—O—(CH_2)_v—C(O)R^8$ wherein v is an integer from 1 to 4;

(16) $—N(R^4)_2$; and

(17) —NHC(O)H;

wherein q, $R^{4'}$ and R^4 are as defined above for Y;

with the proviso that in Formula (1) when R^3 and R^4 are heteroatom containing groups said heteroatom containing groups, when bound to a S, N, or O atom, is bound through a carbon atom of the heteroatom containing group.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,838

1,4-DISUBSTITUTED-PIPERIDINYL COMPOUNDS AS PAIN RELIEVERS

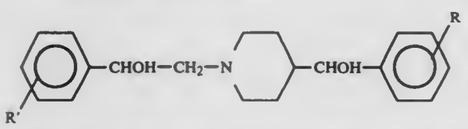
Albert A. Carr, Cincinnati; Francis P. Miller, Loveland; Thaddeus R. Niedzak, and Stephen M. Sorensen, both of Cincinnati, all of Ohio, assignors to Merrell Dow Pharmaceuticals, Cincinnati, Ohio

Continuation-in-part of Ser. No. 146,647, Jan. 21, 1988, abandoned. This application Dec. 7, 1988, Ser. No. 279,900

Int. Cl.[5] A61K *31/445;* **C07D** *211/20, 261/20*

U.S. Cl. 514—317 **16 Claims**

1. A compound of the formula:



wherein each R and R' is independently selected from the group consisting of lower alkyl, lower alkoxy, hydrogen, and halogen, or a pharmaceutically acceptable salt thereof.

5. A method for relieving pain in a patient comprising administering to a patient in need thereof an effective amount of a compound according to claim 1.

5,064,839

1,4-DIHYDROPYRIDINES WITH A 2-AMINO GROUP OR WITH AN ETHER GROUP IN A SIDE CHAIN

Dieter Flockerzi, Allensbach, Fed. Rep. of Germany, assignor to Byk Gulden Lomberg Chemische Fabrik GmbH, Constance, Fed. Rep. of Germany

PCT No. PCT/EP87/00210, § 371 Date Oct. 21, 1988, § 102(e) Date Oct. 21, 1988, PCT Pub. No. WO87/06579, PCT Pub. Date Nov. 5, 1987

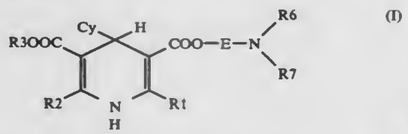
PCT Filed Apr. 17, 1987, Ser. No. 272,775

Claims priority, application Switzerland, Apr. 22, 1986, 01623/86; Apr. 22, 1986, 01633/86

Int. Cl.[5] C07D *401/04, 401/14;* **A61K** *31/44, 31/445*

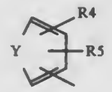
U.S. Cl. 514—318 **12 Claims**

1. A compound of formula I



(I)

wherein Cy represents a cyclic radical of the formula



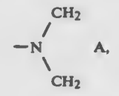
in which Y denotes vinylene (—CH=CH—), azomethine (—CH=N—), or



R1 denotes hydrogen, 1–6C-alkyl or 3–7C-alkoxyalkyl,

R4 and R5 are identical or different and denote hydrogen, hydroxyl, halogen, nitro, cyano, trifluoromethyl, 1–4C-alkyl, 1–4C-alkoxy, 1–4C-alkoxy which is completely or partly substituted by fluorine, 1–4C-alkoxycarbonyl, 2–5C-acyl, amino or mono- or di-1–4C-alkylamino,

R6 and R7, together and including the nitrogen atom to which the two are bonded, represent a radical of the formula



A,

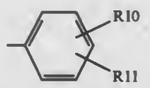
wherein

A denotes —CH_2—C(R8)R9—CH_2—,

R8 denotes aryl and

R9 denotes aryl,

aryl representing a ring of the formula



wherein R10 and R11 are identical or different and denote hydrogen (H), 1–4C-alkyl, 1–4C-alkoxy, halogen, hydroxyl or trifluoromethyl, and wherein either

E denotes 2–5C-alkylene,

R2 denotes amino (NH_2) and

R3 denotes 1–6C-alkyl or 3–7C-alkoxyalkyl,

or

E denotes A1-O-A2,

R2 denotes hydrogen, 1–6C-alkyl or 3–7C-alkoxyalkyl and

R3 denotes hydrogen, 1–6C-alkyl or 3–7C-alkoxyalkyl and

in which

A1 denotes 2–4C-alkylene and

A2 denotes 2–4C-alkylene or 2C-alkyleneoxy-2C-alkylene,

or a pharmacologically-acceptable salt thereof.

5,064,840

ANTI-PSYCHOTIC PIPERIDYLBENZIMIDAZOLE COMPOUNDS

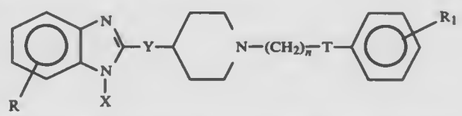
Albert A. Carr, Cincinnati; Francis P. Miller, Loveland; and John M. Kane, Cincinnati, all of Ohio, assignors to Merrell Dow Pharmaceuticals, Cincinnati, Ohio

Continuation of Ser. No. 389,036, Aug. 3, 1989, abandoned. This application Apr. 10, 1990, Ser. No. 511,893

Int. Cl.[5] A61K *31/445;* **C07D** *401/02*

U.S. Cl. 514—322 **3 Claims**

1. A method for the treatment of psychosis comprising administering to a patient in need thereof an anti-psychotic amount of a compound of the formula:



in which Y is represented by CO or CHOH: T is represented by CO or CHOH; X is represented by hydrogen or a C_{1-6} alkyl; n is represented by the integer 3 or 4; R and R_1 are each independently represented by hydrogen, C_{1-6} alkyl, C_{1-6} alkoxy, halogen, —OH, or —CF_3.

5,064,841

HMG-COA REDUCTASE-INHIBITING IMINO-SUBSTITUTED PYRIDINES

Rolf Angerbauer; Peter Fey; Walter Hübsch, all of Wuppertal; Thomas Philipps, Koeln; Hilmar Bischoff, Wuppertal; Dieter Petzinna, Duesseldorf, and Delf Schmidt, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

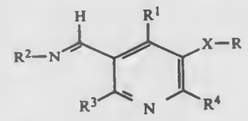
Filed Jul. 26, 1990, Ser. No. 558,029

Claims priority, application Fed. Rep. of Germany, Aug. 3, 1989, 3925636

Int. Cl.[5] A61K *31/44;* **C07D** *405/06*

U.S. Cl. 514—336 **10 Claims**

1. An imino-substituted pyridine of the formula



(I)

in which

R^1 represents aryl having 6 to 10 carbon atoms, which is optionally monosubstituted to trisubstituted by identical or different substituents from the group consisting of halogen, hydroxyl, trifluoromethyl, trifluoromethoxy, nitro, cyano, straight-chain or branched alkyl or alkoxy in each case having up to 8 carbon atoms and aryloxy having 6 to 10 carbon atoms,

represents aryl having 6 to 10 carbon atoms, which is optionally monosubstituted to trisubstituted by identical or different substituents from the group consisting of straight-chain or branched alkyl in each case having up to 8 carbon atoms, halogen, cyano, trifluoromethyl, trifluoromethoxy and nitro, or represents straight-chain or branched alkyl having up to 10 carbon atoms, which is optionally substituted by aryl having 6 to 10 carbon atoms, hydroxyl or alkoxy having up to 8 carbon atoms, or represents a group of the formula —R^5, in which

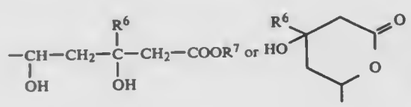
R^5 denotes hydrogen or straight-chain or branched alkyl having up to 8 carbon atoms, which is optionally substituted by aryl having 6 to 10 carbon atoms, or denotes aryl having 6 to 10 carbon atoms, which is optionally substituted by straight-chain or branched alkyl or alkoxy in each case having up to 8 carbon atoms, halogen, nitro, cyano, trifluoromethyl or trifluoromethoxy,

represents cycloalkyl having 3 to 8 carbon atoms, or represents aryl having 6 to 10 carbon atoms, which is optionally monosubstituted to trisubstituted by identical or different substituents from the group consisting of halogen and straight-chain or branched alkyl having up to 8 carbon atoms, or represents straight-chain or branched alkyl having up to 10 carbon atoms, which is optionally substituted by a group of the formula —R^5, in which R^5 has the abovementioned meaning,

R^4 represents straight-chain or branched alkyl having up to 10 carbon atoms, or represents cycloalkyl, having 3 to 8 carbon atoms,

X represents a group of the formula —CH_2—CH_2— or —CH=CH—, and

R represents a group of the formula



in which

R^6 denotes hydrogen or straight-chain or branched alkyl having up to 10 carbon atoms and

R^7 denotes hydrogen or straight-chain or branched alkyl having up to 10 carbon atoms, which may be substituted by phenyl, or denotes aryl having 6 to 10 carbon atoms or a cation, or a salt thereof.

5,064,842

1,4-DIHYDROPYRIDINES

John L. Archibald, Farnham Royal; Terence J. Ward, and Albert Opalko, both of Maidenhead, all of England, assignors to John Wyeth & Brother Limited, Maidenhead, England

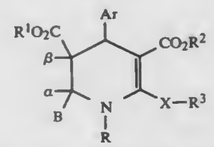
Continuation of Ser. No. 309,018, Feb. 7, 1989, abandoned, which is a continuation of Ser. No. 7,684, Jan. 28, 1987, abandoned. This application Jun. 25, 1990, Ser. No. 544,097

Claims priority, application United Kingdom, Feb. 3, 1986, 8602518

Int. Cl.[5] A61K *31/44;* **C07D** *405/06*

U.S. Cl. 514—341 **36 Claims**

1. A compound of the formula



(Ia)

or a pharmaceutically acceptable salt thereof, wherein

α and β together are a bond and additionally, when B is an electron withdrawing group, α is —OH and β is —H;

Ar is phenyl, pyridyl, quinolyl or benzimidazolyl, optionally substituted by one or two substituents independently selected from halogen, lower alkyl, lower alkoxy, halolower alkyl, halolower alkoxy, —NO_2, —NH_2, —CN, lower alkylamino, dilower alkylamino, carboxy, lower alkyloxycarbonyl, acyl of 2 to 7 carbon atoms, or acylamino of 2 to 7 carbon atoms, or pentafluorophenyl;

R is hydrogen, methyl, ethyl, n-propyl, isopropyl, benzyl, carbmethoxymethyl or carbmethoxymethyl;

R^1 and R^2 are independently selected from hydrogen, methyl, ethyl, n-propyl, isopropyl, butyl, methoxymethyl, ethoxymethyl, methoxypropyl, aminoethyl, 2-aminoethyl, 3-aminopropyl, dimethylaminoethyl, 2-carboxyethyl, methoxycarbonylmethyl, ethoxycarbonylethyl, benzyl, 2-phenethyl, pyridylmethyl, pridylethyl, imidazolylmethyl or imidazolylethyl;

B is —CN, —CH_2F, —CHF_2, CF_3, or —CH_2Cl;

X is —NH—, —O—, —S—, —CH_2, —$CH(CH_3)$—, —$CH(CH_3)CH_2$—, —$CH_2CH(CH_3)$—, —OCH_2—, —CH_2O—, —$(CH_2)_2$—O—, —CH_2CH_2—, —$CH_2CH_2CH_2$—, —CH_2S—, —CH_2SCH_2—, —$CH_2CH_2SCH_2$—, $CH_2SCH_2CH_2$—, —CH_2NH—, —CH_2NHCH_2—, —CH_2NHCH_2—, —$CH_2CH_2NHCH_2$—, or —$CH_2NHCH_2CH_2$—;

R^3 is imidazolyl, pyridyl, thiazolyl, pyrrolyl, benzimidazolyl, quinolyl, isoquinolyl or imidazopyridyl,

in which the term lower in reference to alkyl groups refers to such groups having 1 to 6 carbon atoms.

5,064,843

PYRID-3-YL THIOFORMAMIDE COMPOUNDS WHICH HAVE USEFUL PHARMACEUTICAL UTILITIES

Terance W. Hart, Brentwood; Bernard Y. J. Vacher, Dagenham, and Brian W. Sharp, Hornchurch, all of England, assignors to Rhone-Poulenc Sante, Antony, France

Filed Mar. 30, 1990, Ser. No. 501,888

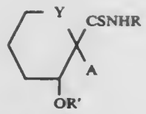
Claims priority, application United Kingdom, Mar. 31, 1989, 8907306

Int. Cl.[5] A61K *31/16;* **C07D** *239/26*

U.S. Cl. 514—346 **7 Claims**

1. A thioformamide derivative of the formula I

VOL 1132 ISS 2 NO 12 1991 UMI



(I)

wherein:
R and R^1 each independently represent an alkyl group;
A represent pyrid-3-yl
Y represents:
an ethylene or methylene group or a direct bond; wherein all alkyl groups can be straight-chain or branched, and, unless otherwise specified, contain one to four carbon atoms;
or stereoisomers or salts thereof.

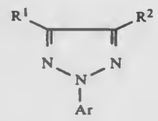
5,064,844

1,2,3-TRIAZOLE INSECTICIDES

Mary J. O'Mahony, Duxford, and Robert J. Willis, Fulbourn, both of England, assignors to Schering Agrochemicals Limited, England

Filed Jul. 7, 1989, Ser. No. 376,990
Claims priority, application United Kingdom, Jul. 8, 1988, 8816280; Dec. 3, 1988, 8828290
Int. Cl.[5] A01N *43/647*; C07D *249/04*
U.S. Cl. 514—359 **9 Claims**

1. A compound of formula I



(I)

in which
Ar is 2,6-dichloro-4-trifluoromethylphenyl;
R^1 is hydrogen or methyl, and
R^2 is halogen, nitro, cyano, alkylthio, haloalkylthio, alkylsulphonyl, alkylsulphinyl, halomethyl, haloalkythiomethyl or alkylthiomethyl, in which any alkyl moiety of a group which contains alkyl has 1 to 4 carbon atoms.

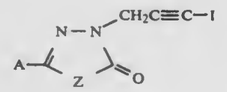
5,064,845

FUNGICIDAL COMPOSITIONS AND METHODS OF USE

Adam C. Hsu, Lansdale, and Daniel L. Loughner, Huntingdon Valley, both of Pa., assignors to Rohm and Haas Company, Independence Mall West, Pa.

Continuation-in-part of Ser. No. 530,770, May 29, 1990, which is a continuation-in-part of Ser. No. 370,373, Jun. 22, 1989, abandoned. This application Dec. 20, 1990, Ser. No. 631,803
Int. Cl.[5] A01N *43/82, 43/653*
U.S. Cl. 514—364 **36 Claims**

1. A method of controlling fungus on agricultural crops which comprises treating the agricultural crop with a fungicidally effective amount of a compound having the formula



wherein
A is hydrogen, (C_1–C_{18})alkyl, (C_3–C_8)cycloalkyl, (C_3–C_6)alkenyl, (C_3–C_6)alkynyl, phenyl optionally substituted with one to three substituents selected from halo, nitro, (C_1–C_6)alkyl, halo(C_1–C_6)alkyl, halo(C_1–C_4)alkoxy and (C_1–C_6)alkoxy, phenyl(C_1–C_6)alkyl, naphthyl, thienyl, furyl or pyridyl; and
Z is oxygen or N-R;
wherein R is hydrogen, (C_1–C_{12})alkyl, (C_3–C_6)cycloalkyl, phenyl optionally substituted with one to three substituents selected from halo, nitro, (C_1–C_6)alkyl, halo(C_1–C_6)alkyl, halo(C_1–C_4)alkoxy and (C_1–C_6)alkoxy, or phenyl(C_1–C_6)alkyl.

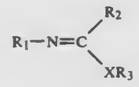
5,064,846

HETEROCYCLIC INSECTICIDES

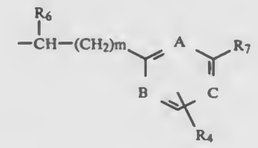
Michael D. Broadhurst, Novato, Calif., assignor to ICI Americas Inc., Wilmington, Del.

Division of Ser. No. 263,604, Oct. 31, 1988, Pat. No. 4,994,473, which is a continuation-in-part of Ser. No. 121,839, Nov. 17, 1987, abandoned. This application Aug. 24, 1990, Ser. No. 571,814
Int. Cl.[5] A01N *43/40, 43/76, 43/78*; C07D *413/12*
U.S. Cl. 514—375 **34 Claims**

1. A compound having the formula

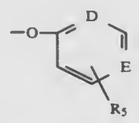


wherein
R_1 is a benzoxazolyl or benzothiazolyl moiety bonded to the imidate/amidine nitrogen atom through an aromatic carbon atom, said moiety being optionally substituted by C_1–C_6 alkyl;
R_2 is methyl, ethyl, n-propyl, C_3–C_7 branched alkyl, C_3–C_4 cycloalkyl, C_2–C_6 alkenyl, C_2–C_6 haloalkenyl, C_1–C_6 haloalkyl, C_2–C_6 alkoxyalkyl or cyclopropyl substituted by up to four methyl groups or up to two halogens; X is oxygen, sulfur or —N—; and when X is oxygen, then R_3 is:



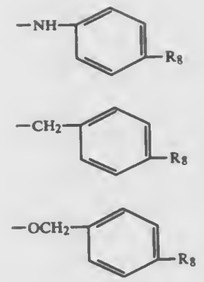
(a)

in which
m is 0 or 1;
A, B and C are each carbon or nitrogen, provided that no more than one of A, B and C is nitrogen;
R_4 is hydrogen, monohalo or dihalo;
R_6 is hydrogen, methyl, fluoro or ethynyl; and
R_7 is

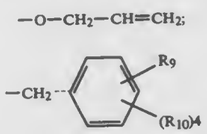


(i)

in which D and E are each carbon or nitrogen provided that both D and E are not nitrogen, and further provided that if either A, B or C is nitrogen, then D and E are both carbon; and
R_5 is hydrogen, C_1–C_4 alkyl, C_1–C_4 alkoxy, trifluoromethyl, cyano, C_1–C_4 alkylthio, C_1–C_4 alkylsulfonyl, or mono- or polyhalo;

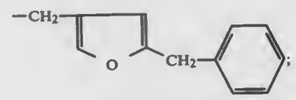


in which R_8 is hydrogen or halogen; or



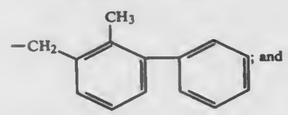
(iii)

in which
(i) R_9 is 4-fluoro, 4-methoxymethyl, or 4-propargyl, and R_{10} is fluoro or
(ii) R_9 is 3- or 4-allyl, 3- or 4-propargyl, or 3- or 4-(mono- or dihalo)allyl, and R_{10} is hydrogen or fluoro;



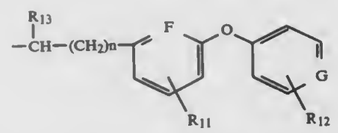
(b)

4-phenoxy-2-butyn-2-yl;
3-bromo-4-fluorobenzyl;
4-(benzyloxy)benzyl;
4-(4-fluorobenzyloxy)benzyl; or



(c)

if X is sulfur or —NH—, then R_3 is



in which n is 0 or 1; F and G are independently nitrogen or carbon, provided that F and G are not both nitrogen; R_{11} is hydrogen or halo; R_{12} is hydrogen, mono- or dihalo, C_1–C_4 alkyl, C_1–C_4 alkoxy, trifluoromethyl, cyano, C_1–C_4 alkylthio, C_1–C_4 alkylsulfonyl; and R_{13} is hydrogen or methyl; (k) pentafluorobenzyl; or (l) 2-methyl-3-phenylbenzyl.

33. A method for controlling insects comprising applying to an insect, the locus of an insect or a locus at which insecticidal control is desired, an insecticidally effective amount of a compound according to claim 1.

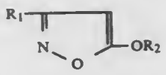
5,064,847

5-SUBSTITUTED 3-ARYLISOXAZOLE DERIVATIVES, THEIR PREPARATION AND THEIR USE AS PESTICIDES

Dieter Hübl, Werne, and Ernst Pieroh, Risum-Lindholm, both of Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Fed. Rep. of Germany

Filed May 1, 1990, Ser. No. 517,362
Claims priority, application Fed. Rep. of Germany, May 2, 1989, 3914969
Int. Cl.[5] A61K *31/44, 31/42*; C07D *261/12, 413/04*
U.S. Cl. 514—380 **12 Claims**

1. 5-Substituted 3-arylisoxazole derivatives of formula I



(I)

where
R_1 is phenyl, biphenyl, naphthyl, furyl, thienyl or pyridyl, each of which is optionally substituted by one or more, of the same or different, halogen, C_{1-14}-alkyl, C_{3-6}-cycloalkyl, C_{1-4}-alkoxy, C_{1-4}-alkylthio, di-C_{1-4}-alkylamino, C_{1-6}-alkoxycarbonyl, halo-C_{1-4}-alkyl, halo-C_{1-4}-alkoxy, halo-C_{1-4}-alkylthio, halo-C_{1-6}-alkoxycarbonyl, halo-C_{3-6}-cycloalkyl, halo-C_{3-6}-cycloalkylmethoxy, halo-C_{3-6}-cycloalkylmethylthio, nitro, cyano, amino, phenoxy, halophenoxy, phenylthio or halophenylthio groups, and
R_2 is C_{1-12}-alkyl, C_{2-12}-alkenyl, C_{2-12}-alkynyl, C_{3-6}-cycloalkyl or C_{3-6}-cycloalkylmethyl, each of which is substituted one or more times by the same or different halogen,
wherein each halogen is selected from the group consisting of fluorine, chlorine or bromine.

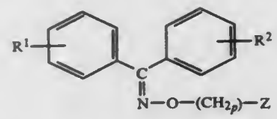
5,064,848

BENZOPHENONE OXIME ETHER COMPOUNDS, PHARMACEUTICAL COMPOSITIONS AND TREATMENT METHODS

Youji Yamagishi, Kamiinayoshi; Kozo Akasaka; Takeshi Suzuki, both of Ushiku; Mitsuaki Miyamoto, Sakura; Kouji Nakamoto, Tsuchiura; Kazuo Okano, Yatabemachi; Shinya Abe; Hironori Ikuta, both of Ushiku; Kenji Hayashi; Hiroyuki Yoshimura, both of Yatabemachi; Tohru Fujimori, Toyosato; Koukichi Harada, Yatabemachi, and Isao Yamatsu, Ushiku, all of Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

Division of Ser. No. 364,712, Jun. 9, 1989, Pat. No. 4,954,523, which is a division of Ser. No. 24,737, Mar. 11, 1987, Pat. No. 4,886,834. This application May 4, 1990, Ser. No. 518,816
Claims priority, application Japan, Mar. 17, 1986, 61-57061; Mar. 26, 1986, 61-65963
Int. Cl.[5] A61K *31/385, 31/395*; C07D *251/02, 339/06*
U.S. Cl. 514—381 **9 Claims**

1. A substituted benzophenone oxime ether derivative having the formula



wherein each of R^1 and R^2 is hydrogen, hydroxyl or lower alkoxy; Z is 3-allylmercapto-1,2,4-triazolyl, 1-(1,2,4-tetrazolyl), 1,3-dithianyl, 1-pyrrolidinyl or 1-pyrrolyl; and p is an integer of 1 or 2, or pharmacologically acceptable salt thereof.

VOL 1132 ISS 2 NO 12 1991 UMI

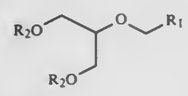
5,064,849

HETEROCYCLIC DERIVATIVES USEFUL AS RADIOSENSITIZING AGENTS AND ANTIVIRAL AGENTS

Toshimitsu Suzuki; Masakazu Sakaguchi; Yoshiyuki Miyata, and Tomoyuki Mori, all of Yokohama, Japan, assignors to Pola Chemical Industries Inc., Shizuoka, Japan

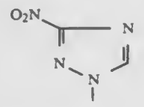
Division of Ser. No. 247,376, Sep. 21, 1988, Pat. No. 4,945,102.
This application Apr. 18, 1990, Ser. No. 510,869
Claims priority, application Japan, Oct. 22, 1987, 62-267485
Int. Cl.[5] A61K *31/41*; C07D *249/14*
U.S. Cl. 514—383 3 Claims

1. A heterocyclic derivative of the following formula (I):



(I)

wherein R_1 represents



and R_2 represents a hydrogen atom or an acetyl group.

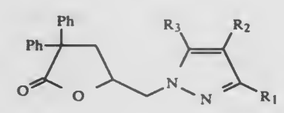
5,064,850

DIHYDRO-3,3-DIPHENYL-5-(1H-PYRAZOL-1-YLMETHYL-2(3H)-FURANONE AND DIHYDRO-5-((SUBSTITUTED-1H-PYRAZOL-1-YL)METHYL)-3,3-DIPHENYL-2(3H)-FURANONE DERIVATIVES

Vicki H. Audia, Finksburg, Md., assignor to Marion Merrell Dow Inc., Kansas City, Mo.

Filed Apr. 8, 1991, Ser. No. 681,761
Int. Cl.[5] A61K *31/415*; C07D *405/06*
U.S. Cl. 514—406 24 Claims

1. A compound of the formula:



wherein:
R_1 is hydrogen or lower alkyl,
R_2 is hydrogen or lower alkyl,
R_3 is hydrogen or lower alkyl, and Ph is phenyl
and the pharmaceutically acceptable lower alkyl quaternary and acid addition salts thereof.

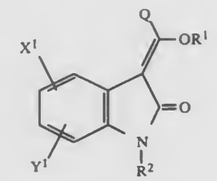
5,064,851

3-(1-SUBSTITUTED-PYRAZOYL)-2-OXINDOLE DERIVATIVES, COMPOSITIONS AND USE

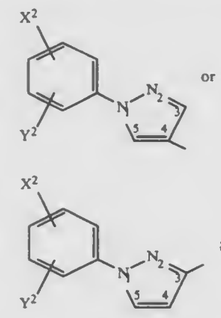
Carl J. Goddard, Groton, and Gary R. Schulte, Stonington, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Filed Jul. 24, 1990, Ser. No. 557,265
Int. Cl.[5] A61K *31/415*; C07D *403/06*
U.S. Cl. 514—406 28 Claims

1. A compound of the formula



and pharmaceutically-acceptable salts thereof wherein



or

;

Q is
X^1 is H, F, Cl, Br, $(C_1$–$C_6)$alkyl, NO_2, CF_3, CN, $S(O)_mR^3$, OR^4, COR^4 or $CONR^4R^5$;
Y^1 is H, F, Cl, Br, $(C_1$–$C_6)$alkyl, NO_2, CF_3, CN $S(O)_nR^6$, OR^7, COR^7, or $CONR^7R^8$;
X^2 is H, F, Cl, Br, $(C_1$–$C_4)$alkyl, $S(O)_pR^9$, NO_2, COR^9, $CONR^9R^{10}$, CN or CF_3;
Y^2 is H, F, Cl, Br, $(C_1$–$C_4)$alkyl, $S(O)_qR^{11}$, NO_2, COR^{11}, $CONR^{11}R^{12}$, CN or CF_3;
m and n are each zero, one or two; p and q are each one or two;
R^1 is H, alkanoyl of two to ten carbon atoms, cycloalkylcarbonyl of five to seven carbon atoms, phenylalkanoyl of seven to ten carbon atoms, chlorobenzoyl, methoxybenzoyl, thenoyl, omegaalkoxycarbonylalkanoyl, said alkoxy having one to three carbon atoms and said alkanoyl having three to five carbon atoms, alkoxy carbonyl of two to ten carbon atoms, phenoxycarbonyl, 1-(acyloxy)alkyl wherein acyl has one to four carbon atoms and said alkyl has two to four carbon atoms, 1-(alkoxycarbonyloxy)alkyl wherein said alkoxy has two to five carbon atoms and said alkyl has one to four carbon atoms, alkyl of one to three carbon atoms, alkylsulfonyl of one to three carbon atoms, methylphenylsulfonyl or dialkylphosphonate wherein each of said alkyl is one to three carbon atoms;
R^2 is COR^{13}, $CONR^{14}R^{15}$ or $(C_1$–$C_6)$alkyl;
R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{11}, R^{12}, R^{14} and R^{15} are each H or $(C_1$–$C_6)$alkyl; and
R^{13} is $(C_1$–$C_6)$alkyl.

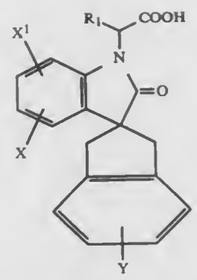
5,064,852

INDOLINONE DERIVATIVES

Harry R. Howard, Jr., Bristol, and Reinhard Sarges, Mystic, both of Conn., assignors to Pfizer Inc., New York, N.Y.

Division of Ser. No. 346,115, Dec. 16, 1988, Pat. No. 4,960,785.
This application Aug. 1, 1990, Ser. No. 561,040
Int. Cl.[5] C07D *209/96, 209/34*; A61K *31/405*
U.S. Cl. 514—409 7 Claims

1. An oxindole-1-alkanoic acid compound of the formula:



or a C_1–C_6 alkyl ester or the N,N-di(unsubstituted) primary amide derivative thereof, or a base salt of said acid with a pharmacoligically acceptable cation, wherein
X is hydrogen and X^1 is hydrogen, hydroxy, fluorine, chlorine, bromine, C_1–C_4 alkyl or C_1–C_4 alkoxy; or
X and X^1, when taken separately, are each chlorine, C_1–C_4 alkyl or C_1–C_4 alkoxy, and when taken together are $—OCH_2(CH_2)_nO—$ at the 4,5-, 5,6- or 6,7- positions of the molecule wherein n is zero or one;
R_1 is hydrogen or methyl; and
Y is hydrogen, fluorine, chlorine, C_1–C_4 alkyl or C_1–C_4 alkoxy.

6. A pharmaceutical composition suitable for oral administration comprising a pharmaceutically acceptable carrier and a compound as claimed in claim 1 in an amount effective for the treatment of diabetes-associated chronic complications.

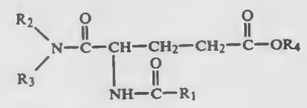
5,064,853

4(2-INDOLYL)2-AMINO-PENTANEDIOIC ACIDS AND CHOLECYOSTOKININ USE THEREOF

Jean-Claude Gasc, Bondy; Daniel Humbert, Fontenay sous Bois, and Mario Vekens, Courbevoie, all of France, assignors to Roussel Uclaf, Paris, France

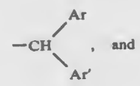
Filed Feb. 12, 1990, Ser. No. 478,479
Claims priority, application France, Feb. 17, 1989, 89 02093
Int. Cl.[5] A61K *31/405*; C07D *209/12*
U.S. Cl. 514—419 15 Claims

1. All possible isomeric forms and mixtures thereof of compounds of the formula



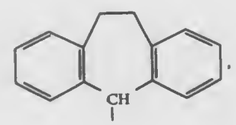
wherein R_1 is indolyl, R_2 is selected from the group consisting of

(a)



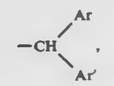
and

(b)

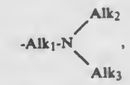


Ar and Ar' are indolyl, and R_3 is hydrogen or R_2 and R_3 together with the nitrogen to which they are attached form a 5 to 7 member hydrocarbonyl ring optionally containing an oxygen or a second nitrogen unsubstituted or substituted with at least one member of the group consisting of alkyl of 1 to 8 carbon atoms, aryl of 6 to 14 carbon atoms and

[II]



Ar and Ar' having the above definitions and R_4 is selected from the group consisting of hydrogen, alkyl of 1 to 8 carbon atoms, cycloalkyl of 3 to 8 carbon atoms,



and aralkyl of 7 to 18 carbon atoms unsubstituted or substituted with at least one member of the group consisting of halogen, alkyl and alkoxy of 1 to 8 carbon atoms, dialkylamino with alkyls of 1 to 8 carbon atoms, $—CF_3$, —CN and $—NO_2$, Alk_1 is an alkylene of 2 to 8 carbon atoms and Alk_2 and Alk_3 are individually alkyl of 1 to 8 carbon atoms or cycloalkyl of 3 to 8 carbon atoms.

11. A method of inducing cholecyostokinin agonistic activity in warm-blooded animals comprising administering to warm-blooded animals a cholecyostokinin agonistically effective amount of at least one compound of claim 1.

5,064,854

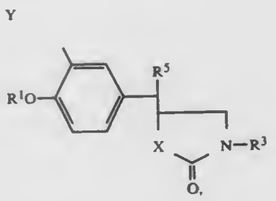
3,4-DISUBSTITUTED PHENYL HETEROCYCLES AND THEIR USE

Andreas Huth; Ralph Schmiechen; Helmut Wachtel, and Herbert H. Schneider, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Berlin and Bergkamen, Fed. Rep. of Germany

Filed Jul. 7, 1989, Ser. No. 376,489
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1988, 3823299
Int. Cl.[5] A61K *31/40*; C07D *207/273, 403/10, 405/10*
U.S. Cl. 514—424 19 Claims

1. A compound of the formula I

(I)



wherein
R^1 is C_{1-4}-alkyl,
R^3 is hydrogen, C_{1-4}-alkyl, acyl, or C_{6-12}-aryl,
R^5 is hydrogen or C_{1-4}-alkyl,
X is CH_2, and
Y is phenyl, biphenylyl, indenyl, naphthyl, thienyl, furyl, tetrahydrofuranyl, pyranyl, tetrahydropyranyl, pyrrolyl, pyrrolidinyl, benzo[1]thienyl, benzofuryl, cycloalkyl, cycloalkenyl, phenylcycloalkyl, bicycloalkyl, bicycloalkenyl, a stereoisomer of a compound of Formula I or a mixture of stereoisomers thereof.

13. A method for the inhibition of cycloadenosine monophosphate degradation by phosphodiesterase in mammals,

VOL 1132 ISS 2 NO 12 1991 UMI

comprising administering an effective amount of a compound of claim 1.

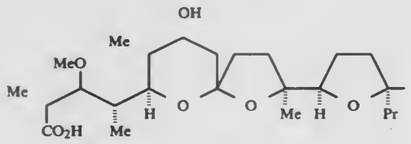
5,064,855

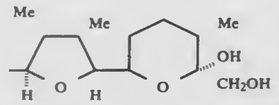
ACID POLYCYCLIC ETHER ANTIBIOTIC

Walter P. Cullen; James R. Hauske; Gloria J. Kostek; Hiroshi Maeda, and Junsuke Tone, all of Groton, Conn., assignors to Pfizer Inc., New York, N.Y.

Continuation of Ser. No. 467,589, Jan. 19, 1990, abandoned, which is a division of Ser. No. 315,953, Feb. 27, 1989, Pat. No. 4,920,050. This application Jan. 28, 1991, Ser. No. 649,120
Int. Cl.[5] A61K *31/35*; C07D *311/00*
U.S. Cl. 514—460 9 Claims

1. A compound having the formula





wherein Me═CH_3 and Pr═$CH_3CH_2CH_2$, or a pharmaceutically acceptable cationic salt thereof.

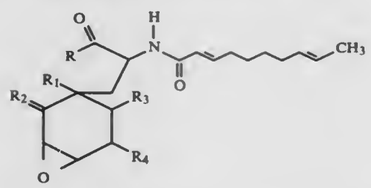
5,064,856

NOVEL HMG-COA SYNTHASE INHIBITORS

George M. Garrity, Westfield; Robert Giacobbe, Lavallette, both of N.J.; Michael D. Greenspan, New York, N.Y.; Otto D. Hensens, Red Bank, N.J.; Henry Joshua, Staten Island, N.Y.; Maria T. D. Matas; Isabel Martin, both of Madrid, Spain; James A. Milligan, Robbinsville, N.J.; Sagrario M. del Val, Madrid, Spain; Walter Rozdilsky, Cliffwood Beach; Janet C. Onishi, Mountainside, both of N.J., and Jerrold M. Liesch, Princeton Junction, N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Filed Jul. 31, 1989, Ser. No. 387,668
Int. Cl.[5] A61K *31/365*; C07D *307/94*
U.S. Cl. 514—462 7 Claims

1. A compound of structural formula (I):



(I)

wherein:

R and R_1 together with the carbons to which they are attached form a γ-lactone;

R_2 is geminal H and OH or O;

R_3 and R_4 are each OH or R_3 and R_4 are joined to form an oxacyclopropane ring.

5,064,857

LIQUID BISMUTH CONTAINING MEDICINAL PRODUCT, PROCESS FOR PRODUCING IT AND ITS USE

Heinz Bertholdt, Memmelsdorf; Dieter Michalczyk, Drosendorf, and Guenter Urban, Hallstadt, all of Fed. Rep. of Germany, assignors to R. Pfleger Chemische Fabrik GmbH, Hallstadt, Fed. Rep. of Germany

Filed Oct. 4, 1989, Ser. No. 416,922
Claims priority, application European Pat. Off., Oct. 8, 1988, 88116730.8
Int. Cl.[5] A61K *31/29*
U.S. Cl. 514—503 17 Claims

1. A product which comprises one or more single dose, sealed containers, having disposed therein a pharmaceutically effective amount of a liquid bismuth containing composition comprising a substantially stable, clear, odor neutral, taste neutral solution of bismuth (III)-citrate-hydroxide complex ammonium-potassium salt having a pH of from about 6.0 to about 7.0 in the absence of a preservative, said composition being present in each of said container or containers in an amount suitable for a single dose oral treatment of gastro-intestinal disorders, said composition being present in said containers or containers substantially in the absence of excess ammonia.

5,064,858

PROTECTED COMPLEX OF PROCAINE FOR THE TREATMENT OF SYMPTOMS FROM NARCOTICS ADDICTION, TINNITUS AND ALZHEIMER'DISEASE

Alfred T. Sapse, Miami Beach, Fla., assignor to Spectrum Pharmaceutical Corporation, Aventura, Fla.

Division of Ser. No. 233,247, Aug. 17, 1988, Pat. No. 4,956,391.
This application Sep. 5, 1990, Ser. No. 578,030
Int. Cl.[5] A61K *31/21, 9/14, 9/50*
U.S. Cl. 514—536 16 Claims

1. A composition for the treatment of age-related conditions which comprises procaine and a complexing agent capable of forming a protected complex with procaine, in an amount effective to reduce the symptoms of tinnitus and Alzheimer's disease.

5,064,859

LICIDAL COMPOSITIONS CONTAINING CARBOXYLIC ACIDS

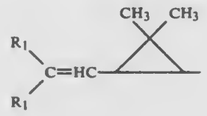
Bernard Crammer; Raphael Ikan; Yani K. Mumicuoglu, and Vera Weinstein, all of Jerusalem, Israel, assignors to Yissum Research Development Company of the Hebrew University of Jerusalem and Teva Pharmaceutical Industries, Inc., both of, Israel

Continuation-in-part of Ser. No. 146,336, Jan. 21, 1988, abandoned. This application Dec. 14, 1988, Ser. No. 284,082
Claims priority, application Israel, Jan. 22, 1987, 81350
Int. Cl.[5] A61K *31/20, 31/19*
U.S. Cl. 514—560 15 Claims

1. A method of combatting lice in humans, which comprising applying to an area of a human infested with lice a licidal effective amount of carboxylic acid of the formula

R—COOH I

wherein R is a straight or branched C_8–C_{12} alkyl radical, a straight or branched C_8–C_{12} alkenyl radical or a substituted vinylcyclopropanyl radical of the formula



II

wherein R_1 and R_2 may each be methyl, halogen or trifluoromethyl.

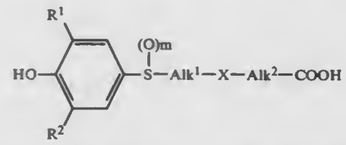
5,064,860

METHOD OF INHIBITING SUPEROXIDE GENERATION

Richard A. Mueller, Glencoe; Akira Nakao, Skokie, and Richard A. Partis, Evanston, all of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Filed Sep. 7, 1990, Ser. No. 579,138
Int. Cl.[5] A61K *31/19*
U.S. Cl. 514—568 9 Claims

1. A method of inhibiting superoxide generation in a mammal which comprises administering to a mammal in need of such treatment an amount of a compound of the Formula I



(I)

wherein R^1 and R^2 are the same or different and independently represent tert-alkyl or phenyl; Alk^1 represents straight or branched chain alkylene of 1 to 10 carbon atoms, X represents sulfur or oxygen, Alk^2 represents straight or branched chain alkylene of 1 to 4 carbon atoms; and m is 0, 1 or 2; or a pharmaceutically acceptable salt or stereoisomer or geometric isomer thereof, which is effective to inhibit superoxide generation.

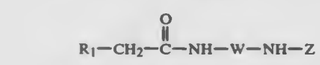
5,064,861

ACYLATED AMINE COMPOUNDS WHICH ARE USEFUL FUNGICIGAL AGENTS

Jean-Louis Brayer, Nanteuil le Haudoin; Laurent Taliani, Pavillons Sous Bois, and Jean Tessier, Vincennes, all of France, assignors to Roussel Uclaf, Paris, France

Filed Dec. 21, 1989, Ser. No. 454,685
Claims priority, application France, Dec. 22, 1988, 88 16994
Int. Cl.[5] A01N *37/20*; C07C *103/82, 129/12*
U.S. Cl. 514—617 16 Claims

1. A compound selected from the group consisting of a compound of the formula



I

wherein R_1 is Ar—O—, Ar is aryl of 6 to 14 carbon atoms unsubstituted or substituted, W is $—(CH_2)_{n1}—$, $n1$ is an integer from 2 to 6, the substitutents being at least one substituent selected from the group consisting of hydroxyl, halogen, alkyl, alkenyl and alkynyl of up to 12 carbon atoms, aryl of 6 to 14 carbon atoms, $—CF_3$, $—OR''_3$ in which R''_3 is alkyl of 1 to 12 carbon atoms or arylalkyl of 7 to 18 carbon atoms, COalkyl, $—Si(alkyl)_3$, $—SO_2$alkyl in which the alkyl contains 1 to 12 carbon atoms, and $—SO_2$aryl in which the aryl contains 6 to 14 carbon atoms, the various groups being able between them to form, with the atoms to which they are linked, $—O—CH_2—O$ rings, Z is hydrogen or a non-toxic, pharmaceutically acceptable acid addition salt thereof.

5,064,862

ANTICONVULSANT METHOD AND FORMULATIONS

C. Randall Clark, Auburn, Ala., assignor to Research Corporation, New York, N.Y.

Continuation of Ser. No. 332,683, Apr. 3, 1989, abandoned, which is a continuation of Ser. No. 913,051, Sep. 29, 1986, abandoned, which is a division of Ser. No. 769,521, Aug. 26, 1985, Pat. No. 4,638,014. This application Sep. 19, 1990, Ser. No. 584,832
Int. Cl.[5] A61K *31/165*
U.S. Cl. 514—617 10 Claims

1. A pharmaceutical formulation in unit dosage form useful for treating or preventing convulsions in mammals comprising an effective amount for such purpose of 4-amino-N-(2,6-dimethylphenyl) benzamide or a phamaceutically effective acid addition salt thereof, in association with a pharmaceutically acceptable carrier, diluent or excipient.

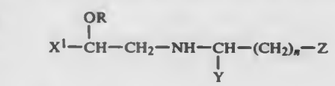
5,064,863

PHENOXYPROPANOLAMINES AND PHARMACEUTICAL USE

Leo Alig, Kaiseraugst, and Marcel Müller, Frenkendorf, both of Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J.

Continuation of Ser. No. 659,791, Oct. 11, 1984, abandoned. This application Dec. 10, 1987, Ser. No. 130,929
Claims priority, application Switzerland, Oct. 19, 1983, 4684/83; Sep. 7, 1984, 4288/84
Int. Cl.[5] A61K *31/135*; C07C *217/72*
U.S. Cl. 514—653 11 Claims

1. A phenoxypropanolamine of the formula



V-1

wherein

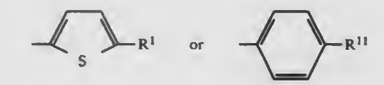
n is the integer 1 or 2,

R is hydrogen, lower-alkanoyl or phenyl-lower-alkanoyl,

X^1 is phenoxymethyl optionally mono-fluorinated or monochlorinated in the ortho-position,

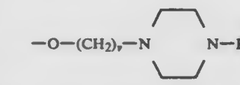
Y is hydrogen or methyl,

Z is a group of the formula



R^1 is aminomethyl, N-mono-lower-alkylaminomethyl, N-dilower-alkylaminomethyl or $—C(O)R^2$, $—C(R^3)═CH—(CH_2)_m—C(O)R^2$, $—C(H,R^3)—(CH_2)_{m+1}C(O)R^2$, $—C(H,R^3)—(CH_2)_p—OH$ or $—C(R^3)═CH—C(CH_3)═CH—COOCH_3$,

R^{11} is lower-alkanoyloxy, sulfamoyl, benzyloxy or phenoxy optionally ring-substituted by fluorine, chlorine, trifluoromethyl, lower alkyl, lower-alkoxy, or a group R^1, $—O—(CH_2)_q—OH$, $—O—(CH_2)_q—O—(CH_2)_r—R^5$ or



R^2 is hydroxy, lower-alkyl, lower-alkoxy, dimethylaminoethoxy, lower-alkoxycarbonylethyl, amino, mono-lower alkylamino or di-lower alkylamino,

R^3 is hydrogen or methyl,

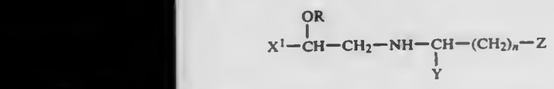
R^4 is lower-alkyl,

VOL 1132 ISS 2 NO 12 1991 UMI

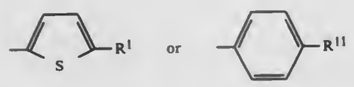
R^5 is hydrogen, lower-alkyl or phenyl,
R^6 is lower-alkyl or phenyl optionally para-substituted by fluorine, chlorine, lower-alkyl or lower-alkoxy,
m and p are, independently, an integer of 0 to 6,
v is an integer of 2 to 4,
q and t are, independently, an integer of 1 to 6,
an enantiomer thereof, or when Y is methyl a diastereomer thereof, or a physiologically compatible salt thereof.

8. A pharmaceutical composition which comprises an effective amount of a phenoxypropanolamine of the formula

V-1

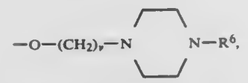


wherein
n is the integer 1 or 2, R is hydrogen, lower-alkanoyl or phenyl-lower alkanoyl, X^1 is phenoxymethyl optionally monofluorinated or mono-chlorinated in the ortho-position, Y is hydrogen or methyl, Z is a group of the formula



or

R^1 is aminomethyl, N-mono-lower-alkylaminomethyl, N-di-lower-alkylamino methyl or $-C(O)R^2$, $-C(R^3)=CH-(CH_2)_m-C(O)R^2$, $-C(H,R^3)-(CH_2)_{m+1}C(O)R^2$, $-C(H,R^3)-(CH_2)_p-OH$ or $-C(R^3)=CH-C(CH_3)=CH-COOCH_3$,
R^{11} is lower-alkanoyloxy, sulfamoyl, benzyloxy or phenoxy optionally ring-substituted by fluorine, chlorine, trifluoromethyl, lower alkyl, lower-alkoxy, or a group R^1, $-O-(CH_2)_q-OH$, $-O-(CH_2)_q-O-(CH_2)_r-R^5$ or



R^2 is hydroxy, lower-alkyl, lower-alkoxy, dimethylaminoethoxy, lower-alkoxycarbonylethyl, amino, mono-lower-alkylamino or di-lower-alkylamino,
R^3 is hydrogen or methyl,
R^4 is lower alkyl,
R^5 is hydrogen, lower-alkyl or phenyl,
R^6 is lower-alkyl or phenyl optionally para-substituted by fluorine, chlorine, lower-alkyl or lower-alkoxy, m and p are independently, an integer of 0 to 6,
v is an integer of 2 to 4,
q and t are, independently, an integer of 1 to 6,
an enantiomer thereof, or when Y is methyl a diastereomer thereof, or a physiologically compatible salt thereof, and an inert carrier.

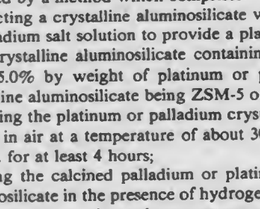
5,064,864

DI- AND TETRA-FLUORO ANALOGS OF SQUALENE AS INHIBITORS OF SQUALENE EPOXIDASE

Esa T. Jarvi; Michael L. Edwards, both of Cincinnati, and James R. McCarthy, West Chester, all of Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Division of Ser. No. 502,203, Mar. 30, 1990, Pat. No. 5,011,859. This application Dec. 12, 1990, Ser. No. 626,507
Int. Cl.[5] C07C *17/26, 21/18;* **A61K** *31/35*
U.S. Cl. 514—739 **6 Claims**

1. A compound of the formula



wherein
each dotted line individually represents an optional double bond,
R_1 is $-CH=CF_2$, $-CH=CR_3R_4$ or $-R_5-OH$, wherein R_3 and R_4 are each independently a C_1–C_4 alkyl, and R_5 is a C_1–C_4 alkylene, and
each R_2 is independently hydrogen or methyl.

5,064,865

CRYSTALLINE ALUMINOSILICATE COMPOSITIONS, THE PREPARATION THEREOF AND THEIR USE IN THE CONVERSION OF SYNTHESIS GAS TO LOW MOLECULAR WEIGHT HYDROCARBONS

James A. Hinnenkamp, Cincinnati, Ohio, assignor to Quantum Chemical Corporation, New York, N.Y.

Division of Ser. No. 201,663, Jun. 2, 1988, Pat. No. 4,980,326, and a continuation-in-part of Ser. No. 117,453, Oct. 26, 1987, abandoned, which is a continuation of Ser. No. 750,119, Jul. 1, 1985, abandoned. This application Dec. 19, 1990, Ser. No. 630,471
Int. Cl.[5] C07C *1/04*
U.S. Cl. 518—713 **3 Claims**

1. A method for the conversion of synthesis gas comprising:
contacting synthesis gas which comprises hydrogen and carbon monoxide with a catalytically effective amount of a crystalline aluminosilicate composition, under conversion conditions effective to provide C_{2+3} hydrocarbons at a carbon yield of at least about 20% and a carbon selectivity of at least about 80%, said conversion conditions comprising a temperature of 325°–500° C. and a pressure of 50–1000 psig and said aluminosilicate composition being prepared by a method which comprises:
(a) contacting a crystalline aluminosilicate with a platinum or palladium salt solution to provide a platinum or palladium crystalline aluminosilicate containing about 0.2 to about 5.0% by weight of platinum or palladium, said crystalline aluminosilicate being ZSM-5 or chabazite;
(b) calcining the platinum or palladium crystalline aluminosilicate in air at a temperature of about 300° C. to about 600° C. for at least 4 hours;
(c) heating the calcined palladium or platinum crystalline aluminosilicate in the presence of hydrogen from ambient temperature to an elevated temperature of about 300° C. to about 400° C. at a rate of temperature increase of about 0.5 to about 2.0° C. per minute;
(d) maintaining said crystalline aluminosilicate at said elevated temperature for about 0.75 to about 1.25 hours;
(e) cooling said crystalline aluminosilicate to ambient temperature in the presence of hydrogen; and
(f) mixing said crystalline aluminosilicate with a methanol synthesis catalyst in a weight ratio of methanol synthesis catalyst to crystalline aluminosilicate of about 0.3 to about 5, said methanol synthesis catalyst comprising chromium oxide-zinc oxide or copper oxide-zinc oxide.

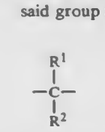
5,064,866

SELECTIVELY ION-ADSORPTIVE, POROUS MEMBRANE HAVING SIDE CHAINS CONTAINING BOTH A NEUTRAL HYDROXYL GROUP AND AN ION EXCHANGE GROUP

Kazuo Toyomoto, Yokohama; Shoichi Doi, and Noboru Kubota, both of Fuji, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jun. 9, 1989, Ser. No. 363,939
Claims priority, application Japan, Jun. 13, 1988, 63-143586; Aug. 8, 1988, 63-196198; Jan. 24, 1989, 1-013131; Feb. 23, 1989, 1-041824
Int. Cl.[5] C08J *5/20*
U.S. Cl. 521—27 **5 Claims**

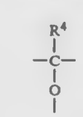
1. A selectively ion-adsorptive, porous membrane comprising:
a membranous, porous resin matrix comprising a hydrophobic polyolefin or a hydrophobic copolymer of an olefin and a halogenated olefin; and
a plurality of side chains each having at least one end chemically bonded directly to the surfaces of the membranous, porous resin matrix, which in turn are inclusive of pore wall surfaces of the membranous porous resin matrix,
said plurality of side chains each comprising at least one functional group selected from the group consisting of a neutral hydroxyl group and an ion exchange group, with the proviso that said plurality of side chains collectively contain both neutral hydroxyl groups and ion exchange groups, wherein the amount of said neutral hydroxyl groups and said ion exchange groups are, respectively, 0.1 to 20 milliequivalents and 0.1 to 20 milliequivalents per gram of the porous membrane, and wherein
said plurality of side chains each independently contains at least one combination of groups selected from the group consisting of a combination of groups (a) and (b), a combination of groups (a), (c) and (d), a combination of groups (a), (b), (c) and (d), a combination of groups (a), (b) and (e) and a combination of groups (a), (b), (d) and (e),
said group (a) being represented by the formula:



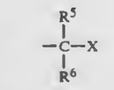
wherein each of R^1 and R^2 independently represents a hydrogen atom, a halogen atom, an alkyl group having 1 to 3 carbon atoms or a substituted alkyl group having 1 to 3 carbon atoms,
said group (b) being represented by the formula:



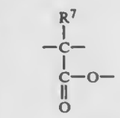
wherein R^3 has the same meaning as defined with respect to each of R^1 and R^2,
said group (c) being represented by the formula:



wherein R^4 has the same meaning as defined with respect to each of R^1 and R^2,
said group (d) being represented by the formula:



wherein each of R^5 and R^6 has the same meaning as defined with respect to each of R^1 and R^2, and X represents an ion exchange group,
said group (e) being represented by the formula:



wherein R^7 has the same meaning as defined with respect to each of R^1 and R^2,
wherein said group (d) is bonded to the oxy group of said group (c) or (e) directly or through at least one of said groups (a) and (b);
said ion-adsorptive, porous membrane having an average pore diameter of 0.01 to 5 μm and a porosity of 20 to 90%.

5,064,867

PRODUCTION OF FOAMED POLYMER STRUCTURES

James R. Barringer, Magnolia, Ark.; H. Eugene Broemmelsiek, Baton Rouge, La.; Porter W. Gregory, Magnolia, Ark.; Carroll W. Lanier, Baker, La.; Raymond Lee, Elk Grove Village, Ill., and Harold E. Schulz, Magnolia, Ark., assignors to Ethyl Corporation, Richmond, Va.

Filed Apr. 5, 1990, Ser. No. 466,096
Int. Cl.[5] C08V *9/02;* **B29C** *35/00*
U.S. Cl. 521—50.5 **29 Claims**

1. A method for producing a foamed polymer structure in which a polyimide precursor is exposed to microwave radiation of intensity sufficient to cause the development of a foamed polymer structure by the generation of gaseous materials within the body of the precursor, the improvement comprising
prior to exposing said precursor to microwave radiation compressing and heating the polyimide precursor at a temperature and pressure sufficient to cause said precursor to consolidate and form a hardened mass but not to develop into a foam through generation of gaseous materials.

5,064,868

SPRAYABLE LIGHTWEIGHT ABLATIVE COATING

William G. Simpson, Cocoa Beach, Fla.; Max H. Sharpe, and William E. Hill, both of Huntsville, Ala., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 28, 1990, Ser. No. 618,854
Int. Cl.[5] C08J *9/236*
U.S. Cl. 521—54 **3 Claims**

1. A composition, consisting essentially of:
approximately one-hundred (100) parts by weight of
twenty-five (25) to sixty-five (65) percent by weight of phenolic microspheres,
zero (0) to twenty (20) percent by weight of hollow glass spheres,
four (4) to ten (10) percent by weight of glass fibers,
twenty-five (25) to fifty (50) percent by weight of a flexibilized epoxy resin binder, and
two (2) to six (6) percent by weight of an activated colloidal clay; and

VOL
1132
ISS
2
NO
12
1991
UMI

two-hundred (200) to four-hundred (400) parts by weight of a solvent.

5,064,869

POLYPHENLENE ETHER FOAMS FROM LOW I.V. POLYPHENYLENE ETHER EXPANDABLE MICROPARTICLES

Richard C. Bopp, West Coxsackie, N.Y., and Lynn M. Martynowicz, Pittsfield, Mass., assignors to General Electric Company, Selkirk, N.Y.

Filed Dec. 27, 1989, Ser. No. 456,674
Int. Cl.[5] C08J 9/232, 9/18
U.S. Cl. 521—60 **19 Claims**

1. A method for reducing molding pressures and improving the diffusion rate of a blowing agent comprising:
(i) compounding a composition comprising microparticles having an average diameter of less than about 0.05 inch, said microparticles comprising
(a) a polyphenylene ether resin having an intrinsic viscosity of 0.40 dl/g or less; and optionally
(b) a polystyrene resin;
(ii) impregnating said composition with a blowing agent;
(iii) pre-expanding said composition; and
(iv) molding said pre-expanded composition.

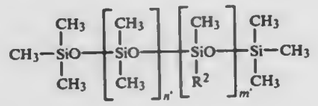
5,064,870

METHOD FOR THE PRODUCTION OF HIGHLY ELASTIC, COLD-CURING POLYURETHANE FOAMS

Hans-Joachim Kollmeier; Georg Burkhart, both of Essen; Rolf-Dieter Langenhagen, Hattinggen-Niederwenigern; Helmut Lammerting, Herbede, and Bernd-Jürgen Klietsch, Gelsenkirchen-Buer, all of Fed. Rep. of Germany, assignors to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

Continuation of Ser. No. 196,137, May 19, 1988, abandoned, which is a continuation-in-part of Ser. No. 71,012, Jul. 8, 1987, abandoned. This application Oct. 10, 1990, Ser. No. 595,677
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1986, 3626297
Int. Cl.[5] C08J 9/04
U.S. Cl. 521—111 **5 Claims**

1. In a method for the preparation of highly elastic, cold curing polyurethane foams, wherein the foaming is performed with predominantly difunctional polyisocyanates and at least difunctional polyols, catalysts, water or other blowing agents or mixtures thereof, in the presence of an organofunctional polysiloxane as stabilizer, the improvement which comprises carrying out the preparation of the polyurethane foam in the presence of an organofunctional polysiloxane which is equilibrated and has the average general formula



wherein
R^2 is chloropropyl,
n' has a value of 1 to 10, and
m' has a value of 1 to 6.0.

5,064,871

LATENT CATALYSTS COMPRISING BISMUTH CARBOXYLATES AND ZIRCONIUM CARBOXYLATES

Deborah A. Sciangola, Ewing Township, N.J., assignor to Essex Specialty Products, Inc., Clifton, N.J.

Continuation-in-part of Ser. No. 7,382,527, Jul. 19, 1989, abandoned. This application Nov. 13, 1990, Ser. No. 612,724
Int. Cl.[5] C08G 18/14
U.S. Cl. 521—124 **23 Claims**

1. A composition comprising an isocyanate-reactive compound and a catalyst comprising a bismuth carboxylate and a zirconium carboxylate, wherein the catalyst is present in an amount sufficient to catalyze a reaction with the isocyanate-reactive compound and a polyisocyanate.

5,064,872

POLYISOCYANURATE FOAM WITH CHLOROPROPANE BLOWING AGENT

Joost Monstrey, Knokke-Heist, and Bart Wallaeys, Gent, both of Belgium, assignors to Recticel, Belgium

Filed Mar. 2, 1990, Ser. No. 487,510
Claims priority, application Belgium, Mar. 3, 1989, 08900227
Int. Cl.[5] G08J 9/04
U.S. Cl. 521—131 **12 Claims**

1. A polyisocyanurate foam or polyurethane modified polyisocyanurate foam having a mainly closed cell structure, and comprising closed cells wherein chloropropane gas is enclosed either alone or in combination with a different gas.

5,064,873

RIGID FOAM WITH IMPROVED "K" FACTOR BY REACTING A POLYISOCYANATE PREPOLYMER AND POLYESTER POLYOL CONTAINING LOW FREE GLYCOL

Scott C. Snider, St. Petersburg; Michael E. Loudrigan, Clearwater, and Kenneth G. Trout, Tampa, all of Fla., assignors to Jim Walter Research Corp., St. Petersburg, Fla.

Filed Apr. 24, 1989, Ser. No. 342,508
Int. Cl.[5] C08G 18/14
U.S. Cl. 521—131 **32 Claims**

1. A polyisocyanurate foam comprising the reaction product in the presence of a blowing agent and catalyst of
(a) an isocyanate group-terminated quasi-prepolymer prepared by reacting an organic polyisocyanate with an organic compound having at least two active hydrogen atoms, and
(b) a minor amount of a polyol component, wherein the polyol component comprises
(i) a polyester polyol having a free glycol content of less than about 7 percent by weight of the polyester polyol or
(ii) a mixture of the low free glycol-containing polyester polyol with at least one other polyol, the total free glycol content of mixture (b) being less than about 7 percent by weight of the polyester polyol.

5,064,874

EXTRUDED SYNTHETIC RESIN FOAM AND ITS MANUFACTURING METHOD

Shigeru Motani, Deguchi; Tadayuki Saito, Higashimazato, and Toshiya Ito, Hokkaido, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 388,147, Aug. 1, 1989, Pat. No. 4,990,542. This application Oct. 31, 1990, Ser. No. 606,583
Claims priority, application Japan, Aug. 2, 1988, 63-193717; Jun. 30, 1989, 1-170928
Int. Cl.[5] C08J 9/10
U.S. Cl. 521—146 **3 Claims**



1. A foam, comprising:
an extruded synthetic resin foam composed of cells having substantially two sizes, one of the sizes being not more than about 0.25 mm and the other size being from about 0.4 to about 1 mm, wherein the cells with sizes not more than about 0.25 mm occupy from about 10 to 80 percent of a sectional area of the foam.

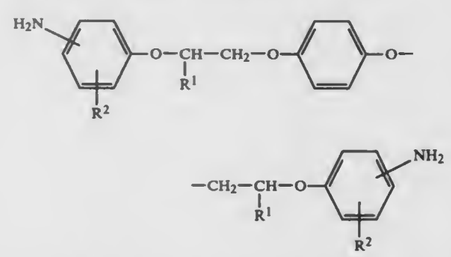
5,064,875

PROCESS FOR THE PREPARATION OF HEAT-STABLE POLYURETHANE UREA ELASTOMERS

Gerhard Grögler; Urs Thiery; Andreas Ruckes, all of Leverkusen; Richard Kopp, and Heinrich Hess, both of Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Nov. 30, 1990, Ser. No. 620,986
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1989, 3940270
Int. Cl.[5] C08G 18/14
U.S. Cl. 521—159 **18 Claims**

1. A process for the preparation of a polyurethane urea elastomer comprising reacting
(a) a compound containing at least two isocyanate-reactive groups and having a molecular weight in the range from 400 to 10,000;
(b) a polyisocyanate; and
(c) an aromatic diamine corresponding to the formula



wherein R^1 and R^2 are independently hydrogen or alkyl.

5,064,876

ADHESION PROMOTER METHOD

Yuji Hamada; Shosaku Sasaki, and Hiroshi Masaoka, all of Ichihara, Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Division of Ser. No. 123,029, Nov. 19, 1987. This application Jul. 31, 1989, Ser. No. 387,060
Claims priority, application Japan, Nov. 25, 1986, 61-280337
Int. Cl.[5] C08G 77/27
U.S. Cl. 522—99 **11 Claims**

1. In a method of coating a substrate with a radiation curable composition, the improvement comprising adding and blending an adhesion promoter into a silicone composition which can be cured by exposure to radiation, coating the substrate with the resulting composition, exposing the coated substrate to radiation, and obtaining a coated substrate wherein the coating exhibits improved adhesion to the substrate, wherein the adhesion promoter is an organopolysiloxane selected from the group consisting of copolymers of vinylmethyl-siloxane units, aminopropylmethylsiloxane units, and dimethylsiloxane units; copolymers of acryloxypropylmethyl-siloxane units, aminopropylmethylsiloxane units, and dimethylsiloxane units; cohydrolyzates of vinyl-containing alkoxysilane and aminoalkyl-containing alkoxysilane; copolymers of trimethylsiloxy units, gamma-acryloxypropylmethylsiloxane units, gamma-aminopropylsiloxane units, and dimethylsiloxane units; copolymers of trimethylsiloxy units, gamma-aminopropylmethylsiloxane units, vinylmethylsiloxane units, and dimethylsiloxane units; and copolymers of trimethylsiloxy units, N-beta-(aminoethyl)-gamma-aminopropylmethylsiloxane units, and dimethylsiloxane units wherein some of the amino hydrogen are reacted with acrylic chloride to provide the acrylic group.

5,064,877

PROCESS FOR FIXING IN ORGANIC SPECIES IN AN ORGANIC MATRIX

Rüdiger Nass, and Helmut Schmidt, both of Zellingen, Fed. Rep. of Germany, assignors to Fraunhofer-Gesellschaft Zur Forderung Der Angewandten Forschung e. V., Fed. Rep. of Germany

Filed Jul. 17, 1989, Ser. No. 380,523
Claims priority, application Fed. Rep. of Germany, Jul. 18, 1988, 3824333
Int. Cl.[5] C08F 30/04
U.S. Cl. 522—172 **19 Claims**

1. A process for fixing an inorganic species in an organic matrix, said process comprising:
bringing at least one compound of the empirical formula (I)

MRn (I)

wherein
M is selected from sub-group metals, lanthanides, actinides, Al, Sn, B and Si,
at least some of the radicals R, which may be identical or different, can be replaced by a complexing agent, and n is the quotient of the valency of M and the mean valency of the radicals R,
into contact with at least one organic compound A which contains at least one functional group X which is capable of complexing with M and is capable of replacing at least some of the radicals R, and, in addition, contains at least one functional group Y which is capable of participating in a polymerization or polycondensation reaction, in a molar ratio of the compounds of the formula (I) to the compounds A such that the number of radicals R which can be theoretically replaced is greater than the number of radicals which can theoretically be replaced by the groups X, at least some of the radicals R remaining on M when complexing is complete being radicals R* which can be replaced by OH radicals by reaction with water;
when complexing is complete, adding water in amounts such

VOL 1132 ISS 2 NO 12 1991 UMI

that and under conditions such that at least some of the radicals R• are replaced primarily by OH groups;
condensing said so-formed OH groups to form oxygen bridges linking atoms M; and
subsequently, carrying out a polymerization or polycondensation in which the at least one functional group Y of compound A participates.

5,064,878

IN-REACTOR STABILIZATION OF POLYMERS VIA COATED STABILIZERS

Ananda M. Chatterjee, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Division of Ser. No. 376,266, Jul. 5, 1989, abandoned. This application Mar. 12, 1990, Ser. No. 492,044
Int. Cl.[5] C08K *9/10*; **C08F** *4/642, 2/34*
U.S. Cl. 523—205 **7 Claims**

1. A process for providing in-reactor stabilization of a polyolefin during a polymerization reaction comprising the steps of:
(a) forming a particulate adapted for use in polyolefin polymerization reactions, by the steps consisting of
(i) forming a polyolefin emulsion or dispersion;
(ii) fluidizing additive particles;
(iii) spraying the emulsion or dispersion on the fluidized additive particles;
and forming discrete substantially coated additive particles;
(b) adding said discrete substantially coated additive particles to a polymerization reactor and polymerizing an olefin with a magnesium supported titanium halide/aluminum alkyl catalyst system wherein said system comprises
(i) a procatalyst component obtained by halogenating a magnesium compound of the formula $MgR'R''$ (wherein R' is an alkoxide or aryloxide group or halogen; and R'' is an alkoxide, alkyl carbonate, aryloxide, or halogen) with a halide of tetravalent titanium in the presence of an electron donor, contacting the halogenated product with a tetravalent titanium halide, and recovering the solid product;
(ii) a cocatalyst component comprising an organoaluminum compound; and
(iii) a selectivity control agent.

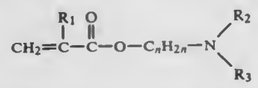
5,064,879

METHOD FOR SORBING METALLIC IONS USING ETHYLENE-N,N-DIALKYL AMINOALKYL ACRYLATES POLYMERS

Shujiro Shiga; Koji Kabasawa; Tadayuki Ohmae, and Hisao Tanaka, all of Chiba, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Division of Ser. No. 344,643, Apr. 28, 1989, abandoned. This application Oct. 25, 1990, Ser. No. 604,047
Claims priority, application Japan, Apr. 28, 1988, 63-107251
Int. Cl.[5] C08K *9/12*
U.S. Cl. 523—310 **4 Claims**

1. A method of sorbing ions of a metal excluding iron and cobalt, which using a metallic ion sorber comprising an ethylene copolymer containing from 40 to 95% by weight of ethylene and from 5 to 60% by weight of at least one of aminoalkyl acrylate compounds represented by formula:



wherein R_1 represents a hydrogen atom or a methyl group, R_2 and R_3 each represents an alkyl group having from 1 to 4 carbon atoms; and n represents an integer of form 1 to 4, and having a number average molecular weight of from 5,000 to 50,000.

5,064,880

CATIONIC DIPHENOL ADVANCED EPOXY RESINS WITH DIGLYCIDYLETHER OF ALIPHATIC DIOL

Nancy A. Rao, and Richard A. Hickner, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 69,475, Jul. 2, 1987, Pat. No. 4,883,572. This application Sep. 8, 1989, Ser. No. 404,725
The portion of the term of this patent subsequent to May 9, 2006, has been disclaimed.
Int. Cl.[5] C08L *63/00, 63/02, 63/04*
U.S. Cl. 523—403 **16 Claims**

1. In a process for preparation of an advanced epoxy cationic resin from an epoxy resin composition having terminal oxirane groups which includes the step of converting oxirane groups to cationic groups by reacting nucleophile with at least some of the oxirane groups of the epoxy resin composition wherein an organic acid and water are added during some part of this conversion; the improvement which comprises using as the epoxy resin composition a blend of
(I) an advanced epoxy resin obtained by reacting in the presence of a suitable catalyst
(A) a composition comprising
(1) from about 20 to 100 weight percent of a diglycidylether of an aliphatic diol essentially free of ether oxygen atoms; and
(2) from zero to about 80 weight percent of a diglycidylether of a dihydric phenol; and
(B) at least one dihydric phenol wherein components (A) and (B) are employed in such quantities that the resultant epoxide equivalent weight is from about 350 to about 10,000, and
(II) a different epoxy-based resin wherein at some time during preparation of the composition, the resins are converted to cationic resins whereby there is obtained a blend of a cationic, advanced epoxy resin and a different cationic epoxy-based resin; said blend containing from about 10 to about 90 percent of (I) and from about 90 to about 10 percent of (II) based on the total weight of cationic resin and having a charge density of from about 0.2 to about 0.6 milliequivalent of charge per gram of resin.

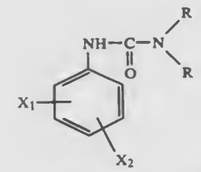
5,064,881

EPOXY RESIN COMPOSITION AND SEMICONDUCTOR SEALING MATERIAL COMPRISING SAME BASED ON SPHERICAL SILICA

Eiki Togashi, and Hisashi Matsumoto, both of Ichihara, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

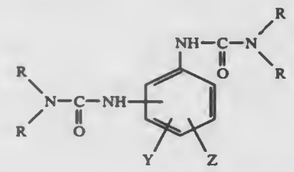
Filed Jan. 16, 1990, Ser. No. 466,033
Claims priority, application Japan, Jan. 18, 1989, 1-7684; Jan. 18, 1989, 1-7685; Jan. 19, 1989, 1-8692
Int. Cl.[5] C08G *59/62, 59/68*
U.S. Cl. 523—443 **11 Claims**

1. An epoxy resin composition which comprises, as indispensable components,
(A) an epoxy resin,
(B) a phenol-novolak resin,
(C) a curing promoter selected from the group consisting of:
(a) urea derivatives represented by the following formula:

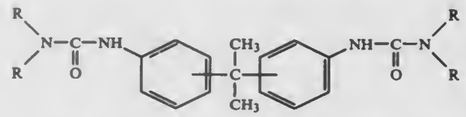


wherein X_1 and X_2, which may be the same or different, represent a hydrogen atom, a halogen atom, a lower alkyl

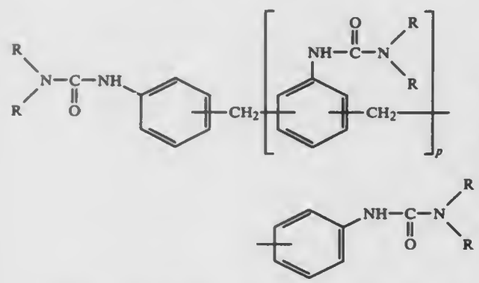
group, a lower alkoxy group or a nitro group, and the R groups which may be the same or different represent a lower alkyl group,
(b) urea derivatives represented by the following formula:



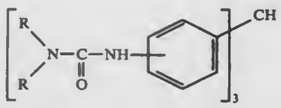
wherein Y and Z, which may be the same or different, represent a hydrogen atom, a halogen atom or a lower alkyl group, and R's, which may be the same or different, represent a lower alkyl group,
(c) urea derivatives represented by the following formula:



wherein the R groups, which may be the same or different, represent a lower alkyl group,
(d) urea derivatives represented by the following formula:



wherein p is an integer of from 0 to 5, and the R groups which may be the same or different, represent a lower alkyl group, and
(e) urea derivatives represented by the following formula:



wherein the R groups, which may be the same or different, represent a lower alkyl group; and
(D) a filler consisting essentially of spherical silica having a maximum particle size of up to 200 μm and an average particle size of up to 50 μm; wherein the phenol-novolak resin (B) is incorporated in an amount of 20 to 120 parts by weight per 100 parts by weight of the epoxy resin (A), the curing promoter (C) is incorporated in an amount of 0,1 to 15 parts per 100 parts by weight of the epoxy resin (A), and the spherical silica (D) is incorporated in an amount of 130 to 700 parts by weight per 100 parts by weight of the sum of the components (A) and (B).

5,064,882

ENCAPSULATION METHOD, MICROELECTRONIC DEVICES MADE THEREFROM, AND HEAT CURABLE COMPOSITIONS BASED ON EPOXY RESINS, DIARLIODONIUM-HEXAFLUOROANTIMONATE SALTS AND FREE RADICAL GENERATORS

Erik W. Walles, Rensselaer; John H. Lupinski, Scotia, and James V. Crivello, Clifton Park, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 386,670, Jul. 31, 1989, Pat. No. 5,015,675. This application Jan. 25, 1991, Ser. No. 645,778
Int. Cl.[5] H01L *23/28*
U.S. Cl. 523—443 **1 Claim**

1. A method for making plastic encapsulated electronic devices capable of exceeding a 50% survival rate of at least 100 hours when subjected to a moisture ladened environment at a temperature of about 145° C. under highly accelerated stress test conditions, which comprises encapsulating the electronic devices at a temperature of 120° to 230° C. and at a pressure of 400 to 1500 psi with a heat curable composition comprising by weight,
(a) 100 parts of an epoxy resin having less than 100 parts per million of hydrolyzable chloride,
(b) 10 to 1000 parts of fused silica filler,
(c) a catalytic amount of a compatible monomeric, or polymeric diaryliodoniumhexafluoroantimonate salt, and
(d) an effective amount of a free-radical generating aromatic compound as a cocatalyst for (c).

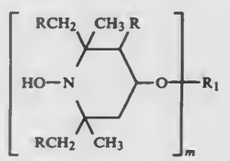
5,064,883

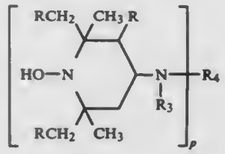
STABILIZATION OF ACID CATALYZED THERMOSET RESINS WITH N-HYDROXY HINDERED AMINES

Rodolf A. Behrens, New Fairfield, Conn., and Roger F. Malherbe, Basel, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation-in-part of Ser. No. 99,413, Sep. 21, 1987, abandoned. This application Oct. 19, 1988, Ser. No. 259,944
Int. Cl.[5] C08K *5/3492*
U.S. Cl. 524—95 **18 Claims**

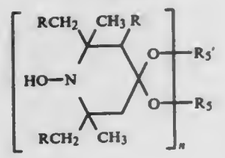
1. A stabilized stoving lacquer composition comprising
(a) an acid catalyzed thermoset resin based on hot crosslinkable acrylic, polyester, polyurethane, polyamide or alkyd resins, and
(b) an effective oxidative and light stabilizing amount of an N-hydroxyl substituted hindered amine derivative corresponding to the formulae A to O


(A)

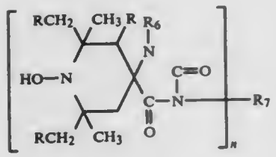

(B)

VOL 1132 ISS 2 NO 12 1991 UMI

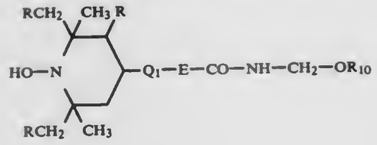
-continued



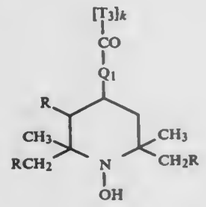
(C)



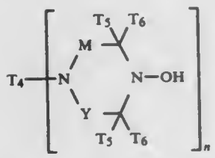
(D)



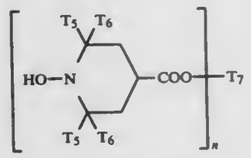
(E)



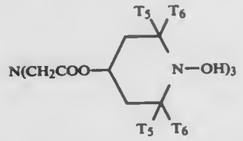
(F)



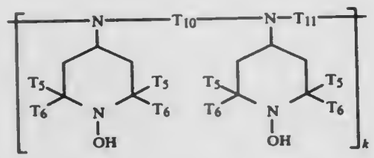
(G)



(H)

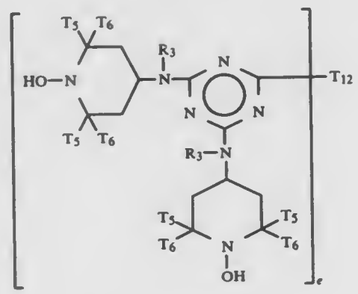


(I)

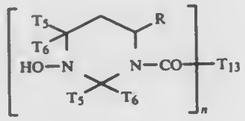


(J)

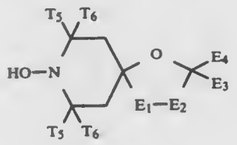
-continued



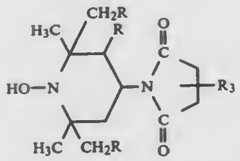
(K)



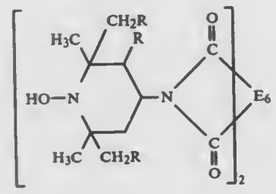
(L)



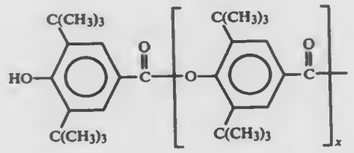
(M)



(N)



(O)



wherein

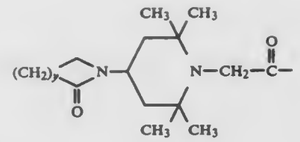
R is hydrogen or methyl,

m is 1–4,

when m is 1,

R_1 is hydrogen, C_1–C_{18} alkyl optionally interrupted by one or more oxygen atoms, C_2–C_{12} alkenyl, C_6–C_{10} aryl, C_7–C_{12}-aralkyl, glycidyl, a monovalent acyl radical or an aliphatic, cycloaliphatic, araliphatic or aromatic carboxylic acid, or of carbamic acid; or

wherein x is 0 or 1, or



wherein y is 2–4;

when m is 2,

R_1 is C_1–C_{12} alkylene, C_4–C_{12} alkenylene, xylylene, a divalent acyl radical of an aliphatic, cycloaliphatic, araliphatic or aromatic dicarboxylic acid or of a dicarbamic acid;

when m is 3, R_1 is a trivalent acyl radical of an aliphatic, unsaturated aliphatic, cycloaliphatic, or aromatic tricarboxylic acid;

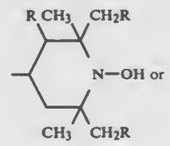
when m is 4, R_1 is a tetravalent acyl radical of a saturated or unsaturated aliphatic or aromatic tetracarboxylic acid;

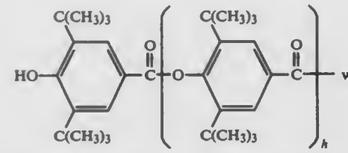
p is 1, 2 and 3,

R_3 is hydrogen, C_1–C_{12} alkyl, C_5–C_7 cycloalkyl, C_7–C_9 aralkyl, C_2–C_{18} alkanoyl, C_3–C_5 alkenoyl or benzoyl;

when p is 1,

R_4 is hydrogen, C_1–C_{18} alkyl, C_5–C_7 cycloalkyl, C_2–C_8 alkenyl unsubstituted or substituted by a cyano, carbonyl or carbamide group, aryl, aralkyl, or it is glycidyl, a group of the formula $—CH_2—CH(OH)—Z$ or of the formula —CO—Z or —CONH—Z wherein Z is hydrogen, methyl or phenyl, or a group of the formulae



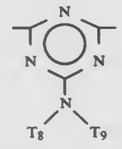


with h as 0 or 1;

or R_3 and R_4 together when p is 1 can be alkylene of 4 to 6 carbon atoms or 2-oxo-polyalkylene or the cyclic acyl radical of an aliphatic or aromatic 1,2- or 1,3-dicarboxylic acid,

when p is 2,

R_4 is a direct bond or is C_2–C_{12} alkylene, C_6–C_{12} arylene, xylylene, a $—CH_2CH(OH)—CH_2$ group, or a group $—CH_2—CH(OH)—CH_2—O—X—O—CH_2—CH(OH)—CH_2—$ wherein X is C_2–C_{10} alkylene, C_6–C_{15} arylene or C_6–C_{12} cycloalkylene; or, provided that R_3 is not alkanoyl, alkenoyl or benzoyl, R_4 can also be divalent acyl radical of an aliphatic, cycloaliphatic or aromatic dicarboxylic acid or dicarbamic acid, or can be the group —CO—; or



where T_8 and T_9 are independently hydrogen, alkyl of 1 to 18 carbon atoms, or T_8 and T_9 together are alkylene of 4 to 6 carbon atoms or 3-oxapentamethylene;

when p is 3,

R_4 is 2,4,6-triazinyl,

n is 1 or 2,

when n is 1,

R_5 and R'_5 are independently C_1–C_{12} alkyl, C_2–C_{12} alkenyl, C_7–C_{12} aralkyl, or R_5 is also hydrogen, or R_5 and R'_5 together are C_2–C_8 alkylene or hydroxyalkylene or C_4–C_{22} acyloxyalkylene;

when n is 2,

R_5 and R'_5 together are $(—CH_2)_2C(CH_2—)_2$;

R_6 is hydrogen, C_1–C_{12} alkyl, allyl, benzyl, glycidyl or C_2–C_6 alkoxyalkyl;

when n is 1,

R_7 is hydrogen, C_1–C_{12} alkyl, C_3–C_5 alkenyl, C_7–C_9 aralkyl, C_5–C_7 cycloalkyl, C_2–C_4 hydroxyalkyl, C_2–C_6 alkoxyalkyl, C_6–C_{10} aryl, glycidyl, a group of the formula $—(CH_2)_t—COO—Q$ or of the formula $—(CH_2)_t—O—CO—Q$ wherein t is 1 or 2, and Q is C_1–C_4 alkyl or phenyl; or

when n is 2,

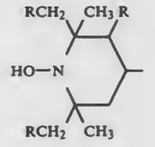
R_7 is C_2–C_{12} alkylene, C_6–C_{12} arylene, a group $—CH_2CH(OH)—CH_2—O—X—O—CH_2—CH(OH)—CH_2—$ wherein X is C_2–C_{10} alkylene, C_6–C_{15} arylene or C_6–C_{12} cycloalkylene, or a group $—CH_2CH(OZ')CH_2—(OCH_2—CH(OZ')CH_2)_2—$ wherein Z' is hydrogen, C_1–C_{18} alkyl, allyl, benzyl, C_2–C_{12} alkanoyl or benzoyl;

Q_1 is $—N(R_8)—$ or —O—;

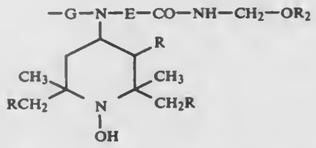
E is C_1–C_3 alkylene, the group $—CH_2—CH(R_9)—O—$ wherein R_9 is hydrogen, methyl or phenyl, the group $—(CH_2)_3—NH—$ or a direct bond;

R_{10} is hydrogen or C_1–C_{18} alkyl;

R_8 is hydrogen, C_1–C_{18} alkyl, C_5–C_7 cycloalkyl, C_7–C_{12} aralkyl, cyanoethyl, C_6–C_{10} aryl, the group $—CH_2—CH(R_9)—OH$ wherein R_9 has the meaning defined above; a group of the formula



or a group of the formula



wherein G can be C_2–C_6 alkylene or C_6–C_{12} arylene; or R_8 is a group $—E—CO—NH—CH_2—OR_{10}$;

T_3 is ethylene or 1,2-propylene, or is the repeating structural unit derived from an alpha-olefin copolymer with an alkyl acrylate or methacrylaate;

k is 2 to 100;

T_5 is methyl,

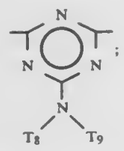
T_6 is methyl or ethyl, or T_5 and T_6 together are tetramethylene or pentamethylene;

M and Y are independently methylene or carbonyl;

T_7 is the same as R_7;

T_{10} and T_{11} are independently alkylene of 2 to 12 carbon atoms, or T_{11} is

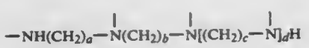
VOL 1132 ISS 2 NO 12 1991 UMI



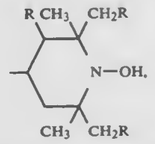
T_{12} is piperazinyl,



or



where R_{11} is the same as R_3 or is also



a, b and c are independently 2 or 3, d is 0 or 1 and f is 0–20; e is 2, 3 or 4;

T_{13} is the same as R with the proviso that T_{13} cannot be hydrogen when n is 1;

E_1 and E_2, being different, each are —CO— or —N(E_5)— where E_5 is hydrogen, C_1–C_{12} alkyl or alkoxycarbonylalkyl of 4 to 22 carbon atoms;

E_3 is hydrogen, alkyl of 1 to 30 carbon atoms, phenyl, naphthyl, said phenyl or said naphthyl substituted by chlorine or by alkyl of 1 to 4 carbon atoms, or phenylalkyl or 7 to 12 carbon atoms, or said phenylalkyl substituted by alkyl of 1 to 4 carbon atoms;

E_4 is hydrogen, alkyl of 1 to 30 carbon atoms, phenyl, naphthyl or phenylalkyl of 7 to 12 carbon atoms, or

E_3 and E_4 together are polymethylene of 4 to 17 carbon atoms, or said polymethylene substituted by up to four alkyl groups of 1 to 4 carbon atoms, and

E_6 is an aliphatic or aromatic tetravalent radical.

5,064,884

BLENDS OF POLYARYLENE SULFIDES, EPOXIDES, GLASS FIBERS, OPTIONALLY ANHYDRIDE-CONTAINING POLYMERS AND OPTIONALLY OTHER ADDITIVES

Burkhard Köhler; Walter Uerdingen; Wolfgang Wehnert; Manfred Schmidt; Walter Schäfer, and Klaus Reinking, all of Bayer Aktiengesellschaft, D 5090 Leverkusen, Bayerwerk, Fed. Rep. of Germany

Filed Mar. 4, 1991, Ser. No. 664,097

Claims priority, application Fed. Rep. of Germany, Mar. 16, 1990, 4008461

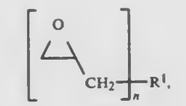
Int. Cl.[5] C08K *5/15, 3/40, 9/06*

U.S. Cl. 524—114 **2 Claims**

1. Blends of

A) 89.9 to 29% by weight polyarylene sulfides,

B) 0.1 to 35% by weight epoxides corresponding to formula



(I)

in which

R^1 is an at least divalent C_{2-30} organic radical attached to the glycidyl unit by oxygen or nitrogen atom and

n is an integer of or greater than 2,

C) 0.0 to 35% by weight copolymers of maleic anhydride with olefins and/or aromatic vinyl compounds and/or α,β-unsaturated carboxylic acid esters and/or copolymers of anhydrides of α,β-unsaturated carboxylic acids with other olefins and/or α,β-unsaturated carboxylic acid esters and/or aromatic vinyl compounds,

D) 10 to 79.9% by weight glass fibers and/or other mineral or organic fillers and reinforcing materials and

E) up to 300% by weight, based on the sum of (A+B+C+D), of inorganic or organic auxiliaries.

5,064,885

STABILIZED ALIPHATIC POLYCARBONATES

Friedemann Müller, Neuss; Edgar Leitz; Herbert Eichenauer, both of Dormagen; Karl-Heinz Ott, Leverkusen, and Hans-Josef Buysch, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

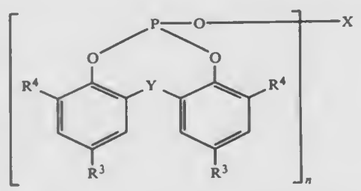
Continuation of Ser. No. 494,865, Mar. 14, 1990, abandoned, which is a continuation of Ser. No. 192,722, May 11, 1988, abandoned. This application Feb. 11, 1991, Ser. No. 655,204

Claims priority, application Fed. Rep. of Germany, May 23, 1987, 3717451; May 23, 1987, 3717452; May 23, 1987, 3717453

Int. Cl.[5] C08K *5/527*

U.S. Cl. 524—117 **5 Claims**

1. Aliphatic polycarbonates stabilized against thermal degradation containing 0.2 to 1.8% by weight, based on polycarbonate, of a compound of trivalent phosphorus of the formula



(II)

in which

X is hydrogen, an optionally substituted aliphatic, cycloaliphatic or aromatic C_1–C_{18} radical or a C_7–C_{24} alkaryl or aralkyl radical, said radical optionally containing olefinic double bonds and hetero atoms,

n is an integer of 1 to 4 according to the bonding of X, R^3 and R^4 may be the same or different and represent C_1–C_9 aliphatic, C_5–C_6 cycloaliphatic and C_7–C_9 aralkyl or C_6–C_{10} aryl radicals,

Y is S or HCR^5 where R^5=H, C_1–C_6 alkyl, cyclohexenyl or cyclohexyl.

5,064,886

DITHIOPHOSPHONATES, THEIR PREPARATION AND USE AS ANTI-OXIDANTS

Terence Colclough, Abingdon, United Kingdom, and Stanley J. Brois, Westfield, N.J., assignors to Exxon Chemical Patents Inc., Linden, N.J.

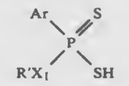
Division of Ser. No. 353,187, May 15, 1989, Pat. No. 4,900,852, which is a continuation-in-part of Ser. No. 907,194, Sep. 12, 1986, abandoned. This application Dec. 19, 1989, Ser. No. 452,913

Claims priority, application United Kingdom, Sep. 16, 1985, 8522833

Int. Cl.[5] C08K *5/5398*

U.S. Cl. 524—131 **8 Claims**

1. A hydrocarbon polymer composition comprising, as anti-oxidant, a salt or adduct of an acid derivative of general formula IV with a metal or an amine:



(IV)

wherein the anti-oxidant is present in an amount of from 0.1 to 50 wt % of the hydrocarbon composition, Ar is a hindered phenol group, R' is a hydrocarbyl radical and X_1 is selected from sulphur, oxygen and group NR" where R" is hydrogen or hydrocarbyl group.

5,064,887

FLAME RETARDANT POLYPHENYLENE ETHER RESIN COMPOSITION

Naoki Yamamoto; Akira Yanagase, both of Hiroshima, and Hisaya Yokohama, Obtake, all of Japan, assignors to MRC Techno Co., Ltd., Tokyo, Japan

Filed Nov. 13, 1989, Ser. No. 434,179

Claims priority, application Japan, Nov. 14, 1988, 63-287462

Int. Cl.[5] C08K *5/523*

U.S. Cl. 324—145 **3 Claims**

1. A flame retardant polyphenylene ether resin composition comprising

(A) about 20 to 80 parts by weight of a polyphenylene ether resin,

(B) about 20 to 75 parts by weight of an aromatic alkenyl resin,

(C) about 1 to 4 parts by weight of a modified plyorganosiloxane having an average particle diameter of 0.08 to 0.6 μm,

said modified polyorganosiloxane being selected from the group consisting of

a polyorganosiloxane graft polymer prepared by graft-polymerizing a vinyl monomer to a polyorganosiloxane rubber, and

a compound-rubber graft polymer prepared by graft-polymerizing a vinyl monomer to a compound-rubber wherein a polyorganosiloxane rubber and a prolyalkyl (meth)acrylate rubber are entangled;

(D) about 2 to 40 parts by weight of a phosphate represented by the following general formula



wherein R is selected from the group consisting of a an alkyl group, an aryl group, an alkyl-substituted aryl group, an aryl-substituted alkyl group and a halogen-substituted aryl group, and

(E) about 0.01 to 10 parts by weight of a particulate silicic acid,

said silicic acid being an agglomerate of hydrophobic silicone dioxide particles prepared by a combustion hydrolysis process and the diameter of primary particles of which are from 0.01 to 0.04 μm, all concentration ranges being based upon 100 parts by weight of the total of the polyphenylene ether resin, the aromatic alkenyl resin and the modified polyorganosiloxane polymer.

5,064,888

AMPHOTERIC SURFACTANTS AND COPOLYMERIZABLE AMPHOTERIC SURFACTANTS FOR USE IN LATEX PAINTS

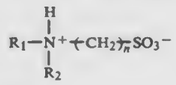
Rajeev Farwaha, Brampton, and William Currie, Elmira, both of Canada, assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Jun. 13, 1990, Ser. No. 537,711

Int. Cl.[5] C08K *5/42*

U.S. Cl. 524—157 **6 Claims**

1. An improved latex for use in aqueous-based latex paint formulations which comprises a latex copolymer dispersed in water in the presence of a surfactant wherein the improvement comprises using as the surfactant about 1–4 pphm of an amphoteric surfactant of the formula



wherein

R_1=C_8–C_{20} alkyl

R_2=H or C_1–C_2 alkyl

n=2–6

5,064,889

CURABLE FLUOROSILICONE COMPOSITION

Masayuki Ikeno, Gunma, Japan, assignor to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Oct. 31, 1989, Ser. No. 429,926

Claims priority, application Japan, Nov. 1, 1988, 63-276645

Int. Cl.[5] C08K *5/54*

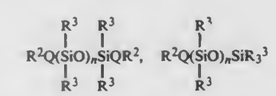
U.S. Cl. 524—188 **7 Claims**

1. A curable fluorosilicone composition which contains:

(1) 100 parts by weight of an organopolysiloxane having an average compositional formula of $(CF_3CH_2CH_2)_aR^1_bSiO_{(4-a-b)/2}$, wherein R^1 represents a monovalent hydrocarbon residue of 1 to 8 carbon atoms, and at least 0.005 mol % of R^1 is a vinyl and/or allyl group; and "a" represents a figure from 0.1 to 1.0 and "b" represents a figure from 2.5 to 1.0, provided that a+b ranges from 1.8 to 3.0.

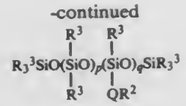
(2) an organohydrogensiloxane having an average of at least two hydrogen atoms bonded to silicon atoms in the molecule in such an amount as to provide a ratio of from 0.5 to 3 silicon-bonding hydrogen to the unsaturated groups bonded to the silicon atoms contained in the organosiloxane (1),

(3) 0.01 to 10 parts by weight of at least one organopolysiloxane represented by one of the following general formulae:



and

-continued



wherein R^2 represents a monovalent aromatic amino group; R^3 represents a substituted or unsubstituted monovalent hydrocarbon residue of 1 to 8 carbon atoms which does not contain any aliphatic unsaturated moiety; Q represents —O—, or a divalent hydrocarbon residue of 1 to 6 carbon atoms; n represents an integer from 0 to 500; and p represents an integer from 0 to 47 and q represents an integer from 1 to 10, provided that p+q ranges from 1 to 48, and

(4) a catalytic amount of a catalyst selected from platinum, palladium or rhodium compounds.

5,064,890

NOISE INSULATING MATERIAL

Hidekazu Tsurumaru, Osaka; Nobuhiro Fujio, Akashi; Takeshi Yamasaki, Higashiosaka; Isao Negishi, Kawaguchi; Toshio Nishizaki, Urawa, and Takashi Suzuki, Saitama, all of Japan, assignors to Tatsuta Electric Wire and Cable Co., Ltd., Osaka; Nippon Mining Co., Ltd. and Misawa Home Ltd., both of Tokyo, all of, Japan

Continuation of Ser. No. 90,067, Aug. 27, 1987, abandoned. This application Nov. 26, 1990, Ser. No. 618,524

Claims priority, application Japan, Aug. 30, 1986, 61-204048; Aug. 30, 1986, 61-204049; Nov. 14, 1986, 61-272721; Nov. 14, 1986, 61-272722

Int. Cl.[5] C08K *5/16*

U.S. Cl. 524—209 **10 Claims**

1. A noise insulating material comprising a mixture of binder resin, a sound barrier filler, fire-resistant fiber and a liquid rubber,

(a) said binder resin being an ethylene-vinyl acetate copolymer with a vinyl acetate content of not less than 15 weight percent;

(b) said sound barrier filler comprising an iron oxide silicate powder composed of 50 to 80 weight percent of iron oxide, 15 to 30 weight percent of silicon oxide and not more than 10 weight percent of at least one oxide selected from the group consisting of alkali metal oxides and alkaline earth metal oxides, with not less than 50 percent of said iron oxide and silicon oxide being in the form of $nFeO \cdot SiO_2$ or

(c) said free-resistant fiber being at least one member selected from the group consisting of glass wool, asbestos, phenolic resin fiber, carbon fiber and activated carbon fiber; and

(d) said liquid rubber being at least one member selected from the group consisting of liquid chloroprene rubber, butadiene-acrylonitrile rubber, and styrene-butadiene rubber.

5,064,891

CURABLE SILICONE COMPOSITIONS

Hironao Fujiki, Takasaki; Mikio Shiono, and Toshiaki Takahashi, both of Annaka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed May 18, 1990, Ser. No. 525,047

Claims priority, application Japan, May 19, 1989, 1-126025; May 19, 1989, 1-126026

Int. Cl.[5] C08K *5/54*

U.S. Cl. 524—264 **4 Claims**

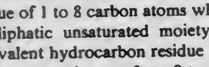
1. A curable silicone composition comprising:

(A) an organopolysiloxane having at least two silicon-bonded aliphatic unsaturated hydrocarbon radicals in its molecule;

(B) an organohydrogenpolysiloxane having at least three silicon-bonded hydrogen atoms in its molecule;

(C) a platinum family metal catalyst; and

(D) a nonionic surface active agent having a hydrophobic silicone portion and at least one hydrophilic polyol portion in its molecule, wherein the nonionic surface active agent is represented by the following general composition formula [IV]:



[IV]

wherein

p is a number in the range of $0.05 \leqq p \leqq 2.5$, and

q is a number in the range of $0.1 \leqq q \leqq 0.35$, provided p+q is in the range of $1 \leqq p+q \leqq 2.8$;

R^3 is a hydrogen atom or C_1 to C_8 univalent hydrocarbon radical, and

R^4 is a polyol radical represented by the following formula [V]:



[V]

wherein R^5 is a C_1 to C_6 bivalent hydrocarbon radical, R_6 is a C_1 to C_6 univalent hydrocarbon radical, m is an integer of 2 or 3, and n is an integer of 0 or 1, provided m+n=3.

5,064,892

RESIN COMPOSITION BASED ON A POLYMER AND AN ESTER

Adriaan Hofland, and Joannes M. Paauwe, both of Zwolle, Netherlands, assignors to Stamicarbon B. V., Geleen, Netherlands

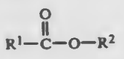
Continuation-in-part of Ser. No. 233,436, Aug. 18, 1988, abandoned. This application Aug. 18, 1989, Ser. No. 395,719

Claims priority, application Netherlands, Aug. 28, 1987, 8702018; Sep. 20, 1988, 8802321

Int. Cl.[5] C08J *00/00*; C08K *5/10*; C08L *00/00*

U.S. Cl. 524—317 **20 Claims**

1. Resin composition containing a polymer and an ester of an unsaturated fatty acid and an alcohol containing a terminal unsaturation, wherein said ester is of the formula:



where:

R^1 is an alkenyl radical with 10–24 carbon atoms and at least one non-terminal ethylenically unsaturated bond, and

R^2 is a derivative of an organic group comprising one or more terminal allylether groups.

5,064,893

FLEXIBLE LABEL FILM FROM POLYETHYLENE AND CALCIUM CARBONATE-POLYMER MIXTURE

Martin F. Hoenigmann, Dover, Del., assignor to Rexene Corporation, Dallas, Tex.

Filed Mar. 8, 1990, Ser. No. 490,410

Int. Cl.[5] C08L *23/06*; C08K *3/26*

U.S. Cl. 524—427 **8 Claims**

1. A film composition comprising:

from about 75% to about 95% by weight of a polyethylene polymer suitable for the production of thin film;

said polyethylene polymer having a density of from about 0.910 to about 0.930 and a melt index of from about 1.0 gm/10 minutes to about 3.0 gm/10 minutes;

from about 5% to about 25% of a calcium carbonate filler, said filler comprising finely ground solid calcium carbonate admixed with at least one polymer prior to mixing with said polyethylene polymer;

said filler having a melt index of from about 0.5 gm/10 min to about 1.5 gm/10 minutes and a melt flow of from about 1.0 gm/10 minutes to about 3.0 gm/10 minutes;

said film having a yield tensile strength in the machine direction of from about 1350 p.s.i. to about 1500 p.s.i., a yield tensile strength in the transverse direction of from about 1300 to about 1500 p.s.i., a break tensile strength in the machine direction of from about 2100 p.s.i. to about 2300 p.s.i., a break tensile strength in the transverse direction of from about 1700 p.s.i. to about 1900 p.s.i., ultimate elongation in the machine direction of from about 450% to about 550% and ultimate elongation in the transverse direction of from about 250% to about 450%.

5,064,894

NON-AGGLOMERATING ELASTOMERIC ORGANOPOLYSILOXANE PARTICULATES PRODUCED BY POLYCONDENSATION CROSSLINKING

Daniel Desmoncean, Rillieux La Pape, and Rafael Jorda, Sainte Foy Les Lyon, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Jan. 19, 1990, Ser. No. 467,417

Claims priority, application France, Jan. 19, 1989, 89 00861

Int. Cl.[5] C08J *7/04*

U.S. Cl. 524—503 **10 Claims**

1. An oil-in-water emulsion polycondensation crosslinkable into non-stick elastomeric organopolysiloxane particulates having a mean particle size ranging from 50 μm to 3 mm, comprising:

(A) 100 parts by weight of an α,-dihydroxydiorganopolysiloxane;

(B) 0.1 to 20 parts by weight of a crosslinking agent selected from among an organotrialkoxysilane, an alkyl silicate, or a partial hydrolysis product thereof;

(C) a catalytically effective amount of a tin curing catalyst;

(D) an effective amount of an oil-in-water surfactant;

(E) 3 to 100 parts by weight of a pyrogenic or precipitated silica powder which, upon heating of the emulsion to a temperature below 100° C. and for a period of time suitable for the formation of solid particles, concentrates at a surface of said particles to confer on said particles a non-stick character; and

(F) water.

5,064,895

POLYARYLENE SULFIDE MOLDING COMPOUNDS AND THEIR USE AS AN ENCAPSULATING COMPOUND FOR ACTIVE AND PASSIVE ELECTRONIC COMPONENTS

Karl-Heinz Köhler, Krefeld; Klaus Reinking, Wermelskirchen, and Klaus Kraft, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 7, 1989, Ser. No. 389,943

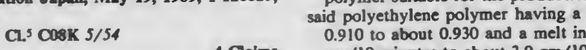
Claims priority, application Fed. Rep. of Germany, Aug. 18, 1988, 3828056

Int. Cl.[5] C08L *77/00*

U.S. Cl. 524—609 **6 Claims**

1. Thermoplastic molding compounds consisting of

A) 20 to 100% by weight polyarylene sulfides, having a melt viscosity of 5 to 20 Pa.s, a melting point above 260° C., crystallization behavior corresponding to the following mathematical relation (I)



(I)

and a total ion content of less than 200 ppm and

B) 0 to 80% by weight fillers.

5,064,896

ADHESIVE COMPOSITIONS

Robin A. Martin, Taylors, S.C., assignor to Tanner Chemical Company, Inc., Greenville, S.C.

Filed Aug. 8, 1990, Ser. No. 564,098

Int. Cl.[5] C08L *75/04*

U.S. Cl. 524—731 **10 Claims**

1. In an adhesive composition in the form of a paste comprising 100 p.b.w. vulcanizable material; 5–60 p.b.w. powdered sulfur; 2.5–70 p.b.w. accelerator system; and a filler system containing at least one inert filler which comprises up to 80 percent of the weight of said composition; the improvement comprising:

0.2–10 p.b.w. of polyisocyanate which is blocked or capped.

5,064,897

PROCESS FOR MAKING ETHANOL SOLUTIONS OF ALKYL HALF-ESTERS OF COPOLYMERS OF MALEIC ANHYDRIDE AND A C_1-C_4 ALKYL VINYL ETHER

Mohammed Tazi, Wayne, and Robert B. Login, Oakland, both of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed Aug. 30, 1990, Ser. No. 574,843

Int. Cl.[5] C08K *5/05*; C08F *222/16, 216/12*

U.S. Cl. 524—765 **8 Claims**

1. A process for making ethanol solutions of alkyl half-esters of copolymers of maleic anhydride and a C_1–C_4 alkyl vinyl ether which comprises:

(a) precharging a reactor with excess C_1–C_4 alkyl vinyl ether as both monomer reactant and solvent and a free radical polymerization initiator at a reaction temperature of about 50°–90° C.,

(b) feeding the alkyl half-ester of maleic anhydride formed by reaction of substantially one mole of maleic anhydride and substantially one mole of alkanol into the precharged reactor to form the desired alkyl half-ester copolymer reaction product,

(c) cooling the reaction product to room temperature, and

(d) introducing ethanol into the reactor and removing excess alkyl vinyl ether to form the desired ethanol solution of the alkyl half-ester copolymer.

5,064,898

ROOM TEMPERATURE-CURABLE ORGANOPOLYSILOXANE COMPOSITION AND METHOD FOR THE PREPARATION THEREOF

Masatoshi Arai; Shinichi Satoh; Tsuneo Kimura; Kazuyuki Suzuki, all of Gunma; Tatsuya Kagosaki, and Seiji Shimada, both of Aichi, all of Japan, assignors to Shin-Etsu Chemical Co., Tokyo and Toyota Jidosha Kabushiki Kaisha, Toyota, both of, Japan

Filed Feb. 2, 1990, Ser. No. 473,762

Claims priority, application Japan, Feb. 17, 1989, 1-37893

Int. Cl.[5] C08K *3/08*

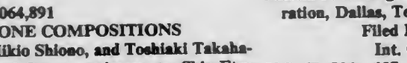
U.S. Cl. 524—780 **11 Claims**

1. A room temperature-curable organopolysiloxane composition which comprises, as a blend:

(A) 100 parts by weight of a blend comprising

(A-1) a diorganopolysiloxane terminated at each molecular chain end with a silanolic hydroxy group,

(A-2) an iminoxy-substituted organosilane compound represented by the general formula



in which R^1 is a monovalent hydrocarbon group, R^2 and R^3 are each, independently from the other, a hydrogen atom or a monovalent hydrocarbon group or R^2 and R^3 are each a divalent hydrocarbon group jointly forming a ring structure together with the carbon atom bonded to the nitrogen atom, and the subscript n is 3 or 4, or a partial hydrolysis product thereof in an amount in the range from 1 to 25% by weight based on the component (A-1),

VOL 1132 ISS 2 NO 12 1991 UMI

(A-3) an organotin carboxylate ester compound in an amount in the range from 0.01 to 10% by weight based on the component (A-1), and

(A-4) an inorganic filler in an amount in the range from 1 to 500% by weight based on the component (A-1);

admixed with

(B) from 0.1 to 20 parts by weight of

(B-1) a diorganopolysiloxane having an average degree of polymerization of at least 300, each terminal group being a triorganosiloxy group,

(B-2) an aminopropyl-substituted diorganopolysiloxane represented by the general formula

$$R_2R^5Si—O—[—SiR(C_3H_6NHR^4)—O—]_p—[—SiR_2—O—]_q—SiR_2R^5,$$

in which each R is, independently from the others, a monovalent hydrocarbon group, R^4 is a hydrogen atom or an aminoalkyl group, each R^5 is, independently from the others, a monovalent hydrocarbon group or an aminopropyl group of the formula $—(—CH_2—)_3—NHR^4$, the subscript p is a positive integer and the subscript q is zero or a positive integer,

or a combination of (B-1) and (B-2);

(C) from 0.1 to 10 parts by weight of

(C-1) an alkenyloxy-substituted organosilane compound represented by the general formula

$$R^6_{4-m}Si(O—CR^7=CHR^8)_m,$$

in which R^6 is a monovalent hydrocarbon group, R^7 and R^8 are each, independently from the other, a hydrogen atom or a monovalent hydrocarbon group or R^7 and R^8 are each a divalent hydrocarbon group jointly forming a ring structure together with the two carbon atoms bonded with the double bond and the subscript m is a positive integer not exceeding 4, or a partial hydrolysis product thereof,

(C-2) a β-substituted ketene silyl acetal compound represented by the general formula

$$R^9_{4-r}Si[O—C(OR^{12})=CR^{10}R^{11}]_r,$$

in which R^9 is a monovalent hydrocarbon group, R^{10} is a hydrogen atom or a monovalent hydrocarbon group, R^{11} and R^{12} are each, independently from the other, a hydrogen atom or a monovalent hydrocarbon group or R^{11} and R^{12} are each a divalent hydrocarbon group jointly forming a ring structure together with the two carbon atoms bonded with the double bond and the oxygen atom to which R^{12} is bonded, and the subscript r is a positive integer not exceeding 4, or a partial hydrolysis product thereof, or a combination of (C-1) and (C-2); and

(D) from 0.1 to 50 parts by weight of an organopolysiloxane having a network structure consisting of monofunctional triorganosiloxy units of the formula $R_3SiO_{0.5}$, R being a monovalent hydrocarbon group, and tetrafunctional siloxane units of the formula SiO_2.

5,064,899

ANTISTATIC, THERMOPLASTIC MOULDING COMPOUNDS BASED ON AROMATIC VINYL POLYMERS

Hans-Josef Buysch; Norbert Schön, both of Krefeld; Herbert Eichenauer, Dormagen; Karl-Heinz Ott, Leverkusen, and Alfred Pischtschan, Kuerten, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Continuation of Ser. No. 151,284, Feb. 1, 1988, abandoned. This application Mar. 22, 1990, Ser. No. 497,817

Claims priority, application Fed. Rep. of Germany, Feb. 13, 1987, 3704485

The portion of the term of this patent subsequent to Jun. 13, 2007, has been disclaimed.

Int. Cl.[5] C08G *63/48, 63/91*

U.S. Cl. 525—64 **3 Claims**

1. Thermoplastic moulding compositions comprising:

I. 99.8 to 95% by weight of

A) 0–100% by weight of one or more graft polymers comprise the monomers styrene, α-methyl styrene, methyl methacrylate, or a mixture of 95–50% by weight of styrene, α-methyl styrene, ring substituted styrene, methyl methacrylate or mixtures thereof with 5–50% by weight of methacrylonitrile, acrylonitrile, maleric acid anhydride, N-substituted malerimides or mixtures thereof, grafted onto a rubber substrate, and

B) 100 to 0% by weight of one or more thermoplastic vinyl polymers, and

II. 0.2 to 5% by weight of a grafted polyalkylene ether which is 90–70%, by weight of polyalkylene ether grafted with 10–30% by weight of a polymer of C_1–C_6 alkyl acrylates or cycloalkylacrylates or methacrylates.

5,064,900

CURABLE UNSATURATED POLYESTER RESIN COMPOSITION

Hisayuki Iwai, 1-24-5 Shiratori, Togo-cho, Aichi-gun, Aichi; Yasuhiro Mishima, 4–15–24 Yokoyama-cho, Toyota, Aichi; Ken Hatta, 5–38 Tanaka-cho, Toyota, Aichi; Kenichi Nishino, 3–13–67, Shimo-Hozumi Ibaraki, Osaka; Sanji Aoki, 311–6 Ryofukuji, Kashiba-cho, Kita-Katsuragi-gun, Nara; Tatsuhiko Ozaki, 6–74 Eiraku-cho, Nishio, Aichi, and Hirotaka Wada, 2–5 Minatomachi, Gamagori, Aichi, all of Japan

Continuation-in-part of Ser. No. 442,831, Nov. 29, 1989, abandoned. This application Jan. 19, 1990, Ser. No. 469,748

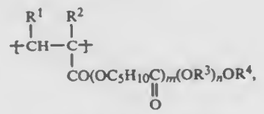
Claims priority, application Japan, Nov. 30, 1988, 63-302576

Int. Cl.[5] C08L *67/06*

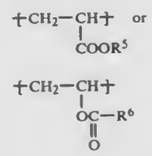
U.S. Cl. 525—69 **12 Claims**

1. A curable unsaturated polyester resin composition comprising

graft copolymers each containing 10–60 weight % of a first constituent given by



38–89.7 weight % of a second constituent given by



and 0.3–2 weight % of a third constituent which is a vinyl monomer unit having carboxylic acid or carboxylic anhydride groups,

unsaturated polyester,

vinyl monomer,

filler,

curing catalyst, and

reinforcing fiber,

where either of R^1 and R^2 is H, the other being either H or CH_3, R^3 is ethylene group or propylene group, R^4 is hydrocarbon group with 1–18 carbon atoms, R^5 is alkyl group with 1–4 carbon atoms, R^6 is alkyl group with 1–3 carbon atoms, m is 6–90 and n is 1–5.

5,064,901

BLENDS OF POLYKETONES AND CARBOXYLATED, HYDROGENATED BLOCK COPOLYMERS

Joseph M. Machado, Richmond, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jul. 20, 1989, Ser. No. 382,379

Int. Cl.[5] C08L *53/02*

U.S. Cl. 525—92 **9 Claims**

1. A polymer blend composition consisting essentially of:

(a) a major proportion of a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon,

(b) a minor portion of a carboxylated, partially hydrogenated two-block copolymer of an alkenyl arene and a conjugated alkadiene, wherein said carboxylated partially hydrogenated two block copolymer is formed by introducing from about 0.1% by weight to about 10% by weight of carboxyl group, based on total carboxylated polymer, onto primarily the aromatic portion of a partially hydrogenated diblock copolymer, the hydrogenation copolymer having no more than 20% of the ethylenic unsaturation of the diblock copolymer from which it was formed, which diblock copolymer comprises a block of at least predominantly polymerized styrene or β-methylstyrene and a block of at least predominantly polymerized butadiene or isoprene; and optionally,

(c) a polymer of an α,β-ethylenically unsaturated carboxylic acid.

5,064,902

HOT MELT ADHESIVE OF HYDROXYL-FUNCTIONAL ETHYLENE-VINYL ACETATE AND BLOCKED POLYISOCYANATE

Jacques Boutillier, Carsix; Noelle Forichon, Le Neubourge, and Yves Lermat, Fontaine l'Abbé, all of France, assignors to Atochem, Puteaux, France

Division of Ser. No. 202,103, Jun. 3, 1988, Pat. No. 4,908,408. This application Dec. 22, 1989, Ser. No. 455,273

Claims priority, application France, Jun. 5, 1987, 87 07954

Int. Cl.[5] C08L *23/08, 31/04*

U.S. Cl. 525—124 **1 Claim**

1. A cross-linkable hot melt adhesive having a base of ethylene-vinyl acetate copolymer consisting essentially of a blocked polyisocyanate associated with said ethylene-vinyl acetate copolymer which possesses primary hydroxyl functions contributed by an ethyleneic monomer having at least one primary hydroxyl function and wherein said polyisocyanate is blocked by a tackifying resin having free phenolic functions, and a tackifying resin used other than as a blocking agent for the polyisocyanate.

5,064,903

ELASTOMERIC TOUGHENED POLYETHYLENE BLENDS

Dennis G. Peiffer, Annandale, N.J., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Aug. 8, 1990, Ser. No. 564,206

Int. Cl.[5] C08L *23/26, 23/32, 23/16, 33/02*

U.S. Cl. 525—196 **4 Claims**

1. A thermoplastic blend composition comprising:

(a) a metal neutralized copolymer of ethylene and methacrylate; and

(b) about 1 to about 40 weight percent of a metal neutralized sulfonated EPDM terpolymer.

5,064,904

SUITABLE POLYCHLOROPRENE MATERIALS FOR THE PRODUCTION OF HIGH-DAMPING VULCANISATES

Werner Obrecht, Moers; Heinz-Hermann Greve, Cologne; Peter Wendling; Ulrich Eisele, both of Leverkusen, and Rüdiger Musch, Bergisch Gladbach, all of Fed. Rep. of Germany, assignors to Bayer AG, Leverkusen, Fed. Rep. of Germany

Filed Mar. 19, 1990, Ser. No. 495,896

Claims priority, application Fed. Rep. of Germany, Mar. 29, 1989, 3910101

Int. Cl.[5] C08L *11/02, 27/12*

U.S. Cl. 525—199 **10 Claims**

1. A method for the production of a polychloroprene material suitable for making high-damping vulcanisates, comprising the steps

(a) mixing an aqueous dispersion of a polymerisate (A) of from 50 to 99% by weight polychloroprene with an aqueous dispersion of a polymerisate (B) of from 1 to 50% by weight fluorinated polyolefin, the weight percentages being based on (A) plus (B);

(b) precipitating the aqueous polymerisate mixture; and

(c) spray drying the precipitate to form the polychloroprene material.

5,064,905

ELASTOMERIC COMPOSITIONS, PROCESS FOR THE PREPARATION THEREOF AND TIRES CONTAINING THEM

Jan E. Stamhuis; Antonius A. Broekhuis, and Pieter Luijk, all of Amsterdam, Netherlands, assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 255,240, Oct. 11, 1988. This application Jan. 31, 1991, Ser. No. 648,688

Claims priority, application United Kingdom, Oct. 19, 1987, 8724437

Int. Cl.[5] C08L *9/06, 25/10, 53/02*

U.S. Cl. 525—237 **7 Claims**

1. A process for the preparation of an elastomeric composition which comprises mixing

(1) in the range of from 10 to 90% by weight of a copolymer A of a mono-aromatic vinyl compound and a conjugated diene and having a content of aromatic vinyl compound in the range of from 10 to 40% by weight, a vinyl content in the conjugated diene units of at least 50% by weight, calculated on total conjugated diene units, and a glass transition temperature above minus 35° C., and

(2) from 90 to 10% by weight of a polymer B which is a homopolymer of a conjugated diene or a copolymer of a mono-aromatic vinyl compound and a conjugated diene, said polymer B containing less than 25% by weight of a mono-aromatic vinyl compound and having a vinyl content in the conjugated diene units of less than 25% and a glass transition temperature below minus 55° C., wherein:

(3) said percentages by weight of copolymer A and polymer B being calculated on the total of A and B, and copolymer A and polymer B, if present as a copolymer, having a differential content of the vinyl aromatic compound over

VOL 1132 ISS 2 NO 12 1991 UMI

the polymer chain which varies less than five percentage points, as determined by monomer conversion, and

(4) said copolymer A and polymer B, if a copolymer, have been prepared by batch copolymerization of a conjugated diene and a mono-aromatic vinyl compound in the presence of a liquid diluent and with the aid of an initiator based on lithium.

5,064,906

THERMOPLASTIC RESIN COMPOSITIONS HAVING EXCELLENT IMPACT RESISTANCE, WEATHER RESISTANCE AND MOLDABILITY, AND PROCESS FOR PREPARING THE SAME

Kazuo Kishida, Hiroshima; Yutaka Toyooka, and Haruyoshi Kitahara, both of Ohtake, all of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Division of Ser. No. 10,426, Feb. 3, 1987, Pat. No. 4,912,162. This application Aug. 28, 1989, Ser. No. 405,428

Claims priority, application Japan, Feb. 6, 1986, 61-24533

Int. Cl.[5] C08F *265/10, 279/02*

U.S. Cl. 525—293 **6 Claims**

1. A thermoplastic resin composition having excellent impact resistance, weather resistance and moldability which comprises (A) a graft copolymer resin (3) obtained by polymerizing 10 to 95 parts by weight of at least one monomer (2) selected from the group consisting of aromatic vinyl compounds and ethylenically unsaturated compounds of the formula:

$$CH_2{=}CRX$$

where R is —H or —CH_3, X is —CN or —$COOR^1$, and R^1 is an alkyl group having 1 to 8 carbon atoms, in the presence of 90 to 5 parts by weight (on a solid basis) of a latex of a composite-structured crosslinked acrylic rubber (1) whose particles are composed of 2 to 80% by weight of a core consisting of a diene rubber (i) enlarged by treatment with an acid group-containing copolymer latex to an average particle diameter of 0.15–1 micron, and 20 to 98% by weight of an outer layer consisting of a crosslinked acrylate polymer (ii) derived from an acrylic ester as the main component and formed by the combined use of a graft-linking agent and a cross-linking agent, the total amount of (1) and (2) being 100 parts by weight.

5,064,907

POLYMERS WITH FUNCTIONAL GROUPS

Klaus Bronstert, Carlsberg, and Daniel Wagner, Bad Duerkheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

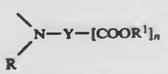
Continuation of Ser. No. 228,721, Aug. 5, 1988, abandoned. This application Aug. 30, 1990, Ser. No. 576,196

Claims priority, application Fed. Rep. of Germany, Aug. 7, 1988, 3726285

Int. Cl.[5] C08F *8/30*

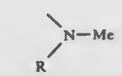
U.S. Cl. 525—332.9 **3 Claims**

1. A functionally modified homopolymer, random copolymer and/or block copolymer of styrene and an anionically polymerizable conjugated C_4–C_{12}-diene, which contains one functional endgroup of the formula (I):



(I)

where Y is a hydrocarbon chain of from 1 to 20 carbon atoms, R is an organic radical selected from the group consisting of methyl, ethyl, n-butyl and tert.-butyl, R^1 is alkyl, cycloalkyl or aryl, and n is a whole number greater than or equal to 1, as obtained by reacting said polymer functionally modified with a functional group of the formula (II):



(II)

in the presence of a polar or apolar solvent with a compound of the formula (III):

$$X{-}Y{-}(COOR^1)_n \qquad \text{(III)}$$

where Me is an alkali metal, X is halogen and Y, R, n and R^1 have the above mentioned meanings.

5,064,908

OXIDIZED POLYETHYLENE AND USE AS LUBRICANT FOR POLYVINYLCHLORIDE

Ludwig Schuster, Limburgerhof; Albert Hettche, Hessheim; Werner Liedy, Hochdorf-Assenheim; Stefan Weiss, Neckargemuend, and Leo Ehemann, Roedersheim-Gronau, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 420,686, Oct. 11, 1989, abandoned, which is a continuation of Ser. No. 206,839, Jun. 15, 1988, abandoned. This application Nov. 6, 1990, Ser. No. 608,621

Claims priority, application Fed. Rep. of Germany, Jun. 25, 1987, 3720953

Int. Cl.[5] C08F *8/06*; C08L *27/06*; C08K *5/04*

U.S. Cl. 525—333.8 **3 Claims**

1. A lubricant useful in the extrusion of polyvinyl chloride consisting essentially of oxidized polyethylene having an acid number of from 10 to 40 mg of KOH/g and obtained by

(i) mixing finely divided polyethylene of high density with 0.015 to 0.5% by weight, based on the amount of the complete weight of the admixture, of a free radical forming organic compound, thereby obtaining a finely divided admixture,

(ii) oxidizing the finely divided admixture at below the softening point of the polyethylene of high density and above 100° C. with an oxidation gas consisting essentially of air and ozone, oxygen and ozone, or air, oxygen and ozone in such a way that each kilogram of the polyethylene is contacted per hour with 30 to 500 mg of ozone, thereby obtaining the said lubricant.

5,064,909

VINYLAMINE COPOLYMER, FLOCCULATING AGENT AND PAPER STRENGTH INCREASING AGENT USING THE SAME, AS WELL AS PROCESS FOR PRODUCING THE SAME

Takaharu Itagaki, Yokohama; Mitsuaki Shiraga, Machida; Shigeru Sawayama, Yokohama, and Kohichi Satoh, Zama, all of Japan, assignors to Mitsubishi Kasei Corporation, Tokyo, Japan

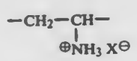
Division of Ser. No. 470,395, Jan. 25, 1990, which is a continuation of Ser. No. 65,296, Jun. 22, 1987. This application Aug. 7, 1990, Ser. No. 564,042

Claims priority, application Japan, Jun. 25, 1986, 61-148680

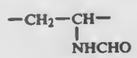
Int. Cl.[5] C08F *8/12*

U.S. Cl. 525—340 **9 Claims**

1. A process for producing a vinylamine copolymer having the structural units comprising following formulas (I), (II), (III), (IV) and (V):

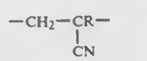


[I]

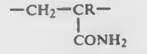


[II]

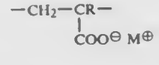
-continued



[III]



[IV]



[V]

wherein X⊖ represents an anion or hydroxyl ion, R represents a hydrogen atom or a methyl group, M⊕ represents a hydrogen ion or a monovalent cation, in which the molar fraction of the structural unit (I) is 5 to 85% by mole, the molar fraction of the structural unit (II) is 2 to 85% by mole, the molar fraction of the structural unit (III) is 5 to 80% by mole, the molar fraction of the structural unit (IV) is 0 to 40% by mole, and the molar fraction of the structural unit (V) is 0 to 8% by mole based on the total content of the structural units (III), (IV) and (V), which comprises polymerizing a mixture of N-vinylformamide and a compound of the following general formula (VI)

$$CH_2{=}CR{-}CN \qquad \text{(VI)}$$

(wherein R represents a hydrogen atom or a methyl group) at a molar ratio from 20:80 to 95:5 in the presence of a radical polymerization initiator, and then modifying formyl groups in the resultant polymer under an acidic condition.

5,064,910

PREPARATION OF CONJUGATED DIENE POLYMERS MODIFIED WITH AN ORGANO-TIN OR GERMANIUM HALIDE

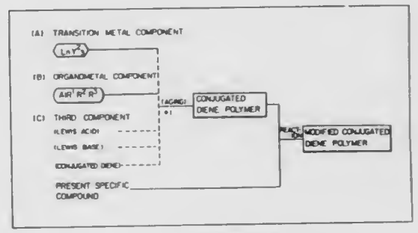
Iwakazu Hattori, Aichi; Mitsuhiko Sakakibara; Fumio Tsutsumi, both of Yokkaichi, and Masao Yoshizawa, Kameyama, all of Japan, assignors to Japan Synthetic Rubber Co., Ltd., Tokyo, Japan

Divislon of Ser. No. 90,347, Aug. 28, 1987, Pat. No. 4,906,706. This application Dec. 11, 1989, Ser. No. 448,332

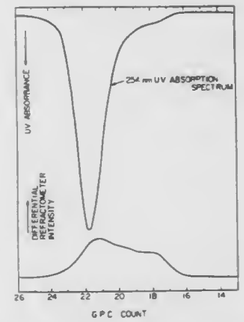
Int. Cl.[5] C08F *8/42*

U.S. Cl. 525—359.1 **25 Claims**

1. A process for producing a modified conjugated diene polymer which comprises the steps of (I) polymerizing a conjugated diene in an inert organic solvent in the presence of a catalyst comprising (a) a lanthanum series rare earth metal compound, (b) an organoaluminum compound represented by the general formula, $AlR^1R^2R^3$ (wherein R^1, R^2 and R^3, which may be same or different, are hydrogen atoms or hydrocarbon groups of 1 to 8 carbon atoms and at least one of R^1, R^2 and R^3 is said hydrogencarbon group) and, if necessary, (c) a Lewis acid and/or (d) a Lewis base and (II) modifying the resulting reactive polymer with a modifying compound of an organometal halide compound represented by the general formula, $R^4{}_nMX_{4-n}$ (wherein R^4 is an alkyl group of 1 to 20 carbon atoms or an aryl group, M is a tin atom, X is a halogen atom, and n is an integer of 1 to 3),



GPC CHART (EX 8)



5,064,911

METHACRYLIMIDE CONTAINING POLYMER

Isao Sasaki, Otake; Kozi Nishida, Toyama, and Hisao Anzai, Otake, all of Japan, assignors to Mitsubishi Rayon Company, Limited, Tokyo, Japan

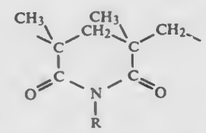
Division of Ser. No. 461,337, Dec. 28, 1989, abandoned. This application Oct. 2, 1990, Ser. No. 591,888

Claims priority, application Japan, Dec. 29, 1988, 63-334725

Int. Cl.[5] C08F *8/32*

U.S. Cl. 525—378 **4 Claims**

1. A process for producing a methacrylimide containing polymer represented by the following general formula (I)



wherein R represents a hydrogen atom, or an aliphatic group, aromatic group, or cycloaliphatic hydrocarbon group with 1 to 20 carbon atoms comprising:

a) introducing an inert gas into a methacrylic acid ester or a mixture of a methacrylic acid ester and an ethylenic monomer copolymerizable with the methacrylic acid ester to reduce the amount of dissolved oxygen,

b) subjecting the methacrylic acid ester and the ethylenic monomer to filtration with a filter,

c) polymerizing the methacrylic acid ester or the mixture of the methacrylic acid ester to prepare a polymer or copolymer of the methacrylic acid ester,

d) imidizing the polymer or copolymer of the methacrylic

VOL 1132 ISS 2 NO 12 1991 UMI

acid ester with an imidizing material represented by the following general formula (II)

$$R—NH_2 \quad (II)$$

wherein R represents a hydrogen atom, or an aliphatic group, aromatic group, or cycloaliphatic hydrocarbon group with 1 to 20 carbon atoms to prepare a methacrylic containing polymer,

e) separating volatile ingredients from the methacrylimide containing polymer,

the steps a) through e) being carried out continuously.

5,064,912

PROCESS FOR OXIDIZING POLYMERS DERIVED FROM UNSATURATED KETONES

Biau-Hung Chang, West Chester, and Jack Kwiatek, Cincinnati, both of Ohio, assignors to Quantum Chemical Corporation, New York, N.Y.

Filed Dec. 6, 1990, Ser. No. 624,363
Int. Cl.[5] C08F 8/06
U.S. Cl. 525—383 12 Claims

1. A process for oxidizing ketonic polymers derived from α,β-unsaturated ketones to convert carbonyl groups pendant to the polymer chain to oxycarbonyl groups comprising contacting an α, β-unsaturated ketone homopolymer or copolymer having a molecular weight greater than 1,000 and containing 0.01 to 25 mole percent carbonyl with an organic peroxyacid oxidizing agent having from 2 to 30 carbon atoms in an inert liquid medium at a temperature from −20° C. to 150° C.; the molar ratio of said oxidizing agent to carbonyl ranging from 0.1:1 to 30:1 and the weight ratio of said inert liquid medium to said ketonic polymer ranging from 1:1 to 100:1.

5,064,913

GLYCIDYLESTER-ANHYDRIDE ADDUCTS AND EPOXY RESIN CURING AGENTS THEREFROM

Petrus G. Kooijmans; Johannes M. Van Der Mark, both of Amsterdam, Netherlands, and Willem Karzijn, Louvain-la-Neuve, Belgium, assignors to Shell Oil Company, Houston, Tex.

Filed Feb. 21, 1991, Ser. No. 658,621
Claims priority, application United Kingdom, Feb. 22, 1990, 9004013
Int. Cl.[5] C08L 63/10, 67/02
U.S. Cl. 525—438 9 Claims

1. A curable composition comprising:

(a) an epoxy resin; and

(b) a curing agent for the epoxy resin comprising a reaction product of a glycidylester of pivalic acid and trimellitic anhydride, said reaction product having an acid value within the range of about 2.4 to about 2.8 meq.g^{-1} and a melting point within the range of about 80 to about 110° C.

5,064,914

METHOD OF BRANCHING POLYESTERS

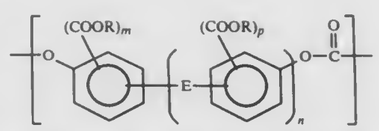
Niles R. Rosenquist, Evansville, and Edgar E. Bostick, Mt. Vernon, both of Ind., assignors to General Electric Company, Mt. Vernon, Ind.

Filed Dec. 7, 1989, Ser. No. 447,492
Int. Cl.[5] C08L 67/02; C08G 63/91
U.S. Cl. 525—439 9 Claims

1. A process for branching a thermoplastic, linear, polyester resin, which comprises;

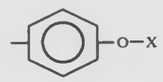
providing said resin;

homogeneously mixing with the resin, a branching proportion of a thermoplastic, polymeric, branching resin having recurring polymer chain units selected from those of the formula:

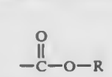


(I)

wherein m, n and p are each independent integers of 0 or 1; R represents hydrocarbyl; and E represents alkylene containing from 1 to 15 carbon atoms, inclusive, halogen—substituted alkylene of 1 to 15 carbon atoms, inclusive, alkylene of 1 to 15 carbon atoms, inclusive, substituted with a—COOR group where R is as previously defined, or alkylene having 1 to 15 carbon atoms substituted with a monovalent group of the formula:



wherein X represents one of hydrogen, hydrocarbyl or



wherein R is as defined above;

provided there is at least one moiety present, containing an R group; and

effecting a branching transesterification reaction of the linear polyester resin with the branching resin.

5,064,915

PRODUCTION OF INFUSIBLE POLYCARBOSILANES CONVERTIBLE INTO SILICON CARBIDE CERAMICS

Francoise Duboudin, Pessac; Odile Babot, Villenave D'Ornon; Jean-Paul Pillot, Cestas; Jacques Dunogues, Talence; Eric Bouillon, Cany Barville, and Rene Pailler, Cestas, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Nov. 27, 1989, Ser. No. 441,693
Claims priority, application France, Nov. 25, 1988, 88/15394
Int. Cl.[5] C08F 283/00
U.S. Cl. 525—474 14 Claims

1. A process for the production of an infusible polycarbosilane, comprising hardening a fusible polycarbosilane containing at least two ≡SiH groups per molecule by intimately contacting same with an effective hardening amount of the vapors of sulfur.

5,064,916

ORGANOPOLYSILOXANE COMPOSITION FOR THE FORMATION OF A CURED RELEASE FILM

Shosaku Sasaki, Ichihara, and Hiroshi Masaoka, Saitama, both of Japan, assignors to Toray Silicone Company, Ltd., Tokyo, Japan

Filed Nov. 21, 1989, Ser. No. 439,965
Claims priority, application Japan, Nov. 25, 1988, 63-299301
Int. Cl.[5] C08F 283/00
U.S. Cl. 525—478 9 Claims

1. An organopolysiloxane composition for the formation of a cured release film, said composition comprising

(A) 100 weight parts organopolysiloxane gum which contains in each molecule at least two higher alkenyl groups as represented by the general formula $H_2C{=}CH(CH_2{-})_a$ wherein the subscript a has a value of from 2 to 8,

(B) 0.3 to 40 weight parts organohydrogenpolysiloxane having at least two silicon-bonded hydrogen atoms in each molecule,

(C) 0.001 to 5 weight parts addition-reaction inhibitor,

(D) a catalytic quantity of a platinum group metal-containing compound, and

(E) organic solvent in an arbitrary quantity.

5,064,917

PROCESS OF POLYMERIZING VINYL CHLORIDE WITH WASHING OF CHARGING PASSAGE

Tadashi Amano, and Shigehiro Hoshida, both of Ibaraki, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 293,994, Jan. 6, 1989, abandoned. This application Jan. 5, 1990, Ser. No. 462,972
Claims priority, application Japan, Jan. 8, 1988, 63-2346; Jun. 2, 1988, 63-136224
Int. Cl.[5] C08F 2/20
U.S. Cl. 526—72 10 Claims

1. A process of preparing a vinyl chloride polymer in a polymerization vessel, comprising the steps of:

charging an oil-soluble polymerization initiator through a charging passage communicating with the inside of a polymerization vessel in which vinyl chloride monomer is polymerized;

polymerizing vinyl chloride or a vinyl monomer mixture containing vinyl chloride in an aqueous medium within said polymerization vessel; and,

after charging said oil-soluble polymerization initiator into the polymerization vessel, washing the charging passage with a cleaning fluid containing a vinyl chloride-soluble polymerization inhibitor in an organic solvent.

5,064,918

ZIEGLER-NATTA POLYMERIZATION OF STYRENE MONOMER

Michael T. Malanga, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation of Ser. No. 407,168, Sep. 14, 1989, abandoned. This application Feb. 27, 1991, Ser. No. 661,719
Int. Cl.[5] C08F 12/08
U.S. Cl. 526—77 7 Claims

1. A process for preparing improved yields of styrene polymers the steps of the process comprising:

a) providing a monomer stream comprising styrene and contaminating amounts of phenylacetylene;

b) contacting the monomer stream with a hydrogenating agent under hydrogenation conditions such that substantially all the phenylacetylene is hydrogenated without substantial hydrogenation of styrene;

c) contacting the monomer stream with a catalyst comprising a titanium monocyclopentadienyl complex under polymerization conditions, so as to cause at least partial polymerization of styrene; and

d) recovering the resulting styrene polymer.

5,064,919

METATHESIS POLYMERIZATION OF CYCLOOLEFINS

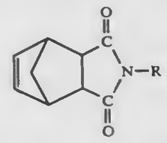
Shigeyoshi Hara; Zen-ichiro Endo, and Hiroshi Mera, all of Iwakuni, Japan, assignors to Hercules Incorporated, Wilmington, Del.

Continuation of Ser. No. 303,074, Jan. 30, 1989, abandoned, which is a continuation of Ser. No. 103,473, Oct. 1, 1987, abandoned. This application Nov. 24, 1989, Ser. No. 442,428
Claims priority, application Japan, Oct. 1, 1986, 61-231124
Int. Cl.[5] C08F 4/69, 220/52
U.S. Cl. 526—169 8 Claims

1. A process for producing a crosslinked molded article by introducing a reactive liquid mixture which mixture comprises metathesis polymerizable monomers and a metathesis polymerization catalyst system into a mold in which said liquid mixture is metathesis polymerized in bulk to produce the molded article, said process being characterized in that the metathesis polymerizable monomers comprise

(a) 99.9–80 mol % of a metathesis polymerizable cycloalkene comprised of dicyclopentadiene and up to 70 mol % of at least one other metathesis polymerizable cycloaklene and

(b) 0.1 to 20 mole % of an imide group containing norbornene-type monomer of the general formula



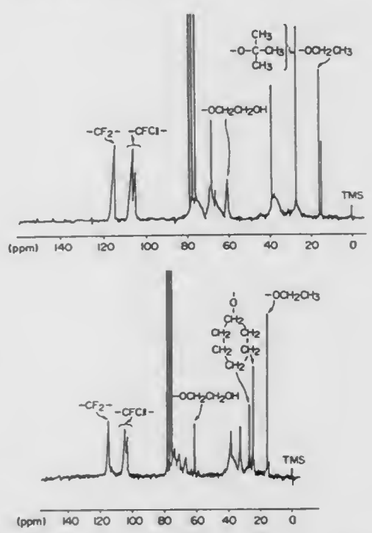
where R is an alkyl radical of 3 to 9 carbon atoms and the metathesis polymerization catalyst system comprises, as the catalyst component, a tungsten or molybdenum salt and, as the activator component, an alkyl aluminum compound.

5,064,920

FLUORINE-CONTAINING COPOLYMER AND COATING COMPOSITION CONTAINING THE COPOLYMER

Etsuzo Marumoto; Masanobu Koyama; Akihito Iida; Yukiya Sakamoto; Makoto Aoyama, and Mamoru Takahashi, all of Nagoya, Japan, assignors to Toagosei Chemical Industry Co., Ltd., Tokyo, Japan

Filed Nov. 13, 1990, Ser. No. 611,596
Claims priority, application Japan, Nov. 17, 1989, 1-298988; Sep. 25, 1990, 2-254563
Int. Cl.[5] C08F 12/20
U.S. Cl. 526—249 17 Claims



1. A fluorine-containing copolymer which comprises the following monomers as essential components:

(a) a fluoroolefin,

(b) a hydroxyalkyl crotonate, and

(c) a vinyl monomer other than the above monomers (a) and (b).

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,921

HYDROXY FUNCTIONAL COPOLYMERS, A PROCESS FOR THE PREPARATION AND THEIR USE AS BINDERS OR BINDER COMPONENTS

Harald Blum, Wachtendonk; Josef Pedain, Cologne; Peter Höhlein, Kempen, and Christian Wamprecht, Neuss, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed May 25, 1990, Ser. No. 529,995

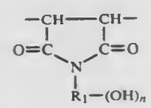
Claims priority, application Fed. Rep. of Germany, Jun. 7, 1989, 3918528

Int. Cl.[5] C08F *222/40, 220/10, 12/02, 210/14*

U.S. Cl. 526—262 **8 Claims**

I. A hydroxy functional copolymer having a molecular weight (M_n) of about 2000 to 30,000 and containing

a) about 1 to 70% by weight of structural units corresponding to formula I



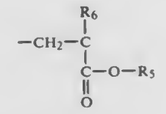
(I)

b) about 1 to 75% by weight of structural units corresponding to formula II



(II)

c) about 15 to 98% by weight of structural units corresponding to formula III



(III)

and

d) about 0 to 15% by weight of other structural units which are derived from chemically incorporated polyfunctional monomers containing 2 or more copolymerizable, unsaturated bonds wherein the percentages of components a), b), c) and d) add up to 100, based on the total weight of components a), b), c) and d), and which has been prepared by reacting the corresponding anhydride functional copolymer with an amino alcohol corresponding to the formula $H_2N\text{-}R_1\text{-}(OH)_n$ and wherein

n represents an integer having a value of 1 to 5,

R_1 represents an aliphatic hydrocarbon group which has 2 to 13 carbon atoms and may contain ester groups,

R_2 represents hydrogen, a methyl or ethyl group or chlorine or fluorine,

R_3 represents a cycloaliphatic hydrocarbon group having 5 to 10 carbon atoms, an araliphatic hydrocarbon group having 7 to 18 carbon atoms, an aromatic hydrocarbon group having 6 to 12 carbon atoms, chlorine, fluorine, a nitrile group or an aliphatic hydrocarbon group which has 2 to 18 carbon atoms and may contain oxygen and/or nitrogen in the form of ether, ester, amide, urethane or keto groups,

R_4 represents hydrogen or together with R_3 and the two carbon atoms represents a cycloaliphatic hydrocarbon ring having 5 to 6 carbon atoms,

R_5 represents an aliphatic or cycloaliphatic hydrocarbon group which has 1 to 18 carbon atoms and may contain oxygen or nitrogen as heteroatoms and

R_6 represents hydrogen or a methyl group.

5,064,922

COPOLYMERS CONTAINING AMINO GROUPS AND A PROCESS FOR THEIR PRODUCTION

Christian Wamprecht, Krefeld; Josef Pedain, Cologne, and Harald Blum, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Atkiengesellschaft, Leverkusen, Fed. Rep. of Germany

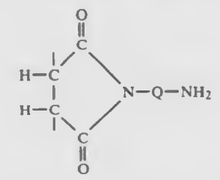
Filed Aug. 27, 1990, Ser. No. 573,611

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1989, 3928991

Int. Cl.[5] C08F *222/40, 222/06*

U.S. Cl. 526—262 **3 Claims**

1. A copolymer which is readily soluble in organic solvents, has a weight average molecular weight (M_w) of 1500 to 75,000, is prepared from olefinically unsaturated compounds and contains 0.1 to 4.5% by weight of primary amino groups in the form of structural units corresponding to formula I



(I)

wherein

Q is a saturated aliphatic-cycloaliphatic hydrocarbon radical obtained by removing the amino groups from an aliphatic-cycloaliphatic diprimary diamine containing an amino group attached to a primary carbon atom and an amino group attached to a secondary or tertiary carbon atom.

5,064,923

CROSSLINKED POLYMER MICROPARTICLES DERIVED FROM BETAINE MONOMERS HAVING THREE-DIMENSIONAL NETWORK

Akio Kashihara, Hirakata; Keizou Ishii, Ashiya; Kazunori Kanda, Yao, and Ryuzo Mizuguchi, Yawata, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Continuation of Ser. No. 54,924, May 28, 1987, abandoned. This application Mar. 17, 1989, Ser. No. 325,183

Claims priority, application Japan, May 30, 1986, 61-126558

Int. Cl.[5] C08F *226/06, 228/02*

U.S. Cl. 526—265 **4 Claims**

1. In internally crosslinked polymer microparticles having an average particle size of 0.01 to 1 micron and produced by emulsion polymerization of a monomer composition containing at least 10 % by weight of the composition of a polyfunctional monomer having a plurality of ethylenically unsaturated bonds in the molecule selected from the group consisting of esters of a polyhydric alcohol with an ethylenically unsaturated monocarboxylic acid, esters of ethylenically unsaturated monoalcohol with a polycarboxylic acid and aromatic compounds, having at least two vinyl substituents, the improvement wherein the emulsion polymerization of said monomer composition is conducted in an aqueous medium in the presence of a reactive betaine group-containing emulsifier compound being selected from the group consisting of:

3-(N,N-dimethyl-N-methacryloylethyl)aminopropane-sulfonic acid betaine,

3-(N,N-diethyl-N-methacryloylethyl)aminopropane-sulfonic acid betaine,

3-(N,N-dimethyl-N-acryloylethyl)-aminopropanesulfonic acid betaine,

3-(N,N-diethyl-N-acryloylethyl)-aminopropanesulfonic acid betaine,

N,N-dimethyl-N-methacryloylethyl-β-alanine betaine,

N,N-diethyl-N-methacryloylethyl-β-alanine betaine,

N,N-dimethyl-N-acryloylethyl-β-alanine betaine,

N,N-diethyl-N-acryloylethyl-β-alanine betaine,

3-(4-vinylpyridin-1-yl)-propanesulfonic acid betaine,

3-(2-vinylpyridin-1-yl)-propanesulfonic acid betaine,

3-(4-vinylpyridin-1-yl)-propionic acid betaine, and

3-(2-vinylpyridin-1-yl)-propionic acid betaine, and

wherein said betaine group-containing emulsifier compound is covalently bonded to the polymer microparticles by copolymerization with said monomer composition.

5,064,924

THERMOSETTING ORGANOPOLYSILOXANE COMPOSITION

Koji Shimizu, and Atsushi Sakuma, both of Chiba, Japan, assignors to Dow Corning Toray Silicone Company, Ltd., Tokyo, Japan

Filed Nov. 8, 1990, Ser. No. 610,611

Claims priority, application Japan, Nov. 17, 1989, 1-300564

Int. Cl.[5] C08G *77/06*

U.S. Cl. 528—15 **7 Claims**

1. A thermosetting organosiloxane composition comprising

(A) an organopolysiloxane containing at least two silicon-bonded alkenyl radicals in each molecule and represented by the average unit formula

$$R_aSiO_{(4-a)/2}$$

where R represents an unsubstituted or halogenated monovalent hydrocarbon radical and the value of a is from 1.0 to 2.3, inclusive,

(B) an organohydrogenpolysiloxane containing at least 2 silicon-bonded hydrogen atoms in each molecule in an amount sufficient to cure said composition, and

(C) finely divided particles of a cured silicone rubber containing an amount of a platinum-containing hydrosilation catalyst equivalent to from 1 to 50,000 ppm by weight, based on the weight of said particles, of platinum metal, where the concentration of said particles is sufficient to promote curing of said composition.

5,064,925

COMPOSITIONS OF MATTER

Malcolm Hannaby, Leuven, Belgium, assignor to Imperial Chemical Industries, London, United Kingdom

Continuation-in-part of Ser. No. 378,445, Jul. 7, 1989, Pat. No. 4,935,460, which is a continuation of Ser. No. 242,745, Sep. 9, 1988, abandoned, which is a continuation-in-part of Ser. No. 160,647, Feb. 26, 1988, Pat. No. 4,794,129, which is a continuation-in-part of Ser. No. 105,641, Oct. 6, 1987, abandoned. This application Aug. 30, 1989, Ser. No. 400,637

Claims priority, application United Kingdom, Sep. 9, 1988, 8821181

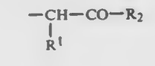
Int. Cl.[5] C08G *18/14*

U.S. Cl. 528—44 **10 Claims**

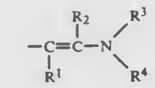
1. A composition of matter comprising a polymer having a molecular weight of at least 500 containing at least one group of the formula:

—O—CO—X

wherein X represents a group of the formula:



or



wherein R^1 represents hydrogen or an optionally substituted hydrocarbon radical, R^2 represents an optionally substituted hydrocarbon radical and each R^3 and R^4, independently, represents hydrogen or an optionally substituted hydrocarbon radical or R^3 and R^4 together with the attached nitrogen atom form a 5- or 6-membered heterocyclic ring, whereby said polymer is the residue remaining after removal of hydroxyl groups from a polymeric polyol having a nominal hydroxyl functionality of from 2–6 selected from the group consisting of polyester, polyester amide, polythioether, polyacetal, polyolefin and polyether/polyols.

5,064,926

WATER-DILUTABLE FLUORINATED POLYURETHANES, PROCESS FOR PREPARING THEM AND THEIR USE FOR THE TREATMENT OF LITHOIDAL MATERIALS AND PLASTERS

Franco Federici; Ennio Cozzi, both of Milan, and Paolo Parrini, Novara, all of Italy, assignors to Syremont S.p.A., Milan, Italy

Filed Oct. 31, 1990, Ser. No. 607,331

Claims priority, application Italy, Nov. 30, 1989, 22545 A/89

Int. Cl.[5] C08G *18/10*

U.S. Cl. 528—49 **19 Claims**

1. Water-dilutable fluorinated polyurethanes obtained according to a process which comprises:

i) reacting an excess of at least one organic diisocyanate with at least one hydroxy-capped perfluoropolyether;

ii) reacting the so obtained product with at least one polyol with a hydroxy functionality higher than or equal to, 2, supporting at least one ionizable group; and

iii) reacting the so obtained prepolymer with at least one hydroxy compound having a functionality of at least 1.

5,064,927

AROMATIC DIAMINES

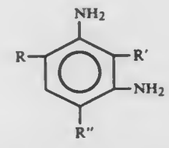
Robert L. Davis, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Division of Ser. No. 254,856, Oct. 7, 1988, Pat. No. 4,973,760. This application Oct. 3, 1990, Ser. No. 592,191

Int. Cl.[5] C08G *18/32*

U.S. Cl. 528—64 **8 Claims**

1. A polymer prepared by reacting (1) an organic polyisocyanate and an active hydrogen-containing organic compound or (2) a prepolymer thereof having a free -NCO content of at least 0.1% by weight with (3) a chain extender corresponding to the formula:



wherein two of the R, R′, and R″ substituents are alkyl groups containing 1–6 carbons and the other substituent is a hydrocarbylthio group containing 1–6 carbons.

5,064,928

ISOCYANATE PREPOLYMER AND PROCESS FOR PREPARING THE SAME

Mitsuo Kase; Kazue Tsuyuzaki, both of Chiba; Yoichi Kawasaki, Ichihara, and Shunji Arimoto, Narashino, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

Filed Mar. 27, 1990, Ser. No. 499,840

Claims priority, application Japan, Mar. 28, 1989, 1-75440

Int. Cl.[5] C07C *31/18*

U.S. Cl. 528—85 **6 Claims**

1. An isocyanate prepolymer prepared by reacting an organic di-isocyanate with an unsaturated alcohol dimer, each unsaturated alcohol component having 16 to 24 carbon atoms

VOL 1132 ISS 2 NO 12 1991 UMI

and/or a hydrogen addition product of the unsaturated alcohol dimer.

5,064,929

AROMATIC POLYETHERS CONTAINING AZO GROUPS

Robert J. Kumpf, and Dittmar K. Nerger, both of Pittsburgh, Pa., assignors to Mobay Corporation, Pittsburgh, Pa.

Filed May 31, 1990, Ser. No. 531,188
Int. Cl.[5] C08G 75/00, 8/02, 14/00
U.S. Cl. 528—172 16 Claims

1. A substantially linear thermoplastic aromatic polyether composed of recurring units of the general formula:

$$[-O-[E-O]_z-E'-]_x\,[O-E''-O-E'-]_y$$

where E' is the residuum of a benzenoid compound having an electron withdrawing group in at least one of the positions ortho and para to the valence bonds, and having a sigma* value sufficient to activate halogens in the said valence positions to a level adequate to react with an alkali metal phenolate,
where E is the residuum of an azo-group containing bisphenol,
where E'' is the residuum of a dihyric phenol which does not contain azo groups,
wherein all said residua are valently bonded to ether oxygens through aromatic carbon atoms,
wherein x and y each represent a mol % and x plus y totals 100 mol%, and x is greater than 0 and z=1,2 or 3.

5,064,930

SOLID PHASE POLYARYLATE PROCESS

Bruce C. Bell, and Winston J. Jackson, Jr., both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Sep. 27, 1990, Ser. No. 588,777
Int. Cl.[5] C08G 63/02, 63/18
U.S. Cl. 528—182 6 Claims

1. A process comprising
(A) preparing a solid polyarylate prepolymer having an inherent viscosity of at least about 0.1 by heating at a temperature in the range of 140° C. to 300° C. in the melt phase an acid anhydride derived from a carboxylic acid containing 2 to 6 carbon atoms, a dihydric phenol and an aromatic dicarboxylic acid in the presence of a hypernucleophilic base which comprises a heterocyclic aromatic compound containing nitrogen and having an aprotic electron releasing group directly bonded to a carbon atom in the aromatic compound, and
(B) increasing the molecular weight of the solid polyarylate prepolymer to an inherent viscosity of at least 0.4 as determined at 25° C. using 0.50 g/100 mL of a mixture of 60 volumes of phenol and 40 volumes of 1,1,2,2,-tetrachloroethane.

5,064,931

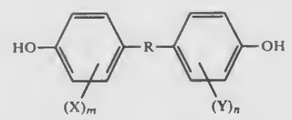
FLAME-RESISTANT POLYCARBONATES CONTAINING UNITS DERIVING FROM HALOGENATED CARBONYL COMPOUNDS IN THEIR POLYMER CHAIN

Alberto Petri, and Sergio Poggio, both of Milan, Italy, assignors to Enichem Tecnoresine S.p.A., Palermo, Italy

Filed Dec. 1, 1989, Ser. No. 444,683
Claims priority, application Italy, Dec. 2, 1988, 22839 A/88
Int. Cl.[5] C08G 64/10
U.S. Cl. 528—202 9 Claims

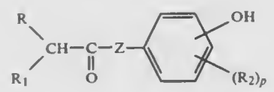
1. A thermoplastic polycarbonate of high molecular weight possessing flame-resistant properties, produced from:
(1) a carbonate precursor;
(2) at least one dihydroxyaromatic compound of formula:

(I)



where R is a single bond, or R is a substituted or non-substituted linear or branched C_1-C_5 alkylene radical, or is selected from the group consisting of O, S, SO_2 and CO; X and Y, which are the same or different, are H or CH_3; m and n, which are the same or different, are whole numbers from 1 to 4;
(3) at least one halogenated carbonyl compound of the formula

II



where:
Z is selected from the group consisting of O, S and NH;
R_1 and R_2, which are the same or different, are chlorine or bromine;
R is hydrogen or chlorine or bromine or a C_1-C_3 alkyl radical; and
p is zero, 1 or 2.

5,064,932

POLY(KETO-ESTERS)

Biau-Hung Chang, Wester Chester; Lester Y. Lee, Hamilton, and Jack Kwiatek, Cincinnati, all of Ohio, assignors to Quantum Chemical Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 416,903, Oct. 4, 1989, Pat. No. 4,929,711. This application Mar. 26, 1990, Ser. No. 498,527
Int. Cl.[5] C08G 2/32
U.S. Cl. 528—220 21 Claims

1. A poly(keto-ester) having a molecular weight greater than 1000 and comprised of:
(a) carbonyl units;
(b) oxycarbonyl units; and
(c) linking units derived from olefinic monomers and corresponding to the formula



wherein R_1, R_2, R_3, and R_4 are selected from the group consisting of hydrogen, alkyl, aryl or a functional group containing one or more oxygen, nitrogen, sulfur or halogen atoms; said units randomly arranged to form an essentially straight-chain polymer backbone with (a) and (b) constituting from 0.1 to 50 mole percent of the polymer and the molar ratio of (a) to (b) ranging from 0.01:1 to 100:1.

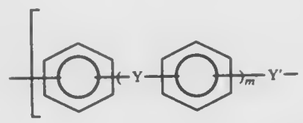
5,064,933

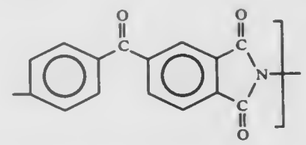
BENZOPHENONE-TYPE POLYIMIDES AND THEIR PRODUCTION

Mark W. Beltz, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

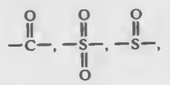
Filed Sep. 4, 1990, Ser. No. 576,848
Int. Cl.[5] C08G 73/10
U.S. Cl. 528—220 7 Claims

1. A polyimide having repeating units of the formula





where Y and Y' are the same or different and are a chemical bond, —O—, —S—,



$-CH_2-$, $-C(CH_3)_2-$, $-CF_2$, $-C(CF_3)_2-$ or $-Si(CH_3)_2-$ and m is 0 or 1.

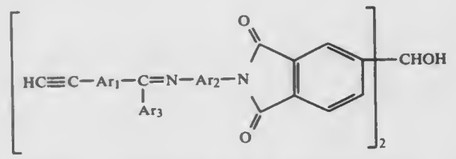
5,064,934

THERMOSETTING POLYIMIDE SCHIFF BASE RESINS, THEIR PREPARATION AND THEIR APPLICATIONS

Regis Mercier, Vimy; Thierry Pascal, Feyzin, and Bernard Sillion, Lyon, all of France, assignors to Centre d'Etude des Materiaux Organiques pour Technologies Avancees, Vernaison, France

Filed Apr. 2, 1990, Ser. No. 502,275
Claims priority, application France, Mar. 31, 1989, 89 04391
Int. Cl.[5] C08G 12/06
U.S. Cl. 528—220 10 Claims

1. Thermosetting resin characterized in that it responds to the general formula



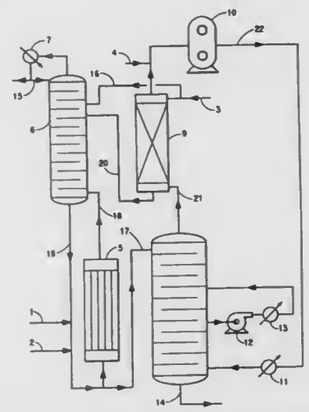
in which Ar_1 represents a divalent unsaturated heterocyclic radical or a divalent mono- or poly-cyclic aromatic radical containing from 6 to 20 carbon atoms; Ar_2 represents a divalent aromatic radical of 12 to 30 carbon atoms or a divalent aliphatic radical; and Ar_3 represents a hydrogen atom or a divalent aliphatic radical or a monovalent mono- or poly-cyclic aromatic radical containing from 6 to 20 carbon atoms; and its softening temperature is less than 150° C.

5,064,935

CONTINUOUS PROCESS FOR PREPARING POLY(BUTYLENE TEREPHTHALATE) OLIGOMER OR POLY(BUTYLENE ISOPHTHALATE) OLIGOMER

Roy Jackson; David J. Lowe, and Clare A. Stewart, all of Wilmington, Del., assignors to E. I. duPont de Nemours and Company, Wilmington, Del.

Filed Aug. 1, 1990, Ser. No. 561,468
Int. Cl.[5] C08G 63/02
U.S. Cl. 528—272 14 Claims



1. A continuous process for preparing poly(butylene terephthalate) oligomer or poly(butylene isophthalate) oligomer comprising the steps of
(a) continuously feeding a reaction mass formed from a prior transesterification stage into the top part of a heated countercurrent column reactor wherein the reaction mass is prepared from a transesterification reaction between butanediol and a dimethyl ester selected from the group consisting of dimethyl terephthalate, dimethyl isophthalate, and mixtures thereof, in the presence of a transesterification catalyst,
(b) continuously feeding into the bottom part of the heated countercurrent column reactor a stream of inert gas having a minimum temperature of 225° C.,
(c) continuously passing the inert gas stream upward through the heated countercurrent column reactor and out the top part of the heated countercurrent column reactor into the bottom part of an absorber while the reaction mass is continuously flowing down and through the heated countercurrent column reactor, thereby forming an oligomer, at a flow rate such that the reaction mass has a residence time in the reactor of at least 5 minutes,
(d) continuously feeding butanediol into the top part of the absorber at a temperature lower than that of the inert gas stream incoming at the bottom part of the absorber,
(e) continuously passing the inert gas stream upward through the absorber and out the top part of the absorber into a compressor while the butanediol is continuously flowing downward through the absorber,
(f) passing the inert gas stream from the compressor into a heat exchanger and recycling it into the bottom part of the countercurrent column reactor,
(g) passing the butanediol out the bottom part of the absorber and into a butanediol feed line for use in the prior transesterification stage, and
(h) collecting an oligomer of poly(butylene terephthalate) or an oligomer of poly(butylene isophthalate) from the bottom of the countercurrent column reactor.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,936

PROCESS FOR PREPARING HIGH EXTRUSION RATE ARYLENE SULFIDE POLYMERS

Jon F. Geibel, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Filed Feb. 20, 1990, Ser. No. 482,594
Int. Cl.[5] C08G *75/16*
U.S. Cl. 528—388 23 Claims

1. A process for preparing high extrusion rate arylene sulfide polymers comprising the steps of:

(a) dehydrating an aqueous mixture comprising at least one sulfur source and at least one cyclic organic amide thereby forming a dehydrated mixture,

(b) contacting at least one dihaloaromatic compound with said dehydrated mixture to produce a polymerization mixture,

(c) subjecting said polymerization mixture to polymerization conditions of temperature and time sufficient to form said arylene sulfide polymer, and

(d) recovering said arylene sulfide polymer, wherein said process is conducted in the presence of a compound selected from the group consisting of unsubstituted aromatic hydrocarbons, alkyl-substituted aromatic hydrocarbons, alkyl ethers, aryl ethers, alkyl-aryl ethers, polyethers and saturated aliphatic hydrocarbons and the molar ratio of said compound to said cyclic organic amide is about 0.02:1 to about 1:1.

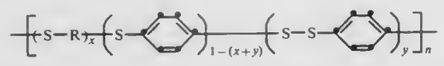
5,064,937

COPOLY(PHENYLENE SULFIDE)

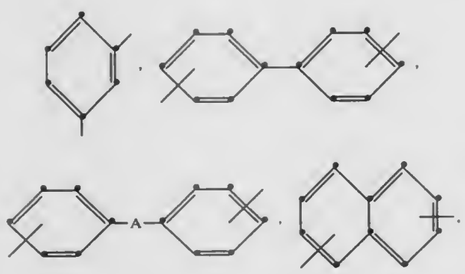
David R. Fagerburg; Joseph J. Watkins, both of Kingsport; Paul B. Lawrence, Blountville, and Mark Rule, Kingsport, all of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation of Ser. No. 290,587, Mar. 27, 1989, abandoned.
This application Jun. 6, 1990, Ser. No. 534,338
The portion of the term of this patent subsequent to Dec. 20, 2005, has been disclaimed.
Int. Cl.[5] C08G *75/14*
U.S. Cl. 528—389 2 Claims

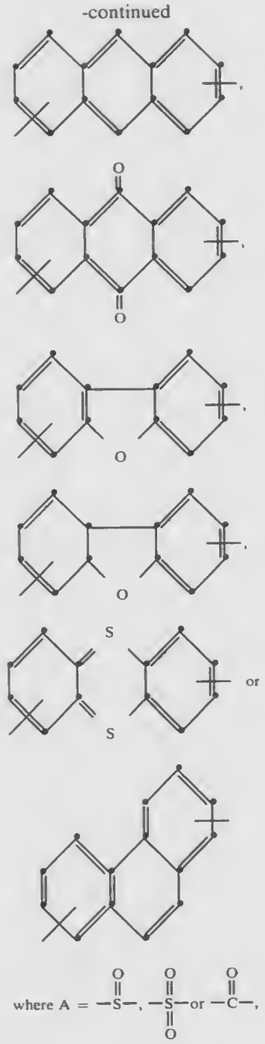
1. A process for producing elemental iodine and a copoly-(arylene sulfide) of repeating units corresponding to the structure



wherein y is in the range of 0.005 to 0.15, x is in the range of 0.02 to 0.25, n is at least 200, and R a divalent radial selected from



-continued



where A = —S—, —S—, —C—, or —S—S—,

consisting essentially of

(1) reacting at a temperature above about 175° C., a mixture of p-diiodobenzene and an additional diiodoaromatic compound which gives the R unit and elemental sulfur to produce the elemental iodine and the copoly(arylene sulfide), and

(2) recovering the elemental iodine.

5,064,938

CONTINUOUS PRODUCTION PROCESS OF PARTICULATE POLYMER AND CONTROL METHOD OF THE PARTICLE SIZE OF SAID POLYMER

Fumio Suzuki; Hideaki Habara; Yutaro Fukuda; Haruki Sato, and Hiromasa Inada, all of Ohtake, Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 345,548, Apr. 14, 1989, abandoned.
This application Nov. 23, 1990, Ser. No. 617,265
Claims priority, application Japan, Sep. 25, 1987, 62-241798, Japan Sep. 25, 1987, PCT/JP88/00974
Int. Cl.[5] C08F *6/22*
U.S. Cl. 528—491 9 Claims

1. A process for the continuous production of a particulate polymer, which comprises successfully processing, through the following steps (I) and (II), a polymer latex obtained by emulsion polymerization,

Step (I): The polymer latex is coagulated into a slurry in which particles thus coagulated are dispersed in water,

Step (II): The slurry obtained in Step (I), an organic liquid whose solubility in water is 0.5 wt % or lower at 20° C. and incapable of dissolving the polymer and optionally water in an amount as needed are continuously mixed for granulation under the following conditions (a)–(c):

(a): The proportion of water in the whole mixture is 50–85 wt. %,

(b): The amount of the organic liquid is 15 to less than 60 parts by weight per 100 parts by weight of the polymer in the polymer latex,

(c): the temperature T (°C.) of the whole mixture is maintained for 0.5 minute to 1 hour on average within the range of the following equation

$$A-26 \leqq T \leqq A$$

wherein A means the azeotropic temperature (°C.) of the mixture.

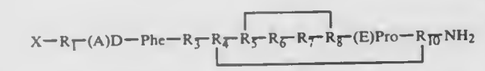
5,064,939

CYCLIC GNRH ANTAGONISTS

Jean E. F. Rivier, La Jolla; Steven C. Koerber, Encinitas; Arnold T. Hagler, La Jolla; Catherine L. Rivier, La Jolla, and Wylie W. Vale, Jr., La Jolla, all of Calif., assignors to The Salk Institute for Biological Studies, San Diego, Calif.

Filed Feb. 6, 1990, Ser. No. 475,767
Int. Cl.[5] A61K *37/00, 37/38;* C07K *5/12, 7/20*
U.S. Cl. 530—317 35 Claims

1. A peptide or a nontoxic salt thereof, said peptide having the formula:



wherein X is hydrogen or an acyl group having 7 or less carbon atoms; R_1 is dehydroPro, D-pGlu, (A)D-Phe, (B)D-Trp, Pro, or β-D-NAL; A is H,Cl, F, NO_2, CH_3, OCH_3, $C^{\alpha}Me$/4Cl, Cl_2 or Br; B is H, NO_2, NH_2, OCH_3, F, Cl, Br, CH_3, N^{in}For or N^{in}Ac; R_3 is D-PAL β-D-NAL or (B)D-Trp; R_4 is Cys, Asp, Glu, Orn, Dbu, Dpr or Abu; R_5 is Glu, Hgl or Hhg; R_6 is β-D-NAL, (B)D-Trp, (A')D-Phe, (D)D-Har, D-Tyr, (C)D-His, D-PAL, (D)D-Arg, D-Leu, D-Ile, D-Val, D-Nle, D-Ala, D-Pro, D-Ser(OtBu), or D-Nva; A' is A, NH_2, $NHCH_3$ or gua; C is H, imBzl or dinitrophenyl; R_7 is Nle, Leu, NML, Phe, Met, Nva, Tyr, Trp or PAL; D is H or di-lower alkyl; R_8 is Lys, Hly or Hhl; E is H, OH or dehydro and R_{10} is cys, Asp, Glu, Orn, Dbu, Dpr or Abu; provided however that when R_4 is Cys or Abu, R_{10} is Cys or Abu; when R_4 is Asp or Glu, R_{10} is Orn, Dbu or Dpr; and when R_4 is Orn, Dbu or Dpr, Re is Asp or Glu.

5,064,940

PREMIXED DRY REAGENT CONTAINING A PROTECTED AMINO ACID AND AN ACTIVATING AGENT FOR USE IN SOLID PHASE PROTEIN SYNTHESIS

Leon E. Barstow, and Glen D. Ward, both of Tucson, Ariz., assignors to Protein Technologies, Inc., Tuscon, Ariz.

Continuation of Ser. No. 192,837, May 11, 1988, abandoned.
This application Sep. 14, 1990, Ser. No. 582,828
Int. Cl.[5] C07K *1/06, 1/00*
U.S. Cl. 530—334 10 Claims

1. A dry, pre-mixed and shelf stable two component reagent for solid phase peptide synthesis consisting essentially of a protected amino acid and an activating agent for the protected amino acid for said synthesis, wherein the mole ratio of activating agent to protected amino acid is at least 1:1, said mixture being free of reaction solvent.

5,064,941

COLLAGEN EXTRACTED FROM COLLAGEN-CONTAINING TISSUE

Peter F. Davison, Lexington, Mass., assignor to Boston Biomedical Research Institute, Boston, Mass.

Division of Ser. No. 276,285, Nov. 25, 1988, Pat. No. 4,983,721.
This application Sep. 26, 1990, Ser. No. 588,324
Int. Cl.[5] A61K *37/12;* C07K *15/20;* C08H *1/06*
U.S. Cl. 530—356 4 Claims

1. A prosthetic device comprising collagen produced by contacting animal collagen-containing tissue with a solution of an organic amine salt, under conditions whereby collagen is extracted, said organic amine being selected from the group consisting of diamines and aminoalcohols.

5,064,942

PROTEIN ISOLATED FROM BLOOD, PROCESS FOR PREPARING SAID PROTEIN, ANTIBODIES AGAINST SAID NEW PROTEIN, AND PHARMACEUTICAL COMPOSITIONS CONTAINING SAID PROTEIN OR SAID ANTIBODIES

Inge Duhl Clemmensen, Farum, Denmark, and Cornelis Kluft, Sassenheim, Netherlands, assignors to Nederlandse Centrale Organisatie Voor Toegepastnatuurwetenschappelijk Onderzoek, The Hague, Netherlands

Division of Ser. No. 872,613, Jun. 10, 1986, Pat. No. 4,853,220.
This application Jul. 21, 1989, Ser. No. 384,283
Claims priority, application Netherlands, Jun. 11, 1985, 8501682
Int. Cl.[5] C07K *15/28;* G01N *33/53;* C12N *5/18;* A61K *39/00*
U.S. Cl. 530—387 5 Claims

1. Substantially purified antibodies which bind to a protein which specifically binds to Kringle 4 of plasminogen and stimulates acceleration of whole blood lysis in the presence of melanoma cell plasminogen activator and thrombin and which comprises four polypeptide chains each having a molecular mass of about 17,000 as determined by polyacrylamide electrophoresis in the presence of sodium dodecyl sulfate, said antibodies being effective to inhibit said acceleration.

5,064,943

METHOD FOR SOLUBILIZATION AND NATURATION OF SOMATOTROPIN

Kevin M. McCoy, Hudson, N.J., and Robert A. Frost, Westchester, N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Dec. 16, 1988, Ser. No. 285,477
Int. Cl.[5] C07K *3/12, 15/06*
U.S. Cl. 530—399 7 Claims

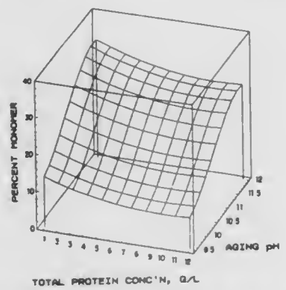
6. A method for solubilization and naturation of somatotropin which comprises:

(a) dispersing somatotropin refractile bodies into water in concentration of less than about 5 g/l;

(b) adjusting the pH to a range from pH 11.5 to pH 12.5; and

VOL 1132 ISS 2 NO 12 1991 UMI

(c) maintaining the pH range for about two minutes to twenty minutes to effect naturation of the somatotropin,



and wherein all steps of the process are carried out in the absence of chaotropic and denaturing agents.

5,064,944

CHIRAL SEPARATION MEDIA

Daniel Armstroog, Rolla, Mo., assignor to Advanced Separation Technologies Inc., Whippany, N.J.

Continuation-in-part of Ser. No. 406,141, Sep. 12, 1989, Pat. No. 4,948,395. This application Aug. 8, 1990, Ser. No. 564,628

Int. Cl.[5] C07H *1/00, 3/00;* **C08B** *37/16*

U.S. Cl. 536—1.1 **14 Claims**

1. A composition for separation of optical isomers in a gas chromatographic column, said composition being a dialkyl trifluoro ester ether of cyclodextrin having about 20% to about 80% of the hydrogens of the hydroxyl groups of the cyclodextrin substituted with alkyl side chains and at least about 90% of the hydrogens of the remaining hydroxyl groups of the alkylated ether of cyclodextrin substituted with a fluorinated ester group.

5,064,945

CHARTREUSIN DERIVATIVES AND SALTS THEREOF

Nobutoshi Yamada; Hideo Sugi, and Kenji Kon, all of Moriyama, Japan, assignors to Ishihara Sangyo Kaisha, Ltd., Osaka, Japan

Division of Ser. No. 922,433, Oct. 23, 1988, Pat. No. 4,927,919. This application Oct. 27, 1989, Ser. No. 427,370

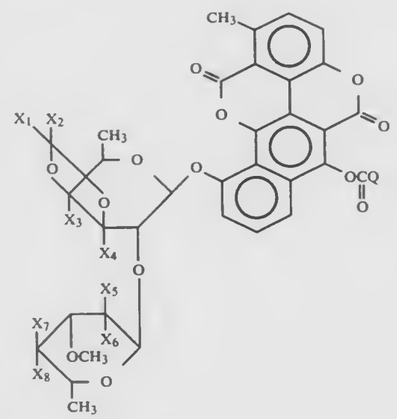
Claims priority, application Japan, Oct. 23, 1985, 60/236833

The portion of the term of this patent subsequent to May 22, 2007, has been disclaimed.

Int. Cl.[5] C07H *17/04*

U.S. Cl. 536—17.5 **20 Claims**

1. A chartreusin derivative of the formula (I) or a salt thereof;



wherein

X_1 is a hydrogen atom or a C_{1-3} alkyl group which may be substituted by a substituent selected from the group consisting of a halogen atom, a C_{1-2} alkoxy group, and a C_{1-2} alkylthio group;

X_2 is a C_{1-3} alkyl group which may be substituted by a substituent selected from the group consisting of a halogen atom, a C_{1-2} alkoxy group and a C_{1-2} alkylthio group;

a C_{1-2} alkylcarbonyl-C_{1-2} alkyl group which may be substituted by a halogen atom;

a phenyl group;

a phenyl-C_{1-2} alkyl group;

a furyl group; or

a thienyl group

wherein each of the phenyl group, the phenyl-C_{1-2} alkyl group, the furyl group and the thienyl group may be substituted by a substituent selected from the group consisting of a halogen atom, a cyano group, a nitro group, a C_{1-3} alkyl group, a C_{1-3} alkoxy group, a C_{1-3} alkylthio group, a C_{1-3} alkylcarbonyl group, a C_{1-3} alkoxycarbonyl group and a di-C_{1-3} alkylamino group

wherein each of the C_{1-3} alkyl group, the C_{1-3} alkoxy group, the C_{1-3} alkylthio group, the C_{1-3} alkylcarbonyl group, the C_{1-3} alkoxycarbonyl group and the di-C_{1-3} alkylamino group may be substituted by a halogen atom;

where both X_1 and X_2 are said alkyl groups, the total number of carbon atoms of these alkyl groups is 4 or less;

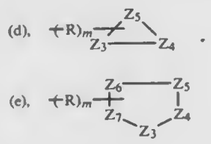
X_1 is a hydrogen atom where X_2 is said phenyl group; said phenyl-C_{1-2} alkyl group, said furyl group, or said thienyl group;

X_1 and X_2, when taken together with the adjacent carbon atom, may form a C_{3-7} cycloalkylidene which may be substituted by a halogen atom, a C_{1-2} alkoxy group or a C_{1-2} alkylthio group;

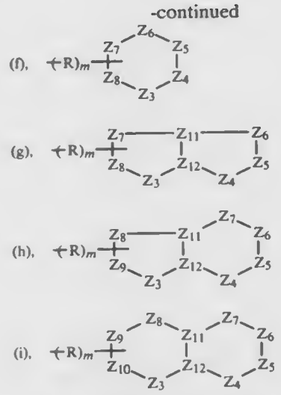
each of X_3, X_4, X_6 and X_7 is a hydrogen atom;

each of X_5 and X_8 is a hydroxyl group; and

Q is a substituent represented by any one of the formulas (d) to (i):



-continued



wherein R is selected from the group consisting of

a C_{1-11} alkanediyl group;

a C_{2-11} alkenediyl group;

a C_{2-11} alkynediyl group;

a C_{3-10} cycloalkanediyl group; and

a C_{5-10} cycloalkenediyl group

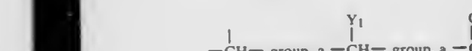
wherein each of the C_{1-11} alkanediyl group, the C_{2-11} alkenediyl group, the C_{2-11} alkynediyl group, the C_{3-10} cycloalkanediyl group and the C_{5-10} cycloalkenediyl group which may be substituted by a substituent selected from the group consisting of a halogen atom, a hydroxyl group, a mercapto group, a C_{1-6} alkoxy group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, an aminocarbonyl group, a hydroxycarbonyl group, a C_{1-5} alkoxycarbonyl group, a phenyl group which may be substituted by a substituent selected from the group consisting of halogen, hydroxyl, mercapto, C_{1-3} alkoxy and C_{1-3} alkylthio, and a 3-indolyl group which may be substituted by halogen;

or R is a phenylene group which may be subsatituted by a substituent selected from the group consisting of a halogen atom, a hydroxyl group, a mercapto group, a C_{1-6} alkoxy group, a C_{1-6} alkylthio group, a C_{1-6} alkylsulfinyl group, a C_{1-6} alkylsulfonyl group, an aminocarbonyl group, a hydroxycarbonyl group, and a C_{1-5} alkoxycarbonyl group;

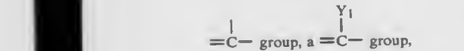
m is zero or 1;

each of Z_3 through

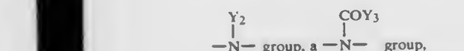
Z_{10} is a $-CH_2-$ group, a



a $=CH-$ group, a

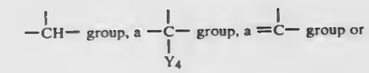


a $-NH-$ group, a

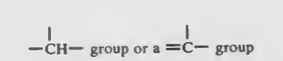


a $=N-$ group, an oxygen atom or a sulfur atom;

each of Z_{11} and Z_{12} is a



any one of Z_3 through Z_{10} is a



each of the others being a substituent other than these two substituents, and any one of Z_3 through Z_{10} is a —NH— group, a



a $=N-$ group, an oxygen atom or a sulfur atom,

Y_1 is selected from the group consisting of a halogen atom;

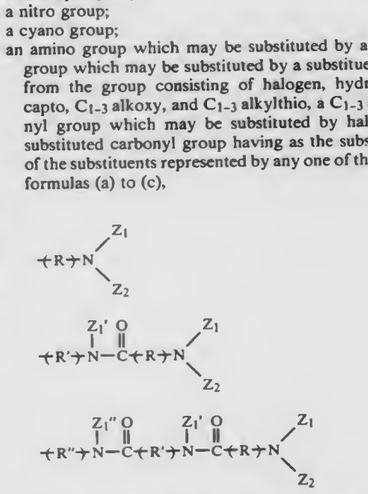
a hydroxyl group;

a mercapto group;

a nitro group;

a cyano group;

an amino group which may be substituted by a C_{1-6} alkyl group which may be substituted by a substituent selected from the group consisting of halogen, hydroxyl, mercapto, C_{1-3} alkoxy, and C_{1-3} alkylthio, a C_{1-3} alkylcarbonyl group which may be substituted by halogen, or a substituted carbonyl group having as the substituent any of the substituents represented by any one of the following formulas (a) to (c),



wherein each of R' and R'' is the same as R,

each of Z_1, Z'_1 and Z''_1 is a hydrogen atom, or a C_{1-6} alkyl group which may be substituted by a substituent selected from the group consisting of a halogen atom, a hydroxyl group, a mercapto group, a C_{1-3} alkoxy group and a C_{1-3} alkylthio group,

Z_2 is selected from the group consisting of a hydrogen atom;

a formyl group;

a C_{1-6} alkyl group;

a C_{1-6} alkylcarbonyl group; and

a benzoyl group

wherein each of the C_{1-6} alkyl group, the C_{1-6} alkylcarbonyl group and the benzoyl group may be substituted by the same substituent as substituent for said C_{1-6} alkyl group as each of Z_1, Z'_1 and Z''_1,

or Z_2 is a benzyloxycarbonyl group which may be substituted by a halogen atom,

Z_1 and Z_2, when taken together with the nitrogen atom, may form a nitrogen-containing C_{2-10} heterocyclic group

VOL 1132 ISS 2 - 12 - 1991 NO UMI

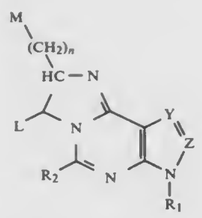
which may be substituted by a substituent selected from the group consisting of a halogen atom, a hydroxyl group, a mercapto group, a C_{1-3} alkyl group, a C_{1-3} alkoxy group and a C_{1-3} alkylthio group;
a C_{1-3} alkyl group;
a C_{1-3} alkoxy group;
a C_{1-3} alkylthio group;
a C_{1-3} alkylcarbonyloxy group;
a C_{1-3} alkylcarbonylthio group;
a phenyl group;
wherein each of the C_{1-3} alkyl group, the C_{1-3} alkoxy group, the C_{1-3} alkylthio group, the C_{1-3} alkylcarbonyloxy group, the C_{1-3} alkylcarbonylthio group and the phenyl group may be substituted by a substituent selected from the group consisting of a halogen atom, a hydroxyl group, a mercapto group, a cyano group, a C_{1-3} alkylcarbonyl group which may be substituted by halogen and an amino group which may be substituted by a substituted carbonyl group having as the substituent any of the substituents represented by any one of the above formulas (a) to (c);
and a nitrogen-containing C_{2-5} heterocyclic group may be substituted by a substituent selected from the group consisting of a halogen atom, a hydroxyl group, a mercapto group, a C_{1-3} alkyl group, a C_{1-3} alkoxy group, and a C_{1-3} alkylthio group;
Y_2 is a C_{1-3} alkyl group which may be substituted by the same substituent as substituent for said C_{1-3}-alkyl group as Y_1;
Y_3 is
a C_{1-3} alkyl group,
a benzyloxy group,
wherein each of the C_{1-3} alkyl group and the benzyloxy group may be substituted by a halogen atom, or a substituent represented by any one of formulas (a) to (c); and
Y_4 is a C_{1-3} alkyl group which may be substituted by a halogen atom; the total number of atoms of Q other than the hydrogen atoms being 30 or less.

5,064,946
THERAPEUTIC NUCLEOSIDES
Sammy R. Shaver, Chapel Hill; George A. Freeman, and Janet L. Rideout, both of Raleigh, all of N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.
Continuation of Ser. No. 168,181, Mar. 15, 1988, abandoned. This application Dec. 20, 1989, Ser. No. 453,013
Claims priority, application United Kingdom, Mar. 16, 1987, 8706176
Int. Cl.[5] C07H *17/00*
U.S. Cl. 536—23 **1 Claim**

1. 1-(3-azido-2,3-dideoxy-β-D-erythro-pentofuranosyl)-5-methyl-2-(propylamino)-4(1H)-pyrimidinone.

5,064,947
SELECTIVE ADENOSINE RESEPTOR COMPOUNDS
Norton P. Peet, Cincinnati, and Nelsen L. Lentz, West Chester, both of Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio
Continuation of Ser. No. 330,400, Mar. 29, 1989, abandoned. This application Jun. 27, 1990, Ser. No. 544,811
Int. Cl.[5] C07H *19/06*; C07D *487/02*; A61K *31/735*
U.S. Cl. 536—26 **20 Claims**

1. A compound according to the formula:



wherein
R_1 is hydrogen, phenyl or β-D-ribofuranosyl;
R_2 is hydrogen, lower alkyl of from 1 to 4 carbon atoms or lower alkoxy of from 1 to 4 carbon atoms;
Y is —N= or —CH=;
Z is —N= or —CH=, with the proviso that Y and Z are not identical;
n is an integer from 1 to 3;
L is hydrogen or phenyl; and
M is phenyl, except when L is phenyl, in which case M is hydrogen or a lower alkyl of from 1 to 3 carbon atoms.

5,064,948
CHROMOSOME SPECIFIC REPETITIVE DNA SEQUENCES
Robert K. Moyzis, and Julianne Meyne, both of Los Alamos, N. Mex., assignors to The United States of America as represented by the Department of Energy, Washington, D.C.
Filed Feb. 12, 1988, Ser. No. 155,451
Int. Cl.[5] C07H *21/04*; C12Q *1/68*
U.S. Cl. 536—27 **3 Claims**

3. A DNA sequence for specific in situ hybridization to chromosome 17 consisting essentially of the sequence 5' cattcaaatc cccgagttga actttccttt caaagttac at 3'.

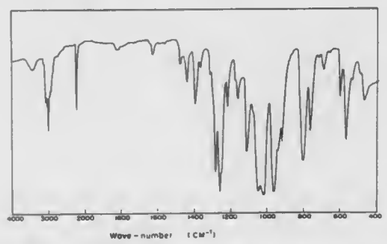
5,064,949
CELLULOSE ESTER MICROPARTICLES AND PROCESS FOR MAKING THE SAME
Thomas L. Steiner, Charlotte; Kenneth A. Domeshek, Mattbews; William Stitt, Pineville; Jesse L. Riley, and Lance J. Deutsch, both of Charlotte, all of N.C., assignors to Hoechst Celanese Corporation, Somerville, N.J.
Division of Ser. No. 342,275, Apr. 24, 1989, Pat. No. 5,042,180, and a continuation-in-part of Ser. No. 77,274, Jul. 24, 1987, abandoned, and a continuation-in-part of Ser. No. 77,275, Jul. 24, 1987, abandoned, and a continuation-in-part of Ser. No. 281,587, Dec. 9, 1988, abandoned, and a continuation-in-part of Ser. No. 88,914, Aug. 24, 1987, abandoned, and a continuation-in-part of Ser. No. 168,799, Mar. 16, 1988, abandoned. This application Jun. 3, 1991, Ser. No. 709,519
Int. Cl.[5] C08B *3/22*; B32B *5/16*
U.S. Cl. 536—56 **2 Claims**

1. A spherical porous microparticle of a cellulose organic ester characterized by having a plurality of exterior surface pores having diameters of between about 1.0 to about 6.0 microns and being present in an amount of between about 1% to about 10% of the exterior surface thereof.

5,064,950
FINE CELLULOSE PARTICLES AND PROCESS FOR PRODUCTION THEREOF
Shigeru Okuma, Hofu; Kanji Yamagishi; Masami Hara, all of Hofu; Keizo Suzuki, Osaka; Toshihiro Yamamoto, Hofu, and Hideo Yoshidome, Kishiwada, all of Japan, assignors to Kanebo, Ltd., Tokyo and Kanebo Rayon, Ltd., Osaka, both of, Japan
Division of Ser. No. 107,973, Oct. 13, 1987, Pat. No. 4,946,953. This application May 25, 1990, Ser. No. 528,933
Claims priority, application Japan, Oct. 16, 1986, 61-244044; Aug. 27, 1987, 62-211354
Int. Cl.[5] C08J *3/16*; C08L *1/02*; C08B *15/10*
U.S. Cl. 536—57 **8 Claims**

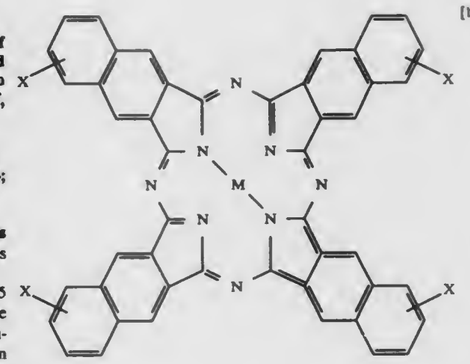
1. A process for producing crosslinked cellulose particles which comprises the steps of:
(1) preparing particles of a coagulated viscose containing 5 to 60% by weight, calculated as cellulose of cellulose xanthate by coagulating said cellulose xanthate, said particles having an average particle diameter of not more than 400 μm;
(2) subjecting the particles of coagulated viscose to a crosslinking reaction with a crosslinking agent in a liquid medium containing an alkali hydroxide to cause crosslinking of the cellulose molecular chains within said particles, and neutralizing said particles with an acid, or first neutralizing the particles with an acid and then subjecting the neutralized particles to said crosslinking reaction; and
(3) separating the crosslinked particles and heating them at a temperature of from 60 to 120° C.

5,064,951
NAPHTHALOCYANINE COMPOUND AND PRODUCTION THEREOF
Yasuhiro Yamasaki, Atlanta, Ga., assignor to Orient Chemical Industries, Ltd., Osaka, Japan
Filed Apr. 4, 1990, Ser. No. 504,309
Claims priority, application Japan, Apr. 6, 1989, 1-87230
Int. Cl.[5] G03G *5/04*; C07D *403/00*
U.S. Cl. 540—128 **9 Claims**



1. A naphthalocyanine compound which is represented by the following formula;

[1]

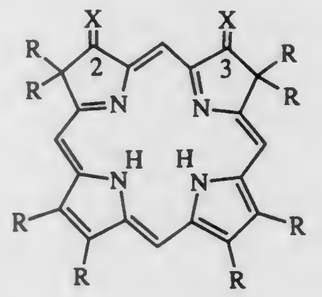


wherein X represents



and R^1 and R^2 respectively represent a hydroxyl group, an alkyl group, an aryl group or an alkoxy group; and M represents 2H, a metal atom, a metal oxide residue or a metal chloride residue.

5,064,952
DERIVATIVES OF PORPHYRIN USEFUL IN PHOTODYNAMIC THERAPY
Chi-Kwong Chang, Brighton, and Weishih Wu, East Lansing, both of Mich., assignors to Board of Trustees, a Constitutional Corporation Operating Michigan State University, East Lansing, Mich.
Filed Jan. 16, 1990, Ser. No. 464,860
Int. Cl.[5] C07D *487/22*; A61K *31/40*
U.S. Cl. 540—145 **10 Claims**



3

1. A compound of formulas 1–6 of FIG. 1,
wherein each R is independently H, alkyl(1–6) or omega-carboxyalkyl(1–6) or the ester, amide or salt thereof, and
wherein each =X is selected from the group consisting of =O, =S, =CR'$_2$, and NR'',
in which each R' is independently H, CN, alkyl(1–6), omega-carboxyalkyl(1–6) or the ester, amide or salt thereof, or aryl; and

VOL 1132 ISS 2 NO 12 1991 UMI

in which each R'' is independently OH, CN, alkyl(1–6C) or omega-carboxyalkyl(1–6) or the ester, amide or salt thereof;

with the proviso that all =X cannot be =O, and with the further proviso that if all =X are either =O or =S, all R cannot be ethyl.

5,064,953

INTERMEDIATES CEPHALOSPORIN DERIVATIVES

Haruo Ohnishi, Funabashi; Hiroshi Kosuzume, Mishima; Masahiro Mizota, Gotenba; Yasuo Suzuki, Kawaguchi, and Ei Mochida, Toshima, all of Japan, assignors to Mochida Pharmaceutical Co., Ltd., Tokyo, Japan

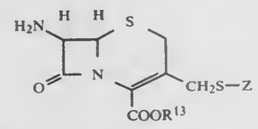
Division of Ser. No. 687,455, Dec. 28, 1984, Pat. No. 4,888,332. This application Sep. 26, 1989, Ser. No. 412,992

Claims priority, application Japan, Dec. 29, 1983, 58-247251; Nov. 26, 1984, 59-249193

Int. Cl.[5] C07D *501/14*

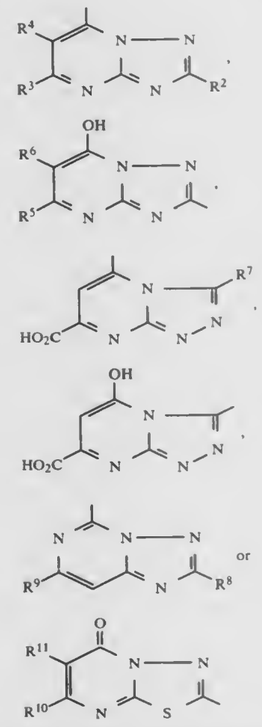
U.S. Cl. 540—226 **8 Claims**

1. An intermediate compound of the formula (II):



(II)

and salts, hydrates and hydrates of salts of said compound; wherein R^{13} represents a hydrogen atom or a carboxyl-protecting group; Z represents:



wherein R^2 represents a hydrogen atom, a methyl group, an amino group, a cyano group, a hydroxysulfonyl group, a carboxyl group, a carboxymethyl group, a protected carboxyl group, a protected carboxymethyl group, a methoxycarbonyl group or a hydrazino carbonyl group; R^3 represents a hydrogen atom, an alkyl group having 1 to 3 carbon atoms, a hydroxy group, a methoxy group, a carboxyl group, a carboxymethyl group or a chlorine atom; R^4 represents a hydrogen atom, a methyl group or a carboxyl group; R^5 represents a hydrogen atom or a methyl group; R^6 represents a hydrogen atom, a carboxyl group, an ethoxycarbonyl group or a piperidinocarbonyl group; R^7 represents a hydrogen atom or a methyl group; R^8 represents a hydrogen atom or a carboxyl group; R^9 represents a methyl group, an amino group or a carboxyl group; R^{10} represents a hydrogen atom or a methyl group; and R^{11} represents a hydrogen atom or a carboxyl group.

5,064,954

PROCESS FOR PRODUCING HALOMETHYLCARBAPENEMS

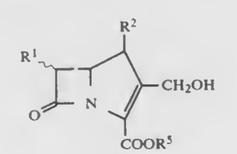
Shoichiro Uyeo, Kyoto; Mitsuru Imuta, Osaka; Hisao Ona, Nara, and Hikaru Itani, Osaka, all of Japan, assignors to Shionogi & Co., Ltd., Osaka, Japan

Filed Oct. 10, 1990, Ser. No. 594,942

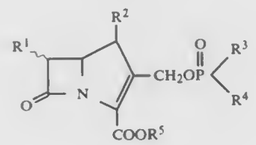
Int. Cl.[5] C07D *487/04*

U.S. Cl. 540—302 **9 Claims**

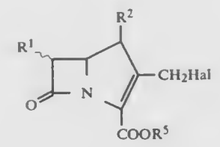
1. A process for preparing 2-halomethylcarbapenem (III) which comprises treating 2-hydroxymethylcarbapenem (I) with a phosphorylating reagent to give 2-phosphoryloxymethylcarbapenem (II) and then treating this product with a halogenating reagent.



(I)



(II)



(III)

wherein,

R^1 is hydrogen or substituted or unsubstituted alkyl;

R^2 is hydrogen or substituted or unsubstituted alkyl;

R^3, R^4 is halogen or substituted or unsubstituted alkoxy or aryloxy;

R^5 is hydrogen or carboxy protecting group; and

Hal is halogen.

5,064,955

LARGE SCALE, NON-CHROMATOGRAPHIC PURIFICATION OF CHROMOGENIC CRYPTAHEMISPHERANDS (1.1) AND (2.1)

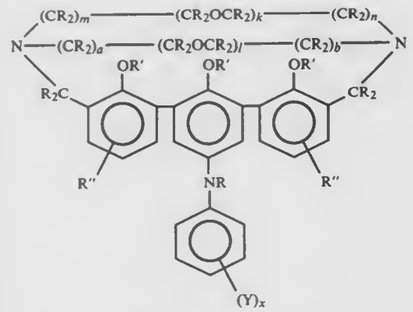
Bronislaw P. Czech, Peekskill, N.Y., assignor to Technicon Instruments Corporation, Tarrytown, N.Y.

Filed Jun. 4, 1990, Ser. No. 533,058

Int. Cl.[5] C07D *273/08*

U.S. Cl. 540—469 **8 Claims**

1. A method for the non-chromatographic purification of chromogenic cryptahemispherands of the following formula (II):



(II)

wherein:

R, same or different, is hydrogen, lower alkyl, lower alkylidene, lower alkenyl, allyl, aryl or benzyl;

R', same or different, is lower alkyl, lower alkylidene, lower alkenyl, allyl, aryl or benzyl;

R'', same or different, is hydrogen, lower alkyl, lower alkylidene, lower alkenyl, allyl, aryl or benzyl;

Z is halogen;

Y is electron withdrawing group;

m is 1 to 3;

n is 1 to 3;

a is 1 to 3;

b is 1 to 3;

k is 1 to 2;

l is 1 to 2;

k and l are not both 2; and

x is 2 to 4,

from a reaction mixture which includes unpurified compound of formula (II), unreacted organic components, inorganic salts and polymeric material, which method comprises the steps of:

(a) removing said unreacted substrates by repeated washing of said reaction mixture with a first solvent to obtain a solid residue;

(b) treating said solid residue with a chlorinated solvent to dissolve the compound of formula (II) and lower molecular weight polymers and form a supernatant;

(c) filtering said inorganic material and higher molecular weight material from said supernatant to form a filtrate;

(d) treating said filtrate of step (c) with a second solvent to precipitate the remaining polymeric material from said filtrate; and

(e) removing said second solvent from said filtrate to obtain the compound of formula (II) free of sodium.

5,064,956

PROCESS FOR PREPARING MONO-N-ALKYLATED POLYAZAMACROCYCLES

William J. Kruper, Jr., Sanford, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 289,163, Dec. 22, 1988, abandoned, which is a continuation-in-part of Ser. No. 65,739, Jun. 24, 1987, Pat. No. 4,994,560, and a continuation-in-part of Ser. No. 211,496, Jun. 24, 1988, abandoned, and a continuation-in-part of Ser. No. 370,956, Jun. 21, 1989. This application Jul. 9, 1990, Ser. No. 549,791

Int. Cl.[5] C07D *273/00, 257/02, 255/02*

U.S. Cl. 540—474 **22 Claims**

1. A process for preparing a mono-N-alkylated polyazamacrocycle consisting essentially of reacting an electrophile with between about one and three equivalents of a polyazamacrocycle in a solvent which will not promote a proton transfer and recovery of the thus prepared mono-N-alkylated polyazamacrocycle; wherein the electrophile is represented by the formula RX wherein R is a C_1–C_4 alkyl; a C_1–C_4 alkyl which is substituted with a cyano, pyridinyl, CO_2R^1 or $CON(R^1)_2$ moiety where R^1 is H or C_1–C_4 alkyl; or an alkylaryl where the alkyl portion is C_1–C_4 and the aryl portion is a 5 or 6 member carbon ring or a 9 member ring containing carbon and one or more hetero atoms selected from sulfur, nitrogen or oxygen and X is chloro, bromo, iodo, acetate, trifluoroacetate, triflate, mesylate, diazo or brosylate; and wherein the polyazamacrocycle contains at least two nitrogen atoms and at least one additional hetero atom selected form the group consisting of oxygen sulfur and nitrogen, and a methylene moiety, $(—CH_2—)_n$, where n is from 2–4, as a spacer between the hetero atoms such that the total carbon and hetero atoms in the polyazamacrocycle is 12, 13 or 14.

5,064,957

NOVEL AMINE COMPOUND AND METHOD FOR THE PREPARATION THEREOF

Nobuyasu Nakasugi, Kyoto, Japan, assignor to San-Apro Limited, Kyoto, Japan

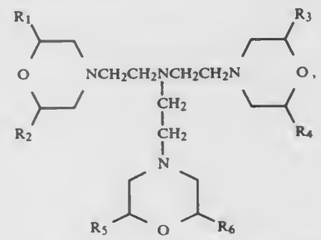
Filed Mar. 13, 1990, Ser. No. 492,937

Claims priority, application Japan, Mar. 16, 1989, 1-64581

Int. Cl.[5] C07D *295/12*

U.S. Cl. 544—86 **3 Claims**

1. A morpholino-substituted tertiary amine compound represented by the general formula



in which R_1, R_2, R_3, R_4, R_5 and R_6 are, each independently from the others, a hydrogen atom, methyl group or ethyl group, in the form of a free amine or a salt thereof.

VOL 1132 ISS 2 NO 12 1991 UMI

5,064,958

1,3-GENZOXAZINE, 2,4-DIONE DERIVATIVES

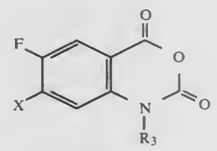
Brian T. O'Neill, Westbrook, Conn., assignor to Pfizer Inc., New York, N.Y.

Division of Ser. No. 275,449, Nov. 23, 1988. This application Feb. 12, 1990, Ser. No. 478,808

Int. Cl.[5] C07D *265/26*

U.S. Cl. 544—94 3 Claims

I. A compound of the formula



II

wherein R_3 is cyclopropyl, 4-fluorophenyl, or 2,4-difluorophenyl, and X is fluoro or chloro.

5,064,959

AROMATIC COMPOUNDS SUBSTITUTED BY 4,6-BIS(TRICHLOROMETHYL)-S-TRIAZIN-2-YL GROUPS

Georg Pawlowski, Wiesbaden; Fritz Erdmann, Eltville, and Heidrun Lutz, Mainz, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

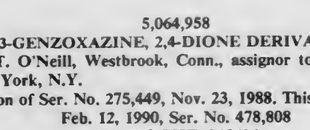
Filed Mar. 1, 1989, Ser. No. 317,562

Claims priority, application Fed. Rep. of Germany, Mar. 7, 1988, 3807378

Int. Cl.[5] C07D *251/20*

U.S. Cl. 544—216 17 Claims

I. A compound of formula I



(I)

wherein

R^1 and R^2 are different from one another and are either a hydrogen atom or a radical of the formula

R^3 is an alkoxy radical having 1 to 16 carbon atoms which is unsubstituted or substituted by halogen atoms or phenyl groups, an alkynyloxy radical having b 2 to 4 carbon atoms, an alkoxyalkoxy radical having 3 to 10 carbon atoms which is unsubstituted or substituted by nitro-groups, an aryloxy radical having 6 to 14 carbon atoms which is unsubstituted or substituted by nitro groups, phenyloxyalkoxy radical having 8 to 12 carbon atoms, a hydroxyl group or a halogen atom, and denotes the number 0 or 1.

5,064,960

SOLUTIONS OF ISOCYANURATE POLYISOCYANATES IN COATINGS SOLVENTS AND A PROCESS FOR THEIR PRODUCTION

Josef Pedain, Cologne, and Dieter Margotte, Krefeld, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 22, 1990, Ser. No. 571,465

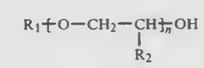
Claims priority, application Fed. Rep. of Germany, Aug. 29, 1989, 3928503

Int. Cl.[5] C07D *251/02*

U.S. Cl. 544—222 12 Claims

I. A process for the preparation of a composition containing an isocyanurate polyisocyanate dissolved in a solvent inert to isocyanate groups which comprises

a) reacting 2.5 to 7% of the isocyanate groups of a starting diisocyanate consisting essentially of 2,4-diisocyanatotoluene or a mixture of 2,4-diisocyanatotoluene and 2,6-diisocyanatotoluene with a monohydric alcohol corresponding to the formala



wherein

R_1 is an aliphatic or cycloaliphatic C_{6-18} hydrocarbon radical which may be olefinically unsaturated,

R_2 is hydrogen or a methyl group, and

n is 0 or an integer from 1 to 3,

b) adding a sufficient amount of an organic solvent which is inert to isocyanate groups to form a 30 to 70% solution of the urethanized diisocyanate either before, during or after step a),

c) subsequently partially trimerizing the remaining isocyanate groups of said urethanized diisocyanate in the presence of a catalyst which accelerates the trimerization of isocyanate groups and

d) terminating the trimerization reaction when the content of unreacted diisocyananotoluene is less than 0.5% by weight by the addition of a catalyst poison.

5,064,961

PROCESS FOR PREPARING AN OPTICALLY ACTIVE CYCLOBUTANE NUCLEOSIDE

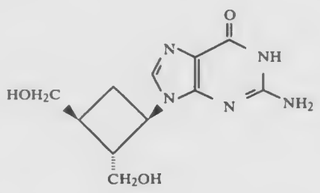
Gregory S. Bisacchi, Titusville, and Toomas Mitt, Plainsboro, both of N.J., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Dec. 18, 1989, Ser. No. 451,664

Int. Cl.[5] C07D *473/18*

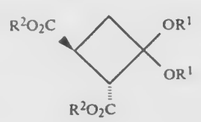
U.S. Cl. 544—276 14 Claims

I. A process for the preparation of the optically active compound [1R-(1α,2β,3α)]-2-amino-9-[2,3-bis(hydroxymethyl) cyclobutyl]-1,9-dihydro-6H-purin -6-one, represented by the formula



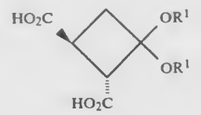
which comprises

(1) reacting a racemic compound of the formula



2

wherein R^1 and R^2 are lower alkyl with alkali to yield the racemic compound of the formula



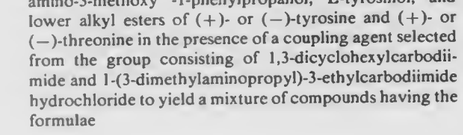
3

wherein R^1 is as defined above;

(2) reacting a compound of formula 3 with a chiral primary amine of the formula

R^3NH_2

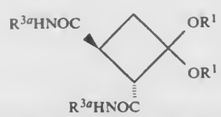
wherein R^3NH_2 is a chiral hydroxy substituted alkylamine, a chiral alkylamine substituted with both hydroxy and phenyl, (+)- or (−)- threo-2-amino-1-(4-nitrophenyl)-1,3-propanediol, (+)- or (−)-norepinephrine, (+)-2-amino-3-methoxy -1-phenylpropanol, L-tyrosinol, and lower alkyl esters of (+)- or (−)-tyrosine and (+)- or (−)-threonine in the presence of a coupling agent selected from the group consisting of 1,3-dicyclohexylcarbodiimide and 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide hydrochloride to yield a mixture of compounds having the formulae



4 5

(3) separating the diastereomeric compounds of formulae 4 and 5;

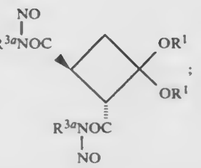
(4) protecting the hydroxy groups substituted on the moiety R^3 in a compound of formula 4to afford a compound having the formula



6

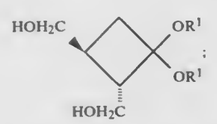
wherein the hydroxy protecting group is a hindered silyl group selected from the group consisting of t-butyldimethylsilyl, t-butyldiphenylsilyl, and triisopropylsilyl, an acyl group, an aroyl group, or trityl;

(5) reacting a compound of formula 6 with a nitrosating agent to yield a compound having the formula



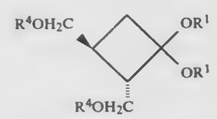
7

(6) treating a compound of formula 7 with a reducing agent selected from the group consisting of lithium aluminum hydride, sodium borohydride, and lithium borohydride to yield a compound of the formula



9

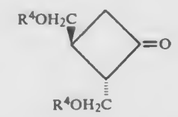
(7) reacting a compound of formula 9 with a protecting agent selected from the group consisting of t-butyldiphenylsilyl, triisopropylsilyl, benzyl, p-methoxybenzyl, acyl, and aroyl to yield a compound of the formula



10

wherein R^4 is a protecting group and R^1 is as defined above;

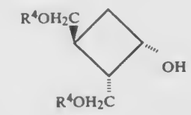
(8) reacting a compound of formula 10 with an acid catalyst selected from the group consisting of sulfuric acid, hydrochloric acid, and p-toluenesulfonic acid to yield a compound of the formula



11

wherein R^4 is as defined above;

(9) reacting a compound of formula 11 with a reducing agent selected from the group consisting of lithium trisec-butylborohydride, lithium trisiamylborohydride, diisobutylaluminum hydride, dicyclohexylborane, and disiamylborane to yield a compound of the formula

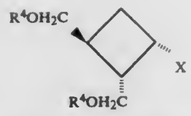


12

wherein R^4 is as defined above;

(10) reacting a compound of formula 12 with a sulfonylating reagent to yield a compound of the formula

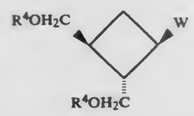
VOL 1132 ISS 2 NO 12 1991 UMI



13

wherein X is an alkanesulfonyloxy group, a substituted alkanesulfonyloxy group, an arenesulfonyloxy group, or a substituted arenesulfonyloxy group and the sulfonylating reagent is the corresponding sulfonic anhydride or sulfonyl chloride;

(11) reacting a compound of formula 13 with guanine or a protected guanine to yield a compound of the formula



14

wherein W is a 9-guanyl residue or a protected 9-guanyl residue and R^4 is as defined above; and

(12) deprotecting a compound of formula 14 to yield the compound of formula 1.

5,064,962

DIAMINOTHIOPHENES

Matthias Wiesenfeldt, Mutterstadt, and Karl-Heinz Etzbach, Frankenthal, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

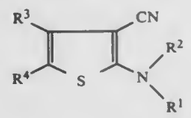
Filed Feb. 1, 1990, Ser. No. 473,471

Claims priority, application Fed. Rep. of Germany, Feb. 23, 1989, 3905577

Int. Cl.[5] **C07D** *333/38*

U.S. Cl. 544—300 **1 Claim**

1. A diaminothiophene of Formula I:



(I)

or tautomers thereof, wherein R^1 and R^2 are each hydrogen, R^3 is C_1–C_{20}-mono- or dialkylamino, C_2–C_{10}-mono or dialkylamino whose alkyl is substituted and/or interrupted by one or more oxygen atoms, C_2–C_{12}-mono- or dialkenylamino, C_3–C_{12}-alkynylamino, N-(C_1–C_5-alkyl)-N-phenylamino, hydrazino, C_1–C_4-mono- or dialkylhydrazino or phenylhydrazino, and R^4 C_1–C_6-alkanoyl, benzoyl, cyano, nitro or



where T^4 is hydrogen, C_1–C_4-alkyl or phenyl, and T^5 is the radical of an active methylene compound, or hydroxyimino or N-X where X is C_1–C_{20}-alkyl which can be substituted and/or interrupted by one or more oxygens, substituted or unsubstituted C_3–C_6-alkenyl, substituted or unsubstituted C_3–C_6-alkynyl, substituted or unsubstituted C_3–C_{10}-cycloalkyl, substituted or unsubstituted phenyl, pyridyl, C_1–C_4-alkoxycarbonylmethyl, amino, C_1–C_4-dialkylamino or phenylamino.

5,064,963

PROCESS FOR THE SYNTHESIS OF N-(3-(1H-IMIDAZOL-1-YL)PHENYL-4-(SUBSTITUTED)-2-PYRIMIDINAMINES

William D. Dean, Congers, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Filed Apr. 25, 1990, Ser. No. 514,455

Int. Cl.[5] **C07D** *403/04*

U.S. Cl. 544—331 **5 Claims**

1. A process for producing N-[3-(1H-imidazol-1-yl)phenyl]-4-(substituted)-2-pyrimidinamine wherein substituents are selected from the group consisting of 2-pyridinyl, 3-pyridinyl, 4-pyridinyl, 2-furanyl amd 2-thienyl which comprises:

(A) reacting 3-(1H-imidazol-1-yl) benzamine with cyanamide and a halogen acid, while controlling the pH of the reaction between pH about 2 to about 3.5 and recovering [3-(1H-imidazol-1-yl)phenyl]guanidine, dihydrohalide; and

(B) reacting the [3-(1H-imidazol-1-yl)phenyl]guanidine, dihydrohalide so recovered with a 3-dimethylamino-1-(substituted)-2-propen-1-one and a base in an appropriate solvent at a pH of from about 10.5 to about 11.5 and recovering N-[3-1H-imidazol-1-yl)phenyl]-4-(substituted)-2-pyrimidinamine.

5,064,964

PROCESS FOR CERTAIN (2R-TRANS)HEXAHYDROAROQUINOLIZINES

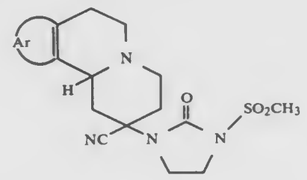
Ann E. DeCamp, North Plainfield; Anthony O. King, Colonia; Ralph P. Volante, East Windsor, and Ichiro Shinkai, Westfield, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 324,138, Mar. 16, 1989, Pat. No. 4,942,235. This application Apr. 9, 1990, Ser. No. 506,056

Int. Cl.[5] **C07D** *221/18*

U.S. Cl. 546—48 **2 Claims**

1. A compound of the formula



where



is R^1, R^2-benzo furo or R^1, R^2-benzo(b)thieno, wherein R^1 and R^2 are independently hydrogen, halo, hydroxy, C_{1-3} alkoxy, lower alkyl, or carboxy, or together are methylenedioxy or C_{3-4} alkylene; and wherein the free bonds of



are attached in either configuration of



5,064,965

RENIN INHIBITORS

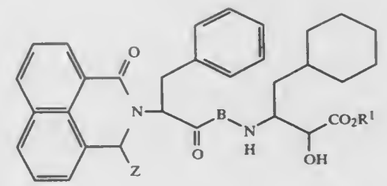
Timothy D. Ocain, Princeton, N.J., and David D. Deininger, Arlington, Mass., assignors to American Home Products Corporation, New York, N.Y.

Division of Ser. No. 490,810, Mar. 8, 1990, Pat. No. 5,023,338. This application Nov. 16, 1990, Ser. No. 614,545

Int. Cl.[5] **C07D** *221/14, 209/48, 209/46;* **A61K** *31/47*

U.S. Cl. 546—99 **3 Claims**

1. A compound of the formula:



in which

Z is $—H_2$ or $=O$;

B is His, Leu, Ile, Nva, Nle, Ala or Val; and

R^1 is hydrogen, alkyl of 1 to 6 carbon atoms, phenyl or phenylalkyl in which the alkyl group has 1 to 6 carbon atoms;

or a pharmaceutically acceptable salt thereof.

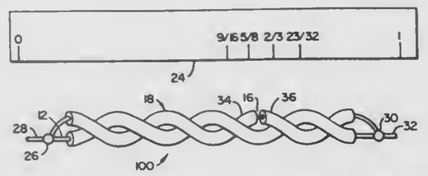
VOL
1132
ISS
2
NO
12
1991
UMI

5,064,966

MULTIPLE SEGMENT AUDIO CABLE FOR HIGH FIDELITY SIGNALS

Donald E. Palmer, 1275 Vicente Dr. #189, Sunnyvale, Calif. 94086

Filed Oct. 15, 1990, Ser. No. 597,140
Int. Cl.[5] H01B *11/00*
U.S. Cl. 174—32 8 Claims



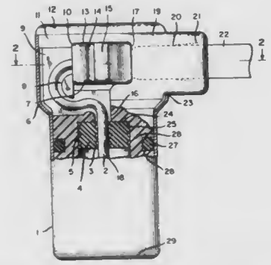
1. An interconnection cable for audio frequency high fidelity applications comprising:
a first wire having a reference end and a terminal end;
a second wire, said second wire being divided into a first segment and a second segment by a single electrical discontinuity separating said first segment from said second segment, wherein said first segment is conductively terminated at said reference end and said second segment is conductively terminated at said terminal end, and wherein the electrical discontinuity is at between 9/16 and 23/32 of the distance from said reference end.

5,064,967

HOUSING CONTAINING AN ELECTRICAL COMPONENT AND HAVING A CABLE HEAD-THROUGH DEVICE WITH STRAIN RELIEF

Günther Singbartl, Hanover, Fed. Rep. of Germany, assignor to WABCO Westinghouse Fahrzeugbremsen GmbH, Hanover, Fed. Rep. of Germany

Filed May 26, 1989, Ser. No. 358,026
Claims priority, application Fed. Rep. of Germany, Jun. 15, 1988, 3820378
Int. Cl.[5] H05K *5/03;* H01R *13/58*
U.S. Cl. 174—52.3 44 Claims



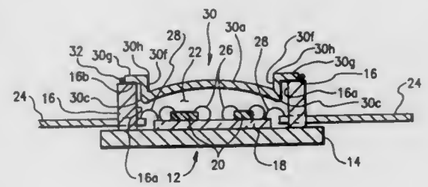
1. An apparatus which includes a cable lead-through device comprising:
(a) a housing, said housing including:
(i) a cup-shaped housing portion having a bottom, and
(ii) a closure portion on a side opposite to the bottom to close off an interior portion of said cup-shaped housing portion;
(b) at least one electrical component disposed within said cup-shaped housing portion;
(c) an electrical cable connected at a first end thereof to said electrical component, said electrical cable passing through said housing for connection at a second end thereof to an electrical device located externally to said housing, said electrical cable having at least one conductor wire surrounded by a sheathing material; and
(d) a strain relief means engageable with said electrical cable for minimizing damage to at least one of said electrical cable and said electrical component, said strain relief means including:
(i) a pair of opposingly movable elements for clamping said electrical cable in a predetermined position, said pair of elements being biased against an inside wall of said cup-shaped housing portion, and
(ii) one of said pair of elements of said strain relief means forming said closure portion for said cup-shaped housing portion.

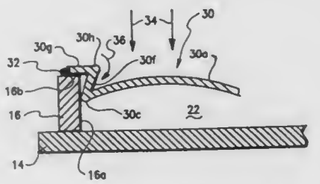
5,064,968

DOMED LID FOR INTEGRATED CIRCUIT PACKAGE

Alan L. Kovacs, Long Beach; Michael R. Ehlert, Irvine, and Helen Congleton, Huntington Beach, all of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Jan. 16, 1990, Ser. No. 465,851
Int. Cl.[5] H01L *23/02*
U.S. Cl. 174—52.4 17 Claims





1. A domed lid for an integrated circuit package having a base, and a continuous sidewall upstanding from and defining a cavity in combination with the base, the lid comprising:
a resilient central domed portion shaped to arch above the cavity;
an edge portion extending around the periphery of the domed portion, the edge portion being disposed inside the cavity and extending adjacent to an inner surface of the sidewall; and
a lip portion extending outwardly from the edge portion and engaging with an upper surface of the sidewall;
the domed portion being constructed to deflect in response to a force applied thereto toward the cavity in such a manner that the edge portion is urged outwardly into abutting engagement with the inner surface of the sidewall.

5,064,969

JUNCTION BOX COVER WITHOUT METALLIC PARTS

Myron G. Bloom, Santa Ana, Calif., assignor to Masco Building Products Corp., Taylor, Mich.

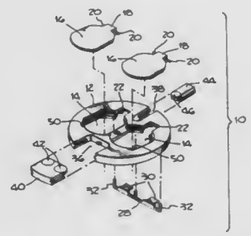
Filed May 31, 1990, Ser. No. 531,253
Int. Cl.[5] H02G *3/18*
U.S. Cl. 174—67 9 Claims

1. A junction box cover without metallic parts for use with an electrical receptacle, comprising:

VOL 1132 ISS 2 NO 12 1991 UMI

a non-metallic face plate with a generally flat upper surface, a lower surface, and a cutout adapted to expose said electrical receptacle;

a non-metallic receptacle cap shaped to fill and cover said cutout which exposes said electrical receptacle, said cap having a pivot at one end for mounting said cap flush with



the upper surface of said face plate when in a closed position and for exposing said receptacle when in an open position; and

a non-metallic retaining means for securing said pivot of said cap to said face plate and for retaining said cap in said open position.

5,064,970

METHOD AND APPARATUS FOR INSTALLING/DRESSING A WIRING HARNESS

Kelvin J. Bennett, Tipton, and Mark E. DeMott, Ypsilanti, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Feb. 5, 1990, Ser. No. 474,980

Int. Cl.[5] H01B *7/00*

U.S. Cl. 174—135 **6 Claims**



1. A wiring harness shroud comprising a tubular section of stretchable material for enshrouding a wiring harness to be inserted through an opening of a structural member during a manufacturing operation for producing a product including the structural member, said tubular section of stretchable material having two ends at least one of which is open to receive said wiring harness and comprising a generally rectangular piece of cloth having two opposed short sides and two opposed long sides with the long sides of said piece of cloth being joined to one another by closure means extending along at least a port thereof for releasably closing said tubular section of stretchable material, said closure means being operable after insertion of said wiring harness through said opening to open at least a portion of said tubular section of stretchable material to thereby rapidly remove said shroud from said wiring harness and comprising a single thread chain stitch and tab means for securing said chain stitch at one end of said tubular means, said tab means being forcibly removable to open said tubular section of stretchable material by releasing said chain stitch.

5,064,971

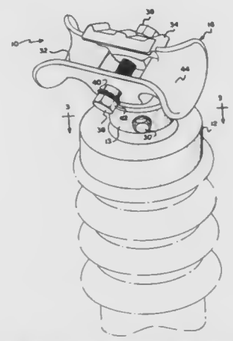
DEVICE FOR FASTENING AN ELECTRICAL CABLE TO AN INSULATOR

Anatol L. Bogdanow, 166 Olive Street, Holland Landing, Ontario L0G 1H0, Canada

Filed Oct. 13, 1989, Ser. No. 421,132

Int. Cl.[5] H10B *17/16*

U.S. Cl. 174—169 **13 Claims**



1. A device for fastening an electrical cable to an insulator, said device comprising a base and a fastening element,

one of said base and said fastening element having a fixed stem extending therefrom and the other of said base and said fastening element having a bore for receiving said stem, said fastening element being mounted for swivelling relative to said base about an axis of rotation,

said base being an electrically conducting member having means for attachment to said insulator and said fastening element having a vise including jaws movable between an open position for receiving said cable within a trough and a closed position for fastening said cable within said trough to define a neutral axis between said jaws such that said neutral axis is located substantially adjacent to said axis of rotation, and

means for selectively preventing said fastening element from rotating relative to said base including a fastener which passes into said bore and into a circumferential groove formed in said stem such that in a first position, said fastener engages said stem and prevents rotation of said stem within said bore, and in a second position, said fastener is moved out of engagement with said stem to permit free rotation of said stem within said bore.

5,064,972

CURRENT CONTACT LINE ARRANGEMENT

Anton Münzebrock, Dortmund, and Heinz Pfannkuche, Bochum, both of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Filed Jul. 2, 1990, Ser. No. 547,498

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1989, 3922007

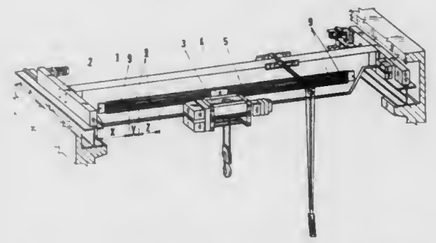
Int. Cl.[5] B60M *1/02*

U.S. Cl. 191—30 **13 Claims**

1. In combination a current contact line arrangement for current collectors of a movable electrical vehicle, comprising:

a plurality of contact lines (5) having faces for engagement with a plurality of current collectors of said movable electric vehicle, said electric vehicle having a braking path distance; and

an insulator (9) for covering at least one of said faces of at least one of said plurality of contact lines (5), said insulator (9) having a length greater than said braking path distance of said electric vehicle, whereby at least one of said plurality of collectors is removed from electrical contact with said at least one of said plurality of contact lines while said at least one of said plurality of collectors is located at said



at least one of said faces of said at least one of said plurality of contact lines.

5,064,973

ELECTRICAL SWITCHING ARRANGEMENT

Bernd Zinn, Ennepetal, and Werner Reuter, Erkrath, both of Fed. Rep. of Germany, assignors to Grote & Hartmann GmbH & Co. KG, Wuppertal, Fed. Rep. of Germany

Filed Oct. 30, 1989, Ser. No. 427,872

Claims priority, application Fed. Rep. of Germany, Nov. 4, 1988, 8813826[U]; Feb. 10, 1989, 8901560[U]

Int. Cl.[5] H01R *33/96, 13/703*

U.S. Cl. 200—51.1 **37 Claims**

1. An electrical switching arrangement for an electric contacting system of an airbag, comprising:

a short circuit bridge arrangement provided in a plug;

said plug including a counter-contact casing (64) and a contact sleeve casing (1) of plastic, the two casings (1,64) being releasably connected with one another;

at least one of the two casings (1,64) being provided with chambers (10*a*,10*b*), said chambers (10*a*,10*b*) receiving connectors (16,73) therein, said connectors (16,73) being connected to electric lines (15);

said short circuit bridge arrangement including a short circuit bridge (29) provided, in each case, between adjacent contacts of said connectors (16,73);

means associated with said short circuit bridge (29) so that upon opening of said plug, said adjacent contacts are short-circuited first before said connectors (16,73) of said plug are separated from each other; and

said contact sleeve casing (1) being constructed substantially in slab form, said contact sleeve casing (1) including a surrounding casing (2) and an inner casing (3).

5,064,974

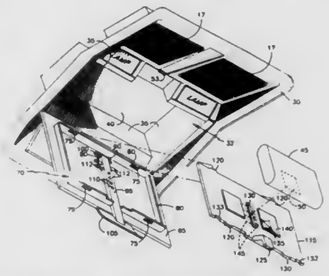
COMPARTMENT FOR REMOTE TRANSMITTER OR THE LIKE

Lawrence Vigneau, Allen Park, and James D. Dowd, Farmington Hills, both of Mich., assignors to United Technologies Automotive, Dearborn, Mich.

Filed Apr. 6, 1990, Ser. No. 505,737

Int. Cl.[5] H01H *3/16;* **B60R** *5/00*

U.S. Cl. 200—61.62 **10 Claims**



1. In a compartment for accommodating a remote transmitter, said transmitter having a switch which, when actuated, effects the operation of said transmitter, said compartment including a manually operable actuating member interengageable with said transmitter switch for the actuation thereof, and means for mechanically connecting said actuating member with said actuator switch, the improvement characterized by:

said connecting means including an adjustably positionable foot for effecting longitudinal and lateral alignment of said connecting means with said transmitter switch throughout a range of locations thereof within said compartment for adaptation of said compartment to various remote transmitter configurations.

5,064,975

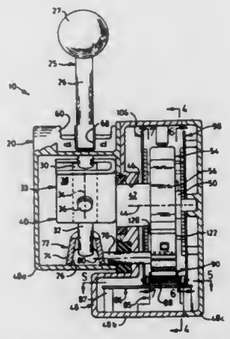
ELECTRICAL TRANSMISSION CONTROL MECHANISM

Val G. Boucher, Roanoke, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Sep. 10, 1990, Ser. No. 579,756

Int. Cl.[5] H01H *9/06*

U.S. Cl. 200—61.88 **20 Claims**



1. An electrical transmission control mechanism including electrical actuator means for selecting the direction of rotation and the gear ratio of the output of a multispeed transmission, and an electrical power source, comprising:

a transmission control assembly including a manually actuated control member having an outer end portion, and support means for mounting the control member for piv-

VOL
1132
ISS
2
NO
12
1991
UMI

otal movement about a transverse axis and for transverse movement of the outer end portion;

a printed circuit board having a plurality of contact elements thereon that are electrically connected to the electrical actuator means and the power source;

a wiper assembly having a plurality of wiper members connected thereto; and

guide means for supporting the wiper assembly for linear travel transversely across the printed circuit board in response to transverse movement of the outer end portion of the control member and for controllably selecting the direction of rotation of the transmission by the wiper members bridging selected ones of the contact members.

5,064,976

CONTACT CONFIGURATION FOR A VACUUM INTERRUPTER

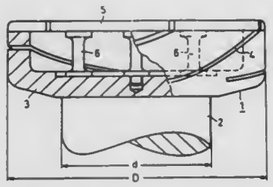
Guenter Bialkowski; Dieter Gerlach, and Roman Renz, all of Berlin, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Jul. 20, 1990, Ser. No. 556,012

Claims priority, application European Pat. Off., Jul. 28, 1989, 89250009

Int. Cl.[5] H01H *33/66*

U.S. Cl. 200—144 B **9 Claims**



1. A contact configuration for a vacuum interrupter, comprising two axially opposed axial field contacts movable relative to each other in an axial direction, each axial field contact comprising a cup-shaped contact carrier and a contact plate disposed on a rim of a wall of the contact carrier, each contact carrier is provided with a cylindrical current-supplying stud, the wall of each contact carrier being provided with slots which form windings that are tilted towards the contact axis, a support comprising a material which has relatively poor electrical conductivity as compared with said contact plate being mounted between the contact carrier and contact plate of each axial field contact, the support being located on a graduated circle within a cross-sectional area of the current-supplying stud while leaving free a central cross-sectional region of the stud, a diameter of the current-supplying stud equalling at least 50% of an external diameter of the contact carrier, and a diameter of the graduated circle for the support also equalling at least 50% of the external diameter of the contact carrier and being at most equal to the external diameter of the current-supplying stud, wherein a length of the support has a considerably smaller cross section in a middle portion than in a base portion and top portion of the support, wherein an ohmic resistance of the support is at least one magnitude ten times greater than an ohmic resistance of the contact carrier and the contact plate.

5,064,977

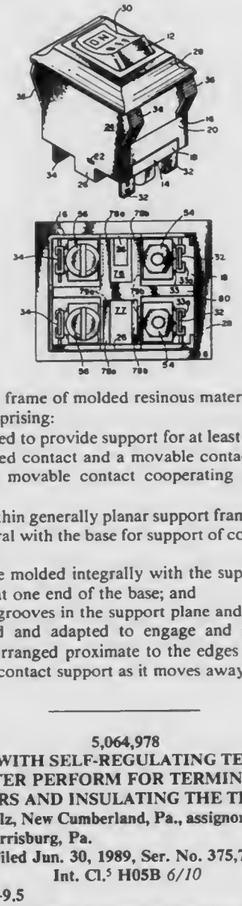
MOLDED UNITARY FRAME FOR CIRCUIT PROTECTION

Joseph Fierro, Trenton, N.J., assignor to Helnemann Electric Company, Lawrenceville, N.J.

Continuation-in-part of Ser. No. 337,578, Apr. 13, 1989, Pat. No. 4,931,762. This application Oct. 26, 1989, Ser. No. 428,067

Int. Cl.[5] H01H *33/08*

U.S. Cl. 200—293 **4 Claims**



1. A unitary frame of molded resinous material for a circuit protector comprising:

a base adapted to provide support for at least a pair of terminals, a fixed contact and a movable contact support supporting a movable contact cooperating with the fixed contact;

a relatively thin generally planar support frame transverse to and integral with the base for support of contact actuating structure;

a back plane molded integrally with the support frame and the base at one end of the base; and

supporting grooves in the support plane and the back plane positioned and adapted to engage and support a grid element arranged proximate to the edges and end of the movable contact support as it moves away from the fixed contact.

5,064,978

ASSEMBLY WITH SELF-REGULATING TEMPERATURE HEATER PERFORM FOR TERMINATING CONDUCTORS AND INSULATING THE TERMINATION

James P. Scholz, New Cumberland, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

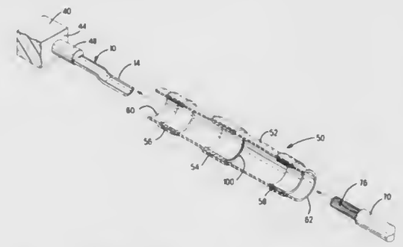
Filed Jun. 30, 1989, Ser. No. 375,787

Int. Cl.[5] H05B *6/10*

U.S. Cl. 219—9.5 **4 Claims**

1. An article for use in terminating together first and second axially alignable electrical conductors and covering the termination with dielectric material, utilizing an assembly of a length of heat recoverable dielectric tubing having a solder preform centrally disposed therewithin, the electrical conductors being insertable into the respective tubing ends, characterized in that:

a discrete heater preform member is disposed within said length of heat recoverable tubing and at least proximate said solder preform sufficient to transmit heat to said solder preform, said discrete heater preform member including a first layer of a first metal having low electrical resistance and having minimal magnetic permeability and deposited on a major surface thereof a second layer of a second metal having high electrical resistance and high magnetic permeability, said second layer having a thickness approximately equal to one skin depth of said second metal corresponding to a frequency of a source for generating a constant amplitude high frequency alternating current of known frequency.



5,064,979

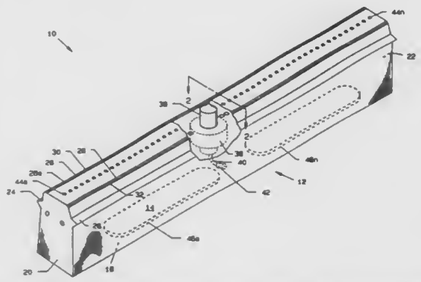
MICROWAVE AIR FLOAT BAR FOR DRYING A TRAVELING WEB

Hugh D. Jaeger, Deephaven, Minn., assignor to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Aug. 7, 1990, Ser. No. 489,902

Int. Cl.[5] H05B *6/78*

U.S. Cl. 219—10.55 A **8 Claims**



1. Apparatus for drying a traveling web of material comprising:

a. an air bar housing with a substantially planar top surface, a portion of said substantially planar top surface transparent to microwave energy;

b. a source of a pressurized gas coupled to said housing;

c. a coanda slot nozzle means on each side of said housing and connected to said source of said pressurized gas for supporting said traveling web of material by directing a portion of said pressurized gas into contact with said traveling web of material; and,

d. microwave energy means within said housing and below said transparent portion of said top surface for radiating said traveling web of material with electromagnetic radiation in the microwave region through said portion of said substantially planar top surface transparent to microwave energy.

5,064,980

COFFEE MAKER

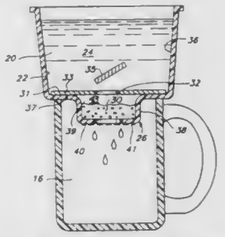
M. Gary Grossman, Riverside, Conn., and Edward H. Meisner, Short Hills, N.J., assignors to GEE Associates, Edgewater, N.J.

Filed Jun. 11, 1990, Ser. No. 535,725

The portion of the term of this patent subsequent to Apr. 23, 2008, has been disclaimed.

Int. Cl.[5] H05B *6/80*

U.S. Cl. 219—10.55 E **29 Claims**



1. A drip-type coffee maker adapted to discharge freshly brewed coffee, comprising:

a reservoir for holding water to be heated to a temperature for brewing coffee,

a coffee filter element adapted to hold coffee grounds and to receive the heated water from said reservoir and dispense freshly brewed coffee therefrom, and

a partition between said reservoir and coffee filter element, including a body having at least one aperture therein, a member adapted to cover said aperture, and a non-toxic heat responsive sealing substance adapted to releasably secure said member to said partition body to seal said aperture closed until water in said reservoir reaches a temperature for brewing coffee, whereupon said heat responsive substance is adapted to release said member and thereby open said aperture to allow the flow of heated water from said reservoir into said filter element and the coffee grounds to become freshly brewed coffee ready for dispensing from the coffee maker.

5,064,981

METHOD AND APPARATUS FOR UNIFORM HEATING IN A MICROWAVE FIELD

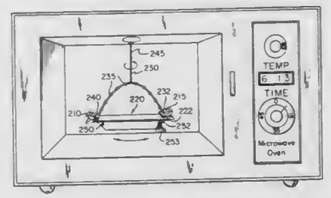
Craig E. Bolton, 14215 Seneca Rd., Germantown, Md. 20874

Continuation of Ser. No. 293,058, Jan. 3, 1989, Pat. No. 4,980,529. This application Oct. 31, 1990, Ser. No. 606,729

The portion of the term of this patent subsequent to Dec. 25, 2007, has been disclaimed.

Int. Cl.[5] H05B *6/78*

U.S. Cl. 219—10.55 E **7 Claims**



1. In a microwave oven having walls defining a heating cavity and means for imparting microwave energy to said cavity to heat an object placed therein, wherein the microwave energy distribution gradients within said cavity tend to impart non-uniform heating to an object that is deposited in a fixed position in said cavity, the improvement comprising suspension means disposed within said cavity, said suspension means

VOL 1132 ISS 2 NO 12 1991 UMI

(a) hanging downwardly from an upper portion of said cavity,
(b) supporting the object at a spaced distance away from all of said walls,
(c) being constructed to alternately store and release kinetic energy upon rotation of the suspended object, and
(d) being capable of imparting a series of non-identical pendular oscillations to the object, in response to the application of a force to said object

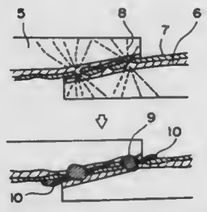
whereby more even heating of said object can be obtained.

5,064,982

ELECTRIC RESISTANCE SEAM WELDING METHOD

Makoto Kabasawa, Yokosuka, and Ono Moriaki, Yokohama, both of Japan, assignors to Nippou Kokan Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 104,534, Sep. 30, 1987, which is a continuation of Ser. No. 885,564, filed as PCT/JP84/00583 Dec. 10, 1984, published as WO86/03442 Jun. 19, 1986, abandoned. This application Aug. 16, 1989, Ser. No. 394,143
Int. Cl.[5] B23K *1/16*
U.S. Cl. 219—64 **1 Claim**



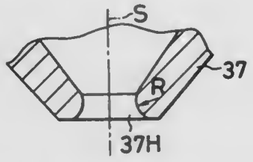
1. An electric resistance seam welding method for surface treated steel sheet having a surface layer of a metal harder than tin and a metallic compound, said steel sheet having a sheet thickness of 0.5 mm or less and said steel sheet being provided with overlapped portions of a predetermined overlapping width for welding, the improvement comprising a step of determining said overlapping width within a range from 2.0 times to 2.3 times said sheet thickness.

5,064,983

WIRE CUTTING ELECTRIC DISCHARGE MACHINE

Shigeharu Yokomichi, Atsugi, and Yasunori Ono, Hadano, both of Japan, assignors to Amada Wasino Co., Ltd., Japan

Filed Jun. 20, 1990, Ser. No. 540,755
Claims priority, application Japan, Jan. 24, 1989, 1-74296
Int. Cl.[5] B23H *7/10*
U.S. Cl. 219—69.12 **5 Claims**



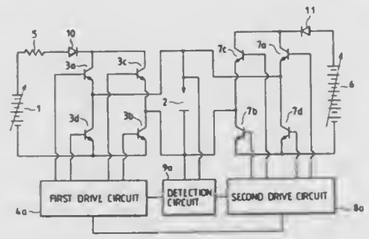
1. An electrical discharge cutting machine for cutting a workpiece having upper and lower guide devices between which a wire electrode is to be stretched, in which each of the upper and lower guide devices comprises:
a nozzle for discharging process liquid into a processing gap between a workpiece and the wire electrode, the nozzle being formed into a substantially conical configuration having a tip portion with a substantially horizontal end surface, the nozzle having a tapered inner surface tapered toward the tip portion thereof along which the process liquid flows; and
a nozzle opening, through which the wire electrode passes and through which the processing liquid is discharged, formed at the tip portion of the nozzle, the nozzle opening being defined between the inner surface and the end surface of the tip portion of the nozzle so as to extend along a central axis of the conical configuration, wherein the nozzle opening has a shape obtained by rotating an arc of a circle about the central axis of the conical configuration of the nozzle.

5,064,984

POWER SUPPLY UNIT ELECTRIC DISCHARGE MACHINING APPARATUS

Masahiro Yamamoto, and Takuji Magara, both of Aichi, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Sep. 14, 1990, Ser. No. 582,066
Claims priority, application Japan, Sep. 18, 1989, 1-241102
Int. Cl.[5] B23H *1/02*
U.S. Cl. 219—69.13 **5 Claims**



1. A power supply unit for electric discharge machining apparatus comprising:
a first means for supplying a variable DC voltage signal;
an auxiliary switching circuit for switching the variable DC voltage to produce an AC pulse signal to be applied to an interelectrode gap between a workpiece to be machined and an electrode;
a second means for producing a voltage higher than the DC voltage signal produced by said first means;
a main switching circuit for switching an output of said second means to generate a main AC pulse signal to be applied to said interelectrode gap, said main switching circuit having a capacity for supplying a peak current larger than said auxiliary switching circuit; and
a detector for detecting whether a discharge occurs at said interelectrode gap when a predetermined time has elapsed after said AC pulse signal produced through said auxiliary switching circuit is applied to said interelectrode gap, said main switching circuit being controlled based on an output of said detector and a control output from said auxiliary switching circuit.

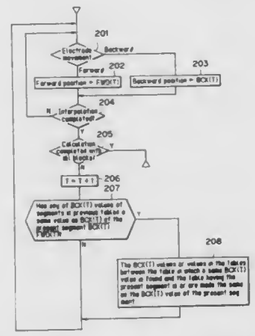
5,064,985

METHOD FOR CONTROLLING WITHDRAWAL OF ELECTRODE IN ELECTRIC-DISCHARGE MACHINE

Hideyoshi Yoshizawa, Kawasaki; Takashi Isbii, Ebina; Toshiyuki Makino, Kawasaki; Hidekatsu Ozawa, and Yasuyuki Shimizu, both of Ebina, all of Japan, assignors to Hitachi Seiko, Ltd., Tokyo, Japan

Filed Dec. 29, 1989, Ser. No. 459,166
Int. Cl.[5] B23H *1/00, 7/18, 7/20*
U.S. Cl. 219—69.16 **4 Claims**

1. A method for controlling the withdrawal of an electrode in an NC electric-discharge machine wherein when a NC unit receives a withdrawal command while a workpiece is being machined with electric discharges made between said electrode and said workpiece with the former being forwarded in relation to the latter according to a control information including positioning commands given to said NC unit for each block, said electrode is caused to be withdrawn linearly to a forward position preceding at least two blocks the present forward position from the workpiece according to said withdrawal command, said withdrawal command being provided



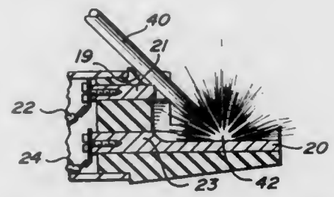
from an inter-pole abnormality detector while an inter-pole abnormality having taken place between the electrode and workpiece is lasting, said forward position preceding at least two blocks the present forward position is a nearest one of the points of intersection between segments connecting mutually one forward position and a next one.

5,064,986

CORDLESS EXOTHERMIC ROD IGNITION SYSTEM

Charles Skopelja, Lancaster, and Francis A. Vendetta, Pickerington, both of Ohio, assignors to Arcair Company, Wichita, Kans.

Filed Oct. 13, 1989, Ser. No. 421,554
Int. Cl.[5] B23K *9/26*
U.S. Cl. 219—70 **8 Claims**



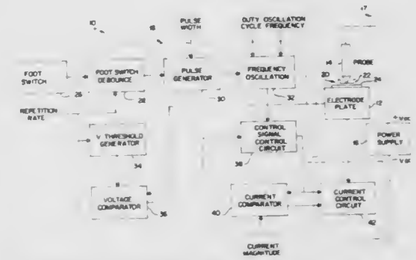
1. A cordless exothermic rod ignition system comprising in combination:
an electrically insulated generally cylindrical housing having a first end and a second end;
first means fixed to said first end of said housig and adapted to be connected to the positive terminal of a source of direct current;
second means fixed to said first end of said housing and adapted to be connected to the negative terminal of a source of direct current;
a source of direct current disposed within said housing and connected to said first and second means on said first end of said housing;
said first and second means fixed to said first end of said housing being spaced apart from one another and adapted to permit simultaneous contact by an elongated metallic exothermic electrode and subsequent repositioning of said electrode while maintaining contact with at least one of said means to permit an arc to strike between said electrode and one of said means in the presence of oxygen to cause ignition and burning of said electrode.

5,064,987

RESISTANCE WELDING APPARATUS WITH POWER CONTROL FOR REDUCED ARCING

David P. Braman, North Kingstown, R.I., assignor to Crafford Precision Products Co., East Providence, R.I.

Filed Aug. 24, 1990, Ser. No. 573,482
Int. Cl.[5] B23K *11/24*
U.S. Cl. 219—110 **12 Claims**



1. A welding apparatus for carrying out a welding operation on a workpiece assembly comprising;
a. first and second electrodes engageable with said workpiece assembly;
b. power means operable for applying a sufficient voltage potential across said first and second electrodes and for passing a sufficient electrical current through an electrical circuit path extending therebetween to carry out a welding operation on said workpiece assembly when said first and second electrodes are in engagement therewith, said electrical current being applied in a predetermined current pulse pattern consisting of a plurality of current pulses, said current pulses having amplitudes;
c. resistance sensing means for sensing the resistance in said electrical circuit path between said first and second electrodes; and
d. control means for comparing the sensed resistance in said electrical circuit path between said first and second electrodes with a predetermined threshold resistance value and for reducing the amount of power supplied to said first and second electrodes through said power means by reducing the amplitudes of said current pulses in the event that the sensed resistance is above said threshold resistance value.

5,064,988

LASER LIGHT ATTACHMENT FOR FIREARMS

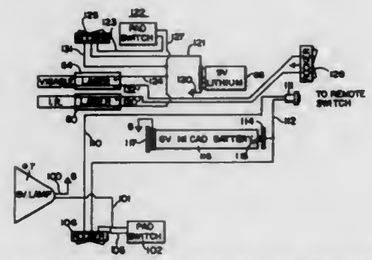
David J. E'nama, Willow Grove, Pa., and Thomas A. Pertierra, Orlando, Fla., assignors to Havis-Shields Equipment Corporation, Warminster, Pa.

Filed Apr. 19, 1990, Ser. No. 512,142
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.6 **6 Claims**

1. A laser light attachment for firearms which comprises
a housing for attachment to said firearm,
at least two compartments in said housing,
a light source in said housing,
at least one laser unit in one of said compartments,
said laser unit having internally contained and externally accessible windage and elevation adjustment means,
electrical energy means in said housing,

VOL 1132 ISS 2 NO 12 1991 UMI

circuitry means connecting said light source, said laser units and said electrical means, and



switch means connected to said circuitry means to activate said light and/or at least one of said laser units.

5,064,989

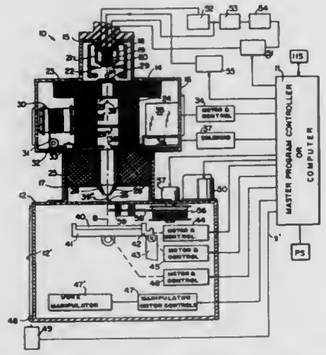
SURFACE SHAPING AND FINISHING APPARATUS AND METHOD

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Continuation of Ser. No. 936,484, Nov. 26, 1986, Pat. No. 4,831,230, which is a continuation of Ser. No. 647,897, Sep. 6, 1984, abandoned, which is a continuation of Ser. No. 571,188, Apr. 24, 1975, abandoned, which is a continuation of Ser. No. 163,203, Jul. 16, 1971, abandoned, which is a continuation of Ser. No. 849,013, Aug. 11, 1969, abandoned, which is a continuation-in-part of Ser. No. 422,875, Nov. 25, 1964, Pat. No. 3,461,347, which is a continuation-in-part of Ser. No. 86,838, Dec. 27, 1960, Pat. No. 3,169,892, and a continuation-in-part of Ser. No. 710,517, Mar. 5, 1968, abandoned, and a continuation-in-part of Ser. No. 501,395, Oct. 22, 1965, Pat. No. 3,371,404, and a continuation-in-part of Ser. No. 421,897, Dec. 29, 1964, Pat. No. 3,504,063. This application May 15, 1989, Ser. No. 351,650

Int. Cl.[5] B23K *15/00*

U.S. Cl. 219—121.12 **28 Claims**



1. A method for predeterminately operating on select separate portions of a substrate with radiation, said method comprising:

(a) predeterminately relatively positioning a radiation beam generating means and a substrate a distance apart with respect to each other with a select portion of said substrate located to permit it to be intermittently operated on with radiation of said beam generating means,

(b) intermittently generating radiation in the form of a narrow beam of collimated radiation by controllably energizing said beam generating means,

(c) guiding said narrow radiation beam between said beam generating means and said substrate to cause said beam to travel a select path to said substrate, and

(d) effecting controlled relative movement between said substrate and said beam generating means while controllably energizing said beam generating means in synchronization with said movement to cause the intermittently generated radiation of said beam to intersect and intermittently react on a plurality of select spaced-apart portions of said substrate in a manner to effect select changes in the material of each of said select portions intersected by said radiation beam.

5,064,990

PROCESSING OF METAL ARTICLES

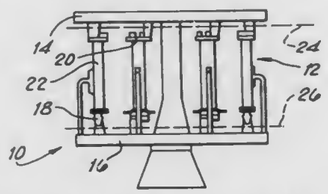
Michael Tinsley, Leeds; Antony Johns, Guiseley, and Jonathan D. Philby, Burley-in-Wharfedale, all of England, assignors to AE Turbine Components Limited, Leeds, England

Filed Dec. 15, 1989, Ser. No. 451,161

Claims priority, application United Kingdom, Dec. 21, 1988, 8829818

Int. Cl.[5] B23K *26/00*

U.S. Cl. 219—121.72 **13 Claims**



1. A method for removing surplus metal from a cast or wrought article formed from a metal selected from the group comprising aluminium alloys, titanium alloys, nickel alloys, cobalt alloys and iron alloys, the method comprising the steps of severing said surplus metal from the article in solid pieces by means of a laser beam from a YAG laser and leaving a thickness of residual surplus metal on said article which thickness is greater than the thickness of a heat affected layer remaining after the laser severing step.

5,064,991

DEVICE FOR LASER WELDING MOTOR-VEHICLE BODIES

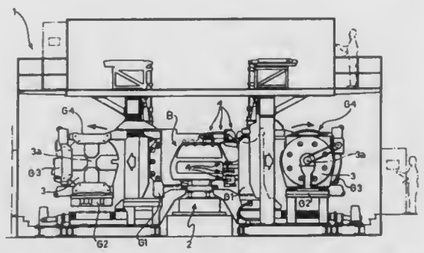
Giancarlo Alborante, Trofarello, Italy, assignor to Coman SPA, Turin, Italy

Filed Jan. 8, 1991, Ser. No. 638,673

Claims priority, application Italy, Jan. 31, 1990, 67074 A/90

Int. Cl.[5] B23K *26/00*

U.S. Cl. 219—121.63 **8 Claims**



1. A device for welding motor-vehicle bodies which have been assembled loosely beforehand, comprising:

a station for welding the bodies,

a conveyor line for transporting the loosely preassembled bodies to the welding station,

locating means provided at the welding station for clamping the component parts of the body in the correct position for welding, said locating means being carried by two locating frames arranged at the two sides of the welding station, and

welding means provided at the welding station for welding the component parts of the body together after they have been clamped by the locating means, wherein the welding means comprises a plurality of laser welding torches associated with the locating means, said laser-welding torches being carried by said locating frames, said device further comprising laser emission means and bundles of optical fibers connecting the laser emission means to the welding torches.

5,064,992

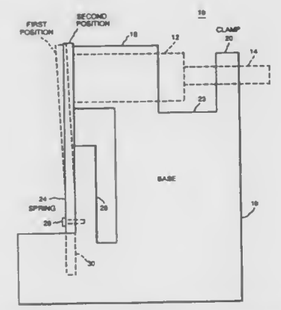
APPARATUS FOR WELDING COMPONENTS

Marshall G. Jones, Scotia, N.Y.; Donald R. Schindler, Burton, Ohio; Jeffrey D. Johnson, Mentor, Ohio, and William O. Harris, East Cleveland, Ohio, assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 4, 1990, Ser. No. 622,037

Int. Cl.[5] B23K *26/00*

U.S. Cl. 219—121.63 **11 Claims**



1. An apparatus for joining an electrode and a lead, said apparatus comprising:

means for aligning an end of said electrode and an end of said lead;

means for heating at least a portion of said electrode so that a melt is formed at said electrode end;

means for forcing said lead end into said melt so that when said melt solidifies, said electrode and said lead are bonded

means for maintaining said lead end in a substantially fixed position during the bonding operation and;

means for biasing said electrode end towards said lead end during the bonding operation.

5,064,993

HAIR TREATING IMPLEMENT WITH A HEATED WIRE ELEMENT

Kenji Hashimoto, 6-20, Todoroki 7-chome, Setagaya-ku, Tokyo, Japan

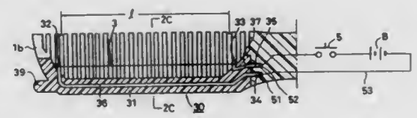
Filed Apr. 4, 1990, Ser. No. 504,629

Claims priority, application Japan, Apr. 11, 1989, 1-42194[U]; Dec. 29, 1989, 1-152799[U]

Int. Cl.[5] H05B *1/02, 3/00;* A45D *26/00*

U.S. Cl. 219—223 **36 Claims**

1. A hair treating implement comprising an electrical heating wire, a slidably removable support supporting said heating wire under tension, a handgrip including means slidably receiving said slidably removable support, said support including terminals to which opposite ends of said heating wire are connected to supply electrical power to said heating wire, and wherein said means for slidably receiving comprises a longitudinally extending groove which receives said slidably removable support as a tongue-and-groove fit.





5,064,994

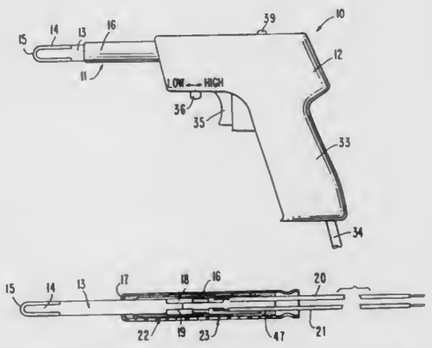
FAST-HEATING HIGH-TEMPERATURE FIBER CUTTING TOOL

Paul L. Urban, 209 Funderburk Dr., Cheraw, S.C. 29520

Filed Oct. 18, 1989, Ser. No. 423,060

Int. Cl.[5] H05B *1/00*

U.S. Cl. 219—233 **9 Claims**



7. A cutting tool comprising a heated element cartridge and a body;

(a) said heated element cartridge comprising:

a blade having a distal end and a proximate end, said blade comprising a resistance heating element encased in a material which is both thermal shock resistant and electrically insulating;

an element cover having a distal end and a proximate end, said distal end of said element cover enclosing said proximate end of said blade;

a cartridge housing enclosing a portion of said proximate end of said element cover; and

leads connected to said blade for providing current to said resistance heating element, said leads extending from said blade to the exterior of said heated element cartridge; and

(b) said body comprising:

a body housing forming a handle;

a power supply for supplying power to components mounted within said housing;

a trigger switch mounted within said housing for activating said tool;

a setting switch mounted within said housing for specifying the desired temperature setting of said blade; and

a socket mounted within said housing and adapted for

VOL 1132 ISS 2 NO 12 1991 UMI

receiving said heated element cartridge and for making electrical contact with said leads; and

(c) wherein said power supply, said trigger switch, said setting switch and said socket are electrically connected such that when said trigger switch is activated power is conveyed from said power supply to said resistance heating element through said leads causing said blade to heat to said desired temperature setting.

5,064,995

HEATING DEVICE FOR GENERATING VERY HIGH TEMPERATURE

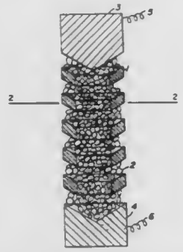
Miroslav Pesta, 4 Sharon Place, Dukes Avenue, Windsor, Randburg, Transvaal, South Africa

Filed Jan. 23, 1989, Ser. No. 300,569

Claims priority, application South Africa, Jan. 27, 1988, 88/0546

Int. Cl.[5] H05B *7/00;* **H05H** *1/00*

U.S. Cl. 219—383 **8 Claims**



1. A heating device including a body comprised of two or more strata of electrically conductive refractory particles, a graphite supporting element between adjacent strata and electrodes for passing an electric current through the body; and, means for generating an electrical arc or an extended plasma arc between an electrode and the body.

5,064,996

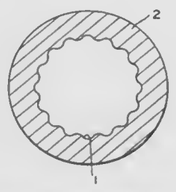
ELECTRIC FURNACE

Toru Watanabe, Tokyo, Japan, assignor to Sakaguchi Dennetsu Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 30, 1990, Ser. No. 559,365

Int. Cl.[5] F27B *5/14;* **F27D** *11/00*

U.S. Cl. 219—390 **5 Claims**



1. An electric furnace comprising: a cylindrical heat insulating member having an inner peripheral surface and a center; and a belt-shaped heating member having radially inward and outward directed wave portions wound helically around said inner peripheral surface of said heat insulating member so as to face said center of the furnace.

5,064,997

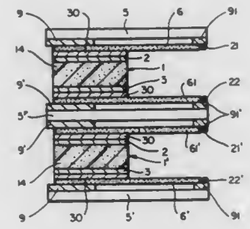
COMPOSITE CIRCUIT PROTECTION DEVICES

Shou-Mean Fang, Union City; David A. Horsma; Guillaume Peronnet, both of Palo Alto; Timothy E. Fahey, Williamsport; Andrew N.S. Au, Fremont, and William D. Carlomagno, Redwood City, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 124,696, Nov. 24, 1987, abandoned, which is a continuation-in-part of Ser. No. 115,089, Oct. 30, 1987, abandoned, which is a continuation-in-part of Ser. No. 754,807, Jul. 12, 1985, abandoned, which is a continuation-in-part of Ser. No. 628,945, Jul. 10, 1984, abandoned. This application Dec. 22, 1989, Ser. No. 456,015

Int. Cl.[5] H05B *7/02;* **H01C** *7/10*

U.S. Cl. 219—505 **24 Claims**



1. Electrical apparatus which comprises

(1) a first laminar substrate and a second laminar substrate, each of said substrates comprising a first laminar surface and a second laminar surface;

(2) a first electrical component which (i) is physically adjacent to the first laminar surface of the first laminar substrate, (ii) is in good thermal contact with the second substrate, (iii) has a resistance R_1, and (iv) comprises

(a) a laminar PTC element composed of a conductive polymer which exhibits PTC behavior with a switching temperature T_s, and

(b) at least two laminar electrodes which can be connected to a source of electrical power so that current passes between the electrodes through the PTC element;

(3) a plurality of second electrical components, one of which

(a) is physically adjacent to the second laminar surface of the first laminar substrate,

(b) is in good thermal contact with the first component,

(c) is electrically connected in series with the first component; and

(d) has a resistance R_2; and

(4) an electrical lead which electrically connects an electrode of the first component in series with the said one second component.

5,064,998

RELAY CONTROL APPARATUS

Ronald W. Holling, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 228,339, Aug. 4, 1988. This application Feb. 9, 1990, Ser. No. 477,612

Int. Cl.[5] H05B *1/02*

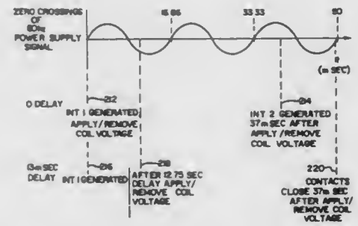
U.S. Cl. 219—519 **12 Claims**

1. A contact arc sensing relay assembly comprising:

a housing;

an electromagnetic relay mounted in said housing, said relay having at least one pair of contacts having open and closed positions; and

means disposed in communication with said contacts for sensing arcing between said contacts upon opening thereof when the state of said relay contacts changes, wherein said sensing means provides a signal when arcing between said contacts is detected, said relay assembly



further including means for timing the change of state of said contacts in response to said signal.

5,064,999

ADVANCE TRANSACTION PROCESSING METHOD

Ryuichi Okamoto; Masato Nishiguchi, both of Owariasahi; Hiroshi Kasugai, Ichinomiya, and Seishi Tamamoto, Seto, all of Japan, assignors to Hitachi, Ltd., Tokyo and Chubu Hitachi Electric Co., Ltd., Aichi, both of, Japan

Filed Aug. 21, 1990, Ser. No. 570,526

Claims priority, application Japan, Aug. 21, 1989, 1-215710

Int. Cl.[5] G06F *15/30*

U.S. Cl. 235—379 **15 Claims**

1. An advance transaction processing method in a transaction processing system for conducting transaction by inserting a card as a recording medium into an automatic teller machine by a user and carrying out input operation by the user, comprising:

registering transaction assigning data for assigning transaction operation to be conducted by the user, a transaction restriction condition, and card identifying data on the card carried by the user:

allowing an internal storage of the automatic teller machine to store a transaction-operational procedure by using the transaction assigning data as a key for search;

confirming as to whether the transaction restriction condition is satisfied, when the card is inserted into the automatic teller machine;

reading the transaction-operational procedure by using the transaction assigning data recorded on the card as the key for search; and

allowing the automatic teller machine to execute the processing for the transaction in accordance with the transaction-operational procedure.

5,065,000

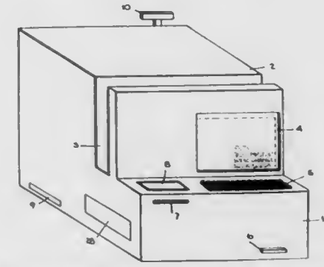
AUTOMATED ELECTRONIC POSTAGE METER HAVING A DIRECT ACESS BAR CODE PRINTER

Pavo Pusic, Moluntska 6, 50000 Dubrovnik, Yugoslavia

Filed Aug. 1, 1988, Ser. No. 226,777

Int. Cl.[5] G07B *17/02*

U.S. Cl. 235—381 **20 Claims**



1. An apparatus for use by an employee in processing an item to be mailed comprising:

a computer;

an electronic scale having a first weighting surface and a second weighting surface, the scale being coupled to the computer for weighing the item to be mailed;

a first alphanumeric keyboard coupled to the computer for entering data relating to the item to bemailed, including the address to which said item is to be mailed;

determining means coupled to the computer means, to the scale, and to the first alphanumeric keyboard for determining the required postage for said item to be mailed;

an electronic display screen coupled to the computer and to the determining means, the display screen displaying the required postage for said item to be mailed;

an external payment accepting means for accepting payment from an external source, the external payment accepting means being coupled to the computer;

an external payment verifying means for verifying payment from an external source for the postage due, the external payment verifying means being coupled to the computer; and

a printer coupled to the computer for providing machine readable information concerning the item to be mailed including the zip code to which said item is to be mailed, on the item to be mailed, after receipt of payment from an external source is verified.

5,065,001

ADJUSTABLE WEAR PLATE BADGE READER

Robert J. Hennick, Auburn, and John M. Pidhirny, Skaneateles, both of N.Y., assignors to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Filed Jul. 26, 1989, Ser. No. 385,497

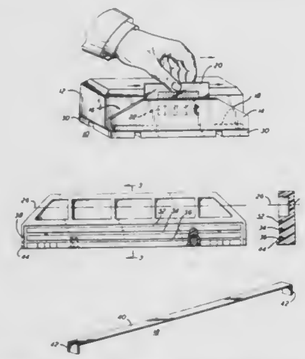
Int. Cl.[5] G06K *7/00, 13/06, 13/063;* **G11B** *25/04*

U.S. Cl. 235—435 **6 Claims**

1. A badge reader comprising a main housing, an optical reader which views through a front wall of the main housing for reading optical indicia in a coded area that is spaced a selected predetermined distance from one edge of said badge, a front wall plate that is spaced a predetermined distance from the front wall of the main housing over said optical reader to define a badge reader slot through which said badge is moved to bring the coded area of the badge past optical reader, and a wear plate disposed horizontally between the front wall plate and the front wall of the main housing to define a floor of said badge reader slot at a selected predetermined vertical distance below said optical reader; wherein said wear plate is formed as an elongated flat web separate from said front wall plate and said main housing, and extends substantially the length of the

VOL 1132 ISS 2 NO 12 1991 UMI

badge reader slot, and wherein said front wall plate has a plurality of spaced horizontal grooves therein in one of which said wear plate web is disposed such that the vertical position of said wear plate is adjustable by removing the front wall plate



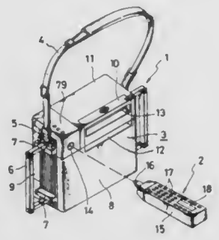
from said main housing, placing the wear plate in an appropriate one of said plurality of grooves to establish a desired predetermined vertical distance from the wear plate to said optical reader, and then reassembling the front wear plate onto said main housing.

5,065,002

LABEL ISSUING APPARATUS

Takeshi Tashiro; Kazuhiro Fushimi, and Kazuaki Sugimoto, all of Shizuoka, Japan, assignors to Tokyo Electric Company, Ltd., Tokyo, Japan

Filed Sep. 7, 1990, Ser. No. 578,534
Claims priority, application Japan, Sep. 8, 1989, 1-234169
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—472 **10 Claims**



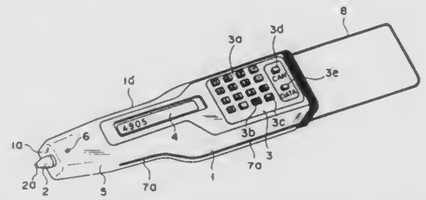
1. A label issuing apparatus comprising:
a hand scanner having an optical reader portion for reading data optically, a memory portion for storing the data read by said optical reader portion, and a light emitting portion for outputting the data stored in said memory portion as a light signal; and
a printer comprising, in a successively connected arrangement, a light receiving portion for receiving the light signal emitted from said light emitting portion of said hand scanner, an opto-electro transducer means for converting the light signal received by said light receiving portion into an electric signal, a printing control portion for controlling printing in accordance with the electric signal obtained by said opto-electro transducer means, and a printing portion for making printing on a label in accordance with the control made by said printing control portion.

5,065,003

PORTABLE DATA INPUT/TRANSMISSION APPARATUS

Yoshio Wakatsuki; Toshiharu Okuyama; Hajime Takeuchi; Giichiro Shimizu, and Misao Shimizu, all of Tokyo, Japan, assignors to Nitto Kohki Co., Ltd., Tokyo, Japan

Filed Mar. 12, 1990, Ser. No. 491,856
Claims priority, application Japan, Mar. 20, 1989, 1-31620[U]
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—472 **7 Claims**



4. A portable data input/transmission apparatus comprising:
a casing having an end portion, the size of which is determined such that the end portion can be held by one hand;
a pen-scanner type bar code reader, attached to one end of the casing in the longitudinal direction, for reading a bar code;
a keyboard, attached near the other end of the casing in the longitudinal direction, for enabling at least numerical data to be input;
a transmitting/receiving means, stored within the casing, for outputting wirelessly to an external data processing apparatus code data read by said bar code reader and at least numerical data input from the keyboard;
a pair of antenna-containing grooves formed in a pair of facing side surfaces extending in the longitudinal direction of the casing, such that the grooves extend in the longitudinal direction of the casing to said other end of the casing;
an antenna freely inserted into and drawn from said antenna-containing grooves from said other end of the casing, said antenna being formed of a substantially U-shaped, electrically conductive elastic material and being fitted in the grooves by virtue of the elastic force of the antenna;
said transmitting/receiving means including a transmitter/-receive for receiving response data output from said external data processing apparatus;
a large-diameter portion, provided at one end of the antenna, for preventing the antenna from being removed; and
a removal-preventing member provided in one of the antenna-containing grooves, which is closer to said other end of the casing in the longitudinal direction, said removal-preventing member being designed to be engaged with said large-diameter portion of the antenna.

5,065,004

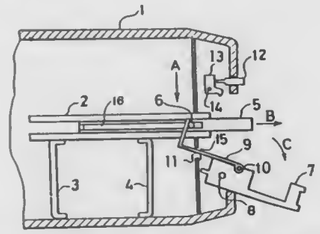
IC CARD READER WITH MEANS FOR INSERTING AND WITHDRAWING AN IC CARD

Yutaka Mizuno, Hachioji, and Hyouei Kashiwakura, Kawasaki, both of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

PCT No. PCT/JP88/01207, § 371 Date Jul. 31, 1989, § 102(e) Date Jul. 31, 1989, PCT Pub. No. WO89/06025, PCT Pub. Date Jun. 29, 1989
PCT Filed Nov. 26, 1988, Ser. No. 392,946
Int. Cl.[5] G06K *13/06, 13/00;* G11B *33/02;* B65D *73/02*
U.S. Cl. 235—479 **4 Claims**

1. An IC card reader for reading an IC card, or reading and writing an IC card, said IC card reader comprising:
a housing having an opening therein through which an IC card may be inserted and withdrawn from said IC card reader;
a door for opening and closing said opening;

a withdrawing member mounted within said housing and positioned to engage an edge of said IC card for pulling said card outwardly through said opening to at least partially withdraw said IC card from said IC card reader through said opening when said IC card has been inserted therein, said withdrawing member having a projection thereon; and



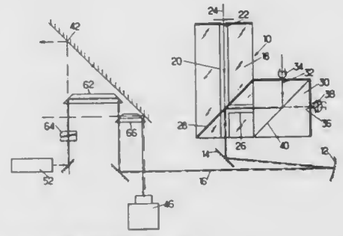
an L-shaped member rotatably mounted to said door;
said L-shaped member engaging said projection of said withdrawing member as said door is opened causing outward movement of said withdrawing member and said IC card whereby said IC card is at least partially withdrawn from said IC card reader by opening said door.

5,065,005

POLYCHROMATIC MUTUAL ALIGNMENT DEVICE FOR AN AIMING APPARATUS

Serge Encaoua, Clichy, and Philippe Metivier, Poissy, both of France, assignors to Societe D'Applicitons Generales D'Electricite et de Mecanique (S.A.G.E.M.), France

Filed Apr. 27, 1990, Ser. No. 515,586
Claims priority, application France, May 3, 1989, 89 05887
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—206.2 **6 Claims**



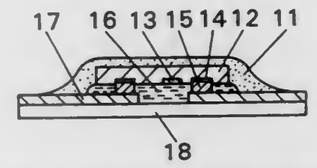
1. An aiming apparatus having:
a laser delivering a parallel light beam in the near infrared range;
a plurality of light receivers to be harmonized with said laser, each operating in a respective one of a plurality of wave length ranges other than near infrared;
an aiming mirror arranged for simultaneously controlling light paths from said laser and to said light receiver toward and from an outside scene, respectively;
a polychromatic mutual alignment device;
optical switching means having one position wherein they direct said parallel light beam toward said aiming mirror and another position in which they direct said parallel light beam toward said mutual alignment device; and
adjustment means located on the path of said parallel light beam between said laser and said optical switching means, for angularly altering the path of said parallel light beam;
wherein said polychromatic mutual alignment device comprises:
an optical mixer having at least two source-forming holes each receiving light delivered in a respective one of said plurality of wave length ranges for which mutual alignment is to be achieved; a plate which is transparent in one of said wave length ranges and reflective in another of said wavelength ranges for combining the two light beams into a common mixer output beam; and a sensor sensitive in the near infrared range;
and a parabola mirror having an axis and placed so as to receive the output beam at an angle with respect to said axis, the mixer and the mirror being constructed so that all said source-forming holes are at the focus of the mirror; and wherein said mixer is so constructed that, when the near infrared light beam entering said mutual alignment device is coaxial with said output beam, said sensor is at a distance of the parabola mirror equal to the focal length of the latter and is centered with respect to the near infrared light beam.

5,065,006

IMAGE SENSORS WITH SIMPLIFIED CHIP MOUNTING

Tetsuro Nakamura; Takahiko Murata, both of Osaka, and Shinji Fujiwara, Minoo, all of Japan, assignors to Matsushita Electric Industrial Co., Inc., Osaka, Japan

PCT No. PCT/JP89/01059, § 371 Date Jun. 4, 1990, § 102(e) Date Jun. 4, 1990, PCT Pub. No. WO90/04263, PCT Pub. Date Apr. 19, 1990
PCT Filed Oct. 13, 1989, Ser. No. 476,483
Claims priority, application Japan, Oct. 14, 1988, 63-259777; Oct. 15, 1988, 63-259711; Apr. 4, 1989, 1-85434; Apr. 4, 1989, 1-85437; Apr. 14, 1989, 1-95709; May 24, 1989, 1-130841
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—208.1 **15 Claims**



1. An image sensor comprising a transparent substrate having circuit conductor layers on one side thereof, and an image sensor chip that is set on said one side of said transparent substrate by means of a transparent photo-setting type insulating resin, wherein said image sensor chip has photo sensors and electrodes on the side thereof facing said substrate, said electrodes being in contact with said circuit conductor layers, with the proviso that said photo-setting type resin is not disposed between said electrodes and circuit conductor layers.

5,065,007

APPARATUS FOR MEASURING LIGHT OUTPUT FROM SEMICONDUCTOR LIGHT EMITTING ELEMENT

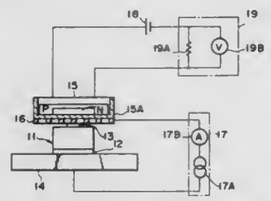
Toshiaki Tanaka, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 23, 1990, Ser. No. 571,158
Claims priority, application Japan, Aug. 31, 1989, 1-222957
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—215 **11 Claims**

1. An apparatus for measuring outputs from a semiconductor light emitting element, having first and second electrodes, for emitting light from that portion thereof located in the vicinity of the second electrode, the apparatus comprising:
a third electrode to be brought into contact with the first electrode of the semiconductor light emitting element;
a light receiving element for receiving the light emitted from the semiconductor light emitting element, and outputting an electric signal indicative of the light;
a fourth electrode formed by a metal net and provided on a

VOL 1132 ISS 2 NO 12 1991 UMI

light receiving surface of the light receiving element, the fourth electrode being to be brought into contact with the second electrode of the semiconductor light emitting element, for supplying electric current to the semiconductor light emitting element, together with the third electrode; and



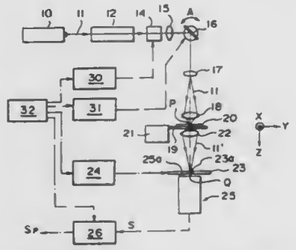
means for measuring the output of the semiconductor light emitting element, from the corresponding electric signal output by the light receiving element.

5,065,008

SCANNING MICROSCOPE AND SCANNING MECHANISM FOR THE SAME

Kazuo Hakamata, and Toshihito Kimura, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 17, 1990, Ser. No. 599,780
Claims priority, application Japan, Oct. 18, 1989, 1-270744; Oct. 20, 1989, 1-272945
Int. Cl.[5] H01J *3/14*
U.S. Cl. 250—216 **24 Claims**



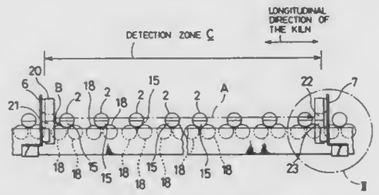
1. A confocal scanning microscope comprising:
(i) a sample supporting member on which a sample is supported,
(ii) a light source which produces a light beam,
(iii) a light projecting optical means with which an image of said light beam is formed as a small light spot on said sample,
(iv) a scanning mechanism which causes said light spot to scan said sample in main scanning directions and sub-scanning directions,
(v) a light receiving optical means with which the light beam, which has passed through said sample, is condensed, and an image of the condensed light beam is formed as a point image,
(vi) a shutter array provided with a plurality of small light shutters, which are arrayed two-dimensionally, said shutter array being located at a plane on which said point image is formed,
(vii) a shutter array operating circuit which sets a light shutter corresponding to the position, at which said point image is formed at any given instant, to an open state in synchronization with the main scanning and the sub-scanning with said light spot, said shutter array operating circuit thus setting said light shutters one after another to the open state,
(viii) a photodetector having a light receiving surface, which faces the whole surface of said shutter array, said photodetector detecting said point image through the light shutter, which has been set to the open state, and
(ix) a circuit for dividing the output of said photodetector into picture elements in synchronization with the main scanning and the sub-scanning with said light spot.

5,065,009

METHOD FOR DETECTING ROLLER BREAKDOWNS IN ROLLER HEARTH KILN SYSTEMS

Michiro Aoki, 34, Takemi-cho 1-chome, Mizuho-ku, Nagoya, 467, Japan

Filed Jul. 18, 1990, Ser. No. 553,838
Claims priority, application Japan, Aug. 29, 1989, 1-222180
Int. Cl.[5] G01V *9/04*
U.S. Cl. 250—222.1 **14 Claims**



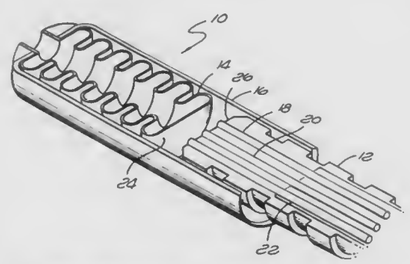
1. A method for detecting roller breakdowns in a roller hearth kiln, wherein:
a light shielder is provided at the follower end of each roller in said roller hearth kiln, and
two sets of light transmitters and two sets of light receivers are provided on two straight lines between which the axis of rotation of each shielder is positioned,
whereby whenever light rays transmitted from said two sets of light transmitters to said two sets of light receivers are not periodically put on and off, at least one of said rollers is taken as breaking down.

5,065,010

FIBER OPTIC MEASUREMENT SYSTEM HAVING A REFERENCE CONDUCTOR FOR CONTROLLING THE ENERGY LEVEL OF THE LIGHT SOURCE

Wallace L. Knute, Leucadia, Calif., assignor to Camino Laboratories, San Diego, Calif.

Filed Aug. 30, 1990, Ser. No. 575,351
Int. Cl.[5] H01J *5/16*
U.S. Cl. 250—227.21 **24 Claims**



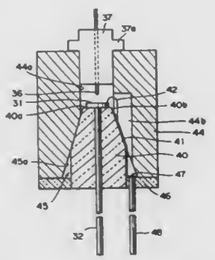
1. A measurement system comprising:
a reflective surface having a predetermined range of movement;
an energy source which provides electromagnetic energy;
a source conductor which conducts the electromagnetic energy provided by the energy source and emits the conducted energy to the reflective surface for forming a reflected beam;
a reference conductor displaced from the source conductor by a first distance and which receives and conducts energy of the reflected beam;
a controller which receives the energy conducted by the reference conductor and controls the level of energy provided by the energy source in response thereto; and
a signal conductor displaced from the source conductor by a second distance, the second distance being greater than the first distance, and which receives and conducts energy of the reflected beam, and being located such that the amount of energy of the reflected beam conducted varies in accordance with the position of the reflective surface in the predetermined range of movement.

5,065,011

PHOTODETECTOR MODULE FOR COUPLING WITH OPTICAL FIBER

Makoto Fujihara, Yokohama; Nobuyoshi Horigome, Chofu; Kaoru Moriya, Kawasaki; Akira Okamoto, Higashikurume; Kenji Tagawa, Tachikawa, and Gan Oda, Hiratsuka, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 18, 1990, Ser. No. 553,609
Claims priority, application Japan, Jul. 20, 1989, 1-185904; Jul. 25, 1989, 1-190605; Sep. 19, 1989, 1-240868
Int. Cl.[5] H01J *5/16*
U.S. Cl. 250—227.24 **9 Claims**



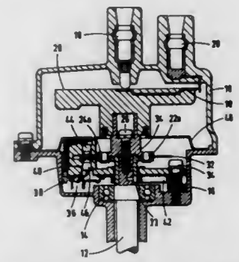
1. A photodetector module comprising;
a cuboidal photodetector chip;
a carrier having a taper surface having the shape of a frustum of a circular cone, and a circular top surface having the shape of a circle circumscribed around the photodetector chip, said photodetector chip being mounted on the circular top of said carrier;
a ferrule support member provided with a central ferrule receiving hole, and a taper recess having the shape of a frustum of a circular cone and a taper surface fitting that of said carrier, and mounted on said carrier with its taper surface in close contact with that of said carrier, said ferrule receiving hole opening into the taper recess;
a ferrule having a flange, fixedly fitted in the ferrule receiving hole of said ferrule support member with its flange seated on the end surface of said ferrule support member; and
an optical fiber inserted in and fixedly held by said ferrule with the extremity thereof located at a given distance from said photodetector chip.

5,065,012

MOVEMENT DETECTING DEVICE

Norio Moriyama, and Kazuhiko Kawakami, both of Katsuta, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jan. 17, 1990, Ser. No. 466,206
Claims priority, application Japan, Jan. 17, 1989, 1-006026
Int. Cl.[5] G01D *5/34*
U.S. Cl. 250—231.14 **20 Claims**



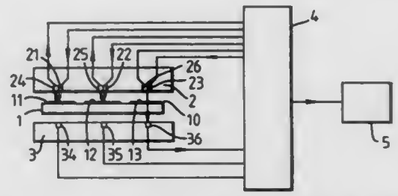
1. In a movement detecting device comprising a light transmitter and a light receiver spaced therefrom, a first stationary apertured plate having an aperture therein is associated with the light transmitter and a second stationary apertured plate having an aperture therein is associated with the light receiver, said first and second stationary apertured plates being amounted in a body and an apertured movable plate interposed between the first and second stationary apertured plates, the improvement wherein the first and second stationary apertured plates are unitarily connected together so that the apertures in each said first and second apertured plate are aligned with one another prior to mounting in said body whereby light from the transmitter may be accurately received by the light receiver.

5,065,013

OPTICAL ENCODERS USING TRANSMITTED AND REFLECTED LIGHT DETECTION HAVING COMPLEMENTARY OUTPUT

Robert M. Taylor, Cheltenham, England, assignor to Smiths Industries Public Limited Company, London, England

Filed Sep. 19, 1990, Ser. No. 584,626
Claims priority, application United Kingdom, Feb. 21, 1989, 8921338.3
Int. Cl.[5] G01D *5/34*
U.S. Cl. 250—231.18 **11 Claims**



1. An optical encoder comprising: an optically-encoded plate having regions that are optically reflective and opaque and regions that are non-reflective and transparent; a radiation source, the radiation source being located on one side of the plate and directing radiation onto the plate; a first detector, said first detector being located on said one side of the plate and providing a first output in response to radiation reflected from the reflective regions; a second detector, said second detector being located on the opposite side of the plate and providing a second output in response to radiation transmitted through the transparent regions of the plate such that said first

VOL 1132 ISS 2 NO 12 1991 UMI

and second outputs are normally complementary; and a processor connected with said first and second detectors which compares the level of said first and second outputs as one output falls and the other output rises, and determines the position of the plate close to a boundary between adjacent ones of the regions in accordance therewith.

5,065,014

ROTATION ANGLE MEASURING WITH OVERLAP AREA IS BETWEEN TWO OPTICAL GRATING AXES

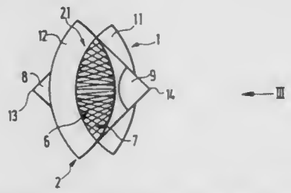
Gunther Krieg; Werner Helget, both of Karlsruhe, and Bertold Deppisch, Pfinztal, all of Fed. Rep. of Germany, assignors to Gunther Krieg, Karlsruhe, Fed. Rep. of Germany

Filed Mar. 2, 1990, Ser. No. 487,101

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1989, 3906777

Int. Cl.[5] H01J *40/14*

U.S. Cl. 250—237 G **22 Claims**



1. A method for measuring a rotation angle, in which at least one rotatable optical grating is pivoted on a rotation axis relative to one or more slits parallel to the grating, the rotatable optical grating being radial to the rotation axis, wherein the rotatable optical grating is pivoted relative to at least one stationary optical grating which is radial to a center opposite to the center of the rotatable optical grating relative to an overlap area defined by the two optical gratings.

5,065,015

SOLAR RADIATION SENSOR FOR USE IN AN AUTOMATIC AIR CONDITIONER

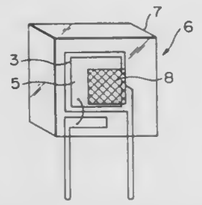
Hyosei Horiguchi; Akira Tezuka, both of Katsuta; Tsuneo Kagohata, and Toshikazu Ito, both of Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 15, 1989, Ser. No. 310,647

Claims priority, application Japan, Feb. 26, 1988, 63-45345

Int. Cl.[5] H01J *3/14*

U.S. Cl. 250—237 R **14 Claims**



1. A solar radiation sensor apparatus comprising:
a photoelectric element having a light-receiving surface; and
a light-blocking plate disposed a predetermined distance above said light-receiving surface and having an area smaller than the area of said light-receiving surface;
wherein the predetermined distance and the area of the light-blocking plate are selected such that the light-blocking plate blocks solar radiation from illuminating a portion of the light-receiving surface when an incident angle of the solar radiation is less than a predetermined incident angle and permits the solar radiation to illuminate the entire light-receiving surface when the incident angle of the solar radiation is at least equal to the predetermined incident angle.

5,065,016

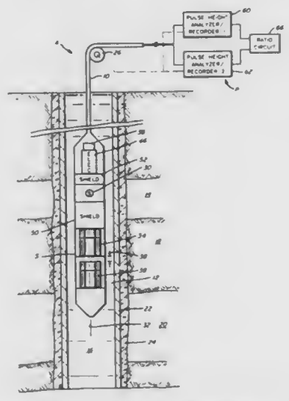
RADIOACTIVE WELL LOGGING TO DETERMINE VERTICAL BRINE FLOW

Irwin R. Supernaw, and Thomas M. Williams, both of Houston, Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jun. 11, 1990, Ser. No. 535,700

Int. Cl.[5] G01V *5/12*

U.S. Cl. 250—264 **11 Claims**



1. A method of well logging to determine the presence of vertical flow of brine about a well borehole, comprising the steps of:
irradiating the brine at a selected depth in the well borehole with neutrons from a neutron source in a sonde in the well borehole;
moving the sonde so that a pair of vertically spaced gamma ray detectors in the sonde are at the selected depth;
detecting gamma rays with each of the pair of vertically spaced gamma ray detectors;
forming a measure of gamma rays counted by a first of the pair of vertically spaced gamma ray detectors;
forming a measure of gamma rays counted by a second of the pair of vertically spaced gamma ray detectors;
forming a ratio of the measure of gamma rays counted by the first and second of the pair of vertically spaced gamma ray detectors; and
forming a measure of relative vertical brine flow from the ratio of the measure of gamma rays mounted.

5,065,017

ZERO MARK FOR OPTICAL ENCODER USING STATOR MASK PATTERNS AND ROTOR PATTERNS

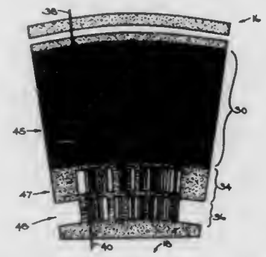
Robert W. Hoech, 7150 Chelsea Dr. NE., Cedar Rapids, Iowa 53402

Filed Apr. 20, 1990, Ser. No. 511,699

Int. Cl.[5] G01D *5/34*

U.S. Cl. 250—231.17 **18 Claims**

1. A position encoder comprising:
a stator mask having a stator track with a stator pattern having a plurality of opaque and transparent frames corresponding to an optimized binary aperiodic pattern wherein the optimized binary aperiodic pattern is produced by the steps of:
(a) generating a current operand pattern from an input operand pattern, the current operand pattern having a plurality of frames with a predetermined density and a first zero mark discrimination;
(b) identifying a next constant density neighbor pattern having a second zero mark discrimination better than the first zero mark discrimination;
(c) repeating step (b) with the current operand made equal to the next constant density neighbor and the first zero mark discrimination made equal to the second zero mark discrimination;
(d) repeating steps (b) and (c) until no next constant density neighbor with a second zero discrimination mark better than the first zero mark discrimiantion pattern is found; and



(e) adopting the current operand pattern as the zero mark pattern;
a rotor having a rotor track with a rotor pattern, the rotor positioned with respect to the stator mask so that the stator mask track is aligned with the rotor track during movement of the rotor, the rotor pattern being such that at a first position the rotor pattern matches the stator pattern; and
a comparison means for detecting the degree to which the stator and rotor patterns match for producing a zero mark signal.

5,065,018

TIME-OF-FLIGHT SPECTROMETER WITH GRIDLESS ION SOURCE

Paul S. Bechtold, Cologne; Matija Mihelcic, Juelich, and Kurt Wingerath, Moenchen-Gladbach, all of Fed. Rep. of Germany, assignors to Forschungszentrum Juelich GmbH, Juelich, Fed. Rep. of Germany

Filed Dec. 14, 1989, Ser. No. 450,324

Claims priority, application Fed. Rep. of Germany, Dec. 14, 1988, 3842044

Int. Cl.[5] H01J *49/40*

U.S. Cl. 250—287 **21 Claims**



1. A time-of-flight spectrometer, comprising:
a gridless ion source having a series of more than two potential-shaping coaxial apertured electrodes creating a beam-concentrating and space-focusing potential distribution, said potential distribution having at least two local extremes along an axial axis of said source, said source generating an ion beam; and
a detector, said detector generating signals indicative of said ion beam.

5,065,019

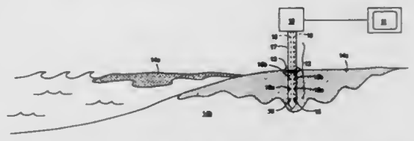
METHOD FOR DETERMINING PETROLEUM SATURATION IN A SUBSURFACE

Glenn T. Darilek, and Dewey B. Keeton, III, both of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed May 7, 1990, Ser. No. 520,087

Int. Cl.[5] G01V *9/04*; G01N *21/64, 21/85*

U.S. Cl. 250—301 **19 Claims**



1. A device for determining the depth of a petroleum based substance in a granulated solid, comprising:
an ultraviolet source for irradiating ultraviolet waves toward an inner surface of a granulated solid;
a visible-light detector for receiving induced fluorescence of contaminant emitted from said inner surface when said contaminant is exposed to said ultraviolet radiation;
wherein said source and said detector are placed at a predetermined angle with respect to each other to facilitate detection of diffuse emittance from said inner surface; and
a filter attached to said detector to reduce interfering light detected by said detector.

5,065,020

ENERGY DISPERSIVE X-RAY SPECTROMETER

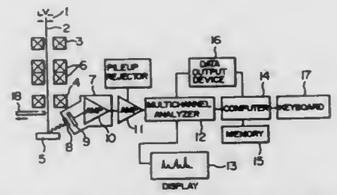
Kimio Kanda, Katsuta, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 20, 1990, Ser. No. 616,249

Claims priority, application Japan, Nov. 22, 1989, 1-302172

Int. Cl.[5] G01N *23/04*

U.S. Cl. 250—310 **9 Claims**



1. An energy dispersive X-ray spectrometer comprising:
an electron microscope forming a sample image by irradiating a sample with a predetermined electron beam;
means for detecting X-rays produced when the sample is irradiated with the electron beam in said electron microscope to convert them into electric signals;
means for discriminating said signals coming from the detecting and converting means according to the magnitude thereof to form an energy dispersive X-ray spectra;
means for obtaining the value of the energy, at which the spectra obtained by said spectra forming means disappears substantially on the high energy side; and
means for using the energy obtained by said energy obtaining means as the energy of the irradiation electron beam in parameters used in a calculation for a quantitative energy dispersive X-ray analysis.

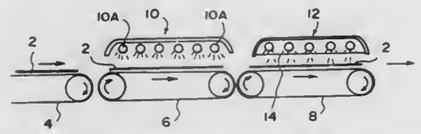
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,021

METHOD OF AND SYSTEM FOR ERASING RADIATION IMAGE

Satoshi Arakawa, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 19, 1991, Ser. No. 687,791
Claims priority, application Japan, Apr. 19, 1990, 2-103397
Int. Cl.[5] G03C 5/16
U.S. Cl. 250—327.2 4 Claims



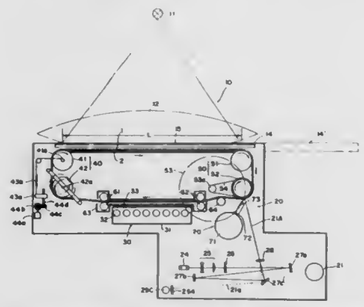
1. A method of erasing a stimulable phosphor sheet comprising the steps of exposing the stimulable phosphor sheet to first erasing light containing therein light having wavelengths within the ultraviolet range and then exposing the same to second erasing light having wavelengths longer than the ultraviolet range.

5,065,022

RADIATION IMAGE RECORDING AND READ-OUT APPARATUS

Kazuo Horikawa, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 13, 1989, Ser. No. 296,727
Claims priority, application Japan, Mar. 19, 1988, 63-66741; Mar. 19, 1988, 63-66742
The portion of the term of this patent subsequent to Jul. 11, 2006, has been disclaimed.
Int. Cl.[5] G01N 23/04
U.S. Cl. 250—327.2 5 Claims



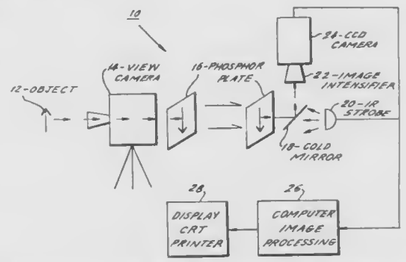
1. A radiation image recording and read-out apparatus comprising:
a recording belt in the form of an endless belt having a stimulable phosphor layer,
a recording belt conveying roller system which comprises a plurality of rollers around which the recording belt is passed and which conveys and circulates the recording belt,
an image recording section in which the stimulable phosphor layer on the recording belt is exposed to radiation which has passed through an object in order to store a radiation image of the object therein,
an image read-out section comprising a stimulating light source which emits stimulating light for scanning the stimulable phosphor layer and a photoelectric read-out means which reads out light emitted from the stimulable phosphor layer in response to being scanned by the stimulating light and which obtains an electric image signal, and
an erasing section which eliminates residual radiation energy on the stimulable phosphor layer after read out of the radiation image in the image read-out section and before another radiation image is recorded thereon,
said recording belt conveying roller system being provided with a tension roller which is urged by an urging means to outwardly tension the recording belt, and
the urging means being connected to a tension releasing means which cause the urging means to release the tension roller, wherein said recording belt conveying roller system includes a pair of roller sections which are spaced from each other by a predetermined distance which is not shorter than the length of the largest-sized radiation image which can be recorded in the recording section and not longer than 1.5 times the same and in which the recording belt is circulated between the roller sections along the predetermined distance.

5,065,023

SOLID STATE HIGH RESOLUTION PHOTOGRAPHY AND IMAGING USING ELECTRON TRAPPING MATERIALS

Joseph Lindmayer, Potomac, Md., assignor to Quantex Corporation, Rockville, Md.

Filed Sep. 11, 1989, Ser. No. 405,288
Int. Cl.[5] G03C 5/16, 7/00
U.S. Cl. 250—330 4 Claims



1. A system for solid state photography and imaging, comprising:
means for forming an image of an object; and
an imaging plate for releasably storing said image, said imaging plate comprising an electron trapping material disposed upon a substrate, said electron trapping material having a plurality of energy levels and having the capability to store said image in the form of energy when electrons in said material are raised from a ground energy level to a trapping energy level as a result of the impingement of electromagnetic radiation of a first wavelength from said image upon said material, said electron trapping material also having the capability of releasing said stored image in the form of electromagnetic radiation of a second wavelength when triggered by application of electromagnetic radiation of a third wavelength thereon, said electromagnetic radiation of said third wavelength releasing electrons from said trapping energy level, said released electrons falling down to said ground energy level, said released electrons falling down to said ground energy level and emitting said electromagnetic radiation of said second wavelength in a pattern corresponding to said image;
wherein said electron trapping material comprises a plurality of layers, each of which absorbs a different spectrum of light and emits light centered about a different wavelength on the top, such that said image is releasably stored in color.

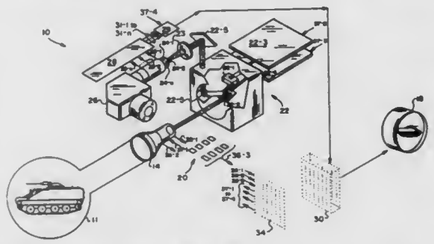
2. A method of infrared photography and imaging, comprising the steps of:
(a) charging an electron trapping material broadly and uniformly with visible light, said visible light raising electrons in said material from a ground level to a trapping level,
(b) exposing said charged electron trapping material to an infrared image, the light from said infrared image releasing electrons from said trapping level in a density and spatial distribution corresponding to said infrared image, the remaining trapped electrons being arranged in a density and spatial distribution corresponding to a negative of said infrared image, whereby the negative of said infrared image is stored in said electron trapping material in the form of raised energy electrons in traps,
(c) releasing said raised energy electrons from their traps by stimulating said electron trapping material broadly and uniformly with infrared light, resulting in the emission of visible light in a pattern corresponding to the negative of said infrared image.

5,065,024

INFRARED IMAGING SYSTEM WITH SIMULTANEOUSLY VARIABLE FIELD OF VIEW AND RESOLUTION AND FIXED OPTICAL MAGNIFICATION

John McCullough, Marlborough, Mass., assignor to Inframetrics, Inc., Billerica, Mass.

Filed Feb. 7, 1990, Ser. No. 476,821
Int. Cl.[5] G01J 3/02, 5/08
U.S. Cl. 250—334 4 Claims



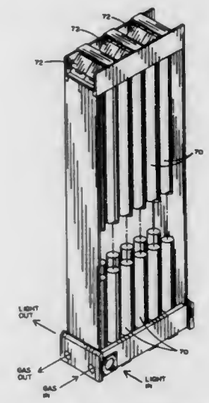
1. An imaging system comprising:
A. a fixed magnification telescope for receiving radiant energy from an object field and providing a focused energy bundle:
B. means for providing a field of view control signal indicating the desired field of view for the imaging system;
C. a scanning mechanism for scanning the focused energy bundle in two dimensions, the scanning mechanism successively focusing elemental areas of the object field onto a scanner focal plane, and the scanner field of view being selectably changeable in accordance with changes in the field of view control signal;
D. a plurality of radiant energy detectors, the radiant energy detectors disposed in the scanner focal plane and being of various sizes determined by a like plurality of desired instantaneous field of view settings for the imaging system, and each detector providing a detector signal corresponding to the amount of radiant energy incident thereon; and
E. means for selecting one of the detector signals as a displayed signal according to the field of view control signal, and thereby to simultaneous adjust the instantaneous field of view of the imaging system in response to changes in the field of view control signal.

5,065,025

GAS SAMPLE ANALYSIS PROVIDED BY LIGHT PIPE RADIATION STRUCTURE

Walter M. Doyle, Laguna Beach, Calif., assignor to Axiom Analytical, Inc., Laguna Beach, Calif.

Filed Mar. 2, 1990, Ser. No. 487,619
Int. Cl.[5] G01N 21/61
U.S. Cl. 250—343 20 Claims



1. A gas analyzing FTIUR spectrometer system comprising:
a gas cell providing a long flow path for the gas being analyzed, said gas cell being a hollow radiation-guiding light pipe which has a highly reflective cylindrical inner surface, and whose cross-sectional area remains substantially constant from its radiation inlet end to its radiation outlet end;
means including an FTIR interferometer for directing a collimated IR radiation beam through the gas cell;
said collimated beam having a cross-sectional area in the gas cell flow path sufficient to fill the cross-sectional area of the hollow gas cell light pipe;
said gas cell light pipe having a sufficiently large cross-sectional area to permit said collimated beam to pass through the length of the gas cell with minimized loss of radiation transmission due to absorption of radiation by the cylindrical inner surface of the light pipe gas cell;
a detector which receives radiation which has passed through the gas cell;
a gas entry port at one end of the gas cell light pipe; and
a gas exit port at the other end of the gas cell light pipe.

5,065,026

THERMAL BLACK-HOLE MASK

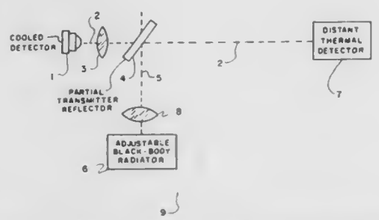
Michael Hacskaylo, Falls Church, Va., assignor to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Feb. 16, 1984, Ser. No. 606,737
Int. Cl.[5] G01J 1/00
U.S. Cl. 250—352 4 Claims

1. A thermal black-hole mask for a cooled thermal detector in an uncooled environment, wherein said detector has a field of view on an optical axis, including:

VOL 1132 ISS 2 NO 12 1991 UMI

a partial transmitter-reflector member on said axis and inclined thereto, and



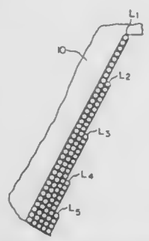
a black-body radiator adjacent to said member and arranged to direct radiation onto said member at an angle such that said radiation is partially reflected along said optical axis.

5,065,027

ELECTROMAGNETIC LENS

Susumu Takashima, and Kunihiko Uchida, both of Tokyo, Japan, assignors to Jeol Ltd., Tokyo, Japan

Filed Nov. 15, 1990, Ser. No. 613,394
Claims priority, application Japan, Nov. 16, 1989, 1-298566
Int. Cl.[5] H01J *37/141*
U.S. Cl. 250—356 ML **7 Claims**



1. An electromagnetic lens for focusing a beam of charged particles, comprising:

a hollow conical bobbin through which the beam of charged particles passes generally along the axis of the bobbin which is also the axis of the lens, bobbin having an inlet end and a port at its apex to permit the beam to exit from the bobbin defining the outlet end; and

a coil consisting of wires of a conductor wound around the outer periphery of the conical bobbin and about the axis of the bobbin, the number of turns of the coil per unit length along the axis of the lens being increased from the inlet end of the bobbin toward the exit end.

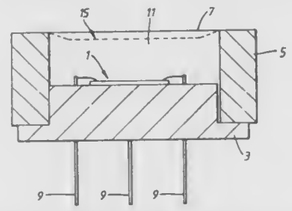
5,065,028

RADIATION DETECTOR

Christopher S. Cranston, and Neil Cleverly, both of Dorset, England, assignors to Siemens Plessey Controls Limited, Poole-Dorset, England

Filed Jun. 25, 1990, Ser. No. 543,124
Claims priority, application United Kingdom, Jul. 1, 1989, 8915173
Int. Cl.[5] G01T *1/24*
U.S. Cl. 250—370.01 **6 Claims**

1. A radiation detector for beta radiation, the detector including an enclosure having a membrane surface; means to detect ionizing radiation; and support means for supporting the membrane surface and reducing microphony, wherein the membrane surface is arranged to allow radiation to pass



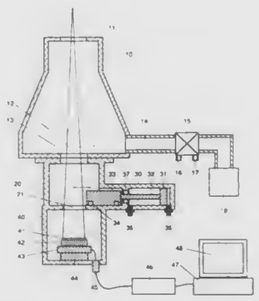
through it and in association with the enclosure to isolate from external light the means to detect ionizing radiation.

5,065,029

COOLED CCD CAMERA FOR AN ELECTRON MICROSCOPE

Ondrej L. Krivanek, Oakland, Calif., assignor to Gatan, Inc., Pleasanton, Calif.

Filed Aug. 3, 1990, Ser. No. 562,667
Int. Cl.[5] H01J *37/18, 37/22*
U.S. Cl. 250—441.1 **12 Claims**



1. An apparatus for recording images and diffraction patterns produced by an electron microscope, said apparatus comprising:

i) a cooled charge-coupled imaging device contained in a vacuum enclosure,

ii) an isolation valve connecting said vacuum enclosure with a chamber of said electron microscope, and

iii) automatic actuating means for said isolation valve whereby whenever air is admitted into the electron microscope chamber, said automatic means close said isolation valve, thereby preventing water condensation or ice formation on said cooled charge-coupled imaging device.

5,065,030

RADON DETECTORS

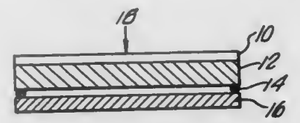
Daniel Perlman, Arlington, Mass., assignor to Brandeis University, Waltham, Mass.

Filed Sep. 10, 1990, Ser. No. 579,822
Int. Cl.[5] G01T *5/00*
U.S. Cl. 250—472.1 **45 Claims**

1. A device for measuring radon gas concentration in a radon-containing environment, comprising a radon gas-adsorbing surface, and

a radioactive decay event-sensitive surface, comprising an α-particle-sensitive surface upon which α-particles form α-tracks, which registers incident particles or rays from

radon decay in said adsorbing surface, said radioactive decay event-sensitive surface being placed generally parallel to, and either adjacent to or spaced from said radon-adsorbing surface by less than 5.0 cm.

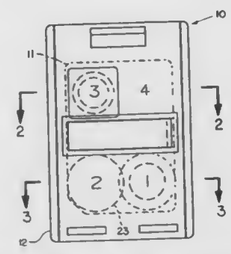


5,065,031

PERSONNEL TL DOSIMETRY METHOD AND APPARATUS FOR DETERMINATION OF RISK RELATED QUANTITY

Marko Moscovitch, South Euclid, Ohio, assignor to The Harshaw Chemical Company, Cleveland, Ohio

Continuation of Ser. No. 216,343, Jul. 7, 1988, abandoned. This application Sep. 10, 1990, Ser. No. 579,846
Int. Cl.[5] G01T *1/11*
U.S. Cl. 250—486.1 **22 Claims**



1. A personnel dosimetry method, comprising the steps of:

(a) using a dosimeter to monitor exposure of a person to a mixed radiation field, the dosimeter including at least three TL elements filtered to respond differently to the mixed radiation field;

(b) reading out the TL response of the dosimeter to absorbed radiation;

(c) using a correlation between two ratios of the responses of two pairs of the TL elements to determine the identity of the radiation field mixture; and

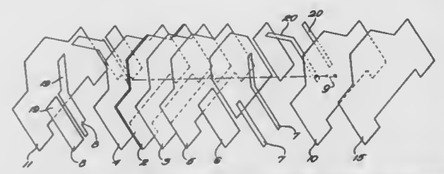
(d) using the identity of the radiation field mixture to determine dose equivalent.

5,065,032

THERMAL INTEGRATED TARGET

Paul L. Prosser, Chapin, S.C., assignor to Custom Training Aids, Swansea, S.C.

Filed Sep. 10, 1990, Ser. No. 579,619
Int. Cl.[5] F41J *1/00*
U.S. Cl. 250—495.1 **10 Claims**



1. A thermal target which produces and emits an infrared image that simulates heat emitting equipment or personnel, wherein said thermal target can sustain a number of ballistic hits and still produce a thermal image that is a signature of an object simulated by the thermal target, wherein said thermal target is comprised of:

a. A structural sheet, having a front side and a rear side, which is weather resistant and flame resistant;

b. An electrically insulative coating covering the front side of the structural sheet;

c. At least one electrically resistive coating, which heats, when subjected to an electric current, wherein said resistive coating is applied on the front side of the structural sheet in patterns, where said patterns imitate the thermal image created by the object being simulated;

d. An electrically conductive coating, which is in electrical contact with the resistive coating, where said conductive coating serves to distribute, like an electrical bus, the current to the patterns of infrared heat emitting resistive coating on the front side of the structural sheet;

e. An electrically conductive coating, on the rear side of the structural sheet, which forms a very wide rear electrical bus which backs up the electrically conductive coating on the front side of the structural sheet, wherein said electrically conductive coating on the rear side enables the current to shunt a region of the thermal target that has sustained a number of ballistic hits, therein maintaining the thermal image;

f. A multiplicity of conductive elements, dispersed throughout and traversing through the structural sheet, that connect the electrically conductive coating on the rear side to the electrically conductive coating on the front side;

g. A set of electrical terminals wherein each electrical terminal connects a pole of an electric current power supply to an electrical bus, the power supply therein being capable of producing a current in the resistive coating.

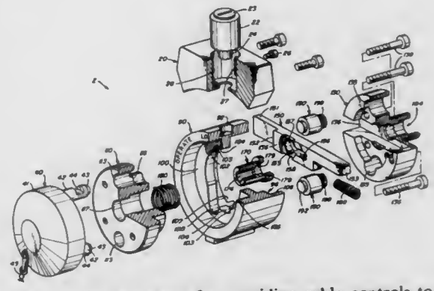
h. A second electrically insulative coating covering the front side of the structural sheet.

5,065,033

CONNECTOR LOCK ASSEMBLY

George W. Parsons, North Reading, Mass., assignor to Amersham Corporation, Burlington, Mass.

Filed Jun. 25, 1990, Ser. No. 543,328
Int. Cl.[5] G21F *5/02*
U.S. Cl. 250—497.1 **19 Claims**



1. A coupling apparatus for providing cable controls to a storage unit in a radiographic system for manipulating a quantity of radioactive material, in a radioactive capsule, between a stored position and a use position, the storage unit having a passage through it for storing said radioactive capsule in the passage and shielding the surrounding environment from the stored radioactive material, a flexible leader attached to said radioactive capsule adapted to be guided through said passage, and comprising:

disconnectable coupling means having a connector assembly fixed to said storage unit at one end of said passage and a separable control cable assembly of tubular shape,

VOL
1132
ISS
2
NO
12
1991
UMI

said connector assembly having a tubular aperture for receiving said separable control cable assembly endwise therein, and means for releasably locking said control cable assembly to said connector assembly,

said connector assembly having means responsive to movement of said flexible leader for automatic locking of said radioactive capsule in the stored position upon return of said radioactive capsule to the stored position within said storage unit,

said responsive means comprising:

a slide member and a sleeve, said sleeve having a hole defined therein, said slide member having a larger diameter aperture and a smaller diameter aperture defined therein,

a mass attached to said source cable means for engagement with said sleeve hole and said small diameter aperture,

said slide member having an open position during which said sleeve hole and said larger diameter aperture are in alignment, and a locked position during which said sleeve hole and said smaller diameter aperture are in alignment capturing said mass therebetween,

biasing means for urging said slide member toward said locked position, and

said slide member and said sleeve defining therebetween interlocking means for holding said slide member in said open position, said mass triggering the interlocking means to disengage upon return of said radioactive capsule to the stored position allowing said biasing means to move said slide member.

5,065,034

CHARGED PARTICLE BEAM APPARATUS

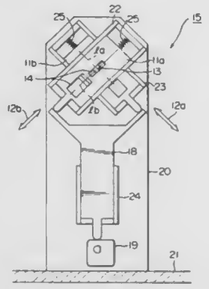
Yoshimi Kawanami, Fuchu; Tsuyoshi Ohnishi, Kokubunji; Tohru Ishitani, Sayama; Tooru Habu, Kanagawa, and Masahiro Yamaoka, Hachioji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 1, 1990, Ser. No. 517,313

Claims priority, application Japan, May 10, 1989, 1-114922

Int. Cl.[5] H01J *3/12*

U.S. Cl. 250—505.1 31 Claims



1. A charged particle beam apparatus for irradiating a specimen with a beam of charged particles, comprising:

a charged particle source,

an optical system for focusing and deflecting charged particles emitted from said charged particle source to irradiate any given position on the specimen with a focused charged particle beam;

a specimen stage for holding the specimen thereon and providing a small movement to the specimen;

a plurality of slit plates superimposed in a direction of the axis of said beam, each of said plurality of slit plates including a plurality of slits, each slit having substantially parallel opposed long sides extending equidistant from a virtual trajectory direction line, and the slits of each plate having predetermined different widths between the opposed long sides and the same width as corresponding slits of the other of said slit plates; and

slit plate moving means for moving said slit plates along the virtual trajectory direction lines of their slits with the the virtual trajectory direction lines of the slits of said slit plates intersecting each other and the beam, and for stopping the moving of said slit plates so that corresponding ones of the slits in said slit plates overlap to form an aperture that controls the beam.

5,065,035

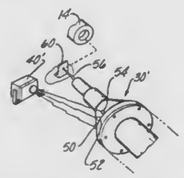
OPTICAL DATA SYSTEM HAVING FLASH/RECEIVER HEAD FOR ENERGIZING/RECEIVING INFORMATION FROM A BATTERY OPERATED TRANSMITTER

Richard O. Jueugel, Romeo, Mich., assignor to GTE Valenite Corporation, Troy, Mich.

Division of Ser. No. 219,649, Jul. 15, 1988, Pat. No. 4,978,857, which is a division of Ser. No. 27,112, Mar. 13, 1987, Pat. No. 4,779,319, which is a continuation of Ser. No. 504,137, Jun. 14, 1983, abandoned, which is a continuation-in-part of Ser. No. 414,734, Sep. 3, 1982, Pat. No. 4,545,106, and a continuation-in-part of Ser. No. 478,906, Mar. 25, 1983, Pat. No. 4,578,874, which is a continuation-in-part of Ser. No. 259,257, Apr. 30, 1981, Pat. No. 4,401,945, said Ser. No. 414,734, is a continuation-in-part of Ser. No. 259,257, Apr. 30, 1981, Pat. No. 4,401,945. This application Nov. 29, 1990, Ser. No. 619,882

Int. Cl.[5] G02B *27/00*

U.S. Cl. 250—551 21 Claims



1. An apparatus for use in an inspection system comprising:

a probe for sensing information about a workpiece, said probe including a battery power source and a transmitter means for wirelessly transmitting signals;

means for moving the probe until it contacts a reference surface;

circuit means responsive to the probe contact with the reference surface for coupling power from the battery power source to the transmitter means, said transmitter means generating a first signal upon being connected to the battery power source;

remote receiver means for receiving said first signal from said transmitting means, said remote receiver means initiating a probe work sequence where the probe contacts the workpiece at preselected locations;

said transmitter means generating a second signal in response to probe contact with the workpiece; and

wherein when said probe initially contacts said reference surface the battery power source is connected to said transmitter means which thereafter transmits information about the inspected workpiece back to the remote receiver.

5,065,036

LIGHT DETECTION AND CONTROL SYSTEM

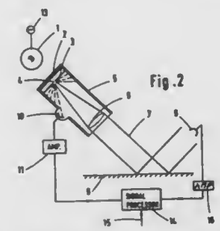
Peter R. Cropper, Sussex; Gary P. Haffenden, and Jeremy K. Justice, both of East Sussex, all of England, assignors to Rhopoint Instrumentation Limited, East Sussex, England

Filed Jan. 25, 1989, Ser. No. 301,643

Claims priority, application United Kingdom, Jan. 27, 1988, 8801744

Int. Cl.[5] G01N *21/86*

U.S. Cl. 250—571 6 Claims



1. A system for compensating for variations in a light source, which comprises an optical system for transmitting light along a path from the light source to a region of interest, first detecting means for detecting light deflected from the said path, and for producing a first output in response thereto, second detecting means for detecting light which has reached the region of interest and for producing a second output in response thereto, and means connected to receive the first and second outputs and for producing in response thereto a signal which is substantially independent of variations in the light source.

5,065,037

CORROSION RESISTANT REFRACTIVE AND ADSORPTIVE TYPE OPTICAL LIQUID LEVEL SENSORS

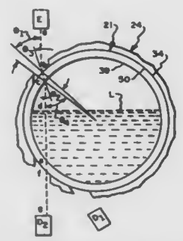
Mark J. Finney, and Kevin B. Stukey, both of Tonawanda, N.Y., assignors to Conax Buffalo Corporation, Buffalo, N.Y.

PCT No. PCT/US88/03685, § 371 Date Apr. 17, 1990, § 102(e) Date Apr. 17, 1990, PCT Pub. No. WO90/01682, PCT Pub. Date Feb. 22, 1990

PCT Filed Oct. 20, 1988, Ser. No. 487,953

Int. Cl.[5] G01N *15/06*

U.S. Cl. 250—577 12 Claims



1. A corrosion-resistant optical liquid level sensor adapted to determine the level of liquid in a container formed of polytetrafluorethylene perfluoralkoxy material, comprising:

a light source;

said container having first, second and third windows severally formed of said material;

transmitting means for transmitting light from said source through said first window into said container;

primary detection means operatively arranged to measure the intensity of light passing through said second window;

secondary detection means operatively arranged to measure the intensity of light passing through said third window; and

comparator means for monitoring the integrity of the optical path between said source and said primary and secondary detection means as a function of the intensities of light measured by said primary and secondary detection means.

5,065,038

COAXIAL ENGINE STARTER

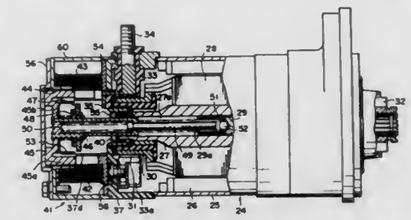
Shuzoo Isozumi, Himeji, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed Jan. 17, 1990, Ser. No. 466,565

Claims priority, application Japan, Jan. 18, 1989, 1-9044

Int. Cl.[5] F02N *11/08*

U.S. Cl. 290—48 9 Claims



1. A coaxial engine starter of the type comprising an electric motor having an armature rotary shaft of a d.c. motor, a rod of a solenoid switch and a starter output rotary shaft disposed along a common axis;

an output shaft axial aligned to and slidable relative to said armature rotary shaft and having a pinion at its front end;

said solenoid switch axially aligned to said armature rotary shaft and having a movable iron core slidable at the inside of an excitation coil;

a hollow cylindrical member extending from the rear end of said motor to surround a contact operating space in which said movable contact moves and having an open rear end positioned close to a front end of said movable iron core to define a small clearance therebetween; and

a shield member disposed at the rear portion of said movable contact and having an outer end positioned close to the rear end of said cylindrical member and defining a small radial clearance therebetween, and shield member and said cylindrical member being in a telescopically movable relationship relative to each other, substantially enclosing said contact operating space therein, said shield member, said hollow cylindrical member, and a cylindrical wall of said movable contact forming a labyrinth seal structure.

5,065,039

COAXIAL STARTER WITH A CORE AND CONTACT TERMINAL ASSEMBLY

Shuzoo Isozumi, and Keiichi Konishi, both of Himeji, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Dec. 22, 1989, Ser. No. 455,043

Claims priority, application Japan, Dec. 22, 1988, 63-327029; Feb. 20, 1989, 1-40635

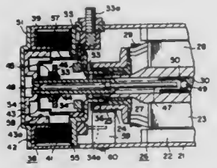
Int. Cl.[5] F02N *11/02*

U.S. Cl. 290—48 4 Claims

1. A coaxial starter which includes an armature rotary shaft of an electric motor, an output rotary shaft having a pinion at a front end thereof, said output rotary shaft being slidable in an axial direction, said electric motor including a brush and commutator space in which a brush slidably contacts a commutator of said electric motor, said coaxial starter comprising: a solenoid switch disposed on a rear end of said electric motor, said solenoid switch and electric motor being arranged along a common axis, an iron core portion which defines a magnetic path for said solenoid switch, said iron core portion including

VOL 1132 ISS 2 NOV 12 1991 UMI

a supporting portion which extends along said common axis and journals said armature rotary shaft, such that said iron core portion separates said brush and commutator space from an internal space of said solenoid switch, a power source side



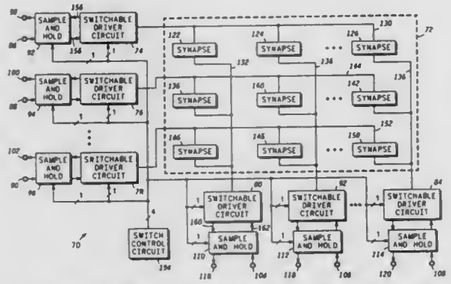
stationary contact connected to an external terminal of said starter and a brush side stationary contact connected to said brush, said stationary contacts being integrally mounted, through an insulating material, to said iron core portion.

5,065,040

REVERSE FLOW NEURON

William M. Peterson, Scottsdale; Robert H. Leivian, Chandler, and Sidney C. Garrison, III, Tempe, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Aug. 3, 1990, Ser. No. 562,169
Int. Cl.[5] G06F 15/42
U.S. Cl. 307—201 14 Claims



1. A network having a first plurality of inputs coupled for receiving a spatial vector of an input signal for providing a transformation thereof at a first plurality of outputs, comprising:

first and second plurality of conductors;

a plurality of weighting elements interconnected between said first plurality of conductors and said second plurality of conductors in a predetermined manner;

a first plurality of switchable driver circuits respectively coupled between the first plurality of inputs and said first plurality of conductors, said first plurality of switchable driver circuits operating to drive said first plurality of conductors at the occurrence of a first state of a first switch control signal while receiving signals from said first plurality of conductors at the occurrence of a second state of said first switch control signal, said first plurality of switchable driver circuits including first, second and third terminals, said first terminal being coupled to one of the first plurality of inputs, said second terminal being coupled to one of said first plurality of conductors, said third terminal providing one of a first plurality of output signals;

a second plurality of switchable driver circuits respectively coupled between the first plurality of outputs and said second plurality of conductors, said second plurality of switchable driver circuits operating to receive signals from said second plurality of conductors at the occurrence of a first state of a second switch control signal while driving said second plurality of conductors at the occurrence of a second state of said second switch control signal; and

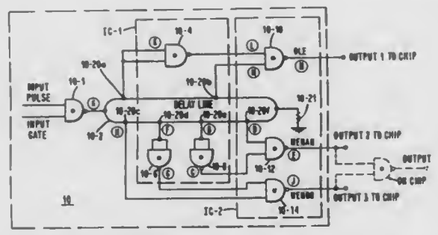
a switch control circuit coupled to said first and second plurality of switchable driver circuits for providing said first and second switch control signals to control the driving direction thereof.

5,065,041

TIMING GENERATOR MODULE

Robert G. H. Moles, Sudbury, Mass., assignor to Bull HN Information Systems Inc., Billerica, Mass.

Filed Jan. 5, 1989, Ser. No. 293,714
Int. Cl.[5] H03K 5/13, 5/159, 7/00; G11C 7/00
U.S. Cl. 307—269 17 Claims



1. A timing module for use in a data processing unit for generating accurately timed sequence of pulses in response to each input pulse applied externally to said module during a system cycle of operation, said module comprising:

delay line including a plurality of interleaved pairs of taps corresponding in number to the number of pulses in said timed sequence, said delay line being customized so that first and second ones of each pair of taps provides output pulses produced by delaying an input pulse by increased amounts of delay which are different from other ones of said plurality of pairs and which include delays inherent in circuit means connected to said pairs of taps;

input gating circuit means for complementing said input pulse and applying said complemented input pulse to one end of said delay line to produce said output pulses;

a plurality of delay correlated inverting circuit means corresponding in number to said number of pulses, each of said plurality of inverting circuit means being connected to a predetermined tap of one of each pair of said plurality of pairs of interleaved taps; and,

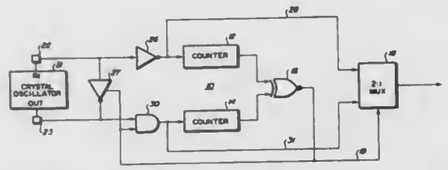
a plurality of delay correlated gating circuit means corresponding in number to said number of pulses, each of said plurality of gating means being connected to another tap of said one pair of said plurality of pairs of taps and to a corresponding one of said inverting circuit means, said each of said plurality of gating means logically combining each output pulse appearing at said one of said pair of taps with each inverted pulse from said corresponding one of said one of said inverting circuit means so as to generate a predetermined one of said timed sequence of pulses within said system cycle, said predetermined one of said pulses having transitions accurately controlled by a selected edge of said input pulse and a width defined by a predetermined relationship between output pulses produced by said different amounts of delay of said input pulse present at a corresponding one of said plurality of interleaved pairs of taps.

5,065,042

SELF-CONFIGURING CLOCK INTERFACE CIRCUIT

Joseph A. Thomsen, Chandler, and Richard W. Ulmer, Tempe, both of Ariz., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Aug. 1, 1990, Ser. No. 562,064
Int. Cl.[5] H03L 7/00; H03K 5/22, 21/02, 21/08
U.S. Cl. 307—269 15 Claims



1. A self-configuring clock interface circuit including in combination;

a clock pulse output circuit means having first and second clock pulse inputs and a clock pulse output;

a first control means having first and second states of operation connected to said clock pulse output circuit means for selectively controlling said clock pulse output circuit means to interconnect the first input thereof with the output thereof for a first state of operation of said a first control means and to interconnect the second input of said clock pulse output circuit means with the output thereof for the second state of operation of said a first control means;

first and second separate interface input terminals for connection to an external source of clock signals;

first and second counter means, each having an output connected, respectively, to said a first control means, for controlling the state of operation thereof to said first state when said outputs of said first and second counter means are the same, and to said second state when the outputs of said first and second counter means are different;

first means interconnecting said first interface input terminal with the first input of said clock pulse output circuit means; and

coincidence gate means having at least first and second inputs and an output, the first input thereof connected to said second interface input terminal and the output of said coincidence gate means connected to the input of said second counter means and to the second input of said clock pulse output circuit means, with the output of said a first control means connected to the second input of said coincidence gate means to selectively enable said coincidence gate means for operation when the outputs of said first and second counter means are the same, and for disabling said coincidence gate means when the outputs of said first and second counter means are different.

5,065,043

BIASING CIRCUITS FOR FIELD EFFECT TRANSISTORS USING GAAS FETS

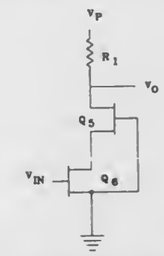
James E. Bartling, Dallas, and Dale A. Heaton, Garland, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Mar. 9, 1990, Ser. No. 491,752
Int. Cl.[5] H03K 3/01; H03F 3/45
U.S. Cl. 307—296.8 11 Claims

1. A circuit for minimizing the changes in transistor biasing over all frequencies, including field effect transistors having source, drain and gate connections, comprising;

a first field effect transistor circuit having source drain and gate connections; and

a second GaAs field effect transistor circuit having gate and source connections, said second GaAs field effect transistor circuit with gate and source connections connected across the source and drain connections of the first field effect transistor respectively;



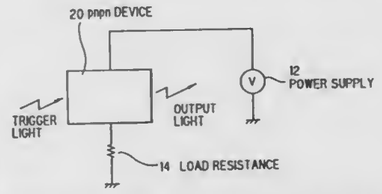
wherein the second field effect transistor controls the bias of the first field effect transistor by sensing the voltage at source connection of the first transistor.

5,065,044

METHOD FOR DRIVING A PNPN SEMICONDUCTOR DEVICE

Kenichi Kasahara; Ichiro Ogura, and Yoshiharu Tashiro, all of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Oct. 24, 1989, Ser. No. 426,303
Claims priority, application Japan, Oct. 25, 1988, 63-269726
Int. Cl.[5] H01L 33/00, 29/74; H03K 3/42, 3/26
U.S. Cl. 307—324 3 Claims



1. A method for driving a pnpn semiconductor device, comprising:

applying an electric pulse having a predetermined voltage higher than a switching voltage and a predetermined width across said pnpn semiconductor device which is in the state of a high impedance, said predetermined width being set not to shift said pnpn semiconductor device to the state of a low impedance; and

supplying a trigger light having a predetermined intensity and a predetermined width to said pnpn semiconductor device across which said electric pulse is applied, thereby shifting said pnpn semiconductor device to said state of said low impedance in cooperation with the application of said electric pulse.

5,065,045

MULTISTAGE OFFSET-CANCELLED VOLTAGE COMPARATOR

Tsung Dai Mok, Cupertino, Calif., assignor to Atmel Corporation, San Jose, Calif.

Filed Oct. 4, 1990, Ser. No. 592,605
Int. Cl.[5] H03K 5/22, 5/153; G06G 7/12
U.S. Cl. 307—355 19 Claims

10. A circuit for coupling a plurality of comparators comprising,

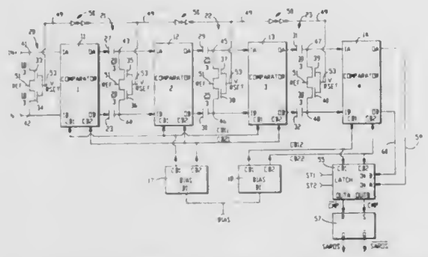
a plurality of comparator stages, each stage being a differential amplifier having a pair of inputs and a pair of outputs, said pairs of inputs and outputs being complementary relative to a reference voltage line,

a plurality of differential transfer stages located between

VOL 1132 ISS 2 NO 12 1991 UMI

successive comparator stages, each differential transfer stage including a pair of charge storage elements and a pair of MOS transistor switches, each charge storage element being connected between an output of one comparator stage and an input of a next comparator stage, a node being located between each charge storage element and the corresponding input of the next comparator stage to which that capacitor is connected, each MOS transistor switch being connected between a node and said reference voltage line, said MOS transistor switches being characterized by turn-off speeds which are progressively slower for each successive transfer stage, said MOS transistor switches being responsive to a common reset signal for turning on and off said switches, whereby switches turn off sequentially from one stage to the next, and

means connected to receive signals from said pair of outputs of a final one of said plurality of comparator stages for providing digital logic output signal indicative of at least a quantization step difference in voltage between signals on said pair of inputs of a first one of said plurality of comparator stages.

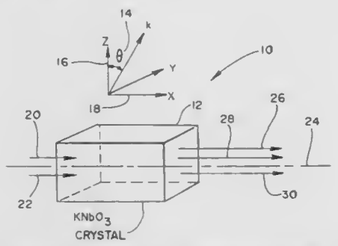


5,065,046

METHOD AND APPARATUS FOR PARAMETRIC GENERATION OF MIDINFRARED LIGHT IN $KNBO_3$

Dean R. Guyer, Bellevue, Wash., assignor to Amoco Corporation, Chicago, Ill.

Filed Nov. 28, 1990, Ser. No. 619,123
Int. Cl.[5] H03F *7/00*
U.S. Cl. 359—330 **7 Claims**



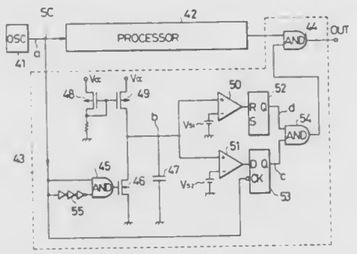
1. A nonlinear optical device comprising means to direct electromagnetic radiation having at least one frequency having a wavelength near 1 μm into a crystal having nonlinear optical properties with respect to a set of crystal principal axes whereby electromagnetic radiation emerging from the crystal contains at least one frequency having a wavelength in the range from 1.4 μm to 4.6 μm that increased in energy over any incident beam of radiation, wherein the improvement comprises a crystal consisting of a compound having the formula $KNbO_3$.

5,065,047

DIGITAL CIRCUIT INCLUDING FAIL-SAFE CIRCUIT

Yuichi Igari, Yokosuka; Masahiro Ishikawa, Yokohama, and Mitsuo Kaneko, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Mar. 27, 1990, Ser. No. 499,590
Claims priority, application Japan, Mar. 27, 1989, 1-71832; Mar. 29, 1989, 1-74989
Int. Cl.[5] H03K *19/007*
U.S. Cl. 307—442 **20 Claims**



1. A digital circuit, comprising:

a processor which is operated in synchronization with a clock signal and outputs a control signal to be fed to an actuator;

converter means for converting a period or frequency of the clock signal to an analog voltage value;

comparator means for comparing whether or not the analog voltage value is within a reference value range to output a comparison signal; and

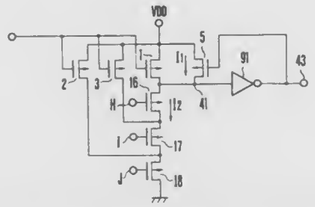
gate means, connected to the processor and the comparator means, for outputting either the control signal or a fail-safe signal for holding the control signal of the processor to a predetermined fail-safe side to the actuator on the basis of the comparison signal.

5,065,048

SEMICONDUCTOR LOGIC CIRCUIT WITH NOISE SUPPRESSION CIRCUIT

Mitsuo Asai, Kokubunji; Takebisa Hayashi, Kodaira; Toshio Doi, and Kenichi Isbibashi, both of Kokubunji, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 23, 1989, Ser. No. 397,199
Claims priority, application Japan, Sep. 19, 1988, 63-232379
Int. Cl.[5] H03K *19/12, 19/092*
U.S. Cl. 307—443 **42 Claims**



1. A dynamic semiconductor logic circuit comprising:

MOS FET logic means having a high-speed operation characteristic including MOS transistors with internal nodes for connecting respective ones of said MOS transistors with one another and with an output node, said logic means being adapted to undergo a precharging operation to said output node and said internal nodes responsive to a clock signal and to effect a logic operation with the precharged nodes and output a result of the logic operation through the output node in response to logical input signals; and

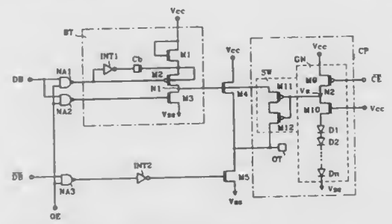
means for preventing wrong operations in the precharging operation without sacrificing the high-speed operation characteristic of the logic means, wherein said preventing means includes first precharging means for precharging the output node to a power source potential and second precharging means for precharging said internal nodes to said source potential, respectively, in order to prevent wrong operations which otherwise may be generated by charge sharing of said internal nodes, and further including third means for latching said output node at said source potential after the precharging in order to prevent potential variations of said output node due to soft error noise which otherwise may be generated by a possible alpha ray incident upon said logic means.

5,065,049

MOS DRIVER CIRCUIT HAVING CLAMP MEANS TO HOLD THE OUTPUT VOLTAGE CONSTANT REGARDLESS OF VARIATIONS IN THE OPERATING VOLTAGE

Hyeon-Sun Jang, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Kyunggi, Rep. of Korea

Filed Dec. 4, 1990, Ser. No. 621,829
Claims priority, application Rep. of Korea, Aug. 10, 1990, 90-12348
Int. Cl.[5] H03K *17/16*
U.S. Cl. 307—443 **5 Claims**



1. A MOS driver circuit comprising:

a pull-up NMOS transistor having a drain connected to a supply voltage, a source connected to an output terminal and a gate connected to a boosting node supplied with a boosted voltage when said output terminal is driven to a "high" state;

a pull-down NMOS transistor having a drain connected to said output terminal and a source connected to a ground voltage, and being turned on when said output terminal is driven to a "low" state; and

clamper means for clamping said boosted voltage to a predetermined voltage by opening a current path connecting said boosting node to said output node when said boosted voltage supplied to said boosting node is greater than the predetermined voltage.

5,065,050

HIGH-SPEED EMITTER-COUPLED LOGIC BUFFER

Francisco J. Fernandez, Reading, Pa., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 11, 1990, Ser. No. 625,515
Int. Cl.[5] H03K *19/096, 17/16*
U.S. Cl. 307—455 **9 Claims**

1. An ECL buffer, disposed in an integrated circuit, having:

an input;

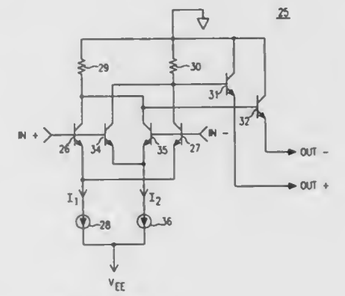
a first current source;

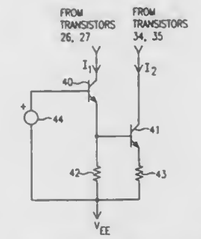
first and second loads;

a first differential pair of transistors, with a common output coupling to the first current source, first and second inputs coupling to the input of the ECL buffer, and corresponding first and second outputs coupling to the corresponding first and second loads, for coupling the first current source to either the first or second loads in response to the ECL buffer input;

CHARACTERIZED BY:

a second current source; and,





a current steering means, responsive to the ECL buffer input, for selectively coupling the second current source to either the first or second load in complement to the coupling of the first current source by the first differential pair of transistors;

wherein current supplied by the second current source is less than current supplied by the first current source.

5,065,051

ECL-TTL LEVEL CONVERTING CIRCUIT

Kouji Matsumoto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

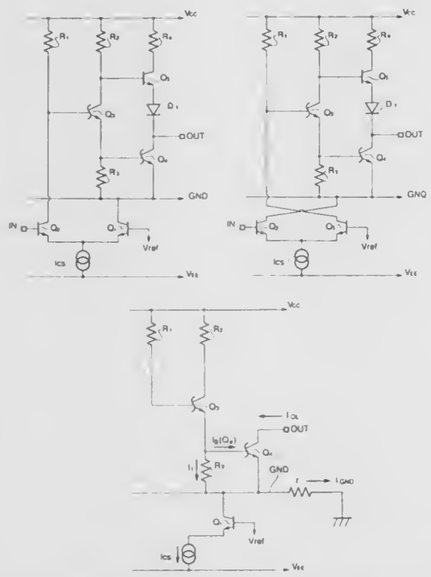
Filed May 2, 1989, Ser. No. 346,160
Claims priority, application Japan, May 2, 1988, 63-109665
Int. Cl.[5] H03K *19/092, 19/086, 17/10, 17/14*
U.S. Cl. 307—475 **10 Claims**

1. An ECL-TTL level converting circuit comprising a first transistor having a collector connected directly to a ground line and an emitter connected to a negative voltage line through a constant current source, a second transistor having a collector connected to a positive voltage line through a first resistor and an emitter commonly connected to the emitter of the first transistor, the base of one of the first and second transistors being connected to receive a reference voltage and the base of the other of the first and second transistors being connected to receive an ECL input signal, a third transistor having a collector connected to the positive voltage line through a second resistor, an emitter connected to the ground line through a third resistor and a base connected to the collector of the second transistor so that the collector of the third transistor outputs a first drive signal and the emitter of the third transistor outputs a second drive signal, an amplifying stage having an input connected to the collector of the third transistor, and a fourth transistor having a collector connected to an output side of the amplifying stage, an emitter connected to the ground line and a base connected to the emitter of the

VOL 1132 ISS 2 NO 12 1991 UMI

third transistor, so that a TTL output signal can be obtained from the collector of the fourth transistor,

whereby, when the first transistor is put in a conductive condition, the fourth transistor is brought into a conductive condition so that a current flows from the collector of the fourth transistor through the fourth transistor into the ground line so as to output a TTL low level signal from



the collector of the fourth transistor and, at the same time, a portion of the current flowing from the collector of the fourth transistor into the ground line is caused to flow from the ground line into the negative voltage line, thereby suppressing an increase of a current flowing through the ground line to an exterior of the ECL-TTL level converting circuit.

5,065,052

ARBITER CIRCUIT USING PLURAL-RESET RS FLIP-FLOPS

Masahiko Sakagami, Takatsuki, and Hideki Kawai, Nagaokakyo, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

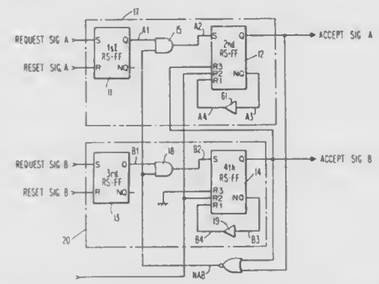
Filed Jun. 14, 1990, Ser. No. 538,244
Claims priority, application Japan, Jun. 14, 1989, 1-151813
Int. Cl.[5] H03K *17/16*
U.S. Cl. 307—480 **8 Claims**

1. An arbiter circuit comprising:

(a) a first latch circuit to which a first request signal is supplied, containing an input stage RS flip-flop possessing a set input terminal to which said first request signal is supplied and a reset input terminal to which a first reset signal is supplied, and an output stage RS flip-flop possessing a set input terminal, first and second output terminals and at least three reset input terminals;

(b) a second latch circuit to which a second request signal is supplied, containing an input stage RS flip-flop possessing a set input terminal to which said second request signal is supplied and a reset input terminal to which a second reset signal is supplied, and an output stage RS flip-flop possessing a set input terminal, first and second output terminals and at least two reset input terminals;

(c) means for controlling the transmission of signals from said input stage RS flip-flops of said first and second latch circuits to said set input terminals of said output stage RS



flip-flops, according to signals of said first output terminals of said output stage flip-flops of said first and second latch circuits;

(d) means for feeding said signal of said first output terminal of said output stage RS flip-flop of said second latch circuit to a first reset input terminal of said output stage RS flip-flop of said first latch circuit;

(e) a first delay circuit connected between said second output terminal and a second reset input terminal, of said output stage RS flip-flop of said first latch circuit;

(f) a second delay circuit connected between said second output terminal and a first reset input terminal, of said output stage RS flip-flop of said second latch circuit; and

(g) means for feeding a common reset signal to a third reset input terminal of said output stage RS flip-flop of said first latch circuit, and a second reset input terminal of said output stage RS flip-flop of said second latch circuit.

5,065,053

EXPONENTIAL FUNCTION CIRCUITRY

Ivan T. Chan, Kanata, and Russell W. Brown, Nepean, both of Canada, assignors to Digital Equipment Corporation of Canada, Ltd., Kanata, Canada

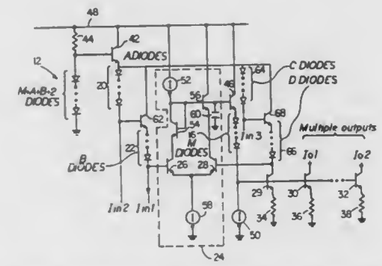
Filed Feb. 26, 1990, Ser. No. 485,059
Int. Cl.[5] G06F *7/556;* **G06G** *7/12*
U.S. Cl. 307—492 **33 Claims**

1. A circuit for generating an electrical current representative of an exponential function of an electrical input current, comprising

an input diode chain, each of the diodes in said input diode chain having an input current passing therethrough, creating a first voltage drop across said input diode chain, said input current being generated by at least one input current source that drives said input current through said input diode chain,

an output diode chain and

a voltage driving circuit connected between said input diode chain and said output diode chain, for driving a second voltage drop across said output diode chain, said second voltage drop having a predetermined relationship to said first voltage drop, said second voltage drop resulting in a current through said output diode chain,



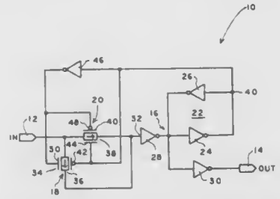
said current through said output diode chain being representative of an exponential function of said input current generated by said input current source.

5,065,054

INPUT BUFFER WITH NOISE FILTER FOR ELIMINATING SHORT-PULSE-WIDTH NOISE

Liem T. Nguyen, and Hans Magnusson, both of Austin, Tex., assignors to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Nov. 21, 1990, Ser. No. 606,882
Int. Cl.[5] H03K *5/00, 5/22*
U.S. Cl. 307—520 **20 Claims**



1. An input buffer for buffering digital input signals having first and second voltage levels and filtering noise signals of short duration, said input buffer comprising:

an input adapted to receive said digital input signals;

an output;

threshold circuit means coupled to said output and having an input, said threshold circuit means being arranged for providing said outlet with said first voltage level responsive to an input signal being below a threshold voltage and being arranged for providing said output with said second voltage level responsive to an input signal being above said threshold voltage, said threshold voltage being closer in potential to one of said voltage levels than the other said voltage levels;

first transfer means coupled between said input buffer input and said threshold circuit means input for conveying, to said threshold circuit means, input signals which are in transition from said one voltage level to said other voltage level, said first transfer means be arranged to have a slow response; and

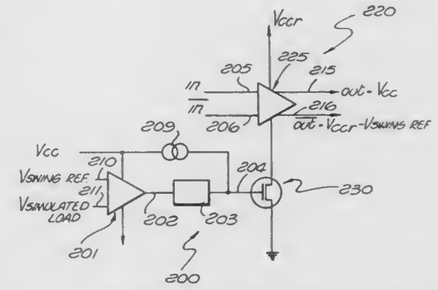
second transfer means coupled between said input buffer input and said threshold circuit means input for conveying, to said threshold circuit means, input signals which are in transition from said other voltage level to said one voltage level, said second transfer means having a first response.

5,065,055

METHOD AND APPARATUS FOR HIGH-SPEED BI-CMOS DIFFERENTIAL AMPLIFIER WITH CONTROLLED OUTPUT VOLTAGE SWING

John Reed, Los Altos, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Dec. 20, 1990, Ser. No. 632,937
Int. Cl.[5] H03F *3/45*
U.S. Cl. 307—530 **35 Claims**



1. A high speed differential amplifier with controlled output voltage swing for amplifying low-level complementary logic signals, said differential amplifier comprised of:

a) at least one sense amplifier containing a pair of load devices, said sense amplifier further having a first, second, third and fourth input, and a first and second output,

said first input coupled to receive a first low-level logic signal,

said second input coupled to receive a second low-level logic signal complementary to said first low-level logic signal,

said third input coupled to receive a bias voltage from a load current control means for controlling the output voltage swing of said sense amplifier, and

said fourth input coupled to receive an externally sourced enable signal,

b) a load current control means for simulating said load devices in said amplifier, said load control means having a first input coupled to receive a reference swing voltage, a second input coupled to receive a simulated load voltage from a simulated load which simulates said load devices in the differential amplifier, and an output,

said reference swing voltage comprising a desired voltage difference between a given high-level logic signal and its complementary high-level logic signal,

said simulated load voltage comprising the voltage drop across a device geometrically similar to said load in the high speed differential amplifier,

said load current control means comparing said simulated load voltage to said reference swing voltage and producing an output bias voltage corresponding to when the simulated voltage drop across said simulated load equals said reference swing voltage;

said sense amplifier increasing said first and second low-level logic input signals to an amplified first and second high-level logic signals, said bias voltage controlling current flow in said load devices so that the output voltage swing of said first and second high-level logic signals is equal to said reference swing voltage, said first and second high-level logic signals comprising the controlled output swing of the differential amplifier.

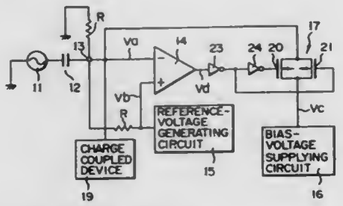
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,056

CLAMPING CIRCUIT

Shin-ichi Imai, Yokohama, and Akira Sakata, Tokyo, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 13, 1989, Ser. No. 365,383
Claims priority, application Japan, Jun. 17, 1988, 63-149601
Int. Cl.[5] H03K *5/05, 5/135*
U.S. Cl. 307—540 2 Claims



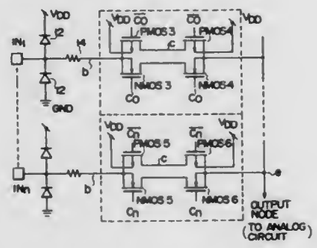
1. A clamping circuit comprising:
a signal input terminal to which an input signal voltage is supplied through a coupling capacitor;
reference voltage generating means;
voltage comparison means, including an operational amplifier having one input terminal to which the input signal voltage supplied to said signal input terminal is applied and another input terminal to which a reference voltage generated by said reference voltage generating means is applied, for comparing the input signal voltage to the reference voltage;
bias voltage supplying means;
switch means, responsive to the voltage comparison means, having a first terminal coupled to said bias voltage supplying means and a second terminal coupled to said signal input terminal;
a resistor connected between said signal input terminal and said reference voltage generating means; and
a resistor connected between said signal input terminal and the ground.

5,065,057

ANALOG SIGNAL INPUT CIRCUIT

Masayuki Kawasaki, Ooita, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 17, 1990, Ser. No. 466,474
Claims priority, application Japan, Jan. 17, 1989, 1-8001
Int. Cl.[5] H03K *3/01, 19/094*
U.S. Cl. 307—572 30 Claims



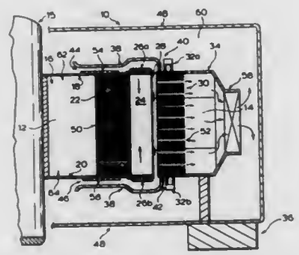
1. An analog signal input circuit comprising:
at least two input terminals;
an output node;
a plurality of p-type first FETs located between each of said at least two input terminals and said output node, each of said plurality of p-type first FETs including a gate terminal and a substrate connected to a positive potential power source terminal, wherein a first plurality of respective control signals are supplied to each said gate terminal of each of said plurality of p-type first FETs located between a corresponding input terminal and said output node, and a source of one of said p-type first FETs is connected directly to a drain of another of said p-type first FETS; and
a plurality of n-type second FETs located between each of said at least two input terminals and said output node, each of said plurality of n-type second FETs including a gate terminal and bipolar transistor structures providing PN junctions whose conduction directions are opposite to each other, wherein a second plurality of respective control signals are supplied to each said gate terminal of each of said plurality of n-type second FETs located between a corresponding input terminal and said output node, and a source of one of said n-type second FETs is connected directly to a drain of another of said n-type second FETs.

5,065,058

SHROUD FOR DYNAMOELECTRIC MACHINE

James H. Ferguson, and Duncan T. Bath, both of Peterborough, Canada, assignors to General Electric Canada Inc., Mississauga, Canada

Continuation of Ser. No. 431,799, Nov. 6, 1989, abandoned. This application May 6, 1991, Ser. No. 697,743
Claims priority, application Canada, Dec. 22, 1988, 586760
Int. Cl.[5] H02K *9/04, 9/00*
U.S. Cl. 310—62 4 Claims



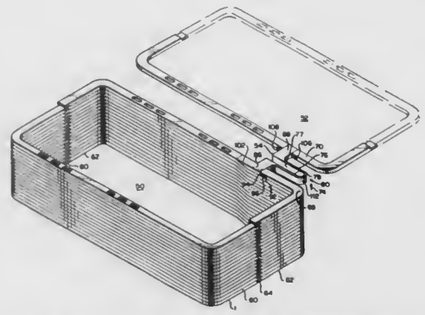
1. A dynamoelectric machine comprising:
(a) a stator member having an upper end and a lower end and having windings therein and end windings extending from the upper and lower ends thereof, said stator member having stator ducts extending therethrough in a generally radial direction,
(b) a rotor member concentrically mounted within said stator member and axially rotatable therewithin to define an air gap,
(c) a spider on said rotor member having upper and lower walls supporting a rim, a plurality of poles saliently positioned on said rim and ventilation ducts spaced therebetween to define radial gas passages to said gap and to cooperating gas passages in said stator ducts,
(d) means for admitting a first stream of cooling gas to said spider and directing said stream transversely through said ventilation ducts, gap and stator ducts,
(e) a shroud means mounted at the upper end and the lower end of said stator member between said gap and said end windings, said shroud means extending transversely therefrom over each of the respective upper and lower walls of said spider to define a gas inlet passage therebetween, and
(f) directional blades on said upper and lower walls of said spider positioned within each respective gas inlet passage for drawing a second stream of gas radially outward through the gas inlet passage for passage axially between said poles of said rotor and then transversely through said gap and said stator ducts in conjunction with said first stream.

5,065,059

FIELD COIL POLE TO POLE CONNECTOR WITH HIGH CYCLIC DUTY CAPABILITY

Steven L. Adams, Clifton Park; William L. Bird, Scotia; Humphrey W. Chow, Schenectady; Kirk G. O'Brien, Broadalbin, and Paul C. Rasmussen, Schaghticoke, all of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Dec. 20, 1989, Ser. No. 453,304
Int. Cl.[5] H02K *11/00*
U.S. Cl. 310—71 43 Claims



1. In an electric machine subjected to multiple starts and stops and including field coils secured to a rotor of the machine which are subjected to forces including centrifugal force on start/stop cycles of the machine, a high reliability field coil connector for interconnecting adjacent field coils comprising:
a first connecting member and a second connecting member joined by an intermediate member;
said intermediate member having a generally U-shaped configuration, and including a first jaw and a second jaw substantially parallel to said first jaw about an opening therebetween and meeting at an apex at one end of said opening and defining an open end at an other end of said opening, said first and second jaws having length, width and thickness dimensions;
said first connecting member and said second connecting member each extending substantially perpendicularly from said open end of said first and second jaws;
said first connecting member being adapted for electrical connection to a first field coil; and
said second connecting member being adapted for electrical connection to a second field coil;
said electrical connections of said first and second connecting members orienting said field coil connector such that said first and second jaws extend lengthwise in a direction substantially parallel to an axis of rotation of the rotor such that inertial forces of starting and stopping said electric machine are principally applied parallel to said width dimensions of said jaws and said opening and perpendicular to said first and second connecting members.

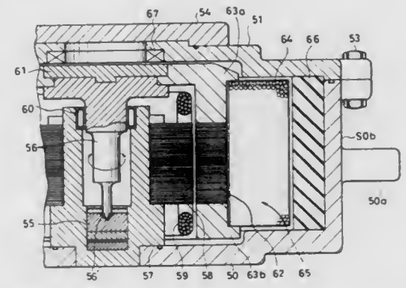
5,065,060

FLYWHEEL TYPE ENERGY STORAGE APPARATUS

Isao Takahashi, Nagaoka; Kazuhiko Tanaka, Nagoya; Akinori Nishibiro, Nagoya, and Takeshi Irino, Nagoya, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 5, 1990, Ser. No. 487,935
Claims priority, applicatioo Japan, Mar. 6, 1989, 1-53569
Int. Cl.[5] H02K *7/02*
U.S. Cl. 310—74 11 Claims

1. An energy storage apparatus for storing electrical energy as rotational kinetic energy and for outputting said kinetic energy as electrical energy, comprising:
a vacuum container; and
an induction motor/generator contained in said vacuum container, said induction motor/generator including
a rotor,



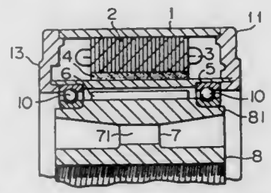
a stator, and
a flywheel rotatably supported in said vacuum container by a shaft,
said flywheel including a circular winding of wire having a large number of turns which is substantially coaxial with said shaft and which is wound around said rotor.

5,065,061

EIEC TROMAGNETIC ACTUATOR FOR VALVE STEM

Ikumi Satoh; Jun Nakano; Riichiroh Harada, and Tatsuhiko Koba, all of Iruma, Japan, assignors to Kabushiki Kaisha Yasakawa Denki Seisakusho, Kitakyushu, Japan

Filed Feb. 16, 1990, Ser. No. 481,046
Claims priority, application Japan, Feb. 17, 1989, 1-18322[U]; *Dec. 20, 1989, 1-147389*[U]
Int. Cl.[5] H02K *1/14, 5/16, 5/128, 37/04*
U.S. Cl. 310—104 23 Claims



23. The electromagnetic actuator for a valve stem, comprising:
a supporting frame structure;
a tubular member formed of a non-magnetic material and supported by said supporting frame structure;
a stator provided outside of said tubular member, said stator having a plurality of salient poles and a stator coil wound around each salient pole;
a plurality of permanent magnets secured to an arcuate surface of each salient pole, said permanent magnets being alternately magnetized into a number of pole-pairs arranged along said arcuate surface at a constant pitch;
a rotor rotatably supported within said tubular member so as to be in opposing relationship with said stator, said rotor comprising an outer annular portion, an inner annular portion, and a rim portion interconnecting said inner and outer annular portions, said rotor further comprising a number of induction teeth formed along the circumference of said outer annular portion, and said rim portion having a plurality of axially orientated throughholes formed therein; and

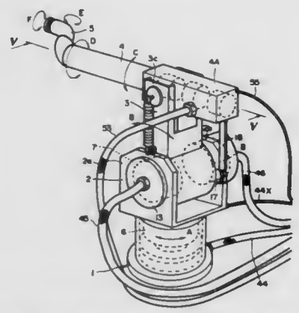
VOL 1132 ISS 2 NO 12 1991 UMI

said supporting frame structure including a bearing housing with bearings retained therein and said bearings are provided between the internal surface of said tubular member and extended parts of the outer annular portion of said rotor.

5,065,062
MOTOR-DRIVE INDUSTRIAL ROBOT

Satoshi Uehara, Yokohama; Yukio Ohtani, Kawasaki, and Yoshiko Iriyama, Tokyo, all of Japan, assignors to Tokico Ltd., Kawasaki, Japan

Filed Oct. 19, 1989, Ser. No. 423,960
Claims priority, application Japan, Oct. 20, 1988, 63-265022; Oct. 19, 1989, 1-272422; Oct. 19, 1989, 1-272426
Int. Cl.[5] H02K *16/00*
U.S. Cl. 310—114 14 Claims



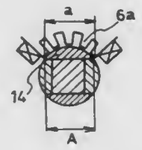
1. An arm assembly for a motor-drive industrial robot comprising:
(a) an arm;
(b) a wrist portion movably mounted to a tip edge portion of said arm;
(c) a plurality of direct-drive motors for driving said wrist portion and which are arranged along a predetermined axial line, said motors each including a rotor, a stator, and a gap defined between the rotor and stator;
(d) an air space defined within said arm which contains said rotors and stators of said plurality of direct-drive motors, said air space forming a passage which sequentially communicates with said gaps between said rotor and said stator of each direct-drive motor;
(e) means for flowing a scavenge gas into said air space and through said respective gaps; and
(f) means for exhausting said scavenge gas from said air space.

5,065,063
ROTATING APPARATUS

Yujiro Watanabe, Nagoya, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Continuation of Ser. No. 330,445, Mar. 30, 1989, abandoned. This application Oct. 17, 1990, Ser. No. 598,789
Claims priority, application Japan, Mar. 30, 1988, 63-76887
Int. Cl.[5] H02K *21/12, 1/22*
U.S. Cl. 310—156 5 Claims

1. A rotating apparatus comprising:
a stator;
a non-magnetic metallic rotor rotatably mounted in the stator, said rotor having a hole extending completely therethrough in a radial direction of said rotor;
a permanent magnet sized for insertion into said hole in a radial direction, said permanent magnet disposed within said hole symmetrically relative to a longitudinal axis of said rotor, a dimension of said permanent magnet in said radial direction being shorter than an outer diameter of said rotor, so that opposite ends of said hole define respective openings, each of said openings being bordered in said radial direction by said permanent magnet and in an axial direction by axially spaced wall portions of said hole; and

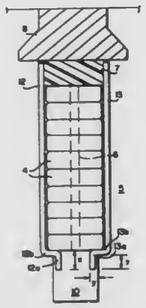


a magnetic material filling each of said openings, said magnetic material being welded to said rotor to form a metallurgical connection therebetween such that the magnetic material is in a thermally deformed condition in contact with said permanent magnet to prestress said permanent magnet.

5,065,064
ROTOR SLOT INSULATION IN ROTORS WITH SUBSLOTS

Christopher A. Kaminski, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed May 31, 1990, Ser. No. 531,066
Int. Cl.[5] H02K *3/34*
U.S. Cl. 310—215 13 Claims

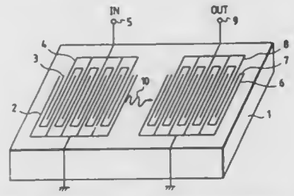


1. Slot armor for use in dynamoelectric machines including a metal rotor having axially extending slots with conductors disposed therein and subslots wherein the widths of the subslots are smaller than the widths of the slots, said slot armor comprising:
insulating layers of substantially uniform thickness each extending axially and radially along a side of each of said slots between said conductors and said rotor, and
said layers also each extending in an offset manner radially inwardly from said slots into said subslots such that said layers are spaced from the sides of each of said subslots.

5,065,065
SURFACE ACOUSTIC WAVE DEVICE

Mitsutaka Hikita, Hachioji; Toyoji Tabuchi, Tsukui; Nobuhiko Shibagaki, Kokubunji; Atsushi Isobe, Kodaira, and Kazuhito Kurosawa, Nakaminato, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed May 21, 1990, Ser. No. 526,508
Claims priority, application Japan, May 26, 1989, 1-131354
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—313 B 40 Claims



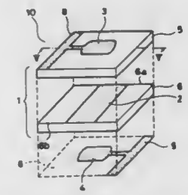
11. A surface acoustic wave device comprising:
an input transducer for converting an electrical signal to a surface acoustic wave;
a first intermediate transducer for converting a surface acoustic wave to an electrical signal;
a second intermediate transducer for converting an electrical signal to a surface acoustic wave, said second intermediate transducer being connected to said first intermediate transducer; and
an output transducer for converting a surface acoustic wave to an electrical signal;
wherein each of said transducers comprises a plurality of electrode fingers located on a piezoelectric substrate along the propagation direction of the surface acoustic wave,
wherein the plurality of electrode fingers of at least one of said transducers are located on said substrate at a pitch of about $(n+0.5)\lambda o/2$, and where the width of each of said plurality of electrode fingers of said at least one of said transducers is about $(n+0.5)\lambda o/4$, where a symbol n indicates a positive integer not more than 3 and a symbol λo indicates a wavelength of a surface acoustic wave with a frequency equivalent to the center frequency of said surface acoustic wave device, and
said plurality of electrode fingers of said at least one of said transducers are located on said substrate so that every other electrode finger is electrically independent of an external circuit every other finger.

5,065,066
PIEZOELECTRIC RESONATOR

Hiroshi Nakatani, and Masao Gamo, both of Nagaokakyo, Japan, assignors to Murata Mfg. Co., Ltd., Japan

Filed Jul. 18, 1990, Ser. No. 554,783
Claims priority, application Japan, Jul. 19, 1989, 1-186777; Jul. 19, 1989, 1-186778
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—320 10 Claims

1. A piezoelectric resonator utilizing a second harmonic wave of the thickness-extensional vibration mode, comprising:
a piezoelectric substrate;
an inner electrode formed in a position at a height around the center of said piezoelectric substrate in the direction of thickness so as to extend in one direction; and
outer electrodes formed on both major surfaces of the piezoelectric substrate so as to be opposed to said inner electrode,
the dimension of at least one of said outer electrodes in the direction of the length of the inner electrode being smaller

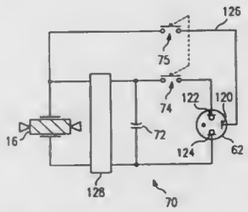


than the dimension of said at least one of said outer electrodes in the direction of the width of the inner electrode.

5,065,067
PIEZOELECTRIC CIRCUIT

Philip A. Todd, 11456 Dumbarton Dr., Dallas, Tex. 75228, and Bobby R. Walker, 1300 Lansdowne Dr., Arlington, Tex. 76012

Continuation-in-part of Ser. No. 241,882, Sep. 8, 1988, Pat. No. 4,943,752. This application May 12, 1989, Ser. No. 350,766
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—339 4 Claims



1. A piezoelectric circuit, comprising:
a piezoelectric crystal;
an electrically operated gas filled discharge tube light source;
means for electrically connecting the piezoelectric crystal to the light source to conduct a voltage generated at the piezoelectric crystal to the light source;
a rectifier connected to the piezoelectric crystal;
a capacitor mounted in parallel with the rectified output of the piezoelectric crystal and light source, repeated impact on the piezoelectric crystal charging the capacitor;
a first normally open switch between the capacitor and light source, closing the switch connects the charged capacitor in parallel with the light source, causing the light source to flash; and
a second normally open switch connected between the piezoelectric crystal and the trigger contact on the gas filled discharge tube light source, closing the switch and striking the crystal initiates ionization of the gas and permits rapid discharge of the capacitor through the light source, causing it to flash.

5,065,068
FERROELECTRIC CERAMIC TRANSDUCER

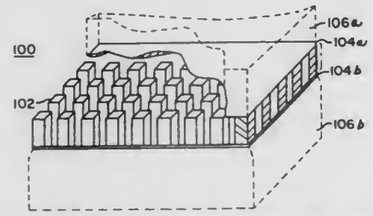
Clyde G. Oakley, 431 Summit Dr., Lewistown, Pa. 17044

Continuation-in-part of Ser. No. 363,063, Jun. 6, 1989, abandoned. This application Dec. 7, 1990, Ser. No. 624,209
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—357 19 Claims

1. A ferroelectric transducer element comprising:
a plurality of ferroelectric ceramic posts spaced apart with no intervening solid or liquid material between the lateral surfaces of said posts, each of said posts having a first end and a second end and the total volume of said plurality of

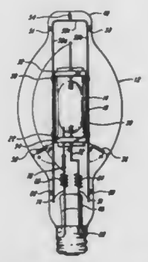
VOL 1132 ISS 2 NO 12 1991 UMI

posts themselves being no greater than sixty percent of the entire volume of the space defined by said plurality of posts;
first electrode layer means for electrically connecting said first ends of said posts together;
second electrode layer means for electrically connecting said second ends of said posts together;
a polymer front layer attached to said first electrode layer



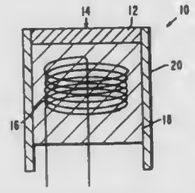
means and having a shear wavelength at the nominal center operating frequency of said transducer element which is at least three times as large as the shortest distance between the lateral surfaces of neighboring posts;
and a polymer back layer attached to said second electrode layer means and having a shear wavelength at the nominal center operating frequency of said transducer element which is at least three times as large as the shortest distance between the lateral surfaces of neighboring posts.

5,065,069
ARC DISCHARGE LAMP WITH SPRING-MOUNTED ARC TUBE, SHROUD AND FRAME
Scott R. Hunter, Rockport, Mass., assignor to GTE Products Corporation, Danvers, Mass.
Filed Dec. 6, 1990, Ser. No. 623,141
Int. Cl.[5] H01J *61/34*
U.S. Cl. 313—25 **19 Claims**



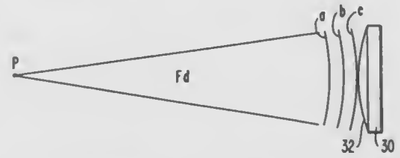
1. An electric lamp comprising:
a sealed lamp envelope including a lamp stem;
a lamp subassembly located within said lamp envelope, said lamp subassembly including
a lamp capsule for generating light upon application of electrical energy,
a generally cylindrical, light-transmissive shroud disposed around said lamp capsule,
first and second retainers attached to opposite ends of said lamp capsule and retaining said shroud between them, and
a frame extending between dome and base regions of said lamp envelope, said first and second retainers being attached to said frame, said frame being mechanically and electrically isolated from said lamp stem;
means for coupling electrical energy through said lamp stem to said lamp capsule, said means for coupling being electrically isolated from said frame; and
plural springs coupled between said lamp subassembly and said lamp envelope for resilient mounting of said lamp subassembly, said plural springs providing mechanical support for said lamp subassembly in said lamp envelope.

5,065,070
SPUTTERED SCANDATE COATINGS FOR DISPENSER CATHODES
Robert T. Longo, Arcadia; Mario A. Barillas, Carson, both of Calif., and Ralph Forman, Rocky River, Ohio, assignors to Hughes Aircraft Company, Los Angeles, Calif.
Division of Ser. No. 632,194, Dec. 21, 1990, Pat. No. 5,041,757.
This application May 6, 1991, Ser. No. 696,399
Int. Cl.[5] H01J *1/28*
U.S. Cl. 313—346 DC **6 Claims**



1. A low work function scandate surface coating for a dispenser cathode structure containing an outer surface substrate composed of porous tungsten impregnated with a barium containing impregnant distributed therethrough, the surface coating comprising a 1 to 30 nanometer thick layer of scandium oxide deposited onto the outermost portion of the substrate, the scandium oxide surface coating further comprising an activating amount of barium oxide.

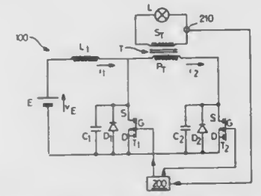
5,065,071
MONOCHROME CRT WITH INTERFERENCE FILTER HAVING FILTER LAYER WITH REDUCED TRANSMISSION AND PROJECTION COLOR TV INCORPORATING SAME
Robert L. Donofrio, Saline, Mich., and André A. Van der Voort, Son en Breugel, Netherlands, assignors to North American Philips Corporation, New York, N.Y.
Filed Jan. 2, 1990, Ser. No. 459,886
Int. Cl.[5] H01J *29/89, 29/28*
U.S. Cl. 313—474 **18 Claims**



1. A monochrome cathode ray tube for projection television, the tube having a luminescent output and comprising in an evacuated envelope: a display screen on an inner surface of a display window in the wall of the envelope, the display screen comprising a layer of a luminescent material; and a multilayer interference filter overlying the display screen,
characterized in that one or more of the layers of the filter has a center-to-edge thickness gradient in which the thickness decreases from center to edge of the display window, and further characterized in that the optical absorption of the one or more of the layers, for at least the wavelengths of radiation corresponding to the luminescent output of the tube, is greater than that of the remaining layers of the filter, thereby providing greater attenuation of the emitted radiation in the center and progressively less attenuation

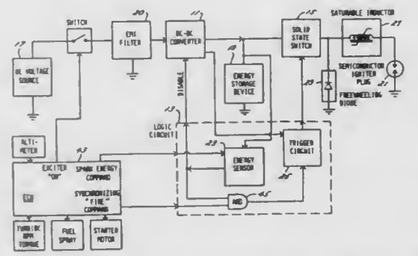
toward the edges of the display window, thereby to improve the luminance uniformity of the tube.

5,065,072
POWER SUPPLY CIRCUIT FOR AN ARC LAMP, IN PARTICULAR FOR A MOTOR VEHICLE HEADLIGHT
Pierre Albou, Paris, and Joël Leleve, Epinay-sur-Seine, both of France, assignors to Valeo Vision, Bobigny Cedex, France
Filed Mar. 28, 1990, Ser. No. 500,290
Claims priority, application France, Mar. 31, 1989, 89 04308; Nov. 24, 1989, 89 15486
Int. Cl.[5] B60Q *1/02*
U.S. Cl. 315—82 **13 Claims**



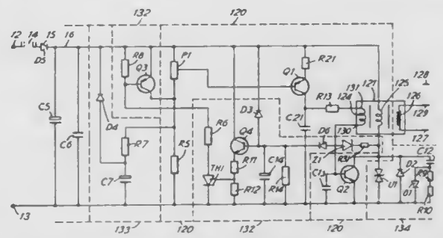
1. A power supply circuit for an arc lamp, in particular for a motor vehicle headlight, wherein the power supply circuit comprises:
pulse generating means for generating first voltage pulses across the terminals of a first capacitor and for applying them to the lamp in order to strike an arc in the lamp and for generating second voltage pulses for maintaining the arc in the lamp once struck, said first and second pulses being derived from a current flowing through at least one inductance under the control of switch means comprising a first switch connected in parallel with said first capacitor and a second switch connected in parallel with a second capacitor, said switches being controlled as a function of the valve of the current flowing through the lamp, said lamp being connected between said first and second capacitors.

5,065,073
APPARATUS AND METHOD FOR PROVIDING IGNITION TO A TURBINE ENGINE
John R. Frus, 2002 Clinton St., Rockford, Ill. 61108
Filed Nov. 15, 1988, Ser. No. 271,723
Int. Cl.[5] H05B *37/02, 39/04;* F02C *7/26;* F02G *3/00*
U.S. Cl. 315—209 R **26 Claims**



1. In a system for igniting fuel for a turbine engine, a unipolar ignition comprising:
a voltage converter for receiving a low voltage from a system source and converting it to a high DC output voltage;
a capacitor coupled to said voltage converter for accumulating energy delivered from said voltage converter;
an inductor wound about a magnetically saturable core and connected in series with a low tension ignitor plug;
a unidirectional device connected in parallel with said series connected inductor and low tension ignitor plug for ensuring a unipolar current across the gap of the plug;
solid state means including a switch means for transferring the energy accumulated by the capacitor to the series connected inductor and low tension ignitor plug such that the following sequence of event occurs: (a) a high voltage appears across the gap of the ignitor plug and begins to create a plasma, (b) a relatively slow current rise (di/dt) is initiated during transition of said switch means from a first state to a second state while sustaining the high voltage across the gap of the ignitor plug; (c) saturation of said magnetically saturable core occurs and a relatively fast di/dt occurs across the gap of low tension ignitor plug, thereby completing the generation of a spark across the gap;
the saturable core having (1) a saturated inductance that provides the spark across the gap of the low tension ignitor plug with sufficient power to reliably ignite the fuel of the turbine engine (2) an unsaturated inductance that limits a current through the low tension ignitor plug and thereby protects the plug from excessive wear, and (3) a size sufficient to store the energy delivered from the capacitor to the inductor without saturating until after the plasma is formed.

5,065,074
FLUORESCENT TUBE DRIVER AND LIGHTING SYSTEM
John Hesketh, and Martin Thornton, both of Wakefield, England, assignors to Coolite Limited, Croydon, United Kingdom
Filed Mar. 13, 1991, Ser. No. 669,014
Claims priority, application United Kingdom, Aug. 24, 1990, 9018695; Nov. 7, 1990, 9024212; Jan. 4, 1991, 9100182
Int. Cl.[5] H05B *41/36*
U.S. Cl. 315—209 R **12 Claims**



1. A fluorescent tube driver having first positive and second nominally zero input terminals arranged to be supplied by a low voltage DC source (less than 50 volts) comprising an oscillator circuit consisting of a current source effectively connected through a first capacitor to the second input, a transformer having first and second windings and an oscillator transistor having a base, an emitter and a collector, the base of the oscillator transistor being connected through the first winding to the junction of the current source and the first capacitor, the collector of the oscillator transistor being effectively connected through the second winding to the first input and the emitter of the oscillator transistor being effectively connected to the second input, the current source being arranged to deliver a current such that the power output is in the range 18 to 40 watts, and output means comprising a third winding on the transformer, the third winding having a greater number of turns than the first and second windings, and connection points on the third winding for connection to a fluorescent tube, in which the value of the first capacitor is selected so that the frequency of the oscillator is in the range 50 to 100 KHz and the transformer and current source are arranged such

VOL
1132
ISS
2
NO
12
1991
UMI

that the oscillator operates in switched mode, the current source being arranged to supply an adjustable current to the oscillator transistor, the current being adjustable to operate tubes in the range 18–40 watts at maximum efficiency.

5,065,075

LAUNCHER SUITABLE FOR EXCITING SURFACE WAVES IN A DISCHARGE TUBE

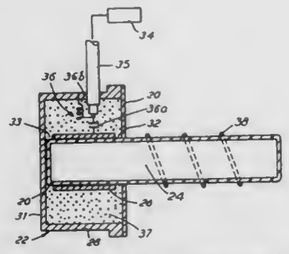
Ulrich Greb, Cossington, England, assignor to Thorn EMI plc, London, England

Filed Sep. 1, 1989, Ser. No. 401,415

Claims priority, application United Kingdom, Sep. 2, 1988, 8821671

Int. Cl.[5] H05B *41/24*

U.S. Cl. 315—248 **7 Claims**



1. A launcher suitable when energised with radio frequency (r.f.) power for exciting surface waves in a discharge tube containing a fill, the launcher comprising:

a) an inner tube having a first end and a second end;

b) an outer tube having a first end and a second end, said outer tube surrounding said inner tube and being mutually coaxially disposed on a longitudinal axis;

c) a first end wall extending substantially perpendicular to the longitudinal axis from said first end of said outer tube to a radially inward position disposed adjacent but axially spaced from the first end of said inner tube to form between said first end wall and said first end of the inner tube a launching gap, said first end wall having an aperture for receiving a said discharge tube;

d) a second end wall extending from said second end of said outer tube to a radially inward position spaced axially from the second end of said inner tube to form a field arresting gap; wherein said outer tube and said first and second end walls form an unbroken electrically conductive path to provide an r.f. screening structure around said inner tube.

5,065,076

DIGITAL CONVERGENCE SYSTEM

Alan Koebel, Kitchener, Canada, assignor to Electrohome Limited, Ontario, Canada

Continuation of Ser. No. 461,394, Jan. 5, 1990, abandoned. This application Oct. 22, 1990, Ser. No. 600,262

Int. Cl.[5] H01J *29/70, 29/76*

U.S. Cl. 351—368 R **19 Claims**

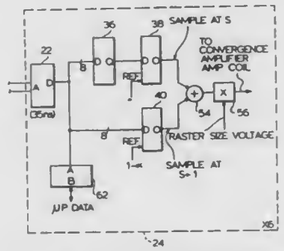
1. In a scanning rate correction apparatus for generating interpolated correction values intermediate a pair of user-defined correction values associated with respective predetermined scan lines of a video display system, the improvement comprising:

(a) means for detecting the number (N) of successive scan lines (i) between said respective predetermined scan lines;

(b) means for generating a pair of weighting coefficients having values of $\alpha = i/N$ and $1-\alpha = 1-i/N$, respectively, for each said successive scan lines (i);

(c) first means for multiplying a first one of said pair of user-defined correction values by a first one of said pair of weighting coefficients (α) for each said successive scan lines (i) and in response generating successive first product values;

(d) second means for multiplying the other of said pair of user-defined correction values by the other of said pair of weighting coefficients ($1-\alpha$) for each said successive scan



lines (i), and in response generating successive second product values; and

(e) means for summing said successive first and second respective product values and in response generating said interpolated correction values for each said successive scan lines (i).

5,065,077

COLOR MONITOR

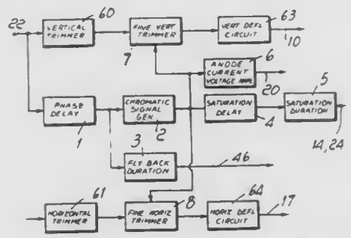
Salvatore Pranzo, Via Campeggi 15, 27100 Pavia, Italy

Filed Jul. 23, 1990, Ser. No. 555,876

Claims priority, application Italy, Jul. 31, 1989, 21390 A/89

Int. Cl.[5] G09G *1/04*; H01J *29/80*; H04N *9/27*

U.S. Cl. 315—375 **6 Claims**



1. Improved color monitor, comprising a cathode-ray tube for generating a single electron beam with different energy levels depending on the primary color to be displayed and a screen which has at least one layer of electroluminescent material, and a control circuit for controlling the sequential display of said primary colors, said cathode-ray tube further including a cathode, a grid, a cylindrical portion, a bulb which frontally defines said screen, a conducting layer inside the bulb defining an anode and a graphite layer outside said bulb, said anode and said graphite layer defining therebetween a capacitor charged to voltages which differ in value according to the color to be displayed, wherein it comprises means adapted to vary the energy level between the cathode and the grid of said cathode-ray tube so as to generate an overcurrent in said capacitor and to cause its rapid discharge at the end of the display of the color signal with higher energy.

5,065,078

D.C. MOTOR CONTROL CIRCUIT FOR RADIO CONTROLLED TOY

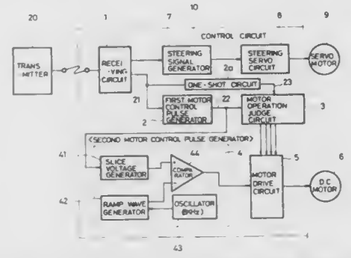
Yuji Nao, Kawasaki, and Koichi Yamazaki, Tokyo, both of Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Filed Dec. 13, 1989, Ser. No. 449,805

Claims priority, application Japan, Dec. 19, 1988, 63-164313[U]

Int. Cl.[5] H02P *7/00*

U.S. Cl. 318—16 **21 Claims**



1. A control circuit for a D.C. motor for driving a radio control toy, comprising:

a receiving circuit responsive to an input modulated motor control signal having a first frequency from a radio control transmitter and operative to demodulate the motor control signal and produce a demodulated motor control signal;

a first motor control pulse generator for generating a first motor control pulse based on the demodulated motor control signal, said first motor control pulse having the first frequency and a first pulse width;

a second motor control pulse generator responsive to said first motor control pulse for generating a second motor control pulse having a second frequency and a second pulse width, said second frequency being higher than said first frequency;

a motor operation judge circuit for comparing the pulse width of said first motor control pulse with a pulse width of a reference pulse to produce a drive control signal for indicating one of a forward and a backward drive according to a result of comparison; and

a D.C. motor drive circuit controlled by said second motor control pulse and said drive control signal which supplies forward drive current corresponding to said second motor control pulse for forward motor rotation to said D.C. motor, and supplies a backward drive current corresponding to said second motor control pulse for reverse motor rotation to said D.C. motor.

5,065,079

METHOD AND APPARATUS FOR CONTROLLING LUMBAR SUPPORT DEVICE

Hiromitsu Ogasawara, Akishima, Japan, assignor to Tachi-S Co., Ltd., Tokyo, Japan

Filed Oct. 23, 1990, Ser. No. 601,464

Int. Cl.[5] H02P *1/22*

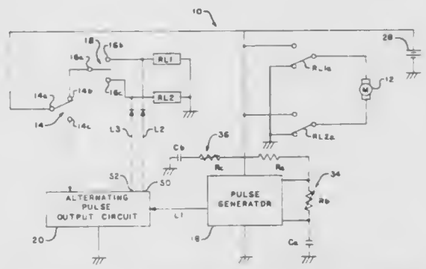
U.S. Cl. 318—281 **8 Claims**

1. A method for controlling a lumbar support device to adjust a lumbar support plate forwardly and backwardly under control of a motor against a lumbar part of an occupant on a seat, said method comprising the steps of:

permitting selective choice between a manual control and an automatic control by use of a selection switch;

adjusting, through said manual control, the forward and backward position of said lumbar support plate by means of a switch-over operation for causing a corresponding normal and reverse drive of said motor; and

causing said motor, through said automatic control, to drive in normal and reverse directions alternately in a repeated manner by means of generating plural rectangular pulses each having a given generating period and pulse width and distributing them alternately into each of two relays



which in turn causes alternate normal and reverse drive of said motor in response to each of alternately sent said pulses, to thereby move said lumbar support plate forwardly and backwardly in a repeated alternate manner.

5,065,080

CONTROL SYSTEM

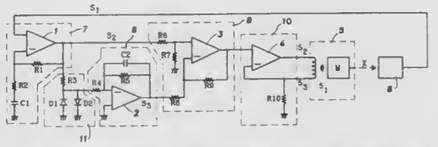
Gohji Uchikoshi, Tokyo, Japan, assignor to Nakamichi Corporation, Kodaira, Japan

Continuation of Ser. No. 271,727, Nov. 15, 1988, abandoned. This application Mar. 19, 1991, Ser. No. 671,669

Claims priority, application Japan, Nov. 16, 1987, 63-288661

Int. Cl.[5] G05B *5/01*

U.S. Cl. 318—611 **2 Claims**



1. A control system comprising a differentiation circuit having an input and an output, said output of said differentiation circuit being connected to an input of an integration circuit, an output of said integration circuit and said output of said differentiation circuit being added and connected to a motor drive circuit, said motor drive circuit being connected to a motor which positions a moving article, a displacement condition of said moving article being sensed by a controlled variable detection means, said controlled variable detection means having an output connected to the input of said differentiation circuit wherein a transfer function of one control component having a first saturation level and comprising said integration circuit is expressed by G2, a mass transfer function of other control components having a second saturation level and comprising said differentiation circuit, said motor drive circuit, said motor and said controlled variable detection means is expressed by G1, and having an open loop transfer function G being expressed by the following expression:

$$G = G1\,(1+G2)$$

said first saturation level being set lower than said second saturation level.

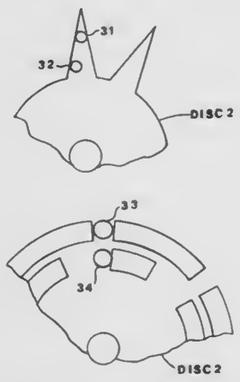
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,081

ZERO ERROR DIGITAL SERVO SYSTEM

Emanuel E. Shah, 1221 Trinity Dr., Benbrook, Tex. 76126

Continuation-in-part of Ser. No. 130,958, Dec. 10, 1987, abandoned. This application Nov. 13, 1989, Ser. No. 435,043
Int. Cl.[5] G05B *1/06*
U.S. Cl. 318—638 11 Claims



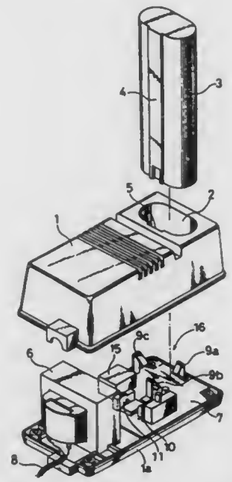
1. A zero error digital servo system comprising:
at least one primary sensor means and a means to activate the same;
at least one secondary sensor means and a means to activate the same;
a first member means interposed between the sensor means and the means to activate, so positioned that a free relative motion exists between the first member means and the sensor means;
a position element means which comprises at least one position element characterized by area elements and point elements located on said first member means so that when said first member means moves, the position elements also move from one position element to the next, this movement is defined as change in one count;
when said position element is aligned with said primary sensor means and said secondary sensor means, said primary sensor means outputting at least one logic state and said secondary sensor means outputting at least one selected logic state, said first member means is defined to be in an in-position state;
when the position element moves out of said in-position state, at least one sensor means will change the output logic state to an opposite logic state; and
a control and processing means which includes:
a means to store output logic state of each sensor means when one sensor means changes logic state;
a means to combine selected stored output logic states with a current output logic state of at least one sensor means to generate a first output logic state combination;
a counting means for counting the number of repeat occurrences of the first output logic state combination;
a means to compare the repeat occurrences of said first output logic state combination with a preselected number of first logic state combination; and
said first member means is moved till the repeat occurrences of said first output logic state combination reaches said preselected number of first logic state combination, said first member means is maintained at the final occurrence of the first output logic state combination by continuously correcting the position of the first member means.

5,065,082

VOLTAGE-SWITCHING MECHANISM FOR A BATTERY CHARGER FOR CHARGING BATTERIES WITH DIFFERENT VOLT RATINGS

Fusao Fushiya, Nagoya, Japan, assignor to Makita Electric Works, Ltd., Japan

Filed Jul. 6, 1990, Ser. No. 549,205
Claims priority, application Japan, Sep. 27, 1989, 1-113277[U]; Apr. 27, 1990, 2-45532[U]
Int. Cl.[5] H01H *10/46*
U.S. Cl. 320—2 19 Claims



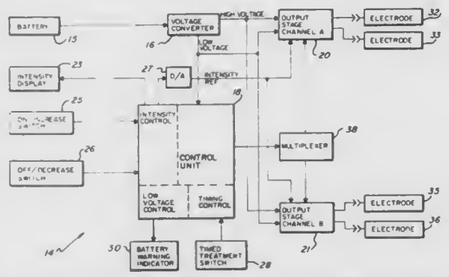
1. A voltage-switching mechanism for a battery charger for charging batteries with different voltage ratings, which comprises
(a) a charging hole provided in a battery charger, having a shape similar to a shape of each of first and second batteries to be charged, and having a side opening,
each battery being inserted into the charging hole when it is to be charged, the battery charger normally providing a charging voltage at a voltage rating of the second battery,
(b) a guide groove provided in the charging hole and having a portion which forms part of the side opening,
(c) a voltage selector connected to the side opening and partly projecting into the guide groove,
(d) a first guide portion projecting from the first battery and being introduced into the guide groove, when the first battery is inserted in the charging hole, to ensure that the first battery is correctly oriented in the charging hole,
the first guide portion having such a shape that, when the first guide portion is introduced into the guide groove, the first guide portion makes contact with the voltage selector, thereby causing the voltage selector to depress an actuating element of a voltage switch to switch said charging voltage to a voltage rating of the first battery, and
(e) a second guide portion projecting from the second battery and being introduced into the guide groove, when the second battery is inserted in the charging hole, to ensure that the second battery is correctly oriented in the charging hole,
the second guide portion having such a shape that, when the second guide portion is introduced into the guide groove, the second guide portion makes no contact with the voltage selector.

5,065,083

MICROPROCESSOR CONTROLLED ELECTRONIC STIMULATING DEVICE HAVING A BATTERY MANAGEMENT SYSTEM AND METHOD THEREFOR

Alan R. Owens, Longmont, Colo., assignor to Staodyn, Inc., Longmont, Colo.

Filed Aug. 25, 1989, Ser. No. 398,745
Int. Cl.[5] H02J *7/00*; A61N *1/00*
U.S. Cl. 320—13 19 Claims



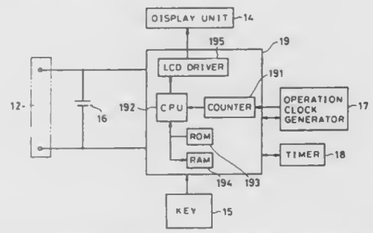
1. A method for battery management in a battery powered unit, said method comprising:
monitoring the voltage level of a battery used to power an electrical unit the power output of which is battery voltage dependent; and
repeatedly detecting a predetermined first low voltage level of said battery and, responsive to each detection of said predetermined first low voltage level, decrementing the power output of said electrical unit by a small amount relative to the power output then being provided to cause, so long as within the capability of said battery, aid battery voltage to be maintained substantially at said predetermined first low voltage level.

5,065,084

ELECTRONIC EQUIPMENT HAVING DISPLAY DEVICE FOR DISPLAYING LIFETIME OF POWER SOURCE

Yoshinori Oogita, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Japan

Filed Jul. 3, 1990, Ser. No. 547,217
Claims priority, application Japan, Aug. 8, 1989, 64-205132
Int. Cl.[5] H01M *10/48*
U.S. Cl. 320—48 3 Claims



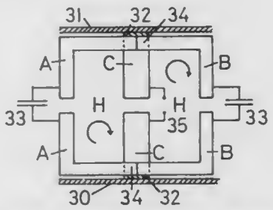
1. An electronic equipment using a battery as an energizing power source, comprising:
a display unit;
signal generating means for generating operation clocks while the electronic equipment is being actuated; counting means for measuring the number of the clocks; calculating means for calculating an operating time of the battery based upon the result of the counting operation by the counting means;
timer means for measuring the total actual time for which the battery has been held in said equipment;
means responsive to said timer means and said calculating means for determining the total off time in which said electronic equipment is unactuated;
estimating means responsive to said calculating means and said means for determining for estimating a consumption state of the battery based upon the result of the calculation by the calculating means and the determination of off time; and
informing means responsive to said estimating means for causing said display unit to display beforehand the expiration of the lifetime of the battery based upon the result of the estimation by the estimating means wherein said estimating means estimates a consumption state of the battery based upon current outputted from the battery while said electronic equipment is actuated and unactuated.

5,065,085

THERMOELECTRIC ENERGY CONVERSION

Harold Aspden, Chilworth, Isle of Man, and John S. Strachan, Edinburgh, Scotland, assignors to Strachan-Aspden Limited, Edinburgh, Scotland

Filed Oct. 31, 1989, Ser. No. 429,608
Claims priority, application United Kingdom, Nov. 18, 1988, 8826952
Int. Cl.[5] H02N *3/00*
U.S. Cl. 322—2 R 15 Claims



1. A thermoelectric energy converter comprises:
a thermoelectric circuit assembly having two parts respectively connected to terminals adapted to be coupled to an external power system;
a thermally non-conductive barrier mounted between said parts;
a structure for housing the thermoelectric assembly, said housing being bounded by heat transfer elements providing two external thermal interface surfaces and two internal thermal interface surfaces, there being layers of heat-conducting electrically non-conducting insulation separating the heat transfer elements from the thermoelectric circuit assembly,
a first pair of thermocouple junctions included in said assembly, said junctions being formed by contact between metals having different thermoelectric properties and connected by these metals as part of a closed loop circuit, the thermocouple junctions being respectively in said parts of the assembly,
a second pair of thermocouple junctions included in said assembly, formed by contact between metals having different thermoelectric properties and connected by these metals as part of a closed loop circuit, the thermocouple junctions being respectively in said parts of the assembly,
a pair of capacitors having dielectric insulation, both capacitors being included in each of the closed loop circuits and both capacitors having their electrodes respectively connected in said two parts of the circuit assembly, whereby the capacitor dielectric insulation provides the thermally non-conductive barrier and whereby connection of the capacitors in both closed loop circuits provides alternative

VOL 1132 ISS 2 NO 12 1991 UMI

flow paths for capacitor current through different pairs of thermocouple junctions,

circuit polarization means selectively responsive to the capacitor current flow direction positioned so as to divert at least some of the current through one pair of thermocouple junctions for current flow in one direction and through the other pair of thermocouple junctions for current flow in the opposite direction, and

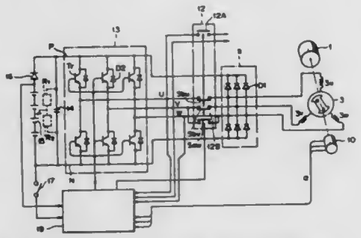
circuit interrupter means connected between the circuit assembly and the terminals for varying the load impedance effective in the loop circuits at a rapid rate to set up current oscillations through the capacitors when thermoelectrically powered currents flow around the thermocouple loop circuits that are commensurately related to a temperature differential set up between the two heat transfer elements.

5,065,086

ENGINE DRIVEN GENERATOR

Yuzo Takakado, Aichi, Japan, assignor to Shinko Electric Co., Ltd., Tokyo, Japan

Filed Apr. 18, 1989, Ser. No. 339,990
Claims priority, application Japan, Apr. 19, 1988, 63-94553
Int. Cl.[5] F02N *11/04;* B60L *11/06*
U.S. Cl. 322—10 9 Claims



1. In an engine driven generator unit comprising:

an engine;

a three-phase synchronous generator, and means for permitting said synchronous generator to be driven by the engine to generate electric power;

a direct current power supply for providing direct current power for use in actuating the engine;

inverter means for converting the direct current provided by the direct current power supply into an alternating current and supplying the alternating current to the three-phase synchronous generator so that the three-phase synchronous generator performs a motor driving operation to actuate the engine, the inverter means having a pair of input terminals and a plurality of switching elements connected with each other in pairs which shunt said input terminals;

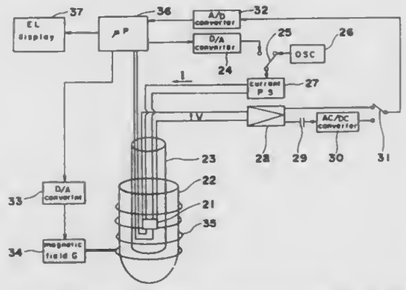
the improvement comprising control means operative while the three-phase synchronous generator effects power generation for alternatingly and oppositely switching each of a first said pair of switching elements respectively ON and OFF while simultaneously applying PWM control signals of equal time duration in alternating succession to second and third said pairs of switching elements, said inverter means having a plurality of output terminals, said second pair of switching elements being connected to each other at one of said output terminals, said third pair of switching elements being connected to each other at one of said output terminals, and means operable simultaneously with said control means for connecting the output terminals corresponding to the second and third pairs of switching elements to each other.

5,065,087

APPARATUS FOR OBSERVING A SUPERCONDUCTIVE PHENOMENON IN A SUPERCONDUCTOR

Ryusuke Kita, Chiba; Hidetaka Shintaku; Shuhei Tsuchimoto, both of Nara; Shoei Kataoka, Tokyo; Eizo Ohno, and Masaya Nagata, both of Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 3, 1989, Ser. No. 416,486
Claims priority, application Japan, Oct. 4, 1988, 63-250289; Oct. 5, 1988, 63-252782
Int. Cl.[5] G01N *27/00*
U.S. Cl. 324—71.6 4 Claims



1. An apparatus for observing a superconductive phenomenon, comprising:

a superconductor having a threshold temperature at which said superconductor changes from the normal conductive phase to the superconductive phase so that the electric resistance thereof becomes zero;

a current power source for supplying either a constant predetermined direct current or an alternating current to said superconductor in response to a signal;

a voltage amplifier for amplifying a voltage generated in said superconductor at a variable voltage gain;

means for applying a predetermined magnetic field to said superconductor in response to an analogue signal;

means for cooling said superconductor at the threshold temperature thereof or less;

a thermal sensor for measuring the temperature of said superconductor, said thermal sensor arranged in the vicinity of said superconductor;

an analogue to digital converter for converting an analogue voltage signal into a digital signal;

a first digital to analogue converter for converting a digital signal corresponding to a constant direct current to be supplied to said superconductor into an analogue signal and outputting it to said current power source;

a second digital to analogue converter for converting a digital signal corresponding to a magnetic field to be applied to said superconductor into an analogue signal and outputting it to said means for applying the magnetic field thereto;

an oscillator for generating an alternating-current signal and outputting it to said current power source so as to supply an alternating current to said superconductor;

a first switch for switching over between a first state that the analogue signal outputted from said digital to analogue converter is input to said current power source and a second state that the alternating-current signal outputted from said oscillator is input thereto;

a capacitor for rejecting a direct-current voltage component contained in the voltage generated in said superconductor and outputting only an alternating-current voltage component thereof;

an AC to DC voltage converter for converting the alternating-current voltage component outputted from said capacitor into a direct-current voltage;

a second switch for switching over between a third state that the direct-current voltage outputted from said AC to DC voltage converter is input to said analogue to digital voltage converter and a fourth state that the voltage signal outputted from said voltage amplifier is input to said analogue to digital converter;

a display for displaying a characteristic of said superconductor; and

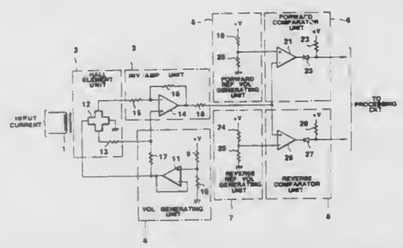
a microprocessor for controlling the voltage gain of said voltage amplifier and the magnetic field to be applied to said superconductor, for processing electric signals input from said thermal sensor and said analogue to digital converter and for displaying a characteristic of said superconductor on said display.

5,065,088

CURRENT SENSOR CIRCUIT

Tetsuo Habiro, and Takeo Kashiwa, both of Kanagawa, Japan, assignors to Toyo Communication Equipment Co., Ltd., Kanagawa, Japan

PCT No. PCT/JP89/00968, § 371 Date Jun. 26, 1990, § 102(e) Date Jun. 26, 1990, PCT Pub. No. WO90/03581, PCT Pub. Date Apr. 5, 1990
PCT Filed Sep. 22, 1989, Ser. No. 476,422
Claims priority, application Japan, Sep. 22, 1988, 63-238135
Int. Cl.[5] G01R *33/06;* H04B *3/46*
U.S. Cl. 324—117 H 1 Claim



1. A current sensor circuit for measuring by means of a Hall element the magnitude of a magnetic flux obtained in response to an input electric current and for generating a signal corresponding to a result of measurement, characterized by comprising:

a voltage follower-type voltage generating unit whose output voltage changes by following a supply voltage;

a Hall element driven by a voltage obtained from said voltage generating unit;

an amplifier unit to which the voltage obtained from said voltage generating unit is applied as an offset compensating voltage, and which is adapted to amplify an output voltage of said Hall element;

a first reference resistor unit for generating a positive-side threshold voltage;

a first comparator unit for generating a signal when a value of an output voltage output from said amplifier unit is greater toward a positive side than the positive side threshold voltage;

a second reference resistor unit for generating a negative side threshold voltage; and

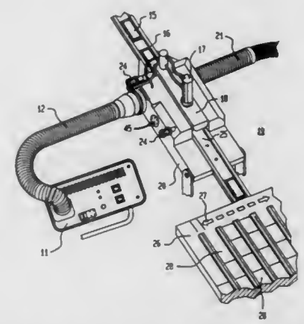
a second comparator unit for generating a signal when the value of the output voltage output from said amplifier unit is greater toward a negative side than the negative side threshold voltage.

5,065,089

CIRCUIT HANDLER WITH SECTIONED RAIL

Donald S. Rich, Long Valley, N.J., assignor to Tovex Tech, Inc., Long Valley, N.J.

Filed Jun. 1, 1990, Ser. No. 532,253
Int. Cl.[5] G01R *31/02;* B07C *5/344*
U.S. Cl. 324—158 F 15 Claims



1. A circuit handler system for providing a controllable environment during monitoring of an electrical device while same is subjected to a test procedure, the handler system comprising:

support base means having a first input for receiving a conditioning fluid for producing a predetermined temperature in the controllable environment, a second input for receiving control signals, a third input for receiving pressurized air, and a test output for producing signals responsive to the electrical device while it is under test, said support base means being further provided with a device inlet channel disposed in a top surface of said support base means and arranged to have an inlet channel input port for receiving the electrical device and an inlet channel output port for delivering the electrical device to a test site arranged in said top surface of said support base means where the electrical device is stationed in the controllable environment during performance of the test procedure, there being further provided in said top surface of said base support means a device outlet channel having an outlet channel input port for receiving the electrical device from said test site, and an outlet channel output port for expelling the electrical device from said support base means upon completion of the test procedure;

rail means arranged on said top surface of said support base means for accommodating on an upward facing first side thereof the electrical device at said test site during performance of said test procedure and during transportation of the electrical device to and from said test site, said rail means being formed of an inlet rail portion, a test site rail portion, and an outlet rail portion, said portions being arranged sequentially with respect to one another and each such portion being arranged in the vicinity of a respective one of said device inlet channel, said test site, and said device outlet channel, said inlet and outlet rail portions of said rail means each being provided with a respective manifold portion on a second side of said rail means which faces said support base means for conducting therealong said pressurized air received at said third input of said support base means to be released at an associated juncture of said test site rail portion for producing an air curtain at each such juncture; and

thermal barrier means interposed between said inlet, test site, and outlet rail portions for reducing thermal conductance between said test site and inlet rail portions and said test site and outlet rail portions.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,090

METHOD FOR TESTING INTEGRATED CIRCUITS HAVING A GRID-BASED, "CROSS-CHECK" TEST STRUCTURE

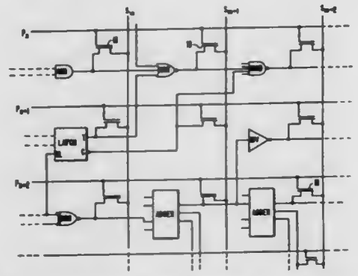
Tushar R. Gheewala, Cupertino, Calif., assignor to Cross-Check Technology, Inc., San Jose, Calif.

Filed Jul. 13, 1988, Ser. No. 218,724

The portion of the term of this patent subsequent to Jun. 7, 2005, has been disclaimed.

Int. Cl.[5] **G01R** *31/00, 31/02*

U.S. Cl. 324—158 R **3 Claims**



1. A method for electrically testing an integrated circuit comprising arbitrary function combinatorial logic gates and an array of electronic switches connected to test-points on said integrated circuit, said electronic switches having access to test-electronics by means of probe-lines and sense-lines, said method comprising the steps of:

a. applying test patterns to said integrated circuit from test electronics;

b. selectively applying ON signal levels to a selected one probe-line connected to a single row of an array of electronic switches, each electronic switch being a three-terminal memory-less electronic switch having a test terminal, a control terminal and a sense terminal, said test terminal being electrically connected to a first test-point at a logic signal-generating node of one of said arbitrary function combinatorial logic gates in said integrated circuit, said sense terminal being connected to one of said sense-lines, and said control terminal being connected to one of said probe-lines;

c. sensing individually through said sense-lines test signals by means of said test terminal of said electronic switch controlled by said selected one probe-line;

d. individually measuring with said test electronics said test signals present on selected said sense-lines;

e. repeating steps b. through d. for selected rows of said array of said electronic switches; and

f. repeating steps a. through e. while applying further test patterns to said integrated circuit until said integrated circuit has been tested.

5,065,091

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE TESTING

Youichi Tobita, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 5, 1990, Ser. No. 487,055

Claims priority, application Japan, Mar. 8, 1989, 1-56609

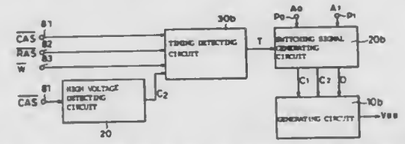
Int. Cl.[5] **G01A** *31/02*

U.S. Cl. 324—158 R **18 Claims**

1. A semiconductor integrated circuit device formed of various circuits integrated on a semiconductor substrate, comprising:

substrate voltage generating means for generating a voltage to be applied to said semiconductor substrate, and a value of said generated voltage changing in response to at least an operational mode of said semiconductor integrated circuit device being switched from a normal mode to a test mode,

external terminals for inputting signals for operating said semiconductor integrated circuit device in said normal mode or said test mode, and



test signal generating means for generating a test signal in response to an application of said signals, of a different state than that for said normal mode, for operating said semiconductor integrated circuit device in said test mode, wherein voltage generated by said substrate voltage generating means is changed in response to said test signal.

5,065,092

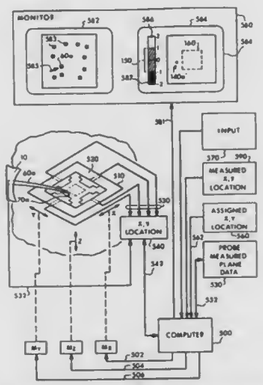
SYSTEM FOR LOCATING PROBE TIPS ON AN INTEGRATED CIRCUIT PROBE CARD AND METHOD THEREFOR

Michael R. Sigler, Colorado Springs, Colo., assignor to Triple S Engineering, Inc., Colorado Springs, Colo.

Filed May 14, 1990, Ser. No. 524,139

Int. Cl.[5] **G01R** *1/00, 1/067*

U.S. Cl. 324—158 F **18 Claims**



1. A system for determining probe tip alignment for a probe card (**10**) having a plurality of probes (**60**) downwardly extending in a defined region (**50**) of said probe card, each probe having its tip (**70**) assigned to an X, Y position (**140**) in a plane (**130**) spaced from said probe card, each probe having the location of its tip (**70**) measured with respect to said plane, said system comprising:

first means (**560**) for storing said assigned X, Y position for each of said plurality of tips,

second means (**590**) for storing said measured location of the plane that each of said plurality of tips is found in,

means (**520, 530**) for measuring the X, Y position of at least one probe tip, said measuring means including:

an insulating substrate (**710**),

a resistive film (**720**) deposited on said insulating substrate in a predetermined pattern,

conductive pads (**730**) deposited to contact said resistive film for providing an X direction conductive path (**X1-X2**) through said resistive film and for providing a Y direction conductive path (**Y1-Y2**) through said resistive film, and

a second insulating layer deposited over said insulating substrate, said resistive film, and said conductive paths, said second layer having a formed opening over said resistive film defining a measurement area (**760**) for the selective engagement by one probe tip;

means (M_x, M_y, M_z) for moving said measuring means, and

means (**500**) connected to said moving means and to said first and second storing means for activating said moving means to move said measuring means until said at least one of said plurality of probe tips at said measured plane locations from said second storing means and at the assigned X, Y positions from said first storing means engages said measuring means, said measuring means determining the measured X, Y positions of said at least one of said plurality of probe tips when engaged.

5,065,093

INDUCTIVE PROXIMITY SENSOR FOR DETECTING AN OBJECT STARTING ELECTRICAL CONDUCTIVITY

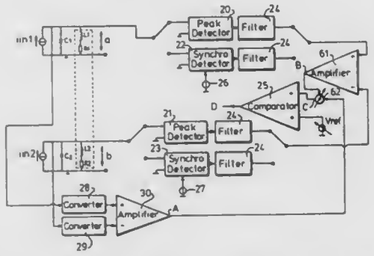
Hendrikus C. Nauta, Nootdorp, and Ernst H. Nordholt, Berkel en Rodenrijs, both of Netherlands, assignors to Catena Product Development B.V., Delft, Netherlands

Filed Aug. 23, 1988, Ser. No. 235,103

Claims priority, application Netherlands, Aug. 24, 1987, 8701980

Int. Cl.[5] **G01B** *7/00, 7/14;* **G01R** *33/025*

U.S. Cl. 324—207.12 **7 Claims**



1. Inductive proximity sensor for detecting an object having electrical conductivity comprising

a measuring coil having a front end facing the direction of the object to be detected,

a reference member,

a reference coil having a front end facing said reference member, said measuring and reference coils being placed on either side of a plane of symmetry and having their respective front ends facing in opposite directions,

a block formed from homogeneous magnetic material which partially surrounds both said coils leaving their respective front ends free,

an electronic circuit for supplying both said coils with an AC signal, measuring the change in loss resistance and/or self inductance of the measuring coil with respect to that of the reference coil as said object to be detected approaches and determining therefrom the distance or the presence of the object,

means for suppress mutual crosstalk between the two said coils, and

a separate respective detector circuit for each of said coils coupled together so as to electronically compensate for the effect of changes in properties of the magnetic material and of the measuring coil on the detection distance, wherein each said separate detector is a synchronous detector having its own oscillator.

5,065,094

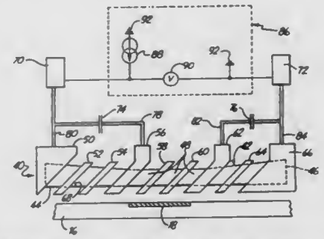
TWO TERMINAL MAGNETORESISTIVE SENSOR HAVING DC BLOCKING CAPACITOR

Gregory S. Mowry, Burnsville, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Aug. 7, 1990, Ser. No. 563,990

Int. Cl.[5] **G01R** *33/06;* **G11B** *5/127, 5/33*

U.S. Cl. 324—207.21 **21 Claims**



1. A magnetoresistive sensor for detecting magnetic fields on a magnetic recording medium, the magnetoresistive sensor comprising:

an elongated magnetoresistive strip having first and second opposite ends;

first and second terminals electrically coupled to the first and second opposite ends, respectively, of the elongated magnetoresistive strip;

a plurality of electrically conductive equipotential strips applied to the magnetoresistive strip and spaced between the first and second ends, wherein the equipotential strips generate a magnetic bias field in the magnetoresistive strip which stabilizes a magnetic domain structure of the magnetoresistive strip when a bias current is applied to the equipotential strips;

a first capacitor connected between a first one of the plurality of equipotential strips and the first terminal; and

a second capacitor connected between a second one of the plurality of equipotential strips and the second terminal, the second one of the plurality of equipotential strips being further spaced from the first end of the elongated magnetoresistive strip than the fist one of the plurality of equipotential strips;

wherein the first and second ones of the plurality of equipotential strips define an active region of the elongated magnetoresistive strip.

5,065,095

POSITION DETECTING APPARATUS HAVING MEANS FOR DETECTING DC COMPONENTS OF AC DETECTION SIGNALS

Masumi Suzuki, Aichi, Japan, assignor to Kabushiki Kaisha Okuma Tekkosho, Aichi, Japan

Filed Jul. 13, 1990, Ser. No. 552,930

Claims priority, application Japan, Jul. 21, 1989, 1-189901

Int. Cl.[5] **G01B** *7/14, 7/30*

U.S. Cl. 324—207.25 **9 Claims**

1. A position detecting apparatus for detecting a position of an object, comprising:

sensor means for detecting a position of the object and for outputting first and second AC detection signals which have a predetermined phase relationship and which correspond to the detected position of the object;

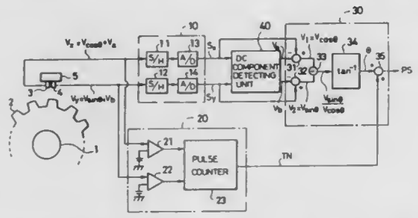
instantaneous value detecting means for detecting and outputting instantaneous values of the first and second AC detection signals;

DC component detecting means for processing the instantaneous values output by said instantaneous value detecting means to obtain first and second DC components of the first and second AC detection signals, respectively;

position calculating means for calculating the position of the

VOL 1132 ISS 2 NO 12 1991 UMI

object based on the first AC detection signal having the first DC component subtracted therefrom and the second



AC detection signal having the second DC component subtracted therefrom.

5,065,096

SUPERCONDUCTOR JOSEPHSON JUNCTION STRIP RESONATOR SENSOR FOR MEASURING MAGNETIC FLUX

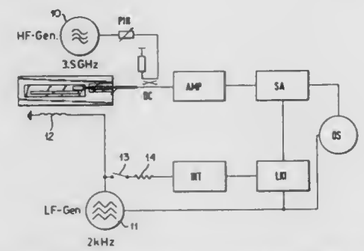
Hans-Michael Mück, Ehringshausen, and Christoph Heiden, Jülich, both of Fed. Rep. of Germany, assignors to Forschungszentrum Julich GmbH, Julich, Fed. Rep. of Germany

Filed Apr. 2, 1990, Ser. No. 503,618

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1989, 3931441

Int. Cl.[5] **G01R** *33/0g222335;* **H01P** *7/00*

U.S. Cl. 324—248 **10 Claims**



1. A sensor for measuring a magnetic flux, comprising:

a substrate;

a first strip superconductor having a longitudinal axis and forming a strip resonator for standing electrical waves at an operating frequency f, said strip resonator being formed with an opening and being traversable by said magnetic flux, said opening being bounded by a superconductive ring of said first strip superconductor having a Josephson element incorporated therein and at a boundary of said opening so that said ring is integrated in said strip resonator, said Josephson element lying along said axis of strip resonator;

means coupled to said strip resonator for applying said operating frequency f thereto;

at least one further strip conductor lying on said strip resonator and capacitively coupled thereto; and

electrical circuitry connected to said further strip conductor and responsive to oscillatory damping of said strip resonator by magnetic flux traversing said strip resonator for outputting a measurement of said magnetic flux.

5,065,097

TESTING METHOD AND APPARATUS BY USE OF NMR

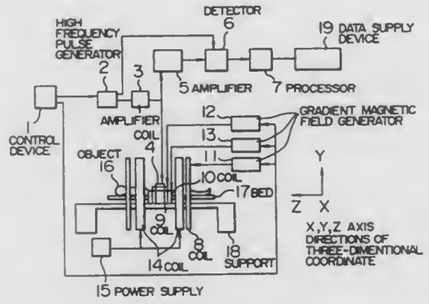
Tatsuo Nozokido, Kokubunji; Etsuji Yamamoto, Akishima, and Hideki Kohno, Tama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 29, 1990, Ser. No. 500,901

Claims priority, application Japan, Mar. 31, 1989, 01-078229

Int. Cl.[5] **G01R** *33/20*

U.S. Cl. 324—309 **14 Claims**



1. A testing method by use of nuclear magnetic resonance comprising the steps of:

(a) determining, after a 180° high frequency pulse is applied, timing a when an interval between timings of applying a 90° pulse and the 180° high frequency pulse has passed and timing b when an NMR signal from the sample to be tested can be measured without being influenced by the chemical shift thereof;

(b) measuring the NMR signal from the sample to be tested at least one of the values of whose permeability and chemical shift is known at timing c other than the timings a and b to acquire image vector information S_1 (x, y);

(c) measuring the NMR signal from the sample to be tested at the timing b to provide image vector information S_2 (x, y);

(d) measuring the NMR signal from a reference sample both values of whose permeability and chemical shift are known and their spatial distribution is uniform at the timing c other than the timings a and b to provide image vector information S_{1r} (x, y);

(e) measuring the NMR signal from the reference sample is measured at the timing b to provide image information S_{2r} (x, y);

(f) taking a phase difference between the image vector information S_2 (x, y) of said sample to be tested and the image vector information S_{2r} (x, y) of said reference sample to remove the influence from nonuniformity of static magnetic field, thereby acquiring first desired phase information due to only first influence from permeability distribution;

(g) taking a phase difference between the image vector information S_1 (x, y) of said sample to be tested and the image vector information S_{1r} (x, y) of said reference sample to remove the influence of nonuniformity of static magnetic field, thereby acquiring second desired phase information due to second influence from permeability distribution and from said chemical shift; and

(h) eliminating, from said second phase information, said second influence of the permeability distribution on the basis of said first influence from the permeability distribution to provide the phase information influenced from only said chemical shift.

5,065,098

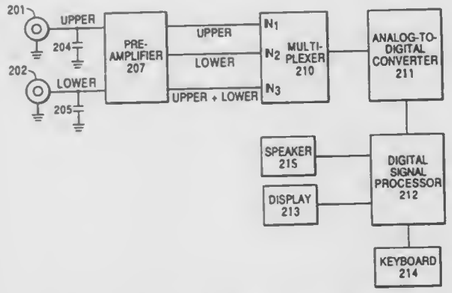
SYSTEM FOR LOCATING CONCEALED UNDERGROUND OBJECTS USING DIGITAL FILTERING

Lloyd N. Salsman, El Reno, Okla., and Leslie D. Hoy, Knoxville, Tenn., assignors to The Charles Machine Works, Inc., Perry, Okla.

Filed Jun. 18, 1990, Ser. No. 539,847

Int. Cl.[5] **G01V** *3/165*

U.S. Cl. 324—326 **27 Claims**



1. A system for locating a concealed object comprising:

transmitting means for transmitting an electromagnetic signal from said concealed object; and

receiving and processing means for receiving and processing said electromagnetic signal, said receiving and processing means including

antenna means for receiving said electromagnetic signal as an analog signal;

amplifying means for amplifying said received analog signal;

analog-to-digital converter means for converting said amplified analog signal to a digital signal, said analog-to-digital converter means sampling said amplified analog signal at a predetermined frequency;

digital filter means for filtering said digital signal, said digital filter means including a two-stage digital filter, the filter characteristics of said first stage of said two-stage digital filter being defined by parameters AO11 and AO12, and the filter characteristics of said second stage of said two-stage digital filter being defined by parameters AO21 and AO22, wherein

$$AOx1 = 2*(1-1/q)*\cos(2*pi*fctr/fsmpl)*16384$$

and

$$AOx2 = -(1-1/q)^2*32768,$$

wherein

q=quality factor,

fctr=center frequency,

fsmpl=sampling frequency, and

x=1 or 2; and

processing means for processing said filtered digital signal to provide an output signal indicative of the location of said concealed object.

5,065,099

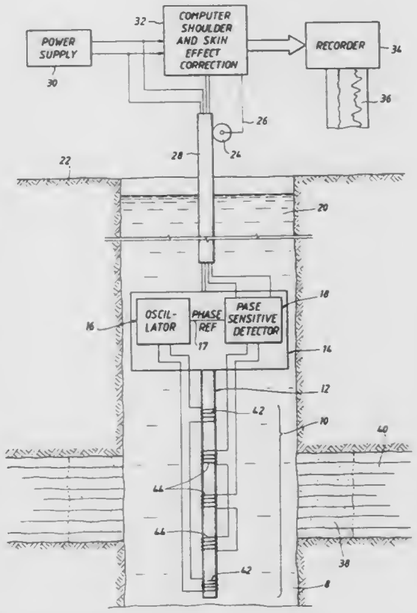
COIL ARRAY FOR A HIGH RESOLUTION INDUCTION LOGGING TOOL AND METHOD OF LOGGING AN EARTH FORMATION

Paul L. Sinclair, Clear Lake Shores, and Robert W. Strickland, Austin, both of Tex., assignors to Halliburton Logging Services, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 474,230, Feb. 2, 1990, abandoned, and a continuation-in-part of Ser. No. 478,024, Feb. 9, 1990, abandoned. This application Oct. 29, 1990, Ser. No. 604,542

Int. Cl.[5] **G01V** *3/28*

U.S. Cl. 324—339 **14 Claims**



1. An induction logging tool comprising:

a mandrel having an axis of elongation;

a central receiver coil disposed on said elongated mandrel and wound about the axis of elongation;

a pair of bucking coils connected in series with said receiver coil, said bucking coils being symmetrically positioned about said receiver coil on said mandrel at substantially equal distances from said receiver coil and wound about the axis of elongation in opposite sense to said receiver coil;

a pair of transmitter coils symmetrically positioned about said receiver coil on said mandrel at substantially equal distances from said receiver coil, said bucking coils being positioned between said receiver coil and said transmitter coils;

a transmission signal source operatively connected with said pair of transmitter coils for coupling a transmission signal to said pair of transmitter coils; and

receiver means coupled to said receiver coil for detecting a voltage induced therein and producing an output detection signal related to said induced voltage.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,100
MEASUREMENT OF IN-PHASE AND OUT-OF-PHASE COMPONENTS OF LOW FREQUENCY A.C. MAGNETIC FIELDS WITHIN CASED BOREHOLES TO MEASURE GEOPHYSICAL PROPERTIES OF GEOLOGICAL FORMATIONS

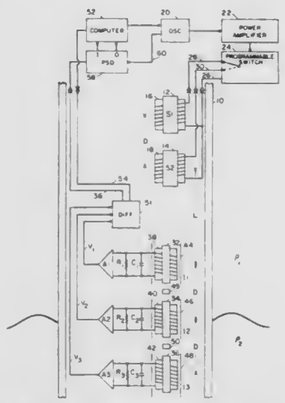
William B. Vail, III, Bothell, Wash., assignor to ParaMagnetic Logging, Inc., Woodinville, Wash.

Continuation-in-part of Ser. No. 200,573, May 31, 1988, Pat. No. 4,901,023, which is a continuation-in-part of Ser. No. 857,160, Apr. 29, 1986, Pat. No. 4,748,415. This application Feb. 5, 1990, Ser. No. 474,930

The portion of the term of this patent subsequent to May 31, 2005, has been disclaimed.

Int. Cl.[5] G01V *3/28, 3/24*

U.S. Cl. 324—339 **16 Claims**



2. An apparatus for measurement of the properties of a geological formation penetrated by two conductive and magnetic steel borehole casings comprising: a means of generating and conducting A.C. current through a geological formation from a first current conducting electrode in electrical contact with the interior of a first cased borehole located at a first depth within said first cased well to a second current conducting electrode in electrical contact with the interior of a second cased borehole located at a second depth within said second cased well, said cased boreholes being spaced apart within the geological formation, whereby said A.C. currents selectively follow geological formations which are relatively less resistive than other adjacent geological formations which produce longitudinal magnetic field components which penetrate to the interior of the first and second borehole casings, and whereby said primary A.C. magnetic fields in addition cause the production of eddy currents in the geological formation and currents in the casings which in turn produce secondary A.C. magnetic fields which possess longitudinal components which also subsequently penetrate the walls of the casings to the interior of said first and second casings; one or more magnetic field measurement means simultaneously sensitive to the in-phase part and the out-of-phase part of the vectorially combined longitudinal components of the primary and secondary A.C. magnetic fields on the interior of said second cased well for repetitively measuring the in-phase parts and the out-of-phase parts of the vectorially combined longitudinal component of both the primary and secondary A.C. magnetic fields at many vertical positions within said second borehole casing thereby providing indication of the presence of relatively conductive formations in the vicinity of said second casing, said magnetic field measuring means providing an indication of characteristic parameters of the geological formation through said second borehole casing including the resistivity and changes in the resistivity of the geological formation; wherein the frequency of the source of the A.C. current is between 0.001 Hz to 20 Hz thereby allowing said longitudinal A.C. magnetic fields to penetrate the casings and whereby the magnitude of the A.C. current conducted between said current conducting electrodes exceeds 100 milliamps peak-to-peak.

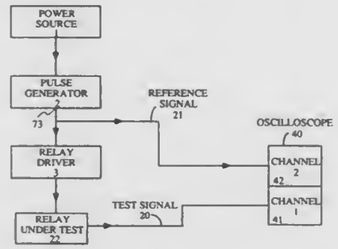
5,065,101
MINI-RELAY OR REED RELAY TESTER

Gary A. Ledbetter, Marysville, Calif., assignor to NEC Electronics, Inc., Mountain View, Calif.

Filed Mar. 7, 1990, Ser. No. 490,123

Int. Cl.[5] G01R *31/02*

U.S. Cl. 324—418 **7 Claims**



1. A mini-relay signal tester comprising

a testing module, said testing module comprising,

a first output terminal connector;

a second output terminal connector;

a pulse generator having a terminal connectable to a power source, said pulse generator generating a pulse train at a pulse output terminal;

means coupling said pulse generator output terminal to said first output terminal connector;

relay driver circuit means, coupled to said pulse output terminal, connectable to a power source, and connectable to operative terminals of a relay being tested, for controlling energization of a coil of the relay being tested according to said pulse train, and producing at a relay output terminal a signal representative of the opening and closing of an energized set of contacts of the relay being tested; and

means coupling said relay output terminal to said second output terminal connector.

5,065,102
APPARATUS FOR DETECTING DISTRIBUTION OF ELECTRIC SURFACE POTENTIAL

Itsuo Takanashi, Kamakura; Shintaro Nakagaki, Fujisawa; Tsutou Asakura, Yokohama; Masato Furuya, Yokosuka; Hirohiko Shinonaga, Yokohama, and Hiromichi Tai, Yokosuka, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Filed May 5, 1989, Ser. No. 347,642

Claims priority, application Japan, May 10, 1988, 63-113305; May 27, 1988, 63-129847; Jul. 25, 1988, 63-185101

Int. Cl.[5] G01N *27/60*

U.S. Cl. 324—452 **1 Claim**

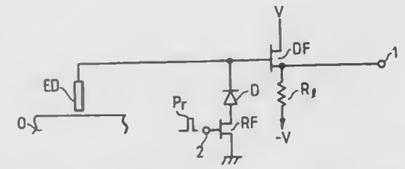
1. An apparatus for detecting a distribution of a surface potential, comprising:

a field effect transistor having a gate and a drain;

a gate input capacitance connected to the gate of the transistor and being charged by a leakage current between the drain and the gate of the transistor;

means for subjecting the gate of the transistor to a voltage electrostatically induced in correspondence with a surface potential of a measured object;

means for discharging the input capacitance to reset a voltage of the gate of the transistor in response to a reset signal supplied to said discharging means, wherein said discharging means comprises a field effect transistor; and



a diode connected between the gate of the transistor and the discharging means and having a polarity opposing a discharging current from the input capacitance.

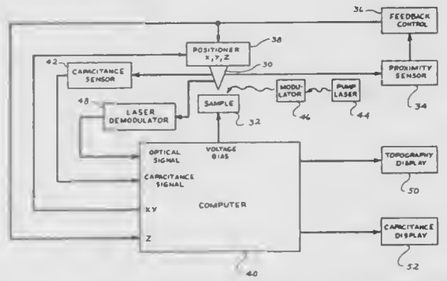
5,065,103
SCANNING CAPACITANCE - VOLTAGE MICROSCOPY

James A. Slinkman, Montpelier, Vt.; Hemantha K. Wickramasinghe, Chappaqua, and Clayton C. Williams, Peekskill, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 27, 1990, Ser. No. 499,857

Int. Cl.[5] G01R *29/12*

U.S. Cl. 324—458 **19 Claims**



1. A method for determining a property of a material with respect to at least two dimensions, comprising the steps of:

moving a fine tip in close proximity to a surface of said material within a predetermined scan area;

applying a voltage to said tip with respect to said material;

sensing the value of a parameter corresponding to the capacitance in a region of said material near said tip for a plurality of levels of said voltage at a plurality of locations within said scan area;

providing measured data for said locations, said parameter values and said voltage levels; and

relating said measured data according to a predetermined relationship to derive said material property at each of the locations, whereby data for said material property is provided with respect to at least two dimensions in the region of said scan.

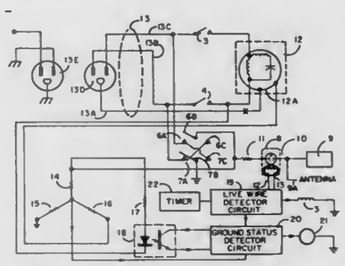
5,065,104
FAULT SENSING WITH AN ARTIFICIAL REFERENCE POTENTIAL PROVIDED BY AN ISOLATED CAPACITANCE EFFECT

Alexander Kusko, 161 Highland Ave., Needham Heights, Mass. 02194, and Noshirwan K. Medora, North Attleborough, Mass., assignors to Alexander Kusko, Weston, Mass.

Continuation of Ser. No. 15,318, Feb. 17, 1987, abandoned. This application Sep. 21, 1990, Ser. No. 587,559

Int. Cl.[5] G01R *31/00*

U.S. Cl. 324—508 **26 Claims**



8. Fault monitoring apparatus comprising,

means for providing an artificial reference potential by an isolated capacitance effect,

at least first and second leads for receiving signals representative of at least hot and nonhot potentials on a piece of load equipment to be monitored,

and means for comparing signals on said leads with said reference potential to provide an indication of the potential on at least one of said leads.

5,065,105
CAPACITIVE DIMENSIONAL MEASUREMENT CHAIN WITH LINEAR OUTPUT

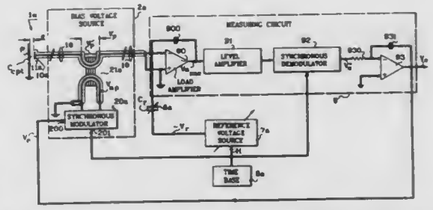
Alain Bruere, Chatenay Malabry, and Claude Galand, Paris, both of France, assignors to The Office National d'Etudes et de Recherches Aerospatiales Styled O,N.E.R.A., Chatillon, France

Filed Dec. 1, 1989, Ser. No. 445,034

Claims priority, application France, Dec. 9, 1988, 88 16244

Int. Cl.[5] G01R *27/26*

U.S. Cl. 324—662 **8 Claims**



1. A capacitive dimensional measurement chain with linearized output comprising:

a capacitive sensor formed by a detection electrode and a guard electrode surrounding said detection electrode, said detection electrode being placed facing a conductive part thereby defining a sensor capacitance,

a reference alternating voltage source for generating a reference signal,

a reference capacitor powered by said reference alternating voltage source,

means for producing an amplitude modulated signal modulated as a function of a difference between currents respec-

VOL 1132 ISS 2 NO 12 1991 UMI

tively supplied in said sensor capacitance and said reference capacitor,

means for generating two a.c. voltage source signals having an identical amplitude and in phase with said reference alternating voltage source, said two source signals being level-controlled by a distance measuring signal for supplying a current to said sensor capacitance which is identical to the current supplied to said reference capacitor,

means for amplifying and demodulating said amplitude modulated signal with respect to the phase of the two a.c. voltage source signals to generate said distance measurement signal linearly representative of a distance between said detection electrode and said conductive part.

5,065,106

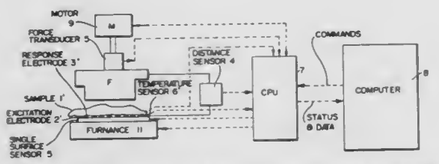
APPARATUS AND METHOD FOR ANALYZING DIELECTRIC PROPERTIES USING A SINGLE SURFACE ELECTRODE AND FORCE MONITORING AND ADJUSTING

Kendall Hendrick, Landenberg, Pa., and John R. Reader, Jr., Newark, Del., assignors to TA Instruments, Inc., New Castle, Del.

Continuation of Ser. No. 380,545, Jul. 12, 1989, abandoned, which is a continuation-in-part of Ser. No. 206,092, Jun. 13, 1988, Pat. No. 4,855,667. This application Feb. 25, 1991, Ser. No. 660,169

Int. Cl.[5] G01R *27/26*

U.S. Cl. 324—663 **9 Claims**



1. A method of analyzing dielectric properties of a material, using a single surface sensor with interdigitated pectinate excitation and response electrodes thereon, comprising the following.

(a) using a force application means to apply a force to a material under test to force the material into intimate contact with the electrodes of the sensor;

(b) providing an alternating current electrical signal to the excitation electrode of the sensor that generates an alternating electric field in the material under test above the excitation and response electrodes;

(c) detecting and measuring the amplitude and phase of an electrical response signal detected by the response electrode;

(d) monitoring the force applied to the material under test using a force transducer;

(e) monitoring the distance between the force application means and the single surface sensor; and

(f) adjusting the force exerted by the force application means to ensure that the force application means does not penetrate the alternating electric field generated by the excitation electrode.

5,065,107

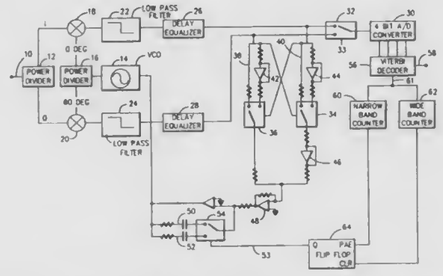
PHASE-LOCKED LOOP BANDWIDTH SWITCHING DEMODULATOR FOR SUPPRESSED CARRIER SIGNALS

Surinder Kumar, and Gerald Harron, both of Saskaton, Canada, assignors to University of Saskatchewan, Canada

Filed Apr. 19, 1990, Ser. No. 511,069

Int. Cl.[5] H04L *27/22*; H03L *7/093*

U.S. Cl. 329—308 **23 Claims**



1. A receiver for tracking a carrier suppressed phase-shifted input signal comprising:

(a) a phase-locked loop circuit for receiving said input signal and having a variable frequency oscillator responsive to a control signal for oscillating at a frequency corresponding to an intermediate frequency and a frequency difference detector for producing an output signal indicative of the frequency difference between the frequency of said input signal and said intermediate frequency;

(b) a feedback loop network having a narrow-band path and a wide-band path and being responsive to said detector output signal for producing said control signal and applying said control signal to said oscillator through one of said paths whereby to change the intermediate frequency of said oscillator in response to said control signal;

(c) a quality detector responsive to said detector output signal for producing a signal corresponding to the bit error rate of said input signal; and

(d) selection means responsive to said bit error rate signal for causing said control signal to pass through said narrow-band path when said bit error rate signal is below a predetermined threshold and through said wide-band path when said bit error rate signal exceeds said predetermined threshold.

5,065,108

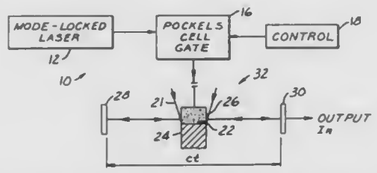
REGENERATIVE CAVITY X-RAY LASING AMPLIFIER

George Charatis, Ann Arbor, Mich., assignor to KMS Fusion, Inc., Ann Arbor, Mich.

Filed Jun. 16, 1989, Ser. No. 367,310

Int. Cl.[5] H01S *3/09, 3/30*

U.S. Cl. 359—333 **14 Claims**



1. An X-ray laser amplifier that includes: means for providing a series of high-power light pulses at uniform temporal spacing, and an X-ray laser cavity including a pair of reflective means spaced from each other by a distance that corresponds to temporal spacing between said light pulses and a target positioned to be illuminated by said light pulses between said reflective means, said target being of a character and structure to from a plasma of ions in response to illumination by said light pulses for spontaneous emission of X-ray radiation between said reflective means, such that amplitude of X-ray emissions from said plasma is boosted upon each passage through said plasma, at least one of said reflective means being constructed for extraction of amplified X-ray energy from said cavity.

5,065,109

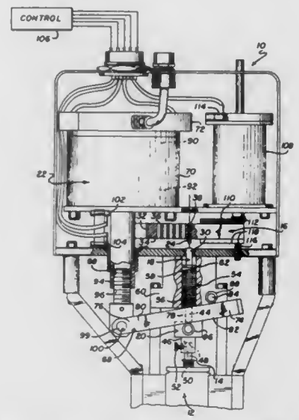
ELECTROPNEUMATIC BAND SELECTOR

Timothy A. Caturegli, Fremont, and Robert A. Fickett, San Jose, both of Calif., assignors to Varian Associates, Inc., Palo Alto, Calif.

Filed Oct. 16, 1990, Ser. No. 598,294

Int. Cl.[5] H03F *3/56*

U.S. Cl. 330—45 **11 Claims**



1. For a klystron having a plurality of plungers attached to a respective one of a plurality of inductive shorting bars disposed within a respective one of a plurality of resonant cavities in said klystron, wherein each of said shorting bars is movable to change resonant frequency of said respective one of said cavities, an electropneumatic band selector comprising:

a cam carrier including a plurality of cams, said cams being arranged in a plurality of rows;

a plurality of cam followers, each of said cam followers having a first end adapted to be mounted to a respective one of said plungers and a second end, said cam carrier being positionable so that a selected one of said rows aligns with said cam followers, said cam followers being normally biased so that said second end abuts a respective one of said cam;

a first member movable between a first position and a second position, said first member when in said first position being non-interactive with said cam followers and when moved to said second position being engageable with said first end of each of said cam followers to remove said second end of each of said cam followers from abutment with said respective one of said cams to allow said cam carrier to be repositioned so that a second selected one of said rows aligns with said cam followers;

a pneumatic actuator engageable with said first member to move said first member from said first position to said second position, said cam followers returning said first member to said first position when said actuator is disengaged from said first member.

5,065,110

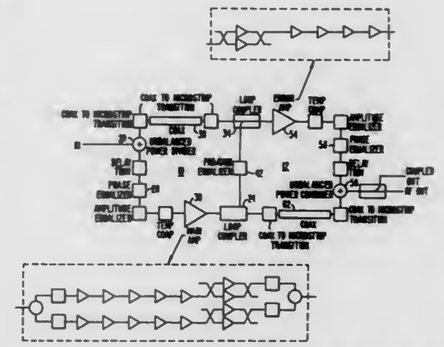
FEED-FORWARD AMPLIFIER INCLUDING PHASE CORRECTION

Stephen Ladvik, Palo Alto; Victor E. Steel, Felton, and Douglas Scott, Santa Clara, all of Calif., assignors to Teledyne MEC, Mountain View, Calif.

Filed May 2, 1990, Ser. No. 517,879

Int. Cl.[5] H03F *1/26*

U.S. Cl. 330—149 **5 Claims**



1. In a feed-forward amplifier for receiving an input signal and having a first loop, including a main amplifier that receives a first part of the input signal and generates a first amplified output signal, with the first loop for providing the first amplified output signal and an isolated distortion component of the first amplified output signal and having a second loop, including an error amplifier that receives a difference signal as an input and generates a second amplified output signal, with the second loop for subtracting the isolated distortion component from the first amplified output signal to produce the difference signal to produce an amplified output signal having very low distortion, with said main and error amplifiers characterized by a non-linear delay dispersion curve that indicates the magnitude, being the absolute value and sign, of the delay introduced by the amplifier between each frequency component in the input signal received by the amplifier and the same frequency component in the amplifier output signal for each frequency in a predetermined broadband operating range, a system for compensating the fixed delay introduced by the amplifiers at low frequencies and for the non-linear frequency dependent delay introduced by the amplifiers at high frequencies in said predetermined operating range, said system comprising:

first means, having an input coupled to receive the first part of the input signal and an output coupled to said main amplifier, for introducing a delay into each frequency component of the first part of the input signal, with the magnitude of the introduced delay having an absolute value substantially equal to the absolute value of the delay indicated by the non-linear delay dispersion curve for each frequency in said predetermined range but having the opposite sign; and

second means, having an input coupled to said error amplifier, for introducing a delay into each frequency component of the second amplified signal, with the magnitude of the introduced delay having an absolute value substantially equal to the absolute value of the delay indicated by the non-linear delay dispersion curve for each frequency in said predetermined range but having an opposite sign.

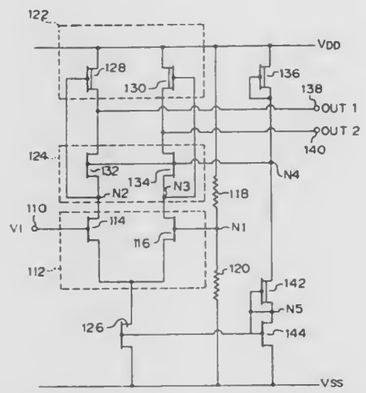
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,111

DIFFERENTIAL AMPLIFYING CIRCUIT OPERABLE AT HIGH SPEED

Akinori Tsukuda; Masahisa Nemoto, and Haruo Mori, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jun. 8, 1990, Ser. No. 535,029
Claims priority, application Japan, Jun. 12, 1989, 1-148749
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—253 7 Claims



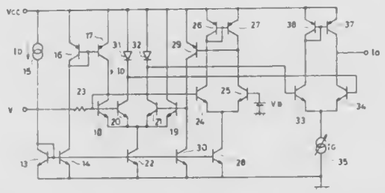
1. A differential amplifier circuit comprising:
a first input port for receiving an input voltage;
a first field effect transistor (FET) having a drain, a source and a gate which is responsive to said input voltage to control conduction between said drain and said source;
a second FET having a drain, a source and a gate which is responsive to a first reference voltage to control conduction between said drain and said a source of said second FET, said source of said second FET being connected to said source of said first FET;
a constant current source connected to said sources of said first and second FETs for supplying a constant current from said sources of said first and second FETs to a low potential power source;
a third FET having a drain connected to a high potential power source and having a source connected to a first output port to act as a load, said third FET having a gate connected to a first node which is connected to said drain of said first FET;
a fourth FET having a drain connected to said high potential power source and having a source connected to a second output port to act as a load, said fourth FET having a gate connected to a second node which is connected to said drain of said second FET;
a fifth FET having a drain connected to said source of said third FET and a source connected to said first node, said fifth FET having a gate which is responsive to a second reference voltage to control conduction between said drain and said source of said fifth FET; and
a sixth FET having a drain connected to said source of said fourth FET and having a source connected to said second node, said sixth FET having a gate which is connected to said gate of said fifth FET and which is responsive to said second reference voltage to control conduction between said drain and said source of said sixth FET, said second reference voltage being independent of the conduction of said first through sixth FETs.

5,065,112

AMPLIFICATION CIRCUIT WITH IMPROVED LINEARITY

Kazuhisa Ishiguro, Nitta, and Yasunori Sato, Oizumi, both of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Oct. 29, 1990, Ser. No. 604,292
Claims priority, application Japan, Oct. 31, 1989, 1-283904; Nov. 6, 1989, 1-288248
Int. Cl.[5] H03F *3/45*
U.S. Cl. 330—260 8 Claims



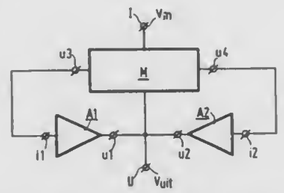
1. An amplification circuit comprising:
current conversion means for receiving an input signal and for converting the input signal into a current signal,
a first differential amplifier means comprising first and second bipolar transistors,
said first and second bipolar transistors having the emitters connected together,
said first bipolar transistor having its base connected to receive the current signal converted by said current conversion means,
comparison means connected to the base of said first bipolar transistor, for comparing the potential of the base of said first bipolar transistor and a predetermined first potential,
said second bipolar transistor having its base connected to receive an output signal generated from said comparison means, and
voltage control means responsive to said comparison means for controlling the voltage between the base and emitter of said first bipolar transistor.

5,065,113

MULTIPLE-AMPLIFIER CONTROL ARRANGEMENT

Hendrik Boezen; Pieter Buitendijk, and Rudolf W. Mathijssen, all of Nijmegen, Netherlands, assignors to U.S. Philips Corp., New York, N.Y.

Filed Jul. 2, 1990, Ser. No. 547,888
Claims priority, application Netherlands, Jul. 6, 1989, 8901725
Int. Cl.[5] H03E *3/45*
U.S. Cl. 330—260 9 Claims



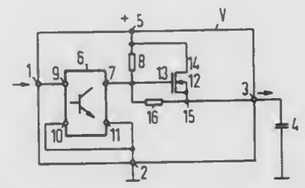
1. An amplifier arrangement comprising a first output amplifier having only a first transistor for producing on an output a first output voltage of up to a maximum first voltage value, which first amplifier is coupled between a first and a second supply voltage terminal, and a second output amplifier having a second and a third transistor, coupled serially, for producing on the output a second output voltage of up to a maximum second voltage value larger than said first voltage value, said second amplifier also being coupled between the first and the second supply voltage terminal, and means for driving the first and the second amplifier with a first and a second signal, respectively, the sum of the first and the second signal being substantially proportional to an input signal, and the ratio between the first and the second signal being substantially a function of the output voltage with respect to the first voltage value.

5,065,114

CIRCUIT CONFIGURATION FOR AN AMPLIFIER STAGE

Erich Kaifler, Tanfkirchen, and Horst Grobecker, Munich, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Feb. 21, 1990, Ser. No. 482,537
Claims priority, application European Pat. Off., Feb. 22, 1989, 89103063
Int. Cl.[5] H03F *3/16*
U.S. Cl. 330—277 10 Claims



1. Circuit configuration for an amplifier stage comprising:
a) an input terminal for receiving an input signal;
b) an output terminal to be connected to a capacitive load;
c) a supply voltage terminal for connection to a direct voltage;
d) at least one reference potential terminal to be connected to the capacitive load;
e) an amplifier quadrupole for amplifying the input signal having a first output lead, a first input lead connected to said input terminal, a second input lead connected to said at least one reference potential terminal, and a second output lead connected to said at least one reference potential terminal;
f) at least one self-conducting FET for accelerated charging of the capacitive load having a gate lead connected to said first output terminal, a drain lead connected to said supply voltage terminal, and a source lead connected to said output terminal;
g) at least one ohmic resistor connected between said first output lead and said supply voltage terminal; and
h) at least one other ohmic resistor connected between the gate lead and the source lead of said at least one self-conducting FET.

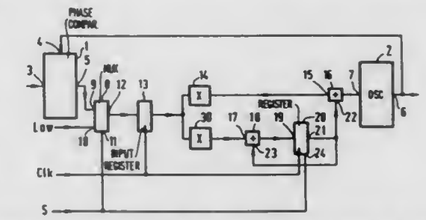
5,065,115

DIGITAL PHASE-LOCKED LOOP

Gerhard Pletz-Kirsch, and Jürgen Lenth, both of Hamburg, Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Nov. 20, 1990, Ser. No. 616,455
Claims priority, application Fed. Rep. of Germany, Nov. 24, 1989, 3938886
Int. Cl.[5] H03L *7/14*
U.S. Cl. 331—14 10 Claims

1. A digital phase-locked loop comprising: a phase comparator, a controllable oscillator whose output signal is compared with an input signal in the phase comparator, a loop filter preceding the oscillator, which filter comprises a clocked input register for storing the last phase-measuring value of the phase comparator, and an integrator which comprises a clocked further register whose output signal is fed back to the further register input, characterized in that in the absence of the input signal of the phase comparator or in the case of a disturbed input signal a switching signal is generated which immediately



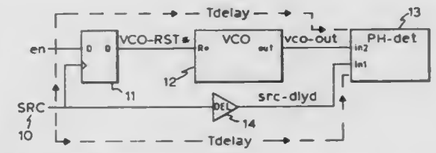
erases the input register in the loop filter and which, after its appearance, resets the further register in the integrator of the loop filter to zero within a limited number of clock cycles.

5,065,116

ZERO PHASE RESTART COMPENSATION FOR VCO

Shunsaku Ueda, Oceanside, and Rodney T. Masumoto, Irvine, both of Calif., assignors to Silicon Systems Inc., Tustin, Calif.

Filed Jan. 28, 1991, Ser. No. 646,867
Int. Cl.[5] H03B *1/00*
U.S. Cl. 331—173 14 Claims



1. A circuit comprising:
enabling means for providing a first output signal when said enabling means receives an input signal;
clock generating means coupled to said enabling means for providing a second output signal when said clock generating means receives said first output signal, said second output signal provided after a first time delay after said input signal is provided to said enabling means;
delay means coupled to said input signal for introducing a second time delay to said input signal, said delay means providing a third output signal;
phase detecting means coupled to said clock generating means and to said delay means for comparing a frequency of said second output signal with a frequency of said third output signal;
said delay means such that said first time delay is substantially equal to said second time delay.

5,065,117

MICROWAVE CIRCUIT

Toshihiko Yoshimasu, Soraku, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

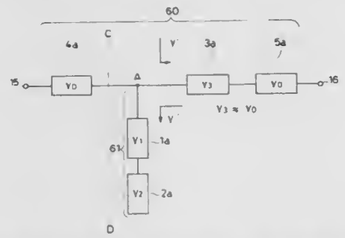
Filed Jun. 5, 1990, Ser. No. 533,576
Claims priority, application Japan, Jun. 6, 1989, 1-143528; Oct. 23, 1989, 1-275257
Int. Cl.[5] H03H *7/38*
U.S. Cl. 333—33 3 Claims

1. A microwave filter circuit having a noise removing frequency band, said filter circuit comprising
a substrate;
a distributed constant main line being formed on a surface of said substrate and having a characteristic admittance which varies discontinuously at at least one point;
a distributed constant stub line being formed on said surface

VOL 1132 ISS 2 NO 12 1991 UMI

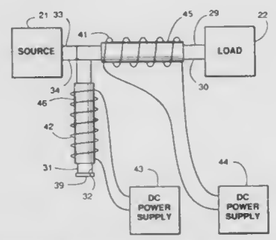
of said substrate and having a characteristic admittance which varies discontinuously at at least one point;

one end of said stub line being connected to a selected point on said main line at which the characteristic admittance of the main line varies discontinuously; and



another terminal end of said stub line being ungrounded, the characteristic admittance of said stub line at said terminal end being larger than the characteristic admittance of said stub line at said one end thereof.

5,065,118
ELECTRONICALLY TUNED VHF/UHF MATCHING NETWORK
Kenneth S. Collins, Morgan Hill, and Craig A. Roderick, San Jose, both of Calif., assignors to Applied Materials, Inc., Santa Clara, Calif.
Filed Jul. 26, 1990, Ser. No. 558,290
Int. Cl.[5] H01P *5/04*
U.S. Cl. 333—33 **21 Claims**



1. A transmission line stub in a matching network coupled between a power supply and electrodes used in a plasma process, the transmission line stub comprising:

a first electrically conducting pipe;

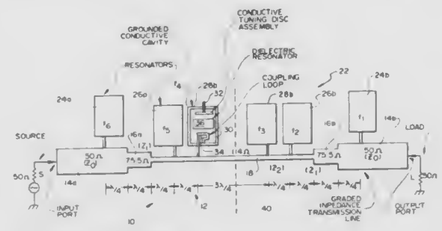
a second electrically conducting pipe, the second electrically conducting pipe being placed inside the first electrically conducting pipe;

ferrite dielectric material between the first electrically conducting pipe and the second electrically conducting pipe, the ferrite dielectric material being in thermal contact with the first electrically conducting pipe and the second electrically conducting pipe;

variance means for changing the relative permeability of the ferrite dielectric material; and,

cooling means for cooling the second electrically conducting pipe and the ferrite dielectric material, the cooling means including fluid flowing through the second electrically conducting pipe.

5,065,119
NARROW-BAND, BANDSTOP FILTER
Douglas R. Jachowski, Redwood City, Calif., assignor to Orion Industries, Inc., Solon, Ohio
Filed Mar. 2, 1990, Ser. No. 487,628
Int. Cl.[5] H01P *1/20*
U.S. Cl. 333—202 **22 Claims**



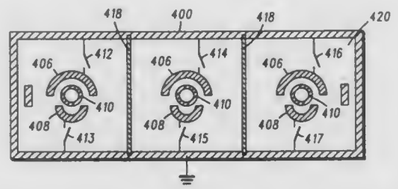
I. A filter comprising:

a plurality of substantially identical tunable, dielectric resonators;

a transmission line with an input end and an output end, said line having a first selected impedance value with at least some members of said plurality of resonates coupled thereto and selectively spaced from one another, and from said ends, on said transmission line; and

first and second impedance transformers with said first transformer coupled to said input end and with said second transformer coupled to said output end, each said transformer having an impedance value less than said first impedance value.

5,065,120
FREQUENCY AGILE, DIELECTRICALLY LOADED RESONATOR FILTER
Robert J. Munn, Albuquerque, N. Mex., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Sep. 21, 1990, Ser. No. 586,464
Int. Cl.[5] H01P *1/205*
U.S. Cl. 333—207 **15 Claims**



1. A frequency agile dielectrically loaded resonator filter having at least two external surface and a hole extending from a first of the two external surfaces toward a second of the two external surface, the frequency agile dielectrically loaded resonator having a conductive coating disposed on at least the second external surface and an interior surface of the hole to form a resonator at a predetermined center frequency, which predetermined center frequency may be changed, comprising:

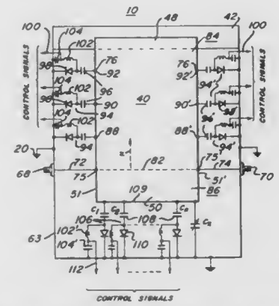
a first conductive layer disposed on the first external surface and coupled to the conductive coating disposed on the interior surface of the hole;

a second conductive layer disposed on the first external surface and at least partially surrounding said first conductive layer;

first means for switching, coupled between said second conductive layer and the conductive coating disposed on the second external surface; and

means for receiving and applying a bipolar signal for coupling to said first means for switching.

5,065,121
SWITCHABLE RESONATOR DEVICE
Masood Ghadaksaz, Cherry Hill, N.J., assignor to RF Products, Inc., Camden, N.J.
Filed Mar. 29, 1988, Ser. No. 174,721
Int. Cl.[5] H01P *7/00*
U.S. Cl. 333—235 **22 Claims**



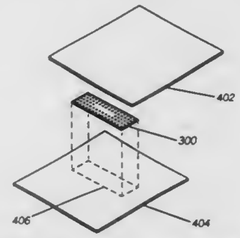
1. A switchable resonator device having a selectable center frequency over a wide radio frequency range comprising a radio frequency signal input means and a radio frequency signal output means, a resonator structure connected between the signal input means and signal output means for receiving radio frequency input signals and delivering radio frequency output signals, the resonator structure comprising a radio frequency signal conductor having first and second conductor elements, the first conductor element having a first extending portion and a second extending portion with one portion extending from the other end and each providing respective inductance properties, first switchable means for controllably connecting the first portion of the first conductor element at a plurality of predetermined selected locations along its extension with the second conductor element for varying its inductive properties, and second switchable means for controllably providing a selected capacitance between the second portion of the first conductor element and the second conductor element, the control means providing control signals to the first and second switchable means to concurrently vary the inductive properties and capacitance for selecting and changing the center frequency of the resonator device.

5,065,122
TRANSMISSION LINE USING FLUROPLASTIC AS A DIELECTRIC
Frank J. Juskey; Anthony B. Suppelsa, both of Coral Springs, and Jill L. Flaugher, Margate, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Sep. 4, 1990, Ser. No. 577,177
Int. Cl.[5] H01P *3/08*
U.S. Cl. 333—238 **13 Claims**

1. A multilayer substrate having an integral transmission line, comprising:

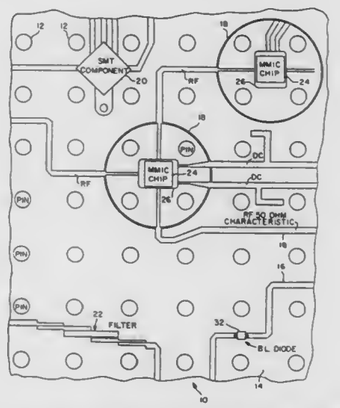
a transmission line structure, including at least one fluroplastic layer, the transmission line structure having a plurality of through holes; and

opposed substrates both having inner and outer opposed surfaces and having the transmission line structure positioned between them, the opposed substrates are bonded



together at least partially through the plurality of through holes which are filled with resin.

5,065,123
WAFFLE WALL-CONFIGURED CONDUCTING STRUCTURE FOR CHIP ISOLATION IN MILLIMETER WAVE MONOLITHIC SUBSYSTEM ASSEMBLIES
Douglas Heckaman, Indialantic; Ronald Vought, Melbourne, and Edward Caraway, Indialantic, all of, assignors to Harris Corporation, Melbourne, Fla.
Filed Oct. 1, 1990, Ser. No. 591,034
Int. Cl.[5] H01P *3/08, 1/162*
U.S. Cl. 333—246 **27 Claims**



1. A structure for isolating between spaced apart microwave circuit components and transmission media located on a top surface of a microstrip substrate, comprising:

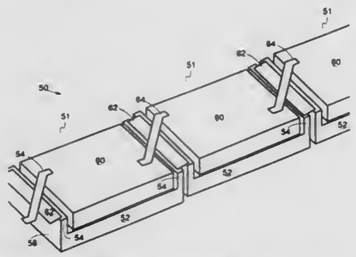
a bottom ground plane provided below said microwave substrate;

a top ground plane located above said microwave substrate substantially parallel to said bottom ground plane; and

a two-dimensional periodically arrayed matrix of conducting posts orthogonally arranged between said top and bottom ground planes for isolating microwave circuit components located between said posts on the microwave substrate, each end of the conducting posts forming said matrix being grounded to one of said top and bottom ground planes wherein each microwave circuit component to be isolated is spaced apart from and surrounded by a number of said conducting posts of said matrix of conducting posts to isolate the microwave circuit component.

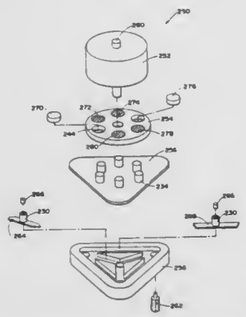
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,124
DC-40 GHZ MODULE INTERFACE
Lee J. Chrzan, Half Moon Bay, Calif., assignor to Watkins-Johnson Company, Palo Alto, Calif.
Filed Sep. 4, 1990, Ser. No. 578,668
Int. Cl.[5] H01P *5/00*
U.S. Cl. 333—246 14 Claims



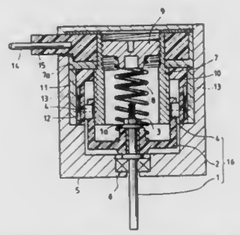
1. A microwave module, comprising:
a carrier having at least one lip upwardly raised from the floor of said carrier at an interfacing edge, said raised lip operable to attachably receive a first RF conductor, said first RF conductor being a ground conductor; and
a substrate attached to the carrier having an RF transmission line operable to attachably receive a second RF conductor such that said second RF conductor will have a characteristic impedance of under 100 ohms by virtue of the disposition and size of said second RF conductor.

5,065,125
C-, S- AND T-SWITCHES OPERATED BY PERMANENT MAGNETS
R. Glenn Thomson, and Paul Y. Tsoi, both of Waterloo, Canada, assignors to Com Dev Ltd., Cambridge, Canada
Filed May 2, 1990, Ser. No. 517,590
Claims priority, application Canada, Apr. 12, 1990, 2014585
Int. Cl.[5] H01H *51/30*
U.S. Cl. 335—5 16 Claims



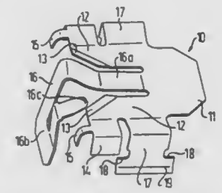
1. A microwave switch comprising an RF cavity housing, an actuator and a power means for repositioning said actuator arranged as follows:
(a) said housing having at least two conductor paths interconnecting at least three ports, said housing also containing at least two permanent reed magnets of the same polarity, said reed magnets each having a separate connector thereon, each connector having a first position and a second position that are linearly displaced from one another, in one position each connector connecting a conductor path in which said connector is located while in another position each connector interrupting said conductor path;
(b) said actuator having at least two permanent magnets, at least one of said permanent magnets being of opposite polarity to at least one other of said permanent magnets;
(c) said reed magnets of said housing and said permanent magnets of said actuator being located to interact with one another when the actuator is in an appropriate position so that one magnet of said actuator is aligned with a corresponding magnet of said housing;
(d) said magnets of said actuator being arranged with respect to polarity so that when the actuator is moved by the power means to one position, at least one magnet of said actuator attracts a corresponding reed magnet of said housing, thereby causing the connector to either connect or interrupt one conductor path while, simultaneously, another magnet of the actuator repels a corresponding reed magnet of the housing, thereby causing the connector to either interrupt or connect respectively another conductor path;
the movement of all magnets being co-ordinated so that appropriate conductor paths are connected and interrupted simultaneously, the actuator, the power means, the reed magnets and the connectors being the only movable components of the switch, there being no mechanical connection between the magnets of the actuator and the magnets of the housing.

5,065,126
LINEAR ACTUATOR
Hidemi Suzuki; Hiroyuki Yamada, and Mikio Nakagawa, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 27, 1989, Ser. No. 371,888
Claims priority, application Japan, Jul. 25, 1988, 63-97296[U]
Int. Cl.[5] H01F *7/08*
U.S. Cl. 335—222 4 Claims



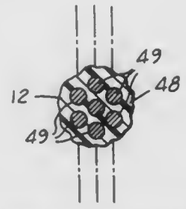
1. A linear actuator including a casing, an output shaft passing through the casing and being mounted slidably in a direction along the axis thereof, a solenoid coil disposed within the casing in coaxial relation to the output shaft, a magnet disposed in such a manner that the magnetic flux thereof is linked with windings of the coil, the output shaft mechanically connected to one of the magnet and the coil to form a movable part, and a spring coupled to said output shaft to continously urge such shaft in one direction along the axis thereof,
wherein the electromagnetic force generated by the energization of the coil linearly moves the movable part in the opposite direction along the axis of the output shaft against the resilient force of the spring, which linear actuator comprising a spacer made of a high permeability material and interposed between the casing and either the coil or the magnet, whichever is fixed on the casing to form a stationary part.

5,065,127
LEAF SPRING FOR AN ELECTROMAGNETIC RELAY
Herbert Mitschik, Geretsried, and Fritz Hinrichs, Wolfratshausen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Continuation of Ser. No. 449,804, Dec. 13, 1989, abandoned.
This application Jan. 30, 1991, Ser. No. 649,266
Claims priority, application European Pat. Off., Dec. 23, 1988, 88121581
Int. Cl.[5] H01F *7/08;* H01H *50/60*
U.S. Cl. 335—270 14 Claims



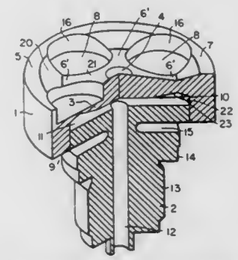
1. An electromagnetic relay, comprising:
a core;
a coil about said core;
a yoke having a first end connected to said core and a second free end;
a flat armature having a bearing edge seated at said free end of said yoke and having a recess;
a leaf spring forming a bearing plate which lies against an outside surface of said yoke and projects beyond said free end of said yoke, said bearing plate forming a bearing notch between said bearing plate and said free end of said yoke in which said bearing edge of said armature lies;
a pull-back spring formed in one piece with said bearing plate and embracing said bearing edge of said armature,
a first section of said pull-back spring formed as a straight spring tongue cut free from a middle region of said bearing plate, said first section subdividing said bearing plate into two plate sections onto which said armature presses only at lateral regions of said bearing edge; and
a free end of said pull-back spring comprising a second section being cut arcuately in a plane of said leaf spring, said second section extending approximately uniformly at both sides of a plane of symmetry that intersects said spring tongue of said first section; and
a third section of said pull-back spring extending in an opposite direction relative to said bearing plate and engaging into said recess of said armature.

5,065,128
HERMETICALLY SEALED HIGH-PRESSURE SOLENOID COIL AND METHOD
Eric J. Schmitt-Matzen, P.O. Box 1418, Newport News, Va. 23601
Filed Dec. 14, 1990, Ser. No. 627,686
Int. Cl.[5] H01F *5/00*
U.S. Cl. 335—299 14 Claims



1. A method of making a solenoid coil which comprises:
fabricating a coil winding from a selected length of bondable magnet wire having a metal core of pre-existing cross section covered by bondable insulation of predetermined cross section and having terminations via which said coil winding can be electrically energized, including the steps of precision winding the length of magnet wire to form precision wound layers of convolutions, heating the magnet wire to make the insulation deformable, compressing the magnet wire, but without deforming the pre-existing cross section of the wire's metal core, to cause the predetermined cross section of the insulation to form into a void-free unitary mass that captures the wire's convolutions, and allowing the coil winding to cool such that the wire's convolutions are immovably captured within the void-free unitary mass of insulation;
placing the coil winding within mold cavity means such that the entirety of the coil winding is disposed within interior space means of said mold cavity means;
and injecting flowable encapsulant into said interior space means in covering relation to the entirety of the coil winding in such a manner that the encapsulant introduced thereby is caused to solidify without the creation of any voids between the encapsulant and the coil winding.

5,065,129
PRESSURE SENSOR AND METHOD FOR CALIBRATING PRESSURE SENSORS
Reimar Hellwig, Ober-Ramstadt, and Ralf Waegner, Treburr, both of Fed. Rep. of Germany, assignors to Hottinger Baldwin Measurements, Inc., Marlboro, Mass.
Filed Jul. 23, 1990, Ser. No. 557,143
Claims priority, application European Pat. Off., Jul. 22, 1989, 89113539.4
Int. Cl.[5] G01L *1/22*
U.S. Cl. 338—4 24 Claims



1. A pressure sensing load cell, comprising a mounting ring having a central axis, an end wall closing one end of said mounting ring, said end wall having a plane surface facing in an axially outward direction, a plurality of dead-end holes in said plane surfaced end wall, said dead-end holes opening in said axially outward direction, sensor membrane means formed in said end wall by said dead-end holes, an axial central cavity in said mounting ring, said central cavity opening in a direction opposite said plurality of dead-end holes, substantially radially extending sensor beams formed between neighboring dead-end holes, each sensor beam having a plane axially outwardly facing beam surface extending perpendicularly to said central axis, strain gage means bonded to said axially outwardly facing plane beam surfaces of said sensor beams, each of said sensor beams having two approximately radially sloping surface portions facing said central cavity opposite said plane beam surface, a closure plug for closing said central cavity to form a sensor chamber for receiving fluid under pressure to be measured, and fluid conduit means for admitting fluid under pressure into said sensor chamber, whereby said approximately radially sloping surface portions of each sensor beam face into said sensor chamber.

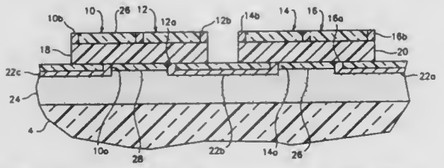
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,130

HIGH SENSITIVITY CORBINO DISK MAGNETORESISTOR ARRAY

Robert E. Eck, Goleta, Calif., and Thaddeus Schroeder, Rochester Hills, Mich., assignors to Santa Barbara Research Center, Goleta, Calif. and General Motors Corporation, Detroit, Mich.

Filed Mar. 7, 1990, Ser. No. 489,580
Int. Cl.[5] H01L *43/00*
U.S. Cl. 338—32 R 15 Claims



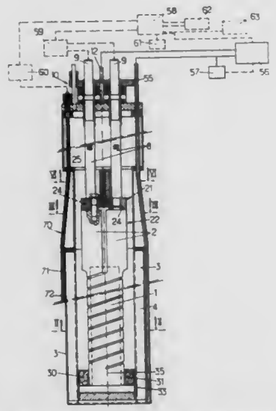
14. A Corbino disk magnetoresistor (MR), comprising:
a layer of MR material,
a conductive hub terminal on one side of said layer, and
a conductive shorting ring surrounding the hub terminal on the opposite side of said layer.

5,065,131

ELECTRIC IMMERSION HEATER

André Ducourroy, Croissy s/Seine, and Richard Jaume, Moret s/Loing, both of France, assignors to Electricite de France (Service National), Paris, France

PCT No. PCT/FR88/00520, § 371 Date Jun. 21, 1989, § 102(e) Date Jun. 21, 1989, PCT Pub. No. WO89/04108, PCT Pub. Date May 5, 1989
PCT Filed Oct. 21, 1988, Ser. No. 381,659
Claims priority, application France, Oct. 21, 1987, 87 14532
Int. Cl.[5] H01C *1/026*
U.S. Cl. 338—237 10 Claims



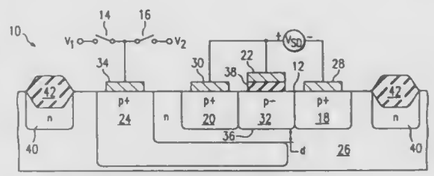
1. Heating device for electrically heating a medium, comprising:
an elongate graphite heating element of substantially cylindrical shape about an axis, having two end portions;
a sheath surrounding said graphite heating element and defining an air-tight retention chamber about the heating element, made of refractory metal alloy sheet, having corrugations regularly distributed about said axis and so shaped that an internal surface of the sheath is in direct view of the heating element over substantially the whole area thereof;
a pair of mutually adjacent solid blocks formed at a first of the end portions of the graphite heating element, respectively connected to an input terminal and an output terminal which are connectable to an electric power supply;
and means for fixing and centering said graphite heating element within the sheath, including:
an electrically insulating refractory material ring fixed on the second of said end portions of the graphite heating element and engaged in a cylindrical skirt fixed on the internal portion of the sheath, whereby said second of said end portions of the graphite heating element is centered with respect to the sheath, and
a composite bed plate for securing said graphite heating element and supplying it with electricity, said bed plate being formed as two metal portions forming secured electric input and output terminals for said graphite element, said metal portions being mutually insulated electrically and rigidly bonded together through a ceramic insulating plate, each of said metal portion being removably secured to a respective one of said solid blocks and each connected to a respective one of electric power supply bars.

5,065,132

PROGRAMMABLE RESISTOR AND AN ARRAY OF THE SAME

Albert H. Taddiken, McKinney; Han-Tzong Yuan, Dallas, and Hisashi Shichijo, Plano, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Nov. 16, 1990, Ser. No. 614,473
Int. Cl.[5] H01C *13/00*
U.S. Cl. 338—334 31 Claims



1. A programmable resistor, comprising:
a substrate formed of a layer of semiconductor of a first type;
a current path region of a second type formed in said substrate wherein an interface having interfacial traps is formed between said current path and said substrate;
a backgate formed adjacent said current path; and
circuitry coupled to said backgate for varying the number of carriers residing in said interfacial traps.

5,065,133

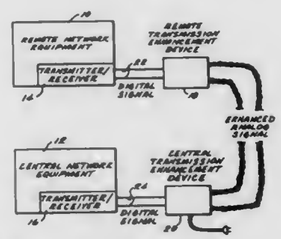
METHOD AND APPARATUS CONVERTING DIGITAL SIGNALS TO ANALOG SIGNALS AND SIMULTANEOUS TRANSMISSION OF AC POWER AND SIGNALS OVER WIRE CONDUCTORS

Gary Howard, Minneapolis, Minn., assignor to The Siemon Company, Watertown, Conn.

Filed Aug. 25, 1989, Ser. No. 398,784
Int. Cl.[5] H04B *3/54*
U.S. Cl. 340—310 A 27 Claims

1. A method of enhancing digital signal transmission over at least two pairs of twisted pair wire conductors defining a transmitting pair and a receiving pair, comprising the steps of:
(1) converting a digital signal to an analog signal having a specified angular velocity and a specified polarity to define an enhanced analog signal comprising a waveform generated from a smooth function of voltage, current and time;

(2) transmitting said enhanced analog signal over said transmitting pair with said enhanced analog signal being received by said receiving pair;
(3) tuning said enhanced analog signal on said transmitting pair to a first angular velocity;



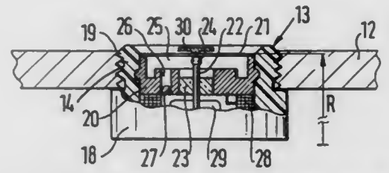
(4) tuning said enhanced analog signal on said receiving pair to a second angular velocity; and
(5) reconverting said enhanced analog signal back to said digital signal.

5,065,134

TIRE PRESSURE SENSOR FOR MOTOR VEHICLES

Hans-Dieter Schmid, Nürnberg; Gerhard Hettich, Dietenhofen; Johannes Burkard, Nürnberg, and Wolfgang Schmierer, Pforzheim, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH and Dr. Ing. H.C.F. Porsche AG, both of Stuttgart, Fed. Rep. of Germany, a part interest

PCT No. PCT/DE88/00634, § 371 Date Jun. 4, 1990, § 102(e) Date Jun. 4, 1990, PCT Pub. No. WO89/05239, PCT Pub. Date Jun. 15, 1989
PCT Filed Oct. 16, 1988, Ser. No. 477,953
Claims priority, application Fed. Rep. of Germany, Dec. 4, 1987, 3741129
Int. Cl.[5] B60C *23/00*
U.S. Cl. 340—442 6 Claims



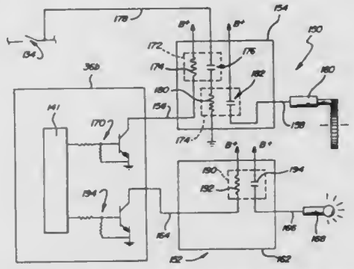
1. A tire pressure sensor for a vehicle, said vehicle having a plurality of vehicle wheels, each of said vehicle wheels having a wheel axis and a wheel rim on which a tire is mounted, said tire having a tire pressure and a running surface said tire pressure sensor comprising a pressure switch which is mounted on the circumference of the wheel rim of one of the vehicle wheels and which extends radially relative to the wheel axis, said pressure switch being actuable by the tire pressure and being provided with an electrically conductive diaphragm responding to and communicating with the tire pressure in the tire, said electrically conductive diaphragm being arranged parallel to the running surface of the tire, said diaphragm being provided with an added mass for increasing a switching threshold of the tire pressure sensor as a function of speed of the vehicle, said diaphragm having a contact, which is contacted by a contact surface, on a central area of the diaphragm for closing an electric circuit, when the tire pressure in the tire is large enough, wherein the state of the electric circuit is to be monitored without the use of wires by a signal generator, which is mounted in the vehicle and said signal generator includes an evaluating circuit; furthermore the added mass (30, 30*a*) is fastened at the diaphragm center, is free so as not to impede the motion of the diaphragm and is determined by a functional relationship between the variables Δp, r^2, R and v^2 so as to be large enough to increase the switching threshold by a desired pressure differential Δp compared with the threshold value p_o at a stationary state, at a predetermined radius r of the diaphragm, at a predetermined rotational radius R of the diaphragm, and at a predetermined rotational speed v of the diaphragm.

5,065,135

TRANSMISSION LOGIC CONTROLLING STARTER MOTOR AND BACKUP LIGHT

Keith V. Leigh-Monstevens, Troy, and David C. Peterson, Walled Lake, both of Mich., assignors to Automotive Products (USA) Inc., Auburn Hills, Mich.

Continuation-in-part of Ser. No. 323,825, Mar. 15, 1989. This application Feb. 21, 1990, Ser. No. 482,648
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—463 15 Claims



1. An electric control apparatus for use with a motor vehicle of the type having a starter motor circuit and an automatic transmission having a plurality of states including a "neutral" state, said apparatus comprising:
encoder means operative to generate a plurality of encoded signals respectively indicating and corresponding to the various states of the automatic transmission;
a logic chip receiving said encoded signals as input signals and operative to generate logic output signals corresponding to the various states of the automatic transmission; and
means operative in response to receipt of a "neutral" transmission state signal from the logic chip to enable the starter motor circuit.

5,065,136

DOOR SECURITY SYSTEM

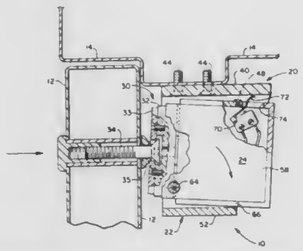
George Frolov, Farmington; Gary Lavelle, Avon, and James J. Scott, New Britian, all of Conn., assignors to Harrow Products, Inc., Grand Rapids, Mich.

Filed Nov. 19, 1990, Ser. No. 615,128
Int. Cl.[5] E05C *17/56*
U.S. Cl. 340—545 38 Claims

20. An exit door security system comprising:
housing means mounting electromagnet means for generating a magnetic field;
armature means adapted for mounting to a door and attractable by said electromagnet means for magnetic bonding therewith;
switch means mounted at said housing means and actuatable in response to reactive movement of said housing means resulting from movement of said door for generating an egress request signal;
discriminator means for discriminating between door movement resulting from an internal force applied on one side of said door and an external force applied on the other side

VOL 1132 ISS 2 NO 12 1991 UMI

of said door and generating a discriminator signal indicative thereof; and

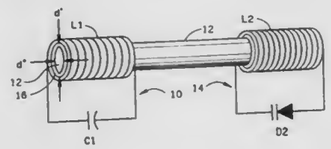


circuit means responsive to said egress request signal and said discriminator signal for selectively deactivating said electromagnet means.

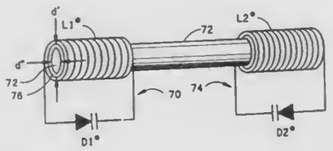
5,065,137
MAGNETICALLY-COUPLED, TWO-RESONANT-CIRCUIT, FREQUENCY-DIVISION TAG

Fred W. Herman, Tampa, Fla., assignor to Security Tag Systems, Inc., St. Petersburg, Fla.

Filed Aug. 3, 1990, Ser. No. 562,475
Int. Cl.[5] G08B *13/14;* H02M *5/00*
U.S. Cl. 340—572 **20 Claims**



1. A batteryless, portable, frequency divider, comprising
a first resonant circuit that is resonant at a first frequency for receiving electromagnetic radiation at the first frequency; and
a second resonant circuit that is resonant at a second frequency that is one-half the first frequency for transmitting electromagnetic radiation at the second frequency;
wherein the first circuit is coupled only magnetically to the second circuit to transfer energy to the second circuit in response to receipt by the first circuit of electromagnetic radiation at the first frequency; and



wherein the first circuit includes a variable reactance element in which the reactance varies with variations in energy received by the first circuit for causing the second circuit to vary in reactance due to mutual reactive coupling to cause the second circuit to transmit electromagnetic radiation at the second frequency in response to the energy transferred from the first circuit at the first frequency.

5,065,138
MAGNETICALLY-COUPLED TWO-RESONANT-CIRCUIT, FREQUENCY DIVIDER FOR PRESENCE-DETECTION-SYSTEM TAG

Ming R. Lian, Clearwater, and Fred W. Herman, Tampa, both of Fla., assignors to Security Tag Systems, Inc., St. Petersburg, Fla.

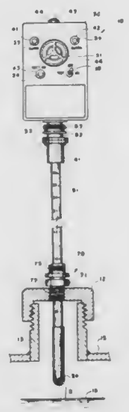
Filed Aug. 3, 1990, Ser. No. 562,471
Int. Cl.[5] G08B *13/14;* H01Q *1/36*
U.S. Cl. 340—572 **20 Claims**

1. A batteryless, portable, frequency divider, comprising
a first resonant circuit that is resonant at a first frequency for receiving electromagnetic radiation at the first frequency; and
a second resonant circuit that is resonant at a second frequency that is one-half the first frequency for transmitting electromagnetic radiation at the second frequency;
wherein the first circuit is coupled only magnetically to the second circuit to transfer energy to the second circuit in response to receipt by the first circuit of electromagnetic radiation at the first frequency; and
wherein the second circuit includes a variable reactance element in which the reactance varies with variations in energy transferred from the first circuit for causing the second circuit to transmit electromagnetic radiation at the second frequency in response to the energy transferred from the first circuit at the first frequency.

5,065,139
PORTABLE LEVEL SENSING APPARATUS

Joseph Shefsky, 3950 S. Inwood Ave., New Orleans, La. 70131

Filed May 22, 1990, Ser. No. 527,083
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—620 **23 Claims**

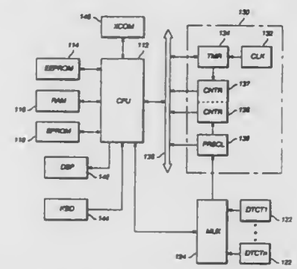


1. Portable level sensing apparatus having a standby mode in which the apparatus is ready to detect a level and an active mode when the apparatus is detecting a level, the apparatus comprising:
(a) a housing containing electronic circuitry;
(b) a graduated rod having a first end and a second end and connected at its first end to the housing;
(c) a proximity sensing capacitance device at the second end of the graduated rod, the proximity sensing capacitance device having means for detecting a liquid, when the proximity sensing capacitance device is at a predetermined distance from the liquid, without touching the liquid;
(d) electrical transmission means connecting the capacitance device to the electronic circuitry in the housing;
(e) visual alarm means electronically connected to the electronic circuitry for visually signalling when a predetermined level is detected;
(f) audible alarm means electrically connected to the electronic circuitry for audibly signalling when a predetermined level is detected;
(g) power supply means for powering the alarm means and the capacitance device; and
(h) coupling means for coupling the rod to a tank of liquid.

5,065,140
EARLY WARNING REACTIVE GAS DETECTION SYSTEM

Glen G. Neuburger, Jackson Township, Hudson County, N.J., assignor to Bell Communications Research, Inc., Livingston, N.J.

Filed Mar. 8, 1991, Ser. No. 666,336
Int. Cl.[5] G08B *17/10*
U.S. Cl. 340—634 **24 Claims**



1. A system for signaling the occurrence of an event having associated therewith the presence of a specified gas in the environment of said event, which system comprises a quartz crystal microbalance detector having a coating thereon comprising a composition reactive in the presence of said gas to effect a change in the oscillation frequency of said detector, data processing means communicating with said detector, and program means communicating with said processing means and comprising instructions for said processing means to repeatedly measure said detector frequency, to determine a detector frequency change rate upon subsequent measurements of said frequency, and to initiate an alarm signal in response to a frequency change rate excursion beyond a predetermined threshold frequency change rate characterized in that said program means further comprises instructions for said processor to:
a) establish an alarm limit count specifying a minimum number of said beyond threshold excursions required before said alarm signal is initiated;
b) increment by one a count of said excursions upon determining a frequency change rate that exceeds said threshold;
c) decrement by one said excursion count, to a minimum of zero, upon determining a frequency change rate that does not exceed said threshold; and
d) initiate said alarm signal when said excursion count exceeds said alarm limit count.

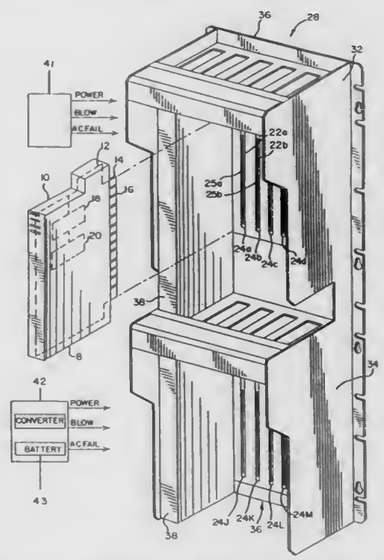
5,065,141
EXPANDED REGISTER RACK FOR A PROGRAMMABLE LOGIC CONTROLLER

Steven L. Whitsitt, Waukesha, Wis., assignor to Square D Company, Palatine, Ill.

Filed Mar. 13, 1989, Ser. No. 322,834
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—635 **2 Claims**

1.

An expanded board register rack assembly for a programmable controller system comprising;
a first standard sized register rack including a first plurality of slots adapted for receiving a first plurality of circuit boards housed within a first plurality of electronic modules, a first one of said first plurality of electronic modules being a programmable controller module which includes a processor and a memory, the processor for executing sequential program steps stored in said memory,
a first power supply;
a second standard sized register rack connected in a vertical juxtaposition to said first register rack, including a second plurality of circuit boards housed within a second plurality of electronic modules,
a second power supply; and
an extender board means for communicatively coupling said first and said second standard sized registered racks, said communicatively coupled means permitting said programmable controller module to selectively access any of said other electronic modules received in said first and second plurality of slots, wherein:



said a first power supply is adapted for coupling to AC line power, said first power supply for providing power to each of said first plurality of electronic modules, said first power supply including a first battery for providing power in event of failure of said AC line power; and
said a second power supply adapted for coupling to AC line power, said second power supply for providing power to each of said second plurality of electronic modules, said second power supply including a second battery for providing power in event of failure of said AC line power, and further including:
means electrically connected to said first and second power supplies for detecting a failure of either of said first and second power supplies; said detecting means generating a signal to identify which of said first or second power supply experienced the failure, and
means responsive to said signal from the detecting means for providing an indication of said detected failure to said programmable controller module.

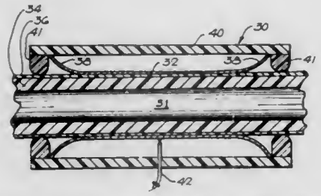
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,142

VOLTAGE PICKUP CIRCUIT AND FLASHING DISPLAY FOR HIGH VOLTAGE INDICATOR DEVICE, AND INPUT ELECTRODE THEREFOR

Peter J. Green, Huntington, W. Va., assignor to Service Machine Company, Huntington, W. Va.

Filed May 23, 1990, Ser. No. 527,584
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—660 7 Claims



6. An electrode for indicating a live voltage condition in an electrical conductor consisting of a central conductor wire with insulation thereon, said electrode comprising:

an electrically conductive tube assembleable onto the outside surface of the insulation forming with said central conductor wire a capacitive alternating current path across the insulation;

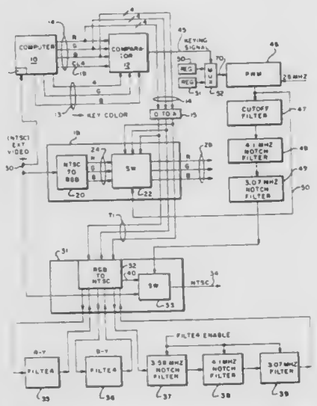
said electrically conductive tube having outwardly flared bell-shaped opposite end portions to reduce electrical stress concentrations in the insulation.

5,065,143

APPARATUS FOR CONVERTING AN RGB SIGNAL INTO A COMPOSITE VIDEO SIGNAL AND ITS USE IN PROVIDING COMPUTER GENERATED VIDEO OVERLAYS

Paul E. Greaves, Rancho Cordova; Michael R. Moore, Folsom; Stephen G. Perlman, Mountain View, and Laurence A. Thompson, Saratoga, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Division of Ser. No. 249,603, Sep. 26, 1988, abandoned. This application Feb. 1, 1991, Ser. No. 649,606
Int. Cl.[5] G09G *1/28*
U.S. Cl. 340—701 4 Claims



1. In a computer which has a dot clock for a video display frequency of M, and which computer provides a first red, green and blue (first RGB) video overlay signals, an apparatus for merging said first RGB signals with a composite video signal having a color reference frequency of N, where M is not a harmonic of N, an improvement comprising:

keying signal generation means for generating a keying signal which indicates when the image represented by said first RGB signals overlies the image represented by said composite video signal, said keying signal generation means being coupled to receive said first RGB signals;

first conversion means for converting said first RGB signals into a composite overlay signal, said first conversion means being coupled to receive said first RGB signals;

said first conversion means including a first notch filter having a frequency characteristic with a first notch centered at a frequency approximately equal to M divided by an integer;

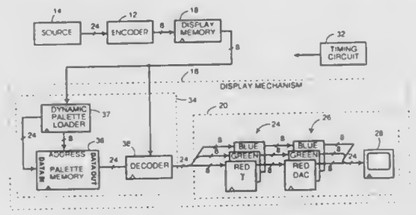
first switching means for switching between said composite video signal and said composite overlay signal under control of said keying signal, said first switching means being coupled to said first conversion means and said keying signal generation means, said first conversion means providing a first output signal.

5,065,144

APPARATUS FOR MIX-RUN ENCODING OF IMAGE DATA

Steven D. Edelson, Wayland, Mass.; Gary J. Frattarola, Merrimack, and George L. Heron, Derry, both of N.H., assignors to Analog Devices, Inc., Norwood, Mass.

Filed Apr. 17, 1990, Ser. No. 510,255
Int. Cl.[5] G09G *1/28*
U.S. Cl. 340—703 13 Claims



1. For displaying images represented by a source signal that represents pixel values in a pixel-by-pixel manner, an apparatus comprising:

A) a display mechanism having a screen comprising screen locations corresponding to respective image pixels, the display mechanism being adapted for reception of a display input comprising run-code pixel words, each of which corresponds to a respective pixel in an image, that represent pixel value in accordance with a run code such that the set of the run-code pixel words corresponding to all pixels in the image includes a plurality of runs of run-code pixel words, each run including at least one run-code pixel word that represents the pixel value of its corresponding pixel as a mix of values of a characteristic set of pixel values without additionally containing all of the values the characteristic set, for scanning the screen locations in a screen sequence and displaying, at the scanned screen locations corresponding to the image pixels to which the run-code pixel words in the run correspond, the sequences of pixel values that the runs represent in accordance with the run code;

B) a display-memory circuit, including display-memory locations that correspond to the respective screen locations and to the pixels to which the screen locations correspond and being operable to store in its display-memory locations corresponding run-code pixel words containing pixel values encoded in accordance with the run code, for scanning the display-memory locations in a sequence that tracks the scanning of the corresponding screen locations, for generating a display-memory output representative of the contents of the scanned memory locations, and for applying the display-memory output to the display mechanism as its display input; and

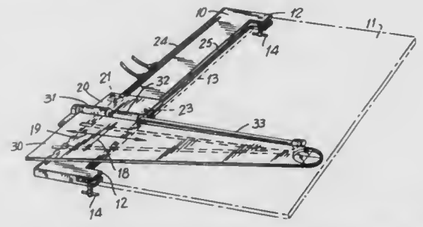
C) an encoder, adapted to receive a source signal comprising source pixel words associated with respective image pixels, each pixel word representing the pixel value of its respective image pixel without reference to the pixel values of other pixels, for encoding sequences of the source pixel words into runs of the run-code pixel words in accordance with the run code and operating the display-memory circuit to store the run-code pixel words in the display-memory locations that correspond to the image pixels to which the respective run-code pixel words correspond.

5,065,145

METHOD AND APPARATUS FOR PRODUCING SIGNALS CORRESPONDING TO THE POSITION OF A CURSOR

Alexander M. Purcell, Guilford, Conn., assignor to Summagraphics Corporation, Seymour, Conn.

Filed Oct. 6, 1989, Ser. No. 418,167
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—706 12 Claims



1. In a system for indicating the position of a cursor on a surface in first and second different linear directions, comprising a cursor, and means for moving said cursor with respect to said surface, the improvement wherein said means for moving said cursor comprises a first member, means for mounting said first member for movement in said first direction, a second member, means for mounting said second member to said first member for movement with respect thereto in said second direction, said cursor being mounted to said second member, first and second spaced sensing regions on said second member, the distance between said first and second regions, in said first direction, being unique for each displacement of said cursor in said second direction with respect to said first member, and sensing means mounted on a locus adjacent said first and second regions and extending in said first direction for sensing the displacements of adjacent portions of said first and second regions along said locus.

5,065,146

MANUALLY-OPERATED CONTROL DEVICE

Michael J. Garrett, Otterbourne, England, assignor to International Business Machines Corporation, Armonk, N.Y.

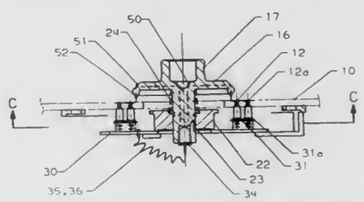
Continuation of Ser. No. 208,699, Jun. 20, 1988, abandoned. This application Nov. 19, 1990, Ser. No. 617,288
Claims priority, application United Kingdom, Jun. 18, 1987, 8714334
Int. Cl.[5] G09G *3/02*
U.S. Cl. 340—709 7 Claims

1. A manually-operated control device for controlling the position of a cursor on a display screen comprising:

a source of light;

a plurality of detectors responsive to light from the light source;

a handle including transmission means for transmitting said light through the handle, the handle having a neutral position and a plurality of operative positions, wherein the handle is manually-movable from the neutral position to the operative positions to transmit a portion of the light from the source through the transmission means to one of the detectors, whereby the position of the handle may be measured by interrogation of the detectors; and



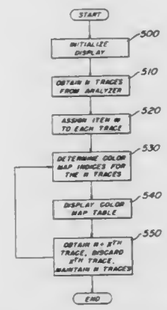
each detector has associated therewith a further detector, such that, when the handle is moved along an axis from the neutral position to an operative position, further motion of the handle along the same axis causes light to be transmitted to the associated further detector.

5,065,147

METHOD AND APPARATUS FOR SIMULATING ANALOG DISPLAY IN DIGITAL DISPLAY TEST INSTRUMENT

Thomas A. Rice; David A. Smith, and Alan W. Schmidt, all of Santa Rosa, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed May 17, 1989, Ser. No. 353,369
Int. Cl.[5] G01R *13/22*
U.S. Cl. 340—744 17 Claims



12. Digital display apparatus comprising:

a) a color graphics controller/color CRT for displaying signal waveforms; and,

b) means for plotting and simultaneously displaying a plurality, N, of traces of a signal waveform to be displayed, for determining and assigning gray level intensities to pixel locations of the CRT based upon the number of the N traces passing through each pixel location, and illuminating each pixel location at its assigned gray level intensity; whereby different pixels of the CRT may be illuminated at different intensity values to reflect a characteristic of the signal, and trace persistence may be simulated as a consequence of simultaneously displaying a plurality of traces of the signal, thereby simulating an analog display.

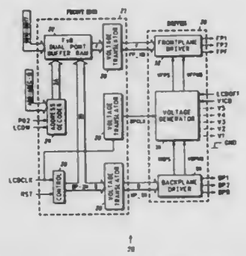
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,148

LCD DRIVER A GENERATOR

Timothy K. Yee-Kwong, Hong Kong, Hong Kong, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Jul. 31, 1989, Ser. No. 387,561
Int. Cl.[5] G09G 3/36
U.S. Cl. 340—784 8 Claims



5. An LCD driver for driving a selected LCD comprising:

a front end section including a RAM, address decoder, and control logic interconnected to provide operating signals, and a driver section including frontplane and backplane drivers with outputs and a voltage generator interconnected to each other and to said front end section and further connected to provide LCD driving signals;

the RAM including a plurality of frontplane columns and a plurality of backplane rows, the pluralities being chosen to provide a required number of signals to the selected LCD utilizing a reduced number of connections;

the voltage generator including a resistor ladder constructed to generate a plurality of psuedo-voltage levels in accordance with the equation

$$\text{No. of levels} = 2 + \sqrt{\text{No. of backplanes in RAM}}$$

and the value of the voltage at each psuedo-voltage level corresponding to the following equations

$V_0=0$

$V_1=V_{lcd}/a$

$V_2=2\ V_{lcd}/a$

$V_3=(1-2/a)V_{lcd}$

$V_4=(1-1/a)V_{lcd}$

$V_5=V_{lcd}$

where:

a=No. of level—1; and

V_{lcd}=supply voltage applied to the driver section; and

said frontplane and backplane drivers being connected to receive the plurality of psuedo-voltage levels from said voltage generator and generating frontplane and backplane, select and non-select square-waves by continually switching between two psuedo-voltage levels as given by:

V_{fps} switches between V_5 and V_0;

V_{fpns} switches between V_3 and V_2;

V_{bps} switches between V_0 and V_5; and

V_{bpns} switches between V_4 and V_1

where:

V_{fps}=frontplane select square-wave;

V_{fpns}=frontplane non-select square-wave;

V_{bps}=backplane select square-wave; and

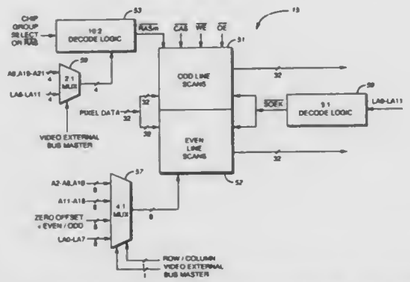
V_{bpns}=backplane non-select square-wave and multiplexing the generated square-waves to frontplane and backplane outputs.

5,065,149

SCANNED DOCUMENT IMAGE RESOLUTION ENHANCEMENT

Robert M. Marsh, Berkeley; Timothy J. Hill, and Mark Potts, both of San Francisco, all of Calif., assignors to Documeat Technologies, Inc., Mountain View, Calif.

Filed Nov. 9, 1989, Ser. No. 434,992
Int. Cl.[5] G09G 3/00
U.S. Cl. 340—793 13 Claims



1. Apparatus for providing improved resolution of an image displayed on a screen, comprising:

transformation means, receiving a plurality of lines of image data from a source, each line including a sequence of pixel values, for forming mutually exclusive groups of J pixel values from said received image data for J adjacent image pixels, for counting the number of pixel values with a selected polarity in each group of J pixel values, and for issuing as output signals an ordered set of K bits that is determined by this count for each group of J pixel values, where each ordered set of K bits that is determined by this count for each group of J pixel values, where each ordered set of K bits determines a display pixel value for the displayed image, and where J and K are determined positive integers with K smaller than J; and

display means for receiving the ordered sets of K bits from the transformation means, for determining an d displaying a pixel value on the screen for each such set of bits, and, where a display pixel value belongs to a selected subset of pixel values, for periodically varying such pixel value between the determined pixel value and a predetermined alternative pixel value.

5,065,150

MONITORING APPARATUS FOR DISASTER PREVENTION

Haruchika Machida, Sagamihara; Yoshiaki Fuwa, Yokohama, and Takashi Shimokawa, Sagamihara, all of Japan, assignors to Hochiki Corp., Tokyo, Japan

Filed Jul. 14, 1989, Ser. No. 380,197
Claims priority, application Japan, Jul. 29, 1988, 63-189728
Int. Cl.[5] H04B 3/00
U.S. Cl. 340—825.06 6 Claims

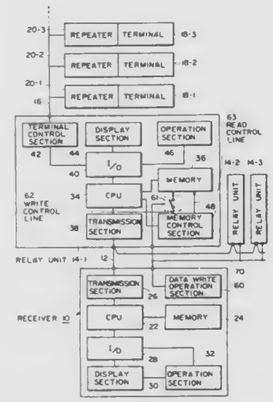
1. A monitoring apparatus for disaster prevention comprising:

one or a plurality of relay units equipped with a storage means allowing rewriting of data and a control section for monitoring a plurality of terminals with equipment on the basis of data stored in said storage means;

a receiver connected to said relay units over transmission lines and adapted to monitor and control said relay units by transmitting information based on data stored in the storage means of said relay units;

data transfer/writing means for taking relay unit data previously stored in a storage means of said receiver and transferring and writing it to the storage means of said relay units over the transmission lines; and

a data checking means for reading the data written to the storage means of said relay units by said data transfer/-writing means and transmitting it through the transmission lines to said receiver and collating to see whether the realy unit data previously stored in the storage means of said means is in accordance with the data written to the storage means of said relay units, whereby when said transferred data from the relay unit is not in accordance with the relay unit data previously stored in a storage means of



said receiver, the number of data collating operations performed is counted, and if the number does not exceed a predetermined value, then repeat the transfer/writing procedure for taking the relay unit data previously stored in a storage means of said receiver and transferring and writing it to the storage means of said relay units by said data transfer/writing means; and a checking procedure by said data checking means are repeated until the number exceeds a predetermined value, and whenever the transferred data is not in accordance with said relay unit data even after repeating said procedure until the number exceeds a predetermined value, a display means located at said receiver indicates any error in the data written to the storage means of said relay units.

5,065,151

VIDEO SWITCH EXCHANGE WITH BLACKOUT TIME CONTROL

Alexander Sandbrand, Yonkers, N.Y., assignor to Technical Telephone Systems, Inc., Staten Island, N.Y.

Filed Oct. 28, 1988, Ser. No. 264,451
Int. Cl.[5] H04Q 3/545
U.S. Cl. 340—825.22 7 Claims

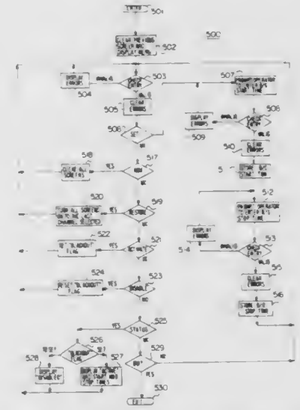
1. An apparatus for switching video signals from input lines to output lines, comprising:

control means for selectively setting a blackout start time and for selectively setting a blackout stop time;

first comparing means for comparing the blackout start time with actual time;

second comparing means for comparing the blackout stop time with actual time; and

switching means for connecting the input lines to the output lines and for disconnecting the input lines from the output lines, said switching means being responsive to said first comparing means to disconnect all input lines from all output lines when the actual time equals the blackout start time, said switching means being responsive to said second comparing means to reconnect the input lines to the output lines when the actual time equals the blackout stop time.

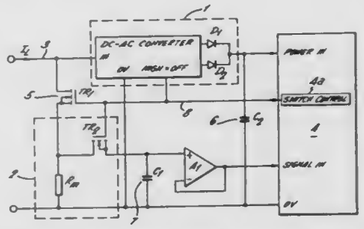


5,065,152

TWO-WIRE LOOP ELECTRIC CIRCUIT ARRANGEMENT

Timothy D. N. Williams, Chichester, United Kingdom, assignor to Rosemount Limited, West Sussex, England

Filed Jan. 25, 1989, Ser. No. 282,310
Claims priority, application United Kingdom, Apr. 6, 1987, 8708171
Int. Cl.[5] H04Q 9/00
U.S. Cl. 340—825.36 7 Claims



1. A two-wire loop electric circuit arrangement, including a loop in which in use a signal current flows; a supply voltage generation circuit; a signal current conversion circuit; switch means operative to selectively connect one of the supply voltage generation circuit and the signal current conversion circuit into the loop at any instant, the outputs of the supply voltage generation circuit and the signal current conversion circuit being supplied to a common load which controls operation of the switch means; and a pair of capacitors connected across the outputs of the supply voltage generation circuit and the signal current conversion circuit respectively.

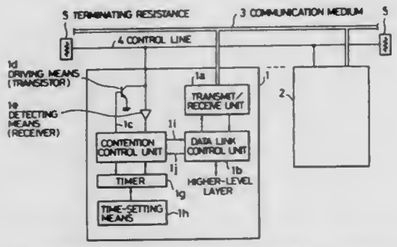
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,153

CONTENTION CONTROL SYSTEM

Eizo Tomita, and Yutaka Asai, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Minatoku, Japan

Filed Jun. 24, 1988, Ser. No. 211,555
Claims priority, application Japan, Jun. 30, 1987, 62-161358
Int. Cl.[5] H04Q 9/00
U.S. Cl. 340—825.5 13 Claims



1. A contention control system for a single communication medium shared by a plurality of independent functional modules, comprising:

a control line separate from the communication medium; and

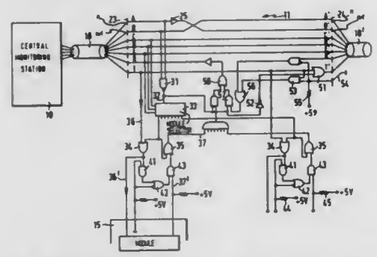
control means in the respective functional modules for checking said control line prior to data transmission, waiting for said control line to become inactive, activating said control line for a predetermined contention interval, then checking said control line again and reverting to the waiting state if said control line is active, or if said control line is inactive, reactivating said control line, commencing data transmission, and holding said control line in the active state for the duration of the data transmission.

5,065,154

DIGITALLY ADDRESSBLE ELECTRONIC DEVICE WITH INTERCHANGED AND INVERTED ADDRESS LINES

Winfried Kaiser, Nufringen; Andreas Schober, Hanover, and E.-Peter Salfeld, Ehningen, both of Fed. Rep. of Germany, assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 20, 1989, Ser. No. 340,981
Claims priority, application European Pat. Off., May 5, 1988, 88107187.2
Int. Cl.[5] H04Q 5/14
U.S. Cl. 340—825.520 13 Claims



1. A digitally addressable electronic device comprising:

input means having at least first and second contacts;

a transmission line connected to said first contact and a signal receiving line connected to said second contact;

a first plurality of contacts provided for the connection of device address lines;

a second plurality of contacts for the connection of a plurality of module address lines;

device selection means having a plurality of inputs respectively connected to said first plurality of contacts for providing in response to a given combination of signals at said first plurality of contacts a control signal;

output means having first and second contacts respectively coupled to said first and second contacts of said input means and a third plurality of contacts respectively coupled to said first plurality of contacts in such manner that at least two contacts of said third plurality are interchanged with respect to the corresponding contacts of said first plurality of contacts, one of said third plurality of contacts being connected to one of said first plurality of contacts via an invertor;

a plurality of module connection means for coupling, when enabled, a module, when present, to said transmission line and said receiving line;

module selection means coupled to said second plurality of contacts for providing an enabling signal to a module connection means determined by bits appearing at said second plurality of contacts when said control signal occurs;

means providing an indication when a selected module is not coupled to a module connection means; and

means responsive to said indication for connecting said signal transmission line to said signal reception line.

5,065,155

KEY-LOCK SYSTEM

Yoshinori Oogita, and Sigeaki Masuzawa, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 23, 1989, Ser. No. 425,806
Claims priority, application Japan, Oct. 28, 1988, 63-274240; Nov. 8, 1988, 63-283240
Int. Cl.[5] H04B 1/00; G06K 7/00
U.S. Cl. 340—825.56 6 Claims

2. A key-lock system for use in an IC card with a display portion which comprises means for rendering input from a keyboard so that said keyboard is placed in an inhibited state for a certain period of time by detecting that predetermined keys of the keyboard were depressed, the predetermined key depression setting said certain period of time, and means for removing the inhibited state of input from the keyboard by detecting that the time which has elapsed after the keyboard was rendered to the inhibited state has equalled a time specified at the time the keyboard was inhibited.

5,065,156

COMPUTER CONTROLLED PARKING METER

Denis Bernier, 28 de l'Epée, suite 102, Outremont, Quebec, Canada H2V 3S9

Filed Jul. 26, 1990, Ser. No. 557,762
Int. Cl.[5] B60Q 1/48
U.S. Cl. 340—932.2 13 Claims

1. A computer-controlled parking meter for managing a use of parking spaces, said meter comprising:

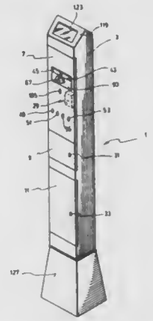
a first display device for singularly identifying said parking spaces;

push-button means for operating said first display device;

a second display device for indicating a parking time paid for said identified parking spaces;

a rotary disk having, along a periphery thereof, visible indicia providing information as to a state of paid occupancy of said parking spaces, and step motor means for step rotating said rotary disk to provide said information;

coin receiving and counting means capable of allowing operation of said second display device whereby said second display device indicates a amount of parking time paid, said coin receiving and counting means being also capable of allowing rotation of said step motor means and



of said rotary disk whereby said rotary disk displays said information as to said state of paid occupancy of said parking spaces; and

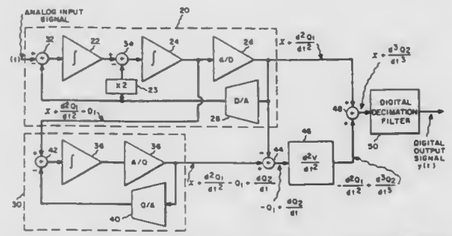
computer means for controlling sequential operation of said first and second display devices and of said step motor means from signals received from said push-button means and from said coin receiving and counting means, respectively.

5,065,157

HIGH ORDER SIGMA DELTA OVERSAMPLED ANALOG-TO-DIGITAL CONVERTER INTEGRATED CIRCUIT NETWORK WITH MINIMAL POWER DISSIPATION AND CHIP AREA REQUIREMENTS

David B. Ribner, Schenectady, and Richard D. Baertsch, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Apr. 6, 1990, Ser. No. 505,382
Int. Cl.[5] H03M 3/02
U.S. Cl. 341—143 12 Claims



1. In a sigma delta analog-to-digital converter network formed on an integrated circuit chip, the improvement comprising:

a first integrator comprising a differential amplifier, an associated input capacitor and an associated feedback capacitor; and

one or more subsequent integrators each comprising a differential amplifier, an associated input capacitor and an associated feedback capacitor, said one or more subsequent integrators being responsive to output voltage from said first integrator;

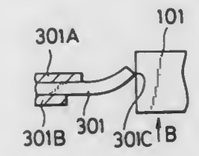
the differential amplifier of each of said subsequent integrators and the input and feedback capacitors associated therewith being smaller in area than said differential amplifier of said first integrator and the input and feedback capacitors associated therewith so as to minimize power dissipation in said subsequent integrators.

5,065,158

INK JET CLEANING MEMBER

Takashi Nojima, Tokyo, and Tetsuhiro Nitta, Yokohama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 16, 1990, Ser. No. 480,800
Int. Cl.[5] B41J 2/165
U.S. Cl. 346—140 R 11 Claims



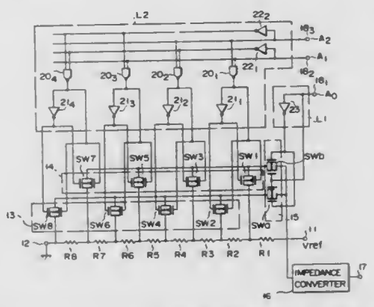
1. A cleaning member for bearing against and thereby cleaning a discharge port forming surface of an ink jet recording head, wherein openings for discharging ink are formed through the discharge port forming surface, said cleaning member being formed of a material composed chiefly of hydrogenated nitrile butadiene rubber and the hardness of the hydrogenated nitrile butadiene rubber being at least 35° and no more than 80°.

5,065,159

DIGITAL TO ANALOG CONVERTER WITH SWITCHING LOGIC MINIMIZATION

Kiyohisa Kuwana, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 29, 1990, Ser. No. 604,241
Claims priority, application Japan, Oct. 31, 1989, 1-281760
Int. Cl.[5] H03M 1/76
U.S. Cl. 341—148 9 Claims



1. A D/A converter for converting a digital signal having first and second end bits into an analog signal, comprising:

a plurality of resistors connected in series between first and second reference power sources, the resistors being connected at alternately odd-numbered and even-numbered connection nodes;

first deriving means constituted by a plurality of deriving elements for deriving divided voltages from even-numbered connection nodes among the connection nodes between each adjacent pair of resistors;

second deriving means constituted by a plurality of deriving elements for deriving divided voltages from odd-num-

VOL
1132
ISS
2
NO
12
1991
UMI

bered connection nodes among the connection nodes between each adjacent pair of resistors;

first selection means for selecting one of the deriving elements of the first deriving means having a first deriving voltage in accordance with the content of bits other than the first end bit of the digital signal and for selecting one of the deriving elements of the second deriving means having a second deriving voltage in accordance with the content of bits other than the first end bit of the digital signal; and

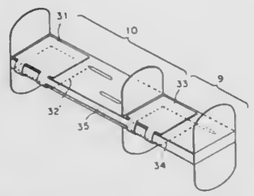
second selection means for selecting one of the first and second deriving voltages in accordance with the content of the least significant bit of the digital signal.

5,065,160

RADAR TRANSPONDER

Yoichi Kawakami, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 327,133, Mar. 22, 1989, Pat. No. 4,980,689.
This application Sep. 28, 1989, Ser. No. 413,581
Claims priority, application Japan, May 12, 1988, 63-1134575
Int. Cl.[5] G01S *13/80*
U.S. Cl. 342—51 **10 Claims**



1. A radar transponder having a receiving unit which is responsive to electric waves emitted from a radar and a transmitting unit which transmits a signal in response to the reception of said electric waves by said receiving unit, comprising:

a power source circuit, a signal control circuit, a video amplifying circuit and a lamp LED display circuit, all formed on a respective deformable flexible wrap-around printed wiring board,

wherein wiring connections between said power source, said signal control circuit and said video amplifying circuit, and said lamp LED display circuit are formed on at least one other deformable flexible wrap-around printed wiring board, and

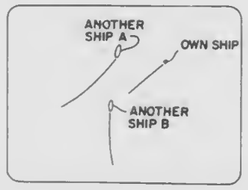
additionally including a support member having a pair of opposing support surfaces, and wherein said power source circuit and said signal control circuit are formed on first and second deformable flexible wrap-around printed wiring boards respectively located on said pair of opposing support surfaces and wherein said video amplifying circuit and said lamp LED display circuit are formed on third and fourth deformable flexible wrap-around printed wiring boards respectively located on said pair of opposing support surfaces a predetermined distance away from said first and second deformable flexible wrap-around printed wiring board.

5,065,161

SHIP TRACK INDICATING APPARATUS

Shozou Shibutani, Hyogo, Japan, assignor to Furuno Electric Company Limited, Hyogo, Japan

PCT No. PCT/JP89/00541, § 371 Date Jan. 31, 1990, § 102(e) Date Jan. 31, 1990, PCT Pub. No. WO89/12237, PCT Pub. Date Dec. 14, 1989
PCT Filed May 30, 1989, Ser. No. 459,837
Claims priority, application Japan, Jun. 1, 1988, 63-134968; Jan. 11, 1989, 1-4439
Int. Cl.[5] G01S *7/22*
U.S. Cl. 342—176 **2 Claims**



1. A ship track indicating apparatus comprising:

radar means for successively radiating search signals in different azimuthal directions;

receiver means for receiving radar echo signals;

distinguishing means for distinguishing a group of received radar echoes extending over a predetermined number of radar sweeps to eliminate noise received by said receiver means;

deriving means for deriving a plurality of position signals based on said group of received radar echoes, each position signal being representative of one point in an area where said group of received radar echoes are produced and thus representative of a position of a ship, a track of ship being represented by a plurality of said one points;

ship track memory means, operatively connected to said deriving means, for storing each position signal representing a position of the ship and a track of a ship;

sizing means for determining a size of a target ship from a group of distinguished radar echoes and for producing size signals representative of said size of said target ship;

color converter means for converting signals supplied from said ship track memory means to display signals corresponding to different colors based on said size of said target ship supplied from said sizing means; and

indicating means for displaying a track of a ship and said size of said target ship from said display signals.

5,065,162

COMMUNICATION SYSTEM FOR HELICOPTER

Noriyuki Akaba; Hiroshi Yagi, both of Yokohama, and Yoji Miyoshi, Tokyo, all of Japan, assignors to Tokyo Keiki Co., Ltd., Tokyo, Japan

Filed Jun. 6, 1990, Ser. No. 533,837
Claims priority, application Japan, Jun. 30, 1989, 1-168699
Int. Cl.[5] G01S *5/02*
U.S. Cl. 342—417 **13 Claims**

1. A mobile vehicle communication system comprising:

a relay tarnsmitting-receiving antenna portion which is provided aboard siad mobile vehicle and which not only receives information transmitted from a first station, said first station being a radiowave transmitting source, but also transmits said information to a second station, said second station being a receiving station;

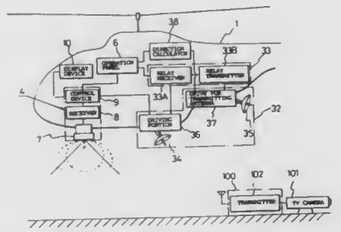
a relay transmitter-receiver equipped with said relay transmitting-receiving antenna portion; and

direction finding means for detectign the location of said first station;

said direction finding means comprising:

a direction finding antenna, and

a processor for performing predetermined signal processign based on the information received by said direction finding antenna in order to output a plurality of directio com-



puting elements for calculating the location of said first station, and

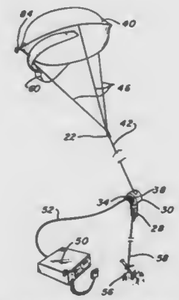
means for providing information to control a portion of said relay transmitting-receiving antenna portion.

5,065,163

REUSABLE DEPLOYABLE ANTENNA

Arthur W. Mears, Berthoud, Colo., assignor to Radarfind, Inc., Broomfield, Colo.

Filed Aug. 20, 1990, Ser. No. 569,560
Int. Cl.[5] H01Q *1/28*
U.S. Cl. 343—706 **5 Claims**



1. A reusable portable locating, transmitting and receiving device comprising:

A aerodynamically shaped airfoil capable of being repeatedly inflated with a lighter-than-air gas through a filler means and secured with a clip means preventing said lighter-than air gas from escaping through the filler means;

said airfoil having a top portion and a bottom portion;

said bottom portion having a air brake means affixed rearwardly and downwardly for providing lift in adverse weather

said airfoil securely affixed to a swivel means by a tether means permitting said airfoil to automatically face into the wind;

a tether antenna means capable of emitting and receiving radio signals affixed to said swivel means and a reel means;

said reel means having a frequency adjustor means for electronically adjusting the length of said tether antenna means interconnected to said tether antenna means and rotatabley affixed to said tether antenna means through said reel means;

a signal emitting and receiving means connectively affixed to said tether antenna means through said reel means,

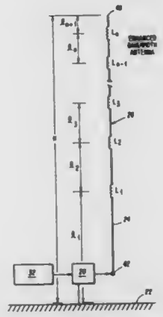
said reel means having a ground means for simultaneously anchoring and grounding of said reusable, portable, locating, transmitting, and receiving device during use in adverse weather conditions and said reusable, portable, locating, transmitting, and receiving device in the deflated state may be transported in a carrying case.

5,065,164

FREQUENCY RANGE ENCHANCED MONOPOLE ANTENNA

Richard E. Deasy, Cedar Rapids, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 8, 1989, Ser. No. 390,791
Int. Cl.[5] H01Q *9/32*
U.S. Cl. 343—749 **3 Claims**



1. An antenna system adapted for efficiently radiating energy over a broad range of frequencies, comprising;

an antenna coupler including one or more load coils designed for resonating a monopole type antenna;

a wire whip which is approximately one-half wavelength in length with respect to the highest frequency within said range and is approximately one-quarter wavelength in length with respect to the mid-frequency within said range and which is connected to said antenna coupler; and

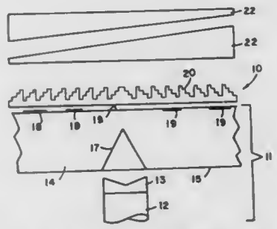
a plurality of inductors installed along said wire whip, said inductors positioned so as to be electrically isolated from one another by being spaced apart by several inches and progressively spaced more closely together toward the distal end of said antenna, and also sized so as to be non-resonant over said range of frequencies and of greater inductance value toward the distal end of said antenna.

5,065,165

MICROWAVE TRANSITION

Leonard L. Blaisdell, Medway, Mass., assignor to GTE Government Systems Corporation, Waltham, Mass.

Filed Dec. 29, 1989, Ser. No. 459,005
Int. Cl.[5] H01Q *19/060, 15/080*
U.S. Cl. 343—753 **2 Claims**



1. A transition for exciting a radial RF surface wave on a surface of a sheet of dielectric material comprising:

a sheet of dielectric material having a first surface and a parallel second surface;

VOL 1132 ISS 2 NO 12 1991 UMI

a tapered recess in said dielectric material converging from said first surface towards said second surface and having an axis normal to said second surface; said dielectric material having a critical angle of reflection with respect to the normal of said second surface;

a RF horn arranged nearer to said first surface than said second surface and having an axis in common with the axis of said tapered recess; and

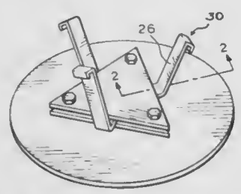
a RF lens interposed between said horn and said tapered recess; said RF horn, RF lens, tapered recess, and dielectric material having RF optical properties such that all rays traced from said horn through said lens and dielectric material to said second surface have an angle with respect to said normal of said second surface greater than said critical angle and RF energy on said second surface from the center of said horn is in phase with RF energy on said second surface from the edge of said horn for launching a surface wave on said second surface.

5,065,166

ANTI CANCELLATION ANTENNA

Adam Kolanski, Holland Landing, Canada, assignor to Sinclair Radio Laboratories Limited, Aurora, Canada and Sinclair Radio Laboratories Limited, Aurora, Canada

Filed Jul. 10, 1989, Ser. No. 377,558
Claims priority, application Canada, Apr. 14, 1989, 595108
Int. Cl.[5] H01Q *9/30*
U.S. Cl. 343—826 **4 Claims**



1. Antenna having a central wavelength comprising:

an odd number of conducting monopole members extending upwardly from a base support and equiangularly disposed about a vertical axis,

each monopole member comprising mainly an upwardly diverging extent sloping at, at least, 30° to said vertical axis,

and being supported at its lower end on said base support insulated from a ground plane,

a signal lead connected to said odd number of monopole members, and a ground lead connected to said ground plane,

the lower end of each said monopole member having an integral horizontal extension rom the lower end of said diverging extent to the signal lead,

said monopole members including said horizontal extensions being a length to provide signals relative to the same signal on the signal lead whose widest phase difference is less than 15% of said predetermined wavelength,

wherein there are three monopole members wherein the diverging extents are of substantially equal length but said monopole members including said horizontal extensions are of a length to cause a phase different between signals on the three diverging extents relative to the signal lead, the widest phase difference being less than 15% of the central wavelength,

and where said horizontal extensions of said three diverging extents are made of lengths differing by a small proportion of said diverging extent to, at least partially cause said phase difference.

5,065,167

VAPORIZABLE SOLID INK COMPOSITION FOR THERMAL INK-JET PRINTING

Young S. You, Los Altos, and John D. Meyer, Tracy, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Division of Ser. No. 332,242, Mar. 31, 1989. This application May 21, 1990, Ser. No. 526,210
Int. Cl.[5] B41J *2/01*
U.S. Cl. 346—1.1 **7 Claims**

1. A process for applying ink comprising:

providing an ink composition that is solid at 25° C. and liquid at the operating temperature of a ink jet, said ink composition having at least one component with a critical pressure of at least 10 atm. and a low enough boiling temperature to form vapor bubbles in an ink jet print head;

passing said ink composition to an inlet of an ink jet printhead; and

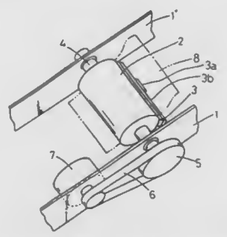
superheating at least a portion of said ink composition within said ink jet printhead with multiple heating pulses, an initial pulse preheating at least a portion of said ink composition at a temperature below its boiling temperature and a subsequent pulse heating at least a portion of said ink composition from a temperature lower than its boiling temperature to a temperature higher than its boiling temperature, the superheating forming vapor bubbles within the ink jet printhead.

5,065,168

HEAD DRIVING PULSE GENERATION CIRCUIT FOR THERMAL RECORDING APPARATUS

Michio Tsuchiya, Nagoya, and Masaaki Terazawa, Ichinomiya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Japan

Filed Mar. 22, 1990, Ser. No. 497,210
Claims priority, application Japan, May 16, 1989, 1-55928[U]
Int. Cl.[5] G01D *15/10*
U.S. Cl. 346—76 PH **18 Claims**



1. A thermal recording apparatus for recording images on a recording medium by using heat comprising:

a thermal head including heat-generating means for producing heat to record images on the recording medium;

head driving means, electrically connected to said heat-generating means, for driving said heat-generating means to produce heat according to the images to be recorded; and

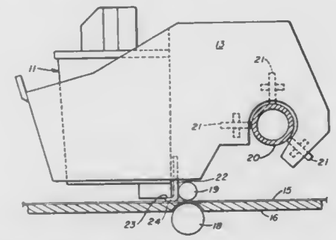
temperature compensation means, electrically connected to said head driving means, for controlling a temperature of said thermal head, said temperature compensation means including temperature detecting means, operatively associated with said thermal head, for detecting a temperature of said thermal head and outputting a temperature signal, and reference information generating means, operatively associated with said temperature detecting means, for generating and outputting a reference signal having a variable value, said temperature compensation means controlling the temperature of said thermal head by comparing the temperature signal output by said temperature detecting means with the reference signal generated by said reference information generating means and outputting a compensation signal to said head driving means, wherein a value of said compensation signal can vary at a constant thermal head temperature based on the value of said reference signal.

5,065,169

DEVICE TO ASSURE PAPER FLATNESS AND PEN-TO-PAPER SPACING DURING PRINTING

Kent D. Vincent, Cupertino, and John P. Ertel, Portola Valley, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 170,507, Mar. 21, 1988, abandoned. This application Sep. 25, 1989, Ser. No. 412,582
Int. Cl.[5] B41J *2/01*
U.S. Cl. 346—140 R **11 Claims**



1. An inkjet printer comprising:

inking means including inkjet pen means having a plurality of inkjet nozzles for printing on the surface of a sheet as the inkjet pen means is driven to traverse the surface of the sheet; and single spacer means interposed between the inking means and the sheet so that the spacer means rides directly upon the printer surface of the sheet to always maintain preselected minimum spacing between the inking means and the sheet during printing while, simultaneously, exerting force to provide a sheet flattening action at the localized area of printing;

said spacer means having surface area disposed parallel to the sheet surface to ride directly thereon immediately before printing the localized areas and projecting in both the direction of travel of the inkjet pen means and perpendicular to the direction of travel to flatten cockles in the sheet in the localized areas adjacent the nozzles of the inkjet pen means, the extent of the projection in the direction of travel being substantially greater than the extent of projection in the perpendicular direction.

5,065,170

INK JET PRINTER HAVING A STAGGERED ARRAY PRINTHEAD

Ivan Rezanka, Pittsford, N.Y., and Yasuo Horino, Tokyo, Japan, assignors to Xerox Corporation, Stamford, Conn.

Filed Jun. 22, 1990, Ser. No. 542,053
Int. Cl.[5] B41J *2/05, 2/165*
U.S. Cl. 346—140 R **38 Claims**

1. A staggered ink jet printhead array comprising:

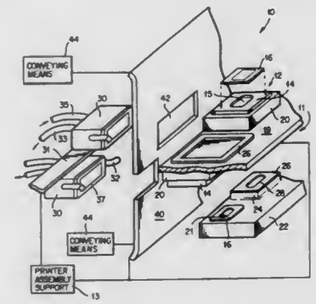
a heat sink substrate having first and second opposed surfaces;

a plurality of printhead subunits positioned on each substrate surface;

each printhead subunit having an upper surface, a lower surface and a front surface, a plurality of nozzles being located on said front surface, said lower surface being attached to said substrate and said upper surface having an ink-receiving opening in fluid communication with said nozzles;

the printhead subunits being spaced apart on each surface of the substrate, the subunits on the first substrate surface overlying spaces on the second substrate surface and the subunits on the second substrate surface overlying spaces on the first substrate surface;

an ink manifold positioned on the subunits located on each of the substrate surfaces, each ink manifold having openings located above the ink-receiving openings of the printhead subunits, said manifold openings and subunit openings



providing communication between an interior of the ink manifold and an interior of each printhead subunit;

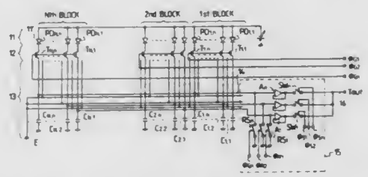
each ink manifold further including fingered portions which extend into the spaces between the subunits, the fingered portions each having an extreme surface, each extreme surface being in close proximity to the substrate surface between each subunit.

5,065,171

IMAGE SENSOR WITH UNIFORMLY DISPERSED STORAGE CAPACITORS

Hiroyuki Miyake, and Yoshio Nishihara, both of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Sep. 13, 1990, Ser. No. 581,915
Claims priority, application Japan, Oct. 4, 1989, 1-257945
Int. Cl.[5] H04N *5/335;* **G01D** *15/06*
U.S. Cl. 346—154 **6 Claims**



1. An image sensor, comprising:

a plurality of photo sensors for sensing light and generating electric charges according to the sensed light, said photo sensors being arranged to from a plurality of blocks of photo sensors;

a plurality of storage capacitors, each of said storage capacitors being arranged to form a plurality of blocks of storage capacitors;

a plurality of switching means for transferring electric charge from said photo sensors to said associated storage capacitors;

a plurality of common signal lines, each of said common signal lines connecting each of said photo sensors with one storage capacitor in each of said blocks of storage capacitors; and

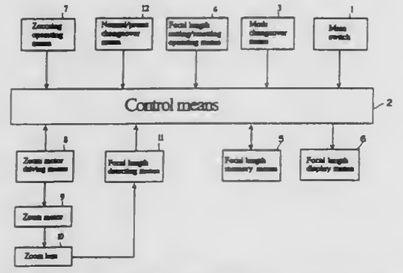
a drive circuit, connected to said plurality of common signal lines, for sequentially outputting the electric charges stored by said plurality of storage capacitors.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,172
ZOOM LENS CAMERA

Kimiaki Ogawa, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 26, 1990, Ser. No. 543,410
Claims priority, application Japan, Jun. 30, 1989, 1-168425
Int. Cl.[5] G03B *1/12*
U.S. Cl. 354—195.1 **24 Claims**

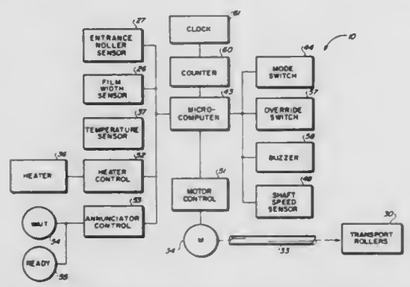


1. A zoom lens camera, comprising:
means for manually setting a plurality of focal lengths of a zoom lens associated with said zoom lens camera;
means for storing data corresponding to said manually set focal lengths; and
means for driving said zoom lens in accordance with said focal lengths set and stored by said focal length setting and storing means, wherein said zoom lens has WIDE and TELE focal length limits and said focal length setting may be set at any focal length between and including said limits.

5,065,173
PROCESSOR WITH SPEED INDEPENDENT FIXED FILM SPACING

James T. Samuels, and Roger D. Ellsworth, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 494,647, Mar. 16, 1990, Pat. No. 4,994,837. This application Mar. 19, 1990, Ser. No. 495,867
Int. Cl.[5] G03D *3/08*
U.S. Cl. 354—298 **14 Claims**

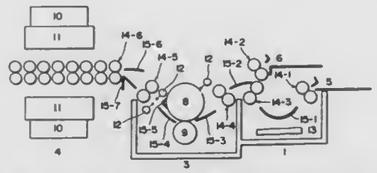


1. In apparatus for the processing of exposed photosensitive media, said apparatus having means for automatically transporting said media from a feed point along a path through developer, fixer, wash and dryer stations in accordance with a set transport speed, means for monitoring the passage of a trailing edge of a particular medium past said feed point, and annunciator means for signalling a "ready" status for indicating when a next medium can be fed from said feed point along said path, after the trailing edge has advanced a fixed distance along said path, the improvement comprising:
said apparatus further including a timer comprising a system clock for generating pulses at constant time unit intervals independent of said means for transporting, and a counter connected to said clock for counting said pulses; a control panel; means responsive to user input at said control panel for selectively resetting said transport speed to a different transport speed; means, responsive to said selectively resetting means and said monitoring means, for automatically setting a number of said pulses to be counted by said counter, said number corresponding to the time in seconds needed for said trailing edge to advance by said fixed distance along said path at said different transport speed; and means, responsive to counting of said number of pulses by said counter, for controlling said annunciator means to signal the "ready" status when said trailing edge has advanced by said fixed distance along said path.

5,065,174
DEVELOPING MACHINE FOR PHOTOSENSITIVE FILMS AND DEVELOPING METHOD FOR PHOTOSENSITIVE FILMS

Norio Yabe; Takeshi Iijima; Kazunori Itaya, and Masahide Takano, all of Higashimatsuyama, Japan, assignors to Sanyo-Kokusaku Pulp Co., Ltd., Tokyo, Japan

Filed Jan. 18, 1990, Ser. No. 466,945
Claims priority, application Japan, Jun. 7, 1989, 1-144433
Int. Cl.[5] G03D *3/00*
U.S. Cl. 354—222 **3 Claims**



1. A developing machine for photosensitive films serviceable for both negative type and positive type films and exclusively usable for developing with water, comprising a warm water-dipping section consisting of a warm water bath, a shower-developing section for developing with shower spouting from a nozzle, a brush-developing section for developing by rubbing off the non-image area with a rotating brush roll while spraying water, and a drying section for drying with warm air, wherein the negative type photosensitive film, the non-image area being dissolved with ordinary temperature water for development, is passed through the shower-developing section, brush-developing section and drying section and the positive type photosensitive film, the non-image area being swollen with warm water and then rubbed off with brush for development, is passed through the warm water dipping section, shower-developing section, brush-developing section and drying section.

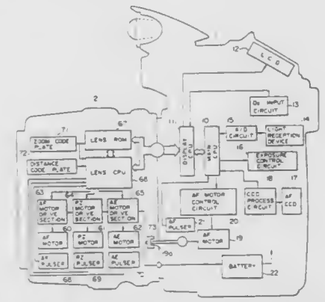
5,065,175
SINGLE-LENS REFLEX CAMERA SYSTEM

Noboru Suzuki; Shigeo Toji, both of Tokyo, and Masahiro Kawasaki, Saitama, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 13, 1989, Ser. No. 406,523
Claims priority, application Japan, Sep. 13, 1988, 63-120307[U]; Sep. 13, 1988, 63-120308[U]
Int. Cl.[5] G03B *3/00, 13/18*
U.S. Cl. 354—400 **62 Claims**

1. A signel-lens reflex camera system comprising a camera body and a lens unit which is interchangeably mounted to said camera body,
said camera body comprising:
means for detecting a defocus amount based upon a condition of a subject image formed by light that has passed through said lens unit;

first means for transferring data related to said defocus amount detected by said detecting means to said lens unit; and
means for driving said lens unit,
said lens unit comprising;
a memory for storing information that is intrinsic to said lens unit;

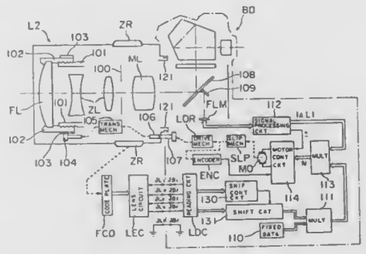


a processor for computing an amount to drive said lens unit, based upon said defocus amount transferred by said first transferring means and said information stored in said memory; and
second means for transferring said driving amount computed by said processor to said camera body,
wherein said drive means of said camera body is operated in accordance with said driving amount transferred by said second transferring means.

5,065,176
CAMERA SYSTEM CAPABLE OF AUTOMATIC FOCUS CONTROL

Nobuyuki Taniguchi, Tondabayashi; Norio Ishikawa, Osaka; Yasuaki Akada, Sakai; Takeshi Egawa, Sennan, and Kunio Kawamura, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Division of Ser. No. 485,781, Feb. 22, 1990, which is a continuation of Ser. No. 402,976, Sep. 5, 1989, abandoned, which is a continuation of Ser. No. 256,082, Oct. 6, 1988, abandoned, which is a continuation of Ser. No. 118,783, Nov. 5, 1987, abandoned, which is a division of Ser. No. 841,219, Mar. 18, 1986, Pat. No. 4,733,262, which is a division of Ser. No. 575,839, Jan. 31, 1984, Pat. No. 4,623,238. This application Sep. 18, 1990, Ser. No. 585,935
Claims priority, application Japan, Feb. 1, 1983, 58-15860; May 9, 1983, 58-81533; Jul. 11, 1983, 58-126433; Jul. 26, 1983, 58-137371
Int. Cl.[5] G03B *13/36*
U.S. Cl. 354—402 **3 Claims**

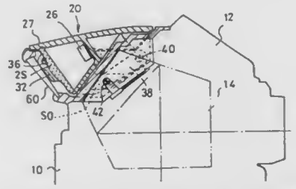


1. A focus detecting device for a camera system having a camera body and an interchangeable lens, said focus detecting device comprising:
(a) focus condition detecting means located in said camera body for detecting a focus condition of an object to be photographed based on light passing through a lens optical system of said interchangeable lens;
(b) first signal output means located in said camera body for outputting a first signal which is determined based on the result of focus detection by said focus condition detecting means and is used for driving said lens optical system toward an in-focus position;
(c) second signal output means located in said interchangeable lens for outputting to said camera body a second signal representing whether focus detection by said focus condition detecting means is possible or not, and
(d) control means for controlling said focus condition detecting means and said first signal output means based on the second signal such that operations of said focus condition detecting means and said first signal output means are permitted when the second signal represents a possibility of focus detection and operations of said focus condition detecting means and said first signal output means are inhibited when the second signal represents an impossibility of focus detection.

5,065,177
SLR CAMERA WITH AUXILIARY LIGHT EMITTER

Masato Yamamoto; Masahiro Nakajima, and Toshimasa Yamanaka, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo K.K., Tokyo, Japan

Continuation of Ser. No. 414,750, Sep. 27, 1989, abandoned, which is a continuation of Ser. No. 291,016, Dec. 28, 1988, abandoned. This application Jul. 9, 1990, Ser. No. 549,663
Claims priority, application Japan, Dec. 28, 1987, 62-198848[U]
Int. Cl.[5] G03B *3/00, 15/05*
U.S. Cl. 354—403 **5 Claims**



1. An auxiliary light emitting device for a single-lens reflex camera which includes an automatic focus control device for detecting the focusing condition of an object to be photographed, comprising: a flash unit (20) mounted to a body of said camera and selectively movable between a retracted position with said body and raised position, a predetermined pattern projecting unit (26) disposed adjacent to a light emitting section of said flash unit and unitary with said flash unit for projecting a predetrmined pattern towards said object, and bending means for bending a pattern projected by said projecting unit upwardly when said flash unit is in said retracted position such that an image of said predetrmined pattern is formed along an optical axis of a camera lens to provide sufficient contrast for automatic focusing.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,178

PHOTOSENSITIVE MATERIAL DETECTING APPARATUS

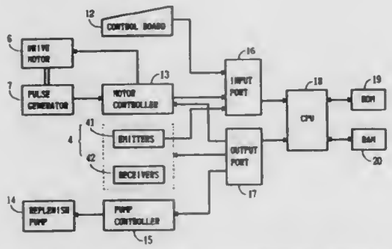
Yasunobu Awazu; Yoshihiro Masuda, and Eiji Nishimura, all of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Oct. 25, 1990, Ser. No. 603,937

Claims priority, application Japan, Nov. 27, 1989, 1-137142[U]

Int. Cl.[5] G03B *27/32, 27/52*

U.S. Cl. 355—27 **13 Claims**



1. An apparatus for detecting photosensitive material, comprising:

detecting means for optically detecting photosensitive material, the detecting means including light emitting means for emitting pulses light and light receiving means for receiving the pulsed light; and

means for controlling the light emitting means as a function of the operation of a means for transporting the photosensitive material.

5,065,179

MICROFILM READER-PRINTER

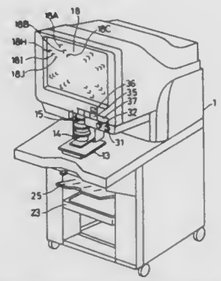
Katsunori Sakakibara, Fujisawa; Hajime Otsuki, Yokohama; Kenjiro Ishii, and Yasuhide Kokura, both of Sagamihara, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Dec. 18, 1990, Ser. No. 629,587

Claims priority, application Japan, Dec. 26, 1989, 1-334987

Int. Cl.[5] G03B *13/28*

U.S. Cl. 355—45 **6 Claims**



1. A microfilm reader-printer operative in a reader mode in which an image of a microfilm is projected on a screen, and in a printer mode in which the image is projected on an image recording section so that the image is formed on a paper, said microfilm reader-printer comprising:

a plurality of size indexes provided on the screen in correspondence to a plurality of paper sizes, one size index corresponding to a paper size larger than a predetermined size being set smaller than the paper size, and the other size index corresponding to a paper size smaller than or equal to the predetermined size being set substantially equal to the paper size;

altering means for altering the size of the projected image; and

means for controlling said altering means so that the size of the projected image is expanded if the size of the paper on which the image is to be formed is larger than the predetermined size, in response to switching from the reader mode to the printer mode.

5,065,180

IMAGE RECORDING APPARATUS HAVING MEANS FOR PREVENTING SHEET CARTRIDGE FROM ITS FREE DISASSEMBLY

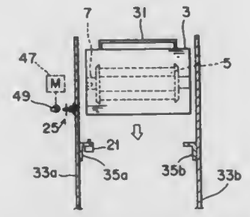
Tatsuya Shindo, Nagoya, and Hideo Yoshihara, Kasugai, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Nov. 9, 1990, Ser. No. 611,072

Claims priority, application Japan, Nov. 30, 1989, 1-311494; Apr. 3, 1990, 2-88471; Apr. 3, 1990, 2-88473; Apr. 3, 1990, 2-88474; Apr. 3, 1990, 2-88475

Int. Cl.[5] G03B *27/58*

U.S. Cl. 355—72 **33 Claims**



1. An image recording apparatus which uses an elongated photosensitive recording medium, the apparatus including a frame and a sheet cartridge detachably provided at a predetermined position of the frame, the sheet cartridge storing therein the elongated photosensitive recording medium, and the improvement comprising;

locking means for preventing the sheet cartridge from being disassembled from the predetermined position;

means for generating a first signal indicative of providing the locking means at its locking position;

means for generating a second signal indicative of providing the locking means at its unlocking position; and

control means connected to the locking means for driving the locking means to one of its locking and unlocking positions in response to one of the first and second signals.

5,065,181

IMAGE FORMING APPARATUS CAPABLE OF INSCRIBING A DESIRED DATE ON COPYING PAPER

Masazumi Ito, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Dec. 18, 1989, Ser. No. 452,801

Claims priority, application Japan, Dec. 21, 1988, 63-322804

Int. Cl.[5] G03G *15/00, 15/04*

U.S. Cl. 355—202 **12 Claims**

1. An image forming apparatus, comprising:

an image carrying member,

electrostatic latent image forming means for forming an electrostatic latent image corresponding to an image of a document on said image carrying member,

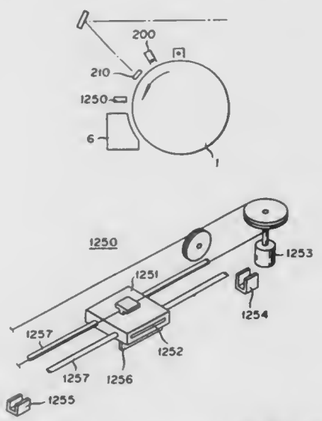
additional information recording means for forming an electrostatic image corresponding to additional information other than said image of said document,

clock means for giving data of present date,

means for reading the data of present data from said clock means,

storage means for storing said data of present data read by said reading means,

changing means for changing the contents of said data of present data stored in said storage means, and



control means for actuating said additional information recording means based on said data of date changed by said changing means.

5,065,182

IMAGE FORMING SYSTEM

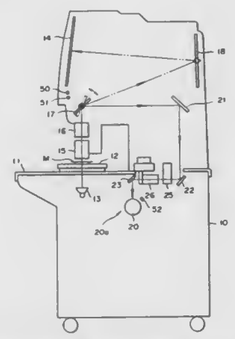
Masafumi Fujita; Kazuhiko Tezuka, and Masaaki Kuriyama, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed May 15, 1990, Ser. No. 524,233

Claims priority, application Japan, May 19, 1989, 1-125865; May 19, 1989, 1-125866

Int. Cl.[5] G03G *21/00*

U.S. Cl. 355—202 **20 Claims**



1. A microfilm printer, comprising:

projecting means for projecting an image information frame recorded on a microfilm;

image forming means for reproducing a projected image information on a recording medium;

light receiving means for receiving a projected light and emitting signals in response thereto:

regulating means for intercepting the light projected from said projecting means; and

controlling means for making decision as to whether or not image information is present within the range of a prescribed width inwardly of the edge of the image information frame based on the signals received from said light receiving means and, when the presence of image information within the range is detected, controlling said regulating means so as to intercept the projected light falling outside the edge and, when the absence of the image information is confirmed, controlling said regulating means so as to intercept the projected light directed to the region outside the edge and the region within the range of the prescribed width.

5,065,183

MULTICOLOR PRINTING METHOD FOR CONTAINER

Akihiko Morofuji; Masaki Morotomi; Akihiko Machii; Masanori Aizawa, all of Kanagawa, and Kazuhisa Ishibashi, Tokyo, all of Japan, assignors to Toyo Seikan Kaisha, Ltd., Tokyo, Japan

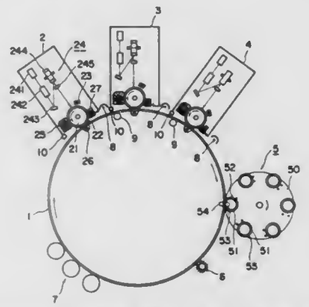
PCT No. PCT/JP88/00995, § 371 Date Jun. 2, 1989, § 102(e) Date Jun. 2, 1989, PCT Pub. No. WO89/03066, PCT Pub. Date Apr. 6, 1989

PCT Filed Sep. 30, 1988, Ser. No. 368,382

Claims priority, application Japan, Oct. 2, 1987, 62-247984; Feb. 3, 1988, 63-21892; Feb. 23, 1988, 63-38479

Int. Cl.[5] G03G *21/00*

U.S. Cl. 355—202 **24 Claims**



1. A multicolor printing method for printing multicolor matter upon a container, comprising the steps of:

forming a first toner picture image of a first color upon a photoconductive drum by means of an electrophotographic printing process;

transferring said first toner picture image of said first color from said photoconductive drum to a movable belt;

fixing said first toner picture image of said first color, transferred from said photoconductive drum to said movable belt, upon said movable belt;

forming at least one additional toner picture image of at least one additional color upon at least one additional photoconductive drum by means of an electrophotographic printing process;

transferring said at least one additional toner picture image of at least one additional color from said at least one additional photoconductive drum onto said movable belt such that said at least one additional toner picture image of said at least one additional color overlaps said first toner picture image of said first color in a predetermined registered manner so as to form with said first toner picture image of said first color a composite multicolor picture image;

fixing said at least one additional toner picture image, transferred from said at least one additional photoconductive drum to said movable belt so as to overlap said first toner picture image, upon said movable belt; and

contacting said container with said movable belt under heated conditions so as to transfer said composite multicolor picture image from said movable belt to said container.

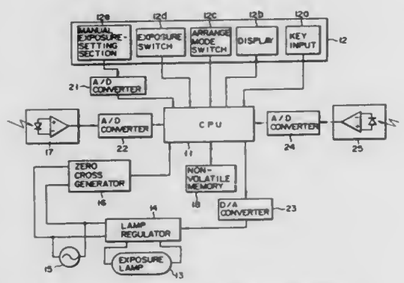
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,184

LIGHT AMOUNT CONTROL APPARATUS

Akiro Iimori; Hiroshi Matsumoto, both of Yokohama, and Fumito Ide, Zama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 29, 1989, Ser. No. 373,037
Claims priority, application Japan, Jun. 30, 1988, 63-163984
Int. Cl.[5] G03G *15/04; G03B 27/72, 27/80*
U.S. Cl. 355—208 2 Claims



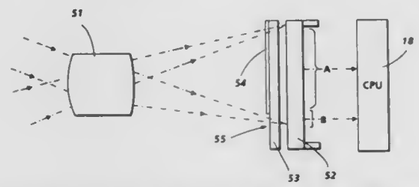
1. A light amount control apparatus comprising:
a light emitting component;
a photo sensor for receiving light from said light emitting component;
applying means for applying an AC voltage to said light emitting component;
computing means for computing an electric power to be supplied to said light emitting component in accordance with magnifications and optical densities of originals by using the data signal outputted from said photo sensor;
control means for controlling electric power supplied to said light emitting component by using a value computed by said computing means; and
operating means for causing said computing means to periodically perform said computation at a frequency at least two times that of the AC voltage of said applying means applied to said light emitting element, and in synchronism with the AC voltage of said applying means.

5,065,185

MULTI-FUNCTION DETECTING DEVICE FOR A DOCUMENT REPRODUCTION MACHINE

Edward A. Powers, 1760 Jackson Rd., Penfield, N.Y. 14526; Charles J. Urso, 1130 Wall Rd., and Richard F. Lehman, 785 John Glenn Blvd., both of Webster, N.Y. 14580

Filed Aug. 21, 1989, Ser. No. 396,161
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—208 7 Claims



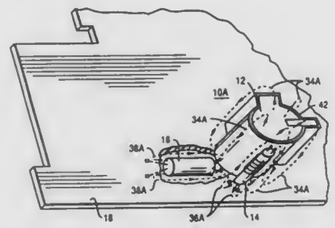
1. In a document reproduction machine for copying original documents placed on a transparent platen,
means for scan/illuminating said document and for projecting a latent image of said scanned document on a photosensitive surface,
sensing means for discriminating between the document being copied on the platen and the area surrounding the document and for generating signals representing document size and position on said platen, said sensing means further adapted to sense the background density of said document and to generate electrical signals representative of said background density and control means to digitize said sensing means output signals and to generate signals to adjust the operation of a plurality of xerographic stations.

5,065,186

MAGNETIC EMISSIONS REDUCTION APPARATUS AND METHOD

Anthony Valenti, Central Islip, N.Y., assignor to NCR Corporation, Dayton, Ohio

Filed May 3, 1990, Ser. No. 518,371
Int. Cl.[5] H01H *1/00*
U.S. Cl. 335—213 6 Claims



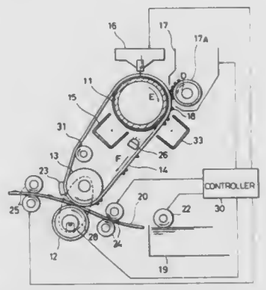
1. A horizontal sweep output circuit for a CRT, comprising:
a flyback transformer having a leakage flux, said flyback transformer having an approximately cylindrical shape;
a conductive sheet coaxially surrounding said flyback transformer to reduce the leakage flux therefrom; and
a horizontal width coil having a flux with a direction that is opposed to said leakage flux, said horizontal width coil being proximately located to said flyback transformer such that part of said flux cancels part of said leakage flux;
whereby the net flux that is present in the near proximity of the horizontal sweep output circuit is less than said leakage flux of said flyback transformer.

5,065,187

IMAGE FORMING SYSTEM

Shinichi Itoh; Hiroaki Sato, and Masayuki Taniguchi, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Oct. 15, 1990, Ser. No. 597,044
Claims priority, application Japan, Oct. 19, 1989, 1-270204; Jul. 31, 1990, 2-201175
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—215 11 Claims



1. An image forming system comprising:

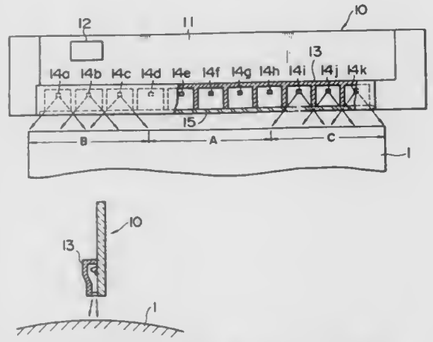
an electrostatic latent image bearing member on which an electrostatic latent image is formed;
a toner image bearing member which is brought into contact with said electrostatic latent image bearing member to be superimposed therewith;
developing means for developing said electrostatic latent image to form a corresponding toner image on said toner image bearing member while said toner image bearing member is superimposed with said electrostatic latent image bearing member; and
discharging means provided opposite said toner image bearing member superimposed on said electrostatic latent image bearing member, and downstream of said developing means, for removing surface charges from said toner image bearing member before it separates from said electrostatic bearing member.

5,065,188

CHARGE-ELIMINATING APPARATUS OF COPIER

Hiroshi Kobayashi, Hachioji; Kazuhiko Tsuboi; Atsushi Takahashi, both of Hino; Shigeo Maeda, Machida, and Seiichi Yagi, Shiroyama, all of Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Oct. 23, 1990, Ser. No. 602,177
Claims priority, application Japan, Oct. 26, 1989, 1-278945
Int. Cl.[5] G03G *15/02*
U.S. Cl. 355—219 9 Claims



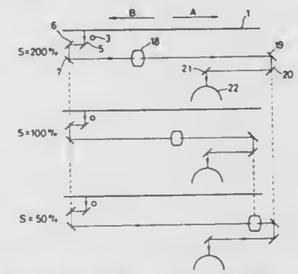
1. An electrostatic recording apparatus, comprising:
means for carrying an image having a surface capable of being electrostatically charged to form an electrostatic latent image; and
means for eliminating electrostatic charge on at least a portion of the surface of the image carrying means, the eliminating means including
a circuit board for holding an electrical circuit on a surface thereof, the circuit board having an edge disposed to face toward the surface of the image carrying means, 'a plurality of light emitting elements, each light emitting element being positioned on the circuit board so as to emit light parallel to the surface of the circuit board toward the surface of the image carrying means, and
a housing having a plurality of compartments, each compartment being defined by partition members positioned between predetermined ones of the plurality of light emitting elements and having an opening to allow the emitted light to radiate parallel to the surface of the circuit board toward the surface of the image carrying means.

5,065,189

ELECTROPHOTOGRAPHIC COPYING MACHINE AND METHOD OF SETTING COPY MAGNIFICATION

Kazuhiro Mizude, Osaka, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed Nov. 19, 1990, Ser. No. 615,176
Claims priority, application Japan, Nov. 27, 1989, 1-308108; Nov. 27, 1989, 1-308109
Int. Cl.[5] G03G *15/04*
U.S. Cl. 355—243 4 Claims



1. An electrophotographic copying machine, comprising:
a contact glass plate on which an original sheet is set, an exposure lamp for scanning the original sheet on the contact glass plate;
a photoconductor;
a first mirror for reflecting the light emitted from the exposure lamp and then reflected by the original sheet, in the direction contrary to the scanning direction;
a second mirror for reflecting the light from the first mirror;
a third mirror for reflecting the light from the second mirror in the scanning direction;
a lens refracting the light from the third mirror for imaging on the photoconductor through a fourth mirror means;
a first moving frame movable in the scanning direction for carrying the exposure lamp and the first mirror;
a second moving frame movable following the first moving frame for carrying the second and third mirrors;
inputting means for inputting a desired copy magnification;
magnification setting means for setting the inputted magnification by moving the lens and fourth mirror means; and
an optical system driving means for moving the first and second moving frames from their respective home positions, when the original sheet is scanned, to keep a fixed optical length from the face of the original sheet to the lens corresponding to the copy magnification;
means for controlling said magnification setting means such that when a magnification is newly inputted while the lens and fourth mirror means are moving corresponding to the magnification previously inputted, the magnification setting means moving the lens first when the magnification newly inputted is larger than the magnification previously inputted, but moving the fourth mirror means first when the magnification newly inputted is smaller than the magnification previously inputted.

5,065,190

TONER DENSITY CONTROL METHOD

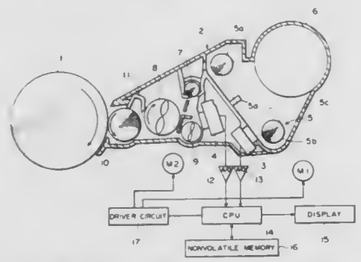
Kiyohari Nakagama, and Kohji Ishii, both of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Sep. 20, 1990, Ser. No. 585,383
Claims priority, application Japan, Oct. 6, 1989, 1-261456
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—246 11 Claims

1. A method for controlling a toner density of a two component developer which comprises a toner and a carrier, said method comprising
(a) stirring said developer for a predetermined time,

VOL 1132 ISS 2 NO 12 1991 UMI

(b) detecting a first toner density value at a certain time during said stirring and detecting a second toner density value when said stirring is completed,
(c) determining a reference density value based on said first value an said second value,



(d) storing the reference value in a memory, and
(e) controlling said toner density based on said reference value.

5,065,191

ADJUSTMENT OF MICR SIGNAL STRENGTH

Edward M. Cyrana, Webster; Douglas B. Strong, Penfield, and Allan R. Amering, Hilton, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 5, 1990, Ser. No. 548,411
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—246 2 Claims

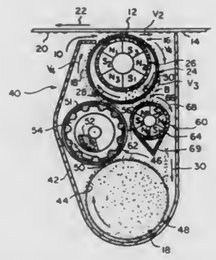
2. An electrostatographic apparatus for producing documents with machine-readable magnetic images using magnetic toners and having magnetic signal strengths which are characteristic of the amount of toner in the images, said apparatus comprising:
an image transfer member;
means for imagewise exposing said image transfer member to produce an electrostatic latent image;
actuatable means for adjusting the amount of exposure effected by said exposing means;
a development station containing a development mixture of magnetic toner and carrier particles, and being adapted to develop said latent images with said magnetic toner particles;
means for controlling the magnetic signal strength of magnetic images a desired amount selectively (1) by actuating said exposure adjusting means and (2) by adjusting the ratio of toner particles to carrier particles in said development mixture, said signal strength controlling means being adapted to actuate said exposure adjusting means rather than to adjust said ratio of toner particles to carrier particles whenever the desired amount of signal strength control can be attained by adjusting the amount of exposure effected by said exposing means, wherein said signal strength controlling means is adapted to remove toner particles from said development mixture by producing printed documents without replenishing the toner particles thereby used until a proper concentration of particles is attained or a predetermined number of printed documents have been produced, whichever occurs first.

5,065,192

DEVELOPMENT APPARATUS WITH MAGNETICALLY ROTATED SKIVE

Kenneth D. Adkins, Rochester, and Rodney R. Bucks, Webster, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 31, 1989, Ser. No. 429,449
Int. Cl.[5] G03G *15/09*
U.S. Cl. 355—251 10 Claims



7. In an electrostatographic copier or printer, a development apparatus including:
(a) a magnetic development roller consisting of a first non-magnetic shell and a first magnetic core for picking up and carrying fresh developer material within said apparatus, said magnetic development roller generating a first magnetic field therein;
(b) a rotatable magnetic skiving means, including a second stationary non-magnetic shell for skiving spent developer from said development roller, said magnetic skiving means additionally generating a second magnetic field therein; and
(c) a magnetic coupling, formed by said first and said second magnetic fields, for magnetically rotating said skiving means, said second magnetic core of said skiving means being rotated by said magnetic coupling in a direction opposite to that of said first magnetic core of the development roller such that in the area between said first and said second shells, said first and said second magnetic cores additively tend to force the spent developer to travel in the same direction, thereby effectively skiving and removing such spent developer material from the development roller.

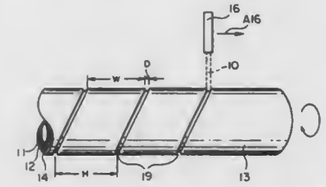
5,065,193

HEAT FIXING ROLL FOR COPYING MACHINE, METHOD OF PRODUCING THE SAME AND ELECTRONIC COPYING MACHINE PROVIDED WITH THE SAME

Hiroshi Saitoh, Funabashi; Michio Nagatomo, and Hideo Nagasaka, both of Tokyo, all of Japan, assignors to Onoda Cement Co., Ltd., Onoda, Japan

Filed May 18, 1990, Ser. No. 525,903
Claims priority, application Japan, May 24, 1989, 1-131139
Int. Cl.[5] G03G *15/20*
U.S. Cl. 355—290 18 Claims

1. A heat fixing roll for a copying machine comprising:
an insulator layer and a heating resistor layer which are formed in turn on the outside of a hollow tube;
a helical groove which is formed in said heating resistor layer by laser cutting so that said insulator layer is exposed to air, said heating resistor layer having a lower phase transition temperature than said insulator layer whereby said laser forms said groove without damage to said insulator layer, said groove having a width less than 350 μm;
said heating resistor layer including a screw-like heating



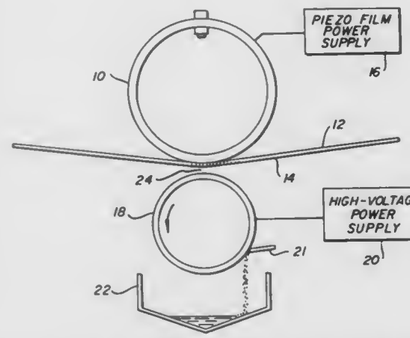
resistor having adjacent portions divided by said groove; and
an antisticking layer formed by coating said heating resistor and said groove with an antisticking agent whereby the outer surface of said antisticking layer is smooth.

5,065,194

PIEZO FILM CLEANER

Sven Sonnenberg, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed May 29, 1990, Ser. No. 530,145
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—296 6 Claims



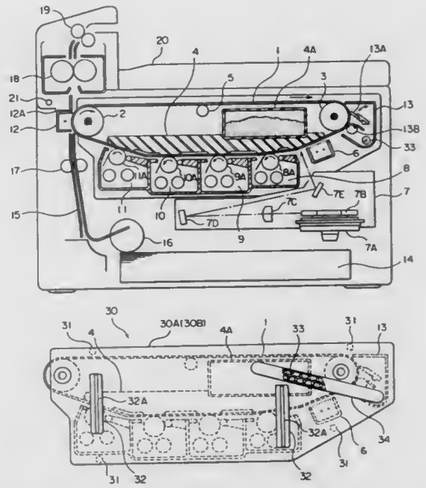
1. A cleaning apparatus for removing toner particles of a known polarity from the image-carrying side surface of a flexible photosensitive member in an electrophotographic copier or printer, the cleaning apparatus including:
(a) a container for holding toner particles removed from the image-carrying side surface of the flexible photosensitive member;
(b) a rotatable attracting roller connected to an electrical power source for charging said attracting roller to a polarity opposite that of the toner particles for attracting and collecting charged toner particles being removed from the image-carrying side surface of the flexible photosensitive member, said attracting roller being mounted at a point between said toner container and the image-carrying side surface of the flexible photosensitive member, and said attracting roller being spaced a small gap from such image-carrying side surface; and
(c) a piezo film mounted in direct and continuous contact with the backside surface of the flexible photosensitive member, said piezo film being connected to a first electrical power source for piezoelectrically exciting said piezo film, and said piezo film mechanically directly agitating the flexible photosensitive member from said backside surface thereof, thereby causing toner charged particles from the image-carrying side surface to be thrown off therefrom.

5,065,195

COLOR IMAGE FORMING APPARATUS HAVING A FREELY INSTALLABLE AND DETACHABLE PROCESS CARTRIDGE

Satoshi Haneda; Masakazu Fukuchi; Shunji Matsuo, and Shizuo Morita, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan

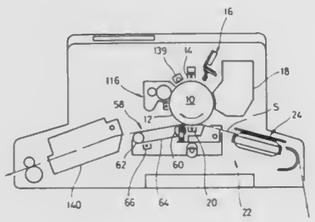
Filed Jun. 28, 1990, Ser. No. 545,464
Claims priority, application Japan, Jul. 5, 1989, 1-175248; Jul. 13, 1989, 1-180783; Aug. 9, 1989, 1-207243; Aug. 22, 1989, 1-217080
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—298 21 Claims

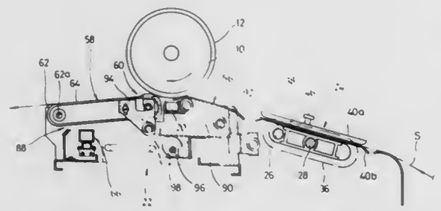


1. A color image forming apparatus, comprising:
a photoreceptor belt for forming a latent image thereon, the photoreceptor belt being stretched to form a loop around a plurality of rotatable rollers;
a plurality of developing means for developing the latent image on the photoreceptor belt to form a toner image;
cleaning means for removing residual toner from the photoreceptor belt;
a container, disposed inside the loop of the photoreceptor belt, for collecting residual toner therein;
transporting means for transporting residual toner from the cleaning means to the container; and
a cartridge comprising the photoreceptor belt, the cleaning means, the container and the transporting means in one unit;
wherein the cartridge is adapted to be installable into and detachable from the color image forming apparatus.

VOL
1132
ISS
2
NO
12
1991
UMI

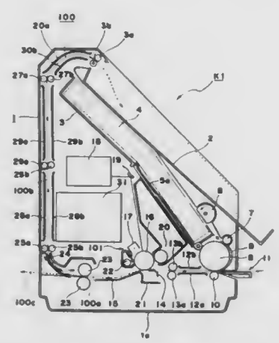
5,065,196
ELECTROPHOTOGRAPHIC PRINTER
Eizo Kanaya, Shiga; Yoshihiro Chujo, Otsu; Shigehiro Hano, Otsu, and Hidetoshi Hara, Otsu, all of Japan, assignors to Toray Industries, Inc., Tokyo, Japan
Filed Jul. 31, 1990, Ser. No. 560,590
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—308 **9 Claims**





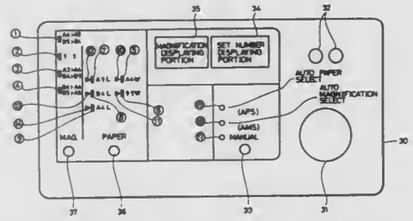
1. An electrophotographic printer comprising:
a photosensitive medium having a movable photosensitive surface;
means for uniformly charging the photosensitive surface of the photosensitive medium;
means for forming an electrostatic latent image on the charged photosensitive surface;
developing means for affixing toner to the electrostatic latent image on the photosensitive surface by use of a developer, so as to obtain a toner image;
a feeding device for feeding a continuous recording sheet to the photosensitive medium,
tractor means, located on an upstream side of the photosensitive medium with reference to a feeding direction of the continuous recording sheet, for feeding the continuous recording sheet to the photosensitive medium; and
pull means, located on a downstream side of the photosensitive medium with reference to the feeding direction of the continuous recording sheet, for pulling the continuous recording sheet from the photosensitive medium, said pull means having: (a) a pair of rolls isolated from each other in the feeding direction; (b) an endless belt which is extended between the rolls and which can be electrically charged; (c) driving means for rotating one of the rolls, to thereby cause the endless belt to travel in one direction; (d) charging means, arranged in the neighborhood of the endless belt, for electrically charging the endless belt; and (e) means located in the neighborhood of the endless belt for preventing the endless belt from being electrically overcharged;
means for transferring the toner image from the photosensitive medium onto the continuous recording sheet;
a cleaning device for clearing the photosensitive surface of the photosensitive medium, so as to remove the developer which remains on the photosensitive surface after the toner image is transferred onto the continuous recording sheet;
a photographic fixing device for fixing the toner image transferred onto the continuous recording sheet; and
means for removing electric charges from the photosensitive surface of the photosensitive medium after the photosensitive surface is cleaned by the cleaning device.

5,065,197
ELECTROPHOTOGRAPHIC PRINTER HAVING COMPACT GEOMETRIC PROJECTION REGIONS
Akira Mitsuyama, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Apr. 21, 1989, Ser. No. 341,759
Claims priority, application Japan, May 11, 1988, 63-115716
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—309 **8 Claims**



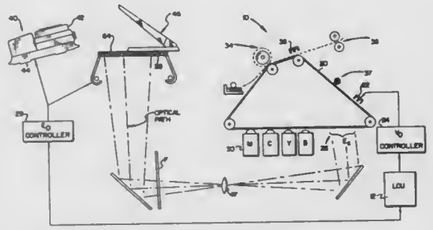
1. An electrophotographic printer comprising:
a frame for supporting said printer on a substantially planar surface;
a paper storage portion for storing paper sheets to be printed;
a paper discharge portion for receiving the paper sheets which have been discharged to said paper discharge portion upon completion of printing on the paper sheets, said paper storage portion being interposed between said paper discharge portion and said printer portion; and
a printing portion provided with a photosensitive member, a corona charger, an exposure device, a developing device, a transfer charger, a cleaning device and a fixing device; said paper storage portion, said paper discharge portion and said printing portion being supported on said frame above said planar surface; said paper storage portion and said paper discharge portion being oriented obliquely relative to said planar surface; and said paper storage portion, said paper discharge portion and said printing portion respectively having first, second and third geometric projection regions in a plane parallel to said planar surface, at least one of the first, second and third projection regions being contained in at least one of the remaining two of the first, second and third projected regions.

5,065,198
COPYING APPARATUS HAVING MEANS FOR INHIBITING MANUAL SETTING OF PAPER SIZE AND MAGNIFICATION WHEN THE AUTOMATIC PAPER SELECTIVE MODE AND AUTOMATIC MAGNIFICATION SELECTION MODE ARE SET
Toshiyuki Yamashita; Masazumi Ito, and Kadotaro Nishimori, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Aug. 30, 1989, Ser. No. 400,789
Claims priority, application Japan, Aug. 31, 1988, 63-219182; Aug. 31, 1988, 63-219183; Aug. 31, 1988, 63-219184
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—313 **14 Claims**



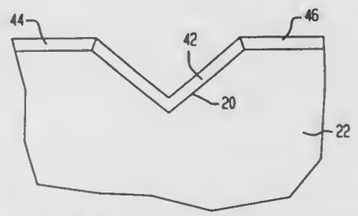
1. A copying machine for copying an image of an original on a sheet of paper, comprising:
mode setting means for setting a mode for automatically selecting size of said paper based on size of said original and a copying magnification;
manual paper setting means for manually setting said size of paper; and
means for inhibiting setting of the size of the paper by said manual paper setting means when said automatic paper selecting mode is set in said copying machine.

5,065,199
OBTAINING COLOR BALANCE FOR OPTICAL COPIERS BY SETTING THE EXPOSURE AND PRIMARY VOLTAGE FOR EACH COLOR
Allen J. Rushing, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Oct. 29, 1990, Ser. No. 604,267
Int. Cl.[5] G03G *15/01*
U.S. Cl. 355—326 **9 Claims**



1. An electrostatogrqaphic color copier comprising:
a photoconductor imaging member;
means for charging the photoconductor imaging member to a primary voltage;
means for imagewise projection exposing the charged photoconductor imaging member with a series of color separation light images wherein the focal plane of the projection images may change from one color separation to another to cause an out-of-focus condition at the photoconductor imaging member tending to adversely affect color balance; and
controller means for compensating for differences in focus between the color separations by adjusting the primary voltage placed on the photoconductor imaging member from one color separation to another to improve color balance.

5,065,200
GEOMETRY DEPENDENT DOPING AND ELECTRONIC DEVICES PRODUCED THEREBY
Rajaram Bhat, Red Bank, and Chung-en Zah, Marlboro, both of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.
Filed Dec. 21, 1989, Ser. No. 454,764
Int. Cl.[5] H01L *27/12*
U.S. Cl. 357—4 **11 Claims**



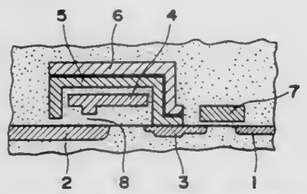
4. A lateral compound semiconductor p-n junction structure, comprising:
a substrate of a semiinsulating compound semiconductor having formed in a principal face thereof a groove extending in a first direction;
a semiconductor layer comprising a compound semiconductor and two different and coextensive dopant species epitaxially formed over said substrate over a first area including said groove and over second and third areas including planar portions of said substrate on opposing lateral sides of said groove, said semiconductor layer being of a first conductivity type in a first portion overlying said first area and being of a second conductivity type in second and third portions overlying said second and third areas, wherein said two dopant species produce opposite conductivity types in said compound semiconductor, at least one of said two dopant species having a substantially different incorporation rate between different orientations of said compound semiconductor; and
means for establishing a current path in said semiconductor layer passing from said second portion through said first portion to said third portion.

5,065,201
SEMICONDUCTOR MEMORY DEVICE
Yoshimitsu Yamauchi, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan
Filed Mar. 6, 1990, Ser. No. 488,874
Claims priority, application Japan, Mar. 14, 1989, 1-62873
Int. Cl.[5] H01L *29/68, 29/78*
U.S. Cl. 357—23.5 **13 Claims**

1. A memory device, comprising:
a DRAM section comprising a first MOS transistor and a capacitor, said DRAM section functioning to store data that is frequently changed;
an EEPROM section comprising a second MOS transistor, said second MOS transistor having a control gate electrode connected to a source of said first MOS transistor for transferring data from said DRAM section to said EEPROM section, a floating gate electrode that is used for holding said data in said EEPROM section, a drain electrode that is connected to said source of said first

VOL 1132 ISS 2 NO 12 1991 UMI

MOS transistor and said control gate electrode of said second MOS transistor, and a source area, said EEPROM section functioning to store data when electrical power to said memory device is interrupted, said data to be stored being transferred from said DRAM section to said EEPROM section;



an insulation layer formed over said control gate electrode; and

a first capacitor electrode of said capacitor being provided over said insulation layer such that said control gate electrode is also a second capacitor electrode of said capacitor.

5,065,202

AMORPHOUS SILICON THIN FILM TRANSISTOR ARRAY SUBSTRATE AND METHOD FOR PRODUCING THE SAME

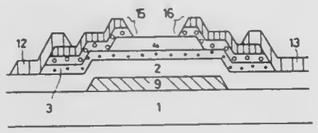
Sakae Tanaka, and Yoshiaki Watanabe, both of Tokyo, Japan, assignors to Seikosha Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 306,364, Feb. 3, 1989, abandoned. This application Jun. 4, 1990, Ser. No. 534,003

Claims priority, application Japan, Feb. 26, 1988, 63-43575

Int. Cl.[5] H01L *29/78, 45/00*

U.S. Cl. 357—23.7 3 Claims



1. In an amorphous silicon thin film transistor array substrate having an array region and a connecting region outside of said array region, and comprising:

a plurality of amorphous silicon thin film transistors formed on an insulating substrate and having a gate insulating layer, all of said amorphous silicon thin film transistors being formed inside said array region,

a gate wiring connecting gate electrodes of said amorphous silicon thin film transistor array to one another,

a gate terminal connected to said gate wiring and adapted to be connected to external wiring,

a source wiring connecting source electrodes of said amorphous silicon thin film transistors to one another,

and a source terminal of given area connected to said source wiring and adapted to be connected to external wiring, said source terminal being formed entirely inside of said connecting region,

the improvement wherein said gate insulating layer extends between said source terminal and said insulating substrate and spaces the entire area of said source terminal from said substrate.

5,065,203

TRENCH STRUCTURED CHARGE-COUPLED DEVICE

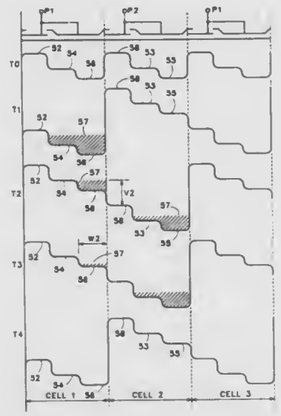
Kei-Wean C. Yang, and John E. Taggart, both of Beaverton, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Continuation of Ser. No. 368,743, Jun. 19, 1989, abandoned, which is a continuation-in-part of Ser. No. 216,079, Jul. 7, 1988, Pat. No. 4,992,842. This application Jul. 30, 1990, Ser. No. 561,498

The portion of the term of this patent subsequent to Feb. 12, 1991, has been disclaimed.

Int. Cl.[5] H01L *29/78; G11C 19/28*

U.S. Cl. 357—24 4 Claims



1. A cell for a charge-coupled device comprising:

a semiconductor substrate;

an insulation layer formed above said substrate; and

an electrode formed above said insulation layer;

the substrate including a channel region of length coextensive with said electrode in one lateral direction for conducting charge carriers under said electrode,

the channel region comprising a barrier portion of substantial and continuous dimension in said lateral direction having a substantially homogeneous first built-in potential in said lateral direction providing minimal electric field in said lateral direction,

the channel region further comprising a well portion of continuous dimension in said lateral direction and extending across 30% to 70% of the portion of the channel region in said lateral direction not included in said barrier portion, said well portion having a substantially homogeneous built-in second potential in said lateral direction providing minimal electric field in said lateral direction, and

the channel region further comprising a trench portion of continuous dimension in said lateral direction and extending across 70% to 30% of the portion of the channel region in said lateral direction not included in said barrier portion, said trench portion having a substantially homogeneous built-in third potential in said lateral direction providing minimal electric field in said lateral direction,

said barrier, well and trench portions being respectively aligned in said lateral direction, said first and second potentials differing so as to provide a first electrical field between said barrier and well portions driving carriers in said lateral direction, said second and third potentials differing so as to provide a second electrical field between said well and trench portions driving carriers in said lateral direction, and the difference between said first and second potentials being larger than the difference between said second and third potentials.

5,065,204

MAGNETOELECTRIC ELEMENT AND MAGNETOELECTRIC APPARATUS

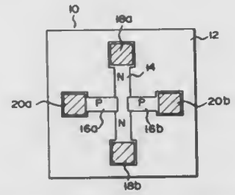
Yutaka Tomisawa, Yokohama; Tetsuo Ishii, Fujisawa, and Kazuhiko Inoue, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 238,216, Aug. 30, 1988, abandoned. This application Oct. 25, 1990, Ser. No. 602,933

Claims priority, application Japan, Aug. 31, 1987, 62-217265; Nov. 20, 1987, 62-293174

Int. Cl.[5] H01L *27/22, 29/82, 29/96, 43/00*

U.S. Cl. 357—27 24 Claims



1. A magnetoelectric device for converting a magnetic field into an electric capacitance comprising:

a substrate;

a first conductivity type semiconductor layer disposed on said substrate, said first conductivity type layer having end portions situated at opposite ends of a central portion of a predetermined length;

at least one second conductivity type semiconductor layer disposed on said substrate, having an edge of predetermined length overlaying a portion of the central portion of the first conductivity type layer, said edge extending in a direction along the length of the central portion of the first conductivity type layer, the edge of the second conductivity type layer and the central portion of said first conductivity type layer defining a PN junction;

a pair of first electrodes, each disposed in ohmic contact with a respective one of said end portions for supplying a current flowing substantially in parallel to the PN junction along the length of said first conductivity type layer;

at least one second electrode disposed in ohmic contact with the second conductivity type layer adjacent to said PN junction, said at least one second electrode being a terminal of a capacitance of the PN junction; and

output means for detecting the capacitance of said PN junction, said capacitance varying with a magnetic field substantially normal to the direction of the current flow along the length of the first conductivity type layer.

5,065,205

LONG WAVELENGTH, HIGH GAIN INASSB STRAINED-LAYER SUPERLATTICE PHOTOCONDUCTIVE DETECTORS

Robert M. Biefeld; L. Ralph Dawson; Ian J. Fritz; Steven R. Kurtz, and Thomas E. Zipperian, all of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed May 12, 1989, Ser. No. 350,814

Int. Cl.[5] H01L *29/205, 27/14, 31/06*

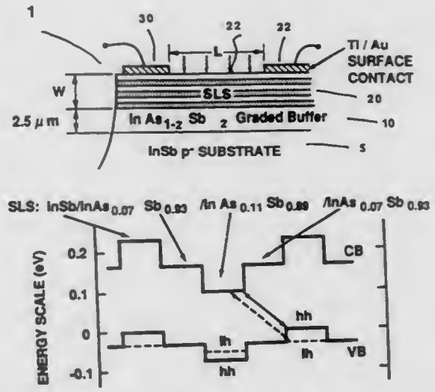
U.S. Cl. 357—30 8 Claims

1. A photoconductive detector for 8 to 12 μm wavelength radiation comprising:

a substrate;

an optically active semiconductor region extending from said substrate to an exposed face, said region comprising a strained-layer superlattice having a repeating unit comprised of an unstressed $InAs_{1-x}Sb_x$ spacer layer between two stressed layers, each of said stressed layers being a $InAs_{1-x}Sb_x$ compound with $x \geqq 0.75$ and compositionally different than any other layer in said repeating unit, and said layers separating positively charged photocarriers from negatively charged photocarriers; and

at least two electrodes contacting said exposed face wherein a number of available photocarriers between said electrodes increases responsive to 8 to 12 μm radiation impinging on said exposed face, said increase in available photocarriers resulting in increased photoconductive gain when the device is biased.



5,065,206

PHOTOELECTRIC CONVERTING DEVICE WITH ACCUMULATING GATE REGION

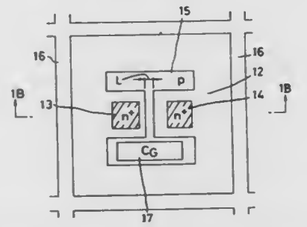
Jun-Ichi Nishizawa; Takashige Tamamushi, both of Sendai, and Hideo Maeda, Tokyo, all of Japan, assignors to Nikon Corporation, Tokyo and Zaidan Hojin Handotai Kenkyu Shinkokai, Sendai, both of, Japan

Filed Jan. 25, 1989, Ser. No. 301,334

Claims priority, application Japan, Jan. 29, 1988, 63-17295

Int. Cl.[5] H01L *27/14*

U.S. Cl. 357—30 11 Claims



1. A photosensitive semiconductor device comprising:

(a) a semiconductor substrate of a low impurity concentration;

(b) a channel region formed on said substrate and having a low impurity concentration;

(c) a source region formed on said channel region and having a high impurity concentration of a conductive type opposite to that of said substrate;

(d) a drain region formed on said channel region nd having a high impurity concentration of a conducive type opposite to that of said substrate, said source region and said drain region being spaced from one another in a predetermined direction along said substrate; and

(e) an accumulating gate region formed on said channel

VOL 1132 ISS 2 NO 12 1991 UMI

region and being of the same conductive type as said substrate, said accumulating gate region having a first part which is interposed between said source region and aid drain region in planes substantially parallel to said substrate and which is at least coextensive with one of said source region and said drain region in a direction substantially perpendicular to said predetermined direction, said accumulating gate region further having second and third parts respectively connected to opposite ends of said first part and extending, in said planes, along opposite sides of said one of said source region and said drain region;

wherein said accumulating gate region is adapted to accumulate a charge corresponding to an intensity of radiation incident on said device, a current flows from one to the other of said source region and said drain region through a part of said channel region sandwiched between said first part of said accumulating gate region and said substrate, the potential of said accumulating gate region is variable according to said accumulated charge, and said current is variable according to the potential of said accumulating gate region.

5,065,207

OPTOELECTRONIC CIRCUIT WITH DIODES AND WAVEGUIDES

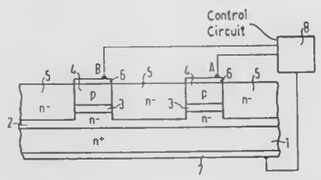
Jochen Heinen, Haar, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Feb. 5, 1991, Ser. No. 655,138

Claims priority, application Fed. Rep. of Germany, May 28, 1990, 4017157

Int. Cl.[5] H01L *27/14*

U.S. Cl. 357—30 **12 Claims**



1. An optoelectronic circuit in a semiconductor component having a branching waveguide having at least two branches, a respective optical amplifier constructed as a diode being integrated in each of the two branches of the waveguide, comprising each diode having an active layer that is transversely arranged between a first confinement layer doped for a first conductivity type and a second confinement layer doped for a second conductivity type and that is laterally limited by a third confinement layer; the second confinement layer being completely interrupted by the third confinement layer at least in a region between the diodes; a first metal contact provided for an electrical connection to the first confinement layer; each of the diodes having a separate, second metal contact provided for an electrical, connection to the second confinement layer; and the third confinement layer being doped to a degree great enough for the suppression of disturbing transverse currents, being doped for the first conductivity type at least in the region between the diodes.

5,065,208

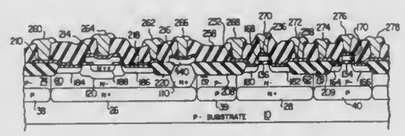
INTEGRATED BIPOLAR AND CMOS TRANSISTOR WITH TITANIUM NITRIDE INTERCONNECTIONS

Rajiv R. Shah, Plano, and Toan Tran, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 8,910, Jan. 30, 1987, abandoned. This application Feb. 20, 1990, Ser. No. 481,804

Int. Cl.[5] H01L *29/72, 27/04, 29/04, 23/48*

U.S. Cl. 357—34 **23 Claims**



1. A small area bipolar transistor, comprising:

a semiconductor tank formed in a face of a semiconductor body, said tank forming a collector region of said transistor;

a semiconductor moat formed in said tank, said most forming an active intrinsic base region of said transistor;

an emitter region formed in said base region;

an extrinsic base region formed in said moat; and

a metal nitride contact directly connected to a silicide on said extrinsic base, said nitride contact extending laterally beyond said tank.

5,065,209

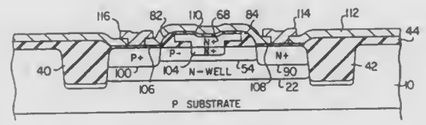
BIPOLAR TRANSISTOR FABRICATION UTILIZING CMOS TECHNIQUES

David Spratt, and Rajiv R. Shah, both of Plano, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 296,493, Jan. 9, 1989, Pat. No. 4,962,053. This application Jul. 27, 1990, Ser. No. 558,920

Int. Cl.[5] H01L *29/72*

U.S. Cl. 357—34 **11 Claims**



1. A bipolar transistor, comprising:

a semiconductor well of a first conductivity type;

a conductive polycrystalline silicon strip overlying said well and extending substantially from one side thereof to the other, one said side of said polycrystalline silicon strip extending laterally beyond said semiconductor well;

a semiconductor intrinsic base region of a second conductivity type underlying said polycrystalline silicon strip;

a semiconductor emitter region in contact with said polycrystalline silicon emitter strip and formed in said intrinsic base region; and

an extrinsic base region and a collector region formed on opposing sides of said polycrystalline silicon emitter strip, said extrinsic base region and said collector region being formed in electrical contact with said intrinsic base region.

5,065,210

LATERAL TRANSISTOR STRUCTURE FOR BIPOLAR SEMICONDUCTOR INTEGRATED CIRCUITS

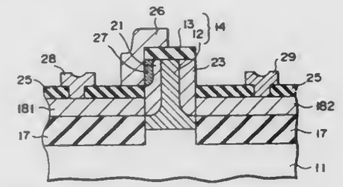
Kenji Hirakawa, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 5, 1990, Ser. No. 548,609

Claims priority, application Japan, Jul. 7, 1989, 1-176236

Int. Cl.[5] H01L *29/72, 29/06, 29/04, 23/48*

U.S. Cl. 357—35 **15 Claims**



1. A lateral transistor comprising:

a semiconductor substrate of a first conductivity type having a major surface,

a mesa-shaped projection of a second conductivity type having a side wall at both sides thereof, said mesa-shaped projection being on said major surface of said semiconductor substrate and including a collector region,

a base region of the first conductivity type, in one side wall of said mesa-shaped projection,

an emitter region of the second conductivity type in said base region, and

a collector contact region of the second conductivity type in the other side wall of said mesa-shaped projection.

5,065,211

THYRISTOR HAVING CATHODE SHORTS

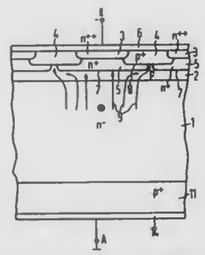
Peter Voss, Munich, Fed. Rep. of Germany, assignor to Eupec Europaeisch Gesellsch F. Leistungshalbleiter mbH & Co.KG, Fed. Rep. of Germany

Filed Dec. 19, 1990, Ser. No. 630,033

Claims priority, application European Pat. Off., Dec. 19, 1989, 89123497.3

Int. Cl.[5] H01L *29/74*

U.S. Cl. 357—38 **2 Claims**



1. In a thyristor of the type comprising a semiconductor body, at least one emitter zone of a first conductivity type adjoining a cathode-side surface, a base zone of an opposite, second conductivity type at the cathode side of the thyristor, and a cathode electrode which shorts the base zone and the emitter zone, the improvement therein comprising:

short-circuit regions of the second conductivity type arranged in the emitter zone, said short-circuit regions adjoining the surface of the semiconductor body and having a higher doping concentration than that of the base zone;

at least one intermediate zone of the first conductivity type arranged between the base zone and the emitter zone, said intermediate zone having a lower doping concentration than that of the emitter zone and a higher doping concentration than that of the base zone;

said intermediate zone having a larger area than the emitter zone and overlapping each of said short-circuit regions; and

the area of each of said short-circuit regions not overlapped by said intermediate zone being significantly smaller than the area of said short-circuit regions.

5,065,212

SEMICONDUCTOR DEVICE

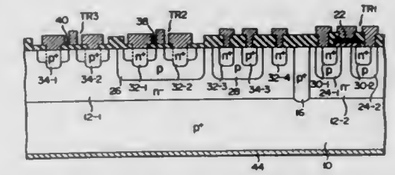
Yu Ohata, Tokyo, and Tsuyoshi Kuramoto, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 161,436, Feb. 24, 1988, abandoned, which is a continuation of Ser. No. 68,754, Jun. 29, 1987, abandoned, which is a continuation of Ser. No. 719,263, Apr. 2, 1985, abandoned. This application Nov. 13, 1989, Ser. No. 436,004

Claims priority, application Japan, Apr. 4, 1984, 59-67081

Int. Cl.[5] H01L *27/02*

U.S. Cl. 357—42 **13 Claims**



1. An integrated semiconductor circuit having a drive circuit and a conductivity modulated MOS output transistor which has a high resistance layer whose conductivity can be modulated comprising:

a P type semiconductor substrate having a main surface and a back surface;

an N type semiconductor layer formed directly on said main surface of said P type semiconductor substrate and having an outer surface;

an isolation region extending from said outer surface of the semiconductor layer to said P type semiconductor substrate to separate said semiconductor layer into first and second device forming regions;

a drive circuit device formed in said first device forming region;

at least one P type semiconductor region formed in the surface area of said second device forming region;

an N type semiconductor region formed in each said P type semiconductor region;

an insulation layer formed on at least a portion of each said P type semiconductor region which lies between said second device forming region and said N type semiconductor region;

a gate electrode formed on said insulation layer; and

a drain electrode formed on said back surface of said P type semiconductor substrate;

wherein said gate electrode, said P type and N type semiconductor regions, said second device forming region, and said P type semiconductor substrate form a vertically disposed conductivity modulated MOS transistor through which a current flows from said P type semiconductor substrate to said N type semiconductor region through said N type semiconductor layer and said P type semiconductor region in said second device forming region, said MOS transistor having a high resistance layer whose conductivity can be modulated and which constitutes an output circuit, and

wherein holes injected from said P type semiconductor substrate into said N type semiconductor layer through a PN junction formed therebetween serve to increase the

VOL 1132 ISS 2 NO 12 1991 UMI

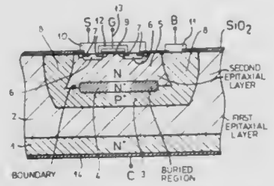
conductivity of said high resistance layer during operation of the circuit.

5,065,213

INTEGRATED HIGH-VOLTAGE BIPOLAR POWER TRANSISTOR AND LOW VOLTAGE MOS POWER TRANSISTOR STRUCTURE IN THE EMITTER SWITCHING CONFIGURATION AND RELATIVE MANUFACTURING PROCESS

Ferruccio Frisina, and Giuseppe Ferla, both of Catania, Italy, assignors to SGS-Thomson Microelectronics S. R. L., Agrate Brainza (MI), Italy

Filed Dec. 21, 1988, Ser. No. 288,405
Claims priority, application Italy, Dec. 22, 1987, 6631 A/87
Int. Cl.[5] H01L *27/02*
U.S. Cl. 357—43 2 Claims



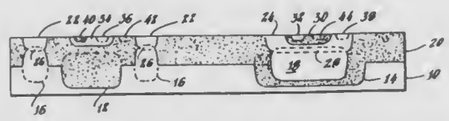
1. An integrated high-voltage bipolar power transistor and vertical low-voltage MOS power transistor structure, comprising:
an N+ type semiconductor substrate;
an overlying semiconductor layer on said N+ type semiconductor substrate and comprising a first N type epitaxial layer and a second N type epitaxial layer grown on said first N type epitaxial layer;
a first dopant-diffusion P type region formed in said first N type epitaxial layer in a vicinity of a boundary between said first N type epitaxial layer and said second N type epitaxial layer;
a second P type region connecting said first P type region with a surface of the structure and located in said second N type epitaxial layer, said first and second regions constituting a base region of a bipolar transistor of said structure;
a third completely buried N+ type region adjoining at a lower side said first P type region, substantially more doped than said second epitaxial layer, located astride said boundary between said first and second epitaxial layers, and constituting an emitter region of the bipolar transistor, a portion of said second epitaxial layer being disposed between said third region and said surface with said second region extending alongside said portion of said second epitaxial layer to said surface;
body and source regions of an MOS transistor of said structure located in said portion of said second epitaxial layer in a vicinity of said surface and above said third region spaced from said second P type region;
means connected to said portion of said epitaxial layer between said body and source regions to form from said portion a drain region of said MOS transistor; and
means connected to said N+ type semiconductor substrate to form from said substrate a collector of said bipolar transistor.

5,065,214

INTEGRATED CIRCUIT WITH COMPLEMENTARY JUNCTION-ISOLATED BIPOLAR TRANSISTORS

Jerome F. Lapham, Groton, and Brad W. Scharf, Woburn, both of Mass., assignors to Analog Devices, Incorporated, Norwood, Mass.

Division of Ser. No. 190,499, May 5, 1988, Pat. No. 4,969,823, which is a continuation of Ser. No. 912,771, Sep. 26, 1986, abandoned. This application Nov. 1, 1989, Ser. No. 430,810
Int. Cl.[5] H01L *27/02*
U.S. Cl. 357—43 10 Claims



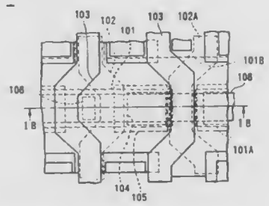
1. An integrated circuit with complementary bipolar transistors comprising:
an N-type semiconductor substrate; and
a P-type epitaxial layer comprising additional semiconductor material over said substrate to form with said substrate a composite structure having at least two separate semiconductive layers;
said substrate and epitaxial layer being formed with:
a pnp transistor comprising:
a P-type collector formed partly of the P-type material of said P-type epitaxial layer and partly in said N-type substrate;
an N-type base formed in said epitaxial layer; and
a P-type emitter formed in said epitaxial layer;
an npn transistor comprising:
an N-type collector formed in said epitaxial layer and in said substrate with the N-doping of said collector being in excess of the P-doping of said P-type collector;
a P-type well in said N-type substrate to isolate said N-type collector, said P-type well being contiguous with said P-type epitaxial layer;
a P-type base formed in said epitaxial layer;
an N-type emitter formed in said epitaxial layer; and
an N-type isolation wall formed in said epitaxial layer to isolate said pnp and npn transistor.

5,065,215

SEMICONDUCTOR MEMORY CELL AND METHOD OF MANUFACTURING THE SAME

Taishi Kubota, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jun. 22, 1990, Ser. No. 542,427
Claims priority, application Japan, Jun. 28, 1989, 1-167558
Int. Cl.[5] H01L *27/10, 27/15, 29/78, 27/02*
U.S. Cl. 357—45 4 Claims



1. A semiconductor memory comprising:
a semiconductor substrate;
a plurality of semiconductor memory cells formed in a matrix form on said semiconductor substrate;
each semiconductor memory cells including a trench capacitor, a bit line, and a word line extending perpendicularly to said bit line,

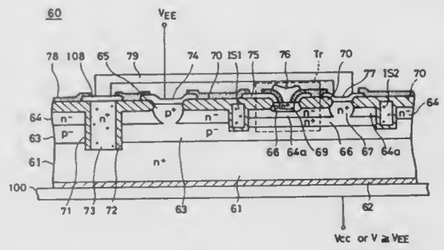
said trench capacitor including a charge storage insulating layer in a trench formed on said semiconductor substrate, a counter electrode formed on said insulating layer, a first active region formed at an open portion of said trench, and a second active region which is separate from said first active region formed on said semiconductor substrate,
said word line being provided on said semiconductor substrate through an insulating layer which acts as a switching element in cooperation with said first and second active region,
said bit line being coupled to said second active region,
said switching element and said trench being arranged in a direction corresponding to the direction of said bit line, so that switching elements and trenches of neighboring cells are arranged reversely and in parallel t the bit line, and
word lines of the semiconductor memory cells which are adjacent in the direction of said bit lines being arranged to be separate from each other at a portion in which switching elements are neighbors and to substantially vertically overlap each other at a portion in which said trenches are neighbors.

5,065,216

SEMICONDUCTOR INTEGRATED CIRCUIT HAVING INTERCONNECTION WITH IMPROVED DESIGN FLEXIBILITY, AND METHOD OF PRODUCTION

Kouichi Suzuki, Tokyo; Norihito Miyoshi, Yokohama; Makoto Yoshida, Kawasaki, and Masayuki Kokado, Machida, all of Japan, assignors to Fujitsu Ltd., Kawasaki, Japan

Filed Feb. 9, 1990, Ser. No. 477,544
Claims priority, application Japan, Feb. 9, 1989, 1-32160
Int. Cl.[5] H01L *27/04, 29/72, 29/06*
U.S. Cl. 357—48 12 Claims



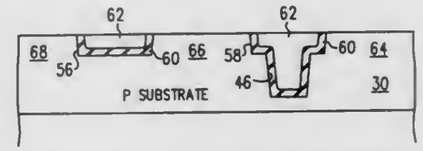
1. A semiconductor integrated circuit comprising:
a substrate, having upper and lower main surfaces, of a first semiconductor type and doped with a first impurity element at a first impurity density, said first semiconductor type being one of p-type and n-type semiconductors;
a conductive layer formed on the lower, main surface of said substrate;
a first layer, having upper and lower surfaces, of a second semiconductor type doped with a second impurity element different from the first impurity element and formed on the upper, main surface of said substrate, said second semiconductor type being the other of the p-type and n-type semiconductor and said first layer having a second impurity density lower than the first impurity density;
a second layer, having upper and lower surfaces, of the first semiconductor type formed on said first layer for forming circuit elements therein;
a first region of the second semiconductor type surrounded by said second layer and extending from the upper surface of said first layer to the upper surface of said second layer, said first region forming a p-n junction with a part of the second layer that surrounds the first region;
a second region of the first semiconductor type extending from the upper, main surface of said substrate to the upper surface of said second layer, said substrate and said second region forming a conductive path for supplying a power source voltage of a first predetermined voltage level to the circuit elements in said second layer from the lower, main surface of said substrate; and
means for applying a voltage to the first region at a level such that the p-n junction is not forward biased.

5,065,217

PROCESS FOR SIMULTANEOUSLY FABRICATING ISOLATION STRUCTURES FOR BIPOLAR AND CMOS CIRCUITS

Douglas P. Verret, Sugarland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 544,812, Jun. 27, 1990, abandoned, which is a continuation of Ser. No. 131,496, Dec. 10, 1987, abandoned. This application Dec. 18, 1990, Ser. No. 630,374
Int. Cl.[5] H01L *27/12*
U.S. Cl. 357—49 20 Claims



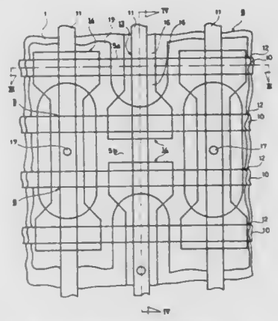
1. An isolating structure for MOS circuits, comprising:
a shallow recess formed in a semiconductor substrate;
a thin insulator formed on the surfaces of said recess; and
a polysilicon dielectric filling the shallow recess.

5,065,218

LOCOS TYPE FIELD ISOLATING FILM AND SEMICONDUCTOR MEMORY DEVICE FORMED THEREWITH

Ichiro Arimoto; Masami Yamamoto; Tomoharu Mametani; Ritsuko Tsutsumi, all of Hyogo, Japan; Ritsuko Tsutsumi; Ichiro Arimoto, and Masami Yamamoto, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 23, 1989, Ser. No. 370,012
Claims priority, application Japan, Jun. 28, 1988, 63-161840; Jan. 19, 1989, 1-12782; Jun. 22, 1989, 1-162342
Int. Cl.[5] H01L *29/68, 29/78, 29/92, 29/06*
U.S. Cl. 357—23.6 1 Claim



1. A semiconductor device comprising:
a semiconductor substrate of a first conductivity type having a major surface,
a plurality of word lines extending in parallel on the major surface of said semiconductor surface,

VOL
1132
ISS
2
NO
12
1991
UMI

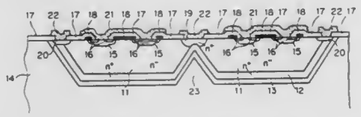
a plurality of bit lines extending in a direction perpendicularly intersecting with said word liens on the major surface of said semiconductor substrate,
memory cells formed in the vicinity of intersections of said word lines and said bit lines,
said semiconductor substrate having recessed surface regions formed between adjacent said memory cells,
a first configuration of insulating film for isolation provided in only a center portion of a first group of said recessed surface regions of said semiconductor substrate so that a portion of recessed surface on two sides of said first configuration of insulating film is exposed in said first group of recessed surface regions,
a second configuration of insulating film for isolation provided in only a portion of each of a second group of said recessed surface regions of said semiconductor substrate so that a portion of recessed surface on one side of said second configuration of insulating film is exposed in said second group of recessed surface regions;
each of said memory cells comprising
a transfer gate transistor comprising a gate electrode formed on the major surface of said semiconductor substrate through an insulating film and a pair of impurity regions formed in said semiconductor substrate in a positional relation selfaligned with said gate electrode, and
a charge storage element comprising
an insulating film formed on said semiconductor substrate and an electrode layer formed on the surface of said insulating film;
the transfer gate transistors and the charge storage elements in said memory cells being alternately arranged through said second configuration of insulating film for isolation in a direction in which said word lines extend,
charge storage elements extending into said recessed surface regions of said second group to contact to said second configuration of insulating film for isolation,
charge storage elements in adjacent memory cells being arranged through said first configuration of insulating film for isolation in a direction in which said bit lines extend,
charge storage elements on two sides of each of said recessed surface regions of said first group extending into said recessed surface regions of said semiconductor substrate to contact said first configuration of insulating film for isolation.

5,065,219

SEMICONDUCTOR DEVICE AND FABRICATION METHOD THEREOF

Tomohide Terashima, Fukuoka, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 9, 1991, Ser. No. 697,621
Claims priority, application Japan, May 21, 1990, 2-132142
Int. Cl.[5] H01L *27/04, 21/302*
U.S. Cl. 357—50 **9 Claims**



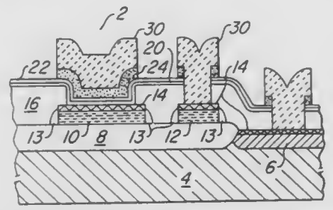
1. A semiconductor device, comprising:
a non-insulating support having a concave on one surface and a protrusion from a bottom of said concave;
a dielectric layer formed on an entire surface of said concave insulating said protrusion;
a low-resistance semiconductor layer of a predetermined conductivity type formed on said dielectric layer;
a semiconductor island of said predetermined conductivity type formed on said low-resistance semiconductor layer and filling said concave;
a low-resistance semiconductor region of said predetermined conductivity type formed in a surface of said semiconductor island corresponding to said protrusion and having a bottom being in contact with said low-resistance semiconductor layer located on an apex of said protrusion;
a semiconductor element formed on said semiconductor island; and
an electrode formed on said low-resistance semiconductor region for an operating current of said semiconductor element which flows through said low-resistance semiconductor layer.

5,065,220

METAL-TO-POLYSILICON CAPACITOR AND METHOD FOR MAKING THE SAME

James L. Paterson, Richardson, and Howard L. Tigelaar, Allen, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation-in-part of Ser. No. 938,653, Dec. 5, 1986, Pat. No. 4,811,076, which is a continuation-in-part of Ser. No. 837,611, Mar. 7, 1986, abandoned, which is a continuation-in-part of Ser. No. 729,318, May 1, 1985, Pat. No. 4,821,085. This application May 3, 1988, Ser. No. 189,930
Int. Cl.[5] H01L *29/78, 27/02, 29/34, 23/48*
U.S. Cl. 357—51 **22 Claims**



1. A capacitor formed at a predetermined location at the surface of a semiconductor body, comprising:
a field dielectric structure at said surface;
a bottom plate, comprising a metal silicide film, said bottom plate disposed over said field dielectric structure;
a multilevel dielectric, disposed over said surface, overlapping an edge of said bottom plate, and not present over a portion of said bottom plate;
a capacitor dielectric layer, disposed over and in contact with said bottom plate at the portion of said bottom plate over which said multilevel dielectric is not disposed, and disposed over said multilevel dielectric;
a top plate, comprising a metal layer, disposed over and in contact with said capacitor dielectric layer.

5,065,221

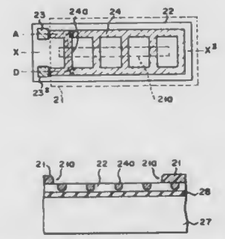
TRIMMING RESISTOR ELEMENT FOR MICROELECTRONIC CIRCUIT

Kaoru Imamura, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 26, 1989, Ser. No. 412,522
Claims priority, application Japan, Sep. 30, 1988, 63-246158
Int. Cl.[5] H01L *27/02, 29/04;* **H01C** *10/00;* **B23K** *26/00*
U.S. Cl. 357—51 **13 Claims**

1. A trimming resistor element comprising:
a substrate having an electrically insulative main surface;
a high-resistance film of a first resistivity formed on the main surface of said substrate; and

a low-resistance region formed in said high-resistance film and having a second resistivity, lower than the first resistivity, which is cut off in order to trim the resistance of said trimming resistor element.

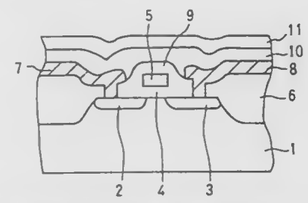


5,065,222

SEMICONDUCTOR DEVICE HAVING TWO-LAYERED PASSIVATION FILM

Kazutoshi Ishii, Tokyo, Japan, assignor to Seiko Instruments Inc., Japan

Filed Nov. 9, 1988, Ser. No. 269,434
Claims priority, application Japan, Nov. 11, 1987, 62-284860; Feb. 9, 1988, 63-28172
Int. Cl.[5] H01L *29/34*
U.S. Cl. 357—52 **11 Claims**



1. A MOS semiconductor device comprising:
a semiconductor substrate of a first conductivity type;
source and drain regions of a second conductivity type formed on a surface of the semiconductor substrate and spaced apart from each other;
a gate electrode formed on a surface portion of the semiconductor substrate between the source and drain regions through a gate insulator film;
an internal insulator film at least over the gate electrode; and
a passivation film at least over the internal insulator film, the passivation film being comprised of a first passivation layer and a second passivation layer formed on the first passivation layer, the first passivation layer being composed of silicon dioxide and containing not more than 0.5 percent phosphorous by atomic weight, and the second passivation layer being composed of silicon oxynitride or silicon nitride.

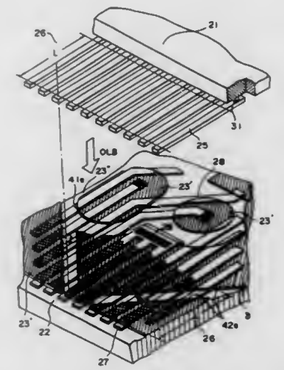
5,065,223

PACKAGED SEMICONDUCTOR DEVICE

Hirohisa Matsuki, Kawasaki; Shigeki Harada, Musashino; Masahiro Sugimoto, Yokosuka, and Toshiki Yoshida, Minokamo, all of Japan, assignors to Fujitsu VLSI Limited, Kasugai and Fujitsu Limited, Kawasaki, both of, Japan

Filed May 31, 1990, Ser. No. 531,457
Claims priority, application Japan, May 31, 1989, 1-137889
Int. Cl.[5] H01L *27/10, 23/48*
U.S. Cl. 357—68 **10 Claims**

1. A semiconductor device, comprising:
a semiconductor chip;
a substrate having an upper major surface, and a lower major surface for supporting the semiconductor chip on the upper major surface thereof;
a plurality of terminals provided on the substrate for external connection, said plurality of terminals being provided to project from the lower major surface of the substrate;
a plurality of lead wires provided on the semiconductor chip for electrical connection to the plurality of terminals; and
a multilevel interconnection structure for connecting the plurality of terminals to the plurality of lead wires on the semiconductor chip, said multilevel interconnection structure including
a lower conductor layer having an upper major surface, and a lower major surface provided on the upper major surface of the substrate, said lower conductor layer being patterned into a plurality of isolated patterns each surrounded by a boundary and connected electrically to at least one terminals, said plurality of isolated patterns exposing a part of the upper major surface of the substrate therebetween;
an insulator layer having an upper major surface, and a lower major surface provided on the lower conductor layer such that the lower major surface of the insulator layer covers the upper major surface of the lower conductor layer an the exposed part of the upper major surface of the substrate, said upper major surface of the insulator layer forming a depression corresponding to the exposed part of the upper major surface of the substrate;
a plurality of contact holes provided in the insulator layer for exposing the upper major surface of the lower conductor layer corresponding to the isolated patterns; and
an upper conductor layer having an upper major surface, and a lower major surface provided on the upper major surface of the insulator layer, said upper conductor layer being patterned into a plurality of conductor strips each extending from a corresponding contact hole and connected to a corresponding isolated pattern at the contact hole, each conductor strip having a straight portion that extends parallel with each other corresponding to the plurality of lead wires for electrical connection therewith;
wherein certain of said isolated patterns have their boundary crossing the straight portions of the conductor strips and said certain isolated patterns are formed such that the boundary forms a liner edge that extends general linerarly in the plane of the upper major surface of the substrate and crosses, when viewed perpendicularly to the upper major surface of the substrate, the straight portions generally obliquely, said linear edge being formed to cross a plurality of the conductor strips.



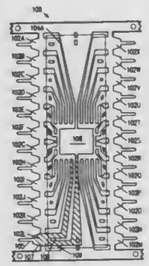
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,224

LOW NOISE INTEGRATED CIRCUIT AND LEADFRAME

Dana Fraser, South Portland; Ray A. Mentzer, Scarborough; Jerry Gray, Cape Elizabeth; Geoff Hannington, South Portland; Susan M. Keown, Portland, and Gaetan L. Mathieu, Portland, all of Me., assignors to Fairchild Semiconductor Corporation, Santa Clara, Calif.

Continuation of Ser. No. 880,407, Jun. 30, 1986, abandoned.
This application Sep. 8, 1988, Ser. No. 243,195
Int. Cl.[5] H01L *23/48, 27/02*
U.S. Cl. 357—70 7 Claims



1. Apparatus for reducing ground bounce in an integrated circuit with multiple device stages, said apparatus including a leadframe formed with a plurality of elongate leads extending from the leadframe perimeter inwardly toward the integrated circuit, comprising:
a first device stage having an integrated circuit first ground rail, said first device stage being coupled to the first ground rail;
a second device stage having an integrated circuit second ground rail isolated from said first ground rail, said second device stage being coupled to the second ground rail;
a second device stage having an integrated circuit second ground rail isolated from said first ground rail, said second device stage being coupled to the second ground rail;
a leadframe first lead having the inward end connected to said first ground rail;
a leadframe second lead having the inward end connected to said second ground rail;
said first and second leads being separate elongate leads throughout the major portion of their respective lengths from the inward ends at the integrated circuit to the leadframe perimeter;
said first and second leads being merged at the respective outward ends thereof adjacent to the leadframe perimeter for coupling said first and second leads to an external ground;
a paddle for supporting the integrated circuit; and
at least one tie bar connecting the paddle to the leadframe perimeter;
one of said first and second leads being said tie bar.

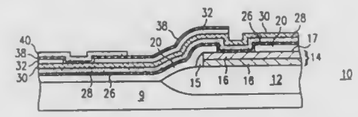
5,065,225

TUNNELING DIFFUSION BARRIER FOR LOCAL INTERCONNECT AND POLYSILICON HIGH IMPEDANCE DEVICE

Frank R. Bryant, Denton, and John L. Walters, Carrollton, both of Tex., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.

Filed Jul. 31, 1990, Ser. No. 560,384
Int. Cl.[5] H01L *23/48, 49/02, 27/02, 29/04*
U.S. Cl. 357—71 7 Claims

1. An interconnect of an integrated circuit comprising;
a first silicon layer having a first conductivity type;
an insulating layer disposed over the first silicon layer with an opening to expose selected regions in the first silicon layer;
a barrier insulating layer covering exposed regions in the first silicon layer and portions of the insulating layer, wherein the barrier insulating layer has a thickness sufficient to facilitate conduction of electrons through the barrier layer; and,



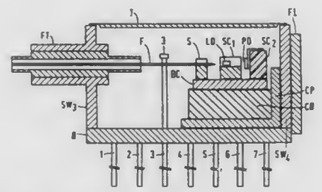
a second polysilicon layer having a second conductivity type disposed over the barrier insulating layer.

5,065,226

LASER DIODE MODULE

Johannes T. M. Kluitmans; Hindrik Tjassens, and Hendrikus G. Kock, all of Eindhoven, Netherlands, assignors to U.S. Philips Corp., New York, N.Y.

Filed Jun. 15, 1990, Ser. No. 539,092
Claims priority, application Netherlands, Jun. 16, 1989, 8901523
Int. Cl.[5] H01L *23/02, 23/12*
U.S. Cl. 357—74 17 Claims



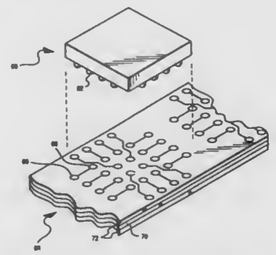
1. A laser diode module comprising:
a rectangular box-shaped metal casing with a bottom, two long and two short side walls, a tubular passage for a glass fiber being provided in one of the short side walls, and in which at least six guide pins are passed through the bottom in a standardized DIL order, at least one of the guide pins being inserted in the bottom by means of an electrically conductive material and the remaining guide pins being inserted in the bottom by means of feedthrough insulators;
a sheet-like metal base carrier having a electrically conductive coupling with the casing, on which base carrier are mounted a first subcarrier with a laser diode attached to it, a support for mounting the glass fiber in a manner such that its end faces the front facet of the laser diode, and a second subcarrier with the photodiode attached to it; and
connecting lines for electrically connecting the laser diode, the photodiode and the metal base carrier to the respective guide pins, characterized in that the guide pin for electrically connecting the laser diode, which pin is inserted in the bottom by means of a feedthrough insulator, forms, only inside the casing and substantially throughout its entire length inside the casing, the inner guide of a coaxial transmission line whose outer guide is electrically conductively connected to the casing, and in the connecting line between the linear guide and the laser diode a resistor is inserted having a value such that the sum of the resistances of this resistor and the laser diode is substantially equal to the characteristic impedance of the coaxial transmission line.

5,065,227

INTEGRATED CIRCUIT PACKAGING USING FLEXIBLE SUBSTRATE

Jerome A. Frankeny, Taylor; Richard F. Frankeny; Karl Hermann, both of Austin, and Ronald L. Imken, Round Rock, all of Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Jun. 4, 1990, Ser. No. 533,262
Int. Cl.[5] H01L *23/12, 23/14*
U.S. Cl. 357—74 13 Claims



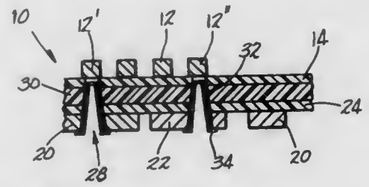
1. An integrated circuit package comprising:
a flexible multilayer substrate strip having semiconductor chip input and output patterns; and
at least one integrated circuit chip attached to said flexible multilayer substrate, said integrated circuit chip having an outer footprint,
said input and output patterns extending past said outer footprint for testing and extending through said flexible multilayer substrate, within said outer footprint, for z-axis attachment.

5,065,228

G-TAB HAVING PARTICULAR THROUGH HOLE

Craig A. Foster, Alameda, Calif.; Randolfo Galvez, North Bergen, N.J., and Kurt R. Raab, Sunnvale, Calif., assignors to Olin Corporation, New Haven, Conn.

Filed Apr. 4, 1989, Ser. No. 333,072
Int. Cl.[5] H01L *23/14, 23/12*
U.S. Cl. 357—80 11 Claims



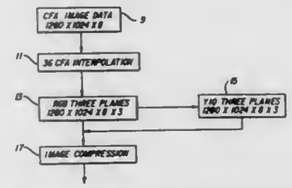
1. A thin circuit, comprising:
a first conductive plane patterned into a plurality of circuit traces, at least one of said circuit traces having a width of less than about 5 mils or separated by spaces of less than about 5 mils;
a second conductive plane patterned into at least one circuit trace;
a non-conductive layer disposed between said first and second conductive planes;
at least one conductive through hole via electrically interconnecting said first and second conductive planes, said conductive through hole via having a diameter of less than about 5 mils comprising:
a layer of carbon black affixed to the walls of an electrically non-conductive via; and
a conductive metal bonded to said carbon black.

5,065,229

COMPRESSION METHOD AND APPARATUS FOR SINGLE-SENSOR COLOR IMAGING SYSTEMS

Yusheng T. Tsai; Kenneth A. Parulski, and Majid Rabbani, all of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 384,353, Jul. 24, 1989. This application Sep. 27, 1990, Ser. No. 588,775
Int. Cl.[5] H04N *9/64, 11/04, 7/12*
U.S. Cl. 358—21 R 15 Claims



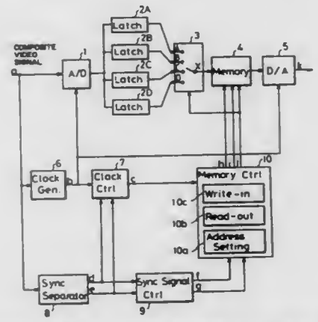
1. A color image compression apparatus for compressing a color pixel pattern comprising:
forming means for forming said color pixel pattern into three color planes of red (R), green (G), and blue (B) pixels;
interpolating means coupled to said forming means for interpolating missing green pixels from the color plane of green pixels;
processing means for computing the Log R/G and Log B/G using the interpolated green pixels from said interpolation means;
converting means for converting the uninterpolated green pixels from said forming means to an intensity uniform space; and
compressing means for compressing the signals from said converting means and said processing means to provide a compressed color image.

5,065,230

VIDEO SIGNAL PROCESSOR FOR SIMULTANEOUSLY REPRODUCING A PLURALITY OF VIDEO INFORMATION ON A SINGLE MONITOR PICTURE TUBE

Makoto Kumano; Masaharu Hayakawa, and Shinichi Suenaga, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 21, 1989, Ser. No. 410,320
Claims priority, application Japan, Sep. 27, 1988, 63-243377
Int. Cl.[5] H04N *9/74, 9/45, 9/445*
U.S. Cl. 358—22 12 Claims



1. A video signal processing apparatus comprising:
a clock signal generating circuit for generating a clock signal in synchronism with a color synchronizing signal con-

VOL
1132
ISS
2
NO
12
1991
UMI

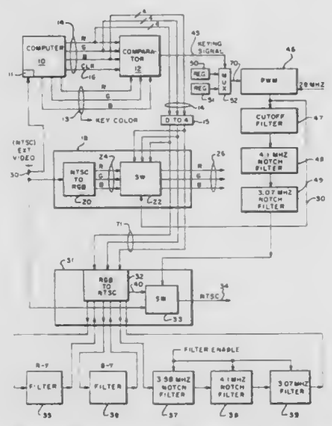
tained in an incoming composite video signal, said clock signal having a frequency equal to a multiple of the frequency of the color synchronizing signal;
an analog-to-digital converter operable in response to the clock signal to sample and convert the incoming composite video signal into a digital video signal;
an address setting means for generating an address signal synchronized with horizontal and vertical synchronizing signals contained in the incoming composite video signal;
a memory means having addresses controlled by the address signal;
a write-in means for writing the digital video signal from the analog-to-digital converter into the memory means in synchronism with the clock signal, by sequentially extracting bits over a plurality of predetermined bit intervals, having incremental phase differences from that of the color synchronizing signal, out of the digital video signal, and writing the sequentially extracted bits over each of the plurality of predetermined bit intervals into the memory means, said incremental phase differences being maintained over each predetermined bit interval;
a read-out means having addresses adapted to be controlled by the address signal synchronized with horizontal and vertical synchronizing signals contained in an arbitrary video signal, said read-out means being operable to read out a digital signal from the memory means in synchronism with a color synchronizing signal contained in the arbitrary video signal; and
a digital-to-analog converter for converting the digital signal read out from the memory means into an analog signal.

5,065,231

APPARATUS AND METHOD FOR MERGING INPUT RGB AND COMPOSITE VIDEO SIGNALS TO PROVIDE BOTH RGB AND COMPOSITE MERGED VIDEO OUTPUTS

Paul E. Greaves, Rancho Cordova; Michael R. Moore, Folsom; Stephen G. Perlman, Mountain View, and Laurence A. Thompson, Saratoga, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Division of Ser. No. 249,603, Sep. 26, 1988, abandoned. This application Feb. 1, 1991, Ser. No. 649,605
Int. Cl.[5] H04N *9/74, 5/262, 5/272*; G09G *1/14*
U.S. Cl. 358—22 **10 Claims**



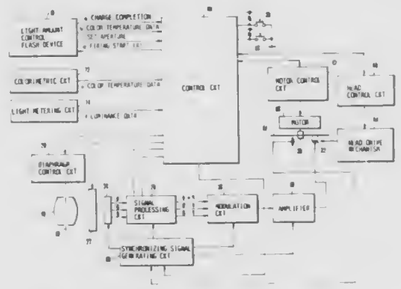
1. An apparatus for providing output video signals which represent a composite video signal merged with first red, green, and blue (first RGB) video overlay signals comprising:
keying signal generation means for generating a keying signal which indicates when the image represented by said video overlay signal overlies the image represented by said composite video signal, said keying signal generation means being coupled to receive said first RGB signals;
first conversion means for converting said composite video signal into second RGB signals, said first conversion means being coupled to receive said composite video signal;
second conversion means for converting said first RGB signals into a composite overlay signal, said second conversion means being coupled to receive said first RGB signals;
first switching means for switching between said first RGB signals and said second RGB signals under control of said keying signal, said first switching means being coupled to said keying signal generation means and said first conversion means, said first switching means providing first output signals;
second switching means for switching between said composite video signal and said composite overlay signal under control of said keying signal, said second switching means being coupled to said second conversion means and said keying signal generation means, said second switching means providing a second output signal.

5,065,232

ELECTRONIC STILL CAMERA SYSTEM

Makoto Kondo, Kanagawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 19, 1989, Ser. No. 409,615
Claims priority, application Japan, Sep. 22, 1988, 63-236323; Sep. 22, 1988, 63-236324
Int. Cl.[5] H04N *9/73, 9/04*
U.S. Cl. 358—29 C **30 Claims**



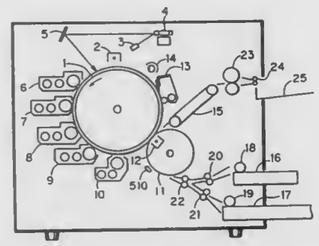
1. An image sensing apparatus comprising:
(a) image sensing means for forming a color video signal;
(b) illuminating means for illuminating an object to be photographed, said illuminating means being detachable from the image sensing apparatus;
(c) transfer means for transferring an information concerning a color temperature of the illuminating means from the illuminating means; and
(d) correcting means for correcting the white balance of the color video signal output from said image sensing means in accordance with said information concerning color temperature and an illuminating period of time of said illuminating means.

5,065,233

COLOR IMAGE FORMING APPARATUS

Tateki Oka, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Aug. 24, 1989, Ser. No. 398,075
Claims priority, application Japan, Aug. 24, 1988, 63-210179; Aug. 24, 1988, 63-210180; Aug. 24, 1988, 63-210181; Jan. 30, 1989, 1-22130; Jan. 30, 1989, 1-22131
Int. Cl.[5] H04N *1/46*
U.S. Cl. 358—75 **31 Claims**



1. An apparatus for producing a color image on a recording material, the apparatus comprising:
first developing units each of which contains a developer of each of at least three primary colors;
a first means for effecting a color separation of an image on an original to output image density data corresponding to each primary color;
a second means for comparing the image density data with a predetermined value, multiplying the image density data by a predetermined ratio depending on the results of the comparison, and setting a predetermined density of a white image;
a second developing unit containing a white developer; and
a third means for controlling the formation of an image with said first developing units and said second developing unit, said third means including means for operating the second developing unit in response to the image density data obtained from the second means.

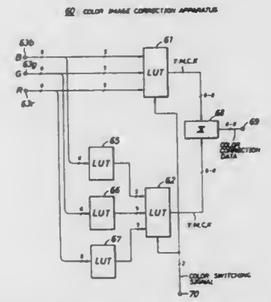
5,065,234

METHOD AND APPARATUS FOR CORRECTING THE COLOR OF A PRINTED IMAGE

Po-Chieh Hung, and Tatsuya Kaneniwa, both of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Continuation of Ser. No. 137,885, Dec. 24, 1987, Pat. No. 4,939,711. This application Jun. 6, 1990, Ser. No. 533,809
Claims priority, application Japan, Apr. 10, 1987, 62-89004; Apr. 10, 1987, 62-89005; Apr. 10, 1987, 62-89006; Apr. 10, 1987, 62-89007; Apr. 10, 1987, 89008; Apr. 10, 1987, 62-89009; Jul. 8, 1987, 62-170357; Dec. 25, 1987, 61-314636
Int. Cl.[5] H04N *1/46*
U.S. Cl. 358—80 **2 Claims**

1. A color correction method comprising:
providing a plurality of color patch images on a recording medium, each of said color patch images having a predetermined ratio of basic colors;
generating basic color data, including measuring each of said color patch images;
converting said basic color data into data in a distinctive color system, including storing said color system data, each of said stored color system data having a color system address corresponding to said predetermined ratio of said basic colors; and
interpolating said color system data with a plurality of assumed points which are not directly corresponding to any of said color system data, wherein each of said assumed points has an assumed address which is determined in accordance with stored weighting data to provide said assumed address between a pair of color system addressed which are nearest to said assumed address, including determining an interpolated color value by interpolating



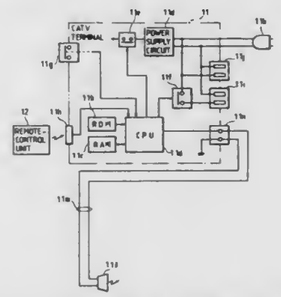
between the color system data at said pair of color system addresses according to the weighting data that provided said assumed address.

5,065,235

CATV TERMINAL UNIT INCLUDING MEMORY FOR STORING REMOTE CONTROL CODES RELATING TO AN EXTERNAL APPARATUS

Tokuji Iijima, Tokyo, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Feb. 12, 1990, Ser. No. 478,897
Claims priority, application Japan, Mar. 24, 1989, 1-70379
Int. Cl.[5] H04H *1/00*; H04N *5/44*
U.S. Cl. 358—86 **3 Claims**



1. In a CATV terminal having a timer function for turning on a power at a preset date and time and for automatically tuning in to a preset channel to output a reception signal thereon, the improvement characterized in that said CATV terminal further comprises:
a storage means for storing remote-control codes of a usable apparatus which uses said outputted reception signal;
a read-out mean for successively reading said remote-control codes from said storage means in relation to the operation conducted by said timer function; and
a remote-control signal transmission means for decoding said remote-control codes read by said read-out mean into a remote-control signal capable of being received by a remote-control signal receiver of said usable apparatus and for sending out said remote-control signal;
wherein said usable apparatus is a VCR and said remote-control code represent channel selection, record, and step commands for said VCR; and
wherein said storage means is a ROM programmed to in-

VOL 1132 ISS 2 NO 12 1991 UMI

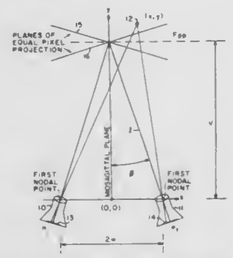
clude said remote-control codes for several brands of VCR's.

5,065,236

STEREOSCOPIC CAMERA AND VIEWING SYSTEMS WITH UNDISTORTED DEPTH PRESENTATION AND REDUCED OR ELIMINATED ERRONEOUS ACCELERATION AND DECELERATION PERCEPTIONS, OR WITH PERCEPTIONS PRODUCED OR ENHANCED FOR SPECIAL EFFECTS

Daniel B. Diner, So. Pasadena, Calif., assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 2, 1990, Ser. No. 608,452
Int. Cl.[5] H04N *13/00*
U.S. Cl. 358—88 **36 Claims**



1. In a stereoscopic viewing system for a human observer, a method of providing a stereoscopic image presentation on a display screen of a viewed three-dimensional region of interest using a left camera and a right camera which, if moving, move in unison relative to said viewed region of interest, or said cameras are viewing moving objects in the region of interest, or said cameras and viewed region are static, each of said cameras having a lens, said lens having a first nodal point, comprising the steps of selecting a fronto-parallel plane in said region of interest, horizontally shifting the presentation of images on said screen so that images from said left and right cameras of a thin, vertical object located in the center of the viewed portion of said fronto-parallel plane overlap completely and exactly on said screen, and selecting a magnification factor q, defined as the scale expansion factor between distances on each camera's plane of equal pixel projection and distances on said display screen, providing a linear relation between perceived and real depth and reducing erroneously perceived accelerations and decelerations.

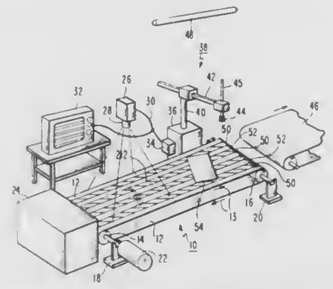
5,065,237

EDGE DETECTION USING PATTERNED BACKGROUND

Constantine J. Tsikos, Voorhees Township, Camden County; Brian R. Frederick, Pennsauken Township, Camden County, and Timothy J. Davis, Mansfield Township, Burlington County, all of N.J., assignors to General Electric Company, Moorestown, N.J.

Filed Aug. 1, 1990, Ser. No. 561,405
Int. Cl.[5] H04N *7/00*
U.S. Cl. 358—101 **18 Claims**

2. An apparatus for manipulating substantially flat, rectangular workpieces having at least one edge, comprising:
- an elongated conveyor belt for supporting said workpieces, said conveyor belt being patterned with parallel. mutually contrasting, elongated stripes;
- transport means coupled to at least said workpieces for causing motion of said workpieces in a direction parallel with said stripes;
- imaging means optically coupled to at least a portion of said conveyor belt for forming an image of said portion of said conveyor belt, and such portions of said stripes and workpieces as may be thereupon, and for generating video signals representing said image;
- location signal generating means coupled to said imaging means, for processing said video signals in such a manner as to generate location signals representative of the location along at least some of said stripes of said edge of said workpiece;



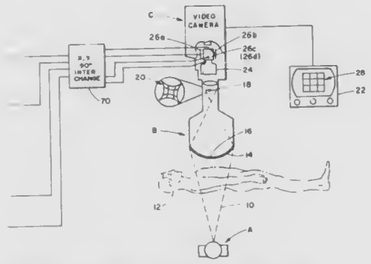
- line fitting processing means coupled to said location signal generating means for fitting data representative of at least one line to at least some of said location signals, whereby said data represents the location of at least one edge of said workpiece; and
- manipulating means coupled to said line fitting processing means and responsive to said data for manipulating said workpiece.

5,065,238

GEOMETRIC DISTORTION-FREE IMAGE INTENSIFIER SYSTEM

Robert J. Vagi, Broadview Heights; Leonard F. Plut, Concord Township, Summit County, and David L. Leong, Northfield, all of Ohio, assignors to Picker International, Inc., Highland Heights, Ohio

Filed Oct. 16, 1989, Ser. No. 422,070
Int. Cl.[5] H04N *5/32, 5/30*
U.S. Cl. 358—111 **17 Claims**



3. A diagnostic imaging apparatus comprising:
- an image intensifier which intensifies and optically distorts a received image such that an output intensified image has optical distortion;
- a video camera in which a beam is swept repeatedly across an image pick up tube for converting a received image into an electronic image representation, the video camera receiving the optically distorted output intensified image;
- a sweep control circuit which alters sweeping of the video camera tube beam to introduce a second distortion in the electronic image representation, which second distortion is substantially equal and opposite to the first distortion, the sweep control circuit including an amplifying means for amplifying voltages applied to deflection plates adjacent the beam of the video tube for controlling sweep, the amplifying means including a low voltage switching transistor interconnected with at least one zener diode for shifting the switched voltages higher. transistor intercon-

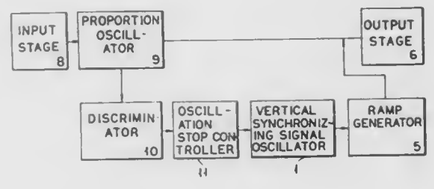
---

5,065,239

AUTOMATIC CONTROL CIRCUIT FOR VERTICAL SYNCHRONIZING SIGNAL

Tae J. Park, Suweon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suweon, Rep. of Korea

Filed Jul. 11, 1990, Ser. No. 552,790
Claims priority, application Rep. of Korea, Dec. 19, 1989, 89-18895
Int. Cl.[5] H04N *5/04*
U.S. Cl. 358—148 **5 Claims**



1. An automatic control circuit for a vertical synchronizing signal, comprising:
- an input stage for converting a vertical synchronizing signal applied from the external to a low level signal;
- a proportion-oscillator connected to said input stage for providing a triggered signal according to the vertical synchronizing signal of said input stage;
- a discriminator connected to said proportion-oscillator for discriminating the input of the vertical synchronizing signal according to an output signal of said proportion-oscillator;
- an oscillation-stop controller connected to said discriminator for being driven by an output signal of said input discriminator;
- a vertical synchronizing signal oscillator connected to said oscillation-stop controller for oscillating according to the control of said oscillation-stop controller; and
- a ramp generator for normalizing an output waveform of said vertical synchronizing signal oscillator.

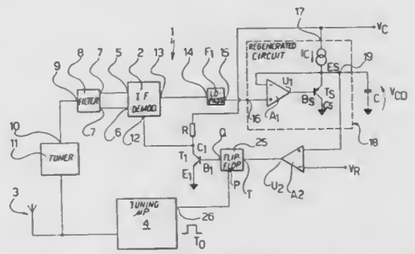
5,065,240

METHOD AND DEVICE FOR AUTOMATICALLY SELECTING THE DEMODULATION STANDARD OF A VIDEO SIGNAL, USEFUL WITH AN INTERMEDIATE FREQUENCY DEMODULATOR

Maurizio Zuffada, Milan, and Fabrizio Sacchi, Gambarana, both of Italy, assignors to SGS Thomson Microelectronics S.r.l., Milan, Italy

Filed Dec. 6, 1988, Ser. No. 281,017
Claims priority, application Italy, Dec. 15, 1987, 23014 A/87
Int. Cl.[5] H04N *5/14*
U.S. Cl. 358—160 **7 Claims**

1. A method for automatically selecting the demodulation standard of a video signal, for use with an intermediate frequency demodulator having an output for the demodulated signal and an input selecting pin, the applied voltage to which determines whether the demodulator is in its positive or its negative demodulating mode, characterized in that it comprises the steps of:
- (a) detecting, and producing a signal representative of, the polarity of the demodulated signal at the demodulator output;
- (b) comparing the signal produced in step (a) with a signal value representative of the polarity of the input signal to the demodulator;
- (c) changing the voltage value at the selecting pin in response to the step (b) comparison indicating no polarity match between the input signal and the output signal to/from the demodulator;



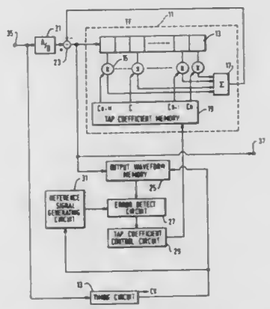
- (d) step (a) is carried out by picking up the demodulated signal from said output, applying that signal to the input of a regenerated circuit having a second input connected to a positive supply pole and being adapted to charge a capacitor, applying the voltage value across said capacitor to one input of an operational amplifier having the other input connected to a reference voltage pole.

5,065,241

GHOST CANCELLING SYSTEM THAT CANCELS GHOSTS FROM VIDEO SIGNALS WITH A TRANSVERSAL FILTER

Hiroyuki Iga, Kanagawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 16, 1990, Ser. No. 552,557
Claims priority, application Japan, Aug. 17, 1989, 1-210634
Int. Cl.[5] H04N *9/64, 5/14, 5/208, 5/213*
U.S. Cl. 358—166 **15 Claims**



1. A ghost canceling system comprising:
- a transversal filter having a plurality of taps which coefficients are adjustable;
- a subtractor which subtracts an output signal of said transversal filter from an input video signal, including a ghost signal and a vertical synchronization cyclic reference signal, and outputs the result of the subtraction operation to said transversal filter;
- a memory means for maintaining the waveform of an output from said subtractor;
- an error detection means for comparing said output waveform from said subtractor maintained in said memory means and a reference signal; and
- control means for controlling the correction of said tap

VOL 1132 ISS 2 NO 12 1991 UMI

coefficients in response to an output from said error detection means;

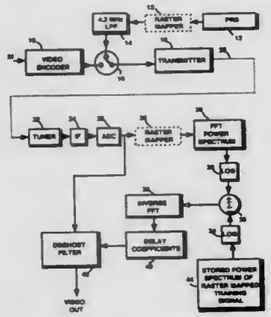
wherein said control means judges whether an equilibrium condition exists wherein said ghost signal has been substantially canceled from said video signal, corrects each tap coefficient in response to a detected result of said error detection means until the equilibrium condition is reached, but corrects only said tap coefficients which have absolute values equal to or greater than a specified value after the equilibrium condition is reached.

5,065,242

DEGHOSTING APPARATUS USING PSEUDORANDOM SEQUENCES

Charles B. Dieterich, Kingston, and Arthur L. Greenberg, Annandale, both of N.J., assignors to General Electric Company, Princeton, N.J.

Filed Jun. 29, 1990, Ser. No. 546,195
Int. Cl.[5] H04N 5/213
U.S. Cl. 358—167 11 Claims



1. A system for providing a television signal, including a training signal, comprising:

a source of composite television signal;

a source of a pseudorandom sequence having 2^n-1 bits occurring in a 2^n-1 sample interval;

means for mapping said 2^n-1 bit pseudorandom sequence into a 2^r sample interval to provide a mapped sequence, n and r both integers with r greater than or equal to n; and

means for time division multiplexing said composite television signal and said mapped sequence.

5,065,243

MULTI-SCREEN HIGH-DEFINITION TELEVISION RECEIVER

Takato Katagiri, Fukaya, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 15, 1990, Ser. No. 567,743
Claims priority, application Japan, Sep. 26, 1989, 1-249848
Int. Cl.[5] H04N 5/45
U.S. Cl. 258—183 2 Claims

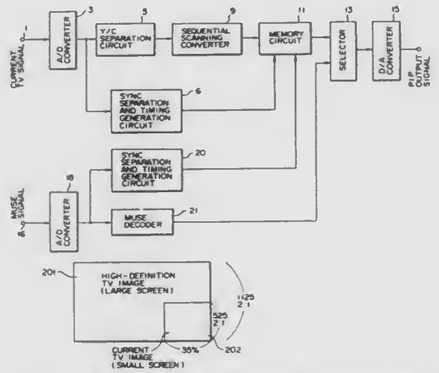
1. A multi-screen high-definition television receiver comprising:

first means for receiving and demodulating a first interlaced scanning television signal;

second means for receiving and demodulating a second interlaced scanning television signal whose scanning lines are about twice as many as that of the first interlaced scanning television signal;

sequential scanning conversion means for converting the first interlaced scanning television signal output from said first means into a sequential scanning television signal;

memory means for synchronizing the sequential scanning television signal output from said sequential scanning conversion means with a field frequency of the second interlaced scanning television signal, time-compressing the sequential scanning television signal and, converting the sequential scanning television signal into a third interlaced scanning television signal in accordance with even



and odd fields of the second interlaced scanning television signal; and

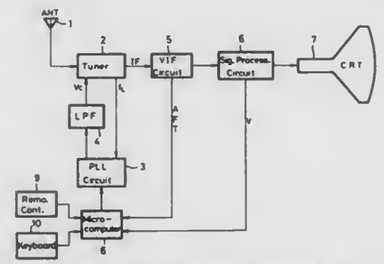
means for selectively producing a fourth interlaced scanning television signal output from said memory means and the second interlaced scanning television signal.

5,065,244

AUTOMATIC FINE TUNING CIRCUIT

Satoshi Ishiguro, Kanagawa, and Osamu Oda, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 27, 1990, Ser. No. 544,609
Claims priority, application Japan, Jul. 11, 1989, 1-178588
Int. Cl.[5] H04N 5/50
U.S. Cl. 358—195.1 5 Claims



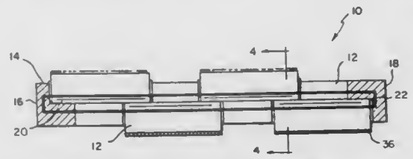
5. An AFT circuit for a television receiver, the AFT circuit being operated during a predetermined AFT detecting period, characterized in that the AFT detecting period is firstly made longer than one vertical scanning period when a channel selector is operated and secondly restricted within a vertical blanking period after the AFT operation is pulled in.

5,065,245

MODULAR IMAGE SENSOR ARRAY

Edward Carnall, Jr., Rochester; Robert L. Nielsen, Pittsford, and Ozimek Edward J., Penfield, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 30, 1990, Ser. No. 516,991
Int. Cl.[5] H04N 5/335, 3/14
U.S. Cl. 358—213.11 18 Claims



1. A modular image sensor array comprising:

a plurality of tiles, each of said tiles including an image sensor on a surface thereof and each of said tiles including a support and a dielectric surface on the support; and

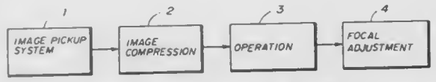
means for supporting the tiles such that said image sensors form a predetermined pattern, each of said tiles being in abutment with an adjacent tile on said supporting means and each of the tiles being configured such that the tiles form an interlocking pattern on the supporting means.

5,065,246

FOCUSING SYSTEM AND IMAGE INPUT APPARATUS HAVING AUTOMATIC FOCUSING SYSTEM WHICH USES DIGITAL PROCESSING

Hiroshi Takemoto, Yokohama; Noboru Murayama, Machida, and Kei Sato, Atsugi, all of Japan, assignors to Ricoh Company, Ltd., Japan

Filed Jul. 10, 1990, Ser. No. 550,431
Claims priority, application Japan, Jul. 24, 1989, 1-190804
Int. Cl.[5] H04N 5/232
U.S. Cl. 358—227 15 Claims



1. An automatic focusing system comprising:

an image pickup system for picking up an image and for outputting an image signal;

compression means for digitally compressing the image signal from said image pickup system and for outputting a compressed image signal;

operation means for obtaining focal information by carrying out a digital operation on the compressed image signal; and

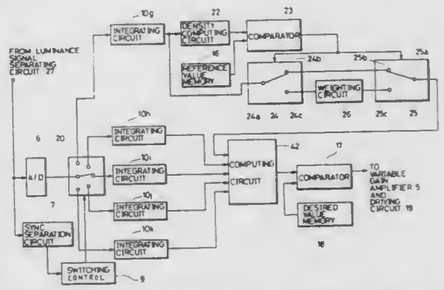
adjusting means responsive to the focal information for automatically adjusting a focal point of said image pickup system to an in-focus position.

5,065,247

AUTOMATIC IRIS CORRECTION APPARATUS FOR USE IN AUTOMATICALLY ADJUSTING EXPOSURE IN RESPONSE TO A VIDEO SIGNAL

Toshinobu Haruki, Shijonawate, Japan, assignor to Sanyo Electric Co., Ltd., Japan

Continuation of Ser. No. 294,866, Jan. 9, 1989, abandoned. This application Feb. 2, 1991, Ser. No. 657,621
Claims priority, application Japan, Jan. 12, 1988, 63-4344; Feb. 25, 1988, 63-43711
Int. Cl.[5] H04N 5/238, 3/14, 5/335
U.S. Cl. 358—228 6 Claims



1. An auto iris apparatus responsive to a video signal obtained from an image sensing means (1, 3, 4) for automatically adjusting exposure to an object, comprising:

means (2, 5, 19) for changing exposure to said object,

means (7, 9, 20) responsive to said video signal for providing in a time-divisional manner a plurality of sampling areas of an entire sensed image in said video signal,

exposure evaluating value detecting means (6, 10*g*, 10*h*, 10*i*, 10*j*, 10*k*), responsive to said plurality of sampling areas, for detecting a level of a luminance signal in the video signal in each of said plurality of sampling areas and for supplying the level as a first exposure evaluating value for the corresponding sampling area so as to form a plurality of first exposure evaluating values,

means (26, 42) for weighting with a predetermined first weight one of the first exposure evaluating values corresponding to a particular one of the sampling areas out of the first exposure evaluating values supplied from said exposure evaluating vale detecting means, weighting with a predetermined second weight smaller than said first weight each of the first exposure evaluating values corresponding to other ones of said sampling areas, and computing a second exposure evaluating value representing said entire sensed image based on the weighted first exposure evaluating values,

exposure control means, operative in response to said second exposure evaluating value and a predetermined value, for controlling said exposure changing means such that the second exposure evaluating value coincides with the predetermined value, and

means (16, 23, 24, 25) for changing the weight for weighting of the one first exposure evaluating value corresponding to said particular sampling area from said first weight to said second weight when the one first exposure evaluating value exceeds a predetermined allowable range.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,248

EXPOSURE CONTROL DEVICE

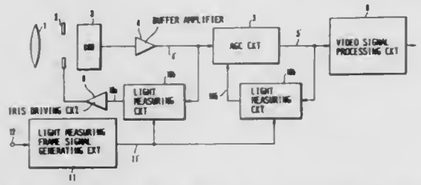
Hideo Homma, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 513,683, Apr. 24, 1990, which is a continuation of Ser. No. 312,962, Feb. 21, 1989. This application Feb. 5, 1991, Ser. No. 651,282

Claims priority, application Japan, Mar. 1, 1988, 63-047848

Int. Cl.[5] H04N *5/238*

U.S. Cl. 358—228 **50 Claims**



1. An exposure control device for performing exposure control on the basis of an image signal output from an image sensing means, comprising:

a) first exposure control means for keeping constant an average signal level of an image signal corresponding to a first detection area set on an image sensing plane; and

b) second exposure control means for compensating said first exposure control means according to an average signal level of an image signal corresponding to a second detection area set on the image sensing plane and different from said first detection area,

wherein a control response characteristic of said first exposure control means and that of said second exposure control means differ from each other.

5,065,249

PORTABLE VIDEO CAMERA/MONITOR SUPPORT

Donald N. Horn, Cold Spring Harbor, and Bern Levy, Northport, both of N.Y., assignors to Vicon Industries, Inc., Melville, N.Y.

Filed Sep. 26, 1988, Ser. No. 249,609

Int. Cl.[5] H04N *5/30*

U.S. Cl. 358—229 **13 Claims**



1. In combination;

a rigid elongated member having a portion accessible to an operator and a remote location at an extremity;

a video camera attached to said elongated member at said remote location; and

a video monitor attached to said elongated member at said portion accessible to said operator, said monitor positioned for viewing by said operator.

5,065,250

IMAGE PICK-UP APPARATUS

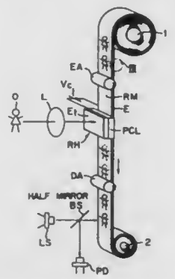
Itsuo Takanashi, Kamakura; Shintaro Nakagaki, Fujisawa; Tsutou Asakura, Yokohama; Masato Furuya; Tetsuji Suzuki, both of Yokosuka; Toshikatsu Ichitou, Kawasaki; Takashi Yamamura, Yokohama, and Hiromichi Tai, Yokosuka, all of Japan, assignors to Victor Company of Japan, Ltd., Yokohama, Japan

Continuation-in-part of Ser. No. 396,203, Aug. 21, 1989, Pat. No. 4,945,423, which is a continuation-in-part of Ser. No. 301,324, Jan. 24, 1989, Pat. No. 4,956,714, which is a continuation-in-part of Ser. No. 139,005, Dec. 29, 1987, Pat. No. 4,831,452. This application Jun. 22, 1990, Ser. No. 541,903

Claims priority, application Japan, Jun. 26, 1989, 1-163178

Int. Cl.[5] H04N *1/29, 5/80, 1/028, 5/30*

U.S. Cl. 358—300 **3 Claims**



1. An image pick-up apparatus comprising:

transfer means for transferring a recording medium in a downstream direction from one side of the pick-up apparatus to the other side of the apparatus;

a recording head for forming an electrostatic latent image on said recording medium from a two dimensional projected image focused on the head, said recording head comprising a lamination of a transparent electrode and a layer of photoconductive material;

projecting means for forming a two dimensional projected image from optical information of an object on said recording head;

erasing means positioned on an upstream side of said recording head for erasing said electrostatic latent image;

developing means positioned on a downstream side of said recording head for developing said electrostatic latent image, said developing means including toner applying means; and

developed image reading means located on a downstream side of said developing means for reading said developed image, said reading means having noise eliminating means for removing particle noise generated by toner particles.

5,065,251

METHOD AND APPARATUS FOR GRAPHICALLY MARKING AN AUDIOVISUAL RECORDING TO INDICATE OCCURRENCE OF AN OFFICIAL'S WHISTLE SIGNAL

Harvey A. Shuhart, Jr., 2100 Canterbury La., Jamison, Pa. 18929, and Jay S. Gerber, 811 Triumphe Way, Warrington, Pa. 18976

Filed Jul. 28, 1989, Ser. No. 387,089

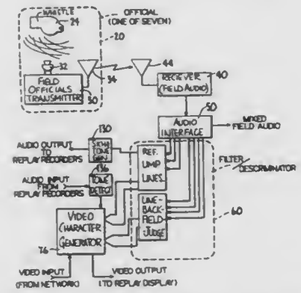
Int. Cl.[5] H04N *5/76*

U.S. Cl. 358—335 **20 Claims**

1. An apparatus for marking a recording of an event with an indication of an occurrence of a signal relating to the event, the recording being producible by means of a recording device having input means linked to a plurality of input devices monitoring the event in at least one sensory form and transmitting data therefrom, the apparatus comprising:

at least one input device for monitoring the event and transmitting data therefrom, and for detecting the signal;

means for producing an output in response to detection of the signal at each of said input devices; and,



an encoder producing a marker in the recording upon triggering by the output, the marker being prominently represented in at least one of audio and video media in a playback of the recording,

wherein the signal is an audible signal occurring at the event and the recording is an audiovisual record of the event, the marker being one of audible and a visible indication in the recording, and wherein the marker is clearly displayed upon playback of the recording.

5,065,252

METHOD AND APPARATUS FOR RECORDING AND REPRODUCING PICTURE INFORMATION ENABLING THE MIXING OF IMAGES OF A VIDEO FORMAT SIGNAL AND GRAPHIC CODES RECORDED ON A SINGLE RECORDING MEDIUM

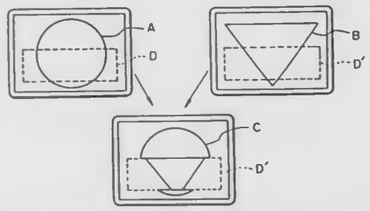
Junichi Yoshio; Sumio Hosaka; Hisao Matsuoka; Youichirou Tsuda; Shoichi Katagiri, all of Tokorozawa, and Satoru Nomura, Yamanashi, all of Japan, assignors to Pioneer Electronic Corporation, Tokyo and Pioneer Video Corporation, Yamanashi, both of, Japan

Filed Feb. 15, 1989, Ser. No. 310,749

Claims priority, application Japan, Feb. 29, 1988, 63-46605

Int. Cl.[5] H04N *5/76*

U.S. Cl. 358—335 **7 Claims**



4. An apparatus for playing a picture information recording medium on which are recorded a video format signal and a coded information signal, graphic codes including picture information being inserted as a subcode of said coded information signal, said graphic codes including mixing ration information, said apparatus comprising:

pickup means for reading signals recorded on said recording medium and generating a pickup output signal;

video format signal demodulating means for demodulating said video format signal from said pickup output signal;

memory means;

still picture video format signal producing means for producing a still picture video format signal by writing a portion of said video format signal corresponding to a predetermined period of said vide format signal into said memory means, and repeatedly reading a stored content of said memory means;

coded information signal demodulating means for demodulating said coded information signal from said pickup output signal;

graphic codes demodulating means for demodulating said graphic codes from an output signal of said coded information signal demodulating means;

means for generating signals corresponding to said graphic codes from an output signal of said graphic codes demodulating means; and

mixing means for mixing said signals based on said graphic codes with said picture video format signal in accordance with information of mixing ration information contained in said graphic codes.

5,065,253

DISK PLAYER WITH DISK TILT OR PICKUP POSITION RESPONSIVE NOISE REDUCTION

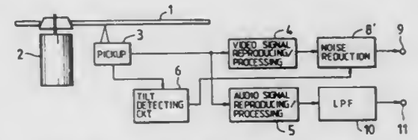
Hidehiro Ishii, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Dec. 23, 1988, Ser. No. 289,150

Claims priority, application Japan, Dec. 25, 1987, 62-331581; Feb. 15, 1988, 63-32111

Int. Cl.[5] H04N *5/91*

U.S. Cl. 358—340 **10 Claims**



1. A disk player for producing an information signal representative of information recorded on a disk, comprising:

an optical pickup device for reading said recorded information and generating said information signal, said optical pickup device being one which moves radially relative to said disk, selecting locations on said disk to be read, and which has an optical axis which intersects said disk;

position sensing means for developing a detection signal representing a position of said optical pickup relative to said disk, which detection signal is generally representative of the amount of cross-talk in said information signal; and

a noise reduction circuit means responsive to said information signal and said detection signal for removing cross-talk noise from said information signal to a degree dependent upon said detection signal.

5,065,254

FACSIMILE MACHINE AND FACSIMILE TRANSMISSION SYSTEM

Hiroshi Hishida, Atsugi, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Nov. 24, 1989, Ser. No. 440,652

Claims priority, application Japan, Dec. 6, 1988, 63-306875

Int. Cl.[5] H04N *1/01*

U.S. Cl. 358—400 **26 Claims**

1. A facsimile machine comprising:

scanning means for scanning a document to generate image data;

recording means for recording an image on a recording medium;

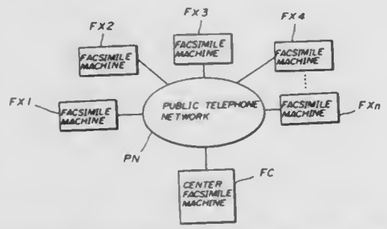
VOL 1132 ISS 2 NO 12 1991 UMI

communicating means, coupled to said scanning means and said recording means, for exchanging image data with a transmission line coupled to said facsimile machine;

first storage means for storing said image data supplied from said scanning means and supplied, through said communicating means, from a source facsimile machine coupled to said transmission line through a network;

second storage means for storing a plurality of programs each defining a procedure for relaying said image data supplied from said communicating means to at least one destination facsimile machine;

inputting means, coupled to said second storage means, for inputting said plurality of programs into said second storage means;



decision means, coupled to said communicating means, for determining which one of said plurality of programs is designated by said source facsimile machine by referring to a select signal supplied from said source facsimile machine through said communicating means; and

relay transmission executing means, coupled to said communicating means, said first and second storage means and said decision means, for relaying said image data supplied from said source facsimile machine and then stored in said second storage means to said destination facsimile machine in accordance with one of said plurality of programs which is selected by said source facsimile.

5,065,255

METHOD OF AND APPARATUS FOR SMOOTHING AN IMAGE HAVING A PERIODIC PATTERN

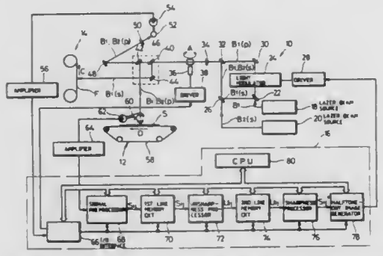
Hideaki Kimura, Kanagawa; Haruo Aoki, and Hiromi Yazawa, both of Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jun. 26, 1990, Ser. No. 543,525

Claims priority, application Japan, Jun. 27, 1989, 1-165607

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—447 **4 Claims**



1. A method for processing an image signal representing image information containing a periodic pattern comprising the steps of:

averaging the image information for removing periodic pattern components from said image signal to generate an unsharpness signal;

processing said unsharpness signal for edge sharpness to generate a sharpness signal; and

generating a halftone-dot image from said sharpness signal.

5,065,256

METHOD OF AND APPARATUS FOR PROCESSING IMAGE SIGNAL

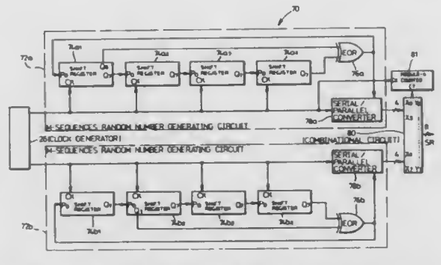
Atsushi Suganuma, and Kayoko Ohsaki, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 375,755, Jul. 5, 1989, abandoned, which is a continuation-in-part of Ser. No. 247,144, Sep. 21, 1988, abandoned. This application Apr. 19, 1991, Ser. No. 687,777

Claims priority, application Japan, Sep. 21, 1987, 62-238353; Oct. 5, 1987, 62-251952; Nov. 6, 1987, 62-281862

Int. Cl.[5] H04N *1/40*

U.S. Cl. 358—455 **4 Claims**



1. An apparatus for processing an image signal, wherein an original is fed in an auxiliary scanning direction and is scanned in a main scanning direction to produce said image signal, said apparatus comprising:

a digital comparator for comparing digital image data and graining reference data to produce grained image data; and

a random number generator for producing, as said graining reference data, digital random number data based on an M-sequences coding theory, wherein said random number generator comprises a random number generating circuit based on said M-sequences coding theory and an initial value presetting circuit for setting an initial value in said random number generating circuit, said random number generating circuit having an output port comprising an N-bit shift register (N=2, 3, 4, . . .), the arrangement being such that N-bit digital random data are updated each time a signal shift clock pulse is applied.

5,065,257

IMAGE PROCESSING APPARATUS WITH MEANS FOR COMPENSATING FOR DUST., ETC., ON AN ORIGINAL

Masanori Yamada, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 214,877, Jul. 5, 1988, abandoned, which is a continuation of Ser. No. 839,717, Mar. 14, 1986, abandoned. This application Sep. 18, 1990, Ser. No. 595,634

Claims priority, applicatioo Japan, Mar. 20, 1985, 60-57896; Mar. 20, 1985, 60-57897

Int. Cl.[5] H04N *1/38*

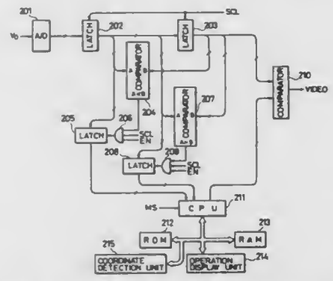
U.S. Cl. 358—463 **19 Claims**

1. An image processing apparatus comprising: reading means for reading an original image and for outputting an image signal representing the original image;

detecting means for detecting density levels of the original image from the image signal;

discriminating means for discriminating whether or not the density levels detected by said detecting means are within a predetermined density range;

selecting means for selecting density levels detected by said detecting means which are discriminated to be within the predetermined density range by said discriminating means;



processing means for processing the image signal from said reading means to produce a reproduction signal in accordance with the density levels selected by said selecting means; and

setting means for setting the predetermined density range.

5,065,258

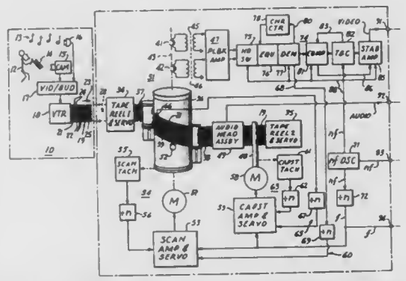
TRANSMITTING INFORMATION FROM PRODUCER TO END USERS THROUGH SLANT-TRACK TAPE-TO-TAPE COPYING AT HIGHER-THAN-STANDARD SIGNAL TRANSMISSION

Eugene D. Warren, Long Beach; Robert B. Pfannkuch, Manhattan Beach; William C. Laumeister, San Jose, and Louis L. Pourciau, Portola Valley, all of Calif., assignors to Rank Video Services America, Northbrook, Ill.

Continuation-in-part of Ser. No. 906,822, Sep. 12, 1986, abandoned. This application Sep. 23, 1988, Ser. No. 248,401

Int. Cl.[5] G11B *5/86*

U.S. Cl. 360—15 **87 Claims**



1. In a method of transmitting information from producer to end users without deliberate omission of information tracks, wherein said information is provided on a first recording medium for ultimate playback at a standard speed from a standard format in a series of tracks slanted relative to a direction of movement of the recording medium, with a predetermined standard number of playback heads correlated to said standard format, the improvement comprising in combination the steps of:

reproducing said information in the form of electric signals seriatim from said first recording medium at increased speed on the order of a multiple, n, of said standard speed; and

simultaneously rerecording said reproduced information from said electric signals seriatim in said standard format with series of tracks on several second recording media at said increased speed with recording heads of only said predetermined standard number for each of said second recording media, said second recording media being moved at a speed being n times a speed standard for said second recording media in said standard format and said heads being rotated at a speed being n times a head speed standard for said standard format, for replay of said rerecorded information by several end users at different times with said predetermined standard number of playback heads from said several recording media at standard speed.

5,065,259

MAGNETIC RECORDING AND/OR REPRODUCING APPARATUS

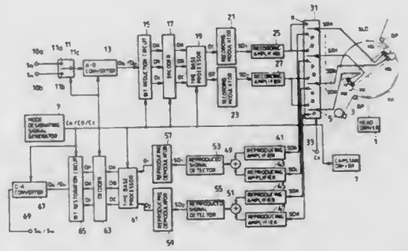
Yukio Kubota, and Keiji Kanota, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 31, 1989, Ser. No. 332,788

Claims priority, application Japan, Apr. 7, 1988, 63-85974

Int. Cl.[5] G11B *5/00, 5/01*

U.S. Cl. 360—32 **17 Claims**



1. A magnetic recording apparatus comprising:

an input terminal to which an information signal is applied;

encoding means for encoding the information signal supplied from the input terminal to one of plural kinds of digital data which have different transmission rates respectively;

time base processing means for selectively converting a time base of the digital data obtained from said encoding means so as to produce modified digital data having a predetermined transmission rate;

modulating means for producing a recording signal corresponding to the modified digital data obtained from said time base processing means;

recording means provided with a rotary magnetic head device to which said recording signal is supplied and tape guiding means for guiding a magnetic tape on which said recording signal is to be recorded and operative to cause said rotary magnetic head device to contact with the magnetic tape for forming oblique record tracks on the magnetic tape;

head driving means for rotating said rotary magnetic head device at a predetermined speed of rotation; and

tape driving means for causing the magnetic tape to run at a speed corresponding to the transmission rate of the encoded digital data obtained from said encoding means.

5,065,260

METHOD FOR RECORDING/REPRODUCING EXPANDED DIGITAL SIGNALS IN CONVENTIONAL FORMAT

Roger Lagadec, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Jan. 19, 1989, Ser. No. 300,028

Claims priority, application Japan, Jan. 22, 1988, 63-12254

Int. Cl.[5] G11B *5/09*

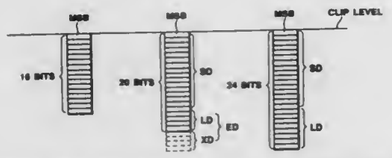
U.S. Cl. 360—32 **12 Claims**

1. A method of recording a digital signal on a recording medium, where the digital signal contains words of data having

VOL 1132 ISS 2 NO 12 1991 UMI

more bits than can normally be accommodated by the recording medium, comprising the steps of:

receiving a channel of digital data consisting of a plurality of data words each including standard data of m bits, where m is the maximum number of bits permitted per word by the recording density of the recording medium, and extension data of n bits;



dividing each said data word into said standard data and extension data; and

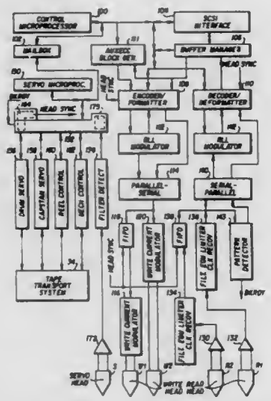
recording said standard data on one track on said recording medium and said extension data on another track on said recording medium.

5,065,261

METHOD AND APPARATUS FOR SYNCHRONIZING TIMING SIGNALS FOR HELICAL SCAN RECORDER

Timothy C. Hughes, Lafayette, and Steven P. Georgis, Boulder, both of Colo., assignors to Exabyte Corporation, Boulder, Colo.

Filed Nov. 9, 1989, Ser. No. 434,008
Int. Cl.[5] G11B *21/04*
U.S. Cl. 360—70 39 Claims



1. A method of developing a digital timing signal indicative of when a head of a helical scan recorder is positioned over a stripe of magnetic tape by a helical scan recorder, said helical scan recorder including a rotating drum carrying a head with magnetic tape being transported past said head, said method comprising:

(a) transporting said tape past said drum;

(b) rotating said drum with said head mounted thereon;

(c) attempting to recognize, with said head, a pattern of digital data recorded on said magnetic tape and determining when said pattern of digital data has been recognized; and,

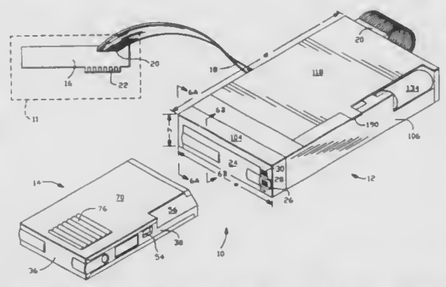
(d) using the determination of when said pattern of digital data has been recognized to determine at least a first edge of said digital timing signal.

5,065,262

REMOVABLE AND TRANSPORTABLE HARD DISK SUBSYSTEM

Richard J. Blackborow, Cupertino; Peter S. Hahn, Fremont; Claude E. Camp, Milpitas; Donald C. Westwood, Cupertino; Rodica Florea, San Jose; Eric J. Botto, Palo Alto; Scott E. Richmond, San Jose, and David B. Jeppson, Sunnyvale, all of Calif., assignors to Quantum Corporation, Milpitas, Calif.

Division of Ser. No. 278,006, Nov. 30, 1988. This application Sep. 21, 1990, Ser. No. 585,949
Int. Cl.[5] G11B *21/02*; G06F *13/00*
U.S. Cl. 360—75 21 Claims



1. Apparatus for controlling a disk drive data storage subsystem for use with a computing system, said data storage subsystem including a controller unit enabling connection of said subsystem to data, address and control buses of a host computing system, at least one base unit connected to said controller unit by a single cable, and a removable data storage module for plug-in connection with said base unit, said module including:

an enclosed module frame having a multi-contact plug-in connection means at a back endwall thereof,

an enclosed head and disk assembly shock mounted within said enclosed module frame and including a base, a spindle motor attached to the base for rotating at least one data storage disk at a predetermined angular velocity in response to disk rotation signals, and an electromechanical head transducer actuator structure for positioning at least one data transducer head at selected ones of multiple concentric data tracks of a data storage surface in response to track seeking signals and for maintaining the transducer head in alignment with a selected data track in response to track following signals, and wherein track location head positioning information generated within said assembly includes track following servo information prerecorded on the disk data storage surface and is readable in time-sampled arrangement by the data transducer head,

the base unit including:

a base unit frame defining an interior space for receiving said module therein, and multi-contact plug in connection means for mating with said plug-in connection means of said module when it is received therein,

base unit programmed microprocessor means connected through said plug-in connection means to said actuator structure and responsive to said track following servo information for commanding said structure to seek to a particular track location during track seeking and for commanding said structure to follow a particular track during track following,

the controller unit including:

host bus interface means for receiving commands and blocks of user data from said computing system via its buses and for sending subsystem status and blocks of user data from said storage disk of a said module to said computing system via its buses,

cache memory means for caching user data blocks received from and sent to said host computing system via said host bus interface means,

user data signal and clock path means between said controller unit and said base unit via said cable,

sequencer means connected through said user data signal and clock path means to said base unit for transferring blocks of user data between said cache memory means and said storage disk,

cache memory controller means for controlling addressing of said cache memory means,

controller microprocessor means connected to supervise said host bus interface means, said sequencer means, said cache memory controller means and said base unit microprocessor means in response to commands received from said host computing system via said buses and said host bus interface means,

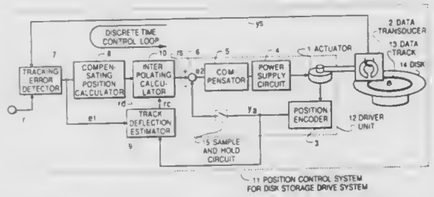
serial command and data path means directly connected between said base unit microprocessor means and said controller microprocessor means via said cable, said controller microprocessor means being programmed to generate head positioning command bytes and send said operational commands comprising command bytes to said base unit programmed microcontroller means via said serial command and data path means in response to commands received from said host computing system, said base unit microprocessor means being programmed to receive and acknowledge each command byte, decode and execute each operational command, and report status information to said controller microprocessor means via said serial command and data path means.

5,065,263

TRACK FOLLOWING TRANSDUCER POSITION CONTROL SYSTEM FOR A DISK STORAGE DRIVE SYSTEM

Shuichi Yoshida, Osaka; Noriaki Wakabayashi, Hirakata; Toshio Inaji, Minoo, and Hiromi Onodera, Nara, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 17, 1989, Ser. No. 353,334
Claims priority, application Japan, May 20, 1988, 63-124346; Oct. 17, 1988, 63-260815; Nov. 15, 1988, 63-287966
Int. Cl.[5] G11B *5/596*
U.S. Cl. 360—77.03 23 Claims



1. A position control system for a disk storage drive system including a data transducer of record and playback of information stored in a given data track of an information storage disk having a plurality of data storage tracks thereon, comprising:

an actuator means for actuating the data transducer to move the data transducer;

a position encoder means for detecting a variation in movement of the data transducer and producing a current position signal representing a current position of the data transducer;

a drive means for driving the actuator means in accordance with a reference position command signal and the current position signal;

a tracking error detector means for detecting a positional difference of the data transducer from a desired data track and producing a tracking error signal;

a track deflection estimator means for estimating a deflection of a track resulting from either eccentricity or undulation of the data track and generating a feed-forward signal on the estimation;

a discrete-time control loop means for controlling the drive means in accordance with the tracking error signal, including a compensating position calculator means for calculating a compensating position command signal from the tracking error signal and an interpolation calculator means for generating an interpolation signal which is applied to the drive means through interpolation with the feed-forward signal and the compensating position command signal; and

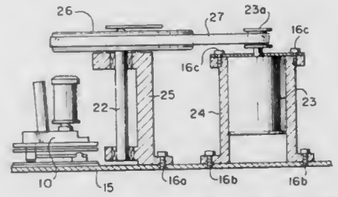
said track deflection estimator means including a first adder means for summing us the tracking error signal and the current position signal of the position encoder means, a memory means comprising a limited number of unit memories preliminarily containing track deflection estimation signals corresponding to outputs of the first adder means according to the rotation of the disk, a limited number of compensator means for receiving both a corresponding signal to an output of each unit memory and a corresponding signal to an output of the first adder means, and a second adder means for summing up corresponding signals to outputs of the plural compensator means so that it can output a corresponding signal to an output of the second adder means as a feed-forward signal.

5,065,264

CAPSTAN ARRANGEMENT FOR A MAGNETIC RECORDING/REPRODUCTION APPARATUS

Motonori Ohmori; Ikuo Nishida; Koji Iyota; Hidekazu Takeda; Masao Iwakura, and Tetsuo Itou, all of Katsuta, Japan, assignors to Hitachi, Ltd. and Hitachi Video Engineering, Inc., both of, Japan

Filed Feb. 1, 1990, Ser. No. 473,426
Claims priority, application Japan, Feb. 10, 1989, 1-029909
Int. Cl.[5] G11B *15/66*
U.S. Cl. 360—85 3 Claims



1. A magnetic record/reproducing apparatus comprising:

a chassis;

a rotary cylinder mounted on a side of said chassis;

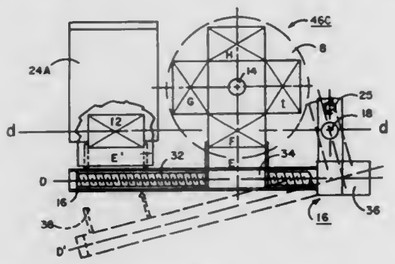
at least one guide base movably disposed around said rotary cylinder;

guide means for withdrawing a magnetic tape from a tape cassette, said guide means being mounted on said guide base for movement with the same to withdraw said magnetic tape from said tape cassette as said guide base is being moved, and to wind said magnetic tape around said rotary cylinder so as to define a predetermined passage through which said magnetic tape runs; and

a capstan mechanism of driving said magnetic tape to move the same, said capstan mechanism being completely disposed on the same side of said chassis on which said rotary cylinder is disposed and having a capstan extending toward said chassis to come into direct contact with said magnetic tape, and wherein said capstan mechanism comprises a flywheel which has a rotary shaft serving as said capstan and capstan motor means for rotating said flywheel.

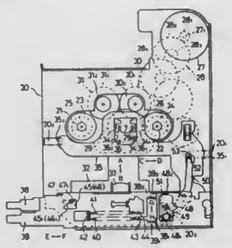
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,265
AUTOMATIC DATA STORAGE CARTRIDGE LIBRARY WITH A STORAGE CARROUSEL HAVING ROTATABLE SUB-CARROUSELS
Michel A. Pierrat, 2355 24th St., Boulder, Colo. 80304
Filed Mar. 19, 1990, Ser. No. 495,761
Int. Cl.[5] G11B *15/68*
U.S. Cl. 360—92 13 Claims



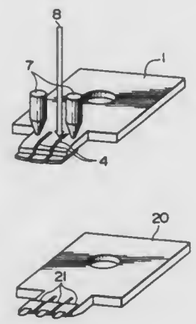
1. The combination comprising
a module for utilizing data storage cartridges,
a carrousel having storage spaces for a plurality of data storage cartridges and having a predefined storage-retrieval station,
first drive means for rotating said carrousel and stopping at any of a plurality of predetermined positions,
a robotic arm,
means supporting said arm for rotational movement about an axis parallel with and offset from the rotational axis of said carrousel,
second drive means for rotating said arm in a plane perpendicular to the plane of the rotational axis of said arm,
a carriage mounted for longitudinal movement along said arm and having gripper means for holding one of said cartridges,
third drive means for transporting said gripper means along the longitudinal axis of said arm between said storage-retrieval station and said module, and
means for opening and closing said gripper means.

5,065,266
ROTARY TRANSMITTING MECHANISM FOR AUTO-REVERSE TAPE RECORDER
Toshio Yoshimura, Tokyo, Japan, assignor to Tanashin Denki Co., Ltd., Tokyo, Japan
Filed Mar. 8, 1990, Ser. No. 490,721
Claims priority, application Japan, Mar. 13, 1989, 1-28255[U]
Int. Cl.[5] G11B *15/32*
U.S. Cl. 360—96.3 6 Claims



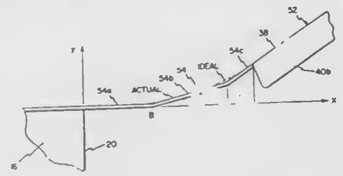
1. A rotary transmitting mechanism for use in an auto-reverse tape recorder, which comprises:
(a) a change-over gear supporting member movably supported by a head-mounting plate, the change-over gear supporting member being capable of restricted linear motion to a left or right position;
(b) a change-over gear rotatably supported by the change-over gear supporting member, the change-over gear being capable of simultaneously engaging a left transmission gear and a left reel gear when the change-over gear supporting member is in left position and simultaneously engaging a right transmission gear and a right reel gear when the change-over gear supporting member is in the right position;
(c) a change-over plate for controlling the winding direction of a tape, the change-over plate having a engaging portion capable of engaging with the change-over gear supporting member so as to enable the change-over gear supporting member to be moved to the left or right position.

5,065,267
MULTI-TRACK MAGNETIC HEAD HAVING DIFFERENT HEIGHT HEAD CHIPS
Hiroshi Yohda, Hirakata, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan
Filed Jul. 20, 1990, Ser. No. 554,928
Int. Cl.[5] G11B *5/48, 21/16, 15/60*
U.S. Cl. 360—104 2 Claims



1. A magnetic head comprising:
a head base including a plurality of divided front end parts;
a plurality of head chips respectively attached to the divided front end parts of said head base, said head base and said head chips attached thereto providing a front end surface of said magnetic head, said chips being positioned on said head base so as to be aligned respectively along a plurality of track directions, said track directions being adapted to be aligned with tracks on a recording medium traveling along said front surface, said divided front end parts being oriented lengthwise of said track directions, said plurality of head chips being displaceable relative to each other by bending said divided front end parts transversely relative to said track directions: and
a bonding material located between said plurality of divided front end parts to secure said divided front end parts relative to each other after they have been displaced relative to each other so as to align said plurality of head chips respectively with said track directions, whereby said head chips are held in accurate alignment with said tracks on the recording medium.

5,065,268
LOAD BEAM HAVING AN ADDITIONAL BEND IN A HEAD-GIMBAL ASSEMBLY
Tracy M. Hagen, Minnetonka, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.
Filed Dec. 22, 1989, Ser. No. 454,780
Int. Cl.[5] G11B *5/48*
U.S. Cl. 360—104 16 Claims

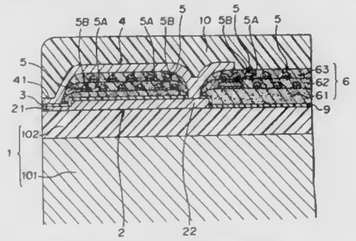


1. A load beam for coupling a gimbal to a support arm in a head-gimbal assembly, comprising:
a resilient section with a first end for attachment to the support arm and a second end, and having a plurality of preformed bends between the first and second ends wherein each preformed bend is perpendicular to a line that extends longitudinally between the first end and the second end and follows a surface of the load beam and wherein each preformed bend bends in approximately a same direction; and
a substantially rigid section having a first end coupled to the second end of the resilient section and a second end for attachment to the gimbal.

5,065,269

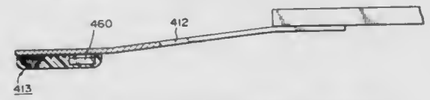
Patent Not Issued For This Number

5,065,270
THIN FILM MAGNETIC RECORDING HEAD WITH A LOW RESISTANCE COIL FORMED BY TWO PROCESSES
Tsutomu Koyanagi, and Fujimi Kimura, both of Tokyo, Japan, assignors to TDK Corporation, Tokyo, Japan
Filed May 17, 1990, Ser. No. 524,565
Claims priority, application Japan, May 17, 1989, 1-123373
Int. Cl.[5] G11B *5/17*
U.S. Cl. 360—123 1 Claim



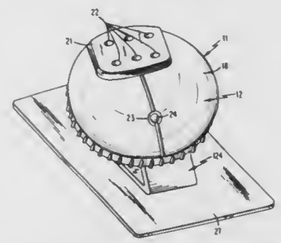
1. A thin film magnetic head, comprising:
a substrate having a flat horizontal surface;
an insulating film provided on said surface;
a first conductive coil embedded in said insulating film and a second conductive coil embedded in said insulating film above said first conductive coil, each coil including a plurality of windings, the windings of each coil being uniformly spaced apart and the windings of said second conductive coil being offset in the horizontal direction from the windings of said first conductive coil, each said winding having in cross-section a first part and a second part, said first part being generally trapezoidal in shape, said first part being defined in a photolithographic method, said second part being mounted on said first part and coextensive therewith, said second part having a curved convex upper surface formed by plating, said second part of said first coil being spaced from said first part of said second coil and insulated therefrom by said insulating film; and
magnetic films, said coils and said films constituting a thin film magnetic circuit.

5,065,271
THIN FILM MAGNETIC HEAD APPARATUS AND METHOD OF MANUFACTURING THE SAME
Tsukasa Matsuura; Jun Fujita; Manabu Uchizawa, and Shigehisa Suzuki, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 26, 1990, Ser. No. 484,796
Claims priority, application Japan, Feb. 28, 1989, 1-47021
Int. Cl.[5] G11B *5/31, 21/16*
U.S. Cl. 360—126 6 Claims



1. A thin film magnetic head apparatus, comprising;
(a) a suspension held by an arm;
(b) a thin film formed magnetic head formed directly on and in physical contact with a distal end of said suspension for storing data in a magnetic recording medium and reading the stored data from the magnetic recording medium;
(c) a head amplifier formed directly on and in physical contact with said distal end; and
(d) said magnetic head and head amplifier being located on the same surface of said suspension and being directly adjacent to each other.

5,065,272
AIR IONIZER
Charles W. Owen; Lance Ehren, both of Miami, and Frank J. Bianco, Pembroke Pines, all of Fla., assignors to Elexis Corporation, Miami, Fla.
Filed Jan. 9, 1991, Ser. No. 638,555
Int. Cl.[5] H01T *23/00*
U.S. Cl. 361—231 33 Claims



1. A portable personal air ionizer comprising a dielectric housing small and lightweight enough to be hand held and adapted to be positioned so it has generally upper and lower surfaces, the housing including a circuit for converting an input voltage into a negative high voltage having sufficient value to ionize air, the circuit having high voltage and ground terminals, plural electrodes having pointed ends connected to be responsive to the negative high voltage at the high voltage terminal, a ground plane electrode connected to the ground terminal, the housing further including an opening in proximity to each of the electrodes, the openings proximate the electrodes having pointed ends being on the upper surface, the opening proximate the ground plane electrode being on the

VOL 1132 ISS 2 NO 12 1991 UMI

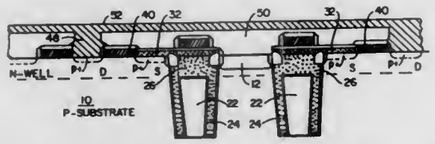
lower surface, the openings and electrodes being positioned and arranged and the voltage applied to the plural electrodes being such that negative ions flow from the openings proximate the plural electrodes into the air, the negative ions causing particulates to fall by gravity, the negative ions flowing from the openings on the upper surface into the air without a fan being in or associated with the housing; a stand for the housing causing the housing upper surface to be positioned above the housing lower surface; a pad for the particulates adapted to be placed on a horizontal surface, the stand having a horizontal lower surface supported by the pad so that the stand sits on the pad and the housing is located above the pad and the collected particulates fall by gravity onto the pad.

5,065,273

HIGH CAPACITY DRAM TRENCH CAPACITOR AND METHODS OF FABRICATING SAME

Thekkemadathil V. Rajeevakumar, Scarsdale, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Dec. 4, 1990, Ser. No. 622,257
Int. Cl.[5] H01G *4/06;* H01L *21/265;* H01C *29/78*
U.S. Cl. 361—313 27 Claims



1. A trench capacitor formed within an integrated circuit, comprising:

a substrate having a depression within a surface thereof; and

capacitor means formed within the depression, the capacitor means including a first plate electrode means having a surface area comprised of an inner surface area of the depression and an outer surface area of a pillar structure extending upwardly from a bottom surface of the depression, the pillar structure being physically and electrically contiguous with the substrate, the capacitor means further including a second plate electrode means comprised of a region of electrically conductive material that substantially fills a volume of the depression not occupied by the pillar structure, the capacitor means further comprising a thin layer of dielectric material interposed between the first plate electrode means and the second plate electrode means.

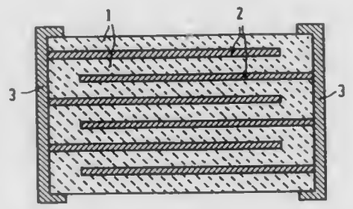
5,065,274

CERAMIC BODY OF A DIELECTRIC MATERIAL ON THE BASIS OF BARIUM TITANATE

Cornelis W. Berghout; Silvester J. J. Oostra, and Hendrik Damsma, all of Eindhoven, Netherlands, assignors to U.S. Philips Corp., New York, N.Y.

Filed Nov. 26, 1990, Ser. No. 618,344
Claims priority, application Netherlands, Nov. 27, 1989, 8902923
Int. Cl.[5] C04B *35/49;* C09K *1/60;* H01L *3/06*
U.S. Cl. 361—321 6 Claims

1. A ceramic body of a dielectric material on the basis of barium titanate, which material comprises a donor material, characterized in that said donor material comprises antimony and/or cerium in an overall quantity from 0.2 to 0.5 atom %,



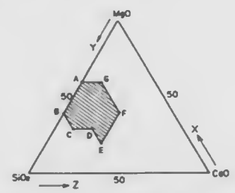
and in that the grain size of the dielectric material is smaller than 2 μm.

5,065,275

MULTILAYER SUBSTRATE WITH INNER CAPACITORS

Teruya Fujisaki; Katsuhiko Onitsuka; Yoshihiro Fujioka; Nobuyoshi Fujikawa; Masakazu Yasui, and Akira Hashimoto, all of Kokubun, Japan, assignors to Kyocera Corporation, Kyoto, Japan

Filed Sep. 27, 1990, Ser. No. 590,085
Claims priority, application Japan, Sep. 29, 1989, 1-256144; Jul. 17, 1990, 2-188875
Int. Cl.[5] C04B *35/46;* H05K *1/14;* H01G *4/10*
U.S. Cl. 361—321 14 Claims



1. A multilayer substrate with inner capacitors comprising a dielectric layer sandwiched between upper and lower insulating layers, a couple of printed electrodes in desired patterns within the thickness of the dielectric layer so as to form each capacitor at the portion of said dielectric layer corresponding to said electrodes, and a couple of leading terminals on one surface of said insulating layer, which communicate with said electrodes, said multilayer substrate being characterized in that said dielectric layer is composed of a ceramic composition mainly comprising $MTiO_3$-based ceramics (M represents one or several of Ba, Ca, Mg, La, Sr and Nd) and that said insulating layer is composed of a ceramic composition mainly comprising MgO-SiO_2-CaO-based ceramics, which is defined by an area surrounded by the lines connecting points A, B, C, D, E, F and G as shown in FIG. 1 and listed below, wherein X, Y and Z respectively represent weight percent values of MgO, SiO_2 and CaO at points A, B, C, D, E, F and G:

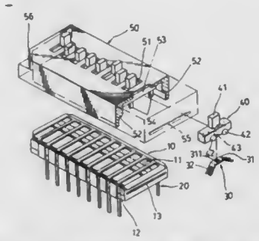
	X	Y	Z
A	60	40	0
B	40	60	0
C	30	60	10
D	30	50	20
E	20	50	30
F	40	30	30
G	60	30	10

5,065,276

TRI-STATE DIP SWITCH

Tien-Ming Chou, Taichung, Taiwan, assignor to Been-Chiu Liaw, Taiwan

Filed Jan. 29, 1990, Ser. No. 472,599
Int. Cl.[5] H05K *7/20;* H01H *15/00*
U.S. Cl. 361—380 8 Claims



1. A multi-state dual-in-line package (DIP) switch which includes:

a base having a plurality of transverse grooves;

a plurality of conducting pins attached to said base, at least two of which serves as a first state and a second state input terminal, respectively, said plurality of conducting pins each having one end adapted for connection to an external circuit board and another end forming a conducting strip on said plurality of transverse grooves;

a plurality of slide members for allowing said conducting pins to contact with said first and second state input terminals, each said slide member having a protrusion as its top;

a cover, to be engaged with said base, having a plurality of openings for receiving the outwardly extending portion of said protrusion of said plurality of slide members, said cover comprising a plurality of dividers transversely disposed on opposing sides of each of said plurality of openings at the inner top surface of said cover, and a plurality of axially and downwardly extending vertical posts extending from each said divider towards said base, whereby said vertical posts guide said sliding members moving from one switching state to another, wherein said base further comprises peripheral edges which are transverse to said plurality of transverse grooves to provide a welding surface for connecting said base to said cover; and

a plurality of conducting elements, each said conducting element comprising a pan with a central hole and a plurality of conducting legs extending longitudinally and inclining downwardly from said pan, each said slide member further comprising a bottom face protrusion adapted to engage with said central hole of said pan and a plurality of bottom side protrusions for preventing each said slide member from resting directly on said transverse grooves, while allowing said plurality of conducting legs of one said conducting element to contact one said transverse groove.

5,065,277

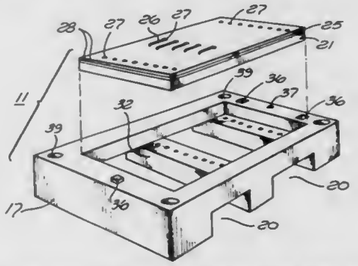
THREE DIMENSIONAL PACKAGING ARRANGEMENT FOR COMPUTER SYSTEMS AND THE LIKE

Howard L. Davidson, San Carlos, Calif., assignor to Sun Microsystems, Inc., Mountain View, Calif.

Filed Jul. 13, 1990, Ser. No. 553,521
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—383 2 Claims

1. In an arrangement for packaging planar arrays of circuit components, said arrangement including a substrate having circuit board means therein, with at least one layer of insulating material covering the circuit board means, and electrical connection means providing electrical connections on the upper surface of the layer of insulating material and around its periphery, and a plurality of conductors running through the substrate to bottom electrical connection means on the substrate and electrically joined to selected ones of the electrical connection means through the layer of insulating material to the circuit board means; an improvement comprising:

shell means of insulating material housing the substrate, the shell means having a lower surface with at least one slot cut into the lower surface allowing the circulation of



cooling agent, and an upper surface with a hollow indentation in the upper surface which receives the substrate;

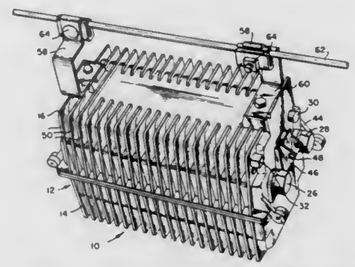
the shell further including rails, said rails including vertical conductors from the bottom to the top of the shell means, said rails further including means electrically joining the electrical connection means from the bottom surface of the substrate to the electrical connections on the upper surface of a next adjoining layer.

5,065,278

CAST HOUSING ENCASED CATV POWER SUPPLY UNIT

Jerry Schultz, Dadeville, Ala., assignor to Power Guard, Opelika, Ala.

Filed Jan. 29, 1990, Ser. No. 470,607
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—383 7 Claims



1. An encased primary power supply for CATV comprising,

a rigid metal housing having a pair of facing portions,

electrical power supply elements carried within one of said housing portions,

electrical connector port means in said housing,

means electrically connected said connector port means to said electrical power supply elements,

seal means between said housing portions,

means securing said housing portions together to sealably encase said power supply elements,

heat dissipating means carried by said housing,

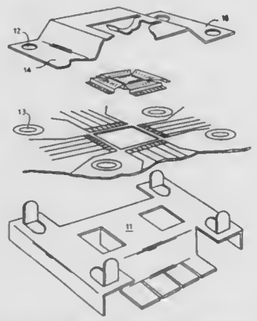
a said housing portion having a pedestal for receiving mounting bracket means secured thereto for mounting said power supply unit in service,

said pedestal including a flat upper surface for receiving said mounting bracket means thereon,

VOL
1132
ISS
2
NO
12
1991
UMI

and a pair of upstanding ribs on either side of said flat surface,
thereby to provide a rugged, encased, long-life and fully sealed power supply unit for CATV use.

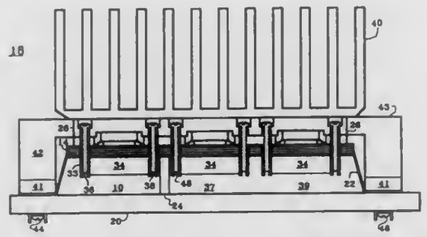
5,065,279
INTEGRAL PROTECTIVE ENCLOSURE FOR TAB OR SIMILAR DELICATE ASSEMBLY MOUNTED LOCALLY ON A FLEXIBLE PRINTED CIRCUIT BOARD
Kate Lazenby, and Allen R. Cox, both of Chandlers Ford, England, assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Aug. 16, 1990, Ser. No. 568,111
Claims priority, application United Kingdom, Sep. 9, 1989, 89204521
Int. Cl.[5] H05H *7/20*
U.S. Cl. 361—386 **10 Claims**



1. A flexible electrical assembly comprising:
a flexible circuit board (8) having an array of printed electrical connections thereon for interconnecting devices mounted on the circuit board;
a TAB device (3) mounted on a first surface of the flexible circuit board;
heatsink (9) having positioning and attaching means (11) which positions and mounts said heatsink on a second surface of said flexible circuit board, with said heatsink being in contact with said TAB device; and
a protective cover (7) positioned in spaced relationship with the TAB device, said protective cover having receptacles (12) therein for aligning with similar receptacles (13) in said flexible circuit board, said receptacles receiving the attaching means (11) which is fixed onto the protective cover to form a unified structure.

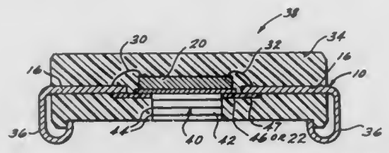
5,065,280
FLEX INTERCONNECT MODULE
Marcos Karnezos, Menlo Park; Ravindhar Kaw, San Jose; Lawrence Hanlon, Menlo Park, and Farid Matta, Mountain View, all of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.
Filed Aug. 30, 1990, Ser. No. 575,098
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—386 **7 Claims**

1. An electronic module, comprising:
heat spreader means;
a plurality of integrated circuit chips;
a chip interconnect frame in electrical contact with each chip;
a multilayer flexible conductor module in electrical contact with each chip interconnect frame;
a motherboard assembly in electrical contact with the flexible conductor module;
elastomer means compressed between the flexible conductor module and the chips; and
mounting means including an inflexible backing plate urging the flexible conductor toward the chips for maintaining



the chips in compression between the flexible conductor module and the heat spreader conductor.

5,065,281
MOLDED INTEGRATED CIRCUIT PACKAGE INCORPORATING HEAT SINK
Jorge M. Hernandez, Mesa, Ariz., and Scott Simpson, Woodstock, Conn., assignors to Rogers Corporation, Rogers, Conn.
Filed Feb. 12, 1990, Ser. No. 479,073
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—388 **16 Claims**

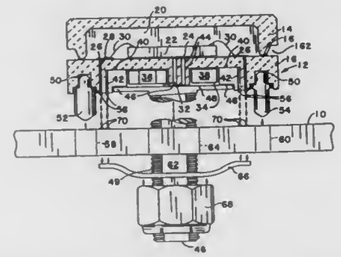


1. A molded integrated circuit (IC) package comprising:
lead frame means, said lead frame means including a plurality of conductive fingers arranged in a pre-selected pattern, said fingers each having a first end and a second end, said first ends of said fingers terminating at an inner space;
an integrated circuit support platform being positioned within said space in close proximity to said first ends of said fingers, said support platform having opposed first and second surfaces;
an integrated circuit chip on said first surface of said support platform, said integrated circuit chip being electrically connected to said first ends of said fingers;
heat sink plug means attached to said second surface of said support platform and thermally communicating with said integrated circuit chip for transferring heat away from said circuit chip;
a layer of electrically insulating material bonding said heat sink plug means to said conductive fingers of said lead frame means; and
molding material encapsulating said integrated circuit chip and heat sink plug means and at least part of said lead frame means.

5,065,282
INTERCONNECTION MECHANISMS FOR ELECTRONIC COMPONENTS
John D. Polonio, 625 NE. 22nd Ave., Canby, Oreg. 97013
Continuation-in-part of Ser. No. 170,444, Mar. 18, 1988, which is a continuation-in-part of Ser. No. 920,582, Oct. 17, 1986, abandoned. This application Dec. 1, 1989, Ser. No. 444,709
The portion of the term of this patent subsequent to Dec. 5, 2006, has been disclaimed.
Int. Cl.[5] H05K *1/18*
U.S. Cl. 361—399 **14 Claims**

1. In combination, an electronic circuit component and a

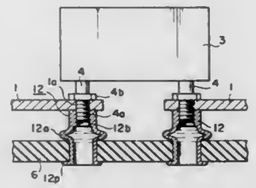
device for carrying at least one electronic circuit component and for electrically connecting it to a plurality of conductors of an electrical circuit, comprising:
(a) an electrically insulative base member including and insulating from each other a plurality of electrical conductors, said base member having an upper side and an oppositely located contact side;
(b) support means defining at least one cavity on said upper side of said base member, for physically receiving at least one electronic circuit component, an upper surface of said upper side of said base member having a plurality of contact pads located thereon within said cavity in a predetermined array, at least some of said contact pads being electrically connected with respective ones of said electrical conductors;
(c) at least one electronic circuit component located on said support means, said electronic circuit component having a plurality of electrical contacts located thereon in an array complementing said contact pads of said predetermined array and at least some of said contacts being physically in



contact with and electrically interconnected with respective ones of said contact pads;
(d) a resilient spring member located in said cavity above said electronic circuit component;
(e) a force spreader interposed between said spring member and said electronic circuit component;
(f) a lid fixedly attached to said upper side of said base member, closing said cavity and compressing said spring member, and urging said contacts of said electronic circuit component into contact with said contact pads within said cavity; and
(g) a plurality of physically compliant electrical contacts arranged in a predetermined array on said contact side of said base member, at least some of said compliant contacts being connected with respective ones of said electrical conductors, and at least some of said electrical conductors extending from said contact side of said base member through said base member and being electrically connected with respective ones of said contact pads within said cavity.

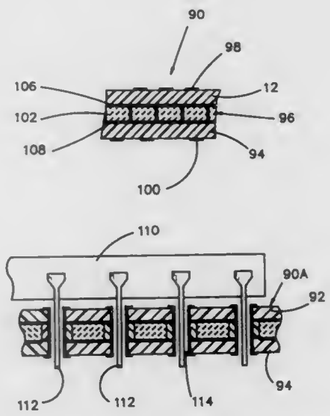
5,065,283
PRINTED CIRCUIT BOARD WITH BUSBAR INTERCONNECTIONS
Einosuke Adachi; Takashi Takahama; Hiroyuki Nakajima, all of Amagasaki; Tutomu Kazama; Satoru Hayashi, both of Nagoya, and Kikuo Sakita, Sagamihara, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan
Filed Jun. 12, 1990, Ser. No. 536,710
Int. Cl.[5] H01R *9/00*
U.S. Cl. 361—407 **5 Claims**

1. A circuit board comprising:
a board made of an electrically insulating material having a printed circuit pattern formed thereon, the board having through holes formed therein;
hollow cylindrical fixture members made of an electrically conductive material, each extending through one of the through holes of the board and having a flange and a radially outwardly bent portion such that each fixture member is secured to the board held between the flange and the radially outwardly bent portion thereof, wherein each one of the fixture members comprises a nut portion at one axial end portion thereof which has a female thread formed on an inner surface thereof; and
elongated rectangular plate-shaped busbars made of an elec-



trically conductive material for carrying a large current therethrough, each busbar having through holes through each of which a bolt member made of an electrically conductive material extends to engage with the female thread of the nut portion of the fixture member, the busbars thereby being secured to the fixture member by means of the bolt members.

5,065,284
MULTILAYER PRINTED WIRING BOARD
Jorge M. Hernandez, Mesa, Ariz., assignor to Rogers Corporation, Rogers, Conn.
Continuation-in-part of Ser. No. 226,619, Aug. 1, 1988. This application Dec. 29, 1988, Ser. No. 291,531
The portion of the term of this patent subsequent to Mar. 13, 2007, has been disclaimed.
Int. Cl.[5] H05K *1/11*
U.S. Cl. 361—414 **13 Claims**

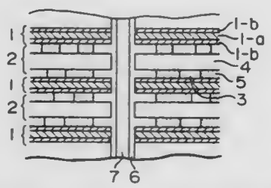


1. A multilayer circuit board comprising:
a first layer of insulating material having opposed first and second surfaces;
a second layer of insulating material having opposed first and second surfaces;
a first conductive layer on at least a portion of said first surface of said first layer of insulating material;
a second conductive layer on at least a portion of said first surface of said second layer of insulating material;
at least one high dielectric flexible sheet between said second surfaces of said first and second layers of insulating material, said high dielectric flexible sheet including;

VOL 1132 ISS 2 NO 12 1991 UMI

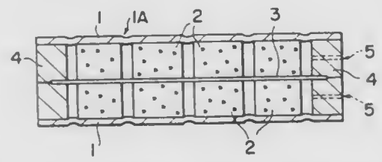
(a) an array of spaced high dielectric chips arranged in a single layer, each of said chips having side, top and bottom surfaces;
(b) a flexible polymeric binder between said side surfaces of said chips and binding said chips to define a cohesive sheet having opposed first and second planar surfaces with said top and bottom surfaces of said chips being exposed on said respective first and second surfaces, said binder being selected from the group consisting of flexible thermoplastics and flexibilized thermosets;
(c) a first metallized layer defining a first voltage level plane on said first planar surface; and
(d) a second metallized layer defining a second voltage level plane on said second planar surface.

5,065,285
MULTI-LAYER CIRCUIT BOARD, METHOD OF MANUFACTURING THE SAME AND APPLICATION THEREOF
Akira Nagai; Katuo Sugawara, both of Hitachi; Masahiro Suzuki, Iwaki; Junichi Katagiri, Ibaraki, and Akio Takahashi, Hitachiota, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Mar. 7, 1990, Ser. No. 489,549
Claims priority, application Japan, Mar. 10, 1989, 1-056488
Int. Cl.[5] H05K *1/11*
U.S. Cl. 361—414 **6 Claims**



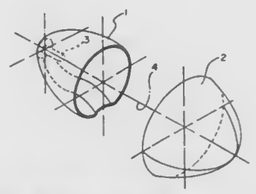
1. A multi-layer circuit board, comprising a plurality of layer members each including an insulating board having a conductive layer on at least one of two opposing surfaces thereof, said conductive layer being in the form of a circuit which is substantially flattened, films interposed between said layer members, each of said films comprising a plurality of layers including a layer of an organic substance to which varnish is impenetrable and adhesive layers disposed on respective opposite surfaces of the organic substance said adhesive layers having a melting point lower than a temperature for laminating said members and films to form said multi-layer circuit board, said films and layer members being laminated to one another in said multi-layer circuit board.

5,065,286
ELECTRICAL DOUBLE-LAYER CAPACITOR
Ken Kurabayashi, Chigasaki; Seiichiro Kitou, Ayase; Yoshinobu Tsuchiya, Fujisawa, and Yoriaki Niida, Yamato, all of Japan, assignors to Isuzu Motors Limited, Tokyo, Japan
Filed Oct. 29, 1990, Ser. No. 604,507
Claims priority, application Japan, Jan. 30, 1990, 2-19948
Int. Cl.[5] H01G *9/02*
U.S. Cl. 361—502 **1 Claim**



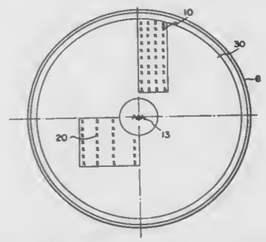
1. An electrical double-layer capacitor characterized in that small holes, which can be sealed after the draw of the internal air, is provided in members for separating the inside of the capacitor from the outside.

5,065,287
METHOD OF PRODUCING AN OPTICALLY EFFECTIVE ARRANGEMENT, IN PARTICULAR FOR APPLICATION WITH A VEHICULAR HEADLIGHT
Ulrich Staiger, Stuttgart; Joseph Strobel, Winterbach, both of Fed. Rep. of Germany, and Peter E. Castro, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
PCT No. PCT/EP88/00196, § 371 Date Sep. 6, 1989, § 102(e) Date Sep. 6, 1989, PCT Pub. No. WO88/07155, PCT Pub. Date Sep. 22, 1988
PCT Filed Mar. 11, 1988, Ser. No. 415,228
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1987, 3707751; Apr. 25, 1987, 3713867
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—61 **7 Claims**



1. A vehicular headlight comprising:
an optically effective arrangement having one reflective surface,
a light source related to an optical axis which extends in alignment with the optically effective arrangement, characterized in that said reflective surface shows axial asymmetry over its entire axial length, said surface having a shape defined by a mathematical expression that is continuous and that has continuous first and second derivatives everywhere on said surface and such that the beam of light reflected by said reflective surface distributes the light of said light source according to the distribution of the light pattern desired by optimally utilizing the light emitted by the light source.

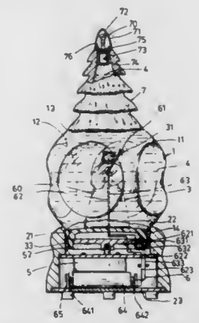
5,065,288
DIMMABLE HEADLIGHT
Hartmut Bröggelwirth, Lippstadt, Fed. Rep. of Germany, assignor to Hella KG Hueck & Co., Fed. Rep. of Germany
Filed Dec. 13, 1990, Ser. No. 627,215
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1989, 3941615
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—61 **17 Claims**



1. In a dimmable headlight for a motor vehicle having a parabolic shaped reflector and an incandescent bulb having an elongated glow filament for dimmed light which, in a mounted position of the headlight, extends approximately horizontal along its length axis approximately square to an optical axes of the headlight approximately at a focus point of the reflector, so that light bundled by the reflector causes a light figure on a vertical wall placed in front of the reflector which, at least a central portion thereof, is positioned below a horizontal middle plane of the reflector and is displaced from a side of a vertical plane of the reflector facing away from oncoming traffic, said headlight further having a light-transmissive shield covering a light reflecting surface of the reflector whose optical characteristics are such that it diverts light reflected from the reflector to produce a light figure having a bright-dark border which, in an area of a driving lane for the motor vehicle, is at a higher level than in an area of an oncoming traffic lane, the improvement wherein:
the light-transmissive shield has upper and lower prism-like zones with generally rectangular shapes, the upper zone lying substantially above and the lower zone lying substantially below the horizontal middle plane of the reflector with both zones being approximately bordered by the vertical middle plane, the upper zone extending from the vertical middle plane toward oncoming traffic while the lower zone extends toward the other side with its upper edge being approximately bordered by the horizontal middle plane of the reflector, the upper and lower zones each respectively including optical means for directing light beams passing through these zones onto a partial area of the light figure which extends to a higher level than that portion of the bright-dark border caused by light passing through the remainder of said light transmissive shield.

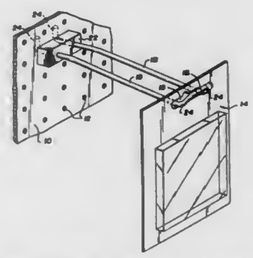
5,065,289
DISPLAY DEVICE HAVING MAGNIFYING AND CONTRACTING IMAGES
Hsieh-Yi Teng, c/o Hung Hsing Patent Service Center P.O. Box 55-1670, Taipei, Taiwan 10477
Filed Nov. 19, 1990, Ser. No. 615,344
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—101 **4 Claims**

1. A display device comprising:
a crystal ball made of transparent material having a plurality of concave portions and a plurality of convex portions respectively formed on a surface of said crystal ball, each said convex portion surrounded by a plurality of said concave portions adjacent to said convex portion;
a base having a central hole for mounting a neck portion formed on a lower portion of said crystal ball and an annular extension formed on a top portion of said base for rotatably supporting said crystal ball;
an inner decorative means held in said crystal ball having a decorative feature mounted on a packing disk sealing an opening of said neck portion of said crystal ball and having a first bulb shade formed on said decorative feature;
a driving means selected from a spring system of a musical box and an electric motor fixed in said base having a shaft for rotating said disk of said decorative feature and said ball; an illuminating means having a first bulb held in said first bulb shade electrically connected to a power source for illuminating said first bulb;



an upper decorative means integrally formed on an upper portion of said crystal ball having a top plug removably sealing a top opening formed in said upper decorative means; and
water filled in said crystal ball through said top opening when removing said top plug for forming a concave lens at each said concave portion and a convex lens at each said convex portion capable of forming a contracted image and a magnified image of said decorative feature of said inner decorative means when respectively viewed from each said concave portion and said convex portion.

5,065,290
ILLUMINATED DISPLAY
Marko Makar, 7-7883 Knight Street, Vancouver, British Columbia V5P 2X5, Canada, and Michael Makar, 8566-164th Street, Surrey, British Columbia V3S 3W9, Canada
Filed Feb. 14, 1989, Ser. No. 310,342
Int. Cl.[5] A47B *97/00*
U.S. Cl. 362—132 **13 Claims**



1. An illumination display for mounting to a support surface comprising, in combination:
a base for supporting wares to be sold, the base being removably received on a pair of electrically conducting members;
said support surface comprising a perforate board and said

VOL 1132 ISS 2 NO 12 1991 UMI

electrically conducting members comprise a pair of prongs adapted to be received on said perforate board to extend outwardly, downwardly from said board and shaped at one end to be located in the perforations in said board;

a pair of contacts on the base, one to make electrical contact with each electrically conducting member;

a circuit formed on the base;

illumination means on the base in electrical contact with the circuit, whereby completion of the circuit by the pair of contacts lights the illumination means.

5,065,291

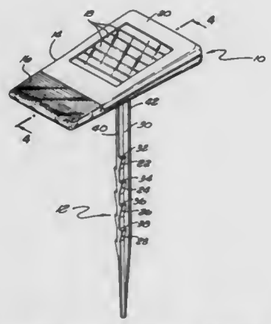
MARKING LIGHT

John S. Frost, Thousand Oaks; Mark R. Erickson, Oxnard; Kimberly E. Seegan, Agoura Hills, and Brent P. Boyer, Moorpark, all of Calif., assignors to Atlantic Richfield Company, Los Angeles, Calif.

Filed Aug. 11, 1989, Ser. No. 392,508

Int. Cl.[5] F21L *7/00*

U.S. Cl. 362—183 8 Claims



1. A photovoltaic powered outdoor marking light comprising:

a low voltage light source, wherein said light source is a high intensity light emitting diode;

a self-contained photovoltaic electrical power source coupled to said light source to automatically provide electrical power for illuminating said light source when ambient light falls below a predetermined level;

a lens means disposed closely coupled to said light source for diffusing light emanating from said light source; and

a housing means for receiving said light source, said power source and said lens means, said lens means including a first surface thereof extending exteriorly of said housing means for delineating an outdoor area when said light source is emitting light, said first surface of said lens means being textured to promote internal reflection of light within said lens.

5,065,292

APPARATUS FOR CONVERTING A LIGHT FIXTURE FROM INCANDESCENT TO FLUORESCENT

Truman R. Aubrey, 1472 Beandry Blvd., Glendale, Calif. 91208

Filed May 7, 1990, Ser. No. 521,848

Int. Cl.[5] F21S *7/00*

U.S. Cl. 362—260 17 Claims

1. A retrofit light fixture conversion system comprising,

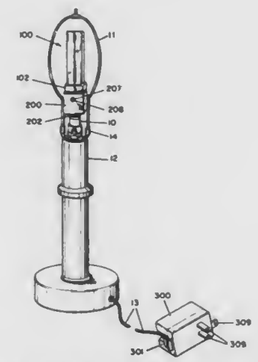
a light fixture,

said light fixture includes a lamp cord and a threaded socket for receiving a screw base of a light bulb,

a fluorescent lamp,

adapter means for mounting said fluorescent lamp in said light fixture,

said adapter means includes a screw base which mates with said threaded socket, and



ballast means connected to said lamp cord of said light fixture so that said fluorescent lamp is selectively rendered operable.

5,065,293

HEADLAMP FOR AUTOMOBILES

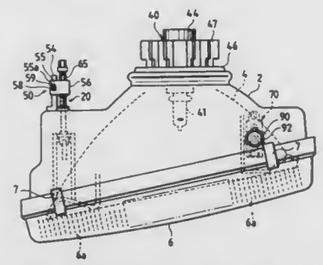
Hideharu Mochizuki, Shizuoka, Japan, assignor to Koito Manufacturing Co., Ltd., Tokyo, Japan

Filed Mar. 22, 1991, Ser. No. 673,548

Claims priority, application Japan, Mar. 23, 1990, 2-72199; Nov. 30, 1990, 2-334383

Int. Cl.[5] F21V *21/26*

U.S. Cl. 362—273 15 Claims



1. A movable tilting-member type automotive headlamp in which the irradiating angle of the headlamp is adjusted with a tilting member provided with a light reflecting surface for setting the irradiating direction of the lamp, the tilting member being supported at three points including one swing support part supported on a base member, a rightward-leftward direction aiming screw penetrating through the base member in the forward-rearward direction and supported by said base member, and an aiming screw for the upward-downward direction, said tilting member being moved in the upward-downward direction and in the rightward-leftward direction in relation to the said base member by rotating said aiming screws, wherein the improvement comprises an inclination measuring device, disposed between said base member and a portion of said rightward-leftward direction aiming screw protruding into a rear area behind said base member, for measuring the rightward-leftward inclination of the said tilting member, said inclination measuring device comprising:

a guide member supported on said base member and extending approximately in parallel with said protruding portion of said rightward-leftward direction aiming screw;

a sliding member threadedly engaged with said protruding portion of said rightward-leftward direction aiming screw such that said sliding member slides relative to said guide member as said rightward-leftward direction aiming screw is rotated; and

scale means for indicating an amount of relative displacement between said guide member and said sliding member.

5,065,294

FITTING FOR HORTICULTURAL LIGHTING

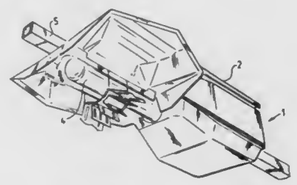
Jacob Poot, Jr., Schiedam, Netherlands, assignor to Poot Lichtenergie B.V., Schipluiden, Netherlands

Filed Jan. 13, 1989, Ser. No. 296,793

Claims priority, application Netherlands, Jan. 22, 1988, 88.00149

Int. Cl.[5] F21V *7/00*

U.S. Cl. 362—346 11 Claims



1. A horticultural lighting fixture comprising, in combination, a housing unit for electrical connecting means and a lamp mounted in the housing unit and having a free end portion projecting from one end of the housing unit, a first reflector unit separate from the housing unit and spaced therefrom to overlie said free end portion of said lamp, and connecting means for detachably joining the housing unit and the first reflector unit in horizontally suspended, end-to-end relation.

5,065,295

LIGHTING SYSTEM FOR ADVERTISING PURPOSES

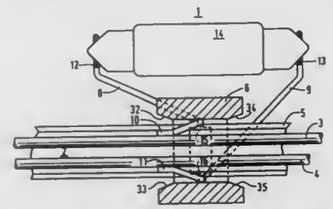
Cornelis F. de la Haye, Den Haag, Netherlands, and Cornelis H. Van Amen deceased, late of Eindhoven, Netherlands by Elisabeth A. G. van Alumen-van Alst, executor , assignors to Janse Lichtreklame B.V., Hurksestraat, Netherlands

Filed Jan. 5, 1990, Ser. No. 461,205

Claims priority, application Netherlands, Jan. 20, 1989, 8900135

Int. Cl.[5] F21Y *21/34*

U.S. Cl. 362—391 13 Claims



1. Lighting system particularly for advertising purposes, characterized in that the lighting system includes a cable with internal electrical conductors, said cable including a longitudinal opening for each conductor and providing access from outside said cable to said conductor so that the conductors are at least partly freely accessible, at least one holder with clamping means for detachably clamping the holder around the cable by means of the clamping means, and a lamp holder detachably provided on the holder, said lamp holder being in electric contact with the electric conductors through said longitudinal openings, in the assembled condition of the lighting system.

5,065,296

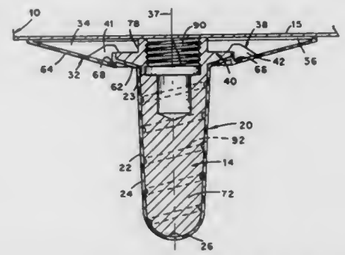
HANDLE AND COVER FOR POSITIONABLE LIGHTING FIXTURE

John M. Code, Portland, Tenn., assignor to DeRoyal Industries, Inc., Powell, Tenn.

Filed Mar. 20, 1991, Ser. No. 672,379

Int. Cl.[5] F21L *15/12*

U.S. Cl. 362—399 17 Claims



1. In a lighting fixture which is movable by means of an elongated handle projecting therefrom, the improvement comprising a substantially rigid circumferential shoulder disposed on and extending generally radially from said handle at a location adjacent said fixture, means defining lip means on said shoulder, and cover means for the handle including an elongated tubular portion which is closed at one end and open at its opposite end to define a perimeter, circumferential flange means projecting generally radially outwardly from said perimeter of said open end, latch means carried by said flange means at a location thereon whereby said latch means is in position to engage said lip means when said tubular portion of said cover means is received by said elongated handle and said latch means is urged toward said circumferential shoulder.

5,065,297

STUDY LAMP

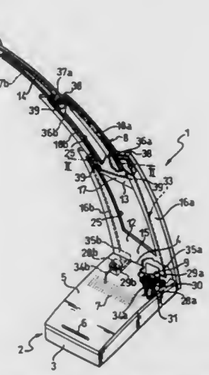
Angelo Santambrogio, Milan, Italy, assignor to PAF S.r.l., Italy

Filed Jan. 16, 1990, Ser. No. 464,887

Claims priority, application Italy, Sep. 19, 1989, 21760 A/89

Int. Cl.[5] F21S *1/12*

U.S. Cl. 362—413 11 Claims

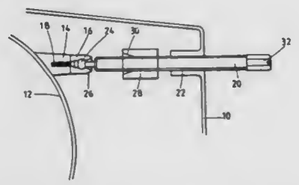


1. A study lamp comprising a base, a boom having one end connected to the base by means of a hinge and the other end holding a bulb socket, and an electrical connection between the base and the bulb socket, characterized in that the boom has in a cross-section a thin plate-like profile, said boom includ-

VOL 1132 ISS 2 NO 12 1991 UMI

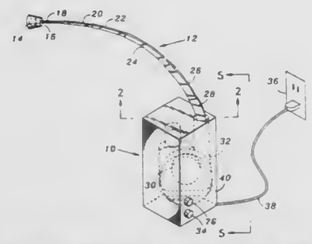
ing plate-like elements which are in sliding fit inside one another to provide for telescoping extension of said boom.

5,065,298
LAMP ASSEMBLY
Graham S. Osborn, Brownhills, England, assignor to Carello Lighting plc, Straffordshire, England
Filed Nov. 27, 1990, Ser. No. 618,718
Claims priority, application United Kingdom, Dec. 5, 1989, 8927485.6
Int. Cl.[5] F21V *17/02*
U.S. Cl. 362—421 3 Claims



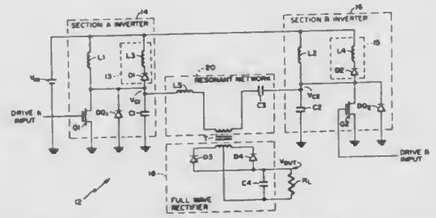
1. A lamp assembly comprising a support (**10**), a lamp reflector body (**12**), and mounting means adjustably mounting the reflector body (**12**) on the support (**10**), said mounting means including a socket (**16**) carried by the reflector body (**12**) and an adjusting screw (**20**) rotatably mounted on the support (**10**), said adjusting screw (**20**) having a part-spherical end (**24**) which is a snap fit in the socket (**16**), characterized in that means (**28**) are provided for limiting opening of the socket (**16**), said limiting means (**28**) comprising a limiting member (**28**) slidably mounted on the adjusting screw (**20**) and being adapted to be in engagement with said socket (**16**) when the adjusting screw (**20**) has moved beyond a predetermined position in a direction tending to separate the part-spherical end (**24**) from the socket (**16**) and said limiting member (**28**) being in abutment with the support (**10**) when the adjusting screw (**20**) is in said predetermined position.

5,065,299
POWER EXTENDABLE LAMP
Dennis A. Cohen, 6404 Wilshire Blvd., #500, Los Angeles, Calif. 90048
Filed Mar. 22, 1991, Ser. No. 674,780
Int. Cl.[5] F21S *1/10*
U.S. Cl. 362—431 21 Claims



1. An extendable electric lamp comprising a base, a telescopic stem operatively extendable between a contracted position at least partly towards the base and an extended position, a light source mounted adjacent the top of the stem, an electric motor and means operable by the motor for extending the stem between the contracted position and extended position, an electrical conductor means longitudinally disposed with the stem and having a lower portion in the base, an upper portion of the conductor means being electrically connected to the light source, a terminal in the base for electrical connection to a power supply, the lower portion of the conductor means having a part connectable with the terminal, means for connecting the power supply to the motor, and means for selectively causing the motor to operate thereby to have the stem move between the extended and contracted positions and simultaneously cause the electric conductor means to extend or contract.

5,065,300
CLASS E FIXED FREQUENCY CONVERTER
Boris S. Jacobson, Plaistow, N.H., and Raymond A. DiPerna, Sherborn, Mass., assignors to Raytheon Company, Lexington, Mass.
Filed Mar. 8, 1991, Ser. No. 666,770
Int. Cl.[5] H02M *3/335*
U.S. Cl. 363—16 24 Claims

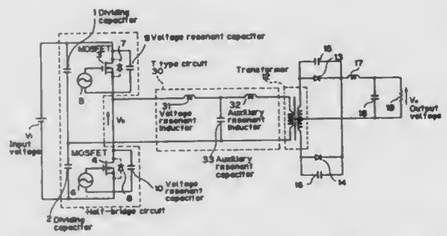


1. A Class E power converter operating in an optimum mode over a range of no load to full load comprising:
a DC power source (V_{IN});
first inverter means coupled to said DC power source for generating a positive half of a sinusoidal voltage in accordance with a first fixed frequency input signal, said first inverter means comprising a first network means for providing a fast discharge path for capacitance in said first inverter means;
second inverter means coupled to said DC power source for generating a negative half of said sinusoidal voltage in accordance with a second fixed frequency input signal, said second inverter means comprising a second network means for providing a fast discharge path for capacitance in said second inverter means; and
series resonant means coupled to said first inverter means output and said second inverter means output for providing a fundamental frequency of said generated sinusoidal voltage to an output load.

5,065,301
SWITCHING POWER SUPPLY
Masaki Shioya, and Masuo Hanawaka, both of Tokyo, Japan, assignors to Yokogawa Electric Corporation, Tokyo, Japan
Filed Jul. 5, 1990, Ser. No. 548,010
Claims priority, application Japan, Sep. 22, 1989, 1-246915; Dec. 26, 1989, 1-337344; Feb. 28, 1990, 2-47419; Apr. 23, 1990, 2-107136
Int. Cl.[5] H02M *3/28*
U.S. Cl. 363—17 9 Claims

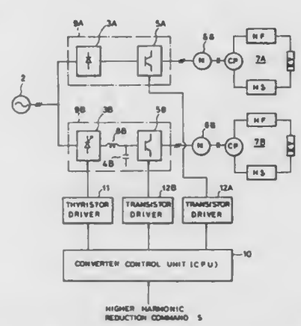
1. A switching power supply for controlling an output voltage to a constant value with respect to fluctuations in input or in load, comprising
a DC power supply having two ends;
two dividing capacitors connected in series to both ends of said DC power supply;
two semiconductor switches connected in series to both ends of said DC power supply;
a transformer comprising a primary winding having two ends and a secondary winding having two ends, one end of said primary winding being connected to a connecting point of said two dividing capacitors; and

a T type circuit comprising
two resonant inductors connected in series between a connecting point of said two semiconductor switches and another end of said primary winding, and



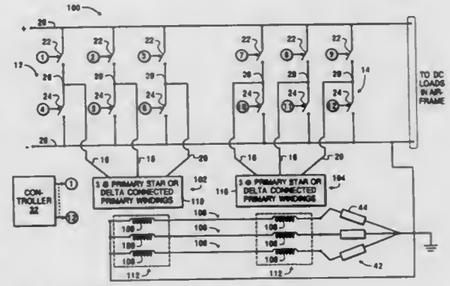
a resonant capacitor connected between a connecting point of said two resonant inductors and said other end of said primary winding.

5,065,302
ADJUSTABLE AC POWER SUPPLY EQUIPMENT FOR AIR-CONDITIONER SYSTEM
Hidetoshi Kanazawa, Fujinomiya, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Apr. 20, 1990, Ser. No. 512,173
Claims priority, application Japan, Jul. 28, 1989, 1-195949
Int. Cl.[5] H02M *5/42*
U.S. Cl. 363—37 8 Claims



1. Adjustable a.c. power supply equipment for an air-conditioner system comprising:
a first frequency converter comprised of a three-phase non-controllable rectifier and a first inverter to deliver load current to a first compressor motor of a first air-conditioner, said first inverter being an unfiltered inverter;
a second frequency converter comprised of a three-phased controllable rectifier and a second inverter to deliver load current to a second compressor motor of a second air-conditioner, said second inverter being a capacitor input voltage type inverter;
a common a.c. power supply for deliverying a.c. power to both said frequency converters;
first and second means for controlling said first and second inverters, respectively;
third means for carrying out phase-control of said controllable rectifier in order to reduce synthetic higher harmonic current of both said frequency converters as viewed from said a.c. power supply and for controlling said controllable rectifier at a phase angle of substantially 30 degrees.

5,065,303
TRANSFORMER-COUPLED AND PHASE-SHIFTED INVERTER
Vietson M. Nguyen, and Chai-Nam Ng, both of Rockford, Ill., assignors to Sundstrand Corporation, Rockford, Ill.
Filed Jul. 24, 1990, Ser. No. 556,452
Int. Cl.[5] H02M *7/48*
U.S. Cl. 363—40 25 Claims



1. A power system comprising:
a first inverter having a plurality of switches which are switched between on and off states by control signals applied to switch control terminals to produce at least one output phase;
a second inverter having a plurality of switches which are switched between on and off states by control signals applied to switch control terminals to produce at least one output phase;
a first transformer having a primary coupled to each output phase of the first inverter with a number of primary windings equal to a number of output phases produced by the first inverter and each primary winding of the first transformer being coupled to a different phase output of the first inverter and a secondary coupled only magnetically to the primary of the first transformer with a number of secondary windings being equal to the number of primary windings and each secondary winding being coupled to a different primary winding;
a second transformer having a primary coupled to each output phase of the second inverter with a number of primary windings equal to the number of output phases produced by the first inverter and each primary winding of the second transformer being coupled to a different phase output of the second inverter and a secondary coupled only magnetically to the primary of the second transformer with a number of secondary windings of the second transformer being equal to the number of primary windings of the second transformer and each secondary winding being coupled to a different primary winding;
a controller producing the control signals for the switches which cause a fundamental frequency of alternating current produced by each phase of the first inverter to be phase displaced from a corresponding fundamental frequency of alternating current produced by each phase of the second inverter by a predetermined phase displacement; and
a number of series circuits equal to the number of phases, each series circuit comprising secondary windings from a corresponding phase of each transformer coupled to a different phase output with a first terminal of each series circuit being coupled to a reference potential and a second terminal being a phase output for the power system.

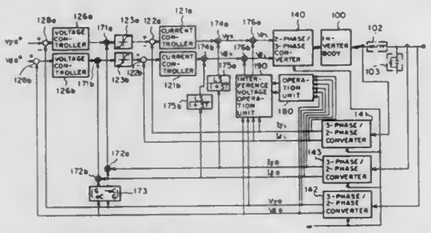
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,304

CONTROLLER FOR AC POWER CONVERTER

Shinzo Tamai, and Hidehiko Sugimoto, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 25, 1990, Ser. No. 557,237
Claims priority, application Japan, Jul. 28, 1989, 1-197521
Int. Cl.[5] H02M *7/68*
U.S. Cl. 363—95 **7 Claims**



7. A controller for an AC power converter, comprising:

detecting means for detecting a converter output current, an output bus voltage and a load current of a load connected to an output bus of said AC power converter through a filter, and outputting detected signals corresponding to each detected current and voltage, respectively;

voltage control means responsive to an input signal representing a deviation of a detected output bus voltage signal from a corresponding output bus voltage command signal, for developing a first deviation correction signal correcting said deviation;

current command value output means responsive to said detected output bus voltage signal, for estimating a current value to be applied to a capacitor of said filter, and adding together said current value, said detected load current signal, and said first deviation correction signal to form a current command signal;

current control means responsive to an input signal representing a deviation of a detected converter output current signal from said current command signal, for developing a second deviation correction signal correcting the deviation of said detected converter output current signal;

interference component output means for outputting an interference correction signal which represents an interference component caused by said capacitor and a reactor of said filter; and

adder means for adding together said second deviation correction signal and said interference correction signal to form a voltage command signal for controlling the output of said AC power converter.

5,065,305

ROTARY PHASE CONVERTER HAVING CIRCUITY FOR SWITCHING WINDINGS TO PROVIDE REDUCED STARTING CURRENT WITH RAPID, DEPENDABLE STARTING

Hubert F. Rich, Shelbyville, Ind., assignor to Arco Electric Products Corp., Shelbyville, Ind.

Filed Jun. 22, 1990, Ser. No. 542,035
Int. Cl.[5] H02M *5/32*
U.S. Cl. 363—150 **2 Claims**

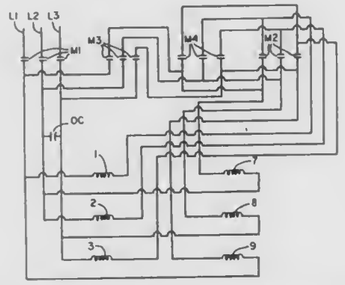
1. In a rotary dynamoelectric converter for converting single-phase, alternatinng current to three-phase, alternating current, said converter being of the type having three sets of windings wired in either delta or wye configuration, wherein each set of windinngs consists of two coils normally connected in parallel within the respective winding, said converter further having three leads connected to the delta or wye configurations, with two of the leads being connected to a source of single-phase alternating current and with a run capacitor connected between one of the first two leads and the third lead, such that three-phase current can be drawn from the three leads when the dynamoelectric converter is running at its normal operating speed, an improvement consisting of

an electrically activated switch member having first and second operating positions wherein the first operating position connects the two coils of each respective winding in series with each other and the second operating position connects the two coils of each respective winding in parallel with each other;

a first electrical activator that activates said switch member to its first operating position when single phase current is initially connected to the first two leads and the dynamoelectric converter has not yet attained its operating speed;

a second electrical activator that deactivates said first activator and further activates said switch member to its second operating position when the dynamoelectric converter comes up to its normal operating speed

a voltage monitor for monitoring the voltage developed across the run capacitor;



a monitor switch that is connected to source of electrical energy, with said monitor being controlled by the voltage monitor to close only when the voltage across the run capacitor attains a preselected magnitude;

a relay coil in series with said monitor switch so that the relay coil is energized when the monitor switch is closed;

said first electrical activator comprises a first relay switch which when closed provides elestrical current to activities said switch member to its first operating position, said first relay switch being resposive to said relay coil to close when the relay coil is not energized and to open when the relay coil is energized; and

said second electrical activator comprises a second relay switch when closed provides electical current to activate said switch member to its second operating position, said second relay switch being responsive to said relay coil to close when the relay coil is energized and to open when the relay coilis not energized.

5,065,306

SERIAL INTERCHANGE MACHINE INTERFACE CIRCUIT

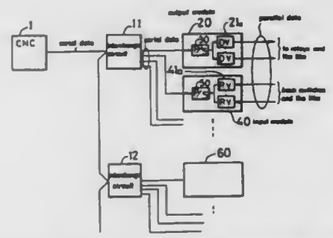
Ryoji Imazeki, Hachioji, and Mitsuo Kurakake, Hino, both of Japan, assignors to Fanuc, Ltd., Minamitsuru, Japan

PCT No. PCT/JP88/00494, § 371 Date Jan. 27, 1989, § 102(e) Date Jan. 27, 1989, PCT Pub. No. WO88/09531, PCT Pub. Date Dec. 1, 1988
PCT Filed May 24, 1988, Ser. No. 306,453
Claims priority, application Japan, May 28, 1987, 62-132806
Int. Cl.[5] G05B *19/18*
U.S. Cl. 364—138 **2 Claims**

1. A machine interface circuit for exchanging information with controlling terminal units of a machine tool through a numerical control unit having a serial interface for receiving and sending serial data representing the information, comprising:

interchange means operatively connected to the numerical control unit through the serial interface, for receiving the serial data from the numerical control unit and for providing a plurality of serial signals based on the serial data; and

a plurality of module circuit means, respectively connected



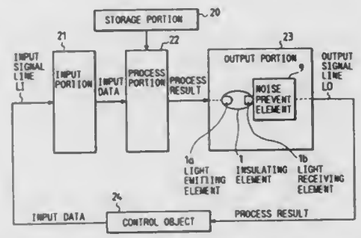
to receive a corresponding one of said serial signals provided by said interchange means and including at least one of a driver and a receiver operatively connected to said interchange means and the terminal units, for performing a serial/parallel conversion to convert the corresponding serial signal to a parallel signal for the terminal units.

5,065,307

APPARATUS FOR INSULATING AND PREVENTING NOISE IN THE OUTPUT OF A SEQUENCE CONTROLLER

Takayuki Oshiga, Narashinoshi; Katsuhiro Fujiwara, Sakurashi, and Kazunori Umeda, Narashinoshi, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 25, 1989, Ser. No. 398,530
Claims priority, application Japan, Sep. 5, 1988, 63-220354
Int. Cl.[5] G05B *9/02, 11/01*
U.S. Cl. 364—140 **11 Claims**



1. A sequence controller for controlling a control object, comprising:

a storage portion including means for storing a sequence program;

an input portion including means for receiving input data from said control object;

a process portion including means for processing data according to said sequence program based on input data received from said input portion and for producing a process result; and

an output portion having a built-in insulating element for electrically insulating said process portion from said control object, and means for transmitting a process result received from said process portion to said control object through said insulating element;

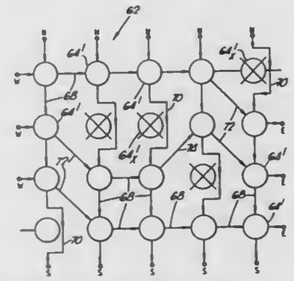
said output portion having a noise preventive element for preventing a noise voltage induced from said control object from damaging said output portion.

5,065,308

PROCESSING CELL FOR FAULT TOLERANT ARRAYS

Richard A. Evans, Malvern, England, assignor to The Secretary of State for Defence in Her Britannic Magesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Continuation of Ser. No. 579,194, Sep. 7, 1990, abandoned, which is a continuation of Ser. No. 402,705, Sep. 5, 1989, abandoned, which is a continuation of Ser. No. 818,365, Jan. 13, 1986, abandoned. This application Feb. 22, 1991, Ser. No. 659,538
Claims priority, application United Kingdom, Jan. 29, 1985, 8502186; Jun. 20, 1985, 8515649
Int. Cl.[5] G06F *11/16, 11/20*
U.S. Cl. 395—800 **6 Claims**



1. A processing cell for use in constructing fault tolerant cell arrays including processing cells connected to form rows and columns, the cell including:

(a) a processor for performing electronic operations on input signals and having means to perform self-testing for proving an electronic indication of whether or not it is fault-free;

(b) at least one set of cell interconnection lines for connection to other cells in an array, the lines comprising a respective subset of first, second and third lines for each of the following:

(1) processor input signals,
(2) processor output signals,
(3) input availability signals,
(4) input request signals,
(5) output availability signals, and
(6) output request signals,

wherein each processor input signal line is associated with a respective input request signal line and a respective output availability signal line, and each processor output signal line is associated with a respective output request signal line and a respective input availability signal line;

(c) request signal generating means connected to the processor to receive a processor operational state indication and also connected to request and availability signal inputs, the request signal generating means being arranged to provide output request signals reflecting both said processor operational state and said input request and availability signals;

(d) availability signal generating means connected to the processor to receive said processor operational state indication and also connected to said request and availability signal inputs, the availability signal generating means being arranged to provide output availability signals reflecting both said processor operational state said and input request and availability signals; and

(e) cell implementing means arranged either to route said input signals to the processor or to isolate it from such signals in accordance respectively with whether or not the cell receives appropriate said input request said and input availability signals and the processor is fault-free.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,309

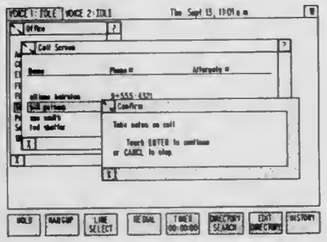
PERSONAL COMPUTER NOTE-TAKING FACILITY

William H. Putnam, Tinton Falls, N.J., and Theodore A. Shaffer, San Carlos, Calif., assignors to AT&T Bell Laboratories and Conversion Technologies, both of Murray Hill, N.J.

Continuation of Ser. No. 715,279, Mar. 25, 1985, abandoned. This application Jan. 18, 1989, Ser. No. 298,878

Int. Cl.[5] G06F *3/02, 3/14*

U.S. Cl. 364—419 **7 Claims**



1. A computer arrangement for use with a telephone, said arrangement including

input means for generating a succession of characters,

note-taking means including means operative for receiving from said input means characters representing notes taken by a user of said computer arrangement during a transaction over said telephone and for storing the received characters in said computer, and

means operative in response to the receipt of an incoming call on said telephone and operative in response to the initiating of a call by said user over said telephone for initiating said receiving and storing operation of said note-taking means.

5,065,310

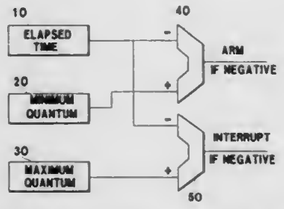
REDUCING CACHE-RELOAD TRANSIENT AT A CONTEXT SWAP

Harold S. Stone, Chappaqua, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed May 10, 1989, Ser. No. 349,621

Int. Cl.[5] G06F *13/26*

U.S. Cl. 395—425 **4 Claims**



3. An apparatus for reducing cache-reload transient in a context swap in a multi-programmed computer system comprising:

means for maintaining a list of tasks to be performed and calling a task from the list of tasks;

elapsed time register means for storing a value corresponding to a time of running the task on said multi-programmed computer system;

minimum quantum time register means for storing a value corresponding to a minimum quantum time assigned to said task;

maximum quantum time register means for storing a value corresponding to a maximum quantum assigned to said task said minimum and maximum quantum times being different;

comparison logic means connected to said elapsed time register means and said minimum and maximum quantum time register means for comparing elapsed time to minimum quantum time and elapsed time to maximum quantum time, said comparison logic means comprising

first adder means for computing a different between a value in said elapsed time register means and a value in said minimum quantum register means, and

second adder means for computing a difference between a value in said elapsed time register means and a value in said maximum

quantum register means;

means for arming an interrupt in response to a negative output of said first adder means; and

means for checking to determining if an interrupt is armed and, if so, posting said armed interrupt for execution when a predetermined programmed instruction is executed in response to a negative output of said second adder means.

5,065,311

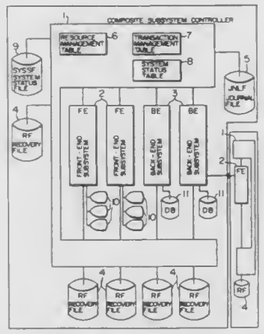
DISTRIBUTED DATA BASE SYSTEM OF COMPOSITE SUBSYSTEM TYPE, AND METHOD FAULT RECOVERY FOR THE SYSTEM

Kazuo Masai, Yokohama; Satoshi Wakayama, Hiratsuka; Shoji Yamamoto, Chigasaki; Takashi Sumiyoshi, and Masao Makino, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 20, 1988, Ser. No. 184,075

Int. Cl.[5] G06F *11/00*

U.S. Cl. 364—200 **7 Claims**



1. A composite system having a plurality of subsystems each including a data base system for processing and accessing a respective data base and a data communication system for performing data communications between said subsystem and said composite system, said composite system comprising:

first means for acquiring a journal in a journal file for fault recovery;

second means for acquiring check point information periodically in a check point file;

third means for saving a journal in a journal saving file for each transaction; and

fourth means responsive to said first through third means, at the time of occurrence of a fault in one subsystem, for continuing the operation of other subsystems, and for implementing a fault recovery of said one subsystem even for a delayed start-up of the faulty subsystem;

wherein said third means saves, at each check point, a journal produced by a transaction which has been in operation at a check point, into said journal saving file.

5,065,312

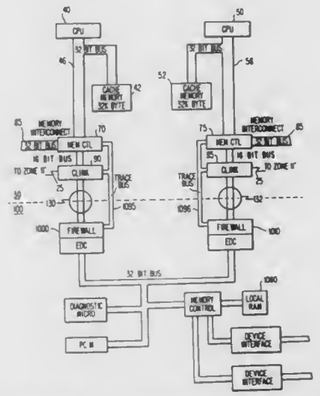
METHOD OF CONVERTING UNIQUE DATA TO SYSTEM DATA

William Bruckert, Northboro, Mass., and Thomas D. Bissett, Derry, N.H., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Aug. 1, 1989, Ser. No. 388,085

Int. Cl.[5] G06F *11/16*

U.S. Cl. 395—575 **11 Claims**



1. In a dual-rail data processing system comprising duplicate sets of data processing elements executing the same sequence of operations at substantially the same time, a common resource shared by both of said sets of data processing elements, a temporary storage accessible by both of said sets of data processing elements, and an error checking mechanism for indicating that an error has occurred when the same data is not transferred at substantially the same time throughout each of the duplicate sets of data processing elements, a method of transferring unique data, which is accessible only to a first one of the duplicate sets of data processing elements, to a second one of the sets of data processing elements, comprising the steps executed by the data processing system of:

disabling said error checking mechanism prior to the transfer of the unique data to prevent said error checking mechanism from indicating that the subsequent transfer of unique data is an error;

transferring said unique data from said first set of data processing elements to a first location in said temporary storage; and

reading the contents of said first location in said temporary storage to said common resource.

5,065,313

DIGITAL COMPUTER SYSTEM HAVING CIRCUIT FOR REGULATION OF I/O COMMAND RECOVERY TIME

David R. Lunsford, Austin, Tex., assignor to Dell USA Corporation, Austin, Tex.

Continuation of Ser. No. 330,671, Mar. 30, 1989, abandoned. This application Feb. 8, 1991, Ser. No. 653,862

Int. Cl.[5] G06F *13/14*

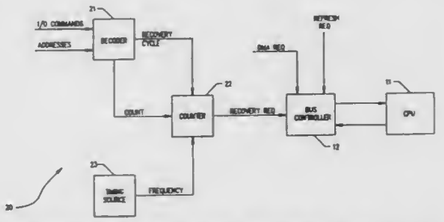
U.S. Cl. 395—275 **7 Claims**

1. A digital computer system, having a central processor unit (CPU), a plurality of addressable input/output (I/O) peripheral devices connected thereto for accessing by the digital computer system through I/O commands, at least one of the plurality of I/O peripheral devices requiring a corresponding access recovery time, comprising:

(a) decoding means for receiving the I/O commands and the addresses of the associated I/O peripheral devices from the CPU and having an output;

(b) time duration circuitry for providing a recovery request signal for those peripheral devices requiring access recovery times of a time duration determined by the combination of I/O commands and the addresses of the associated I/O peripheral devices from the output of the decoding means, and for providing no recovery request signal for those devices not requiring access recovery time; and

(c) a bus controller connected to the CPU for receiving the recovery request signal from the time duration circuitry



and generating a hold signal in response to the recovery request signal for transmission to the CPU to prevent entry into the decoding means of any subsequent I/O commands in the presence of the hold signal, the duration of which is determined by the length of the recovery request signal from the time duration circuitry, and to allow entry of I/O commands into the decoding means in the absence of the hold signal.

5,065,314

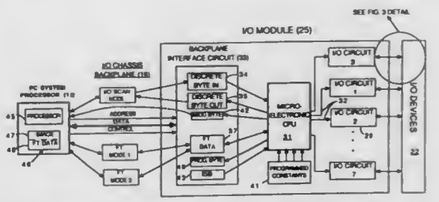
METHOD AND CIRCUIT FOR AUTOMATICALLY COMMUNICATING IN TWO MODES THROUGH A BACKPLANE

George D. Maskovyak, Parma, Ohio, assignor to Allen-Bradley Company, Inc., Milwaukee, Wis.

Filed Sep. 23, 1988, Ser. No. 249,415

Int. Cl.[5] G06F *13/38*

U.S. Cl. 395—325 **9 Claims**



1. A method of communicating bytes of I/O data through a backbone between a backplane controller and an I/O module responsive to real time I/O data representing ON/OFF states of discrete I/O devices on a controlled machine or process, wherein the backplane controller includes means for generating a group of system I/O addresses to further generate a group of first backplane signals on the backplane that sequentially enable I/O modules in an I/O scan sequence to transfer bytes of real time I/O data between the backplane controller and the I/O modules, and wherein the backplane controller includes means for generating a second backplane signal in a first logic state and for generating the second backplane signal in a second logic state, the method comprising:

the I/O module transferring to or from the backplane, in response to receiving one of the first backplane signals generated on the backplane and in response to receiving the second backplane signal generated in the first logic state, at least one byte of discrete, real time I/O data

VOL
1132
ISS
2
NO
12
1991
UMI

representing the ON/OFF states of the discrete I/O devices; and

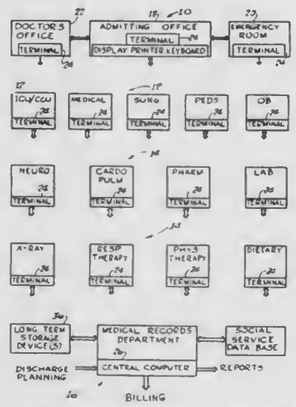
the I/O module transferring to or from the backplane, in response to receiving a second occurrence of the one of the first backplane signals and in response to receiving the second backplane signal generated in the second logic state, a file of I/O data including I/O data indicating conditions for the discrete I/O devices that are distinguishable from the ON/OFF states of the discrete I/O devices.

5,065,315

SYSTEM AND METHOD FOR SCHEDULING AND REPORTING PATIENT RELATED SERVICES INCLUDING PRIORITIZING SERVICES

Angela M. Garcia, 21753 Town Place Dr., Boca Raton, Fla. 33433

Filed Oct. 24, 1989, Ser. No. 426,113
Int. Cl.[5] G06F *15/42*
U.S. Cl. 364—413.01 **18 Claims**



1. A scheduling and reporting system for hospital patients comprising:

means for entering data regarding the location of each patient, the location of each patient further being in the vicinity of one common area, said means for entering further includes entering data regarding physician orders for hospital services to be performed for each patient;

means for scheduling the ordered services for each patient and for reporting the schedule information to said one common area;

means for recording and reporting the results of the services administered to each patient to said common area; and

means responsive to said recorded information for generating a discharge summary report for each patient at the conclusion of the hospitalization of such patient, said discharge summary including a summary of selective results of the services administered recorded;

wherein said means for entering physicians orders for services includes entering priority data manifesting the priority of each ordered service; and

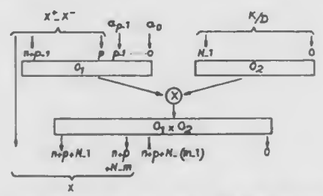
wherein said means for scheduling includes means, responsive to said priority data for rescheduling previously scheduled services in response to higher priority data for subsequently entered services.

5,065,316

PROCESS FOR LOCATING NUCLEAR RADIATION WITH REDUCTION OF MOIRE PHENOMENON

Michel Tararine, Sceaux; Bernard Thevenin, and Monique Marcaud, both of Saint Egreve, France, assignors to Commissariat A L'Energie Atomique, Paris, France

Filed May 25, 1988, Ser. No. 198,400
Claims priority, application France, May 27, 1987, 87 07481
Int. Cl.[5] G06F *15/42*; G01T *1/202*
U.S. Cl. 364—413.24 **11 Claims**



1. A process for locating nuclear radiation detected by a detection head, said detection head incorporating a crystal and a group of transducers, comprising the following steps:

emitting light photons from said crystal in response to received nuclear radiation,

supplying electrical signals from said transducers in response to emitted light photons,

combining said electric signals to produce pairs of digital data (X^+,X^-) and (Y^+,Y^-), which are respectively a function of the coordinates X, Y of the location of the crystal excited by said nuclear radiation, and

digitally calculating said coordinates X and Y expressed in m bits, as a function of said digital data expressed in n bits, said calculating step in turn comprising:

determining a digital data item A, expressed in N bits and inversely proportional to the energy of the received nuclear radiation,

determining a digital data item B by performing a subtraction operation on a pair of digital data items,

producing a digital data item C by completing the digital data item B to the right by p bits $a_{p-1}, \ldots, a_0$ $(P>1)$ with random values,

multiplying the digital data items A and C to produce a digital item Q expressed in N+n+p bits and

retaining the m high-order bits or said digital data item, said m bits representing the value of the coordinate X (respectively Y) when B is chosen equal to X^+-X^- (respectively Y^+-Y^-).

5,065,317

LANGUAGE LABORATORY SYSTEMS

Tamihei Hiramatsu, Kanagawa, and Yoshiko Matsushita, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 24, 1990, Ser. No. 528,230
Claims priority, application Japan, Jun. 2, 1989, 1-140703
Int. Cl.[5] G09B *7/04*
U.S. Cl. 364—419 **4 Claims**

1. A language laboratory system comprising:

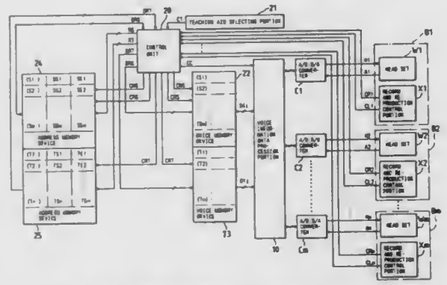
a plurality of m training apparatus, where m is an integer, each provided with an audio signal input portion for producing a separate input audio signal, an audio signal output portion for audibly reproducing an audio output signal, record command signal producing means for producing a record command signal, and reproduction command signal producing means for producing a reproduction command signal;

voice data producing means, connected to the m training apparatus, for producing separate voice information digital data signals corresponding to input audio signals supplied from the audio signal input portions of the training apparatus;

voice memory means, connected to the voice data producing means, and having a plurality of storage areas for storing the voice information data obtained from the voice data producing means in separate storage areas corresponding to each of the training apparatus and which are designated by separate address data;

address data memory means for storing in separate ones of m storage areas thereof, m pairs of starting address data and terminating address data designating respectively starting and terminating ends of each of the storage areas of the voice memory means in which the voice information data are stored;

memory control means, connected to the address data memory means, the voice memory means, the voice data producing means and the plurality of training apparatus, and operative to store each of the pairs of starting address data and terminating address data in the separate storage areas



of the address data memory means in response to each record command signal received from a corresponding one of the training apparatus and to read all of the m pairs of starting address data and terminating address data successively from the storage areas of the address data memory means in response to a reproduction command signal sent from one of the training apparatus and then to read the voice information data stored in all of the storage areas of the voice memory means having the starting and terminating ends thereof designated by the pairs of starting address data and terminating address data read from the storage areas of the address data memory means; and

audio signal supplying means, connected to the voice data producing means and the memory control means, for producing continuous output audio signals corresponding to each of the voice information data read from the storage areas of the voice memory means and supplying the audio signal output portion of the one training apparatus with the output audio signals produced based on the voice information data.

5,065,318

METHOD OF TRANSLATING A SENTENCE INCLUDING A COMPOUND WORD FORMED BY HYPHENATION USING A TRANSLATING APPARATUS

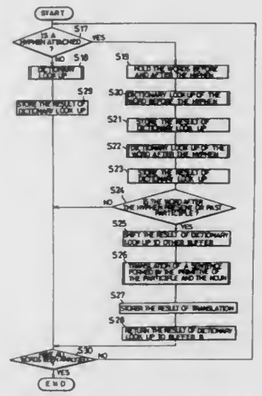
Shuzo Kugimiya, Nara; Yoji Fukumochi, Ikoma; Ichiko Sata, Nara; Tokuyuki Hirai, Yamato-Koriyama, and Hitoshi Suzuki, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Apr. 20, 1990, Ser. No. 513,254
Claims priority, application Japan, Apr. 24, 1989, 1-104236; Apr. 24, 1989, 1-104237
Int. Cl.[5] G06F *15/38, 1/00*; G09B *19/00*
U.S. Cl. 364—419 **5 Claims**

1. A method of translating a sentence by using a translating apparatus which includes dictionary look up and morpheme analyzing means for looking up each word constituting an input sentence of a source language in a dictionary and providing a morpheme array of the input sentence from information obtained by looking up the dictionary, syntax analyzing means for analyzing a syntactic structure of the morpheme array provided by said dictionary look up and morpheme analyzing means with dictionary and grammatical rules, language converting means for converting the syntactic structure analyzed by said syntax analyzing means into a corresponding syntactic structure of a target language, and language generating means for generating a translation in accordance with said syntactic structure of the target language received from said language converting means referring to the information obtained by looking up the dictionary, said method comprising the steps of:

if it is determined that an inputted word is formed by a first word and a second word coupled with each other by a hyphen, looking up said first and second words individually in the dictionary;

if it is determined that said first word is a noun and said second word is a participle, generating an equivalent



sentence in the target language which is formed by a primitive of said participle and said noun located after said participle by said dictionary look up and morpheme analyzing means and storing said generated equivalent sentence in a memory, otherwise generating compound word information indicative of said inputted word being a compound word formed by said first and second words by said dictionary look up and morpheme analyzing means and storing said generated compound word information in said memory while relating said generated compound word information to said inputted word;

if it is determined that a word being related to said compound word information is present by referring to said memory, attaching a hyphen after an equivalent word in the target language to said first word and putting an equivalent word in the target language to said second word after said equivalent word to said first word, otherwise outputting said generated equivalent sentence from said memory as a translation of said inputted word by said language generating means.

5,065,319

POWER CONTROL SYSTEM FOR VEHICLES

Kunihiro Iwatsuki, Toyota, and Shinichiro Tanaka, Mishima, both of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Dec. 5, 1990, Ser. No. 622,795
Claims priority, application Japan, Dec. 12, 1989, 1-322400
Int. Cl.[5] B60K *41/06*; G06F *15/50*
U.S. Cl. 364—424.1 **11 Claims**

1. In a vehicle comprising an engine, a torque converter

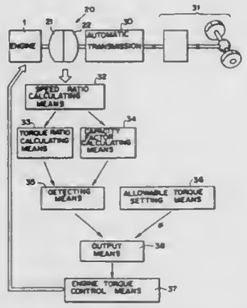
VOL 1132 ISS 2 NO 12 1991 UMI

connected to the engine and having a pump impeller and a turbine runner, a transmission connected to said torque converter, a drive mechanism connected to said transmission, and engine torque control means for controlling the output torque of said engine independently of an accelerator pedal, a power control system for controlling the output torque said engine, said power control system comprising:

speed ratio calculating means for determining the speed ratio of said torque converter;

torque ratio calculating means for determining the torque ratio of said torque converter from said speed ratio;

capacity factor calculating means for determining the capac-



ity factor of said torque converter on the basis of said speed ratio;

input torque calculating means for determining an input torque to said transmission by making use of said torque ratio and said capacity factor;

detection means for detecting an overtorque state by comparing the input torque determined by said input torque calculating means with an allowable torque predetermined for one of said transmission and said drive mechanism; and

output means for outputting a signal to said engine torque control means to drop the output torque of said engine when the overtorque state is detected.

5,065,320

CONTROL AND DISPLAY SYSTEM FOR A BATTERY POWERED VEHICLE

Takashi Hayashi; Junichi Hida; Kenji Suga, and Yoshikazu Kurata, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan

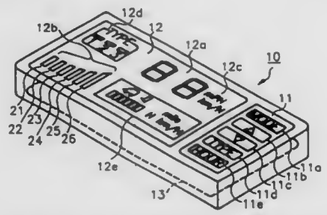
PCT No. PCT/JP89/00166, § 371 Date Sep. 27, 1989, § 102(e) Date Sep. 27, 1989, PCT Pub. No. WO89/07538, PCT Pub. Date Aug. 24, 1989

PCT Filed Feb. 20, 1989, Ser. No. 423,450

Claims priority, application Japan, Feb. 19, 1988, 63-37911; Apr. 14, 1988, 63-92243

Int. Cl.[5] G06F *7/70;* **B60K** *1/00;* **B60L** *1/00;* **G01R** *31/02*

U.S. Cl. 364—424.01 **9 Claims**



1. A battery powered vehicle equipped with a control and display system on the vehicle body comprising, a drive means and a battery means which supplies electricity to said drive means and said control and display system, said control and display system characterized in that it comprises, in combination;

a control data input means for inputting a plurality of control data;

a control data storage means for storing said plurality of control data input by said control data input means;

operation detecting means for detecting a plurality of types of vehicle operation initiated by an operator;

operating data collecting means for collecting a plurality of operating data in accordance with the operations detected by said operation detecting means;

an operating data storage means for storing each of said operating data collected by said operating data collecting means;

a selection means for selecting a portion of said plurality of control data stored in said control data storage means, and a portion of said plurality of operating data stored in said operating data storage means;

a drive control means for controlling said drive means according to said control data selected by said selection means; and

a display means for indicating said control data and said operating data selected by said selection means.

5,065,321

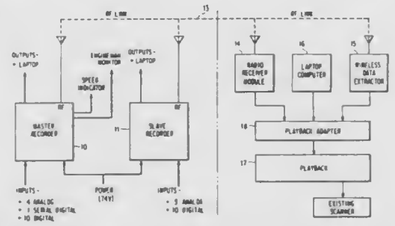
SOLID STATE EVENT RECORDER

Angel P. Bezos, Montgomery County, Md.; Emilio A. Fernandez, and Joseph I. Field, Jr., both of Fairfax County, Va., assignors to Pulse Electronics, Inc., Rockville, Md.

Filed Jun. 15, 1989, Ser. No. 367,191

Int. Cl.[5] G06F *15/74*

U.S. Cl. 364—424.04 **26 Claims**



16. A solid state event recorder for mounting in and monitoring events in a vehicle comprising:

a plurality of event inputs for receiving analog and digital data representing events in said vehicle to be recorded;

interface means connected to said event inputs for buffering digital inputs and converting analog inputs to digital values;

microprocessor means connected to said interface means for formatting data provided by said interface means;

solid state memory means coupled to said microprocessor means for receiving and recording formatted data; and

downloading means for downloading data from said solid state memory means, wherein said solid state memory includes a time of day clock, the data recorded in said solid state memory including the time of day, and said downloading means includes a real time clock and computes a time error as a difference between said time of day clock and said real time clock, said data being indexed by said time error.

5,065,322

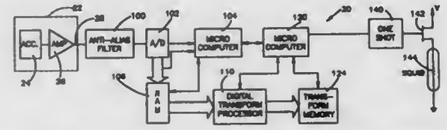
METHOD AND APPARATUS FOR SENSING A VEHICLE CRASH IN REAL TIME USING A FREQUENCY DOMAIN SUMMATION ALGORITHM

Joseph F. Mazur, Utica; Brian K. Blackburn, Rochester, and Scott B. Gentry, Utica, all of Mich., assignors to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Apr. 4, 1990, Ser. No. 505,363

Int. Cl.[5] G06F *7/70;* **B60R** *21/32;* **B60K** *28/12;* **B60R** *25/10*

U.S. Cl. 364—424.05 **21 Claims**



1. An apparatus for controlling actuation of a passenger restraint system in a vehicle, said apparatus comprising:

sensing means for providing a time domain vibratory electric signal having frequency components indicative of a vehicle crash condition;

means for transforming the time domain vibratory electric signal over at least two time intervals into associated frequency domain signals;

means for summing at least one frequency component of one frequency domain signal with at least one frequency component of the other frequency domain signal;

means for actuating the passenger restraint system when the summation of said at least one frequency components of the frequency domain signals indicates a predetermined type of vehicle crash is occurring.

5,065,323

STEERING HANDLE NEUTRAL POSITION ESTIMATING APPARATUS

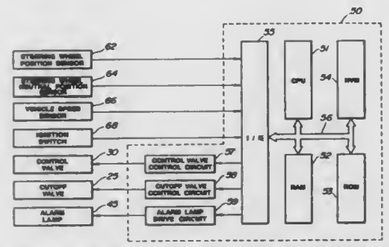
Yasuhiro Shiraishi, Atsugi, and Yasuki Ishikawa, Sagamihara, both of Japan, assignors to Nissan Motor Co., Ltd., Yokoyama, Japan

Filed May 3, 1990, Ser. No. 519,227

Claims priority, application Japan, May 15, 1989, 1-120886

Int. Cl.[5] B62D *5/06*

U.S. Cl. 364—424.05 **2 Claims**



1. A steering handle neutral position estimating apparatus for use with a motor vehicle having a steering handle operable to provide a driver's vehicle steering demand, the apparatus comprising:

first sensor means sensitive to steering handle position for producing an electric signal indicative of a sensed steering wheel position;

second sensor means sensitive to steering handle position for producing a steering handle neutral position signal having a first level when the sensed steering handle position is in a predetermined range and a second level when the sensed steering handle position is out of the predetermined range; and

an estimating unit coupled to the first and second sensor means, the estimating unit including means sensitive to a steering handle position change, means sensitive to a continuous traveling distance of the vehicle, means sensitive to a traveling speed of the vehicle, means for producing an estimation command signal when the sensed steering handle position change is less than a reference value, when the sensed continuous traveling distance is greater than a reference value and when the sensed traveling speed is greater than a first reference value and less than a second, greater reference value, and means responsive to the estimation command signal for estimating a steering handle neutral position value when the steering handle neutral position signal is at its first level.

5,065,324

METHOD OF DETECTING ABSOLUTE STEERING ANGLE OF STEERING ANGLE SENSOR FOR VEHICLE

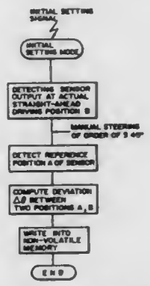
Saiichiro Oshita; Toyohiko Mouri, and Tsutomu Takahashi, all of Tokyo, Japan, assignors to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 16, 1990, Ser. No. 494,541

Claims priority, application Japan, Mar. 22, 1989, 1-70000

Int. Cl.[5] B62D *15/00*

U.S. Cl. 364—424.05 **11 Claims**



1. A method for detecting an absolute steering angle of a steering angle sensor mounted on a vehicle wherein said steering angle sensor generates an angle signal indicating a relative rotation angle of a steering shaft of said vehicle and a reference signal representing a reference position for every one rotation of said steering shaft, comprising:

detecting after completing the installation of said steering angle sensor on said vehicle, a deviation of angle between said reference signal and said angle signal generated at the time when said steering shaft is in an actual straight-ahead driving position, said deviation being stored in a memory of a computer, which memory retainer said deviation even though said computer is disconnected from a power supply;

determining a steering angle away from said reference position in response to said angle signal and said reference signal while the vehicle runs; and

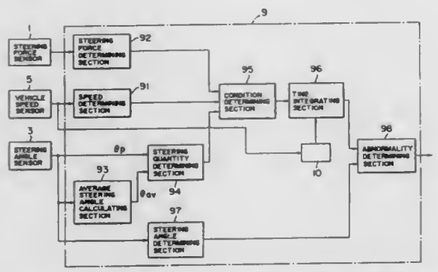
correcting said steering angle with said deviation, thereby accurately obtaining an absolute steering angle regardless of any error in installing said steering angle sensor during the assembling of the vehicle.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,325
DEVICE FOR DETERMINING MALFUNCTIONING OF ELECTRIC-MOTOR-ASSISTED POWER STEERING SYSTEM OF MOTOR VEHICLE

Tsutomu Takahashi, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 23, 1990, Ser. No. 556,371
Claims priority, application Japan, Jul. 28, 1989, 1-193908
Int. Cl.[5] B62D *5/04*
U.S. Cl. 364—424.05 5 Claims



1. A device for determining a malfunctioning of an electric-motor-assisted power steering system of a motor vehicle, having an electric motor operatively coupled to the steering system, and control means responsive to a steering operation for controlling the motor so as to assist the operation of the steering system,

said device comprising:

a vehicle speed sensor for detecting vehicle speed;

a steering force sensor for detecting steering force exerted by the steering operation;

a steering angle sensor for detecting steering angle;

speed determining means for producing an output signal when the vehicle speed is above a predetermined speed;

steering force determining means for producing an output signal when the steering force is below a predetermined value;

average steering angle calculating means for calculating an average steering angle in accordance with the steering angle and a last value of the average steering angle;

steering quantity determining means for calculating a steering quantity on the basis of the difference between the average steering angle and the steering angle to produce an output signal when the steering quantity is below a predetermined quantity;

condition determining means responsive to said three output signals of the speed determining means, the steering force determining means and the steering quantity determining means for generating an output signal;

time integrating means for producing an output signal indicating that the vehicle is driven straight ahead, when the output signal of the condition determining means has continued for a predetermined time;

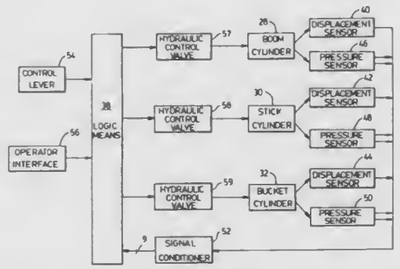
steering angle determining means for producing an output signal when the steering angle is above a predetermined angle; and

abnormality determining means responsive to the two output signals from the time integrating means and the steering angle determining means for producing an abnormality output signal.

5,065,326
AUTOMATIC EXCAVATION CONTROL SYSTEM AND METHOD

William C. Sahm, Peoria, Ill., assignor to Caterpillar, Inc., Peoria, Ill.

Filed Aug. 17, 1989, Ser. No. 394,919
Int. Cl.[5] G06F *15/20;* E02F *3/34*
U.S. Cl. 364—424.07 28 Claims



1. A control system for automatically controlling a work implement of an excavating machine throughout a machine work cycle, wherein said work implement includes a boom, stick and bucket, each being controllably actuated by at least one respective hydraulic cylinder, said hydraulic cylinders containing pressurized hydraulic fluid, each said hydraulic cylinder having a movable portion extendable between a first retracted position and a plurality of second positions in response to the pressure of hydraulic fluid contained therein, said control system comprising:

means for producing respective position signals in response to the position of each of said boom, stick and bucket;

position logic means for receiving said position signals, comparing each of said received position signals to a plurality of predetermined position setpoints, and producing a respective responsive position correction signal;

means for producing respective pressure signals in response to the hydraulic fluid pressure of each of said boom, stick and bucket hydraulic cylinders;

force logic means for receiving said pressure signals and responsively computing a correlative force signal for each of said boom, stick and bucket hydraulic cylinders and for comparing each of said correlative force signals with a plurality of predetermined force setpoints thereto, and delivering a respective responsive for correction signal; and

actuating means for receiving said position and force correction signals, and controllably actuating said work implement to perform said work cycle in response thereto.

5,065,327
METHOD FOR PREDICTING A SPEED OF A VEHICLE WHICH IS EQUIPPED WITH AN ANTILOCK BRAKE DEVICE

Toshio Yahagi; Yoshihiro Iwagawa; Yoichi Sugimoto, and Tsuyoshi Satoh, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

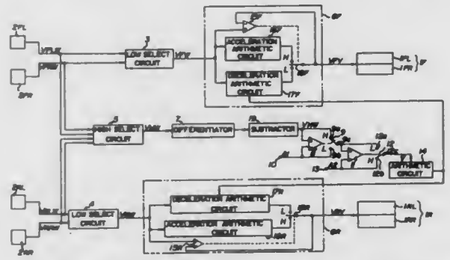
Filed Jul. 24, 1989, Ser. No. 383,490
Claims priority, application Japan, May 22, 1989, 1-128281
Int. Cl.[5] G06F *7/70, 15/48;* B60T *8/86, 8/82*
U.S. Cl. 364—426.02 19 Claims

1. A method of estimating a speed of a vehicle which is equipped with an antilock brake device, said method comprising the steps of:

detecting wheel speeds of wheels of the vehicle respectively;

selecting a highest value of all detected wheel speeds and differentiating a selected highest value to obtain a differentiated value; and

correcting any of the wheel speeds based on said differentiated value, at least when one of the wheels associated with said one wheel speed shows a large decelerating tendency,

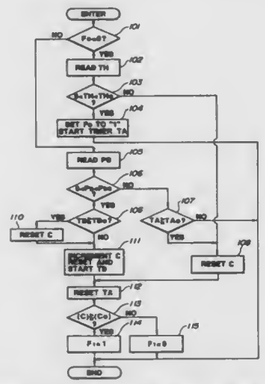


to obtain a vehicle speed which is used as a reference value for determining a slip ratio of said one wheel.

5,065,328
SYSTEM AND METHOD FOR RECOGNIZING TRAFFIC STAGNATION FOR VEHICLE

Toshimi Abo, and Shuzo Fukuzumi, both of Kanagawa, Japan, assignors to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Nov. 7, 1989, Ser. No. 432,937
Claims priority, application Japan, Nov. 10, 1988, 63-282594
Int. Cl.[5] B60K *41/04*
U.S. Cl. 364—426.04 19 Claims



1. A system for recognizing a traffic stagnation state for a vehicle, comprising:

first means for deriving a vehicle speed;

second means for deriving a vehicle acceleration which the vehicle is subjected to;

third means for deriving a vehicle acceleration which the vehicle is subject to; and

fourth means for deriving a vehicle running pattern on the basis of the vehicle speed, vehicle acceleration, and vehicle deceleration and determining whether or not the vehicle running pattern derived substantially coincides with a running pattern peculiar to a traffic stagnation state in which the vehicle runs in the traffic stagnation,

wherein the fourth means includes:

fifth means for outputting a first signal when a magnitude of the acceleration derived is below a first predetermined value;

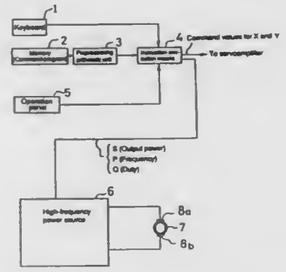
sixth means for outputting a second signal when a magnitude of the acceleration derived is below a second predetermined value; and

seventh means for determining whether or not a frequency of alternating repetitions of the outputs of the first and second signals exceeds a third predetermined value and recognizing that the vehicle runs in the traffic stagnation state upon determining that the frequency exceeds the third predetermined value.

5,065,329
LASER OSCILLATOR CONTROL METHOD FOR CHANGING A CURRENTLY EXECUTING COMMAND PROGRAM

Etsuo Yamazaki; Tsuyoshi Nagamine, and Shigeru Isohata, all of Hachioji, Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

Continuation of Ser. No. 273,514, filed as PCT JP88/00186 Feb. 19, 1988, published as WO88/06939 Sep. 22, 1988, abandoned. This application Aug. 10, 1990, Ser. No. 565,897
Claims priority, application Japan, Mar. 20, 1987, 62-066779
Int. Cl.[5] G06F *3/00, 19/10*
U.S. Cl. 364—474.08 1 Claim



1. A laser oscillator control method for changing a command program and executing laser machining by controlling an X-Y table with a numerical control system, said method comprising the steps of:

(a) reading out a block of command program, from a copy of the program being used for laser machining, stored in a memory and transferring the block of the command program to a preprocessing arithmetic unit;

(b) converting the block of the command program into executable form, laser machining being carried out during converting of the block of the command program into executable form;

(c) lighting a lamp for alerting an operator each time one block of the command program is converted;

(d) changing laser machining conditions of the converted block of the command program by a keyboard or a switch on an operation panel;

(e) depressing an executing button on the operation panel; and

(f) executing laser machining with the changed block of machining conditions by distributing a pulse to the X-Y table while simultaneously performing laser machining.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,330

NUMERICAL CONTROL SYSTEM FOR LASER

Norio Karube, Machida, and Mitsuo Manabe, Hachioji, both of Japan, assignors to Fanuc Ltd, Minamitsuru, Japan

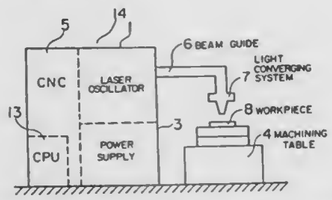
PCT No. PCT/JP88/00428, § 371 Date Nov. 30, 1988, § 102(e) Date Nov. 30, 1988, PCT Pub. No. WO88/08355, PCT Pub. Date Nov. 3, 1988

Continuation-in-part of Ser. No. 283,472, Nov. 30, 1988, abandoned. This PCT application Apr. 28, 1988, Ser. No. 363,393

Claims priority, application Japan, Aor. 30, 1987, 62-107829

Int. Cl.[5] G06F *15/46;* B23K *26/00*

U.S. Cl. 364—474.08 **5 Claims**



1. A numerical control system for a laser comprising a laser oscillator for driving electric discharge laser tubes including a gas, an electric power supply for driving the laser oscillator, and a computerized numerical control system (CNC), comprising:

a housing;

sequence control means, positioned within said housing, for controlling a sequence of operation of the laser oscillator;

output power control means, positioned within said housing, for controlling output conditions of the laser oscillator including an output power of the laser oscillator;

feedback control means, positioned within said housing, for controlling the output power from the laser oscillator;

display control means, positioned within said housing, for displaying operating characteristics, operating conditions, maintenance and inspection instructions, and abnormal conditions of the laser oscillator;

table movement control means, positioned within said housing, for controlling the position and speed of a work table; and

CPU means, positioned within said housing, for controlling said sequence control means, said output power control means, said feedback control means, said display control means and said table movement control means.

5,065,331

APPARATUS AND METHOD FOR DETERMINING THE STRESS AND STRAIN IN PIPES, PRESSURE VESSELS, STRUCTURAL MEMBERS AND OTHER DEFORMABLE BODIES

Reginald 1. Vachon, 1414 Epping Forest, Atlanta, Ga. 30319, and William F. Ranson, 138 Irwin Rd., Lexington, S.C. 29072

Continuation-in-part of Ser. No. 767,663, Aug. 21, 1985, Pat. No. 4,591,996, which is a continuation of Ser. No. 264,445, May 19, 1985, abandoned. This application May 27, 1986, Ser. No. 886,747

The portion of the term of this patent subsequent to May 27, 2003, has been disclaimed.

Int. Cl.[5] G01B *11/16*

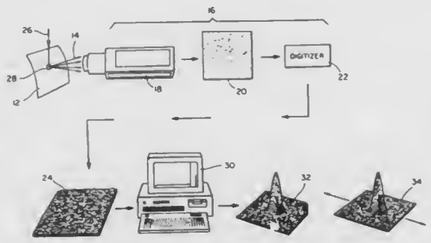
U.S. Cl. 364—508 **6 Claims**

1. An apparatus for determining stress and strain associated with a body, said apparatus comprising:

means associated with said body to cause said body to produce a speckle pattern;

data receiving means for sensing a reference speckle pattern and a succeeding speckle pattern produced by the body when undergoing deformation, said data receiving means further serving to digitize signals provided by said reference and succeeding speckle patterns; and

computation means for mathematically analyzing the amplitude of said digitized signals to determine displacement



between the speckle pattern produced by the body in a reference state and the speckle pattern produced by the body when deformed and thereby to determine stress and strain associated with said body.

5,065,332

FIGURE ELEMENT REVISING METHOD

Masaki Seki; Takashi Takegahara, both of Tokyo, and Akira Kajitani, Yamanashi, all of Japan, assignors to Fanuc, Ltd., Minamitsuru, Japan

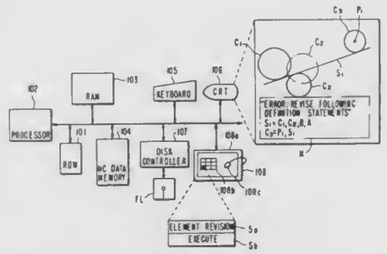
PCT No. PCT/JP88/01058, § 371 Date Jun. 16, 1989, § 102(e) Date Jun. 16, 1989, PCT Pub. No. WO89/04011, PCT Pub. Date May 5, 1989

PCT Filed Oct. 19, 1988, Ser. No. 368,349

Claims priority, application Japan, Oct. 20, 1987, 62-265052

Int. Cl.[5] G05B *19/403*

U.S. Cl. 364—474.22 **8 Claims**



1. A figure element revising method for displaying a group of figure elements on a display screen, the group of figure elements includes defined figure elements and related figure elements defined using the defined figure elements, and for revising a designated figure element, said method comprising the steps of:

(a) storing in advance a figure definition statement for each of the figure elements;

(b) revising the figure definition statement of the designated figure element;

(c) checking, when the figure definition statement of the designated figure element is revised, to determined whether an error has occurred in the figure definition statement of another figure element due to said revising in step (b) of the figure definition statement of the designated figure element;

(d) displaying, when an error has occurred, the figure definition statement in which the error has occurred on the display screen and displaying, in different colors, the figure element specified by the figure definition statement in which the error has occurred and the related figure elements defined using the figure element in which the error has occurred;

(e) revising the figure definition statement of the figure element in which the error has occurred to produce a revised figure definition statement; and

(f) displaying, when the figure definition statement in which the error has occurred is revised, the figure element corresponding to the figure definition statement in which the error has occurred based on the revised figure definition statement.

5,065,333

METHOD OF INVOLUTE INTERPOLATION IN THREE DIMENSIONS

Hideaki Kawamura, Hachioji; Kentaro Fujibayashi, Musashino, and Masafumi Sano, Minamitsuru, all of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

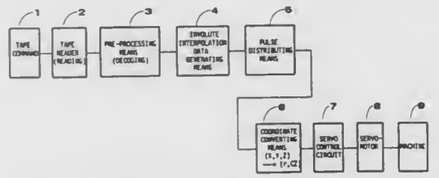
PCT No. PCT/JP89/00006, § 371 Date Aug. 21, 1989, § 102(e) Date Aug. 21, 1989, PCT Pub. No. WO89/06392, PCT Pub. Date Jul. 13, 1989

PCT Filed Jan. 6, 1989, Ser. No. 408,501

Claims priority, application Japan, Jan. 8, 1988, 63-002144

Int. Cl.[5] G05B *19/403*

U.S. Cl. 364—474.31 **6 Claims**



1. An involute interpolation method for a computerized numerical control apparatus having a rotational axis and a linear axis, comprising the steps of:

giving commands for a direction in which an involute curve rotates, a position of the center of a base circle, a radius (R) of the base circle and a Z-axis;

interpolating the involute curve and a distance along the Z-axis according to the commands; and

controlling the rotational axis, the linear axis, and the Z-axis of a machine which is to be controlled in response to said interpolating step.

5,065,334

METHOD AND APPARATUS FOR DISTINGUISHING NARROWBAND CONTINUOUS WAVE SIGNALS FROM BROADBAND AND IMPULSIVE SIGNALS

John B. Taylor, Santa Rosa, and Michael K. Ellis, Rohnert Park, both of Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Apr. 28, 1989, Ser. No. 345,601

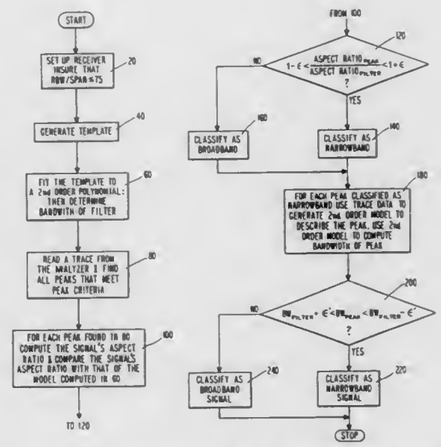
Int. Cl.[5] G01R *23/16;* G06F *15/20*

U.S. Cl. 364—485 **34 Claims**

1. A method of distinguishing narrowband continuous wave signals from broadband and impulsive signals, the narrowband continuous wave signals having a stable frequency spectrum over a predetermined frequency span derived from a resolution bandpass filter, the frequency span having a plurality of discrete frequencies, comprising the steps of:

providing an electromagnetic signal receiver means comprising a resolution bandpass filter having a resolution bandwidth;

capturing signals comprising the frequency spectrum over the predetermined frequency span by generating an electrical signal and driving the resolution bandpass filter to sweep the resolution bandpass filter across the frequency span and analyzing signals passed by the resolution bandpass filter;



peaks are indicated to be from narrowband continuous wave signals; and

discarding those peaks from the frequency spectrum indicated not to be from narrowband continuous wave signals.

5,065,335

DECODING TYPE SELECT LOGIC GENERATING METHOD

Takayoshi Yokota; Keisuke Bekki, both of Hitachi, and Nobuhiro Hamada, Hitachiota, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 15, 1989, Ser. No. 323,968

Claims priority, application Japan, Mar. 18, 1988, 63-63343

Int. Cl.[5] G06F *15/60*

U.S. Cl. 364—489 **8 Claims**

1. A decoding type select logic generating method, comprising the steps of:

(a) listing groupwise input signal names and control codes contained in register transfer descriptions, respectively for each of the same input signal names;

(b) performing bit comparison groupwise between said control codes of step (a) to thereby replace any bit of the

VOL
1132
ISS
2
NO
12
1991
UMI

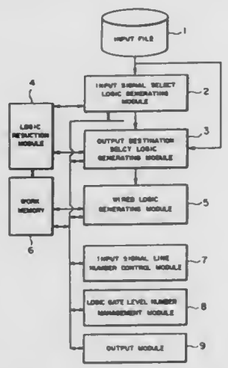
control codes in a group in which the hamming distance is one by a code meaning "don't care" and retaining only one of said control codes as a valid control code when the comparison of said control codes shows coincidence as the result of said replacement;

(c) generating an AND gate for each of said retained control codes, said AND gates producing output "1" in response to the input of the bit signals of said control code;

(d) generating first AND gates by adding signal lines to the input of said AND gates, said signal lines corresponding to said input signal names, respectively;

(e) generating a first OR gate receiving as inputs those output signals of said first AND gates having the same output destination signal name, respectively;

(f) listing groupwise the output destination signal names contained in the register transfer descriptions and control codes for commanding execution of the register transfers,



respectively, for each of the same output destination signal names;

(g) performing bit comparison groupwise between said control codes of step (f) to thereby replace any bit of the control codes in a group in which the hamming distance is one by a code meaning "don't care" and retaining only one of said control codes as a valid control code when the comparison shows coincidence as the result of said replacement;

(h) generating second AND gates for said control codes retained after step (g), said second AND gate producing output of "1" in response to the input of the bit signals of said control codes retained in step (g); and

(i) generating a third AND gate receiving as inputs the outputs having the same output destination signal name from the outputs of said second AND gates and said first OR gate.

5,065,336

ON-LINE DETERMINATION OF POLYMER PROPERTIES IN A CONTINUOUS POLYMERIZATION REACTOR

Alberto Buchelli, Richmond, Va., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

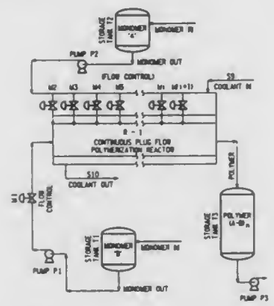
Filed May 18, 1989, Ser. No. 353,690
Int. Cl.[5] G06F *15/46*
U.S. Cl. 364—499 **2 Claims**

1. A method of predicting physical properties of a polymer formed from a plurality of monomers flowing in a path through a continuous polymerization reactor in an irreversible reaction process with the aid of a digital computer, said method comprising:

(a) obtaining a digital data set by sensing flow rates of the monomers, pressure and temperature of the polymer at a plurality of locations along said path all on a real time basis to provide an analog signal output and converting said analog signal output to a digital signal output;

(b) providing the computer with a data base that includes the digital data set obtained by step (a);

(c) programming the computer according to a Newton-Raphson algorithm;



(d) calculating the physical property of the polymer based on non-Newtonian fluid mechanics according to the algorithm of step (c) using the data base of step (b);

(e) displaying said property as a display element whereby a predicted physical property of the polymer is obtained based on non-Newtonian fluid mechanics.

5,065,337

VERTICAL REVOLUTE JOINT ROBOT

Ryuichi Hara, Yamanashi, Japan, assignor to Fanuc Ltd., Minamitsuru, Japan

PCT No. PCT/JP89/00897, § 371 Date Apr. 18, 1990, § 102(e) Date Apr. 18, 1990, PCT Pub. No. WO90/02028, PCT Pub. Date Mar. 8, 1990
PCT Filed Aug. 31, 1989, Ser. No. 474,032
Claims priority, application Japan, Aug. 31, 1988, 63-214785
Int. Cl.[5] G05B *19/40*
U.S. Cl. 364—513 **7 Claims**

1. A vertical revolute joint robot including:

a first link,

a base,

a first revolute joint coupling said first link to said base,

a second link,

a second revolute joint coupling said second link to said first link, and

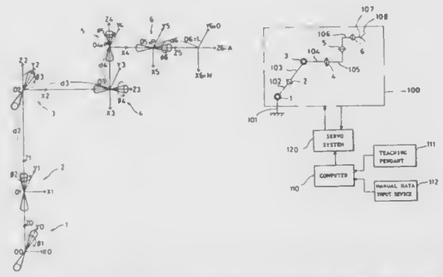
a third link

a third revolute joint coupling said third link to said second link;

an offset wrist, mounted to said arm, including a plurality of revolute joints where at least two axes of said revolute joints are parallel to each other;

an end effector, having a target position and an orientation, mounted at an end of said offset wrist; and

control means for calculating joint angles of the respective first, second, third and plurality of revolute joints based on the target position and the orientation of said end effector and previously calculated joint angles;



said first and second revolute joints having joint axes which respectively extend perpendicular to an axis of said base and along an axis of said first link.

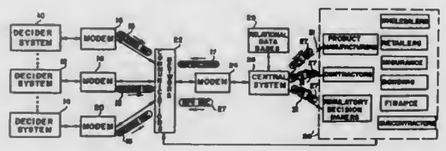
5,065,338

EXPERT INFORMATION SYSTEM AND METHOD FOR DECISION RECORD GENERATION

Clarence W. Phillips; William F. Phillips, and Gerry A. Jacobus, all of Canton, Ill., assignors to Active English Information Systems, Inc., Canton, Ill.

Continuation-in-part of Ser. No. 867,105, May 23, 1986, Pat. No. 4,835,683. This application May 26, 1989, Ser. No. 359,031
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—51 **10 Claims**

MICROFICHE APPENDIX INCLUDED
(1 Microfiche, 64 Pages)



1. An apparatus for automating a decision making process for a decision maker and for recording decisions made from that process by formulating a decision record, said apparatus comprising:

a processor system including storage means which store a control program, said processor system being adapted to execute said control program and generate control signals as a result of the execution;

an expert data base comprising a plurality of entries of information units arranged in option levels describing the various choices available for the decision maker in a particular subject area until a decision is reached, said option level ranging from a broad description of the category of a choice at the highest level, through various intermediate options levels and finishing with a complete specification of a decision at the lowest level;

a display means for displaying said information units of the expert data base according to said option levels;

said storage means of said processor system including a volatile memory means, and a nonvolatile memory means for storing said expert data base;

said processor system loading a portion of said expert data base into said volatile memory means in response to the selection of one of said option levels;

an input means for communicating commands, including a selection process with selection commands which indicate the selection of one information unit to said processor system for the decision maker;

said selected information units being displayed on said display means concurrently with the selection process;

optical storage means for storing said expert data base including a plurality of video frames of data and associated sound segments, each of said video frames corresponding to at least one of said information units; and

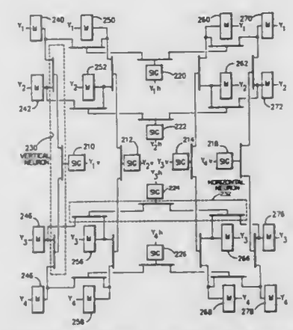
optical storage reader means, under control of said processor, adapted to transfer data stored on said optical storage means into said volatile memory means, wherein said processor system for response to each of said selection commands formulates said decision record.

5,065,339

ORTHOGONAL ROW-COLUMN NEURAL PROCESSOR

Stamatis Vassiliadis, Vestal, and Gerald G. Pechanek, Endwell, both of N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 22, 1990, Ser. No. 526,866
Int. Cl.[5] G06F *15/18*
U.S. Cl. 395—24 **20 Claims**



1. A computing apparatus, comprising a plurality of input function elements, each input function element selectively allocated to orthogonal neurons, each neuron including means for generating a neuron value from a selected set of input function elements and means for communicating said neuron value back to said selected set of input function elements.

13. The computing apparatus of claim 1 wherein said orthogonal neurons comprise a plurality N (where "N" is an integer) of row neurons and a plurality N (where "N" is an integer) of column neurons, with each input function element selectively allocated as a row input function in a column neuron and as a column input function in a row neuron.

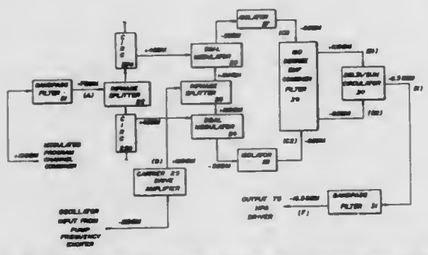
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,340

COHERENT GATE VESTA ENERGY PROCESSOR

John I. Boria, 5267 Calle Barquero, Santa Barbara, Calif. 93117, and Robert T. Brown, 9460 Sunland Blvd., Sun Valley, Calif. 91352

Filed May 19, 1989, Ser. No. 354,212
Int. Cl.[5] G06F *15/31*; H04B *1/06*
U.S. Cl. 364—514 11 Claims



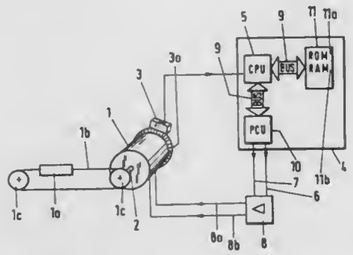
1. A communication system for use in conjunction with a transponder means of a particular capacity and having separate information channels including: modulation and frequency allocator input circuit means for receiving a plurality of separate program signals representing different information channels having a particular total bandwidth, and which includes modulator means, and combiner means coupled to said modulator means for combining said program signals into a coherent gate vesta energy output signal; and energy processor means coupled to said input circuit means and responsive to said coherent gate vesta energy output signal for producing a wideband multiple channel signal corresponding to the capacity of the transponder means for distributing said separate program signals via satellite uplink to subscriber receivers.

5,065,341

PRINTER FOR A COMPUTER

Manfred Grüner, and Heiko Kunze, both of Ulm, Fed. Rep. of Germany, assignors to Mannesmann AG, Düsseldorf, Fed. Rep. of Germany

Filed Jul. 26, 1989, Ser. No. 385,857
Claims priority, application European Pat. Off., Jul. 26, 1988, 88730167.9
Int. Cl.[5] G06F *15/40*
U.S. Cl. 364—516 20 Claims



1. A microprocessor computer control for a printer such as a printer for a personal computer or the like, said microprocessor computer control being for regulating the speed of pulse width modulated electric motors, in particular of direct current motors, said microprocessor computer control comprising:

coder means on the motor for providing signals which are used as feedback signals in a regulation circuit and are transmitted to a regulator with a microprocessor;

output control lines from said regulator to an amplifier which feeds the electric motor;

the regulator comprising a microprocessor connected to the coder means;

the microprocessor being connected by means of a data and address bus to a peripheral control component; and pulse curve;

the microprocessor being loaded by means of the data and address bus with programs for regulating the "off" time of the pulse curve;

the regulator further comprising a peripheral control unit;

said peripheral control unit having at least a first memory register and a second memory register, said first memory register comprising cycle time memory means for storing a first data value indicative of a cycle time, and said second memory register comprising pulse time memory means for storing a second data value indicative of a pulse time, said cycle time being a selected period of time for the pulse width modulation of the electric motor, and said pulse time being a portion of said cycle time during which the electric motor is to be supplied with a driving voltage;

said peripheral control unit further comprising logic circuitry means for supplying the amplifier with a pulsed voltage having a cycle time substantially equal to the cycle time indicated by said cycle time register and a pulse time portion thereof substantially equal to the pulse time indicated by said pulse time register; and

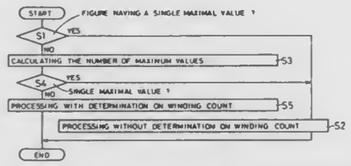
said microprocessor comprising means for accessing software through said data bus and for loading said cycle time register and said pulse time register of said peripheral control unit with values indicated by the accessed software.

5,065,342

APPARATUS FOR PREPARING IMAGE REPRODUCTION DATA

Yousuke Ito, and Ichiro Sasaki, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Mar. 1, 1990, Ser. No. 487,199
Claims priority, application Japan, Mar. 6, 1989, 1-53223
Int. Cl.[5] G06F *3/14*
U.S. Cl. 395—134 6 Claims



1. An apparatus for preparing image reproduction data from original image data which define visible representations to be reproduced, comprising:

memory means for storing original image data defining a plurality of visible representations each of which has at least one enclosed solid-imaging area to be solid-imaged;

first data preparing means for preparing solid-imaging data representative of said at least one solid-imaging area of a first kind of said plurality of visible representations, by effecting determination on the number of a winding count for said first kind of visible representations, based on said original image data;

second data preparing means for preparing solid-imaging data representative of said at least one solid-imaging area of a second kind of said plurality of visible representations,, without effecting determination on the number of said winding count for said second kind of visible representations, based on said original image data; and

selector means for selectively rendering operative one of said first and second data preparing means,

said original image data for each of said plurality of visible representations further comprising code data indicative of one of said first and second kinds, and said selector means comprises determining means for determining whether said code data are indicative of said first kind, or said second kind,

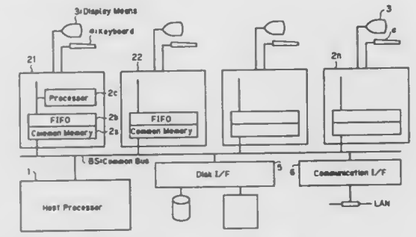
said selector means rendering operative said first data preparing means if said determining means determines that said code data are indicative of said first kind, and rendering operative said second data preparing means if said determining means determines that said code data are indicative of said second kind.

5,065,343

GRAPHIC DISPLAY SYSTEM FOR PROCESS CONTROL USING A PLURALITY OF DISPLAYS CONNECTED TO A COMMON PROCESSOR AND USING AN FIFO BUFFER

Kenichi Inone, Tokyo, Japan, assignor to Yokogawa Electric Corporation, Tokyo, Japan

Filed Feb. 14, 1989, Ser. No. 311,007
Claims priority, application Japan, Mar. 31, 1988, 63-79539; Oct. 24, 1988, 63-267940; Oct. 24, 1988, 63-267941; Oct. 24, 1988, 63-267942
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—162 3 Claims



1. A graphic display system comprising

a plurality of graphic units;

a host processor; and

a common bus,

said plurality of graphic display units being connected to said host processor via said common bus, wherein each of said plurality of graphic display units comprises

an internal bus, and

a common memory comprising a plurality of FIFO buffers, said common memory having two ports, one of said ports being connected to said common bus, and another of said ports being connected to said internal bus, wherein

said plurality of FIFO buffers are used for sequential first in first out transmission of a plurality of commands or information from said host processor.

5,065,344

METHOD OF AND APPARATUS FOR OBTAINING IMAGE DATA USED FOR FILLING INNER OR OUTER REGION OF GRAPHIC FIGURE

Katsumi Kishimoto, and Shigeaki Shimazu, both of Kyoto, Japan, assignors to Dainippon Screen Mfg., Co. Ltd., Japan

Filed Sep. 26, 1988, Ser. No. 249,641
Claims priority, application Japan, Sep. 25, 1987, 62-241398
Int. Cl.[5] G06F *15/62*
U.S. Cl. 395—134 17 Claims

1. A method of processing data for use in filling a region which is inside or outside of a graphic figure, said method comprising:

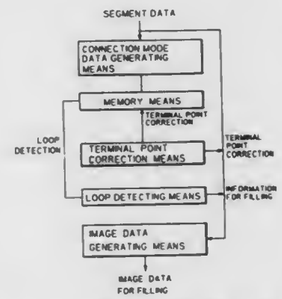
(a) preparing segment data representative of segments which form a contour of a graphic figure on an image plane, said segments defining connection modes therebetween;

(b) using said segment data to generate connection mode data representative of said connection modes;

(c) using said connection mode data to select a first one of said segments, said first segment having a floating terminal point;

(d) subsequent to said step (c), correcting said segment data and said connection mode data so that said first segment does not have a floating terminal point;

(e) subsequent to said step (d), using said connection mode data to detect a loop formed by said segments and to obtain loop data representative of said loop; and



(f) subsequent to said step (e), using said loop data and said segment data to obtain data for use in filling a region which is inside or outside of said loop;

wherein each one of said connection modes is classified as either a perfect connection mode or an imperfect connection mode, said perfect connection mode being defined as a mode in which a terminal point of a segment coincides with a terminal point of another segment, said imperfect connection mode being defined as a mode other than said perfect connection mode; and

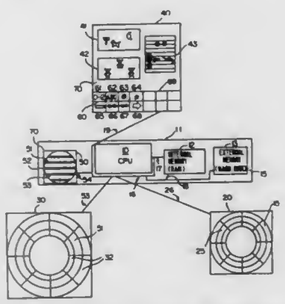
wherein said step (c) includes using said connection mode data to detect a segment which is connected to another segment in an imperfect connection mode.

5,065,345

INTERACTIVE AUDIOVISUAL CONTROL MECHANISM

Lance Knowles, San Francisco, and Douglas Crane, Portola Valley, both of Calif., assignors to DynEd International, Inc., San Francisco, Calif.

Continuation of Ser. No. 267,079, Nov. 4, 1988, abandoned. This application Aug. 21, 1990, Ser. No. 570,961
Int. Cl.[5] G06F *15/18*; G09B *7/04*
U.S. Cl. 395—154 13 Claims



12. An interactive computer system, comprising:

a central processing unit;

an audio output device for playing sounds;

an audio source device for generating said sounds, said audio

VOL 1132 ISS 2 NO 12 1991 UMI

source device operationally connected to said central processing unit and to said audio output device;

a visual output device for displaying visual images;

a visual source device for generating said visual images, said visual source device operationally connected to said central processing unit and to said visual output device; and

computer control means, operationally connected to said central processing unit for controlling said central processing unit, comprising:

means for generating a plurality of frame segments of audiovisual information, said plurality of frame segments comprising one or more audiovisual frames, said audiovisual frames comprising one or more visual images being displayed on said visual output device while one or more said sounds are being played through said audio output device,

random access audio addressing means for non-sequentially accessing individual sounds generated by said audio source device,

random access visual image addressing means for non-sequentially accessing individual visual images generated by said visual source device, such that said visual images and sounds are not preassociated on the same recording medium,

synchronization means for accessing individual frame segments of audiovisual information, said synchronization means causing said random access audio addressing means to access and directly play said sounds through said audio output device while simultaneously causing said random access visual addressing means to access and directly display said visual images on said visual output device,

user control means for enabling the user of said interactive computer system to interactively access frame segments of audiovisual information, such that said user control means creates new audiovisual frame segments in real time,

user level determination means for determining the performance level of the user of the interactive computer system, based upon the user's previous interaction with that system, such that said user control means creates new audiovisual frame segments in real time,

means for accessing a predefined set of related audiovisual frames,

means for generating, from said set of related audiovisual frames, a subset of said related audiovisual frames, the size of said subset being determined by the performance level of the user, and

means for selecting one of said audiovisual frames from said subset of related audiovisual frames.

5,065,346

METHOD AND APPARATUS FOR EMPLOYING A BUFFER MEMORY TO ALLOW LOW RESOLUTION VIDEO DATA TO BE SIMULTANEOUSLY DISPLAYED IN WINDOW FASHON WITH HIGH RESOLUTION VIDEO DATA

Toshihiko Kawai, and Takaaki Tobishima, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Dec. 3, 1987, Ser. No. 128,069

Claims priority, application Japan, Dec. 17, 1986, 61-301051

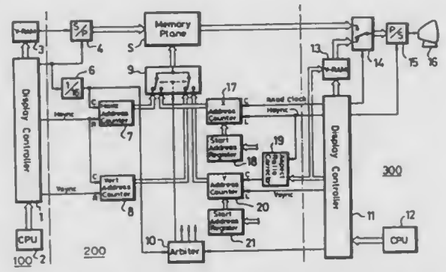
Int. Cl.[5] G09G *1/16*; G06F *3/153*

U.S. Cl. 395—128 **5 Claims**

1. In combination, a display resolution converting system, a first computer and a second computer, the first computer generating low resolution video signals, a set of first synchronizing signals, and having a first display memory means which receives the low resolution video signals and outputs a first display signal and the second computer generating high resolution video signals, a second set of synchronizing signals and having a second display memory means for receiving and storing the high resolution video signals and outputting a second display signal, and a display and wherein video data produced from the first computer and video data produced from the second computer are simultaneously displayed in window fashion on the display of the second computer, and wherein the display resolution converting system comprises:

(a) a buffer memory connected to the first display memory for storing video data produced from the first display signal;

(b) a memory access means connected between the first and second computers and connected to the buffer memory for writing the video data of the first display signal into the buffer memory and for reading the same video data out of the buffer memory, the memory access means including write address means supplied with the first set of synchronizing signals for writing the video data of the first display signal into the buffer memory at a rate which is a function of the timing of the first set of synchronizing



signals and read address means for selectively reading out the video data stored in the buffer memory under the control of the second computer at a rate and at a timing which is a function of the second set of synchronizing signals; and

(c) switching means for selectively supplying, under the control of the second computer, to the display of the second computer either the video data read from the buffer memory by the memory access means or the second video display signal produced from the second memory means, wherein the low resolution video data produced from the first computer is time-base compressed by the buffer memory and the video data from the buffer memory is displayed in a window fashion superimposed on the video data produced from the second computer on the display of the second computer.

5,065,347

HIERARCHICAL FOLDERS DISPLAY

Henry G. Pajak, Ontario; Daniel S. Marder, Penfield; Kenneth C. Byrne, Henrietta, all of N.Y., and Lee F. Breisacher, Redondo Beach, Calif., assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 11, 1988, Ser. No. 231,020

Int. Cl.[5] G06F *3/14*

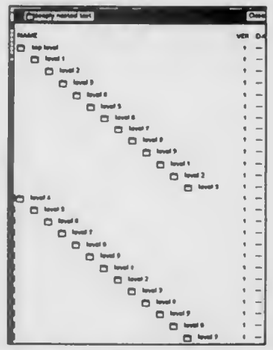
U.S. Cl. 395—159 **2 Claims**

1. The method of displaying hierarchical files in an electronic workstation having a screen display including icons and related text for identifying main files and associated subfiles stored in memory and a window segmenting a portion of the screen comprising the steps of:

displaying icons and related text of main files within the window beginning at a first margin in relation to a first edge of the window,

displaying icons and a related text of a first sublevel of subfiles within the window beginning at a second margin in relation to said edge of the window, the second margin being indented from the first margin, displaying icons and related text of a second sublevel of subfiles within the window beginning at a third margin in relation to said edge of the window, the third margin being indented from

the second margin, the window comprising a second edge spaced apart from the first edge and the icons and text of a third sublevel of indented subfiles extending beyond the second edge, including the step of folding the display to another portion of the window to display the icons and text of the third sublevel of subfiles beginning at said first



margin, the icons and text of the third sublevel of subfiles being disposed below the icons and text of the second sublevel of subfiles, and displaying a fold indicator with the third sublevel of subfiles to manifest the folding of said third sublevel of subfiles to another portion of the window.

5,065,348

METHOD AND SYSTEM FOR TRANSFORMING A FREE CURVED SURFACE

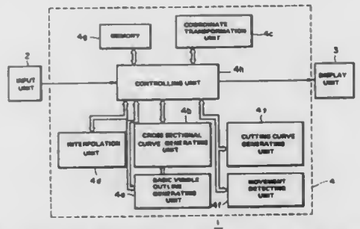
Tetsuzo Kuragano, Tokyo; Akira Suzuki, and Nobuo Sasaki, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Continuation of Ser. No. 262,492, Oct. 25, 1988, abandoned. This application Feb. 14, 1991, Ser. No. 656,012

Claims priority, application Japan, Oct. 26, 1987, 62-269995; Oct. 30, 1987, 62-276925; Nov. 2, 1987, 62-278694

Int. Cl.[5] G06F *15/62*

U.S. Cl. 364—119 **10 Claims**



1. A system for interactively and electronically generating digital data representing a free curved surface in an x-y-z coordinate system, comprising:

a) input means for supplying input digital data defining two dimensional shapes, rotation angles about the x, y and z axes, and translations of curves to the x, y and z axes;

b) cross sectional shape generating means connected to the input means for electronically generating digital data defining a plurality of cross sectional curves in an x-y coordinate system;

c) an electronic memory;

b) coordinate system transforming means connected to the input means, the memory and the cross sectional shape generating means for receiving the digital data defining the plurality of cross sectional curves, the input data defining selected rotation angles about the x, y and z axes for the cross sectional curves in the x-y coordinate system, input data defining translation of the plurality of cross sectional curves to the x, y and z axes, and for thereafter generating, and then storing in the memory, data representing the plurality of cross sectional curves as rotated and translated according to the input data from the input means;

e) interpolation means supplied with the digital data output by the coordinate system transforming means for electronically interpolating digital data representing curved surface portions between the plurality of cross sectional curves and outputting digital data representing a corresponding free curved surface in the x-y-z coordinate system which is the sum of the curved surface portions; and

f) wherein the coordinate system transforming means thereafter uses the stored digital data representing the parallel translations and rotations to electronically transform the digital data defining selected ones of the plurality of cross sectional curves from the x-y coordinate system to the x-y-z coordinate system or from x-y-z coordinate system back to the x-y coordinate system and output digital data defining curves corresponding to the selected cross sectional curves arranged at selected positions in the x-y-z coordinate system or the x-y coordinate system, respectively.

5,065,349

METHOD FOR AND APPARATUS OF MONITORING HOW AN OPERATOR OPERATES A MACHINE

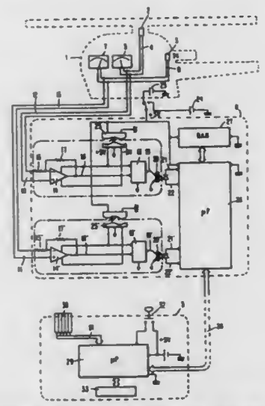
Bernard M. Thomas, St. Ismier, France, assignor to Mast-Air Enterprise, Brignoud, France

Filed Jan. 11, 1990, Ser. No. 463,230

Claims priority, application France, Jan. 11, 1989, 89 00354

Int. Cl.[5] G06F *7/70*

U.S. Cl. 364—550 **16 Claims**



8. Apparatus for monitoring how an operator operates a machine having a sensor for a variable value operating parameter and a meter responsive to the sensor, the sensor deriving an analog signal having an amplitude indicative of the variable value of the operating parameter, the meter including a display to be read by the operator and indicating the performance of the operator, the apparatus comprising:

a recorder section and a reader section, said sections to be interconnected during a start-up period while the operator is initially operating the machine;

the recorder section including: means to be connected across the sensor for deriving a digital signal having a value

VOL 1132 ISS 2 NO 12 1991 UMI

representing the amplitude of the analog signal derived by the sensor, a data collecting memory, and a first logic network, the first logic network being connected to be responsive to the digital signal having a value representing the amplitude of the analog signal derived by the sensor and to couple digital signals with the memory;

the reader section including a second logic network, a digital read-out device and manually activated means for supplying numeric representing digital signals to the second logic network, the second logic network being connected to couple digital signals with the read-out device;

the first and second logic networks being programmed so that: (a) during the start-up period a numeric representing digital signal derived from the manually activated means and corresponding with the value of a reading of the meter is coupled from the reader to a memory, and (b) during operation of the machine, while the reader and recorder are not connected, digital signals from the converter means having values commensurate with readings of the meter are supplied to the first logic network, the first logic network responding to the digital signals from the converter means to store in said data memory digital values derived from the converter means, and (c) after operation of the machine has been completed, and while the recorder and reader are interconnected, the first and second logic networks are interconnected so that the second logic network supplies to the digital read out device numerical values commensurate with the relative value of the numeric digital signals representing the digital signals derived and stored during machine operation (b).

5,065,350

METHOD AND APPARATUS FOR LEAK TESTING

Stephen C. Fedder, Southfield, Mich., assignor to William L. Sweet, Marine City and Anthony J. Skudrna, Harsens Island, both of, Mich., a part interest

Filed Mar. 14, 1990, Ser. No. 493,213
Int. Cl.[5] G01M *3/26*
U.S. Cl. 364—571.03 **8 Claims**



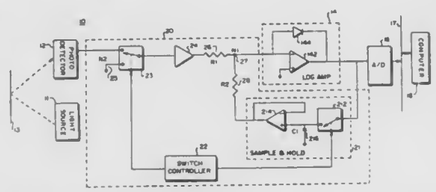
1. A method of testing the chamber of a test part for leaks, comprising filling said chamber with gas under pressure, determining the differential pressure drop of the gas in said chamber over a predetermined interval of time, determining the temperature of the part being tested, providing a storage table of correction values corresponding to the estimated differential pressure drop of gas pressure in said chamber attributable to the temperature of the part, selecting from said storage table the correction value for the temperature of said part being tested, subtracting the selected correction value from the differential pressure drop thus determined to obtain a corrected differential pressure drop, and, if said corrected differential pressure drop is below a predetermined maximum amount, summing back to said storage table at least a fraction of said corrected differential pressure drop to adjust said selected correction value.

5,065,351

STABILIZATION AND CALIBRATION OF PRECISION ELECTRONIC CIRCUIT COMPONENT

Everett A. Johnston, Westford, and Robert Poe, Charlestown, both of Mass., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 30, 1989, Ser. No. 331,261
Int. Cl.[5] G06F *15/20;* **G01D** *18/00*
U.S. Cl. 364—571.04 **13 Claims**



1. An apparatus comprising:

a precision analog circuit component, connected to receive an analog input signal via an input node and to provide a precision component output signal;

means for periodically interrupting the analog input signal and connecting the input node to a reference signal;

a sample-and-hold circuit, connected to receive the precision component output signal, and to provide a sample-and-hold output signal, with the sample-and-hold output signal connected to the input node; and

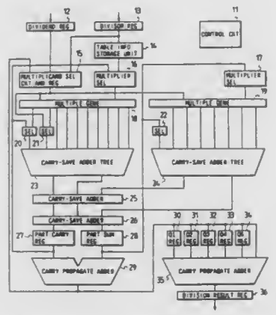
means for placing the sample-and-hold circuit in a sample mode when the input node is coupled to the reference voltage, and otherwise placing the sample-and-hold circuit in a hold mode.

5,065,352

DIVIDE APPARATUS EMPLOYING MULTIPLIER WITH OVERLAPPED PARTIAL QUOTIENTS

Hiraku Nakano, Kyoto, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 23, 1990, Ser. No. 555,689
Claims priority, application Japan, Aug. 16, 1989, 1-210021
Int. Cl.[5] G06F *7/52*
U.S. Cl. 364—765 **3 Claims**



1. A divide apparatus comprising:

means for determining an approximate reciprocal M of a divisor D_0 in dependence on given higher bits of the divisor D_0;

multiplying means for multiplying a dividend N_0 by the approximate reciprocal M to derive a quotient;

wherein said multiplying means comprises:

means for executing the following reiterative calculations:

$$A=1-D_0\times M$$

$$Q_1+N_1=N_0\times M$$

$$Q_i+N_i=A\times Q_{i-1}+N_{i-1}(i\geqq 2)$$

where A denotes a coefficient used as a factor used as a multiplicand of Q_{i-1} when Q_i is calculated therefrom, Q_i denotes a partial quotient, and N_i denotes a number obtained by subtracting Q_i from an $(i-1)$-th partial remainder multiplied by M;

means for executing the following calculation:

$$Q_{LAST+1}+N_{LAST+1}=A\times(Q_{LAST}+L)+N_{LAST}$$

where Q_{LAST} denotes a last partial quotient, and L denotes a number having a magnitude corresponding to a lowest bit of the last partial quotient Q_{LAST};

a plurality of multiple generators for scanning multipliers for multiplicands thereby to generate multiples of said multiplicands;

a plurality of carry-save adders connected to the multiple generators and having tree structures for outputting a partial sum and a partial carry;

a carry propagate adder connected to the carry-save adders for adding the partial sum and the partial carry;

means for feeding the partial sum and the partial carry to the multiple generators as a multiplier with respect to the partial quotient Q_{i-1}; and

means for inputting the partial sum and the partial carry into the carry-save adders with respect to the number N_{i-1}; the divide apparatus further including:

means connected to said multiplying means for storing the respective partial quotients $Q_1, Q_2, \ldots, Q_{LAST}$; and

means for calculating a final quotient Q^* from the partial quotients by reference to the following equation:

$$Q^*=Q_1+Q_2+\ldots+Q_{LAST}+Y(\text{the highest bit of } Q_{LAST+1})$$

and for outputting the final quotient Q^*.

5,065,353

ADDER CONTROL METHOD AND ADDER CONTROL CIRCUIT

Tohru Nojiri, Tokyo, and Masahiro Kainaga, Yokohama, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Mar. 28, 1990, Ser. No. 500,467
Claims priority, application Japan, Mar. 31, 1989, 1-082333
Int. Cl.[5] G06F *7/50*
U.S. Cl. 364—786 **16 Claims**

1. An adder control method for an adder comprising a plurality of full addres, each full adder having value and carry inputs as well as result and carry outputs, comprising the steps of:

inputting two values X and Y to the adder;

dividing each of the two values X and Y into a plurality of portions, each portion constructed of n (i) - bit values X (i) and Y (i) where is is an integer greater than 1 and the LSB is contained in X (1) and Y(1);

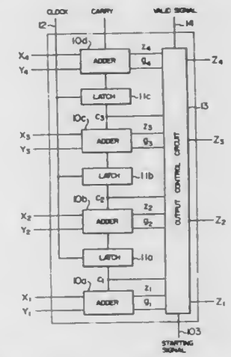
arranging the full adders in a ripple-carry arrangement so that each full adder receives as an input the carry bit of the preceding adder, except for the first full adder that has an input carrier bit of zero;

adding in respective full adders each of the n (i) - bit values X (i), Y (i) and a carry bit C (i−1) from the preceding full adder so as to produce a result Z (i) and a carry bit C (i) at the respective outputs of the full adders;

concatenating all of the results z (i) to produce a result value Z;

providing an adder clock having a clock time period substantially equal to the longest time period required for each of the full adders to input the n (i) - bit values X (i) and Y (i), input the carry bit C (i−1), produce the result z (i), produce the carry bit C (i), output the result z (i) and ripple propagate the carried out C (i) to the next full adder;

controlling each of the full adders to complete addition of the values X (i) and Y (i) and a carry (i−1) at their input and produce addition results Z (i) and carries C (i) at their outputs within a continuous plurality of clock time periods of the adder clock constituting an adder time period for



the completion of the addition of the values X and Y within the adder;

said adding including exclusive OR-gating to obtain z(i), AND-gating to obtain g(i), and OR-gating to obtain C(i) with respect to said n(i)-bit values X(i) and Y(i) in a first operation cycle; when Z(1)=z(1) and C(1)=g(1), z(i) and C(i−1) are exclusive OR-gated to obtain Z(i), and both AND-gated C(i−1) and p(i) and said AND gated value g(i) are OR-gated to obtain C(i) in a j-th cycle; and

when the carry bit C(i) is equal to "0"]with respect to all of i≧j in a certain j cycle, Z(i)=z(i) (where i >j) in a (j+1)-th cycle, the step of adding is terminated and all of Z(i) are concatenated so as to output the result value Z as an output of the adder.

5,065,354

QUEUED POSTED-WRITE DISK WRITE METHOD WITH IMPROVED ERROR HANDLING

Curtis R. Jons, Cypress, and Robert S. Gready, Houston, both of Tex., assignors to Compaq Computer Corporation, Houston, Tex.

Filed Sep. 16, 1988, Ser. No. 245,865
Int. Cl.[5] G06F *13/00*
U.S. Cl. 395—575 **4 Claims**

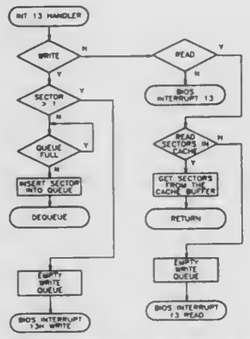
1. A method of maintaining a posted-write queue upon a timeout,

to which queue information sectors addressed to respective corresponding disk sectors may be added, and from which queue said information sectors may be written out to said respective corresponding disk sectors,

said method comprising the steps of:

VOL 1132 ISS 2 NO 12 1991 UMI

(a) blocking said addition of information sectors to said queue; and



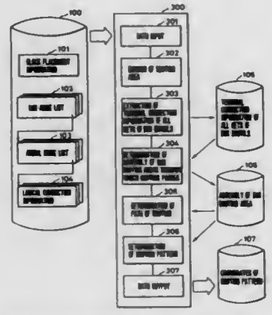
(b) writing out to said corresponding disk sector each information sector already added to said queue.

5,065,355

AUTOMATIC ROUTING METHOD FOR LSI

Michiyoshi Hayase, Kanagawa, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed May 11, 1989, Ser. No. 350,573
Claims priority, application Japan, May 13, 1988, 63-114615
Int. Cl.[5] G06F *15/20*
U.S. Cl. 395—800 **1 Claim**



1. An automatic routing method for LSI for routing bus signal lines between terminals of blocks arranged on the LSI, comprising the steps of:

a) inputting block placement information as well as logic connection information and inputting further a bus signal list as well as a plurality of signal name list belonging to each of bus signals to a memory;

b) dividing a routing area into a plurality of sub routing areas, using said block placement information;

c) selecting all the signals belonging to one bus signal by using said bus name list and said signal name list and said logic connection information; determining a representative signal for routing, corresponding to said signals;

d) determining an assembly of sub routing areas, through which the routing for said representative signal passes, according to said logic connection information;

e) determining a path, through which the routing for each of the signals belonging to the bus signals passes, within said assembly of the sub routing areas, according to said logic connection information;

f) determining a routing pattern for each of the signals within said assembly of sub routing areas determined at said step d); and

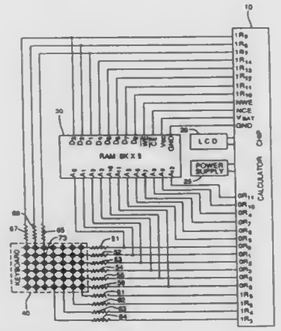
g) outputting coordinate information of said routing pattern to an external memory.

5,065,356

SHARED USE OF KEYBOARD AND MEMORY LINES

Robert B. E. Puckette, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Dec. 19, 1988, Ser. No. 285,991
Int. Cl.[5] G06F *13/38*
U.S. Cl. 395—800 **6 Claims**



1. A calculator comprising:

a calculator chip;

a display coupled to the calculator chip;

a power supply coupled to the calculator chip;

a memory chip coupled to the calculator chip;

a keyboard having a plurality of keys interconnected to both said memory and said calculator chip;

keyboard scan means for detecting closure of a key on said keyboard;

memory operation means for writing to and reading from said memory chip;

means responsive to the keyboard scan means for disabling said memory operation means during a keyboard scan; and

means connected between the keyboard and the memory chip to prevent degradation of a memory signal during memory operation should a key of said keyboard be depressed during memory operation.

5,065,357

DATA PROCESSING MACHINE WITH LIQUID CRYSTAL DISPLAY AND CONTROL MEANS FOR REGULATING BACKLIGHTING TO THE DISPLAY

Tomikatsu Shiraishi, and Isao Kawano, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 300,182, Jan. 23, 1989, abandoned, which is a continuation of Ser. No. 888,064, Jul. 22, 1986, abandoned. This application Aug. 9, 1990, Ser. No. 565,179
Claims priority, application Japan, Jul. 22, 1985, 60-113579; Jul. 29, 1985, 60-117724
Int. Cl.[5] G06F *1/32*
U.S. Cl. 395—200 **11 Claims**

1. A data processing machine comprising:

a liquid crystal display panel for displaying data;

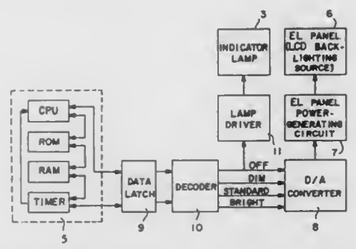
means for selectively inputting data into said data processing machine, said data being displayed on said liquid crystal display panel;

means for accessing data from an external memory, said data being displayed on said liquid crystal display panel;

means for backlighting said liquid crystal display panel, said means for backlighting being in one of an operative state and an inoperative state, said inoperative state being a period in which said liquid crystal display panel fails to be illuminated by said means for backlighting, said operative state being a period in which said liquid crystal display panel is illuminated;

means for counting a time period between successive inputs by said means for inputting, between successive displays on said liquid crystal display and between successive accesses of data by said means for accessing to thereby generate a signal when a length of time period corresponds to a selected period of time;

control means for turning off said means for backlighting in response to said signal generated by said means for counting, said control means further turning said means for backlighting back on in response to operation of at least one of said means for selectively inputting data and said means for accessing data whereby power consumption of said data processing machine is reduced in response to turning off of said means for backlighting during said inoperative state;



control register means for storing data related to brightness of said means for backlighting before said control means turns off the means for backlighting, a time period during which said means for backlighting is illuminated and a time counted by said means for counting, said control register means being operative associated with said control means to return said means for backlighting to the same brightness when said control means turns said means for backlighting back on, said control means further varying luminosity of said means for backlighting between at least two different states, said means for backlighting illumianting said liquid crystal display by a first luminosity in a first state and a second luminosity in a second state, said first luminosity being brighter than said second luminosity whereby said means for backlighting may be in a first state, a second state, or turned off by said control means; and

means for indicating that said means for backlighting has been turned off by said control means, said means for indicating being located separate from said liquid crystal display.

5,065,358

TEXT PROCESSING APPARATUS FOR ADJUSTING PAGINATION TO ACCOMMODATE A SECOND TEXT FIELD ON A PAGE

Kiyoshi Yamakawa, Gifu, Japan, assignor to Brother Kogyo Kabushkik Kaisha, Aichi, Japan

Filed Jul. 13, 1988, Ser. No. 218,141
Claims priority, application Japan, Jul. 22, 1987, 62-182606; Sep. 10, 1987, 62-138784[U]
Int. Cl.[5] G06F *3/023, 3/12, 15/02, 13/14*
U.S. Cl. 364—419 **4 Claims**

1. A text processing apparatus comprising:

a central processing unit;

input means attached to said central processing unit for entering character data including characters, symbols and function data;

memory means in said central processing unit for storing character data and function data as entered by said input means;

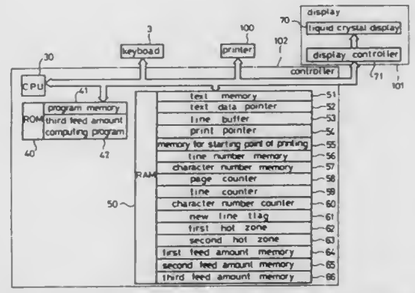
printing means attached to said central processing unit for printing entered character data as received from said memory means; and

control means in said central processing unit for controlling each of said means according to predetermined programs; wherein said control means comprises:

detecting means for detecting a line having no character data in a predetermined zone in a page of entered character data,

editing means for transferring at least a part of data in said predetermined zone of a current memory page to the preceding memory page and a following memory page based upon the location of said predetermined zone on the current memory page,

first line pitch changing means for changing, when at least a part of character data in said predetermined zone of the



current memory page are transferred to the preceding memory page, a predetermined line pitch of the preceding memory page according to the number of lines of character data transferred to the preceding memory page,

computing means for computing a mean value of the line pitches of all the preceding memory pages in which character data are arranged according to the predetermined line pitch or line pitches changed by said first line pitch changing means,

second line pitch changing means for changing, when at least a part of character data in a predetermined zone of the current memory page are transferred to the following memory page, a line pitch of the current memory page according to the result of the computation by said computing means, and

output control means for transmitting character data, according to a predetermined line pitch or a line pitch changed by said first or second line pitch changing means, to said printing means.

5,065,359

DESK TOP CALCULATOR WITH ACCESS SEQUENCE CONTROL SYSTEM FOR VARIOUS CONSTANTS

Hideyasu Koumo, Yamatokoriyama, and Fumiaki Kawawaki, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Nov. 15, 1989, Ser. No. 436,905
Claims priority, application Japan, Nov. 18, 1988, 63-293019
Int. Cl.[5] G06F *3/02, 9/22, 9/32, 9/34*
U.S. Cl. 395—800 **15 Claims**

1. A desk top calculator with access sequence control system for various constants comprising:

first storing means for storing plural types of constants having mutually different values in previously set addresses;

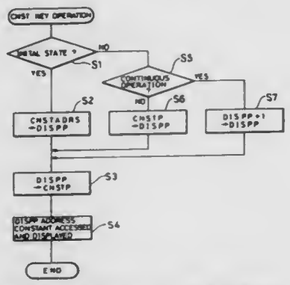
access sequence control means for accessing the constants stored in said first storing means, said access sequence control means being connected to said first storing means;

VOL 1132 ISS 2 NO 12 1991 UMI

constant access key means for instructing said access sequence control means to access a specified constant among the constants stored in said first storing means, said constant access key means being connected to said access sequence control means;

input key means for inputting numerical values and instructions to execute an operation using said desk top calculator, said input key means being connected to said access sequence control means; and

second storing means wherein an address of the specified constant accessed by said access sequence control means in response to an accessing instruction inputted through said constant access key means, is written,



wherein said access sequence control means

(a) in the case that accessing instructions are consecutively inputted through said constant access key means, updates the address written in said second storing means upon each of the accessing instructions; and

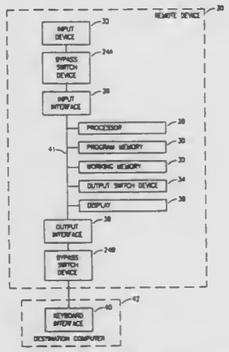
(b) in the case that said input key means was operated between a first operation and a second operation of said constant access key means, accesses the constant corresponding to the address that was written in said second storing means upon the accessing instruction inputted through said constant access key means before said input key means was operated.

5,065,360

PORTABLE DATA STORAGE AND EDITING DEVICE

Douglas J. Kelly, 320 Bowling Green Dr., Costa Mesa, Calif. 92626

Filed Jan. 10, 1989, Ser. No. 295,364
Int. Cl.[5] G06F *3/14*
U.S. Cl. 395—800 **24 Claims**



1. A portable data input, storage and editing device comprising:

input means for data entry;

storage means for storage of data entered by said input means;

transfer means for transferring data entered by said input means to a host computer;

processor means for controlling said input means, said storage means and said transfer means to operate in one of a plurality of modes, and

portable power storage means for operating at least said input means, said storage means and said processor means when said portable device is disconnected from the host computer thereby enabling remote input, storage and editing of said data entered by said input means,

wherein the host computer comprises a keyboard interface, and

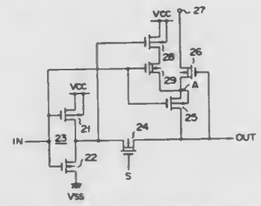
said transfer means comprises connecting means for connecting said device to said keyboard interface of the host computer and for transferring said data entered by said input means to the host computer via said keyboard interface.

5,065,361

SEMICONDUCTOR MEMORY INTEGRATED CIRCUIT

Makoto Yoshizawa, Tokyo, and Tadashi Maruyama, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 5, 1989, Ser. No. 446,003
Claims priority, application Japan, Dec. 24, 1988, 63-326453
Int. Cl.[5] G11C *17/08*
U.S. Cl. 365—104 **3 Claims**



1. A semiconductor memory integrated circuit comprising:

a decoder;

a memory matrix;

a selector for receiving a first power source voltage and a second power source voltage, and for selecting said first or second power source voltage; and

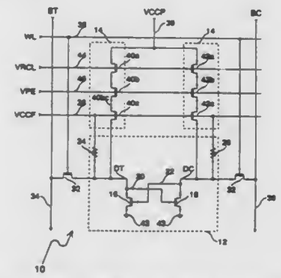
a decode output buffer for receiving said first or second power source voltage from said selector, said decode output buffer being provided between said decoder and said memory matrix, and including an inverter circuit, having a first power source terminal connected to a reference power source voltage and a second power source terminal, for inverting an output signal of said decoder, a first MOS transistor of a depletion mode, the gate of which is connected to the output terminal of said inverter circuit, the first end of which is connected to said first or second power source voltage selected by said selector, and the second end of which is connected to said second power source terminal of said inverter circuit, and a second MOS transistor of the depletion mode, the first end of which is connected to said first power source voltage, and the second end of which is connected to said second power source terminal of said inverter circuit, the conduction of said second MOS transistor being controlled in accordance with the output signal of said decoder.

5,065,362

NON-VOLATILE RAM WITH INTEGRATED COMPACT STATIC RAM LOAD CONFIGURATION

Christian E. Herdt; Albert S. Weiner; David A. Kamp, and Klaus J. Dimmler, all of Colorado Springs, Colo., assignors to Simtek Corporation, Colorado Springs, Colo.

Filed Jun. 2, 1989, Ser. No. 361,033
Int. Cl.[5] G11C *14/00, 11/41*
U.S. Cl. 365—154 **19 Claims**



1. A non-volatile static random access memory (NVSRAM) cell, comprising:

power supply means for supplying electrical power to said cell relative to a reference potential;

a flip flop having a true data node and a complement data node, the flip flop comprising a pair of cross-coupled flip flop transistors, one flip flop transistor having a control terminal connected to the true data node, a reference terminal electrically connected to the reference potential and an output terminal connected to the complement data node, and the other flip flop transistor having a control terminal connected to the complement data node, a reference terminal electrically connected to the reference potential and an output terminal connected to the true data node;

a pair of non-volatile circuits respectively connected to said true and complement data nodes, each non-volatile circuit comprising a programmable threshold voltage device having a gate terminal which is receptive of program and erase signals which establish different levels of threshold voltage for that programmable threshold voltage device in accordance with the level of the signal at its respective data node, a first transistor switch means having a control terminal which is receptive of a signal to allow the first transistor switch means to conduct and connect a corresponding programmable threshold voltage device to its respective data node when the program and erase signals are applied and when a data recall operation occurs, and a second switch means having a control terminal which is receptive of a signal to allow the second switch means to selectively conduct current from the power supply means through a corresponding programmable threshold voltage device and first transistor switch means to its respective data node during the data recall operation to establish a signal level at its respective data node related to the threshold voltage of the corresponding programmable threshold voltage device;

means commonly connecting the gate terminals of the programmable threshold voltage devices for conducting the program and erase signals to the gate terminals of the programmable threshold voltage devices; and

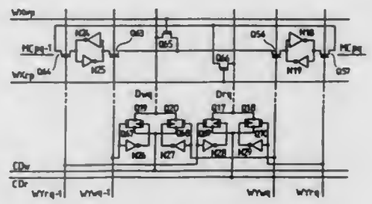
conductor means connected to the power supply means and including an integral resistive load for conducting power to the true data node and also including another integral resistive load for conducting power to the complement data node, the conductor means and the integral resistive loads energizing the flip flop to maintain the signals at the data nodes resulting from the previous operation of the flip flop as a static random access memory during application of the erase signals to the programmable threshold voltage devices.

5,065,363

SEMICONDUCTOR STORAGE DEVICE

Yoichi Sato, Iruma, and Masao Mizukami, Yokohama, both of Japan, assignors to Hitachi, Ltd. and Hitachi VLSI Engineering Corp., both of Tokyo, Japan

Continuation of Ser. No. 465,983, Jan. 16, 1990, Pat. No. 4,984,201. This application Jan. 7, 1991, Ser. No. 637,809
Claims priority, application Japan, Jan. 13, 1989, 1-7146
Int. Cl.[5] G11C *7/00, 11/407, 8/00*
U.S. Cl. 365—154 **28 Claims**



1. A semiconductor storage device comprising:

an intersecting arrangement of word lines and data lines;

a plurality of memory cells, each one being coupled to a respective word line and to a respective data line near an intersection thereof;

first selection means for selecting one of said word lines;

column switch means for coupling said data lines with a first common data line;

second selection means being coupled to said column switch means and effecting selective coupling, through said column switch means, of one of said data lines with said first common data line;

latch means included in each of said plurality of memory cells for storing data and including at least a first node and a second node where signals which are complementary with respect to each other respectively appear thereat;

first switch IGFETs each one thereof having a gate terminal coupled to a word line of a corresponding memory cell and having first and second input/output terminals, the first input/output terminal thereof being coupled with a data line of said corresponding memory cell and the second input/output terminal thereof being electrically coupled with the first node of the latch means of said corresponding memory cell;

second switch IGFETs each one thereof having first and second input/output terminals and a gate terminal, the first input/output terminals thereof being coupled with the second node of said latch means of a corresponding memory cell, and the gate terminal thereof being coupled with a respective one of column selection word lines for writing; and

third switch IGFETs, having first and second input/;output terminals and a gate terminal, wherein each third switch IGFET provided is correspondingly associated with at least one of said plurality of memory cells, the first input-/output terminal thereof being coupled with the second input/output terminal of said second switch IGFET of said at least one memory cells, the gate terminal thereof being coupled with a respective one of row selection word lines for writing, and the second input/output terminal thereof being supplied with data to be written.

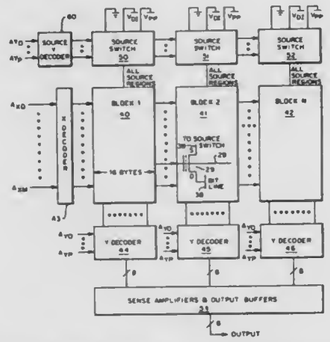
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,364

APPARATUS FOR PROVIDING BLOCK ERASING IN A FLASH EPROM

Gregory E. Atwood, San Jose; Albert Fazio, Los Gatos, and Richard A. Lodenquai, San Jose, all of Calif., assignors to Intel Corporation, Santa Clara, Calif.

Filed Sep. 15, 1989, Ser. No. 407,645
Int. Cl.[5] G11C *11/34, 7/00, 8/00*
U.S. Cl. 365—185 **11 Claims**



1. A memory array having a plurality of electrically programmable and electrically erasable memory cells each having a source region, drain region, floating gate and control gate, comprising:

a plurality of blocks, each of said plurality of blocks having a plurality of generally parallel bit lines coupled to drain regions of a number of said plurality of electrically programmable and electrically erasable memory cells;

a plurality of source switches, one for each of said plurality of blocks, source regions of said number of said plurality of electrically programmable and electrically erasable memory cells in each of said plurality of blocks being coupled to one of said plurality of source switches, each of said plurality of source switches coupling a source region of each of said number of said plurality of electrically programmable and electrically erasable memory cells in a respective one of said plurality of blocks to one of a first potential, a second potential and a third potential at a time;

a plurality of word lines generally perpendicular to said plurality of gnerally parallel bit lines, each of said plurality of word lines being continuous and extending through said plurality of blocks, with each of said plurality of word lines being coupled to a control gate of one of said plurality of electrically programmable and electrically erasable memory cells for each of said plurality of generally parallel bit lines;

row decoder means for decoding row addresses and for selecting during programming a selected one of said plurality of word lines, such that when said selected one of said plurality of word lines is selected, a programming potential is coupled to control gate of said cells for each of said plurality of generally parallel bit lens along said selected one of said plurality of word lines in all of said plurality of blocks; and

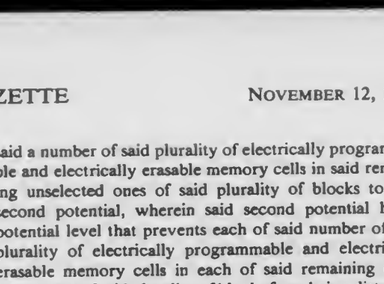
second decoder means for selecting during programming a selected one of said plurality of blocks by selecting a set of said plurality of generally parallel bit lines in said selected one of said plurality of blocks for programming and selecting one of said plurality of source switches associated with said selected one of said plurality of blocks to couple source regions of a number of said plurality of electrically programmable and electrically erasable memory cells in said selected one of said plurality of blocks to said first potential while selecting remaining ones of said plurality of source switches associated with remaining unselected ones of said plurality of blocks to couple source regions of said a number of said plurality of electrically programmable and electrically erasable memory cells in said remaining unselected ones of said plurality of blocks to said second potential, wherein said second potential has a potential level that prevents each of said number of said plurality of electrically programmable and electrically erasable memory cells in each of said remaining unselected ones of said plurality of blocks from being disturbed by said programming potential, and for selecting during erasing one of said plurality of blocks for erasing by selecting one of said plurality of source switches to couple the source regions of a number of said plurality of electrically programmable and electrically erasable memory cells in said selected one of said plurality of blocks for erasing to said third potential while selecting remaining ones of said plurality of source switches associated with remaining unselected ones of said plurality of blocks for erasing to couple source regions of a number of plurality of electrically programmable and electrically erasable memory cells in remaining unselected ones of said plurality of blocks for erasing to said first potential.

5,065,365

SEMICONDUCTOR MEMORY DEVICE CARRYING OUT READING AND WRITING OPERATIONS IN ORDER IN ONE OPERATING CYCLE AND OPERATING METHOD THEREFOR

Kazutoshi Hirayama, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 338,836, Apr. 14, 1989, abandoned.
This application Mar. 4, 1991, Ser. No. 663,787
Claims priority, application Japan, Oct. 3, 1988, 63-249358
Int. Cl.[5] G11C *8/00*
U.S. Cl. 365—189.05 **10 Claims**



1. A semiconductor memory device adapted to perform a reading operation and a writing operation in a single operating cycle specified by one cycle of a first state control signal for controlling a state of said device, said device comprising:

first means for receiving an output enable signal, a write enable signal and said first state control signal from an external source,

a memory array having memory cells for storing a first data signal, the first data signal stored in a memory cell of said memory array being read out in response to a second state control signal,

I/O lines means connected to said memory array for inputting/outputting a data signal to/from said memory array,

latch means connected to receive a second data signal to be written for latching the second data signal in response to the first state control signal,

output buffer means connected to receive the first data signal from the memory cell of said memory array via said I/O lines means,

said output buffer means receiving the first data signal from said memory array in response to the second state control signal and the output enable signal, and then outputting the first data signal,

switching means connected between said latch means and said I/O lines means,

said switching means being turned on in response to the second state control signal

the second data signal, latched by said latch means, being provided to said memory array via said switching means and said I/O lines means;

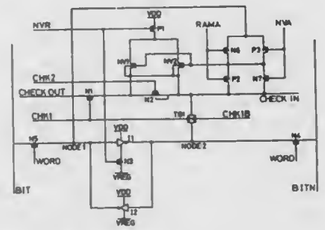
wherein said second data signal is provided to said memory array via said switching means and said I/O line means and said first data signal is read out, simultaneously.

5,065,366

NON-VOLATILE RAM BIT CELL

Daniel H. Bennett, Guildford; Gary L. Dodd, East Molesey, and Kenelm G. D. Murray, Chiddingfold, all of United Kingdom, assignors to Hughes Microelectronics Limited, Fife, Scotland

Filed Jul. 17, 1990, Ser. No. 554,046
Claims priority, application United Kingdom, Jul. 13, 1989, 8916019
Int. Cl.[5] G11C *29/00*
U.S. Cl. 365—201 **8 Claims**



1. A memory cell, comprising:

a bistable latch having first and second nodes;

a first nonvolatile transistor having a source, a drain and a control gate;

a second nonvolatile transistor having a source, a drain and a control gate;

wherein the control gates of the nonvolatile transistors are electrically coupled to the first node and the second node is electrically coupled to one of the source and the drain of each nonvolatile transistor; and

means for checking the nonvolatile transistors, the checking means comprising a first switch electrically coupled to the one of the source and drain of the first nonvolatile transistor; a second switch electrically coupled between the one of the source and drain of the first nonvolatile transistor and the one of the source and drain of the second nonvolatile transistor; a third switch electrically coupled between the one of the source and drain of the second nonvolatile transistor and the second node; means for enabling the first and third switches and means for enabling the second switch.

5,065,367

HIGH-GAIN SENSE AMPLIFIERS ARRAY FOR HIGH-SPEED READ OPERATION

Kenji Kondou, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 6, 1990, Ser. No. 505,390
Claims priority, application Japan, Apr. 6, 1989, 1-88932
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—208 **9 Claims**

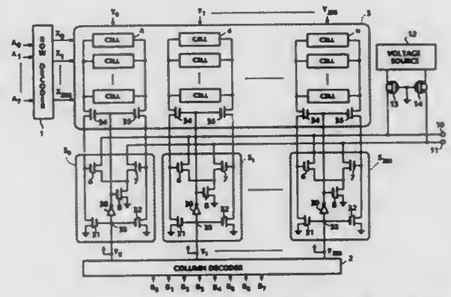
1. An amplifier circuit for an array of cells organized into a plurality of cell groups, each of said cell groups having a pair of data lines, and means for selectively applying differential signals from a selected memory cell to the data lines associated with the selected memory cell, comprising:

voltage supply means coupled to first and second output terminals; and

a plurality of sense amplifiers associated respectively with said cell groups, each of said sense amplifiers comprising:

a first transistor having a source-drain current path connected at one end thereof to said first output terminal and a gate electrode connected to one of the data lines of the associated cell group;

a second transistor having a source-drain current path connected at one end thereof to said second output terminal and a gate electrode connected to the other data line of the associated cell group;



a third transistor for grounding the other ends of the source-drain current paths of said first and second transistors when said associated cell group is selected during a read cycle to cause said first and second transistors to respond to complementary voltages supplied through the data lines of the associated cell group; and

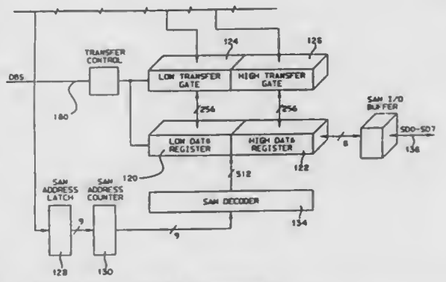
fourth and fifth transistors for grounding the gate electrodes of said first and second transistors when said associated cell group is not selected during said read cycle to prevent said first and second transistors from responding to voltages supplied from one of the memory cells of said associated cell group.

5,065,368

VIDEO RAM DOUBLE BUFFER SELECT CONTROL

Satish Gupta, Peekskill; Randall L. Henderson, West Hurley, both of N.Y.; Nathan R. Hiltebeitel, South Burlington, Vt.; Robert Tamlyn; Steven W. Tomashot, both of Jericho, Vt., and Todd Williams, Essex Junction, Vt., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed May 16, 1989, Ser. No. 352,442
Int. Cl.[5] G11C *8/00*
U.S. Cl. 365—230.05 **8 Claims**



1. A dual-port memory comprising:

a memory array having a plurality of memory elements each

VOL 1132 ISS 2 NO 12 1991 UMI

of which is accesses at random by a row and column address input to enable writing in or reading out of data at said row and column location;

first and second serial access memory means, each selectively accessing a specified portion of the data of a row of said memory elements in parallel;

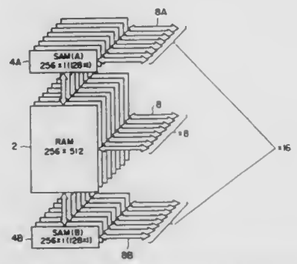
control means for serially transferring data between said first and second serial access memory means and an output port in synchronism with a clock signal; and

selection means for selectively actuating said control means to couple said first or secod serial access memory means to said output port, said selection means being responsive to a selection control signal which may be varied arbitrarily between successive cycles of said clock signal to select a particular one of said serial access memory means.

5,065,369
VIDEO MEMORY DEVICE

Haruki Toda, Yokobama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Sep. 14, 1989, Ser. No. 407,310
Claims priority, application Japan, Sep. 21, 1988, 63-237396
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—230.05 **13 Claims**



1. A video memory device comprising a RAM and a plurality of SAMs, wherein

said RAM is constructed of a plurality of memory cells disposed in a matrix having a plurality of rows and columns, one of said memory cells being selected through designation by row and column addresses, and one bit data being transmitted between said selected memory cell and a RAM port, said one bit data being input/output to/from the RAM port; and wherein

each of said SAMs is constructed as a multi-word length type and connected to a plurality of columns of said RAM, and each of said SAMs transmits/receives data to/from said memory cells belonging to said columns connected to said each of said SAMs, and each of said SAMs has one SAM port for inputting/outputting data and each of said SAMs inputs/outputs data from/to the SAM port, and said plurality of SAMs is adapted to output data at the same time, whereby the data in said RAM are input/output as multi-bit data via said plurality of SAM ports of said plurality of SAMs.

5,065,370
PROGRAMMABLE PULSE SHAPER FOR SONOBOUY APPARATUS

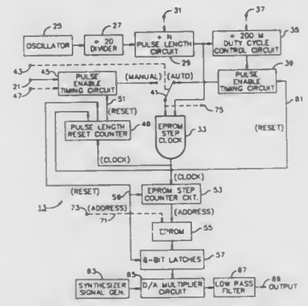
Keith S. Rizkowski, Burlington, N.J., and David E. Zeidler, Hatboro, Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Nov. 28, 1990, Ser. No. 619,781
Int. Cl.[5] H04B *1/59*
U.S. Cl. 367—3 **20 Claims**

1. An oceanographic-type sonar pulse generator for providing pulse drive signals for generating sonar pulses, said pulse drive signals being programmably selectable as to repetition rate and as to pulse envelope profile and pulse length comprising:

a programmable pulse shaper circuit for generating output signals with preselected pulse envelopes;

a sonic energy transponder for producing sonar pulses and for receiving reflected sonar pulses;



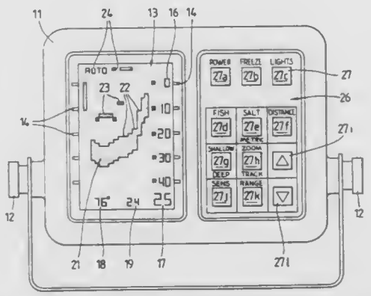
a drive amplifier connected between the output of said programmable pulse shaper circuit and the input of said sonic energy transponder, said drive amplifier driving said transponder in response to the output of said programmable pulse shaper circuit; and

a power supply connected to power said programmable pulse shaper circuit and said drive amplifier.

5,065,371
DEPTH FINDER HAVING VARIABLE MEASUREMENT CAPABILITIES

David R. Leavell, Columbus, Ga.; Earl W. Spencer, Jr., Montgomery, and Kenneth W. Goodman, Opelika, both of Ala., assignors to Microsonics, Inc., Columbus, Ga.

Filed Jul. 23, 1990, Ser. No. 556,830
Int. Cl.[5] G01S *15/96*
U.S. Cl. 367—111 **5 Claims**



1. A depth finder utilizing sonar pulses to locate the bottom of a body of water and objects submerged within the body of water comprising a transmitter for producing sonar pulses, a transducer connected to said transmitter for inputting and directing sonar pulses in said body of water, a receiver for amplifying detected sonar pulses, a microprocessor including a programmable controller having resident therein a set of instructions for controlling the receipt of signals from said receiver and for calculating the depth of a sonar reflection from transmitted and detected sonar pulses, with said microprocessor being operably connected to said transmitter and receiver and a display means, the improvement in said depth finder comprising: operator input means connected to said microprocessor for providing commands thereto; means responsive to said input means for selectively varying the rate at which detected sonar pulses are sampled interactive with said set of instructions to selectively sample at a first rate or a second rate wherein said first rate is correlated to the speed of sound in fresh water such that $S_F/F_F=S_S/F_S$

Where S_F=speed of sound in fresh water

F_F=sampling rate in fresh water

S_S=speed of sound in salt water

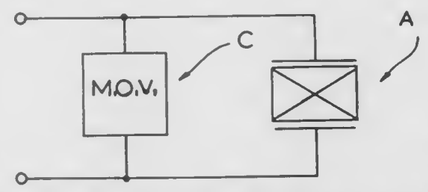
F_S32 sampling rate in salt water; and

means responsive to said input means for selectively varying the scale of a display presented on said display means.

5,065,372
SONAR TRANSDUCER WITH EXPLOSIVE SHOCK PROTECTOR

Joe Garwood, Holliston; Thomas Baldasarre, Bridgewater; Mario Delara, Boston; John Pagliarini, Jr., Ocean Bluff; Alfred Poturnicki, Jr., Duxbury, and James Traft, Milton, all of Mass., assignors to General Instrument Corp., Pa.

Filed Aug. 13, 1990, Ser. No. 565,979
Int. Cl.[5] H04R *1/02*
U.S. Cl. 367—152 **2 Claims**



1. A sonar transducer comprising energy converting means and means for protecting the transducer from the high electrical energy output of said energy converting means resulting from a rapid increase in mechanical energy of the type accompanying an underwater explosion, said means for protecting the transducer comprising variable electrical impedance means operably electrically connected in parallel with said converting means, said variable impedance means normally having a very high electrical impedance but effective to become conductive upon application of a very high electrical energy output of said converting means, and wherein said variable electrical impedance means comprises varistor means.

5,065,373
METHOD AND DEVICE FOR HOLDING AN EYEGLASS WITH SUPERIMPOSED LENSES TO A WRIST WATCH

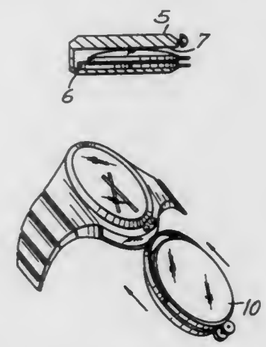
Sergio Alcantara Maia, Alameda Casa Branca, 752-Apt. 31, Sao Paulo, Brazil

Filed Aug. 17, 1988, Ser. No. 233,278
Claims priority, application Brazil, Mar. 24, 1988, 8801461[U]
The portion of the term of this patent subsequent to Dec. 12, 2006, has been disclaimed.
Int. Cl.[5] G04B *47/00, 37/00*
U.S. Cl. 368—10 **18 Claims**

1. A portable device, comprising:

a frame having an area formed to accomodate a watch body; and

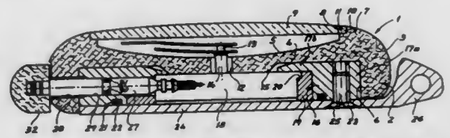
a drawer formed on said frame underneath said area, said drawer being formed to accomodate an eyeglass with superimposed lenses, said drawer having a bottom and a wall extending from said bottom, said wall having an opening through which said eyeglass is removably insertable.



5,065,374
LEATHER WATCHCASE AND METHOD OF MANUFACTURE THEREOF

Robert Soder, Montreux, and Albert Willemin, Le Landeron, both of Switzerland, assignors to ETA SA Fabriques d'Ebauches, Granges, Switzerland

Filed Oct. 26, 1987, Ser. No. 112,155
Claims priority, application Switzerland, Oct. 28, 1986, 04263/86
Int. Cl.[5] G04B *37/00*
U.S. Cl. 368—280 **14 Claims**



1. A watch case having a caseband, a bezel, a back cover and a glass fixed to said bezel, said watch case enclosing a movement onto which a dial is superposed, characterized in that at least one element of the group of elements consisting of said caseband bezel and dial is formed of solid leather and said bezel is formed of leather.

5,065,375
WATCH CASE INCLUDING TWO ABUTING SHELLS

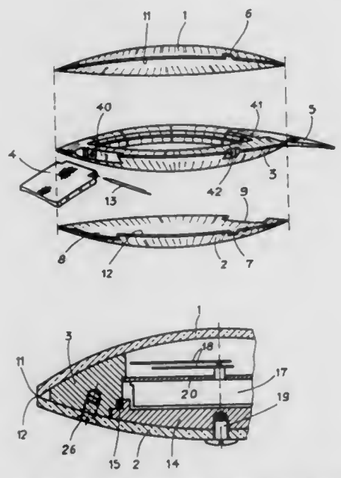
Paul Gogniat, Bienne, Switzerland, assignor to Montres Rado S.A., Lengnau, Switzerland

Filed Feb. 15, 1991, Ser. No. 655,801
Claims priority, application Switzerland, Feb. 16, 1990, 00505/90
Int. Cl.[5] G04C *37/00*
U.S. Cl. 368—281 **13 Claims**

1. A watch case for a watch having a caseband, a movement and time display elements, said watch case comprising upper shell, at least a portion of which is transparent so that the time display elements are visible therethrough, and, a lower shell, said caseband being arranged between said shells proximate the periphery thereof, said shells and said caseband defining an interior space in which said movement is located, said shells each having an upper and a lower face and a substantially constant thickness over their entire extent, said caseband having upper and lower surfaces matching the form of the respec-

VOL
1132
ISS
2
NO
12
1991
UMI

tive lower and upper faces of said upper and lower shells, respectively, so as to serve as support surfaces onto which said shells are fixed, case caseband being entirely confined within



said shells, and said shells having edges which substantially abut each other over at least a portion of their periphery, said edges being visible from the exterior of the watch case.

5,065,376

WRISTWATCH WITH REMOVABLE AND INTERCHANGEABLE STRAP

Jean-Pierre Choulat, Neuchâtel, Switzerland, assignor to Produsta S.A., Switzerland

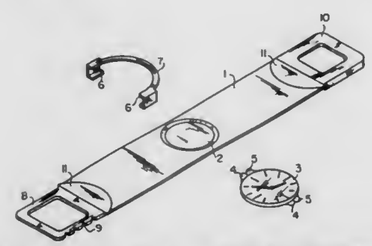
PCT No. PCT/CH89/00125, § 371 Date Feb. 27, 1990, § 102(e) Date Feb. 27, 1990, PCT Pub. No. WO90/00272, PCT Pub. Date Jan. 11, 1990

PCT Filed Jun. 27, 1989, Ser. No. 459,797

Claims priority, application Switzerland, Jul. 1, 1988, 2522/88

Int. Cl.[5] G04B *37/00*

U.S. Cl. 368—282 **4 Claims**



1. A wristwatch with a removable and interchangeable strap, said wristwatch comprising a single-piece strap provided with means for securing its ends together and with a recess for accommodating an hour module, said hour module comprising two projections which extend laterally in substantially opposite positions, so as to rest over the upper face of the strap between the hour module and the side edges of the strap, and a flat fastening member provided with clamping means arranged for cooperating with said projections of the hour module, said fastening member being slidably mounted over the strap, so as to be able to be displaced between an unlocking position, in which said member is located between the housing of the hour module and one of the extremities of the strap with its clamping means disengaged from the said projections of the hour module, and a locking position in which the clamping means cooperate with the projections of the hour module so as to retain the module in its said housing on the strap and wherein said fastening member comprises an elongated part delimited on its side facing the recess provided on the strap for lodging the hour module, by an edge having a shape matching the shape of the hour module, each extremity of said elongated part being connected to a U-shaped profile straddling one of the side edges of the strap.

5,065,377

METHOD OF AND APPARATUS FOR WRITING AND READING A MAGNETO-OPTICAL RECORD CARRIER WITH AN INFORMATION DENSITY GREATER THAN THAT CORRESPONDING TO THE SIZE OF THE SCANNING SPOT

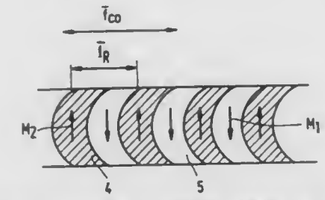
Johannes H. M. Spruit, and Bernardus A. J. Jacobs, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 20, 1989, Ser. No. 453,639

Claims priority, application Netherlands, Sep. 14, 1989, 8902293

Int. Cl.[5] G11B *11/00*

U.S. Cl. 369—13 **26 Claims**



1. A method of optically writing and reading information by forming a pattern of magnetic domains in a recording layer of a record carrier, said domains having directions of magnetization which differ from their surroundings; said method comprising:

focusing an optical scanning beam into a diffraction-limited radiation spot for scanning said recording layer;

during writing of an information signal, subjecting the region of the recording layer under the radiation spot to a magnetic field directed substantially perpendicular to the recording layer and which is generated by a coil energized by a square-wave energizing current which is modulated in accordance with the information signal, thereby forming successive magnetic domains in said recording layer having alternately reverse directions of magnetization; and

reading the recorded information signal by detecting the variation caused by said magnetic domains in the polarization of radiation produced from the record carrier during scanning thereof by the radiation spot;

characterized in that:

the frequency and amplitude of said square-wave energizing current are independent of the information signal to be written, and the frequency thereof exceeds the optical cut-off frequency determined by the size of the radiation spot; and

during writing of the information signal the duty cycle of said square-wave energizing current is modulated in accordance with such signal so as to write said magnetic domains with a varying ratio between the domain length and the domain period in the scanning direction, the different values of said ratio representing different values of the written information signal.

5,065,378

SYSTEM FOR REPRODUCING A SIGNAL RECORDED IN A MAGNETIC RECORDING MEDIUM BY USING A MAGNETOSTATIC WAVE

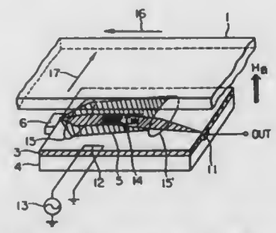
Hitoshi Oda; Takeo Ono, both of Yokohama; Toyoshige Sasaki, Funabashi; Kou Yoneda, Kawasaki, and Mamoru Miyawaki, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 291,363, Dec. 30, 1988, abandoned, which is a continuation of Ser. No. 804,111, Dec. 3, 1985, abandoned. This application Oct. 29, 1990, Ser. No. 604,992

Claims priority, application Japan, Dec. 12, 1984, 59-262253

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—14 **7 Claims**



1. A method of optically reproducing a signal recorded on a magnetic recording medium by using a light beam and a magnetic field including an electrode, the signal having magnetization in one of a first direction and a second direction, opposite to the first direction, said method comprising the steps of:

applying an electric signal to the electrode while applying a bias magnetic field to the magnetic film, thereby producing a magneto-static wave of a predetermined wave number propagating in a propagation direction in the magnetic film;

subjecting the magneto-static wave to the magnetization of the recorded signal, whereby the wave number of the magneto-static wave changes to a first value when the magnetization of the recorded signal is in the first direction and the wave number of the magneto-static wave changes to a second value, different from the first, when the magnetization of the recorded signal is in the second direction;

directing the light beam in a direction to intersect the direction of propagation of the magneto-static wave during said subjecting step, whereby the light beam is directed in a third direction, according to the first value of the wave number, when the magnetization of the recorded signal is in the first direction, and the light beam is directed in a fourth direction, different from the third, according to the second value of the wave number, when the magnetization of the recorded signal is in the second direction;

detecting the direction, from the third and fourth direction, which the light beam is directed in said directing step; and

reproducing the recorded signal in accordance with detection of the light beam direction in said detecting step.

5,065,379

MEDIA INSERTION MEANS FOR AN AUTOMATED DATA LIBRARY

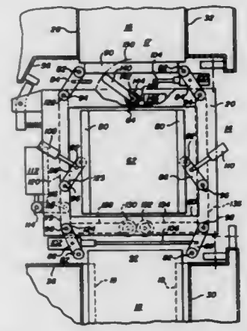
Stephen P. Smith, and John J. Ellis, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 10, 1990, Ser. No. 508,039

Int. Cl.[5] G11B *17/00, 17/22*

U.S. Cl. 369—36 **4 Claims**

1. In an automated data library comprising a plurality of storage means each arranged to accept and store a data storage member, a reading device arranged to retrieve data from a data storage member, carriage means arranged to selectively transfer data storage members between said storage means and said reading device, said reading device including an opening through which a data storage member is introduced and ejected from said reading device, the improvement comprising lever means disposed along a side of said carriage adjacent said reading device and arranged for movement between a rest position within the perimeter of said carriage and an extended



position whereby said lever means engages an end edge of a data storage member extending from said opening in said reading device to fully insert said data storage member into said reading device, and a reversible motor mounted on said carriage for moving said lever means between said rest position and said extend position.

5,065,380

DIFFRACTION GRATING FOR AN OPTICAL PICKUP DEVICE

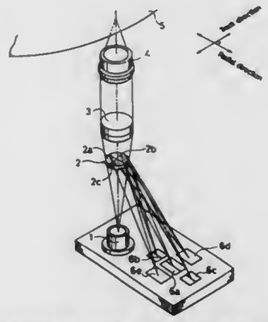
Taizo Yokota, Higashihiroshima, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Aug. 23, 1989, Ser. No. 397,189

Claims priority, application Japan, Sep. 2, 1988, 63-219712

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—44.12 **17 Claims**



1. An optical pickup device for focusing an irradiating ray from a light emitting element on a recording medium and for causing a reflected ray reflected from the recording medium to focus on a light receiving element, comprising:

a diffracting element;

said diffracting element including,

a first diffraction region for separating the irradiating ray from the light emitting element into a main beam and sub-beams shifted from said main beam in a direction perpendicular to a track direction, said sub-beams for detecting an inclination of the recording medium, and

a second diffraction region for directing a reflected ray of said main beam reflected from the recording medium

VOL 1132 ISS 2 NO 12 1991 UMI

onto a main light receiving element and for directing reflected rays of said sub-beams reflected from the recording medium onto sub-light receiving elements; and

an arithmetic circuit for producing a tilt error signal, said tilt error signal indicating the inclination of the recording medium.

5,065,381

OPTICAL PICK-UP APARATUS

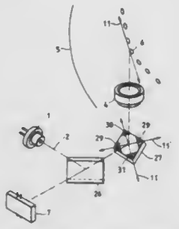
Shinichi Takahashi, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jun. 9, 1989, Ser. No. 363,814

Claims priority, application Japan, Jul. 27, 1988, 63-98341[U]

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—44.23 **8 Claims**



1. An optical pick-up apparatus in which a light beam from a laser beam source is reflected by an optical element and is incident onto a disk, said apparatus comprising:

a support structure disposed in said optical element and making a deforming direction, of the optical element caused by the support structure, parallel to a track direction of the disk mirrored on the optical element.

5,065,382

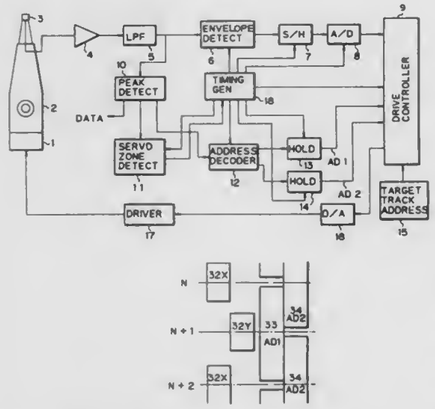
DISC MEMORY APPARATUS

Satoru Seko, and Yoshiyuki Kunito, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Sep. 27, 1990, Ser. No. 588,695

Int. Cl.[5] G11B *21/02, 7/095*

U.S. Cl. 369—44.26 **7 Claims**



1. A disc memory apparatus comprising:

transducer means for reading and writing information on a disc;

at least one disc medium having a plurality of concentric tracks each of which is divided into plural data sectors and plural servo sectors therebetween,

said data signal being recorded and read by said transducer means on and from said data sectors,

said servo sectors having first address region for odd one of said concentric tracks and second address region for even one of said concentric tracks, wherein first and second address signals are prerecorded in said first and second address regions respectively,

the width of said address regions in a radial direction of said disc medium being substantially larger than track pitch of said concentric tracks,

said first and second address regions being located at different positions in a direction perpendicular to said radial direction, and

said servo sectors further having first and second marker regions the centers of which are corresponding to the centers of said odd and even one of said concentric tracks respectively, wherein first and second marker signals are prerecorded in said first and second marker regions respectively;

positioning means for positioning said transducer means on a selected one of said concentric tracks;

servo signal processing means for receiving said address signals and marker signals and for outputting servo control signal; and

positioning control means for receiving said servo control signal and for controlling said positioning means so that said transducer means seeks said selected one of said concentric tracks.

5,065,383

TRACKING SERVO SYSTEM ADAPTED TO OPERATE WITH VARIABLE TRACK PITCH

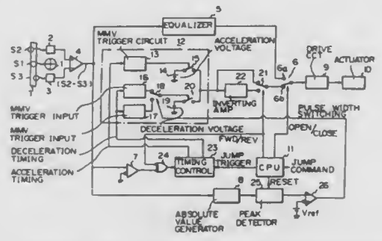
Kiyoshi Tateishi, and Haruyasu Sakata, both of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Apr. 6, 1989, Ser. No. 334,189

Claims priority, application Japan, Sep. 16, 1988, 63-231894

Int. Cl.[5] G11B *7/95*

U.S. Cl. 369—44.28 **6 Claims**



1. A tracking servo system for use in a disc player having a pickup, for playing an information recording disc having a recording track, said tracking servo system, including a servo loop, comprising means for generating a tracking error signal corresponding to an amount of deviation, in a radial direction of said disc, of an information reading spot of said pickup with respect to said recording track, and drive means for shifting said information reading spot in said radial direction of said disc in response to said tracking error signal, said servo loop opening in response to a jump command and closing upon completion of a jump operation having a given period, said tracking servo system further comprising:

pulse producing means for applying to said drive means an acceleration pulse when said jump command is generated and a deceleration pulse at a predetermined time in said period of said jump operation;

peak value detecting means for detecting a peak value of said tracking error signal obtained during said jump operation; and

control means for performing a control operation upon said pulse producing means for varying at least one of a pulse width and pulse height of said deceleration pulse in response to said peak value detected by said peak value detecting means.

5,065,384

CLOCK SIGNAL GENERATING CIRCUIT FOR A DATA STORING AND REPRODUCING SYSTEM

Fumihiko Yokogawa, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

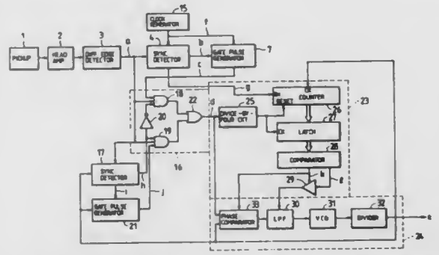
Filed Dec. 5, 1988, Ser. No. 280,042

Claims priority, application Japan, Dec. 17, 1987, 62-319563

The portion of the term of this patent subsequent to Oct. 3, 2006, has been disclaimed.

Int. Cl.[5] G11B *5/76*

U.S. Cl. 369—47 **3 Claims**



1. A clock signal generating circuit for generating a clock signal for use in a data storage and reproduction system, said clock signal having a predetermined frequency in synchronism with clock edge pulses each of which exists at a predetermined location in a sync-signal section having a predetermined length between two adjacent pulses thereof, said clock signal generating circuit comprising:

a first clock signal generating means for generating a reference clock signal having a predetermined frequency;

a first synchronism detection means for measuring a time period between the two adjacent pulses in an input signal on the basis of said reference clock signal for said time period and outputting a first syncsignal detection signal when said measured time period is equal to a predetermined value;

a separation means for separating said clock edge pulses in said input signal in response to said first sync-signal detection signal, and outputting said clock edge pulses; and

a second clock signal generating means for generating a reproducing clock signal having a predetermined frequency in synchronism with said clock edge pulses which are outputted from said separation means.

5,065,385

TIME BASE CONTROL SYSTEM WITH COARSE AND FINE CORRECTION FOR A SPINDLE SERVO

Yoshikiyo Konno, Tokorozawa, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Jun. 29, 1989, Ser. No. 372,759

Claims priority, application Japan, Jan. 13, 1989, 1-6265

Int. Cl.[5] G11B *5/09*; H04N *9/89*

U.S. Cl. 369—50 **3 Claims**

1. A disc player for reading information from a recording disc, comprising:

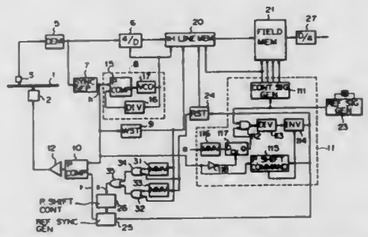
signal reading means for reading a signal recorded on said recording disc and generating a read signal representative thereof,

spindle reference signal generating means for generating a spindle reference signal whose phase is changed in response to a jump command,

reference sync signal generating means for generating a reference sync signal having a predetermined frequency,

spindle servo control means for controlling a spindle servo to perform a coarse adjustment of a time base of said read signal on the basis of a phase difference between a reproduced sync signal obtained from said read signal and said reference sync signal,

fine adjustment means for performing a fine adjustment of the time base by writing a data signal, which is obtained by sampling said read signal according to a write clock signal obtained on the basis of said reproduced sync signal,



into a memory sequentially in synchronism with said reproduced sync signal, starting from a predetermined address in response to a write address count starting signal in synchronism with said reproduced sync signal, and subsequently by reading the data sequentially from said memory in synchronism with said spindle reference signal while starting from said predetermined address in response to a read address count starting signal, and

phase shift command issuance means for issuing a phase shift command when a difference in timing between said address count starting signal and said read address count starting signal is smaller than a predetermined time period,

wherein said reference sync signal generating means, responding to said phase shift command, shifts, the phase of said reference sync signal so that said reference sync signal has a predetermined phase difference with said spindle reference signal.

5,065,386

SERVO SYSTEM RESPONSIVE TO NOISE AND HAVING VARIABLE CHARACTERISTIC FILTER MEANS

Noriyoshi Takeya; Hidehiro Ishii; Chiharu Miura, and Tatsuya Fukuda, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Dec. 14, 1989, Ser. No. 452,703

Claims priority, application Japan, Apr. 5, 1989, 1-86033

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—44.32 **2 Claims**

1. A servo system for a disc player having a pickup for reading information recorded on an information recording disc, said servo system including an A/D converter for converting an error signal produced on the basis of signals output from said pickup into a digital signal, and adapted to drive and control said pickup according to the signal level of said error signal having been processed digitally, said servo system further comprising:

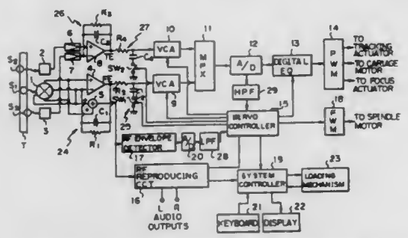
filter means for permitting low frequency components of said error signal to pass therethrough and supplying said low frequency components to said A/D converter;

detection means for detecting noise components having levels higher than a predetermined level, contained in said error signal; and

means for generating a control signal for a predetermined

VOL 1132 ISS 2 NO 12 1991 UMI

period after an instant of detection of said noise components by said detection means, wherein said filter means is adapted to have a first transmission characteristic with a cut-off frequency below one half of a sampling frequency



of said A/D converter when said control signal is absent, and a second transmission characteristic with another cut-off frequency lower than said cut-off frequency when said control signal is present.

5,065,387

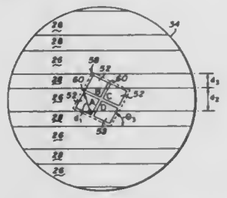
METHOD AND APPARATUS FOR GENERATING TRACKING ERROR SIGNALS BY MEANS OF AN OPTICAL SERVO SYSTEM

Maxim Roth, Cupertino; Jimmy D. Godwin, San Jose, and Roger O. Williams, Fremont, all of Calif., assignors to Insite Peripherals, Inc., San Jose, Calif.

Division of Ser. No. 178,542, Apr. 7, 1988, Pat. No. 4,958,245. This application Jun. 12, 1990, Ser. No. 537,053

Int. Cl.[5] G11B *21/10*

U.S. Cl. 369—44.41 **4 Claims**



1. A method for generating servo information from a medium wherein said information includes two servo signals 90° out of phase with each other and each being a function of radial off track position, the method comprising the steps of:

a. aligning a multi-element photodetector array such that the space between adjacent elements is not parallel to the tangent of groove images impinging thereon;

b. generating a first set of signals comprising two continuous signals, signal A and signal B, which signals A and B are out of phase relative to each other by an amount not equal to 0°, the first set of signals including information about the relative positions of at least a first nonreflective area and at least one reflective area on said medium;

c. generating a second set of signals comprising two continuous signals, signal C and signal D, which signals C and D are out of phase relative to each other by an amount not equal to 0°, the second set of signals including information about the relative positions of at least a second nonreflective area and said reflective area on said medium;

d. forming a signal U by subtracting signal B from signal A;

e. forming a signal V by subtracting signal D from signal C;

f. forming an N signal by adding said U signal to said V signal; and

g. forming a Q signal by subtracting said V signal from said U signal.

5,065,388

METHOD AND APPARATUS FOR RECORDING ON A RECORD CARRIER A TABLE OF CONTENTS IDENTIFYING ALL THE RECORDED DATA SIGNALS

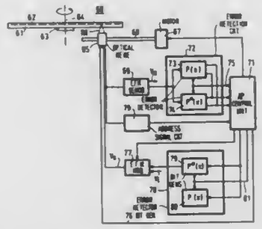
Rudolf Roth, and Paulus C. M. Van Der Zande, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Sep. 5, 1989, Ser. No. 403,269

Claims priority, application Netherlands, Mar. 29, 1989, 8900766

Int. Cl.[5] G11B *7/00*

U.S. Cl. 369—47 **14 Claims**



1. A method of recording a series of data signals on a record carrier of an inscribable type, characterized in that after recording of a data signal address information indicating the position of said data signal on the record carrier is stored in a temporary table of contents, a final table of contents in the form of a final address information signal being recorded after the last data signal of the series has been recorded on the record carrier, which final table of contents is derived from the temporary table of contents.

5,065,389

INFORMATION RECORDING AND READ DEVICE, INFORMATION RECORDING DEVICE, AND RECORD CARRIER OBTAINED BY MEANS OF ONE OF THE DEVICE

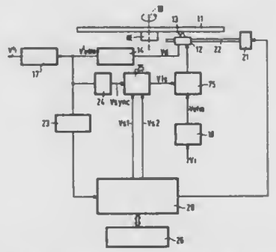
Rudolf Roth, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 8, 1990, Ser. No. 521,068

Claims priority, application Netherlands, Aug. 24, 1989, 8902136

Int. Cl.[5] G11B *5/09, /13/04*

U.S. Cl. 369—48 **20 Claims**



1. An information recording and read device for recording and reading information on/from an inscribable record carrier of a write-once type, the recorded information being adapted for the application of redundancy thereto enabling error correction, the device comprising: recording means for recording an information pattern in a track on the record carrier which pattern is representative of the information to be recorded; reading means for converting the information pattern into an information signal; and control means for controlling the recording and/or reading process on the basis of control information in the track; the reading means comprising a correction circuit for correcting, on the basis of the redundancy in the information, the errors in the information being read and for suppressing the information signal in the case that the correction circuit is not capable of correcting the errors; and the device further comprising means for partly mutilating the recorded information pattern in a selected part of the track, portions with a mutilated information pattern and portions with an undamaged information pattern alternating with each other in a manner such that control on the basis of the control information in the track remains possible even when the error correction circuit is no longer capable of correcting the errors.

5,065,390

OPTICAL PLAYBACK HEAD

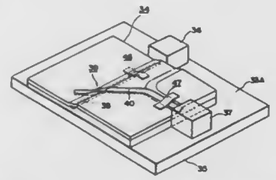
Telichi Miyauchi; Yutaka Soda, and Tetsuo Sekiya, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Apr. 20, 1989, Ser. No. 341,115

Claims priority, application Japan, Apr. 22, 1988, 63-099380; Apr. 25, 1988, 63-102300; Sep. 28, 1988, 63-243340; Oct. 31, 1988, 63-275322; Oct. 31, 1988, 63-275330

Int. Cl.[5] G11B *11/00, 7/00*

U.S. Cl. 369—110 **22 Claims**



1. A magneto-optical playback head, comprising:

a first optical waveguide facing to a light source at one end thereof and facing to a magneto-optical recording medium at another end thereof for guiding an incident light beam to said magneto-optical recording medium;

a second optical waveguide for guiding a light beam reflected from said magneto-optical recording medium to a photodetector provided at one end thereof;

a polarizer provided for said first optical waveguide; and

an analyzer provided for said second optical waveguide, said polarizer and said analyzer being formed by providing first and second conductive layers overlying respective portions of said first and second optical waveguides, with first and second insulating buffer layers interposed therebetween, respectively, and said polarizer and analyzer comprising means for maximizing a playback signal by transmitting a first light mode and absorbing a second light mode.

5,065,391

CARTRIDGE CASE FOR A DISK

Yoshinori Funaki, Himeji, Japan, assignor to Daicel Chemical Industries, Ltd., Osaka, Japan

Filed Apr. 26, 1990, Ser. No. 514,843

Claims priority, application Japan, Feb. 13, 1989, 1-15573[U]

Int. Cl.[5] G11B *3/70, 5/02, 23/03*

U.S. Cl. 369—291 **7 Claims**

1. A cartridge case for a disk comprising:

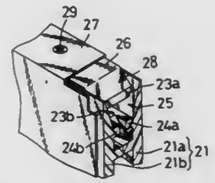
a case for rotatably housing a disk;

openings formed in both lateral sides of said case;

a guide groove formed in an end of said case, said guide groove having a V-shaped inwardly tapering cross-section;

a slider slidably disposed in said guide groove, said slider having a corresponding V-shaped cross-section to fit said guide groove;

a shutter attached to said slider and adapted to open and close said openings; and



either said slider or said shutter being provided at an end thereof with an inclined surface which is fit to said guide groove, said surface being inclined toward the inside of said guide groove.

5,065,392

NETWORK CONTROLLER SCHEDULING SYSTEM AND METHOD OF OPERATION

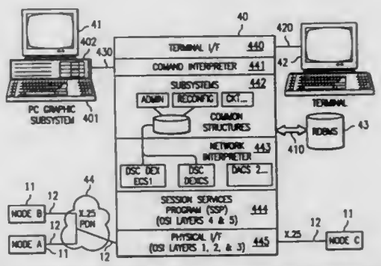
Marcille Sibbitt, Kensington, Calif., and Dowell Stackpole, Springtown, Tex., assignors to DSC Communications Corporation, Plano, Tex.

Filed Apr. 10, 1990, Ser. No. 507,594

The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.

Int. Cl.[5] H04Q *11/00;* H04M *3/22*

U.S. Cl. 370—58.2 **66 Claims**



1. A controller for controlling connections through two or more cross-connect nodes, with at least one of said nodes serving a plurality of different customers, each customer having one or more lines associated therewith and connected to said one node, said one node having a plurality of internodal links for interconnecting said cross-connect node with another cross-connect node to form a network of nodes, said cross-connect node to form a network of nodes, said cross-connect nodes each operable for establishing connections under control of said controller, for periods of time, from selected lines associated with selected ones of said customers to certain of said internodal links, said controller comprising:

means for receiving instructions from any of said customers;

means for monitoring the scheduled use of said internodal links;

means controlled jointly by received instructions from one of said customers and by said monitoring means for reserving certain of said internodal links for selected lines of said one customer for fixed determined periods of time; and

means controlled by said reserving means for establishing through said network connections from said one customer's selected lines to said reserved links at said designated period of time.

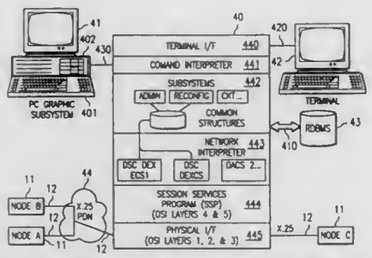
VOL 1132 ISS 2 NO 12 1991 UMI

5,065,393

NETWORK CONTROLLER BILLING SYSTEM AND METHOD OF OPERATION

Marcille Sibbitt, Kensington, Calif., and Dowell Stackpole, Springtown, Tex., assignors to DSC Communications Corporation, Plano, Tex.

Filed Apr. 10, 1990, Ser. No. 507,363
Int. Cl.[5] H04Q *11/00*; H04M *3/22*
U.S. Cl. 370—58.2 32 Claims



1. A controller for controlling connections through two or more cross-connect networks, with at least one of said networks serving a plurality of different customers, each customer having one or more lines associated therewith and connected to said one network, said one network having a plurality of links for interconnecting said cross-connect network with another cross-connect network, said cross-connect networks each operable for establishing connections under control of said controller, for periods of time, from selected lines associated with selected ones of said customers to certain of said inter-network links;

said controller comprising:

means for receiving instructions from any of said customers;

means for monitoring the scheduled use of said inter-network links;

means controlled jointly by received instructions from one of said customers and by said monitoring means for reserving certain of said inter-work links for selected lines of said one customer for fixed determined periods of time;

means controlled by said reserving means for establishing through said cross-connect network connections from said one customer's selected lines to said reserved links at said designated period of time; and

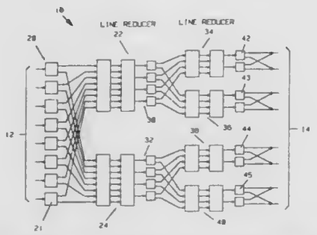
means for proving data pertaining to the length of time that any of said inter-network links are reserved by any particular customer.

5,065,394

PACKET ROUTING SWITCH

Ning Zhang, Dublin, Calif., assignor to Pacific Bell, San Francisco, Calif.

Filed Aug. 3, 1989, Ser. No. 400,121
Int. Cl.[5] H04Q *11/04*
U.S. Cl. 370—60 3 Claims



1. A packet routing network for outputting data packets input on a plurality of network input lines thereto a plurality of network output lines, wherein each data packet includes an address comprising m bits which specify a network output line on which said data packet is to be outputted, said routing network comprising m stages, m being greater than 2, number from 1 to m. stage 1 being the first stage through which a data packet passes and stage m being the last stage through which a data packet passes,

wherein each said stage comprises:

routing means including a plurality of routing input lines and routing output lines, a different pair of routing output lines corresponding to each input line, for transferring data packets input on each of said routing input lines to at most one of said two corresponding routing output lines depending upon a specified bit of said address included in the said data packet being transferred, and

wherein each stage having a number between 1 and (m-1) inclusive further comprises line reducing means for transferring each data packet input on a line reducing input line to one of a plurality of line reducing output lines, the number of said line reducing input lines being greater than the number of said line reducing output lines, wherein no two data packets are output on the same line reducing output line,

wherein there are two said line reducing means corresponding to each said routing means in said stages numbered 1 through (m-1), each routing output line being connected to line reducing input line, wherein each member o said pair of routing output lines is connected to a different said line reducing means,

and wherein each routing means input line in the first said stage is connected to a corresponding network input line, wherein each said line reducing output line in the stage numbered i, for i from 1 to (m-1) is connected to a routing input line in the stage numbered i+1 and wherein each said network output line is connected to two said routing output lines in the stage numbered m.

5,065,395

RUDIMENTARY DIGITAL SPEECH INTERPOLATION APPARATUS AND METHOD

Kishan Shenoi, Milpitas; Patrick L. Hanagan; Helena S. Ho, both of San Jose, and Frank I. Yu, Saratoga, all of Calif., assignors to DSC Communications Corporation, Plano, Tex.

Filed Apr. 9, 1990, Ser. No. 506,678
Int. Cl.[5] H04J *3/17*; G10L *3/00*
U.S. Cl. 370—81 34 Claims

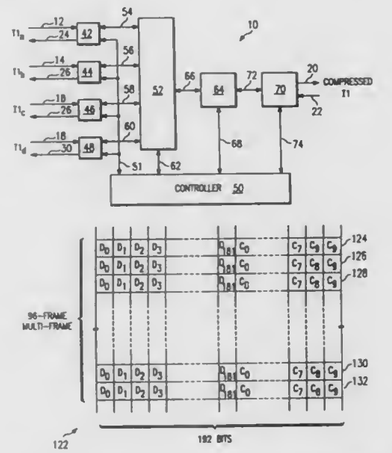
1. Apparatus for compressing data on a plurality of channels by digital speech interpolation, comprising:

means for determining whether each channel is silent or non-silent at time t by determining whether the signal on each channel has been below a threshold level since (t−T), where T is a predetermined time period;

means for producing a plurality of control bits for each of said plurality of channels;

means for forming a plurality of frames each having data of

said non-silent channels and a plurality of control bits of one of said plurality of channels; and



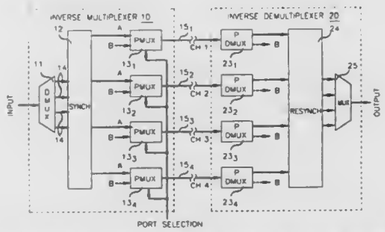
means for forming a multi-frame having a plurality of said frames.

5,065,396

INVERSE MULTIPLEXER AND DEMULTIPLEXER TECHNIQUES

James J. Castellano, Freehold; John H. Leshchuk, Tinton Falls, and Michael L. Steinberger, Colts Neck, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jan. 2, 1990, Ser. No. 460,209
The portion of the term of this patent subsequent to Oct. 29, 2008, has been disclaimed.
Int. Cl.[5] H04J *3/22*
U.S. Cl. 370—84 7 Claims



1. A method of transmitting a first data rate input signal to a remote terminal over transmission channels including a lower second data rate, the method comprising the steps of:

(a) demultiplexing the first data rate input signal into a plurality of subsectional output signals, each subsectional output signal comprising a data rate which is lower than the second data rate;

(b) inserting a marker signal at a predetermined timing relationship into each of the plurality of subsectional output signals at predetermined intervals;

(c) receiving at separate inputs of each of one or more rate adaptor means, subsectional output signals from step (b) that in combination for each rate adaptor means does not total more than the capacity of the second data rate, and inserting those subsectional output signals into a separate output signal at the second data rate; and

(d) transmitting two or more second data rate signals from step (c) two or more second data rate transmission channels to a remote one or more receivers for recovery of the first data input signal;

wherein in performing step (c) performing the substeps of:

(c1) assigning each subsectional output signal associated with a rate adaptor means to or one or more predetermined contiguous addresses of a capacity domain frame dependent on the data of the received subsectional output signal, where the capacity domain frame includes a predetermined number of assignable addresses;

(c2) in each rate adaptor means, converting each of the contiguous addresses of the capacity domain frame for each of the received subsectional output signals from step (b) to non-contiguous addresses in a time domain frame so that the non-contiguous addresses are substantially uniformly distributed over the time domain frame; and

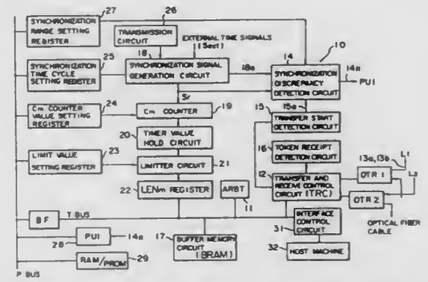
in performing step (d) transmitting sections of one of the subsectional output signals during each address of the time domain frame sequence, as determined in step (c), via one of the second data rate transmission channels to a remote one or more receivers for recovery of the first data rate input signal.

5,065,397

DATA SYNCHRONOUS TRANSFER SYSTEM USING A FIBER DISTRIBUTED DATA EXCHANGE INTERFACE

Yasuhisa Shiobara, Hoya, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Aug. 14, 1990, Ser. No. 567,379
Claims priority, application Japan, Aug. 14, 1989, 1-209783
Int. Cl.[5] H04L *12/00*
U.S. Cl. 370—85.5 5 Claims



1. In a data synchronous transfer apparatus in which data processing apparatus having fiber distributed data interfaces provided with processing functions for synchronous services and asynchronous services are disposed at each node, and in which these nodes are connected via transfer paths into a ring shape and transfer synchronous data frames, said data synchronous transfer apparatus characterized in that the nodes that are primary stations for synchronizing a predetermined time of said synchronous data frames comprise:

synchronization signal generation means for generating a synchronization signal each time when a time signal is received from either itself or external nodes;

token detection means for detecting the receipt of a token that rotates around a transfer path connected in a ring shape;

counter means for counting down a predetermined value and being reset for each generation of said synchronization signal;

frame length conversion means for creating a dummy data frame having a time equivalent in length to a value remaining value on said counter means at the time when there is the detection of the receipt of said token that has rotated around said ring-shaped transfer path and has returned; and

VOL 1132 ISS 2 NO 12 1991 UMI

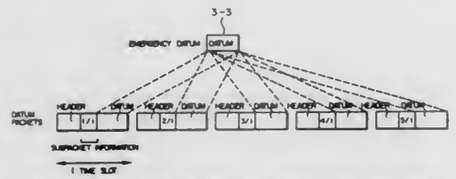
transfer control means for synchronizing a transfer start time of said synchronous data frame which is transferred from the node of said primary station with the predetermined time by the transfer of said dummy data frame prior to said synchronous data frame.

5,065,398

TDMA SATELLITE COMMUNICATION METHOD AND SYSTEM

Hideo Takashima, Yokohama, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed May 15, 1989, Ser. No. 352,029
Claims priority, application Japan, May 16, 1988, 63-117110
Int. Cl.[5] H04J *3/26*
U.S. Cl. 370—94.1 **17 Claims**



1. A terminal station for satellite communication comprising:
first means for dividing a packet datum having a length of at least two time slots to be transmitted to a hub station into packet data which each have a length of one time slot and for holding the packet data;
second means for adding a header and subpacket information indicating a sequential number of one of the packet data to each of the packet data held in said first means to form a subpacket;
third means for transmitting subpackets produced by said second means to the hub station one at a time or a plurality of subpackets at a time;
fourth means for receiving a signal indicating a traffic quantity representative of traffic loading from the hub station;
fifth means for producing and holding at least one copy of one of the packet data to be transmitted emergently to the hub station;
sixth means for adding a header and subpacket information indicating a sequential datum number to each data packet copy held by said fifth means to form a subpacket; and
seventh means for transmitting at least one subpacket to the hub station one at a time or a plurality of subpackets at a time.

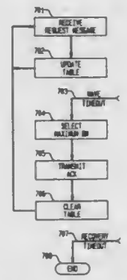
5,065,399

TELECOMMUNICATION NETWORK TROUBLE RECOVERY SYSTEM

Satoshi Hasegawa, Tokyo, Japan, and Chiang H. Yang, Springfield, Va., assignors to Bell Communications Research, Inc., Livingston, N.J. and NEC Corporation of Japan, Tokyo, Japan

Filed Oct. 25, 1989, Ser. No. 426,205
Claims priority, application Japan, Nov. 24, 1988, 63-296893
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—11.2 **11 Claims**

1. A method of recovering a failed communication link between first and second terminus nodes in a telecommunication network which comprises:
a) identifying one or more multi-link network paths extending between said first and second terminus nodes wherein each of said links affords spare bandwidth equal to all or a portion of the communication bandwidth lost in said failure;
b) selecting the one of said network paths that affords the largest minimum bandwidth link; and



c) establishing said one network path as the communication line between said first and second terminus nodes.

5,065,400

METHOD FOR EDITING AND EXECUTING COMPUTER PROGRAMS

Tetsuya Masuishi, Machida; Hiroshi Tsujl, Kawasaki; Takahashi Matsui, and Akihiko Koga, both of Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 16, 1988, Ser. No. 245,530
Claims priority, application Japan, Sep. 18, 1987, 62-232114
Int. Cl.[5] G06F *9/40*
U.S. Cl. 371—19 **4 Claims**

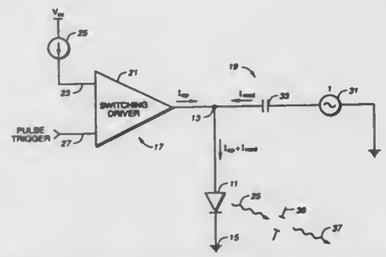
1. A method of editing and executing a program including a plurality of modules comprising:
a first step for correcting, during an editing operation of a program, at least a portion of a module of the program;
a second step for effecting a registration to a control table including a first flag disposed for each module of the program to indicate whether the program has been corrected such that a program correction is registered to a first flag corresponding to the module corrected in said first step; and
a third step for referencing the control table at an executing operation of a program so as to execute a program including a module corresponding to the first flag associated with the registration of the program correction;
wherein said control table includes, for each module, a second flag and a third flag which are respectively set to predetermined states when each module is loaded for the program editing and executing operations in said first and third steps respectively.

5,065,401

PULSE JITTER REDUCTION METHOD FOR A LASER DIODE OR ARRAY

Donald R. Scifres, San Jose, and John G. Endriz, Belmont, both of Calif., assignors to Spectra Diode Laboratories, Inc., San Jose, Calif.

Filed Feb. 26, 1991, Ser. No. 660,804
Int. Cl.[5] H01S *3/00*
U.S. Cl. 372—38 **15 Claims**



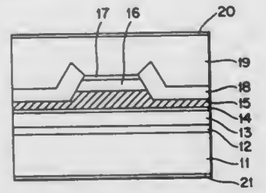
1. A method of stabilizing observed output characteristics of light pulses emitted from multiple-transverse-mode laser diodes comprising:
providing an injection controlled multimode laser diode with a sequence of driving current pulses, said driving current pulses being above a threshold of laser operation such that laser light output pulses are produced, and
superimposing a modulating current on said driving current pulses, said modulating current having a modulation depth of the driving current pulses of at least a threshold for inducing random switching of the laser diode between transverse modes of operation, said modulating current having a high modulation rate such that the induced switching of transverse modes is rapid, whereby the effect of many modes on the observed light output is averaged out over an entire pulse.

5,065,402

TRANSVERSE-MODE STABILIZED LASER DIODE

Hideo Kawano, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 31, 1991, Ser. No. 648,854
Claims priority, application Japan, Jan. 31, 1990, 2-23483
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **6 Claims**



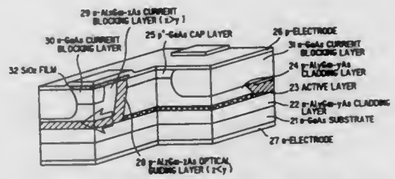
1. A transverse mode stabilized laser diode comprising: a first cladding layer formed on a substrate and having a first conductivity; an active layer formed on said first cladding layer; an optical guide layer of a second conductivity formed on said active layer and having a ridge stripe portion extending along an optical axis of said active layer, a refractive index of said optical guide layer being larger than that of said first cladding layer but smaller than that of said active layer; a second cladding layer of said second conductivity formed on top surface of said ridge stripe portion and having a refractive index smaller than that of said optical guide layer; a pair of current blocking layers of said first conductivity commonly formed on said optical guide layer exposed from said second cladding layer and side surface of said second cladding layer, said current blocking layers having an energy band gap larger than that of said active layer and having a refractive index smaller than that of said optical guide layer; a contact layer of said second conductivity commonly formed on said current blocking layers and said second cladding layer; and a pair of electrodes provided on said contact layer and bottom of said substrate.

5,065,403

SELF-ALIGNMENT TYPE WINDOW SEMICONDUCTOR LASER

Iwao Komazaki, Tokyo, Japan, assignor to Nec Corporation, Tokyo, Japan

Filed Jun. 13, 1990, Ser. No. 537,955
Claims priority, application Japan, Jun. 13, 1989, 1-151650
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **3 Claims**



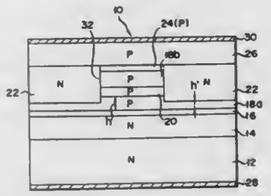
1. A self-alignment type window semiconductor laser, comprising:
an active layer provided on a semiconductor substrate;
a cladding layer provided on said active layer, said cladding layer including a mesa stripe structure;
current blocking layers, by which said mesa stripe structure is buried on both sides thereof;
window structures having no laser light absorption to be provided in vicinities of facets of the current blocking layer, said window structures being of a semiconductor layer having a bandgap energy larger than said active layer; and
p- and n- electrodes for applying a predetermined voltage across said active layer;
wherein said mesa stripe structure is buried in said vicinities of said facets of said current blocking layers.

5,065,404

TRANSVERSE-MODE OSCILLATION SEMICONDUCTOR LASER DEVICE

Masaki Okajima, Kawasaki; Genichi Hatakoshi, Yokohama; Masayuki Ishikawa, Nishimine; Yutaka Uematsu, Yokohama, and Nawoto Motegi, Hayama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 12, 1990, Ser. No. 551,996
Claims priority, application Japan, Jul. 12, 1989, 1-178086; Oct. 31, 1989, 1-281703
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—46 **23 Claims**

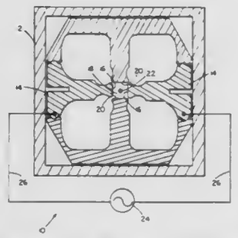


1. In a semiconductor laser device comprising:

VOL 1132 ISS 2 NO 12 1991 UMI

a semiconductor substrate;
a first semiconductor cladding layer formed on said semiconductor;
a semiconductor active layer formed on said first cladding layer;
a second semiconductor cladding layer formed on said active layer to define a ridge section and having a conductivity type different from that of said first cladding layer;
a semiconductive ridge-side layer being in contact with said ridge section; and
a semiconductor high-refractive-index layer formed in said second cladding layer, dividing said second cladding layer into upper and lower portions, and having a refractive index higher than that of said second cladding layer.

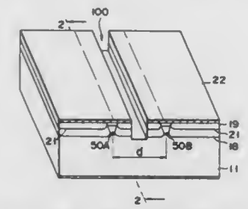
5,065,405
SEALED-OFF, RF-EXCITED GAS LASERS AND METHOD FOR THEIR MANUFACTURE
Peter Laakmann; Stanley R. Byron, and Michael W. Barrett, all of Seattle, Wash., assignors to Synrad, Incorporated, Bothell, Wash.
Filed Jan. 24, 1990, Ser. No. 469,332
Int. Cl.[5] H01S *3/08*
U.S. Cl. 372—92 **14 Claims**



1. An electric discharge gas laser, comprising
an axial tube containing an internal plasma discharge section including a plurality of reflective optical elements surrounding an axial plasma discharge volume to form a bore substantially closed in periphery;
a laser gas contained in the plasma discharge section;
a pump energy source for exciting the laser gas to produce optical energy; and
an optical resonator, having an optical axis within one degree of the axial plasma tube axis, for causing the optical energy to resonate therein,
at least one of said reflective optical elements containing a feature that favors the establishment of a single optical axis containing reflection paths that result in the optical energy having a single stable optical mode structure in the resonator.

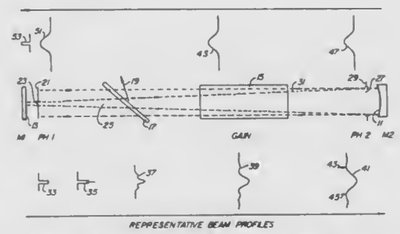
5,065,406
SEMICONDUCTOR LASER CHIP AND METHOD OF MAKING THE SAME
Junichi Kinoshita, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Mar. 15, 1991, Ser. No. 670,271
Claims priority, application Japan, Mar. 16, 1990, 2-66685
Int. Cl.[5] H01S *3/08, 3/19*
U.S. Cl. 372—96 **8 Claims**

1. A semiconductor laser chip comprising:
a semiconductor substrate;
at least two laser stripes formed on the semiconductor substrate and each having a light waveguide path and a diffraction grating extending along the light waveguide path; means for electrically isolating the laser stripes from each other; and



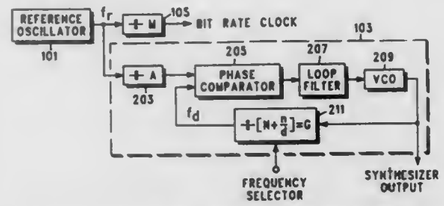
the facet phases of the diffraction grating at those facets of the plural laser stripes which are located at least in the same direction being different from each other.

5,065,407
DIFFRACTION FILTERED LARGE MODE LASER RESONATOR
Paul H. Pax, San Francisco, Calif., assignor to Continuum Electro-Optics, Inc., Santa Clara, Calif.
Filed Apr. 12, 1990, Ser. No. 508,780
Int. Cl.[5] H01S *3/08*
U.S. Cl. 372—103 **24 Claims**



1. In a laser cavity of a type including a laser medium positioned along an optical axis, first and second light reflective structures positioned along said optical axis on opposite sides of the laser medium in a manner to define respective first and second ends of the cavity with a given optical length and functioning to cause light to oscillate back and forth therebetween within said cavity through said laser medium, and means within the cavity for providing an output of a portion of the oscillating light, the improvement wherein:
said first reflective structure includes a first mirror with a given radius of curvature and a limiting first aperture positioned to reflect an incident light beam in a first direction through the laser medium and onto the second reflective structure,
said second reflective structure includes a second aperture having a size that is significantly smaller than that of the first aperture and of a size so that light diffraction by said aperture substantially entirely causes light reflected therefrom to diverge as a light beam in a second direction through the laser medium and onto the first reflective surface such that the beam at the first reflective surface is much larger in cross-section than the second aperture, and
the first and second apertures and the given radius of curvature of the first mirror are cooperatively dimensioned to cause the size of the beam traveling through the laser medium in said first direction to substantially fill the laser medium.

5,065,408
FRACTIONAL-DIVISION SYNTHESIZER FOR A VOICE/DATA COMMUNICATIONS SYSTEMS
Steven F. Gillig, Roselle, Ill., assignor to Motorola, Inc., Schaumburg, Ill.
Filed Apr. 26, 1990, Ser. No. 515,000
Int. Cl.[5] H04B *1/40*
U.S. Cl. 375—8 **7 Claims**



4. A method of frequency synthesis for a digital radio transceiver employing a fractional-division synthesizer, the synthesizer providing at least one output signal with a frequency having a non-integer frequency relationship to a reference signal frequency, comprising the steps of:
programmably frequency dividing the output signal of the synthesizer with a non-integer divisor having a value of the sum of an integer,N, and a fraction determined by the ratio of integers {n/d};
generating an output signal having a first frequency when said non-integer divisor has a first value determined by a first integer value of n and generating an output signal having a second frequency when said non-integer divisor has a second value determined by the next larger integer value of n;
generating a first reference signal;
producing, in response to said generating a first reference signal step, a second reference signal, said second reference signal having a frequency integrally related to the product of d times the difference in frequency of said first and second output signals, and utilized in said step of generating said output signal; and
producing, in response to said generating a first reference signal step, a third reference signal coupled to a digital portion of said digital transceiver, said third reference signal frequency being algebraically related to the frequency of said first reference signal.

5,065,409
FSK DISCRIMINATOR
Patrick M. Hughes, Felixstowe; Martin C. Hall, Ipswich, and Larry F. Lind, Colchester, all of England, assignors to British Telecommunications public limited company, Great Britain
PCT No. PCT/GB88/00687, § 371 Date May 3, 1989, § 102(e) Date May 3, 1989, PCT Pub. No. WO89/01726, PCT Pub. Date Feb. 23, 1989
PCT Filed Aug. 19, 1988, Ser. No. 354,435
Claims priority, application United Kingdom, Aug. 21, 1987, 8719849
Int. Cl.[5] H04L *27/14*
U.S. Cl. 375—91 **14 Claims**

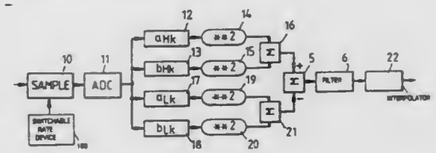
1. A discriminator for frequency shift keyed signals comprising:
first filter means for accepting a first keying frequency,
second filter means for accepting a second keying frequency, and
a subtractor for generating the difference between the outputs of the filter means,
each filter means comprising a pair of finite impulse response filters for accepting signal components which are mutually in phase quadrature and means for forming the sum of an even function of the output of each of the two filters of the pair, characterised in that each filter response is defined by a set of coefficients and the filters of the first pair have coefficients

$$a_{Hk}=r_{Hk}\sin(2\pi f_H k/f_s+\phi_H)$$

$$b_{Hk}=r_{Hk}\cos(2\pi f_H k/f_s+\phi_H)$$

and those of the second pair

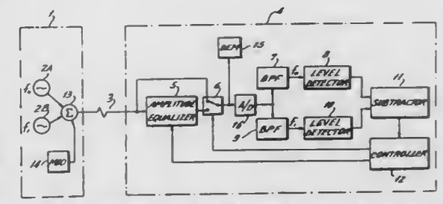
$$a_{Lk}=Kr_{Lk}\sin(2\pi f_L k/f_s+\phi_L)$$



$$b_{Lk}=Kr_{Lk}\cos(2\pi f_L k/f_s+\phi_L)$$

where k is the coefficient number, f_H and f_L are substantially equal to the keying frequencies, ϕ_H and ϕ_L are constants, f_s is the sampling frequency at which the first and second keying frequencies are sampled, K is a normalising factor and r_{Hk}, r_{Lk} are sets of values, for the respective pairs, representing a modification function.

5,065,410
METHOD AND ARRANGEMENT FOR SETTING AN AMPLITUDE EQUALIZATION CHARACTERISTIC ON AN EQUALIZER FOR USE IN A MODEM
Atsushi Yoshida; Tsutomu Hosokawa, both of Tokyo, and Masanori Hattori, Shizuoka, all of Japan, assignors to NEC Corporation, Japan
Filed Dec. 14, 1988, Ser. No. 284,089
Claims priority, application Japan, Dec. 15, 1987, 62-315224; Nov. 7, 1988, 63-279415
Int. Cl.[5] H04L *27/08*; H04B *3/04*
U.S. Cl. 375—98 **12 Claims**



1. A method of selecting and setting one of a plurality of equalization characteristics assigned to an amplitude equalizer, comprising the steps of:
(a) generating a plurality of reference signals each having a different predetermined frequency and being at the same signal level, and feeding said reference signals to a transmission line;
(b) separating the respective reference signals received over the transmission line;
(c) measuring a respective reception level for each of the separated reference signals;
(d) determining level errors between the measured reception levels and sets of estimated reception levels, each set being determined beforehand in association with a respective one of the equalization characteristics and each of the estimated levels corresponding to one of the reference signals; and
(e) selecting and setting one of the equalization characteris-

VOL 1132 ISS 2 NO 12 1991 UMI

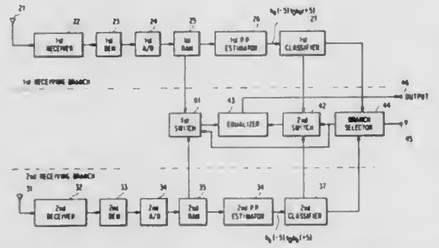
tics that is associated with one of the sets of the estimated reception levels having the smallest level error.

5,065,411

DIVERSITY RECEIVING SYSTEM FOR USE IN DIGITAL RADIO COMMUNICATION WITH MEANS FOR SELECTING BRANCH BY ESTIMATING PROPAGATION PATH PROPERTY

Hiroyasu Muto, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jul. 17, 1990, Ser. No. 553,287
Claims priority, application Japan, Jul. 17, 1989, 1-185427
Int. Cl.[5] H04B *7/10*; H04L *1/02*
U.S. Cl. 375—100 **9 Claims**



1. A diversity receiving system for use in reception of a radio signal transmitted through a multipath from a transmitter in digital radio communication system, the radio signal carrying a data signal and a training signal, which comprising:

equalizing means for equalizing an input signal to produce an equalized signal;

a plurality of receiving branches, each of said receiving branches comprising:

receiving means for receiving an incoming signal representative of said radio signal to produce a digital reception signal, said digital reception signal comprising a reception data signal and a reception training signal representative of said data signal and said training signal, respectively;

holding means coupled to said receiving means for holding said digital reception signal;

estimating means coupled to said holding means for estimating a transmission property of said multipath from said reception training signal to produce an estimated transmission property; and

classifying means coupled to said estimating means for classifying said estimated transmission property into components significant to said equalizing means as significant components and the remaining components as insignificant components;

branch selecting means coupled to said classifying means in each of said receiving branches for calculating a first and a second power (α and β) of said significant components and said insignificant components, respectively, a first ratio (α/β) of said first and said second powers, a sum ($\alpha+\beta$) of said first and said second powers, and a second ratio ($\alpha/(\alpha+\beta)$) of said first power and said sum for each of said receiving branches, said branch selecting means selecting one of said receiving branches as a selected branch in response to said first ratio, said second ratio, and said sum in connection with each of said receiving branches, said branch selecting means producing a selection signal representative of said selected branch;

first switch means coupled to said holding means in each of said receiving branch, said equalizing means, and said branch selecting means responsive to said selection signal for switching to connect said holding means in said selected branch as a selected holding means with said equalizing means to deliver said reception data signal in said selected holding means to said equalizing means as said input signal; and

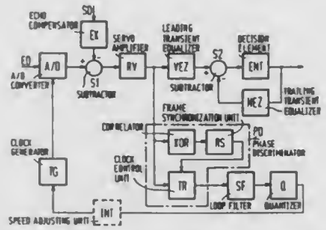
second switch means coupled to said classifying means in each of said receiving branch, said equalizing means, and said branch selecting means responsive to said selection signal for switching to connect said classifying means in said selected branch as a selected classifying means with said equalizing means to deliver said significant components in said selected classifying means to said equalizing means, said equalizing means equalizing said input signal by said significant components to produce said equalized signal as a resultant signal of said diversity receiving system.

5,065,412

PROCESS AND CIRCUIT ARRANGEMENT FOR DIGITAL CONTROL OF THE PHASE OF SCANNING CLOCK PULSES

Heinrich Scheuk, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 29, 1989, Ser. No. 400,192
Claims priority, application European Pat. Off., Aug. 30, 1988, 88114140.2
Int. Cl.[5] H03D *3/24*
U.S. Cl. 375—111 **25 Claims**



10. In combination with a process for digital control of the phase of scanning clock pulses in a signal receiving unit which process includes the steps of scanning received analog signal sat intervals fixed by scanning clock pulses, converting the received analog signals into digital signals, deriving from the digital signals phase control signals, filtering at given intervals said phase control signals and applying said filtered, phase control signals to a clock generator for delivering the scanning clock pulses, the improvement therewith wherein the step of filtering of the phase control signals is performed in the form:

$$Ta(i)=a1\ (Te(i)-a2\ Te(i-1)+a3\ Ta(i-1)$$

where a1, a2 and a3 are filter coefficients, Ta(i) and Ta(i−1) are filtered phase control signals at the times i and (i−1) and Te(i) and Te(i−1) are phase control signals made available at the times i and (i−1), quantizing the filtered phase control signals and sending the quantized filtered phase control signals to the clock generator.

5,065,413

PHASE LOCKED LOOP CIRCUIT

Shinichi Fukuda, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 22, 1990, Ser. No. 602,408
Claims priority, application Japan, Dec. 9, 1989, 1-319146; Dec. 9, 1989, 1-319147
Int. Cl.[5] H03D *3/02*
U.S. Cl. 375—120 **6 Claims**

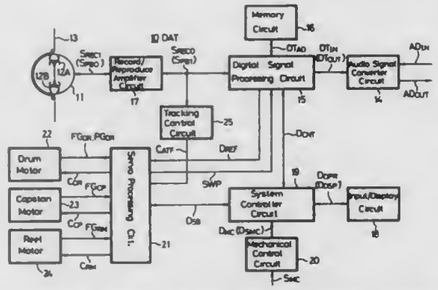
2. A phase locked loop circuit comprising

a) phase comparator means for detecting a phase error between a reproduced input digital signal having a first or

second transition rate and an output digital signal and for controlling the frequency of the output digital signal in response to the phase error;

b) lock range setting means for setting a first or second central frequency value and a first or second boundary frequency value in response to the first or second transmission rate;

c) lock range determining means for determining whether or not the frequency value of the output digital signal falls



within the range of the first or second boundary frequency values set by the lock range setting means; and

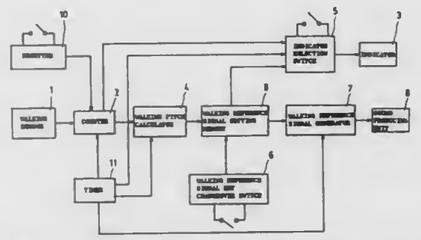
d) frequency setting means for controlling the phase comparator means to cause the output digital signal to have a frequency corresponding to the first or second central frequency values determined by the lock range setting means on the basis of determined result of the lock range determining means if the frequency value of the output digital signal lies outside of the first or second boundary frequency values.

5,065,414

PEDOMETER

Mikiya Endou; Motohiro Matsuura, and Toshihiro Tsuzuki, all of Shizuoka, Japan, assignors to Marutakairyoki Kabushikigaisha, Yahata Fujieda, Japan

Filed Apr. 13, 1990, Ser. No. 509,046
Claims priority, application Japan, Apr. 17, 1989, 1-44853[U]
Int. Cl.[5] G01C *22/00*
U.S. Cl. 377—24.2 **1 Claim**



1. A pedometer comprising:

a walking sensor for detecting walking motion by the movement of the walker's body;

a counter, coupled to said walking sensor, for counting the number of walking steps;

an indicator, coupled to said counter, for displaying the value of said counter;

a walking reference signal setting memory means, for storing a walking reference signal set by the walker;

a timer coupled to said counter;

pace calculating means, coupled to said timer and said counter, for calculating a walking pace upon reception of the output of said counter, whereby said walking reference signal setting memory means is automatically set as a result of said pace calculating means;

switch means, associated with said walking reference signal setting memory means, for switching between a reference signal set by the walker and an automatically set reference signal;

walking reference signal generator means, coupled to said walking reference signal setting memory means and said timer, for generating a walking reference signal set by said walking reference signal setting memory means; and

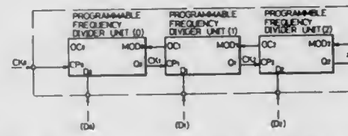
sound producing means, coupled to said walking reference signal generator means, for producing a sound upon reception of the output of said walking reference signal generator means.

5,065,415

PROGRAMMABLE FREQUENCY DIVIDER

Kazuo Yamashita, Mitaka, Japan, assignor to Nihon Musen Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 21, 1990, Ser. No. 482,990
Claims priority, application Japan, Oct. 23, 1989, 1-276315
Int. Cl.[5] H03K *21/38*
U.S. Cl. 377—52 **5 Claims**



1. A programmable frequency divider for dividing the frequency of a high-frequency signal supplied thereto directly into a lower frequency, comprising:

a plurality of 2-scale-factor prescalers, each of said prescalers being switchable only between divide-by-2 and divide-by-3 modes, and said prescalers being connected in cascade for producing an output signal;

said respective prescalers each including means for setting the respective prescalers at one of said divide-by-2 or divide-by-3 modes, such that said frequency divider divides said supplied high-frequency signal by one of a plurality of different division ratios.

5,065,416

ON-LINE SLURRY ASH MONITORING SYSTEM

Melvin J. Laurila, Laurium; Robert J. Brown, Calumet, and Robert C. Greenlund, Hancock, all of Mich., assignors to Process Technology, Inc., Calumet, Mich.

Continuation-in-part of Ser. No. 128,648, Dec. 4, 1987. This application Sep. 14, 1989, Ser. No. 407,201
Int. Cl.[5] G01N *23/06, 23/223*
U.S. Cl. 378—53 **20 Claims**

1. A system for evaluating the composition of a slurry comprising:

a sample reservoir for containing a sample of slurry wherein the slurry may contain a plurality of entrained gas bubbles,

slurry control and transport means for enabling said sample reservoir to be filled and drained of the slurry and for sealing said sample reservoir to define a closed volume,

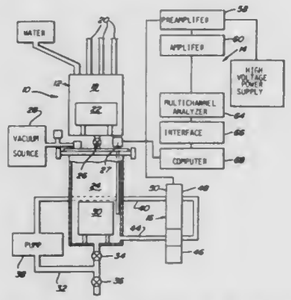
sensor means for measuring radiation attenuation associated with the slurry for evaluating the slurry composition,

slurry pump means for pumping the slurry,

conduit means for removing the slurry from said sample reservoir through actuation of said slurry pump means, and for transporting the slurry to said sensor means, and for returning the slurry to said sample reservoir wherein the slurry is transmitted through said sensor means and returned to said sample reservoir as said slurry control and transport means seals said sample reservoir to define a closed volume, and

VOL 1132 ISS 2 NO 12 1991 UMI

a vacuum pump for evacuating said sample reservoir thereby reducing the amount of said entrained gas bubbles



within the slurry thereby enhancing the accuracy of said evaluation by said sensor means.

5,065,417

METHOD AND APPARATUS FOR MONITORING THE PARTIAL DENSITY OF METAL AND ACID IN PICKLING BATHS

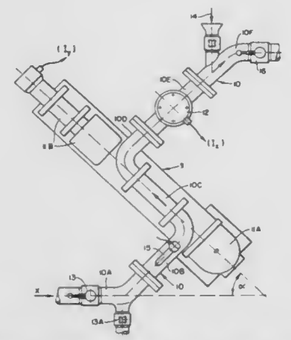
Jürgen Behringer, Am Alten Stadtpark 43, 4630 Bochum 1; Dieter Evers, Hubertusstrasse 14, 7541 Straubenhardt 1, and Dieter Schönert, Bonhöfferstr. 4, 4630 Bochum, all of Fed. Rep. of Germany

Filed Jul. 22, 1988, Ser. No. 223,038

Claims priority, application Fed. Rep. of Germany, Jul. 23, 1987, 3724335

Int. Cl.[5] G01B *15/02*

U.S. Cl. 378—54 **16 Claims**



1. A method for measuring and monitoring the partial densities of metal and acid in a bath of pickling liquid, comprising: irradiating the pickling liquid by gamma radiations (x,y) having two different energy levels to obtain two gamma radiation counting rates (I_x, I_y); and deriving representations of the partial densities (r_2, r_3) of two components of the liquid from the measured counting rates and known substance-specific and/or system-specific parameters and calibration values in a control and evaluation unit, wherein said step of deriving is performed in accordance with the following equations:

$$r_1 = k_0 + (k_1 - 1)r_2 + (k_2 - 1)r_3 + k_3 r_2 r_3$$

$$r_2 = -\frac{P_2}{2P_1} + \sqrt{\frac{1}{4}\left(\frac{P_2}{P_1}\right)^2 - \frac{P_3}{P_1}}$$

-continued

$$r_3 = \frac{A - a_1 r_2}{a_2 + a_3 r_2}$$

in which:

$a_1 = [\eta_{x2} + \eta_{x1}(k_1 - 1)]$; $b_1 = [\eta_{y2} + \eta_{y1}(k_1 - 1]$

$a_2 = [\eta_{x3} + (k_2 - 1)\eta_{x1}]$; $b_2 = [\eta_{y3} + (k_2 - 1)\eta_{y1}]$

$a_3 = \eta_{x1} \cdot \frac{k_3}{k_T^0}$ $b_3 = \eta_{y1} \cdot \frac{k_3}{k_T^0}$

$k_T^0 = 1 - (T_{ist} - T_m) \cdot \gamma$

$P_1 = b_1 a_3 - a_1 b_3$

$P_2 = b_1 a_2 - a_1 b_2 + Ab_3 - Ba_3$

$P_3 = Ab_2 - Ba_2$

$A = \frac{1}{L_x} \ln\left(\frac{I_{ox}}{I_x}\right) - \eta_{x1} k_0 \cdot k_T^0$

$B = \frac{1}{L_y} \ln\left(\frac{I_{oy}}{I_y}\right) - \eta_{y1} k_0 \cdot k_T^0$

η_{x2} and η_{x3} are the mass extinction coefficients of respective components with respect to radiation x;

η_{y2} and η_{y3} are the mass extinction coefficients of respective components with respect to radiation y;

η_{x1} and η_{y1} are the mass extinction coefficients of a reference liquid with respect to radiations x and y, respectively;

k_o, k_1, k_2 and k_3 are empirically determined constants;

T_{ist} is the actual operating temperature of the pickling liquid bath;

T_m is the mean temperature of the bath;

γ is the coefficient of expansion of the bath;

L_x and L_y are the measurement length for radiations x and y, respectively;

I_{ox} and I_{oy} are the unattenuated intensities of radiations x and y, respectively.

5,065,418

APPARATUS FOR THE TRANSILLUMINATION OF ARTICLES WITH FAN-SHAPED RADIATION

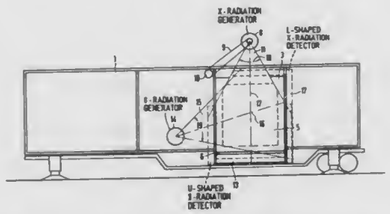
Rainer Bermbach, Mainz-Laubenheim; Gerhard Doenges, Heidenrod-Kemel; Georg Geus, and Cornelius Koch, both of Wiesbaden, all of Fed. Rep. of Germany, assignors to Heimann GmbH, Fed. Rep. of Germany

Filed Aug. 9, 1990, Ser. No. 564,603

Claims priority, application European Pat. Off., Aug. 9, 1989, 89114763.9

Int. Cl.[5] G01N *23/04*

U.S. Cl. 378—57 **7 Claims**



1. An apparatus for inspecting articles to identify items within the articles, said apparatus comprising:

means for generating a first x-ray fan beam;

means for generating a second x-ray fan beam;

means for moving an article to be inspected through said first and second x-ray fan beams in a direction perpendicular to said x-ray fan beams;

first means for detecting radiation disposed to receive radiation from said first x-ray fan beam after penetrating said article, said first means for detecting radiation being U-shaped;

second means for detecting radiation disposed to detect radiation from said second x-ray fan beam after penetrating said article, said second means for detecting radiation being L-shaped; and

means for generating an image of said article from the radiation detected by said first and second means for detecting radiation.

5,065,419

X-RAY TUBE WITH LOW EXTRA-FOCAL RADIATION

Jacques Leguen, and Emile Gabbay, both of Paris, France, assignors to General Electric CGR S.A., Issy les Moulineaux, France

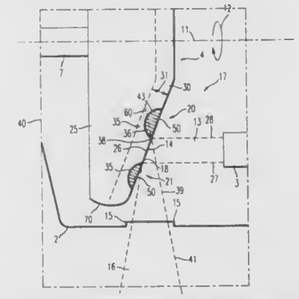
PCT No. PCT/FR88/00319, § 371 Date Dec. 26, 1989, § 102(e) Date Dec. 26, 1989, PCT Pub. No. WO88/10508, PCT Pub. Date Dec. 29, 1988

PCT Filed Jun. 17, 1988, Ser. No. 460,324

Claims priority, application France, Jun. 26, 1987, 87 09030

Int. Cl.[5] H01J *35/10, 35/22, 35/26*

U.S. Cl. 378—125 **8 Claims**



1. An X-ray tube comprising an anode, at least one cathode producing a beam of electrons, the anode consisting at least partially of a layer of an X-ray emitting material, a limited surface of the layer being exposed to a bombardment by the beam of electrons, a focal spot (**14**) that emits a beam of X-rays being produced on said surface exposed to bombardment, said surface exposed to bombardment being demarcated by at least one hollow part in the layer of emitting material, the hollow part having a depth which is smaller than a thickness of said layer in a vicinity of said hollow part, wherein at least one hollow part is filled with a material having a low atomic number.

5,065,420

ARRANGEMENT FOR CONTROLLING FOCAL SPOT POSITION IN X-RAY TUBE

Simha Levene, Dorna Hadarom, Israel, assignor to Elscint Ltd., Haifa, Israel

Filed Jul. 10, 1990, Ser. No. 550,617

Claims priority, application Israel, Jul. 26, 1989, 091119

Int. Cl.[5] H01J *35/30*

U.S. Cl. 378—137 **6 Claims**

1. An X-ray tube arrangement comprising:

an X-ray tube envelope,

cathode means disposed within the envelope,

said cathode means including filament means for causing the emission of electrons,

said cathode means comprising a split cup including a first part and a second part,

said first part and said second part being insulated from each other and being juxtaposed to and on opposite sides of said filament means,

an anode dish means spaced apart from and facing said cathode means within said envelope,

bias voltage means for causing said emitted electrons to form an electron stream flowing from said cathode means to an original focal spot location on the anode dish means,

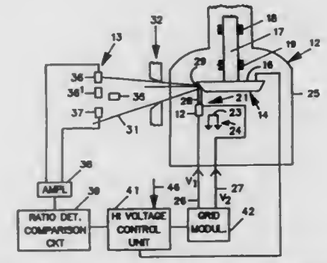
X-ray beams emanating from said focal spot,

detector means for detecting changes in the focal spot location on the anode dish means,

said detector means comprising:

a pair of electro-optical means,

a first electro-optical means of said pair being located on the edge of said X-ray beams to detect any changes in the location of said focal spot by detecting changes in percentage of said first electro-optical means being illuminated by said X-ray beams,



said second electro-optical means being located fully within said beams so that changes in the focal spot location do not change the percentage of illumination of said second electro-optical means,

means for determining the ratio of illumination between said first and said second electro-optical means,

a high voltage control unit (HVCU) for supplying biased voltages to said anode dish means relative to said cathode means,

grid modulation means controlled by said HVCU for supplying biased voltages to said first cathode cup part and said second cathode cup part, and

means responsive to changes in the ratio for providing an error signal to said HVCU to vary the bias voltages supplied to said first and said second cathode cup parts for electrostatically changing location of said focal spot to return said focal spot to said original location.

5,065,421

DEVICE FOR MEASURING FLUID FLOWS THROUGH A POROUS BODY

Yves Morineau, Morlaas, and Rino Begani, Montardon, both of France, assignors to Societe Nationale Elf Aquitaine (Production), Courbevoie, France

Filed Nov. 29, 1989, Ser. No. 442,579

Claims priority, application France, Nov. 30, 1988, 88 15661

Int. Cl.[5] G01N *15/10*

U.S. Cl. 378—208 **10 Claims**

1. A device for measuring fluid flows through a porous sample, comprising:

a tubular body having an external casing permeable to gamma radiation, said tubular body being held between tie rods;

a piston, at least part of which is received within a first end of said tubular body;

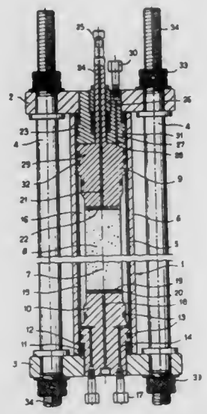
a fixed sample support received within a second end of said tubular body;

a flexible sleeve arranged inside said tubular body;

VOL 1132 ISS 2 NO 12 1991 UMI

a receiving space for receiving the sample formed within said sleeve between the piston and the support; and

means for injecting fluid through the sample at at least one of



said first and second ends of the tubular body, wherein the external casing of said tubular body is lined with an inner metal liner having a thickness permeable to said gamma radiation.

5,065,422

SUBSCRIBER CALL SIMULATOR CAPABLE OF TESTING NEW SERVICES OF A TELEPHONE SWITCHING SYSTEM

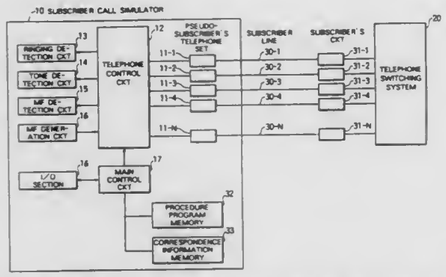
Mitsuru Ishikawa, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Dec. 10, 1990, Ser. No. 624,863

Claims priority, application Japan, Dec. 8, 1989, 1-319898; Feb. 27, 1990, 2-47701

Int. Cl.[5] H04M *3/24, 3/30*

U.S. Cl. 379—11 **3 Claims**



1. A subscriber call simulator connected through subscriber lines to a telephone switching system, said subscriber call simulator acting as pseudo-subscriber's telephone sets, wherein the improvement comprises:

inputting means for inputting control procedure information for said pseudo-subscriber's telephone sets;

memorizing means connected to said inputting means for memorizing said control procedure information as stored information; and

controlling means connected to said memorizing means and said pseudo-subscriber's telephone sets for controlling said pseudo-subscriber's telephone sets by using said stored information.

5,065,423

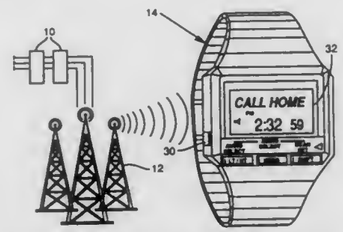
PAGING SYSTEM WITH REGISTRATION MODE

Garold B. Gaskill, Tualatin, Oreg., assignor to AT&E Corporation, San Francisco, Calif.

Continuation-in-part of Ser. No. 367,207, Jun. 16, 1989, and a continuation-in-part of Ser. No. 367,014, Jun. 16, 1989, and a continuation-in-part of Ser. No. 430,457, Oct. 31, 1989, and a continuation-in-part of Ser. No. 352,635, May 12, 1989, Pat. No. 4,897,835, said Ser. No. 352,635, continuation of Ser. No. 121,139, Nov. 16, 1987, is a continuation-in-part of Ser. No. 802,844, Nov. 27, 1985, Pat. No. 4,713,808. This application Nov. 13, 1989, Ser. No. 435,313

Int. Cl.[5] H04M *11/00;* **G08B** *5/22;* **H04J** *3/24*

U.S. Cl. 379—57 **5 Claims**



4. An intermittently operative radio pager which receives paging data broadcast from a transmitter, said pager having normal paging operative and inoperative periods in order to increase battery life, including:

means for providing a manual user stimulus to the pager to place said pager in a registration mode wherein registration mode inoperative periods of said pager are relatively short as compared to said normal paging inoperative periods, and to obtain from said pager an identification code previously stored within said pager whereby a user may use said code to initiate transmission of an initialization message by said transmitter;

means in said pager for receiving the initialization message from said transmitter,

means for displaying on said pager an indication that the initialization message was received.

5,065,424

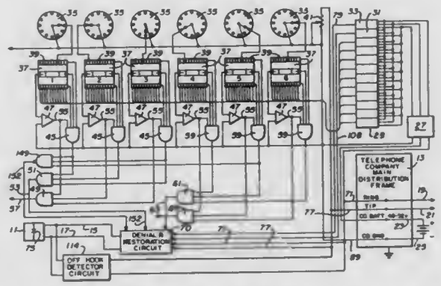
APPARATUS FOR SERVICING TELEPHONES FROM A REMOTE LOCATION

Arthur O. Miller, P.O. Box 21407, Little Rock, Ark. 72221

Continuation-in-part of Ser. No. 66,564, Jun. 26, 1987, abandoned. This application Mar. 21, 1989, Ser. No. 326,736

Int. Cl.[5] H04M *1/64*

U.S. Cl. 379—70 **15 Claims**



1. Apparatus coupled to a telephone line between a subscriber's telephone and the main distribution frame of a central telephone office for controlling telephone service remotely from the telephone office by selectively connecting and disconnecting the subscriber's telephone to and from the ring and tip lines of the telephone line, said apparatus selectively configurable in a number of operating states and having an initial state for allowing outgoing calls and preventing incoming calls, comprising:

normally closed contact means in the ring and tip lines between the subscriber's telephone and the main distribution frame of the central telephone office that connect the telephone to the office when closed and disconnect the telephone from the office when open;

a tone/frequency receiver circuit coupled to the telephone line to detect tones transmitted over the telephone line and generate signals indicative of the detection of said tones; and

circuit means coupled to the tone/frequency receiver circuit for generating a first control signal according to the operating state of the apparatus to selectively open the normally closed contact means to prevent outgoing calls upon the detection of a dial tone, said circuit means generating a second control signal according to the operating state of the apparatus to selectively open the normally closed contact means to prevent incoming calls upon the detection of a ring tone.

5,065,425

TELEPHONE CONNECTION ARRANGEMENT FOR A PERSONAL COMPUTER AND A DEVICE FOR SUCH AN ARRANGEMENT

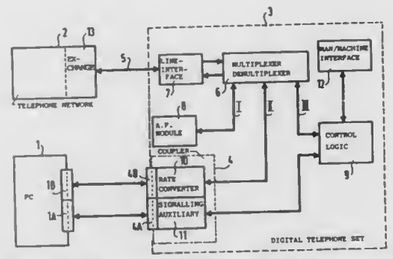
Daniel Lecomte, Paris; Norbert Galopin, Sannois, and Jacques Lemaistre, Argenteuil, all of France, assignors to Telic Alcatel, Paris, France

Filed Dec. 26, 1989, Ser. No. 457,059

Claims priority, application France, Dec. 23, 1988, 88 17101

Int. Cl.[5] H04M *11/00*

U.S. Cl. 379—93 **6 Claims**



4. A device for connecting a personal computer to a telephone network via a digital telephone set linked to an exchange said digital telephone set including a processor and memories in a controlling logic circuit, means for simultaneous transfer of digital voice and digital data signals, and first means for data signal transmission through said telephone set and said exchange, between said telephone network and an external computer linked to the telephone set, wherein said device further comprises a coupler including second means for data signal transmission between said processor and said computer, through a bus of said computer having an external access, said controlling logic circuit including means for diversion of telephone signalling from itself either to the computer or to the exchange according to transmission needs.

5,065,426

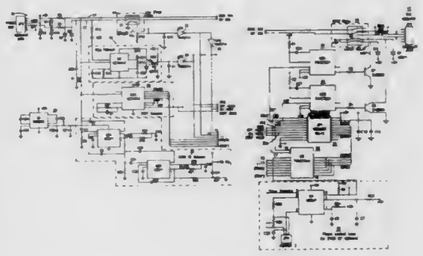
FACSIMILE/TELEPHONE CONTROLLER

Harvey Greenstein, Iselin; Charles B. Levinski, South River; Edward Newman, Bricktown; John M. Persel, Toms River, and David N. Widmann, Manasquan, all of N.J., assignors to Hecon Corporation, Eatontown, N.J.

Filed Jul. 18, 1989, Ser. No. 382,110

Int. Cl.[5] H04M *11/00*

U.S. Cl. 379—100 **51 Claims**



36. A method for controlling a facsimile transmitter comprising the steps of:

receiving an access code;

coupling the facsimile transmitter to a telephone line responsive to a valid access code;

initiating a timer when pick-up of the line by the facsimile transmitter is sensed;

identifying the transmission as a facsimile transmission when a predetermined tone frequency is received from the called party coupled to the telephone line.

5,065,427

FAX/DATA CALL RECEIVING SYSTEM AND METHOD

Vishwas R. Godbole, 18754 Cabernet Dr., Saratoga, Calif. 95070, assignor to Vishwas Godbole, Saratoga, Calif.

Filed Oct. 31, 1989, Ser. No. 429,801

Int. Cl.[5] H04M *11/00*

U.S. Cl. 379—100 **14 Claims**

1. In a system for receiving calls from a facsimile machine and from a data modem:

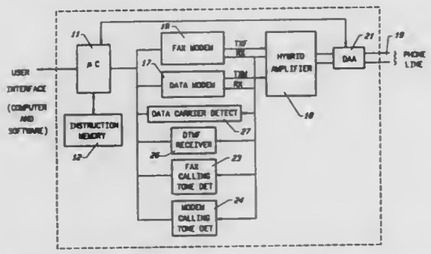
a facsimile call detector,

a data call detector,

VOL 1132 ISS 2 NO 12 1991 UMI

means active upon receipt of a call for monitoring the outputs of the facsimile call detector and the data call detector for a first period of time to identify the type of call received,

means for initiating a handshaking procedure corresponding to the type of call received if either a facsimile call or a data call is identified during the first period of time,



means for initiating a data modem handshaking procedure for a second period of time in the event that the call is not identified as either a facsimile call or a data call during the first period of time, and

means active after the second period of time for initiating a facsimile call handshaking procedure in the event that the data modem handshaking procedure is not successful.

5,065,428

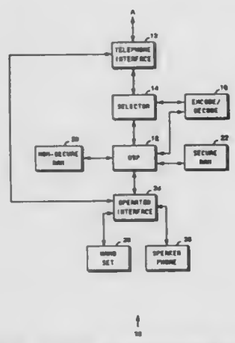
SECURE MODE ANSWERING MACHINE

Michael L. Mitchell, Abilene, and George Hawkins, Austin, both of Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed May 29, 1990, Ser. No. 529,800

Int. Cl.[5] H04K *1/00*

U.S. Cl. 380—23 **11 Claims**



1. A device for receiving and storing information, such as telecommunication messages or transmitted data, for subsequent play-back, the device also transmitting information, such as telecommunication messages or transmitted data, the device comprising:

first means for receiving incoming information and transmitting information;

second means for determining when the information received or transmitted is secure or unsecured, said second means coupled to said first means;

third means coupled to said second means;

said third means for processing information received into and transmitted from the device;

an encoder/decoder coupled to said second and third means, said encoder/decoder receiving information which is secure and decoding the information when the device is receiving information, and encoding the information when the device is transmitting information;

said second means relaying received information to said encoder/decoder when said received information is secure, and receiving information from said encoder/decoder when information to be transmitted is secure;

said third means receiving information from said encoder/decoder when said information is secure, and relaying secure information to said encoder/decoder;

a plurality of RAMs (random access memory) coupled to said third means;

a first of said plurality of RAMs storing unsecured messages received from said third means and relaying unsecured messages to said third means;

a second of said plurality of RAMs storing secure messages received from said third means and relaying secure messages to said third means;

means for receiving said messages stored in said first and second RAMs; and

said means for receiving said messages coupled to said first and second RAMs.

5,065,429

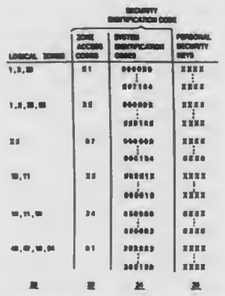
METHOD AND APPARATUS FOR PROTECTING MATERIAL ON STORAGE MEDIA

Gerald S. Lang, 812 Downs Dr., Silver Spring, Md. 20904

Continuation of Ser. No. 358,263, May 30, 1990, abandoned, which is a continuation-in-part of Ser. No. 331,800, Apr. 3, 1989, abandoned. This application Oct. 14, 1990, Ser. No. 626,409

Int. Cl.[5] H04K *1/00*

U.S. Cl. 380—25 **24 Claims**



1. A security system for granting user access to digitized materials provided on a storage medium or media, said system comprising:

a computer system including at least one computer and a display screen,

a storage medium subdivided into a plurality of management control, program and user logical zones, each of said logical zones provided with particular material therein, said storage medium directly provided thereon with an access management control means for indicating which of said user logical zone on zones the user will be allowed to access based upon accessing information provided to the system by the user, said access management control means provided in said storage medium at a location remote from, and non-contiguous with, said user logical zones;

a reader or drive for reading the digitized material provided in said plurality of logical zones as well as said access management control means of said storage medium;

a personal accessing device containing a security identification code, to enable said personal accessing device to be in communication with said computer system for transmitting said security identification code to said computer system;

wherein, said security identification code is compared to said access management control means provided on said storage medium to determine the particular user logical zone or zones to which the user is allowed access utilizing said display screen of said computer system.

5,065,430

VOICE BAND SPLITTING SCRAMBLER

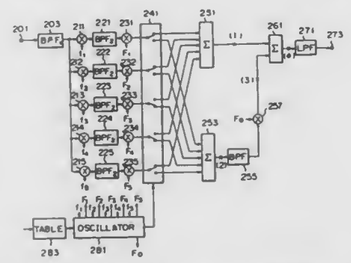
Naoya Torii, Yokohama; Ryota Akiyama, Suginami, and Mitsuhiro Azuma, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 21, 1988, Ser. No. 222,614

Claims priority, application Japan, Jul. 21, 1987, 62-182080

Int. Cl.[5] H04K *1/04*

U.S. Cl. 380—38 **26 Claims**



1. A voice band splitting scrambler, comprising:

band splitting means for splitting an input voice signal into a plurality of band channels producing a split bandwidth, said bandsplitting means comprising:

frequency modulating means for modulating the input voice signal by an integer multiple of the split bandwidth and producing an output; and

bandpass filters each for passing a predetermined band signal form each output of said frequency modulating means; and

scrambled voice signal generating means for carrying out spectrum-inverting and band-relocating operations on the respective channels to generate a scrambled voice signal, said scrambled voice signal generating means comprising:

modulating means for band relocating respective channels by noninverting carriers and inverting carriers set in different bands respectively, said relocating creating inverted and noninverting channels; and

adding means for adding signals of the noninverted channels and signals of the inverted channels to each other.

5,065,431

PATTERN RECOGNITION USING STORED N-TUPLE OCCURENCE FREQUENCIES

John M. Rollett, Ipswich, England, assignor to British Telecommunications public limited company, United Kingdom

PCT No. PCT/GB88/00538, § 371 Date Feb. 21, 1989, § 102(e) Date Feb. 21, 1989, PCT Pub. No. WO89/00747, PCT Pub. Date Jan. 26, 1989

PCT Filed Jul. 7, 1988, Ser. No. 319,080

Claims priority, application United Kingdom, Jul. 9, 1987, 8716194

Int. Cl.[5] G10L *7/08, 7/02*

U.S. Cl. 381—43 **46 Claims**

3. A pattern recognition device comprising:

(a) input means for receiving a pattern of bits;

(b) means storing assignment data defining groups of bits selected from the pattern;

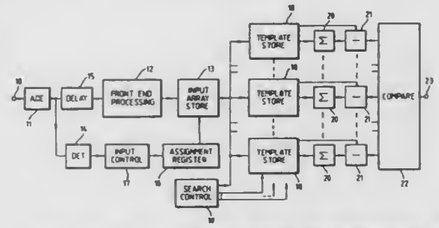
(c) a template store, and

(d) control means operating

(i) in a training mode to record in the template store, for each of the defined groups data indicating which combinations of bits within that group occur in the said patterns, and operating,

(ii) in a recognition mode in response to an unknown pattern provided by said input means, to retrieve for each defined group of bits selected from the pattern, in response to the bits of the group, an indication as to whether that particular combination of bits is recorded in the template store as having occurred to form a similarity measure for that pattern as a function of the retrieved indicators, and to produce an output indicative of successful or unsuccessful recognition in dependence on whether the similarity measure meets a recognition criterion;

the template store having for each group a respective section comprising a plurality of entries each comprising a location for storage of a particular bit combination.



5,065,432

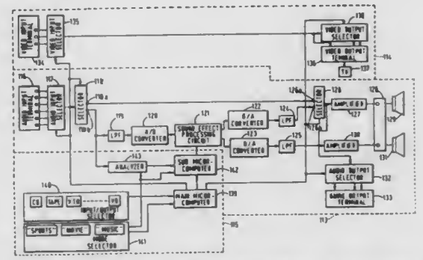
SOUND EFFECT SYSTEM

Akira Sasaki; Kazuyasu Sakai, and Katsuyoshi Suzuki, all of Kanagawa, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Oct. 31, 1989, Ser. No. 429,289

Int. Cl.[5] H03G *3/00*

U.S. Cl. 381—61 **26 Claims**



1. An audio signal processing apparatus for processing an input audio signal, comprising:

an audio signal input means for receiving the input audio signal;

an audio signal analysis means for analyzing the input audio signal and generating an output control signal;

a sound effect processing means for performing prescribed sound effect processing on the input audio signal and outputting a resulting audio signal;

a control means for controlling the sound effect processing means to optimize the sound effect processing in response to the control signal from the audio signal analysis means, said control means including mode selector means for allowing the selection of one of a plurality of modes by a user; and

an audio signal output means for outputting the resulting audio signal.

VOL 1132 ISS 2 NO 12 1991 UMI

5,065,433

AUDIO SIGNAL DATA PROCESSING SYSTEM

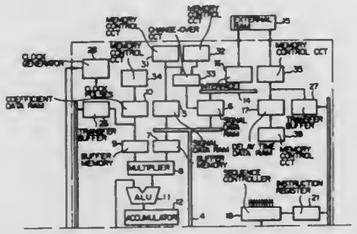
Kazunaga Ida; Tatsushi Iizuka; Makio Yamaki; Hiroyuki Ishihara; Yukio Matsumoto, and Kazuhiro Hayashi, all of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Feb. 8, 1990, Ser. No. 476,949

Claims priority, application Japan, Jun. 26, 1989, 1-163321; Jun. 26, 1989, 1-163323; Jun. 26, 1989, 1-163324

Int. Cl.[5] H03G *3/00*

U.S. Cl. 381—63 **3 Claims**



1. An audio signal data processing system comprising:
input means for sequentially supplying incoming audio signal data;
data memory control means for writing and reading-out said audio signal data into and from a data memory;
delay memory control means for sequentially reading-out said audio signal data from said data memory and storing said audio signal data into a location of a delay memory indicated by a writing address and for reading-out said audio signal data from a location of said delay memory indicated by a reading address and writing said audio signal data into said data memory;
arithmetic means for performing an arithmetic operation of multiplying predetermined coefficient data by said audio signal data written into said data memory; and
output means for forwarding said audio signal data in accordance with a result of said arithmetic operation by said arithmetic means, wherein said delay memory control means includes ring counter means for performing a counting operation within a number of bits of address data at sampling intervals, means for designating delay time data for writing and reading operations, summing means for adding said delay time data and count data from said ring counter means, multiplying means for multiplying data representing a number of accessing times required for accessing one word of data for said delay memory to output data of said summing means, to provide base address data, and setting means for setting a writing or reading address in accordance with said base address data.

5,065,434

IMAGE INFORMATION PROCESSING APPARATUS HAVING A MULTI-FUNCTION SWITCH

Mikiharu Matsuoka, Tokyo; Yasuko Miyazaki, Yokohama, and Noboru Koumura, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

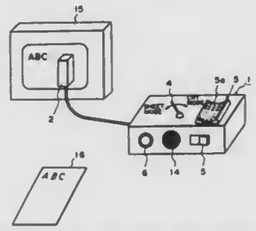
Filed Mar. 27, 1990, Ser. No. 499,633

Claims priority, application Japan, Mar. 30, 1989, 1-76437

Int. Cl.[5] G09B *21/00*

U.S. Cl. 382—1 **18 Claims**

1. An image information processing apparatus comprising:
image information reading means for reading image information, wherein the reading frequency of said reading means can be varied;
first switch means for switching between a first reading mode in which image information printed on a sheet is read by said reading means, and a second reading mode in which image information displayed on a screen is read by said reading means;
a multi-function switch for selecting between a plurality of different reading frequencies in the second reading mode; and
control means for controlling said reading means to read the image information at a predetermined reading frequency



higher than the plurality of reading frequencies in the first reading mode, and to read the image information at one of the plurality of reading frequencies selected by said multi-function switch in the second reading mode, and for testing whether a power supply of said apparatus is sufficient when said multi-function switch is actuated in the first reading mode.

5,065,435

METHOD AND APPARATUS FOR ANALYZING VENTRICULAR FUNCTION

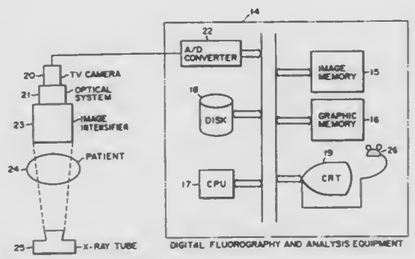
Mitsuo Oe, Ootawara, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 14, 1989, Ser. No. 435,741

Claims priority, application Japan, Nov. 16, 1988, 63-289255

Int. Cl.[5] G06K *9/00*

U.S. Cl. 382—6 **16 Claims**



9. An apparatus for analyzing a ventricular function of a subject heart, comprising:
means for forming an ED contour image representing a contour of the subject heart in an end diastole (DE) phase and an ES contour image in an end systole (ES) phase;
means for forming a cardiac motion contour image using the ED contour image and the ES contour image;
means for generating a graph of an average cardiac function of a normal heart;
means for generating a standard cardiac motion contour image obtained by the graph of the average cardiac function of the normal heart with the ED contour image or the ES contour image being set as a base;
means for superimposing the cardiac motion contour image on the standard cardiac motion contour image; and
means for diagnosing an abnormal region of the subject heart from the superimposed cardiac motion contour image of the subject heart and the standard cardiac motion contour image.

5,065,436

X-RAY COMPUTERIZED TOMOGRAPH

Shigeru Matsumura, Tokyo, Japan, assignor to Yokogawa Medical Systems, Limited, Tokyo, Japan

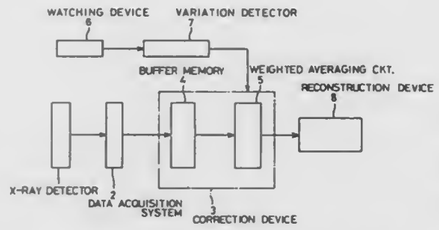
PCT No. PCT/JP88/01113, § 371 Date Apr. 17, 1990, § 102(e) Date Apr. 17, 1990, PCT Pub. No. WO89/03658, PCT Pub. Date May 5, 1989

PCT Filed Oct. 31, 1988, Ser. No. 474,105

Claims priority, application Japan, Oct. 30, 1987, 62-275181

Int. Cl.[5] G06K *9/00*

U.S. Cl. 382—6 **4 Claims**



1. In an X-ray CT comprising
a multi-channel detector for detecting a fan beam X-ray which is transmitted through a body under test; and
a data acquisition device for acquiring view data based on an output signal from said multi-channel detector;
the improvement comprising means for removing artifacts in a reconstructed image caused by instantaneous changes in strength of the X-ray, said means comprising
watching means for watching the instantaneous strength of output from an X-ray source directly or indirectly;
variation detecting means for detecting an abnormal variation in the instantaneous strength of the output from said X-ray source, by comparing an output signal from said watching means with a reference value;
correction means comprising
buffer memory means for storing output data from said data acquisition device corresponding to a plurality of views, and
weighted averaging means for forming corrected view data by weighted averaging said data corresponding to a plurality of views stored in said buffer memory means, said correction means under control of an output signal from said variation detecting means for producing output data obtained from said data acquisition device, without any change, when the output data from said variation detecting means does not represent an abnormal variation in the instantaneous strength of the output from said X-ray source, and for producing output data which is corrected by weighted averaging of data stored in said buffer memory means corresponding to a plurality of views, when the output signal from said variation detecting means represents an abnormal variation in the instantaneous strength of the output from said X-ray source; and
reconstruction means for receiving view data from said correction means, and for extracting parallel beam data from fan beam data, thereby carrying out image reconstruction for a parallel beam with artifacts due to instantaneous changes in the strength of X-rays being removed.

5,065,437

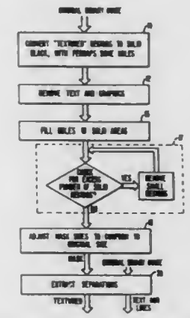
IDENTIFICATION AND SEGMENTATION OF FINELY TEXTURED AND SOLID REGIONS OF BINARY IMAGES

Dan S. Bloomberg, Palo Alto, Calif., assignor to Xerox Corporation, Rochester, N.Y.

Filed Dec. 8, 1989, Ser. No. 449,624

Int. Cl.[5] G06K *9/34*

U.S. Cl. 382—9 **42 Claims**



1. In a method, performed in a digital processor, for separating textured and solid regions, if any, in a binary input image from other regions, if any, the improvement comprising the steps of:
subjecting the input image to a first set of operations that irreversibly maps the textured and solid regions to solid regions in a resulting image, and reversibly maps features containing ON pixels in the other regions to proportionately thicker features in the resulting image; and
subjecting the resulting image to a second set of operations that maps the solid regions to solid regions in a further resulting image and maps the proportionately thickened features in a manner that they are substantially absent from the further resulting image;
whereupon the further resulting image contains solid regions corresponding to the textured and solid regions of the input image.

5,065,438

CHARACTER RECOGNITION APPARATUS WITH INPUTTING FUNCTION OF RULED LINES

Hitoshi Hirose, Higashiosaka, and Fumio Togawa, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 24, 1989, Ser. No. 425,967

Claims priority, application Japan, Oct. 27, 1988, 63-271407

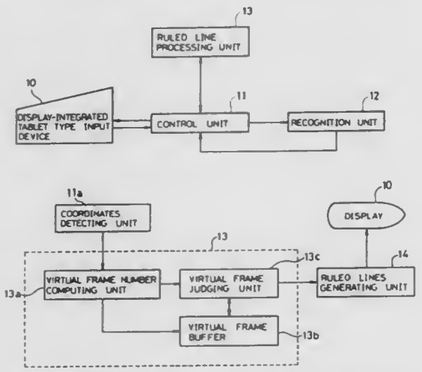
Int. Cl.[5] G06K *9/22*

U.S. Cl. 382—13 **14 Claims**

1. A character recognition apparatus for inputting ruled lines which comprises:
an integrated tablet input device including an input panel and a display panel, the input panel detecting and recognizing information inputted by a stylus pen;
virtual frame setting means for setting a number of virtual frames including grating-like sections within the input panel;
detection means for detecting positional information of the stylus pen indicated on the input panel;
conversion means for converting the positional information of the stylus pen detected by the detection means into a positional information of the virtual frame;
memory means for storing the positional information of the virtual frame;
comparison means for comparing through the positional information of the virtual frames the positions of the stylus pen provided before and after movement thereof on the input panel; and

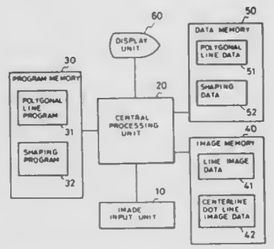
VOL 1132 ISS 2 NO 12 1991 UMI

ruled line input means for inputting a ruled line with a unit length of one frame width and the ruled line being located



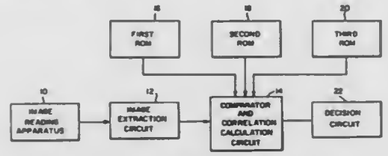
in at least two virtual frames when the stylus pen is moved therebetween.

5,065,439
PATTERN RECOGNITION APPARATUS
Naruto Takasaki, Kawasaki, and Yutake Tanaka, Yokohama, both of Japan, assignors to Hitachi Software Engineering Co., Ltd., Yokohama, Japan
Filed Jun. 6, 1989, Ser. No. 362,319
Claims priority, application Japan, Jun. 6, 1988, 63-139149
Int. Cl.[5] G06K *9/50*
U.S. Cl. 382—25 **13 Claims**



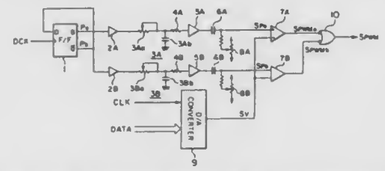
1. A method of modifying an image in a pattern recognition system, comprising the steps of:
storing a first image to be modified;
storing a shaping second image to be compared to the first image;
defining a minute shape portion of the first image that has a length which meets predefined criteria;
comparing the minute shape portion of the first image with the second image; and
substituting the second image into the first image in place of the compared minute shape portion when the second image has a fixed minimum coincidence with the minute shape portion of the first image.

5,065,440
PATTERN RECOGNITION APPARATUS
Naoko Yoshida, Yokohama, and Yoshinori Takizawa, Tokyo, both of Japan, assignors to Eastman Kodack Company, Rochester, N.Y.
Filed Aug. 23, 1990, Ser. No. 571,364
Claims priority, application Japan, Mar. 9, 1990, 2-58736
Int. Cl.[5] G06K *9/62*
U.S. Cl. 382—30 **3 Claims**



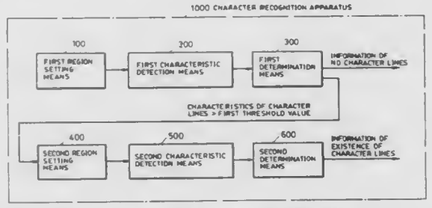
1. A pattern recognition apparatus in which pattern recognition is based on a comparison of an input image with predetermined multiple reference patterns comprising:
first storage means for storing second reference pixel data of second reference patterns formed by providing an insensible region of ±W pixels around a contour of each of the predetermined multiple reference pattern, wherein W is an integer greater than zero;
second storage means for storing third reference pixel data of third reference patterns which are second reference patterns shifted horizontally by a prescribed pixel amount;
comparison means for comparing input image pattern pixel data with pixel data stored in the first and second storage means other than insensible region pixel data;
correlation value calculation means for calculating the degree of correlation between an input image pattern and reference based on the result of the comparison by the comparison means; and
decision means which uses the correlation value calculated by the correlation value calculation means to specify the input pattern to one of the multiple reference patterns.

5,065,441
IMAGE PROCESSING APPARATUS
Hiroyuki Yamamoto; Toshihiro Motoi; Toshiharu Nishimura, and Tadao Kishimoto, all of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan
Filed Jun. 27, 1990, Ser. No. 544,663
Claims priority, application Japan, Jun. 28, 1989, 1-166450
Int. Cl.[5] G06K *9/00*; G01D *9/42*
U.S. Cl. 382—41 **15 Claims**



1. An image processing apparatus for processing an image signal, comprising:
clock means for generating a periodical clock signal;
pattern signal generating means for generating 2N pattern signals, where N is a positive integer, each of said 2N pattern signals having a constant wave-form and a wave length 2N times longer than that of said periodical clock signal, and wherein each of said pattern signals has a phase difference of 360/2N degrees relative to another one of said 2N pattern signals;
comparator means for comparing said 2N pattern signals with said image signal, and for generating 2N comparison signals; and
composition means for combining said 2N comparison signals and for generating a pulse-duration modulated signal from said combined 2N comparison signals.

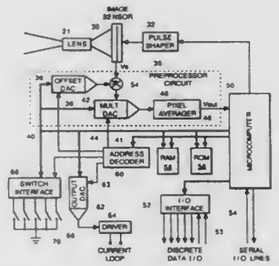
5,065,442
CHARACTER RECOGNITION APPARATUS DETERMINING WHETHER READ DATA IS A CHARACTER LINE
Masami Kugai, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed May 1, 1990, Ser. No. 517,187
Claims priority, application Japan, May 8, 1989, 1-113794
Int. Cl.[5] G06K *9/20*
U.S. Cl. 382—48 **13 Claims**



1. Character recognition apparatus, comprising:
first region setting means for setting a first region of an original to be recognized to a first size;
first characteristic detection means for detecting a first characteristic value for a character line, said first characteristic value being at least one of a width and a length of the character line included within the first region set by said first region setting means;
first determination means for determining the existence of a line within the first region from the first characteristic value detected by said first characteristic detection means;
second region setting means for resetting the first region to a second size which is larger than the first size when it has been determined that there is a character line as a result of the determination by said first determination means;
second characteristic detection means for detecting a second characteristic value for the character line, said second characteristic value being at least one of the width and length of the character line included within the second region set by said second region setting means; and
second determination means for determining whether or not there is an effective line within said region from the second characteristic value detected by said second characteristic detection means.

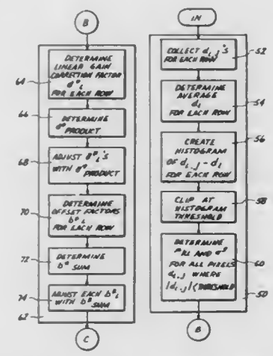
5,065,443
IMAGE PROCESSOR WITH ILLUMINATION VARIATION COMPENSATION
David W. Farchmin, Grafton, Wis., assignor to Allen-Bradley Company, Inc., Milwaukee, Wis.
Filed Dec. 4, 1989, Ser. No. 445,207
Int. Cl.[5] G06K *9/36*
U.S. Cl. 382—53 **15 Claims**

10. A system which compensates for the effects, caused by illumination variation, to a image signal having first and second extreme levels, said system comprising:
means for storing data indicating a reference relationship for the first and a second extreme levels;
means for detecting the first extreme level of the image signal;
means for detecting the second extreme level of the image signal;
means for calculating a theoretical second extreme level of the image signal from the stored data and the detected first extreme level of the image signal;
means for comparing the second extreme level of the image signal to the theoretical second extreme level;
means for adjusting the amplitude of the image signal (1) until the difference between the first and second extreme levels of the image signal equals a predefined value, when



the second extreme level of the image signal has a predetermined relationship to the theoretical second extreme level, or (2) until the difference between the first extreme level of the image signal and the theoretical second extreme level equals the predefined value, when the second extreme level does not have the predetermined relationship to the theoretical second extreme level.

5,065,444
STREAK REMOVAL FILTERING METHOD AND APPARATUS
David D. Garber, Cypress, Calif., assignor to Northrop Corporation, Hawthorne, Calif.
Continuation of Ser. No. 153,854, Feb. 8, 1988, abandoned, which is a continuation-in-part of Ser. No. 77,717, Jul. 24, 1987, abandoned. This application Jan. 15, 1991, Ser. No. 642,133
Int. Cl.[5] G06K *9/40*
U.S. Cl. 382—54 **10 Claims**

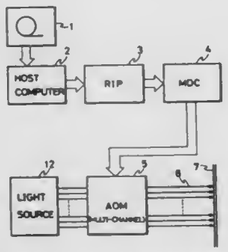


1. A streak removal filtering method for estimating an image of pixels P_{ij} from measured pixel intensity values P'_{ij} in an image frame, comprising, the steps of
assuming that pixels in a predetermined region near the pixel P_{ij} are strongly related to each other and to P'_{ij} and that a correction based on $P^*_{ij}=a^*_i P'_{ij}+b^*_i$ can compute streak removal information, where a^*_i is the gain correction, P'_{ij} is the measured intensity of the pixel, b^*_i is an offset correction, and P^*_{ij} is the estimated value of the pixel P_{ij} of the actual image, as corrected;

VOL 1132 ISS 2 NO 12 1991 UMI

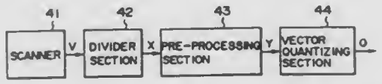
performing the following steps in a computer:
computing the differences d_{ij} between each pixel in said region and the measured pixel P'_{ij};
thresholding d_{ij} for values lower than predetermined values above which the difference may be assumed to be due to real object changes in the image;
computing the mean and the variance of the intensity values of the pixels P'_{ij} in said region for which d_{ij} is less than said threshold;
averaging the product of the gain corrections and the variances of the pixels preceding the measured pixel, P'_{ij}, ratioed by the variance of the immediately adjacent pixels to estimate said gain correction, a^*_i;
averaging the corrected pixel values from regions of pixels preceding the measured pixel, P'_{ij}, less the computed means pixel intensity value times the gain corrections of the adjacent pixels to determine said offset correction, b^*_i;
computing the estimated value P^*_{ij} of the intensity value of P_{ij} by adding the offset b^*_i to the measured intensity P'_{ij} from said relation $P^*_{ij}=a^*_iP'_{ij}+b^*_i$;
processing successive regions of pixels of the image, in seriatim, in accordance with the above steps, to develop a streak corrected image formed from the corrected estimated values of pixels P^*_{ij}; and, thereafter
outputting said corrected image of said image frame.

5,065,445
APPARATUS FOR EXPANDING AND FORMATTING RUNLENGTH DATA FOR MULTIPLE EXPOSURE BEAMS
Akira Kuwabara, and Yasufumi Koyama, both of Kyoto, Japan, assignors to Dainippon Screen Mfg. Co., Ltd., Kyoto, Japan
Filed Jul. 19, 1988, Ser. No. 222,431
Claims priority, application Japan, Jul. 20, 1987, 62-179061
Int. Cl.[5] G06K *9/36, 9/46;* **H04N** *1/419;* **G01D** *9/42*
U.S. Cl. 382—56 **9 Claims**



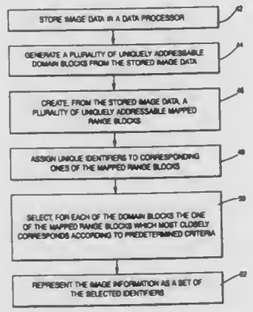
7. An image data processing apparatus for generating dot data from runlength image data for controlling exposure beams which record an image through scanning, said apparatus comprising:
(A) a converter responsive to the runlength image data for generating a dot signal, wherein one state of the dot signal and the length of said one state correspond to said runlength image data;
(B) first memory means responsive to the dot signal for forming an N bit signal by storing said dot signal corresponding to N of the scanning lines; and
(C) second memory means, responsive to the N bit signal, for forming dot data in M scanning line format, wherein said second memory means comprises
(i) a plurality of memory devices for storing the N bit signals of M scanning lines;
(ii) a block controller for controlling the operation of said memory devices, said block controller selecting one device at a time from among the memory devices to operate to store the N bit signal from said first memory memory means, and selecting all of the memory devices to operate to output in parallel the N bit signals of M scanning lines, wherein the N bit signals of M scanning lines represent said dot data; and
(iii) an address counter for designating an address of the memory devices, wherein M is the number of said exposure beams and N is a number smaller than M.

5,065,446
IMAGE DATA CODING APPARATUS
Yoshiyuki Suzuki, Kawasaki; Masahiro Funada, Yokohama; Mamoru Sato, Tokyo, and Yukio Sato, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Division of Ser. No. 940,421, Dec. 11, 1986, Pat. No. 4,797,945. This application Jun. 2, 1988, Ser. No. 201,164
Claims priority, application Japan, Dec. 13, 1985, 60-281630; Dec. 13, 1985, 60-281640; Dec. 13, 1985, 60-281641
Int. Cl.[5] G06K *9/36*
U.S. Cl. 382—56 **8 Claims**



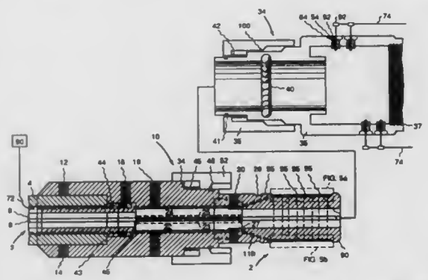
I. An image data coding method comprising the steps of:
dividing an image into a plurality of blocks, each consisting of a plurality of pixels;
encoding an image pattern of each of the blocks, a plurality of image patterns, which have been obtained by means of rotation-processing an identical image pattern, being so encoded into a common pattern code; and
adding a status code indicating a rotation angle of the image pattern of each of the blocks to the common pattern code obtained in said encoding step.

5,065,447
METHOD AND APPARATUS FOR PROCESSING DIGITAL DATA
Michael F. Barnsley, and Alan D. Sloan, both of Atlanta, Ga., assignors to Iterated Systems, Inc., Norcross, Ga.
Filed Jul. 5, 1989, Ser. No. 375,840
Int. Cl.[5] G06K *9/00*
U.S. Cl. 382—56 **38 Claims**



1. A method for automatically processing digital image data consisting of image information, the method comprising the steps performed by a data processor of:
storing the image data in the data processor;
generating a plurality of uniquely addressable domain blocks from the stored image data, each of the domain blocks representing a different portion of the image information such that all of the image information is contained in at least one of the domain blocks;
creating, from the stored image data, a plurality of uniquely addressable mapped range blocks corresponding to different subsets of the stored image data with each of the subsets having a unique address, the creating step including the substep of
executing, for each of the mapped range blocks, a corresponding procedure upon the one of the subsets of the stored image data which corresponds to the mapped range block;
assigning unique identifiers to corresponding ones of the mapped range blocks, each of the identifiers specifying for the corresponding mapped range block a procedure and a address of the corresponding subset of the stored image data;
selecting, for each of the domain blocks, the one of the mapped range blocks which most closely corresponds according to predetermined criteria; and
representing the image information as a set of the identifiers of the selected mapped range blocks.

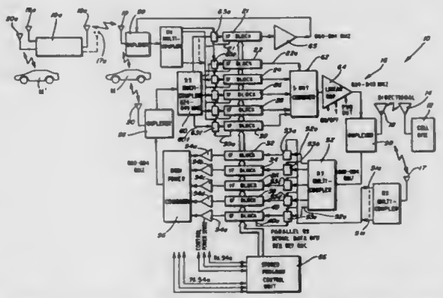
5,065,448
OPTICAL FIBER QUICK CONNECT/DISCONNECT HAVING ELECTRONIC FEEDBACK
Angel L. Ortiz, Jr., Scotia, N.Y., assignor to General Electric Company, Schenectady, N.Y.
Filed Mar. 25, 1991, Ser. No. 674,253
Int. Cl.[5] G02B *6/00, 6/36*
U.S. Cl. 385—53 **7 Claims**



1. An optical fiber connect/disconnect for a power laser which is comprised of:
a main body means;
a first electrical feedback means secured to said main body means and said main body means being adapted to releasably secure an optical fiber means;
a main body receiver means;
a second electrical feedback means secured to said main body receiver means;
a coupler means secured to said receiver means; and
said main body means releasably engaging said receiver means in order to create an electrical feedback circuit between said first and second feedbacks and to create a fiber optical path through said main body means, said receiver means and said coupler means.

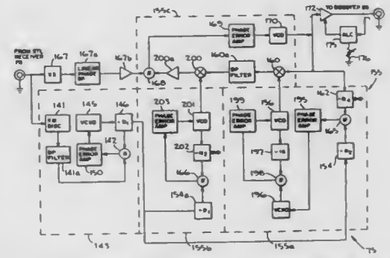
5,065,449
BOOSTER DIVERSITY RECEIVING SYSTEM USABLE WITH CELLULAR BOOSTER
Robert T. Gordon; Michael W. Evans, both of Lynchburg, and Samuel A. Leslie, Forest, all of Va., assignors to Orion Industries, Solon, Ohio
Continuation-in-part of Ser. No. 81,120, Aug. 3, 1987, Pat. No. 4,941,200. This application Feb. 24, 1989, Ser. No. 315,922
Int. Cl.[5] H04B *7/00*
U.S. Cl. 455—15 **7 Claims**

1. An apparatus usable in a cellular booster for selecting between at least first and second antennas usable to receive signals from a moveable unit comprising:
means for detecting signals from the first antenna;
means for detecting signals from the second antenna;
switching means, coupled to said detecting means, for selecting the first antenna or the second antenna;
means, coupled to said switching means, for repetitively measuring a selected parameter of a signal received off of said selected antenna;
means, coupled to said measuring means, for forming a running average value of said selected parameter in response to a predetermined number of prior measurements;



means, coupled to said measuring and said forming means, for comparing a present value of said selected parameter to said average value including means for generating an electrical signal in response to results of said comparison; and
means, responsive to said electrical signal, for determining if said other antenna should be selected
with said determining means including:
means for detecting if said present value of said selected parameter exceeds a predetermined threshold including means for generating a threshold exceeded indicium in response thereto and threshold activated means, responsive to said indicium for selecting said other antenna.

5,065,450
FREQUENCY MODULATED RADIO FREQUENCY BROADCAST NETWORK EMPLOYING A SYNCHRONOUS FREQUENCY MODULATED BOOSTER SYSTEM
Joseph C. Wu, Saratoga; Charlie L. Hu, San Jose, and Yee S. Law, Milpitas, all of Calif., assignors to TFT, Inc., Santa Clara, Calif.
Continuation-in-part of Ser. No. 326,744, Mar. 21, 1989. This application Sep. 21, 1990, Ser. No. 586,502
Int. Cl.[5] H04B *1/40, 7/165*
U.S. Cl. 455—20 **12 Claims**



1. A synchronous frequency modulated booster for re-transmitting a frequency modulated broadcast signal comprising:

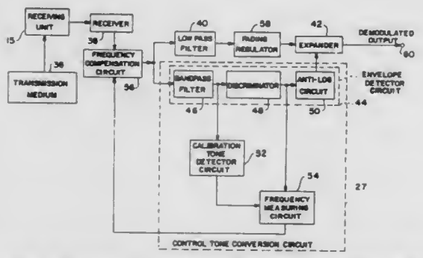
VOL 1132 ISS 2 NO 12 1991 UMI

A. transmitting means for re-transmitting a frequency modulated broadcast signal;
B. receiving means for receiving a frequency modulated intermediate frequency signal; and
C. a synchronous frequency modulated exciter receiving said frequency modulated intermediate frequency signal from said receiving means and applying to said transmitting means a frequency modulated broadcast signal for re-transmission by said transmitter means;
D. said synchronous frequency modulated exciter comprising:
(a) means responsive to said receiving means for producing a frequency reference signal representative of the frequency modulated intermediate frequency signal,
(b) a first phase locked loop circuit responsive to said receiving means for producing a first stable phase locked frequency signal representative of the frequency modulated intermediate frequency signal,
(c) a second phase locked loop circuit including a first voltage controlled oscillator, said first voltage controlled oscillator generating the frequency modulated broadcast signal, said first voltage controlled oscillator being phase locked to said frequency reference signal produced by said means, and
(d) correcting phase locked loop circuit means responsive to the output of said first voltage controlled oscillator and responsive to said stable phase locked frequency produced by said first phase locked loop circuit and connected to said second phase locked loop circuit for correcting phase differences between the output of said first voltage controlled oscillator and said frequency reference signal produced by said means.

5,065,451
SYSTEM AND METHOD OF FREQUENCY CALIBRATION IN A LINKED COMPRESSION-EXPANSION (LINCOMPEX) SYSTEM

Howard Leveque, Columbia, Md., assignor to AMAF Industries, Inc., Columbia, Md.

Filed Jun. 9, 1989, Ser. No. 363,863
Int. Cl.[5] H04B *1/64*; A03G *7/00*
U.S. Cl. 455—72 **44 Claims**

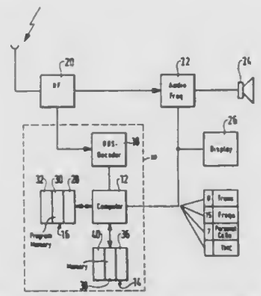


1. A method for receiving a compressed combination information waveform transmitted over a communication channel, wherein a transmitter transmits a calibration tone independently recognizable from the transmitted compressed combination information waveform, the combination information waveform including a compressed voice signal and an envelope signal represented by a control tone, comprising the steps of:
(a) receiving the calibration tone;
(b) determining a frequency of the calibration tone;
(c) separating the compressed combination information waveform into the compressed voice signal and the control tone;
(d) determining a frequency of the control tone;
(e) expanding the compressed voice signal by multiplying the compressed voice signal by the frequency of the control tone determined in said step (d);
(f) determining a frequency error by comparing the frequency of the calibration tone determined in said step (b) with a reference frequency; and
(g) frequency compensating the compressed combination information waveform prior to the execution of said step (c) according to the frequency error determined in said step (f) such that both the compressed voice and control tone of said step (c) are frequency compensated, thereby substantially eliminating "duck-talk".

5,065,452
DIGITAL TRAFFIC NEWS EVALUATION METHOD

Ralf Duckeck, and Peter Brügas, both of Hildesheim, Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Dec. 7, 1989, Ser. No. 447,165
Int. Cl.[5] H03M *13/00*; H04B *1/06*
U.S. Cl. 455—226 **13 Claims**



11. A vehicle radio receiver having a decoder (18) decoding traffic announcements received in digitally encoded form, having
a computer (12), having an input connected to an output of said decoder (18), for evaluating a received data packet and
a memory (14), bidirectionally coupled to said computer (12), for storing the traffic announcements, wherein
the computer (12) includes
a program memory (16) having a control program, by means of which said computer is controlled in such a way that
data words within each complete cycle of traffic announcements, which in encoded form include a variable-value nominal number of reports broadcast in the current cycle, are decoded and evaluated, and that
the reports decoded and evaluated within this same cycle are counted and compared with the nominal number.

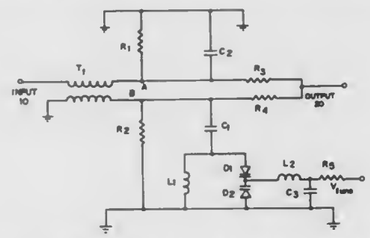
5,065,453
ELECTRICALLY-TUNABLE BANDPASS FILTER

Gary D. Thomas, Lynchburg, Va., assignor to General Electric Company, Lynchburg, Va.

Filed Mar. 20, 1989, Ser. No. 325,994
Int. Cl.[5] H03H *7/01*; H04B *1/10, 1/16*
U.S. Cl. 455—286 **30 Claims**

1. A bandpass filter comprising:
an input port for receiving signals falling within a predetermined band of frequencies;
an output port;
means, coupled between said input port and said output port, for establishing a balanced condition in which input signals having a first set of frequencies within said predetermined band of frequencies applied to said input port fail to result in the generation of any output signal at said output port; and

means, coupled to said means for establishing a balanced condition, for disrupting said balanced condition such that

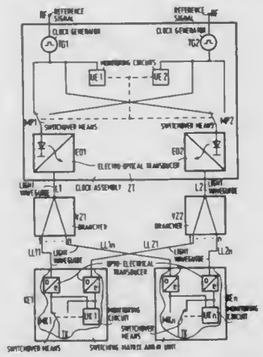


output signals having a second set of frequencies within said predetermined band of frequencies are passed to said output port.

5,065,454
CLOCK DISTRIBUTOR

Reiner Binz, Ebenhausen, and Hartmut Burghardt, Holzkirchen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 30, 1990, Ser. No. 516,773
Claims priority, application Fed. Rep. of Germany, Apr. 28, 1989, 3914177
Int. Cl.[5] H04B *10/00*
U.S. Cl. 359—184 **5 Claims**

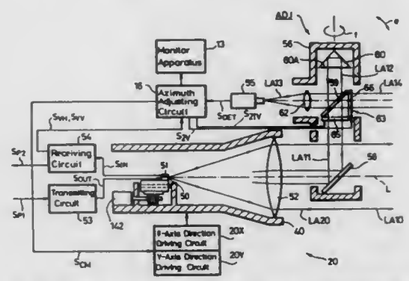


1. A clock distributor for a telephone system, comprising:
redundant clock signal generators for generating clock signals at clock signal outputs, at any one time one of said redundant clock signal generators being designated as an active clock signal generator,;
an electro-optical transducer having an input and having an output;
a switching means for connecting said clock signal output of said active clock signal generator to said input of said electro-optical transducer;
an optical brancher having an input connected at the output of the electro-optical transducer and having a plurality of outputs;
a plurality of clock-controlled switching matrix array units having inputs; and
a plurality of light wave guides each of which connecting said input of one of said switching matrix array units with one of said outputs of said optical brancher.

5,065,455
OPTICAL ATMOSPHERIC LINK SYSTEM

Yujiro Ito; Koji Suzuki, and Satoshi Kusaka, all of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed May 16, 1989, Ser. No. 352,554
Claims priority, application Japan, May 20, 1988, 63-123543
Int. Cl.[5] H04B *10/22*
U.S. Cl. 359—1.59 **9 Claims**

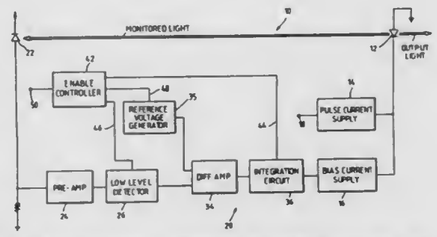


1. In an optical atmospheric link system for transmitting and receiving light beams carrying information signals between a transmitter means and a receiver means which is located apart from the transmitter means, the transmitter means comprising:
light source means for generating a first light beam modulated with an information signal;
first optical system means for transmitting the first light beam along a light path from the light source means toward the receiver means;
second optical system means for turning at least a portion of the first light beam in parallel with the light path; and
third optical system means for allowing visual observance of both the light beam turned by the second optical system means and the receiver means, wherein the third optical system means comprises an image sensor for generating separate electronic data representative of both the image of light beam turned by the second optical system means and the image of the receiver means.

5,065,456
METHOD AND APPARATUS FOR ENHANCING THE ENABLE RESPONSE OF A LASER DIODE USED IN AN OPTICAL COMMUNICATION SYSTEM

Takao Nakayama, Interconnect Group, Research and Development Center Digital Equipment Corp. Japan 6 - 14 Sanbancho, Chiyoda-ku, Tokyo 102, Japan

Filed Jun. 28, 1989, Ser. No. 373,084
Claims priority, application Japan, Feb. 6, 1989, 1-027331
Int. Cl.[5] H04B *10/04*
U.S. Cl. 359—187 **41 Claims**



1. An apparatus for controlling the enable response time of an optical transmitter used in a digital optical communication system during the reception of a data signal, wherein said optical transmitter receives current from a pulse current sup-

VOL
1132
ISS
2
NO
12
1991
UMI

ply representative of the data signal and a bias current supply, comprising:

first means for delivering an enable signal having a time duration correlative to said data signal;

a closed-loop, bias-current-supply controller having a feedback path for monitoring the optical output intensity of said optical transmitter and controlling the optical output intensity to a preselected value by controlling said bias current supply, said closed-loop, bias-current-supply controller being adapted for receiving said enable signal and allowing said bias current supply to vary at a first preselected rate for a first preselected portion of said enable signal and at a second preselected rate during a second portion of said enable signal.

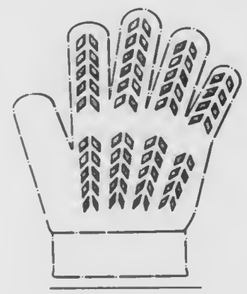
DESIGNS

NOVEMBER 12, 1991

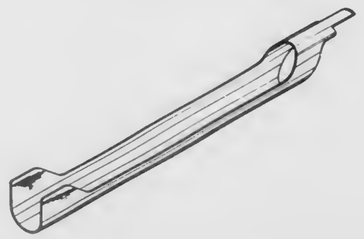
321,425
SHOE SOLE
Shigeyuki Mitsui, Kobe, Japan, assignor to Asics Corporation, Hyogo, Japan
Filed Dec. 20, 1989, Ser. No. 452,469
Claims priority, application Japan, Jun. 20, 1989, 1-22657
Term of patent 14 years
U.S. Cl. D2—320



321,426
TREAD FOR A GLOVE
Barry Brinker, Cincinnati, Ohio, assignor to 'totes', incorporated, Loveland, Ohio
Filed Sep. 25, 1990, Ser. No. 588,314
The portion of the term of this patent subsequent to Aug. 6, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D2—623



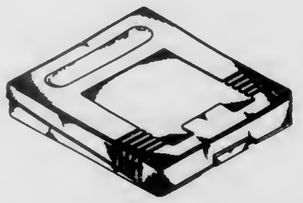
321,427
TOOL FOR DONNING AND REMOVAL OF HOSIERY
Ford Barrick, 521 Briggs Hill Rd., Bowling Green, Ky. 42101
Filed Apr. 18, 1989, Ser. No. 340,163
Term of patent 14 years
U.S. Cl. D2—641



321,428
UMBRELLA HANDLE
Ann S. Cain, Cincinnati, Ohio, assignor to 'Totes', Incorporated, Loveland, Ohio
Continuation-in-part of Ser. No. 485,731, Feb. 27, 1990. This application Sep. 14, 1990, Ser. No. 582,548
Term of patent 14 years
U.S. Cl. D3—12

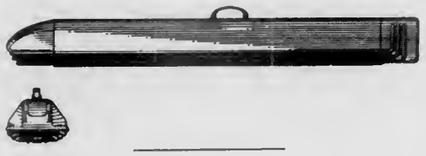


321,429
CARTRIDGE CASE
Shin Kojo, Kyoto, Japan, assignor to Nintendo Company Limited, Kyoto, Japan
Filed Jul. 5, 1989, Ser. No. 375,408
Claims priority, application Japan, Jan. 6, 1989, 1-201
Term of patent 14 years
U.S. Cl. D3—35

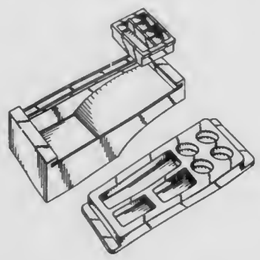


VOL 1132 ISS 2 NO 12 1991 UMI

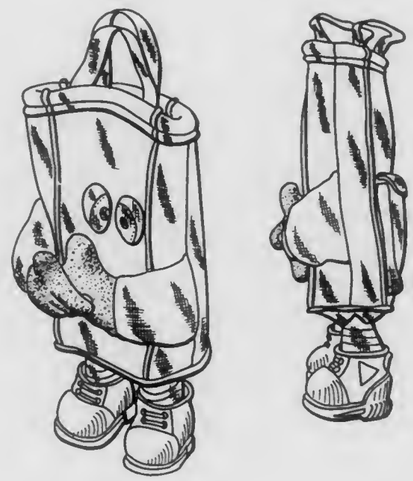
321,430
SKI CARRIER
John G. Wirth, R.D. #2, Box 128, Cochranville, Pa. 19330
Filed Aug. 30, 1990, Ser. No. 574,939
Term of patent 14 years
U.S. Cl. D3—36



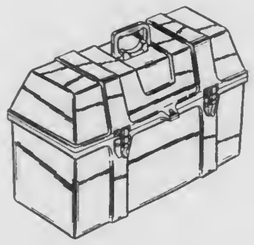
321,431
MOTOR VEHICLE TOOL CHEST
Fred O. Dunkeld, Box 28, Newberry, Mich. 49868
Filed Feb. 22, 1989, Ser. No. 313,803
Term of patent 14 years
U.S. Cl. D3—40



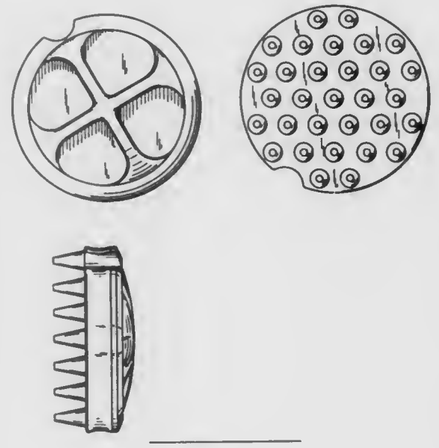
321,432
TOTE BAG
Peter G. Blank, Minnetonka, Minn., assignor to Imagination Factory, Ltd., New Hope, Minn.
Filed Apr. 27, 1989, Ser. No. 344,049
Term of patent 14 years
U.S. Cl. D3—44



321,433
HIP ROOF TOOL BOX
Thomas Dickinson, St. Louis, Mo., assignor to Contico International Company, St. Louis, Mo.
Filed Aug. 3, 1987, Ser. No. 80,697
Term of patent 14 years
U.S. Cl. D3—78



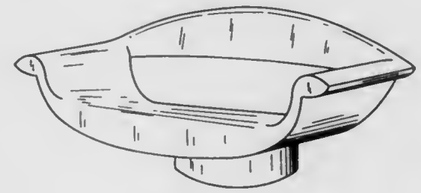
321,434
BRUSH FOR ANIMALS
Fletcher C. Strickler, Louisville, Ky., assignor to White Horse Trading Co., Inc., Louisville, Ky.
Continuation-in-part of Ser. No. 403,156, Sep. 5, 1989, Pat. No. D. 315,038. This application Dec. 14, 1989, Ser. No. 450,845
Term of patent 14 years
U.S. Cl. D4—136



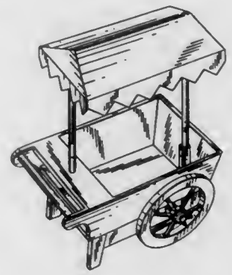
321,435
CHAIR
Phillip M. Scalisi, 5871 Furnace Creek Rd., Yorba Linda, Calif. 92686, and Joseph F. Scalisi, 808 N. Lorri Way, Walnut, Calif. 91789
Filed Aug. 25, 1988, Ser. No. 236,624
Term of patent 14 years
U.S. Cl. D6—375



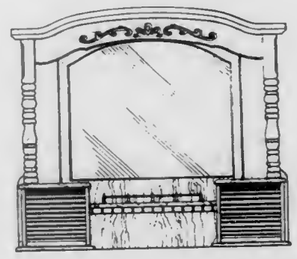
321,436
BENCH
Emilio F. Paris, Barcelona, Spain, assignor to Hijo De E.F. Escofet S.A., Barcelona, Spain
Filed Nov. 30, 1988, Ser. No. 278,164
Claims priority, application Spain, May 31, 1988, 116.103
Term of patent 14 years
U.S. Cl. D6—381



321,437
HOLDER FOR PLANTS, FLOWERS, RADIOS, OR THE LIKE
Peter S. C. Cheng, 5 Ross Street, Toronto, Ontario, Canada M5T 1Z8
Filed May 4, 1989, Ser. No. 347,413
Term of patent 14 years
U.S. Cl. D6—404

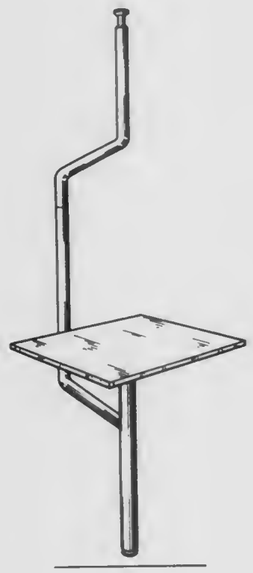


321,438
HUTCH MIRROR
Jericho P. Pauer, Onalaska, Wis., and Jane Pronschinske, Winona, Minn., assignors to Ashley Furniture Industries, Inc., Arcadia, Wis.
Filed Apr. 10, 1989, Ser. No. 335,515
Term of patent 14 years
U.S. Cl. D6—436

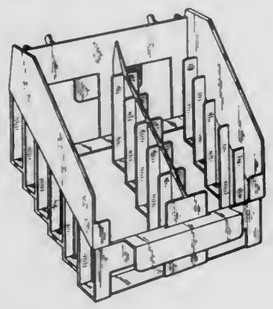


VOL 1132 ISS 2 NO 12 1991 UMI

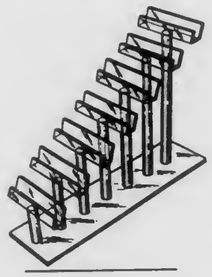
321,439
TELEVISION STAND
Gerald Lecompte, 9105 NW. Expressway, Yukon, Okla. 73099
Filed Mar. 29, 1988, Ser. No. 174,691
Term of patent 14 years
U.S. Cl. D6—455



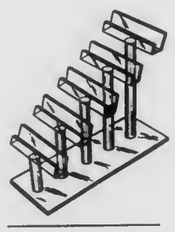
321,440
DISPLAY UNIT FOR COUNTER SALES
Marvin Zaro, 6 Woodland Rd., Bordentown, N.J. 08505
Filed Apr. 7, 1989, Ser. No. 334,399
Term of patent 14 years
U.S. Cl. D6—468



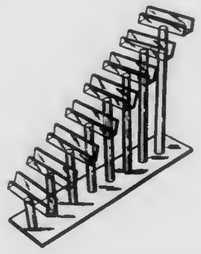
321,441
EYEGLASS DISPLAY RACK
Carlos A. Khantzis, 4737 Galendo St., Woodland Hills, Calif. 91364
Filed Oct. 11, 1988, Ser. No. 255,407
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—468



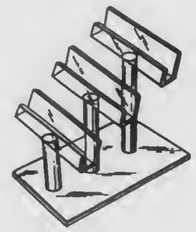
321,442
EYEGLASS DISPLAY RACK
Carlos A. Khantzis, Galendo St., Woodland Hills, Calif. 91364
Filed Oct. 11, 1988, Ser. No. 261,182
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—468



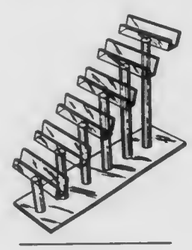
321,443
EYEGLASS DISPLAY RACK
Carlos A. Khantzis, 4737 Galendo St., Woodland Hills, Calif. 91364
Filed Oct. 11, 1988, Ser. No. 255,409
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—468



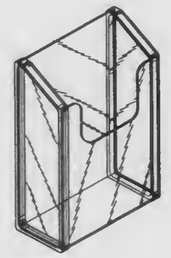
321,444
EYEGLASS DISPLAY RACK
Carlos A. Khantzis, 4737 Galendo St., Woodland Hills, Calif. 91364
Filed Oct. 11, 1988, Ser. No. 255,408
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—468



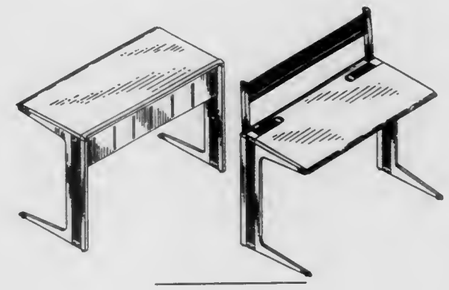
321,445
EYEGLASS DISPLAY RACK
Carlos A. Khantzis, 4737 Galendo St., Woodland Hills, Calif. 91364
Filed Oct. 11, 1988, Ser. No. 255,441
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D6—468



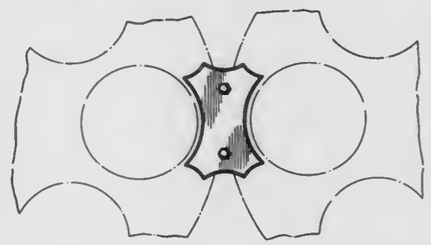
321,446
DISPLAY HOLDER FOR BROCHURES AND THE LIKE
Richard M. Liptak, Parma Heights, Ohio, assignor to Integral Design, Inc., Cleveland, Ohio
Filed Jun. 22, 1989, Ser. No. 369,908
Term of patent 14 years
U.S. Cl. D6—475



321,447
DESK
Thomas J. Newhouse, Grand Rapids, Mich., assignor to Herman Miller, Inc., Zeeland, Mich.
Division of Ser. No. 544,852, Jun. 27, 1990, which is a division of Ser. No. 57,830, Jun. 2, 1987, Pat. No. Des. 311,833. This application Apr. 4, 1991, Ser. No. 680,267
Term of patent 14 years
U.S. Cl. D6—484

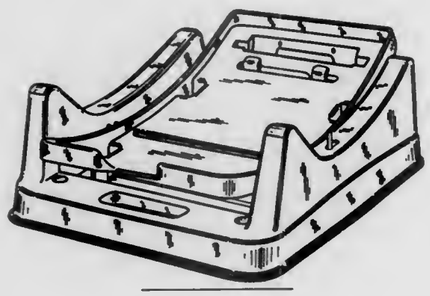


321,448
CONNECTOR FOR A WINE RACK OR THE LIKE
David P. Masacek, 2925 Locust St., San Diego, Calif. 92106
Filed Dec. 5, 1988, Ser. No. 280,195
Term of patent 14 years
U.S. Cl. D6—491

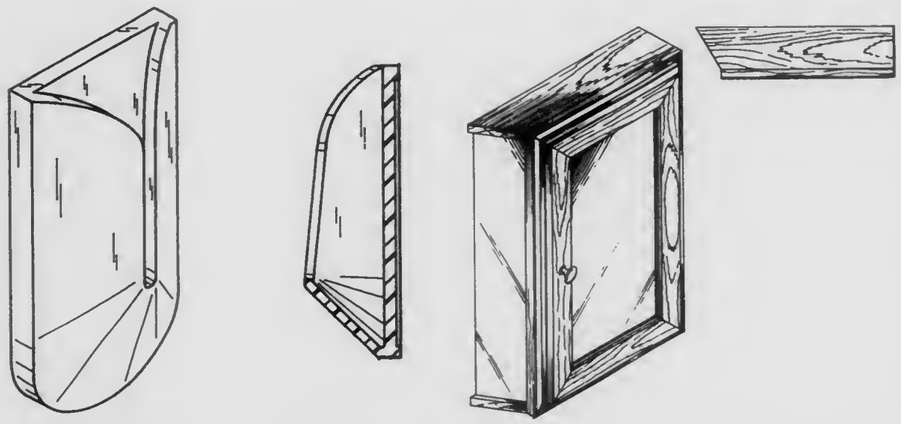


VOL 1132 ISS 2 NO 12 1991 UMI

321,449
POWER ROCKER BASE FOR AN INFANT SEAT
Paul K. Meeker, Aurora, Ohio, assignor to Spalding & Evenflo Companies, Inc., Tampa, Fla.
Filed Oct. 17, 1988, Ser. No. 259,011
Term of patent 14 years
U.S. Cl. D6—496



321,450
HOLDER FOR A TOWEL OR SIMILAR ARTICLE
Sheldon H. Goodman, 4079 Princeton Blvd., South Euclid, Ohio 44121, and Steven E. Greenhut, 21646 Club Villa Ter., Boca Raton, Fla. 33433
Filed Aug. 23, 1989, Ser. No. 397,295
Term of patent 14 years
U.S. Cl. D6—546

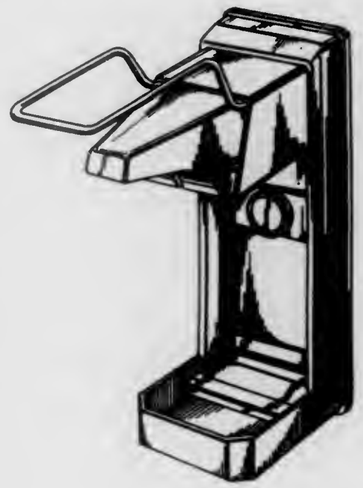


321,451
MEDICINE CABINET HAVING A REFLECTIVE FRONT FACE AND SIDEWALL
Daniel P. Greve, 22712 Rockford, El Toro, Calif. 92630
Filed Oct. 23, 1989, Ser. No. 425,322
Term of patent 14 years
U.S. Cl. D6—559

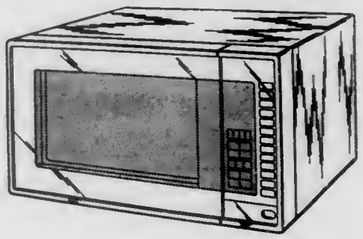
321,452
SHOE RACK
Oliver W. Davis, 11190-074 Box P.M.B., Atlanta, Ga. 30315
Filed Sep. 2, 1988, Ser. No. 240,044
Term of patent 14 years
U.S. Cl. D6—571



321,453
LIQUID DISPENSER HOUSING
Heiner Ophardt, 3931 Vineyard Cres., Vineland, Ontario, Canada L0R 1B0
Filed Mar. 22, 1989, Ser. No. 327,143
Claims priority, application Fed. Rep. of Germany, Sep. 24, 1988, M8801940.3
Term of patent 14 years
U.S. Cl. D7—300

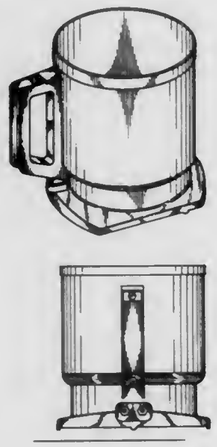


321,454
MICROWAVE OVEN
Hisayoshi Matoba; Masayoshi Kubo, both of Nara, and Masuo Ichihara, Kyoto, all of Japan, assignors to Matsushita Electric Industrial Co. Ltd., Osaka, Japan
Filed Mar. 10, 1989, Ser. No. 321,742
Claims priority, application Japan, Oct. 5, 1988, 63-39119
Term of patent 14 years
U.S. Cl. D7—351

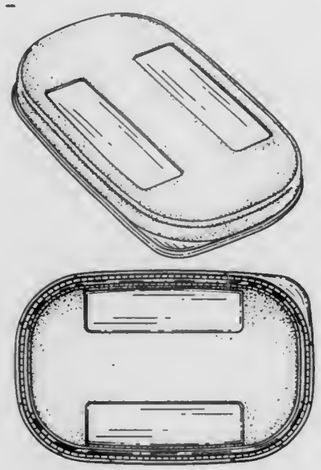


VOL 1132 ISS 2 NO 12 1991 UMI

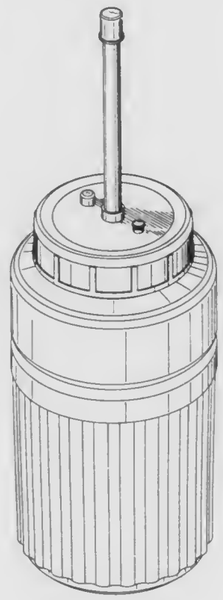
321,455
DEEP FAT FRYER
Edward J. Duquaine, Jr., West Bend, Wis., and William C. Cesaroni, Glenview, Ill., assignors to The West Bend Company, West Bend, Wis.
Filed Nov. 14, 1988, Ser. No. 271,191
Term of patent 14 years
U.S. Cl. D7—361



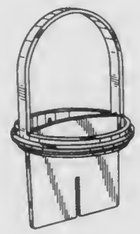
321,456
COVER FOR A FOOD STORAGE CONTAINER OR THE LIKE
Martin J. Wolff, North Providence, R.I., assignor to Dart Industries, Inc., Deerfield, Ill.
Filed Nov. 21, 1988, Ser. No. 274,898
Term of patent 14 years
U.S. Cl. D7—391



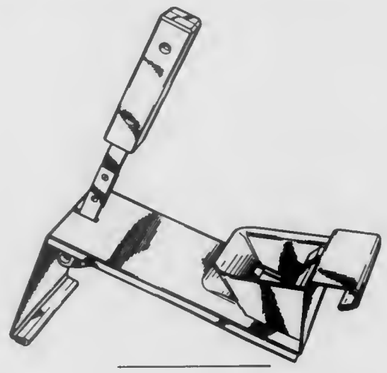
321,457
INSULATED BOTTLE
W. Henry Kahl, Wooster, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jul. 25, 1989, Ser. No. 385,169
Term of patent 14 years
U.S. Cl. D7—608



321,458
CUTLERY INSERT FOR A CONTAINER
Stig Lillelund, and Eskil H. Olsen, both of Gentofte, Denmark, assignors to Dart Industries Inc., Deerfield, Ill.
Filed Jul. 24, 1989, Ser. No. 384,514
Term of patent 14 years
U.S. Cl. D7—637



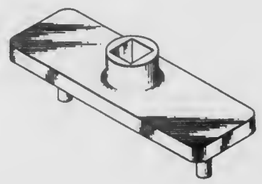
321,459
UNDERWATER FLOWER CUTTER
James W. Myrland, 561 Hickory Ct., Verona, Wis. 53593
Continuation of Ser. No. 189,597, May 2, 1988, abandoned. This application Sep. 27, 1990, Ser. No. 588,965
Term of patent 14 years
U.S. Cl. D8—1



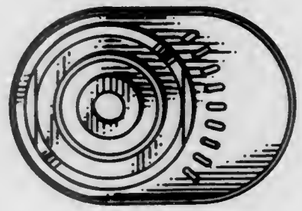
321,460
WRENCH
Wallace L. Tiefenthal, Fruitport, Mich., assignor to Tru-Cut Tool & Machine Corp., Muskegon, Mich.
Filed Feb. 14, 1989, Ser. No. 310,090
Term of patent 14 years
U.S. Cl. D8—17



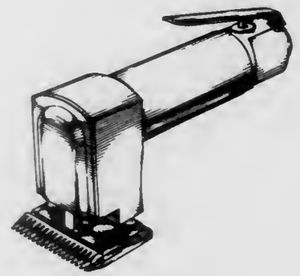
321,461
OIL PLATE REMOVER
Brian Hamilton, 8469 Spring Park Rd., Moundsview, Minn. 55432
Filed Aug. 15, 1988, Ser. No. 231,987
Term of patent 14 years
U.S. Cl. D8—27



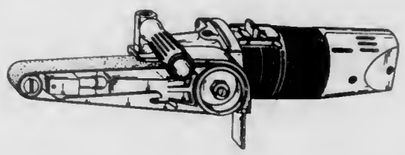
321,462
EXTENDED PNEUMATIC TOOL
Robert B. Staubitz, Collinsville, Conn.; Gregory P. Albert, Waverly, N.Y.; Kenneth J. Dubuque, Sheshequin, Pa.; Charles J. Hix, Jr., Ulster, Pa., and Bruce D. Fay, Sayre, Pa., assignors to Ingersoll-Rand Company, Woodcliff Lake, N.J.
Filed Mar. 31, 1989, Ser. No. 331,884
Term of patent 14 years
U.S. Cl. D8—61



321,463
CARPET SCULPTURE TOOL
Kenneth Shelton, and James Owensby, both of 240 Orange Dr., Dalton, Ga. 30720
Filed Apr. 3, 1989, Ser. No. 331,864
Term of patent 14 years
U.S. Cl. D8—61

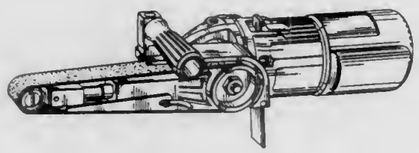


321,464
PORTABLE BELT SANDER
Toshio Mikiya, Tokyo, Japan, assignor to Nitto Kohki Co., Ltd., Tokyo, Japan
Filed Aug. 24, 1989, Ser. No. 397,797
Claims priority, application Japan, Feb. 27, 1989, 1-6646
Term of patent 14 years
U.S. Cl. D8—62

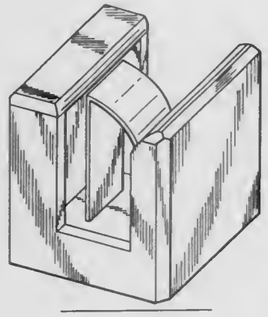


VOL
1132
ISS
2
NO
12
1991
UMI

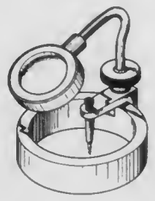
321,465
PORTABLE BELT SANDER
Toshio Mikiya, Tokyo, Japan, assignor to Nitto Kohki Co., Ltd., Tokyo, Japan
Filed Feb. 24, 1989, Ser. No. 314,831
Claims priority, application Japan, Aug. 31, 1988, 63-34120
Term of patent 14 years
U.S. Cl. D8—62



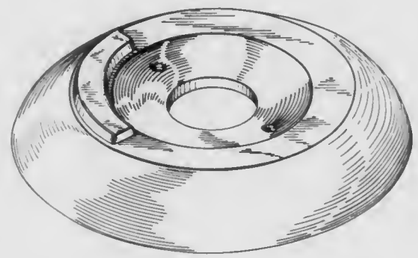
321,466
HOLDER FOR HOLDING TOOLS AND OTHER OBJECTS
John E. Hotchkiss, 15 L Red Hill Cir., Tiburon, Calif. 94920
Filed Feb. 21, 1989, Ser. No. 312,240
Term of patent 14 years
U.S. Cl. D8—71



321,467
CUTTING DEVICE FOR MASKING FILM
Kunio Morozumi, Yamanashi, and Takamichi Taguchi, Yono, both of Japan, assignors to Kimoto & Co., Ltd., Japan
Filed Jan. 3, 1989, Ser. No. 292,747
Claims priority, application Japan, Jul. 11, 1988, 63-27587
Term of patent 14 years
U.S. Cl. D8—98



321,468
ESCUTCHEON
Mary J. Reid, Sheboygan, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Nov. 14, 1988, Ser. No. 271,192
Term of patent 14 years
U.S. Cl. D8—352

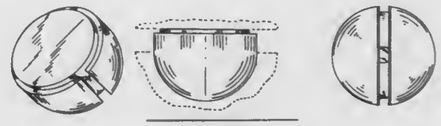


321,469
HOSE RETRACTOR FOR GASOLINE PUMPS
Martin C. Pettesch, Roselle, N.J., assignor to Universal Valve Company, Inc., Elizabeth, N.J.
Filed Nov. 10, 1988, Ser. No. 269,975
Term of patent 14 years
U.S. Cl. D8—356

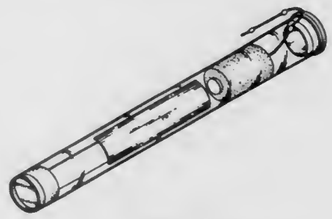


321,470
DOCK CLEAT
Paul H. Gerrard, Mississauga, Canada, assignor to Jaguar International Products Inc., Ontario, Canada
Filed Feb. 27, 1990, Ser. No. 486,270
Term of patent 14 years
U.S. Cl. D8—356

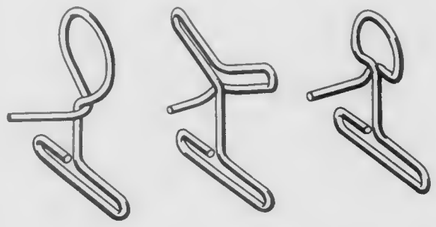
321,471
SHELVING SUPPORT PAD FOR BRACKETS
William E. Stumpf, Minneapolis, and Casey L. Carlson, Edina, both of Minn., assignors to Knape & Vogt Manufacturing Company, Grand Rapids, Mich.
Filed Jul. 14, 1989, Ser. No. 380,652
Term of patent 14 years
U.S. Cl. D8—400

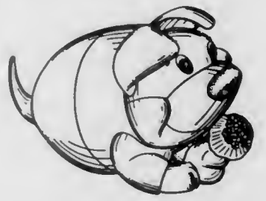


321,472
SYRINGE CONTAINER
Donald J. Evans, P.O. Box 418, Forest Ranch, Calif. 95942, and David R. Kemp, 2213 Richmond Rd., Paradise, Calif. 95969
Filed Dec. 27, 1988, Ser. No. 290,734
Term of patent 14 years
U.S. Cl. D9—306



321,473
CONTAINER FOR CONFECTIONERY PRODUCTS
Pietro Ferrero, Brussels, Belgium, assignor to Ferrero Ardennes S.A., Arlon, Belgium
Filed Feb. 13, 1990, Ser. No. 479,553
Claims priority, application Italy, Sep. 29, 1989, 53387/89[U]
Term of patent 14 years
U.S. Cl. D9—318



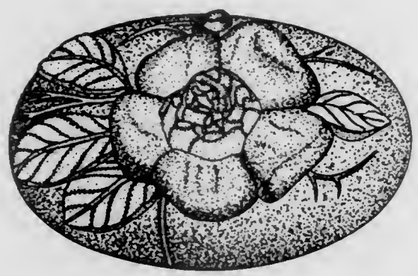


VOL
1132
ISS
2
NO
12
1991
UMI

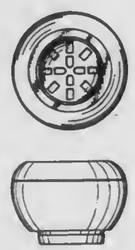
321,474
CONTAINER FOR CONFECTIONERY PRODUCTS
Pietro Ferrero, Brussels, Belgium, assignor to Ferrero Ardennes S.A., Arlon, Belgium
Filed Feb. 12, 1990, Ser. No. 478,859
Claims priority, application Italy, Sep. 29, 1989, 53387/89[U]
Term of patent 14 years
U.S. Cl. D9—318



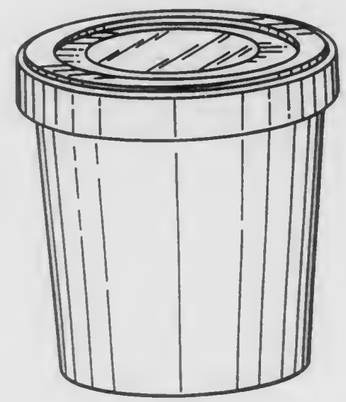
321,475
CONTAINER
Serge Mansau, Paris, France, assignor to Kenzo (société anonyme), Paris, France
Filed Oct. 16, 1989, Ser. No. 421,728
Claims priority, application France, Apr. 28, 1989, 89 2938
Term of patent 14 years
U.S. Cl. D9—336



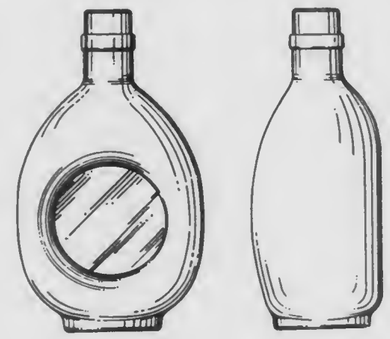
321,476
DISPENSER FOR DETERGENT OR THE LIKE
Garcia-Tornel Alcover, Barcelona, Spain, assignor to Henkel Iberica, S.A., Barcelona, Spain
Filed Jun. 30, 1988, Ser. No. 214,107
Claims priority, application Spain, Dec. 30, 1987, 114807
Term of patent 14 years
U.S. Cl. D9—349



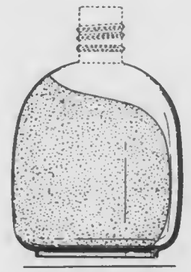
321,477
CONTAINER
Harvey R. Gunter, Bridge City, Tex., assignor to Cardinal Packaging, Inc., Streetsboro, Ohio
Filed Apr. 14, 1988, Ser. No. 182,060
Term of patent 14 years
U.S. Cl. D9—352



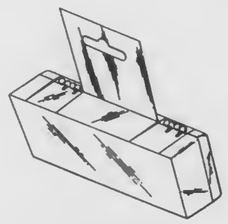
321,478
BOTTLE
Lorenzo Sassoli, Bologna, Italy, assignor to Gio.Buton & C. S.p.A., Bologna, Italy
Filed Oct. 3, 1989, Ser. No. 416,435
Claims priority, application Hague, Apr. 13, 1989, DM/013357
Term of patent 14 years
U.S. Cl. D9—372



321,479
BOTTLE
Kay E. Wiseman, Burnham, and Brian E. Kichenside, Bushey Heath, both of England, assignors to Chesebrough-Pond's USA Co., Division of Conopco, Inc., Greenwich, Conn.
Filed Dec. 19, 1988, Ser. No. 286,671
Claims priority, application United Kingdom, Jun. 20, 1988, 1051635
The portion of the term of this patent subsequent to Oct. 25, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D9—409



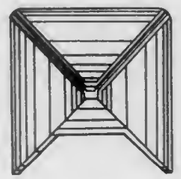
321,480
HANGING TAG PACKAGE ASSEMBLY OR SIMILAR ARTICLE
Cecilia Benner, 121 Elm Park, Pleasant Ridge, Mich. 48069
Filed May 18, 1989, Ser. No. 353,519
Term of patent 14 years
U.S. Cl. D9—415

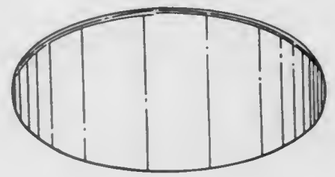


321,481
BOTTOM SURFACE OF A FLUID CONTAINER
Erich O. Teutsch, Pittsfield, Mass., assignor to General Electric Company, Mt. Vernon, Ind.
Filed Aug. 15, 1988, Ser. No. 232,083
Term of patent 14 years
U.S. Cl. D9—434

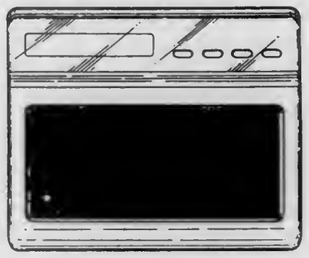


321,482
CLOSURE FOR A BOTTLE
Gerd Doering, Hamburg, Fed. Rep. of Germany, assignor to Henkel Kommanditgesellschaft auf Aktien, Duesseldorf-Holthausen, Fed. Rep. of Germany
Filed Nov. 14, 1988, Ser. No. 271,149
Claims priority, application Fed. Rep. of Germany, May 13, 1988, MR 5711
Term of patent 14 years
U.S. Cl. D9—435



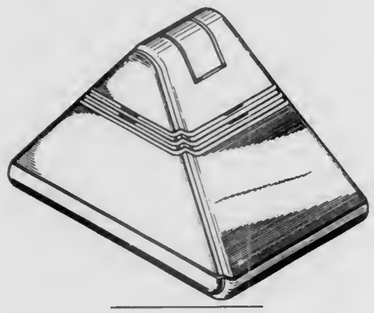


321,483
CLOCK
Raymond Chan, Hong Kong, Hong Kong, assignor to Integrated Display Technology Ltd., Hong Kong, Hong Kong
Filed Apr. 19, 1989, Ser. No. 340,394
Term of patent 14 years
U.S. Cl. D10—10



VOL
1132
ISS
2
NO
12
1991
UMI

321,484
TALKING CLOCK
Francis Yu, No. 21, Lane 45, Sec. 2, Chung Shan N. Rd., Taipei, Taiwan
Filed Apr. 11, 1989, Ser. No. 336,295
Term of patent 14 years
U.S. Cl. D10—21



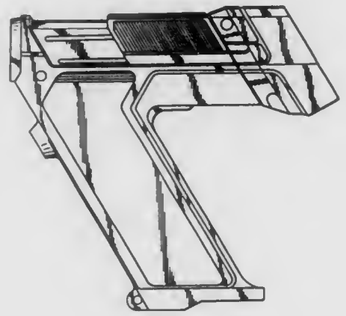
321,485
BRACELET WATCH
Paolo Bulgari, Rome, Italy, assignor to Bulgari Time (Switzerland) S.A., Geneva, Switzerland
Filed May 8, 1989, Ser. No. 348,646
Claims priority, application Hague, Dec. 2, 1988, DM/012.322
Term of patent 14 years
U.S. Cl. D10—32



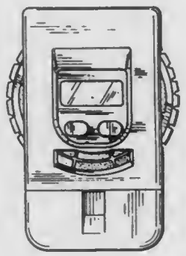
321,486
WRIST WATCH CASING
Richard J. Wilk, 431 Glenashton Drive, Oakville, Ontario, Canada L6H 4V8 , assignor to Richard J. Wilk, Oakville, Canada
Filed Nov. 14, 1988, Ser. No. 271,188
Claims priority, application Canada, Oct. 12, 1988, 12-10-88-1
Term of patent 14 years
U.S. Cl. D10—39



321,487
INFRARED THERMOMETER
Joseph J. Manno, La Jolla, Calif., assignor to Diatek Incorporated, San Diego, Calif.
Filed Apr. 24, 1989, Ser. No. 341,897
Term of patent 14 years
U.S. Cl. D10—57



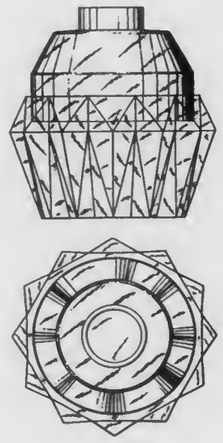
321,488
COLORIMETER
George H. Sierra, and Robert B. Summers, both of Indianapolis, Ind., assignors to Boehringer Mannheim Corporation, Indianapolis, Ind.
Filed Apr. 29, 1988, Ser. No. 188,532
Term of patent 14 years
U.S. Cl. D10—81



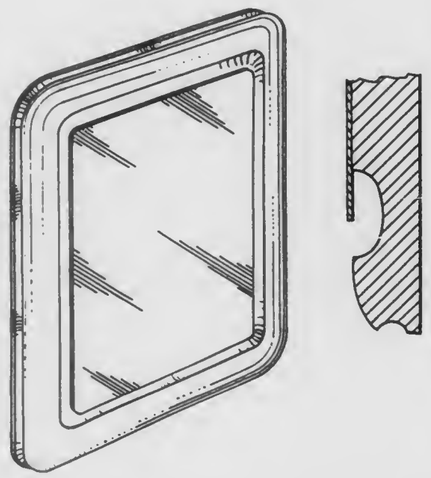
321,489
TAXIMETER
Alfons Heimburger, Niedereschach, and Heinz-Josef Hautvast, Brigachtal, both of Fed. Rep. of Germany, assignors to Mannesmann Kienzle GmbH
Filed Jun. 27, 1989, Ser. No. 372,035
Term of patent 14 years
U.S. Cl. D10—97



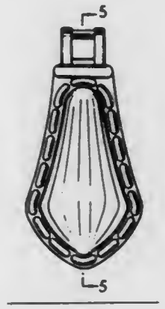
321,490
POT-POURRI HOLDER
Mary H. Cronin, P.O. Box 130071, Sunrise, Fla. 33313
Filed Nov. 27, 1989, Ser. No. 441,424
Term of patent 14 years
U.S. Cl. D11—131.1



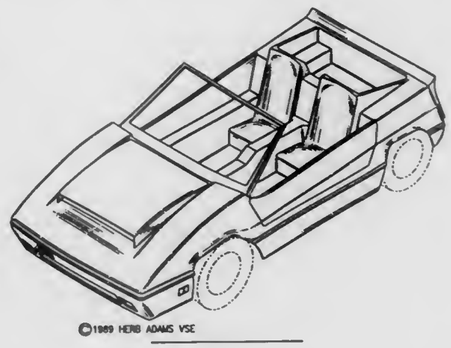
321,491
PLAQUE
Peter M. Stagl, Morris Plains, N.J., assignor to Avnet, Inc., Great Neck, N.Y.
Filed Sep. 25, 1989, Ser. No. 411,671
Term of patent 14 years
U.S. Cl. D11—132



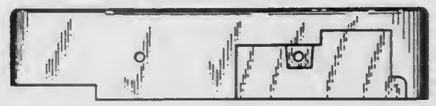
321,492
PULL TAB FOR SLIDE FASTENER
Chiharu Takemura, Kurobe, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan
Filed Jun. 8, 1989, Ser. No. 364,055
Claims priority, application Japan, Dec. 8, 1988, 63-47906
Term of patent 14 years
U.S. Cl. D11—221



321,493
AUTOMOBILE BODY
Herbert L. Adams, III, Carmel, Calif., assignor to Herb Adams VSE, Carmel, Calif.
Filed Jul. 20, 1989, Ser. No. 383,881
Term of patent 14 years
U.S. Cl. D12—92



321,494
MOTORCYCLE STABILIZER COVER
Paul Martin, 317 Washington Pl., New Albany, Ind. 47150
Filed Jan. 23, 1989, Ser. No. 299,817
Term of patent 14 years
U.S. Cl. D12—126

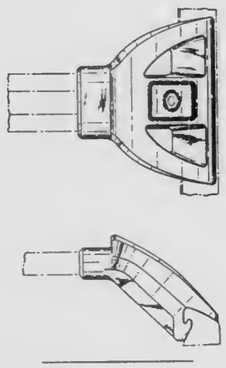


VOL
1132
ISS
2
NO
12
1991
UMI

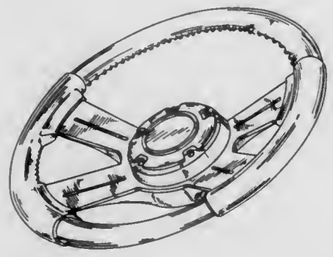
321,495
MOTORCYCLE STABILIZER COVER
Paul Martin, 317 Washington Pl., New Albany, Ind. 47150
Filed Jan. 23, 1989, Ser. No. 299,517
Term of patent 14 years
U.S. Cl. D12—126



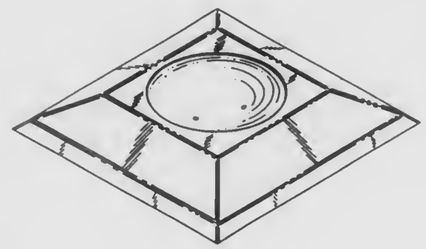
321,496
CROSSBAR SUPPORT FOR AN ARTICLE CARRIER
Jon D. Sparham, Pontiac; Alan D. Lusky, and Thomas C. Nanney, both of Warren, all of Mich., assignors to Huron/St. Clair Incorporated, Taylor, Mich.
Continuation-in-part of Ser. No. 250,705, Sep. 28, 1988. This application Aug. 1, 1989, Ser. No. 388,223
Term of patent 14 years
U.S. Cl. D12—157



321,497
STEERING WHEEL FOR BOATS
Warwick M. Whitley, II, 2205 Trinity St., Lynn Haven, Fla. 32444
Continuation-in-part of Ser. No. 231,386, Aug. 12, 1988, Pat. No. Des. 311,369. This application May 8, 1989, Ser. No. 348,477
Term of patent 14 years
U.S. Cl. D12—176

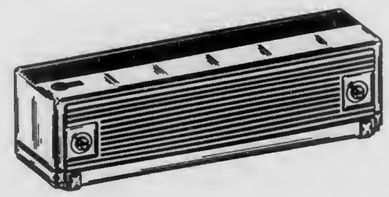


321,498
WHEEL CHOCK
Duane C. Jones, 523 Spruce St., Manistee, Mich. 49660
Filed Nov. 30, 1989, Ser. No. 444,603
Term of patent 14 years
U.S. Cl. D12—217

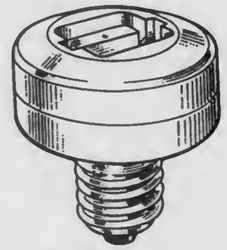


321,499
BOAT HULL
Francis A. Marinko, Booragoon, Australia, assignor to Lanyard Pty. Ltd., Australia
Filed Apr. 27, 1989, Ser. No. 344,048
Claims priority, application Australia Oct. 28, 1988, 3642/88
Term of patent 14 years
U.S. Cl. D12—314

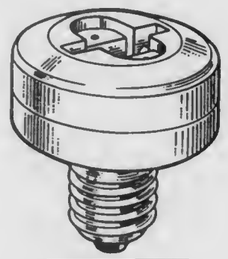
321,500
BATTERY CASE
Kouki Fukuda, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan
Filed Mar. 20, 1989, Ser. No. 325,492
Claims priority, application Japan, Oct. 18, 1988, 63-40733
Term of patent 14 years
U.S. Cl. D13—103



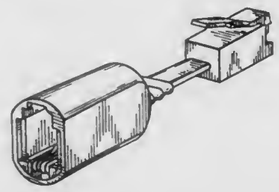
321,501
ADAPTER FOR COMPACT DISCHARGE LAMP
Torje Ilemo, Vallingby, Sweden, assignor to Combinova AB, Bromma, Sweden
Filed Jun. 16, 1989, Ser. No. 370,395
Claims priority, application Dec. 16, 1988, 88-2913
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—135



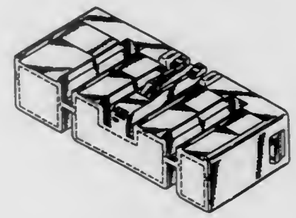
321,502
ADAPTER FOR COMPACT DISCHARGE LAMP
Torje Ilemo, Vallingby, Sweden, assignor to Combinova AB, Bromma, Sweden
Filed Jun. 16, 1989, Ser. No. 370,579
Claims priority, application Sweden, Dec. 16, 1988, 88-2912
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—135



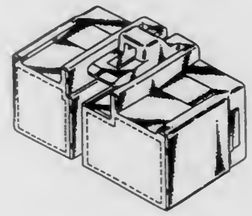
321,503
ROTARY ELECTRICAL CONNECTOR
Albert Ditzig, Hoffman Estates, Ill., assignor to Telephone Products, Inc., Wheeling, Ill.
Division of Ser. No. 870,322, Jun. 3, 1986. This application Jun. 14, 1990, Ser. No. 538,403
Term of patent 14 years
U.S. Cl. D13—139



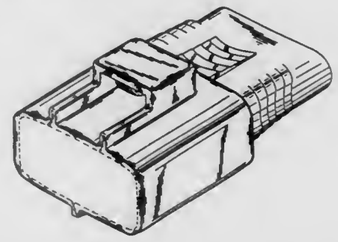
321,504
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota; Shigekazu Wakata, Yokkaichi; Shinichi Yamada, Yokkaichi, and Nobuyuki Asakawa, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 340,012
Claims priority, application Japan, Oct. 20, 1988, 63-41162
Term of patent 14 years
U.S. Cl. D13—147



321,505
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota; Shigekazu Wakata, Yokkaichi; Shinichi Yamada, Yokkaichi, and Toshikazu Nohara, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 339,637
Claims priority, application Japan, Oct. 20, 1988, 63-41168
Term of patent 14 years
U.S. Cl. D13—147

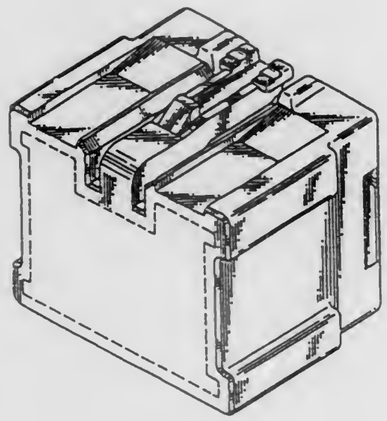


321,506
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota, and Shigekazu Wakata, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 339,626
Claims priority, application Japan, Oct. 20, 1988, 63-41153
Term of patent 14 years
U.S. Cl. D13—147

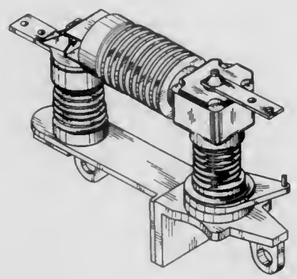


VOL
1132
ISS
2
NO
12
1991
UMI

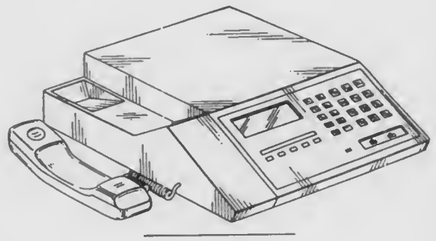
321,507
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota; Shigekazu Wakata, Yokkaichi; Shinichi Yamada, Yokkaichi, and Nobuyuki Asakawa, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 339,640
Claims priority, application Japan, Oct. 20, 1988, 63-41160
Term of patent 14 years
U.S. Cl. D13—147



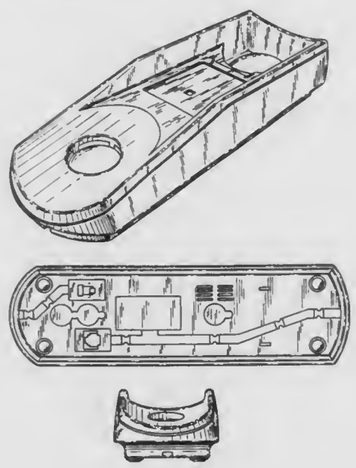
321,508
INTERRUPTER SWITCH WITH SELECTIVE CIRCUIT-ISOLATING FEATURE
Joel A. Ramos, Chicago, Ill., assignor to S&C Electric Company, Chicago, Ill.
Filed Mar. 30, 1989, Ser. No. 331,573
The portion of the term of this patent subsequent to Oct. 22, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—160



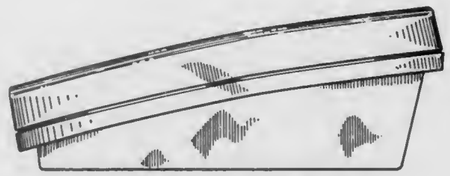
321,509
DATA CONVERTER FOR DIGITAL COMMUNICATION WITH A TELEPHONE
Takashi Kajita, Takaido-higashi, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Mar. 16, 1989, Ser. No. 324,592
Claims priority, application Japan, Sep. 22, 1988, 63-37051
Term of patent 14 years
U.S. Cl. D14—144

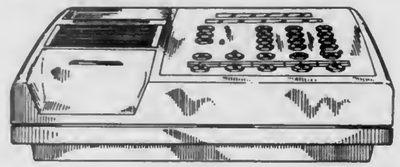


321,510
CRADLE OR SIMILAR ARTICLE FOR A TELEPHONE HANDSET
Michael G. Langlois, Kanata, Canada, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Nov. 27, 1989, Ser. No. 441,924
Claims priority, application United Kingdom, Jun. 16, 1989, 1060240
Term of patent 14 years
U.S. Cl. D14—151

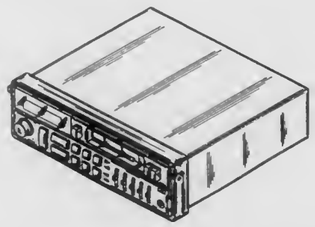


321,511
KEY TELEPHONE SET
Robert F. Swarthout, Fairport, and Klaus G. Pfennig, Penfield, both of N.Y., assignors to Redcom Laboratories, Inc., Rochester, N.Y.
Filed Feb. 9, 1990, Ser. No. 478,177
Term of patent 14 years
U.S. Cl. D14—151

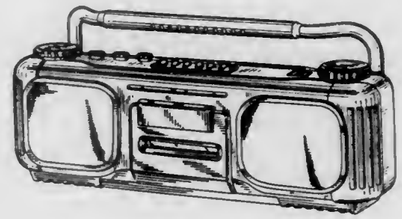




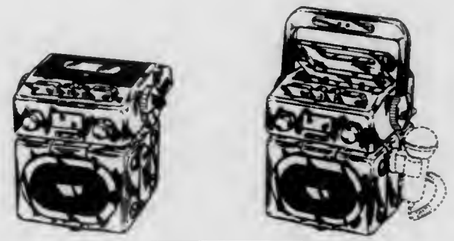
321,512
COMBINED CAR RADIO AND TAPE PLAYER
Masumi Kanari, Osaka, Japan, assignor to Sharp Corporation, Osaka, Japan
Filed May 10, 1989, Ser. No. 350,118
Claims priority, application Japan, Nov. 28, 1988, 63-46319
Term of patent 14 years
U.S. Cl. D14—157



321,513
COMBINED TAPE PLAYER AND RADIO TUNER
Keiichi Totsuka, Kawasaki, and Takashi Sogabe, Tokyo, both of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Feb. 24, 1989, Ser. No. 315,043
Claims priority, application Japan, Aug. 30, 1988, 63-34162
Term of patent 14 years
U.S. Cl. D14—163



321,514
CASSETTE TAPE PLAYER
Hiroyuki Miyai, Matsubara, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Jun. 13, 1989, Ser. No. 365,510
Claims priority, applicatioo Japan, Dec. 14, 1988, 63-48992
Term of patent 14 years
U.S. Cl. D14—165



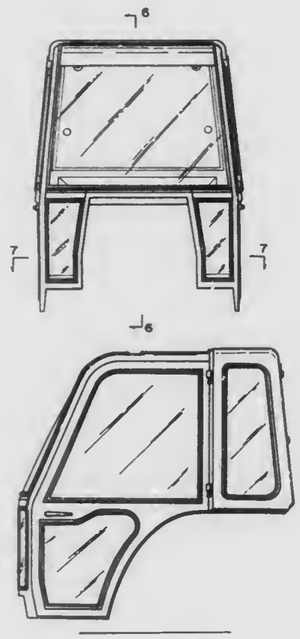
321,515
COMBINED RADIO AND COOLER
Laurance A. Harris, 15553 Peach Tree La., Gaithersburg, Md. 20878
Filed Mar. 22, 1989, Ser. No. 327,506
Term of patent 14 years
U.S. Cl. D14—168

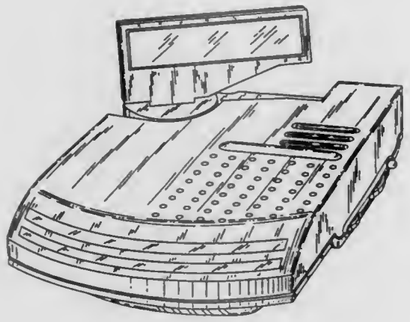


VOL
1132
ISS
2
NO
12
1991
UMI

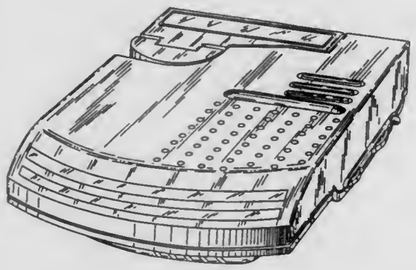
321,516
CLOCK RADIO RECEIVER
Dick Powell, London, United Kingdom, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Oct. 31, 1989, Ser. No. 430,456
Claims priority, application United Kingdom, May 24, 1989, 1059699
Term of patent 14 years
U.S. Cl. D14—171

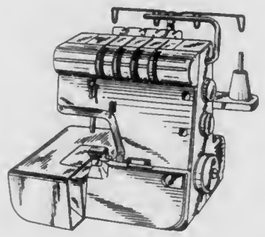
321,517
AGRICULTURAL TRACTOR CAB
Hisato Katoh, and Hiroyuki Miki, both of Sakai, Japan, assignors to Kubota, Ltd., Osaka, Japan
Filed Apr. 28, 1989, Ser. No. 344,943
Claims priority, application Fed. Rep. of Germany, Nov. 7, 1988, 63-43654
Term of patent 14 years
U.S. Cl. D15—30



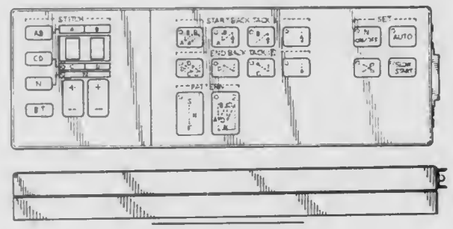


321,518
SEWING MACHINE
Koji Uchida, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Aug. 23, 1989, Ser. No. 398,045
Claims priority, application Japan, Jul. 12, 1989, 1-25575
Term of patent 14 years
U.S. Cl. D15—69

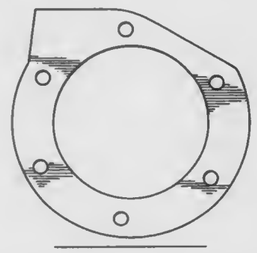




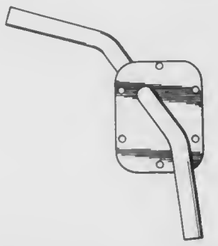
321,519
CONTROLLER FOR A SEWING MACHINE
Hiroshi Kumatani; Satomi Yamauchi, both of Nagoya, and Takanobu Fujimoto, Kamakura, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 14, 1989, Ser. No. 436,171
Claims priority, application Japan, May 15, 1989, 1-17590
Term of patent 14 years
U.S. Cl. D15—72



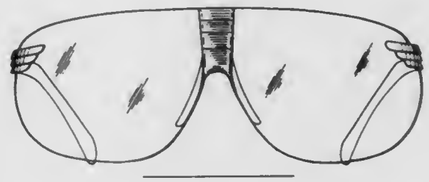
321,520
ADAPTOR FOR A DIFFERENTIAL
Clayton D. Macomber, 9514-16th St. NE., Arlington, Wash. 98223
Filed Nov. 1, 1988, Ser. No. 265,463
Term of patent 14 years
U.S. Cl. D15—149



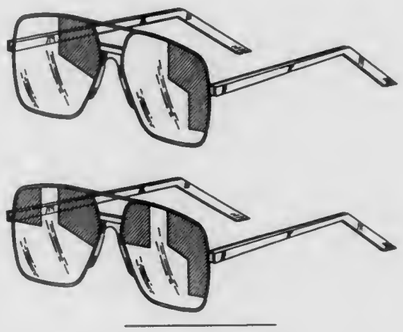
321,521
COMBINATION PIPE AND TRANSMISSION ADAPTOR UNIT
Clayton D. Macomber, 9514-164th St. NE., Arlington, Wash. 98223
Filed Nov. 1, 1988, Ser. No. 265,479
Term of patent 14 years
U.S. Cl. D15—149



321,522
SUNGLASSES
Maurice Bolle, Oyommax, France, assignor to Etablissements Bolle S.N.C., Cedex, France
Filed Nov. 4, 1988, Ser. No. 266,926
Term of patent 14 years
U.S. Cl. D16—102



321,523
ANTI-GLARE EYEGLASSES OR SIMILAR ARTICLE
Gabe Cherian, 52 Amorok Way, Fremont, Calif. 94539
Filed May 11, 1988, Ser. No. 192,873
Term of patent 14 years
U.S. Cl. D16—102

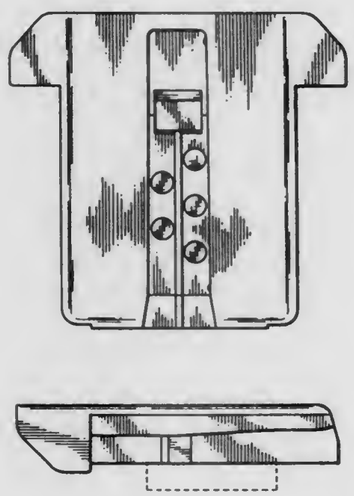


321,524
ADJUSTABLE LENGTH TEMPLE FOR SPECTACLES
Yasuhiro Nakamura, Tokyo, Japan, assignor to Nikon Corporation, Tokyo, Japan
Filed Mar. 10, 1989, Ser. No. 321,326
Claims priority, application Japan, Sep. 17, 1988, 63-36667
Term of patent 14 years
U.S. Cl. D16—127

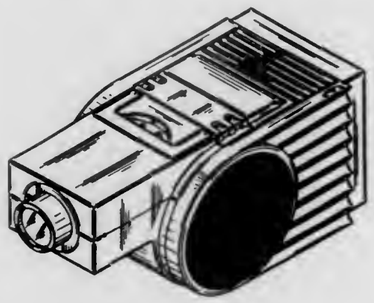


VOL
1132
ISS
2
NO
12
1991
UMI

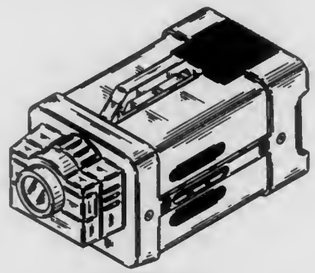
321,525
ACCESSORY SHOE FOR A CAMERA
Tatsuro Izumi, and Makoto Yanai, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Filed Sep. 22, 1988, Ser. No. 247,924
Claims priority, application Japan, Mar. 26, 1988, 63-12274
Term of patent 14 years
U.S. Cl. D16—219



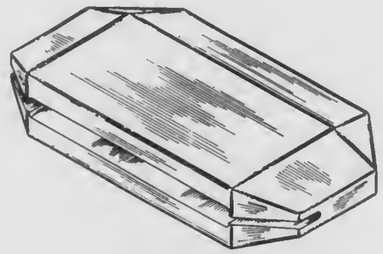
321,526
PROJECTOR
Shigeru Kurozumi; Taisuke Saeki, and Harumi Sakamoto, all of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed Jun. 14, 1989, Ser. No. 365,911
Claims priority, application Japan, Dec. 19, 1988, 63-49571
Term of patent 14 years
U.S. Cl. D16—221



321,527
PROJECTOR
Shigeru Kurozumi; Kazuo Tsujimoto, and Osamu Shimizu, all of Osaka, Japan, assignors to Sharp Corporation, Osaka, Japan
Filed Apr. 3, 1989, Ser. No. 332,781
Claims priority, application Japan, Oct. 4, 1988, 63-38913
Term of patent 14 years
U.S. Cl. D16—234



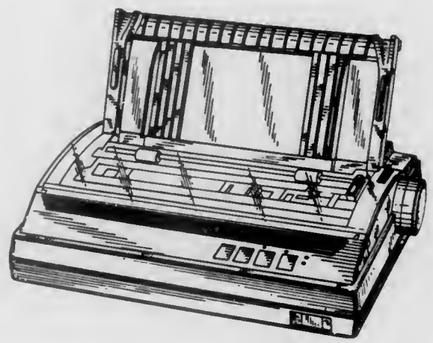
321,528
PERCUSSION INSTRUMENT
Wayne E. Cohen, Emerson, and Donald M. Kralik, Elmwood Park, both of N.J., assignors to Latin Percussion, Garfield, N.J.
Filed Jul. 26, 1989, Ser. No. 385,777
Term of patent 14 years
U.S. Cl. D17—22



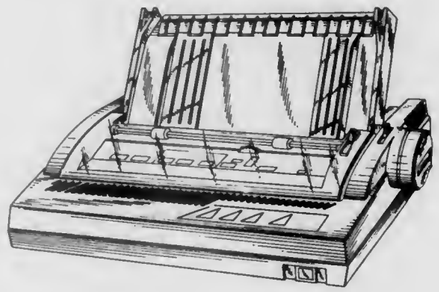
321,529
POCKET CALCULATOR
Gerald T. Powers, 8233 Groton La., Indianapolis, Ind. 46260
Filed Jun. 8, 1989, Ser. No. 363,118
Term of patent 14 years
U.S. Cl. D18—7



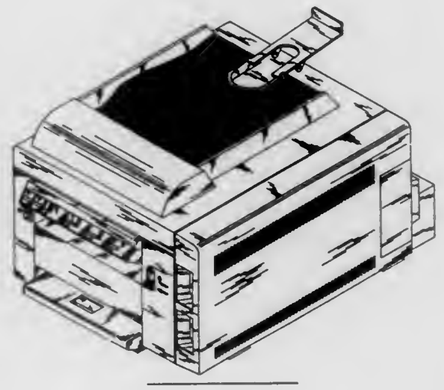
321,530
PRINTER
Akio Takeda, and Toshiro Saeki, both of Tokyo, Japan, assignors to Seikosha Co., Ltd., Tokyo, Japan
Filed Jul. 27, 1989, Ser. No. 386,469
Term of patent 14 years
U.S. Cl. D18—54



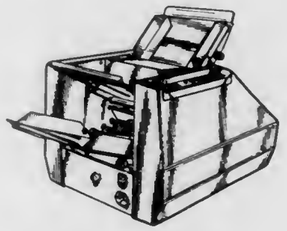
321,531
PRINTER FOR A COMPUTER
Akio Takeda, and Toshiro Saeki, both of Tokyo, Japan, assignors to Seikosha Co., Ltd., Tokyo, Japan
Filed Apr. 4, 1989, Ser. No. 333,366
Claims priority, application Japan, Mar. 29, 1989, 1-11353
Term of patent 14 years
U.S. Cl. D18—54



321,532
PRINTER
Marguerite H. Doyle, Lexington; Troy A. Lee, Nicholasville; Nadia Nouri, Lexington; Steven A. Silverstein, Lexington; James P. Wang, Lexington; Bernard L. Wilzbach, Lexington, and Krikor Yosmali, Lexington, all of Ky., assignors to Lexmark International, Inc., Greenwich, Conn.
Filed Feb. 22, 1989, Ser. No. 313,253
Term of patent 14 years
U.S. Cl. D18—55

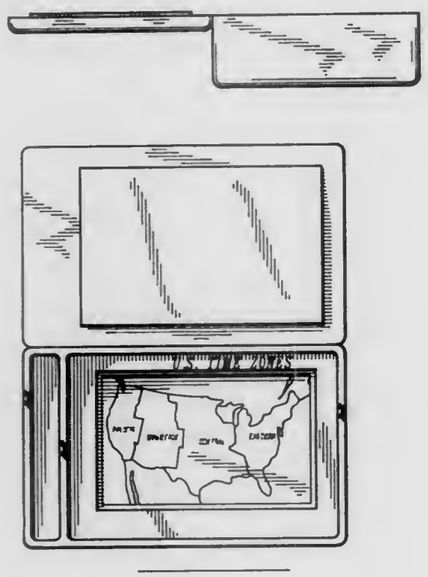


321,533
COMBINED FOLDING, INSERTING AND SEALING MACHINE
Rex M. K. Gough, Cambridge, United Kingdom, assignor to Pitney Bowes Plc, United Kingdom
Filed Nov. 28, 1988, Ser. No. 276,561
Claims priority, application United Kingdom, May 27, 1988, 1051065
Term of patent 14 years
U.S. Cl. D18—34

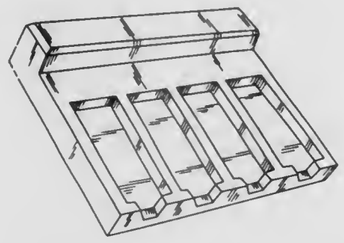


VOL
1132
ISS
2
NO
12
1991
UMI

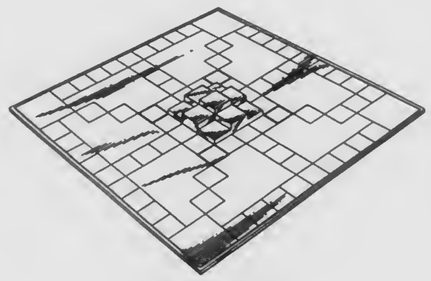
321,534
AID FOR TEACHING GEOGRAPHY
Blanca M. Edgerton, and Robert J. Edgerton, both of 4748 W. Folley St., Chandler, Ariz. 85226
Filed May 26, 1989, Ser. No. 357,310
Term of patent 14 years
U.S. Cl. D19—61



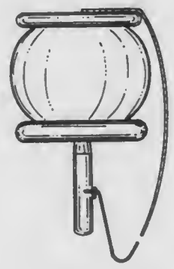
321,535
INDEX TAB ORGANIZER
Michael R. Carretta, Tranquility, N.J., assignor to M. R. Carretta & Co., Inc., Allamuchy, N.J.
Filed Aug. 14, 1989, Ser. No. 395,564
Term of patent 14 years
U.S. Cl. D19—92



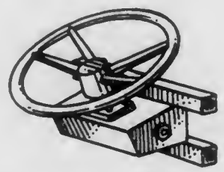
321,536
GAME BOARD
Eddy DeMarco, 27 Fairway Dr., Kellyville, New South Wales 2153, Australia
Filed Aug. 31, 1989, Ser. No. 400,960
Claims priority, application Australia, Mar. 2, 1989, 599/89
Term of patent 14 years
U.S. Cl. D21—34



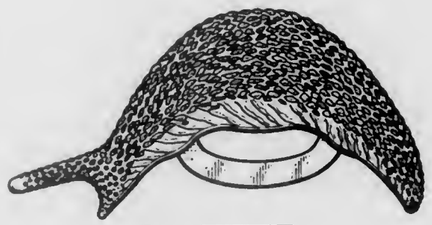
321,537
TETHER TOY
Alvaro Aguilar, 4a. Calle 1-69 Zona 9, Guatemala City, Guatemala, assignor to Alvaro Aguilar, Guatemala City, Guatemala
Filed Feb. 17, 1989, Ser. No. 312,780
Term of patent 14 years
U.S. Cl. D21—62



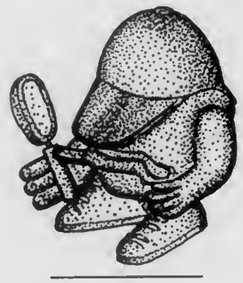
321,538
PHYSICAL THERAPY STEERING WHEEL MODULE
David C. Smith, 3717 Barrington Bridge Pl., Richmond, Va. 23233
Filed Feb. 6, 1989, Ser. No. 306,741
Term of patent 14 years
U.S. Cl. D21—142



321,539
HAND HOLDABLE TOY FIGURE
Dale R. Brady, 4933 Alatar Dr., Woodland Hills, Calif. 91364
Filed Apr. 17, 1989, Ser. No. 344,074
Term of patent 14 years
U.S. Cl. D21—148



321,540
NOVELTY FIGURE
Lance C. Ayon, 14900 San Jose St., Mission Hills, Calif. 91345
Filed Oct. 18, 1989, Ser. No. 423,137
Term of patent 14 years
U.S. Cl. D11—166



321,541
NOVELTY FIGURE
Lance C. Ayon, 14900 San Jose St., Mission Hills, Calif. 91345
Filed Sep. 14, 1989, Ser. No. 407,040
Term of patent 14 years
U.S. Cl. D21—166



321,542
NOVELTY FIGURE
Lance C. Ayon, 14900 San Jose St., Mission Hills, Calif. 91345
Filed Nov. 9, 1989, Ser. No. 433,736
Term of patent 14 years
U.S. Cl. D21—171



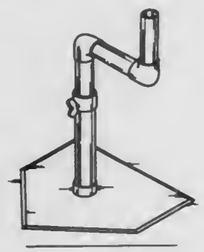
321,543
TOY BALL
Harley J. Gauthier, 3520 - 43 Avenue, Red Deer, Alberta, Canada T4N 3B4; Daniel J. Gauthier, #1, 6340 - 58 Avenue, Red Deer, Alberta, Canada, and David P. Gauthier, 3520 - 43 Avenue, Red Deer, Alberta, Canada T4N 3B4
Filed May 12, 1989, Ser. No. 350,835
Term of patent 14 years
U.S. Cl. D21—204

321,544
GOLF BALL TEE SETTER
Glen O. Axne, 121 W. 4th St., Coal Valley, Ill. 61240
Filed Apr. 12, 1989, Ser. No. 337,166
Term of patent 14 years
U.S. Cl. D21—208



VOL
1132
ISS
2
NO
12
1991
UMI

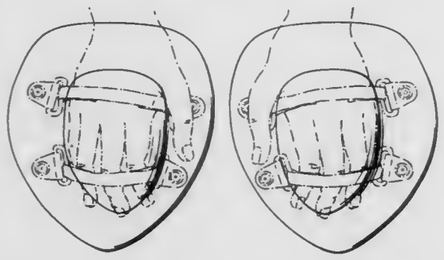
321,545
ADJUSTABLE BALL HOLDER
John A. Myers, 415-23rd Ave., Moline, Ill. 61265
Filed Apr. 12, 1989, Ser. No. 337,167
Term of patent 14 years
U.S. Cl. D21—208



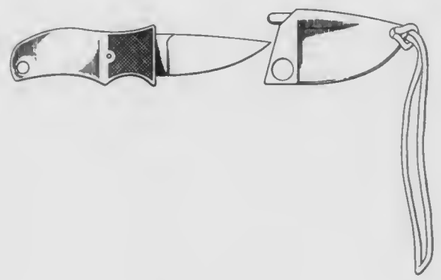
321,546
GOLF CLUB GRIP
Michael DeLuca, 128 Rollingwood, San Rafael, Calif. 94901
Filed Apr. 11, 1989, Ser. No. 337,034
Term of patent 14 years
U.S. Cl. D21—222



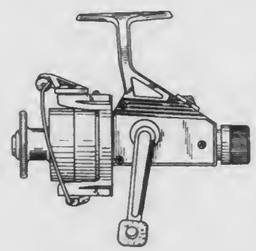
321,547
PAIR OF HANDBOARDS
Douglas C. Albrecht, 3176 Huelani Dr., Honolulu, Hi. 96822
Filed May 19, 1989, Ser. No. 354,490
Term of patent 14 years
U.S. Cl. D21—239



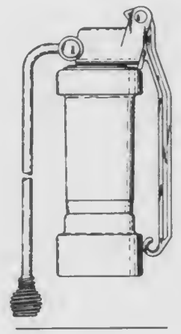
321,548
COMBINED KNIFE AND SHEATH
Walter W. Collins, P.O. Box 100, North, S.C. 29112
Filed Dec. 13, 1989, Ser. No. 450,369
Term of patent 14 years
U.S. Cl. D22—118



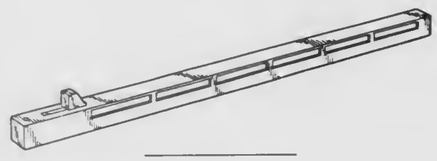
321,549
SPINNING FISHING REEL
Richard J. Robbins, Derby, Kans., and Richard J. Feehan, Pawnee, Okla., assignors to Zebco Corporation, Tulsa, Okla.
Filed Jan. 27, 1989, Ser. No. 302,728
Term of patent 14 years
U.S. Cl. D22—141



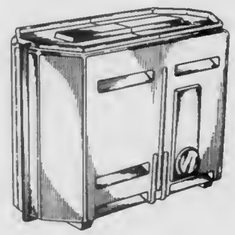
321,550
WATER FILTER
Kenneth D. Laughlen; Daniel J. Vorhis; Nancy L. Dienes, and James F. Fife, all of Seattle, Wash., assignors to Mountain Safety Research, Inc., Seattle, Wash.
Filed Jul. 12, 1990, Ser. No. 549,710
Term of patent 14 years
U.S. Cl. D23—209



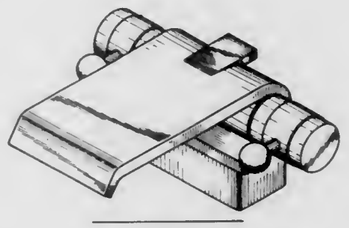
321,551
OUTDOOR AIR INTAKE VALVE
Hans Lundin, Halmstad, Sweden, assignor to Fresh Sweden AB, Halmstad, Sweden
Filed Jul. 15, 1988, Ser. No. 219,465
Claims priority, application Sweden, Jan. 15, 1988, 88-0064
Term of patent 14 years
U.S. Cl. D23—393



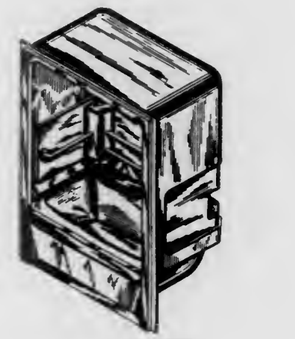
321,552
HOUSING FOR AN AQUARIUM FILTRATION SYSTEM
Luis Del Rosario, 5525 San Fernando Rd., Glendale, Calif. 91203
Filed Jan. 26, 1990, Ser. No. 470,553
Term of patent 14 years
U.S. Cl. D23—210



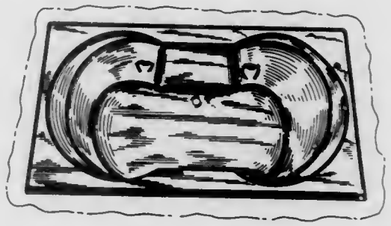
321,553
FAUCET
Jean-Claude Delephine, 23 rue Clapeyron, 75008 Paris, France
Filed Sep. 29, 1989, Ser. No. 414,441
Claims priority, application Int'l Pat. Institute, Apr. 10, 1989, DM/013310
Term of patent 14 years
U.S. Cl. 23—241



321,554
BATHING ENCLOSURE OR THE LIKE
Bruce M. Sauter, Schaumburg, Ill.; Robert C. Giese, Sheboygan, Wis., and Iain M. Smith, Vernon, Canada, assignors to Kohler Co., Kohler, Wis.
Division of Ser. No. 241,280, Sep. 7, 1988. This application May 21, 1991, Ser. No. 705,269
Term of patent 14 years
U.S. Cl. D23—275

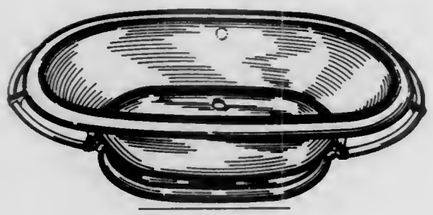


321,555
TUB OR THE LIKE
Todd D. Dannenberg, Sheboygan, Wis., assignor to Kohler Co., Kohler, Wis.
Filed Dec. 29, 1989, Ser. No. 459,114
Term of patent 14 years
U.S. Cl. D23—281

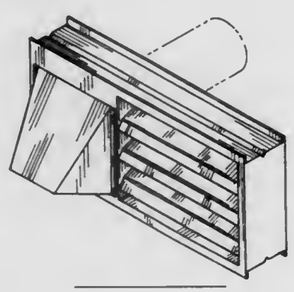


VOL
1132
ISS
2
NO
12
1991
UMI

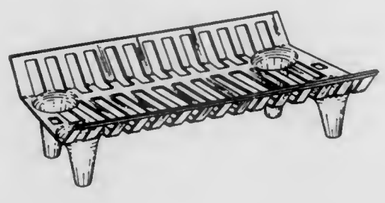
321,556
TUB OR THE LIKE
Mary J. Reid, and William C. McKeone, both of Sheboygan, Wis., assignors to Kohler Co., Kohler, Wis.
Filed Oct. 26, 1988, Ser. No. 263,127
Term of patent 14 years
U.S. Cl. D23—281



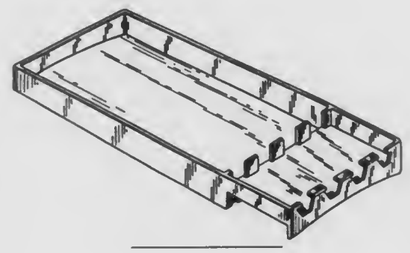
321,557
FOUNDATION VENT
William J. Bezick, and Daniel R. D'Amico, both of 175 N. Cedar St., Hazleton, Pa. 18201
Filed Mar. 19, 1990, Ser. No. 495,318
Term of patent 14 years
U.S. Cl. D23—393



321,558
FIREPLACE GRATE
David M. Vestal, Sr., Sweetwater, Tenn., assignor to Vestal Manufacturing Company, Sweetwater, Tenn.
Filed May 1, 1989, Ser. No. 345,644
Term of patent 14 years
U.S. Cl. D23—398



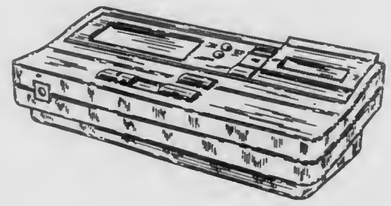
321,559
INFUSION PUMP CARTRIDGE
Charles M. Kienholz, San Dimas, Calif., assignor to I-Flow Corporation, Irvine, Calif.
Filed Jan. 24, 1989, Ser. No. 301,431
Term of patent 14 years
U.S. Cl. D24—111



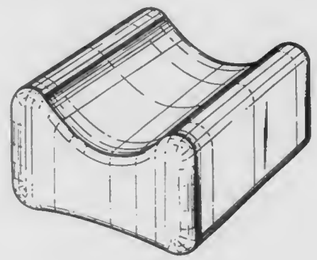
321,560
DENTAL POST
Alan N. Miller, New City, N.Y., assignor to Coltene/Whaledent, Inc., New York, N.Y.
Filed Sep. 1, 1989, Ser. No. 402,140
Term of patent 14 years
U.S. Cl. D24—156



321,561
BLOOD PRESSURE METER
Marten F. Elkerbout, Drachten, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jun. 30, 1989, Ser. No. 375,314
Claims priority, application Int'l Pat. Institute, Jan. 30, 1989, DM/012.709
Term of patent 14 years
U.S. Cl. D24—165

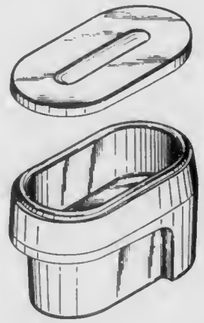


321,562
MEDICAL ARM PILLOW FOR USE IN MEASURING BLOOD PRESSURE
Per Ljungvall, Malmö , Sweden, assignor to Clinova Medical AB, Malmo, Sweden
Filed Mar. 9, 1989, Ser. No. 321,470
Term of patent 14 years
U.S. Cl. D24—183

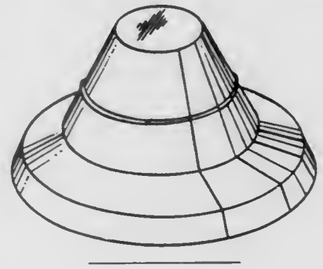


321,563
RECLINER PANE FOR TANNING APPARATUS
Friedrich Wolff, Störklingasse 44, CH-4125 Riehen/Basel, Switzerland
Filed Jul. 8, 1987, Ser. No. 71,611
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1987, URA416/87
Term of patent 14 years
U.S. Cl. D24—200

321,564
ULTRASONIC CLEANER
Alan Miller, New City, N.Y., assignor to Coltene/Whaledent, Inc., New York, N.Y.
Filed Jul. 7, 1989, Ser. No. 377,282
Term of patent 14 years
U.S. Cl. D24—217



321,565
SEALING MEMBER
Werner E. Schalle, Upper Beconsfield, Australia, assignor to Aquarius Rubber (Aust.) Pty. Ltd., Victoria, Australia
Filed Aug. 16, 1988, Ser. No. 232,784
Claims priority, application Australia, May 27, 1988, 1729/88
Term of patent 14 years
U.S. Cl. D25—199



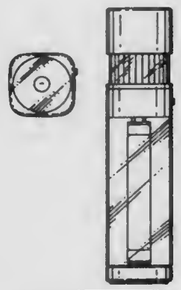
321,566
CANDLE HOLDER
Siegfried Hoelterscheidt, Hückelhoven, Fed. Rep. of Germany, assignor to Walter Henkels GmbH, Fed. Rep. of Germany
Filed May 8, 1989, Ser. No. 348,734
Claims priority, application Fed. Rep. of Germany, Jan. 9, 1989, DM/012568
Term of patent 14 years
U.S. Cl. D26—9

321,567
NOVELTY SIGNAL LAMP FOR AUTOMOBILES
Jeff Gladish, P.O. Box 675, Battle Mountain, Nev. 89820
Filed Aug. 7, 1989, Ser. No. 390,349
Term of patent 14 years
U.S. Cl. D26—31



VOL 1132 ISS 2 NO 12 1991 UMI

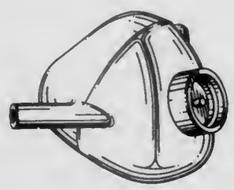
321,568
COMBINED FLUORESCENT LANTERN, SPOTLIGHT, AND EMERGENCY BLINKING LIGHT
John S. Yuen, Kowloon, Hong Kong, assignor to John Manufacturing Limited, Hong Kong
Filed Apr. 10, 1989, Ser. No. 335,521
Claims priority, application United Kingdom, Oct. 17, 1988, 1054343
Term of patent 14 years
U.S. Cl. D26—42



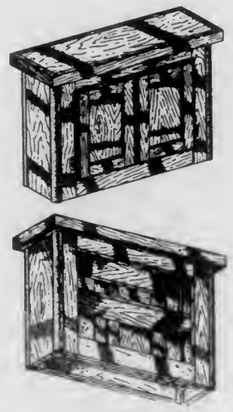
321,569
DISPOSABLE LIGHTER WITH INTEGRATED CLIP
John Wallace, 1001 Boniface Pkwy., Space 5-B, Anchorage, Ak. 99504
Filed Jul. 12, 1990, Ser. No. 551,607
Term of patent 14 years
U.S. Cl. D27—142



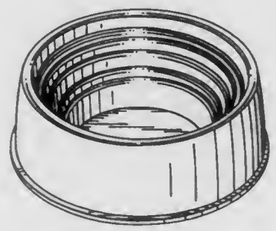
321,570
INHALER
Richard J. Blasdell, 4233 E. Mountain View Rd., Phoenix, Ariz. 85028, and Raymond L. Blasdell, 691 E. Fairway Dr., Litchfield Park, Ariz. 85340
Filed Sep. 30, 1988, Ser. No. 251,208
Term of patent 14 years
U.S. Cl. D29—8



321,571
AQUARIUM-SUPPORT CABINET
John D. Lucariello, 710 N. Orange, La Habra, Calif. 90631
Filed Aug. 23, 1989, Ser. No. 397,564
Term of patent 14 years
U.S. Cl. D30—101



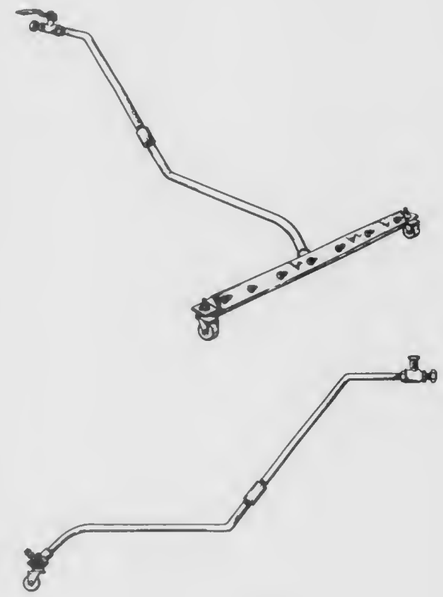
321,572
PET FOOD BOWL
Donald P. Laden, Dayton, Ohio, assignor to The Iams Company, Dayton, Ohio
Filed Aug. 14, 1989, Ser. No. 393,318
Term of patent 14 years
U.S. Cl. D30—129



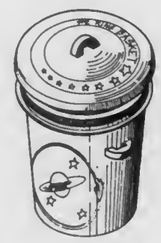
321,573
HORSESHOE
Stephen R. Boyd, R.D. #1, Box 208, Kunkletown, Pa. 18058
Filed Feb. 15, 1989, Ser. No. 311,877
Term of patent 14 years
U.S. Cl. D30—148



321,574
WASHING DEVICE FOR CLEANING THE UNDERSIDE OF A VEHICLE
Harold Shevers, Jr., Batavia, Ohio, and Arthur Merlin, Atlanta, Ga., assignors to American Water Broom Company, Atlanta, Ga.
Filed Nov. 7, 1989, Ser. No. 432,611
Term of patent 14 years
U.S. Cl. D32—15



321,575
WASTE BASKET
Pedro A. Corps, 92 Twiss St., Meridan, Conn. 06450
Filed Aug. 31, 1989, Ser. No. 401,420
Term of patent 14 years
U.S. Cl. D34—7



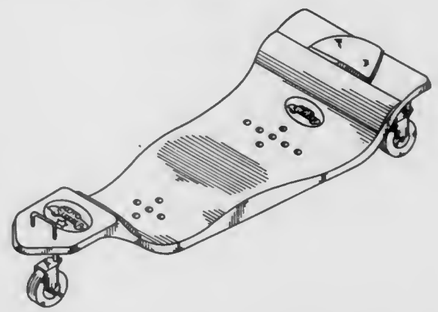
321,576
HOODED WASTEBASKET
John L. Hradisky, Medina, Ohio, assignor to Rubbermaid Incorporated, Wooster, Ohio
Filed Jan. 5, 1990, Ser. No. 461,439
Term of patent 14 years
U.S. Cl. D34—8



321,577
SHOPPING CART WITH COUPON HOLDER AND KEYBOARD
Alphonso Ellis, 62 Profile Ct., Nashua, N.H. 03063, and Ronnie Djuric, 274 Turnpike St., North Andover, Mass. 01845
Filed Dec. 2, 1988, Ser. No. 279,442
Term of patent 14 years
U.S. Cl. D34—21

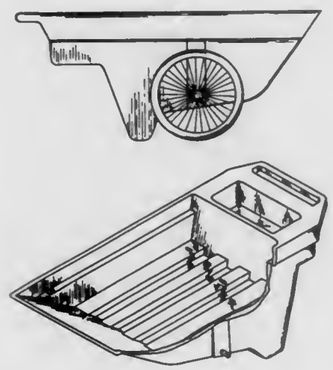


321,578
CREEPER
Walter Gilbert, 330 Detroit Ave., Fort Myers, Fla. 33905
Filed Sep. 8, 1989, Ser. No. 404,433
Term of patent 14 years
U.S. Cl. D34—23



VOL
1132
ISS
2
NO
12
1991
UMI

321,579
CART
Boyd G. Ayres, R.R. #1, Wawaka, Ind. 46794
Filed Jun. 16, 1988, Ser. No. 208,002
Term of patent 14 years
U.S. Cl. D34—26



LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF NOVEMBER, 1991

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. J. Panneri Enterprises, Inc.: *See*—
Panneri, Alfred J.; and Terragnoli, Louis, 5,063,803, Cl. 83-203.000.

A. & M. Cousin-Etablissments Cousin Freres: *See*—
Pipon, Yves; and Droulon, Georges, 5,064,246, Cl. 297-443.000.

Aalto, Erkki; Pellinen, Teuvo; and Eloranta, Jouko, to Halton Oy. Focussed ventilation procedure and focussed ventilation means. 5,063,834, Cl. 98-115.100.

Abbas, Sherkoh A.: *See*—
Pryba, Stanley J.; Mills, Jesse V.; and Abbas, Sherkoh A., 5,063,889, Cl. 123-90.390.

Abbott Laboratories: *See*—
Howard, Lawrence V., Jr.; and Craine, MaryCaren, 5,064,755, Cl. 435-7.360.
Jeng, Tzyy-Wen; Elmore, Kristin D.; Oosta, Gary M.; and Pry, Terry A., 5,064,541, Cl. 210-767.000.
Ziegler, John S.; and Wecker, Sheldon M., 5,064,059, Cl. 206-221.000.

Abe, Shinya: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Abe, Takao: *See*—
Koshizuka, Kunihiro; Tezuka, Toshiaki; and Abe, Takao, 5,064,743, Cl. 430-253.000.

Abe, Yasuo: *See*—
Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, 5,063,706, Cl. 43-125.000.

Abe, Yukio: *See*—
Koike, Akinobu; Abe, Yukio; and Kawamura, Koichi, 5,064,741, Cl. 430-191.000.

Abel, Helmut. Saw such as a jig saw or scroll saw. 5,063,807, Cl. 83-647.000.

Abo, Toshimi; and Fukuzumi, Shuzo, to Nissan Motor Company, Ltd. System and method for recognizing traffic stagnation for vehicle. 5,065,328, Cl. 364-426.040.

Accent Stripe Inc.: *See*—
Buchheit, Gerald A., Jr., 5,063,713, Cl. 51-170.00R.

Ace Conveyor Equipment Limited: *See*—
Brumby, John A., 5,064,160, Cl. 248-316.500.

ACF Industries, Incorporated: *See*—
Dugge, Richard H., 5,063,858, Cl. 105-253.000.

Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, to BASF Aktiengesellschaft. Quinoxalinepentamethine dyes and optical recording medium containing same. 5,064,702, Cl. 428-64.000.

Acker, Tex H. Turkey trophy mounting kit. 5,064,725, Cl. 428-542.400.

Active English Information Systems, Inc.: *See*—
Phillips, Clarence W.; Phillips, William F.; and Jacobus, Gerry A., 5,065,338, Cl. 395-51.000.

Acton, David G.; Davies, David H.; and Poyser, Jeffrey P., to Imperial Chemical Industries PLC. Cephalosporin compounds. 5,064,824, Cl. 514-202.000.

Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, to Mitsubishi Denki Kabushiki Kaisha. Printed circuit board with busbar interconnections. 5,065,283, Cl. 361-407.000.

Adams, Steven L.; Bird, William L.; Chow, Humphrey W.; O'Brien, Kirk G.; and Rasmussen, Paul C., to General Electric Company. Field coil pole to pole connector with high cyclic duty capability. 5,065,059, Cl. 310-71.000.

Adani, Keith J.: *See*—
O'Brien, Larry S.; Warren, Robert G.; and Adani, Keith J., 5,064,617, Cl. 422-78.000.

Adell, Loren S.; and Adell, Michael. Mouthguard packaging. 5,063,940, Cl. 128-861.000.

Adell, Michael: *See*—
Adell, Loren S.; and Adell, Michael, 5,063,940, Cl. 128-861.000.

Adkins, Kenneth D.; and Bucks, Rodney R., to Eastman Kodak Company. Development apparatus with magnetically rotated skive. 5,065,192, Cl. 355-251.000.

Adrian, Willy: *See*—
Moldenhauer, Detlev B.; and Adrian, Willy, 5,064,047, Cl. 198-338.000.

Advanced Equipment Corporation: *See*—
Dickson, Warren S., 5,063,636, Cl. 16-98.000.

Advanced Micro Devices, Inc.: *See*—
Nguyen, Liem T.; and Magnusson, Hans, 5,065,054, Cl. 307-520.000.

Advanced Separation Technologies Inc.: *See*—
Armstrong, Daniel, 5,064,944, Cl. 536-1.100.

Advanced Techtronics, Inc.: *See*—
Rapoport, Uri; and Panosh, Richard, 5,063,934, Cl. 128-653.500.

AE Turbine Components Limited: *See*—
Tinsley, Michael; Johns, Antony; and Philby, Jonathan D., 5,064,990, Cl. 219-121.720.

Aerospatiale Societe Nationale Industrielle: *See*—
Maute, Patrick A., 5,064,152, Cl. 244-164.000.

Agence Spatiale Europeenne: *See*—
Gindre, Philippe; Hahnel, Peter; and Helmke, Hartmut, 5,064,153, Cl. 244-172.000.

Agency of Industrial Science and Technology: *See*—
Ohnishi, Toshihiro; Noguchi, Takanobu; and Nakano, Tsuyoshi, 5,064,572, Cl. 252-500.000.
Sando, Mutsuo; and Awano, Masanobu, 5,064,690, Cl. 427-215.000.

Agostinelli, John A.: *See*—
Mir, Jose M.; and Agostinelli, John A., 5,064,684, Cl. 427-53.100.

Agrawal, Rakesh; and Farrell, Brian E., to Air Products and Chemicals, Inc. Cryogenic process for the production of methane-free, krypton/xenon product. 5,063,746, Cl. 62-22.000.

Ahlers, Steven W., to Deere & Company. Backhoe boom lock. 5,064,339, Cl. 414-687.000.

Ai, Chiaya; and Hayes, John B., to Wyko Corporation. Optical alignment system utilizing alignment spot produced by image inverter. 5,064,286, Cl. 356-153.000.

Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., to S. C. Johnson & Son, Inc. Insecticide dispensing apparatus. 5,064,123, Cl. 239-706.000.

Aihara, Takeshi, to Nireco Corporation. Electrohydraulic servodevice for position control. 5,063,740, Cl. 60-432.000.

Air Products and Chemicals, Inc.: *See*—
Agrawal, Rakesh; and Farrell, Brian E., 5,063,746, Cl. 62-22.000.
Kirner, John F.; Cabrera, Alejandro L.; and Armor, John N., 5,064,691, Cl. 427-252.000.
Sunder, Swaminathan; Garg, Diwakar; and Dyer, Paul N., 5,064,728, Cl. 428-627.000.

Air Quality Laboratories: *See*—
Phillips, Alan J., 5,064,451, Cl. 55-74.000.

Airflow Research and Manufacturing Corporation: *See*—
Kimball, Richard, 5,064,345, Cl. 416-169.00A.

Aisen Industry Co., Ltd.: *See*—
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.

Aisin Seiki K.K.: *See*—
Kawana, Kazutaka; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; and Tozu, Kenji, 5,064,253, Cl. 303-106.000.

Aisin Seiki Kabushiki Kaisha: *See*—
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, 5,064,252, Cl. 303-9.730.
Tsukahara, Kinji, 5,064,353, Cl. 417-383.000.
Watanabe, Yujiro, 5,065,063, Cl. 310-156.000.

Aitken, Bruce G., to Corning Incorporated. Blue transparent glass-ceramic articles. 5,064,460, Cl. 65-33.000.

Aizawa, Masanori: *See*—
Morofuji, Akihiko; Morotomi, Masaki; Machii, Akihiko; Aizawa, Masanori; and Ishibashi, Kazuhisa, 5,065,183, Cl. 355-202.000.

Ajinomoto Co., Inc.: *See*—
Iwatsuki, Makoto; and Hayashi, Toshio, 5,064,057, Cl. 606-154.000.

Akaba, Noriyuki; Yagi, Hiroshi; and Miyoshi, Yoji, to Tokyo Keiki Co., Ltd. Communication system for helicopter. 5,065,162, Cl. 342-417.000.

Akada, Yasuaki: *See*—
Taniguchi, Nobuyuki; Ishikawa, Norio; Akada, Yasuaki; Egawa, Takeshi; and Kawamura, Kunio, 5,065,176, Cl. 354-402.000.

Akamatsu, Shogo, to Maeda Industries, Ltd. Brake shoe for bicycles. 5,064,027, Cl. 188-73.100.

Akasaka, Kozo: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Akashi, Takamichi: *See*—
Hirayama, Shigemitsu; Akashi, Takamichi; Ikuta, Akio; Sasaki, Isao; and Fukuda, Hiroshi, 5,064,529, Cl. 210-90.000.

Akers, Alan: *See*—
Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, 5,064,828, Cl. 514-239.500.

VOL 1132 ISS 2 NO 12 1991 UMI

Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, to Sumitomo Chemical Company, Ltd.; and Erika Carbon Dioxide Company, Ltd. Device for exterminating pests and method of exterminating pest using this device. 5,063,706, Cl. 43-125.000.

Akiyama, Ryota: *See*—
Torii, Naoya; Akiyama, Ryota; and Azuma, Mitsuhiro, 5,065,430, Cl. 380-38.000.

Akiyoshi, Nagahiro: *See*—
Kitaoka, Takeo; and Akiyoshi, Nagahiro, 5,063,798, Cl. 82-124.000.

Aktiebolaget Bofors: *See*—
Axinger, Jan, 5,063,849, Cl. 102-388.000.

Akzo N.V.: *See*—
Mack, Arthur G., 5,064,469, Cl. 106-14.420.
Storm, Paul K., 5,064,647, Cl. 424-92.000.

Albert, Bernhard: *See*—
Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, 5,064,702, Cl. 428-64.000.

Alberts, Jack B.; and McNeely, Michael D., to Keystone International Holdings Corp. Shock absorbing means for flow control devices. 5,064,169, Cl. 251-334.000.

Alborante, Giancarlo, to Comau S.p.A. Device for laser welding motor-vehicle bodies. 5,064,991, Cl. 219-121.630.

Albou, Pierre; and Leleve, Joel, to Valeo Vision. Power supply circuit for an arc lamp, in particular for a motor vehicle headlight. 5,065,072, Cl. 315-82.000.

Alcantara Maia, Sergio. Method and device for holding an eyeglass with superimposed lenses to a wrist watch. 5,065,373, Cl. 368-10.000.

Alcatel N.V.: *See*—
Rossberg, Rolf, 5,064,267, Cl. 385-50.000.

Alcatel STK A/S: *See*—
Ege, Sigmund, 5,064,350, Cl. 417-63.000.

Alexander, Barbara; Kiang, Patty H.; Lusch, Richard; and Romberg, Val, to West Company, Incorporated, The. Closure device. 5,064,083, Cl. 215-247.000.

alfill Getranketechnik GmbH: *See*—
Walusiak, Jacek, 5,063,978, Cl. 141-263.000.

Alig, Leo; and Muller, Marcel, to Hoffmann-La Roche Inc. Phenoxypropanolamines and pharmaceutical use. 5,064,863, Cl. 514-653.000.

Allen-Bradley Company, Inc.: *See*—
Farchmin, David W., 5,065,443, Cl. 382-53.000.
Maskovyak, George D., 5,065,314, Cl. 395-325.000.

Alliant Techsystems Inc.: *See*—
Warren, J. Bruce, 5,063,852, Cl. 102-434.000.

Allied-Signal Inc.: *See*—
Machado, Joseph, 5,064,458, Cl. 55-482.000.
Nunan, John G., 5,064,803, Cl. 502-170.000.
O'Donnell, Michael S.; and Crescentini, Lamberto, 5,064,507, Cl. 203-34.000.
Swan, Ellen L.; Stachura, Leonard M.; Basu, Rajat S.; and Wilson, David P., 5,064,558, Cl. 252-171.000.
Thomanek, Walter, 5,064,278, Cl. 359-480.000.

Allsteel Inc.: *See*—
Clark, Craig A.; and Poortvliet, Robert J., 5,064,247, Cl. 297-445.000.

Almond, Daniel R.; Stroemel, Joseph M.; and Cameron, Stuart M. Gravity drainage system for athletic fields and method therefor. 5,064,308, Cl. 405-43.000.

Alps Electric Co., Ltd.: *See*—
Nakamura, Tadashi; and Yamamoto, Toshiyuki, 5,064,301, Cl. 400-120.000.

Alst, Elisabeth A. G. van Alumen-van, executor: *See*—
de la Haye, Cornelis F.; and Van Amen, Cornelis H., deceased, 5,065,295, Cl. 362-391.000.

Alten, Ralph W., to Siegel-Robert, Inc. Automatic automobile rear view mirror assembly. 5,064,274, Cl. 359-604.000.

Altenschoepfer, Theodor: *See*—
Jacobs, Jochen; Altenschoepfer, Theodor; and Jeschke, Peter, 5,064,554, Cl. 252-99.000.

Althaus, Wolfgang, to Wilkinson Sword Gesellschaft mit beschrankter Haftung. Razor head, especially razor blade unit, of a wet razor. 5,063,668, Cl. 30-77.000.

Althaus, Wolfgang, to Wilkinson Sword Gesellschaft mit beschrankter Haftung. Razor head, especially razor blade unit, of a wet razor. 5,063,669, Cl. 30-77.000.

Amada Wasino Co., Ltd.: *See*—
Yokomichi, Shigeharu; and Ono, Yasunori, 5,064,983, Cl. 219-69.120.

AMAF Industries, Inc.: *See*—
Leveque, Howard, 5,065,451, Cl. 455-72.000.

Amano, Tadashi; and Hoshida, Shigehiro, to Shin-Etsu Chemical Co., Ltd. Process of polymerizing vinyl chloride with washing of charging passage. 5,064,917, Cl. 526-72.000.

American Cyanamid Company: *See*—
Dean, William D., 5,064,963, Cl. 544-331.000.
McCoy, Kevin M.; and Frost, Robert A., 5,064,943, Cl. 530-399.000.

American Home Products Corporation: *See*—
Ocain, Timothy D.; and Deininger, David D., 5,064,965, Cl. 546-99.000.

American Tech Manufacturing, Corp.: *See*—
Linker, Frank V., 5,063,975, Cl. 140-123.000.

American Telephone and Telegraph Company: *See*—
Blundy, Robert F., 5,064,051, Cl. 198-466.100.

Amering, Allan R.: *See*—
Cyrana, Edward M.; Strong, Douglas B.; and Amering, Allan R., 5,065,191, Cl. 355-246.000.

Amersham Corporation: *See*—
Parsons, George W., 5,065,033, Cl. 250-497.100.

Amersham International PLC: *See*—
Finlan, Martin F., 5,064,619, Cl. 422-82.050.

Ametek, Inc.: *See*—
Snyder, Kenneth J., 5,063,969, Cl. 138-154.000.

Amico, Russell P.; and Klier, George M., to HR Textron Inc. Direct drive servovalve having bearing filter. 5,063,966, Cl. 137-625.650.

Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., to Convoy Security Company. Roll-up door lock. 5,063,764, Cl. 70-100.000.

Ammermann, Eberhard: *See*—
Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, 5,064,828, Cl. 514-239.500.

Amoco Corporation: *See*—
Guyer, Dean R., 5,065,046, Cl. 359-330.000.

Amorese, Douglas A.: *See*—
Tice, George, Jr.; and Amorese, Douglas A., 5,064,519, Cl. 204-182.800.

AMP Incorporated: *See*—
Buchter, Randolph L., 5,064,391, Cl. 439-733.000.
Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., 5,064,380, Cl. 439-113.000.
Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., 5,064,386, Cl. 439-535.000.
Hirano, Koji; and Yamashita, Hiroshi, 5,063,656, Cl. 29-749.000.
Klein, David A.; and Self, Daines M., Jr., 5,064,389, Cl. 439-651.000.
Locati, Ronald P.; and Oberman, Carl D., 5,064,383, Cl. 439-405.000.
Minnis, Alan J., 5,064,382, Cl. 439-395.000.
Ryll, Juergen; Gerst, Michael; and Schwager, Michael, 5,064,379, Cl. 439-81.000.
Scholz, James P., 5,064,978, Cl. 219-9.500.

Ampferer, Herbert, to Dr. Ing. h.c.F. Porsche AG. Oil pump drive arrangement for a piston internal-combustion engine and method of making same. 5,063,895, Cl. 123-196.00R.

Anadrill, Inc.: *See*—
Zanker, Klaus J.; and Orban, Jacques, 5,063,776, Cl. 73-155.000.

Analog Devices, Inc.: *See*—
Edelson, Steven D.; Frattarola, Gary J.; and Heron, George L., 5,065,144, Cl. 340-703.000.
Lapham, Jerome F.; and Scharf, Brad W., 5,065,214, Cl. 357-43.000.

Anderson, Marvin H.: *See*—
Kneip, George D., Jr.; Chmyz, George; and Anderson, Marvin H., 5,063,651, Cl. 29-455.100.

Anderson, Philip S.: *See*—
Hoppmann, Kurt H.; and Anderson, Philip S., 5,064,054, Cl. 198-779.000.

Anderson, Terry K.: *See*—
Howard, Eugene R.; and Anderson, Terry K., 5,064,440, Cl. 8-137.000.

Anderson, Timothy W. Universal ceiling mount assembly for television monitor. 5,064,161, Cl. 248-317.000.

Andersons, The: *See*—
Peiffer, Norman A., 5,064,407, Cl. 241-3.000.

Ando, Satoshi; Dohno, Akira; and Hagiwara, Zenji, to Kanebo Limited; and Hagiwara Giken Limited. Process for producing an antibacterial fiber article. 5,064,599, Cl. 264-237.000.

Andoh, Kazuto: *See*—
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.

Andoh, Keiji: *See*—
Yamaguchi, Hitoshi; and Andoh, Keiji, 5,064,331, Cl. 414-344.000.

Andrei, Maria: *See*—
Roggero, Arnaldo; Andrei, Maria; Passerini, Stefano; and Scrosati, Bruno, 5,064,548, Cl. 252-62.200.

Andreussi, Luciano, to Co Pharma Corporation S.r.l. Device for fastening a catheter to a cranial theca for performing cerebro spinal fluid drainage to the outside operations. 5,064,417, Cl. 604-175.000.

Andrews, Arthur A.: *See*—
Masbruch, Richard D.; and Andrews, Arthur A., 5,064,010, Cl. 180-6.500.

Ang, Peter G. P.: *See*—
Li, King C. P.; and Ang, Peter G. P., 5,064,636, Cl. 424-9.000.

Angeion Corporation: *See*—
Revane, James E., 5,064,414, Cl. 604-165.000.

Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, to Bayer Aktiengesellschaft. HMG-COA reductase-inhibiting imino-substituted pyridines. 5,064,841, Cl. 514-336.000.

Anson, James H., to Bunn-O-Matic Corporation. Funnel basket structure. 5,064,533, Cl. 210-232.000.

Antill, David N.; and Mustey, Harold G., to United Kingdom of Great Britain and Northern Ireland, The Minister of Agriculture, Fisheries and Food in Her Britannic Majesty's Government of the. Agricultural sheet lifter. 5,063,707, Cl. 47-9.000.

Antolini, Elvio: *See*—
Galvan, Dino; Marcoaldi, Gianfranco; Antolini, Elvio; and DeMeo, Sabatino, 5,063,924, Cl. 128-202.120.

Antonini, Gerard: *See*—
Cerf, Olivier; Pain, Jean-Pierre; and Antonini, Gerard, 5,064,294, Cl. 374-16.000.

Antonini, Piero: *See*—
Borghi, Angelo; Lancini, Giancarlo; and Antonini, Piero, 5,064,811, Cl. 514-8.000.

Antony, Paul; and Strauss, Wilfried, to Deutsche Perrot-Bremse GmbH. Leaf spring for holding down the brake-lining carrier of a disc brake. 5,064,028, Cl. 188-73.380.

Anzai, Hisao: *See*—
Sasaki, Isao; Nishida, Kozi; and Anzai, Hisao, 5,064,911, Cl. 525-378.000.

Aoki, Haruo: *See*—
Kimura, Hideaki; Aoki, Haruo; and Yazawa, Hiromi, 5,065,255, Cl. 358-447.000.

Aoki, Michiro. Method for detecting roller breakdowns in roller hearth kiln systems. 5,065,009, Cl. 250-222.100.

Aoki, Sanji: *See*—
Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka, 5,064,900, Cl. 525-69.000.

Aomi, Hideki; Soda, Tomizo; and Itano, Mitsushi, to Daikin Industries, Ltd. Process for removing fine particles from articles of fluorine-containing resin. 5,064,474, Cl. 134-2.000.

Aono, Toshiaki; and Nakamura, Koichi, to Fuji Photo Film Co., Ltd. Dry image-forming process using thermal solvents. 5,064,742, Cl. 430-203.000.

Aoyama, Makoto: *See*—
Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, 5,064,920, Cl. 526-249.000.

Aoyama, Naofumi: *See*—
Endo, Syuusuke; Aoyama, Naofumi; Yabuuchi, Toshihiko; and Seki, Teruo, 5,064,276, Cl. 359-49.000.

Appelbaum, Paul. Lockable keyway cover. 5,063,766, Cl. 70-428.000.

Apple Computer, Inc.: *See*—
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,143, Cl. 340-701.000.
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,231, Cl. 358-22.000.

Applied Materials, Inc.: *See*—
Collins, Kenneth S.; and Roderick, Craig A., 5,065,118, Cl. 333-33.000.

Applied Process: *See*—
Kovacs, Bela V.; Keough, John R.; and Pramstaller, Douglas M., 5,064,478, Cl. 148-12.400.

Arahara, Kozo: *See*—
Fukui, Tetsuro; Fukumoto, Hiroshi; Katayama, Masato; Arahara, Kozo; and Kagami, Kenji, 5,064,744, Cl. 430-255.000.

Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, to Shin-Etsu Chemical Co.; and Toyota Jidosha Kabushiki Kaisha. Room temperature-curable organopolysiloxane composition and method for the preparation thereof. 5,064,898, Cl. 524-780.000.

Arakawa, Satoshi, to Fuji Photo Film Co., Ltd. Method of and system for erasing radiation image. 5,065,021, Cl. 250-327.200.

Araki, Kenji; Miyamae, Jyunichi; Kobayashi, Takashi; and Saito, Akira, to Sumitomo Metal Industries, Ltd.; and Sumitomo Special Metals Co., Ltd. Eddy current retarder. 5,064,029, Cl. 188-267.000.

Arbed S.A.: *See*—
Thill, Fernand; and Schoumacher, Carlo, 5,064,295, Cl. 374-139.000.

Arcair Company: *See*—
Skopelja, Charles; and Vendetta, Francis A., 5,064,986, Cl. 219-70.000.

Archibald, John L.; Ward, Terence J.; and Opalko, Albert, to John Wyeth & Brother Limited. 1,4-dihydropyridines. 5,064,842, Cl. 514-341.000.

Arco Electric Products Corp.: *See*—
Rich, Hubert F., 5,065,305, Cl. 363-150.000.

Arethens, J. P.; and Goumier-Beraud, P., to Sextant Avionique. Method and device for determining the speed of a helicopter with respect to the air. 5,063,777, Cl. 73-178.00H.

Ariga, Ikuo: *See*—
Iwai, Kazuhiro; Matsubayashi, Shinji; Ariga, Ikuo; and Saito, Kazuhiko, 5,064,016, Cl. 180-215.000.

Arimatsu, Keiji: *See*—
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, to Mitsubishi Denki Kabushiki Kaisha. Locos type field isolating film and semiconductor memory device formed therewith. 5,065,218, Cl. 357-23.600.

Arimoto, Ichiro: *See*—
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.

Arimoto, Shunji: *See*—
Kase, Mitsuo; Tsuyuzaki, Kazue; Kawasaki, Yoichi; and Arimoto, Shunji, 5,064,928, Cl. 528-85.000.

Armco Inc.: *See*—
Follstaedt, Donald W.; Powell, John C.; Sussman, Richard C.; and Williams, Robert S., 5,063,988, Cl. 164-463.000.
Follstaedt, Donald W.; King, Edward L.; and Schneider, Ken C., 5,063,990, Cl. 164-463.000.
Powell, John C.; and Campbell, Steven L., 5,063,989, Cl. 164-463.000.

Armor, John N.: *See*—
Kirner, John F.; Cabrera, Alejandro L.; and Armor, John N., 5,064,691, Cl. 427-252.000.

Armstrong, Daniel, to Advanced Separation Technologies Inc. Chiral separation media. 5,064,944, Cl. 536-1.100.

Artel, Inc.: *See*—
Curtis, Richard H., 5,064,282, Cl. 356-40.000.

Artex International, Inc.: *See*—
Howard, Eugene R.; and Anderson, Terry K., 5,064,440, Cl. 8-137.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
Toyomoto, Kazuo; Doi, Shoichi; and Kubota, Noboru, 5,064,866, Cl. 521-27.000.

Asahi Kogaku Kogyo K.K.: *See*—
Ogiso, Makoto; Ogawa, Tetsuro; Ichitsuka, Takeshi; and Inoue, Masahide, 5,064,436, Cl. 623-16.000.
Yamamoto, Maseto; Nakajima, Masahiro; and Yamanaka, Toshimasa, 5,065,177, Cl. 354-403.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Ogawa, Kimiaki, 5,065,172, Cl. 354-195.100.
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, 5,065,175, Cl. 354-400.000.

Asai, Mitsuo; Hayashi, Takehisa; Doi, Toshio; and Ishibashi, Kenichi, to Hitachi, Ltd. Semiconductor logic circuit with noise suppression circuit. 5,065,048, Cl. 307-443.000.

Asai, Yutaka: *See*—
Tomita, Eizo; and Asai, Yutaka, 5,065,153, Cl. 340-825.500.

Asakawa, Teruo; and Ohsawa, Tetsu, to Tokyo Electron Limited. Handling apparatus for transferring carriers and a method of transferring carriers. 5,064,337, Cl. 414-639.000.

Asakura, Tsutou: *See*—
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, 5,065,102, Cl. 324-452.000.
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.

Asanae, Masumi; Kimura, Fumio; and Gotoh, Ryuji, to Hitachi Metals, Ltd. Method of developing electrostatic charge pattern with magnetic developer. 5,064,739, Cl. 430-122.000.

Asano, Hiroaki; and Yamamoto, Masaji, to Toyoda Koki Kabushiki Kaisha. Pressure generation and responsive mechanism with high viscous fluid. 5,063,738, Cl. 60-329.000.

Asanuma, Akira; and Shida, Tomonori, to Teijin Limited. Methods for collecting and loading yarns and apparatuses therefor. 5,064,496, Cl. 156-468.000.

Asaoka, Hisatoshi, to Asaoka, Makiki. Titanium-boron-oxide, synthetic materials based thereon and method of preparing the same. 5,064,629, Cl. 423-279.000.

Asaoka, Makiki: *See*—
Asaoka, Hisatoshi, 5,064,629, Cl. 423-279.000.

Ascarrunz, Douglas D., to EWT Corporation. Tennis ball holder. 5,064,107, Cl. 224-247.000.

Asea Brown Boveri Ltd.: *See*—
Nazmy, Mohamed, 5,064,734, Cl. 429-33.000.

Asfalg, J. George: *See*—
Porter, David; Dillner, James R.; Leibfried, Peter E.; Reimels, William R.; and Asfalg, J. George, 5,063,662, Cl. 29-889.720.

Ashiba, Masahiro, to Tokico Ltd. Damping force adjusting hydraulic shock absorber. 5,064,032, Cl. 188-299.000.

Askanazi, Jeffrey; and Trimbo, Susan. Use of branched chain amino acids to effect diaphragm contractility and fatigue. 5,064,810, Cl. 514-2.000.

Asmo Co., Ltd.: *See*—
Iwase, Hideaki, 5,064,128, Cl. 242-7.05B.

Aspden, Harold; and Strachan, John S., to Strachan-Aspden Limited. Thermoelectric energy conversion. 5,065,085, Cl. 322-2.00R.

AT&E Corporation: *See*—
Gaskill, Garold B., 5,065,423, Cl. 379-57.000.

AT&T Bell Laboratories: *See*—
Castellano, James J.; Leshchuk, John H.; and Steinberger, Michael L., 5,065,396, Cl. 370-84.000.
Chapin, John T.; Jackson, Charles W.; Mensah, Thomas O.; and Reynolds, Mickey R., 5,064,490, Cl. 156-172.000.
Clemans, Jim E.; Ijim, Theophilus I.; and Yuen, Maria J., 5,064,497, Cl. 156-616.100.
Fernandez, Francisco J., 5,065,050, Cl. 307-455.000.
Hunt, Rodney J., 5,064,136, Cl. 242-157.00R.
Putnam, William H.; and Shaffer, Theodore A., 5,065,309, Cl. 364-419.000.

AT&T Laboratories: *See*—
Kestenbaum, Ami; and Serafino, Anthony J., 5,064,685, Cl. 427-53.100.

Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, to Matsushita Electric Industrial Co., Ltd.; and Pacific Industrial Company. Impeller of multiblade blower. 5,064,346, Cl. 416-178.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Atlantic Richfield Company: *See—*
Frost, John S.; Erickson, Mark R.; Seegan, Kimberly E.; and Boyer, Brent P., 5,065,291, Cl. 362-183.000.
McCreary, Robert A., Jr., 5,063,694, Cl. 37-103.000.
Smith, Kelly M., 5,063,696, Cl. 37-141.00T.

Atmel Corporation: *See—*
Mok, Tsung Dai, 5,065,045, Cl. 307-355.000.

Atochem: *See—*
Boutillier, Jacques; Forichon, Noelle; and Lermat, Yves, 5,064,902, Cl. 525-124.000.

Atsugi Motor Parts Co. Ltd.: *See—*
Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, 5,063,894, Cl. 123-193.00P.

Atsugi Unisia Corporation: *See—*
Iwaya, Naohiro, 5,063,893, Cl. 123-193.00P.
Kakizaki, Shinobu, 5,064,031, Cl. 188-299.000.

Attachments International, Inc.: *See—*
Staubli, Peter E.; and Staubli, Edgar K., 5,064,373, Cl. 433-173.000.

Atwood, Gregory E.; Fazio, Albert; and Lodenquai, Richard A., to Intel Corporation. Apparatus for providing block erasing in a flash EPROM. 5,065,364, Cl. 365-185.000.

Au, Andrew N.S.: *See—*
Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., 5,064,997, Cl. 219-505.000.

Aubrey, Truman R. Apparatus for converting a light fixture from incandescent to fluorescent. 5,065,292, Cl. 362-260.000.

Audia, Vicki H., to Marion Merrell Dow Inc. Dihydro-3,3-diphenyl-5-(1H-pyrazol-1-ylmethyl-2(3H)-furanone and dihydro-5-((substituted-1H-pyrazol-1-yl)methyl)-3,3-diphenyl-2(3H)-furanone derivatives. 5,064,850, Cl. 514-406.000.

Augustin, Ulrich, to Mercedes-Benz AG. Mechanical speed governor for a fuel injection pump of air-compressing auto-ignition internal combustion engines. 5,063,900, Cl. 123-373.000.

Ault, Kenneth: *See—*
Brosnan, Jeanne; and Ault, Kenneth, 5,064,616, Cl. 422-61.000.

Auto Dialysis, Inc.: *See—*
Hyatt, Charles K.; and Cornelison, Irvin H., III, 5,063,896, Cl. 123-198.00A.

Automatic Control Components: *See—*
Hendrick, Fred W., 5,063,954, Cl. 137-625.310.

Automotive Products (USA) Inc.: *See—*
Leigh-Monstevens, Keith V.; and Peterson, David C., 5,065,135, Cl. 340-463.000.

Autotrol Corporation: *See—*
Roos, William N.; and Blatnik, Frank A., 5,064,094, Cl. 221-265.000.

Auweter, Helmut: *See—*
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.

Avco Corporation: *See—*
Naik, Subhash K.; and Doddman, William H., 5,064,727, Cl. 428-593.000.

Avtron, Inc.: *See—*
Hostetler, Robert H., 5,063,878, Cl. 119-72.500.

Awad, Sami B., to Henkel Corporation. Surface conditioner for formed metal surfaces. 5,064,500, Cl. 156-665.000.

Awano, Masanobu: *See—*
Sando, Mutsuo; and Awano, Masanobu, 5,064,690, Cl. 427-215.000.

Awazu, Yasunobu; Masuda, Yoshihiro; and Nishimura, Eiji, to Dainippon Screen Mfg. Co., Ltd. Photosensitive material detecting apparatus. 5,065,178, Cl. 355-27.000.

Axinger, Jan, to Aktiebolaget Bofors. Subwarhead. 5,063,849, Cl. 102-388.000.

Axiom Analytical, Inc.: *See—*
Doyle, Walter M., 5,065,025, Cl. 250-343.000.

Azulay, Alvaro B. Glass for automobiles. 5,064,708, Cl. 428-156.000.

Azuma, Mitsuhiro: *See—*
Torii, Naoya; Akiyama, Ryota; and Azuma, Mitsuhiro, 5,065,430, Cl. 380-38.000.

Baba, Fumiaki; Yoshimura, Hiroshi; Fujiwara, Takuji; and Ishii, Kozo, to Mazda Motor Corporation. Line pressure control system for automatic transmission. 5,063,814, Cl. 74-866.000.

Baba, Nobuyuki: *See—*
Inokuchi, Toshiyuki; and Baba, Nobuyuki, 5,064,258, Cl. 350-3.710.

Babcock & Wilcox Company, The: *See—*
Clark, John E.; and Shenker, Jack D., 5,063,632, Cl. 15-316.100.
Huston, Douglas A., 5,063,993, Cl. 165-4.000.

Babiak, Theodore P.: *See—*
McFeaters, Richard R.; Koppa, Daniel A.; and Babiak, Theodore P., 5,063,839, Cl. 99-353.000.

Babos nee Vajas, Erzsebet: *See—*
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.

Babot, Odile: *See—*
Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul; Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, 5,064,915, Cl. 525-474.000.

Badley, Robert A.: *See—*
Carr, Anthony H.; Badley, Robert A.; Jobling, Ian; and Sands, Thomas J., 5,064,756, Cl. 435-32.000.

Baertlein, Hugh N.: *See—*
Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., 5,063,680, Cl. 33-397.000.

Baertsch, Richard D.: *See—*
Ribner, David B.; and Baertsch, Richard D., 5,065,157, Cl. 341-143.000.

Bailey, Terry R.; Kult, Roger R.; Tolliver, Howard R.; and Dickson, Arthur D., to Minnesota Mining and Manufacturing Company. Encapsulated-lens retroreflective sheeting and method of making. 5,064,272, Cl. 359-541.000.

Baisch, Herbert: *See—*
Handler, Milton E.; Sylvan, Richard; Baisch, Herbert; and Naranjo, Michael, 5,064,156, Cl. 248-168.000.

Baker, Christopher J. S.; and Whalley, Peter D., to Thorn EMI plc. Sensor arrangements. 5,064,618, Cl. 422-82.010.

Baker, Scott C.: *See—*
Ross, Gilbert W.; Baker, Scott C.; and Demant, Svend, 5,063,619, Cl. 4-443.000.

Baker, Stephen T., to Carrier Vibrating Equipment, Inc. Vibratory drive system for a vibratory conveyor apparatus and a conveyor apparatus having same. 5,064,053, Cl. 198-753.000.

Baker, Thomas C.: *See—*
Fukuto, T. Roy; Vetter, Richard S.; Baker, Thomas C.; and Malik, Mangel S., 5,064,820, Cl. 514-134.000.

Baladi, Beatrice: *See—*
Grijol, Laurent; Le Martret, Catherine; and Baladi, Beatrice, 5,064,780, Cl. 437-130.000.

Baldasarre, Thomas: *See—*
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, 5,065,372, Cl. 367-152.000.

Balzers Aktiengesellschaft: *See—*
Wellerdieck, Klaus, 5,064,522, Cl. 204-298.280.

Bambacigno, Ralph; and Lindquist, Thomas R., to Convault, Inc. Tank stabilizer. 5,064,155, Cl. 248-146.000.

Banerjee, Subrata, to Magneco/Metrel, Inc. Ramming compositions. 5,064,787, Cl. 501-89.000.

Bard, Steven: *See—*
Jones, Jack A.; Petrick, S. Walter; and Bard, Steven, 5,063,747, Cl. 62-461.000.

Bard, Steven L.; Christensen, David N.; Glenning, John J.; Nicoletti, James A.; and Urdanick, Mark W., to International Business Machines Corporation. Fluid treatment device. 5,063,951, Cl. 134-64.00R.

Barham, Leonard J. Ladder leg extender apparatus with improved vertical adjustment means. 5,064,024, Cl. 182-201.000.

Barillas, Mario A.: *See—*
Longo, Robert T.; Barillas, Mario A.; and Forman, Ralph, 5,065,070, Cl. 313-346.0DC.

Barner, Keith. Broadhead guide ring for an arrow. 5,064,202, Cl. 273-421.000.

Barnes, Gary D. Tooling plate. 5,064,321, Cl. 409-219.000.

Barnes, Robert E., to Litton Systems, Inc. Package for spooled products. 5,064,066, Cl. 206-395.000.

Barnsdale, Timothy J. R., to Tappex Thread Inserts Limited. Self-threading fastener. 5,064,323, Cl. 411-178.000.

Barnsley, Michael F.; and Sloan, Alan D., to Iterated Systems, Inc. Method and apparatus for processing digital data. 5,065,447, Cl. 382-56.000.

Baroid Technology, Inc.: *See—*
Le, Tri C., 5,064,164, Cl. 251-1.100.
Tai, Wen-Tong, 5,064,224, Cl. 285-94.000.

Barrett, Michael W.: *See—*
Laakmann, Peter; Byron, Stanley R.; and Barrett, Michael W., 5,065,405, Cl. 372-92.000.

Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., to Ethyl Corporation. Production of foamed polymer structures. 5,064,867, Cl. 521-50.500.

Barry, David. Router table with swing arm measuring scale, block and method. 5,063,983, Cl. 144-371.000.

Barstow, Leon E.; and Ward, Glen D., to Protein Technologies, Inc. Premixed dry reagent containing a protected amino acid and an activating agent for use in solid phase protein synthesis. 5,064,940, Cl. 530-334.000.

Bartelt, James T.; Harris, Frank W.; and Owens, Alan R., to Staodyn, Inc. Electronic stimulating device having timed treatment of varying intensity and method therefor. 5,063,929, Cl. 128-421.000.

Bartholomew, Donald D., to Proprietary Technology, Inc. Swivelable quick connector assembly. 5,063,968, Cl. 138-109.000.

Bartling, James E.; and Heaton, Dale A., to Texas Instruments Incorporated. Biasing circuits for field effect transistors using GaAs FETS. 5,065,043, Cl. 307-296.800.

Bartolo, Robert G.: *See—*
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., 5,064,543, Cl. 252-8.600.

Barton Industries, Inc.: *See—*
Turner, John M.; Nethers, Jan L.; and Knight, Robert M., 5,064,349, Cl. 417-53.000.

Barton, Serge P., to Westinghouse Electric Corp. Cost effective fluid line status sensor system. 5,064,604, Cl. 376-246.000.

BASF Aktiengesellschaft: *See—*
Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, 5,064,702, Cl. 428-64.000.

Bronstert, Klaus; and Wagner, Daniel, 5,064,907, Cl. 525-332.900.
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.
Oppenlaender, Knut; Mohr, Juergen; Liebold, Gert; and Frey, Guenter, 5,064,552, Cl. 252-78.300.
Schuster, Ludwig; Hettche, Albert; Liedy, Werner; Weiss, Stefan; and Ehemann, Leo, 5,064,908, Cl. 525-333.800.
Schwalm, Reinhold, 5,064,746, Cl. 430-270.000.
Wiesenfeldt, Matthias; and Etzbach, Karl-Heinz, 5,064,962, Cl. 544-300.000.
Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, 5,064,828, Cl. 514-239.500.

Bass, Charles J.: *See—*
McGough, Gerald B.; Stanford, Timothy M.; and Bass, Charles J., 5,064,116, Cl. 232-57.500.

Basu, Rajat S.: *See—*
Swan, Ellen L.; Stachura, Leonard M.; Basu, Rajat S.; and Wilson, David P., 5,064,558, Cl. 252-171.000.

Batchelder, J. William. Overrunning clutch with improved spring coil and mounting of same. 5,064,038, Cl. 192-41.00S.

Bateson, John H.: *See—*
Burton, George; Fell, Stephen C. M.; and Bateson, John H., 5,064,649, Cl. 424-114.000.

Bath, Duncan T.: *See—*
Ferguson, James H.; and Bath, Duncan T., 5,065,058, Cl. 310-62.000.

Bathrick, Leeland M.; Chizek, Michael W.; and Brittain, Glenn. Power module for an articulated bed. 5,063,623, Cl. 5-67.000.

Battelle Memorial Institute: *See—*
—Harapanahalli, Muralidhara, 5,064,515, Cl. 204-151.000.

Battle, A. Kainin. Mounting arrangement for percussion instruments. 5,063,821, Cl. 84-723.000.

Bauer, Ronald F. Window escape. 5,064,021, Cl. 182-73.000.

Baumgartner, Reinhard: *See—*
Rupprecht, Bernd; and Baumgartner, Reinhard, 5,064,034, Cl. 188-343.000.

Bay, Michael. Wound dressing. 5,064,652, Cl. 424-445.000.

Bayer AG: *See—*
Obrecht, Werner; Greve, Heinz-Hermann; Wendling, Peter; Eisele, Ulrich; and Musch, Rudiger, 5,064,904, Cl. 525-199.000.

Bayer Aktiengesellschaft: *See—*
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.
Blum, Harald; Pedain, Josef; Hohlein, Peter; and Wamprecht, Christian, 5,064,921, Cl. 526-262.000.
Buysch, Hans-Josef; Schon, Norbert; Eichenauer, Herbert; Ott, Karl-Heinz; and Pischtschan, Alfred, 5,064,899, Cl. 525-64.000.
Grogler, Gerhard; Thiery, Urs; Ruckes, Andreas; Kopp, Richard; and Hess, Heinrich, 5,064,875, Cl. 521-159.000.
Kohler, Karl-Heinz; Reinking, Klaus; and Kraft, Klaus, 5,064,895, Cl. 524-609.000.
Maurer, Fritz; Hartwig, Jurgen; and Becker, Benedikt, 5,064,818, Cl. 514-86.000.
Muller, Friedemann; Leitz, Edgar; Eichenauer, Herbert; Ott, Karl-Heinz; and Buysch, Hans-Josef, 5,064,885, Cl. 524-117.000.
Pedain, Josef; and Margotte, Dieter, 5,064,960, Cl. 544-222.000.
Wagner, Joachim; Rasshofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, 5,064,600, Cl. 264-328.600.
Wamprecht, Christian; Pedain, Josef; and Blum, Harald, 5,064,922, Cl. 526-262.000.

Bayern-Chemie Gesellschaft fur Flugchemische Antriebe mbH: *See—*
Unterforsthuber, Karl; and Geisreiter, Christian, 5,064,459, Cl. 55-512.000.
Zeuner, Siegfried, 5,064,483, Cl. 149-35.000.

Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, to Ciba-Geigy Corporation. Substituted propane-phosphinic acid compounds. 5,064,819, Cl. 514-114.000.

Bechtold, Paul S.; Mihelcic, Matija; and Wingerath, Kurt, to Forschungszentrum Juelich GmbH. Time-of-flight spectrometer with gridless ion source. 5,065,018, Cl. 250-287.000.

Beck, Donald C.; and Mick, Peter R. Respiration-signalling device. 5,063,938, Cl. 128-724.000.

Beck, Henry N.; Lundgard, Richard A.; and Mahoney, Robert D., to Dow Chemical Company, The. Process for making microporous membranes from poly(etheretherketone)-type polymers. 5,064,580, Cl. 264-28.000.

Becker, Benedikt: *See—*
Maurer, Fritz; Hartwig, Jurgen; and Becker, Benedikt, 5,064,818, Cl. 514-86.000.

Becker, Mark H., to Doorway Mfg. Co. Board conveyor. 5,064,048, Cl. 198-345.100.

Becker, Willi, to Heidelberger Druckmaschinen AG. Sheet-fed rotary printing machine for producing single-sided multi-color printing or perfector printing. 5,063,843, Cl. 101-183.000.

Becton Dickinson and Company: *See—*
Brosnan, Jeanne; and Ault, Kenneth, 5,064,616, Cl. 422-61.000.
Walder, Anthony J.; and Solomon, Donald D., 5,064,415, Cl. 604-164.000.

Bedard, Robert L.; and Flanigen, Edith M., to UOP. High density cordierite ceramics from zeolite. 5,064,790, Cl. 501-119.000.

Beecham Group p.l.c.: *See—*
Burton, George; Fell, Stephen C. M.; and Bateson, John H., 5,064,649, Cl. 424-114.000.

Begani, Rino: *See—*
Morineau, Yves; and Begani, Rino, 5,065,421, Cl. 378-208.000.

Behr Industrial Equipment, Inc.: *See—*
Cann, Roger S.; and Ostin, Richard M., 5,064,680, Cl. 427-8.000.

Behrens, Rudolf A.; and Malherbe, Roger F., to Ciba-Geigy Corporation. Stabilization of acid catalyzed thermoset resins with n-hydroxy hindered amines. 5,064,883, Cl. 524-95.000.

Behringer, Jurgen; Evers, Dieter; and Schoonert, Dieter. Method and apparatus for monitoring the partial density of metal and acid in pickling baths. 5,065,417, Cl. 378-54.000.

Bekki, Keisuke: *See—*
Yokota, Takayoshi; Bekki, Keisuke; and Hamada, Nobuhiro, 5,065,335, Cl. 364-489.000.

Belfiore, Kathleen A.: *See—*
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., 5,064,543, Cl. 252-8.600.

Bell, Bruce C.; and Jackson, Winston J., Jr., to Eastman Kodak Company. Solid phase polyarylate process. 5,064,930, Cl. 528-182.000.

Bell Communications Research, Inc.: *See—*
—Bhat, Rajaram; and Zah, Chung-en, 5,065,200, Cl. 357-4.000.
—Hasegawa, Satoshi; and Yang, Chiang H., 5,065,399, Cl. 371-11.200.
—Neuburger, Glen G., 5,065,140, Cl. 340-634.000.

Bell & Howell Phillipsburg Company: *See—*
Ricciardi, Mario, 5,064,185, Cl. 271-181.000.
Ricciardi, Mario, 5,064,303, Cl. 400-175.000.

Belland, Terrance G., to IMI Cornelius Inc. Beverage receptacle tray for extra-large receptacles. 5,063,977, Cl. 141-86.000.

Beloit Corporation: *See—*
Turner, James A., 5,064,502, Cl. 162-299.000.

Belorussky Politekhnichesky Institut: *See—*
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Beltz, Mark W., to Ethyl Corporation. Benzophenone-type polyimides and their production. 5,064,933, Cl. 528-220.000.

Bement, Laurence J.; and Kushnick, Anne C., to United States of America, National Aeronautics and Space Administration. Permanent wire splicing by an explosive joining process. 5,064,111, Cl. 228-107.000.

Bengtsson, Christer, to Forsheda AB. Sealing ring for sealing a pipe joint. 5,064,207, Cl. 277-207.00A.

Bennett, Daniel H.; Dodd, Gary L.; and Murray, Kenelm G. D., to Hughes Microelectronics Limited. Non-volatile RAM bit cell. 5,065,366, Cl. 365-201.000.

Bennett, Kelvin J.; and DeMott, Mark E., to Ford Motor Company. Method and apparatus for installing/dressing a wiring harness. 5,064,970, Cl. 174-135.000.

Bennett, Robert A., to RJS Industries, Inc. Foam dispenser having a plurality of sieves. 5,064,103, Cl. 222-190.000.

Benoit, Louis: *See—*
Morell, Joseph; and Benoit, Louis, 5,063,693, Cl. 36-121.000.

Bentz, Rolf, to Ciba-Geigy Corporation. Biological process for purifying waste air. 5,064,763, Cl. 435-266.000.

Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, to Robert Bosch GmbH. Hydraulic brake system with reversible pump for traction control. 5,064,254, Cl. 303-113.0TR.

Bergeron, Bernard: *See—*
Bergeron, Ghislain J.; and Bergeron, Bernard, 5,064,335, Cl. 414-522.000.

Bergeron, Ghislain J.; and Bergeron, Bernard, to Tardif, Denis, a part interest. Apparatus for handling cargo. 5,064,335, Cl. 414-522.000.

Berghout, Cornelis W.; Oostra, Silvester J. J.; and Damsma, Hendrik, to U.S. Philips Corp. Ceramic body of a dielectric material on the basis of barium titanate. 5,065,274, Cl. 361-321.000.

Bergwerksverband GmbH: *See—*
Kubiak, Helmut; Schroter, Hans J.; Gappa, Gunther; Kalwitzki, Heinrich; and Knop, Klaus, 5,064,444, Cl. 48-202.000.

Berkel & Co. Contractors, Inc.: *See—*
Blum, Kenneth J., 5,064,360, Cl. 417-519.000.

Bermbach, Rainer; Doenges, Gerhard; Geus, Georg; and Koch, Cornelius, to Heimann GmbH. Apparatus for the transillumination of articles with fan-shaped radiation. 5,065,418, Cl. 378-57.000.

Bernasconi, Attilio, to Sio, Societa per l'Industria dell'Ossigeno e di Altri Gas; and Beta Ricerche & Sviluppi di Attilio Bernasconi & C. s.a.s. Process for stripping a layer of paint from the surface of a support. 5,064,475, Cl. 134-4.000.

Berner, Bret; Ebert, Charles; Mazzenga, Gerard C.; and Otte, John H., to Ciba-Geigy Corporation. Mixed solvent mutually enhanced transdermal therapeutic system. 5,064,654, Cl. 424-448.000.

Bernier, Denis. Computer controlled parking meter. 5,065,156, Cl. 340-932.200.

Berry, Christopher J.; Cuomo, Jerome J.; Guarnieri, C. Richard; and Yee, Dennis S., to International Business Machines Corporation. Selective deposition process for physical vapor deposition. 5,064,681, Cl. 427-36.000.

Bersier, Jacques: *See—*
Schneider, Peter; Ramos, Gerardo; and Bersier, Jacques, 5,064,761, Cl. 435-135.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Bertek, Inc.: *See—*
Wick, John J., 5,064,422, Cl. 604-307.000.

Bertholdt, Heinz; Michalczyk, Dieter; and Urban, Guenter, to R. Pfleger Chemische Fabrik GmbH. Liquid bismuth containing medicinal product, process for producing it and its use. 5,064,857, Cl. 514-503.000.

Besnainon, Bernard; Elluard, Marie-Paule; Lessart, Pierre; and Philippe, Alain, to Commissariat a l'Energie Atomique. Mineral hollow fiber bioreactor for the cultivation of animal cells. 5,064,764, Cl. 435-285.000.

Bessenbach, Hans; and Crummenauer, Michael, to Fissler GmbH. Cookware. 5,064,055, Cl. 220-626.000.

Beta Ricerche & Sviluppi di Attilio Bernasconi & C. s.a.s.: *See—*
Bernasconi, Attilio, 5,064,475, Cl. 134-4.000.

Bethlehem Steel Corporation: *See—*
Lauricella, Charles, 5,064,118, Cl 239-1.000.

Betz Laboratories, Inc.: *See—*
Edmondson, James G.; and Holder, E. Paul, 5,064,612, Cl. 422-12.000.
Fosester, David R., 5,064,524, Cl. 208-121.000.

Beuret, Pierre. Probe for measuring carbon flux. 5,064,620, Cl. 422-95.000.

Bezos, Angel P.; Fernandez, Emilio A.; and Field, Joseph I., Jr., to Pulse Electronics, Inc. Solid state event recorder. 5,065,321, Cl. 364-424.040.

Bhat, Rajaram; and Zah, Chung-en, to Bell Communications Research, Inc. Geometry dependent doping and electronic devices produced thereby. 5,065,200, Cl. 357-4.000.

Bialkowski, Guenter; Gerlach, Dieter; and Renz, Roman, to Siemens Aktiengesellschaft. Contact configuration for a vacuum interrupter. 5,064,976, Cl. 200-144.00B.

Bianchetta, Donald L.; and Heinz, Gregory W., to Caterpillar Inc. Load sensing hydraulic control system. 5,063,739, Cl. 60-421.000.

Bianco, Frank J.: *See—*
Owen, Charles W.; Ehren, Lance; and Bianco, Frank J., 5,065,272, Cl. 361-231.000.

Bibollet, Jean-Claude, to Bibollet S.A. Front suspension and steering assembly for a snow-bike. 5,064,208, Cl. 280-21.100.

Bibollet S.A.: *See—*
Bibollet, Jean-Claude, 5,064,208, Cl. 280-21.100.

Biefeld, Robert M.; Dawson, L. Ralph; Fritz, Ian J.; Kurtz, Steven R.; and Zipperian, Thomas E., to United States of America, Energy. Long wavelength, high gain InAsSb strained-layer superlattice photoconductive detectors. 5,065,205, Cl. 357-30.000.

Bielefeldt, Ernst-August, to Deutsche Airbus GmbH. Wing type sailing yacht. 5,063,869, Cl. 114-61.000.

Bifano, Gabriel F.; and Reyes, Erenio, to Vinyl Corporation. PVC unit assembly joints. 5,063,720, Cl. 52-309.100.

Bilgeri, Elmar, to Steyr-Daimler-Puch AG. Cartridge case. 5,063,853, Cl. 102-467.000.

Bindl, Monika: *See—*
Thoma, Martin; Bindl, Monika; and Linska, Josef, 5,064,510, Cl. 204-16.000.

Binks Manufacturing Company: *See—*
Mellette, Robert R., 5,064,119, Cl. 239-8.000.

Binz, Reiner; and Burghardt, Hartmut, to Siemens Aktiengesellschaft. Clock distributor. 5,065,454, Cl. 359-184.000.

Bioject, Inc.: *See—*
McKinnon, Charles M.; Nakagawa, Takaaki; and Wilcox, Carl E., 5,064,413, Cl. 604-70.000.

Bird, William L.: *See—*
Adams, Steven L.; Bird, William L.; Chow, Humphrey W.; O'Brien, Kirk G.; and Rasmussen, Paul C., 5,065,059, Cl. 310-71.000.

Birk, Manfred: *See—*
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Bisacchi, Gregory S.; and Mitt, Toomas, to E. R. Squibb & Sons, Inc. Process for preparing an optically active cyclobutane nucleoside. 5,064,961, Cl. 544-276.000.

Bisbing, Robert H., to South Co. Inc. Remote latch mechanism. 5,064,228, Cl. 292-54.000.

Bischoff, Hilmar: *See—*
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.

Bisping, Bernard; Vagedes, Michael; Kessler, Sigfried; and Theis, Ulrich, to Rheinmetall GmbH. Propelling cage discarding sabot for a spin-stabilized subcaliber projectile. 5,063,854, Cl. 102-520.000.

Bissett, Thomas D.: *See—*
Bruckert, William; and Bissett, Thomas D., 5,065,312, Cl. 395-575.000.

Bitrolf, Ehrenfried, to Richard Wolf GmbH. Electro-surgical instrument. 5,064,424, Cl. 606-46.000.

Bittiger, Helmut: *See—*
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.

Bixler, Dickie R.; and Bixler, Matthew R. Apparatus for use in practicing pitching of baseballs. 5,064,194, Cl. 273-26.00A.

Bixler, Matthew R.: *See—*
Bixler, Dickie R.; and Bixler, Matthew R., 5,064,194, Cl. 273-26.00A.

Black Clawson Company, The: *See—*
Chupka, David E.; Constiner, Joseph P.; and Vitori, Christopher M., 5,064,537, Cl. 210-497.010.

Black & Decker: *See—*
Webster, Craig D., 5,063,673, Cl. 30-276.000.

Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., to Quantum Corporation. Removable and transportable hard disk subsystem. 5,065,262, Cl. 360-75.000.

Blackburn, Brian K.: *See—*
Mazur, Joseph F.; Blackburn, Brian K.; and Gentry, Scott B., 5,065,322, Cl. 364-424.050.

Blaimschein, Gottfried: *See—*
Postier, Robert A.; Pilkington, D. J.; and Blaimschein, Gottfried, 5,064,130, Cl. 242-56.00R.

Blaisdell, Leonard L., to GTE Government Systems Corporation. Microwave transition. 5,065,165, Cl. 343-753.000.

Blanchet-Fincher, Graciela B.; Chang, Catherine T.; and Fincher, Curtis R., Jr., to Du Pont de Nemours, E. I., and Company. Photohardenable electrostatic element with improved environmental latitude. 5,064,740, Cl. 430-126.000.

Blaser, Horst. Break-open firearm with readily exchangeable firing pin. 5,063,699, Cl. 42-41.000.

Blasing, Horst: *See—*
Kallweit, Manfred; and Blasing, Horst, 5,063,950, Cl. 134-64.00R.

Blatnik, Frank A.: *See—*
Roos, William N.; and Blatnik, Frank A., 5,064,094, Cl. 221-265.000.

Blazey, Richard N.; and Pultorak, David M., to Eastman Kodak Company. Operation of a light modulator of the planar electrode type. 5,064,277, Cl. 359-276.000.

Blom, Eric D.; and Coe, Frederick L., to Helix Medical, Inc. Voice prosthesis insertion assemblies. 5,064,433, Cl. 623-9.000.

Bloom, Myron G., to Masco Building Products Corp. Junction box cover without metallic parts. 5,064,969, Cl. 174-67.000.

Bloomberg, Dan S., to Xerox Corporation. Identification and segmentation of finely textured and solid regions of binary images. 5,065,437, Cl. 382-9.000.

Blum, Harald; Pedain, Josef; Hohlein, Peter; and Wamprecht, Christian, to Bayer Aktiengesellschaft. Hydroxy functional copolymers, a process for the preparation and their use as binders or binder components. 5,064,921, Cl. 526-262.000.

Blum, Harald: *See—*
Wamprecht, Christian; Pedain, Josef; and Blum, Harald, 5,064,922, Cl. 526-262.000.

Blum, Kenneth J., to Berkel & Co. Contractors, Inc. Surge chamber for swing valve grout pumps. 5,064,360, Cl. 417-519.000.

Blundy, Robert F., to American Telephone and Telegraph Company. Methods of and apparatus for transferring plate-like articles from one location to another. 5,064,051, Cl. 198-466.100.

Board of Regents, The University of Texas System: *See—*
Sullivan, Timothy J., 5,064,637, Cl. 424-9.000.

Board of Trustees, a Constitutional Corporation Operating Michigan State University: *See—*
Chang, Chi-Kwong; and Wu, Weishih, 5,064,952, Cl. 540-145.000.

Boatman, Scott E.: *See—*
Cope, Constantin; Boatman, Scott E.; and Roberts, Joseph W., 5,064,428, Cl. 606-127.000.

Bobadilla, Manuel; Jolivet, Jean-Marc; and Martinot, Michel, to IR-SID. Process for cooling a continuously cast metal product. 5,063,991, Cl. 164-468.000.

Bobbio, Stephen M., to MCNC. Method for anisotropically hardening a protective coating for integrated circuit manufacture. 5,064,748, Cl. 430-311.000.

Bobst SA: *See—*
Yerly, Marcel, 5,064,110, Cl. 225-97.000.

Bochis, Richard J.; Ok, Huyn O.; and Wyvratt, Matthew J., to Merck & Co., Inc. Hydroxymacrolide derivatives having immunosuppressive activity. 5,064,835, Cl. 514-291.000.

Bockman, John J., to Hewlett-Packard Company. Linear-and-angular measuring plane mirror interferometer. 5,064,289, Cl. 356-351.000.

Boeckmann, Hugo; and McDonald, Daniel P., to Zip-Pak Incorporated. Zippered closure for packages. 5,063,639, Cl. 24-30.50R.

Boehringer Mannheim GmbH: *See—*
Mangold, Dieter; and Gambke, Brigitte, 5,064,615, Cl. 422-56.000.

Boeing Company, The: *See—*
Buckwitz, Richard J.; and Spencer, Donald W., 5,063,974, Cl. 140-92.200.
Chee, Wan T., 5,064,144, Cl. 244-54.000.
Noble, Donald R.; and Maraghe, Alex, 5,064,147, Cl. 244-129.500.

Boersen, Antonius C., to Stork Friesland B.V. Spray drying apparatus; method for preparation of a spray-dried product having a desired bulk density. 5,064,501, Cl. 159-4.080.

Boeteng, Daniel A. D., to Cominco Ltd. Membrane process for acid recovery. 5,064,538, Cl. 210-638.000.

Boettcher, Bernhard: *See—*
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.

Boezen, Hendrik; Buitendijk, Pieter; and Mathijssen, Rudolf W., to U.S. Philips Corp. Multiple-amplifier control arrangement. 5,065,113, Cl. 330-260.000.

Bogdanow, Anatol L. Device for fastening an electrical cable to an insulator. 5,064,971, Cl. 174-169.000.

Bogert, Donald L. Lockout system for automatic transmission. 5,063,817, Cl. 74-878.000.

Boisseau, Jean-Louis, to Vega Automation. Method and device for forming, closing and reciprocally fastening the flaps of a box such as an American cardboard box. 5,063,726, Cl. 53-491.000.

Boissevain, Mathew G.; Norton, Michael K.; Foskett, Anthony D.; and Boissevain, Tobias J., to Measurex Corporation. Aerodynamic caliper gauge. 5,063,682, Cl. 33-501.020.

Boissevain, Tobias J.: *See—*
Boissevain, Mathew G.; Norton, Michael K.; Foskett, Anthony D.; and Boissevain, Tobias J., 5,063,682, Cl. 33-501.020.

Bolduc, Lee R. Dispenser. 5,064,121, Cl. 239-309.000.

Bolton, Craig E. Method and apparatus for uniform heating in a microwave field. 5,064,981, Cl. 219-10.55E.

Bonsack, James P., to SCM Chemicals, Inc. Process for partial oxidation of $FeCl_2$ to $FeCl_3$. 5,064,632, Cl. 423-493.000.

Bopp, Richard C.; and Martynowicz, Lynn M., to General Electric Company. Polyphenlene ether foams from low I.V. polyphenylene ether expandable microparticles. 5,064,869, Cl. 521-60.000.

Borcuch, John P.; and White, Norman H., to Union Carbide Industrial Gases Technology Corporation. Fluid delivery pressure control system. 5,063,956, Cl. 137-14.000.

Borg, Larry; and Lichfield, William H., to Water Center International Ltd. Compact water purification and beverage dispensing apparatus. 5,064,097, Cl. 222-129.000.

Borg-Warner Automotive, Inc.: *See—*
Schneider, Karl F., 5,064,036, Cl. 192-0.032.

Borghi, Angelo; Lancini, Giancarlo; and Antonini, Piero, to Gruppo LePetit S.p.A. De-mannosyl teicoplanin derivatives. 5,064,811, Cl. 514-8.000.

Borgo-Nova S.p.A.: *See—*
Bruni, Ludovico, 5,064,206, Cl. 277-140.000.

Borgren, Peter M. Low-pressure desalinization device. 5,064,505, Cl. 202-202.000.

Boria, John I.; and Brown, Robert T. Coherent gate vesta energy processor. 5,065,340, Cl. 364-514.000.

Borovinskaya, Inna P.: *See—*
Merzhanov, Alexandr G.; Borovinskaya, Inna P.; Nersesian, Mikael D.; and Peresada, Andrei G., 5,064,808, Cl. 505-1.000.

Bostick, Edgar E.: *See—*
Rosenquist, Niles R.; and Bostick, Edgar E., 5,064,914, Cl. 525-439.000.

Boston Biomedical Research Institute: *See—*
Davison, Peter F., 5,064,941, Cl. 530-356.000.

Botto, Eric J.: *See—*
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Boucher, Val G., to Caterpillar Inc. Electrical transmission control mechanism. 5,064,975, Cl. 200-61.880.

Bouillon, Eric: *See—*
Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul; Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, 5,064,915, Cl. 525-474.000.

Bouthillier, Rock J., to Bug Atomateck Inc. Automatic spraying device for farm animals. 5,063,880, Cl. 119-159.000.

Boutillier, Jacques; Forichon, Noelle; and Lermat, Yves, to Atochem. Hot melt adhesive of hydroxyl-functional ethylene-vinyl acetate and blocked polyisocyanate. 5,064,902, Cl. 525-124.000.

Boutin, Jean; Brun, Pierre; and Lamaze, Airy-Pierre, to Compagnie Europeenne du Zirconium Cezus. Diaphragm for molten bath salt electrolysis of metal halides. 5,064,513, Cl. 204-64.00R.

Bowerman, C. Dewayne. Knockdown hoist with double winches. 5,064,079, Cl. 212-182.000.

Boyer, Brent P.: *See—*
Frost, John S.; Erickson, Mark R.; Seegan, Kimberly E.; and Boyer, Brent P., 5,065,291, Cl. 362-183.000.

Bozzo, Romolo T. Method and apparatus for the installation of sector-shaped curtains on correspondingly sector-shaped windows. 5,063,985, Cl. 160-330.000.

BP Chemicals Limited: *See—*
Smith, Roy P., 5,064,551, Cl. 252-70.000.

Bradfisch, Gregory A.: *See—*
Hickle, Leslie A.; Bradfisch, Gregory A.; and Sick, August J., 5,064,648, Cl. 424-93.000.

Bradley, Oliver A. Dual chalk line marker. 5,063,681, Cl. 33-414.000.

Bragas, Peter: *See—*
Duckeck, Ralf; and Bragas, Peter, 5,065,452, Cl. 455-226.000.

Braman, David P., to Crafford Precision Products Co. Resistance welding apparatus with power control for reduced arcing. 5,064,987, Cl. 219-110.000.

Brandeis University: *See—*
Perlman, Daniel, 5,065,030, Cl. 250-472.100.

Brandes, Joseph F.; and Schumann, Robert N., to Provision, Inc. Golf club cleaning composition and method. 5,064,556, Cl. 252-135.000.

Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., to Institute for Applied Biotechnology, The. Anchoring member for anchorage in bone tissue. 5,064,425, Cl. 606-72.000.

Branrolini, Jean L.: *See—*
Valente, Daniel; Branrolini, Jean L.; and Volle, Frederic, 5,063,697, Cl. 38-75.000.

Bratten, Jack R. Wedgewire filter and method of manufacture. 5,064,536, Cl. 210-402.000.

Braun, Egon; Kling, Albert; Heil, Karl; and Sattler, Hans-Peter, to Metallgesellschaft Aktiengesellschaft. Sorting process and apparatus. 5,064,076, Cl. 209-700.000.

Brayer, Jean-Louis; Taliani, Laurent; and Tessier, Jean, to Roussel Uclaf. Acylated amine compounds which are useful fungicigal agents. 5,064,861, Cl. 514-617.000.

Brazier, Keith; Lee, Andrew L.; and Roberts, Clifford J., to Cliffhanger (Export) Limited. Shelf support. 5,064,158, Cl. 248-250.000.

Breisacher, Lee F.: *See—*
Pajak, Henry G.; Marder, Daniel S.; Byrne, Kenneth C.; and Breisacher, Lee F., 5,065,347, Cl. 395-159.000.

Breisch, Harald: *See—*
Winkelmann, Siegfried; Schlichtig, Karl; and Breisch, Harald, 5,063,904, Cl. 123-559.100.

Breithaupt, Hans: *See—*
Halssig, Andreas; Schillinger, Wolfgang; and Breithaupt, Hans, 5,063,847, Cl. 102-271.000.

Brenci, Mario: *See—*
Conforti, Giuliano; Mencaglia, Andrea A.; Brenci, Mario; and Mignani, Anna G., 5,063,781, Cl. 73-651.000.

Brenna, Bjorn J., to MCG A.S. Loading arrangement for loading fluids onto a ship at sea. 5,064,329, Cl. 414-137.700.

Brenner, Franz: *See—*
Kuhne, Viktor; Twisselmann, Hark; and Brenner, Franz, 5,064,042, Cl. 192-106.200.

Bresnahan, Jeremiah J. Flexible drainage trap. 5,063,616, Cl. 4-191.000.

Breuer, Hans-Georg: *See—*
Rutschmann, Erwin; and Breuer, Hans-Georg, 5,063,884, Cl. 123-52.00M.

Brewer, Darrell K. Toolholder for bar machines and the like. 5,063,799, Cl. 82-158.000.

Bricker, Jeffery C.: *See—*
Frame, Robert R.; Bricker, Jeffery C.; and Stine, Laurence O., 5,064,525, Cl. 208-193.000.

Bridgeman, Daniel N. P. Method and apparatus for producing a plurality of continuous bags. 5,064,408, Cl. 493-194.000.

Bridgestone Corporation: *See—*
Kumagai, Yuzo, 5,064,330, Cl. 414-331.000.
Yamaguchi, Michiyuki; Suzuki, Shosuke; and Yokobori, Takeo, 5,064,714, Cl. 428-219.000.

Brigham & Women's Hospital: *See—*
Moore, Gregory J.; Hrovat, Mirko I.; and Gonzalez, R. Gilberto, 5,064,638, Cl. 424-9.000.

Briscoe, Terry L.; and Sprunger, Paul C., to ESCO Corporation. Replaceable wear element and method. 5,063,695, Cl. 37-141.00R.

Bristol-Myers Squibb Co.: *See—*
Takaki, Katherine S., 5,064,831, Cl. 514-255.000.

British Telecommunications public limited company: *See—*
Hughes, Patrick M.; Hall, Martin C.; and Lind, Larry F., 5,065,409, Cl. 375-91.000.
Rollett, John M., 5,065,431, Cl. 381-43.000.

Brittain, Glenn: *See—*
Bathrick, Leeland M.; Chizck, Michael W.; and Brittain, Glenn, 5,063,623, Cl. 5-67.000.

Britton, Robert A.: *See—*
Klopfenstein, Terry J.; Satterlee, Lowell D.; Britton, Robert A.; and Cleale, Ralph N., 5,064,665, Cl. 426-2.000.

Broadhurst, Michael D., to ICI Americas Inc. Heterocyclic insecticides. 5,064,846, Cl. 514-375.000.

Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, to Henkel Kommanditgesellschaft anf Aktien. Process for dyeing anodized aluminum. 5,064,512, Cl. 204-37.600.

Broekhuis, Antonius A.: *See—*
Stamhuis, Jan E.; Broekhuis, Antonius A.; and Luijk, Pieter, 5,064,905, Cl. 525-237.000.

Broemmelsiek, H. Eugene: *See—*
Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., 5,064,867, Cl. 521-50.500.

Broggelwirth, Hartmut, to Hella KG Hueck & Co. Dimmable headlight. 5,065,288, Cl. 362-61.000.

Brois, Stanley J.: *See—*
Colclough, Terence; and Brois, Stanley J., 5,064,886, Cl. 524-131.000.

Bronkhorst High-Tech B.V.: *See—*
Huijsing, Johan H.; and Riedijk, Frank R., 5,064,296, Cl. 374-163.000.

Bronstert, Klaus; and Wagner, Daniel, to BASF Aktiengesellschaft. Polymers with functional groups. 5,064,907, Cl. 525-332.900.

Brosius, James W.: *See—*
Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., 5,063,680, Cl. 33-397.000.

Brosius, Sibylle: *See—*
Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, 5,064,702, Cl. 428-64.000.

Brosnan, Jeanne; and Ault, Kenneth, to Becton Dickinson and Company. Kit for analysis of subsets of subpopulations of leukocytes. 5,064,616, Cl. 422-61.000.

Brother Kogyo Kabushiki Kaisha: *See—*
Higashiyama, Shunichi, 5,064,070, Cl. 206-455.000.
Horie, Fujio, 5,063,867, Cl. 112-443.000.
Ito, Yousuke; and Sasaki, Ichiro, 5,065,342, Cl. 395-134.000.
Nishigaki, Hideo; and Hayashi, Shigeyuki, 5,064,183, Cl. 271-10.000.
Shindo, Tatsuya; and Yoshihara, Hideo, 5,065,180, Cl. 355-72.000.
Suzuki, Tsuyoshi, 5,064,133, Cl. 242-67.30R.

VOL 1132 ISS 2 NO 12 1991 UMI

Tsuchiya, Michio; and Terazawa, Masaaki, 5,065,168, Cl. 346-76.0PH.
Yamakawa, Kiyoshi, 5,065,358, Cl. 364-419.000.

Brown, Jeffrey K.: *See—*
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

Brown, Michael G. Thumb protector. 5,063,613, Cl. 2-21.000.

Brown, Robert J.: *See—*
Laurila, Melvin J.; Brown, Robert J.; and Greenlund, Robert C., 5,065,416, Cl. 378-53.000.

Brown, Robert T.: *See—*
Boria, John I.; and Brown, Robert T., 5,065,340, Cl. 364-514.000.

Brown, Russell W.: *See—*
Chan, Ivan T.; and Brown, Russell W., 5,065,053, Cl. 307-492.000.

Brown, Thomas H.: *See—*
Ife, Robert J.; Brown, Thomas H.; Leach, Colin A.; and Keeling, David J., 5,064,833, Cl. 514-260.000.

Bruckert, William; and Bissett, Thomas D., to Digital Equipment Corporation. Method of converting unique data to system data. 5,065,312, Cl. 395-575.000.

Bruere, Alain; and Galaud, Claude, to Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A. Capacitive dimensional measurement chain with linear output. 5,065,105, Cl. 324-662.000.

Brumby, John A., to Ace Conveyor Equipment Limited. Clamping device. 5,064,160, Cl. 248-316.500.

Brun, Pierre: *See—*
Boutin, Jean; Brun, Pierre; and Lamaze, Airy-Pierre, 5,064,513, Cl. 204-64.00R.

Brundage, Richard B., to Emerson Electric Co. Compound miter saw. 5,063,805, Cl. 83-468.300.

Bruni, Ludovico, to Borgo-Nova S.p.A. Piston ring. 5,064,206, Cl. 277-140.000.

Brunnenkant, Christel: *See—*
Young, Richard H., Sr.; Neogi, Amar N.; Brunnenkant, Christel; Lincoln, James F. L.; and Hansen, Michael R., 5,064,689, Cl. 427-202.000.

Brunner, Rudolf, to Heilmeier & Weinlein Fabrik fur Oel-Hydroaulik GmbH & Co. Screw-type valve housing. 5,063,961, Cl. 137-454.500.

Bruno, Michael N.: *See—*
Nee, Victor W.; Cook, Jonathan J.; and Bruno, Michael N., 5,063,759, Cl. 70-14.000.

Bryant, Frank R.; and Walters, John L., to SGS-Thomson Microelectronics, Inc. Tunneling diffusion barrier for local interconnect and polysilicon high impedance device. 5,065,225, Cl. 357-71.000.

Buchelli, Alberto, to Du Pont de Nemours, E. I., and Company. On-line determination of polymer properties in a continuous polymerization reactor. 5,065,336, Cl. 364-499.000.

Bucher, Franz, to Sky Disk Holding SA. Aircraft, having a pair of counter rotating rotors. 5,064,143, Cl. 244-23.00C.

Buchheit, Gerald A., Jr., to Accent Stripe Inc. Surface abrading and particle collection device. 5,063,713, Cl. 51-170.00R.

Buchmeier, Willi: *See—*
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.

Buchter, Randolph L., to AMP Incorporated. Asymmetrical high density contact retention. 5,064,391, Cl. 439-733.000.

Bucks, Rodney R.: *See—*
Adkins, Kenneth D.; and Bucks, Rodney R., 5,065,192, Cl. 355-251.000.

Buckwitz, Richard J.; and Spencer, Donald W., to Boeing Company, The. Automatic wire cut, coil, and tie system. 5,063,974, Cl. 140-92.200.

Bucyrus Equipment Co., Inc.: *See—*
Dover, Gary H.; and Meyer, Larry D., 5,064,000, Cl. 172-19.000.

Budai, Zoltan: *See—*
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.

Bueno C., Henry R.: *See—*
Dam G., Oscar G.; and Bueno C., Henry R., 5,064,467, Cl. 75-495.000.

Bug Atomateck Inc.: *See—*
Bouthillier, Rock J., 5,063,880, Cl. 119-159.000.

Buitendijk, Pieter: *See—*
Boezen, Hendrik; Buitendijk, Pieter; and Mathijssen, Rudolf W., 5,065,113, Cl. 330-260.000.

Bull HN Information Systems Inc.: *See—*
Moles, Robert G. H., 5,065,041, Cl. 307-269.000.

Bull S.A.: *See—*
Paladel, Jean-Marie, 5,064,388, Cl. 439-607.000.

Bulman, Melvin J., to General Electric Company. Armament system. 5,063,826, Cl. 89-8.000.

Bunn-O-Matic Corporation: *See—*
Anson, James H., 5,064,533, Cl. 210-232.000.

Burch, William M., to I. J. & L. A. Tetley Manuf. Pty. Ltd. Method of forming a radioactive metallic vapor. 5,064,634, Cl. 424-1.100.

Burghardt, Hartmut: *See—*
Binz, Reiner; and Burghardt, Hartmut, 5,065,454, Cl. 359-184.000.

Burkard, Johannes; and Weltin, Wolfgang, to Robert Bosch GmbH. Tire pressure sensor for motor vehicles. 5,063,774, Cl. 73-146.500.

Burkard, Johannes: *See—*
Schmid, Hans-Dieter; Hettich, Gerhard; Burkard, Johannes; and Schmierer, Wolfgang, 5,065,134, Cl. 340-442.000.

Burkhart, Georg: *See—*
Kollmeier, Hans-Joachim; Burkhart, Georg; Langenhagen, Rolf-Dieter; Lammerting, Helmut; and Klietsch, Bernd-Jurgen, 5,064,870, Cl. 521-111.000.

Burkinshaw, Brian D., to Intermedics Orthopedics, Inc. Apparatus for inserting and withdrawing humeral prosthesis. 5,064,427, Cl. 606-99.000.

Burns, Gary T., to Dow Corning Corporation. Silane modified polysilacyclobutasilazanes. 5,064,786, Cl. 501-88.000.

Burns Philp Food, Inc.: *See—*
Murray, Daniel G.; and Shackelford, John R., 5,064,663, Cl. 426-60.000.

Burron Medical, Inc.: *See—*
Raines, Kenneth; and Grimm, John D., 5,064,168, Cl. 251-322.000.

Burroughs Wellcome Co.: *See—*
Shaver, Sammy R.; Freeman, George A.; and Rideout, Janet L., 5,064,946, Cl. 536-23.000.

Burrowes, Lee: *See—*
Butler, Michael E.; Cann, David V.; and Burrowes, Lee, 5,064,106, Cl. 222-456.000.

Burt, Willard F.: *See—*
Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., 5,064,736, Cl. 430-42.000.

Burton, George; Fell, Stephen C. M.; and Bateson, John H., to Beecham Group p.l.c. Cephalosporin derivatives. 5,064,649, Cl. 424-114.000.

Burton Mechanical Contractors, Inc.: *See—*
Grooms, John M.; and Jones, Mark A., 5,064,314, Cl. 406-22.000.

Bury, James, to LK Limited. Support assemblies. 5,063,683, Cl. 33-573.000.

Buscall, Richard; Scales, Paul J.; Williams, Serena J.; and Newton, Jill E., to Imperial Chemical Industries, PLC. Inorganic particles. 5,064,718, Cl. 428-407.000.

Busch, Erich; and Busch, Michael. Filter for the purification of tap water. 5,064,534, Cl. 210-266.000.

Busch, Michael: *See—*
Busch, Erich; and Busch, Michael, 5,064,534, Cl. 210-266.000.

Butler, Michael E.; Cann, David V.; and Burrowes, Lee, to Procter & Gamble Company, The. Metered dispensing package. 5,064,106, Cl. 222-456.000.

Buttery, Ronald G.; Teranishi, Roy; Ling, Louisa C.; and Turnbaugh, Jean G., to United States of America, Agriculture. Cooked tomato flavor composition. 5,064,673, Cl. 426-534.000.

Buysch, Hans-Josef; Schon, Norbert; Eichenauer, Herbert; Ott, Karl-Heinz; and Pischtschan, Alfred, to Bayer Aktiengesellschaft. Antistatic, thermoplastic moulding compounds based on aromatic vinyl polymers. 5,064,899, Cl. 525-64.000.

Buysch, Hans-Josef: *See—*
Muller, Friedemann; Leitz, Edgar; Eichenauer, Herbert; Ott, Karl-Heinz; and Buysch, Hans-Josef, 5,064,885, Cl. 524-117.000.

Byard, Clifford D., to ML-KS Bearings, Inc. Piston pin bearing. 5,063,831, Cl. 92-187.000.

Byk Gulden Lomberg Chemische Fabrik GmbH: *See—*
Flockerzi, Dieter, 5,064,839, Cl. 514-318.000.

Byrne, Kenneth C.: *See—*
Pajak, Henry G.; Marder, Daniel S.; Byrne, Kenneth C.; and Breisacher, Lee F., 5,065,347, Cl. 395-159.000.

Byron, Stanley R.: *See—*
Laakmann, Peter; Byron, Stanley R.; and Barrett, Michael W., 5,065,405, Cl. 372-92.000.

C. R. Bard, Inc.: *See—*
Gambale, Richard A., 5,063,935, Cl. 128-657.000.

C.V.G. Siderurgica Del Orinoco, C.A.: *See—*
Dam G., Oscar G.; and Bueno C., Henry R., 5,064,467, Cl. 75-495.000.

Cabrera, Alejandro L.: *See—*
Kirner, John F.; Cabrera, Alejandro L.; and Armor, John N., 5,064,691, Cl. 427-252.000.

Cabrera, Carlos A., to UOP. Conversion of stacked FCC unit. 5,064,622, Cl. 422-144.000.

Cafe 98 Industries Ltd.: *See—*
Patel, Dahyabhai U., 5,063,836, Cl. 99-281.000.

Caffrey, Stephen F.: *See—*
Ingermann, Donald E.; Smith, Ronald L.; Caffrey, Stephen F.; and Steinhoff, Lonney J., 5,063,633, Cl. 15-320.000.

Cain, Frederick W.; and Wesdorp, Leendert H., to Van den Bergh Foods Co., division of Conopco, Inc. Edible fat-containing product and process for preparing same. 5,064,677, Cl. 426-611.000.

Calandra, Frank, Jr.; and Frease, Jerry, to Jennmar Corporation. Delay stopper for a mine roof anchor and method of manufacture thereof. 5,064,312, Cl. 405-259.500.

Calari, Alessandro. Peristaltic pump adapted to operate simultaneously on two lines. 5,064,358, Cl. 417-475.000.

Calderon, Albert, to Calderon Automation, Inc. Method for repowering existing electric power plant. 5,063,732, Cl. 60-39.020.

Calderon Automation, Inc.: *See—*
Calderon, Albert, 5,063,732, Cl. 60-39.020.

Cambou, Bertrand F.; Liaw, H. Ming; and Tomozane, Mamoru, to Motorola, Inc. Method of fabricating integrated silicon and non-silicon semiconductor devices. 5,064,781, Cl. 437-132.000.

Camerino, Michael J. Water cannon apparatus. 5,064,095, Cl. 222-99.000.

Cameron, Stuart M.: *See—*
Almond, Daniel R.; Stroemel, Joseph M.; and Cameron, Stuart M., 5,064,308, Cl. 405-43.000.

Camino Laboratories: *See—*
Knute, Wallace L., 5,065,010, Cl. 250-227.210.

Camp, Claude E.: *See—*
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Campbell, Christopher J.; Latif, Linda S.; and Graboyes, Herman, to Philip Morris Incorporated. Method and apparatus for forming containers with rounded edges. 5,064,409, Cl. 493-396.000.

Campbell, Larry E. Survival device. 5,063,628, Cl. 7-116.000.

Campbell, Steven L.: *See—*
Powell, John C.; and Campbell, Steven L., 5,063,989, Cl. 164-463.000.

Canada Post Corp.: *See—*
Legault, Jean-Marc, 5,064,222, Cl. 283-71.000.

Cann, David V.: *See—*
Butler, Michael E.; Cann, David V.; and Burrowes, Lee, 5,064,106, Cl. 222-456.000.

Cann, Roger S.; and Ostin, Richard M., to Behr Industrial Equipment, Inc. Method for automatically spraying liquid coating material onto a workpart. 5,064,680, Cl. 427-8.000.

Canon Kabushiki Kaisha: *See—*
Fukui, Tetsuro; Fukumoto, Hiroshi; Katayama, Masato; Arahara, Kozo; and Kagami, Kenji, 5,064,744, Cl. 430-255.000.
Homma, Hideo, 5,065,248, Cl. 358-228.000.
Kondo, Makoto, 5,065,232, Cl. 358-29.00C.
Kugai, Masami, 5,065,442, Cl. 382-48.000.
Matsuoka, Mikiharu; Miyazaki, Yasuko; and Koumura, Noboru, 5,065,434, Cl. 382-1.000.
Nojima, Takashi; and Nitta, Tetsuhiro, 5,065,158, Cl. 346-140.00R.
Oda, Hitoshi; Ono, Takeo; Sasaki, Toyoshige; Yoneda, Kou; and Miyawaki, Mamoru, 5,065,378, Cl. 369-14.000.
Suzuki, Yoshiyuki; Funada, Masahiro; Sato, Mamoru; and Sato, Yukio, 5,065,446, Cl. 382-56.000.
Yamada, Masanori, 5,065,257, Cl. 358-463.000.

Capraro, Hans-Georg: *See—*
Stanek, Jaroslav; Caravatti, Giorgio; Frei, Jorg; and Capraro, Hans-Georg, 5,064,832, Cl. 514-256.000.

Caravatti, Giorgio: *See—*
Stanek, Jaroslav; Caravatti, Giorgio; Frei, Jorg; and Capraro, Hans-Georg, 5,064,832, Cl. 514-256.000.

Caraway, Edward: *See—*
Heckaman, Douglas; Vought, Ronald; and Caraway, Edward, 5,065,123, Cl. 333-246.000.

Carello Lighting plc: *See—*
Osborn, Graham S., 5,065,298, Cl. 362-421.000.

Carlomagno, William D.: *See—*
Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., 5,064,997, Cl. 219-505.000.

Carlos, Mary L. Dust ruffle. 5,063,626, Cl. 5-493.000.

Carlsen, Daniel J.: *See—*
Eberhardt, H. Alfred; and Carlsen, Daniel J., 5,063,670, Cl. 30-228.000.

Carlson, William R.: *See—*
Miller, John V.; Carlson, William R.; and Yarbrough, Michael B., 5,064,607, Cl. 376-333.000.

Carnall, Edward, Jr.; Nielsen, Robert L.; and Ozimek, Edward J., to Eastman Kodak Company. Modular image sensor array. 5,065,245, Cl. 358-213.110.

Carolina Power & Light Company: *See—*
Davis, Thomas L.; Elliott, Robert N., III; and Denning, Carsie K., 5,063,748, Cl. 62-59.000.

Carr, Albert A.; Miller, Francis P.; Nieduzak, Thaddeus R.; and Sorensen, Stephen M., to Merrell Dow Pharmaceuticals. 1,4-disubstituted-piperidinyl compounds as pain relievers. 5,064,838, Cl. 514-317.000.

Carr, Albert A.; Kane, John M.; and Miller, Francis P., to Merrell Dow Pharmaceuticals. Anti-psychotic piperidylbenzimidazole compounds. 5,064,840, Cl. 514-322.000.

Carr, Anthony H.; Badley, Robert A.; Jobling, Ian; and Sands, Thomas J. Microbial susceptibility assay using 7-N-(aminoacyl)-7-amido-4-methylcoumarins. 5,064,756, Cl. 435-32.000.

Carrier Vibrating Equipment, Inc.: *See—*
Baker, Stephen T., 5,064,053, Cl. 198-753.000.

Cartier, Claude-Julien. Apparatus for treating vascular, metabolic and functional imbalance and edema of a human limb. 5,063,910, Cl. 128-24.00R.

Casey, Irene. Cleaner and disinfectant with dye. 5,064,635, Cl. 424-7.100.

Castellano, James J.; Leshchuk, John H.; and Steinberger, Michael L., to AT&T Bell Laboratories. Inverse multiplexer and demultiplexer techniques. 5,065,396, Cl. 370-84.000.

Caster, Paul T. Hand-held video camera support. 5,064,109, Cl. 224-267.000.

Casterline, Richard. Barreltype fluid heat exchanger. 5,063,663, Cl. 29-890.043.

Castro, Peter E.: *See—*
Staiger, Ulrich; Strobel, Joseph; and Castro, Peter E., 5,065,287, Cl. 362-61.000.

Catena Product Development B.V.: *See—*
Nauta, Hendrikus C.; and Nordholt, Ernst H., 5,065,093, Cl. 324-207.120.

Cater, Mark W.: *See—*
Gilbertson, Charles H.; Nettekoven, William S.; and Cater, Mark W., 5,064,431, Cl. 623-2.000.

Caterpillar Inc.: *See—*
Bianchetta, Donald L.; and Heinz, Gregory W., 5,063,739, Cl. 60-421.000.
Boucher, Val G., 5,064,975, Cl. 200-61.880.
Duff, David A.; Gove, Daniel S.; and Schmillen, Edward E., 5,064,530, Cl. 210-94.000.
Krone, John J., 5,064,005, Cl. 173-134.000.
Sahm, William C., 5,065,326, Cl. 364-424.070.

Caturegli, Timothy A.; and Fickett, Robert A., to Varian Associates, Inc. Electropneumatic band selector. 5,065,109, Cl. 330-45.000.

Cawlfield, David W.; and Loftis, Harry J., to Olin Corporation. Apparatus for the production of chloric acid. 5,064,514, Cl. 204-103.000.

Cearley, James E.; Holland, David F.; Hurt, David T.; and Moody, Frederick J., to General Electric Company. Control rod flow diverters. 5,064,602, Cl. 376-243.000.

Censtor Corp.: *See—*
Hamilton, Harold J.; and Harr, Leonard E., 5,063,712, Cl. 51-67.000.

Centre d'Etude des Materiaux Organiques pour Technologies Avancees: *See—*
Mercier, Regis; Pascal, Thierry; and Sillion, Bernard, 5,064,934, Cl. 528-220.000.

Century International Corporation: *See—*
Ingermann, Donald E.; Smith, Ronald L.; Caffrey, Stephen F.; and Steinhoff, Lonney J., 5,063,633, Cl. 15-320.000.

Century Laboratories, Incoporated: *See—*
Rubin, David, 5,064,547, Cl. 252-56.00R.

Ceodeux S.A.: *See—*
Kremer, Paul, 5,063,960, Cl. 137-269.000.

Cerf, Olivier; Pain, Jean-Pierre; and Antonini, Gerard, to Institut National de la Recherche Agronomique. Process and apparatus for investigating and controlling changes of state of a liquid or gelled medium by differential thermal analysis. 5,064,294, Cl. 374-16.000.

Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., to United States of America, National Aeronautics and Space Administration. Assured crew return vehicle. 5,064,151, Cl. 244-160.000.

Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., to Merck & Co., Inc. Angiotensin II antagonists. 5,064,825, Cl. 514-221.000.

Chambers, Denis. Apparatus for holding and rotating an object. 5,063,871, Cl. 118-13.000.

Champion, William J., to Hamilton Scale Corporation. Coin or token discharge apparatus. 5,064,404, Cl. 453-17.000.

Chan, Ivan T.; and Brown, Russell W., to Digital Equipment Corporation of Canada, Ltd. Exponential function circuitry. 5,065,053, Cl. 307-492.000.

Chane-Ching, Jean-Yves; Le Loarer, Jean-Luc; and Dupuis, Patrick, to Rhone-Poulenc Chimie. Novel ceric oxides and preparation thereof. 5,064,628, Cl. 423-263.000.

Chang, Biau-Hung; and Kwiatek, Jack, to Quantum Chemical Corporation. Process for oxidizing polymers derived from unsaturated ketones. 5,064,912, Cl. 525-383.000.

Chang, Biau-Hung; Lee, Lester Y.; and Kwiatek, Jack, to Quantum Chemical Corporation. Poly(keto-esters). 5,064,932, Cl. 528-220.000.

Chang, Catherine T.: *See—*
Blanchet-Fincher, Graciela B.; Chang, Catherine T.; and Fincher, Curtis R., Jr., 5,064,740, Cl. 430-126.000.

Chang, Chi-Kwong; and Wu, Weishih, to Board of Trustees, a Constitutional Corporation Operating Michigan State University. Derivatives of porphyrin useful in photodynamic therapy. 5,064,952, Cl. 540-145.000.

Chang, Fu-Kuo; Reifsnider, Kenneth; Davidson, James A.; and Georgette, Frederick S., to Richards Medical Company. Orthopedic device of biocompatible polymer with oriented fiber reinforcement. 5,064,439, Cl. 623-66.000.

Chang, Kun-Zen, to Industrial Technology Research Institute. Method of fabricating an improved polycrystalline silicon thin film transistor. 5,064,775, Cl. 437-40.000.

Chang, Main, to Exxon Chemical Patents Inc. Catalyst for olefin polymerization. 5,064,798, Cl. 502-111.000.

Chang, Wu-Shan. Medical waste disposal system. 5,064,124, Cl. 241-33.000.

Chapin, John T.; Jackson, Charles W.; Mensah, Thomas O.; and Reynolds, Mickey R., to AT&T Bell Laboratories. Methods of providing an optical fiber package. 5,064,490, Cl. 156-172.000.

Charasse, Marie-Noel: *See—*
Turpin, Marc; Vignolle, Jean-Michel; Charasse, Marie-Noel; and Le Pesant, Jean-Pierre, 5,064,270, Cl. 350-96.290.

Charatis, George, to KMS Fusion, Inc. Regenerative cavity X-ray lasing amplifier. 5,065,108, Cl. 359-333.000.

Charles Machine Works, Inc., The: *See—*
Salsman, Lloyd N.; and Hoy, Leslie D., 5,065,098, Cl. 324-326.000.

Charles Stark Draper Laboratory, The: *See—*
Dyes, William A.; and Hakimi, Farhad, 5,064,288, Cl. 356-350.000.

Chatterjee, Ananda M., to Shell Oil Company. In-reactor stabilization of polymers via coated stabilizers. 5,064,878, Cl. 523-205.000.

Chee, Wan T., to Boeing Company, The. Engine mounting assembly. 5,064,144, Cl. 244-54.000.

Chen, Chi J.; Lin, Cheng H.; Liu, Tin Y.; and Hung, Ying C., to Industrial Technology Research Institute. Process for preparing rare earth-iron-boron alloy powders. 5,064,465, Cl. 75-349.000.

Chen, Ching-Jen. Crimping tool. 5,063,770, Cl. 72-410.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Chernuchin, Michael; and Satin, Richard, to Fashion Technologies, Inc. Coextruded plastic belt strap, buckle and belt. 5,063,615, Cl. 2-338.000.
Cherukuri, Subraman R.; and Faust, Steven M., to Warner-Lamber Company. Encapsulated synergistic sweetening agent compositions comprising aspartame and acesulfame-K and methods for preparing same. 5,064,658, Cl. 426-3.000.
Cherveny, Albert G. Solar heating drapery opening indcator. 5,063,984, Cl. 160-7.000.
Ch'Hayder, Ameur; Durand, Didier; and Diaz, Constantino, to Logabex S.A.R.L. Process for producing sensors for measuring spatial forces and sensors obtained. 5,063,788, Cl. 73-862.040.
Chida, Yukio; Mishimura, Tetsuhiko; and Oguri, Yasuo, to Mitsubishi Kasei Corporation. Process for preparing a slender or thin ceramic green body. 5,064,596, Cl. 264-181.000.
Chikuma, Takayuki: *See—*
Tanaka, Kazuhiro; Kojima, Shuichi; Kaneko, Susumu; and Chikuma, Takayuki, 5,063,970, Cl. 139-1.00R.
Chinoin Gyogyszer es Vegyeszeti Termekek Gyara RT.: *See—*
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.
Chisso Corporation: *See—*
Sugihara, Taizo; Sonoda, Hiromu; and Shiiba, Kiyonori, 5,063,945, Cl. 131-332.000.
Terashima, Kanetsugu; Ichihashi, Mitsuyoshi; Kikuchi, Makoto; Takeshita, Fusayuki; and Furukawa, Kenji, 5,064,568, Cl. 252-299.610.
Uchida, Manabu; and Goto, Yasuyuki, 5,064,565, Cl. 252-299.001.
Chizek, Michael W.: *See—*
Bathrick, Leeland M.; Chizek, Michael W.; and Brittain, Glenn, 5,063,623, Cl. 5-67.000.
Chmyz, George: *See—*
Kneip, George D., Jr.; Chmyz, George; and Anderson, Marvin H., 5,063,651, Cl. 29-455.100.
Choi, Joon-Ho: *See—*
Lebeault, J. M.; Kim, Jung-Hoe; and Choi, Joon-Ho, 5,064,759, Cl. 435-101.000.
Choi, Michael S., to Conoco Inc. Surge dampening three-phase production separator. 5,064,448, Cl. 55-38.000.
Chou, Richard T.; and Deak, Gedeon I., to Du Pont de Nemours, E. I., and Company. Blends of ethylene vinyl alcohol copolymer and amorphous polyamide, and multilayer containers made therefrom. 5,064,716, Cl. 428-336.000.
Chou, Tien-Fa. Instant cooling can. 5,063,754, Cl. 62-457.900.
Chou, Tien-Ming, to Liaw, Been-Chiu. Tri-state dip switch. 5,065,276, Cl. 361-380.000.
Choulat, Jean-Pierre, to Produsta S.A. Wristwatch with removable and interchangeable strap. 5,065,376, Cl. 368-282.000.
Chow, Humphrey W.: *See—*
Adams, Steven L.; Bird, William L.; Chow, Humphrey W.; O'Brien, Kirk G.; and Rasmussen, Paul C., 5,065,059, Cl. 310-71.000.
Christensen, David N.: *See—*
Bard, Steven L.; Christensen, David N.; Glenning, John J.; Nicoletti, James A.; and Urdanick, Mark W., 5,063,951, Cl. 134-64.00R.
Christian, Michael R.: *See—*
Pittman, William C.; Miller, Walter E., Jr.; and Christian, Michael R., 5,064,140, Cl. 244-3.130.
Chrzan, Lee J., to Watkins-Johnson Company. DC-40 GHz module interface. 5,065,124, Cl. 333-246.000.
Chuan, Chiang C. Buckle for locking straps. 5,063,641, Cl. 24-197.000.
Chubu Hitachi Electric Co., Ltd.: *See—*
Okamoto, Ryuichi; Nishiguchi, Masato; Kasugai, Hiroshi; and Tamamoto, Seishi, 5,064,999, Cl. 235-379.000.
Chujo, Yoshihiro: *See—*
Kanaya, Eizo; Chujo, Yoshihiro; Hano, Shigehiro; and Hara, Hidetoshi, 5,065,196, Cl. 355-308.000.
Chupka, David E.; Constiner, Joseph P.; and Vitori, Christopher M., to Black Clawson Company, The. Seamless screen cylinder with laser cut openings. 5,064,537, Cl. 210-497.010.
Churchland, Mark T., to MacMillan Bloedel Limited. Composite assembly press and method of use. 5,064,591, Cl. 264-109.000.
Ciba-Geigy Corporation: *See—*
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.
Behrens, Rudolf A.; and Malherbe, Roger F., 5,064,883, Cl. 524-95.000.
Bentz, Rolf, 5,064,763, Cl. 435-266.000.
Berner, Bret; Ebert, Charles; Mazzenga, Gerard C.; and Otte, John H., 5,064,654, Cl. 424-448.000.
Rohringer, Peter, 5,064,570, Cl. 252-301.210.
Schneider, Peter; Ramos, Gerardo; and Bersier, Jacques, 5,064,761, Cl. 435-135.000.
Stanek, Jaroslav; Caravatti, Giorgio; Frei, Jorg; and Capraro, Hans-Georg, 5,064,832, Cl. 514-256.000.
Cimco, Inc.: *See—*
Howe, Blair E., 5,063,921, Cl. 128-200.140.
Cincinnati Incorporated: *See—*
Macdonald, John L., 5,064,043, Cl. 192-125.00A.
Ciomek, Michael A. Feedstock and process for metal injection molding. 5,064,463, Cl. 75-314.000.
Cirillo, Robert J., to Excellon Automation. Precision guidance apparatus. 5,064,318, Cl. 408-69.000.
Clark, C. Randall, to Research Corporation. Anticonvulsant method and formulations. 5,064,862, Cl. 514-617.000.
Clark, Craig A.; and Poortvliet, Robert J., to Allsteel Inc. Wire rod office furniture stacking chair. 5,064,247, Cl. 297-445.000.
Clark, Howard C.: *See—*
Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, 5,064,006, Cl. 175-45.000.
Clark, John E.; and Shenker, Jack D., to Babcock & Wilcox Company, The. Sootblower with condensate separator. 5,063,632, Cl. 15-316.100.
Clarke, Gerald P.; and Keen, Jean, to KC Medical Industries Corporation. Eyelid opener. 5,064,420, Cl. 604-295.000.
Clarke, Joseph, to M & R Printing Equipment, Inc. Screen tensioning and framing device and method therefor. 5,063,842, Cl. 101-127.100.
Cleale, Ralph N.: *See—*
Klopfenstein, Terry J.; Satterlee, Lowell D.; Britton, Robert A.; and Cleale, Ralph N., 5,064,665, Cl. 426-2.000.
Clemans, Jim E.; Ijim, Theophilus I.; and Yuen, Maria J., to AT&T Bell Laboratories. Crystal growth method and apparatus. 5,064,497, Cl. 156-616.100.
Cleverly, Neil: *See—*
Cranston, Christopher S.; and Cleverly, Neil, 5,065,028, Cl. 250-370.010.
Cliffhanger (Export) Limited: *See—*
Brazier, Keith; Lee, Andrew L.; and Roberts, Clifford J., 5,064,158, Cl. 248-250.000.
Cline, Norman D. Hopper and liner apparatus. 5,064,237, Cl. 296-39.100.
Co Pharma Corporation S.r.l.: *See—*
Andreussi, Luciano, 5,064,417, Cl. 604-175.000.
Coca-Cola Company, The: *See—*
Richter, Simon J.; and Hohmann, Frank G., 5,064,101, Cl. 222-143.000.
Coe, Frederick L.: *See—*
Blom, Eric D.; and Coe, Frederick L., 5,064,433, Cl. 623-9.000.
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., to Procter & Gamble Company, The. Silicone gel for ease of ironing and better looking garments after ironing. 5,064,543, Cl. 252-8.600.
Cohen, Dennis A. Power extendable lamp. 5,065,299, Cl. 362-431.000.
Coherent, Inc.: *See—*
Johnston, Thomas F., Jr.; and Williams, Gerald H., 5,064,284, Cl. 356-121.000.
Colananni, Laura M.: *See—*
Lailer, Robert H., Jr.; Porter, Frank K., Jr.; Colananni, Laura M.; and Lussier, David B., 5,064,142, Cl. 244-3.240.
Colclough, Terence; and Brois, Stanley J., to Exxon Chemical Patents Inc. Dithiophosphonates, their preparation and use as anti-oxidants. 5,064,886, Cl. 524-131.000.
Coleman Outdoor Products, Inc.: *See—*
Steffes, William J., 5,064,088, Cl. 220-339.000.
Colgate-Palmolive Co.: *See—*
Dixit, Nagaraj; Shevade, Makarand; and Round, Rhyta, 5,064,553, Cl. 252-94.000.
Colgren, Richard D.; Criss, Christopher C.; and Criss, Russell J. Rocket-powered ducted fan engine. 5,063,735, Cl. 60-246.000.
Collins, Jason H. Adapter for cervical speculum. 5,063,908, Cl. 128-17.000.
Collins, Kenneth S.; and Roderick, Craig A., to Applied Materials, Inc. Electronically tuned VHF/UHF matching network. 5,065,118, Cl. 333-33.000.
Coloray Display Corporation: *See—*
Spindt, Charles A., 5,064,396, Cl. 445-50.000.
Com Dev Ltd.: *See—*
Thomson, R. Glenn; and Tsoi, Paul Y., 5,065,125, Cl. 335-5.000.
Comau S.p.A.: *See—*
Alborante, Giancarlo, 5,064,991, Cl. 219-121.630.
Combepine, Michel: *See—*
Jimenez, Antonio; and Combepine, Michel, 5,063,865, Cl. 112-221.000.
Jimenez, Antonio; and Combepine, Michel, 5,063,866, Cl. 112-302.000.
ComCorp, Inc.: *See—*
Hughes, John H., 5,063,768, Cl. 72-379.200.
Hughes, John H., 5,064,127, Cl. 241-253.000.
Cominco Ltd.: *See—*
Boeteng, Daniel A. D., 5,064,538, Cl. 210-638.000.
Comitato Nazionale per la Ricerca e per lo Sviluppo dell'Energia Nucleare e delle Energie Alternative: *See—*
Galvan, Dino; Marcoaldi, Gianfranco; Antolini, Elvio; and DeMeo, Sabatino, 5,063,924, Cl. 128-202.120.
Commissariat a l'Energie Atomique: *See—*.
Besnainon, Bernard; Elluard, Marie-Paule; Lessart, Pierre; and Philippe, Alain, 5,064,764, Cl. 435-285.000.
Tararine, Michel; Thevenin, Bernard; and Marcaud, Monique, 5,065,316, Cl. 364-413.240.
Compagnie Europeenne du Zirconium Cezus: *See—*
Boutin, Jean; Brun, Pierre; and Lamaze, Airy-Pierre, 5,064,513, Cl. 204-64.00R.
Compaq Computer Corporation: *See—*
Jons, Curtis R.; and Gready, Robert S., 5,065,354, Cl. 395-575.000.
Conax Buffalo Corporation: *See—*
Finney, Mark J.; and Stukey, Kevin B., 5,065,037, Cl. 250-577.000.

Conforti, Giuliano; Mencaglia, Andrea A.; Brenci, Mario; and Mignani, Anna G., to Consiglio Nazionale Delle Ricerche. Fiber-optic vibration sensor. 5,063,781, Cl. 73-651.000.
Congleton, Helen: *See—*
Kovacs, Alan L.; Ehlert, Michael R.; and Congleton, Helen, 5,064,968, Cl. 174-52.400.
Connell, John J.; and Hartt, Whitaker. Kit for holding caps onto containers. 5,064,060, Cl. 206-227.000.
Conoco Inc.: *See—*
Choi, Michael S., 5,064,448, Cl. 55-38.000.
Consiglio Nazionale Delle Ricerche: *See—*
Conforti, Giuliano; Mencaglia, Andrea A.; Brenci, Mario; and Mignani, Anna G., 5,063,781, Cl. 73-651.000.
Consolidated Chemical Consulting Co.: *See—*
Wyman, John E., 5,064,550, Cl. 252-62.520.
Constiner, Joseph P.: *See—*
Chupka, David E.; Constiner, Joseph P.; and Vitori, Christopher M., 5,064,537, Cl. 210-497.010.
Continuum Electro-Optics, Inc.: *See—*
Pax, Paul H., 5,065,407, Cl. 372-103.000.
Convault, Inc.: *See—*
Bambacigno, Ralph; and Lindquist, Thomas R., 5,064,155, Cl. 248-146.000.
Conversion Technologies: *See—*
Putnam, William H.; and Shaffer, Theodore A., 5,065,309, Cl. 364-419.000.
Convoy Security Company: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.
Cook, C. E.: *See—*
Lee, Yue-Wei; Fang, Qi-Cheng; Wang, Zhen-Guo; Li, De-Hua; and Cook, C. E., 5,064,823, Cl. 514-198.000.
Cook Incorporated: *See—*
Cope, Constantin; Boatman, Scott E.; and Roberts, Joseph W., 5,064,428, Cl. 606-127.000.
Cook, Jonathan J.: *See—*
Nee, Victor W.; Cook, Jonathan J.; and Bruno, Michael N., 5,063,759, Cl. 70-14.000.
Cooley, Lorne A. Wheel clamp. 5,064,334, Cl. 414-428.000.
Coolite Limited: *See—*
Hesketh, John; and Thornton, Martin, 5,065,074, Cl. 315-209.00R.
Cooper, Royston B.; and Leak, Jonathan G., to Glynwed Consumer & Building Products Limited. Process of manufacturing a thin-walled plastics moulding. 5,064,585, Cl. 264-40.600.
Cope, Constantin; Boatman, Scott E.; and Roberts, Joseph W., to Cook Incorporated. Medical retrieval basket. 5,064,428, Cl. 606-127.000.
Copeland Corporation: *See—*
Horn, James F., 5,064,356, Cl. 417-410.000.
Corneal Contouring, Inc.: *See—*
Kilmer, Lauren G.; and Reynolds, Alvin E., 5,063,942, Cl. 128-898.000.
Cornelison, Irvin H., III: *See—*
Hyatt, Charles K.; and Cornelison, Irvin H., III, 5,063,896, Cl. 123-198.00A.
Corning Incorporated: *See—*
Aitken, Bruce G., 5,064,460, Cl. 65-33.000.
Fretz, E. Robert, Jr., 5,064,712, Cl. 428-212.000.
Morena, Robert M.; and Pinckney, Linda R., 5,064,461, Cl. 65-33.000.
Costerousse, Germain: *See—*
Philibert, Daniel; Teutsch, Jean G.; Costerousse, Germain; and Deraedt, Roger, 5,064,822, Cl. 514-172.000.
Couch, William P.: *See—*
Ezenwa, Bertram N.; and Couch, William P., 5,063,937, Cl. 128-723.000.
Courtaulds Films & Packaging (holdings) Ltd.: *See—*
Kendall, Kenneth D.; and Dean, Darren W., 5,064,579, Cl. 264-22.000.
Courtright, Steven B.; McGrew, Gordon N.; and Richey, Lindell C., to Wm. Wrigley, Jr. Company. Food packaging improvements. 5,064,698, Cl. 428-35.400.
Covington, Michael J.: *See—*
Garter, Lee F.; and Covington, Michael J., 5,063,728, Cl. 56-13.500.
Cowen, Timothy B., to Mentor Corporation. Penile prosthesis. 5,063,914, Cl. 128-79.000.
Cox, Allen R.: *See—*
Lazenby, Kate; and Cox, Allen R., 5,065,279, Cl. 361-386.000.
Cox, Byard A.: *See—*
Milton, Edward L.; Landon, Russell G.; and Cox, Byard A., 5,064,104, Cl. 222-306.000.
Cozzi, Ennio: *See—*
Federici, Franco; Cozzi, Ennio; and Parrini, Paolo, 5,064,926, Cl. 528-49.000.
Crafford Precision Products Co.: *See—*
Braman, David P., 5,064,987, Cl. 219-110.000.
Craig, Grantland A.; and Johnson, Gary E., to Paper Converting Machine Company. Method of forming and bonding fluff pads. 5,064,484, Cl. 156-62.600.
Craine, MaryCaren: *See—*
Howard, Lawrence V., Jr.; and Craine, MaryCaren, 5,064,755, Cl. 435-7.360.
Crammer, Bernard; Ikan, Raphael; Mumicuoglu, Yani K.; and Weinstein, Vera, to Yissum Research Development Company of the Hebrew University of Jerusalem; and Teva Pharmaceutical Industries, Inc. Licidal compositions containing carboxylic acids. 5,064,859, Cl. 514-560.000.
Crane, Douglas: *See—*
Knowles, Lance; and Crane, Douglas, 5,065,345, Cl. 395-154.000.
Cranston, Christopher S.; and Cleverly, Neil, to Siemens Plessey Controls Limited. Radiation detector. 5,065,028, Cl. 250-370.010.
Cravens, Harold. Mailer. 5,064,114, Cl. 229-40.000.
Crescentini, Lamberto: *See—*
O'Donnell, Michael S.; and Crescentini, Lamberto, 5,064,507, Cl. 203-34.000.
Crespo, Agustin G. Double-mouthed clip. 5,063,645, Cl. 24-501.000.
Criss, Christopher C.: *See—*
Colgren, Richard D.; Criss, Christopher C.; and Criss, Russell J., 5,063,735, Cl. 60-246.000.
Criss, Russell J.: *See—*
Colgren, Richard D.; Criss, Christopher C.; and Criss, Russell J., 5,063,735, Cl. 60-246.000.
Crittenden, Jacob T.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.
Crivello, James V.: *See—*
Walles, Erik W.; Lupinski, John H.; and Crivello, James V., 5,064,882, Cl. 523-443.000.
Crombeen, Jacobus E.: *See—*
Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., 5,064,397, Cl. 445-50.000.
Cronin, James J., to Microgon, Inc. Filter means for use with syringe and needle. 5,064,418, Cl. 604-190.000.
Cronin, Thomas, III: *See—*
Goobich, Joel; and Cronin, Thomas, III, 5,064,482, Cl. 148-24.000.
Cropper, Peter R.; Haffenden, Gary P.; and Justice, Jeremy K., to Rhopoint Instrumentation Limited. Light detection and control system. 5,065,036, Cl. 250-571.000.
Cross-Check Technology, Inc.: *See—*
Gheewala, Tushar R., 5,065,090, Cl. 324-158.00R.
Crume, Douglas M.: *See—*
McKee, Fount E.; and Crume, Douglas M., 5,064,348, Cl. 417-12.000.
Crummenauer, Michael: *See—*
Bessenbach, Hans; and Crummenauer, Michael, 5,064,055, Cl. 220-626.000.
Cude, John M., to DeRoyal Industries, Inc. Handle and cover for positionable lighting fixture. 5,065,296, Cl. 362-399.000.
Cullen, Walter P.; Hauske, James R.; Kostek, Gloria J.; Maeda, Hiroshi; and Tone, Junsuke, to Pfizer Inc. Acid polycyclic ether antibiotic. 5,064,855, Cl. 514-460.000.
Cummins Engine Company, Inc.: *See—*
Hough, Walter J.; and Miller, Paul R., 5,063,736, Cl. 60-286.000.
Cuomo, Jerome J.: *See—*
Berry, Christopher J.; Cuomo, Jerome J.; Guarnieri, C. Richard; and Yee, Dennis S., 5,064,681, Cl. 427-36.000.
Currie, William: *See—*
Farwaha, Rajeev; and Currie, William, 5,064,888, Cl. 524-157.000.
Curtis, Richard H., to Artel, Inc. Photometric apparatus and method for measuring hemoglobin. 5,064,282, Cl. 356-40.000.
Curtius, Friedrich. Method of removing nitrogen oxides from flue gases. 5,064,625, Cl. 423-235.000.
Custom Training Aids: *See—*
Prosser, Paul L., 5,065,032, Cl. 250-495.100.
Cyrana, Edward M.; Strong, Douglas B.; and Amering, Allan R., to Eastman Kodak Company. Adjustment of MICR signal strength. 5,065,191, Cl. 355-246.000.
Czech, Bronislaw P., to Technicon Instruments Corporation. Large scale, non-chromatographic purification of chromogenic cryptahemispherands (1.1) and (2.1). 5,064,955, Cl. 540-469.000.
D. Swarovski & Co.: *See—*
Riedl, Bernhard, 5,064,279, Cl. 350-554.000.
Dagan, Arie: *See—*
Yedgar, Saul; and Dagan, Arie, 5,064,817, Cl. 514-78.000.
Dagostino, John J.; and Lucas, Gregory L., to Zycon Corporation. Method for applying mold release coating to separator plates for molding printed circuit boards. 5,064,583, Cl. 264-39.000.
Dahl, Roger W.; and Heil, Ronald W., Jr., to Mieczyslaw Mirowski. Controlled discharge defibrillation electrode. 5,063,932, Cl. 128-639.000.
Dahlgren, Richard M.: *See—*
Medcalf, Ralph F., Jr.; Visscher, Martha O.; Knochel, John R.; and Dahlgren, Richard M., 5,064,555, Cl. 252-117.000.
Daicel Chemical Industries, Ltd.: *See—*
Funaki, Yoshinori, 5,065,391, Cl. 369-291.000.
Daido Tokushuko Kabushiki Kaisha: *See—*
Isobe, Susumu; Noda, Toshiharu; and Hirayama, Hiroshi, 5,064,112, Cl. 228-112.000.
Daiichi Pure Chemicals Co., Ltd.: *See—*
Ebata, Nobuyoshi; Tanaka, Yuko; and Negishi, Akiko, 5,064,768, Cl. 436-164.000.
Daikin Industries, Ltd.: *See—*
Aomi, Hideki; Soda, Tomizo; and Itano, Mitsushi, 5,064,474, Cl. 134-2.000.
Tamaru, Shinji; Yamamoto, Katsutoshi; Tanaka, Osamu; Nishibayashi, Hirofumi; and Inoue, Osamu, 5,064,593, Cl. 264-113.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Daimler-Benz AG: *See*—
Encke, Ernst-Ekkehard, 5,064,018, Cl. 180-360.000.
Ohrle, Rolf, 5,064,241, Cl. 296-121.000.

Dainippon Ink and Chemicals, Inc.: *See*—
Kase, Mitsuo; Tsuyuzaki, Kazue; Kawasaki, Yoichi; and Arimoto, Shunji, 5,064,928, Cl. 528-85.000.
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.

Dainippon Screen Mfg. Co., Ltd.: *See*—
Awazu, Yasunobu; Masuda, Yoshihiro; and Nishimura, Eiji, 5,065,178, Cl. 355-27.000.
Kishimoto, Katsumi; and Shimazu, Shigeaki, 5,065,344, Cl. 395-134.000.
Kuwabara, Akira; and Koyama, Yasufumi, 5,065,445, Cl. 382-56.000.

Dake, Timothy W.: *See*—
Hirshorn, James B.; Dake, Timothy W.; Purves, Edward R.; and Seiden, Paul, 5,064,670, Cl. 426-607.000.

Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., to AMP Incorporated. Electrical tap and splice connector. 5,064,380, Cl. 439-113.000.

Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., to AMP Incorporated. Convenience electrical outlet assembly. 5,064,386, Cl. 439-535.000.

D'Alfonso, Nunzio: *See*—
Lorenz, Jurgen; Ensner, Jurgen; and D'Alfonso, Nunzio, 5,064,423, Cl. 60-611.000.

Dam G., Oscar G.; and Bueno C., Henry R., to C.V.G. Siderurgica Del Orinoco, C.A. Method and apparatus for the direct reduction of iron. 5,064,467, Cl. 75-495.000.

Damsma, Hendrik: *See*—
Berghout, Cornelis W.; Oostra, Silvester J. J.; and Damsma, Hendrik, 5,065,274, Cl. 361-321.000.

Dana Corporation: *See*—
Schlenker, Theodore R., 5,063,809, Cl. 74-459.000.

Darilek, Glenn T.; and Keeton, Dewey B., III, to Southwest Research Institute. Method for determining petroleum saturation in a subsurface. 5,065,019, Cl. 250-301.000.

Darr, Richard C.: *See*—
Young, William C.; and Darr, Richard C., 5,064,080, Cl. 215-1.00C.

Dartnall Engineering & Innovation Pty Ltd.: *See*—
Dartnall, William J.; and Langridge, David, 5,063,792, Cl. 74-37.000.

Dartnall, William J.; and Langridge, David, to Dartnall Engineering & Innovation Pty Ltd. Rotary/reciprocatory motion converter. 5,063,792, Cl. 74-37.000.

Dasai, Masashi, to Idemitsu Kosan Co., Ltd. Lubricating oil composition. 5,064,546, Cl. 252-32.500.

Davidson, Howard L., to Sun Microsystems, Inc. Three dimensional packaging arrangement for computer systems and the like. 5,065,277, Cl. 361-383.000.

Davidson, James A.: *See*—
Chang, Fu-Kuo; Reifsnider, Kenneth; Davidson, James A.; and Georgette, Frederick S., 5,064,439, Cl. 623-66.000.

Davidson Textron Inc.: *See*—
Nichols, Lawrence R.; and Yuill, Terry M., 5,064,365, Cl. 425-436.00R.

Davies, David H.: *See*—
Acton, David G.; Davies, David H.; and Poyser, Jeffrey P., 5,064,824, Cl. 514-202.000.

Davis, Charles E. Method and apparatus for simplifying and improving consistency of color grading of gemstones. 5,064,281, Cl. 356-30.000.

Davis, James L.; Pennisi, Robert W.; Nounou, Fadia; and Landreth, Bobby D., to Motorola, Inc. Use or organic acids in low residue solder pastes. 5,064,481, Cl. 148-23.000.

Davis, Kenneth P.: *See*—
Young, David E.; and Davis, Kenneth P., 5,063,917, Cl. 128-80.00R.

Davis, Robert E.; and England, Frank R. Tamper proof service bolt. 5,064,326, Cl. 411-368.000.

Davis, Robert L., to Ethyl Corporation. Aromatic diamines. 5,064,927, Cl. 528-64.000.

Davis, Steven D.; and Sanchez, Samuel O., Jr., to W. A. Lane, Inc. Product cup denester. 5,064,093, Cl. 221-222.000.

Davis, Steven S., to Envirotech Corporation. Apparatus for shifting filter plates in a filter press. 5,064,532, Cl. 210-225.000.

Davis, Thomas L.; Elliott, Robert N., III; and Denning, Carsie K., to Carolina Power & Light Company; and North Carolina Alternative Energy Corporation. Thermal storage tank system and method. 5,063,748, Cl. 62-59.000.

Davis, Timothy J.: *See*—
Tsikos, Constantine J.; Frederick, Brian R.; and Davis, Timothy J., 5,065,237, Cl. 358-101.000.

Davis, W. Richard: *See*—
Hauber, David E.; Jacobs, Monica; Davis, W. Richard; Rushing, Tom; and Fanara, Robert A., 5,064,113, Cl. 229-8.000.

Davison, Peter F., to Boston Biomedical Research Institute. Collagen extracted from collagen-containing tissue. 5,064,941, Cl. 530-356.000.

Dawson, L. Ralph: *See*—
Biefeld, Robert M.; Dawson, L. Ralph; Fritz, Ian J.; Kurtz, Steven R.; and Zipperian, Thomas E., 5,065,205, Cl. 357-30.000.

Day, Roger W.: *See*—
Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., 5,064,736, Cl. 430-42.000.

de la Haye, Cornelis F.; and Van Amen, Cornelis H., deceased (by Alst, Elisabeth A. G. van Alumen-van, executor), to Janse Lichtreklame B.V. Lighting system for advertising purposes. 5,065,295, Cl. 362-391.000.

Deak, Gedeon I.: *See*—
Chou, Richard T.; and Deak, Gedeon I., 5,064,716, Cl. 428-336.000.

Dean, Darren W.: *See*—
Kendall, Kenneth D.; and Dean, Darren W., 5,064,579, Cl. 264-22.000.

Dean, William D., to American Cyanamid Company. Process for the synthesis of N-(3-(1H-imidazol-1-yl)phenyl-4-(substituted)-2-pyrimidinamines. 5,064,963, Cl. 544-331.000.

Deasy, Richard E., to Rockwell International Corporation. Frequency range enchanced monopole antenna. 5,065,164, Cl. 343-749.000.

DeCamp, Ann E.; King, Anthony O.; Volante, Ralph P.; and Shinkai, Ichiro, to Merck & Co., Inc. Process for certain (2R-trans)hexahydroaroquinolizines. 5,064,964, Cl. 546-48.000.

DeCrescent, Ronald, to Unisys Corporation. Portable compact simulated target motion generating system. 5,064,376, Cl. 434-2.000.

Deere & Company: *See*—
Ahlers, Steven W., 5,064,339, Cl. 414-687.000.
Fox, Robert E.; and Phelan, James J., 5,063,729, Cl. 56-30.000.
Johnson, Douglas R., 5,064,040, Cl. 192-85.0AA.
McAskill, John P., 5,063,793, Cl. 74-360.000.

De Gruijter, Cornelis B.: *See*—
Verduijn, Johannes P.; Janssen, Mechilium; De Gruijter, Cornelis B.; Koetsier, Wicher T.; and Van Oorschot, Cornelis W. M., 5,064,630, Cl. 423-328.000.

Deininger, David D.: *See*—
Ocain, Timothy D.; and Deininger, David D., 5,064,965, Cl. 546-99.000.

Delahoy, Alan E. Radiant energy sensitive device and method. 5,064,477, Cl. 136-256.000.

Delara, Mario: *See*—
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, 5,065,372, Cl. 367-152.000.

Delaware Capital Formation: *See*—
Witt, Larry M.; and Sherman, Bruce K., 5,064,177, Cl. 269-32.000.

Dell USA Corporation: *See*—
Lunsford, David R., 5,065,313, Cl. 395-275.000.

Delorey, John R.: *See*—
Pachla, Sylvia K.; Taylor, Robert S.; and Delorey, John R., 5,063,997, Cl. 166-279.000.

Delta X Corporation: *See*—
McKee, Fount E.; and Crume, Douglas M., 5,064,348, Cl. 417-12.000.

DeLuca, Hector F.; and Sandgren, Maria E., to Wisconsin Alumni Research Foundation. Assay for 1,25-dihydroxy vitamin D receptor protein. 5,064,770, Cl. 436-542.000.

del Val, Sagrario M.: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Demant, Svend: *See*—
Ross, Gilbert W.; Baker, Scott C.; and Demant, Svend, 5,063,619, Cl. 4-443.000.

DeMeo, Sabatino: *See*—
Galvan, Dino; Marcoaldi, Gianfranco; Antolini, Elvio; and DeMeo, Sabatino, 5,063,924, Cl. 128-202.120.

Demizu, Akira: *See*—
Inoue, Noriyuki; Ohkubo, Satoru; Iwata, Toshio; and Demizu, Akira, 5,063,902, Cl. 123-425.000.

DeMott, Mark E.: *See*—
Bennett, Kelvin J.; and DeMott, Mark E., 5,064,970, Cl. 174-135.000.

Den Hartog, Herman C.; Palmer, George T.; and Yeramyan, Ara G., to Du Pont de Nemours, E. I., and Company. Coating composition of acrylic polymers containing reactive groups and an epoxy organosilane. 5,064,719, Cl. 428-411.100.

Denning, Carsie K.: *See*—
Davis, Thomas L.; Elliott, Robert N., III; and Denning, Carsie K., 5,063,748, Cl. 62-59.000.

Dentatus International AB: *See*—
Edwardson, Svante R., 5,064,372, Cl. 433-66.000.

Depoortere, Henri; and George, Pascal, to Synthelabo. Imidazopyridine for use as an anaesthetic. 5,064,836, Cl. 514-300.000.

Deppisch, Bertold: *See*—
Krieg, Gunther; Helget, Werner; and Deppisch, Bertold, 5,065,014, Cl. 250-237.00G.

Deraedt, Roger: *See*—
Philibert, Daniel; Teutsch, Jean G.; Costerousse, Germain; and Deraedt, Roger, 5,064,822, Cl. 514-172.000.

de Riese-Meyer, Loert: *See*—
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.

DeRoyal Industries, Inc.: *See*—
Cude, John M., 5,065,296, Cl. 362-399.000.

Dershem, Stephen M.; and Weaver, Richard R., to Quantum Materials, Inc. Water washable soldering paste. 5,064,480, Cl. 148-22.000.

Desinsectisation Moderne: *See*—
Vacquer, Michel, 5,063,771, Cl. 73-40.700.

Desmonceau, Daniel; and Jorda, Rafael, to Rhone-Poulenc Chimie. Non-agglomerating elastomeric organopolysiloxane particulates produced by polycondensation crosslinking. 5,064,894, Cl. 524-503.000.

Deutsch, Lance J.: *See*—
Steiner, Thomas L.; Domeshek, Kenneth A.; Stitt, William; Riley, Jesse L.; and Deutsch, Lance J., 5,064,949, Cl. 536-56.000.

Deutsche Airbus GmbH: *See*—
Bielefeldt, Ernst-August, 5,063,869, Cl. 114-61.000.

Deutsche Perrot-Bremse GmbH: *See*—
Antony, Paul; and Strauss, Wilfried, 5,064,028, Cl. 188-73.380.
Rupprecht, Bernd; and Baumgartner, Reinhard, 5,064,034, Cl. 188-343.000.

Deutsches Texilforschungs-zentrum Nord West e.v.: *See*—
Ringens, Werner; Schmitz, Franz J.; and Schollmeyer, Eckhard, 5,064,280, Cl. 356-28.500.

Dhong, San H.; and Hwang, Wei, to International Business Machines Corporation. Fabrication method for a double trench memory cell device. 5,064,777, Cl. 437-52.000.

Diacor, Inc.: *See*—
Waterman, Glenn N.; and Gibbs, Fredrick A., 5,064,429, Cl. 606-151.000.

Diaprint S.r.l.: *See*—
Gobbetti, Osvaldo, 5,064,511, Cl. 204-33.000.

Diard, Jean-Luc; Grandjacques, Philippe; and Recher, Gilles, to Salomon S.A. Cross-country ski. 5,064,214, Cl. 280-607.000.

Diaz, Constantino: *See*—
Ch'Hayder, Ameur; Durand, Didier; and Diaz, Constantino, 5,063,788, Cl. 73-862.040.

Dickey, Daniel M., to Trine Manufacturing Company, Inc. Apparatus and method for splicing film. 5,064,488, Cl. 156-159.000.

Dickie, Gerald M.; Liles, Steve L.; and Woldvedt, Alan H. Dockside spill containment system. 5,064,309, Cl. 405-64.000.

Dickson, Arthur D.: *See*—
Bailey, Terry R.; Kult, Roger R.; Tolliver, Howard R.; and Dickson, Arthur D., 5,064,272, Cl. 359-541.000.

Dickson, Warren S., to Advanced Equipment Corporation. Track system for operable wall. 5,063,636, Cl. 16-98.000.

Diel, Rainer; Sippel Achim; Meyer, Jurgen; and Kruse, Heinz-Josef, to Rheinmetall GmbH. Projectile arrangement. 5,063,855, Cl. 102-521.000.

Dieterich, Charles B.; and Greenberg, Arthur L., to General Electric Company. Deghosting apparatus using pseudorandom sequences. 5,065,242, Cl. 358-167.000.

Digital Equipment Corporation: *See*—
Bruckert, William; and Bissett, Thomas D., 5,065,312, Cl. 395-575.000.
Philipossian, Ara, 5,064,367, Cl. 432-253.000.

Digital Equipment Corporation of Canada, Ltd.: *See*—
Chan, Ivan T.; and Brown, Russell W., 5,065,053, Cl. 307-492.000.

Dillner, James R.: *See*—
Porter, David; Dillner, James R.; Leibfried, Peter E.; Reimels, William R.; and Asfalg, J. George, 5,063,662, Cl. 29-889.720.

Dillon, David B.: *See*—
Kelleher, John M.; and Dillon, David B., 5,064,355, Cl. 417-404.000.

Dimmler, Klaus J.: *See*—
Herdt, Christian E.; Weiner, Albert S.; Kamp, David A.; and Dimmler, Klaus J., 5,065,362, Cl. 365-154.000.

Diner, Daniel B., to United States of America, National Aeronautics and Space Administration. Stereoscopic camera and viewing systems with undistorted depth presentation and reduced or eliminated erroneous acceleration and deceleration perceptions, or with perceptions produced or enhanced for special effects. 5,065,236, Cl. 358-88.000.

Dingess, Billy E. Detonation control device for an internal combustion engine. 5,063,883, Cl. 123-48.00R.

DiPalma, Woody C., to Fike Corporation. Adjustable packing assembly for valve stem. 5,064,167, Cl. 251-214.000.

DiPerna, Raymond A.: *See*—
Jacobson, Boris S.; and DiPerna, Raymond A., 5,065,300, Cl. 363-16.000.

Discovery Toys, Inc.: *See*—
Klitsner, Daniel B.; and Milsal, D'Miles E., 5,064,399, Cl. 446-308.000.

Diversey Corporation: *See*—
Rouillard, Carol, 5,064,561, Cl. 252-174.120.

Dixit, Nagaraj; Shevade, Makarand; and Round, Rhyta, to Colgate-Palmolive Co. Linear-viscoelastic aqueous liquid automatic dishwasher detergent composition. 5,064,553, Cl. 252-94.000.

Dr. Gergely & Co.: *See*—
Gergely, Gerhard; Gergely, Irmgard; and Gergely, Thomas, 5,064,656, Cl. 424-463.000.

Dr. Ing. h.c.F. Porsche AG: *See*—
Ampferer, Herbert, 5,063,895, Cl. 123-196.00R.
Rutschmann, Erwin; and Breuer, Hans-Georg, 5,063,884, Cl. 123-52.00M.
Schaible, Walter; and Wierschem, Franz-Rudolf, 5,064,219, Cl. 280-775.000.
Schmid, Hans-Dieter; Hettich, Gerhard; Burkard, Johannes; and Schmierer, Wolfgang, 5,065,134, Cl. 340-442.000.

Dr. Ing.h.c.F. Porsche Aktiengesellschaft: *See*—
Koch, Alfred; and Stephan, Dieter, 5,063,882, Cl. 123-41.860.

Document Technologies, Inc.: *See*—
Marsh, Robert M.; Hill, Timothy J.; and Potts, Mark, 5,065,149, Cl. 340-793.000.

Dodd, Gary L.: *See*—
Bennett, Daniel H.; Dodd, Gary L.; and Murray, Kenelm G. D., 5,065,366, Cl. 365-201.000.

Doddman, William H.: *See*—
Naik, Subhash K.; and Doddman, William H., 5,064,727, Cl. 428-593.000.

Dodds, Robert E.; Inose, Tsutomu; and Kato, Yoshimitsu, to Sony Corporation. Carbon slurry regeneration apparatus. 5,063,874, Cl. 118-602.000.

Doenges, Gerhard: *See*—
Bermbach, Rainer; Doenges, Gerhard; Geus, Georg; and Koch, Cornelius, 5,065,418, Cl. 378-57.000.

Dohara, Kazunobu; Matsunaga, Tadahiro; Shiraishi, Motomitsu; and Shinjo, Goro, to Sumitomo Chemical Company, Limited. Insecticidal aerosol. 5,064,639, Cl. 424-45.000.

Dohno, Akira: *See*—
Ando, Satoshi; Dohno, Akira; and Hagiwara, Zenji, 5,064,599, Cl. 264-237.000.

Doi, Shoichi: *See*—
Toyomoto, Kazuo; Doi, Shoichi; and Kubota, Noboru, 5,064,866, Cl. 521-27.000.

Doi, Toshio: *See*—
Asai, Mitsuo; Hayashi, Takehisa; Doi, Toshio; and Ishibashi, Kenichi, 5,065,048, Cl. 307-443.000.

Domeshek, Kenneth A.: *See*—
Steiner, Thomas L.; Domeshek, Kenneth A.; Stitt, William; Riley, Jesse L.; and Deutsch, Lance J., 5,064,949, Cl. 536-56.000.

Donaldson Company, Inc.: *See*—
Forsgren, R. David; Drasner, Henry J., III; and Fielder, Roy E., 5,063,926, Cl. 128-206.170.

Donofrio, Robert L.; and Van der Voort, Andre A., to North American Philips Corporation. Monochrome CRT with interference filter having filter layer with reduced transmission and projection color TV incorporating same. 5,065,071, Cl. 313-474.000.

Donovan, Thomas P., Sr., to United Technologies Corporation. Stabilizing laminate inserts for resin transfer molding. 5,064,705, Cl. 428-121.000.

Doorway Mfg. Co.: *See*—
Becker, Mark H., 5,064,048, Cl. 198-345.100.

Dover, Gary H.; and Meyer, Larry D., to Bucyrus Equipment Co., Inc. Method of and apparatus for cutting sod which rolls in a semi-flaccid sheet into sod roll. 5,064,000, Cl. 172-19.000.

Dow Chemical Company, The: *See*—
Beck, Henry N.; Lundgard, Richard A.; and Mahoney, Robert D., 5,064,580, Cl. 264-28.000.
Kruper, William J., Jr., 5,064,956, Cl. 540-474.000.
Krupp, Stephen P.; and Gessner, Scott L., 5,064,581, Cl. 264-29.200.
Malanga, Michael T., 5,064,918, Cl. 526-77.000.
Rao, Nancy A.; and Hickner, Richard A., 5,064,880, Cl. 523-403.000.
Simon, Jaime; Wilson, David A.; Garlich, Joseph R.; and Troutner, David E., 5,064,633, Cl. 424-1.100.
Stevens, James C.; and Neithamer, David R., 5,064,802, Cl. 502-155.000.
Sutton, Tod A.; Jacob, Karl V.; Lim, Timothy; and Sandor, Steven P., 5,064,582, Cl. 264-37.000.
Walters, Marlin E.; St. George, George M.; and Richey, W. Frank, 5,064,518, Cl. 204-57.990.

Dow Corning Corporation: *See*—
Burns, Gary T., 5,064,786, Cl. 501-88.000.
Gee, Ronald P., 5,064,694, Cl. 427-387.000.
Higgs, Bruce S.; and White, William C., 5,064,613, Cl. 422-16.000.

Dow Corning Toray Silicone Company, Ltd.: *See*—
Shimizu, Koji; and Sakuma, Atsushi, 5,064,924, Cl. 528-15.000.

Dowd, Debra. Multi-sided placemat. 5,064,701, Cl. 428-46.000.

Dowd, James D.: *See*—
Vigneau, Lawrence; and Dowd, James D., 5,064,974, Cl. 200-61.620.

Doyle, Walter M., to Axiom Analytical, Inc. Gas sample analysis provided by light pipe radiation structure. 5,065,025, Cl. 250-343.000.

Dragerwerk Aktiengesellschaft: *See*—
Frank, Helge; Hecker, Eric; Eifrig, Reinhard; Weismann, Dieter; and Gebhardt, Peter, 5,063,925, Cl. 128-205.240.

Drake, Charles A., to Phillips Petroleum Company. Catalyst supports, catalyst systems, and olefin dimerization. 5,064,794, Cl. 502-74.000.

Drake, John A. G.; and Jamieson, Ian L., to Foster Wheeler USA Corporation. Composition. 5,064,472, Cl. 106-278.000.

Drane, Geoffrey A.: *See*—
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.

Drasner, Henry J., III: *See*—
Forsgren, R. David; Drasner, Henry J., III; and Fielder, Roy E., 5,063,926, Cl. 128-206.170.

Drescher, Andrew: *See*—
Labuz, Joseph F.; Vardoulakis, Ioannis G.; and Drescher, Andrew, 5,063,785, Cl. 73-821.000.

Droulon, Georges: *See*—
Pipon, Yves; and Droulon, Georges, 5,064,246, Cl. 297-443.000.

Drummond, Jose A. C. Apparatus for controlling time gaps between billets in rolling mills. 5,063,767, Cl. 72-11.000.

DSC Communications Corporation: *See*—
Shenoi, Kishan; Hanagan, Patrick L.; Ho, Helena S.; and Yu, Frank I., 5,065,395, Cl. 370-81.000.
Sibbitt, Marcille; and Stackpole, Dowell, 5,065,392, Cl. 370-58.200.

VOL 1132 ISS 2 NO 12 1991 UMI

Sibbitt, Marcille; and Stackpole, Dowell, 5,065,393, Cl. 370-58.200.

Du Pont Merck Pharmaceutical Company: *See—*
Patil, Ghanshyam; Matier, William L.; and Mai, Khuong H. X., 5,064,827, Cl. 514-237.500.

Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul; Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, to Rhone-Poulenc Chimie. Production of infusible polycarbosilanes convertible into silicon carbide ceramics. 5,064,915, Cl. 525-474.000.

Ducharme, Stephen P.; Moerner, William E.; Scott, John C.; and Twieg, Robert J., to International Business Machines Corporation. Photorefractive materials. 5,064,264, Cl. 385-130.000.

Duck, Edward W.; Scheffler, Ingolf; and Hirthammer, Michael, to Teroson G.m.b.H. Process for the at least partial curing of sealants and adhesives using pulsed microwave energy. 5,064,494, Cl. 156-273.500.

Duckeck, Ralf; and Bragas, Peter, to Robert Bosch GmbH. Digital traffic news evaluation method. 5,065,452, Cl. 455-226.000.

Ducourroy, Andre ; and Jaume, Richard, to Electricite de France (Service National). Electric immersion heater. 5,065,131, Cl. 338-237.000.

Duff, David A.; Gove, Daniel S.; and Schmillen, Edward E., to Caterpillar Inc.; and Duff, David A. Fluid contamination detecting apparatus. 5,064,530, Cl. 210-94.000.

Dugge, Richard H., to ACF Industries, Incorporated. Covered hopper railway car with drop bottom doors and substantially vertical outlets to maximize discharge area. 5,063,858, Cl. 105-253.000.

Duhl Clemmensen, Inge; and Kluft, Cornelis, to Nederlandse Centrale Organisatie Voor Toegepastnatuurwetenschappelijk Onderzoek. Protein isolated from blood, process for preparing said protein, antibodies against said new protein, and pharmaceutical compositions containing said protein or said antibodies. 5,064,942, Cl. 530-387.000.

DuLaney, Donald C.; and Lindsay, Robert H., to Lindsay Finishes, Inc. Resurfacing compositions and methods. 5,064,713, Cl. 428-214.000.

Duncan, Alexander: *See—*
Hunter, Robert L.; and Duncan, Alexander, 5,064,643, Cl. 424-83.000.

Dunogues, Jacques: *See—*
Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul; Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, 5,064,915, Cl. 525-474.000.

Du Pont de Nemours, E. I., and Company: *See—*
Blanchet-Fincher, Graciela B.; Chang, Catherine T.; and Fincher, Curtis R., Jr., 5,064,740, Cl. 430-126.000.
Buchelli, Alberto, 5,065,336, Cl. 364-499.000.
Chou, Richard T.; and Deak, Gedeon I., 5,064,716, Cl. 428-336.000.
Den Hartog, Herman C.; Palmer, George T.; and Yeramyan, Ara G., 5,064,719, Cl. 428-411.100.
Frankosky, Michael S.; and Ostapchenko, George J., 5,064,703, Cl. 428-95.000.
Hackert, Raymond L., 5,064,595, Cl. 264-130.000.
Jackson, Roy; Lowe, David J.; and Stewart, Clare A., 5,064,935, Cl. 528-272.000.
Lee, Kung H., 5,064,447, Cl. 55-16.000.
Merchant, Abid N.; and Krespan, Carl G., 5,064,559, Cl. 252-171.000.
Merchant, Abid N., 5,064,560, Cl. 252-171.000.
Priester, Donnan E.; and Tarney, Robert E., 5,064,594, Cl. 264-127.000.
Stewart, Charles W., 5,064,704, Cl. 428-98.000.
Tice, George, Jr.; and Amorese, Douglas A., 5,064,519, Cl. 204-182.800.
Zegarski, William J., 5,064,729, Cl. 428-690.000.

Dupuis, Patrick: *See—*
Chane-Ching, Jean-Yves; Le Loarer, Jean-Luc; and Dupuis, Patrick, 5,064,628, Cl. 423-263.000.

Durand, Didier: *See—*
Ch'Hayder, Ameur; Durand, Didier; and Diaz, Constantino, 5,063,788, Cl. 73-862.040.

Durney, Max W. Hand tool for forming a pocket mortise and method. 5,063,982, Cl. 144-365.000.

Durrell, Robert R.: *See—*
Willis, Kenneth E.; and Durrell, Robert R., 5,063,846, Cl. 102-215.000.

Dyer, Paul N.: *See—*
Sunder, Swaminathan; Garg, Diwakar; and Dyer, Paul N., 5,064,728, Cl. 428-627.000.

Dyer, Raymond J.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Dyes, William A.; and Hakimi, Farhad, to Charles Stark Draper Laboratory, The. Scattered light multi-Brillouin gyroscope. 5,064,288, Cl. 356-350.000.

DynEd International, Inc.: *See—*
Knowles, Lance; and Crane, Douglas, 5,065,345, Cl. 395-154.000.

Dyson, Paul: *See—*
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.

E. R. Squibb & Sons, Inc.: *See—*
Bisacchi, Gregory S.; and Mitt, Toomas, 5,064,961, Cl. 544-276.000.

Eagleson, Bruce A. Device for hunting large and small game. 5,064,020, Cl. 182-20.000.

Eastern Company, The: *See—*
Giroux, Roger; and Wright, Raymond L., 5,064,311, Cl. 405-259.100.

Eastman Kodak Company: *See—*
Adkins, Kenneth D.; and Bucks, Rodney R., 5,065,192, Cl. 355-251.000.
Bell, Bruce C.; and Jackson, Winston J., Jr., 5,064,930, Cl. 528-182.000.
Blazey, Richard N.; and Pultorak, David M., 5,064,277, Cl. 359-276.000.
Carnall, Edward, Jr.; Nielsen, Robert L.; and Ozimek, Edward J., 5,065,245, Cl. 358-213.110.
Cyrana, Edward M.; Strong, Douglas B.; and Amering, Allan R., 5,065,191, Cl. 355-246.000.
Fagerburg, David R.; Watkins, Joseph J.; Lawrence, Paul B.; and Rule, Mark, 5,064,937, Cl. 528-389.000.
Frank, Lee F., 5,064,259, Cl. 350-6.500.
Johnston, Everett A.; and Poe, Robert, 5,065,351, Cl. 364-571.040.
Mir, Jose M.; and Agostinelli, John A., 5,064,684, Cl. 427-53.100.
Pagano, Daniel M.; and Miller, Stephen H., 5,064,134, Cl. 242-71.100.
Rakov, David M.; and Santilli, Domenic, 5,064,738, Cl. 430-117.000.
Rushing, Allen J., 5,065,199, Cl. 355-326.000.
Samuels, James T.; and Ellsworth, Roger D., 5,065,173, Cl. 354-298.000.
Smith, Stephen P.; and Ellis, John J., 5,065,379, Cl. 369-36.000.
Sonnenberg, Sven, 5,065,194, Cl. 355-296.000.
Staiger, Ulrich; Strobel, Joseph; and Castro, Peter E., 5,065,287, Cl. 362-61.000.
Tsai, Yusheng T.; Parulski, Kenneth A.; and Rabbani, Majid, 5,065,229, Cl. 358-21.00R.
Yoshida, Naoko; and Takizawa, Yoshinori, 5,065,440, Cl. 382-30.000.

Eastman Machine Company: *See—*
Jung, Rolf; Schwartzott, Jack M.; Pieroni, Robert J.; and Tobler, Arnold, 5,063,800, Cl. 83-14.000.

Ebata, Nobuyoshi; Tanaka, Yuko; and Negishi, Akiko, to Daiichi Pure Chemicals Co., Ltd. Silver staining technique and kit. 5,064,768, Cl. 436-164.000.

Eberhardt, H. Alfred; and Carlsen, Daniel J., to Hale Fire Pump Company. Portable cutter tool. 5,063,670, Cl. 30-228.000.

Ebert, Charles: *See—*
Berner, Bret; Ebert, Charles; Mazzenga, Gerard C.; and Otte, John H., 5,064,654, Cl. 424-448.000.

Eblen, Ewald: *See—*
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Ebner, Cynthia L.: *See—*
Havens, Marvin R.; Fowler, Stephen L.; Roberts, William P.; and Ebner, Cynthia L., 5,064,699, Cl. 428-35.700.

Ecalle, Olivier; and Vinckx, Valery, to L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude. Process and device for the annealing treatment of metal strips. 5,064,173, Cl. 266-80.000.

Eck, Robert E.; and Schroeder, Thaddeus, to Santa Barbara Research Center; and General Motors Corporation. High sensitivity corbino disk magnetoresistor array. 5,065,130, Cl. 338-32.00R.

Eddy, Laurence D. Method and means to adjust sound characteristics of club head upon impact with golf ball. 5,064,197, Cl. 273-167.00H.

Edelhoff, Gustav D.; and Smith, Fred T., to Edelhoff Polytechnik GmbH & Co. Motor-driven garbage truck comprising a detachable container. 5,064,332, Cl. 414-408.000.

Edelhoff Polytechnik GmbH & Co.: *See—*
Edelhoff, Gustav D.; and Smith, Fred T., 5,064,332, Cl. 414-408.000.

Edelson, Edward H.: *See—*
Singhal, Gopal H.; Wilson, Bobby L.; Edelson, Edward H.; and Mikita, Michael A., 5,064,527, Cl. 208-420.000.

Edelson, Steven D.; Frattarola, Gary J.; and Heron, George L., to Analog Devices, Inc. Apparatus for mix-run encoding of image data. 5,065,144, Cl. 340-703.000.

Edin, Gosta; and Zettergren, Hans, to Inter Innovation AB. Arrangement for depositing valuable documents, such as bank notes, cheques. 5,064,074, Cl. 209-534.000.

Edmondson, James G.; and Holder, E. Paul, to Betz Laboratories, Inc. Inhibitor treatment program for chlorine dioxide corrosion. 5,064,612, Cl. 422-12.000.

Eduard Kusters Maschinenfabrik GmbH & Co.: *See—*
Keller, Alfred; Kohnen, Julius; and Kurschatke, Wolfgang, 5,063,758, Cl. 68-205.00R.

Edwards, Michael L.: *See—*
Jarvi, Esa T.; Edwards, Michael L.; and McCarthy, James R., 5,064,864, Cl. 514-739.000.

Edwardson, Svante R., to Dentatus International AB. Articulator for use in making dentures or parts thereof. 5,064,372, Cl. 433-66.000.

Egawa, Takeshi: *See—*
Taniguchi, Nobuyuki; Ishikawa, Norio; Akada, Yasuaki; Egawa, Takeshi; and Kawamura, Kunio, 5,065,176, Cl. 354-402.000.

Ege, Sigmund, to Alcatel STK A/S. Pump station. 5,064,350, Cl. 417-63.000.

Eguchi, Toshiyasu: *See—*
Tsunoda, Ichiro; and Eguchi, Toshiyasu, 5,064,275, Cl. 359-55.000.

Ehemann, Leo: *See—*
Schuster, Ludwig; Hettche, Albert; Liedy, Werner; Weiss, Stefan; and Ehemann, Leo, 5,064,908, Cl. 525-333.800.

Ehlert, Michael R.: *See—*
Kovacs, Alan L.; Ehlert, Michael R.; and Congleton, Helen, 5,064,968, Cl. 174-52.400.

Ehren, Lance: *See—*
Owen, Charles W.; Ehren, Lance; and Bianco, Frank J., 5,065,272, Cl. 361-231.000.

Eichenauer, Herbert: *See—*
Buysch, Hans-Josef; Schon, Norbert; Eichenauer, Herbert; Ott, Karl-Heinz; and Pischtschan, Alfred, 5,064,899, Cl. 525-64.000.
Muller, Friedemann; Leitz, Edgar; Eichenauer, Herbert; Ott, Karl-Heinz; and Buysch, Hans-Josef, 5,064,885, Cl. 524-117.000.

Eidenschink, Rudolf: *See—*
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.

Eifrig, Reinhard: *See—*
Frank, Helge; Hecker, Eric; Eifrig, Reinhard; Weismann, Dieter; and Gebhardt, Peter, 5,063,925, Cl. 128-205.240.

Eisai Co., Ltd.: *See—*
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Eisele, Ulrich: *See—*
Obrecht, Werner; Greve, Heinz-Hermann; Wendling, Peter; Eisele, Ulrich; and Musch, Rudiger, 5,064,904, Cl. 525-199.000.
Wagner, Joachim; Rasshofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, 5,064,600, Cl. 264-328.600.

Ejiri, Kiyomi: *See—*
Matsufuji, Akihiro; Ejiri, Kiyomi; Ohno, Mikio; Kiyama, Masatoshi; and Honda, Kunihiko, 5,064,687, Cl. 427-132.000.

Eka Nobel AB: *See—*
Jaras, Sven G.; Tokarz, Marek T.; and Persson, Borje, 5,064,792, Cl. 502-60.000.

Ekeroth, Douglas E.: *See—*
Hurwitz, Michael J.; Ekeroth, Douglas E.; and Squarer, David, 5,064,603, Cl. 376-246.000.

El.PO S.r.l.: *See—*
Ellenberg, Martin, 5,064,085, Cl. 215-355.000.

Elazhary, Youssef: *See—*
Frechette, Jean-Louis; and Elazhary, Youssef, 5,064,645, Cl. 424-85.800.

Electricite de France (Service National): *See—*
Ducourroy, Andre ; and Jaume, Richard, 5,065,131, Cl. 338-237.000.

ElectroCom Automation, Inc.: *See—*
Pippin, James M., 5,064,341, Cl. 414-797.600.

Electrohome Limited: *See—*
Koebel, Alan, 5,065,076, Cl. 351-368.00R.

Elexis Corporation: *See—*
Owen, Charles W.; Ehren, Lance; and Bianco, Frank J., 5,065,272, Cl. 361-231.000.

Eli Lilly and Company: *See—*
Zimmerman, Dennis M.; and Mitch, Charles H., 5,064,834, Cl. 514-279.000.

Elizabeth Arden Company, division of Conopco, Inc.: *See—*
Lombardi, Michael H.; and Wacker, Susan R., 5,064,082, Cl. 215-6.000.

Ellenberg, Martin, to El.PO S.r.l. Stopper for aseptic containers. 5,064,085, Cl. 215-355.000.

Ellendt, Erhard: *See—*
Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, 5,064,254, Cl. 303-113.0TR.

Ellingson, Richard L.: *See—*
France, E. Paul; Ellingson, Richard L.; and Paulos, Lonnie E., 5,063,916, Cl. 128-80.00C.

Elliott, George D. Pulsed hydraulically-actuated fuel injector ignitor system. 5,063,898, Cl. 123-297.000.

Elliott, John L.: *See—*
Williamson, Norman R.; and Elliott, John L., 5,064,135, Cl. 242-118.400.

Elliott, Robert N., III: *See—*
Davis, Thomas L.; Elliott, Robert N., III; and Denning, Carsie K., 5,063,748, Cl. 62-59.000.

Ellis, John J.: *See—*
Smith, Stephen P.; and Ellis, John J., 5,065,379, Cl. 369-36.000.

Ellis, Michael K.: *See—*
Taylor, John B.; and Ellis, Michael K., 5,065,334, Cl. 364-485.000.

Ellsworth, Roger D.: *See—*
Samuels, James T.; and Ellsworth, Roger D., 5,065,173, Cl. 354-298.000.

Elluard, Marie-Paule: *See—*
Besnainon, Bernard; Elluard, Marie-Paule; Lessart, Pierre; and Philippe, Alain, 5,064,764, Cl. 435-285.000.

Elmore, Kristin D.: *See—*
Jeng, Tzyy-Wen; Elmore, Kristin D.; Oosta, Gary M.; and Pry, Terry A., 5,064,541, Cl. 210-767.000.

Eloranta, Jouko: *See—*
Aalto, Erkki; Pellinen, Teuvo; and Eloranta, Jouko, 5,063,834, Cl. 98-115.100.

Elscint Ltd.: *See—*
Levene, Simha, 5,065,420, Cl. 378-137.000.

Elsten, Stanley E., to Sterling Manufacturing Company, Inc. Apparatus for separating meat from poultry bones. 5,064,403, Cl. 452-135.000.

Emerson Electric Co.: *See—*
Brundage, Richard B., 5,063,805, Cl. 83-468.300.
Hill, Jason J., 5,063,808, Cl. 74-411.500.

Emitec Gesellschaft fur Emissionstechnologie m.b.H.: *See—*
Swars, Helmut, 5,064,726, Cl. 428-586.000.

Emory University: *See—*
Hunter, Robert L.; and Duncan, Alexander, 5,064,643, Cl. 424-83.000.

E'nama, David J.; and Pertierra, Thomas A., to Havis-Shields Equipment Corporation. Laser light attachment for firearms. 5,064,988, Cl. 219-121.600.

Encaoua, Serge; and Metivier, Philippe, to Societe d'Applicitons Generales d'Electricite et de Mecanique (S.A.G.E.M.). Polychromatic mutual alignment device for an aiming apparatus. 5,065,005, Cl. 250-206.200.

Encke, Ernst-Ekkehard, to Daimler-Benz AG. Arrangement of a rear-axle transmission. 5,064,018, Cl. 180-360.000.

Endo, Syuusuke; Aoyama, Naofumi; Yabuuchi, Toshihiko; and Seki, Teruo, to Hitachi, Ltd. Light source for planar illumination in liquid crystal device. 5,064,276, Cl. 359-49.000.

Endo, Zen-ichiro: *See—*
Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, 5,064,919, Cl. 526-169.000.

Endou, Mikiya; Matsuura, Motohiro; and Tsuzuki, Toshihiro, to Marutakairyoki Kabushikikaisha. Pedometer. 5,065,414, Cl. 377-24.200.

Endriz, John G.: *See—*
Scifres, Donald R.; and Endriz, John G., 5,065,401, Cl. 372-38.000.

Engel, Darryl L., to Universal Tool & Stamping Co., Inc. Drive head for a scissors jack. 5,064,171, Cl. 254-126.000.

Engel, Gerhard: *See—*
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

England, Frank R.: *See—*
Davis, Robert E.; and England, Frank R., 5,064,326, Cl. 411-368.000.

English, Christopher J.: *See—*
van Biesen, Franciscus A.; and English, Christopher J., 5,064,131, Cl. 242-65.000.

Englund, Arnold, to Svenska Rotor Maskiner AB. Rotary positive displacement compressor and refrigeration plant. 5,063,750, Cl. 62-196.300.

Enichem Tecnoresine S.p.A.: *See—*
Petri, Alberto; and Poggio, Sergio, 5,064,931, Cl. 528-202.000.

Enidine Co., Ltd.: *See—*
Koike, Yasuo; and Nakamura, Kikuo, 5,064,033, Cl. 188-306.000.

Ensminger, Reginald W.: *See—*
Illing, Peter A.; Lanier, Phillip L.; and Ensminger, Reginald W., 5,064,096, Cl. 222-105.000.

Ensner, Jurgen: *See—*
Lorenz, Jurgen; Ensner, Jurgen; and D'Alfonso, Nunzio, 5,064,423, Cl. 60-611.000.

Envirotech Corporation: *See—*
Davis, Steven S., 5,064,532, Cl. 210-225.000.

Equipment Development Services: *See—*
Olshefsky, Frank A., 5,063,687, Cl. 33-827.000.

Erdmann, Fritz: *See—*
Pawlowski, Georg; Erdmann, Fritz; and Lutz, Heidrun, 5,064,959, Cl. 544-216.000.

Ericksen, Colin W. Hardware installation tool. 5,064,319, Cl. 408-115.00R.

Erickson, Mark R.: *See—*
Frost, John S.; Erickson, Mark R.; Seegan, Kimberly E.; and Boyer, Brent P., 5,065,291, Cl. 362-183.000.

Erika Carbon Dioxide Company, Ltd.: *See—*
Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, 5,063,706, Cl. 43-125.000.

Ermolaev, Evgeny D.: *See—*
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Ernst Winter & Sohn (GmbH & Co.), Firma: *See—*
Meyer, Hans-Robert, 5,063,714, Cl. 51-209.00R.

Ertel, John P.: *See—*
Vincent, Kent D.; and Ertel, John P., 5,065,169, Cl. 346-140.00R.

ESCO Corporation: *See—*
Briscoe, Terry L.; and Sprunger, Paul C., 5,063,695, Cl. 37-141.00R.

Essex Specialty Products, Inc.: *See—*
Sciangola, Deborah A., 5,064,871, Cl. 521-124.000.

ETA SA Fabriques d'Ebauches: *See—*
Soder, Robert; and Willemin, Albert, 5,065,374, Cl. 368-280.000.

Etala-Hameen Keuhkovammayhdistys R.Y.: *See—*
Hakkinen, Taisto, 5,063,922, Cl. 128-200.160.

Ethyl Corporation: *See—*
Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., 5,064,867, Cl. 521-50.500.
Beltz, Mark W., 5,064,933, Cl. 528-220.000.

VOL 1132 ISS 2 NO 12 1991 UMI

—Davis, Robert L., 5,064,927, Cl. 528-64.000.

Etoh, Yoshiyuki: *See*—
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Etzbach, Karl-Heinz: *See*—
Wiesenfeldt, Matthias; and Etzbach, Karl-Heinz, 5,064,962, Cl. 544-300.000.

Eupec Europaeisch Gesellsch F. Leistungshalbleiter mbH & Co.KG: *See*—
Voss, Peter, 5,065,211, Cl. 357-38.000.

Eurand America, Inc.: *See*—
Scarpelli, Joseph A., 5,064,470, Cl. 106-21.000.

Evans, Michael W.: *See*—
Gordon, Robert T.; Evans, Michael W.; and Leslie, Samuel A., 5,065,449, Cl. 455-15.000.

Evans, Richard A., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Magesty's Government of the. Processing cell for fault tolerant arrays. 5,065,308, Cl. 395-800.000.

Evers, Dieter: *See*—
Behringer, Jurgen; Evers, Dieter; and Schoonert, Dieter, 5,065,417, Cl. 378-54.000.

EWT Corporation: *See*—
Ascarrunz, Douglas D., 5,064,107, Cl. 224-247.000.

Exabyte Corporation: *See*—
Hughes, Timothy C.; and Georgis, Steven P., 5,065,261, Cl. 360-70.000.

Excel Corporation: *See*—
Stadler, Jeffery A., 5,064,050, Cl. 198-459.000.

Excellon Automation: *See*—
Cirillo, Robert J., 5,064,318, Cl. 408-69.000.

Express Yourself, Inc.: *See*—
McMahan, David S.; Tso, Richard; and Lee, Jackson, 5,064,195, Cl. 275-374.000.

Exxon Chemical Patents Inc.: *See*—
—Chang, Main, 5,064,798, Cl. 502-111.000.
—Colclough, Terence; and Brois, Stanley J., 5,064,886, Cl. 524-131.000.
—Speca, Anthony N., 5,064,796, Cl. 502-107.000.
—Verduijn, Johannes P.; Janssen, Mechilium; De Gruijter, Cornelis B.; Koetsier, Wicher T.; and Van Oorschot, Cornelis W. M., 5,064,630, Cl. 423-328.000.

Exxon Research and Engineering Company: *See*—
—Peiffer, Dennis G., 5,064,903, Cl. 525-196.000.
—Singhal, Gopal H.; Wilson, Bobby L.; Edelson, Edward H.; and Mikita, Michael A., 5,064,527, Cl. 208-420.000.

Ezenwa, Bertram N.; and Couch, William P., to Wright State University. Multiple frequency bio-impedance measurement system. 5,063,937, Cl. 128-723.000.

Fagerburg, David R.; Watkins, Joseph J.; Lawrence, Paul B.; and Rule, Mark, to Eastman Kodak Company. Copoly(phenylene sulfide). 5,064,937, Cl. 528-389.000.

Fahey, Timothy E.: *See*—
Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., 5,064,997, Cl. 219-505.000.

Fahrni, Heinz; and Ruegg, Max, to Hesco Pilgersteg AG. Apparatus for the controlled ventilation of rooms. 5,063,962, Cl. 137-487.000.

Fairchild Semiconductor Corporation: *See*—
Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., 5,065,224, Cl. 357-70.000.

Fanara, Robert A.: *See*—
Hauber, David E.; Jacobs, Monica; Davis, W. Richard; Rushing, Tom; and Fanara, Robert A., 5,064,113, Cl. 229-8.000.

Fang, Qi-Cheng: *See*—
Lee, Yue-Wei; Fang, Qi-Cheng; Wang, Zhen-Guo; Li, De-Hua; and Cook, C. E., 5,064,823, Cl. 514-198.000.

Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., to Raychem Corporation. Composite circuit protection devices. 5,064,997, Cl. 219-505.000.

Fanshtein, Valentin N.: *See*—
Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A., 5,064,003, Cl. 173-106.000.

Fanuc Ltd.: *See*—
Hara, Ryuichi, 5,065,337, Cl. 364-513.000.
Imazeki, Ryoji; and Kurakake, Mitsuo, 5,065,306, Cl. 364-138.000.
Karube, Norio; and Manabe, Mitsuo, 5,065,330, Cl. 364-474.080.
Kawamura, Hideaki; Fujibayashi, Kentaro; and Sano, Masafumi, 5,065,333, Cl. 364-474.310.
Mizuno, Yutaka; and Kashiwakura, Hyouei, 5,065,004, Cl. 235-479.000.
Seki, Masaki; Takegahara, Takashi; and Kajitani, Akira, 5,065,332, Cl. 364-474.220.
Yamazaki, Etsuo; Nagamine, Tsuyoshi; and Isohata, Shigeru, 5,065,329, Cl. 364-474.080.

Farchmin, David W., to Allen-Bradley Company, Inc. Image processor with illumination variation compensation. 5,065,443, Cl. 382-53.000.

Farrell, Brian E.: *See*—
Agrawal, Rakesh; and Farrell, Brian E., 5,063,746, Cl. 62-22.000.

Farrell, Gregory A.: *See*—
Negersmith, Kent M.; and Farrell, Gregory A., 5,064,542, Cl. 210-798.000.

Farrell, Kenneth R. Pneumatic gun. 5,063,905, Cl. 124-72.000.

Farrier, Lee M. Buckets. 5,064,090, Cl. 220-482.000.

Farwaha, Rajeev; and Currie, William, to National Starch and Chemical Investment Holding Corporation. Amphoteric surfactants and copolymerizable amphoteric surfactants for use in latex paints. 5,064,888, Cl. 524-157.000.

Fashion Technologies, Inc.: *See*—
Chernuchin, Michael; and Satin, Richard, 5,063,615, Cl. 2-338.000.

Fasse, Anton: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Fausel, Thomas E., to Simom S.A. Offset rotary machine with at least one printing unit. 5,063,844, Cl. 101-247.000.

Faust, Steven M.: *See*—
Cherukuri, Subraman R.; and Faust, Steven M., 5,064,658, Cl. 426-3.000.

Fay, Rose B.: *See*—
Simon, Lee D.; and Fay, Rose B., 5,064,757, Cl. 435-71.200.

Fazio, Albert: *See*—
Atwood, Gregory E.; Fazio, Albert; and Lodenquai, Richard A., 5,065,364, Cl. 365-185.000.

Fedder, Stephen C., to Sweet, William L.; and Skudrna, Anthony J., a part interest. Method and apparatus for leak testing. 5,065,350, Cl. 364-571.030.

Federici, Franco; Cozzi, Ennio; and Parrini, Paolo, to Syremont S.p.A. Water-dilutable fluorinated polyurethanes, process for preparing them and their use for the treatment of lithoidal materials and plasters. 5,064,926, Cl. 528-49.000.

Fedorov, Svyatoslav N.: *See*—
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Feist, Wolfgang M., to Raytheon Company. Method of forming bipolar transistor having closely spaced device regions. 5,064,773, Cl. 437-31.000.

Fell, Stephen C. M.: *See*—
Burton, George; Fell, Stephen C. M.; and Bateson, John H., 5,064,649, Cl. 424-114.000.

Ferdinand, Platter; and Paul, Rosenich, to TMC Corporation. Safety ski binding. 5,064,215, Cl. 280-612.000.

Ferguson, James H.; and Bath, Duncan T., to General Electric Canada Inc. Shroud for dynamoelectric machine. 5,065,058, Cl. 310-62.000.

Ferla, Giuseppe: *See*—
Frisina, Ferruccio; and Ferla, Giuseppe, 5,065,213, Cl. 357-43.000.

Fernandez, Emilio A.: *See*—
Bezos, Angel P.; Fernandez, Emilio A.; and Field, Joseph I., Jr., 5,065,321, Cl. 364-424.040.

Fernandez, Francisco J., to AT&T Bell Laboratories. High-speed emitter-coupled logic buffer. 5,065,050, Cl. 307-455.000.

Fero, Arnold H.: *See*—
Ruddy, Francis H.; Lippincott, Ezra P.; Fero, Arnold H.; Schreiber, Roger B.; and Seidel, John G., 5,064,605, Cl. 376-247.000.

Ferris Mfg. Co.: *See*—
Sessions, Robert W., 5,064,653, Cl. 424-445.000.

Feser, Rainer: *See*—
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.

Fey, Peter: *See*—
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.

Feyen, Robert G., to Root-Lowell Corporation. Sprayer shutoff valve. 5,064,170, Cl. 251-344.000.

Fiat Auto S.p.A.: *See*—
Maiorana, Giovanni, 5,063,892, Cl. 123-192.00B.

Fichtel & Sachs AG: *See*—
Wossner, Felix, 5,064,030, Cl. 188-297.000.

Fickett, Robert A.: *See*—
Caturegli, Timothy A.; and Fickett, Robert A., 5,065,109, Cl. 330-45.000.

Fiedelius, Gerhard, to Siemens Aktiengesellschaft. Method for manufacturing preforms coated with hard solder for repairing interconnect interruptions. 5,063,660, Cl. 29-885.000.

Field, Jasper H.: *See*—
Hofmann, Leroy C.; Hicks, Robert W.; Field, Jasper H.; and Monroe, Stephen H., 5,064,692, Cl. 427-361.000.

Field, Joseph I., Jr.: *See*—
Bezos, Angel P.; Fernandez, Emilio A.; and Field, Joseph I., Jr., 5,065,321, Cl. 364-424.040.

Fielder, Roy E.: *See*—
Forsgren, R. David; Drasner, Henry J., III; and Fielder, Roy E., 5,063,926, Cl. 128-206.170.

Fierro, Joseph, to Heinemann Electric Company. Molded unitary frame for circuit protection. 5,064,977, Cl. 200-293.000.

Figgie International, Inc.: *See*—
Kent, James V.; and Westbrook, Theodore E., Sr., 5,063,725, Cl. 53-485.000.

Fike Corporation: *See*—
DiPalma, Woody C., 5,064,167, Cl. 251-214.000.

Fincher, Curtis R., Jr.: *See*—
Blanchet-Fincher, Graciela B.; Chang, Catherine T.; and Fincher, Curtis R., Jr., 5,064,740, Cl. 430-126.000.

Fink, James A., Jr. Boat hull for V-bottom powerboats. 5,063,868, Cl. 114-56.000.

Finlan, Martin F., to Amersham International PLC. Biological sensors. 5,064,619, Cl. 422-82.050.

Finley, John W.: *See*—
Klemann, Lawrence P.; and Finley, John W., 5,064,668, Cl. 426-271.000.
Klemann, Lawrence P.; and Finley, John W., 5,064,678, Cl. 426-611.000.

Finney, Mark J.; and Stukey, Kevin B., to Conax Buffalo Corporation. Corrosion resistant refractive and adsorptive type optical liquid level sensors. 5,065,037, Cl. 250-577.000.

Fissler GmbH: *See*—
Bessenbach, Hans; and Crummenauer, Michael, 5,064,055, Cl. 220-626.000.

Fitzgerald, Don D.: *See*—
Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, 5,064,006, Cl. 175-45.000.

Flaig, Ulrich: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Flanigen, Edith M.: *See*—
Bedard, Robert L.; and Flanigen, Edith M., 5,064,790, Cl. 501-119.000.

Flaugher, Jill L.: *See*—
Juskey, Frank J.; Suppelsa, Anthony B.; and Flaugher, Jill L., 5,065,122, Cl. 333-238.000.

Flexible Environmental Systems, Inc.: *See*—
Saly, Udi E., 5,063,862, Cl. 110-346.000.

Flockerzi, Dieter, to Byk Gulden Lomberg Chemische Fabrik GmbH. 1,4-dihydropyridines with a 2-amino group or with an ether group in a side chain. 5,064,839, Cl. 514-318.000.

Florea, Rodica: *See*—
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Flow Laboratories Limited: *See*—
Freeman, Richard H. M.; and Yeudall, Abram D., 5,063,790, Cl. 73-864.140.

FMC Corporation: *See*—
Leon, Michael A., 5,064,045, Cl. 193-35.0MD.

Foell, Juergen: *See*—
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.

Folcik, Charles P. Sunscreen for motor vehicles. 5,064,239, Cl. 296-97.700.

Folkins, Jeffrey J.; and Schram, Joseph G., to Xerox Corporation. Development apparatus having a transport roll rotating at least twice the surface velocity of a donor roll. 5,063,875, Cl. 118-651.000.

Folland, Jeffrey A., to Folland, Jeffrey Alan. One piece capsule with optional insert and tape seal. 5,064,073, Cl. 220-359.000.

Folland, Jeffrey Alan: *See*—
Folland, Jeffrey A., 5,064,073, Cl. 220-359.000.

Follstaedt, Donald W.; Powell, John C.; Sussman, Richard C.; and Williams, Robert S., to Armco Inc. Method and apparatus for strip casting. 5,063,988, Cl. 164-463.000.

Follstaedt, Donald W.; King, Edward L.; and Schneider, Ken C., to Armco Inc. Method and apparatus for improved melt flow during continuous strip casting. 5,063,990, Cl. 164-463.000.

Ford, Lionel H.; and Taylor, Stephen A., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for United Kingdom Atomic Energy Authority in Her Britannic Majesty's Government of the. Fluid degassing. 5,064,449, Cl. 55-52.000.

Ford Motor Company: *See*—
Bennett, Kelvin J.; and DeMott, Mark E., 5,064,970, Cl. 174-135.000.
Gross, Todd A., 5,064,223, Cl. 285-93.000.
Janotik, Adam M.; and Gentle, Derek F., 5,064,046, Cl. 193-35.0SS.
Mrdjenovich, Robert; and Yeager, David A., 5,063,992, Cl. 164-516.000.
Schechter, Michael M., 5,064,166, Cl. 251-129.150.
Smith, Ronald A.; and Pace, Joseph M., 5,063,811, Cl. 74-513.000.

Forestier, Serge: *See*—
Lang, Gerard; Forestier, Serge; Morie, Claudine; and Lagrange, Alain, 5,064,641, Cl. 424-60.000.

Forichon, Noelle: *See*—
Boutillier, Jacques; Forichon, Noelle; and Lermat, Yves, 5,064,902, Cl. 525-124.000.

Forman, Ralph: *See*—
Longo, Robert T.; Barillas, Mario A.; and Forman, Ralph, 5,065,070, Cl. 313-346.0DC.

Formark Pty. Limited: *See*—
Hickey, Colin J.; and Rajewski, Max R., 5,064,126, Cl. 241-73.000.

Forschungszentrum Juelich GmbH: *See*—
Bechtold, Paul S.; Mihelcic, Matija; and Wingerath, Kurt, 5,065,018, Cl. 250-287.000.

Forschungszentrum Julich GmbH: *See*—
Forster, Siegfried; and Quell, Peter, 5,063,995, Cl. 165-166.000.
Muck, Hans-Michael; and Heiden, Christoph, 5,065,096, Cl. 324-248.000.

Forsgren, R. David; Drasner, Henry J., III; and Fielder, Roy E., to Donaldson Company, Inc. Respirator cartridge with sealant dispersion member. 5,063,926, Cl. 128-206.170.

Forsheda AB: *See*—
Bengtsson, Christer, 5,064,207, Cl. 277-207.00A.

Forster, Siegfried; and Quell, Peter, to Forschungszentrum Julich GmbH. Ceramic heat exchanger. 5,063,995, Cl. 165-166.000.

Fosester, David R., to Betz Laboratories, Inc. Passivation of FCC catalysts. 5,064,524, Cl. 208-121.000.

Foskett, Anthony D.: *See*—
Boissevain, Mathew G.; Norton, Michael K.; Foskett, Anthony D.; and Boissevain, Tobias J., 5,063,682, Cl. 33-501.020.

Foster, Craig A.; Galvez, Randolfo; and Raab, Kurt R., to Olin Corporation. G-TAB having particular through hole. 5,065,228, Cl. 357-80.000.

Foster, Raymond K. Reciprocating conveyor floor members and seals. 5,064,052, Cl. 198-750.000.

Foster Wheeler USA Corporation: *See*—
Drake, John A. G.; and Jamieson, Ian L., 5,064,472, Cl. 106-278.000.

Fourne, Franz, to Fourne Maschinenbau GmbH. Method of cleaning of components to which polymers are bonded. 5,064,487, Cl. 156-155.000.

Fourne Maschinenbau GmbH: *See*—
Fourne, Franz, 5,064,487, Cl. 156-155.000.

Fowler, Stephen L.: *See*—
Havens, Marvin R.; Fowler, Stephen L.; Roberts, William P.; and Ebner, Cynthia L., 5,064,699, Cl. 428-35.700.

Fox, Robert E.; and Phelan, James J., to Deere & Company. Cotton harvester blockage detection method and flow sensor therefor. 5,063,729, Cl. 56-30.000.

Frame, Robert R.; Bricker, Jeffery C.; and Stine, Laurence O., to UOP. Combined hydrogenolysis plus oxidation process for sweetening a sour hydrocarbon fraction. 5,064,525, Cl. 208-193.000.

France, E. Paul; Ellingson, Richard L.; and Paulos, Lonnie E., to Minnesota Mining and Manufacturing Company. Knee brace having freecentric locking hinge. 5,063,916, Cl. 128-80.00C.

Francotyp-Postalia GmbH: *See*—
Miehe, Friedrich-Viktor; and Gunther, Stephan, 5,064,221, Cl. 283-67.000.

Frank, Helge; Hecker, Eric; Eifrig, Reinhard; Weismann, Dieter; and Gebhardt, Peter, to Dragerwerk Aktiengesellschaft. Controllable expiration valve arrangement for a ventilating apparatus. 5,063,925, Cl. 128-205.240.

Frank, Lee F., to Eastman Kodak Company. Apparatus for scanning a pboto-stimulable phosphor sheet. 5,064,259, Cl. 350-6.500.

Frank, Steven R.: *See*—
Sainte, Robert L.; Sarns, Steven E.; and Frank, Steven R., 5,064,193, Cl. 272-130.000.

Frankeny, Jerome A.; Frankeny, Richard F.; Hermann, Karl; and Imken, Ronald L., to International Business Machines Corporation. Integrated circuit packaging using flexible substrate. 5,065,227, Cl. 357-74.000.

Frankeny, Richard F.: *See*—
Frankeny, Jerome A.; Frankeny, Richard F.; Hermann, Karl; and Imken, Ronald L., 5,065,227, Cl. 357-74.000.

Frankosky, Michael S.; and Ostapchenko, George J., to Du Pont de Nemours, E. I., and Company. Waterproofing of polyester fiberfill. 5,064,703, Cl. 428-95.000.

Franz, Johann: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Franz Kaldewei GmbH & Co.: *See*—
Mersmann, Heinz-Werner, 5,063,620, Cl. 4-542.000.

Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See*—
Theurer, Josef; and Worgotter, Herbert, 5,063,856, Cl. 104-9.000.

Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., to Fairchild Semiconductor Corporation. Low noise integrated circuit and leadframe. 5,065,224, Cl. 357-70.000.

Frattarola, Gary J.: *See*—
Edelson, Steven D.; Frattarola, Gary J.; and Heron, George L., 5,065,144, Cl. 340-703.000.

Fraunhofer-Gesellschaft zur Forderung der Angewandten Forschung e.V.: *See*—
Nass, Rudiger; and Schmidt, Helmut, 5,064,877, Cl. 522-172.000.

Frease, Jerry: *See*—
Calandra, Frank, Jr.; and Frease, Jerry, 5,064,312, Cl. 405-259.500.

Frechette, Jean-Louis; and Elazhary, Youssef, to Pisciconsult Developpement Inc. Hyperimmune composition for passive immunization of fishes against furunculosis caused by *Aeromonas salmonicida* . 5,064,645, Cl. 424-85.800.

Frederick, Brian R.: *See*—
Tsikos, Constantine J.; Frederick, Brian R.; and Davis, Timothy J., 5,065,237, Cl. 358-101.000.

Freeman, David R.: *See*—
Klappert, Willi; and Freeman, David R., 5,063,654, Cl. 29-609.000.

Freeman, George A.: *See*—
Shaver, Sammy R.; Freeman, George A.; and Rideout, Janet L., 5,064,946, Cl. 536-23.000.

Freeman, Richard H. M.; and Yeudall, Abram D., to Flow Laboratories Limited. Pipette tip pickup apparatus. 5,063,790, Cl. 73-864.140.

VOL
1132
ISS
2
NO
12
1991
UMI

Frei, Jorg: *See*—
Stanek, Jaroslav; Caravatti, Giorgio; Frei, Jorg; and Capraro, Hans-Georg, 5,064,832, Cl. 514-256.000.
Frenkel, Barbara G.: *See*—
Frenkel, Richard E.; and Frenkel, Barbara G., 5,064,410, Cl. 600-26.000.
Frenkel, Richard E.; and Frenkel, Barbara G. Stress control system and method. 5,064,410, Cl. 600-26.000.
Fretz, E. Robert, Jr., to Corning Incorporated. Laminated lens structure. 5,064,712, Cl. 428-212.000.
Frey, Guenter: *See*—
Oppenlaender, Knut; Mohr, Juergen; Liebold, Gert; and Frey, Guenter, 5,064,552, Cl. 252-78.300.
Friedrichsfeld AG Keramik- und Kunststoffwerke: *See*—
Stock, Dietrich; Hund, Walter; and Vizethum, Friemut, 5,064,437, Cl. 623-20.000.
Friesch, Andrew J. Method for producing disposable garment. 5,064,492, Cl. 156-191.000.
Frisina, Ferruccio; and Ferla, Giuseppe, to SGS-Thomson Microelectronics S.r.l. Integrated high-voltage bipolar power transistor and low voltage MOS power transistor structure in the emitter switching configuration and relative manufacturing process. 5,065,213, Cl. 357-43.000.
Fritz, Ian J.: *See*—
Biefeld, Robert M.; Dawson, L. Ralph; Fritz, Ian J.; Kurtz, Steven R.; and Zipperian, Thomas E., 5,065,205, Cl. 357-30.000.
Fritz Wagener GmbH: *See*—
Wagener, Claus, 5,064,145, Cl. 244-87.000.
Frolov, George; Lavelle, Gary; and Scott, James J., to Harrow Products, Inc. Door security system. 5,065,136, Cl. 340-545.000.
Frost, John S.; Erickson, Mark R.; Seegan, Kimberly E.; and Boyer, Brent P., to Atlantic Richfield Company. Marking light. 5,065,291, Cl. 362-183.000.
Frost, Robert A.: *See*—
McCoy, Kevin M.; and Frost, Robert A., 5,064,943, Cl. 530-399.000.
Frostl, Wolfgang: *See*—
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.
Frus, John R. Apparatus and method for providing ignition to a turbine engine. 5,065,073, Cl. 315-209.00R.
Fryer, Richard B., to Honeywell Inc. Inductively sensed magnetic memory manufacturing method. 5,064,499, Cl. 156-643.000.
Fujan, Steven J.; and Loeber, Frederick W., to Terex Corporation. Rollover protection cab for large off-road machines. 5,064,242, Cl. 296-190.000.
Fuji Electric Co., Ltd.: *See*—
Yamaguchi, Hitoshi; and Andoh, Keiji, 5,064,331, Cl. 414-344.000.
Fuji Jukogyo Kabushiki Kaisha: *See*—
Oshita, Saiichiro; Mouri, Toyohiko; and Takahashi, Tsutomu, 5,065,324, Cl. 364-424.050.
Takahashi, Tsutomu, 5,065,325, Cl. 364-424.050.
Fuji Photo Film Co., Ltd.: *See*—
Aono, Toshiaki; and Nakamura, Koichi, 5,064,742, Cl. 430-203.000.
Arakawa, Satoshi, 5,065,021, Cl. 250-327.200.
Hakamata, Kazuo; and Kimura, Toshihito, 5,065,008, Cl. 250-216.000.
Horikawa, Kazuo, 5,065,022, Cl. 250-327.200.
Imai, Masanori; Watanabe, Noriaki; and Kawamura, Kouichi, 5,064,747, Cl. 430-278.000.
Kato, Eiichi; and Ishii, Kazuo, 5,064,737, Cl. 430-96.000.
Katoh, Kazunobu; Sato, Kozo; and Shiba, Keisuke, 5,064,752, Cl. 430-546.000.
Kimura, Hideaki; Aoki, Haruo; and Yazawa, Hiromi, 5,065,255, Cl. 358-447.000.
Koike, Akinobu; Abe, Yukio; and Kawamura, Koichi, 5,064,741, Cl. 430-191.000.
Matsufuji, Akihiro; Ejiri, Kiyomi; Ohno, Mikio; Kiyama, Masatoshi; and Honda, Kunihiko, 5,064,687, Cl. 427-132.000.
Matsumoto, Hiroshi; Kunichika, Kenji; and Uchida, Toshio, 5,064,749, Cl. 430-331.000.
Naito, Hideki, 5,064,750, Cl. 430-393.000.
Nakamura, Masayuki, 5,064,072, Cl. 229-120.030.
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.
Suganuma, Atsushi; and Ohsaki, Kayoko, 5,065,256, Cl. 358-455.000.
Takahashi, Daisuke, 5,064,065, Cl. 206-387.000.
Fuji Valve Co.: *See*—
Isobe, Susumu; Noda, Toshiharu; and Hirayama, Hiroshi, 5,064,112, Cl. 228-112.000.
Fuji Xerox Co., Ltd.: *See*—
Miyake, Hiroyuki; and Nishihara, Yoshio, 5,065,171, Cl. 346-154.000.
Fujibayashi, Kentaro: *See*—
Kawamura, Hideaki; Fujibayashi, Kentaro; and Sano, Masafumi, 5,065,333, Cl. 364-474.310.
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, to Fujitsu Limited. Photodetector module for coupling with optical fiber. 5,065,011, Cl. 250-227.240.
Fujii, Isao, to Suzuki Jisoshi Kogyo Kabushiki Kaisha. Shift mechanism. 5,063,810, Cl. 74-473.00R.
Fujikawa, Nobuyoshi: *See*—
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, 5,065,275, Cl. 361-321.000.
Fujiki, Hironao; Shiono, Mikio; and Takahashi, Toshiaki, to Shin-Etsu Chemical Co., Ltd. Curable silicone compositions. 5,064,891, Cl. 524-264.000.
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, to Aisin Seiki Kabushiki Kaisha; and Toyota Jidosha Kabushiki Kaisha. Brake fluid pressure controller. 5,064,252, Cl. 303-9.730.
Fujimori, Makoto: *See*—
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.
Fujimori, Sadao; Yamamoto, Akira; and Taneda, Satoru, to Kabushiki Kaisha Meidensha. Dynamometer. 5,063,773, Cl. 73-117.000.
Fujimori, Tohru: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.
Fujimoto, Hiroshi: *See*—
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.
Fujinaga, Yoshikazu: *See*—
Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, 5,063,973, Cl. 139-370.200.
Fujio, Nobuhiro: *See*—
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.
Fujioka, Yoshihiro: *See*—
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, 5,065,275, Cl. 361-321.000.
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, to Kyocera Corporation. Multilayer substrate with inner capacitors. 5,065,275, Cl. 361-321.000.
Fujisawa Pharmaceutical Co., Ltd.: *See*—
Hirayama, Shigemitsu; Akashi, Takamichi; Ikuta, Akio; Sasaki, Isao; and Fukuda, Hiroshi, 5,064,529, Cl. 210-90.000.
Fujisawa, Toru: *See*—
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.
Fujita, Jun: *See*—
Matsuura, Tsukasa; Fujita, Jun; Uchizawa, Manabu; and Suzuki, Shigehisa, 5,065,271, Cl. 360-126.000.
Fujita, Masafumi; Tezuka, Kazuhiko; and Kuriyama, Masaaki, to Minolta Camera Kabushiki Kaisha. Image forming system. 5,065,182, Cl. 355-202.000.
Fujitsu Limited: *See*—
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, 5,065,011, Cl. 250-227.240.
Hosokawa, Yoshiaki; Kanoh, Masaki; Maekawa, Takashi; and Nakayasu, Hirofumi, 5,064,304, Cl. 400-225.000.
Matsuki, Hirohisa; Harada, Shigeki; Sugimoto, Masahiro; and Yoshida, Toshiki, 5,065,223, Cl. 357-68.000.
Suzuki, Kouichi; Miyoshi, Norihito; Yoshida, Makoto; and Kokado, Masayuki, 5,065,216, Cl. 357-48.000.
Torii, Naoya; Akiyama, Ryota; and Azuma, Mitsuhiro, 5,065,430, Cl. 380-38.000.
Fujitsu VLSI Limited: *See*—
Matsuki, Hirohisa; Harada, Shigeki; Sugimoto, Masahiro; and Yoshida, Toshiki, 5,065,223, Cl. 357-68.000.
Fujiwara, Katsuhiro: *See*—
Oshiga, Takayuki; Fujiwara, Katsuhiro; and Umeda, Kazunori, 5,065,307, Cl. 364-140.000.
Fujiwara, Shinji: *See*—
Nakamura, Tetsuro; Murata, Takahiko; and Fujiwara, Shinji, 5,065,006, Cl. 250-208.100.
Fujiwara, Takuji: *See*—
Baba, Fumiaki; Yoshimura, Hiroshi; Fujiwara, Takuji; and Ishii, Kozo, 5,063,814, Cl. 74-866.000.
Fujiwara, Teruaki: *See*—
Yamaguchi, Shigeru; Yokoi, Tokihiro; Shioji, Shorbu; Irie, Yoshio; and Fujiwara, Teruaki, 5,064,563, Cl. 252-174.230.
Fukuchi, Masakazu: *See*—
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,065,195, Cl. 355-298.000.
Fukuda, Hideo: *See*—
Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, 5,064,468, Cl. 106-14.120.
Fukuda, Hiroshi: *See*—
Hirayama, Shigemitsu; Akashi, Takamichi; Ikuta, Akio; Sasaki, Isao; and Fukuda, Hiroshi, 5,064,529, Cl. 210-90.000.
Fukuda, Shinichi, to Sony Corporation. Phase locked loop circuit. 5,065,413, Cl. 375-120.000.

Fukuda, Tatsuya: *See*—
Takeya, Noriyoshi; Ishii, Hidehiro; Miura, Chiharu; and Fukuda, Tatsuya, 5,065,386, Cl. 369-44.320.
Fukuda, Toru: *See*—
Ogano, Takeo; Sueshige, Hiroshi; Fukuda, Toru; and Okuda, Junji, 5,064,011, Cl. 180-9.220.
Fukuda, Yutaro: *See*—
Suzuki, Fumio; Habara, Hideaki; Fukuda, Yutaro; Sato, Haruki; and Inada, Hiromasa, 5,064,938, Cl. 528-491.000.
Fukuhara, Noboru: *See*—
Maeda, Takayoshi; Hata, Masahiko; Fukuhara, Noboru; and Watanabe, Tadeshi, 5,064,778, Cl. 437-81.000.
Fukui, Tetsuro; Fukumoto, Hiroshi; Katayama, Masato; Arahara, Kozo; and Kagami, Kenji, to Canon Kabushiki Kaisha. Photosensitive material and image forming method. 5,064,744, Cl. 430-255.000.
Fukumochi, Yoji: *See*—
Kugimiya, Shuzo; Fukumochi, Yoji; Sata, Ichiko; Hirai, Tokuyuki; and Suzuki, Hitoshi, 5,065,318, Cl. 364-419.000.
Fukumoto, Hiroshi: *See*—
Fukui, Tetsuro; Fukumoto, Hiroshi; Katayama, Masato; Arahara, Kozo; and Kagami, Kenji, 5,064,744, Cl. 430-255.000.
Fukushima, Tadashi: *See*—
Yano, Masatoshi; Matsui, Koichi; and Fukushima, Tadashi, 5,063,957, Cl. 137-15.000.
Fukuto, T. Roy; Vetter, Richard S.; Baker, Thomas C.; and Malik, Mangel S., to University of California, Regents of the. Alkyl substituted phosphates and phosphonates as disruptants of insect sex pheromone-mediated behavior. 5,064,820, Cl. 514-134.000.
Fukuzumi, Shuzo: *See*—
Abo, Toshimi; and Fukuzumi, Shuzo, 5,065,328, Cl. 364-426.040.
Fulford, Colin: *See*—
Samejima, Kazuo; Murakawa, Masatake; Kitamura, Junichi; Matsuda, Yoshiaki; and Fulford, Colin, 5,064,315, Cl. 406-100.000.
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, to Sharp Corporation; and Merck Patent Gesellschaft mit beschrankter Haftung. Nematic liquid-crystal composition for active matrix application. 5,064,567, Cl. 252-299.610.
Funada, Masahiro: *See*—
Suzuki, Yoshiyuki; Funada, Masahiro; Sato, Mamoru; and Sato, Yukio, 5,065,446, Cl. 382-56.000.
Funae, Haruyoshi: *See*—
Torii, Takahiro; Miyauchi, Masahiro; Funae, Haruyoshi; and Kiriyama, Tomonori, 5,064,806, Cl. 503-200.000.
Funahashi, Toshikazu: *See*—
Ito, Toshiyasu; Funahashi, Toshikazu; Ogisu, Yasuhiko; Takahashi, Shigeyuki; and Senda, Masanobu, 5,064,679, Cl. 427-8.000.
Funaki, Yoshinori, to Daicel Chemical Industries, Ltd. Cartridge case for a disk. 5,065,391, Cl. 369-291.000.
Furukawa, Kenji: *See*—
Terashima, Kanetsugu; Ichihashi, Mitsuyoshi; Kikuchi, Makoto; Takeshita, Fusayuki; and Furukawa, Kenji, 5,064,568, Cl. 252-299.610.
Furuno Electric Company Limited: *See*—
Shibutani, Shozou, 5,065,161, Cl. 342-176.000.
Furuya, Masato: *See*—
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, 5,065,102, Cl. 324-452.000.
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.
Fushimi, Kazuhiro: *See*—
Tashiro, Takeshi; Fushimi, Kazuhiro; and Sugimoto, Kazuaki, 5,065,002, Cl. 235-472.000.
Fushiya, Fusao, to Makita Electric Works, Ltd. Voltage-switching mechanism for a battery charger for charging batteries with different volt ratings. 5,065,082, Cl. 320-2.000.
Fusiak, Frank, to ISP Investments Inc. Resin cleaner composition. 5,064,557, Cl. 252-162.000.
Fuwa, Yoshiaki: *See*—
Machida, Haruchika; Fuwa, Yoshiaki; and Shimokawa, Takashi, 5,065,150, Cl. 340-825.060.
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., to Institut Moreologii Cheloveka; Mezhotraslevoi Nauchno-Tekhnichesky Komplex "Mikrokhirurgiya Glaza" ; and Nauchno-Proizvodstvennoe Obiedinenie "Biolar" . Method of preparing a mixture of ribonucleotides. 5,064,758, Cl. 435-89.000.
G-C Dental Industrial Corp.: *See*—
Miyazaki, Takashi; Inamochi, Takashi; Kitamura, Masaaki; and Hayashi, Shohei, 5,064,731, Cl. 428-698.000.
G. D. Searle & Co.: *See*—
Mueller, Richard A.; Nakao, Akira; and Partis, Richard A., 5,064,860, Cl. 514-568.000.
Gaarde, Knud W. Disposable hypodermic syringe. 5,064,419, Cl. 604-195.000.
Gabbay, Emile: *See*—
Leguen, Jacques; and Gabbay, Emile, 5,065,419, Cl. 378-125.000.
Gacsalyi, Istvan: *See*—
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.
Gailuma, Mara A.: *See*—
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.
Galaud, Claude: *See*—
Bruere, Alain; and Galaud, Claude, 5,065,105, Cl. 324-662.000.
Galopin, Norbert: *See*—
Lecomte, Daniel; Galopin, Norbert; and Lemaistre, Jacques, 5,065,425, Cl. 379-93.000.
Galvan, Dino; Marcoaldi, Gianfranco; Antolini, Elvio; and DeMeo, Sabatino, to Comitato Nazionale per la Ricerca e per lo Sviluppo dell'Energia Nucleare e delle Energie Alternative; and Grenfil S.r.l. Protective device, individual, portable, with total insulation and controlled atmosphere. 5,063,924, Cl. 128-202.120.
Galvez, Randolfo: *See*—
Foster, Craig A.; Galvez, Randolfo; and Raab, Kurt R., 5,065,228, Cl. 357-80.000.
Gambale, Richard A., to C. R. Bard, Inc. Catheter guidewire with varying radiopacity. 5,063,935, Cl. 128-657.000.
Gambert, Philippe; and Louvrier, Emmanuel, to Societe a Responsabilite Limitee dite: Spiral. Immunoassay of apolipoprotein-B of low density lipoproteins in plasma. 5,064,769, Cl. 436-516.000.
Gambke, Brigitte: *See*—
Mangold, Dieter; and Gambke, Brigitte, 5,064,615, Cl. 422-56.000.
Gamo, Masao: *See*—
Nakatani, Hiroshi; and Gamo, Masao, 5,065,066, Cl. 310-320.000.
Gantzer, Charles J., to Sundstrand Corporation. Liquid vapor purging system. 5,064,456, Cl. 55-385.100.
Gappa, Gunther: *See*—
Kubiak, Helmut; Schroter, Hans J.; Gappa, Gunther; Kalwitzki, Heinrich; and Knop, Klaus, 5,064,444, Cl. 48-202.000.
Garber, David D., to Northrop Corporation. Method and apparatus streak removal filtering. 5,065,444, Cl. 382-54.000.
Garcia, Angela M. System and method for scheduling and reporting patient related services including prioritizing services. 5,065,315, Cl. 364-413.010.
Gardner, James J. Mass produced tools. 5,064,317, Cl. 407-70.000.
Garg, Diwakar: *See*—
Sunder, Swaminathan; Garg, Diwakar; and Dyer, Paul N., 5,064,728, Cl. 428-627.000.
Garlich, Joseph R.: *See*—
Simon, Jaime; Wilson, David A.; Garlich, Joseph R.; and Troutner, David E., 5,064,633, Cl. 424-1.100.
Garrett, Michael J., to International Business Machines Corporation. Manually-operated control device. 5,065,146, Cl. 340-709.000.
Garrison, Sidney C., III: *See*—
Peterson, William M.; Leivian, Robert H.; and Garrison, Sidney C., III, 5,065,040, Cl. 307-201.000.
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., to Merck & Co., Inc. Novel HMG-CoA synthase inhibitors. 5,064,856, Cl. 514-462.000.
Garter, Lee F.; and Covington, Michael J., to J. I. Case Company. Apparatus for mounting a row unit for lateral movement. 5,063,728, Cl. 56-13.500.
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, to General Instrument Corp. Sonar transducer with explosive shock protector. 5,065,372, Cl. 367-152.000.
Gas Research Institute: *See*—
Krist, Kevin; and Sammells, Anthony F., 5,064,733, Cl. 429-17.000.
Rupich, Martin W., 5,064,516, Cl. 204-153.100.
Gasc, Jean-Claude; Humbert, Daniel; and Vekens, Mario, to Roussel Uclaf. 4(2-indolyl)2-amino-pentanedioic acids and cholecyostokinin use thereof. 5,064,853, Cl. 514-419.000.
Gaskill, Garold B., to AT&E Corporation. Paging system with registration mode. 5,065,423, Cl. 379-57.000.
Gaston County Dyeing Machine Co.: *See*—
Zeiffer, Dieter F.; and Samilo, John S., 5,063,646, Cl. 28-167.000.
Gatan, Inc.: *See*—
Krivanek, Ondrej L., 5,065,029, Cl. 250-441.100.
Gates Energy Products, Inc.: *See*—
Rampel, Guy G.; and Puglisi, Vincent J., 5,064,735, Cl. 429-206.000.
Gawlik, Norbert: *See*—
Madle, Wolfgang; Gawlik, Norbert; and Popp, Franz W., 5,064,575, Cl. 252-633.000.
Gbe, Kazuyoshi: *See*—
Itou, Kazumi; Gbe, Kazuyoshi; and Minagawa, Toshio, 5,064,064, Cl. 206-330.000.
Gebhardt, Peter: *See*—
Frank, Helge; Hecker, Eric; Eifrig, Reinhard; Weismann, Dieter; and Gebhardt, Peter, 5,063,925, Cl. 128-205.240.
Gebruder Junghans GmbH: *See*—
Halssig, Andreas; Schillinger, Wolfgang; and Breithaupt, Hans, 5,063,847, Cl. 102-271.000.
Gebruder Welger GmbH & Co. Kommanditgesellschaft: *See*—
Simonis, Jurgen, 5,063,841, Cl. 100-142.000.
GEE Associates: *See*—
Grossman, M. Gary; and Meisner, Edward H., 5,064,980, Cl. 219-10.55E.
Gee, Ronald P., to Dow Corning Corporation. Use of silicone emulsions in the web printing process. 5,064,694, Cl. 427-387.000.
Geelhaar, Thomas; Wachtler, Andreas; and Scheuble, Bernhard, to Merck Patent Gesellschaft mit beschrankter Haftung. Optically active compounds. 5,064,569, Cl. 252-299.650.

VOL
1132
ISS
2
NO
12
1991
UMI

Geelhaar, Thomas: *See—*
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.

Gehrke, Hinrich: *See—*
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Geibel, Jon F., to Phillips Petroleum Company. Process for preparing high extrusion rate arylene sulfide polymers. 5,064,936, Cl. 528-388.000.

Geisreiter, Christian: *See—*
Unterforsthuber, Karl; and Geisreiter, Christian, 5,064,459, Cl. 55-512.000.

Gelatos, Avgerinos V.: *See—*
Poon, Stephen S.; and Gelatos, Avgerinos V., 5,064,683, Cl. 427-39.000.

General Electric Canada Inc.: *See—*
Ferguson, James H.; and Bath, Duncan T., 5,065,058, Cl. 310-62.000.

General Electric CGR S.A.: *See—*
Leguen, Jacques; and Gabbay, Emile, 5,065,419, Cl. 378-125.000.

General Electric Company: *See—*
Adams, Steven L.; Bird, William L.; Chow, Humphrey W.; O'Brien, Kirk G.; and Rasmussen, Paul C., 5,065,059, Cl. 310-71.000.
Bopp, Richard C.; and Martynowicz, Lynn M., 5,064,869, Cl. 521-60.000.
Bulman, Melvin J., 5,063,826, Cl. 89-8.000.
Cearley, James E.; Holland, David F.; Hurt, David T.; and Moody, Frederick J., 5,064,602, Cl. 376-243.000.
Dieterich, Charles B.; and Greenberg, Arthur L., 5,065,242, Cl. 358-167.000.
Jones, Marshall G.; Schindler, Donald R.; Johnson, Jeffrey D.; and Harris, William O., 5,064,992, Cl. 219-121.630.
Kaminski, Christopher A., 5,065,064, Cl. 310-215.000.
Khuzai, Kamel A.; and Patel, Rameschandra D., 5,063,787, Cl. 73-861.640.
Kim, Bang M., 5,064,597, Cl. 264-219.000.
Klappert, Willi; and Freeman, David R., 5,063,654, Cl. 29-609.000.
Landry, James D.; Joyce, Mark A.; Young, John D.; Gilmore, Robert S.; and Schoenig, Frederick C., Jr., 5,063,779, Cl. 73-622.000.
Landry, James D.; Schoenig, Frederick C., Jr.; and Young, John D., 5,063,780, Cl. 73-622.000.
Ortiz, Angel L., Jr., 5,065,448, Cl. 385-53.000.
Ribner, David B.; and Baertsch, Richard D., 5,065,157, Cl. 341-143.000.
Rosenquist, Niles R.; and Bostick, Edgar E., 5,064,914, Cl. 525-439.000.
Smith, Alan W., 5,063,963, Cl. 137-606.000.
Thomas, Gary D., 5,065,453, Cl. 455-286.000.
Tsikos, Constantine J.; Frederick, Brian R.; and Davis, Timothy J., 5,065,237, Cl. 358-101.000.
Walles, Erik W.; Lupinski, John H.; and Crivello, James V., 5,064,882, Cl. 523-443.000.
Whitford, Robert P., 5,064,205, Cl. 277-80.000.

General Instrument Corp.: *See—*
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, 5,065,372, Cl. 367-152.000.

General Motors Corporation: *See—*
Eck, Robert E.; and Schroeder, Thaddeus, 5,065,130, Cl. 338-32.00R.
Hynds, Ernest J., 5,064,216, Cl. 280-689.000.
Lentz, Carl A., 5,063,813, Cl. 74-866.000.
Lopez-Crevillen, Jose M.; and Tuteja, Arjun D., 5,063,737, Cl. 60-286.000.

Genmark Automation: *See—*
Genov, Genco; Skrobak, Lubomir; Kremerman, Izya; and Kielczewski, Grzegorz, 5,064,340, Cl. 414-744.500.

Gennep, Jan V. Tool driver with a handle. 5,063,796, Cl. 81-57.290.

Genov, Genco; Skrobak, Lubomir; Kremerman, Izya; and Kielczewski, Grzegorz, to Genmark Automation. Precision arm mechanism. 5,064,340, Cl. 414-744.500.

Gentle, Derek F.: *See—*
Janotik, Adam M.; and Gentle, Derek F., 5,064,046, Cl. 193-35.0SS.

Gentry Gallery, Inc., The: *See—*
Sproule, James, 5,064,244, Cl. 297-68.000.

Gentry, Scott B.: *See—*
Mazur, Joseph F.; Blackburn, Brian K.; and Gentry, Scott B., 5,065,322, Cl. 364-424.050.

Georg Spiess GmbH: *See—*
Liepert, Rudolf, 5,064,184, Cl. 271-14.000.

George Fischer AG: *See—*
Weimann, Wendelin, 5,063,987, Cl. 164-324.000.

George, Pascal: *See—*
Depoortere, Henri; and George, Pascal, 5,064,836, Cl. 514-300.000.

Georgette, Frederick S.: *See—*
Chang, Fu-Kuo; Reifsnider, Kenneth; Davidson, James A.; and Georgette, Frederick S., 5,064,439, Cl. 623-66.000.

Georgis, Steven P.: *See—*
Hughes, Timothy C.; and Georgis, Steven P., 5,065,261, Cl. 360-70.000.

Gerber Garment Technology, Inc.: *See—*
Gerber, Heinz J., 5,063,676, Cl. 33-1.00M.

Gerber, Heinz J., to Gerber Garment Technology, Inc. Cable drive system for carriage movement and method of use. 5,063,676, Cl. 33-1.00M.

Gerber, Jay S.: *See—*
Shuhart, Harvey A., Jr.; and Gerber, Jay S., 5,065,251, Cl. 358-335.000.

Gergely, Gerhard; Gergely, Irmgard; and Gergely, Thomas, to Dr. Gergely & Co. Uncoated pharmaceutical reaction tablet. 5,064,656, Cl. 424-463.000.

Gergely, Irmgard: *See—*
Gergely, Gerhard; Gergely, Irmgard; and Gergely, Thomas, 5,064,656, Cl. 424-463.000.

Gergely, Thomas: *See—*
Gergely, Gerhard; Gergely, Irmgard; and Gergely, Thomas, 5,064,656, Cl. 424-463.000.

Gerhard, Helmut, to Westerwaelder Eisenwerk Gerhard GmbH. Swap tank. 5,064,091, Cl. 220-628.000.

Gerlach, Dieter: *See—*
Bialkowski, Guenter; Gerlach, Dieter; and Renz, Roman, 5,064,976, Cl. 200-144.00B.

Gerst, Michael: *See—*
Ryll, Juergen; Gerst, Michael; and Schwager, Michael, 5,064,379, Cl. 439-81.000.

Gesing, Adam J.: *See—*
Newkirk, Marc S.; and Gesing, Adam J., 5,064,788, Cl. 501-92.000.

Gessner, Hans: *See—*
Moll, Rainer; Kinast, Peter; and Gessner, Hans, 5,063,688, Cl. 34-97.000.

Gessner, Scott L.: *See—*
Krupp, Stephen P.; and Gessner, Scott L., 5,064,581, Cl. 264-29.200.

Geus, Georg: *See—*
Bermbach, Rainer; Doenges, Gerhard; Geus, Georg; and Koch, Cornelius, 5,065,418, Cl. 378-57.000.

GFM Holding Aktiengesellschaft: *See—*
Postier, Robert A.; Pilkington, D. J.; and Blaimschein, Gottfried, 5,064,130, Cl. 242-56.00R.

Ghadaksaz, Masood, to RF Products, Inc. Switchable resonator device. 5,065,121, Cl. 333-235.000.

Gheewala, Tushar R., to Cross-Check Technology, Inc. Method for testing integrated circuits having a grid-based, "cross-check" test structure. 5,065,090, Cl. 324-158.00R.

Giacobbe, Robert: *See—*
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Gibbons, Rex. Unicycle apparatus. 5,064,210, Cl. 280-206.000.

Gibbs, Fredrick A.: *See—*
Waterman, Glenn N.; and Gibbs, Fredrick A., 5,064,429, Cl. 606-151.000.

Gigler, Gabor: *See—*
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.

Gilbertson, Charles H.; Nettekoven, William S.; and Cater, Mark W., to St. Jude Medical Incorporated. Annuloplasty ring. 5,064,431, Cl. 623-2.000.

Gillette Company, The: *See—*
Jacobson, Chester F., 5,063,667, Cl. 30-41.000.

Gillig, Steven F., to Motorola, Inc. Fractional-division synthesizer for a voice/data communications systems. 5,065,408, Cl. 375-8.000.

Gilligan, Thomas J., III: *See—*
Kling, Michael R.; and Gilligan, Thomas J., III, 5,064,395, Cl. 445-27.000.

Gilmore, Robert S.: *See—*
Landry, James D.; Joyce, Mark A.; Young, John D.; Gilmore, Robert S.; and Schoenig, Frederick C., Jr., 5,063,779, Cl. 73-622.000.

Gindre, Philippe; Hahnel, Peter; and Helmke, Hartmut, to Agence Spatiale Europeenne. System for determining the depletion of propellant tanks onboard a spacecraft. 5,064,153, Cl. 244-172.000.

Giroux, Roger; and Wright, Raymond L., to Eastern Company, The. Mine roof support structure and method. 5,064,311, Cl. 405-259.100.

Girsh, Leonard S., to Immunopath Profile, Inc. Hypoallergenic milk products and process of making. 5,064,674, Cl. 426-580.000.

Glenning, John J.: *See—*
Bard, Steven L.; Christensen, David N.; Glenning, John J.; Nicoletti, James A.; and Urdanick, Mark W., 5,063,951, Cl. 134-64.00R.

Globe Environmental Protection, Inc.: *See—*
Wang, Lawrence K.; Wang, Mu Hao S.; Hwang, Chong S.; and Rhow, Harold, 5,064,531, Cl. 210-96.100.

Glynn, John P.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Glynwed Consumer & Building Products Limited: *See—*
Cooper, Royston B.; and Leak, Jonathan G., 5,064,585, Cl. 264-40.600.

Go, Seitaro, to Gotech, Limited. Channel box removing apparatus. 5,064,606, Cl. 376-261.000.

Gobbetti, Osvaldo, to Diaprint S.r.l. Electrochemical graining of aluminum or aluminum alloy surfaces. 5,064,511, Cl. 204-33.000.

Godbersen, Byron L. Winch assembly for boat trailer. 5,064,336, Cl. 414-559.000.

Godbole, Vishwas: *See—*
Godbole, Vishwas R., 5,065,427, Cl. 379-100.000.

Godbole, Vishwas R., to Godbole, Vishwas. Fax/data call receiving system and method. 5,065,427, Cl. 379-100.000.

Goddard, Carl J.; and Schulte, Gary R., to Pfizer Inc. 3-(1-substituted-pyrazoyl)-2-oxindole derivatives, compositions and use. 5,064,851, Cl. 514-406.000.

Godwin, Jimmy D.: *See—*
Roth, Maxim; Godwin, Jimmy D.; and Williams, Roger O., 5,065,387, Cl. 369-44.410.

Gogniat, Paul, to Montres Rado S.A. Watch case including two abuting shells. 5,065,375, Cl. 368-281.000.

Going, Paden C., to Pfizer Inc. Lowering of blood uric acid levels. 5,064,830, Cl. 514-252.000.

Gold, Randall E.: *See—*
Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, 5,064,828, Cl. 514-239.500.

Golden Trade S.r.l.: *See—*
Ricci, Francesco, 5,064,443, Cl. 8-479.000.

Golder, Karl: *See—*
Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, 5,063,894, Cl. 123-193.00P.

Goldstar Co., Ltd.: *See—*
Lee, Dong H., 5,064,273, Cl. 359-457.000.

Gonzalez, R. Gilberto: *See—*
Moore, Gregory J.; Hrovat, Mirko I.; and Gonzalez, R. Gilberto, 5,064,638, Cl. 424-9.000.

Goobich, Joel; and Cronin, Thomas, III, to SCM Metal Products, Inc. No-clean solder paste vehicle. 5,064,482, Cl. 148-24.000.

Goodman, Kenneth W.: *See—*
Leavell, David R.; Spencer, Earl W., Jr.; and Goodman, Kenneth W., 5,065,371, Cl. 367-111.000.

Goodman, Steven F., to Herman Miller, Inc. Wall system and equipment tile therefor. 5,063,715, Cl. 52-36.000.

Gordon, Kilbourn, III. Protective medical device. 5,064,411, Cl. 604-48.000.

Gordon, Mark G.: *See—*
Newgard, Kent W.; and Gordon, Mark G., 5,064,416, Cl. 604-167.000.

Gordon, Robert T.; Evans, Michael W.; and Leslie, Samuel A., to Orion Industries. Booster diversity receiving system usable with cellular booster. 5,065,449, Cl. 455-15.000.

Gore, William J., to Procter & Gamble Company, The. Flaked coffee with improved brewing properties. 5,064,676, Cl. 426-595.000.

Gosselin, Peter G.: *See—*
Kock, Ronald W.; Gosselin, Peter G.; and Reiboldt, H. Norman, 5,064,671, Cl. 426-481.000.

Gosz, William G. Fire retardant composition. 5,064,710, Cl. 428-182.000.

Gotech, Limited: *See—*
Go, Seitaro, 5,064,606, Cl. 376-261.000.

Goto, Katsuhiro, to Tokai Rubber Industries, Ltd. Upper support for shock absorber in suspension system. 5,064,176, Cl. 267-140.100.

Goto, Narito: *See—*
Kempo, Tsutomu; Matsuda, Atsuko; and Goto, Narito, 5,064,720, Cl. 428-423.100.

Goto, Toshihide: *See—*
Hibi, Kenji; and Goto, Toshihide, 5,064,298, Cl. 384-625.000.

Goto, Yasuyuki: *See—*
Uchida, Manabu; and Goto, Yasuyuki, 5,064,565, Cl. 252-299.001.

Gotoh, Ryuji: *See—*
Asanae, Masumi; Kimura, Fumio; and Gotoh, Ryuji, 5,064,739, Cl. 430-122.000.

Gottlieb, Alvin J. Pinball machine having pivoted double-inclined playing surface. 5,064,196, Cl. 273-121.00A.

Goumier-Beraud, P.: *See—*
Arethens, J. P.; and Goumier-Beraud, P., 5,063,777, Cl. 73-178.00H.

Gove, Daniel S.: *See—*
Duff, David A.; Gove, Daniel S.; and Schmillen, Edward E., 5,064,530, Cl. 210-94.000.

Graboyes, Herman: *See—*
Campbell, Christopher J.; Latif, Linda S.; and Graboyes, Herman, 5,064,409, Cl. 493-396.000.

Graham, George W., to Marrowbone Development Company. Ladder apparatus and method for large mobile equipment. 5,064,022, Cl. 182-85.000.

Grandjacques, Philippe: *See—*
Diard, Jean-Luc; Grandjacques, Philippe; and Recher, Gilles, 5,064,214, Cl. 280-607.000.

Grapha-Holding AG: *See—*
Muller, Hans, 5,064,187, Cl. 271-204.000.

Graton, Michel; and Rohrle, Dieter, to Valeo. Automotive friction clutch with torsion damping device. 5,064,041, Cl. 192-106.200.

Gray, Jerry: *See—*
Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., 5,065,224, Cl. 357-70.000.

Gready, Robert S.: *See—*
Jons, Curtis R.; and Gready, Robert S., 5,065,354, Cl. 395-575.000.

Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., to Apple Computer, Inc. Apparatus for converting an RGB signal into a composite video signal and its use in providing computer generated video overlays. 5,065,143, Cl. 340-701.000.

Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., to Apple Computer, Inc. Apparatus and method for merging input RGB and composite video signals to provide both RGB and composite merged video outputs. 5,065,231, Cl. 358-22.000.

Greb, Ulrich, to Thorn EMI plc. Launcher suitable for exciting surface waves in a discharge tube. 5,065,075, Cl. 315-248.000.

Green, Peter J., to Service Machine Company. Voltage pickup circuit and flashing display for high voltage indicator device, and input electrode therefor. 5,065,142, Cl. 340-660.000.

Greenberg, Arthur L.: *See—*
Dieterich, Charles B.; and Greenberg, Arthur L., 5,065,242, Cl. 358-167.000.

Greenberg, Michael J.; and Whistler, Roy L., to Northwestern Chemical Company. Reactive sugars for protection against cyanide adulteration. 5,064,659, Cl. 426-3.000.

Greenlee, William J.: *See—*
Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., 5,064,825, Cl. 514-221.000.

Greenlund, Robert C.: *See—*
Laurila, Melvin J.; Brown, Robert J.; and Greenlund, Robert C., 5,065,416, Cl. 378-53.000.

Greenspan, Michael D.: *See—*
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Greenstein, Harvey; Levinski, Charles B.; Newman, Edward; Persel, John M.; and Widmann, David N., to Hecon Corporation. Facsimile/telephone controller. 5,065,426, Cl. 379-100.000.

Gregory, Porter W.: *See—*
Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., 5,064,867, Cl. 521-50.500.

Grenfil S.r.l.: *See—*
Galvan, Dino; Marcoaldi, Gianfranco; Antolini, Elvio; and DeMeo, Sabatino, 5,063,924, Cl. 128-202.120.

Gresh, Timothy F., to Harrow Products, Inc. Packaging system. 5,064,056, Cl. 206-45.190.

Greve, Heinz-Hermann: *See—*
Obrecht, Werner; Greve, Heinz-Hermann; Wendling, Peter; Eisele, Ulrich; and Musch, Rudiger, 5,064,904, Cl. 525-199.000.

Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, to Telectronics Pacing Systems, Inc. Apparatus and method for detecting and treating cardiac tachyarrhythmias. 5,063,928, Cl. 128-419.00D.

Grey, Henry: *See—*
Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, 5,064,509, Cl. 204-9.000.

Grieshaber, Hermann: *See—*
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Grijol, Laurent; Le Martret, Catherine; and Baladi, Beatrice, to U.S. Philips Corporation. Method of obtaining a ternary monocrystalline layer by means of hetero-epitaxy on a binary layer and a crucible suitable for putting the method into effect. 5,064,780, Cl. 437-130.000.

Grimm, John D.: *See—*
Raines, Kenneth; and Grimm, John D., 5,064,168, Cl. 251-322.000.

Grobecker, Horst: *See—*
Kaifler, Erich; and Grobecker, Horst, 5,065,114, Cl. 330-277.000.

Grogler, Gerhard; Thiery, Urs; Ruckes, Andreas; Kopp, Richard; and Hess, Heinrich, to Bayer Aktiengesellschaft. Process for the preparation of heat-stable polyurethane urea elastomers. 5,064,875, Cl. 521-159.000.

Grois, Igor; and Margolin, Mark, to Molex Incorporated. Hand-held tool for scoring and severing an optical fiber. 5,063,672, Cl. 30-272.100.

Grollier, Jean F., to L'Oreal. Process for dyeing keratinous fibres and dyeing composition using an indole derivative, a quinone dye and an oxidizing system. 5,064,442, Cl. 8-407.000.

Grooms, John M.; and Jones, Mark A., to Burton Mechanical Contractors, Inc. Vacuum sewerage system with increased lift capabilities having electric air admission controllers. 5,064,314, Cl. 406-22.000.

Gross, Todd A., to Ford Motor Company. Throttle modulator assemblies and thermoplastic fluid direction tubes for insertion therein. 5,064,223, Cl. 285-93.000.

Grossi, Lucio. Device for an automatic dispensing of packaged products. 5,064,092, Cl. 221-75.000.

Grossman, M. Gary; and Meisner, Edward H., to GEE Associates. Coffee maker. 5,064,980, Cl. 219-10.55E.

Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., to Olin Corporation. Electrostatic method for multicolor imaging from a single toner bath. 5,064,736, Cl. 430-42.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Groie & Hartmann GmbH & Co. KG: *See*—
Zinn, Bernd; and Reuter, Werner, 5,064,973, Cl. 200-51.100.

Grumman Aerospace Corporation: *See*—
Solomon, Allen L., 5,064,771, Cl. 437-3.000.

Gruner, Manfred; and Kunze, Heiko, to Mannesmann AG. Printer for a computer. 5,065,341, Cl. 364-516.000.

Gruppo LePetit S.p.A.: *See*—
Borghi, Angelo; Lancini, Giancarlo; and Antonini, Piero, 5,064,811, Cl. 514-8.000.

GTE Government Systems Corporation: *See*—
Blaisdell, Leonard L., 5,065,165, Cl. 343-753.000.

GTE Products Corporation: *See*—
Hunter, Scott R., 5,065,069, Cl. 313-25.000.
Kling, Michael R.; and Gilligan, Thomas J., III, 5,064,395, Cl. 445-27.000.
Mullendore, James A.; and Pegher, Susan M., 5,064,462, Cl. 75-248.000.
Wright, John O., 5,063,659, Cl. 29-860.000.

GTE Valenite Corporation: *See*—
Juengel, Richard O., 5,065,035, Cl. 250-551.000.

Guarnieri, C. Richard: *See*—
Berry, Christopher J.; Cuomo, Jerome J.; Guarnieri, C. Richard; and Yee, Dennis S., 5,064,681, Cl. 427-36.000.

Gueret, Jean-Louis, to L'Oreal. Brush for applying a make-up product. 5,063,947, Cl. 132-218.000.

Gueret, Jean-Louis, to L'Oreal. Device for application of a liquid or pasty product to a surface. 5,064,306, Cl. 401-133.000.

Guhi, James F. Multi-mode distraction system for ankle arthroscopy. 5,063,918, Cl. 128-84.00R.

Gunji, Keiichiro: *See*—
Nemoto, Kenji; Uchida, Kuninobu; Gunji, Keiichiro; Murata, Nagatoshi; and Maruyama, Iwao, 5,063,650, Cl. 29-407.000.

Gunther, Stephan: *See*—
Miehe, Friedrich-Viktor; and Gunther, Stephan, 5,064,221, Cl. 283-67.000.

Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, to International Business Machines Corporation. Video RAM double buffer select control. 5,065,368, Cl. 365-230.050.

Gust, Stephen J.: *See*—
Swofford, Howard W.; and Gust, Stephen J., 5,064,722, Cl. 428-447.000.

Gustavsson, Mats: *See*—
Olsson, Thord; Ohrwall, Tomas; and Gustavsson, Mats, 5,063,850, Cl. 102-402.000.

Guyer, Dean R., to Amoco Corporation. Method and apparatus for parametric generation of midinfrared light in $KNbO_3$. 5,065,046, Cl. 359-330.000.

Gyertyan, Istvan: *See*—
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.

H-C Industries, Inc.: *See*—
McBride, Stephen W.; and Whitney, Ralph, 5,064,084, Cl. 215-350.000.

Habara, Hideaki: *See*—
Suzuki, Fumio; Habara, Hideaki; Fukuda, Yutaro; Sato, Haruki; and Inada, Hiromasa, 5,064,938, Cl. 528-491.000.

Haber, Terry M. Genitourinary implant. 5,064,434, Cl. 623-11.000.

Habermann, Till: *See*—
Kunze, Christian; and Habermann, Till, 5,064,148, Cl. 244-153.00R.

Habiro, Tetsuo; and Kashiwa, Takeo, to Toyo Communication Equipment Co., Ltd. Current sensor circuit. 5,065,088, Cl. 324-117.00H.

Habu, Tooru: *See*—
Kawanami, Yoshimi; Ohnishi, Tsuyoshi; Ishitani, Tohru; Habu, Tooru; and Yamaoka, Masahiro, 5,065,034, Cl. 250-505.100.

Habu, Yoshihiko: *See*—
Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, 5,063,973, Cl. 139-370.200.

Hackert, Raymond L., to Du Pont de Nemours, E. I., and Company. Process for retaining fiber whiteness. 5,064,595, Cl. 264-130.000.

Hacskaylo, Michael, to United States of America, Army. Thermal black-hole mask. 5,065,026, Cl. 250-352.000.

Hafele, Siegfried; and Jacob, Gernot, to Progress Elektrogerate GmbH. Floor nozzle for a vacuum cleaner. 5,063,634, Cl. 15-377.000.

Haffenden, Gary P.: *See*—
Cropper, Peter R.; Haffenden, Gary P.; and Justice, Jeremy K., 5,065,036, Cl. 250-571.000.

Hagberg, Kjell O.: *See*—
Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., 5,064,425, Cl. 606-72.000.

Hagen, Tracy M., to Seagate Technology, Inc. Load beam having an additional bend in a head-gimbal assembly. 5,065,268, Cl. 360-104.000.

Hagiwara Giken Limited: *See*—
Ando, Satoshi; Dohno, Akira; and Hagiwara, Zenji, 5,064,599, Cl. 264-237.000.

Hagiwara, Zenji: *See*—
Ando, Satoshi; Dohno, Akira; and Hagiwara, Zenji, 5,064,599, Cl. 264-237.000.

Hagler, Arnold T.: *See*—
Rivier, Jean E. F.; Koerber, Steven C.; Hagler, Arnold T.; Rivier, Catherine L.; and Vale, Wylie W., Jr., 5,064,939, Cl. 530-317.000.

Hagman, Anders: *See*—
Jensen, Eigil; Olsson, N. Urban; Kaufmann, Peter; and Hagman, Anders, 5,064,675, Cl. 426-597.000.

Hahn, Peter S.: *See*—
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Hahnel, Peter: *See*—
Gindre, Philippe; Hahnel, Peter; and Helmke, Hartmut, 5,064,153, Cl. 244-172.000.

Hakamata, Kazuo; and Kimura, Toshihito, to Fuji Photo Film Co., Ltd. Scanning microscope and scanning mechanism for the same. 5,065,008, Cl. 250-216.000.

Hakimi, Farhad: *See*—
Dyes, William A.; and Hakimi, Farhad, 5,064,288, Cl. 356-350.000.

Hakkinen, Taisto, to Etala-Hameen Keuhkovammayhdistys R.Y. Ultrasonic atomizer. 5,063,922, Cl. 128-200.160.

Hale Fire Pump Company: *See*—
Eberhardt, H. Alfred; and Carlsen, Daniel J., 5,063,670, Cl. 30-228.000.

Hall, Martin C.: *See*—
Hughes, Patrick M.; Hall, Martin C.; and Lind, Larry F., 5,065,409, Cl. 375-91.000.

Hall, Richard H.: *See*—
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Hall, Roger G.: *See*—
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.

Halliburton Logging Services, Inc.: *See*—
Sinclair, Paul L.; and Strickland, Robert W., 5,065,099, Cl. 324-339.000.

Hallum, Charles E.: *See*—
Wisneskie, Bradley D.; Hyman, Sheldon; and Hallum, Charles E., 5,063,958, Cl. 137-68.100.

Halssig, Andreas; Schillinger, Wolfgang; and Breithaupt, Hans, to Gebruder Junghans GmbH. Fuse for a projectile. 5,063,847, Cl. 102-271.000.

Halton Oy: *See*—
Aalto, Erkki; Pellinen, Teuvo; and Eloranta, Jouko, 5,063,834, Cl. 98-115.100.

Hamada, Nobuhiro: *See*—
Yokota, Takayoshi; Bekki, Keisuke; and Hamada, Nobuhiro, 5,065,335, Cl. 364-489.000.

Hamada, Yoshikazu; and Ogino, Yozo, to Mitsui Kinzoku Kogyo Kabushiki Kaisha. Lock device for vehicle. 5,064,229, Cl. 292-216.000.

Hamada, Yuji; Sasaki, Shosaku; and Masaoka, Hiroshi, to Toray Silicone Company, Ltd. Adhesion promoter method. 5,064,876, Cl. 522-99.000.

Hamamatsu Photonics K.K.: *See*—
Shinoda, Kazunori; Wu, Ming H.; Suzuki, Yoshiji; and Poon, Ting-Chung, 5,064,257, Cl. 350-3.670.

Hamey, Peter M.; and Walters, Ronald B., to Vickers Systems Limited. Variable displacement pumps. 5,064,351, Cl. 417-222.00R.

Hamilton, Harold J.; and Harr, Leonard E., to Censtor Corp. Microburnishing flex head structure. 5,063,712, Cl. 51-67.000.

Hamilton Scale Corporation: *See*—
Champion, William J., 5,064,404, Cl. 453-17.000.

Hanagan, Patrick L.: *See*—
Shenoi, Kishan; Hanagan, Patrick L.; Ho, Helena S.; and Yu, Frank I., 5,065,395, Cl. 370-81.000.

Hanawaka, Masuo: *See*—
Shioya, Masaki; and Hanawaka, Masuo, 5,065,301, Cl. 363-17.000.

Handler, Milton E.; Sylvan, Richard; Baisch, Herbert; and Naranjo, Michael, to Hirsh Company. Adjustable height work support. 5,064,156, Cl. 248-168.000.

Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, to Konica Corporation. Color image forming apparatus having a freely installable and detachable process cartridge. 5,065,195, Cl. 355-298.000.

Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, to Sankyo Company Limited. Process for the production of an imidazoledione compound by a strain of *Streptomyces hygroscopicus*. 5,064,760, Cl. 435-118.000.

Hanlon, Lawrence: *See*—
Karnezos, Marcos; Kaw, Ravindhar; Hanlon, Lawrence; and Matta, Farid, 5,065,280, Cl. 361-386.000.

Hannaby, Malcolm, to Imperial Chemical Industries. Compositions of matter. 5,064,925, Cl. 528-44.000.

Hannington, Geoff: *See*—
Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., 5,065,224, Cl. 357-70.000.

Hano, Shigehiro: *See*—
Kanaya, Eizo; Chujo, Yoshihiro; Hano, Shigehiro; and Hara, Hidetoshi, 5,065,196, Cl. 355-308.000.

Hans Gilovyy Maschinenfabrik "Meteorwerk" GmbH & Co.: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Hans Schmidlin: *See*—
Rohrer, Christoph; and Schmidlin, Hans, 5,063,647, Cl. 29-6.100.

Hansen, Lowell D., to Vickers, Incorporated. Balanced dual-lobe vane pump with radial inlet and outlet parting through the pump rotor. 5,064,362, Cl. 418-186.000.

Hansen, Michael R.: *See*—
Young, Richard H., Sr.; Neogi, Amar N.; Brunnenkant, Christel; Lincoln, James F. L.; and Hansen, Michael R., 5,064,689, Cl. 427-202.000.

Hara, Hidetoshi: *See*—
Kanaya, Eizo; Chujo, Yoshihiro; Hano, Shigehiro; and Hara, Hidetoshi, 5,065,196, Cl. 355-308.000.

Hara, Junichiro; Taguchi, Mitsuru; and Takahashi, Hideo, to Nissan Motor Co., Ltd. Air spout device for a ventilating arrangement. 5,063,833, Cl. 98-2.000.

Hara, Masami: *See*—
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Hara, Ryuichi, to Fanuc Ltd. Vertical revolute joint robot. 5,065,337, Cl. 364-513.000.

Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, to Hercules Incorporated. Metathesis polymerization of cycloolefins. 5,064,919, Cl. 526-169.000.

Harada, Koukichi: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Harada, Riichiroh: *See*—
Satoh, Ikumi; Nakano, Jun; Harada, Riichiroh; and Koba, Tatsuhiko, 5,065,061, Cl. 310-104.000.

Harada, Shigeki: *See*—
Matsuki, Hirohisa; Harada, Shigeki; Sugimoto, Masahiro; and Yoshida, Toshiki, 5,065,223, Cl. 357-68.000.

Harada, Takashi; and Ohashi, Tsuncaki, to NGK Insulators, Ltd. Method of sintering a sinterable metal powder honeycomb monolith structure. 5,064,609, Cl. 419-58.000.

Harandi, Mohsen N.; and Owen, Hartley, to Mobil Oil Corporation. Integrated system for extraction of crude alcohol and co-conversion raffinate with olefin. 5,064,623, Cl. 422-190.000.

Harapanahalli, Muralidhara, to Battelle Memorial Institute. Electrofilter apparatus and process for preventing filter fouling in crossflow filtration. 5,064,515, Cl. 204-151.000.

Harlow, Thomas L., Jr. Station bar. 5,064,385, Cl. 439-535.000.

Harnesberger, William F.: *See*—
Rogers, Raymond W.; and Harnesberger, William F., 5,063,906, Cl. 126-299.00D.

Harr, Leonard E.: *See*—
Hamilton, Harold J.; and Harr, Leonard E., 5,063,712, Cl. 51-67.000.

Harris Corporation: *See*—
Heckaman, Douglas; Vought, Ronald; and Caraway, Edward, 5,065,123, Cl. 333-246.000.

Harris, Frank W.: *See*—
Bartelt, James T.; Harris, Frank W.; and Owens, Alan R., 5,063,929, Cl. 128-421.000.

Harris Graphics Corporation: *See*—
Wingate, Mark A., 5,064,180, Cl. 270-47.000.

Harris, Stephen W., to Velvin, William C. Means and methods for training and containing animals. 5,063,876, Cl. 119-20.000.

Harris, William O.: *See*—
Jones, Marshall G.; Schindler, Donald R.; Johnson, Jeffrey D.; and Harris, William O., 5,064,992, Cl. 219-121.630.

Harron, Gerald: *See*—
Kumar, Surinder; and Harron, Gerald, 5,065,107, Cl. 329-308.000.

Harrow Products, Inc.: *See*—
Frolov, George; Lavelle, Gary; and Scott, James J., 5,065,136, Cl. 340-545.000.
Gresh, Timothy F., 5,064,056, Cl. 206-45.190.

Harshaw Chemical Company, The: *See*—
Moscovitch, Marko, 5,065,031, Cl. 250-486.100.

Hart, Terance W.; Vacher, Bernard Y. J.; and Sharp, Brian W., to Rhone-Poulenc Sante. Pyrid-3-yl thioformamide compounds which have useful pharmaceutical utilities. 5,064,843, Cl. 514-346.000.

Hartmeyer, James, to Takata, Inc. Air cushion restraint device having reinforced inflation attachment. 5,064,218, Cl. 280-743.000.

Hartt, Whitaker: *See*—
Connell, John J.; and Hartt, Whitaker, 5,064,060, Cl. 206-227.000.

Hartwig, Jurgen: *See*—
Maurer, Fritz; Hartwig, Jurgen; and Becker, Benedikt, 5,064,818, Cl. 514-86.000.

Haruki, Toshinobu, to Sanyo Electric Co., Ltd. Automatic iris correction apparatus for use in automatically adjusting exposure in response to a video signal. 5,065,247, Cl. 358-228.000.

Hasegawa, Satoshi; and Yang, Chiang H., to Bell Communications Research, Inc.; and NEC Corporation of Japan. Telecommunication network trouble recovery system. 5,065,399, Cl. 371-11.200.

Hasegawa, Seiichi, to Kanazawa University, President of. Method of manufacturing polycrystalline silicon film. 5,064,779, Cl. 437-109.000.

Hasegawa, Tooru: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Hashimoto, Akira: *See*—
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, 5,065,275, Cl. 361-321.000.

Hashimoto, Kenji. Hair treating implement with a heated wire element. 5,064,993, Cl. 219-223.000.

Hashizume, Kimio; Kitakaze, Keizo; and Itou, Takefumi, to Mitsubishi Denki Kabushiki Kaisha. Process for producing copper alloy. 5,064,611, Cl. 420-481.000.

Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., to U.S. Philips Corporation. Method of manufacturing scandate cathode with scandium oxide film. 5,064,397, Cl. 445-50.000.

Hata, Hajime; Kambara, Hajime; Sogabe, Seiji; and Oka, Keizo, to Shikoku Chemicals Corporation. Process for preparation of aluminum borate whisker. 5,064,631, Cl. 423-279.000.

Hata, Masahiko: *See*—
Maeda, Takayoshi; Hata, Masahiko; Fukuhara, Noboru; and Watanabe, Tadeshi, 5,064,778, Cl. 437-81.000.

Hatakoshi, Genichi: *See*—
Okajima, Masaki; Hatakoshi, Genichi; Ishikawa, Masayuki; Uematsu, Yutaka; and Motegi, Nawoto, 5,065,404, Cl. 372-46.000.

Hatta, Ken: *See*—
Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka, 5,064,900, Cl. 525-69.000.

Hattori, Iwakazu; Sakakibara, Mitsuhiko; Tsutsumi, Fumio; and Yoshizawa, Masao, to Japan Synthetic Rubber Co., Ltd. Preparation of conjugated diene polymers modified with an organo-tin or germanium halide. 5,064,910, Cl. 525-359.100.

Hattori, Masanori: *See*—
Yoshida, Atsushi; Hosokawa, Tsutomu; and Hattori, Masanori, 5,065,410, Cl. 375-98.000.

Hattori, Shuhei. Tennis racket. 5,064,203, Cl. 273-73.00J.

Hattori, Shuzo: *See*—
Ito, Takatoshi; Yoshida, Akihiro; Shimazaki, Kazunori; and Hattori, Shuzo, 5,064,711, Cl. 428-209.000.

Hauber, David E.; Jacobs, Monica; Davis, W. Richard; Rushing, Tom; and Fanara, Robert A., to Sara Lee Corporation. Carton. 5,064,113, Cl. 229-8.000.

Haug, Richard J. Shock absorbant heel. 5,063,691, Cl. 36-35.00R.

Hauske, James R.: *See*—
Cullen, Walter P.; Hauske, James R.; Kostek, Gloria J.; Maeda, Hiroshi; and Tone, Junsuke, 5,064,855, Cl. 514-460.000.

Hautala, Jouko, to Oy Tampella Ab. Pulper. 5,064,125, Cl. 241-46.170.

Havens, Marvin R.; Fowler, Stephen L.; Roberts, William P.; and Ebner, Cynthia L., to W. R. Grace & Co.-Conn. Semi-rigid heat-sealable laminates with permanent antistatic characteristics. 5,064,699, Cl. 428-35.700.

Havis-Shields Equipment Corporation: *See*—
E'nama, David J.; and Pertierra, Thomas A., 5,064,988, Cl. 219-121.600.

Hawkins, George: *See*—
Mitchell, Michael L.; and Hawkins, George, 5,065,428, Cl. 380-23.000.

Hayakawa, Masaharu: *See*—
Kumano, Makoto; Hayakawa, Masaharu; and Suenaga, Shinichi, 5,065,230, Cl. 358-22.000.

Hayakawa, Nobuhiro; Yamada, Tetsusyo; and Yokota, Kazunori, to NGK Spark Plug Co., Ltd. Method of adjusting a gas sensor. 5,064,693, Cl. 427-372.200.

Hayase, Isao: *See*—
Takao, Kunihiko; Tojo, Kenji; Hayase, Isao; Takahashi, Yukio; and Ito, Masaru, 5,063,829, Cl. 92-71.000.

Hayase, Michiyoshi, to Hitachi, Ltd. Automatic routing method for LSI. 5,065,355, Cl. 395-800.000.

Hayase, Shigeru: *See*—
Yasue, Kenji; Tsuji, Toshio; Ida, Takashi; and Hayase, Shigeru, 5,064,700, Cl. 428-36.920.

Hayashi, Kazuhiro: *See*—
Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, 5,065,433, Cl. 381-63.000.

Hayashi, Kenji: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Hayashi, Satoru: *See*—
Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, 5,065,283, Cl. 361-407.000.

Hayashi, Shigeyuki: *See*—
Nishigaki, Hideo; and Hayashi, Shigeyuki, 5,064,183, Cl. 271-10.000.

Hayashi, Shohei: *See*—
Miyazaki, Takashi; Inamochi, Takashi; Kitamura, Masaaki; and Hayashi, Shohei, 5,064,731, Cl. 428-698.000.

Hayashi, Takashi; Hida, Junichi; Suga, Kenji; and Kurata, Yoshikazu, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Control and display system for a battery powered vehicle. 5,065,320, Cl. 364-424.010.

Hayashi, Takehisa: *See*—
Asai, Mitsuo; Hayashi, Takehisa; Doi, Toshio; and Ishibashi, Kenichi, 5,065,048, Cl. 307-443.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Hayashi, Toshio: *See*—
Iwatsuki, Makoto; and Hayashi, Toshio, 5,064,057, Cl. 606-154.000.
Hayashi, Yoshiaki; and Koshidaka, Yukio, to Yoshino Kogyosho Co., Ltd. Pressure resistant polygonal bottle-shaped container having a polygonal bottom. 5,064,081, Cl. 215-1.00C.
Hayashi, Yoshiaki: *See*—
Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, 5,064,346, Cl. 416-178.000.
Hayes, John B.: *See*—
Ai, Chiayu; and Hayes, John B., 5,064,286, Cl. 356-153.000.
Headley, Robert W. Load-bearing belt. 5,064,108, Cl. 224-253.000.
Heaton, Dale A.: *See*—
Bartling, James E.; and Heaton, Dale A., 5,065,043, Cl. 307-296.800.
Heckaman, Douglas; Vought, Ronald; and Caraway, Edward, to Harris Corporation. Waffle wall-configured conducting structure for chip isolation in millimeter wave monolithic subsystem assemblies. 5,065,123, Cl. 333-246.000.
Hecker, Eric: *See*—
Frank, Helge; Hecker, Eric; Eifrig, Reinhard; Weismann, Dieter; and Gebhardt, Peter, 5,063,925, Cl. 128-205.240.
Hecon Corporation: *See*—
Greenstein, Harvey; Levinski, Charles B.; Newman, Edward; Persel, John M.; and Widmann, David N., 5,065,426, Cl. 379-100.000.
Hed, Aharon Z., to Troy Investments, Inc. Method of making a Josephson junction with a diamond-like carbon insulating barrier. 5,064,809, Cl. 505-1.000.
Heidelberger Druckmaschinen AG: *See*—
Becker, Willi, 5,063,843, Cl. 101-183.000.
Heiden, Christoph: *See*—
Muck, Hans-Michael; and Heiden, Christoph, 5,065,096, Cl. 324-248.000.
Heil, Karl: *See*—
Braun, Egon; Kling, Albert; Heil, Karl; and Sattler, Hans-Peter, 5,064,076, Cl. 209-700.000.
Heil, Ronald W., Jr.: *See*—
Dahl, Roger W.; and Heil, Ronald W., Jr., 5,063,932, Cl. 128-639.000.
Heilmeier & Weinlein Fabrik fur Oel-Hydroaulik GmbH & Co.: *See*—
Brunner, Rudolf, 5,063,961, Cl. 137-454.500.
Heimann GmbH: *See*—
Bermbach, Rainer; Doenges, Gerhard; Geus, Georg; and Koch, Cornelius, 5,065,418, Cl. 378-57.000.
Heinemann Electric Company: *See*—
Fierro, Joseph, 5,064,977, Cl. 200-293.000.
Heinen, Jochen, to Siemens Aktiengesellschaft. Optoelectronic circuit with diodes and waveguides. 5,065,207, Cl. 357-30.000.
Heinz, Gregory W.: *See*—
Bianchetta, Donald L.; and Heinz, Gregory W., 5,063,739, Cl. 60-421.000.
Helget, Werner: *See*—
Krieg, Gunther; Helget, Werner; and Deppisch, Bertold, 5,065,014, Cl. 250-237.00G.
Helix Medical, Inc.: *See*—
Blom, Eric D.; and Coe, Frederick L., 5,064,433, Cl. 623-9.000.
Hella KG Hueck & Co.: *See*—
Broggelwirth, Hartmut, 5,065,288, Cl. 362-61.000.
Hellwig, Reimar; and Waegner, Ralf, to Hottinger Baldwin Measurements, Inc. Pressure sensor and method for calibrating pressure sensors. 5,065,129, Cl. 338-4.000.
Helmke, Hartmut: *See*—
Gindre, Philippe; Hahnel, Peter; and Helmke, Hartmut, 5,064,153, Cl. 244-172.000.
Henderson, Randall L.: *See*—
Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, 5,065,368, Cl. 365-230.050.
Hendrick, Fred W., to Automatic Control Components. Multiple orifice valve with reduced operator torque. 5,063,954, Cl. 137-625.310.
Hendrick, Kendall; and Reader, John R., Jr., to TA Instruments, Inc. Apparatus and method for analyzing dielectric properties using a single surface electrode and force monitoring and adjusting. 5,065,106, Cl. 324-663.000.
Henke, James L.; and Koenig, Paul A., to Pacesetter Infusion, Ltd. Ultrasonic air-in-line detector for a medication infusion system. 5,064,412, Cl. 604-65.000.
Henkel Corporation: *See*—
Awad, Sami B., 5,064,500, Cl. 156-665.000.
Henkel Kommanditgesellschaft auf Aktien: *See*—
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.
Jacobs, Jochen; Altenschoepfer, Theodor; and Jeschke, Peter, 5,064,554, Cl. 252-99.000.
Sparenberg, Dieter; Ullrich, Rolf; and Nuding, Herbert, 5,064,506, Cl. 203-2.000.
Henley Manufacturing Holding Company, Inc.: *See*—
Pryba, Stanley J.; Mills, Jesse V.; and Abbas, Sherkoh A., 5,063,889, Cl. 123-90.390.
Hennick, Robert J.; and Pidhirny, John M., to Welch Allyn, Inc. Adjustable wear plate badge reader. 5,065,001, Cl. 235-435.000.
Henning, Brian C. R.: *See*—
Morrison, Robert B.; Henning, Brian C. R.; Lummes, Stephen E.; and McMurtry, David R., 5,063,685, Cl. 33-701.000.
Henning, Wolfgang: *See*—
Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, 5,063,894, Cl. 123-193.00P.
Hensens, Otto D.: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.
Herbert, William G.: *See*—
Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, 5,064,509, Cl. 204-9.000.
Hercules Incorporated: *See*—
Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, 5,064,919, Cl. 526-169.000.
Herdt, Christian E.; Weiner, Albert S.; Kamp, David A.; and Dimmler, Klaus J., to Simtek Corporation. Non-volatile RAM with integrated compact static RAM load configuration. 5,065,362, Cl. 365-154.000.
Hereford, William R. Stringing block. 5,064,172, Cl. 254-134.3PA.
Heritage, John R.: *See*—
Sanderson, Michael L.; and Heritage, John R., 5,063,786, Cl. 73-861.190.
Herman, Fred W., to Security Tag Systems, Inc. Magnetically-coupled, two-resonant-circuit, frequency-division tag. 5,065,137, Cl. 340-572.000.
Herman, Fred W.: *See*—
Lian, Ming R.; and Herman, Fred W., 5,065,138, Cl. 340-572.000.
Herman Miller, Inc.: *See*—
Goodman, Steven F., 5,063,715, Cl. 52-36.000.
Shepherd, Donald A., 5,064,256, Cl. 312-221.000.
Hermann Berstorff Maschinenbau GmbH: *See*—
Meyke, Joachim; and Martin, Gerhard, 5,064,587, Cl. 264-50.000.
Muller-Erwig, Horst, 5,064,364, Cl. 425-114.000.
Hermann, Karl: *See*—
Frankeny, Jerome A.; Frankeny, Richard F.; Hermann, Karl; and Imken, Ronald L., 5,065,227, Cl. 357-74.000.
Hernandez, Jorge M.; and Simpson, Scott, to Rogers Corporation. Molded integrated circuit package incorporating heat sink. 5,065,281, Cl. 361-388.000.
Hernandez, Jorge M., to Rogers Corporation. Multilayer printed wiring board. 5,065,284, Cl. 361-414.000.
Heron, George L.: *See*—
Edelson, Steven D.; Frattarola, Gary J.; and Heron, George L., 5,065,144, Cl. 340-703.000.
Herrington, F. John; and St. Phillips, Eric A., to Mobil Oil Corporation. Foldable zipper slider with compression-type latch. 5,063,644, Cl. 24-400.000.
Hesco Pilgersteg AG: *See*—
Fahrni, Heinz; and Ruegg, Max, 5,063,962, Cl. 137-487.000.
Hesketh, John; and Thornton, Martin, to Coolite Limited. Fluorescent tube driver and lighting system. 5,065,074, Cl. 315-209.00R.
Hess, Heinrich: *See*—
Grogler, Gerhard; Thiery, Urs; Ruckes, Andreas; Kopp, Richard; and Hess, Heinrich, 5,064,875, Cl. 521-159.000.
Hettche, Albert: *See*—
Schuster, Ludwig; Hettche, Albert; Liedy, Werner; Weiss, Stefan; and Ehemann, Leo, 5,064,908, Cl. 525-333.800.
Hettich, Gerhard: *See*—
Schmid, Hans-Dieter; Hettich, Gerhard; Burkard, Johannes; and Schmierer, Wolfgang, 5,065,134, Cl. 340-442.000.
Hewlett-Packard Company: *See*—
Bockman, John J., 5,064,289, Cl. 356-351.000.
Kaiser, Winfried; Schober, Andreas; and Salfeld, E.-Peter, 5,065,154, Cl. 340-825.520.
Karnezos, Marcos; Kaw, Ravindhar; Hanlon, Lawrence; and Matta, Farid, 5,065,280, Cl. 361-386.000.
Leavitt, Steven C., 5,063,931, Cl. 128-661.070.
Puckette, Robert B. E., 5,065,356, Cl. 395-800.000.
Rice, Thomas A.; Smith, David A.; and Schmidt, Alan W., 5,065,147, Cl. 340-744.000.
Taylor, John B.; and Ellis, Michael K., 5,065,334, Cl. 364-485.000.
Vincent, Kent D.; and Ertel, John P., 5,065,169, Cl. 346-140.00R.
You, Young S.; and Meyer, John D., 5,065,167, Cl. 346-1.100.
Hibi, Kenji; and Goto, Toshihide, to NTN Corporation. Machine parts having minute random recesses. 5,064,298, Cl. 384-625.000.
Hickey, Colin J.; and Rajewski, Max R., to Formark Pty. Limited. Shredder. 5,064,126, Cl. 241-73.000.
Hickle, Leslie A.; Bradfisch, Gregory A.; and Sick, August J., to Mycogen Corporation. Use of *Baeillus thuringiensis* microbe for controlling lesser mealworm, *Alphitobius diaperinus*. 5,064,648, Cl. 424-93.000.
Hickner, Richard A.: *See*—
Rao, Nancy A.; and Hickner, Richard A., 5,064,880, Cl. 523-403.000.
Hicks, Robert W.: *See*—
Hofmann, Leroy C.; Hicks, Robert W.; Field, Jasper H.; and Monroe, Stephen H., 5,064,692, Cl. 427-361.000.
Hida, Junichi: *See*—
Hayashi, Takashi; Hida, Junichi; Suga, Kenji; and Kurata, Yoshikazu, 5,065,320, Cl. 364-424.010.
Higashijima, Kouzou, to NGK Insulators, Ltd. Ceramic material extruding method and apparatus therefor. 5,064,586, Cl. 264-40.600.
Higashiyama, Shunichi, to Brother Kogyo Kabushiki Kaisha. Packaging container for containing developer sheets therein and method of packaging such sheets. 5,064,070, Cl. 206-455.000.

Higgs, Bruce S.; and White, William C., to Dow Corning Corporation. Solid antimicrobial. 5,064,613, Cl. 422-16.000.
Hikita, Mitsutaka; Tabuchi, Toyoji; Shibagaki, Nobuhiko; Isobe, Atsushi; and Kurosawa, Kazuhito, to Hitachi, Ltd. Surface acoustic wave device. 5,065,065, Cl. 310-313.00B.
Hill, Jason J., to Emerson Electric Co. Linear actuator improvement to prevent "back driving". 5,063,808, Cl. 74-411.500.
Hill, Raymond R.: *See*—
Hutter, Charles G., III; and Hill, Raymond R., 5,064,098, Cl. 222-137.000.
Hill, Timothy J.: *See*—
Marsh, Robert M.; Hill, Timothy J.; and Potts, Mark, 5,065,149, Cl. 340-793.000.
Hill, William E.: *See*—
Simpson, William G.; Sharpe, Max H.; and Hill, William E., 5,064,868, Cl. 521-54.000.
Hiltebeitel, Nathan R.: *See*—
Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, 5,065,368, Cl. 365-230.050.
Hilton, Davis B. Non-toxic process for recovery of photographic silver. 5,064,466, Cl. 75-417.000.
Himont Incorporated: *See*—
Monte, Antonio; and Noristi, Luciano, 5,064,799, Cl. 502-115.000.
Hinnenkamp, James A., to Quantum Chemical Corporation. Crystalline aluminosilicate compositions, the preparation thereof and their use in the conversion of synthesis gas to low molecular weight hydrocarbons. 5,064,865, Cl. 518-713.000.
Hinrichs, Fritz: *See*—
Mitschik, Herbert; and Hinrichs, Fritz, 5,065,127, Cl. 335-270.000.
Hirai, Tokuyuki: *See*—
Kugimiya, Shuzo; Fukumochi, Yoji; Sata, Ichiko; Hirai, Tokuyuki; and Suzuki, Hitoshi, 5,065,318, Cl. 364-419.000.
Hirakawa, Kenji, to Kabushiki Kaisha Toshiba. Lateral transistor structure for bipolar semiconductor integrated circuits. 5,065,210, Cl. 357-35.000.
Hiramatsu, Tamihei; and Matsushita, Yoshiko, to Sony Corporation. Language laboratory systems. 5,065,317, Cl. 364-419.000.
Hirano, Hitoshi: *See*—
Kiyama, Seiichi; and Hirano, Hitoshi, 5,064,682, Cl. 427-38.000.
Hirano, Koji; and Yamashita, Hiroshi, to AMP Incorporated. Apparatus for making a wire harness. 5,063,656, Cl. 29-749.000.
Hirayama, Hiroshi: *See*—
Isobe, Susumu; Noda, Toshiharu; and Hirayama, Hiroshi, 5,064,112, Cl. 228-112.000.
Hirayama, Kazutoshi, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor memory device carrying out reading and writing operations in order in one operating cycle and operating method therefor. 5,065,365, Cl. 365-189.050.
Hirayama, Shigemitsu; Akashi, Takamichi; Ikuta, Akio; Sasaki, Isao; and Fukuda, Hiroshi, to Fujisawa Pharmaceutical Co., Ltd. Apparatus for testing membrane filters. 5,064,529, Cl. 210-90.000.
Hironaka, Yoshiaki, to Kioritz Corporation. 2-cycle internal combustion engine. 5,063,890, Cl. 123-145.00A.
Hirose Electric Co., Ltd.: *See*—
Ishioka, Hideyuki, 5,063,657, Cl. 29-753.000.
Hirose, Hitoshi; and Togawa, Fumio, to Sharp Kabushiki Kaisha. Character recognition apparatus with inputting function of ruled lines. 5,065,438, Cl. 382-13.000.
Hirose, Katsuhiko: *See*—
Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, 5,063,886, Cl. 123-65.0VD.
Hirschmann, Guenther; Waitl, Guenter; and Schellhorn, Franz, to Siemens Aktiengesellschaft. Optocoupler apparatus. 5,064,299, Cl. 385-33.000.
Hirsh Company: *See*—
Handler, Milton E.; Sylvan, Richard; Baisch, Herbert; and Naranjo, Michael, 5,064,156, Cl. 248-168.000.
Hirshorn, James B.; Dake, Timothy W.; Purves, Edward R.; and Seiden, Paul, to Procter & Gamble Company, The. Low-saturate frying fat and method of frying food. 5,064,670, Cl. 426-607.000.
Hirthammer, Michael: *See*—
Duck, Edward W.; Scheffler, Ingolf; and Hirthammer, Michael, 5,064,494, Cl. 156-273.500.
Hitzel, Suzy C. Liquid dispenser for applicator. 5,064,058, Cl. 206-209.000.
Hishida, Hiroshi, to Ricoh Company, Ltd. Facsimile machine and facsimile transmission system. 5,065,254, Cl. 358-400.000.
Hitachi Automotive Engineering Co., Ltd.: *See*—
Mirumachi, Mitsuaki; and Mizoguchi, Hiroaki, 5,063,832, Cl. 98-2.000.
Hitachi, Ltd.: *See*—
Asai, Mitsuo; Hayashi, Takehisa; Doi, Toshio; and Ishibashi, Kenichi, 5,065,048, Cl. 307-443.000.
Endo, Syuusuke; Aoyama, Naofumi; Yabuuchi, Toshihiko; and Seki, Teruo, 5,064,276, Cl. 359-49.000.
Hayase, Michiyoshi, 5,065,355, Cl. 395-800.000.
Hikita, Mitsutaka; Tabuchi, Toyoji; Shibagaki, Nobuhiko; Isobe, Atsushi; and Kurosawa, Kazuhito, 5,065,065, Cl. 310-313.00B.
Horiguchi, Hyosei; Tezuka, Akira; Kagohata, Tsuneo; and Ito, Toshikazu, 5,065,015, Cl. 250-237.00R.
Kanda, Kimio, 5,065,020, Cl. 250-310.000.
Kaneyasu, Masayoshi; Kurihara, Nobuo; Kitano, Kouji; and Kayano, Mitsuo, 5,063,901, Cl. 123-419.000.
Kawanami, Yoshimi; Ohnishi, Tsuyoshi; Ishitani, Tohru; Habu, Tooru; and Yamaoka, Masahiro, 5,065,034, Cl. 250-505.100.
Masai, Kazuo; Wakayama, Satoshi; Yamamoto, Shoji; Sumiyoshi, Takashi; and Makino, Masao, 5,065,311, Cl. 364-200.000.
Masuishi, Tetsuya; Tsuji, Hiroshi; Matsui, Takahashi; and Koga, Akihiko, 5,065,400, Cl. 371-19.000.
Mirumachi, Mitsuaki; and Mizoguchi, Hiroaki, 5,063,832, Cl. 98-2.000.
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.
Moriyama, Norio; and Kawakami, Kazuhiko, 5,065,012, Cl. 250-231.140.
Nagai, Akira; Sugawara, Katuo; Suzuki, Masahiro; Katagiri, Junichi; and Takahashi, Akio, 5,065,285, Cl. 361-414.000.
Nagai, Toshiaki, 5,064,363, Cl. 418-194.000.
Nojiri, Tohru; and Kainaga, Masahiro, 5,065,353, Cl. 364-786.000.
Nozokido, Tatsuo; Yamamoto, Etsuji; and Kohno, Hideki, 5,065,097, Cl. 324-309.000.
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.
Okamoto, Ryuichi; Nishiguchi, Masato; Kasugai, Hiroshi; and Tamamoto, Seishi, 5,064,999, Cl. 235-379.000.
Oshiga, Takayuki; Fujiwara, Katsuhiro; and Umeda, Kazunori, 5,065,307, Cl. 364-140.000.
Sato, Yoichi; and Mizukami, Masao, 5,065,363, Cl. 365-154.000.
Takao, Kunihiko; Tojo, Kenji; Hayase, Isao; Takahashi, Yukio; and Ito, Masaru, 5,063,829, Cl. 92-71.000.
Takashima, Hideo, 5,065,398, Cl. 370-94.100.
Yokota, Takayoshi; Bekki, Keisuke; and Hamada, Nobuhiro, 5,065,335, Cl. 364-489.000.
Hitachi Metals, Ltd.: *See*—
Asanae, Masumi; Kimura, Fumio; and Gotoh, Ryuji, 5,064,739, Cl. 430-122.000.
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.
Sato, Koji; and Watanabe, Rikizo, 5,064,610, Cl. 420-57.000.
Hitachi Seiko, Ltd.: *See*—
Yoshizawa, Hideyoshi; Ishii, Takashi; Makino, Toshiyuki; Ozawa, Hidekatsu; and Shimizu, Yasuyuki, 5,064,985, Cl. 219-69.160.
Hitachi Software Engineering Co., Ltd.: *See*—
Takasaki, Naruto; and Tanaka, Yutake, 5,065,439, Cl. 382-25.000.
Hitachi Video Engineering, Inc.: *See*—
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.
Hitachi VLSI Engineering Corp.: *See*—
Sato, Yoichi; and Mizukami, Masao, 5,065,363, Cl. 365-154.000.
Hitec Co., Ltd.: *See*—
Kasai, Minoru; and Nakamura, Minoru, 5,064,401, Cl. 452-46.000.
Hitomi, Mitsuo; Mamiya, Kiyotaka; and Watanabe, Tomomi, to Mazda Motor Corporation. Intake system for multi-cylinder internal combustion engine. 5,063,899, Cl. 123-339.000.
Hittich, Reinhard: *See*—
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.
Hiyama, Tamejiro: *See*—
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.
Ho, Helena S.: *See*—
Shenoi, Kishan; Hanagan, Patrick L.; Ho, Helena S.; and Yu, Frank I., 5,065,395, Cl. 370-81.000.
Hochiki Corp.: *See*—
Machida, Haruchika; Fuwa, Yoshiaki; and Shimokawa, Takashi, 5,065,150, Cl. 340-825.060.
Hoech, Robert W. Zero mark for optical encoder using stator mask patterns and rotor patterns. 5,065,017, Cl. 250-231.170.
Hoechst Aktiengesellschaft: *See*—
Pawlowski, Georg; Erdmann, Fritz; and Lutz, Heidrun, 5,064,959, Cl. 544-216.000.
Weber, Jurgen; Lappe, Peter; and Springer, Helmut, 5,064,508, Cl. 203-38.000.
Hoechst Celanese Corp.: *See*—
Khanarian, Garo; and Norwood, Robert, 5,064,265, Cl. 385-130.000.
Steiner, Thomas L.; Domeshek, Kenneth A.; Stitt, William; Riley, Jesse L.; and Deutsch, Lance J., 5,064,949, Cl. 536-56.000.
Swofford, Howard W.; and Gust, Stephen J., 5,064,722, Cl. 428-447.000.
Hoenigmann, Martin F., to Rexene Corporation. Flexible label film from polyethylene and calcium carbonate-polymer mixture. 5,064,893, Cl. 524-427.000.
Hoffmann-La Roche Inc.: *See*—
Alig, Leo; and Muller, Marcel, 5,064,863, Cl. 514-653.000.
Hofland, Adriaan; and Paauwe, Joannes M., to Stamicarbon B.V. Resin composition based on a polymer and an ester. 5,064,892, Cl. 524-317.000.
Hofmann, Leroy C.; Hicks, Robert W.; Field, Jasper H.; and Monroe, Stephen H., to International Paper Company. Method for producing paper products having increased gloss in which surface characteristics of a release film are imparted to coated substrates. 5,064,692, Cl. 427-361.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Hohlein, Peter: *See—*
Blum, Harald; Pedain, Josef; Hohlein, Peter; and Wamprecht, Christian, 5,064,921, Cl. 526-262.000.

Hohmann Enterprises, Inc.: *See—*
Hohmann, Ronald P., 5,063,722, Cl. 52-410.000.

Hohmann, Frank G.: *See—*
Richter, Simon J.; and Hohmann, Frank G., 5,064,101, Cl. 222-143.000.

Hohmann, Ralf: *See—*
Spors, Ralf; Wachter, Gerhard; Hohmann, Ralf; and Sauer, Heinz, 5,064,227, Cl. 285-319.000.

Hohmann, Ronald P., to Hohmann Enterprises, Inc. Gripstay channel veneer anchor assembly. 5,063,722, Cl. 52-410.000.

Hokkeling, Pieter: *See—*
Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., 5,064,397, Cl. 445-50.000.

Holder, E. Paul: *See—*
Edmondson, James G.; and Holder, E. Paul, 5,064,612, Cl. 422-12.000.

Holland, David F.: *See—*
Cearley, James E.; Holland, David F.; Hurt, David T.; and Moody, Frederick J., 5,064,602, Cl. 376-243.000.

Holley, Lorain K.: *See—*
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.

Holling, Ronald W., to Whirlpool Corporation. Relay control apparatus. 5,064,998, Cl. 219-519.000.

Holmberg, Gerald E.: *See—*
Morency, Roger L.; and Holmberg, Gerald E., 5,064,268, Cl. 385-87.000.

Holt, Peter P. Cross-country skiing and exercising machine. 5,064,190, Cl. 272-97.000.

Homma, Hideo, to Canon Kabushiki Kaisha. Exposure control device. 5,065,248, Cl. 358-228.000.

Honda Giken Kogyo Kabushiki Kaisha: *See—*
Iwai, Kazuhiro; Matsubayashi, Shinji; Ariga, Ikuo; and Saito, Kazuhiko, 5,064,016, Cl. 180-215.000.
Nemoto, Kenji; Uchida, Kuninobu; Gunji, Keiichiro; Murata, Nagatoshi; and Maruyama, Iwao, 5,063,650, Cl. 29-407.000.
Ogano, Takeo; Sueshige, Hiroshi; Fukuda, Toru; and Okuda, Junji, 5,064,011, Cl. 180-9.220.
Suzuki, Hidemi; Yamada, Hiroyuki; and Nakagawa, Mikio, 5,065,126, Cl. 335-222.000.
Yahagi, Toshio; Iwagawa, Yoshihiro; Sugimoto, Yoichi; and Satoh, Tsuyoshi, 5,065,327, Cl. 364-426.020.

Honda, Kunihiko: *See—*
Matsufuji, Akihiro; Ejiri, Kiyomi; Ohno, Mikio; Kiyama, Masatoshi; and Honda, Kunihiko, 5,064,687, Cl. 427-132.000.

Honeywell Inc.: *See—*
Fryer, Richard B., 5,064,499, Cl. 156-643.000.

Honnell, Richard E.: *See—*
Petrovic, John J.; and Honnell, Richard E., 5,064,789, Cl. 501-97.000.

Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, to Merck Patent Gesellschaft mit beschrankter Haftung. Smectic liquid crystal phases. 5,064,566, Cl. 252-299.610.

Hoppmann Corporation: *See—*
Hoppmann, Kurt H.; and Anderson, Philip S., 5,064,054, Cl. 198-779.000.

Hoppmann, Kurt H.; and Anderson, Philip S., to Hoppmann Corporation. Overlapping flat surface transport carrier conveyor. 5,064,054, Cl. 198-779.000.

Horie, Fujio, to Brother Kogyo Kabushiki Kaisha. Zigzag sewing machine. 5,063,867, Cl. 112-443.000.

Horigome, Nobuyoshi: *See—*
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, 5,065,011, Cl. 250-227.240.

Horiguchi, Hyosei; Tezuka, Akira; Kagohata, Tsuneo; and Ito, Toshikazu, to Hitachi, Ltd. Solar radiation sensor for use in an automatic air conditioner. 5,065,015, Cl. 250-237.00R.

Horikawa, Kazuo, to Fuji Photo Film Co., Ltd. Radiation image recording and read-out apparatus. 5,065,022, Cl. 250-327.200.

Horino, Yasuo: *See—*
Rezanka, Ivan; and Horino, Yasuo, 5,065,170, Cl. 346-140.00R.

Horita, Yoshiyuki; Mizuno, Hiroshi; and Wake, Kiyoyasu, to Yoshida Kogyo K.K. Dial lock assembly. 5,063,760, Cl. 70-23.000.

Horn, Donald N.; and Levy, Bern, to Vicon Industries, Inc. Portable video camera/monitor support. 5,065,249, Cl. 358-229.000.

Horn, James F., to Copeland Corporation. Counterweight shield for refrigeration compressor. 5,064,356, Cl. 417-410.000.

Horne, Donald L.: *See—*
Kuss, Thomas N.; and Horne, Donald L., 5,064,240, Cl. 296-100.000.

Horsma, David A.: *See—*
Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., 5,064,997, Cl. 219-505.000.

Hosaka, Sumio: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.

Hoshida, Shigehiro: *See—*
Amano, Tadashi; and Hoshida, Shigehiro, 5,064,917, Cl. 526-72.000.

Hoshino Gakki Co., Ltd.: *See—*
Hoshino, Yoshihiro, 5,063,819, Cl. 84-422.300.

Hoshino, Yoshihiro, to Hoshino Gakki Co., Ltd. Cymbal receiving mechanism of high hat stand. 5,063,819, Cl. 84-422.300.

Hosoi, Masatoshi; Ichinose, Tsutomu; Shimada, Masashi; Umeda, Shin; and Yoshino, Hirobumi, to Ricoh Company, Ltd. Paper handling apparatus. 5,064,181, Cl. 270-53.000.

Hosokawa, Tsutomu: *See—*
Yoshida, Atsushi; Hosokawa, Tsutomu; and Hattori, Masanori, 5,065,410, Cl. 375-98.000.

Hosokawa, Yoshiaki; Kanoh, Masaki; Maekawa, Takashi; and Nakayasu, Hirofumi, to Fujitsu Limited. Printer having an ink ribbon shift apparatus. 5,064,304, Cl. 400-225.000.

Hosoyama, Kenji: *See—*
Suzuki, Hideaki; Hosoyama, Kenji; Takeda, Shuichiro; and Kamikura, Rinzo, 5,064,717, Cl. 428-352.000.

Hostetler, Robert H., to Avtron, Inc. Support assembly for side mount regulators. 5,063,878, Cl. 119-72.500.

Hotta, Kazuhiko; Kido, Koichiro; and Yamamoto, Shogo, to Mitsubishi Rayon Co., Ltd. Method for forming coating film. 5,064,695, Cl. 427-407.100.

Hottinger Baldwin Measurements, Inc.: *See—*
Hellwig, Reimar; and Waegner, Ralf, 5,065,129, Cl. 338-4.000.

Hough, Walter J.; and Miller, Paul R., to Cummins Engine Company, Inc. Particulate filter trap load regeneration system. 5,063,736, Cl. 60-286.000.

Houlihan, William J., to Sandoz Ltd. Heterocyclic phospholipids useful in treating multiple sclerosis. 5,064,816, Cl. 514-77.000.

Howa Machinery, Ltd.: *See—*
Oketani, Tetsuya; Ito, Toshio; and Mase, Yoshiaki, 5,064,044, Cl. 192-141.000.

Howard, Daggett H., Jr.; and Wood, Donald F. Laminated article with hinge and method for manufacturing laminated articles. 5,063,637, Cl. 16-225.000.

Howard, Eugene R.; and Anderson, Terry K., to Artex International, Inc. Laundry evaluation piece including bleaching activity indicator swatch. 5,064,440, Cl. 8-137.000.

Howard, Gary, to Siemon Company, The. Method and apparatus converting digital signals to analog signals and simultaneous transmission of AC power and signals over wire conductors. 5,065,133, Cl. 340-310.00A.

Howard, Harry R., Jr.; and Sarges, Reinhard, to Pfizer Inc. Indolinone derivatives. 5,064,852, Cl. 514-409.000.

Howard, John R.; and Nichols, Charles E., to Sterling Plumbing Group, Inc. Hinge assembly. 5,063,638, Cl. 16-238.000.

Howard, Lawrence V., Jr.; and Craine, MaryCaren, to Abbott Laboratories. Two-site confirmatory assay. 5,064,755, Cl. 435-7.360.

Howe, Blair E., to Cimco, Inc. Nebulizer heater. 5,063,921, Cl. 128-200.140.

Hoy, Leslie D.: *See—*
Salsman, Lloyd N.; and Hoy, Leslie D., 5,065,098, Cl. 324-326.000.

HR Textron Inc.: *See—*
Amico, Russell P.; and Klier, George M., 5,063,966, Cl. 137-625.650.

Hrovat, Mirko I.: *See—*
Moore, Gregory J.; Hrovat, Mirko I.; and Gonzalez, R. Gilberto, 5,064,638, Cl. 424-9.000.

Hsu, Adam C.; and Loughner, Daniel L., to Rohm and Haas Company. Fungicidal compositions and methods of use. 5,064,845, Cl. 514-364.000.

Hsu, Chun-Feng. Strainer for washed vegetables. 5,064,535, Cl. 210-380.100.

Hsu, Kuo H. Apparatus for winding two-face adhesive tape on a club shaft of a golf club. 5,064,129, Cl. 242-7.010.

Hsu, Yun-Tung. Multiple housing filter system. 5,064,528, Cl. 210-8.500.

Hu, Charlie L.: *See—*
Wu, Joseph C.; Hu, Charlie L.; and Law, Yee S., 5,065,450, Cl. 455-20.000.

Huang, Daniel C. L. Hand-held tool for rotatably driving a bit. 5,063,797, Cl. 81-60.000.

Huang, Johnny. Kitchen shears with biding spring. 5,063,671, Cl. 30-262.000.

Huang, Jung-Yi. Process for manufacturing wheel hub. 5,063,664, Cl. 29-894.361.

Hubbell Incorporated: *See—*
Klas, Daniel E., 5,064,226, Cl. 285-184.000.

Hubl, Dieter; and Pieroh, Ernst, to Schering Aktiengesellschaft. 5-substituted 3-arylisoxazole derivatives, their preparation and their use as pesticides. 5,064,847, Cl. 514-380.000.

Hubsch, Walter: *See—*
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.

Huebl, Ewald: *See—*
Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, 5,064,254, Cl. 303-113.0TR.

Huebner, Dave L.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Huebsch, Donald L. Apparatus for removal of bone cement. 5,064,426, Cl. 606-92.000.

Huelin, Kirk J. Door frame structure. 5,063,711, Cl. 49-504.000.

Hughes Aircraft Company: *See—*
Kovacs, Alan L.; Ehlert, Michael R.; and Congleton, Helen, 5,064,968, Cl. 174-52.400.
Longo, Robert T.; Barillas, Mario A.; and Forman, Ralph, 5,065,070, Cl. 313-346.0DC.
Oldham, Susan L.; and Prior, Desiree S., 5,064,574, Cl. 252-518.000.
Reiser, Kurt, 5,064,291, Cl. 356-372.000.
Willis, Kenneth E.; and Durrell, Robert R., 5,063,846, Cl. 102-215.000.

Hughes, Barry J., to Research Engineeering & Manufacturing, Inc. Oblique point fastener. 5,064,327, Cl. 411-386.000.

Hughes, John H., to ComCorp, Inc. Spring-loaded teeth for comminuter rolls. 5,063,768, Cl. 72-379.200.

Hughes, John H., to ComCorp, Inc. Roll for comminuter. 5,064,127, Cl. 241-253.000.

Hughes, John S. Sleep inducing device. 5,063,912, Cl. 128-33.000.

Hughes Microelectronics Limited: *See—*
Bennett, Daniel H.; Dodd, Gary L.; and Murray, Kenelm G. D., 5,065,366, Cl. 365-201.000.

Hughes, Patrick M.; Hall, Martin C.; and Lind, Larry F., to British Telecommunications public limited company. FSK discriminator. 5,065,409, Cl. 375-91.000.

Hughes, Timothy C.; and Georgis, Steven P., to Exabyte Corporation. Method and apparatus for synchronizing timing signals for helical scan recorder. 5,065,261, Cl. 360-70.000.

Huijsing, Johan H.; and Riedijk, Frank R., to Bronkhorst High-Tech B.V. Integrated semiconductor circuit for thermal measurements. 5,064,296, Cl. 374-163.000.

Huka Developments B.V.: *See—*
Huttenhuis, Aloysius G.; and Janssen, Henricus T. J., 5,064,211, Cl. 280-250.100.

Hull, Harold L.; and Johnson, Wendell. Brush and tree cutter blade. 5,063,731, Cl. 56-295.000.

Humbert, Daniel: *See—*
Gasc, Jean-Claude; Humbert, Daniel; and Vekens, Mario, 5,064,853, Cl. 514-419.000.

Hund, Walter: *See—*
Stock, Dietrich; Hund, Walter; and Vizethum, Friemut, 5,064,437, Cl. 623-20.000.

Hung, Chun-Mao. Disc wheel cover. 5,064,249, Cl. 301-37.00P.

Hung, Po-Chieh; and Kaneniwa, Tatsuya, to Konica Corporation. Method and apparatus for correcting the color of a printed image. 5,065,234, Cl. 358-80.000.

Hung, Ying C.: *See—*
Chen, Chi J.; Lin, Cheng H.; Liu, Tin Y.; and Hung, Ying C., 5,064,465, Cl. 75-349.000.

Hunt, Rodney J., to AT&T Bell Laboratories. Payout tube for container packaged coiled filament. 5,064,136, Cl. 242-157.00R.

Hunter Jackson, J. R.; and Parks, Thomas N., to University of Utah. Spider toxins and methods for their use as blockers of amino acid receptor function. 5,064,657, Cl. 424-537.000.

Hunter, Robert L.; and Duncan, Alexander, to Emory University. Method for treating sickle cell disease. 5,064,643, Cl. 424-83.000.

Hunter, Scott R., to GTE Products Corporation. Arc discharge lamp with spring-mounted arc tube, shroud and frame. 5,065,069, Cl. 313-25.000.

Hurt, David T.: *See—*
Cearley, James E.; Holland, David F.; Hurt, David T.; and Moody, Frederick J., 5,064,602, Cl. 376-243.000.

Hurwitz, Michael J.; Ekeroth, Douglas E.; and Squarer, David, to Westinghouse Electric Corp. Hydroball string sensing system. 5,064,603, Cl. 376-246.000.

Hustad, Gerald O., to Oscar Mayer Foods Corporation. Package having engraved lettering peel seal tamper-evidence message. 5,064,664, Cl. 426-87.000.

Huston, Douglas A., to Babcock & Wilcox Company, The. Air heater with automatic sealing. 5,063,993, Cl. 165-4.000.

Huth, Andreas; Schmiechen, Ralph; Wachtel, Helmut; and Schneider, Herbert H., to Schering Aktiengesellschaft. 3,4-disubstituted phenyl heterocycles and their use. 5,064,854, Cl. 514-424.000.

Huttenhuis, Aloysius G.; and Janssen, Henricus T. J., to Huka Developments B.V. Wheelchair with tilt compensating side frames. 5,064,211, Cl. 280-250.100.

Hutter, Charles G., III; and Hill, Raymond R., to Physical Systems, Inc. Dual component dispenser gun. 5,064,098, Cl. 222-137.000.

Huvey, Michel, to Institut Francais du Petrole. Processes for the manufacture of curved reinforcing elements. 5,064,491, Cl. 156-173.000.

Hwang, Chong S.: *See—*
Wang, Lawrence K.; Wang, Mu Hao S.; Hwang, Chong S.; and Rhow, Harold, 5,064,531, Cl. 210-96.100.

Hwang, Wei: *See—*
Dhong, San H.; and Hwang, Wei, 5,064,777, Cl. 437-52.000.

Hyatt, Charles K.; and Cornelison, Irvin H., III, to Auto Dialysis, Inc. Chamber and engine cleaning apparatus and method. 5,063,896, Cl. 123-198.00A.

Hyman, Sheldon: *See—*
Wisneskie, Bradley D.; Hyman, Sheldon; and Hallum, Charles E., 5,063,958, Cl. 137-68.100.

Hynds, Ernest J., to General Motors Corporation. End link assembly for an automotive vehicle suspension system. 5,064,216, Cl. 280-689.000.

I. J. & L. A. Tetley Manuf. Pty. Ltd.: *See—*
Burch, William M., 5,064,634, Cl. 424-1.100.

IC Sensors, Inc.: *See—*
Jerman, John H., 5,064,165, Cl. 251-61.100.

Ichihashi, Mitsuyoshi: *See—*
Terashima, Kanetsugu; Ichihashi, Mitsuyoshi; Kikuchi, Makoto; Takeshita, Fusayuki; and Furukawa, Kenji, 5,064,568, Cl. 252-299.610.

Ichikawa, Hiroyuki: *See—*
Kawana, Kazutaka; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; and Tozu, Kenji, 5,064,253, Cl. 303-106.000.

Ichikawa, Kagetaka; and Noda, Takao, to Showa Denko K.K. Method for producing high density hexagonal boron nitride sintered article. 5,064,589, Cl. 264-65.000.

Ichinose, Tsutomu: *See—*
Hosoi, Masatoshi; Ichinose, Tsutomu; Shimada, Masashi; Umeda, Shin; and Yoshino, Hirobumi, 5,064,181, Cl. 270-53.000.

Ichitou, Toshikatsu: *See—*
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.

Ichitsuka, Takeshi: *See—*
Ogiso, Makoto; Ogawa, Tetsuro; Ichitsuka, Takeshi; and Inoue, Masahide, 5,064,436, Cl. 623-16.000.

ICI Americas Inc.: *See—*
Broadhurst, Michael D., 5,064,846, Cl. 514-375.000.

Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, to Pioneer Electronic Corporation. Audio signal data processing system. 5,065,433, Cl. 381-63.000.

Ida, Takashi: *See—*
Yasue, Kenji; Tsuji, Toshio; Ida, Takashi; and Hayase, Shigeru, 5,064,700, Cl. 428-36.920.

Iddan, Gavriel J., to State of Israel, Ministry of Defense. Position-controlled electromagnetic assembly. 5,064,285, Cl. 356-141.000.

Ide, Fumito: *See—*
Iimori, Akiro; Matsumoto, Hiroshi; and Ide, Fumito, 5,065,184, Cl. 355-208.000.

Idemitsu Kosan Co., Ltd.: *See—*
Dasai, Masashi, 5,064,546, Cl. 252-32.500.
Shimo, Nobuo, 5,064,517, Cl. 204-157.510.

Ife, Robert J.; Brown, Thomas H.; Leach, Colin A.; and Keeling, David J., to Smithkline Beecham Intercredit B.V. Substituted quinazoline derivatives for use in gastrointestinal diseases. 5,064,833, Cl. 514-260.000.

Iga, Hiroyuki, to Kabushiki Kaisha Toshiba. Ghost cancelling system that cancels ghosts from video signals with a transversal filter. 5,065,241, Cl. 358-166.000.

Igari, Yuichi; Ishikawa, Masahiro; and Kaneko, Mitsuo, to Nissan Motor Co., Ltd. Digital circuit including fail-safe circuit. 5,065,047, Cl. 307-442.000.

Igelmann, Rolf: *See—*
Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, 5,064,254, Cl. 303-113.0TR.

Iida, Akihito: *See—*
Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, 5,064,920, Cl. 526-249.000.

Iida, Shigeki: *See—*
Takiguchi, Yasuyuki; Kanemoto, Akihiko; Iida, Shigeki; and Toyooka, Takehiro, 5,064,697, Cl. 428-1.000.

Iijima, Takeshi: *See—*
Yabe, Norio; Iijima, Takeshi; Itaya, Kazunori; and Takano, Masahide, 5,065,174, Cl. 354-222.000.

Iijima, Tokuji, to Pioneer Electronic Corporation. CATV terminal unit including memory for storing remote control codes relating to an external apparatus. 5,065,235, Cl. 358-86.000.

Iimori, Akiro; Matsumoto, Hiroshi; and Ide, Fumito, to Kabushiki Kaisha Toshiba. Light amount control apparatus. 5,065,184, Cl. 355-208.000.

Iizuka, Tatsushi: *See—*
Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, 5,065,433, Cl. 381-63.000.

Iizuka, Tetsuo; Jin, Tokiji; and Sasamoto, Hideho, to Juki Corporation. Workpiece stacker in sewing machine. 5,063,864, Cl. 112-121.290.

Ijim, Theophilus I.: *See—*
Clemans, Jim E.; Ijim, Theophilus I.; and Yuen, Maria J., 5,064,497, Cl. 156-616.100.

Ikan, Raphael: *See—*
Crammer, Bernard; Ikan, Raphael; Mumicuoglu, Yani K.; and Weinstein, Vera, 5,064,859, Cl. 514-560.000.

Ikeda, Koji: *See—*
Sandaiji, Hideto; Ikeda, Koji; and Onishi, Yuji, 5,063,653, Cl. 29-603.000.

Ikeda, Yoshio; and Okazaki, Kiyoshi, to Kabushiki Kaisha Toshiba. Detergent dispenser for clothes washing machines or the like. 5,063,757, Cl. 68-17.00R.

Ikeno, Masayuki, to Shin-Etsu Chemical Co., Ltd. Curable fluorosilicone composition. 5,064,889, Cl. 524-188.000.

Ikumi, Tomonori: *See—*
Matsumoto, Yasuo; Murakami, Kazunori; Ikumi, Tomonori; and Iwafune, Yasuo, 5,064,262, Cl. 359-205.000.

Ikuta, Akio: *See—*
Hirayama, Shigemitsu; Akashi, Takamichi; Ikuta, Akio; Sasaki, Isao; and Fukuda, Hiroshi, 5,064,529, Cl. 210-90.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Ikuta, Hironori: *See—*
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Illing, Peter A.; Lanier, Phillip L.; and Ensminger, Reginald W., to Shield Pack, Inc. Tank liner-to-outlet neck seal. 5,064,096, Cl. 222-105.000.

Imai, Masanori; Watanabe, Noriaki; and Kawamura, Kouichi, to Fuji Photo Film Co., Ltd. Sensitizers for photocrosslinkable polymers. 5,064,747, Cl. 430-278.000.

Imai, Shin-ichi; and Sakata, Akira, to Kabushiki Kaisha Toshiba. Clamping circuit. 5,065,056, Cl. 307-540.000.

Imamura, Kaoru, to Kabushiki Kaisha Toshiba. Trimming resistor element for microelectronic circuit. 5,065,221, Cl. 357-51.000.

Imazeki, Ryoji; and Kurakake, Mitsuo, to Fanuc, Ltd. Serial interchange machine interface circuit. 5,065,306, Cl. 364-138.000.

IMI Cornelius Inc.: *See—*
Belland, Terrance G., 5,063,977, Cl. 141-86.000.

Imken, Ronald L.: *See—*
Frankeny, Jerome A.; Frankeny, Richard F.; Hermann, Karl; and Imken, Ronald L., 5,065,227, Cl. 357-74.000.

Immunopath Profile, Inc.: *See—*
Girsh, Leonard S., 5,064,674, Cl. 426-580.000.

Imogawa, Keikichi; and Nakasako, Kazuo, to NGK Insulators, Ltd. Ceramic fiber furnace. 5,063,861, Cl. 110-336.000.

Imperial Chemical Industries: *See—*
Hannaby, Malcolm, 5,064,925, Cl. 528-44.000.

Imperial Chemical Industries PLC: *See—*
Acton, David G.; Davies, David H.; and Poyser, Jeffrey P., 5,064,824, Cl. 514-202.000.
Buscall, Richard; Scales, Paul J.; Williams, Serena J.; and Newton, Jill E., 5,064,718, Cl. 428-407.000.
Lawson, John R., 5,064,723, Cl. 428-457.000.

Imuta, Mitsuru: *See—*
Uyeo, Shoichiro; Imuta, Mitsuru; Ona, Hisao; and Itani, Hikaru, 5,064,954, Cl. 540-302.000.

Inada, Hiromasa: *See—*
Suzuki, Fumio; Habara, Hideaki; Fukuda, Yutaro; Sato, Haruki; and Inada, Hiromasa, 5,064,938, Cl. 528-491.000.

Inaji, Toshio: *See—*
Yoshida, Shuichi; Wakabayashi, Noriaki; Inaji, Toshio; and Onodera, Hiromi, 5,065,263, Cl. 360-77.030.

Inamochi, Takashi: *See—*
Miyazaki, Takashi; Inamochi, Takashi; Kitamura, Masaaki; and Hayashi, Shohei, 5,064,731, Cl. 428-698.000.

Inax Corporation: *See—*
Sakakibara, Shigeru, 5,063,955, Cl. 137-1.000.

Industrial Technology Research Institute: *See—*
Chang, Kun-Zen, 5,064,775, Cl. 437-40.000.
Chen, Chi J.; Lin, Cheng H.; Liu, Tin Y.; and Hung, Ying C., 5,064,465, Cl. 75-349.000.

Inframetrics, Inc.: *See—*
McCullough, John, 5,065,024, Cl. 250-334.000.

Ingermann, Donald E.; Smith, Ronald L.; Caffrey, Stephen F.; and Steinhoff, Lonney J., to Century International Corporation. Fluid handling apparatus for bowling lane cleaning device. 5,063,633, Cl. 15-320.000.

Ingersoll-Rand Company: *See—*
Plummer, Darrill L., 5,064,359, Cl. 417-489.000.
Vote, Andrew S., 5,063,840, Cl. 100-121.000.

Inokuchi, Toshiyuki; and Baba, Nobuyuki, to Ricoh Company, Ltd. Information reading device. 5,064,258, Cl. 350-3.710.

Inose, Tsutomu: *See—*
Dodds, Robert E.; Inose, Tsutomu; and Kato, Yoshimitsu, 5,063,874, Cl. 118-602.000.

Inoue, Hiroshi: *See—*
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Inoue, Ichiro: *See—*
Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, 5,063,706, Cl. 43-125.000.

Inoue, Kazuhiko: *See—*
Tomisawa, Yutaka; Ishii, Tetsuo; and Inoue, Kazuhiko, 5,065,204, Cl. 357-27.000.

Inoue, Kenichi, to Yokogawa Electric Corporation. Graphic display system for process control using a plurality of displays connected to a common processor and using an FIFO buffer. 5,065,343, Cl. 395-162.000.

Inoue, Masahide: *See—*
Ogiso, Makoto; Ogawa, Tetsuro; Ichitsuka, Takeshi; and Inoue, Masahide, 5,064,436, Cl. 623-16.000.

Inoue, Noriyuki; Ohkubo, Satoru; Iwata, Toshio; and Demizu, Akira, to Mitsubishi Denki Kabushiki Kaisha. Ignition timing controlling apparatus for internal combustion engine. 5,063,902, Cl. 123-425.000.

Inoue, Osamu: *See—*
Tamaru, Shinji; Yamamoto, Katsutoshi; Tanaka, Osamu; Nishibayashi, Hirofumi; and Inoue, Osamu, 5,064,593, Cl. 264-113.000.

Inoue, Seiji, to Sanshin Kogyo Kabushiki Kaisha. Protector for the starting grip of outboard motor. 5,064,393, Cl. 440-77.000.

Inoue, Shoji: *See—*
Tsutsui, Osamu; Yoshida, Takao; and Inoue, Shoji, 5,063,622, Cl. 4-623.000.

Insite Peripherals, Inc.: *See—*
Roth, Maxim; Godwin, Jimmy D.; and Williams, Roger O., 5,065,387, Cl. 369-44.410.

Insley, Thomas I.; and Meyer, Daniel E., to Minnesota Mining and Manufacturing Company. Method for making a high wet-strength polyolefin blown microfiber web. 5,064,578, Cl. 264-12.000.

Institut Francais du Petrole: *See—*
Huvey, Michel, 5,064,491, Cl. 156-173.000.

Institut Moreologii Cheloveka: *See—*
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Institut National de la Recherche Agronomique: *See—*
Cerf, Olivier; Pain, Jean-Pierre; and Antonini, Gerard, 5,064,294, Cl. 374-16.000.

Institut Strukturnoi Makrokinetiki an SSSR: *See—*
Merzhanov, Alexandr G.; Borovinskaya, Inna P.; Nersesian, Mikael D.; and Peresada, Andrei G., 5,064,808, Cl. 505-1.000.

Institute for Applied Biotechnology, The: *See—*
Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., 5,064,425, Cl. 606-72.000.

Intel Corporation: *See—*
Atwood, Gregory E.; Fazio, Albert; and Lodenquai, Richard A., 5,065,364, Cl. 365-185.000.

Inter Innovation AB: *See—*
Edin, Gosta; and Zettergren, Hans, 5,064,074, Cl. 209-534.000.

Intermedics Orthopedics, Inc.: *See—*
Burkinshaw, Brian D., 5,064,427, Cl. 606-99.000.

International Air Filter, Inc.: *See—*
Jacquish, William W., 5,064,453, Cl. 55-217.000.

International Business Machines Corporation: *See—*
Bard, Steven L.; Christensen, David N.; Glenning, John J.; Nicoletti, James A.; and Urdanick, Mark W., 5,063,951, Cl. 134-64.00R.
Berry, Christopher J.; Cuomo, Jerome J.; Guarnieri, C. Richard; and Yee, Dennis S., 5,064,681, Cl. 427-36.000.
Dhong, San H.; and Hwang, Wei, 5,064,777, Cl. 437-52.000.
Ducharme, Stephen P.; Moerner, William E.; Scott, John C.; and Twieg, Robert J., 5,064,264, Cl. 385-130.000.
Frankeny, Jerome A.; Frankeny, Richard F.; Hermann, Karl; and Imken, Ronald L., 5,065,227, Cl. 357-74.000.
Garrett, Michael J., 5,065,146, Cl. 340-709.000.
Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, 5,065,368, Cl. 365-230.050.
Jambotkar, Chakrapani G., 5,064,772, Cl. 437-31.000.
Lamey, Patrick; and Kachmarik, Richard, 5,063,655, Cl. 29-611.000.
Lazenby, Kate; and Cox, Allen R., 5,065,279, Cl. 361-386.000.
Manca, Anthony; and Mayron, Henry, 5,064,063, Cl. 206-328.000.
Rajeevakumar, Thekkemadathil V., 5,065,273, Cl. 361-313.000.
Slinkman, James A.; Wickramasinghe, Hemantha K.; and Williams, Clayton C., 5,065,103, Cl. 324-458.000.
Stone, Harold S., 5,065,310, Cl. 395-425.000.
Vassiliadis, Stamatis; and Pechanek, Gerald G., 5,065,339, Cl. 395-24.000.

International Flavors & Fragrances, Inc.: *See—*
Tan, Chee-Teck; Kang, Young C.; Sudol, Marion A.; King, Chwan K.; and Schulman, Marvin, 5,064,669, Cl. 426-307.000.

International Fuel Cells Corporation: *See—*
Meyer, Alfred P., 5,064,732, Cl. 429-13.000.

International Paper Company: *See—*
Hofmann, Leroy C.; Hicks, Robert W.; Field, Jasper H.; and Monroe, Stephen H., 5,064,692, Cl. 427-361.000.

International Trade & Technologies, Inc.: *See—*
Nee, Victor W.; Cook, Jonathan J.; and Bruno, Michael N., 5,063,759, Cl. 70-14.000.

Int'l Environmental Systems, Inc.: *See—*
Wang, Lawrence K.; Wang, Mu Hao S.; Hwang, Chong S.; and Rhow, Harold, 5,064,531, Cl. 210-96.100.

Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, to Sharp Kabushiki Kaisha. Opening/closing device of a door member. 5,064,255, Cl. 312-405.000.

Irbit Research & Consulting AG: *See—*
Tschudin-Mahrer, Rolf, 5,064,709, Cl. 428-157.000.

Irie, Yoichiro: *See—*
Nagao, Tsuyoshi; Irie, Yoichiro; Takeda, Yoshiyuki; and Kida, Yasuhiko, 5,064,188, Cl. 271-301.000.

Irie, Yoshio: *See—*
Yamaguchi, Shigeru; Yokoi, Tokihiro; Shioji, Shorbu; Irie, Yoshio; and Fujiwara, Teruaki, 5,064,563, Cl. 252-174.230.

Irino, Takeshi: *See—*
Takahashi, Isao; Tanaka, Kazuhiko; Nishihiro, Akinori; and Irino, Takeshi, 5,065,060, Cl. 310-74.000.

Iriyama, Yoshiko: *See—*
Uehara, Satoshi; Ohtani, Yukio; and Iriyama, Yoshiko, 5,065,062, Cl. 310-114.000.

IRSID: *See—*
Bobadilla, Manuel; Jolivet, Jean-Marc; and Martinot, Michel, 5,063,991, Cl. 164-468.000.

Ishibashi, Kazuhisa: *See—*
Morofuji, Akihiko; Morotomi, Masaki; Machii, Akihiko; Aizawa, Masanori; and Ishibashi, Kazuhisa, 5,065,183, Cl. 355-202.000.

Ishibashi, Kenichi: *See—*
Asai, Mitsuo; Hayashi, Takehisa; Doi, Toshio; and Ishibashi, Kenichi, 5,065,048, Cl. 307-443.000.

Ishiguro, Kazuhisa; and Sato, Yasunori, to Sanyo Electric Co., Ltd. Amplification circuit with improved linearity. 5,065,112, Cl. 330-260.000.

Ishiguro, Satoshi; and Oda, Osamu, to Sony Corporation. Automatic fine tuning circuit. 5,065,244, Cl. 358-195.100.

Ishihara, Hiroyuki: *See—*
Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, 5,065,433, Cl. 381-63.000.

Ishihara, Kazuhiko: *See—*
Kusuki, Yoshihiro; and Ishihara, Kazuhiko, 5,064,446, Cl. 55-16.000.

Ishihara Sangyo Kaisha, Ltd.: *See—*
Yamada, Nobutoshi; Sugi, Hideo; and Kon, Kenji, 5,064,945, Cl. 536-17.500.

Ishii, Hidehiro, to Pioneer Electronic Corporation. Disk player with disk tilt or pickup position responsive noise reduction. 5,065,253, Cl. 358-340.000.

Ishii, Hidehiro: *See—*
Takeya, Noriyoshi; Ishii, Hidehiro; Miura, Chiharu; and Fukuda, Tatsuya, 5,065,386, Cl. 369-44.320.

Ishii, Kazuo: *See—*
Kato, Eiichi; and Ishii, Kazuo, 5,064,737, Cl. 430-96.000.

Ishii, Kazutoshi, to Seiko Instruments Inc. Semiconductor device having two-layered passivation film. 5,065,222, Cl. 357-52.000.

Ishii, Keizou: *See—*
Kashihara, Akio; Ishii, Keizou; Kanda, Kazunori; and Mizuguchi, Ryuzo, 5,064,923, Cl. 526-265.000.

Ishii, Kenjiro: *See—*
Sakakibara, Katsunori; Otsuki, Hajime; Ishii, Kenjiro; and Kokura, Yasuhide, 5,065,179, Cl. 355-45.000.

Ishii, Kohji: *See—*
Nakagama, Kiyohari; and Ishii, Kohji, 5,065,190, Cl. 355-246.000.

Ishii, Kozo: *See—*
Baba, Fumiaki; Yoshimura, Hiroshi; Fujiwara, Takuji; and Ishii, Kozo, 5,063,814, Cl. 74-866.000.

Ishii, Mitsuo; and Murata, Yoshitaka, to Matsushita Electric Industrial Co., Ltd. Suction head for attachment to a vacuum cleaner. 5,063,635, Cl. 15-398.000.

Ishii, Takashi: *See—*
Yoshizawa, Hideyoshi; Ishii, Takashi; Makino, Toshiyuki; Ozawa, Hidekatsu; and Shimizu, Yasuyuki, 5,064,985, Cl. 219-69.160.

Ishii, Tetsuo: *See—*
Tomisawa, Yutaka; Ishii, Tetsuo; and Inoue, Kazuhiko, 5,065,204, Cl. 357-27.000.

Ishikawa, Masahiro: *See—*
Igari, Yuichi; Ishikawa, Masahiro; and Kaneko, Mitsuo, 5,065,047, Cl. 307-442.000.

Ishikawa, Masayuki: *See—*
Okajima, Masaki; Hatakoshi, Genichi; Ishikawa, Masayuki; Uematsu, Yutaka; and Motegi, Nawoto, 5,065,404, Cl. 372-46.000.

Ishikawa, Mitsuru, to NEC Corporation. Subscriber call simulator capable of testing new services of a telephone switching system. 5,065,422, Cl. 379-11.000.

Ishikawa, Norio: *See—*
Taniguchi, Nobuyuki; Ishikawa, Norio; Akada, Yasuaki; Egawa, Takeshi; and Kawamura, Kunio, 5,065,176, Cl. 354-402.000.

Ishikawa, Takatoshi: *See—*
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.

Ishikawa, Yasuki: *See—*
Shiraishi, Yasuhiro; and Ishikawa, Yasuki, 5,065,323, Cl. 364-424.050.

Ishimizu, Hideaki: *See—*
Tanuma, Jiro; Ishimizu, Hideaki; Kasai, Tadashi; and Komori, Chihiro, 5,064,302, Cl. 400-124.000.

Ishioka, Hideyuki, to Hirose Electric Co., Ltd. Apparatus for loading multiconductor cable on connector half. 5,063,657, Cl. 29-753.000.

Ishisaka, Kazuyoshi: *See—*
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.

Ishitani, Tohru: *See—*
Kawanami, Yoshimi; Ohnishi, Tsuyoshi; Ishitani, Tohru; Habu, Tooru; and Yamaoka, Masahiro, 5,065,034, Cl. 250-505.100.

Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, to Toyota Jidosha Kabushiki Kaisha; and Aisen Industry Co., Ltd. Actuator for controlling intake pressure in sequential turbo-system. 5,063,744, Cl. 60-600.000.

Ishizaka, Kouichi; and Kosugi, Yukihisa, to Jidosha Kiki Co., Ltd. Method of controlling power steering system. 5,064,014, Cl. 180-79.100.

Isobe, Atsushi: *See—*
Hikita, Mitsutaka; Tabuchi, Toyoji; Shibagaki, Nobuhiko; Isobe, Atsushi; and Kurosawa, Kazuhito, 5,065,065, Cl. 310-313.00B.

Isobe, Susumu; Noda, Toshiharu; and Hirayama, Hiroshi, to Fuji Valve Co.; and Daido Tokushuko Kabushiki Kaisha. Jointing Ti-Al alloy member and structural steel member. 5,064,112, Cl. 228-112.000.

Isogai, Masato: *See—*
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Isohata, Shigeru: *See—*
Yamazaki, Etsuo; Nagamine, Tsuyoshi; and Isohata, Shigeru, 5,065,329, Cl. 364-474.080.

Isover Saint-Gobain: *See—*
Vojtech, Strnad, 5,063,860, Cl. 110-256.000.

Isozumi, Shuzoo, to Mitsubishi Denki K.K. Coaxial engine starter. 5,065,038, Cl. 290-48.000.

Isozumi, Shuzoo; and Konishi, Keiichi, to Mitsubishi Denki K.K. Coaxial starter with a core and contact terminal assembly. 5,065,039, Cl. 290-48.000.

ISP Investments Inc.: *See—*
Fusiak, Frank, 5,064,557, Cl. 252-162.000.
Tazi, Mohammed; and Login, Robert B., 5,064,897, Cl. 524-765.000.

Isuzu Motors Limited: *See—*
Kawamura, Hideo, 5,063,881, Cl. 123-1.00A.
Kurabayashi, Ken; Kitou, Seiichiro; Tsuchiya, Yoshinobu; and Niida, Yoriaki, 5,065,286, Cl. 361-502.000.

Itabashi, Akihisa, to Ricoh Company, Ltd. Fθ lens systems in optical scanner. 5,064,261, Cl. 359-206.000.

Itagaki, Takaharu; Shiraga, Mitsuaki; Sawayama, Shigeru; and Satoh, Kohichi, to Mitsubishi Kasei Corporation. Vinylamine copolymer, flocculating agent and paper strength increasing agent using the same, as well as process for producing the same. 5,064,909, Cl. 525-340.000.

Itani, Hikaru: *See—*
Uyeo, Shoichiro; Imuta, Mitsuru; Ona, Hisao; and Itani, Hikaru, 5,064,954, Cl. 540-302.000.

Itano, Mitsushi: *See—*
Aomi, Hideki; Soda, Tomizo; and Itano, Mitsushi, 5,064,474, Cl. 134-2.000.

Itaya, Kazunori: *See—*
Yabe, Norio; Iijima, Takeshi; Itaya, Kazunori; and Takano, Masahide, 5,065,174, Cl. 354-222.000.

Iterated Systems, Inc.: *See—*
Barnsley, Michael F.; and Sloan, Alan D., 5,065,447, Cl. 382-56.000.

Ito, Masaru: *See—*
Takao, Kunihiko; Tojo, Kenji; Hayase, Isao; Takahashi, Yukio; and Ito, Masaru, 5,063,829, Cl. 92-71.000.

Ito, Masazumi, to Minolta Camera Kabushiki Kaisha. Image forming apparatus capable of inscribing a desired date on copying paper. 5,065,181, Cl. 355-202.000.

Ito, Masazumi: *See—*
Yamashita, Toshiyuki; Ito, Masazumi; and Nishimori, Kadotaro, 5,065,198, Cl. 355-313.000.

Ito: Shotaro: *See—*
Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, 5,064,346, Cl. 416-178.000.

Ito, Takaaki: *See—*
Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, 5,063,706, Cl. 43-125.000.

Ito, Takatoshi; Yoshida, Akihiro; Shimazaki, Kazunori; and Hattori, Shuzo, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho; and Hattori, Shuzo. Substrate of a hybrid IC, method of forming a circuit pattern and apparatus of forming the same. 5,064,711, Cl. 428-209.000.

Ito, Toshikazu: *See—*
Horiguchi, Hyosei; Tezuka, Akira; Kagohata, Tsuneo; and Ito, Toshikazu, 5,065,015, Cl. 250-237.00R.

Ito, Toshio: *See—*
Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, 5,063,886, Cl. 123-65.0VD.
Oketani, Tetsuya; Ito, Toshio; and Mase, Yoshiaki, 5,064,044, Cl. 192-141.000.

Ito, Toshiya: *See—*
Motani, Shigeru; Saito, Tadayuki; and Ito, Toshiya, 5,064,874, Cl. 521-146.000.

Ito, Toshiyasu; Funahashi, Toshikazu; Ogisu, Yasuhiko; Takahashi, Shigeyuki; and Senda, Masanobu, to Toyoda Gosei Co., Ltd. Plasma treatment method. 5,064,679, Cl. 427-8.000.

Ito, Yoshinori: *See—*
Saito, Osamu; Yagi, Norihiko; and Ito, Yoshinori, 5,064,784, Cl. 501-33.000.

Ito, Yousuke; and Sasaki, Ichiro, to Brother Kogyo Kabushiki Kaisha. Apparatus for preparing image reproduction data. 5,065,342, Cl. 395-134.000.

Ito, Yujiro; Suzuki, Koji; and Kusaka, Satoshi, to Sony Corporation. Optical atmospheric link system. 5,065,455, Cl. 359-1.590.

Itoh, Michio: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Itoh, Shinichi; Sato, Hiroaki; and Taniguchi, Masayuki, to Oki Electric Industry Co., Ltd. Image forming system. 5,065,187, Cl. 355-215.000.

Itou, Kazumi; Gbe, Kazuyoshi; and Minagawa, Toshio, to Lintec Corporation. Cover tape for sealing chip-holding parts of carrier tape. 5,064,064, Cl. 206-330.000.

Itou, Takefumi: *See—*
Hashizume, Kimio; Kitakaze, Keizo; and Itou, Takefumi, 5,064,611, Cl. 420-481.000.

Itou, Tetsuo: *See—*
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.

VOL 1132 ISS 2 NO 12 1991 UMI

ITT Corporation: *See*—
Schap, William W., 5,063,710, Cl. 49-280.000.

Iuchi, Sigeru: *See*—
Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, 5,063,973, Cl. 139-370.200.

Ivey, Daryl: *See*—
Johnson, Ellen B.; and Ivey, Daryl, 5,063,698, Cl. 40-124.100.

Iwafune, Yasuo: *See*—
Matsumoto, Yasuo; Murakami, Kazunori; Ikumi, Tomonori; and Iwafune, Yasuo, 5,064,262, Cl. 359-205.000.

Iwagawa, Yoshihiro: *See*—
Yahagi, Toshio; Iwagawa, Yoshihiro; Sugimoto, Yoichi; and Satoh, Tsuyoshi, 5,065,327, Cl. 364-426.020.

Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka. Curable unsaturated polyester resin composition. 5,064,900, Cl. 525-69.000.

Iwai, Kazuhiro; Matsubayashi, Shinji; Ariga, Ikuo; and Saito, Kazuhiko, to Honda Giken Kogyo Kabushiki Kaisha. Saddle type vehicle having a storage receptacle. 5,064,016, Cl. 180-215.000.

Iwai, Shingo, to Mitsubishi Denki Kabushiki Kaisha. In-tank type motor-operated pump. 5,064,342, Cl. 415-55.100.

Iwako, Motonari, to Kabushiki Kaisha Funken Powtechs. Feeding device for particulate materials. 5,064,099, Cl. 222-142.000.

Iwakura, Masao: *See*—
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.

Iwasaki, Toshihiko: *See*—
Uyama, Kiyoshi; Yamamoto, Koji; Tsuboi, Haruhito; and Iwasaki, Toshihiko, 5,064,621, Cl. 422-144.000.

Iwase, Hideaki, to Asmo Co., Ltd. Wire guiding apparatus in coil winding machine. 5,064,128, Cl. 242-7.05B.

Iwata, Toshio: *See*—
Inoue, Noriyuki; Ohkubo, Satoru; Iwata, Toshio; and Demizu, Akira, 5,063,902, Cl. 123-425.000.

Iwatsuki, Kunihiro; and Tanaka, Shinichiro, to Toyota Jidosha Kabushiki Kaisha. Power control system for vehicles. 5,065,319, Cl. 364-424.100.

Iwatsuki, Makoto; and Hayashi, Toshio, to Ajinomoto Co., Inc. Support for anastomosing or connecting living organs. 5,064,057, Cl. 606-154.000.

Iwaya, Naohiro, to Atsugi Unisia Corporation. Piston structure for internal combustion engine. 5,063,893, Cl. 123-193.00P.

Iyota, Koji: *See*—
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.

Izuhara, Seiji; Kakiguchi, Yoshitomi; and Yokota, Kunihiko, to Takeda Chemical Industries, Ltd. Composition of a B vitamin and mannitol and a method for production. 5,064,829, Cl. 514-249.000.

J. I. Case Company: *See*—
Garter, Lee F.; and Covington, Michael J., 5,063,728, Cl. 56-13.500.

J. M. Voith GmbH: *See*—
Kuhne, Viktor; Twisselmann, Hark; and Brenner, Franz, 5,064,042, Cl. 192-106.200.
Sollinger, Hans-Peter, 5,063,689, Cl. 34-115.000.

Jachowski, Douglas R., to Orion Industries, Inc. Narrow-band, band-stop filter. 5,065,119, Cl. 333-202.000.

Jackson, Charles W.: *See*—
Chapin, John T.; Jackson, Charles W.; Mensah, Thomas O.; and Reynolds, Mickey R., 5,064,490, Cl. 156-172.000.

Jackson, Nigel P.; and Virr, Geoffrey P., to Rolls-Royce, plc. Engine cooling system protection device. 5,063,733, Cl. 60-39.750.

Jackson, Roy; Lowe, David J.; and Stewart, Clare A., to Du Pont de Nemours, E. I., and Company. Continuous process for preparing poly(butylene terephthalate) oligomer or poly(butylene isophthalate) oligomer. 5,064,935, Cl. 528-272.000.

Jackson, Winston J., Jr.: *See*—
Bell, Bruce C.; and Jackson, Winston J., Jr., 5,064,930, Cl. 528-182.000.

Jacob, Gernot: *See*—
Hafele, Siegfried; and Jacob, Gernot, 5,063,634, Cl. 15-377.000.

Jacob, Karl V.: *See*—
Sutton, Tod A.; Jacob, Karl V.; Lim, Timothy; and Sandor, Steven P., 5,064,582, Cl. 264-37.000.

Jacobs, Bernardus A. J.: *See*—
Spruit, Johannes H. M.; and Jacobs, Bernardus A. J., 5,065,377, Cl. 369-13.000.

Jacobs, Jochen; Altenschoepfer, Theodor; and Jeschke, Peter, to Henkel Kommanditgesellschaft auf Aktien. Process for the production of detergents in the form of fused blocks containing alkali hydroxides and, optionally, active chlorine for use in dishwashing machines. 5,064,554, Cl. 252-99.000.

Jacobs, Monica: *See*—
Hauber, David E.; Jacobs, Monica; Davis, W. Richard; Rushing, Tom; and Fanara, Robert A., 5,064,113, Cl. 229-8.000.

Jacobson, Boris S.; and DiPerna, Raymond A., to Raytheon Company. Class E fixed frequency converter. 5,065,300, Cl. 363-16.000.

Jacobson, Chester F., to Gillette Company, The. Shaving system. 5,063,667, Cl. 30-41.000.

Jacobus, Gerry A.: *See*—
Phillips, Clarence W.; Phillips, William F.; and Jacobus, Gerry A., 5,065,338, Cl. 395-51.000.

Jacquish, William W., to International Air Filter, Inc. Air filter system. 5,064,453, Cl. 55-217.000.

Jaeger, Hugh D., to W. R. Grace & Co.-Conn. Microwave air float bar for drying a traveling web. 5,064,979, Cl. 219-10.55A.

Jambotkar, Chakrapani G., to International Business Machines Corporation. Bipolar transistor integrated circuit technology. 5,064,772, Cl. 437-31.000.

James, Robert B., Jr.: *See*—
Lankton, Steven P.; and James, Robert B., Jr., 5,064,450, Cl. 55-70.000.

Jamieson, Ian L.: *See*—
Drake, John A. G.; and Jamieson, Ian L., 5,064,472, Cl. 106-278.000.

Jang, Hyeon-Sun, to Samsung Electronics Co., Ltd. MOS driver circuit having clamp means to hold the output voltage constant regardless of variations in the operating voltage. 5,065,049, Cl. 307-443.000.

Janome Sewing Machine Co. Ltd.: *See*—
Saito, Mitsuru, 5,064,049, Cl. 198-399.000.

Janotik, Adam M.; and Gentle, Derek F., to Ford Motor Company. Flexible conveying device. 5,064,046, Cl. 193-35.0SS.

Janse Lichtreklame B.V.: *See*—
de la Haye, Cornelis F.; and Van Amen, Cornelis H., deceased, 5,065,295, Cl. 362-391.000.

Jansen, Ronald: *See*—
Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, 5,064,509, Cl. 204-9.000.

Janssen, Henricus T. J.: *See*—
Huttenhuis, Aloysius G.; and Janssen, Henricus T. J., 5,064,211, Cl. 280-250.100.

Janssen, Mechilium: *See*—
Verduijn, Johannes P.; Janssen, Mechilium; De Gruijter, Cornelis B.; Koetsier, Wicher T.; and Van Oorschot, Cornelis W. M., 5,064,630, Cl. 423-328.000.

Japan Marine Science and Technology Center: *See*—
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.

Japan Synthetic Rubber Co., Ltd.: *See*—
Hattori, Iwakazu; Sakakibara, Mitsuhiko; Tsutsumi, Fumio; and Yoshizawa, Masao, 5,064,910, Cl. 525-359.100.

Jaras, Sven G.; Tokarz, Marek T.; and Persson, Borje, to Eka Nobel AB. Catalyst for the reduction of nitrogen oxides, a method for its preparation and the use thereof. 5,064,792, Cl. 502-60.000.

Jarvi, Esa T.; Edwards, Michael L.; and McCarthy, James R., to Merrell Dow Pharmaceuticals Inc. Di- and tetra-fluoro analogs of squalene as inhibitors of squalene epoxidase. 5,064,864, Cl. 514-739.000.

Jarvinen, Marja-Leena; and Koskinen, Jouko A. K., to Outokumpu Oy. Analyzer sealing member. 5,064,204, Cl. 277-53.000.

Jaume, Richard: *See*—
Ducourroy, Andre ; and Jaume, Richard, 5,065,131, Cl. 338-237.000.

Jefferies, Frederick W., to Weidenmiller Company. Rotary molding machine. 5,064,584, Cl. 264-39.000.

Jeng, Tzyy-Wen; Elmore, Kristin D.; Oosta, Gary M.; and Pry, Terry A., to Abbott Laboratories. Devices and methods for the collection of a predetermined volume of plasma or serum. 5,064,541, Cl. 210-767.000.

Jenmar Corporation: *See*—
Calandra, Frank, Jr.; and Frease, Jerry, 5,064,312, Cl. 405-259.500.

Jensen, Eigil; Olsson, N. Urban; Kaufmann, Peter; and Hagman, Anders, to Scandinavian Natural Resources Development HB. Herbal extract composition. 5,064,675, Cl. 426-597.000.

Jeol Ltd.: *See*—
Takashima, Susumu; and Uchida, Kunihiko, 5,065,027, Cl. 250-356.0ML.

Jeppson, David B.: *See*—
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Jerman, John H., to IC Sensors, Inc. Semiconductor transducer or actuator utilizing corrugated supports. 5,064,165, Cl. 251-61.100.

Jeschke, Peter: *See*—
Jacobs, Jochen; Altenschoepfer, Theodor; and Jeschke, Peter, 5,064,554, Cl. 252-99.000.

Jidosha Kiki Co., Ltd.: *See*—
Ishizaka, Kouichi; and Kosugi, Yukihisa, 5,064,014, Cl. 180-79.100.
Konishi, Masaru, 5,063,830, Cl. 92-169.200.
Mori, Kohei; and Sugimoto, Riichirou, 5,063,743, Cl. 60-562.000.

Jim O'Neal Distributing, Inc.: *See*—
O'Neal, James M., 5,064,157, Cl. 248-230.000.

Jim Walter Research Corp.: *See*—
Snider, Scott C.; Londrigan, Michael E.; and Trout, Kenneth G., 5,064,873, Cl. 521-131.000.

Jimenez, Antonio; and Combepine, Michel, to Mefina S.A. Zig-zag sewing machine with an oscillating cradle for slidingly mounting a needle bar. 5,063,865, Cl. 112-221.000.

Jimenez, Antonio; and Combepine, Michel, to Mefina S.A. Sewing machine. 5,063,866, Cl. 112-302.000.

Jin, Park T., to Samsung Electronics Co., Ltd. Automatic control circuit for vertical synchronizing signal. 5,065,239, Cl. 358-148.000.

Jin, Tokiji: *See*—
Iizuka, Tetsuo; Jin, Tokiji; and Sasamoto, Hideho, 5,063,864, Cl. 112-121.290.

Jobling, Ian: *See*—
Carr, Anthony H.; Badley, Robert A.; Jobling, Ian; and Sands, Thomas J., 5,064,756, Cl. 435-32.000.

John Wyeth & Brother Limited: *See*—
Archibald, John L.; Ward, Terence J.; and Opalko, Albert, 5,064,842, Cl. 514-341.000.

Johns, Antony: *See*—
Tinsley, Michael; Johns, Antony; and Philby, Jonathan D., 5,064,990, Cl. 219-121.720.

Johnson, Clyde T. Locking device for boat sonar units and the like. 5,063,763, Cl. 70-58.000.

Johnson, Douglas R., to Deere & Company. Splined clutch drum mounting. 5,064,040, Cl. 192-85.0AA.

Johnson, Ellen B.; and Ivey, Daryl. Greeting card with electronic sound recording. 5,063,698, Cl. 40-124.100.

Johnson, Gary E.: *See*—
Craig, Grantland A.; and Johnson, Gary E., 5,064,484, Cl. 156-62.600.

Johnson, Jeffrey D.: *See*—
Jones, Marshall G.; Schindler, Donald R.; Johnson, Jeffrey D.; and Harris, William O., 5,064,992, Cl. 219-121.630.

Johnson, Joe C. Acu-planer attachment. 5,063,979, Cl. 144-1.00F.

Johnson, Marvin M., to Phillips Petroleum Company. Trialkyl arsine sorbents. 5,064,626, Cl. 423-245.100.

Johnson, Randolph A.: *See*—
Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., 5,063,680, Cl. 33-397.000.

Johnson, Wendell: *See*—
Hull, Harold L.; and Johnson, Wendell, 5,063,731, Cl. 56-295.000.

Johnson, William S. Gravity force rebound exerciser. 5,064,191, Cl. 272-117.000.

Johnston, Everett A.; and Poe, Robert, to Eastman Kodak Company. Stabilization and calibration of precision electronic circuit component. 5,065,351, Cl. 364-571.040.

Johnston, Thomas F., Jr.; and Williams, Gerald H., to Coherent, Inc. Apparatus for measuring the mode quality of a laser beam. 5,064,284, Cl. 356-121.000.

Jolivet, Jean-Marc: *See*—
Bobadilla, Manuel; Jolivet, Jean-Marc; and Martinot, Michel, 5,063,991, Cl. 164-468.000.

Jondelius, Bjorn. Portable-telephone mounting bracket. 5,064,162, Cl. 248-548.000.

Jones, Jack A.; Petrick, S. Walter; and Bard, Steven, to United States of America, National Aeronautics and Space Administration. Multicomponent gas sorption Joule-Thomson refrigeration. 5,063,747, Cl. 62-461.000.

Jones, Mark A.: *See*—
Grooms, John M.; and Jones, Mark A., 5,064,314, Cl. 406-22.000.

Jones, Marshall G.; Schindler, Donald R.; Johnson, Jeffrey D.; and Harris, William O., to General Electric Company. Apparatus for welding components. 5,064,992, Cl. 219-121.630.

Jones, Richard D. Molar distalizing appliance. 5,064,370, Cl. 433-21.000.

Joneus, Lars: *See*—
Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., 5,064,425, Cl. 606-72.000.

Jonkka, Arvo, to Rauma-Repola Oy. Method and means of conveyance of solid matter in pieces or particles. 5,063,981, Cl. 144-341.000.

Jons, Curtis R.; and Gready, Robert S., to Compaq Computer Corporation. Queued posted-write disk write method with improved error handling. 5,065,354, Cl. 395-575.000.

Jorda, Rafael: *See*—
Desmonceau, Daniel; and Jorda, Rafael, 5,064,894, Cl. 524-503.000.

Jorgensen, Einar: *See*—
Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., 5,064,425, Cl. 606-72.000.

Jorgensen, Karen V.; and Jorgensen, Michael J. Sealing wood finish. 5,064,471, Cl. 106-250.000.

Jorgensen, Michael J.: *See*—
Jorgensen, Karen V.; and Jorgensen, Michael J., 5,064,471, Cl. 106-250.000.

Jorneus, Lars, to Nobelpharma AB. Holder. 5,064,375, Cl. 433-229.000.

Jorritsma, Johannes N. Apparatus for measuring the level of a liquid in a wetwell. 5,063,778, Cl. 73-299.000.

Joshua, Henry: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Jost, Philippe; and Malassis, Marc, to Rhone-Poulenc Chimie. Stable pumpable zeolite/silicone suspensions. 5,064,562, Cl. 252-174.150.

Joyce, Mark A.: *See*—
Landry, James D.; Joyce, Mark A.; Young, John D.; Gilmore, Robert S.; and Schoenig, Frederick C., Jr., 5,063,779, Cl. 73-622.000.

Juengel, Richard O., to GTE Valenite Corporation. Optical data system having flash/receiver head for energizing/receiving information from a battery operated transmitter. 5,065,035, Cl. 250-551.000.

Juki Corporation: *See*—
Iizuka, Tetsuo; Jin, Tokiji; and Sasamoto, Hideho, 5,063,864, Cl. 112-121.290.

Jung, Rolf; Schwartzott, Jack M.; Pieroni, Robert J.; and Tobler, Arnold, to Eastman Machine Company. Pin table. 5,063,800, Cl. 83-14.000.

Junichi, Kohno: *See*—
Sohei, Goto; Ken, Okauchi; Junichi, Kohno; and Masaru, Iwagaki, 5,064,753, Cl. 430-567.000.

Juntgen, Harald; Knoblauch, Karl; Richter, Ekkehard; and Kuhl, Helmut. Process for manufacturing a carbon catalyst. 5,064,801, Cl. 502-180.000.

Jurgens, Eberhard: *See*—
Wagner, Joachim; Rasshofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, 5,064,600, Cl. 264-328.600.

Juskey, Frank J.; Suppelsa, Anthony B.; and Flaugher, Jill L., to Motorola, Inc. Transmission line using fluroplastic as a dielectric. 5,065,122, Cl. 333-238.000.

Justice, Jeremy K.: *See*—
Cropper, Peter R.; Haffenden, Gary P.; and Justice, Jeremy K., 5,065,036, Cl. 250-571.000.

K. S. Macey Machine Company, Inc.: *See*—
Raker, John W., 5,064,328, Cl. 412-12.000.

Kaalstad, Oscar W., to Norvic S.A. Three disc drill bit. 5,064,007, Cl. 175-334.000.

Kabasawa, Koji: *See*—
Shiga, Shujiro; Kabasawa, Koji; Ohmae, Tadayuki; and Tanaka, Hisao, 5,064,879, Cl. 523-310.000.

Kabasawa, Makoto; and Moriaki, Ono, to Nippon Kokan Kabushiki Kaisha. Electric resistance seam welding method. 5,064,982, Cl. 219-64.000.

Kabushiki Kaisha Funken Powtechs: *See*—
Iwako, Motonari, 5,064,099, Cl. 222-142.000.

Kabushiki Kaisha Ishikawa Seisakusho, Ltd.: *See*—
Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, 5,063,973, Cl. 139-370.200.

Kabushiki Kaisha Kobe Seiko Sho: *See*—
Miyaoka, Satoshi, 5,063,741, Cl. 60-461.000.
Yoshimatsu, Hideaki, 5,063,742, Cl. 60-466.000.

Kabushiki Kaisha Kosmek: *See*—
Yonezawa, Keitaro; Miyata, Ichiro; and Shirakawa, Tsutomu, 5,063,648, Cl. 29-33.00K.

Kabushiki Kaisha Meidensha: *See*—
Fujimori, Sadao; Yamamoto, Akira; and Taneda, Satoru, 5,063,773, Cl. 73-117.000.

Kabushiki Kaisha NERIKI: *See*—
Oi, Akira; and Yonezawa, Keitaro, 5,063,976, Cl. 141-18.000.

Kabushiki Kaisha Okuma Tekkosho: *See*—
Suzuki, Masumi, 5,065,095, Cl. 324-207.250.

Kabushiki Kaisha Sato: *See*—
Kashiwaba, Tadao, 5,064,300, Cl. 400-56.000.

Kabushiki Kaisha Toshiba: *See*—
Hirakawa, Kenji, 5,065,210, Cl. 357-35.000.
Iga, Hiroyuki, 5,065,241, Cl. 358-166.000.
Imori, Akiro; Matsumoto, Hiroshi; and Ide, Fumito, 5,065,184, Cl. 355-208.000.
Ikeda, Yoshio; and Okazaki, Kiyoshi, 5,063,757, Cl. [illegible]17.00R.
Imai, Shin-ichi; and Sakata, Akira, 5,065,056, Cl. 307-540.000.
Imamura, Kaoru, 5,065,221, Cl. 357-51.000.
Kanazawa, Hidetoshi, 5,065,302, Cl. 363-37.000.
Katagiri, Takato, 5,065,243, Cl. 258-183.000.
Kawasaki, Masayuki, 5,065,057, Cl. 307-572.000.
Kinoshita, Junichi, 5,065,406, Cl. 372-96.000.
Kuwana, Kiyohisa, 5,065,159, Cl. 341-148.000.
Oe, Mitsuo, 5,065,435, Cl. 382-6.000.
Ohata, Yu; and Kuramoto, Tsuyoshi, 5,065,212, Cl. 357-42.000.
Okajima, Masaki; Hatakoshi, Genichi; Ishikawa, Masayuki; Uematsu, Yutaka; and Motegi, Nawoto, 5,065,404, Cl. 372-46.000.
Sasaki, Akira; Sakai, Kazuyasu; and Suzuki, Katsuyoshi, 5,065,432, Cl. 381-61.000.
Shiobara, Yasuhisa, 5,065,397, Cl. 370-85.500.
Shiraishi, Takashi, 5,064,260, Cl. 350-6.800.
Takahashi, Masashi; Nakamura, Yuka; Kajiura, Sadao; and Tsunemi, Koichi, 5,064,696, Cl. 427-430.100.
Takahashi, Ryoichi, 5,063,933, Cl. 128-653.500.
Tanaka, Toshiaki, 5,065,007, Cl. 250-215.000.
Toda, Haruki, 5,065,369, Cl. 365-230.050.
Tokutsu, Akihito, 5,064,182, Cl. 271-3.000.
Tomisawa, Yutaka; Ishii, Tetsuo; and Inoue, Kazuhiko, 5,065,204, Cl. 357-27.000.
Yoshizawa, Makoto; and Maruyama, Tadashi, 5,065,361, Cl. 365-104.000.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Hayashi, Takashi; Hida, Junichi; Suga, Kenji; and Kurata, Yoshikazu, 5,065,320, Cl. 364-424.010.
Ito, Takatoshi; Yoshida, Akihiro; Shimazaki, Kazunori; and Hattori, Shuzo, 5,064,711, Cl. 428-209.000.

Kabushiki Kaisha Yasakawa Denki Seisakusho: *See*—
Satoh, Ikumi; Nakano, Jun; Harada, Riichiroh; and Koba, Tatsuhiko, 5,065,061, Cl. 310-104.000.

Kachmarik, Richard: *See*—
Lamey, Patrick; and Kachmarik, Richard, 5,063,655, Cl. 29-611.000.

Kagami, Kenji: *See*—
Fukui, Tetsuro; Fukumoto, Hiroshi; Katayama, Masato; Arahara, Kozo; and Kagami, Kenji, 5,064,744, Cl. 430-255.000.

Kageyama, Yoshiteru: *See*—
Sawada, Yoshiaki; Kageyama, Yoshiteru; and Teramoto, Tadashi, 5,064,464, Cl. 75-347.000.

Kagohata, Tsuneo: *See*—
Horiguchi, Hyosei; Tezuka, Akira; Kagohata, Tsuneo; and Ito, Toshikazu, 5,065,015, Cl. 250-237.00R.

VOL 1132 ISS 2 NO 12 1991 UMI

Kagosaki, Tatsuya: *See*—
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.

Kai, Hidekazu: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Kaifler, Erich; and Grobecker, Horst, to Siemens Aktiengesellschaft. Circuit configuration for an amplifier stage. 5,065,114, Cl. 330-277.000.

Kainaga, Masahiro: *See*—
Nojiri, Tohru; and Kainaga, Masahiro, 5,065,353, Cl. 364-786.000.

Kaiser, Winfried; Schober, Andreas; and Salfeld, E.-Peter, to Hewlett-Packard Company. Digitally addressble electronic device with interchanged and inverted address lines. 5,065,154, Cl. 340-825.520.

Kajitani, Akira: *See*—
Seki, Masaki; Takegahara, Takashi; and Kajitani, Akira, 5,065,332, Cl. 364-474.220.

Kajiura, Sadao: *See*—
Takahashi, Masashi; Nakamura, Yuka; Kajiura, Sadao; and Tsunemi, Koichi, 5,064,696, Cl. 427-430.100.

Kakiguchi, Yoshitomi: *See*—
Izuhara, Seiji; Kakiguchi, Yoshitomi; and Yokota, Kunihiko, 5,064,829, Cl. 514-249.000.

Kakizaki, Shinobu, to Atsugi Unisia Corporation. Motor operated actuator with position encoder for stopping actuator at desired position. 5,064,031, Cl. 188-299.000.

Kalbfleisch, Eckhard: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Kallenbach, Rolf; and Lemmert, Karl-Heinz, to Shell Internationale Research Maatschappij B.V. Colloidal polymer dispersion for internal sealing of pipes and process for the application thereof. 5,064,486, Cl. 156-94.000.

Kallweit, Manfred; and Blasing, Horst, to Schering Aktiengesellschaft. Apparatus and method for treating and/or cleaning of objects, particularly circuit boards. 5,063,950, Cl. 134-64.00R.

Kalwitzki, Heinrich: *See*—
Kubiak, Helmut; Schroter, Hans J.; Gappa, Gunther; Kalwitzki, Heinrich; and Knop, Klaus, 5,064,444, Cl. 48-202.000.

Kambara, Hajime: *See*—
Hata, Hajime; Kambara, Hajime; Sogabe, Seiji; and Oka, Keizo, 5,064,631, Cl. 423-279.000.

Kamikubo, Hiroshi: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Kamikura, Rinzo: *See*—
Suzuki, Hideaki; Hosoyama, Kenji; Takeda, Shuichiro; and Kamikura, Rinzo, 5,064,717, Cl. 428-352.000.

Kamimura, Toshio, to Teijin Seiki Co., Ltd. Actuator with a lock mechanism. 5,063,828, Cl. 92-26.000.

Kaminski, Christopher A., to General Electric Company. Rotor slot insulation in rotors with subslots. 5,065,064, Cl. 310-215.000.

Kamishita, Takuzo; and Takagi, Toshiaki, to Toko Yakuhin Kogyo Kabushiki Kaisha. Disposable nozzle adapter for intranasal spray containers. 5,064,122, Cl. 239-396.000.

Kamitaka, Masuo: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Kamp, David A.: *See*—
Herdt, Christian E.; Weiner, Albert S.; Kamp, David A.; and Dimmler, Klaus J., 5,065,362, Cl. 365-154.000.

Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, to Toyota Jidosha Kabushiki Kaisha. Two-stroke engine. 5,063,886, Cl. 123-65.0VD.

Kanaya, Eizo; Chujo, Yoshihiro; Hano, Shigehiro; and Hara, Hidetoshi, to Toray Industries, Inc. Electrophotographic printer. 5,065,196, Cl. 355-308.000.

Kanazawa, Hidetoshi, to Kabushiki Kaisha Toshiba. Adjustable AC power supply equipment for air-conditioner system. 5,065,302, Cl. 363-37.000.

Kanazawa University, President of: *See*—
Hasegawa, Seiichi, 5,064,779, Cl. 437-109.000.

Kanda, Kazunori: *See*—
Kashihara, Akio; Ishii, Keizou; Kanda, Kazunori; and Mizuguchi, Ryuzo, 5,064,923, Cl. 526-265.000.

Kanda, Kimio, to Hitachi, Ltd. Energy dispersive X-ray spectrometer. 5,065,020, Cl. 250-310.000.

Kane, John M.: *See*—
Carr, Albert A.; Kane, John M.; and Miller, Francis P., 5,064,840, Cl. 514-322.000.

Kanebo Limited: *See*—
Ando, Satoshi; Dohno, Akira; and Hagiwara, Zenji, 5,064,599, Cl. 264-237.000.
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Kanebo Rayon, Ltd.: *See*—
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See*—
Motani, Shigeru; Saito, Tadayuki; and Ito, Toshiya, 5,064,874, Cl. 521-146.000.

Kaneko, Mitsuo: *See*—
Igari, Yuichi; Ishikawa, Masahiro; and Kaneko, Mitsuo, 5,065,047, Cl. 307-442.000.

Kaneko, Susumu: *See*—
Tanaka, Kazuhiro; Kojima, Shuichi; Kaneko, Susumu; and Chikuma, Takayuki, 5,063,970, Cl. 139-1.00R.

Kanemoto, Akihiko: *See*—
Takiguchi, Yasuyuki; Kanemoto, Akihiko; Iida, Shigeki; and Toyooka, Takehiro, 5,064,697, Cl. 428-1.000.

Kaneniwa, Tatsuya: *See*—
Hung, Po-Chieh; and Kaneniwa, Tatsuya, 5,065,234, Cl. 358-80.000.

Kaneyasu, Masayoshi; Kurihara, Nobuo; Kitano, Kouji; and Kayano, Mitsuo, to Hitachi, Ltd. Diagnosis system and optimum control system for internal combustion engine. 5,063,901, Cl. 123-419.000.

Kang, Young C.: *See*—
Tan, Chee-Teck; Kang, Young C.; Sudol, Marion A.; King, Chwan K.; and Schulman, Marvin, 5,064,669, Cl. 426-307.000.

Kanoh, Masaki: *See*—
Hosokawa, Yoshiaki; Kanoh, Masaki; Maekawa, Takashi; and Nakayasu, Hirofumi, 5,064,304, Cl. 400-225.000.

Kanota, Keiji: *See*—
Kubota, Yukio; and Kanota, Keiji, 5,065,259, Cl. 360-32.000.

Kansai Netsukagaku Kabushiki Kaisha: *See*—
Otowa, Yoshiro, 5,064,805, Cl. 502-427.000.

Kanzaki Paper Manufacturing Co., Ltd.: *See*—
Suzuki, Hideaki; Hosoyama, Kenji; Takeda, Shuichiro; and Kamikura, Rinzo, 5,064,717, Cl. 428-352.000.

Kao Corporation: *See*—
Kawase, Jiro; Ukaji, Kazuo; and Nagashima, Emi, 5,064,441, Cl. 8-405.000.
Kikuchi, Yoko; Ohashi, Yukihiro; Suzuki, Yuji; and Suzuki, Toshiyuki, 5,064,642, Cl. 424-61.000.

Karasek, Donald F.: *See*—
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

Karasikov, Nir; and Sarig, Sara. Assay for determining the propensity of a person to form kidney stones. 5,064,765, Cl. 436-4.000.

Karle, Anton: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Karuezos, Marcos; Kaw, Ravindhar; Hanlon, Lawrence; and Matta, Farid, to Hewlett-Packard Company. Flex interconnect module. 5,065,280, Cl. 361-386.000.

Karube, Norio; and Manabe, Mitsuo, to Fanuc Ltd. Numerical control system for laser. 5,065,330, Cl. 364-474.080.

Karzijn, Willem: *See*—
Kooijmans, Petrus G.; Van Der Mark, Johannes M.; and Karzijn, Willem, 5,064,913, Cl. 525-438.000.

Kasahara, Kenichi; Ogura, Ichiro; and Tashiro, Yoshiharu, to NEC Corporation. Method for driving a pnpn semiconductor device. 5,065,044, Cl. 307-324.000.

Kasai, Minoru; and Nakamura, Minoru, to Hitec Co., Ltd. Apparatus for manufacturing sausages or the like. 5,064,401, Cl. 452-46.000.

Kasai, Tadashi: *See*—
Tanuma, Jiro; Ishimizu, Hideaki; Kasai, Tadashi; and Komori, Chihiro, 5,064,302, Cl. 400-124.000.

Kasai, Tomohiko: *See*—
Nakamura, Takashi; Tani, Hidekazu; and Kasai, Tomohiko, 5,063,752, Cl. 62-225.000.

Kase, Mitsuo; Tsuyuzaki, Kazue; Kawasaki, Yoichi; and Arimoto, Shunji, to Dainippon Ink and Chemicals, Inc. Isocyanate prepolymer and process for preparing the same. 5,064,928, Cl. 528-85.000.

Kashihara, Akio; Ishii, Keizou; Kanda, Kazunori; and Mizuguchi, Ryuzo, to Nippon Paint Co., Ltd. Crosslinked polymer microparticles derived from betaine monomers having three-dimensional network. 5,064,923, Cl. 526-265.000.

Kashiwa, Takeo: *See*—
Habiro, Tetsuo; and Kashiwa, Takeo, 5,065,088, Cl. 324-117.00H.

Kashiwaba, Tadao, to Kabushiki Kaisha Sato. Thermal price tag printer thermal head support structure. 5,064,300, Cl. 400-56.000.

Kashiwakura, Hyouei: *See*—
Mizuno, Yutaka; and Kashiwakura, Hyouei, 5,065,004, Cl. 235-479.000.

Kassel, John; and Remstad, Steve C., to Sundstrand Corporation. Partial throat diffuser. 5,064,344, Cl. 415-224.500.

Kasugai, Hiroshi: *See*—
Okamoto, Ryuichi; Nishiguchi, Masato; Kasugai, Hiroshi; and Tamamoto, Seishi, 5,064,999, Cl. 235-379.000.

Katagiri, Junichi: *See*—
Nagai, Akira; Sugawara, Katuo; Suzuki, Masahiro; Katagiri, Junichi; and Takahashi, Akio, 5,065,285, Cl. 361-414.000.

Katagiri, Shoichi: *See*—
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.

Katagiri, Takato, to Kabushiki Kaisha Toshiba. Multi-screen high-definition television receiver. 5,065,243, Cl. 258-183.000.

Kataoka, Shoei: *See*—
Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, 5,065,087, Cl. 324-71.600.

Katayama, Masato: *See*—
Fukui, Tetsuro; Fukumoto, Hiroshi; Katayama, Masato; Arahara, Kozo; and Kagami, Kenji, 5,064,744, Cl. 430-255.000.

Kato, Eiichi; and Ishii, Kazuo, to Fuji Photo Film Co., Ltd. Electrophotographic light-sensitive material. 5,064,737, Cl. 430-96.000.

Kato, Yoshimitsu: *See*—
Dodds, Robert E.; Inose, Tsutomu; and Kato, Yoshimitsu, 5,063,874, Cl. 118-602.000.

Katoh, Kazunobu; Sato, Kozo; and Shiba, Keisuke, to Fuji Photo Film Co., Ltd. Silver halide photographic materials. 5,064,752, Cl. 430-546.000.

Kaufmann, Peter: *See*—
Jensen, Eigil; Olsson, N. Urban; Kaufmann, Peter; and Hagman, Anders, 5,064,675, Cl. 426-597.000.

Kaw, Ravindhar: *See*—
Karnezos, Marcos; Kaw, Ravindhar; Hanlon, Lawrence; and Matta, Farid, 5,065,280, Cl. 361-386.000.

Kawada, Kiyoshi: *See*—
Nakajima, Hideo; Kawada, Kiyoshi; and Tokubo, Kazuo, 5,064,644, Cl. 424-83.000.

Kawaguchi, Kozo, to Tomy, Inc. Orthodontic device. 5,064,369, Cl. 433-3.000.

Kawahara, Toshiaki: *See*—
Nagata, Yasuhiro; and Kawahara, Toshiaki, 5,064,026, Cl. 187-130.000.

Kawai, Hideki: *See*—
Sakagami, Masahiko; and Kawai, Hideki, 5,065,052, Cl. 307-480.000.

Kawai, Toshihiko; and Tobishima, Takaaki, to Sony Corporation. Method and apparatus for employing a buffer memory to allow low resolution video data to be simultaneously displayed in window fashion with high resolution video data. 5,065,346, Cl. 395-128.000.

Kawakami, Kazuhiko: *See*—
Moriyama, Norio; and Kawakami, Kazuhiko, 5,065,012, Cl. 250-231.140.

Kawakami, Koichi: *See*—
Tanaka, Mamoru; Suzuki, Masayuki; and Kawakami, Koichi, 5,064,297, Cl. 384-100.000.

Kawakami, Youichi, to Mitsubishi Denki Kabushiki Kaisha. Radar transponder. 5,065,160, Cl. 342-51.000.

Kawakubo, Katsuhiko: *See*—
Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, 5,064,760, Cl. 435-118.000.

Kawamoto, Toru; and Yamamoto, Shigeru, to Nippon Electric Glass Co., Ltd. Alkali-resistant glass for forming glass fibers. 5,064,785, Cl. 501-72.000.

Kawamura, Hideaki; Fujibayashi, Kentaro; and Sano, Masafumi, to Fanuc Ltd. Method of involute interpolation in three dimensions. 5,065,333, Cl. 364-474.310.

Kawamura, Hideo, to Isuzu Motors Limited. Ceramic engine. 5,063,881, Cl. 123-1.00A.

Kawamura, Koichi: *See*—
Koike, Akinobu; Abe, Yukio; and Kawamura, Koichi, 5,064,741, Cl. 430-191.000.

Kawamura, Kouichi: *See*—
Imai, Masanori; Watanabe, Noriaki; and Kawamura, Kouichi, 5,064,747, Cl. 430-278.000.

Kawamura, Kunio: *See*—
Taniguchi, Nobuyuki; Ishikawa, Norio; Akada, Yasuaki; Egawa, Takeshi; and Kawamura, Kunio, 5,065,176, Cl. 354-402.000.

Kawana, Kazutaka; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; and Tozu, Kenji, to Aisin Seiki K.K. Anti-skid controlling apparatus. 5,064,253, Cl. 303-106.000.

Kawanami, Yoshimi; Ohnishi, Tsuyoshi; Ishitani, Tohru; Habu, Tooru; and Yamaoka, Masahiro, to Hitachi, Ltd. Charged particle beam apparatus. 5,065,034, Cl. 250-505.100.

Kawano, Hideo, to NEC Corporation. Transverse-mode stabilized laser diode. 5,065,402, Cl. 372-46.000.

Kawano, Isao: *See*—
Shiraishi, Tomikatsu; and Kawano, Isao, 5,065,357, Cl. 395-200.000.

Kawasaki, Masahiro: *See*—
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, 5,065,175, Cl. 354-400.000.

Kawasaki, Masayuki, to Kabushiki Kaisha Toshiba. Analog signal input circuit. 5,065,057, Cl. 307-572.000.

Kawasaki, Yoichi: *See*—
Kase, Mitsuo; Tsuyuzaki, Kazue; Kawasaki, Yoichi; and Arimoto, Shunji, 5,064,928, Cl. 528-85.000.

Kawase, Jiro; Ukaji, Kazuo; and Nagashima, Emi, to Kao Corporation. Hair treatment composition, bleaching composition and hair color tone modifier composition. 5,064,441, Cl. 8-405.000.

Kawashima, Mitsunobu: *See*—
Omura, Ikuo; Yamauchi, Junichi; and Kawashima, Mitsunobu, 5,064,495, Cl. 156-307.300.

Kawawaki, Fumiaki: *See*—
Koumo, Hideyasu; and Kawawaki, Fumiaki, 5,065,359, Cl. 395-800.000.

Kayano, Mitsuo: *See*—
Kaneyasu, Masayoshi; Kurihara, Nobuo; Kitano, Kouji; and Kayano, Mitsuo, 5,063,901, Cl. 123-419.000.

Kazama, Tutomu: *See*—
Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, 5,065,283, Cl. 361-407.600.

KC Medical Industries Corporation: *See*—
Clarke, Gerald P.; and Keen, Jean, 5,064,420, Cl. 604-295.000.

Keeling, David J.: *See*—
Ife, Robert J.; Brown, Thomas H.; Leach, Colin A.; and Keeling, David J., 5,064,833, Cl. 514-260.000.

Keen, Jean: *See*—
Clarke, Gerald P.; and Keen, Jean, 5,064,420, Cl. 604-295.000.

Keeton, Dewey B., III: *See*—
Darilek, Glenn T.; and Keeton, Dewey B., III, 5,065,019, Cl. 250-301.000.

Kelleher, John M.; and Dillon, David B., to Trico Industries, Inc. Multiple engine deep well pump. 5,064,355, Cl. 417-404.000.

Keller, Alfred; Kohnen, Julius; and Kurschatke, Wolfgang, to Eduard Kusters Maschinenfabrik GmbH & Co. Apparatus for applying a treatment fluid having pivotal nozzle combs. 5,063,758, Cl. 68-205.00R.

Kellett, Michael A. Accelerometers and associated control circuits. 5,063,782, Cl. 73-654.000.

Kelley, John W.: *See*—
Smith, Roy F.; Kelley, John W.; and Korcz, William H., 5,064,485, Cl. 156-69.000.

Kelly, Douglas J. Portable data storage and editing device. 5,065,360, Cl. 395-800.000.

Kempo, Tsutomu; Matsuda, Atsuko; and Goto, Narito, to Konica Corporation. Magnetic recording medium containing a polyurethane binder resin having a betaine group in the form of an intermolecular salt. 5,064,720, Cl. 428-423.100.

Ken, Okauchi: *See*—
Sohei, Goto; Ken, Okauchi; Junichi, Kohno; and Masaru, Iwagaki, 5,064,753, Cl. 430-567.000.

Kendall, Kenneth D.; and Dean, Darren W., to Courtaulds Films & Packaging (holdings) Ltd. Process of producing an oriented silicone resin coated polymeric film. 5,064,579, Cl. 264-22.000.

Kenner, Donald A. Apparatus for protecting an environmental monitoring well head. 5,063,996, Cl. 166-75.100.

Kent, James V.; and Westbrook, Theodore E., Sr., to Figgie International, Inc. Method and apparatus for applying rectangular closures to rectangular containers. 5,063,725, Cl. 53-485.000.

Kent-Moore Corporation: *See*—
Manz, Kenneth W., 5,063,749, Cl. 62-149.000.

Keough, John R.: *See*—
Kovacs, Bela V.; Keough, John R.; and Pramstaller, Douglas M., 5,064,478, Cl. 148-12.400.

Keown, Susan M.: *See*—
Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., 5,065,224, Cl. 357-70.000.

Kerfoot Corporation: *See*—
Kerfoot, Franklin W., Jr., 5,064,071, Cl. 206-534.000.

Kerfoot, Franklin W., Jr., to Kerfoot Corporation. Container apparatus. 5,064,071, Cl. 206-534.000.

Kern, Mark T.; Wetzork, John M.; Shamordola, Kenneth A.; and Tangonan, Gregory L., to Santa Barbara Research Center. Fiber optic flame and overheat sensing system with self test. 5,064,271, Cl. 385-33.000.

Kessler, Sigfried: *See*—
Bisping, Bernard; Vagedes, Michael; Kessler, Sigfried; and Theis, Ulrich, 5,063,854, Cl. 102-520.000.

Kestenbaum, Ami; and Serafino, Anthony J., to AT&T Laboratories. Electrical conductor deposition method. 5,064,685, Cl. 427-53.100.

Keystone International Holdings Corp.: *See*—
Alberts, Jack B.; and McNeely, Michael D., 5,064,169, Cl. 251-334.000.

Khan, Gaznabi: *See*—
Lin, Samuel; Khan, Gaznabi; Salas, Lucia; and Policello, George, 5,064,544, Cl. 252-88.000.

Khanarian, Garo; and Norwood, Robert, to Hoechst Celanese Corp. Optical parametric amplifier. 5,064,265, Cl. 385-130.000.

Khlebtsevich, Vsevolod A.: *See*—
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Khuzai, Kamel A.; and Patel, Rameschandra D., to General Electric Company. Venturi arrangement. 5,063,787, Cl. 73-861.640.

Kiang, Patty H.: *See*—
Alexander, Barbara; Kiang, Patty H.; Lusch, Richard; and Romberg, Val, 5,064,083, Cl. 215-247.000.

Kida, Yasuhiko: *See*—
Nagao, Tsuyoshi; Irie, Yoichiro; Takeda, Yoshiyuki; and Kida, Yasuhiko, 5,064,188, Cl. 271-301.000.

Kido, Koichiro: *See*—
Hotta, Kazuhiko; Kido, Koichiro; and Yamamoto, Shogo, 5,064,695, Cl. 427-407.100.

Kido, Yoshio: *See*—
Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, 5,063,886, Cl. 123-65.0VD.

Kiefer, David L.; and Milhon, Leon S. Fish bait and lure illuminator. 5,063,700, Cl. 43-17.600.

VOL 1132 ISS 2 NO 12 1991 UMI

Kiefer, Peter: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Kielczewski, Grzegorz: *See*—
Genov, Genco; Skrobak, Lubomir; Kremerman, Izya; and Kielczewski, Grzegorz, 5,064,340, Cl. 414-744.500.

Kikuchi, Makoto: *See*—
Terashima, Kanetsugu; Ichihashi, Mitsuyoshi; Kikuchi, Makoto; Takeshita, Fusayuki; and Furukawa, Kenji, 5,064,568, Cl. 252-299.610.

Kikuchi, Reiji; Moriyama, Naomune; Yokouchi, Takahito; and Yamamoto, Koichi, to Mazda Motor Corporation. Four-wheel drive motor vehicle of transversely-disposed engine type. 5,064,017, Cl. 180-248.000.

Kikuchi, Yoko; Ohashi, Yukihiro; Suzuki, Yuji; and Suzuki, Toshiyuki, to Kao Corporation. Composition for external application. 5,064,642, Cl. 424-61.000.

Kilmer, Lauren G.; and Reynolds, Alvin E., to Corneal Contouring, Inc. Method for surgically re-profiling the cornea. 5,063,942, Cl. 128-898.000.

Kim, Bang M., to General Electric Company. Method of compression molding on hot surfaces. 5,064,597, Cl. 264-219.000.

Kim, Jung-Hoe: *See*—
Lebeault, J. M.; Kim, Jung-Hoe; and Choi, Joon-Ho, 5,064,759, Cl. 435-101.000.

Kimball, Richard, to Airflow Research and Manufacturing Corporation. Multi-sweep blade with abrupt sweep transition. 5,064,345, Cl. 416-169.00A.

Kimura, Fujimi: *See*—
Koyanagi, Tsutomu; and Kimura, Fujimi, 5,065,270, Cl. 360-123.000.

Kimura, Fumio: *See*—
Asanae, Masumi; Kimura, Fumio; and Gotoh, Ryuji, 5,064,739, Cl. 430-122.000.

Kimura, Hideaki; Aoki, Haruo; and Yazawa, Hiromi, to Fuji Photo Film Co., Ltd. Method of and apparatus for smoothing an image having a periodic pattern. 5,065,255, Cl. 358-447.000.

Kimura, Toshihito: *See*—
Hakamata, Kazuo; and Kimura, Toshihito, 5,065,008, Cl. 250-216.000.

Kimura, Tsuneo: *See*—
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.

Kinast, Peter: *See*—
Moll, Rainer; Kinast, Peter; and Gessner, Hans, 5,063,688, Cl. 34-97.000.

King, Anthony O.: *See*—
DeCamp, Ann E.; King, Anthony O.; Volante, Ralph P.; and Shinkai, Ichiro, 5,064,964, Cl. 546-48.000.

King, Chwan K.: *See*—
Tan, Chee-Teck; Kang, Young C.; Sudol, Marion A.; King, Chwan K.; and Schulman, Marvin, 5,064,669, Cl. 426-307.000.

King, Edward L.: *See*—
Follstaedt, Donald W.; King, Edward L.; and Schneider, Ken C., 5,063,990, Cl. 164-463.000.

King, Joseph A. Two phase dispenser. 5,064,624, Cl. 422-264.000.

Kinoshita, Junichi, to Kabushiki Kaisha Toshiba. Semiconductor laser chip and method of making the same. 5,065,406, Cl. 372-96.000.

Kioritz Corporation: *See*—
Hironaka, Yoshiaki, 5,063,890, Cl. 123-145.00A.

Kiriyama, Tomonori: *See*—
Torii, Takahiro; Miyauchi, Masahiro; Funae, Haruyoshi; and Kiriyama, Tomonori, 5,064,806, Cl. 503-200.000.

Kirner, John F.; Cabrera, Alejandro L.; and Armor, John N., to Air Products and Chemicals, Inc. Gas phase borosiliconization of ferrous surfaces. 5,064,691, Cl. 427-252.000.

Kirtley Distributing Company, Inc.: *See*—
Ornduff, William L., Sr., 5,064,230, Cl. 292-223.000.

Kishida, Kazuo; Toyooka, Yutaka; and Kitahara, Haruyoshi, to Mitsubishi Rayon Co., Ltd. Thermoplastic resin compositions having excellent impact resistance, weather resistance and moldability, and process for preparing the same. 5,064,906, Cl. 525-293.000.

Kishimoto, Katsumi; and Shimazu, Shigeaki, to Dainippon Screen Mfg., Co. Ltd. Method of and apparatus for obtaining image data used for filling inner or outer region of graphic figure. 5,065,344, Cl. 395-134.000.

Kishimoto, Tadao: *See*—
Yamamoto, Hiroyuki; Motoi, Toshihiro; Nishimura, Toshiharu; and Kishimoto, Tadao, 5,065,441, Cl. 382-41.000.

Kissel, Waldemar F., Jr. Comprehensive unit transporation system. 5,063,857, Cl. 104-88.000.

Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, to Sharp Kabushiki Kaisha. Apparatus for observing a superconductive phenomenon in a superconductor. 5,065,087, Cl. 324-71.600.

Kitada, Akiharu: *See*—
Yano, Hisashi; Yabumoto, Junsuke; and Kitada, Akiharu, 5,064,452, Cl. 55-203.000.

Kitahara, Haruyoshi: *See*—
Kishida, Kazuo; Toyooka, Yutaka; and Kitahara, Haruyoshi, 5,064,906, Cl. 525-293.000.

Kitakaze, Keizo: *See*—
Hashizume, Kimio; Kitakaze, Keizo; and Itou, Takefumi, 5,064,611, Cl. 420-481.000.

Kitamura, Junichi: *See*—
Samejima, Kazuo; Murakawa, Masatake; Kitamura, Junichi; Matsuda, Yoshiaki; and Fulford, Colin, 5,064,315, Cl. 406-100.000.

Kitamura, Masaaki: *See*—
Miyazaki, Takashi; Inamochi, Takashi; Kitamura, Masaaki; and Hayashi, Shohei, 5,064,731, Cl. 428-698.000.

Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, to Kabushiki Kaisha Ishikawa Seisakusho, Ltd.; and Mitsubishi Rayon Co., Ltd. Reed dent with optical weft detecting device. 5,063,973, Cl. 139-370.200.

Kitano, Kouji: *See*—
Kaneyasu, Masayoshi; Kurihara, Nobuo; Kitano, Kouji; and Kayano, Mitsuo, 5,063,901, Cl. 123-419.000.

Kitaoka, Takeo; and Akiyoshi, Nagahiro, to Nisshin Steel Co., Ltd. Running circular pipe cutting device. 5,063,798, Cl. 82-124.000.

Kitou, Seiichiro: *See*—
Kurabayashi, Ken; Kitou, Seiichiro; Tsuchiya, Yoshinobu; and Niida, Yoriaki, 5,065,286, Cl. 361-502.000.

Kiyama, Masatoshi: *See*—
Matsufuji, Akihiro; Ejiri, Kiyomi; Ohno, Mikio; Kiyama, Masatoshi; and Honda, Kunihiko, 5,064,687, Cl. 427-132.000.

Kiyama, Seiichi; and Hirano, Hitoshi, to Sanyo Electric Co., Ltd. Method of forming a pseudo-diamond film on a base body. 5,064,682, Cl. 427-38.000.

Kiyoshi, Terauchi, to Sanden Corporation. Slant plate type compressor with variable dispalcement mechanism. 5,064,352, Cl. 417-222.00S.

Klappert, Willi; and Freeman, David R., to General Electric Company. Method for making packets of amorphous metal strip for transformer-core manufacture. 5,063,654, Cl. 29-609.000.

Klas, Daniel E., to Hubbell Incorporated. Nonmetallic conduit fitting with transverse biasing abutments. 5,064,226, Cl. 285-184.000.

Kleber, Carl J.; and Putt, Mark S., to Purdue Research Foundation. Anticariogenic compositions. 5,064,640, Cl. 424-52.000.

Klein, David A.; and Self, Daines M., Jr., to AMP Incorporated. Electrical slave connector. 5,064,389, Cl. 439-651.000.

Klein, Scott I.; and Molino, Bruce F., to Rhone-Poulenc Rorer Pharmaceuticals Inc. Anti-thrombotic peptide and pseudopeptide derivatives. 5,064,814, Cl. 514-18.000.

Kleinewefers GmbH: *See*—
Wenzel, Reinhard; and Rauf, Richard, 5,063,649, Cl. 29-116.100.

Klemann, Lawrence P.; and Finley, John W., to Nabisco Brands, Inc. Process for separation of sterol compounds from fluid mixtures. 5,064,668, Cl. 426-271.000.

Klemann, Lawrence P.; and Finley, John W., to Nabisco Brands, Inc. Low calorie fat mimetics. 5,064,678, Cl. 426-611.000.

Klier, George M.: *See*—
Amico, Russell P.; and Klier, George M., 5,063,966, Cl. 137-625.650.

Klietsch, Bernd-Jurgen: *See*—
Kollmeier, Hans-Joachim; Burkhart, Georg; Langenhagen, Rolf-Dieter; Lammerting, Helmut; and Klietsch, Bernd-Jurgen, 5,064,870, Cl. 521-111.000.

Kling, Albert: *See*—
Braun, Egon; Kling, Albert; Heil, Karl; and Sattler, Hans-Peter, 5,064,076, Cl. 209-700.000.

Kling, Michael R.; and Gilligan, Thomas J., III, to GTE Products Corporation. Compact outer jacket for low wattage discharge lamp. 5,064,395, Cl. 445-27.000.

Klitsner, Daniel B.; and Milsal, D'Miles E., to Discovery Toys, Inc. Play set. 5,064,399, Cl. 446-308.000.

Klopfenstein, Terry J.; Satterlee, Lowell D.; Britton, Robert A.; and Cleale, Ralph N., to University of Nebraska, The Board of Regents of The. Method of making and using a ruminant feed. 5,064,665, Cl. 426-2.000.

Kluft, Cornelis: *See*—
Duhl Clemmensen, Inge; and Kluft, Cornelis, 5,064,942, Cl. 530-387.000.

Kluitmans, Johannes T. M.; Tjassens, Hindrik; and Kock, Hendrikus G., to U.S. Philips Corp. Laser diode module. 5,065,226, Cl. 357-74.000.

KMS Fusion, Inc.: *See*—
Charatis, George, 5,065,108, Cl. 359-333.000.

Kneip, George D., Jr.; Chmyz, George; and Anderson, Marvin H., to Varian Associates, Inc. Method of manufacturing a low emissivity liquid nitrogen dewar. 5,063,651, Cl. 29-455.100.

Knight, Robert M.: *See*—
Turner, John M.; Nethers, Jan L.; and Knight, Robert M., 5,064,349, Cl. 417-53.000.

Knoblauch, Karl: *See*—
Juntgen, Harald; Knoblauch, Karl; Richter, Ekkehard; and Kuhl, Helmut, 5,064,801, Cl. 502-180.000.

Knochel, John R.: *See*—
Medcalf, Ralph F., Jr.; Visscher, Martha O.; Knochel, John R.; and Dahlgren, Richard M., 5,064,555, Cl. 252-117.000.

Knop, Klaus: *See*—
Kubiak, Helmut; Schroter, Hans J.; Gappa, Gunther; Kalwitzki, Heinrich; and Knop, Klaus, 5,064,444, Cl. 48-202.000.

Knowles, Lance; and Crane, Douglas, to DynEd International, Inc. Interactive audiovisual control mechanism. 5,065,345, Cl. 395-154.000.

Knute, Wallace L., to Camino Laboratories. Fiber optic measurement system having a reference conductor for controlling the energy level of the light source. 5,065,010, Cl. 250-227.210.

Koba, Tatsuhiko: *See*—
Satoh, Ikumi; Nakano, Jun; Harada, Riichiroh; and Koba, Tatsuhiko, 5,065,061, Cl. 310-104.000.

Kobayashi, Hiroshi; Tsuboi, Kazuhiko; Takahashi, Atsushi; Maeda, Shigeo; and Yagi, Seiichi, to Konica Corporation. Charge-eliminating apparatus of copier. 5,065,188, Cl. 355-219.000.

Kobayashi, Keiichi: *See*—
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.

Kobayashi, Manabu: *See*—
Okui, Kaoru; and Kobayashi, Manabu, 5,063,897, Cl. 123-198.00R.

Kobayashi, Takashi: *See*—
Araki, Kenji; Miyamae, Jyunichi; Kobayashi, Takashi; and Saito, Akira, 5,064,029, Cl. 188-267.000.

Koch, Alfred; and Stephan, Dieter, to Dr. Ing.h.c.F. Porsche Aktiengesellschaft. Oil separator for gases from a crankcase of an internal-combustion engine. 5,063,882, Cl. 123-41.860.

Koch, Cornelius: *See*—
Bermbach, Rainer; Doenges, Gerhard; Geus, Georg; and Koch, Cornelius, 5,065,418, Cl. 378-57.000.

Koch, Douglas F., to Koch Systems Incorporated. Self-opening can lid with improved contour of score. 5,064,087, Cl. 220-269.000.

Koch Systems Incorporated: *See*—
Koch, Douglas F., 5,064,087, Cl. 220-269.000.

Kochanek, Wolfgang: *See*—
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.

Kock, Hendrikus G.: *See*—
Kluitmans, Johannes T. M.; Tjassens, Hindrik; and Kock, Hendrikus G., 5,065,226, Cl. 357-74.000.

Kock, Ronald W.; Gosselin, Peter G.; and Reiboldt, H. Norman, to Procter & Gamble Company, The. Fluid impingement method for fruit extracting. 5,064,671, Cl. 426-481.000.

Koebel, Alan, to Electrohome Limited. Digital convergence system. 5,065,076, Cl. 351-368.00R.

Koenig, Paul A.: *See*—
Henke, James L.; and Koenig, Paul A., 5,064,412, Cl. 604-65.000.

Koerber, Steven C.: *See*—
Rivier, Jean E. F.; Koerber, Steven C.; Hagler, Arnold T.; Rivier, Catherine L.; and Vale, Wylie W., Jr., 5,064,939, Cl. 530-317.000.

Koetsier, Wicher T.: *See*—
Verduijn, Johannes P.; Janssen, Mechilium; De Gruijter, Cornelis B.; Koetsier, Wicher T.; and Van Oorschot, Cornelis W. M., 5,064,630, Cl. 423-328.000.

Koga, Akihiko: *See*—
Masuishi, Tetsuya; Tsuji, Hiroshi; Matsui, Takahashi; and Koga, Akihiko, 5,065,400, Cl. 371-19.000.

Koga, Johji: *See*—
Ohtsuka, Kunio; Suda, Mitsuru; and Koga, Johji, 5,064,791, Cl. 501-147.000.

Kohl, Albert: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Kohler, Burkhard; Uerdingen, Walter; Wehnert, Wolfgang; Schmidt, Manfred; Schafer, Walter; and Reinking, Klaus. Blends of polyarylene sulfides, epoxides, glass fibers, optionally anhydride-containing polymers and optionally other additives. 5,064,884, Cl. 524-114.000.

Kohler, Karl-Heinz; Reinking, Klaus; and Kraft, Klaus, to Bayer Aktiengesellschaft. Polyarylene sulfide molding compounds and their use as an encapsulating compound for active and passive electronic components. 5,064,895, Cl. 524-609.000.

Kohnen, Julius: *See*—
Keller, Alfred; Kohnen, Julius; and Kurschatke, Wolfgang, 5,063,758, Cl. 68-205.00R.

Kohno, Hideki: *See*—
Nozokido, Tatsuo; Yamamoto, Etsuji; and Kohno, Hideki, 5,065,097, Cl. 324-309.000.

Kohzaki, Shuichi: *See*—
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, 5,064,567, Cl. 252-299.610.

Koike, Akinobu; Abe, Yukio; and Kawamura, Koichi, to Fuji Photo Film Co., Ltd. Positive working light-sensitive composition containing a free radical generator and a discoloring agent. 5,064,741, Cl. 430-191.000.

Koike, Yasuo; and Nakamura, Kikuo, to Enidine Co., Ltd. Rotary damper. 5,064,033, Cl. 188-306.000.

Koito Manufacturing Co., Ltd.: *See*—
Mochizuki, Hideharu, 5,065,293, Cl. 362-273.000.

Kojima, Shuichi: *See*—
Tanaka, Kazuhiro; Kojima, Shuichi; Kaneko, Susumu; and Chikuma, Takayuki, 5,063,970, Cl. 139-1.00R.

Kokado, Masayuki: *See*—
Suzuki, Kouichi; Miyoshi, Norihito; Yoshida, Makoto; and Kokado, Masayuki, 5,065,216, Cl. 357-48.000.

Kokura, Yasuhide: *See*—
Sakakibara, Katsunori; Otsuki, Hajime; Ishii, Kenjiro; and Kokura, Yasuhide, 5,065,179, Cl. 355-45.000.

Kolanski, Adam, to Sinclair Radio Laboratories Limited; and Sinclair Radio Laboratories Limited. Anti cancellation antenna. 5,065,166, Cl. 343-826.000.

Kolbenschmidt Aktiengesellschaft: *See*—
Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, 5,063,894, Cl. 123-193.00P.

Kollmeier, Hans-Joachim; Burkhart, Georg; Langenhagen, Rolf-Dieter; Lammerting, Helmut; and Klietsch, Bernd-Jurgen, to Th. Goldschmidt AG. Method for the production of highly elastic, cold-curing polyurethane foams. 5,064,870, Cl. 521-111.000.

Komatsu, Fumito. Fixed torque spring clutch and a winder having the same. 5,064,137, Cl. 242-201.000.

Komazaki, Iwao, to NEC Corporation. Self-alignment type window semiconductor laser. 5,065,403, Cl. 372-46.000.

Komori, Chihiro: *See*—
Tanuma, Jiro; Ishimizu, Hideaki; Kasai, Tadashi; and Komori, Chihiro, 5,064,302, Cl. 400-124.000.

Kon, Kenji: *See*—
Yamada, Nobutoshi; Sugi, Hideo; and Kon, Kenji, 5,064,945, Cl. 536-17.500.

Kondo, Makoto, to Canon Kabushiki Kaisha. Electronic still camera system. 5,065,232, Cl. 358-29.00C.

Kondo, Toshiro; Miura, Hidetoshi; and Tsubai, Yasuo, to Mitsubishi Paper Mills, Ltd. Method for making lithographic printing plate. 5,064,745, Cl. 430-265.000.

Kondou, Kenji, to NEC Corporation. High-gain sense amplifiers array for high-speed read operation. 5,065,367, Cl. 365-208.000.

Konica Corporation: *See*—
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,065,195, Cl. 355-298.000.
Hung, Po-Chieh; and Kaneniwa, Tatsuya, 5,065,234, Cl. 358-80.000.
Kempo, Tsutomu; Matsuda, Atsuko; and Goto, Narito, 5,064,720, Cl. 428-423.100.
Kobayashi, Hiroshi; Tsuboi, Kazuhiko; Takahashi, Atsushi; Maeda, Shigeo; and Yagi, Seiichi, 5,065,188, Cl. 355-219.000.
Koshizuka, Kunihiro; Tezuka, Toshiaki; and Abe, Takao, 5,064,743, Cl. 430-253.000.
Nakagama, Kiyohari; and Ishii, Kohji, 5,065,190, Cl. 355-246.000.
Sohei, Goto; Ken, Okauchi; Junichi, Kohno; and Masaru, Iwagaki, 5,064,753, Cl. 430-567.000.
Yamamoto, Hiroyuki; Motoi, Toshihiro; Nishimura, Toshiharu; and Kishimoto, Tadao, 5,065,441, Cl. 382-41.000.

Konishi, Keiichi: *See*—
Isozumi, Shuzoo; and Konishi, Keiichi, 5,065,039, Cl. 290-48.000.

Konishi, Masaru, to Jidosha Kiki Co., Ltd. Brake booster. 5,063,830, Cl. 92-169.200.

Konno, Yoshikiyo, to Pioneer Electronic Corporation. Time base control aystem with coarse and fine correction for a spindle servo. 5,065,385, Cl. 369-50.000.

Kono, Hiromi: *See*—
Otsuka, Masuhiro; Kono, Hiromi; Satoh, Yuji; and Soda, Hiroyuki, 5,064,039, Cl. 192-0.052.

Kooijmans, Petrus G.; Van Der Mark, Johannes M.; and Karzijn, Willem, to Shell Oil Company. Glycidylester-anhydride adducts and epoxy resin curing agents therefrom. 5,064,913, Cl. 525-438.000.

Koops, Henderikus, to Machinefabriek Meyn B.V. Apparatus for internally processing slaughtered poultry. 5,064,402, Cl. 452-117.000.

Kopke, Helmut: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Kopp, Richard: *See*—
Grogler, Gerhard; Thiery, Urs; Ruckes, Andreas; Kopp, Richard; and Hess, Heinrich, 5,064,875, Cl. 521-159.000.

Koppa, Daniel A.: *See*—
McFeaters, Richard R.; Koppa, Daniel A.; and Babiak, Theodore P., 5,063,839, Cl. 99-353.000.

Korber AG: *See*—
Wochnowski, Waldemar, 5,063,943, Cl. 131-84.400.

Korcz, William H.: *See*—
Smith, Roy F.; Kelley, John W.; and Korcz, William H., 5,064,485, Cl. 156-69.000.

Korea Advanced Institute of Science and Technology: *See*—
Lebeault, J. M.; Kim, Jung-Hoe; and Choi, Joon-Ho, 5,064,759, Cl. 435-101.000.

Kornel, Alfred: *See*—
Rogers, Charles J.; Kornel, Alfred; and Sparks, Harold L., 5,064,526, Cl. 208-262.500.

Kortenbach Verwaltungs- und Betiligungsgesellschaft mbH & Co.: *See*—
Seidel, Joachim; and Stiller, Klaus, 5,063,952, Cl. 135-22.000.

Koshidaka, Yukio: *See*—
Hayashi, Yoshiaki; and Koshidaka, Yukio, 5,064,061, Cl. 215-1.00C.

Koshizuka, Kunihiro; Tezuka, Toshiaki; and Abe, Takao, to Konica Corporation. Thermal transfer recording medium. 5,064,743, Cl. 430-253.000.

Koskinen, Jouko A. K.: *See*—
Jarvinen, Marja-Leena; and Koskinen, Jouko A. K., 5,064,204, Cl. 277-53.000.

Kosobutsky, Alexandr A.: *See*—
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Kostek, Gloria J.: *See*—
Cullen, Walter P.; Hauske, James R.; Kostek, Gloria J.; Maeda, Hiroshi; and Tone, Junsuke, 5,064,855, Cl. 514-460.000.

Kosugi, Yukihisa: *See*—
Ishizaka, Kouichi; and Kosugi, Yukihisa, 5,064,014, Cl. 180-79.100.

Kosuzume, Hiroshi: *See*—
Ohnishi, Haruo; Kosuzume, Hiroshi; Mizota, Masahiro; Suzuki, Yasuo; and Mochida, Ei, 5,064,953, Cl. 540-226.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Kotick, Arthur. Article holder utilizing magnetostatic interaction. 5,064,159, Cl. 248-309.400.

Koumo, Hideyasu; and Kawawaki, Fumiaki, to Sharp Kabushiki Kaisha. Desk top calculator with access sequence control system for various constants. 5,065,359, Cl. 395-800.000.

Koumura, Noboru: *See*—
Matsuoka, Mikiharu; Miyazaki, Yasuko; and Koumura, Noboru, 5,065,434, Cl. 382-1.000.

Kovacs, Alan L.; Ehlert, Michael R.; and Congleton, Helen, to Hughes Aircraft Company. Domed lid for integrated circuit package. 5,064,968, Cl. 174-52.400.

Kovacs, Bela V.; Keough, John R.; and Pramstaller, Douglas M., to Applied Process. Method and apparatus for surface austempering of cast iron parts. 5,064,478, Cl. 148-12.400.

Koyama, Masanobu: *See*—
Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, 5,064,920, Cl. 526-249.000.

Koyama, Yasufumi: *See*—
Kuwabara, Akira; and Koyama, Yasufumi, 5,065,445, Cl. 382-56.000.

Koyanagi, Tsutomu; and Kimura, Fujimi, to TDK Corporation. Thin film magnetic recording head with a low resistance coil formed by two processes. 5,065,270, Cl. 360-123.000.

Kraft, Klaus: *See*—
Kohler, Karl-Heinz; Reinking, Klaus; and Kraft, Klaus, 5,064,895, Cl. 524-609.000.

Krampe, Josef. Stripping tool. 5,063,795, Cl. 81-9.430.

Krasnopolsky, Jury M.: *See*—
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Krause, Joachim: *See*—
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.

Kraynak, Timothy L.: *See*—
Marshall, Frank P.; Travor, Bruce W.; and Kraynak, Timothy L., 5,063,823, Cl. 89-1.510.

Kreitner, Ludwig: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Kremer, Paul, to Ceodeux S.A. Safety cartridge for compressed or liquefied gas. 5,063,960, Cl. 137-269.000.

Kremerman, Izya: *See*—
Genov, Genco; Skrobak, Lubomir; Kremerman, Izya; and Kielczewski, Grzegorz, 5,064,340, Cl. 414-744.500.

Krespan, Carl G.: *See*—
Merchant, Abid N.; and Krespan, Carl G., 5,064,559, Cl. 252-171.000.

Kretschmar, Klaus; Merz, Ludwig; and Niemann, Klaus, to Veba Oel Technologie GmbH. Process for the hydrogenative conversion of heavy oils and residual oils, used oils and waste oils, mixed with sewage sludge. 5,064,523, Cl. 208-112.000.

Krieg, Gunther; Helget, Werner; and Deppisch, Bertold, to Krieg, Gunther. Rotation angle measuring with overlap area is between two optical grating axes. 5,065,014, Cl. 250-237.00G.

Krist, Kevin; and Sammells, Anthony F., to Gas Research Institute. Electrochemical conversion of CO_2 and CH_4 to C_2 hydrocarbons in a single cell. 5,064,733, Cl. 429-17.000.

Kristof, Michael; and Mueller, Josef, to Schmid u. Wezel. Rotating pneumatic vane motor with air bearing. 5,064,361, Cl. 418-173.000.

Krivanek, Ondrej L., to Gatan, Inc. Cooled CCD camera for an electron microscope. 5,065,029, Cl. 250-441.100.

Krone, John J., to Caterpillar Inc. Impact hammer and control arrangement therefor. 5,064,005, Cl. 173-134.000.

Kruper, William J., Jr., to Dow Chemical Company, The. Process for preparing mono-n-alkylated polyazamacrocycles. 5,064,956, Cl. 540-474.000.

Krupp Industrietechnik GmbH: *See*—
Wiedeck, Hans-Norbert, 5,063,630, Cl. 14-2.400.

Krupp, Stephen P.; and Gessner, Scott L., to Dow Chemical Company, The. Method of making elastic carbon fibers. 5,064,581, Cl. 264-29.200.

Kruse, Heinz-Josef: *See*—
Diel, Rainer; Sippel Achim; Meyer, Jurgen; and Kruse, Heinz-Josef, 5,063,855, Cl. 102-521.000.

Kubiak, Helmut; Schroter, Hans J.; Gappa, Gunther; Kalwitzki, Heinrich; and Knop, Klaus, to Bergwerksverband GmbH. Process for the allothermic gasification of coal. 5,064,444, Cl. 48-202.000.

Kubo, Masao; Shiroishi, Akihiro; Uno, Ikuo; and Nishiyama, Takashi, to Nissan Chemical Industries, Ltd.; and Shionogi & Co. Ltd. Filler for heat-sensitive recording paper and process for producing the same. 5,064,473, Cl. 106-287.340.

Kubota Corporation: *See*—
Samejima, Kazuo; Murakawa, Masatake; Kitamura, Junichi; Matsuda, Yoshiaki; and Fulford, Colin, 5,064,315, Cl. 406-100.000.

Kubota, Noboru: *See*—
Toyomoto, Kazuo; Doi, Shoichi; and Kubota, Noboru, 5,064,866, Cl. 521-27.000.

Kubota, Taishi, to NEC Corporation. Semiconductor memory cell and method of manufacturing the same. 5,065,215, Cl. 357-45.000.

Kubota, Yukio; and Kanota, Keiji, to Sony Corporation. Magnetic recording and/or reproducing apparatus. 5,065,259, Cl. 360-32.000.

Kugai, Masami, to Canon Kabushiki Kaisha. Character recognition apparatus determining whether read data is a character line. 5,065,442, Cl. 382-48.000.

Kugimiya, Sbuzo; Fukumochi, Yoji; Sata, Ichiko; Hirai, Tokuyuki; and Suzuki, Hitoshi, to Sharp Kabushiki Kaisha. Method of translating a sentence including a compound word formed by hyphenation using a translating apparatus. 5,065,318, Cl. 364-419.000.

Kuhl, Helmut: *See*—
Juntgen, Harald; Knoblauch, Karl; Richter, Ekkehard; and Kuhl, Helmut, 5,064,801, Cl. 502-180.000.

Kuhne, Viktor; Twisselmann, Hark; and Brenner, Franz, to J. M. Voith GmbH. Torsionally elastic clutch. 5,064,042, Cl. 192-106.200.

Kull, Hermann: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Kult, Roger R.: *See*—
Bailey, Terry R.; Kult, Roger R.; Tolliver, Howard R.; and Dickson, Arthur D., 5,064,272, Cl. 359-541.000.

Kumagai, Yuzo, to Bridgestone Corporation. Belt-shaped member taking-out and transfer apparatus. 5,064,330, Cl. 414-331.000.

Kumai, Teruo: *See*—
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.

Kumano, Makoto; Hayakawa, Masaharu; and Suenaga, Shinichi, to Mitsubishi Denki Kabushiki Kaisha. Video signal processor for simultaneously reproducing a plurality of video information on a single monitor picture tube. 5,065,230, Cl. 358-22.000.

Kumar, Surinder; and Harron, Gerald, to University of Saskatchewan. Phase-locked loop bandwidth switching demodulator for suppressed carrier signals. 5,065,107, Cl. 329-308.000.

Kumpf, Robert J.; and Nerger, Dittmar K., to Mobay Corporation. Aromatic polyethers containing azo groups. 5,064,929, Cl. 528-172.000.

Kunichika, Kenji: *See*—
Matsumoto, Hiroshi; Kunichika, Kenji; and Uchida, Toshio, 5,064,749, Cl. 430-331.000.

Kunito, Yoshiyuki: *See*—
Seko, Satoru; and Kunito, Yoshiyuki, 5,065,382, Cl. 369-44.260.

Kunze, Christian; and Habermann, Till. Navigable flat kite. 5,064,148, Cl. 244-153.00R.

Kunze, Heiko: *See*—
Gruner, Manfred; and Kunze, Heiko, 5,065,341, Cl. 364-516.000.

Kuppelmaier, Harald: *See*—
Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, 5,064,702, Cl. 428-64.000.

Kurabayashi, Ken; Kitou, Seiichiro; Tsuchiya, Yoshinobu; and Niida, Yoriaki, to Isuzu Motors Limited. Electrical double-layer capacitor. 5,065,286, Cl. 361-502.000.

Kuragano, Tetsuzo; Suzuki, Akira; and Sasaki, Nobuo, to Sony Corporation. Method and system for transforming a free curved surface. 5,065,348, Cl. 364-119.000.

Kurakake, Mitsuo: *See*—
Imazeki, Ryoji; and Kurakake, Mitsuo, 5,065,306, Cl. 364-138.000.

Kuramoto, Tsuyoshi: *See*—
Ohata, Yu; and Kuramoto, Tsuyoshi, 5,065,212, Cl. 357-42.000.

Kuraray Company, Limited: *See*—
Omura, Ikuo; Yamauchi, Junichi; and Kawashima, Mitsunobu, 5,064,495, Cl. 156-307.300.

Kurata, Yoshikazu: *See*—
Hayashi, Takashi; Hida, Junichi; Suga, Kenji; and Kurata, Yoshikazu, 5,065,320, Cl. 364-424.010.

Kurihara, Nobuo: *See*—
Kaneyasu, Masayoshi; Kurihara, Nobuo; Kitano, Kouji; and Kayano, Mitsuo, 5,063,901, Cl. 123-419.000.

Kuriyama, Masaaki: *See*—
Fujita, Masafumi; Tezuka, Kazuhiko; and Kuriyama, Masaaki, 5,065,182, Cl. 355-202.000.

Kuriyama, Takeshi: *See*—
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.

Kurosawa, Kazuhito: *See*—
Hikita, Mitsutaka; Tabuchi, Toyoji; Shibagaki, Nobuhiko; Isobe, Atsushi; and Kurosawa, Kazuhito, 5,065,065, Cl. 310-313.00B.

Kurschat, Erich G. Combined trailer/wheelchair. 5,064,209, Cl. 280-204.000.

Kurschatke, Wolfgang: *See*—
Keller, Alfred; Kohnen, Julius; and Kurschatke, Wolfgang, 5,063,758, Cl. 68-205.00R.

Kurtz, Steven R.: *See*—
Biefeld, Robert M.; Dawson, L. Ralph; Fritz, Ian J.; Kurtz, Steven R.; and Zipperian, Thomas E., 5,065,205, Cl. 357-30.000.

Kusaka, Satoshi: *See*—
Ito, Yujiro; Suzuki, Koji; and Kusaka, Satoshi, 5,065,455, Cl. 359-1.590.

Kushnick, Anne C.: *See*—
Bement, Laurence J.; and Kushnick, Anne C., 5,064,111, Cl. 228-107.000.

Kusko, Alexander; and Medora, Noshirwan K., to Kusko, Alexander. Fault sensing with an artificial reference potential provided by an isolated capacitance effect. 5,065,104, Cl. 324-508.000.

Kuss, Thomas N.; and Horne, Donald L., to Truck Covers Inc. Displacement cover for a truck body opened-top bed. 5,064,240, Cl. 296-100.000.

Kusuki, Yoshihiro; and Ishihara, Kazuhiko, to Ube Industries, Ltd. Method of preparing bigh purity light gas by multiple-step gas separation. 5,064,446, Cl. 55-16.000.

Kusumoto, Tetsuo: *See*—
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.

Kuwabara, Akira; and Koyama, Yasufumi, to Dainippon Screen Mfg. Co., Ltd. Apparatus for expanding and formatting runlength data for multiple exposure beams. 5,065,445, Cl. 382-56.000.

Kuwajima, Teruaki: *See*—
Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, 5,064,468, Cl. 106-14.120.

Kuwana, Kiyohisa, to Kabushiki Kaisha Toshiba. Digital to analog converter with switching logic minimization. 5,065,159, Cl. 341-148.000.

Kwiatek, Jack: *See*—
Chang, Biau-Hung; and Kwiatek, Jack, 5,064,912, Cl. 525-383.000.
Chang, Biau-Hung; Lee, Lester Y.; and Kwiatek, Jack, 5,064,932, Cl. 528-220.000.

Kyocera Corporation: *See*—
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, 5,065,275, Cl. 361-321.000.

Laakmann, Peter; Byron, Stanley R.; and Barrett, Michael W., to Synrad, Incorporated. Sealed-off, RF-excited gas lasers and method for their manufacture. 5,065,405, Cl. 372-92.000.

Labrie, Fernand. Combination therapy for selected sex steroid dependent cancers. 5,064,813, Cl. 514-15.000.

Labuz, Joseph F.; Vardoulakis, Ioannis G.; and Drescher, Andrew, to University of Minnesota, Regents of the. Plane-strain apparatus. 5,063,785, Cl. 73-821.000.

Lackner, John R., to Scott Fetzer Company, The. Disposable dust bag for vacuum cleaners and the like. 5,064,455, Cl. 55-375.000.

Lagadec, Roger, to Sony Corporation. Method for recording/reproducing expanded digital signals in conventional format. 5,065,260, Cl. 360-32.000.

Lagrange, Alain: *See*—
Lang, Gerard; Forestier, Serge; Morie, Claudine; and Lagrange, Alain, 5,064,641, Cl. 424-60.000.

Lailer, Robert H., Jr.; Porter, Frank K., Jr.; Colananni, Laura M.; and Lussier, David B., to Raytheon Company. Apparatus for wing attachment. 5,064,142, Cl. 244-3.240.

L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude: *See*—
Ecalle, Olivier; and Vinckx, Valery, 5,064,173, Cl. 266-80.000.

Lamaze, Airy-Pierre: *See*—
Boutin, Jean; Brun, Pierre; and Lamaze, Airy-Pierre, 5,064,513, Cl. 204-64.00R.

Lamey, Patrick; and Kachmarik, Richard, to International Business Machines Corp. Method to integrate drive/control devices and ink jet on demand devices in a single printhead chip. 5,063,655, Cl. 29-611.000.

Lammerting, Helmut: *See*—
Kollmeier, Hans-Joachim; Burkhart, Georg; Langenhagen, Rolf-Dieter; Lammerting, Helmut; and Klietsch, Bernd-Jurgen, 5,064,870, Cl. 521-111.000.

Lancini, Giancarlo: *See*—
Borghi, Angelo; Lancini, Giancarlo; and Antonini, Piero, 5,064,811, Cl. 514-8.000.

Landon, Russell G.: *See*—
Milton, Edward L.; Landon, Russell G.; and Cox, Byard A., 5,064,104, Cl. 222-306.000.

Landreth, Bobby D.: *See*—
Davis, James L.; Pennisi, Robert W.; Nounou, Fadia; and Landreth, Bobby D., 5,064,481, Cl. 148-23.000.

Landry, James D.; Joyce, Mark A.; Young, John D.; Gilmore, Robert S.; and Schoenig, Frederick C., Jr., to General Electric Company. Non-destructive dimensional and flaw inspection of thin wall tube weldments. 5,063,779, Cl. 73-622.000.

Landry, James D.; Schoenig, Frederick C., Jr.; and Young, John D., to General Electric Company. Ultrasonic dimensional and flaw inspection of thin-walled tubular elements. 5,063,780, Cl. 73-622.000.

Lang, Gerald S. Method and apparatus for protecting material on storage media. 5,065,429, Cl. 380-25.000.

Lang, Gerard; Forestier, Serge; Morie, Claudine; and Lagrange, Alain, to L'Oreal. Polyvalent metal salts of sulphonted derivatives of benzylidenecamphor and their use for protecting the skin against ultraviolet radiation. 5,064,641, Cl. 424-60.000.

Langenhagen, Rolf-Dieter: *See*—
Kollmeier, Hans-Joachim; Burkhart, Georg; Langenhagen, Rolf-Dieter; Lammerting, Helmut; and Klietsch, Bernd-Jurgen, 5,064,870, Cl. 521-111.000.

Langridge, David: *See*—
Dartnall, William J.; and Langridge, David, 5,063,792, Cl. 74-37.000.

Lanier, Carroll W.: *See*—
Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., 5,064,867, Cl. 521-50.500.

Lanier, Phillip L.: *See*—
Illing, Peter A.; Lanier, Phillip L.; and Ensminger, Reginald W., 5,064,096, Cl. 222-105.000.

Lankton, Steven P.; and James, Robert B., Jr., to UOP. Gas absorber method and apparatus. 5,064,450, Cl. 55-70.000.

Lansing Overhaul and Repair, Inc.: *See*—
Smith, James F., II, 5,064,493, Cl. 156-207.000.

Lanxide Technology Company, LP: *See*—
Newkirk, Marc S.; and Gesing, Adam J., 5,064,788, Cl. 501-92.000.

Lapham, Jerome F.; and Scharf, Brad W., to Analog Devices, Incorporated. Integrated circuit with complementary junction-isolated bipolar transistors. 5,065,214, Cl. 357-43.000.

Lappe, Peter: *See*—
Weber, Jurgen; Lappe, Peter; and Springer, Helmut, 5,064,508, Cl. 203-38.000.

Larsson, John A. Bracket for attachment of wall linings. 5,063,721, Cl. 52-379.000.

Latif, Linda S.: *See*—
Campbell, Christopher J.; Latif, Linda S.; and Graboyes, Herman, 5,064,409, Cl. 493-396.000.

Laubert, Hans: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Laufer, Helmut: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Laumeister, William C.: *See*—
Warren, Eugene D.; Pfannkuch, Robert B.; Laumeister, William C.; and Pourciau, Louis L., 5,065,258, Cl. 360-15.000.

Lauricella, Charles, to Bethlehem Steel Corporation. Method and apparatus for controlling the thickness of a hot-dip coating. 5,064,118, Cl. 239-1.000.

Laurila, Melvin J.; Brown, Robert J.; and Greenlund, Robert C., to Process Technology, Inc. On-line slurry ash monitoring system. 5,065,416, Cl. 378-53.000.

Lauvin, Pierre: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

LaValley, Ronnie L., Sr. Pressure responsive fluid pump shut off and alarm system. 5,064,347, Cl. 417-9.000.

Lavelle, Gary: *See*—
Frolov, George; Lavelle, Gary; and Scott, James J., 5,065,136, Cl. 340-545.000.

Lavin, Joseph J. Indexing device for placement of orthodontic brackets. 5,064,368, Cl. 433-2.000.

Law, Yee S.: *See*—
Wu, Joseph C.; Hu, Charlie L.; and Law, Yee S., 5,065,450, Cl. 455-20.000.

Lawrence Inc.: *See*—
Lawrence, Phillip G., 5,064,338, Cl. 414-685.000.

Lawrence, Paul B.: *See*—
Fagerburg, David R.; Watkins, Joseph J.; Lawrence, Paul B.; and Rule, Mark, 5,064,937, Cl. 528-389.000.

Lawrence, Phillip G., to Lawrence Inc. Implement mounting apparatus for tractors and mowers. 5,064,338, Cl. 414-685.000.

Lawson, John R., to Imperial Chemical Industries PLC. Metal treatment. 5,064,723, Cl. 428-457.000.

Lazenby, Kate; and Cox, Allen R., to International Business Machines Corporation. Integral protective enclosure for tab or similar delicate assembly mounted locally on a flexible printed circuit board. 5,065,279, Cl. 361-386.000.

Lazzeroni, Edward J., Sr.: *See*—
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

Le, Dean A.; and Tatemoto, Kazuhiko, to Leland Stanford Junior University, The Board of Trustees of the. Carboxyl-terminal protein sequencing method and kit. 5,064,767, Cl. 436-89.000.

Le, Tri C., to Baroid Technology, Inc. Bop seal with improved metal inserts. 5,064,164, Cl. 251-1.100.

Leach, Colin A.: *See*—
Ife, Robert J.; Brown, Thomas H.; Leach, Colin A.; and Keeling, David J., 5,064,833, Cl. 514-260.000.

Leak, Jonathan G.: *See*—
Cooper, Royston B.; and Leak, Jonathan G., 5,064,585, Cl. 264-40.600.

Leavell, David R.; Spencer, Earl W., Jr.; and Goodman, Kenneth W., to Microsonics, Inc. Depth finder having variable measurement capabilities. 5,065,371, Cl. 367-111.000.

Leavitt, Steven C., to Hewlett-Packard Company. Method and apparatus for signal dependent gain control. 5,063,931, Cl. 128-661.070.

Lebeault, J. M.; Kim, Jung-Hoe; and Choi, Joon-Ho, to Korea Advanced Institute of Science and Technology. Novel biological polymer. 5,064,759, Cl. 435-101.000.

Leco Corporation: *See*—
O'Brien, Larry S.; Warren, Robert G.; and Adani, Keith J., 5,064,617, Cl. 422-78.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Lecomte, Daniel; Galopin, Norbert; and Lemaistre, Jacques, to Telic Alcatel. Telephone connection arrangement for a personal computer and a device for such an arrangement. 5,065,425, Cl. 379-93.000.

Ledbetter, Bary A., to NEC Electronics, Inc. Mini-relay or reed relay tester. 5,065,101, Cl. 324-418.000.

Lee, Andrew L.: *See*—
Brazier, Keith; Lee, Andrew L.; and Roberts, Clifford J., 5,064,158, Cl. 248-250.000.

Lee, Dong H., to Goldstar Co., Ltd. Rear projection screen with double sheet. 5,064,273, Cl. 359-457.000.

Lee, Jackson: *See*—
McMahan, David S.; Tso, Richard; and Lee, Jackson, 5,064,195, Cl. 275-374.000.

Lee, Kung H., to Du Pont de Nemours, E. I., and Company. Process for recovering organic vapors from air. 5,064,447, Cl. 55-16.000.

Lee, Lester Y.: *See*—
Chang, Biau-Hung; Lee, Lester Y.; and Kwiatek, Jack, 5,064,932, Cl. 528-220.000.

Lee, Raymond: *See*—
Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., 5,064,867, Cl. 521-50.500.

Lee, Yue-Wei; Fang, Qi-Cheng; Wang, Zhen-Guo; Li, De-Hua; and Cook, C. E., to Research Triangle Institute. Pentacyclic triterpenoid compounds as topoisomerase inhibitors or cell differentiation inducers. 5,064,823, Cl. 514-198.000.

Legault, Jean-Marc, to Canada Post Corp. Bar code applicator. 5,064,222, Cl. 283-71.000.

Leguen, Jacques; and Gabbay, Emile, to General Electric CGR S.A. X-ray tube with low extra-focal radiation. 5,065,419, Cl. 378-125.000.

Lehman, Richard F.: *See*—
Powers, Edward A.; Urso, Charles J.; and Lehman, Richard F., 5,065,185, Cl. 355-208.000.

Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, to BASF Aktiengesellschaft. Magnetic recording media. 5,064,721, Cl. 428-425.900.

Lehto, John M.; and Smith, Raymond L., to Northern States Power Company. Apparatus for production of energy and iron materials, including steel. 5,064,174, Cl. 266-160.000.

Leibfried, Peter E.: *See*—
Porter, David; Dillner, James R.; Leibfried, Peter E.; Reimels, William R.; and Asfalg, J. George, 5,063,662, Cl. 29-889.720.

Leigh-Monstevens, Keith V.; and Peterson, David C., to Automotive Products (USA) Inc. Transmission logic controlling starter motor and backup light. 5,065,135, Cl. 340-463.000.

Leitz, Edgar: *See*—
Muller, Friedemann; Leitz, Edgar; Eichenauer, Herbert; Ott, Karl-Heinz; and Buysch, Hans-Josef, 5,064,885, Cl. 524-117.000.

Leivian, Robert H.: *See*—
Peterson, William M.; Leivian, Robert H.; and Garrison, Sidney C., III, 5,065,040, Cl. 307-201.000.

Leland Stanford Junior University, The Board of Trustees of the: *See*—
Le, Dean A.; and Tatemoto, Kazuhiko, 5,064,767, Cl. 436-89.000.

Leleve, Joel: *See*—
Albou, Pierre; and Leleve, Joel, 5,065,072, Cl. 315-82.000.

Le Loarer, Jean-Luc: *See*—
Chane-Ching, Jean-Yves; Le Loarer, Jean-Luc; and Dupuis, Patrick, 5,064,628, Cl. 423-263.000.

Lemaistre, Jacques: *See*—
Lecomte, Daniel; Galopin, Norbert; and Lemaistre, Jacques, 5,065,425, Cl. 379-93.000.

Le Martret, Catherine: *See*—
Grijol, Laurent; Le Martret, Catherine; and Baladi, Beatrice, 5,064,780, Cl. 437-130.000.

Lemelson, Jerome H. Surface shaping and finishing apparatus and method. 5,064,989, Cl. 219-121.120.

Lemmert, Karl-Heinz: *See*—
Kallenbach, Rolf; and Lemmert, Karl-Heinz, 5,064,486, Cl. 156-94.000.

Lengyel, Jozsef: *See*—
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.

Lenth, Jurgen: *See*—
Pletz-Kirsch, Gerhard; and Lenth, Jurgen, 5,065,115, Cl. 331-14.000.

Lentz, Carl A., to General Motors Corporation. Hydraulic control system for vehicular automatic transmission. 5,063,813, Cl. 74-866.000.

Lentz, Nelsen L.: *See*—
Peet, Norton P.; and Lentz, Nelsen L., 5,064,947, Cl. 536-26.000.

Lenz, Erwin. Hydraulically driven electrically powered vehicle with energy recapture. 5,064,013, Cl. 180-65.300.

Lenz, Werner: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Leon, Michael A., to FMC Corporation. Material handling conveyor. 5,064,045, Cl. 193-35.0MD.

Leon, Robert: *See*—
Marozsan, Andy; and Leon, Robert, 5,064,234, Cl. 294-64.100.

Leonard Kurz GmbH & Co.: *See*—
Wild, Alfred H., 5,063,658, Cl. 29-846.000.

Leong, David L.: *See*—
Vagi, Robert J.; Plut, Leonard F.; and Leong, David L., 5,065,238, Cl. 358-111.000.

Le Pesant, Jean-Pierre: *See*—
Turpin, Marc; Vignolle, Jean-Michel; Charasse, Marie-Noel; and Le Pesant, Jean-Pierre, 5,064,270, Cl. 350-96.290.

Lermat, Yves: *See*—
Boutillier, Jacques; Forichon, Noelle; and Lermat, Yves, 5,064,902, Cl. 525-124.000.

Leshchuk, John H.: *See*—
Castellano, James J.; Leshchuk, John H.; and Steinberger, Michael L., 5,065,396, Cl. 370-84.000.

Leslie, Samuel A.: *See*—
Gordon, Robert T.; Evans, Michael W.; and Leslie, Samuel A., 5,065,449, Cl. 455-15.000.

Less Micanik, Inc: *See*—
Lessard, Michel, 5,064,235, Cl. 294-82.140.

Lessard, Michel, to Less Micanik, Inc. Automatic sling lock. 5,064,235, Cl. 294-82.140.

Lessart, Pierre: *See*—
Besnainon, Bernard; Elluard, Marie-Paule; Lessart, Pierre; and Philippe, Alain, 5,064,764, Cl. 435-285.000.

Level 1 Technologies, Inc.: *See*—
Verkaart, Wesley H., 5,063,994, Cl. 165-154.000.

Levene, Simha, to Elscint Ltd. Arrangement for controlling focal spot position in X-ray tube. 5,065,420, Cl. 378-137.000.

Leveque, Howard, to AMAF Industries, Inc. System and method of frequency calibration in a linked compression-expansion (lincompex) system. 5,065,451, Cl. 455-72.000.

Lever Brothers Company, division of Conopco, Inc.: *See*—
Lin, Samuel; Khan, Gaznabi; Salas, Lucia; and Policello, George, 5,064,544, Cl. 252-88.000.

Levine, Robert A.: *See*—
Wardlaw, Stephen C.; and Levine, Robert A., 5,064,766, Cl. 436-66.000.

Levinski, Charles B.: *See*—
Greenstein, Harvey; Levinski, Charles B.; Newman, Edward; Persel, John M.; and Widmann, David N., 5,065,426, Cl. 379-100.000.

Levy, Bern: *See*—
Horn, Donald N.; and Levy, Bern, 5,065,249, Cl. 358-229.000.

Levy, Stuart B., to Tufts College, Trustees of. Method and compositions for overcoming tetracycline resistance within living cells. 5,064,821, Cl. 514-154.000.

Lew, Chel W., to Southwest Research Institute. Controlled-release salt sensitive capsule for oral use and adhesive system. 5,064,650, Cl. 424-435.000.

Lewis, Leland M.: *See*—
Webb, Stuart C.; Lewis, Leland M.; and Morris-Thurgood, Jayne A., 5,063,927, Cl. 128-419.0PG.

Li, De-Hua: *See*—
Lee, Yue-Wei; Fang, Qi-Cheng; Wang, Zhen-Guo; Li, De-Hua; and Cook, C. E., 5,064,823, Cl. 514-198.000.

Li, King C. P.; and Ang, Peter G. P. Paramagnetic oil emulsions as enteric MRI contrast agents. 5,064,636, Cl. 424-9.000.

Lian, Ming R.; and Herman, Fred W., to Security Tag Systems, Inc. Magnetically-coupled two-resonant-circuit, frequency divider for presence-detection-system tag. 5,065,138, Cl. 340-572.000.

Liaw, Been-Chiu: *See*—
Chou, Tien-Ming, 5,065,276, Cl. 361-380.000.

Liaw, H. Ming: *See*—
Cambou, Bertrand F.; Liaw, H. Ming; and Tomozane, Mamoru, 5,064,781, Cl. 437-132.000.

Libbey-Owens-Ford Co.: *See*—
Weaver, William R.; and Matzinger, James E., 5,064,707, Cl. 428-151.000.

Lichfield, William H.: *See*—
Borg, Larry; and Lichfield, William H., 5,064,097, Cl. 222-129.000.

Liebold, Gert: *See*—
Oppenlaender, Knut; Mohr, Juergen; Liebold, Gert; and Frey, Guenter, 5,064,552, Cl. 252-78.300.

Liedy, Werner: *See*—
Schuster, Ludwig; Hettche, Albert; Liedy, Werner; Weiss, Stefan; and Ehemann, Leo, 5,064,908, Cl. 525-333.800.

Liepert, Rudolf, to Georg Spiess GmbH. Feeder. 5,064,184, Cl. 271-14.000.

Liesch, Jerrold M.: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Lightner, William G., Sr. Apparatus for refrigerating drinking water. 5,063,751, Cl. 62-201.000.

Liles, Steve L.: *See*—
Dickie, Gerald M.; Liles, Steve L.; and Woldvedt, Alan H., 5,064,309, Cl. 405-64.000.

Lim, Timothy: *See*—
Sutton, Tod A.; Jacob, Karl V.; Lim, Timothy; and Sandor, Steven P., 5,064,582, Cl. 264-37.000.

Lin, Cheng H.: *See*—
Chen, Chi J.; Lin, Cheng H.; Liu, Tin Y.; and Hung, Ying C., 5,064,465, Cl. 75-349.000.

Lin, Jiang-Jen: *See*—
Speranza, George P.; Naylor, Carter G.; and Lin, Jiang-Jen, 5,064,571, Cl. 252-357.000.

Lin, Samuel; Khan, Gaznabi; Salas, Lucia; and Policello, George, to Lever Brothers Company, division of Conopco, Inc. Liquid fabric conditioner containing compatible amino alkyl silicones. 5,064,544, Cl. 252-88.000.

Lin, Yu-Chuan. Electric connecting device. 5,064,381, Cl. 439-326.000.

Lincoln, James F. L.: *See*—
Young, Richard H., Sr.; Neogi, Amar N.; Brunnenkant, Christel; Lincoln, James F. L.; and Hansen, Michael R., 5,064,689, Cl. 427-202.000.

Lind, Larry F.: *See*—
Hughes, Patrick M.; Hall, Martin C.; and Lind, Larry F., 5,065,409, Cl. 375-91.000.

Lindener, Juergen: *See*—
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.

Lindmayer, Joseph, to Quantex Corporation. Solid state high resolution photography and imaging using electron trapping materials. 5,065,023, Cl. 250-330.000.

Lindner, Eckehart: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz. Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Lindquist. Thomas R.: *See*—
Bambacigno, Ralph; and Lindquist, Thomas R., 5,064,155, Cl. 248-146.000.

Lindsay Finishes, Inc.: *See*—
DuLaney, Donald C.; and Lindsay, Robert H., 5,064,713, Cl. 428-214.000.

Lindsay, Mitchell H., to United States of America, Air Force. Method of fabricating a split compressor case. 5,063,661, Cl. 29-888.020.

Lindsay, Robert H.: *See*—
DuLaney, Donald C.; and Lindsay, Robert H., 5,064,713, Cl. 428-214.000.

Ling, Chong-Kuan. Simply-constructed combination padlock. 5,063,761, Cl. 70-25.000.

Ling, Louisa C.: *See*—
Buttery, Ronald G.; Teranishi, Roy; Ling, Louisa C.; and Turnbaugh, Jean G., 5,064,673, Cl. 426-534.000.

Link, Charles T. Endless filament paper clip. 5,063,640, Cl. 24-67.900.

Linker, Frank V., to American Tech Manufacturing, Corp. Hand held lead straightener. 5,063,975, Cl. 140-123.000.

Linska, Josef: *See*—
Thoma, Martin; Bindl, Monika; and Linska, Josef, 5,064,510, Cl. 204-16.000.

Lintec Corporation: *See*—
Itou, Kazumi; Gbe, Kazuyoshi; and Minagawa, Toshio, 5,064,064, Cl. 206-330.000.

Liposome Technology, Inc.: *See*—
Uster, Paul S.; Morano, Jacqueline K.; and Martin, Francis J., 5,064,655, Cl. 424-450.000.

Lippincott, Ezra P.: *See*—
Ruddy, Francis H.; Lippincott, Ezra P.; Fero, Arnold H.; Schreiber, Roger B.; and Seidel, John G., 5,064,605, Cl. 376-247.000.

Liskow, Gerd: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Litton Systems, Inc.: *See*—
Barnes, Robert E., 5,064,066, Cl. 206-395.000.

Litvak, Herbert E.: *See*—
Rogers, Edward G.; and Litvak, Herbert E., 5,064,269, Cl. 385-115.000.

Liu, Tin Y.: *See*—
Chen, Chi J.; Lin, Cheng H.; Liu, Tin Y.; and Hung, Ying C., 5,064,465, Cl. 75-349.000.

LK Limited: *See*—
Bury, James, 5,063,683, Cl. 33-573.000.

Lloyd, O. H. Perry. Bristled dental floss. 5,063,948, Cl. 132-321.000.

Locati, Ronald P.; and Oberman, Carl D., to AMP Incorporated. Multiple conductor cable connector with clip and towers. 5,064,383, Cl. 439-405.000.

Locher, Johannes: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Lodenquai, Richard A.: *See*—
Atwood, Gregory E.; Fazio, Albert; and Lodenquai, Richard A., 5,065,364, Cl. 365-185.000.

Loeber, Frederick W., to Terex Corporation. Flexible ladder for use on moving conveyances. 5,064,023, Cl. 182-90.000.

Loeber, Frederick W.: *See*—
Fujan, Steven J.; and Loeber, Frederick W., 5,064,242, Cl. 296-190.000.

Loffler, Alf: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Loffler, Tilo, to Schon & Cie. AG. Heel support device with reduced movement of support. 5,063,629, Cl. 12-12.400.

Loftis, Harry J.: *See*—
Cawlfield, David W.; and Loftis, Harry J., 5,064,514, Cl. 204-103.000.

Logabex S.A.R.L.: *See*—
Ch'Hayder, Ameur; Durand, Didier; and Diaz, Constantino, 5,063,788, Cl. 73-862.040.

Login, Robert B.: *See*—
Tazi, Mohammed; and Login, Robert B., 5,064,897, Cl. 524-765.000.

Loginov, Sergei V.: *See*—
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Lombardi, Michael H.; and Wacker, Susan R., to Elizabeth Arden Company, division of Conopco, Inc. Compartmented container having a seal member and magnifying lid. 5,064,082, Cl. 215-6.000.

Londrigan, Michael E.: *See*—
Snider, Scott C.; Londrigan, Michael E.; and Trout, Kenneth G., 5,064,873, Cl. 521-131.000.

Long, Thomas F., Jr. One-way acting sprag clutch with centrifugal disengagement from the outer race. 5,064,037, Cl. 192-41.00A.

Longo, Robert T.; Barillas, Mario A.; and Forman, Ralph, to Hughes Aircraft Company. Sputtered scandate coatings for dispenser cathodes. 5,065,070, Cl. 313-346.0DC.

Loof, Lennart: *See*—
Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., 5,064,425, Cl. 606-72.000.

Lopez-Crevillen, Jose M.; and Tuteja, Arjun D., to General Motors Corporation. Particulate trap system for an internal combustion engine. 5,063,737, Cl. 60-286.000.

Lopez de Cardenas, Jorge E., to Schlumberger Technology Corporation. Perforating gun assembly including a carrier having a first section adapted to separate from a second section when a charge on the second section detonates. 5,063,822, Cl. 89-1.150.

L'Oreal: *See*—
Grollier, Jean F., 5,064,442, Cl. 8-407.000.
Gueret, Jean-Louis, 5,063,947, Cl. 132-218.000.
Gueret, Jean-Louis, 5,064,306, Cl. 401-133.000.
Lang, Gerard; Forestier, Serge; Morie, Claudine; and Lagrange, Alain, 5,064,641, Cl. 424-60.000.

Lorenz, Gisela: *See*—
Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, 5,064,828, Cl. 514-239.500.

Lorenz, Jurgen; Ensner, Jurgen; and D'Alfonso, Nunzio, to MAN Nutzfahrzeuge Aktiengesellschaft. Acceleration aid for an internal combustion engine having an exhaust-driven turbocharger. 5,064,423, Cl. 60-611.000.

Losego, Martine. System for motorizing a shopping cart or trolly, or the like. 5,064,012, Cl. 180-19.100.

Loughner, Daniel L.: *See*—
Hsu, Adam C.; and Loughner, Daniel L., 5,064,845, Cl. 514-364.000.

Louvrier, Emmanuel: *See*—
Gambert, Philippe; and Louvrier, Emmanuel, 5,064,769, Cl. 436-516.000.

Lowe, David J.: *See*—
Jackson, Roy; Lowe, David J.; and Stewart, Clare A., 5,064,935, Cl. 528-272.000.

Lubrizol Corporation, The: *See*—
Steckel, Thomas F., 5,064,545, Cl. 252-32.7HC.

Lucas, Gregory L.: *See*—
Dagostino, John J.; and Lucas, Gregory L., 5,064,583, Cl. 264-39.000.

Lucas Industries public limited company: *See*—
Smith, Trevor S., 5,064,357, Cl. 417-428.000.

Luckevich, Lydia M., to Ortech International. Production of spherical ceramic powders. 5,064,783, Cl. 501-12.000.

Ludvik, Stephen; Steel, Victor E.; and Scott, Douglas, to Teledyne MEC. Feed-forward amplifier including phase correction. 5,065,110, Cl. 330-149.000.

Luijk, Pieter: *See*—
Stamhuis, Jan E.; Broekhuis, Antonius A.; and Luijk, Pieter, 5,064,905, Cl. 525-237.000.

Lummes, Stephen E.: *See*—
Morrison, Robert B.; Henning, Brian C. R.; Lummes, Stephen E.; and McMurtry, David R., 5,063,685, Cl. 33-701.000.

Lundell, Lars-Gunnar, to Sandvik AB. Drill rod for percussion drilling. 5,064,004, Cl. 173-132.000.

Lundgard, Richard A.: *See*—
Beck, Henry N.; Lundgard, Richard A.; and Mahoney, Robert D., 5,064,580, Cl. 264-28.000.

Lundgren, Dan, to Nobelpharma AB. Element and method for implant-fixed prosthesis. 5,064,374, Cl. 433-173.000.

Lunsford, David R., to Dell USA Corporation. Digital computer system having circuit for regulation of I/O command recovery time. 5,065,313, Cl. 395-275.000.

Lupinski, John H.: *See*—
Walles, Erik W.; Lupinski, John H.; and Crivello, James V., 5,064,882, Cl. 523-443.000.

Lusch, Richard: *See*—
Alexander, Barbara; Kiang, Patty H.; Lusch, Richard; and Romberg, Val, 5,064,083, Cl. 215-247.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Lussier, David B.: *See—*
Lailer, Robert H., Jr.; Porter, Frank K., Jr.; Colananni, Laura M.; and Lussier, David B., 5,064,142, Cl. 244-3.240.

Luttrell, Noel E., Jr. Fiberglass spray-up apparatus having display of cumulative amount of material dispensed. 5,064,120, Cl. 239-74.000.

Lutz, Heidrun: *See—*
Pawlowski, Georg; Erdmann, Fritz; and Lutz, Heidrun, 5,064,959, Cl. 544-216.000.

Luxner, Walter: *See—*
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Lybrand, Brent B., to Thomas & Betts Corporation. Shielded electrical jack connector. 5,064,387, Cl. 439-607.000.

M.A.P.A. S.r.l.: *See—*
Patelli, Ferruccio, 5,063,727, Cl. 53-552.000.

M & R Printing Equipment, Inc.: *See—*
Clarke, Joseph, 5,063,842, Cl. 101-127.100.

Macdonald, John L., to Cincinnati Incorporated. Vision system. 5,064,043, Cl. 192-125.00A.

Machado, Joseph, to Allied-Signal Inc. Heavy duty air filter with multipurpose end seal. 5,064,458, Cl. 55-482.000.

Machado, Joseph M., to Shell Oil Company. Blends of polyketones and carboxylated, hydrogenated block copolymers. 5,064,901, Cl. 525-92.000.

Machida, Haruchika; Fuwa, Yoshiaki; and Shimokawa, Takashi, to Hochiki Corp. Monitoring apparatus for disaster prevention. 5,065,150, Cl. 340-825.060.

Machii, Akihiko: *See—*
Morofuji, Akihiko; Morotomi, Masaki; Machii, Akihiko; Aizawa, Masanori; and Ishibashi, Kazuhisa, 5,065,183, Cl. 355-202.000.

Machinefabriek Meyn B.V.: *See—*
Koops, Henderikus, 5,064,402, Cl. 452-117.000.

Mack, Arthur G., to Akzo N.V. Preparation of oxidation resistant metal powder. 5,064,469, Cl. 106-14.420.

MacMillan Bloedel Limited: *See—*
Churchland, Mark T., 5,064,591, Cl. 264-109.000.

Madle, Wolfgang; Gawlik, Norbert; and Popp, Franz W. Method and device for the loading and sealing of a double container system for the storage of radioactive material and a seal for the double container system. 5,064,575, Cl. 252-633.000.

Maeda, Hideo: *See—*
Nishizawa, Jun-Ichi; Tamamushi, Takashige; and Maeda, Hideo, 5,065,206, Cl. 357-30.000.

Maeda, Hiroshi: *See—*
Cullen, Walter P.; Hauske, James R.; Kostek, Gloria J.; Maeda, Hiroshi; and Tone, Junsuke, 5,064,855, Cl. 514-460.000.

Maeda Industries, Ltd.: *See—*
Akamatsu, Shogo, 5,064,027, Cl. 188-73.100.

Maeda, Shigeo: *See—*
Kobayashi, Hiroshi; Tsuboi, Kazuhiko; Takahashi, Atsushi; Maeda, Shigeo; and Yagi, Seiichi, 5,065,188, Cl. 355-219.000.

Maeda, Takayoshi; Hata, Masahiko; Fukuhara, Noboru; and Watanabe, Tadeshi, to Sumitomo Chemical Co., Ltd. Vapor-phase epitaxial growth method. 5,064,778, Cl. 437-81.000.

Maeda, Yoshikazu: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Maehara, Toshiyuki: *See—*
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.

Maekawa, Takashi: *See—*
Hosokawa, Yoshiaki; Kanoh, Masaki; Maekawa, Takashi; and Nakayasu, Hirofumi, 5,064,304, Cl. 400-225.000.

Magara, Takuji: *See—*
Yamamoto, Masahiro; and Magara, Takuji, 5,064,984, Cl. 219-69.130.

Magneco/Metrel, Inc.: *See—*
Banerjee, Subrata, 5,064,787, Cl. 501-89.000.
Soofi, Madjid, 5,064,175, Cl. 266-229.000.

Magnuson, James M., to Peddinghaus Corporation. Offset punch press assembly for structural beams. 5,063,804, Cl. 83-368.000.

Magnussen, Haakon T., Jr., to Rainin Instrument Co., Inc. Sample flow cell with circumferentially uniform radial flow pattern at its entrance and/or exit ports. 5,064,287, Cl. 356-246.000.

Magnusson, Hans: *See—*
Nguyen, Liem T.; and Magnusson, Hans, 5,065,054, Cl. 307-520.000.

Magrange, Inc: *See—*
Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, 5,064,006, Cl. 175-45.000.

Mahoney, Robert D.: *See—*
Beck, Henry N.; Lundgard, Richard A.; and Mahoney, Robert D., 5,064,580, Cl. 264-28.000.

Mai, Khuong H. X.: *See—*
Patil, Ghanshyam; Matier, William L.; and Mai, Khuong H. X., 5,064,827, Cl. 514-237.500.

Maier, Josef: *See—*
Merkel, Josef, 5,064,163, Cl. 249-47.000.

Maier, Ludwig: *See—*
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.

Maiorana, Giovanni, to Fiat Auto S.p.A. System for balancing a four-stroke internal combustion engine. 5,063,892, Cl. 123-192.00B.

Makar, Marko; and Makar, Michael. Illuminated display. 5,065,290, Cl. 362-132.000.

Makar, Michael: *See—*
Makar, Marko; and Makar, Michael, 5,065,290, Cl. 362-132.000.

Maker, Philip J.: *See—*
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.

Makino, Masao: *See—*
Masai, Kazuo; Wakayama, Satoshi; Yamamoto, Shoji; Sumiyoshi, Takashi; and Makino, Masao, 5,065,311, Cl. 364-200.000.

Makino, Toshiyuki: *See—*
Yoshizawa, Hideyoshi; Ishii, Takashi; Makino, Toshiyuki; Ozawa, Hidekatsu; and Shimizu, Yasuyuki, 5,064,985, Cl. 219-69.160.

Makita Electric Works, Ltd.: *See—*
Fushiya, Fusao, 5,065,082, Cl. 320-2.000.

Malanga, Michael T., to Dow Chemical Company, The. Ziegler-Natta polymerization of styrene monomer. 5,064,918, Cl. 526-77.000.

Malassis, Marc: *See—*
Jost, Philippe; and Malassis, Marc, 5,064,562, Cl. 252-174.150.

Malherbe, Roger F.: *See—*
Behrens, Rudolf A.; and Malherbe, Roger F., 5,064,883, Cl. 524-95.000.

Malik, Mangel S.: *See—*
Fukuto, T. Roy; Vetter, Richard S.; Baker, Thomas C.; and Malik, Mangel S., 5,064,820, Cl. 514-134.000.

Mally, Timothy G., to Oscar Mayer Foods Corporation. Method for shaping bacon bellies. 5,064,667, Cl. 426-231.000.

Malyavko, Sergei S.: *See—*
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Mametani, Tomoharu: *See—*
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.

Mamiya, Kiyotaka: *See—*
Hitomi, Mitsuo; Mamiya, Kiyotaka; and Watanabe, Tomomi, 5,063,899, Cl. 123-339.000.

Mammino, Joseph: *See—*
Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, 5,064,509, Cl. 204-9.000.

MAN Nutzfahrzeuge Aktiengesellschaft: *See—*
Lorenz, Jurgen; Ensner, Jurgen; and D'Alfonso, Nunzio, 5,064,423, Cl. 60-611.000.

Manabe, Mitsuo: *See—*
Karube, Norio; and Manabe, Mitsuo, 5,065,330, Cl. 364-474.080.

Manca, Anthony; and Mayron, Henry, to International Business Machines Corporation. Tube assembly for pin grid array modules. 5,064,063, Cl. 206-328.000.

Mangold, Dieter; and Gambke, Brigitte, to Boehringer Mannheim GmbH. Method and reagent for determining the ionic strength of specific gravity of aqueous liquids. 5,064,615, Cl. 422-56.000.

Mangone, Peter G., Jr. Apparatus and method for molding three dimensional articles. 5,064,231, Cl. 292-319.000.

Mannesmann AG: *See—*
Gruner, Manfred; and Kunze, Heiko, 5,065,341, Cl. 364-516.000.

Mannesmann Aktiengesellschaft: *See—*
Munzebrock, Anton; and Pfannkuche, Heinz, 5,064,972, Cl. 191-30.000.

Mantlo, Nathan B.: *See—*
Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., 5,064,825, Cl. 514-221.000.

Manz, Kenneth W., to Kent-Moore Corporation. Refrigerant handling system with air purge and multiple refrigerant capabilities. 5,063,749, Cl. 62-149.000.

Maraghe, Alex: *See—*
Noble, Donald R.; and Maraghe, Alex, 5,064,147, Cl. 244-129.500.

Marcaud, Monique: *See—*
Tararine, Michel; Thevenin, Bernard; and Marcaud, Monique, 5,065,316, Cl. 364-413.240.

Marcoaldi, Gianfranco: *See—*
Galvan, Dino; Marcoaldi, Gianfranco; Antolini, Elvio; and DeMeo, Sabatino, 5,063,924, Cl. 128-202.120.

Marder, Daniel S.: *See—*
Pajak, Henry G.; Marder, Daniel S.; Byrne, Kenneth C.; and Breisacher, Lee F., 5,065,347, Cl. 395-159.000.

Margolin, Mark: *See—*
Grois, Igor; and Margolin, Mark, 5,063,672, Cl. 30-272.100.

Margotte, Dieter: *See—*
Pedain, Josef; and Margotte, Dieter, 5,064,960, Cl. 544-222.000.

Marinaccio, Paul J., to United States of America, Air Force. Method of forming an ultra-thin nonlinear optical film. 5,064,590, Cl. 264-102.000.

Marion Merrell Dow Inc.: *See—*
Audia, Vicki H., 5,064,850, Cl. 514-406.000.

Marker Deutschland GmbH: *See—*
Ragaller, Max, 5,064,324, Cl. 411-337.000.

Markle, Kenneth E. Controlled depth cartridge case camfering tool. 5,064,320, Cl. 408-202.000.

Marozsan, Andy; and Leon, Robert, to Motorola, Inc. Vacuum nozzle and conductance sensor. 5,064,234, Cl. 294-64.100.

Marra, Dominic A. Drywall tool. 5,063,627, Cl. 7-105.000.

Marrowbone Development Company: *See—*
Graham, George W., 5,064,022, Cl. 182-85.000.

Marsh, Robert M.; Hill, Timothy J.; and Potts, Mark, to Document Technologies, Inc. Scanned document image resolution enhancement. 5,065,149, Cl. 340-793.000.

Marshall, Frank P.; Travor, Bruce W.; and Kraynak, Timothy L., to United States of America, Navy. Launch container for multiple stores using electrically-actuated paddle assemblies. 5,063,823, Cl. 89-1.510.

Martin, Francis J.: *See—*
Uster, Paul S.; Morano, Jacqueline K.; and Martin, Francis J., 5,064,655, Cl. 424-450.000.

Martin, Gerhard: *See—*
Meyke, Joachim; and Martin, Gerhard, 5,064,587, Cl. 264-50.000.

Martin, Isabel: *See—*
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Martin, Martial G., to Syntone. Method of forming zigzag-shaped piles from a continuous band of a flexible material and machine for carrying out this method. 5,064,179, Cl. 270-39.000.

Martin, Robin A., to Tanner Chemical Company, Inc. Adhesive compositions. 5,064,896, Cl. 524-731.000.

Martin, William J., to National Research Development Corporation. Sampling of material. 5,063,791, Cl. 73-864.310.

Martinez, Fernando. Method of playing a board game. 5,064,200, Cl. 273-243.000.

Martinot, Michel: *See—*
Bobadilla, Manuel; Jolivet, Jean-Marc; and Martinot, Michel, 5,063,991, Cl. 164-468.000.

Marton, Jeno : *See—*
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.

Martynowicz, Lynn M.: *See—*
Bopp, Richard C.; and Martynowicz, Lynn M., 5,064,869, Cl. 521-60.000.

Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, to Toagosei Chemical Industry Co., Ltd. Fluorine-containing copolymer and coating composition containing the copolymer. 5,064,920, Cl. 526-249.000.

Marutakairyoki Kabushikikaisha: *See—*
Endou, Mikiya; Matsuura, Motohiro; and Tsuzuki, Toshihiro, 5,065,414, Cl. 377-24.200.

Maruyama, Iwao: *See—*
Nemoto, Kenji; Uchida, Kuninobu; Gunji, Keiichiro; Murata, Nagatoshi; and Maruyama, Iwao, 5,063,650, Cl. 29-407.000.

Maruyama, Tadashi: *See—*
Yoshizawa, Makoto; and Maruyama, Tadashi, 5,065,361, Cl. 365-104.000.

Masai, Kazuo; Wakayama, Satoshi; Yamamoto, Shoji; Sumiyoshi, Takashi; and Makino, Masao, to Hitachi, Ltd. Distributed data base system of composite subsystem type, and method fault recovery for the system. 5,065,311, Cl. 364-200.000.

Masaoka, Hiroshi: *See—*
Hamada, Yuji; Sasaki, Shosaku; and Masaoka, Hiroshi, 5,064,876, Cl. 522-99.000.
Sasaki, Shosaku; and Masaoka, Hiroshi, 5,064,916, Cl. 525-478.000.

Masaru, Iwagaki: *See—*
Sohei, Goto; Ken, Okauchi; Junichi, Kohno; and Masaru, Iwagaki, 5,064,753, Cl. 430-567.000.

Masbruch, Richard D.; and Andrews, Arthur A., to Tennant Company. Speed and steering control for scrubbers and the like. 5,064,010, Cl. 180-6.500.

Masco Building Products Corp.: *See—*
Bloom, Myron G., 5,064,969, Cl. 174-67.000.

Mase, Yoshiaki: *See—*
Oketani, Tetsuya; Ito, Toshio; and Mase, Yoshiaki, 5,064,044, Cl. 192-141.000.

Maskovyak, George D., to Allen-Bradley Company, Inc. Method and circuit for automatically communicating in two modes through a backplane. 5,065,314, Cl. 395-325.000.

Mast-Air Enterprise: *See—*
Thomas, Bernard M., 5,065,349, Cl. 364-550.000.

Masuda, Yoshihiro: *See—*
Awazu, Yasunobu; Masuda, Yoshihiro; and Nishimura, Eiji, 5,065,178, Cl. 355-27.000.

Masuishi, Tetsuya; Tsuji, Hiroshi; Matsui, Takahashi; and Koga, Akihiko, to Hitachi, Ltd. Method for editing and executing computer programs. 5,065,400, Cl. 371-19.000.

Masumoto, Rodney T.: *See—*
Ueda, Shunsaku; and Masumoto, Rodney T., 5,065,116, Cl. 331-173.000.

Masuzawa, Sigeaki: *See—*
Oogita, Yoshinori; and Masuzawa, Sigeaki, 5,065,155, Cl. 340-825.560.

Matas, Maria T. D.: *See—*
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Mathieu, Gaetan L.: *See—*
Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., 5,065,224, Cl. 357-70.000.

Mathijssen, Rudolf W.: *See—*
Boezen, Hendrik; Buitendijk, Pieter; and Mathijssen, Rudolf W., 5,065,113, Cl. 330-260.000.

Matier, William L.: *See—*
Patil, Ghanshyam; Matier, William L.; and Mai, Khuong H. X., 5,064,827, Cl. 514-237.500.

Matsubayashi, Shinji: *See—*
Iwai, Kazuhiro; Matsubayashi, Shinji; Ariga, Ikuo; and Saito, Kazuhiko, 5,064,016, Cl. 180-215.000.

Matsuda, Atsuko: *See—*
Kempo, Tsutomu; Matsuda, Atsuko; and Goto, Narito, 5,064,720, Cl. 428-423.100.

Matsuda, Hideaki: *See—*
Ueda, Minoru; Matsuda, Hideaki; and Murakami, Koichi, 5,064,592, Cl. 264-112.000.

Matsuda, Kiyoshi; and Mizutani, Minoru, to Oki Electric Industry Co., Ltd. Pin platen mechanism. 5,064,305, Cl. 400-616.300.

Matsuda, Yoshiaki: *See—*
Samejima, Kazuo; Murakawa, Masatake; Kitamura, Junichi; Matsuda, Yoshiaki; and Fulford, Colin, 5,064,315, Cl. 406-100.000.

Matsufuji, Akihiro; Ejiri, Kiyomi; Ohno, Mikio; Kiyama, Masatoshi; and Honda, Kunihiko, to Fuji Photo Film Co., Ltd. Method for making magnetic recording media. 5,064,687, Cl. 427-132.000.

Matsui, Koichi: *See—*
Yano, Masatoshi; Matsui, Koichi; and Fukushima, Tadashi, 5,063,957, Cl. 137-15.000.

Matsui, Takahashi: *See—*
Masuishi, Tetsuya; Tsuji, Hiroshi; Matsui, Takahashi; and Koga, Akihiko, 5,065,400, Cl. 371-19.000.

Matsuki, Hirohisa; Harada, Shigeki; Sugimoto, Masahiro; and Yoshida, Toshiki, to Fujitsu VLSI Limited; and Fujitsu Limited. Packaged semiconductor device. 5,065,223, Cl. 357-68.000.

Matsumoto, Hiroshi; Kunichika, Kenji; and Uchida, Toshio, to Fuji Photo Film Co., Ltd. Dampening water composition for lithographic plate. 5,064,749, Cl. 430-331.000.

Matsumoto, Hiroshi: *See—*
Iimori, Akiro; Matsumoto, Hiroshi; and Ide, Fumito, 5,065,184, Cl. 355-208.000.

Matsumoto, Hisashi: *See—*
Togashi, Eiki; and Matsumoto, Hisashi, 5,064,881, Cl. 523-443.000.

Matsumoto, Kouji, to NEC Corporation. ECL-TTL level converting circuit. 5,065,051, Cl. 307-475.000.

Matsumoto, Yasuo; Murakami, Kazunori; Ikumi, Tomonori; and Iwafune, Yasuo, to Tokyo Electric Co., Ltd. Postobjective optical deflector. 5,064,262, Cl. 359-205.000.

Matsumoto, Yukio: *See—*
Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, 5,065,433, Cl. 381-63.000.

Matsumura, Shigeru, to Yokogawa Medical Systems, Limited. X-ray computerized tomograph. 5,065,436, Cl. 382-6.000.

Matsunaga, Tadahiro: *See—*
Dohara, Kazunobu; Matsunaga, Tadahiro; Shiraishi, Motomitsu; and Shinjo, Goro, 5,064,639, Cl. 424-45.000.

Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, to Hitachi Metals, Ltd. Column base structure. 5,063,719, Cl. 52-296.000.

Matsuo, Shunji: *See—*
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,065,195, Cl. 355-298.000.

Matsuoka, Hisao: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.

Matsuoka, Mikiharu; Miyazaki, Yasuko; and Koumura, Noboru, to Canon Kabushiki Kaisha. Image information processing apparatus having a multi-function switch. 5,065,434, Cl. 382-1.000.

Matsushita Electric Industrial Co., Inc.: *See—*
Nakamura, Tetsuro; Murata, Takahiko; and Fujiwara, Shinji, 5,065,006, Cl. 250-208.100.

Matsushita Electric Industrial Co., Ltd.: *See—*
Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, 5,064,346, Cl. 416-178.000.
Ishii, Mitsuo; and Murata, Yoshitaka, 5,063,635, Cl. 15-398.000.
Murakami, Mutsuaki; and Yoshimura, Susumu, 5,064,019, Cl. 181-170.000.
Nakano, Hiraku, 5,065,352, Cl. 364-765.000.
Sakagami, Masahiko; and Kawai, Hideki, 5,065,052, Cl. 307-480.000.
Yohda, Hiroshi, 5,065,267, Cl. 360-104.000.
Yoshida, Shuichi; Wakabayashi, Noriaki; Inaji, Toshio; and Onodera, Hiromi, 5,065,263, Cl. 360-77.030.

Matsushita, Yoshiko: *See—*
Hiramatsu, Tamihei; and Matsushita, Yoshiko, 5,065,317, Cl. 364-419.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Matsuura, Motohiro: *See*—
Endou, Mikiya; Matsuura, Motohiro; and Tsuzuki, Toshihiro, 5,065,414, Cl. 377-24.200.

Matsuura, Tsukasa; Fujita, Jun; Uchizawa, Manabu; and Suzuki, Shigehisa, to Mitsubishi Denki Kabushiki Kaisha. Thin film magnetic head apparatus and method of manufacturing the same. 5,065,271, Cl. 360-126.000.

Matta, Farid: *See*—
Karnezos, Marcos; Kaw, Ravindhar; Hanlon, Lawrence; and Matta, Farid, 5,065,280, Cl. 361-386.000.

Matuschek, Manfred, to Robert Krups Stiftung & Co. KG. Portable apparatus for brewing hot beverages. 5,063,838, Cl. 99-307.000.

Matzinger, James E.: *See*—
Weaver, William R.; and Matzinger, James E., 5,064,707, Cl. 428-151.000.

Maurer, Fritz; Hartwig, Jurgen; and Becker, Benedikt, to Bayer Aktiengesellschaft. Pesticidal pyrimidinyl (thiono) (thio)-phosphoric (phosphonic)acid (amide) esters. 5,064,818, Cl. 514-86.000.

Maurino, William J.: *See*—
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

Maus, Patricia; and Sievert, Ralph. Protective cover for electrical fixture. 5,063,872, Cl. 118-213.000.

Maute, Patrick A., to Aerospatiale Societe Nationale Industrielle. Method of determining and controlling the attitude of a spin-stabilized satellite in an elliptical transfer orbit. 5,064,152, Cl. 244-164.000.

Mayfield, Alfred B. Anti-kick forward device for radial arm saws. 5,063,806, Cl. 83-471.300.

Mayron, Henry: *See*—
Manca, Anthony; and Mayron, Henry, 5,064,063, Cl. 206-328.000.

Mazda Motor Corporation: *See*—
Baba, Fumiaki; Yoshimura, Hiroshi; Fujiwara, Takuji; and Ishii, Kozo, 5,063,814, Cl. 74-866.000.
Hitomi, Mitsuo; Mamiya, Kiyotaka; and Watanabe, Tomomi, 5,063,899, Cl. 123-339.000.
Kikuchi, Reiji; Moriyama, Naomune; Yokouchi, Takahito; and Yamamoto, Koichi, 5,064,017, Cl. 180-248.000.

Mazur, Adam W., to Procter & Gamble Company, The. Functional sugar substitutes with reduced calories. 5,064,672, Cl. 426-531.000.

Mazur, Joseph F.; Blackburn, Brian K.; and Gentry, Scott B., to TRW Vehicle Safety Systems Inc. Method and apparatus for sensing a vehicle crash in real time using a frequency domain summation algorithm. 5,065,322, Cl. 364-424.050.

Mazzenga, Gerard C.: *See*—
Berner, Bret; Ebert, Charles; Mazzenga, Gerard C.; and Otte, John H., 5,064,654, Cl. 424-448.000.

McAllister, James D.; and McAllister, Molly J. Christmas light organizer. 5,064,067, Cl. 206-420.000.

McAllister, Molly J.: *See*—
McAllister, James D.; and McAllister, Molly J., 5,064,067, Cl. 206-420.000.

McAskill, John P., to Deere & Company. Speed forward, 12 speed reverse powershift transmission. 5,063,793, Cl. 74-360.000.

McBride, Stephen W.; and Whitney, Ralph, to H-C Industries, Inc. Composite closure with seal proportioning lip. 5,064,084, Cl. 215-350.000.

McCarthy, James R.: *See*—
Jarvi, Esa T.; Edwards, Michael L.; and McCarthy, James R., 5,064,864, Cl. 514-739.000.

McCombie, Stuart W., to Schering Corporation. 3-substituted-1-aryl-2(H)-quinolones and their pharmaceutical compositions. 5,064,837, Cl. 514-312.000.

McCoy, Kevin M.; and Frost, Robert A., to American Cyanamid Company. Method for solubilization and naturation of somatotropin. 5,064,943, Cl. 530-399.000.

McCreary, Robert A., Jr., to Atlantic Richfield Company. Lightweight excavator dipper with replaceable top and bottom sections. 5,063,694, Cl. 37-103.000.

McCullough, John, to Inframetrics, Inc. Infrared imaging system with simultaneously variable field of view and resolution and fixed optical magnification. 5,065,024, Cl. 250-334.000.

McDaniel, Max P., to Phillips Petroleum Company. Polymerization of olefins. 5,064,795, Cl. 502-104.000.

McDonald, Daniel P.: *See*—
Boeckmann, Hugo; and McDonald, Daniel P., 5,063,639, Cl. 24-30.50R.

McEntee, James E. Container lid. 5,064,086, Cl. 220-253.000.

McFeaters, Richard R.; Koppa, Daniel A.; and Babiak, Theodore P., to Nabisco Brands, Inc. Cutting die for forming a plurality of thin uniformly bakeable edible assortments. 5,063,839, Cl. 99-353.000.

MCG A.S.: *See*—
Brenna, Bjorn J., 5,064,329, Cl. 414-137.700.

McGeary, Michael J., to Olin Corporation. Sub-valent molybdenum, tungsten, and chromium amides as sources for thermal chemical vapor deposition of metal-containing films. 5,064,686, Cl. 427-124.000.

McGough, Gerald B.; Stanford, Timothy M.; and Bass, Charles J., to Quadrum Telecommunications, Inc. Coin hopper relay. 5,064,116, Cl. 232-57.500.

McGrew, Gordon N.: *See*—
Courtright, Steven B.; McGrew, Gordon N.; and Richey, Lindell C., 5,064,698, Cl. 428-35.400.

McKee, Fount E.; and Crume, Douglas M., to Delta X Corporation. Determination of well pumping system downtime. 5,064,348, Cl. 417-12.000.

McKinnon, Charles M.; Nakagawa, Takaaki; and Wilcox, Carl E., to Bioject, Inc. Needleless hypodermic injection device. 5,064,413, Cl. 604-70.000.

McMahan, David S.; Tso, Richard; and Lee, Jackson, to Express Yourself, Inc. Novelty basketball goal producing sound effects on made shot. 5,064,195, Cl. 275-374.000.

McMurtry, David R.; and Stephens, William F. N., to Renishaw plc. Opto-electronic scale-reading apparatus wherein phase-separated secondary orders of diffraction are generated. 5,064,290, Cl. 356-356.000.

McMurtry, David R.: *See*—
Morrison, Robert B.; Henning, Brian C. R.; Lummes, Stephen E.; and McMurtry, David R., 5,063,685, Cl. 33-701.000.

MCNC: *See*—
Bobbio, Stephen M., 5,064,748, Cl. 430-311.000.

McNeely, Michael D.: *See*—
Alberts, Jack B.; and McNeely, Michael D., 5,064,169, Cl. 251-334.000.

McRoskey, John W., to Republic Tool & Manufacturing Corp. Thumbnut construction. 5,064,325, Cl. 411-368.000.

McSheffery, Kenneth E. Reversible garment having detachable pockets. 5,063,614, Cl. 2-94.000.

Mears, Arthur W., to Radarfind, Inc. Reusable deployable antenna. 5,065,163, Cl. 343-706.000.

Measurex Corporation: *See*—
Boissevain, Mathew G.; Norton, Michael K.; Foskett, Anthony D.; and Boissevain, Tobias J., 5,063,682, Cl. 33-501.020.

Medcalf, Ralph F., Jr.; Visscher, Martha O.; Knochel, John R.; and Dahlgren, Richard M., to Procter & Gamble Company, The. Mild skin cleansing soap bar with hydrated cationic polymer skin conditioner. 5,064,555, Cl. 252-117.000.

Medora, Noshirwan K.: *See*—
Kusko, Alexander; and Medora, Noshirwan K., 5,065,104, Cl. 324-508.000.

Medyanik, Vladimir A.: *See*—
Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A., 5,064,003, Cl. 173-106.000.

Mefina S.A.: *See*—
Jimenez, Antonio; and Combepine, Michel, 5,063,865, Cl. 112-221.000.
Jimenez, Antonio; and Combepine, Michel, 5,063,866, Cl. 112-302.000.

Meier, Erich: *See*—
Wagner, Joachim; Rasshofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, 5,064,600, Cl. 264-328.600.

Meiji Seika Kaisha, Ltd.: *See*—
Mochizuki, Keizo; and Sumi, Naoki, 5,064,651, Cl. 424-440.000.

Meisner, Edward H.: *See*—
Grossman, M. Gary; and Meisner, Edward H., 5,064,980, Cl. 219-10.55E.

Melcher, Franz-Josef; Pertsch, Thomas; Spannagel, Wilfried; and Oldendorf, Christian, to Sartorius AG. Device for the determination of dry substance. 5,064,009, Cl. 177-245.000.

Mellette, Robert R., to Binks Manufacturing Company. High-volume low pressure air spray gun. 5,064,119, Cl. 239-8.000.

Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, to Xerox Corporation. Multilayer belts formed by electrodeposition. 5,064,509, Cl. 204-9.000.

Mencaglia, Andrea A.: *See*—
Conforti, Giuliano; Mencaglia, Andrea A.; Brenci, Mario; and Mignani, Anna G., 5,063,781, Cl. 73-651.000.

Mensah, Thomas O.: *See*—
Chapin, John T.; Jackson, Charles W.; Mensah, Thomas O.; and Reynolds, Mickey R., 5,064,490, Cl. 156-172.000.

Mentor Corporation: *See*—
Cowen, Timothy B., 5,063,914, Cl. 128-79.000.

Mentzer, Ray A.: *See*—
Fraser, Dana; Mentzer, Ray A.; Gray, Jerry; Hannington, Geoff; Keown, Susan M.; and Mathieu, Gaetan L., 5,065,224, Cl. 357-70.000.

Mera, Hiroshi: *See*—
Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, 5,064,919, Cl. 526-169.000.

Mercedes-Benz AG: *See*—
Augustin, Ulrich, 5,063,900, Cl. 123-373.000.

Merchant, Abid N.; and Krespan, Carl G., to Du Pont de Nemours, E. I., and Company. Binary azeotropic compositions of $(CF_3CHFCHFCF_2CF_3)$ with methanol or ethanol or isopropanol. 5,064,559, Cl. 252-171.000.

Merchant, Abid N., to Du Pont de Nemours, E. I., and Company. Ternary azeotropic compositions of 43-10mee $(CF_3CHFCHFCH_2CF_3)$ and trans 1,2-dichloroethylene with methanol or ethanol. 5,064,560, Cl. 252-171.000.

Mercier, Real L., to R. E. Phelon Company, Inc. Pawl assembly for manual starting of small internal combustion engines. 5,063,812, Cl. 74-575.000.

Mercier, Regis; Pascal, Thierry; and Sillion, Bernard, to Centre d'Etude des Materiaux Organiques pour Technologies Avancees. Thermosetting polyimide schiff base resins, their preparation and their applications. 5,064,934, Cl. 528-220.000.

Merck & Co., Inc.: *See*—
Bochis, Richard J.; Ok, Huyn O.; and Wyvratt, Matthew J., 5,064,835, Cl. 514-291.000.

Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., 5,064,825, Cl. 514-221.000.
DeCamp, Ann E.; King, Anthony O.; Volante, Ralph P.; and Shinkai, Ichiro, 5,064,964, Cl. 546-48.000.
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Merck Patent Gesellschaft mit beschrankter Haftung: *See*—
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, 5,064,567, Cl. 252-299.610.
Geelhaar, Thomas; Wachtler, Andreas; and Scheuble, Bernhard, 5,064,569, Cl. 252-299.650.
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.

Merkel, Josef, to Maier, Josef. Connecting device for shuttering panels. 5,064,163, Cl. 249-47.000.

Merrell Dow Pharmaceuticals: *See*—
Carr, Albert A.; Miller, Francis P.; Nieduzak, Thaddeus R.; and Sorensen, Stephen M., 5,064,838, Cl. 514-317.000.
Carr, Albert A.; Kane, John M.; and Miller, Francis P., 5,064,840, Cl. 514-322.000.

Merrell Dow Pharmaceuticals Inc.: *See*—
Jarvi, Esa T.; Edwards, Michael L.; and McCarthy, James R., 5,064,864, Cl. 514-739.000.
Peet, Norton P.; and Lentz, Nelsen L., 5,064,947, Cl. 536-26.000.

Mersmann, Heinz-Werner, to Franz Kaldewei GmbH & Co. Bath with swirl nozzles. 5,063,620, Cl. 4-542.000.

Merz, Ludwig: *See*—
Kretschmar, Klaus; Merz, Ludwig; and Niemann, Klaus, 5,064,523, Cl. 208-112.000.

Merz, Wolf D. Device for taking-up a width of flexible material, paper in particular, to form a roll. 5,064,132, Cl. 242-66.000.

Merzhanov, Alexandr G.; Borovinskaya, Inna P.; Nersesian, Mikael D.; and Peresada, Andrei G., to Institut Strukturnoi Makrokinetiki an SSSR. Method of manufacturing oxide superconductors using self-propagating high-temperature synthesis. 5,064,808, Cl. 505-1.000.

Metallgesellschaft Aktiengesellschaft: *See*—
Braun, Egon; Kling, Albert; Heil, Karl; and Sattler, Hans-Peter, 5,064,076, Cl. 209-700.000.

Metivier, Philippe: *See*—
Encaoua, Serge; and Metivier, Philippe, 5,065,005, Cl. 250-206.200.

Meyer, Alfred P., to International Fuel Cells Corporation. Solid polymer fuel cell system: high current density operation. 5,064,732, Cl. 429-13.000.

Meyer, Daniel E.: *See*—
Insley, Thomas I.; and Meyer, Daniel E., 5,064,578, Cl. 264-12.000.

Meyer, Hans-Robert, to Ernst Winter & Sohn (GmbH & Co.), Firma. Grinding wheel for deep grinding. 5,063,714, Cl. 51-209.00R.

Meyer, John D.: *See*—
You, Young S.; and Meyer, John D., 5,065,167, Cl. 346-1.100.

Meyer, Jurgen: *See*—
Diel, Rainer; Sippel Achim; Meyer, Jurgen; and Kruse, Heinz-Josef, 5,063,855, Cl. 102-521.000.

Meyer, Larry D.: *See*—
Dover, Gary H.; and Meyer, Larry D., 5,064,000, Cl. 172-19.000.

Meyke, Joachim; and Martin, Gerhard, to Hermann Berstorff Maschinenbau GmbH. Method for extruding a thermoplastic plastics material foam. 5,064,587, Cl. 264-50.000.

Meyne, Julianne: *See*—
Moyzis, Robert K.; and Meyne, Julianne, 5,064,948, Cl. 536-27.000.

Mezhotraslevoi Nauchno-Tekhnichesky Komplex "Mikrokhirurgiya Glaza" : *See*—
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Michalczyk, Dieter: *See*—
Bertholdt, Heinz; Michalczyk, Dieter; and Urban, Guenter, 5,064,857, Cl. 514-503.000.

Michas, Peter; and Neal, Fred, Jr. Low profile hacksaw. 5,063,675, Cl. 30-513.000.

Mick, Peter R.: *See*—
Beck, Donald C.; and Mick, Peter R., 5,063,938, Cl. 128-724.000.

Mickel, Stuart J.: *See*—
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.

Microgon, Inc.: *See*—
Cronin, James J., 5,064,418, Cl. 604-190.000.

Micron Technology, Inc.: *See*—
Roberts, Martin C., 5,064,776, Cl. 437-41.000.

Microsonics, Inc.: *See*—
Leavell, David R.; Spencer, Earl W., Jr.; and Goodman, Kenneth W., 5,065,371, Cl. 367-111.000.

Mieczyslaw Mirowski: *See*—
Dahl, Roger W.; and Heil, Ronald W., Jr., 5,063,932, Cl. 128-639.000.

Miehe, Friedrich-Viktor; and Gunther, Stephan, to Francotyp-Postalia GmbH. Method for distinguishing printed originals from copies. 5,064,221, Cl. 283-67.000.

Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, to Kolbenschmidt Aktiengesellschaft; Nissan Motor Co. Ltd.; and Atsugi Motor Parts Co. Ltd. Pressure-diecast light-alloy piston for internal combustion engines. 5,063,894, Cl. 123-193.00P.

Mignani, Anna G.: *See*—
Conforti, Giuliano; Mencaglia, Andrea A.; Brenci, Mario; and Mignani, Anna G., 5,063,781, Cl. 73-651.000.

Mihelcic, Matija: *See*—
Bechtold, Paul S.; Mihelcic, Matija; and Wingerath, Kurt, 5,065,018, Cl. 250-287.000.

Mikita, Michael A.: *See*—
Singhal, Gopal H.; Wilson, Bobby L.; Edelson, Edward H.; and Mikita, Michael A., 5,064,527, Cl. 208-420.000.

MilancoLimited, Inc.: *See*—
Milton, Edward L.; Landon, Russell G.; and Cox, Byard A., 5,064,104, Cl. 222-306.000.

Milhon, Leon S.: *See*—
Kiefer, David L.; and Milhon, Leon S., 5,063,700, Cl. 43-17.600.

Miller, Arthur O. Apparatus for servicing telephones from a remote location. 5,065,424, Cl. 379-70.000.

Miller, Francis P.: *See*—
Carr, Albert A.; Miller, Francis P.; Nieduzak, Thaddeus R.; and Sorensen, Stephen M., 5,064,838, Cl. 514-317.000.
Carr, Albert A.; Kane, John M.; and Miller, Francis P., 5,064,840, Cl. 514-322.000.

Miller, John V.; Carlson, William R.; and Yarbrough, Michael B., to Westinghouse Electric Corp. Hybrid nuclear reactor grey rod to obtain required reactivity worth. 5,064,607, Cl. 376-333.000.

Miller, Patrick E., to Texas Instruments Incorporated. Silicon backside etch for semiconductors. 5,064,498, Cl. 156-626.000.

Miller, Paul R.: *See*—
Hough, Walter J.; and Miller, Paul R., 5,063,736, Cl. 60-286.000.

Miller, Stephen H.: *See*—
Pagano, Daniel M.; and Miller, Stephen H., 5,064,134, Cl. 242-71.100.

Miller, Stephen W. Camera-supporting carrying case. 5,064,062, Cl. 206-316.200.

Miller, Vernon R.: *See*—
Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., 5,064,380, Cl. 439-113.000.
Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., 5,064,386, Cl. 439-535.000.

Miller, Walter E., Jr.: *See*—
Pittman, William C.; Miller, Walter E., Jr.; and Christian, Michael R., 5,064,140, Cl. 244-3.130.

Millett, Ray C. Gun sight adjustable for windage and distance. 5,063,677, Cl. 33-252.000.

Milligan, James A.: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Milliken Research Corporation: *See*—
Williamson, Norman R.; and Elliott, John L., 5,064,135, Cl. 242-118.400.

Mills, Jesse V.: *See*—
Pryba, Stanley J.; Mills, Jesse V.; and Abbas, Sherkoh A., 5,063,889, Cl. 123-90.390.

Mills, Randell L. Genomic sequencing method. 5,064,754, Cl. 435-6.000.

Mills, Stephen J. Gas turbine engine with turbine tip clearance control device and method of operation. 5,064,343, Cl. 415-173.300.

Milsal, D'Miles E.: *See*—
Klitsner, Daniel B.; and Milsal, D'Miles E., 5,064,399, Cl. 446-308.000.

Milton, Edward L.; Landon, Russell G.; and Cox, Byard A., to MilancoLimited, Inc. Apparatus for vending a product. 5,064,104, Cl. 222-306.000.

Minagawa, Toshio: *See*—
Itou, Kazumi; Gbe, Kazuyoshi; and Minagawa, Toshio, 5,064,064, Cl. 206-330.000.

Minami, Shigehira: *See*—
Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, 5,063,973, Cl. 139-370.200.

Ministry of International Trade and Industry: *See*—
Sando, Mutsuo; and Awano, Masanobu, 5,064,690, Cl. 427-215.000.

Minnesota Mining and Manufacturing Company: *See*—
Bailey, Terry R.; Kult, Roger R.; Tolliver, Howard R.; and Dickson, Arthur D., 5,064,272, Cl. 359-541.000.
France, E. Paul; Ellingson, Richard L.; and Paulos, Lonnie E., 5,063,916, Cl. 128-80.00C.
Insley, Thomas I.; and Meyer, Daniel E., 5,064,578, Cl. 264-12.000.
Rasbury, Vincent K.; and Nordeen, Charles K., 5,064,715, Cl. 428-331.000.
Suto, Kyoko, 5,064,576, Cl. 252-962.000.

Minnis, Alan J., to AMP Incorporated. Detonator connector system. 5,064,382, Cl. 439-395.000.

Minolta Camera Kabushiki Kaisha: *See*—
Fujita, Masafumi; Tezuka, Kazuhiko; and Kuriyama, Masaaki, 5,065,182, Cl. 355-202.000.
Ito, Masazumi, 5,065,181, Cl. 355-202.000.
Oka, Tateki, 5,065,233, Cl. 358-75.000.
Sakakibara, Katsunori; Otsuki, Hajime; Ishii, Kenjiro; and Kokura, Yasuhide, 5,065,179, Cl. 355-45.000.
Taniguchi, Nobuyuki; Ishikawa, Norio; Akada, Yasuaki; Egawa, Takeshi; and Kawamura, Kunio, 5,065,176, Cl. 354-402.000.
Yamashita, Toshiyuki; Ito, Masazumi; and Nishimori, Kadotaro, 5,065,198, Cl. 355-313.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Mir, Jose M.; and Agostinelli, John A., to Eastman Kodak Company. Waveguides, interferometers, and methods of their formation. 5,064,684, Cl. 427-53.100.

Mirumachi, Mitsuaki; and Mizoguchi, Hiroaki, to Hitachi, Ltd.; and Hitachi Automotive Engineering Co., Ltd. Blower unit for automobile air conditioner. 5,063,832, Cl. 98-2.000.

Misawa, Hidenobu, to NGK Insulators, Ltd. Method of manufacturing elongate ceramic articles. 5,064,588, Cl. 264-57.000.

Misawa Home Ltd.: *See*—
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

Mishima, Yasuhrio: *See*—
Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka, 5,064,900, Cl. 525-69.000.

Mishimura, Tetsuhiko: *See*—
Chida, Yukio; Mishimura, Tetsuhiko; and Oguri, Yasuo, 5,064,596, Cl. 264-181.000.

Mita Industrial Co., Ltd.: *See*—
Mizude, Kazuhiro, 5,065,189, Cl. 355-243.000.
Nagao, Tsuyoshi; Irie, Yoichiro; Takeda, Yoshiyuki; and Kida, Yasuhiko, 5,064,188, Cl. 271-301.000.

Mitch, Charles H.: *See*—
Zimmerman, Dennis M.; and Mitch, Charles H., 5,064,834, Cl. 514-279.000.

Mitchell, Bobby R. Display tree apparatus. 5,064,077, Cl. 211-60.100.

Mitchell, Michael L.; and Hawkins, George, to Motorola, Inc. Secure mode answering machine. 5,065,428, Cl. 380-23.000.

Mitschik, Herbert; and Hinrichs, Fritz, to Siemens Aktiengesellschaft. Leaf spring for an electromagnetic relay. 5,065,127, Cl. 335-270.000.

Mitsubishi Denki K.K.: *See*—
Isozumi, Shuzoo, 5,065,038, Cl. 290-48.000.
Isozumi, Shuzoo; and Konishi, Keiichi, 5,065,039, Cl. 290-48.000.
Yamamoto, Masahiro; and Magara, Takuji, 5,064,984, Cl. 219-69.130.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, 5,065,283, Cl. 361-407.000.
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.
Hashizume, Kimio; Kitakaze, Keizo; and Itou, Takefumi, 5,064,611, Cl. 420-481.000.
Hirayama, Kazutoshi, 5,065,365, Cl. 365-189.050.
Inoue, Noriyuki; Ohkubo, Satoru; Iwata, Toshio; and Demizu, Akira, 5,063,902, Cl. 123-425.000.
Iwai, Shingo, 5,064,342, Cl. 415-55.100.
Kawakami, Youichi, 5,065,160, Cl. 342-51.000.
Kumano, Makoto; Hayakawa, Masaharu; and Suenaga, Shinichi, 5,065,230, Cl. 358-22.000.
Matsuura, Tsukasa; Fujita, Jun; Uchizawa, Manabu; and Suzuki, Shigehisa, 5,065,271, Cl. 360-126.000.
Nagata, Yasuhiro; and Kawahara, Toshiaki, 5,064,026, Cl. 187-130.000.
Nakamura, Takashi; Tani, Hidekazu; and Kasai, Tomohiko, 5,063,752, Cl. 62-225.000.
Takahashi, Isao; Tanaka, Kazuhiko; Nishihiro, Akinori; and Irino, Takeshi, 5,065,060, Cl. 310-74.000.
Tamai, Shinzo; and Sugimoto, Hidehiko, 5,065,304, Cl. 363-95.000.
Terashima, Tomohide, 5,065,219, Cl. 357-50.000.
Tobita, Youichi, 5,065,091, Cl. 324-158.00R.
Ueda, Tetsuya; Shimamoto, Haruo; Yagoura, Hideya; Seki, Hiroshi; and Teraoka, Yasuhiro, 5,064,706, Cl. 428-131.000.

Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Muramoto, Hiroki; and Sugizaki, Kenichi, 5,063,730, Cl. 52-66.000.

Mitsubishi Kasei Corporation: *See*—
Chida, Yukio; Mishimura, Tetsuhiko; and Oguri, Yasuo, 5,064,596, Cl. 264-181.000.
Itagaki, Takaharu; Shiraga, Mitsuaki; Sawayama, Shigeru; and Satoh, Kohichi, 5,064,909, Cl. 525-340.000.

Mitsubishi Mining & Cement Co., Ltd.: *See*—
Ohtsuka, Kunio; Suda, Mitsuru; and Koga, Johji, 5,064,791, Cl. 501-147.000.

Mitsubishi Oil Co., Ltd.: *See*—
Yano, Hisashi; Yabumoto, Junsuke; and Kitada, Akiharu, 5,064,452, Cl. 55-203.000.

Mitsubishi Paper Mills, Ltd.: *See*—
Kondo, Toshiro; Miura, Hidetoshi; and Tsubai, Yasuo, 5,064,745, Cl. 430-265.000.
Torii, Takahiro; Miyauchi, Masahiro; Funae, Haruyoshi; and Kiriyama, Tomonori, 5,064,806, Cl. 503-200.000.

Mitsubishi Petrochemical Company Limited: *See*—
Sawada, Yoshiaki; Kageyama, Yoshiteru; and Teramoto, Tadashi, 5,064,464, Cl. 75-347.000.

Mitsubishi Rayon Co., Ltd.: *See*—
Hotta, Kazuhiko; Kido, Koichiro; and Yamamoto, Shogo, 5,064,695, Cl. 427-407.100.
Kishida, Kazuo; Toyooka, Yutaka; and Kitahara, Haruyoshi, 5,064,906, Cl. 525-293.000.
Kitamura, Satoru; Minami, Shigehira; Habu, Yoshihiko; Iuchi, Sigeru; and Fujinaga, Yoshikazu, 5,063,973, Cl. 139-370.200.
Sasaki, Isao; Nishida, Kozi; and Anzai, Hisao, 5,064,911, Cl. 525-378.000.
Suzuki, Fumio; Habara, Hideaki; Fukuda, Yutaro; Sato, Haruki; and Inada, Hiromasa, 5,064,938, Cl. 528-491.000.

Mitsui Kinzoku Kogyo Kabushiki Kaisha: *See*—
Hamada, Yoshikazu; and Ogino, Yozo, 5,064,229, Cl. 292-216.000.

Mitsui Petrochemical Industries, Ltd.: *See*—
Togashi, Eiki; and Matsumoto, Hisashi, 5,064,881, Cl. 523-443.000.

Mitsuyama, Akira, to Sharp Kabushiki Kaisha. Electrophotographic printer having compact geometric projection regions. 5,065,197, Cl. 355-309.000.

Mitt, Toomas: *See*—
Bisacchi, Gregory S.; and Mitt, Toomas, 5,064,961, Cl. 544-276.000.

Miura, Chiharu: *See*—
Takeya, Noriyoshi; Ishii, Hidehiro; Miura, Chiharu; and Fukuda, Tatsuya, 5,065,386, Cl. 369-44.320.

Miura, Hidetoshi: *See*—
Kondo, Toshiro; Miura, Hidetoshi; and Tsubai, Yasuo, 5,064,745, Cl. 430-265.000.

Mixtais, Uldis Y.: *See*—
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Miyachi, Hiroyuki: *See*—
Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, 5,063,706, Cl. 43-125.000.

Miyake, Hiroyuki; and Nishihara, Yoshio, to Fuji Xerox Co., Ltd. Image sensor with uniformly dispersed storage capacitors. 5,065,171, Cl. 346-154.000.

Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, to Hitachi, Ltd. Method and apparatus for forming a film. 5,064,520, Cl. 204-192.110.

Miyamae, Jyunichi: *See*—
Araki, Kenji; Miyamae, Jyunichi; Kobayashi, Takashi; and Saito, Akira, 5,064,029, Cl. 188-267.000.

Miyamoto, Kouichi: *See*—
Shiotani, Takeshi; and Miyamoto, Kouichi, 5,063,802, Cl. 83-98.000.

Miyamoto, Masao: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Miyamoto, Mitsuaki: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Miyaoka, Satoshi, to Kabushiki Kaisha Kobe Seiko Sho. Engine-speed responsive cavitation preventing system. 5,063,741, Cl. 60-461.000.

Miyashita, Tadashi: *See*—
Sun, Cheng-ko J.; Sumida, Shin; Sakaguchi, Shigeki; and Miyashita, Tadashi, 5,064,266, Cl. 385-132.000.

Miyata, Ichiro: *See*—
Yonezawa, Keitaro; Miyata, Ichiro; and Shirakawa, Tsutomu, 5,063,648, Cl. 29-33.00K.

Miyata, Yoshiyuki: *See*—
Suzuki, Toshimitsu; Sakaguchi, Masakazu; Miyata, Yoshiyuki; and Mori, Tomoyuki, 5,064,849, Cl. 514-383.000.

Miyauchi, Masahiro: *See*—
Torii, Takahiro; Miyauchi, Masahiro; Funae, Haruyoshi; and Kiriyama, Tomonori, 5,064,806, Cl. 503-200.000.

Miyauchi, Teiichi; Soda, Yutaka; and Sekiya, Tetsuo, to Sony Corporation. Optical playback head. 5,065,390, Cl. 369-110.000.

Miyawaki, Mamoru: *See*—
Oda, Hitoshi; Ono, Takeo; Sasaki, Toyoshige; Yoneda, Kou; and Miyawaki, Mamoru, 5,065,378, Cl. 369-14.000.

Miyazaki, Takashi; Inamochi, Takashi; Kitamura, Masaaki; and Hayashi, Shohei, to G-C Dental Industrial Corp. Dental prostheses. 5,064,731, Cl. 428-698.000.

Miyazaki, Yasuko: *See*—
Matsuoka, Mikiharu; Miyazaki, Yasuko; and Koumura, Noboru, 5,065,434, Cl. 382-1.000.

Miyoshi, Norihito: *See*—
Suzuki, Kouichi; Miyoshi, Norihito; Yoshida, Makoto; and Kokado, Masayuki, 5,065,216, Cl. 357-48.000.

Miyoshi, Yoji: *See*—
Akaba, Noriyuki; Yagi, Hiroshi; and Miyoshi, Yoji, 5,065,162, Cl. 342-417.000.

Mizoguchi, Hiroaki: *See*—
Mirumachi, Mitsuaki; and Mizoguchi, Hiroaki, 5,063,832, Cl. 98-2.000.

Mizota, Masahiro: *See*—
Ohnishi, Haruo; Kosuzume, Hiroshi; Mizota, Masahiro; Suzuki, Yasuo; and Mochida, Ei, 5,064,953, Cl. 540-226.000.

Mizude, Kazuhiro, to Mita Industrial Co., Ltd. Electrophotographic copying machine and method of setting copy magnification. 5,065,189, Cl. 355-243.000.

Mizuguchi, Ryuzo: *See*—
Kashihara, Akio; Ishii, Keizou; Kanda, Kazunori; and Mizuguchi, Ryuzo, 5,064,923, Cl. 526-265.000.

Mizukami, Masao: *See*—
Sato, Yoichi; and Mizukami, Masao, 5,065,363, Cl. 365-154.000.

Mizuno, Hiroshi: *See*—
Horita, Yoshiyuki; Mizuno, Hiroshi; and Wake, Kiyoyasu, 5,063,760, Cl. 70-23.000.

Mizuno, Yutaka; and Kashiwakura, Hyouei, to Fanuc Ltd. IC card reader with means for inserting and withdrawing an IC card. 5,065,004, Cl. 235-479.000.

Mizutani, Minoru: *See*—
Matsuda, Kiyoshi; and Mizutani, Minoru, 5,064,305, Cl. 400-616.300.

ML-KS Bearings, Inc.: *See*—
Byard, Clifford D., 5,063,831, Cl. 92-187.000.

Mobay Corporation: *See*—
Kumpf, Robert J.; and Nerger, Dittmar K., 5,064,929, Cl. 528-172.000.

Mobil Oil Corporation: *See*—
Harandi, Mohsen N.; and Owen, Hartley, 5,064,623, Cl. 422-190.000.
Herrington, F. John; and St. Phillips, Eric A., 5,063,644, Cl. 24-400.000.

Mochida, Ei: *See*—
Ohnishi, Haruo; Kosuzume, Hiroshi; Mizota, Masahiro; Suzuki, Yasuo; and Mochida, Ei, 5,064,953, Cl. 540-226.000.

Mochida Pharmaceutical Co., Ltd.: *See*—
Ohnishi, Haruo; Kosuzume, Hiroshi; Mizota, Masahiro; Suzuki, Yasuo; and Mochida, Ei, 5,064,953, Cl. 540-226.000.

Mochizuki, Hideharu, to Koito Manufacturing Co., Ltd. Headlamp for automobiles. 5,065,293, Cl. 362-273.000.

Mochizuki, Keizo; and Sumi, Naoki, to Meiji Seika Kaisha, Ltd. Process for the preparation of enzyme containing hard candy. 5,064,651, Cl. 424-440.000.

Moerner, William E.: *See*—
Ducharme, Stephen P.; Moerner, William E.; Scott, John C.; and Twieg, Robert J., 5,064,264, Cl. 385-130.000.

Mohr, Juergen: *See*—
Oppenlaender, Knut; Mohr, Juergen; Liebold, Gert; and Frey, Guenter, 5,064,552, Cl. 252-78.300.

Mohtasham, Mauny. Umbra, the windshield sunshade assembly. 5,064,238, Cl. 296-97.600.

Mok, Tsung Dai, to Atmel Corporation. Multistage offset-cancelled voltage comparator. 5,065,045, Cl. 307-355.000.

Moldenhauer, Detlev B.; and Adrian, Willy, to Otis Elevator Company. Escalator handrail reentry guard. 5,064,047, Cl. 198-338.000.

Moles, Robert G. H., to Bull HN Information Systems Inc. Timing generator module. 5,065,041, Cl. 307-269.000.

Molex Incorporated: *See*—
Grois, Igor; and Margolin, Mark, 5,063,672, Cl. 30-272.100.

Molino, Bruce F.: *See*—
Klein, Scott I.; and Molino, Bruce F., 5,064,814, Cl. 514-18.000.

Moll, Rainer; Kinast, Peter; and Gessner, Hans, to OLYMP Karl Herzog GmbH & Co. Hair drier hood. 5,063,688, Cl. 34-97.000.

Monroe, Stephen H.: *See*—
Hofmann, Leroy C.; Hicks, Robert W.; Field, Jasper H.; and Monroe, Stephen H., 5,064,692, Cl. 427-361.000.

Monstrey, Joost; and Wallaeys, Bart, to Recticel. Polyisocyanurate foam with chloropropane blowing agent. 5,064,872, Cl. 521-131.000.

Montaner, Pere P., to Monturas S.A. Non-reusable dispensing pump container with reusable dispensing pump. 5,064,102, Cl. 222-147.000.

Montaner, Pere P., to Monturas, S.A. Decompression device for suction pumps. 5,064,105, Cl. 222-321.000.

Monte, Antonio; and Noristi, Luciano, to Himont Incorporated. Components and catalysts for the polymerization of olefins. 5,064,799, Cl. 502-115.000.

Montres Rado S.A.: *See*—
Gogniat, Paul, 5,065,375, Cl. 368-281.000.

Monturas S.A.: *See*—
Montaner, Pere P., 5,064,102, Cl. 222-147.000.
Montaner, Pere P., 5,064,105, Cl. 222-321.000.

Moody, Frederick J.: *See*—
Cearley, James E.; Holland, David F.; Hurt, David T.; and Moody, Frederick J., 5,064,602, Cl. 376-243.000.

Moore, Gregory J.; Hrovat, Mirko I.; and Gonzalez, R. Gilberto, to Brigham & Women's Hospital. Simultaneous multinuclear magnetic resonance imaging and spectroscopy. 5,064,638, Cl. 424-9.000.

Moore, Michael R.: *See*—
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,143, Cl. 340-701.000.
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,231, Cl. 358-22.000.

Moore, W. Philip. Halo fixation device and method of use. 5,063,920, Cl. 128-87.00B.

Morano, Jacqueline K.: *See*—
Uster, Paul S.; Morano, Jacqueline K.; and Martin, Francis J., 5,064,655, Cl. 424-450.000.

Morell, Joseph; and Benoit, Louis, to Salomon S.A. Alpine ski boot having a supporting flexion element. 5,063,693, Cl. 36-121.000.

Morell, Joseph, to Taylor Made Golf Company, Inc. Golf ball. 5,064,199, Cl. 273-232.000.

Morena, Robert M.; and Pinckney, Linda R., to Corning Incorporated. Blue/gray transparent glass-ceramic articles. 5,064,461, Cl. 65-33.000.

Morency, Roger L.; and Holmberg, Gerald E., to United States of America, Navy. High pressure fiber optic connector plug. 5,064,268, Cl. 385-87.000.

Morenius, Carl A.: *See*—
Branemark, Per-Ingvar; Jorgensen, Einar; Joneus, Lars; Hagberg, Kjell O.; Loof, Lennart; and Morenius, Carl A., 5,064,425, Cl. 606-72.000.

Morgan, Michael J.: *See*—
Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., 5,064,736, Cl. 430-42.000.

Mori, Haruo: *See*—
Tsukuda, Akinori; Nemoto, Masahisa; and Mori, Haruo, 5,065,111, Cl. 330-253.000.

Mori, Kazuyuki: *See*—
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Mori, Kohei; and Sugimoto, Riichirou, to Jidosha Kiki Co., Ltd. Master cylinder with parts assembled for easy removal. 5,063,743, Cl. 60-562.000.

Mori, Tomoyuki: *See*—
Suzuki, Toshimitsu; Sakaguchi, Masakazu; Miyata, Yoshiyuki; and Mori, Tomoyuki, 5,064,849, Cl. 514-383.000.

Moriaki, Ono: *See*—
Kabasawa, Makoto; and Moriaki, Ono, 5,064,982, Cl. 219-64.000.

Morie, Claudine: *See*—
Lang, Gerard; Forestier, Serge; Morie, Claudine; and Lagrange, Alain, 5,064,641, Cl. 424-60.000.

Morineau, Yves; and Begani, Rino, to Societe Nationale Elf Aquitaine (Production). Device for measuring fluid flows through a porous body. 5,065,421, Cl. 378-208.000.

Morita, Shizuo: *See*—
Haneda, Satoshi; Fukuchi, Masakazu; Matsuo, Shunji; and Morita, Shizuo, 5,065,195, Cl. 355-298.000.

Moriya, Kaoru: *See*—
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, 5,065,011, Cl. 250-227.240.

Moriyama, Naomune: *See*—
Kikuchi, Reiji; Moriyama, Naomune; Yokouchi, Takahito; and Yamamoto, Koichi, 5,064,017, Cl. 180-248.000.

Moriyama, Norio; and Kawakami, Kazuhiko, to Hitachi, Ltd. Movement detecting device. 5,065,012, Cl. 250-231.140.

Morofuji, Akihiko; Morotomi, Masaki; Machii, Akihiko; Aizawa, Masanori; and Ishibashi, Kazuhisa, to Toyo Seikan Kaisha, Ltd. Multicolor printing method for container. 5,065,183, Cl. 355-202.000.

Morotomi, Masaki: *See*—
Morofuji, Akihiko; Morotomi, Masaki; Machii, Akihiko; Aizawa, Masanori; and Ishibashi, Kazuhisa, 5,065,183, Cl. 355-202.000.

Morris, Brian G., to United States of America, National Aeronautics and Space Administration. Method for providing real-time control of a gaseous propellant rocket propulsion system. 5,063,734, Cl. 60-204.000.

Morris-Thurgood, Jayne A.: *See*—
Webb, Stuart C.; Lewis, Leland M.; and Morris-Thurgood, Jayne A., 5,063,927, Cl. 128-419.0PG.

Morrison, Robert B.; Henning, Brian C. R.; Lummes, Stephen E.; and McMurtry, David R., to Renishaw plc. Tape scale applicator. 5,063,685, Cl. 33-701.000.

Moscovitch, Marko, to Harshaw Chemical Company, The. Personnel TL dosimetry method and apparatus for determination of risk related quantity. 5,065,031, Cl. 250-486.100.

Moscrip, William M., to United States of America, Navy. Expendable breech gun round. 5,063,851, Cl. 102-433.000.

Motani, Shigeru; Saito, Tadayuki; and Ito, Toshiya, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Extruded synthetic resin foam and its manufacturing method. 5,064,874, Cl. 521-146.000.

Motegi, Nawoto: *See*—
Okajima, Masaki; Hatakoshi, Genichi; Ishikawa, Masayuki; Uematsu, Yutaka; and Motegi, Nawoto, 5,065,404, Cl. 372-46.000.

Motoi, Toshihiro: *See*—
Yamamoto, Hiroyuki; Motoi, Toshihiro; Nishimura, Toshiharu; and Kishimoto, Tadao, 5,065,441, Cl. 382-41.000.

Motorola, Inc.: *See*—
Cambou, Bertrand F.; Liaw, H. Ming; and Tomozane, Mamoru, 5,064,781, Cl. 437-132.000.
Davis, James L.; Pennisi, Robert W.; Nounou, Fadia; and Landreth, Bobby D., 5,064,481, Cl. 148-23.000.
Gillig, Steven F., 5,065,408, Cl. 375-8.000.
Juskey, Frank J.; Suppelsa, Anthony B.; and Flaugher, Jill L., 5,065,122, Cl. 333-238.000.
Marozsan, Andy; and Leon, Robert, 5,064,234, Cl. 294-64.100.
Mitchell, Michael L.; and Hawkins, George, 5,065,428, Cl. 380-23.000.
Munn, Robert J., 5,065,120, Cl. 333-207.000.
Peterson, William M.; Leivian, Robert H.; and Garrison, Sidney C., III, 5,065,040, Cl. 307-201.000.
Pfiester, Jame R., 5,064,774, Cl. 427-31.000.
Poon, Stephen S.; and Gelatos, Avgerinos V., 5,064,683, Cl. 427-39.000.
Yee-Kwong, Timothy K., 5,065,148, Cl. 340-784.000.

Motoyama, Yu: *See*—
Ozawa, Toshikazu; and Motoyama, Yu, 5,063,887, Cl. 123-65.0PE.
Ozawa, Toshikazu; and Motoyama, Yu, 5,063,888, Cl. 123-65.0PE.

Mouri, Toyohiko: *See*—
Oshita, Saiichiro; Mouri, Toyohiko; and Takahashi, Tsutomu, 5,065,324, Cl. 364-424.050.

Mowry, Gregory S., to Seagate Technology, Inc. Two terminal magnetoresistive sensor having DC blocking capacitor. 5,065,094, Cl. 324-207.210.

VOL
1132
ISS
2
NO
12
1991
UMI

Moxley, H. Edward, to Ultrahook, Inc. Hook assembly for portable containers. 5,064,061, Cl. 206-289.000.

Moyzis, Robert K.; and Meyne, Julianne, to United States of America, Energy. Chromosome specific repetitive DNA sequences. 5,064,948, Cl. 536-27.000.

MRC Techno Co., Ltd.: *See—*
Yamamoto, Naoki; Yanagase, Akira; and Yokohama, Hisaya, 5,064,887, Cl. 324-145.000.

Mrdjenovich, Robert; and Yeager, David A., to Ford Motor Company. Hollow connecting rod. 5,063,992, Cl. 164-516.000.

MTU Motoren- und Turbinen-Union Muenchen GmbH: *See—*
Thoma, Martin; Bindl, Monika; and Linska, Josef, 5,064,510, Cl. 204-16.000.

Muck, Hans-Michael; and Heiden, Christoph, to Forschungszentrum Julich GmbH. Superconductor Josephson junction strip resonator sensor for measuring magnetic flux. 5,065,096, Cl. 324-248.000.

Mueller, Josef: *See—*
Kristof, Michael; and Mueller, Josef, 5,064,361, Cl. 418-173.000.

Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, to BASF Aktiengesellschaft. Preparation of stabilized chromium dioxide with sodium tetracarbonylferrate. 5,064,549, Cl. 252-62.510.

Mueller, Norbert: *See—*
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.

Mueller, Richard A.; Nakao, Akira; and Partis, Richard A., to G. D. Searle & Co. Method of inhibiting superoxide generation. 5,064,860, Cl. 514-568.000.

Mullendore, James A.; and Pegher, Susan M., to GTE Products Corporation. Tungsten penetrator. 5,064,462, Cl. 75-248.000.

Muller-Erwig, Horst, to Hermann Berstorff Maschinenbau GmbH. Apparatus for the continuous coating of cylindrical workpieces with a resilient material. 5,064,364, Cl. 425-114.000.

Muller, Friedemann; Leitz, Edgar; Eichenauer, Herbert; Ott, Karl-Heinz; and Buysch, Hans-Josef, to Bayer Aktiengesellschaft. Stabilized aliphatic polycarbonates. 5,064,885, Cl. 524-117.000.

Muller, Hans, to Grapha-Holding AG. Chain conveyor for paper sheets and the like. 5,064,187, Cl. 271-204.000.

Muller, Marcel: *See—*
Alig, Leo; and Muller, Marcel, 5,064,863, Cl. 514-653.000.

Mumcuoglu, Yani K.: *See—*
Crammer, Bernard; Ikan, Raphael; Mumcuoglu, Yani K.; and Weinstein, Vera, 5,064,859, Cl. 514-560.000.

Munn, Robert J., to Motorola, Inc. Frequency agile, dielectrically loaded resonator filter. 5,065,120, Cl. 333-207.000.

Munzebrock, Anton; and Pfannkuche, Heinz, to Mannesmann Aktiengesellschaft. Current contact line arrangement. 5,064,972, Cl. 191-30.000.

Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, to NKK Corporation; Japan Marine Science and Technology Center; and Oki Electric Industry Co., Ltd. Method for manufacturing alloy rod having giant magnetostriction. 5,063,986, Cl. 164-122.200.

Murakami, Kazunori: *See—*
Matsumoto, Yasuo; Murakami, Kazunori; Ikumi, Tomonori; and Iwafune, Yasuo, 5,064,262, Cl. 359-205.000.

Murakami, Koichi: *See—*
Ueda, Minoru; Matsuda, Hideaki; and Murakami, Koichi, 5,064,592, Cl. 264-112.000.

Murakami, Mutsuaki; and Yoshimura, Susumu, to Matsushita Electric Industrial Co., Ltd.; and Research Development Corporation of Japan. Electroacoustic diaphragm and method for making same. 5,064,019, Cl. 181-170.000.

Murakawa, Masatake: *See—*
Samejima, Kazuo; Murakawa, Masatake; Kitamura, Junichi; Matsuda, Yoshiaki; and Fulford, Colin, 5,064,315, Cl. 406-100.000.

Mural, Andrew. Device for creating fluid gradients. 5,064,100, Cl. 222-143.000.

Muramoto, Hiroki; and Sugizaki, Kenichi, to Mitsubishi Jukogyo Kabushiki Kaisha; and Shimizu Construction Co., Ltd. Openable roof apparatus. 5,063,730, Cl. 52-66.000.

Murata Mfg. Co.: *See—*
Watanabe, Shizuharu; and Tani, Hiroji, 5,064,573, Cl. 252-518.000.

Murata Mfg. Co., Ltd.: *See—*
Nakatani, Hiroshi; and Gamo, Masao, 5,065,066, Cl. 310-320.000.

Murata, Nagatoshi: *See—*
Nemoto, Kenji; Uchida, Kuninobu; Gunji, Keiichiro; Murata, Nagatoshi; and Maruyama, Iwao, 5,063,650, Cl. 29-407.000.

Murata, Takahiko: *See—*
Nakamura, Tetsuro; Murata, Takahiko; and Fujiwara, Shinji, 5,065,006, Cl. 250-208.100.

Murata, Yoshitaka: *See—*
Ishii, Mitsuo; and Murata, Yoshitaka, 5,063,635, Cl. 15-398.000.

Murayama, Noboru: *See—*
Takemoto, Hiroshi; Murayama, Noboru; and Sato, Kei, 5,065,246, Cl. 358-227.000.

Murray, Daniel G.; and Shackelford, John R., to Burns Philp Food, Inc. Sodium chloride substitute containing autolyzed yeast and ammonium chloride. 5,064,663, Cl. 426-60.000.

Murray, Kenelm G. D.: *See—*
Bennett, Daniel H.; Dodd, Gary L.; and Murray, Kenelm G. D., 5,065,366, Cl. 365-201.000.

Musch, Rudiger: *See—*
Obrecht, Werner; Greve, Heinz-Hermann; Wendling, Peter; Eisele, Ulrich; and Musch, Rudiger, 5,064,904, Cl. 525-199.000.

Musgrave, Robert M.: *See—*
Tucker, Mark A.; and Musgrave, Robert M., 5,063,848, Cl. 102-282.000.

Mushtakov, Nikolai A.: *See—*
Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A., 5,064,003, Cl. 173-106.000.

Musicant, Belmont S.; and Musicant, William W. Disposable and/or sterilizable cushioning device for a laryngoscope. 5,063,907, Cl. 128-10.000.

Musicant, William W.: *See—*
Musicant, Belmont S.; and Musicant, William W., 5,063,907, Cl. 128-10.000.

Mustey, Harold G.: *See—*
Antill, David N.; and Mustey, Harold G., 5,063,707, Cl. 47-9.000.

Muto, Hiroyasu, to NEC Corporation. Diversity receiving system for use in digital radio communication with means for selecting branch by estimating propagation path property. 5,065,411, Cl. 375-100.000.

Mycogen Corporation: *See—*
Hickle, Leslie A.; Bradfisch, Gregory A.; and Sick, August J., 5,064,648, Cl. 424-93.000.

Nabisco Brands, Inc.: *See—*
Klemann, Lawrence P.; and Finley, John W., 5,064,668, Cl. 426-271.000.
Klemann, Lawrence P.; and Finley, John W., 5,064,678, Cl. 426-611.000.
McFeaters, Richard R.; Koppa, Daniel A.; and Babiak, Theodore P., 5,063,839, Cl. 99-353.000.
Verduin, Patricia, 5,064,661, Cl. 426-26.000.

Naeder, Max, to Otto Bock Orthopaedische Industrie Besitz- und Verwaltungs-Kommanditgesellschaft. Artificial jointless foot. 5,064,438, Cl. 623-55.000.

Nagai, Akira; Sugawara, Katuo; Suzuki, Masahiro; Katagiri, Junichi; and Takahashi, Akio, to Hitachi, Ltd. Multi-layer circuit board, method of manufacturing the same and application thereof. 5,065,285, Cl. 361-414.000.

Nagai, Toshiaki, to Hitachi, Ltd. Non-lubricated screw machine with a rotor having a taper and varied helical angle. 5,064,363, Cl. 418-194.000.

Nagamine, Tsuyoshi: *See—*
Yamazaki, Etsuo; Nagamine, Tsuyoshi; and Isohata, Shigeru, 5,065,329, Cl. 364-474.080.

Nagamori, Kiyonobu: *See—*
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, 5,064,252, Cl. 303-9.730.

Nagao, Tsuyoshi; Irie, Yoichiro; Takeda, Yoshiyuki; and Kida, Yasuhiko, to Mita Industrial Co., Ltd. Automatic document conveying device which opens so jams may be cleared. 5,064,188, Cl. 271-301.000.

Nagasaka, Hideo: *See—*
Saitoh, Hiroshi; Nagatomo, Michio; and Nagasaka, Hideo, 5,065,193, Cl. 355-290.000.

Nagashima, Emi: *See—*
Kawase, Jiro; Ukaji, Kazuo; and Nagashima, Emi, 5,064,441, Cl. 8-405.000.

Nagashima Medical Instruments Co., Ltd.: *See—*
Wada, Hiroshi, 5,063,946, Cl. 128-746.000.

Nagashima, Takashi: *See—*
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, 5,064,252, Cl. 303-9.730.

Nagata, Masaya: *See—*
Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, 5,065,087, Cl. 324-71.600.

Nagata Seiki Kabushiki Kaisha: *See—*
Rikiishi, Tsutomu, 5,063,756, Cl. 66-132.00R.

Nagata, Yasuhiro; and Kawahara, Toshiaki, to Mitsubishi Denki Kabushiki Kaisha. Elevator monitor apparatus. 5,064,026, Cl. 187-130.000.

Nagatomo, Michio: *See—*
Saitoh, Hiroshi; Nagatomo, Michio; and Nagasaka, Hideo, 5,065,193, Cl. 355-290.000.

Naik, Subhash K.; and Doddman, William H., to Avco Corporation. Abradable hybrid ceramic wall structures. 5,064,727, Cl. 428-593.000.

Naito, Hideki, to Fuji Photo Film Co., Ltd. Method for processing silver halide color photographic material. 5,064,750, Cl. 430-393.000.

Nakagaki, Shintaro: *See—*
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, 5,065,102, Cl. 324-452.000.
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.

Nakagama, Kiyohari; and Ishii, Kohji, to Konica Corporation. Toner density control method. 5,065,190, Cl. 355-246.000.

Nakagawa, Mikio: *See—*
Suzuki, Hidemi; Yamada, Hiroyuki; and Nakagawa, Mikio, 5,065,126, Cl. 335-222.000.

Nakagawa, Takaaki: *See—*
McKinnon, Charles M.; Nakagawa, Takaaki; and Wilcox, Carl E., 5,064,413, Cl. 604-70.000.

Nakagawa, Yukio: *See—*
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Nakajima, Hideo; Kawada, Kiyoshi; and Tokubo, Kazuo, to Shiseido Company Ltd. Water-in-oil emulsion type cosmetic composition. 5,064,644, Cl. 424-83.000.

Nakajima, Hiroyuki: *See—*
Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, 5,065,283, Cl. 361-407.000.

Nakajima, Masahiro: *See—*
Yamamoto, Masato; Nakajima, Masahiro; and Yamanaka, Toshimasa, 5,065,177, Cl. 354-403.000.

Nakajima, Mutsuo: *See—*
Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, 5,064,760, Cl. 435-118.000.

Nakamichi Corporation: *See—*
Uchikoshi, Gohji, 5,065,080, Cl. 318-611.000.

Nakamori, Toshinori: *See—*
Shima, Masahiro; and Nakamori, Toshinori, 5,063,755, Cl. 66-90.000.

Nakamoto, Kouji: *See—*
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Nakamura, Eitaro: *See—*
Takano, Fumio; and Nakamura, Eitaro, 5,064,730, Cl. 428-694.000.

Nakamura, Kayoko: *See—*
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.

Nakamura, Kensaku. Rotary kneading screw. 5,064,293, Cl. 366-324.000.

Nakamura, Kikuo: *See—*
Koike, Yasuo; and Nakamura, Kikuo, 5,064,033, Cl. 188-306.000.

Nakamura, Koichi: *See—*
Aono, Toshiaki; and Nakamura, Koichi, 5,064,742, Cl. 430-203.000.

Nakamura, Masayuki, to Fuji Photo Film Co., Ltd. Packaging carton. 5,064,072, Cl. 229-120.030.

Nakamura, Minoru: *See—*
Kasai, Minoru; and Nakamura, Minoru, 5,064,401, Cl. 452-46.000.

Nakamura, Norihiko: *See—*
Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, 5,063,886, Cl. 123-65.0VD.

Nakamura, Tadashi; and Yamamoto, Toshiyuki, to Alps Electric Co., Ltd. Thermal printer. 5,064,301, Cl. 400-120.000.

Nakamura, Takashi; Tani, Hidekazu; and Kasai, Tomohiko, to Mitsubishi Denki Kabushiki Kaisha. Air conditioning apparatus. 5,063,752, Cl. 62-225.000.

Nakamura, Tetsuro; Murata, Takahiko; and Fujiwara, Shinji, to Matsushita Electric Industrial Co., Inc. Image sensors with simplified chip mounting. 5,065,006, Cl. 250-208.100.

Nakamura, Yoshihiro: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Nakamura, Yuka: *See—*
Takahashi, Masashi; Nakamura, Yuka; Kajiura, Sadao; and Tsunemi, Koichi, 5,064,696, Cl. 427-430.100.

Nakanishi, Toshiyuki: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.

Nakano, Hiraku, to Matsushita Electric Industrial Co., Ltd. Divide apparatus employing multiplier with overlapped partial quotients. 5,065,352, Cl. 364-765.000.

Nakano, Iwao: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.

Nakano, Jun: *See—*
Satoh, Ikumi; Nakano, Jun; Harada, Riichiroh; and Koba, Tatsuhiko, 5,065,061, Cl. 310-104.000.

Nakano, Kinichiro: *See—*
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Nakano, Tsuyoshi: *See—*
Ohnishi, Toshihiro; Noguchi, Takanobu; and Nakano, Tsuyoshi, 5,064,572, Cl. 252-500.000.

Nakao, Akira: *See—*
Mueller, Richard A.; Nakao, Akira; and Partis, Richard A., 5,064,860, Cl. 514-568.000.

Nakasako, Kazuo: *See—*
Imogawa, Keikichi; and Nakasako, Kazuo, 5,063,861, Cl. 110-336.000.

Nakasugi, Nobuyasu, to San-Apro Limited. Novel amine compound and method for the preparation thereof. 5,064,957, Cl. 544-86.000.

Nakatani, Hiroshi; and Gamo, Masao, to Murata Mfg. Co., Ltd. Piezoelectric resonator. 5,065,066, Cl. 310-320.000.

Nakayama, Akiko: *See—*
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.

Nakayama, Takao. Method and apparatus for enhancing the enable response of a laser diode used in an optical communication system. 5,065,456, Cl. 359-187.000.

Nakayasu, Hirofumi: *See—*
Hosokawa, Yoshiaki; Kanoh, Masaki; Maekawa, Takashi; and Nakayasu, Hirofumi, 5,064,304, Cl. 400-225.000.

Nao, Yuji; and Yamazaki, Koichi, to Rohm Co., Ltd. D.C. motor control circuit for radio controlled toy. 5,065,078, Cl. 318-16.000.

Naranjo, Michael: *See—*
Handler, Milton E.; Sylvan, Richard; Baisch, Herbert; and Naranjo, Michael, 5,064,156, Cl. 248-168.000.

Narishige, Osamu: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Naruse, Hideaki: *See—*
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.

Nass, Rudiger; and Schmidt, Helmut, to Fraunhofer-Gesellschaft zur Forderung der Angewandten Forschung e.V. Process for fixing organic species in an organic matrix. 5,064,877, Cl. 522-172.000.

National Research Development Corporation: *See—*
Martin, William J., 5,063,791, Cl. 73-864.310.

National Starch and Chemical Investment Holding Corporation: *See—*
Farwaha, Rajeev; and Currie, William, 5,064,888, Cl. 524-157.000.

Natsui, Kenichi: *See—*
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Nauchno-Proizvodstvennoe Objedinenie "Biolar" : *See—*
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Naumski, Radmila: *See—*
Suskovic, Bozidar; Vajtner, Zlatko; and Naumski, Radmila, 5,064,812, Cl. 514-8.000.

Nauta, Hendrikus C.; and Nordholt, Ernst H., to Catena Product Development B.V. Inductive proximity sensor for detecting an object starting electrical conductivity. 5,065,093, Cl. 324-207.120.

Naylor, Carter G.: *See—*
Speranza, George P.; Naylor, Carter G.; and Lin, Jiang-Jen, 5,064,571, Cl. 252-357.000.

Nazmy, Mohamed, to Asea Brown Boveri Ltd. Current-transmitting components for stacked high-temperature fuel cells and method of producing them. 5,064,734, Cl. 429-33.000.

NCR Corporation: *See—*
Valenti, Anthony, 5,065,186, Cl. 335-213.000.

Neal, Fred, Jr.: *See—*
Michas, Peter; and Neal, Fred, Jr., 5,063,675, Cl. 30-513.000.

NEC Corporation: *See—*
Ishikawa, Mitsuru, 5,065,422, Cl. 379-11.000.
Kasahara, Kenichi; Ogura, Ichiro; and Tashiro, Yoshiharu, 5,065,044, Cl. 307-324.000.
Kawano, Hideo, 5,065,402, Cl. 372-46.000.
Komazaki, Iwao, 5,065,403, Cl. 372-46.000.
Kondou, Kenji, 5,065,367, Cl. 365-208.000.
Kubota, Taishi, 5,065,215, Cl. 357-45.000.
Matsumoto, Kouji, 5,065,051, Cl. 307-475.000.
Muto, Hiroyasu, 5,065,411, Cl. 375-100.000.
Umesato, Shoji; Okada, Yoshikatsu; and Sakamoto, Katsuhiko, 5,064,390, Cl. 439-721.000.
Yoshida, Atsushi; Hosokawa, Tsutomu; and Hattori, Masanori, 5,065,410, Cl. 375-98.000.

NEC Corporation of Japan: *See—*
Hasegawa, Satoshi; and Yang, Chiang H., 5,065,399, Cl. 371-11.200.

NEC Electronics, Inc.: *See—*
Ledbetter, Bary A., 5,065,101, Cl. 324-418.000.

Nederlandse Centrale Organisatie Voor Toegepastnatuurwetenschappelijk Onderzoek: *See—*
Duhl Clemmensen, Inge; and Kluft, Cornelis, 5,064,942, Cl. 530-387.000.

Nee, Victor W.; Cook, Jonathan J.; and Bruno, Michael N., to International Trade & Technologies, Inc. Security device for a trailer hitch or similar article. 5,063,759, Cl. 70-14.000.

Negersmith, Kent M.; and Farrell, Gregory A., to Technicon Instruments Corporation. Method for filtering a whole blood sample using an in-line fluid filter for an automated analyzer. 5,064,542, Cl. 210-798.000.

Negishi, Akiko: *See—*
Ebata, Nobuyoshi; Tanaka, Yuko; and Negishi, Akiko, 5,064,768, Cl. 436-164.000.

Negishi, Isao: *See—*
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Neithamer, David R.: *See—*
Stevens, James C.; and Neithamer, David R., 5,064,802, Cl. 502-155.000.

Nemes, Jozsef: *See—*
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.

Nemoto, Kenji; Uchida, Kuninobu; Gunji, Keiichiro; Murata, Nagatoshi; and Maruyama, Iwao, to Honda Giken Kogyo Kabushiki Kaisha. Method of serration-fitting assembling steering assembly. 5,063,650, Cl. 29-407.000.

Nemoto, Kimio: *See—*
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Maehara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.

Nemoto, Masahisa: *See—*
Tsukuda, Akinori; Nemoto, Masahisa; and Mori, Haruo, 5,065,111, Cl. 330-253.000.

Neogi, Amar N.: *See—*
Young, Richard H., Sr.; Neogi, Amar N.; Brunnenkant, Christel; Lincoln, James F. L.; and Hansen, Michael R., 5,064,689, Cl. 427-202.000.

Nerger, Dittmar K.: *See—*
Kumpf, Robert J.; and Nerger, Dittmar K., 5,064,929, Cl. 528-172.000.

Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A. Hydraulic drilling machine. 5,064,003, Cl. 173-106.000.

Nersesian, Mikael D.: *See—*
Merzhanov, Alexandr G.; Borovinskaya, Inna P.; Nersesian, Mikael D.; and Peresada, Andrei G., 5,064,808, Cl. 505-1.000.

Nesline, F. William, Jr., to Raytheon Company. Combined sensor guidance system. 5,064,141, Cl. 244-3.150.

Nethers, Jan L.: *See—*
Turner, John M.; Nethers, Jan L.; and Knight, Robert M., 5,064,349, Cl. 417-53.000.

Nettekoven, William S.: *See—*
Gilbertson, Charles H.; Nettekoven, William S.; and Cater, Mark W., 5,064,431, Cl. 623-2.000.

Neuburger, Glen G., to Bell Communications Research, Inc. Early warning reactive gas detection system. 5,065,140, Cl. 340-634.000.

Neumann, Peter: *See—*
Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, 5,064,702, Cl. 428-64.000.

Newgard, Kent W.; and Gordon, Mark G. Self-occluding intravascular cannula assembly. 5,064,416, Cl. 604-167.000.

Newkirk, Marc S.; and Gesing, Adam J., to Lanxide Technology Company, LP. Production of ceramic and ceramic-metal composite articles with surface coatings. 5,064,788, Cl. 501-92.000.

Newman, Edward: *See—*
Greenstein, Harvey; Levinski, Charles B.; Newman, Edward; Persel, John M.; and Widmann, David N., 5,065,426, Cl. 379-100.000.

Newman, Eric W.: *See—*
Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., 5,063,680, Cl. 33-397.000.

Newton, Jill E.: *See—*
Buscall, Richard; Scales, Paul J.; Williams, Serena J.; and Newton, Jill E., 5,064,718, Cl. 428-407.000.

Ng, Chai-Nam: *See—*
Nguyen, Vietson M.; and Ng, Chai-Nam, 5,065,303, Cl. 363-40.000.

NGK Insulators, Ltd.: *See—*
Harada, Takashi; and Ohashi, Tsuneaki, 5,064,609, Cl. 419-58.000.
Higashijima, Kouzou, 5,064,586, Cl. 264-40.600.
Imogawa, Keikichi; and Nakasako, Kazuo, 5,063,861, Cl. 110-336.000.
Misawa, Hidenobu, 5,064,588, Cl. 264-57.000.
Sandaiji, Hideto; Ikeda, Koji; and Onishi, Yuji, 5,063,653, Cl. 29-603.000.

NGK Spark Plug Co., Ltd.: *See—*
Hayakawa, Nobuhiro; Yamada, Tetsusyo; and Yokota, Kazunori, 5,064,693, Cl. 427-372.200.

Nguyen, Liem T.; and Magnusson, Hans, to Advanced Micro Devices, Inc. Input buffer with noise filter for eliminating short-pulse-width noise. 5,065,054, Cl. 307-520.000.

Nguyen, Vietson M.; and Ng, Chai-Nam, to Sundstrand Corporation. Transformer-coupled and phase-shifted inverter. 5,065,303, Cl. 363-40.000.

Nichols, Charles E.: *See—*
Howard, John R.; and Nichols, Charles E., 5,063,638, Cl. 16-238.000.

Nichols, Lawrence R.; and Yuill, Terry M., to Davidson Textron Inc. Mold apparatus with mold breaker. 5,064,365, Cl. 425-436.00R.

Nicoletti, James A.: *See—*
Bard, Steven L.; Christensen, David N.; Glenning, John J.; Nicoletti, James A.; and Urdanick, Mark W., 5,063,951, Cl. 134-64.00R.

Nieduzak, Thaddeus R.: *See—*
Carr, Albert A.; Miller, Francis P.; Nieduzak, Thaddeus R.; and Sorensen, Stephen M., 5,064,838, Cl. 514-317.000.

Nielsen, Robert L.: *See—*
Carnall, Edward, Jr.; Nielsen, Robert L.; and Ozimek, Edward J., 5,065,245, Cl. 358-213.110.

Niemann, Klaus: *See—*
Kretschmar, Klaus; Merz, Ludwig; and Niemann, Klaus, 5,064,523, Cl. 208-112.000.

Nihon Kohden Corporation: *See—*
Sato, Masamitu; and Tanishima, Masami, 5,063,936, Cl. 128-674.000.

Nihon Musen Kabushiki Kaisha: *See—*
Yamashita, Kazuo, 5,065,415, Cl. 377-52.000.

Niida, Yoriaki: *See—*
Kurabayashi, Ken; Kitou, Seiichiro; Tsuchiya, Yoshinobu; and Niida, Yoriaki, 5,065,286, Cl. 361-502.000.

Nikon Corporation: *See—*
Nishizawa, Jun-Ichi; Tamamushi, Takashige; and Maeda, Hideo, 5,065,206, Cl. 357-30.000.

Nimtz, Roderick L., to Warren Tool Corporation. Mitered face for the jaws of a clamp, and a clamp employing a mitered face. 5,064,178, Cl. 269-41.000.

Nippon Air Brake Kabushiki Kaisha: *See—*
Onishi, Toshihiko; and Tomioka, Katsumi, 5,063,964, Cl. 137-614.030.

Nippon Electric Glass Co., Ltd.: *See—*
Kawamoto, Toru; and Yamamoto, Shigeru, 5,064,785, Cl. 501-72.000.

Nippon Kokan Kabushiki Kaisha: *See—*
Kabasawa, Makoto; and Moriaki, Ono, 5,064,982, Cl. 219-64.000.

Nippon Mining Co., Ltd.: *See—*
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

Nippon Oil Company, Limited: *See—*
Takiguchi, Yasuyuki; Kanemoto, Akihiko; Iida, Shigeki; and Toyooka, Takehiro, 5,064,697, Cl. 428-1.000.

Nippon Paint Co., Ltd.: *See—*
Kashihara, Akio; Ishii, Keizou; Kanda, Kazunori; and Mizuguchi, Ryuzo, 5,064,923, Cl. 526-265.000.
Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, 5,064,468, Cl. 106-14.120.

Nippon Piston Ring Co., Ltd.: *See—*
Suzuki, Yasuo; and Takeguchi, Shunsuke, 5,064,608, Cl. 419-8.000.

Nippon Seiko Kabushiki Kaisha: *See—*
Ogawa, Kiyoshi, 5,064,220, Cl. 280-801.000.
Tanaka, Mamoru; Suzuki, Masayuki; and Kawakami, Koichi, 5,064,297, Cl. 384-100.000.

Nippon Shokubai Co., Ltd.: *See—*
Yamaguchi, Shigeru; Yokoi, Tokihiro; Shioji, Shorbu; Irie, Yoshio; and Fujiwara, Teruaki, 5,064,563, Cl. 252-174.230.

Nippon Steel Chemical Co., Ltd.: *See—*
Yashiro, Tadashi; and Nishimoto, Takafumi, 5,064,250, Cl. 301-63.0DS.

Nippon Zeon Co., Ltd.: *See—*
Takano, Fumio; and Nakamura, Eitaro, 5,064,730, Cl. 428-694.000.

Nireco Corporation: *See—*
Aihara, Takeshi, 5,063,740, Cl. 60-432.000.

Nishibayashi, Hirofumi: *See—*
Tamaru, Shinji; Yamamoto, Katsutoshi; Tanaka, Osamu; Nishibayashi, Hirofumi; and Inoue, Osamu, 5,064,593, Cl. 264-113.000.

Nishida, Ikuo: *See—*
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.

Nishida, Kozi: *See—*
Sasaki, Isao; Nishida, Kozi; and Anzai, Hisao, 5,064,911, Cl. 525-378.000.

Nishigaki, Hideo; and Hayashi, Shigeyuki, to Brother Kogyo Kabushiki Kaisha. Suction type sheet feeding device. 5,064,183, Cl. 271-10.000.

Nishiguchi, Masanori, to Sumitomo Electric Industries, Ltd. Method of adhesively and hermetically sealing a semiconductor package lid by scrubbing. 5,064,782, Cl. 437-216.000.

Nishiguchi, Masato: *See—*
Okamoto, Ryuichi; Nishiguchi, Masato; Kasugai, Hiroshi; and Tamamoto, Seishi, 5,064,999, Cl. 235-379.000.

Nishihara, Yoshio: *See—*
Miyake, Hiroyuki; and Nishihara, Yoshio, 5,065,171, Cl. 346-154.000.

Nishihiro, Akinori: *See—*
Takahashi, Isao; Tanaka, Kazuhiko; Nishihiro, Akinori; and Irino, Takeshi, 5,065,060, Cl. 310-74.000.

Nishimori, Kadotaro: *See—*
Yamashita, Toshiyuki; Ito, Masazumi; and Nishimori, Kadotaro, 5,065,198, Cl. 355-313.000.

Nishimoto, Takafumi: *See—*
Yashiro, Tadashi; and Nishimoto, Takafumi, 5,064,250, Cl. 301-63.0DS.

Nishimura, Eiji: *See—*
Awazu, Yasunobu; Masuda, Yoshihiro; and Nishimura, Eiji, 5,065,178, Cl. 355-27.000.

Nishimura, Toshiharu: *See—*
Yamamoto, Hiroyuki; Motoi, Toshihiro; Nishimura, Toshiharu; and Kishimoto, Tadao, 5,065,441, Cl. 382-41.000.

Nishino, Kenichi: *See—*
Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka, 5,064,900, Cl. 525-69.000.

Nishiyama, Takashi: *See—*
Kubo, Masao; Shiroishi, Akihiro; Uno, Ikuo; and Nishiyama, Takashi, 5,064,473, Cl. 106-287.340.

Nishizaki, Toshio: *See—*
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

Nishizawa, Jun-Ichi; Tamamushi, Takashige; and Maeda, Hideo, to Nikon Corporation; and Zaidan Hojin Handotai Kenkyu Shinkokai. Photoelectric converting device with accumulating gate region. 5,065,206, Cl. 357-30.000.

Nissan Chemical Industries, Ltd.: *See—*
Kubo, Masao; Shiroishi, Akihiro; Uno, Ikuo; and Nishiyama, Takashi, 5,064,473, Cl. 106-287.340.

Nissan Motor Company, Ltd.: *See—*
Abo, Toshimi; and Fukuzumi, Shuzo, 5,065,328, Cl. 364-426.040.
Hara, Junichiro; Taguchi, Mitsuru; and Takahashi, Hideo, 5,063,833, Cl. 98-2.000.
Igari, Yuichi; Ishikawa, Masahiro; and Kaneko, Mitsuo, 5,065,047, Cl. 307-442.000.
Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, 5,063,894, Cl. 123-193.00P.
Oshidari, Toshikazu, 5,063,815, Cl. 74-867.000.
Shiraishi, Yasuhiro; and Ishikawa, Yasuki, 5,065,323, Cl. 364-424.050.
Tanaka, Kazuhiro; Kojima, Shuichi; Kaneko, Susumu; and Chikuma, Takayuki, 5,063,970, Cl. 139-1.00R.
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Nissei ASB Machine Co., Ltd.: *See—*
Voss, Hermann, 5,064,366, Cl. 425-541.000.

Nisshin Steel Co., Ltd.: *See—*
Kitaoka, Takeo; and Akiyoshi, Nagahiro, 5,063,798, Cl. 82-124.000.

Nitta, Tetsuhiro: *See—*
Nojima, Takashi; and Nitta, Tetsuhiro, 5,065,158, Cl. 346-140.00R.

Nitto Kohki Co., Ltd.: *See—*
Wakatsuki, Yoshio; Okuyama, Toshiharu; Takeuchi, Hajime; Shimizu, Giichiro; and Shimizu, Misao, 5,065,003, Cl. 235-472.000.

NKK Corporation: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.
Uyama, Kiyoshi; Yamamoto, Koji; Tsuboi, Haruhito; and Iwasaki, Toshihiko, 5,064,621, Cl. 422-144.000.

Nobelpharma AB: *See—*
Jorneus, Lars, 5,064,375, Cl. 433-229.000.
Lundgren, Dan, 5,064,374, Cl. 433-173.000.

Noble, Donald R.; and Maraghe, Alex, to Boeing Company, The. Upwardly opening plug-type door for use as an over-wing emergency hatch. 5,064,147, Cl. 244-129.500.

Noda, Takao: *See—*
Ichikawa, Kagetaka; and Noda, Takao, 5,064,589, Cl. 264-65.000.

Noda, Toshiharu: *See—*
Isobe, Susumu; Noda, Toshiharu; and Hirayama, Hiroshi, 5,064,112, Cl. 228-112.000.

Noguchi, Takanobu: *See—*
Ohnishi, Toshihiro; Noguchi, Takanobu; and Nakano, Tsuyoshi, 5,064,572, Cl. 252-500.000.

Noisier, Guy, to Solex. Fuel supply device for an internal combustion engine. 5,063,891, Cl. 123-187.50R.

Nojima, Takashi; and Nitta, Tetsuhiro, to Canon Kabushiki Kaisha. Ink jet cleaning member. 5,065,158, Cl. 346-140.00R.

Nojiri, Tohru; and Kainaga, Masahiro, to Hitachi, Ltd. Adder control method and adder control circuit. 5,065,353, Cl. 364-786.000.

Nomura, Hironori: *See—*
Ujimoto, Hiroshi; Nomura, Hironori; and Yamamoto, Toshinori, 5,064,489, Cl. 156-164.000.

Nomura, Hiroyuki: *See—*
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Nomura, Satoru: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.

Nonis, Al. Curtain wall for a building. 5,063,718, Cl. 52-235.000.

Nordeen, Charles K.: *See—*
Rasbury, Vincent K.; and Nordeen, Charles K., 5,064,715, Cl. 428-331.000.

Nordholt, Ernst H.: *See—*
Nauta, Hendrikus C.; and Nordholt, Ernst H., 5,065,093, Cl. 324-207.120.

Nordmann, Adolf; and Zielinski, Erich, to Rheinmetall GmbH. Fluid propellant injection device for a gun and a fluid propellant gun itself. 5,063,824, Cl. 89-7.000.

Nordmann, Adolf; and Zielinski, Erich, to Rheinmetall GmbH. Injection device for fluid propellants for a gun and a fluid propellant gun itself. 5,063,825, Cl. 89-7.000.

Noristi, Luciano: *See—*
Monte, Antonio; and Noristi, Luciano, 5,064,799, Cl. 502-115.000.

North American Philips Corporation: *See—*
Donofrio, Robert L.; and Van der Voort, Andre A., 5,065,071, Cl. 313-474.000.

North Carolina Alternative Energy Corporation: *See—*
Davis, Thomas L.; Elliott, Robert N., III; and Denning, Carsie K., 5,063,748, Cl. 62-59.000.

Northern States Power Company: *See—*
Lehto, John M.; and Smith, Raymond L., 5,064,174, Cl. 266-160.000.

Northrop Corporation: *See—*
Garber, David D., 5,065,444, Cl. 382-54.000.

Northwestern Chemical Company: *See—*
Greenberg, Michael J.; and Whistler, Roy L., 5,064,659, Cl. 426-3.000.

Norton, Michael K.: *See—*
Boissevain, Mathew G.; Norton, Michael K.; Foskett, Anthony D.; and Boissevain, Tobias J., 5,063,682, Cl. 33-501.020.

Norvic S.A.: *See—*
Kaalstad, Oscar W., 5,064,007, Cl. 175-334.000.

Norwood, Robert: *See—*
Khanarian, Garo; and Norwood, Robert, 5,064,265, Cl. 385-130.000.

Nounou, Fadia: *See—*
Davis, James L.; Pennisi, Robert W.; Nounou, Fadia; and Landreth, Bobby D., 5,064,481, Cl. 148-23.000.

Nowsco Well Service Ltd.: *See—*
Pachla, Sylvia K.; Taylor, Robert S.; and Delorey, John R., 5,063,997, Cl. 166-279.000.

Nozokido, Tatsuo; Yamamoto, Etsuji; and Kohno, Hideki, to Hitachi, Ltd. Testing method and apparatus by use of NMR. 5,065,097, Cl. 324-309.000.

NTN Corporation: *See—*
Hibi, Kenji; and Goto, Toshihide, 5,064,298, Cl. 384-625.000.

Nucci, Prospero. Disposable probe for the determination of vaginal pH and other indices. 5,063,930, Cl. 128-632.000.

Nuding, Herbert: *See—*
Sparenberg, Dieter; Ullrich, Rolf; and Nuding, Herbert, 5,064,506, Cl. 203-2.000.

Nunan, John G., to Allied-Signal Inc. Preparation of three-way catalysts with highly dispersed ceria. 5,064,803, Cl. 502-170.000.

Nye, Adam: *See—*
Williams, Anthony D.; and Nye, Adam, 5,064,225, Cl. 285-177.000.

Nyi, Franklin H. Elbow brace and method for preventing or attenuating tennis elbow. 5,063,913, Cl. 128-77.000.

Oakley, Clyde G. Ferroelectric ceramic transducer. 5,065,068, Cl. 310-357.000.

Oberman, Carl D.: *See—*
Locati, Ronald P.; and Oberman, Carl D., 5,064,383, Cl. 439-405.000.

Obrecht, Werner; Greve, Heinz-Hermann; Wendling, Peter; Eisele, Ulrich; and Musch, Rudiger, to Bayer AG. Suitable polychloroprene materials for the production of high-damping vulcanisates. 5,064,904, Cl. 525-199.000.

O'Brien, Kirk G.: *See—*
Adams, Steven L.; Bird, William L.; Chow, Humphrey W.; O'Brien, Kirk G.; and Rasmussen, Paul C., 5,065,059, Cl. 310-71.000.

O'Brien, Larry S.; Warren, Robert G.; and Adani, Keith J., to Leco Corporation. Combustion system. 5,064,617, Cl. 422-78.000.

Ocain, Timothy D.; and Deininger, David D., to American Home Products Corporation. Renin inhibitors. 5,064,965, Cl. 546-99.000.

Occelli, Mario L., to Union Oil Company of California. Catalyst composition containing a crystalline galliosilicate having the erionite-type structure. 5,064,793, Cl. 502-61.000.

O'Connor, Sam C.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Oda, Gan: *See—*
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, 5,065,011, Cl. 250-227.240.

Oda, Hitoshi; Ono, Takeo; Sasaki, Toyoshige; Yoneda, Kou; and Miyawaki, Mamoru, to Canon Kabushiki Kaisha. System for reproducing a signal recorded in a magnetic recording medium by using a magnetostatic wave. 5,065,378, Cl. 369-14.000.

Oda, Mitsuyuki: *See—*
Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, 5,064,468, Cl. 106-14.120.

Oda, Osamu: *See—*
Ishiguro, Satoshi; and Oda, Osamu, 5,065,244, Cl. 358-195.100.

O'Donnell, Michael S.; and Crescentini, Lamberto, to Allied-Signal Inc. Distillation process for recovery of high purity phenol. 5,064,507, Cl. 203-34.000.

Oe, Mitsuo, to Kabushiki Kaisha Toshiba. Method and apparatus for analyzing ventricular function. 5,065,435, Cl. 382-6.000.

Office National d'Etudes et de Recherches Aerospatiales O.N.E.R.A.: *See—*
Bruere, Alain; and Galaud, Claude, 5,065,105, Cl. 324-662.000.

Ofstein, David E., to Shell Oil Company. Increased regrind usage in coextruded structures. 5,064,724, Cl. 428-501.000.

Ogano, Takeo; Sueshige, Hiroshi; Fukuda, Toru; and Okuda, Junji, to Honda Giken Kogyo Kabushiki Kaisha. Crawler-propelled truck. 5,064,011, Cl. 180-9.220.

Ogasawara, Hiromitsu, to Tachi-S Co., Ltd. Method and apparatus for controlling lumbar support device. 5,065,079, Cl. 318-281.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Ogawa, Kimiaki, to Asahi Kogaku Kogyo Kabushiki Kaisha. Zoom lens camera. 5,065,172, Cl. 354-195.100.

Ogawa, Kiyoshi, to Nippon Seiko Kabushiki Kaisha. Seat belt device. 5,064,220, Cl. 280-801.000.

Ogawa, Tetsuro: *See*—
Ogiso, Makoto; Ogawa, Tetsuro; Ichitsuka, Takeshi; and Inoue, Masahide, 5,064,436, Cl. 623-16.000.

Ogino, Yozo: *See*—
Hamada, Yoshikazu; and Ogino, Yozo, 5,064,229, Cl. 292-216.000.

Ogiso, Makoto; Ogawa, Tetsuro; Ichitsuka, Takeshi; and Inoue, Masahide, to Asahi Kogaku Kogyo K.K. Bone prosthetic material. 5,064,436, Cl. 623-16.000.

Ogisu, Yasuhiko: *See*—
Ito, Toshiyasu; Funahashi, Toshikazu; Ogisu, Yasuhiko; Takahashi, Shigeyuki; and Senda, Masanobu, 5,064,679, Cl. 427-8.000.

Ogura, Ichiro: *See*—
Kasahara, Kenichi; Ogura, Ichiro; and Tashiro, Yoshiharu, 5,065,044, Cl. 307-324.000.

Oguri, Yasuo: *See*—
Chida, Yukio; Mishimura, Tetsuhiko; and Oguri, Yasuo, 5,064,596, Cl. 264-181.000.

Ohashi, Tsuneaki: *See*—
Harada, Takashi; and Ohashi, Tsuneaki, 5,064,609, Cl. 419-58.000.

Ohashi, Yukihiro: *See*—
Kikuchi, Yoko; Ohashi, Yukihiro; Suzuki, Yuji; and Suzuki, Toshiyuki, 5,064,642, Cl. 424-61.000.

Ohata, Yu; and Kuramoto, Tsuyoshi, to Kabushiki Kaisha Toshiba. Semiconductor device. 5,065,212, Cl. 357-42.000.

Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, to Fuji Photo Film Co., Ltd. Method of processing a silver halide color photographic material and a color developer where the developer contains a hydrazine compound. 5,064,751, Cl. 430-464.000.

Ohkubo, Satoru: *See*—
Inoue, Noriyuki; Ohkubo, Satoru; Iwata, Toshio; and Demizu, Akira, 5,063,902, Cl. 123-425.000.

Ohmae, Tadayuki: *See*—
Shiga, Shujiro; Kabasawa, Koji; Ohmae, Tadayuki; and Tanaka, Hisao, 5,064,879, Cl. 523-310.000.

Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, to Hitachi, Ltd.; and Hitachi Video Engineering, Inc. Capstan arrangement for a magnetic recording/reproduction apparatus. 5,065,264, Cl. 360-85.000.

Ohnishi, Haruo; Kosuzume, Hiroshi; Mizota, Masahiro; Suzuki, Yasuo; and Mochida, Ei, to Mochida Pharmaceutical Co., Ltd. Intermediates cephalosporin derivatives. 5,064,953, Cl. 540-226.000.

Ohnishi, Toshihiro; Noguchi, Takanobu; and Nakano, Tsuyoshi, to Agency of Industrial Science and Technology. Poly (long-chain nuclear substituted phenylene vinylene), precursor therefor and highly conductive composition thereof. 5,064,572, Cl. 252-500.000.

Ohnishi, Tsuyoshi: *See*—
Kawanami, Yoshimi; Ohnishi, Tsuyoshi; Ishitani, Tohru; Habu, Tooru; and Yamaoka, Masahiro, 5,065,034, Cl. 250-505.100.

Ohno, Eizo: *See*—
Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, 5,065,087, Cl. 324-71.600.

Ohno, Mikio: *See*—
Matsufuji, Akihiro; Ejiri, Kiyomi; Ohno, Mikio; Kiyama, Masatoshi; and Honda, Kunihiko, 5,064,687, Cl. 427-132.000.

Ohno, Yasunori: *See*—
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Ohrle, Rolf, to Daimler-Benz AG. Closing device for convertible vehicles. 5,064,241, Cl. 296-121.000.

Ohrwall, Tomas: *See*—
Olsson, Thord; Ohrwall, Tomas; and Gustavsson, Mats, 5,063,850, Cl. 102-402.000.

Ohsaki, Kayoko: *See*—
Suganuma, Atsushi; and Ohsaki, Kayoko, 5,065,256, Cl. 358-455.000.

Ohsawa, Tetsu: *See*—
Asakawa, Teruo; and Ohsawa, Tetsu, 5,064,337, Cl. 414-639.000.

Ohtani, Yukio: *See*—
Uehara, Satoshi; Ohtani, Yukio; and Iriyama, Yoshiko, 5,065,062, Cl. 310-114.000.

Ohtsuka, Kunio; Suda, Mitsuru; and Koga, Johji, to Mitsubishi Mining & Cement Co., Ltd. Method of preparing ceramic composite powders and the powders obtained thereby. 5,064,791, Cl. 501-147.000.

Oi, Akira; and Yonezawa, Keitaro, to Kabushiki Kaisha NERIKI. Attachment of gas charger for gas container. 5,063,976, Cl. 141-18.000.

Ok, Huyn O.: *See*—
Bochis, Richard J.; Ok, Huyn O.; and Wyvratt, Matthew J., 5,064,835, Cl. 514-291.000.

Oka, Keizo: *See*—
Hata, Hajime; Kambara, Hajime; Sogabe, Seiji; and Oka, Keizo, 5,064,631, Cl. 423-279.000.

Oka, Tateki, to Minolta Camera Kabushiki Kaisha. Color image forming apparatus. 5,065,233, Cl. 358-75.000.

Okada, Masako: *See*—
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, 5,064,567, Cl. 252-299.610.

Okada, Yoshikatsu: *See*—
Umesato, Shoji; Okada, Yoshikatsu; and Sakamoto, Katsuhiko, 5,064,390, Cl. 439-721.000.

Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, to Nippon Paint Co., Ltd. Corrosion preventive coating composition. 5,064,468, Cl. 106-14.120.

Okajima, Hiroshi; and Sudo, Susumu, to Sankyo Rikagaku Co., Ltd.; and Tawekawa Tekko Kabushiki Kaisha. Grinding tool and method of making the same. 5,064,445, Cl. 51-293.000.

Okajima, Masaki; Hatakoshi, Genichi; Ishikawa, Masayuki; Uematsu, Yutaka; and Motegi, Nawoto, to Kabushiki Kaisha Toshiba. Transverse-mode oscillation semiconductor laser device. 5,065,404, Cl. 372-46.000.

Okamoto, Akira: *See*—
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, 5,065,011, Cl. 250-227.240.

Okamoto, Ryuichi; Nishiguchi, Masato; Kasugai, Hiroshi; and Tamamoto, Seishi, to Hitachi, Ltd.; and Chubu Hitachi Electric Co., Ltd. Advance transaction processing method. 5,064,999, Cl. 235-379.000.

Okano, Kazuo: *See*—
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Okazaki, Kiyoshi: *See*—
Ikeda, Yoshio; and Okazaki, Kiyoshi, 5,063,757, Cl. 68-17.00R.

Okazaki, Takao: *See*—
Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, 5,064,760, Cl. 435-118.000.

Oketani, Tetsuya; Ito, Toshio; and Mase, Yoshiaki, to Howa Machinery, Ltd. Indexing apparatus. 5,064,044, Cl. 192-141.000.

Oki Electric Industry Co., Ltd.: *See*—
Itoh, Shinichi; Sato, Hiroaki; and Taniguchi, Masayuki, 5,065,187, Cl. 355-215.000.
Matsuda, Kiyoshi; and Mizutani, Minoru, 5,064,305, Cl. 400-616.300.
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.
Tanuma, Jiro; Ishimizu, Hideaki; Kasai, Tadashi; and Komori, Chihiro, 5,064,302, Cl. 400-124.000.
Tomita, Eizo; and Asai, Yutaka, 5,065,153, Cl. 340-825.500.
Tsukuda, Akinori; Nemoto, Masahisa; and Mori, Haruo, 5,065,111, Cl. 330-253.000.

Okuda, Junji: *See*—
Ogano, Takeo; Sueshige, Hiroshi; Fukuda, Toru; and Okuda, Junji, 5,064,011, Cl. 180-9.220.

Okui, Kaoru; and Kobayashi, Manabu, to Yamaha Hatsudoki Kabushiki Kaisha Yamaha Motor Co., Ltd. Accessory drive arrangement for engine. 5,063,897, Cl. 123-198.00R.

Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, to Kanebo, Ltd.; and Kanebo Rayon, Ltd. Fine cellulose particles and process for production thereof. 5,064,950, Cl. 536-57.000.

Okumura, Yoshiaki: *See*—
Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, 5,064,468, Cl. 106-14.120.

Okura Kogyo Kabushiki Kaisha: *See*—
Ueda, Minoru; Matsuda, Hideaki; and Murakami, Koichi, 5,064,592, Cl. 264-112.000.

Okuyama, Toshiharu: *See*—
Wakatsuki, Yoshio; Okuyama, Toshiharu; Takeuchi, Hajime; Shimizu, Giichiro; and Shimizu, Misao, 5,065,003, Cl. 235-472.000.

Oldendorf, Christian: *See*—
Melcher, Franz-Josef; Pertsch, Thomas; Spannagel, Wilfried; and Oldendorf, Christian, 5,064,009, Cl. 177-245.000.

Oldham, Susan L.; and Prior, Desiree S., to Hughes Aircraft Company. Method and composition for providing electrostatic discharge protection for spacecraft. 5,064,574, Cl. 252-518.000.

Olin Corporation: *See*—
Cawlfield, David W.; and Loftis, Harry J., 5,064,514, Cl. 204-103.000.
Foster, Craig A.; Galvez, Randolfo; and Raab, Kurt R., 5,065,228, Cl. 357-80.000.
Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., 5,064,736, Cl. 430-42.000.
McGeary, Michael J., 5,064,686, Cl. 427-124.000.
Tucker, Mark A.; and Musgrave, Robert M., 5,063,848, Cl. 102-282.000.

Olpe, Hans-Rudolf: *See*—
Baylis, Eric K.; Bittiger, Helmut; Frostl, Wolfgang; Hall, Roger G.; Maier, Ludwig; Mickel, Stuart J.; and Olpe, Hans-Rudolf, 5,064,819, Cl. 514-114.000.

Olsen, Brian W.: *See*—
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Olshefsky, Frank A., to Equipment Development Services. Adjustable measuring parallels. 5,063,687, Cl. 33-827.000.

Olson, Anthony M.; and Rajaram, Babu, to Zenith Data Systems Corporation. Mounting of DRAMs of different sizes and pinouts within limited footprint. 5,064,378, Cl. 439-68.000.

Olsson, N. Urban: *See*—
Jensen, Eigil; Olsson, N. Urban; Kaufmann, Peter; and Hagman, Anders, 5,064,675, Cl. 426-597.000.

Olsson, Thord; Ohrwall, Tomas; and Gustavsson, Mats, to SA Marine AB. Method and system for mine sweeping. 5,063,850, Cl. 102-402.000.

OLYMP Karl Herzog GmbH & Co.: *See*—
Moll, Rainer; Kinast, Peter; and Gessner, Hans, 5,063,688, Cl. 34-97.000.

O'Mahony, Mary J.; and Willis, Robert J., to Schering Agrochemicals Limited. 1,2,3-triazole insecticides. 5,064,844, Cl. 514-359.000.

Omura, Ikuo; Yamauchi, Junichi; and Kawashima, Mitsunobu, to Kuraray Company, Limited. Method of adhesion with a mercapto group containing adhesive. 5,064,495, Cl. 156-307.300.

Ona, Hisao: *See*—
Uyeo, Shoichiro; Imuta, Mitsuru; Ona, Hisao; and Itani, Hikaru, 5,064,954, Cl. 540-302.000.

O'Neal, James M., to Jim O'Neal Distributing, Inc. Mounting bracket for handlebar crossbar. 5,064,157, Cl. 248-230.000.

O'Neill, Brian T., to Pfizer Inc. 1,3-genzoxazine, 2,4-dione derivatives. 5,064,958, Cl. 544-94.000.

Onishi, Janet C.: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Onishi, Toshihiko; and Tomioka, Katsumi, to Nippon Air Brake Kabushiki Kaisha. Pipe coupling used with automatic connecting and disconnecting device. 5,063,964, Cl. 137-614.030.

Onishi, Yuji: *See*—
Sandaiji, Hideto; Ikeda, Koji; and Onishi, Yuji, 5,063,653, Cl. 29-603.000.

Onitsuka, Katsuhiko: *See*—
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, 5,065,275, Cl. 361-321.000.

Ono, Takeo: *See*—
Oda, Hitoshi; Ono, Takeo; Sasaki, Toyoshige; Yoneda, Kou; and Miyawaki, Mamoru, 5,065,378, Cl. 369-14.000.

Ono, Yasunori: *See*—
Yokomichi, Shigeharu; and Ono, Yasunori, 5,064,983, Cl. 219-69.120.

Onoda Cement Co., Ltd.: *See*—
Saitoh, Hiroshi; Nagatomo, Michio; and Nagasaka, Hideo, 5,065,193, Cl. 355-290.000.

Onodera, Hiromi: *See*—
Yoshida, Shuichi; Wakabayashi, Noriaki; Inaji, Toshio; and Onodera, Hiromi, 5,065,263, Cl. 360-77.030.

Onuki, Hideo: *See*—
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, 5,064,252, Cl. 303-9.730.

Oogita, Yoshinori, to Sharp Kabushiki Kaisha. Electronic equipment having display device for displaying lifetime of power source. 5,065,084, Cl. 320-48.000.

Oogita, Yoshinori; and Masuzawa, Sigeaki, to Sharp Kabushiki Kaisha. Key-lock system. 5,065,155, Cl. 340-825.560.

Oosta, Gary M.: *See*—
Jeng, Tzyy-Wen; Elmore, Kristin D.; Oosta, Gary M.; and Pry, Terry A., 5,064,541, Cl. 210-767.000.

Oostra, Silvester J. J.: *See*—
Berghout, Cornelis W.; Oostra, Silvester J. J.; and Damsma, Hendrik, 5,065,274, Cl. 361-321.000.

Opalko, Albert: *See*—
Archibald, John L.; Ward, Terence J.; and Opalko, Albert, 5,064,842, Cl. 514-341.000.

Oppenlaender, Knut; Mohr, Juergen; Liebold, Gert; and Frey, Guenter, to BASF Aktiengesellschaft. Nitrite- and phosphate-free antifreeze based on glycol. 5,064,552, Cl. 252-78.300.

Orban, Jacques: *See*—
Zanker, Klaus J.; and Orban, Jacques, 5,063,776, Cl. 73-155.000.

Orient Chemical Industries, Ltd.: *See*—
Yamasaki, Yasuhiro, 5,064,951, Cl. 540-128.000.

Orion Industries: *See*—
Gordon, Robert T.; Evans, Michael W.; and Leslie, Samuel A., 5,065,449, Cl. 455-15.000.

Orion Industries, Inc.: *See*—
Jachowski, Douglas R., 5,065,119, Cl. 333-202.000.

Orndoff, William L., Sr., to Kirtley Distributing Company, Inc. Locking mechanism. 5,064,230, Cl. 292-223.000.

Ortech International: *See*—
Luckevich, Lydia M., 5,064,783, Cl. 501-12.000.

Ortiz, Angel L., Jr., to General Electric Company. Optical fiber quick connect/disconnect having electronic feedback. 5,065,448, Cl. 385-53.000.

Osaka, Masayoshi: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Osborn, Graham S., to Carello Lighting plc. Lamp assembly. 5,065,298, Cl. 362-421.000.

Oscar Mayer Foods Corporation: *See*—
Hustad, Gerald O., 5,064,664, Cl. 426-87.000.
Mally, Timothy G., 5,064,667, Cl. 426-231.000.

Oshidari, Toshikazu, to Nissan Motor Co., Ltd. Line pressure control for V-belt type continuously variable transmission. 5,063,815, Cl. 74-867.000.

Oshiga, Takayuki; Fujiwara, Katsuhiro; and Umeda, Kazunori, to Hitachi, Ltd. Apparatus for insulating and preventing noise in the output of a sequence controller. 5,065,307, Cl. 364-140.000.

Oshita, Saiichiro; Mouri, Toyohiko; and Takahashi, Tsutomu, to Fuji Jukogyo Kabushiki Kaisha. Method of detecting absolute steering angle of steering angle sensor for vehicle. 5,065,324, Cl. 364-424.050.

Ostapchenko, George J.: *See*—
Frankosky, Michael S.; and Ostapchenko, George J., 5,064,703, Cl. 428-95.000.

Ostin, Richard M.: *See*—
Cann, Roger S.; and Ostin, Richard M., 5,064,680, Cl. 427-8.000.

Otis Elevator Company: *See*—
Moldenhauer, Detlev B.; and Adrian, Willy, 5,064,047, Cl. 198-338.000.

Otowa, Yoshiro, to Kansai Netsukagaku Kabushiki Kaisha. Production of high quality activated carbon. 5,064,805, Cl. 502-427.000.

Otsuka, Masuhiro; Kono, Hiromi; Satoh, Yuji; and Soda, Hiroyuki, to Zexel Corporation. Automatic transmission with sensor fault detector. 5,064,039, Cl. 192-0.052.

Otsuki, Hajime: *See*—
Sakakibara, Katsunori; Otsuki, Hajime; Ishii, Kenjiro; and Kokura, Yasuhide, 5,065,179, Cl. 355-45.000.

Ott, Karl-Heinz: *See*—
Buysch, Hans-Josef; Schon, Norbert; Eichenauer, Herbert; Ott, Karl-Heinz; and Pischtschan, Alfred, 5,064,899, Cl. 525-64.000.
Muller, Friedemann; Leitz, Edgar; Eichenauer, Herbert; Ott, Karl-Heinz; and Buysch, Hans-Josef, 5,064,885, Cl. 524-117.000.

Otte, John H.: *See*—
Berner, Bret; Ebert, Charles; Mazzenga, Gerard C.; and Otte, John H., 5,064,654, Cl. 424-448.000.

Ottens, John O. Fishing rod holding attachment for collapsible chair. 5,063,701, Cl. 43-21.200.

Otto Bock Orthopaedische Industrie Besitz- und Verwaltungs-Kommanditgesellschaft: *See*—
Naeder, Max, 5,064,438, Cl. 623-55.000.

Otto Lift-Systeme GmbH: *See*—
Wurtz, Renate, 5,064,333, Cl. 414-408.000.

Ouella, Cyril: *See*—
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

Ouella, John F.: *See*—
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

Ouhata, Koukichi: *See*—
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Outokumpu Oy: *See*—
Jarvinen, Marja-Leena; and Koskinen, Jouko A. K., 5,064,204, Cl. 277-53.000.

Owades, Joseph L. Method of making salt/free sauerkraut. 5,064,662, Cl. 426-49.000.

Owen, Charles W.; Ehren, Lance; and Bianco, Frank J., to Elexis Corporation. Air ionizer. 5,065,272, Cl. 361-231.000.

Owen, Hartley: *See*—
Harandi, Mohsen N.; and Owen, Hartley, 5,064,623, Cl. 422-190.000.

Owens, Alan R., to Staodyn, Inc. Microprocessor controlled electronic stimulating device having a battery management system and method therefor. 5,065,083, Cl. 320-13.000.

Owens, Alan R.: *See*—
Bartelt, James T.; Harris, Frank W.; and Owens, Alan R., 5,063,929, Cl. 128-421.000.

Oy Tampella Ab: *See*—
Hautala, Jouko, 5,064,125, Cl. 241-46.170.

Oyama, Takamasa: *See*—
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, 5,064,567, Cl. 252-299.610.

Ozaki, Tatsuhiko: *See*—
Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka, 5,064,900, Cl. 525-69.000.

Ozawa, Hidekatsu: *See*—
Yoshizawa, Hideyoshi; Ishii, Takashi; Makino, Toshiyuki; Ozawa, Hidekatsu; and Shimizu, Yasuyuki, 5,064,985, Cl. 219-69.160.

Ozawa, Toshikazu; and Motoyama, Yu, to Yamaha Hatsudoki Kabushiki Kaisha. Exhaust control valve system for parallel multi-cylinder two-cycle engine. 5,063,887, Cl. 123-65.0PE.

Ozawa, Toshikazu; and Motoyama, Yu, to Yamaha Hatsudoki Kabushiki Kaisha. Exhaust control valve system for parallel multi-cylinder two-cycle engine. 5,063,888, Cl. 123-65.0PE.

Ozimek, Edward J.: *See*—
Carnall, Edward, Jr.; Nielsen, Robert L.; and Ozimek, Edward J., 5,065,245, Cl. 358-213.110.

VOL 1132 ISS 2 NO 12 1991 UMI

Paauwe, Joannes M.: *See—*
Hofland, Adriaan; and Paauwe, Joannes M., 5,064,892, Cl. 524-317.000.
Pace, Joseph M.: *See—*
Smith, Ronald A.; and Pace, Joseph M., 5,063,811, Cl. 74-513.000.
Pacesetter Infusion, Ltd.: *See—*
Henke, James L.; and Koenig, Paul A., 5,064,412, Cl. 604-65.000.
Pachla, Sylvia K.; Taylor, Robert S.; and Delorey, John R., to Nowsco Well Service Ltd. Method of preventing precipitation of iron compounds during acid treatment of wells. 5,063,997, Cl. 166-279.000.
Pacific Bell: *See—*
Zhang, Ning, 5,065,394, Cl. 370-60.000.
Pacific Industrial Company: *See—*
Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, 5,064,346, Cl. 416-178.000.
Packham, Lester M. Moldboard plow apparatus for switching soil strips from one furrow to another. 5,063,999, Cl. 172-1.000.
PAF S.r.l.: *See—*
Santambrogio, Angelo, 5,065,297, Cl. 362-413.000.
Pagano, Daniel M.; and Miller, Stephen H., to Eastman Kodak Company. Film cassette with film exposure status indicator. 5,064,134, Cl. 242-71.100.
Pagliarini, John, Jr.: *See—*
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, 5,065,372, Cl. 367-152.000.
Pailler, Rene: *See—*
Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul; Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, 5,064,915, Cl. 525-474.000.
Pain, Jean-Pierre: *See—*
Cerf, Olivier; Pain, Jean-Pierre; and Antonini, Gerard, 5,064,294, Cl. 374-16.000.
Pajak, Henry G.; Marder, Daniel S.; Byrne, Kenneth C.; and Breisacher, Lee F., to Xerox Corporation. Hierarchical folders display. 5,065,347, Cl. 395-159.000.
Paladel, Jean-Marie, to Bull S.A. Shielding chassis for protecting an electrical circuit inside said chassis against the effects of electromagnetic radiation. 5,064,388, Cl. 439-607.000.
Palmer, Donald E. Multiple segment audio cable for high fidelity signals. 5,064,966, Cl. 174-32.000.
Palmer, George T.: *See—*
Den Hartog, Herman C.; Palmer, George T.; and Yeramyan, Ara G., 5,064,719, Cl. 428-411.100.
Panneri, Alfred J.; and Terragnoli, Louis, to A. J. Panneri Enterprises, Inc. Tape cutting and dispensing machine. 5,063,803, Cl. 83-203.000.
Panosh, Richard: *See—*
Rapoport, Uri; and Panosh, Richard, 5,063,934, Cl. 128-653.500.
Paper Converting Machine Company: *See—*
Craig, Grantland A.; and Johnson, Gary E., 5,064,484, Cl. 156-62.600.
ParaMagnetic Logging, Inc.: *See—*
Vail, William B., III, 5,065,100, Cl. 324-339.000.
Parker, Mary E. Janitorial apparatus. 5,063,631, Cl. 15-263.000.
Parker, Michael P., to Rothmans International Tobacco (UK) Limited. Method and apparatus for separation of objectionable particles from tobacco material. 5,063,944, Cl. 131-109.200.
Parkin, Rodney: *See—*
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.
Parks, Thomas N.: *See—*
Hunter Jackson, J. R.; and Parks, Thomas N., 5,064,657, Cl. 424-537.000.
Parle, Andrew: *See—*
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.
Parrini, Paolo: *See—*
Federici, Franco; Cozzi, Ennio; and Parrini, Paolo, 5,064,926, Cl. 528-49.000.
Parshuto, Alexandr E.: *See—*
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.
Parsons, George W., to Amersham Corporation. Connector lock assembly. 5,065,033, Cl. 250-497.100.
Partis, Richard A.: *See—*
Mueller, Richard A.; Nakao, Akira; and Partis, Richard A., 5,064,860, Cl. 514-568.000.
Parulski, Kenneth A.: *See—*
Tsai, Yusheng T.; Parulski, Kenneth A.; and Rabbani, Majid, 5,065,229, Cl. 358-21.00R.
Pascal, Thierry: *See—*
Mercier, Regis; Pascal, Thierry; and Sillion, Bernard, 5,064,934, Cl. 528-220.000.
Passerini, Stefano: *See—*
Roggero, Arnaldo; Andrei, Maria; Passerini, Stefano; and Scrosati, Bruno, 5,064,548, Cl. 252-62.200.
Patchett, Arthur A.: *See—*
Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., 5,064,825, Cl. 514-221.000.
Patel, Dahyabhai U., to Cafe 98 Industries Ltd. Coffee making machine and components thereof. 5,063,836, Cl. 99-281.000.
Patel, Rameschandra D.: *See—*
Khuzai, Kamel A.; and Patel, Rameschandra D., 5,063,787, Cl. 73-861.640.
Patelli, Ferruccio, to M.A.P.A. S.r.l. Packaging machine for manufacture, filling and sealing of sachets. 5,063,727, Cl. 53-552.000.
Paterson, James L.; and Tigelaar, Howard L., to Texas Instruments Incorporated. Metal-to-polysilicon capacitor and method for making the same. 5,065,220, Cl. 357-51.000.
Patil, Ghanshyam; Matier, William L.; and Mai, Khuong H. X., to Du Pont Merck Pharmaceutical Company. Polyhydroxybenzyloxpropanolamines. 5,064,827, Cl. 514-237.500.
Patterson, William N. Concentric drill rod assemblies for percussion rock drills. 5,064,002, Cl. 173-80.000.
Paul, Rosenich: *See—*
Ferdinand, Platter; and Paul, Rosenich, 5,064,215, Cl. 280-612.000.
Paulos, Lonnie E.: *See—*
France, E. Paul; Ellingson, Richard L.; and Paulos, Lonnie E., 5,063,916, Cl. 128-80.00C.
Pawlowski, Georg; Erdmann, Fritz; and Lutz, Heidrun, to Hoechst Aktiengesellschaft. Aromatic compounds substituted by 4,6-bis(trichloromethyl)-s-triazin-2-yl groups. 5,064,959, Cl. 544-216.000.
Pax, Paul H., to Continuum Electro-Optics, Inc. Diffraction filtered large mode laser resonator. 5,065,407, Cl. 372-103.000.
Payne, Derek. Stand and holder for hair dryer. 5,064,154, Cl. 248-121.000.
Pechanek, Gerald G.: *See—*
Vassiliadis, Stamatis; and Pechanek, Gerald G., 5,065,339, Cl. 395-24.000.
Pedain, Josef; and Margotte, Dieter, to Bayer Aktiengesellschaft. Solutions of isocyanurate polyisocyanates in coatings solvents and a process for their production. 5,064,960, Cl. 544-222.000.
Pedain, Josef: *See—*
Blum, Harald; Pedain, Josef; Hohlein, Peter; and Wamprecht, Christian, 5,064,921, Cl. 526-262.000.
Wamprecht, Christian; Pedain, Josef; and Blum, Harald, 5,064,922, Cl. 526-262.000.
Peddinghaus Corporation: *See—*
Magnuson, James M., 5,063,804, Cl. 83-368.000.
Peet, Norton P.; and Lentz, Nelsen L., to Merrell Dow Pharmaceuticals Inc. Selective adenosine reseptor compounds. 5,064,947, Cl. 536-26.000.
Pegher, Susan M.: *See—*
Mullendore, James A.; and Pegher, Susan M., 5,064,462, Cl. 75-248.000.
Peiffer, Dennis G., to Exxon Research and Engineering Company. Elastomeric toughened polyethylene blends. 5,064,903, Cl. 525-196.000.
Peiffer, Norman A., to Andersons, The. Method of manufacturing a cellulose absorbent product. 5,064,407, Cl. 241-3.000.
Pellinen, Teuvo: *See—*
Aalto, Erkki; Pellinen, Teuvo; and Eloranta, Jouko, 5,063,834, Cl. 98-115.100.
Peloquin, Andrew L. Self-supporting flexible extendable tape measure. 5,063,686, Cl. 33-757.000.
Pennisi, Robert W.: *See—*
Davis, James L.; Pennisi, Robert W.; Nounou, Fadia; and Landreth, Bobby D., 5,064,481, Cl. 148-23.000.
Peresada, Andrei G.: *See—*
Merzhanov, Alexandr G.; Borovinskaya, Inna P.; Nersesian, Mikael D.; and Peresada, Andrei G., 5,064,808, Cl. 505-1.000.
Perlman, Daniel, to Brandeis University. Radon detectors. 5,065,030, Cl. 250-472.100.
Perlman, Stephen G.: *See—*
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,143, Cl. 340-701.000.
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,231, Cl. 358-22.000.
Peroni, Robert. Cold weather garment with respiration means. 5,063,923, Cl. 128-201.130.
Peronnet, Guillaume: *See—*
Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., 5,064,997, Cl. 219-505.000.
Perretta, Frank, to Perretta Graphics Corporation. Anti-wrap for high speed printing press. 5,063,845, Cl. 101-484.000.
Perretta Graphics Corporation: *See—*
Perretta, Frank, 5,063,845, Cl. 101-484.000.
Perry, Leroy R. Adjustable tensioning of a mattress. 5,063,625, Cl. 5-475.000.
Persel, John M.: *See—*
Greenstein, Harvey; Levinski, Charles B.; Newman, Edward; Persel, John M.; and Widmann, David N., 5,065,426, Cl. 379-100.000.
Persson, Borje: *See—*
Jaras, Sven G.; Tokarz, Marek T.; and Persson, Borje, 5,064,792, Cl. 502-60.000.
Pertierra, Thomas A.: *See—*
E'nama, David J.; and Pertierra, Thomas A., 5,064,988, Cl. 219-121.600.
Pertsch, Thomas: *See—*
Melcher, Franz-Josef; Pertsch, Thomas; Spannagel, Wilfried; and Oldendorf, Christian, 5,064,009, Cl. 177-245.000.
Pesta, Miroslav. Heating device for generating very high temperature. 5,064,995, Cl. 219-383.000.
Peter, Hans, to Sulzer Brothers Limited. Clutch element for a heald shaft coupling. 5,063,971, Cl. 139-87.000.

Peterson, David C.: *See—*
Leigh-Monstevens, Keith V.; and Peterson, David C., 5,065,135, Cl. 340-463.000.
Peterson, David T. Method and apparatus for free-standing water removal from roof and siphon head therefore. 5,063,959, Cl. 137-153.000.
Peterson, Floyd F. Tree fertilizing tool using an auger and measuring means. 5,063,863, Cl. 111-93.000.
Peterson, Wayne L.: *See—*
Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., 5,064,151, Cl. 244-160.000.
Peterson, William M.; Leivian, Robert H.; and Garrison, Sidney C., III, to Motorola Inc. Reverse flow neuron. 5,065,040, Cl. 307-201.000.
Petocz, Lujza: *See—*
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.
Petri, Alberto; and Poggio, Sergio, to Enichem Tecnoresine S.p.A. Flame-resistant polycarbonates containing units deriving from halogenated carbonyl compounds in their polymer chain. 5,064,931, Cl. 528-202.000.
Petrick, S. Walter: *See—*
Jones, Jack A.; Petrick, S. Walter; and Bard, Steven, 5,063,747, Cl. 62-461.000.
Petrovic, John J.; and Honnell, Richard E., to United States of America, Energy. Silicon nitride reinforced with molybdenum disilicide. 5,064,789, Cl. 501-97.000.
Petzinna, Dieter: *See—*
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.
Pfannkuch, Robert B.: *See—*
Warren, Eugene D.; Pfannkuch, Robert B.; Laumeister, William C.; and Pourciau, Louis L., 5,065,258, Cl. 360-15.000.
Pfannkuche, Heinz: *See—*
Munzebrock, Anton; and Pfannkuche, Heinz, 5,064,972, Cl. 191-30.000.
Pfarrwaller, Erwin, to Sulzer Brothers Limited. Projectile accelerator for a loom. 5,063,972, Cl. 139-145.000.
Pfiester, Jame R., to Motorola, Inc. Self-aligned bipolar transistor process. 5,064,774, Cl. 427-31.000.
Pfizer Inc.: *See—*
Cullen, Walter P.; Hauske, James R.; Kostek, Gloria J.; Maeda, Hiroshi; and Tone, Junsuke, 5,064,855, Cl. 514-460.000.
Goddard, Carl J.; and Schulte, Gary R., 5,064,851, Cl. 514-406.000.
Going, Paden C., 5,064,830, Cl. 514-252.000.
Howard, Harry R., Jr.; and Sarges, Reinhard, 5,064,852, Cl. 514-409.000.
O'Neill, Brian T., 5,064,958, Cl. 544-94.000.
Phelan, James J.: *See—*
Fox, Robert E.; and Phelan, James J., 5,063,729, Cl. 56-30.000.
Philby, Jonathan D.: *See—*
Tinsley, Michael; Johns, Antony; and Philby, Jonathan D., 5,064,990, Cl. 219-121.720.
Philibert, Daniel; Teutsch, Jean G.; Costerousse, Germain; and Deraedt, Roger, to Roussel Uclaf. Novel 3-keto-19-nor-$\Delta^{4,9}$-steroids. 5,064,822, Cl. 514-172.000.
Philip Morris Incorporated: *See—*
Campbell, Christopher J.; Latif, Linda S.; and Graboyes, Herman, 5,064,409, Cl. 493-396.000.
Philipossian, Ara, to Digital Equipment Corporation. Conical gas inlet for thermal processing furnace. 5,064,367, Cl. 432-253.000.
Philippe, Alain: *See—*
Besnainon, Bernard; Elluard, Marie-Paule; Lessart, Pierre; and Philippe, Alain, 5,064,764, Cl. 435-285.000.
Philipps, Thomas: *See—*
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.
Phillips, Alan J., to Air Quality Laboratories. Hamper air purification system. 5,064,451, Cl. 55-74.000.
Phillips, Clarence W.; Phillips, William F.; and Jacobus, Gerry A., to Active English Information Systems, Inc. Expert information system and method for decision record generation. 5,065,338, Cl. 395-51.000.
Phillips Petroleum Company: *See—*
Drake, Charles A., 5,064,794, Cl. 502-74.000.
Geibel, Jon F., 5,064,936, Cl. 528-388.000.
Johnson, Marvin M., 5,064,626, Cl. 423-245.100.
McDaniel, Max P., 5,064,795, Cl. 502-104.000.
Stricklen, Phil M., 5,064,797, Cl. 502-111.000.
Phillips, Randall M. Fishing fly with sliding treble hook. 5,063,704, Cl. 43-42.250.
Phillips, William F.: *See—*
Phillips, Clarence W.; Phillips, William F.; and Jacobus, Gerry A., 5,065,338, Cl. 395-51.000.
Photonic Integration Research, Inc.: *See—*
Sun, Cheng-ko J.; Sumida, Shin; Sakaguchi, Shigeki; and Miyashita, Tadashi, 5,064,266, Cl. 385-132.000.
Physical Systems, Inc.: *See—*
Hutter, Charles G., III; and Hill, Raymond R., 5,064,098, Cl. 222-137.000.
Picker international, Inc.: *See—*
Vagi, Robert J.; Plut, Leonard F.; and Leong, David L., 5,065,238, Cl. 358-111.000.
Pidhirny, John M.: *See—*
Hennick, Robert J.; and Pidhirny, John M., 5,065,001, Cl. 235-435.000.
Pieroh, Ernst: *See—*
Hubl, Dieter; and Pieroh, Ernst, 5,064,847, Cl. 514-380.000.
Pieroni, Robert J.: *See—*
Jung, Rolf; Schwartzott, Jack M.; Pieroni, Robert J.; and Tobler, Arnold, 5,063,800, Cl. 83-14.000.
Pierrat, Michel A. Automatic data storage cartridge library with a storage carrousel having rotatable sub-carrousels. 5,065,265, Cl. 360-92.000.
Pilkington, D. J.: *See—*
Postier, Robert A.; Pilkington, D. J.; and Blaimschein, Gottfried, 5,064,130, Cl. 242-56.00R.
Pillot, Jean-Paul: *See—*
Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul: Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, 5,064,915, Cl. 525-474.000.
Pinckney, Linda R.: *See—*
Morena, Robert M.; and Pinckney, Linda R., 5,064,461, Cl. 65-33.000.
Pioneer Electronic Corporation: *See—*
Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, 5,065,433, Cl. 381-63.000.
Iijima, Tokuji, 5,065,235, Cl. 358-86.000.
Ishii, Hidehiro, 5,065,253, Cl. 358-340.000.
Konno, Yoshikiyo, 5,065,385, Cl. 369-50.000.
Takahashi, Shinichi, 5,065,381, Cl. 369-44.230.
Takeya, Noriyoshi; Ishii, Hidehiro; Miura, Chiharu; and Fukuda, Tatsuya, 5,065,386, Cl. 369-44.320.
Tateishi, Kiyoshi; and Sakata, Haruyasu, 5,065,383, Cl. 369-44.280.
Yokogawa, Fumihiko, 5,065,384, Cl. 369-47.000.
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.
Pioneer Video Corporation: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.
Pipon, Yves; and Droulon, Georges, to A. & M. Cousin-Establissments Cousin Freres. Positioning and blockage device of a seat back armature on a seat base armature mounted automatically in a vehicle. 5,064,246, Cl. 297-443.000.
Pippin, James M., to ElectroCom Automation, Inc. Vacuum beam product dispenser and singulator. 5,064,341, Cl. 414-797.600.
Pisani, Gianluigi. Joint for modular toolholder device of a tool machine for the working of metals and other. 5,064,322, Cl. 409-234.000.
Pischtschan, Alfred: *See—*
Buysch, Hans-Josef; Schon, Norbert; Eichenauer, Herbert; Ott, Karl-Heinz; and Pischtschan, Alfred, 5,064,899, Cl. 525-64.000.
Pisciconsult Developpement Inc.: *See—*
Frechette, Jean-Louis; and Elazhary, Youssef, 5,064,645, Cl. 424-85.800.
Pittman, James. Filtration removal of matter from gas streams, with off-line cleaning of filters. 5,064,454, Cl. 55-302.000.
Pittman, William C.; Miller, Walter E., Jr.; and Christian, Michael R., to United States of America, Army. Covert millimeter wave beam projector. 5,064,140, Cl. 244-3.130.
Piwonka, Fridolin: *See—*
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.
Plaatwerkerij D.W. Slotboom B.V.: *See—*
Rockx, Ludwig G., 5,063,835, Cl. 98-115.200.
Plafittco, naamloze vennootschap: *See—*
Van Den Eynde, J., 5,063,665, Cl. 29-897.312.
Plastipak Packaging, Inc.: *See—*
Young, William C.; and Darr, Richard C., 5,064,080, Cl. 215-1.00C.
Pletz-Kirsch, Gerhard; and Lenth, Jurgen, to U.S. Philips Corporation. Digital phase-locked loop. 5,065,115, Cl. 331-14.000.
Plummer, Darrill L., to Ingersoll-Rand Company. Annular support for a seal for a tilt piston. 5,064,359, Cl. 417-489.000.
Plut, Leonard F.: *See—*
Vagi, Robert J.; Plut, Leonard F.; and Leong, David L., 5,065,238, Cl. 358-111.000.
Poe, Robert: *See—*
Johnston, Everett A.; and Poe, Robert, 5,065,351, Cl. 364-571.040.
Poetsch, Eike: *See—*
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.
Poggio, Sergio: *See—*
Petri, Alberto; and Poggio, Sergio, 5,064,931, Cl. 528-202.000.
Pola Chemical Industries Inc.: *See—*
Suzuki, Toshimitsu; Sakaguchi, Masakazu; Miyata, Yoshiyuki; and Mori, Tomoyuki, 5,064,849, Cl. 514-383.000.
Polach, Wilhelm: *See—*
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Policello, George: *See—*
Lin, Samuel; Khan, Gaznabi; Salas, Lucia; and Policello, George, 5,064,544, Cl. 252-88.000.

Polonio, John D. Interconnection mechanisms for electronic components. 5,065,282, Cl. 361-399.000.

Pool, Richard B. Fishing lure. 5,063,705, Cl. 43-44.600.

Poon, Stephen S.; and Gelatos, Avgerinos V., to Motorola, Inc. Method for polish planarizing a semiconductor substrate by using a boron nitride polish stop. 5,064,683, Cl. 427-39.000.

Poon, Ting-Chung: *See—*
Shinoda, Kazunori; Wu, Ming H.; Suzuki, Yoshiji; and Poon, Ting-Chung, 5,064,257, Cl. 350-3.670.

Poortvliet, Robert J.: *See—*
Clark, Craig A.; and Poortvliet, Robert J., 5,064,247, Cl. 297-445.000.

Poot, Jacob, Jr., to Poot Lichtenergie B.V. Fitting for horticultural lighting. 5,065,294, Cl. 362-346.000.

Poot Lichtenergie B.V.: *See—*
Poot, Jacob, Jr., 5,065,294, Cl. 362-346.000.

Popp, Franz W.: *See—*
Madle, Wolfgang; Gawlik, Norbert; and Popp, Franz W., 5,064,575, Cl. 252-633.000.

Porter, Christopher H., to Schneider (USA) Inc. Self-expanding prosthesis having stable axial length. 5,064,435, Cl. 623-12.000.

Porter, David; Dillner, James R.; Leibfried, Peter E.; Reimels, William R.; and Asfalg, J. George, to United Technologies Corporation. Method of forming a hollow blade. 5,063,662, Cl. 29-889.720.

Porter, Frank K., Jr.: *See—*
Lailer, Robert H., Jr.; Porter, Frank K., Jr.; Colananni, Laura M.; and Lussier, David B., 5,064,142, Cl. 244-3.240.

Postier, Robert A.; Pilkington, D. J.; and Blaimschein, Gottfried, to GFM Holding Aktiengesellschaft. Cutting plant for cutting blanks out of a starting strip. 5,064,130, Cl. 242-56.00R.

Potts, Mark: *See—*
Marsh, Robert M.; Hill, Timothy J.; and Potts, Mark, 5,065,149, Cl. 340-793.000.

Poturnicki, Alfred, Jr.: *See—*
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, 5,065,372, Cl. 367-152.000.

Pourciau, Louis L.: *See—*
Warren, Eugene D.; Pfannkuch, Robert B.; Laumeister, William C.; and Pourciau, Louis L., 5,065,258, Cl. 360-15.000.

Powell, John C.; and Campbell, Steven L., to Armco Inc. Method and apparatus for planar drag strip casting. 5,063,989, Cl. 164-463.000.

Powell, John C.: *See—*
Follstaedt, Donald W.; Powell, John C.; Sussman, Richard C.; and Williams, Robert S., 5,063,988, Cl. 164-463.000.

Power Guard: *See—*
Schultz, Jerry, 5,065,278, Cl. 361-383.000.

Powers, Edward A.; Urso, Charles J.; and Lehman, Richard F. Multifunction detecting device for a document reproduction machine. 5,065,185, Cl. 355-208.000.

Poyser, Jeffrey P.: *See—*
Acton, David G.; Davies, David H.; and Poyser, Jeffrey P., 5,064,824, Cl. 514-202.000.

Pramstaller, Douglas M.: *See—*
Kovacs, Bela V.; Keough, John R.; and Pramstaller, Douglas M., 5,064,478, Cl. 148-12.400.

Pranzo, Salvatore. Color monitor. 5,065,077, Cl. 315-375.000.

Precht, Hans-Jurgen, to Robert Krups Stiftung & Co. KG. Beverage brewing apparatus with drip preventing mechanism. 5,063,837, Cl. 99-295.000.

Priester, Donnan E.; and Tarney, Robert E., to Du Pont de Nemours, E. I., and Company. Extrusion process for difficultly-melt-processible polymers. 5,064,594, Cl. 264-127.000.

Prior, Desiree S.: *See—*
Oldham, Susan L.; and Prior, Desiree S., 5,064,574, Cl. 252-518.000.

Process Technology, Inc.: *See—*
Laurila, Melvin J.; Brown, Robert J.; and Greenlund, Robert C., 5,065,416, Cl. 378-53.000.

Procter & Gamble Company, The: *See—*
Butler, Michael E.; Cann, David V.; and Burrowes, Lee, 5,064,106, Cl. 222-456.000.
Coffindaffer, Timothy W.; Bartolo, Robert G.; and Belfiore, Kathleen A., 5,064,543, Cl. 252-8.600.
Gore, William J., 5,064,676, Cl. 426-595.000.
Hirshorn, James B.; Dake, Timothy W.; Purves, Edward R.; and Seiden, Paul, 5,064,670, Cl. 426-607.000.
Kock, Ronald W.; Gosselin, Peter G.; and Reiboldt, H. Norman, 5,064,671, Cl. 426-481.000.
Mazur, Adam W., 5,064,672, Cl. 426-531.000.
Medcalf, Ralph F., Jr.; Visscher, Martha O.; Knochel, John R.; and Dahlgren, Richard M., 5,064,555, Cl. 252-117.000.

Produsta S.A.: *See—*
Choulat, Jean-Pierre, 5,065,376, Cl. 368-282.000.

Progress Elektrogerate GmbH: *See—*
Hafele, Siegfried; and Jacob, Gernot, 5,063,634, Cl. 15-377.000.

Proprietary Technology, Inc.: *See—*
Bartholomew, Donald D., 5,063,968, Cl. 138-109.000.

Prosser, Paul L., to Custom Training Aids. Thermal integrated target. 5,065,032, Cl. 250-495.100.

Protectair Limited: *See—*
Young, David E.; and Davis, Kenneth P., 5,063,917, Cl. 128-80.00R.

Protein Technologies, Inc.: *See—*
Barstow, Leon E.; and Ward, Glen D., 5,064,940, Cl. 530-334.000.

Prouty, Jonathan J. Kite with connectors formed of sheet material. 5,064,149, Cl. 244-155.00A.

Prouty, Jonathan J., to Skynasaur Inc. Control handles for stunt kites. 5,064,150, Cl. 244-155.00A.

Provision, Inc.: *See—*
Brandes, Joseph F.; and Schumann, Robert N., 5,064,556, Cl. 252-135.000.

Pry, Terry A.: *See—*
Jeng, Tzyy-Wen; Elmore, Kristin D.; Oosta, Gary M.; and Pry, Terry A., 5,064,541, Cl. 210-767.000.

Pryba, Stanley J.; Mills, Jesse V.; and Abbas, Sherkoh A., to Henley Manufacturing Holding Company, Inc. Rocker arm with lubrication provisions. 5,063,889, Cl. 123-90.390.

Puckette, Robert B. E., to Hewlett-Packard Company. Shared use of keyboard and memory lines. 5,065,356, Cl. 395-800.000.

Puglisi, Vincent J.: *See—*
Rampel, Guy G.; and Puglisi, Vincent J., 5,064,735, Cl. 429-206.000.

Pulse Electronics, Inc.: *See—*
Bezos, Angel P.; Fernandez, Emilio A.; and Field, Joseph I., Jr., 5,065,321, Cl. 364-424.040.

Pultorak, David M.: *See—*
Blazey, Richard N.; and Pultorak, David M., 5,064,277, Cl. 359-276.000.

Purcell, Alexander M., to Summagraphics Corporation. Method and apparatus for producing signals corresponding to the position of a cursor. 5,065,145, Cl. 340-706.000.

Purdue Research Foundation: *See—*
Kleber, Carl J.; and Putt, Mark S., 5,064,640, Cl. 424-52.000.

Purves, Edward R.: *See—*
Hirshorn, James B.; Dake, Timothy W.; Purves, Edward R.; and Seiden, Paul, 5,064,670, Cl. 426-607.000.

Pusic, Pavo. Automated electronic postage meter having a direct acess bar code printer. 5,065,000, Cl. 235-381.000.

Putnam, William H.; and Shaffer, Theodore A., to AT&T Bell Laboratories; and Conversion Technologies. Personal computer note-taking facility. 5,065,309, Cl. 364-419.000.

Putt, Mark S.: *See—*
Kleber, Carl J.; and Putt, Mark S., 5,064,640, Cl. 424-52.000.

Quadrum Telecommunications, Inc.: *See—*
McGough, Gerald B.; Stanford, Timothy M.; and Bass, Charles J., 5,064,116, Cl. 232-57.500.

Quain, Kay D. Apparatus and method for use in hospitals to promote patient-caregiver contact. 5,064,243, Cl. 297-58.000.

Quantex Corporation: *See—*
Lindmayer, Joseph, 5,065,023, Cl. 250-330.000.

Quantum Chemical Corporation: *See—*
Chang, Biau-Hung; and Kwiatek, Jack, 5,064,912, Cl. 525-383.000.
Chang, Biau-Hung; Lee, Lester Y.; and Kwiatek, Jack, 5,064,932, Cl. 528-220.000.
Hinnenkamp, James A., 5,064,865, Cl. 518-713.000.

Quantum Corporation: *See—*
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Quantum Materials, Inc.: *See—*
Dershem, Stephen M.; and Weaver, Richard R., 5,064,480, Cl. 148-22.000.

Quaranta, Michael E.: *See—*
Quaranta, Susan S.; and Quaranta, Michael E., 5,063,717, Cl. 52-201.000.

Quaranta, Susan S.; and Quaranta, Michael E. Sashless bay window. 5,063,717, Cl. 52-201.000.

Quarberg, Craig D. Entry door security bar. 5,064,232, Cl. 292-339.000.

Quebec and Ontario Paper Company Ltd.: *See—*
van Biesen, Franciscus A.; and English, Christopher J., 5,064,131, Cl. 242-65.000.

Quell, Peter: *See—*
Forster, Siegfried; and Quell, Peter, 5,063,995, Cl. 165-166.000.

Quinn, Robert L. Fire extinguisher apparatus. 5,063,998, Cl. 169-65.000.

R. E. Phelon Company, Inc.: *See—*
Mercier, Real L., 5,063,812, Cl. 74-575.000.

R. Pfleger Chemische Fabrik GmbH: *See—*
Bertholdt, Heinz; Michalczyk, Dieter; and Urban, Guenter, 5,064,857, Cl. 514-503.000.

Raab, Kurt R.: *See—*
Foster, Craig A.; Galvez, Randolfo; and Raab, Kurt R., 5,065,228, Cl. 357-80.000.

Rabbani, Majid: *See—*
Tsai, Yusheng T.; Parulski, Kenneth A.; and Rabbani, Majid, 5,065,229, Cl. 358-21.00R.

Rabinowitz, Israel N. Increasing the inositol yield from almond hulls. 5,064,762, Cl. 435-155.000.

Radarfind, Inc.: *See—*
Mears, Arthur W., 5,065,163, Cl. 343-706.000.

Rader, Thomas G. Double-level railroad car having a flat center sill. 5,063,859, Cl. 105-340.000.

Ragaller, Max, to Marker Deutschland GmbH. Fastening screw for assembly plates. 5,064,324, Cl. 411-337.000.

Raikhlin, Mark M. Hoisting apparatus. 5,063,716, Cl. 52-114.000.

Rainer, Norman B. Method for using water-treating sponges. 5,064,540, Cl. 210-688.000.

Raines, Kenneth; and Grimm, John D., to Burron Medical, Inc. Spool valve with offset outlet. 5,064,168, Cl. 251-322.000.

Rainin Instrument Co., Inc.: *See—*
Magnussen, Haakon T., Jr., 5,064,287, Cl. 356-246.000.

Rajaram, Babu: *See—*
Olson, Anthony M.; and Rajaram, Babu, 5,064,378, Cl. 439-68.000.

Rajeevakumar, Thekkemadathil V., to International Business Machines Corporation. High capacity DRAM trench capacitor and methods of fabricating same. 5,065,273, Cl. 361-313.000.

Rajewski, Max R.: *See—*
Hickey, Colin J.; and Rajewski, Max R., 5,064,126, Cl. 241-73.000.

Raker, John W., to K. S. Macey Machine Company, Inc. Safety interlock system. 5,064,328, Cl. 412-12.000.

Rakov, David M.; and Santilli, Domenic, to Eastman Kodak Company. Liquid toning process and apparatus. 5,064,738, Cl. 430-117.000.

Ramos, Gerardo: *See—*
Schneider, Peter; Ramos, Gerardo; and Bersier, Jacques, 5,064,761, Cl. 435-135.000.

Rampel, Guy G.; and Puglisi, Vincent J., to Gates Energy Products, Inc. Cadium electrode and process for its production. 5,064,735, Cl. 429-206.000.

Rank Video Services America: *See—*
Warren, Eugene D.; Pfannkuch, Robert B.; Laumeister, William C.; and Pourciau, Louis L., 5,065,258, Cl. 360-15.000.

Ranson, William F.: *See—*
Vachon, Reginald I.; and Ranson, William F., 5,065,331, Cl. 364-508.000.

Rao, Nancy A.; and Hickner, Richard A., to Dow Chemical Company, The. Cationic diphenol advanced epoxy resins with diglycidylether of aliphatic diol. 5,064,880, Cl. 523-403.000.

Rapoport, Uri; and Panosh, Richard, to Advanced Techtronics, Inc. Permanent magnet arrangement. 5,063,934, Cl. 128-653.500.

Rasbury, Vincent K.; and Nordeen, Charles K., to Minnesota Mining and Manufacturing Company. Dielectric coating for recording member containing hydrophobic silica. 5,064,715, Cl. 428-331.000.

Rasmussen GmbH: *See—*
Spors, Ralf; Wachter, Gerhard; Hohmann, Ralf; and Sauer, Heinz, 5,064,227, Cl. 285-319.000.

Rasmussen, Paul C.: *See—*
Adams, Steven L.; Bird, William L.; Chow, Humphrey W.; O'Brien, Kirk G.; and Rasmussen, Paul C., 5,065,059, Cl. 310-71.000.

Rasshofer, Werner: *See—*
Wagner, Joachim; Rasshofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, 5,064,600, Cl. 264-328.600.

Rauf, Richard: *See—*
Wenzel, Reinhard; and Rauf, Richard, 5,063,649, Cl. 29-116.100.

Rauma-Repola Oy: *See—*
Jonkka, Arvo, 5,063,981, Cl. 144-341.000.

Raychem Corporation: *See—*
Fang, Shou-Mean; Horsma, David A.; Peronnet, Guillaume; Fahey, Timothy E.; Au, Andrew N.S.; and Carlomagno, William D., 5,064,997, Cl. 219-505.000.

Raytheon Company: *See—*
Feist, Wolfgang M., 5,064,773, Cl. 437-31.000.
Jacobson, Boris S.; and DiPerna, Raymond A., 5,065,300, Cl. 363-16.000.
Lailer, Robert H., Jr.; Porter, Frank K., Jr.; Colananni, Laura M.; and Lussier, David B., 5,064,142, Cl. 244-3.240.
Nesline, F. William, Jr., 5,064,141, Cl. 244-3.150.

Reader, John R., Jr.: *See—*
Hendrick, Kendall; and Reader, John R., Jr., 5,065,106, Cl. 324-663.000.

Ream, Bernard C.: *See—*
Soo, Hwaili; Ream, Bernard C.; and Robson, John H., 5,064,804, Cl. 502-335.000.

Recher, Gilles: *See—*
Diard, Jean-Luc; Grandjacques, Philippe; and Recher, Gilles, 5,064,214, Cl. 280-607.000.

Recine, Leonard J., Sr. Thermoelectric cooler and fabrication method. 5,064,476, Cl. 136-201.000.

Recticel: *See—*
Monstrey, Joost; and Wallaeys, Bart, 5,064,872, Cl. 521-131.000.

Reed, John, to Sun Microsystems, Inc. Method and apparatus for high-speed bi-CMOS differential amplifier with controlled output voltage swing. 5,065,055, Cl. 307-530.000.

Reiboldt, H. Norman: *See—*
Kock, Ronald W.; Gosselin, Peter G.; and Reiboldt, H. Norman, 5,064,671, Cl. 426-481.000.

Reid, Peter T. Separation of non-magnetic electrically conductive items by electromagnetic eddy current generation. 5,064,075, Cl. 209-636.000.

Reif, Thomas H., to Republic Medical Products Inc. Bicurved leaflet(s) prosthetic heart valve. 5,064,432, Cl. 623-2.000.

Reiffenrath, Volker: *See—*
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.

Reifsnider, Kenneth: *See—*
Chang, Fu-Kuo; Reifsnider, Kenneth; Davidson, James A.; and Georgette, Frederick S., 5,064,439, Cl. 623-66.000.

Reimels, William R.: *See—*
Porter, David; Dillner, James R.; Leibfried, Peter E.; Reimels, William R.; and Asfalg, J. George, 5,063,662, Cl. 29-889.720.

Reinking, Klaus: *See—*
Kohler, Burkhard; Uerdingen, Walter; Wehnert, Wolfgang; Schmidt, Manfred; Schafer, Walter; and Reinking, Klaus, 5,064,884, Cl. 524-114.000.
Kohler, Karl-Heinz; Reinking, Klaus; and Kraft, Klaus, 5,064,895, Cl. 524-609.000.

Reiser, Kurt, to Hughes Aircraft Company. Method and apparatus for inspection of solder joints utilizing shape determination from shading. 5,064,291, Cl. 356-372.000.

Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, to Hans Gilovyy Maschinenfabrik "Meteorwerk" GmbH & Co. Method for sterilizing heat-tolerating containers under clean-room conditions. 5,064,614, Cl. 422-22.000.

Reiter, Jozsef: *See—*
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.

Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan. Novel triazolo-pyrimidine derivatives. 5,064,826, Cl. 514-233.200.

Remstad, Steve C.: *See—*
Kassel, John; and Remstad, Steve C., 5,064,344, Cl. 415-224.500.

Renishaw plc: *See—*
McMurtry, David R.; and Stephens, William F. N., 5,064,290, Cl. 356-356.000.
Morrison, Robert B.; Henning, Brian C. R.; Lummes, Stephen E.; and McMurtry, David R., 5,063,685, Cl. 33-701.000.

Renz, Roman: *See—*
Bialkowski, Guenter; Gerlach, Dieter; and Renz, Roman, 5,064,976, Cl. 200-144.00B.

Republic Medical Products Inc.: *See—*
Reif, Thomas H., 5,064,432, Cl. 623-2.000.

Republic Tool & Manufacturing Corp.: *See—*
McRoskey, John W., 5,064,325, Cl. 411-368.000.

Research Corporation: *See—*
Clark, C. Randall, 5,064,862, Cl. 514-617.000.

Research Development Corporation of Japan: *See—*
Murakami, Mutsuaki; and Yoshimura, Susumu, 5,064,019, Cl. 181-170.000.

Research Engineeering & Manufacturing, Inc.: *See—*
Hughes, Barry J., 5,064,327, Cl. 411-386.000.

Research Triangle Institute: *See—*
Lee, Yue-Wei; Fang, Qi-Cheng; Wang, Zhen-Guo; Li, De-Hua; and Cook, C. E., 5,064,823, Cl. 514-198.000.

Retallick, William B., to W. R. Grace & Co.-Conn. Metal honeycomb catalyst support having a double taper. 5,063,769, Cl. 72-379.600.

Reuter, Werner: *See—*
Zinn, Bernd; and Reuter, Werner, 5,064,973, Cl. 200-51.100.

Revane, James E., to Angeion Corporation. Locking clip with sheath and dilator. 5,064,414, Cl. 604-165.000.

Rexene Corporation: *See—*
Hoenigmann, Martin F., 5,064,893, Cl. 524-427.000.

Reyes, Erenio: *See—*
Bifano, Gabriel F.; and Reyes, Erenio, 5,063,720, Cl. 52-309.100.

Reynolds, Alvin E.: *See—*
Kilmer, Lauren G.; and Reynolds, Alvin E., 5,063,942, Cl. 128-898.000.

Reynolds, Mickey R.: *See—*
Chapin, John T.; Jackson, Charles W.; Mensah, Thomas O.; and Reynolds, Mickey R., 5,064,490, Cl. 156-172.000.

Rezanka, Ivan; and Horino, Yasuo, to Xerox Corporation. Ink jet printer having a staggered array printhead. 5,065,170, Cl. 346-140.00R.

RF Products, Inc.: *See—*
Ghadaksaz, Masood, 5,065,121, Cl. 333-235.000.

Rheinmetall GmbH: *See—*
Bisping, Bernard; Vagedes, Michael; Kessler, Sigfried; and Theis, Ulrich, 5,063,854, Cl. 102-520.000.
Diel, Rainer; Sippel Achim; Meyer, Jurgen; and Kruse, Heinz-Josef, 5,063,855, Cl. 102-521.000.
Nordmann, Adolf; and Zielinski, Erich, 5,063,824, Cl. 89-7.000.
Nordmann, Adolf; and Zielinski, Erich, 5,063,825, Cl. 89-7.000.

Rhone-Poulenc Chimie: *See—*
Chane-Ching, Jean-Yves; Le Loarer, Jean-Luc; and Dupuis, Patrick, 5,064,628, Cl. 423-263.000.
Desmonceau, Daniel; and Jorda, Rafael, 5,064,894, Cl. 524-503.000.
Duboudin, Francoise; Babot, Odile; Pillot, Jean-Paul; Dunogues, Jacques; Bouillon, Eric; and Pailler, Rene, 5,064,915, Cl. 525-474.000.
Jost, Philippe; and Malassis, Marc, 5,064,562, Cl. 252-174.150.

Rhone-Poulenc Rorer Pharmaceuticals Inc.: *See—*
Klein, Scott I.; and Molino, Bruce F., 5,064,814, Cl. 514-18.000.

Rhone-Poulenc Sante: *See—*
Hart, Terance W.; Vacher, Bernard Y. J.; and Sharp, Brian W., 5,064,843, Cl. 514-346.000.

Rhopoint Instrumentation Limited: *See—*
Cropper, Peter R.; Haffenden, Gary P.; and Justice, Jeremy K., 5,065,036, Cl. 250-571.000.

Rhow, Harold: *See—*
Wang, Lawrence K.; Wang, Mu Hao S.; Hwang, Chong S.; and Rhow, Harold, 5,064,531, Cl. 210-96.100.

Ribner, David B.; and Baertsch, Richard D., to General Electric Company. High order sigma delta oversampled analog-to-digital con-

VOL 1132 ISS 2 NO 12 1991 UMI

verter integrated circuit network with minimal power dissipation and chip area requirements. 5,065,157, Cl. 341-143.000.

Ricci, Francesco, to Golden Trade S.r.l. Process for dyeing textiles in a non-uniform fashion and resulting textile products. 5,064,443, Cl. 8-479.000.

Ricciardi, Mario, to Bell & Howell Phillipsburg Company. Method and apparatus for feeding and stacking articles. 5,064,185, Cl. 271-181.000.

Ricciardi, Mario, to Bell & Howell Phillipsburg Company. Printhead mount assembly. 5,064,303, Cl. 400-175.000.

Rice, Thomas A.; Smith, David A.; and Schmidt, Alan W., to Hewlett-Packard Company. Method and apparatus for simulating analog display in digital display test instrument. 5,065,147, Cl. 340-744.000.

Rich, Donald S., to Tovex Tech, Inc. Circuit handler with sectioned rail. 5,065,089, Cl. 324-158.00F.

Rich, Hubert F., to Arco Electric Products Corp. Rotary phase converter having circuitry for switching windings to provide reduced starting current with rapid, dependable starting. 5,065,305, Cl. 363-150.000.

Richard Wolf GmbH: *See*—
Bitrolf, Ehrenfried, 5,064,424, Cl. 606-46.000.

Richards, Martyn, to Rolls-Royce, plc. Gear lubrication. 5,064,025, Cl. 184-6.120.

Richards Medical Company: *See*—
Chang, Fu-Kuo; Reifsnider, Kenneth; Davidson, James A.; and Georgette, Frederick S., 5,064,439, Cl. 623-66.000.

Richardson, Edwin A.: *See*—
Wellington, Scott L.; Simmons, Jeffrey F.; and Richardson, Edwin A., 5,063,772, Cl. 73-40.700.

Richardson, Lee. Carrying case for pea characters. 5,064,398, Cl. 446-75.000.

Richey, Lindell C.: *See*—
Courtright, Steven B.; McGrew, Gordon N.; and Richey, Lindell C., 5,064,698, Cl. 428-35.400.

Richey, W. Frank: *See*—
Walters, Marlin E.; St. George, George M.; and Richey, W. Frank, 5,064,518, Cl. 204-57.990.

Richmond, Scott E.: *See*—
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Richter, Ekkehard: *See*—
Juntgen, Harald; Knoblauch, Karl; Richter, Ekkehard; and Kuhl, Helmut, 5,064,801, Cl. 502-180.000.

Richter, Simon J.; and Hohmann, Frank G., to Coca-Cola Company, The. Five gallon nestable plastic syrup container. 5,064,101, Cl. 222-143.000.

Ricker, Ernst: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Ricoh Company, Ltd.: *See*—
Hishida, Hiroshi, 5,065,254, Cl. 358-400.000.
Hosoi, Masatoshi; Ichinose, Tsutomu; Shimada, Masashi; Umeda, Shin; and Yoshino, Hirobumi, 5,064,181, Cl. 270-53.000.
Inokuchi, Toshiyuki; and Baba, Nobuyuki, 5,064,258, Cl. 350-3.710.
Itabashi, Akihisa, 5,064,261, Cl. 359-206.000.
Takemoto, Hiroshi; Murayama, Noboru; and Sato, Kei, 5,065,246, Cl. 358-227.000.
Takiguchi, Yasuyuki; Kanemoto, Akihiko; Iida, Shigeki; and Toyooka, Takehiro, 5,064,697, Cl. 428-1.000.

Ridenour, Ralph G. Refrigerant transducer assembly and method. 5,063,784, Cl. 73-756.000.

Rideout, Janet L.: *See*—
Shaver, Sammy R.; Freeman, George A.; and Rideout, Janet L., 5,064,946, Cl. 536-23.000.

Ried, Robert C.: *See*—
Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., 5,064,151, Cl. 244-160.000.

Riedijk, Frank R.: *See*—
Huijsing, Johan H.; and Riedijk, Frank R., 5,064,296, Cl. 374-163.000.

Riedl, Bernhard, to D. Swarovski & Co. Binocular telescope including a double-jointed bridge and central joint focusing. 5,064,279, Cl. 350-554.000.

Riggi, Michael S. Bird feeder apparatus. 5,063,877, Cl. 119-52.200.

Rikiishi, Tsutomu, to Nagata Seiki Kabushiki Kaisha. Elastic yarn feeding device. 5,063,756, Cl. 66-132.00R.

Riley, Jesse L.: *See*—
Steiner, Thomas L.; Domeshek, Kenneth A.; Stitt, William; Riley, Jesse L.; and Deutsch, Lance J., 5,064,949, Cl. 536-56.000.

Riley, Patrick F. Artificial fish bait. 5,063,703, Cl. 43-42.060.

Ringens, Werner; Schmitz, Franz J.; and Schollmeyer, Eckhard, to Deutsches Texilforschungs-zentrum Nord West e.v. Method of measuring the velocity and/or length of endless webs of textile material and apparatus for carrying out the method. 5,064,280, Cl. 356-28.500.

Risi, Angelo; and Risi, Antonio, to Rothbury Investments Limited. Embankment reinforcing structures. 5,064,313, Cl. 405-284.000.

Risi, Antonio: *See*—
Risi, Angelo; and Risi, Antonio, 5,064,313, Cl. 405-284.000.

Rivier, Catherine L.: *See*—
Rivier, Jean E. F.; Koerber, Steven C.; Hagler, Arnold T.; Rivier, Catherine L.; and Vale, Wylie W., Jr., 5,064,939, Cl. 530-317.000.

Rivier, Jean E. F.; Koerber, Steven C.; Hagler, Arnold T.; Rivier, Catherine L.; and Vale, Wylie W., Jr., to Salk Institute for Biological Studies, The. Cyclic GnRH antagonists. 5,064,939, Cl. 530-317.000.

Rivo, Endre: *See*—
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.

Rizkowski, Keith S.; and Zeidler, David E., to United States of America, Navy. Programmable pulse shaper for sonobouy apparatus. 5,065,370, Cl. 367-3.000.

RJS Industries, Inc.: *See*—
Bennett, Robert A., 5,064,103, Cl. 222-190.000.

Roberge, Ronald O. Method for installing top beam "C" clamps. 5,063,652, Cl. 29-525.200.

Robert Bosch GmbH: *See*—
Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, 5,064,254, Cl. 303-113.0TR.
Burkard, Johannes; and Weltin, Wolfgang, 5,063,774, Cl. 73-146.500.
Duckeck, Ralf; and Bragas, Peter, 5,065,452, Cl. 455-226.000.
Schmid, Hans-Dieter; Hettich, Gerhard; Burkard, Johannes; and Schmierer, Wolfgang, 5,065,134, Cl. 340-442.000.
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Robert Krups Stiftung & Co. KG: *See*—
Matuschek, Manfred, 5,063,838, Cl. 99-307.000.
Precht, Hans-Jurgen, 5,063,837, Cl. 99-295.000.

Roberts, Clifford J.: *See*—
Brazier, Keith; Lee, Andrew L.; and Roberts, Clifford J., 5,064,158, Cl. 248-250.000.

Roberts, George F.: *See*—
Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, 5,064,006, Cl. 175-45.000.

Roberts, Joseph W.: *See*—
Cope, Constantin; Boatman, Scott E.; and Roberts, Joseph W., 5,064,428, Cl. 606-127.000.

Roberts, Lincoln E.: *See*—
Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., 5,064,380, Cl. 439-113.000.
Dale, James L.; Miller, Vernon R.; and Roberts, Lincoln E., 5,064,386, Cl. 439-535.000.

Roberts, Martin C., to Micron Technology, Inc. Method of forming buried contact between polysilicon gate and diffusion area. 5,064,776, Cl. 437-41.000.

Roberts, William P.: *See*—
Havens, Marvin R.; Fowler, Stephen L.; Roberts, William P.; and Ebner, Cynthia L., 5,064,699, Cl. 428-35.700.

Robertson, Jason L.: *See*—
Robertson, Walter W.; and Robertson, Jason L., 5,064,354, Cl. 417-403.000.

Robertson, Walter W.; and Robertson, Jason L. High pressure fluid pump. 5,064,354, Cl. 417-403.000.

Robideaux, Charles E.: *See*—
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Robson, John H.: *See*—
Soo, Hwaili; Ream, Bernard C.; and Robson, John H., 5,064,804, Cl. 502-335.000.

Rockwell International Corporation: *See*—
Deasy, Richard E., 5,065,164, Cl. 343-749.000.
Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., 5,063,680, Cl. 33-397.000.

Rockx, Ludwig G., to Plaatwerkerij D.W. Slotboom B.V. Processing booth with variable ventilation. 5,063,835, Cl. 98-115.200.

Roderick, Craig A.: *See*—
Collins, Kenneth S.; and Roderick, Craig A., 5,065,118, Cl. 333-33.000.

Rogers, Charles J.; Kornel, Alfred; and Sparks, Harold L., to United States of America, Environmental Protection Agency. Method for the base-catalyzed decomposition of halogenated and non-halogenated organic compounds in a contaminated medium. 5,064,526, Cl. 208-262.500.

Rogers Corporation: *See*—
Hernandez, Jorge M.; and Simpson, Scott, 5,065,281, Cl. 361-388.000.
Hernandez, Jorge M., 5,065,284, Cl. 361-414.000.

Rogers, Edward G.; and Litvak, Herbert E., to Xinix, Inc. Light collection method and apparatus. 5,064,269, Cl. 385-115.000.

Rogers, Raymond W.; and Harnesberger, William F., to Standex International Corporation. Air filter for cooking apparatus. 5,063,906, Cl. 126-299.00D.

Roggero, Arnaldo; Andrei, Maria; Passerini, Stefano; and Scrosati, Bruno, to 501 Eniricerche S.p.A. Solid polymeric electrolyte. 5,064,548, Cl. 252-62.200.

Rohm Co., Ltd.: *See*—
Nao, Yuji; and Yamazaki, Koichi, 5,065,078, Cl. 318-16.000.

Rohm and Haas Company: *See*—
Hsu, Adam C.; and Loughner, Daniel L., 5,064,845, Cl. 514-364.000.

Rohrer, Christoph; and Schmidlin, Hans, to Hans Schmidlin. Method for handling and further processing a honeycomb band. 5,063,647, Cl. 29-6.100.

Rohringer, Peter, to Ciba-Geigy Corporation. Dispersion fluorescent brightener preparations. 5,064,570, Cl. 252-301.210.

Rohrle, Dieter: *See*—
Graton, Michel; and Rohrle, Dieter, 5,064,041, Cl. 192-106.200.

Roller, Hermann: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Rollett, John M., to British Telecommunications public limited company. Pattern recognition using stored n-tuple occurence frequencies. 5,065,431, Cl. 381-43.000.

Rolls-Royce, plc: *See*—
Jackson, Nigel P.; and Virr, Geoffrey P., 5,063,733, Cl. 60-39.750.
Richards, Martyn, 5,064,025, Cl. 184-6.120.

Romansky, Michael E., to Westinghouse Air Brake Company. Electropneumatic air brake control system for railway vehicles. 5,064,251, Cl. 303-3.000.

Romberg, Val: *See*—
Alexander, Barbara; Kiang, Patty H.; Lusch, Richard; and Romberg, Val, 5,064,083, Cl. 215-247.000.

Roos, William N.; and Blatnik, Frank A., to Autotrol Corporation. Pellet dispensing unit. 5,064,094, Cl. 221-265.000.

Root-Lowell Corporation: *See*—
Feyen, Robert G., 5,064,170, Cl. 251-344.000.

Rosemount Limited: *See*—
Williams, Timothy D. N., 5,065,152, Cl. 340-825.360.

Rosenquist, Niles R.; and Bostick, Edgar E., to General Electric Company. Method of branching polyesters. 5,064,914, Cl. 525-439.000.

Ross, Brian P.: *See*—
Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., 5,064,151, Cl. 244-160.000.

Ross, Gilbert W.; Baker, Scott C.; and Demant, Svend, to U.S. Tap, Inc. Vacuum breaker for bidet. 5,063,619, Cl. 4-443.000.

Rossberg, Rolf, to Alcatel N.V. Method of manufacturing an optical fused-fiber coupler and the coupler manufactured thereby. 5,064,267, Cl. 385-50.000.

Roth, Maxim; Godwin, Jimmy D.; and Williams, Roger O., to Insite Peripherals, Inc. Method and apparatus for generating tracking error signals by means of an optical servo system. 5,065,387, Cl. 369-44.410.

Roth, Rudolf; and Van Der Zande, Paulus C. M., to U.S. Philips Corporation. Method and apparatus for recording on a record carrier a table of contents identifying all the recorded data signals. 5,065,388, Cl. 369-47.000.

Roth, Rudolf, to U.S. Philips Corporation. Information recording and read device, information recording device, and record carrier obtained by means of one of the device. 5,065,389, Cl. 369-48.000.

Rothbury Investments Limited: *See*—
Risi, Angelo; and Risi, Antonio, 5,064,313, Cl. 405-284.000.

Rothmans International Tobacco (UK) Limited: *See*—
Parker, Michael P., 5,063,944, Cl. 131-109.200.

Rouillard, Carol, to Diversey Corporation. Two-part clean-in-place system. 5,064,561, Cl. 252-174.120.

Round, Rhyta: *See*—
Dixit, Nagaraj; Shevade, Makarand; and Round, Rhyta, 5,064,553, Cl. 252-94.000.

Roussel Uclaf: *See*—
Brayer, Jean-Louis; Taliani, Laurent; and Tessier, Jean, 5,064,861, Cl. 514-617.000.
Gasc, Jean-Claude; Humbert, Daniel; and Vekens, Mario, 5,064,853, Cl. 514-419.000.
Philibert, Daniel; Teutsch, Jean G.; Costerousse, Germain; and Deraedt, Roger, 5,064,822, Cl. 514-172.000.

Rowell, Geoffrey D., to Tatham Cutlery Manufacturing Company Pty Limited. Vegetable slicer. 5,063,674, Cl. 30-305.000.

Rozdilsky, Walter: *See*—
Garrity, George M.; Giacobbe, Robert; Greenspan, Michael D.; Hensens, Otto D.; Joshua, Henry; Matas, Maria T. D.; Martin, Isabel; Milligan, James A.; del Val, Sagrario M.; Rozdilsky, Walter; Onishi, Janet C.; and Liesch, Jerrold M., 5,064,856, Cl. 514-462.000.

Rubin, David, to Century Laboratories, Incoporated. Lubricant compositions for metals containing dicarboxylic acids as a major constituent. 5,064,547, Cl. 252-56.00R.

Ruckes, Andreas: *See*—
Grogler, Gerhard; Thiery, Urs; Ruckes, Andreas; Kopp, Richard; and Hess, Heinrich, 5,064,875, Cl. 521-159.000.

Rudakov, Ivan P.: *See*—
Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A., 5,064,003, Cl. 173-106.000.

Ruddy, Francis H.; Lippincott, Ezra P.; Fero, Arnold H.; Schreiber, Roger B.; and Seidel, John G., to Westinghouse Electric Corp. Apparatus for determining the thermal history of equipment using solid state track recorders. 5,064,605, Cl. 376-247.000.

Ruegg, Max: *See*—
Fahrni, Heinz; and Ruegg, Max, 5,063,962, Cl. 137-487.000.

Rule, Mark: *See*—
Fagerburg, David R.; Watkins, Joseph J.; Lawrence, Paul B.; and Rule, Mark, 5,064,937, Cl. 528-389.000.

Rupich, Martin W., to Gas Research Institute. Measuring gas levels. 5,064,516, Cl. 204-153.100.

Rupprecht, Bernd; and Baumgartner, Reinhard, to Deutsche Perrot-Bremse GmbH. Spreading-wedge device, particularly for motor-vehicle brakes. 5,064,034, Cl. 188-343.000.

Rushing, Allen J., to Eastman Kodak Company. Obtaining color balance for optical copiers by setting the exposure and primary voltage for each color. 5,065,199, Cl. 355-326.000.

Rushing, Tom: *See*—
Hauber, David E.; Jacobs, Monica; Davis, W. Richard; Rushing, Tom; and Fanara, Robert A., 5,064,113, Cl. 229-8.000.

Rutgers Research and Educational Foundation: *See*—
Simon, Lee D.; and Fay, Rose B., 5,064,757, Cl. 435-71.200.

Rutschmann, Erwin; and Breuer, Hans-Georg, to Dr. Ing. h.c.F. Porsche AG. Air intake system of an internal-combustion engine. 5,063,884, Cl. 123-52.00M.

Ryll, Juergen; Gerst, Michael; and Schwager, Michael, to AMP Incorporated. Printed circuit board contact. 5,064,379, Cl. 439-81.000.

Ryobi Ltd.: *See*—
Shiotani, Takeshi; and Miyamoto, Kouichi, 5,063,802, Cl. 83-98.000.

Ryoka Techno Engineering & Construction Co.: *See*—
Tanimura, Masatake; Tamura, Masao; and Teshima, Takashi, 5,064,539, Cl. 210-659.000.

S. C. Johnson & Son, Inc.: *See*—
Aiello, Salvatore F.; Lazzeroni, Edward J., Sr.; Ouella, John F.; Ouella, Cyril; Maurino, William J.; Karasek, Donald F.; and Brown, Jeffrey K., 5,064,123, Cl. 239-706.000.

SA Marine AB: *See*—
Olsson, Thord; Ohrwall, Tomas; and Gustavsson, Mats, 5,063,850, Cl. 102-402.000.

Sacchi, Fabrizio: *See*—
Zuffada, Maurizio; and Sacchi, Fabrizio, 5,065,240, Cl. 358-160.000.

Sachrison, Steven A.: *See*—
Shekleton, Jack R.; Sachrison, Steven A.; and Sledd, Michael W., 5,063,745, Cl. 60-737.000.

Sagami Chemical Research Center: *See*—
Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, 5,064,564, Cl. 25.2-299.610.

Sahm, William C., to Caterpillar, Inc. Automatic excavation control system and method. 5,065,326, Cl. 364-424.070.

St. George, George M.: *See*—
Walters, Marlin E.; St. George, George M.; and Richey, W. Frank, 5,064,518, Cl. 204-57.990.

St. John, Richard C. Adjustable locked center and dynamic tensioner. 5,064,405, Cl. 474-133.000.

St. Jude Medical Incorporated: *See*—
Gilbertson, Charles H.; Nettekoven, William S.; and Cater, Mark W., 5,064,431, Cl. 623-2.000.

St. Louis, Ellwyn: *See*—
Ward, Walter J.; St Louis, Ellwyn; and Ward, Frederick A., 5,063,617, Cl. 4-251.000.

St. Phillips, Eric A.: *See*—
Herrington, F. John; and St. Phillips, Eric A., 5,063,644, Cl. 24-400.000.

Sainte, Robert L.; Sarns, Steven E.; and Frank, Steven R., to Walker Fitness Systems, Inc. Automatic force generating and control system. 5,064,193, Cl. 272-130.000.

Saito, Akira: *See*—
Araki, Kenji; Miyamae, Jyunichi; Kobayashi, Takashi; and Saito, Akira, 5,064,029, Cl. 188-267.000.

Saito, Kazuhiko: *See*—
Iwai, Kazuhiro; Matsubayashi, Shinji; Ariga, Ikuo; and Saito, Kazuhiko, 5,064,016, Cl. 180-215.000.

Saito, Mitsuru, to Janome Sewing Machine Co. Ltd. Device for lining up parts. 5,064,049, Cl. 198-399.000.

Saito, Osamu; Yagi, Norihiko; and Ito, Yoshinori, to Tokai Kogyo Co., Ltd. Glass frit useful for the preparation of glass bubbles, and glass bubbles prepared by using it. 5,064,784, Cl. 501-33.000.

Saito, Tadayuki: *See*—
Motani, Shigeru; Saito, Tadayuki; and Ito, Toshiya, 5,064.874, Cl. 521-146.000.

Saitoh, Hiroshi; Nagatomo, Michio; and Nagasaka, Hideo, to Onoda Cement Co., Ltd. Heat fixing roll for copying machine, method of producing the same and electronic copying machine provided with the same. 5,065,193, Cl. 355-290.000.

Sakagami, Masahiko; and Kawai, Hideki, to Matsushita Electric Industrial Co., Ltd. Arbiter circuit using plural-reset RS flip-flops. 5,065,052, Cl. 307-480.000.

Sakaguchi Dennetsu Kabushiki Kaisha: *See*—
Watanabe, Toru, 5,064,996, Cl. 219-390.000.

Sakaguchi, Masakazu: *See*—
Suzuki, Toshimitsu; Sakaguchi, Masakazu; Miyata, Yoshiyuki; and Mori, Tomoyuki, 5,064,849, Cl. 514-383.000.

Sakaguchi, Shigeki: *See*—
Sun, Cheng-ko J.; Sumida, Shin; Sakaguchi, Shigeki; and Miyashita, Tadashi, 5,064,266, Cl. 385-132.000.

Sakai, Kazuyasu: *See*—
Sasaki, Akira; Sakai, Kazuyasu; and Suzuki, Katsuyoshi, 5,065,432, Cl. 381-61.000.

Sakakibara, Katsunori; Otsuki, Hajime; Ishii, Kenjiro; and Kokura, Yasuhide, to Minolta Camera Kabushiki Kaisha. Microfilm reader-printer. 5,065,179, Cl. 355-45.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Sakakibara, Mitsuhiko: *See*—
Hattori, Iwakazu; Sakakibara, Mitsuhiko; Tsutsumi, Fumio; and Yoshizawa, Masao, 5,064,910, Cl. 525-359.100.

Sakakibara, Shigeru, to Inax Corporation. Method of driving an automatic on-off valve for a water passageway. 5,063,955, Cl. 137-1.000.

Sakamoto, Katsuhiko: *See*—
Umesato, Shoji; Okada, Yoshikatsu; and Sakamoto, Katsuhiko, 5,064,390, Cl. 439-721.000.

Sakamoto, Yukiya: *See*—
Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, 5,064,920, Cl. 526-249.000.

Sakata, Akira: *See*—
Imai, Shin-ichi; and Sakata, Akira, 5,065,056, Cl. 307-540.000.

Sakata, Haruyasu: *See*—
Tateishi, Kiyoshi; and Sakata, Haruyasu, 5,065,383, Cl. 369-44.280.

Sakita, Kikuo: *See*—
Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, 5,065,283, Cl. 361-407.000.

Sakuma, Atsushi: *See*—
Shimizu, Koji; and Sakuma, Atsushi, 5,064,924, Cl. 528-15.000.

Salas, Lucia: *See*—
Lin, Samuel; Khan, Gaznabi; Salas, Lucia; and Policello, George, 5,064,544, Cl. 252-88.000.

Salazar, Jorge R. Fingerboard for a fretted and stringed instrument. 5,063,818, Cl. 84-314.00R.

Salco Products Inc.: *See*—
Schultz, Francis R., 5,064,089, Cl. 220-372.000.

Salfeld, E.-Peter: *See*—
Kaiser, Winfried; Schober, Andreas; and Salfeld, E.-Peter, 5,065,154, Cl. 340-825.520.

Salk Institute for Biological Studies, The: *See*—
Rivier, Jean E. F.; Koerber, Steven C.; Hagler, Arnold T.; Rivier, Catherine L.; and Vale, Wylie W., Jr., 5,064,939, Cl. 530-317.000.

Salomon S.A.: *See*—
Diard, Jean-Luc; Grandjacques, Philippe; and Recher, Gilles, 5,064,214, Cl. 280-607.000.
Morell, Joseph; and Benoit, Louis, 5,063,693, Cl. 36-121.000.

Salsman, Lloyd N.; and Hoy, Leslie D., to Charles Machine Works, Inc., The. System for locating concealed underground objects using digital filtering. 5,065,098, Cl. 324-326.000.

Saly, Udi E., to Flexible Environmental Systems, Inc. Solid waste reclamation and processing method. 5,063,862, Cl. 110-346.000.

Samejima, Kazuo; Murakawa, Masatake; Kitamura, Junichi; Matsuda, Yoshiaki; and Fulford, Colin, to Kubota Corporation. Blower. 5,064,315, Cl. 406-100.000.

Samilo, John S.: *See*—
Zeiffer, Dieter F.; and Samilo, John S., 5,063,646, Cl. 28-167.000.

Sammells, Anthony F.: *See*—
Krist, Kevin; and Sammells, Anthony F., 5,064,733, Cl. 429-17.000.

Samsung Electronics Co., Ltd.: *See*—
Jang, Hyeon-Sun, 5,065,049, Cl. 307-443.000.
Jin, Park T., 5,065,239, Cl. 358-148.000.

Samuels, James T.; and Ellsworth, Roger D., to Eastman Kodak Company. Processor with speed independent fixed film spacing. 5,065,173, Cl. 354-298.000.

San-Apro Limited: *See*—
Nakasugi, Nobuyasu, 5,064,957, Cl. 544-86.000.

Sanchez, Samuel O., Jr.: *See*—
Davis, Steven D.; and Sanchez, Samuel O., Jr., 5,064,093, Cl. 221-222.000.

Sandaiji, Hideto; Ikeda, Koji; and Onishi, Yuji, to NGK Insulators, Ltd. Method of producing a core for a magnetic head. 5,063,653, Cl. 29-603.000.

Sandbrand, Alexander, to Technical Telephone Systems, Inc. Video switch exchange with blackout time control. 5,065,151, Cl. 340-825.220.

Sanden Corporation: *See*—
Kiyoshi, Terauchi, 5,064,352, Cl. 417-222.00S.

Sanderson, Michael L.; and Heritage, John R., to Severn Trent Water Limited. Fluid flow meters. 5,063,786, Cl. 73-861.190.

Sandgren, Maria E.: *See*—
DeLuca, Hector F.; and Sandgren, Maria E., 5,064,770, Cl. 436-542.000.

Sando, Mutsuo; and Awano, Masanobu, to Agency of Industrial Science and Technology; and Ministry of International Trade and Industry. Method for coating surface of inactive granules. 5,064,690, Cl. 427-215.000.

Sandor, Steven P.: *See*—
Sutton, Tod A.; Jacob, Karl V.; Lim, Timothy; and Sandor, Steven P., 5,064,582, Cl. 264-37.000.

Sandoz Ltd.: *See*—
Houlihan, William J., 5,064,816, Cl. 514-77.000.

Sands, Andrew: *See*—
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.

Sands, Thomas J.: *See*—
Carr, Anthony H.; Badley, Robert A.; Jobling, Ian; and Sands, Thomas J., 5,064,756, Cl. 435-32.000.

Sandvik AB: *See*—
Lundell, Lars-Gunnar, 5,064,004, Cl. 173-132.000.

Sankyo Company Limited: *See*—
Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, 5,064,760, Cl. 435-118.000.

Sankyo Rikagaku Co., Ltd.: *See*—
Okajima, Hiroshi; and Sudo, Susumu, 5,064,445, Cl. 51-293.000.

Sano, Kiyoshi: *See*—
Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, 5,064,346, Cl. 416-178.000.

Sano, Masafumi: *See*—
Kawamura, Hideaki; Fujibayashi, Kentaro; and Sano, Masafumi, 5,065,333, Cl. 364-474.310.

Sanshin Kogyo Kabushiki Kaisha: *See*—
Inoue, Seiji, 5,064,393, Cl. 440-77.000.

Santa Barbara Research Center: *See*—
Eck, Robert E.; and Schroeder, Thaddeus, 5,065,130, Cl. 338-32.00R.
Kern, Mark T.; Wetzork, John M.; Shamordola, Kenneth A.; and Tangonan, Gregory L., 5,064,271, Cl. 385-33.000.

Santambrogio, Angelo, to PAF S.r.l. Study lamp. 5,065,297, Cl. 362-413.000.

Santilli, Domenic: *See*—
Rakov, David M.; and Santilli, Domenic, 5,064,738, Cl. 430-117.000.

Sanyo Electric Co., Ltd.: *See*—
Haruki, Toshinobu, 5,065,247, Cl. 358-228.000.
Ishiguro, Kazuhisa; and Sato, Yasunori, 5,065,112, Cl. 330-260.000.
Kiyama, Seiichi; and Hirano, Hitoshi, 5,064,682, Cl. 427-38.000.

Sanyo-Kokusaku Pulp Co., Ltd.: *See*—
Yabe, Norio; Iijima, Takeshi; Itaya, Kazunori; and Takano, Masahide, 5,065,174, Cl. 354-222.000.

Sapse, Alfred T., to Spectrum Pharmaceutical Corporation. Protected complex of procaine for the treatment of symptoms from narcotics addiction, tinnitus and Alzheimer's disease. 5,064,858, Cl. 514-536.000.

Sara Lee Corporation: *See*—
Hauber, David E.; Jacobs, Monica; Davis, W. Richard; Rushing, Tom; and Fanara, Robert A., 5,064,113, Cl. 229-8.000.

Sarges, Reinhard: *See*—
Howard, Harry R., Jr.; and Sarges, Reinhard, 5,064,852, Cl. 514-409.000.

Sarig, Sara: *See*—
Karasikov, Nir; and Sarig, Sara, 5,064,765, Cl. 436-4.000.

Sarkozi, Peter: *See*—
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.

Sarns, Steven E.: *See*—
Sainte, Robert L.; Sarns, Steven E.; and Frank, Steven R., 5,064,193, Cl. 272-130.000.

Sartorius AG: *See*—
Melcher, Franz-Josef; Pertsch, Thomas; Spannagel, Wilfried; and Oldendorf, Christian, 5,064,009, Cl. 177-245.000.

Sasaki, Akira; Sakai, Kazuyasu; and Suzuki, Katsuyoshi, to Kabushiki Kaisha Toshiba. Sound effect system. 5,065,432, Cl. 381-61.000.

Sasaki, Ichiro: *See*—
Ito, Yousuke; and Sasaki, Ichiro, 5,065,342, Cl. 395-134.000.

Sasaki, Isao; Nishida, Kozi; and Anzai, Hisao, to Mitsubishi Rayon Company, Limited. Methacrylimide containing polymer. 5,064,911, Cl. 525-378.000.

Sasaki, Isao: *See*—
Hirayama, Shigemitsu; Akashi, Takamichi; Ikuta, Akio; Sasaki, Isao; and Fukuda, Hiroshi, 5,064,529, Cl. 210-90.000.

Sasaki, Nobuo: *See*—
Kuragano, Tetsuzo; Suzuki, Akira; and Sasaki, Nobuo, 5,065,348, Cl. 364-119.000.

Sasaki, Shosaku; and Masaoka, Hiroshi, to Toray Silicone Company, Ltd. Organopolysiloxane composition for the formation of a cured release film. 5,064,916, Cl. 525-478.000.

Sasaki, Shosaku: *See*—
Hamada, Yuji; Sasaki, Shosaku; and Masaoka, Hiroshi, 5,064,876, Cl. 522-99.000.

Sasaki, Toyoshige: *See*—
Oda, Hitoshi; Ono, Takeo; Sasaki, Toyoshige; Yoneda, Kou; and Miyawaki, Mamoru, 5,065,378, Cl. 369-14.000.

Sasamoto, Hideho: *See*—
Iizuka, Tetsuo; Jin, Tokiji; and Sasamoto, Hideho, 5,063,864, Cl. 112-121.290.

Sata, Ichiko: *See*—
Kugimiya, Shuzo; Fukumochi, Yoji; Sata, Ichiko; Hirai, Tokuyuki; and Suzuki, Hitoshi, 5,065,318, Cl. 364-419.000.

Satin, Richard: *See*—
Chernuchin, Michael; and Satin, Richard, 5,063,615, Cl. 2-338.000.

Sato, Haruki: *See*—
Suzuki, Fumio; Habara, Hideaki; Fukuda, Yutaro; Sato, Haruki; and Inada, Hiromasa, 5,064,938, Cl. 528-491.000.

Sato, Hiroaki: *See*—
Itoh, Shinichi; Sato, Hiroaki; and Taniguchi, Masayuki, 5,065,187, Cl. 355-215.000.

Sato, Jun, to Shimano Industrial Company, Limited. Fishing reel having improved cover and seal structure for a drag mechanism. 5,064,138, Cl. 242-268.000.

Sato, Kei: *See*—
Takemoto, Hiroshi; Murayama, Noboru; and Sato, Kei, 5,065,246, Cl. 358-227.000.

Sato, Koji; and Watanabe, Rikizo, to Hitachi Metals, Ltd. Heat resistant steel for use as material of engine valve. 5,064,610, Cl. 420-57.000.

Sato, Kozo: *See*—
Katoh, Kazunobu; Sato, Kozo; and Shiba, Keisuke, 5,064,752, Cl. 430-546.000.

Sato, Kuniaki: *See*—
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Sato, Mamoru: *See*—
Suzuki, Yoshiyuki; Funada, Masahiro; Sato, Mamoru; and Sato, Yukio, 5,065,446, Cl. 382-56.000.

Sato, Masamitu; and Tanishima, Masami, to Nihon Kohden Corporation. Internal pressure measuring device using catheter with multiple lumens. 5,063,936, Cl. 128-674.000.

Sato, Yasunori: *See*—
Ishiguro, Kazuhisa; and Sato, Yasunori, 5,065,112, Cl. 330-260.000.

Sato, Yoichi; and Mizukami, Masao, to Hitachi, Ltd.; and Hitachi VLSI Engineering Corp. Semiconductor storage device. 5,065,363, Cl. 365-154.000.

Sato, Yukio: *See*—
Suzuki, Yoshiyuki; Funada, Masahiro; Sato, Mamoru; and Sato, Yukio, 5,065,446, Cl. 382-56.000.

Satoh, Ikumi; Nakano, Jun; Harada, Riichiroh; and Koba, Tatsuhiko, to Kabushiki Kaisha Yasakawa Denki Seisakusho. EIEC tromagnetic actuator for valve stem. 5,065,061, Cl. 310-104.000.

Satoh, Kohichi: *See*—
Itagaki, Takaharu; Shiraga, Mitsuaki; Sawayama, Shigeru; and Satoh, Kohichi, 5,064,909, Cl. 525-340.000.

Satoh, Shinichi: *See*—
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.

Satoh, Tsuyoshi: *See*—
Yahagi, Toshio; Iwagawa, Yoshihiro; Sugimoto, Yoichi; and Satoh, Tsuyoshi, 5,065,327, Cl. 364-426.020.

Satoh, Yuji: *See*—
Otsuka, Masuhiro; Kono, Hiromi; Satoh, Yuji; and Soda, Hiroyuki, 5,064,039, Cl. 192-0.052.

Satterlee, Lowell D.: *See*—
Klopfenstein, Terry J.; Satterlee, Lowell D.; Britton, Robert A.; and Cleale, Ralph N., 5,064,665, Cl. 426-2.000.

Sattler, Hans-Peter: *See*—
Braun, Egon; Kling, Albert; Heil, Karl; and Sattler, Hans-Peter, 5,064,076, Cl. 209-700.000.

Sauer, Heinz: *See*—
Spors, Ralf; Wachter, Gerhard; Hohmann, Ralf; and Sauer, Heinz, 5,064,227, Cl. 285-319.000.

Sauter, Hubert: *See*—
Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, 5,064,828, Cl. 514-239.500.

Sawada, Yoshiaki; Kageyama, Yoshiteru; and Teramoto, Tadashi, to Mitsubishi Petrochemical Company Limited. Process for producing ultrafine metal particles. 5,064,464, Cl. 75-347.000.

Sawayama, Shigeru: *See*—
Itagaki, Takaharu; Shiraga, Mitsuaki; Sawayama, Shigeru; and Satoh, Kohichi, 5,064,909, Cl. 525-340.000.

Scales, Paul J.: *See*—
Buscall, Richard; Scales, Paul J.; Williams, Serena J.; and Newton, Jill E., 5,064,718, Cl. 428-407.000.

Scandinavian Natural Resources Development HB: *See*—
Jensen, Eigil; Olsson, N. Urban; Kaufmann, Peter; and Hagman, Anders, 5,064,675, Cl. 426-597.000.

Scarpelli, Joseph A., to Eurand America, Inc. High solids, low viscosity carbonless paper gelatin base microcapsule system. 5,064,470, Cl. 106-21.000.

Schafer, Walter: *See*—
Kohler, Burkhard; Uerdingen, Walter; Wehnert, Wolfgang; Schmidt, Manfred; Schafer, Walter; and Reinking, Klaus, 5,064,884, Cl. 524-114.000.

Schaible, Walter; and Wierschem, Franz-Rudolf, to Dr. Ing. h.c.F. Porsche AG. Arrangement for locking an adjustable safety steering column for motor vehicles. 5,064,219, Cl. 280-775.000.

Schap, William W., to ITT Corporation. Power drive for sliding door. 5,063,710, Cl. 49-280.000.

Scharf, Brad W.: *See*—
Lapham, Jerome F.; and Scharf, Brad W., 5,065,214, Cl. 357-43.000.

Schechter, Michael M., to Ford Motor Company. Solenoid valve with high flow capacity and low energy consumption. 5,064,166, Cl. 251-129.150.

Scheffler, Ingolf: *See*—
Duck, Edward W.; Scheffler, Ingolf; and Hirthammer, Michael, 5,064,494, Cl. 156-273.500.

Schellhorn, Franz: *See*—
Hirschmann, Guenther; Waitl, Guenter; and Schellhorn, Franz, 5,064,299, Cl. 385-33.000.

Schenk, Heinrich, to Siemens Aktiengesellschaft. Process and circuit arrangement for digital control of the phase of scanning clock pulses. 5,065,412, Cl. 375-111.000.

Schering Agrochemicals Limited: *See*—
O'Mahony, Mary J.; and Willis, Robert J., 5,064,844, Cl. 514-359.000.

Schering Aktiengesellschaft: *See*—
Hubl, Dieter; and Pieroh, Ernst, 5,064,847, Cl. 514-380.000.
Huth, Andreas; Schmiechen, Ralph; Wachtel, Helmut; and Schneider, Herbert H., 5,064,854, Cl. 514-424.000.
Kallweit, Manfred; and Blasing, Horst, 5,063,950, Cl. 134-64.00R.

Schering Corporation: *See*—
McCombie, Stuart W., 5,064,837, Cl. 514-312.000.

Scheuble, Bernhard: *See*—
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, 5,064,567, Cl. 252-299.610.
Geelhaar, Thomas; Wachtler, Andreas; and Scheuble, Bernhard, 5,064,569, Cl. 252-299.650.
Hopf, Reinhard; Scheuble, Bernhard; Hittich, Reinhard; Krause, Joachim; Reiffenrath, Volker; Poetsch, Eike; Geelhaar, Thomas; and Eidenschink, Rudolf, 5,064,566, Cl. 252-299.610.

Schillinger, Wolfgang: *See*—
Halssig, Andreas; Schillinger, Wolfgang; and Breithaupt, Hans, 5,063,847, Cl. 102-271.000.

Schindler, Donald R.: *See*—
Jones, Marshall G.; Schindler, Donald R.; Johnson, Jeffrey D.; and Harris, William O., 5,064,992, Cl. 219-121.630.

Schlenker, Theodore R., to Dana Corporation. Return tube arrangement for ball screw assembly. 5,063,809, Cl. 74-459.000.

Schlichtig, Karl: *See*—
Winkelmann, Siegfried; Schlichtig, Karl; and Breisch, Harald, 5,063,904, Cl. 123-559.100.

Schlumberger Technology Corporation: *See*—
Lopez de Cardenas, Jorge E., 5,063,822, Cl. 89-1.150.

Schmid, Hans-Dieter; Hettich, Gerhard; Burkard, Johannes; and Schmierer, Wolfgang, to Robert Bosch GmbH; and Dr. Ing. h.c.F. Porsche AG, a part interest. Type pressure sensor for motor vehicles. 5,065,134, Cl. 340-442.000.

Schmid u. Wezel: *See*—
Kristof, Michael; and Mueller, Josef, 5,064,361, Cl. 418-173.000.

Schmidlin, Hans: *See*—
Rohrer, Christoph; and Schmidlin, Hans, 5,063,647, Cl. 29-6.100.

Schmidt, Alan W.: *See*—
Rice, Thomas A.; Smith, David A.; and Schmidt, Alan W., 5,065,147, Cl. 340-744.000.

Schmidt, Delf: *See*—
Angerbauer, Rolf; Fey, Peter; Hubsch, Walter; Philipps, Thomas; Bischoff, Hilmar; Petzinna, Dieter; and Schmidt, Delf, 5,064,841, Cl. 514-336.000.

Schmidt, Gerd: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Schmidt, Helmut: *See*—
Nass, Rudiger; and Schmidt, Helmut, 5,064,877, Cl. 522-172.000.

Schmidt, Manfred: *See*—
Kohler, Burkhard; Uerdingen, Walter; Wehnert, Wolfgang; Schmidt, Manfred; Schafer, Walter; and Reinking, Klaus, 5,064,884, Cl. 524-114.000.

Schmiechen, Ralph: *See*—
Huth, Andreas; Schmiechen, Ralph; Wachtel, Helmut; and Schneider, Herbert H., 5,064,854, Cl. 514-424.000.

Schmierer, Wolfgang: *See*—
Schmid, Hans-Dieter; Hettich, Gerhard; Burkard, Johannes; and Schmierer, Wolfgang, 5,065,134, Cl. 340-442.000.

Schmillen, Edward E.: *See*—
Duff, David A.; Gove, Daniel S.; and Schmillen, Edward E., 5,064,530, Cl. 210-94.000.

Schmitt, Alfred: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Schmitt-Matzen, Eric J. Hermetically sealed high-pressure solenoid coil and method. 5,065,128, Cl. 335-299.000.

Schmitz, Franz J.: *See*—
Ringens, Werner; Schmitz, Franz J.; and Schollmeyer, Eckhard, 5,064,280, Cl. 356-28.500.

Schneider, Herbert H.: *See*—
Huth, Andreas; Schmiechen, Ralph; Wachtel, Helmut; and Schneider, Herbert H., 5,064,854, Cl. 514-424.000.

Schneider, Karl F., to Borg-Warner Automotive, Inc. Adaptive torsional damping device for a continuously variable transmission. 5,064,036, Cl. 192-0.032.

Schneider, Ken C.: *See*—
Follstaedt, Donald W.; King, Edward L.; and Schneider, Ken C., 5,063,990, Cl. 164-463.000.

Schneider, Peter; Ramos, Gerardo; and Bersier, Jacques, to Ciba-Geigy Corporation. Process for the manufacture of 4-acylamino-3-hydroxybutyric acid esters. 5,064,761, Cl. 435-135.000.

Schneider (USA) Inc.: *See*—
Porter, Christopher H., 5,064,435, Cl. 623-12.000.

Schober, Andreas: *See*—
Kaiser, Winfried; Schober, Andreas; and Salfeld, E.-Peter, 5,065,154, Cl. 340-825.520.

Schoen, William: *See*—
Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., 5,064,825, Cl. 514-221.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Schoenig, Frederick C., Jr.: *See—*
Landry, James D.; Joyce, Mark A.; Young, John D.; Gilmore, Robert S.; and Schoenig, Frederick C., Jr., 5,063,779, Cl. 73-622.000.
Landry, James D.; Schoenig, Frederick C., Jr.; and Young, John D., 5,063,780, Cl. 73-622.000.
Schollmeyer, Eckhard: *See—*
Ringens, Werner; Schmitz, Franz J.; and Schollmeyer, Eckhard, 5,064,280, Cl. 356-28.500.
Scholz, James P., to AMP Incorporated. Assembly with self-regulating temperature heater perform for terminating conductors and insulating the termination. 5,064,978, Cl. 219-9.500.
Schomann, Klaus D.: *See—*
Acker, Michael; Neumann, Peter; Albert, Bernhard; Brosius, Sibylle; Schomann, Klaus D.; and Kuppelmaier, Harald, 5,064,702, Cl. 428-64.000.
Schon & Cie. AG: *See—*
Loffler, Tilo, 5,063,629, Cl. 12-12.400.
Schon, Norbert: *See—*
Buysch, Hans-Josef; Schon, Norbert; Eichenauer, Herbert; Ott, Karl-Heinz; and Pischtschan, Alfred, 5,064,899, Cl. 525-64.000.
Schoonert, Dieter: *See—*
Behringer, Jurgen; Evers, Dieter; and Schoonert, Dieter, 5,065,417, Cl. 378-54.000.
Schoumacher, Carlo: *See—*
Thill, Fernand; and Schoumacher, Carlo, 5,064,295, Cl. 374-139.000.
Schram, Joseph G.: *See—*
Folkins, Jeffrey J.; and Schram, Joseph G., 5,063,875, Cl. 118-651.000.
Schreiber, Roger B.: *See—*
Ruddy, Francis H.; Lippincott, Ezra P.; Fero, Arnold H.; Schreiber, Roger B.; and Seidel, John G., 5,064,605, Cl. 376-247.000.
Schreiner nee Kovats, Eniko : *See—*
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.
Schroeder, Christine: *See—*
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.
Schroeder, Thaddeus: *See—*
Eck, Robert E.; and Schroeder, Thaddeus, 5,065,130, Cl. 338-32.00R.
Schroter, Hans J.: *See—*
Kubiak, Helmut; Schroter, Hans J.; Gappa, Gunther; Kalwitzki, Heinrich; and Knop, Klaus, 5,064,444, Cl. 48-202.000.
Schulman, Marvin: *See—*
Tan, Chee-Teck; Kang, Young C.; Sudol, Marion A.; King, Chwan K.; and Schulman, Marvin, 5,064,669, Cl. 426-307.000.
Schulte, Gary R.: *See—*
Goddard, Carl J.; and Schulte, Gary R., 5,064,851, Cl. 514-406.000.
Schultz, David A. Cutter head assembly. 5,063,980, Cl. 144-223.000.
Schultz, Francis R., to Salco Products Inc. Vented hatch cover. 5,064,089, Cl. 220-372.000.
Schultz, Jerry, to Power Guard. Cast housing encased CATV power supply unit. 5,065,278, Cl. 361-383.000.
Schulz, Harold E.: *See—*
Barringer, James R.; Broemmelsiek, H. Eugene; Gregory, Porter W.; Lanier, Carroll W.; Lee, Raymond; and Schulz, Harold E., 5,064,867, Cl. 521-50.500.
Schumann, Robert N.: *See—*
Brandes, Joseph F.; and Schumann, Robert N., 5,064,556, Cl. 252-135.000.
Schuster, Ludwig; Hettche, Albert; Liedy, Werner; Weiss, Stefan; and Ehemann, Leo, to BASF Aktiengesellschaft. Oxidized polyethylene and use as lubricant for polyvinylchloride. 5,064,908, Cl. 525-333.800.
Schutte, Reinhard E. Belt conveyor pulley. 5,064,406, Cl. 474-166.000.
Schwab, Ekkehard: *See—*
Mueller, Michael W.; Schwab, Ekkehard; Auweter, Helmut; Feser, Rainer; Boettcher, Bernhard; Mueller, Norbert; and Kochanek, Wolfgang, 5,064,549, Cl. 252-62.510.
Schwager, Michael: *See—*
Ryll, Juergen; Gerst, Michael; and Schwager, Michael, 5,064,379, Cl. 439-81.000.
Schwalm, Reinhold, to BASF Aktiengesellschaft. Radiation-sensitive mixture for photosensitive coating materials and the production of relief patterns and relief images. 5,064,746, Cl. 430-270.000.
Schwartzott, Jack M.: *See—*
Jung, Rolf; Schwartzott, Jack M.; Pieroni, Robert J.; and Tobler, Arnold, 5,063,800, Cl. 83-14.000.
Sciangola, Deborah A., to Essex Specialty Products, Inc. Latent catalysts comprising bismuth carboxylates and zirconium carboxylates. 5,064,871, Cl. 521-124.000.
Scifres, Donald R.; and Endriz, John G., to Spectra Diode Laboratories, Inc. Pulse jitter reduction method for a laser diode or array. 5,065,401, Cl. 372-38.000.
SCM Chemicals, Inc.: *See—*
Bonsack, James P., 5,064,632, Cl. 423-493.000.
SCM Metal Products, Inc.: *See—*
Goobich, Joel; and Cronin, Thomas, III, 5,064,482, Cl. 148-24.000.
Scott, Douglas: *See—*
Ludvik, Stephen; Steel, Victor E.; and Scott, Douglas, 5,065,110, Cl. 330-149.000.
Scott Fetzer Company, The: *See—*
Lackner, John R., 5,064,455, Cl. 55-375.000.
Scott, James J.: *See—*
Frolov, George; Lavelle, Gary; and Scott, James J., 5,065,136, Cl. 340-545.000.
Scott, John C.: *See—*
Ducharme, Stephen P.; Moerner, William E.; Scott, John C.; and Twieg, Robert J., 5,064,264, Cl. 385-130.000.
Scrosati, Bruno: *See—*
Roggero, Arnaldo; Andrei, Maria; Passerini, Stefano; and Scrosati, Bruno, 5,064,548, Cl. 252-62.200.
Seagate Technology, Inc.: *See—*
Hagen, Tracy M., 5,065,268, Cl. 360-104.000.
Mowry, Gregory S., 5,065,094, Cl. 324-207.210.
Wood, Roy L., 5,064,377, Cl. 439-67.000.
SEB S.A.: *See—*
Valente, Daniel; Branrolini, Jean L.; and Volle, Frederic, 5,063,697, Cl. 38-75.000.
Security Tag Systems, Inc.: *See—*
Herman, Fred W., 5,065,137, Cl. 340-572.000.
Lian, Ming R.; and Herman, Fred W., 5,065,138, Cl. 340-572.000.
Seegan, Kimberly E.: *See—*
Frost, John S.; Erickson, Mark R.; Seegan, Kimberly E.; and Boyer, Brent P., 5,065,291, Cl. 362-183.000.
Seeley, David E.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.
Seidel, Joachim; and Stiller, Klaus, to Kortenbach Verwaltungs- und Betiligungsgesellschaft mbH & Co. Self opening umbrella. 5,063,952, Cl. 135-22.000.
Seidel, John G.: *See—*
Ruddy, Francis H.; Lippincott, Ezra P.; Fero, Arnold H.; Schreiber, Roger B.; and Seidel, John G., 5,064,605, Cl. 376-247.000.
Seiden, Paul: *See—*
Hirshorn, James B.; Dake, Timothy W.; Purves, Edward R.; and Seiden, Paul, 5,064,670, Cl. 426-607.000.
Seiko Instruments Inc.: *See—*
—shii, Kazutoshi, 5,065,222, Cl. 357-52.000.
Seikosha Co., Ltd.: *See—*
—Tanaka, Sakae; and Watanabe, Yoshiaki, 5,065,202, Cl. 357-23.700.
Seiler, Hanspeter. Process and apparatus for manufacturing a pleated filter insert. 5,064,598, Cl. 264-230.000.
Seki, Hiroshi: *See—*
Ueda, Tetsuya; Shimamoto, Haruo; Yagoura, Hideya; Seki, Hiroshi; and Teraoka, Yasuhiro, 5,064,706, Cl. 428-131.000.
Seki, Masaki; Takegahara, Takashi; and Kajitani, Akira, to Fanuc, Ltd. Figure element revising method. 5,065,332, Cl. 364-474.220.
Seki, Takayoshi: *See—*
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.
Seki, Teruo: *See—*
Endo, Syuusuke; Aoyama, Naofumi; Yabuuchi, Toshihiko; and Seki, Teruo, 5,054,276, Cl. 359-49.000.
Sekiya, Tetsuo: *See—*
Miyauchi, Teiichi; Soda, Yutaka; and Sekiya, Tetsuo, 5,065,390, Cl. 369-110.000.
Seko, Satoru; and Kunito, Yoshiyuki, to Sony Corporation. Disc memory apparatus. 5,065,382, Cl. 369-44.260.
Self, Daines M., Jr.: *See—*
Klein, David A.; and Self, Daines M., Jr., 5,064,389, Cl. 439-651.000.
Sellars, Ceola. Bath chair. 5,063,621, Cl. 4-568.000.
Semenenko, Leonid M.: *See—*
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.
Senda, Masanobu: *See—*
Ito, Toshiyasu; Funahashi, Toshikazu; Ogisu, Yasuhiko; Takahashi, Shigeyuki; and Senda, Masanobu, 5,064,679, Cl. 427-8.000.
Serafino, Anthony J.: *See—*
Kestenbaum, Ami; and Serafino, Anthony J., 5,064,685, Cl. 427-53.100.
Service Machine Company: *See—*
Green, Peter J., 5,065,142, Cl. 340-660.000.
Sessions, Robert W., to Ferris Mfg. Co. Hydrophilic foam compositions. 5,064,653, Cl. 424-445.000.
Severn Trent Water Limited: *See—*
Sanderson, Michael L.; and Heritage, John R., 5,063,786, Cl. 73-861.190.
Sextant Avionique: *See—*
Arethens, J. P.; and Goumier-Beraud, P., 5,063,777, Cl. 73-178.00H.
SGS-Thomson Microelectronics, Inc.: *See—*
Bryant, Frank R.; and Walters, John L., 5,065,225, Cl. 357-71.000.
SGS-Thomson Microelectronics S.r.l.: *See—*
Frisina, Ferruccio; and Ferla, Giuseppe, 5,065,213, Cl. 357-43.000.
Zuffada, Maurizio; and Sacchi, Fabrizio, 5,065,240, Cl. 358-160.000.
Shabanova, Marina E.: *See—*
Fux, Boris B.; Shabanova, Marina E.; Fedorov, Svyatoslav N.; Krasnopolsky, Jury M.; Mixtais, Uldis Y.; Ermolaev, Evgeny D.; and Gailuma, Mara A., 5,064,758, Cl. 435-89.000.

Shackelford, John R.: *See—*
Murray, Daniel G.; and Shackelford, John R., 5,064,663, Cl. 426-60.000.
Shaffer, Theodore A.: *See—*
Putnam, William H.; and Shaffer, Theodore A., 5,065,309, Cl. 364-419.000.
Shah, Emanuel E. Zero error digital servo system. 5,065,081, Cl. 318-638.000.
Shah, Rajiv R.; and Tran, Toan, to Texas Instruments Incorporated. Integrated bipolar and CMOS transistor with titanium nitride interconnections. 5,065,208, Cl. 357-34.000.
Shah, Rajiv R.: *See—*
Spratt, David; and Shah, Rajiv R., 5,065,209, Cl. 357-34.000.
Shamordola, Kenneth A.: *See—*
Kern, Mark T.; Wetzork, John M.; Shamordola, Kenneth A.; and Tangonan, Gregory L., 5,064,271, Cl. 385-33.000.
Sharp, Brian W.: *See—*
Hart, Terance W.; Vacher, Bernard Y. J.; and Sharp, Brian W., 5,064,843, Cl. 514-346.000.
Sharp Corporation: *See—*
Funada, Fumiaki; Okada, Masako; Kohzaki, Shuichi; Scheuble, Bernhard; and Oyama, Takamasa, 5,064,567, Cl. 252-299.610.
Sharp Kabushiki Kaisha: *See—*
Hirose, Hitoshi; and Togawa, Fumio, 5,065,438, Cl. 382-13.000.
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.
Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, 5,065,087, Cl. 324-71.600.
Koumo, Hideyasu; and Kawawaki, Fumiaki, 5,065,359, Cl. 395-800.000.
Kugimiya, Shuzo; Fukumochi, Yoji; Sata, Ichiko; Hirai, Tokuyuki; and Suzuki, Hitoshi, 5,065,318, Cl. 364-419.000.
Mitsuyama, Akira, 5,065,197, Cl. 355-309.000.
Oogita, Yoshinori, 5,065,084, Cl. 320-48.000.
Oogita, Yoshinori; and Masuzawa, Sigeaki, 5,065,155, Cl. 340-825.560.
Shiraishi, Tomikatsu; and Kawano, Isao, 5,065,357, Cl. 395-200.000.
Yamauchi, Yoshimitsu, 5,065,201, Cl. 357-23.500.
Yokota, Taizo, 5,065,380, Cl. 369-44.120.
Yoshimasu, Toshihiko, 5,065,117, Cl. 333-33.000.
Sharpe, Max H.: *See—*
Simpson, William G.; Sharpe, Max H.; and Hill, William E., 5,064,868, Cl. 521-54.000.
Shaver, Sammy R.; Freeman, George A.; and Rideout, Janet L., to Burroughs Wellcome Co. Therapeutic nucleosides. 5,064,946, Cl. 536-23.000.
Shefsky, Joseph. Portable level sensing apparatus. 5,065,139, Cl. 340-620.000.
Shekleton, Jack R.; Sachrison, Steven A.; and Sledd, Michael W., to Sundstrand Corporation. Turbine engine with pin injector. 5,063,745, Cl. 60-737.000.
Shell Internationale Research Maatschappij B.V.: *See—*
Kallenbach, Rolf; and Lemmert, Karl-Heinz, 5,064,486, Cl. 156-94.000.
Shell Oil Company: *See—*
Chatterjee, Ananda M., 5,064,878, Cl. 523-205.000.
Kooijmans, Petrus G.; Van Der Mark, Johannes M.; and Karzijn, Willem, 5,064,913, Cl. 525-438.000.
Machado, Joseph M., 5,064,901, Cl. 525-92.000.
Ofstein, David E., 5,064,724, Cl. 428-501.000.
Smith, Roy F.; Kelley, John W.; and Korcz, William H., 5,064,485, Cl. 156-69.000.
Stamhuis, Jan E.; Broekhuis, Antonius A.; and Luijk, Pieter, 5,064,905, Cl. 525-237.000.
Van Der Huizen, Adriaan A., 5,064,800, Cl. 502-153.000.
Wellington, Scott L.; Simmons, Jeffrey F.; and Richardson, Edwin A., 5,063,772, Cl. 73-40.700.
Sheng, Tony L. Letter by legal folding basket. 5,064,068, Cl. 206-425.000.
Shenker, Jack D.: *See—*
Clark, John E.; and Shenker, Jack D., 5,063,632, Cl. 15-316.100.
Shenoi, Kishan; Hanagan, Patrick L.; Ho, Helena S.; and Yu, Frank I., to DSC Communications Corporation. Rudimentary digital speech interpolation apparatus and method. 5,065,395, Cl. 370-81.000.
Shepherd, Donald A., to Herman Miller, Inc. Lateral file cabinet. 5,064,256, Cl. 312-221.000.
Sherman, Bruce K.: *See—*
Witt, Larry M.; and Sherman, Bruce K., 5,064,177, Cl. 269-32.000.
Shetka, Stanley J. Pulp molding press. 5,064,504, Cl. 162-396.000.
Shevade, Makarand: *See—*
Dixit, Nagaraj; Shevade, Makarand; and Round, Rhyta, 5,064,553, Cl. 252-94.000.
Shevchenko, Andrei I.: *See—*
Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A., 5,064,003, Cl. 173-106.000.
Shiba, Keisuke: *See—*
Katoh, Kazunobu; Sato, Kozo; and Shiba, Keisuke, 5,064,752, Cl. 430-546.000.
Shibagaki, Nobuhiko: *See—*
Hikita, Mitsutaka; Tabuchi, Toyoji; Shibagaki, Nobuhiko; Isobe, Atsushi; and Kurosawa, Kazuhito, 5,065,065, Cl. 310-313.00B.
Shibutani, Shozou, to Furuno Electric Company Limited. Ship track indicating apparatus. 5,065,161, Cl. 342-176.000.
Shichijo, Hisashi: *See—*
Taddiken, Albert H.; Yuan, Han-Tzong; and Shichijo, Hisashi, 5,065,132, Cl. 338-334.000.
Shida, Tomonori: *See—*
Asanuma, Akira; and Shida, Tomonori, 5,064,496, Cl. 156-468.000.
Shield Pack, Inc.: *See—*
Illing, Peter A.; Lanier, Phillip L.; and Ensminger, Reginald W., 5,064,096, Cl. 222-105.000.
Shiga, Shujiro; Kabasawa, Koji; Ohmae, Tadayuki; and Tanaka, Hisao, to Sumitomo Chemical Co., Ltd. Method for sorbing metallic ions using ethylene-N,N-dialkyl aminoalkyl acrylates polymers. 5,064,879, Cl. 523-310.000.
Shiiba, Kiyonori: *See—*
Sugihara, Taizo; Sonoda, Hiromu; and Shiiba, Kiyonori, 5,063,945, Cl. 131-332.000.
Shikoku Chemicals Corporation: *See—*
Hata, Hajime; Kambara, Hajime; Sogabe, Seiji; and Oka, Keizo, 5,064,631, Cl. 423-279.000.
Shima, Masahiro; and Nakamori, Toshinori, to Shima Seiki Mfg. Ltd. Fabric presser for V-bed flat knitting machine. 5,063,755, Cl. 66-90.000.
Shima Seiki Mfg. Ltd.: *See—*
Shima, Masahiro; and Nakamori, Toshinori, 5,063,755, Cl. 66-90.000.
Shimada, Masashi: *See—*
Hosoi, Masatoshi; Ichinose, Tsutomu; Shimada, Masashi; Umeda, Shin; and Yoshino, Hirobumi, 5,064,181, Cl. 270-53.000.
Shimada, Seiji: *See—*
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.
Shimamoto, Haruo: *See—*
Ueda, Tetsuya; Shimamoto, Haruo; Yagoura, Hideya; Seki, Hiroshi; and Teraoka, Yasuhiro, 5,064,706, Cl. 428-131.000.
Shimano Industrial Company, Limited: *See—*
Sato, Jun, 5,064,138, Cl. 242-268.000.
Toda, Junichi, 5,064,139, Cl. 242-295.000.
Shimazaki, Kazunori: *See—*
Ito, Takatoshi; Yoshida, Akihiro; Shimazaki, Kazunori; and Hattori, Shuzo, 5,064,711, Cl. 428-209.000.
Shimazu, Shigeaki: *See—*
Kishimoto, Katsumi; and Shimazu, Shigeaki, 5,065,344, Cl. 395-134.000.
Shimizu Construction Co., Ltd.: *See—*
Muramoto, Hiroki; and Sugizaki, Kenichi, 5,063,730, Cl. 52-66.000.
Shimizu, Giichiro: *See—*
Wakatsuki, Yoshio; Okuyama, Toshiharu; Takeuchi, Hajime; Shimizu, Giichiro; and Shimizu, Misao, 5,065,003, Cl. 235-472.000.
Shimizu, Koji; and Sakuma, Atsushi, to Dow Corning Toray Silicone Company, Ltd. Thermosetting organopolysiloxane composition. 5,064,924, Cl. 528-15.000.
Shimizu, Misao: *See—*
Wakatsuki, Yoshio; Okuyama, Toshiharu; Takeuchi, Hajime; Shimizu, Giichiro; and Shimizu, Misao, 5,065,003, Cl. 235-472.000.
Shimizu, Yasuyuki: *See—*
Yoshizawa, Hideyoshi; Ishii, Takashi; Makino, Toshiyuki; Ozawa, Hidekatsu; and Shimizu, Yasuyuki, 5,064,985, Cl. 219-69.160.
Shimo, Nobuo, to Idemitsu Kosan Company Limited. Method for the preparation of fine particulate-metal-containing compound. 5,064,517, Cl. 204-157.510.
Shimokawa, Takashi: *See—*
Machida, Haruchika; Fuwa, Yoshiaki; and Shimokawa, Takashi, 5,065,150, Cl. 340-825.060.
Shin-Etsu Chemical Co.: *See—*
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.
Shin-Etsu Chemical Co., Ltd.: *See—*
Amano, Tadashi; and Hoshida, Shigehiro, 5,064,917, Cl. 526-72.000.
Fujiki, Hironao; Shiono, Mikio; and Takahashi, Toshiaki, 5,064,891, Cl. 524-264.000.
Ikeno, Masayuki, 5,064,889, Cl. 524-188.000.
Shindo, Tatsuya; and Yoshihara, Hideo, to Brother Kogyo Kabushiki Kaisha. Image recording apparatus having means for preventing sheet cartridge from its free disassembly. 5,065,180, Cl. 355-72.000.
Shinjo, Goro: *See—*
Dohara, Kazunobu; Matsunaga, Tadahiro; Shiraishi, Motomitsu; and Shinjo, Goro, 5,064,639, Cl. 424-45.000.
Shinkai, Ichiro: *See—*
DeCamp, Ann E.; King, Anthony O.; Volante, Ralph P.; and Shinkai, Ichiro, 5,064,964, Cl. 546-48.000.
Shinko Electric Co., Ltd.: *See—*
Takakado, Yuzo, 5,065,086, Cl. 322-10.000.
Shinoda, Kazunori; Wu, Ming H.; Suzuki, Yoshiji; and Poon, Ting-Chung, to Hamamatsu Photonics K.K.; and Poon, Ting-Chung. Optical heterodyne scanning type holography device. 5,064,257, Cl. 350-3.670.
Shinonaga, Hirohiko: *See—*
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, 5,065,102, Cl. 324-452.000.
Shintaku, Hidetaka: *See—*
Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, 5,065,087, Cl. 324-71.600.

VOL 1132 ISS 2 NO 12 1991 UMI

Shiobara, Yasuhisa, to Kabushiki Kaisha Toshiba. Data synchronous transfer system using a fiber distributed data exchange interface. 5,065,397, Cl. 370-85.500.

Shioji, Shorbu: *See*—
Yamaguchi, Shigeru; Yokoi, Tokihiro; Shioji, Shorbu; Irie, Yoshio; and Fujiwara, Teruaki, 5,064,563, Cl. 252-174.230.

Shiono, Mikio: *See*—
Fujiki, Hironao; Shiono, Mikio; and Takahashi, Toshiaki, 5,064,891, Cl. 524-264.000.

Shionogi & Co. Ltd.: *See*—
Kubo, Masao; Shiroishi, Akihiro; Uno, Ikuo; and Nishiyama, Takashi, 5,064,473, Cl. 106-287.340.
Uyeo, Shoichiro; Imuta, Mitsuru; Ona, Hisao; and Itani, Hikaru, 5,064,954, Cl. 540-302.000.

Shiotani, Takeshi; and Miyamoto, Kouichi, to Ryobi Ltd. Variable cutting-angle circular saw device. 5,063,802, Cl. 83-98.000.

Shioya, Masaki; and Hanawaka, Masuo, to Yokogawa Electric Corporation. Switching power supply. 5,065,301, Cl. 363-17.000.

Shiraga, Mitsuaki: *See*—
Itagaki, Takaharu; Shiraga, Mitsuaki; Sawayama, Shigeru; and Satoh, Kohichi, 5,064,909, Cl. 525-340.000.

Shiraishi, Motomitsu: *See*—
Dohara, Kazunobu; Matsunaga, Tadahiro; Shiraishi, Motomitsu; and Shinjo, Goro, 5,064,639, Cl. 424-45.000.

Shiraishi, Takashi, to Kabushiki Kaisha Toshiba. Optical scanning unit operating under changing temperature and moisture conditions. 5,064,260, Cl. 350-6.800.

Shiraishi, Tomikatsu; and Kawano, Isao, to Sharp Kabushiki Kaisha. Data processing machine with liquid crystal display and control means for regulating backlighting to the display. 5,065,357, Cl. 395-200.000.

Shiraishi, Yasuhiro; and Ishikawa, Yasuki, to Nissan Motor Co., Ltd. Steering handle neutral position estimating apparatus. 5,065,323, Cl. 364-424.050.

Shirakawa, Tsutomu: *See*—
Yonezawa, Keitaro; Miyata, Ichiro; and Shirakawa, Tsutomu, 5,063,648, Cl. 29-33.00K.

Shiraki, Kouji, to Toycda Gosei Co., Ltd. Cover for air bag unit. 5,064,217, Cl. 280-743.000.

Shiroishi, Akihiro: *See*—
Kubo, Masao; Shiroishi, Akihiro; Uno, Ikuo; and Nishiyama, Takashi, 5,064,473, Cl. 106-287.340.

Shiseido Company Ltd.: *See*—
Nakajima, Hideo; Kawada, Kiyoshi; and Tokubo, Kazuo, 5,064,644, Cl. 424-83.000.

Shiuh-Shinn, Jiang. Exercise apparatus for generating harmonic resistance to an exerciser. 5,064,189, Cl. 272-72.000.

Showa Denko K.K.: *See*—
Ichikawa, Kagetaka; and Noda, Takao, 5,064,589, Cl. 264-65.000.

Shuhart, Harvey A., Jr.; and Gerber, Jay S. Method and apparatus for graphically marking an audiovisual recording to indicate occurrence of an official's whistle signal. 5,065,251, Cl. 358-335.000.

Shvets, Nikolai N.: *See*—
Neroznikov, Jury I.; Shvets, Nikolai N.; Rudakov, Ivan P.; Shevchenko, Andrei I.; Fanshtein, Valentin N.; Medyanik, Vladimir A.; and Mushtakov, Nikolai A., 5,064,003, Cl. 173-106.000.

Sibbitt, Marcille; and Stackpole, Dowell, to DSC Communications Corporation. Network controller scheduling system and method of operation. 5,065,392, Cl. 370-58.200.

Sibbitt, Marcille; and Stackpole, Dowell, to DSC Communications Corporation. Network controller billing system and method of operation. 5,065,393, Cl. 370-58.200.

Sick, August J.: *See*—
Hickle, Leslie A.; Bradfisch, Gregory A.; and Sick, August J., 5,064,648, Cl. 424-93.000.

Siegel, Amy G. Apparel belt retaining device. 5,063,643, Cl. 24-335.000.

Siegel, Heinz: *See*—
Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, 5,064,254, Cl. 303-113.0TR.

Siegel-Robert, Inc.: *See*—
Alten, Ralph W., 5,064,274, Cl. 359-604.000.

Siemens Aktiengesellschaft: *See*—
Bialkowski, Guenter; Gerlach, Dieter; and Renz, Roman, 5,064,976, Cl. 200-144.00B.
Binz, Reiner; and Burghardt, Hartmut, 5,065,454, Cl. 359-184.000.
Fiedelius, Gerhard, 5,063,660, Cl. 29-885.000.
Heinen, Jochen, 5,065,207, Cl. 357-30.000.
Hirschmann, Guenther; Waitl, Guenter; and Schellhorn, Franz, 5,064,299, Cl. 385-33.000.
Kaifler, Erich; and Grobecker, Horst, 5,065,114, Cl. 330-277.000.
Mitschik, Herbert; and Hinrichs, Fritz, 5,065,127, Cl. 335-270.000.
Schenk, Heinrich, 5,065,412, Cl. 375-111.000.
Stein, Karl-Ulrich, 5,064,263, Cl. 385-14.000.

Siemens Plessey Controls Limited: *See*—
Cranston, Christopher S.; and Cleverly, Neil, 5,065,028, Cl. 250-370.010.

Siemon Company, The: *See*—
Howard, Gary, 5,065,133, Cl. 340-310.00A.

Sievert, Ralph: *See*—
Maus, Patricia; and Sievert, Ralph, 5,063,872, Cl. 118-213.000.

Sigler, Michael R., to Triple S Engineering, Inc. System for locating probe tips on an integrated circuit probe card and method therefor. 5,065,092, Cl. 324-158.00F.

Silicon Systems Inc.: *See*—
Ueda, Shunsaku; and Masumoto, Rodney T., 5,065,116, Cl. 331-173.000.

Sillion, Bernard: *See*—
Mercier, Regis; Pascal, Thierry; and Sillion, Bernard, 5,064,934, Cl. 528-220.000.

Silver, Jules. Method of making ultra low-fat cheese and resulting products. 5,064,660, Cl. 426-36.000.

Silverberg, Doris C. Protective sleeve. 5,063,919, Cl. 128-82.000.

Simmons, Jeffrey F.: *See*—
Wellington, Scott L.; Simmons, Jeffrey F.; and Richardson, Edwin A., 5,063,772, Cl. 73-40.700.

Simo, Miroslav A. Archery bow sight, mount and quiver holder. 5,063,678, Cl. 33-265.000.

Simom S.A.: *See*—
Fausel, Thomas E., 5,063,844, Cl. 101-247.000.

Simon, Jaime; Wilson, David A.; Garlich, Joseph R.; and Troutner, David E., to Dow Chemical Company, The. Macrocyclic aminophosphonic acid complexes, their formulations and use. 5,064,633, Cl. 424-1.100.

Simon, Lee D.; and Fay, Rose B., to Rutgers Research and Educational Foundation. T4 DNA fragment as a stabilizer for proteins expressed by cloned DNA. 5,064,757, Cl. 435-71.200.

Simonis, Jurgen, to Gebruder Welger GmbH & Co. Kommanditgesellschaft. Reciprocating piston press. 5,063,841, Cl. 100-142.000.

Simpson, Scott: *See*—
Hernandez, Jorge M.; and Simpson, Scott, 5,065,281, Cl. 361-388.000.

Simpson, William G.; Sharpe, Max H.; and Hill, William E., to United States of America, National Aeronautics and Space Administration. Sprayable lightweight ablative coating. 5,064,868, Cl. 521-54.000.

Simtek Corporation: *See*—
Herdt, Christian E.; Weiner, Albert S.; Kamp, David A.; and Dimmler, Klaus J., 5,065,362, Cl. 365-154.000.

Sinclair, Paul L.; and Strickland, Robert W., to Halliburton Logging Services, Inc. Coil array for a high resolution induction logging tool and method of logging an earth formation. 5,065,099, Cl. 324-339.000.

Sinclair Radio Laboratories Limited: *See*—
Kolanski, Adam, 5,065,166, Cl. 343-826.000.
Kolanski, Adam, 5,065,166, Cl. 343-826.000.

Singbartl, Gunther, to WABCO Westinghouse Fahrzeugbremsen GmbH. Housing containing an electrical component and having a cable head-through device with strain relief. 5,064,967, Cl. 174-52.300.

Singhal, Gopal H.; Wilson, Bobby L.; Edelson, Edward H.; and Mikita, Michael A., to Exxon Research & Engineering Company. Catalytic process for hydroconversion of carbonaceous materials. 5,064,527, Cl. 208-420.000.

Sio, Societa per l'Ind ... ia dell'Ossigeno e di Altri Gas: *See*—
Bernasconi, Attilio, 5,064,475, Cl. 134-4.000.

Sippel Achim: *See*—
Diel, Rainer; Sippel Achim; Meyer, Jurgen; and Kruse, Heinz-Josef, 5,063,855, Cl. 102-521.000.

Sirch, Edgar: *See*—
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Skopelja, Charles; and Vendetta, Francis A., to Arcair Company. Cordless exothermic rod ignition system. 5,064,986, Cl. 219-70.000.

Skrobak, Lubomir: *See*—
Genov, Genco; Skrobak, Lubomir; Kremerman, Izya; and Kielczewski, Grzegorz, 5,064,340, Cl. 414-744.500.

Skudrna, Anthony J.: *See*—
Fedder, Stephen C., 5,065,350, Cl. 364-571.030.

Sky Disk Holding SA: *See*—
Bucher, Franz, 5,064,143, Cl. 244-23.00C.

Skynasaur Inc.: *See*—
Prouty, Jonathan J., 5,064,150, Cl. 244-155.00A.

Sledd, Michael W.: *See*—
Shekleton, Jack R.; Sachrison, Steven A.; and Sledd, Michael W., 5,063,745, Cl. 60-737.000.

Slenker, Stephen. Shoe or boot heater with shoelace mounted power source. 5,063,690, Cl. 36-2.600.

Slepnev, Grigory E.: *See*—
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Slinkman, James A.; Wickramasinghe, Hemantha K.; and Williams, Clayton C., to International Business Machines Corporation. Scanning capacitance - voltage microscopy. 5,065,103, Cl. 324-458.000.

Sloan, Alan D.: *See*—
Barnsley, Michael F.; and Sloan, Alan D., 5,065,447, Cl. 382-56.000.

Sloan, Donald G. Disposable collection device for animal litter. 5,064,233, Cl. 294-1.300.

Smeltzer, Marsha F. Dental impression tray. 5,064,371, Cl. 433-37.000.

Smith, Alan W., to General Electric Company. Engine bleed air supply system. 5,063,963, Cl. 137-606.000.

Smith, Arthur A. Exercising indicator. 5,064,192, Cl. 272-125.000.

Smith, David A.: *See*—
Rice, Thomas A.; Smith, David A.; and Schmidt, Alan W., 5,065,147, Cl. 340-744.000.

Smith, Frank E.; and Travis, Stephen C., to Stryker Corporation. Manual/electric twin jack bed. 5,063,624, Cl. 5-63.000.

Smith, Fred T.: *See*—
Edelhoff, Gustav D.; and Smith, Fred T., 5,064,332, Cl. 414-408.000.

Smith, James F., II, to Lansing Overhaul and Repair, Inc. Method of producing curved honeycomb core material having crimps in one edge. 5,064,493, Cl. 156-207.000.

Smith, Kelly M., to Atlantic Richfield Company. Excavator bucket tooth retention device. 5,063,696, Cl. 37-141.00T.

Smith, Mark R. Method of playing a board game. 5,064,201, Cl. 273-258.000.

Smith, Raymond L.: *See*—
Lehto, John M.; and Smith, Raymond L., 5,064,174, Cl. 266-160.000.

Smith, Robert E. Horticultural layout ground cover assembly. 5,063,708, Cl. 47-33.000.

Smith, Ronald, to Wray-Tech Instruments, Inc. Hydraulic control system for weighing. 5,064,008, Cl. 177-1.000.

Smith, Ronald A.; and Pace, Joseph M., to Ford Motor Company. Accelerator pedal assembly. 5,063,811, Cl. 74-513.000.

Smith, Ronald L.: *See*—
Ingermann, Donald E.; Smith, Ronald L.; Caffrey, Stephen F.; and Steinhoff, Lonney J., 5,063,633, Cl. 15-320.000.

Smith, Roy F.; Kelley, John W.; and Korcz, William H., to Shell Oil Company. Method for the resilient spinwelding of thermoplastic articles. 5,064,485, Cl. 156-69.000.

Smith, Roy P., to BP Chemicals Limited. Deicing compositions. 5,064,551, Cl. 252-70.000.

Smith, Stephen P.; and Ellis, John J., to Eastman Kodak Company. Media insertion means for an automated data library. 5,065,379, Cl. 369-36.000.

Smith, Trevor S., to Lucas Industries public limited company. Fuel supply apparatus. 5,064,357, Cl. 417-428.000.

Smithkline Beecham Intercredit B.V.: *See*—
Ife, Robert J.; Brown, Thomas H.; Leach, Colin A.; and Keeling, David J., 5,064,833, Cl. 514-260.000.

Smiths Industries Public Limited Company: *See*—
Taylor, Robert M., 5,065,013, Cl. 250-231.180.

Snap-Tite, Inc.: *See*—
Wilcox, Wayne, 5,063,965, Cl. 137-614.030.

Snider, Scott C.; Londrigan, Michael E.; and Trout, Kenneth G., to Jim Walter Research Corp. Rigid foam with improved "k" factor by reacting a polyisocyanate prepolymer and polyester polyol containing low free glycol. 5,064,873, Cl. 521-131.000.

Snyder, David B., to University of Maryland, The. Novel infectious bursal disease virus. 5,064,646, Cl. 424-89.000.

Snyder, Kenneth J., to Ametek, Inc. Self-erecting spiral metal tube with one textured side. 5,063,969, Cl. 138-154.000.

Soane, David S., to Soane Technologies, Inc. Method of spinning optical fibers. 5,064,577, Cl. 264-1.400.

Soane Technologies, Inc.: *See*—
Soane, David S., 5,064,577, Cl. 264-1.400.

Societe a Responsabilite Limitee dite: Spiral: *See*—
Gambert, Philippe; and Louvrier, Emmanuel, 5,064,769, Cl. 436-516.000.

Societe d'Applicitons Generales d'Electricite et de Mecanique (S.A.G-.E.M.): *See*—
Encaoua, Serge; and Metivier, Philippe, 5,065,005, Cl. 250-206.200.

Societe Nationale Elf Aquitaine (Production): *See*—
Morineau, Yves; and Begani, Rino, 5,065,421, Cl. 378-208.000.

Soda, Hiroyuki: *See*—
Otsuka, Masuhiro; Kono, Hiromi; Satoh, Yuji; and Soda, Hiroyuki, 5,064,039, Cl. 192-0.052.

Soda, Tomizo: *See*—
Aomi, Hideki; Soda, Tomizo; and Itano, Mitsushi, 5,064,474, Cl. 134-2.000.

Soda, Yutaka: *See*—
Miyauchi, Teiichi; Soda, Yutaka; and Sekiya, Tetsuo, 5,065,390, Cl. 369-110.000.

Soder, Robert; and Willemin, Albert, to ETA SA Fabriques d'Ebauches. Leather watchcase and method of manufacture thereof. 5,065,374, Cl. 368-280.000.

Soga, Yoshinobu; and Sugaya, Masami, to Toyota Jidosha Kabushiki Kaisha. Hydraulic control apparatus for vehicle continuously variable transmission, having two shift control valves selectively enabled depending upon selected position of clutch device between engine and drive wheel. 5,063,816, Cl. 74-868.000.

Sogabe, Seiji: *See*—
Hata, Hajime; Kambara, Hajime; Sogabe, Seiji; and Oka, Keizo, 5,064,631, Cl. 423-279.000.

Sohei, Goto; Ken, Okauchi; Junichi, Kohno; and Masaru, Iwagaki, to Konica Corporation. Heat-developing photographic material. 5,064,753, Cl. 430-567.000.

Solex: *See*—
Noisier, Guy, 5,063,891, Cl. 123-187.50R.

Sollinger, Hans-Peter, to J.M. Voith GmbH. Single wire dryer group with adjustable reversing rolls. 5,063,689, Cl. 34-115.000.

Solomon, Allen L., to Grumman Aerospace Corporation. Method of forming crystal array. 5,064,771, Cl. 437-3.000.

Solomon, Donald D.: *See*—
Walder, Anthony J.; and Solomon, Donald D., 5,064,415, Cl. 604-164.000.

Sommermann, Friedrich: *See*—
Lehner, August; Kohl, Albert; Roller, Hermann; Lenz, Werner; Kreitner, Ludwig; Kopke, Helmut; Sommermann, Friedrich; and Ricker, Ernst, 5,064,721, Cl. 428-425.900.

Sonnenberg, Sven, to Eastman Kodak Company. Piezo film cleaner. 5,065,194, Cl. 355-296.000.

Sonoda, Hiromu: *See*—
Sugihara, Taizo; Sonoda, Hiromu; and Shiiba, Kiyonori, 5,063,945, Cl. 131-332.000.

Sony Corporation: *See*—
Dodds, Robert E.; Inose, Tsutomu; and Kato, Yoshimitsu, 5,063,874, Cl. 118-602.000.
Fukuda, Shinichi, 5,065,413, Cl. 375-120.000.
Hiramatsu, Tamihei; and Matsushita, Yoshiko, 5,065,317, Cl. 364-419.000.
Ishiguro, Satoshi; and Oda, Osamu, 5,065,244, Cl. 358-195.100.
Ito, Yujiro; Suzuki, Koji; and Kusaka, Satoshi, 5,065,455, Cl. 359-1.590.
Kawai, Toshihiko; and Tobishima, Takaaki, 5,065,346, Cl. 395-128.000.
Kubota, Yukio; and Kanota, Keiji, 5,065,259, Cl. 360-32.000.
Kuragano, Tetsuzo; Suzuki, Akira; and Sasaki, Nobuo, 5,065,348, Cl. 364-119.000.
Lagadec, Roger, 5,065,260, Cl. 360-32.000.
Miyauchi, Teiichi; Soda, Yutaka; and Sekiya, Tetsuo, 5,065,390, Cl. 369-110.000.
Seko, Satoru; and Kunito, Yoshiyuki, 5,065,382, Cl. 369-44.260.

Soo, Hwaili; Ream, Bernard C.; and Robson, John H., to Union Carbide Chemicals and Plastics Technology Corporation. Mixed metal framework compositions for monoalkylene glycol production. 5,064,804, Cl. 502-335.000.

Soofi, Madjid, to Magneco/Metrel, Inc. Method and devices for removing alumina and other inclusions from steel contained in tundishes. 5,064,175, Cl. 266-229.000.

Sorensen, Stephen M.: *See*—
Carr, Albert A.; Miller, Francis P.; Nieduzak, Thaddeus R.; and Sorensen, Stephen M., 5,064,838, Cl. 514-317.000.

Souka, Abbas F. Personal hygiene device. 5,063,618, Cl. 4-420.400.

Sour Pliva: *See*—
Suskovic, Bozidar; Vajtner, Zlatko; and Naumski, Radmila, 5,064,812, Cl. 514-8.000.

Sousek, Steven J.: *See*—
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

South Co. Inc.: *See*—
Bisbing, Robert H., 5,064,228, Cl. 292-54.000.

Southwest Research Institute: *See*—
Darilek, Glenn T.; and Keeton, Dewey B., III, 5,065,019, Cl. 250-301.000.
Lew, Chel W., 5,064,650, Cl. 424-435.000.

Spannagel, Wilfried: *See*—
Melcher, Franz-Josef; Pertsch, Thomas; Spannagel, Wilfried; and Oldendorf, Christian, 5,064,009, Cl. 177-245.000.

Sparenberg, Dieter; Ullrich, Rolf; and Nuding, Herbert, to Henkel Kommanditgesellschaft auf Aktien. Packed column with built-in temperature measuring points. 5,064,506, Cl. 203-2.000.

Sparks, Harold L.: *See*—
Rogers, Charles J.; Kornel, Alfred; and Sparks, Harold L., 5,064,526, Cl. 208-262.500.

Speca, Anthony N., to Exxon Chemical Patents Inc. Support adjuvant for improved vanadium polymerization catalyst. 5,064,796, Cl. 502-107.000.

Spectra Diode Laboratories, Inc.: *See*—
Scifres, Donald R.; and Endriz, John G., 5,065,401, Cl. 372-38.000.

Spectrum Pharmaceutical Corporation: *See*—
Sapse, Alfred T., 5,064,858, Cl. 514-536.000.

Spencer, Donald W.: *See*—
Buckwitz, Richard J.; and Spencer, Donald W., 5,063,974, Cl. 140-92.200.

Spencer, Earl W., Jr.: *See*—
Leavell, David R.; Spencer, Earl W., Jr.; and Goodman, Kenneth W., 5,065,371, Cl. 367-111.000.

Speranza, George P.; Naylor, Carter G.; and Lin, Jiang-Jen, to Texaco Chemical Company. Mixtures of fatty amido-amines from polyoxyalkyleneamines. 5,064,571, Cl. 252-357.000.

Spindt, Charles A., to Coloray Display Corporation. Method of manufacturing an electric field producing structure including a field emission cathode. 5,064,396, Cl. 445-50.000.

Spors, Ralf; Wachter, Gerhard; Hohmann, Ralf; and Sauer, Heinz, to Rasmussen GmbH. Connector for hoses and the like. 5,064,227, Cl. 285-319.000.

Spratt, David; and Shah, Rajiv R., to Texas Instruments Incorporated. Bipolar transistor fabrication utilizing CMOS techniques. 5,065,209, Cl. 357-34.000.

Springer, Helmut: *See*—
Weber, Jurgen; Lappe, Peter; and Springer, Helmut, 5,064,508, Cl. 203-38.000.

Sproule, James, to Gentry Gallery, Inc., The. Reclining sofa. 5,064,244, Cl. 297-68.000.

Spruit, Johannes H. M.; and Jacobs, Bernardus A. J., to U.S. Philips Corporation. Method of and apparatus for writing and reading a magneto-optical record carrier with an information density greater than that corresponding to the size of the scanning spot. 5,065,377, Cl. 369-13.000.

Sprunger, Paul C.: *See*—
Briscoe, Terry L.; and Sprunger, Paul C., 5,063,695, Cl. 37-141.00R.

VOL 1132 ISS 2 NO 12 1991 UMI

Square D Company: *See—*
Weaver, William J., 5,064,384, Cl. 439-511.000.
Whitsitt, Steven L., 5,065,141, Cl. 340-635.000.

Squarer, David: *See—*
Hurwitz, Michael J.; Ekeroth, Douglas E.; and Squarer, David, 5,064,603, Cl. 376-246.000.

Squire, Ian H.: *See—*
Squire, Ross D.; and Squire, Ian H., 5,063,765, Cl. 70-417.000.

Squire, Ross D.; and Squire, Ian H. Lock protector. 5,063,765, Cl. 70-417.000.

Stachura, Leonard M.: *See—*
Swan, Ellen L.; Stachura, Leonard M.; Basu, Rajat S.; and Wilson, David P., 5,064,558, Cl. 252-171.000.

Stackpole, Dowell: *See—*
Sibbitt, Marcille; and Stackpole, Dowell, 5,065,392, Cl. 370-58.200.
Sibbitt, Marcille; and Stackpole, Dowell, 5,065,393, Cl. 370-58.200.

Stadler, Jeffery A., to Excel Corporation. Meter assembly for accumulating conveyors. 5,064,050, Cl. 198-459.000.

Stagnaro, Michael J.: *See—*
Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., 5,064,151, Cl. 244-160.000.

Staiger, Ulrich; Strobel, Joseph; and Castro, Peter E., to Eastman Kodak Company. Method of producing an optically effective arrangement, in particular for application with a vehicular headlight. 5,065,287, Cl. 362-61.000.

Stamhuis, Jan E.; Broekhuis, Antonius A.; and Luijk, Pieter, to Shell Oil Company. Elastomeric compositions, process for the preparation thereof and tires containing them. 5,064,905, Cl. 525-237.000.

Stamicarbon B.V.: *See—*
Hofland, Adriaan; and Paauwe, Joannes M., 5,064,892, Cl. 524-317.000.
Yasue, Kenji; Tsuji, Toshio; Ida, Takashi; and Hayase, Shigeru, 5,064,700, Cl. 428-36.920.
Zwart, Rudolf L.; and Tinge, Johan T., 5,064,627, Cl. 423-248.000.

Standex International Corporation: *See—*
Rogers, Raymond W.; and Harnesberger, William F., 5,063,906, Cl. 126-299.00D.

Stanek, Jaroslav; Caravatti, Giorgio; Frei, Jorg; and Capraro, Hans-Georg, to Ciba-Geigy Corporation. Biaryl compounds. 5,064,832, Cl. 514-256.000.

Stanfield, John. Dish carrier. 5,064,236, Cl. 294-161.000.

Stanford, Timothy M.: *See—*
McGough, Gerald B.; Stanford, Timothy M.; and Bass, Charles J., 5,064,116, Cl. 232-57.500.

Stanishevsky, Vladimir K.: *See—*
Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., 5,064,521, Cl. 204-224.00M.

Staodyn, Inc.: *See—*
Bartelt, James T.; Harris, Frank W.; and Owens, Alan R., 5,063,929, Cl. 128-421.000.
Owens, Alan R., 5,065,083, Cl. 320-13.000.

State of Israel, Ministry of Defense: *See—*
Iddan, Gavriel J., 5,064,285, Cl. 356-141.000.

Staubli, Edgar K.: *See—*
Staubli, Peter E.; and Staubli, Edgar K., 5,064,373, Cl. 433-173.000.

Staubli, Peter E.; and Staubli, Edgar K., to Attachments International, Inc. Plug forming removable closure in openings of dental appliances and the like. 5,064,373, Cl. 433-173.000.

Steckel, Thomas F., to Lubrizol Corporation, The. Process for overbasing via metal borate formation. 5,064,545, Cl. 252-32.7HC.

Steel, Victor E.: *See—*
Ludvik, Stephen; Steel, Victor E.; and Scott, Douglas, 5,065,110, Cl. 330-149.000.

Steffes, William J., to Coleman Outdoor Products, Inc. Picnic cooler with lid having integrally molded hinge. 5,064,088, Cl. 220-339.000.

Stegmeier, Renate C.: *See—*
Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., 5,064,736, Cl. 430-42.000.

Steidinger, Donald J., to Wallace Computer Services, Inc. Mailer and method and apparatus for making. 5,064,115, Cl. 229-304.000.

Stein, Karl-Ulrich, to Siemens Aktiengesellschaft. Multiplexing apparatus for the direct optical reception of a plurality of optical wavelengths. 5,064,263, Cl. 385-14.000.

Steinberger, Michael L.: *See—*
Castellano, James J.; Leshchuk, John H.; and Steinberger, Michael L., 5,065,396, Cl. 370-84.000.

Steiner, Thomas L.; Domeshek, Kenneth A.; Stitt, William; Riley, Jesse L.; and Deutsch, Lance J., to Hoechst Celanese Corporation. Cellulose ester microparticles and process for making the same. 5,064,949, Cl. 536-56.000.

Steinhauser, Walter: *See—*
Benzinger, Roland; Siegel, Heinz; Ellendt, Erhard; Huebl, Ewald; Igelmann, Rolf; and Steinhauser, Walter, 5,064,254, Cl. 303-113.0TR.

Steinhoff, Lonney J.: *See—*
Ingermann, Donald E.; Smith, Ronald L.; Caffrey, Stephen F.; and Steinhoff, Lonney J., 5,063,633, Cl. 15-320.000.

Stelly, Otis V., II: *See—*
Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, 5,064,006, Cl. 175-45.000.

Stepanenko, Alexandr V.; Stanishevsky, Vladimir K.; Parshuto, Alexandr E.; Kosobutsky, Alexandr A.; Khlebtsevich, Vsevolod A.; Malyavko, Sergei S.; Semenenko, Leonid M.; Loginov, Sergei V.; and Slepnev, Grigory E., to Belorussky Politekhnichesky Institut. Apparatus for electrochemical machining. 5,064,521, Cl. 204-224.00M.

Stephan, Dieter: *See—*
Koch, Alfred; and Stephan, Dieter, 5,063,882, Cl. 123-41.860.

Stephens, Gina L. Child car seat pillow construction. 5,064,245, Cl. 295-397.000.

Stephens, Patrick J. Pumpable cement grout. 5,063,967, Cl. 138-98.000.

Stephens, William F. N.: *See—*
McMurtry, David R.; and Stephens, William F. N., 5,064,290, Cl. 356-356.000.

Sterling Manufacturing Company, Inc.: *See—*
Elsten, Stanley E., 5,064,403, Cl. 452-135.000.

Sterling Plumbing Group, Inc.: *See—*
Howard, John R.; and Nichols, Charles E., 5,063,638, Cl. 16-238.000.

Stevens, James C.; and Neithamer, David R., to Dow Chemical Company, The. Metal complex compounds. 5,064,802, Cl. 502-155.000.

Stewart, Charles W., to Du Pont de Nemours, E. I., and Company. Shaped structure of polyarylate copolymers having high tensile elongation at break. 5,064,704, Cl. 428-98.000.

Stewart, Clare A.: *See—*
Jackson, Roy; Lowe, David J.; and Stewart, Clare A., 5,064,935, Cl. 528-272.000.

Steyr-Daimler-Puch AG: *See—*
Bilgeri, Elmar, 5,063,853, Cl. 102-467.000.

Stiller, Klaus: *See—*
Seidel, Joachim; and Stiller, Klaus, 5,063,952, Cl. 135-22.000.

Stine, Laurence O.: *See—*
Frame, Robert R.; Bricker, Jeffery C.; and Stine, Laurence O., 5,064,525, Cl. 208-193.000.

Stipe, James J. Apparatus for grading shrimp. 5,064,400, Cl. 452-2.000.

Stitt, William: *See—*
Steiner, Thomas L.; Domeshek, Kenneth A.; Stitt, William; Riley, Jesse L.; and Deutsch, Lance J., 5,064,949, Cl. 536-56.000.

Stock, Dietrich; Hund, Walter; and Vizethum, Friemut, to Friedrichsfeld AG Keramik- und Kunststoffwerke. Knee joint endoprosthesis. 5,064,437, Cl. 623-20.000.

Stojanovski, Stojan. Ball nose milling tool. 5,064,316, Cl. 407-40.000.

Stone, Harold S., to International Business Machines Corporation. Reducing cache-reload transient at a context swap. 5,065,310, Cl. 395-425.000.

Storch, Paul. Self-stabilizing training wheels for a bicycle. 5,064,213, Cl. 280-301.000.

Stork Friesland B.V.: *See—*
Boersen, Antonius C., 5,064,501, Cl. 159-4.080.

Storm, Paul K., to Akzo N.V. Mycoplasma vaccine. 5,064,647, Cl. 424-92.000.

Strachan-Aspden Limited: *See—*
Aspden, Harold; and Strachan, John S., 5,065,085, Cl. 322-2.00R.

Strachan, John S.: *See—*
Aspden, Harold; and Strachan, John S., 5,065,085, Cl. 322-2.00R.

Strauss, Wilfried: *See—*
Antony, Paul; and Strauss, Wilfried, 5,064,028, Cl. 188-73.380.

Strickland, Robert W.: *See—*
Sinclair, Paul L.; and Strickland, Robert W., 5,065,099, Cl. 324-339.000.

Stricklen, Phil M., to Phillips Petroleum Company. Process for producing polyolefins and polyolefin catalysts. 5,064,797, Cl. 502-111.000.

Strobel, Joseph: *See—*
Staiger, Ulrich; Strobel, Joseph; and Castro, Peter E., 5,065,287, Cl. 362-61.000.

Stroemel, Joseph M.: *See—*
Almond, Daniel R.; Stroemel, Joseph M.; and Cameron, Stuart M., 5,064,308, Cl. 405-43.000.

Strong, Douglas B.: *See—*
Cyrana, Edward M.; Strong, Douglas B.; and Amering, Allan R., 5,065,191, Cl. 355-246.000.

Stryker Corporation: *See—*
Smith, Frank E.; and Travis, Stephen C., 5,063,624, Cl. 5-63.000.

Stukey, Kevin B.: *See—*
Finney, Mark J.; and Stukey, Kevin B., 5,065,037, Cl. 250-577.000.

Su, Ken-Jui. Accordion-like file. 5,064,069, Cl. 206-425.000.

Suda, Mitsuru: *See—*
Ohtsuka, Kunio; Suda, Mitsuru; and Koga, Johji, 5,064,791, Cl. 501-147.000.

Sudo, Susumu: *See—*
Okajima, Hiroshi; and Sudo, Susumu, 5,064,445, Cl. 51-293.000.

Sudol, Marion A.: *See—*
Tan, Chee-Teck; Kang, Young C.; Sudol, Marion A.; King, Chwan K.; and Schulman, Marvin, 5,064,669, Cl. 426-307.000.

Suenaga, Shinichi: *See—*
Kumano, Makoto; Hayakawa, Masaharu; and Suenaga, Shinichi, 5,065,230, Cl. 358-22.000.

Sueshige, Hiroshi: *See—*
Ogano, Takeo; Sueshige, Hiroshi; Fukuda, Toru; and Okuda, Junji, 5,064,011, Cl. 180-9.220.

Suga, Kenji: *See—*
Hayashi, Takashi; Hida, Junichi; Suga, Kenji; and Kurata, Yoshikazu, 5,065,320, Cl. 364-424.010.

Suganuma, Atsushi; and Ohsaki, Kayoko, to Fuji Photo Film Co., Ltd. Method of and apparatus for processing image signal. 5,065,256, Cl. 358-455.000.

Sugawara, Katuo: *See—*
Nagai, Akira; Sugawara, Katuo; Suzuki, Masahiro; Katagiri, Junichi; and Takahashi, Akio, 5,065,285, Cl. 361-414.000.

Sugaya, Masami: *See—*
Soga, Yoshinobu; and Sugaya, Masami, 5,063,816, Cl. 74-868.000.

Sugi, Hideo: *See—*
Yamada, Nobutoshi; Sugi, Hideo; and Kon, Kenji, 5,064,945, Cl. 536-17.500.

Sugihara, Taizo; Sonoda, Hiromu; and Shiiba, Kiyonori, to Chisso Corporation. Tobacco filter stock. 5,063,945, Cl. 131-332.000.

Sugimoto, Hidehiko: *See—*
Tamai, Shinzo; and Sugimoto, Hidehiko, 5,065,304, Cl. 363-95.000.

Sugimoto, Kazuaki: *See—*
Tashiro, Takeshi; Fushimi, Kazuhiro; and Sugimoto, Kazuaki, 5,065,002, Cl. 235-472.000.

Sugimoto, Masahiro: *See—*
Matsuki, Hirohisa; Harada, Shigeki; Sugimoto, Masahiro; and Yoshida, Toshiki, 5,065,223, Cl. 357-68.000.

Sugimoto, Riichirou: *See—*
Mori, Kohei; and Sugimoto, Riichirou, 5,063,743, Cl. 60-562.000.

Sugimoto, Yoichi: *See—*
Yahagi, Toshio; Iwagawa, Yoshihiro; Sugimoto, Yoichi; and Satoh, Tsuyoshi, 5,065,327, Cl. 364-426.020.

Suginaka, Junko. Footwear and insole pad thereof. 5,063,692, Cl. 36-43.000.

Sugino Cycle Industries, Ltd.: *See—*
Yashiro, Tadashi; and Nishimoto, Takafumi, 5,064,250, Cl. 301-63.0DS.

Sugizaki, Kenichi: *See—*
Muramoto, Hiroki; and Sugizaki, Kenichi, 5,063,730, Cl. 52-66.000.

Sullivan, Stephen T. Shipboard environmental barrier system and method. 5,064,310, Cl. 405-69.000.

Sullivan, Timothy J., to Board of Regents, The University of Texas System. Substituted sulfonamide derivatives which inhibit allergic reactions. 5,064,637, Cl. 424-9.000.

Sulzer Brothers Limited: *See—*
Peter, Hans, 5,063,971, Cl. 139-87.000.
Pfarrwaller, Erwin, 5,063,972, Cl. 139-145.000.

Sumi, Naoki: *See—*
Mochizuki, Keizo; and Sumi, Naoki, 5,064,651, Cl. 424-440.000.

Sumida, Shin: *See—*
Sun, Cheng-ko J.; Sumida, Shin; Sakaguchi, Shigeki; and Miyashita, Tadashi, 5,064,266, Cl. 385-132.000.

Sumitomo Chemical Company, Ltd.: *See—*
Aki, Seietsu; Ito, Takaaki; Abe, Yasuo; Inoue, Ichiro; and Miyachi, Hiroyuki, 5,063,706, Cl. 43-125.000.
Dohara, Kazunobu; Matsunaga, Tadahiro; Shiraishi, Motomitsu; and Shinjo, Goro, 5,064,639, Cl. 424-45.000.
Maeda, Takayoshi; Hata, Masahiko; Fukuhara, Noboru; and Watanabe, Tadeshi, 5,064,778, Cl. 437-81.000.
Shiga, Shujiro; Kabasawa, Koji; Ohmae, Tadayuki; and Tanaka, Hisao, 5,064,879, Cl. 523-310.000.

Sumitomo Electric Industries, Ltd.: *See—*
Nishiguchi, Masanori, 5,064,782, Cl. 437-216.000.

Sumitomo Metal Industries, Ltd.: *See—*
Araki, Kenji; Miyamae, Jyunichi; Kobayashi, Takashi; and Saito, Akira, 5,064,029, Cl. 188-267.000.

Sumitomo Special Metals Co., Ltd.: *See—*
Araki, Kenji; Miyamae, Jyunichi; Kobayashi, Takashi; and Saito, Akira, 5,064,029, Cl. 188-267.000.

Sumiyoshi, Takashi: *See—*
Masai, Kazuo; Wakayama, Satoshi; Yamamoto, Shoji; Sumiyoshi, Takashi; and Makino, Masao, 5,065,311, Cl. 364-200.000.

Summagraphics Corporation: *See—*
Purcell, Alexander M., 5,065,145, Cl. 340-706.000.

Sun, Cheng-ko J.; Sumida, Shin; Sakaguchi, Shigeki; and Miyashita, Tadashi, to Photonic Integration Research, Inc. Circular channel waveguides and lenses formed from rectangular channel waveguides. 5,064,266, Cl. 385-132.000.

Sun Microsystems, Inc.: *See—*
Davidson, Howard L., 5,065,277, Cl. 361-383.000.
Reed, John, 5,065,055, Cl. 307-530.000.

Sunder, Swaminathan; Garg, Diwakar; and Dyer, Paul N., to Air Products and Chemicals, Inc. Article with internal wear resistant surfaces. 5,064,728, Cl. 428-627.000.

Sundstrand Corporation: *See—*
Gantzer, Charles J., 5,064,456, Cl. 55-385.100.
Kassel, John; and Remstad, Steve C., 5,064,344, Cl. 415-224.500.
Nguyen, Vietson M.; and Ng, Chai-Nam, 5,065,303, Cl. 363-40.000.
Shekleton, Jack R.; Sachrison, Steven A.; and Sledd, Michael W., 5,063,745, Cl. 60-737.000.

Supernaw, Irwin R.; and Williams, Thomas M., to Texaco Inc. Radioactive well logging to determine vertical brine flow. 5,065,016, Cl. 250-264.000.

Suppelsa, Anthony B.: *See—*
Juskey, Frank J.; Suppelsa, Anthony B.; and Flaugher, Jill L., 5,065,122, Cl. 333-238.000.

Suskovic, Bozidar; Vajtner, Zlatko; and Naumski, Radmila, to Sour Pliva. Metal complexes of N-acetyl-glucosaminyl-N-acetyl-muramoyl-L-alanyl-D-isoglutaminyl-(L)-meso-diamino-pimelyl-(D-amide)-(L)-D-alanyl-D-alanine and their use in pharmaceuticals. 5,064,812, Cl. 514-8.000.

Sussman, Richard C.: *See—*
Follstaedt, Donald W.; Powell, John C.; Sussman, Richard C.; and Williams, Robert S., 5,063,988, Cl. 164-463.000.

Suto, Kyoko, to Minnesota Mining and Manufacturing Company. Steam sensitive composition and a sterilization indicator composition containing the same. 5,064,576, Cl. 252-962.000.

Sutton, John S. Method and apparatus for preparing and using a cement slurry. 5,064,292, Cl. 366-2.000.

Sutton, Tod A.; Jacob, Karl V.; Lim, Timothy; and Sandor, Steven P., to Dow Chemical Company, The. Process and apparatus for recycling aqueous fluid absorbents fines. 5,064,582, Cl. 264-37.000.

Suzuki, Akira: *See—*
Kuragano, Tetsuzo; Suzuki, Akira; and Sasaki, Nobuo, 5,065,348, Cl. 364-119.000.

Suzuki, Fumio; Habara, Hideaki; Fukuda, Yutaro; Sato, Haruki; and Inada, Hiromasa, to Mitsubishi Rayon Co., Ltd. Continuous production process of particulate polymer and control method of the particle size of said polymer. 5,064,938, Cl. 528-491.000.

Suzuki, Hideaki; Hosoyama, Kenji; Takeda, Shuichiro; and Kamikura, Rinzo, to Kanzaki Paper Manufacturing Co., Ltd. Adhesive sheet. 5,064,717, Cl. 428-352.000.

Suzuki, Hidemi; Yamada, Hiroyuki; and Nakagawa, Mikio, to Honda Giken Kogyo Kabushiki Kaisha. Linear actuator. 5,065,126, Cl. 335-222.000.

Suzuki, Hitoshi: *See—*
Kugimiya, Shuzo; Fukumochi, Yoji; Sata, Ichiko; Hirai, Tokuyuki; and Suzuki, Hitoshi, 5,065,318, Cl. 364-419.000.

Suzuki Jisoshi Kogyo Kabushiki Kaisha: *See—*
Fujii, Isao, 5,063,810, Cl. 74-473.00R.

Suzuki, Katsuyoshi: *See—*
Sasaki, Akira; Sakai, Kazuyasu; and Suzuki, Katsuyoshi, 5,065,432, Cl. 381-61.000.

Suzuki, Kazuyuki: *See—*
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.

Suzuki, Keizo: *See—*
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Suzuki, Koichi: *See—*
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Suzuki, Koji: *See—*
Ito, Yujiro; Suzuki, Koji; and Kusaka, Satoshi, 5,065,455, Cl. 359-1.590.

Suzuki, Kouichi; Miyoshi, Norihito; Yoshida, Makoto; and Kokado, Masayuki, to Fujitsu Ltd. Semiconductor integrated circuit having interconnection with improved design flexibility, and method of production. 5,065,216, Cl. 357-48.000.

Suzuki, Masahiro: *See—*
Nagai, Akira; Sugawara, Katuo; Suzuki, Masahiro; Katagiri, Junichi; and Takahashi, Akio, 5,065,285, Cl. 361-414.000.

Suzuki, Masayuki: *See—*
Tanaka, Mamoru; Suzuki, Masayuki; and Kawakami, Koichi, 5,064,297, Cl. 384-100.000.

Suzuki, Masumi, to Kabushiki Kaisha Okuma Tekkosho. Position detecting apparatus having means for detecting DC components of AC detection signals. 5,065,095, Cl. 324-207.250.

Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Single-lens reflex camera system. 5,065,175, Cl. 354-400.000.

Suzuki, Shigehisa: *See—*
Matsuura, Tsukasa; Fujita, Jun; Uchizawa, Manabu; and Suzuki, Shigehisa, 5,065,271, Cl. 360-126.000.

Suzuki, Shosuke: *See—*
Yamaguchi, Michiyuki; Suzuki, Shosuke; and Yokobori, Takeo, 5,064,714, Cl. 428-219.000.

Suzuki, Takashi: *See—*
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

Suzuki, Takeshi: *See—*
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Suzuki, Tetsuji: *See—*
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Maseto; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.

Suzuki, Toshimitsu; Sakaguchi, Masakazu; Miyata, Yoshiyuki; and Mori, Tomoyuki, to Pola Chemical Industries Inc. Heterocyclic derivatives useful as radiosensitizing agents and antiviral agents. 5,064,849, Cl. 514-383.000.

Suzuki, Toshiyuki: *See—*
Kikuchi, Yoko; Ohashi, Yukihiro; Suzuki, Yuji; and Suzuki, Toshiyuki, 5,064,642, Cl. 424-61.000.

Suzuki, Tsuyoshi, to Brother Kogyo Kabushiki Kaisha. Driving force transmitting apparatus. 5,064,133, Cl. 242-67.30R.

Suzuki, Yasuo; and Takeguchi, Shunsuke, to Nippon Piston Ring Co., Ltd. Camshaft and method for producing the same. 5,064,608, Cl. 419-8.000.

Suzuki, Yasuo: *See—*
Ohnishi, Haruo; Kosuzume, Hiroshi; Mizota, Masahiro; Suzuki, Yasuo; and Mochida, Ei, 5,064,953, Cl. 540-226.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Suzuki, Yoshiji: *See*—
Shinoda, Kazunori; Wu, Ming H.; Suzuki, Yoshiji; and Poon, Ting-Chung, 5,064,257, Cl. 350-3.670.

Suzuki, Yoshiyuki; Funada, Masahiro; Sato, Mamoru; and Sato, Yukio, to Canon Kabushiki Kaisha. Image data coding apparatus. 5,065,446, Cl. 382-56.000.

Suzuki, Yuji: *See*—
Kikuchi, Yoko; Ohashi, Yukihiro; Suzuki, Yuji; and Suzuki, Toshiyuki, 5,064,642, Cl. 424-61.000.

Svenska Rotor Maskiner AB: *See*—
Englund, Arnold, 5,063,750, Cl. 62-196.300.

Swan, Ellen L.; Stachura, Leonard M.; Basu, Rajat S.; and Wilson, David P., to Allied-Signal Inc. Azeotrope-like compositions of 1,1,2-tri-chloro-1,2,2-trifluoroethane, 1,2-dichloroethylene, cyclopentane, methanol, nitromethane and optionally diisopropylamine. 5,064,558, Cl. 252-171.000.

Swank, Harry R., to Thomson Consumer Electronics, Inc. Method of forming a shrinkfit implosion protection band having a concavity therein. 5,064,394, Cl. 445-8.000.

Swars, Helmut, to Emitec Gesellschaft fur Emissionstechnologie m.b.H. Hollow composite member. 5,064,726, Cl. 428-586.000.

Sweet, William L.: *See*—
Fedder, Stephen C., 5,065,350, Cl. 364-571.030.

Swofford, Howard W.; and Gust, Stephen J., to Hoechst Celanese Corporation. In-line aminosilane coated polyester film for glazing products. 5,064,722, Cl. 428-447.000.

Sylvan, Richard: *See*—
Handler, Milton E.; Sylvan, Richard; Baisch, Herbert; and Naranjo, Michael, 5,064,156, Cl. 248-168.000.

Synrad, Incorporated: *See*—
Laakmann, Peter; Byron, Stanley R.; and Barrett, Michael W., 5,065,405, Cl. 372-92.000.

Synthelabo: *See*—
Depoortere, Henri; and George, Pascal, 5,064,836, Cl. 514-300.000.

Syntone: *See*—
Martin, Martial G., 5,064,179, Cl. 270-39.000.

Sypula, Donald S.: *See*—
Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, 5,064,509, Cl. 204-9.000.

Syremont S.p.A.: *See*—
Federici, Franco; Cozzi, Ennio; and Parrini, Paolo, 5,064,926, Cl. 528-49.000.

Szabo, Gerald S. Putting aid for golfers. 5,064,198, Cl. 273-189.00R.

Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , to Chinoin Gyogyszer es Vegyeszeti Termekek Gyara RT. Primycin-containing colloidal basic gel. 5,064,815, Cl. 514-31.000.

Szuts, Tamas: *See*—
Szentmiklosi, Peter; Szuts, Tamas; Nemes, Jozsef; Lengyel, Jozsef; Marton, Jeno ; Sarkozi, Peter; Babos nee Vajas, Erzsebet; and Schreiner nee Kovats, Eniko , 5,064,815, Cl. 514-31.000.

TA Instruments, Inc.: *See*—
Hendrick, Kendall; and Reader, John R., Jr., 5,065,106, Cl. 324-663.000.

Tabuchi, Toyoji: *See*—
Hikita, Mitsutaka; Tabuchi, Toyoji; Shibagaki, Nobuhiko; Isobe, Atsushi; and Kurosawa, Kazuhito, 5,065,065, Cl. 310-313.00B.

Tachi-S Co., Ltd.: *See*—
Ogasawara, Hiromitsu, 5,065,079, Cl. 318-281.000.

Taddiken, Albert H.; Yuan, Han-Tzong; and Shichijo, Hisashi, to Texas Instruments Incorporated. Programmable resistor and an array of the same. 5,065,132, Cl. 338-334.000.

Tagawa, Kenji: *See*—
Fujihara, Makoto; Horigome, Nobuyoshi; Moriya, Kaoru; Okamoto, Akira; Tagawa, Kenji; and Oda, Gan, 5,065,011, Cl. 250-227.240.

Taggart, John E.: *See*—
Yang, Kei-Wean C.; and Taggart, John E., 5,065,203, Cl. 357-24.000.

Taguchi, Mitsuru: *See*—
Hara, Junichiro; Taguchi, Mitsuru; and Takahashi, Hideo, 5,063,833, Cl. 98-2.000.

Tai, Hiromichi: *See*—
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, 5,065,102, Cl. 324-452.000.
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.

Tai, Wen-Tong, to Baroid Technology, Inc. Oil field tubular connection. 5,064,224, Cl. 285-94.000.

Takagi, Toshiaki: *See*—
Kamishita, Takuzo; and Takagi, Toshiaki, 5,064,122, Cl. 239-396.000.

Takahama, Takashi: *See*—
Adachi, Einosuke; Takahama, Takashi; Nakajima, Hiroyuki; Kazama, Tutomu; Hayashi, Satoru; and Sakita, Kikuo, 5,065,283, Cl. 361-407.000.

Takahashi, Akio: *See*—
Nagai, Akira; Sugawara, Katuo; Suzuki, Masahiro; Katagiri, Junichi; and Takahashi, Akio, 5,065,285, Cl. 361-414.000.

Takahashi, Atsushi: *See*—
Kobayashi, Hiroshi; Tsuboi, Kazuhiko; Takahashi, Atsushi; Maeda, Shigeo; and Yagi, Seiichi, 5,065,188, Cl. 355-219.000.

Takahashi, Daisuke, to Fuji Photo Film Co., Ltd. Case for accommodating a magnetic tape cassette. 5,064,065, Cl. 206-387.000.

Takahashi, Hideo: *See*—
Hara, Junichiro; Taguchi, Mitsuru; and Takahashi, Hideo, 5,063,833, Cl. 98-2.000.

Takahashi, Isao; Tanaka, Kazuhiko; Nishihiro, Akinori; and Irino, Takeshi, to Mitsubishi Denki Kabushiki Kaisha. Flywheel type energy storage apparatus. 5,065,060, Cl. 310-74.000.

Takahashi, Mamoru: *See*—
Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, 5,064,920, Cl. 526-249.000.

Takahashi, Masashi; Nakamura, Yuka; Kajiura, Sadao; and Tsunemi, Koichi, to Kabushiki Kaisha Toshiba. Pigment containing film coating method utilizing a colliding of two flow streams. 5,064,696, Cl. 427-430.100.

Takahashi, Ryoichi, to Kabushiki Kaisha Toshiba. Magnetic resonance imaging apparatus. 5,063,933, Cl. 128-653.500.

Takahashi, Shigeyuki: *See*—
Ito, Toshiyasu; Funahashi, Toshikazu; Ogisu, Yasuhiko; Takahashi, Shigeyuki; and Senda, Masanobu, 5,064,679, Cl. 427-8.000.

Takahashi, Shinichi, to Pioneer Electronic Corporation. Optical pick-up aparatus. 5,065,381, Cl. 369-44.230.

Takahashi, Toshiaki: *See*—
Fujiki, Hironao; Shiono, Mikio; and Takahashi, Toshiaki, 5,064,891, Cl. 524-264.000.

Takahashi, Tsutomu, to Fuji Jukogyo Kabushiki Kaisha. Device for determining malfunctioning of electric-motor-assisted power steering system of motor vehicle. 5,065,325, Cl. 364-424.050.

Takahashi, Tsutomu: *See*—
Oshita, Saiichiro; Mouri, Toynhiko; and Takahashi, Tsutomu, 5,065,324, Cl. 364-424.050.

Takahashi, Yukio: *See*—
Takao, Kunihiko; Tojo, Kenji; Hayase, Isao; Takahashi, Yukio; and Ito, Masaru, 5,063,829, Cl. 92-71.000.

Takakado, Yuzo, to Shinko Electric Co., Ltd. Engine driven generator. 5,065,086, Cl. 322-10.000.

Takaki, Katherine S., to Bristol-Myers Squibb Co. Naphthothiophenimines for treating neuronal disorders caused by ischemia. 5,064,831, Cl. 514-255.000.

Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, to Victor Company of Japan, Ltd. Apparatus for detecting distribution of electric surface potential. 5,065,102, Cl. 324-452.000.

Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, to Victor Company of Japan, Ltd. Image pick-up apparatus. 5,065,250, Cl. 358-300.000.

Takano, Fumio; and Nakamura, Eitaro, to Nippon Zeon Co., Ltd. Magnetic recording medium. 5,064,730, Cl. 428-694.000.

Takano, Masahide: *See*—
Yabe, Norio; Iijima, Takeshi; Itaya, Kazunori; and Takano, Masahide, 5,065,174, Cl. 354-222.000.

Takao, Kunihiko; Tojo, Kenji; Hayase, Isao; Takahashi, Yukio; and Ito, Masaru, to Hitachi, Ltd. Variable displacement swash plate type compressor. 5,063,829, Cl. 92-71.000.

Takasaki, Naruto; and Tanaka, Yutake, to Hitachi Software Engineering Co., Ltd. Pattern recognition apparatus. 5,065,439, Cl. 382-25.000.

Takashima, Hideo, to Hitachi, Ltd. TDMA satellite communication method and system. 5,065,398, Cl. 370-94.100.

Takashima, Susumu; and Uchida, Kunihiko, to Jeol Ltd. Electromagnetic lens. 5,065,027, Cl. 250-356.0ML.

Takata, Inc.: *See*—
Hartmeyer, James, 5,064,218, Cl. 280-743.000.

Takeda Chemical Industries, Ltd.: *See*—
Izuhara, Seiji; Kakiguchi, Yoshitomi; and Yokota, Kunihiko, 5,064,829, Cl. 514-249.000.

Takeda, Hidekazu: *See*—
Ohmori, Motonori; Nishida, Ikuo; Iyota, Koji; Takeda, Hidekazu; Iwakura, Masao; and Itou, Tetsuo, 5,065,264, Cl. 360-85.000.

Takeda, Shuichiro: *See*—
Suzuki, Hideaki; Hosoyama, Kenji; Takeda, Shuichiro; and Kamikura, Rinzo, 5,064,717, Cl. 428-352.000.

Takeda, Yoshiyuki: *See*—
Nagao, Tsuyoshi; Irie, Yoichiro; Takeda, Yoshiyuki; and Kida, Yasuhiko, 5,064,188, Cl. 271-301.000.

Takegahara, Takashi: *See*—
Seki, Masaki; Takegahara, Takashi; and Kajitani, Akira, 5,065,332, Cl. 364-474.220.

Takeguchi, Shunsuke: *See*—
Suzuki, Yasuo; and Takeguchi, Shunsuke, 5,064,608, Cl. 419-8.000.

Takehara, Sadao; Kuriyama, Takeshi; Fujisawa, Toru; Nakamura, Kayoko; Hiyama, Tamejiro; Kusumoto, Tetsuo; and Nakayama, Akiko, to Dainippon Ink and Chemicals, Inc.; and Sagami Chemical Research Center. Optically active compound, intermediate therefor, process for producing the intermediate, and liquid-crystal composition. 5,064,564, Cl. 25.2-299.610.

Takemoto, Hiroshi; Murayama, Noboru; and Sato, Kei, to Ricoh Company, Ltd. Focusing system and image input apparatus having automatic focusing system which uses digital processing. 5,065,246, Cl. 358-227.000.

Takeshita, Fusayuki: *See*—
Terashima, Kanetsugu; Ichihashi, Mitsuyoshi; Kikuchi, Makoto; Takeshita, Fusayuki; and Furukawa, Kenji, 5,064,568, Cl. 252-299.610.

Takeuchi, Hajime: *See*—
Wakatsuki, Yoshio; Okuyama, Toshiharu; Takeuchi, Hajime; Shimizu, Giichiro; and Shimizu, Misao, 5,065,003, Cl. 235-472.000.

Takeya, Noriyoshi; Ishii, Hidehiro; Miura, Chiharu; and Fukuda, Tatsuya, to Pioneer Electronic Corporation. Servo system responsive to noise and having variable characteristic filter means. 5,065,386, Cl. 369-44.320.

Takiguchi, Yasuyuki; Kanemoto, Akihiko; Iida, Shigeki; and Toyooka, Takehiro, to Ricoh Company, Ltd.; and Nippon Oil Company, Limited. Subetrate with a liquid crystal polymeric thin film and method for manufacturing the same. 5,064,697, Cl. 428-1.000.

Takizawa, Yoshinori: *See*—
Yoshida, Naoko; and Takizawa, Yoshinori, 5,065,440, Cl. 382-30.000.

Taliani, Laurent: *See*—
Brayer, Jean-Louis; Taliani, Laurent; and Tessier, Jean, 5,064,861, Cl. 514-617.000.

Tamai, Shinzo; and Sugimoto, Hidehiko, to Mitsubishi Denki Kabushiki Kaisha. Controller for AC power converter. 5,065,304, Cl. 363-95.000.

Tamamoto, Seishi: *See*—
Okamoto, Ryuichi; Nishiguchi, Masato; Kasugai, Hiroshi; and Tamamoto, Seishi, 5,064,999, Cl. 235-379.000.

Tamamushi, Takashige: *See*—
Nishizawa, Jun-Ichi; Tamamushi, Takashige; and Maeda, Hideo, 5,065,206, Cl. 357-30.000.

Tamaru, Shinji; Yamamoto, Katsutoshi; Tanaka, Osamu; Nishibayashi, Hirofumi; and Inoue, Osamu, to Daikin Industries Ltd. Process for producing multilayer polytetrafluoroethylene porous membrane. 5,064,593, Cl. 264-113.000.

Tamlyn, Robert: *See*—
Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, 5,065,368, Cl. 365-230.050.

Tamura, Masao: *See*—
Tanimura, Masatake; Tamura, Masao; and Teshima, Takashi, 5,064,539, Cl. 210-659.000.

Tan, Chee-Teck; Kang, Young C.; Sudol, Marion A.; King, Chwan K.; and Schulman, Marvin, to International Flavors & Fragrances, Inc. Method of making controlled release flavors. 5,064,669, Cl. 426-307.000.

Tanahashi, Toshio: *See*—
Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, 5,063,886, Cl. 123-65.0VD.

Tanaka, Hisao: *See*—
Shiga, Shujiro; Kabesawa, Koji; Ohmae, Tadayuki; and Tanaka, Hisao, 5,064,879, Cl. 523-310.000.

Tanaka, Kazuhiko: *See*—
Takahashi, Isao; Tanaka, Kazuhiko; Nishihiro, Akinori; and Irino, Takeshi, 5,065,060, Cl. 310-74.000.

Tanaka, Kazuhiro; Kojima, Shuichi; Kaneko, Susumu; and Chikuma, Takayuki, to Nissan Motor Co., Ltd. Loom with device for automatically exchanging cloth beams. 5,063,970, Cl. 139-1.00R.

Tanaka, Mamoru; Suzuki, Masayuki; and Kawakami, Koichi, to Nippon Seiko Kabushiki Kaisha. Static pressure gas bearing with throttling control valve in housing. 5,064,297, Cl. 384-100.000.

Tanaka, Mitsuo: *See*—
Inui, Yoshio; Osaka, Masayoshi; Tanaka, Mitsuo; Miyamoto, Masao; Hasegawa, Tooru; Kamitaka, Masuo; Kai, Hidekazu; and Kamikubo, Hiroshi, 5,064,255, Cl. 312-405.000.

Tanaka, Osamu: *See*—
Tamaru, Shinji; Yamamoto, Katsutoshi; Tanaka, Osamu; Nishibayashi, Hirofumi; and Inoue, Osamu, 5,064,593, Cl. 264-113.000.

Tanaka, Sakae; and Watanabe, Yoshiaki, to Seikosha Co., Ltd. Amorphous silicon thin film transistor array substrate and method for producing the same. 5,065,202, Cl. 357-23.700.

Tanaka, Shinichiro: *See*—
Iwatsuki, Kunihiro; and Tanaka, Shinichiro, 5,065,319, Cl. 364-424.100.

Tanaka, Toshiaki, to Kabushiki Kaisha Toshiba. Apparatus for measuring light output from semiconductor light emitting element. 5,065,007, Cl. 250-215.000.

Tanaka, Yuko: *See*—
Ebata, Nobuyoshi; Tanaka, Yuko; and Negishi, Akiko, 5,064,768, Cl. 436-164.000.

Tanaka, Yutake: *See*—
Takasaki, Naruto; and Tanaka, Yutake, 5,065,439, Cl. 382-25.000.

Tanashin Denki Co., Ltd.: *See*—
Yoshimura, Toshio, 5,065,266, Cl. 360-96.300.

Taneda, Satoru: *See*—
Fujimori, Sadao; Yamamoto, Akira; and Taneda, Satoru, 5,063,773, Cl. 73-117.000.

Tangonan, Gregory L.: *See*—
Kern, Mark T.; Wetzork, John M.; Shamordola, Kenneth A.; and Tangonan, Gregory L., 5,064,271, Cl. 385-33.000.

Tani, Hidekazu: *See*—
Nakamura, Takashi; Tani, Hidekazu; and Kasai, Tomohiko, 5,063,752, Cl. 62-225.000.

Tani, Hiroji: *See*—
Watanabe, Shizuharu; and Tani, Hiroji, 5,064,573, Cl. 252-518.000.

Taniguchi, Masayuki: *See*—
Itoh, Shinichi; Sato, Hiroaki; and Taniguchi, Masayuki, 5,065,187, Cl. 355-215.000.

Taniguchi, Nobuyuki; Ishikawa, Norio; Akada, Yasuaki; Egawa, Takeshi; and Kawamura, Kunio, to Minolta Camera Kabushiki Kaisha. Camera system capable of automatic focus control. 5,065,176, Cl. 354-402.000.

Tanikawa, Masayoshi: *See*—
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, 5,064,252, Cl. 303-9.730.

Tanimura, Masatake; Tamura, Masao; and Teshima, Takashi, to Ryoka Techno Engineering & Construction Co. Method of chromatographic separation. 5,064,539, Cl. 210-659.000.

Tanishima, Masami: *See*—
Sato, Masamitu; and Tanishima, Masami, 5,063,936, Cl. 128-674.000.

Tanner Chemical Company, Inc.: *See*—
Martin, Robin A., 5,064,896, Cl. 524-731.000.

Tanuma, Jiro; Ishimizu, Hideaki; Kasai, Tadashi; and Komori, Chihiro, to Oki Electric Industry Co., Ltd. Temperature control in a wire dot printer. 5,064,302, Cl. 400-124.000.

Tappex Thread Inserts Limited: *See*—
Barnadale, Timothy J. R., 5,064,323, Cl. 411-178.000.

Tararine, Michel; Thevenin, Bernard; and Marcaud, Monique, to Commissariat a l'Energie Atomique. Process for locating nuclear radiation with reduction of moire phenomenon. 5,065,316, Cl. 364-413.240.

Tardif, Denis: *See*—
Bergeron, Ghislain J.; and Bergeron, Bernard, 5,064,335, Cl. 414-522.000.

Tarney, Robert E.: *See*—
Priester, Donnan E.; and Tarney, Robert E., 5,064,594, Cl. 264-127.000.

Tashiro, Takeshi; Fushimi, Kazuhiro; and Sugimoto, Kazuaki, to Tokyo Electric Company, Ltd. Label issuing apparatus. 5,065,002, Cl. 235-472.000.

Tashiro, Yoshiharu: *See*—
Kasahara, Kenichi; Ogura, Ichiro; and Tashiro, Yoshiharu, 5,065,044, Cl. 307-324.000.

Tateishi, Kiyoshi; and Sakata, Haruyasu, to Pioneer Electronic Corporation. Tracking servo system adapted to operate with variable track pitch. 5,065,383, Cl. 369-44.280.

Tatemoto, Kazuhiko: *See*—
Le, Dean A.; and Tatemoto, Kazuhiko, 5,064,767, Cl. 436-89.000.

Tatham Cutlery Manufacturing Company Pty Limited: *See*—
Rowell, Geoffrey D., 5,063,674, Cl. 30-305.000.

Tatsuta Electric Wire and Cable Co., Ltd.: *See*—
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

Tauscher, Joachim: *See*—
Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, 5,063,903, Cl. 123-500.000.

Tavi, Seppo, to Valmet Paper Machinery Inc. Combination comprising the press section and the initial part of the drying section in a paper making machine. 5,064,503, Cl. 162-359.000.

Tawekawa Tekko Kabushiki Kaisha: *See*—
Okajima, Hiroshi; and Sudo, Susumu, 5,064,445, Cl. 51-293.000.

Taylor, John B.; and Ellis, Michael K., to Hewlett-Packard Company. Method and apparatus for distinguishing narrowband continuous wave signals from broadband and impulsive signals. 5,065,334, Cl. 364-485.000.

Taylor Made Golf Company, Inc.: *See*—
Morell, Joseph, 5,064,199, Cl. 273-232.000.

Taylor, Robert M., to Smiths Industries Public Limited Company. Optical encoders using transmitted and reflected light detection having complementary output. 5,065,013, Cl. 250-231.180.

Taylor, Robert S.: *See*—
Pachla, Sylvia K.; Taylor, Robert S.; and Delorey, John R., 5,063,997, Cl. 166-279.000.

Taylor, Stephen A.: *See*—
Ford, Lionel H.; and Taylor, Stephen A., 5,064,449, Cl. 55-52.000.

Tazi, Mohammed; and Login, Robert B., to ISP Investments Inc. Process for making ethanol solutions of alkyl half-esters of copolymers of maleic anhydride and a C_1-C_4 alkyl vinyl ether. 5,064,897, Cl. 524-765.000.

TDK Corporation: *See*—
Koyanagi, Tsutomu; and Kimura, Fujimi, 5,065,270, Cl. 360-123.000.

Technical Telephone Systems, Inc.: *See*—
Sandbrand, Alexander, 5,065,151, Cl. 340-825.220.

Technicon Instruments Corporation: *See*—
Czech, Bronislaw P., 5,064,955, Cl. 540-469.000.
Negersmith, Kent M.; and Farrell, Gregory A., 5,064,542, Cl. 210-798.000.

Tecumseh Products Company: *See*—
van Kaler, Roland L., 5,063,794, Cl. 74-371.000.

Tegtmeier, Sheldon D., to Tegtmeier & Sons, Inc. High lift dump box. 5,064,248, Cl. 298-11.000.

Tegtmeier & Sons, Inc.: *See*—
Tegtmeier, Sheldon D., 5,064,248, Cl. 298-11.000.

Teijin Limited: *See*—
Asanuma, Akira; and Shida, Tomonori, 5,064,496, Cl. 156-468.000.

Teijin Seiki Co., Ltd.: *See*—
Kamimura, Toshio, 5,063,828, Cl. 92-26.000.

Tektronix, Inc.: *See*—
Yang, Kei-Wean C.; and Taggart, John E., 5,065,203, Cl. 357-24.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Telectronics Pacing Systems, Inc.: *See—*
Grevis, Richard; Holley, Lorain K.; Maker, Philip J.; Drane, Geoffrey A.; Parle, Andrew; Sands, Andrew; Parkin, Rodney; and Dyson, Paul, 5,063,928, Cl. 128-419.00D.

Teledyne MEC: *See—*
Ludvik, Stephen; Steel, Victor E.; and Scott, Douglas, 5,065,110, Cl. 330-149.000.

Telic Alcatel: *See—*
Lecomte, Daniel; Galopin, Norbert; and Lemaistre, Jacques, 5,065,425, Cl. 379-93.000.

Teng, Hsieh-Yi. Display device having magnifying and contracting images. 5,065,289, Cl. 362-101.000.

Tennant Company: *See—*
Masbruch, Richard D.; and Andrews, Arthur A., 5,064,010, Cl. 180-6.500.

Teramoto, Tadashi: *See—*
Sawada, Yoshiaki; Kageyama, Yoshiteru; and Teramoto, Tadashi, 5,064,464, Cl. 75-347.000.

Teranishi, Akihiko, to Teranishi Electric Works Ltd. Massage machine. 5,063,911, Cl. 128-32.000.

Teranishi Electric Works Ltd.: *See—*
Teranishi, Akihiko, 5,063,911, Cl. 128-32.000.

Teranishi, Roy: *See—*
Buttery, Ronald G.; Teranishi, Roy; Ling, Louisa C.; and Turnbaugh, Jean G., 5,064,673, Cl. 426-534.000.

Teraoka, Yasuhiro: *See—*
Ueda, Tetsuya; Shimamoto, Haruo; Yagoura, Hideya; Seki, Hiroshi; and Teraoka, Yasuhiro, 5,064,706, Cl. 428-131.000.

Terashima, Kanetsugu; Ichihashi, Mitsuyoshi; Kikuchi, Makoto; Takeshita, Fusayuki; and Furukawa, Kenji, to Chisso Corporation. Ferroelectric liquid crystal composition. 5,064,568, Cl. 252-299.610.

Terashima, Tomohide, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor device and fabrication method thereof. 5,065,219, Cl. 357-50.000.

Terazawa, Masaaki: *See—*
Tsuchiya, Michio; and Terazawa, Masaaki, 5,065,168, Cl. 346-76.0PH.

Terex Corporation: *See—*
Fujan, Steven J.; and Loeber, Frederick W., 5,064,242, Cl. 296-190.000.
Loeber, Frederick W., 5,064,023, Cl. 182-90.000.

Teroson G.m.b.H.: *See—*
Duck, Edward W.; Scheffler, Ingolf; and Hirthammer, Michael, 5,064,494, Cl. 156-273.500.

Terragnoli, Louis: *See—*
Panneri, Alfred J.; and Terragnoli, Louis, 5,063,803, Cl. 83-203.000.

Teshima, Takashi: *See—*
Tanimura, Masatake; Tamura, Masao; and Teshima, Takashi, 5,064,539, Cl. 210-659.000.

Tessier, Jean: *See—*
Brayer, Jean-Louis; Taliani, Laurent; and Tessier, Jean, 5,064,861, Cl. 514-617.000.

Teutsch, Jean G.: *See—*
Philibert, Daniel; Teutsch, Jean G.; Costerousse, Germain; and Deraedt, Roger, 5,064,822, Cl. 514-172.000.

Teva Pharmaceutical Industries, Inc.: *See—*
Crammer, Bernard; Ikan, Raphael; Mumicuoglu, Yani K.; and Weinstein, Vera, 5,064,859, Cl. 514-560.000.

Texaco Chemical Company: *See—*
Speranza, George P.; Naylor, Carter G.; and Lin, Jiang-Jen, 5,064,571, Cl. 252-357.000.

Texaco Inc.: *See—*
Supernaw, Irwin R.; and Williams, Thomas M., 5,065,016, Cl. 250-264.000.

Texas Instruments Incorporated: *See—*
Bartling, James E.; and Heaton, Dale A., 5,065,043, Cl. 307-296.800.
Miller, Patrick E., 5,064,498, Cl. 156-626.000.
Paterson, James L.; and Tigelaar, Howard L., 5,065,220, Cl. 357-51.000.
Shah, Rajiv R.; and Tran, Toan, 5,065,208, Cl. 357-34.000.
Spratt, David; and Shah, Rajiv R., 5,065,209, Cl. 357-34.000.
Taddiken, Albert H.; Yuan, Han-Tzong; and Shichijo, Hisashi, 5,065,132, Cl. 338-334.000.
Verret, Douglas P., 5,065,217, Cl. 357-49.000.

Tezuka, Akira: *See—*
Horiguchi, Hyosei; Tezuka, Akira; Kagohata, Tsuneo; and Ito, Toshikazu, 5,065,015, Cl. 250-237.00R.

Tezuka, Kazuhiko: *See—*
Fujita, Masafumi; Tezuka, Kazuhiko; and Kuriyama, Masaaki, 5,065,182, Cl. 355-202.000.

Tezuka, Toshiaki: *See—*
Koshizuka, Kunihiro; Tezuka, Toshiaki; and Abe, Takao, 5,064,743, Cl. 430-253.000.

TFT, Inc.: *See—*
Wu, Joseph C.; Hu, Charlie L.; and Law, Yee S., 5,065,450, Cl. 455-20.000.

Th. Goldschmidt AG: *See—*
Kollmeier, Hans-Joachim; Burkhart, Georg; Langenhagen, Rolf-Dieter; Lammerting, Helmut; and Klietsch, Bernd-Jurgen, 5,064,870, Cl. 521-111.000.

Theis, Ulrich: *See—*
Bisping, Bernard; Vagedes, Michael; Kessler, Sigfried; and Theis, Ulrich, 5,063,854, Cl. 102-520.000.

Theurer, Josef; and Worgotter, Herbert, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Machine for picking up tie plates. 5,063,856, Cl. 104-9.000.

Thevenin, Bernard: *See—*
Tararine, Michel; Thevenin, Bernard; and Marcaud, Monique, 5,065,316, Cl. 364-413.240.

Thiery, Urs: *See—*
Grogler, Gerhard; Thiery, Urs; Ruckes, Andreas; Kopp, Richard; and Hess, Heinrich, 5,064,875, Cl. 521-159.000.

Thill, Fernand; and Schoumacher, Carlo, to Arbed S.A. Device for continuously measuring the temperature of a molten metal. 5,064,295, Cl. 374-139.000.

Thoma, Martin; Bindl, Monika; and Linska, Josef, to MTU Motoren- und Turbinen-Union Muenchen GmbH. Method for producing a galvanically deposited protection layer against hot gas corrosion. 5,064,510, Cl. 204-16.000.

Thomanek, Walter, to Allied-Signal Inc. Optical equipment mounting device. 5,064,278, Cl. 359-480.000.

Thomas, Bernard M., to Mast-Air Enterprise. Method for and apparatus of monitoring how an operator operates a machine. 5,065,349, Cl. 364-550.000.

Thomas & Betts Corporation: *See—*
Lybrand, Brent B., 5,064,387, Cl. 439-607.000.

Thomas, Gary D., to General Electric Company. Electrically-tunable bandpass filter. 5,065,453, Cl. 455-286.000.

Thompson, Laurence A.: *See—*
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,143, Cl. 340-701.000.
Greaves, Paul E.; Moore, Michael R.; Perlman, Stephen G.; and Thompson, Laurence A., 5,065,231, Cl. 358-22.000.

Thomsen, Joseph A.; and Ulmer, Richard W., to VLSI Technology, Inc. Self-configuring clock interface circuit. 5,065,042, Cl. 307-269.000.

Thomson Consumer Electronics, Inc.: *See—*
Swank, Harry R., 5,064,394, Cl. 445-8.000.

Thomson-CSF: *See—*
Turpin, Marc; Vignolle, Jean-Michel; Charasse, Marie-Noel; and Le Pesant, Jean-Pierre, 5,064,270, Cl. 350-96.290.

Thomson, R. Glenn; and Tsoi, Paul Y., to Com Dev Ltd. C-, S- and T-switches operated by permanent magnets. 5,065,125, Cl. 335-5.000.

Thorn EMI plc: *See—*
Baker, Christopher J. S.; and Whalley, Peter D., 5,064,618, Cl. 422-82.010.
Greb, Ulrich, 5,065,075, Cl. 315-248.000.

Thornton, Martin: *See—*
Hesketh, John; and Thornton, Martin, 5,065,074, Cl. 315-209.00R.

Tice, George, Jr.; and Amorese, Douglas A., to Du Pont de Nemours, E. I., and Company. Neutral and positively charged dyes for electrophoresis sample loading solutions. 5,064,519, Cl. 204-182.800.

Tigelaar, Howard L.: *See—*
Paterson, James L.; and Tigelaar, Howard L., 5,065,220, Cl. 357-51.000.

Tinge, Johan T.: *See—*
Zwart, Rudolf L.; and Tinge, Johan T., 5,064,627, Cl. 423-248.000.

Tinsley, Michael; Johns, Antony; and Philby, Jonathan D., to AE Turbine Components Limited. Processing of metal articles. 5,064,990, Cl. 219-121.720.

Tjassens, Hindrik: *See—*
Kluitmans, Johannes T. M.; Tjassens, Hindrik; and Kock, Hendrikus G., 5,065,226, Cl. 357-74.000.

TMC Corporation: *See—*
Ferdinand, Platter; and Paul, Rosenich, 5,064,215, Cl. 280-612.000.

Toagosei Chemical Industry Co., Ltd.: *See—*
Marumoto, Etsuzo; Koyama, Masanobu; Iida, Akihito; Sakamoto, Yukiya; Aoyama, Makoto; and Takahashi, Mamoru, 5,064,920, Cl. 526-249.000.

Tober, Richard L., to United States of America, Army. Spectroscopy characterization module. 5,064,283, Cl. 356-73.000.

Tobishima, Takaaki: *See—*
Kawai, Toshihiko; and Tobishima, Takaaki, 5,065,346, Cl. 395-128.000.

Tobita, Youichi, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor integrated circuit device testing. 5,065,091, Cl. 324-158.00R.

Tobler, Arnold: *See—*
Jung, Rolf; Schwartzott, Jack M.; Pieroni, Robert J.; and Tobler, Arnold, 5,063,800, Cl. 83-14.000.

Toda, Haruki, to Kabushiki Kaisha Toshiba. Video memory device. 5,065,369, Cl. 365-230.050.

Toda, Junichi, to Shimano Industrial Company Limited. Fishing reel with click-free anti-reverse mechanism. 5,064,139, Cl. 242-295.000.

Todd, Philip A.; and Walker, Bobby R. Piezoelectric circuit. 5,065,067, Cl. 310-339.000.

Togashi, Eiki; and Matsumoto, Hisashi, to Mitsui Petrochemical Industries, Ltd. Epoxy resin composition and semiconductor sealing material comprising same based on spherical silica. 5,064,881, Cl. 523-443.000.

Togawa, Fumio: *See—*
Hirose, Hitoshi; and Togawa, Fumio, 5,065,438, Cl. 382-13.000.

Tohjigamori, Manbu: *See—*
Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, 5,064,760, Cl. 435-118.000.

Toji, Shigeo: *See—*
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, 5,065,175, Cl. 354-400.000.

Tojo, Kenji: *See—*
Takao, Kunihiko; Tojo, Kenji; Hayase, Isao; Takahashi, Yukio; and Ito, Masaru, 5,063,829, Cl. 92-71.000.

Tokai Company: *See—*
Tsunoda, Ichiro; and Eguchi, Toshiyasu, 5,064,275, Cl. 359-55.000.

Tokai Kogyo Co., Ltd.: *See—*
Saito, Osamu; Yagi, Norihiko; and Ito, Yoshinori, 5,064,784, Cl. 501-33.000.

Tokai Rubber Industries, Ltd.: *See—*
Goto, Katsuhiro, 5,064,176, Cl. 267-140.100.

Tokarz, Marek T.: *See—*
Jaras, Sven G.; Tokarz, Marek T.; and Persson, Borje, 5,064,792, Cl. 502-60.000.

Tokico Ltd.: *See—*
Ashiba, Masahiro, 5,064,032, Cl. 188-299.000.
Uehara, Satoshi; Ohtani, Yukio; and Iriyama, Yoshiko, 5,065,062, Cl. 310-114.000.

Toko Yakuhin Kogyo Kabushiki Kaisha: *See—*
Kamishita, Takuzo; and Takagi, Toshiaki, 5,064,122, Cl. 239-396.000.

Tokubo, Kazuo: *See—*
Nakajima, Hideo; Kawada, Kiyoshi; and Tokubo, Kazuo, 5,064,644, Cl. 424-83.000.

Tokutsu, Akihito, to Kabushiki Kaisha Toshiba. Automatic original feeding device with feeding roller. 5,064,182, Cl. 271-3.000.

Tokyo Electric Co., Ltd.: *See—*
Matsumoto, Yasuo; Murakami, Kazunori; Ikumi, Tomonori; and Iwafune, Yasuo, 5,064,262, Cl. 359-205.000.
Tashiro, Takeshi; Fushimi, Kazuhiro; and Sugimoto, Kazuaki, 5,065,002, Cl. 235-472.000.

Tokyo Electron Limited: *See—*
Asakawa, Teruo; and Ohsawa, Tetsu, 5,064,337, Cl. 414-639.000.

Tokyo Keiki Co., Ltd.: *See—*
Akaba, Noriyuki; Yagi, Hiroshi; and Miyoshi, Yoji, 5,065,162, Cl. 342-417.000.

Tolliver, Howard R.: *See—*
Bailey, Terry R.; Kult, Roger R.; Tolliver, Howard R.; and Dickson, Arthur D., 5,064,272, Cl. 359-541.000.

Tomashot, Steven W.: *See—*
Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, 5,065,368, Cl. 365-230.050.

Tomioka, Katsumi: *See—*
Onishi, Toshihiko; and Tomioka, Katsumi, 5,063,964, Cl. 137-614.030.

Tomisawa, Yutaka; Ishii, Tetsuo; and Inoue, Kazuhiko, to Kabushiki Kaisha Toshiba. Magnetoelectric element and magnetoelectric apparatus. 5,065,204, Cl. 357-27.000.

Tomita, Akio: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itob, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Tomita, Eizo; and Asai, Yutaka, to Oki Electric Industry Co., Ltd. Contention control system. 5,065,153, Cl. 340-825.500.

Tomozane, Mamoru: *See—*
Cambou, Bertrand F.; Liaw, H. Ming; and Tomozane, Mamoru, 5,064,781, Cl. 437-132.000.

Tomy, Inc.: *See—*
Kawaguchi, Kozo, 5,064,369, Cl. 433-3.000.

Tone, Junsuke: *See—*
Cullen, Walter P.; Hauske, James R.; Kostek, Gloria J.; Maeda, Hiroshi; and Tone, Junsuke, 5,064,855, Cl. 514-460.000.

Toppan Printing Co., Ltd.: *See—*
Yoshida, Masato; and Watanabe, Niro, 5,064,807, Cl. 503-227.000.

Toray Industries, Inc.: *See—*
Kanaya, Eizo; Chujo, Yoshihiro; Hano, Shigehiro; and Hara, Hidetoshi, 5,065,196, Cl. 355-308.000.

Toray Silicone Company, Ltd.: *See—*
Hamada, Yuji; Sasaki, Shosaku; and Masaoka, Hiroshi, 5,064,876, Cl. 522-99.000.
Sasaki, Shosaku; and Masaoka, Hiroshi, 5,064,916, Cl. 525-478.000.

Torii, Naoya; Akiyama, Ryota; and Azuma, Mitsuhiro, to Fujitsu Limited. Voice band splitting scrambler. 5,065,430, Cl. 380-38.000.

Torii, Takahiro; Miyauchi, Masahiro; Funae, Haruyoshi; and Kiriyama, Tomonori, to Mitsubishi Paper Mills Limited. Thermosensitive recording materials. 5,064,806, Cl. 503-200.000.

Torikata, Akio: *See—*
Haneishi, Tatsuo; Nakajima, Mutsuo; Torikata, Akio; Okazaki, Takao; Tohjigamori, Manbu; and Kawakubo, Katsuhiko, 5,064,760, Cl. 435-118.000.

Toth, Andras. Quick release band clamp. 5,063,642, Cl. 24-274.00R.

Toto Ltd.: *See—*
Tsutsui, Osamu; Yoshida, Takao; and Inoue, Shoji, 5,063,622, Cl. 4-623.000.

Tovex Tech, Inc.: *See—*
Rich, Donald S., 5,065,089, Cl. 324-158.00F.

Toyo Communication Equipment Co., Ltd.: *See—*
Habiro, Tetsuo; and Kashiwa, Takeo, 5,065,088, Cl. 324-117.00H.

Toyo Seikan Kaisha, Ltd.: *See—*
Morofuji, Akihiko; Morotomi, Masaki; Machii, Akihiko; Aizawa, Masanori; and Ishibashi, Kazuhisa, 5,065,183, Cl. 355-202.000.

Toyoda Gosei Co., Ltd.: *See—*
Ito, Toshiyasu; Funahashi, Toshikazu; Ogisu, Yasuhiko; Takahashi, Shigeyuki; and Senda, Masanobu, 5,064,679, Cl. 427-8.000.
Shiraki, Kouji, 5,064,217, Cl. 280-743.000.

Toyoda Koki Kabushiki Kaisha: *See—*
Asano, Hiroaki; and Yamamoto, Masaji, 5,063,738, Cl. 60-329.000.

Toyomoto, Kazuo; Doi, Shoichi; and Kubota, Noboru, to Asahi Kasei Kogyo Kabushiki Kaisha. Selectively ion-adsorptive, porous membrane having side chains containing both a neutral hydroxyl group and an ion exchange group. 5,064,866, Cl. 521-27.000.

Toyooka, Takehiro: *See—*
Takiguchi, Yasuyuki; Kanemoto, Akihiko; Iida, Shigeki; and Toyooka, Takehiro, 5,064,697, Cl. 428-1.000.

Toyooka, Yutaka: *See—*
Kishida, Kazuo; Toyooka, Yutaka; and Kitahara, Haruyoshi, 5,064,906, Cl. 525-293.000.

Toyota Jidosha Kabushiki Kaisha: *See—*
Arai, Masatoshi; Satoh, Shinichi; Kimura, Tsuneo; Suzuki, Kazuyuki; Kagosaki, Tatsuya; and Shimada, Seiji, 5,064,898, Cl. 524-780.000.
Fujimori, Fumio; Tanikawa, Masayoshi; Nagashima, Takashi; Nagamori, Kiyonobu; and Onuki, Hideo, 5,064,252, Cl. 303-9.730.
Ishiyama, Shinobu; Kumai, Teruo; Ishisaka, Kazuyoshi; Machara, Toshiyuki; Fujimori, Makoto; and Nemoto, Kimio, 5,063,744, Cl. 60-600.000.
Iwatsuki, Kunihiro; and Tanaka, Shinichiro, 5,065,319, Cl. 364-424.100.
Kanamaru, Masanobu; Nakamura, Norihiko; Tanahashi, Toshio; Kido, Yoshio; Ito, Toshio; and Hirose, Katsuhiko, 5,063,886, Cl. 123-65.0VD.
Soga, Yoshinobu; and Sugaya, Masami, 5,063,816, Cl. 74-868.000.

Tozu, Kenji: *See—*
Kawana, Kazutaka; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; and Tozu, Kenji, 5,064,253, Cl. 303-106.000.

Tracy, Rhonda. Disposable diaper with padded waistband and legholes. 5,064,421, Cl. 604-385.100.

Traft, James: *See—*
Garwood, Joe; Baldasarre, Thomas; Delara, Mario; Pagliarini, John, Jr.; Poturnicki, Alfred, Jr.; and Traft, James, 5,065,372, Cl. 367-152.000.

Tran, Toan: *See—*
Shah, Rajiv R.; and Tran, Toan, 5,065,208, Cl. 357-34.000.

TransTechnology Corporation: *See—*
Westover, Dwight G., 5,064,186, Cl. 271-188.000.

Travis, Stephen C.: *See—*
Smith, Frank E.; and Travis, Stephen C., 5,063,624, Cl. 5-63.000.

Travor, Bruce W.: *See—*
Marshall, Frank P.; Travor, Bruce W.; and Kraynak, Timothy L., 5,063,823, Cl. 89-1.510.

Trico Industries, Inc.: *See—*
Kelleher, John M.; and Dillon, David B., 5,064,355, Cl. 417-404.000.

Trifon, George. Automotive top coat restoring composition and process. 5,064,688, Cl. 427-140.000.

Trimbo, Susan: *See—*
Askanazi, Jeffrey; and Trimbo, Susan, 5,064,810, Cl. 514-2.000.

Trine Manufacturing Company, Inc.: *See—*
Dickey, Daniel M., 5,064,488, Cl. 156-159.000.

Trinka, Peter: *See—*
Reiter nee Esses, Klara; Reiter, Jozsef; Budai, Zoltan; Rivo, Endre; Trinka, Peter; Petocz, Lujza; Gigler, Gabor; Gyertyan, Istvan; and Gacsalyi, Istvan, 5,064,826, Cl. 514-233.200.

Triple S Engineering, Inc.: *See—*
Sigler, Michael R., 5,065,092, Cl. 324-158.00F.

Trout, Kenneth G.: *See—*
Snider, Scott C.; Londrigan, Michael E.; and Trout, Kenneth G., 5,064,873, Cl. 521-131.000.

Troutner, David E.: *See—*
Simon, Jaime; Wilson, David A.; Garlich, Joseph R.; and Troutner, David E., 5,064,633, Cl. 424-1.100.

Troy Investments, Inc.: *See—*
Hed, Aharon Z., 5,064,809, Cl. 505-1.000.

Trozpek, Ludd A.: *See—*
Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., 5,063,680, Cl. 33-397.000.

Truck Covers Inc.: *See—*
Kuss, Thomas N.; and Horne, Donald L., 5,064,240, Cl. 296-100.000.

TRW Vehicle Safety Systems Inc.: *See—*
Mazur, Joseph F.; Blackburn, Brian K.; and Gentry, Scott B., 5,065,322, Cl. 364-424.050.

Tsai, Yusheng T.; Parulski, Kenneth A.; and Rabbani, Majid, to Eastman Kodak Company. Compression method and apparatus for single-sensor color imaging systems. 5,065,229, Cl. 358-21.00R.

Tsay, Jaw-Shiunn. Nail clipper. 5,063,666, Cl. 30-28.000.

Tschudin-Mahrer, Rolf, to Irbit Research & Consulting AG. Composite part of flexible cellular material and elastic rubber material. 5,064,709, Cl. 428-157.000.

Tsikos, Constantine J.; Frederick, Brian R.; and Davis, Timothy J., to General Electric Company. Edge detection using patterned background. 5,065,237, Cl. 358-101.000.

Tso, Richard: *See—*
McMahan, David S.; Tso, Richard; and Lee, Jackson, 5,064,195, Cl. 275-374.000.

Tsoi, Paul Y.: *See—*
Thomson, R. Glenn; and Tsoi, Paul Y., 5,065,125, Cl. 335-5.000.

Tsubai, Yasuo: *See—*
Kondo, Toshiro; Miura, Hidetoshi; and Tsubai, Yasuo, 5,064,745, Cl. 430-265.000.

Tsuboi, Haruhito: *See—*
Uyama, Kiyoshi; Yamamoto, Koji; Tsuboi, Haruhito; and Iwasaki, Toshihiko, 5,064,621, Cl. 422-144.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Tsuboi, Kazuhiko: *See—*
Kobayashi, Hiroshi; Tsuboi, Kazuhiko; Takahashi, Atsushi; Maeda, Shigeo; and Yagi, Seiichi, 5,065,188, Cl. 355-219.000.

Tsuchie, Kimihiro. Coaster brake provided with reversing function. 5,064,035, Cl. 192-6.00R.

Tsuchimoto, Shuhei: *See—*
Kita, Ryusuke; Shintaku, Hidetaka; Tsuchimoto, Shuhei; Kataoka, Shoei; Ohno, Eizo; and Nagata, Masaya, 5,065,087, Cl. 324-71.600.

Tsuchiya, Michio; and Terazawa, Masaaki, to Brother Kogyo Kabushiki Kaisha. Head driving pulse generation circuit for thermal recording apparatus. 5,065,168, Cl. 346-76.0PH.

Tsuchiya, Yoshinobu: *See—*
Kurabayashi, Ken; Kitou, Seiichiro; Tsuchiya, Yoshinobu; and Niida, Yoriaki, 5,065,286, Cl. 361-502.000.

Tsuda, Youichirou: *See—*
Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, 5,065,252, Cl. 358-335.000.

Tsuji, Hiroshi: *See—*
Masuishi, Tetsuya; Tsuji, Hiroshi; Matsui, Takahashi; and Koga, Akihiko, 5,065,400, Cl. 371-19.000.

Tsuji, Toshio: *See—*
Yasue, Kenji; Tsuji, Toshio; Ida, Takashi; and Hayase, Shigeru, 5,064,700, Cl. 428-36.920.

Tsukahara, Jiro: *See—*
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.

Tsukahara, Kinji, to Aisin Seiki Kabushiki Kaisha. Pressure responsive linear motor driven pump. 5,064,353, Cl. 417-383.000.

Tsukuda, Akinori; Nemoto, Masahisa; and Mori, Haruo, to Oki Electric Industry Co., Ltd. Differential amplifying circuit operable at high speed. 5,065,111, Cl. 330-253.000.

Tsunemi, Koichi: *See—*
Takahashi, Masashi; Nakamura, Yuka; Kajiura, Sadao; and Tsunemi, Koichi, 5,064,696, Cl. 427-430.100.

Tsunoda, Ichiro; and Eguchi, Toshiyasu, to Victor Company of Japan, Ltd.; and Tokai Company. Liquid crystal display device having optically activatable switch means. 5,064,275, Cl. 359-55.000.

Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, to Tatsuta Electric Wire and Cable Co., Ltd.; Nippon Mining Co., Ltd.; and Misawa Home Ltd. Noise insulating material. 5,064,890, Cl. 524-209.000.

Tsutsui, Osamu; Yoshida, Takao; and Inoue, Shoji, to Toto Ltd. Water supply control system. 5,063,622, Cl. 4-623.000.

Tsutsumi, Fumio: *See—*
Hattori, Iwakazu; Sakakibara, Mitsuhiko; Tsutsumi, Fumio; and Yoshizawa, Masao, 5,064,910, Cl. 525-359.100.

Tsutsumi, Ritsuko: *See—*
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.

Tsuyuzaki, Kazue: *See—*
Kase, Mitsuo; Tsuyuzaki, Kazue; Kawasaki, Yoichi; and Arimoto, Shunji, 5,064,928, Cl. 528-85.000.

Tsuzuki, Toshihiro: *See—*
Endou, Mikiya; Matsuura, Motohiro; and Tsuzuki, Toshihiro, 5,065,414, Cl. 377-24.200.

Tucker, Mark A.; and Musgrave, Robert M., to Olin Corporation. Igniter bag. 5,063,848, Cl. 102-282.000.

Tufts College, Trustees of: *See—*
Levy, Stuart B., 5,064,821, Cl. 514-154.000.

Tung, Chi, to United States of America, Navy. Pivoting seat for fighter aircraft. 5,064,146, Cl. 244-122.00R.

Turnbaugh, Jean G.: *See—*
Buttery, Ronald G.; Teranishi, Roy; Ling, Louisa C.; and Turnbaugh, Jean G., 5,064,673, Cl. 426-534.000.

Turner, James A., to Beloit Corporation. Multi-ply web former. 5,064,502, Cl. 162-299.000.

Turner, John M.; Nethers, Jan L.; and Knight, Robert M., to Barton Industries, Inc. Method of monitoring and controlling a pumped well. 5,064,349, Cl. 417-53.000.

Turpin, Marc; Vignolle, Jean-Michel; Charasse, Marie-Noel; and Le Pesant, Jean-Pierre, to Thomson-CSF. Optical fiber sensor. 5,064,270, Cl. 350-96.290.

Tuteja, Arjun D.: *See—*
Lopez-Crevillen, Jose M.; and Tuteja, Arjun D., 5,063,737, Cl. 60-286.000.

Tuthill, Wallace C. High velocity gas particulate sampling system. 5,063,789, Cl. 73-863.230.

Twieg, Robert J.: *See—*
Ducharme, Stephen P.; Moerner, William E.; Scott, John C.; and Twieg, Robert J., 5,064,264, Cl. 385-130.000.

Twisselmann, Hark: *See—*
Kuhne, Viktor; Twisselmann, Hark; and Brenner, Franz, 5,064,042, Cl. 192-106.200.

UAB Research Foundation: *See—*
Urry, Dan W., 5,064,430, Cl. 623-1.000.

Ube Industries, Ltd.: *See—*
Kusuki, Yoshihiro; and Ishihara, Kazuhiko, 5,064,446, Cl. 55-16.000.

Uchida, Kunihiko: *See—*
Takashima, Susumu; and Uchida, Kunihiko, 5,065,027, Cl. 250-356.0ML.

Uchida, Kuninobu: *See—*
Nemoto, Kenji; Uchida, Kuninobu; Gunji, Keiichiro; Murata, Nagatoshi; and Maruyama, Iwao, 5,063,650, Cl. 29-407.000.

Uchida, Manabu; and Goto, Yasuyuki, to Chisso Corporation. Cyclohexenylethane compound. 5,064,565, Cl. 252-299.001.

Uchida, Toshio: *See—*
Matsumoto, Hiroshi; Kunichika, Kenji; and Uchida, Toshio, 5,064,749, Cl. 430-331.000.

Uchikoshi, Gohji, to Nakamichi Corporation. Control system. 5,065,080, Cl. 318-611.000.

Uchizawa, Manabu: *See—*
Matsuura, Tsukasa; Fujita, Jun; Uchizawa, Manabu; and Suzuki, Shigehisa, 5,065,271, Cl. 360-126.000.

Ueda, Minoru; Matsuda, Hideaki; and Murakami, Koichi, to Okura Kogyo Kabushiki Kaisha. Process of producing surface hardened woody decorative sheets. 5,064,592, Cl. 264-112.000.

Ueda, Shunsaku; and Masumoto, Rodney T., to Silicon Systems Inc. Zero phase restart compensation for VCO. 5,065,116, Cl. 331-173.000.

Ueda, Tetsuya; Shimamoto, Haruo; Yagoura, Hideya; Seki, Hiroshi; and Teraoka, Yasuhiro, to Mitsubishi Denki Kabushiki Kaisha. Carrier tape including molten resin flow path element for resin packaged semiconductor devices. 5,064,706, Cl. 428-131.000.

Uehara, Satoshi; Ohtani, Yukio; and Iriyama, Yoshiko, to Tokico Ltd. Motor-drive industrial robot. 5,065,062, Cl. 310-114.000.

Uematsu, Yutaka: *See—*
Okajima, Masaki; Hatakoshi, Genichi; Ishikawa, Masayuki; Uematsu, Yutaka; and Motegi, Nawoto, 5,065,404, Cl. 372-46.000.

Uerdingen, Walter: *See—*
Kohler, Burkhard; Uerdingen, Walter; Wehnert, Wolfgang; Schmidt, Manfred; Schafer, Walter; and Reinking, Klaus, 5,064,884, Cl. 524-114.000.

Ujimoto, Hiroshi; Nomura, Hironori; and Yamamoto, Toshinori, to Uni-Charm Corporation. Method for making disposable absorbent garments. 5,064,489, Cl. 156-164.000.

Ukaji, Kazuo: *See—*
Kawase, Jiro; Ukaji, Kazuo; and Nagashima, Emi, 5,064,441, Cl. 8-405.000.

Ullrich, Rolf: *See—*
Sparenberg, Dieter; Ullrich, Rolf; and Nuding, Herbert, 5,064,506, Cl. 203-2.000.

Ulmer, Richard W.: *See—*
Thomsen, Joseph A.; and Ulmer, Richard W., 5,065,042, Cl. 307-269.000.

Ultrahook, Inc.: *See—*
Moxley, H. Edward, 5,064,061, Cl. 206-289.000.

Umeda, Kazunori: *See—*
Oshiga, Takayuki; Fujiwara, Katsuhiro; and Umeda, Kazunori, 5,065,307, Cl. 364-140.000.

Umeda, Shin: *See—*
Hosoi, Masatoshi; Ichinose, Tsutomu; Shimada, Masashi; Umeda, Shin; and Yoshino, Hirobumi, 5,064,181, Cl. 270-53.000.

Umesato, Shoji; Okada, Yoshikatsu; and Sakamoto, Katsuhiko, to NEC Corporation. Coaxial pin connector having an array of conductive hollow cylindrical structures. 5,064,390, Cl. 439-721.000.

Uni-Charm Corporation: *See—*
Ujimoto, Hiroshi; Nomura, Hironori; and Yamamoto, Toshinori, 5,064,489, Cl. 156-164.000.

Union Carbide Chemicals and Plastics Technology Corporation: *See—*
Soo, Hwaili; Ream, Bernard C.; and Robson, John H., 5,064,804, Cl. 502-335.000.

Union Carbide Industrial Gases Technology Corporation: *See—*
Borcuch, John P.; and White, Norman H., 5,063,956, Cl. 137-14.000.
Van den Sype, Jaak S., 5,064,479, Cl. 148-20.300.

Union Oil Company of California: *See—*
Occelli, Mario L., 5,064,793, Cl. 502-61.000.

Unisys Corporation: *See—*
DeCrescent, Ronald, 5,064,376, Cl. 434-2.000.

United Kingdom of Great Britain and Northern Ireland, The Minister of Agriculture, Fisheries and Food in Her Britannic Majesty's Government of the: *See—*
Antill, David N.; and Mustey, Harold G., 5,063,707, Cl. 47-9.000.

United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Magesty's Government of the: *See—*
Evans, Richard A., 5,065,308, Cl. 395-800.000.

United Kingdom of Great Britain and Northern Ireland, The Secretary of State for United Kingdom Atomic Energy Authority in Her Britannic Majesty's Government of the: *See—*
Ford, Lionel H.; and Taylor, Stephen A., 5,064,449, Cl. 55-52.000.

United States of America
Agriculture: *See—*
Buttery, Ronald G.; Teranishi, Roy; Ling, Louisa C.; and Turnbaugh, Jean G., 5,064,673, Cl. 426-534.000.
Air Force: *See—*
Lindsay, Mitchell H., 5,063,661, Cl. 29-888.020.
Marinaccio, Paul J., 5,064,590, Cl. 264-102.000.
Army: *See—*
Hacskaylo, Michael, 5,065,026, Cl. 250-352.000.
Pittman, William C.; Miller, Walter E., Jr.; and Christian, Michael R., 5,064,140, Cl. 244-3.130.

Tober, Richard L., 5,064,283, Cl. 356-73.000.

Energy: *See—*
Biefeld, Robert M.; Dawson, L. Ralph; Fritz, Ian J.; Kurtz, Steven R.; and Zipperian, Thomas E., 5,065,205, Cl. 357-30.000.
Moyzis, Robert K.; and Meyne, Julianne, 5,064,948, Cl. 536-27.000.
Petrovic, John J.; and Honnell, Richard E., 5,064,789, Cl. 501-97.000.

Environmental Protection Agency: *See—*
Rogers, Charles J.; Kornel, Alfred; and Sparks, Harold L., 5,064,526, Cl. 208-262.500.

National Aeronautics and Space Administration: *See—*
Bement, Laurence J.; and Kushnick, Anne C., 5,064,111, Cl. 228-107.000.
Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., 5,064,151, Cl. 244-160.000.
Diner, Daniel B., 5,065,236, Cl. 358-88.000.
Jones, Jack A.; Petrick, S. Walter; and Bard, Steven, 5,063,747, Cl. 62-461.000.
Morris, Brian G., 5,063,734, Cl. 60-204.000.
Simpson, William G.; Sharpe, Max H.; and Hill, William E., 5,064,868, Cl. 521-54.000.

Navy: *See—*
Marshall, Frank P.; Travor, Bruce W.; and Kraynak, Timothy L., 5,063,823, Cl. 89-1.510.
Morency, Roger L.; and Holmberg, Gerald E., 5,064,268, Cl. 385-87.000.
Moscrip, William M., 5,063,851, Cl. 102-433.000.
Rizkowski, Keith S.; and Zeidler, David E., 5,065,370, Cl. 367-3.000.
Tung, Chi, 5,064,146, Cl. 244-122.00R.
Wisneskie, Bradley D.; Hyman, Sheldon; and Hallum, Charles E., 5,063,958, Cl. 137-68.100.

U.S. Philips Corp.: *See—*
Berghout, Cornelis W.; Oostra, Silvester J. J.; and Damsma, Hendrik, 5,065,274, Cl. 361-321.000.
Boezen, Hendrik; Buitendijk, Pieter; and Mathijssen, Rudolf W., 5,065,113, Cl. 330-260.000.
Grijol, Laurent; Le Martret, Catherine; and Baladi, Beatrice, 5,064,780, Cl. 437-130.000.
Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., 5,064,397, Cl. 445-50.000.
Kluitmans, Johannes T. M.; Tjassens, Hindrik; and Kock, Hendrikus G., 5,065,226, Cl. 357-74.000.
Pletz-Kirsch, Gerhard; and Lenth, Jurgen, 5,065,115, Cl. 331-14.000.
Roth, Rudolf; and Van Der Zande, Paulus C. M., 5,065,388, Cl. 369-47.000.
Roth, Rudolf, 5,065,389, Cl. 369-48.000.
Spruit, Johannes H. M.; and Jacobs, Bernardus A. J., 5,065,377, Cl. 369-13.000.

U.S. Tap, Inc.: *See—*
Ross, Gilbert W.; Baker, Scott C.; and Demant, Svend, 5,063,619, Cl. 4-443.000.

United Technologies Automotive: *See—*
Vigneau, Lawrence; and Dowd, James D., 5,064,974, Cl. 200-61.620.

United Technologies Corporation: *See—*
Donovan, Thomas P., Sr., 5,064,705, Cl. 428-121.000.
Porter, David; Dillner, James R.; Leibfried, Peter E.; Reimels, William R.; and Asfalg, J. George, 5,063,662, Cl. 29-889.720.

Universal Tool & Stamping Co., Inc.: *See—*
Engel, Darryl L., 5,064,171, Cl. 254-126.000.

University of California, Regents of the: *See—*
Fukuto, T. Roy; Vetter, Richard S.; Baker, Thomas C.; and Malik, Mangel S., 5,064,820, Cl. 514-134.000.

University of Maryland, The: *See—*
Snyder, David B., 5,064,646, Cl. 424-89.000.

University of Minnesota, Regents of the: *See—*
Labuz, Joseph F.; Vardoulakis, Ioannis G.; and Drescher, Andrew, 5,063,785, Cl. 73-821.000.

University of Nebraska, The Board of Regents of The: *See—*
Klopfenstein, Terry J.; Satterlee, Lowell D.; Britton, Robert A.; and Cleale, Ralph N., 5,064,665, Cl. 426-2.000.

University of Saskatchewan: *See—*
Kumar, Surinder; and Harron, Gerald, 5,065,107, Cl. 329-308.000.

University of Utah: *See—*
Hunter Jackson, J. R.; and Parks, Thomas N., 5,064,657, Cl. 424-537.000.

Uno, Ikuo: *See—*
Kubo, Masao; Shiroishi, Akihiro; Uno, Ikuo; and Nishiyama, Takashi, 5,064,473, Cl. 106-287.340.

Uno, Kenichi: *See—*
Atarashi, Masahiro; Ito: Shotaro; Sano, Kiyoshi; Hayashi, Yoshiaki; and Uno, Kenichi, 5,064,346, Cl. 416-178.000.

Unterforsthuber, Karl; and Geisreiter, Christian, to Bayern-Chemie Gesellschaft fur Flugchemische Antriebe mbH. Filter arrangement for airbag gas generators. 5,064,459, Cl. 55-512.000.

UOP: *See—*
Bedard, Robert L.; and Flanigen, Edith M., 5,064,790, Cl. 501-119.000.
Cabrera, Carlos A., 5,064,622, Cl. 422-144.000.
Frame, Robert R.; Bricker, Jeffery C.; and Stine, Laurence O., 5,064,525, Cl. 208-193.000.
Lankton, Steven P.; and James, Robert B., Jr., 5,064,450, Cl. 55-70.000.

Urban, Guenter: *See—*
Bertholdt, Heinz; Michalczyk, Dieter; and Urban, Guenter, 5,064,857, Cl. 514-503.000.

Urban, Paul L. Fast-heating high-temperature fiber cutting tool. 5,064,994, Cl. 219-233.000.

Urdanick, Mark W.: *See—*
Bard, Steven L.; Christensen, David N.; Glenning, John J.; Nicoletti, James A.; and Urdanick, Mark W., 5,063,951, Cl. 134-64.00R.

Urry, Dan W., to UAB Research Foundation. Polynonapeptide bioelastomers having an increased elastic modulus. 5,064,430, Cl. 623-1.000.

Urso, Charles J.: *See—*
Powers, Edward A.; Urso, Charles J.; and Lehman, Richard F., 5,065,185, Cl. 355-208.000.

Uster, Paul S.; Morano, Jacqueline K.; and Martin, Francis J., to Liposome Technology, Inc. Liposome gel composition and method. 5,064,655, Cl. 424-450.000.

Uyama, Kiyoshi; Yamamoto, Koji; Tsuboi, Haruhito; and Iwasaki, Toshihiko, to NKK Corporation. Circulating fluid-bed combustion apparatus. 5,064,621, Cl. 422-144.000.

Uyeo, Shoichiro; Imuta, Mitsuru; Ona, Hisao; and Itani, Hikaru, to Shionogi & Co., Ltd. Process for producing halomethylcarbapenems. 5,064,954, Cl. 540-302.000.

Vacher, Bernard Y. J.: *See—*
Hart, Terrance W.; Vacher, Bernard Y. J.; and Sharp, Brian W., 5,064,843, Cl. 514-346.000.

Vachon, Reginald I.; and Ranson, William F. Apparatus and method for determining the stress and strain in pipes, pressure vessels, structural members and other deformable bodies. 5,065,331, Cl. 364-508.000.

Vacquer, Michel, to Desinsectisation Moderne. Method of fumigating bulk cereal grains. 5,063,771, Cl. 73-40.700.

Vagedes, Michael: *See—*
Bisping, Bernard; Vagedes, Michael; Kessler, Sigfried; and Theis, Ulrich, 5,063,854, Cl. 102-520.000.

Vagi, Robert J.; Plut, Leonard F.; and Leong, David L., to Picker international, Inc. Geometric distortion-free image intensifier system. 5,065,238, Cl. 358-111.000.

Vail, William B., III, to ParaMagnetic Logging, Inc. Measurement of in-phase and out-of-phase components of low frequency A.C. magnetic fields within cased boreholes to measure geophysical properties of geological formations. 5,065,100, Cl. 324-339.000.

Vajtner, Zlatko: *See—*
Suskovic, Bozidar; Vajtner, Zlatko; and Naumski, Radmila, 5,064,812, Cl. 514-8.000.

Vale, Wylie W., Jr.: *See—*
Rivier, Jean E. F.; Koerber, Steven C.; Hagler, Arnold T.; Rivier, Catherine L.; and Vale, Wylie W., Jr., 5,064,939, Cl. 530-317.000.

Valente, Daniel; Branrolini, Jean L.; and Volle, Frederic, to SEB S.A. Smoothing iron with a demineralizing cartridge. 5,063,697, Cl. 38-75.000.

Valenti, Anthony, to NCR Corporation. Magnetic emissions reduction apparatus and method. 5,065,186, Cl. 335-213.000.

Valeo: *See—*
Graton, Michel; and Rohrle, Dieter, 5,064,041, Cl. 192-106.200.

Valeo Vision: *See—*
Albou, Pierre; and Leleve, Joel, 5,065,072, Cl. 315-82.000.

Valmet Paper Machinery Inc.: *See—*
Tavi, Seppo, 5,064,503, Cl. 162-359.000.

Van den Bergh Foods Co., division of Conopco, Inc.: *See—*
Cain, Frederick W.; and Wesdorp, Leendert H., 5,064,677, Cl. 426-611.000.

Van Amen, Cornelis H., deceased: *See—*
de la Haye, Cornelis F.; and Van Amen, Cornelis H., deceased, 5,065,295, Cl. 362-391.000.

van Biesen, Franciscus A.; and English, Christopher J., to Quebec and Ontario Paper Company Ltd. Paper-making machine reeling operation. 5,064,131, Cl. 242-65.000.

vanden Boogaart, Robert W. Anchor for fixing rod in concrete and the like. 5,063,724, Cl. 52-704.000.

Van Den Eynde, J., to Plafittco, naamloze vennootschap. Procedure for the continuous manufacture of wall elements. 5,063,665, Cl. 29-897.312.

Van den Sype, Jaak S., to Union Carbide Industrial Gases Technology Corporation. Thermal treatment in a fluidized bed. 5,064,479, Cl. 148-20.300.

Van Der Huizen, Adriaan A., to Shell Oil Company. Anionic polymerization catalyst compositions. 5,064,800, Cl. 502-153.000.

Van Der Mark, Johannes M.: *See—*
Kooijmans, Petrus G.; Van Der Mark, Johannes M.; and Karzijn, Willem, 5,064,913, Cl. 525-438.000.

Van der Voort, Andre A.: *See—*
Donofrio, Robert L.; and Van der Voort, Andre A., 5,065,071, Cl. 313-474.000.

Van Der Zande, Paulus C. M.: *See—*
Roth, Rudolf; and Van Der Zande, Paulus C. M., 5,065,388, Cl. 369-47.000.

Vandeweghe, Catherine M. Retractable locking assembly. 5,063,762, Cl. 70-30.000.

Van Dorst, Petrus A. M.: *See—*
Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., 5,064,397, Cl. 445-50.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Van Esdonk, Johannes: *See*—
Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., 5,064,397, Cl. 445-50.000.

van Kaler, Roland L., to Tecumseh Products Company. Shift key having shoulder. 5,063,794, Cl. 74-371.000.

Van Lith, Josef J.: *See*—
Hasker, Jan; Crombeen, Jacobus E.; Van Dorst, Petrus A. M.; Van Esdonk, Johannes; Hokkeling, Pieter; and Van Lith, Josef J., 5,064,397, Cl. 445-50.000.

Van Oorschot, Cornelis W. M.: *See*—
Verduijn, Johannes P.; Janssen, Mechilium; De Gruijter, Cornelis B.; Koetsier, Wicher T.; and Van Oorschot, Cornelis W. M., 5,064,630, Cl. 423-328.000.

Van Staveren, John C. Combination portable hoist, crane, and vehicle towing apparatus. 5,064,078, Cl. 212-180.000.

Vardoulakis, Ioannis G.: *See*—
Labuz, Joseph F.; Vardoulakis, Ioannis G.; and Drescher, Andrew, 5,063,785, Cl. 73-821.000.

Varian Associates, Inc.: *See*—
Caturegli, Timothy A.; and Fickett, Robert A., 5,065,109, Cl. 330-45.000.
Kneip, George D., Jr.; Chmyz, George; and Anderson, Marvin H., 5,063,651, Cl. 29-455.100.

Vassiliadis, Stamatis; and Pechanek, Gerald G., to International Business Machines Corporation. Orthogonal row-column neural processor. 5,065,339, Cl. 395-24.000.

Veba Oel Technologie GmbH: *See*—
Kretschmar, Klaus; Merz, Ludwig; and Niemann, Klaus, 5,064,523, Cl. 208-112.000.

Vega Automation: *See*—
Boisseau, Jean-Louis, 5,063,726, Cl. 53-491.000.

Vekens, Mario: *See*—
Gasc, Jean-Claude; Humbert, Daniel; and Vekens, Mario, 5,064,853, Cl. 514-419.000.

Velvin, William C.: *See*—
Harris, Stephen W., 5,063,876, Cl. 119-20.000.

Vendetta, Francis A.: *See*—
Skopelja, Charles; and Vendetta, Francis A., 5,064,986, Cl. 219-70.000.

Verduijn, Johannes P.; Janssen, Mechilium; De Gruijter, Cornelis B.; Koetsier, Wicher T.; and Van Oorschot, Cornelis W. M., to Exxon Chemical Patents Inc. Zeolite L preparation. 5,064,630, Cl. 423-328.000.

Verduin, Patricia, to Nabisco Brands, Inc. Process for making low sodium sponge goods and products obtained thereby. 5,064,661, Cl. 426-26.000.

Verkaart, Wesley H., to Level 1 Technologies, Inc. Reflux fluid heated patient line. 5,063,994, Cl. 165-154.000.

Verret, Douglas P., to Texas Instruments Incorporated. Process for simultaneously fabricating isolation structures for bipolar and CMOS circuits. 5,065,217, Cl. 357-49.000.

Vetter, Richard S.: *See*—
Fukuto, T. Roy; Vetter, Richard S.; Baker, Thomas C.; and Malik, Mangel S., 5,064,820, Cl. 514-134.000.

Vickers, Incorporated: *See*—
Hansen, Lowell D., 5,064,362, Cl. 418-186.000.

Vickers Systems Limited: *See*—
Hamey, Peter M.; and Walters, Ronald B., 5,064,351, Cl. 417-222.00R.

Vicon Industries, Inc.: *See*—
Horn, Donald N.; and Levy, Bern, 5,065,249, Cl. 358-229.000.

Victor Company of Japan, Ltd.: *See*—
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Shinonaga, Hirohiko; and Tai, Hiromichi, 5,065,102, Cl. 324-452.000.
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.
Tsunoda, Ichiro; and Eguchi, Toshiyasu, 5,064,275, Cl. 359-55.000.

Vigneau, Lawrence; and Dowd, James D., to United Technologies Automotive. Compartment for remote transmitter or the like. 5,064,974, Cl. 200-61.620.

Vignolle, Jean-Michel: *See*—
Turpin, Marc; Vignolle, Jean-Michel; Charasse, Marie-Noel; and Le Pesant, Jean-Pierre, 5,064,270, Cl. 350-96.290.

Vincent, Kent D.; and Ertel, John P., to Hewlett-Packard Company. Device to assure paper flatness and pen-to-paper spacing during printing. 5,065,169, Cl. 346-140.00R.

Vinckx, Valery: *See*—
Ecalle, Olivier; and Vinckx, Valery, 5,064,173, Cl. 266-80.000.

Vinyl Corporation: *See*—
Bifano, Gabriel F.; and Reyes, Erenio, 5,063,720, Cl. 52-309.100.

Virr, Geoffrey P.: *See*—
Jackson, Nigel P.; and Virr, Geoffrey P., 5,063,733, Cl. 60-39.750.

Visscher, Martha O.: *See*—
Medcalf, Ralph F., Jr.; Visscher, Martha O.; Knochel, John R.; and Dahlgren, Richard M., 5,064,555, Cl. 252-117.000.

Vitori, Christopher M.: *See*—
Chupka, David E.; Constiner, Joseph P.; and Vitori, Christopher M., 5,064,537, Cl. 210-497.010.

Vizethum, Friemut: *See*—
Stock, Dietrich; Hund, Walter; and Vizethum, Friemut, 5,064,437, Cl. 623-20.000.

VLSI Technology, Inc.: *See*—
Thomsen, Joseph A.; and Ulmer, Richard W., 5,065,042, Cl. 307-269.000.

Vojtech, Strnad, to Isover Saint-Gobain. Method and apparatus for melting materials containing inorganic material fibers by the supply of oxygen rich gas. 5,063,860, Cl. 110-256.000.

Volante, Ralph P.: *See*—
DeCamp, Ann E.; King, Anthony O.; Volante, Ralph P.; and Shinkai, Ichiro, 5,064,964, Cl. 546-48.000.

Volle, Frederic: *See*—
Valente, Daniel; Branrolini, Jean L.; and Volle, Frederic, 5,063,697, Cl. 38-75.000.

Vorbau, John H. Child restraint method and apparatus for aircraft and other vehicles. 5,063,879, Cl. 119-96.000.

Vos, Neale. Apparatus for forming an interior chocolate layer on an ice-cream cone. 5,064,666, Cl. 426-94.000.

Voss, Hermann, to Nissei ASB Machine Co., Ltd. Blow mold. 5,064,366, Cl. 425-541.000.

Voss, Peter, to Eupec Europaeisch Gesellsch F. Leistungshalbleiter mbH & Co.KG. Thyristor having cathode shorts. 5,065,211, Cl. 357-38.000.

Vote, Andrew S., to Ingersoll-Rand Company. Pulp press vat providing enhanced bottom access. 5,063,840, Cl. 100-121.000.

Vought, Ronald: *See*—
Heckaman, Douglas; Vought, Ronald; and Caraway, Edward, 5,065,123, Cl. 333-246.000.

VWE, Inc.: *See*—
Weber, Victor, 5,064,457, Cl. 55-385.200.

W. A. Lane, Inc.: *See*—
Davis, Steven D.; and Sanchez, Samuel O., Jr., 5,064,093, Cl. 221-222.000.

W. R. Grace & Co.-Conn.: *See*—
Havens, Marvin R.; Fowler, Stephen L.; Roberts, William P.; and Ebner, Cynthia L., 5,064,699, Cl. 428-35.700.
Jaeger, Hugh D., 5,064,979, Cl. 219-10.55A.
Retallick, William B., 5,063,769, Cl. 72-379.600.

WABCO Westinghouse Fahrzeugbremsen GmbH: *See*—
Singbartl, Gunther, 5,064,967, Cl. 174-52.300.

Wachtel, Helmut: *See*—
Huth, Andreas; Schmiechen, Ralph; Wachtel, Helmut; and Schneider, Herbert H., 5,064,854, Cl. 514-424.000.

Wachter, Gerhard: *See*—
Spors, Ralf; Wachter, Gerhard; Hohmann, Ralf; and Sauer, Heinz, 5,064,227, Cl. 285-319.000.

Wachtler, Andreas: *See*—
Geelhaar, Thomas; Wachtler, Andreas; and Scheuble, Bernhard, 5,064,569, Cl. 252-299.650.

Wacker, Susan R.: *See*—
Lombardi, Michael H.; and Wacker, Susan R., 5,064,082, Cl. 215-6.000.

Wada, Hiroshi, to Nagashima Medical Instruments Co., Ltd. Measuring method, measuring apparatus and indication method of the dynamical characteristics of middle ear. 5,063,946, Cl. 128-746.000.

Wada, Hirotaka: *See*—
Iwai, Hisayuki; Mishima, Yasuhrio; Hatta, Ken; Nishino, Kenichi; Aoki, Sanji; Ozaki, Tatsuhiko; and Wada, Hirotaka, 5,064,900, Cl. 525-69.000.

Waegner, Ralf: *See*—
Hellwig, Reimar; and Waegner, Ralf, 5,065,129, Cl. 338-4.000.

Wagener, Claus, to Fritz Wagener GmbH. Model airplane with tail assembly. 5,064,145, Cl. 244-87.000.

Wagner, Daniel: *See*—
Bronstert, Klaus; and Wagner, Daniel, 5,064,907, Cl. 525-332.900.

Wagner, Joachim; Rasshofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, to Bayer Aktiengesellschaft. Process for production of moldings or films from polyisocyanate polyadducts by rim procedure. 5,064,600, Cl. 264-328.600.

Wagner, Warren. Boat bottom construction. 5,063,870, Cl. 114-357.000.

Wahl, Josef; Loffler, Alf; Grieshaber, Hermann; Polach, Wilhelm; Eblen, Ewald; Tauscher, Joachim; Laufer, Helmut; Flaig, Ulrich; Locher, Johannes; Birk, Manfred; Engel, Gerhard; Schmitt, Alfred; Lauvin, Pierre; Piwonka, Fridolin; Karle, Anton; and Kull, Hermann, to Robert Bosch GmbH. Method and arrangement for controlling the metering of fuel in an internal combustion engine. 5,063,903, Cl. 123-500.000.

Waitl, Guenter: *See*—
Hirschmann, Guenther; Waitl, Guenter; and Schellhorn, Franz, 5,064,299, Cl. 385-33.000.

Wakabayashi, Noriaki: *See*—
Yoshida, Shuichi; Wakabayashi, Noriaki; Inaji, Toshio; and Onodera, Hiromi, 5,065,263, Cl. 360-77.030.

Wakatsuki, Yoshio; Okuyama, Toshiharu; Takeuchi, Hajime; Shimizu, Giichiro; and Shimizu, Misao, to Nitto Kohki Co., Ltd. Portable data input/transmission apparatus. 5,065,003, Cl. 235-472.000.

Wakayama, Satoshi: *See*—
Masai, Kazuo; Wakayama, Satoshi; Yamamoto, Shoji; Sumiyoshi, Takashi; and Makino, Masao, 5,065,311, Cl. 364-200.000.

Wake, Kiyoyasu: *See*—
Horita, Yoshiyuki; Mizuno, Hiroshi; and Wake, Kiyoyasu, 5,063,760, Cl. 70-23.000.

Walder, Anthony J.; and Solomon, Donald D., to Becton, Dickinson and Company. Catheter obturator with automatic feed and control. 5,064,415, Cl. 604-164.000.

Walker, Bobby R.: *See*—
Todd, Philip A.; and Walker, Bobby R., 5,065,067, Cl. 310-339.000.

Walker Fitness Systems, Inc.: *See*—
Sainte, Robert L.; Sarns, Steven E.; and Frank, Steven R., 5,064,193, Cl. 272-130.000.

Walker, Frank J., Jr.: *See*—
Walker, Frank J., Sr.; and Walker, Frank J., Jr., 5,063,775, Cl. 73-155.000.

Walker, Frank J., Sr.; and Walker, Frank J., Jr. Method and system for controlling a mechanical pump to monitor and optimize both reservoir and equipment performance. 5,063,775, Cl. 73-155.000.

Walker, John C., to Walkers Merredin Pty Ltd. Rotary soil working tool. 5,064,001, Cl. 172-556.000.

Walkers Merredin Pty Ltd: *See*—
Walker, John C., 5,064,001, Cl. 172-556.000.

Wallace Computer Services, Inc.: *See*—
Steidinger, Donald J., 5,064,115, Cl. 229-304.000.

Wallaeys, Bart: *See*—
Monstrey, Joost; and Wallaeys, Bart, 5,064,872, Cl. 521-131.000.

Walles, Erik W.; Lupinski, John H.; and Crivello, James V., to General Electric Company. Encapsulation method, microelectronic devices made therefrom, and heat curable compositions based on epoxy resins, diarliodonium-hexafluoroantimonate salts and free radical generators. 5,064,882, Cl. 523-443.000.

Wallis, Bernard J. Cut-off machine and method for tubing. 5,063,801, Cl. 83-37.000.

Walsh, Thomas F.: *See*—
Chakravarty, Prasun K.; Greenlee, William J.; Mantlo, Nathan B.; Patchett, Arthur A.; Schoen, William; and Walsh, Thomas F., 5,064,825, Cl. 514-221.000.

Walston, Wayne T. Male contraceptive device. 5,063,939, Cl. 128-842.000.

Walters, John L.: *See*—
Bryant, Frank R.; and Walters, John L., 5,065,225, Cl. 357-71.000.

Walters, Marlin E.; St. George, George M.; and Richey, W. Frank, to Dow Chemical Company, The. Method for the selective alpha halogenation of alkylaromatic compounds. 5,064,518, Cl. 204-57.990.

Walters, Philip H.: *See*—
Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, 5,064,006, Cl. 175-45.000.

Walters, Ronald B.: *See*—
Hamey, Peter M.; and Walters, Ronald B., 5,064,351, Cl. 417-222.00R.

Walusiak, Jacek, to alfill Getranketechnik GmbH. Apparatus for filling containers. 5,063,978, Cl. 141-263.000.

Wamprecht, Christian; Pedain, Josef; and Blum, Harald, to Bayer Aktiengesellschaft. Copolymers containing amino groups and a process for their production. 5,064,922, Cl. 526-262.000.

Wamprecht, Christian: *See*—
Blum, Harald; Pedain, Josef; Hohlein, Peter; and Wamprecht, Christian, 5,064,921, Cl. 526-262.000.

Wang, Lawrence K.; Wang, Mu Hao S.; Hwang, Chong S.; and Rhow, Harold, to Int'l Environmental Systems, Inc.; and Globe Environmental Protection, Inc. Water filtration apparatus. 5,064,531, Cl. 210-96.100.

Wang, Mu Hao S.: *See*—
Wang, Lawrence K.; Wang, Mu Hao S.; Hwang, Chong S.; and Rhow, Harold, 5,064,531, Cl. 210-96.100.

Wang, Zhen-Guo: *See*—
Lee, Yue-Wei; Fang, Qi-Cheng; Wang, Zhen-Guo; Li, De-Hua; and Cook, C. E., 5,064,823, Cl. 514-198.000.

Warabisako, Terunori: *See*—
Miyake, Kiyoshi; Ohno, Yasunori; Isogai, Masato; Nakagawa, Yukio; Seki, Takayoshi; Ouhata, Koukichi; Natsui, Kenichi; Warabisako, Terunori; and Arimatsu, Keiji, 5,064,520, Cl. 204-192.110.

Ward, Frederick A.: *See*—
Ward, Walter J.; St. Louis, Ellwyn; and Ward, Frederick A., 5,063,617, Cl. 4-251.000.

Ward, Glen D.: *See*—
Barstow, Leon E.; and Ward, Glen D., 5,064,940, Cl. 530-334.000.

Ward, Terence J.: *See*—
Archibald, John L.; Ward, Terence J.; and Opalko, Albert, 5,064,842, Cl. 514-341.000.

Ward, Walter J.; St. Louis, Ellwyn; and Ward, Frederick A. Hydraulic toilet seat. 5,063,617, Cl. 4-251.000.

Wardlaw, Stephen C.; and Levine, Robert A. Method for differentiating the source of occult gastrointestinal bleeding. 5,064,766, Cl. 436-66.000.

Warner-Lamber Company: *See*—
Cherukuri, Subraman R.; and Faust, Steven M., 5,064,658, Cl. 426-3.000.

Warren, Eugene D.; Pfannkuch, Robert B.; Laumeister, William C.; and Pourciau, Louis L., to Rank Video Services America. Transmitting information from producer to end users through slant-track tape-to-tape copying at higher-than-standard signal transmission. 5,065,258, Cl. 360-15.000.

Warren, J. Bruce, to Alliant Techsystems Inc. Forward full caliber control tube for a cased telescoped ammunition round. 5,063,852, Cl. 102-434.000.

Warren, Robert G.: *See*—
O'Brien, Larry S.; Warren, Robert G.; and Adani, Keith J., 5,064,617, Cl. 422-78.000.

Warren Tool Corporation: *See*—
Nimtz, Roderick L., 5,064,178, Cl. 269-41.000.

Watanabe, Niro: *See*—
Yoshida, Masato; and Watanabe, Niro, 5,064,807, Cl. 503-227.000.

Watanabe, Noriaki: *See*—
Imai, Masanori; Watanabe, Noriaki; and Kawamura, Kouichi, 5,064,747, Cl. 430-278.000.

Watanabe, Rikizo: *See*—
Sato, Koji; and Watanabe, Rikizo, 5,064,610, Cl. 420-57.000.

Watanabe, Shizuharu; and Tani, Hiroji, to Murata Mfg. Co. Resistive paste comprising oxides of ruthenium, lead, iron and zinc. 5,064,573, Cl. 252-518.000.

Watanabe, Tadeshi: *See*—
Maeda, Takayoshi; Hata, Masahiko; Fukuhara, Noboru; and Watanabe, Tadeshi, 5,064,778, Cl. 437-81.000.

Watanabe, Tomomi: *See*—
Hitomi, Mitsuo; Mamiya, Kiyotaka; and Watanabe, Tomomi, 5,063,899, Cl. 123-339.000.

Watanabe, Toru, to Sakaguchi Dennetsu Kabushiki Kaisha. Electric furnace. 5,064,996, Cl. 219-390.000.

Watanabe, Yoshiaki: *See*—
Tanaka, Sakae; and Watanabe, Yoshiaki, 5,065,202, Cl. 357-23.700.

Watanabe, Yujiro, to Aisin Seiki Kabushiki Kaisha. Rotating apparatus. 5,065,063, Cl. 310-156.000.

Water Center International Ltd.: *See*—
Borg, Larry; and Lichfield, William H., 5,064,097, Cl. 222-129.000.

Waterman, Glenn N.; and Gibbs, Fredrick A., to Diacor, Inc. Skin gathering and holding device. 5,064,429, Cl. 606-151.000.

Waters, Robert L.; Roberts, George F.; Walters, Philip H.; Clark, Howard C.; Fitzgerald, Don D.; and Stelly, Otis V., II, to Magrange, Inc. Downhole combination tool. 5,064,006, Cl. 175-45.000.

Watkins-Johnson Company: *See*—
Chrzan, Lee J., 5,065,124, Cl. 333-246.000.

Watkins, Joseph J.: *See*—
Fagerburg, David R.; Watkins, Joseph J.; Lawrence, Paul B.; and Rule, Mark, 5,064,937, Cl. 528-389.000.

Weaver, Richard R.: *See*—
Dershem, Stephen M.; and Weaver, Richard R., 5,064,480, Cl. 148-22.000.

Weaver, William J., to Square D Company. Jumper assembly for multiple breaker application. 5,064,384, Cl. 439-511.000.

Weaver, William R.; and Matzinger, James E., to Libbey-Owens-Ford Co. Molded composites. 5,064,707, Cl. 428-151.000.

Webb, Stuart C.; Lewis, Leland M.; and Morris-Thurgood, Jayne A. Rate-responsive pacemaker. 5,063,927, Cl. 128-419.0PG.

Weber, Christian: *See*—
Wagner, Joachim; Rassbofer, Werner; Eisele, Ulrich; Jurgens, Eberhard; Weber, Christian; and Meier, Erich, 5,064,600, Cl. 264-328.600.

Weber, Jurgen; Lappe, Peter; and Springer, Helmut, to Hoechst Aktiengesellschaft. Process for the separation of 2-methylalkanals from isomers thereof. 5,064,508, Cl. 203-38.000.

Weber, Victor, to VWE, Inc. Particulate containment control system. 5,064,457, Cl. 55-385.200.

Webster, Craig D., to Black & Decker. Vegetation cutters. 5,063,673, Cl. 30-276.000.

Wecker, Sheldon M.: *See*—
Ziegler, John S.; and Wecker, Sheldon M., 5,064,059, Cl. 206-221.000.

Wehnert, Wolfgang: *See*—
Kohler, Burkhard; Uerdingen, Walter; Wehnert, Wolfgang; Schmidt, Manfred; Schafer, Walter; and Reinking, Klaus, 5,064,884, Cl. 524-114.000.

Weidenmiller Company: *See*—
Jefferies, Frederick W., 5,064,584, Cl. 264-39.000.

Weimann, Wendelin, to George Fischer AG. Apparatus for cooling molds. 5,063,987, Cl. 164-324.000.

Weiner, Albert S.: *See*—
Herdt, Christian E.; Weiner, Albert S.; Kamp, David A.; and Dimmler, Klaus J., 5,065,362, Cl. 365-154.000.

Weinstein, Vera: *See*—
Crammer, Bernard; Ikan, Raphael; Mumicuoglu, Yani K.; and Weinstein, Vera, 5,064,859, Cl. 514-560.000.

Weismann, Dieter: *See*—
Frank, Helge; Hecker, Eric; Eifrig, Reinhard; Weismann, Dieter; and Gebhardt, Peter, 5,063,925, Cl. 128-205.240.

Weiss, Franz: *See*—
Mielke, Siegfried; Henning, Wolfgang; Weiss, Franz; and Golder, Karl, 5,063,894, Cl. 123-193.00P.

Weiss, Stefan: *See*—
Schuster, Ludwig; Hettche, Albert; Liedy, Werner; Weiss, Stefan; and Ehemann, Leo, 5,064,908, Cl. 525-333.800.

Welch Allyn, Inc.: *See*—
Hennick, Robert J.; and Pidhirny, John M., 5,065,001, Cl. 235-435.000.

Wellerdieck, Klaus, to Balzers Aktiengesellschaft. Feed through for application of HF energy. 5,064,522, Cl. 204-298.280.

Wellington, Scott L.; Simmons, Jeffrey F.; and Richardson, Edwin A., to Shell Oil Company. Method for troubleshooting gas-lift wells. 5,063,772, Cl. 73-40.700.

Weltin, Wolfgang: *See*—
Burkard, Johannes; and Weltin, Wolfgang, 5,063,774, Cl. 73-146.500.

Wendling, Peter: *See*—
Obrecht, Werner; Greve, Heinz-Hermann; Wendling, Peter; Eisele, Ulrich; and Musch, Rudiger, 5,064,904, Cl. 525-199.000.

Wenzel, Reinhard; and Rauf, Richard, to Kleinewefers GmbH. Roll assembly with rotatable shell for use in calenders and like machines. 5,063,649, Cl. 29-116.100.

VOL 1132 ISS 2 NO 12 1991 UMI

Wesdorp, Leendert H.: *See—*
Cain, Frederick W.; and Wesdorp, Leendert H., 5,064,677, Cl. 426-611.000.

West Company, Incorporated, The: *See—*
Alexander, Barbara; Kiang, Patty H.; Lusch, Richard; and Romberg, Val, 5,064,083, Cl. 215-247.000.

Westbrook, Theodore E., Sr.: *See—*
Kent, James V.; and Westbrook, Theodore E., Sr., 5,063,725, Cl. 53-485.000.

Westerwaelder Eisenwerk Gerhard GmbH: *See—*
Gerhard, Helmut, 5,064,091, Cl. 220-628.000.

Westinghouse Air Brake Company: *See—*
Romansky, Michael E., 5,064,251, Cl. 303-3.000.

Westinghouse Electric Corp.: *See—*
Barton, Serge P., 5,064,604, Cl. 376-246.000.
Hurwitz, Michael J.; Ekeroth, Douglas E.; and Squarer, David, 5,064,603, Cl. 376-246.000.
Miller, John V.; Carlson, William R.; and Yarbrough, Michael B., 5,064,607, Cl. 376-333.000.
Ruddy, Francis H.; Lippincott, Ezra P.; Fero, Arnold H.; Schreiber, Roger B.; and Seidel, John G., 5,064,605, Cl. 376-247.000.

Westover, Dwight G., to TransTechnology Corporation. Document transport apparatus. 5,064,186, Cl. 271-188.000.

Westwood, Donald C.: *See—*
Blackborow, Richard J.; Hahn, Peter S.; Camp, Claude E.; Westwood, Donald C.; Florea, Rodica; Botto, Eric J.; Richmond, Scott E.; and Jeppson, David B., 5,065,262, Cl. 360-75.000.

Wetzork, John M.: *See—*
Kern, Mark T.; Wetzork, John M.; Shamordola, Kenneth A.; and Tangonan, Gregory L., 5,064,271, Cl. 385-33.000.

Weyerhaeuser Company: *See—*
Young, Richard H., Sr.; Neogi, Amar N.; Brunnenkant, Christel; Lincoln, James F. L.; and Hansen, Michael R., 5,064,689, Cl. 427-202.000.

Whalley, Peter D.: *See—*
Baker, Christopher J. S.; and Whalley, Peter D., 5,064,618, Cl. 422-82.010.

Whirlpool Corporation: *See—*
Holling, Ronald W., 5,064,998, Cl. 219-519.000.

Whistler, Roy L.: *See—*
Greenberg, Michael J.; and Whistler, Roy L., 5,064,659, Cl. 426-3.000.

White, Christopher A. Apparatus for reducing the occurrence of shoulder dislocation subluxation during athletic activity. 5,063,941, Cl. 128-869.000.

White, Norman H.: *See—*
Borcuch, John P., and White, Norman H., 5,063,956, Cl. 137-14.000.

White, William C.: *See—*
Higgs, Bruce S.; and White, William C., 5,064,613, Cl. 422-16.000.

Whitford, Robert P., to General Electric Company. Active magnetic seal. 5,064,205, Cl. 277-80.000.

Whitney, Ralph: *See—*
McBride, Stephen W.; and Whitney, Ralph, 5,064,084, Cl. 215-350.000.

Whitsitt, Steven L., to Square D Company. Expanded register rack for a programmable logic controller. 5,065,141, Cl. 340-635.000.

Whittaker, Howard E. "V" trellis support device. 5,063,709, Cl. 47-46.000.

Wick, John J., to Bertek, Inc. Twin patch applicator. 5,064,422, Cl. 604-307.000.

Wickramasinghe, Hemantha K.: *See—*
Slinkman, James A.; Wickramasinghe, Hemantha K.; and Williams, Clayton C., 5,065,103, Cl. 324-458.000.

Widmann, David N.: *See—*
Greenstein, Harvey; Levinski, Charles B.; Newman, Edward; Persel, John M.; and Widmann, David N., 5,065,426, Cl. 379-100.000.

Wiedeck, Hans-Norbert, to Krupp Industrietechnik GmbH. Movable bridge and system for laying the bridge. 5,063,630, Cl. 14-2.400.

Wierschem, Franz-Rudolf: *See—*
Schaible, Walter; and Wierschem, Franz-Rudolf, 5,064,219, Cl. 280-775.000.

Wiesenfeldt, Matthias; and Etzbach, Karl-Heinz, to BASF Aktiengesellschaft. Diaminothiophenes. 5,064,962, Cl. 544-300.000.

Wightman, Mark A.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Wilcox, Carl E.: *See—*
McKinnon, Charles M.; Nakagawa, Takaaki; and Wilcox, Carl E., 5,064,413, Cl. 604-70.000.

Wilcox, Wayne, to Snap-Tite, Inc. Quick disconnect coupling. 5,063,965, Cl. 137-614.030.

Wild, Alfred H., to Leonard Kurz GmbH & Co. Embossing foil and a method of making. 5,063,658, Cl. 29-846.000.

Wilkinson Sword Gesellschaft mit beschrankter Haftung: *See—*
Althaus, Wolfgang, 5,063,668, Cl. 30-77.000.
Althaus, Wolfgang, 5,063,669, Cl. 30-77.000.

Willemin, Albert: *See—*
Soder, Robert; and Willemin, Albert, 5,065,374, Cl. 368-280.000.

Wm. Wrigley, Jr. Company: *See—*
Courtright, Steven B.; McGrew, Gordon N.; and Richey, Lindell C., 5,064,698, Cl. 428-35.400.

Williams, Anthony D.; and Nye, Adam, to Williams, Anthony D. Coupling device and method for tubular elements. 5,064,225, Cl. 285-177.000.

Williams, Clayton C.: *See—*
Slinkman, James A.; Wickramasinghe, Hemantha K.; and Williams, Clayton C., 5,065,103, Cl. 324-458.000.

Williams, Gerald H.: *See—*
Johnston, Thomas F., Jr.; and Williams, Gerald H., 5,064,284, Cl. 356-121.000.

Williams, Larry. Device for storing and dispensing a trotline. 5,063,702, Cl. 43-27.400.

Williams, Robert S.: *See—*
Follstaedt, Donald W.; Powell, John C.; Sussman, Richard C.; and Williams, Robert S., 5,063,988, Cl. 164-463.000.

Williams, Roger O.: *See—*
Roth, Maxim; Godwin, Jimmy D.; and Williams, Roger O., 5,065,387, Cl. 369-44.410.

Williams, Serena J.: *See—*
Buscall, Richard; Scales, Paul J.; Williams, Serena J.; and Newton, Jill E., 5,064,718, Cl. 428-407.000.

Williams, Thomas M.: *See—*
Supernaw, Irwin R.; and Williams, Thomas M., 5,065,016, Cl. 250-264.000.

Williams, Timothy D. N., to Rosemount Limited. Two-wire loop electric circuit arrangement. 5,065,152, Cl. 340-825.360.

Williams, Todd: *See—*
Gupta, Satish; Henderson, Randall L.; Hiltebeitel, Nathan R.; Tamlyn, Robert; Tomashot, Steven W.; and Williams, Todd, 5,065,368, Cl. 365-230.050.

Williamson, Norman R.; and Elliott, John L., to Milliken Research Corporation. Beam collar. 5,064,135, Cl. 242-118.400.

Williamson, Roy. Muzzle blast deflector. 5,063,827, Cl. 89-14.300.

Willis, Kenneth E.; and Durrell, Robert R., to Hughes Aircraft Company. Modular, electronic safe-arm device. 5,063,846, Cl. 102-215.000.

Willis, Robert J.: *See—*
O'Mahony, Mary J.; and Willis, Robert J., 5,064,844, Cl. 514-359.000.

Wilson, Bobby L.: *See—*
Singhal, Gopal H.; Wilson, Bobby L.; Edelson, Edward H.; and Mikita, Michael A., 5,064,527, Cl. 208-420.000.

Wilson, David A.: *See—*
Simon, Jaime; Wilson, David A.; Garlich, Joseph R.; and Troutner, David E., 5,064,633, Cl. 424-1.100.

Wilson, David P.: *See—*
Swan, Ellen L.; Stachura, Leonard M.; Basu, Rajat S.; and Wilson, David P., 5,064,558, Cl. 252-171.000.

Wilson, Robert A. Domestic boiler feed water gravity supply. 5,064,117, Cl. 237-67.000.

Wing, Feagin A., Jr.: *See—*
Grosso, Paul V.; Wing, Feagin A., Jr.; Morgan, Michael J.; Stegmeier, Renate C.; Day, Roger W.; and Burt, Willard F., 5,064,736, Cl. 430-42.000.

Wingate, Mark A., to Harris Graphics Corporation. Electrostatic diverter. 5,064,180, Cl. 270-47.000.

Wingerath, Kurt: *See—*
Bechtold, Paul S.; Mihelcic, Matija; and Wingerath, Kurt, 5,065,018, Cl. 250-287.000.

Winiarski, Dieter: *See—*
Reiss, Roland; Liskow, Gerd; Gehrke, Hinrich; Luxner, Walter; Schmidt, Gerd; Winiarski, Dieter; Lindner, Eckehart; Sirch, Edgar; Kalbfleisch, Eckhard; Laubert, Hans; Kiefer, Peter; Franz, Johann; and Fasse, Anton, 5,064,614, Cl. 422-22.000.

Winkelmann, Siegfried; Schlichtig, Karl; and Breisch, Harald, to Zahnradfabrik Friedrichshafen, AG. Mechanically driven supercharger for an internal combustion engine. 5,063,904, Cl. 123-559.100.

Wintermute, Ronald E.: *See—*
Amis, Lynn F.; Crittenden, Jacob T.; Dyer, Raymond J.; Glynn, John P.; Hall, Richard H.; Huebner, Dave L.; Olsen, Brian W.; O'Connor, Sam C.; Robideaux, Charles E.; Seeley, David E.; Sousek, Steven J.; Wightman, Mark A.; and Wintermute, Ronald E., 5,063,764, Cl. 70-100.000.

Winters, Kersten. Marking template for placement of collar insignia. 5,063,684, Cl. 33-653.000.

Wirt, Thomas M.; Trozpek, Ludd A.; Brosius, James W.; Johnson, Randolph A.; Baertlein, Hugh N.; and Newman, Eric W., to Rockwell International Corporation. Self-erecting tiltmeter. 5,063,680, Cl. 33-397.000.

Wisconsin Alumni Research Foundation: *See—*
DeLuca, Hector F.; and Sandgren, Maria E., 5,064,770, Cl. 436-542.000.

Wisneskie, Bradley D.; Hyman, Sheldon; and Hallum, Charles E., to United States of America, Navy. Burst diaphragm sequence valve. 5,063,958, Cl. 137-68.100.

Witt, Larry M.; and Sherman, Bruce K., to Delaware Capital Formation. Power clamp with enclosed track. 5,064,177, Cl. 269-32.000.

Wochnowski, Waldemar, to Korber AG. Method of and apparatus for monitoring the quality of a tobacco stream. 5,063,943, Cl. 131-84.400.

Woldvedt, Alan H.: *See—*
Dickie, Gerald M.; Liles, Steve L.; and Woldvedt, Alan H., 5,064,309, Cl. 405-64.000.

Wonders, Scott. Self-propelled floatable fire nozzle. 5,064,392, Cl. 440-39.000.

Wood, Donald F.: *See—*
Howard, Daggett H., Jr.; and Wood, Donald F., 5,063,637, Cl. 16-225.000.

Wood, Roy L., to Seagate Technology, Inc. Compression contact electrical connector assembly for a disc drive. 5,064,377, Cl. 439-67.000.

Woodruff, Richard E. Apparatus for storing produce. 5,063,753, Cl. 62-239.000.

Worgotter, Herbert: *See—*
Theurer, Josef; and Worgotter, Herbert, 5,063,856, Cl. 104-9.000.

Wossner, Felix, to Fichtel & Sachs AG. Impact damping unit. 5,064,030, Cl. 188-297.000.

Wray-Tech Instruments, Inc.: *See—*
Smith, Ronald, 5,064,008, Cl. 177-1.000.

Wright, John O., to GTE Products Corporation. Method of joining a soldered connector to a shielded coaxial cable. 5,063,659, Cl. 29-860.000.

Wright, Raymond L.: *See—*
Giroux, Roger; and Wright, Raymond L., 5,064,311, Cl. 405-259.100.

Wright State University: *See—*
Ezenwa, Bertram N.; and Couch, William P., 5,063,937, Cl. 128-723.000.

Wu, Joseph C.; Hu, Charlie L.; and Law, Yee S., to TFT, Inc. Frequency modulated radio frequency broadcast network employing a synchronous frequency modulated booster system. 5,065,450, Cl. 455-20.000.

Wu, Kuei-Jen. Quickly openable umbrella with multiple folds. 5,063,953, Cl. 135-25.300.

Wu, Ming H.: *See—*
Shinoda, Kazunori; Wu, Ming H.; Suzuki, Yoshiji; and Poon, Ting-Chung, 5,064,257, Cl. 350-3.670.

Wu, Weishih: *See—*
Chang, Chi-Kwong; and Wu, Weishih, 5,064,952, Cl. 540-145.000.

Wuest, Willi: *See—*
Brodalla, Dieter; Lindener, Juergen; de Riese-Meyer, Loert; Wuest, Willi; Schroeder, Christine; Buchmeier, Willi; and Foell, Juergen, 5,064,512, Cl. 204-37.600.

Wurtz, Renate, to Otto Lift-Systeme GmbH. Apparatus for emptying containers, particularly refuse containers. 5,064,333, Cl. 414-408.000.

Wyckoff, Robert L. Male genital device and method for control of ejaculation. 5,063,915, Cl. 128-79.000.

Wyko Corporation: *See—*
Ai, Chiayu; and Hayes, John B., 5,064,286, Cl. 356-153.000.

Wyman, John E., to Consolidated Chemical Consulting Co. Superparamagnetic fluids and methods of making superparamagnetic fluids. 5,064,550, Cl. 252-62.520.

Wyvratt, Matthew J.: *See—*
Bochis, Richard J.; Ok, Huyn O.; and Wyvratt, Matthew J., 5,064,835, Cl. 514-291.000.

Xerox Corporation: *See—*
Bloomberg, Dan S., 5,065,437, Cl. 382-9.000.
Folkins, Jeffrey J.; and Schram, Joseph G., 5,063,875, Cl. 118-651.000.
Melnyk, Andrew R.; Sypula, Donald S.; Mammino, Joseph; Jansen, Ronald; Herbert, William G.; and Grey, Henry, 5,064,509, Cl. 204-9.000.
Pajak, Henry G.; Marder, Daniel S.; Byrne, Kenneth C.; and Breisacher, Lee F., 5,065,347, Cl. 395-159.000.
Rezanka, Ivan; and Horino, Yasuo, 5,065,170, Cl. 346-140.00R.

Xinix, Inc.: *See—*
Rogers, Edward G.; and Litvak, Herbert E., 5,064,269, Cl. 385-115.000.

Yabe, Norio; Iijima, Takeshi; Itaya, Kazunori; and Takano, Masahide, to Sanyo-Kokusaku Pulp Co., Ltd. Developing machine for photosensitive films and developing method for photosensitive films. 5,065,174, Cl. 354-222.000.

Yabumoto, Junsuke: *See—*
Yano, Hisashi; Yabumoto, Junsuke; and Kitada, Akiharu, 5,064,452, Cl. 55-203.000.

Yabuuchi, Toshihiko: *See—*
Endo, Syuusuke; Aoyama, Naofumi; Yabuuchi, Toshihiko; and Seki, Teruo, 5,064,276, Cl. 359-49.000.

Yagi, Hiroshi: *See—*
Akaba, Noriyuki; Yagi, Hiroshi; and Miyoshi, Yoji, 5,065,162, Cl. 342-417.000.

Yagi, Norihiko: *See—*
Saito, Osamu; Yagi, Norihiko; and Ito, Yoshinori, 5,064,784, Cl. 501-33.000.

Yagi, Seiichi: *See—*
Kobayashi, Hiroshi; Tsuboi, Kazuhiko; Takahashi, Atsushi; Maeda, Shigeo; and Yagi, Seiichi, 5,065,188, Cl. 355-219.000.

Yagihara, Morio: *See—*
Ohki, Nobutaka; Andoh, Kazuto; Naruse, Hideaki; Fujimoto, Hiroshi; Tsukahara, Jiro; Yagihara, Morio; and Ishikawa, Takatoshi, 5,064,751, Cl. 430-464.000.

Yagoura, Hideya: *See—*
Ueda, Tetsuya; Shimamoto, Haruo; Yagoura, Hideya; Seki, Hiroshi; and Teraoka, Yasuhiro, 5,064,706, Cl. 428-131.000.

Yahagi, Toshio; Iwagawa, Yoshihiro; Sugimoto, Yoichi; and Satoh, Tsuyoshi, to Honda Giken Kogyo Kabushiki Kaisha. Method for predicting a speed of a vehicle which is equipped with an antilock brake device. 5,065,327, Cl. 364-426.020.

Yamada, Hideo, to Yamaha Corporation. Electronic musical instrument which automatically adjusts a performance depending on the type of player. 5,063,820, Cl. 84-609.000.

Yamada, Hiroyuki: *See—*
Suzuki, Hidemi; Yamada, Hiroyuki; and Nakagawa, Mikio, 5,065,126, Cl. 335-222.000.

Yamada, Masanori, to Canon Kabushiki Kaisha. Image processing apparatus with means for compensating for dust., etc., on an original. 5,065,257, Cl. 358-463.000.

Yamada, Nobutoshi; Sugi, Hideo; and Kon, Kenji, to Ishihara Sangyo Kaisha, Ltd. Chartreusin derivatives and salts thereof. 5,064,945, Cl. 536-17.500.

Yamada, Tetsuyo: *See—*
Hayakawa, Nobuhiro; Yamada, Tetsuyo; and Yokota, Kazunori, 5,064,693, Cl. 427-372.200.

Yamada, Toshikazu: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Yamagami, Nobuo: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.

Yamagishi, Kanji: *See—*
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, to Eisai Co., Ltd. Benzophenone oxime ether compounds, pharmaceutical compositions and treatment methods. 5,064,848, Cl. 514-381.000.

Yamaguchi, Hitoshi; and Andoh, Keiji, to Fuji Electric Co., Ltd. Vertical conveying apparatus. 5,064,331, Cl. 414-344.000.

Yamaguchi, Michiyuki; Suzuki, Shosuke; and Yokobori, Takeo, to Bridgestone Corporation. Internal trim member for automobile. 5,064,714, Cl. 428-219.000.

Yamaguchi, Shigeru; Yokoi, Tokihiro; Shioji, Shorbu; Irie, Yoshio; and Fujiwara, Teruaki, to Nippon Shokubai Co., Ltd. Process for producing and use of maleic acid (co-) polymer salt improved in biodegradability. 5,064,563, Cl. 252-174.230.

Yamaha Corporation: *See—*
Yamada, Hideo, 5,063,820, Cl. 84-609.000.

Yamaha Hatsudoki Kabushiki Kaisha: *See—*
Ozawa, Toshikazu; and Motoyama, Yu, 5,063,887, Cl. 123-65.0PE.
Ozawa, Toshikazu; and Motoyama, Yu, 5,063,888, Cl. 123-65.0PE.
Yoshioka, Shinji, 5,063,885, Cl. 123-52.0MV.

Yamaha Hatsudoki Kabushiki Kaisha Yamaha Motor Co., Ltd.: *See—*
Okui, Kaoru; and Kobayashi, Manabu, 5,063,897, Cl. 123-198.00R.

Yamakawa, Kiyoshi, to Brother Kogyo Kabushiki Kaisha. Text processing apparatus for adjusting pagination to accommodate a second text field on a page. 5,065,358, Cl. 364-419.000.

Yamaki, Makio: *See—*
Ida, Kazunaga; Iizuka, Tatsushi; Yamaki, Makio; Ishihara, Hiroyuki; Matsumoto, Yukio; and Hayashi, Kazuhiro, 5,065,433, Cl. 381-63.000.

Yamamoto, Akira: *See—*
Fujimori, Sadao; Yamamoto, Akira; and Taneda, Satoru, 5,063,773, Cl. 73-117.000.

Yamamoto, Etsuji: *See—*
Nozokido, Tatsuo; Yamamoto, Etsuji; and Kohno, Hideki, 5,065,097, Cl. 324-309.000.

Yamamoto, Hiroyuki; Motoi, Toshihiro; Nishimura, Toshiharu; and Kishimoto, Tadao, to Konica Corporation. Image processing apparatus. 5,065,441, Cl. 382-41.000.

Yamamoto, Isamu: *See—*
Matsuo, Hideshige; Yamamoto, Isamu; Narishige, Osamu; Itoh, Michio; Sato, Kuniaki; Nakamura, Yoshihiro; Tomita, Akio; Yamada, Toshikazu; and Maeda, Yoshikazu, 5,063,719, Cl. 52-296.000.

Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, to Nissan Motor Company, Limited. System and method for automatically controlling vehicle speed to a desired cruise speed. 5,064,015, Cl. 180-176.000.

Yamamoto, Katsutoshi: *See—*
Tamaru, Shinji; Yamamoto, Katsutoshi; Tanaka, Osamu; Nishibayashi, Hirofumi; and Inoue, Osamu, 5,064,593, Cl. 264-113.000.

Yamamoto, Koichi: *See—*
Kikuchi, Reiji; Moriyama, Naomune; Yokouchi, Takahito; and Yamamoto, Koichi, 5,064,017, Cl. 180-248.000.

Yamamoto, Koji: *See—*
Uyama, Kiyoshi; Yamamoto, Koji; Tsuboi, Haruhito; and Iwasaki, Toshihiko, 5,064,621, Cl. 422-144.000.

Yamamoto, Masahiro; and Magara, Takuji, to Mitsubishi Denki K.K. Power supply unit electric discharge machining apparatus. 5,064,984, Cl. 219-69.130.

Yamamoto, Masaji: *See—*
Asano, Hiroaki; and Yamamoto, Masaji, 5,063,738, Cl. 60-329.000.

Yamamoto, Masami: *See—*
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.
Arimoto, Ichiro; Yamamoto, Masami; Mametani, Tomoharu; Tsutsumi, Ritsuko; Tsutsumi, Ritsuko; Arimoto, Ichiro; and Yamamoto, Masami, 5,065,218, Cl. 357-23.600.

Yamamoto, Masato; Nakajima, Masahiro; and Yamanaka, Toshimasa, to Asahi Kogaku Kogyo K.K. SLR camera with auxiliary light emitter. 5,065,177, Cl. 354-403.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Yamamoto, Naoki; Yanagase, Akira; and Yokohama, Hisaya, to MRC Techno Co., Ltd. Flame retardant polyphenylene ether resin composition. 5,064,887, Cl. 324-145.000.

Yamamoto, Shigeru: *See—*
Kawamoto, Toru; and Yamamoto, Shigeru, 5,064,785, Cl. 501-72.000.

Yamamoto, Shogo: *See—*
Hotta, Kazuhiko; Kido, Koichiro; and Yamamoto, Shogo, 5,064,695, Cl. 427-407.100.

Yamamoto, Shoji: *See—*
Masai, Kazuo; Wakayama, Satoshi; Yamamoto, Shoji; Sumiyoshi, Takashi; and Makino, Masao, 5,065,311, Cl. 364-200.000.

Yamamoto, Takashi: *See—*
Okai, Toshihiro; Okumura, Yoshiaki; Oda, Mitsuyuki; Yamamoto, Takashi; Fukuda, Hideo; and Kuwajima, Teruaki, 5,064,468, Cl. 106-14.120.

Yamamoto, Toshihiro: *See—*
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Yamamoto, Toshinori: *See—*
Ujimoto, Hiroshi; Nomura, Hironori; and Yamamoto, Toshinori, 5,064,489, Cl. 156-164.000.

Yamamoto, Toshiyuki: *See—*
Nakamura, Tadashi; and Yamamoto, Toshiyuki, 5,064,301, Cl. 400-120.000.

Yamamura, Takashi: *See—*
Takanashi, Itsuo; Nakagaki, Shintaro; Asakura, Tsutou; Furuya, Masato; Suzuki, Tetsuji; Ichitou, Toshikatsu; Yamamura, Takashi; and Tai, Hiromichi, 5,065,250, Cl. 358-300.000.

Yamanaka, Toshimasa: *See—*
Yamamoto, Masato; Nakajima, Masahiro; and Yamanaka, Toshimasa, 5,065,177, Cl. 354-403.000.

Yamaoka, Masahiro: *See—*
Kawanami, Yoshimi; Ohnishi, Tsuyoshi; Ishitani, Tohru; Habu, Tooru; and Yamaoka, Masahiro, 5,065,034, Cl. 250-505.100.

Yamasaki, Takeshi: *See—*
Tsurumaru, Hidekazu; Fujio, Nobuhiro; Yamasaki, Takeshi; Negishi, Isao; Nishizaki, Toshio; and Suzuki, Takashi, 5,064,890, Cl. 524-209.000.

Yamasaki, Yasuhiro, to Orient Chemical Industries, Ltd. Naphthalocyanine compound and production thereof. 5,064,951, Cl. 540-128.000.

Yamashita, Hiroshi: *See—*
Hirano, Koji; and Yamashita, Hiroshi, 5,063,656, Cl. 29-749.000.

Yamashita, Kazuo, to Nihon Musen Kabushiki Kaisha. Programmable frequency divider. 5,065,415, Cl. 377-52.000.

Yamashita, Toshiyuki; Ito, Masazumi; and Nishimori, Kadotaro, to Minolta Camera Kabushiki Kaisha. Copying apparatus having means for inhibiting manual setting of paper size and magnification when the automatic paper selective mode and automatic magnification selection mode are set. 5,065,198, Cl. 355-313.000.

Yamatsu, Isao: *See—*
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Yamauchi, Junichi: *See—*
Omura, Ikuo; Yamauchi, Junichi; and Kawashima, Mitsunobu, 5,064,495, Cl. 156-307.300.

Yamauchi, Yoshimitsu, to Sharp Kabushiki Kaisha. Semiconductor memory device. 5,065,201, Cl. 357-23.500.

Yamazaki, Etsuo; Nagamine, Tsuyoshi; and Isohata, Shigeru, to Fanuc Ltd. Laser oscillator control method for changing a currently executing command program. 5,065,329, Cl. 364-474.080.

Yamazaki, Koichi: *See—*
Nao, Yuji; and Yamazaki, Koichi, 5,065,078, Cl. 318-16.000.

Yanagase, Akira: *See—*
Yamamoto, Naoki; Yanagase, Akira; and Yokohama, Hisaya, 5,064,887, Cl. 324-145.000.

Yang, Chiang H.: *See—*
Hasegawa, Satoshi; and Yang, Chiang H., 5,065,399, Cl. 371-11.200.

Yang, Kei-Wean C.; and Taggart, John E., to Tektronix, Inc. Trench structured charge-coupled device. 5,065,203, Cl. 357-24.000.

Yano Giken Co., Ltd.: *See—*
Yano, Masatoshi; Matsui, Koichi; and Fukushima, Tadashi, 5,063,957, Cl. 137-15.000.

Yano, Hisashi; Yabumoto, Junsuke; and Kitada, Akiharu, to Mitsubishi Oil Co., Ltd. Gas removable pump for liquid. 5,064,452, Cl. 55-203.000.

Yano, Masatoshi; Matsui, Koichi; and Fukushima, Tadashi, to Yano Giken Co., Ltd. Method of rendering laid pipeline flexible and pipe joint suited for executing this method. 5,063,957, Cl. 137-15.000.

Yarbrough, Michael B.: *See—*
Miller, John V.; Carlson, William R.; and Yarbrough, Michael B., 5,064,607, Cl. 376-333.000.

Yashiro, Tadashi; and Nishimoto, Takafumi, to Sugino Cycle Industries, Ltd.; and Nippon Steel Chemical Co., Ltd. Wheel for light vehicle and disc used therefor. 5,064,250, Cl. 301-63.0DS.

Yasue, Kenji; Tsuji, Toshio; Ida, Takashi; and Hayase, Shigeru, to Stamicarbon B.V. Blow molded nylon 46 product. 5,064,700, Cl. 428-36.920.

Yasui, Masakazu: *See—*
Fujisaki, Teruya; Onitsuka, Katsuhiko; Fujioka, Yoshihiro; Fujikawa, Nobuyoshi; Yasui, Masakazu; and Hashimoto, Akira, 5,065,275, Cl. 361-321.000.

Yates, William. Apparatus for spray rinsing chemically treated articles. 5,063,949, Cl. 134-60.000.

Yazawa, Hiromi: *See—*
Kimura, Hideaki; Aoki, Haruo; and Yazawa, Hiromi, 5,065,255, Cl. 358-447.000.

Yeager, David A.: *See—*
Mrdjenovich, Robert; and Yeager, David A., 5,063,992, Cl. 164-516.000.

Yedgar, Saul; and Dagan, Arie, to Yissum Research Development Company of Hebrew University of Jerusalem. Phospholipase A_2 inhibiting compositions and their use. 5,064,817, Cl. 514-78.000.

Yee, Dennis S.: *See—*
Berry, Christopher J.; Cuomo, Jerome J.; Guarnieri, C. Richard; and Yee, Dennis S., 5,064,681, Cl. 427-36.000.

Yee-Kwong, Timothy K., to Motorola, Inc. LCD driver a generator. 5,065,148, Cl. 340-784.000.

Yeramyan, Ara G.: *See—*
Den Hartog, Herman C.; Palmer, George T.; and Yeramyan, Ara G., 5,064,719, Cl. 428-411.100.

Yerly, Marcel, to Bobst SA. Fixture for fastening a stripping, a blank separating or a similar tool. 5,064,110, Cl. 225-97.000.

Yeudall, Abram D.: *See—*
Freeman, Richard H. M.; and Yeudall, Abram D., 5,063,790, Cl. 73-864.140.

Yissum Research Development Company of Hebrew University of Jerusalem: *See—*
Yedgar, Saul; and Dagan, Arie, 5,064,817, Cl. 514-78.000.

Yissum Research Development Company of the Hebrew University of Jerusalem: *See—*
Crammer, Bernard; Ikan, Raphael; Mumicuoglu, Yani K.; and Weinstein, Vera, 5,064,859, Cl. 514-560.000.

Yoder, Eli J. Masonry inspection block. 5,063,723, Cl. 52-606.000.

Yohda, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Multi-track magnetic head having different height head chips. 5,065,267, Cl. 360-104.000.

Yokobori, Takeo: *See—*
Yamaguchi, Michiyuki; Suzuki, Shosuke; and Yokobori, Takeo, 5,064,714, Cl. 428-219.000.

Yokogawa Electric Corporation: *See—*
Inoue, Kenichi, 5,065,343, Cl. 395-162.000.
Shioya, Masaki; and Hanawaka, Masuo, 5,065,301, Cl. 363-17.000.

Yokogawa, Fumihiko, to Pioneer Electronic Corporation. Clock signal generating circuit for a data storing and reproducing system. 5,065,384, Cl. 369-47.000.

Yokogawa Medical Systems, Limited: *See—*
Matsumura, Shigeru, 5,065,436, Cl. 382-6.000.

Yokohama, Hisaya: *See—*
Yamamoto, Naoki; Yanagase, Akira; and Yokohama, Hisaya, 5,064,887, Cl. 324-145.000.

Yokoi, Tokihiro: *See—*
Yamaguchi, Shigeru; Yokoi, Tokihiro; Shioji, Shorbu; Irie, Yoshio; and Fujiwara, Teruaki, 5,064,563, Cl. 252-174.230.

Yokomichi, Shigeharu; and Ono, Yasunori, to Amada Wasino Co., Ltd. Wire cutting electric discharge machine. 5,064,983, Cl. 219-69.120.

Yokota, Kazunori: *See—*
Hayakawa, Nobuhiro; Yamada, Tetsusyo; and Yokota, Kazunori, 5,064,693, Cl. 427-372.200.

Yokota, Kunihiko: *See—*
Izuhara, Seiji; Kakiguchi, Yoshitomi; and Yokota, Kunihiko, 5,064,829, Cl. 514-249.000.

Yokota, Taizo, to Sharp Kabushiki Kaisha. Diffraction grating for an optical pickup device. 5,065,380, Cl. 369-44.120.

Yokota, Takayoshi; Bekki, Keisuke; and Hamada, Nobuhiro, to Hitachi, Ltd. Decoding type select logic generating method. 5,065,335, Cl. 364-489.000.

Yokouchi, Takahito: *See—*
Kikuchi, Reiji; Moriyama, Naomune; Yokouchi, Takahito; and Yamamoto, Koichi, 5,064,017, Cl. 180-248.000.

Yoneda, Kou: *See—*
Oda, Hitoshi; Ono, Takeo; Sasaki, Toyoshige; Yoneda, Kou; and Miyawaki, Mamoru, 5,065,378, Cl. 369-14.000.

Yonezawa, Keitaro; Miyata, Ichiro; and Shirakawa, Tsutomu, to Kabushiki Kaisha Kosmek. Apparatus and method for replacing working-object of processing machine. 5,063,648, Cl. 29-33.00K.

Yonezawa, Keitaro: *See—*
Oi, Akira; and Yonezawa, Keitaro, 5,063,976, Cl. 141-18.000.

Yoshida, Akihiro: *See—*
Ito, Takatoshi; Yoshida, Akihiro; Shimazaki, Kazunori; and Hattori, Shuzo, 5,064,711, Cl. 428-209.000.

Yoshida, Atsushi; Hosokawa, Tsutomu; and Hattori, Masanori, to NEC Corporation. Method and arrangement for setting an amplitude equalization characteristic on an equalizer for use in a modem. 5,065,410, Cl. 375-98.000.

Yoshida, Kiyoshi: *See—*
Yamamoto, Isao; Inoue, Hiroshi; Mori, Kazuyuki; Suzuki, Koichi; Nakano, Kinichiro; Nomura, Hiroyuki; Yoshida, Kiyoshi; and Etoh, Yoshiyuki, 5,064,015, Cl. 180-176.000.

Yoshida Kogyo K.K.: *See—*
Horita, Yoshiyuki; Mizuno, Hiroshi; and Wake, Kiyoyasu, 5,063,760, Cl. 70-23.000.

Yoshida, Makoto: *See—*
Suzuki, Kouichi; Miyoshi, Norihito; Yoshida, Makoto; and Kokado, Masayuki, 5,065,216, Cl. 357-48.000.

Yoshida, Masato; and Watanabe, Niro, to Toppan Printing Co., Ltd. Coloring agent carrying medium used in two-phase thermal recording system. 5,064,807, Cl. 503-227.000.

Yoshida, Naoko; and Takizawa, Yoshinori, to Eastman Kodak Company. Pattern recognition apparatus. 5,065,440, Cl. 382-30.000.

Yoshida, Shuichi; Wakabayashi, Noriaki; Inaji, Toshio; and Onodera, Hiromi, to Matsushita Electric Industrial Co., Ltd. Track following transducer position control system for a disk storage drive system. 5,065,263, Cl. 360-77.030.

Yoshida, Takao: *See—*
Tsutsui, Osamu; Yoshida, Takao; and Inoue, Shoji, 5,063,622, Cl. 4-623.000.

Yoshida, Toshiki: *See—*
Matsuki, Hirohisa; Harada, Shigeki; Sugimoto, Masahiro; and Yoshida, Toshiki, 5,065,223, Cl. 357-68.000.

Yoshida, Tsuyoshi: *See—*
Kawana, Kazutaka; Yoshida, Tsuyoshi; Ichikawa, Hiroyuki; and Tozu, Kenji, 5,064,253, Cl. 303-106.000.

Yoshidome, Hideo: *See—*
Okuma, Shigeru; Yamagishi, Kanji; Hara, Masami; Suzuki, Keizo; Yamamoto, Toshihiro; and Yoshidome, Hideo, 5,064,950, Cl. 536-57.000.

Yoshihara, Hideo: *See—*
Shindo, Tatsuya; and Yoshihara, Hideo, 5,065,180, Cl. 355-72.000.

Yoshikawa, Takashi: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yoshikawa, Takashi, 5,063,986, Cl. 164-122.200.

Yoshimasu, Toshihiko, to Sharp Kabushiki Kaisha. Microwave circuit. 5,065,117, Cl. 333-33.000.

Yoshimatsu, Hideaki, to Kabushiki Kaisha Kobe Seiko Sho. Method of controlling swing motion of a revolving superstructure and hydraulic control system for carrying out same. 5,063,742, Cl. 60-466.000.

Yoshimura, Hiroshi: *See—*
Baba, Fumiaki; Yoshimura, Hiroshi; Fujiwara, Takuji; and Ishii, Kozo, 5,063,814, Cl. 74-866.000.

Yoshimura, Hiroyuki: *See—*
Yamagishi, Youji; Akasaka, Kozo; Suzuki, Takeshi; Miyamoto, Mitsuaki; Nakamoto, Kouji; Okano, Kazuo; Abe, Shinya; Ikuta, Hironori; Hayashi, Kenji; Yoshimura, Hiroyuki; Fujimori, Tohru; Harada, Koukichi; and Yamatsu, Isao, 5,064,848, Cl. 514-381.000.

Yoshimura, Susumu: *See—*
Murakami, Mutsuaki; and Yoshimura, Susumu, 5,064,019, Cl. 181-170.000.

Yoshimura, Toshio, to Tanashin Denki Co., Ltd. Rotary transmitting mechanism for auto-reverse tape recorder. 5,065,266, Cl. 360-96.300.

Yoshino, Hirobumi: *See—*
Hosoi, Masatoshi; Ichinose, Tsutomu; Shimada, Masashi; Umeda, Shin; and Yoshino, Hirobumi, 5,064,181, Cl. 270-53.000.

Yoshino Kogyosho Co., Ltd.: *See—*
Hayashi, Yoshiaki; and Koshidaka, Yukio, 5,064,081, Cl. 215-1.00C.

Yoshio, Junichi; Hosaka, Sumio; Matsuoka, Hisao; Tsuda, Youichirou; Katagiri, Shoichi; and Nomura, Satoru, to Pioneer Electronic Corporation; and Pioneer Video Corporation. Method and apparatus for recording and reproducing picture information enabling the mixing of images of a video format signal and graphic codes recorded on a single recording medium. 5,065,252, Cl. 358-335.000.

Yoshioka, Shinji, to Yamaha Hatsudoki Kabushiki Kaisha. Intake system for V-type engine. 5,063,885, Cl. 123-52.0MV.

Yoshizawa, Hideyoshi; Ishii, Takashi; Makino, Toshiyuki; Ozawa, Hidekatsu; and Shimizu, Yasuyuki, to Hitachi Seiko, Ltd. Method for controlling withdrawal of electrode in electric-discharge machine. 5,064,985, Cl. 219-69.160.

Yoshizawa, Makoto; and Maruyama, Tadashi, to Kabushiki Kaisha Toshiba. Semiconductor memory integrated circuit. 5,065,361, Cl. 365-104.000.

Yoshizawa, Masao: *See—*
Hattori, Iwakazu; Sakakibara, Mitsuhiko; Tsutsumi, Fumio; and Yoshizawa, Masao, 5,064,910, Cl. 525-359.100.

You, Young S.; and Meyer, John D., to Hewlett-Packard Company. Vaporizable solid ink composition for thermal ink-jet printing. 5,065,167, Cl. 346-1.100.

Young, David E.; and Davis, Kenneth P., to Protectair Limited. Limb brace or immobilizer. 5,063,917, Cl. 128-80.00R.

Young, John D.: *See—*
Landry, James D.; Joyce, Mark A.; Young, John D.; Gilmore, Robert S.; and Schoenig, Frederick C., Jr., 5,063,779, Cl. 73-622.000.
Landry, James D.; Schoenig, Frederick C., Jr.; and Young, John D., 5,063,780, Cl. 73-622.000.

Young, Richard H., Sr.; Neogi, Amar N.; Brunnenkant, Christel; Lincoln, James F. L.; and Hansen, Michael R., to Weyerhaeuser Company. Method of treating discontinuous fibers. 5,064,689, Cl. 427-202.000.

Young, William C.; and Darr, Richard C., to Plastipak Packaging, Inc. Plastic blow molded freestanding container. 5,064,080, Cl. 215-1.00C.

Yu, Frank I.: *See—*
Shenoi, Kishan; Hanagan, Patrick L.; Ho, Helena S.; and Yu, Frank I., 5,065,395, Cl. 370-81.000.

Yuan, Han-Tzong: *See—*
Taddiken, Albert H.; Yuan, Han-Tzong; and Shichijo, Hisashi, 5,065,132, Cl. 338-334.000.

Yuen, Maria J.: *See—*
Clemans, Jim E.; Ijim, Theophilus I.; and Yuen, Maria J., 5,064,497, Cl. 156-616.100.

Yuill, Terry M.: *See—*
Nichols, Lawrence R.; and Yuill, Terry M., 5,064,365, Cl. 425-436.00R.

Yun, Jae Shin. Bicycle utilizing the vector system. 5,064,212, Cl. 280-261.000.

Zah, Chung-en: *See—*
Bhat, Rajaram; and Zah, Chung-en, 5,065,200, Cl. 357-4.000.

Zahnradfabrik Friedrichshafen, AG: *See—*
Winkelmann, Siegfried; Schlichtig, Karl; and Breisch, Harald, 5,063,904, Cl. 123-559.100.

Zaidan Hojin Handotai Kenkyu Shinkokai: *See—*
Nishizawa, Jun-Ichi; Tamamushi, Takashige; and Maeda, Hideo, 5,065,206, Cl. 357-30.000.

Zajac, John. Pressure monitoring and method. 5,063,783, Cl. 73-714.000.

Zanker, Klaus J.; and Orban, Jacques, to Anadrill, Inc. Method and system for measurement of fluid flow in a drilling rig return line. 5,063,776, Cl. 73-155.000.

Zegarski, William J., to Du Pont de Nemours, E. I., and Company. Process of preparing tantalate X-ray intensifying phosphors with improved efficiency. 5,064,729, Cl. 428-690.000.

Zeidler, David E.: *See—*
Rizkowski, Keith S.; and Zeidler, David E., 5,065,370, Cl. 367-3.000.

Zeiffer, Dieter F.; and Samilo, John S., to Gaston County Dyeing Machine Co. Means and method for extracting moisture from a traveling web of textile material. 5,063,646, Cl. 28-167.000.

Zenith Data Systems Corporation: *See—*
Olson, Anthony M.; and Rajaram, Babu, 5,064,378, Cl. 439-68.000.

Zettergren, Hans: *See—*
Edin, Gosta; and Zettergren, Hans, 5,064,074, Cl. 209-534.000.

Zeuner, Siegfried, to Bayern-Chemie Gesellschaft fur Flugchemische Antriebe mbH. Gas generating mass. 5,064,483, Cl. 149-35.000.

Zexel Corporation: *See—*
Otsuka, Masuhiro; Kono, Hiromi; Satoh, Yuji; and Soda, Hiroyuki, 5,064,039, Cl. 192-0.052.

Zhang, Ning, to Pacific Bell. Packet routing switch. 5,065,394, Cl. 370-60.000.

Ziegler, John S.; and Wecker, Sheldon M., to Abbott Laboratories. Dual container system with extractor for stopper. 5,064,059, Cl. 206-221.000.

Zielinski, Erich: *See—*
Nordmann, Adolf; and Zielinski, Erich, 5,063,824, Cl. 89-7.000.
Nordmann, Adolf; and Zielinski, Erich, 5,063,825, Cl. 89-7.000.

Zimmer, Johannes. Doctor device. 5,063,873, Cl. 118-414.000.

Zimmerman, Dennis M.; and Mitch, Charles H., to Eli Lilly and Company. Piperidine opioid antagonists. 5,064,834, Cl. 514-279.000.

Zinn, Bernd; and Reuter, Werner, to Grote & Hartmann GmbH & Co. KG. Electical switching arrangement. 5,064,973, Cl. 200-51.100.

Zip-Pak Incorporated: *See—*
Boeckmann, Hugo; and McDonald, Daniel P., 5,063,639, Cl. 24-30.50R.

Zipperian, Thomas E.: *See—*
Biefeld, Robert M.; Dawson, L. Ralph; Fritz, Ian J.; Kurtz, Steven R.; and Zipperian, Thomas E., 5,065,205, Cl. 357-30.000.

Zipplies, Matthias; Sauter, Hubert; Gold, Randall E.; Akers, Alan; Ammermann, Eberhard; and Lorenz, Gisela, to BASF Aktiengesellschaft. Fungicidal mixture. 5,064,828, Cl. 514-239.500.

Zuffada, Maurizio; and Sacchi, Fabrizio, to SGS Thomson Microelectronics S.r.l. Method and device for automatically selecting the demodulation standard of a video signal, useful with an intermediate frequency demodulator. 5,065,240, Cl. 358-160.000.

Zupp, George A., Jr.: *See—*
Cerimele, Christopher J.; Ried, Robert C.; Peterson, Wayne L.; Zupp, George A., Jr.; Stagnaro, Michael J.; and Ross, Brian P., 5,064,151, Cl. 244-160.000.

Zwart, Rudolf L.; and Tinge, Johan T., to Stamicarbon B.V. Continuous process for separating hydrogen in high purity from a gaseous hydrogen-containing mixture. 5,064,627, Cl. 423-248.000.

Zycon Corporation: *See—*
Dagostino, John J.; and Lucas, Gregory L., 5,064,583, Cl. 264-39.000.

33871 El Encanto Ave. Protractor bubble level. 5,063,679, Cl. 33-347.000.

501 Enricerche S.p.A.: *See—*
Roggero, Arnaldo; Andrei, Maria; Passerini, Stefano; and Scrosati, Bruno, 5,064,548, Cl. 252-62.200.

VOL
1132
ISS
2
NO
12
1991
UMI

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 12TH DAY OF NOVEMBER, 1991

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Blaese, Herbert R. On-glass antenna. Re. 33,743, Cl. 343-715.000.
Blessing, Martin G.; Heine, Charles F.; and Pifer, Richard L., to Dana Corporation. Locking differential with electromagnetic actuated clutch. Re. 33,742, Cl. 475-150.000.
Boissevain, Matt, to Measurex Corporation. Apparatus and method for controlling the amount of coatings on paper or other materials. Re. 33,741, Cl. 427-10.000.
Casio Computer Co., Ltd.: *See*—
Takashima, Susumu; Tokimoto, Toyotarou; and Kurosawa, Kazuyuki, Re. 33,739, Cl. 84-603.000.
Dana Corporation: *See*—
Blessing, Martin G.; Heine, Charles F.; and Pifer, Richard L., Re. 33,742, Cl. 475-150.000.
Heine, Charles F.: *See*—
Blessing, Martin G.; Heine, Charles F.; and Pifer, Richard L., Re. 33,742, Cl. 475-150.000.
Kurosawa, Kazuyuki: *See*—
Takashima, Susumu; Tokimoto, Toyotarou; and Kurosawa, Kazuyuki, Re. 33,739, Cl. 84-603.000.
Measurex Corporation: *See*—
Boissevain, Matt, Re. 33,741, Cl. 427-10.000.
Okumura, Takatoshi, to Yamaha Corporation. Electronic musical instrument of waveform memory reading type. Re. 33,738, Cl. 84-605.000.
Pifer, Richard L.: *See*—
Blessing, Martin G.; Heine, Charles F.; and Pifer, Richard L., Re. 33,742, Cl. 475-150.000.
Taguchi, Yoshinori; and Yamanami, Tsuguya, to Wacom Co., Ltd. Position detecting device. Re. 33,740, Cl. 178-19.000.
Takashima, Susumu; Tokimoto, Toyotarou; and Kurosawa, Kazuyuki, to Casio Computer Co., Ltd. Electronic musical instrument. Re. 33,739, Cl. 84-603.000.
Tokimoto, Toyotarou: *See*—
Takashima, Susumu; Tokimoto, Toyotarou; and Kurosawa, Kazuyuki, Re. 33,739, Cl. 84-603.000.
Wacom Co., Ltd.: *See*—
Taguchi, Yoshinori; and Yamanami, Tsuguya, Re. 33,740, Cl. 178-19.000.
Yamaha Corporation: *See*—
Okumura, Takatoshi, Re. 33,738, Cl. 84-605.000.
Yamanami, Tsuguya: *See*—
Taguchi, Yoshinori; and Yamanami, Tsuguya, Re. 33,740, Cl. 178-19.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Ferenc, Robert A., to Whelen Technologies, Inc. Wide angle warning light. B1 4,866,329, 11-12-91, Cl. 313-113.000.
King, Brent A., to King Systems, Inc. Animal feeder. B1 4,911,727, 11-12-91, Cl. 119-53.000.
King Systems, Inc.: *See*—
King, Brent A., B1 4,911,727, Cl. 119-53.000.
Whelen Technologies, Inc.: *See*—
Ferenc, Robert A., B1 4,866,329, Cl. 313-113.000.

LIST OF DESIGN PATENTEES

Adams, Herbert L., III, to Herb Adams VSE. Automobile body. 321,493, 11-12-91, Cl. D12-92.000.
Aguilar, Alvaro, to Aguilar, Alvaro. Tether toy. 321,537, 11-12-91, Cl. D21-62.000.
Albert, Gregory P.: *See*—
Staubitz, Robert B.; Albert, Gregory P.; Dubuque, Kenneth J.; Hix, Charles J., Jr.; and Fay, Bruce D., 321,462, Cl. D8-61.000.
Albrecht, Douglas C. Pair of handboards. 321,547, 11-12-91, Cl. D21-239.000.
Alcover, Garcia-Tornel; Juan M., to Henkel Iberica, S.A. Dispenser for detergent or the like. 321,476, 11-12-91, Cl. D9-349.000.
American Water Broom Company: *See*—
Shevers, Harold, Jr.; and Merlin, Arthur, 321,574, Cl. D32-15.000.
Aquarius Rubber (Aust.) Pty. Ltd.: *See*—
Schalle, Werner E., 321,565, Cl. D25-199.000.
Asakawa, Nobuyuki: *See*—
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,504, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,507, Cl. D13-147.000.
Ashley Furniture Industries, Inc.: *See*—
Pauer, Jericho P.; and Pronschinske, Jane, 321,438, Cl. D6-436.000.
Asics Corporation: *See*—
Mitsui, Shigeyuki, 321,425, Cl. D2-320.000.
Avnet, Inc.: *See*—
Stagl, Peter M., 321,491, Cl. D11-132.000.
Axne, Glen O. Golf ball tee setter. 321,544, 11-12-91, Cl. D21-208.000.
Ayon, Lance C. Novelty figure. 321,540, 11-12-91, Cl. D11-166.000.
Ayon, Lance C. Novelty figure. 321,541, 11-12-91, Cl. D21-166.000.
Ayon, Lance C. Novelty figure. 321,542, 11-12-91, Cl. D21-171.000.
Ayres, Boyd G. Cart. 321,579, 11-12-91, Cl. D34-26.000.
Barrick, Ford. Tool for donning and removal of hosiery. 321,427, 11-12-91, Cl. D2-641.000.
Benner, Cecilia. Hanging tag package assembly or similar article. 321,480, 11-12-91, Cl. D9-415.000.
Bezick, William J.; and D'Amico, Daniel R. Foundation vent. 321,557, 11-12-91, Cl. D23-393.000.
Blank, Peter G., to Imagination Factory, Ltd. Tote bag. 321,432, 11-12-91, Cl. D3-44.000.
Blasdell, Raymond L.: *See*—
Blasdell, Richard J.; and Blasdell, Raymond L., 321,570, Cl. D29-8.000.
Blasdell, Richard J.; and Blasdell, Raymond L. Inhaler. 321,570, 11-12-91, Cl. D29-8.000.
Boehringer Mannheim Corporation: *See*—
Sierra, George H.; and Summers, Robert B., 321,488, Cl. D10-81.000.
Bolle, Maurice, to Etablissements Bolle S.N.C. Sunglasses. 321,522, 11-12-91, Cl. D16-102.000.
Boyd, Stephen R. Horseshoe. 321,573, 11-12-91, Cl. D30-148.000.
Brady, Dale R. Hand holdable toy figure. 321,539, 11-12-91, Cl. D21-148.000.
Brinker, Barry, to 'totes', incorporated. Tread for a glove. 321,426, 11-12-91, Cl. D2-623.000.
Bulgari, Paolo, to Bulgari Time (Switzerland) S.A. Bracelet watch. 321,485, 11-12-91, Cl. D10-32.000.
Bulgari Time (Switzerland) S.A.: *See*—
Bulgari, Paolo, 321,485, Cl. D10-32.000.
Cain, Ann S., to 'Totes', Incorporated. Umbrella handle. 321,428, 11-12-91, Cl. D3-12.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Cardinal Packaging, Inc.: *See*—
Gunter, Harvey R., 321,477, Cl. D9-352.000.
Carlson, Casey L.: *See*—
Stumpf, William E.; and Carlson, Casey L., 321,471, Cl. D8-409.000.
Carretta, Michael R., to M. R. Carretta & Co., Inc. Index tab organizer. 321,535, 11-12-91, Cl. D19-92.000.
Cesaroni, William C.: *See*—
Duquaine, Edward J., Jr.; and Cesaroni, William C., 321,455, Cl. D7-361.000.
Chan, Raymond, to Integrated Display Technology Ltd. Clock. 321,483, 11-12-91, Cl. D10-10.000.
Cheng, Peter S. C. Holder for plants, flowers, radios, or the like. 321,437, 11-12-91, Cl. D6-404.000.
Cherian, Gabe. Anti-glare eyeglasses or similar article. 321,523, 11-12-91, Cl. D16-102.000.
Chesebrough-Pond's USA Co., division of Conopco, Inc.: *See*—
Wiseman, Kay E.; and Kichenside, Brian E., 321,479, Cl. D9-409.000.
Clinova Medical AB: *See*—
Ljungvall, Per, 321,562, Cl. D24-183.000.
Cohen, Wayne E.; and Kralik, Donald M., to Latin Percussion. Percussion instrument. 321,528, 11-12-91, Cl. D17-22.000.
Collins, Walter W. Combined knife and sheath. 321,548, 11-12-91, Cl. D22-118.000.
Coltene/Whaledent, Inc.: *See*—
Miller, Alan, 321,564, Cl. D24-217.000.
Miller, Alan N., 321,560, Cl. D24-156.000.
Combinova AB: *See*—
Ilemo, Torje, 321,501, Cl. D13-135.000.
Ilemo, Torje, 321,502, Cl. D13-135.000.
Contico International Company: *See*—
Dickinson, Thomas, 321,433, Cl. D3-78.000.
Corps, Pedro A. Waste basket. 321,575, 11-12-91, Cl. D34-7.000.
Cronin, Mary H. Pot-pourri holder. 321,490, 11-12-91, Cl. D11-131.100.
D'Amico, Daniel R.: *See*—
Bezick, William J.; and D'Amico, Daniel R., 321,557, Cl. D23-393.000.
Dannenberg, Todd D., to Kohler Co. Tub or the like. 321,555, 11-12-91, Cl. D23-281.000.
Dart Industries Inc.: *See*—
Lillelund, Stig; and Olsen, Eskil H., 321,458, Cl. D7-637.000.
Wolff, Martin J., 321,456, Cl. D7-391.000.
Davis, Oliver W. Shoe rack. 321,452, 11-12-91, Cl. D6-571.000.
Delephine, Jean-Claude. Faucet. 321,553, 11-12-91, Cl. 23-241.000.
Del Rosario, Luis. Housing for an aquarium filtration system. 321,552, 11-12-91, Cl. D23-210.000.
DeLuca, Michael. Golf club grip. 321,546, 11-12-91, Cl. D21-222.000.
DeMarco, Eddy. Game board. 321,536, 11-12-91, Cl. D21-34.000.
Diatek Incorporated: *See*—
Manno, Joseph J., 321,487, Cl. D10-57.000.
Dickinson, Thomas, to Contico International Company. Hip roof tool box. 321,433, 11-12-91, Cl. D3-78.000.
Dienes, Nancy L.: *See*—
Laughlen, Kenneth D.; Vorhis, Daniel J.; Dienes, Nancy L.; and Fife, James F., 321,550, Cl. D23-209.000.
Ditzig, Albert, to Telephone Products, Inc. Rotary electrical connector. 321,503, 11-12-91, Cl. D13-139.000.
Djuric, Ronnie: *See*—
Ellis, Alphonso; and Djuric, Ronnie, 321,577, Cl. D34-21.000.
Doering, Gerd, to Henkel Kommanditgesellschaft auf Aktien. Closure for a bottle. 321,482, 11-12-91, Cl. D9-435.000.
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, to Lexmark International, Inc. Printer. 321,532, 11-12-91, Cl. D18-55.000.
Dubuque, Kenneth J.: *See*—
Staubitz, Robert B.; Albert, Gregory P.; Dubuque, Kenneth J.; Hix, Charles J., Jr.; and Fay, Bruce D., 321,462, Cl. D8-61.000.
Dunkeld, Fred O. Motor vehicle tool chest. 321,431, 11-12-91, Cl. D3-40.000.
Duquaine, Edward J., Jr.; and Cesaroni, William C., to West Bend Company, The. Deep fat fryer. 321,455, 11-12-91, Cl. D7-361.000.
Edgerton, Blanca M.; and Edgerton, Robert J. Aid for teaching geography. 321,534, 11-12-91, Cl. D19-61.000.
Edgerton, Robert J.: *See*—
Edgerton, Blanca M.; and Edgerton, Robert J., 321,534, Cl. D19-61.000.
Elkerbout, Marten F., to U.S. Philips Corporation. Blood pressure meter. 321,561, 11-12-91, Cl. D24-165.000.
Ellis, Alphonso; and Djuric, Ronnie. Shopping cart with coupon holder and keyboard. 321,577, 11-12-91, Cl. D34-21.000.
Etablissements Bolle S.N.C.: *See*—
Bolle, Maurice, 321,522, Cl. D16-102.000.
Evans, Donald J.; and Kemp, David R. Syringe container. 321,472, 11-12-91, Cl. D9-306.000.
Fay, Bruce D.: *See*—
Staubitz, Robert B.; Albert, Gregory P.; Dubuque, Kenneth J.; Hix, Charles J., Jr.; and Fay, Bruce D., 321,462, Cl. D8-61.000.
Feehan, Richard J.: *See*—
Robbins, Richard J.; and Feehan, Richard J., 321,549. Cl. D22-141.000.
Ferrero Ardennes S.A.: *See*—
Ferrero, Pietro, 321,473, Cl. D9-318.000.
Ferrero, Pietro, 321,474, Cl. D9-318.000.
Ferrero, Pietro, to Ferrero Ardennes S.A. Container for confectionery products. 321,473, 11-12-91, Cl. D9-318.000.
Ferrero, Pietro, to Ferrero Ardennes S.A. Container for confectionery products. 321,474, 11-12-91, Cl. D9-318.000.
Fife, James F.: *See*—
Laughlen, Kenneth D.; Vorhis, Daniel J.; Dienes, Nancy L.; and Fife, James F., 321,550, Cl. D23-209.000.
Fresh Sweden AB: *See*—
Lundin, Hans, 321,551, Cl. D23-393.000.
Fujimoto, Takanobu: *See*—
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,519, Cl. D15-72.000.
Fukuda, Kouki, to Sharp Corporation. Battery case. 321,500, 11-12-91, Cl. D13-103.000.
Gauthier, Daniel J.: *See*—
Gauthier, Harley J.; Gauthier, Daniel J.; and Gauthier, David P., 321,543, Cl. D21-204.000.
Gauthier, David P.: *See*—
Gauthier, Harley J.; Gauthier, Daniel J.; and Gauthier, David P., 321,543, Cl. D21-204.000.
Gauthier, Harley J.; Gauthier, Daniel J.; and Gauthier, David P. Toy ball. 321,543, 11-12-91, Cl. D21-204.000.
General Electric Company: *See*—
Teutsch, Erich O., 321,481, Cl. D9-434.000.
Gerrard, Paul H., to Jaguar International Products Inc. Dock cleat. 321,470, 11-12-91, Cl. D8-356.000.
Giese, Robert C.: *See*—
Sauter, Bruce M.; Giese, Robert C.; and Smith, Iain M., 321,554, Cl. D23-275.000.
Gilbert, Walter. Creeper. 321,578, 11-12-91, Cl. D34-23.000.
Gio.Buton & C. S.p.A.: *See*—
Sassoli, Lorenzo, 321,478, Cl. D9-372.000.
Gladish, Jeff. Novelty signal lamp for automobiles. 321,567, 11-12-91, Cl. D26-31.000.
Goodman, Sheldon H.; and Greenhut, Steven E. Holder for a towel or similar article. 321,450, 11-12-91, Cl. D6-546.000.
Gough, Rex M. K., to Pitney Bowes Plc. Combined folding, inserting and sealing machine. 321,533, 11-12-91, Cl. D18-34.000.
Greenhut, Steven E.: *See*—
Goodman, Sheldon H.; and Greenhut, Steven E., 321,450, Cl. D6-546.000.
Greve, Daniel E. Medicine cabinet having a reflective front face and sidewall. 321,451, 11-12-91, Cl. D6-559.000.
Gunter, Harvey R., to Cardinal Packaging, Inc. Container. 321,477, 11-12-91, Cl. D9-352.000.
Hamilton, Brian. Oil plate remover. 321,461, 11-12-91, Cl. D8-27.000.
Harris, Laurance A. Combined radio and cooler. 321,515, 11-12-91, Cl. D14-168.000.
Hautvast, Heinz-Josef: *See*—
Heimburger, Alfons; and Hautvast, Heinz-Josef, 321,489, Cl. D10-97.000.
Heimburger, Alfons; and Hautvast, Heinz-Josef, to Mannesmann Kienzle GmbH. Taximeter. 321,489, 11-12-91, Cl. D10-97.000.
Henkel Iberica, S.A.: *See*—
Alcover, Garcia-Tornel; Juan M., 321,476, Cl. D9-349.000.
Henkel Kommanditgesellschaft auf Aktien: *See*—
Doering, Gerd, 321,482, Cl. D9-435.000.
Herb Adams VSE: *See*—
Adams, Herbert L., III, 321,493, Cl. D12-92.000.
Herman Miller, Inc.: *See*—
Newhouse, Thomas J., 321,447, Cl. D6-484.000.
Hijo De E.F. Escofet S.A.: *See*—
Paris, Emilio F., 321,436, Cl. D6-381.000.
Hirayama, Yasuo: *See*—
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,504, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,505, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; and Wakata, Shigekazu, 321,506, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,507, Cl. D13-147.000.
Hix, Charles J., Jr.: *See*—
Staubitz, Robert B.; Albert, Gregory P.; Dubuque, Kenneth J.; Hix, Charles J., Jr.; and Fay, Bruce D., 321,462, Cl. D8-61.000.
Hoelterscheidt, Siegfried, to Walter Henkels GmbH. Candle holder. 321,566, 11-12-91, Cl. D26-9.000.
Hotchkiss, John E. Holder for holding tools and other objects. 321,466, 11-12-91, Cl. D8-71.000.
Hradisky, John L., to Rubbermaid Incorporated. Hooded wastebasket. 321,576, 11-12-91, Cl. D34-8.000.
Huron/St. Clair Incorporated: *See*—
Sparham, Jon D.; Lusky, Alan D.; and Nanney, Thomas C., 321,496, Cl. D12-157.000.
I-Flow Corporation: *See*—
Kienholz, Charles M., 321,559, Cl. D24-111.000.
Iams Company, The: *See*—
Laden, Donald P., 321,572, Cl. D30-129.000.
Ichihara, Masuo: *See*—
Matoba, Hisayoshi; Kubo, Masayoshi; and Ichihara, Masuo, 321,454, Cl. D7-351.000.
Ilemo, Torje, to Combinova AB. Adapter for compact discharge lamp. 321,501, 11-12-91, Cl. D13-135.000.

Ilemo, Torje, to Combinova AB. Adapter for compact discharge lamp. 321,502, 11-12-91, Cl. D13-135.000.
Imagination Factory, Ltd.: *See*—
Blank, Peter G., 321,432, Cl. D3-44.000.
Ingersoll-Rand Company: *See*—
Staubitz, Robert B.; Albert, Gregory P.; Dubuque, Kenneth J.; Hix, Charles J., Jr.; and Fay, Bruce D., 321,462, Cl. D8-61.000.
Integral Design, Inc.: *See*—
Liptak, Richard M., 321,446, Cl. D6-475.000.
Integrated Display Technology Ltd.: *See*—
Chan, Raymond, 321,483, Cl. D10-10.000.
Izumi, Tatsuro; and Yanai, Makoto, to Minolta Camera Kabushiki Kaisha. Accessory shoe for a camera. 321,525, 11-12-91, Cl. D16-219.000.
Jaguar International Products Inc.: *See*—
Gerrard, Paul H., 321,470, Cl. D8-356.000.
Janome Sewing Machine Co. Ltd.: *See*—
Uchida, Koji, 321,518, Cl. D15-69.000.
John Manufacturing Limited: *See*—
Yuen, John S., 321,568, Cl. D26-42.000.
Jones, Duane C. Wheel chock. 321,498, 11-12-91, Cl. D12-217.000.
Kabushiki Kaisha Toshiba: *See*—
Kajita, Takashi, 321,509, Cl. D14-144.000.
Kahl, W. Henry, to Rubbermaid Incorporated. Insulated bottle. 321,457, 11-12-91, Cl. D7-608.000.
Kajita, Takashi, to Kabushiki Kaisha Toshiba. Data converter for digital communication with a telephone. 321,509, 11-12-91, Cl. D14-144.000.
Kanari, Masumi, to Sharp Corporation. Combined car radio and tape player. 321,512, 11-12-91, Cl. D14-157.000.
Katoh, Hisato; and Miki, Hiroyuki, to Kubota, Ltd. Agricultural tractor cab. 321,517, 11-12-91, Cl. D15-30.000.
Kemp, David R.: *See*—
Evans, Donald J.; and Kemp, David R., 321,472, Cl. D9-306.000.
Kenzo (societe anonyme): *See*—
Mansau, Serge, 321,475, Cl. D9-336.000.
Khantzis, Carlos A. Eyeglass display rack. 321,441, 11-12-91, Cl. D6-468.000.
Khantzis, Carlos A. Eyeglass display rack. 321,442, 11-12-91, Cl. D6-468.000.
Khantzis, Carlos A. Eyeglass display rack. 321,443, 11-12-91, Cl. D6-468.000.
Khantzis, Carlos A. Eyeglass display rack. 321,444, 11-12-91, Cl. D6-468.000.
Khantzis, Carlos A. Eyeglass display rack. 321,445, 11-12-91, Cl. D6-468.000.
Kichenside, Brian E.: *See*—
Wiseman, Kay E.; and Kichenside, Brian E., 321,479, Cl. D9-409.000.
Kienholz, Charles M., to I-Flow Corporation. Infusion pump cartridge. 321,559, 11-12-91, Cl. D24-111.000.
Kimoto & Co., Ltd.: *See*—
Morozumi, Kunio; and Taguchi, Takamichi, 321,467, Cl. D8-98.000.
Knape & Vogt Manufacturing Company: *See*—
Stumpf, William E.; and Carlson, Casey L., 321,471, Cl. D8-400.000.
Kohler Co.: *See*—
Dannenberg, Todd D., 321,555, Cl. D23-281.000.
Reid, Mary J., 321,468, Cl. D8-352.000.
Reid, Mary J.; and McKeone, William C., 321,556, Cl. D23-281.000.
Sauter, Bruce M.; Giese, Robert C.; and Smith, Iain M., 321,554, Cl. D23-275.000.
Kojo, Shin, to Nintendo Company Limited. Cartridge case. 321,429, 11-12-91, Cl. D3-35.000.
Kralik, Donald M.: *See*—
Cohen, Wayne E.; and Kralik, Donald M., 321,528, Cl. D17-22.000.
Kubo, Masayoshi: *See*—
Matoba, Hisayoshi; Kubo, Masayoshi; and Ichihara, Masuo, 321,454, Cl. D7-351.000.
Kubota, Ltd.: *See*—
Katoh, Hisato; and Miki, Hiroyuki, 321,517, Cl. D15-30.000.
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, to Mitsubishi Denki Kabushiki Kaisha. Controller for a sewing machine. 321,519, 11-12-91, Cl. D15-72.000.
Kurozumi, Shigeru; Saeki, Taisuke; and Sakamoto, Harumi, to Sharp Corporation. Projector. 321,526, 11-12-91, Cl. D16-221.000.
Kurozumi, Shigeru; Tsujimoto, Kazuo; and Shimizu, Osamu, to Sharp Corporation. Projector. 321,527, 11-12-91, Cl. D16-234.000.
Laden, Donald P., to Iams Company, The. Pet food bowl. 321,572, 11-12-91, Cl. D30-129.000.
Langlois, Michael G., to U.S. Philips Corporation. Cradle or similar article for a telephone handset. 321,510, 11-12-91, Cl. D14-151.000.
Lanyard Pty. Ltd.: *See*—
Marinko, Francis A., 321,499, Cl. D12-314.000.
Latin Percussion: *See*—
Cohen, Wayne E.; and Kralik, Donald M., 321,528, Cl. D17-22.000.
Laughlen, Kenneth D.; Vorhis, Daniel J.; Dienes, Nancy L.; and Fife, James F., to Mountain Safety Research, Inc. Water filter. 321,550, 11-12-91, Cl. D23-209.000.
Lecompte, Gerald. Television stand. 321,439, 11-12-91, Cl. D6-455.000.
Lee, Troy A.: *See*—
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
Lexmark International, Inc.: *See*—
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
Lillelund, Stig; and Olsen, Eskil H., to Dart Industries Inc. Cutlery insert for a container. 321,458, 11-12-91, Cl. D7-637.000.
Liptak, Richard M., to Integral Design, Inc. Display holder for brochures and the like. 321,446, 11-12-91, Cl. D6-475.000.
Ljungvall, Per, to Clinova Medical AB. Medical arm pillow for use in measuring blood pressure. 321,562, 11-12-91, Cl. D24-183.000.
Lucariello, John D. Aquarium-support cabinet. 321,571, 11-12-91, Cl. D30-101.000.
Lundin, Hans, to Fresh Sweden AB. Outdoor air intake valve. 321,551, 11-12-91, Cl. D23-393.000.
Lusky, Alan D.: *See*—
Sparham, Jon D.; Lusky, Alan D.; and Nanney, Thomas C., 321,496, Cl. D12-157.000.
M. R. Carretta & Co., Inc.: *See*—
Carretta, Michael R., 321,535, Cl. D19-92.000.
Macomber, Clayton D. Adaptor for a differential. 321,520, 11-12-91, Cl. D15-149.000.
Macomber, Clayton D. Combination pipe and transmission adaptor unit. 321,521, 11-12-91, Cl. D15-149.000.
Mannesmann Kienzle GmbH: *See*—
Heimburger, Alfons; and Hautvast, Heinz-Josef, 321,489, Cl. D10-97.000.
Manno, Joseph J., to Diatek Incorporated. Infrared thermometer. 321,487, 11-12-91, Cl. D10-57.000.
Mansau, Serge, to Kenzo (societe anonyme). Container. 321,475, 11-12-91, Cl. D9-336.000.
Marinko, Francis A., to Lanyard Pty. Ltd. Boat hull. 321,499, 11-12-91, Cl. D12-314.000.
Martin, Paul. Motorcycle stabilizer cover. 321,494, 11-12-91, Cl. D12-126.000.
Martin, Paul. Motorcycle stabilizer cover. 321,495, 11-12-91, Cl. D12-126.000.
Masacek, David P. Connector for a wine rack or the like. 321,448, 11-12-91, Cl. D6-491.000.
Matoba, Hisayoshi; Kubo, Masayoshi; and Ichihara, Masuo, to Matsushita Electric Industrial Co. Ltd. Microwave oven. 321,454, 11-12-91, Cl. D7-351.000.
Matsushita Electric Industrial Co. Ltd.: *See*—
Matoba, Hisayoshi; Kubo, Masayoshi; and Ichihara, Masuo, 321,454, Cl. D7-351.000.
McKeone, William C.: *See*—
Reid, Mary J.; and McKeone, William C., 321,556, Cl. D23-281.000.
Meeker, Paul K., to Spalding & Evenflo Companies, Inc. Power rocker base for an infant seat. 321,449, 11-12-91, Cl. D6-496.000.
Merlin, Arthur: *See*—
Shevers, Harold, Jr.; and Merlin, Arthur, 321,574, Cl. D32-15.000.
Miki, Hiroyuki: *See*—
Katoh, Hisato; and Miki, Hiroyuki, 321,517, Cl. D15-30.000.
Mikiya, Toshio, to Nitto Kohki Co., Ltd. Portable belt sander. 321,464, 11-12-91, Cl. D8-62.000.
Mikiya, Toshio, to Nitto Kohki Co., Ltd. Portable belt sander. 321,465, 11-12-91, Cl. D8-62.000.
Miller, Alan, to Coltene/Whaledent, Inc. Ultrasonic cleaner. 321,564, 11-12-91, Cl. D24-217.000.
Miller, Alan N., to Coltene/Whaledent, Inc. Dental post. 321,560, 11-12-91, Cl. D24-156.000.
Minolta Camera Kabushiki Kaisha: *See*—
Izumi, Tatsuro; and Yanai, Makoto, 321,525, Cl. D16-219.000.
Mitsubishi Denki Kabushiki Kaisha: *See*—
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,519, Cl. D15-72.000.
Mitsui, Shigeyuki, to Asics Corporation. Shoe sole. 321,425, 11-12-91, Cl. D2-320.000.
Miyai, Hiroyuki, to Sanyo Electric Co., Ltd. Cassette tape player. 321,514, 11-12-91, Cl. D14-165.000.
Morozumi, Kunio; and Taguchi, Takamichi, to Kimoto & Co., Ltd. Cutting device for masking film. 321,467, 11-12-91, Cl. D8-98.000.
Mountain Safety Research, Inc.: *See*—
Laughlen, Kenneth D.; Vorhis, Daniel J.; Dienes, Nancy L.; and Fife, James F., 321,550, Cl. D23-209.000.
Myers, John A. Adjustable ball holder. 321,545, 11-12-91, Cl. D21-208.000.
Myrland, James W. Underwater flower cutter. 321,459, 11-12-91, Cl. D8-1.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,504, 11-12-91, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,505, 11-12-91, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; and Wakata, Shigekazu, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,506, 11-12-91, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,507, 11-12-91, Cl. D13-147.000.
Nakamura, Yasuhiro, to Nikon Corporation. Adjustable length temple for spectacles. 321,524, 11-12-91, Cl. D16-127.000.

VOL 1132 ISS 2 NO 12 1991 UMI

Nanney, Thomas C.: *See—*
Sparham, Jon D.; Lusky, Alan D.; and Nanney, Thomas C., 321,496, Cl. D12-157.000.
Newhouse, Thomas J., to Herman Miller, Inc. Desk. 321,447, 11-12-91, Cl. D6-484.000.
Nikon Corporation: *See—*
Nakamura, Yasuhiro, 321,524, Cl. D16-127.000.
Nintendo Company Limited: *See—*
Kojo, Shin, 321,429, Cl. D3-35.000.
Nitto Kohki Co., Ltd.: *See—*
Mikiya, Toshio, 321,464, Cl. D8-62.000.
Mikiya, Toshio, 321,465, Cl. D8-62.000.
Nohara, Toshikazu: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,505, Cl. D13-147.000.
Nouri, Nadia: *See—*
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
Olsen, Eskil H.: *See—*
Lillelund, Stig; and Olsen, Eskil H., 321,458, Cl. D7-637.000.
Ophardt, Heiner. Liquid dispenser housing. 321,453, 11-12-91, Cl. D7-300.000.
Owensby, James: *See—*
Shelton, Kenneth; and Owensby, James, 321,463, Cl. D8-61.000.
Paris, Emilio F., to Hijo De E.F. Escofet S.A. Bench. 321,436, 11-12-91, Cl. D6-381.000.
Pauer, Jericho P.; and Pronschinske, Jane, to Ashley Furniture Industries, Inc. Hutch mirror. 321,438, 11-12-91, Cl. D6-436.000.
Pettesch, Martin C., to Universal Valve Company, Inc. Hose retractor for gasoline pumps. 321,469, 11-12-91, Cl. D8-356.000.
Pfennig, Klaus G.: *See—*
Swarthout, Robert F.; and Pfennig, Klaus G., 321,511, Cl. D14-151.000.
Pitney Bowes Plc: *See—*
Gough, Rex M. K., 321,533, Cl. D18-34.000.
Powell, Dick, to U.S. Philips Corporation. Clock radio receiver. 321,516, 11-12-91, Cl. D14-171.000.
Powers, Gerald T. Pocket calculator. 321,529, 11-12-91, Cl. D18-7.000.
Pronschinske, Jane: *See—*
Pauer, Jericho P.; and Pronschinske, Jane, 321,438, Cl. D6-436.000.
Ramos, Joel A., to S&C Electric Company. Interrupter switch with selective circuit-isolating feature. 321,508, 11-12-91, Cl. D13-160.000.
Redcom Laboratories, Inc.: *See—*
Swarthout, Robert F.; and Pfennig, Klaus G., 321,511, Cl. D14-151.000.
Reid, Mary J., to Kohler Co. Escutcheon. 321,468, 11-12-91, Cl. D8-352.000.
Reid, Mary J.; and McKeone, William C., to Kohler Co. Tub or the like. 321,556, 11-12-91, Cl. D23-281.000.
Robbins, Richard J.; and Feehan, Richard J., to Zebco Corporation. Spinning fishing reel. 321,549, 11-12-91, Cl. D22-141.000.
Rubbermaid Incorporated: *See—*
Hradisky, John L., 321,576, Cl. D34-8.000.
Kahl, W. Henry, 321,457, Cl. D7-608.000.
S&C Electric Company: *See—*
Ramos, Joel A., 321,508, Cl. D13-160.000.
Saeki, Taisuke: *See—*
Kurozumi, Shigeru; Saeki, Taisuke; and Sakamoto, Harumi, 321,526, Cl. D16-221.000.
Saeki, Toshiro: *See—*
Takeda, Akio; and Saeki, Toshiro, 321,530, Cl. D18-54.000.
Takeda, Akio; and Saeki, Toshiro, 321,531, Cl. D18-54.000.
Sakamoto, Harumi: *See—*
Kurozumi, Shigeru; Saeki, Taisuke; and Sakamoto, Harumi, 321,526, Cl. D16-221.000.
Sanyo Electric Co., Ltd.: *See—*
Miyai, Hiroyuki, 321,514, Cl. D14-165.000.
Sassoli, Lorenzo, to Gio.Buton & C. S.p.A. Bottle. 321,478, 11-12-91, Cl. D9-372.000.
Sauter, Bruce M.; Giese, Robert C.; and Smith, Iain M., to Kohler Co. Bathing enclosure or the like. 321,554, 11-12-91, Cl. D23-275.000.
Scalisi, Joseph F.: *See—*
Scalisi, Phillip M.; and Scalisi, Joseph F., 321,435, Cl. D6-375.000.
Scalisi, Phillip M.; and Scalisi, Joseph F. Chair. 321,435, 11-12-91, Cl. D6-375.000.
Schalle, Werner E., to Aquarius Rubber (Aust.) Pty. Ltd. Sealing member. 321,565, 11-12-91, Cl. D25-199.000.
Seikosha Co., Ltd.: *See—*
Takeda, Akio; and Saeki, Toshiro, 321,530, Cl. D18-54.000.
Takeda, Akio; and Saeki, Toshiro, 321,531, Cl. D18-54.000.
Sharp Corporation: *See—*
Fukuda, Kouki, 321,500, Cl. D13-103.000.
Kanari, Masumi, 321,512, Cl. D14-157.000.
Kurozumi, Shigeru; Saeki, Taisuke; and Sakamoto, Harumi, 321,526, Cl. D16-221.000.
Kurozumi, Shigeru; Tsujimoto, Kazuo; and Shimizu, Osamu, 321,527, Cl. D16-234.000.
Shelton, Kenneth; and Owensby, James. Carpet sculpture tool. 321,463, 11-12-91, Cl. D8-61.000.
Shevers, Harold, Jr.; and Merlin, Arthur, to American Water Broom Company. Washing device for cleaning the underside of a vehicle. 321,574, 11-12-91, Cl. D32-15.000.
Shimizu, Osamu: *See—*
Kurozumi, Shigeru; Tsujimoto, Kazuo; and Shimizu, Osamu, 321,527, Cl. D16-234.000.
Sierra, George H.; and Summers, Robert B., to Boehringer Mannheim Corporation. Colorimeter. 321,488, 11-12-91, Cl. D10-81.000.
Silverstein, Steven A.: *See—*
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
Smith, David C. Physical therapy steering wheel module. 321,538, 11-12-91, Cl. D21-142.000.
Smith, Iain M.: *See—*
Sauter, Bruce M.; Giese, Robert C.; and Smith, Iain M., 321,554, Cl. D23-275.000.
Sogabe, Takashi: *See—*
Totsuka, Keiichi; and Sogabe, Takashi, 321,513, Cl. D14-163.000.
Sony Corporation: *See—*
Totsuka, Keiichi; and Sogabe, Takashi, 321,513, Cl. D14-163.000.
Spalding & Evenflo Companies, Inc.: *See—*
Meeker, Paul K., 321,449, Cl. D6-496.000.
Sparham, Jon D.; Lusky, Alan D.; and Nanney, Thomas C., to Huron/St. Clair Incorporated. Crossbar support for an article carrier. 321,496, 11-12-91, Cl. D12-157.000.
Stagl, Peter M., to Avnet, Inc. Plaque. 321,491, 11-12-91, Cl. D11-132.000.
Staubitz, Robert B.; Albert, Gregory P.; Dubuque, Kenneth J.; Hix, Charles J., Jr.; and Fay, Bruce D., to Ingersoll-Rand Company. Extended pneumatic tool. 321,462, 11-12-91, Cl. D8-61.000.
Strickler, Fletcher C., to White Horse Trading Co., Inc. Brush for animals. 321,434, 11-12-91, Cl. D4-136.000.
Stumpf, William E.; and Carlson, Casey L., to Knape & Vogt Manufacturing Company. Shelving support pad for brackets. 321,471, 11-12-91, Cl. D8-400.000.
Sumitomo Wiring Systems, Ltd.: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,504, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,505, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; and Wakata, Shigekazu, 321,506, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,507, Cl. D13-147.000.
Summers, Robert B.: *See—*
Sierra, George H.; and Summers, Robert B., 321,488, Cl. D10-81.000.
Swarthout, Robert F.; and Pfennig, Klaus G., to Redcom Laboratories, Inc. Key telephone set. 321,511, 11-12-91, Cl. D14-151.000.
Taguchi, Takamichi: *See—*
Morozumi, Kunio; and Taguchi, Takamichi, 321,467, Cl. D8-98.000.
Takeda, Akio; and Saeki, Toshiro, to Seikosha Co., Ltd. Printer. 321,530, 11-12-91, Cl. D18-54.000.
Takeda, Akio; and Saeki, Toshiro, to Seikosha Co., Ltd. Printer for a computer. 321,531, 11-12-91, Cl. D18-54.000.
Takemura, Chiharu, to Yoshida Kogyo K.K. Pull tab for slide fastener. 321,492, 11-12-91, Cl. D11-221.000.
Telephone Products, Inc.: *See—*
Ditzig, Albert, 321,503, Cl. D13-139.000.
Teutsch, Erich O., to General Electric Company. Bottom surface of a fluid container. 321,481, 11-12-91, Cl. D9-434.000.
Tiefenthal, Wallace L., to Tru-Cut Tool & Machine Corp. Wrench. 321,460, 11-12-91, Cl. D8-17.000.
'totes', incorporated: *See—*
Brinker, Barry, 321,426, Cl. D2-623.000.
Cain, Ann S., 321,428, Cl. D3-12.000.
Totsuka, Keiichi; and Sogabe, Takashi, to Sony Corporation. Combined tape player and radio tuner. 321,513, 11-12-91, Cl. D14-163.000.
Tru-Cut Tool & Machine Corp.: *See—*
Tiefenthal, Wallace L., 321,460, Cl. D8-17.000.
Tsujimoto, Kazuo: *See—*
Kurozumi, Shigeru; Tsujimoto, Kazuo; and Shimizu, Osamu, 321,527, Cl. D16-234.000.
Uchida, Koji, to Janome Sewing Machine Co. Ltd. Sewing machine. 321,518, 11-12-91, Cl. D15-69.000.
U.S. Philips Corporation: *See—*
Elkerbout, Marten F., 321,561, Cl. D24-165.000.
Langlois, Michael G., 321,510, Cl. D14-151.000.
Powell, Dick, 321,516, Cl. D14-171.000.
Universal Valve Company, Inc.: *See—*
Pettesch, Martin C., 321,469, Cl. D8-356.000.
Vestal, David M., Sr., to Vestal Manufacturing Company. Fireplace grate. 321,558, 11-12-91, Cl. D23-398.000.
Vestal Manufacturing Company: *See—*
Vestal, David M., Sr., 321,558, Cl. D23-398.000.
Vorhis, Daniel J.: *See—*
Laughlen, Kenneth D.; Vorhis, Daniel J.; Dienes, Nancy L.; and Fife, James F., 321,550, Cl. D23-209.000.
Wakata, Shigekazu: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,504, Cl. D13-147.000.

Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,505, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; and Wakata, Shigekazu, 321,506, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,507, Cl. D13-147.000.
Wallace, John. Disposable lighter with integrated clip. 321,569, 11-12-91, Cl. D27-142.000.
Walter Henkels GmbH: *See—*
Hoelterscheidt, Siegfried, 321,566, Cl. D26-9.000.
Wang, James P.: *See—*
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
West Bend Company, The: *See—*
Duquaine, Edward J., Jr.; and Cesaroni, William C., 321,455, Cl. D7-361.000.
White Horse Trading Co., Inc.: *See—*
Strickler, Fletcher C., 321,434, Cl. D4-136.000.
Whitley, Warwick M., II. Steering wheel for boats. 321,497, 11-12-91, Cl. D12-176.000.
Wilk, Richard J., to Wilk, Richard J. Wrist watch casing. 321,486, 11-12-91, Cl. D10-39.000.
Wilzbach, Bernard L.: *See—*
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
Wirth, John G. Ski carrier. 321,430, 11-12-91, Cl. D3-36.000.
Wiseman, Kay E.; and Kichenside, Brian E., to Chesebrough-Pond's USA Co., division of Conopco, Inc. Bottle. 321,479, 11-12-91, Cl. D9-409.000.
Wolff, Friedrich. Recliner pane for tanning apparatus. 321,563, 11-12-91, Cl. D24-200.000.
Wolff, Martin J., to Dart Industries, Inc. Cover for a food storage container or the like. 321,456, 11-12-91, Cl. D7-391.000.
Yamada, Shinichi: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,504, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,505, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,507, Cl. D13-147.000.
Yamauchi, Satomi: *See—*
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,519, Cl. D15-72.000.
Yanai, Makoto: *See—*
Izumi, Tatsuro; and Yanai, Makoto, 321,525, Cl. D16-219.000.
Yoshida Kogyo K.K.: *See—*
Takemura, Chiharu, 321,492, Cl. D11-221.000.
Yosmali, Krikor: *See—*
Doyle, Marguerite H.; Lee, Troy A.; Nouri, Nadia; Silverstein, Steven A.; Wang, James P.; Wilzbach, Bernard L.; and Yosmali, Krikor, 321,532, Cl. D18-55.000.
Yu, Francis. Talking clock. 321,484, 11-12-91, Cl. D10-21.000.
Yuen, John S., to John Manufacturing Limited. Combined fluorescent lantern, spotlight, and emergency blinking light. 321,568, 11-12-91, Cl. D26-42.000.
Zaro, Marvin. Display unit for counter sales. 321,440, 11-12-91, Cl. D6-468.000.
Zebco Corporation: *See—*
Robbins, Richard J.; and Feehan, Richard J., 321,549, Cl. D22-141.000.

LIST OF PLANT PATENTEES

Davidson, Harvey D. Hybrid tearose plant named 'Smooth Prince'. 7,706, 11-12-91, Cl. 20.000.
Deroose, Reginald: *See—*
Kuipers, Nico J., 7,712, Cl. 88.000.
Kuipers, Nico J., 7,713, Cl. 88.000.
Fruehwirth, Franz, to Paul Ecke Ranch, Inc. Poinsettia plant '268 Pink'. 7,710, 11-12-91, Cl. 86.000.
Fruehwirth, Franz, to Paul Ecke Ranch, Inc. Poinsettia plant '15-88'. 7,711, 11-12-91, Cl. 86.000.
Holtkamp, Reinhold, Sr. African violet plant named Little Apache Girl. 7,709, 11-12-91, Cl. 69.000.
Ison, William G. Grapevine named 'Pam'. 7,707, 11-12-91, Cl. 47.000.
Kuipers, Nico J., to Deroose, Reginald. Spathiphyllum plant named Snow White. 7,712, 11-12-91, Cl. 88.000.
Kuipers, Nico J., to Deroose, Reginald. *Neoregelia carolinae* plant named Devroe. 7,713, 11-12-91, Cl. 88.000.
Mojonnier, Erwin. Alstroemeria plant named Diana. 7,708, 11-12-91, Cl. 68.000.
Paul Ecke Ranch, Inc.: *See—*
Fruehwirth, Franz, 7,710, Cl. 86.000.
Fruehwirth, Franz, 7,711, Cl. 86.000.

VOL
1132
ISS
2
NO
12
1991
UMI

CLASSIFICATION OF PATENTS

ISSUED NOVEMBER 12, 1991

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

21 5,063,613
94 5,063,614
338 5,063,615

CLASS 4

191 5,063,616
251 5,063,617
420.4 5,063,618
443 5,063,619
542 5,063,620
568 5,063,621
623 5,063,622

CLASS 5

63 5,063,624
67 5,063,623
475 5,063,625
493 5,063,626

CLASS 7

105 5,063,627
116 5,063,628

CLASS 8

137 5,064,440
405 5,064,441
407 5,064,442
479 5,064,443

CLASS 12

12.4 5,063,629

CLASS 14

2.4 5,063,630

CLASS 15

263 5,063,631
316.1 5,063,632
320 5,063,633
377 5,063,634
398 5,063,635

CLASS 16

98 5,063,636
225 5,063,637
238 5,063,638

CLASS 24

30.5 R 5,063,639
67.9 5,063,640
197 5,063,641
274 R 5,063,642
335 5,063,643
400 5,063,644
501 5,063,645

CLASS 28

167 5,063,646

CLASS 29

6.1 5,063,647
33 K 5,063,648
116.1 5,063,649
407 5,063,650
455.1 5,063,651
525.2 5,063,652
603 5,063,653
609 5,063,654
611 5,063,655
749 5,063,656
753 5,063,657
846 5,063,658
860 5,063,659
885 5,063,660
888.02 5,063,661
889.72 5,063,662
890.043 5,063,663
894.361 5,063,664
897.312 5,063,665

CLASS 30

28 5,063,666
41 5,063,667
77 5,063,668
5,063,669
228 5,063,670
262 5,063,671
272.1 5,063,672
276 5,063,673
305 5,063,674
513 5,063,675

CLASS 33

1 M 5,063,676
252 5,063,677
265 5,063,678
347 5,063,679
397 5,063,680
414 5,063,681
501.02 5,063,682
573 5,063,683
653 5,063,684
701 5,063,685
757 5,063,686
827 5,063,687

CLASS 34

97 5,063,688
115 5,063,689

CLASS 36

2.6 5,063,690
35 R 5,063,691
43 5,063,692
121 5,063,693

CLASS 37

103 5,063,694
141 R 5,063,695
141 T 5,063,696

CLASS 38

75 5,063,697

CLASS 40

124.1 5,063,698

CLASS 42

41 5,063,699

CLASS 43

17.6 5,063,700
21.2 5,063,701
27.4 5,063,702
42.06 5,063,703
42.25 5,063,704
44.6 5,063,705
125 5,063,706

CLASS 47

9 5,063,707
33 5,063,708
46 5,063,709

CLASS 48

202 5,064,444

CLASS 49

280 5,063,710
504 5,063,711

CLASS 51

67 5,063,712
170 R 5,063,713
209 R 5,063,714
293 5,064,445

CLASS 52

36 5,063,715
66 5,063,730
114 5,063,716
201 5,063,717
235 5,063,718
296 5,063,719
309.1 5,063,720
379 5,063,721
410 5,063,722
606 5,063,723
704 5,063,724

CLASS 53

485 5,063,725
491 5,063,726
552 5,063,727

CLASS 55

16 5,064,446
5,064,447
38 5,064,448
52 5,064,449
70 5,064,450
74 5,064,451
203 5,064,452
217 5,064,453
302 5,064,454
375 5,064,455
385.1 5,064,456
385.2 5,064,457
482 5,064,458
512 5,064,459

CLASS 56

13.5 5,063,728
30 5,063,729
295 5,063,731

CLASS 60

39.02 5,063,732
39.75 5,063,733
204 5,063,734
246 5,063,735
286 5,063,736
5,063,737
329 5,063,738
421 5,063,739
432 5,063,740
461 5,063,741
466 5,063,742
562 5,063,743
600 5,063,744
611 5,064,423
737 5,063,745

CLASS 62

22 5,063,746
59 5,063,748
149 5,063,749
196.3 5,063,750
201 5,063,751
225 5,063,752
239 5,063,753
457.9 5,063,754
461 5,063,747

CLASS 65

33 5,064,460
5,064,461

CLASS 66

90 5,063,755
132 R 5,063,756

CLASS 68

17 R 5,063,757
205 R 5,063,758

CLASS 70

14 5,063,759
23 5,063,760
25 5,063,761
30 5,063,762
58 5,063,763
100 5,063,764
417 5,063,765
428 5,063,766

CLASS 72

11 5,063,767
379.2 5,063,768
379.6 5,063,769
410 5,063,770

CLASS 73

40.7 5,063,771
5,063,772
117 5,063,773
146.5 5,063,774
155 5,063,775
5,063,776
178 H 5,063,777
299 5,063,778
622 5,063,779
5,063,780
651 5,063,781
654 5,063,782
714 5,063,783
756 5,063,784
821 5,063,785
861.19 5,063,786
861.64 5,063,787
862.04 5,063,788
863.23 5,063,789
864.14 5,063,790
864.31 5,063,791

CLASS 74

37 5,063,792
360 5,063,793
371 5,063,794
411.5 5,063,808
459 5,063,809
473 R 5,063,810
513 5,063,811
575 5,063,812
866 5,063,813
5,063,814
867 5,063,815
868 5,063,816
878 5,063,817

CLASS 75

248 5,064,462
314 5,064,463
347 5,064,464
349 5,064,465
417 5,064,466
495 5,064,467

CLASS 81

9.43 5,063,795
57.29 5,063,796
60 5,063,797

CLASS 82

124 5,063,798
158 5,063,799

CLASS 83

14 5,063,800
37 5,063,801
98 5,063,802
203 5,063,803
368 5,063,804
468.3 5,063,805
471.3 5,063,806
647 5,063,807

CLASS 84

314 R 5,063,818
422.3 5,063,819
603 Re.33,739
605 Re.33,738
609 5,063,820
723 5,063,821

CLASS 89

1.15 5,063,822
1.51 5,063,823
7 5,063,824
5,063,825
8 5,063,826
14.3 5,063,827

CLASS 92

26 5,063,828
71 5,063,829
169.2 5,063,830
187 5,063,831

CLASS 98

2 5,063,832
5,063,833
115.1 5,063,834
115.2 5,063,835

CLASS 99

281 5,063,836
295 5,063,837
307 5,063,838
353 5,063,839

CLASS 100

121 5,063,840
142 5,063,841

CLASS 101

127.1 5,063,842
183 5,063,843
247 5,063,844
484 5,063,845

CLASS 102

215 5,063,846
271 5,063,847
282 5,063,848
388 5,063,849
402 5,063,850
433 5,063,851
434 5,063,852
467 5,063,853
520 5,063,854
521 5,063,855

CLASS 104

9 5,063,856
88 5,063,857

CLASS 105

253 5,063,858
340 5,063,859

CLASS 106

14.12 5,064,468
14.42 5,064,469
21 5,064,470
250 5,064,471
278 5,064,472
287.34 5,064,473

CLASS 110

256 5,063,860
336 5,063,861
346 5,063,862

CLASS 111

93 5,063,863

CLASS 112

121.29 5,063,864
221 5,063,865
302 5,063,866
443 5,063,867

CLASS 114

56 5,063,868
61 5,063,869
357 5,063,870

CLASS 118

13 5,063,871
213 5,063,872
414 5,063,873
602 5,063,874
651 5,063,875

CLASS 119

20 5,063,876
52.2 5,063,877
53 B1 4,911,727
72.5 5,063,878
96 5,063,879
159 5,063,880

CLASS 123

1 A 5,063,881
41.86 5,063,882
48 R 5,063,883
52 M 5,063,884
52 MV 5,063,885
65 PE 5,063,887
5,063,888
65 VD 5,063,886
90.39 5,063,889
145 A 5,063,890
187.5 R 5,063,891
192 B 5,063,892
193 P 5,063,893
5,063,894
196 R 5,063,895
198 A 5,063,896
198 R 5,063,897
297 5,063,898
339 5,063,899
373 5,063,900
419 5,063,901
425 5,063,902
500 5,063,903
559.1 5,063,904

CLASS 124

72 5,063,905

CLASS 126

299 D 5,063,906

CLASS 128

10 5,063,907
17 5,063,908
24 R 5,063,910
32 5,063,911
33 5,063,912
77 5,063,913
79 5,063,914
5,063,915
80 C 5,063,916
80 R 5,063,917
82 5,063,919
84 R 5,063,918
87 B 5,063,920
200.14 5,063,921
200.16 5,063,922
201.13 5,063,923
202.12 5,063,924
205.24 5,063,925
206.17 5,063,926
419 D 5,063,928
419 PG 5,063,927
421 5,063,929
632 5,063,930
639 5,063,932
653.5 5,063,933
5,063,934
657 5,063,935
661.07 5,063,931
674 5,063,936
723 5,063,937
724 5,063,938
746 5,063,946
842 5,063,939
861 5,063,940
869 5,063,941
898 5,063,942

CLASS 131

84.4 5,063,943
109.2 5,063,944
332 5,063,945

CLASS 132

218 5,063,947
321 5,063,948

CLASS 134

2 5,064,474
4 5,064,475
60 5,063,949
64 R 5,063,950
5,063,951

CLASS 135

22 5,063,952
25.3 5,063,953

CLASS 136

201 5,064,476
256 5,064,477

CLASS 137

1 5,063,955
14 5,063,956
15 5,063,957
68.1 5,063,958
153 5,063,959
269 5,063,960
454.5 5,063,961
487 5,063,962
606 5,063,963
614.03 5,063,964
5,063,965
625.31 5,063,954
625.65 5,063,966

CLASS 138

98 5,063,967
109 5,063,968
154 5,063,969

CLASS 139

1 R 5,063,970
87 5,063,971
145 5,063,972
370.2 5,063,973

CLASS 140

92.2 5,063,974
123 5,063,975

CLASS 141

18 5,063,976
86 5,063,977
263 5,063,978

CLASS 144

1 F 5,063,979
223 5,063,980
341 5,063,981
365 5,063,982
371 5,063,983

CLASS 148

12.4 5,064,478
20.3 5,064,479
22 5,064,480
23 5,064,481
24 5,064,482

VOL 1132 ISS 2 NO 12 1991 UMI

CLASS 149

35 5,064,483

CLASS 156

62.6 5,064,484
69 5,064,485
94 5,064,486
155 5,064,487
159 5,064,488
164 5,064,489
172 5,064,490
173 5,064,491
191 5,064,492
207 5,064,493
273.5 5,064,494
307.3 5,064,495
468 5,064,496
616.1 5,064,497
626 5,064,498
643 5,064,499
665 5,064,500

CLASS 159

4.08 5,064,501

CLASS 160

7 5,063,984
330 5,063,985

CLASS 162

299 5,064,502
359 5,064,503
396 5,064,504

CLASS 164

122.2 5,063,986
324 5,063,987
463 5,063,988
5,063,989
5,063,990
468 5,063,991
516 5,063,992

CLASS 165

4 5,063,993
154 5,063,994
166 5,063,995

CLASS 166

75.1 5,063,996
279 5,063,997

CLASS 169

65 5,063,998

CLASS 172

1 5,063,999
19 5,064,000
556 5,064,001

CLASS 173

80 5,064,002
106 5,064,003
132 5,064,004
134 5,064,005

CLASS 174

32 5,064,966
52.3 5,064,967
52.4 5,064,968
67 5,064,969
135 5,064,970
169 5,064,971

CLASS 175

45 5,064,006
334 5,064,007

CLASS 177

1 5,064,008
245 5,064,009

CLASS 178

19 Re.33,740

CLASS 180

6.5 5,064,010
9.22 5,064,011
19.1 5,064,012
65.3 5,064,013
79.1 5,064,014
176 5,064,015
215 5,064,016
248 5,064,017
360 5,064,018

CLASS 181

170 5,064,019

CLASS 182

20 5,064,020
73 5,064,021
85 5,064,022
90 5,064,023
201 5,064,024

CLASS 184

6.12 5,064,025

CLASS 187

130 5,064,026

CLASS 188

73.1 5,064,027
73.38 5,064,028
267 5,064,029
297 5,064,030
299 5,064,031
5,064,032
306 5,064,033
343 5,064,034

CLASS 191

30 5,064,972

CLASS 192

0.032 5,064,036
0.052 5,064,039
6 R 5,064,035
41 A 5,064,037
41 S 5,064,038
85 AA 5,064,040
106.2 5,064,041
5,064,042
125 A 5,064,043
141 5,064,044

CLASS 193

35 MD 5,064,045
35 SS 5,064,046

CLASS 198

338 5,064,047
345.1 5,064,048
399 5,064,049
459 5,064,050
466.1 5,064,051
750 5,064,052
753 5,064,053
779 5,064,054

CLASS 200

51.1 5,064,973
61.62 5,064,974
61.88 5,064,975
144 B 5,064,976
293 5,064,977

CLASS 202

202 5,064,505

CLASS 203

2 5,064,506
34 5,064,507
38 5,064,508

CLASS 204

9 5,064,509
16 5,064,510
33 5,064,511
37.6 5,064,512
57.99 5,064,518
64 R 5,064,513
103 5,064,514
151 5,064,515
153.1 5,064,516
157.51 5,064,517
182.8 5,064,519
192.11 5,064,520
224 M 5,064,521
298.28 5,064,522

CLASS 206

45.19 5,064,056
209 5,064,058
221 5,064,059
227 5,064,060
289 5,064,061
316.2 5,064,062
328 5,064,063
330 5,064,064
387 5,064,065
395 5,064,066
420 5,064,067
425 5,064,068
5,064,069
455 5,064,070
534 5,064,071

CLASS 208

112 5,064,523
121 5,064,524
193 5,064,525
262.5 5,064,526
420 5,064,527

CLASS 209

534 5,064,074
636 5,064,075
700 5,064,076

CLASS 210

8.5 5,064,528
90 5,064,529
94 5,064,530
96.1 5,064,531
225 5,064,532
232 5,064,533
266 5,064,534
380.1 5,064,535
402 5,064,536
497.01 5,064,537
638 5,064,538
659 5,064,539
688 5,064,540
767 5,064,541
798 5,064,542

CLASS 211

60.1 5,064,077

CLASS 212

180 5,064,078
182 5,064,079

CLASS 215

1 C 5,064,080
5,064,081
6 5,064,082
247 5,064,083
350 5,064,084
355 5,064,085

CLASS 219

9.5 5,064,978
10.55 A 5,064,979
10.55 E 5,064,980
5,064,981
64 5,064,982
69.12 5,064,983
69.13 5,064,984
69.16 5,064,985
70 5,064,986
110 5,064,987
121.12 5,064,989
121.6 5,064,988
121.63 5,064,991
5,064,992
121.72 5,064,990
223 5,064,993
233 5,064,994
383 5,064,995
390 5,064,996
505 5,064,997
519 5,064,998

CLASS 220

253 5,064,086
269 5,064,087
339 5,064,088
359 5,064,073
372 5,064,089
482 5,064,090
626 5,064,055
628 5,064,091

CLASS 221

75 5,064,092
222 5,064,093
265 5,064,094

CLASS 222

99 5,064,095
105 5,064,096
129 5,064,097
137 5,064,098
142 5,064,099
143 5,064,100
5,064,101
147 5,064,102
190 5,064,103
306 5,064,104
321 5,064,105
456 5,064,106

CLASS 224

247 5,064,107
253 5,064,108
267 5,064,109

CLASS 225

97 5,064,110

CLASS 228

107 5,064,111
112 5,064,112

CLASS 229

8 5,064,113
40 5,064,114
120.03 5,064,072
304 5,064,115

CLASS 232

57.5 5,064,116

CLASS 235

379 5,064,999
381 5,065,000
435 5,065,001
472 5,065,002
5,065,003
479 5,065,004

CLASS 237

67 5,064,117

CLASS 239

1 5,064,118
8 5,064,119
74 5,064,120
309 5,064,121
396 5,064,122
706 5,064,123

CLASS 241

3 5,064,407
33 5,064,124
46.17 5,064,125
73 5,064,126
253 5,064,127

CLASS 242

7.01 5,064,129
7.05 B 5,064,128
56 R 5,064,130
65 5,064,131
66 5,064,132
67.3 R 5,064,133
71.100 5,064,134
118.4 5,064,135
157 R 5,064,136
201 5,064,137
268 5,064,138
295 5,064,139

CLASS 244

3.13 5,064,140
3.15 5,064,141
3.24 5,064,142
23 C 5,064,143
54 5,064,144
87 5,064,145
122 R 5,064,146
129.5 5,064,147
153 R 5,064,148
155 A 5,064,149
5,064,150
160 5,064,151
164 5,064,152
172 5,064,153

CLASS 248

121 5,064,154
146 5,064,155
168 5,064,156
230 5,064,157
250 5,064,158
309.4 5,064,159
316.5 5,064,160
317 5,064,161
548 5,064,162

CLASS 249

47 5,064,163

CLASS 250

206.2 5,065,005
208.1 5,065,006
215 5,065,007
216 5,065,008
222.1 5,065,009
227.21 5,065,010
227.24 5,065,011
231.14 5,065,012
231.17 5,065,017
231.18 5,065,013
237 G 5,065,014
237 R 5,065,015
264 5,065,016
287 5,065,018
301 5,065,019
310 5,065,020
327.2 5,065,021
5,065,022
330 5,065,023
334 5,065,024
343 5,065,025
352 5,065,026
356 ML 5,065,027
370.01 5,065,028
441.1 5,065,029
472.1 5,065,030
486.1 5,065,031
495.1 5,065,032
497.1 5,065,033
505.1 5,065,034
551 5,065,035
571 5,065,036
577 5,065,037

CLASS 251

1.1 5,064,164
61.1 5,064,165
129.15 5,064,166
214 5,064,167
322 5,064,168
334 5,064,169
344 5,064,170

CLASS 252

8.6 5,064,543
32.5 5,064,546
32.7 HC 5,064,545
56 R 5,064,547
62.2 5,064,548
62.51 5,064,549
62.52 5,064,550
70 5,064,551
78.3 5,064,552
88 5,064,344
94 5,064,553
99 5,064,554
117 5,064,555
135 5,064,556
162 5,064,557
171 5,064,558
5,064,559
5,064,560
174.12 5,064,561
174.15 5,064,562
174.23 5,064,563
299.001 5,064,565
299.61 5,064,566
5,064,567
5,064,568
299.65 5,064,569
301.21 5,064,570
357 5,064,571
500 5,064,572
518 5,064,573
5,064,574
633 5,064,575
962 5,064,576

CLASS 254

126 5,064,171
134.3 PA 5,064,172

CLASS 258

183 5,065,243

CLASS 264

1.4 5,064,577
12 5,064,578
22 5,064,579
28 5,064,580
29.2 5,064,581
37 5,064,582
39 5,064,583
5,064,584
40.6 5,064,585
5,064,586
50 5,064,587
57 5,064,588
65 5,064,589
102 5,064,590
109 5,064,591
112 5,064,592
113 5,064,593
127 5,064,594
130 5,064,595
181 5,064,596
219 5,064,597
230 5,064,598
237 5,064,599
328.6 5,064,600

CLASS 266

80 5,064,173
160 5,064,174
229 5,064,175

CLASS 267

140.1 5,064,176

CLASS 269

32 5,064,177
41 5,064,178

CLASS 270

39 5,064,179
47 5,064,180
53 5,064,181

CLASS 271

3 5,064,182
10 5,064,183
14 5,064,184
181 5,064,185
188 5,064,186
204 5,064,187
301 5,064,188

CLASS 272

72 5,064,189
97 5,064,190
117 5,064,191
125 5,064,192
130 5,064,193

CLASS 273

26 A 5,064,194
73 J 5,064,203
121 A 5,064,196
167 H 5,064,197
189 R 5,064,198
232 5,064,199
243 5,064,200
258 5,064,201
421 5,064,202

CLASS 275

374 5,064,195

CLASS 277

53 5,064,204
80 5,064,205
140 5,064,206
207 A 5,064,207

CLASS 280

21.1 5,064,208
204 5,064,209
206 5,064,210
250.1 5,064,211
261 5,064,212
301 5,064,213
607 5,064,214
612 5,064,215
689 5,064,216
743 5,064,217
5,064,218
775 5,064,219
801 5,064,220

CLASS 283

67 5,064,221
71 5,064,222

CLASS 285

93 5,064,223
94 5,064,224
177 5,064,225
184 5,064,226
319 5,064,227

CLASS 290

48 5,065,038
5,065,039

CLASS 292

54 5,064,228
216 5,064,229
223 5,064,230
319 5,064,231
339 5,064,232

CLASS 294

1.3 5,064,233
64.1 5,064,234
82.14 5,064,235
161 5,064,236

CLASS 295

397 5,064,245

CLASS 296

39.1 5,064,237
97.6 5,064,238
97.7 5,064,239
100 5,064,240
121 5,064,241
190 5,064,242

CLASS 297

58 5,064,243
68 5,064,244
443 5,064,246
445 5,064,247

CLASS 298

11 5,064,248

CLASS 301

37 P 5,064,249
63 DS 5,064,250

CLASS 303

3 5,064,251
9.73 5,064,252
106 5,064,253
113 TR 5,064,254

CLASS 307

201 5,065,040
269 5,065,041
5,065,042
296.8 5,065,043
324 5,065,044
355 5,065,045
442 5,065,047
443 5,065,048
5,065,049
455 5,065,050
475 5,065,051
480 5,065,052
492 5,065,053
520 5,065,054
530 5,065,055
540 5,065,056
572 5,065,057

CLASS 310

62 5,065,058
71 5,065,059
74 5,065,060

104 5,065,061
114 5,065,062
156 5,065,063
215 5,065,064
313 B 5,065,065
320 5,065,066
339 5,065,067
357 5,065,068

CLASS 312

221 5,064,256
405 5,064,255

CLASS 313

25 5,065,069
113 B1 4,866,329
346 DC 5,065,070
474 5,065,071

CLASS 315

82 5,065,072
209 R 5,065,073
5,065,074
248 5,065,075
375 5,065,077

CLASS 318

16 5,065,078
281 5,065,079
611 5,065,080
638 5,065,081

CLASS 320

2 5,065,082
13 5,065,083
48 5,065,084

CLASS 322

2 R 5,065,085
10 5,065,086

CLASS 324

71.6 5,065,087
117 H 5,065,088
145 5,064,887
158 F 5,065,089
5,065,092
158 R 5,065,090
5,065,091
207.12 5,065,093
207.21 5,065,094
207.25 5,065,095
248 5,065,096
309 5,065,097
326 5,065,098
339 5,065,099
5,065,100
418 5,065,101
452 5,065,102
458 5,065,103
508 5,065,104
662 5,065,105
663 5,065,106

CLASS 329

308 5,065,107

CLASS 330

45 5,065,109
149 5,065,110
253 5,065,111
260 5,065,112
5,065,113
277 5,065,114

CLASS 331

14 5,065,115
173 5,065,116

CLASS 333

33 5,065,117
5,065,118
202 5,065,119
207 5,065,120
235 5,065,121
238 5,065,122
246 5,065,123
5,065,124

CLASS 335

5 5,065,125
213 5,065,186
222 5,065,126
270 5,065,127
299 5,065,128

CLASS 338

4 5,065,129
32 R 5,065,130
237 5,065,131
334 5,065,132

CLASS 340

310 A 5,065,133
442 5,065,134
463 5,065,135
545 5,065,136
572 5,065,137
5,065,138
620 5,065,139
634 5,065,140
635 5,065,141
660 5,065,142
701 5,065,143
703 5,065,144
706 5,065,145
709 5,065,146
744 5,065,147
784 5,065,148
793 5,065,149
825.06 5,065,150
825.22 5,065,151
825.36 5,065,152
825.5 5,065,153
825.520 5,065,154
825.56 5,065,155
932.2 5,065,156

CLASS 341

143 5,065,157
148 5,065,159

CLASS 342

51 5,065,160
176 5,065,161
417 5,065,162

CLASS 343

706 5,065,163
715 Re.33,743
749 5,065,164
753 5,065,165
826 5,065,166

CLASS 346

1.1 5,065,167
76 PH 5,065,168
140 R 5,065,158
5,065,169
5,065,170
154 5,065,171

CLASS 350

3.67 5,064,257
3.71 5,064,258
6.5 5,064,259
6.8 5,064,260
96.29 5,064,270
554 5,064,279

CLASS 351

368 R 5,065,076

CLASS 354

195.1 5,065,172
222 5,065,174
298 5,065,173
400 5,065,175
402 5,065,176
403 5,065,177

CLASS 355

27 5,065,178
45 5,065,179
72 5,065,180
202 5,065,181
5,065,182
5,065,183
208 5,065,184
5,065,185
215 5,065,187
219 5,065,188
243 5,065,189
246 5,065,190
5,065,191
251 5,065,192
290 5,065,193
296 5,065,194
298 5,065,195
308 5,065,196
309 5,065,197
313 5,065,198
326 5,065,199

CLASS 356

28.5 5,064,280
30 5,064,281
40 5,064,282
73 5,064,283
121 5,064,284
141 5,064,285
153 5,064,286
246 5,064,287
350 5,064,288
351 5,064,289
356 5,064,290
372 5,064,291

CLASS 357

4 5,065,200
23.5 5,065,201
23.6 5,065,218
23.7 5,065,202
24 5,065,203
27 5,065,204
30 5,065,205
5,065,206
5,065,207
34 5,065,208
5,065,209
35 5,065,210
38 5,065,211
42 5,065,212
43 5,065,213
5,065,214
45 5,065,215
48 5,065,216
49 5,065,217
50 5,065,219
51 5,065,220
5,065,221
52 5,065,222
68 5,065,223
70 5,065,224
71 5,065,225
74 5,065,226
5,065,227
80 5,065,228

CLASS 358

21 R 5,065,229
22 5,065,230
5,065,231
29 C 5,065,232
75 5,065,233
80 5,065,234
86 5,065,235
88 5,065,236
101 5,065,237
111 5,065,238
148 5,065,239
160 5,065,240
166 5,065,241
167 5,065,242
195.1 5,065,244
213.11 5,065,245
227 5,065,246
228 5,065,247
5,065,248
229 5,065,249
300 5,065,250
335 5,065,251
5,065,252
340 5,065,253
400 5,065,254
447 5,065,255
455 5,065,256
463 5,065,257

CLASS 359

1.59 5,065,455
49 5,064,276
55 5,064,275
184 5,065,454
187 5,065,456
205 5,064,262
206 5,064,261
276 5,064,277
330 5,065,046
333 5,065,108
457 5,064,273
480 5,064,278
541 5,064,272
604 5,064,274

CLASS 360

15 5,065,258
32 5,065,259
5,065,260
70 5,065,261
75 5,065,262
77.03 5,065,263
85 5,065,264
92 5,065,265
96.3 5,065,266
104 5,065,268
123 5,065,270
126 5,065,271

CLASS 361

231 5,065,272
313 5,065,273
321 5,065,274
5,065,275
380 5,065,276
383 5,065,277
5,065,278
386 5,065,279
5,065,280
388 5,065,281
399 5,065,282
407 5,065,283
414 5,065,284
5,065,285
502 5,065,286

CLASS 362

61 5,065,287
5,065,288
101 5,065,289
132 5,065,290
183 5,065,291
260 5,065,292
273 5,065,293
346 5,065,294
391 5,065,295
399 5,065,296
413 5,065,297
421 5,065,298
431 5,065,299

CLASS 363

16 5,065,300
17 5,065,301
37 5,065,302
40 5,065,303
95 5,065,304
150 5,065,305

CLASS 364

119 5,065,348
138 5,065,306
140 5,065,307
200 5,065,311
413.01 5,065,315
413.24 5,065,316
419 5,065,309
5,065,317
5,065,318
5,065,358
424.01 5,065,320
424.04 5,065,321
424.05 5,065,322
5,065,323
5,065,324
5,065,325
424.07 5,065,326
424.1 5,065,319
426.02 5,065,327
426.04 5,065,328
474.08 5,065,329
5,065,330
474.22 5,065,332
474.31 5,065,333
485 5,065,334
489 5,065,335
499 5,065,336
508 5,065,331
513 5,065,337
514 5,065,340
516 5,065,341
550 5,065,349
571.03 5,065,350
571.04 5,065,351
765 5,065,352
786 5,065,353

CLASS 365

104 5,065,361
154 5,065,362
5,065,363
185 5,065,364
189.05 5,065,365
201 5,065,366
208 5,065,367
230.05 5,065,368
5,065,369

CLASS 366

2 5,064,292
324 5,064,293

CLASS 367

3 5,065,370
111 5,065,371
152 5,065,372

CLASS 368

10 5,065,373
280 5,065,374
281 5,065,375
282 5,065,376

CLASS 369

13 5,065,377
14 5,065,378
36 5,065,379
44.12 5,065,380
44.23 5,065,381
44.26 5,065,382
44.28 5,065,383
44.32 5,065,386
44.41 5,065,387
47 5,065,384
5,065,388
48 5,065,389
50 5,065,385
110 5,065,390
291 5,065,391

CLASS 370

58.2 5,065,392
5,065,393
60 5,065,394
81 5,065,395
84 5,065,396
85.5 5,065,397
94.1 5,065,398

CLASS 371

11.2 5,065,399
19 5,065,400

CLASS 372

38 5,065,401
46 5,065,402
5,065,403
5,065,404
92 5,065,405
96 5,065,406
103 5,065,407

CLASS 374

16 5,064,294
139 5,064,295
163 5,064,296

CLASS 375

119 5,065,348
138 5,065,306
140 5,065,307
200 5,065,311
413.01 5,065,315
413.24 5,065,316
419 5,065,309
5,065,317
5,065,318
5,065,358
424.01 5,065,320
424.04 5,065,321
424.05 5,065,322
5,065,323
5,065,324
5,065,325
424.07 5,065,326
424.1 5,065,319
426.02 5,065,327
426.04 5,065,328
474.08 5,065,329
5,065,330
474.22 5,065,332
474.31 5,065,333
485 5,065,334
489 5,065,335
499 5,065,336
508 5,065,331
513 5,065,337
514 5,065,340
516 5,065,341
550 5,065,349
571.03 5,065,350
571.04 5,065,351
765 5,065,352
786 5,065,353

CLASS 376

243 5,064,602
246 5,064,603
5,064,604
247 5,064,605
261 5,064,606
333 5,064,607

CLASS 377

24.2 5,065,414
52 5,065,415

CLASS 378

53 5,065,416
54 5,065,417
57 5,065,418
123 5,065,419
137 5,065,420
208 5,065,421

CLASS 379

11 5,065,422
57 5,065,423
70 5,065,424
93 5,065,425
100 5,065,426
5,065,427

CLASS 380

23 5,065,428
25 5,065,429
38 5,065,430

CLASS 381

43 5,065,431
61 5,065,432
63 5,065,433

CLASS 382

1 5,065,434
6 5,065,435
5,065,436
9 5,065,437
13 5,065,438
25 5,065,439
30 5,065,440
41 5,065,441
48 5,065,442
53 5,065,443
54 5,065,444
56 5,065,445
5,065,446
5,065,447

CLASS 384

100 5,064,297
625 5,064,298

CLASS 385

14 5,064,263
33 5,064,271
5,064,299
50 5,064,267
53 5,065,448
87 5,064,268
115 5,064,269
130 5,064,264
5,065,265
519 5,064,266

CLASS 395

24 5,065,339
51 5,065,338
128 5,065,346
134 5,065,342
5,065,344
154 5,065,345
159 5,065,347
162 5,065,343
200 5,065,357
275 5,065,313
325 5,065,314
425 5,065,310
575 5,065,312
5,065,354
800 5,065,308
5,065,355
5,065,356
5,065,359
5,065,360

CLASS 400

56 5,064,300
120 5,064,301
124 5,064,302
175 5,064,303
225 5,064,304
616.3 5,064,305

CLASS 401

133 5,064,306

CLASS 405

43 5,064,308
64 5,064,309
69 5,064,310
259.1 5,064,311
259.5 5,064,312
284 5,064,313

CLASS 406

22 5,064,314
100 5,064,315

CLASS 407

40 5,064,316
70 5,064,317

CLASS 408

69 5,064,318
115 R 5,064,319
202 5,064,320

CLASS 409

219 5,064,321
234 5,064,322

CLASS 411

178 5,064,323
337 5,064,324
368 5,064,325
5,064,326
386 5,064,327

CLASS 412

12 5,064,328

CLASS 414

137.7 5,064,329
331 5,064,330
344 5,064,331
408 5,064,332
5,064,333
428 5,064,334
522 5,064,335
559 5,064,336
639 5,064,337
685 5,064,338
687 5,064,339
744.5 5,064,340
797.6 5,064,341

CLASS 415

55.1 5,064,342
173.3 5,064,343
224.5 5,064,344

CLASS 416

169 A 5,064,345
178 5,064,346

CLASS 417

9 5,064,347
12 5,064,348
53 5,064,349
63 5,064,350
222 R 5,064,351
222 S 5,064,352
383 5,064,353
403 5,064,354
404 5,064,355
410 5,064,356
428 5,064,357
475 5,064,358
489 5,064,359
519 5,064,360

CLASS 418

173 5,064,361
186 5,064,362
194 5,064,363

CLASS 419

8 5,064,608
58 5,064,609

CLASS 420

57 5,064,610
481 5,064,611

VOL 1132 ISS 2 NO 12 1991 UMI

CLASS 422

12 5,064,612
16 5,064,613
22 5,064,614
56 5,064,615
61 5,064,616
78 5,064,617
82.01 5,064,618
82.05 5,064,619
95 5,064,620
144 5,064,621
5,064,622
190 5,064,623
264 5,064,624

CLASS 423

235 5,064,625
245.1 5,064,626
248 5,064,627
263 5,064,628
279 5,064,629
5,064,631
328 5,064,630
493 5,064,632

CLASS 424

1.1 5,064,633
5,064,634
7.1 5,064,635
9 5,064,636
5,064,637
5,064,638
45 5,064,639
52 5,064,640
60 5,064,641
61 5,064,642
83 5,064,643
5,064,644
85.8 5,064,645
89 5,064,646
92 5,064,647
93 5,064,648
114 5,064,649
435 5,064,650
440 5,064,651
445 5,064,652
5,064,653
448 5,064,654
450 5,064,655
463 5,064,656
537 5,064,657

CLASS 425

114 5,064,364
436 R 5,064,365
541 5,064,366

CLASS 426

2 5,064,665
3 5,064,658
5,064,659
26 5,064,661
36 5,064,660
49 5,064,662
60 5,064,663
87 5,064,664
94 5,064,666
231 5,064,667
271 5,064,668
307 5,064,669
481 5,064,671
531 5,064,672
534 5,064,673
580 5,064,674
595 5,064,676
597 5,064,675
607 5,064,670
611 5,064,677
5,064,678

CLASS 427

8 5,064,679
5,064,680
10 Re.33,741
31 5,064,774
36 5,064,681
38 5,064,682
39 5,064,683
53.1 5,064,684
5,064,685
124 5,064,686
132 5,064,687
140 5,064,688
202 5,064,689
215 5,064,690
252 5,064,691
361 5,064,692
372.2 5,064,693
387 5,064,694
407.1 5,064,695
430.1 5,064,696

CLASS 428

1 5,064,697
35.4 5,064,698
35.7 5,064,699
36.92 5,064,700
46 5,064,701
64 5,064,702
95 5,064,703
98 5,064,704
121 5,064,705
131 5,064,706
151 5,064,707
156 5,064,708
157 5,064,709
182 5,064,710
209 5,064,711
212 5,064,712
214 5,064,713
219 5,064,714
331 5,064,715
336 5,064,716
352 5,064,717
407 5,064,718
411.1 5,064,719
423.1 5,064,720
425.9 5,064,721
447 5,064,722
457 5,064,723
501 5,064,724
542.4 5,064,725
586 5,064,726
593 5,064,727
627 5,064,728
690 5,064,729
694 5,064,730
698 5,064,731

CLASS 429

13 5,064,732
17 5,064,733
33 5,064,734
206 5,064,735

CLASS 430

42 5,064,736
96 5,064,737
117 5,064,738
122 5,064,739
126 5,064,740
191 5,064,741
203 5,064,742
253 5,064,743
255 5,064,744
265 5,064,745
270 5,064,746
278 5,064,747
311 5,064,748
331 5,064,749
393 5,064,750
466 5,064,751
546 5,064,752
567 5,064,753

CLASS 432

253 5,064,367

CLASS 433

2 5,064,368
3 5,064,369
21 5,064,370
37 5,064,371
66 5,064,372
173 5,064,373
5,064,374
229 5,064,375

CLASS 434

2 5,064,376

CLASS 435

6 5,064,754
7.36 5,064,755
32 5,064,756
71.2 5,064,757
89 5,064,758
101 5,064,759
118 5,064,760
135 5,064,761
155 5,064,762
266 5,064,763
285 5,064,764

CLASS 436

4 5,064,765
66 5,064,766
89 5,064,767
164 5,064,768
516 5,064,769
542 5,064,770

CLASS 437

3 5,064,771
31 5,064,772
5,064,773
40 5,064,775
41 5,064,776
52 5,064,777
81 5,064,778
109 5,064,779
130 5,064,780
132 5,064,781
216 5,064,782

CLASS 439

67 5,064,377
68 5,064,378
81 5,064,379
113 5,064,380
326 5,064,381
395 5,064,382
405 5,064,383
511 5,064,384
535 5,064,385
5,064,386
607 5,064,387
5,064,388
651 5,064,389
721 5,064,390
733 5,064,391

CLASS 440

39 5,064,392
77 5,064,393

CLASS 445

8 5,064,394
27 5,064,395
50 5,064,396
5,064,397

CLASS 446

75 5,064,398
308 5,064,399

CLASS 452

2 5,064,400
46 5,064,401
117 5,064,402
135 5,064,403

CLASS 453

17 5,064,404

CLASS 455

15 5,065,449
20 5,065,450
72 5,065,451
226 5,065,452
286 5,065,453

CLASS 474

133 5,064,405
166 5,064,406

CLASS 475

150 Re.33,742

CLASS 493

194 5,064,408
396 5,064,409

CLASS 5.2

299.61 5,064,564

CLASS 501

12 5,064,783
33 5,064,784
72 5,064,785
88 5,064,786
89 5,064,787
92 5,064,788
97 5,064,789
119 5,064,790
147 5,064,791

CLASS 502

60 5,064,792
61 5,064,793
74 5,064,794
104 5,064,795
107 5,064,796
111 5,064,797
5,064,798
115 5,064,799
153 5,064,800
155 5,064,802
170 5,064,803
180 5,064,801
335 5,064,804
427 5,064,805

CLASS 503

200 5,064,806
227 5,064,807

CLASS 505

1 5,064,808
5,064,809

CLASS 514

2 5,064,810
8 5,064,811
5,064,812
15 5,064,813
18 5,064,814
31 5,064,815
77 5,064,816
78 5,064,817
86 5,064,818
114 5,064,819
134 5,064,820
154 5,064,821
172 5,064,822
198 5,064,823
202 5,064,824
221 5,064,825
233.2 5,064,826
237.5 5,064,827
239.5 5,064,828
249 5,064,829
252 5,064,830
255 5,064,831
256 5,064,832
260 5,064,833
279 5,064,834
291 5,064,835
300 5,064,836
312 5,064,837
317 5,064,838
318 5,064,839
322 5,064,840
336 5,064,841
341 5,064,842
346 5,064,843
359 5,064,844
364 5,064,845
375 5,064,846
380 5,064,847
381 5,064,848
383 5,064,849
406 5,064,850
5,064,851
409 5,064,852
419 5,064,853
424 5,064,854
460 5,064,855
462 5,064,856
503 5,064,857
536 5,064,858
560 5,064,859
568 5,064,860
617 5,064,861
5,064,862
653 5,064,863
739 5,064,864

CLASS 518

713 5,064,865

CLASS 521

27 5,064,866
50.5 5,064,867
54 5,064,868
60 5,064,869
111 5,064,870
124 5,064,871
131 5,064,872
5,064,873
146 5,064,874
159 5,064,875

CLASS 522

99 5,064,876
172 5,064,877

CLASS 523

5,064,878
205 5,064,879
310 5,064,880
403 5,064,881
443 5,064,882

CLASS 524

95 5,064,883
114 5,064,884
117 5,064,885
131 5,064,886
157 5,064,888
188 5,064,889
209 5,064,890
264 5,064,891
317 5,064,892
427 5,064,893
503 5,064,894
609 5,064,895
731 5,064,896
765 5,064,897
780 5,064,898

CLASS 525

64 5,064,899
69 5,064,900
92 5,064,901
124 5,064,902
196 5,064,903
199 5,064,904
237 5,064,905
293 5,064,906
332.9 5,064,907
333.8 5,064,908
340 5,064,909
359.1 5,064,910
378 5,064,911
383 5,064,912
438 5,064,913
439 5,064,914
474 5,064,915
478 5,064,916

CLASS 526

72 5,064,917
77 5,064,918
169 5,064,919
249 5,064,920
262 5,064,921
5,064,922
265 5,064,923

CLASS 528

15 5,064,924
44 5,064,925
49 5,064,926
64 5,064,927
85 5,064,928
172 5,064,929
182 5,064,930
202 5,064,931
220 5,064,932
5,064,933
5,064,934
272 5,064,935
388 5,064,936
389 5,064,937
491 5,064,938

CLASS 530

317 5,064,939
334 5,064,940
356 5,064,941
387 5,064,942
399 5,064,943

CLASS 536

1.1 5,064,944
17.5 5,064,945
23 5,064,946
26 5,064,947
27 5,064,948
56 5,064,949
57 5,064,950

CLASS 540

128 5,064,951
145 5,064,952
226 5,064,953
302 5,064,954
469 5,064,955
474 5,064,956

CLASS 544

86 5,064,957
94 5,064,958
216 5,064,959
222 5,064,960
276 5,064,961
300 5,064,962
331 5,064,963

CLASS 546

48 5,064,964
99 5,064,965

CLASS 600

26 5,064,410

CLASS 604

48 5,064,411
65 5,064,412
70 5,064,413
164 5,064,415
165 5,064,414
167 5,064,416
175 5,064,417
190 5,064,418
195 5,064,419
295 5,064,420
307 5,064,422
385.1 5,064,421

CLASS 606

46 5,064,424
72 5,064,425
92 5,064,426
99 5,064,427
127 5,064,428
151 5,064,429
154 5,064,057

CLASS 623

1 5,064,430
2 5,064,431
5,064,432
9 5,064,433
11 5,064,434
12 5,064,435
16 5,064,436
20 5,064,437
55 5,064,438
66 5,064,439

D2— 320 321,425
623 321,426
641 321,427
D3— 12 321,428
35 321,429
36 321,430
40 321,431
44 321,432
78 321,433
D4— 136 321,434
D6— 375 321,435
381 321,436
404 321,437
436 321,438
455 321,439
468 321,440
321,441
321,442
321,443
321,444
321,445
475 321,446
484 321,447
491 321,448
496 321,449
546 321,450

559 321,451
571 321,452
D7— 300 321,453
351 321,454
361 321,455
391 321,456
608 321,457
637 321,458
D8— 1 321,459
17 321,460
27 321,461
61 321,462
321,463
62 321,464
321,465
71 321,466
98 321,467
352 321,468
356 321,469
321,470
400 321,471
D9— 306 321,472
318 321,473
321,474
336 321,475
349 321,476

352 321,477
372 321,478
409 321,479
415 321,480
434 321,481
435 321,482
23— 241 321,553
D10— 10 321,483
21 321,484
32 321,485
39 321,486
57 321,487
81 321,488
97 321,489
D11— 131.1 321,490
132 321,491
166 321,540
221 321,492
D12— 92 321,493
126 321,494
321,495
157 321,496
176 321,497
217 321,498
314 321,499
D13— 103 321,500

135 321,501
321,502
139 321,503
147 321,504
321,505
321,506
321,507
160 321,508
D14— 144 321,509
151 321,510
321,511
157 321,512
163 321,513
165 321,514
168 321,515
171 321,516
D15— 30 321,517
69 321,518
72 321,519
149 321,520
321,521
D16— 102 321,522
321,523
127 321,524
219 321,525
221 321,526

234 321,527
D17— 22 321,528
D18— 7 321,529
34 321,533
54 321,530
321,531
55 321,532
D19— 61 321,534
92 321,535
D21— 34 321,536
62 321,537
142 321,538
148 321,539
166 321,541
171 321,542
204 321,543
208 321,544
321,545
222 321,546
239 321,547
D22— 118 321,548
141 321,549
D23— 209 321,550
210 321,552
275 321,554
281 321,555

321,556
393 321,551
321,557
398 321,558
D24— 111 321,559
156 321,560
165 321,561
183 321,562
200 321,563
217 321,564
D25— 199 321,565
D26— 9 321,566
31 321,567
42 321,568
D27— 142 321,569
D29— 8 321,570
D30— 101 321,571
129 321,572
148 321,573
D32— 15 321,574
D34— 7 321,575
8 321,576
21 321,577
23 321,578
26 321,579

CLASSIFICATION OF PLANTS

P.— 20 7,706
47 7,707
68 7,708
69 7,709
86 7,710
7,711
88 7,712
7,713

VOL
1132
ISS
2
NO
12
1991
UMI

GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 : 5,063,799	5,063,954	5,064,577	5,065,360	5,064,980	5,065,371
5,063,898	5,063,958	5,064,580	5,065,364	5,065,136	5,065,447
5,064,116	5,063,966	5,064,583	5,065,387	5,065,145	16 : 5,064,104
5,064,140	5,063,982	5,064,602	5,065,392	4,866,329	5,064,776
5,064,430	5,063,983	5,064,616	5,065,393	10 : 5,064,198	17 : Re.33,743
5,064,862	5,063,999	5,064,648	5,065,394	5,064,559	5,063,623
5,065,278	5,064,048	5,064,655	5,065,395	5,064,560	5,063,638
02 : 5,063,821	5,064,058	5,064,662	5,065,401	5,064,594	5,063,639
04 : 5,063,817	5,064,061	5,064,673	5,065,407	5,064,703	5,063,672
5,063,876	5,064,062	5,064,762	5,065,427	5,064,704	5,063,678
5,063,941	5,064,093	5,064,767	5,065,437	5,064,716	5,063,728
5,064,286	5,064,095	5,064,771	5,065,444	5,064,740	5,063,739
5,064,471	5,064,097	5,064,793	5,065,450	5,064,788	5,063,804
5,064,781	5,064,107	5,064,820	08 : 5,063,633	5,064,893	5,063,842
5,064,940	5,064,130	5,064,846	5,063,766	5,064,935	5,063,848
5,065,040	5,064,155	5,064,939	5,063,929	12 : 5,063,661	5,063,934
5,065,042	5,064,157	5,064,966	5,064,002	5,063,698	5,063,959
5,065,281	5,064,165	5,064,968	5,064,119	5,063,720	5,063,984
5,065,284	5,064,186	5,064,969	5,064,149	5,063,723	5,064,005
05 : 5,064,867	5,064,197	5,064,997	5,064,150	5,063,775	5,064,059
5,065,424	5,064,225	5,065,010	5,064,161	5,063,827	5,064,066
06 : Re.33,741	5,064,233	5,065,025	5,064,231	5,063,857	5,064,089
5,063,625	5,064,269	5,065,029	5,064,245	5,063,920	5,064,114
5,063,628	5,064,271	5,065,045	5,064,308	5,063,998	5,064,115
5,063,636	5,064,284	5,065,055	5,065,083	5,064,007	5,064,156
5,063,637	5,064,287	5,065,070	5,065,092	5,064,045	5,064,175
5,063,640	5,064,289	5,065,090	5,065,163	5,064,234	5,064,185
5,063,651	5,064,291	5,065,101	5,065,261	5,064,281	5,064,196
5,063,675	5,064,309	5,065,109	5,065,265	5,064,432	5,064,212
5,063,677	5,064,318	5,065,110	5,065,362	5,064,481	5,064,247
5,063,679	5,064,319	5,065,116	09 : 5,063,617	5,064,604	5,064,303
5,063,680	5,064,321	5,065,118	5,063,662	5,064,636	5,064,344
5,063,681	5,064,325	5,065,119	5,063,676	5,064,735	5,064,370
5,063,682	5,064,340	5,065,124	5,064,056	5,064,858	5,064,421
5,063,700	5,064,355	5,065,130	5,064,082	5,064,868	5,064,440
5,063,705	5,064,373	5,065,143	5,064,103	5,064,873	5,064,450
5,063,712	5,064,376	5,065,147	5,064,239	5,065,122	5,064,453
5,063,717	5,064,396	5,065,149	5,064,268	5,065,123	5,064,456
5,063,735	5,064,399	5,065,167	5,064,463	5,065,137	5,064,469
5,063,745	5,064,408	5,065,169	5,064,660	5,065,138	5,064,525
5,063,747	5,064,411	5,065,228	5,064,686	5,065,272	5,064,533
5,063,753	5,064,412	5,065,231	5,064,705	5,065,315	5,064,541
5,063,783	5,064,413	5,065,236	5,064,727	13 : 5,063,948	5,064,584
5,063,787	5,064,416	5,065,258	5,064,732	5,064,086	5,064,622
5,063,796	5,064,418	5,065,262	5,064,736	5,064,101	5,064,653
5,063,846	5,064,426	5,065,277	5,064,766	5,064,236	5,064,659
5,063,874	5,064,434	5,065,280	5,064,830	5,064,380	5,064,663
5,063,879	5,064,439	5,065,291	5,064,831	5,064,386	5,064,698
5,063,907	5,064,451	5,065,292	5,064,851	5,064,490	5,064,733
5,063,913	5,064,480	5,065,299	5,064,852	5,064,643	5,064,755
5,063,915	5,064,488	5,065,334	5,064,855	5,064,688	5,064,787
5,063,921	5,064,547	5,065,340	5,064,883	5,064,951	5,064,803
5,063,949	5,064,574	5,065,345	5,064,958	5,065,331	5,064,827

	5,064,860		5,063,809		5,064,068		5,065,173		5,064,556		5,064,476
	5,064,975		5,063,811		5,064,117		5,065,185		5,065,203		5,064,485
	5,065,073		5,063,968		5,064,265		5,065,186		5,065,282		5,064,498
	5,065,303		5,063,992		5,064,477		5,065,191		5,065,356		5,064,518
	5,065,326		5,064,037		5,064,497		5,065,192		5,065,423		5,064,524
	5,065,338		5,064,046		5,064,519		5,065,194	42 :	5,063,614		5,064,527
	5,065,408		5,064,050		5,064,544		5,065,199		5,063,659		5,064,571
	4,911,727		5,064,080		5,064,553		5,065,229		5,063,670		5,064,581
18 :	Re.33,742		5,064,154		5,064,557		5,065,245		5,063,746		5,064,612
	5,063,619		5,064,166		5,064,623		5,065,249		5,063,769		5,064,633
	5,063,736		5,064,170		5,064,658		5,065,273		5,063,823		5,064,635
	5,063,759		5,064,172		5,064,661		5,065,310		5,063,872		5,064,637
	5,063,813		5,064,177		5,064,668		5,065,339		5,063,965		5,064,650
	5,063,831		5,064,209		5,064,669		5,065,347		5,063,969		5,064,683
	5,063,878		5,064,216		5,064,678		5,065,368		5,063,975		5,064,774
	5,064,020		5,064,218		5,064,685		5,065,379		5,063,989		5,064,796
	5,064,084		5,064,223		5,064,692		5,065,448		5,064,071		5,064,798
	5,064,120		5,064,237		5,064,810	37 :	5,063,618		5,064,083		5,064,878
	5,064,171		5,064,244		5,064,816		5,063,646		5,064,146		5,064,880
	5,064,314		5,064,256		5,064,825		5,063,654		5,064,168		5,064,901
	5,064,433		5,064,316		5,064,835		5,063,748		5,064,228		5,065,016
	5,064,640		5,064,338		5,064,837		5,063,779		5,064,243		5,065,019
	5,064,834		5,064,347		5,064,856		5,063,780		5,064,251		5,065,043
	5,064,914		5,064,371		5,064,871		5,064,024		5,064,312		5,065,054
	5,065,305		5,064,378		5,064,897		5,064,113		5,064,320		5,065,067
19 :	5,063,729		5,064,478		5,064,903		5,064,121		5,064,354		5,065,081
	5,064,040		5,064,536		5,064,943		5,064,195		5,064,383		5,065,099
	5,064,336		5,064,561		5,064,961		5,064,359		5,064,391		5,065,132
	5,064,339		5,064,582		5,064,964		5,064,389		5,064,394		5,065,208
	5,065,017		5,064,617		5,064,965		5,064,748		5,064,398		5,065,209
	5,065,164		5,064,680		5,064,977		5,064,823		5,064,428		5,065,217
20 :	5,063,793		5,064,694		5,064,989		5,064,946		5,064,447		5,065,220
	5,063,806		5,064,719		5,065,089		5,064,949		5,064,462		5,065,225
	5,064,000		5,064,786		5,065,121	38 :	5,063,684		5,064,500		5,065,227
	5,064,088		5,064,802		5,065,140		5,064,248		5,064,603		5,065,313
	5,064,403		5,064,918		5,065,200	39 :	5,063,632		5,064,605		5,065,354
21 :	5,064,053		5,064,952		5,065,237		5,063,703		5,064,607		5,065,428
	5,064,193		5,064,956		5,065,242		5,063,732		5,064,674	49 :	5,063,916
	5,064,240		5,064,970		5,065,309		5,063,749		5,064,691		5,064,078
	5,064,530		5,064,974		5,065,370		5,063,784		5,064,725		5,064,429
22 :	5,063,870		5,064,998		5,065,396		5,063,889		5,064,728		5,064,532
	5,063,908		5,065,035		5,065,426		5,063,937		5,064,729		5,064,657
	5,064,096		5,065,071	35 :	5,064,349		5,063,963		5,064,754	50 :	5,063,826
	5,064,326		5,065,108		5,064,789		5,063,988		5,064,757		5,064,060
	5,064,927		5,065,135		5,064,948		5,063,990		5,064,814		5,064,422
	5,064,933		5,065,322		5,065,120		5,063,993		5,064,845		5,065,103
	5,065,139		5,065,350		5,065,205		5,064,043		5,064,929	51 :	5,063,655
23 :	5,064,282		5,065,416	36 :	5,063,615		5,064,087		5,064,978		5,063,851
	5,064,345	27 :	5,063,785		5,063,643		5,064,108		5,064,988		5,063,939
	5,065,224		5,063,852		5,063,644		5,064,178		5,065,050		5,064,054
24 :	5,064,283		5,063,914		5,063,687		5,064,266		5,065,068		5,064,111
	5,064,595		5,063,926		5,063,708		5,064,317		5,065,106		5,064,230
	5,064,632		5,063,932		5,063,713		5,064,328		5,065,251		5,064,310
	5,064,646		5,063,977		5,063,722		5,064,356	44 :	5,063,627		5,064,385
	5,064,850		5,064,073		5,063,725		5,064,404		5,064,226		5,064,409
	5,064,981		5,064,174		5,063,803		5,064,405		5,064,327		5,064,507
	5,065,023		5,064,190		5,063,818		5,064,407		5,064,987		5,064,540
	5,065,321		5,064,232		5,063,845		5,064,415	45 :	5,063,868		5,064,724
	5,065,429		5,064,272		5,063,875		5,064,455		5,063,896		5,065,026
	5,065,451		5,064,414		5,063,877		5,064,470		5,063,906		5,065,128
25 :	5,063,667		5,064,431		5,063,951		5,064,482		5,064,051		5,065,336
	5,063,690		5,064,457		5,063,956		5,064,515		5,064,135		5,065,449
	5,063,812		5,064,499		5,063,980		5,064,526		5,064,387		5,065,453
	5,063,840		5,064,504		5,064,010		5,064,537		5,064,699	53 :	5,063,663
	5,063,862		5,064,305		5,064,013		5,064,543		5,064,722		5,063,704
	5,063,935		5,064,578		5,064,036		5,064,545		5,064,896		5,063,768
	5,063,994		5,064,624		5,064,063		5,064,555		5,064,994		5,063,859
	5,064,141		5,064,715		5,064,118		5,064,670		5,065,032		5,063,905
	5,064,142		5,064,979		5,064,134		5,064,671	47 :	5,063,621		5,063,967
	5,064,205		5,065,094		5,064,159		5,064,672		5,064,192		5,063,974
	5,064,238		5,065,133		5,064,213		5,064,676		5,064,514		5,064,127
	5,064,288		5,065,268		5,064,259		5,064,707		5,064,930		5,064,144
	5,064,367	28 :	5,064,362		5,064,277		5,064,838		5,064,937		5,064,147
	5,064,458	29 :	5,063,616		5,064,410		5,064,840		5,065,296		5,064,191
	5,064,516		5,063,805		5,064,460		5,064,864	48 :	5,063,613		5,064,368
	5,064,550		5,063,808		5,064,461		5,064,865		5,063,626		5,064,435
	5,064,590		5,063,858		5,064,479		5,064,912		5,063,631		5,064,689
	5,064,638		5,063,919		5,064,509		5,064,932		5,063,652		5,065,046
	5,064,701		5,064,100		5,064,531		5,064,947		5,063,702		5,065,100
	5,064,710		5,064,274		5,064,542		5,064,986		5,063,734		5,065,405
	5,064,773		5,064,360		5,064,558		5,065,031		5,063,772	54 :	5,063,883
	5,064,821		5,064,944		5,064,597		5,065,238		5,063,776		5,064,022
	5,064,941	30 :	5,064,202		5,064,654		5,065,314		5,063,789		5,064,804
	5,065,024	31 :	5,063,701		5,064,666	40 :	5,063,942		5,063,822		5,065,142
	5,065,030		5,063,764		5,064,681		5,063,979		5,063,940	55 :	5,063,863
	5,065,033		5,064,136		5,064,684		5,064,023		5,064,006		5,063,918
	5,065,041		5,064,264		5,064,712		5,064,194		5,064,077		5,064,021
	5,065,069		5,064,384		5,064,738		5,064,201		5,064,079		5,064,094
	5,065,104		5,064,665		5,064,772		5,064,242		5,064,151		5,064,109
	5,065,144	32 :	5,063,731		5,064,777		5,064,377		5,064,164		5,064,123
	5,065,165		5,064,098		5,064,790		5,064,493		5,064,167		5,064,210
	5,065,214	33 :	5,063,691		5,064,869		5,064,626		5,064,169		5,064,420
	5,065,312		5,063,931		5,064,882		5,064,794		5,064,200		5,064,484
	5,065,351		5,064,038		5,064,955		5,064,795		5,064,224		5,064,492
	5,065,372		5,064,180		5,064,963		5,064,797		5,064,292		5,064,664
26 :	5,063,624		5,064,365		5,064,992		5,064,936		5,064,341		5,064,667
	5,063,642		5,064,395		5,065,001		5,065,098		5,064,348		5,064,713
	5,063,710		5,064,809		5,065,037	41 :	5,063,695		5,064,392		5,064,770
	5,063,715		5,065,300		5,065,059		5,063,709		5,064,400		5,065,141
	5,063,737	34 :	5,063,686		5,065,064		5,063,751		5,064,427		5,065,443
	5,063,763		5,063,762		5,065,151		5,063,996		5,064,448	56 :	5,063,694
	5,063,794		5,063,839		5,065,157		5,064,052		5,064,466		5,063,696
	5,063,801		5,063,938		5,065,170		5,064,067				

02 :	321,569		321,539	17 :	321,503	26 :	321,431		321,535		321,573
04 :	321,534		321,540		321,508		321,447	36 :	321,511	44 :	321,456
	321,570		321,541		321,544		321,460		321,560	45 :	321,548
06 :	321,435		321,542		321,545		321,480		321,564	47 :	321,558
	321,441		321,546		321,554	39 :	321,496		321,426	48 :	321,477
	321,442		321,552	18 :	321,488		321,498		321,428	51 :	321,538
	321,443		321,559		321,494	27 :	321,432		321,446	53 :	321,520
	321,444		321,571		321,495		321,461		321,449		321,521
	321,445	09 :	321,462		321,529		321,471		321,450		321,550
	321,448		321,575		321,579	29 :	321,433		321,457	55 :	321,438
	321,451	12 :	321,490	20 :	321,549	32 :	321,567		321,572		321,455
	321,466		321,497	21 :	321,427	33 :	321,577		321,574		321,459
	321,472		321,578		321,434	34 :	321,440		321,576		321,468
	321,487	13 :	321,452		321,532		321,469	40 :	321,439		321,555
	321,493		321,463	24 :	321,515		321,491	42 :	321,430		321,556
	321,523	15 :	321,547	25 :	321,481		321,528		321,557		

PLANT PATENTS

06 :	7,706		7,708		7,710		7,711	13 :	7,707		

U.S. GOVERNMENT PRINTING OFFICE : O—1991

VOL 1132 ISS 2 NO 12 1991 UMI

VOL
1132
ISS
2
NO
12
1991
UMI

CHANGE OF ADDRESS FORM

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

Mail this form to: NEW ADDRESS

Superintendent of Documents
Government Printing Office SSOM
Washington, D.C. 20402

Attach last subscription label here.

SUBSCRIPTION ORDER FORM

SUBSCRIPTION ORDER FORM

ENTER MY SUBSCRIPTION TO:

@ $ Domestic; @ $ Foreign.

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

☐ Remittance Enclosed (Make checks payable to Superintendent of Documents)

☐ Charge to my Deposit Account No. .....

MAIL ORDER FORM TO:
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

VOL
1132

ISS
2

NO
12

1991

UMI

VOL
1132

ISS
2

NO
12

1991

UMI

VOL
1132

ISS
2

NO
12

1991

U.S. DEPARTMENT OF COMMERCE
Robert A. Mosbacher, *Secretary*
PATENT AND TRADEMARK OFFICE
Harry F. Manbeck, Jr., *Commissioner*

UMI

VOL
1132

ISS
3

NO
19

1991

UMI

Route to:

U.S.
DEPARTMENT
OF COMMERCE

Patent
and
Trademark
Office

Vol. 1132 Number 3

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

November 19 1991

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

VOL
1132

ISS
3

NO
19

1991

UMI

OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
November 19, 1991 Volume 1132 Number 3

CONTENTS

	Page
Patent and Trademark Office Notices	
Patent Cooperation Treaty (PCT) Information	1132 OG 28
Notice of Maintenance Fees Payable	1132 OG 28
Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees	1132 OG 29
Errata	1132 OG 32
Reissue Applications Filed	1132 OG 32
Requests for Reexaminations Filed	1132 OG 33
New Telephone Numbers for the Trademark Status Line	1132 OG 33
Consideration of Fraud and Inequitable Conduct in Patent Interference Cases	1132 OG 33
Notice of Resignation	1132 OG 33
Erratum	1132 OG 34
Adverse Decisions in Interference	1132 OG 34
Patent Certificates of Correction	1132 OG 35
Special Boxes for Mail	1132 OG 36
Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries	1132 OG 37
Patent Examining Corps	1132 OG 39
Reexaminations	1191
Reissue Patents Granted (33,744)	1193
Plant Patents Granted (7,714)	1197
Patents Granted	
General and Mechanical (5,065,457)	1199
Chemical (5,066,306)	1491
Electrical (5,066,831)	1643
Design Patents Granted (321,580)	1765
Index of Patentees	PI 1
Indices of Reissue, Reexamination, Design and Plant Patents	PI 73
Classification of	
Patents (Including Reissues and Reexaminations)	PI 79
Designs, and Plants Applications	PI 83
Geographical Index of Residence of Inventors	
Patents (Including Reissues and Reexaminations)	PI 85
Designs and Plant Applications	PI 87
Change of Address Form and Subscription Order Form	PI 89

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed.
THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.
THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.
GENERAL INFORMATION concerning PATENTS.
GENERAL INFORMATION concerning TRADEMARKS.

COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.50 each; PLANT PATENTS in color, $10.00 each; copies of TRADEMARKS at $1.50 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. P.T.O.

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328

VOL
1132
ISS
3
NO
19
1991
UMI

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1126 O.G. 2, on May 7, 1991.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed on July 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the German mark, and was announced in the *Official Gazette* at 1126 O. G. 76 on May 28, 1991.

International fees were changed on August 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the Swiss franc, and were announced in the *Official Gazette* at 1128 O.G. 46, on July 23, 1991.

Certain domestic PCT fees and charges for International Search and Preliminary Examination have been changed effective Apr. 17, 1989 and were announced in the *Official Gazette* at 1100 O.G. 24 on Mar. 7, 1989.

The current schedule of PCT fees (in U.S. dollars) is as follows:

Transmittal fee:	170.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	550.00
—Corresponding prior U.S. national application filed	380.00
—Supplemental search fee, per additional invention	150.00
European Patent Office as ISA	1320.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	400.00
—Additional examination fee, per additional invention	130.00
—ISA not the USPTO	600.00
—Additional examination fee, per additional invention	200.00
International fees	
Basic fee	490.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	119.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	150.00

U.S. National Stage fees

	Small Entity	Regular
USPTO was IPEA	165.00	330.00
USPTO was ISA but not IPEA	185.00	370.00
USPTO was neither ISA nor IPEA	250.00	500.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	25.00	50.00
—For each independent claim in excess of 3	18.00	36.00
—For each claim in excess of 20	6.00	12.00
—For each application containing a multiple dependent claim	60.00	120.00
—Surcharge for filing national fee or oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	60.00	120.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	30.00	30.00

June 27, 1991

HARRY F. MANBECK, Jr.
Assistant Secretary and Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d), effective Nov. 1, 1984, provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(k) or (l), as amended effective Apr. 17, 1989. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on November 15, 1988 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,783,853 through 4,785,475
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on November 13, 1984 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,481,679 through 4,483,018
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months are set forth in 37 CFR 1.20(e), and (f), as amended Nov. 5, 1990, which are reproduced below:

37 CFR § 1.20 Post-issuance fees and surcharges

"(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant.....$245.00

"(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant.....$495.00"

"(h) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Aug. 27,1982, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§1.9(f)).....$415.00
By other than a small entity.....$830.00"

"(i) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§1.9(f)).....$835.00
By other than a small enttity.....$1670.00"

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(k), (l) and (m), which are reproduced below:

"(k) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982.....$120.00"

"(l) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Aug. 27, 1982:

By a small entity(§1.9(f)).....$60.00
By other than a small entity.....$120.00"

"(m) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been unavoidable.....$550.00"

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED SEPTEMBER 15, 1991 DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,403,354	06/306,420	9/13/83
4,403,361	06/236,570	9/13/83
4,403,364	06/341,272	9/13/83
4,403,376	06/229,130	9/13/83
4,403,383	06/287,529	9/13/83
4,403,385	06/281,069	9/13/83
4,403,388	06/262,397	9/13/83
4,403,389	06/231,896	9/13/83
4,403,391	06/252,036	9/13/83
4,403,393	06/314,281	9/13/83
4,403,419	06/275,565	9/13/83
4,403,423	06/295,094	9/13/83
4,403,425	06/278,157	9/13/83
4,403,427	06/384,021	9/13/83
4,403,428	06/321,238	9/13/83
4,403,434	06/340,257	9/13/83
4,403,436	06/299,734	9/13/83
4,403,437	06/241,726	9/13/83
4,403,445	06/309,590	9/13/83
4,403,456	06/297,168	9/13/83
4,403,466	06/375,421	9/13/83
4,403,467	06/426,985	9/13/83
4,403,468	06/387,042	9/13/83
4,403,484	06/306,025	9/13/83
4,403,486	06/216,867	9/13/83
4,403,497	06/262,757	9/13/83
4,403,498	06/283,297	9/13/83
4,403,501	06/228,881	9/13/83
4,403,504	06/292,683	9/13/83
4,403,508	06/272,227	9/13/83
4,403,517	06/270,541	9/13/83
4,403,524	06/289,725	9/13/83
4,403,525	06/216,248	9/13/83
4,403,528	06/278,042	9/13/83
4,403,530	06/224,032	9/13/83
4,403,531	06/242,626	9/13/83
4,403,533	06/286,229	9/13/83
4,403,535	06/222,157	9/13/83
4,403,536	06/276,256	9/13/83
4,403,537	06/292,729	9/13/83
4,403,539	06/261,484	9/13/83
4,403,540	06/364,445	9/13/83
4,403,557	06/386,307	9/13/83
4,403,565	06/242,625	9/13/83
4,403,579	06/295,557	9/13/83
4,403,582	06/277,818	9/13/83
4,403,588	06/274,187	9/13/83
4,403,590	06/285,413	9/13/83
4,403,597	06/225,662	9/13/83
4,403,603	06/260,261	9/13/83
4,403,608	06/248,495	9/13/83
4,403,619	06/255,460	9/13/83
4,403,622	06/402,790	9/13/83
4,403,624	06/305,697	9/13/83
4,403,634	06/244,834	9/13/83
4,403,640	06/282,728	9/13/83
4,403,649	06/316,828	9/13/83
4,403,651	06/298,353	9/13/83
4,403,652	06/249,855	9/13/83
4,403,655	06/236,318	9/13/83
4,403,661	06/252,283	9/13/83
4,403,663	06/253,106	9/13/83
4,403,665	06/262,650	9/13/83
4,403,667	06/289,211	9/13/83
4,403,671	06/266,056	9/13/83
4,403,678	06/316,813	9/13/83
4,403,680	06/225,433	9/13/83
4,403,685	06/221,049	9/13/83
4,403,688	06/260,980	9/13/83
4,403,698	06/255,754	9/13/83
4,403,711	06/324,014	9/13/83
4,403,717	06/341,931	9/13/83
4,403,718	06/312,132	9/13/83
4,403,728	06/377,539	9/13/83
4,403,729	06/402,019	9/13/83
4,403,738	06/373,296	9/13/83
4,403,745	06/307,987	9/13/83
4,403,749	06/241,240	9/13/83
4,403,751	06/290,085	9/13/83
4,403,753	06/281,563	9/13/83
4,403,758	06/307,113	9/13/83
4,403,761	06/222,383	9/13/83
4,403,770	06/360,190	9/13/83

VOL
1132
ISS
3
NO
19
1991
UMI

Patent Number	Serial Number	Issue Date
4,403,772	06/302,316	9/13/83
4,403,775	06/388,092	9/13/83
4,403,777	06/223,537	9/13/83
4,403,780	06/283,626	9/13/83
4,403,781	06/304,622	9/13/83
4,403,789	06/329,320	9/13/83
4,403,800	06/257,119	9/13/83
4,403,801	06/277,753	9/13/83
4,403,803	06/261,644	9/13/83
4,403,809	06/314,340	9/13/83
4,403,817	06/246,326	9/13/83
4,403,823	06/240,901	9/13/83
4,403,831	06/301,114	9/13/83
4,403,840	06/241,781	9/13/83
4,403,843	06/360,553	9/13/83
4,403,849	06/332,353	9/13/83
4,403,855	06/349,927	9/13/83
4,403,886	06/355,111	9/13/83
4,403,887	06/269,736	9/13/83
4,403,889	06/271,520	9/13/83
4,403,894	06/232,472	9/13/83
4,403,895	06/269,345	9/13/83
4,403,899	06/269,563	9/13/83
4,403,900	06/225,713	9/13/83
4,403,912	06/246,657	9/13/83
4,403,918	06/340,774	9/13/83
4,403,925	06/289,752	9/13/83
4,403,931	06/343,237	9/13/83
4,403,935	06/247,810	9/13/83
4,403,946	06/309,426	9/13/83
4,403,956	06/282,737	9/13/83
4,403,960	06/357,274	9/13/83
4,403,964	06/308,902	9/13/83
4,403,969	06/236,208	9/13/83
4,403,971	06/260,168	9/13/83
4,403,973	06/270,288	9/13/83
4,403,977	06/249,837	9/13/83
4,403,986	06/368,157	9/13/83
4,403,987	06/342,150	9/13/83
4,403,995	06/350,116	9/13/83
4,403,997	06/334,538	9/13/83
4,403,998	06/334,159	9/13/83
4,404,001	06/414,270	9/13/83
4,404,003	06/312,061	9/13/83
4,404,006	06/275,279	9/13/83
4,404,007	06/328,797	9/13/83
4,404,010	06/317,704	9/13/83
4,404,015	06/281,531	9/13/83
4,404,018	06/391,088	9/13/83
4,404,022	06/334,897	9/13/83
4,404,025	06/351,530	9/13/83
4,404,039	06/373,295	9/13/83
4,404,053	06/217,202	9/13/83
4,404,057	06/300,197	9/13/83
4,404,059	06/382,407	9/13/83
4,404,060	06/370,352	9/13/83
4,404,062	06/360,646	9/13/83
4,404,091	06/314,939	9/13/83
4,404,096	06/326,459	9/13/83
4,404,108	06/300,299	9/13/83
4,404,111	06/232,456	9/13/83
4,404,122	06/360,075	9/13/83
4,404,123	06/449,913	9/13/83
4,404,126	06/278,668	9/13/83
4,404,129	06/221,376	9/13/83
4,404,133	06/272,979	9/13/83
4,404,134	06/352,954	9/13/83
4,404,138	06/391,197	9/13/83
4,404,149	06/383,935	9/13/83
4,404,154	06/326,088	9/13/83
4,404,168	06/295,562	9/13/83
4,404,177	06/320,235	9/13/83
4,404,181	06/311,682	9/13/83
4,404,197	06/264,096	9/13/83
4,404,198	06/233,767	9/13/83
4,404,201	06/321,021	9/13/83
4,404,202	06/337,103	9/13/83
4,404,203	06/263,643	9/13/83
4,404,215	06/322,513	9/13/83
4,404,220	06/287,839	9/13/83
4,404,227	06/268,701	9/13/83
4,404,230	06/254,546	9/13/83
4,404,231	06/321,027	9/13/83
4,404,233	06/224,743	9/13/83
4,404,242	06/364,748	9/13/83
4,404,245	06/263,599	9/13/83
4,404,255	06/255,622	9/13/83
4,404,261	06/310,555	9/13/83
4,404,264	06/228,633	9/13/83
4,404,272	06/351,479	9/13/83
4,404,275	06/396,571	9/13/83
4,404,281	06/409,765	9/13/83
4,404,282	06/409,764	9/13/83
4,404,297	06/456,34-[illegible]	9/13/83
4,404,301	06/370,900	9/13/83
4,404,348	06/406,991	9/13/83
4,404,357	06/374,054	9/13/83
4,404,359	06/399,211	9/13/83
4,404,363	06/371,532	9/13/83
4,404,364	06/371,346	9/13/83
4,404,367	06/296,566	9/13/83
4,404,389	06/403,118	9/13/83
4,404,392	06/321,498	9/13/83
4,404,394	06/318,980	9/13/83
4,404,398	06/324,747	9/13/83
4,404,420	06/292,937	9/13/83
4,404,422	06/302,650	9/13/83
4,404,431	06/322,684	9/13/83
4,404,444	06/345,620	9/13/83
4,404,447	06/252,330	9/13/83
4,404,457	06/372,397	9/13/83
4,404,460	06/357,404	9/13/83
4,404,463	06/331,730	9/13/83
4,404,488	06/338,932	9/13/83
4,404,492	06/295,878	9/13/83
4,404,494	06/253,566	9/13/83
4,404,498	06/240,798	9/13/83
4,404,502	06/328,481	9/13/83
4,404,504	06/245,372	9/13/83
4,404,507	06/324,671	9/13/83
4,404,518	06/256,795	9/13/83
4,404,522	06/262,848	9/13/83
4,404,535	06/339,041	9/13/83
4,404,540	06/367,757	9/13/83
4,404,541	06/279,014	9/13/83
4,404,547	06/270,417	9/13/83
4,404,558	06/254,453	9/13/83
4,404,598	06/223,545	9/13/83
4,404,609	06/315,592	9/13/83
4,404,615	06/330,432	9/13/83
4,404,621	06/300,934	9/13/83
4,404,623	06/371,443	9/13/83
4,404,637	06/258,969	9/13/83
4,404,640	06/238,710	9/13/83
4,404,644	06/263,516	9/13/83
4,404,650	06/228,959	9/13/83
4,404,658	06/266,069	9/13/83
4,404,664	06/221,733	9/13/83
4,404,666	06/269,171	9/13/83
4,404,676	06/248,907	9/13/83
4,404,679	06/272,712	9/13/83
4,692,952	06/797,009	9/15/87
4,692,955	06/885,411	9/15/87
4,692,956	06/815,214	9/15/87
4,692,958	06/817,076	9/15/87
4,692,959	06/838,386	9/15/87
4,692,960	06/901,394	9/15/87
4,692,961	06/909,690	9/15/87
4,692,963	06/874,507	9/15/87
4,692,978	06/748,099	9/15/87
4,692,983	06/848,291	9/15/87
4,693,004	06/845,852	9/15/87
4,693,010	06/829,141	9/15/87
4,693,019	06/835,345	9/15/87
4,693,021	06/781,817	9/15/87
4,693,022	06/829,211	9/15/87

Patent Number	Serial Number	Issue Date
4,693,023	06/843,787	9/15/87
4,693,026	06/899,376	9/15/87
4,693,031	06/694,055	9/15/87
4,693,032	06/813,677	9/15/87
4,693,034	06/774,580	9/15/87
4,693,047	06/880,592	9/15/87
4,693,059	06/835,042	9/15/87
4,693,068	06/870,998	9/15/87
4,693,071	06/811,747	9/15/87
4,693,086	06/787,106	9/15/87
4,693,088	06/890,480	9/15/87
4,693,090	06/919,469	9/15/87
4,693,093	06/880,916	9/15/87
4,693,094	06/863,776	9/15/87
4,693,096	06/939,039	9/15/87
4,693,098	06/945,000	9/15/87
4,693,100	06/842,141	9/15/87
4,693,116	06/802,616	9/15/87
4,693,126	06/862,307	9/15/87
4,693,127	06/877,644	9/15/87
4,693,129	06/624,317	9/15/87
4,693,133	06/499,879	9/15/87
4,693,136	06/903,931	9/15/87
4,693,137	06/827,129	9/15/87
4,693,140	06/925,529	9/15/87
4,693,144	06/904,826	9/15/78
4,693,149	06/740,958	9/15/87
4,693,150	06/749,630	9/15/87
4,693,152	06/871,334	9/15/87
4,693,154	06/858,819	9/15/87
4,693,155	06/856,656	9/15/87
4,693,163	06/893,199	9/15/87
4,693,164	06/870,063	9/15/87
4,693,166	06/757,810	9/15/87
4,693,180	06/908,373	9/15/87
4,693,184	06/839,966	9/15/87
4,693,185	06/831,678	9/15/87
4,693,186	06/903,228	9/15/87
4,693,195	06/871,020	9/15/87
4,693,200	06/802,429	9/15/87
4,693,202	06/789,488	9/15/87
4,693,204	06/922,485	9/15/87
4,693,205	06/835,180	9/15/87
4,693,209	06/886,462	9/15/87
4,693,212	06/825,346	9/15/87
4,693,228	06/829,348	9/15/87
4,693,229	06/836,698	9/15/87
4,693,231	06/799,539	9/15/87
4,693,234	06/827,977	9/15/87
4,693,241	06/887,446	9/15/87
4,693,247	06/912,959	9/15/87
4,693,254	06/910,271	9/15/87
4,693,263	06/836,313	9/15/87
4,693,269	06/874,848	9/15/87
4,693,273	06/718,444	9/15/87
4,693,275	06/936,636	9/15/87
4,693,277	06/625,802	9/15/87
4,693,279	06/827,227	9/15/87
4,693,282	06/854,845	9/15/87
4,693,290	06/472,907	9/15/87
4,693,294	06/843,745	9/15/87
4,693,313	06/878,996	9/15/87
4,693,318	06/786,050	9/15/87
4,693,320	06/895,007	9/15/87
4,693,329	06/676,243	9/15/87
4,693,335	06/800,748	9/15/87
4,693,336	06/894,756	9/15/87
4,693,337	06/812,549	9/15/87
4,693,340	06/781,695	9/15/87
4,693,344	06/704,493	9/15/87
4,693,345	06/887,268	9/15/87
4,693,346	06/758,226	9/15/87
4,693,347	06/839,259	9/15/87
4,693,355	06/796,742	9/15/87
4,693,367	06/909,627	9/15/87
4,693,375	06/800,653	9/15/87
4,693,377	06/902,092	9/15/87
4,693,378	06/779,619	9/15/87
4,693,380	06/943,888	9/15/87
4,693,385	06/731,088	9/15/87
4,693,386	06/820,777	9/15/87
4,693,394	06/694,414	9/15/87
4,693,400	06/769,570	9/15/87
4,693,402	06/820,014	9/15/87
4,693,412	06/773,793	9/15/87
4,693,414	06/904,968	9/15/87
4,693,422	06/912,665	9/15/87
4,693,425	06/864,331	9/15/87
4,693,431	06/815,013	9/15/87
4,693,434	06/779,228	9/15/87
4,693,437	06/659,943	9/15/87
4,693,438	06/827,426	9/15/87
4,693,439	06/836,972	9/15/87
4,693,440	06/882,690	9/15/87
4,693,441	06/715,355	9/15/87
4,693,442	06/879,434	9/15/87
4,693,449	06/790,864	9/15/87
4,693,455	06/738,165	9/15/87
4,693,457	06/904,862	9/15/87
4,693,458	06/934,194	9/15/87
4,693,466	06/789,439	9/15/87
4,693,469	06/927,399	9/15/87
4,693,474	06/747,852	9/15/87
4,693,480	06/746,130	9/15/87
4,693,487	06/794,074	9/15/87
4,693,490	06/923,149	9/15/87
4,693,492	06/846,687	9/15/87
4,693,496	06/894,169	9/15/87
4,693,498	06/856,308	9/15/87
4,693,504	07/001,170	9/15/87
4,693,505	06/851,468	9/15/87
4,693,508	06/912,056	9/15/87
4,693,509	06/845,260	9/15/87
4,693,512	06/915,052	9/15/87
4,693,516	06/896,430	9/15/87
4,693,524	06/686,746	9/15/87
4,693,531	06/660,276	9/15/87
4,693,551	06/539,344	9/15/87
4,693,564	06/793,127	9/15/87
4,693,573	06/838,111	9/15/87
4,693,590	06/765,821	9/15/87
4,693,599	06/837,644	9/15/87
4,693,624	06/753,666	9/15/87
4,693,627	06/876,155	9/15/87
4,693,630	06/661,439	9/15/87
4,693,633	06/669,636	9/15/87
4,693,636	06/221,594	9/15/87
4,693,647	06/795,328	9/15/87
4,693,650	06/846,883	9/15/87
4,693,651	06/902,634	9/15/87
4,693,660	06/813,092	9/15/87
4,693,664	06/638,032	9/15/87
4,693,667	06/390,872	9/15/87
4,693,679	06/795,690	9/15/87
4,693,681	06/887,354	9/15/87
4,693,686	06/829,725	9/15/87
4,693,687	06/839,734	9/15/87
4,693,692	06/898,290	9/15/87
4,693,696	06/822,787	9/15/87
4,693,716	06/643,030	9/15/87
4,693,726	06/847,722	9/15/87
4,693,729	06/825,628	9/15/87
4,693,730	06/889,795	9/15/87
4,693,769	06/725,868	9/15/87
4,693,774	06/863,603	9/15/87
4,693,780	06/808,144	9/15/87
4,693,802	06/725,188	9/15/87
4,693,805	06/829,190	9/15/87
4,693,818	06/663,184	9/15/87
4,693,819	06/939,171	9/15/87
4,693,820	06/750,467	9/15/87
4,693,827	06/841,636	9/15/87
4,693,830	06/779,345	9/15/87
4,693,841	06/802,888	9/15/87
4,693,860	06/898,036	9/15/87
4,693,871	06/849,808	9/15/87

VOL 1132 ISS 3 NO 19 1991 UMI

4,693,875	06/900,863	9/15/87	4,694,194	06/794,920	9/15/87
4,693,889	06/806,877	9/15/87	4,694,200	06/833,734	9/15/87
4,693,892	06/904,733	9/15/87	4,694,201	06/728,715	9/15/87
4,693,900	06/765,865	9/15/87	4,694,209	06/743,024	9/15/87
4,693,917	06/796,221	9/15/87	4,694,211	06/870,100	9/15/87
4,693,919	06/739,928	9/15/87	4,694,212	06/842,623	9/15/87
4,693,950	06/792,901	9/15/87	4,694,217	06/789,777	9/15/87
4,693,958	06/695,259	9/15/87	4,694,227	06/851,230	9/15/87
4,693,961	06/849,994	9/15/87	4,694,231	06/853,637	9/15/87
4,693,967	06/235,510	9/15/87	4,694,240	06/875,954	9/15/87
4,693,977	06/820,930	9/15/87	4,694,245	06/648,786	9/15/87
4,693,982	06/736,667	9/15/87	4,694,247	06/741,812	9/15/87
4,693,993	06/744,207	9/15/87	4,694,256	06/699,176	9/15/87
4,694,005	06/854,479	9/15/87	4,694,265	06/631,021	9/15/87
4,694,015	06/797,486	9/15/87	4,694,290	06/699,022	9/15/87
4,694,029	06/721,395	9/15/87	4,694,292	06/683,476	9/15/87
4,694,039	06/927,595	9/15/87	4,694,305	06/846,590	9/15/87
4,694,047	06/927,921	9/15/87	4,694,333	06/777,840	9/15/87
4,694,052	06/748,480	9/15/87	4,694,362	06/648,227	9/15/87
4,694,053	06/748,433	9/15/87	4,694,367	06/798,795	9/15/87
4,694,084	06/709,871	9/15/87	4,694,369	06/711,742	9/15/87
4,694,085	06/843,084	9/15/87	4,694,379	06/689,211	9/15/87
4,694,097	06/856,665	9/15/87	4,694,380	06/873,000	9/15/87
4,694,105	06/679,860	9/15/87	4,694,381	06/835,382	9/15/87
4,694,106	06/837,145	9/15/87	4,694,409	06/623,871	9/15/87
4,694,120	06/793,872	9/15/87	4,694,420	06/814,152	9/15/87
4,694,127	06/877,062	9/15/87	4,694,437	06/759,261	9/15/87
4,694,132	06/921,962	9/15/87	4,694,457	06/813,452	9/15/87
4,694,141	06/925,156	9/15/87	4,694,468	06/855,562	9/15/87
4,694,148	06/751,946	9/15/87	4,694,479	06/728,499	9/15/87
4,694,153	06/792,450	9/15/87	4,694,484	06/830,145	9/15/87
4,694,159	06/899,013	9/15/87	4,694,489	06/884,213	9/15/87
4,694,160	06/823,671	9/15/87	4,694,496	06/491,581	9/15/87
4,694,172	06/786,915	9/15/87	4,694,499	06/701,387	9/15/87
4,694,176	06/818,059	9/15/87	4,694,503	06/841,812	9/15/87

Errata

In the list of patents which expired on Sept. 1, 1991, due to failure to pay maintenance fees, in the O.G. of Nov. 12, 1991 the following patent should not have appeared:

Patent Number	Serial Number	Issue Date	Filing Date
4,690,348	06/780,592	9/01/87	9/26/85

In the list of patents which expired on June 9, 1991, due to failure to pay maintenance fees, in the O.G. of Aug. 20, 1991 the following patent should not have appeared:

Patent Number	Serial Number	Issue Date	Filing Date
4,671,402	06/715,451	6/09/87	3/25/85

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,548,689, Re. S.N. 07/770,528, Filed Oct. 3, 1991, Cl. 204/159.23, PHOTOCURABLE RESIN COMPOSITION, Sakashita Takeshi, et. al., Owner of Record: *Mitsui Petrochemical Industries Ltd., Tokyo, Japan*, Attorney or Agent: Mathew Jacob, Ex. Gp.: 112

4,599,285, Re. S.N. 07/773,974, Filed Oct. 8, 1991, Cl. 430, MULTIPLEX IMAGE REPRODUCING METHOD, Satoshi Haneda, et. al., Owner of Record: *Konica Corp., Tokyo, Japan*, Attorney or Agent: Jordon B. Bierman, Ex. Gp.: 157

4,758,362, Re. S.N. 07/770,459, Filed Sept. 25, 1991, Cl. 252/047.005, CARBAMATE ADDITIVES FOR LOW PHOSPHORUS OR PHOSPHORUS FREE LUBRICATING COMPOSITIONS, Betsy J. Butke, Owner of Record: *The Lubrizol Corp., Wickliffe, Ohio*, Attorney or Agent: Neil A. DuChez, Ex. Gp.: 118

4,775,590, Re. S.N. 07/772,429, Filed Oct. 7, 1991, Cl. 428/373, OPTICAL FIBER, Teruo Sakagami, et. al., Owner of Record: *Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan*, Attorney or Agent: James C. Wray, Ex. Gp.: 150

4,792,813, Re. S.N. 07/771,905, Filed Oct. 4, 1991, Cl. 343/781P, ANTENNA SYSTEM FOR HYBRID COMMUNICATIONS SATELLITE, Harold A. Rosen, Owner of Record: *Hughes Aircraft Co., Los Angeles, Calif.*, Attorney or Agent: Gordon R. Lindeen III, Ex. Gp.: 258

4,805,417, Re. S.N. 07/768,022, Filed Sept. 30, 1991, Cl. 62/292, DISPENSING TOOL ASSEMBLY FOR CHARGING A REFRIGERANT INTO A SYSTEM, Kim A. Weaver, et. al., Owner of Record: *Production Control Units Inc., Dayton, Ohio*, Attorney or Agent: Alan F. Meckstroth, Ex. Gp.: 344

4,807,957, Re. S.N. 07/775,023, Filed Oct. 11, 1991, Cl. 606/73, LIGAMENT ANCHOR SYSTEM, E. Marlow Goble, Owner of Record: *Inventor*, Attorney or Agent: M. Reid Russell, Ex. Gp.: 339

4,872,258, Re. S.N. 07/773,154, Filed Oct. 8, 1991, Cl. 29/740, PICK AND PLACE METHOD AND APPARATUS, Phillip A. Ragard, Owner of Record: *Universal Instrumenis Corp., Binghamton, N.Y.*, Attorney or Agent: Franklin D. Wolffe, Ex. Gp.: 326

4,872,399, Re. S.N. 07/771,342, Filed Oct. 4, 1991, Cl. 98/94.1, CONVERTIBLE FAN ASSEMBLY, David B. Chaney, Owner of Record: *W. B. Marvin Manufacturing Co., Urbana, Ohio*, Attorney or Agent: Roger S. Dybvig, Ex. Gp.: 344

4,874,604, Re. S.N. 07/774,024, Filed Oct. 8, 1991, Cl. 424/47, HAIRSPRAY WITH IMPROVED ADHESION/REMOVABILITY WASHING, John A. Sramek, Owner of Record: *S. C. Johnson & Son, Racine, Wash.*, Attorney or Agent: Richard E. Rakoczy, Ex. Gp.: 152

4,918,086, Re. S.N. 07/772,699, Filed Oct. 7, 1991, Cl. 546/264, 1-NITRO-2,2-DIAMINOETHYLENE DERIVATIVES, Laurenz Gsell, Owner of Record: *Ciba-Geigy Corp.*, Ardsley, N.Y., Attorney or Agent: Bruce M. Collins, Ex. Gp.: 123

5,021,586, Re. S.N. 07/775,024, Filed Oct. 11, 1991, Cl. 548/527, DITHIOPHENLPYRROLE DERIVATIVE MONOMERS FOR PREPARING SEMI-CONDUCTING POLYMERS, James P. Albarella, et. al., Owner of Record: *Miles Inc., Elkhart, Ind.* Attorney or Agent: Jerome L. Jeffers, Ex. Gp.: 121

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

4,622,631, Reexam No. 90/002,471, Requested Oct. 8, 1991, Cl. 364/200, DATA PROCESSING SYSTEM HAVING A DATA COHERENCE SOLUTION, Steven J. Frank, et. al., Owner of Record: *Recognition Equipment Inc., Irving Tex.*, Attorney or Agent: Ross. Howison, Clapp & Korn, Richardson, Tex., Ex. Gp.: 232, Requster: Owner

4,710,528, Reexam No. 90/002,472, Requested Oct. 9, 1991, Cl. 524/100, FLAME RESISTANT THERMOPLASTIC POLYMERIC COMPOSITIONS COMPRISING (1) MELAMINE BROMOHYDRATE AND (2) SB OR AS COMPOUND ENDOWED WITH IMPROVED FLAME-RESISTANCE, Guido Bertelli, et. al., Owner of Record: *Himont Inc., Wilmington, Del.*, Attorney or Agent: Sharon A. Gibson, Himont Inc., Wilmington, Del., Ex. Gp.: 150, Requester: Owner

4,710,940, Reexam No. 90/002,473, Requested Oct. 10, 1991, Cl. 372/075, METHOD AND APPARATUS FOR EFFICIENT OPERATION OF OPTICALLY PUMPED LASER, Donald L. Sipes, Owner of Record: *California Institute of Technology, Pasadena, Calif.*, Attorney or Agent: A. M. Fernandez, Los Angeles, Calif., Ex. Gp.: 251, Requester: Shugrue, Mion, Zinn, MacPeak & Seas, Washington, DC

4,959,798, Reexam No. 90/002,474, Requested Oct. 11, 1991, Cl. 364/513, ROBOTIC TELEVISION-CAMERA DOLLY SYSTEM, Gary B. Gordon, et. al., Owner of Record: *Total Spectrum Manufacturing, Inc., Valley Cottage, N.Y.*, Attorney or Agent: Spencer & Frank, Washington, DC, Ex. Gp.: 238, Requester: Vinten Broadcast, Towaco, N.J.

4,990,896, Reexam No. 90/002,476, Requested Oct. 15, 1991, Cl. 340/641, LIGHT RESPONSIVE DEVICE FOR MONITORING ON-LINE INDICATOR LIGHTS, William F. Gray, Owner of Record: *Inventor, McLean, Va.*, Attorney or Agent: John P. Bundock, Leydig, Voit & Mayer, Washington, DC, Ex. Gp.: 268, Requester: Owner

5,008,804, Reexam No. 90/002,475, Requested Oct. 11, 1991, Cl. 364/167.01, ROBOTIC TELEVISION-CAMERA DOLLY SYSTEM, Gary B. Gordon, et. al., Owner of Record: *Total Spectrum Manufacturing, Inc., Valley Cottage, N.Y.*, Attorney or Agent: Spencer & Frank, Washington, DC, Ex. Gp.: 236, Requester: Vinten Broadcast, Towaco, N.J.

New Telephone Numbers for the Trademark Status Line

On November 18, 1991, the local telephone company in Arlington, Va. will change many of the telephone numbers used by the U.S. Patent and Trademark Office, including the numbers for the Trademark Status Line. Effective on that date, the new telephone numbers for the Trademark Status Line will be (703) 305-8747 through (703) 305-8752.

The Trademark Status Line provides access, via touch tone telephone, to current status and status date information for all federal trademark application and registration records maintained in the automated Trademark Reporting and Monitoring (TRAM) System. The Trademark Status Line is available from 6:30 a.m. until midnight, Eastern Time, Monday through Friday.

The Trademark Status Line may be used from any touch tone telephone by entering a seven-digit registration number and the "#" symbol or an eight-digit serial number and the "#" symbol after the welcoming message and the tone. All calls will be answered in the order received. Callers may request information for up to five serial number or registration number records per call. If additional information regarding the status of a trademark application or registration is required, call the Office of Trademark Services at (703) 308-9400 and request a status check.

Oct. 23, 1991

JEFFREY M. SAMUELS
Assistant Commissioner for Trademarks

Consideration of Fraud and Inequitable Conduct in Patent Interferences Cases

This notice supersedes the Commissioner's Notice of Oct. 17, 1988, *Further Clarification on Patent and Trademark Office Implementation of 37 CFR 1.56*, 1096 *Off. Gaz.* Patent Office 19 (Nov. 8, 1988), but not the Commissioner's Notice of Sept. 8, 1988, *Patent and Trademark Office Implementation of 37 CFR 1.56*, 1095 *Off. Gaz.* Patent Office 16 (Oct. 11, 1988).

Effective immediately, fraud and inequitable conduct issues will be considered when properly raised *inter partes* in patent interference cases. The policy of the Patent and Trademark Office with respect to investigation and resolution of fraud and inequitable conduct issues during *ex parte* examination of patent applications remains that of the Commissioner's Notice of Sept. 8, 1988.

The Chairman, the Vice-Chairman, an Examiner-in-Chief or a panel of the Board of Patent Appeals and Interferences, as may be appropriate, are authorized to determine the manner in which fraud and inequitable conduct can be raised in any interference pending before the Board at this time.

Oct. 24, 1991

HARRY F. MANBECK, JR.
Assistant Secretary and Commissioner of Patents and Trademarks

Notice of Resignation

Anthony D. Cennamo of Bidwell, Ohio, whose registration number is 16,430, has voluntarily resigned and surrendered his

VOL
1132
ISS
3
NO
19
1991
UMI

registration as a patent attorney commencing Sept. 16, 1991. This action is taken under the provisions of 35 U.S.C. 32, and 37 CFR 10.130 and 10.133(b) and (g).

Oct. 22, 1991 CAMERON WEIFFENBACH
Director, Office of Enrollment and Discipline

Erratum

In the notice of adverse decisions in interference appearing at 1130 OG 7, of Sept. 3, 1991, delete all reference to Patent No. 4,741,662, since no final decision was rendered that the respective patentees are not entitled to the patent containing the claims listed.

Adverse Decision in Interference

In the designated interference involving the following patent, final decision has been rendered that the respective patentees are not entitled to the patent containing the claims listed.

Patent No. 4,741,622, Kyoichi Suwa, Masaichi Murakami, METHOD AND APPARATUS FOR DETECTING DIVERSION, Interference No. 102,276, decided Oct. 23, 1990, claims 1-20.

PATENT NOTICES

Certificates of Correction For Week of November 19, 1991

B 14,253,615	4,863,979	4,897,494	4,930,401
Re. 33,185	4,865,876	4,898,116	4,931,083
4,409,424	4,867,629	4,901,348	4,933,097
4,710,464	4,867,854	4,901,468	4,933,120
4,733,793	4,869,524	4,904,727	4,934,307
4,737,628	4,872,707	4,906,225	4,934,910
4,771,401	4,873,035	4,906,592	4,934,959
4,780,585	4,873,097	4,906,666	4,935,156
4,795,691	4,873,124	4,907,031	4,935,200
4,797,173	4,873,196	4,907,194	4,936,355
4,798,354	4,873,548	4,908,350	4,936,773
4,799,985	4,873,571	4,909,092	4,936,995
4,801,384	4,874,588	4,909,536	4,937,463
4,804,104	4,874,803	4,909,943	4,937,761
4,808,865	4,875,023	4,911,157	4,938,393
4,819,744	4,877,452	4,911,737	4,939,299
4,826,177	4,877,585	4,911,869	4,940,004
4,831,454	4,879,428	4,912,976	4,943,577
4,833,672	4,880,233	4,913,396	4,944,357
4,834,324	4,882,050	4,914,015	4,944,948
4,835,515	4,883,815	4,915,930	4,945,000
4,838,571	4,885,527	4,917,151	4,945,095
4,845,912	4,885,694	4,917,353	4,945,924
4,846,007	4,886,167	4,917,788	4,946,578
4,849,285	4,887,438	4,918,884	4,947,766
4,849,991	4,888,559	4,918,919	4,947,850
4,850,156	4,890,697	4,919,924	4,948,686
4,850,584	4,890,746	4,920,250	4,948,915
4,851,448	4,890,994	4,923,975	4,950,577
4,854,628	4,891,211	4,925,454	5,001,990
4,854,681	4,892,740	4,925,509	5,013,598
4,855,326	4,893,679	4,925,866	5,020,267
4,855,375	4,895,099	4,928,306	5,025,271
4,856,214	4,895,201	4,928,415	5,026,565
4,856,504	4,896,219	4,928,616	5,033,948
4,856,778	4,896,761	4,928,848	5,034,037
4,857,742	4,896,998	4,928,953	5,040,217
4,863,926	4,897,445	4,928,989	

Disclaimers

4,715,470—*Bjorn N. P. Paulsson*, Fullerton, Calif., DOWNHOLE ELECTROMAGNETIC SEISMIC SOURCE. Patent dated Dec. 29, 1987. Disclaimer filed July 15, 1991, by the assignee, Chevron Research and Technology Co.

The term of this patent subsequent to Oct. 27, 2004, has been disclaimed.

4,755,444—*Kenichi Karakida*; *Shigeru Yagi*, both of Kanagawa, Japan. ELECTROPHOTOGRAPHIC PHOTO RECEPTOR. Patent dated July 5, 1988. Disclaimer filed Aug. 1, 1991, by the assignee, Fuji Xerox Co., Ltd.

Hereby enters this disclaimer to claims 1-13 of said patent.

4,904,785—*David W. Robertson*; *J. Scott Hayes*, both of Indianapolis, Ind., 2-PHENYLIMIDAZO[4,5-C]PYRIDINES. Patent dated Feb. 27, 1990. Disclaimer filed May 16, 1991, by the assignee, Eli Lilly and Co.,

Hereby enters this disclaimer to all claims of said patent.

5,005,861—*Allen K. Breed*, Boonton Township, Morris County; *Ted Thuen*, Morris Plains; *Carl T. Grossi*, Wharton, all of N.J., VELOCITY CHANGE SENSOR WITH DOUBLE POLES SENSOR. Patent dated April 9, 1991. Disclaimer filed Sept. 9, 1991, by the assignee, Breed Automotive Technology, Inc.

Hereby enters this disclaimer to claims 1-13 of said patent.

5,011,256—*Melvin H. Johnson*, Chadds Ford; *Leland L. Krauss*, Aston; *Dirk Landman*, Lancaster, all of Pa. PACKAGE FOR AN OPTOELECTRONIC COMPONENT. Patent dated April 30, 1991. Disclaimer filed Aug. 9, 1991, by the assignee, E. I. du Pont de Nemours and Co.

Hereby enters this disclaimer to the remaining term of said patent.

5,037,636—*Albert S. Chan*, St. Louis, Mo. FLUORIDE STABILITY IN DICALCIUM PHOSPHATE DIHYDRATE COMPOSITION. Patent dated Aug. 6, 1991. Disclaimer filed April 22, 1991, by the assignee, Monsanto Chemical Co.

The term of this patent subsequent to July 16, 2008, has been disclaimed.

VOL
1132
ISS
3
NO
19
1991
UMI

SPECIAL BOXES FOR MAIL

Special PTO mail box numbers should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded directly to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these boxes. If any documents other than the specified type identified for each box are addressed to that box, they will be delayed in reaching the appropriate area for which they are intended.

The following special boxes should be used only for their specified purpose. Address mail as follows:

Box _____
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Box 3	Mail for the Office of personel for NFC
Box 4	Mail for the Assistant Commissioner for External Affairs and the Office of Legislation and International Affairs.
Box 5	"No Fee" mail related to trademarks.
Box 6	Mail for the Office of Procurement
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation*; papers relating to pending litigation shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Va. 22215
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents except: trademark registrations and assignments.
Box 11	Electronic Ordering Service (EOS).
Box 12	Contributions to the Examiner Education Program.
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Invoices directed to the Office of Finance.
Box 15	Mail for the Advisory Commission on Patent Law Reform.
Box 16	Deposit Account Replenishment Checks
Box 171	Vacancy Announcement Applications.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box DAC	Petitions to revive, petitions to accept late payment of fees, petitions to defer issue, and petitions to withdraw an application from issue.
Box Assignment	All assignment documents except those filed with new applications.
Box DD	Mail related to Disclosure Documents.
Box EEO	Mail for the Office of Equal Employment Programs.
Box FWC	Requests for File Wrapper Continuation Applications (under 37 CFR 1.62)
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box Issue Fee	All Communications following the receipt of a PTOL-85. "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box ITU	All intent to use documents, excluding the initial application and amendments to allege use.
Box M. Fee	Correspondence related to a patent that is subject to the payment of a maintenance fee.
Box Non-Fee-Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box OED	Mail for the Office of Enrollment and Discipline
Box PATENT APPLICATION	New patent application and associated papers and fees.
Box TRADEMARK	New trademark application and associated papers and APPLICATION fees.
Box Pat. Ext.	Applications for patent term extension.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return postcard or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The following libraries, designated as Patent Depository Libraries (PDLs), receive current issues of U.S. Patents and maintain collections of earlier-issued patents. The scope of these collections varies from library to library, ranging from patents of only recent years to all or most of the patents issued since 1790.

These patent collections, which are organized in patent number sequence, are available for use by the public free of charge. Each of the PDLs, in addition, offers supplemental reference publications of the U.S. Patent Classification System, including the *Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions*, and provides technical staff assistance in their use to aid the public, in gaining effctive access to information contained in patents. CASSIS (Classification And Search Support Information System); which provides direct, on-line access to Patent and Trademark Office data, is available at all PDLs. Facilities for making paper copies of patents from either microfilm or paper collections are generally provided for a fee.

Since there are variations in the scope of patent collections among the PDLs and in their hours of service to the public, anyone contemplating use of the patents at a particular library is urged to contact that library, in advance, about its collection and hours in order to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Auburn University Libraries	(205) 844-1747
	Birmingham Public Library	(205) 226-3680
Alaska	Anchorage: Z. J. Loussac Public Library	(907) 261-2916
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 612-3273
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	Sunnyvale Patent Clearinghouse	(408) 730-7290
Colorado	Denver Public Library	(303) 640-8847
Connecticut	New Haven: Science Park Library	(203) 786-5447
Delaware	Newark: University of Delaware Library	(302) 451-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(305) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa: Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 269-2865
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette: Purdue University Libraries	(317) 494-2873
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 689-3155
Kentucky	Louisville Free Public Library	(502) 561-8617
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Engineering Transportation Library, University of Michigan	(313) 764-7494
	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library and Information Center	(612) 372-6570
Misssissippi	Jackson: Mississippi Library Commission	Not Yet Operational
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada-Reno Library	(702) 784-6579
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7782
	Piscataway: Library of Science and Medicine, Rutgers University	(908) 932-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 473-4636
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 714-8529
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Cincinnati and Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138

VOL
1132
ISS
3
NO
19
1991
UMI

Reference Collections of U. S. Patents Available for Public Use in Patent Depository Libraries—(continued)

State	*Name of Library*	*Telephone Contact*
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8876
	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-2551
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext.2587
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 367-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

PATENT EXAMINING CORPS

JAMES E. DENNY, Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 110 — D. E. TALBERT, Director	308-0661	7/29/90
ORGANIC CHEMISTRY, GROUP 120 — JOHN F. TERAPANE, JR., Director	308-1235	3/29/91
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 130 — BARRY S. RICHMAN, Director	308-0651	2/1/91
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 150 — J. O. THOMAS, Director	308-2351	7/6/90
BIOTECHNOLOGY, GROUP 180 — EDWARD E. KUBASIEWICZ, Director	308-0196	6/2/90
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210 — D. G. KELLY, Director	308-1782	4/17/90
SPECIAL LAWS ADMINISTRATION, GROUP 220 — ROBERT E. GARRETT, Director	308-0511	3/24/90
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 230 — GERALD GOLDBERG, Director	308-0754	8/15/89
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 240 — CARLTON CROYLE, Director	308-0771	9/15/90
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 250 — JOSEPH J. ROLLA, Director	308-0956	12/1/90
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 260 — BOBBY R. GRAY, Director	308-0962	6/22/90
DESIGN, GROUP 290 — ROBERT E. GARRETT, Director	308-0511	2/20/89
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 310 — F. R. SCHMIDT, Director	308-1113	1/22/91
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 320 — N. GODICI, Director	308-1148	1/29/91
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 330 — J. J. LOVE, Director	308-0858	10/1/90
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 340 — JOHN KITTLE, Director	308-0861	12/7/90
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 350 — A. L. SMITH, Director	308-0651	10/1/90

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during October 1991 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

Patents ..... Numbers 3,838,466 to 3,845,503 inclusive
Plant Patents ..... 3,628 to 3,643

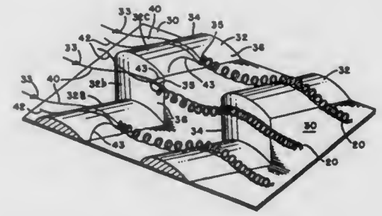
VOL
1132
ISS
3
NO
19
1991
UMI

REEXAMINATIONS

NOVEMBER 19, 1991

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 3,578,264 (1590th)
BOUNDARY LAYER CONTROL OF FLOW SEPARATION AND HEAT EXCHANGE
Arnold M. Kuethe, Ann Arbor, Mich., assignor to The University of Michigan, Ann Arbor, MI.
Reexamination Request Nos. 90/001,783, Jun. 12, 1989 and 90/001,966, Mar. 20, 1990.
Reexamination Certificate for Patent No. 3,578,264, issued May 11, 1971, Ser. No. 743,350, Jul. 9, 1968.
Int. Cl.[5] B64C *23/06*
U.S. Cl. 244—199



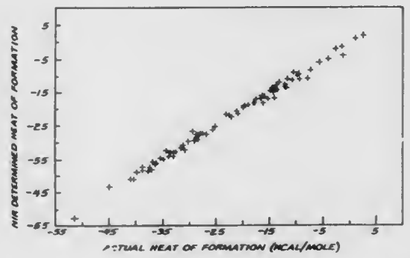
AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **6**, **10** and **11–23** is confirmed.

Claims **1–5** and **7–9** are cancelled.

11. Vortex inducing apparatus in combination with a fluid control or flow directing surface for generating vortices by utilizing the energy represented by the boundary layer vorticity upstream of the apparatus so as to cause mixing of mainstream fluid with boundary layer fluid downstream of the apparatus, comprising at least one elongated flow diverting element arranged in superimposed relation with respect to said surface and having a height proportioned to extend partially into the boundary layer and having a length which is substantially greater than the upstream boundary layer thickness extending in a direction generally transversely but inclined at an angle other than 90° to said mainstream flow and being formed with a downstream surface defining a correspondingly transversely oriented concavity with said flow control surface in which the direction of flow of some of the streamlines closely adjacent said downstream surface is deflected to a greater extent than the streamlines in the boundary layer more remote from said downstream surface to generate rotation of said streamlines resulting in a trailing vortex substantially within the dimensions of the original upstream boundary layer.

B1 4,800,279 (1591st)
METHOD AND DEVICES FOR NEAR-INFRARED EVALUATION OF PHYSICAL PROPERTIES OF SAMPLES
Gary M. Hieftje, Bloomington, Ind.; David E. Honigs, Brier, Wash., and Thomas B. Hirschfeld, Livermore, Calif., assignors to Indiana University Foundation, Bloomington, IN
Reexamination Request No. 90/002,064, Jun. 22, 1990.
Reexamination Certificate for Patent No. 4,800,279, issued Jan. 24, 1989, Ser. No. 776,133, Sep. 13, 1985.
Int. Cl.[5] G01J *1/00*
U.S. Cl. 250—339



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1–23** having been finally determined to be unpatentable, are cancelled.

[1. A method for quantifying a physical property of a hydrocarbon sample, comprising the steps of:
(a) determining which wavelengths in the near-infrared spectrum correlate to the physical property to be quantified;
(b) determining weighting constants which are correlated to the determined wavelength;
(c) measuring the absorbance of the sample at each of the determined wavelengths; and
(d) calculating a reference value for the physical property from the measured absorbance of the smple as corrected by the weighting constant.**]**

VOL
1132
ISS
3
NO
19
1991
UMI

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

Re. 33,744

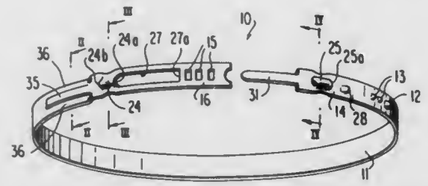
EARLESS CLAMP STRUCTURE

Hans Oetiker, Horgen, Switzerland, assignor to Hans Oetiker AG Maschinen- und Apparatefabrik, Horgen, Switzerland

Original No. 4,492,004, dated Jan. 8, 1985, Ser. No. 446,503, Dec. 3, 1982. Application for reissue Oct. 4, 1989, Ser. No. 417,046

Int. Cl.[5] B65D *63/02*

U.S. Cl. 24—20 R **46 Claims**



1. A clamp structure, especially for use in applications in which space conditions do not permit any projecting parts, such as plastically deformable ears, comprising clamping band means having open ends formed by an inner and outer band portion intended to overlap, and means mechanically interconnecting the overlapping open ends of the band means including outwardly extending hook means in the inner band portion operable to engage in aperture means in the outer band portion in the installed condition of the clamp structure, characterized in that the means mechanically interconnecting the open ends enable tightening of the band means about an object to be fastened and include tool-engaging means provided in the inner and outer band portions, said tool-engaging means being formed by pressed-out portions pressed-out of the inner and outer band portions and extending generally in the circumferential direction so that each pressed-out portion remains integral at least on both sides thereof with the respective band portion, whereby said tool-engaging means are able to withstand substantial forces in the circumferential direction without tearing which permit a secure tightening of the clamp structure about the object to be fastened without the use of any other tightening means in the clamp structure, *and in that the tool-engoging means in the inner band portion is located in the inner band portion on the side of the hook means nearer the free end of the inner band portion so that in the installed condition of the clamp structure it comes to lie on the side of the aperture means opposite the free end of the outer band portion.*

Re. 33,745

THIADIAZABICYCLONONANE DERIVATIVES, PROCESSES FOR THEIR PRODUCTION AND HERBICIDAL COMPOSITIONS

Mikio Yamaguchi, Shimada; Yukihiro Watase, Shizuoka; Takeshi Kambe, Tokyo, and Susumu Katou, Shizuoka, all of Japan, assignors to Kumiai Chemical Industry Co., Ltd. and Ihara Chemical Industry Co., Ltd., both of Tokyo, Japan

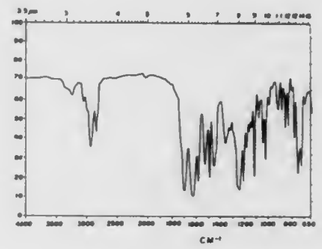
Original No. 4,816,063, dated Mar. 28, 1989, Ser. No. 910,978, Sep. 24, 1986. Application for reissue Aug. 15, 1989, Ser. No. 394,351

Claims priority, application Japan, Mar. 25, 1986, 61-66567

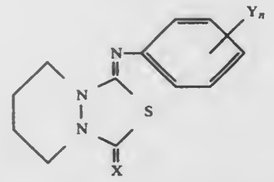
Int. Cl.[5] C07D *513/04*; A01N *43/82*

U.S. Cl. 71—90 **15 Claims**

1. A 9-phenylimino-8-thia-1,6-diazabicyclo[4.3.0]nonane-7-(one or thione) compound having the formula:



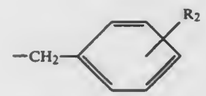
(I)



wherein Y which may be the same or different, represents chlorine, bromine, fluorine, hydroxyl, lower alkyl, lower alkoxy which may be substituted by chlorine, bromine or fluorine, lower alkenyloxy which may be substituted by chlorine, bromine or fluorine, lower alkynyloxy, phenoxy, lower cycloalkyloxy, lower alkoxycarbonyl-lower alkenyloxy, lower alkylthiocarbonyl-lower alkyloxy, lower alkynyloxycarbonyl-lower alkyloxy, benzyloxycarbonyl-lower alkyloxy, trifluoromethyl, benzyloxy which may be substituted by chlorine or lower alkyl, lower alkenyl, cyano-lower alkyl, lower alkylcarbamoyloxy, benzyl which may be substituted by one or two lower alkyl, lower alkoxy-lower alkyl, lower alkynyloxy-lower alkyl, lower cycloalkylmethyloxy which may be substituted by chlorine, bromine or fluorine, lower alkoxy-lower alkyloxy, phenethyloxy, lower cycloalkyloxycarbonyl-lower alkyloxy, pyrrolidinocarbonyl, phenylcarbonyl which may be substituted by lower alkyl,



wherein R_1 is hydrogen, lower alkyl, phenyl, lower cycloalkyl, lower alkoxy-lower alkyl, lower alkoxycarbonyl-lower alkyl or

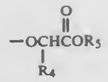


(wherein R_2 is hydrogen or lower alkoxy). X is oxygen or sulfur,

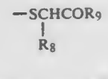


(wherein R_3 is lower alkyl, lower alkenyl or lower alkynyl, and m is 0 or 2),

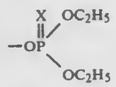
VOL 1132 ISS 3 NO 19 1991 UMI



wherein R_4 is hydrogen or lower alkyl, and R_5 is hydrogen, lower alkyl, lower alkoxy-lower alkyl, tetrahydrofurfuryl, lower alkoxy-lower alkyloxy-lower alkyl, lower alkoxycarbonyl-lower alkyl or $N{=}C(CH_3){-}R_6$ (wherein R_6 is lower alkyl or phenyl), $-NHR_7$ (wherein R_7 is lower alkylcarbonyl or lower alkoxycarbonyl-lower alkyl),



(wherein R_8 is hydrogen or lower alkyl, and R_9 is lower alkoxy, lower cycloalkyloxy or pyrrolidinyl), or



(wherein X is as defined above); n is an integer or from 0 to 3; and X is oxygen or sulfur.

Re. 33,746

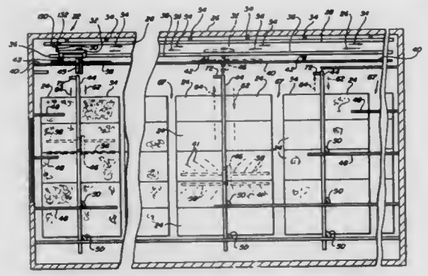
PROGRAMMABLE SPRINKLER SYSTEM

Gary H. Lucas, Hightstown, N.J., assignor to Integrated Tech Systems, Inc., Windsor, N.J.

Original No. 4,723,714, dated Feb. 9, 1988, Ser. No. 911,376, Sep. 25, 1986. Application for reissue Feb. 8, 1990, Ser. No. 477,323

Int. Cl.[5] **A01G** *25/09*

U.S. Cl. 239—744 **20 Claims**



18. A programmable spraying system comprising:

rail means;

car means movable along said rail means;

moving means operatively connected to said car means for moving said car means along said rail means;

fluid delivery means, extending between said car means and a source of fluid under pressure, for supplying to said car means a fluid under pressure;

electrical power supply means operatively connected to said car means for supplying electrical power to said car means and said moving means;

fluid dispensing means carried by said car means and connected to said fluid delivery means for dispensing fluid received from said fluid delivery means;

input means, disposed along a path defined by said rail means, for providing instructions as to an amount of said fluid to be delivered to an area along said path;

sensor means on said car means for detecting said instructions during motion of said car means along said rail means; and

programmable means operatively coupled to said sensor means and said car means for varying, while said car means moves along said rail means, the amount of said fluid to be dispensed along said path so that said area receives said amount of said fluid during passage of said car means along said path past said area.

Re. 33,747

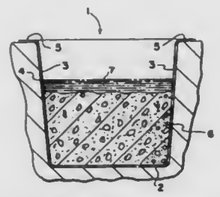
RIGIDIFICATION OF SEMI-SOLID AGGLOMERATIONS

Tyrus W. Hartley, and Dwight N. Hartley, both of Bay City, Mich., assignors to Soil-Tech, Inc., Kawkawlin, Mich.

Original No. 4,668,128, dated May 26, 1987, Ser. No. 627,878, Jul. 5, 1984. Application for reissue May 25, 1989, Ser. No. 357,602

Int. Cl.[5] **E02D** *3/12*

U.S. Cl. 405—266 **18 Claims**



17. In a method of rigidifying a semi-solid agglomeration of materials composed of solids and liquids confined in a containment, the improvement comprising permitting the agglomeration within said containment to stand for a period of time sufficient to cause heavier solids to settle and excess liquids to accumulate atop such agglomeration; removing at least a substantial portion of said excess liquids; adding to and mixing with the agglomeration remaining in said containment a quantity of meal including a hygroscopic powder and a cementitious binder, and an aggregate to form a substantially homogeneous mass, the quantity of said meal and said aggregate added to said agglomeration being insufficient to overflow said containment; and curing said mass to form a substantially rigid matrix.

Re. 33,748

PROCESS FOR THE PREPARATION OF POLYURETHANE PLASTICS USING DIANHYDRO-HEXITE DIOLS

Holger Meyborg, Odenthal; Kuno Wagner, Leverkusen; James M. Barnes, Wermelskirchen, and Herbert Salzburg, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Original No. 4,383,051, dated May 10, 1983, Ser. No. 357,118, Mar. 11, 1982. Application for reissue May 10, 1985, Ser. No. 733,284

Claims priority, application Fed. Rep. of Germany, Mar. 20, 1981, 3111093

Int. Cl.[5] **C08G** *18/00, 18/28;* **C07D** *307/87, 307/93*

U.S. Cl. 521—176 **18 Claims**

1. A process for the preparation of polyurethane plastics comprising reacting

(a) organic polyisocyanates;

(b) compounds containing at least 2 Zerewitinoff-active hydrogen atoms and having molecular weights of from 400 to 10,000; and

(c) chain extenders, characterized in that 1,4-3,6-dianhydrohexites are used as the chain extenders.

10. A polyurethane comprising the reaction product of an organic polyisocyanate, a compound containing at least two Zerewitinoff-active hydrogen atoms and having a molecular weight of from 400 to 10,000 and a 1,4-3,6-dianhydro-hexite.

Re. 33,749

STORAGE STABLE HEAT CURABLE ORGANOSILOXANE COMPOSITIONS CONTAINING MICROENCAPSULATED PLATINUM-CONTAINING CATALYSTS

Chi-Long Lee, Midland; Donnie R. Juen, Sanford; John C. Saam, and Robin L. Willis, Jr., both of Midland, all of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Original No. 4,766,176, dated Aug. 23, 1988, Ser. No. 75,177, Jul. 20, 1987. Application for reissue Aug. 24, 1990, Ser. No. 573,501

Int. Cl.[5] **C08F** *8/00*

U.S. Cl. 525—100 **16 Claims**

1. In an improved one-part, storage stable, heat curable organosiloxane composition comprising

(A) a curable polyorganosiloxane containing at least two ethylenically unsaturated hydrocarbon radicals per molecule;

(B) an organohydrogensiloxane containing at least two silicon bonded hydrogen atoms per molecule in an amount sufficient to achieve curing of said polyorganosiloxane (A), where the sum of the average number of ethylenically unsaturated hydrocarbon radicals per molecule of (A) and the average number of silicon bonded hydrogen atoms per molecule of said organohydrogensiloxane (B) is greater than 4, and

(C) an amount of a platinum-containing hydrosilation catalyst sufficient to promote curing of said composition at a temperature of at least 70° C. and above,

the improvement comprising the presence of said platinum-containing catalyst in the form of microcapsules that in turn, comprise said catalyst as finely divided particles or droplets that are completely enveloped within a thermoplastic organic polymer where the average diameter of said microcapsules is less than 500 microns, and said thermoplastic organic polymer constitutes at least 50 percent of the weight of said microcapsules.

14. A composition according to claim 1 where said catalyst is distributed throughout the volume of said microcapsules.

VOL
1132
ISS
3
NO
19
1991
UMI

PLANT PATENTS

GRANTED NOVEMBER 19, 1991

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

7,714
APPLE ROOTSTOCK — LANCEP VARIETY

Alain Masseron, Castillon La Batille, and Elisa Grillet, Lyons, both of France, assignors to Centre D'Experimentation de Pepinieres, Lyons and Centre Technique Interprofessionnel des Fruits et Legumes, Paris, both of, France

Filed Jun. 15, 1989, Ser. No. 367,230
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct virus-free variety of apple tree useful as an improved rootstock for apple cultivars, substantially as illustrated and described, which when used as such rootstock has better compatibility with all commercial varieties, facilitates more vigorous growth and increases productivity of the grafted variety.

7,715
APPLE ROOTSTOCK - CEPILAND VARIETY

Alain Masseron, Castillon la Batille, and Elisa Grillet, Lyons, both of France, assignors to Centre d'Experimentation de Pepinieres, Lyons and Centre Technique Interprofessionnel des Fruits et Legumes, Paris, both of, France

Filed Jun. 15, 1989, Ser. No. 367,231
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—34 **1 Claim**

1. A new and distinct virus-free variety of apple tree useful as an improved rootstock for apple cultivars, substantially as illustrated and described, which when used as such rootstock has better compatibility with all commercial varieties, facilitates more vigorous growth and increases productivity of the grafted variety.

7,716
POINSETTIA PLANT 'LILO PINK'

Franz Fruehwirth, Encinitas, Calif., assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.

Filed May 24, 1990, Ser. No. 528,236
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—86 **1 Claim**

1. A new and distinct poinsettia cultivar, substantially as herein shown and described, characterized by its early flowering, self-branching, dark pink flower bracts and dark green foliage.

VOL
1132

ISS
3

NO
19

1991

UMI

PATENTS

GRANTED NOV. 19, 1991

ERRATA

For CLASS	See PATENT NO.
460-004	5,065,462
292-035	5,065,486
292-075	5,065,487
292-078	5,065,488
356-432	5,065,775
108-060	5,065,832
198-392	5,065,852
267-140	5,065,869
220-694	5,065,923
222-185	5,065,927
439-264	5,065,941
215-001	5,066,081
359-361	5,066,082
359-213	5,066,083
359-213	5,066,084
385-115	5,066,085
385-041	5,066,086
385-043	5,066,087
385-025	5,066,088
385-035	5,066,089
385-035	5,066,090
385-098	5,066,091
385-033	5,066,092
385-033	5,066,093
385-073	5,066,094
385-099	5,066,095
385-058	5,066,096
385-076	5,066,097
351-221	5,066,116
351-226	5,066,117
356-073	5,066,118
356-124	5,066,119
356-124	5,066,120
356-218	5,066,121
356-241	5,066,122
356-312	5,066,123
356-312	5,066,124
356-316	5,066,125
356-328	5,066,126
356-328	5,066,127
356-349	5,066,128
356-356	5,066,129
356-356	5,066,130

VOL
1132
ISS
3
NO
19
1991
UMI

ERRATA—Continued

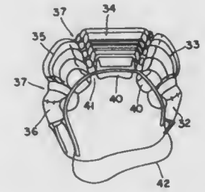
356-401	5,066,131
131-297	5,066,132
359-570	5,066,133
432-160	5,066,229
540-106	5,066,426
424-121	5,066,585
437-007	5,066,599
514-231	5,066,808
430-137	5,066,821
313-309	5,066,833
318-135	5,066,897
318-568	5,066,902
331-057	5,066,929
335-255	5,066,980
395-650	5,067,068
395-375	5,067,069
395-146	5,067,070
395-275	5,067,071
395-650	5,067,072
395-375	5,067,073
395-200	5,067,074
395-425	5,067,075
395-275	5,067,076
395-400	5,067,077
395-400	5,067,078
375-024	5,067,095
395-115	5,067,097
395-126	5,067,098
395-375	5,067,104
395-400	5,067,105
395-575	5,067,106
395-500	5,067,107
359-152	5,067,173

PATENTS

GRANTED NOVEMBER 19, 1991

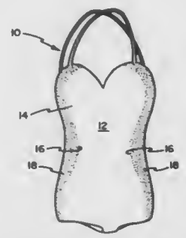
GENERAL AND MECHANICAL

5,065,457
BODY PROTECTOR
Anthony E. Henson, Harbord, Australia, assignor to Albion Hat & Cap Company Pty., Ltd., Chippendale, Australia
Division of Ser. No. 348,813, May 8, 1989. This application Oct. 1, 1990, Ser. No. 591,128
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—2 **11 Claims**



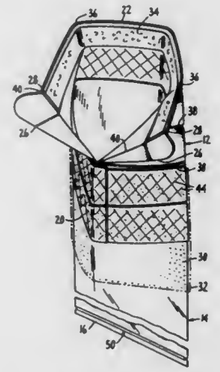
1. A body protector for a sportsman selected from the group consisting of a forearm pad and a shin pad, said protector being integrally formed, being molded from plastics material, and having an inner surface with a plurality of protrusions thereon, each of said protrusions being filled with said plastics material and the spaces between adjacent protrusions providing paths through which air is able to pass between said inner surface and the skin of said sportsman.

5,065,458
APPEARANCE MODIFYING GARMENTS
Mary S. Johnson, Stripers Landing, Rte. 3, Unit 402, Moneta, Va. 24121
Filed Oct. 4, 1990, Ser. No. 592,972
Int. Cl.[5] A41D *5/00*; A41B *11/00*
U.S. Cl. 2—69 **4 Claims**



1. A garment for providing an enhanced appearance to the wearer, the garment comprising:
a) an article of form-fitting clothing for conforming to a wearer's body shape;
b) said article having a central shaded area bounded by marginal shaded areas on either side of said central area when said article is viewed from front and back, said central shaded area contrasting with said marginal shaded areas by light and dark shades;
c) said marginal and said central areas when viewed from front and back having distinct lines of demarcation between dark and light shades; and,
d) whereby said distinct line of demarcation between said light and dark shades causes the viewer's eye to be drawn to said central shaded area.

5,065,459
DISPOSABLE PORTABLE URINAL
Surje Tjahaja, 3343 Brittan Ave., #4, San Carlos, Calif. 94070, and Robert L. Nodvik, 2805 Kerckhoff St., San Pedro, Calif. 90731
Filed May 3, 1990, Ser. No. 530,108
Int. Cl.[5] A47K *11/00*
U.S. Cl. 4—144.2 **8 Claims**



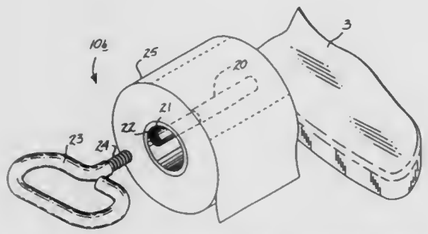
1. A disposable portable urinal to accommodate a penis, comprising:
a pliable receptacle having an interior space and provided with a closed end and an opposing open end;
a pliable, collapsible cylindrical collar with the perimeter of one end thereof being sealably attached to the open end of the receptacle, and with the opposing end of the collar having a slot extending axially therefrom to a point intermediate the length of the collar; and
a pair of handle tabs for gripping the collar attached to opposing edges of the slot such that the handle tabs can be used to separate the collar along the slot allowing the penis to be placed within the collar whereupon the handles are used to compress the collar around the penis to prevent leakage.

5,065,460
COMMODE SEAT LIFTING APPARATUS
Debra L. Currin, 715 E. Elm St., Hanford, Calif. 93230
Filed Aug. 30, 1990, Ser. No. 574,884
Int. Cl.[5] A47K *13/10*
U.S. Cl. 4—251 **3 Claims**

1. A commode seat lifting apparatus comprising in combination a commode, the commode including an upper surface with a commode seat pivotally mounted to the upper surface,
and
the commode seat including a side surface,
and
a handle member mounted orthogonally to the side surface,
and
wherein the handle member is coaxially aligned,
and
wherein the handle member includes a tubular sleeve, the tubular sleeve defining a cylindrical cavity therewithin defined by a predetermined cross-sectional configuration, and a tube support spindle defined by an external configuration equal to the predetermined cross-sectional configuration frictionally received within the tubular sleeve, and the support spindle including a free end wherein the free

VOL 1132 ISS 3 NO 19 1991 UMI

end includes a threaded interior surface, and a "T" shaped handle wherein the "T" shaped handle including a



threaded handle shank threadedly receivable within the threaded free end, and a tissue roll captured between the side surface and the "T" shaped handle.

5,065,461

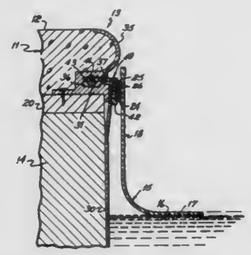
SWIMMING POOL AND COVER

Billy C. Shehan; Billy C. Shehan, Jr., both of 298 E. Mt. Zion Road, Independence, Ky. 41051, and Thomas R. Stubbeman, 309 Main St., Highland Heights, Ky. 41076

Filed Mar. 5, 1990, Ser. No. 488,308

Int. Cl.[5] E04H *4/14*

U.S. Cl. 4—503 **14 Claims**



1. A lined swimming pool and removable cover therefor comprising:
- a first elongated channel disposed along an upper edge of said pool;
- a pool liner having an edge bead disposed in said channel;
- an insertable bead locking means inserted in said channel for locking said bead therein;
- a first portion of a two component releasable locking means secured to said bead locking means outside said first channel and exposed to the interior of said pool;
- a pool cover having dimensions sufficient for extension thereof from wall to wall across the pool;
- said pool cover having peripheral edges, and
- a second portion of said two component releasable locking means secured to said peripheral edge of said cover and releasably engageable with said first portion outside said first channel for releasably securing said cover to said bead locking means outside said first channel and across said pool.

5,065,462

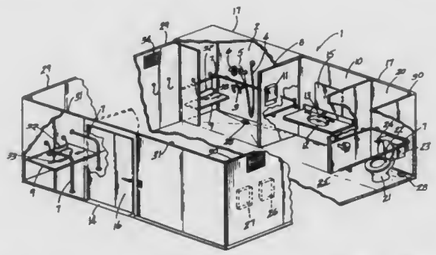
HANDICAP-ACCESSIBLE RESTROOM

Raymond Romano, 314 Park St., West Haven, Conn. 06516

Filed Nov. 2, 1990, Ser. No. 608,537

Int. Cl.[5] A47K *4/00, 11/00*

U.S. Cl. 4—604 **18 Claims**



1. A mobile handicap accessible restroom facility comprising:
- a floor and vertical walls extending from the floor;
- a sink portion in said facility sized for use by wheelchair bound persons;
- a commode portion in said facility sized for use by wheelchair bound persons;
- an entrance door to said facility sized to allow passage of a wheelchair therethrough;
- at least one drain hole spaced along said floor;
- a shower portion in said facility sized to permit wheelchair access, having a shower wall and a shower head detachably secured thereto;
- wherein said sink portion, commode portion and shower portion are affixed to the vertical walls;
- a pressurized supply of water to said restroom;
- a hose attached to said shower head and to said pressurized water supply;
- said hose having a length sufficient to allow said shower head to reach all areas within said restroom for cleaning purposes;
- said floor being tapered downward in a direction toward said at least one drain hole; and
- means for facilitating movement comprising mounting said restroom on a plurality of wheels and including a hitch associated therewith.

5,065,463

STRUCTURE OF SHOWER WITH SWIVEL BRUSH AND MULTI-STEP DRAIN CONTROL

Mike Le, 7/F., No. 20 Lane 50, Yan Chi St., Taipei, Taiwan

Filed Mar. 28, 1990, Ser. No. 500,567

Int. Cl.[5] A46B *13/06*

U.S. Cl. 4—606 **5 Claims**



1. A shower, comprising:
- a shower head having a water outlet and defining within said shower head first, second, third, fourth, fifth and sixth water channels;
- a drain cock having first and second passageways and being

set in said shower head and connected to said six water channels to control the flow of water in said water channels;
- a rotating brush attached to said water outlet;
- a water wheel attached to said rotating brush to drive said rotating brush and cause said brush to rotate;
- an adapter for connecting said shower head to a water outlet of a source of water;
- a double-core water pipe connecting said adapter to said shower head and defining water supply and return channels therein;
- characterized in that when said drain cock is at a first drain position, water is permitted to flow from said first water channel through said first passageway of said drain cock into said fifth water channel to drive said water wheel and to cause said brush to rotate and thence through said sixth water channel and said second passageway to discharge through said adapter;
- when said drain cock is at a second drain position, water is permitted to flow from said first water channel through said first passageway of said drain cock into said fifth water channel to drive said water wheel and to cause said brush to rotate and thence through said sixth water channel and said second passageway of said valve cock into said third water channel to discharge from said water outlet of said shower head;
- when said drain cock is at a third drain position, water is permitted to flow from said second water channel through said second passageway of said drain cock into said third water channel to discharge from said water outlet of said shower head;
- and when said drain cock is at a fourth drain position, water is permitted to flow from said second water channel through said second passageway of said drain cock into said fourth water channel for discharge through said adapter.

5,065,464

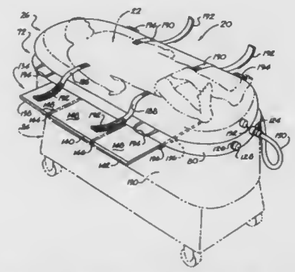
APPARATUS FOR TRANSFERRING A PATIENT BETWEEN PATIENT SUPPORT SURFACES

Frederick W. Blanchard, North Charleston, and Thomas J. Moore, Charleston, both of S.C., assignors to SSI Medical Services, Inc., Charleston, S.C.

Filed Jul. 30, 1990, Ser. No. 560,045

Int. Cl.[5] A61G *7/10;* B65G *7/06*

U.S. Cl. 5—81 R **28 Claims**



1. Apparatus for transferring a patient relative to a supporting surface, the apparatus comprising:
- (a) a bladder of a sufficient size to support a supine or prone patient,
  - (i) said bladder defining an enclosure impervious to air,
  - (ii) a peripheral web member subdividing said enclosure into two separate chambers,
  - (iii) the perimeter of one of said chambers surrounding at least about three quarters of the perimeter of said other of said chambers,
  - (iv) said peripheral bladder web member further defining a plurality of holes through which air can pass between said two chambers,
  - (v) said bladder further defining an opening into said surrounding bladder chamber, and
  - (vi) whereby upon inflation of said bladder through said bladder opening, the inflating fluid enters and pressurizes said surrounding bladder chamber prior to pressurizing the surrounded chamber, thereby forming an inflated boundary around the patient to guard against inadvertently rolling the patient off the transfer apparatus;
- (b) a bladder valve,
  - (i) said bladder valve covering said bladder opening, and
  - (ii) said bladder valve selectively controlling access between said bladder surrounding chamber and the environment of the apparatus; and
- (c) means for defining an air bearing, said air bearing means being secured to one side of said bladder and outside said bladder enclosure, said air bearing means being adapted to reduce the friction between the patient transfer apparatus and its supporting surface to thereby facilitate the sliding of the patient transfer apparatus relative to its supporting surface.

5,065,465

WATER MATTRESS FOR A THERAPY WATER BED

Jan Nystad, Elverhøy, N-2312, Ottestad, Norway

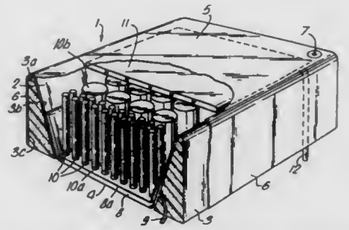
PCT No. PCT/NO89/00057, § 371 Date Dec. 6, 1990, § 102(e) Date Dec. 6, 1990, PCT Pub. No. WO89/12414, PCT Pub. Date Dec. 28, 1989

PCT Filed Jun. 13, 1989, Ser. No. 613,894

Claims priority, application Norway, Jun. 13, 1988, 882591

Int. Cl.[5] A47C *27/10*

U.S. Cl. 5—450 **9 Claims**



1. A water mattress for a water bed supported on a firm rigid surface comprising, a water bag of resilient water-tight sheet material, a frame of resilient foam material forming a wall around said water bag, said frame having a top free edge, a bottom base portion, an inner side surface and an outer side surface, said water bag having a top portion with lateral extensions depending alongside the outer side surface of said frame, said top portion being stretched across the top free edge of said frame and secured to said frame, said water bag further including a bottom portion extending along the inner side surface of said frame from the bottom base portion of the frame to the top edge of the frame, said top and bottom portions of said water bag being joined along the top free edge of said frame, a valve for dispensing water into said water bag and discharging water from said water bag, and wherein the bottom portion of said water bag includes two layers of said resilient water-tight sheet material with a space therebetween to define an intermediate air chamber, an air hose communicable with said air chamber to supply air to said air chamber and a plurality of hollow inflatable cylindrical air pocket members communicable with said air chamber and extending upwardly from the bottom portion of said water bag toward the top portion of said water bag and being free from connection with the top portion of said water bag.

VOL 1132 ISS 3 NO 19 1991 UMI

5,065,466

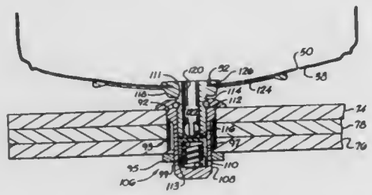
QUICK DISCONNECT COUPLING FOR A LOW AIR LOSS PATIENT SUPPORT

James M. C. Thomas, Mt. Pleasant; James R. Stolpmann, Charleston; William T. Sutton, Charleston, and James J. Romano, Charleston, all of S.C., assignors to SSI Medical Services, Inc., Charleston, S.C.

Division of Ser. No. 355,755, May 22, 1989, Pat. No. 4,949,414, which is a continuation-in-part of Ser. No. 321,255, Mar. 9, 1989, abandoned. This application Jul. 19, 1990, Ser. No. 555,164

Int. Cl.[5] A61G 7/057

U.S. Cl. 5—453 4 Claims



1. A hand-detachable airtight connection for an air sack of a low air loss patient support, the patient support having an air sack supply opening defined therein and through which air is to be supplied to the air sack, the air sack having an air entrance opening defined through a wall thereof, the apparatus comprising:

(a) an elongated connection fitting having:

(i) an exterior configured to engage air-tightly with said air sack supply opening,

(ii) an interior configured with an axially disposed coupling cylinder to receive a coupling in air tight engagement therewith, said coupling cylinder having a coupling entrance at one end of said cylinder,

(iii) a first groove defined completely around said fitting interior,

(iv) a resiliently deformable flexible O-ring held in said first groove, and

(v) a channel opening defined radially through said fitting to receive air therethrough; and

(b) an elongated coupling secured at one end to said air entrance opening of said sack and extending outwardly therefrom and having

(i) an axial opening defined through said coupling, and

(ii) a second groove defined around said coupling to receive said deformable O-ring therein when said coupling is inserted into said fitting in airtight engagement with said fitting;

(c) an attachment grommet configured with an opening to receive said coupling therethrough and disposed within said interior of said sack and extending radially outwardly around said air entrance opening of said sack; and

(d) a pull tab disposed against the exterior of said sack and extending radially outwardly from said air entrance opening of said sack.

5,065,467

PREFABRICATED LATTICE PANELS FOR A BRIDGE

Richard C. E. Forsyth, Hook, England, assignor to Mabey & Johnson Limited, Reading, United Kingdom

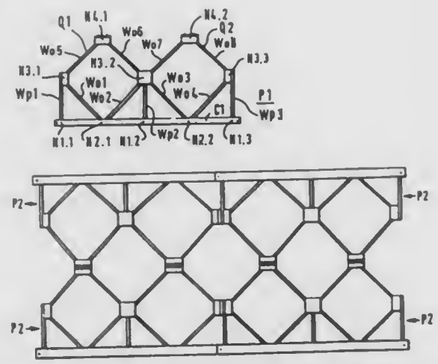
Filed May 8, 1990, Ser. No. 520,574

Claims priority, application United Kingdom, May 25, 1989, 8911984

Int. Cl.[5] E01D 9/02

U.S. Cl. 14—13 13 Claims

8. A prefabricated lattice panel for a main girder truss in a lattice panel bridge, to extend upright along one side of the bridge, comprising a formation of web members welded to a single chord member to form a lattice having at least one quadrilateral, the or each said quadrilateral being welded at a single corner of the or each said quadrilateral to the single chord member, an opposite corner of the or each said quadrilateral having a shear force-transmitting connection fitment for



connection of the panel in the bridge, an intermediate corner of the quadrilateral, or of one said quadrilateral, being positioned at one end of the panel and having a fitment for making a shear force-transmitting connection of the panel in the bridge.

5,065,468

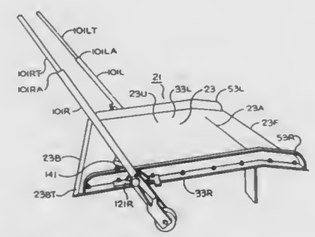
PORTABLE DOCK PLATE

Danny G. Sherrod, Burleson, Tex., assignor to Bluff Manufacturing, Inc., Burleson, Tex.

Filed Feb. 26, 1990, Ser. No. 485,219

Int. Cl.[5] F01D 1/00

U.S. Cl. 14—72.5 16 Claims



1. A dock plate, comprising:

a generally rectangular shaped plate means having upper and lower surfaces, first and second opposite ends of a given width and two opposite sides of a given length,

two side members,

means for removably attaching two side members to said two sides respectively whereby said two side members may be removed from said dock plate or attached to said two sides of said dock plate at different positions along their lengths, respectively,

each side member comprising:

a support member attached to said side member,

an axle attached to said support member such that said axle extends outward from the side of said plate means when said side member is attached to its side of said plate means,

a handle having first and second ends with a wheel coupled to said first end thereof,

said handle being pivotally coupled to said axle such that said handle may be pivoted to an operative position and to an inoperative position when said side member is attached to its side of said plate means,

in said operative positions of said handles, said wheels are located below said lower surface of said plate means with said second ends of said handles extending upward and being located closer to said first end of said plate means than to said second end thereof whereby downward force may be applied to said second ends of said handles with their wheels located on the floor or the like to lift said plate means above the floor or the like to allow it to be moved on said wheels,

in the inoperative position of said handles, said second ends of said handles are located closer to said second end of said plate means than to said first end of said plate means whereby said handles are out of the way and said wheels cannot be used to lift and move said plate means.

5,065,469

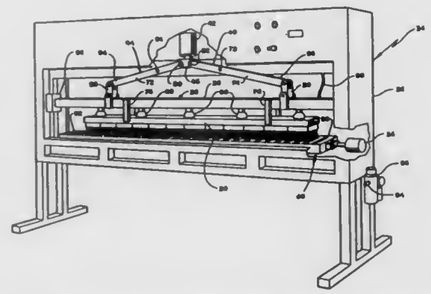
APPARATUS FOR REMOVING DEBRIS FROM A CUTTING BED

Paul E. Takken, Hudsonville; Robert G. Scheckel, Nunica, both of Mich., and Steven D. Peo, Michigan City, Ind., assignors to BPS Systems, Inc., Hudsonville, Mich.

Filed Oct. 12, 1989, Ser. No. 420,171

Int. Cl.[5] B08B 11/02, 7/02

U.S. Cl. 15—89 29 Claims



1. An apparatus for removing debris from a substrate comprising:

a head;

support means for supporting said substrate by said head;

mover means for accelerating said head in a given direction, said mover means including means for producing linear movement and linkage means connecting said mover means with said head in a manner that said head is moved a greater amount than said mover means for amplifying said linear movement when applied to said head; and

means for decelerating said head after said mover means has accelerated said head;

wherein said linkage means includes an elongated member having first and second opposite ends, said linear movement being applied to one of said opposite ends, the other one of said opposite ends being connected to said head, said linkage means further including means for pivotally mounting said elongated member at a pivot point between said first and second opposite ends, wherein the distance between said pivot point and said one of said opposite ends being less than the distance between said pivot point and said other one of said opposite ends.

5,065,470

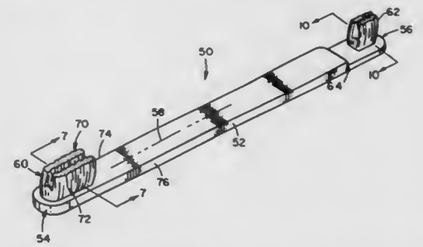
TOOTHBRUSH

Albert J. Diamond, 229 E. 28th St., New York, N.Y. 10016

Filed May 23, 1990, Ser. No. 527,342

Int. Cl.[5] A46B 9/04

U.S. Cl. 15—106 9 Claims



1. A toothbrush comprising:

A) a handle having a first end and a second end, a longitudinal centerline extending between said first and second ends, side edges extending between said first and second ends, and a width dimension extending between said side edges;

B) a posterior teeth cleaning head on said handle first end, said posterior teeth cleaning head including

(1) two rows of outside bristles, one row being on one side of said handle longitudinal centerline and extending therealong from said handle first end towards said handle second end and a second row being located on another side of said handle longitudinal centerline, said outside bristles having one end fixed to said handle and having a curved body which is curved to be concave with respect to said handle longitudinal centerline, and a second end spaced from said handle, said outside bristles having a height measured between said bristle first and second ends, and

(2) central bristles mounted on said handle between said two rows of outside bristles and extending along said handle longitudinal centerline from said handle first end towards said handle second end, said central bristles including

(a) a row of centermost bristles each being mounted at a first end thereof on said handle along said handle longitudinal centerline and having a second end spaced from said handle and a height as measured between said centermost bristle first and second ends which is less than the height of said outermost bristles, and

(b) a plurality of rows of intermediate bristles, a plurality of first rows of intermediate bristles being located on each side of and immediately adjacent to said row of centermost bristles between said centermost bristles and said outermost bristles, and a plurality of further rows of intermediate bristles located on each side of said first rows of intermediate bristles between said first rows of intermediate bristles and said outermost bristles, each intermediate bristle having a first end mounted on said handle and a second end spaced from said intermediate bristle first end and a height as measured between said intermediate bristle first and second ends which is less than said centermost bristle height, said intermediate bristles in each row of intermediate bristles being a mirror image of the corresponding intermediate bristles in the other row, said bristles in said first row of intermediate bristles having a first row height and the bristles in a row of intermediate bristles located immediately adjacent to said outermost bristles having a second height, said first row height and said second height being identical to each other and exceeding the height of all remaining bristles in said further rows of intermediate

VOL 1132 ISS 3 NO 19 1991 UMI

bristles, the height of the intermediate bristles in each row gradually decreasing from said first and second heights adjacent to the centermost bristles and adjacent to said outermost bristles to a shortest value midway between the centermost bristles and the outermost bristles and forming a concave shape on each side of the centermost bristles with the concave shapes on each side of the centermost bristles being identical; and

C) an anterior teeth cleaning head on said handle second end, said anterior teeth cleaning head including

(1) two rows of outside bristles, one row being on one side of said handle longitudinal centerline and extending therealong from said handle second end towards said handle first end and a second row being located on another side of said handle longitudinal centerline, said anterior head outside bristles having one end fixed to said handle and having a curved body which is curved to be concave with respect to said handle longitudinal centerline, and a second end spaced from said handle, said anterior head outside bristles having a height measured between said anterior head outside bristle first and second ends, and

(2) central bristles mounted on said handle between said anterior head two rows of outside bristles and extending along said handle longitudinal centerline from said handle second end towards said handle first end, said anterior head central bristles including

(a) a row of centermost bristles each being mounted at a first end thereof on said handle along said handle longitudinal centerline and having a second end spaced from said handle and a height as measured between said anterior head centermost bristle first and second ends which is less than the height of said anterior head outermost bristles, and

(b) two rows of intermediate bristles, one row of intermediate bristles being located on each side of said anterior head row of centermost bristles between said anterior head centermost bristles and said anterior teeth cleaning head outermost bristles, each anterior head intermediate bristle having a first end mounted on said handle and a second end spaced from said anterior head intermediate bristle first end and a height as measured between said intermediate bristle first and second ends which is less than said anterior head centermost bristle height, said anterior head intermediate bristles in each row of anterior head intermediate bristles being a mirror image of the corresponding anterior head intermediate bristles in the other row.

5,065,471

ANTIFREEZE SELF-SPRAYING AND -WARMING WINDSHIELD WIPER

Sylvain Laplante, 180, 37E Avenue, App. 2, P.O. Box 476, Quebec Saint-Zotique, Canada J0P 1Z0

Filed Nov. 9, 1990, Ser. No. 610,961
Int. Cl.[5] B60S *1/46, 1/38*
U.S. Cl. 15—250.04 **3 Claims**

1. A wiping member for sweepingly cleaningly engaging a windshield pane of an automobile and for use with power means which laterally displace said wiping member over said windshield in a cyclic back and forth movement, said wiping member including:

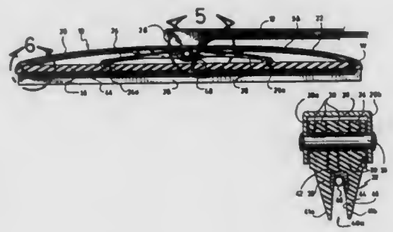
(a) an elongated bead, to cooperate with said power means;

(b) an elongated blade, integrally dependent from said bead and defining two transversely spaced lips forming a lengthwise first channel therebetween, said first channel being generally U-shape in cross-section and defining a first flooring, merging with said bead and interconnecting said lips, the free end tips of said blade lips defining therebetween a first mouth opposite said first flooring, said lips being resilient for bendingly yieldingly engaging said windshield transversely at their tips;

(c) an elongated, thermally conductive casing, being of generally U-shape in cross-section and enclosed within said first channel and directly contacting in operative position said lips and said first flooring, said casing defining two side legs and a second flooring interconnecting said side legs thereof, a second elongated channel defined between said casing side legs, a second mouth defined by said second channel between the tips of said casing side legs opposite said second flooring, said second mouth extending short of said first mouth whereby said second channel opens into said first channel through said second mouth;

(d) heat generation means attached to said casing for heating said casing;

(e) first securing means, to fixedly secure said casing within said first channel in its said operative position;



(f) a fluid pipe, enclosed within said second channel and directly contacting in operative position said second flooring and side legs; said pipe to be force fed with a heat-vector fluid, said pipe including a number of radial through-bores for through passage of said force-fed fluid from said pipe transversely radially outwardly therefrom; said radial through-bores being in register with said second mouth to open therethrough, into said first channel, for fluid escape therefrom through said blademouth toward said windshield; and

(g) second securing means, to fixedly secure said fluid pipe within said second channel in its said operative position; wherein said casing and said fluid pipe extend for substantially all the length of said wiping blade; said bead, blade and pipe are each made from a heat-conducting material; wherein upon energizing of said heat-generating means said casing and subsequently, said fluid pipe, blade and bead are concurrently warmed, for wiping member use in sub-freezing climates.

5,065,472

SPRING LOADED BRAKE ASSEMBLY FOR INDEXING SOOTBLOWER

Steven P. Carpenter; James C. Cavinee, and James J. Krannitz, all of Lancaster, Ohio, assignors to The Babcock & Wilcox Co., New Orleans, La.

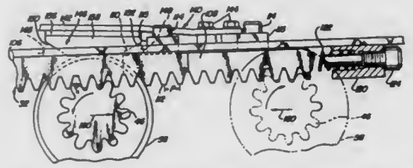
Filed Jan. 24, 1991, Ser. No. 645,220
Int. Cl.[5] F23J *3/02*
U.S. Cl. 15—317 **12 Claims**

1. A brake assembly for impeding longitudinal movement of a sootblower carriage being propelled along a line of travel by a driving force generated by a motor, said brake assembly comprising:

a frame fixed relative to said sootblower carriage;

an engagement block having an engagement surface; and

deflectable biasing means secured to said frame for biasing said engagement block into said line of travel of said sootblower carriage, said engagement block being mounted to said biasing means so as to orient said engagement surface for contact with said sootblower carriage, said biasing means coacting with said engagement block and said engagement surface so as to impede longitudinal movement of said sootblower carriage thereby increasing said driving force generated by said motor to an amount



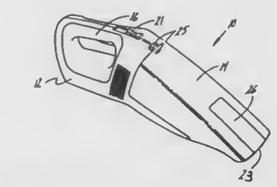
wherein said sootblower carriage causes deflection of said engagement block in a direction counter to said biasing means and out of said line of travel thereby allowing said sootblower carriage to continue longitudinal movement along said line of travel.

5,065,473

FILTER ASSEMBLY FOR A VACUUM CLEANER

Charles Z. Krasznai, Trumbull, and Richard B. Kosten, West Haven, both of Conn., assignors to Black & Decker Inc., Newark, Del.

Division of Ser. No. 294,619, Jan. 9, 1989, Pat. No. 4,967,443. This application Jun. 14, 1990, Ser. No. 601,550
Int. Cl.[5] A47L *5/24*
U.S. Cl. 15—339 **7 Claims**



1. A vacuum cleaner comprising:

a motor;

a housing enclosing said motor;

a fan driven by said motor for producing a vacuum;

a canister formed from a material that is given physical characteristics that render the canister generally opaque, said canister being removably attached to a front end of said housing for reception of foreign matter, and air driven into said canister in response to the vacuum developed by said fan; and

means for visually determining the amount of foreign matter within said canister, said means comprising a window on an upper surface of said canister, said window being formed integrally of said material with said canister, said material of said window being given physical characteristics that render said window generally transparent.

5,065,474

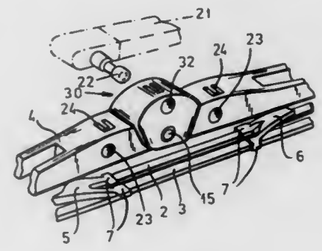
MULTIPLE POSITION ADAPTER FOR MOUNTING WIPER-BLADE ASSEMBLY ON WIPER ARM

Cedric S. K. Charng, Taipei, Taiwan, assignor to China Wiper Special Rubber Co., Ltd., Taiwan

Filed Jun. 22, 1990, Ser. No. 543,134
Int. Cl.[5] B60S *1/40*
U.S. Cl. 15—250.32 **4 Claims**

1. An adapter for mounting a blade assembly on an elongated wiper arm, the blade assembly having a transversely throughgoing blade hole and generally planar and parallel flat top and bottom surfaces symmetrically flanking an axis of the blade hole, the arm having a transversely projecting arm pivot pin, the adpater comprising:

a U-section adapter body embracing the blade assembly at the blade hole and formed with a transverse adapter-body hole through which the pin is engageable and with a pair of side walls that flank the blade assembly at the blade hole, the body being shaped to fit in one position against



the top surface and in another position against the bottom surface of the blade assembly, the side walls engaging over the blade hole in both positions;

latch means for releasably retaining the pin in the adapter-body hole in both positions; and

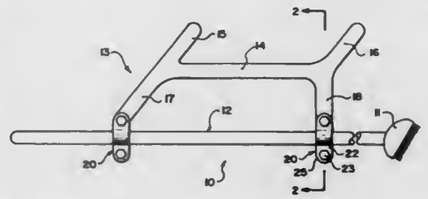
mounting means for securing the side walls of the adaptor body to the blade assembly in both positions of the adaptor body on the assembly.

5,065,475

HANDLE ATTACHMENT FOR AN IMPLEMENT HAVING AN ELONGATE HANDLE SHAFT

Allan Watt, 11 Morton Bay, Winnipeg, Manitoba, Canada R3R 2C5

Filed Aug. 9, 1990, Ser. No. 564,574
Int. Cl.[5] A01B *1/22*; B25G *3/00*
U.S. Cl. 16—114 R **3 Claims**



1. A hand operated implement comprising an elongate handle shaft, an implement head on the remote end of the handle shaft and a hand grasping section mounted on the shaft so as to project outwardly to one side of the shaft, the hand grasping section comprising a first hand grip portion defined by an elongate bar substantially parallel to the handle shaft and extending along part of the length of the shaft, coupling means mounting the first hand grip portion on the handle shaft, a second hand grip portion mounted on the first hand grip portion adjacent one end thereof and extending outwardly therefrom in a direction extending away from the handle shaft and inclined relative to the first hand grip portion at an acute angle relative to a line extending along the first hand grip portion

VOL 1132 ISS 3 NOV 19 1991 UMI

toward the implement head, and a third hand grip portion mounted on the first hand grip portion adjacent an opposed end thereof and extending outwardly therefrom in a direction away from the handle shaft and substantially parallel to the second hand grip portion, the hand grasping section lying substantially in an axial plane of the handle shaft arranged to stand upwardly from the handle shaft when the implement head is in operating position on the ground, each of said second and third hand grip portions consisting solely of a substantially cylindrical body having one end connected to said first hand grip portion and an opposed end at which said each hand grip portion terminates such that said each hand grip portion can receive a hand of the user only gripped around the body.

5,065,476

HANDLE ARRANGEMENT FOR A HANDHELD PORTABLE TOOL

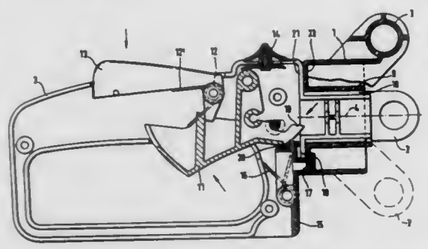
Hans-Peter Dohse, Rommelshausen, and Jochen Kramer, Stuttgart, both of Fed. Rep. of Germany, assignors to Andreas Stihl, Waiblingen, Fed. Rep. of Germany

Filed Aug. 23, 1990, Ser. No. 571,291

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1989, 3929881; Jul. 4, 1990, 4021277

Int. Cl.[5] B27B *17/02*

U.S. Cl. 16—114 R **16 Claims**



1. A rearward handle arrangement for a handheld portable tool having a motor housing holding a motor and a forward handle fixedly attached to the housing so as to permit two-handed operation of the tool by an operator, the tool defining a horizontal axis and the rearward handle arrangement comprising:

a carrier part for attaching the rearward handle arrangement to the housing of the tool;

a rearward handle;

journalling means for rotatably journalling said rearward handle in said carrier part so as to permit said rearward handle to rotate about said axis relative to said carrier part and said forward handle;

said carrier part and said rearward handle conjointly defining an interface; and,

unlatchable detent means disposed at said interface for self-latching said rearward handle to said carrier part at any one of a plurality of predetermined angular positions about said axis and corresponding to respective work positions in which the tool can be held by the operator.

5,065,477

CALENDAR ROLLERS WITH ROUNDED TEETH FOR CRIMPING SLIVER AND INCREASING COHENSION LENGTH

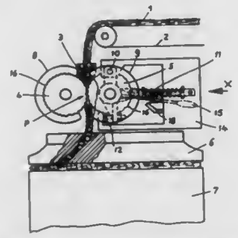
Hansulrich Eichengerger, and Heinz Clement, both of Winterthur, Switzerland, assignors to Rieter Machine Works, Ltd., Winterthur, Switzerland

Filed Sep. 20, 1989, Ser. No. 410,312

Claims priority, application Switzerland, Sep. 23, 1988, 03540/88

Int. Cl.[5] D01G *27/00*

U.S. Cl. 19—150 **13 Claims**



1. A device for increasing the cohesion length of sliver, said device comprising

a pair of parallel calendar rollers disposed in spaced relation to a gap therebetween, each said roller having a plurality of transversely disposed protuberances thereon for inter-engaging in spaced relation with said protuberances of the other of said rollers to slightly crimp a sliver passing through said gap to increase the cohesion of length of the sliver; and

means for spring biasing at least one of said rollers towards the other of said rollers, each said protuberance being of tooth-like cross-section with rounded edges and a pair of flanks, each flank defining an angle with a radius of said respective roller passing through a center of said protuberance of greater than 45°.

5,065,478

PROCESS AND DEVICE FOR THE RECEPTION OF MINERAL FIBERS

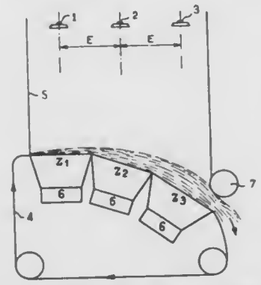
Hans Furtak, Speyer am Rhein, Fed. Rep. of Germany; Wilfrid Naber, Rantigny, and Raymond Lejeune, Rouen both of France, assignors to Isover Saint-Gobain, Courbevoie, France

Filed Jun. 29, 1990, Ser. No. 545,606

Claims priority, application European Pat. Off., Jun. 29, 1989, 89401864.7

Int. Cl.[5] D01G *25/00*; B27N *3/04*; B29C *43/22*

U.S. Cl. 19—296 **13 Claims**



1. Process for receiving and separating fibers and gases produced by multiple fibering machines to obtain a mat of mineral wool, said process comprising the steps of:

collecting the fibers by suction of the gases, wherein each fibering machine comprises its own collecting zone; and

evacuating the collected fibers from the collecting zone through at least one conveyor belt common to several collecting zones, wherein said collecting zones comprise surfaces which increase in a direction of an increase in base weight on said conveyor belts;

wherein said evacuating step comprises the step of:

evacuating the fibers by two component conveyor belts, wherein the surfaces of the collecting zones increase in a direction of a final forming place of a common belt;

wherein each of said collecting zones comprise portions of said conveyor belts, a partial vacuum exerted on the fibers is the same for all of said collecting zones, the path of the conveyor belts is convex, and the increase of the surfaces of the collecting zones is obtained by a modification of an angle of inclination vertical to the collecting surface relative to an axis of rotation of the fibering machine joined to the collecting surface.

5,065,479

VENTURI-TYPE CONVEYOR FOR FIBER LAYING IN NONWOVEN MATERIAL PRODUCTION

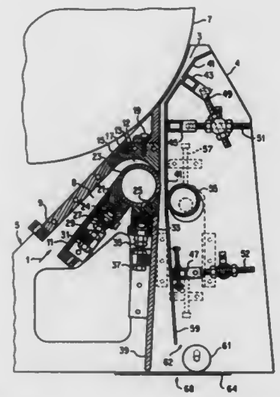
Clandio Governale, Via Venezia, 44, 35100 - Padova, Italy

Filed Apr. 6, 1990, Ser. No. 505,128

Claims priority, application Italy, Apr. 6, 1989, 41564 A/89

Int. Cl.[5] D01G *15/46*

U.S. Cl. 19—303 **10 Claims**



1. A device for producing fibrous non-woven structures, comprising:

a first Venturi-type duct conveying an air flow over the lateral surface of a carding cylinder to remove fibers from the lateral surface of said carding cylinder and to convey the fibers to a mobile forming surface for said non-woven structures;

a second duct connected to the first duct at a position downstream of the point where fiber is removed from the lateral surface of the carding cylinder, wherein a flow of compressed air is fed through said second duct to create in the first duct the air flow removing the fibers; and

an adjusting member to adjust the outlet section of said second duct where the second duct is connected to the first duct.

5,065,480

FASTENING AND ADJUSTING DEVICE, PARTICULARLY FOR SKI BOOTS

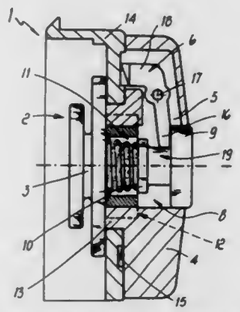
Giuseppe De Bortoli, Montebelluna, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed May 7, 1990, Ser. No. 519,576

Claims priority, application Italy, May 15, 1989, 82541 A/89

Int. Cl.[5] A43C *11/00*

U.S. Cl. 24—68 SK **4 Claims**



1. Fastening and adjusting device, particularly for ski boots, comprising at least one winder for at least one traction element and a skier accessible knob, said knob being connected to said at least one winder, said knob having a first seat for a temporary locking element for locking to a body which is rigidly connectable to said boot, said knob and winder having a second seat and a third seat respectively for a releasing means of said knob from said body and for a resilient member, said releasing means comprising a pushbutton at one end partially protruding outside said knob and at another end interacting with said resilient member located at said third seat formed in said winder and communicating with said second seat formed in said knob, said winder being constituted by a spool having one or more annular races for said at least one traction element, said at least one traction element comprising a cable, said knob being substantially circular, said temporary locking element being a pawl which is arranged in said first seat of said knob, said first seat being substantially L-shaped, wherein said pawl is substantially L-shaped and has a bigger first wing hinged by means of a pivot inside said first seat at a junction with a smaller second wing, and wherein said first wing has an end located at a groove formed on said pushbutton, said body being provided with an annular toothing which faces said knob, said second wing being forced to interact with the annular toothing of said body by means of said resilient member.

5,065,481

CLAMPING DEVICE FOR A SKI BOOT

Klaus Walkhoff, Kreuzlingen, Switzerland, assignor to Raichle Sportschuh AG, Kreuzlingen, Switzerland

Filed Sep. 24, 1990, Ser. No. 588,442

Claims priority, application Switzerland, Sep. 26, 1989, 03483/89

Int. Cl.[5] A43C *11/00*

U.S. Cl. 24—68 SK **10 Claims**

1. A clamping device for a ski boot comprising:

a clamping element;

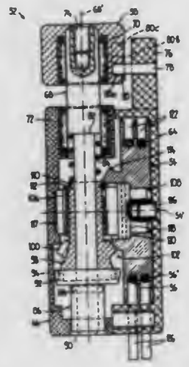
a rotatably mounted winding-up element for the winding-up and unwinding of said clamping element;

an actuating element pivotable to and fro within a working pivot range for the intermittent driving of the winding-up element in the winding-up direction;

a take-up connection rotatable in the winding-up direction for connecting said actuating element to a transmission member;

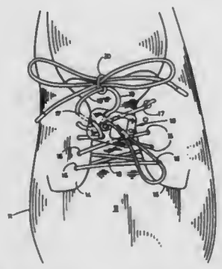
VOL 1132 ISS 3 NOV 19 1991 UMI

a return catch device for preventing said transmission member from rotating oppositely to the winding-up direction;
a coupling for connecting the transmission member to the winding-up element and controllable as a result of the displacement of the transmission member;
said transmission member being displaceable as a result of a pivoting of the actuating member for the purpose of releasing the coupling;



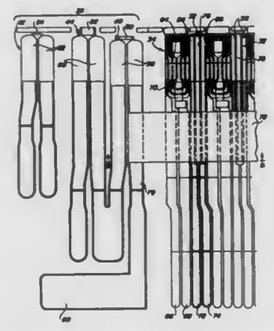
a slotted control;
said actuating element during the pivoting out of the working pivot range oppositely to the winding-up direction, is movable by said slotted control in the direction of its pivot axis; and
said transmission member being displaceable as a result of this movement oppositely to the winding-up direction for the release of the coupling.

5,065,482
SECURING APPARATUS
Stephen J. Lofy, 2928 21st St., Bakersfield, Calif. 93301
Filed Aug. 20, 1990, Ser. No. 569,623
Int. Cl.[5] A43C *7/00*
U.S. Cl. 24—712.1 8 Claims



1. A securing apparatus for drawing a pair of work objects toward each other in interoperation with a first line borne by at least one of said work objects, the apparatus comprising a second line having means for attachment to the other of said work objects; and a substantially ridged plate having a first set of holes through which the first line can be extended while attached at other portions to said first and second work objects and a second set of holes extending through the plate through which the second line is extended in sliding movement therethrough to permit said work objects to be drawn toward each other and in such a manner as to dispose a section of the second line beneath said plate in overlaying relation to another portion of the second line to impart sufficient resistance substantially to prevent movement of the second line relative to the plate thus retaining the work objects substantially in the positions relative to each other they are at the time said drawing of the second line is terminated.

5,065,483
METHOD OF LAPPING MAGNETIC RECORDING HEADS
Robert P. Zammit, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.
Filed Feb. 19, 1991, Ser. No. 656,666
Int. Cl.[5] G11B *5/42*
U.S. Cl. 29—603 10 Claims



1. A method of making a thin film magnetic head comprising the steps of:
forming at least one thin film magnetic head element on a substrate, the head including at least one magneto-resistive read element;
forming finish lapping guides on the substrate, one at each side of said at least one thin film magnetic head element;
forming resistive lapping guides on the substrate, one adjacent to each of said finish lapping guides;
lapping said substrate and said at least one magneto-resistive read element and said finish lapping guides;
stopping the lapping when the electrical resistance of the finish lapping guides, Rf, equals the formula;

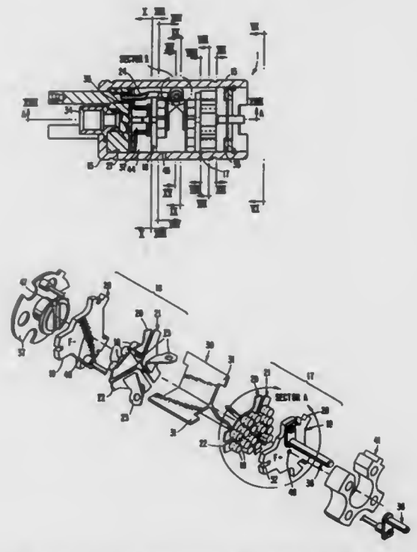
$$Rf = \frac{Hr}{Hf}(Rr - R1) + R1$$

where
Hr is the height dimension of the resistive lapping guide as initially formed,
Rr is the electrical resistance of the resistive lapping guide as initially formed,
Hf is the final height dimension of the finished lapping guide as required, and,

$$R1 = \frac{Hr\,Rr - Hi\,Ri}{Hr - Hi}$$

where
Hi is the height dimension of the finish lapping guide as formed, and
Ri is the electrical resistance of finish lapping guide as formed.

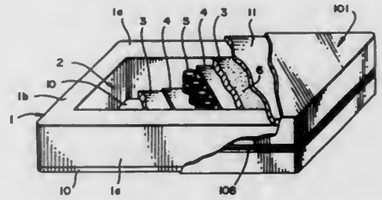
5,065,484
ROTATING RECTIFIER ASSEMBLY
Gordon A. Pinchott, Rockford, Ill., assignor to Sundstrand Corporation, Rockford, Ill.
Division of Ser. No. 338,037, Apr. 14, 1989, Pat. No. 4,959,707.
This application Feb. 7, 1990, Ser. No. 476,344
Int. Cl.[5] H01L *21/58*
U.S. Cl. 29—25.02 3 Claims



3. In a method of assembling a rotating rectifier assembly comprising axially loading components of the rectifier assembly which are arranged within a tubular housing of the housing of the assembly, the improvement comprising supporting diode semiconductor devices of the rotating rectifier assembly within the housing and in relation to other components of the rectifier assembly so that the diode semiconductor devices are not compressed by said axial loading of the other components whereby compressive stresses on the diode semiconductor devices due to the axial loading of the component are avoided, further comprising the step of flowing a liquid coolant through said rectifier assembly for cooling said diode semiconductor devices, and wherein gas which is centrifugally separated from the liquid during rotation of the rectifier assembly is permitted to escape from the rectifier assembly through passage means located along the axis of rotation of the rectifier assembly.

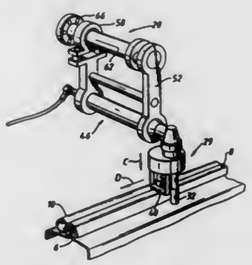
5,065,485
ENCLOSED INNERSPRING MATTRESS COVER AND PROCESS FOR ASSEMBLING SAME
George Zocco, 1345 Burlington Rd., Virginia Beach, Va. 23464
Filed Feb. 15, 1990, Ser. No. 480,315
Int. Cl.[5] B68G *7/00*
U.S. Cl. 29—91.1 7 Claims

1. A process for manufacturing a mattress device having an innerspring member having a top and bottom surface, an endless compressible frame member having a top surface and a bottom surface and an inside and an outside, a bottom panel member having a top surface and a bottom surface, and a top panel member having a top surface and a bottom surface, first and second fastening means, first and second border fabrics, and first and second cover fabrics, comprising the steps of:
attaching the first fastening means to a first edge of the first border fabric then attaching a second edge of said first border fabric to the first cover fabric;
attaching the second fastening means to a first edge of the second border fabric then attaching a second edge of said second border fabric to the second cover fabric;
permanently securing the top said bottom panel member to the bottom of said compressible frame member, wherein said compressible frame member comprises a compressible foam material;
positioning the bottom panel member and frame member inside said first border fabric and on top of said first cover fabric;
then positioning said innerspring member inside of said compressible frame member and on top of said compressible frame member;
then securing said first and second fastening means enclosing



said top panel member, said bottom panel member, and said compressible frame with a covering means;
wherein the top of said innerspring member and the top of said bottom panel member are each upwardly directed during said step of positioning said innerspring member inside of said compressible frame member and on top of said panel member;
wherein in the top of said bottom panel member and the top of said compressible frame member are each upwardly directed during said step of securing the top of said bottom panel member to the bottom of said compressible frame member;
wherein the tops of said bottom panel member, said top panel member, said compressible frame member and said innerspring member are all upwardly directed during said step of securing the bottom of said top panel member to the top of said compressible frame member.

5,065,486
APPARATUS FOR FITTING FLEXIBLE STRIPS
Dieter Goedderz, Erkelenz, Fed. Rep. of Germany, assignor to Draftex Industries Limited, Edinburgh, Scotland
Filed Oct. 22, 1990, Ser. No. 601,878
Claims priority, application United Kingdom, Nov. 8, 1989, 8925206
Int. Cl.[5] B23P *21/00*
U.S. Cl. 29—235 24 Claims

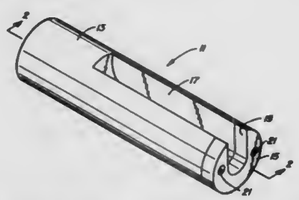


1. A tool for fitting a length of channel-shaped strip onto a mounting flange or the like, comprising

VOL 1132 ISS 3 NO 19 1991 UMI

a body portion,
strip engaging means carried by the body portion for engaging the outside surface of the strip when on the mounting flange and which includes at least one rotatable roller contacting the said surface of the strip,
support means for supporting the body portion,
motor means carried by the body portion for rotating the roller and thereby frictionally driving the body portion and the strip engaging means along the length of the strip on the flange, and
mounting means permitting relative angular movement between the body portion and the support means at a curve or bend in the flange, the relative angular movement being about an axis which is transverse to an spaced from the direction of extension of the flange.

5,065,487
OIL PUMP INSTALLATION TOOL
Cecil Yother, 1740 Timothy Dr., San Leandro, Calif. 94577
Filed Sep. 19, 1988, Ser. No. 245,697
Int. Cl.[5] B25B *27/14*
U.S. Cl. 29—275 3 Claims



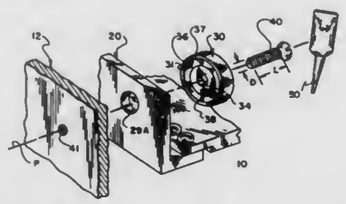
1. An oil pump pickup tube installation tool comprising
a driver portion having a slot formed in one end thereof and extending for only a portion of the length of said driver, and
an end plate with the same peripheral configuration as said driver portion made of hardened metal removably secured to the slotted end of said driver and having a U-shaped notch formed therein and aligned with said slot.

5,065,488
TANDEM AXLE TRAILER PIN EXTRACTER DEVICE
Richard L. Chapman, 411 Kelley, P.O. Box 124, Waverly, Kans. 66871, and Lewis E. Barb, 1029 Janice, Emporia, Kans. 66801
Filed Mar. 21, 1990, Ser. No. 496,855
Int. Cl.[5] B25P *27/14*
U.S. Cl. 29—278 1 Claim



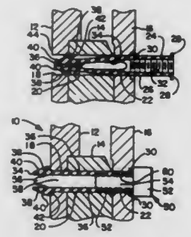
1. A portable, self-contained device for unattended extraction of lodged pins when repositioning a trailer body relative to tandem axles therebeneath, comprising;
(a) an elongate cylindrically-shaped body comprising a pair of diametrically opposed slots longitudinally disposed in sides thereof; each said slot having a non-biasing end near a base of aid body and a biasing end near the distal end of said body, said slots having a transverse, diametrically opposed extension at the biasing ends thereof;
(b) an engagement mechanism comprising a pair of hook-shaped sides; said hook-shaped sides rigidly displaced from each other at a distance which is slightly greater than the outside diameter of the body;
(c) a first sleeve and a second sleeve, each having an outside diameter which is slightly smaller than the inside diameter of said body; each said sleeve slidably secured within said body;
(d) a pair of alignment pins, each of which passes through said diametrically opposing slots, diametrically through said first sleeve, and through both hook-shaped sides, rigidly securing said hook-shaped sides to said first sleeve; said alignment pins slidably restrained to movement along said slots;
(e) a cocking mechanism comprising a pair of handles; said handles rigidly displaced from each other at a distance which is slightly greater than the outside diameter of the body; said handles substantially co-axially aligned with each other;
(f) a biasing pin which passes through said diametrically opposing slots, diametrically through said second sleeve, and rigidly secured to an end of each of said pair of handles, said biasing pin rigidly securing said handles to said second sleeve; said biasing pin slidably restrained to movement along said slots and said extensions thereof;
(g) a tension spring having an outside diameter which is smaller than the inside diameter of said body; said spring contained within said body; said spring having a first end secured to one of said alignment pins and a second end secured to said biasing pin; said spring having a spring constant sufficient to overcome a spring-loading of said pins when said pins are not lodged;
(h) said engagement mechanism having a first position whereat one of said alignment pins abuts the non-biasing ends of said slots and a second position, which is assumed by said engagement mechanism when secured to a release handle linked to extracted pins of the tandem axle trailer; and
(i) said cocking mechanism having a first position whereat said engagement mechanism is substantially in its first position and a second position whereat said biasing pin has been rotated into said slot extensions and whereat said spring applies a force while said engagement mechanism moves from its said first position to its said second position, said force greater than that required to overcome a spring-loading of said pins when said pins are not lodged and to extract them from their locking position.

5,065,489
APPARATUS FOR ALIGNING AND MOUNTING MACHINE COMPONENTS
Charles E. Mullen, Spencerport, and Arthur H. Crater, Warsaw, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Jul. 28, 1988, Ser. No. 225,498
Int. Cl.[5] B25B *27/14*; F16B *39/02*
U.S. Cl. 29—281.5 2 Claims



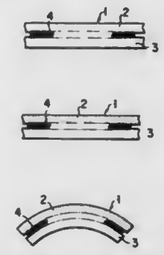
1. An aligning member suitable for use in a method of aligning and mounting machine components such that the components can be removed, serviced and simply remounted without further need for realignment, the aligning member including:
a. first and second sides with generally flat surfaces suitable for mounting against a mounting portion of the machine component or against a bracket carrying the component;
b. a mounting hole that is formed through the aligning member from said first side through to said second side for mounting the aligning member to a machine component support frame using a mounting screw or similar fastener;
c. a recess in said first side suitable for forming a cavity with a surface against which the aligning member is mounted; and
d. at least two perforations within said recess providing communication between said first side and said second side.

5,065,490
THREADED INSERT FOR REPAIRING A NUCLEAR ASSEMBLY
Adrian P. Wivagg, Tolland, and Kenneth A. Martin, Windsor, both of Conn., assignors to Combustion Engineering, Inc., Windsor, Conn.
Filed May 31, 1990, Ser. No. 531,219
Int. Cl.[5] B23P *6/00*
U.S. Cl. 29—402.17 3 Claims



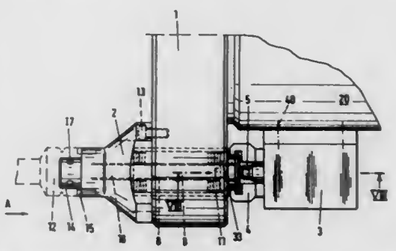
1. A method of repairing a nuclear power facility metal component assembly with a fastening between hard metal parts comprising the steps of:
providing aligned non-cylindrically shaped openings in a plurality of hard metal parts to be assembled;
pushing into said openings an elongated hollow threaded bolt insert having a portion of cross-section complementarily shaped to that of the openings, said insert having a stop means, a shank and work retaining tabs;
said stop means including work engaging means to limit travel of the insert in the pushing direction;
said shank of said insert including internal insert threads adjacent said stop means and longitudinal slots defining flexing fingers which include said work retaining tabs on the ends thereof remote from said stop means;
said work retaining tabs including cam means on the outer surface portions thereof to flex said fingers inwardly during pushing and work engaging shoulders for engagement with the hard metal part remote from the stop means in the exposed marginal area surrounding the aligned opening of that remote part when said fingers are flexed outwardly with said tabs clear of the aligned openings;
providing a bolt with a torquing head, a shank with a leading end and adjacent pilot portion and a threaded portion between the pilot portion and the torquing head;
inserting said bolt into said hollow threaded bolt insert through the insert end adjacent said stop means, leading bolt end and pilot portion first, thereby to move and hold said flexing fingers in position with said work retaining tabs' work engaging shoulders in engagement with the hard metal part remote from the stop means;
torquing said bolt in said insert threads to fasten said hard metal parts together;
said shoulders being a distance from the stop means less than the combined length of the aligned openings of the metal parts such that in performing the step of torquing said bolt in said insert threads to fasten said hard metal parts together, the bolt head does not advance into contact with said insert.

5,065,491
METHOD FOR PRODUCING CURVED SLIDE FASTENER CHAINS AND METHOD FOR PRODUCING CURVED SLIDE FASTENERS
Shigeki Takada, Kurobe, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan
Filed Oct. 12, 1989, Ser. No. 420,359
Claims priority, application Japan, Oct. 14, 1988, 63-257300
Int. Cl.[5] B21D *53/50*
U.S. Cl. 29—408 9 Claims



1. A method of producing curved slide fastener chains, consisting of the steps of: planting a plurality of fastener elements along respective edges opposite to each other of a pair of fastener tapes, at least one of which tapes is made of solvent-swelling fibers; inter-engaging the plurality of fastener elements on the respective tapes with each other thereby forming a fastener chain; applying a solvent onto said at least one of said pair of fastener tapes made of solvent-swelling fibers, thereby causing said at least one of said pair of fastener tapes to swell and form at least one solvent-swelled tape; subsequently shaping this fastener chain into a desired curved configuration by selectively lengthening at least a portion of said at least one solvent-swelled tape with respect to an opposite portion of the respective opposite tape thereby forming a curved fastener chain; and thereafter sewing the curved fastener chain onto a texture.

5,065,492
METHOD OF AND ASSEMBLY FOR RELEASABLY CONNECTING A TOOL HEAD TO A TOOL BASE HOLDER OF A TOOL TURRET MACHINE TOOL
Rainer Von Haas, Geestnacht, and Hans Tack, Velberg, both of Fed. Rep. of Germany, assignors to Krupp Widia GmbH, Essen, Fed. Rep. of Germany
Filed Sep. 29, 1989, Ser. No. 414,898
Claims priority, application Fed. Rep. of Germany, Oct. 1, 1988, 3833511
Int. Cl.[5] B23B *29/04*
U.S. Cl. 29—426.6 13 Claims

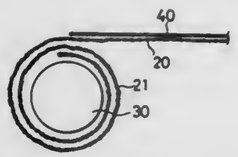


1. A method of operating a tool-mounting assembly for a machine tool in which said assembly comprises:

VOL 1132 ISS 3 NO 19 1991 UMI

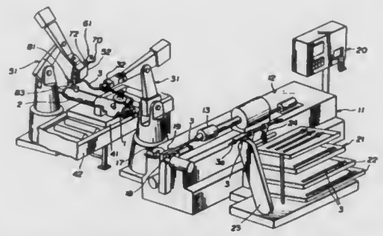
a tool head adapted to be releasably received in said assembly;
a tool turret;
a tool base holder mounted on said tool turret releasably receiving said tool head and formed with a mechanism engageable with said tool head for retaining said tool head on said tool base holder, said tool base holder being formed with a tool shaft having a shoulder at an end opposite an end of said tool base holder receiving said tool head and being rotatable on said tool turret into a position in which said shoulder is engaged by a pair of jaws; and
a tension rod displaceable axially relative to said tool base holder and operatively connected with said mechanism for actuating same to selectively retain and release said tool head; and
a disk-spring stack bearing upon said rod for applying stress thereto to bias said rod into a position in which said mechanism retains said tool head on said tool base holder,
said method comprising the steps of:
(a) pressing said rod in a direction opposite the direction in which said rod is biased by said disk-spring stack with a force sufficient to overcome the force applied by said disk-spring stack to said rod to operate said mechanism to release said tool head;
(b) simultaneously with step (a) applying to said tool base holder an external counterforce substantially equal to said force sufficient to overcome the force applied by said disk-spring stack to said rod in said direction in which said rod is biased, thereby relieving said tool turret from tool release forces, said force being sufficient to overcome the force applied by said disk-spring stack to said rod and being applied to an end face of said rod passing through said shaft by a piston rod of a piston displaceable in a cylinder movable in a direction opposite said piston by fluid pressurization of said cylinder and operatively connected with said jaws adapted to exert said counterforce and located in a fixed position relative to a rotatable casing of said tool turret; and
(c) removing said tool head from said tool base holder.

5,065,493
METHOD OF MAKING A SPHERICAL SEALING BODY USED FOR EXHAUST PIPE JOINT
Kazuo Ozora, Fujisawa, Japan, assignor to Oiles Corporation, Tokyo, Japan
Division of Ser. No. 430,363, Nov. 2, 1989. This application Mar. 25, 1991, Ser. No. 674,190
Int. Cl.[5] B21D *39/00*; B23P *11/00*; B32B *31/04*; F16L *19/02*
U.S. Cl. 29—505 **6 Claims**



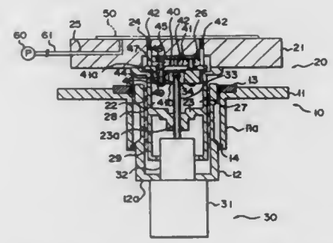
1. A method of manufacturing a spherical sealing body which is to be inserted in a space defined by an end edge portion of a first section of an exhaust pipe, a flange fixed on an outer periphery of said first section of said exhaust pipe, and a concave spherical portion disposed on an end edge of a second section of said exhaust pipe downstream from said first section, comprising the steps of;
preparing a wire mesh by weaving or knitting a fine metal wire;
winding said wire mesh in at least two turns about a cylinder to thereby form a partial cylindrical part;
placing a refractory material sheet, wider than said wire mesh, over a part of said wire mesh extending from said partial cylindrical part such that said wider refractory material sheet projects from one side of said wire mesh;
winding about said partial cylindrical part said part of said wire mesh having said refractory material sheet thereon, to thereby form a preform body with said refractory material sheet projecting from said one side of said wire mesh and therefore from one end of said partial cylindrical part; and
compressing said preform body from an outer circumferential side of said preform body and also from said one end of said partial cylindrical part to thereby form said spherical sealing body having said refractory material sheet filled in meshes and clearances of said wire mesh at said circumferential side of said preform body and having said projecting refractory material sheet compressed over said one end of said partial cylindrical part and filled in said meshes and clearances of said wire mesh at said one end of said partial cylindrical part.

5,065,494
METHOD OF SECURING FASTENER
Yasuhiro Ebihara, Fujisawa; Hiroyuki Sakaniwa, Kawasaki, and Hiroshi Saito, Yokohama, all of Japan, assignors to Nissan Motor Company, Ltd., Japan
Division of Ser. No. 329,222, Mar. 27, 1989, Pat. No. 4,967,472. This application Jun. 6, 1990, Ser. No. 534,616
Claims priority, application Japan, Mar. 28, 1988, 63-71781
Int. Cl.[5] B23P *19/06*
U.S. Cl. 29—525.2 **5 Claims**



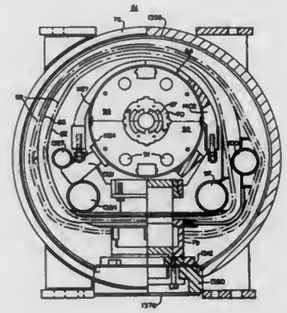
1. A method of tightening a tapped member, comprising the steps of:
coupling first coupling means with the tapped member;
rotating said first coupling means in a first rotational direction to tighten the tapped member to a first predetermined torque when said first coupling means couples with the tapped member;
rotating said first coupling means in a second rotational direction opposite to said first rotational direction after said first coupling means being disengaged from the tapped member and after having tightened the tapped member to said first predetermined torque until said first coupling means takes a predetermined position;
detecting an angle of rotation of said first coupling means in said second rotational direction until said predetermined position and generating a rotational angle indicative signal indicative of said detected angle of rotation;
coupling second coupling means with the tapped member in response to said rotational angle indicative signal; and
rotating said second coupling means in said first rotational direction to tighten the tapped member firmly to a second predetermined torque that is greater than said first predetermined torque.

5,065,495
METHOD FOR HOLDING A PLATE-LIKE MEMBER
Masaki Narushima, and Itaru Takao, both of Yamanashi, Japan, assignors to Tokyo Electron Limited, Tokyo, Japan
Division of Ser. No. 281,224, Dec. 8, 1988, Pat. No. 4,955,590. This application Jun. 8, 1990, Ser. No. 534,258
Claims priority, application Japan, Jun. 10, 1987, 62-144926
Int. Cl.[5] B25B *11/00*
U.S. Cl. 29—559 **2 Claims**



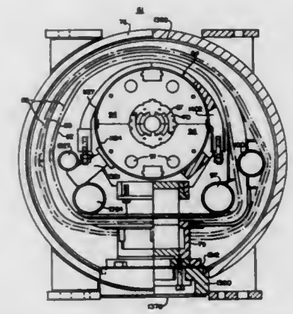
1. A receiving method for receiving a plate-like member in a receiving apparatus having a vertically movable table member and at least three pins which project and retract upon vertical movement of said table member, comprising the steps of:
moving said table member downward to cause said pins to project from said table member;
placing said plate-like member on said pins; and
moving said table member upward to conceal said pins under said table member, thereby receiving said plate-like member on said table member.

5,065,496
PROCESS FOR MAKING A SUPERCONDUCTING MAGNET COIL ASSEMBLY FOR PARTICLE ACCELERATORS
Andrew J. Jarabak, Pittsburgh; Wallace H. Sunderman, McCandless Twp., Allegheny County; Edward G. Mendola, Fallowfield Twp., Washington County, and Ralph W. Kalkbrenner, Hempfield Twp., Westmoreland County, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Division of Ser. No. 360,192, Jun. 1, 1989. This application Oct. 30, 1990, Ser. No. 605,864
Int. Cl.[5] H01L *39/24*
U.S. Cl. 29—599 **12 Claims**



1. A method of assembling a superconducting dipole magnet, the method comprising the steps of:
providing a cold mass assembly comprised of a collared superconducting coil subassembly, rigidly secured within a shell assembly;
providing a first generally cylindrical heat shield adapted to receive the cold mass assembly therein;
providing a second generally cylindrical heat shield adapted to receive the first heat shield therein;
providing a vacuum vessel adapted to receive the second heat shield; and
placing the cold mass assembly within the first heat shield, the first heat shield with the cold mass assembly therein within the second heat shield, and the second heat shield with the first heat shield and cold mass assembly therein within the vacuum vessel, whereby a superconducting magnet is assembled.

5,065,497
APPARATUS FOR MAKING A SUPERCONDUCTING MAGNET FOR PARTICLE ACCELERATORS
Andrew J. Jarabak, Pittsburgh; Wallace H. Sunderman, McCandless Township, Allegheny County; Edward G. Mendola, Fallowfield Township, Washington County, and Ralph W. Kalkbrenner, Hempfield Township, Westmoreland County, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.
Division of Ser. No. 360,192, Jun. 1, 1989. This application Oct. 30, 1990, Ser. No. 605,809
Int. Cl.[5] H01F *41/02*
U.S. Cl. 29—564.7 **16 Claims**



1. Apparatus for assembling a superconducting magnet, said apparatus comprising:
means for winding a coil of superconducting material;
means for pressing and curing said coil made of superconducting material;
means for assembling a collaring assembly to secure the superconducting coil about a tubular member;
means for forming and pressing a collared coil for the superconducting magnet;
means for constructing a yoke assembly for the superconducting material; and
means for assembling a cold mass for the superconducting magnet.

5,065,498
MULTIPLE BIT POWER DRILL
Archibald M. McKenzie, 212 Hiawatha Dr., West Vancouver, B.C., Canada V7P 1E1
Filed Apr. 5, 1990, Ser. No. 505,675
Int. Cl.[5] B23Q *3/157*
U.S. Cl. 29—568 **16 Claims**

1. A multiple bit power drill comprising:
a) a housing;
b) a cylindrical magazine mounted in said housing for rotation about a longitudinal axis, said magazine provided with an array of parallel longitudinal bores open at either end thereof;
c) a plurality of drill bit elements, each said bit element being

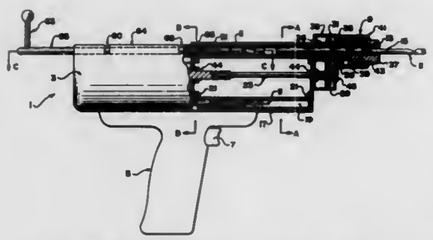
VOL 1132 ISS 3 NO 19 1991 UMI

removably located in one of said bores, each said bit element having a drill bit at one end and a surface perpendicular to the length of the bit at the opposite end, and an annular groove formed in the bit element transversely to the length of the bit adjacent the opposite end;

c) a chuck assembly having a central bore for receiving a drill bit element and means for releasably securing said bit element in said assembly;

d) motor means for rotating said chuck assembly; and

e) means for ejecting one of said drill bit elements from a bore and inserting said bit element into said bore in said chuck assembly, said ejection means being movable between a first rearward position withdrawn from said magazine and in which said magazine is free to rotate, to a second forward position in which said ejection means extends through one of said bores in said magazine to push a bit element out of said bore, said ejection means comprising a surface for contacting the end surface of said bit



element and a hook element which is adapted to pass freely through said groove of said bit element in the direction transverse to the length of said bit element when said ejection means is in said first position, and to bear against the rearward surface of said groove of said bit element when said ejection means is moved from said second position to said first position;

wherein said housing comprises a bit guiding means fixed to said housing and adapted to extend into said grooves of said drill bit elements when said drill bit elements are located in said bores, said guiding means provided with an aperture in the vicinity of said ejection means to allow passage of said ejection means through said guiding means, whereby said groove of a bit element is engaged by said guiding means when said magazine is rotated to guide said bit element into a position wherein said hook element of said ejection means is located in said groove when said bit element is adjacent said aperture and said ejection means is in said first position.

5,065,499

APPARATUS FOR MAKING ELECTRIC MOTOR PARTS EMPLOYING PALLET WITH REMOVABLE WORKPIECE HOLDER

Santandrea Luciano, and Lombardi Massimo, both of Florence, Italy, assignors to Axis S.p.A., Florence, Italy

Division of Ser. No. 326,012, Mar. 20, 1989, Pat. No. 4,965,924.
This application Oct. 1, 1990, Ser. No. 591,272
Claims priority, application Italy, Dec. 16, 1988, 68113 A/88
Int. Cl.[5] B23D *19/00*
U.S. Cl. 29—799 **8 Claims**

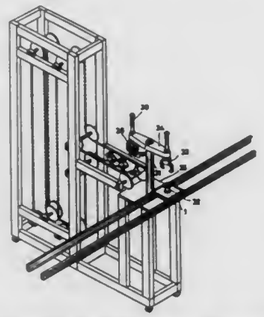
1. Apparatus for supporting any one of a plurality of differently configured workpieces during work on said one of said workpieces comprising:

a pallet member;

storage means for storing a plurality of said workpiece holders;

means disposed on said pallet for releasably engaging any of said workpiece holders at the pallet-engaging site of the engaged workpiece holder so that the engaged workpiece holder can hold a workpiece at its workpiece-engaging site;

means for selectively operating said means for releasably engaging to release a workpiece holder from said pallet;



means for removing the released workpiece holder from said pallet and storing it in said storage means; and

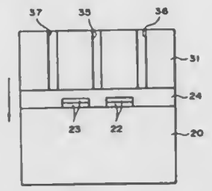
means for removing a workpiece holder from said storage means and positioning it on said pallet for engagement by said means for releasably engaging.

5,065,500

METHOD OF MANUFACTURING A MAGNETIC HEAD ASSEMBLY INCLUDING A MAGNETIC RECORDING MEDIUM SLIDE SURFACE HAVING GROOVES FORMED THEREON

Kou Yoneda, Machida, and Takeshi Sawada, Yamato, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 284,816, Dec. 14, 1988, abandoned, which is a continuation of Ser. No. 901,779, Aug. 29, 1986, abandoned. This application Jun. 12, 1990, Ser. No. 537,143
Claims priority, application Japan, Sep. 5, 1985, 60-194930
Int. Cl.[5] G11B *5/42*
U.S. Cl. 29—603 **4 Claims**



1. A method of manufacturing a magnetic head assembly, said method comprising the steps of:

preparing a base plate having a sliding surface on which a magnetic recording medium slides and a joining surface substantially perpendicular to the sliding surface;

forming a magnetic core on the joining surface of the base plate, the magnetic core including a pair of magnetic thin films having a magnetic gap therebetween;

preparing a reinforcing member having a sliding surface on which the magnetic recording medium slides and a joining surface substantially perpendicular to the sliding surface of the reinforcing member;

forming a plurality of grooves on the sliding surface of the reinforcing member, the plurality of grooves extending in a direction substantially parallel to the direction in which the magnetic recording medium slides;

aligning the sliding surface of the base plate with the sliding surface of the reinforcing member and arranging the magnetic core between the joining surface of the base plate and the joining surface of the reinforcing member; and

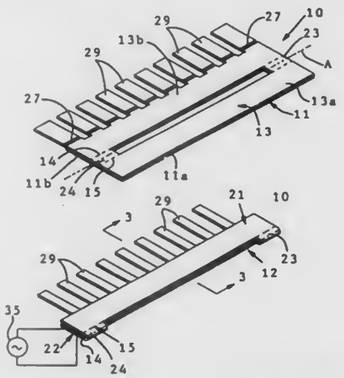
joining, subsequent to the step of forming the plurality of grooves on the sliding surface of the reinforcing member, the base plate, having the joining surface on which the magnetic core has been formed, to the reinforcing member, having the sliding surface on which the plurality of grooves have been previously formed.

5,065,501

GENERATING ELECTROMAGNETIC FIELDS IN A SELF REGULATING TEMPERATURE HEATER BY POSITIONING OF A CURRENT RETURN BUS

Homer E. Henschen, Carlisle; Michael J. McKee, New Cumberland, and Joseph M. Pawlikowski, Lancaster, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 277,170, Nov. 29, 1988, Pat. No. 4,990,736.
This application Oct. 31, 1990, Ser. No. 606,253
Int. Cl.[5] H05B *3/00*
U.S. Cl. 29—611 **9 Claims**



6. A method for fabricating a self-regulating heater of the type that is energized by an alternating current having a known frequency, said method comprising the steps of:

(a) fixedly disposing a magnetic material surface layer on at least a portion of a surface of a non-magnetic, electrically-conductive substrate, said magnetic material having a substantially higher resistance than said substrate, said surface layer having a depth corresponding approximately to one skin depth of said magnetic material at said known frequency;

(b) defining a slot through the entire thickness of said substrate with at least one fold section joining first and second heater sections; and

(c) folding the substrate through the at least one fold section and slot such that the first and second heater sections are closely spaced and substantially parallel and in which said surface of said first heater section faces said surface of said second heater section.

5,065,502

METHOD FOR MODIFYING ELECTRICAL PERFORMANCE CHARACTERISTICS OF CIRCUIT PATHS ON CIRCUIT PANELS

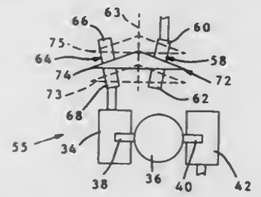
Philip A. Amante, Pelham, N.H., assignor to Lucas Duralith Art Corporation, Millville, N.J.

Filed Sep. 30, 1988, Ser. No. 252,192
Int. Cl.[5] H01C *17/06*
U.S. Cl. 29—620 **9 Claims**

9. A method of sequentially printing an electrical component onto a substrate, said electrical component having an electrical characteristic, said method comprising the steps of:

printing a pair of conductive path elements on said substrate;

printing a third conductive path element at one of a location and an orientation with respect to said pair of conductive path elements, where, at said one of a location and orientation, said three conductive path elements have an electrical characteristic;



measuring said electrical characteristic of said three conductive path elements;

comparing said measured characteristic with a desired electrical characteristic; and

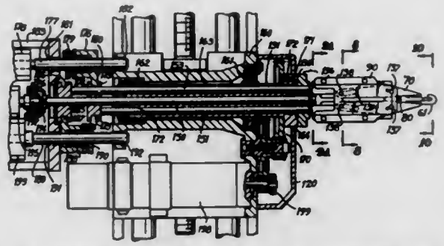
adjusting at least one of said location and said orientation for subsequent third consecutive path element printing steps such that the measured characteristics in subsequent electrical components is a function of said desired electrical characteristic.

5,065,503

APPARATUS FOR CONNECTING STATOR COIL LEADS

Sabatino Luciani, and Antonio Lumini, both of Florene, Italy, assignors to Axis, U.S.A., Inc., Marlborough, Mass.

Filed Aug. 1, 1990, Ser. No. 561,965
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—735 **20 Claims**



1. Apparatus for connecting a lead wire extending from a coil portion wound on a stator pole of a stator core to at least one of a plurality of terminal means located on a stator terminal board affixed to said stator core, each one of said plurality of terminal means having a different location and angular orientation on said stator terminal board, said apparatus comprising:

a. a wire handling device for grasping and removing said lead wire from a temporary anchoring gripper;

b. means for translating and rotating said wire handling device to dispose said lead wire along a complex path so that said lead wire is aligned with and partially engaged in any one of said terminal means;

c. means for fully engaging said lead wire with said terminal means; and

d. means for severing said lead wire at a point beyond the engagement of said lead wire with said terminal means, whereby said lead wire is connected to said terminal means.

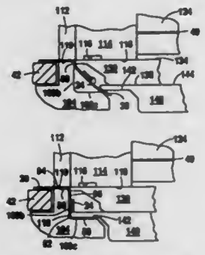
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,504

METHOD OF FORMING FLEXIBLE METAL LEADS ON INTEGRATED CIRCUITS

Michael A. Olla, Austin, Tex., assignor to Microelectronics and Computer Technology Corporation, Austin, Tex.

Filed Nov. 5, 1990, Ser. No. 608,769
Int. Cl.[5] H01R *43/00*; B23P *25/00*
U.S. Cl. 29—827 20 Claims



1. A method of forming a plurality of flexible metal leads connected to an integrated circuit chip which extend beyond the outer periphery of the chip and terminate at outer lead ends, comprising:

aligning a first portion of the leads between the top of a lead form anvil and the bottom of a clamp, wherein the first portion begins at a first end adjacent to the chip outer periphery and ends at a second end between the chip outer periphery and the outer lead ends,

actuating the clamp toward the anvil to releasably secure the second end of the first portion of the leads between the clamp and the anvil,

actuating a first punch toward the leads so that the first punch contacts the second ends of the first portion of the leads and bends the leads at a first lead corner toward the anvil,

actuating a second punch toward the leads so that an abutment on the second punch contacts the leads at or near the first lead corners and releasably secures the leads against the anvil,

actuating a third punch toward the leads after the second punch releasably secures the leads so that an abutment on the third punch contacts the leads between the first lead corners and the outer lead ends and forces the leads toward the anvil, the bottom of the leads slide against the anvil, and the top of the leads slide against the abutment on the third punch,

continuing to actuate the third punch so that a second corner of the leads is releasably secured between the abutment on the third punch and a corner of the anvil, thereby forming a second portion of the leads with a first end at the first lead corner and a second end at the second lead corner, and a third portion of the leads with a first end at the second lead corner and a second end at the outer lead ends, and

retracting the clamp, first punch, second punch and third punch so that the leads are released, thereby slide forming the leads.

20. An apparatus for forming a plurality of flexible metal leads connected to an integrated circuit chip which extend beyond the outer periphery of the chip and terminate at outer lead ends, comprising:

means for aligning a first portion of the leads between the top of a lead form anvil and the bottom of a clamp, wherein the first portion begins at a first end adjacent to the chip outer periphery and ends at a second end between the chip outer periphery and the outer lead ends,

means for actuating the clamp toward the anvil to releasably secure the second end of the first portion of the leads between the clamp and the anvil,

means for actuating a first punch toward the leads so that the first punch contacts the second ends of the first portion of the leads and bends the leads at a first lead corner toward the anvil,

means for actuating a second punch toward the leads so that an abutment on the second punch contacts the leads at or near the first lead corners and releasably secures the leads against the anvil,

means for actuating a third punch toward the leads after the second punch releasably secures the leads so that an abutment on the third punch contacts the leads between the first lead corners and the outer lead ends and forces the leads toward the anvil, the bottom of the leads slide against the anvil, and the top of the leads slide against the abutment on the third punch,

means for continuing to actuate the third punch so that a second corner of the leads is releasably secured between the abutment on the third punch and a corner of the anvil, thereby forming a second portion of the leads with a first end at the first lead corner and a second end at the second lead corner, and a third portion of the leads with a first end at the second lead corner and a second end at the outer lead ends, and

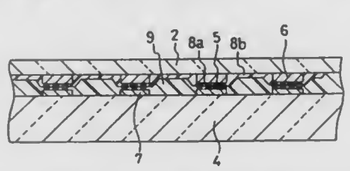
means for retracting the clamp, first punch, second punch and third punch so that the leads are released, thereby slide forming the leads.

5,065,505

METHOD FOR CONNECTING CIRCUIT BOARDS

Hiroshi Matsubara, and Takashi Nukii, both of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 10, 1990, Ser. No. 595,086
Claims priority, application Japan, Oct. 17, 1989, 1-271072
Int. Cl.[5] H05K *3/36*
U.S. Cl. 29—830 10 Claims



1. In a method for connecting circuit boards in which a first circuit board having a first surface comprising first electrodes and first residual regions on which said first electrodes are not formed is superposed on a second circuit board having a second surface comprising second electrodes and second residual regions on which said second electrodes are not formed wherein said second electrodes are formed in positions corresponding to the first electrodes so that the first and second electrodes are electrically connected with each other, the method comprising:

a first step of applying a photocuring adhesive on the first electrodes and the first residual regions;

a second step of irradiating light through the first circuit board from a surface opposite the first surface so as to cure the photocuring adhesive on the first residual regions of the first circuit board while leaving uncured the photocuring adhesive on the first electrodes;

a third step of adhering particles which are conductive at least on their outer peripheral surfaces to the first electrodes by means of the uncured photocuring adhesive; and

a fourth step of superposing the first circuit board to which the particles are adhered on the second circuit board to electrically connect the first and second electrodes with each other through the particles,

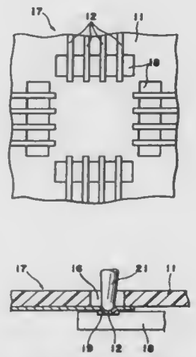
provided that the first electrodes are opaque and the first circuit board is light-transmissive.

5,065,506

METHOD OF MANUFACTURING CIRCUIT BOARD

Shoji Kiribayashi, Nara, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Oct. 1, 1990, Ser. No. 590,790
Claims priority, application Japan, Oct. 5, 1989, 1-261693
Int. Cl.[5] H05K *3/30*
U.S. Cl. 29—632 4 Claims



1. A method of manufacturing a circuit board mounted with an LSI chip, comprising the steps of:

providing an electric conductor on one surface of an electrically insulating substrate made of flexible synthetic resin;

selectively irradiating onto the other surface of the substrate a laser beam having a temperature for sublimating at least the substrate so as to form an opening on the substrate;

providing the LSI chip on the one surface of the substrate at a location corresponding to the opening and the electric conductor; and

electrically connecting the LSI chip and the electric conductor by using an ultrasonic head from the other surface of the substrate through the opening.

5,065,507

METHOD FOR INSTALLING BEARINGS ON ENGINE COMPONENTS

Takehisa Wakamori, Hidaka; Takashi Ogawa, Kurume; Ryoji Ito, Kawagoe, and Chikafumi Shimanaka, Sayama, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 915,275, Oct. 3, 1986, Pat. No. 4,872,257.
This application Jun. 28, 1989, Ser. No. 372,610
Claims priority, application Japan, Oct. 4, 1985, 60-222568; Oct. 7, 1985, 60-224204; Oct. 7, 1985, 60-224205; Oct. 9, 1985, 60-225831; Oct. 16, 1985, 60-158134[U]; Dec. 2, 1985, 60-271152; Dec. 2, 1985, 60-271153; Dec. 27, 1985, 60-295778
Int. Cl.[5] B23Q *17/00*
U.S. Cl. 29—888.01 6 Claims

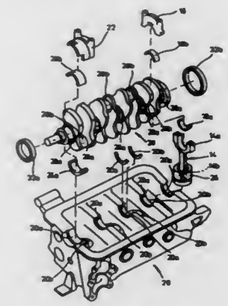
1. A method for assembling a bearing including first and second substantially semicylindrically shaped members in an internal combustion engine comprising engine components of connecting rods, connecting rod caps, a crankshaft and cylinder block, said engine components and said first and second substantially semicylindrically shaped members having variable dimensions, comprising the steps of:

reading out dimensional data marked on the engine components wherein a bearing having first and second substantially semicylindrically shaped members are to be installed, wherein said step of reading out dimensional data comprises:

reading data in the form of bar code marks marked on the engine component; providing the bar code marks on the engine component at intervals dependent on the number of the bar code marks; measuring a time interval required from the time to start to read the bar code marks until the first bar code mark is read and a time interval required until adjacent bar code marks are read; and determining whether the number of the bar code marks is correctly read by comparing said time interval with a reference time established according to the number of the bar code marks;

memorizing said dimensional data read out in said reading out step;

selecting said first and second members corresponding to said engine components on the basis of the correctly read bar code marks on the engine component and the memorized dimensional data;



positioning said first substantially semicyclindrically shaped member to be installed in a connecting rod such that a convex side thereof is downwardly oriented, and positioning said second substantially semicylindrically shaped member to be installed in a connecting rod cap such that a convex side thereof is upwardly oriented; and

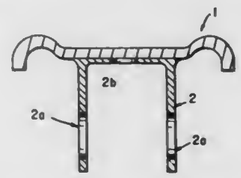
installing said first substantially semicylindrically shaped member on said connecting rod, said connecting rod being assembled together with said cylinder block, such that the convex side of said first substantially semicylindrically shaped member is downwardly positioned on said connecting rod, and installing said second substantially semicylindrically shaped member in said connecting rod cap such that the convex side thereof is upwardly positioned in said connecting rod cap.

5,065,508

TWO-PIECE PISTON AND METHOD OF MANUFACTURING THE SAME

Gustavo F. Lorento; José A. C. Mendes, both of São Paulo, Brazil, and João A. D. Cullen, Ann Arbor, Mich., assignors to Metal Leve S.A. Industria E Comercio, São Paulo, Brazil

Filed Oct. 19, 1989, Ser. No. 423,119
Claims priority, application Brazil, Oct. 26, 1988, 8805716
Int. Cl.[5] B23P *15/10*
U.S. Cl. 29—888.042 9 Claims



1. A method for manufacturing a two-piece piston for internal combustion engines, including a head having dependent

VOL 1132 ISS 3 NO 19 1991 UMI

therefrom a pair of pin bosses for bearing a piston wrist pin, and a skirt portion, comprising the steps of:

forming a top portion comprising a circular upper plate and a substantially cylindrical leg depending from a periphery of said plate, said circular plate having an outer face and an inner face;

forming a U-shaped pin boss portion, said boss portion including a base having ends and a pair of arms respectively connected at opposite ends of said base, said arms having holes for a wrist pin, the distance between said arms being less than the diameter of said top portion;

positioning the base of said boss portion within said cylindrical leg;

welding said base to said inner face of said top portion; and

machining at least a portion of said substantially cylindrical leg and said wrist pin holes.

5,065,509

METHOD OF SECURING A BLADE FOR A TORQUE CONVERTER

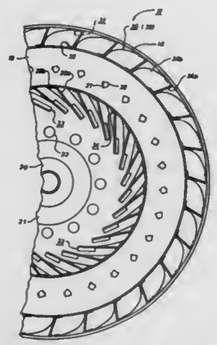
Masayoshi Sahashi, Neyagawa, Japan, assignor to Kabushiki Kaisha Daikin Seisakusho, Osaka, Japan

Division of Ser. No. 408,338, Sep. 18, 1989. This application Aug. 10, 1990, Ser. No. 565,089

Claims priority, application Japan, Sep. 29, 1988, 63-127660

Int. Cl.[5] F16D *33/00*

U.S. Cl. 29—889.21 **1 Claim**



1. A method for securing blades to a shell and a core ring for use in a torque converter, said shell and said core ring having slits spaced in aligned radial rows on said shell and said core ring, said aligned radial rows being equally spaced in a circumferential direction therearound and extending therethrough for receiving tabs at the opposite edges of said blades positioned and secured therebetween, said shell having a concave inner surface and said core ring having a convex outer surface for contact with opposite outer and inner edges, respectively, of said blades, the steps comprising:

forming a plurality of blades, each blade having a convex outer edge conforming to said concave inner surface of said shell and a concave inner edge conforming to said convex outer surface of said core ring, a plurality of tabs extending outwardly from said outer and inner edges for insertion through said slits in said shell and said core, respectively, and outwardly extending ribs at the opposite ends of said convex outer edge and said concave inner edge of said blades, said ribs at the opposite ends of said convex outer edge of said blades extending in an opposite direction from said ribs at the opposite ends of said concave inner edge of said blades, each of said ribs on said convex outer edge of each of said blades having a convex outer surface aligned with said convex outer edge of said each of said blades and each of said ribs on said concave inner edge of each of said blades having a concave inner surface aligned with said concave inner edge of said each of said blades;

positioning said blades, one blade after the other, in said shell with said convex outer edge of said blade and said aligned convex outer surface of said ribs in contact with said concave inner surface of said shell and said tabs on said convex outer blade edge extending through said slits in a circumferentially spaced, aligned radial row of said aligned radial rows, bending the projecting ends of said tabs extending through said slits into contact with an outer surface of said sheli, and continuing said positioning, said contacting and said bending of said tab projections until all of said aligned radial rows of slits to receive blades have been filled;

positioning said convex outer surface of said core ring on said concave inner edge of said blades positioned in said shell with said projections on said inner edges of said blades extending through said slits in said core ring and said concave inner edges of said blades and said concave inner surfaces of said ribs at the opposite ends of said blades in contact with said convex outer surface of said core ring, and bending the projecting ends of said tabs extending through said slits into contact with an inner surface of said core ring; and

brazing said blades, with said ribs, to said shell and said core ring.

5,065,510

METHOD FOR THE MANUFACTURE OF A LIGHT METAL VEHICLE WHEEL

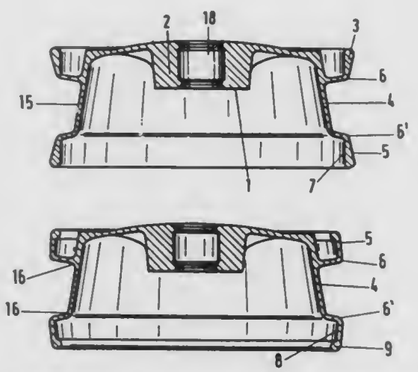
Friedrich Ostermann, Meckenheim-merl; Hans-Heinrich Plath, Niederk-Mondorf, and Winfried Griep, Bonn, all of Fed. Rep. of Germany, assignors to Vereinigte Aluminium-Werke Aktiengesellschaft, Bonn, Fed. Rep. of Germany

Filed Sep. 30, 1988, Ser. No. 252,434

Claims priority, application Fed. Rep. of Germany, Oct. 2, 1987, 3733348

Int. Cl.[5] B21B *1/02*; B21K *1/32*

U.S. Cl. 29—894.324 **12 Claims**



1. A method for manufacturing a wheel comprising the steps of:

pushing radially inward a club-shaped thickened portion of a rim so that as the club-shaped thickened portion extends axially outward to terminate at an outer end, the club-shaped thickened portion inclines radially inward, the club-shaped thickened portion having an outer surface formed as a tread for use during a flat; and

undercutting a portion of the radially inner surface of the club-shaped thickened portion next to the outer end of the rim so as to form the outer end into a rim horn that is thicker than said portion that is undercut and extends further inward radially than does said portion that is undercut.

5,065,511

METHOD OF MOUNTING SAW-TOOTH WIRES ONTO A ROLLER FOR TEXTILE MACHINES

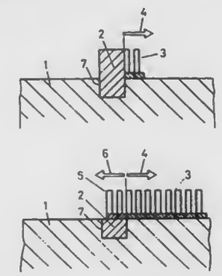
Ralph Graf, Freienbach, Switzerland, assignor to Graf & Cie AG, Rapperswil, Switzerland

Filed Apr. 5, 1991, Ser. No. 681,182

Claims priority, application Switzerland, Jun. 26, 1990, 2128/90

Int. Cl.[5] B21H *1/14*

U.S. Cl. 29—895.211 **6 Claims**



1. A method of mounting saw-tooth wires onto a roller for textile machines which is to be equipped with a card clothing, comprising the steps

of providing a roller having a smooth surface;

of mounting a guide member onto the roller along a circumferential area located distant from both ends thereof;

of placing an end of at least one first saw-tooth wire section against one side of said guide member and connecting it thereto;

of winding said at least one first saw-tooth wire section onto a first part of said roller adjacent the mentioned side of the guide member to which said first saw-tooth wire section has been connected to, which winding is performed such that at least a section of the first turn of the winding is guided by said guide member and any subsequent turn of the winding is guided by at least a portion of a respective preceding turn thereof;

of removing said guide member at least partially and of connecting an end of at least one second saw-tooth wire section to at least one section of said first turn of the respective first saw-tooth wire section;

of winding said at least one second saw-tooth wire section around a second, as yet not wound section of said roller, which winding is performed such that at least a section of the first turn of the winding of said second saw-tooth wire section is guide by at least a section of the first turn of said first saw-tooth wire section and any subsequent turn of the winding of said second saw-tooth wire section is guided by at least a portion of a respective preceding turn thereof.

5,065,512

METHOD OF MAKING A BEARING FOR SPINDLES OF SPINNING OR TWISTING MACHINES

Hans Stahlecker, Süssen, Fed. Rep. of Germany, assignor to Fritz Stahlecker, Fed. Rep. of Germany, a part interest

Continuation of Ser. No. 365,716, Jun. 14, 1989, abandoned. This application Nov. 7, 1989, Ser. No. 432,844

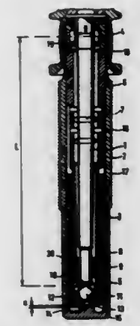
Int. Cl.[5] B23P *11/00*; B21K *1/04*

U.S. Cl. 29—898.09 **12 Claims**

1. A process for manufacturing a bearing for spindles of spinning of twisting machines, said bearing including a spindle bearing housing, a bolster contained in the spindle bearing housing and surrounding a bolster bearing for engagably supporting a spindle shaft at its circumference, a step pivot bearing for engagably supporting an end of a spindle shaft, a centering tube fastened to the spindle bearing housing in proximity to the bolster and including means for holding the step pivot bearing, said centering tube having interior surfaces, and a step bearing sleeve having interior and exterior surfaces, said sleeve is held in the centering tube and serving to radially locate a section of a spindle adjacent its end supported at the step pivot bearing, said process comprising:

mounting the step bearing sleeve in the centering tube, and subsequently adjusting radial step bearing play of the step bearing sleeve with respect to a spindle to be supported thereat while the step bearing sleeve is mounted in the centering tube by machining radially interior surfaces of the step bearing sleeve,

whereby tolerance deviations at the centering tube and mounting tolerances for the step bearing sleeve at the centering tube do not adversely affect the step bearing play adjustment while permitting economical manufacture of the bearing.



5,065,513

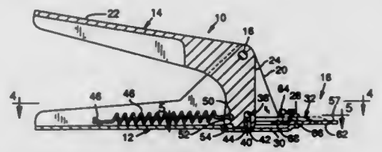
ARTIFICIAL FINGERNAIL CLIPPER

Gary J. Reiswig, 17190 SW. 131st, Tigard, Oreg. 97224

Filed Sep. 20, 1990, Ser. No. 585,484

Int. Cl.[5] A45D *29/02*

U.S. Cl. 30—29 **9 Claims**



1. A fingernail clipper comprising:

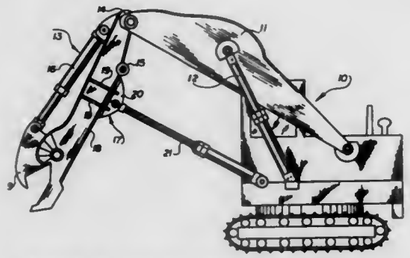
a cutting end including a stationary nail holder having an aperture therein for receiving a fingernail, a cutting blade slidably disposed against and above the nail holder, the cutting blade having a rear end and a cutting edge, and a blade mounting member which extends past the cutting blade and is secured to the nail holder; and

an operating mechanism including a stationary handle extending rearwardly from the cutting end and a pivotable handle pivotally mounted to the stationary handle, the pivotable handle having a pushing edge in direct contact with the cutting blade such that upon pivoting of the pivotable handle in a cutting direction, the pushing edge urges the cutting blade forward over the aperture in the nail holder to effect cutting of the fingernail, an upward force being exerted on the rear end of the cutting blade by the pivotable handle upon pivoting the pivotable handle in

VOL 1132 ISS 3 NO 19 1991 UMI

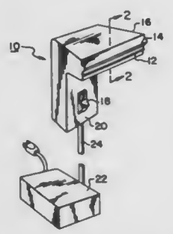
the cutting direction, the force increasing as the pivotable handle pivots in the cutting direction.

5,065,514
ATTACHMENT FOR METAL DEMOLITION SHEARS
Sol N. Gross, North Versailles, Pa., assignor to Ace Demolition Incorporated, N. Versailles, Pa.
Filed Sep. 25, 1990, Ser. No. 587,412
Int. Cl.[5] B26B *1/00*
U.S. Cl. 30—134 8 Claims



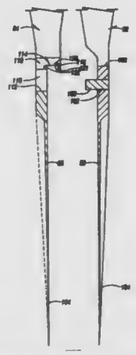
1. An attachment means for attaching a heavy duty shear to a shovel front end loader, said shear having a lower surface and two substantially parallel sides, said shear further having a forward end and a rearward end, said attachment means having means for securely fastening said attachment means to the lower surface of said heavy duty shear, said attachment means including two substantially parallel side brackets having substantially similarly sized holes line bored therethrough for receiving a cylinder pin for providing pivotal attachment of said attachment means to a lower hydraulic cylinder from said front end loader, such that said lower cylinder can raise and lower said shear, said attachment means adapted to be positioned between said rearward end and said forward end of said heavy duty shear on the lower surface of said heavy duty shear.

5,065,515
THERMALLY ASSISTED SHAVING SYSTEM
Richard A. Jderosa, West Haven, Conn., assignor to Warner-Lambert Company, Morris Plains, N.J.
Filed Jan. 24, 1991, Ser. No. 647,162
Int. Cl.[5] A61B *17/00*; B26B *1/00*
U.S. Cl. 30—140 17 Claims



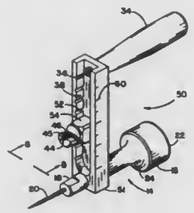
1. A device for shaving hair, which comprises:
a housing;
a blade mounted on said housing, said blade having a linear cutting edge projecting from said housing for cutting said hair; and
a heating means mounted on said housing, said heating means having an elongated edge projecting from said housing and disposed substantially parallel to said blade cutting edge for heating said hair prior to cutting of said hair by said cutting edge.

5,065,516
DISASSEMBLABLE SCISSORS MEANS
David H. Dulebohn, Tonka Bay, Minn., assignor to Andrew Tool Company, Plymouth, Minn.
Continuation-in-part of Ser. No. 49,109, May 11, 1987, abandoned. This application Nov. 6, 1989, Ser. No. 433,019
Int. Cl.[5] B26B *13/00*
U.S. Cl. 30—245 5 Claims



5. A disassemblable scissors means comprising:
a pair of opposing, pivoted arms having scissors blades and opposed handles on opposite sides of a pivot point;
a pivot means associated with the arms forming the pivot point, the pivot means allowing releasable assembly of the arms;
a retaining means associated with the arms for disallowing separation of the arms when assembled unless the arms are pivoted with respect to one another to at least an approximate perpendicular orientation;
said retaining means comprising a male member which is a portion of one arm, and a female member which is a portion of the other arm; and
said male member comprising a uniform thickness and a width which is at least equal to other portions of said one arm, and said female member is a slot through which said male member is movably retained.

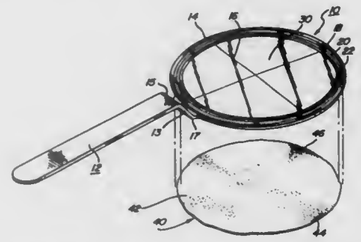
5,065,517
CIRCLE CUTTER
Robby M. Markes, 2344 Bountiful Way, Shingle Springs, Calif. 95682
Filed Dec. 11, 1989, Ser. No. 448,554
Int. Cl.[5] B26B *3/08*
U.S. Cl. 30—300 9 Claims



1. A circle cutting hand tool comprising, in combination:

a. an elongate body having a pivoting end and an arc-traveling end;
b. an awl, perpendicular to said body at its pivoting end;
c. a crank handle, parallel to said awl and perpendicular to said body at said body's arc-traveling end;
d. a channel along a substantial length of said body, said channel having a series of regularly-spaced depressions along a wall thereof; and,
e. cutting means disposed in a channel between said body's ends, said cutting means having a detent ball projecting therefrom for engaging said depressions in said wall of said channel.

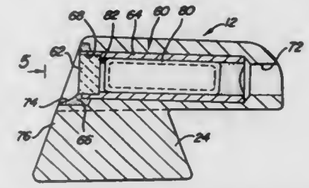
5,065,518
FOOD PRODUCT MEASURING DEVICE
Michael L. Herrera, 676 Albona, Pomona, Calif. 91768
Filed Aug. 21, 1990, Ser. No. 570,334
Int. Cl.[5] G01B *3/14*
U.S. Cl. 33—1 BB 2 Claims



1. An apparatus for visually determining whether a tortilla is properly sized, comprising:
a planar disc member, at least an annular portion of the planar member being transparent;
means for delineating a minimum tortilla size line and a maximum tortilla size line on the transparent annular portion, the minimum tortilla size line and the maximum tortilla size line corresponding to a predetermined range of acceptable tortilla size;
handle means for supporting said planar disc member over said tortilla whereby a user may visually determine whether or not the tortilla is within the predetermined range of acceptable tortilla size by visually confirming that the outer edge of the tortilla is visible between the minimum tortilla size line and the maximum tortilla size line of the transparent annular portion;
a central portion of the planar disc member radially inward of the minimum tortilla size line being translucent whereby a central portion of the tortilla is visible and a user may inspect the surface of the tortilla therethrough; and
indicia that divide the central portion of the planar disc member into a plurality of sectors.

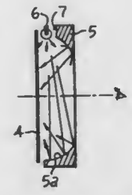
5,065,519
IRON SIGHT WITH ILLUMINATED PATTERN
Glyn A. J. Bindon, Farmington Hills, Mich., assignor to Trijicon, Inc., Farmington Hills, Mich.
Filed May 23, 1990, Ser. No. 527,271
Int. Cl.[5] F41G *1/32*
U.S. Cl. 33—241 15 Claims

1. An iron sight for a hand weapon comprising:
a sight blade adaptable to be located on the weapon and having a first side adapted to be viewed by the operator in sighting the weapon,
a bore located in said sight blade at said first side,
a self luminous capsule located in said bore in said sight blade for providing night sighting and having a generally circular light transmitting end, a counterbore located concentrically with said bore at said first side and defining with said capsule a ring having
generally precise inside and outside diameters surrounding



said capsule and said light transmitting end and defining a predetermined radial width, a substantially white material located within and generally filling said ring to define a white ring to provide improved day sighting.

5,065,520
RETICULE DEVICE FOR A FIRE SIGHTING SCOPE
Fumio Shimizu, Minamiminowamura; Yasutoshi Nishikubo, Shiojiri, and Tadaharu Naito, Suwa, all of Japan, assignors to Kabushiki Kaisha Light Kohki Seisakusho, Suwa, Japan
Filed Jun. 28, 1990, Ser. No. 545,924
Claims priority, application Japan, Jul. 31, 1989, 1-089246[U]
Int. Cl.[5] F41G *1/32*
U.S. Cl. 33—241 8 Claims



1. A reticle device for sighting scope, comprising
a scale,
a light source mounted in a vicinity of a peripheral edge of said scale, and
a reflection frame formed in the shape of a ring and mounted with respect to said scale and light source such that light emanating from said light source illuminates a side of said scale facing an eyepiece by reflecting off a surface of said reflection frame,
wherein said scale, light source, and reflection frame are mounted with respect to one another such that light emanating from said light source illuminates the side of said scale facing the eyepiece both directly and by reflecting off the frame surface.

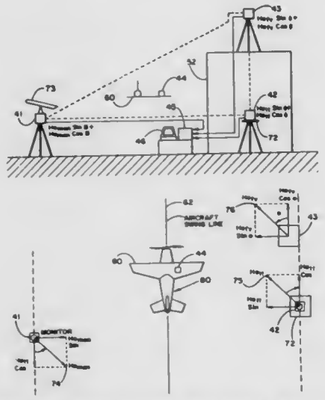
5,065,521
MAGNETIC FIELD MEASUREMENT AND COMPASS CALIBRATION IN AREAS OF MAGNETIC DISTURBANCE
John L. Waldrop, and Clarence B. Glover, both of Albuquerque, N. Mex., assignors to Honeywell Inc., Minneapolis, Minn.
Filed Aug. 1, 1990, Ser. No. 561,151
Int. Cl.[5] G01C *17/38*
U.S. Cl. 33—361 10 Claims

1. A flux valve based magnetic field measurement and compass calibration apparatus, wherein the flux valve includes a current servo interface, an x axis, a y axis, an A leg, a B leg, and a C leg, each leg having a coil, and a flux valve location, comprising:
(a) a monitor flux valve having a means for axial alignment,

VOL 1132 ISS 3 NO 19 1991 UMI

an x axis, a y axis, a primary monitor flux valve location and a first means for connecting to compensation and measurement equipment;

(b) a means for rotating a flux valve having a means for affixing a flux valve wherein the means for affixing a flux valve has a second means for connecting to compensation and measurement equipment and a means for rotating a flux valve location;



(c) a calibration computer having a display and plurality of means for connecting to a flux valve wherein the first said means for connecting to a flux valve is connected to the first means for connecting to compensation and measurement equipment and the second means for connecting to a flux valve is connected to the second means for connecting to compensation and measurement equipment; and

(d) an optical transfer adapter means for attachment to any of the flux valves.

5,065,522

METHOD OF DETECTING VERTICALITY, DETECTOR THEREFOR AND LEVEL MAINTAINING BASE WHICH EMPLOYS SAID DETECTOR AND WHICH ACTS TO MOUNT MECHANISM OR APPARATUS

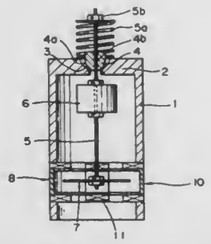
Kenro Motoda, and Hirosuke Isoe, both of Tokyo, Japan, assignors to Motoda Electronics, Co. Ltd., Tokyo, Japan

Filed Oct. 9, 1990, Ser. No. 593,967

Claims priority, application Japan, Oct. 17, 1989, 1-268172; Jul. 20, 1990, 2-190428

Int. Cl.[5] G01C *9/14*

U.S. Cl. 33.1—366 **19 Claims**



1. A method of detecting verticality comprising the steps of:

hanging a weight from a reference member disposed along a vertical axis in a state where said weight can be freely swung forwards and rearwards and right and left;

detecting, in the direction of swinging of said weight, the state where said weight is swung when said weight is freely swung, said state being detected by proper detection means such as electric, magnetic or optical detection means;

analyzing a detection signal denoting the detected direction of the swing, whereby the inclination of said reference member with respect to the vertical axis is detected; and

positioning a spring between said weight and said reference member so that friction therebetween may be reduced when said weight swings freely.

5,065,523

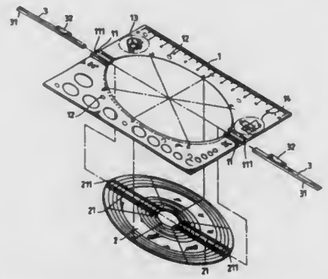
STRUCTURE OF ISOMETRIC ELLIPSE SCALE

Chieh-Tseng Chiang, No. 4, Alley 1, Lane 323, Sec. 3, I Chen Rd., Tang San Hsien, I Lan Hsien, Taiwan

Filed Jan. 7, 1991, Ser. No. 637,677

Int. Cl.[5] B43L *13/20, 11/055;* **G09B** *11/04*

U.S. Cl. 33—562 **3 Claims**



1. An isometric ellipse scale, comprising:

a body having an elliptical opening at the center, two pairs of parallel rails on the top edge thereof at two opposite ends, said two pairs of parallel rails each defining therein a dovetailed sliding way, a plurality of ellipse molding holes of different size on the top surface thereof at one side relative to said elliptical opening, a linear scale on the to surface thereof at an opposite side relative to said elliptical opening, and a plurality of raised portions symmetrically disposed at the bottom thereof;

a plurality of isometric ellipse molding plates that set one inside another with the topmost edge fitting flush with one another, each having an ellipse molding hole for drawing an ellipse and each being marked with markings for indicating the related diameter and major axis or minor axis, said isometric ellipse molding plates being releasably fastened in said body at said elliptical opening;

two fastening slides having each a dovetailed cross section suiting the size of said dovetailed sliding way, and movably fastened in said two pairs of parallel rails to secure said isometric ellipse molding plates in said elliptical opening of said body; and

a casing for keeping said body, said fastening slides and said isometric ellipse molding plates.

5,065,524

DEVICE FOR MEASURING THE INTERNAL DIAMETER OF TUBES

Andreas Langowski, Schramberg; Wolfgang Schultz, Tennenbronn, and Gerhard Walter, Alpirsbach, all of Fed. Rep. of Germany, assignors to Mauser-Werke Oberndorf GmbH, Oberndorf, Fed. Rep. of Germany

Filed Jul. 11, 1990, Ser. No. 551,761

Claims priority, application Fed. Rep. of Germany, Jul. 12, 1989, 3922937

Int. Cl.[5] G01B *5/12*

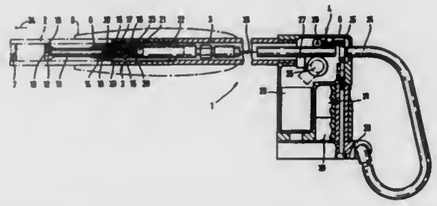
U.S. Cl. 33—544.2 **8 Claims**

1. A device for measuring the internal diameter of a tube, comprising:

a measuring head with radially acting calipers;

a rod in said measuring head an in contact with said radially acting calipers, said rod moving axially in proportion to radial movement of said radially acting calipers;

spring tension means, connected to said measuring head for biasing said rod into contact with said calipers and urging said calipers radially outwardly;



a tubular housing defining a measuring head receiving space, and containing said measuring head in an axially moveable manner in said measuring head space;

a shaft connected to said measuring head for moving said measuring head axially in said tubular housing and in the tube to be measured; and

measuring means for measuring movement of said shaft and said rod.

5,065,525

LENGTH OR ANGLE MEASURING DEVICE

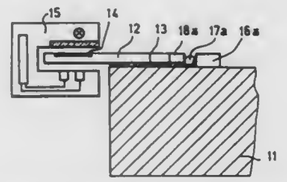
Franz Szenger, Königsbronn, Fed. Rep. of Germany, assignor to Carl-Zeiss-Stiftung, Heidenheim/Brenz, Oberkochen, Fed. Rep. of Germany

Filed Sep. 4, 1990, Ser. No. 577,431

Claims priority, application Fed. Rep. of Germany, Sep. 6, 1989, 3929629

Int. Cl.[5] G01B *11/04*

U.S. Cl. 33—702 **15 Claims**



1. A length or angle-measuring device having a graduated-scale support which is mounted to a guide part which has a coefficient of thermal expansion that differs from that of the scale support, characterized by the fact that the scale support (12; 22; 32; 42; 62) consists of a material having a precisely known coefficient of thermal expansion, said scale support (i) having at least one surface drawn by the capillary action of a liquid film (13; 23; 33; 43; 63) toward a corresponding surface of the guide part (11; 21; 31; 41; 61), and (ii) has distributed-area support on said liquid film, and means securing the scale support against rotational or other bodily displacement on the liquid film.

5,065,526

PROBING DEVICE FOR A COORDINATE MEASURING APPARATUS

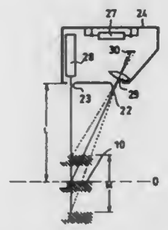
Karl-Hermann Breyer, Heidenheim, Fed. Rep. of Germany, assignor to Carl-Zeiss-Stiftung, Heidenheim, Fed. Rep. of Germany

Division of Ser. No. 431,570, Nov. 3, 1989, Pat. No. 5,014,444. This application Mar. 18, 1991, Ser. No. 670,865

Claims priority, application Fed. Rep. of Germany, Nov. 5, 1988, 8813875[U]

Int. Cl.[5] G01B *21/04*

U.S. Cl. 33—702 **2 Claims**



1. A contactless probing device for coordinate measuring apparatus, the probing device comprising:

a housing made of a given material;

interface means formed on said housing for exchangeably mounting the probing device on said coordinate measuring apparatus;

a temperature sensor having connecting terminals and being mounted in said housing so as to be in thermal contact with said material thereof;

contacts connected to said connecting terminals of said temperature sensor and mounted on said interface means for transmitting electrical signal data from said temperature sensor to said measuring apparatus; and,

optical sensing means mounted in said housing for making contactless measurements on an object or a workpiece.

5,065,527

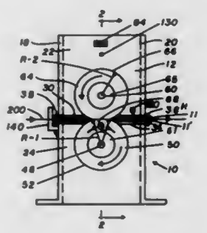
LENGTH MEASURING AND POSITIVE DRIVE APPARATUS

Howard C. Shaw, 700 Wyndwicke Rd., St. Joseph, Mich. 49085

Filed Mar. 15, 1990, Ser. No. 669,984

Int. Cl.[5] G01B *3/12, 5/04*

U.S. Cl. 33—734 **20 Claims**



1. A mechanism for measuring a length of a continuously produced product comprising:

a housing having a first wall and a second wall;

a first shaft retained by said first and second walls;

a first rotatable member fixed to said first shaft, said first rotatable member having a first circumferential face, said first circumferential face having a pliable surface and a first fixed length;

a second shaft retained by said first and second walls;

VOL 1132 ISS 3 NO 19 1991 UMI

a second rotatable member fixed to said second shaft, said second rotatable member having a second circumferential face, said second circumferential face having a pliable surface and a second fixed length;

means for establishing a fixed distance between said first and second shafts to bring said first and second circumferential faces into engagement to establish a common chord between said first and second rotatable members, said pliable surfaces on said first and second circumferential faces engaging and surrounding said product as the product moves along the entire length of said chord; and

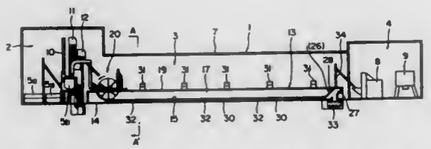
means responsive to rotation of one of said first and second rotatable member to provide a linear readout of the movement of the product along said chord.

5,065,528

DRYING APPARATUS UTILIZING SOLAR HEAT

Aijiro Kaneko, and Masayuki Domon, both of Hanyu, Japan, assignors to Kaneko Agricultural Machinery Co., Ltd., Haryu, Japan

Filed Aug. 7, 1990, Ser. No. 563,383
Claims priority, application Japan, Aug. 8, 1989, 1-93297[U]
Int. Cl.[5] F26B *19/00*
U.S. Cl. 34—93 **4 Claims**



1. A solar-heat utilizing drying apparatus, comprising:

a drying room;

a solar heat transmitting/absorbing material surrounding said drying room;

an elongated drying cage which is disposed in said drying room having an opened upper side;

a horizontal ventilating panel disposed in said drying room dividing said drying room into an upper portion and a lower portion, said upper portion being formed into a drying portion and said lower portion being formed into an air-exhaust portion;

A self-propelled stirring/mixing transporter means movably mounted on said elongated drying cage to be movable in a vertical direction and in a longitudinal direction of said elongated drying cage, for stirring, mixing, and transporting matter having been received in said drying room from a supply side of said drying room to a discharge side of said drying room;

a plurality of air-exhaust ports formed in a side surface of said air-exhaust portion of said drying room at predetermined intervals; and

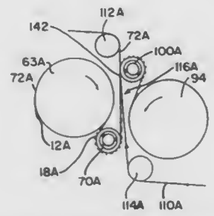
a plurality of air exhaust units respectively connecting said air exhaust ports.

5,065,529

APPARATUS FOR DRYING A WEB

Borgeir Skaugen, and Gregory L. Wedel, both of Beloit, Wis., assignors to Beloit Corporation, Beloit, Wis.

Continuation-in-part of Ser. No. 167,672, Feb. 11, 1988, and a continuation-in-part of Ser. No. 201,705, Jun. 2, 1988, and a continuation-in-part of Ser. No. 230,627, Aug. 10, 1988, and a continuation-in-part of Ser. No. 235,394, Aug. 23, 1988, and a continuation-in-part of Ser. No. 243,742, Sep. 9, 1988, and a continuation-in-part of Ser. No. 244,774, Sep. 14, 1988, and a continuation-in-part of Ser. No. 417,978, Oct. 5, 1989, each is a division of Ser. No. 14,569, Feb. 13, 1987, and a continuation-in-part of Ser. No. 431,961, Nov. 3, 1989, which is a continuation-in-part of Ser. No. 429,730, Oct. 26, 1989, which is a continuation of Ser. No. 14,569,. This application Feb. 27, 1990, Ser. No. 485,681
The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.
Int. Cl.[5] F26B *11/02*
U.S. Cl. 34—117 **41 Claims**



35. A single tier drying section for drying a web comprising:

a dryer;

a felt guided about said dryer such that the web is disposed between said dryer and said felt for drying a first side of the web;

a further dryer disposed downstream relative to said dryer;

a further felt guided about said further dryer such that the web is disposed between said further dryer and said further felt for drying a second side of the web; and

dryer transfer means including:

a vacuum roll for guiding said further felt, said further felt and said felt defining a converging nip terminating on said vacuum roll such that the web is transferred without open draw from said felt to said further felt following said converging nip, said vacuum roll and said further felt, after said converging nip, forming in combination means for restraining the web against machine and cross-machine directional shrinkage.

5,065,530

CLOSURE DEVICE, PARTICULARLY FOR SKI BOOTS

Alessandro Pozzobon, Paderno di Ponzano Veneto, and Roberto Gorza, Feltre, both of Italy, assignors to Nordica S.p.A., Montebelluna, Italy

Filed Nov. 16, 1989, Ser. No. 437,232
Claims priority, application Italy, Nov. 22, 1988, 82610 A/88
Int. Cl.[5] A43B *11/00, 5/04*
U.S. Cl. 36—50 **4 Claims**

1. Closure device, particularly for rear-entry ski boots comprising a shell and a front quarter and a rear quarter both connected to said shell, said shell defining a heel region, said closure device comprising a first traction element, a second traction element, and a slider element, said rear quarter being provided with a longitudinal seat in which said slider element is slidingly guided, said first traction element defining end portions and a middle portion between said end portions, said end portions of said first traction element being fixedly connected to opposite lateral sides of said front quarter, said middle portion of said first traction element being fixedly connected directly to said slider element, said second traction element defining a first end and a second end, said first end of said second traction element being fixedly connected to said slider element, said second traction element extending directly



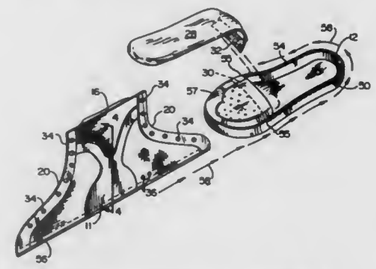
downwardly from said first end to said second end which is fixedly connected to said heel region of said shell, said closure device further comprising means for locking said slider element in a fixed position in said longitudinal seat.

5,065,531

ATTACHMENT DEVICE FOR PROVIDING DETACHABLE UPPERS IN FOOTWEAR AND THE LIKE

Patrick L. Prestridge, 5101 McLarnan Rd., Gambier, Ohio 43022

Filed Aug. 20, 1990, Ser. No. 569,988
Int. Cl.[5] A43B *3/24, 13/28*
U.S. Cl. 36—100 **22 Claims**



1. A shoe assembly comprising, in combination:

a lower shoe portion adapted to cover a lower portion of the foot of the wearer, said lower shoe portion including an elongated sole, a heel at one end of said sole and a curved toe at the opposite end thereof and having an elongated upper edge portion extending around said heel starting at a point located adjacent to said toe on one side of said lower shoe portion and ending at a point located adjacent to said toe on the opposite side of said lower shoe portion;

an upper shoe portion adapted to cover an upper portion of the wearer's foot, said upper shoe portion having an elongated lower edge portion the length of which is substantially equal to the length of said upper edge portion, said upper shoe portion being of a size and shape such that it defines an elongated opening extending substantially between said toe and said heel for receiving the foot of said wearer; and

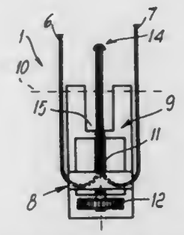
means for releasable connecting said lower edge portion to said upper edge portion so as to leave an open throat between said starting and ending points whereby said upper and lower shoe portions can be easily attached to and detached from one another during use of said shoe assembly.

5,065,532

CLOSURE DEVICE, PARTICULARLY FOR SKI BOOTS, ALLOWING GREATER WORKING LENGTH OF THE TIGHTENING CABLES

Roberto Gorza, Feltre, Italy, assignor to Nordica S.p.A., Montebelluna, Italy

Filed Jul. 23, 1990, Ser. No. 555,877
Claims priority, application Italy, Jul. 31, 1989, 59392/89[U]; Jul. 31, 1989, 59393/89[U]
Int. Cl.[5] A43B *5/04*
U.S. Cl. 36—117 **7 Claims**



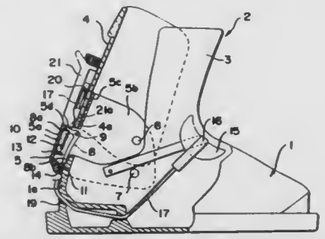
5. Closure device for a rear-entry ski boot which has a shell and a front quarter and a rear quarter both connected thereto, said rear quarter defining a longitudinal middle axis which is substantially a symmetrical axis of said rear quarter, said device comprising a lever means being pivoted to said rear quarter about a pivoting axis defined thereon, a guide member means being connected to said lever means, and at least one traction element means defining a first end, a second end, and a middle portion thereof, said first end of said traction element means being connected to a fixed point on said front quarter, said middle portion of said traction element means being guidingly engaged in said guide member means, and said second end of said traction element means being connected to a fixed point on said rear quarter which is positioned above said pivoting axis and substantially at said symmetrical axis thereof.

5,065,533

REAR ENTRY SKI BOOT

Jean Paris, Sevrier, France, assignor to Salomon S. A., Annecy Cedex, France

Filed Jan. 2, 1991, Ser. No. 636,729
Claims priority, application France, Jan. 18, 1990, 90 00565
Int. Cl.[5] A43B *5/04*
U.S. Cl. 36—117 **11 Claims**



1. Alpine ski boot of the rear entry type comprising a shell base 1 and an upper 2 journalled on the shell base, and an apparatus for tightening the foot of the skier located within the interior of the boot, said tightening apparatus comprising a movable foot tightening element within the shell base, a foot tightening lever positioned on the outside of the upper, at the rear of the same, and a flexible linkage element between the tightening lever and the movable tightening element in a manner so as to exert a traction on the flexible linkage element and

VOL 1132 ISS 3 NO 19 1991 UMI

to press the movable tightening element on the foot of the skier when the foot tightening lever is pressed against the rear portion of the upper, in a tightening position, and wherein at least the rear portion is the upper of pivotably mounted around a first horizontal and transverse axis, on a stirrup surrounding the rear of the shell base and which is itself pivotably mounted on this shell base, around a second horizontal and transverse axis positioned at the lower level of that of the first journal axis of the upper on the stirrup, the stirrup carries, at its rear central portion, an element for latching the stirrup in the upper position for skiing, this element being biased by a return spring in the direction of the unlatching position in which it is distanced from the shell base, and being adapted to be activated by the foot tightening lever, when this lever is pressed against the rear of the upper in the foot tightening position, and to be pushed back, by the tightening lever, in the direction of the shell base on which it is then supported to ensure the latching of the stirrup in the upper position for skiing, the disengagement of the tightening lever automatically causing the movement of the latching element of the stirrup, under the effect of its return spring, into the unlatching position and ensuring the freeing of the stirrup.

5,065,534

STUDS FOR FOOTWEAR

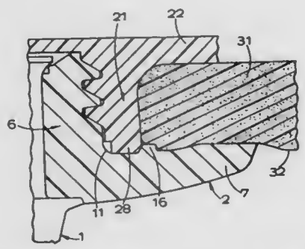
Roy S. Collins, Sutton Coldfield, England, assignor to Trisport Ltd., Tamworth, England

Continuation of Ser. No. 760,319, Jul. 29, 1985, abandoned. This application May 5, 1987, Ser. No. 51,267

Claims priority, application United Kingdom, Jul. 27, 1984, 8419182

Int. Cl.[5] A43B *5/00*; A43C *15/16*

U.S. Cl. 36—134 **17 Claims**



1. A stud for use with an article of footwear, said stud comprising a pin having a ground-engaging lower portion and an upper portion, and a one-piece molded plastic member surrounding the upper portion of said pin and lockingly engaging the same, said one-piece plastic member comprising an externally screw-threaded spigot and an outwardly extending flange at the lower end thereof, said flange having an upper surface extending outward to contact a footwear sole when the spigot is screwed into a socket in said sole, said upper surface having an annular well adapted to receive a lower end of a socket, an outer edge of said annular well being formed by a retaining means spaced outward from said pin and inboard from an outer edge of said upper surface of said flange to restrain spreading of the lower end of said socket due to contact with said retaining means.

5,065,535

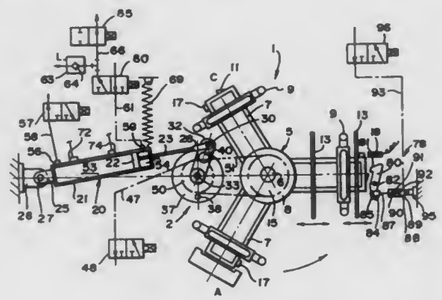
INDEXING SYSTEM FOR ROTARY GARMENT PRESS

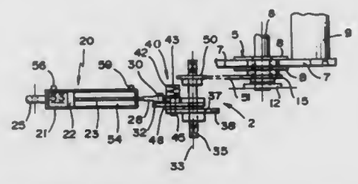
Sarupinderpal S. Gill, and Manohar Mohan, both of Cincinnati, Ohio, assignors to American Laundry Machinery, Inc., Cincinnati, Ohio

Filed Jun. 29, 1990, Ser. No. 545,647

Int. Cl.[5] D06F *71/10*

U.S. Cl. 38—22 **16 Claims**





1. A garment press comprising:

a carriage having at least one radial arm for supporting a pressing buck and rotatably mounted for motion about a rotational axis extending generally perpendicular to said at least one radial arm;

indexing means for intermittently rotating the carriage in a single direction to sequentially align said at least one radial arm with at least one work station position, said indexing means including a linearly reciprocating actuator means and a motion transfer means between said actuator means and said carriage, said motion transfer means including a reciprocating to intermittent unidirectional rotary motion converter mechanism connected by a motion transmitting coupling to said carriage.

5,065,536

STRETCH FRAME FOR A STRETCH BED SHEET

Maria Krammer-Herbst, Rebaystrasse 18, 8870 Günzburg, Fed. Rep. of Germany

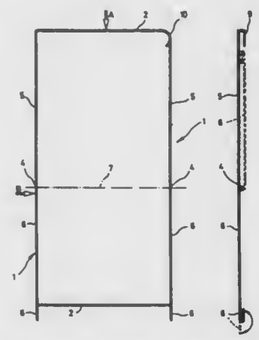
Filed Mar. 23, 1990, Ser. No. 498,032

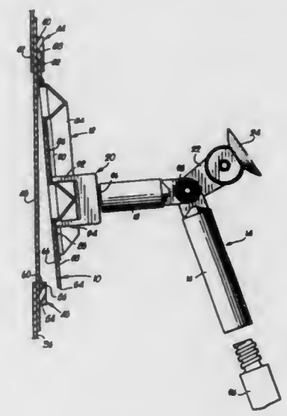
Claims priority, application Fed. Rep. of Germany, Mar. 25, 1989, 3909934

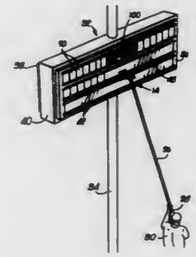
Int. Cl.[5] D06C *5/00*

U.S. Cl. 38—102.91 **6 Claims**

1. A stretch frame for folding and storing a stretch bed sheet, wherein said sheet has a width and contoured elasticized ends and corners, and wherein said sheet is first folded in half forming two ends with a fold line at one end and said contoured corners at the other end, said frame comprising a pair of parallel legs, a shorter leg connecting the parallel legs at one end thereof, said shorter leg having a hairpin-like configuration, said shorter leg having a dimension corresponding to the width of the sheet when the elasticized ends thereof are stretched therearound and connected to the shorter leg, pivot joint means in an intermediate location of each of the parallel legs for conjoint folding of said legs about an axis parallel to said shorter leg, and clamping means at the other end of said parallel legs for detachably securing said bed sheet at said fold line.







magnetically attractive material carried by each of said panels, the magnetically attractive material being only on said front face providing a means for removing the panel from the readerboard.

5,065,537

CHANGEABLE LETTER SIGN SYSTEM

Raymond J. Bailey, Cortez, Fla., assignor to Americraft Corporation, Palmetto, Fla.

Filed Mar. 22, 1990, Ser. No. 497,358

Int. Cl.[5] G09F *7/02*; A47F *13/06*

U.S. Cl. 40—618 **12 Claims**

1. A changeable letter sign system comprising:

a readerboard for receiving a plurality of panels, each bearing a three dimensional, plastic letter thereon, said panels being combinable to collectively present a message displayed on the readerboard, said panels each having a normally front face and a normally rear face, the rear face being proximal to the readerboard when the panel is in place, the front face having the letter thereon and facing outwardly from said readerboard;

means for retaining said panels with respect to the readerboard; and

---

5,065,538

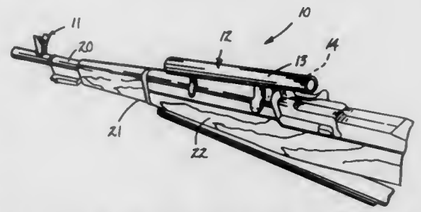
NOCTURNAL RIFLE SIGHT ORGANIZATION

Rhandall A. Allen, 12604 Tollhouse Rd., Spotsylvania, Va. 22553

Filed May 24, 1990, Ser. No. 527,864

Int. Cl.[5] F41G *1/42*

U.S. Cl. 42—103 **6 Claims**



1. A nocturnal rifle sight apparatus for use with a rifle including an elongate coaxially aligned rifle barrel mounted within an elongate rifle stock, the apparatus including a front sight member fixedly mounted to the rifle barrel at a forward end thereof coaxially aligned with a rear sight member fixedly mounted overlying the rifle barrel, the forward sight member defining a "Y" shaped configuration, and

VOL 1132 ISS 3 NO 19 1991 UMI

the rear sight member defining a cylindrical sight wherein the cylindrical sight defines a cylindrical sight axis bisecting the "Y" shaped configuration of the forward sight member, and

the "Y" shaped configuration including a central vertical post wherein the central vertical post includes a planar forward face, and

a left arcuate leg extending upwardly and laterally of the central vertical post, and

a right arcuate leg extending upwardly and laterally of the central vertical post wherein the right and left arcuate legs each define confronting convex surfaces, and

wherein the central vertical post includes a central blade integrally and orthogonally mounted to a top surface of the central vertical post, the central blade including a blade top surface, and

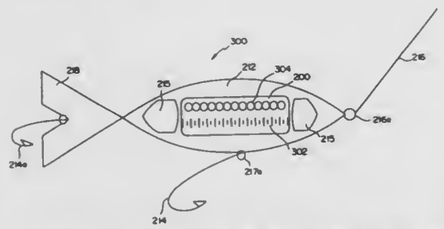
including a plurality of aligned equally spaced luminescent elevational dots fixedly mounted to the planar forward face underlying and aligned with the central blade.

5,065,539

DEVICE FOR MEASURING SUBSURFACE TEMPERATURES OF LIQUID BODIES, USEFUL FOR DETERMINING OPTIMUM FISHING LOCATIONS

Bruce F. Monzyk, 2254 Murray Forest, Maryland Heights, Mo. 63043, and Lloyd A. Woodard, 7322 E. 107th St., Kansas City, Mo. 64134

Division of Ser. No. 46,782, May 7, 1987, Pat. No. 4,883,365.
This application Nov. 17, 1989, Ser. No. 438,628
Int. Cl.[5] A01K *85/00*
U.S. Cl. 43—4 13 Claims



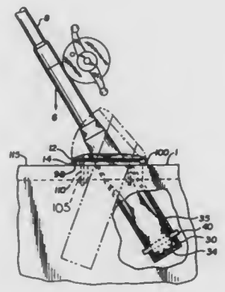
1. A method of determining the appropriate location and depth for fishing for a particular type or types of fish in a body of water containing a variety of temperatures comprising: lowering into the body of water a temperature sensing device with a support including a temperature sensing component imbedded a distance of at least about 0.06 inches within a thermally insulating and a non-wetting matrix to a first depth at a first location; allowing the temperature sensitive device to substantially thermally equilibrate to the temperature at this depth; quickly removing the temperature sensitive device from the water body by means of said support; comparing the temperature reading with the preferred temperature for fishing for that particular fish; again measuring the temperature at a depth either deeper or shallower or in a different location than the previous depth and location; again comparing the reading with the preferred temperature for the particular fish being sought; and repeating this process until the depth and location is found where the temperature corresponds to the preferred temperature for fishing for that particular fish.

5,065,540

STRIKING ROD HOLDER

William S. Potter, Jr., 4235 Douglas Rd., Coconut Grove, Fla. 33133

Filed Oct. 31, 1990, Ser. No. 606,114
Int. Cl.[5] A01K *97/10*
U.S. Cl. 43—21.2 32 Claims



1. A striking rod holder comprising:

a first member;

a rod holding tube attached to said first member; and

a second member for attaching to a surface, at least one of said first member and said second member having a passageway through which said rod holding tube passes, and said first member pivotally attached to said second member.

23. A striking rod holder adaptor for converting a flush-mounted fixed striking rod holder having a mounting plate and a rod holding tube attached thereto into a tilting rod holder comprising:

a first member for attaching to the flush-mounted fixed striking rod holder; and

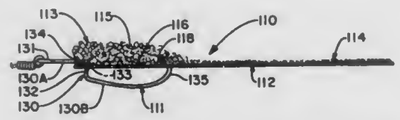
a second member for attaching to a surface, at least one of said fist member and said second member having a passageway through which said rod holding tube passes, and said first member pivotally attached to said second member.

5,065,541

ARTIFICAL FISHING LURES

Archibald S. Coody, Hemphill, Tex., assignor to Fred Arbogast Company, Inc., Akron, Ohio

Continuation-in-part of Ser. No. 470,850, Jan. 26, 1990, Pat. No. 5,007,194. This application Sep. 21, 1990, Ser. No. 586,577
The portion of the term of this patent subsequent to Apr. 16, 2008, has been disclaimed.
Int. Cl.[5] A01K *85/00*
U.S. Cl. 43—42.29 2 Claims



1. An artificial fishing lure in combination with a fish hook having an eye, a shank portion and a point, said fishing lure comprising:

a body having a head portion with at least one surface and a leading edge;

said body being natural sheepskin which presents at least one planar surface and also having a long, narrow portion extending rearwardly from said head portion;

a plurality of relatively long fibers which are natural wool fibers presented from the planar surface of said sheepskin extending outwardly from at least one surface of said head portion;

means to interconnect said head portion to the shank of the hook in proximity to the eye thereof;

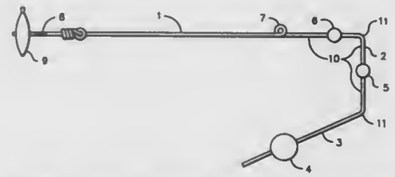
the point of the hook also penetrating said head portion to be received among said relative long fibers.

5,065,542

MULTI-WEIGHTED SPRING DRIVEN LURE ATTACHMENT

Harold L. Lindaberry, P.O. Box 241, Mansfield, Pa. 16933

Filed Oct. 5, 1990, Ser. No. 593,793
Int. Cl.[5] A01K *91/00*
U.S. Cl. 43—42.74 7 Claims



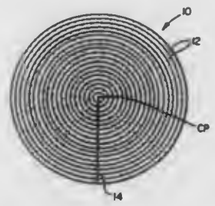
1. A multi-weighted spring driven lure attachment device consisting of a resilient member bent into three sections and weights mounted thereon, said resilient member including a first section having a lure and hook bearing arm member with lure attachment means; a second section bent substantially perpendicular to said first section; a third section bent from said second section; wherein a first weight is attached to said third section and a second weight is attached to the first section or the second section, and the first weight is as heavy or heavier than the second weight.

5,065,543

TREE GUARD MAT

Alan R. Brook, 7206 Hidden Hills North, San Antonio (Bexar County), Tex. 78244

Continuation-in-part of Ser. No. 320,981, Nov. 17, 1990, abandoned. This application Jun. 4, 1990, Ser. No. 532,554
Int. Cl.[5] A01G *17/00*
U.S. Cl. 47—25 5 Claims



1. A tree guard mat for suppressing plant growth around the base of a tree and thereby protecting the tree from damage caused by line trimmers, comprising:

(a) a plurality of flexible ropes of successively longer lengths arranged concentrically into a mat;

(b) each rope being removably bound into the mat; and

(c) each rope being joined at a separation line extending from the innermost to the outermost rope;

(d) such that the mat may be adjusted for installation by removing a selected number of inner rings to form a central hole corresponding in diameter to the diameter of the tree trunk at ground level;

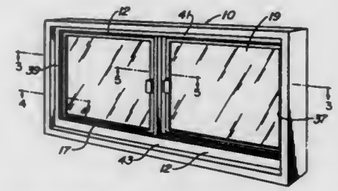
(e) whereby the tree guard mat may be installed by separating the remaining ropes along the separation line, inserting the mat around the tree trunk through a gap formed by that separation, and then rejoining the rings to form a substantially continuous mat around the tree.

5,065,544

WINDOW ASSEMBLY

Norman D. Martin, San Dimas, Calif., assignor to Thomas B. Nuckolls and Stanley D. Danbenbis, both of Covina, Calif., part interest to each

Filed Oct. 10, 1990, Ser. No. 595,029
Int. Cl.[5] E05D *15/22*
U.S. Cl. 49—177 1 Claim



1. A window assembly comprising:

a stationary frame means including two upstanding side members, and upper and lower track means connecting said side members, each track means comprising an exterior track and an interior track offset from each other,

an upstanding exterior window unit having upper and lower edge portions thereof extending into the exterior tracks, whereby said exterior window unit is slidably movable across the space between the upstanding side members,

an upstanding interior window unit having upper and lower edge portions thereof extending into the interior tracks, whereby said interior unit is slidably movable across the space between the upstanding side members,

each window unit comprising a rectangular frame having an upper rail, a lower rail, and two side rails, the two side rails defining the horizontal width dimension of the respective window unit,

each window unit having a width dimension slightly greater than one-half the spacing between the stationary side members so that when the window units are in their fully closed positions two side rails thereof are in overlapping relation and the other two side rails are positioned against respective ones of the stationary side members,

the said four rails of each movable window unit having flanges extending in a common plane within the profile plane of the window unit rectangular frame,

resilient elastomeric sealing strips on the interior face of each flange to provide a substantially annular seal means,

window pane means disposed within each rectangular frame and having a closed position wherein its exterior face engages the associated annular seal means to prevent passage of rain water through the joint between the window pane means and the associated frame, and

hinge means having vertical axes and connecting each window pane means to one of said other two side rails of the associated rectangular frame, whereby each window pane means is swingable in a horizontal arc into a room interior space when the window units are in their fully closed positions.

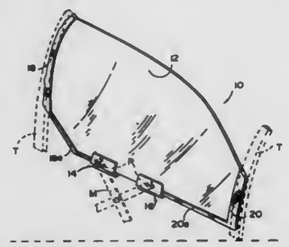
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,545

PANEL ASSEMBLY FOR VEHICLES WITH MOLDED REGULATOR ATTACHMENT

Edmund J. Kane, Holland, and Roger L. Koops, Hamilton, both of Mich., assignors to Donnelly Corporation, Holland, Mich.

Filed Mar. 19, 1991, Ser. No. 671,373
Int. Cl.[5] E05F *11/38*
U.S. Cl. 49—375 53 Claims



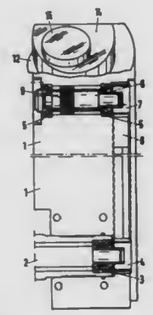
1. A panel assembly for vehicles comprising:
a sheet of material having side surfaces and a peripheral edge;
at least one attachment member for connecting said sheet to a support such as a window regulator mechanism, said attachment member being molded on said peripheral edge of said sheet from a moldable, resinous material such that said member is securely adhered to said sheet during molding, said attachment member having securing flanges extending along both side surfaces of said sheet and encapsulating said peripheral edge, and an elongated slot extending along the length of said member for receiving a portion of the window regulator mechanism; and access means for inserting a portion of the window regulator mechanism in said slot;
whereby a portion of the regulator mechanism may be supported on said attachment member for movement in said slot to move said panel assembly between desired positions.

5,065,546

GRINDING WHEEL FOR PRODUCING INTERNAL PROFILINGS

Manfred Lorenz, Coburg, Fed. Rep. of Germany, assignor to Kapp GmbH, Coburg, Fed. Rep. of Germany

Filed May 4, 1990, Ser. No. 518,912
Claims priority, application European Pat. Off., Sep. 7, 1989, 89116534.2
Int. Cl.[5] B24B *5/00*
U.S. Cl. 51—134.5 R 4 Claims



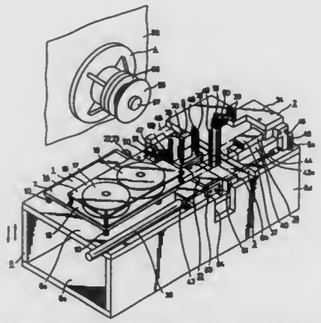
1. In a grinding wheel for producing internal profilings, and including a grinding disk that is disposed at a front end of a rod-like grinding machine arm at the respective angle of slope of the internal profiling that is to be produced, with said grinding disk being adapted to be driven by a drive shaft, which is disposed at the other end of said arm, via drive means that extends through said arm, the improvement wherein said drive means comprises:
a first belt pulley connected to said drive shaft;
an intermediate shaft disposed in said front end of said arm;
a second belt pulley connected to said intermediate shaft;
a belt disposed within said arm and interconnecting said first and second belt pulleys and hence said drive shaft and said intermediate shaft;
a spindle on which said grinding disk is mounted;
a first gear wheel disposed on said intermediate shaft;
a second gear wheel disposed on said spindle, with said first and second gear wheels forming an intermeshing pair of gear wheels that provides a driving connection between said intermediate shaft and said spindle; and
bearing means for disposing said spindle on said arm so that said spindle is pivotable about a center point of said first gear wheel on said intermediate shaft, said grinding disk provided with an uncorrected profile that can be adapted to the respective angle of slope of internal profiling that is to be produced without disassembling the grinding wheel such that the grinding disk can be driven at high speeds with little energy loss.

5,065,547

SURFACE PROCESSING MACHINE FOR HARD DISKS AND THE LIKE

Tatsuo Shimizu, Sendai; Kazunori Ozawa, Tomiya; Kenji Yazawa, Shiogama, and Kazunori Tani, Machida, all of Japan, assignors to Speedfam Company, Ltd., Japan

Filed Jun. 6, 1989, Ser. No. 362,209
Claims priority, application Japan, Jun. 6, 1988, 63-138610
The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.
Int. Cl.[5] B24B *21/02*
U.S. Cl. 51—154 25 Claims



1. A surface processing machine employing a processing tape cartridge rotatably accommodating in a casing a pair of reels carrying a winding of processing tape, said surface processing machine comprising:
a cartridge holder for holding said processing tape cartridge fixedly in position on said machine;
a tape drawing mechanism adapted to draw out part of said processing tape in said cartridge to a predetermined position;
a guide roller mechanism for setting and transporting said processing tape in a predetermined path of travel through a machining position;
a work holder mechanism adapted to hold and rotate a work thereon at said machining position;
a tape pressing mechanism for pressing said processing tape against said work;

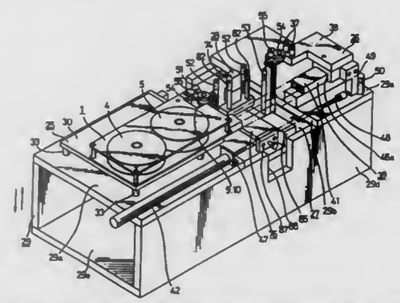
said cartridge holder and tape drawing mechanism being mounted on a main surface of a housing, said guide roller mechanism and said tape pressing mechanism being supported in movable relation within an opening provided in a center portion of said housing, and said work holder being adapted to hold said work opposingly to said machining position, in a center portion on said main surface of the housing; wherein said cartridge holder comprises a cartridge mount plate in level relation with the path of tape travel, positioning pins rigidly located on said housing for securely holding said cartridge thereon, and a pair of hub drive shafts projected through said cartridge mount plate for engagement with hub portions of said tape reels carried by said tape cartridge, said tape cartridge being provided with positioning holes to be fitted on said positioning pins in said cartridge holder.

5,065,548

SURFACE TREATING TAPE CARTRIDGE AND SURFACE TREATING MACHINE

Tatsuo Shimizu, Sendai; Kazunori Ozawa, Tomiya; Kenji Yazawa, Shiogama, and Kazunori Tani, Machida, all of Japan, assignors to Speedfam Company, Ltd., Japan

Filed Jun. 6, 1989, Ser. No. 362,211
Claims priority, application Japan, Jun. 6, 1988, 63-138611
The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.
Int. Cl.[5] B24B *21/02*
U.S. Cl. 51—154 17 Claims



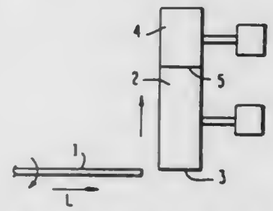
1. A surface treating machine employing a surface treating tape cartridge, said machine comprising:
a surface treating tape cartridge having a casing composed of separably joined upper and lower halves, and a pair of reels carrying a winding of surface treating tape and rotatably accommodated between said upper and lower halves of said casing;
a cartridge holder for holding said surface treating tape cartridge fixedly in position on said machine;
a tape drawing mechanism adapted to draw out part of said surface treating tape in said cartridge to a predetermined position;
a guide roller mechanism for setting and transporting said surface treating tape in a predetermined path of travel through a work treating position;
a tape pressing mechanism for pressing said surface treating tape against a work at said treating position, said tape pressing mechanism comprising a tape pressing member for pressing said surface treating tape against the surface of said work, a base plate mounting said tape pressing member thereon, and a slider portion for sliding said base plate toward and away from said treating position, wherein said tape pressing member is provided with a pressing portion having a pair of guide pins mounted on the forward end portion thereof for pressing said surface treating tape uniformly against the surface of said work, and a base portion fixedly mounted on said base plate, wherein the pressing portion is provided with air holes, and means to blow air blasts against said surface treating tape in said treating position through said air holes in a direction perpendicular to the tape face.

5,065,549

METHOD AND APPARATUS FOR MANUFACTURING K-FILES AND REAMERS

Robert D. Speiser, New York, N.Y.; Steven Bernstein, York, Pa.; Charles N. Miller, Spring Grove, Pa., and Dane Shearer, York, Pa., assignors to Union Broach, York, Pa.

Continuation of Ser. No. 363,691, Jun. 9, 1989, Pat. No. 4,999,952. This application Dec. 10, 1990, Ser. No. 624,865
The portion of the term of this patent subsequent to Mar. 19, 2008, has been disclaimed.
Int. Cl.[5] B24B *3/00, 5/00*
U.S. Cl. 51—288 10 Claims



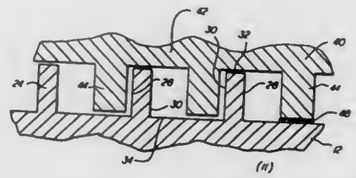
1. A process of producing a dental instrument having a plurality of flutes each with a predetermined number of spirals over a predetermined length of the instrument, and having a predetermined taper, the method comprising the steps of:
providing a single grinding wheel having a plurality of grinding ribs extending from a periphery thereof;
rotating said grinding wheel about a first axis;
feeding, along a second axis, a rotating bar stock past the plurality of grinding ribs so as to grind said bar stock; and
simultaneously with said feeding step translating one of said grinding wheel and said bar stock such that a distance between the first and second axes increases as said bar stock is fed, and such that a single pass of said bar stock by the plurality of grinding ribs of said single grinding wheel produces the multi-fluted tapered dental instrument.

5,065,550

LAPPING OF INVOLUTE SPIRAL SCROLL ELEMENT

Shahrokh Etemad, Stratford, Conn., and Howard H. Fraser, Jr., Lafayette, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Dec. 26, 1989, Ser. No. 457,141
Int. Cl.[5] B24B *1/00*
U.S. Cl. 51—317 6 Claims



1. A method of finishing a scroll element for a scroll rotary machine in which the scroll element has a base with a radially flat surface and a generally spiral wrap about an axis of the element with side walls that are axially erect comprising the steps of:
placing against said scroll element a lapping device that has

VOL 1132 ISS 3 NO 19 1991 UMI

a radially extending base and a generally spiral wrap about an axis of the lapping device, the generally spiral wrap matching the wrap of the scroll element, but wherein said lapping element wrap is significantly and uniformly thicker radially than the scroll element wrap, the wrap of the lapping device having axially erect walls and a radially flat tip surface that faces against the base flat surface of the scroll element; said scroll element wrap and lapping device wrap defining a series of crescent shaped volumes that diminish in size from an outer edge to the axis of the scroll element and lapping device;

moving the scroll element and the lapping device against one another in an orbiting motion in which the axes of the device and scroll element revolve about one another but the device and scroll element maintain a constant azimuthal orientation relative to one another; and

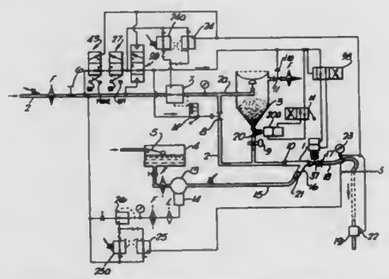
flowing a suitable lapping compound at least between the tip surface of the lapping device and the base surface of the scroll element and between the lapping device wrap and the side walls of the scroll element wrap while the lapping device and scroll element are being moved in said orbiting motion in contact with one another, by introducing said lapping compound directly into said crescent shaped volumes and distributing the compound by orbiting action of the scroll element and the lapping device, for lapping at least the base flat surface and side walls of the scroll element.

5,065,551

ABRASIVE CLEANING OR CUTTING

George M. Fraser, Barton-on-Humber, Great Britain, assignor to Cleaning Technology Limited, Scunthorpe, England

PCT No. PCT/GB89/00201, § 371 Date Aug. 10, 1990, § 102(e) Date Aug. 10, 1990, PCT Pub. No. WO89/08007, PCT Pub. Date Sep. 8, 1989
PCT Filed Feb. 28, 1989, Ser. No. 555,432
Claims priority, application United Kingdom, Mar. 2, 1988, 8804970; Nov. 25, 1988, 8827582; Nov. 25, 1988, 8827583
Int. Cl.[5] B24C 3/00
U.S. Cl. 51—410 16 Claims



1. Apparatus for underwater abrasive cleaning and/or cutting, comprising:

a mixing zone for preparing an abrasive mixture comprising abrasive particles, air and a liquid;

means for controlledly supplying the abrasive particles, air under pressure, and liquid to the mixing zone in such a way that a resultant abrasive stream includes abrasive particles substantially surface-wetted by the liquid and entrained in air or an air/liquid mist as an abrasive carrier;

an outlet nozzle for directing the abrasive stream at an underwater surface to be cleaned and/or cut;

a pipeline connecting the mixing zone to the outlet nozzle for conveying the abrasive stream to the nozzle; and

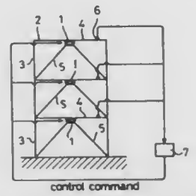
means for adjusting the flow rates of the abrasive particles, air and liquid and the mixing zone pressure, relative to each other, depending one the working depth of the nozzle underwater, so as to discharge an abrasive stream of composition as set forth above through the nozzle at a pressure less than about 100 psig (7 kg/cm^2) above the ambient hydrostatic pressure at the nozzle.

5,065,552

ACTIVE SEISMIC RESPONSE CONTROL SYSTEM FOR USE IN STRUCTURE

Takuji Kobori; Motoichi Takahashi; Tadashi Nasu; Naoki Niwa; Narito Kurata; Junichi Hirai, and Yoshinori Adachi, all of Tokyo, Japan, assignors to Kajima Corporation, Tokyo, Japan

Filed Feb. 5, 1990, Ser. No. 475,367
Claims priority, application Japan, Feb. 7, 1989, 1-27901; Feb. 7, 1989, 1-27905; Feb. 23, 1989, 1-43565; Mar. 14, 1989, 1-61237
Int. Cl.[5] E04H 9/00
U.S. Cl. 52—1 15 Claims



1. For use with a building structure having frame means of vertical post means, horizontal beam means and variable stiffness means to brace such frame means, a continuously variable active seismic and wind response control system comprising: double acting hydraulic damper means including a piston cylinder; a piston shiftably mounted within said piston cylinder and positioned to define a cylinder chamber on opposite sides of said piston; piston rod means connected to said pistons and having opposite ends adapted to pass axially through said cylinder chambers; means to pass hydraulic fluid between said cylinder chambers responsive to a shifting of said piston axially within said cylinder; valve means to control the rate and volume of flow of said hydraulic fluid between said cylinder chambers; means to secure said piston rod means between said frame means and said variable stiffness means adapted to damp vibrations therebetween; solenoid means adapted to open and close said valve means; a pulse generator adapted to actuate said solenoid means by pulse signals; sensor means located on said building structure adapted to sense and to signal building structure vibrations; computer program means; and computer means programmed by said computer program means to receive signals from said sensor means to analyze said signals and to signal said pulse generator means to actuate said solenoid means responsive to said computer means analysis of said sensor signals, whereby said active seismic and wind control system provides a continuously variable means to dampen seismic and wing vibrations received by a building structure.

5,065,553

ROOF FLASHING UNIT

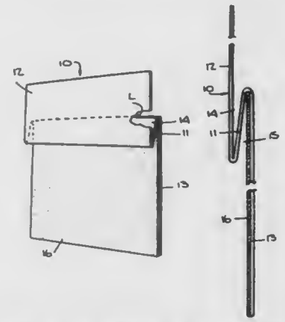
Sanford J. Magid, 3 Blind Brook Ter., Rye Brook, N.Y. 10573

Filed May 11, 1990, Ser. No. 522,094
Int. Cl.[5] E04B 7/00; E04D 1/28
U.S. Cl. 52—58 11 Claims

1. A flashing unit for installation on an upstanding wall at its intersection with a roof, said unit comprising:

(a) a rectangular metal flashing sheet having a transverse bend therein dividing the sheet into an upper counter section attachable to the wall and a large base section that extends to the roof, said bend having a Z-formation whose diagonal defines with the counter section an open-ended channel and the base section an open-ended pocket; and

(b) a flexible, waterproofing rectangular membrane whose upper edge is received in said pocket, the membrane overlying the base section and having a length that extends substantially to the roof, whereby said membrane is substantially coextensive with said base section, said flashing unit being one unit in an overlapping series of like units, the fold line between the diagonal and the base section at the end of said one unit in the series being slit to permit telescoping of the channel of the adjacent unit in the channel of the one unit, the base section of the adjacent unit overlapping that of the one unit and the membrane of the adjacent unit overlapping that of the one unit whereby the membranes are shingled.

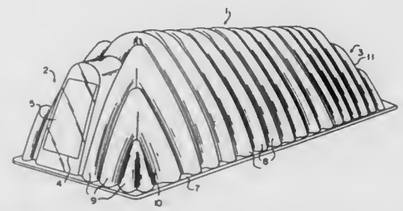


5,065,554

SHELL STRUCTURE

Pertti Neva, Näsilinnankatu 28 E, SF-33200 Tampere, and Ralf Lindberg, Timpurinkatu 17, SF-33720 Tampere, both of Finland

PCT No. PCT/FI88/00179, § 371 Date May 4, 1990, § 102(e) Date May 4, 1990, PCT Pub. No. WO89/04404, PCT Pub. Date May 18, 1989
PCT Filed Nov. 4, 1988, Ser. No. 488,014
Claims priority, application Finland, Nov. 5, 1987, 874886
Int. Cl.[5] E04B 7/00
U.S. Cl. 52—82 12 Claims



1. A shell structure comprising:

a single body of reinforced plastic defining a hollow, open bottom housing member, said housing member including an elongate portion having a substantially parabolic cross-sectional shape and two gables closing said elongate portion at the opposite ends thereof, said gables being inclined towards the central plane of the housing member, and a flange-shaped reinforcement portion extending along the edge of said open bottom of said housing member;

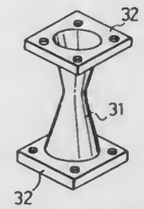
said elongate member and said two gables being corrugated such that its corrugations extend substantially perpendicularly to the edge of said open bottom and wherein said corrugations of said elongate portion and said inclined gable extend in the same phase at junctures between said elongate portion and said gables.

5,065,555

ELASTO-PLASTIC DAMPER

Takuji Kobori; Shunichi Yamada; Shigeru Ban; Koji Ishii; Isao Nishimura; Masatoshi Ishida; Kuniaki Sato; Yasuo Takenaka; Shozo Maeda, and Jun Tagami, all of Tokyo, Japan, assignors to Kajima Corporation, Tokyo, Japan

Division of Ser. No. 140,307, Dec. 31, 1987, Pat. No. 4,901,486.
This application Nov. 21, 1989, Ser. No. 439,087
Claims priority, application Japan, Mar. 6, 1987, 62-51288; Mar. 6, 1987, 62-51289; Mar. 6, 1987, 261-51290; Jul. 31, 1987, 62-102360; Jul. 31, 1987, 62-192358; Jul. 31, 1987, 62-192359
Int. Cl.[5] E04B 1/98; E04H 9/02
U.S. Cl. 52—167 DF 11 Claims



1. An elasto-plastic damper means adapted to protect building structures by attenuating seismic tremors comprising: a steel load-bearing damper body having a top and a base; said damper body being adapted to support and to space apart a first structure member from a second structure member; said top being adapted to be rigidly secured to said first structure member; said base being adapted to be rigidly secured to said second structure member; and said damper body being deformable responsive to seismic tremors of a magnitude sufficient to stress said damper within its elastic limit and being plastically deformable responsive to seismic tremors of a magnitude sufficient to stress said damper beyond its elastic limit; said damper body comprising a pair of frusta joined at their minor diameters.

5,065,556

SPACE DIVIDING PARTITION SYSTEM HAVING AN ELECTRICAL RACEWAY

Ronald B. DeLong, Belmont; Brian J. Persing, Grand Rapids; Charles G. Raabe, Leonard Heights; James R. Bouse, Belmont, all of Mich.; Peter F. Bemis, Sheboygan, Wis.; Hollerbach, Eric T., Gross Pointe Park, Mich.; Bradley J. Bruggink, Oostburg, and Daniel Cykana, Sheboygan, both of Wis., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 15, 1990, Ser. No. 523,776
Int. Cl.[5] E04F 19/06
U.S. Cl. 52—221 19 Claims

3. A space dividing office system, including a partition having an electrical raceway below a bottom edge thereof, comprising:

an elongated extruded plastic spine having first and second ends, a centrally disposed vertical web having first and second sides, with said vertical web extending between the first and second ends, a bottom portion which includes a depending noise seal and first and second extruded grooves on opposite sides of said noise seal,

first and second extruded plastic side panels each having first and second ends, a longitudinal axis between the first and second ends, inner and outer surfaces, a top, and a bottom having a mounting edge,

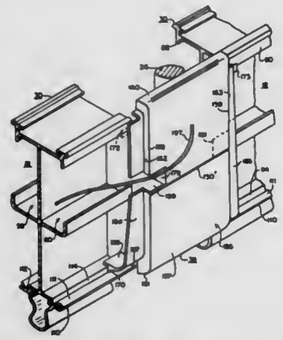
the mounting edges of the first and second side panels being respectively telescoped into and frictionally engaged with the first and second extruded grooves of the spine,

and means for attaching the spine to the bottom edge of the partition,

said spine including a top portion having an upwardly open C-shaped slot,

VOL 1132 ISS 3 NO 19 1991 UMI

said means for attaching the spine to the bottom edge of the partition including a mounting strip having a substantially hat-shaped cross-sectional configuration, and means fixing the mounting strip to the bottom edge of the space dividing partition, wherein the C-shaped upwardly facing slot of the spine is telescoped over the hat-shaped mounting strip,



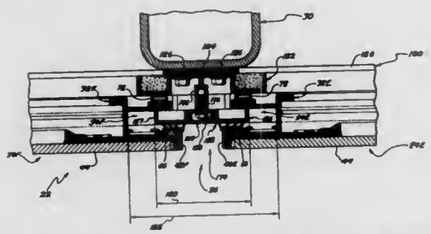
said mounting strip being an extruded plastic member which includes first and second laterally extending flanges over which the C-shaped upwardly facing slot is telescoped, with each of the first and second laterally extending flanges having at least one outwardly extending co-extruded friction pad formed of a softer plastic than the remaining portion of the mounting strip, with said co-extruded friction pads frictionally engaging the spine to resist disassembly of the spine from the mounting strip.

5,065,557

CURTAIN WALL SYSTEM WITH INDIVIDUALLY REMOVABLE WALL PANELS

Russell Laplante, Arnold; James A. Rockar, Grover, and Robert H. Stegeman, Jr., Old Monroe, all of Mo., assignors to Robertson-CECO Corporation, Pittsburgh, Pa.

Filed Nov. 1, 1990, Ser. No. 607,526
Int. Cl.[5] E04B *2/88*
U.S. Cl. 52—235 **22 Claims**



1. A vertical joint between horizontally adjacent wall panels of a wall structure, comprising:

said panels having inner and outer panel faces, and presenting spaced-apart vertical edges with a vertical gap therebetween;

rail means secured to said inner panel faces at said vertical edges and presenting vertical recesses open at and extending inwardly from said vertical edges; and

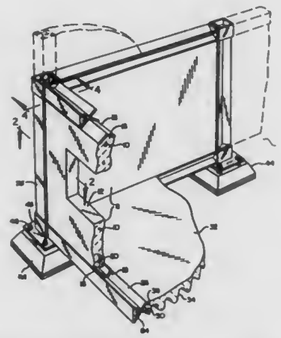
vertical spline means spanning across said vertical gap, engaging said vertical recesses, and being movable out of engagement with either of said vertical recesses thereby releasibly retaining said panels.

5,065,558

PREFABRICATED MODULAR BUILDING CONSTRUCTION SYSTEM

W. Harley Boatsman, Portland, Oreg., assignor to Gibraltar World International, Ltd., Portland, Oreg.

Continuation-in-part of Ser. No. 299,629, Jan. 23, 1989, abandoned. This application Dec. 26, 1989, Ser. No. 456,315
Int. Cl.[5] E04B *2/78, 2/38*
U.S. Cl. 52—239 **18 Claims**



1. A prefabricated building structure, comprising:

(a) a plurality of upright column members each defining a laterally open V-shaped groove extending vertically therealong;

(b) a horizontal frame assembly including a plurality of horizontal frame members, each respectively defining an upwardly-open V-shaped channel and a downwardly-open V-shaped channel, the horizontal frame assembly further including a plurality of corner connectors, interconnecting adjacent ones of said horizontal frame members with one another, and interconnecting vertically adjacent ones of said upright column members with each other, each corner connector having four upright walls, respective ones of said walls being attached to a plurality of said horizontal frame members and said corner connectors being open upwardly and downwardly, and respective ends of said upright column members extending into and being held in respective ones of said corner connectors; and a plurality of vertical wall panels of concrete each having respective top, bottom, and end margins, at least one of said end margins being of protruding wedge-like V form corresponding to the shape of a respective one of said V-shaped groove and at least one of said top and bottom margins being of protruding wedge-like V form corresponding to the shape of a respective one of said V-shaped channels, each of said end margins being matingly received in a respective one of said laterally open V-shaped grooves, and at least one of said top and bottom margins being matingly received in one of said open V-shaped channels of said horizontal frame assembly.

5,065,559

WALL SYSTEM AND METHOD OF CONSTRUCTION

Douglas R. Zegel, Moorestown, N.J.; Gary S. Jensen, Drexel Hill, Pa.; Mark R. Hernick, Prospect Park, Pa., and Michael J. Daniels, Doylestown, Pa., assignors to Art Guild, Inc., West Deptford, N.J.

Continuation of Ser. No. 285,763, Dec. 16, 1988, Pat. No. 4,976,080. This application Sep. 13, 1990, Ser. No. 581,798
Int. Cl.[5] E04H *1/00*
U.S. Cl. 52—239 **19 Claims**

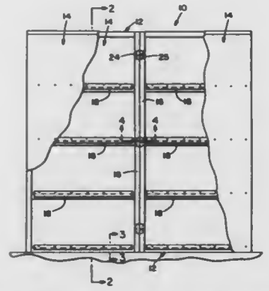
1. A wall system comprising:

(a) at least one wall frame including:

(i) a pair of spaced vertical supports,

(ii) an array of at least three cross members spanning between and rigidly connected to said vertical supports thereby fixing said vertical supports in spaced, parallel alignment; and

(iii) each of said vertical supports having means for lockingly engaging respective complementary vertical supports of a second wall frame;



(b) wall frame covering means including means for matingly engaging at least three of said cross members in unison; and

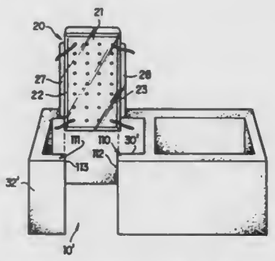
(c) said wall frame covering means matingly engaged with at least three of said wall frame cross members thereby securely mounting said wall frame covering means to one side of said wall frame.

5,065,560

CONCRETE BLOCK INSPECTION FORMS

Eli J. Yoder, 7500 Richardson Rd., Sarasota, Fla. 34240

Filed Dec. 6, 1990, Ser. No. 623,056
Int. Cl.[5] E04B *5/46, 5/08*
U.S. Cl. 52—306 **26 Claims**



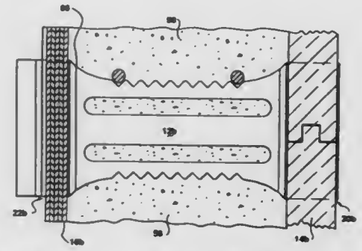
19. A combination construction block and inspection window comprising, a concrete block having upper and lower edges and a wall having a front face and an inner face and at least one interior cell, an opening from said front face into said cell, said opening being bordered on either side by side edges which extend from said front face to the inner face of the wall, the distance between said front face and said inner face of said wall being defined by a first dimension, a form means having a front face and side walls extended rearwardly therefrom, said side walls of said form means being selectively engagable with said side edges adjacent said opening, and said form means having at least one air hole opening therethrough.

5,065,561

FORM WORK SYSTEM

Martin B. Mason, Danville, Calif., assignor to American Construction Products, Inc., Campbell, Calif.

Filed Oct. 19, 1988, Ser. No. 260,165
Int. Cl.[5] E04B *2/00*
U.S. Cl. 52—309.12 **11 Claims**



1. Wall form apparatus for forming wet concrete into walls, comprising:

a plurality of vertically stackable rectangularly configured panels having interlocking edges and adapted to form a pair of parallel, spaced-apart wall forms, said panels each having a plurality of tie-receiving transversely oriented slots formed along regular intervals at the top and bottom edges thereof, said slots extending vertically a and bottom edges thereof, said slots extending vertically a predetermined distance into the top and bottom edges of said panels; and

a plurality of tie means, each including an elongated bridge portion spanning between first and second shank portions, transversely extending interior flange means formed at the junctions of said bridge portions and said shank portions, and exterior flange means disposed at the distal ends of said shank portions, said shank portions having vertical dimensions substantially equal to twice said predetermined distance whereby when the lower halves of said shank portions are mated with corresponding slots in the top edges of two parallel spaced apart panels, the upper halves thereof extend above said panels such that additional panes may be stacked thereabove with their lower edge slots disposed in mating relationship with said upper halves, said interior flange means and exterior flange means being adapted to engage the interior and exterior faces respectively of said panels.

5,065,562

SEALING AND FASTENING SYSTEM FOR GREENHOUSES

Douglas C. Larsen, Milford, and Robert A. Vaughan, Dearborn, both of Mich., assignors to The Standard Products Company, Cleveland, Ohio

Filed Jan. 29, 1990, Ser. No. 471,548
Int. Cl.[5] E04D *3/14*
U.S. Cl. 52—772 **20 Claims**

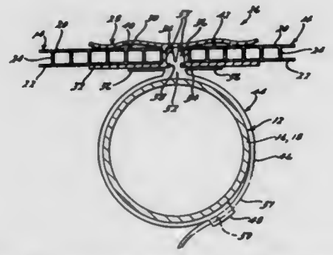
1. A sealing and fastening system for securing a pair of adjoining panels to a frame structure for a greenhouse, comprising:

an extruded one-piece coupling having a generally "H"-shape and forming a pair of transversely spaced pockets, one edge of each panel being disposed in a corresponding pocket; and

a fastener operatively engaging said coupling and having a

VOL 1132 ISS 3 NOV 19 1991 UMI

wrap adapted to be disposed about a member of the frame structure to secure said coupling to the frame structure,



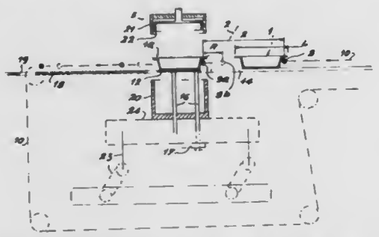
said wrap including a self contained fastening means for securing of the wrap to the frame structure.

5,065,563

PACKAGING MACHINE FOR CLOSING PACKAGING TRAYS OR THE LIKE AFTER FILLING, BY WELDING A FILM OF THERMOPLASTIC MATERIAL

Patrick Robache, Paris, France, assignor to Mecaplastic, Bagnolet, France

Filed Oct. 19, 1990, Ser. No. 600,999
Claims priority, application France, Oct. 20, 1989, 89 13754
Int. Cl.[5] B65B *31/02*
U.S. Cl. 53—69 5 Claims



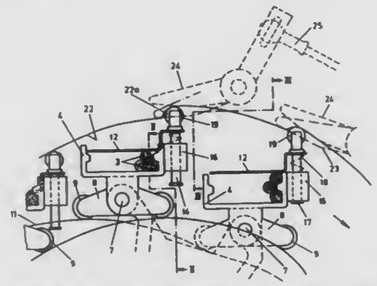
1. In a packaging machine for closing packaging trays or the like after filling in a filling station, comprising means for vacuum welding a plastic film on edges of said packaging trays in said filling station, and mechanical means for displacing said trays one behind the other into said filling station and then out of said station for discharge of closed packaging trays; the improvement wherein said mechanical means comprises a single endless conveyor having an upper run having thereon a series of spaced pushers which are capable each of pushing a said tray, means for advancing said upper run of said conveyor to move a said packaging tray pushed by one said pusher into said filling station, means for thereafter moving said upper run in a reverse direction to move a said pusher backward away from said tray and said filling station a distance less than the spacing between adjacent pushers so as to permit said vacuum welding means to weld thermoplastic film on said tray in said filling station, and means for thereafter reversing movement of said upper run so that said one pusher again contacts said tray in said filling station to move said tray out of said filling station and to move into said filling station another said tray propelled by another said pusher on said conveyor.

5,065,564

APPARATUS FOR THE FORMATION OF CIGARETTE GROUPS

Manfred Oberdorf, Gevelsberg, Fed. Rep. of Germany, assignor to Maschinenfabrik Alfred Schmermund GmbH & Co., Gevelsberg, Fed. Rep. of Germany

Filed Oct. 25, 1990, Ser. No. 603,880
Claims priority, application Fed. Rep. of Germany, Oct. 28, 1989, 3935971
Int. Cl.[5] B65B *19/10*
U.S. Cl. 53—150 20 Claims



1. Apparatus for forming cigarette groups comprising a plurality of layers of cigarettes for a pack, said apparatus comprising:

turret means for forming cigarette groups comprising a turret rotatable about a first axis;

cell means comprising a plurality of cells each having a floor for receiving cigarette groups, said cells being pivotally mounted to said turret means for rotation coaxially of said first axis;

funnel means comprising means defining a plurality of parallel exit orifices;

first control cam means engageable with the cell means for aligning the cells with the exit orifices at load positions;

transfer means for axially transferring a cigarette layer from an exit orifice to a cell;

tamping means for tamping a cigarette layer in each cell; and

second control cam means for adjusting the position of the tamping means relative to an associated cell floor comprising stationary cam means comprising a step for allowing displacement of said tamping means at least by the amount of the height of a cigarette layer at load positions and movable cam means for temporarily positioning the tamping means against a cigarette layer during rotation of said cell and releasing said tamping means at the load positions.

5,065,565

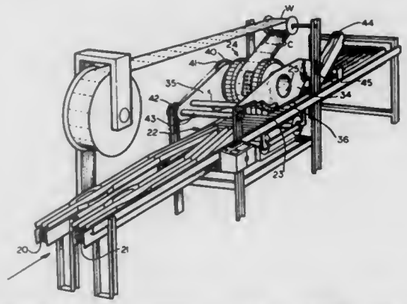
METHOD AND APPARATUS FOR APPLYING CARRIERS TO CONTAINERS

Frank J. DiFrank, Toledo, Ohio, assignor to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Filed Oct. 10, 1989, Ser. No. 419,346
Int. Cl.[5] B65B *21/00*
U.S. Cl. 53—398 24 Claims

1. A method of applying carriers to arrays of containers comprising, providing a web of interconnected plastic carriers, each carrier having an array of openings for receiving the upper ends of the array of containers, the configuration of each of the openings being slightly less than the cross section of the upper end of each of the containers, providing a plurality of containers in rows and columns, each container having an upper bead, a neck and a body portion, moving the rows of containers in a predetermined path, moving the web in a converging path with respect to the direction of movement of the containers, first engaging the trailing edges of the beads of each transverse row of containers with the trailing edges of a corresponding row of openings in said carrier web, then causing said

row of containers engaged with the trailing edge of said openings to move relative to its respective tow of openings in the carrier to thereby cause the leading edge of said engaged row of openings of said carrier web to pass down over and engage the leading edges of the beads of said engaged containers, successively engaging the trailing edges and leading edges of



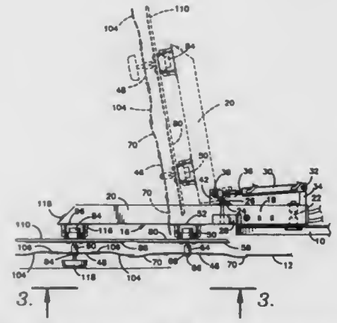
succeeding rows of containers with the trailing edges and leading edges of succeeding rows of openings in the carrier web thereby applying the carrier to the containers, and thereafter severing each carrier from the remainder of the web to form as a package, a carrier and a predetermined array of containers.

5,065,566

TRIMMER ATTACHMENT FOR MOWING DECKS

David E. Gates, R.R. 5, Box 148B, Chillicothe, Mo. 64601

Filed Dec. 7, 1990, Ser. No. 629,646
Int. Cl.[5] A01D *55/00*
U.S. Cl. 56—12.7 20 Claims



1. A trimmer attachment for a tractor driven mower deck, comprising:

a boom;

means for connecting said boom to extend generally horizontally from the mower deck in a manner permitting the boom to pivot about a substantially vertical pivot axis between a normal position wherein the boom extends generally laterally to one side of the deck and a deflected position wherein the boom is deflected rearwardly from the normal position when the boom encounters an obstacle;

yieldable means for urging the boom toward its normal position to return the boom to the normal position after an obstacle is cleared;

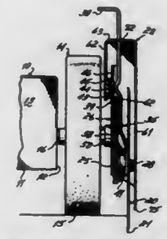
flexible line trimming means on said boom comprising a trimming head mounted for rotation on the boom and a flexible trimming line on the trimming head for trimming weeds and the like when the trimming head is rotated; and power means for effecting rotation of the trimming head.

5,065,567

LAWN EDGER

Lloyd F. Wessel, 2810 Meadow Dr., Louisville, Ky. 40220; Edward O. Wessel, 216 Dorchester Rd., Louisville, Ky. 40223, and MaryAnn Mudd, 104 Bellemeade Rd., Louisville, Ky. 40222

Filed Oct. 10, 1990, Ser. No. 595,210
Int. Cl.[5] A01D *31/00*
U.S. Cl. 56—13.7 30 Claims



1. Turf edging apparatus including in combination, a wheeled lawn mower having a frame, a non rotational front axle and a front wheel mounted thereon, said front wheel having a circumferential tread for rolling engagement with a surface over which the lawn mower can be rolled,

an edging disk having a turf cutting edge,

arm means mounting said edging disk on said axle for selective linear movement with respect to said axle, said disk having a disk axis,

said disk axis being radially spaced from said axle and adjustable in a linear direction about said axle independently of said frame,

said disk being rotatable about said disk axis,

said disk being movable between a stowed position above said surface and a deployed edging position wherein said turf cutting edge is disposed beyond the circumferential tread of said front wheel from said axle for edging, and

further including means for adjusting the cutting height of said mower with respect to said front axle, and independently of the position of said disk, while maintaining constant the position of said disk with respect to the position of said axle, such that adjustment of the cutting height of said mower does not affect the edging position of said disk.

5,065,568

MOWER DECK HEIGHT ADJUSTMENT MECHANISM

Stephen A. Braun, Horicon; Michael J. O'Neill, Mayville, both of Wis., and Donald L. Cutshall, Burnsville, Minn., assignors to Deere & Company, Moline, Ill.

Filed Jul. 26, 1990, Ser. No. 558,045
Int. Cl.[5] A01D *34/64, 34/68*
U.S. Cl. 56—14.9 20 Claims

1. A mechanism as used in the mowing of vegetation, comprising:

a base unit;

at least one ground engaging wheel supporting the base unit;

a frame fixed to the base unit, said frame and base unit being rigid with respect to relative movement about a transversely extending axis;

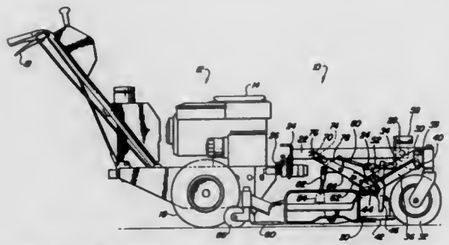
at least one ground engaging wheel for supporting the frame;

a deck within which vegetation may be cut, said deck being carried by the frame and having first and second portions;

means for selectively adjusting the height of the first portion of the deck above the ground without altering the height of the frame;

VOL 1132 ISS 3 NO 19 1991 UMI

a bell crank means coupling the first deck portion adjustment means with the second portion of the deck for adjusting the height of the second portion of the deck, said bell crank means being adapted to shift vertically as the height of the first portion of the deck is adjusted.

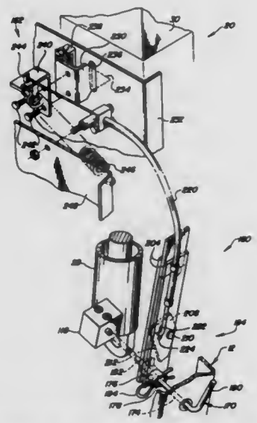


5,065,569

VALVE INTERLOCK SYSTEM FOR A HARVESTER HAVING AN UNLOADABLE CROP RECEIVING RECEPTACLE

Francis E. Schlueter, Des Moines, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Jul. 17, 1990, Ser. No. 554,212
Int. Cl.[5] A01D *46/08, 90/00*
U.S. Cl. 56—16.6 **15 Claims**



1. In a harvester having an unloadable crop receiving receptacle, a source of hydraulic fluid under pressure, a hydraulically controlled unloading mechanism, and a hydraulically controlled retracting mechanism for moving the receptacle between a compacted storage position and an expanded operating position, an interlock system for preventing operation of the unloading mechanism when the receptacle is retracted, comprising:

a valve connected to the source of hydraulic fluid and to the unloading and retracting mechanisms, said valve including operator control means moveable between a first control position wherein the source is connected to the retracting mechanism for moving the receptacle between the storage and operating positions, and a second control position wherein the source is connected to the unloading mechanism; and

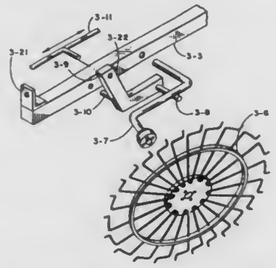
a lockout control operably connected to the valve and including means responsive to the movement of the receptacle toward the compact position for preventing movement of the operator control means to the second position.

5,065,570

BI-FOLD HAY RAKE SYSTEM

Melvin C. Kuehn, Rte. 3, Box 272, Aitkin, Minn. 56431

Continuation of Ser. No. 445,891, Nov. 24, 1989, Pat. No. 4,947,631, which is a continuation of Ser. No. 126,690, Feb. 24, 1988, abandoned. This application Jun. 13, 1990, Ser. No. 537,247
The portion of the term of this patent subsequent to Aug. 14, 2007, has been disclaimed.
Int. Cl.[5] A01D *78/12*
U.S. Cl. 56—377 **4 Claims**



1. An agricultural implement adapted for towing behind a tractor or the like to rake a harvested crop arranged in a swath along the ground into a windrow, comprising:

(a) a transport frame having a front end and a rear end, a frame centerline extending between said front and rear ends, and a pair of spaced apart, side supports on opposite sides of said centerline;

(b) ground engaging wheels operably coupled to said transport frame for supporting said frame along the ground; and

(c) a pair of wheel rake assemblies operably mounted on each side of said transport frame for shifting between a folded transport position and an extended working position, each of said wheel rake assemblies having a support beam pivotally coupled to said transport frame at a respective support beam pivot point proximal said rear end and a plurality of wheel rakes rotatably carried along the length of said support beam;

(d) each wheel rake assembly including an extensible support arm assembly, each of said support arm assemblies including a first support brace pivotally coupled at one end thereof to said support frame at a respective first support brace pivot point forward of said support beam pivot points and proximal said centerline, said first support braces each extending across a respective side support in slidable relationship therewith to a respective wheel rake assembly support beam such that each of said wheel rake assemblies is supported at least at three points by said transport frame.

5,065,571

TANGENTIAL BELT DRIVE FOR A SPINNING OR TWISTING MACHINE

Hans Stahlecker, Süssen, Fed. Rep. of Germany, assignor to Fritz Stahlecker, Fed. Rep. of Germany, a part interest

Filed Feb. 23, 1990, Ser. No. 483,713
Claims priority, application Fed. Rep. of Germany, Feb. 6, 1988, 3905534
Int. Cl.[5] D01M *13/00*
U.S. Cl. 57—105 **11 Claims**

1. A tangential belt drive for a spinning or twisting machine equipped on each of two lateral sides with a row of a plurality of spindles, comprising;

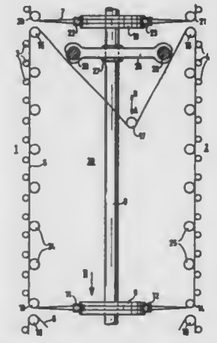
an endless tangential drive belt,

belt guides for guiding movement of the drive belt along the two lateral sides of the machine to drive the spindles,

a drive shaft extending through in the longitudinal direction of the machine in between said two lateral sides,

a belt drive disk carried by the drive shaft and drivingly engaged with the drive belt along the circumference of the drive disk above the drive shaft, said drive disk being disposed at a first longitudinal end of the two rows of spindles,

and deflecting guide means disposed at a second opposite longitudinal end of the two rows of spindles for deflecting the travel path of the drive belt from one of said rows to the other of said rows,



wherein said deflecting guide means includes a tension roller disposed vertically above the drive shaft and rotatable about a vertical axis extending perpendicular to the plane of the drive shaft axis and located closer to the drive disk than are end most belt guides at the second end of the rows of spindles to thereby form a belt travel path with a triangular opening on the outside which faces away from the belt drive disk and serves as a mounting space for machine frame elements.

5,065,572

FIBER SUPPLY ARRANGEMENT FOR OPEN-END ROTOR SPINNING

Fritz Stahlecker, Bad Überkingen, Fed. Rep. of Germany, assignor to Hans Stahlecker, Fed. Rep. of Germany, a part interest

Filed May 9, 1990, Ser. No. 520,754
Claims priority, application Fed. Rep. of Germany, May 18, 1989, 3916238
Int. Cl.[5] D01H *4/38*
U.S. Cl. 57—413 **17 Claims**

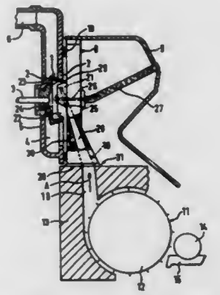
1. An arrangement for open-end rotor spinning comprising:

a spinning rotor which has a fiber sliding surface expanding conically toward a fiber collecting groove,

a fiber feeding duct having a mouth disposed opposite the fiber sliding surface, the fiber feeding duct starting at a fiber opening means and tapering in the direction toward the fiber sliding surface to define a fiber transport direction path for fibers being fed therethrough, said fiber feeding duct including at least one deflection for deflecting the fiber transport direction therethrough,

vacuum source means communicating with the fiber feeding duct mouth for creating an air flow to carry fibers in the fiber feeding duct from the opening means to the mouth,

and a bypass opening to the fiber feeding duct located outside of the rotor area and connected to further vacuum source means for withdrawing air from the fiber feeding duct and thereby increasing air flow aided fiber transport during spinning operations, said bypass opening being in bypassing relation to the mouth of the fiber feeding duct, wherein the bypass opening is disposed downstream of the deflection in the fiber transport direction and at a side of the fiber feeding duct opposite the side of the fiber feeding duct where the fibers travel due to the deflection, whereby the fiber transport in the feeding duct during spinning operations is enhanced by the bypass opening while minimizing fiber loss through the bypass opening.

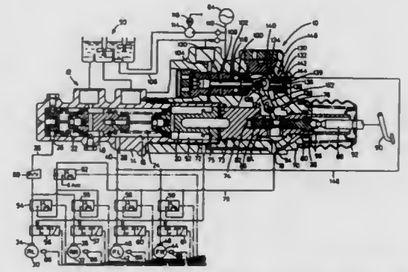


5,065,573

HYDRAULIC POWER BOOSTER INCLUDING BACKUP ACTUATOR IN ADDITION TO LEVER DEVICE, FOR BOOSTER CONTROL VALVE

Yoshihisa Nomura, Toyota; Masahiko Kato, Toyoake; Michiharu Nishii, Toyota, all of Japan, Japan assignors to Toyota Jidosha Kabushiki Kaisha, Toyota and Aisin Seiki Kabushiki Kaisha, Kariya, both of Japan

Filed Jul. 16, 1990, Ser. No. 552,896
Claims priority, application Japan, Jul. 25, 1989, 1-192391
Int. Cl.[5] B60T *13/20*
U.S. Cl. 60—551 **13 Claims**



1. A hydraulic power booster having a power piston and a valve spool, for applying a pressure of a pressure source into a power chamber to advance said power piston, aid hydraulic power booster comprising:

a reaction piston movable relative to said power piston;

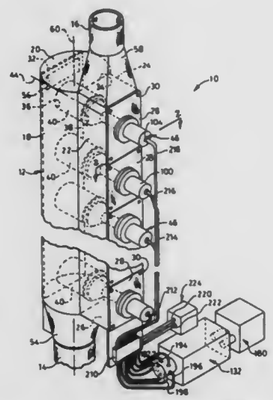
a lever device disposed in operative association with said reaction and power pistons and said valve spool, for moving said valve spool in one of opposite axial directions of the valve spool, in response to a relative movement between said reaction and power pistons; and

a backup actuator including a cylinder, and a valve drive piston which slidably engages said cylinder, said cylinder and said valve drive piston cooperating with each other to define a first fluid chamber communicating with said power chamber, and a second fluid chamber communicating with a pressure chamber in which a pressure is generated according to an advancing force of said power piston,

VOL 1132 ISS 3 NO 19 1991 UMI

said valve drive piston moving said valve spool in said one of opposite directions, in engagement with said valve spool, when said valve drive piston is moved in a direction from said second fluid chamber toward said first fluid chamber.

5,065,574
PARTICULATE TRAP REGENERATION APPARATUS AND METHOD
John M. Bailey, Dunlap, Ill., assignor to Caterpillar Inc., Peoria, Ill.
Filed May 29, 1990, Ser. No. 531,264
Int. Cl.[5] F01N *3/02*
U.S. Cl. 60—274 42 Claims

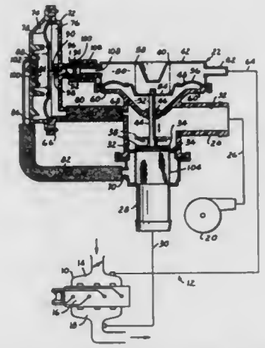


1. A particulate trap regeneration apparatus of the type including a particulate trap core having a first end opening on a duct containing exhaust gases having particulate matter therein, and allowing the egress of filtered exhaust gases from a second end thereof to another duct, the improvement comprising:

regeneration means including an apparatus for directing a source of an oxygen-containing gas at a controlled rate independent of the operation of the engine toward the second end of the trap core, heating the oxygen-containing gas, forcing the heated oxygen-containing gas to travel through the trap core and egress at the first end thereof, and controllably burning the particulate matter accumulated within the trap core in a reverse flow manner.

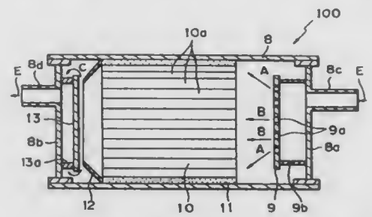
5,065,575
AIR FLOW/CHECK VALVE
John E. Cook, and Murray F. Busato, both of Chatham, Canada, assignors to Siemens Automotive Limited, Chatham, Canada
Continuation-in-part of Ser. No. 440,941, Nov. 22, 1989, abandoned. This application Oct. 25, 1990, Ser. No. 601,095
Int. Cl.[5] F01N *3/22*
U.S. Cl. 60—290 69 Claims

1. In an internal combustion engine exhaust emission control system wherein an air pump delivers air to the exhaust to promote the oxidation of undesirable products of combustion in the hot exhaust gases leaving the engine but is susceptible to potential damage by backflow from the exhaust under certain exhaust conditions tending to create potentially damaging backflow toward the air pump, the improvement comprising air flow/check valve means disposed in flow controlling relationship between the air pump and the exhaust for permitting flow in the direction from the air pump to the exhaust and for blocking backflow in the direction from the exhaust to the air pump, said air flow/check valve means comprising a valving mechanism that is selectively operable to allow and disallow flow between the air pump and the exhaust, and operating means for operating said valving mechanism, said operating means comprising an actuator that is selectively positionable to cause said valving mechanism to selectively allow and disallow flow between the air pump and the exhaust, and a control means for said operating means comprising two pressure sensing taps between the air pump and the exhaust, one of which is upstream of said valving mechanism, and the other of which is downstream of said valving mechanism, and coupling means



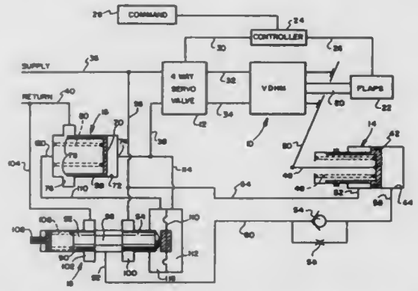
coupling said two taps with said operating means for causing said actuator to operate said valving mechanism to allow flow between the air pump and the exhaust when the pressure differential sensed by said two taps is indicative of operation of the air pump being effective to cause the pumping of air into the exhaust and for causing said actuator to operate said valving mechanism to disallow flow between the air pump and the exhaust when the pressure differential sensed by said two taps indicates a condition of the exhaust tending to create potentially damaging backflow of exhaust to the air pump.

5,065,576
EXHAUST GAS PURIFYING DEVICE FOR A DIESEL ENGINE
Hirotaka Kanazawa; Yoshitomi Fujimoto, and Michio Suzuki, all of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Aichi, Japan
Filed Feb. 6, 1990, Ser. No. 475,700
Claims priority, application Japan, Feb. 17, 1989, 1-18062[U]
Int. Cl.[5] F01N *3/28*
U.S. Cl. 60—295 6 Claims



1. An exhaust gas purifying device for a diesel engine having an exhaust pipe connected therefrom, said device comprising an outer casing comprising a cylindrical member, a first end cap closing one end of said cylindrical member and having a gas inlet formed therethrough adapted for connection to said exhaust pipe, and a second end cap closing the other end of said cylindrical member and having a gas outlet formed therethrough, a catalyst-carrying honeycomb having a dust free structure and arranged in said outer casing, and a baffle plate means arranged in said outer casing between said gas inlet and said catalyst-carrying honeycomb and attached to said first end cap, wherein at least one of said end caps is detachable from said cylindrical member and said catalyst-carrying honeycomb is removable from said outer casing after said end cap is detached.

5,065,577
HYDROMECHANICAL DISPLACEMENT CONTROL FOR A POWER DRIVE UNIT
Albert L. Markunas, Roscoe, Ill., assignor to Sundstrand Corporation, Rockford, Ill.
Filed Nov. 22, 1989, Ser. No. 440,519
Int. Cl.[5] F16H *61/42, 61/46*
U.S. Cl. 60—450 11 Claims



8. A control system for a power drive unit comprising:

a variable displacement hydraulic motor;

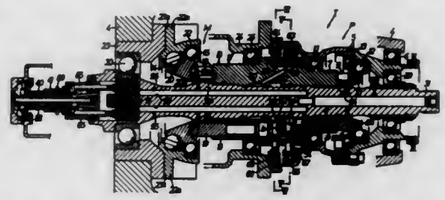
a hydraulic actuator connected to said motor for controlling the displacement thereof;

a servo valve adapted to be connected to a source of hydraulic fluid under pressure and a controller, and connected to said motor for controlling the flow of fluid thereto in response to signals received from the controller; and

flow sensing means connected in said system for sensing flow through said motor and for providing a hydraulic control signal to said actuator, said flow sensing means including an orifice through which flow for said motor must pass and means for sensing the pressure differeniial across said orifice to provide said hydraulic control signal to said actuator.

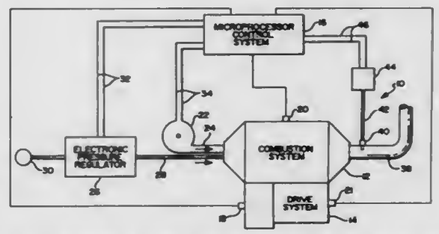
5,065,578
HYDROSTATIC CONTINOUSLY VARIABLE TRANSMISSION WITH ADJUSTABLE CLUTCH VALVE
Yoshihiro Nakajima; Mitsuru Saito; Tsutomu Hayashi, all of Tokyo; Tadashi Tsunoda; Katsumi Yamazaki, both of Saitama; Yoshihiro Yoshida, Tokyo, and Kazuhiko Nakamura, Kanagawa, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 17, 1989, Ser. No. 422,807
Claims priority, application Japan, Oct. 18, 1988, 63-262649
Int. Cl.[5] F16H *61/40*
U.S. Cl. 60—464 13 Claims

1. A hydrostatic continuously variable transmission comprising a hydraulic pump, a hydraulic motor, a hydraulic closed circuit between said hydraulic pump and said hydraulic motor, a clutch valve connected to said hydraulic closed circuit and capable of operating between a clutch-on position for setting said hydraulic closed circuit to a hydraulic transmitting state and a clutch-off position for setting said hydraulic closed circuit to a hydraulic transmission cut-off state, a pressure receiving chamber for urging said clutch valve to the clutch-off position upon receipt of the pressure of a high pressure portion of said hydraulic closed circuit, a pressure regulating spring means for urging said clutch valve to the clutch-on position, and a clutch controller connected to said pressure regulating



spring means and capable of regulating the set load of said pressure regulating spring means.

5,065,579
FEEDBACK AIR-FUEL CONTROL SYSTEM FOR STIRLING ENGINES
Russell Monahan, Ann Arbor, Mich., assignor to Gas Research Institute, Chicago, Ill.
Filed Oct. 12, 1990, Ser. No. 596,516
Int. Cl.[5] F02G *1/045*
U.S. Cl. 60—524 15 Claims



1. In combination with a Stirling engine having an air-fuel ratio control and an exhaust gas emission outlet, the improvement comprising:

an oxygen sensor in communication with said exhaust gas emission outlet for generating an output signal representative of the oxygen content in said outlet;

a sensor signal conditioning unit for adapting said output signal to a conditioned input signal for a microprocessor; and

a microprocessor controlled pilot for adjusting said air-fuel control in response to said control input signal.

5,065,580
TANDEM MASTER CYLINDER WITH LIMITED-MOTION BOOSTER PISTON AT PEDAL-REMOTE END OF MASTER CYLINDER AND WITH BOOSTER FLUID CUT VALVE
Michiharu Nishii, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Aichi, Japan
Filed Mar. 21, 1990, Ser. No. 496,697
Claims priority, application Japan, Mar. 31, 1989, 1-083743
Int. Cl.[5] B60T *13/12*
U.S. Cl. 60—547.1 7 Claims

1. A hydraulic braking system comprising:

a master cylinder having a bore with an opening and a wall at opposite ends thereof, at least one piston slidably disposed in the bore and operatively connected to a brake pedal, at least one fluid chamber and at least one pressure chamber being defined in the bore by the at least one piston, said at least one piston having passage means formed therein for providing fluid communication between the fluid chamber and the pressure chamber, said at least one piston being provided with normally open valve

VOL 1132 ISS 3 NO 19 1991 UMI

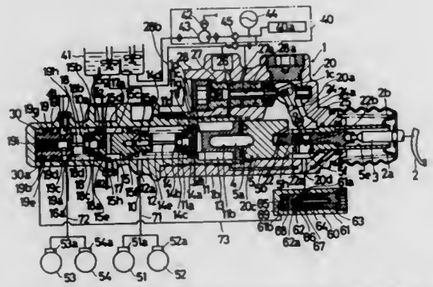
means for closing said passage means when the at least one piston is moved in response to depression of the brake pedal;

a power source for generating a hydraulic power pressure;

a dynamic hydraulic braking pressure generator which receives the hydraulic power pressure supplied from the power source and transmits output pressure regulated in response to the depression of the brake pedal;

a plurality of wheel cylinders for braking respective road wheels, divided into a first group of wheel brake cylinders connected with a first hydraulic circuit and a second group of wheel brake cylinders connected with a second hydraulic circuit;

the pressure chamber being in fluid communication with one of said hydraulic circuits; and



piston means slidably disposed between the piston and the closed wall and forming an operational chamber fluid-tightly separated from the pressure chamber and communicating with the dynamic hydraulic braking pressure generator so as to apply the output pressure of the dynamic hydraulic braking pressure generator therein to the wall end of the bore, and including restricting means for restricting movement of the piston means to a predetermined distance toward said at least one piston in response to the output pressure of the dynamic hydraulic braking pressure generator,

a cut valve means interrupting the fluid communication between the dynamic hydraulic pressure generator and the operational chamber when the output hydraulic pressure of the dynamic hydraulic braking generator is larger than a predetermined value.

5,065,581

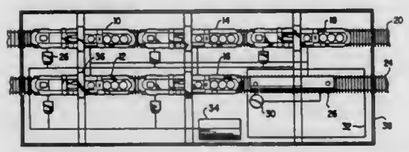
POWER PLANT AND METHOD OF PRODUCTION OF SYNCHRONOUS COMMERCIAL ELECTRIC POWER USING DIESEL ELECTRIC LOCOMOTIVES

Christopher P. Jenkins, Reisterstown, Md., assignor to Energy Resources & Logistics, Inc., Baltimore, Md.

Filed Oct. 24, 1990, Ser. No. 602,570

Int. Cl.[5] H02P *9/04*

U.S. Cl. 60—668 **8 Claims**



1. A method of producing synchronous electric power at utility transmission or subtransmission voltages to an electric utility grid during periods of peak electrical demand, the method comprising;

(a) providing at least two conventional diesel electric railroad locomotives, each having a diesel engine with a speed governor for such engine, an electrical generator driven by the engine, electrical drive motors driven from electricity provided by the generator, railroad wheels on axles driven by the drive motors,

(b) positioning the locomotives stationary at a location on railroad tracks,

(c) disconnecting the electric drive motors of the locomotives from the locomotive generator,

(d) connecting the output of the locomotive generators in parallel to generate synchronous electric power,

(e) controlling the speed of the diesel engines within the tolerances required for synchronous alternating current generation, and

(f) connecting the electrical output of the locomotive generators to step up transformer means and to an electric utility distribution grid.

5,065,582

DEWAR VESSEL FOR A SUPERCONDUCTING MAGNETOMETER DEVICE

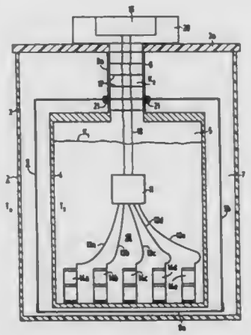
Heinrich Seifert, Bubenreuth, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Jun. 5, 1990, Ser. No. 533,297

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1989, 3918330

Int. Cl.[5] F17C *1/00*

U.S. Cl. 62—45.1 **12 Claims**



1. A high-frequency screening device surrounding an interior space of a Dewar vessel that contains a device for measuring weak magnetic fields produced by at least one field source to be detected, the vessel having a neck and an area of the interior space for accommodating superconducting parts of the measuring device to be cooled by contacting a cryogenic fluid to be supplied from outside the vessel via the neck, the cryogenic fluid having a low temperature, said screening device comprising:

at least one surface that surrounds the area of the vessel accommodating the superconducting parts of the measuring device that is formed by individual, electrically conducting tracks which are electrically insulated from one another to suppress eddy currents, said screening device disposed outside of the interior space between an inner and outer wall of the Dewar vessel and acting as a thermal radiation shield, whereby said at least one surface of the high-frequency screening device surrounding the superconducting parts of the measuring device is maintained at a temperature level between the low temperature of the cryogenic fluid and an outside temperature of the vessel.

5,065,583

METHOD OF STORING VOLATILE SUBSTANCES, CONTAINER FOR STORING SAID SUBSTANCES, AND FLOW-CONTROL METHOD FOR SURFACE FLOW OF SUPERFLUID HELIUM

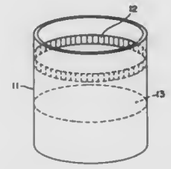
Shosuke Sasaki, Amagasaki, and Yasuyuki Kitano, Hiroshima, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 225,177, Jul. 28, 1988, Pat. No. 4,920,753. This application Feb. 16, 1990, Ser. No. 480,874

Claims priority, application Japan, Aug. 4, 1987, 62-194596; Aug. 20, 1987, 62-205156

Int. Cl.[5] F25B *19/00*

U.S. Cl. 62—51.3 **31 Claims**



1. A container for storing liquid helium, comprising:

liquid containing means for holding the liquid helium; and

means for blocking the flow of liquid helium, wherein the helium is in a superfluid state in said container and said blocking means is provided on an inner wall surface of said liquid containing means.

5,065,584

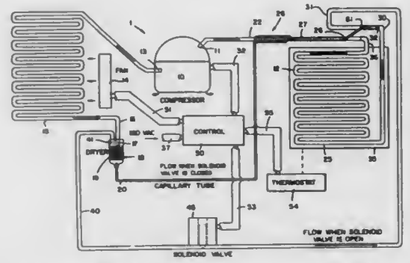
HOT GAS BYPASS DEFROSTING SYSTEM

Dean G. Byczynski, Milwaukee, and William A. Reed, Cedarburg, both of Wis., assignors to U-Line Corporation, Milwaukee, Wis.

Filed Jul. 30, 1990, Ser. No. 559,484

Int. Cl.[5] F25B *41/00*

U.S. Cl. 62—81 **4 Claims**



1. In a refrigeration apparatus of the type including a power driven compressor for discharging a refrigerant to an inlet of a first heat exchanger, a flow restriction device connected to an outlet of the first heat exchanger for restricting the flow of refrigerant through the first heat exchanger to thereby cause condensation of the refrigerant in the first heat exchanger, and second heat exchanger connected between an outlet of the restricting device and an inlet of the cmopressor, whereby the condensed refrigerant entering the second heat exchanger from the restriction device evaporates to thereby extract heat from the second heat exchanger, the improvement for providing defrosting for the second heat exchanger in which the refrigeration apparatus further comprises:

a bypass manifold comprising a dual port dryer including a first port connected to the first heat exchanger, a second port connected to a capillary tube restricting device emanating from the dual port dryer, and a third port which provides substantially unrestricted flow of refrigerant between the first and third ports;

a second inlet port on the second heat exchanger; and

bypass means connected between the third port of the dual port dryer and the second inlet port on the second heat exchanger, the bypass means including a flow switching device having a first state and a second state, in which flow of refrigerant through the bypass means is substantially blocked when the flow switching device is in the first state and in which flow of refrigerant through the bypass means is substantially unrestricted when the flow switching device is in the second state;

whereby when the flow switching device is in the first state the refrigerant flows substantially exclusively through the capillary tube restricting device for normal refrigeration, and when the flow switching device is in the second state the refrigerant flows substantially exclusively and unrestricted through the bypass means to thereby deliver uncondensed refrigerant to the second heat exchanger for defrosting of the second heat exchanger.

5,065,585

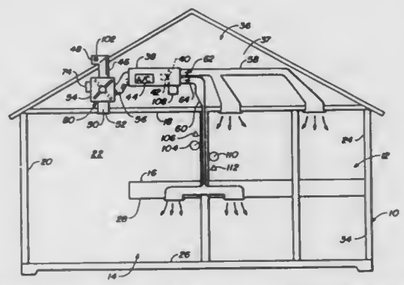
SYSTEM FOR COOLING THE INTERIOR OF A BUILDING

Calvin R. Wylie, Fair Oaks, and Patrick H. Crites, Orangevale, both of Calif., assignors to Beutler Heating and Air Conditioning, Inc., Sacramento, Calif.

Filed Oct. 25, 1990, Ser. No. 605,076

Int. Cl.[5] F25B *25/00*

U.S. Cl. 62—89 **4 Claims**



4. Apparatus for cooling the interior of a building having an attic, said apparatus comprising, in combination:

means for sensing the temperature of ambient air outside said building;

means for sensing the temperature of the air in said building interior;

means for deliverying air from outside said building into said building when a temperature differential of a first predetermined magnitude is sensed;

means for substantially terminating air flow from outside said building into said interior when a temperature differential of a second predetermined magnitude less than said first predetermined magnitude is sensed;

means for cooling air within said building interior when said air attains a predetermined temperature; and

means for venting air from said building interior into space defined by said attic while delivering air from outside said building into said building interior to relieve the build-up of air pressure within said building interior.

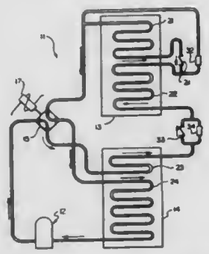
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,586

AIR CONDITIONER WITH DEHUMIDIFYING MODE

Ian Shapiro-Baruch, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Jul. 30, 1990, Ser. No. 559,744
Int. Cl.[5] F25D *17/06*; F25B *13/00*
U.S. Cl. 62—93 5 Claims



1. A vapor compressing air conditioning apparatus, having at least air cooling and air dehumidification operating modes, comprising:

a first closed refrigerant flow loop from compressor means to a first condensing heat exchanger means to second condensing heat exchanger means to first throttling means to dual function heat exchanger means to evaporating heat exchanger means to said compressor means;

a second closed refrigerant flow loop from said compressor means to said dual function heat exchanger means to said second condensing heat exchanger means to second throttling means to said evaporating heat exchanger means to said compressor means; and

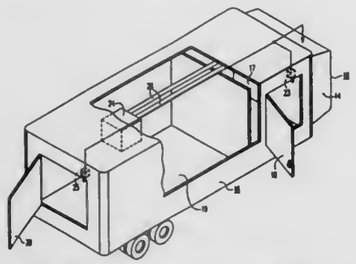
flow control means for causing refrigerant to flow through said first closed refrigerant flow loop when said apparatus is in its cooling operating mode and through said second refrigerant flow loop when said apparatus is in its dehumidifying mode.

5,065,587

COMPARTMENTALIZED TRANSPORT REFRIGERATION SYSTEM

Leland L. Howland, Belle Plaine; Jan M. Parker, Minneapolis; Doyle G. Herrig, Elko, all of Minn., and David A. Swanson, Carol Stream, Ill., assignors to Thermo King Corporation, Minneapolis, Minn.

Filed Jan. 28, 1991, Ser. No. 646,980
Int. Cl.[5] F25D *29/00*
U.S. Cl. 62—131 6 Claims



1. In a compartmentalized transport refrigeration system having front and rear compartments, first and second access doors to the front and rear compartments, respectively, first and second thermostats which respectively control the temperatures in the front and rear compartments to first and second set point temperatures via null, heating and cooling cycles, a host refrigeration unit which includes a compressor driven by a prime mover in a selected one of high and low speeds, a condenser, a receiver, a local evaporator for the front compartment, hot gas, liquid and suction lines, and a host evaporator damper, a remote refrigeration unit including a remote evaporator for the rear compartment, with the remote evaporator unit being connected to the host refrigeration unit via remote hot gas, liquid and suction lines, and electrical control for controlling the operation of the host and remote refrigeration units, the improvement comprising:

a door switch mounted to be responsive to the position of the first door,

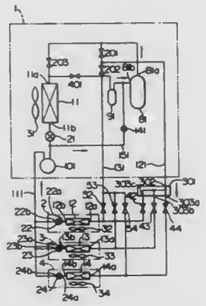
and control means in the electrical control connected to be responsive to said door switch such that said door switch, when the first door is open, causes said control means to modify the operation of the transport refrigeration system by operating the host refrigeration unit in null and by cycling the remote refrigeration unit between heating and cooling modes to maintain set point in the rear compartment.

5,065,588

AIR-CONDITIONER SYSTEM

Susumu Nakayama, Shizuoka; Kensaku Oguni, Shimizu; Hiromu Yasuda, Shizuoka; Rumi Minakata, Shizuoka; Kazumoto Urata, Shizuoka; Masatoshi Muramatsu, Shimizu; Kenji Tokusa, Shizuoka; Takao Senshu, Shizuoka; Hirokiyo Terada, Shizuoka, and Fumihiko Kitani, Shimizu, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Aug. 9, 1990, Ser. No. 564,608
Claims priority, application Japan, Aug. 17, 1989, 1-211937; Oct. 25, 1989, 1-275869
Int. Cl.[5] F25B *13/00*
U.S. Cl. 62—160 5 Claims



1. An air-conditioner system comprising:

compressor means including an inlet port through which refrigerant flows into the compressor means and an outlet port through which the refrigerant compressed by the compressor means flows out of the compressor means;

a plurality of heat exchanger means each of which is adapted for either heating or cooling air in an air-conditioned room as occasion demands and includes a heat exchanger first port and a heat exchanger second port between which the refrigerant flows in the heat exchanger means to transfer heat energy from the refrigerant to the air in the air-conditioned room;

radiator means which includes a radiator first port and a radiator second port between which the refrigerant flows in the radiator means to transfer heat energy from the refrigerant to the outside of the air-conditioned room;

a plurality of orifice means each of which includes an orifice first port and an orifice second port between which the compressed refrigerant expands adiabatically, and each of the orifice means connected, through the orifice first port, to the heat exchanger second port, of a respective one of the plurality of heat exchanger means, and connected to the radiator second port through the orifice second port;

manifold means including main port means and a plurality of sub-port means connected to the heat exchanger first ports, respectively, the heat exchanger first ports communicating with the main port means through the respective sub-port means in the manifold means;

flow direction control means arranged between the compressor means and the main port means and between the outlet port and the radiator first port, wherein the flow direction control means flows the refrigerant from the outlet port to the main port means and does not flow the refrigerant from the main port means to the inlet port when at least one of the heat means is heating the air in the air-conditioned room, the flow direction control means does not flow the refrigerant from the outlet port to the radiator first port when at least one of the heat exchanger means is heating the air in the air-conditioned room and none of the heat-exchanger means is cooling the air in the air-conditioned room, and the flow direction control means does not flow the refrigerant from the outlet port to the main port means, flows the refrigerant from the outlet port to the radiator first port and flows the refrigerant from the main port means to the inlet port when none of the heat exchanger means is heating the air in the air-conditioned room and at least one of the heat exchanger means is cooling the air in the air-conditioned room;

a plurality of valve pairs, each of the valve pairs including first valve means and second valve means, the heat exchanger first ports being connected to the respective sub-port means through the respective valve means, the heat exchanger first ports being connected to the inlet port through the respective second valve means, wherein in each of the valve pairs the first valve means opening to flow the refrigerant between the heat exchanger first port and the sub-port means when the second valve means closes thereby preventing the flow of the refrigerant between the heat-exchanger first port and the inlet port and the second valve means opening to flow the refrigerant between the heat exchanger first port and the inlet port when the first valve means closes thereby preventing the flow of the refrigerant between the heat exchanger first port and the sub-port, and wherein the first valve means which is connected to the heat exchanger means heating the air in the air-conditioned room is opened and the first valve means which is connected to the heat exchanger means cooling the air in the air-conditioned room is closed when at least one of the heat exchanger means is heating the air in the air-conditioned room, the first valve means which is connected to the heat exchanger means cooling the air in the air-conditioned room is opened when none of the heat exchanger means is heating the air in the air-conditioned room and at least one of the heat exchanger means is cooling the air in the air-conditioned room; and

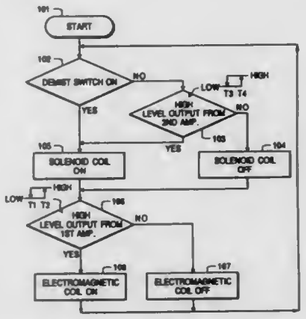
third valve means arranged between the inlet port and the radiator first port, the third valve means opening to flow the refrigerant from the radiator first port to the inlet port when at least one of the heat exchanger means is heating the air in the air-conditioned room and none of the heat exchanger means is cooling the air in the air-conditioned room, the third valve means closing thereby preventing the flow of the refrigerant from the radiator first port to the inlet port when the flow direction control means flows the refrigerant from the outlet port to the radiator first port.

5,065,589

CONTROL APPARATUS USED FOR A REFRIGERANT CIRCUIT HAVING A COMPRESSOR WITH A VARIABLE DISPLACEMENT MECHANISM

Yukihiko Taguchi, Gunma, Japan, assignor to Sanden Corporation, Isesaki, Japan

Filed Apr. 17, 1990, Ser. No. 509,772
Claims priority, application Japan, Apr. 17, 1989, 1-95330
Int. Cl.[5] F25B *49/00*
U.S. Cl. 62—161 21 Claims



1. In a refrigerating system including a refrigerant circuit formed by a condenser, expansion element, evaporator and compressor, said compressor including a variable displacement control mechanism, canceling means for canceling the operation of said variable displacement control mechanism, detecting means for detecting a thermal condition of said evaporator and generating a control signal, first control means for controlling the operation of said compressor in response to the control signal, and second control means for controlling the operation of said canceling means in response to the control signal, the improvement comprising:

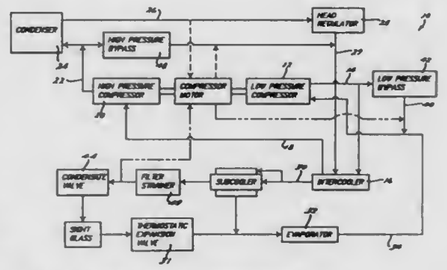
selecting means for selectively enabling one of said second control means and said canceling means, said cancelling means operating without regard to the control signal when enabled by the selecting means.

5,065,590

REFRIGERATION SYSTEM WITH HIGH SPEED, HIGH FREQUENCY COMPRESSOR MOTOR

James W. Powell, Hartland; Mark G. Voss, Brighton, and Bryan N. Waineo, Northville, all of Mich., assignors to Williams International Corporation, Walled Lake, Mich.

Filed Sep. 14, 1990, Ser. No. 582,245
Int. Cl.[5] F25B *1/10, 31/02*
U.S. Cl. 62—175 2 Claims



1. A refrigeration system comprising:

a high speed high frequency induction motor having a double-ended shaft with low and high pressure centrifugal

VOL 1132 ISS 3 NO 19 1991 UMI

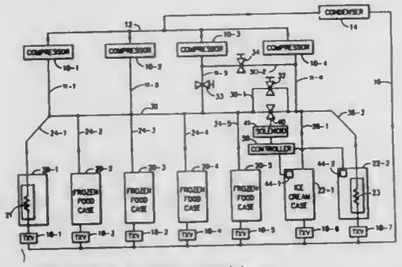
refrigerant compressors directly coupled to opposite ends of said shaft;
a flash intercooler;
a first fluid flow path from an outlet on said low pressure compressor to an inlet of said flash intercooler;
a second fluid flow path from the outlet on said low pressure compressor to the inlet of said low pressure compressor having a valve therein for controlling the flow of superheated vapor from said compressor to said flash intercooler thereby to maintain relatively constant compressor flow over a relatively wide range of conditions;
a fluid flow path from said flash intercooler to said high pressure compressor;
a condenser;
a fluid flow path from said high pressure compressor to said condenser;
a fluid flow path from said condenser communicating with the fluid flow path from said low pressure compressor to said flash intercooler;
an evaporator;
a fluid flow path from said flash intercooler to said evaporator; and
a fluid flow path from said evaporator to said low pressure compressor.

5,065,591

REFRIGERATION TEMPERATURE CONTROL SYSTEM

David N. Shaw, Syracuse, N.Y., assignor to Carrier Corporation, Syracuse, N.Y.

Filed Jan. 28, 1991, Ser. No. 646,021
Int. Cl.[5] F25B *5/00*
U.S. Cl. 62—175 **3 Claims**



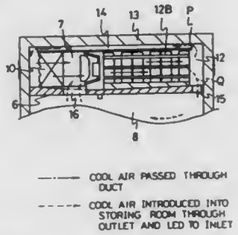
1. A refrigeration system comprising
a bank of compressors including a plurality of compressor means connected in parallel between a common suction manifold and a common discharge;
condenser means connected to said discharge;
a plurality of refrigerated compartments with at least one compartment to be maintained at a first temperature and at least one compartment to be maintained at a second temperature which is lower than said first temperature with each of said compartments including an evaporator means;
said evaporator means are connected in parallel with each of said evaporator means being connected to said condenser means through an expansion device and to said common suction manifold;
means in said common suction manifold for dividing said suction manifold into two parts and for selectively blocking fluid communication between said two parts;
all of said evaporator means in said refrigerated compartment to be maintained at said first temperature being connected to a first one of said two parts of said suction manifold;
all of said evaporator means in said refrigerated compartments to be maintained at said second temperature being connected to a second one of said two parts of said suction manifold;
one of said compressor means being connected to said second one of said two parts of said suction manifold and the remaining compressor means being connected to said first one of said two parts of said suction manifold;
means responsive to any of said refrigerated compartments to be maintained at said second temperature being at a temperature above said second temperature for causing said means in said common suction manifold to block fluid communication between said two parts whereby said one of said compressor means acts as a satellite compressor with respect to all of said evaporator means connected to said second one of said two parts of said suction manifold which are thereby maintained at said second temperature.

5,065,592

COLD BOX

Yoshiaki Takano; Koichi Sato, both of Oizumi, and Yutaka Shimose, Menuma, all of Japan, assignors to Sanyo Electric Co., Ltd., Osaka, Japan

Filed Aug. 10, 1990, Ser. No. 566,248
Claims priority, application Japan, Aug. 11, 1989, 1-208080; Nov. 17, 1989, 1-300210
Int. Cl.[5] F25D *17/06*
U.S. Cl. 62—180 **7 Claims**



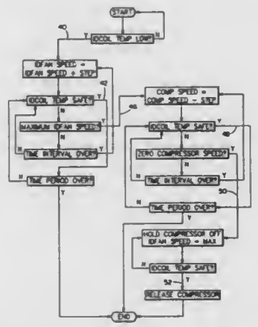
1. A cold box comprising:
a freezing room;
a cold-heat accumulating agent stored in said freezing room;
a commodity storing room separated from said freezing room;
an evaporator connected with a compressor to form a freezing cycle;
first air-blowing means for circulating a first cooled air flow between said evaporator and said freezing room, said cooled air flow cooling said cold-heat accumulating agent;
second air-blowing means for circulating a second cooled air flow between said freezing room and said commodity storing room, said second cooled air flow being cooled by heat transfer between said second air flow and said cold-heat accumulating agent;
an operation control device for directing said compressor, said first air-blowing means and said second air-blowing means to operate; and
said operation control device comprising temperature setting means for setting a freezing temperature for said freezing room and a storing temperature for said storing room, first control means for detecting the temperature in said freezing room and directing said compressor to stop operating when the detected temperature is not higher than said set freezing temperature, and second control means for detecting the temperature in said storing room and directing said second air-blowing means to stop operating when the detected temperature is not above said set storing temperature.

5,065,593

METHOD FOR CONTROLLING INDOOR COIL FREEZE-UP OF HEAT PUMPS AND AIR CONDITIONERS

Kevin F. Dudley, Cazenovia; Kevin B. Dunshee, Syracuse, and Alan D. Abbott, Manlius, all of N.Y., assignors to Electric Power Research Institute, Inc., Palo Alto, Calif.

Filed Sep. 18, 1990, Ser. No. 584,254
Int. Cl.[5] F25D *21/06*
U.S. Cl. 62—182 **7 Claims**



1. In a heat pump system for heating or cooling a comfort zone having variable speed indoor and outdoor fans, indoor and outdoor coils and a variable speed compressor, the method of controlling indoor coil freeze up during cooling operation which comprises the steps of:
sensing the temperature of the indoor coil;
sensing the indoor fan speed and the compressor drive speed;
increasing the indoor fan speed when the indoor coil sensed temperature drops below a first predetermined point;
sensing the indoor coil temperature again;
reducing the compressor drive speed if the increasing fan speed has not raised the indoor coil temperature above a second predetermined point;
sensing the indoor coil temperature again;
shutting off the compressor if the reduced compressor drive speed has not raised the indoor coil temperature above the second predetermined point;
sensing the indoor coil temperature again;
returning the indoor fan and compressor drive speeds to normal when the indoor coil temperature rises above the second predetermined point.

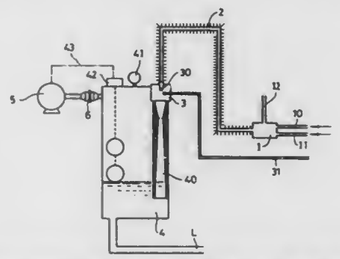
5,065,594

AUTOMATIC PURGER FOR ABSORPTION HEAT PUMP

Yuh-Yuan Yo, Chutung, Taiwan, assignor to Industrial Technology Research Institute, Taiwan, Taiwan

Filed Sep. 12, 1990, Ser. No. 581,546
Int. Cl.[5] F25B *43/04*
U.S. Cl. 62—195 **2 Claims**

1. An automatic purger for an absorption heat pump having a generator for generating high density absorbing agent solution by heating low density absorbing agent solution, a condenser for condensing vapor refrigerant evaporated when heating absorbing agent solution in said generator, an evaporator for transforming the condensed refrigerant coming from said condenser into vapor refrigerant so as to achieve a cooling effect, an expansion valve connected between said condenser and said evaporator, and an absorber for absorbing the vapor refrigerant coming from said evaporator by absorbing agent so as to form low density absorbing agent solution to be fed back to said generator, the automatic purger comprising:
an eductor having a first inlet connected to said absorber, a second inlet connected to said generator, a first outlet, and a second outlet connected to said absorber;
a storage tank connected to said absorber;
a solution level controller having a first portion mounted in the storage tank and a second portion mounted exteriorly of the storage tank, the first portion including a float for floating on solution in the storage tank and the second portion including control means for activating and deactivating purging of the storage tank, the float and control means being operatively connected;
a purging chamber connected to said absorber and having a nozzle mounted therein which is connected to said first outlet of said eductor by a connecting tube so that absorbing agent solution from said eductor is ejectable into said purging chamber through said nozzle, thus forming a low pressure zone around the exit of said nozzle for extracting



non-condensable gas from said absorber into said purging chamber and for carrying said non-condensable gas into said storage tank by ejected absorbing agent solution;
a diffuser connected between said purging chamber and said storage tank for increasing pressure of absorbing agent solution ejected from said nozzle into said storage tank; and
a vacuum pump electrically coupled to said control means of the solution level controller and operatively connected to said storage tank so that said vacuum pump will be actuated by the control means to begin purging of non-condensable gas in response to the float in said storage tank reaching a predetermined low solution level, and the vacuum pump will be de-energized to stop purging in response to the float in said storage tank reaching a predetermined high solution level.

5,065,595

THERMOSTATIC EXPANSION VALVE

G. Thomas Seener, St. Louis, and Joseph H. Heffner, Chesterfield, both of Mo., assignors to Sporlan Valve Company, St. Louis, Mo.

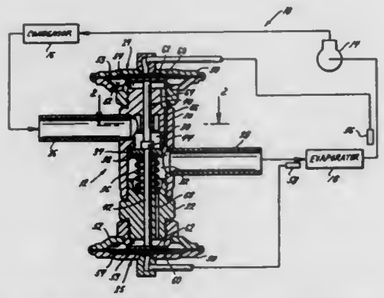
Filed Dec. 5, 1990, Ser. No. 622,755
Int. Cl.[5] F25B *41/04*
U.S. Cl. 62—212 **6 Claims**

1. In a refrigeration system of the type which includes a compressor, a condenser, and an evaporator, an expansion valve controlling flow of refrigerant into the evaporator, the expansion valve comprising:
(a) a valve body having opposed ends, an inlet and an outlet, a valve port disposed between said inlet and said outlet, and said outlet communicating with the evaporator inlet,
(b) a valve element movable relative to the valve port to control flow through said port,
(c) a first motor means at one end of the valve body having opposed sides,
(d) first sensing means sensing the temperature of the evaporator outlet to apply a pressure to one side of the first motor means,
(e) a second motor means at the other end of the valve body having opposed sides,
(f) second sensing means sensing the temperature of the

VOL 1132 ISS 3 NOV 19 1991 UMI

evaporator inlet to apply a pressure to one side of the second motor means,

(g) push rod means operatively engaging the first and second motor means and tending to open the valve port in response to pressure from the first motor means,



(h) spring means within the valve body operatively engageable with the valve element and cooperating with the pressure from the second motor means tending to close the valve port, and

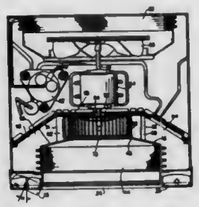
(i) means for communicating valve outlet pressure to the other side of each of said first and second motor means.

5,065,596

DUAL LOUVERED SIDE AIR DISCHARGE OPENINGS FOR ROOM AIR CONDITIONER

James E. Harris, Hermitage; Leonard T. Farfaglia, deceased, late of Brentwood by Mary M. Farfaglia, legal representative , and Steven D. Wetherholt, Nashville all of Tenn., assignors to Whirlpool Corporation, Benton Harbon, Mich.

Filed May 11, 1990, Ser. No. 522,172
The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.
Int. Cl.[5] F25D *23/12*
U.S. Cl. 62—262 19 Claims



15. A room air conditioner comprising:

an evaporator coil centered on a center line of said air conditioner;

an air moving device for causing air to flow in a stream through an inlet in a front side of said air conditioner and then through said evaporator coil;

a housing for said air moving device having a pair of openings positioned on opposite sides of said air moving device for dividing said air stream into two separate and substantially equal air streams;

two separate air conduits being substantially equal in size and shape and being positioned symmetrically relative to said center line said openings and air conduits defining means for directing said separate and substantially equal air streams toward two separate air exit openings at said front side of said air conditioner on opposite sides of said inlet; and

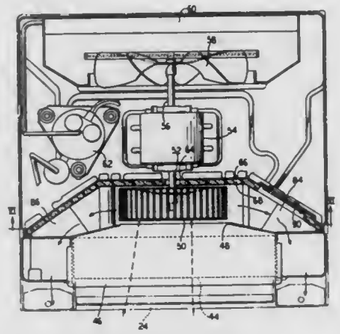
an air flow outlet at an open end of each air conduit comprising a modular unit including horizontal and vertical louvers, said vertical louvers being pivotable about at least one vertical axis and said horizontal louvers being pivotable about at least one horizontal axis.

5,065,597

DUAL SIDE DISCHARGE AIR HOUSING FOR ROOM AIR CONDITIONER

Leonard T. Farfaglia, deceased, late of Brentwood by Mary M. Farfaglia, legal representative ; Timothy J. Campbell, Nashville; Billy P. Gipson, Marshall County; Thompson Matambo, Brentwood, and Christoper M. Thompson, Smyrna, all of Tenn., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Filed May 11, 1990, Ser. No. 522,172
Int. Cl.[5] F25D *23/12*
U.S. Cl. 62—262 20 Claims



1. A room air conditioner comprising:

an evaporator coil centered on a center line of and at a front side of said air conditioner;

an air moving device centered behind said evaporator coil for causing air to flow in a stream evenly through said evaporator coil;

a housing for said air moving device centered behind said evaporator coil having a pair of openings positioned on opposite sides of said air moving device for dividing said air stream into two separate and substantially equal air streams; and

two separate air conduits being substantially equal in size and shape and being positioned symmetrically relative to said center line for directing said separate air streams toward two separate air exit openings at a front side of said air conditioner, said air exit openings being substantially equal in size and shape,

said openings, air conduits and air exit openings defining means for evenly drawing air into said air conditioner, split into two relatively equal streams and directed out of said air conditioner in two streams of substantially equal air flow.

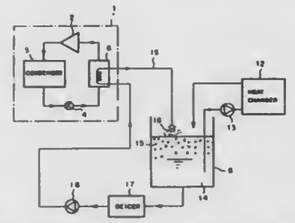
5,065,598

ICE THERMAL STORAGE APPARATUS

Yoshitaka Kurisu, Nagasaki; Hiroshi Kimura, Hyogo; Masakatsu Mukae, Nagasaki; Kazuyuki Aiba, Nagasaki; Yukihiro Hosaka, Nagasaki; Koichi Ohata; Tadaaki Nakano, both of Oosaka, and Masaki Ikeuchi, Hyogo, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 31, 1990, Ser. No. 576,213
Claims priority, application Japan, Sep. 5, 1989, 1-229519; Sep. 11, 1989, 1-235180
Int. Cl.[5] F25D *3/00*
U.S. Cl. 62—330 6 Claims

1. An ice thermal storage apparatus which comprises a refrigerating apparatus made up of a compressor, a condenser, a decompressing device, and an evaporator, a thermal storage material in the form of an aqueous solution prepared by adding an additive or additives to water that will be supercooled by said refrigerating apparatus, a desupercooling apparatus for relieving the supercooled state of said thermal storage material to form ice that is provided in the circuit of said thermal stor-



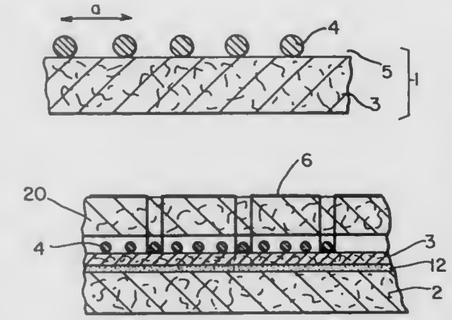
age material, a thermal storage tank for storing said aqueous solution and said ice formed by said desupercooling apparatus, a pump for sending said thermal storage material in said ice thermal storage tank into the evaporator of said refrigerating apparatus that is provided in the circuit of said thermal storage material, and a deicer for removing ice in the thermal storage material that is situated upstream of said pump.

5,065,599

TEXTILE SUPPORT OF THE KNITTED TYPE AND AN INTERLINER, CLOTH AND TEXTILE ASSEMBLY

Pierre Groshens, Peronne, France, assignor to Lainiere de Picardie, S.A., Peronne, France

Continuation of Ser. No. 174,412, Mar. 28, 1988, abandoned.
This application Sep. 29, 1989, Ser. No. 414,734
Claims priority, application France, Mar. 31, 1987, 87 04491
Int. Cl.[5] D04B *23/10, 1/00*; B32B *7/04*
U.S. Cl. 66—84 A 7 Claims



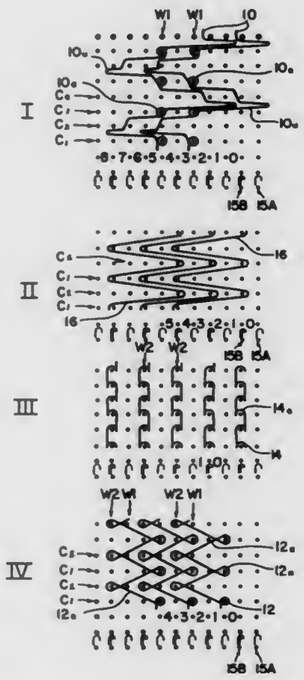
1. A structure comprising an interlining fabric, and means on one surface of said fabric for joining said fabric to a cloth in facing relationship of said one surface to the cloth, said interlining fabric comprising a fabric body having a free surface opposite said one surface, said fabric body further comprising means for receiving a basting thread for securing a second cloth to said interlining fabric, said basting thread receiving means comprising threads with floats of sufficient looseness that they may extend in spaced relation to said free surface.

5,065,600

TEXTILE FABRIC WITH OPPOSED ABSORBENT AND NON-ABSORBENT LAYERS AND METHOD OF FABRICATING SAME

Michael N. Byles, High Point, N.C., assignor to Guilford Mills, Inc., Greensboro, N.C.

Filed Nov. 30, 1989, Ser. No. 444,546
Int. Cl.[5] D04B *7/12*
U.S. Cl. 66—193 25 Claims



1. An integrally fabricated textile fabric characterized by a liquid permeable non-absorbent layer at one face of said fabric adapted for initial liquid contact in use of said fabric and a liquid retaining absorbent layer at the opposite face of said fabric for wicking of liquid from said non-absorbent layer to, and retention of wicked liquid by, said absorbent layer while maintaining said non-absorbent layer essentially dry to touch, said fabric comprising hydrophobic yarn formed in a raised surface construction predominantly at said one face of said fabric to form said non-absorbent layer, hydrophilic yarn formed in a relatively dense extended pile construction predominantly at said opposite face of said fabric to form said absorbent layer, and generally inelastic ground yarn formed in a dimensionally stable generally non-stretchable construction, each of said hydrophobic, hydrophilic and ground yarns being intermeshed with at least one of the other for integrating said absorbent and non-absorbent layers, said raised surface construction of said hydrophobic yarn in said non-absorbent layer sufficiently covering said ground and hydrophilic yarns with sufficiently small interstices in said non-absorbent layer to permit liquid permeation therethrough to said absorbent layer while serving to resist leakage of absorbed liquid from said absorbent layer through said non-absorbent layer.

VOL 1132 ISS 3 NO 19 1991 UMI

5,065,601

STRETCHABLE RASCHEL GOODS

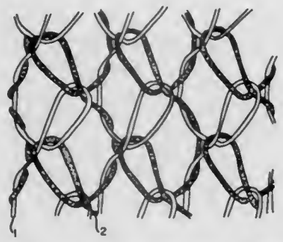
Josef Kaufmann, Münchwilen, Switzerland, assignor to Schweizerische Gesellschaft fur Tullindustries, AG, Munchwilen, Switzerland

Filed Dec. 1, 1988, Ser. No. 278,834

Claims priority, application Fed. Rep. of Germany, Dec. 2, 1987, 3740809

Int. Cl.[5] D04B *21/00*

U.S. Cl. 66—195 5 Claims



1. Stretchable Raschel goods wherein longitudinally arranged threads are interconnected by loop and loop, wherein loop and loop are laid according to a repeat L1: 2-0/4-4//, L2: 0-0/2-4// and wherein threads consist of glass yarn.

5,065,602

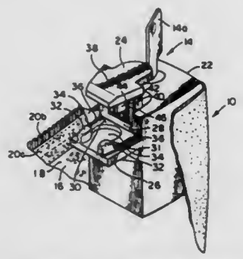
LOCKABLE CONTAINER FOR SECURING VALUABLES

George W. Williams, Nanticoke, and Arnold S. Rifkin, Wilkes-Barre, both of Pa., assignors to A. Rifkin Co., Wilkes-Barre, Pa.

Filed Jan. 18, 1991, Ser. No. 642,960

Int. Cl.[5] E05B *67/38*

U.S. Cl. 70—68 6 Claims



1. A lockable container for securing valuables comprising:

a container including an interior portion, said container having an access opening and a closure member positioned thereon, said closure member having an open position for allowing access to said interior portion of said container through said access opening and a closed position where said closure member closes said access opening such that said interior of said container is not accessible; and

a locking member positioned on said container proximate said closure member, said locking member comprising a body and a retainer member slidably attached to said body generally exteriorly to the container, said retainer member having a locked position with respect to said body for locking said closure member in said closed position and an unlocked position for allowing said closure member to move between said closed and open positions, said body including a receiver extending from an inner end surface of said body along said access opening, said receiver having an upper surface including at least two lower lugs extending generally upward from the upper surface of the receiver, each lower lug having a lower lug side extending generally perpendicular to said receiver, said lower lugs being spaced from the inner end surface of said body whereby at least two gaps are formed between said inner end surface of said body and said lower lug side of said lower lugs, said retainer member including a flange extending from an inner end surface of said retainer member along said access opening, said flange having a lower surface generally parallel to the upper surface of the receiver and at least two upper lugs extending generally downward from the lower surface of said flange member towards said receiver, each upper lug having an upper lug side extending generally perpendicular to said flange, said upper lugs being correspondingly positioned within said gaps when said retainer member is in said locked position such that said lower lug sides of said lower lugs are correspondingly positioned adjacent said upper lug sides of said upper lugs with a portion of said closure member positioned therebetween to thereby inhibit said portion of said closure member from moving with respect thereto.

5,065,603

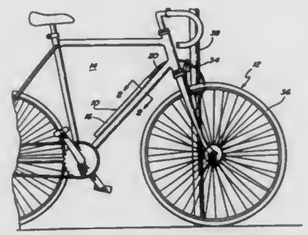
TUBULAR BICYCLE LOCK AND METHOD FOR MOUNTING SAME

Harrell F. Kloke, 1050 Santiago Dr., Newport Beach, Calif. 92660

Continuation-in-part of Ser. No. 498,650, Apr. 26, 1990, abandoned. This application Feb. 19, 1991, Ser. No. 656,459

Int. Cl.[5] B62H *5/00;* E05B *71/00*

U.S. Cl. 70—233 19 Claims



1. A method of permanently fastening a lock onto a bicycle frame comprising the steps of:

providing a length of tubular bicycle frame;

providing a tube having a longitudinal groove formed therein;

providing a double-sided tape for bonding the formed tube onto said length of tubular bicycle frame; and

assembling the double-sided tape adjacent the tubular bicycle frame and the longitudinal groove of the formed tube while the tubular frame and the longitudinal groove of the tube are parallel with each other to bond the tube to the tubular bicycle frame.

5,065,604

IGNITION INTERLOCK SYSTEM

Greg R. Pattock, Spring Lake, Mich., assignor to Sparton Corporation, Jackson, Mich.

Filed Jun. 11, 1990, Ser. No. 535,763

Int. Cl.[5] B60R *25/00*

U.S. Cl. 70—239 11 Claims

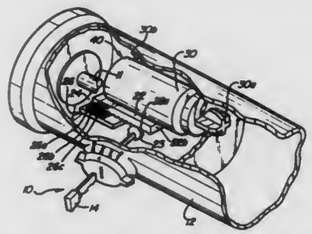
1. An ignition interlocking mechanism for use on a vehicle, comprising:

(a) an ignition switch mechanism movable by an operator to "Run", "Off" and "Lock" positions, said ignition switch mechanism including a reciprocable member movable in response to movement of the ignition switch mechanism, said reciprocable member having a stop surface thereon,

(b) a transmission selector movable between a drive position and a "Park" position,

(c) a locking member disposed proximate the reciprocable member for movement to a locking position relative to the stop surface to prevent movement of said reciprocable member or to an unlocking position relative to the stop surface to free said reciprocable member for movement in response to movement of said ignition switch mechanism,

(d) an electrical actuator energizable to move the locking member from the locking position to the unlocking position,



(e) means for moving the locking member to the locking position when the electrical actuator is deenergized, and

(f) a control circuit operable in response to the transmission selector being in the "Park" position to energize said electrical actuator and in response to the transmission selector being in the drive position to deenergize said electrical actuator when the ignition switch mechanism is in the "Off" position such that movement of the ignition switch mechanism from the "Off" position to the "Lock" position is prevented unless the transmission selector is in the "Park" position.

5,065,605

METHOD OF FORMING SHAPED CONFIGURATION AT END OF LONG ELEMENT

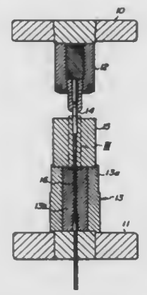
Katsuo Takahara, Oota; Shigeru Okajima, Isesaki, and Tugio Onodera, Sawa, all of Japan, assignors to Mitsuba Electric Mfg. Co., Ltd., Japan

Filed May 11, 1990, Ser. No. 522,261

Claims priority, application Japan, May 17, 1989, 1-123297

Int. Cl.[5] B21D *28/00, 45/00*

U.S. Cl. 72—340 15 Claims



1. A method of forming a shaped configuration at an end of a long element, comprising the steps of:

(a) placing a material with a uniform cross section along its length in an inside of a die which is provided therein with a section for forming a shaped configuration and a section for forming a body of a long element, said shaped configuration forming section lying at a front end portion of said die with respect to a direction in which the material is forced, said long element body forming section gradually increasing in inner diameter from the shaped configuration section to a rear end portion of said die so as to provide a gap between an outer surface of said material and an inner surface of said die gradually increasing from said shaped configuration section to said rear end portion of said die when said material is placed inside said die;

(b) pressingly inserted a punch into said die to forge the material;

(c) subsequently pushing said forged material out of said die by a knock-out pin which is inserted in said die from an opposite direction to the direction in which said material is forced; and

(d) subsequently forming said forged element into a shape of a substantially uniform cross section along its axis.

5,065,636

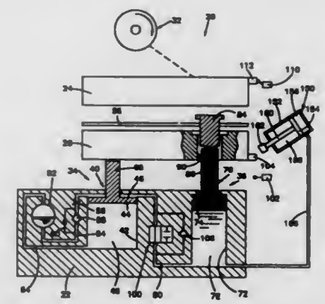
PRESS ASSEMBLY WITH CUSHION ASSEMBLY AND AUXILIARY APPARATUS

Paul M. Kadis, Charlton, Ohio, assignor to Teledyne Industries, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 429,200, Oct. 30, 1989, Pat. No. 5,003,807. This application Oct. 12, 1990, Ser. No. 596,525

Int. Cl.[5] B21D *24/16*

U.S. Cl. 72—348 108 Claims



1. A press assembly operable from an open condition to a closed condition to deform a workpiece, said press assembly comprising a first movable member for engaging a first side of the workpiece, a second movable member for engaging a second side of the workpiece, said first member being movable in a first direction toward said second member during operation of said press assembly from an open condition toward a closed condition, said first and second members being movable together in the first direction with at least a portion of the workpiece disposed between said first and second members during operation of said press assembly from the open condition toward the closed condition, a cushion assembly operable toward a retracted condition to provide a yieldable force opposing movement of said second member in the first direction during operation of said press assembly from the open condition toward the closed condition, said first member being movable in a second direction opposite to the first direction during operation of said press assembly from the closed condition toward the open condition, control means for initiating movement of said second member in the first direction prior to movement of said first and second members together in the first direction during operation of said press assembly from the open condition toward the closed condition and for maintaining said cushion assembly in the retracted condition during at least an initial portion of the movement of said first member in the second direction during operation of said press assembly from the closed condition toward the open condition, and auxiliary means for performing an operation on the workpiece while the workpiece is in said press assembly, said control means including means for supplying energy during operation of said press assembly from the open condition to the closed

VOL 1132 ISS 3 NOV 19 1991 UMI

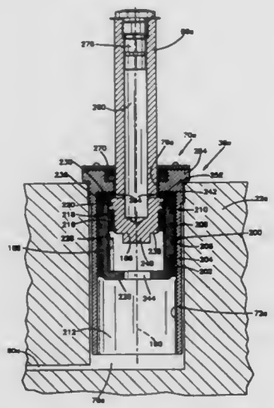
condition to effect operation of said auxiliary means, said auxiliary means includes means for compressing fluid as said auxiliary means is operated from a first condition to a second condition during the performance of an operation on the workpiece by said auxiliary means, said auxiliary means including means operable under the influence of the compressed fluid to operate said auxiliary means from the second condition to the first condition after completion of the operation on the workpiece by said auxiliary means.

5,065,607

PISTON AND CYLINDER ASSEMBLY

Paul M. Kadis, Chardon, and Leonard L. Hiney, Ravenna, both of Ohio, assignors to Teledyne Industries, Inc., Cleveland, Ohio

Continuation-in-part of Ser. No. 429,200, Oct. 30, 1989, Pat. No. 5,003,807. This application Oct. 12, 1990, Ser. No. 596,468
Int. Cl.[5] B21D *24/14*
U.S. Cl. 72—351 32 Claims



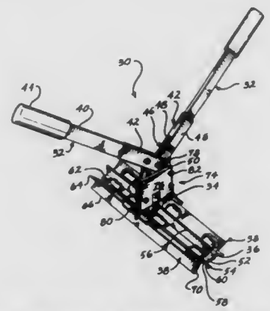
1. An apparatus comprising a cylinder, a hollow outer piston disposed in said cylinder and cooperating with said cylinder to at least partially define first and second variable volume cylinder chambers, said hollow outer piston having cylindrical inner side surface, outer seal means connected with said hollow outer piston and disposed in sealing engagement with said cylinder to block fluid flow between said first and second variable volume cylinder chambers, an inner piston disposed in said hollow outer piston and cooperating with said cylindrical inner side surface to at least partially define first and second variable volume piston chambers, inner seal means connected with said inner piston and disposed in sealing engagement with said cylindrical inner side surface of said hollow outer piston to block fluid flow between said first and second variable volume piston chambers, a piston rod connected with said inner piston and extending from said inner piston through said first variable piston chamber and said first variable volume cylinder chamber to an outer end portion disposed adjacent to a first end of said cylinder, said hollow outer piston including first flange means extending radially inwardly from a first end portion of said cylindrical inner side surface of said hollow outer piston and circumscribing said piston rod, said first flange means including an inner side surface area facing toward said inner piston and engagable by a first end portion of said inner piston to limit movement of said inner piston in a first direction relative to said hollow outer piston, said first flange means including surface means cooperating with said piston rod to at least partially define a first piston opening for conducting fluid flow between said first variable volume piston chamber and said first variable volume cylinder chamber, said hollow outer piston including second flange means extending radially inwardly from a second end portion of said cylindrical inner side surface of said hollow outer piston at an end of said hollow outer piston opposite from said first flange means, said second flange means including an inner side surface area facing toward said inner piston and engagable by a second end portion of said inner piston to limit movement of said inner piston relative to said hollow outer piston, said second flange means including surface means which at least partially defines a second piston opening for conducting fluid flow between said second variable volume piston chamber and said second variable volume cylinder chamber, said inner and outer pistons being movable through operating strokes to vary the size of the first and second variable volume piston chambers and to vary the size of the first and second variable volume cylinder chambers, said inner piston being movable relative to said outer piston between a first condition in which said first end portion of said inner piston is disposed in engagement with said first flange means and said second end portion of said inner piston is spaced from said second flange means and a second condition in which said second end portion of said inner piston is disposed in engagement with said second flange means and said first end portion of said inner piston is spaced from said first flange means, said inner and outer pistons being movable together between a third condition in which said outer piston is disposed adjacent to the first end of said cylinder and a fourth condition in which said outer piston is disposed adjacent to a second end of said cylinder opposite from said first end of said cylinder, said piston rod including surface means for at least partially defining a rod chamber in said piston rod and for at least partially defining a passage connecting said rod chamber in fluid communication with said first variable volume piston chamber and said first variable volume cylinder chamber.

5,065,608

HAND-OPERATED BATTEN SEAMER TOOL

Stuart P. Skelton, 2302 Legge Rd., and Clifford W. Skelton, 2302B Legge Rd., both of Mount Vernon, Wash. 98273

Filed Aug. 20, 1990, Ser. No. 569,934
Int. Cl.[5] B21D *5/16*
U.S. Cl. 72—409 4 Claims



1. A hand-operated batten seamer tool for folding a preformed pair of opposed standing seams on a batten cap over to a pair of double seams, the tool comprising:

a pair of handles, each handle having a mounting end and a gripping end;

means for bracing the tool on the batten cap and for holding the batten cap to supporting structure;

a pair of elongate arms pivotally mounted to said bracing means, the arms having elongate planar faces for bearing against the standing seams;

a force multiplying means coupling the arms to the pair of handles; and,

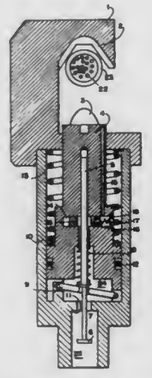
gripping members mounted to the planar faces of the arms that engage the pair of standing seams to hold the arms in engagement with the standing seams as the arms pivot to fold the pair of standing seams over to a pair of double seams.

5,065,609

PRESS FOR PRESSING OF CASINGS, CABLE SHOES OR SIMILAR ITEMS

Helmut Dischler, Neuss-Uedesheim, Fed. Rep. of Germany, assignor to Novopress GmbH, KG, Fed. Rep. of Germany

Filed Sep. 22, 1983, Ser. No. 534,928
Claims priority, application Fed. Rep. of Germany, Sep. 22, 1982, 3235040
The portion of the term of this patent subsequent to Nov. 19, 2002, has been disclaimed.
Int. Cl.[5] B21J *9/18*
U.S. Cl. 72—453.15 20 Claims



1. Press for pressing of casings, cable shoes or the like, comprising a press body for receiving an upper die, a cylinder connected to the press body, a slidable press plunger disposed within the cylinder for receiving a lower die, a displaceable steering element coaxial with the press plunger, wherein the steering element is supported against a drive, communicating with a press plunger, and with the cylinder, whereby, upon movement at a given speed of the press plunger in the working direction of the steering element, the steering element moves at a fraction of the speed of the press plunger, and further comprising locking means communicating with the press plunger, whereby upon contact of the lower die with the workpiece to be pressed, the steering element is locked to the press plunger in such a way that the steering element moves with a speed equal to that of the press plunger.

15. A cylinder used in a press for pressing casings, cable shoes or the like, comprising,

a cylindrical body connected to the press,

a press plunger disposed within the cylindrical body and having an upper end extending through the press body for supporting a lower die and having a lower end defining a pressure chamber within the cylindrical body,

a steering element coaxial with an slideably received in a longitudinal bore in the press plunger,

a level pivotally connected at one end to the cylindrical body and at the opposite end to the lower end of the press plunger, the lever having a central passageway through which the steering element extends,

a valve plate disposed at an end of the steering element protruding beyond the pressure chamber and into a fluid pressure passageway,

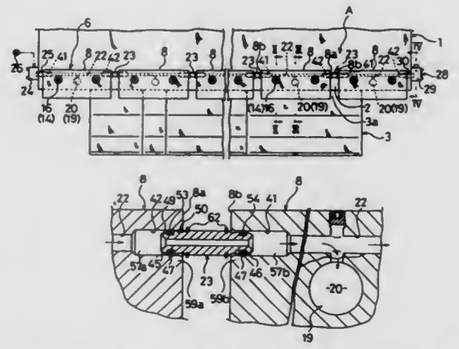
and a collar fixedly attached to the steering element, whereby as fluid pressure enters the pressure chamber through the passageway, the press plunger moves in the direction of the fluid pressure, causing upward pivoting of the lever which moves the steering element in the same direction as the press plunger, but at a fractional speed.

5,065,610

CLAMPING APPARATUS FOR PRESS BRAKE

Keitaro Yonezawa, Kobe, Japan, assignor to Kabushiki Kaisha Kosmek, Kobe, Japan

Filed Feb. 27, 1991, Ser. No. 661,138
Claims priority, application Japan, Mar. 12, 1990, 2-62159
Int. Cl.[5] B21D *37/04*
U.S. Cl. 72—462 6 Claims



1. A clamping apparatus for a press brake, adapted to fix an upper portion (3*a*) of an upper-die (3) to a lower portion (2) of a ram (1) extending in a horizontal direction, said clamping apparatus comprising:

a first clamping member (5) disposed on a first surface side of said ram lower portion (2);

a second clamping member (6) disposed on a second surface side of said ram lower portion (2), said second clamping member (6) being composed of a plurality of press plates (8) (8) arranged side by side in a horizontal direction;

each of said press plates (8) having a first lateral end surface (8*b*) and a second lateral end surface (8*a*); an unclamping actuation means (13) for moving said press plates (8) away from said first clamping member (5); and a clamping actuation means (14) for bringing the press plates (8) closer to said first clamping member (5), at least one of said unclamping and clamping actuation means (13) (14) comprising a hydraulic cylinder (19);

an operating oil chamber (20) of said hydraulic cylinder (19) being formed within said press plate (8);

a pressurized oil inlet port (41) opened in the first lateral end surface (8*b*) of said press plate (8) and connected to said operating oil chamber (20) for fluid communication therewith;

a pressurized oil outlet port (42) opened in the second lateral end surface (8*a*) of said press plate (8) and connected to said operating oil chamber (20) for fluid communication therewith with said pressurized oil inlet port (41) and said pressurized oil outlet port (42) of adjacent press plates (8) (8) facing each other;

an interconnection pipe (23) for connecting said pressurized oil outlet port (42) and said pressurized oil inlet port (41) of adjacent press plates (8) (8) for fluid communication therebetween.

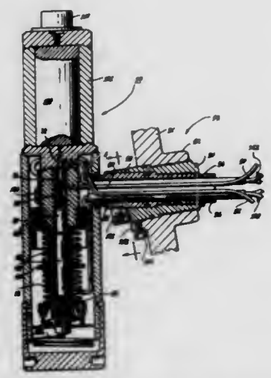
VOL 1132 ISS 3 NOV 19 1991 UMI

5,065,611

SYSTEM FOR CALIBRATING THE SPAN OF PRESSURE MEASURING INSTRUMENTS

John P. Angelosanto, North Attleboro, and George E. Sgourakes, Millis, both of Mass., assignors to The Foxboro Company, Foxboro, Mass.

Filed Aug. 15, 1989, Ser. No. 394,013
Int. Cl.[5] G01L 27/00, 19/04, 19/12
U.S. Cl. 73—4 R 33 Claims



1. In a pressure-measuring instrument of the type comprising means to receive an input pressure to be measured and sensing means responsive to the input pressure for producing a corresponding measurement signal;

said instrument further including a reference pressure device comprising means forming a cavity containing a fill-fluid communicating with said sensing means; an object in the cavity fill-fluid and movable between upper and lower positions; said object having at least a part thereof sized to provide a close fit with walls defining said cavity so that said part when moved by the force of gravity down through said cavity will produce a reference pressure for said sensing means to provide for calibration of said instrument; and power means for raising said object to said upper position from which it can descend under the force of gravity to produce said reference pressure;

that improvement in said instrument wherein said power means for raising said object includes:

a pair of coils positioned one above the other with their axes aligned;

said coils being arranged so as to produce opposed magnetic fields when energized; and

a vertically-movable force element comprising a permanent magnet positioned within said coils and responsive to said magnetic fields, said force element being shiftable upwards when said coils are energized thereby to lift said object to its upper position from which it can descend under gravity to develop said reference pressure.

5,065,612

METHOD OF CORRECTING ZERO POINT OF GYRO AND APPARATUS THEREFOR

Akihiro Ooka, and Kazuo Hirano, both of Osaka, Japan, assignors to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Sep. 8, 1989, Ser. No. 404,402
Claims priority, application Japan, Sep. 28, 1988, 63-245703
Int. Cl.[5] G01P 21/00
U.S. Cl. 73—1 D 4 Claims

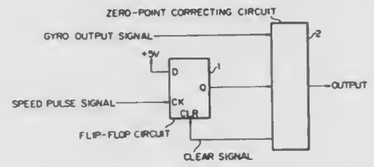
1. A method of correcting a zero point of a gyro, comprising the steps of:

detecting a speed of a moving body and outputting a speed signal corresponding to said speed;

when said speed signal is less than a predetermined reference for a first predetermined period of time from a certain time, determining that said moving body is in a stopped condition;

computing an average value of output values of the gyro for a second predetermined period of time immediately after said first predetermined period of time, and setting a zero point correction value to said average value;

determining whether said speed signal is less than said predetermined reference for a third predetermined period of time immediately after said second predetermined period of time; and



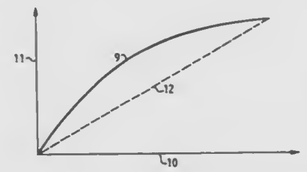
when said speed signal is less than said predetermined reference for all said first, second and third predetermined periods of time, setting the zero point of the gyro to an updated value corresponding to said zero point correction value and correcting an output value of the gyro with said updated value of said zero point.

5,065,613

METHOD FOR THE DIRECT PRESENTATION OF A DIFFERENTIAL MEASURED QUANTITY IN TERMS OF ITS CORRECT PHYSICAL UNIT

Michael Lehnert, Rodenbach; Ulrich Modlinski, Alzenau-Albstadt, and Rudi Roess, Bruchkoebel, all of Fed. Rep. of Germany, assignors to Rosemount GmbH & Co., Fed. Rep. of Germany

Filed Mar. 19, 1990, Ser. No. 495,101
Claims priority, application Fed. Rep. of Germany, Dec. 5, 1989, 3940141
Int. Cl.[5] G01N 7/00
U.S. Cl. 73—23.2 5 Claims



1. A method for obtaining the direct measurement of a differential gas concentration in a gas analyzer comprising the steps of:

measuring a detector output signal at a plurality of levels respectively corresponding to a plurality of input gas concentrations, said detector having a non-linear relationship between said plurality of levels and said plurality of input gas concentrations;

plotting a characteristic curve in an absolute coordinate system based on said plurality of detector output signals and said plurality of input gas concentrations, said absolute coordinate system having a defined scaling;

defining a reference value on said characteristic curve, said reference value corresponding to a level at which a differential gas measurement is to take place;

using said reference value as an origin of a differential coordinate system, said differential coordinate system having a scaling equal to said scaling of said absolute coordinate system;

measuring a concentration of a gas to be measured using said detector, said detector having an output level corresponding to said concentration of said gas to be measured;

locating said output level along said characteristic curve;

directly ascertaining a differential measurement value in said differential coordinate system based on said output level located on said characteristic curve;

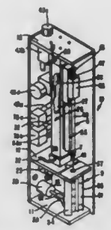
displaying said differential measurement value on said gas analyzer.

5,065,614

SHORT PATH THERMAL DESORPTION APPARATUS FOR USE IN GAS CHROMATOGRAPHY TECHNIQUES

Thomas G. Hartman, Staten Island, N.Y.; John J. Manura, Pennington, N.J.; Santford V. Overton, Ringoes, N.J.; Christopher W. Baker, Lambertville, N.J., and John N. Manos, Trenton, N.J., assignors to Rutgers University, New Brunswick, N.J.

Filed Jul. 31, 1990, Ser. No. 560,440
Int. Cl.[5] G01N 30/18
U.S. Cl. 73—23.35 4 Claims



1. A short path thermal desorption apparatus for use in a gas chromatography-detector (GC-DET) system comprising:

a. housing means disposed for operative relation with the GC-DET system,

b. an elongated injection assembly disposed for sliding movement in the housing means from a normally disengaged position to an engaged position with the GC-DET system including, a detachably connectible generally hollow desorption tube means for collecting and storing a sample of a component to be desorbed and delivered to the GC-DET system for identification and quantification, and a needle injection means for injecting the desorbed sample of the component into the GC-DET system,

c. means connected to a source of carrier gas and to said injection assembly for charging the carrier gas into the desorption tube for desorption of the component sample on heating of the desorption tube, and

d. heating means pivotally mounted in said housing means including, coacting heating block members disposed for bilateral movement from an open to a closed position and vice versa for engaging and heating the desorption tube when the injection assembly is moved to the engaged position.

5,065,615

PASSIVE ATMOSPHERIC LIQUID WATER MEASURING SYSTEM AND PROCESS

Geoffrey E. Hill, 2300 Canyon Blvd., Boulder, Colo. 80302

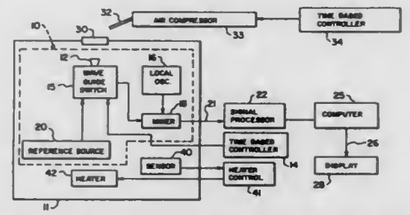
Filed Mar. 8, 1990, Ser. No. 490,173
Int. Cl.[5] G01W 1/00
U.S. Cl. 73—29.01 6 Claims

1. A system for determining the liquid content in the atmosphere above a given location comprising:

a microwave radiometer including an antenna positioned to detect microwave signals emitted from the atmosphere above the given location with said radiometer operating at a substantially single frequency within the range of about 27 GHz to ΔGHz,

means for converting signals received at said radiometer to an output signal having a magnitude correlated to the magnitude of the microwave signal received by said antenna, and

means utilizing said converted signal magnitude for producing an output indicative of the liquid content of the atmosphere emitting the microwave signals and based upon predetermined quantities of other constituents in the atmosphere above the given location,



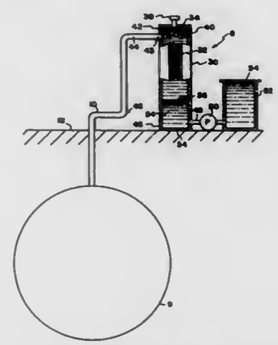
said utilizing means including, means for storing data reflecting a predetermined relationship of the magnitude of said converting means output signals to an output indicative of the liquid content of the atmosphere based upon predetermined quantities of other constituents including vapor and oxygen in the atmosphere above the given location, and means for comparing said converting means output signal with the data stored in said storing means for producing an output indicative of the amount of liquid contained in the atmosphere from which the received microwave signals were emitted.

5,065,616

HYDROSTATIC LINE TESTING AND METHOD

Peter Schuster, 211 E. Grove, Kawkawlin, Mich. 48631

Continuation-in-part of Ser. No. 345,688, May 1, 1989, Pat. No. 4,945,757. This application Nov. 28, 1989, Ser. No. 442,072
Int. Cl.[5] G01F 23/14
U.S. Cl. 73—49.2 9 Claims



1. Apparatus for testing whether a pipe which is closed at one end and filled with a first liquid, such as gasoline, having a first predetermined density is leaking comprising:

means coupled to the opposite end, opposite said one end, of said pipe for applying pressure to said first liquid in said pipe comprising

an upstanding cylinder containing a second liquid having a density equal to said first predetermined density of said first liquid;

VOL 1132 ISS 3 NO 19 1991 UMI

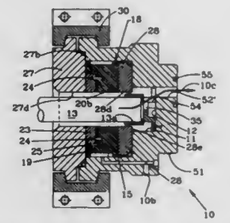
means for coupling one end of said cylinder to said opposite end of said pipe so that the liquid in said cylinder is in intimate fluid contact with said first liquid in said pipe to be tested;
means for admitting a third liquid to the opposite end of said cylinder;
said third liquid having a density substantially different than said first predetermined density such that said second and third liquids, although in intimate contact with each other at a junction in said cylinder, remain substantially separated at said junction and substantially do not mix;
means for applying a predetermined pressure to said third liquid in said cylinder in a direction tending to force said second and third liquids in said cylinder toward said first liquid in said pipe; and
graduation means on said cylinder for providing a visual indication whether said junction of said second and third liquids in said cylinder moves toward said first end or said second end of said cylinder and thus indicate volumetric changes of the first liquid in said pipe being tested.

5,065,617

MULTIPLE DIAMETER PIPE TEST END CLOSURE

Lester W. Toelke, Bellville, Tex., assignor to Jack W. Hayden, Houston, Tex.

Filed Mar. 8, 1990, Ser. No. 490,716
Int. Cl.[5] G01M *3/28*
U.S. Cl. 73—49.8 **3 Claims**



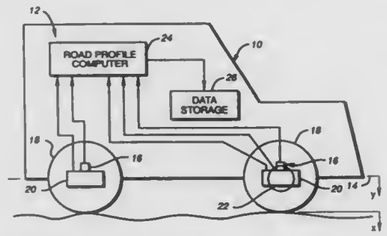
1. A test head for enclosing the end of any one pipe of a group of pipes within a predetermined range of pipe diameters to fluid test the pipe comprising:
a longitudinal bore extending longitudinally of the test head to receive and enclose the pipe end, the longitudinal bore being greater in diameter than the largest diameter of pipe diameters within the predetermined range of pipe diameters to be enclosed by the test head;
an inwardly opening annular recess surrounding the bore in the test head and terminating in longitudinal spaced relation to the ends of the longitudinal bore;
a unitary seal ring assembly for the recess;
passage means in the test head for conducting fluid pressure to contract said unitary seal ring assembly to seal with the pipe to be tested;
said unitary seal ring assembly including an annular resilient body having an opening for receiving the pipe to be tested therethrough and an annular recess in said resilient body extending from the pipe receiving opening, at least one ring of non-resilient, movable segments and means to mount said movable segments in the recess of said resilient body for movement of said segments and resilient body into engagement with the pipe to be tested;
said non-resilient segments being mounted in said recess in said resilient body to provide a volumetric space between said non-resilient segments and resilient body to enable said resilient body and non-resilient segments to move closer to the pipe in response to fluid pressure in the passage means in the test head before said resilient body and non-resilient segments contact in a manner which applies a substantial compressive load to said resilient body for sealing engagement with the pipe; and
means forming seal plate surfaces adjacent each end of the recess, said seal plate surfaces having an opening therein to receive the pipe to be tested therethrough, said opening varying in diameter in relation to the diameter of pipe being tested within the multiple diameter pipe range and said means being replaceable to provide an opening clearance for the particular pipe diameter being tested within the multiple pipe diameter range and which opening reduces the diameter of the longitudinal bore to less than its maximum diameter when necessary to provide support for said unitary seal ring assembly as it contracts to sealing position on the pipe.

5,065,618

METHOD AND APPARATUS FOR DETERMINING TERRAIN SURFACE PROFILES

Hency C. Hodges, Sr.; Henry C. Hodges, Jr., both of Carson City; Sam C. Ashmore, Dayton, all of Nev., and Allan G. Piersol, Woodland Hills, Calif., assignors to Hodges Transportation Inc., Carson City, Nev.

Filed Nov. 14, 1990, Ser. No. 613,232
Int. Cl.[5] E01C *23/00*
U.S. Cl. 73—146 **15 Claims**



11. Apparatus for measuring a terrain surface vertical elevation profile comprising:
a measurement vehicle adapted to be propelled over paved or unpaved terrain to be measured and including an axle with a plurality of measuring wheels each having a hub;
force measuring means mounted at the interface of the axle and the hub of each measuring wheel for providing a first signal as a function of the force imposed by the vehicle axle on the hub as the vehicle is propelled over the terrain;
acceleration measuring means mounted at the interface of the axle and hub of each measuring wheel for providing a second signal as a function of acceleration of said hub in a direction normal to the terrain surface as the vehicle is propelled over the terrain surface;
means responsive to the vehicle travel over the terrain surface for providing a third signal indicative of vehicle speed over the terrain surface; and
means for processing an appropriate combination of said signals in the frequency domain to derive a representation of the profile of the terrain surface over which the vehicle is propelled.

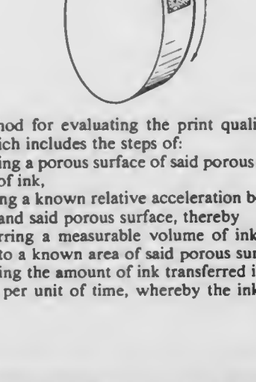
5,065,619

METHOD FOR TESTING A CASED HOLE FORMATION

Glen A. Myska, Bakersfield, Calif., assignor to Halliburton Logging Services, Inc., Houston, Tex.

Filed Feb. 9, 1990, Ser. No. 477,391
Int. Cl.[5] E21B *49/00*
U.S. Cl. 73—152 **11 Claims**

1. A method of testing a formation comprising the steps of:
(a) lowering a formation testing tool having a test probe which extends therefrom to a selected formation behind a casing in a well borehole;
(b) connecting the test probe into a selected formation behind the casing;
(c) connecting the test probe through a valve with a fluid receiving chamber;
(d) selectively operating the valve to fill a fluid receiving chamber with fluid from the formation;



(e) pumping a fluid volume from the testing tool into the formation through the test probe, wherein a fluid receiving chamber is the source of fluid for pumping into the formation; and
(f) measuring information fluid pressure at selected times to determine formation fluid pressure.

5,065,620

METHOD AND APPARATUS FOR MEASURING THE PRINT QUALITY OF PRINT MEDIA RECEIVING INK JET INKS

Steven J. Bares, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation-in-part of Ser. No. 358,100, May 30, 1989, abandoned, which is a division of Ser. No. 185,206, Apr. 22, 1988, Pat. No. 4,911,003. This application Nov. 8, 1990, Ser. No. 610,615
The portion of the term of this patent subsequent to Mar. 27, 2007, has been disclaimed.
Int. Cl.[5] G01N *13/00*
U.S. Cl. 73—159 **2 Claims**



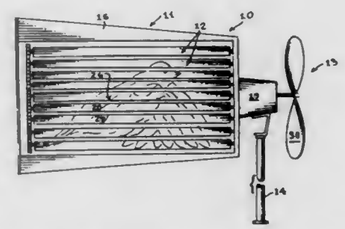
1. A method for evaluating the print quality of a porous material which includes the steps of:
a. contacting a porous surface of said porous material with a source of ink,
b. providing a known relative acceleration between said ink source and said porous surface, thereby
c. transferring a measurable volume of ink from said ink source to a known area of said porous surface, and
d. measuring the amount of ink transferred into said porous surface per unit of time, whereby the ink wetting delay and ink penetration rate into said porous surface which correlate with the ink jet print quality may be determined.
2. Apparatus for evaluating the print quality of a porous material including, in combination:
a. means for contacting a porous surface of said porous material with a source of ink,
b. means associated with said source of ink for providing a known relative acceleration between said ink source and said porous surface,
c. means adjacent to said porous surface for transferring a measurable volume of ink from said ink source to a known area of said porous surface, and
d. means connected to said source of ink for measuring the amount of ink transferred into said porous surface per unit of time, whereby the ink wetting delay and ink penetration rate into said porous surface which correlate with the ink jet print quality may be determined.

5,065,621

VISUALLY ENHANCED WEATHER VANE APPARATUS

Jon A. Holder, P.O. Box 481, Westminster, Md. 21157

Filed May 3, 1990, Ser. No. 519,066
Int. Cl.[5] G01P *13/02*
U.S. Cl. 73—188 **3 Claims**



1. A visually enhanced weather vane apparatus comprising:
a vertical support column;
an axle housing member having an axial bore wherein the axle housing member is pivotally connected to said support column;
a generally rectangular framework member operatively attached to said axle housing member;
a plurality of visual segment units rotatably suspended within said framework member wherein each visual segment unit comprises an elongated rectangular visual component member, wherein each of the four elongated sides of the individual visual component members have a portion of four different pictorial representations; and
means for imparting rotary movement to the plurality of visual segment units for producing a different pictorial representation on each side of the apparatus.

5,065,622

WIND DIRECTION INDICATOR

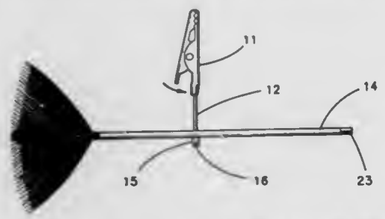
Steven E. Veenstra, 6092 Campus Park, Kentwood, Mich. 49508

Filed Aug. 31, 1990, Ser. No. 575,939
Int. Cl.[5] G01W *1/00*
U.S. Cl. 73—188 **4 Claims**

1. A wind direction indicator including a pointing beam, journal-bearing means rotatably supporting said beam for movement about a normally vertical axis, and fin means secured to said beam and adapted to orient said beam to point into a draft of air, wherein the improvement comprises:
a pair of feather elements constituting said fin means, said elements having quill portions secured to said beam to dispose said elements in downwind-diverging relationship; and

VOL 1132 ISS 3 NOV 19 1991 UMI

said beam having a central transverse hole constituting said bearing means, and including pin means having a head



supporting said beam, said pin means traversing said hole and constituting said journal means.

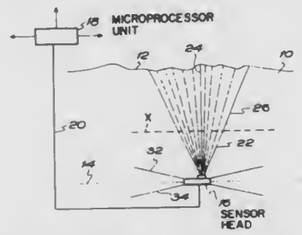
5,065,623
WATER MONITOR
Allen Wilcox, R.R. 1 Box 66a, Danby, Vt. 05739
Filed Oct. 20, 1989, Ser. No. 424,659
Int. Cl.[5] G01F *23/04*
U.S. Cl. 73—290 R **4 Claims**



1. A method of monitoring the later level in the ground comprising the steps of:
vertically driving a rigid rod of a first diameter of from about 3 inches to about 6 inches into the ground by application o vertical driving force to form a v vertical casing hole of said first diameter,
withdrawing t h rod to leave the vertical casing hole in the ground with an inner wall of the original ground material which is compacted but porous and through which the ground water enters the casing hole,
inserting into the vertical ground casing hole a tubular member of diameter from about 2 inches to about 3 inches which is smaller than the casing hole first diameter such that the outer surface of the tubular member does not contact the casing hole wall, said tubular member having an open bottom end so that the water level in the casing hole will rise within the tubular member, and
inserting a calibrated dip-stick into the tubular member and thereafter withdrawing it to measure the water level therein.

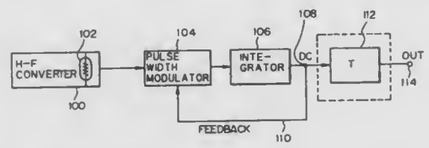
5,065,624
INSTALLATIONS FOR MEASURING LIQUID DEPTH
Roger Fell, Baildon, England, assignor to Scan Group Limited, West Yorkshire, England
Filed Nov. 28, 1989, Ser. No. 441,903
Int. Cl.[5] G01F *23/28*; G06G *7/16*
U.S. Cl. 73—290 V **11 Claims**

1. An installation for measuring a distance in a body of liquid in which there is defined a reflecting surface, said installation comprising:
means for emitting a divergent beam of radiant energy pulses and for receiving reflections of said pulses, said means being arranged in relation to the body of liquid such that said emitted pulses travel upwardly through the liquid so as to be reflected from said reflecting surface and said reflections of said pulses are constituted by said emitted pulses reflected from said reflecting surface; and



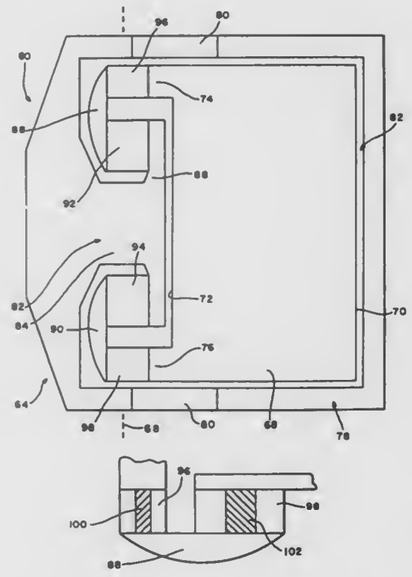
microprocessor means for averaging the time taken for the pulses to travel from the means for emitting to the reflecting surface and back to the means for emitting so as to provide an accurate reading of the distance, said microprocessor means being coupled to said means for emitting and receiving.

5,065,625
HUMIDITY METER
Shiro Nakagawa; Taisuke Domon; Takehiro Imai, all of Chiba, and Atsuko Tsuchida, Saitama, all of Japan, assignors to TDK Corporation, Tokyo, Japan
Filed May 2, 1990, Ser. No. 517,937
Claims priority, application Japan, May 12, 1989, 1-54782; May 15, 1989, 1-120925; May 15, 1989, 1-120926; Oct. 9, 1989, 1-263703; Oct. 11, 1989, 1-264654
Int. Cl.[5] G01W *1/00*
U.S. Cl. 73—336.5 **17 Claims**



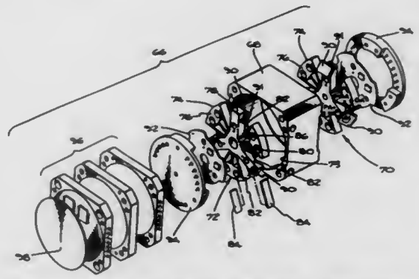
1. A humidity meter comprising;
a humidity sensor (**102**) which provides impedance depending upon humidity to be measured,
a humidity-frequency converter (**100**) for providing an alternate signal of frequency which depends upon the impedance of said humidity sensor (**102**),
a pulse width modulator (**104**) coupled with output of said humidity-frequency converter (**100**) for controlling pulse width of said alternate signal,
an integrator (**106**) coupled with output of said pulse width modulator (**104**) for providing potential proportional to frequency and pulse width of output of said pulse width modulator (**104**),
an output terminal (**108**) coupled with output of said integrator (**106**) providing measured humidity,
a feedback path (**110**) for providing potential at said output terminal (**108**) to said pulse width modulator (**104**) for adjusting pulse width of said alternate signal.

5,065,626
PENDULOUS ASSEMBLY FOR USE IN AN ACCELEROMETER
Richard A. Hanson, 21220 NE. 156th St., Woodinville, Wash. 98072
Continuation of Ser. No. 221,116, Jul. 19, 1988, Pat. No. 4,955,233, which is a continuation-in-part of Ser. No. 899,975, Aug. 25, 1986, abandoned. This application May 18, 1990, Ser. No. 525,491
The portion of the term of this patent subsequent to Sep. 11, 2007, has been disclaimed.
Int. Cl.[5] G01P *15/08*
U.S. Cl. 73—497 **4 Claims**



1. A pendulous assembly for use in an accelerometer or other such device including an arrangement for sensing forces acting on the device in a particular direction, said assembly comprising:
(a) a proofmass;
(b) means forming part of said sensing arrangement and carried by or in direct engagement with said proofmass for specifically sensing said forces acting on said proofmass; and
(c) means supporting one end of said proofmass for pivotal movement about a given axis back and forth through a resting plane which contains said proofmass when the proofmass is at rest in the absence of any of said forces, said supporting means including
(i) an isolation bridge support and means for mounting the isolation bridge support to a main support forming part of the force sensing device,
(ii) an arrangement of isolation bridges,
(iii) isolation bridge flexure means connecting said arrangement of isolation bridges with a section of said isolation bridge support for pivotal movement back and forth about said given axis; and
(iv) proofmass flexure means connecting said proofmass with said arrangement of isolation bridges for pivotal movement of said proofmass back and forth about said given axis.

5,065,627
THREE AXIS INERTIAL MEASUREMENT UNIT WITH COUNTERBALANCED, LOW INERTIA MECHANICAL OSCILLATOR
Robert E. Stewart, Woodland Hills, and Samuel N. Fersht, Studio City, both of Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Division of Ser. No. 497,766, Mar. 20, 1990, Pat. No. 5,007,289, which is a continuation of Ser. No. 251,918, Sep. 30, 1988, abandoned. This application Oct. 11, 1990, Ser. No. 595,531
Int. Cl.[5] G01P *9/04*
U.S. Cl. 73—505 **5 Claims**



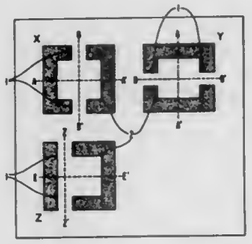
1. A three axis inertial measurement unit, comprising:
two platforms counterbalanced against each other mounted as a mechanical oscillator for dithered rotation at a natural frequency of said platforms about a single torsional axis;
a plurality of accelerometers mounted on at least one of said platforms;
each accelerometer having at least an input axis;
said plurality of accelerometers mounted upon said at least one platform such that said input axis of each accelerometer is at a predetermined angle to said single torsional axis and said platform;
said platforms each having:
a three legged, Y-shaped mounting member;
a rotor member positioned between the legs of said mounting member;
web members forming said legs of said Y-shaped mounting member to join said rotor member; and
driving webs mounted on each side of said web members for further joining said mounting member to said rotor member;
said accelerometers mounted upon said at least one of said platforms mounted upon said rotor member thereof at said predetermined angle.

5,065,628
INSTRUMENT FOR MEASURING ACCELERATIONS AND PROCESS OF MAKING THE SAME
Wolfgang Benecke, Berlin, Fed. Rep. of Germany, assignor to Fraunhofer Gesellschaft zur Forderung der angewandten Forschung e.V., Fed. Rep. of Germany
PCT No. PCT/DE88/00740, § 371 Date Jun. 4, 1990, § 102(e) Date Jun. 4, 1990, PCT Pub. No. WO89/05459, PCT Pub. Date Jun. 15, 1989
Continuation of Ser. No. 99,945, Sep. 23, 1987, abandoned. This PCT application Dec. 1, 1988, Ser. No. 477,964
Claims priority, application Fed. Rep. of Germany, Dec. 3, 1987, 3741036
Int. Cl.[5] G01P *15/08*; H01L *21/306*; B44C *1/22*
U.S. Cl. 73—517 R **12 Claims**

1. An instrument for measuring accelerations, comprising a reset element, a mechano-electric converter, and three micromechanical sensors, each consisting of an inert mass and

VOL 1132 ISS 3 NO 19 1991 UMI

sensitive to a motion in one direction to define multiple directions of sensitivity, integrated in a crystal surface layer,



wherein the multiple directions of sensitivity of the sensors point in different directions and do not lie in one plane.

5,065,629

ULTRASONIC INSECTION APPARATUS

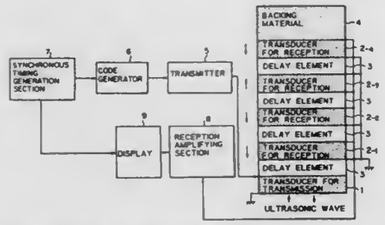
Mitsuhiro Koike, and Shusou Wadaka, both of Kanagawa, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 11, 1990, Ser. No. 595,610

Claims priority, application Japan, Oct. 25, 1989, 1-277863

Int. Cl.[5] G01N *29/22*; G06F *15/336*

U.S. Cl. 73—602 **5 Claims**



1. An ultransonic inspecting apparatus characterized by comprising:

a sequence generating means for generating a finite sequence with a lenght N which is composed of binary values and has a sharp autocorrelation function, the sequence generating means generating the finite sequence by changing between the binary values per each unit time T;

a transmission signal generating means for generating a transmission signal corresponding to the sequence;

a transmitting means for transmitting ultrasonic waves to an object by means of said transmission signal;

a receiving means for receiving an echo corresponding to said transmission signal, the receiving means having N number of transducers each of which is placed over the other so that each ultrasonic propagation time between them is identical to the unit time T and a series of polarities of outputs of the transducers correspond to a series of binary values which is obtained by reversing the time order of the binary values of the sequence; and

a means for generating the sum of the outputs of the transducers.

5,065,630

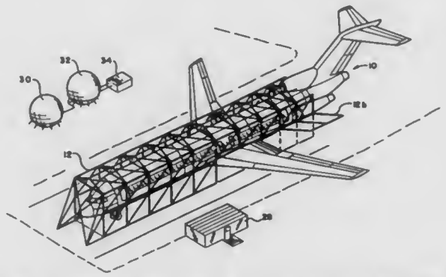
INTEGRATED SYSTEM FOR AIRCRAFT CRACK DETECTION

Richard N. Hadcock, Huntington; Richard R. Chipman, Centerport; Michael Horn, South Setauket, and Richard F. Chance, Bayport, all of N.Y., assignors to Grumman Aerospace Corporation, Bethpage, N.Y.

Filed Jun. 12, 1990, Ser. No. 536,808

Int. Cl.[5] G01M *5/00*

U.S. Cl. 73—802 **22 Claims**



10. A system for detecting cracks in a completed aircraft on the ground wherein the aircraft has a fuselage and a wing comprising:

a) a framework disposed about the fuselage and extending over a majority of the length of the fuselage;

b) support means supporting a plurality of sensors in operative position with respect to a surface of the aircraft to be tested, the sensors having means to generate a signal upon detecting a crack in the aircraft, the support means comprising:

i) at least one mounting beams;

ii) mounting means to mount the plurality of sensors on the at least on mounting beam; and,

iii) attaching means to attach the at least one mounting beam to a surface of the wing;

c) means for applying loads to the aircraft simulating the loads encountered by the aircraft during flight comprising at least one first inflatable bag member located beneath the wing such that, when the at least one bag member is inflated it contacts a lower surface of the wing to exert upward loads thereon;

d) at least one second inflatable bag member located between the support framework and an upper portion of the fuselage such that, when the at least one second bag member is inflated, it exerts downward loads on the fuselage; and,

e) means to analyze the signals generated by the sensors during the application of the loads to detect any crack in the aircraft.

5,065,631

GAUGE FOR MEASURING BENDING OF STRUCTURES

William G. Ashpitel, Weybridge, and Ralph G. W. Parsons, Staines, both of England, assignors to The British Petroleum Company, p.l.c., London, England

Filed Dec. 8, 1988, Ser. No. 281,571

Claims priority, application United Kingdom, Dec. 12, 1987, 8729061

Int. Cl.[5] G01N *3/20*

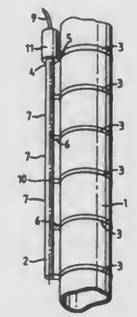
U.S. Cl. 73—849 **16 Claims**

1. A gauge suitable for measuring bending of a structure in which the gauge comprises in combination:

(a) a bending bar having a longitudinal axis,

(b) means for measuring bending of said bar, and

(c) attaching means capable of attaching said bending bar to said structure so as to allow said bar to bend in conformity to the bending in any direction of said structure, said attaching means comprising clamps having mountings



which in use, allow at least part of said bar to move longitudinally along its axis with respect to said structure, whereby measurement of bending of said bar enables bending of said structure to be determined.

5,065,632

FLOW LINE WEIGHING DEVICE

Peter A. Reuter, 38 Honeysuckle Dr., Hope Valley, South Australia, Australia

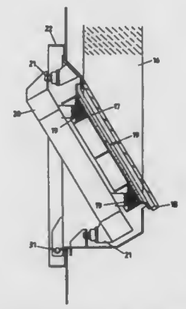
PCT No. PCT/AU88/00288, § 371 Date Jan. 23, 1990, § 102(e) Date Jan. 23, 1990, PCT Pub. No. WO89/01133, PCT Pub. Date Feb. 9, 1989

PCT Filed Aug. 4, 1988, Ser. No. 458,663

Claims priority, application Australia, Aug. 4, 1987, P13518

Int. Cl.[5] G01F *1/30*

U.S. Cl. 73—861.73 **7 Claims**



1. A flow line weighing device for weighing flowable material, the device comprising a non-horizontal plate having a front surface against which the flowable material impinges, characterized in that the plate is supported solely by a plurality of force transducers attached to and in direct contact with the rear surface of the plate, and an electronic circuit to process signals from said force transducers developed by the horizontal component of the impinging force to provide a read-out independent of the area of the front surface of the plate which is impinged by the fluent material being weighed.

5,065,633

APPARATUS FOR THE MEASUREMENT OF DRIVE TORQUES

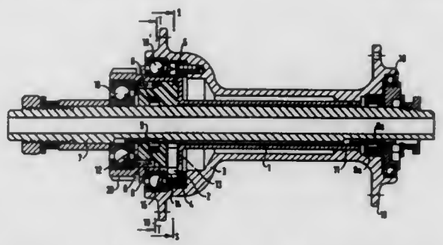
Jean-Pierre Mercat, Chateau-Renault, France, assignor to Look, S.A., Nevers, France

Filed Apr. 11, 1990, Ser. No. 507,935

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1989, 3912883

Int. Cl.[5] G01L *3/10*

U.S. Cl. 73—862.34 **16 Claims**



1. Apparatus for the measurement of the drive torque exerted on a drivable wheel, in particular on the drive wheel of a bicycle, and/or of parameters associated with the drive torque, the apparatus comprising a wheel hub (3) which is rotatably journalled relative to a fixed axle (7); a drive axle (1) which is coaxially disposed between the fixed axle (7) and the wheel hub (3); a member (18') which permits a relative rotation disposed between the drive axle (1) and the wheel hub (3) at the drive side end; a fixed connection (11) formed at the other end between the drive axle (1) and the wheel hub (3); a device for detecting the relative rotation between the wheel hub (3) and the drive axle (1) which depends on the drive torque and also for generating signals representative of the relative rotation and suitable for evaluation, characterized in that a carrier element (5) for at least one measurement transducer (8) is provided in a guide space (12) between the fixed axle (7) and the drive axle (1) and is pivotable about the fixed axle (7); in that at least one sensor (9) which detects the pivoting of the carrier element (5) is associated with the measurement transducer (8); and in that the pivot angle of the carrier element (5) is controlled by a mechanical multiplier member (4) which acts between the wheel hub (3) and the drive axle (1) and is actuated by their relative rotation.

5,065,634

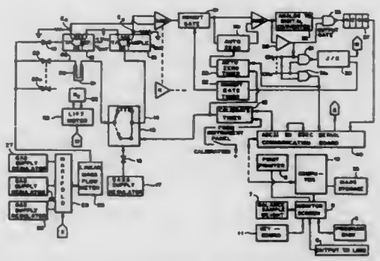
METHOD AND APPARATUS FOR THE AUTOMATIC DETERMINATION OF SURFACE AREA

Howard Jennings, 42 Pinetree La., Roslyn Heights, N.Y. 11577

Filed Sep. 10, 1990, Ser. No. 580,142

Int. Cl.[5] G01N *15/08*

U.S. Cl. 73—865.5 **10 Claims**



1. In a method for determining the surface area of a material with a surface area analyzer which uses the dynamic flow

VOL 1132 ISS 3 NO 19 1991 UMI

method by continuously passing a stream of a gaseous mixture of known and constant composition consisting of an adsorbate nitrogen, and an inert gaseous diluent helium in contact at a constant pressure with a measured sample of the material on a once-through basis at a temperature at which neither the inert diluent nor the adsorbate is appreciably adsorbed by the sample, then while continuing said stream, cooling the sample to a temperature at which adsorption of the adsorbate by the sample selectively takes place by immersing the sample in a liquid bath, using a detector sensing means in a bridge configuration to continuously measure the decrease in the concentration of the adsorbate in the stream down stream of the sample, during the cooling and until equilibrium is re-established integrating the sensed signal from the sensing means using an integrating means to provide a signal that is proportional to the volume of gas adsorbed by the sample of the material and using the detector sensing means, sensing the decrease in concentration of the adsorbate over the period of cooling until equilibrium is re-established, the improvement comprising the steps of:

inhibiting by means of a gate all signals emanating from the detector sensing means immediately after the sample is cooled to its adsorption temperature, to eliminate false or phantom signals generated in the detector sensing means caused by the chilling of the gas mixture;

deactivating the inhibit gate to reconnect the detector sensing means to said integrating means, so that the return to equilibrium which signals the completion of absorption, can be detected;

removing the liquid nitrogen bath from the sample of material in response to the absorption completion signal to cause the sample of material to warm to ambient temperature, to permit desorption of the adsorbed nitrogen in the sample of material;

detecting the desorbed nitrogen from the sample of material using the detector sensing means to generate a signal proportional to the volume of nitrogen adsorbed by the sample of material; and

integrating the desorption signal from said sensing means using the integrating means to provide a measure of the surface area of the sample of material.

5,065,635

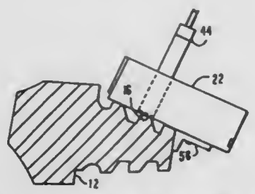
APPARATUS AND METHOD FOR INSPECTING AN ITEM HAVING GROOVES MACHINED THEREIN

Lee W. Burtner, Elizabeth Township, Allegheny County, and David A. Chizmar, Washington Township, Westmoreland County, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Sep. 14, 1990, Ser. No. 583,060

Int. Cl.[5] G01R *33/00*

U.S. Cl. 73—866.5 **9 Claims**



1. An apparatus for inspecting an item having grooves machined therein, said apparatus comprising:

a main housing having longitudinal grooves formed in opposite sides thereof, said main housing defining an underside for contacting the item to be inspected;

a carriage having opposite sides adapted for slidably engaging said longitudinal grooves in said main housing;

sensor means for inspecting the item;

means for connecting said sensor means to said carriage such that said sensor means extends beyond said underside of said main housing, said means for connecting being adjustable for controlling the degree of extension; and

reference member means adjustably connected to and extending from said underside of said main housing for enabling uniform and consistent contact of said sensor means with the item to be inspected.

5,065,636

DRIVE ARRANGEMENT FOR A MALE-DIE-SIDE EJECTOR SLIDABLY DISPOSED IN A SLIDE OF A MECHANICAL METAL-FORMING PRESS

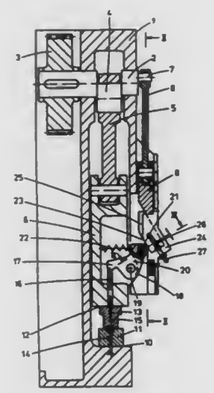
Günter Riedisser, Eisslingen, and Rainer Braun, Göppingen, both of Fed. Rep. of Germany, assignors to L. Schuler Pressen GmbH, Fed. Rep. of Germany

Filed Feb. 8, 1990, Ser. No. 478,457

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1989, 3904278

Int. Cl.[5] B21J *13/14*; B30B *15/00*

U.S. Cl. 74—40 **6 Claims**



1. A drive arrangement for a male-die-side ejector slidably disposed in a slide of a mechanical metal-forming press comprising:

an angle lever pivotably disposed on the slide, one leg of which acts upon an end of the ejector facing away from the male die and another leg of which is acted upon by a control cam;

means for driving the control cam in a timed manner;

means for holding the control cam in contact with the other leg of the angle lever;

a control carriage attached to the control cam, the control carriage being slid in a guide fixed at a stationary frame positioned substantially parallel to a moving direction of the slide which also moves relative to the frame; and

a control connecting rod attached at one end to the control carriage at a bearing, and at another end, being disposed eccentrically on a shaft which drives the slide.

5,065,637

ADJUSTING DEVICE AND ADJUSTABLE TEXTILE FIBER CARDING APPARATUS

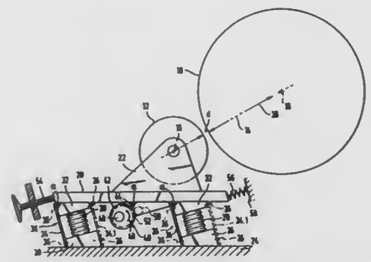
Roland Soltermann; Peter Fritzsche, both of Winterthur, and Kurt Müller, Schlieren, all of Switzerland, assignors to Maschinenfabrik Rieter AG, Winterthur, Switzerland

Filed Mar. 7, 1990, Ser. No. 489,530

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1989, 3907517; Dec. 5, 1989, 3940229

Int. Cl.[5] D01G *15/28, 15/46*; F16M *7/00*

U.S. Cl. 74—99 R **27 Claims**



1. An adjusting device for carrying out linear adjusting movements which are at least essentially independent of friction, and free from jerks and oscillations, comprising:

a carrier for an object to be adjusted;

an actuating mechanism in contact with the carrier for reciprocating the carrier along a path in a forward direction whereby the object can be proximally adjusted, and a rearward direction whereby the object can be distally adjusted;

the carrier being supported at at least two positions spaced apart from each other along said path on respective supporting devices, at least one of the supporting devices comprising a generally cylindrically shaped bellows filled with a substantially incompressible medium, the bellows being secured at one end face thereof to the carrier and at another end face thereof to a foundation; and

at least one leaf spring being secured at one end thereof to the foundation and at another end thereof to the carrier, the leaf spring and another one of the supporting devices permitting freedom of movement along said path in a manner substantially free of friction.

5,065,638

VARIABLE RATIO TRANSMISSION

Ivor Barens, 401 Markham St., Toronto, Ontario M6G 2LI, Canada

Continuation-in-part of Ser. No. 524,905, May 18, 1990, abandoned, which is a continuation-in-part of Ser. No. 382,431, Jul. 20, 1989, abandoned. This application Feb. 13, 1991, Ser. No. 654,806

Int. Cl.[5] F16H *3/24*

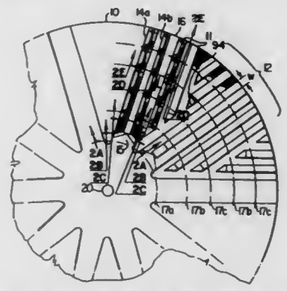
U.S. Cl. 74—351 **10 Claims**

1. A variable ratio transmission comprising:

(a) a pinion having a plurality of pins equally spaced about its periphery, each of said plurality of pins having urging means to urge each said pin to an extended position and being depressible against said urging means to a depressed position;

(b) a face gear comprising a plate rotatable about a centre of rotation and having a surface comprising a plurality of fingerlike crowns extending inwardly from the periphery of said plate forming grooves between adjacent crowns such that at intermittent radii from said centre of rotation, for any one of said grooves, there is another one of said grooves such that the arc distance between said one and said other of said grooves is approximately equal to the arc distance between adjacent pins of said pinion, said grooves having a width greater than the width of the portion of said pins entering said grooves, and such that at least some of said one and said other of said grooves are not adjacent grooves;

(c) means mounting said pinion for rotation on said face gear and permitting said pinion to be translated radially along said face gear;



whereby said plurality of pins of said pinion, when in said extended position, may mesh with said grooves of said face gear so that when said pinion is positioned at one of said intermittent radii and said face gear and pinion rotate, said plurality of pins mesh with ones of said grooves and such that, when said pinion is positioned at other than one of said intermittent radii, any of said plurality of pins which do not mesh with said grooves may be depressed by a crown toward said depressed position to permit continued rotation of said pinion and face gear without jamming.

5,065,639

DOUBLE BEVEL GEAR ANGULAR DRIVE

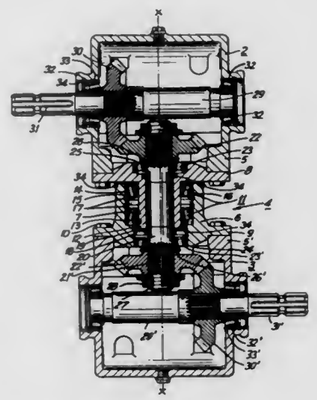
Michael Flanhardt; Andreas Roth, both of Köln, and Clemens Nienhaus, Lohmar, all of Fed. Rep. of Germany, assignors to Jean Walterscheid GmbH, Lohmar, Fed. Rep. of Germany

Filed Nov. 19, 1990, Ser. No. 615,222

Claims priority, application Fed. Rep. of Germany, Nov. 24, 1989, 3938967

Int. Cl.[5] F16H *1/14*; B25B *17/00*

U.S. Cl. 74—417 **6 Claims**



1. An assembly, comprising:

two bevel gear angular drives each having a housing;

two spaced bevel roller bearings;

VOL 1132 ISS 3 NO 19 1991 UMI

a pivot bearing pivotably connecting the two bevel gear angular drives to the two spaced roller bearings;

a joint shaft extending centrally through the pivot bearing, each of the two bevel gear angular drives having a bevel gear secured on the joint shaft, the pivot bearing including two coaxial sleeves having formed-on flanges secured to the housings of the bevel gear angular drives, the two bevel roller bearings (11) being arranged between the sleeves, and being tensioned relative to each other at the coaxial sleeves (6, 7); and

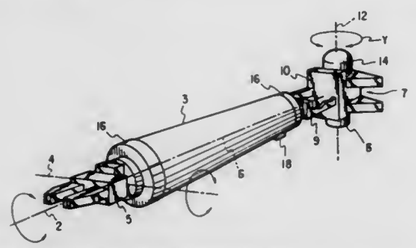
additional bevel roller bearings (23, 23') arranged so as to support the joint shaft (20) provided with the two bevel gears (22, 22') in the two sleeves (6, 7).

5,065,640

INFLATABLE STRUCTURE

Yoram Koren, Ann Arbor, Mich., and Yechiel Weinstein, Misgav, Israel, assignors to The Regents of the University of Michigan, Ann Arbor, Mich.

Filed Jul. 9, 1990, Ser. No. 549,963
Int. Cl.[5] G05G *1/00, 11/00*
U.S. Cl. 74—469 **15 Claims**



10. An inflatable structure comprising:

an elongated link formed of a flexible fluidtight material and defining at least one fluidtight chamber, the material of the link having sufficient strength to remain fluidtight when the at least one chamber is inflated with a fluid to a pressure sufficient to rigidize the link due to the fluid pressure in the at least one chamber thereof;

a base;

pivoting means for pivotally mounting the elongated link at the base;

drive means, positioned at the base, for pivotally driving the link to control a position of the link relative to the base when the link is inflated.

5,065,641

SHIFT LEVER ARRANGEMENT FOR OPERATING AUTOMATIC POWER TRANSMISSION

Yoshimi Yamamoto, and Keisuke Kino, both of Shizuoka, Japan, assignors to Fuji Kiko Company, Limited, Tokyo, Japan

Filed Mar. 29, 1990, Ser. No. 500,872
Claims priority, application Japan, Mar. 30, 1989, 1-37180[U]
Int. Cl.[5] B60K *29/02*
U.S. Cl. 74—473 SW **9 Claims**

1. A shift lever arrangement for operating an automatic power transmission for an automotive vehicle having a brake capable of being actuated, said arrangement comprising:

a control tube arranged essentially parallel to a vehicular steering column and supported thereon so as to be rotatable around a longitudinal axis thereof;

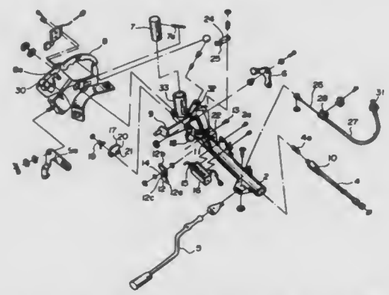
a manually operable lever for causing said control tube to rotate via manual operation;

a shift lever selectively positioned in anyone of a parking range position or other positions, rotating with said control tube for operating the automatic power transmission;

a compression rod received in said control tube, said compression rod being movable in a direction along the longitudinal axis of said control tube between first and second positions by operating said manually operable lever;

first means for preventing said control tube from rotating when said compression rod is positioned in said first position, and for allowing said control tube to rotate when said compression rod is positioned in said second position;

second means, movable between an engaging position in which said second means engages said compression rod and a disengaging position in which said second means disengages from said compression rod, for preventing said compression rod from being positioned in said second position so as to prevent said control tube from rotating when said second means is positioned in the engaging position, and for allowing said compression rod to be



positioned in said second position so as to allow said control tube to rotate when said second means is positioned in the disengaging position; and

electromagnetic driving means for driving said second means in response to turning ON thereof, said electromagnetic driving means causing said second means to be positioned in said engaging position when the electromagnetic driving means is OFF, while said shift lever is positioned in said parking range position, and to be positioned in said disengaging position either when the electromagnetic driving means is turned ON, while said shift lever is positioned in said parking range position, or when said shift lever is positioned in positions other than said parking position.

5,065,642

APPARATUS FOR ABSORBING TORQUE VARIATION

Junji Kagiyama, Kariya; Kiyonori Kobayashi, Chiryu; Mototaka Nakane, Toyota; Masakazu Kamiya, Toyoake; Mitsuhiro Umeyama, Toyota; Masaki Inui, Toyota; Kaoru Wakahara, Toyota, and Masaki Hosono, Toyota, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha Kariya and Toyota Jidosha Kabushiki Kaisha, Toyoto, both of Kariya, Japan

Filed Feb. 27, 1990, Ser. No. 485,558
Claims priority, application Japan, Feb. 28, 1989, 1-23279[U]; Oct. 19, 1989, 1-122637[U]
Int. Cl.[5] F16F *15/12*
U.S. Cl. 74—574 **23 Claims**

13. An apparatus for absorbing torque vibration comprising:

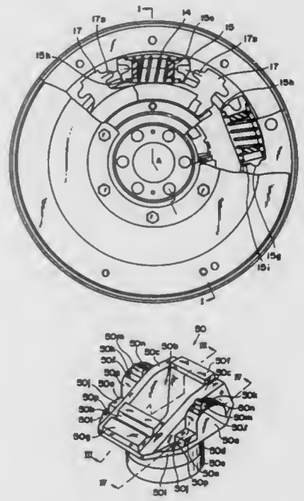
a first inertial body comprising a first flywheel adapted to be connected to a driving source,

a second inertial body comprising a second flywheel disposed coaxial with the first flywheel, and

a damper mechanism, torque limiting mechanism and hysteresis mechanism interposed between said first and second flywheels,

rotation of said driving source being transmitted between both the flywheels via said damper mechanism, said torque limiting mechanism and said hysteresis mechanism,

wherein the improvement comprises resilient members secured to spring seats engaged with both ends of a spring of said damper mechanism, at least one of the resilient members being embedded within one of said end faces of the



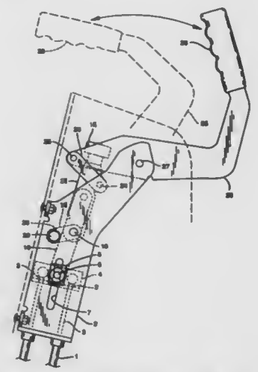
spring seats so as to project from said face thereof directed to abut to one of the first inertial body and the second inertial body so as to project out of the spring seat.

5,065,643

COMPOUND PULL CABLE OPERATING LEVER

Lloyd L. Axtell, Portland, Oreg., assignor to Hyster Company, Portland, Oreg.

Filed Mar. 13, 1991, Ser. No. 668,960
Int. Cl.[5] F16C *1/12*
U.S. Cl. 74—501.6 **4 Claims**



1. An overcenter toggle type pull cable operating lever comprising:

a) a frame;

b) a cable slide for connection to a pull cable and arranged for displacement within the frame along the axis of the pull cable;

c) an adjuster link pivotally connected to the cable slide and pivotally connected to;

d) an intermediate lever arranged within the frame to rotate about a pivot when acted upon by;

e) an intermediate link pivotally connected to the intermediate lever and pivotally connected to;

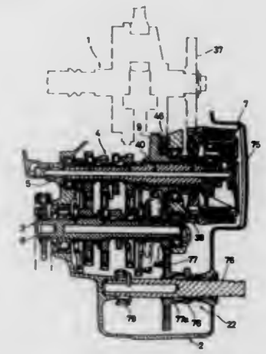
f) a hand lever arranged within the frame for rotation about a pivot.

5,065,644

COUNTERBALANCE MECHANISM FOR INTERNAL COMBUSTION ENGINE

Toshio Shimada, Wako, Japan, assignor to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 5, 1989, Ser. No. 376,082
Claims priority, application Japan, Jul. 6, 1988, 63-169390
Int. Cl.[5] F16C *3/04*; F02B *75/06*
U.S. Cl. 74—603 **10 Claims**



1. A counterbalance mechanism in an internal combustion engine having a crankshaft, a clutch, and a transmission including a main shaft rotatable by the crankshaft through the clutch and a countershaft rotatable by the main shaft through gears, said counterbalance mechanism comprising:

at least a primary counterweight rotatable in synchronism with the crankshaft;

a hollow shaft rotatably supported concentrically on the main shaft,

said primary counterweight being integrally formed with said hollow shaft; and

said clutch being co-rotatably mounted on said hollow shaft and operatively coupled to the crankshaft at the same speed as and in the opposite direction to the crankshaft.

5,065,645

POWER TRANSMISSION DEVICE

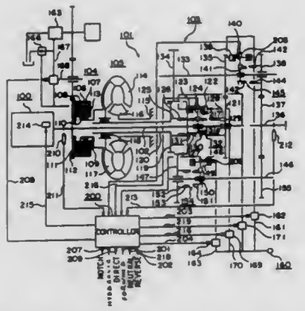
Kazuhiko Nagase, Kanazawa, and Hideki Nakamura, Fukiagemachi, both of Japan, assignors to Niigata Converter Co., Ltd., Tokyo, Japan

Filed Jul. 26, 1990, Ser. No. 558,102
Int. Cl.[5] F16H *47/08*
U.S. Cl. 74—859 **3 Claims**

1. A power transmission device suitable for use in a rail car and so providing coasting operation and the same speed ratios and the same speed change steps in both forward and rearward powered operations, wherein the output of an engine is selectively transmitted to a transmission either indirectly through a torque converter or directly by bypassing said torque converter, the output being then transmitted to an output shaft through said transmission with the rotational speed being varied, characterized in that the input shaft connected to the output shaft of said engine can be selectively connected to a low-speed drive gear or a high-speed drive gear of said transmission through a low-speed clutch or a high-speed clutch,

VOL 1132 ISS 3 NO 19 1991 UMI

respectively, each comprising a mechanically engaging clutch, and in that a cylindrical shaft secured to said low-seed drive gear is arranged coaxially with said input shaft, said cylindrical



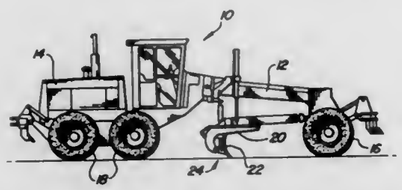
shaft being connected to an output side of said torque converter through a free wheel, and in that an impeller wheel at the input side of said torque converter can be connected to said input shaft through a hydraulic friction clutch.

5,065,646

PROCESS FOR FABRICATING A MOLDBOARD BLADE

Leroy Rudolph, Jr., and Dennis A. Brimeyer, both of Dubuque, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Jul. 24, 1990, Ser. No. 557,886
Int. Cl.[5] B21K *19/00*
U.S. Cl. 76—101.1 14 Claims



1. A process of fabricating a earthmoving blade having a working surface and a support structure surface, the process comprising the following steps:

bowing the blade towards its support structure surface;

welding a support structure to the bowed blade;

bending the blade and the mounted support structure towards the working surface of the blade;

releasing the blade;

comparing the blade with a final desired shape for the blade; and

bending the blade again as necessary to achieve the final desired shape.

5,065,647

BIT FOR DRILLING CAST IRON

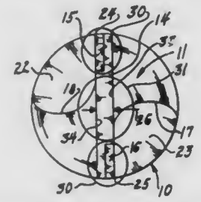
Jonathon S. Johnson, Brighton, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 27, 1990, Ser. No. 572,646
Int. Cl.[5] B23B *51/02;* B23P *15/32*
U.S. Cl. 76—108.6 7 Claims

1. A method of adapting a fluted drill bit for more effective drilling of cast iron workpieces, comprising:

(a) providing, across the pointed end of said fluted drill bit, a diametrically extending slot;

(b) forming a blade of a matrix phase of cemented carbide particles which are hot pressed at a temperature of about 2500° F. and at a pressure in the range of 800,000–1,000,000 psi, said blade being effective to snugly fit within the contours of said slot, said blade being comprised of cemented carbide powder within which is diffusion bonded a pair of insert phases constituted of cubic boron nitride, said insert phases being located at opposite



outside corners of said blade and extending radially inwardly no greater than the cutting zone of said pointed end of the fluted drill bit; and

(c) after seating said blade within said slot, fixedly securing the carbide surfaces of said blade exposed to the walls of said slot.

5,065,648

OIL FILTER WRENCH

Gerald E. Hocfbaum, Jr., 872 Union Rd., Xenia, Ohio 45385-7212

Filed Dec. 7, 1990, Ser. No. 623,562
Int. Cl.[5] B25B *13/50*
U.S. Cl. 81—64 8 Claims

1. A wrench for manipulating an oil filter comprising:

A) a circular body which includes

(1) a semi-circular, semi-rigid top section having

(a) an inner surface,

(b) an outer surface,

(c) a hinge element at one end,

(d) a fastening projection at another end, said projection extending radially outward from said outer surface and having a bore defined therethrough,

(e) a threaded fastener mounted on said outer surface to extend radially outward from said outer surface and being positioned midway between said hinge element and said projection, and

(f) a plurality of shark tooth-shaped projections mounted on said inner surface and extending radially inward of said top section, said shark tooth-shaped projections being spaced apart from each other angularly about said top section to have approximately 45° between adjacent shark tooth-shaped projections;

(2) a semi-circular, semi-rigid bottom section having

(a) an inner surface,

(b) an outer surface,

(c) a hinge element at one end of said bottom section and located adjacent to said top section hinge element,

(d) a fastening projection at another end, said projection extending radially outward from said outer surface and having a bore defined therethrough and being located adjacent to said top section fastening projection, said fastening projection bores being positioned to be aligned with each other when said top and bottom section projections are in abutting contact with each other,

(e) a plurality of shark tooth-shaped projections mounted on said bottom section inner surface and extending radially inward of said bottom section, said shark tooth-shaped projections being spaced apart from each other angularly about said bottom section to have approximately 45° between adjacent shark tooth-shaped projections on said bottom section, said bottom section shark tooth-shaped projections being diametrically opposed to corresponding top section shark tooth-shaped projections when said bottom section is closed with said top section; and

B) connecting means for connecting said top section to said bottom section, said connecting means including

(1) hinge connecting means pivotally connecting said top section hinge element to said bottom section hinge element,

(2) a screw thread defined in said top section fastening projection adjacent to said top section fastening projection bore,

(3) a screw thread defined in said bottom section fastening projection adjacent to said bottom section fastening projection bore, and

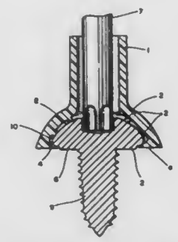
(4) a threaded wing nut for threadably coupling said top section projection to said bottom section projection via said top section screw thread and said bottom section screw thread.

5,065,649

DEVICE FOR HOLDING FASTENERS

David E. Evers, Leawood, Kans., and Charles A. Milburn, Kansas City, Mo., assignors to Bulter Manufacturing Company, Grandview, Mo.

Filed Aug. 21, 1990, Ser. No. 570,524
Int. Cl.[5] B25B *23/08*
U.S. Cl. 81—458 1 Claim



1. A device for holding a fastener by its head, comprising

a tubular member having at one end a pliable dome-shaped enlargement, said enlargement having an interior surface and terminating at a bottom end surface,

an annular, internally projecting lip, adjacent said end surface, said lip having an oblique upper surface for engaging the fastener head along its bottom outer edge, and

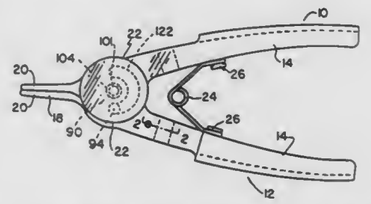
at least one annular rib projecting obliquely downward from the interior surface of the enlargement, intermediate said tubular member and said internal lip, for engaging an upper surface of the fastener head, and thereby gripping the head between the annular rib and the upper surface of the internal lip.

5,065,650

HAND TOOL

J. Edward C. Anderson, Moreland Hills, and James R. Jeromson, Jr., Aurora, both of Ohio, assignors to Milbar Corporation, Chagrin Falls, Ohio

Division of Ser. No. 378,448, Jul. 10, 1989, Pat. No. 5,007,313, which is a continuation of Ser. No. 182,016, Apr. 29, 1988, abandoned, which is a continuation-in-part of Ser. No. 46,851, May 7, 1987, abandoned. This application Mar. 26, 1991, Ser. No. 675,312
Int. Cl.[5] B23P *19/04*
U.S. Cl. 81—486 7 Claims



3. A reversible plier tool for installing or removing internal or external retaining rings or the like comprising:

a) a pair of lever sections each having a handle portion, and a boss portion situated intermediate the handle portion and the jaw portion;

b) a driving knob;

c) a driving structure including a pivot connection and a driving connection, the driving connection interconnects the lever sections and the driving knob, the pivot connection interconnects the knob and one of said levers, the connections permitting movement of the lever sections between a first working position in a crossed relationship and a second working position in said a side by side relationship and return; and

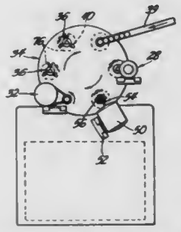
d) a groove in one of said lever sections for engagement with the driving connection in a work position establishing relationship, whereby movement of the tool between positions is provided by rotation of the driving knob which moves the driving connection along the groove.

5,065,651

METHOD AND MACHINE FOR FINISHING COMMUTATORS

Louis F. R. Amey, Winchester, Mass., assignor to McCord Winn Textron Inc., Winchester, Mass.

Filed Jun. 30, 1989, Ser. No. 374,186
Int. Cl.[5] B23C *3/00;* B24B *7/04*
U.S. Cl. 82—1.11 3 Claims



1. A process for finishing the full radial surface of a radial face type commutator having a longitudinal axis and further having a plurality of conductor segments each including a radially inwardly located edge and a radially outer edge joined

VOL 1132 ISS 3 NO 19 1991 UMI

by radial edges forming slots between each of the conductor segments comprising the steps of:

rotating the commutator on its longitudinal axis;

providing a cutter tool with a plurality of cimferentially spaced cutting inserts thereon each having a tip portion located on the outer radius of said cutter tool for cutting material;

rotating the commutator along its longitudinal axis while simultaneously rotating said cutter tool with respect to said rotating commutator to cause said tip portions to remove metal from said conductor segments;

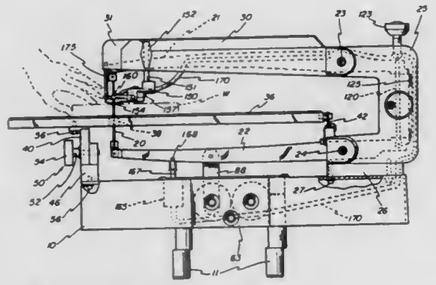
removing a predetermined thickness of material from the face of each of said conductor segments while simultaneously moving the tool tips along a slightly curved substantially radial path which directs said tip portion along the radial edges of the conductor segments for finishing the radial edges of the conductor segments as burr free surfaces.

5,065,652

SCROLL SAW

John G. Legler, Huber Heights; Robert L. Bartlett, Dayton, and David D. Flora, Arcanum, all of Ohio, assignors to Shopsmith, Inc., Dayton, Ohio

Division of Ser. No. 471,015, Jan. 22, 1990, abandoned, which is a continuation of Ser. No. 226,172, Jul. 29, 1988, abandoned.
This application Dec. 11, 1990, Ser. No. 625,508
Int. Cl.[5] B23D *41/00*
U.S. Cl. 83—168 8 Claims



1. A reciprocating saw comprising:

(a) frame means including a base and an upper portion overhanging said base;

(b) upper and lower arm members extending above and below said frame means and mounted on said frame means for oscillating movement with respect to said base,

(c) drive means for causing oscillating movement of said arm members,

(d) a saw blade attached to said arm members for oscillating movement therewith,

(e) air pump means mounted on said frame means,

(f) guard means for said saw blade mounted on said frame means,

(g) said guard means including a guard tube of non-flexible material supported on said frame means forward of said saw blade and extending substantially the full length of the portion of said saw blade above said base,

(h) said guard tube having an open end positioned above and directed toward said base,

(i) tubing connecting an opposite end of said guard tube to an output side of said pump means, and

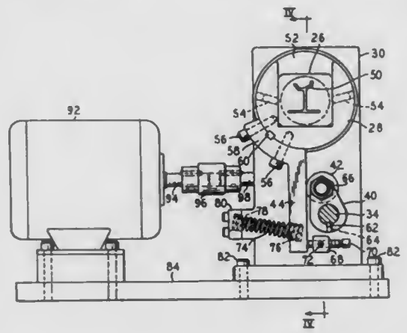
(j) means operated by said drive means for causing said pump means to deliver a stream of air to said tubing for discharge from said open end of said guard tube.

5,065,653

TWIST-SHEARING APPARATUS

John A. Werner, Milwaukee, Wis., assignor to Toolrite Manufacturing Company, New Berlin, Wis.

Filed Aug. 23, 1990, Ser. No. 571,216
Int. Cl.[5] B23D *23/04*
U.S. Cl. 83—199 18 Claims



1. A rotary cut-off apparatus for shearing extruded stock using first and second shearing dies, comprising:

means for moving extruded stock into the rotary cut-off apparatus at a predetermined rate;

means for holding a first shearing die stationary in a position to accept the extruded stock;

means for holding a second shearing die abutting said first shearing die and in registration with said first shearing die when in a first position, said means for holding said second shearing die being rotatable about a die axis of rotation relative to said means for holding said first shearing die;

means for rotating said second shearing die from said first position relative to said first shearing die through a limited angle of rotation about said die axis of rotation to shear the extruded stock that extends through said first and second shearing dies into pieces of predetermined lengths, said means for rotating including:

a die lever connected to said means for holding said second shearing die and extending generally radially therefrom relative to said die axis of rotation,

a cam mounted for rotation on a cam axis of rotation, said cam axis of rotation being generally parallel to said die axis of rotation, said cam having an eccentric movable against said die lever upon rotation of said cam about said cam axis of rotation to bear against said die lever and cause said die lever to rotate said means for holding said second shearing die relative to said means for holding said first shearing die, said limited angle of rotation resulting from a radial extent of said eccentric of said cam, and

means for rotating said cam about said cam axis of rotation.

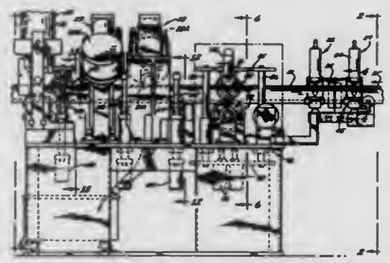
5,065,654

MACHINE FOR PUNCHING AND SHEARING ANGLE IRON AND FLAT STOCK

Louis G. Cowan, Cherry Valley, and Dale L. Cardey, Loves Park, both of Ill., assignors to W. A. Whitney Corp., Rockford, Ill.

Filed Oct. 9, 1990, Ser. No. 594,858
Int. Cl.[5] B26D *9/00, 7/02, 7/06*
U.S. Cl. 83—255 18 Claims

1. A machine for punching holes in either an elongated piece of flat stock or an elongated piece of angle stock of substantially V-shaped cross-section, said machine comprising means for supporting said stock for endwise movement along a generally horizontal path, means for advancing the stock intermittently along said path, a punch press positioned along said path and operable to punch a hole in said stock when the latter dwells, said supporting means comprising in part an upwardly opening V-shaped cradle having first and second inclined sides for supporting said angle stock in a position with the V thereof opening upwardly, said first side of said cradle supporting said flat stock in an inclined position in which one edge of the flat stock engages the second side of the cradle, and a mechanism



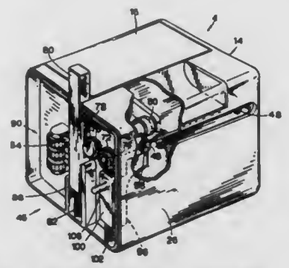
for selectively clamping said stock to said cradle, said mechanism comprising a fluid-operated actuator having a cylinder and having a rod adapted to advance and retract vertically relative to said cylinder, a clamping nose on the lower end of said rod and adapted to engage said stock and clamp said stock against said cradle when said rod is advanced, and means mounting said cylinder for pivoting on said supporting means about an axis located above and extending substantially parallel to said path thereby to enable said nose to tilt as necessary to clamp said stock against said cradle.

5,065,655

PILL STRIP DISPENSER

Terry M. Haber, 25011 Castlewood, El Toro, Calif. 92630

Filed Mar. 9, 1990, Ser. No. 491,672
Int. Cl.[5] B26D *1/56;* B26F *1/00*
U.S. Cl. 83—322 30 Claims



1. A pill strip dispenser assembly comprising:

a pill strip including a pill strip package having longitudinal edges and defining a plurality of longitudinally arranged packets, each packet including a pocket with medicine therein, the packets separated by laterally extending separation lines; and

a pill strip dispenser including:

a housing defining a supply region and a dispensing path along which the pill strip moves from the supply region to a discharge position; and

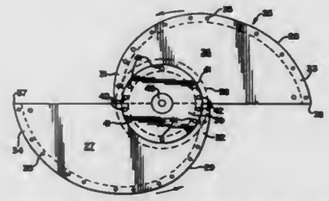
a drive assembly, mounted at least partially within the housing, including a drive element along the dispensing path which engages the pill strip along a drive line and forces the pill strip from the supply region, along the dispensing path and to the discharge position, the drive line intersecting at least a portion of each of the pockets, the drive element weakens the pill strip package along the drive line to form a tear line to aid access to the medicine within the packet.

5,065,656

FOOD SLICING WITH MULTIPLE CUTTING SURFACE BLADE

Dennis G. Flisram, Plainfield, Wis., assignor to Oscar Mayer Foods Corporation, Madison, Wis.

Filed Sep. 21, 1990, Ser. No. 586,066
Int. Cl.[5] B26D *1/28*
U.S. Cl. 83—356.003 3 Claims



1. An apparatus for providing a series of sliced food products from a large stick of meat or other food product, comprising:

means for supporting and feeding a food stick to and into a slicing assembly having a rotary mounted blade assembly which rotates into generally perpendicular severing and slicing engagement with and completely through an end of the food stick;

said blade assembly including a substantially centrally positioned mounting member and first and second blade member, each said blade member having a curved cutting surface having a length adequate to cut completely through a perpendicular cross-section through the food stick, said curved cutting surface includes a leading edge of each curved cutting surface and terminates at a trailing tip of the blade member curved cutting surface, each said blade member lying generally along a same plane, each blade member having a straight edge extending between said leading edge and said trailing tip, wherein a portion of the straight edge of said first blade member is adjacent to a portion of the straight edge of said second member such that the interface between said straight edge portions lies substantially coincident with a line between said trailing tips; and

each said leading edge of the curved cutting surface is spaced from said mounting member by a radial distance that is substantially less than the radial distance by which each said trailing tip is spaced from said mounting member, such that the leading edge of the curved cutting surface of one of said blade members is radially offset from the trailing tip of another of said blade members thereby defining a gap of said blade assembly which imparts a non-slicing mode to the apparatus when said blade assembly is rotating and when said supporting and feeding means is feeding the food stick to and into said slicing assembly, at least two of said gaps being provided, whereby the apparatus has alternating slicing modes and non-slicing modes, each said slicing mode beginning when the curved cutting surface of one of said blade members is in generally perpendicular severing and slicing engagement with the food stick and ending when a slice is completely severed from the food stick, and each said non-slicing mode being when the food stick is within one of said gaps and out of engagement with the rotating blade assembly, and whereby at least two slices of the food stock are severed from the food stock during each rotation of said blade assembly through the end of the food stick.

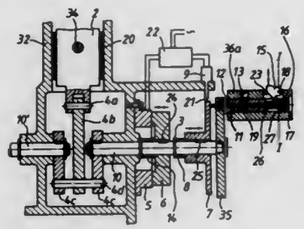
VOL 1132 ISS 3 NOV 19 1991 UMI

5,065,657

AUTOMATIC LOCKING MECHANISM FOR THE DRIVE DEVICE OF A MICROTOME

Gerhard Pfeifer, Solms, Fed. Rep. of Germany, assignor to Wild Leitz GmbH, Wetzlar, Fed. Rep. of Germany

Filed Sep. 1, 1989, Ser. No. 401,765
Claims priority, application Fed. Rep. of Germany, Sep. 9, 1988, 3830725
Int. Cl.[5] G01N *1/06*
U.S. Cl. 83—703 18 Claims



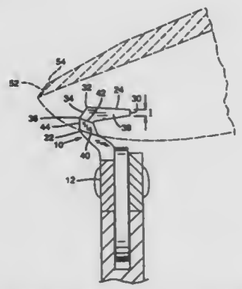
1. A microtome comprising:
a drive device for producing a movement between a knife and an object holder;
a first handle having a gripping surface for an operator, for manual actuation of the drive device;
a blocking mechanism for locking the drive device, thereby preventing motion of the handle and the object holder;
switching means associated with the gripping surface of the handle for actuating the blocking mechanism whenever an operator releases his hand from the gripping surface; and
a second handle having a gripping surface for an operator, for manual actuation of the drive device, said second handle being mounted on a side of the microtome opposite the first handle, and the second handle also including switching means associated with its gripping surface for actuating the blocking mechanism whenever an operator releases his hand from its gripping surface, and wherein the gripping surfaces of the first and second handles are detachably connected to the handles, whereby a single gripping surface can be interchangeably used on both of the first and second handles for selective right-hand or left-hand operation.

5,065,658

CUTTER LINK

Lynn J. Ziegelmeyer, P.O. Box 1112, Medford, Oreg. 97501

Filed Jun. 22, 1990, Ser. No. 542,096
Int. Cl.[5] B27B *33/14*
U.S. Cl. 83—834 5 Claims



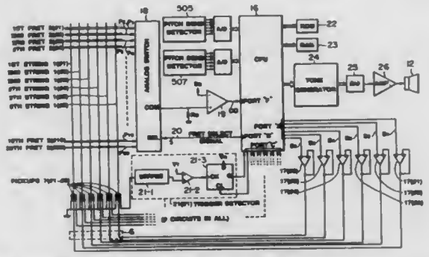
1. In a cutter link for saw chain where the link has a body portion and the body portion has a forward end and a rear end, a depth gauge projecting upwardly from the forward end of the body portion and a cutter joined to and projecting up from the rear end of the body portion, the cutter including a side plate and a top plate joining with the side plate and the top plate having a terminal edge extending the length of the top plate, the improvement comprising:
a top plate that in cross-section has an essentially flat extend adjacent the terminal edge and a given thickness at the terminal edge, the side plate in cross-section having a transition region where it inclines downwardly and outwardly from its joinder with the top plate to reach a zone of maximum lateral extension and the side plate then extending downwardly to join with the body portion, said transition region having a width which is greater than said given thickness,
an essentially planar bevel surface forming the forward edge of the cutter tooth and extending from the zone of maximum lateral extend to said terminal edge and an additional surface joining with said beveled surface forming the forward edge of the cutter tooth in the side plate.

5,065,659

APPARATUS FOR DETECTING THE POSITIONS WHERE STRINGS ARE OPERATED, AND ELECTRONIC MUSICAL INSTRUMENTS PROVIDED THEREWITH

Shigeru Uchiyama, Sayama, and Yoshiyuki Murata, Tachikawa, both of Japan, assignors to Casio Computer Co., Ltd., Tokyo, Japan

Filed May 19, 1989, Ser. No. 354,131
Claims priority, application Japan, May 23, 1988, 63-125592; Jun. 17, 1988, 63-149534
Int. Cl.[5] G10H *1/18, 3/18*
U.S. Cl. 84—723 42 Claims



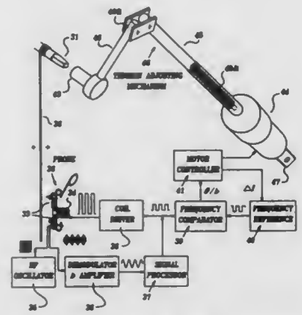
28. An electronic musical instrument including a plurality of electrically conductive frets disposed at predetermined intervals; a plurality of strings stretched at predetermined intervals over said frets so as to cross said frets; string-stopped position detecting means responsive to a stopping operation for any one of said strings for detecting the stopped position of the string; and tone pitch specifying means for specifying the pitch of a tone to be produced in accordance with the stopped position of the string detected by said string-stopped position detecting means,
wherein each of said strings is formed of a two-layer structure of a conductive string member comprising a good electrically conductive material and a resistance member formed on said conductive string member; and
said string-stopped position detecting means comprises voltage supply means for sequentially supplying voltage pulses to said frets while keeping other frets which are not supplied with voltage pulses at ground potential; voltage detecting means for sequentially detecting voltages supplied to said frets by said voltage supply means from said conductive string members of said strings through said resistance members; and detecting means for detecting a stopped position of each of said strings through a combination of a fret supplied with a voltage pulse by said voltage supply means and a string from which a voltage is detected by said voltage detecting means.

5,065,660

PIANO TUNING SYSTEM

Eric de Buda, 55 Humberview Road, Toronto, Ontario, Canada M5S 1W7

Filed May 29, 1990, Ser. No. 530,177
Int. Cl.[5] G10C *3/10;* G10G *7/02*
U.S. Cl. 84—200 11 Claims



1. A system for tuning piano strings, comprising:
means for inducing a controlled vibration in the string at its natural frequency, comprising a sensor for sensing the string vibration, an actuator for transmitting controlled time-varying forces to the string, and a feedback loop comprising a signal processor modifying the phase of the signal from the sensor, feeding the actuator with processed signals from the sensor having the correct phase shift such that the string is caused to vibrate at its natural frequency;
means for sensing the frequency of the vibration;
means for comparing the vibration frequency against a reference frequency representing a desired frequency of vibration for the string;
means for determining the frequency error of the vibration frequency relative to the reference frequency;
control means for determining a motion required to reduce the frequency error; and
means for adjusting string tension responsive to the control means.

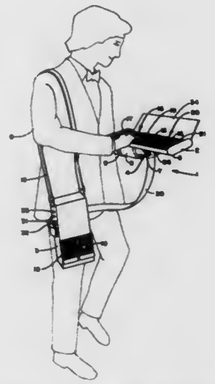
5,065,661

HAND HELD ELECTRONIC KEYBOARD INSTRUMENT

Robert G. Hacker, 1024 N. Parkview, Baton Rouge, La. 70815

Filed Nov. 27, 1989, Ser. No. 441,899
Int. Cl.[5] G10H *1/32, 5/00, 3/00*
U.S. Cl. 84—719 13 Claims

1. A keyboard instrument, comprising:
a. a keyboard housing having a top and a bottom, said keyboard housing being of a shape and size such that said housing may be fully supportable by one hand of a user of said instrument;
b. a handle means, attached to and extending from said bottom of said housing, for supporting said housing in a generally horizontally-oriented plane when said handle means is gripped;
c. a keyboard having a plurality of keys operatively attached to said top of said housing;
d. a plurality of keyboard controls, mounted on said keyboard housing, said keyboard controls including a volume control mounted on said handle means so as to be accessible by the hand of the user of said instrument which is gripping said handle means, said volume control including an outwardly biased plunger accessible by the thumb of the user's hand which is gripping said handle means;
e. a sound component housing;
at least one speaker, mounted within said sound component housing;
g. a synthesizer means, for producing and controlling tones, mounted within said sound component housing;
h. an amplification means, for amplifying tones produced by said synthesizer means, mounted within said sound component housing;
i. keyboard circuitry, mounted within said keyboard housing;



j. sound component circuitry, mounted within said sound component housing;
k. communications circuitry, connecting said keyboard circuitry to said sound component circuitry; and
l. a power supply; and
wherein said keyboard circuitry is operatively connected to said keys, said keyboard controls and said communications circuitry, and said sound component circuitry is operatively connected to said synthesizer means, said amplification mean, said speaker, said power supply and said communications circuitry.

5,065,662

FIRING MECHANISM FOR REVOLVING BATTERY GUN

Stephen J. Bullis, Colchester; Steven R. Duke, Williston; Thomas W. Cozzy, Burlington, and Glenn E. Rossier, Vergennes, all of Vt., assignors to General Electric Company, Burlington, Vt.

Filed Dec. 24, 1990, Ser. No. 633,723
Int. Cl.[5] F41F *1/10*
U.S. Cl. 89—12 9 Claims

1. A firing mechanism for a Gatling-type gun comprising in combination:
A. a housing;
B. a rotor rotatable with respect to said housing about a longitudinal axis;
C. a plurality of spring-biased firing pins mounted by said rotor in angularly spaced relation, each said firing pin including a cocking lever;
D. an annular safing ring carried by said housing and having an planar cam surface interrupted by a notch coinciding with an angular firing position of said rotor, said cocking levers bearing against said planar cam surface during rotation of said rotor to maintain said firing pins in precocked conditions;
E. a firing cam mounted to said housing for movement between safe and armed positions, said firing cam having

VOL 1132 ISS 3 NO 19 1991 UMI

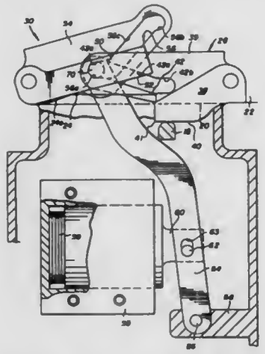
1) a cocking ramp surface terminating at a sear corner longitudinally aligned with said safing ring notch, and
2) a first actuating cam;

F. a safing cam mounted to said housing for movement between safe and armed positions, said safing cam having
1) a bridging cam surface longitudinally aligned with said safing ring notch, and
2) a second actuating cam;

G. an actuator mounted by said housing, said actuator having quiescent and actuated states;

H. an actuating link mounted for movement by said actuator between safe and armed positions and carrying a cam driver in joint engagement with said first and second actuating cams;

I. with said actuator in said quiescent state, said link, said safing cam and said firing cam assume their respective safe



positions with said bridging cam surface spanning said safing ring notch in substantial coplanar relation with said planar cam surface to maintain said cocking levers in said pre-cocked positions during movement past said notch and with said cocking ramp surface disposed in longitudinally displaced relation to said planar cam surface, and with said actuator in its actuated state, said link, said safing cam and said firing cam assume their respective armed positions with said bridging cam surface in longitudinally displaced relation to said safing ring notch and with said cocking ramp surface disposed to successively divert said cocking levers from said planar cam surface and fully cock said firing pins, said cocking levers successively dropping off said sear corner into said safing ring notch, thereby allowing said cocked firing pins to spring longitudinally forward to fire ammunition rounds.

5,065,663

ELECTROPNEUMATIC OR ELECTROHYDRAULIC LINEAR DRIVE MECHANISM

Heinz Stadler; Alfred Heinzl, both of Munich, and Wilhelm Krakowetz, Buchloe, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

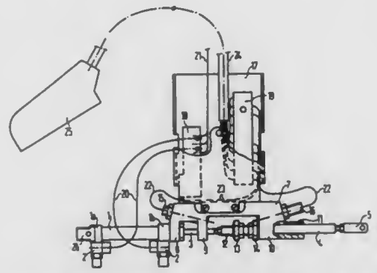
Filed Nov. 6, 1990, Ser. No. 623,166

Claims priority, application Fed. Rep. of Germany, Dec. 18, 1989, 3941748

Int. Cl.[5] F15B *13/00*

U.S. Cl. 91—361 **12 Claims**

1. An electromagnetic or electrohydraulic linear drive assembly, comprising:
a carrier member;
a guide element having first and second guide legs;
first and second slidably mounted to the guide legs;
first and second stroke-limiting stop elements adjustably mounted to the drive rod such that they are positioned between the two guide legs and can strike against a respective guide leg depending on a direction of reciprocating movement of the drive rod;
a drive cylinder connected to the guide element and having a piston rod connected to one end of the drive rod, said drive cylinder having a first pressurized input at one end and a second pressurized input at the other end such that a piston connected to the piston rod seated in the cylinder is optionally displaceable toward one side or the other dependent on a pressure respectively applied at the respective first or second pressurized input;
a carrier member connecting to the guide element;
a solenoid valve means mounted on the carrier member, said solenoid valve means having a pressurized supply line input and first and second pressurized outputs connecting through respective pressure lines to the respective first and second pressurized inputs of the drive cylinder, said



solenoid valve means controlling the reciprocating movement of the drive rod of the drive cylinder;
first and second position sensor means each formed of a non-contacting proximity switch mounted adjacent the respective guide elements for detecting an approach of the respective first or second stop element toward the respective first or second guide leg;
a connection cable having signal lines for the sensor means and control lines for the solenoid valve, the cable having one end mounted to the carrier member and the other end free and available for connection to a desired-control terminal; and
the assembly forming a one piece unit which can be easily installed by mounting the assembly, connecting the free end of the cable to the control terminal, and connecting a pressure source to the solenoid valve means pressurized input.

5,065,664

CONTROL CIRCUIT FOR A CYLINDER ALLOWING FLOW BETWEEN AN UPPER AND A LOWER CHAMBER

Shuji Ohta, and Toshiyuki Takeuchi, both of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Mar. 30, 1990, Ser. No. 502,340

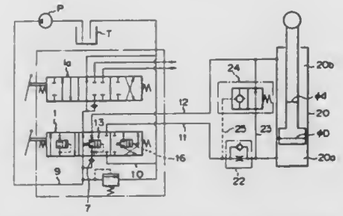
Claims priority, application Japan, Apr. 3, 1989, 1-84574

Int. Cl.[5] F15B *13/042*

U.S. Cl. 91—420 **20 Claims**

1. A hydraulic control circuit arrangement for a single-acting cylinder having a slidable piston element in a cylinder housing, a first cylinder chamber facing the piston element, a second cylinder chamber separated from the first chamber by the piston element, and a piston rod extending from the piston element to an outer end thereof through the second cylinder chamber, comprising:
a hydraulic power source for supplying an operating oil for operating the single-acting cylinder;
a hydraulic tank for receiving and storing the operating oil;
a directional control valve arranged between the hydraulic power source and the single-acting cylinder for controlling a supply of the operating oil from the hydraulic

power source to the single-acting cylinder, the directional control valve being shiftable from a neutral position thereof to one of a first position whereat the first cylinder chamber of the single-acting cylinder is connected to the hydraulic power source and a second position whereat the first chamber of the single-acting cylinder is connected to the hydraulic tank;
a first conduit of the operating oil for providing a fluid connection between the fist cylinder chamber of the single-acting cylinder and the directional control valve;
a second conduit of the operating oil for providing a fluid connection between the second cylinder chamber of the single-acting cylinder and the hydraulic tank;
a third conduit of the operating oil for providing a short-circuiting fluid connection between the first and second cylinder chambers of the single-acting cylinder;
a first pilot-operated valve for controlling an evacuation of the operating oil from the second cylinder chamber of the single-acting cylinder through the second conduit in response to a change in a pressure in the first cylinder chamber of the single-acting cylinder with respect to a preset pressure when the directional control valve is shifted to and maintained at the first position thereof;



a flow control valve arranged in the first conduit and having an inlet port thereof directly and fluidly connected to both the first cylinder chamber of the single-acting cylinder and the third conduit, and an outlet port thereof directly connected to the directional control valve, the flow control valve controlling a flow of the operating oil in the first conduit when the operating oil is allowed to flow out of the first cylinder chamber of the single-acting cylinder, to thereby generate a pressure differential thereacross; and
a second pilot-operated valve arranged in the third conduit and urged to a first position thereof providing short-circuit fluid connection between the first and second chambers of the single-acting cylinder through the third conduit when the directional control valve is shifted to the second position thereof, the second pilot-operated valve being connected to said first conduit at a position adjacent to said outlet port of said flow control valve, through a pilot line, and shifted from the first position thereof to a second position thereof to allow only the operating oil to flow from the second to first cylinder chamber of the single-acting cylinder, when the directional control valve is shifted to the first position.

5,065,665

DIRECTIONAL CONTROL VALVE FOR PNEUMATIC CYLINDER

Takashi Kimura, Nagoya, Japan, assignor to Hirotaka Manufacturing Co., Ltd., Aichi, Japan

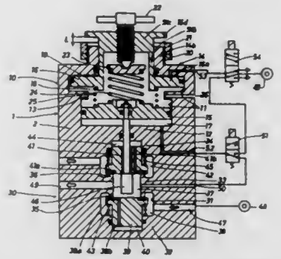
Filed Nov. 28, 1989, Ser. No. 442,210

Claims priority, application Japan, Dec. 5, 1988, 63-307186

Int. Cl.[5] F15B *13/043*

U.S. Cl. 91—433 **7 Claims**

1. A directional control valve for a pneumatic cylinder having a cylinder housing, a piston dividing the cylinder housing into two chambers, and a rod connected to the piston, the directional control valve comprising:
a control valve housing having:
an ambient pressure chamber communicating with an atmosphere surrounding both the pneumatic cylinder and the directional control valve,
a first pressure chamber communicating with an air supply,
a second pressure chamber communicating with one of the chambers of the cylinder housing, and
a first valve means for selectively allowing communication between the first pressure chamber and the second pressure chamber;
a second valve means for selectively allowing communication between the second pressure chamber and the ambient pressure chamber; and
a control means cavity defined in the control valve housing and having:
a first pressure controlling piston movably mounted in the control means cavity, where a pressure receiving chamber is formed between the control valve housing and a first side of the first pressure controlling piston,



a second pressure controlling piston movably mounted in the control means cavity opposite the first pressure controlling piston, where a pressure controlling chamber is formed between the control valve housing and a first side of the second pressure controlling piston,
a first spring connected to the first pressure controlling piston and the second pressure controlling piston, and
a linkage means secured to the first pressure controlling piston for selectively fully opening, partially opening, and closing each of the first valve means and the second valve means corresponding to a movement of the first pressure controlling piston; and
an air supply/removal means having a third valve means for allowing the pressure receiving chamber to communicate selectively with the second pressure chamber, air supply and the atmosphere, and
a fourth valve means for allowing the pressure controlling chamber to communicate selectively with the air supply, the atmosphere, in which the fourth valve means further communicates with the third valve means.

5,065,666

SEQUENCE VALVE

Terry G. Young, Spring, Tex., assignor to Baker Hughes Incorporated, Houston, Tex.

Filed Apr. 27, 1990, Ser. No. 516,076

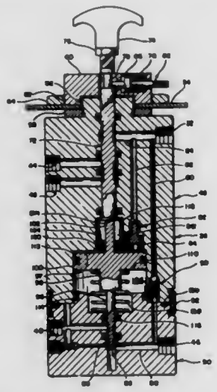
Int. Cl.[5] F15B *13/07*

U.S. Cl. 91—518 **24 Claims**

1. An apparatus for directing fluid pressure from a primary source to at least two actuators, comprising:
a body;
at least one inlet into said body for admitting primary source pressure;
at least one first actuator outlet in said body;
at least one second actuator outlet in said body;
spool means selectively movable in said body manually and by fluid pressure from the primary source for selective sequential alignment of the pressure at said inlet to said first and then second actuator outlets as said spool means

VOL 1132 ISS 3 NO 19 1991 UMI

moves in a first direction, and for selective sequential venting of the pressure at said first and second actuator outlets from said body and isolation of said inlet as said spool means moves in a second direction, opposite said first direction, upon loss of fluid pressure at said inlet;



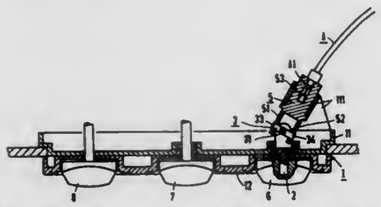
said spool means selectively manually operable in said second direction to vent at least one of said outlets while isolating it from said inlet.

5,065,667

HEATING OR AIR CONDITIONING CONTROL DEVICE FOR A MOTOR VEHICLE

Elmar Ziegler, Ahorn, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed May 8, 1990, Ser. No. 520,263
Claims priority, application European Pat. Off., May 16, 1989, 89108771.0
Int. Cl.[5] B60H *1/00*; F16H *35/18*; F16D *3/10*
U.S. Cl. 98—2 12 Claims



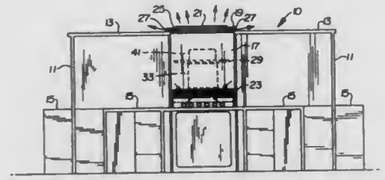
1. A climate control device for a motor vehicle, comprising:
air ducts leading to the interior of a motor vehicle;
adjustable air vents associated with at least one of said air ducts;
a control panel;
at least one control knob supported in said control panel, said control knob providing various control settings, and said control knob having a torque shaft that is axially fixed in space so that it can not swivel with respect to the control panel;
a flexible steel shaft set at an oblique descending angle relative to said torque shaft;
a universal joint connection coupling the flexible steel shaft and the torque shaft; and
wherein the movement of the control knob results in a corresponding movement of the flexible steel shaft, which in turn provides a setting movement at the air vents.

5,065,668

AIR CIRCULATION SYSTEM

George Mitchell, Rosemont, and Michael H. Pelosi, III, Downingtown, both of Pa., assignors to Centercore, Inc., Wayne, Pa.

Filed Jun. 11, 1990, Ser. No. 536,179
Int. Cl.[5] F24F *7/007, 13/06*
U.S. Cl. 98—31.5 28 Claims



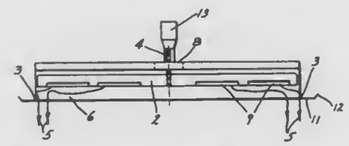
1. An apparatus for use with a workspace comprising:
a plurality of core walls defining an enclosed core, said core walls including air inlet means at or below a predetermined height;
platform means positioned in said core at a location above said predetermined height and including a platform substantially separating said core into a lower air intake chamber and an upper air discharge chamber, said platform further including filter means in said lower chamber and air transfer means for drawing air from said intake chamber through said filter to said upper chamber; and
core lid means positioned at the top of said core and including air discharge means, said discharge means including side vent means proximate each of said core walls for discharging air in a substantially horizontal direction out from each of said core walls, and further including individual baffle means on each core wall for directing air out of said side vent means.

5,065,669

DEVICE FOR CONVEYING COLD AND/OR WARM SUPPLY AIR INTO A SPACE

Gottfried Müller, and Paul Hipp, both of Kolbingen, Fed. Rep. of Germany, assignors to Schako Metallwarenfabrik, Kolbingen, Fed. Rep. of Germany

Filed Sep. 24, 1990, Ser. No. 586,956
Claims priority, application Fed. Rep. of Germany, Sep. 28, 1989, 8911555[U]
Int. Cl.[5] F24F *13/06*
U.S. Cl. 98—40.11 8 Claims



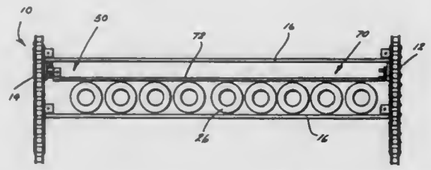
1. A device for conveying air from an outlet opening into a space comprising a frame body positioned about said outlet opening so as to define a conduit downstream of said outlet opening, a swirl disk arranged within said conduit, said swirl disk having aperture means for feeding air passing therethrough such that the air emerges from said swirl disk substantially horizontally and displacement means associated with said swirl disk for displacing said swirl disk within said conduit toward and away from said outlet opening to a retracted and extended position such that when said swirl disk is in its retracted position the air emerging from said swirl disk contacts said conduit and is redirected by said conduit substantially vertically downwards into the space and when said swirl disk is in its extended position the air emerging from said swirl disk emerges substantially horizontally into the space.

5,065,670

CONVEYOR FOR DOUGHNUT FRYER

Michael E. Leiweke, Arnold, Mo., assignor to Continental Baking Company, St. Louis, Mo.

Filed Apr. 19, 1991, Ser. No. 687,975
Int. Cl.[5] A47J *37/12*
U.S. Cl. 99—405 17 Claims



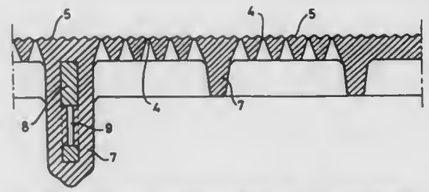
1. A doughnut fryer flight conveyor for selectively advancing different size dough forms through the hot oil bath of a doughnut frying machine, said conveyor comprising:
a pair of spaced, endless conveyor chains;
a plurality of primary flights extending between said chains in spaced, parallel relationship;
a plurality of secondary flights; and
a plurality of secondary flight mounting means each joined to one of said secondary flights for mounting each of said secondary flights on said chains in between an adjacent pair of primary flights, said mounting means permitting each of said secondary flights to be moved from an inoperative position to an operative position defining a reduced flight pitch to permit smaller size dough forms to be advanced by the conveyor than can be advanced by said primary flights.

5,065,671

PLASTIC CHEESE MOLD WITH DRAINAGE SLITS FORMED DURING THE MANUFACTURE OF THE UPRIGHT WALL BY INJECTION MOULDING

Hendrikus M. Tameris, Rotterdam, Netherlands, assignor to Crellin B.V., Rotterdam, Netherlands

Filed Oct. 11, 1989, Ser. No. 420,555
Claims priority, application Netherlands, Oct. 11, 1988, 8802492
Int. Cl.[5] A01J *25/13*; B29C *33/40, 33/42*; B65D *6/34*
U.S. Cl. 99—456 15 Claims



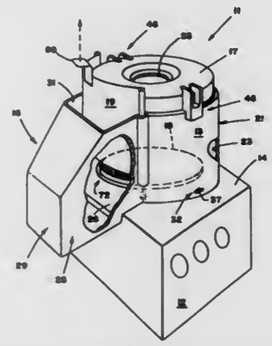
1. A substantially rigid plastic cheese mold, comprising:
at least one upright injection molded plastic wall, the wall being substantially rigid and having an inner side and an outer side and having drainage slits formed therethrough,
the wall further having whey discharge recesses formed therein which open into the drainage slits,
the drainage slits having substantially smooth injection molded surfaces which diverge outwardly from the inner side to the outer side of the wall, the drainage slits further being disposed in rows which are staggered relative to each other, as seen in the vertical direction.

5,065,672

PEELER FOR GARLIC OR THE LIKE WITH CENTRIFUGAL DISCHARGE

George J. Federighi, Sr., 70 13th St., San Francisco, Calif. 94103

Filed Oct. 29, 1990, Ser. No. 604,098
Int. Cl.[5] A23N *7/00*
U.S. Cl. 99—631 15 Claims



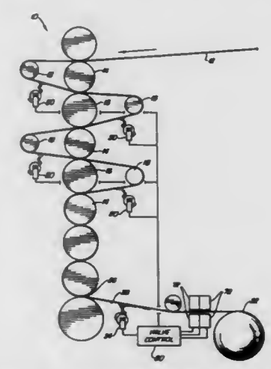
1. Apparatus for peeling a food product of the type having an abradable skin, said apparatus having a housing with a sidewall bounding a processing chamber, an abrasive disk in said chamber and means for rotating said abrasive disk, wherein the improvement comprises:
said chamber having an outlet opening at said sidewall which outlet opening is sufficiently small to prevent passage of said food product through said outlet opening during peeling operations while being sufficiently large to receive peelings which are abraded from said food product, said outlet opening being located in proximity to the periphery of said abrasive disk whereby centrifugal force expels said peelings from said chamber through said outlet opening during said peeling operations.

5,065,673

CROSS-DIRECTIONAL MOISTURE CONTROL SYSTEM AND METHOD

Bruce S. Taylor, San Jose, and Ramesh Balakrishnan, Stanford, both of Calif., assignors to Measurex Corporation, Cupertino, Calif.

Filed Sep. 19, 1989, Ser. No. 409,628
Int. Cl.[5] B30B *13/00*; D21G *1/00*
U.S. Cl. 100—40 22 Claims



15. A method for controlling the amount of a first material

VOL 1132 ISS 3 NO 19 1991 UMI

physically associated with a calendered sheet, comprising the steps of:

a. calendering the sheet using a calender stack having at least one nip;

b. discharging an independently controlled amount of a working fluid, including the first material, at and toward each of a plurality of cross-directional sections of the sheet substantially immediately after the sheet has left the last nip of the calender stack; and

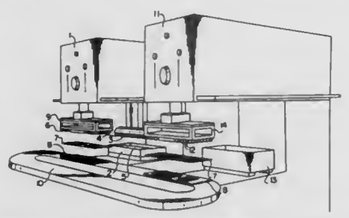
c. then collecting the calendered sheet on a collection device.

5,065,674

SYSTEM FOR PERMEATION PRINTING A PLASTIC BODY

Kazuhiro Kobayashi; Hifumi Kouguthi, and Toshio Hara, all of Ichihara, Japan, assignors to Denki Kagaku Kogyo Kabushiki Kaishi, Tokyo, Japan

Division of Ser. No. 174,065, Mar. 28, 1988, Pat. No. 4,980,221.
This application Sep. 12, 1990, Ser. No. 581,838
Claims priority, application Japan, Mar. 7, 1988, 65-51572
Int. Cl.[5] B41F *17/00*
U.S. Cl. 101—44 16 Claims



1. A system of permeation printing a plastic body having a shaped surface, said system comprising:

A) a first device for forming an ink image on the shaped surface of the plastic body from an intaglio matrix having an image-forming intaglio grooves, said first device including:

i) means for selectively inking the intaglio grooves of the intaglio matrix;

ii) a printing pad having a surface which adheres ink but does not absorb ink;

iii) means for pressing the printing pad onto the inked surface of the intaglio matrix to cause the image-forming ink from the intaglio grooves to adhere to the printing pad;

iv) means for bringing the printing pad into contact with the shaped surface of the plastic body to transfer the ink image from the printing pad to the plastic body; and

v) means for transferring the printing pad between the intaglio matrix and the plastic body; and

B) a second device, separate and independent from said first device, for causing the ink image to permeate into the plastic body, said second device including:

i) a covering pad having a surface approximately complementary to the shaped surface of the plastic body; and

ii) means for bringing the covering pad, without any ink on its surface, in close contact with the shaped surface of the plastic body to cover the shaped surface so that evaporation of the ink from the shaped surface of the plastic body is prevented while the ink permeates into the plastic body to form a permeated ink image on the shaped surface of the plastic body, the period of time in which the covering pad is in close contact with the plastic body being substantially longer than the time in which the printing pad is in contact with the plastic body,

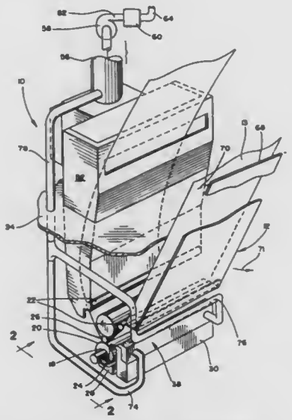
whereby each plastic body to be printed is first subjected to the application of ink by the first device and is thereafter subjected to the ink image permeation by the second device.

5,065,675

BOUNDARY LAYER AIR SCRAPER FOR A ROTOGRAVURE PRINTING PRESS

Lee C. Tapper, Winona Lake, Ind., assignor to R. R. Donnelley & Sons Company, Chicago, Ill.

Filed Feb. 7, 1991, Ser. No. 652,012
Int. Cl.[5] B41F *9/10, 9/16*
U.S. Cl. 101—153 11 Claims



1. In a rotogravure printing press including,

a rotatable printing cylinder having an outer surface,

a rotatable impression roller forming a pinch with said printing cylinder,

means for directing a moving web to be printed through the pinch, movement of said web drawing air to said printing cylinder,

an ink fountain for applying ink having a volatile solvent to the surface of said printing cylinder for transfer to said moving web in said pinch,

a scavenger adjacent the pinch for capturing air drawn to said printing cylinder by movement of said web, which air has become laden with solvent from the ink on said printing cylinder, to minimize the dispersion of solvent laden air to the area surrounding said printing press,

the improvement comprising an air scraper having:

a panel adjacent said moving web and extending upstream of the web from a first end adjacent said pinch and scavenger to a second end spaced therefrom; and

a scraper blade at said first end of the panel and extending from the panel toward the web, said scraper blade blocking the flow of air drawn by the web to the printing cylinder and reducing the volume of solvent laden air to be captured by said scavenger.

5,065,676

AXIALLY REVERSING ROLLER FOR PRINTING PRESSES AND SHEET COATING MACHINES

Philip J. Hardin, 850 Park La., Elm Grove, Wis. 53225

Continuation of Ser. No. 892,901, Aug. 4, 1986, abandoned. This application Apr. 8, 1988, Ser. No. 178,871
Int. Cl.[5] B41F *31/00*
U.S. Cl. 101—349 19 Claims

1. A roller for use in a printing or coating machine, comprising:

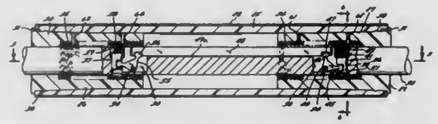
a shaft for being mounted to said machine,

a cylindrical roller mounted for rotating on said shaft in response to being driven rotationally and for oscillating axially on said shaft,

generally cylindrical means fixed in said roller for rotating with the roller, said means containing internal left and right hand threads arranged coaxially with each other and encircling said shaft,

first and second axially spaced apart follower members mounted in said shaft for moving radially between extended and retracted positions, said first follower member arranged for engaging and disengaging said right hand internal thread and said second follower member arranged for engaging and disengaging said left hand internal thread when said follower members are alternately contracted and extended, so as to cause said roller to oscillate axially on said shaft,

a first striker element fixed in said right hand thread and a second striker element fixed in said left hand thread for



respectively determining the limits of axial travel of said roller in opposite directions on said shaft when said roller is rotating in one direction and for causing axial reversal of said roller,

link means disposed for shifting in an axially extending slot in said shaft,

one lever means pivotal on said shaft and operatively connected to said first follower member and one end of said link means and another lever means pivotal on said shaft and operatively connected to said second follower member and the other end of said link means, the force of one striker element striking one follower member disengaging said follower member from an internal thread and actuating one lever connected to said member and link to transmit said force lengthwise of said link for actuating the other lever to force the other follower into engagement with the other internal thread for reversing the axial travel direction of said roller.

5,065,677

PRINTING PLATE MOUNTING AND PROOFING APPARATUS

Charles B. Leader, Jr., Napoleon, Ohio, assignor to Leader Engineering Fabrication Inc., Napoleon, Ohio

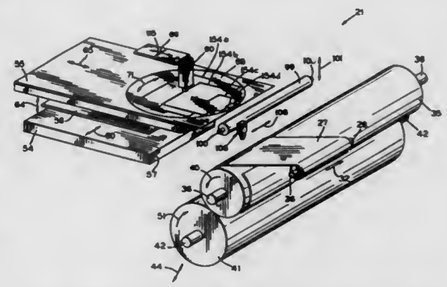
Filed Dec. 27, 1989, Ser. No. 457,558
Int. Cl.[5] B41F *27/06*
U.S. Cl. 101—415.1 31 Claims

1. An apparatus for mounting flexible printing plates on a printing cylinder comprising:

means for rotatably supporting a printing cylinder in a predetermined position;

a support table adjacent said means for rotatably supporting and having a turntable formed therein for supporting a flexible printing plate having a reference point thereon; and

means for moving coupled to at least one of said support table and said means for rotatably supporting for moving said one along at least two of three orthogonal axes for positioning said turntable at a desired position along said axes relative to said means for rotatably supporting whereby a printing plate on said turntable has a reference



point at said desired position relative to a printing cylinder on said means for rotatably supporting.

5,065,678

CONVEYOR SYSTEM WITH TRANSVERSE PUSHER TO TRANSFER LOAD CARRIER BETWEEN SEPERATE CONVEYING PATHS

Arthur B. Rhodes, 3347 Camp Ground Rd., Louisville, Ky. 40211

Filed Aug. 14, 1990, Ser. No. 566,832
Int. Cl.[5] B61J *3/04*
U.S. Cl. 104—88 12 Claims

1. A conveyor system, comprising:

a first conveyor track defining a first conveyor path;

a second conveyor track defining a second conveyor path, a portion of the length of said second conveyor path being in close proximity to a portion of the length of said second conveyor track;

at least one load carrying unit movable with said first conveyor track and said second conveyor track;

conveyor track engaging and disengaging means associated with each load carrying unit for movement between a conveyor track engaging position engaging the individual load carrying units to one or the other of said first and second conveyor tracks with which the load carrying unit is aligned for movement therewith, and a conveyor track disengaged position disengaging the individual load carrying unit from said first or second conveyor track;

activating means located in the area whereat said first and second conveyor tracks are in close proximity to each other, said activating means being movable between a first position whereat it activates said load carrying unit engaging and disengaging means to the conveyor track disengaged position for disengaging said load carrying unit from the aligned one of said first or second conveyor tracks when said load carrying unit is at said activating means, and a second position whereat it activates said load carrying unit engaging and disengaging means to the

VOL 1132 ISS 3 NO 19 1991 UMI

conveyor track engaging position for engaging said load carrying unit to said first or second conveyor track;

first control means for operating said activating means to said first position as a load carrying unit moving with the aligned one of said first or second conveyor tracks approaches said activating means;

pusher means directly engaging said load carrying unit and fixedly located near said activating means for pushing said load carrying unit at said activating means out of alignment with one of said first and second conveyor tracks and into alignment with the other one of said first and second conveyor tracks;

second control means for operating said pusher means to push said load carrying unit at said activating means out of alignment with one of said first and second conveyor tracks and into alignment with the other one of said first and second conveyor tracks;

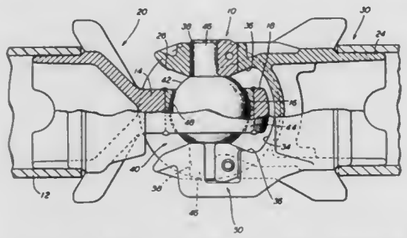
third control means for operating said activating means to said second position when said load carrying unit has been pushed by said pusher means out of alignment with one of said first and second conveyor tracks and into alignment with the other one of said first and second conveyor tracks for engaging the load carrying unit with the other one of said conveyor tracks for movement therewith.

5,065,679

ARTICULATED COUPLING APPARATUS FOR CONNECTING ADJACENT ENDS OF A PAIR OF RAILWAY CARS TOGETHER IN A SEMIPERMANENT MANNER

William D. Wallace, Chicago, Ill.; Edward G. Lynch, Jr., Saugus, Calif.; David W. Daugherty, Jr., Bolingbrook; Wajih Kanjo, Lockport, both of Ill., and Michael G. Hawryszkow, Munster, Ind., assignors to Westinghouse Air Brake Company, Wilmerding, Pa.

Filed May 8, 1990, Ser. No. 520,687
Int. Cl.[5] B61D *15/00*
U.S. Cl. 105—3 **46 Claims**



1. An articulable-type coupling apparatus which can be retrofitted to existing railway cars and is capable of connecting together, in a substantially semipermanent manner, at least one predetermined end of a first railway car to an adjacent predetermined end of a second railway car, said articulable-type coupling apparatus comprising:

(a) a male connection member in which a first end thereof is configured in a manner that will enable said male connection member to be engaged with and connected to one predetermined end of a center sill member disposed substantially along a longitudinal centerline of one of such first railway car and such second railway car;

(b) an aperture having a predetermined size and a predetermined shape, formed through a predetermined portion of a second end of said male connection member, said aperture has a longitudinal axis that is disposed transverse to a longitudinal axis of said male connection member and is in a substantially horizontal plane;

(c) a female connection member in which a first end thereof is configured in a manner that will enable said female connection member to be engaged with and connected to an adjacent predetermined end of a center sill member disposed substantially along a longitudinal centerline of an opposite one of such first railway car and such second railway car;

(d) a cavity formed in a second end of said female connection member, which receives therein at least a portion of each of said second end of said male connection member and said aperture formed through said predetermined portion of said second end of said male connection member, said cavity having a substantially horizontally-disposed bottom wall portion, a substantially vertically-disposed back wall portion connected along a bottom edge thereof to a rear edge of said bottom wall portion, and a pair of vertically-disposed side wall portions connected along a bottom edge thereof to said bottom wall portion and along a rear edge thereof to said back wall portion, a vertically-disposed plane which intersects a geometric centerline of each respective one of said pair of side wall portions being substantially parallel to each other, an inner surface of each of said bottom wall portion and said rear wall portion and said pair of side wall portions define a predetermined size and a predetermined shape of said cavity which is open adjacent a top and front surface thereof;

(e) an opening formed through a predetermined portion of each of said pair of side wall portions, each opening at least includes a slot-like portion adjacent an upper surface of a respective side wall portion, said each opening having a predetermined configuration;

(f) a bearing assembly, said bearing assembly includes:

(i) a substantially spherical member, at least a predetermined portion of which is positioned within said aperture formed through said predetermined portion of said second end of said male connection member, said spherical member having a predetermined diameter,

(ii) a race assembly having a substantially spherical inner surface positioned around said predetermined portion of said spherical member positioned within said aperture to enable movement of said male connection member in relation to said female connection member in both a vertical direction and a horizontal direction over a predetermined range, said race assembly having an outer surface which is substantially identical to said predetermined size and said predetermined shape of said aperture formed through said predetermined portion of said second end of said male connection member,

(iii) a first securing means engageable with each of said race assembly and said second end of said male connection member for securing said race assembly and said spherical member to said second end of said male connection member; and

(iv) a pair of shaft members extending outwardly a predetermined length from axially-opposed surfaces of said spherical member, one of said pair of shaft members being engaged in a respective one of said opening formed through said each of said pair of side wall portions of said cavity in said second end of said female connection member, at least a portion of each of said pair of shaft members having a substantially identical configuration as at least a portion of said predetermined configuration of said opening formed through said side wall portions; and

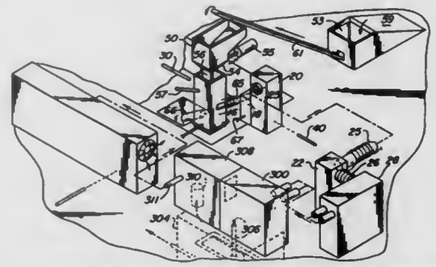
(g) a second securing means engageable with at least one of said pair of shaft members and a portion of said opening formed through said side wall portions for securing said bearing assembly to said female connection member and thereby securing said male connection member to said female connection member to form said articulable-type coupling apparatus.

5,065,680

METHOD AND APPARATUS FOR MAKING SOLID WASTE MATERIAL ENVIRONMENTALLY SAFE USING HEAT

Eric Cheetham, Cogan Station, Pa., assignor to Phoenix Environmental, Ltd., Montgomery, Pa.

Continuation-in-part of Ser. No. 410,560, Sep. 21, 1989, Pat. No. 4,960,380. This application Jun. 4, 1990, Ser. No. 533,653
Int. Cl.[5] F23B *7/00*
U.S. Cl. 110—342 **24 Claims**



1. A process for removing harmful constituents from non-combustible solid waste material, comprising the steps of:

continuously feeding a particulate mix of solid waste material and a combustible excitation material for providing heat energy into a reaction chamber,

reacting the mix in said chamber in the presence of oxygen until the solid waste material becomes a molten slag and the temperature within the chamber above the molten slag is high enough to destroy substantially all of the harmful constituents of the gaseous effluent by the formation of the molten slag,

conducting excess molten slag from the reaction chamber,

conducting the gas and particulate effluent generated by the formation of the molten slag from the reaction chamber and rapidly cooling the effluent to cause the particulate material to precipitate out of the effluent,

treating the effluent to remove substantially all of the remaining particulate and harmful constituents of the effluent to achieve acceptable environmental quality,

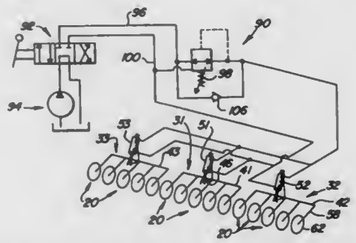
and releasing the treated effluent into the atmosphere.

5,065,681

HYDRAULIC DOWN PRESSURE STRUCTURE FOR AN IMPLEMENT WITH MULTIPLE GROUND ENGAGING TOOLS

Howard C. Hadley, Des Moines, Iowa, assignor to Deere & Company, Moline, Ill.

Filed Oct. 10, 1990, Ser. No. 595,323
Int. Cl.[5] A01C *5/06*; A01B *63/32*
U.S. Cl. 111—55 **14 Claims**



6. In an implement having a transversely extending frame and at least first and second gangs of opener assemblies connected to corresponding first and second rockshafts for independent vertical rocking with respect to the frame between lowered field-working positions and raised transport positions, down pressure structure comprising:

first and second cylinders connected to the first and second rockshafts, respectively;

conduit means connecting the cylinders to a source of hydraulic fluid under pressure for operating the cylinders in parallel to apply down pressure to the first and second opener assemblies when in the lowered field-working positions; and

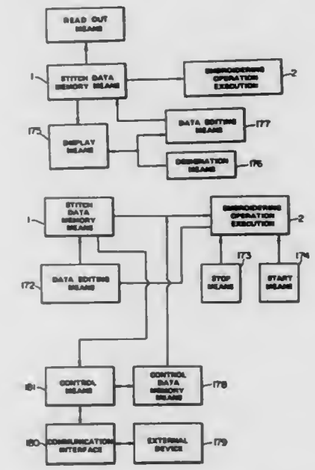
pressure regulator means connected to the conduit means for maintaining a preselected pressure at the first and second cylinders to rotate the rockshafts and thereby establish a preselected average down pressure for the opener assemblies of each of the gangs, the average down pressure of the opener assemblies of the first gang being substantially equal to that of the average down pressure of the opener assemblies of the second gang.

5,065,682

EMBROIDERING MACHINE

Ikuo Tajima, and Hideo Hasegawa, both of Kasugai, Japan, assignors to Tokai Kogyo Mishin Kabushiki Kaisha, Japan

Division of Ser. No. 222,100, Jul. 20, 1988, Pat. No. 5,001,996. This application Jul. 10, 1990, Ser. No. 550,470
Claims priority, application Japan, Jul. 22, 1987, 63-1181196; Aug. 19, 1987, 63-204184; Sep. 17, 1987, 63-231177; Oct. 2, 1987, 63-248121
Int. Cl.[5] D05C *5/04*; D05B *21/00*
U.S. Cl. 112—103 **8 Claims**



5. An embroidering machine comprising:

stitch data memory means for storing stitch data for realizing an embroidering operation corresponding to a desired embroidery design;

means for executing the embroidering operation in accordance with the stitch data;

reading out means for reading out from said stitch data memory means, stitch data that corresponds to the entire embroidery design;

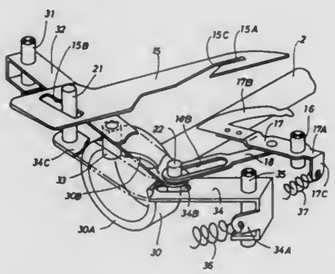
display means for displaying an image of the entire embroidery design in accordance with the stitch data read out by said reading out means;

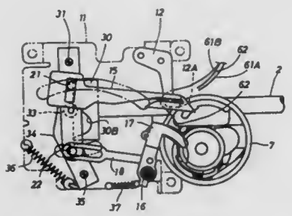
designation means for designating, on a screen of said display means, a desired stitch position in the displayed embroidered design; and

VOL 1132 ISS 3 NO 19 1991 UMI

data editing means for changing or setting the stitch data corresponding to the stitch position designated by said designation means.

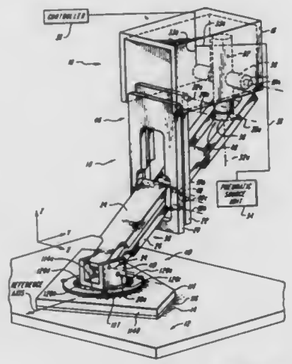
5,065,683
THREAD TRIMMER MECHANISM FOR SEWING MACHINES
Kazutoshi Hayashi, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Japan
Filed Dec. 7, 1990, Ser. No. 624,086
Claims priority, application Japan, Jan. 12, 1990, 2-5532
Int. Cl.[5] D05B *65/02*
U.S. Cl. 112—292 14 Claims

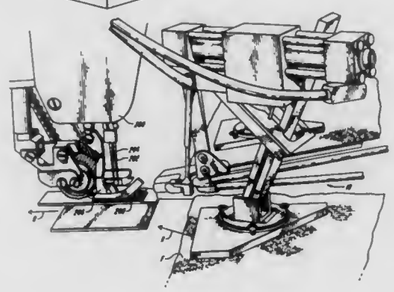




10. A sewing machine capable of cutting needle thread and bobbin thread in a bed thereof comprising:
a reciprocable needle having the needle thread;
a rotatable loop taker for catching and extending a loop of the needle thread in said bed;
a bobbin rotatably disposed in said loop taker for supplying the bobbin thread;
a thread cutting device provided in said bed for cutting the needle thread and the bobbin thread at a position between an upper surface of said bed and said loop taker;
restricting means movable between a separating position at which said restricting means separates from said bobbin and an abutting position at which said restricting means abuts on said bobbin for restricting spinning of said bobbin;
first moving means for moving said restricting means from said separating position to said abutting position before said cutting device cuts the needle thread and the bobbin thread and after said loop taker rotates a predetermined angle with the loop of the needle thread, so that said restricting means abuts on a portion of said bobbin where the loop of the needle thread has already passed over.

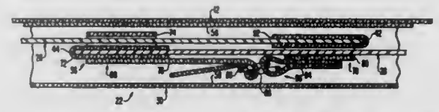
5,065,684
LIMP MATERIAL SEGMENT TRANSPORT APPARATUS FOR SEWING MACHINES
Mitchell L. Hansberry, Framingham, Mass., assignor to The Charles Stark Draper Laboratory, Inc., Cambridge, Mass.
Filed May 15, 1990, Ser. No. 523,666
Int. Cl.[5] D05B *21/00, 27/00*
U.S. Cl. 112—311 10 Claims





1. Apparatus for transporting a material segment along a reference axis on a substantially planar work surface comprising:
A. a base member positioned above said work surface;
B. a segment coupling assembly;
C. a four-bar linkage means for coupling said segment coupling assembly to said base member; wherein said linkage means includes:
i. a first elongated bar assembly having length L1 and pivotally coupled at a first end thereof to a first point P1 on said base member,
ii. a second elongated bar assembly having length L2 and extending along a link axis and an associated means for controlling said length L2 of said second bar assembly in a range L2-1 to L2-2, where L2-1 is less than L2-2, in the direction of said link axis, said second bar member being pivotally coupled at a first end thereof to a second point P2 on said base member, said first point P1 being spaced apart from said second point P2,
iii. a third elongated bar assembly having length L3 and having a first end and a second end, said third bar assembly being pivotally coupled at said second end thereof to the second end of said second bar assembly, and being pivotally coupled at an intermediate point P3 between said first and second ends thereof, to the second end of said first bar assembly,
iv. means for pivotally coupling said segment coupling assembly to said first end of said third bar assembly about a coupler axis substantially parallel to said work surface and substantially perpendicular to said reference axis, and
v. an actuator including means for selectively rotating said second bar assembly about a pivot axis extending through said point P2 between a first angle A1 and a second angle A2 measured with respect to an axis normal to said work surface, wherein L1, L2, and L3, and P1, P2, and P3, and A1 and A2 are such that as said second bar assembly is rotated by said actuator between angle A1 and angle A2 with the length of said second bar assembly being L2-1, said segment coupling assembly travels along a substantially straight path substantially parallel and adjacent to said reference axis and as said second bar assembly is rotated by said actuator between angle A2 and angle A1 when the length of said second bar assembly is L2-2, said segment coupling assembly travels in a non-straight path.

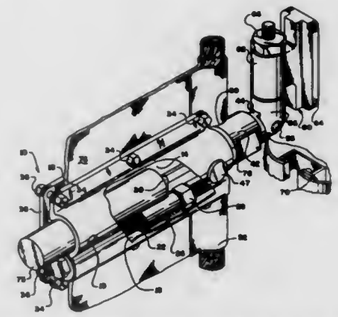
5,065,685
MARINE SAIL WITH BATTEN ATTACHMENT ASSEMBLY
William H. Stevenson, IV, P.O. Box U, St. Michaels, Md. 21663
Filed Jul. 2, 1990, Ser. No. 546,834
Int. Cl.[5] B63H *9/04*
U.S. Cl. 114—102 44 Claims



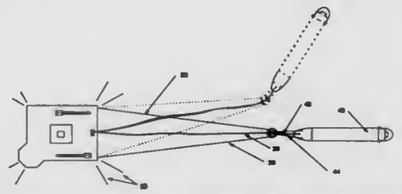
1. A batten attachment assembly for a marine sail, the combination comprising:
first and second battens, each of said battens having first and second ends with a longitudinal axis extending between said first and second ends;
pocket means, adapted to be coupled to a sail body, for supporting said battens in their operative positions relative to the sail body, said pocket means having a longitudinal axis; and
means, located in said pocket means and coupled to said battens, for resisting movement of said battens relative to said pocket means, and for orienting said longitudinal axes of said battens substantially parallel to said longitudinal axis of said pocket means.

5,065,686
SAIL BATTEN COMPRESSION ADJUSTMENT FITTING
Lewis R. Foster, 112 Bond Ct., Los Gatos, Calif. 95302
Filed Feb. 22, 1991, Ser. No. 659,086
Int. Cl.[5] B63H *9/06*
U.S. Cl. 114—103 23 Claims

19. A compression adjustment fitting for adjusting the compression in a sail batten, comprising:
a housing having a batten receptacle formed therein for receiving a batten, and an adjustment assembly receptacle formed therein, said batten receptacle and said adjustment assembly receptacle having longitudinal axes offset with respect to one another;
batten engaging means positioned in the housing for engaging a batten located in the batten receptacle; and
adjusting means positioned in the adjustment assembly receptacle and accessible from outside the housing and associated with the batten engaging means for adjusting the position of the batten engaging means within the housing to thereby permit the compression in a batten positioned in the batten receptacle to be easily adjusted from outside the housing through operation of the adjusting means.



5,065,687
MOORING SYSTEM
James E. Hampton, c/o Hampco, Wood International Centre, Aberdeen, Scotland ABL 4AG
Filed Mar. 21, 1990, Ser. No. 497,138
Claims priority, application United Kingdom, Apr. 11, 1989, 8097/89
Int. Cl.[5] B63B *21/00*
U.S. Cl. 114—230 7 Claims



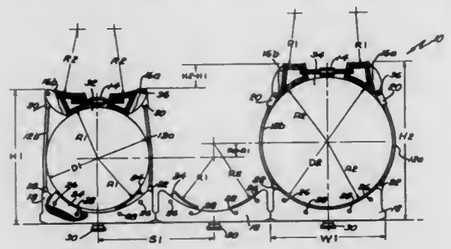
1. A loading arrangement comprising a mooring system for locating a buoy adjacent to a permanently moored vessel, in which the buoy is connected to two horizontally spaced apart points on the permanently moored vessel, and is also connected to the seabed by a single tether extending downwardly from the buoy to maintain a predetermined minimum distance between the buoy and the permanently moored vessel such that the buoy floats with its connection to the two spaced apart points in tension; and in which there is means for a mobile vessel to ride to the buoy.

5,065,688
FLEXIBLE WEAPON HANDLING SUPPORT SYSTEM
Paul E. Moody, Barrington, R.I., assignor to The United States of America as represented by the Secretary of the Navy
Filed Jun. 20, 1990, Ser. No. 544,294
Int. Cl.[5] B63G *8/32*
U.S. Cl. 114—238 5 Claims

1. Apparatii for storing and restraining cylindrical weapons of preselected smaller and larger diameters D1 and D2 respectively onboard a submarine, said submarine having a pre-configured weapon support structure for receiving said apparatii so as to produce a preplanned weapon storage arrangement, each said apparatus comprising:
a base means, affixed to said weapon support structure of said submarine, said base means providing a support cradle to said weapon, said base means further comprising, a

VOL 1132 ISS 3 NO 19 1991 UMI

dolly base having a preselected width and at least one button attached to the underside thereof, said dolly base being affixed to said support structure by said at least one button, first and second bottom pads, each said bottom pad having a first arcuate surface on one side thereof of diameter D1 and a second arcuate surface on the obverse side of a diameter D2 adjustably attached to said dolly base, for selectably supporting a preselected weapon diameter, first and second pivot pins, one each moveably attached through a corresponding said bottom pad to said dolly base at a point near the outer extremity of said dolly base, and first and second position pins, one each move-

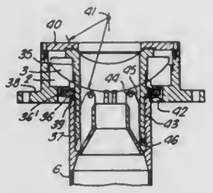


bly attached through a corresponding said bottom pad to said dolly base at point near the button on said dolly base;

a pair of flexible lashing straps of equal length, one end of each said flexible strap being attached to said base means, extending generally vertically from said base means and contacting the outer surface of said weapon, for securing said weapon to said base means; and

clamping means, in contact with the top outer cylindrical surface of said weapon and attached to the other end of said pair of flexible lashing straps, for providing, in cooperation with said flexible lashing straps and said base means, said storage and restraint of said weapon.

5,065,689
TURRET DEVICE
Ivar Krogstad, Arendal, Norway, assignor to Pusnes A/S, Norway
PCT No. PCT/NO88/00077, § 371 Date Apr. 12, 1990, § 102(e) Date Apr. 12, 1990, PCT Pub. No. WO89/03338, PCT Pub. Date Apr. 20, 1989
PCT Filed Oct. 12, 1988, Ser. No. 473,961
Claims priority, application Norway, Oct. 12, 1987, 874246
Int. Cl.[5] B63B *21/50*
U.S. Cl. 114—230 **13 Claims**



1. A turret device adapted to be anchored to the ocean floor, and a floating structure for supporting the turret device in an upper axial bearing and a lower radial bearing to allow the floating structure to turn freely around the turret device, characterized in that the upper bearing is a self-aligning spherical bearing (2, 3) in direct contact between the floating structure and the turret device, wherein the upper spherical bearing includes first and second bearing members each having curved mating bearing surfaces, the bearing surfaces being in engagement with each other and movable relative to each other, wherein the first bearing member is non-rotatably fixed to the floating structure and the second bearing member is fixed to the turret device.

5,065,690
SWIMMING POOL LEAK DETECTOR
Donald T. Bontempo, 14 Haskell Ave., Everett, Mass. 02149
Filed Aug. 27, 1990, Ser. No. 573,677
Int. Cl.[5] G01M *3/20*
U.S. Cl. 116—264 **2 Claims**



1. A leak detector for the detection of a leak in a filled swimming pool, comprising:

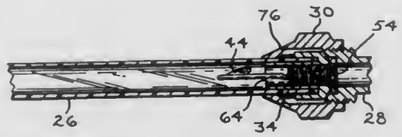
(a) a billiard-cue-shaped receiver having a handle end, a tip and a longitudinal axis, and containing a reservoir at the handle end, said receiver having a channel, the channel extending from the tip of said receiver to said reservoir; and

(b) a plunger slidably disposed along the longitudinal axis within said reservoir within said receiver;

wherein said plunger, when pulled outwardly away from the tip, may draw dye solution in which the tip has been immersed through the channel into the reservoir, and, when pushed inwardly toward the tip, may expel the dye solution from the reservoir through the channel; and

wherein said leak detector, by expelling said dye solution near a leak in a filled swimming pool, will locate the leak due to the suction caused by said leak's drawing the dye solution toward said leak.

5,065,691
FLUID FLOW INDICATOR
Jack E. Brighton, 15460 Cadmus Rd., Hudson, Mich. 49247
Filed Oct. 22, 1990, Ser. No. 600,666
Int. Cl.[5] G01P *13/00*
U.S. Cl. 116—274 **4 Claims**



1. A fluid flow indicator for use with a light transmitting conduit having an end fitting having a cylindrical bore and an end releasably interconnected with an adapter comprising, in combination, a base having a longitudinal axis and first and second ends, a passage defined through said base between said ends, said base having a cylindrical exterior surface of a diame-

ter closely receivable within the fitting bore, an elongated indicator support axially extending from said base first end a sufficient distance to be located within the light transmitting conduit, a flow indicator flag rotatably mounted on said support having a drive surface obliquely related to said axis whereby fluid flow through the conduit rotates said flag, and an abutment defined on said base adjacent said base second end engaging the adapter and fitting end to axially locate and maintain said base relative to the fitting.

5,065,692
SOLDER FLUX APPLICATOR
David B. Hollesen, Easton, Pa.; Joseph W. Kaczorek, Neshanic Station, and Edwin S. Treible, Ringoes, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Apr. 30, 1990, Ser. No. 516,635
Int. Cl.[5] B05B *15/02*
U.S. Cl. 118—302 **3 Claims**



1. Apparatus for depositing a liquid onto a substrate with substantial uniformity as the substrate is transported linearly along a predetermined path of travel, comprising:

a first closed tank containing a volume of liquid;

a spray gun directed at the substrate;

means for pumping liquid from the tank into the gun so that the gun will spray the liquid in a predetermined pattern onto the substrate;

traversing means for reciprocating the gun along a path generally perpendicular to the path of travel of the substrate so that the spray pattern made by the gun during each pass at least partially overlaps the pattern made during the previous pass of the gun in the opposite direction, thereby assuring substantial uniformity of deposition;

a brush mounted to contact the gun at least once while the gun is being reciprocated;

a second closed tank containing solvent; and

means coupled to said second tank and said brush for automatically supplying solvent to the brush from the tank at periodic intervals so that the brush is continuously saturated with solvent.

5,065,693
DEVELOPING DEVICE
Kunihisa Yoshino, Mitaka; Mitsuo Motohashi, Fuchu, and Yozo Fujii, Hachioji, all of Japan, assignors to Konica Corporation, Tokyo, Japan
Filed Feb. 12, 1991, Ser. No. 654,023
Claims priority, application Japan, Feb. 19, 1990, 2-36380; Feb. 19, 1990, 2-36381; Feb. 19, 1990, 2-36383
Int. Cl.[5] G03G *15/09*
U.S. Cl. 118—657 **20 Claims**

1. A developing device for use in an image recording apparatus, comprising:

(a) a developer stirring means for stirring developer;

(b) a developer supply means for supplying the developer stirred by the developer stirring means;

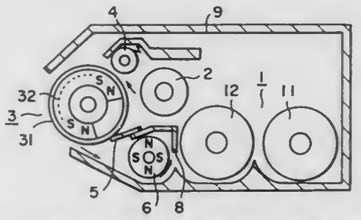
(c) a developer holding means for attracting the supplied developer onto a surface thereof and for conveying the developer to a developing area;

(d) a height regulating means for regulating a layer thickness of the developer on the surface of the developer holding means;

(e) a developer removing means for removing residual developer from the surface of the developer holding means after development;

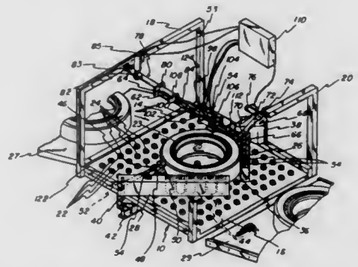
(f) a magnetic conveying means for conveying the removed residual developer toward the developer stirring means; and

(g) a mechanical conveying means for removing developer from the surface of the magnetic conveying means and for



conveying the developer to the developer stirring means, the mechanical conveying means being disposed between the magnetic conveying means and the developer stirring means.

5,065,694
AUTOMATIC WHITE SIDEWALL SPRAYING APPARATUS
William G. Earnheart, Jr., Tupelo, Miss., assignor to Cooper Tire and Rubber Co., Findlay, Ohio
Filed Aug. 20, 1990, Ser. No. 570,054
Int. Cl.[5] B05C *7/02*
U.S. Cl. 118—669 **18 Claims**



1. A device for spraying a coating on the white sidewall portion of tires comprising:

frame means;

conveying means attached to said frame means for conveying a tire into a predetermined location in said device;

rail means supported by said frame means and located over said conveying means;

a spray head mounted on said rail means for spraying a coating on a tire located in said predetermined location;

actuating means connected to said spray head for moving said spray head relative to said frame means; and

sensor and control means such as to locate the white sidewall portion of a tire and to control said actuating means to precisely position said spray head over the white sidewall portion to spray a coating thereon.

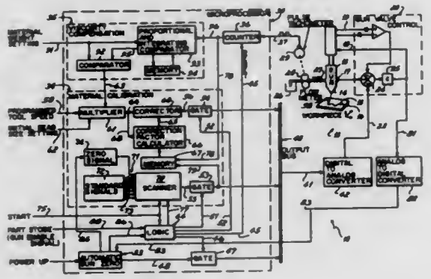
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,695

APPARATUS FOR COMPENSATING FOR NON-LINEAR FLOW CHARACTERISTICS IN DISPENSING A COATING MATERIAL

Carl N. Baron, Mayfield Heights; Stephen L. Merkel, Bay Village, and Robert C. Hall, Strongsville, all of Ohio, assignors to Nordson Corporation, Ewestlake, Ohio

Filed Jun. 16, 1989, Ser. No. 367,388
Int. Cl.[5] B05C *11/10*
U.S. Cl. 118—688 13 Claims



13. A fluid dispensing apparatus comprising:

fluid dispensing means including controller means responsive to a control signal for varying the rate at which fluid is dispensed from said dispensing means;

flow measuring means for measuring the flow rate at which material is dispensing from said fluid dispensing means;

a control signal generator including means responsive to an input signal for generating a control signal to said dispensing means which is effective to cause the flow rate of fluid dispensed by said dispensing means to vary in a predetermined relationship to said input signal;

said dispensing means being responsive to a bipolar control signal to respectively open and close the dispensing means; and, said dispensing means further including:

means operable to generate a progressively increasing zeroing signal to said dispensing means,

feedback means for monitoring the polarity of said bipolar signal, and

means for storing a dispensing means zeroing signal in response to a change in the polarity of said feedback signal.

5,065,696

TEMPERATURE CONTROLLED DISTRIBUTOR BEAM FOR CHEMICAL VAPOR DEPOSITION

William M. Greenberg, Oregon, and Randall L. Bauman, Perrysburg, both of Ohio, assignors to Libbey-Owens-Ford Co., Toledo, Ohio

Continuation-in-part of Ser. No. 245,444, Sep. 16, 1988, abandoned, which is a continuation-in-part of Ser. No. 50,466, May 18, 1987, Pat. No. 4,793,282. This application Mar. 6, 1990, Ser. No. 489,002
Int. Cl.[5] C23C *16/00*
U.S. Cl. 118—718 3 Claims

1. An apparatus for depositing a coating material on a surface of a glass sheet comprising:

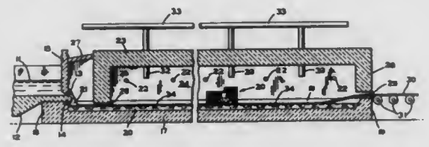
at least a pair of plenums for receiving separate coating gases and each having an outlet;

a mixing chamber having an inlet connected to said plenum outlets and an outlet adapted to be positioned adjacent a surface of a sheet of glass to be coated, said mixing chamber being defined by spaced apart walls of blocks of material having a relatively high thermal conductivity;

a support defining a cooling fluid duct;

insulating material positioned between said plenums and said support and between said blocks and said support; and

cooled fastener means for attaching said plenums, said blocks and said insulating material to said support including a threaded fastener extending through said blocks and



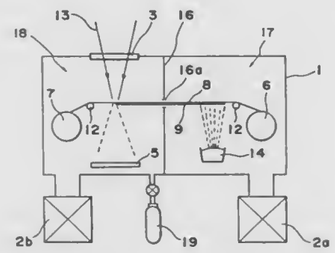
said insulating material and threadably engaging said support, a bushing extending between a head of said threaded fastener and said support and through which said threaded fastener extends, said threaded fastener having a relatively high coefficient of thermal conductivity, and said bushing being formed of an insulating material.

5,065,697

LASER SPUTTERING APPARATUS

Yoshikazu Yoshida, Izumi; Kunio Tanaka, Toyonaka, and Yukio Nishikawa, Ikeda, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 27, 1990, Ser. No. 559,270
Claims priority, application Japan, Jul. 28, 1989, 1-197747
Int. Cl.[5] C23C *16/48*
U.S. Cl. 118—719 4 Claims



1. A laser sputtering apparatus, comprising:

a vacuum chamber;

a laser for radiating a laser beam;

a vacuum sealing window disposed in said chamber for transmitting the laser beam from said laser into said chamber;

a film transporting means for transporting a film in said chamber such that said film passes by said window, said film having a high laser transmission characteristic and a surface over which a material to be sputtered onto a substrate is deposited, said surface being directed toward a position of the substrate;

a substrate holder arranged in said vacuum chamber facing said film and said window for holding the substrate; and

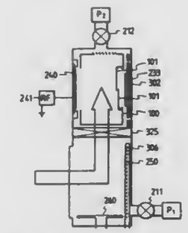
an evaporation device arranged in said vacuum chamber for evaporating and depositing the material to be sputtered onto said film inside said vacuum chamber.

5,065,698

FILM FORMING APPARATUS CAPABLE OF PREVENTING ADHESION OF FILM DEPOSITS

Atsushi Koike, Chiba, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 337,312, Apr. 13, 1989, abandoned. This application Mar. 25, 1991, Ser. No. 674,314
Claims priority, application Japan, Apr. 11, 1988, 63-90407; Apr. 11, 1989, 1-91633
Int. Cl.[5] C23C *16/00*
U.S. Cl. 118—719 7 Claims



1. A film forming apparatus for forming a film on a substrate set inside at least one film forming chamber capable of being evacuated, comprising;

said film forming chamber in which the film is formed on said substrate;

a deposit shield member to prevent deposits from being adhered on the inner wall surface of said film forming chamber, said deposit shield member subject to absorption of gas on surfaces thereof;

at least one vacuum chamber capable of being evacuated and in which said deposit shield member is changed for a new one, wherein said vacuum chamber includes a baking means to enhance elimination of gas absorbed on said surface of said deposit shield member;

an open-shut means provided between said vacuum chamber and said film forming chamber, to keep airtightness between said vacuum chamber and said film forming chamber; and

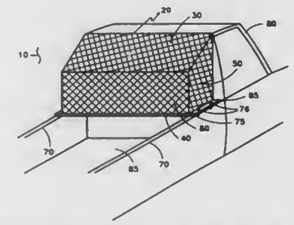
a carrying means to carry said deposit shield member between said vacuum chamber and said film forming chamber.

5,065,699

MOBILE PET PROTECTION CAGE

Shelly Marshall, Box 766, Tok, Ak. 99780

Filed Dec. 1, 1989, Ser. No. 444,520
Int. Cl.[5] A01K *31/00*
U.S. Cl. 119—17 12 Claims



1. A mobile pet animal protection cage for use in a pickup truck having an uncovered flat bed, a cab having a rear wall and a sliding rear window in said rear wall, said cage comprising:

first, second, third, fourth, fifth and sixth boundaries defining surface planes which enclose a volume between said cab rear wall and said flat bed whereby said volume is accessible by a pet to and from said cab when said sliding rear window is open;

said sixth boundary facing and adjacent said rear wall and having an opening aligned with said rear window,

said first boundary facing and adjacent said flat bed;

said second, third, fourth and fifth boundaries being made of mesh material through which the driver can see but through which the animal cannot chew; and

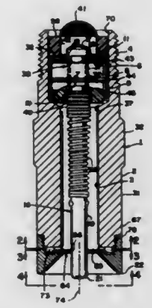
means for detachably securing said cage to said truck.

5,065,700

SHUTTER FOR ANIMAL-WATERING VALVE

David L. Cross, Benicia, Calif., assignor to Se Lab Group, Inc., Cincinnati, Ohio

Filed Oct. 17, 1990, Ser. No. 599,045
Int. Cl.[5] A01K *7/00*
U.S. Cl. 119—725 7 Claims



1. A shutter assembly in combination with an animal-watering valve which includes a valve housing having a distal portion, a cylindrical passage formed therein having an upstream end and a downstream end, a valve lever arm having no passage for water there through mounted in said cylindrical passage for pivotal movement between a valve closed centered position and a valve open radially displaced position dimensioned to permit flow of water between said valve lever arm and said cylindrical passage, biasing means engaging said valve lever arm for centering said valve lever arm within said cylindrical passage, and said shutter assembly comprising:

a. a movable disc shaped shutter member having an outer periphery which surrounds said valve lever arm and non sealably substantially covers said cylindrical passage when said valve lever arm is in said closed centered position for preventing an animal from stuffing material into said cylindrical passage; and

b. means adapted for attachment to said valve for positioning said disc shaped shutter member adjacent said downstream end of said cylindrical passage when said valve lever is in said closed centered position and permitting flow past said disc shaped shutter member when said valve lever arm is in said valve open radially displaced position.

5,065,701

NECK HOLDING DEVICE FOR LIVESTOCK

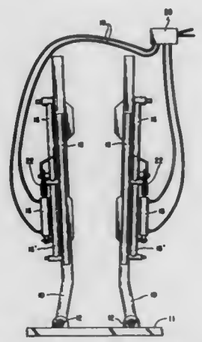
Harvard A. Punt, RR, Hull, Iowa 51239

Filed Oct. 1, 1990, Ser. No. 590,966
Int. Cl.[5] A01K *1/00*
U.S. Cl. 119—147.1 5 Claims

1. In combination with a stanchion gate having vertical members for holding the head and neck of an animal, means for extending said neck comprising a pair of auxiliary bars extendibly attached to said vertical members and engageable with said

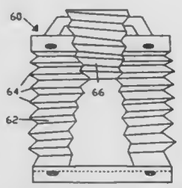
VOL 1132 ISS 3 NOV 19 1991 UMI

head of said animal, said bars being moveable transversely of said gate and in a direction to move said head away from said gate, separate power means connected between said gate and each of said bars to move said bars transversely of said gate,



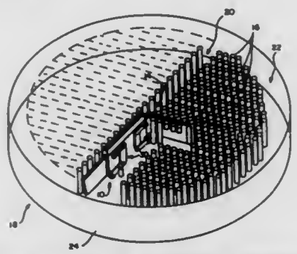
each of said separate power means being connected between said gate and one of said pair of bars, and control means adapted to control said power means to cause each of said bars to move at the same rate as the other.

5,065,702
DISPOSABLE LITTER CONTAINER
Aaron S. Hasiuk, 1310 Frost Hallow Rd., Levittown, Pa. 19101
Filed Feb. 19, 1991, Ser. No. 657,524
Int. Cl.[5] A01K *1/00*
U.S. Cl. 119—168 **9 Claims**



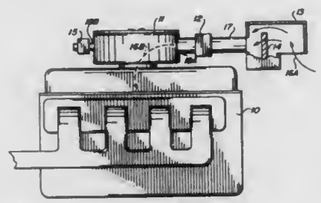
1. An extensible disposable litter container for receiving the waste of household pets, the container being extensible from a closed position to an open position, the container comprising:
- a rectangular tray having a floor and opposing sides and ends for containing litter material;
- a rectangular cover member having opposing sides and ends, the cover member having a handle extending therefrom, the cover member being releasably attached to the tray when the container is in the closed position, the cover member having at least one vent communicating with the atmosphere;
- a collapsible wall extending between the rectangular tray and the cover member and enclosing the interior of the container, the wall having a door formed therein for entry and egress of household pets; and
- at least one spring means extending between the tray and the cover member, the spring means being compressed when the container is in the closed position, the spring means extending the cover member from the tray when the cover member is released from the tray and the container assumes the open position.

5,065,703
FLEXIBLE LANCE FOR STEAM GENERATOR SECONDARY SIDE SLUDGE REMOVAL
Robert A. S. Lee, Stoneham, Mass., assignor to Electric Power Research Institute, Inc., Palo Alto, Calif.
Continuation-in-part of Ser. No. 27,810, Mar. 18, 1987, Pat. No. 4,827,953. This application Jan. 27, 1989, Ser. No. 303,268
Int. Cl.[5] F22B *37/52*
U.S. Cl. 122—382 **43 Claims**



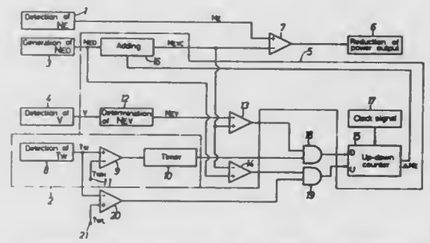
1. A system comprising, in combination, a flexible means for accessing an assembly having a difficult to access geometry, which comprises a flexible member, a flexible cable extending lengthwise along and being movable within said flexible member, and an optical cable extending lengthwise along and within said flexible member, said flexible member being configured to be driven into the difficult to access geometry, a rigid guide extending lengthwise of said flexible member, said flexible member being movably mounted along said rigid guide, said rigid guide having a curved end positioned to turn said flexible member in a predetermined angle with respect to an extending direction of said flexible member as said flexible member passes from said rigid guide through said curved end, a drive means for driving said flexible member through the curved end of said rigid guide, a transporter for said combination, in which said rigid guide comprises a body of said transporter, and at least one transporter drive means attached to said body.

5,065,704
INTERNAL COMBUSTION ENGINE AND KIT THEREFORE
Robert C. Powell, P.O. Box 894, Patagonia, Ariz. 85624
Filed Nov. 16, 1990, Ser. No. 614,858
Int. Cl.[5] F02M *25/04*
U.S. Cl. 123—25 J **20 Claims**



1. An engine assembly comprising:
a) an internal combustion engine in which fuel is burned in air;
b) an air filter having a primary port for directing a supply of air to said internal combustion engine; and,
c) an adjustable humidifier having,
1) an evaporative pad, a portion of the surface of said evaporative pad located in an air stream to said air filter,
2) adjustment means for selectively increasing or decreasing the surface area of said evaporative pad exposed to said air stream,
3) a reservoir for storage of purified liquid water, and,
4) a water pump for recirculating purified liquid water from said reservoir over said evaporative pad.

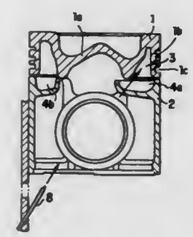
5,065,705
SYSTEM FOR PREVENTING OVERHEAT OF ENGINE FOR VEHICLE
Sachito Fujimoto, and Yuzuru Koike, both of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 12, 1990, Ser. No. 551,980
Claims priority, application Japan, Jul. 14, 1989, 1-82795
Int. Cl.[5] F01P *5/14*
U.S. Cl. 123—41.15 **3 Claims**



1. A system for preventing an overheat condition of an engine for a vehicle, comprising:
- a revolution rate detector for detecting a rate of revolution of the engine;
- a power output reducing means receiving an output of said revolution rate detector for reducing engine power output when a revolution rate detected by said revolution rate detector exceeds a preset revolution rate;
- a vehicle velocity detector for detecting a vehicle velocity;
- an overheat condition predicting means for predicting an impending overheat condition of the engine; and
- a revolution rate correcting means for reducing said preset revolution rate in accordance with a reduction of the vehicle velocity in response to prediction of an impending engine overheat condition by said overheat condition predicting means.

5,065,706
COOLED PLUNGER PISTON FOR INTERNAL COMBUSTION ENGINES
Josip Zvonkovic, Fellbach, Fed. Rep. of Germany, assignor to Mahle GmbH, Stuttgart, Fed. Rep. of Germany
PCT No. PCT/EP88/00760, § 371 Date Mar. 21, 1990, § 102(e) Date Mar. 21, 1990, PCT Pub. No. WO89/02982, PCT Pub. Date Apr. 6, 1989
PCT Filed Mar. 25, 1988, Ser. No. 466,375
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1987, 3732925
Int. Cl.[5] F01P *1/04*
U.S. Cl. 123—41.35 **1 Claim**

1. A cooled plunger piston for internal combustion engines comprising
- a) a piston head,
- b) a piston stem mutually separate from said piston head for pivotal connection to said head by way of a gudgeon pin,
- c) bosses depending from said piston head having aligned apertures for accommodating the gudgeon pin, which bosses on assembly project into the piston stem and extend in the direction of the negative pressure side of the piston to a lesser extent in the region of that end of the stem which is towards the piston head than in the region underneath and disposed in direction of the bottom end of the stem,
- d) a closed annular space defined radially outwardly by said piston head, said space being open towards the piston stem,
- e) oil collection pockets formed in the upper end of the piston stem which is towards the piston head and disposed at opposite positive and negative sides of the piston, which pockets at least partially cover the annular space of the piston head, and
- f) an oil injection nozzle disposed in the region of said collecting pockets for introducing cooling oil through the bottom end of the stem into the annular space of the piston head,
- g) said injection nozzle being so disposed that the cooling oil is only injected on one side of a diagonal plane passing through the piston stem simultaneously in the longitudinal axis of the piston and gudgeon pin,
- h) the area of one of said collecting pockets of the stem in the covered region of the annular space and projected onto a plane extending vertically to the longitudinal axis of the



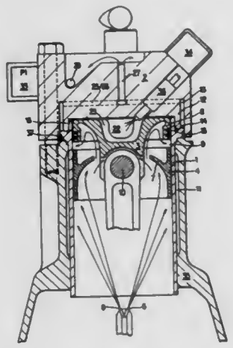
piston being in the region of the negative pressure side smaller than the area of a collecting pocket on the positive pressure side of the piston,
- i) the smaller collecting pocket of the piston stem being radially larger in the areas disposed between the bosses of the piston head than in the areas directly adjacent the bosses,
- j) said larger collecting pocket having, compared with the smaller collecting pocket, the greater capacity to hold cooling oil in relation to the area covering the annular space,
- k) said larger collecting pocket, at its part directly opposite the bosses, being spaced from the maximum extension of the bosses in the negative pressure direction radially inwardly by a distance, said smaller collecting pocket being spaced from the maximum extension of the bosses in the positive direction radially inwardly, the spacing at the positive pressure side being at least the same size as the spacing at the negative pressure side.

5,065,707
OIL-COOLED CYLINDER HEAD
Ludwig Elsbett; Günter Elsbett, and Klaus Elsbett, all of Industriestrasse 14, D-8543 Hilpoltstein, Fed. Rep. of Germany
PCT No. PCT/DE88/00731, § 371 Date May 24, 1990, § 102(e) Date May 24, 1990, PCT Pub. No. WO89/04916, PCT Pub. Date Jun. 1, 1989
PCT Filed Nov. 25, 1988, Ser. No. 477,957
Claims priority, application Fed. Rep. of Germany, Nov. 25, 1987, 3739899
Int. Cl.[5] F01P *3/00*
U.S. Cl. 123—41.42 **10 Claims**

1. An internal combustion engine, particularly a four-stroke engine, comprising wall means defining a cylinder having an open end; a piston in said cylinder having an end face which confronts said open end, said piston being movable axially of said cylinder between a first position in which said end face is adjacent to said open end and a second position in which said end face is remote from said open end; a piston ring mounted on said piston and spaced from said end face, said wall means having a portion which extends between said open end and

VOL
1132
ISS
3
NO
19
1991
UMI

said piston ring when said piston is in said first position; a cylinder head covering said open end and having cooling channel means arranged to cool said portion of said wall



means; and means for circulating cooling oil through said channel means, said channel means constituting the sole means for cooling said portion of said wall means by heat exchange with fluid flowing in a channel.

5,065,708

INTERNAL COMBUSTION ENGINE FOR A PORTABLE HANDHELD WORK APPARATUS

Anton Weble, Fellbach; Klaus Höppner, Marbach, and Hermann Weiss, Steinheim, all of Fed. Rep. of Germany, assignors to Andreas Stihl, Waiblingen, Fed. Rep. of Germany

Filed Nov. 1, 1990, Ser. No. 607,663

Claims priority, application Fed. Rep. of Germany, Nov. 3, 1989, 3936629

Int. Cl.[5] F02M *29/00*

U.S. Cl. 123—52 MC **15 Claims**

1. An internal combustion engine for a portable handheld tool such as a motor-driven chain saw, cutoff machine or the like, the internal combustion engine comprising:

a cylinder having a cylinder wall defining a combustion chamber;

said cylinder wall having an inlet opening formed therein for passing a combustion mixture into said combustion chamber;

said cylinder wall defining a flange formed in surrounding relationship to said inlet opening;

an induction elbow for passing the combustion mixture into said inlet opening, said induction elbow being made of a rubber-elastic material and having a connecting end for connecting said induction elbow to said flange;

said connecting end defining an inner wall surface having an annular shoulder formed thereon so as to have a first volume;

said flange having an annular slot formed therein so as to have a second volume approximately equal to said first volume;

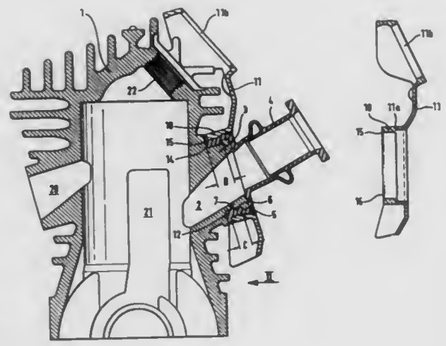
said connecting end being mounted on said flange with said shoulder being disposed in said slot;

a clamp ring having a fixed inner diameter;

said clamp ring being pushed over said connecting end for holding said connecting end on said flange;

said clamp ring having an inner clamping surface defining said fixed inner diameter and said clamping surface and said slot conjointly defining a space therebetween when said clamp ring is pushed over said connecting end; and,

said fixed inner diameter of said clamp ring being selected so as to cause said clamping surface to radially compact said annular shoulder in said space to stiffen the material of



said annular shoulder thereby securely connecting said connecting end to said flange.

5,065,709

VALVE OPERATING SYSTEM FOR INTERNAL COMBUSTION ENGINE

Yasutoshi Ito; Toshihiro Kamiyama, and Fuminori Kawashima, all of Saitama, Japan, assignors to Honda Giken Koyo Kabushiki Kaisha, Tokyo, Japan

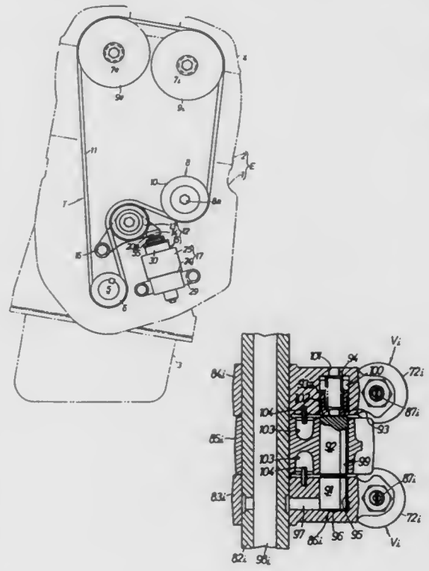
Filed Jul. 5, 1990, Ser. No. 548,123

Claims priority, application Japan, Jul. 6, 1989, 1-79660[U]

Int. Cl.[5] F01L *1/34*

U.S. Cl. 123—90.15 **1 Claim**

1. A valve operating system for an internal combustion engine comprising a valve-operation driving force transmission means interposed between a valve operating camshaft and an engine valve carried in an engine body for opening and closing operation of the engine valve, a valve operation mode changeover mechanism provided in said valve-operation driving force transmission means and capable of switching the opening and closing mode of the engine valve in accordance with the operating condition of the engine, and a wrapping connector type transmission system provided between said valve operating camshaft and a crankshaft, wherein said valve operating system further includes a tension adjusting means capable of adjusting the tension of a transmitting band of the wrapping connector type transmission system, and a control means for controlling the operation of said tension adjusting



means in accordance with the operation mode of said valve operation mode changeover mechanism.

---

and the hook part connectable to the driver as well as to a stop means defined by a respective support lug.

5,065,711

INTERNAL COMBUSTION ENGINES

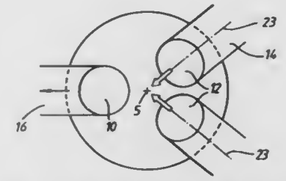
Samuel Lesley, Shoreham-by-Sea, England, assignor to Ricardo Group PLC, Shoreham-by-Sea, England

Filed Dec. 5, 1990, Ser. No. 622,814

Claims priority, application United Kingdom, Dec. 15, 1989, 8928386

Int. Cl.[5] F01L *3/00*

U.S. Cl. 123—188 M **11 Claims**



1. An internal combustion engine including at least one cylinder, said cylinder having an axis, a piston reciprocable within said cylinder and a cylinder head, said cylinder head containing at least one exhaust port, a poppet valve controlling said exhaust port, at least two inlet ports, further poppet valves having respective axes and controlling a respective one of said inlet ports and inlet ducts having respective axes and connected to a respective one of said inlet ports, said inlet ports of directed type whereby, in use, air flowing through them into said cylinder flows preferentially in one radial direction relative to the associated said axis of said further poppet valves generally towards the cylinder axis, said axes of said inlet ducts being convergent and passing substantially through said cylinder axis whereby, in use, the air flows through said inlet ports merged to form a single air flow substantially on said cylinder axis.

5,065,710

ROPE STARTER

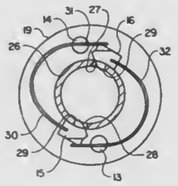
Sören N. Henriksson, Kållered, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden

Filed Jul. 25, 1990, Ser. No. 558,067

Claims priority, application Sweden, Aug. 8, 1989, 8902691

Int. Cl.[5] F02N *3/02*

U.S. Cl. 123—185 B **6 Claims**



1. A rope starter for an internal combustion engine including a rope wheel (**12**) with a starting rope (**24**) and a driver (**26**), said driver cooperating with starting latches (**15,16**) on a rotatable fly-wheel coaxial with the rope wheel, said fly-wheel being secured on the crankshaft of the engine, said fly-wheel being provided with support lugs projecting on the fly-wheel defining respective supports (**13,14**) for the starting latches (**15,16**), said starting latches surrounding said driver (**26**) and being each provided with a hook part (**29**) and a spring member (**30,32**), characterized in that each latch has its spring member extended in a curve and fixed to a respective support

---

5,065,712

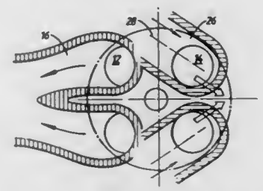
INTERNAL COMBUSTION ENGINES

Giles E. Hundleby, Horsham, England, assignor to Ricardo Group PLC, Shoreham-by-Sea, England

Filed Dec. 5, 1990, Ser. No. 622,541

Int. Cl.[5] F01L *3/00*

U.S. Cl. 123—188 M **7 Claims**



1. An internal combustion engine including at least one cylinder, said cylinder having a wall and an axis, a piston reciprocable within said cylinder and a cylinder head, said cylinder head containing at least one exhaust port, a respective poppet valve controlling said at least one exhaust port, at least two inlet ports, respective further poppet valves controlling said at least two inlet ports and inlet ducts having respective axes and connected to respective inlet ports, said cylinder and said cylinder head defining a combustion chamber with which said inlet and exhaust ports communicate, said inlet ports being of directed type whereby, in use, the flow of air through said inlet ports is generally away from said at least one exhaust port

VOL
1132
ISS
3
NO
19
1991
UMI

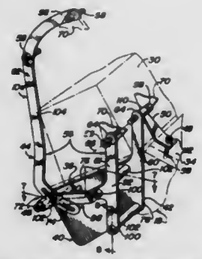
and thus flows down said wall of said cylinder adjacent said inlet ports, said axes of said inlet ducts being convergent in the direction of flow through them and said axis of each said inlet duct defining an angle of at least 20° with that of the adjacent one of the other of said at least two inlet ports, when viewed in the direction of said cylinder axis.

5,065,713

MOUNTING BRACKETS FOR MOUNTING ENGINE ASSECCORIES

William R. Seats, 656 E. Cypress, Covina, Calif. 91723

Filed Apr. 2, 1990, Ser. No. 502,984
Int. Cl.[5] F02F *7/00*
U.S. Cl. 123—195 A **26 Claims**



1. A mounting bracket for mounting an accessory on an internal combustion engine having a forwardly facing front end surface, comprising:

a base portion having a normally rear side to be secured to the engine with said rear side seating against the front end surface of the engine,

means on said base portion forwardly of said rear side and normally projecting above said base portion for mounting the accessory on said base portion with the accessory in a position normally above the base portion, and wherein

said accessory mounting means comprises a pair of normally upstanding accessory support arms joined to and located forwardly of said rear side of said base portion and having normally upper ends which are normally located above said base portion and are aligned on and spaced along a common axis transverse to said rear side of the base portion, a third normally upstanding accessory support arm joined to said base portion and having a normally upper end normally located above the upper ends of said arm pair, and means for securing said upper arm ends to the accessory with the accessory positioned between the upper ends of said arm pair and the upper end of said third arm,

said base portion comprises a flat base plate having a normally upper edge and a normally front side,

one arm of said arm pair is integrally joined to and extends edgewise and normally upwardly from the upper edge of said base plate,

said bracket includes a discrete bracket member at the front side of said base plate having a normally upstanding portion forming the other arm of said arm pair, and means securing said bracket member to said base plate,

said third arm comprises a discrete arm member having a normally lower end, and

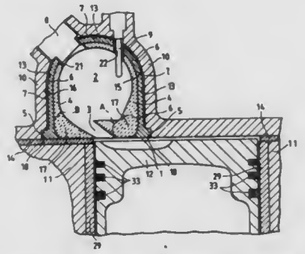
said mounting bracket includes means mounting the lower end of said third arm member on said base portion for adjustment of the third arm relative to said arm pair in a plane substantially parallel to the rear side of said base portion.

5,065,714

HEAT-INSULATING STRUCTURE OF SWIRL CHAMBER AND ITS PRODUCTION METHOD

Hiroshi Matsuoka, Yamato, Japan, assignor to Isuzu Motors Limited, Tokyo, Japan

Filed Jul. 27, 1990, Ser. No. 558,373
Claims priority, application Japan, Jul. 27, 1989, 1-192589
Int. Cl.[5] F02B *19/08, 19/16*
U.S. Cl. 123—254 **6 Claims**



1. In an internal combustion engine including a cylinder block having formed therein cylinder, a cylinder head fixed to said cylinder block and equipped with hole portions formed in such a manner as to correspond to said cylinders for forming swirl chamber, and main combustion chambers formed inside said cylinders of said cylinder block, a heat-insulating structure of a swirl chamber comprising:

swirl chamber blocks having formed therein swirl chambers and made of a ceramic material;

jet ports for establishing communication between said swirl chambers and said main combustion chambers, formed in said swirl chamber blocks in such a manner that the thickness of the formation portions of said jet ports in said swirl chamber blocks is greater than that at other portions;

metallic outer blocks formed by casting a metallic material around the outer surfaces of said swirl chamber blocks so as to apply a compressive force in advance to said swirl chamber blocks;

outwardly projecting flange portions provided on the portions of said outer blocks which corresponds to said jet ports constituting high-temperature portions of said swirl chamber blocks;

inlet portions of said hole portions, which are formed in said cylinder head, in which said flange portions of said outer blocks are fitted firmly so that said flange portions are in contact with the inner surfaces of said inlet portions, for the purpose of letting a part of the heat of said high-temperature portions in which said jet ports are formed escape therefrom to said cylinder head through said flange portions; and

air layers formed between the outer surfaces of said outer blocks and the inner surfaces of said hole portions formed in said cylinder head, for the purpose of preventing heat from flowing from said outer blocks to said cylinder head.

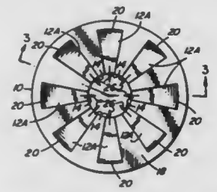
5,065,715

SQUISH JET COMBUSTION CHAMBER

Robert L. Evans, West Vancouver, Canada, assignor to The University of British Columbia, Vancouver, Canada

Filed Feb. 7, 1990, Ser. No. 475,939
Int. Cl.[5] F02B *19/08*
U.S. Cl. 123—263 **12 Claims**

1. An internal combustion engine having a piston reciprocal in a cylinder having a cylinder head, one of said cylinder head and said piston having a compression face, a bowl opening around its periphery onto said compression face, a plurality of squish jet channels arranged in circumferentially spaced relationship about said bowl, each said channel opening onto said face along substantially its full length from an inlet end of said channel to a discharge end, said discharge end opening into said bowl, said channels providing the main conveying paths of an air fuel mixture into said bowl from the surrounding area of said face, a squish pocket formed on said compression face for each of said squish jet channels, said inlet end of each of said squish jet channels connecting with its respective of said squish pockets, each said squish pocket having an open area the periphery of which opens onto said compression face and having a width significantly larger than the width of said inlet end of



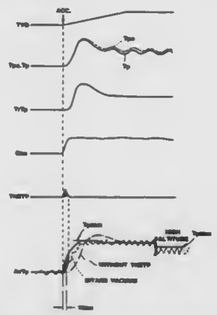
said squish jet channel to which it is connected, the other of said piston and said cylinder being shaped so that as said piston approaches a top dead centre position said air fuel mixture is forced to flow from said compression face into and along said channels from said inlet end to said discharge end and to discharge said air fuel mixture as squish jets issuing one from said discharge end of each said channel into said bowl, in a direction aimed so that at least one of said squish jets intersects with another of said jets.

5,065,716

FUEL SUPPLY CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE WITH IMPROVED ENGINE ACCELERATION CHARACTERISITCS AFTER FUEL CUT-OFF OPERATION

Toyoaki Nakagawa, and Hatsuo Nagaishi, both of Kanagawa, Japan, assignors to Nissan Motor Company, Limited, Kanagawa, Japan

Filed Mar. 23, 1989, Ser. No. 327,550
Claims priority, application Japan, Mar. 25, 1988, 63-39838[U]
Int. Cl.[5] F02D *41/10, 41/12*
U.S. Cl. 123—326 **5 Claims**



1. A fuel supply control system for an internal combustion engine, comprising:

an induction system for introducing a controlled flow rate of intake air and forming an air/fuel mixture to be introduced into an engine combustion chamber;

first sensor for monitoring intake air flow rate flowing through said induction system to produce an intake air flow rate indicative first signal;

second detector for monitoring a predetermined engine driving condition satisfying a fuel cut-off condition to produce a fuel cut-off condition indicative second signal;

first means for controlling fuel supply amount for supplying a controlled amount of fuel into said induction system at a controlled timing determined in relation to an engine revolution cycle, said first means being responsive to said second signal to perform fuel cut-off operation, and said first means being responsive to termination of said second signal, for temporarily performing fuel supply irrespective of engine revolution cycle; and

second means for deriving a fuel supply amount for said temporary fuel supply in response to termination of fuel cut-off, said second means deriving said fuel supply amount for said temporary fuel supply with containing a component compensating a fuel amount required for wetting the periphery of said induction system,

wherein said second means is responsive to initiation of said fuel cut-off operation for latching an instantaneous fuel supply amount upon initiation of fuel cut-off, and subtracting the latched value from an instantaneous fuel supply amount derived upon termination of fuel cut-off for deriving said fuel supply amount for temporary fuel supply, and said second means modifies said fuel supply amount by said compensating component for wetting the periphery of said induction system.

5,065,717

IDLE SPEED CONTROL SYSTEM FOR ENGINE

Tetsushi Hosokai; Tetsuro Takaba; Toshihiro Ishihara, and Hideki Kobayashi, all of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Dec. 27, 1990, Ser. No. 634,601
Claims priority, application Japan, Dec. 28, 1989, 1-338511
Int. Cl.[5] F02D *41/16*
U.S. Cl. 123—339 **1 Claim**

1. An idle speed control system for an engine comprising an idle regulator valve which controls the amount of intake air to be fed to the engine when the engine idles and a control unit which detects an engine speed and controls the opening of the idle regulator valve so that the detected engine speed converges on a target idle speed, characterized in that

said control unit has

a basic air charging efficiency calculating means which calculates a basic air charging efficiency required to fixedly operate the engine at the target idle speed,

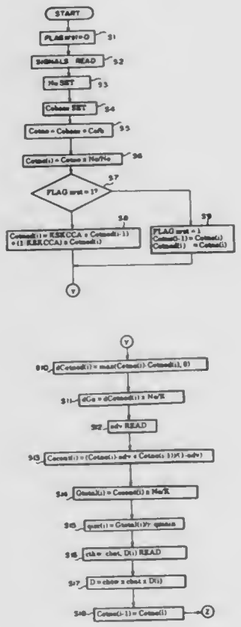
a first target air charging efficiency calculating means which calculates a first target air charging efficiency by feedback correction of the basic air charging efficiency on the basis of a correction value which is determined according to the difference between the detected engine speed and the target idle speed,

a second target air charging efficiency calculating means which calculates a second target air charging efficiency which is the air charging efficiency obtained when the engine is fixedly operated at the detected engine speed while the amount of intake air is kept at a mass flow which will fixedly provide the first target air charging efficiency,

a final target mass flow calculating means which calculates a final target mass flow which provides a first-order lag air charging efficiency equal to the second target air charging efficiency, the first-order lag air charging efficiency being an air charging efficiency which is actually introduced

VOL 1132 ISS 3 NO 19 1991 UMI

into the cylinder when the opening of the idle sneed regulator valve is set so that a given mass flow is obtained, and



a valve control means which controls the opening of the idle regulator valve on the basis of the final target mass flow.

5,065,718

ENGINE IDLE CONTROL VALVE

Atsushi Suzuki, Obu, and Toshio Kondo, Kariya, both of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Aug. 16, 1990, Ser. No. 568,133
Claims priority, application Japan, Aug. 20, 1989, 1-214548; Jul. 17, 1990, 2-188266
Int. Cl.[5] F02M *3/00;* F02B *23/00;* F16K *31/12*
U.S. Cl. 123—339 26 Claims

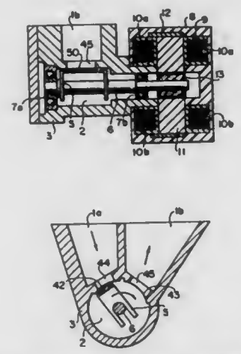
1. An engine idle control valve comprising:

first bypass passage means receiving auxiliary air flow, which bypasses an intake throttle valve of an engine and which is to be coupled to the engine, from an upstream side of an intake throttle valve disposed in an air intake pipe of the engine, and coupling said received auxiliary air to another port thereof;

second bypass passage means having an inlet port which is in communication with said outlet port of said first bypass passage means, receiving said auxiliary air flow introduced through said inlet port and coupling said received auxiliary air to a downstream side of said intake throttle valve;

a valve body for changing an opening area of at least one of said outlet port of said first bypass passage means and said inlet port of said second bypass passage means, thereby adjusting an amount of the auxiliary air flow to be introduced from the upstream side to the downstream side of said intake throttle valve; and

drive means for driving said valve body in accordance with a drive signal such that when a maximum drive signal is input into said drive means, an opening area of at least one of said outlet port of said first bypass passage means and said inlet port of said second bypass passage means is throttled so that a first predetermined amount of the auxiliary air flow smaller than a maximum amount of the auxiliary air flow is introduced through said throttled opening area into the downstream side of said intake throttle valve.

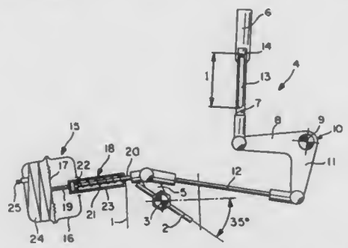


5,065,719

ACTUATING DEVICE FOR A THROTTLE VALVE ARRANGED IN AN INTAKE PIPE OF A DIESEL INTERNAL COMBUSTION ENGINE

Detlef Panten, Xorb; Gernot Hertweck, Fellbach, and Franz Bender, Wendlingen, all of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Sep. 19, 1990, Ser. No. 584,798
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1989, 3931144
Int. Cl.[5] F02D *9/10, 11/08*
U.S. Cl. 123—339 2 Claims



1. Actuating device for a throttle valve arranged in an intake pipe of a diesel internal combustion engine, having a mechanical adjusting linkage for the load-dependent adjustment of the throttle valve, which linkage has an idle path decoupling the movement of the throttle valve form the movement of an accelerator pedal, wherein an actuator actuated by an auxiliary force is provided, via which actuator the throttle valve position predetermined as a function of load can be altered within an idle path of the actuator;

wherein the actuator is a vacuum actuator with a control diaphragm clamped in a housing;

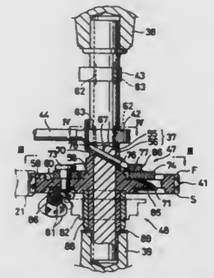
wherein the control diaphragm is coupled to the throttle valve via an actuating rod, the actuating rod comprising two linkage parts which can be displaced telescopically one inside the other and can be pulled apart counter to the force of a spring.

5,065,720

ENGINE WITH MECHANICAL GOVERNOR AND DECOMPRESSION DEVICE

Shigeru Nishiyama, and Hideazu Amano, both of Sakai, Japan, assignors to Kubota Corporation, Osaka, Japan

Filed Oct. 18, 1990, Ser. No. 599,409
Claims priority, application Japan, Nov. 2, 1989, 1-286517
Int. Cl.[5] F01L *13/08;* F02D *31/00*
U.S. Cl. 123—363 9 Claims



1. An engine with a mechanical governor and a decompression device, comprising:

a valve actuating camshaft having a valve actuating cam gear and a valve actuating cam arranged side by side thereon, said valve actuating camshaft being rotatably supported by an engine body,

said valve actuating cam gear being provided with a first side surface facing said valve actuating cam and a second side surface on the opposite side to said first side surface,

a centrifugal decompression device provided with a centrifugal weight, means for mounting said centrifugal weight to the first side surface of said valve actuating cam gear in a swingable manner in the centrifugal direction, and

a mechanical governor provided with a governor weight and a member for transmitting a centrifugal force of said governor weight, said governor weight being supported by the second side surface of said valve actuating cam gear by said mounting means, and said member for transmitting the centrifugal force being supported by said valve actuating camshaft outside the second side surface of said valve actuating cam gear.

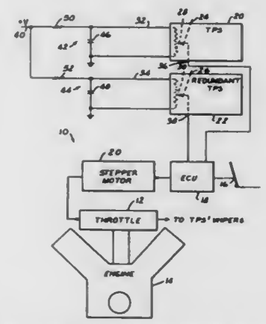
5,065,721

POWER SUPPLY CIRCUIT FOR DUAL THROTTLE POSITION SENSORS OF AN ELECTRONIC ENGINE THROTTLE CONTROL

Kregg S. Wiggins, Clarkston, Mich., and Danny O. Wright, Grafton, Va., assignors to Siemens Automotive L.P., Auburn Hills, Mich.

Filed Mar. 28, 1990, Ser. No. 501,078
Int. Cl.[5] F02B *77/08;* F02D *41/22;* G01M *19/00*
U.S. Cl. 123—399 12 Claims

1. In an internal combustion engine for powering an automotive vehicle and comprising an electronic throttle control wherein engine's throttle mechanism is operated by an electric powered actuator which is under the control of an ECU, and associated with throttle mechanism are two throttle position sensors both supplying current throttle position information that is used by the ECU in exercising control over the actuator, such information being in the form of respective electrical signals from the two throttle position sensors, which signals are derived from a common source of electrical potential, the improvement which comprises means for enabling the ECU to promptly detect the occurrence of a short circuit type failure in one of said throttle position sensors without such short cirtuic type failure adversely affecting the signal from the other of said throttle position sensors.

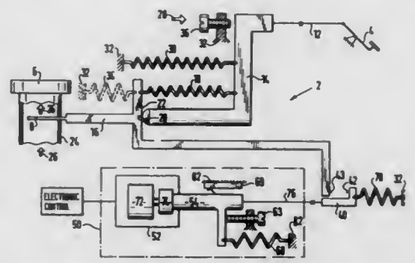


5,065,722

APPARATUS HAVING A CONTROL MOTOR FOR INTERVENTION INTO A FORCE TRANSMISSION DEVICE

Werner Huber, Schwaikheim, and Guenter Spiegel, Worms, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Aug. 17, 1990, Ser. No. 569,050
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1989, 3934738
Int. Cl.[5] F02D *7/00*
U.S. Cl. 123—399 22 Claims



1. An apparatus having a control motor (**52**) for intervention into a force transmission device (**2**) between an operating element (**4**) and a control device (**8**) that determines an output of a driving engine (**6**), the operating element (**4**) is operatively connected to a first drive element (**14**) and the control device is operatively connected to a second drive element (**16**), a coupling spring (**18**) is connected on one end to the first driver element (**14**) and on the other end is connected to the second driver element (**16**) such that the driver elements are urged to execute a motion relative to one another until a first coupling stop (**20**) or said first driver element comes to rest on a second coupling stop (**22**) of said second driver element, an operative member (**54**) connected to said control motor (**52**) a transmission means (**76**) connected to said operative member **54** and to a third drive element (**40**) which upon a control motor intervention acts upon the second driver element (**16**) in a direction of reducing an output of the driving engine, a first restoring spring (**60**) connected at one end to said operating member **54** and at its opposite end to a housing part (**82**) said operating member (**54**) of the control motor (**52**), when intervention is not occurring, is actuated by said first restoring spring (**60**) counter to a direction of reduction of an output of the driving

VOL 1132 ISS 3 NOV 19 1991 UMI

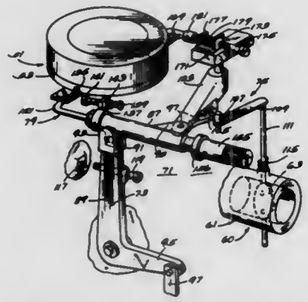
engine toward a repose stop (63), wherein the control motor (52) along with the operative member (54), the first restoring spring (60) and the repose stop (63) form a final control element (50) disposed spaced apart from the control device (8).

5,065,723

MARINE PROPULSION DEVICE WITH SPARK TIMING AND FUEL SUPPLY CONTROL MECHANISM

George L. Broughton, Waukegan; Gregory B. Binversie, Grayslake, both of Ill., and Henry C. Billingsley, Kenosha, Wis., assignors to Outboard Marine Corporation, Waukegan, Ill.

Filed Jun. 24, 1987, Ser. No. 66,142
The portion of the term of this patent subsequent to May 31, 2005, has been disclaimed.
Int. Cl.[5] F02P 5/02
U.S. Cl. 123—413 25 Claims



1. A marine propulsion device comprising a propulsion unit including a rotatably supported propeller, and an engine drivingly connected to said propeller and comprising an engine block, a spark timing mechanism for advancing and retarding the spark between a minimum spark advance and a maximum spark advance, a fuel supply mechanism operable between idle and full speed settings, a control lever supported by said engine block for movement in opposite directions and adapted to be connected to an operator controlled actuating member, and control means connected to said lever and to said fuel supply mechanism and to said spark timing mechanism, and operative in response to control lever movement, for displacing said fuel supply mechanism from said idle setting to a first intermediate setting between said idle setting and said full speed setting without displacing said spark timing mechanism from said minimum spark advance.

5,065,724

IGNITION TIMING CONTROL APPARATUS FOR INTERNAL COMBUSTION ENGINE

Yuji Takeda, Toyota, Japan, assignor to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Aug. 3, 1990, Ser. No. 562,608
Claims priority, application Japan, Aug. 4, 1989, 1-203610
Int. Cl.[5] F02P 5/15
U.S. Cl. 123—425 9 Claims

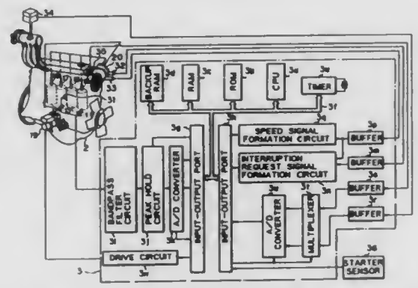
1. An ignition timing control apparatus of an engine having a plurality of cylinders, comprising

detection means for detecting the intensity of vibration of the engine in ranges of crank angles predetermined for the cylinders;

calculation means for calculating for each cylinder a knocking judgement value serving as a criteria for judgement if knocking has occurred based on the intensity of the vibration of the engine in the said predetermined crank angle ranges;

judgement means for judging, when the intensity of the vibration of the engine in the predetermined crank angle ranges exceeds said knocking judgement value, if knocking has occurred at the corresponding cylinders;

ignition timing control means for delaying by a predetermined delay the common ignition timing of all cylinders when knocking has occured; and



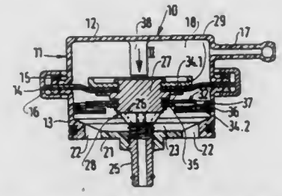
delay increase means for increasing the delay when it is judged that knocking has occurred at one of the cylinders, then it is judged that knocking has occurred again at the same cylinder without judgement that knocking has occurred at another cylinder.

5,065,725

PRESSURE CONTROL VALVE, IN PARTICULAR FOR FUEL INJECTION SYSTEMS

Detlef Spoetter, Korntal, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

Filed Jan. 11, 1991, Ser. No. 640,347
Claims priority, application Fed. Rep. of Germany, Mar. 30, 1990, 4010173
Int. Cl.[5] F02M 41/00
U.S. Cl. 123—463 20 Claims



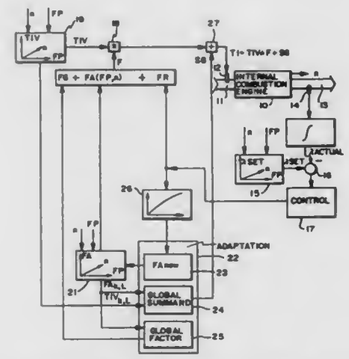
1. A pressure control valve (10; 40) for liquid or gaseous media, in particular for fuel injection systems of internal combustion engines, comprising first and second housing elements forming a housing, said second housing element (13, 46) and at least one diaphragm (14, 54) defining a chamber (23; 47) for receiving said media; said second housing part provided with, a tubular neck (25; 45) communicating there with and protruding into the chamber (23; 47), said tubular neck provided with an end face oriented toward the chamber forming a valve seat (26) for a feed valve (28); said feed valve (28) provided with a valve closing element (27; 52) secured at least indirectly to the diaphragm (14; 54), a prestressed spring (32; 41) at least indirectly engaging the second housing element (13; 46) on one side and the valve closing element (27; 52) on the other, said spring (32; 41) comprising a tension spring disposed in the chamber (23; 47) carrying the medium.

5,065,726

LEARNING CONTROL METHOD FOR AN INTERNAL COMBUSTION ENGINE AND APPARATUS THEREFOR

Martin Klenk, Backnang, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE89/00135, § 371 Date Oct. 2, 1990, § 102(e) Date Oct. 2, 1990, PCT Pub. No. WO89/09334, PCT Pub. Date Oct. 5, 1989
PCT Filed Mar. 4, 1989, Ser. No. 585,104
Claims priority, application Fed. Rep. of Germany, Apr. 2, 1988, 3811262
Int. Cl.[5] F02D 41/14, 41/24
U.S. Cl. 123—480 5 Claims



2. In a method for learning control with precontrol for setting the lambda value for the air/fuel mixture to be metered to an internal combustion engine, with a precontrol value being corrected with the following: a control output value, adaptation factors and a global summand, the method of determining the global summands comprising the steps of:

forming a large comparison value by averaging adaptation factors for large precontrol values;

forming a small comparison value by averaging adaptation factors for small precontrol values;

comparing the large comparison value to the small comparison value; and,

incrementing the global summand by a correction value whenever the large comparison value is smaller than the small comparison value, and vice versa.

5,065,727

AIR/FUEL RATIO CONTROL SYSTEM FOR INTERNAL COMBUSTION ENGINE

Shigeyuki Sakaguchi; Tadashi Ariga, and Hirotsugu Maruyama, all of Kanagawa, Japan, assignors to Nissan Motor Company, Limited, Yokohama, Japan

Filed Apr. 27, 1990, Ser. No. 514,041
Claims priority, application Japan, Apr. 28, 1989, 1-111796
Int. Cl.[5] F02D 41/14, 41/08
U.S. Cl. 123—489 11 Claims

1. An air/fuel ratio control system for an internal combustion engine, which comprises;

first detecting means for monitoring engine driving conditions including engine revolution speed, engine load and engine coolant temperature to produce a first signal representative of the driving conditions thereof;

second detecting means for monitoring the air/fuel ratio of an air/fuel mixture to be discharged from a combustion chamber of the engine to produce a second signal representative thereof;

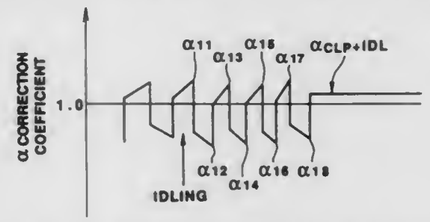
third detecting means for monitoring an engine driving condition to produce a third signal representative of an idling state when the engine is driven in the idling state;

first means for determining engine driving conditions satisfying a predetermined feedback control on the basis of the first signal;

second means for deriving a basic fuel delivery amount on the basis of the first signal;

third means for deriving a correction value for correcting said basic fuel delivery amount on the basis of the second signal;

fourth means for deriving an average value of said correction values for a predetermined period of time after said third signal representative of the idling state is input from said third detecting means while the engine is driven at



said engine driving conditions satisfying the predetermined feedback control, said fourth means modifying said average value of the correction values by adding thereto a predetermined value determined on the basis of said engine coolant temperature, and setting the modified average value as a fixed correction value; and

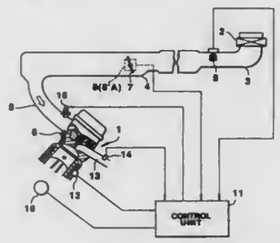
fifth means for modifying said basic fuel delivery amount to derive a fuel delivery amount by using said correction value before said predetermined period of time elapses and by using said fixed correction value after said predetermined period of time elapses.

5,065,728

SYSTEM AND METHOD FOR CONTROLLING AIR/FUEL MIXTURE RATIO OF AIR AND FUEL MIXTURE SUPPLIED TO INTERNAL COMBUSTION ENGINE USING OXYGEN SENSOR

Shinpei Nakaniwa, Gunma, Japan, assignor to Japan Electronic Control Systems Co., Ltd., Isezaki, Japan

Filed Jun. 21, 1990, Ser. No. 541,803
Claims priority, application Japan, Jun. 21, 1989, 1-156748
Int. Cl.[5] F02M 51/00
U.S. Cl. 123—489 28 Claims



1. A system for an internal combustion engine, comprising:

a) a first means for detecting a concentration of an engine exhaust gas component so as to determine whether an air/fuel mixture ratio of an air/fuel mixture sucked into the engine is placed at a rich side or lean side with respect to a stoichiometric air/fuel mixture ratio;

b) second means for setting an air/fuel mixture ratio feedback correction coefficient to correct a quantity of fuel supplied to the engine on a feedback basis in response to the air/fuel mixture ratio detected by the first means so

VOL 1132 ISS 3 NO 19 1991 UMI

that the air/fuel mixture ratio approaches the stoichiometric air/fuel mixture ratio;

c) third means for controlling the quantity of fuel supplied to the engine on the basis of the quantity of fuel corrected with the air/fuel mixture ratio correction coefficient set by the second means; and

d) fourth means for detecting a degree of deterioration of the first means from an output characteristic of the first means and correcting an operating variable of the feedback correction coefficient set by the second means according to the degree of deterioration detected so as to compensate for deviation of the air/fuel mixture ratio of the air/fuel mixture detected by the first means from the stoichiometric air/fuel mixture ratio.

5,065,729

CYLINDER RECOGNITION APPARATUS FOR A DISTRIBUTORLESS IGNITION SYSTEM

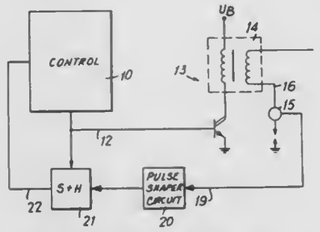
Immanuel Krauter, Erbstetten, and Winfried Klötzner, Maulbronn-Schmie, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/EP88/00221, § 371 Date Jul. 23, 1990, § 102(e) Date Jul. 23, 1990, PCT Pub. No. WO89/08778, PCT Pub. Date Sep. 21, 1989

PCT Filed Mar. 18, 1988, Ser. No. 573,194

Int. Cl.[5] F02P *7/03, 15/08, 17/00*

U.S. Cl. 123—643 **7 Claims**



1. In a cylinder recognition apparatus for a distributorless ignition system of an internal combustion engine having at least two cylinders operating in a plurality of cycles, each of said cycles having a power stroke and an exhaust stroke, comprising ignition control means for generating a plurality of ignition signals, a signal distributor connected to the ignition control means and arranged to be connected to ignition coils associated with two of the cylinders, detection means for generating a signal indicative of spark generation in one of the cylinders of the internal combustion engine, processing means for processing the signal generated by the detection means, and control circuitry responsive to the processing means for outputing a control signal indicative of the cylinder which is operating in the power stroke of the cycle of the engine, said detection means having a single detector for detecting an output pulse from the signal distributor to one of the two cylinders of the engine the improvement wherein said processing means comprises a peak value circuit for generating a peak value signal representing the peak amplitude of the signal generated by the detection means, and further comprising means for evaluating a magnitude of the peak value signal of the peak amplitude detected by the peak value circuit in one of the cycles to determine whether said one of the two predetermined cylinders is in one of a power stroke condition and an exhaust stroke condition.

5,065,730

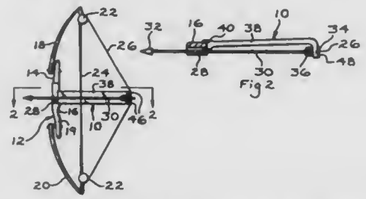
ARCHERY BOW STRING PROP

Ernst P. Kluver, 11716 Tompkins Rd., Rives Junction, Mich. 49277

Filed Aug. 14, 1990, Ser. No. 567,178

Int. Cl.[5] F41B *5/00*

U.S. Cl. 124—35.2 **2 Claims**



1. A bow string prop for archery bows having a hang grip, a pair of limbs extending from the hand grip in opposite directions having ends, and a bow string extending between the ends of the limbs, comprising, in combination, an elongated member having an inner end, an outer end, a first open notch defined on said inner end for loosely receiving the bow, a second open notch defined on said outer end for releasably engaging the bow string, said elongated member being held in position between the bow and the bow string, respectively, solely by the compressive force exerted on said member by the bow string to releasably maintain the bow flexed and the bow string in a partially drawn condition, drawing of the bow string to the fully drawn condition removing said compressive force permitting said elongated member to fall to the ground, and wherein said elongated member includes a substantially linear portion adjacent said inner end, a pair of spaced fingers extending from said elongated member outer end transversely disposed to said linear portion, said second notch being defined on said fingers, said fingers being sufficiently spaced from each other to receive the nock of an arrow therebetween and permit the archer access to the portion of the bow string intermediate said fingers.

5,065,731

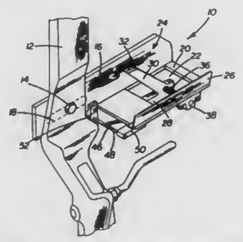
ARROW REST ASSEMBLY

Bill Smith, Talcum, Ky., assignor to Smith Brothers Archery Accessories, Inc, Leburn, Ky.

Filed Jul. 23, 1990, Ser. No. 555,836

Int. Cl.[5] F41B *5/00*

U.S. Cl. 124—44.5 **12 Claims**



1. An arrow rest assembly for use with a bow, comprising:
a bracket for mounting to said bow;
arm means for seating an arrow;
support means connected to said bracket for supporting and positioning said arm means;
means for laterally adjusting and securely positioning said arm means on said support means; and
means for incrementally angularly adjusting the position of said arm means about a pivot axis coincident with the axis of said support means,

said means for incrementally angular adjusting being set apart from said support means and being operable to cause angular displacement of said arm means during movement thereof,

whereby said arrow is laterally positioned relative to said bow and its flight trajectory is established through incremental angular adjustment in preparation for shooting said arrow.

5,065,732

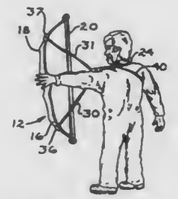
BOW SLING

Scott D. Smith, 2400 E. Chicago Rd., Jonesville, Mich. 49250

Filed Jun. 29, 1990, Ser. No. 545,543

Int. Cl.[5] F41B *5/00*

U.S. Cl. 124—88 **10 Claims**



1. A bow sling for attachment to an archery bow having a hand grip, a pair of limbs extending from the hand grip in opposite directions having ends, and a bow string extending between the ends of the limbs, comprising, in combination, an elongated strap formed of elastomeric material, said strap having a pair of integral, elongated legs extending from a first end adapted to be attached to the bow's limbs and a second end having fastening means adapted to be anchored with respect to the archer such that said strap extends over the shoulder of the archer's bow holding arm to support the bow in front of the archer, the elasticity of the strap material permitting the strap to automatically accommodate itself to a length necessary to permit the archer to raise and draw the bow to a firing position and bias the hand grip against the archer's palm.

5,065,733

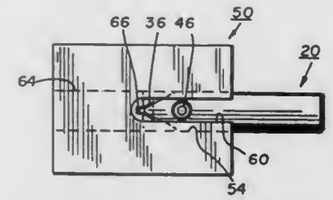
DRESSING TOOL FOR FORM DRESSING OF A GRINDING WHEEL

Henry F. Swenson, 22 Homehill La., Roseland, N.J. 07068

Filed Jan. 8, 1991, Ser. No. 638,540

Int. Cl.[5] B24B *53/12*

U.S. Cl. 125—39 **7 Claims**



7. In combination, a dressing tool and detachable centering gage for use in the form dressing of a cylindrical grinding wheel, said combination comprising:

(a) a dressing tool adapted for clamping and holding a chisel-edge diamond said dressing tool including:

(a1) an elongated cylindrical body having a first end, a second end, and a central axis, said second end adapted for holding said dressing tool in a dressing tool holder of a wheel dressing apparatus;

(a2) said first end having a pair of diametrically opposed flats there-on, said flats being disposed with a predetermined included angle there-between, said predetermined included angle being symmetrically arrayed about said central axis, an open groove transversely connecting each of said flats, said open groove being substantially at ninety degrees with respect to said flats while simultaneously at a selected angle with respect to said central axis, said groove having a selected configuration and depth for insertion, seating, and holding of a chisel edged diamond at said selected disposition with respect to said central axis, said chisel-edge diamond having at least three sides, said selected configuration of said open groove including two substantially parallel side walls and a bottom wall, said bottom wall being disposed at an acute angle with respect to at least one of said side walls, said acute angle adapted for providing a substantially point contact with one abutting side of said chisel-edge diamond while said side walls are adapted for said holding;

(a3) a clamping means adapted for clamping and holding said chisel-edge diamond in said open groove at said selected disposition, said clamping means including a sawcut formed at the bottom of said open groove, said sawcut being of a selected length and extending from one corner of said groove while having a substantially parallel alignment with said sidewall, and a threaded fastener selectively positioned along the length of said sawcut, said fastener adapted for providing said clamping as and when said fastener is tightened;

(b) a detachable centering gage being adapted to removably fit onto said first end of said dressing tool as and when desired, said centering gage including:

(b1) a block portion having a first aperture formed therin, said first aperture having a selected depth from one end of said block portion, said first aperture being sized for a close sliding fit onto said first end of said cylindrical body;

(b2) an elongated slotted aperture extending for a selected length from said one end of said block portion, said elongated slotted aperture being of sufficient depth for connecting one side of said block portion with said first aperture, said elongated aperture being disposed in a substantially centered alignment with said first aperture; and

(b3) a centering groove being of a selected depth and width, said centering groove being formed at the bottom of said first aperture, said centering groove being disposed for providing a centered alignment of a leading edge of said chisel-edge diamond while simultaneously providing a negative angle for a trailing edge of said chisel edge diamond as and when said dressing tool is seated therein, said elongated aperture allowing for the tightening of said threaded fastener after said centering of said chisel-edge diamond with said central axis.

5,065,734

PORTABLE CONVERTIBLE BARBEQUE GRILL

Bernard Elliott, 4146 Edgemere Ct., Apt. D-3, Indianapolis, Ind. 46205

Filed Dec. 17, 1990, Ser. No. 628,144

Int. Cl.[5] F24C *1/16*

U.S. Cl. 126—9 R **20 Claims**

1. Portable convertible barbeque grill, comprising:

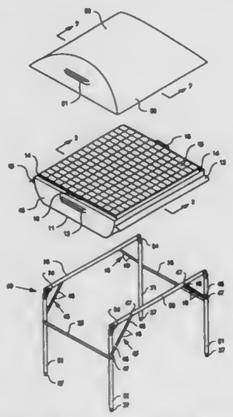
a foldable stand having two oppositely disposed parallel horizontal members;

a generally rectangular pan having a flattened bottom, at least two integral pan handles, each disposed along the exterior of a shorter wall of said pan, two horizontal parallel integral interior lips, each disposed longitudinally along the interior of a longer wall of said pan, and two horizontal parallel integral exterior lips, each disposed longitudinally along the exterior of a longer wall of said pan so that said exterior lips are capable of removably

VOL 1132 ISS 3 NO 19 1991 UMI

resting on said horizontal members so as to provide support to said pan;

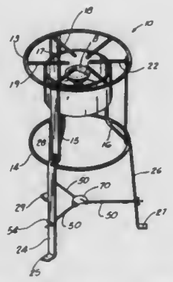
a generally rectangular cover having at least two integral cover handles, each disposed along the exterior of a shorter wall of said cover, said cover having interior dimensions slightly larger than the exterior dimensions of



said pan so that said cover may be disposed to removably fit over said pan; and

food support means, having dimensions slightly smaller than the interior dimensions of said pan so that said food support means is capable of removably resting on said interior lips.

5,065,735
CONVERTIBLE BURNER APPARATUS
Norman R. Bourgeois, and Bradley A. Robichaux, both of Kenner, La., assignors to Metal Fusion, Inc., Kenner, La.
Filed Sep. 5, 1990, Ser. No. 577,895
Int. Cl.[5] F24C *3/08*
U.S. Cl. 126—40 **9 Claims**



1. A convertible burner apparatus comprising:

a) a primary burner frame that includes upper and lower generally parallel rings and a plurality of struts connecting the rings and supporting the upper ring a distance above the lower ring, the lower ring defining a base for bearing against a flat underlying surface during use;

b) a burner element having influent connection means for removably connecting a source of fuel gas to the burner element;

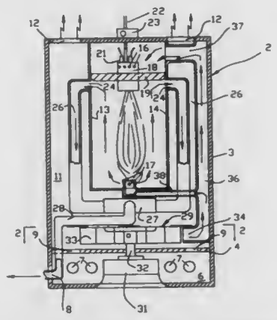
c) a plurality of radially spaced grate members positioned adjacent the upper ring for supporting a pot during use;

d) a plurality of elongated legs each substantially taller than the primary burner frame and removably connectable to the primary burner frame, for supporting the primary burner frame in an elevated position, and wherein the legs each include feet for bearing against a flat underlying surface during use;

e) connection means for removably affixing each leg to the primary burner frame at positions respectively adjacent the upper and lower rings and including an upper removable connection of the top portion of each leg to the upper portion of the burner frame, and a lower removable connection of the middle portion of the leg to the lower end portion of the burner frame; and

f) means for preventing lateral movement of the legs at a position below the lower ring.

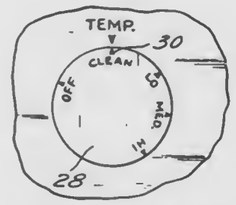
5,065,736
AIR HEATING APPARATUS AND METHOD OF HEATING AN AIR STREAM
Paul A. Mutchler, University, Mo., assignor to Engineered Air Systems, Inc., St. Louis, Mo.
Filed Feb. 1, 1991, Ser. No. 649,429
Int. Cl.[5] F24H *3/02*
U.S. Cl. 126—110 B **16 Claims**



1. An improved air heating apparatus comprising: a longitudinally extending outer housing having spaced air inlet and air outlet means; a combustion drum disposed within said outer housing, said drum including air intake openings at spaced positions relative each other in said drum for introduction of combustion air into said drum through such spaced positions, said drum being sized and shaped to define a longitudinally extending flow-through passage between said drum and said outer housing; burner means disposed within said drum in communication with one of said combustion air inlet openings at said spaced positions in said drum to enhance combustibility within said combustion drum with said introduction of air into said drum through said air intake openings at said spaced positions in said drum, creating a narrow flame extending along the substantial length of said drum with combustion gases flowing along the substantial length of the drum wall to heat said drum wall with at least one combustion as outlet in said drum; at least one combustion gas outlet in said outer housing; heat exchange means disposed to extend along said flowthrough passage defined by said spaced drum and said outer housing along the substantial length of said drum, said heat exchange means being communicatively connected to both said combustion gas outlet in said drum and said combustion gas outlet in said outer housing; and blower means cooperatively positioned with respect to said outer housing to move air through said air intake openings at said spaced positions in said combustion drum to support combustibility with said narrow flame of combustion extending along the substantial length of said drum, said blower means further moving air between said drum and said outer housing over the substantial length of said of heat exchanger to efficiently warm such air by the substantial length of said heat exchanger means and the

substantial length of the outer surface of said heated drum wall of said combustion drum.

5,065,737
APPARATUS AND METHOD FOR CLEANING A GAS RANGE BURNER
Ernest C. Miehle, 1125 Deborah Dr., Costa Mesa, Calif. 92626
Continuation of Ser. No. 19,743, Feb. 27, 1987, abandoned. This application Apr. 26, 1988, Ser. No. 188,060
Int. Cl.[5] F02B *53/04*
U.S. Cl. 126—214 R **27 Claims**

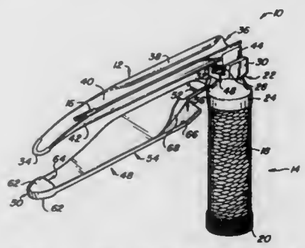


1. A method of cleaning a gas range burner in which food oils and particulates are removed from the burner via slow incineration, said method comprising the steps of:

(a) removing any substantial obstruction from the vicinity of a gas range burner that is to be cleaned; and

(b) providing an amount of gas flow to the burner sufficient to produce a flame directly adjacent the burner and to directly heat the burner to a temperature sufficient to slowly incinerate any food oils and particulates present on the burner, the flame being provided until substantially all the food oils and particulates on the burner have been incinerated.

5,065,738
LARYNGOSCOPE BLADE SHEATH
David J. Van Dam, 2464 Kimberly Fair, Rochester Hills, Mich. 48309
Filed Jan. 16, 1990, Ser. No. 465,989
Int. Cl.[5] A61B *1/26*
U.S. Cl. 128—11 **10 Claims**



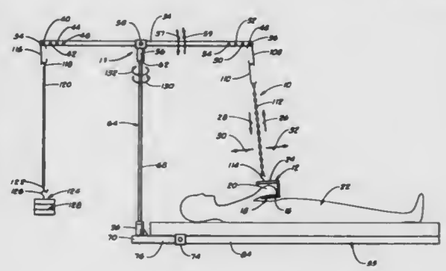
1. A laryngoscope blade sheath for covering at least one surface side of a laryngo-scope blade having a tip, a pivot end, opposite transverse edges, an upper surface, and an undersurface, and being transversely arcuate, generally curving from one edge of the blade to the other, the sheath comprising:

a substantially flat, planar, pliable sheet having a generally uniform thickness over substantial portions thereof and an added thickness over at least one portion thereof, said sheet having a tip end, a butt end, and an exposed surface, said exposed surface being contoured according to said at least one portion of said sheet having additional thickness to said uniform thickness;

means disposed at said tip end for capturing the tip of a laryngoscope blade; and

an adhesive surface for adhering said sheath to the upper surface of a laryngoscope blade white adapted for leaving the undersurface of the laryngoscope blade substantially uncovered by said blade sheath.

5,065,739
RETRACTOR SUPPORT ASSEMBLY
William J. Forrest, 3400 NW. Expressway, Oklahoma City, Okla. 73112, and Lewis C. Taylor, 1605 Norwood Pl., Oklahoma City, Okla. 73120
Filed Aug. 24, 1989, Ser. No. 398,169
Int. Cl.[5] A61B *17/02*
U.S. Cl. 128—20 **9 Claims**



1. A retractor support assembly for assisting a surgeon by supporting a portion of a breast of a patient during reconstructive surgery, comprising:

a retractor having a blade which is insertable through a wound near the breast, the blade being insertable through the wound and under a portion of the breast; and

a retractor support means connected to the blade of the retractor for exerting a predetermined force on the retractor tending to pull the retractor a predetermined distance in a generally upwardly direction for lifting the portion of the breast supported on the blade of the retractor and moving the blade and the portion of the breast supported on the blade in the generally upwardly direction the predetermined distance toward a breast lifted position, the retractor support means cooperating to maintain traction on the retractor for supporting the retractor and the portion of the breast supported on the blade of the retractor in the breast lifted position, comprising:

rocking arm means;

means for flexibly connecting the retractor to the rocking arm means whereby the blade of the retractor and the portion of the breast supported on the blade of the retractor are movable by the surgeon for lifting, lowering, moving in generally a left direction and moving in generally a right direction; and

weight means supported on the rocking arm means for pulling the retractor in generally an upwardly direction and exerting the predetermined force on the retractor to pull the retractor and the portion of the breast supported on the blade of the retractor the predetermined distance in generally the upwardly direction toward the breast lifted position.

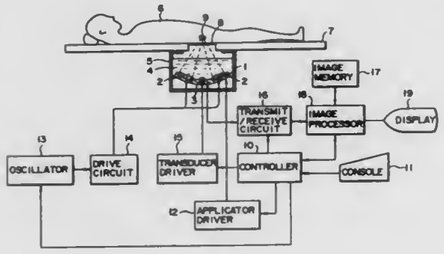
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,740

ULTRASONIC MEDICAL TREATMENT APPARATUS

Ayao Itoh, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 137,435, Dec. 23, 1987, abandoned. This application Jul. 23, 1990, Ser. No. 555,826
Claims priority, application Japan, Dec. 26, 1986, 61-315594
Int. Cl.[5] A61B *17/22*
U.S. Cl. 128—24 EL 5 Claims



1. An ultrasonic medical treatment apparatus comprising:

ultrasonic transistor means having a plurality of transducers arranged in a circuit, for radiating and focusing strong ultrasonic waves on a region of interest within an object to be treated;

image ultrasonic transducer means surrounded by said plurality of transducers, for providing tomographic image data representing a plurality of tomographic planes of the region of interest so than an operator can recognize the tomograms as a three-dimensional image data, said tomographic image data representing a plurality of tomograms of B-mode representing a first tomographic plane of the object in a direction of strong ultrasonic wave propagation and a plurality of tomograms of C-mode representing a second tomographic plane of the object in a direction perpendicular to the first tomographic plane;

means connected to said image ultrasonic transducer means, for mechanically moving said image ultrasonic transducer means;

control means connected to said image ultrasonic transducer means, for processing the tomographic image data supplied from said image ultrasonic transducer means and for detecting a position data corresponding to the region of interest within an object by scanning said image ultrasonic transducer means;

image memory means, connected to said control means for storing the tomographic image data and the position data from said control means;

image processing means connected to said control means and said image memory means and for processing the image data and the position data and for reconstructing the plurality of tomograms of C-mode in a direction perpendicular to the tomograms of B-mode; and

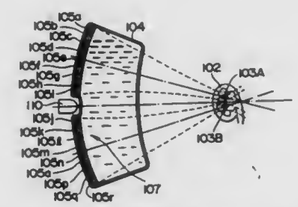
display means connected to said image processing means for displaying a plurality of said tomographic image data and said position data read out from said image memory means so that an operator can recognize the three-dimensional image data from the tomograms dispelled thereon.

5,065,741

EXTRACOPOREAL ULTRASONIC LITHOTRIPTER WITH A VARIABLE FOCUS

Naoki Uchiyama; Takashi Tsukaya; Kouichiro Ishihara; Sakae Takehana; Tetsumaru Kubota; Syuichi Takayama; Akira Taniguchi; Nobuhiko Watanabe; Naomi Sekino; Hiroki Hibino, and Masaaki Hayashi, all of Hachioji, Japan, assignors to Olympus Optical Co. Ltd., Japan

Division of Ser. No. 182,785, Apr. 18, 1988, Pat. No. 4,984,575. This application Jan. 9, 1991, Ser. No. 639,922
Claims priority, application Japan, Apr. 16, 1987, 62-94870; Apr. 17, 1987, 62-94583; Apr. 25, 1987, 62-102809; Apr. 27, 1987, 62-102071; Apr. 28, 1987, 62-105637; May 20, 1987, 62-124838; Jun. 18, 1987, 62-152777; Jun. 19, 1987, 62-153163; Jun. 22, 1987, 62-155749
Int. Cl.[5] A61B *17/22*
U.S. Cl. 128—24 EL 7 Claims



1. An extracorporeal therapeutic apparatus, comprising:

a locating system for locating a calculus within a patient by utilizing X-rays or ultrasonic waves;

shock wave generating means for generating a shock wave for therapeutically treating said calculus;

focusing means for focusing said shock wave upon said calculus;

positioning means for positioning said locating system and said shock wave generating means at desired positions with respect to said patient;

a shock wave generator including a plurality of ultrasonic vibrators located on a spherical surface in a mosaic pattern;

an ultrasonic probe for scanning and detecting said calculus;

means for determining the distance to said calculus and for calculating the desired focal length of said shock wave; and

selecting means for selecting some of said ultrasonic vibrators to be driven as a function of said desired focal length.

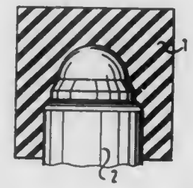
5,065,742

ULTRASONIC WAVE COUPLER FOR LOCATING TRANSDUCER IN A LITHOTRIPTIC APPARATUS

Thomas Belikan, and Werner Krauss, both of Knittlingen, Fed. Rep. of Germany, assignors to Richard Wolf GmbH, Knittlingen, Fed. Rep. of Germany

Filed May 29, 1990, Ser. No. 529,975
Claims priority, application Fed. Rep. of Germany, Jul. 10, 1989, 3922641
Int. Cl.[5] A61B *17/22*
U.S. Cl. 128—24 EL 11 Claims

1. A coupler for an ultrasonic locating transducer used in a lithotriptic apparatus, said coupler comprising a body having a first side which has a shape adapted to contact a patient's skin and a second side adapted to releasably fit the sound head of an ultrasonic locating transducer so as to allow ultrasonic waves from an ultrasonic locating transducer to be coupled into a patient without losses, said body consisting essentially of a material which is dimensionally stable and which has a characteristic wave impedance substantially the same as that of a patient's body tissue, and said coupler body further comprising means for securely and releasably seating the coupler on the



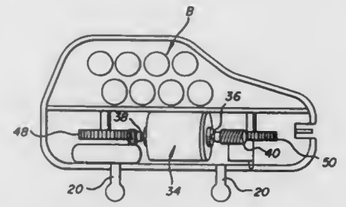
ultrasonic locating transducer said coupler body and means for seating being constructed of one piece.

5,065,743

KNEADER

W. Don Sutherland, R.R. #2, Glenbow Road, Cochrane, Alberta, T0L 0W0, Canada

Continuation-in-part of Ser. No. 208,944, Jun. 20, 1988, Pat. No. 4,920,957. This application Apr. 30, 1990, Ser. No. 516,986
Int. Cl.[5] A61H *7/00*
U.S. Cl. 128—60 13 Claims



6. A massage device comprising:

(a) casing means having a top and a bottom, an inner chamber and an opening in the bottom to said inner chamber;

(b) said chamber including inner walls;

(c) motor means positioned in said chamber;

(d) said chamber including guide means extending at least along one of said inner walls of said casing means;

(e) at least one pair of massaging means mounted on said guide means and extending outwardly from said opening;

(f) means for mounting each of said massaging means for reciprocal movement with respect to each other and said guide means;

(g) drive means associated with said motor means and connected to said pair of massaging means for reciprocally driving each of said massaging means relative to said guide means, and to each other;

(h) said drive means associated with said motor means and driven by said motor means for reciprocally driving each of said massaging means;

(i) said drive means include first gear means, second gear means, and linking means;

(j) said first gear means is rotatable about a first axis by said motor means and engages said second gear means;

(k) said second gear means is rotatable by said first gear means about a second axis;

(l) said linking means is connected to said second gear means and spaced from said second axis for rotational movement about said second axis;

(m) said linking means engages said massaging means for transferring rotational movement from said second gear means to said massaging means; and

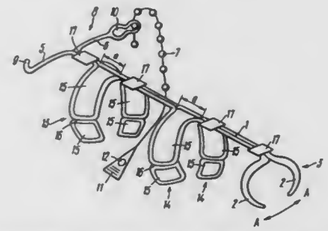
(n) said massaging means has located therein slot means for converting the rotational movement of said linking means to linear reciprocating movement of said massaging means.

5,065,744

DEVICE FOR TREATMENT OF SEXUAL IMPOTENCE IN HUMAN MALES

Zinovy A. Zusmanovsky, 5 Sovetskaya ulitsa, 34, kv. 42, Leningrad, U.S.S.R.

PCT No. PCT/SU89/00165, § 371 Date Apr. 12, 1991, § 102(e) Date Apr. 12, 1991, PCT Pub. No. WO90/15583, PCT Pub. Date Dec. 27, 1990
PCT Filed Jun. 16, 1989, Ser. No. 678,284
Int. Cl.[5] A61F *5/00, 6/02*
U.S. Cl. 128—79 4 Claims



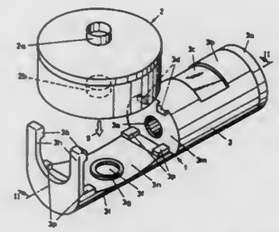
1. A device for treatment of sexual impotence in human males, comprising two parallel pivotally mounted interconnected rods (1), a first set of ends of said rods which are rigidly connected respectively to arcuate members (2) curved towards each other so as to form a glans penis retainer (3), while the other ends of said rods are also rigidly connected to the respective arcuate members (5, 6) curved towards each other so as to establish a penile base retainer (8), while free ends of said members are interconnected through an adjustable-length elastic bundle (7), said rods (1) forming at least two control loops (13) curved towards each other and located close to the penile base retainer (8) so as to encompass the penis at its base, characterized in that the parallel pivotally mounted rods (1) form at least two stimulating loops (14) curved towards each other and located in the penile active zone.

5,065,745

PORTABLE RESPIRATORY PROTECTION DEVICE

Peter Meier, Lindau, Switzerland, assignor to Micronel AG, Switzerland

Filed Sep. 19, 1990, Ser. No. 584,593
Claims priority, application Switzerland, Sep. 29, 1989, 3541/89
Int. Cl.[5] A62B *7/10, 23/02*
U.S. Cl. 128—205.12 16 Claims



1. A portable positive pressure filtered air respiratory protection device including a housing having a shell, an air canister filter having an inlet and an outlet detachably mounted on said housing, a suction opening formed in said housing shell essentially covered by said canister filter, but including spaces between said canister filter and said housing so that ambient air can flow to said suction opening, a blower located in said housing for drawing ambient air into said housing for passage

VOL 1132 ISS 3 NO 19 1991 UMI

to said canister filter, channel means formed in said housing for connecting said canister filter with said suction opening, said housing partially enclosing and supporting said canister filter and having a connection opening in communication with said canister filter inlet and said channel means extending between said connection opening and said blower, and means on the exterior of said housing shell for holding said canister filter on said housing.

5,065,746

EXPIRATION VALVE CONTROL ARRANGEMENT FOR A VENTILATING APPARATUS

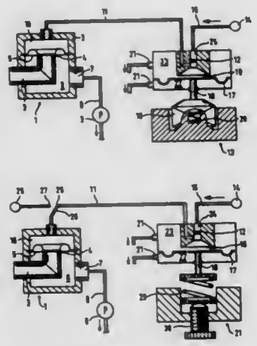
Hans-Wilhelm Steen, Zarpen, Fed. Rep. of Germany, assignor to Drägerwerk, Lübeck, Fed. Rep. of Germany

Filed Jun. 30, 1989, Ser. No. 374,065

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1988, 3822949

Int. Cl.[5] A62B *9/02*; **A61M** *16/00*

U.S. Cl. 128—205.24 **11 Claims**



1. An expiration valve control arrangement for a ventilating apparatus having an expiration branch line, said expiration branch line producing dynamic flow resistance as the exhaled breathing gas flows therethrough, said dynamic flow resistance producing dynamic positive end expiratory pressure in the expiration branch line, the arrangement comprising:

an expiration valve having an expiration valve housing and membrane valve means for partitioning said housing into a control chamber and a valve chamber;

an inlet for admitting exhaled breathing gas into said valve chamber;

said membrane valve means being movable so as to close said inlet during inspiration and open said inlet during expiration so as to cause said inlet to communicate with said valve chamber;

means for compensating for said dynamic positive end expiratory pressure comprising;

control valve for generating a control pressure for maintaining a desired end expiratory pressure during expiration in said control chamber of said expiration valve, said control valve including a control valve housing and a plate membrane for partitioning said control valve housing into first and second chambers;

control gas supply means for supplying a control gas under pressure;

feed means for conducting said control gas into said control valve;

said control valve including valve seat means disposed in said first chamber and communicating with said feed means;

said plate membrane being mounted in said control valve housing for coacting with said valve seat means for opening and closing said valve seat means to said first chamber;

said feed means including throttle means disposed between said supply means and said valve seat means for throttling the flow of said control gas

a conduit connecting said throttle means to said control chamber of said expiration valve for transmitting said control gas to said control chamber;

underpressure means for generating an underpressure in said valve chamber of said expiration valve corresponding to said dynamic positive end expiratory pressure; and,

said control valve further including force applying means for applying a first force to said plate membrane during said inspiration for closing said valve seat means to said first chamber thereby causing the control gas flowing from said throttle means to produce an overpressure in said control chamber causing said membrane valve means of said expiration valve to close and for applying a second force to said control membrane during said expiration for opening said valve seat means to said first chamber, and said force applying means coating with said throttle means to adjust said desired end expiratory pressure in said control chamber causing said membrane valve means to open and permit exhalation, said second force being less than said first force and being adjustable to set said desired end expiratory pressure in said control chamber to compensate for said dynamic positive end expiratory pressure in the expiration branch line.

5,065,747

METHOD FOR IMPROVING THE ACCURACY OF DIAGNOSIS OF GROWTH HORMONE DEFICIENCY

Barry B. Bercu, Tampa, Fla., assignor to University of South Florida, Tampa, Fla.

Filed Nov. 21, 1989, Ser. No. 439,407

The portion of the term of this patent subsequent to Jul. 4, 2006, has been disclaimed.

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—630 **14 Claims**

1. A method for improving the diagnosis of individuals having growth hormone deficiency, comprising the steps of administering to the individual a predetermined amount of somatostatin for a predetermined amount of time at a predetermined rate to establish a definite growth hormone secretory trough and following said step with a provocative test, said provocative test being of the type that acts on the hypothalamus and causes it to provoke the pituitary to produce growth hormone.

5,065,748

METHOD OF DIAGNOSING GROWTH HORMONE DISORDERS EMPLOYING SOMATOSTATIN AND GROWTH HORMONE RELEASING HORMONE

Barry B. Bercu, Tampa, Fla., assignor to University of South Florida, Tampa, Fla.

Filed Nov. 14, 1989, Ser. No. 437,041

The portion of the term of this patent subsequent to Jul. 4, 2006, has been disclaimed.

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—630 **16 Claims**

1. A method of diagnosing growth hormone deficiency and neurosecretory dysfunction, comprising the steps of:

inhibiting secretion by the pituitary gland of growth hormone by administering to a patient a predetermined dosage of somatostatin;

following said administration by a continuing administration of somatostatin for a predetermined period of time and discontinuing the administration of the somatostatin at the end of said predetermined period of time;

stimulating secretion by the pituitary gland of growth hormone by administering to the patient a predetermined dosage of growth hormone releasing hormone at a predetermined time after the administration of the somatostatin has been discontinued;

monitoring the concentration of growth hormone in the bloodstream of the individual at predetermined intervals of time throughout the performance of the method; and

classifying the individual as having a growth hormone deficiency or a neurosecretory dysfunction based upon the individual's response to the procedure.

5,065,749

FINGERTIP PULSE WAVE SENSOR

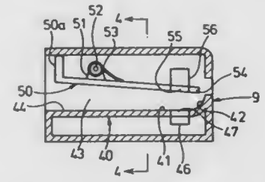
Noboru Hasebe, and Shoji Ito, both of Tokyo, Japan, assignors to Misawa Homes Institute of Research & Development, Tokyo, Japan

Continuation of Ser. No. 329,579, Mar. 28, 1989, Pat. No. 4,971,062. This application Aug. 31, 1990, Ser. No. 576,696

Claims priority, application Japan, Sep. 24, 1988, 63-237535

Int. Cl.[5] A61B *6/00*

U.S. Cl. 128—664 **4 Claims**



1. A fingertip pulse wave sensor, comprising:

a casing;

a fingertip cushion supporting member fixed relative to said casing and having a fingertip cushion supporting surface;

a nail supporting member having a forward portion and a rearward portion adjacent to the forward portion, the nail supporting member being hinged to said casing and having a nail supporting surface which is disposed in opposed relationship with said fingertip cushion supporting surface at a distance smaller than the standard thickness of fingertips;

an elastic means for urging said hinged nail supporting member toward said fingertip cushion supporting surface in such a manner that the pressure applied by said elastic means becomes substantially constant with respect to the variations in the pivot stroke caused by the variations in the thickness of said fingertips resting on said fingertip cushion supporting member;

a light-emitting element disposed on one of said nail supporting surface at the forward portion thereof and said fingertip cushion supporting surface; and

a light-receiving element disposed on the other of said nail supporting surface at the forward portion thereof and said fingertip cushion supporting surface;

the nail supporting surface being hinged to the casing at a point situated rearwardly of one of the light-emitting element and the light-receiving element disposed thereon.

5,065,750

MANIPULATIVE SKILL TESTING APPARATUS

Robert L. Maxwell, 17777 Palatine Ave. North, Seattle, Wash. 98133

Filed Apr. 20, 1990, Ser. No. 511,456

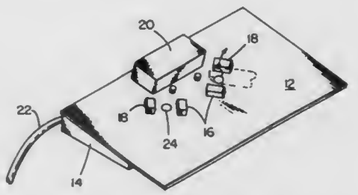
Int. Cl.[5] A61B *13/00*

U.S. Cl. 128—745 **5 Claims**

1. A diagnostic testing device comprising;

platform means for supporting a pair of human appendages whereby the appendages are free to move,

means mounted directly to the platform means to generate a signal in response to repetitive movement of each appendage, said means being responsive to the rapidity of movement and sequence of movement during the movement of the appendage, and



means to record the signals generated by said movement whereby the respective movements may be analyzed and compared for the determination of brain function.

5,065,751

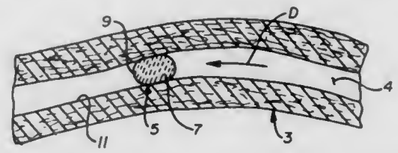
METHOD AND APPARATUS FOR REVERSIBLY OCCLUDING A BIOLOGICAL TUBE

Gerald L. Wolf, 100 Denniston St. #77, Pittsburgh, Pa. 15206-4043

Division of Ser. No. 460,314, Jan. 3, 1990, Pat. No. 4,983,177. This application Sep. 28, 1990, Ser. No. 589,769

Int. Cl.[5] A61F *6/06, 6/02*

U.S. Cl. 128—831 **5 Claims**



1. A method of forming an occlusion member in a biological tube reversibly blocking passage of material through said tube, including the steps of:

selecting a material fragmentable by shock wave;

establishing said occlusion member in said tube by introducing said material into said tube in flowable form; and

allowing said material to harden in situ thereby occluding said tube.

5,065,752

HYDROPHILIC FOAM COMPOSITIONS

Robert W. Sessions, Hindsdale, and Roy D. Carr, Burr Ridge, both of Ill., assignors to Ferris Mfg. Co., Burr Ridge, Ill.

Division of Ser. No. 175,036, Mar. 29, 1988. This application May 28, 1991, Ser. No. 705,938

Int. Cl.[5] A61L *15/00, 15/16*

U.S. Cl. 128—156 **10 Claims**

1. A composite for use in a wound dressing comprising a substrate, a medically acceptable adhesive deposited on said substrate and a hydrophilic foam composition carried by said adhesive, said composition comprising the in situ reaction product of:

(a) an isocyanate-capped polyether prepolymer,

(b) a polymeric hydrophilic agent capable of absorbing water,

(c) an adjuvant comprising an alcohol selected from the group consisting of water soluble monols, diols and polyhydric alcohols,

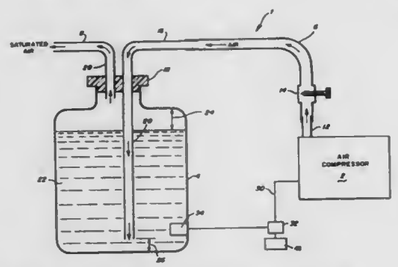
(d) a wetting agent, and

(e) water, said hydrophilic foam composition releasably carrying said adjuvant so that said foam composition is capable of absorbing an external liquid and tightly carrying said liquid in preference to at least a portion of said

VOL 1132 ISS 3 NO 19 1991 UMI

adjuvant so that said adjuvant is released in the presence of the external liquid.

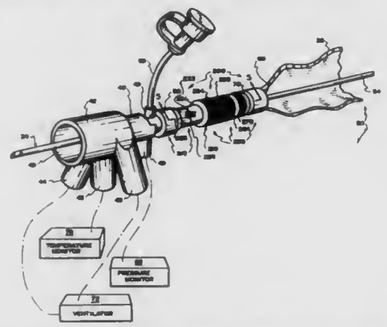
5,065,753
AIR-MOISTURE GENERATION SYSTEM
Calvin Kalishman, 7034 Arbor Vlew La., New Port Richey, Fla. 34653
Filed May 4, 1990, Ser. No. 519,157
Int. Cl.[5] A61M *16/10, 15/00*
U.S. Cl. 128—200.11 4 Claims



1. An air-moisture generation system comprising:
a tank for holding a quantity of liquid and having an air inlet and an air outlet means,
said air inlet means to said tank having a rigid tube extending into said tank and terminating in an outlet at a level spaced from the bottom of said tank,
an air compressor means for providing a source of compressed air to said air inlet means,
a switch means located within said tank in a predetermined position with respect to the outlet of said rigid tube which disables said air compressor means when the liquid level falls to a selected level with respect to the rigid tube outlet,
a metering valve in said air inlet means for controlling the volume of air flowing from said air compressor means into said tank, whereby air under controlled pressure and volume is passed through the liquid in the tank to provide liquid saturated air in the tank,
said tank having the liquid therein occupying less than the entire volume of the tank to leave a space above the liquid level in which the liquid saturated air is formed,
and said saturated air is forced out of the outlet means to provide a positive pressure stream of saturated air.

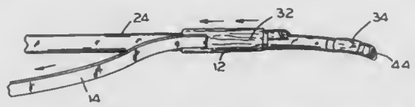
5,065,754
ASPIRATING CATHETER TUBE INSERTER
Billy M. Jensen, Sandy, Utah, assignor to Ballard Medical Products, Draper, Utah
Filed Jun. 6, 1990, Ser. No. 534,079
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—200.26 13 Claims

1. An inserter for placement of a distal end of an aspirating catheter tube at a desired lung site, the inserter comprising:
first tube inserting housing means through which the catheter tube reciprocably extends;
first elastomeric means associated with the first tube inserting housing means and comprising aperture means of a diametral size less than the diameter of the catheter tube resiliently compressively engaging the catheter tube at a first site;
second tube inserting housing means reciprocably associated with the first tube inserting housing means and through which the catheter tube reciprocably extends;
second elastomeric means associated with the second tube inserting housing means and comprising aperture means of a diametral size less than the diameter of the catheter tube resiliently compressively engaging the catheter tube at a second site;
whereby manual distally directed displacement of the second tube inserting housing means in respect to the first tube inserting housing means causes the aperture means of the second elastomeric means to grippingly distally advance the catheter tube and the aperture means of the first elastomeric means to exert a displacement controlling



drag upon the distally advancing catheter tube and manual proximally directed displacement of the second tube inserting housing means in respect to the first housing tube inserting means accommodates holding by the aperture means of the first elastomeric means to hold the catheter tube against material displacement as the aperture means of the second means is displaced proximally along the catheter tube site.

5,065,755
PROTECTIVE SHEATH FOR CUFF OR SINGLE OR DOUBLE LUMEN ENDOTRACHEAL TUBE
Jerome M. Klafta, 211 E. Ohio, Apt. 1412, Chicago, Ill. 60611
Filed Nov. 29, 1989, Ser. No. 442,852
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—200.26 19 Claims

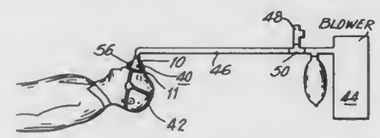


1. In combination, a non-resilient protective sheath for an endotracheal tube, said sheath having a continuously cylindrical body and being manually positioned onto said endotracheal tube and covering a cuff of said endotracheal tube during insertion of said endotracheal tube into a patient; said sheath being removable from said endotracheal tube after insertion of said endotracheal tube into said patient; a retrieval member extending along the length of said endotracheal tube and attached to said sheath, whereby said sheath is removable from said cuff by means of said retrieval member after proper insertion of said endotracheal tube into said patient.

5,065,756
METHOD AND APPARATUS FOR THE TREATMENT OF OBSTRUCTIVE SLEEP APNEA
David M. Rapoport, New York, N.Y., assignor to New York University, New York, N.Y.
Filed Dec. 22, 1987, Ser. No. 136,293
Int. Cl.[5] A62B *18/02*
U.S. Cl. 128—204.18 7 Claims

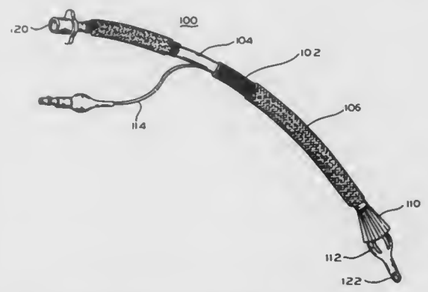
1. An assembly for treatment of obstructive sleep apnea comprising:

a nose mask adapted to be fitted over the nose of a patient;
supply means coupled to said mask for supplying air with continuous positive pressure to said mask suited to maintain the nasopharynegeal airway of a patient open when said supply means is supplied with gas at positive pressure, said supply means comprising an elongated flexible tube coupled at one end to said mask and having an opposite and remote from said mask that is connected to inlet means for receiving pressurized air and delivering air to



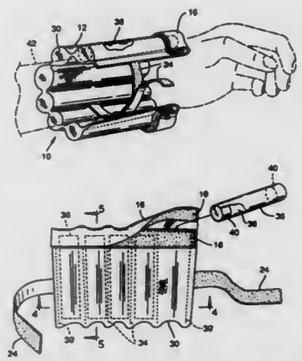
said flexible tube to establish within the mask a predetermined range of pressures;
venting means located on the nose mask for continuously venting patient expiratory flow while said positive pressure is applied to said mask via said supply means; and
a threshold valve mounted at said opposite end of the flexible tube and adjustable for maintaining a positive pressure within said mask in the range of about 5 to 15 centimeters water at all times when said mask is fitted over the nose of a patient for respiration.

5,065,757
SHIELDING TO PROTECT MATERIAL FROM LASER LIGHT
Branislav M. Dragisic, 700 Valley Rd., Itasca, Ill. 60143, and Finley W. Markley, 918 Horne St., St. Charles, Ill. 60174
Continuation of Ser. No. 101,592, Sep. 28, 1987. This application May 16, 1988, Ser. No. 194,315
Int. Cl.[5] A61M *16/00*
U.S. Cl. 128—207.14 10 Claims



1. An endotracheal tube comprising:
a tube capable of supplying gas to a patient;
means for protecting said tube from damage by light from a laser, said means including a woven metal shield encircling at least a portion of said tube;
a woven fiberglass shield encircling said woven metal shield;
said woven metal shield and said woven fiberglass shield constituting means for reflecting light from a laser and means for dispersing light from a laser, respectively.

5,065,758
COLD PACK FOR TREATMENT OF INJURIES
James L. Whitehead, 930 S. Davis, McMinnville, Oreg. 97128, and Leland D. Chapman, 65579 E. Alpine Way, Rhododendron, Oreg. 97049
Filed Apr. 10, 1990, Ser. No. 507,300
Int. Cl.[5] A61F *7/00*
U.S. Cl. 128—402 7 Claims



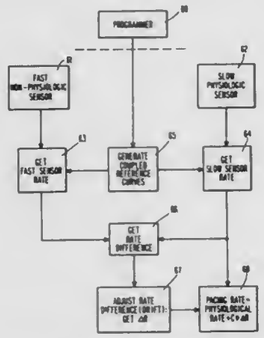
1. A cold pack for treating an injured area of a subject person comprising;
a plurality of rigid closed end cylinders, flexible connecting means interconnecting the cylinders in parallel side-by-side relationship, a cooling media characterized by its cooling property when exposed to ambient temperature, said cooling media encased in said plurality of cylinders to thereby provide a wrap of rigid side-by-side cooling media encased cylinders separated by flexible hinges, said rigid cylinders of a designated size and said flexible connecting means providing hinge connections between said rigid cylinders to permit the cold pack to be formed into a curve for wrapping around the injured area of a subject person.

5,065,759
PACEMAKER WITH OPTIMIZED RATE RESPONSIVENESS AND METHOD OF RATE CONTROL
Malcolm J. S. Begemann, Velp; Bernhard de Vries, Dieren, and Johannes S. van der Veen, Arnhem, all of Netherlands, assignors to Vitatron Medical B.V., Dieren, Netherlands
Filed Aug. 30, 1990, Ser. No. 575,289
Int. Cl.[5] A61N *1/365*
U.S. Cl. 128—419.0 PG 49 Claims

1. A pacing system having rate controllable pulse generator means for generating pacing pulses, first sensor means for developing first signals indicating a first pacing rate, second sensor means for developing second signals indicating a second pacing rate, and rate control means for determining desired pacing rate and controlling the rate of said pulse generator means, said rate means further comprising algorithm means for

VOL 1132 ISS 3 NO 19 1991 UMI

determining (a) from each of said first and second sensor means signals a respective indicated direction of rate change and



amount of rate change, and (b) for determining said desired pacing rate as a function of said directions and amounts.

5,065,760

CABLE GUIDE FOR A NUCLEAR MAGNETIC RESONANCE TOMOGRAPHY APPARATUS

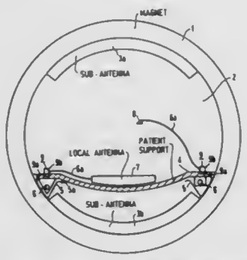
Norbert Krause, Heroldsbach; Wilhelm Hanke, Rueckersdorf, and Juergen Ruhl, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 3, 1990, Ser. No. 592,293

Claims priority, application Fed. Rep. of Germany, Oct. 20, 1989, 3935082

Int. Cl.[5] A61B *5/055*

U.S. Cl. 128—653.5 **17 Claims**



1. In a nuclear magnetic resonance tomography apparatus having a magnet with a central opening defining an examination space and having a patient support movable into said examination space, said opening having a wall on which a whole-body antenna divided azimuthally into a plurality of sub-antennas for generating a polarized field is attached, said sub-antennas including a lower sub-antenna disposed beneath said patient support when said patient support is in said examination space, said patient support having a plurality of electrical devices attached thereto and said apparatus having a plurality of further electrical devices disposed-outside of said examination space and connected to said electrical devices on said patient support via cables, the improvement of a cable guide for said cables comprising:

a channel adapted to receive said cables disposed beneath said patient support and above said lower sub-antenna, said cable channel disposed at said wall of said examination space and having rounded edges projecting beyond the height of said lower sub-antenna said cable channel having a shape dependent on said polarized field.

5,065,761

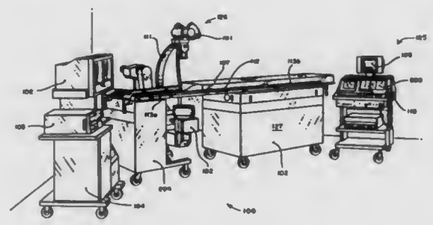
LITHOTRIPSY SYSTEM

James W. Pell, Los Altos, Calif., assignor to Diasonics, Inc., Milpitas, Calif.

Filed Jul. 12, 1989, Ser. No. 379,568

Int. Cl.[5] A61B *17/22*

U.S. Cl. 128—660.03 **2 Claims**



1. A lithotripter for contact free shockwave disintegration of stones within the human body comprising:

(1) an x-ray prelocalization means for locating said stones within said human body;

(2) a real time ultrasonic monitoring means for monitoring said stones within said human body after said location has been determined by said x-ray prelocalization means;

(3) a high power generation means for applying a voltage to a focussing lens assembly;

(4) said focussing lens assembly comprising a planar piezoelectric transducer, an acoustical lens coupled to said piezoelectric transducer and a voltage coupling means for coupling said piezoelectric transducer to said high power generation means said acoustical lens defining an ellipsoid having a first focus and a second focus;

(5) a triggering means for pulsing said high power generation means;

(6) a water containment enclosure fixedly attached to said focussing lens assembly on one side and the upper surface of said water containment enclosure opposite said focussing lens assembly on the other side, and said water containment enclosure providing a shockwave propagation medium for said shockwave disintegration of said stones within said human body; and

(7) a moveable planar surface means for supporting said human body, said planar surface means relocateable from said x-ray prelocation means to said real time ultrasonic means, wherein said real time ultrasonic means are located below said the upper surface of said water containment enclosure.

5,065,762

EXTRACORPOREAL LITHOTRIPSY APPARATUS FOR THE DISINTEGRATION OF CALCULI HAVING AN UNATTENUATED LOCATING FIELD

Helmut Iffiaender, Spardorf; Eike Matura; Walter Polster, both of Erlangen, and Manfred Rattner, Grossenseebach, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 23, 1990, Ser. No. 527,438

Claims priority, application European Pat. Off., Jun. 2, 1989, 89110039

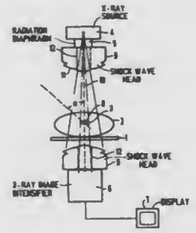
Int. Cl.[5] A61B *17/22*

U.S. Cl. 128—660.03 **4 Claims**

1. An extracorporeal lithotripsy apparatus comprising:

means for generating shock waves adapted for non-invasive treatment of calculi in the body of a patient, said means for generating shock waves having a focus at which said shock waves converge;

transmission means for transmitting shock waves from said means for generating shock waves, said transmission means including a propagation medium for said shock waves in a closed space and having an application surface formed by a flexible cover adapted for pressing against said patient to couple said shock waves into said patient, said transmission means having a central receptacle which is closed at an end by said application surface;



means for generating a radiation field for locating the position of said calculus in said patient disposed behind said means for generating shock waves; and

said receptacle being transmissive for said radiation field so that said radiation field is unattenuated by passage therethrough.

5,065,763

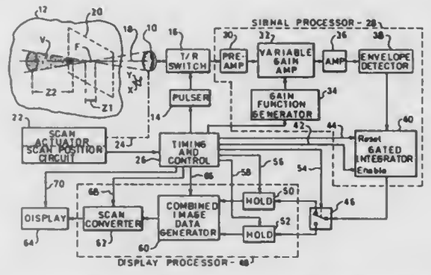
COMBINED REFLECTION AND TRANSMSSION UNTRASONIC IMAGING METHOD AND APPARATUS

Philip S. Green, Redwood City; John S. Ostrem, and Todd K. Whiteburst, both of Palo Alto, all of Calif., assignors to SRI International, Menlo Park, Calif.

Filed Feb. 21, 1990, Ser. No. 483,574

Int. Cl.[5] A61B *8/00*

U.S. Cl. 128—660.07 **63 Claims**



1. In an ultrasonic imaging method for non-invasive imaging a section within a subject, steps comprising

transmitting by ultrasonic transducer means an ultrasonic energy pulse into the subject to pulse insonify the same,

receiving by ultrasonic transducer means ultrasonic energy from within the subject,

focusing the ultrasonic transducer means at a focal point within the subject during at least one of the transmitting and receiving steps,

for each pulse insonification of the subject, said receiving step including first receiving energy reflected from the focal point and converting the same to first electrical signals substantially dependent upon reflectivity of ultrasonic energy at the focal point, then receiving energy reflected from a backscatter zone that is opposite the focal point from the transducer means and converting the same to second electrical signals substantially dependent upon attenuation of ultrasonic energy at the focal point,

processing said first and second electrical signals to produce first and second registered pixel signal values that are substantially dependent upon reflectivity and transmissivity, respectively, of the subject at the focal point,

repeating said transmitting, receiving, focusing and processing steps while scanning the section to obtain separate reflection C-scan image data for a reflection image and transmission C-scan image data for a transmission image of the section, and

employing both the reflection and transmission image data, generating combined image data for a combined C-scan image which is a function of both the reflection and transmission image data.

5,065,764

ULTRASONIC DOPPLER BLOOD FLOW VELOCITY DETECTION APPARATUS

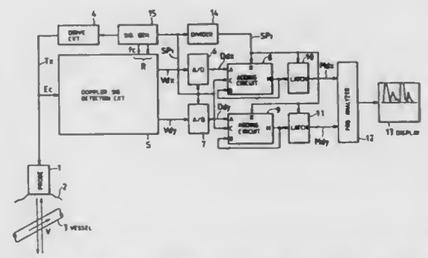
Yasuhiro Nakamura, Tokyo; Ikuo Sakai, Kawasaki, and Masami Kawabuchi, Yokohama, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan

Filed Dec. 19, 1989, Ser. No. 452,653

Claims priority, application Japan, Dec. 21, 1988, 63-322655

Int. Cl.[5] A61B *8/06*

U.S. Cl. 128—661.09 **6 Claims**



1. An ultrasonic Doppler blood flow velocity detection apparatus comprising:

(a) signal producing means for producing trigger pulses, a sampling clock signal having a given phase relation with said trigger pulses, and a pair of quadrature signals of a given frequency in response to said trigger pulses;

(b) transducing means for transmitting ultrasonic waves in response to said trigger pulses and for receiving ultrasonic waves reflected by an ultrasonic-wave reflective object and converting the received ultrasonic waves into an electric echo signal;

(c) Doppler shift detection means responsive to said pair of quadrature signals and said echo signal for detecting Doppler shift; and

(d) low-pass filter means for removing high frequency components from said Doppler shift by averaging time-different values of said Doppler shift in response to said sampling clock signal and said Doppler shift, thereby producing a signal indicative of flow velocity of said ultrasonic-wave reflective object.

5,065,765

COMPENSATION FOR TONOMETER SENSOR CROSSTALK AND ELEMENT SPACING

Joseph S. Eckerle, Redwood City, and Roy Kornbluh, Palo Alto, both of Calif., assignors to Colin Electronics Co., Ltd., Japan

Continuation-in-part of Ser. No. 370,308, Jun. 23, 1989, abandoned. This application Jan. 25, 1990, Ser. No. 470,241

Int. Cl.[5] A61B *5/02*

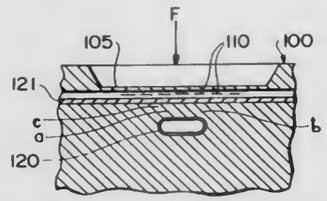
U.S. Cl. 128—672 **37 Claims**

1. A method for compensating for crosstalk behavior and element spacing of the sensor of an arterial tonometer instrument, which sensor has a plurality of pressure sensing elements disposed on at least one diaphragm, the method comprising the steps of:

VOL 1132 ISS 3 NO 19 1991 UMI

determining a measured artery pressure profile of a superficial artery;

using at least one characteristic of said measured artery pressure profile to determine an error correction factor;



determining an uncorrected blood pressure value; and

calculating a corrected blood pressure value by applying said error correction factor to said uncorrected blood pressure value.

5,065,766

DEVICE FOR DETECTING R-WAVES IN ELECTROCARDIOGRAM

Miaoru Sasaki, Yokohama, Japan, assignor to Kabushiki Kaisya Advance Kaihatsu Kenkyujo, Japan

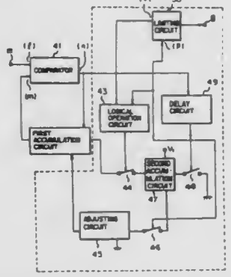
PCT No. PCT/JP85/00448, § 371 Date Apr. 10, 1986, § 102(e) Date Apr. 10, 1986, PCT Pub. No. WO86/01092, PCT Pub. Date Feb. 27, 1986

Division of Ser. No. 855,611, Apr. 10, 1986, abandoned. This PCT application Aug. 12, 1985, Ser. No. 336,540

Claims priority, application Japan, Aug. 11, 1984, 59-167296

Int. Cl.[5] A61B *5/0402*

U.S. Cl. 128—708 **2 Claims**



1. A device for detecting an R-wave in an electrocardiogram comprising:

(a) a filter means for passing frequency components including an R-wave from an electrocardiogram input;

(b) a comparator for outputting an R-wave pulse when an input voltage passed through the filter means is higher than a reference voltage, said comparator having two input terminals, the first of said input terminals being coupled to the filter means so as to receive signals passed through the filter means;

(c) a first accumulation circuit connected to the comparator for accumulating charges output by the comparator and for outputting the reference voltage to the second input terminal of the comparator, the reference voltage being formed by accumulating the R-wave pulse from the comparator and by a predetermined voltage from a second accumulation circuit;

(d) a second accumulation circuit for accumulating the predetermined voltage, including means for connecting said second accumulation circuit to said first accumulation circuit when a digital pulse is output from a logical operation circuit means;

(e) a delay circuit connected to the comparator for converting the R-wave pulse to a delay pulse and for outputting the delay pulse having a predetermined pulse width after the output from the comparator has fallen;

(f) a logical operation circuit means connected to the comparator and the delay circuit for disconnecting the first accumulation circuit and the second accumulation circuit when the R-wave pulse from the comparator is output or when the delay pulse from the delay circuit is output and for connecting the first and second accumulation circuits at any other occasion; and

(g) an adjusting circuit, including means for connection to the second accumulation circuit, connected to the first accumulation circuit for adjusting the voltages of the first and second accumulation circuit when the delay pulse is output from the delay circuit so that the voltage of the first accumulation circuit is lowered by electrically charging or discharging the first and second accumulation circuits.

5,065,767

METHOD FOR USE IN DIAGNOSIS OF GLAUCOMA

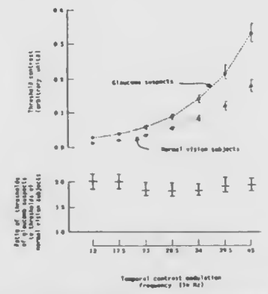
Teddy L. Maddess, Kaleen, Australia, assignor to The Australian National University, Australia

Filed Aug. 25, 1989, Ser. No. 398,593

Claims priority, application Australia, Aug. 26, 1988, PJ0049

Int. Cl.[5] A61B *3/02, 5/00*

U.S. Cl. 128—745 **8 Claims**



1. A method of testing a person to determine the presence of glaucomatous destruction of ganglion cells in a retina of that person, said method comprising the steps of:

(a) monocularly presenting the person with a sinusoidal grating pattern having generally elongate striations, the contrast of the pattern being modulated at a frequency in the range of from about 10 Hz to about 50 Hz, the contrast of the grating pattern being such that the person can observe a frequency-doubled grating pattern;

(b) reducing the contrast of the grating pattern until a contrast value at which the frequency-doubled pattern is no longer observed is attained; and

(c) comparing said attained contrast value at which the frequency-doubled pattern is no longer observed with the highest contrast value at which the frequency-doubled pattern is no longer observed by persons of normal vision.

5,065,768

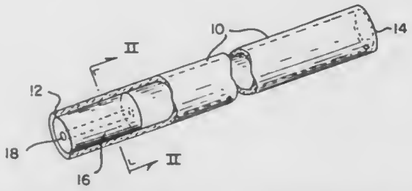
SELF-SEALING FLUID CONDUIT AND COLLECTION DEVICE

Charles M. Coleman, Pittsburgh, and William G. Kendrick, Sr., Doylestown, both of Pa., assignors to Safe-Tec Clinical Products, Inc., Ivyland, Pa.

Filed Sep. 13, 1988, Ser. No. 243,982

Int. Cl.[5] A61B *5/00*

U.S. Cl. 128—760 **27 Claims**



1. A self-sealing tube comprising a tubular body having an elongated bore and a fluid entry end, and a movable plug of super-absorbent containing composite material provided within said tube, said super-absorbent material adapted to expand when contacted by an aqueous fluid and seal said tube to prevent passage of air and liquids through the plug during centrifugation and expulsion.

5,065,769

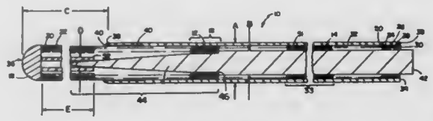
SMALL DIAMETER GUIDEWIRES OF MULTI-FILAR, CROSS-WOUND COILS

Fernando A. de Toledo, Concord, Mass., assignor to Boston Scientific Corporation, Watertown, Mass.

Continuation of Ser. No. 276,106, Nov. 23, 1988, abandoned, which is a continuation-in-part of Ser. No. 170,514, Mar. 21, 1988, Pat. No. 4,932,419. This application Jan. 18, 1991, Ser. No. 642,543

Int. Cl.[5] A61M *25/00*

U.S. Cl. 128—772 **20 Claims**



1. A medical guidewire having a distal tip portion for advancement through a body by application of axial force and by application of rotational force to a proximal end portion outside the body, said guidewire comprising:

an elongated cross-wound multi-filar coil structural element, said structural element comprising a first multi-filar coil segment and a second multi-filar coil segment, said first and second multi-filar coil segments disposed adjacent and in close proximity to one another along a portion of the length of said structural element, and

a sheath formed of material that is non-corrosive within the body, said sheath disposed about and along a substantial portion of the length of said structural element, said sheath being adapted to flex in unison with said structural element without kinking,

said sheath and the adjacent said first and second multi-filar coil segments of said elongated cross-wound multi-filar coil structural element relatively arranged and constructed, in combination, for interengagement in response to rotational force applied to the proximal end in a manner to provide a torque response, along the joined length, approaching 1:1, thereby allowing control of said distal tip of said guidewire within the body by application of rotational force to said proximal end portion outside the body.

5,065,770

APPARATUS FOR PLOTTING THE CONFIGURATION OF A LOWER LIMB OF THE HUMAN BODY WITH A VIEW TO PRODUCING AN ORTHESIS FOR PARAPLEGIC

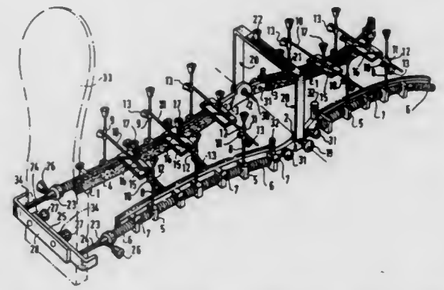
Michel Palfray, Seurre, France, assignor to Etablissements Proteor, France

Filed Oct. 20, 1989, Ser. No. 424,535

Claims priority, application France, Oct. 21, 1988, 88 13841

Int. Cl.[5] A61B *5/10*

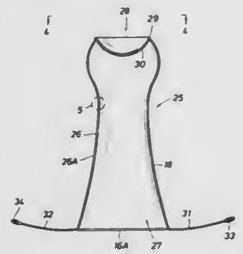
U.S. Cl. 128—774 **8 Claims**



1. Apparatus for plotting the configuration of a lower limb of the human body, comprising first and second pairs of upper and lower longitudinal upright splints arranged laterally respectively on first and second opposite sides of the lower limb, with the upper and lower longitudinal upright splints of each pair of splints being mutually articulated by an orthesis articulation (2), with each splint comprising a deformable metal strip (1) adjoining a deformable flexible tube (6), engaged in an opening in each of a plurality of plates (5) fixed to said deformable metal strip and extending generally perpendicular to an outer face of the deformable metal strip relative to the lower limb of the patient, and each plate (5) being provided with locking means (7) for locking the flexible tube (6) in position relative to the plate (5), to make the deformable metal strip rigidly integral in any position with the deformable flexible tube, such that the splints (1) are deformable and can be applied tightly against the lower limb to match the profile of the lower limb, and a plurality of crosspieces forming braces (8, 10, 12) which transversely connect the splints (1) on opposite sides of the lower limb at various intervals, the crosspieces (8, 10, 12) connecting the splints having an adjustable transverse dimension to regulate the transverse spacing of the splints, wherein certain of the crosspieces comprise two first elements (8), each of which is respectively integral with one of the splints (1) on opposite sides of the lower limb and connected by the crosspiece, said first elements (8) projecting laterally in a manner substantially perpendicular to the respective splint on each side of the limb, and two second elements (9–10, 11–12) adjustable in position, respectively, relative to the first elements, with the second elements being mutually coupled transversely in an adjustable manner, relative to the splints (1), such that at least one of the second elements can be brought into contact with the limb and an assembly including the second elements can be adapted to the transverse spacing of the splints, including locking means (13, 18) for locking the second elements relative to one another in an assembled position and relative to the first elements.

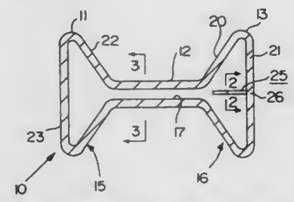
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,771
PROPHYLACTIC/CONTRACEPTIVE DEVICE
Jo A. Ferguson, 9014 Ilona, Houston, Tex. 77025
Filed Jul. 6, 1987, Ser. No. 70,053
The portion of the term of this patent subsequent to Jan. 19, 2007, has been disclaimed.
Int. Cl.[5] A61F *5/46*
U.S. Cl. 128—835 4 Claims



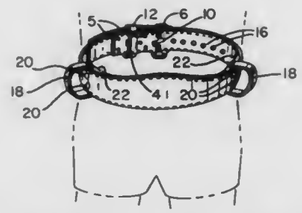
1. An improved prophylactic/contraceptive device, comprising
an open-ended pouch-like member removably insertable into and along a vaginal passage in a female body and having a flexible cap-like portion for releasably engaging and closing the entry portion of the cervix therein,
said pouch-like member further being formed of a thin flexible material impermeable to human body liquids and forming means to extend within a vaginal passage partially engaged over the labial surfaces adjacent the vaginal orifice, and
fastening means releasably attached to the exterior of said female body and flexibly interconnected with said pouch-like member adjacent said entrance to said vaginal passage for releasably securing said pouch-like member in said vaginal passage and partially covering the labial surfaces thereof,
said fastening means further including a pair of flexible tie members each having one end connected with said pouch-like member for extending said open-ended portion of said pouch-like member outwardly of said vaginal passage and away from the urinary tract in said female body.

5,065,772
INFLATABLE CERIVICAL PESSARY
James E. Cox, Jr., Oxnard, Calif., assignor to Inamed Corporation, Carpinteria, Calif.
Filed Oct. 13, 1989, Ser. No. 421,202
Int. Cl.[5] A61F *6/16, 6/18*
U.S. Cl. 128—836 5 Claims



1. A cervical pessary having a central stem with a central passage from end to end thereof; a distal retainer at one end, and a proximal retainer at the other end, said retainers formed by walls which are hollow, flexible and distensible, and connected to one another through the central stem passage, said retainers being inflatable by fluid injected into them to extend laterally beyond said stem and abut against the uterus wall and the cervix to close the cervical passage with the stem being disposed in said cervical passage, and a fill valve in said proximal retainer, passing through an aperture in the wall of the proximal retainer, said valve comprising a pair of attached leaflets forming a passage between them, wherein said passage closes when outside pressure is exerted on said leaflets and said leaflets can physically be opened by insertion of a fill tube therein.

5,065,773
WEIGHTLIFTER'S BELT
Efram W. Jackson, 5017 Thompson Dr., Colony, Tex. 75056, and Aaron Jackson, Jr., 501 W. Horton, #24, Brenham, Tex. 75206
Filed Aug. 13, 1990, Ser. No. 566,106
Int. Cl.[5] A61F *5/37, 3/02;* A63B *21/072, 21/00*
U.S. Cl. 128—876 3 Claims

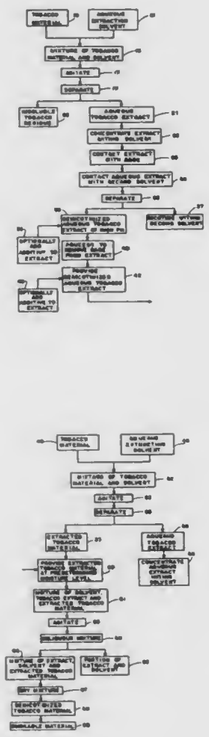


1. A weight lifting belt to be used by a weight lifter comprising: a wide, heavy leather belt having ends which overlap each other; means to adjustably secure the ends of said belt together around the weight lifter; a pair of spaced hand grips spaced along the belt between 90 to 180 degrees apart and aligned over the outer rear buttock of the weight lifter, each of said spaced hand grips comprising a strip of elongated semi-rigid material having ends which are joined to said belt on the interior side of the belt; and means to rigidly secure the ends of the grips to the belt.

5,065,774
PROCESS FOR EXPANDING TOBACCO UNDER MODERATE CONDITIONS
Robert E. Grubbs, Winston-Salem; Richard G. Haberkern, King; Michael E. Edwards, Windsor, all of N.C., and James D. Frederickson, late of Winston-Salem, N.C. by Agnes C. Frederickson, executrix , assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Aug. 18, 1989, Ser. No. 395,877
Int. Cl.[5] A24B *3/18*
U.S. Cl. 131—291 20 Claims

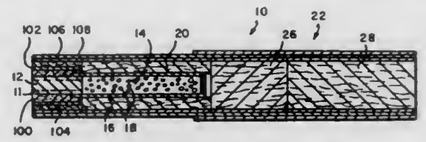
1. The process for increasing the filling capacity of tobacco comprising the steps:
(a) impregnating tobacco with a volatile impregnant having a boiling point less than 100° C.;
(b) subjecting the tobacco to pre-expansion temperature and pressure conditions including a pre-expansion temperature which is above the atmospheric boiling point of the impregnant and a pre-expansion pressure which is at least about 5 atmospheres above the boiling point pressure of the impregnant at said pre-expansion temperature, said pre-expansion temperature being at least about 10° C. below the critical temperature of the impregnant, whereby the impregnant is maintained primarily in the liquid phase throughout the pre-expansion treatment; and
(c) rapidly reducing the pressure of the treated tobacco to a pressure below the boiling point pressure of the impregnant at said pre-expansion temperature to thereby effect expansion of the tobacco without the need for a subsequent heating step.

5,065,775
TOBACCO PROCESSING
Barry S. Fagg, Winston-Salem, N.C., assignor to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Feb. 23, 1990, Ser. No. 484,587
Int. Cl.[5] A24B *15/24, 15/26*
U.S. Cl. 131—297 41 Claims



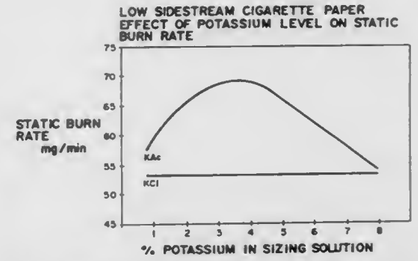
1. A process for altering the character of tobacco material, the process comprising the steps of:
(a) providing extracted tobacco material by extracting tobacco material using a liquid extraction solvent and separating tobacco material not extracted by the solvent from the solvent and tobacco extract extracted by the solvent;
(b) providing a tobacco extract by extracting tobacco material using a liquid extraction solvent, thereby providing a tobacco extract within the extraction solvent;
(c) contacting the tobacco extract provided in step (b) within liquid extraction solvent with the extracted tobacco material provided in step (a) thereby providing a mixture of solvent, tobacco extract and extracted tobacco material; the mixture (i) including a weight of tobacco extractables greater than that weight of tobacco extract separated from the tobacco material in step (a), and (ii) including about 5 to about 40 percent extractables, based on the total weight of the solvent and tobacco extractables within the mixture;
(d) separating the extracted tobacco material from a portion of the solvent and tobacco extract, thereby providing a mixture of solvent, tobacco extract and extracted tobacco material; the mixture thereby having a solvent content ranging from about 60 to about 90 weight percent, based on the total weight thereof; and
(e) separating at least a portion of the solvent from the mixture provided in step (d).

5,065,776
CIGARETTE WITH TOBACCO/GLASS FUEL WRAPPER
Jerry W. Lawson, and William J. Casey, III, both of Clemmons, N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.
Filed Aug. 29, 1990, Ser. No. 576,751
Int. Cl.[5] A24D *1/02, 1/18*
U.S. Cl. 131—365 20 Claims



1. A smoking article comprising:
(a) a combustible fuel element; and
(b) an insulating wrapper surrounding at lest a portion of the outer periphery of the fuel element, the insulating wrapper comprising at least two separate and distinct layers comprising:
(a) at least one layer of fibrous insulating material and
(b) at least one layer of a tobacco-containing material.

5,065,777
THERMALLY STABLE ASH CONDITIONERS FOR CIGARETTE PAPER, METHODS OF MAKING SUCH CIGARETTE PAPER AND SMOKING ARTICLES MADE FROM SUCH WRAPPERS—CASE III
William F. Owens, Jr., Pisgah Forest, N.C., assignor to P. H. Glatfelter Company, Spring Grove, Pa.
Filed Apr. 26, 1990, Ser. No. 514,886
Int. Cl.[5] A24D *1/02*
U.S. Cl. 131—365 11 Claims



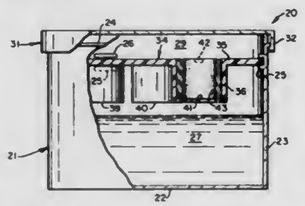
1. A wrapper for smoking articles, comprising a cellulosic sheet, filler concentrations in said sheet in the range of 14 to 60 g/m^2, and a thermally stable, at the range of temperatures encountered in a burning smoking article, alkali metal ash conditioner in the sheet at a level of from about 2% to about 24% of the total weight of the sheet.

5,065,778
FINGER NAIL POLISH REMOVING DEVICE
Joye L. Terrell, 6516 Ridgeview Cir., Dallas, Tex. 75240
Filed Jun. 28, 1990, Ser. No. 544,985
Int. Cl.[5] A45D *29/18*
U.S. Cl. 132—74.5 12 Claims

1. A finger nail polish removing structural device compris-

VOL 1132 ISS 3 NOV 19 1991 UMI

ing: a cylindrical container for nail polish removing liquid having a base portion with a bottom wall and a screw on lid with a top wall joinable together when screwed together with a liquid tight sealing joint; a finger nail scrubbing structure mounted by circumference mounting means of said cylindrical container to extend transversely across the interior of said container in spaced relation to said bottom wall defining a chamber for containing nail polish remover liquid in said base portion; said finger nail scrubbing structure being a transverse bridging member generally coextensive with the interior of said cylindrical container, provided with five finger nail and finger tip receiving bore openings generally parallel to each other and generally perpendicular to said bottom wall; four of said bore openings of a substantially equal diameter being positioned on a circle within the planar extent of said transverse bridging member and with the fifth bore opening being a thumb end receiving opening with a larger diameter than said four substantially equal diameter bore openings and displaced closer to the center of said transverse bridging member than



the circle through the four bore openings to receive simultaneously the finger nails and nail finger tips to the nail joints of all five fingers of one hand; each of said finger bores having walls of sponge-like scrubbing material; said finger bore openings being dimensioned, bore size diameter and length, to receive the finger nails and finger tips to the nail joints of one hand in scrubbing relation for simultaneous scrubbing of the five finger nails of a hand; wherein said scrubbing structure forms a partition in space between said bottom wall and the top wall of said lid, with a top chamber between said scrubbing structure as a partition and said top wall; and said finger bore openings form fluid communication channels between said liquid chamber and said top chamber; said scrubbing structure includes a rigid member with cylindrical walled openings for said finger bore openings; and a cylindrical sponge-like material liner mounted in each of said cylindrical walled openings; and wherein said cylindrical sponge-like material liners are each a removable pad of a substantially rectangular piece of sheet sponge-like material.

5,065,779

WINDPROOF UMBRELLA

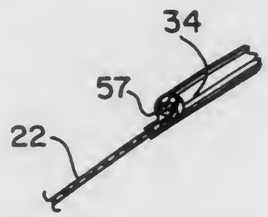
Gary D. Johnson, New York, and Stanley Hochfeld, Howard Beach, both of N.Y., assignors to Leonard Holtz, Oceanside, N.Y.

Division of Ser. No. 309,620, Feb. 10, 1989, Pat. No. 4,979,534. This application Oct. 30, 1990, Ser. No. 605,833

Int. Cl.[5] A45D *25/20*

U.S. Cl. 135—33.7 **26 Claims**

1. A windproof umbrella comprising:
- a post having a lower end to be grasped by a user and an opposite upper end;
- a plurality of ribs extending outwardly in a radial direction from said upper end of said post;
- a lower canopy secured in covering relation on said ribs, said lower canopy including a plurality of vent holes formed therethrough;
- a plurality of channel forming means secured to said lower canopy in completely surrounding relation to each individual one of said vent holes for further preventing entry of water through each of said vent holes; and
- an upper canopy positioned over said lower canopy in covering relation to said at least one vent hole, said upper canopy contacting said lower canopy over a major surface portion of said upper canopy in normal use of said umbrella and separating at least partly from said lower canopy, at least around peripheral edge portions of said upper canopy, responsive to application of wind from the underside of said umbrella.



5,065,780

METHOD AND MEANS FOR CONNECTING A BRANCH CONDUIT TO AN EXISTING CONDUIT

Thorkild O. Baumbach, Ankarvägen 4, S-761 40 Norrtälje, Sweden

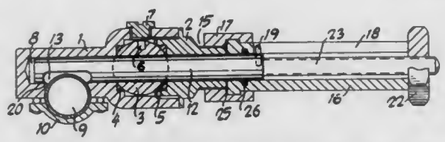
PCT No. PCT/SE88/00632, § 371 Date May 29, 1990, § 102(e) Date May 29, 1990, PCT Pub. No. WO89/04938, PCT Pub. Date Jun. 1, 1989

PCT Filed Nov. 21, 1988, Ser. No. 476,368

Claims priority, application Sweden, Nov. 20, 1987, 8704595

Int. Cl.[5] F16K *43/00, 51/00*

U.S. Cl. 137—15 **8 Claims**



1. A method for connecting a branch conduit to an existing conduit through a valve having a flow channel extending transversely of the existing conduit, said method comprising
- securing a tool to the valve at a location where the branch conduit is to be attached to the valve,
- extending a piston from the tool through the flow channel of the valve to a position in which a portion of the existing conduit is received in a recess formed in a side of the piston prior to severing the conduit portion,
- providing said recess with a sharp internal cutting edge,
- displacing the piston from said position transversely across said conduit portion received in said recess to cause said cutting edge of the recess in the piston to sever said conduit portion whereby to provide communication between the interior of the existing conduit and said flow channel,
- transporting the severed portion within said recess as the piston is displaced to a location outside said valve so that the severed portion can be removed, and
- closing said valve and removing the tool and piston therefrom whereupon a branch conduit can now be connected to the valve and placed into communication with the existing conduit via said valve and said flow channel.

5,065,781

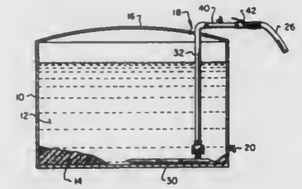
STORAGE TANK CLEANOUT APPARATUS

Ernest J. Cox, P.O. Box 714, Chico, Tex. 76030

Filed Mar. 22, 1990, Ser. No. 497,855

Int. Cl.[5] B08B *9/08*

U.S. Cl. 137—15 **16 Claims**



11. A method for removing material from the bottom of a storage tank, comprising the steps of:
- lowering a bottom hose having a plurality of openings into the tank;
- connecting the bottom hose into an approximately circular shape while it is inside the tank;
- attaching a riser hose to the bottom hose and lowering the bottom hose to the bottom of the tank;
- pumping material out of the tank through the bottom hose and the riser hose;
- when said material pumping step is completed, raising the riser hose out of the tank and disconnecting the riser hose from the bottom hose;
- disconnecting the bottom hose from its approximately circular shape; and
- raising the bottom hose out of the tank.

5,065,782

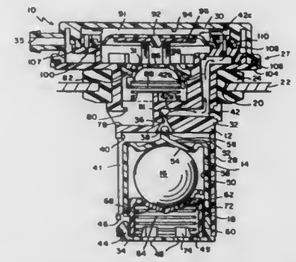
TANK VENTING CONTROL ASSEMBLY

Emil Szlaga, Connersville, Ind., assignor to Stant Inc., Connersville, Ind.

Filed Jan. 8, 1991, Ser. No. 638,784

Int. Cl.[5] F16K *17/36*

U.S. Cl. 137—39 **20 Claims**



1. An apparatus for controlling flow of fuel vapor and liquid fuel through an aperture in a fuel tank, the apparatus comprising
- a housing mounted in the aperture and formed to include an outlet,
- a float valve positioned in the fuel tank and formed to include a float chamber therein, the float valve being movable in the housing between a closed position blocking flow of fuel vapor and liquid fuel through the outlet and an open position allowing flow of fuel vapor through the outlet,
- a ball positioned in the float chamber, and
- means for supporting the ball in the float chamber so that the ball is able to move in the float chamber in response to movement of the fuel tank to urge the float valve to its closed position, the supporting means being movable relative to the housing.

5,065,783

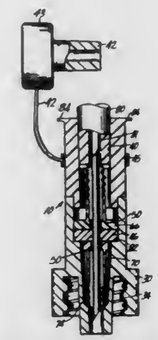
VALVE WITH SELF-SEALING INTERNAL CANNULA

George B. Ogle, II, 5616 Bonita, Alta Loma, Calif. 91701, assignor to George Braddock Ogle, II, Alta Loma, Calif.

Filed Sep. 20, 1990, Ser. No. 585,397

Int. Cl.[5] A61M *5/32*

U.S. Cl. 137—68.1 **23 Claims**



1. A self-sealing valve insert comprising:
- an elongated cannula having first and second shap ends; and
- first and second elongated, flexible, resilient, elastomeric covers each disposed respectively over the first and second sharp ends of the cannula, each cover being secured to an intermediate portion of the cannula to provide a closed envelope over a respective adjacent sharp end of the cannula, and made of a material which is penetrable by the sharp ends of the cannula;
- each cover, from where it is over a respective adjacent shape end of the cannula to a point adjacent where each cover is secured to the cannula, making a loose fit around the cannula so when a force is applied to the covers to move them relative to the cannula and toward each other, the covers are compressed, and each is penetrated by the respective adjacent sharp end of the cannula, and so when force is removed, each cover is free to expand back to its original rest position to form a seal over a respective adjacent sharp end of the cannula.

5,065,784

VALVE ASSEMBLIES AND MEANS

Anthony R. Davies, Cirencester; Steven J. Downward, Cheltenham, and David Chilvers, Minster Lovell, all of England, assignors to Smiths Industries public limited company, London, England

Filed Oct. 22, 1990, Ser. No. 600,697

Claims priority, application United Kingdom, Oct. 28, 1989, 8924318

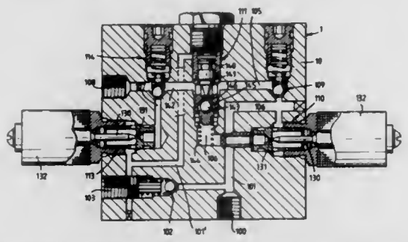
Int. Cl.[5] F16K *17/18*

U.S. Cl. 137—116 **8 Claims**

1. An hydraulic valve assembly for controlling supply of hydraulic fluid between a source of hydraulic pressure, an hydraulic device, and a reservoir, the assembly comprising: a first port connected to said source; a second port connected to said device; a third port connected to the reservoir; a first hydraulic line extending between said first port and said second port, the first hydraulic line including a check valve, the check valve enabling flow from the first port to the second port but preventing flow from the second port to the first port; a second hydraulic line connected between the third port and the first hydraulic line at a location intermediate the second

VOL 1132 ISS 3 NO 19 1991 UMI

port and the check valve, the second hydraulic line including a normally-closed depressurizing valve which is openable to enable flow from the second port to the third port; and a third hydraulic line connected in parallel with the second hydraulic line between the third port and the first hydraulic line at a location intermediate the first port and the check valve, the third hydraulic line including a normally-open solenoid operated pressurizing valve connected in series with a normally



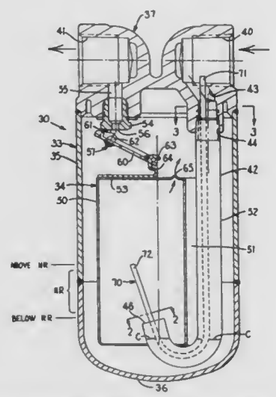
open pressure sensing valve such that fluid from the first port normally flows to the third port, the pressure sensing valve in the third line being closed in response to a fall in pressure at the second port below a first predetermined level and the pressurizing valve also being closable such that closure of either the pressurizing valve or the pressure sensing valve prevents flow along the third hydraulic line and diverts flow to the second port until pressure at the second port rises above a second predetermined level.

5,065,785

STEAM TRAP WITH SEPARATE STEAM AND CONDENSATE INLETS

Walter T. Deacon, Schoolcraft, Mich., and Albert V. Vyve, Chaudfontaine, Belgium, assignors to Armstrong International, Inc., Three Rivers, Mich.

Filed Aug. 24, 1990, Ser. No. 573,243
Int. Cl.[5] F16T *1/30*
U.S. Cl. 137—185 **10 Claims**



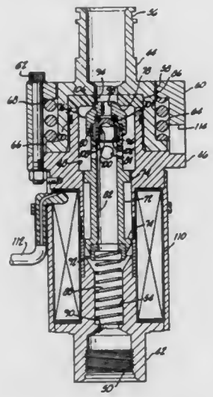
5. An inverted bucket steam trap comprising:
a casing;
condensate and steam inlet means to said casing and condensate outlet means from said casing;
a bottom opening inverted bucket free to float up and down in said casing;
valve means operatively interposed between said condensate outlet means and the interior of said casing and responsive to elevation of said inverted bucket to a predetermined level in said casing for closing said valve means and further responsive to a drop of said inverted bucket in said casing for opening said valve means;
means for directing the condensate and steam from said condensate and steam inlet means upward into the bottom of said inverted bucket, said directing means including condensate surface stabilizing means in said bucket for (1) directing steam upward into the bottom of the inverted bucket past condensate in said bucket while (2) preventing turbulence and splashing of the condensate surface in said bucket by shielding the condensate surface in the bucket from upward steam flow therethrough, said stabilizing means comprising two separate outlets opening in said bucket, namely
(1) a condensate outlet at a first level in said bucket and
(2) a steam outlet at a second level in said bucket and spaced above said first level.

5,065,786

FLOW CONTROL VALVE

Mike M. Rozenblatt, Manhattan Beach, Calif., assignor to Monogram Sanitation, a division of MAG Aerospace Industries, Inc., Compton, Calif.

Filed Apr. 10, 1990, Ser. No. 507,383
Int. Cl.[5] F16K *24/02*
U.S. Cl. 137—202 **7 Claims**



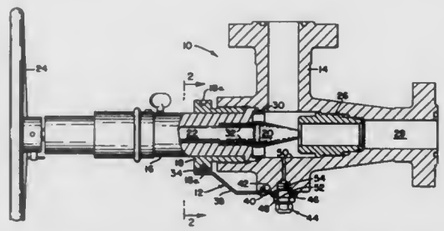
1. A flow control valve, comprising:
(a) a valve housing having a bore therethrough and a valve seat surrounding the bore adjacent one end thereof;
(b) a valve member axially movable within the bore of the housing between a normally closed position against the seat to stop flow and an open position spaced from the seat to permit flow through the housing when the supply line is pressurized, the valve member further including a bore therethrough;
(c) a seal surrounding the bore of the valve member; and
(d) a lightweight float that is freely floating and axially movable a limited distance within the bore of the valve member between a closed position against the seal to stop flow when the supply line is pressurized and the valve member is in the closed position and an open position spaced from the seal to permit flow through the valve member and draining of the supply line when the supply line is depressurized and the valve member is in the closed position, wherein the float is in the form of a hollow body having an open lower end and a loosed upper end, whereby fluid from the supply line is adapted to flow into the open end of the hollow body such that the float is very sensitive to the introduction of pressure in the supply line and the upper end of the float is adapted to quickly move against the seal at a pressure of less than one psi.

5,065,787

CHOKE VALVE SAFETY DEVICE

Bernhard Lochmann, Houston, Tex., assignor to FMC Corporation, Chicago, Ill.

Filed May 3, 1991, Ser. No. 695,662
Int. Cl.[5] F16K *35/02, 51/00*
U.S. Cl. 137—315 **6 Claims**



1. A safety device for use with a choke valve to prevent disassembly of the valve until fluid pressure therein has been vented, said safety device comprising
a) a cover bracket overlying a tool engaging portion of a choke valve bonnet nut for preventing access to said choke valve bonnet nut by a nut removal tool;
b) a plate bracket attached to said cover bracket for supporting the cover bracket on a choke valve body;
c) alignment means being disposed on said choke valve body for properly positioning the safety device on the choke valve body; and
d) vent means being disposed on said choke valve body for releasably securing the safety device to the choke body.

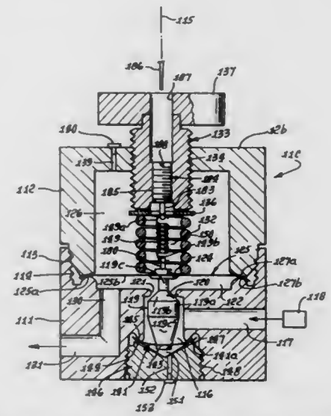
5,065,788

ACCURATE HIGH-FLOW CLEAN REGULATOR WITH INPUT-PRESSURE BALANCING

Paul G. McManigal, 16 Inverness La., Newport Beach, Calif. 92660, and Philip A. Vaughan, 1540 S. Bellwood Rd., San Marino, Calif. 91108

Filed Dec. 4, 1990, Ser. No. 621,754
Int. Cl.[5] G05D *16/06*
U.S. Cl. 137—505.18 **23 Claims**

1. In a high pressure gas regulator, the combination comprising
a) an axially movable poppet and an orifice controlled by the poppet in response to poppet axial movement, the orifice having upstream and downstream sides,
b) a metallic main diaphragm responsive to gas pressure at the downstream side of the orifice and having operative connection with the poppet to extend openly proximate the orifice and to control poppet movement toward or away from the orifice in response to an increase or decrease in pressure at the downstream side of the orifice, respectively, the poppet and orifice defining interengageable annular surfaces,
c) auxiliary pressure responsive means comprising an auxiliary pressure responsive unit defining a pressure sensitive, thin metallic member, at the upstream side of the orifice to control the relative motion of the poppet and orifice toward or away from each other in response to a decrease or increase in pressure at the upstream side of the orifice, respectively,
d) housing means enclosing said poppet, orifice, main diaphragm, and auxiliary pressure responsive means, said housing means having a gas pressure inlet and a gas pressure outlet, said inlet communicating with the upstream side of the orifice, and said outlet communicating with the downstream side of the orifice,
e) a poppet spring operatively connected with the poppet to yieldably urge the poppet toward the orifice, said spring located outside the gas flow,
f) and a range spring operatively connected with the main



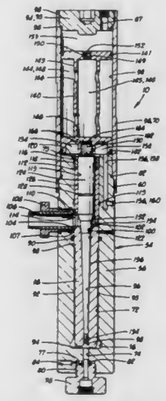
diaphragm to yieldably urge the main diaphragm toward the orifice, and including an adjustment means operatively connected with the range spring to adjust the tension thereof,
g) said housing means having metallic sealing relation with the main diaphragm and with said auxiliary pressure responsive metallic member.

5,065,789

BACK PRESSURE REGULATING VALVE FOR ULTRA HIGH PRESSURES

David M. Eslinger, Broken Arrow, Okla., assignor to Halliburton Company, Duncan, Okla.

Filed Sep. 13, 1990, Ser. No. 581,819
Int. Cl.[5] F16K *17/02*
U.S. Cl. 137—513.5 **19 Claims**



1. A back pressure regulating valve comprising:
a body defining a body central opening with an inlet and an outlet therein;

VOL 1132 ISS 3 NO 19 1991 UMI

a seat in said body central opening and defining an elongated tapered seat surface therein;

a poppet having an elongated tapered poppet surface thereon disposed in said seat and adjacent to said seat surface such that an elongated, annular tapered flow path is defined between said inlet and outlet when said poppet is in an actuated position, said flow path having a length greater than a maximum diameter of said poppet, and wherein a minimum annular tapered flow path is defined between said seat and poppet when said poppet is in an unactuated position;

biasing means for biasing said poppet toward said seat; and

means limiting movement of said poppet toward said seat by said biasing means.

5,065,790

CHECK VALVE

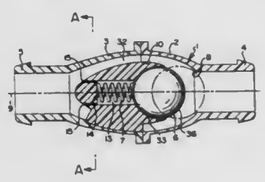
Christof Kornas, Wiesbaden, Fed. Rep. of Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Sep. 20, 1990, Ser. No. 585,442

Claims priority, application Fed. Rep. of Germany, Sep. 21, 1989, 3931437

Int. Cl.[5] F16K *21/10*

U.S. Cl. 137—514.5 **25 Claims**





1. A check valve comprising:

a housing having:

(a) an inside wall including a plurality of grooves,

(b) a first opening adapted for connection to a vacuum source, and

(c) a second opening adapted for connection to a vacuum user,

said first and said second openings having a common axis;

a guide member within said housing and fixed to said housing between said first and said second openings, said guide member having a corresponding plurality of radial fins fitted within said grooves in said inside wall of said housing and having a recess at an end thereof facing said second opening;

a sealing seat formed in said housing at said second opening;

a valve body movable toward and away from said sealing seat and guided for at least part of its movement within said recess;

and a spring within said housing urging said valve body toward said sealing seat.

5,065,791

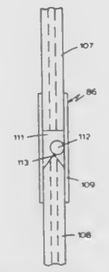
FLUID PURIFYING APPARATUS AND METHOD OF PURIFYING FLUIDS

Steven L. Miller, Shelby; Ronald L. Wathen, and Raymond E. Palazzo, Jr., both of Jefferson, all of Ky., assignors to Environmental Water Technology, Inc., Louisville, Ky.

Division of Ser. No. 515,459, Apr. 27, 1990, Pat. No. 5,017,284. This application Oct. 11, 1990, Ser. No. 596,089

Int. Cl.[5] F16K *15/04*

U.S. Cl. 137—515 **1 Claim**



1. An immediate pressure responsive single check valve for a vertically extending fluid flow conduit line comprising: a break in said vertically extending conduit line with opposed ends of said break being spaced from each other; a flow-through sleeve connected to said opposed spaced ends of said break, said sleeve having a substantially uniform cross-section throughout to define an enclosed uninterrupted chamber between said opposed ends; a float valve disposed in said enclosed chamber of preselected size and preselected specific gravity below the specific gravity of the fluid flow in said conduit line to close only one broken line end of said conduit line to further liquid flow until pressure in said closed broken line end reaches a predetermined upper level for immediate response thereto; said spaced opposed end of said broken conduit line being contoured and sized to remain continuously and substantially fully open to said enclosed chamber when said float valve is urged there against by said pressure, said float valve being ball-shaped and of greater diameter than the inner diameter of the opposed line end, said opposed line end being contoured to be of downwardly extending triangular apex shape to include a groove at said apex sized to nestingly receive only a minor portion of said ball-shaped float valve urged thereagainst by said line pressure without closing said opposed line end so that said opposed line end is in substantially full communication with said opposed chamber.

5,065,792

COUPLING MECHANISMS FOR ROTARY FLUID CYLINDERS

Koziro Ohta, Fukuyama; Yoshihito Kurogi, Hiroshima, and Yasuo Suzuki, Fukuyama, all of Japan, assignors to Kitagawa Iron Works Co., Ltd., Hiroshima, Japan

Filed Oct. 9, 1990, Ser. No. 595,264

Int. Cl.[5] B23B *31/30*

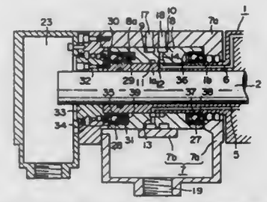
U.S. Cl. 137—580 **12 Claims**

1. A coupling mechanism for a rotary fluid cylinder which comprises a rotary member; a fluid feeding member concentrically mounted on said rotary member; and at least one fluid passage means for supplying fluid from said fluid feeding member to said rotary member even while said rotary member is rotating,

said coupling mechanism comprising:

a pair of ball bearings interposed between said fluid feeding member and said rotary member at respective extreme end portions of said fluid feeding member so as to allow relative rotation of said rotary member with respect to said fluid feeding member, said ball bearings each having an outer ring; and

means for applying a predetermined pre-load to said respective ball bearings in such a manner that said ball bearings are biased so as to move away from each other, said pre-load being applied to said outer ring of said respective ball bearings.



5,065,793

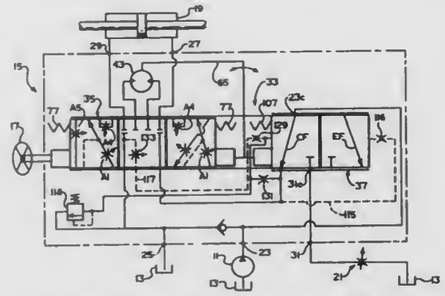
FLUID CONTROLLER WITH LOAD SENSING PRIORITY FLOW CONTROL CAPABILITY

Dwight B. Stephenson, Savage, and Dennis R. Marks, Eden Prairie, both of Minn., assignors to Eaton Corporation, Cleveland, Ohio

Continuation-in-part of Ser. No. 513,366, Apr. 23, 1990, Pat. No. 5,016,672. This application Mar. 7, 1991, Ser. No. 666,168

Int. Cl.[5] F15B *13/06*

U.S. Cl. 137—625.24 **34 Claims**



1. A controller operable to control the flow of fluid from a source of pressurized fluid to a priority fluid pressure operated device, and to an auxiliary fluid location; said controller being of the type including housing means defining an inlet port for connection to the source of pressurized fluid, and first and second control fluid ports for connection to the priority fluid pressure operated device; valve means disposed in said housing means, and comprising a primary, rotatable valve member and a cooperating, relatively rotatable follow-up valve member, said primary and follow-up valve members defining a neutral rotary position, a rotary operating position in which said primary valve member is rotatably displaced from said neutral rotary position, relative to said follow-up valve member, and said follow-up valve member defining a first axial position; said primary valve member defining first and second fluid passages, and said follow-up valve member defining a first fluid port in continuous fluid communication with said inlet port when said valve members are in said first axial position, and a second fluid port in continuous fluid communication with said first control fluid port; said first fluid port being blocked from fluid communication with said first fluid passage, and said second fluid port being blocked from fluid communication with said second fluid passage when said valve members are in said neutral rotary position; said first fluid port being in fluid communication with said first fluid passage, to define a first variable flow control orifice, and said second fluid port being in fluid communication with said second fluid passage, to define a second variable flow control orifice when said valve members are in said rotary operating position; said housing means and said valve members cooperating to define a main fluid path providing fluid communication between said first and second variable flow control orifices when said valve members are in said rotary operating position; characterized by:

(a) said follow-up valve member defining a second axial position;

(b) said controller including means operable to bias said follow-up valve member toward said first axial position, and means operable to bias said valve members toward said second axial position;

(c) said housing means and said follow-up valve member cooperating to define a pressure fluid chamber in continuous fluid communication with said inlet port, and an auxiliary fluid chamber in continuous fluid communication with an excess flow port;

(d) said first fluid port being blocked from fluid communication with said pressure fluid chamber when said follow-up valve member is in said second axial position; and

(e) said housing means and said follow-up valve member cooperating to define an axial fluid passage disposed to provide communication from said pressure fluid chamber to said auxiliary fluid chamber when said follow-up valve member is in said second axial position.

5,065,794

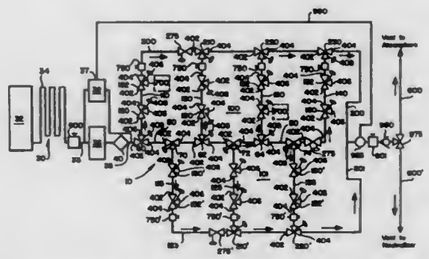
GAS FLOW DISTRIBUTION SYSTEM

Steven D. Cheung, Danbury, Conn., assignor to Union Carbide Industrial Gases Technology Corporation, Danbury, Conn.

Filed Nov. 26, 1990, Ser. No. 617,768

Int. Cl.[5] F16K *11/10*

U.S. Cl. 137—883 **8 Claims**



7. A continuous flow distribution system for distributing gas or fluid to a plurality of outlets comprising

(i) supply means for continuously introducing pressurized fluid or gas into said system;

(ii) venting means downstream from said supply means for continuously receiving pressurized gas or fluid and for releasing pressurized fluid or gas from said system;

(iii) main line conduit means in communication between said supply means and said venting means;

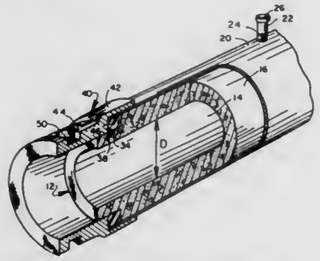
(iv) loop conduit means in communication between said supply means and said venting means;

(v) lateral conduit means in communication from said main conduit means to said loop conduit means;

(vi) a plurality of outlet valve means in said lateral conduit means each said outlet valve means having first and second ports which are in serial communication with each other and a third port with adjustable means for adjustably opening and closing said third port.

VOL 1132 ISS 3 NO 19 1991 UMI

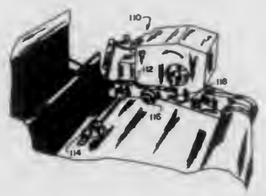
5,065,795
PRESTRESSED CONCRETE ARTICLES
Richard L. Creedon, San Diego, Calif., assignor to General Atomics, San Diego, Calif.
Division of Ser. No. 317,821, Mar. 1, 1989, Pat. No. 4,936,006.
This application Mar. 5, 1990, Ser. No. 488,884
Int. Cl.[5] F16L *9/08*
U.S. Cl. 138—176 6 Claims



1. A prestressed concrete article comprising:
a cylindrical body with opposed ends and a generally cylindrical outer surface;
a cylindrical jacket having a predetermined strength to resist distortion when placed under pressure, said jacket placed around the outer cylindrical surface of the concrete article;
end walls of greater strength overlying the ends of the article, adjacent the ends of the jacket;
gasket rings between the end walls and the ends of the concrete article;
end joining means for joining the ends of the jacket to the end walls so that tension forces applied to the end walls compress the end walls against the ends of said concrete article;
a hardenable medium fluidally injected between said jacket and said outer surface of said concrete article, migrated throughout the major portion of said concrete article outer surface;
an annular cavity between said jacket and said concrete article outer surface formed by an outward swelling of said jacket by said injected medium, said cavity filled with said hardenable medium; and
ends of the jacket compressed together, pressing said gasket rings against the ends of said concrete article, with said gasket rings entering into said cavity under the pressure of said hardenable medium, said gasket rings intimately engaging and generating a sealing pressure between opposed portions of said jacket and said concrete article outer surface;
whereby a fluid-tight pressure cavity is formed surrounding the outer surface of said concrete article and maintaining the pressure until the injected medium hardens.

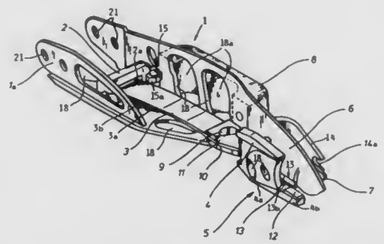
5,065,796
LOOM TEMPLE CONTROL SYSTEM TO VARY PICK DENSITY
Ernest F. Roach, Eden; Stephen D. Frick, and Randell F. Sample, both of Greensboro, all of N.C., assignors to Draper Corporation, Greensboro, N.C.
Filed Oct. 2, 1990, Ser. No. 591,774
Int. Cl.[5] D03J *1/22*
U.S. Cl. 139—300 18 Claims

1. An apparatus for a power loom for automatically varying the pick density of a woven fabric produced by said loom between a first density value to a second, substantially different density value, said apparatus comprising:
(a) first means associated with said loom for supplying a fill yarn having a first predetermined denier value suitable for forming the portion of said woven fabric corresponding to said first density value;
(b) means associated with said loom for adjusting the pick density of said woven fabric;
(c) temple means for holding said woven fabric at a predetermined width, said temple means being selectively operable between a first position out of engagement with said woven fabric and a second position in engagement with said woven fabric; and



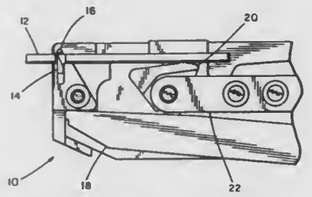
(d) control means connected to said first means for supplying a fill yarn, said means associated with said loom, and said temple means, said control means being operable to selectively engage said temple means and to permit sad loom to vary the pick density of said woven fabric while maintaining said woven fabric at a predetermined width without operator intervention.

5,065,797
GRIPPER HEAD FOR SHUTTLELESS LOOMS
Horst Haeussler, Lindau; Hubert Ortmann, Hergatz, and Harald Stoerr, Lindau, all of Fed. Rep. of Germany, assignors to Lindauer Dornier Gesellschaft m.b.H., Lindau, Fed. Rep. of Germany
Filed Jul. 13, 1990, Ser. No. 552,820
Claims priority, application Fed. Rep. of Germany, Jul. 15, 1989, 3923540
Int. Cl.[5] D03D *47/20*
U.S. Cl. 139—448 20 Claims



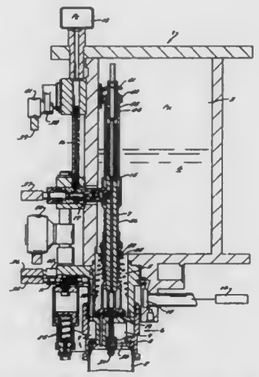
1. A gripper head for a shuttleless loom, comprising a gripper body, clamping means carried by said gripper body for gripping a weft thread, said clamping means comprising a stationary clamping pad and a movable clamping pad arranged for cooperation with said stationary clamping pad for gripping said weft thread, spring means for tiltably holding said movable clamping pad at a free end of said spring means near a forward end of said gripper body, means for mounting said spring means to said gripper body at another end of said spring means, and wherein at least one of said stationary and movable clamping pads comprises a two layer structure including a vibration damping layer and a wear resistant outer layer.

5,065,798
STRETCHED STRAP CABLE TIE TENSIONING AND SEVERING TOOL
John S. Alletto, Frankfort, and Maurice M. Maurer, Elmhurst, both of Ill., assignors to Panduit Corp., Tinley Park, Ill.
Filed Jan. 28, 1991, Ser. No. 646,968
Int. Cl.[5] B21F *9/02*
U.S. Cl. 140—123.6 6 Claims



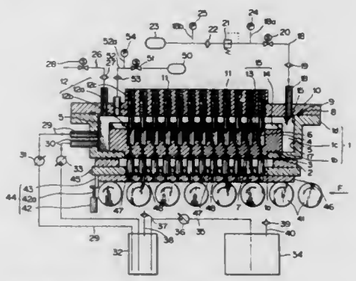
1. A cable tie application tool, comprising:
means for positioning a cable tie strap between a severance blade and an anvil; and
means for moving the severance blade completely through the strap and into engagement with the anvil to sever the strap, wherein the anvil is formed of a ductile metallic material and wherein the blade is of a greater hardness than the anvil sufficient to allow the blade to penetrate the anvil to form a groove therein.

5,065,799
APPARATUS FOR FILLING CANS
Wilhelm Weiss, Lappersdorf, Fed. Rep. of Germany, assignor to Krones AG Hermann Kronseder Maschinenfabrik, Neutraubaling, Fed. Rep. of Germany
Division of Ser. No. 424,618, Oct. 20, 1989, Pat. No. 5,000,234.
This application Dec. 14, 1990, Ser. No. 627,703
Claims priority, application Fed. Rep. of Germany, Oct. 26, 1988, 3836489
Int. Cl.[5] B65B *31/00*
U.S. Cl. 141—39 4 Claims



1. Apparatus for filling cans each having an open mouth with liquid comprising:
a tank for containing the liquid and a mixture of inert gas and air,
a filler unit mounted to the tank and means for coupling the open mouth of said can sealingly to the unit, said unit having a liquid control valve interposed between the tank and the can and having a gas return tube extending from the tank into the can and a gas control valve within the gas return tube for controlling interchange of gas between the tank and the can through the tube,
said filler unit including a differential pressure chamber arranged between the can and the tank and being adjacent the mouth of the can,
a flush valve having an inlet communicating with said differential pressure chamber and an outlet for discharging gas from the can to the atmosphere,
means for opening and closing said gas control valve and flush valve in a sequence wherein said gas control valve and flush valve are opened for said inert gas and air mixture to flow from said tank through said tube and through said can and chamber and flush valve for flushing the can and chamber of air so as to replace the air with the inert gas mixture after which said valves close,
a source of undiluted inert gas at a pressure slightly below the pressure in said tank,
an inert gas control valve having an inlet coupled to said source and an outlet coupled to a passageway in said filler unit which leads directly to said can so that sequential opening and closing of said inlet gas control valve causes said can to receive inert gas and to displace a substantial portion of the inert gas and air mixture in the can into said differential pressure chamber,
said can is filled with liquid by opening said gas control valve causing pre-pressurizing of said can through said tube at the pressure of the gas mixture in said tank, said liquid control valve responds to the pressures in the tank and can becoming equilibrated by opening to fill said can with liquid while at the same time the liquid displaces said inert gas from the can into the tank,
a relief valve having an inlet in communication with the gas above the liquid in the can and an outlet to the atmosphere,
said gas control and liquid control valves closing when said can fills with liquid to a level which results in closing said tube and said relief valve opening to discharge the gas in said can and differential pressure chamber to the atmosphere before uncoupling the can from the filler unit.

5,065,800
LIQUID CHARGING METHOD AND A LIQUID CHARGING APPARATUS
Takayoshi Sagawa, and Shichisei Tani, both of Yokohama, Japan, assignors to Japan Tobacco Inc., Tokyo, Japan
Filed Jul. 20, 1990, Ser. No. 554,780
Claims priority, application Japan, Jul. 24, 1989, 1-188732
Int. Cl.[5] B65B *3/30*
U.S. Cl. 141—67 6 Claims



1. A liquid charging apparatus comprising:
a conveyor;
a tray disposed on the conveyor, the tray having an array of container-accommodating recesses arranged at specified pitches for accommodating containers with their upper ends opened;
a stop device for stopping said tray on the conveyor at a liquid-charging position;

VOL 1132 ISS 3 NO 19 1991 UMI

a pit block having an array of pits and small-diameter nozzles, both formed therein and arranged above the corresponding container-accommodating recesses in the tray located at the liquid-charging position, said pits opening at an upper surface of the pit block, said small-diameter nozzles each extending downwardly from a bottom of each pit and opening at an underside of the pit block;

a frame enclosing an outer circumference of the pit block to form a liquid-accommodating portion between the frame and the pit block;

liquid guide grooves formed in an upper surface of the pit block for communicating each of the pits with the liquid-accommodating portion;

a cover mounted on an upper edge of the frame to form an enclosed space inside the frame;

an exhaust piping for communicating the enclosed space with the open air through a valve;

a pressurized air piping for communicating the enclosed space with a pressurized air source through a valve, whereby a pressure is applied to the liquid in the pits to force the liquid to be charged into the containers on the tray at the liquid-charging position;

a liquid supply piping for communicating the liquid-accommodating portion with a liquid tank through a supply pump; and

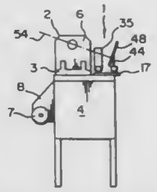
a liquid discharge piping for communicating the liquid-accommodating portion with the liquid tank.

5,065,801

LATHE ATTACHMENT DUPLICATING DEVICE

Alex Vincent, 1112 Sacramento Drive, S.W., Calgary, Alberta, Canada T2W 0J2

Filed Oct. 1, 1990, Ser. No. 590,771
Int. Cl.[5] B23B *8/28*
U.S. Cl. 142—38 **8 Claims**



1. A duplicating device for use on a lathe comprising frame means for mounting behind the centerline defined by a live center and a tailstock center of a lathe; mirror means on said frame means extending parallel to the centerline of the lathe in the use position; and template carrier means on said frame means between said mirror means and the centerline in the use position.

5,065,802

DADO LATHE

Kenneth D. Petersoo, 1001 W. Euclid, Indianola, Iowa 50125

Filed Sep. 18, 1990, Ser. No. 584,205
Int. Cl.[5] B27C *5/00, 7/00;* B23B *3/28*
U.S. Cl. 144—2 R **22 Claims**

1. In combination with a table saw having a rotating dado blade with a perimeter cutting edge, a device for turning an elongated wood stock having a longitudinal axis from a square cross section to a round cross section, the device comprising:

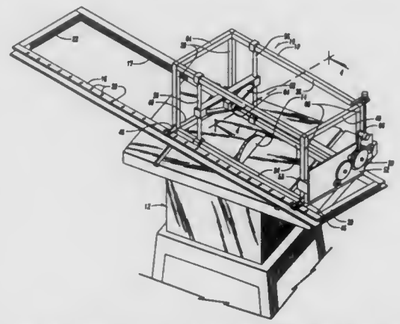
a pair of spaced apart rails mounted on the table saw at an oblique angle with respect to the blade;

a frame mounted on the rails for movement along the rails, and having opposite ends and opposite sides;

stock mounting means for rotatably mounting the stock on the frame such that the stock is disposed at an oblique angle to the edge of the blade;

means for rotating the stock about its longitudinal axis; and

means for moving the frame along the rails such that the



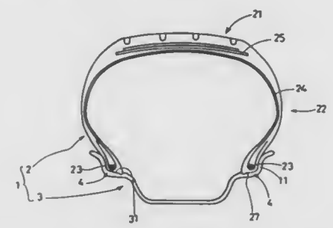
rotating blade produces a helical cut for each revolution of the stock, with adjacent cuts overlapping one another so as to produce a round stock from the square stock.

5,065,803

TIRE AND WHEEL RIM ASSEMBLY

Akihiro Nakatani, Kakogawa, and Hideaki Nagayasu, Toyota, both of Japan, assignors to Sumitomo Rubber Industries, Ltd., Hyogo, Japan

Filed Nov. 6, 1990, Ser. No. 610,144
Claims priority, application Japan, Nov. 17, 1989, 1-300637
Int. Cl.[5] B60C *15/06*
U.S. Cl. 152—543 **1 Claim**



1. A tire and wheel rim assembly comprising a wheel rim and a tire mounted thereon,

the tire having a pair of axially spaced bead portions,

the wheel rim having a pair of axially spaced bead seats upon which the bead portions of the tire are seated,

at least one of the bead seats are provided at the axially inner edge thereof with a circumferential groove,

at least one of the bead portions provided with a toe extending radially inwardly into said circumferential groove, wherein

each bead portion comprises a soft rubber layer disposed along the bottom face of the bead portion to form said bead toe, an adjacent hard rubber layer disposed radially outside the soft rubber layer, and a fabric reinforcing layer disposed between said soft rubber layer and said adjacent hard rubber layer such that there is no contact between said soft rubber layer and adjacent hard rubber layer,

said soft rubber layer is covered by a fabric chafer disposed along the contour of the bead portion,

said hard rubber layer is made of relatively hard rubber having a JIS A hardness (HS1) of not less than 60 and not more than 95,

said soft rubber layer is made of soft rubber having a JIS A hardness (HS2) of not less than 48 and not more than 90, and

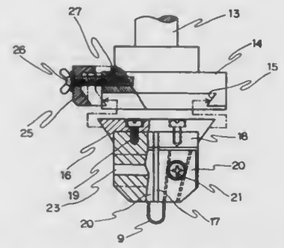
the ratio HS2/HS1 of the hardness (HS2) of the soft rubber layer to the hardness (HS1) of the hard rubber layer is not less than 0.7 and not more than 0.95.

5,065,804

CUTTER SUPPORTING UNIT FOR TIRE GROOVING APPARATUS

Satoru Kinuhata; Masao Takami, both of Kobe; Eiji Shibata, Nakama, and Tadahiko Tamura, Kitakyushu, all of Japan, assignors to Sumimoto Rubber Industries, Ltd., Kobe, Japan

Continuatioo of Ser. No. 285,555, Dec. 16, 1988, abandoned.
This application Apr. 1, 1991, Ser. No. 679,826
Claims priority, application Japan, Dec. 19, 1987, 62-322205
Int. Cl.[5] B29D *30/68;* B26D *7/26*
U.S. Cl. 157—13 **2 Claims**



1. A cutter supporting unit for a tire grooving apparatus having a tire supporting shaft and a cutter supporting unit which is movably and detachably supported so as to bring a cutter in and out of contact with a tire held by the tire supporting shaft, said cutter supporting unit comprising:

a cutter holder which holds a cutter; and

a cutter supporting frame to which the cutter holder is connected removably;

wherein said cutter supporting frame includes clamping means having an engaging groove formed in a dovetail shape, said clamping means has a tightening piece and a tightening screw, said tightening screw passes through said tightening piece and engages with said cutter supporting frame, and said cutter holder has a base formed in a substantially trapezoidal shape fitting said dovetail shape of said clamping means engaging groove.

5,065,805

DISPLAY ENCLOSURE AND SEGMENTED FLEXIBLE CLOSURE THEREFOR

David M. Barrett, Fort Myers, Fla., and Timothy J. Brown, Oklahoma City, Okla., assignors to David M. Barett, Ft. Myers, Fla.

Filed Apr. 4, 1991, Ser. No. 680,380
Int. Cl.[5] E06B *9/08*
U.S. Cl. 160—23.1 **9 Claims**

1. A display enclosure comprising:

a rigid housing having an upper part and a lower part, and having a vertically extending opening on one side thereof extending predominantly in a single vertical plane;

track means at opposite sides of the opening in the housing:

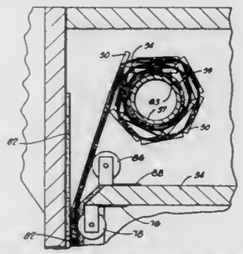
roller means mounted on the upper part of said housing above the opening, and supported for rotation about a substantially horizontally extending axis extending substantially parallel to said plane; and

a segmented curtain connected to said roller means for undergoing a rolling up or down movement upon rotation of said roller means about said axis in a selected direction of rotation, said segmented curtain comprising:

a plurality of contiguous, elongated generally rectangular slats each including a pair of opposed, parallel, longitudinal edges, and each including a pair of opposite ends extending slidingly into said track means;

bracket means each connected to one of the opposite ends of each of said slats so that each of said slats is connected through its opposite ends to a spaced pair of said bracket means; and

a pair of spaced, elongated, flexible connecting elements each having an end part connected to said roller means, and each having a plurality of spaced connection points



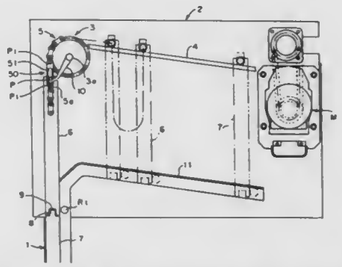
located along its length spaced from each other by a distance slightly greater than the width of said slats between said parallel, longitudinal edges and connected at each of said connection points to one of said bracket means, said connecting elements hanging said slats in a substantially monoplanar array across and closing said opening when said segmented curtain is rolled down by rotation of said roller means about said axis in a selected direction of rotation.

5,065,806

PANEL SHUTTER ASSEMBLY

Kohichi Kondoh, Tokyo, Japan, assignor to Bunka Shutter Co., Ltd., Tokyo, Japan

Filed Jan. 25, 1991, Ser. No. 645,842
Claims priority, application Japan, Jun. 5, 1990, 1-146930
Int. Cl.[5] E06B *9/26*
U.S. Cl. 160—36 **5 Claims**



1. In an apparatus for driving a panel shutter including a plurality of shutter panels which are movable between a panel housing and an opening defined between a pair of upstanding guide rails depending from said housing, a pair of chains between which said panels are supported one after another, and a pair of sprockets supported rotatably in said housing and engaging said chains, respectively, to move said chains in either direction to move said panels, the improvement which comprises:

said chains each comprising a plurality of links including a plurality of spaced apart link attachments each having a longitudinally extending pin guide slot, each of said panels being suspended from a pair of long pins each having one end connected to said each panel, said each pin extending

VOL 1132 ISS 3 NO 19 1991 UMI

through said slot of one of said link attachments slidably along said slot; and

a pair of arms each connected to a shaft on which one of said sprockets is rotatably supported, and having a free end portion projecting beyond the outer periphery of said one sprocket engageably with one of said pair of long pins, said each arm being rotatable with said one sprocket and having in said free end portion thereof a rotating speed which is higher than the peripheral velocity of said one sprocket, so that said long pins may be moved along said slots faster than said chains are moved about said sprockets, when said panels are each moved from said opening into said housing.

5,065,807

FOLDING DOOR STRUCTURE

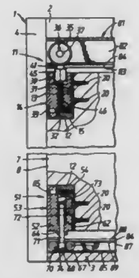
Kenji Maeda, Kitakyushu, and Nobuyuki Yamada, Kokubunji, both of Japan, assignors to Dantani Co., Ltd., Fukuoka and Murakoshi Screw Mfg. Co., Ltd., Tokyo, both of, Japan

Filed Jun. 6, 1989, Ser. No. 362,052

Claims priority, application Japan, Jun. 6, 1988, 63-75138

Int. Cl.[5] E05D *15/26*

U.S. Cl. 160—206 **4 Claims**



1. A folding door structure, comprising a folding door formed by a pair of door sections which are coupled together pivotally along adjacent edges thereof,

an upper guide rail disposed above the folding door and being formed with a downwardly facing rail groove defining roller-support surfaces,

a lower guide rail disposed below the folding door and being formed with an upwardly facing rail groove defining roller-receiving surfaces

and an upper guide body and a lower guide body for each door section, each upper guide body including an upper base member fixed in the upper portion at the outer end side of each respective door section, a support shaft extending upwardly from the upper base member and an upper roller support member mounted on the support shaft so as to be rotatable about a vertical axis and supporting rollers which are rotatable about a horizontal axis, the rollers being further supported by, and displaceable along, the roller support surfaces of the upper guide rail, and each lower guide body including a lower base member fixed in the lower portion at the outer end side of each respective door section and lower roller support member mounted on a further support shaft so as to be rotatable about a vertical axis and supporting further rollers which are rotatable about a horizontal axis, the further rollers being in engagement with, and displaceable along, the roller-receiving surfaces of the lower guide rail, the further support shaft being biassed resiliently upwards by a spring housed within the lower base member thereby to permit relative displacement of the lower base member and the rollers supported by the lower roller support member, and

wherein each said upper base member and each said lower base member comprises a cup fixed within a respective groove formed in the door section and a block so configured as to fit inside the cup, and the cup has an internal projection and the block has a complementarily shaped recess.

5,065,808

TAMBOUR DOOR FOR BOX-TYPE FURNITURE

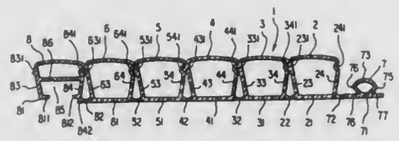
Siegfried Hopperdietzel, Selb, Fed. Rep. of Germany, assignor to Rehau AG & Co., Rehau, Fed. Rep. of Germany

Filed Nov. 7, 1990, Ser. No. 610,067

Claims priority, application Fed. Rep. of Germany, Nov. 16, 1989, 8913557

Int. Cl.[5] E06B *9/00*

U.S. Cl. 160—231.2 **8 Claims**



1. A tambour door for box-type furniture, comprising:

at least one tambour door element comprised of a plurality of profiled members which are elongate tube and which have hollow, trapezoidal cross-sections each including a base, a pair of arms, and a top, which arms extend from lateral edges of said base to lateral edges of said top, and which top comprises a side of the tambour door element to be viewed in use and is wider than the base; and a plurality of hinge members each consisting essentially of a flexible polymeric film articulately interconnecting adjacent profiled members of the plurality of profiled members longitudinally along only adjacent lateral edges of said bases,

wherein each said at least one tambour door element is comprised of plastic materials coextruded as an interconnected unit.

5,065,809

METHOD FOR CASTING TITANIUM OR TITANIUM-BASED ALLOY

Takashi Sato, 3-23, Nishitaga 1-Chome, Sendai-Shi, Miyagi; Yoji Iwanabe, Miyagi; Koji Arato, Miyagi; Rokuro Sakagami, Miyagi, and Yasuo Yoneda, 910, Chokeiji, Takaoka-Shi, Toyama, all of Japan, assignors to Mitsui Engineering & Shipbuilding Co., Ltd., Tokyo; Yasuo Yoneda, Takaoka and Takashi Sato, Sendai, all of, Japan

Filed May 28, 1991, Ser. No. 676,318

Int. Cl.[5] B22D *27/16*

U.S. Cl. 164—61 **4 Claims**

1. A method for the production of a cast of titanium or a titanium-based alloy by fusing titanium or a titanium-based alloy containing an alloy element in a vacuum furnace while introducing argon gas into said vacuum furnace and casting the resultant melt, which method comprises providing the following relationships for the argon gas pressure (atm) in said vacuum furnace in accordance with the content, M (% by weight), of said alloy element:

Not less than 2.1 when $0 \leqq M < 5$

Not less than 1.6 when $5 \leqq M < 10$

Not less than 1.5 when $10 \leqq M < 15$

Not less than 1.2 when $15 \leqq M$; determining said content, M, of said alloy element; and adjusting the introduction of said argon gas in accordance with said content, M, of said alloy element.

5,065,810

METHOD OF PRODUCING MECHANICAL PARTS BY MOLD CASTING

Masatoshi Kawaguchi; Norio Tajima; Setsumi Hatanaka; Hiroshi Yoshinaga; Masahiro Inoue; Tadao Nagaoka; Hiromu Okunishi; Masaaki Kurosawa; Hideaki Ikeda; Takeshi Ooba; Nobuki Matsuo, and Hiroshi Ooda, all of Sayama, Japan, assignors to Honda Giken Kogyo K.K., Tokyo, Japan

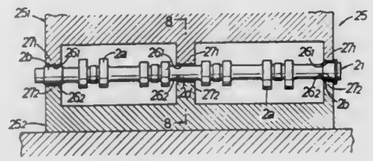
Division of Ser. No. 143,625, Jan. 13, 1988, Pat. No. 4,971,134.

This application Sep. 17, 1990, Ser. No. 583,965

Claims priority, application Japan, Jan. 12, 1987, 62-4629; Jan. 12, 1987, 62-4630; Feb. 12, 1987, 62-19077; Jul. 22, 1987, 62-183151; Aug. 6, 1987, 62-120636; Aug. 21, 1987, 62-207944; Sep. 18, 1987, 62-234640; Sep. 18, 1987, 62-234641; Sep. 21, 1987, 62-236598

Int. Cl.[5] B22D *29/00*

U.S. Cl. 164—76.1 **4 Claims**



1. A method for producing a mechanical part, comprising die casting a metal mechanical part in a mold, rapidly cooling said cast mechanical part, said rapid cooling being effected at the surface of the cast part in contact with said mold, and releasing the cast part from said mold when a solidified layer has been formed at the surface of the cast part, and applying pressure to said mechanical part while the part is still at a relatively high temperature immediately after release of the part from the mold.

5,065,811

APPARATUS FOR THE MANUFACTURE OF HOT ROLLED STEEL STRIP

Heinrich Scholz, Klopstock, and Rudolf Guse, Portmanoweg, both of Fed. Rep. of Germany, assignors to SMS Schloemann-Siemag Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

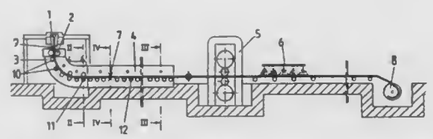
Continuation of Ser. No. 440,341, Nov. 22, 1989, abandoned.

This application Dec. 17, 1990, Ser. No. 630,340

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1988, 3839954

Int. Cl.[5] B22D *11/12, 11/126*

U.S. Cl. 164—460 **28 Claims**



1. Apparatus for the manufacture of hot rolled steel strip comprising:

a mold for the continuous casting of steel strip including cooled walls defining a substantially vertical passage having an outlet end;

a strip guiding device located adjacent said outlet end including means for diverting steel strip issuing downwardly from said outlet end into a substantially horizontal plane;

curved temperature equalization means surrounding said strip diverting means, said curved temperature equalization means positioned adjacent to said outlet end to receive said strip as said strip exiting from said mold and extending the entire length of said strip guiding device, said curved temperature equalization means having means defining a first environment enclosing said steel strip and means external to said first environment for adding heat to said first environment so that said strip is maintained at a predetermined temperature profile starting substantially at said mold outlet end and continuing during its passage through said curved temperature equalization means;

substantially horizontal strip transfer means adapted to receive steel strip from said strip guiding device;

straight temperature equalization means surrounding at least the portion of said strip transfer means adjacent said strip guiding device, said straight temperature equalization means positioned substantially adjacent to the outlet end of said curved temperature equalization means and extending the entire length of said strip transfer means, said straight temperature equalization means having means defining a second environment enclosing said steel strip and means external to said second environment for adding heat to said second environment so that said strip is maintained at a predetermined temperature profile during its passage through said straight temperature equalization means;

crosscutting means adapted to sever said steel strip within said straight temperature equalization means; and,

a rolling mill adapted to receive said steel strip from said strip transfer means.

17. A method for hot rolling steel strip comprising the steps of:

A. continuously casting steel strip in a strip casting mold having a vertical passage therethrough to form a steel strip which is sufficiently thin that the strip substantially solidifies upon exiting said passage;

B. diverting the strip exiting from said passage into a horizontal plane within a curved temperature equalization means, said curved temperature equalization means being positioned adjacent to said passage to receive said strip as said strip exiting from said mold and having means defining a first environment enclosing said steel strip;

adding heat to said first environment so that said strip is maintained at a predetermined temperature profile starting at the outlet end of said mold passage and continuing during its passage through said curved temperature equalization means;

D. conveying said diverted strip through a straight temperature equalization means, said straight temperature equalization means having means defining a second environment enclosing said steel strip;

E. adding heat to said second environment so that said strip is maintained at a predetermined temperature profile during its passage through said straight temperature equalization means;

F. crosscutting said strip along a line normal to its direction of travel within said straight temperature equalization means; and

G. rolling said crosscut lengths of strip in a rolling mill.

5,065,812

PROCESS FOR THE TWIN-ROLL TYPE, CONTINUOUS CASTING OF METAL SHEETS

Toshiaki Mizoguchi, and Kenichi Miyazawa, both of Futtsu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Sep. 5, 1990, Ser. No. 578,305

Claims priority, application Japan, Sep. 11, 1989, 1-232910

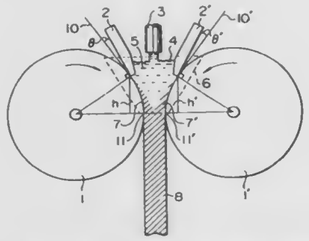
Int. Cl.[5] B22D *11/06*

U.S. Cl. 164—480 **6 Claims**

1. A process for the twin-roll type, continuous casting of metal sheets, which comprises supplying a molten metal into the clearance between a pair of rolls, provided with control plates, respectively, solidifying the supplied molten metal and rolling the solidified molten metal, thereby producing cast pieces in a sheet form, the casting being carried out under a condition given by the following equation:

VOL 1132 ISS 3 NO 19 1991 UMI

$u \geqq d/a$



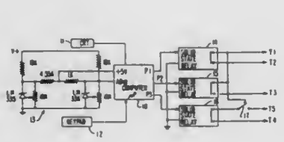
wherein u is a roll surface speed (m/sec), d is a thickness of the lower edge of each of control plates (mm) and a is a coefficient depending upon the species of molten metal.

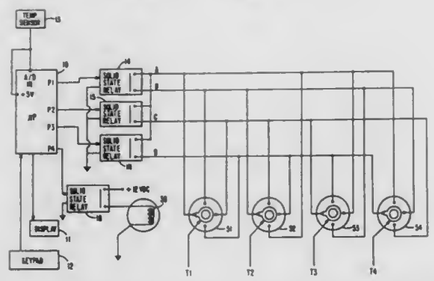
5,065,813

INTERACTIVE ELECTRONIC THERMOSTAT WITH INSTALLATION ASSISTANCE

Arnold D. Berkeley, 10687 Weymouth St., Apt. 102, Bethesda, Md. 20814; Alec Bernstein, and Daniel C. Carney, both of Baltimore, Md., assignors to Arnold D. Berkeley, Bethesda, Md.

Filed Dec. 9, 1988, Ser. No. 282,319
Int. Cl.[5] F25B *29/00, 49/00*
U.S. Cl. 165—1 **32 Claims**





10. A method for automatically interacting between an electronic thermostat and an installer for the purpose of effecting proper electrical connections required at the thermostat for a plurality of wires of a temperature-modifying apparatus controlled by the thermostat, said thermostat including means for automatically structuring said thermostat for proper operation of said apparatus with connections of said wires to said thermostat, said method comprising the steps of:

requesting and receiving entry of installer-initiated indications into said thermostat;

providing a plurality of sequential instructional prompts in a commonly spoken language to instruct the installer to follow respectiev steps to effect proper operation of said apparatus for the electrical connections of said plurality of wires at said thermostat, said prompts also including instructions to the installer to enter installer-observed responses of said apparatus; and

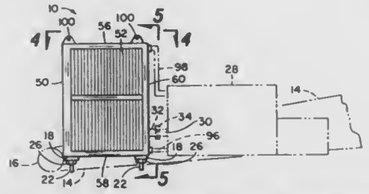
causing said structuring means to automatically structure said thermostat for proper operation of said apparatus with connections of said wires in response to entered installer-observed apparatus responses.

5,065,814

REDUCED NOISE MODULAR COOLING SYSTEM

Frederick W. Loeber, Tulsa, and George O. Greene, Glenpool, both of Okla., assignors to Terex Corporation, Green Bay, Wis.

Filed Nov. 1, 1990, Ser. No. 607,915
Int. Cl.[5] F01P *5/02;* **B60K** *11/04*
U.S. Cl. 165—41 **4 Claims**



1. A modular cooling system for a large engine powered machine having a machine frame, comprising:

an upright modular superstructure having a horizontal bottom, a horizontal top, opposed vertical sides, a vertical front and a vertical rear;

means to removably mount said superstructure on a machine frame whereby the superstructure front is oriented in the forward direction of travel of the machine;

vertical air cooled radiator portions affixed to said superstructure front and opposed sides;

a floor closing said superstructure bottom;

a hood closing said superstructure top;

a vertical fan panel closing said superstructure rear, the panel having at least one fan shroud opening therein, a plenum chamber being thereby formed within said superstructure;

a fan rotatably supported by said superstructure within each said at least one fan shroud opening in said fan panel, air being expelled from said plenum chamber by and through said fan to create a reduced differential air pressure within said plenum chamber, air flowing into said plenum chamber through each of said three radiator portions, the differential air pressure within said plenum chamber being equally applied to each of said three radiator portions;

means connected to the machine engine for driving each said fan to evacuate air from said plenum chamber; and

means for circulating at least one fluid from the machine engine through said radiator portions.

5,065,815

FORCE FREE SUSPENSION OF HEAT EXCHANGE BUNDLES WITH HIGH TEMPERATURE ADMISSION FLOW

Helmut David; J. Ernst Malik, and Rainer Schmidt, all of Oberhausen, Fed. Rep. of Germany, assignors to Man Gutehoffnungshütte Aktinegesellschaft, Oberhausen, Fed. Rep. of Germany

Filed Oct. 24, 1990, Ser. No. 602,794
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1989, 3935871
Int. Cl.[5] F28F *9/00*
U.S. Cl. 165—67 **6 Claims**

1. A heat exchanger arranged in a horizontally positioned container for carrying extremely hot gaseous or vapor media comprising:

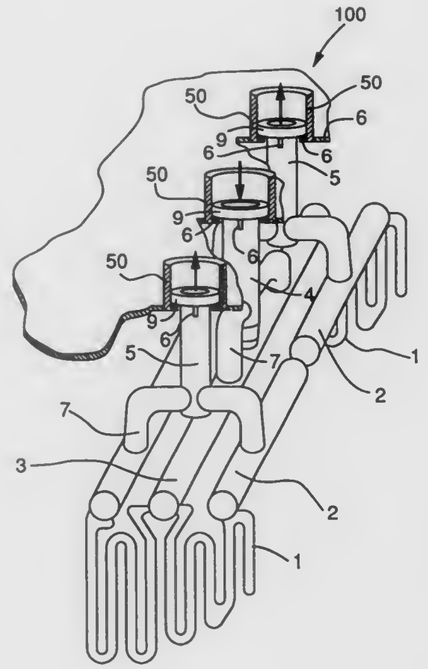
a heat exchanger unit including a bank of tubes defined by tube walls, an inlet port, a collector connected to said inlet port and connected to said tubes, an outlet port, first and second outlet port collectors each outlet port collector being connected to said outlet port and connected to said tubes; and bracket suspension means connected to passages of said container for suspendedly supporting each of said inlet port and said outlet port and connected bank of tubes.

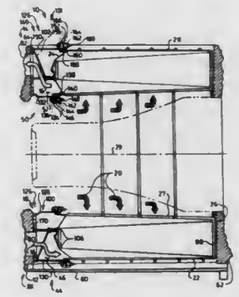
5,065,816

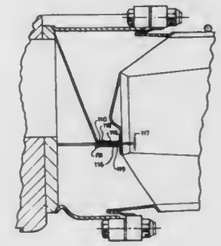
SEALING SYSTEM FOR A CIRCULAR HEAT EXCHANGER

Charles T. Darragh, San Diego, Calif., assignor to Solar Turbines Incorporated, San Diego, Calif.

Filed May 29, 1990, Ser. No. 530,954
Int. Cl.[5] F28F *9/00*
U.S. Cl. 165—125 **25 Claims**







22. The heat exchanger of claim 21 wherein said manifold further includes a continuous seal interwoven between the plurality of inlet and outlet ports.

5,065,817

AUGER TYPE ICE FLAKING MACHINE WITH ENHANCED HEAT TRANSFER CAPACITY EVAPORATOR/FREEZING SECTION

Robert J. Alvarez, Denver; Tom N. Martineau, Aurora, and Steven D. VanderBurgh, Boulder, all of Colo., assignors to Mile High Equipment Company, Denver, Colo.

Division of Ser. No. 443,019, Nov. 29, 1989, which is a continuation of Ser. No. 257,770, Oct. 14, 1988, abandoned. This application Jun. 1, 1990, Ser. No. 533,160
Int. Cl.[5] F28D *1/02*
U.S. Cl. 165—153 **6 Claims**

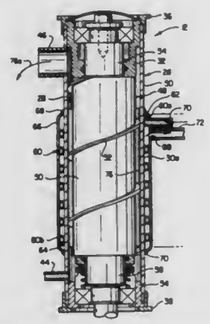
1. A method of transferring heat between a first pipe and fluid flowing through a second pipe, said method comprising the steps of:

substantially roughening an outer side surface portion of a first pipe to create relatively small, laterally outwardly projecting sections;

tightly wrapping a second pipe around the outer surface portion of the first pipe, the second pipe being pressed

VOL 1132 ISS 3 NOV 19 1991 UMI

firmly against the laterally projecting sections on the outer side surface of the first pipe in a manner substantially increasing surface-to-surface contact area, and thus the heat transfer rate, between the first pipe and the second



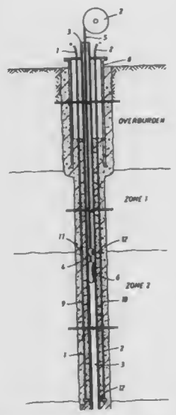
pipe, and creating a substantial gripping force between the outer side surface portion of the first pipe and the second pipe which materially inhibits movement of the second pipe relative the first pipe.

5,065,818

SUBTERRANEAN HEATERS

Cornelis F. H. Van Egmond, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jan. 7, 1991, Ser. No. 637,859
Int. Cl.[5] E21B *36/04*
U.S. Cl. 166—60 **10 Claims**



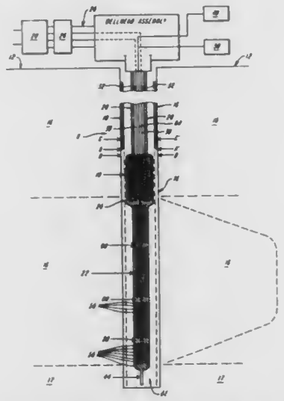
1. A subterranean heater with a well borehole in a formation to be heated, the heater comprising:
a) at least one electrically resistive core;
b) mineral insulation surrounding the core;
c) a sheath surrounding the mineral insulation;
d) cement securing the sheath in the well borehole, wherein a casing is not present within the well borehole in the formation to be heated; and
e) a means to supply electrical power through the electrically resistive core.

5,065,819

ELECTROMAGNETIC APPARATUS AND METHOD FOR IN SITU HEATING AND RECOVERY OF ORGANIC AND INORGANIC MATERIALS

Raymond S. Kasevich, Weston, Mass., assignor to KAI Technologies, Woburn, Mass.

Filed Mar. 9, 1990, Ser. No. 491,005
Int. Cl.[5] E21B *36/04, 43/24*
U.S. Cl. 166—248 **34 Claims**



1. An apparatus for processing and extracting organic or inorganic materials from a subsurface formation wherein electromagnetic energy is transmitted from a radio frequency generator through a coaxial transmission line to a radio frequency antenna inserted in a borehole in said subsurface formation, said apparatus comprising:
a radio frequency antenna for radiating energy into said subsurface formation, said antenna having a plurality of apertures in a distal section;
a production flow line for connecting a material collection region of said borehole to a storage facility;
lifting means in operative connection with said production flow line for transferring said materials from said material collection region to said storage facility; and
a coaxial dielectric liquid impedance transformer provided for quarter-wave impedance matching between said radio frequency generator and said antenna.

5,065,820

CONTROL OF LOST CIRCULATION IN WELLS

James B. Bloys, Plano, and Bonsall S. Wilton, McKinney, both of Tex., assignors to Atlantic Richfield Company, Los Angelels, Calif.

Filed Oct. 9, 1990, Ser. No. 594,252
Int. Cl.[5] E21B *33/138*
U.S. Cl. 166—291 **12 Claims**

1. A method of controlling lost circulation of fluid from a wellbore into passages of a formation penetrated by said wellbore, said method comprising:
flowing a treating mixture down said wellbore and into said passages of said formation, said treating mixture comprising:
a non-aqueous carrier fluid;
a first lost circulation material comprising particles of sponge-like material which expands upon contact with an aqueous fluid; and
a second lost circulation material.

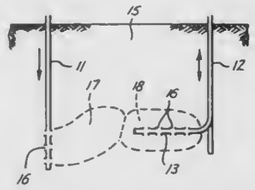
8. A mixture for controlling lost circulation of fluids from a wellbore comprising:
a non-aqueous carrier fluid;
a first lost circulation material comprising particles of sponge-like material which expands upon contact with an aqueous fluid; and
a second lost circulation material.

5,065,821

GAS FLOODING WITH HORIZONTAL AND VERTICAL WELLS

Wann-Sheng Huang, Houston, and Jack J. Hsu, Stafford, both of Tex., assignors to Texaco Inc., White Plains, N.Y.

Filed Jan. 11, 1990, Ser. No. 463,704
Int. Cl.[5] E21B *43/00*
U.S. Cl. 166—245 **8 Claims**



1. A method of producing hydrocarbons from a portion of an underground formation bounded by at least one substantially vertical well and at least one well having both a vertical wellbore and a horizontal wellbore, comprising:
injecting a gas into the formation through a first substantially vertical injection well;
performing concurrently with the gas injection through the vertical injection well at least one cycle of gas injection, soak, and production through a horizontal wellbore of a combination vertical and horizontal well;
said horizontal wellbore extending from the vertical wellbore of the combination well about one-third to about two-thirds of the distance to the first substantially vertical injection well;
after the gas injected through the first substantially vertical injection well reaches the portion of the formation affected by the gas injected and produced through the horizontal wellbore, converting the first substantially vertical injection well to a first substantially vertical production well;
setting a production pump relatively near the bottom of the first production well;
injecting gas continuously through perforations in the vertical wellbore of the combination vertical and horizontal well relatively near the bottom of the vertical wellbore; and
producing gas and hydrocarbons from the first substantially vertical production well.

5,065,822

CROSSLINKING WATER SOLUBLE POLYMERS WITH IRON TO FORM GELS FOR USE IN SUBTERRANEAN PROFILE MODIFICATION

Edward E. Miller, Plano Collin, Tex., and Peter J. Strydom, Morriston, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Sep. 14, 1990, Ser. No. 582,068
Int. Cl.[5] E21B *33/138;* E02D *3/12*
U.S. Cl. 166—295 **9 Claims**

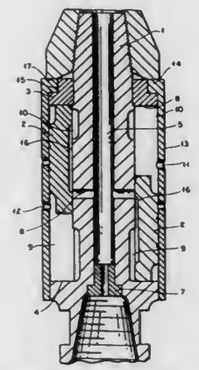
1. In a method for altering the permeability of at least a portion of a subterranean formation wherein a fluid gelable composition is passed into the formation to a preselected location and the composition is gelled to modify the fluid flow profile of said portion of the formation, the improvement comprising using as the fluid gelable composition a composition comprising:
(a) water
(b) a water-thickening and cross-linkable amount of a water-dispersible polysaccharide or a polymer consisting essentially of:
(i) from about 3 to 100 mole percent of acrylic monomer units or salts thereof and
(ii) from about 97 to 0 mole percent of other water-soluble monomer units or salts thereof and
(c) an amount of a polyvalent metal capable of cross-linking said polymer to form a stable gel, said polyvalent metal being provided in the form of a redox couple, said redox couple comprising (iii) at least one water-soluble ferrous reducing agent capable of being oxidized to a higher valence state and (iv) an oxidizing agent effective to oxidize ferrous ion to ferric ion whereby said polyvalent metal is in situ produced in the form of ferric ion by oxidation of said reducing agent by said oxidizing agent.

5,065,823

EXTRACTION DEVICE FOR PNEUMATICALLY ACTUATED DRILLING TOOLS

Abraham Gien, and Bernard L. Gien, both of P.O. Box 471, Edenvale, 1610 Transvall, South Africa

Continuation of Ser. No. 414,724, Sep. 29, 1989, abandoned, which is a continuation of Ser. No. 31,378, Mar. 30, 1987, abandoned. This application Jan. 14, 1991, Ser. No. 640,571
Int. Cl.[5] E02D *9/00*
U.S. Cl. 173—91 **21 Claims**



1. An extracting device for use in extracting a drill rod and a drilling tool from a borehole, comprising:
a hammer carrier having at one end means for connecting it to a drill rod section, said carrier including an annular striking surface remote from said connecting means and having an axial bore for conveying activating fluids;
an annular hammer having upper and lower ends reciprocably movable with respect to the carrier between a striking position adjacent said striking surface and a position removed therefrom;
fluid flow paths including a lateral port in said carrier extending through the wall of said carrier from the axial bore for conveying the activating fluid to said hammer to cause reciprocation, momentum of said hammer on striking the striking surface in use being transmitted to said drill rod to urge said drill rod and the drilling tool out of the borehole; and
a sleeve surrounding said hammer and defining upper and lower chambers between inner walls of said sleeve, said hammer carrier, and said upper and lower ends of said hammer respectively, said fluid flow paths including a recess in the inner wall of the hammer and a recess in the outer wall of said carrier on each side of the lateral port for directing fluid in use to either said upper or said lower chamber, depending upon the position of the hammer, and

VOL 1132 ISS 3 NO 19 1991 UMI

said sleeve having at least one exhaust port opening outwardly through the wall thereof and being free of an intake port;

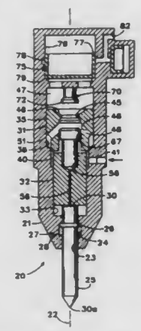
said annular striking surface being provided by a collar held on said carrier by said sleeve and against a shoulder on said carrier by a flange on the end of the sleeve engaging in a recess provided in the outer surface of the collar.

5,065,824

HYDRAULICALLY POWERED REPETITIVE IMPACT HAMMER

Jack B. Ottestad, La Jolla, Calif., assignor to Esco Corporation, Portland, Oreg.

Filed Dec. 28, 1989, Ser. No. 457,479
Int. Cl.[5] B25D *9/18*; F01L *15/12*
U.S. Cl. 173—134 **5 Claims**



5. In an impact hammer of the type having a frame and a hammer head slidably mounted within said frame so as to move along a predetermined axis, said hammer head having respective first and second pressure surfaces located on opposite sides thereof transverse to said axis, a chamber within said hammer head communicating with a poppet port formed in said first pressure surface of said hammer head, a poppet slidably mounted within said chamber so as to move along said axis between respective positions closing or opening said poppet port, said poppet port enabling communication between said second pressure surface and said first pressure surface of said hammer head when said poppet port is open and preventing said communication when said poppet port is closed, respective further first and second pressure surfaces located on opposite sides of said poppet transverse to said axis, a compression chamber within said frame exposed to the first pressure surface of said hammer head and the first pressure surface of said poppet, respectively, inlet means for admitting pressurized fluid to the second pressure surface of said hammer head and the second pressure surface of said poppet, respectively, outlet means for discharging excess fluid, and means for receiving an impact tool for reciprocal movement in the frame so as to be struck by said hammer head, the improvement comprising:

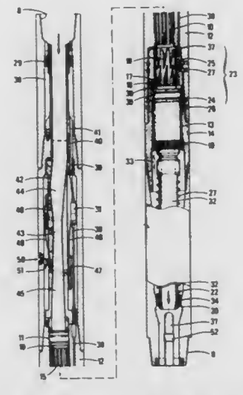
means for braking the movement of said hammer head comprising means responsive to the slidable position of the hammer head within said frame for selectively enclosing fluid in a confined space in response to said hammer head reaching a predetermined position while moving toward said impact tool, said confined space communicating with the second pressure surface of said poppet for exerting pressure thereon and thereby causing said poppet to substantially close said poppet port in response to said hammer head reaching said predetermined position.

5,065,825

METHOD AND DEVICE FOR REMOTE-CONTROLLING DRILL STRING EQUIPMENT BY A SEQUENCE OF INFORMATION

Christian Bardin; Guy Pignard, both of Rueil Malmaison; Jean Boulet, Paris, and Pierre Morin, Levallois Perret, all of France, assignors to Institut Francais du Petrole, Rueil Malmaison, France

Filed Dec. 29, 1989, Ser. No. 459,282
Claims priority, application France, Dec. 30, 1988, 88 17604
Int. Cl.[5] E21B *47/12*
U.S. Cl. 175—38 **12 Claims**



1. A method of controlling drill string equipment extending within a bore hole from a first location on the surface of the earth to a second location beneath the surface of the earth, said method comprising:

issuing from the first location a control sequence to cause a first predetermined action in a first portion of the drill string;

detecting in a second portion of the drill string a condition resulting from the first predetermined action;

comparing the detected condition with a predetermined condition; and

when the detected condition meets or exceeds the predetermined condition, causing a second predetermined action in a third portion of the drill string.

5,065,826

APPARATUS FOR OPTIONAL STRAIGHT OR DIRECTIONAL DRILLING UNDERGROUND FORMATIONS

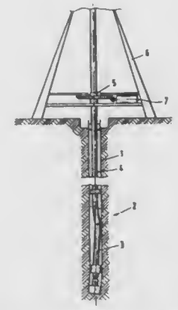
Volker Kruger, Celle, and Rolf Panzke, Blenhorst, both of Fed. Rep. of Germany, assignors to Baker Hughes Incorporated, Houston, Tex.

Continuation of Ser. No. 281,975, Nov. 30, 1988, abandoned, which is a continuation of Ser. No. 145,055, Jan. 19, 1988, abandoned, which is a continuation of Ser. No. 910,286, Sep. 17, 1986, Pat. No. 4,739,842, which is a continuation of Ser. No. 731,181, May 6, 1985, abandoned. This application Oct. 10, 1989, Ser. No. 418,970
Claims priority, application Fed. Rep. of Germany, May 12, 1984, 3417743; May 12, 1984, 8414613; Jun. 26, 1984, 3423465
The portion of the term of this patent subsequent to Apr. 26, 2005, has been disclaimed.
Int. Cl.[5] E21B *7/06, 4/02*
U.S. Cl. 175—75 **2 Claims**

1. A downhole assembly for use in an earth drilling operation, said downhole assembly adapted for use in a drilling system in which the downhole assembly is coupled to a drill string and may be selectively rotated, said downhole assembly comprising,

a substantially rigid housing assembly, said housing assembly including an upper section and a lower section, each said section having a longitudinal axis, said housing having at least one bend which establishes a predetermined angle of deflection between said upper housing section and said lower housing section;

a downhole motor mounted in said housing assembly, said downhole motor mounted at least partially in said upper housing section, said downhole motor having an output shaft;



a drill bit coupled to said output shaft of said downhole motor, said drill bit having a longitudinal axis;

a first concentric stabilizer coupled to said housing assembly, said first stabilizer being generally aligned with said longitudinal axis of said drill bit; and

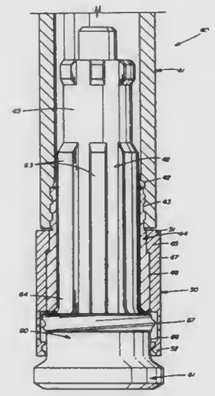
a second concentric stabilizer mounted to the upper section of said housing assembly, said second concentric stabilizer being axially aligned with said drill string, said downhole assembly having no additional stabilizers located intermediate said first and second concentric stabilizers.

5,065,827

HAMMER BIT RETENTION TOOL

John A. Meyers, New Iberia, La.; David E. Drake, Roscoe, Tex., and Charles W. Witt, Fort Smith, Ark., assignors to Smith International, Inc., Houston, Tex.

Filed Dec. 21, 1990, Ser. No. 632,266
Int. Cl.[5] E21B *10/36*
U.S. Cl. 175—414 **11 Claims**



1. A hammer-percussion bit assembly connected to the lower end of a drill string for earth boring operations comprising:

a hammer assembly for imparting kinetic energy to a percussion bit;

a percussion bit having a shank portion mounted within said hammer assembly and a head section extending out of the lower end of said hammer assembly; and

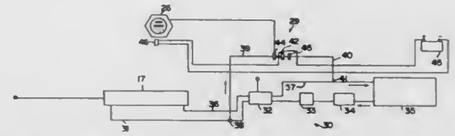
means for retaining the head section of said bit to the assembly during operation and thereafter, should the head section fracture and separate from the shank section.

5,065,828

HYDRAULIC CONTROL SYSTEM FOR WEIGHING

Ronald Smith, Narrabeen, Australia, assignor to Wray-Tech Instruments, Inc., Downers Grove, Ill.

Filed Mar. 5, 1990, Ser. No. 488,679
Int. Cl.[5] G01G *19/08, 19/10, 5/04, 13/00*
U.S. Cl. 177—139 **7 Claims**



1. A bypass control system for reliably and accurately obtaining a weighing signal from a transducer responsive to hydraulic fluid pressure in the hydraulic system of a lift assembly operated by a main control valve means, the bypass control system comprising:

a tap-off connection to a lift circuit of the hydraulic system of a lift assembly;

a bypass line fluidly communicating with the tap-off connection and extending therefrom to bypass said main control valve means;

a pressure responsive transducer means along said bypass line;

a second valve means being a normally closed remote control valve along said bypass line means; and,

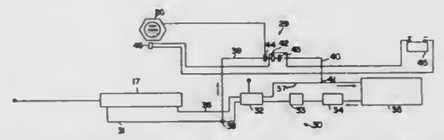
a return line means for returning hydraulic fluid to the hydraulic circuit of said lifting assembly separately from said main control valve means.

5,065,829

HYDRAULIC CONTROL SYSTEM FOR WEIGHING

Ronald Smith, Narrabeen, Australia, assignor to Wray-Tech Instruments, Inc., Downers Grove, Ill.

Division of Ser. No. 488,679, Mar. 5, 1990, Pat. No. 5,065,828.
This application Nov. 16, 1990, Ser. No. 614,869
Int. Cl.[5] G01G *19/08, 19/10, 5/04, 13/00*
U.S. Cl. 177—139 **6 Claims**



1. A motion control method for generating reliable analog electrical signals from a pressure transducer means and providing analog signals responsive to hydraulic fluid pressure caused by lifting a weight by means of an hydraulic lift assembly of a refuse collection vehicle, said method comprising the steps of:

tapping off hydraulic fluid under pressure from the lift circuit of an hydraulic lift assembly of a refuse collection vehicle;

VOL 1132 ISS 3 NO 19 1991 UMI

bypassing said tapped off hydraulic fluid through an hydraulic bypass circuit;

lowering a weight lifted by the hydraulic lift assembly;

directing said tapped-off hydraulic fluid to hydraulic pressure transducer means sensing the pressure in the hydraulic bypass circuit and generating an analog electrical signal corresponding to the weight being lowered by said hydraulic lift assembly;

communicating said analog signal to an analog/digital converter means; and,

creating a digital record of the weight.

5,065,830

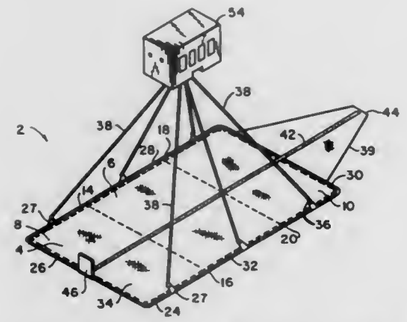
PORTABLE APPARATUS TO WEIGH AND MEASURE INFANTS

Steven Stevenson, P.O. Box 12, Wingdale, N.Y. 12545

Filed Feb. 7, 1991, Ser. No. 652,000

Int. Cl.[5] G01G *21/22*

U.S. Cl. 177—263 **8 Claims**



1. Apparatus for conveniently and safely weighing and measuring an infant, said apparatus comprising a foldable cloth material bed having a head section, a central section and a foot section, a foldable peripheral frame for said bed, said cloth being secured to said frame at a periphery of said cloth, said frame having paired hinges for folding said bed inwardly only along transverse lines between said head and central section and between said central section and said foot section, length measuring means on an upper surface of said bed along a longitudinal axis thereof, a foldable head panel at an outer end edge of said head section of said bed for placing an infant's head against, pairs of cords secured at one end to opposite side edges of said bed frame on each of the head, central and foot sections, with other ends of said cords detachably secured to a bar holder which is connected to a weighing scale from which said bed is suspended when weighing an infant.

5,065,831

MOUNTING ARRANGEMENT FOR FINAL DRIVE UNIT FOR AUTOMOTIVE VEHICLES

Shinichi Murakami, Kanagawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 23, 1990, Ser. No. 527,475

Claims priority, application Japan, May 23, 1989, 1-129891

Int. Cl.[5] B60K *5/02, 17/04, 17/34*

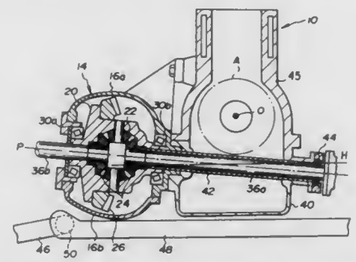
U.S. Cl. 180—55 **7 Claims**

1. A power drive arrangement for an automotive vehicle having a longitudinally mounted engine and an oil pan mounted or integral with the engine, said arrangement comprising:

a pair of axle shafts;

a sleeve for receiving therein one of said pair of axle shafts, said sleeve extending through said oil pan substantially perpendicular to the longitudinal direction of the engine and being inclined at a predetermined angle relative to a horizontal axis of the engine;

means formed in said oil pan for permitting said sleeve to pass therethrough and for permitting said sleeve to be inclined about the horizontal axis; and



an enclosure for receiving therein and rotatably supporting a differential unit, said enclosure being adjacent the engine and fixedly connected to the oil pan, said differential unit engaging an end portion of each of said axle shafts, said differential unit and said enclosure being coaxially positioned about said axle shafts whereby said differential unit and said enclosure is inclined at the same angle as said sleeve.

5,065,832

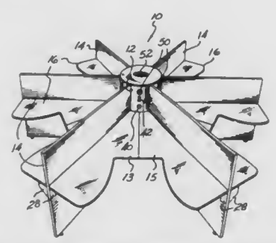
MULTIPLE SECTION WORK STATION

Edward H. Mark, South Bend, Ind., assignor to Packard Industries, Inc., Niles, Mich.

Filed Nov. 2, 1987, Ser. No. 115,818

Int. Cl.[5] A47B *57/00*

U.S. Cl. 108—60 **6 Claims**



1. In a work station having multiple work sections separated by partition walls, the improvement comprising a central core member, said partition walls detachably fastened to said core member at spaced locations and extending outwardly from the core member to define said work sections, each work section including desk top means for supporting working utensils, and means associated with one of said core member and partition walls for supporting said desk top means above a floor, said core member including an internal fan means for drawing ambient air into the core member, said core member further including vent means positioned adjacent each work section for selectively delivering ambient air to each work section.

5,065,833

GROUND-SURFACE-EFFECT WING PLANE

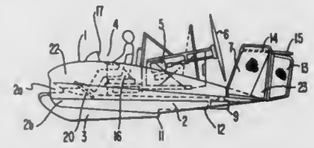
Toshio Matsuoka; Akio Higashida, and Tokuki Satake, all of Kobe, Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 19, 1990, Ser. No. 556,253

Claims priority, application Japan, Jul. 31, 1989, 1-196507; Jan. 31, 1990, 2-21206

Int. Cl.[5] B60V *1/08*

U.S. Cl. 180—117 **7 Claims**



1. A ground-surface-effect winged craft comprising: an airframe including a main body portion in the shape of an airfoil, a float portion defined at a central lower portion of said main body portion of the airframe and imparting buoyancy to the airframe when the craft rests on a body of water, an operator's seat located at a central upper portion of said main body portion above said float portion, side plates extending generally vertically at opposite lateral sides of said main body portion, respectively, the side plates inhibiting air from flowing laterally outwards from the underside of said main body portion, floats located at said side plates, a generally vertically extending tail portion located at the rear of said main body portion, and a generally horizontally extending tail portion located at the rear of said main body portion, said generally horizontally extending tail portion including a stabilizer and an elevator; and propelling means for producing an air flow that will both create a power augmented ramwing effect with said generally horizontally extending tail portion and a thrust on the airframe sufficient to generate a ground-surface-effect between said main body portion and a flat surface such as the surface on which the craft rests, said propelling means including a propeller rotatably supported on said airframe about an axis of rotation, said propeller located adjacent to said generally horizontally extending tail portion with said axis of rotation thereof extending substantially at the level at which said stabilizer is disposed so as to facilitate the production of said power augmented ramwing effect.

5,065,834

DRIVING WHEEL SLIP CONTROL SYSTEM HAVING FAILSAFE FUNCTION

Kazuo Hirabayashi; Tetsuya Oono; Eitetsu Akiyama; Yukihisa Ishii; Shigenobu Sekiya, and Yuji Fujimura, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 16, 1990, Ser. No. 553,041

Claims priority, application Japan, Jul. 17, 1989, 1-83898[U]; Jul. 17, 1989, 1-83899[U]; Jul. 17, 1989, 1-83900[U]; Jul. 17, 1989, 1-83901[U]; Jul. 17, 1989, 1-83904[U]

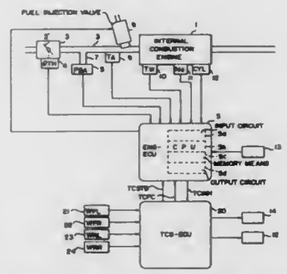
Int. Cl.[5] B60K *28/16*

U.S. Cl. 180—197 **18 Claims**

3. In a driving wheel slip control system which is installed in a vehicle having driving wheels, for controlling a slip of said driving wheels, said vehicle having a prime mover installed therein for driving said driving wheels, said system including slip status signal-generating means for detecting an excessive slip state of said driving wheels and generating a slip status signal indicative of whether or not said driving wheels is in a predetermined slip state, slip level signal-generating means for generating a slip level signal indicative of a degree of slip of said driving wheels, and abnormality-determining means for determining that said slip status signal is abnormal when a logical relationship between said slip status signal and said slip level signal is abnormal;

the improvement comprising:

prime mover operating condition-determining means for determining whether or not said prime mover is accelerating when said abnormality-determining means determines that said slip status signal is abnormal; and



control inhibiting means for causing slip control of said driving wheels responsive to said slip level signal to be continued until it is determined that said prime mover is in an operating condition other than acceleration, and inhibiting said slip control of said driving wheels thereafter while said prime mover is in said operating condition other than acceleration.

5,065,835

MOTOR VEHICLE WITH WHEELS DRIVEN VIA DIFFERENTIAL GEARING OR THE LIKE

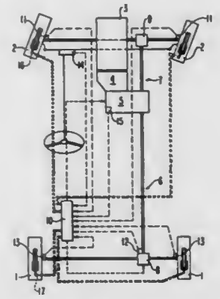
Karl-Heinz Richter, Kernen; Gerhard Rollmann, Tamm; Helmut Struck, Winnenden, and Gerd Eilert, Schwaikheim, all of Fed. Rep. of Germany, assignors to Daimler-Benz AG, Fed. Rep. of Germany

Filed Nov. 14, 1989, Ser. No. 435,995

Claims priority, application Fed. Rep. of Germany, Nov. 26, 1988, 3840004

Int. Cl.[5] B60K *28/16*

U.S. Cl. 180—197 **18 Claims**



1. A motor vehicle having wheels driven via differential gearing, sensors for detecting wheel rotational-speed, and means for forcedly achieving synchronism between the wheels, said means being automatically actuated for predeterminable holding periods when rotational-speed differences exceed predeterminable threshold values and configured for repeated actuation when new occurrences of the predetermined threshold values of the rotational-speed differences are detected, wherein said repeated actuations automatically take place in one of two states comprising successively extended holding periods and on occurrence of successively lowered threshold values if time intervals between occurrences of said

VOL 1132 ISS 3 NO 19 1991 UMI

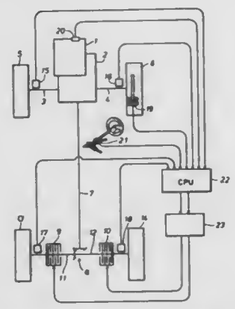
threshold values and respectively preceding actuations of said synchronism means decrease as a first state, and on occurrences of successively lowered threshold values if time intervals between occurrences of said threshold values and respectively preceding actuations of said synchronism means decrease as a second state.

5,065,836

FOUR-WHEEL DRIVE MOTOR VEHICLE HAVING A CONTROLLED DIFFERENTIAL DEVICE

Tetsuro Hamada; Yoshiki Noro, and Noboru Ashikawa, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 175,827, Mar. 31, 1988, Pat. No. 4,921,065. This application Apr. 30, 1990, Ser. No. 516,378
Claims priority, application Japan, Mar. 31, 1987, 62-079281
Int. Cl.[5] B60K *17/354*
U.S. Cl. 180—245 26 Claims



1. A motor vehicle having a first axle shaft driven by a drive source and a second axle shaft which is driven by the same drive source, each of a pair of wheels associated with the second axle shaft being powered by way of individual variable torque transmitting means, further comprising:

a speed sensor for detecting a vehicle speed; and

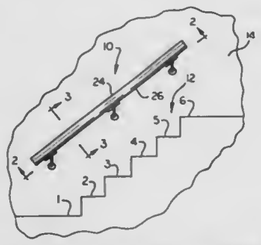
control means for increasing the torque transmission ratios of the two variable torque transmitting means when the speed sensor has detected that the vehicle is stationary such that necessary vehicle traction can be obtained when the vehicle is starting off.

5,065,837

HANDRAIL FOR AIDING VISUALLY HANDICAPPED

Katherine A. Szudy, 6995 Edgecliff Dr., Parma, Ohio 44134

Filed Feb. 5, 1991, Ser. No. 650,907
Int. Cl.[5] G09B *1/00;* E06C *5/34*
U.S. Cl. 182—18 3 Claims



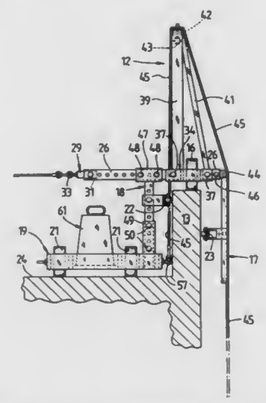
1. An apparatus for use in aiding a visually handicapped person in moving up and down stairs, said apparatus comprising a handrail extending along the stairs, and indicia on said handrail identifying steps along which said handrail extends, said indicia being in the braille system and including characters which project outwardly from said handrail for a distance sufficient to enable the characters of said indicia to be felt by human fingers.

5,065,838

MOVABLE SUPPORT FOR WINDOW WASHERS AND THE LIKE

Arthur C. Finley, 2742 Stonefield Dr., Fultondale, Ala. 35068

Filed Aug. 29, 1990, Ser. No. 574,059
Int. Cl.[5] E04G *3/10, 3/14*
U.S. Cl. 182—38 20 Claims



1. An apparatus used in conjunction with a rope and a harness for a window washer washing windows along the side of a building having a parapet wall thereon comprising:

(a) a movable support frame supportcd on the roof and parapet wall of the building with said frame directing the line of action of a force applied by the weight of a window washer substantially downwardly into the parapet wall;

(b) means mounted to said support frame for guiding said support frame along the parapet wall; and

(c) a ladder mounted to said support frame allowing the window washer to step over and descend the parapet to begin cleaning.

5,065,839

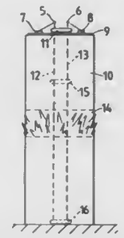
ESCAPE SYSTEM

George W. Napier, 19 Hadrian Court, Darras Hall, Ponteland, Newcastle-upon-Tyne NE20 9JU, England

Filed Jun. 12, 1989, Ser. No. 365,931
Claims priority, application United Kingdom, Jun. 14, 1988, 8814101
Int. Cl.[5] H62B *1/02*
U.S. Cl. 182—47 8 Claims

1. An escape system for enabling occupants to escape from the upper levels of a building, comprising lift means selected from the group consisting of davits and cranes mounted at a position located at an upper level of said building, at least two fire-resistant cables depending from said lift means, a fire-resistant substantially air-tight vessel of a smooth external generally rounded shape to minimize the effect of wind, said vessel being attached to the respective cables at spaced-apart points on said vessel, which is suspended at the upper levels of said building, bridge means pivotally attached to said vessel for pivoting between a first position in which the bridge means is stowed when not in use and a second position in which the bridge means affords access for personnel from said building into said vessel, drive means for said lift means, mounted upon said building, whereby said lift means may be operated to

retract said cables and thereby raise said vessel from a lower position to a higher position, and brake means, operable from



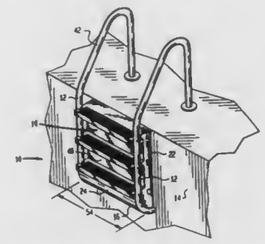
within said vessel, to control lowering of said vessel by gravity from a higher position to a lower position.

5,065,840

SWIMMING POOL SAFETY LADDER

Lloyd Cadigan, 30 Witches Hollow Rd., Millstone, N.J. 08535

Filed Nov. 5, 1990, Ser. No. 609,445
Int. Cl.[5] E06C *9/00*
U.S. Cl. 182—93 7 Claims



1. A safety ladder for a side wall of a swimming pool comprising:

a pair of handrails;

a plurality of vertically disposed steps secured to, and extending between, said handrails, each including a pair of opposing side edges and a back edge;

with said plurality of steps being fabricated of a construction joining together said back edges of adjacent steps of said plurality and also joining together corresponding side edges of adjacent steps of said plurality, thereby forming a unitized enclosure;

and with said construction joining together said back edges of said steps substantially flush with said swimming pool side wall; and

wherein said handrails include a curvilinear section at one end thereof curving inwardly of said pool and towards said side wall, and wherein one step of said plurality incorporates an underside surface of corresponding curvilinearity, extending to contact said swimming pool side wall.

5,065,841

LUBRICATING SYSTEM FOR A VERTICAL SHAFT ENGINE

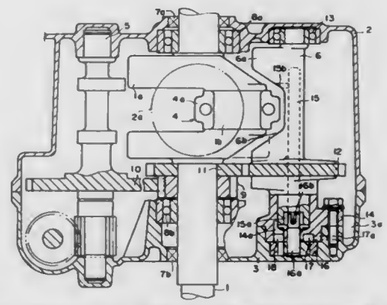
Katsumi Takagaki, Urawa, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 31, 1990, Ser. No. 577,252
Claims priority, application Japan, Sep. 27, 1989, 1-113945[U]
Int. Cl.[5] F01M *1/04*
U.S. Cl. 184—6.18 6 Claims

1. In a lubricating system for a vertical shaft engine having a crankcase housing a camshaft and storing lubricating oil, a vertical crankshaft rotatably mounted in the crankcase and comprising a crankpin and a pair of crank webs, a connecting rod jounaled by said crankpin at a big end of the connecting rod, a balancer shaft parallel to said vertical crankshaft and rotatably mounted in said crankcase at a side of said crankshaft opposite from said camshaft, a counterweight on said balancer shaft for counterbalancing the mass of said crank webs, an oil pump coaxially mounted under said balancer shaft in said crankcase, so as to be driven by the balancer shaft the improvement of said system which comprises:

an oil passage vertically formed in a center portion of said balancer shaft between said pump and an upper portion of said counterweight and communicating with said pump;

an ejecting port substantially horizontally formed in said counterweight and perpendicularly communicating with said oil passage for supplying the lubricating oil to said big end of the connecting rod;



said counterweight having a recessed portion at a center portion thereof in which recessed portion the crankpin is expendable such that said being end of the connecting rod avoids interfering with said counterweight when said crankshaft rotates; and

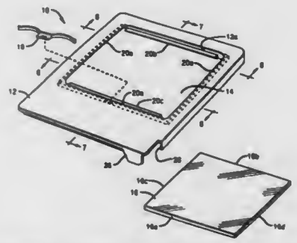
said ejecting port being disposed at an upper portion of said recessed portion adjacent an upper portion of the crankpin for closely approaching an upper side of said big end and being synchronized by timing both rotation of said crankshaft and of said balancer shaft so as to cause said ejecting port to substantially coincide with said upper side of said big end, whereby said big end is properly lubricated with a simple structure.

5,065,842

REMOVABLE WINDOW CARRIER FOR MOUNTING IN A SCANNER CHECKOUT COUNTER

Rathindra Nahar, Cambridge, Ohio, assignor to NCR Corporation, Dayton, Ohio

Filed Aug. 18, 1989, Ser. No. 395,624
Int. Cl.[5] A47F *9/04*
U.S. Cl. 186—61 4 Claims



1. A removable window carrier for mounting in a scanner checkout counter having a top surface;

said removable window carrier comprising:

a frame member having an aperture therein;

VOL 1132 ISS 3 NO 19 1991 UMI

a window member; and

securing means located on said frame member and associated with said aperture for removably securing said window member in said aperture;

whereby when said removable window carrier is mounted in the scanner checkout counter said window member provides a transparent support through which scanning light beams are projected and over which items of merchandise bearing coded labels are passed;

said frame member including first and second walls which are generally opposed to third and fourth walls, respectively, to define said aperture; said securing means including a top flange located only on said first, second, and fourth walls and further including first and second bottom flanges which are located only on said first and third walls, respectively, whereby said top flange and said first and second bottom flanges cooperate to secure the window member in said aperture.

5,065,843

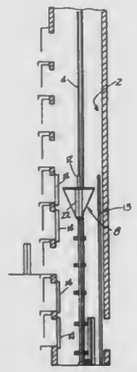
METHOD FOR INSTALLING ELEVATOR SYSTEM COMPONENTS

Douglas Richards, Crayford, England, assignor to Otis Elevator Company, Farmington, Conn.

Filed May 16, 1990, Ser. No. 523,941

Int. Cl.[5] B66B *9/18*

U.S. Cl. 187—1 R **1 Claim**



1. A method for installing elevator system components in an elevator hoistway in a building under construction, said method comprising;

(a) positioning a construction elevator in said hoistway along with the elevator system components;

(b) hoisting said construction elevator in the hoistway;

(c) positioning a working platform over a top of the hoistway to cover the hoistway;

(d) plumbing lines of installation for each elevator system component in the hoistway from the working platform when the latter is positioned at the top of the hoistway;

(e) winching the elevator system components upward in the hoistway from the working platform while the latter is positioned at the top of the hoistway along the plumb lines to the construction elevator; and

(f) securing the elevator system components along the plumb lines from the construction elevator.

5,065,844

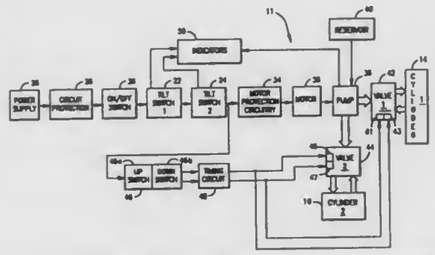
HYDRAULIC PLATFORM AND LEVEL CORRECTING CONTROL SYSTEM

Clarence C. Hon, Cherry Hill, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Nov. 3, 1989, Ser. No. 431,110

Int. Cl.[5] B66B *11/04*

U.S. Cl. 187—17 **23 Claims**



1. A hydraulic lifting platform utilizing an electrohydraulic control system comprising

a pair of double acting hydraulic actuating means for providing the lifting force for said platform,

control circuit means for driving said hydraulic actuation means,

at least one angular position detection switch, said control circuit means being responsive to said switch, said switch comprising an electrically conductive liquid switch for determining if said platform is tilting in any direction during normal operation and to terminate power to said control circuit means if said platform is tilting whereby platform operation is suspended, and

a servomechanism which is responsive to said angular position detection switch for adjusting the level of the platform when a tilt is detected in the platform during normal operation and resuming the normal operation when the platform is level.

5,065,845

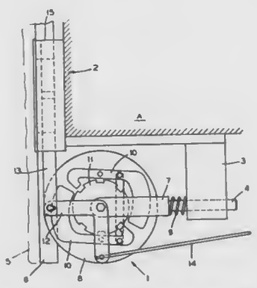
SPEED GOVERNOR SAFETY DEVICE FOR STOPPING AN ELEVATOR CAR

David B. Pearson, 796 Lynwood St., Raitan, N.J. 08869

Filed Sep. 13, 1990, Ser. No. 582,428

Int. Cl.[5] B66B *5/22*

U.S. Cl. 187—89 **20 Claims**



1. An apparatus for stopping an elevator car comprising: a safety device for engaging an elevator guide rail to stop an elevator car; and a speed governor having a running wheel rotatably mounted on an axle attached to a U-shaped frame, said wheel being biased against and driven by the guide rail for the elevator car in an elevator shaft and said U-shaped frame being attached to an axially slidable shaft, said slidable shaft being guided by a bracket adapted to be attached to the elevator car, a ratchet wheel fixedly attached to said axle, at least one pair of centrifugal force operated release levers attached to said running wheel which during normal operation of the elevator car rotate around said ratchet wheel, an actuating lever attached to said axle, and a release arm connected between said actuating lever and said safety device whereby upon the occurrence of an overspeed condition of the car in either direction of travel of the car, said release levers engage said ratchet wheel causing said ratchet wheel to rotate in a direction corresponding to the direction of travel of the car, said ratchet wheel further causing said actuating lever to be rotated in a direction corresponding to the direction of travel of the car to move said release arm in a direction associated with the direction of travel of the car and actuate said safety device.

5,065,846

ELEVATOR GROUP CONTROL FOR THE IMMEDIATE ASSIGNMENT OF DESTINATION CALLS

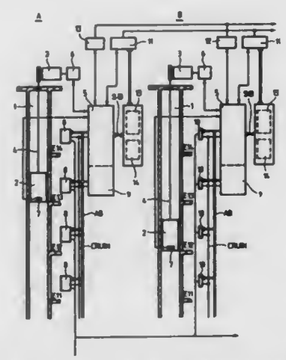
Joris Schroder, Lucerne, Switzerland, assignor to Inventio AG, Switzerland

Filed Jan. 12, 1990, Ser. No. 464,524

Claims priority, application Switzerland, Jan. 19, 1989, 169/89-9

Int. Cl.[5] B66B *1/18*

U.S. Cl. 187—127 **8 Claims**



1. In a group control for elevators having at least two elevator cars for serving a plurality of floors and for the immediate assignment of floor calls of destination including call registering devices located at the floors for entering calls for desired floors of destination, a call memory for each elevator of the group connected with the call registering devices, wherein on the input of call at a floor, a call identifying the input floor and a call identifying the destination floor are stored in the call memories, load measuring devices provided in the cars of the elevator group and connected with a load memory in which load values corresponding to the persons present in the car at a future stop are stored, a selector associated with each elevator of the group and indicating the floor of a possible stop, and means for assigning the entered calls to the cars of the elevator group immediately after the calls are entered having for each car a computer and a comparison device, the computer calculating operating costs corresponding to the waiting times of passengers from data specific to the associated elevator, the comparator comparing the operating costs of all of the elevators one with the other, and the computer assigning the call concerned to that car which displays the lowest operating costs through entry of an assignment instruction into an associated assignment memory, the improvement comprising:

the call memory for each elevator car including a first register for storing calls of like direction of travel entered ahead of the car, a second register for storing calls of opposite direction of travel and a third register for storing calls of like direction of travel entered behind the car, and the selector being connected only with said first register and the associated assignment memory;

the load memory for each elevator car including at least two columns of memory cells wherein the load values resulting from the calls entered ahead of the car in the like direction of travel are stored in the memory cells of one of said columns and the load values v resulting from the calls entered behind the car in the like direction of travel are stored in the memory cells of the other column; and

a control circuit for each elevator car connected with the call memory and the load memory associated with the car and activated by each entry of a call such that a call in the same direction of travel as the car is according to its position with respect to the car written into one of said first and third registers and access to the associated one of said columns is enabled, said control circuit transferring the calls of said third register into said second register on a first change in direction of travel of the car and into said first register on a second change in direction of travel of the car.

5,065,847

BRIEFCASE FORMED WITH THERMOFORMED LAMINATE SHELLS

Dick M. Hsieh, No. 18, Lane 777, Chung Shan Rd., Kuei Jen Hsiang, Tainan Hsien, Taiwan

Continuation of Ser. No. 514,873, Apr. 26, 1990, abandoned.

This application Mar. 28, 1991, Ser. No. 676,746

Int. Cl.[5] A45C *3/00, 13/00, 5/02*

U.S. Cl. 190—125 **2 Claims**

1. A briefcase, comprising two pan shaped casing halves each having a face panel and a peripheral flange, said casing halves being hinged to one another to allow movement between a closed position and an open position, a first and a second briefcase frame respectively attached to each of said casing halves, a handle piece attached to one of said briefcase frames, a lock incorporated in said briefcase frames, said improvement comprising:

each of said casing halves including a pan shaped thermoformed laminate which includes an inner layer of lining fabric, a center layer of plastic EVA foam, and an outer layer of strong fabric cloth, said center layer extending into both said face panel and said peripheral flange and having a thickness sufficient to provide elastic properties and tensile strength to maintain the shape of said casing half.

5,065,848

BRAKE-DISC-ROTOR ATTACHER IMPELLER (INTERSECTING/LOCKER)

David M. Barrett, P.O. Box 1693, Oklahoma City, Okla. 73101

Filed Nov. 27, 1989, Ser. No. 441,633

Int. Cl.[5] B60K *41/20*

U.S. Cl. 192—1.36 **16 Claims**

1. A device for securing a wheeled vehicle which is equipped with disk brakes and disk brake rotors by securing

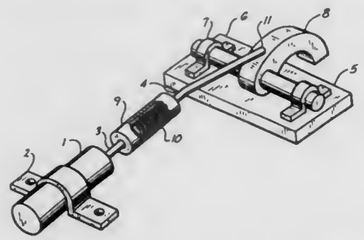
VOL 1132 ISS 3 NO 19 1991 UMI

one or more of the disk brake rotors against movement, and for providing enhanced benefits of security to the vehicle and convenience to an owner of the vehicle, said device comprising:

one or more pawls capable of being inserted into heat-sink recesses of said one or more disk brake rotors;

deploying means for deploying said one or more pawls into a deployed position intersecting one or more of the heat-sink recesses of said one or more disk brake rotors;

controlling means for controlling selective positioning of said one or more pawls in the intersection of, or removal



from, said heat sink recesses of said one or more disk brake rotors;

mounting means for mounting the device in the appropriate position with respect to one or more said disk brakes;

whereby the vehicle securing device does not interfere with the operation of the vehicle by a legitimate operation and functions without requiring action on the part of a legitimate operator to secure the vehicle from being moved by securing the position of one or more ground contacting tires through said one or more pawls intersecting said one or more heat-sink recesses and thus locking said one or more disk brakes.

5,065,849

METHOD FOR CORRECTING DATA USED FOR A CLUTCH CONTROL OPERATION

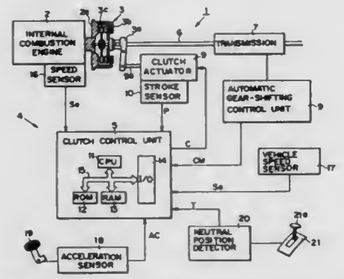
Hiromi Kono, and Masuhiro Ohtsuka, assignors to Diesel Kiki Co., Ltd., Tokyo, Japan

Filed Apr. 4, 1990, Ser. No. 503,975

Claims priority, application Japan, Apr. 12, 1989, 1-90772

Int. Cl.[5] B60K *41/28*

U.S. Cl. 192—0.076 **8 Claims**



1. A method for correcting clutch data relating to a friction type clutch connected with an internal combustion engine for carrying out an engaging operation for driving off a vehicle with a transmission system, the clutch data including meet position data representing a meet position of the clutch, said method comprising the steps of:

updating the meet position data by a predetermined learning operation each time a member for selecting an operation mode of the transmission system is set to a prescribed selected state;

detecting an operation condition of the internal combustion engine on the basis of a rotational speed of the engine during the engaging operation of the clutch each time the engaging operation of the clutch for driving the vehicle off is carried out; and

correcting the meet position data obtained in said updating step in accordance with the detected operation condition obtained in said detecting step.

5,065,850

ACTUATOR FOR A SERVO CONTROLLED CLUTCH WITH LUBRICATING MECHANISM

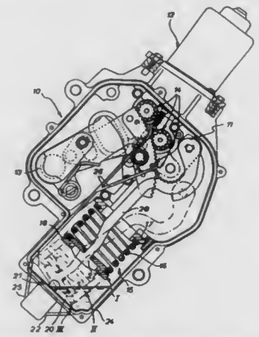
Patrice Bertin, Mery-sur-Oise, and Christian Pankowiak, Saint-Ouen, both of France, assignors to Valeo, Paris, France

Filed Apr. 10, 1990, Ser. No. 506,813

Claims priority, application France, Apr. 13, 1989, 89 04889

Int. Cl.[5] F16D *23/12*

U.S. Cl. 192—90 **8 Claims**



1. An actuator for a servo controlled clutch, comprising: a casing; a motor carried by the casing; and output member carried by the casing for actuating the clutch; a mechanism in the casing, coupling the motor with the output member for controlling the latter under the control of the former, the casing being liquid-tight for containing a reserve of liquid lubricant and including a lower portion; pumping means carried by the casing adjacent to said lower portion of the casing, the pumping means having a suction port and at least one delivery port; means connecting the suction port into the casing; and further means connecting the or each delivery port with said mechanism in at least one region thereof, said mechanism including a moveable thrust unit and the actuator further including means mounting the thrust unit in the casing for reciprocating movement into and out of engagement with the pumping means, whereby to actuate the latter to convey lubricant from said reserve thereof to said region or regions of the mechanism.

5,065,851

CLUTCH CONTROL UNIT

Masuhiro Otsuka, and Hiromi Kono, both of Saitama, Japan, assignors to Zexel Corporation, Tokyo, Japan

Filed Jul. 23, 1990, Ser. No. 556,381

Claims priority, application Japan, Jul. 24, 1989, 1-190877

Int. Cl.[5] F16D *43/00*

U.S. Cl. 192—103 R **2 Claims**

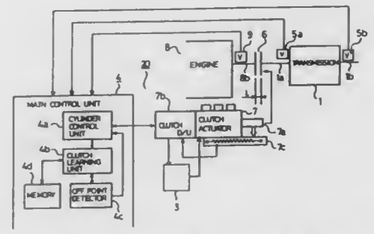
1. A clutch control system comprising:

a clutch;

a clutch control unit for controlling said clutch;

a sensor for detecting the number of revolutions of an output shaft of said clutch;

a clutch learning unit for determining a clutch position at which said number of revolutions is equal to a predetermined value by moving said clutch toward connection from a predetermined learning starting point and controlling said clutch control unit based on said clutch position thus determined;



a clutch off point detector for determining, if said number of revolutions is not zero when said clutch is at said learning starting point, a clutch off point at which said number of revolutions is zero by moving said clutch toward disconnection until said number of revolutions becomes zero; and

said clutch learning unit starting a learning activity by taking said clutch off point as a new learning starting point.

5,065,852

MACHINE FOR AUTOMATICALLY POSITIONING AND FEEDING CONTAINERS

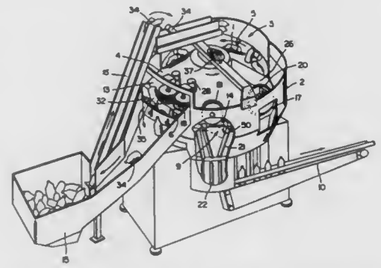
Jaime S. Marti, c/Emancipación 8, 08017-Barcelona, Spain

Filed Dec. 7, 1990, Ser. No. 623,558

Claims priority, application France, Dec. 8, 1989, 89 16675; Jun. 1, 1990, 90 07301

Int. Cl.[5] B65G *29/00*

U.S. Cl. 198—392 **20 Claims**



1. Machine for automatically orienting containers, such as plastic bottles, comprising:

a main hopper for receiving a plurality of randomly positioned containers;

a side wall on said main hopper;

a bottom in said main hopper having a peripheral portion spaced from said side wall to provide a space through which containers on said bottom can pass;

container holder support means having a peripheral portion and supported below said hopper for movement of said peripheral portion thereof in a path adjacent said peripheral portion of said bottom;

means for driving said container holder support means in said path;

container holder means mounted on said container holder support means for movement therewith and forming recesses for receiving and holding the containers in a lying position from said peripheral portion of said bottom;

discharge openings in said container holder means for allowing the containers to pass therethrough;

container support shelf means extending below said holders for supporting the containers in a lying position in said receiving recesses during movement of said container holder means;

a discharge section in said support shelf means for discontinuing support of the containers at a predetermined location so that containers in said container holder means pass through said openings at said discharge section;

tilting means on said container holder means engaging one part of each container for tilting the container into a predetermined position as the container passes through said openings at said discharge section;

chute means mounted below and movable with said discharge openings for receiving, orientating and guiding containers passing through said discharge openings into a predetermined position, each chute means having a lower exit portion;

a lateral aperture in said side wall container holder means in a curved area preceding said discharge section and adapted for ejection therethrough by centrifugal force containers incorrectly positioned on said container holder means;

an external recovering hopper in communication with said lateral aperture for receiving containers ejected through said lateral aperture; and

conveyor means on said external recovering hopper for recycling containers therein by transferring containers from said recovering hopper into the loading area of said main hopper.

5,065,853

LOCKUP CLUTCH OF TORQUE CONVERTER

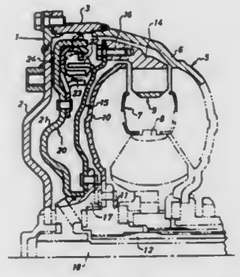
Shinji Fujimoto, and Mitsugu Yamaguchi, both of Neyagawa, Japan, assignors to Kabushiki Kaisha Daikin Seisakusho, Osaka, Japan

Continuation of Ser. No. 393,917, Aug. 4, 1989. This application Jan. 23, 1991, Ser. No. 644,862

Claims priority, application Japan, Dec. 28, 1987, 62-336326

Int. Cl.[5] F16D *33/00*

U.S. Cl. 192—3.29 **2 Claims**



1. A lockup clutch torque converter comprising a front cover as an input part, an impeller linked to an outer circumference of said front cover, a second turbine disposed between said front cover and impeller in a position opposite to said impeller in an axial direction of said torque converter, a first turbine disposed between said impeller and the outer circumference of said second turbine, a stator disposed between said impeller and an inner circumference of said second turbine, a second turbine output part to which the inner circumference of said second turbine is linked, a first turbine power take-off support stretching outside said second turbine in a radial direction of said torque converter and between said second turbine and said front cover, a first turbine output part to which the inner circumference of said support is linked, and a clutch disc slidably mounted on said first turbine output part and disposed

VOL 1132 ISS 3 NOV 19 1991 UMI

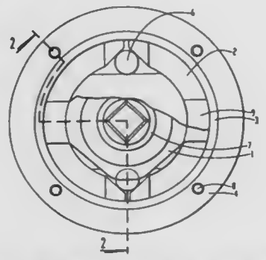
between said support and said front cover, said clutch disc including a piston, a friction facing for linking said clutch disc to an inside of said front cover by friction and an output part on said support, said clutch disc including damper springs for linking said clutch and said output part on said support when said clutch is linked by friction to said front cover.

5,065,854

SECURITY AND REGULATION MECHANISM TO BE USED AS INSTANTANEOUS ANTIRETURN SYSTEM IN BOTH ROTATIONAL TURNS LEVOTURN AND DEXTROTUR

Martin S. Serrano, and Antonio H. Sanz, both of c/Foresth, 4, Tres Cantop, Madrid, Spain

Filed Jan. 30, 1990, Ser. No. 472,667
Claims priority, application Spain, Feb. 1, 1989, 8.900.345
Int. Cl.[5] F16D *67/00*
U.S. Cl. 192—8 R **7 Claims**



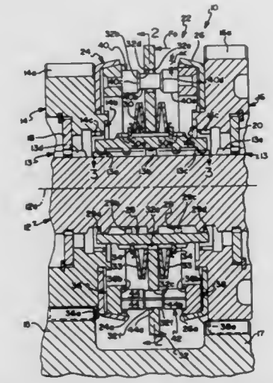
1. Regulatory and safety device to be used as an instantaneous anti-return system in both rotational directions, right and left, comprising: a cylindrical casing having a peripheral braking surface an input driving shaft extending through the casing, a plurality of annular brake-shoes mounted within the casing, a rolling track adjoining the casing upon which the brake-shoes are guided, an output driving shaft mounted on said input driving shaft, and the input shaft supporting the brake-shoes.

5,065,855

SELF-ENERGIZING SPLINES FOR A SYNCHRONIZER

Richard A. Nellums, Chorley, England, assignor to Eaton Corporation, Cleveland, Ohio

Filed Dec. 24, 1990, Ser. No. 632,882
Int. Cl.[5] F16D *23/06*
U.S. Cl. 192—53 E **10 Claims**



1. A pin-type synchronizer mechanism for first and second axially spaced apart gears mounted for rotation and secured against axial movement on shaft means having an axis about which the gears and the shaft means rotate, the mechanism comprising:

gear friction and jaw means affixed to each gear, the friction means engagable with first and second axially spaced apart and axially movable friction means for respectively synchronizing the first and second gears with the shaft, the jaw means engagable with axially movable jaw means defined by a clutch member including axially extending internal spline teeth having flank surfaces disposed for mating relation with flank surfaces of external spline teeth affixed to the shaft means;

a flange extending radially between the first and second friction means for axially moving the axially movable friction and jaw means from a neutral position into said engagement in response to an axially bi-directional shift force (F_o) applied to the flange means securing the flange against rotational movement relative to the clutch member;

blocker means operative when engaged for preventing engagement of the jaw means prior to the synchronizing, the blocker means including a plurality of circumferentially spaced pins rigidly extending axially from the first and second friction means and into openings of the flange, each of the pins having axially spaced apart blocker shoulders engagable with blocker shoulders defined on opposite sides of the flange and about the associated opening;

pre-energizer means for engaging either one of the first and second friction means in response to initial axial movement of the flange by the shift force (F_o) from the neutral position toward one of the gears for engaging the blocker means in response to engagement of the friction means producing a synchronizing torque transmitted to the flange via the pins and for transmitting the shift force (F_o) to the engaged friction means via the engaged blocker means to increase the engaging force of the engaged friction means; characterized by:

the external spline teeth defined by at least first, second, third, and fourth axially spaced apart spline teeth portions, the first and second portions axially disposed between the third and fourth portions and having axially facing ends defining at least one self-energizing ramp surfaces;

the internal spline teeth defined by at least fifth and sixth axially spaced apart spline teeth portions having axially oppositely facing ends defining at least one self-energizing ramp surface, flank surfaces of the first and second portions respectively mating with flank surfaces of the fifth and sixth portions during the neutral position of the jaw member, the flank surfaces of the fifth and sixth portions, respectively mating with flank surfaces of the third and fourth portions during the engaged position of the clutch member jaw means respectively with the first and second gear jaw means, the ramp surfaces of the second and sixth portions engaged in response to synchronizing torque in one direction from the first friction means for producing an axial additive force (F_a) on the flange in the direction of the first friction means, and the ramp surface of the first and fifth portions engaged in response to synchronizing torque in one direction from the second friction means for producing an axial additive force on the flange in the direction of the second friction means.

5,065,856

APPARATUS AND METHOD FOR PACKAGING ARTICLES

Laurie M. Reid; Archie Koster, both of Casselberry, and Gary D. Hunt, Longwood, all of Fla., assignors to Simplimatic Engineering Company, Lynchburg, Va.

Filed Jun. 12, 1989, Ser. No. 365,207
Int. Cl.[5] B65G *47/26*
U.S. Cl. 198—419.3 **24 Claims**

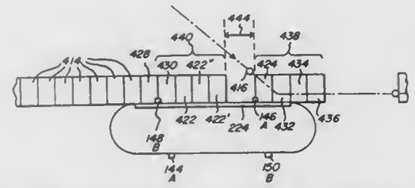
1. A method for generating at least one discrete group of articles from at least one row of articles being conveyed in single file along a conveyor path in a direction from an upstream towards a more downstream position, said method comprising the steps of:

(a) pushing a leading portion of said row onto a stationary section of said conveyor path;

(b) accelerating said leading portion further across said stationary section relative to a remaining portion of said row to generate a gap between said leading and remaining portions and thereby form a discrete group from said leading portion, said accelerating step comprising

i) inserting at least two projecting means into said leading portion between adjacent articles on said stationary section, one said projecting means being leading and the other said projecting means being trailing, the leading projecting means being inserted between adjacent articles at a point downstream from said trailing projecting means by a distance defining a predetermined number of articles in said group to be generated, whereby a defined number of articles comprising said group to be generated is disposed between the leading and trailing projecting means, and

ii) accelerating said leading projecting means relative to said trailing projecting means to propel any articles downstream of said leading projecting means over said stationary section further along said conveyor path in a downstream direction, while the remainder of articles in said row upstream of said trailing projecting means and said defined group of articles immediately downstream of said trailing projecting means is not subjected to such acceleration;



(c) after said accelerating step, inserting an additional projecting means into remaining articles of said leading portion at a point upstream of said trailing projecting means, said additional projecting means being separated from said trailing projecting means by said distance;

(d) also after said acceleration step, withdrawing said leading projecting means from said row, whereby said trailing projecting means becomes a successive leading projecting means and said additional projecting means becomes a successive trailing projective means with a successive defined discrete group of articles therebetween;

(e) accelerating said successive leading projecting means relative to said successive trailing projecting means to propel said defined discrete group over said stationary section further along in said downstream direction to separate said successive defined discrete group from said remainder of articles in said row in accordance with paragraph ii) of step (b); and

(f) repeating paragraph ii) of step (b) and steps (c), (d) and (e) by continuing to insert successive additional projecting means and accelerating each successive defined discrete group in turn downstream of each successive leading projecting means over said stationary section to continuously separate discrete groups from said row, and

wherein said articles are being pushed onto said stationary portion in a downstream direction at a predetermined conveyor speed SM, and each said successive trailing projecting means is moved in said downstream direction at a speed SG1 substantially equal to said speed SM, and each successive trailing projecting means after moving at speed SG1 becomes a successive leading projecting means and is accelerated to a speed SG2 to separate the successive defined discrete group downstream thereof from said row, SG2 being greater than SG1, and

wherein after each successive leading projecting means is accelerated to speed SG2 to separate each successive group, such speed SG2 is maintained along said stationary section to provide a gap of preselected length between each group, and

wherein each successive group is propelled downstream by its corresponding successive leading projecting means until said corresponding successive leading projecting means is withdrawn from said row, and said group is conveyed further downstream by additional conveying means after said corresponding successive leading projecting means is withdrawn, and

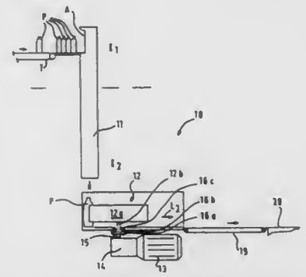
wherein each successive leading projecting means is decelerated to a speed SG3 less than SG2 before being withdrawn from said row to permit a relatively smooth transition for said corresponding group from being propelled by said successive leading projecting means to being conveyed further along said conveyor direction by said additional conveying means.

5,065,857

METHOD IN HANDLING OF RETURNABLE BOTTLES AND DEVICE FOR HANDLING OF RETURNABLE BOTTLES

Raimo Lehtola, Kouvola, Finland, assignor to Halton OY, Finland

PCT No. PCT/FI89/00210, § 371 Date Jul. 18, 1990, § 102(e) Date Jul. 18, 1990, PCT Pub. No. WO90/06274, PCT Pub. Date Jun. 14, 1990
PCT Filed Nov. 15, 1989, Ser. No. 543,774
Claims priority, application Finland, Dec. 2, 1988, 885637
Int. Cl.[5] B65G *47/04*
U.S. Cl. 198—457 **6 Claims**



1. A method for handling returnable bottles from an upper shop space into a lower storage space comprising

arranging a dropping tube vertically such that an upper end of the tube is adjacent to an upper shop space and a lower end of the tube communicates with a lower drop space,

feeding a plurality of returnable bottles into said upper shop space such that the bottles are fed into the tube freely fall by the force of gravity through the tube to said lower drop space,

providing said lower drop space with a rotatable transfer brush having a plurality of bristles such that each bottle falls into a space between said bristles,

rotating said brush such that after each bottle lands between said bristles in said lower drop space, said bottle is displaced from a location under said tube, such that the next bottle may fall freely into a space between said bristles under said tube, and

guiding each bottle out of said lower drop space and into a new storage area via a curved guide part which guides the bottles onto a conveyor.

VOL 1132 ISS 3 NOV 19 1991 UMI

5,065,858

GAS-FED TRANSFER TRACK

Nigel J. Akam, Largs; Donald M. Cameron, Gourock; David K. Halliday, Greenock, and Raymond Paterson, Kirktonhill, all of Scotland, assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Feb. 16, 1990, Ser. No. 481,019
Claims priority, application United Kingdom, Feb. 16, 1989, 8903562.0
Int. Cl.[5] B65G *47/22*
U.S. Cl. 198—493 9 Claims



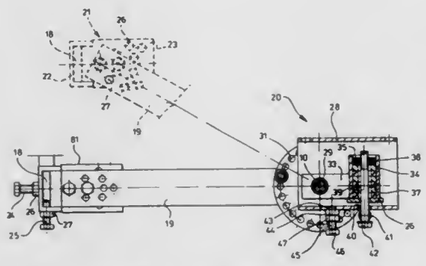
1. A gas feed transfer track for transferring articles from a first to a second location comprising:
a channel-shaped section along which said articles travel;
means for supplying a gas flow along the surface of said channel-shaped section in such a direction as to propel articles from the first to the second location; and
characterized by at least two gas outlet slots positioned to interact in said channel-shaped section for generating turbulence at least at said first location to cause suspension of said articles;
means for controlling the number of articles supplied to said second location at any one time, said means for controlling comprising two stop pins situated in the vicinity of the second location, the movement of which are synchronized such that when one protrudes from the surface of said channel, the other is retracted, and
detection means for sensing the presence of an article at the stop pin nearer said second location to cause said nearer pin to retract and said pin farther from said second location to protrude.

5,065,859

CONVEYOR BELT SCRAPER

John A. Brumby, St. Austell, England, assignor to Ace Conveyor Equipment Limited, Nr Doncaster, England

Filed Apr. 18, 1990, Ser. No. 510,865
Claims priority, application United Kingdom, Apr. 28, 1989, 8909840
Int. Cl.[5] B65G *45/00*
U.S. Cl. 198—499 12 Claims



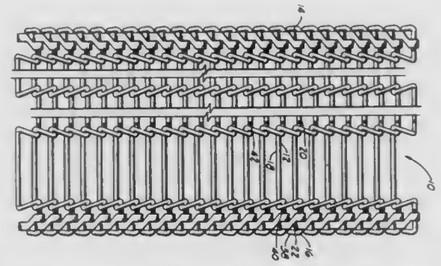
1. In a conveyor belt scraper of the type comprising:
at least one arm adapted to be pivotally mounted by a pivotal connection to a fixed structure adjacent a movable conveyor belt;
a scraper blade secured to a free end of said arm for contact with the belt in use of the scraper; and
resilient biasing means for urging said arm to turn about its pivotal connection to said fixed structure whereby to press said scraper blade into contact with said belt, the improvement comprising:
said resilient biasing means comprising a stack of resiliently compressible elements stressed in compression when said arm is turned in one direction about said pivotal connection;
a stack casing, said resiliently compressible elements being held in a stack by said stack casing;
a secondary arm of said scraper;
means securing said stack casing holding said compressible elements of said resilient biasing means to said secondary arm of said scraper, and
a housing, said secondary arm and said stack casing being located within said housing, and said housing pivotally mounting said at least one arm to said fixed structure adjacent said movable conveyor belt.

5,065,860

CONNECTORS FOR WOVEN CONVEYOR BELTS

William G. Faulkner, 6701 Newman Dr., Oklahoma City, Okla. 73162

Filed Apr. 12, 1990, Ser. No. 508,870
Int. Cl.[5] B65G *15/54*
U.S. Cl. 198—848 2 Claims



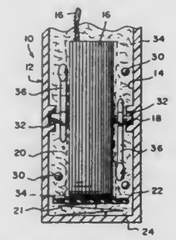
1. An improvement in a woven conveyor belt comprising a plurality of links with each link having opposite ends and a plurality of forward extending clips and a plurality of rearward extending clips wherein each of the forward extending clips on each of the links is clippably connectable to one of the forward extending clips on an adjacent link and wherein each of the rearward extending clips on each of the links is clippably connectable to one of the rearward extending clips on an adjacent link assembly, for connecting the links to form the woven conveyor belt, the improvement comprising:
each link being constructed of a plastic;
a plurality of connectors, each connector having one portion connected to one of the links and another portion connected to an adjacent link whereby the connectors cooperate to substantially prevent the rearward extending clips and the forward extending clips from becoming unclipped during the operation of the woven conveyor belt; and
a pair of posts disposed on each rearward extending clip with each post being disposed near an adjacent rearward clip whereby the posts cooperate with the rearward extending clips for preventing the rearward extending clips from becoming unclipped during the operation of the woven conveyor belt.

5,065,861

TREATED DENTAL FLOSS AND DISPENSER

Michael D. Greene, 100 Woodsville Rd., Hopewell, N.J. 08525, and George Spector, 233 Broadway Rm 3815, New York, N.Y. 10007

Filed Sep. 14, 1990, Ser. No. 582,407
Int. Cl.[5] A61B *19/02*; A61C *15/00*
U.S. Cl. 206—63.5 4 Claims



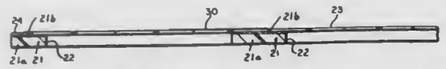
1. An improved dental floss dispenser comprising:
a) a container having a chamber therein;
b) a roll of waxed dental floss having a shaft that is rotatably supported in the chamber of said container;
c) a quantity of powdered baking soda carried in the chamber of said container;
d) means in the bottom of the chamber of said container for roughening said dental floss when said dental floss is being pulled out of said container;
e) means in the chamber of said container for agitating said baking soda while said roughened dental floss is being pulled out of said container so that said baking soda can adhere to said roughened dental floss; and
f) a cutter on said container for removing a piece of the roughened dental floss with particles of said baking soda adhered thereupon so it can be utilized in conjunction with hydrogen peroxide when used in areas between the teeth for the treatment of gingivitis.

5,065,862

PLASTIC CAN CARRIER AND METHOD OF MAKING

Carlton R. Mousseau, Sylvania; Louis M. DiBello, Perrysburg, and Nicholas J. Nicholas, Toledo, all of Ohio, assignors to Owens-Illinois Plastic Products Inc., Toledo, Ohio

Filed Jun. 21, 1990, Ser. No. 541,644
Int. Cl.[5] B65D *71/00*; B29F *3/00*
U.S. Cl. 206—151 15 Claims



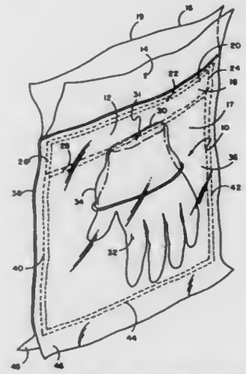
1. The method of making a carrier for a container package for cans having a top, a peripheral bead, a side wall and an inclined portion extending upwardly and inwardly toward the bead, said method comprising
coextruding a web of coextruded plastic comprising a first layer and a second layer, said second layer having a melting point less than that of said first layer,
forming said web into a plurality of interconnected sheet portions of flexible plastic material, each sheet portion having a plurality of openings for receiving the upper ends of the cans, and
successively heat bonding at least one film of plastic material at the isolated areas to the upper surfaces of each sheet portion of said to form a continuous laminated web of carriers of film and sheet portions,
said second layer of the coextruded plastic web having a melting point less than that of said film.
9. A carrier for a container package holding an array of cans, each of which has an annular bead on the upper end thereof comprising
a sheet of flexible plastic material having a plurality of openings forming an array for receiving the ends of the cans and at least one film of plastic material coextensive with said sheet and bonded to isolated portions of said sheet,
said sheet being made as a coextruded sheet comprising a first layer and second layer,
said second layer having a melting point lower than that of said first layer or said film thereby facilitating the bonding of the film to the sheet by heat.
12. A container package comprising
an array of cans, each of which has an annular bead on the upper end thereof comprising
a sheet of flexible plastic material having a plurality of openings forming an array receiving the ends of the cans and at least one film of plastic material coextensive with said sheet and bonded to isolated portions of said sheet,
said sheet being made as a coextruded sheet comprising a first layer and second layer,
said second layer having a melting point lower than that of said first layer or said film thereby facilitating the bonding of the film to the sheet by heat.

5,065,863

STERILE GLOVE PACKAGING AND METHOD OF PREVENTING CONTAMINATION FROM SPREADING FROM ONE ENVIROMENT TO ANOTHER

Francisco Moyet-Ortiz, Valle Tolimas, Calle 11 N-17, Caquas, P.R. 00625

Filed Oct. 9, 1990, Ser. No. 594,694
Int. Cl.[5] B65D *85/18*
U.S. Cl. 206—210 3 Claims



1. A combination glove and packaging comprising;
a glove member having a wrist area, a body area, fingers and a sleeve, said sleeve folded forward over the body of said glove member, said glove member with said sleeve folded forward having a top and a bottom;
a front cover member having a top and a bottom, said front cover member disposed over the top of said glove member;
a rear cover member having a top and a bottom, said rear cover member disposed at the bottom of said glove member;
a releasable upper glove compartment seal extending near the top of and between said front cover member and said rear cover member from said wrist area of said glove member, said upper glove compartment seal extending to join said front cover member to said rear cover member, said upper glove compartment seal dividing said front and rear cover members into an upper entry compartment

VOL 1132 ISS 3 NOV 19 1991 UMI

having left front and rear sides and right front and rear sides and a lower glove compartment having a top and a bottom and left and right sides;

a left seal attaching the left front side of said upper entry compartment to the left rear side of said upper entry compartment;

a right entry seal attaching the right front side of said upper entry compartment to the right rear side of said upper entry compartment; an upper entry compartment seal extending between said left entry seal and said right entry seal, said upper entry seal positioned to leave portions of said front cover member and rear cover member unattached to form a front entry tab and a rear entry tab respectively,

a lower glove compartment seal extending between said front cover member and said rear cover member near the bottom of said glove compartment beneath the fingers of said glove member;

a left glove compartment seal and right glove compartment seal extending respectively from the left and right sides of said lower glove compartment seal up to said upper glove compartment seal, hermetically sealing said glove compartment area with portions of said front cover member and rear cover member extending unattached below said lower glove compartment seal to form separate front glove compartment tab and rear glove compartment tab respectively, said seals being of the type which are separable by peeling; and

a glove attachment member extending around the perimeter of the interior of said sleeve of said glove member at its junction with said upper glove compartment seal, said glove attachment member possessing greater retentive properties than said upper glove compartment seal, such structure adapted to have said upper entry compartment seal and left and right entry seals first separated by pulling apart said front entry tab and rear entry tab along the upper entry seal and left and right entry seals down to said upper glove compartment seal to open said upper entry compartment for insertion of the user's hand through said upper entry compartment into said glove member and when desired, for said front glove compartment tab to be separated from said rear glove compartment tab to separate said lower glove compartment seal and left and right glove compartment seals to peel the front and rear covers back up to said upper glove compartment seal, exposing said glove member with the user's hand therein, said front and rear cover members to be further separated from said glove attachment member at said glove member by further pressure to expose said glove member for use in its sterile mode, such packaging further utilizable while said glove member is contained within said glove compartment for uses suitable therefor while still maintaining said glove member in a sterile condition.

5,065,864

LAUNDRY VALET

Wayne I. Schmitt, Coventry, R.I., assignor to American Tourister, Inc., Warren, R.I.

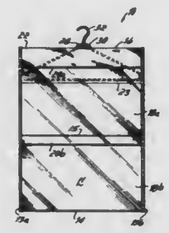
Filed Dec. 20, 1990, Ser. No. 630,831
Int. Cl.[5] A45C *3/00, 13/00*
U.S. Cl. 206—278 **4 Claims**

1. A laundry valet capable of hanging from a variety of available coat hangers comprising:

a pair of generally rectangular-shaped plastic panels, said panels having ends and sides and being secured together along said sides and one of the respective ends to define a first pocket therebetween, at least one of said panels having an opening communicating with and providing access to said first pocket, a zipper extending along said opening for opening and closing said first pocket, said panels being foldable permitting said valet to be conveniently packed,

a generally rectangular shaped fabric piece joined at one end of the valet to the other of the respective ends of said plastic panels, and

a triangular-shaped fabric panel joined to one side of said rectangular shaped fabric piece substantially but not entirely along two legs thereof, said triangular-shaped panel being unsecured to said valet along its base thereby defining a second pocket for removably receiving a coat



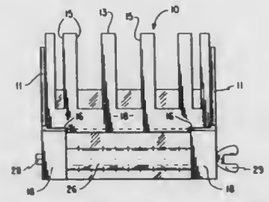
hanger therein, said second pocket being open at the bottom thereof along the unsecured leg of the triangular-shaped panel to receive said coat hanger therein and open at the top thereof permitting the hook portion of the coat hanger to protrude therefrom whereby said laundry valet may be suspended by said coat hanger removably received in said second pocket.

5,065,865

PRESSURE-REGULATED BANDAGE APPLICATOR

Daryl E. Doorenbos, R.R. 2, Box 85A, Le Mars, Iowa 51031

Filed Apr. 17, 1990, Ser. No. 516,070
Int. Cl.[5] B65D *85/67*
U.S. Cl. 206—409 **6 Claims**



1. A tension controlling bandage holder comprising a housing having a compartment adapted to hold a roll of bandage material, roller means to control tension on said material when said bandage material is pulled from said housing, said roller means including a drum having sides engaging said housing and axle means supporting said drum, said axle means being adapted to rotatably journal said drum in said housing, friction control means engaged between said housing and said axle means to create friction between said housing and said drum and to adjust the friction thus created, said bandage material engaging the exterior of said drum to cause said drum to rotate whereby the adjustment of friction between the drum and the housing provides for adjustment of the tension on said bandage material as it is removed from said housing.

5,065,866

STORAGE PHOSPHOR CASSETTE ASSEMBLY

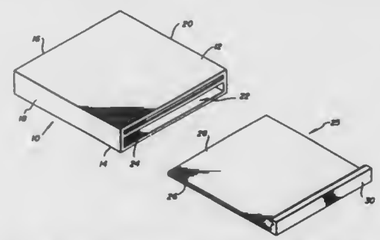
John C. Boutet, Rochester, N.Y., and Gary R. Unruh, Newark, Calif., assignors to Eastman Kodak Company, Rochester, N.Y. and Lumisys, Sunnyvale, Calif.

Filed Nov. 21, 1990, Ser. No. 617,121
Int. Cl.[5] G03B *42/04*
U.S. Cl. 206—455 **3 Claims**

1. A photo-stimulable storage phosphor cassette assembly comprising:

a generally rectangular cassette having spaced, elongated rectangular upper and lower walls and an end wall and spaced side walls joining said upper and lower walls; wherein said upper and lower walls, said end wall and said side walls enclose a five-sided cavity having an open end;

an elongated, rectangular rigid plate supporting a photo-stimulable storage phosphor layer, said plate having an upstanding rib;



said plate being dimensioned to be removably positioned in said cassette cavity so that said rib closes off said cassette open end; and

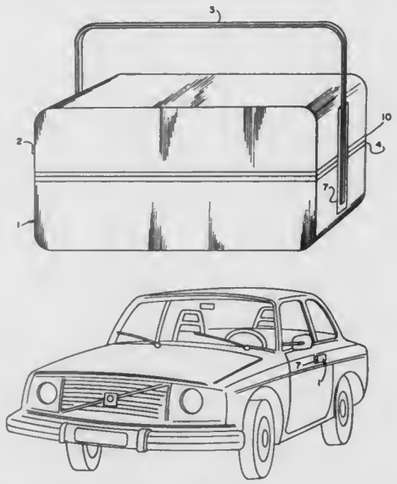
complementary light lock means on said plate rib and said cassette for preventing light from leaking into said cavity when said cassette and storage phosphor plate are assembled together.

5,065,867

HOT AND COLD LUNCH BOX FOR AUTOMOBILE TRAVEL

Henry M. Alfredson, P.O. Box 84, St. James, N.Y. 11780

Filed Oct. 9, 1990, Ser. No. 600,404
Int. Cl.[5] B65D *25/28, 41/02*
U.S. Cl. 206—542 **3 Claims**



1. An insulated lunch box comprising

A pair of receptacles, each adapted to hold food, said receptacles comprising sections of said lunch box, each receptacle being made predominantly of high thermal barrier material, each receptacle having a mouth having a magnetic material at its periphery, whereby the magnetic material of both receptacles constitute means for attaching said receptacles to each other at the mouths of said receptacles, and whereby said magnetic material of each respective receptacle also constitutes means to attach said respective receptacle over the lock and handle on a vehicle, said receptacles each being adapted to placed over said vehicle lock and handle; and

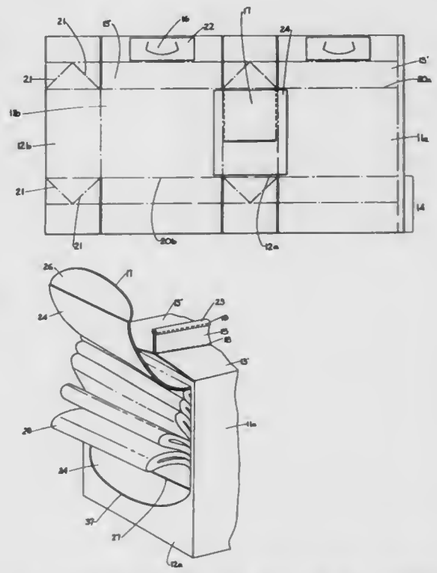
insulating means for closing each receptacle whereby food may be kept at different temperatures in the receptacles.

5,065,868

PACKAGE CONSISTING OF A PAPER BAG COMPACTLY PACKING COMPRESSED FLEXIBLE ARTICLES

Roger E. Cornelissen, c/o Grupo Arbora, Via Augusta 2 bis, 08006 Barcelona, Spain; Claus C. F. Haubach, and Agustin R. Blanco, both c/o Procter & Gamble GmbH, Sulzbacherstrasse 40, 6231 Schwalbach, Fed. Rep. of Germany

Filed Oct. 23, 1990, Ser. No. 602,445
Int. Cl.[5] B65D *85/16, 85/18*
U.S. Cl. 206—494 **19 Claims**



1. A substantially rectangular paper package containing compressed flexible articles, said paper package comprising:

(a) a front and a back panel connected to one another by means of a pair of side panels, a bottom panel and a top panel;

(b) an opening device comprising a pair of vertical lines of weakness located within one of said side panels of said paper package, said vertical lines of weakness defining a predetermined portion of said side panel to be at least partially separated from the remainder of said side panel without releasing the tension in the remainder of said side panel, said predetermined portion of said side panel being partially separated by applying a grasping force to a tear flap extending from the lowermost end of said opening device, whereupon said flexible articles coinciding with the aperture thus formed in said side panel expand through said aperture in a fan-like array while the portion of said flexible articles coinciding with the remaining tensioned portion of said side panel are retained in a substantially compressed condition; and

(c) an internal reinforcement sheet comprised of biodegrad-

VOL 1132 ISS 3 NO 19 1991 UMI

able and/or recyclable material located on the innermost surface of said opening device and said tear flap and extending at least over the entire area of said opening device and beyond said vertical lines of weakness, said reinforcement sheet having a horizontal slit extending continuously between said vertical lines of weakness and substantially coinciding with the lowermost end of said opening device and the uppermost end of said tear flap.

10. A substantially rectangular paper package containing compressed flexible articles, said paper package comprising:

(a) a front and a back panel connected to one another by means of a pair of side panels, a bottom panel and a top panel;

(b) an opening device comprising a pair of vertical lines of weakness located within one of said side panels of said paper package, said vertical lines of weakness defining a predetermined portion of said side panel to be at least partially separated from the remainder of said side panel without releasing the tension in the remainder of said side panel, said predetermined portion of said side panel being partially separated by applying a grasping force to a tear flap extending from the lowermost end of said opening device, whereupon said flexible articles coinciding with the aperture thus formed in said side panel expand through said aperture in a fan-like array while the portion of said flexible articles coinciding with the remaining tensioned portion of said side panel are retained in a substantially compressed condition; and

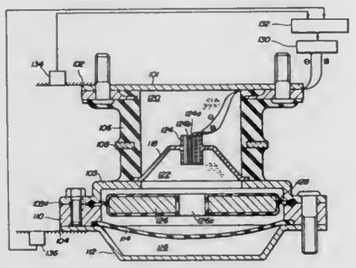
(c) an internal reinforcement sheet comprised of biodegradable and/or recyclable material located on the innermost surface of said side panel comprising said opening device and said tear flap, said reinforcement sheet substantially coinciding with said tear flap having an uppermost end substantially coinciding with the lowermost end of said opening device and the uppermost end of said tear flap.

5,065,869

ELECTRONICALLY CONTROLLABLE VIBRATION DAMPING DEVICE

Kazuhiro Doi, Yokohama; Yasuhiko Fujiwara, Kanagawa; Toshiro Abe, Mitaka, and Shinichi Matsui, Yokosuka, all of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Jul. 20, 1988, Ser. No. 221,570
Claims priority, application Japan, Jul. 20, 1987, 62-180728
Int. Cl.[5] F16F 9/00, 15/02
U.S. Cl. 207—140.1 12 Claims



1. In a device which is interposed between a vibrating body and a base,

means defining a spring, said spring being operatively interconnected between said body and said base, said spring undergoing distortion when said body moves relative to said base;

means defining first and second variable volume chambers, said first and second chambers being filled with a fluid which exhibits rheopectic properties, the chamber defining means being operatively connected between said body and said base in a manner wherein displacement of said body with respect to said base induces fluid to be displaced between said first and second chambers;

an orifice operatively interposed between said first and second fluid chambers;

first and second electrodes defined in said orifice, said first and second electrodes being arranged to define a multi-passage arrangement in said orifice in a manner wherein when a voltage is applied to said first and second electrodes, the viscosity of said rheopectic fluid between said electrodes increases and the restriction to fluid flow through said orifice increases;

means for detecting the relative displacement between said body and said base;

means for detecting the frequency of the vibration being applied to said device;

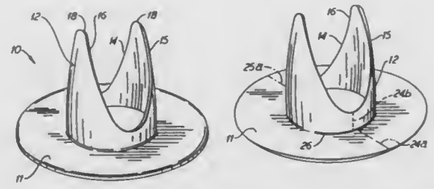
a control circuit which is responsive to said relative displacement detecting means and said frequency detecting means and which utilizes the detected relative displacement to develop a vertical spring input power value and which utilizes the detected relative displacement and the detected frequency to calculate an expansive spring input force value and the timing in which the phase of the vertical spring input force and the expansive spring input force are reversed, said control circuit being arranged to determine the timing with which a voltage should be applied to said first and second electrodes.

5,065,870

TACO HOLDER

O. Ray Conder, Jr., Charlotte, N.C., assignor to Conder Enterprises, Inc., Charlotte, N.C.

Filed Dec. 17, 1990, Ser. No. 628,496
Int. Cl.[5] A47F 7/00
U.S. Cl. 211—13 8 Claims



1. A taco holder which is adapted for receiving a taco shell and supporting the same in a substantially upright position to prevent inadvertent spillage of filling materials contained within the shell, comprising:

a generally circular, flat base; and

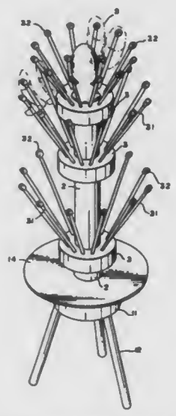
a tubular support portion affixed to and extending upwardly from a central portion of said base, said support portion having a generally frusto-conical configuration defining an upper free end and having a slot extending laterally therethrough and which extends downwardly from said upper free end for at least a substantial portion of the height of said support portion, and such that said slot defines a pair of transversely aligned, generally U-shaped edge surfaces which are adapted to collectively support a taco shell thereupon, wherein said base is open in the area within said support portion, so as to permit nesting of a plurality of said taco holders for compact storage.

5,065,871

MULTI-DECK TYPE OF ROTARY SHOE RACK

Huan-Yin Chan, No. 96, Yung Shoe Road, Hsiang, Changhua Hsin Chuang Village, Yung Ching, Taiwan

Filed Mar. 26, 1991, Ser. No. 675,338
Int. Cl.[5] A47F 7/08
U.S. Cl. 211—37 1 Claim



1. A multi-deck type of rotary shoe rack, comprising a base supported by a plurality of legs, a post extending from said base, a table mounted on said post above said base, and a plurality of sockets and ring-shaped rotary members alternatingly mounted on said post, and a plurality of rods for supporting shoes thereon, further characterized in that:

said ring-shaped rotary members are respectively separated from one another by said sockets, each having a plurality of holes obliquely disposed around a circle on a topmost surface thereof thereby mounting said plurality of rods therein permitting said rods to be radially projecting upwardly and outwardly from said post for mounting a shoe on each of said rod, said rods each having a chemical bag at a free end thereof, said chemical bag containing aromatics to release fragrance for eliminating odor from said shoe.

5,065,872

DUAL ACCESS STORAGE AND RETRIEVAL SYSTEM

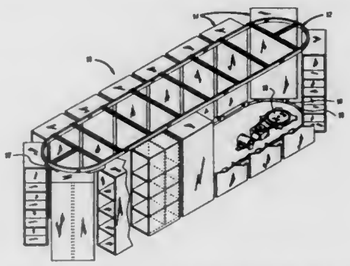
David Simon, East Brunswick, N.J., assignor to White Storage & Retrieval Systems, Inc., Kenilworth, N.J.

Filed Oct. 5, 1990, Ser. No. 594,344
Int. Cl.[5] A47F 5/00
U.S. Cl. 211—122 38 Claims

1. A storage and retrieval apparatus, said apparatus comprising:

a. a frame; and

b. a plurality of storage racks arranged one adjacent another on said frame, at least two adjacent storage racks each having at least one storage compartment and each being so arranged on said frame as to be movable along a path between a storage position for storing articles and an access position, at least a portion of said path being arcuate, said access position of said at least two adjacent storage racks being on or adjacent said arcuate portion of said path, and said at least two adjacent storage racks being constructed and arranged with respect to each other and said frame such that the at least one storage compartment



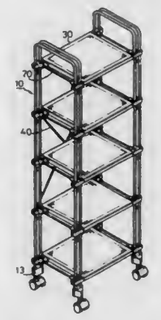
of each said at least two adjacent storage racks can be accessed from the access position at the same time.

5,065,873

SHELF FRAME

Chun-Chu Tseng, No. 3, Ting-Hsi-Hsin, Lu-Man Ts'un, Chu-Chi Hsiang, Chiayi Hsien, Taiwan

Filed May 16, 1991, Ser. No. 701,186
Int. Cl.[5] A47F 5/00
U.S. Cl. 211—187 5 Claims



1. A shelf frame comprising:

a first, a second, a third and a fourth leg means, each of said leg means having an upper and a lower end, and each including a pair of elongated rods spaced apart from one another in a parallel relationship;

clamping members to clamp said pair of elongated rods of each of said first, said second, said third, and said fourth leg means;

transverse connecting rods to interconnect one of said clamping members on said first leg means with another one of said clamping members on said second leg means, and to interconnect one of said clamping members on said third leg means with another one of said clamping members on said fourth leg means; and

at least one rectangular plate having two opposite sides each being provided with at least one hook engaging one of said transverse connecting rods.

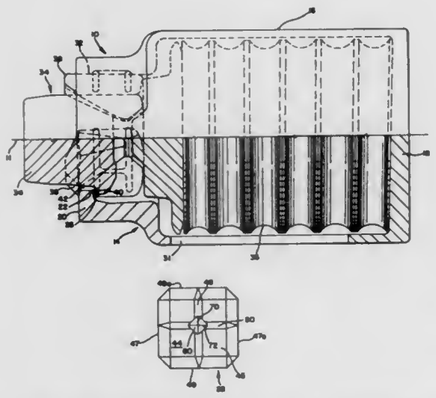
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,874

PRESHORTENING INSERT FOR A DRAFT GEAR

Ding-Huei R. Fong, Aurora, and Richard A. Carlstedt, Wheaton, both of Ill., assignors to Miner Enterprises, Inc., Geneva, Ill.

Filed Oct. 22, 1990, Ser. No. 600,876
Int. Cl.[5] B61G 9/10
U.S. Cl. 213—31 4 Claims



1. A preshortening insert for the purpose of gagging a draft gear, said insert comprising:

a generally rectangular body portion, comprised of a powdered metal mixture, having all edges chamfered and having three pairs of opposite side faces;

a pair of first and second notches bisecting at least one pair of said opposite side faces, said first and second notches being generally perpendicular to each other;

a square bore having corners and first and second diagonal axes extending between pairs of said corners, extending through said generally rectangular body portion, said first and second diagonal axes being co-extensive with said first and second notches whereby when said preshortening insert is subjected to draft gear generated forces which exceed its yield point, said preshortening insert fractures, releasing said draft gear.

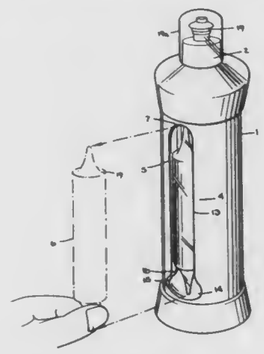
5,065,875

COMPOSITE CONTAINERS

Nancy P. Balavich, New York, N.Y., assignor to Revlon, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 410,671, Sep. 11, 1989, and Ser. No. 405,838, Sep. 11, 1989. This application Jul. 3, 1990, Ser. No. 547,645
Int. Cl.[5] B65D 21/02
U.S. Cl. 215—10 14 Claims

1. A composite container comprising a cylindrically shaped flat shouldered bottle having on its front face a vertical cylindrically shaped recessed cavity having vertical side edges, said cavity including a finger receiving recess and being dimensioned to receive at least one smaller container which fits completely into said recessed cavity to provide a smooth front face, protrusions located on either side of said recessed cavity on said vertical side edges, said protrusions dimensioned to permit the smaller container to be laterally snapped in and out



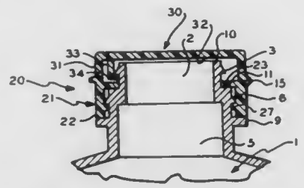
of the recessed cavity, said composite container thereby providing a single shelf keeping unit.

5,065,876

CHILD-PROOF CONTAINER AND FLIP-TOP CLOSURE FOR DRY OR FOR LIQUID CONTENTS

Michael Joyce, Rockaway, N.J., assignor to Joyce Molding Corp., Rockaway, N.J.

Filed Dec. 4, 1989, Ser. No. 445,416
Int. Cl.[5] B65D 55/02
U.S. Cl. 215—206 22 Claims



1. A child-proof container having a dispensing opening; a closure for closing the dispensing opening comprising a body member and a cap member movably attached to said body member for movement between open and closed positions; a first locking means on said container for supporting and locking said body member to said container to permit rotational movement of said body member on said container; and a second locking means on said container and spaced from said first locking means for releasably locking said cap to said container to permit unlocking of said cap from said container only when the body member is rotated to an unlocking position with respect to the container; whereby said cap may be moved from a closed to an open position to permit dispensing of contents from the container.

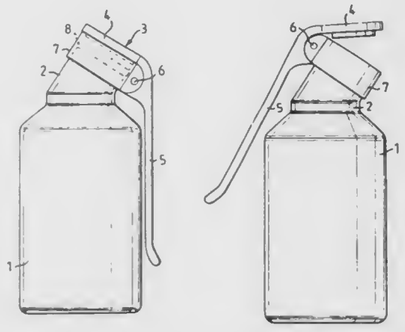
5,065,877

CONTAINER WITH LID

Eino Karppinen, Skiftesvaägen 38, S-183 38 Täby, and Göran Sjönell, Askrikevägen 11,, S-181 46 Lidingö, both of Sweden

Filed Oct. 16, 1990, Ser. No. 598,220
Claims priority, application Sweden, Oct. 17, 1989, 8903419
Int. Cl.[5] B65D 43/16
U.S. Cl. 215—239 13 Claims

1. A container (1) having a lid part (4) which is pivotally connected (6) to the container and is provided with a handle part (5) which extends from the pivot (6) in a direction opposite to a direction in which the lid part (4) extends, said container having a bottom and an outer wall which extends from said bottom, and presents at the end of said wall remote from said bottom, a neck portion (2) which is terminated with an opening, characterized in that the pivot (6) can be moved circumferentially around the neck portion (2) such that when



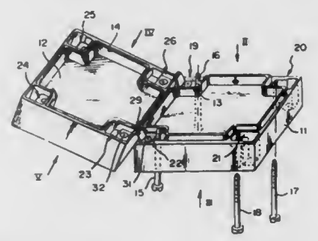
opening the lid part (4), the handle part (5) moves from one position in which the handle part extends essentially contiguous with the outer wall of the container such that the outer wall prevents movement of the handle part to open the lid part, to another position in which the handle part (5) is spaced further from said outer wall such that said outer wall permits movement of the handle part to open the lid part.

5,065,878

HOUSING IN PARTICULAR FOR ACCOMMODATING ELECTRICAL EQUIPMENT, WITH INTEGRABLE HINGES

Joachim Altmann, Haendelstrasse 32, 6453 Seligenstadt; Friedhelm Rose, Mindenerweg 24 B, 4952 Porta Westfalica; Roman Schwartz, Heimelstrasse 18 B, 6601 Sbr. Ensheim, and Horst Schmitt, 3 rue de la Gare, F 67260 Wolfskirchen, all of France

Filed May 31, 1990, Ser. No. 531,078
Claims priority, application France, May 31, 1989, 89 07159
Int. Cl.[5] H02G 3/00
U.S. Cl. 220—3.8 3 Claims



1. A housing comprising:

a body including a generally rectangular base and four walls joined to said base and meeting at four corners;

a cover including a generally rectangular base and four walls joined to said base and meeting at four corners;

first wall means in said body defining, with said body walls, a hollow receptacle in each of said body corners;

second wall means is said cover defining, with said cover walls, a hollow receptacle in each of said cover corners;

an outwardly projecting lip, formed on said first wall means and said body walls, enclosing said body exclusive of said hollow receptacles therein;

means defining a rabbet, formed on said second wall means and said cover walls, enclosing said cover exclusive of said hollow receptacles therein;

said lip being configured to be sealingly received in said rabbet;

said hollow receptacles of said body and said cover each being adapted to receive a mechanical fastener for fastening said cover to said body;

at least two mechanical fasteners adapted to fasten said cover to said body; and

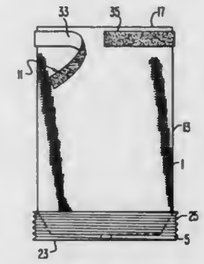
a pair of removable hinge members for hingedly connecting said cover to said body, each of said hinge members comprising a pair of feet and a flexible strap member connecting said feet, said feet being adapted for insertion into said hollow receptacles of said body and said cover.

5,065,879

COLLAPSIBLE MULTI-LAYER INSULATOR FOR A BEVERAGE CONTAINER

Byron King, Ste. 237, Red Hook Plz., St. Thomas, V.I. 00802

Filed Jan. 14, 1991, Ser. No. 640,868
Int. Cl.[5] B65D 23/08
U.S. Cl. 220—739 8 Claims



1. A multi-layer collapsible and insulative carrier for a container comprising:

an externally threaded base having top and bottom surfaces with a hole disposed in the center of said bottom surface;

a collapsible main sleeve extending upwardly from said base, said sleeve having an open upper end for receiving a container, and collapsible side and bottom walls, said side comprising an exterior fabric layer, an interior fabric layer spaced from said exterior layer, and a layer of insulating material in said space;

a base plate attached to said bottom wall of the main sleeve thereby forming a base assembly with said externally threaded base;

connecting means secured to said base plate and extending from said base plate through said bottom wall of said main sleeve and said hole in said base for interconnecting said main sleeve, said base plate and said base;

a lid having internal threads for screwing said lid over said externally threaded base, such that when said carrier is not in use said main sleeve can collapse into said base with said lid screwed on top of said base and collapsed main sleeve, thereby enclosing said sleeve, and when said carrier is to be used, said lid can be unscrewed, the sleeve extended to

VOL 1132 ISS 3 NO 19 1991 UMI

receive the container, and the lid turned upside-down and screwed onto said base from the bottom thereof; and

a closure band secured to said sleeve adjacent the upper end thereof, said band being longitudinally adjustable to vary the diameter of said sleeve at the upper end thereof so that various sized beverage containers can be positioned within said sleeve and tightly engaged thereby.

5,065,880

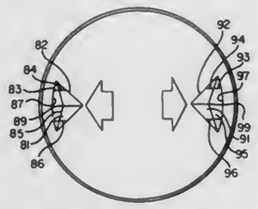
SPLASH RESISTANT CUP LID

Tom Horner, 3440 N. Beltline, No. 1066, Irving, Tex. 75062

Continuation-in-part of Ser. No. 101,353, Sep. 25, 1987, Pat. No. 4,767,019. This application Aug. 29, 1988, Ser. No. 237,873

Int. Cl.[5] A47G *19/22*

U.S. Cl. 220—711 **11 Claims**



1. A spill resistant lid having a rim structure adapted to engage a lip around the mouth of a drinking container in a substantially leak proof manner comprising:

(a) a canopy suspended from said rim structure;

(b) means for defining a vertical opening in said canopy including:

(i) a raised portion formed in said canopy; and

(ii) separation means formed in said raised portion so that a first part of said raised portion can be depressed over center to a position below said raised portion to create and maintain said defined vertical opening between a second non depressed part of the raised portion and said first depressed part of said raised portion.

5,065,881

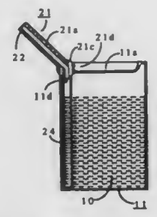
TANGS DRINKING CAN AND CAP

Min M. Tarng, 1367 Glenmoor Way, San Jose, Calif. 95129

Filed Jan. 5, 1990, Ser. No. 461,316

Int. Cl.[5] A47G *19/22*

U.S. Cl. 220—258 **7 Claims**



1. An apparatus for drinking beverage, comprising:

a container to hold the beverage, said container being sealed having a side wall, a bottom wall and a top wall, said top wall having a scotched panel and a groove, said scotched panel being connected with said groove;

an open-end spout being mounted on said top wall and being shifted to break the seal of said container by pressing said scotched panel to open a hole on said top wall, said spout having an opening to fit in the peripheral edge of said hole and forming a path for said beverage to flow out, said hole being sealed by said spout when said spout being shifted back and lying in said groove.

5,065,882

BEVERAGE CAN TOP

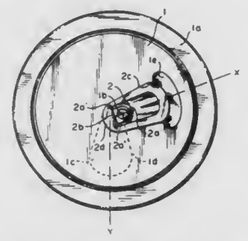
Shigeru Sugiyama, 1-9, Hisagi 7-chome, Zushi-shi, Kanagawa-ken, Japan

Filed May 16, 1990, Ser. No. 524,186

Claims priority, application Japan, May 18, 1989, 1-56480[U]

Int. Cl.[5] B65D *17/34*

U.S. Cl. 220—269 **3 Claims**



1. A can top structure of a beverage can comprising a can top and a ring attached to said can top by way of fulcrum, said can top being formed with a tear-out portion defined by a score line formed therein, a transition area between ends of said score line connecting said tear out portion to said can top, said ring having a pull side free end and a push side free end of the ring extending above the tear-out portion and adapted to be leveraged to drive part of said tear-out portion into the beverage can and tear-out said tear-out portion from said can top to form an opening when the pull side free end of the ring is pulled upward and rotated about said fulcrum, said ring extending at an angle with respect to said opening, wherein said fulcrum is located substantially at the center of the can top on a line drawn between said ends of said score line in said transition area.

5,065,883

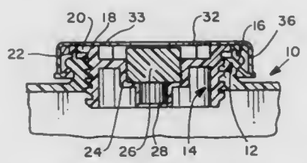
TAMPER EVIDENT CLOSURE

Theodore H. Udell, West Chester, Pa., assignor to Container Corporation of America, Clayton, Mo.

Filed Sep. 17, 1990, Ser. No. 583,474

Int. Cl.[5] B65D *51/20*

U.S. Cl. 220—276 **2 Claims**



1. A tamper evident, closure arrangement for a drum type container having a filling/dispensing opening from which extends a neck flange having a radially outwardly protruding annular ridge and which is adapted to threadably receive an internal closure plug, said arrangement including a tamper evident, unitary, plastic overcap adapted to be threadably received over said container neck flange beyond said annular ridge, said overcap comprising:

(a) a relatively thin, flat, circular, end wall having a round, center section, defined by an annular area of weakness located radially inward of the periphery of said end wall, which center section is readily detachable to provide a round central opening arranged and disposed to afford limited access to said container neck flange closure plug;

(b) a generally cylindrical skirt extending from an outer periphery of said end wall;

(c) a plurality of circumferentially spaced, radially disposed, reinforcing ribs extending between the portion of said end wall located radially outward of said area of weakness and said skirt;

(d) a plurality of circumferentially spaced, integral projections extending radially inward from said skirt and adapted to underlie said container neck flange ridge, so that said overcap cannot be removed from said container neck flange without at least partial destruction of said overcap;

(e) said skirt projections being flexible enough to allow said overcap to be forcibly pushed over an enlarged portion of said container neck flange, and rigid enough to prevent removal of said overcap from said enlarged container neck flange portion without damage to said overcap.

5,065,884

LID OPENER AND CONTAINER USING SAME

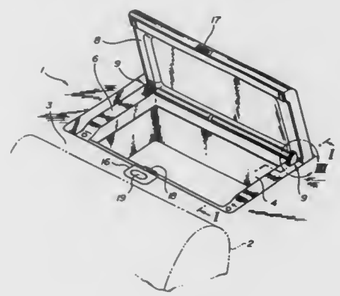
Hiromi Naritomi, Ebina, and Tsutomu Oshida, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd. and Nifco Inc., both of, Japan

Filed Dec. 26, 1989, Ser. No. 456,953

Claims priority, application Japan, Dec. 28, 1988, 63-168295[U]

Int. Cl.[5] B65D *43/26*

U.S. Cl. 220—264 **7 Claims**



1. A lid opener for opening a lid, comprising:

a frame having a first axis and a second axis which extend substantially in parallel;

a first member integrally moveable with said lid for rotation about said first axis, said first member being in the form of a sector;

a second member in engagement with said first member and rotatable about said second axis, said second member being a gear meshed with said sector; and

means for driving said second member for rotation in such a predetermined direction as to move said first member in such a direction as to open the lid, said means being constructed and arranged as to allow movement of said first and second members during closing movement of the lid:

said driving means including a flat spiral spring operatively connected between said second member and said frame about said second axis.

5,065,885

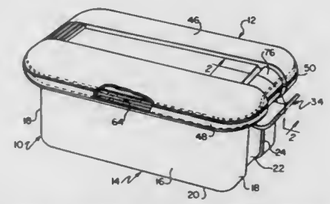
AIRTIGHT CONTAINER

Damiano Scaroni, Lumezzane-Pieve, Italy, assignor to Scaroni F.lli S.p.A., Italy

Filed Feb. 9, 1990, Ser. No. 478,157

Int. Cl.[5] B65D *45/22*

U.S. Cl. 220—326 **43 Claims**



1. A container suitable for food storage comprising:

a base having a bottom, side panels and opposed end panels integral with said bottom to form an open vessel,

said vessel having a perimeter formed at the top thereof, said perimeter having a continuous upstanding rim inside of the perimeter and extending above said vessel;

said end panels having an indented central end panel portion which meets said outer end panels at a shoulder panel, said central and shoulder panels being continuous from said bottom up to said perimeter,

a cover to fit over the open vessel to close said vessel,

said cover having a top, opposed side walls and end walls and said cover having a perimeter substantially similar to the perimeter of said vessel,

said cover having an indented central surface disposed in aligning relationship with the surface of said central end panel portion of said vessel when said cover is fitted thereupon,

said cover having a depending lip spaced inwardly from said walls,

said lip and said walls forming an annulus continuously around said perimeter of said cover,

a gasket positioned within said annulus for contact with said upstanding rim,

a closure connected to said container at said central end panel portion of said vessel and operable between said central surfaces of said cover and said central end panel portion of said vessel for applying pressure between said upstanding rim and said gasket to produce sealing contact between said rim and said gasket.

5,065,886

STRUCTURE OF DUST BIN

Chen-Hsien Sher, No. 18, Lane 195, Nan Tai Rd., Kaohsiung City, Taiwan

Filed Apr. 26, 1991, Ser. No. 691,813

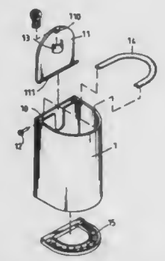
Int. Cl.[5] B65D *43/20*

U.S. Cl. 220—331 **5 Claims**

1. A dust bin comprised of a container and a cover, said container having an opening at the top through which dust, rubbish, etc. can be put into the holding space defined inside said container, said cover being cover removably covering on said container to close said opening, and characterized in that said container has a flat, hollow chamber vertically disposed inside and separated from said holding space for receiving said cover when said cover is not in use, and two bolts at two

VOL
1132
ISS
3
NO
19
1991
UMI

opposite locations for mounting said cover through hooked-joint permitting said cover to be releasably rotated on said two



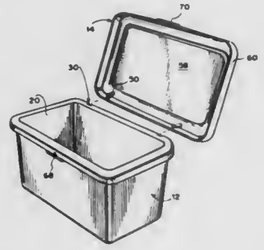
bolts from a horizontal position to a vertical position or from a vertical position to a horizontal position.

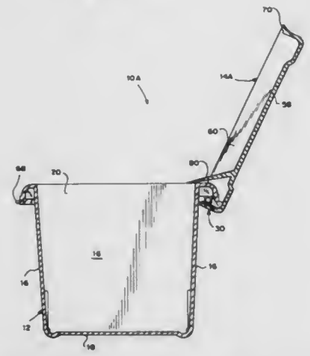
5,065,887

CONTAINER WITH HINGED COVER

Robert R. Schuh, Kaukauna, Wis.; Nancy E. Terrell, Stamford, Conn.; Walter J. Kreiseder, Barrington, and Allen J. Vogel, Long Grove, both of Ill., assignors to Scott Paper Company, Philadelphia, Pa.

Filed Feb. 20, 1990, Ser. No. 481,589
Int. Cl.[5] B65D *43/14*
U.S. Cl. 220—338 **18 Claims**





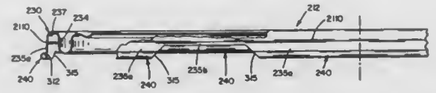
1. A container comprising, in combination:
a container body including a plurality of interconnected side walls and a bottom wall, said container body walls defining an interior;
at least one socket member connected to said container body, said socket member including spaced, generally opposed first and second socket walls defining a passageway having a wider end and a narrower end with an opening proximate to said wider end, said first socket wall defining a receptable residing proximate to said narrower end and said second socket wall defining a contract surface; and
a cover attachable to said container body, said cover including a top cover panel and at least one pivot member operatively associated with said top cover panel, said pivot member including a support arm and a projection projecting from said support arm, said support arm being engageable with said contact surface and said projection being positionable in said receptacle when said support arm is in the passageway and located between said first and second socket walls said support arm extending through said wider end of said passageway and into said narrower end when said cover is in a closed position on said container body.

5,065,888

IMPROVED RINGLESS PAINT CONTAINER WITH STEP DOWN LID

Thomas A. Gallagher, Chagrin Falls, Ohio, assignor to Van Dorn Company, Cleveland, Ohio

Continuation-in-part of Ser. No. 528,531, May 25, 1990, which is a continuation-in-part of Ser. No. 335,566, Apr. 10, 1989, Pat. No. 4,936,482, which is a continuation of Ser. No. 120,471, Nov. 13, 1987, Pat. No. 4,880,131. This application Dec. 18, 1990, Ser. No. 629,431
The portion of the term of this patent subsequent to Nov. 14, 2006, has been disclaimed.
Int. Cl.[5] B65D *45/00*
U.S. Cl. 220—355 **10 Claims**



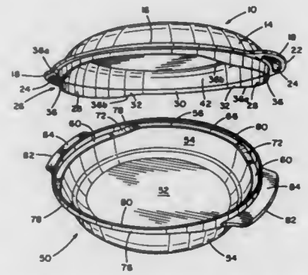
1. The combination of a ringless metal container and a lid comprising:
a) said container having a cylindrical body portion, a beaded opening defining the mouth of said container and a rim portion extending longitudinally from said body portion to and including said beaded opening; said mouth smaller in diameter than said body portion so that said rim portion tapers radially inwardly; stiffening means of the juncture of said rim and body portions for stiffening said rim and said mouth against longitudinal deflection;
b) said lid having a generally circular configuration with an annular sealing groove formed therein, said sealing groove defined by longitudinally extending inner and outer sealing walls and an annular bight wall extending therebetween; and
c) collapse preventing means formed in said outer sealing wall of said lid and acting in conjunction with said stiffening means for preventing deformation of said mouth and rim portion in the event of excessive sealing forces applied to said lid while providing pry openings for removal of said lid wherein said stiffening means includes an annular stiffening groove formed at the juncture of said body portion and said rim portion; said collapse preventing means includes said outer sealing wall of said lid having a plurality of longitudinally extending long lenth and short length sections, each section extending for discrete arcuate increments about the circumference of said outer sealing wall, said long length sections having a longitudinal distance sufficient to contact said annular stiffening groove when said excessive sealing force is applied to said container, said short length sections have a longitudinally extending distance which maintains a pry gap between said annular stiffening groove and said short length section whereby removal of said lid is possible notwithstanding permanent deformation of said container.

5,065,889

COVERED DISH WITH VENT

Rino Conti, Stoughton, Mass., assignor to Dart Industries Inc., Deerfield, Ill.

Filed Aug. 3, 1990, Ser. No. 563,127
Int. Cl.[5] B65D *51/00*
U.S. Cl. 220—366 **17 Claims**



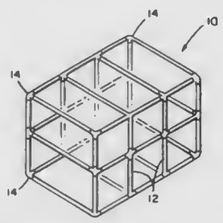
1. An apparatus for cooking, serving and storing food and the like, comprising:
a dish having a bottom wall and a sidewall, said bottom wall and sidewall defining a dish interior;
a cam ledge on said sidewall peripherally about said sidewall;
a cover having a top wall and a sidewall, a lip extending downwardly from said cover sidewall peripherally about said cover;
said cover being selectively rotatable in opposed directions and vertically movable on said cam ledge between an unvented position wherein said lip engages said cam ledge peripherally about said dish to block access to the interior of the dish between said dish and said cover and a vented position wherein said cover is generally elevated relative to said dish and said lip partially engages said cam ledge to allow access to the interior of the dish; said lip, in the vented position of said cover, being in point contact with said cam ledge at a pair of points on said ledge aligned transversely across said dish and defining a pivot axis, said cover being pivotally movable about said axis to selectively pivot the cover from the dish and define a venting space therebetween.

5,065,890

COMPLY SYSTEM

George Greenbaum, 1005 N. Caribe Ave., Tucson, Ariz. 85710

Continuation-in-part of Ser. No. 559,311, Jul. 30, 1990, Pat. No. 5,022,555. This application Jan. 2, 1991, Ser. No. 636,622
Int. Cl.[5] B65D *7/00*
U.S. Cl. 220—401 **17 Claims**



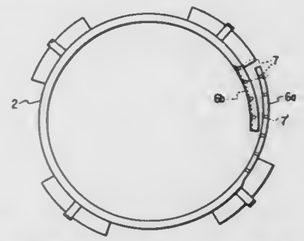
1. A container which comprises:
a liner having longitudinal members compressively secured together by a first carrier film;
at least one water-impermeable barrier film overlying the liner;
a second carrier film overlying the barrier film to form a container; and
at least some of the longitudinal members comprising specially extruded members, said specially extruded members comprising at least first and second members, one received within the other for the entire length thereof, the members joined together to function as an integral unit.

5,065,891

REMOVABLE OR FIXED INNER RING DEVICE FOR TRASH RECEPTACLE LINERS

Robert G. Casey, 7853 Blue Gray Cir., Manassas, Va. 22110

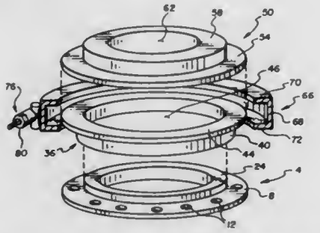
Filed Jul. 19, 1990, Ser. No. 554,446
Int. Cl.[5] B65D *67/04*
U.S. Cl. 220—404 **3 Claims**



1. An inner ring mechanism for supporting a flexible bag liner inside a trash receptacle, said trash receptacle having a main body with a closed bottom and an open top with a rim, said inner ring comprising:
means for mounting said inner ring on said rim of said receptacle, wherein said inner ring is disposed within an upper portion of said receptacle and has a diameter slightly smaller than the diameter of said receptacle; and
a plurality of flared portions defined on predetermined positions along the circumference of the inner ring, wherein gaps for venting air are disposed along the circumference of the inner ring between said flared portions, thereby enabling a release of trapped air upon insertion of said flexible bag liner into said receptacle, said flared portions extending outwardly toward the main body of said receptacle;
wherein an opening is defined between said inner ring and said mounting means, such that a top portion of said bag liner can be inserted within said opening when said inner ring is mounted within said receptacle and said bag liner is inserted into said trash receptacle, thereby supporting said bag liner and preventing the bag liner from overhanging on the exterior of the receptacle;
said inner ring further comprising means for selectively adjusting a circumferential size of the inner ring, wherein said means for selectively adjusting the circumferential size of the inner ring comprises a full length slit in said inner ring which defines selectively overlapping longitudinal edges of said inner ring, one of said overlapping edges of said inner ring comprising a plurality of slots, the other of said overlapping edges of said inner ring comprising a plurality of protruding snap means, said snap means being selectively insertable into said slots to define different circumferential sizes of said inner ring, whereby said inner ring can be adapted to receptacles of various sizes.

VOL 1132 ISS 3 NO 19 1991 UMI

5,065,892
STRUCTURE FOR MOUNTING LIQUID LEVEL SENSORS AND THE LIKE IN LIQUID CONTAINERS
Rudy Lukez, Salt Lake City, Utah, assignor to Edo Corporation, Salt Lake City, Utah
Filed Aug. 27, 1990, Ser. No. 573,492
Int. Cl.[5] B65D *25/00*
U.S. Cl. 220—465 5 Claims



1. In a liquid container having an opening, about the perimeter of which is mounted an annular bracket for receiving a liquid level sensor, said sensor having a laterally extending lip for seating on the bracket to allow part of the sensor to be exposed through the opening,

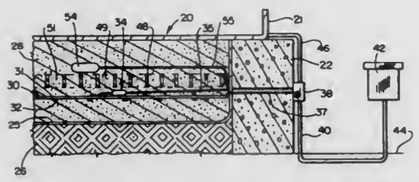
fastening apparatus for releasably holding the sensor in the bracket comprising

an annular bracket extension projecting upwardly from the bracket, said extension having a laterally projecting flange at its upper end,

a holding ring dimensioned to overlie the sensor lip and hold the sensor in place in the bracket, said ring mating and being generally coextensive with the flange, and

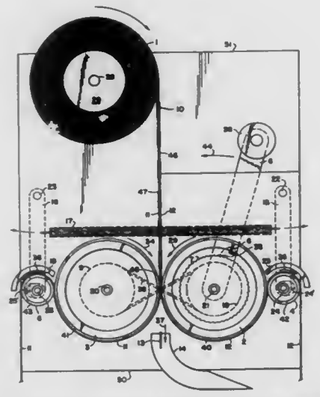
a band clamp means for releasably clamping the ring to the extension.

5,065,893
CATHODIC PROTECTION SYSTEM AND METHOD FOR ABOVE-GROUND STORAGE TANK BOTTOMS
David H. Kroon, Spring; Gary Goldsmith, Conroe; Michael K. Baach, Spring, all of Tex., and James B. Bushman, Medina, Ohio, assignors to Corrpro Companies Inc., Medina, Ohio
Filed Mar. 15, 1991, Ser. No. 669,934
Int. Cl.[5] B65D *1/42*
U.S. Cl. 220—565 45 Claims



1. In combination, an above-ground storage tank having a metal bottom, a leak containing dielectric safety membrane spaced a short distance below and extending beneath the tank bottom generally parallel thereto, compacted electrolytic backfill positioned between the membrane and the tank bottom supporting the tank bottom, a horizontally disposed cathodic protection anode between the membrane and tank bottom, said anode being in the form of a grid of interconnected bars and ribbons, and a mesh dielectric insulator embedded in the electrolytic backfill and positioned between the anode and tank bottom operable to keep any portion of the anode from contacting the tank bottom and to maintain a generally uniform spacing between the anode and tank bottom.

5,065,894
DISPENSER FOR BANDAGES
Patricia A. Garland, 1618 Milton St., Tallahassee, Fla. 32303
Filed Mar. 19, 1990, Ser. No. 495,598
Int. Cl.[5] B65H *5/28*
U.S. Cl. 221—25 20 Claims



1. A dispenser for individual adhesive tape bandages from an elongated strip package of said adhesive tape bandages including two outside strips of paper sandwiching therebetween a plurality of spaced adhesive tape bandages; said dispenser including a supply spool to hold a roll of said bandages in an elongated strip package, two press rollers aligned and spaced apart so as to receive said strip therebetween, two paper stripping rollers biased respectively against said press rollers and each adapted to receive separate ones of said outside strips of paper and direct them to waste disposal; a manually operated ratchet means attached to one of said press rollers to cause it to rotate and advance said strip passing between said rolls; means to transfer the rotation of said one press roller into an equal and opposite rotation of the other said press roller; and an outlet located beneath said press rollers for receiving a freely falling said adhesive tape bandage released from said outside strips of paper upon manual operation of said ratchet means.

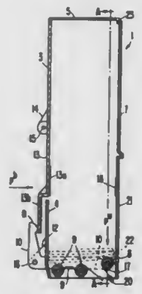
5,065,895
VARIABLE SUPPORT FOR FAN-FOLDED PAPER DISPENSER
Raymond F. De Luca, Samford, Conn., and Paul W. Jespersen, Houston, Tex., assignors to Georgia Pacific Corporation, Atlanta, Ga.
Filed Aug. 2, 1989, Ser. No. 388,396
Int. Cl.[5] A47K *10/24*
U.S. Cl. 221—54 12 Claims

1. A dispenser for use with at least one stack or package of flexible sheet material comprising:

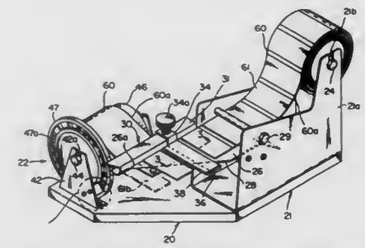
a housing having a horizontally-disposed lateral axis adapted for attachment to a wall;

low-friction support means operatively connected to said housing to decrease the friction on the bottommost sheet of flexible material as the user pulls such sheet from said housing; and

lateral pressure means operatively connected to said housing to provide force to the stack along the lateral axis of said housing thereby decreasing the vertical pressure and the corresponding friction on said support means and such sheet material, said force proportional to the weight on said support means.



5,065,896
LABEL DISPENSER
Donald Jurgich, P.O. Box 1575, Poulsbo, Wash. 98370
Filed Jan. 25, 1991, Ser. No. 646,077
Int. Cl.[5] B65H *5/28*
U.S. Cl. 221—73 13 Claims



1. A label dispenser for stripping adhesive-backed labels from a dispensing strip, comprising:

a frame;

strip supporting means on the frame for supporting a said dispensing strip;

a table on said frame projecting in a longitudinal lead direction from said strip supporting means, said table having a stripping edge at its lead end extending at an acute angle to said lead direction between a back longitudinal table edge and a shorter front longitudinal table edge; and

a take-up reel on said frame behind said back longitudinal table edge for receiving a dispensing strip passing rearward beneath said table after removal of labels therefrom responsive to passage of the dispensing strip over said stripping edge after traveling over said table from said strip supporting means.

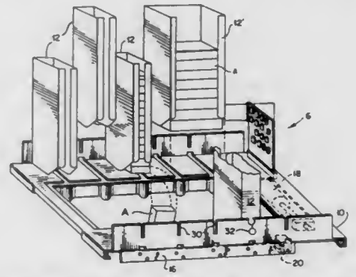
5,065,897
UNIVERSAL DISPENSING APPARATUS FOR STACKED ARTICLES
Robert D. Smith, 209 Rustic Dr., North Huntingdon, Pa. 15642
Filed Oct. 25, 1990, Ser. No. 603,239
Int. Cl.[5] B65G *59/00*
U.S. Cl. 221—130 12 Claims

1. A dispensing module for dispensing a plurality of articles, said module comprising:

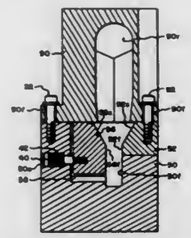
a generally horizontally extending support plate having a central opening at least as large as the largest of the articles to be dispensed,

a plurality of generally vertically extending article holders disposed on said support plate for holding a stack of said articles such that the lowermost articles of the stack are supported by a support portion of the support, and

dispensing means for selectively withdrawing articles from said article holders and for conveying articles withdrawn from said article holder relative to said support plate such that a withdrawn article drops through said central opening of said support plate to thereby be dispensed, said dispensing means comprising a shuttle plate disposed below, and parallel to, said support plate and having a central opening therein at least as large as the largest of said articles, shuttle plate movement means for moving said shuttle plate in a plane generally parallel with said support plate, and engagement means on said shuttle plate for selectively engaging said articles in said stack holders such that movement of said shuttle plate by said movement means causes an article engaged by said engagement means to be conveyed from said support portion of said support plate to said central opening of said support plate for dispensing therethrough.



5,065,898
APPARATUS FOR ORIENTING AND INJECTING FASTENERS
David Michalewski, Buffalo, and Bradley M. Roberts, Williamsville, both of N.Y., assignors to Gemcor Engineering Corporation, Buffalo, N.Y.
Filed Oct. 9, 1990, Ser. No. 594,339
Int. Cl.[5] B65H *1/00*
U.S. Cl. 221—171 13 Claims



1. Apparatus for orientating and injecting fasteners (F) into fastener grasping fingers (**46**), the fasteners being received from a non-dedicated feed tube (**18**) through which a variety of fasteners may be propelled from a fastener selection apparatus, the fasteners having heads (h) and tails (t) of differing diameters; said apparatus comprising in combination:

a mounting frame (**20**);

adjustable orientation means (**12**) mounted on the frame for orienting and discharging fasteners, the orientation means having retaining means (**98**) for retaining an end of the non-dedicated feed tube (**18**), spaced apart jaws (**50**, **52**, and **56**) the spacing of which may be adjusted for orientat-

VOL 1132 ISS 3 NO 19 1991 UMI

ing fasteners having differing diameter tails received from the non-dedicated feed tube, the orientation means further having a discharge opening (**114***a*) through which the oriented fasteners may be discharged;

a dedicated feed tube assembly (**16**) having receiving and discharge ends (**116, 188**) the receiving end being interconnected with the discharge opening of the orientation means; and

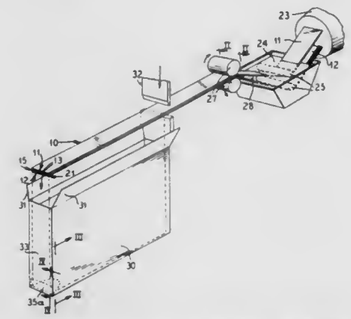
adjustable injection means (**14**) mounted on the frame for injecting fasteners, the injection means having retaining means (**212**) for retaining the discharge end of the dedicated feed tube, a pair of spaced apart jaws (**228, 230**) the distance between the jaws being adjustable for receiving fasteners having tails of differing diameters, and a injector knife (**226**) for pushing the fastener into fastener grasping fingers (**46**).

5,065,899

SECTIONAL OR PRE-CUT ZIPPER STRIPS, MAGAZINE STORAGE AND FEED MEANS, AND METHOD

Paul Tilman, New York, N.Y., assignor to Zip-Pak Incorporated, Northbrook, Ill.

Filed Oct. 17, 1989, Ser. No. 422,734
Int. Cl.[5] A47F *1/04*
U.S. Cl. 221—305 **27 Claims**



1. An extruded plastic zipper assembly comprising:

a pair of opposingly aligned matching zipper strips having complementary reclosable interlocked zipper profiles with laterally extending confronting webs; and

complementary non-zipper stabilizing rib means on said webs cooperating with one another and with said interlocked profiles for maintaining said webs substantially parallel to one another so that said assembly can be stacked in substantially uniform parallel relation with like zipper assemblies;

said zipper strips having sufficient stiffness along their linear length to remain substantially straight when stacked and when supported in cantilever fashion and permitting the strips to remain substantially straight as they are fed forward to be cut and dropped and stacked in a receiving package.

5,065,900

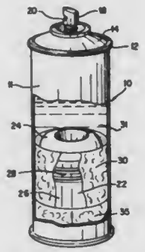
BARRIER CAN PREFILL SEAL

Christian T. Scheindel, Star Route-Ridge Rd., Randolph Center, Vt. 05061

Filed Jan. 12, 1990, Ser. No. 464,114
Int. Cl.[5] B65D *83/14*
U.S. Cl. 222—1 **9 Claims**

1. A pressurized piston operated product dispensing container having a cylindrical body, a bottom wall and a valve cap within which a cup shaped annular free piston is positioned to divide the container into an upper product containing chamber and a lower propellent containing chamber, the improvement in a sealing mechanism comprising:

said piston having an annular cylindrical sidewall with an outer diameter less than the inner diameter of said cylindrical body to provide an annular gap between piston sidewall and body wall,



a sealant material, distinct from the product in the upper chamber, filling said annular gap between the sidewall of said piston and the sidewall of said can,

said sealant material substantially preventing propellent from migrating around the wall of said piston into the product in said upper chamber,

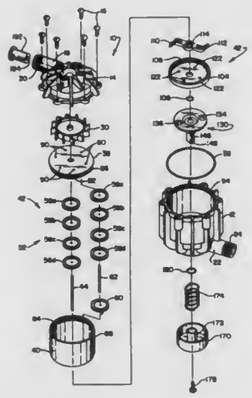
said sealant material being sufficiently fluid to provide a base on which said piston rides up when product is dispensed.

5,065,901

APPARATUS FOR MONITORING A FLOW OF FLUID THROUGH A FILTER MEDIUM

Earl P. Brane, Rte. One Box 88, Hideaway Hills, Ohio 43107, and Douglas K. Brane, 205 Poinciana La., Largo, Fla. 34640

Continuation-in-part of Ser. No. 507,352, Apr. 9, 1990. This application May 10, 1991, Ser. No. 698,612
Int. Cl.[5] B67D *5/30*
U.S. Cl. 222—20 **21 Claims**



1. Apparatus for monitoring a flow of fluid through a conduit, comprising:

a housing having an input port and an output port, connectable with said conduit;

a turbine chamber within said housing in fluid communication with said input port for receiving fluid under pressure;

a gear chamber within said housing adjacent said turbine chamber;

a gear housing assembly positioned within said gear chamber and including:

a gear housing body having a top including a shaft bearing and a bottom having a gear train output opening and a shaft receiving opening,

a drive shaft extending through and supported by said shaft bearing and positioned within said shaft receiving opening,

a reduction gear train having a first gear array mounted for rotation upon said drive shaft and a second gear array operatively emmeshed with said first gear array to derive a predetermined reduction ratio, said gear train having an eccentric output component at said gear train output opening, and

a rotational drive component mounted for rotation upon said gear housing body bottom, movable in select correspondence with said eccentric output component and having a valve drive portion;

a turbine mounted upon said drive shaft within said turbine chamber, rotatable by fluid incident thereon from said input port and coupled in driving relationship with said reduction gear train;

a valve seat within said housing adjacent said output port and including an open valve cam surface, and a valve closing detent portion;

a rotatable valve member mounted within said housing, having an upwardly disposed driven portion slideably engageable with said rotational drive component valve drive portion, further having a valve closure portion extending therefrom including a camming stem slideably movable upon said valve cam surface to retain said valve closure portion in an open valve orientation and movable into said valve seat detent portion to effect blockage of fluid flow through said output port; and

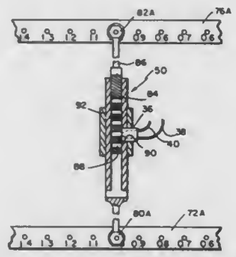
reset means for repositioning said rotatable valve camming stem upon said cam surface to effect opening said valve for permitting the flow therethrough of a predetermined quantity of fluid.

5,065,902

PNEUMATIC MATERIAL DISPENSING MONITOR

John G. McNab, Quebec, Canada, assignor to Graves Spray Supply, Inc., Clearwater, Fla.

Filed May 25, 1990, Ser. No. 528,424
Int. Cl.[5] B67D *5/22*; G01G *9/00*
U.S. Cl. 222—31 **19 Claims**



1. A system for determining the weight of material dispensed by a dispenser having a pump, said system comprising:

first and second telescopic members;

an encoder on said first member and a sensor on said second member;

calibration means adjustably mounting said first and second members between a pump and a first securement for determining displacement of one of said members for a cycle of said pump as a function of specific gravity of material being dispensed; and

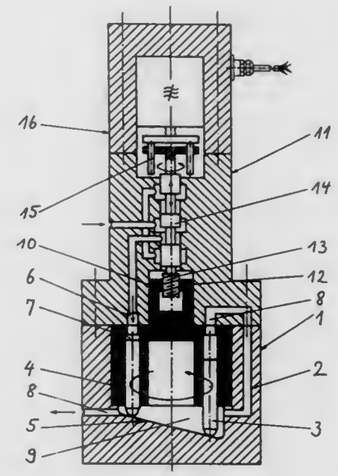
determining means for determining weight of material dispensed from signals from said sensor.

5,065,903

FLUID DELIVERY SYSTEM FOR CONTROLLING FLUID FLOW

Hans W. Meinz, Kockerellstrasse 19, 5100 Aachen, Fed. Rep. of Germany

Continuation of Ser. No. 362,447, May 30, 1989, abandoned. This application Jan. 14, 1991, Ser. No. 639,749
Claims priority, application Fed. Rep. of Germany, Dec. 1, 1986, 3640980
Int. Cl.[5] B67D *5/16*
U.S. Cl. 222—71 **10 Claims**



1. A delivery system for controlling the flow of a fluid, said delivery system comprising:

a hydraulic motor having:

an inlet,

an outlet,

a shaft,

piston means operable, when hydraulic fluid under pressure is introduced into the inlet, to cause rotation of said shaft at a rate which reflects the actual rate at which fluid is flowing through the system and out of said outlet, and

chamber means for receiving fluid after it has caused rotation of said shaft and before it is discharged from the motor, wherein, during operation of said hydraulic motor, said outlet and said chamber means are in constant communication, and

valve means for controlling the actual rate of flow of a fluid through the system, said valve means including

an inlet for fluid,

an outlet which is connected to said hydraulic motor inlet,

a valve interposed between said inlet and said outlet for controlling the actual rate of fluid flow through the system,

an electric motor having a shaft and associated electric motor control means for causing the electric control motor to rotate at a rate which reflects a desired rate of fluid flow through the system, and

dynamic coupling means for connecting said hydraulic motor rotatable shaft, said electric motor rotatable shaft and said valve means so that, when there is a difference between the desired rate of fluid flow through the system and the actual rate of fluid flow through the system, the valve means are modulated to eliminate the difference.

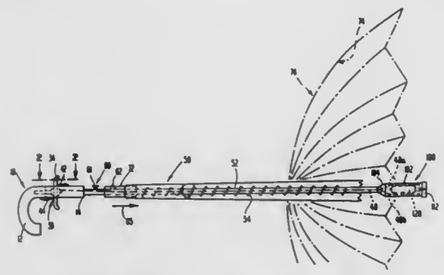
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,904

PERSONAL PROTECTION DEVICE

Joseph T. McCaffrey, 709 Knorr St., Philadelphia, Pa. 19111, and Stewart P. McKay, 1091 Kemper Dr., Warminster, Pa. 18946

Filed Sep. 21, 1989, Ser. No. 410,715
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—3 21 Claims



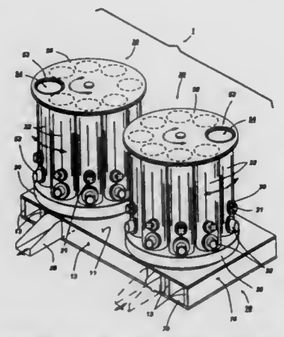
1. A personal protection device, comprising:
(a) a handle having movable trigger means connected thereto;
(b) wherein said trigger means comprises:
(1) a stud affixed to said handle;
(2) a collar slidably disposed about said stud;
(3) a pair of radial projections extending from said collar; and
(4) a pair of detent arms pivotally mounted to said handle and positioned to selectively engage said radial projections;
(c) an elongate shaft connected to said handle and longitudinally extending therefrom;
(d) canister means connected to said shaft at a terminal end thereof remote from said handle, said canister means having actuator means for actuating the discharge of a canister; and
(e) a cable operably connecting said trigger means to said actuating means whereby upon movement of said trigger means, said actuator means is actuated to cause the discharge of a canister.

5,065,905

HARDWARE DELIVERY SYSTEM

James A. Eddy, Rochester, N.Y., and Alan N. Keller, Alexandria, Va., assignors to Xerox Corporation, Stamford, Conn.

Filed May 23, 1990, Ser. No. 527,407
Int. Cl.[5] B67D *5/60*
U.S. Cl. 222—132 7 Claims



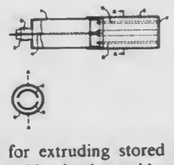
1. An apparatus for storing, transporting and discharging articles to operators located at a plurality of workstations, comprising:
a base support member;
at least one storage unit including a plurality of storage containers indexably mounted on said base support member for storing articles therein, each of said storage containers including a discharging means for operator actuatable article discharging therefrom;
means for receiving articles from said discharging means, said receiving means including a retractable tray mounted on said base support member for receiving articles discharged from a selected one of said plurality of storage containers, whereby a selected one of said storage containers is indexed to said receiving means for discharging articles therein; and
means for transporting said base support member including said at least one storage unit and said plurality of storage containers to each of the plurality of workstations.

5,065,906

DOUBLE-CHAMBERED CARTRIDGE HAVING SEMI-CYLINDRICAL PISTONS FOR USE IN A PRESS-OUT GUN

August Maeder, Hurdnerwaeldli Strasse 42, 8808 Pfaeffikon/Sz, Switzerland

Filed Oct. 13, 1989, Ser. No. 421,169
Claims priority, application Fed. Rep. of Germany, Oct. 14, 1988, 3835093
Int. Cl.[5] B65D *83/00*
U.S. Cl. 222—137 6 Claims



1. An apparatus for extruding stored fluid contents of a single cylindrical cartridge having a side wall and a longitudinal partition wall defining dual semicylindrical chambers, each chamber having corresponding closeable outlet openings and corresponding inlet openings which are closed by corresponding plungers slidably disposed therein, comprising:
a cylindrical tube having an open end, a side wall adapted to slidably engage the external periphery of the cartridge in a closely fitted relation, and a closed end having an end wall; and
a pair of pistons each being in the form of a semicylindrical sleeve upstanding from the end wall and disposed concentrically inside the cylindrical tube, the pistons being spaced apart defining a space therebetween, the space being coplanar with the partition wall to permit sliding of the tube longitudinally along the cartridge.

5,065,907

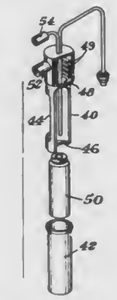
INSTANT SEALING SPRAY CANISTER

Ernest W. Allen, 607 E. Miller Rd., Midland, Mich. 48640

Continuation-in-part of Ser. No. 360,105, Jun. 1, 1989, abandoned. This application May 17, 1990, Ser. No. 530,106
Int. Cl.[5] B67D *5/06*
U.S. Cl. 222—183 1 Claim

1. A spray canister comprising an outer housing and an inner housing, each housing having a concave base, the base of said inner housing being adapted to mate with the base of said outer housing, said outer housing having first and second oppositely disposed openings, said first opening being adapted to receive said inner housing, said outer housing having a top portion fitted with spring means and sealing means, and having inlet means for applying air pressure to said inner housing and means adapted for operative connection with a spraying head

for dispensing material from said inner housing, said inner housing to receive a vial of material to be sprayed and having



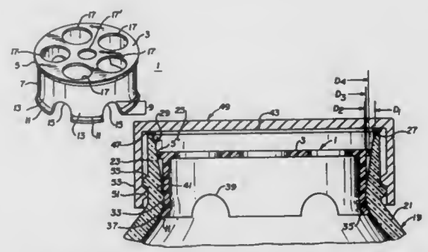
a top portion adapted to instantly sealingly contact the sealing means of said outer housing when said inner housing is inserted in said outer housing.

5,065,908

DISPENSING FITMENT AND CONTAINER THEREFORE

Gary L. Mengeu, Wheeling, W. Va., assignor to Continental Plastics, Inc., Triadelphia, W. Va.

Filed Jan. 16, 1991, Ser. No. 642,028
Int. Cl.[5] B65D *3/00*; B67D *47/06*
U.S. Cl. 222—480 14 Claims



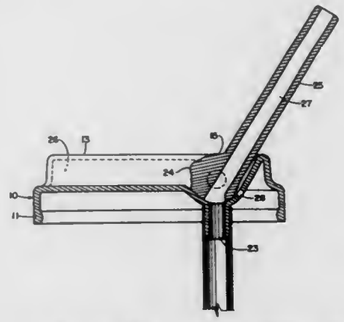
1. A fitment for a container having a body portion and a neck on said body portion terminating in a rim and defining a generally cylindrical opening having a tapered portion which tapers from a maximum diameter at said rim to a minimum diameter at an inflection point, and a flared portion which flares outward in diameter towards said body portion from the minimum diameter at said inflection point, said fitment comprising:
a circular end wall with at least one dispensing opening therein, and having a peripheral edge with a diameter which is between said maximum and minimum diameters of said opening; and
a cylindrical skirt extending axially from and spaced radially inward from said peripheral edge of said end wall, and terminating in a terminal portion which flares radially outward to a diameter greater than said minimum diameter at a free edge;
said fitment seating in said cylindrical opening in the container neck with said peripheral edge on said end wall wedged against the tapered portion of said opening at a point spaced from said rim of said neck, with said cylindrical skirt extending through the inflection point in said opening, and with said terminal portion of said skirt flared radially outward into engagement with said flared portion of said opening.

5,065,909

VENTED BEVERAGE CAN COVER HAVING PIVOTAL SPOUT

Giovanni Pino, Kentwood, Mich.; Thomas W. Scherer, Mansfield, and Ruth A. Stephens, Norton, both of Ohio, assignors to Threeco, Barberton, Ohio

Filed Nov. 29, 1989, Ser. No. 443,488
Int. Cl.[5] B67D *3/00*
U.S. Cl. 222—484 2 Claims



1. A cover assembly for a beverage container, said cover assembly including a cap engageable with a standard container, said cap providing an outlet passage traversing said cap, said cover assembly also including a valve member having a tubular lever portion and rotatably mounted on said cap for movement between a position closing said passage and a position opening said passage to communication with said tubular lever portion, wherein the improvement comprises:
means forming a vent opening in said cap, said valve being adapted to open said vent opening with said valve in position to open said passage, and close said vent opening with said valve in position to close said passage, said valve having protrusions engaging said passage and vent opening in said closed position, said cap having a wall forming a recess of cylindrical curvature having an axis, and said vent opening and outlet passage traversing said cap at said recess, said valve having a configuration providing a vent passage exclusively within said recess communicating with said vent opening in said open position.

5,065,910

DISPENSER HEAD FOR FLOWABLE MATERIALS

Edgar F. Fiedler, 147 Avenue, Nobleton, Ontario, Canada

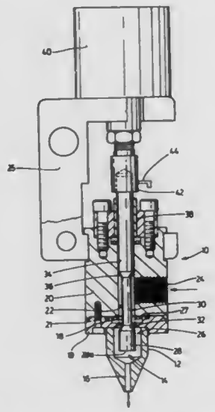
Filed Feb. 7, 1990, Ser. No. 476,319
Claims priority, application Canada, Jun. 30, 1989, 604552
Int. Cl.[5] B67D *5/00*
U.S. Cl. 222—504 7 Claims

1. A dispenser apparatus for flowable materials supplied under pressure to said dispenser apparatus and comprising:
a dispensing head defining a dispensing chamber having an inlet opening and a discharge opening, and defining a predetermined volume;
plunger means having a predetermined plunger diameter adapted to be positioned in an open position in said dispensing chamber, for occupying a portion of said predetermined volume thereof, and being at least partially removable from said dispensing chamber;
a supply chamber for supplying said flowable material to said inlet opening of said dispensing chamber, said material flowing directly from said supply chamber to said inlet opening, and through said dispensing chamber around said plunger means, and out of said discharge opening, said supply chamber having a supply opening communicating directly for receiving said flowable material under pressure;

VOL 1132 ISS 3 NO 19 1991 UMI

plunger operating rod means having a predetermined rod cross-section extending through said supply chamber and through said inlet opening of said dispensing chamber, said plunger operating rod means being of reduced cross-section in relation to said plunger means, whereby said flowable material flows directly from said supply chamber under pressure directly through said inlet opening around said plunger operating rod means, when said plunger means is in said open position in said dispensing chamber;

means for progressively withdrawing said plunger means from said dispensing chamber into said inlet opening to close said inlet opening and prevent further flow of said material through said inlet opening and said means for progressively withdrawing said plunger means being



operable to further withdraw said plunger means from said dispensing chamber thereby causing material in said discharge opening to be sucked back into said dispensing chamber;

bearing sleeve means communicating with said supply chamber, and,

collar means connected with said plunger operating rod means and extending through said bearing sleeve means into said supply chamber, said collar means having a predetermined diameter substantially equal to said predetermined diameter of said plunger means, and greater than said predetermined cross-section of said plunger operating rod means whereby pressure of said flowable material in said supply chamber is applied substantially equally to said plunger means and to said collar means.

5,065,911

TWO-PIECE DISPENSING CLOSURE WITH CANTILEVERED BIASING MEMBER

Robert D. Rohr, Elgin, Ill., and Lawrence R. Kitterman, Bradenton, Fla., assignors to Seaquist Closures, Crystal Lake, Ill.

Filed May 14, 1990, Ser. No. 523,133

Int. Cl.[5] B67D *3/00*

U.S. Cl. 222—517 **11 Claims**

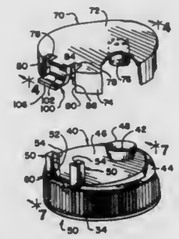
1. A two-piece snap-action closure which can be readily assembled for use on a container defining an opening communicating with the container interior, said closure comprising:

a body for being mounted to said container over said container opening, said body defining a dispensing orifice for communicating at said container opening with said container interior;

a lid separate from said body;

mounting means for mounting said lid on said body for pivoting between a closed position occluding said dispensing orifice and an open position spaced away from said dispensing orifice;

a resiliently deformable biasing member extending from a first location on one of said lid and body and having a distal end for engaging the other of said lid and body at a second location, said biasing member having a range of movement with a stable position at each end of the range on either side of an over center point; and



restraining means on said other of said lid and body for restraining said distal end of said biasing member at said second location whereby said biasing member is most stressed when said lid is at said over center point between said open and closed positions to thereby bias said lid toward one of said open and closed positions.

5,065,912

BIASED SWIVEL CLOSURE

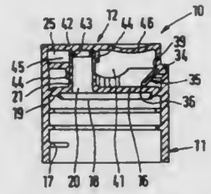
Karl-Heinz Rosenthal, Reichshof, Fed. Rep. of Germany, assignor to Bielsteiner Verschlusstechnik GmbH, Gummerbach, Fed. Rep. of Germany

Filed Jul. 6, 1990, Ser. No. 549,284

Claims priority, application Fed. Rep. of Germany, Jul. 6, 1989, 3922258

Int. Cl.[5] B67D *3/00*

U.S. Cl. 222—517 **6 Claims**



4. A closure for a container defining an opening communicating with the container interior from which material can be dispensed, said closure comprising:

a cap for being mounted on said container over said opening, said cap defining a peripheral wall and a coverplate which is recessed from the end of said wall and which extends over said container opening, said coverplate defining a discharge opening for communicating with the container interior;

a cover pivotally mounted within said peripheral wall on said cap over said coverplate for being pivoted between a closed position occluding flow through said discharge opening and an open position permitting flow through said discharge opening; and

a spring device connecting said cap and cover to force said cover toward said closed position, said spring device having a pair of legs each having a first end connected together, said legs generally diverging from each other in the unstressed state of said device when said cover is removed from said cap, one of said legs being pivotally connected at a second end to said cap and the other of said legs being pivotally connected at a second end to said cover, said legs having a less divergent configuration when said cover is mounted in said cap in the closed position with said connected first ends engaging said coverplate.

5,065,913

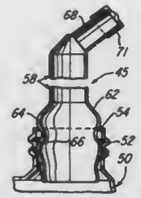
POURING AND DISPENSING SPOUT FOR A CONTAINER

Thomas H. Glasener, 10185 Marquart Rd., New Carlisle, Ohio 45344

Filed Apr. 3, 1990, Ser. No. 503,729

Int. Cl.[5] B67D *3/00*

U.S. Cl. 222—528 **8 Claims**



1. A pouring and dispensing spout in combination with a liquid container having a tubular neck portion with external helical threads and a circular surface adjacent said threads, said spout including an elongated one-piece and dip-molded tubular body of resilient and flexible rubber-like material and defining an internal passage, said body having a generally uniform wall thickness and including an enlarged annular inlet portion and a smaller annular outlet portion, said inlet portion having a removable friction engagement with said neck portion of said container and adapted to be pressed axially onto said neck portion, said inlet portion of said body also having a peripherally extending annular rib forming a liquid-tight seal with said circular surface of said neck portion, and said body having an annular intermediate wall portion which collapses to close said passage in response to pinching said wall portion with a user's fingers to permit inverting said container and then controlled dispensing of the liquid from said container.

5,065,914

ONE-PIECE CONTAINER WITH A POURING TUBE, MADE FROM A THERMOPLASTIC MATERIAL

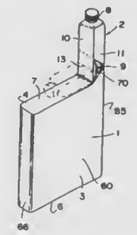
Jean-Louis Chollet, Lyons, France, assignor to Etablissements Marius Millet & Cie, Pratz, France

Filed Jun. 29, 1990, Ser. No. 545,828

Claims priority, application France, Jun. 30, 1989, 89 09446

Int. Cl.[5] B67D *3/00*

U.S. Cl. 222—529 **14 Claims**



9. A container molded as a single piece from a thermoplastic material, comprising:

a hollow storing body having a top wall;

a pouring tube connected to said hollow storing body and comprising a pivoting section whereby at least a portion of said pouring tube is folded down against said top wall in a stored position and raised angularly by about 90° relative to said top wall in a use position when corresponds to a position in which said container is molded;

said pivoting section having a substantially quadrilateral cross-section defining two substantially straight opposing lateral walls connected by a first wall and a second wall respectively along a first edge and a second edge of each said lateral wall;

each said lateral wall comprising a substantially identical molded pyramid shaped recess extending toward each other, said pyramid having a base in the shape of a triangle substantially coplanar with its respective lateral wall, each said triangle having a base extending along said first edge and a vertex located on said second edge.

5,065,915

HINGED MULTIPLE GARMENT HANGER

Wilhelm Rösch, Hinzbecker Höhe 30, D-4300 Essen 15, Fed. Rep. of Germany

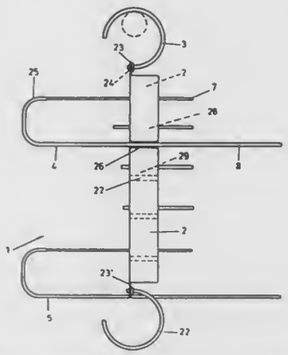
PCT No. PCT/DE88/00420, § 371 Date Jun. 13, 1989, § 102(e) Date Jun. 13, 1989, PCT Pub. No. WO89/02714, PCT Pub. Date Apr. 6, 1989

PCT Filed Jul. 7, 1988, Ser. No. 360,886

Claims priority, application Fed. Rep. of Germany, Sep. 24, 1987, 8712870[U]

Int. Cl.[5] A47G *25/14, 25/44, 25/28*

U.S. Cl. 223—89 **18 Claims**



1. A garment hanger for the simultaneous hanging and storage of a plurality of articles of clothing, said garment hanger comprising:

a carrying element provided with at least two suspension hooks, said carrying element defining a first longitudinal axis;

first bar means;

means for connecting said first bar means pivotably and slidably to said carrying element;

said first bar means defining a second longitudinal axis;

said first longitudinal axis being generally transverse to said second longitudinal axis; and

said first bar means being pivotable about said second longitudinal axis.

5,065,916

GARMENT HANGER WITH MOLDED INTEGRAL CLIPS

Gerhard Fildan, Vienna, Austria, assignor to Fildan Accessories Corp., Englewood Cliffs, N.J.

Filed May 30, 1990, Ser. No. 530,909

Int. Cl.[5] A47G *25/48, 25/34, 25/14*

U.S. Cl. 223—91 **12 Claims**

1. A hanger for lingerie, the hanger comprising:

a horizontally straight bar having opposite ends;

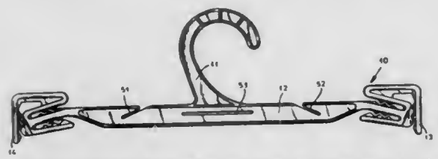
VOL 1132 ISS 3 NO 19 1991 UMI

a hook midway between the ends of said bar for suspending same; and

respective retaining heads formed unitarily on said bar at each of said ends, each of said retaining heads comprising a straight downwardly and outwardly inclined rectilinear support element extending from said bar at a downwardly open obtuse angle,

means at an end of said support remote from said bar defining a resilient formation having a crossbar formed with upwardly and downwardly extending parts,

an upper retaining element extending inwardly and upwardly from said upper part, parallel to said support element at the downwardly open obtuse angle to the bar, said support element and said upper retaining element being provided with juxtaposed parallel surfaces defining an upper channel and formed with spaced apart interdigitating arrays of teeth transversing said upper channel between said surfaces for receiving a garment strap, said



upper channel having a mouth lying above an upper edge of said bar and extending downwardly and outwardly from said mouth,

an outwardly extending leg formed on an inner end of said upper retaining element and substantially rigidly connected therewith, said leg extending generally parallel to said bar,

a foot extending downwardly from said leg and defining an upwardly extending channel with an outer surface of said formation whereby a waistband of a garment can be inserted between said formation and said foot,

a lower retaining element extending from said lower part and defining a lower channel with said support element open at a mouth above a lower edge of said bar and inclined downwardly and outwardly from said bar, and

means forming a ramp extending upwardly and outwardly and connecting said lower edge of said bar with said mouth of said lower channel.

5,065,917

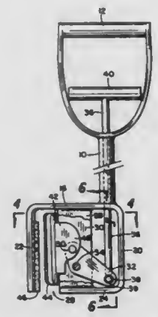
DEVICE FOR PULLING BOOTS ON WITH HANDLE AND CLAMP

Martin R. Diehm, Rte. 1, Box 99, Red Rock, Okla. 74651

Filed May 21, 1990, Ser. No. 526,026

Int. Cl.[5] A47G *25/80*

U.S. Cl. 223—113 **4 Claims**



4. A boot puller for pulling a boot onto the foot of a wearer comprising an elongated hollow tube having an upper fixed handle and a lower boot engaging portion, the boot engaging portion including a horizontal arm connected at one side end to a lower end of the tube, a pair of spaced vertical arms extending downwardly from the ends of the horizontal arm, the lower end of one vertical arm connecting with a narrow horizontal plate which extends toward the other vertical arm but terminates at a spaced distance therefrom to form an opening, a pair of spaced vertical plates extending upwardly from the sides of the horizontal plate and connecting at their upper ends with the horizontal arm to one side of the tube, a triangular plate pivotally mounted between the two vertical plates, a vertical rod extending downwardly from above the top of the vertical tube, through the tube, and to a lower end which is bent at right angles to the rod and which engages a hole in the triangular plate, the upper end of the rod being connected to the center of a short horizontal rod which constitutes a moveable handle, a clamp being mounted between the two vertial plates, the clamp having a concave vertical edge adjacent to the other vertical arm, a first strip of protective material attached to the concave edge of the clamp, the edge of the other vertical arm having a convex edge facing the concave edge of the clamp, a second strip of protective material attached to the convex edge of the other vertical arm, the protective strips being adjacent but spaced from each other, the clamp being provided with a pair of spaced ears which extend over the one end of the triangular plate, the ears pivotally connecting the clamp to the triangular plate, the arrangement of the pivotal connections and the hole in the plate being such that an upward lifting of the rod will cause the clamp to move towards the other vertical arm, whereby when the boot puller is slipped over the upper rear end of a boot such that the end of the boot is positioned between the clamp and the other vertical arm, the wearer can place his fingers beneath the moveable handle while the wearer's foot is inserted into the boot, the rod is urged upwardly while the triangular plate pivots so that the boot is gripped between the protective strips, and whereby continued lifting against the moveable handle will cause the boot to slip onto the foot of the wearer.

5,065,918

FILM CASE HOLDER FOR POCKET CAMERA

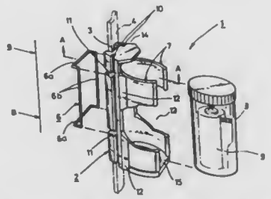
Byoung E. Chun, 310-504, Chooggong APT Banpo-dong, Seocho-gu; Nam H. Chun, 177-12, Koosan-dong Eunpyoung-gu, and Woo S. Chun, 832-17, Dongmoon-dong Susan-si, Chungcheongnam-do, all of Seoul, Rep. of Korea

Filed Mar. 1, 1990, Ser. No. 487,000

Claims priority, application Rep. of Korea, May 24, 1989, 89-6796[U]

Int. Cl.[5] A45F *5/00*

U.S. Cl. 224—191 **3 Claims**



1. A film case holder for a pocket camera for releasably attaching to a hand strap, wherein the film case holder comprises:

a holder body extending longitudinally to the hand strap, having a recess on the rear surface thereof for receiving the hand strap;

a fastener adapted to engage with and securely attach the holder body to the hand strap;

said holder body formed with a resilient support member having a C-shaped cross section for receiving a film case; and

wherein said holder body is provided with a pair of side grooves on the side surface and a pair of transverse grooves for receiving said fastener, respectively.

5,065,919

SLING SUPPORT APPARATUS

George W. Sims, 104 Greenview Dr., Lawrenceburg, Ky. 40342

Filed Nov. 29, 1990, Ser. No. 619,392

Int. Cl.[5] A45F *3/14*

U.S. Cl. 224—257 **6 Claims**



1. A sling support apparatus including an elongate continuous flexible cord loop, with the cord loop for permitting repositioning of the pulley means relative to the cord loop, and

the pulley means including a pulley mounted upon the cord loop, and

the pulley means further including a fastener member mounted to the pulley means, the fastener member mounted to a fastener boss selectively removable from the fastener member, and

the fastener boss including a first support cord, the first support cord integrally and medially mounted of its length relative to the fastener boss, and

the first support cord including a first and second free terminal end, with the first and second free terminal ends including a respective first and second ring member mounted to the respective first and second free terminal end, and

the first and second ring members arranged for securement to respective binocular loops, the binocular loops mounted to an associated binocular member.

5,065,920

STOWAGE TRAY

John A. Amner, Rochford, United Kingdom, assignor to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 290,121, Dec. 27, 1988, abandoned.

This application Mar. 28, 1990, Ser. No. 506,586

Claims priority, application United Kingdom, Jan. 22, 1988, 8801426

Int. Cl.[5] B60R *7/00*

U.S. Cl. 224—275 **7 Claims**

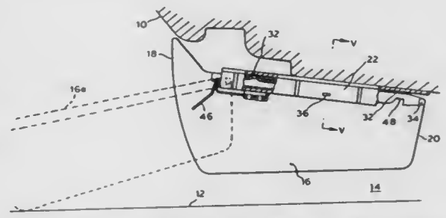
1. An underseat stowage tray arrangement for a seat of a motor vehicle, the arrangement comprising:

a seat base positioned on the underside of the seat;

a pair of spaced, longitudinally extending rails fixedly secured to the seat base;

a tray slidably received by the rails for movement with respect to the seat between a rearward closed position and an extreme forward position;

means operatively disposed between the tray and the rails to permit tipping movement of the front of the tray upon movement to the extreme forward position; and



a spring secured to at least one of the rails and engaging portions of the tray slidable received in the at least one rail, the spring being manually operable to permit the tray to be disengaged from the rails.

5,065,921

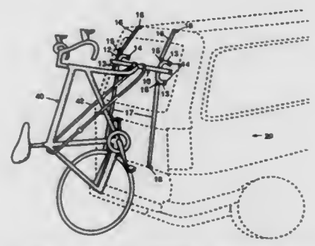
BICYCLE RACK FOR MOUNTING ON A VAN

Mark H. Mobley, P.O. Box 636, Norris, Tenn. 37828

Filed Nov. 14, 1989, Ser. No. 436,492

Int. Cl.[5] B60R *9/00*

U.S. Cl. 224—324 **3 Claims**



1. A rack assembly for mounting at least one bicycle on a vehicle with a substantially vertical rear exterior wall, a rear bumper and having a width, said rack assembly comprising:

(a) an elongated bar having first and second ends and sized to extend substantially the width of the vehicle;

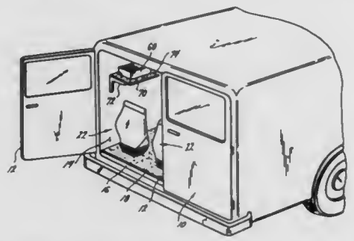
(b) two pair of support legs attached to the elongated bar at points spaced away from said first and second ends, each pair of support legs forming a generally c-shaped structure when the rack assembly is viewed from its side; said elongated bar and two pairs of support legs forming an elongated structure;

(c) means for adjustably attaching the elongated structure to said rear exterior wall; and

(d) a plurality of quick release clamping mechanisms mechanisms being positioned between one of the first and second ends of the elongated bar and one pair of support legs; said rack assembly having only a single elongated bar and structured such that the rack assembly is capable of being positioned on the vehicle to allow the bicycle fork to engage the quick release clamping mechanism and a rear tire of the bicycle to engage the rear bumper of the vehicle.

VOL
1132
ISS
3
NO
19
1991
UMI

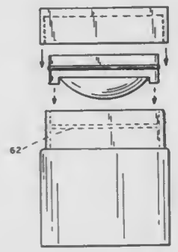
5,065,922
CONTAINER HOLDING SYSTEM
Charles C. Harris, 1611 Manufacturers Dr., St. Louis, Mo. 63026
Filed Feb. 28, 1990, Ser. No. 486,118
Int. Cl.[5] B60R 7/02; B65D 85/50
U.S. Cl. 224—42.32 6 Claims



1. A system for holding a container in place in a moving vehicle comprising:
(a) a vehicle having a generally horizontal, flat floor area,
(b) a floor covering having a relatively large area upper surface corresponding to a loop component of a hook and loop fastener means and covering a substantial portion of said floor area,
(c) a first container having a bottom having an area substantially smaller than the relatively large area of the floor covering upper surface and tapered sidewall portions, said bottom having spaced apart portions,
(d) hook component portions of a hook and loop fastener means fixedly attached to the first container bottom spaced apart portions and cooperating with the upper surface of the floor covering to hold the first container selectively in place on the floor area in response to forces resulting from motion of the vehicle,
(e) a second, article-holding container having a bottom and compatibly tapered sidewall portions for interfitting said first container in nested relation, and
(f) a sleeve for said second container having a lower portion and an upper portion, said lower portion overfitting said second container side portions and being received in sandwich relation between said first and second containers, and said upper portion providing an article protecting cover.

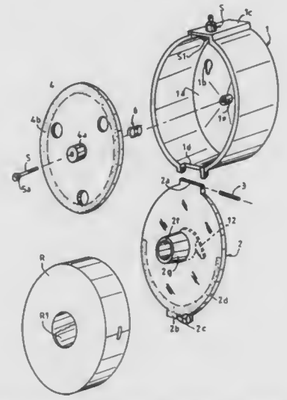
5,065,923
FOOD SUPPORTING ELEMENT FOR ATTACHMENT TO A FOOD CONTAINER
Richard Hoefer, and Clovia Hoefer, both of 249 Stillwater La., Billings, Mont. 59105
Filed Aug. 14, 1990, Ser. No. 567,092
Int. Cl.[5] G01F 11/26
U.S. Cl. 220—694 1 Claim

1. A food-supporting element for attachment to a food container comprising:
A) a support rim means which includes means for mounting said support rim means on the food container adjacent to a mouth of that food container to be located inside the food container, said support rim means being U-shaped and including two legs attached to a bight section, said support rim further including a seal seating groove defined in one leg of said support rim legs and an O-ring located in said seating groove, said one leg being located adjacent to said container mouth and the other leg of said two legs being spaced from said container mouth when said support rim means is mounted on said container;
B) a food support bowl attached to said support rim means and spanning the food container mouth when the support rim means is mounted on the food container, said food support bowl being impervious to food container in the container and having a concave surface and a convex surface, with said concave surface being located adjacent to a rim of the container, said container rim circumscribing the mouth of the container;
C) bowl attaching means attaching said bowl to said support rim means, said bowl attaching means including a plurality of spaced-apart arms connecting said food support bowl to said support rim means, said spaced apart arms forming gap-defining means defining a plurality of gaps between said support rim means and said bowl so food contained in



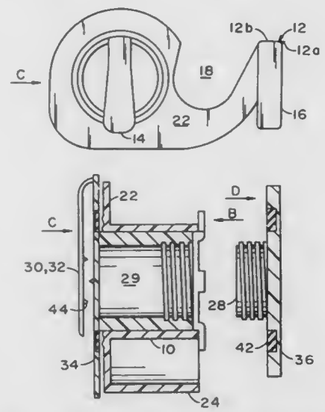
the container can flow through said plurality of gaps to move onto said bowl concave surface to be supported on said concave surface adjacent to the container mouth; and
D) a seal seating groove defined on the container adjacent to the container mouth to be aligned with said support rim seal seating groove when said support rim means is mounted on the container, said O-ring being accommodated in said container seal seating groove and in said support rim seal seating groove and preventing food seapage between said support rim means and said container.

5,065,924
PAPER TOWEL DISPENSER WITH CENTRAL UNWINDING
Maurice Granger, 17 Rue Marcel Pagnol, 42270 Saint Priest en Jarez, France
Filed Dec. 6, 1990, Ser. No. 623,217
Claims priority, application France, Nov. 6, 1990, 90 14094
Int. Cl.[5] B26F 3/02
U.S. Cl. 225—46 15 Claims



1. An apparatus for dispensing a static roll of paper, wherein said roll is unwound from a central axis to an outer periphery thereof, said apparatus comprising:
a hollow cylindrical casing for housing said roll such that a central axis of said casing and the axis of said roll are oriented horizontally, said casing comprising:
(i) a back wall having means for attachment to a support surface; and
(ii) a front wall having an opening formed therein which is aligned with the axis of said roll, said opening enabling passage through said front wall of a helical strip of paper unwound from said roll;
means for applying constant pressure to substantially an entire end surface of said roll such that said roll is retained in said casing without deformation or collapse; and
means associated with said opening for cutting said strip into segments.

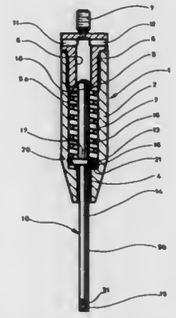
5,065,925
TAPE DISPENSING DEVICES
Carlene Ridenour, P.O. Box 1, Edmon, Pa. 15630
Continuation-in-part of Ser. No. 290,369, Dec. 29, 1988, abandoned. This application Mar. 1, 1990, Ser. No. 487,404
Int. Cl.[5] B26F 3/02; B65D 85/672
U.S. Cl. 225—78 7 Claims



1. A device for the dispensing of tape, comprising a spindle means for carrying a roll of tape, a cutter means for serving tape pulled from the roll, and a clip means for clipping the spindle means and cutter means to an article of clothing, the spindle means comprising a core means for supporting a sleeve and a sleeve supported on the core means for carrying a roll of tape, the sleeve being connected to the cutter means by a panel means for connecting, the sleeve and cutter means extending laterally from the panel means, the clip means being attached to the core means, and rotation preventing means for preventing rotation of the sleeve on the core means, the rotation preventing means comprising plates on ends of the core means, the clip means lying on one side of a first of said plates, the core means extending laterally from the other side of the first plate to a second of said plates.

5,065,926
TELESCOPIC TOOL FOR STRIPPING WASTE WITHIN A SHEET PROCESSING MACHINE
Marcel Yerly, Jouxtens, Switzerland, assignor to Bobst SA, Switzerland
Filed Apr. 6, 1990, Ser. No. 505,508
Claims priority, application Switzerland, Apr. 7, 1989, 01313/89
Int. Cl.[5] B26F 3/02; B31B 49/00
U.S. Cl. 225—93 10 Claims

1. In a telescopic toll for stripping waste within a sheet processing machine, said tool comprising a hollow cylindrical body having a first bore, a second bore extending axially from the first bore and coacting therewith to form an internal shoulder, said first bore receiving a cap to close the first bore, said cap having a third bore axially aligned with the first and second bores, a pin having a first portion and a second portion separated by a collar being disposed with the second portion and collar received in the first bore and the second portion extending in the second bore and out of the tool and biasing



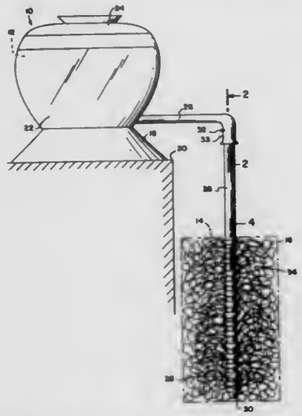
means comprising a spring between the collar and the end of the cap to urge the collar toward the internal shoulder, the improvements comprising the second portion being formed of a first element and a second element connected to one another with the second element forming tip for the tool, said second and first elements being of different materials with the material of the second element forming means for absorbing shocks and misalignment and said tool having means for absorbing noise being disposed between the collar and the internal shoulder.

5,065,927
APPARATUS FOR EVENLY DISPENSING MELTED BUTTER
Seymour Wahl, 67 Prospect Ave., Hewlett, N.Y. 11557, and George Spector, 233 Broadway RM 3815, New York, N.Y. 10007
Filed Mar. 27, 1989, Ser. No. 328,903
Int. Cl.[5] B65B 1/04
U.S. Cl. 222—185 2 Claims

1. An apparatus for dispensing melted butter into a container of popcorn which comprises:
(a) a base adapted to be rested on a supporting surface;
(b) a receptacle associated with said base for holding melted butter therein;
(c) a cover fitting over said receptacle;
(d) a spout extending laterally from said receptacle;
(e) an elongated hollow perforated tube extending from said spout, said tube having a tip so as to go through the popcorn in the container;
(f) means for releasing the melted butter so as to be ejected evenly throughout the popcorn from said perforated tube; wherein said releasing means is a pressure controlled check valve that includes;
(g) a seat formed within an end of said spout;
(h) a poppet having a socket and carried within said valve;
(i) a spring held within said spout to hold said poppet against said seat; and
(j) a ball member on a distal end of said tube engagable with

VOL 1132 ISS 3 NO 19 1991 UMI

said socket in said poppet, said ball member sized to allow the melted butter to pass therethrough when said tube is



pressed upwardly by the container up against tip of said tube, thereby raising said poppet from said seat.

5,065,928

METHOD AND APPARATUS FOR BLOWING AN OPTICAL FIBRE MEMBER

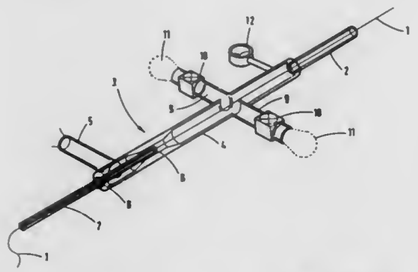
Rodney J. Davey, Rainhill; Graham R. Handley, Upton, and Alfred J. Ward-Smith, Bracknell, all of England, assignors to BICC plc., London and Corning Limited, Sunderland, both of, England

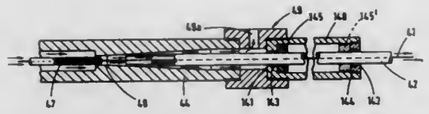
Filed Nov. 22, 1988, Ser. No. 274,752

Claims priority, application United Kingdom, Nov. 25, 1987, 8727580

Int. Cl.[5] B65H *54/78*

U.S. Cl. 226—7 **27 Claims**





1. A method of providing an optical communications route by introducing at least one optical fibre member into a tubular passageway, which comprises passing a current of fluid into and through a venturi having at least a throat portion and a divergent portion connected thereto, the downstream side of said venturi communicating with said tubular passageway, introducing the optical fibre member into the venturi and thence into said tubular passageway, and wherein part of the fluid enters the tubular passageway and passes therealong to transport the optical fibre member, and the remainder of said fluid is vented downstream of said venturi and does not enter the tubular passageway.

6. An apparatus for introducing at least one optical fibre member into a tubular passageway, which comprising means defining a venturi having at least a throat portion and a divergent portion connected thereto, the downstream side of said venturi communicating, in use, with the tubular passageway, means for passing a current of fluid into and through the venturi, means for introducing the optical fibre member into the venturi and thence into the tubular passageway, and venting means positioned downstream of said venturi and upstream of the tubular passageway for venting a portion of the fluid downstream of said venturi to prevent entry of said portion of said fluid into the tubular passageway.

5,065,929

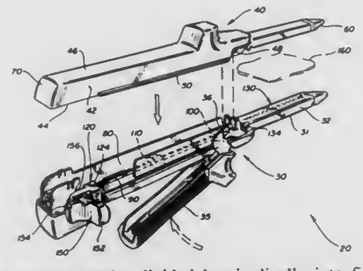
SURGICAL STAPLER WITH LOCKING MEANS

Dale R. Schulze, Lebanon; Jon A. Sherman, and W. Michael Mereness, both of Cincinnati, all of Ohio, assignors to Ethicon, Inc., Somerville, N.J.

Filed Apr. 1, 1991, Ser. No. 678,919

Int. Cl.[5] A61B *17/04*

U.S. Cl. 227—19 **3 Claims**



1. A surgical stapler divided longitudinally into first and second mated pieces and having a staple ejecting end and an opposite end, said stapler comprising:

a longitudinal inner passage;

a staple ejecting means slidably affixed to said first piece and adapted to move longitudinally within said passage toward the staple ejecting end to eject staples therefrom;

said staple ejecting means being integral with a gripping means projecting out of said first piece for gripping and moving said ejecting means within said passage;

said gripping means provided with a first locking means;

said second piece provided with a second locking means;

said first locking means adapted to engage said second locking means when said ejecting means is moved within said passage toward said ejecting end;

whereby when said staple ejecting means is moved toward said ejecting end to eject staples, said first locking means engages said second locking means and insures that said pieces are mated when staples are being ejected.

5,065,930

SPIRAL FEED FASTENER

George W. Kennedy, 111 N. Pompano Beach Blvd., Pompano Beach, Fla. 33062

Division of Ser. No. 428,070, Oct. 27, 1989, Pat. No. 4,981,246, which is a continuation-in-part of Ser. No. 153,768, Feb. 8, 1988, Pat. No. 4,867,367, which is a continuation-in-part of Ser. No. 882,345, Jul. 7, 1986, Pat. No. 4,728,021. This application Aug. 23, 1990, Ser. No. 571,936

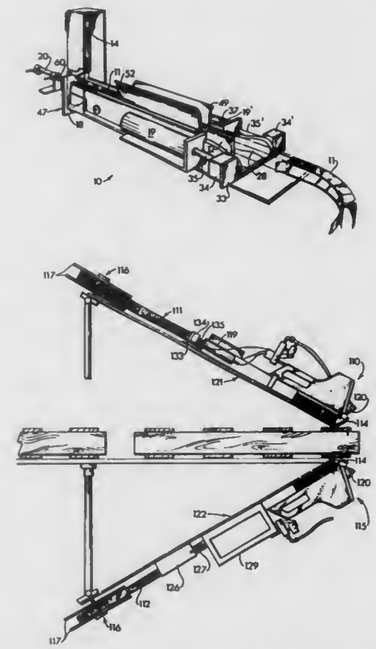
Int. Cl.[5] B25C *5/13, 5/16*

U.S. Cl. 227—130 **9 Claims**

1. A fastening machine of the type used to drive fasteners from an end of a strip of fasteners into a work product, the strip

of fasteners comprising fasteners connected to one another in an elongated supply of aligned, parallel abutting fasteners, the fastener machine including an elongated guide means having a discharge end, and an open end remote from said discharge end, a drive element at the discharge end of said guide means for driving the endmost fastener at the end of the strip from the strip of fasteners on said guide means, and fastener advancing means for maintaining the endmost fastener of the strip on said guide means at a position adjacent to said drive element, the improvement therein comprising,

said fastener advancing means being affixed to said fastening machine and being open at one end for longitudinally receiving on said guide means at said open end thereof a strip of fasteners and for discharging the fasteners at the other end of said guide means and including advancing means for engaging opposite sides of the fasteners on said guide means, and having power means for simultaneously



urging said advancing elements laterally toward each other into engagement within the machine with an intermediate portion of the strip of fasteners on said guide means and along the strip of fasteners parallel to the length of said guide means toward said drive element whereby an elongated strip of fasteners of a length greater than said guide means is progressively moved along its length by said fastener advancing means through the open end of the fastener advancing means toward the discharge end of said guide means as said drive element drives the endmost fastener of the strip at the end of said guide means into a work product, said power means including means for simultaneously urging said advancing elements laterally away from each other for disengaging said advancing elements from the strip of fasteners and moving them along said guide means toward said open end, and means for introducing the fasteners into said machine and said advancing means through said open end.

5,065,931

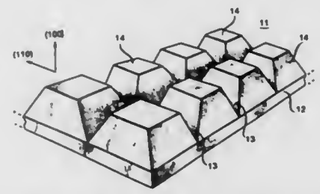
DEVICE FOR REMOVING SOLDER

Jay J. Liu, Somerville, and Y. H. Wong, Summit, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Division of Ser. No. 255,896, Oct. 11, 1988, Pat. No. 4,923,521. This application Jan. 19, 1990, Ser. No. 467,457

Int. Cl.[5] B23K *1/018*

U.S. Cl. 228—19 **5 Claims**



1. A wick element for removing solder remnants from a substrate comprising: a monocrystalline element having on one surface thereof a pattern of grooves which define an array of mesa structures; the array of mesa structures and the grooves being covered by a thin metal coating.

5,065,932

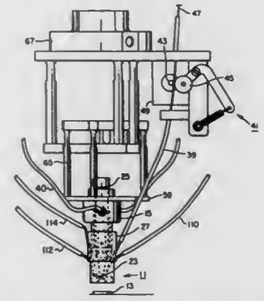
SOLDER PLACEMENT NOZZLE WITH INERT COVER GAS AND INERT GAS BLEED

Terry F. Hayden, Round Rock; Christopher A. Hicks, Austin, both of Tex.; Peter G. Ledermann, Ossining, N.Y.; Alvin D. Nguyne, Austin, Tex.; Stephen C. Steinbach, Austin, Tex., and Stanley K. Yu, Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 24, 1990, Ser. No. 586,654

Int. Cl.[5] B23K *3/02*

U.S. Cl. 228—55 **7 Claims**



1. A nozzle assembly of the type which includes a heated metal tip of a soldering iron for depositing solder onto a series of conductive surfaces, the nozzle assembly comprising:

a nozzle mount supportable above the conductive surface to be soldered, the nozzle amount having a length and having an internal bore sized to receive the heated metal tip of a soldering iron;

a nozzle head formed of a non-conductive plastic material removably mounted on the nozzle mount, the nozzle head having a solder feed orifice and having an interior bore sized to receive a portion of the length of the nozzle mount, thereby allowing the heated metal tip of the soldering iron to extend at least partly within the interior bore of the nozzle head for contacting solid solder fed within the interior bore through the solder feed orifice, the interior bore of the nozzle head including a solder reservoir for molten solder, the reservoir terminating in a

VOL 1132 ISS 3 NO 19 1991 UMI

tip opening for depositing molten solder onto a conductive surface; and

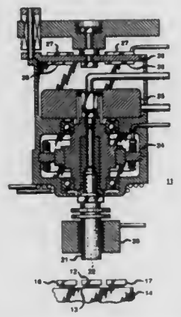
bleed gas means for supplying a bleed gas to the internal bore of the nozzle mount, past the heated metal tip of the soldering iron, and to the interior bore of the nozzle head to cool the nozzle assembly and exclude oxygen in the surrounding air form entering the nozzle assembly.

5,065,933

ELECTRONIC DEVICE MANIPULATING APPARATUS AND METHOD

Nagesh R. Basavanhally, Trenton, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Sep. 19, 1990, Ser. No. 584,831
Int. Cl.[5] B23K *1/018*
U.S. Cl. 228—102 **14 Claims**



1. A method for removing an element that has been soldered to the surface of a substrate comprising the steps of:

attaching a load cell to a vacuum pick-up tool, the load cell generating an electrical signal indicative of the mechanical stress of the tool against an object;

causing the pick-up tool to contact and to bear against the soldered element until the load cell generates a first signal indicative of a first level of stress;

in response to the first signal, heating the tool to a temperature sufficient to melt the solder bonding the element to the substrate, said melting resulting in a second level of stress on the tool which is smaller than the first level of stress, and further resulting in the load cell generating a second signal indicative of the second level of sress;

in response to the second signal, actuating the pick-up tool; and using the pick-up tool to move the element from the substrate.

5,065,934

METHOD OF MANUFACTURING ROD END JOINT

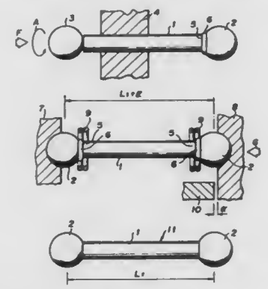
Kenichi Ito, Kani, Japan, assignor to Nippon Thompson Co., Ltd., Tokyo, Japan

Filed May 14, 1990, Ser. No. 523,381
Claims priority, application Japan, May 16, 1989, 1-121886
Int. Cl.[5] B23K *20/12, 31/02;* **B21D** *53/84*
U.S. Cl. 228—112 **6 Claims**

1. A method of manufacturing a rod end joint comprising a rod and one or more ball sections formed at an end or ends of the rod, said method comprising steps of

rigidly fitting a ball or balls to the end or ends of the rod to form the ball section and

applying external compressive force longitudinally to a neck portion formed with the ball section while the neck portion is subjected to a high frequency annealing so as to plastically deform said rod.

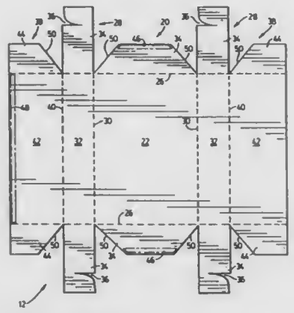


5,065,935

NO WRAP BOXES

James D. Mancel, Aurora, Canada, assignor to Shorewood Technologies, Inc., Dover, Del.

Continuation of Ser. No. 268,580, Nov. 8, 1988, abandoned. This application Jun. 14, 1990, Ser. No. 538,679
Int. Cl.[5] B65D *5/26*
U.S. Cl. 229—40 **24 Claims**



1. A box blank comprising:

a central panel having a center portion and opposed end flaps joined thereto along respective first crease lines;

opposed side panels joined to said central panel along respective second crease lines located perpendicularly to the first crease lines, each side panel having an inner portion and opposed end portions joined to the inner portion along extensions of said first crease lines, said end portions having means for interlocking engagement with a respective adjacent said end portion when the side panels are folded perpendicularly to the central panel;

opposed outer panels joined to the side panels along respective crease lines located parallel to the second crease lines, each outer panel having a mid-portion and opposed distal flaps joined to the said mid-portion along extensions of the first crease lines, the width of said outer panels combined being greater than the width of the central panel, and the width of said end flaps being equal to the width of said distal flaps;

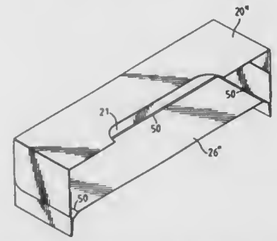
wherein the box blank has peripheral edges and inner and outer surfaces, and further comprises a layer of wrapping paper located over said outer surface and wrapped around the peripheral edges of the box blank so as to conform to the shape thereof, the peripheral edges of the wrapping paper layer being adhered to the inner surface of the box blank.

5,065,936

COLLAPSIBLE BOX FOR TISSUES/PAPERS

Charles S. King, 19842 Edgwood La., Huntington Beach, Calif. 92646

Filed Jun. 1, 1989, Ser. No. 360,022
Int. Cl.[5] B65D *5/16*
U.S. Cl. 229—101 **1 Claim**



1. A variable size cardboard box having a top wall, a bottom wall, and four side walls, each wall having four edges, said top wall having an opening for accessing the interior, a continuous perforated line located in the side walls and extending around the entire perimeter of the box and spaced from the bottom wall,

three auxiliary perforated lines of equal length located at each of the four bottom corners of the box and extending along the edges of respective side walls and the bottom wall, all of said perforated lines providing means which facilitate pushing the bottom wall into the box to reduce its interior volume,

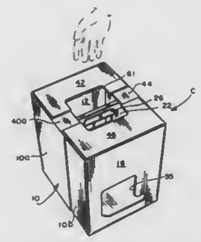
the bottom wall including a rectangular, auxiliary perforated line spaced a short distance form and parallel to, the edges of the bottom wall, the bottom wall further including four additional perforated lines which connect the corners of the bottom wall to the corners of the auxiliary line to facilitate forming a smaller bottom wall when it is inside the box.

5,065,937

CONTAINER WITH END WALL OPENING FOR HANDLE ACCESS

Karl M. Ritter, Carol Stream, Ill., assignor to Container Corporation of America, Clayton, Mo.

Filed Jan. 25, 1991, Ser. No. 645,704
Int. Cl.[5] B65D *5/10*
U.S. Cl. 229—117.13 **8 Claims**



1. A one-piece container having an internal divider panel, with an integral handle at one end thereof, and having an end wall with an opening affording access to said handle, said container being formed from a unitary blank of foldable paperboard, and comprising:

(a) pairs of opposed side walls foldably interconnected on parallel fold lines to form a tubular structure open at its upper and lower ends;

(b) an internal divider panel extending between and having opposite side edges foldably joined to the respective side walls of one of said pairs on fold lines that extend parallel to said last mentioned fold lines;

(c) said divider panel having foldably joined to an upper end edge thereof a handle panel adapted to be folded 180 degrees into overlapping relation with a portion of said divider panel to form therewith a two-ply handle with an upper extremity that does not, at any time, extend above any of said side walls;

(d) top and bottom end closure flaps foldably joined to upper and lower end edges, respectively, of said side walls and adapted to be folded inwardly 90 degrees and secured to each other in overlapping relation to form end walls for closing, at least partially, the ends of said structure;

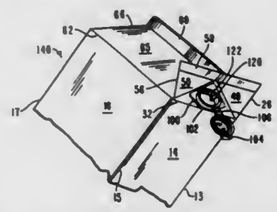
(e) certain of said top closure flaps being U-shaped and being arranged and disposed for cooperation with each other to form, when said top flaps are closed, a central opening large enough to accommodate the entry of a hand to enable one to reach into the container and grasp the handle and lift the container.

5,065,938

GABLE TOP CARTON WITH RESEALABLE POUR SPOUT

Nestor A. Anderson, Parsippany, N.J., assignor to Champion International Corporation, Stamford, Conn.

Filed Sep. 11, 1989, Ser. No. 405,134
Int. Cl.[5] B65D *5/74*
U.S. Cl. 229—125.08 **19 Claims**



1. A gable top carton comprising:

a carton having a bottom wall, an upstanding side wall enclosure connected to and extending from the bottom wall, a pair of opposed triangular top walls hingedly connected to opposed portions of the side wall enclosure at locations thereon remote from the bottom wall, a pair of opposed generally rectangular top walls hingedly connected to opposed portions of the upstanding side wall enclosure at locations thereon remote from the bottom wall, triangular web panels connected to and extending between the respective triangular top panels and the rectangular top panels, said rectangular top panels and said triangular web panels being folded into generally overlying relationship to the triangular top panels, and being sealed to one another at portions thereof remote from the side wall enclosure, a first of said triangular top panels being provided with an aperture means therein for permitting material stored in said carton to be poured therefrom; and

a resealable pouring spout securely connected to the first triangular top panel in overlying relationship to the aperture means therein, said resealable pouring spout comprising a base having an opening extending therethrough, said base being affixed to the first triangular top panel such that the opening in the base is substantially in register with the

VOL
1132
ISS
3
NO
19
1991
UMI

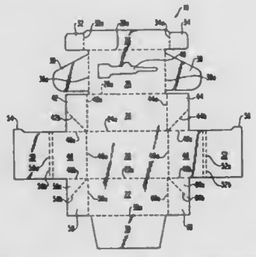
aperture means in the first triangular top panel, and a cover hingedly connected to the base and selectively engageable therewith for securely closing the opening in the base and the aperture means in the first triangular top panel, the cover of the resealable pouring spout includes a lift tap at a location thereon generally opposite the hinged connection of the cover to the base, said lift tab being disposed generally adjacent one of the hinged connections of the first triangular top panel to said triangular web panels.

5,065,939

SHARPS CONTAINER AND BLANK

Bobby L. Boothe, and Edward P. Godsey, both of Roanoke, Va., assignors to Chesapeake Packaging Company, Richmond, Va.

Filed Sep. 28, 1990, Ser. No. 589,959
Int. Cl.[5] B65D *5/42*
U.S. Cl. 229—151 **17 Claims**



1. A container for receiving and containing items to be disposed of, said container comprising a bottom panel, a front panel, a rear panel, two end panels, a top panel, and a front flap connected to said top panel, said front flap including flap tuck means adapted to be engaged with said two end panels for securing said top panel in a closed condition, wherein said flap tuck means comprises first and second flap tucks disposed on opposite sides of said front flap, said first and second flap tucks being inserted between respective ones of said two end panels and an interior of said container;

said front panel having first and second minor flaps connected to opposite ends of said front panel, said first and second minor flaps being folded and disposed between respective ones of said two end panels and the interior of said container; and

wherein at least a folded portion of each of said first and second minor flaps lies directly beneath said first and second flap tucks, respectively, so as to inhibit removal of said first and second flap tucks, whereby the container is resistant to be opened inadvertently.

5,065,940

TIE PLATE RAIL FASTENING SYSTEM

Albert Abramovich, 1155 41 St., 3 Flr., Brooklyn, N.Y. 11218

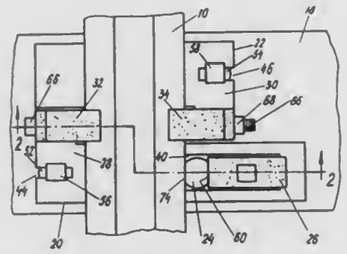
Filed May 3, 1991, Ser. No. 695,388
Int. Cl.[5] E01B *9/04*
U.S. Cl. 238—334 **5 Claims**

1. A rail fastener for supporting a rail having a foot on a support structure and maintaining the gage of a track comprising;

a rail plate consisting of two parts, each part having a planar upper surface for supporting the rail and an upwardly extending appendage, each appendage having an inclined surface for contact with a corresponding inclined surface on the foot of the rail whereby said parts are placed side by side with an appendage on opposite lateral sides of the rail, and means for tightening said parts to said rail;

a rigid stop mounted into the support structure which contacts the rail;

means for pulling said rail plate and said rail towards said rigid stop; and



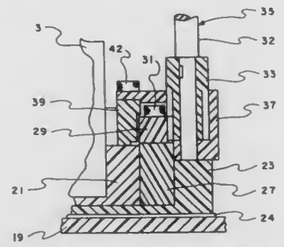
an opening in a part of said rail plate in which said rigid stop and said means for pulling are located.

5,065,941

APPARATUS FOR CARRYING OUT CONNECTION AND DISCONNECTION OF A CIRCUIT MEMBER TO AN ELECTRICAL CONNECTOR

Takao Suzuki; Atsuhito Noda; Mitsuo Komoto, and Shoji Umesato, all of Tokyo, Japan, assignors to Japan Aviation Electronics Industry, Ltd. and NEC Corporation, both of, Japan

Filed Jan. 19, 1990, Ser. No. 467,744
Claims priority, application Japan, Jan. 20, 1989, 1-4484[U]
Int. Cl.[5] H01R *13/15*
U.S. Cl. 439—264 **3 Claims**



1. An apparatus for carrying out a connection and disconnection of a circuit member to and from an electrical connector with said circuit member being moved in a first predetermined direction, said apparatus comprising:

an outer frame for holding said electrical connector;

an inner frame for defining a space for containing said circuit member, said inner frame being disposed inside said outer frame to be movable in said first predetermined direction with a gap left between said outer and said inner frames in said first predetermined direction;

a movable member disposed in said gap and movable in a second predetermined direction which is normal to said first predetermined direction, said movable member moving said inner frame in said first predetermined direction dependent on movement of said movable member in said second predetermined direction; and

driving means coupled to said outer frame and said movable member for driving said movable member is said second predetermined direction,

said driving means further comprising:

a rack member fixed to said movable member and having a plurality of teeth which are arranged in said second predetermined direction;

a pinion member having a central axis normal to said second predetermined direction and a peripheral portion around said central axis, said peripheral portion being engaged with said teeth; and

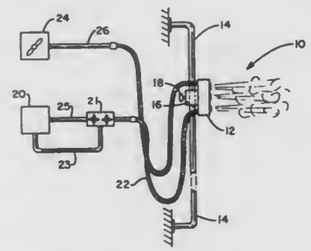
holding means coupled to said outer frame for holding said pinion member to said outer frame so that said pinion member is rotatable around said central axis.

5,065,942

SHOWER SPRAY SYSTEM

Timothy L. Shannon, 1901 Sackett Ave., Cuyahoga Falls, Ohio 44223

Filed Mar. 5, 1990, Ser. No. 487,927
Int. Cl.[5] B05B *7/08, 15/08*
U.S. Cl. 239—282 **12 Claims**



1. A shower spray system, comprising:

a source of air under pressure;

a source of water under pressure, said source comprising sources of hot and cold water;

a mixer valve interconnected with said sources of hot and cold water, mixing water therefrom to a desired temperature; and

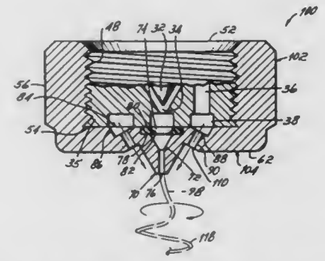
a shower head interconnecting said source of air and said mixer valve for emitting air and water therefrom, said shower head comprising a plurality of first and second nozzles, said first nozzles being interconnected with said source of air, and said second nozzles being interconnected with said source of water, said second nozzles comprising fan spray heads.

5,065,943

NOZZLE CAP FOR AN ADHESIVE DISPENSER

Bentley J. Boger, Atlanta, Ga., and Thomas C. Jenkins, Amherst, Ohio, assignors to Nordson Corporation, Westlake, Ohio

Filed Sep. 6, 1990, Ser. No. 578,810
Int. Cl.[5] B05B *1/34;* B21P *1/02*
U.S. Cl. 239—298 **12 Claims**



8. A nozzle cap for use in an apparatus for dispensing hot melt adhesive which includes a gun body having a nozzle formed therein with an adhesive passageway for conveying heated hot melt adhesive, an air delivery passageway for conveying pressurized air, and an annular wall separating said adhesive passageway and said air delivery passageway, said nozzle comprising:

a one-piece nozzle mounting portion and nozzle plate portion, said nozzle mounting portion comprising a threaded nut adapted to mount to the nozzle of the gun body;

said nozzle plate portion being formed with a first surface on the inner side of said nozzle plate portion, a second surface on the outer side of said nozzle plate portion and a nozzle tip extending outwardly from said second surface;

said nozzle plate portion being formed with a central throughbore having an inlet at said first surface in communication with the adhesive passageway in the nozzle and an outlet at said nozzle tip;

said nozzle plate portion being formed with an annular recess surrounding said inlet to said throughbore;

an O-ring disposed in said recess substantially concentric with said inlet, said O-ring having a central opening communicating with said adhesive passageway in said nozzle and the outlet at said nozzle tip whereby heated hot melt adhesive flows from the adhesive passageway in the nozzle, through said O-ring and in contact with said O-ring, into said inlet of said central throughbore and is discharged from the outlet at said nozzle tip to form an adhesive bead;

said nozzle plate being formed with a plurality of bores surrounding said central throughbore and extending between said first and said second surfaces, said bores being in communication with said air delivery passageway in said nozzle, said bores being formed at an angle with respect to said central throughbore in said nozzle plate to direct pressurized air flowing therethrough into contact with the adhesive bead to form an elongated adhesive fiber for deposition on a substrate;

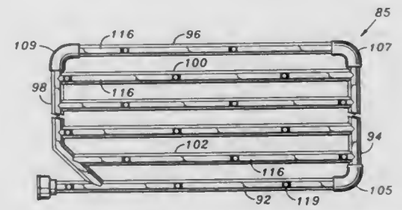
said O-ring being positioned to engage said annular wall to provide a seal between said adhesive passageway and said air delivery passageway.

5,065,944

REINFORCED SPRAY MANIFOLD

Mark D'Amato, Montreal, Canada, assignor to D.E.M. Controls of Canada, Montreal, Canada

Continuation-in-part of Ser. No. 385,354, Jul. 27, 1989, Pat. No. 5,000,388. This application Nov. 19, 1990, Ser. No. 615,178
Int. Cl.[5] B05B *1/14*
U.S. Cl. 239—550 **22 Claims**



1. A spray manifold for spraying liquid chemicals on planar workpieces such as printed circuit boards passing adjacent the manifold said manifold comprising:

a generally rectangular, tubular periphery;

a plurality of inner tubular members fluidly connected to said tubular periphery and extending therewithin, each of said inner tubular members having at least one longitudinally extending rib member formed thereon for providing greater structural rigidity to said manifold; and

a plurality of spray nozzles mounted within the rib member of at least some of said inner tubular members, said spray nozzles being arrayed within the rib member to spray liquid chemicals upon the surface of the workpiece passing adjacent the manifold.

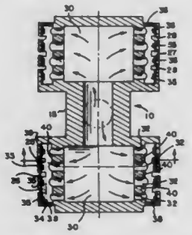
VOL 1132 ISS 3 NO 19 1991 UMI

5,065,945

MULTIPLE HEAD SPRAY NOZZLE ASSEMBLY WITH COMMON SUPPLY MANIFOLD

Daniel A. Vidusek, St. Charles, and Justin D. White, Carol Stream, both of Ill., assignors to Spraying Systems Co., Wheaton, Ill.

Filed Apr. 3, 1990, Ser. No. 503,810
Int. Cl.[5] B05B 1/14
U.S. Cl. 239—556 19 Claims



1. A spray nozzle assembly for directing fluid in a substantially rectangular spray pattern comprising, in combination:
(a) a body portion having a manifold and at least one spray nozzle head;
(b) said body portion having means for permitting the coupling thereof to a fluid supply line;
(c) each of said nozzle heads having means defining a mixing chamber and means defining an internal flow passage for directing fluid from said manifold to the mixing chamber of each nozzle head; and
(d) means defining a plurality of elongated parallel discharge openings in each of said nozzle heads communicating with said mixing chamber, said discharge openings being arranged in closely spaced relation for discharging a spray pattern of generally rectangular shape with the fluid distribution substantially uniform throughout the pattern.

5,065,946

MEDIA AGITATING MILL AND METHOD FOR MILLING CERAMIC POWDER

Masamitsu Nishida, Osaka; Hamae Ando, Neyagawa, and Koichi Kugimiya, Toyonaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Jul. 18, 1989, Ser. No. 381,369
Claims priority, application Japan, Jul. 21, 1988, 63-182337; Sep. 1, 1988, 63-219044; Oct. 4, 1988, 63-250209
Int. Cl.[5] B02C 19/12
U.S. Cl. 241—16 16 Claims

1. A method for milling a ceramic powder which comprises wet-milling at least one ceramic powder by a media agitating mill in the presence of a volume of liquid which is not more than 4 times the net-volume of the ceramic powder, adding a dispersing agent and carrying out milling by using grinding media not larger than 1 mm in diameter.

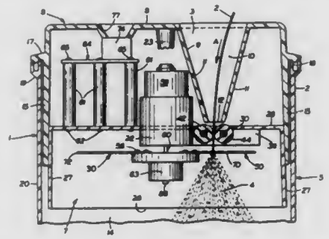
5,065,947

METHOD OF SHREDDING CARBON PAPER

Thomas L. Farnsworth, Hartville, Ohio, assignor to Invequest, Inc., North Canton, Ohio

Division of Ser. No. 390,411, Aug. 7, 1989, Pat. No. 4,944,461.
This application May 29, 1990, Ser. No. 530,114
Int. Cl.[5] B02C 19/00, 23/00
U.S. Cl. 241—30 6 Claims

1. A method of shredding carbon paper into indiscernible pieces including the steps of:
a) providing a thin cutting blade with a double beveled cutting edge;
b) rotating said cutting blade in a generally horizontal plane at a speed of generally within the range of 8,000 rpm and 12,000 rpm;
c) feeding a piece of carbon paper at a predetermined speed generally perpendicularly into the cutting path of said



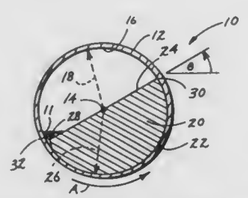
rotating blade to cut said carbon paper into the indiscernible pieces; and
d) collecting the pieces of carbon paper in an enclosed container located beneath the cutting blade.

5,065,948

APPARATUS FOR PRODUCING THIN FLAKES

Lee R. Bunnell, Sr., Kennewick, Wash., assignor to Battelle Memorial Institute, Richland, Wash.

Continuation-in-part of Ser. No. 275,071, Nov. 21, 1988. This application Oct. 18, 1990, Ser. No. 599,670
Int. Cl.[5] B02C 19/12
U.S. Cl. 241—199.5 8 Claims



1. An apparatus for shear grinding a platy solid material into thin flakes comprising:
a cylindrical shearing drum having a longitudinal axis and an internal surface formed about a first predetermined radius of curvature, the drum being supported for rotation about its longitudinal axis; and
a shear grinder received within the cylindrical shearing drum, the shear grinder having an external surface formed about a second predetermined radius of curvature, the second radius of curvature being slightly less than the first radius of curvature, the shear grinder being generally hemicylindrical, the external surface being defined by an arcuate surface and a generally non-arcuate surface, the arcuate surface having the second predetermined radius of curvature, the arcuate surface joining with the generally non-arcuate surface at first and second generally diametrically opposed locations.

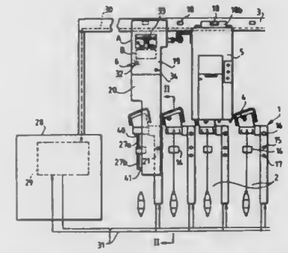
5,065,949

AUTOMATIC INSPECTING APPARATUS FOR YARN JOINING DEVICE

Shoichi Tone, Kyoto, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Nov. 2, 1989, Ser. No. 431,466
Claims priority, application Japan, Nov. 2, 1988, 63-142747[U]
Int. Cl.[5] B65H 54/20, 54/22, 63/00; G01L 5/04
U.S. Cl. 242—35.5 R 12 Claims

1. In an inspection apparatus which moves together with a doffing carriage along a winder having a number of winding units arranged thereon, each winding unit being provided with a yarn joining device operable to join yarn and thereby provide a joint portion for each joining operation, the inspection apparatus having means for collecting sample yarns including a joint portion of yarns plural times within the doffing process to measure the strength of the joint in the winding unit, an automatic inspecting apparatus for a yarn joining device comprising:



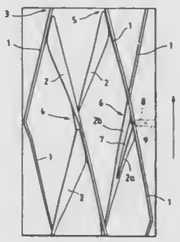
judging means for judging, when more than predetermined times of measured results within said doffing process are recognized to be abnormal, as a defective spindle;
means for generating an abnormal signal when judged to be abnormal;
means for setting a yarn joining button of the winding unit to a yarn joining stop position in response to the abnormal signal; and
means for flickering a lamp associated with said winding unit in response to the abnormal signal.

5,065,950

TRAVERSE DRUM

Hiroo Otoshima, Shiga, Japan, assignor to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Oct. 19, 1990, Ser. No. 600,322
Claims priority, application Japan, Oct. 25, 1989, 1-277648
Int. Cl.[5] B65H 54/48
U.S. Cl. 242—43.2 2 Claims



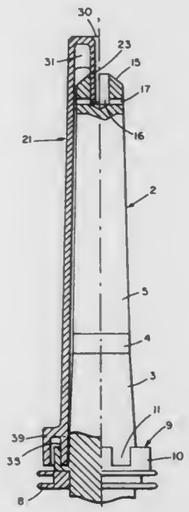
1. A traverse drum comprising:
a first groove for guiding yarn across the traverse drum along a first traverse path,
a second groove for guiding yarn across the traverse drum along at least one additional traverse path,
a movable pin provided at a position defining a predetermined traverse length at an intersection of the first and second grooves, the pin being movable between at least first and second positions, wherein in the first position the movable pin crosses the first groove, and
a wall portion, formed in the second groove and extending from the position where the movable pin crosses the first groove so as to divide the second groove into two grooves.

5,065,951

THREAD TUBE

Rainer Busch, Effretikon, and Ludek Malina, Kloten, both of Switzerland, assignors to Maschinenfabrik Rieter AG, Winterthur, Switzerland

Filed Apr. 11, 1990, Ser. No. 507,964
Claims priority, application Switzerland, Apr. 14, 1989, 01412/89
Int. Cl.[5] B65H 49/34
U.S. Cl. 242—46.21 7 Claims



1. Apparatus for winding a thread in a spinning machine having a spindle drivably rotatable at high speed comprising:
a thread receiving tube comprising a hollow tubular body coaxially receivable on the spindle;
the hollow tubular body including a stabilizing member at the top and bottom ends thereof and the spindle including means for receiving the stabilizing members at the top and bottom ends thereof;
the stabilizing members having axially outwardly facing surfaces for engaging a complementary axially inwardly facing surface of the receiving means, the surfaces axially opposing each other when the tube is received on the spindle;
wherein the receiving means comprises an axial aperture in the top of the spindle for receiving the top stabilizing member of the hollow tubular body, the top stabilizing member being rigid and resiliently deformable such that the axially outwardly facing surface of the top stabilizing member engages the complementary axially inwardly facing surface of the axial aperture with increasing engagement force upon increasing high speed rotation of the spindle; and,
wherein the receiving means comprises an upwardly projecting rim extending axially around the bottom of the spindle, for receiving the bottom stabilizing member of the hollow tubular body, the bottom stabilizing member being resiliently deformable such that the axially outwardly facing surface of the bottom stabilizing member engages the complimentary axially inwardly facing surface of the rim with increasing engagement force upon increasing high speed rotation of the spindle.

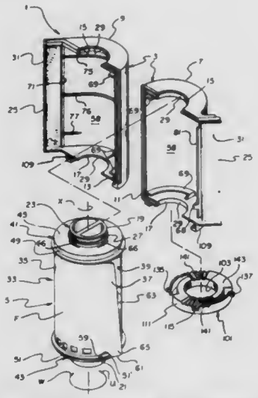
VOL 1132 ISS 3 NOV 19 1991 UMI

5,065,952

FILM CASSETTE WITH FILM EXPOSURE STATUS INDICATOR

Dennis E. Baxter, East Rochester, and Jeffrey R. Stoneham, Hilton, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed May 29, 1990, Ser. No. 529,285
The portion of the term of this patent subsequent to Sep. 17, 2008, has been disclaimed.
Int. Cl.[5] G03B *17/26*
U.S. Cl. 242—71.1 4 Claims



3. A film cassette comprising a film spool supported inside a lighttight cassette shell for rotation to thrust a filmstrip coiled about said spool to the exterior of said shell, and a film exposure status indicator supported for rotation outside said shell from an unexposed position for providing a visible indication that said filmstrip is unexposed to an exposed position for providing a visible indication that the filmstrip is exposed, is characterized in that:

said shell includes a shroud substantially surrounding a circumferential edge of said status indicator to prevent one from manually grasping said edge in order to rotate the status indicator from its unexposed position to its exposed position, but leaving a top face of the status indicator substantially uncovered to allow access to the top face in order to rotate the status indicator from the unexposed position to the exposed position.

5,065,953

SAFETY BELT RETRACTOR

Johannes Schmid, Schwäbisch Gmünd-Hussenhofen, and Thomas Kielwein, Leinzell, both of Fed. Rep. of Germany, assignors to TRW Repa GmbH, Alfdorf, Fed. Rep. of Germany

Filed May 14, 1990, Ser. No. 522,994
Claims priority, application European Pat. Off., Jun. 10, 1989, 89110507
Int. Cl.[5] B65H *75/28*
U.S. Cl. 242—74 3 Claims

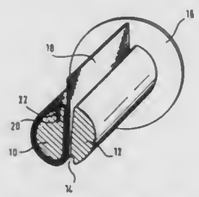
1. In a safety belt retractor comprising a shaft for winding a safety belt webbing, said shaft having an axial slot through which an end portion of the belt webbing is led, and said slot separating the shaft into first and second stays having outer peripheries jointly defining the outer periphery of said shafts, the improvement wherein:

an axial groove is provided at the outer periphery of said first stay,

the end of the belt webbing is inserted into said axial groove,

the portion of the belt webbing adjacent its end is wound at least twice around said first stay to have at least two windings thereon,

the remainder of the belt webbing is wound onto said shaft formed by said first and second stays, and



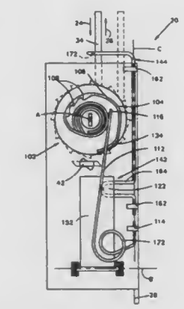
said outer periphery of said first stay has a diameter which is less than the diameter of the outer periphery of said second stay by an amount corresponding substantially to the thickness of said at least two windings of the belt webbing on said first stay.

5,065,954

RELEASE MECHANISM

Patrick J. Cotter, Plymouth, Mich., assignor to TRW Vehicle Safety Systems Inc., Cleveland, Ohio

Filed Apr. 19, 1988, Ser. No. 183,651
Int. Cl.[5] A62B *35/00*; B65H *75/48*
U.S. Cl. 242—107.7 9 Claims



1. An apparatus comprising:

a spindle having a longitudinal central axis and rotatable in opposite directions about its longitudinal central axis;

means for securing an end portion of belt webbing to said spindle such that the belt webbing normally moves parallel to a predetermined plane as the belt webbing is withdrawn from said spindle and the belt webbing moves in a direction transverse to the predetermined plane during the last quarter of a revolution of said spindle as the belt webbing is fully withdrawn from the spindle;

means for biasing said spindle to rotate about its longitudinal central axis in a belt retraction direction to wind the belt webbing onto said spindle;

means for blocking rotation of said spindle in the belt retraction direction, said blocking means including a member which is movable between a first position in which rotation of said spindle in the belt retraction direction is blocked and a second position in which rotation of said spindle in the belt retraction direction is permitted; and

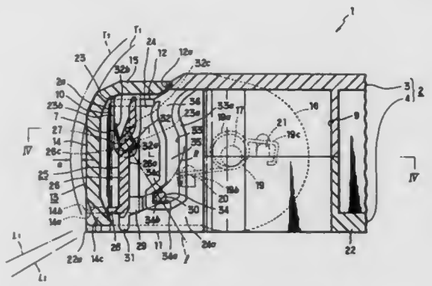
means for moving said member to its second position in response to the end portion of the belt webbing moving in the transverse direction relative to the predetermined plane during the last quarter of a revolution of said spindle as the belt is fully withdrawn from said spindle.

5,065,955

TAPE CASSETTE HAVING OUTER AND INNER LIDS LOCKED BY THE INNER LID

Hiroshi Fujii, Tokyo, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Oct. 17, 1990, Ser. No. 599,304
Claims priority, application Japan, Nov. 6, 1989, 1-289670
Int. Cl.[5] G11B *23/00*
U.S. Cl. 242—198 8 Claims



1. A tape cassette of the type in which a tape is withdrawn to the outside of a cassette casing such that a tape portion having front and rear sides, extends along a tape withdrawing area between tape exit portions formed at two end portions of a front wall of the cassette casing, and including a front lid rotatably attached to the cassette casing so as to cover the whole area of the front wall of the cassette casing, and a back lid rotatably attached to the front lid so as to substantially cover the rear side of the tape portion, the front and back lids being mounted in the cassette for movement between an open position allowing access to the tape portion when the cassette is in use, and a closed position wherein the front and rear sides of the tape portion are substantially covered by the front and back lids when the tape cassette is not in use, the tape cassette being characterized by:

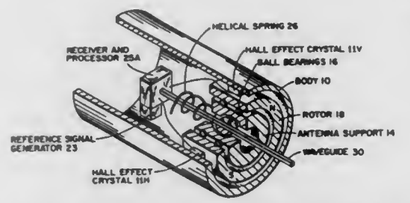
locking means for locking the back lid in the closed position when the tape cassette is not in use, the locking means comprising at least one guide pin mounted on the back lid and a corresponding guide groove in the cassette casing for receiving the guide pin, a lower end of the guide groove including a locking surface against which the guide pin is locked when the front and back lids are in the closed position.

5,065,956

METHOD FOR DETECTING CHANGES IN SPIN RATE OF A MISSILE IN FLIGHT

Jean A. Fattal, Lexington, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Aug. 3, 1989, Ser. No. 389,475
Int. Cl.[5] F14G *7/00*
U.S. Cl. 244—3.2 9 Claims



1. A method for minimizing changes in the rotational speed of a body of a missile comprising the steps of:

(a) deriving a first signal indicative of actual angular velocity of the body of the missile and providing a second signal having an invariant period;

(b) applying the first and the second signal to a phase detector to derive a third signal indicative of any difference in timing between the first and the second signal;

(c) converting the third signal to a fourth signal indicative of the difference between the actual rotational speed of the body and a nominal speed represented by the second signal; and

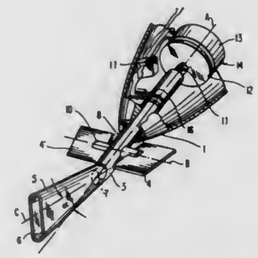
(d) providing, in response to the fourth signal, a signal indicative of the direction and the magnitude of change required in the rotational speed of the body of the missile.

5,065,957

DEVICE FOR CONTROLLING AERODYNAMIC BODIES

Walter Kranz, Taufkirchen, Fed. Rep. of Germany, assignor to Messerschmitt-Bölkow-Blohm GmbH, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 16,881, Feb. 20, 1987, Pat. No. 4,927,096. This application Apr. 30, 1990, Ser. No. 516,516
Claims priority, application Fed. Rep. of Germany, Feb. 27, 1986, 3606423
Int. Cl.[5] F42B *13/28*
U.S. Cl. 244—3.21 18 Claims



1. A device for controlling an aerodynamic body having a searching head, a sensor for scanning a first predetermined scanning area, a setting member for exerting a transversal force on the aerodynamic body responsive to a signal from the sensor, and a setting device for adjusting the angular position of a rotor relative to the aerodynamic body, with the transversal force being used to place an acquired target in a second predetermined area relative to the first predetermined scanning area, with the sensor being disposed in a rotor coaxial with the longitudinal axis of the aerodynamic body and being driven in a rotating mode, and with the rotor including the setting member for exerting the transversal force on the aerodynamic body in a plane containing the sensor axis and the longitudinal axis of the aerodynamic body if the sensor senses the target in the first predetermined area.

5,065,958

HELICOPTER SOFT SNOW LANDING AID

John M. Stubstad, Dunwoody, Ga., and John H. Rand, Hanover, N.H., assignors to The United States of America as represented by the Secretary of the Army, Fort Belvoir, Va.

Filed Sep. 2, 1986, Ser. No. 902,712
Int. Cl.[5] B64C *25/66*
U.S. Cl. 244—17.17 27 Claims

17. A helicopter landing aid, comprising:

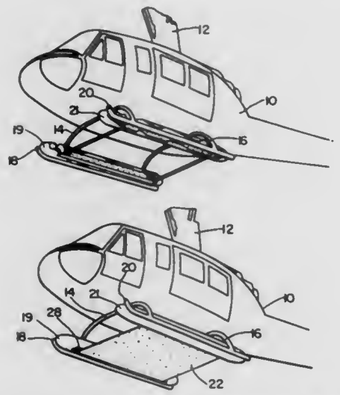
a. a flexible membrane;

b. support means, located below the helicopter fuselage, for said membrane, one portion of said membrane being fixed with respect to said support means; and

c. means for pulling an unfixed portion of said flexible membrane to extend the membrane from a retracted position to

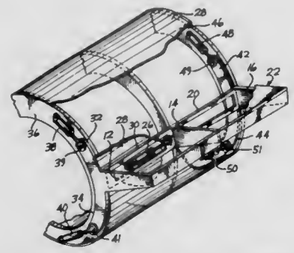
VOL 1132 ISS 3 NO 19 1991 UMI

a deployed position in which said membrane is substantially planer, when landing on snow said membrane, in its



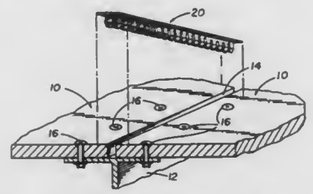
deployed position, provides a load bearing surface for said helicopter.

5,065,959
VIBRATION DAMPING AIRCRAFT ENGINE ATTACHMENT
Kumar G. Bhatia, Mercer Island; Walter E. Backus, Kent, and Jack S. Hagelin, Seattle, all of Wash., assignors to The Boeing Company, Seattle, Wash.
Filed Nov. 21, 1989, Ser. No. 439,318
Int. Cl.[5] B64D *27/00*
U.S. Cl. 244—54 **11 Claims**



1. Means for mounting an engine to the airframe of an aircraft which means are particularly adapted to reduce the dynamic response of the airframe due to engine vibration, said means comprising at least two struts, said struts comprising at least two spars and a closure rib extending therebetween, said struts extending between said engine and the airframe of said aircraft, and one or more dampers connecting said spars and airframe, and a damper connecting said closure rib and said airframe, said means being particularly adapted to damp vibration in all directions and reduce the dynamic response of the airframe to engine vibration.

5,065,960
GAP FILLER FOR ADVANCED AIRCRAFT TO REDUCE RADAR DETECTABILITY
Nicholas T. Castellucci, San Pedro, Calif., assignor to Northrop Corporation, Hawthorne, Calif.
Filed Feb. 5, 1990, Ser. No. 474,977
Int. Cl.[5] B64C *1/06*
U.S. Cl. 244—131 **15 Claims**



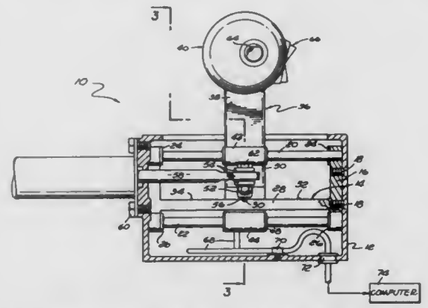
1. A gap filler positionable in and across a gap formed between adjacent side edges of adjacent aircraft panels, the gap filler including a horizontal portion extending across the gap and a vertical portion extending therefrom into the gap, the vertical portion having edges in frictional contact with the side walls of the gap to resist removal of the gap filler from the gap, the gap filler being formed of an electrically conductive material selected to preclude galvanic corrosion when in contact with the panels and to abate electrical discontinuities at the gaps between the panels, thereby reducing aircraft detecability by radar and improving lighting strike tolerance.

5,065,961
ORDNANCE EJECTOR SYSTEM FOR AN AIRCRAFT
Larry G. Ellis, Provo, Utah, and William R. Carter, Dayton, Ohio, assignors to Teleflex Incorporated, Limerick, Pa.
Filed Feb. 19, 1991, Ser. No. 657,520
Int. Cl.[5] B64D *1/12*
U.S. Cl. 244—137.4 **15 Claims**



1. An ordnance ejector apparatus (**10**) for ejecting an ordnance (**16**) for an aircraft (**14**) comprising: a support frame (**18**) extending between a forward end (**20**) and a rearward end (**22**) for fixed attachment to an aircraft (**14**); a rail (**24**) extending between a forward end (**26**) and a rearward end (**28**) for releaseably retaining an ordnance (**16**) thereto; forward link means (**34**) pivotally connected to said forward end (**20**) of said support frame (**18**) and said forward end (**26**) of said rail (**24**) for displacing said forward end (**26**) of said rail (**24**) from said forward end (**20**) of said support frame (**18**) a predetermined distance; rearward link means (**48**) pivotally connecting said rearward end (**22**) of said support frame (**18**) and said rearward end (**28**) of said rail (**24**) for displacing said rearward end (**28**) of said rail (**24**) from said rearward end (**22**) of said support frame (**18**) a predetermined distance; forward actuator means (**76**) having an output stroke along a linear path for controlling the pivotal movement of said forward link means (**34**); rearward actuator means (**86**) having an output stroke along a linear path for controlling the pivotal movement of said rearward link means (**48**); and characterized by said forward actuator means (**76**) and said rearward actuator means (**86**) being fixedly aligned in an axially oppositely extending disposition such that the linear output stroke of said forward actuator means (**76**) acts along a colinear and opposite direction from the linear output stroke of said rearward actuator means (**86**) to reduce reaction forces between said forward (**76**) and rearward (**86**) actuator means.

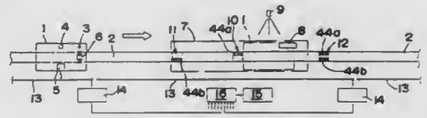
5,065,962
DIGITAL POWER CONTROLLER
William J. Adams, Torrance; Barbara G. Jex Courter, El Segundo; Craig S. Fong, Torrance; Robert C. Murray, Inglewood, and Paul A. Marshall, Burbank, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.
Filed Dec. 27, 1989, Ser. No. 457,892
Int. Cl.[5] B64C *13/04, 19/00*
U.S. Cl. 244—234 **10 Claims**



6. A digital power controller for an aircraft having a computer controlled propulsion system and a center console of the type including a pedestal disposed in a central location between the pilot's knees, and below and aft the front instrument panel of the aircraft, said digital power controller comprising;
(a) a housing mounted within said pedestal;
(b) a movable handle attached to said housing and in electronic communication with a computer of said propulsion system, said handle being positionable in a neutral location for maintaining the aircraft at a substantially constant velocity and for resetting power command functions,
said handle being positionable in locations forward said neutral location for commanding increasing acceleration rates of said aircraft,
said handle being positionable in locations aft said neutral location for commanding increasing deceleration rates of said aircraft; and
(c) switching means associated with said movable handle, said switching means engagable at said forward and aft positions for commanding velocity hold and for permitting reposition of said handle to said neutral location for resetting power command functions.

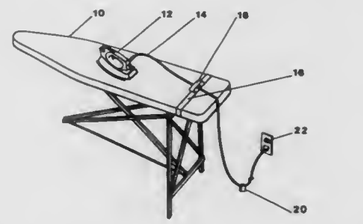
5,065,963
TRANSPORTING TRAIN TRAVEL CONTROL SYSTEM
Junichi Usui, and Hideichi Tanizawa, both of Osaka, Japan, assignors to Daifuku Co., Ltd., Osaka, Japan
Filed Aug. 16, 1989, Ser. No. 394,762
Claims priority, application Japan, Sep. 1, 1988, 63-219907; Sep. 1, 1988, 63-219912; Jun. 12, 1989, 1-68396[U]
Int. Cl.[5] B61L *3/06, 3/12*
U.S. Cl. 246—187 B **3 Claims**

1. A system to control travel of trains running along a travelling rail, which comprises
(a) a stop target provided at each stop position along said rail,
(b) a stop sensing device carried by said train for detecting said stop targets,
(c) control means for stopping the train in response to the sensing of a stop target, and
(d) override means for overriding said control means, to prevent stopping of the train upon detection of a stop target,
(e) said override means comprising an override sensor carried by said train and a controllable signal transmitter located at a stop position, said override sensor becoming activated before the detection of a stop target by said stop sensing device,



(f) said controllable signal transmitter and said override sensor having an effective transmission-receiving range which is greater in the direction of train travel than an effective range in said direction of said stop target and said stop sensor.

5,065,964
CORD CADDIE
Comer F. Polak, 6470 Seagull Dr. #307, Bradenton, Fla. 34210
Filed Nov. 27, 1990, Ser. No. 618,481
Int. Cl.[5] F16L *3/00*
U.S. Cl. 248—51 **2 Claims**



1. A retaining guide for an electric iron cord extending between an electric power outlet and an electric iron atop an ironing board having a top surface, a narrow end and a wider end, said retaining guide comprising:
a narrow flat elastic strap adapted to be stretched to encircle said wide end, said strap having an integral loop adapted to receive said electric cord to keep the cord on the top surface of the iron board, and
a weight attached to the electric cord between the strap and the electric outlet to maintain the cord relatively taut.

5,065,965
TRASH BAG HOLDER
R. Michael Aulabaugh, 1510 Seagull Dr., S. Pasadena, Fla. 33707
Filed Aug. 27, 1990, Ser. No. 573,441
Int. Cl.[5] B65B *67/00*
U.S. Cl. 248—99 **2 Claims**

1. A trash bag holder adapted to hold the bag open while trash is swept thereinto comprising:
(a) a flat, thin bottom panel having two linear edges and having an appropriate size to fit into the interior of said bag, said bottom panel having a flap extending from one end thereof adapted to extend outside said bag when said holder is positioned inside said bag, and thereby to facilitate the sweeping of trash into said bag;
(b) first and second flat, thin side panels each also having a bottom linear edge and also adapted to fit into the interior

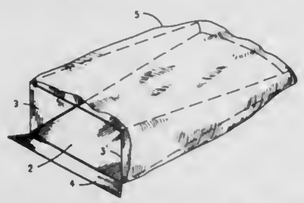
VOL 1132 ISS 3 NO 19 1991 UMI

of said bag, said side panels each also having a top linear edge;

(c) a first hinging means joining one of said linear edges of said bottom panel to said bottom linear edge of said first side panel;

(d) a second hinging means joining the other of said linear edges of said bottom panel to said bottom linear edge of said second side panel;

said side panels each being adapted to open to an angle of approximately 90° with said bottom panel and thereby hold said bag open when positioned inside said bag, and



also adapted to be converted to a collapsed state by having said side flaps each turned to approximately 0° with said bottom panel; and

(e) a restraining means capable of restraining said first and second side panels from collapsing onto said bottom panel when said holder is positioned in a supporting position inside said bag, in which said restraining means is a rod having connecting means at each end thereof, one of which connecting means is hingedly affixed to said top edge of one of said side panels and the other of said connecting means is capable of being temporarily affixed to said top edge of said other side panel.

5,065,966

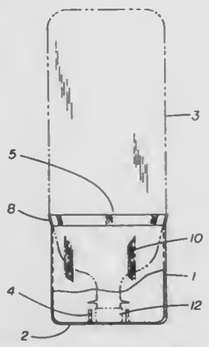
PORTABLE HOLDER TO SUPPORT A RECAPPED CONTAINER OF EFFERVESCENT LIQUID IN AN INVERTED POSITION TO RETAIN THE LIQUID'S FRESHNESS

Dennis V. Hartke, 4825 Mill Pond Loop, Auburn, Wash. 98002

Continuation of Ser. No. 277,360, Nov. 28, 1988, Pat. No. 4,960,254. This application Jan. 8, 1990, Ser. No. 461,683

Int. Cl.[5] A47G *23/02*

U.S. Cl. 248—146 **4 Claims**



1. A portable holder in combination with a previously opened, capped container of effervescent liquid partially emptied and recapped, said holder supporting said container in an inverted position, whereby, remaining effervescent liquid therein is forced into contact about the interior of the replaced cap causing the liquid to form a seal between the cap and container to prevent the escapement of gas from the container, said combination, comprising:

a surrounding hollow upright body, consisting of a base portion, and a peripheral flange which forms a vertical support means extending upwardly from the said base portion, forming a top opening receives an inverted container, and limits the lateral movement of said inverted container, wherein, the said vertical supports extend upwardly from the said base portion a distance at least equal to the farthest distance the inverted container must protrude through the said top opening to stabilize the container in the inverted position, wherein, the said vertical support means, in combination with the said base portion, form a drip basin for collecting any liquid that may seep past the replaced cap while storing the container in the inverted position, wherein, said surrounding hollow upright body (A portable holder as claimed in claim **13**, wherein said base portion of said portable holder) has a positioning aperture therein, (wherein, the said positioning aperture, in said base portion, is) comprised of an annular flange extending from the said base portion a distance at least equal to a distance required for the cap end of said container to be received into the said annular flange, said annular flange being spaced inwardly on said base from said peripheral flange, said annular flange forms a means for limiting the lateral movement of the cap end of said inverted container, wherein, the said positioning aperture, in combination with said vertical support means, assists in maintaining the containers substantially vertical position.

5,065,967

SEAT DEVICE FOR VERY SMALL SIZE SHOVEL CAR

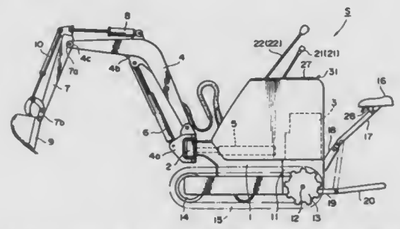
Yoshiaki Murakami, and Seiji Nishihara, both of Ehime, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Jul. 6, 1990, Ser. No. 549,116

Claims priority, application Japan, Jul. 13, 1989, 1-180824

Int. Cl.[5] F16M *11/00*

U.S. Cl. 248—161 **10 Claims**



1. A seat device on a very small size shovel car comprising:

a car body;

an operating boom mounted for pivotal motion on a front portion of the car body;

an engine and a transmission case mounted on a rear portion of said car body;

a support element mounted at a rear lower portion of said car body;

a support post having a seat secured to the top end thereof, said support post being mounted on said support element for motion between an operative position in which said support post is directed upwardly and rearwardly and a seat face of said seat is directed upwardly to allow an operator to be seated thereon, and an inoperative position in which said support post extends vertically upwardly along said car body of said shovel car and said seat face of said seat is directed rearwardly; and

securing means for securing said support post at the operative and inoperative positions.

5,065,968

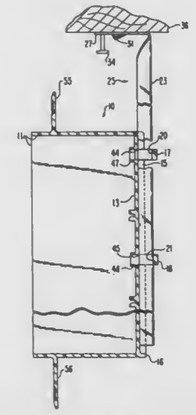
ELECTRICAL BOX MOUNTING APPARATUS

Gregory J. Kesler, and Kenneth R. Schnell, both of South Bend, Ind., assignors to Hubbell Incorporated, Orange, Conn.

Filed Oct. 25, 1990, Ser. No. 603,224

Int. Cl.[5] A47B *96/06*

U.S. Cl. 248—205.1 **6 Claims**



1. An apparatus for mounting an electrical box in a building wall or the like, the box being of the type having side walls, a back wall and an open front, the apparatus comprising the combination of

a generally L-shaped hanger having an end adapted to be attached to a structural member in the building wall and an elongated leg of substantially uniform cross section;

means on the back wall of said box defining first and second openings dimensioned to receive said elongated leg therethrough, said openings being aligned with each other along an axis generally parallel with said back wall;

means defining a channel recessed into said back wall and extending generally parallel with said axis, said channel having an open end for receiving said elongated leg and a closed end limiting insertion of said elongated leg into said channel, said means defining said openings being spaced along said channel, and

means on said box along said channel for frictionally engaging said elongated leg extending through said openings.

5,065,969

APPARATUS FOR MOUNTING AN ANTENNA FOR ROTATION ON A MAST

John A. B. McLean, Fergus, Canada, assignor to Bea-Bar Enterprises Ltd., Fergus, Canada

Filed Jun. 9, 1989, Ser. No. 349,484

Int. Cl.[5] E04G *3/00*

U.S. Cl. 248—282 **11 Claims**

1. Apparatus for mounting an antenna on a vertical mast for rotation of the antenna around the mast, wherein:

the apparatus includes a rotatable component and a non-rotatable component, and a means for supporting and guiding the rotatable component for rotation relative to the non-rotatable component;

the rotatable component includes a means for attaching the antenna thereto;

the non-rotatable component includes a means for clamping and locking the non-rotatable component around, and to, the mast;

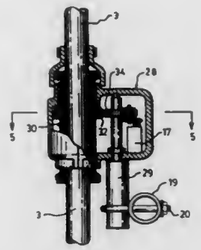
the rotatable component and the non-rotatable component are each so constructed and arranged that each may be assembled to the mast radially with respect to the mast, at an intermediate point along the length of the mast, away from, and without access to, the ends of the mast;

the apparatus includes a gear wheel, and another gear which is in operative meshing engagement with the gear wheel;

the gear wheel and the said other gear are operatively associated one with the rotatable component, and the other with the non-rotatable component;

the apparatus includes an operable drive means which is effective, when operated, to drive the gear wheel and the other gear in relative rotation, and thereby to rotate the rotatable component;

the gear wheel has gear teeth which are arranged in a circular arc, and the arrangement of the apparatus is such that, when the apparatus is assembled to the mast, the axis of the said arc is vertical and lies within the cross-section of the mast;



the gear wheel is in two separable portions, which are so adapted and arranged that the portions may be assembled to the mast radially with respect to the mast, and may be joined together around the mast, at an intermediate point along the length of the mast, away from, and without access to, the ends of the mast;

the non-rotatable component is in two separable portions, which are so adapted and arranged that the portions may be assembled to the mast radially with respect to the mast, and may be joined together around the mast, at an intermediate point along the length of the mast, away from, and without access to, the ends of the mast;

and the rotatable component is in two separable portions, which are so adapted and arranged that the portions may be assembled to the mast radially with respect to the mast, and may be joined together around the mast, at an intermediate point along the length of the mast, away from, and without access to, the ends of the mast.

5,065,970

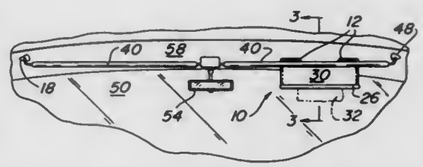
BRACKET TO SUPPORT A TISSUE BOX ON A SUN VISOR

Shelly Gross, The Fairmont, Apt. 504, Bala Cynwyd, Pa. 19004

Filed Jan. 4, 1991, Ser. No. 637,402

Int. Cl.[5] F16M *13/00*

U.S. Cl. 248—311.2 **5 Claims**

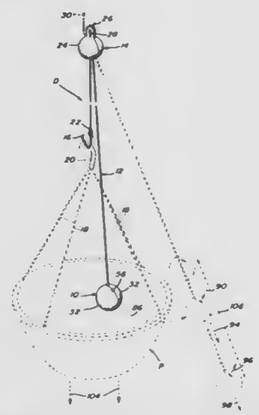


1. A tissue box holder to be frictionally mounted on the sun visor of a vehicle to hold a tissue box having a plurality of tissues therein, the sun visor having a top and bottom surface,

VOL
1132
ISS
3
NO
19
1991
UMI

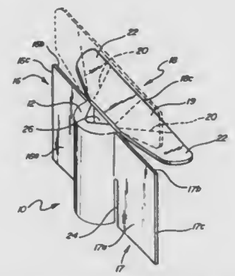
the tissue box holder being formed of a generally rigid material and comprising a bracket having a generally U-shaped configuration, the bracket comprising a top panel, a rear panel generally perpendicular to the top panel, and a bottom panel extending generally parallel to the top panel and integral with and generally perpendicular to the rear panel and having an opening therein for dispensing the plurality of tissues, wherein the bracket is dimensioned so that when the top panel of the bracket is adjacent the top surface of the sun visor, the distance between the bottom surface of the sun visor and the bottom panel permits the frictional insertion of the tissue box therebetween.

5,065,971
HEIGHT ADJUSTABLE PLANT HANGING DEVICE
Guy Gaube, 952 Gouin Ouest, Montreal Québec, Canada H3L 1K8
Filed Jul. 25, 1990, Ser. No. 557,636
Int. Cl.[5] B65H *75/00*
U.S. Cl. 248—330.1 **19 Claims**



1. A height adjustable device for suspending an item, comprising a locking guide member adapted to be mounted above the item, a handle means having a reel means biasedly mounted thereto, and a cable means attached at a first end thereof to the item and at a second end thereof to said reel means with said cable means being guided intermediate said first and second ends by said locking guide member, said reel means urging said cable means to partly wind therearound, said locking guide member being adapted locking said cable means thereto between said first and second ends of said cable means for maintaining the item at a desired height, said locking guide member being also adapted for allowing movement of said cable means to displace therein when sufficient tension is provided to said cable means, whereby the item can be selectively lowered or raised, said sufficient tension resulting from a displacement of said handle means relative to said locking guide member that causes said cable means to unwind from said reel means, wherein, when said cable means is secured to said locking guide member, allowing said cable means to wind around said reel means causes said handle means to retract towards said locking guide member.

5,065,972
CORNER BUMPER
Dennis J. Buckshaw, 42240 Crestview Cir., Northville, Mich. 48167, and James A. Clark, 7309 Manor Cir. #202, Westland, Mich. 48185
Filed Oct. 4, 1990, Ser. No. 592,779
Int. Cl.[5] A47B *95/00*
U.S. Cl. 248—345.1 **9 Claims**

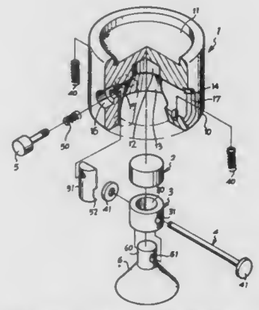


1. A protective bumper for mounting on the corners and edges of furniture and the like, comprising:
a substantially cylindrical, resilient bumper portion, having two side edges, two end edges, a rounded front face, and an interior surface opposite said front face, said interior surface configured such that it conforms only partially to said corner or edge upon which said resilient bumper portion is mounted;
first and second planar mounting flaps having front and rear planar faces, each of said flaps having one generally linear edge integral with a respective side edge of said resilient bumper portion and extending radially outwardly from the respective side edge, each of said flaps being otherwise free and unattached to any other portion of said bumper so that it may fold freely about its integral linear edge;
a third mounting flap connected only to one of said end edges of said resilient bumper portion, extending therefrom substantially coplanar with said first and second mounting flaps in an unfolded condition, and having end portions which are biased to fold at least one predetermined angle relative to said third flap; wherein,
said resilient bumper portion is positioned over a corner or edge of an article formed by at least two intersecting surfaces, with said rounded front face opposite said corner or edge, and said first, second and third mount flaps are folded to engage said article and each of said end portions is folded to engage one of said first and second mounting flaps.

5,065,973
SMOOTH SURFACE FIXING SETTER
Yeong-Jing Wang, 28-2, Feng-2 Lane, Feng Nian St., Shin Juang City, Taipei Sbian, Taiwan
Filed Dec. 10, 1990, Ser. No. 618,604
Int. Cl.[5] F16M *11/00*
U.S. Cl. 248—362 **1 Claim**

1. A smooth surface fixing setter comprising an accustomed rubber suction pad combined with a body to be fixed on a smooth surface for firmly holding liquid containers and other objects which easily fall down or slip off the surface, the setter including:
(a) a body having a setter on the top and a blind hole in the center of the bottom with a periphery of the blind hole extending obliquely to form a tapered hole, a transverse groove extending through the body on either side thereof, vertical sliding grooves being provided at the two ends of the transverse groove, and an oblique hole extending from the lateral side of the body at an angle and connecting a concave pad to the blind hole;

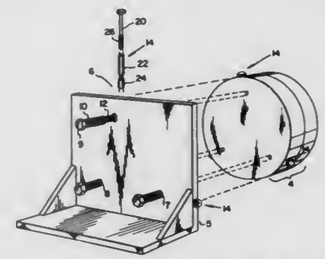
(b) a magnetic iron disposed inside the blind hole of the body, a transversal shift rod extending between the transverse grooves, two projecting buttons on the two ends of the shift rod and positioned in the sliding grooves, and the lower end of the shift rod being biased upwardly by two springs;
(c) a circular taper-shaped rubber suction cup having a tubular projecting rod on the top for insertion into a metallic chunk having holes extending through two sides for contacting with a hole extending through the tubular projecting rod of the rubber suction pad and allowing penetration of the transversal shift rod through the blind hole to cause the magnetic iron to magnetically attract the chuck;
(d) a push button having a slender rod extending into the oblique hole of the body, a spring biasing the push button



outwardly, a push lock disposed at a right angle to the slender rod and being able to slide in the concave path with its bottom forming a projecting hook; and
(e) wherein the smooth surface fixing setter is attached to a smooth surface by pressing the two projecting buttons downwardly to cause the transversal shift rod to separate the rubber suction pad ahd chuck from the magnetic iron and adhering the rubber pad to the smooth surface, and the rubber pad being detachable from the smooth surface by pressing the push button to cause the hook at the bottom of the push block to push the edge of the suction pad, thereby allowing air to enter the suction pad resulting from its losing suction, and the spring pushing upwardly against the transversal shift rod will cause the suction pad to return to its original position in which the chuck and the magnetic iron are affixed to each other through magnetic attraction.

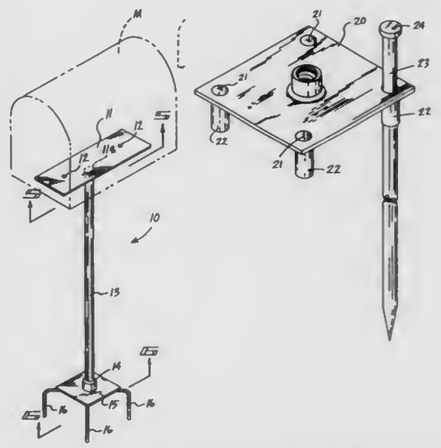
5,065,974
MIRROR MICRO-RADIAN ANGULAR ADJUSTMENT, LOCKING, AND MOUNTING DEVICE AND PROCESS
Roger H. Lapp, Silver Spring, Md., assignor to The Johns Hopkins University, Baltimore, Md.
Filed Apr. 16, 1990, Ser. No. 509,383
Int. Cl.[5] A47G *1/24*
U.S. Cl. 248—476 **15 Claims**

1. An angular adjustment and locking device, said device mounting a mirror assembly to a support plate, comprising:
at least three adjustor bolts, said adjustor bolts being threadably engagted through said support plate and threadably engaged with said mirror assembly; and
two locking bolts for each of said adjustor bolts, one of said locking bolts being inserted in said support plate and lockingly engaged with that portion of said adjustor bolt inside said support plate and the second fo said locking bolts being inserted in said mirror assembly and lockingly engaged with that portion of said adjustor bolt inside said mirror assembly, each of said locking bolts compressingly engaging an arcuately-shaped, threaded section of each of said locking bolts onto said adjustor bolts thereby applying torque symmetrically when tightened to each of said



adjustor bolts and preventing both axial and radial movement in said adjustor bolts.

5,065,975
MAIL BOX SUPPORT APPARATUS
Homer Giles, 1434 E. Sunnyview, Visalia, Calif. 93291
Filed Nov. 5, 1990, Ser. No. 610,164
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—545 **1 Claim**



1. A mail box support apparatus for securement of a mail box thereon, including an upper support plate, the upper support plate fixedly securing at least one mail box thereon, and
the upper support plate including an internally threaded socket orthogonally and fixedly mounted medially to the bottom surface of the upper support plate, and
a lower support plate, including a lower internally threaded socket medially and fixedly mounted to an upper surface of the lower support plate, with the lower socket orthogonally mounted thereon, and

VOL 1132 ISS 3 NO 19 1991 UMI

a post member, the post member including an upper threaded end and a lower threaded end, the upper threaded end threadedly received within the upper internally threaded socket, and the lower threaded end threadedly received within the lower threaded socket, and

mounting means for securement of the lower support plate to an underlying ground surface, and

wherein the mounting means include a plurality of spike members, each spike member mounted orthogonally relative to the lower support plate and oriented at ninety degree intervals about the support plate to include four spike members, and

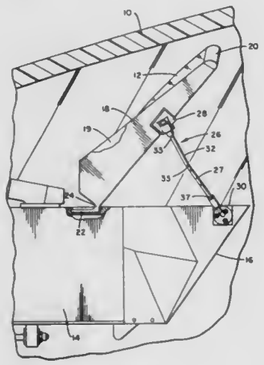
wherein the mounting means further includes a corner opening orthogonally directed through the support plate adjacent a circumferential periphery defined by the support plate, with each corner opening arranged ninety degrees relative to an adjacent corner opening to include four corner openings, and a corner support tube fixedly and orthogonally mounted to a bottom surface of the lower support plate coaxially aligned with each corner opening, and each corner opening defined by a first diameter, and each corner opening and corner support tube slidably receiving a spike member therethrough, and

wherein each spike member includes a spike head fixedly mounted to an upper terminal end of each spike member, wherein the spike head is defined by a second diameter greater than the first diameter, and a lower terminal end defined by a pointed projection, and

wherein each spike member includes a socket cavity coaxially directed through each spike head, and each spike member further includes an external thread formed integrally to an exterior surface of each spike, and

wherein the upper mounting plate includes a plurality of spaced rails, and the spaced rails include plural pairs of "L" shaped flange members mounted thereon to permit securement of a mail box between each of the flange pairs.

5,065,976
SUPPORT STRUCTURE
George Woody, Redondo Beach, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.
Filed Oct. 31, 1989, Ser. No. 429,897
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—549 **15 Claims**



1. A support structure comprising:

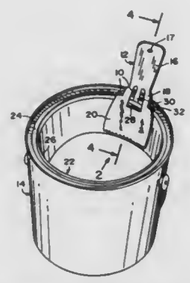
a base;

a side bracket, a member supported on said side bracket;

hinge means interconnecting said side bracket and said base;

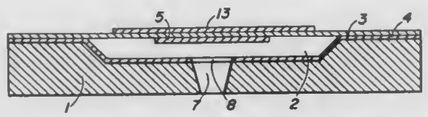
a rigid strut connected to said side bracket and to said base to rigidly support said side bracket and said member supported thereby, said rigid strut being configured to collapse by columnar failure when a force approaching member breaking force is applied to said member so that said member and said side bracket swing down around said hinge means.

5,065,977
INTEGRAL TOOL AND CLIP FOR VERTICAL SUPPORT IN A CONTAINER
Warren Desjardin, 18 Bonita Rd., East Quogue, N.Y. 11942
Filed Jul. 25, 1990, Ser. No. 557,659
Int. Cl.[5] A47B *91/00*
U.S. Cl. 248—692 **9 Claims**



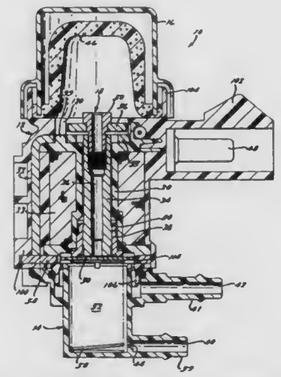
1. A one-piece, uniplanar tool for securing to the rim of an open mouthed container of the type having an annular rim with an upwardly opening annular groove and an annular, inwardly extending lip, the tool comprising an upper, flat handle portion connected to a lower, flat blade portion by a flat heel portion and a flat, resiliently flexible tongue having an upper, root end integral with the heel portion, and a lower, downwardly facing, groove engaging free end, a pair of upwardly facing, lip engaging shoulders spaced apart from respective opposite sides of the tongue defined by notches formed in respective opposite side edges of the tool at a location between the blade portion and the handle so that the tongue can be flexed with the groove engaging end received in the groove to engage the shoulders under the inwardly extending annular lip thereby clipping the tool onto the rim with the blade portion extending vertically into the container.

5,065,978
VALVE ARRANGEMENT OF MICROSTRUCTURED COMPONENTS
Scato Albarda, Gross Schenkenberg; Werner Thoren, Lubeck; Stefan Kahning, Steinburg, and Peter Vehrens, Sulfeld, all of Fed. Rep. of Germany, assignors to Dragerwerk Aktiengesellschaft, Lubeck, Fed. Rep. of Germany
Division of Ser. No. 334,919, Apr. 17, 1989. This application Sep. 19, 1990, Ser. No. 584,762
Int. Cl.[5] F16K *31/02, 31/08, 7/12*
U.S. Cl. 251—129.06 **3 Claims**



1. A microstructured valve arrangement, comprising: a basic body structure defining a flow path having an opening; an actuation member connected to said basic body structure so as to be supported in a rest position, spaced away from said opening, and supported in an extended position, disposed over said opening; actuating drive means connected to said actuation member for moving said actuation member from said rest position to said extended position; and, holding means independent of said actuation drive means for retaining said actuation member in said extended position, said actuating drive means comprising a piezo actuation crystal drive element including a piezo electric element acting on said actuation member.

5,065,979
CONSTANT CURRENT VACUUM REGULATOR
Charles A. Detweiler, Durand, and Richard A. Schultz, Troy, both of Mich., assignors to Lectron Products, Inc., Rochester Hills, Mich.
Continuation of Ser. No. 463,470, Jan. 10, 1990, abandoned. This application Oct. 10, 1990, Ser. No. 595,201
Int. Cl.[5] F16K *31/06*
U.S. Cl. 251—129.16 **24 Claims**



1. An electromagnetic solenoid valve assembly comprising:

a valve housing defining a fluid chamber;

a fluid passageway communicating with said fluid chamber;

a magnetic pole piece having a top and a bottom end;

a seat member extending beyond the bottom end of said pole piece;

a magnetic closure member located a predetermined distance from the bottom end of said pole piece and adapted to control the flow of fluid through said fluid passageway, said predeteremined distance between said magnetic closure member and the bottom end of said pole piece defining a primary air gap in the magnetic flux path of the solenoid;

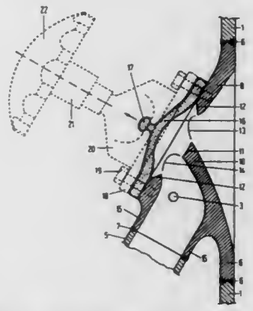
first flux collector means for completing the magnetic flux path from the top end of said pole piece to said magnetic closure member, said first flux collector means defining a secondary air gap in said magnetic flux path at the top end of said pole piece between said pole piece and said first flux collector means and hence a first flux path across said secondary air gap;

adjustable flux collector means defining a supplemental flux path across aid secondary air gap in parallel with said first flux path;

means for establishing the flow of electromagnetic flux through said flux paths; and

calibration means for varying the position of said adjustable flux collector means relative to said first flux collector means to vary the reluctance in said supplemental flux path.

5,065,980
DIAPHRAGM VALVE
Borge C. Pedersen, Holstensvejen 26, 4534 Horve, Denmark
Filed Jun. 18, 1990, Ser. No. 539,659
Claims priority, application Denmark, May 22, 1989, 2479/89
Int. Cl.[5] F16K *7/16*
U.S. Cl. 251—144 **5 Claims**



1. A diaphragm valve primarily to be fitted in a container wall, comprising:

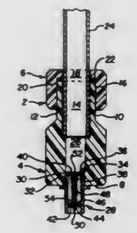
a) a valve housing **(9)** having a valve inlet port or opening **(13)** communicating with the fluid inside the container, a valve outlet port or opening **(14, 15)** for extracting fluid from the inside of the container, and valve seats **(11, 12)** surrounding the valve inlet port **(13)**

b) a flexible diaphragm **(16, 17)** mounted movable for shifting between an open and a closed position, and

c) actuator means **(22)** for shifting the diaphragm between the open and a closed position,

wherein the valve housing **(9)** forms an integral part of the container, whereby the valve inlet port **(13)** also functions as a container outlet port or opening; the surface of the diaphragm **(16)** facing the inside of the container in the closed position is geometrically close to the inner outline of the container, and abuts directly against the valve seats **(11, 12)** surrounding the valve inlet port **(13)** and valve outlet port **(14)** simultaneously closing both the valve inlet and outlet ports **(13, 14)** with uniform deformation of the diaphragm.

5,065,981
WATER LINE TEST CAP
Fred F. Vario, 1057 Waterman Rd., Jefferson Borough, Pa. 15025
Filed Oct. 9, 1990, Ser. No. 594,693
Int. Cl.[5] F16L *55/10*
U.S. Cl. 251—148 **4 Claims**



4. A novel water line test cap comprising an elongated body closed at one end and having an elongated cylindrical recess extending outwardly therefrom and external threads at the other end thereof, an internally-threaded nut threaded to said elongated body at said other end thereof, said nut being pro-

VOL 1132 ISS 3 NO 19 1991 UMI

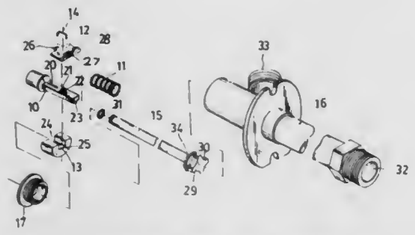
vided with a bore communicating with said elongated cylindrical recess, and an expandable O-ring disposed therein adjacent said elongated body, said cylindrical recess, said bore and said O-ring being linearly disposed and having the same internal diameter sufficient to permit the entry of a water pipe therein, said O-ring being disposed between the outer free edge of said elongated body and the adjacent surface of said nut, the closed end of said body being provided with means capable of bleeding the interior of said water line test cap comprising a body mounted in said elongated body communicating with said elongated cylindrical recess and having disposed therein spring-activated valve means permitting communication between said elongated cylindrical recess and the exterior thereof.

5,065,982

PUSH-BUTTON TYPE CONTROLLING-WATER DEVICE

Sen-Tein Shih, No. 41, Yi-Ya Lane, Sio-Sue Hsiang, Chang-hua Hsien, Taiwan

Filed Oct. 25, 1990, Ser. No. 603,073
Int. Cl.[5] F16K *31/44*
U.S. Cl. 251—320 **2 Claims**



1. A push-button water control device comprising:
a press control rod having a cylindrical button on the end and a rectangular rod portion with a rectangular leading groove, a heart-shaped positioning groove and a heart-shaped positioning piece, and a rectangular piece extending downward;
a fixed base having a semicircular cross section with a small leading concave groove in the middle;
an upper fixed cover having a round hole and a rectilinear and a semicircular circled shield;
a positioning member inserted into said round hold and into said rectangular leading groove, and entering into said rectilinear hole and said heart-shaped positional groove at the other end; and
a spring mounted between said cylinder button and said fixed base.

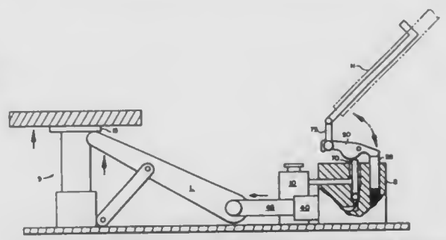
5,065,983

HYDRAULIC POWER UNIT FOR JACK SYSTEM

Clyde E. Slay, Santa Ana, Calif., assignor to Safe-T-Jack, Inc., Huntington Beach, Calif.

Filed Apr. 3, 1990, Ser. No. 504,552
Int. Cl.[5] B66F *3/24*
U.S. Cl. 254—8 B **3 Claims**

1. A hand-operated hydraulic power unit for a jack system comprising, in combination:
(a) hydraulic fluid reservoir means;
(b) means defining a flow path for fluid to flow out of, and then back into, said reservoir means;
(c) manually operated pump means for forcing fluid out of said reservoir means along said flow path;
(d) a hydraulic cylinder having one end thereof in communication with said flow path;
(e) a hydraulic ram in the other end of said hydraulic cylinder for lifting a pair of pivotally mounted lifting arms;
(f) a pivotally supported pressure release lever;
(g) resilient means engaging said release lever on one side of its pivotal support for forcing said lever to rotate in one direction relative to its pivotal support;
(h) said flow path having an outlet port forming a valve seat therein;
(i) a ball valve member normally seated upon said valve seat;
(j) actuating rod means housed partially within said flow path, seated upon said valve member and engaging said release lever on the other side of its pivotal support for forcing said lever to rotate in the other direction relative to its pivotal support;
(k) said means defining a flow path including a metal block having a series of interconnected straight passageways formed therein, said outlet port and valve seat being formed by one end of one of said passageways, and the other end of said one passageway extending beyond said flow path and housing said actuating rod means; and



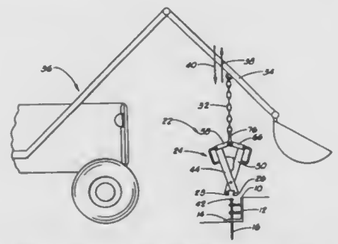
(l) manual means for selectively rotating said release lever in said other direction of rotation;
whereby when said pump means is operated for forcing fluid to flow from said reservoir means into said flow path it builds up fluid pressure against said valve member, then whenever the pressure against said valve member exceeds a predetermined level it is applied by said actuating rod means to said pressure release lever so as to overcome said resilient means and thereby cause said lever to move, so that excess pressure escapes past said valve member along said flow path and back into said reservoir means; and
whereby when it is desired to unload the pressure against said hydraulic ram said manual means is operated so as to permit said valve member to be raised from its seat and the entire fluid pressure in said cylinder to be bled off to said reservoir means.

5,065,984

CLAMP ASSEMBLY FOR REMOVING PINS FROM A CONCRETE FORM

Leon M. Hake, and Ronald D. Zerr, both of Perry, Okla., assignors to EZ Drill, Inc., Stillwater, Okla.

Filed Oct. 10, 1990, Ser. No. 596,170
Int. Cl.[5] B25C *11/00*
U.S. Cl. 254—18 **2 Claims**



1. An improvement in an apparatus for pullingly removing pins having a pin head on one end thereof from a concrete form using an existing lifting mechanism having a lift portion movable in an upwardly direction and in a downwardly direction, the improvement comprising:

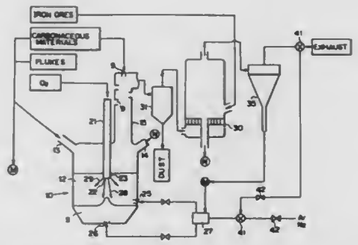
a clamp assembly a having a first jaw and a second jaw connected thereto, the clamp assembly being movable to an opened position wherein the first and the second jaws are spaced a distance apart, and the clamp assembly being movable to a closed position wherein the first and the second jaws are positioned in clamping engagement with the pin to be removed , the clamp assembly comprising:
a first clamp arm having a first end and a second end, the first jaw being connected to the second end of the first clamp arm;
a second clamp arm having a first end and a second end, the second jaw being connected to the second end of the second clamp arm;
means for pivotally connecting the first clamp arm at a position between the first and the second ends of the first clamp arm to the second clamp arm at a position between the first and the second ends of second clamp arm, the a means for connecting the clamp assembly to the lift position being connected to the first ends of the first and second clamp arms;
a first lift arm having a first end and a second end, the first end of the first lift arm being pivotally connected to the first end of the first clamp arm;
a second lift arm having a first end and a second end the first end of the second lift arm being pivotally connected to the first end of the second clamp arm, and the second end of the second lift arm being pivotally connected to the second end of the first lift arm, the means for connecting the clamp assembly to the lift portion being connected to the second ends of the first and the second lift arms;
an eye flange having an eye opening formed therethrough the means for connecting the clamp assembly to the lift portion of the lifting mechanism being connected to the eye flange;
a first handle; and
a second handle, the first and the second handles each being adapted to be gripped for manually moving the clamp assembly to the opened position and the closed position;
means for connecting the clamp assembly to the lift portion of the lifting mechanism, the clamping assembly being moved to the opened position a and positioned over the pin to be removed, and the lift portion being movable a distance in the upwardly direction for moving the clamp assembly a distance int e upwardly direction and causing the clamp assembly to be moved toward the closed position wherein the first and the second jaws clampingly engage the pin to be removed, and the lift portion being movable a further distance into upwardly direction for pulling the clamp assembly the pin connected thereto via the first and second jaws in the upwardly direction for pullingly removing heaping the pulling of the clamp assembly int e upwardly direction continues to move the clamp assembly toward the closed position for maintaining the clamping engagement between the clamp assembly and the pin as the lift portion continues to move in the upwardly direction.

5,065,985

METHOD FOR SMELTING REDUCTION OF IRON ORE AND APPARATUS THEREFOR

Kenji Takahashi; Katsuhiro Iwasaki; Shigeru Inoue; Haruyoshi Tanabe; Masahiro Kawakami; Kenzo Yamada, and Osamu Terada, all of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

Division of Ser. No. 276,612, Nov. 28, 1988, Pat. No. 5,000,789.
This application May 8, 1990, Ser. No. 520,785
Claims priority, application Japan, Nov. 30, 1987, 62-303940; Feb. 9, 1988, 63-28584; Feb. 9, 1988, 63-28586
Int. Cl.[5] C21C *5/38*
U.S. Cl. 266—156 **12 Claims**



1. An apparatus for a smelting reduction of iron ore comprising:
a preheat and prereduction furnace means for preheating and prereducing iron ore;
a smelting reduction furnace means into which preheated and prereduced iron ore from said preheat and prereduction furnace means, carbonaceous material and flux are charged and in which said preheated and prereduced iron ore is smelted and reduced, said smelting reduction furnace means having a bottom wall and side walls;
a top blow oxygen lance having decarburizing nozzles and post-combustion nozzles at one end thereof for blowing oxygen into molten metal contained in said smelting reduction furnace means;
at least one side tuyere disposed in a side wall of the smelting reduction furnace means and at least one bottom tuyere disposed at the bottom of the smelting reduction furnace means through which a stirring gas is blown through molten metal contained in the smelting reduction furnace means to cause a portion of the upper surface of the molten metal to swell upwardly, at least a part of said stirring gas blown through said at least one side tuyere being directed at the upwardly swollen portion of the molten metal to agitate said molten metal; and
at least one upgrading tuyere through which a gas upgrading agent is blown to an infurnace gas generated from said smelting reduction furnace means, said upgrading tuyere being disposed in a gas exhaust pipe which leads the infurnace gas from the smelting reduction furnace means to the preheat and prereduction furnace means.

5,065,986

AUTOMATIC GAS HOOKUP TO A LADLE

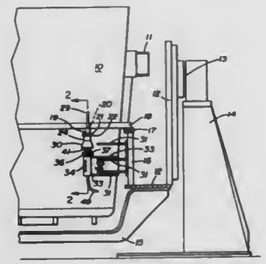
Joseph A. Perri, Coraopolis, Pa., assignor to Insul Company, Inc., East Palestine, Ohio

Filed Jul. 30, 1990, Ser. No. 559,835
Int. Cl.[5] C21C *5/46*
U.S. Cl. 266—217 **5 Claims**

1. An automatic hookup for coupling a ladle to a gas supply for treatment of molten metal in the ladle wherein gas is injected into the molten metal and wherein an annular flange on said ladle rests on ladle saddles in a tilting structure comprising: apertured female connection means depending from said annular flange, said female connection means consisting of a cylindrical body, a half spherical concave member in said

VOL 1132 ISS 3 NO 19 1991 UMI

cylindrical body, an inverted conical flange depending from said concave member, a support beam on said tilting structure apertured male connection means consisting of telescopic body members on said support beam, spring means on said telescopic body members, an upper plate on said spring means, a convex curved upper end portion having a downturned annular flange, said annular flange secured to said upper plate so as to space



said convex curved upper end portion from said upper plate, said half spherical concave member being of a known spherical diameter and said convex curved upper end portion being of a spherical diameter greater than said known diameter of said spherical concave member, means communicating with said ladle and said female connection and means communicating with said male connection and a gas supply.

5,065,987

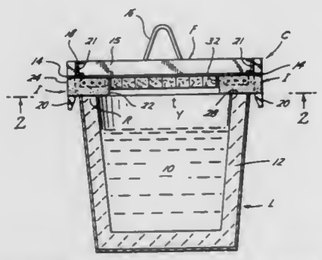
REFRACTORY CERAMIC FIBER LADLE COVERS

Mack A. Hounsel, Houston, Tex., assignor to J T Thorpe Company, Houston, Tex.

Continuation of Ser. No. 665,927, Oct. 29, 1984, abandoned, and a continuation-in-part of Ser. No. 564,745, Dec. 21, 1983, Pat. No. 4,492,382. This application Oct. 31, 1988, Ser. No. 265,239 The portion of the term of this patent subsequent to Jan. 8, 2002, has been disclaimed.

Int. Cl.[5] C21C *5/44*

U.S. Cl. 266—283 **9 Claims**



1. An apparatus for sealing the top of a ladle as it is positioned beneath a ladle cover comprising:

(a) a plurality of refractory fiber ring insulation units, each of said units comprising:

(1) a plurality of adjacent layers of refractory ceramic fiber insulating material;

(2) said layers having an inner surface portion adjacent the ladle cover;

(3) said layers further having an outer surface portion adapted to be contacted by the rim of the ladle;

(4) said layers further having intermediate portions extending between said inner and outer surface portions;

(b) means for mounting said plurality of refractory fiber insulation units beneath the ladle cover, said means for mounting comprising means for mounting said layers in a round patter about a peripheral portion of a lower surface of the ladle cover;

(c) said layers being mounted on said means for mounting in planes extending radially outwardly from a central portion of the ladle cover; and

(d) a layer of refractory fiber insulation mounted within said round pattern of said layers.

5,065,988

SPRING FOR COMPRESSION AND TENSION, MAINLY IN AXIAL DIRECTION

Anders S. Wedell, Munkegaardsvej 2A, Dk-3490 Kvistgaard, Denmark

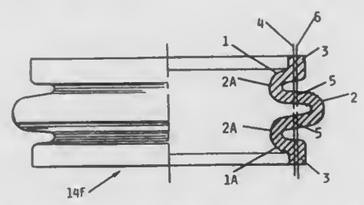
PCT No. PCT/DK88/00133, § 371 Date Mar. 14, 1989, § 102(e) Date Mar. 14, 1989, PCT Pub. No. WO89/01577, PCT Pub. Date Feb. 23, 1989

PCT Filed Aug. 11, 1987, Ser. No. 460,199

Claims priority, application Denmark, Aug. 11, 1987, 4172/87

Int. Cl.[5] F16F *1/36*

U.S. Cl. 267—149 **13 Claims**



1. A spring for compression and tension comprising:

a substantially cylindrical hollow body having a central longitudinal axis, opposite ends and a wall between said ends of substantially constant thickness and comprising at least two radially directed substantially U-shaped sections integrated to form spring parts and being symmetrical about said axis and functioning substantially in the axial direction, said U-shaped sections forming in cross-section radially outer and inner wave crests at respective inner and outer diameters, and said body being made of a material selected from the group consisting of metal, steel, glass, plastic, and reinforced plastic, and having a Young's modulus E of at least 39 GPa; and

an end section at each end comprising an annular rigid axial projection extending between said inner and outer wave-crest diameters so that a neutral surface of the spring passes through said end sections.

5,065,989

WORKTABLE

Cheng W. Ho, 12-2 Alley 1, Lane 437, Sec. 2, Pader Road, Taipei, Taiwan

Filed Jun. 4, 1990, Ser. No. 532,917

Int. Cl.[5] B25B *1/22*

U.S. Cl. 269—139 **2 Claims**

1. A worktable, comprising:

a tabletop comprising a pair of fixture receiving frames extending generally parallel, each frame having opposite ends and a center between its ends;

two pairs of legs for support the tabletop, the legs having top and bottom ends, the leg top ends of one of the legs of each pair of legs being pivotally connected to the tabletop generally toward the center of a respective one of the frames between the ends of that frame, the one leg being pivotable to selectively move the one leg to a support position of the legs wherein the bottom ends of the legs of each pair are separated and to a folded position of the legs wherein the bottom ends of the legs of each pair are toward each other; the frames being connected with the

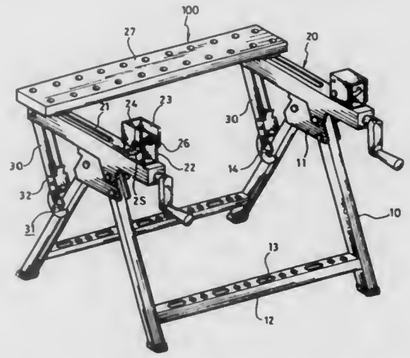
respective leg pairs such that the tabletop can be lifted upright while the leg pairs are in the folded position;

a respective pair of fixtures on each frame, and means in each frame for adjusting the distance between the fixtures on that frame for enabling the clamping of an article between the fixtures on that frame;

a support arm having an upper end which is pivotally connected to one end of one frame at a location spaced away from the pivot connection of the respective one leg to the one frame, the support arm having a lower end with a dent formed therein;

a pin formed on the one leg at the one frame and the pin being placed for being received in the dent of the support arm, and such reception of the pin in the dent fixing the legs in their supporting position and fixing the one leg against pivoting to the legs folded position, while separation of the pin from the dent in the support arm frees the one leg to pivot to the legs folded position; slidable fixing means on the support arm, the fixing means being slidable from a position opening the dent for permitting the locating pin on the leg to move in and out of the dent to a closed position for locking the pin in the dent;

each fixture comprising a lower part connected to the top of the respective frame and an upper part pivotally connected to the lower part at a pivot connection for enabling



the upper part to be pivoted from a first orientation to a second orientation perpendicular to the first orientation;

the tabletop further comprising a respective top board attached at a location on each fixture upper part such that pivoting of the fixture upper part moves the board between a flat, generally horizontal orientation and an upright, generally vertical orientation;

the upper and lower fixture parts each respectively comprising two spaced apart sides, a retaining pin defined on at least one side of the upper part, at least one side of the lower part having a pivot guide slot defined therein, the sides of the upper part being respectively placed outward of the respective sides of the lower part, the retaining pin of the upper part extending from the side of the upper part through the guide slot in the side of the lower part;

a spring on the retaining pin, means on the retaining pin for being engaged by the spring and those means being biased outwardly by the spring into engagement with at least one side of the lower part for restraining movement of the retaining pin along the guide slot, thereby for restraining pivoting of the upper part with respect to the lower part;

the pivot connection between the upper and lower parts being spaced from the retaining pin and the guide slot, the guide slot being curved to permit pivoting of the retaining pin along with the pivoting of the upper part.

5,065,990

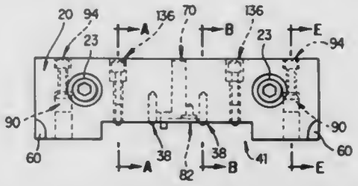
VISE JAW ACCESSORY SYSTEM FOR ATTACHING AND RELEASING VISE ACCESSORIES WHILE MAINTAINING POSITIONAL ACCURACY OF THE ACCESSORIES

David Durfee, Meadville, Pa., assignor to Susan M. Durfee, Meadville, Pa.

Continuation-in-part of Ser. No. 495,777, Mar. 19, 1990, which is a continuation of Ser. No. 223,428, Jul. 25, 1988, Pat. No. 4,923,186, which is a continuation-in-part of Ser. No. 941,717, Dec. 15, 1986, abandoned. This application Dec. 31, 1990, Ser. No. 636,250

Int. Cl.[5] B25B *1/24*

U.S. Cl. 269—282 **29 Claims**



1. A vise jaw system for a vise having a keyway defining a longitudinal direction, a lateral direction perpendicular to said longitudinal direction, a horizontal datum surface along which a bottom surface of a movable jaw moves and a vertical datum surface being one of the longitudinal vertical walls of said keyway, the system comprising:

at least one removable jaw for selective attachment to said vise, said removable jaw having a bottom surface held in fixed relation to said horizontal datum surface and a front surface perpendicular to said horizontal datum surface, said removable jaw further including a recess formed in a portion of the bottom and front surfaces of the removable jaw, the recess having a lateral length less than a lateral length of the bottom surface;

at least one positioning plate for selective attachment to said removable jaw, said positioning plate having a bottom face for contacting the horizontal datum surface and a rear face perpendicular to said horizontal datum surface;

said positioning plate further including an elongated cleat fixed to the positioning plate along the lateral direction adjacent to the bottom face of the positioning plate, said cleat including a side face at one end of said cleat, said cleat having a shape sized for insertion in the longitudinal direction of said vise;

pressure means located in one of the removable jaw and the cleat for engaging said cleat when received in said recess to urge the bottom face of said positioning plate along the lateral direction against said horizontal datum surface and the rear face of the positioning plate in a securement direction against the front surface of the removable jaw; and

lateral alignment means for maintaining the side face of the cleat in fixed relation to the vertical datum surface whereby said positioning plate is located and held in precise alignment in all directions.

5,065,991

APPARATUS FOR FIXING A WORKPIECE TO THE WORKTABLE OF A MACHINE TOOL

Rudolf Schneider, Stansstad, Switzerland, assignor to Erowa AG, Reinach, Switzerland

Filed Jun. 6, 1990, Ser. No. 533,876

Claims priority, application Fed. Rep. of Germany, Jun. 10, 1989, 3919077

Int. Cl.[5] B23Q *1/08*

U.S. Cl. 269—309 **11 Claims**

1. An apparatus for fixing a workpiece to be machined by a

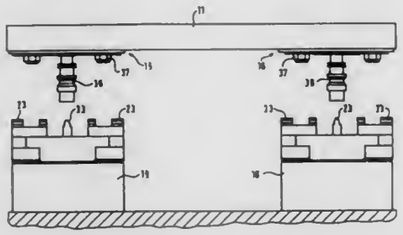
VOL 1132 ISS 3 NO 19 1991 UMI

machine tool to the worktable of said machine tool in an exactly determined positional relationship with reference to a reference point located on said worktable of said machine tool, said apparatus comprising:

a workpiece receiving means adapted to removably receive said workpiece to be machined;

first positioning means comprising a first group of positioning apertures provided in said workpiece receiving means and a first group of positioning studs provided on said worktable of said machining tool, said first group of positioning apertures and said first group of positioning studs cooperating to determine the position of said workpiece receiving means in X- and Y-directions;

second positioning means comprising a second group of positioning apertures and a second group of positioning studs, said second groups of positioning apertures and positioning studs being located distantly from said first



groups of positioning apertures and positioning studs and cooperating with each other whereby said cooperating second groups of positioning apertures and positioning studs determine the position of said workpiece receiving means either only in the X-direction or only in the Y-direction; and

said workpiece receiving means comprises at least two positioning members located distantly from each other, each of said positioning members comprising a positioning plate, the positioning plate of a first positioning member being provided with four positioning slits, the arrangement of said four positioning slits corresponding with the arrangement of the positioning studs of said first group of positioning studs, and the positioning plate of a further positioning member being provided with two positioning slits which are located on the tie line running from the center of said first positioning member to the center of said further positioning member.

5,065,992

METHOD FOR PROCESSING WEB MATERIAL

H. W. Crowley, Newton, Mass., assignor to Roll Systems, Inc., Burlington, Mass.

Filed Jun. 7, 1990, Ser. No. 534,724

Int. Cl.[5] B41L *1/32*

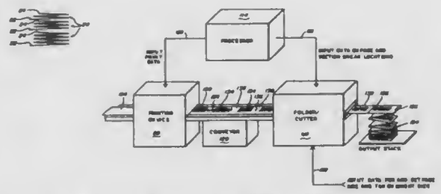
U.S. Cl. 270—39 **34 Claims**

1. A method for sorting, separating and indicating sections of an outputted stack of printed continuous paper web comprising the steps of:

outputting a continuous paper web including a plurality of sections having pages therein;

determining page separation and section separation locations upon the web, wherein the size of each page in a section is equal;

determining section separation locations upon the web wherein the size of at least one section separator page disposed adjacent to a section separation location is unequal to the size of the pages in the section, the section separator page containing information descriptive of the section contents; and



folding the web at each of the page separation locations so that each consecutive fold is placed upon a alternating face of the web to produce a zig-zag pattern.

5,065,993

ACCUMULATOR CYLINDER ASSEMBLY FOR A FOLDING MACHINE OF A PRINTING PRESS

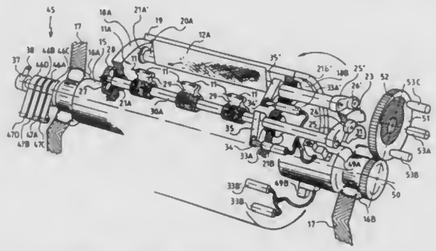
André Reponty, Gouvieux, France, assignor to Heidelberger Druckmaschinen AG, Heidelberg, Fed. Rep. of Germany

Filed Dec. 18, 1990, Ser. No. 629,400

Claims priority, application France, Dec. 18, 1989, 89 16709

Int. Cl.[5] B42C *1/00*

U.S. Cl. 270—49 **20 Claims**



1. Accumulator cylinder assembly for a folding machine of a printing press having tucking-blades respectively associated with entrainer members and cutting countermembers, and a device for controlling the tucking-blades and the entrainer members including, for each tucking-blade, a tucking-blade shaft having an insertion position in which the respective tucking-blade is deployed in order to insert paper covering the respective tucking-blade into a jaw of a jaw cylinder cooperating with the accumulator cylinder, and a retracted position in which the tucking-blade is retracted; a fixed tucking-blade shaft control cam having a control region on a periphery thereof, each tucking-blade shaft having a lever carrying a roller resiliently held against the cam, the tucking-blade shaft being in the insertion position when its roller is in the control region, and being in the retracted position when the roller is not in the control region, the cam being disposed so that its control region is located opposite the roller of the tucking-blade shaft when the tucking-blade associated with the shaft is aligned with the respective jaw of the jaw cylinder; for each

entrainer member, an entrainer shaft having an entraining position in which the paper is firmly held on the accumulator cylinder, and a release position in which the paper is released; a fixed entrainer shaft control cam having a control region on a periphery thereof, each entrainer shaft having a lever carrying a roller held resiliently against said cam, each entrainer shaft being in a release position when its roller is in the control region of the entrainer shaft control cam and in the entraining position when its roller is not therein, the cam being disposed so that its control region is located opposite the roller of the entrainer shaft when a tucking blade preceding the respective entrainer member associated with the entrainer shaft is located opposite the respective jaw of the jaw cylinder; the control device further comprising:

for each entrainer shaft and each tucking-blade shaft, a latch fixed to the accumulator cylinder and having an operating position in which the latch blocks the shaft to prevent its roller from being affected by the respective control region of the respective cam thereof and a non-operating position in which the latch does not act on the shaft; latch-signal production means for generating at least one series of periodic signals according to the angular position of the accumulator cylinder, in order to cause it to operate in an accumulation mode; means for enabling said latches to respond to said signals wherein each latch assumes said operating position thereof when a signal is addressed to it, and said non-operating position thereof when no signal is addressed to it; and means for selecting the operating mode of the cylinder wherein corresponding signals are fed to said latches.

5,065,994

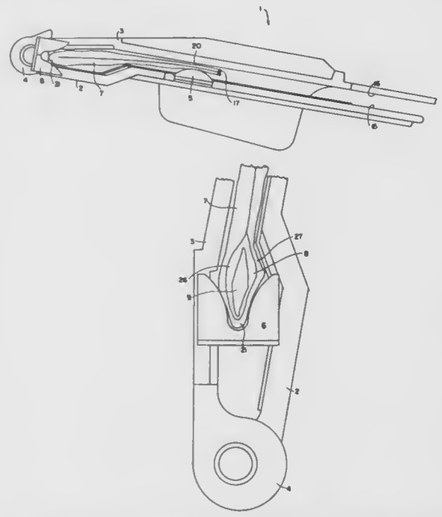
NON-LAP OPENER

Walter Hatt, Yardley, Pa., assignor to Graphic Management Associates, Inc., Mass.

Filed Feb. 13, 1991, Ser. No. 654,741

Int. Cl.[5] B65H *5/30*

U.S. Cl. 270—55 **16 Claims**



1. A device for opening a printed product which has a fold, an unfolded edge parallel to and spaced apart from said fold, and first and second sides extending between said open edge and said fold, at least one of said first side and said second side being unfolded,

(a) said device comprising a pocket for said printed product and having a first wall and a second wall connected by a hinge, said first wall and said second wall pivoted at said hinge for motion toward each other into a closed position and away from each other into an open position, said fold being adjacent said hinge,

(b) at least one abutment on a first inner face of said first wall or a second inner face of said second wall, an abutment area on the other of said first wall or said second wall and adjacent said abutment when said pocket is in said closed position, whereby said product is held between said abutment and said area and movement thereof in a first direction away from said hinge is prevented,

(c) a pressing element adapted to contact said fold and exert pressure thereon in said first direction, thereby forming an opening adjacent said fold between first and second groups of pages of said product,

(d) a preopener, adjacent said first side, adapted for movement into said opening in a second direction parallel to said fold, thereafter moving in said first direction, thereby dividing said groups substantially from said opening to said edge adjacent said first side,

(e) an opener, adapted to contact said product, at a first point adjacent said first side and said edge,

(f) said opener further adapted for movement in said second direction along said edge to a second point adjacent said second side and said edge, thereby dividing said product into said groups across its entire width.

5,065,995

SHEET SUPPLYING DEVICE

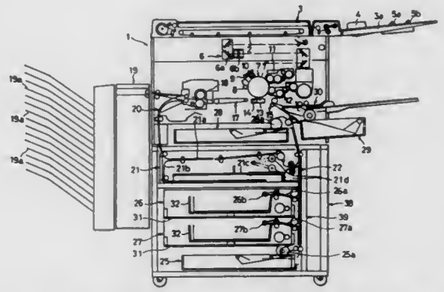
Ken Iwamoto, Nara, and Atsushi Narukawa, Koriyama, both of Japan, assignors to Sharp Kabsuhiki Kaisha, Osaka, Japan

Filed May 10, 1990, Ser. No. 521,693

Claims priority, application Japan, May 16, 1989, 1-122496

Int. Cl.[5] B65H *3/44*

U.S. Cl. 271—9 **10 Claims**



1. A sheet supplying device for supplying a sheet to a sheet supplied apparatus which designates the size and transport direction of the sheet, comprising:

a movable sheet placing means having a plane for placing the sheet thereon and movable to at least two transport positions so as to transport the sheet therefrom in at least two transport directions;

a fixed sheet placing means having a plane for placing the sheet thereon and fixed in one transport position so as to transport the sheet therefrom in one transport direction;

a transport means for transporting the sheet from each of the movable sheet placing means and the fixed sheet placing means to the sheet supplied apparatus; and

a control means, to which the size of the sheet placed on the movable sheet placing means and the size and transport direction of the sheet placed on the fixed sheet placing

VOL 1132 ISS 3 NOV 19 1991 UMI

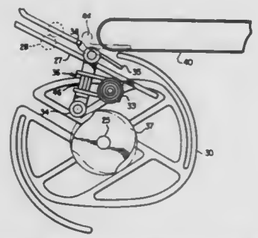
means are input, for comparing the inputted size of the sheet placed on the movable sheet placing means and the inputted size of the sheet placed on the fixed sheet placing means, setting a flag in case that the compared sizes are same to each other, and selecting preferentially the fixed sheet placing means as the sheet placing means from which the sheet is transported by the transport means with reference to the set flag, when the size of the sheet placed on the movable sheet placing means corresponds to the designated size and, at the same time, the size and transport direction of the sheet placed on the fixed sheet placing means correspond to the designated size and transport direction.

5,065,996

DISK STACKER INCLUDING MOVABLE GATE FOR INSERTION OF SHEETS INTO DISK SLOTS

Thomas C. McGraw, Macedon; Randall E. Van Ryne, Rochester; Richard F. Scarlata, Greece, and Cho Y. Sze, Fairport, all of N.Y., assignors to Xerox Corporastion, Stamford, Conn.

Filed Aug. 17, 1990, Ser. No. 568,782
Int. Cl.[5] B65H *29/40*
U.S. Cl. 271—176 **15 Claims**



1. A disk stacker for receiving and inverting sheets, comprising:
a rotatable disk including at least one slot for receiving a sheet therein;
rotating means for rotating said rotatable disk;
feeding means for feeding a sheet from a sheet supply to said slot of said rotatable disk, said rotatable disk being capable of receiving a sheet insaid slot when located at an input position, and inverting the sheet by rotating;
a movable gate positioned adjacent to said rotatable disk at said input position, and being movable between first and second positions, said first position being closer to said rotatable disk than said second position,; and
moving means for moving said gate between said first and second positions in synchronism with rotation of said rotatable disk, wherein said moving means moves said movable gate to said fist position every time said disk is at said input positions that said gate contacts and assists a sheet for insertion of the sheet into said slot, said moving means moving said gate to said second position upon rotation of said disk from said input position, so that said gate does not contact a trailing portion of the sheet.

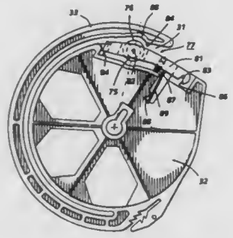
5,065,997

SHEET INVERTER AND STACKING APPARATUS

Richard E. Butts, and John C. Davis, both of Rochester, N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Feb. 26, 1990, Ser. No. 484,962
Int. Cl.[5] B65H *29/00*
U.S. Cl. 271—187 **21 Claims**

1. Sheet inverter and stacking apparatus comprising at least one sheet inverter wheel having at least one arcuate sheet retaining slot into which a sheet maybe inserted, means to incrementally rotate said wheel from a sheet load position to a sheet unload position; drive means to drive a sheet in the process direction into said slot when said inverter wheel is in the load position; means to remove a sheet from said slot, stack it in a stacking tray and register its leading edge; said sheet retaining slot comprising means to provide minimal resistance to sheet movement in the slot upon insertion in the slot in the process direction and to provide high resistance to sheet movement in the slot in a sideways direction transverse to the process direction comprising a sheet guide member on the entrance to said arcuate sheet retaining slot and a roller assembly



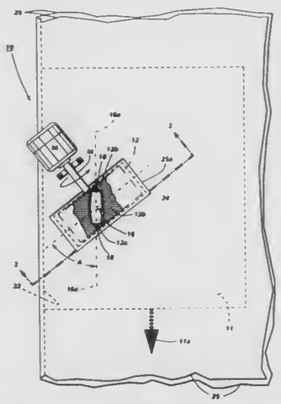
in the entrance to said arcuate sheet retaining slot, said roller assembly comprising a roller having a frictional contact surface rotatably mounted for free rotation in the process direction, said guide member being in opposed relationship with said roller, said guide having a portion forming with said roller an interference in the nominal tangential sheet path thereby providing a high resistance to sheet movement in the slot in a sideways direction transverse to the process direction.

5,065,998

LATERAL SHEET REGISTRATION SYSTEM

James A. Salomon, Cheshire, Conn., assignor to Xerox Corporation, Stamford, Conn.

Filed Dec. 19, 1990, Ser. No. 629,866
Int. Cl.[5] B65H *9/16*
U.S. Cl. 271—251 **10 Claims**



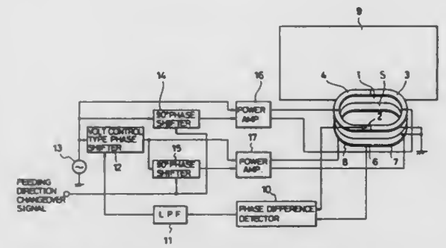
1. A positive lateral side edge registration and feeding system for feeding sheets in a primary sheet feeding direction and velocity yet also providing lateral repositioning of said sheets in a side registration direction, comprising a hub member rotatable about a central axis of rotation so as to rotate primarily in said primary sheet feeding direction but at an acute small lateral angle thereto, said hub member having rollers mounted to the periphery of said hub member for engaging said sheets, which rollers are rotatable with said hub member to impart sheet feeding forces to said sheets in both said primary sheet feeding direction and said lateral side registration direction as said hub member is rotated at said small lateral angle to said primary sheet feeding direction, and wherein said rollers are independently rotatable about their own axes, which roller axes are at approximately said same acute small angle to said hub member rotating direction so that said rollers may rotate approximately perpendicular to said primary sheet feeding direction to limit said sheet feeding forces in said lateral side registration direction.

5,065,999

SHEET FEEDING DEVICE UTILIZING VIBRATION WAVES

Kenichi Kataoka; Yoshifumi Nishimoto, both of Yokohama; Masahiko Igaki, and Eiichi Yanagi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 22, 1990, Ser. No. 482,918
Claims priority, application Japan, Feb. 28, 1989, 1-47367
Int. Cl.[5] B65H *7/02*
U.S. Cl. 271—265 **17 Claims**



1. A feeding device for a sheet, comprising:
(a) first vibration means so arranged as to frictionally contact the sheet;
(b) second vibration means opposed to said first vibration means across said sheet and so arranged as to frictionally contact said sheet;
(c) first electromechanical conversion means for generating a first travelling vibration wave on said first vibration means in response to a first applied electrical signal;
(d) second electromechanical conversion means for generating a second travelling vibration wave on said second vibration means in response to a second applied electrical signal;
(e) first detecting means for generating a first electrical signal corresponding to the state of said first travelling vibration wave;
(f) second detecting means for generating a second electrical signal corresponding to the state of said second travelling vibration wave; and
(g) changing means for detecting the phase difference between said first and second electrical signals and changing the phase of at least one of said first and second applied electrical signals according to said detected phase difference in order to coincide the phase between the vibration wave generated in the first vibration means and that in the second vibration means.

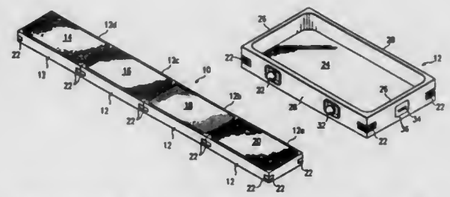
5,066,000

PORTABLE MULTI-SURFACE TRACK

Francis P. Dolan, 2719 Abrams, Dallas, Tex. 75214

Filed Oct. 19, 1990, Ser. No. 600,449
Int. Cl.[5] A63B *1/00, 3/00, 23/04*
U.S. Cl. 272—70 **21 Claims**

1. A multi-surface track comprising:
a plurality of holding sections, each section having a user contacting surface; at least one of said surfaces having a different texture or density than the other of said surfaces; and



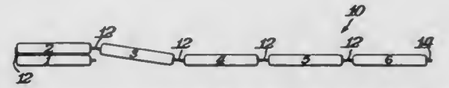
transporting apparatus associated with at least one of the sections for allowing the sections to be readily moved.

5,066,001

PORTABLE, FOLDABLE, ADJUSTABLE, AEROBIC EXERCISE BENCH/STEP/MAT

William T. Wilkinson, P.O. Box 378, Chesapeake City, Md. 21915

Filed Sep. 4, 1990, Ser. No. 577,282
Int. Cl.[5] A63B *6/00*
U.S. Cl. 272—70 **7 Claims**



1. A method of performing an aerobic exercise program with the use of a mat in the form of at least three side by side panels hinged together along their sides to permit the panels to be selectively stacked upon each other to create a step including the step of stacking at least one of the panels on its adjacent panel to create a stack, repeatedly stepping up and down to and from the stacked panels, creating an integral apron with the remaining panel at a height lower than the stacked panels when less than all of the panels are stacked upon each other, varying the height of the step by varying the number of panels which are stacked upon each other, and stepping up and down from the resulting different height steps.

5,066,002

PORTABLE EXERCISE DEVICE

Melinda Cordell, 10965 Fruitland Dr., #310, Studio City, Calif. 91604

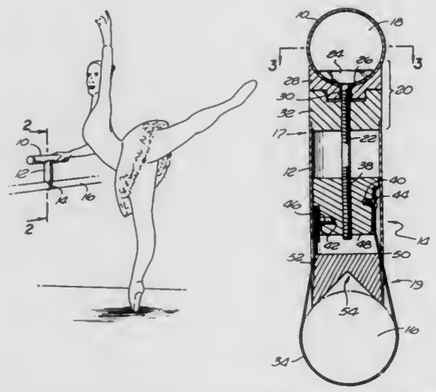
Filed Apr. 5, 1990, Ser. No. 505,294
Int. Cl.[5] A63B *23/02*
U.S. Cl. 272—93 **6 Claims**

1. A portable exercise device comprising:
support means having a first end and a second end;
mounting means operatively connected to the first end of the

VOL 1132 ISS 3 NO 19 1991 UMI

support means for mounting the first end of the support means to a fixed object;

a bar having two ends; and



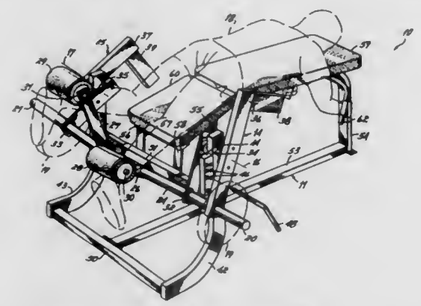
coupling means for releasably securing the second end of the support means to the bar between the ends of the bar.

5,066,003

LEG CURL EXERCISE MACHINE

Gary A. Jones, Falmouth, Ky., assignor to Hammer Corporation, Cincinnati, Ohio

Filed Sep. 12, 1990, Ser. No. 581,585
Int. Cl.[5] A63B *21/00*
U.S. Cl. 272—134 27 Claims



1. A leg curl exercise machine comprising:

a frame;

a platform secured to the frame along a vertical midplane;

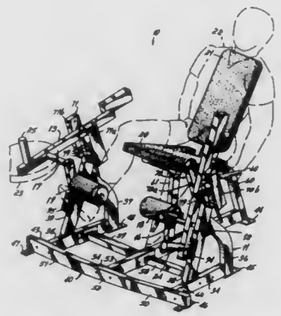
a lever pivotally connected to the frame in front of the platform, the lever adapted to hold at least one removable weight at a forward, lower end thereof and adapted to be pivoted upwardly by the back of the leg of an exerciser supported on the platform during the performance of a leg curl, the lever being pivotal in a plane that is non-parallel with respect to the central vertical plane.

5,066,004

LEG EXTENSION EXERCISE MACHINE

Gary A. Jones, Falmouth, Ky., assignor to Hammer Corporation, Cincinnati, Ohio

Filed Aug. 27, 1990, Ser. No. 573,553
Int. Cl.[5] A63B *21/00*
U.S. Cl. 272—134 19 Claims



1. A leg extension exercise machine comprising:

a frame;

a seat supported by the frame in alignment with a vertical midplane through the frame;

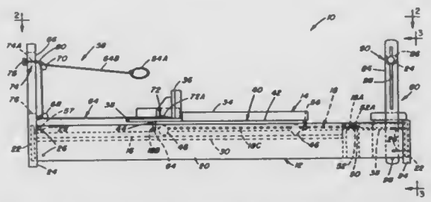
a lever pivotally connected to the frame, a forward end of the lever adapted to hold a removable weight and adapted to be pivotally raised upwardly by the leg of a person supported on the seat, the level being pivotal through a vertical plane of movement which diverges outwardly from the vertical midplane with respect to a forward facing direction of the seat.

5,066,005

ENHANCED CORE MOVEMENT TRAINING BENCH

Thomas W. Luecke, 3785 Moorhead Ave., Boulder, Colo. 80303

Filed Oct. 1, 1990, Ser. No. 591,453
Int. Cl.[5] A63B *21/04*
U.S. Cl. 272—136 19 Claims



1. In a core movement training bench including a peripheral frame with opposite ends, a mobile carriage, a pair of tracks mounted on said frame and supporting said carriage for fore-and-aft reciprocal movement between said opposite ends of said frame, and a plurality of elastic resistance elements interconnecting said carriage and one of said ends of said frame, an adjustable arm cord mounting assembly comprising:

(a) a pair of elongated flexible arm cords each having opposite ends;

(b) a pair of anchoring devices disposed on said carriage each for anchoring one of said respective arm cords to said carriage:

(c) a pair of extensions mounted at the other of said ends of said frame, extending generally upwardly from said frame to a desired height above said frame and carriage, and being aligned with opposite sides of said carriage;

(d) a pair of lower guides mounted on either of said other end of said frame or said respective extensions;

(e) a pair of upper guides mounted on said respective extensions in generally vertical spaced relation above said lower guides; and

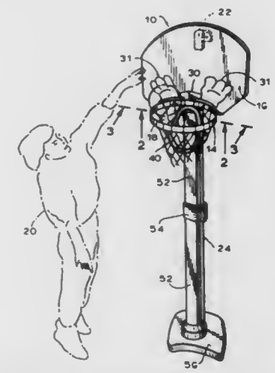
(f) means for adjustably mounting said upper guide to said respective one extension for vertical movement toward and away from said lower guide to vary the height of said upper guide above said frame and carriage, each said arm cord extending generally horizontally from said anchoring device on said carriage to and around one said lower guide, generally vertically from said one lower guide to and around said corresponding one upper guide, and generally horizontally from said one upper guide toward said carriage to one of said ends of said arm cord for gripping by a user on said carriage.

5,066,006

BASKET FOR BASKETBALL-TYPE GAME

John J. Driska, Princeton Junction, N.J., assignor to Azrak-Hamway International Inc., New York, N.Y.

Filed Feb. 7, 1991, Ser. No. 651,737
Int. Cl.[5] A63B *63/08*
U.S. Cl. 273—1.5 R 13 Claims



13. A basket for a basketball-like game wherein the player attempts to shoot a projectile downwardly through the opening of a basket, either directly or upon rebound from a backboard, comprising:

(A) a backboard;

(B) a basket defining a generally vertical opening therethrough projecting forwardly of said backboard, said backboard and basket being of reduced scale relative to a regulation-sized basketball backboard and basket;

(C) a slam dunk member having the appearance of at least one hand, said member being pivotally mounted on said basket for movement between a slam dunk orientation, wherein said member at least partially covers said basket opening, and an at rest orientation, wherein said member is spaced from said basket opening to enable passage of the projectile through said basket, said member in said at rest orientation having the appearance of at least one raised hand and in said slam dunk orientation having the appearance of at least one hand which is horizontal or lowered;

(D) moving means having one end portion operatively disposed at least partially in said basket opening and another end portion operatively secured to said member, said moving means being responsive to the passage of the projectile downwardly through said basket for moving said member from said at rest orientation to said slam dunk orientation; and

(E) means biasing said member towards said at rest orientation;

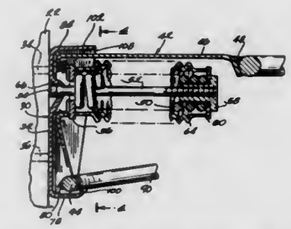
whereby passage of a projectile downwardly through said basket opening is immediately followed by movement of said member from its at rest orientation to its slam dunk orientation so as to simulate the appearance of the projectile being slam dunked through said basket opening by said member.

5,066,007

DIFFERENTIAL BREAKAWAY BASKETBALL GOAL

Michael A. Niver, Waukesha, Wis., assignor to Huffy Corporation, Waukesha, Wis.

Filed Sep. 11, 1989, Ser. No. 405,517
Int. Cl.[5] A63B *63/08*
U.S. Cl. 273—1.5 R 5 Claims



1. A breakaway basketball goal assembly for mounting to a backboard comprising a basketball goal rim, a first mounting plate comprising a generally vertical plate for stationary mounting to the front of said backboard, a second mounting plate including a generally inverted L-shaped member having a vertical leg extending along the front of said first mounting plate and having a generally horizontal leg extending forwardly from said vertical leg and rigidly connected to said rim, biasing means biasing said first and second mounting plates towards each other such that said rim is biased to a normally horizontal position, said first mounting plate having a lower guide tray portion extending forwardly, said vertical leg of said second mounting plate having a lower pivot received in said lower guide tray portion and translatable forwardly and rearwardly therealong to provide a translational pivot, said rim having a forwardly pivoted position responsive to a downward force to said rim, said lower pivot of said second mounting plate being translatable rearwardly along said lower guide tray portion of said first mounting plate, said rim having an upwardly pivoted position responsive to an upward force on said rim, with said lower pivot portion of said second mounting plate being translated forwardly along said lower guide tray portion of said first mounting plate, wherein said rim has a pair of support bars extending downwardly and rearwardly from opposite undersides of said rim and joined at a central support bar rigidly connected to said vertical leg of said second mounting plate, and wherein said lower guide tray portion of said first mounting plate has a central upwardly turned flange of the outer end thereof, and wherein said vertical leg of said second mounting plate has a pair of lower feet spaced along said central support bar on opposite right and left sides of said central upwardly turned flange of said lower guide tray portion of said first mounting plate, said feet translating forwardly and rearwardly through said guide tray portion of said first mounting plate during said pivoting of said rim.

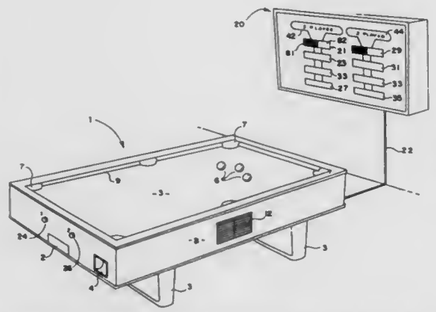
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,008

ELECTRONIC VOICE AND CONTROL SYSTEM FOR BILLIARDS

Roberto S. Rivera, Urb. La Margarita Calle B-H-15, Salinas, P.R. 00751

Filed Apr. 5, 1990, Ser. No. 504,834
Int. Cl.[5] A63D *15/00, 15/20*
U.S. Cl. 273—2 7 Claims



1. In a billiard table having a playing surface, a plurality of pockets adjacent said playing surface, conveyance system means for conveying object balls from said pockets to a storage area, and further conveyance system means for conveying a cue ball from said pockets to a cue ball storage area, the improvement comprising a control and scoring system comprising:

(a) a single display including all player indicators for indicating which player is playing, scoring indicator means for all players for displaying a score and "scratch" indicator means for indicating (1) when a "scratch" has occurred and (2) which player has "scratched";

(b) switch means in each pocket closeable when a ball has entered a pocket, each object ball being coated with a magnetic material in a manner such that each object ball has a unique level of magnetic intensity different from a level of magnetic intensity of any other object ball;

(c) switch means in said further conveyance system means closeable when a cue ball is being conveyed thereby;

(d) player switches on said table manually closeable by a player before commencing a turn; and

(e) control means for controlling said system and including:

(i) first means for receiving signals indicating closure of a player switch and sending signals to activate an appropriate player indicator on said display;

(ii) second means for receiving signals indicating closure of said pocket switch means and sending signals to advance an appropriate said scoring indicator means on said display;

(iii) third means for receiving signals indicating closure of said further conveyance system switch means and sending signals to activate an appropriate said "scratch" indicator means on said display;

(f) voice synthesis means activatable by said control means responsive to receipt of preselected signals by said control means for broadcasting audible voice signals; and

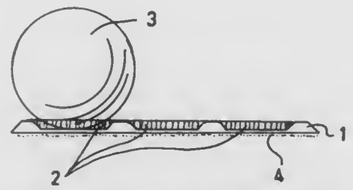
(g) magnetic sensing means for sensing the magnetic intensity of each ball which has entered a pocket and identifying each such ball by its said unique level of magnetic intensity and, responsive to such sensing and identifying, causing activation of an indicator on said display.

5,066,009

CUE BALL SCRATCH INDICATOR

David L. Brady, 6141 E. 31st St., Tucson, Ariz. 85711

Filed Aug. 9, 1990, Ser. No. 565,027
Int. Cl.[5] A63B *71/00*
U.S. Cl. 273—14 1 Claim



1. A cue ball scratch indicator apparatus for use on a Pool table wherein said indicator is comprised of a substantially rectangular base member, said base member having a planer lower surface and an upper surface, said upper surface having three inditations therein for retaining a cue ball placed therein, means on said lower surface for attaching said indicator to the upper surface of a pool table, a first of said inditations being labeled "solids", a second of said inditations being labeled "stripes", and a third of said inditations being labeled "choice".

5,066,010

BALL DISPENSING MACHINE

Mark Pingston, 2425 Lone Tree Rd., Milford, Mich. 48380

Filed Nov. 21, 1990, Ser. No. 616,425
Int. Cl.[5] A63B *69/00*
U.S. Cl. 273—26 D 16 Claims

1. A ball dispensing machine for use with differently sized balls of a variety of sports, the ball dispensing machine comprising:

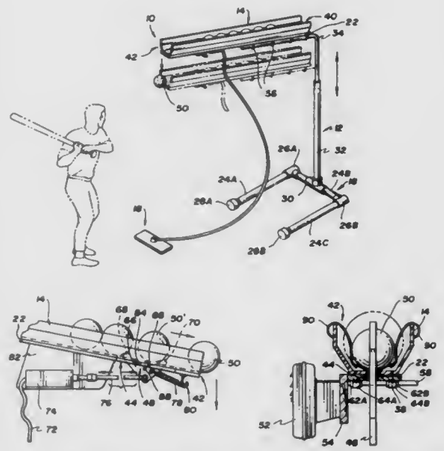
a stand having a base and a stanchion;

an inverted U-shaped, open top ball carrier mounted on said stanchion, removable guide bar means mounted on each leg of said U-shaped carrier to selectively accommodate differently sized balls, a load end and a discharge end;

said open top being continuous from said load end to said discharge end;

the carrier having means for feeding balls in said carrier toward the discharge end;

gate means for controlling said feeding of balls from said load end to said discharge end; and



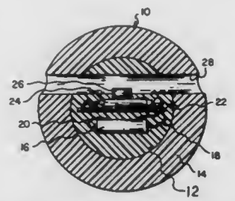
a control means for operating said gate means to feed said balls at a desired rate.

5,066,011

FLASHING LIGHT BALL

Douglas L. Dykstra, 2469 Rocklyn St., Camarillo, Calif. 93010, and Steven L. Herbruck, 355 Dalton, Ventura, Calif. 93003

Filed Apr. 5, 1991, Ser. No. 680,854
Int. Cl.[5] A63H *33/26;* G10H *1/00, 5/04;* A63B *43/06*
U.S. Cl. 273—58 G 11 Claims



1. A ball with a flashing light comprising:

a solid body constructed of a light transmitting material;

a light source embedded within said body, said light source comprising a flashtube;

an electronic circuit embedded within said body, said electronic circuit being connected to said flashtube; and

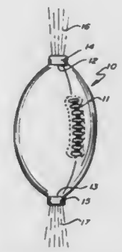
a battery embedded within said body, said battery being connected to said electronic circuit, said electronic circuit preventing activation of said flashtube with said body not incurring any physical jolting force, said electronic circuit causing momentary activation of said flashtube with energy being supplied from said battery when said body incurs a jolting force such as what occurs when said body is thrown against an exterior object.

5,066,012

POLAR LIGHTED BALL

Steven P. Stark, 18355 Yorkshire, Prior Lake, Minn. 55372

Filed Feb. 11, 1991, Ser. No. 653,696
Int. Cl.[5] A63B *43/06*
U.S. Cl. 273—65 EF 20 Claims



1. A recreational ball comprising:

(i) a resiliently compressible ball body having an axis about which said ball body is substantially symmetrical and having opposing polar regions at opposite ends of said axis,

(ii) a light passage means extending axially through each said polar region, and

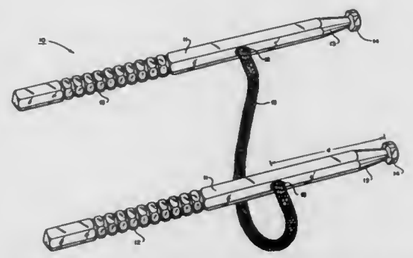
(iii) a lighting assembly recessed axially inward of each said polar region for projecting a light beam axially outward through said light passage means thereof so that a receiving player is able to judge the motion of the ball by observing the light beams emitted from the polar regions.

5,066,013

KUBOTAI RESTRAINT DEVICE HAVING TWO BATONS BOUND TOGETHER BY A CORD AT POINTS SPACED FROM THE ENDS OF THE BATONS

Takayuki Kubota, 1436 Ardmore Ave., Glendale, Calif. 91202

Filed Jun. 12, 1990, Ser. No. 536,969
Int. Cl.[5] F41B *15/02*
U.S. Cl. 273—84 R 5 Claims



1. A device for restraining a person by applying it to the wrist or other part on a limb comprising a woven nylon cord and two batons, each baton having a handle at one end, said batons being connected by said woven nylon cord protruding from each baton at a point four inches from the end opposite said handle thereof, leaving only a majority of said baton length from the end of said handle to said cord for leverage in applying tension to said cord, said cord being of a length between batons approximately equal to the circumference of the

VOL 1132 ISS 3 NO 19 1991 UMI

wrist of an average male adult, and the end of each baton opposite the handle thereof being shaped to have a monolithic flange section that is frustum of a cone with a base thereof contiguous with said handle.

5,066,014

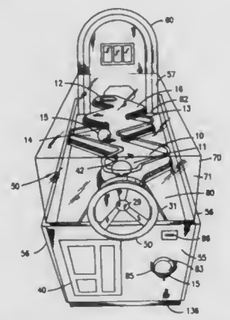
SIDEWINDER AMUSEMENT GAME

Michael J. Dobson, Mississauga, Canada, assignor to Bob's Space Racers, Inc., Daytona Beach, Fla.

Continuation-in-part of Ser. No. 617,626, Nov. 26, 1990. This application May 9, 1991, Ser. No. 697,886

Int. Cl.[5] A63F *7/02, 07/28, 07/38*

U.S. Cl. 273—110 **20 Claims**



1. A tiltable table apparatus for a ball rolling game comprising

a bottom panel joining a pair of side panels, a front panel and a back panel,

a table supporting means attached at a bottom end to the bottom panel and at a top end pivotally to a planar tiltable table,

the tiltable table having an elongated zig-zag pattern containing a single track for a ball, an upper portion of the track having side support means for preventing the ball from leaving the track, and a lower portion of the track being devoid of side support means so that the ball can fall from the track to the bottom panel if the table is improperly controlled by a game player,

an object target located in the lower portion of the track,

the table being partially rotated about a central longitudinal axis by manipulation of a control means by a game player, the table having a downward slope from its upper portion to its lower portion, and

the control means attached to a connecting means engaged to the table.

5,066,015

BOARD GAME APPARATUS AND METHOD OF PLAYING

Terry Sumrall, 5953 Hopper St., Houston, Tex. 77016

Filed Sep. 24, 1990, Ser. No. 587,269

Int. Cl.[5] A63F *3/00*

U.S. Cl. 273—243 **2 Claims**

1. A board game based on a railroading theme wherein the object is to be the first player to assemble the necessary components of a complete railroad train, the game comprising:

a gameboard having a rectangular playing surface with an array of trackage arranged about its periphery representing a railroad marshalling yard and defining a path of adjacent spaces including a signal block space, a communication space, and a switch space,

a plurality of spaced-apart and color-coded starting locations and storage locations along said trackage for related playing pieces,

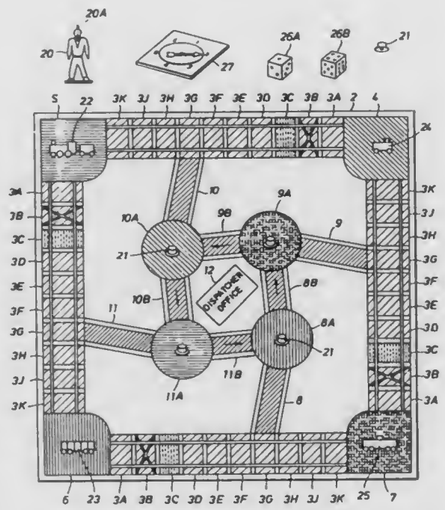
a plurality of spaced-apart depot storage locations disposed inwardly from said peripheral trackage and each interconnected by additional sections of trackage and each interconnected to a switch space of said periperpheral trackage,

a plurality of movable employee playing pieces each formed to resemble a railroad employee having the initial status of fireman and each distinctly color-coded to relate to a preselected one of the players of said game and capable of moving on said peripheral and additional sections of trackage,

a first plurality of train playing pieces each representative of a locomotive which are initially positioned at one of said storage locations and each color-coded to relate to a preselected one of said players,

a second plurality of train playing pieces each representative of a caboose which are initially positioned at one of said storage locations and each color-coded to relate to a preselected one of said players,

a third plurality of train playing pieces each representative of different types of railroad rolling stock with each type initially positioned at one of said storage locations respectively and each one of each type color-coded to relate to a preselected one of said players,



a plurality of headdress playing pieces each formed to resemble an article of headdress representative of the status of railroad engineer each initially position at one of said depot storage locations and each color-coded to relate to a preselected one of said players,

said headdress playing pieces configured to be releasably received on said employee playing pieces to represent the elevation in employee status from a "fireman" which cannot collect said train playing pieces to an "engineer" which can collect said train playing pieces,

chance means for randomly establishing the extent of movement of said employee playing pieces along said trackage, and

a set of message cards corresponding to said communication spaces on said peripheral trackage which represent various massages sent from a yard dispatcher to a player and instructing the player to move their employee playing piece ahead or back a number of spaces or to advance it to a storage location.

5,066,016

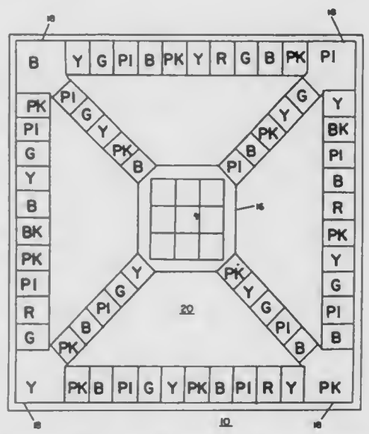
METHOD OF PLAYING A BOX-OFFICE MOVIE GAME

Mark D. O'Neill, 11 Monmouth Rd., Oceanport, N.J. 07757

Continuation of Ser. No. 462,146, Jan. 8, 1990, abandoned. This application Dec. 6, 1990, Ser. No. 622,974

Int. Cl.[5] A63F *3/00*

U.S. Cl. 273—249 **6 Claims**



1. A method of playing a box-office movie identification game comprising the steps of:

providing a playing board;

providing a plurality of playing pieces;

providing means directing movement of said pieces to predetermined positions around said board in accordance with player actuations thereof;

providing a set of quotation cards for player identification of specific, box-office movie films;

providing a set of acting cards for player impersonation of performers in specific, box-office movie film roles;

providing on said board a first plurality of spaces that call for the reading to a player of a quotation from a specific theater-released feature film, and a second plurality of spaces that call for the impersonation by the player of a performer in a specific theater-released feature film role;

wherein each quotation card contains a quotation spoken in a theater-released feature film of a category of "Comedy", "Action & Adventure", "Drama & Musicals", "Mystery & Horror", and "Science Fiction & Fantasy", which are to be read to the player for the player to identify the film from which the quotations comes; and

wherein each acting card contains the names of several actors and actresses and several of the theater-released feature films in which they each have performed players in turn moving their playing pieces along the board according to said movement directing means;

a player drawing an acting card when his playing piece lands on one of said second plurality of spaces;

said player selecting one of the named actors and actresses on said acting card and selecting one of the listed films on said acting card which the selected actor or actress performed in;

said player determining which actor or actress and which film to select by determining which actor or actress and the film the player is most familiar with and most skilled at impersonating;

said player performing an impersonation of the selected actor's or actresse's role in the selected film for the other players to identify.

5,066,017

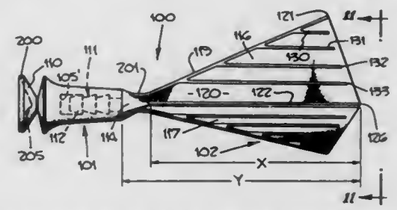
SUCTION CUP PROJECTILE FOR USE IN PADDLE GAME

Jeffrey Kurland, Topsail, #1, Marina del Rey, Calif. 90291

Continuation-in-part of Ser. No. 483,863, Feb. 23, 1990, abandoned, Continuation-in-part of Ser. No. 370,446, Jun. 23, 1989, abandoned. This application Nov. 14, 1990, Ser. No. 614,840

Int. Cl.[5] A63B *65/02*

U.S. Cl. 273—344 **14 Claims**



1. A projectile for use in a recreational game having a wing portion and a suction cup portion, said suction cup portion having a generally cylindrically main body portion with a suction cup at one end and said wing portion extending from the other end, said wing portion having a plurality of spaced wings providing airfoils, each of said wings radially extending from and integral with an elongated main rib portion coincident with the central axis of said cylindrical portion and extending therefrom, each of said wings having a generally flat planar body portion with an outer rib extending from said cylindrical portion to the terminal end of its respective wing and at an angle to said main rib portion, and a plurality of spaced ribs extending generally parallel to said main rib portion along each of said wings.

5,066,018

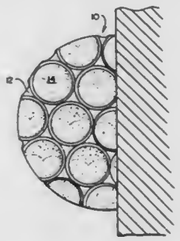
DEFORMABLE SPHERE WITH A SUCTION CUP EXTERIOR

Dean S. Hinton, 10400 Masters Terrace, Potomac, Md. 20854

Filed Oct. 16, 1990, Ser. No. 597,038

Int. Cl.[5] A63B *43/00, 65/00*

U.S. Cl. 273—344 **8 Claims**



1. A deformable sphere with a suction cup exterior comprising:

a) a deformable envelope, configured as a sphere;

b) a plurality of flexible suction cups supported upon the exterior of said sphere such that said suction cups extend radially outwardly thereof, with the edges of said suction cups positioned as closely as possible upon the sphere exterior, and

c) particulate aggregate loosely supported within said sphere, such that a substantially planar surface is assumed by the exterior of said sphere as said suction cups engage a supporting surface.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,019

THERMALLY-EMISSIVE, WEAPONRY TARGET, TRAINING AID OR ARC DESIGNATOR STRUCTURE

William R. Dean, Chandlers Ford, and John H. Waters, Farnham, both of England, assignors to Hitchcox Targets Limited, Hampshire, England

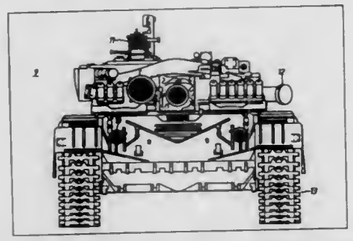
PCT No. PCT/GB89/00030, § 371 Date Jul. 30, 1990, § 102(e) Date Jul. 30, 1990, PCT Pub. No. WO89/07232, PCT Pub. Date Aug. 10, 1989

PCT Filed Feb. 1, 1989, Ser. No. 543,811

Claims priority, application United Kingdom, Feb. 1, 1988, 8802140

Int. Cl.[5] F41J *5/08*

U.S. Cl. 273—348.1 23 Claims



1. A thermally-emissive structure comprising a surface, the surface being, in a region or regions intended to define an area to be detected by a thermal imager, darkened relatively to other regions thereof by high heat emissivity material; heating means for heating said high heat emissivity material above ambient temperature by a heating element in the form of a plastic film having an electrically-conductive metallic coating of substantially uniform electrical resistance; a flexible carrier member and a rigid backing member, said plastic film with its coating being joined to said flexible carrier member which is itself joined to said rigid backing member, said structure providing a relatively high thermal mass wherein said area is formed by an image defined by darkened regions over said area to achieve the desired thermal image when an electrical current is passed through said coating.

5,066,020

DART CARD GAME BOARD

Albert D. Trudeau, 31514 Hipshot Dr., Castaic, Calif. 91384

Filed Oct. 15, 1990, Ser. No. 597,552

Int. Cl.[5] F41J *3/00;* A63B *65/02*

U.S. Cl. 273—408 1 Claim

1. A method of playing a dart card game comprising the steps of,

providing a playing board, with the playing board demarcated by a first, second, third, and fourth coloration which defines a club suit, the second coloration defines a heart suit, the third coloration defines a diamond suit, and the fourth coloration defines a spade suit, and

providing a first, second, third, and fourth set of darts, wherein each set of darts is defined by five individual darts, wherein the first set of darts defines the club designation, the second set of darts defines the heart designation, the third set of darts defines the diamond designation, and the fourth set of darts defines the spade designation, and

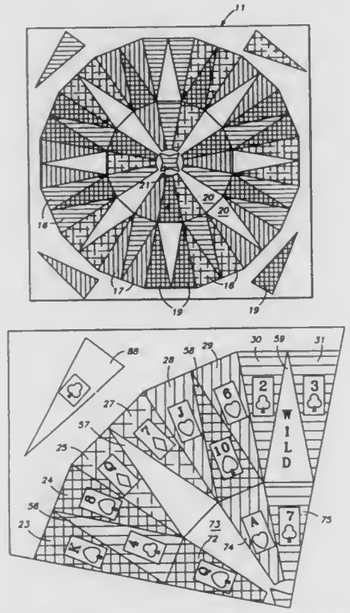
the playing board including an outer circular target array, including spaced adjacent triangular targets of contrasting colors and suit designations, and

an inner circular array of triangular target zones defining contrasting colorations and suit designations, and

a central bull's-eye target, wherein the outer and inner circular array of triangular targets define fifty-two playing cards of a bridge-type playing deck, and

including equally spaced blank triangular target zones, and defining equally spaced "wild" target zones, and

providing each player five darts from the first, second, third, and fourth set of darts and directing each player to impact a triangular target zone corresponding to a suit designation of each respective dart, wherein each suit deck designation includes the club, heart, diamond, and spade designation to assemble poker arrays of card designations by



impacting a triangular target zone to correspond to the desired poker type array, and

randomly providing each player of a plurality of players with said five darts of the sets of darts, and

directing each player to direct said five darts at the playing board to obtain a poker hand, and

awarding a winning player with a poker hand of greatest value in a hierarchy of poker.

5,066,021

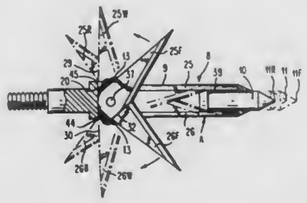
ARROW SYSTEM

Paul V. DeLucia, Rt. 82 R.D. 6 Box 12, Hopewell Junction, N.Y. 12533

Division of Ser. No. 205,077, Jun. 10, 1988. This application Feb. 8, 1990, Ser. No. 477,335

Int. Cl.[5] F42B *6/08*

U.S. Cl. 273—421 19 Claims



1. A hunting arrowhead adapted to be attached to the end of an arrow shaft comprising:

(a) a hollow elongated body having an outer wall with a first axial slit;

(b) a slide pin slidably received in said hollow elongated body having a second axial slit aligned with said first axial slit in said hollow elongated body; and

(c) at least one blade rotatively affixed within said outer wall of said hollow elongated body to said slide pin and adapted to rotate outwardly through said first and second axial slits when said slide pin moves within said hollow elongated body.

5,066,022

SWIM GOGGLE SEALANT

Richard H. Harrington, 631 Third St., Ann Arbor, Mich. 48103

Filed Feb. 23, 1990, Ser. No. 485,110

Int. Cl.[5] F16J *15/10*

U.S. Cl. 277—1 7 Claims

1. As a new use a viscous silicone base non-toxic, non-melting, non-irritating highly water resistant non-smearable, non-creep sealant applied to the skin seal of swimmer eye wear.

5,066,023

IONIZATION SENSOR

Thomas T. Ma, South Woodham Ferrers, England, assignor to Ford Motor Company, Dearborn, Mich.

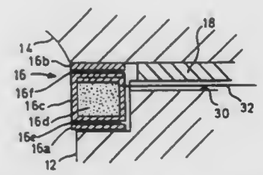
PCT No. PCT/GB88/00865, § 371 Date Apr. 12, 1990, § 102(e) Date Apr. 12, 1990, PCT Pub. No. WO89/03520, PCT Pub. Date Apr. 20, 1989

PCT Filed Oct. 14, 1988, Ser. No. 473,969

Claims priority, application United Kingdom, Oct. 16, 1987, 8724351

Int. Cl.[5] G01L *22/23;* F02F *11/00;* F16J *15/06*

U.S. Cl. 277—2 3 Claims



1. A gasket for sealing between an engine block and a cylinder head, characterised by an electrically conductive surface portion (16c) which, in use, is electrically insulated from the cylinder head (14) and from the engine block (12) so that it may serve as an electrode of an ionisation sensor, said gasket (16) formed as a ring of five layer sandwich construction, comprising two outer layers (16a, 16b) of soft metal capable of deformation under pressure to effect a gas tight seal with the block and the cylinder head, a central core (16c) of electrically conductive material to serve as an ionisation electrode and two layers of ceramic material (16e, 16f) insulating the central core from the outer two layers.

5,066,024

BRUSH-TYPE SEAL

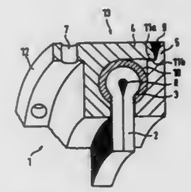
Lothar Reisinger, Dachau; Dieter Hagg, Karlsfeld; Werner Wenzl, and Klaus Walther, both of Munich, all of Fed. Rep. of Germany, assignors to MTU Motoren- Und Turbinen-Union Munchen GmbH, Fed. Rep. of Germany

Continuation of Ser. No. 302,990, Jan. 30, 1989, abandoned. This application Sep. 10, 1990, Ser. No. 581,150

Claims priority, application Fed. Rep. of Germany, Jan. 29, 1988, 3802653

Int. Cl.[5] F16J *15/447*

U.S. Cl. 277—53 10 Claims



1. A brush-type seal comprising:

a wire bundle, which has a mid-portion bent around a core ring in a U-shape;

a ring-shaped tube having a continuous slot on a radially inwardly facing surface to surround the bent around mid portion of the wire bundle;

wherein the tube is tensioned on opposite axial sides by two support rings joined together to form a housing, said two support rings being joined by a process that applies a required clamping force to the wire bundle via the joined support rings and the tube; and

wherein the process that joins the support rings together is welding or soldering.

5,066,025

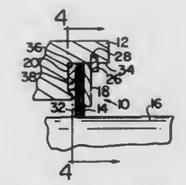
BRUSH SEAL ASSEMBLY

Paul R. Hanrahan, 85 Songbird La., Farmington, Conn. 06032

Filed Jan. 18, 1990, Ser. No. 539,241

Int. Cl.[5] F16J *15/48, 9/00*

U.S. Cl. 277—53 2 Claims



1. A brush seal assembly comprising:

a rotatable cylindrical inner member having a known direction of rotation and a cylindrical seal surface;

a brush seal having an annular short side plate, an annular long side plate and a plurality of bristles secured therebetween, said bristles extending inwardly and inclined to the radial direction;

a hollow cylindrical support structure concentrically surrounding said shaft;

said support structure having an inside circular surface of a diameter commensurate with the outside diameter of said brush seal, for receiving said brush seal;

an axially facing shoulder extending radially inwardly from said inside circular surface, and having a recessed surface therein from said inside circular surface a distance greater than the radial dimension of said short side, but less than the radial dimension of said long side;

VOL 1132 ISS 3 NO 19 1991 UMI

a retention ring;

a retention ring groove for receiving said retention ring in said inside circular surface a distance from said recessed surface greater than the thickness of said brush seal, and also located a distance from said shoulder less than the thickness of said brush seal; and

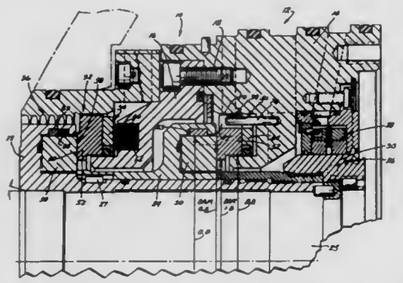
said bristles inclined in the direction of cylindrical inner member rotation when said brush seal is installed with said short side in said recess.

5,066,026

GAS FACE SEAL

John A. Heck, Timonium, and H. Randall Wilhelm, Baltimore, both of Md., assignors to Kaydon Corporation, Muskegon, Mich.

Filed Jun. 11, 1990, Ser. No. 535,906
Int. Cl.[5] F16J *15/34*
U.S. Cl. 277—96.1 20 Claims



1. A gas face seal for sealing the interface between a rotating shaft and a housing, said seal comprising:

an annular shoulder having a generally planar, radially extending face;

retainer means connected to the shoulder for retaining the shoulder on the shaft for rotation therewith;

an annular face seal ring having a radially extending generally planar seal face;

lock means engaging the face seal ring for locking the face seal ring to the housing while permitting axial motion towards and away from the face of the shoulder; and

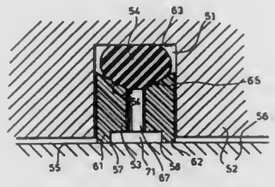
resilient means engaging said face seal ring for resiliently biasing said face seal ring towards said shoulder, one of said radially extending face and said seal face defining a set of a plurality of spaced, circumferentially extending inclined recesses, each of said recesses having a circumferentially inclined base angled axially inwardly in the direction of relative rotation of said one of said faces to form a smooth transition therewith, said recesses being shrouded and separated by unrelieved planar surfaces and wherein said inclined recesses each have an angle of inclination "a" greater than 0 and approximately 0.2° or less and a maximum depth within the range of 0.0002 inches to 0.0008 inches, and wherein each of said recesses has a circumferential length "X" and said recesses are separated by an unrelieved surface having a circumferential length "Y" and wherein the ratio $X/(X+Y)$ is within the range of 0.2 to 1.0 and wherein each of said recesses is shrouded radially inwardly, radially outwardly and circumferentially at one side of the recess.

5,066,027

SEALING RING APPARATUS

Roy Edlund, Stuttgart, Fed. Rep. of Germany, assignor to Busak + Luyken GmbH & Co., Stuttgart, Fed. Rep. of Germany

Continuation of Ser. No. 285,785, Dec. 16, 1988, abandoned.
This application Jul. 3, 1990, Ser. No. 547,374
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1987, 3743726
Int. Cl.[5] F16J *15/10, 15/32*
U.S. Cl. 277—165 3 Claims



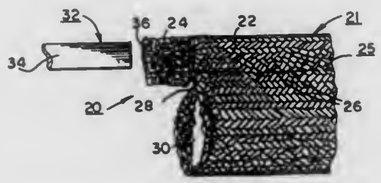
1. Structure for sealing a gap between two concentric machine parts which are arranged to move relative to each other, the first machine part being provided with a groove while the second machine part includes a plain contact surface arranged opposite said groove, a sealing ring made of a tough-elastic plastic material adapted to fit in the groove of the first machine part, with a first circumferential surface facing an annular bottom surface the groove and a second circumferential surface facing the contact surface of the second machine part, the second circumferential surface being provided with opposed ends and an annular recess therebetween defining spaced sealing edges bearing upon the contact surface of the second machine part, the surface facing the groove bottom surface being provided with its own annular groove, a stressing ring of a rubber-elastic material, arranged in the annular groove between the sealing ring and the groove bottom surface of the first machine part, the sealing ring groove being substantially trapezoidal in cross-section with inclined flanks so that due to an increase in pressure the stressing ring rides up one of the inclined flanks, moving upwardly to load the sealing ring in the radial direction sealing one of the spaced sealing edges, the sealing ring comprising further at least one radial bore interconnecting the recess between the sealing edges and the bottom of the annular groove, said sealing ring also being of symmetrical design, relative to its center axis in the radial direction.

5,066,028

GASKET ASSEMBLY

Thomas L. Weil, Elverson, Pa., assignor to Davlyn Manufacturing Co., Spring City, Pa.

Division of Ser. No. 358,722, May 30, 1989, Pat. No. 4,979,280.
This application Oct. 31, 1990, Ser. No. 606,237
Int. Cl.[5] F16J *15/00*
U.S. Cl. 277—181 12 Claims



1. A gasket assembly formed by the method comprising the steps of:

securing together in a flexible, elongated gasket subassembly, a first, elongated, braided flexible tube and an adjoining, second, elongated flexible member, the braid of the first tube permitting an elongation of the first tube under tension, the second member being formed of metal wire fabric, the adjoining first tube and second member being secured to one another along their lengths in a manner such that when the subassembly is tensioned sufficiently to elongate the second member as fully as the fabric of the metal wire permits, the first tube is only partially stretched to a maximum elongation permitted by the braid;

threading the elongated, flexible subassembly onto an elongated, substantially rigid frame member;

tensioning at least the second member on the frame member; and

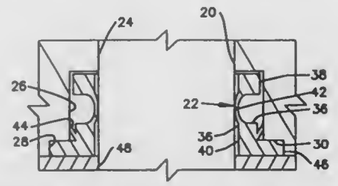
securing portions of the tensioned second member to the frame member, thereby fixing the subassembly under tension to the frame member.

5,066,029

ANNULAR SEALING APPARATUS

David Gill, Otley, England, assignor to Cooper Industries, Inc., Houston, Tex.

Filed Oct. 26, 1990, Ser. No. 604,608
Int. Cl.[5] F16J *15/48, 15/56;* E21B *33/126*
U.S. Cl. 277—236 10 Claims



1. An annular sealing apparatus for sealing across an annulus between a first member and a second member with one of said members having a cylindrical sealing surface comprising

an annular metal seal body having a pair of spaced apart annular flanges and an annular arch extending between said flanges and toward said cylindrical sealing surface of said one of said members,

said arch being relatively thick adjacent said flanges and including a thin portion that is progressively thinner toward its apex so that an area of sealing contact with said cylindrical surface of said one of said members is in the thin portion of the arch, and

said arch having a shape which has a relatively small radial height toward the sealing surface with respect to its axial length,

said annular metal seal body having sealing engagement means for sealing engagement with a portion of the other of said members.

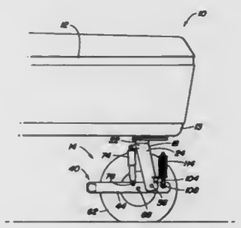
5,066,030

CUSHIONED WHEEL ASSEMBLY FOR A SPRAYER

William A. Brett, and Richard D. Zaun, both of Des Moines, Iowa, assignors to Deere & Company, Moline, Ill.

Filed Oct. 30, 1990, Ser. No. 607,013
Int. Cl.[5] B60G *7/00*
U.S. Cl. 280—92 10 Claims

1. In a high crop spray vehicle having a vehicle frame adapted for forward movement over a field, an upright steering yoke supported from the vehicle frame and extending downwardly therefrom, a U-shaped and generally horizontal pivoting frame having side legs and a connecting portion extending between the side legs, means for rockably connecting the pivoting side legs to the lower end of the steering yoke for rocking of the pivoting frame about a first axis, a ground wheel carried between the side legs of the U-shaped frame for rotation about a rotational axis offset in a first fore-and-aft direction from the first axis, first and second shock absorbers extending downwardly from the upper end of the steering yoke to pivotal connections with each of the side legs at locations offset in the fore-and-aft direction from the rotational axis, first and second spring abutment brackets fixed to the lower end of the steering yoke on opposite sides of the wheel, first and second tension



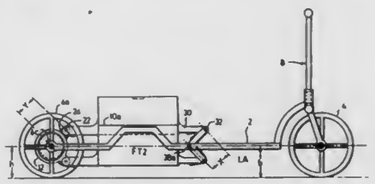
links connected to the side legs on the fore-and-aft side of the first axis opposite that of the rotational axis, the tension links extending upwardly through the spring abutment bracket on the corresponding side of the yoke, and a spring compressed between the upper end of each of the links and the corresponding spring abutment bracket to thereby provide shock-absorbed cushioning for the wheel.

5,066,031

SELF-PROPELLED VEHICLE

Isaac Rinkewich, 48-22 Garden View Ter., Hightstown, N.J. 08520

Filed May 25, 1990, Ser. No. 528,398
Int. Cl.[5] B62M *1/04*
U.S. Cl. 280—221 8 Claims



1. A self-propelled vehicle, comprising:

a frame having a wheel at one end, and a pair of wheels at the opposite end connected for rotation together by a common axle;

a pair of foot treadles mounted in side-by-side relation; and

an overrunning clutch for each of said foot treadles, each overrunning clutch having a driving member coupled to said foot treadle, and a driven member coupled to said common axle of said pair of wheels for driving the vehicle;

each of said treadles being mounted to the frame by a four-link parallelogram having first and second arms at the opposite ends of the respective foot treadle for retaining the respective foot treadle substantially parallel to the longitudinal axis of the vehicle frame as the foot treadle is driven downwardly by the operator's foot to propel the vehicle.

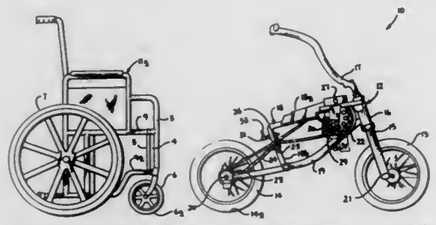
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,032

WHEEL CHAIR CYCLE APPARATUS

Charles R. Van Vooren, 2409 Adrian St., and Leslie W. Austin, 540 Strathaven Ct., both of Turlock, Calif. 95380

Filed Sep. 7, 1990, Ser. No. 578,685
Int. Cl.[5] B62M *1/02*
U.S. Cl. 280—304.1 5 Claims



1. A wheel chair cycle apparatus comprising, in combination,

a wheel chair assembly, wherein the wheel chair assembly includes a framework, including a plurality of spaced vertical frame rails, with each frame rail including an upper and lower horizontal frame rail, and

the spaced vertical frame rails including a cross brace positioned rearwardly of the spaced vertical frame rails between the upper and lower horizontal frame rails, and the cross brace includes a yoke, with the yoke positioned rearwardly of the spaced vertical frame rails within the framework of the wheel chair assembly, and

further including a bicycle member, wherein the bicycle member includes a forward bicycle wheel and a rear bicycle wheel, and

a bicycle framework, wherein the bicycle framework includes a lower arcuate frame bar and an "L" shaped upper frame bar, with the upper frame bar including a horizontal bar member, and a vertical bar member, with the vertical bar member intersecting the lower arcuate frame bar, and

mounting means integrally secured to the vertical bar member of the bicycle for securement to the yoke of the wheelchair in order to fasten the bicycle member to the wheel chair assembly, and

the bicycle framework including a frame neck tube, with the frame neck tube integrally secured to a forward terminal end of the horizontal bar and a forward terminal end of the lower arcuate frame bar, and

a forward bicycle wheel including a forward axle, with the forward axle mounted to a forward wheel support tube, and the forward wheel support tube rotatably mounted within the frame neck tube, and a handle bar member mounted to the forward wheel support tube within the frame neck tube, and

a rear bicycle wheel including a rear axle mounted to the lower arcuate frame bar at rear terminal end of the lower arcuate frame bar, and

motive means rotatably mounted to the horizontal bar to effect rotation of the rear bicycle wheel.

5,066,033

METHOD AND APPARATUS FOR LAUNCHING A SMALL BOAT USING ROPE RETENTION GUIDE

Lawrence E. Kolstad, Hopkins, and Robert R. V. Fumanti, Hibbing, both of Minn., assignors to L. & B. Diversified Products, Hopkins, Minn.

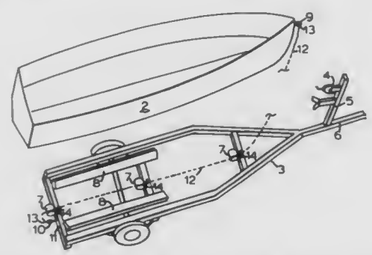
Filed May 29, 1990, Ser. No. 529,387
Int. Cl.[5] B60P *3/071. 3/10*
U.S. Cl. 280—414.1 6 Claims

1. A method for launching a boat from a trailer having means for easing movement of the boat back and forth thereon including the following steps:

attaching one end of a launching rope of a predetermined length to an eye at the bow of the boat and a second end of the launching rope to an eye bolt at the rear of the trailer;

releasably securing the launching rope to guide means spaced along the length of the trailer at predetermined locations;

backing the trailer to a position for launching the boat and detaching any remaining connections between the boat and trailer except for the launching rope;



launching the boat from the trailer while the launching rope is sequentially released from the guide means spaced along the trailer;

maintaining the connection of the boat to the trailer with the launching rope while pulling the trailer forward until the boat reaches the beach; and

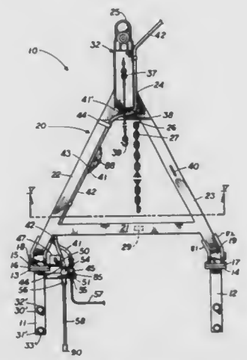
detaching the launching rope from the eye bolt and securing it relative to the beach thereby permitting removal of the trailer from the launching area.

5,066,034

CAR TOWING APPARATUS WITH SURGE BRAKE

Larrey Carr, Lodi, Calif., assignor to Gene Heiden, a part interest

Filed Mar. 19, 1990, Ser. No. 495,086
Int. Cl.[5] B60T *7/20*
U.S. Cl. 280—428 13 Claims



1. A car towing apparatus for connection to a towing vehicle for towing a driveable vehicle, having its own braking system which comprises a master brake cylinder fluidly coupled to spaced wheel cylinders, which apparatus permits said driveable vehicle's braking system to be actuated remotely during a tow and by the driver when the vehicle is being driven, said apparatus comprising:

a frame;

a pair of spaced elongated towed vehicle engaging supports on said frame adapted to be coupled to said towed driveable vehicle;

surge brake means on said frame adapted to emit a flow of hydraulic fluid upon sudden stop of said frame when said frame is being towed;

brake system actuating means on said driveable vehicle fluidly connected between both said surge brake means and the master cylinder of the driveable vehicle braking system for receiving fluid from both said surge brake means and from said master cylinder for distribution of said fluid to said wheel cylinders whereby,

when said driveable vehicle is being driven and the driver applies the brake pedal, fluid from said master cylinder flows to said actuating means where said fluid is distributed to said wheel cylinders to stop the vehicle, and,

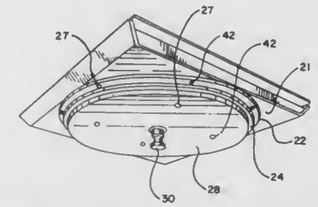
when said driveable vehicle is being towed and said frame is stopped suddenly, said surge brake means actuates to deliver fluid to said actuating means which in turn distributes said fluid to said wheel cylinders to stop the vehicle.

5,066,035

TRAILER BEARING PLATE FOR FIFTH WHEEL

Leonidas Athans, 463 Witshire Ln., and George C. Athans, 740 St. Andrews Ln., both of Crystal Lake, Ill. 60014

Filed Apr. 18, 1990, Ser. No. 511,391
Int. Cl.[5] B62D *53/06*
U.S. Cl. 280—441.1 6 Claims



1. An assembly for coupling a truck tractor to a semi-trailer, the assembly comprising:

an upwardly facing tractor bearing plate; and

a trailer bearing plate assembly adapted to securely attach to an underside of said trailer, said trailer bearing plate assembly including a downwardly facing disk for engagement with said upwardly facing tractor bearing plate and having a peripheral flanged edge, said trailer bearing plate assembly further including a ring secured to an underside of said trailer, said ring having an inwardly directed collar retainingly extending only about said disk peripheral flanged edge to permit said tractor bearing plate to rotate independent of said ring.

5,066,036

SKI BINDING

Timothy C. Broughton, 135 Crestview La., Park City, Utah 84060

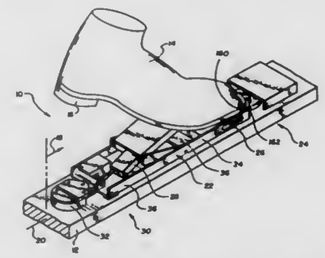
Filed Mar. 19, 1990, Ser. No. 496,436
Int. Cl.[5] A63C *9/86*
U.S. Cl. 280—615 23 Claims

23. A ski binding system for attaching a boot to an elongate ski, with longitudinal axis, comprising:

a base plate having forward and rear ends, said base plate releasably joined to the upper surface of a ski for safety release therefrom by excessive force between said boot and said ski while remaining attached to said boot;

pivotable attachment assembly means mounted to said base plate and pivotably attachable to said boot at one of a location at said ball of a skier's foot and rearward thereof, forward of the heel of said foot, to selectively secure and release said boot relative to said base plate, said attachment assembly means pivotable about a transverse axis and extendable for downwardly biased upward movement of said boot rearward of the boot toe end relative to said base plate;

bail means to restrict the transverse and upward movement of said toe end relative to said base plate; and



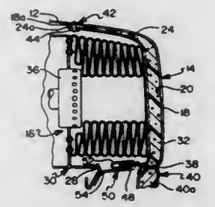
means for releasably joining said forward and rear ends of said base plate to said ski whereby said base plate forward end is released transversely from said ski and said base plate rear end is released upwardly from said ski.

5,066,037

INSTRUMENT PANEL WITH AIRBAG DEPLOYMENT DOOR

Steven Castrigno, Somersworth; Scott E. Rafferty; Lawrence R. Nichols, both of Dover, all of N.H., and Claude Bemis, York, Me., assignors to Davidson Textron Inc., Dover, N.H.

Filed Aug. 22, 1990, Ser. No. 570,787
Int. Cl.[5] B60R *21/16*
U.S. Cl. 280—732 8 Claims



1. A door assembly for concealing an opening (12*a*) to an airbag restraint system (16) including an airbag, a housing (30) for the airbag, a gas generator located in the housing for supplying gas to the airbag in response to vehicle impact, said door assembly comprising:

an outer member (18); a foam member (22) backing said outer member, and an inner member (24) backing said foam member formed from deformable metal and means (44) for joining said foam member and outer member for closing the opening prior to deployment of an airbag into a passenger compartment of a vehicle;

an interior trim member (10) surrounding the opening;

hinge means (42) integrally formed on said inner member and connected to said interior trim member;

releasable latch means (50) for receiving and connecting only said inner member to said housing for holding said inner member within said interior trim member to close said opening with said outer member and said foam member connected to said inner member and closing said opening;

said releasable latch means opening at substantially the same release force throughout the opening temperature range of the vehicle when said airbag inflates to cause said hinge means to deform so as to separate said inner member, said foam member and said outer member from said opening

VOL 1132 ISS 3 NO 19 1991 UMI

for deployment of the airbag therethrough and into a passenger compartment of a vehicle.

5,066,038

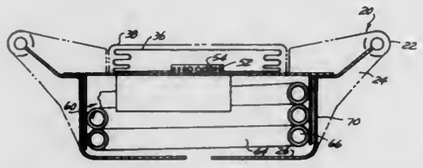
DRIVER SIDE HYBRID INFLATOR AND AIR BAG MODULE

Richard L. Frantom, Richmond; David A. Pickett, Roseville; William E. Rogerson, Rochester, all of Mich.; James Rose, Fairfax, and Robert Schubert, Sterling, both of Va., assignors to Bendix Atlantic Inflator Company, Troy, Mich.

Filed Jul. 31, 1990, Ser. No. 560,937

Int. Cl.[5] B60R *21/26*

U.S. Cl. 200—737 **11 Claims**



1. A device for inflating an air bad adapted to be mounted to a steering wheel comprising:

a pressure vessel formed of a length of narrow tubing for storing a quantity of inert gas under pressure and seal means for enclosing a first end of the tubing;

activation means responsive to a control signal indicative of a vehicular crash situation for causing the seal means to open to permit the pressurized gas to inflate an air bag and manifold means for communicating released gas to an air bag wherein the tubing is formed as a coil and wherein the coil and activation means are disposed within a central hub portion of the steering wheel.

5,066,039

AIR BAG DEVICE FOR PROTECTING A VEHICLE OCCUPANT

Kazuaki Shitanoki; Masaaki Kawaguchi, and Saburo Kobayashi, all of Wako, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 17, 1989, Ser. No. 339,047

Claims priority, application Japan, Apr. 20, 1988, 63-95706

Int. Cl.[5] B60R *21/26*

U.S. Cl. 280—741 **7 Claims**

1. An air bag device for protecting a vehicle occupant, comprising:

a gas generating agent for generating gas when burned;

an igniter for igniting said gas generating agent;

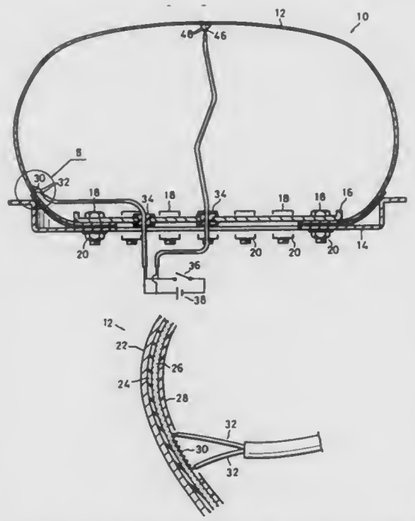
an inflatable bag to be inflated by the gas generated by said gas generating agent, said inflatable bag including a base cloth and a heat-resistive coating provided on an inner surface of said base cloth; and

a substantially imperforate protector cover provided inside of said inflatable bag;

said gas generating agent being provided in the form of a thin layer of a gelatinous material on an inner surface of said heat resistive coating;

said protector cover being disposed on an inner surface of said thin layer of said gas generating agent for isolating parts of said thin layer which face each other when said bag is folded up and for preventing said thin layer from coming off;

said igniter being provided in a part of said thin layer of said gas generating agent wherein said protective cover is



melted and/or torn down when gas is generated by said gas generating agent.

5,066,040

MOTOR VEHICLE ROLLOVER BAR DRIVING SYSTEM

Wolfgang Dangl, München; Gerald Schick, Unterschleissheim; Reinhard Nowack, and Gerhard Reuber, both of Drolshagen, all of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Fed. Rep. of Germany

Filed Aug. 2, 1990, Ser. No. 561,601

Claims priority, application Fed. Rep. of Germany, Aug. 2, 1989, 3925513

Int. Cl.[5] B60R *21/13*

U.S. Cl. 280—756 **26 Claims**

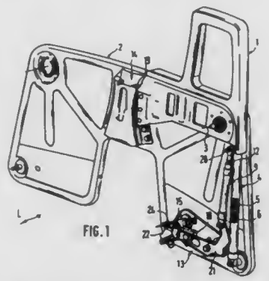


FIG.1

1. A driving system for each of at least one motor vehicle rollover bar, particularly for a convertible vehicle, which can be displaced from a lowered position to an upwardly directed supporting position and back to the lowered position, comprising a sensor-controlled first control device actuatable under the effect of a spring loading, a second control device which can be controlled in a moving direction, both control devices supporting against the vehicle body, a holding mechanism for the at least one rollover bar in the lowered position is provided at the vehicle body, and a locking device for the at least one rollover bar in the supporting position is also provided at the

vehicle body, wherein the at least one rollover bar is disposed on a base plate mounted transversely at the vehicle body.

5,066,041

CONTROL SYSTEM FOR STABILIZING THE ROLLING OF A VEHICLE

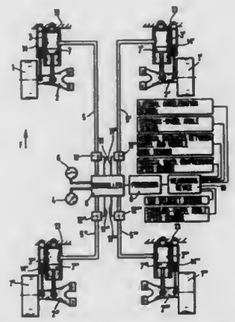
Siegfried Kindermann, Karlsfeld; Emil Györy, and Hans Heiland, both of München, all of Fed. Rep. of Germany, assignors to Baverische Motoren Werke AG, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 371,730, Jun. 27, 1989, abandoned. This application Jan. 18, 1991, Ser. No. 642,553

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1987, 3821610

Int. Cl.[5] B60G *17/015*

U.S. Cl. 280—772 **20 Claims**



1. A control system for stabilizing the rolling of the vehicle body, comprising: control elements operatively arranged between the wheels and the vehicle body to generate forces approximately in a vertical direction with respect to the vehicle body to cause a rolling moment at the vehicle body which counteracts rolling motions acting on the vehicle body on response to driving conditions; and means for selectively actuating the control system only when threshold values of the vehicle lateral acceleration and of the vehicle steering-wheel turning angle are exceeded such that a magnitude of the rolling moment generated by the control elements, as a function of a first set of parameters comprising the approximately vertical wheel distances to the vehicle body, is at first substantially formed at the rear axle and, after actuation and during a transition period whose time length is determined as a function of a second set of parameters independently of the first set of parameters, the rolling moment distribution between the front-wheel and the rear-wheel axle is changed to a given fixed rolling moment distribution between the front-wheel axle and the rear-wheel axle at the end of the transition period.

5,066,042

BELT LOCK FOR A SAFETY BELT SYSTEM PROVIDED WITH A TIGHTENING MEANS

Artur Föhl, Schorndorf, Fed. Rep. of Germany, assignor to TRW Repa GmbH, Alfdorf, Fed. Rep. of Germany

Filed Aug. 29, 1990, Ser. No. 574,749

Claims priority, application Fed. Rep. of Germany, Sep. 1, 1989, 3929114

Int. Cl.[5] B60R *22/46, 22/18, 22/16; A44B 11/18*

U.S. Cl. 280—806 **10 Claims**

1. In a vehicle having a bodywork and seats, a safety belt system comprising:

a belt fitting having an insert tongue,

a belt lock,

an anchoring means for attachment to one of the vehicle bodywork and vehicle seat, and

a tightening means operative between the belt lock and the anchoring means,

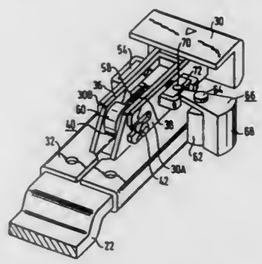
the belt lock comprising:

a housing provided with a guide path for the insert tongue,

a detent opening in the insert tongue,

a latch mounted in the housing and displaceably guided therein in a direction transverse to the guide path between a holding position in which the latch engages the detent opening of the insert tongue and a release position in which the latch is disengaged from said detent opening,

a blocking member mounted in the housing and displaceably guided in parallel to the guide path between a holding position in which the blocking member maintains said latch in its holding position and a release position in which the blocking member disengages said latch to allow the latter to move to its release position,



a manually operable release button mounted in the housing and likewise displaceably guided therein in parallel to the guide path, said release button being coupled to said blocking member to move the latter to its release position, whereby the latch is also moved to its release position out of engagement from the detent opening of the insert tongue,

a two-armed lever pivotally mounted on said housing about a pin perpendicular to said guide path, said lever having a first arm mounting a compensation mass and a second arm in force-transmitting engagement with one of the release button and the blocking member,

the improvement wherein the first arm of the two-armed lever has a bent portion formed by said compensation mass and extending perpendicularly to said guide path and laterally of said housing.

5,066,043

ADJUSTABLE SHOULDER ANCHORAGE

Osamu Tokugawa, Fujisawa, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 25, 1990, Ser. No. 557,002

Claims priority, application Japan, Jul. 25, 1989, 1-87209[U]

Int. Cl.[5] B60R *22/20, 22/24*

U.S. Cl. 280—808 **7 Claims**

1. An adjustable shoulder anchorage comprising:

a base defining a plurality of engagement portions distributed at predetermined intervals along the length of said base;

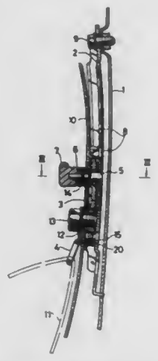
a slide anchor provided movably under guidance along said base and carrying a joint on which a webbing is supported;

a lock member provided on said slide anchor, said lock member being selectively engageable with said engagement portions;

a stopper provided on a side of one end of said base so that movement of said slide anchor can be limited; and

VOL 1132 ISS 3 NO 19 1991 UMI

impact absorber means interposed between said stopper and said slide anchor for reducing impact noise, wherein said



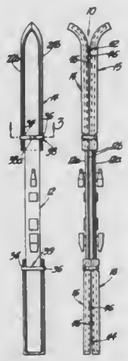
impact absorber means is flexed when said slide anchor is brought into abutment against said stopper.

5,066,044

SKI GUARDS

Kenneth P. Adasek, 11367 Nancy Dr., Warren, Mich. 48093

Filed Mar. 21, 1990, Ser. No. 496,945
Int. Cl.[5] A63C *11/02*
U.S. Cl. 280—815 12 Claims



1. A ski edge guard assembly for use with skis of different lengths, the skis having tips, tails, sides, tops with top corners and bottoms with bottom edges comprising:

a pair of rigid tail guard members having a closed end and an open end for removably receiving the tips of the pair of skis and said tip guard members including a base portion juxtaposed against the bottom of each ski of the pair of skis and including oppositely facing outboard surfaces when installed on the pair of skis;

a pair of rigid tip guard members having a closed end and an open end for removably receiving the tis of the pair of skis and each of said tip guard members including a base portion juxtaposed against the tip of each ski of the pair of skis and said base portions of said tip guard members having oppositely facing outboard surfaces when installed on the pair of skis;

first fasteners means secured on said oppositely facing outboard surfaces of said tail members and said tip guard members for joining said tail guard members and said tip guard members at an intermediate point thereon for providing spaced connection points between the pair of skis between the opposite ends thereon; said tail guard members and said tip guard members having sidewalls of a height which covers the sides of the skis and said sidewalls and said base portions of said joined tail guard members and said tip guard members forming an H-shaped cross-section therethrough; and

second fastener means secured on said tail guard members for holding said tail guard members together and for holding the ski tails in said tail guard members when assembled thereon and third fastener means secured on said tip guard members for holding said tip guard members together and for holding said tips in said tip guard members;

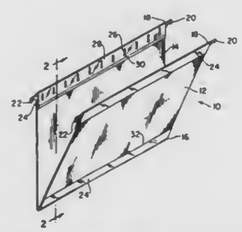
said second and third fastener means including means on the open end of said tail guard members and on the open end of said tip guard members for defining a lock groove and retention means located in said lock groove for joining said tail guard members and said tip guard members at the open ends thereof.

5,066,045

HANGING LAMINATED FOLDER

Robert E. Hawes, Jr., Huntington Bay; Cheryl Dellacroce, Baldwin; Eric Aaldenberg, Bayside, all of N.Y., and James J. Lynch, Berkley Heights, N.J., assignors to Esselte Pendaflex Corporation, Garden City, N.Y.

Filed Feb. 21, 1990, Ser. No. 483,094
Int. Cl.[5] A47B *63/00*
U.S. Cl. 281—45 10 Claims



1. A hanging folder comprising:

a sheet of flexible material folded at a medial line to form a bottom edge with a lower surface, and front and rear portions joined at the bottom edge, the edges of the front and rear portions remote from the bottom edge being folded over to form top terminal folded portions;

rods complementary to a standard filing frame being disposed through said top terminal folded portions; and

first reinforcing means in the form of a strip of plastic material disposed along a major portion of, and covering, said top terminal folded portions; and

second reinforcing means in the form of a strip of plastic material disposed along a major portion of said bottom edge of the folder for increasing the wear resistance, strength and life of the lower surface of the bottom edge, said strip covering the medial line and lower areas of said front and rear portions.

5,066,046

METHOD AND APPARATUS FOR ALLOCATING AND RECORDING TIME BLOCKS ON VCR TAPES

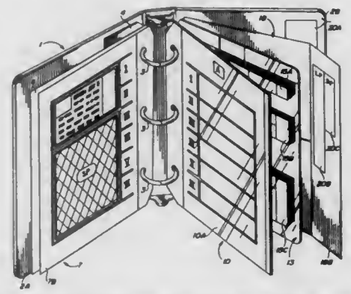
Brett R. Hoopingarner, Tempe, Ariz., assignor to E. W. Hudson, III, Tempe, Ariz.

Filed Dec. 4, 1989, Ser. No. 445,417
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—70 16 Claims

11. A method for visual logging of programs recorded on videocassettes using a log sheet including a plurality of adja-

cent identical recording time areas, dimensions of which represent consecutive recording time intervals on a videocassette, and a plurality of different-sized markable program description labels each having an area corresponding to a preselected recording time interval, comprising the steps of:

(a) entering information about a recorded program on one of the labels corresponding in size to a duration of the recorded program;



(b) attaching the program description label on one of the recording time areas of the log sheet corresponding to a portion of a videocassette on which the program entered on the recording time area is recorded;

(c) repeating steps (a) and (b) for a different program and a different program description label,

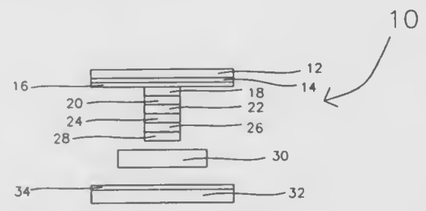
whereby the log sheet provides a visual representation of portions of the videocassette on which identified programs are pre-recorded and portions of the videocassette available for recording other programs.

5,066,047

PROCESS FOR INCORPORATING HOLOGRAM INTO LAMINAR STRUCTURE WITH PHOTOGRAPH

Dennis R. Mailloux, Westminster, Mass.; Harry A. Smith, Nashua, N.H., and Neal F. Kelly, Woburn, Mass., assignors to Polaroid Corporation, Cambridge, Mass.

Filed Sep. 5, 1990, Ser. No. 577,778
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—86 31 Claims



1. A laminar structure comprising:

a first sheet at least a portion of which is substantially transparent;

a supported hologram comprising a hologram disposed on a support sheet with the support sheet disposed adjacent one surface of the first sheet;

a substantially moisture-impermeable barrier layer secured to the surface of the hologram remote from the support sheet;

a photograph;

an adhesive layer lying between and adhered to the photograph and the barrier layer, the adhesive layer comprising a material capable of adhering the barrier layer to the photograph while the photograph is still wet; and

a second sheet adhered to the first sheet such that the supported hologram, barrier layer, adhesive layer and photograph lie between the first and second sheets,

such that the hologram and the photograph can be viewed through the substantially transparent part of the first sheet, and the hologram is sufficiently adhered to the photograph that if an attempt is made to separate the hologram from the photograph, fracture will occur within the hologram or between the hologram and the support sheet, so that at least part of the hologram will remain attached to the photograph.

13. A process for incorporating a supported hologram into a laminar structure which also comprises first and second sheets and a wet photograph, at least a portion of the first sheet being substantially transparent, said supported hologram comprising a hologram disposed on a support sheet, which process comprises:

providing on the surface of the hologram remote from the support sheet a substantially moisture-impermeable barrier layer;

providing, on the opposed side of the barrier layer from the hologram, an adhesive layer capable of adhering the hologram and barrier layer to a wet photograph;

bringing together the first and second sheets, the wet photograph, the supported hologram and the barrier and adhesive layers with the photograph being disposed adjacent the second sheet, the adhesive layer being disposed adjacent the photograph and the supported hologram being disposed adjacent the first sheet; and

laminating the first and second sheets, the wet photograph, the supported hologram and the barrier and adhesive layers together, such that the first and second sheets are bonded together and the hologram and the photograph can be viewed through the substantially transparent part of the first sheet, and the hologram becomes sufficiently adhered to the photograph that if an attempt is made to separate the hologram from the photograph, fracture will occur within the hologram or between the hologram and the support sheet, so that at least part of the hologram will remain attached to the photograph.

5,066,048

WEIGHT SET CONNECTING MECHANISM FOR SUBSEA TUBULAR MEMBERS

Thomas J. Farrell, Houston, Tex., assignor to Cooper Industries, Inc., Houston, Tex.

Filed Mar. 26, 1990, Ser. No. 498,825
Int. Cl.[5] F16L *55/07*
U.S. Cl. 285—18 9 Claims

1. A subsea well connecting mechanism for connecting an inner member within an outer member comprising

an outer member having an upwardly facing member within an outer member comprising

an outer member having an upwardly facing internal landing seat and a downwardly facing internal shoulder above the landing seat,

an inner member having an outer, upwardly facing shoulder and means for engaging said outer member landing seat when said inner member is landed on said outer member to support said inner member therein,

latching and loading means supported on the outer shoulder of said inner member and when said inner member is landed within said outer member in a position with the outer member supporting said inner member said latching and loading means engage said downwardly facing internal shoulder of said outer member with sufficient upward force to provide a preselected preload tension in said outer member, and said means for engaging said outer member landing seat comprising

a landing shoulder on said inner member,

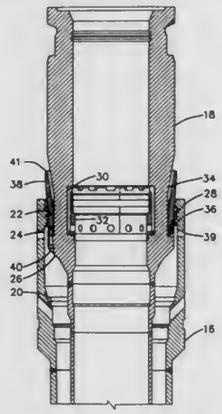
said latching and loading means includes a plurality of fingers supported from said upwardly facing shoulder of said inner member,

each of said fingers when seated on said inner member ex-

VOL 1132 ISS 3 NOV 19 1991 UMI

tending upwardly and outwardly and being of sufficient length to engage said downwardly facing inner shoulder on said outer member,

said fingers have sufficient resilience to pass through the



upper interior of said outer member above said downwardly facing inner shoulder and to spring back member upwardly and said outer, upwardly facing shoulder on said inner member downwardly to provide said tension preload in said outer member.

5,066,049

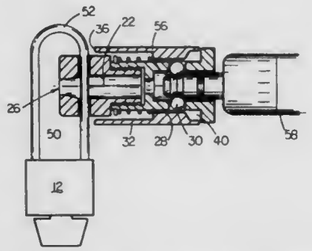
LOCKOUT DEVICE FOR HOSE FITTING

Peter J. Staples, Newark, N.Y., assignor to Parker Hannifin Corporation, Cleveland, Ohio

Filed Nov. 13, 1990, Ser. No. 612,765

Int. Cl.[5] F16L *55/10*

U.S. Cl. 285—80 **9 Claims**



1. A lockout apparatus to prevent delivery of fluid through a male hose fitting, said male hose fitting normally connectable to a mating female hose fitting to enable delivery of fluid therethrough, comprising:

a generally cylindrical body, said body including a bore having a first opening for accepting said male hose fitting, said body further including a tail portion, said body adapted to prevent said body from being placed in mating fluid connection with said holding means in said bore for selectively holding said male fitting in said bore;

a generally cylindrical moveable member overlying said body and mounted for movement longitudinally thereon, said moveable member in operative connection with said holding means, in a first position of said member said holding means holding said fitting in said bore and in a second position said fitting enabled to be removed from said bore, said tail portion of said body extending beyond said moveable member when said member is in the first position;

a lock member;

lock member accepting aperture means in said tail portion of said body for accepting said lock member, said lock member preventing movement of said moveable member from said first position when said lock member is accepted in said lock member accepting aperture means.

5,066,050

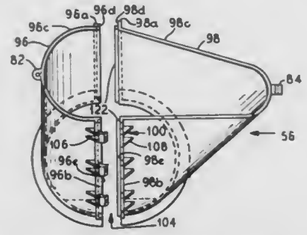
DRYER TRANSITION DUCT

Gerald L. Kretchman, St. Joseph Township, Berrien County, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 354,748, May 22, 1989, Pat. No. 4,989,347. This application Oct. 18, 1990, Ser. No. 599,518

Int. Cl.[5] F16L *39/00*

U.S. Cl. 285—319 **13 Claims**



1. A duct for use in an air handling system comprising:

a pair of U-channel shaped members, each member having a pair of leg portions connected by an arcuate bight portion, each of said leg portions opposed to a respective corresponding leg portion on the respective opposite member, said pair of leg portions extending perpendicularly from said arcuate bight portion;

a free edge of each leg portion of one of said U-channel shaped members being configured so as to mate with an opposing free edge of a leg member of the other of said U-channel shaped members such that the two U-channel shaped members can be united as a unit forming a central passage enclosed by a circumferential wall;

self-locking engagement means integrally formed on one U-channel shaped member, adjacent said free edges thereof, arranged to engage with opposing compatible self-locking engagement means on a respective other of said U-channel shaped members, for locking said U-channel shaped members together, when pressed together with said free edges in mating engagement wherein said free edges on one of said U-channel shaped members have a projecting tongue portion and said free edges on the other of said U-channel shaped members have a mating groove portion, said projecting tongue portion and said mating groove portion oriented to be interengaged when said U-shaped members are pressed together.

5,066,051

ANTI-TWIST COUPLING ASSEMBLY WITH BIASING MEANS

Jeffrey L. Weigl, Northfield Center, and Gerald A. Babuder, Mentor, both of Ohio, assignors to Cajon Company, Macedonia, Ohio

Filed Jan. 23, 1990, Ser. No. 468,691

Int. Cl.[5] F16L *15/00*

U.S. Cl. 285—328 **20 Claims**

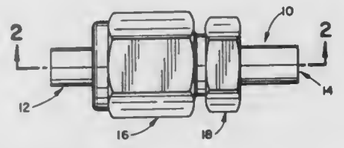
1. A tube coupling comprising:

first and second coupling components each having flow passages terminating in openings formed in transversely extending end faces carrying sealing surfaces;

said first and second coupling components being positioned with said end faces in aligned face-to-face relationship;

first and second nut members associated respectively with said first and second coupling components and cooperating to define a chamber about the end faces of said first and second coupling components, said first and second nut members being joined by threaded portions arranged such that rotation of said first nut member in a first direction relative to said second nut member produces movement of said first nut member axially toward said second nut member;

radially extending flange portions on said first and second coupling components engaged respectively by said first and second nut members such that movement of said first



nut member toward said second nut member causes said sealing faces on said coupling components to move toward one another; and,

an anti-twist means located between said first nut member and said first coupling component for conducting axial forces from said first nut member to said first coupling component, said anti-twist means comprising an anti-twist member separate from said first nut member and cooperating with said second nut member through axially engaged protrusions for preventing relative rotation therebetween during rotation of said first nut member in said first direction, said anti-twist member further including biasing means for maintaining said anti-twist member continuously biased toward said second nut member.

5,066,052

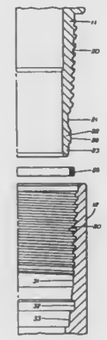
THREADED PIPE JOINT HAVING IMPROVED SEAL RING ENTRAPMENT

Shannon R. Read, Houston, Tex., assignor to Baroid Technology, Inc., Houston, Tex.

Continuation of Ser. No. 320,476, Mar. 8, 1989, Pat. No. 4,944,538. This application Jan. 25, 1990, Ser. No. 470,116

Int. Cl.[5] F16L *25/00*

U.S. Cl. 285—334 **2 Claims**



1. A pin member for use with a box member to form a threaded, sealed joint, said box member having an inwardly tapered threaded section and a sealing groove below a lower end of its threaded section and a deformable seal ring in said seal ring groove, said pin member comprising;

a tool joint member having an inwardly tapered threaded section on its outer periphery, an extrusion hump having a given diameter below the end of said threaded section for entrapping said seal ring to form a seal, said pin member having an area between the lower end of said threaded section and the extrusion hump of a diameter less than the said given diameter of said extrusion hump and a first smooth, inwardly tapered surface on said outer periphery below and immediately adjacent to said extrusion hump having its greatest diameter less than the said given diameter of said extrusion hump.

5,066,053

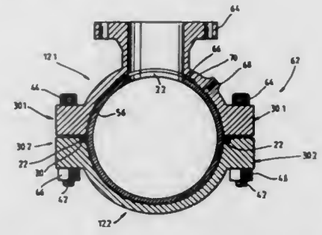
CLAMP WITH PIPE BRANCH

Jack E. Miller, Houston, Tex., assignor to International Clamp Company, Houston, Tex.

Division of Ser. No. 364,628, Jun. 8, 1989, Pat. No. 5,004,275, which is a division of Ser. No. 237,308, Aug. 26, 1988, Pat. No. 4,895,397, which is a continuation of Ser. No. 840,329, Mar. 14, 1986, Pat. No. 4,790,058. This application Sep. 19, 1990, Ser. No. 585,299

Int. Cl.[5] F16L *21/06*

U.S. Cl. 285—373 **29 Claims**



19. A clamp for pipeline repair, the clamp comprising a plurality of clamp members to be clamped to each other about a pipeline to be repaired to complete the clamp, each clamp member having a sealing zone for receiving seal means and each clamp member having a radially extending heat protection groove that is separate from the sealing zone and spaced between the sealing zone and a peripheral zone of the clamp member to interrupt heat flow from the peripheral zone to the sealing zone during welding of the peripheral zone and thereby provide protection for seal means when positioned in the sealing zone, wherein at least one clamp member has a pipe branch extending therefrom.

5,066,054

MOTOR-VEHICLE DOOR LATCH WITH ANTITHEFT FEATURE

Jürgen Ingenhoven, Velbert, Fed. Rep. of Germany, assignor to Kiekert GmbH & Kommanditgesellschaft, Heiligenhaus, Fed. Rep. of Germany

Filed Nov. 23, 1990, Ser. No. 617,026

Claims priority, application Fed. Rep. of Germany, Nov. 22, 1989, 3938680

Int. Cl.[5] E05C *3/26*

U.S. Cl. 292—201 **8 Claims**

1. A motor-vehicle door latch for use on a vehicle door having a handle and an inside locking element, the latch including:

a housing;

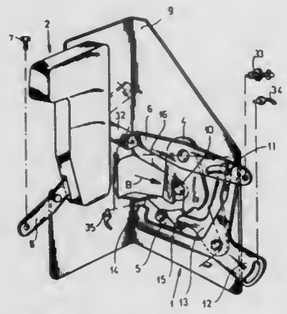
a latch fork pivotal on the housing and engageable in a locking position with a door bolt to retain same and lock the door;

an actuating lever pivoted on the housing and connected to the handle;

VOL 1132 ISS 3 NO 19 1991 UMI

a release pawl operatively engageable with the fork to release same from the locking position;

a link displaceable between a position coupling the actuating lever to the release pawl for displacement of the fork out of the locking position by actuation of the actuating lever and a position decoupling the actuating lever from the release pawl, whereby in the decoupling position actuation of the actuating lever will not unlock the door; and



central actuating means including

an actuator in the latch displaceable into an antitheft position, and

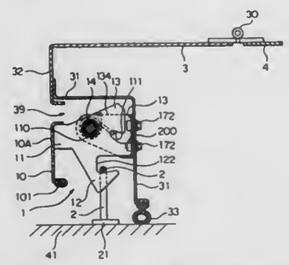
a coupling having one side connected to the inside locking element and an opposite side connected to the link for coupling the link to the inside locking element for movement thereby between its positions except when the actuator is in the antitheft position of the actuator.

5,066,055

LOCKING DEVICE FOR HOOD

Takeshi Saitoh, and Nozomu Kohno, both of Kariya, Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya, Japan

Filed Nov. 5, 1990, Ser. No. 609,424
Claims priority, application Japan, Nov. 13, 1989, 1-294463
Int. Cl.[5] E05C *3/04*
U.S. Cl. 292—228 4 Claims



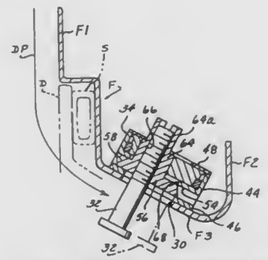
1. A locking device for securing a hood in closed position on an industrial vehicle where the hood has generally vertical side walls with bottom edges that engage substantially horizontal surfaces on the body of the vehicle when the hood is in closed position, said hood being joined to the body of said vehicle for pivoting movement about an axis adjacent a first side of said hood such that said edges separate from said horizontal surfaces upon opening of said hood, one of said vertical side walls on a side of said hood other than said first side having a recess within which is disposed a latching mechanism, a keeper secured to said surface of said vehicle body below said recess, said latching mechanism cooperating with said keeper and comprising a bearing plate having arms generally parallel and extending perpendicularly from said one side wall of the hood and a bight portion between said arms and secured to said one side wall within said recess, a latch plate which is generally sector-shape with a narrow side connected by diverging lateral sides to a broad side, and having a pair of notches formed in said broad side such as to provide in succession a hook portion adjacent a lateral side of the sector-shape plate, a first notch for receiving a portion of said keeper, a first stop finger, a notch for receiving one end of a biasing spring, and a second stop finger adjacent an opposite lateral side of the sector-shape plate, a heel portion on said latch plate on the narrow side, means pivotally mounting said latch plate between said arms of said bearing plate for rotation about an axis normal to said latch plate and passing through said latch plate between said heel portion and said broad side, a spring coupled between said bearing plate and said second notch in said latch plate for biasing said latch plate into latching engagement with said keeper when said hood is in closed position, an operating lever joined to said heel portion of said latch plate normal thereto and positioned, when said latch plate is in latch closed condition, substantially coplanar with the adjacent vertical side wall of said hood and dimensioned to fit within the entrance to said recess with a bottom edge substantially parallel to and spaced from the underlying surface of said vehicle body sufficient to permit convenient insertion of the fingers of a hand therebetween, said hook portion of said latch plate having an inclined outer edge which upon closing of an opened hood engages said keeper and acts through camming action to rotate said latch plate against the urging of said biasing spring until said hook portion snaps over and under said keeper into latching position.

5,066,056

POWER STRIKER FOR AUTOMOTIVE DOOR LATCH

William W. Schap, Muskegon, Mich., assignor to ITT Corporation, New York, N.Y.

Filed Sep. 24, 1990, Ser. No. 587,294
Int. Cl.[5] E05B *15/02*
U.S. Cl. 292—341.16 18 Claims



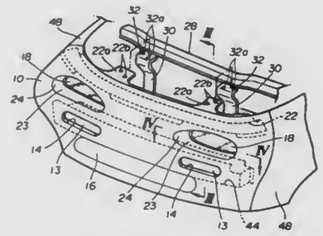
1. A power striker assembly for driving a striker pin of a door latch in horizontal movement between a ready latch receiving position and an actuated latch holding position, said striker assembly comprising a stationary base plate lying in a first vertical general plane, an elongate striker pin projecting freely through an opening through said base plate with the longitudinal axis of said pin perpendicular to said first general plane, first means mounting said pin upon said base plate for movement relative to said base plate along a fixed horizontal path between said ready position and said actuated position, a drive member lying in a second general plane parallel to said first general plane and having a central axis of rotation perpendicular to said first general plane, said drive member having an eccentrically located bore therein rotatively receiving said striker pin, second means mounting said drive member upon said base plate for rotation relative to said base plate about said central axis between a first and a second rotative position and for movement relative to said base plate along a fixed vertical path, rotation of said drive member between said first and second positions being operable to shift said pin between said ready and said actuated positions, and drive means coupled to said drive member for driving said drive member in rotation between said first and second rotative positions.

5,066,057

BUMPER STRUCTURE

Katsumi Furuta, Isehara, and Takashi Yamaguchi, Ebina, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Oct. 16, 1990, Ser. No. 596,939
Claims priority, application Japan, Oct. 20, 1989, 1-273088
Int. Cl.[5] B60R *19/03*
U.S. Cl. 293—121 9 Claims



1. A bumper structure for a vehicle having headlamps, said bumper structure comprising:

an armature secured to a body of said vehicle;

a bumper fascia having openings for receiving therein said headlamps, said bumper fascia extending along and covering said armature;

a plurality of first brackets secured to the vehicle body;

a plurality of second brackets secured to an upper portion of said bumper fascia;

a plurality of third brackets secured to said armature, each of said third brackets having a groove which faces toward said bumper fascia;

hem portions defined by said bumper fascia which surround said openings, each of said hem portions having a leading end which is thrust into one of said grooves of said third brackets; and

means for connecting said first brackets to said second brackets, respectively.

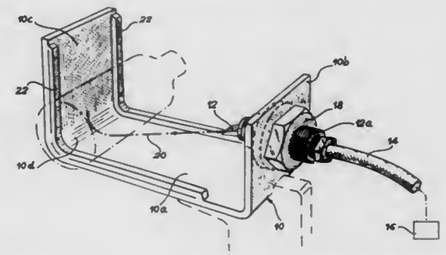
5,066,058

PNEUMATIC GRIPPER

Alain Guyard, Saint Paul-Trois Châteaux, France, assignor to Cogema Compagnie Generale des Matieres Nucleaires, Cedex, France

PCT No. PCT/FR89/00508, § 371 Date May 29, 1990, § 102(e) Date May 29, 1990, PCT Pub. No. WO90/03871, PCT Pub. Date Apr. 19, 1990
PCT Filed Oct. 2, 1989, Ser. No. 460,140
Claims priority, application France, Oct. 3, 1988, 88 12896
Int. Cl.[5] B66C *1/02*
U.S. Cl. 294—1.1 3 Claims

1. A pneumatic gripper, comprising a substantially U-shaped support including a plate having an intermediate branch and two end branches, an ejection nozzle carried by a first of said end branches and connected to a compressed air source, said ejection nozzle supplying a compressed air jet which strikes the intermediate branch in the vicinity of a bend formed in said plate, at the intersection of the intermediate branch with a second of said end branches, jet guide means being provided on said plate to channel the compressed air jet from said intermediate branch to an end of said second end branch opposite to said bend.

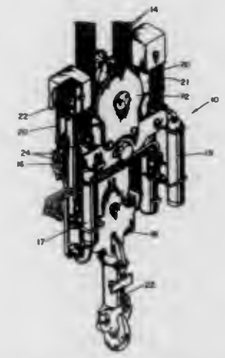


5,066,059

DRILL STRING COMPENSATOR WITH IMPROVED TRANSLOADERS

Gary L. Egbert, and Philip L. Ziegler III, both of Houston, Tex., assignors to Baroid Technology, Inc., Houston, Tex.

Filed Apr. 3, 1990, Ser. No. 504,113
Int. Cl.[5] B66C *1/34, 13/04*
U.S. Cl. 294—82.16 32 Claims



1. A drill string compensator for supporting a tubular string having an axis and passing through a marine vessel subject to wave action, the drill string compensator comprising:

a first frame supported above the marine vessel and controllably moveable along the axis of the tubular string;

a second frame supported by the first frame and movable with respect to the first frame along the axis of the drill string;

one of the first and second frames having a plurality of bores therethrough;

a plurality of flexible force transmitting members for interconnecting the first and second frames;

a plurality of threaded rods each connected to an end of a respective one of the plurality of flexible force transmitting members and passing through a respective one of the plurality of bores:

a plurality of nuts each associated with a respective one of the threaded rods: and

a plurality of ring-shaped transloader assemblies for uniform tensioning of the flexible force transmitting members, each of the transloader assemblies being positioned about and axially movable with respect to its respective threaded rod, each transloader assembly including:

(a) a sleeve positioned between a respective nut and the

VOL 1132 ISS 3 NO 19 1991 UMI

frame having the plurality of bores for transmitting load forces from the respective nut to the frame having the plurality of bores,

(b) a biasing device for exerting a biasing force on the respective nut and the corresponding force transmitting member, and

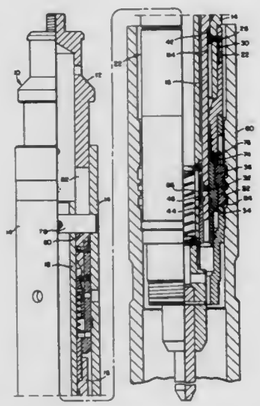
(c) a follower movable with respect to the sleeve for compressing the biasing device in response to rotation of the respective nut with respect to the respective threaded rod, such that the selective positioning of each of the nuts along its respective threaded rod ensures an equal working length for each of the respective flexible force transmitting members.

5,066,060

RUNNING TOOL

Andrew G. Cooksey, Coppell, and David L. Reesing, Irving, both of Tex., assignors to Otis Engineering Corp., Dallas, Tex.

Filed Apr. 11, 1990, Ser. No. 508,250
Int. Cl.[5] E21B *23/02*
U.S. Cl. 294—86.18 **15 Claims**



1. A running tool for use with subsurface wireline equipment, the running tool comprising:

means for releasably coupling the running tool to a lock mandrel to permit the lock mandrel to be lowered into engagement with a landing nipple in a well bore;

means for locking the lock mandrel in the landing nipple;

means for retrieving the lock mandrel while still coupled to the running tool in case of a misrun; and

means for releasing the running tool from the lock mandrel after the lock mandrel is locked in the landing nipple;

the running tool comprising first and second concentrically disposed, longitudinally slidable sleeve members;

the means for releasably coupling the running tool to the lock mandrel comprising at least one radially slidable lug member adapted to engage a recess in the lock mandrel when the first sleeve member is moved in a downward direction radially inward from the second sleeve member, the lug member being adapted to withdraw from the recess in the lock mandrel whenever the first sleeve member is moved in an upward direction radially inward from the second sleeve member; and

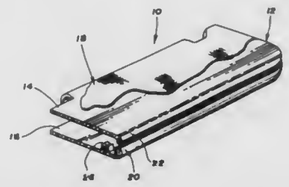
the first sleeve member being adapted to move in the upward direction radially inward of the second sleeve member whenever the running tool is jarred upwardly.

5,066,061

SUNVISOR INCLUDING A METHOD AND ATTACHMENT MECHANISM FOR SECURING A COVERING TO THE SUNVISOR

Douglas C. Miller, Hersey, Mich., assignor to Plasta Fiber Industries, Inc., Marlette, Mich.

Filed Nov. 2, 1990, Ser. No. 609,159
Int. Cl.[5] B60J *3/00*
U.S. Cl. 296—97.1 **8 Claims**



1. An attachment mechanism for use with a sunvisor including a plastic shell having upper and lower halves and an outer covering having free edge portions, for securing the covering on the shell so that the covering is prevented from working loose during assembly, comprising:

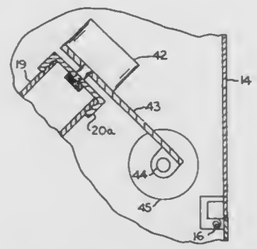
a trap means or plurality of trap means, attached to or integral with an inner surface of a shell half, having one or more members which flex to allow the covering to enter, but which grabs and maintains tension on the covering prior to and upon closing of the upper and lower shell halves.

5,066,062

FUEL TANK LOCK

Bill G. Sekulovski, 1363 Harvest Bend, Windsor, Ontario, Canada N9H 2B5

Filed Sep. 13, 1990, Ser. No. 581,895
Int. Cl.[5] B62D *39/00*
U.S. Cl. 296—97.22 **7 Claims**



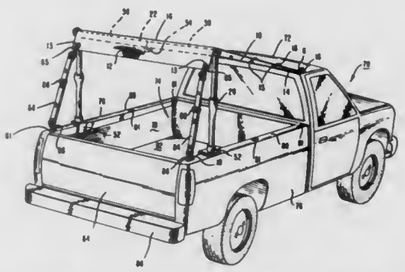
1. In an automotive vehicle having an exterior wall, an opening in said wall, a lid movably mounted on the vehicle to close said opening, a fuel tank filler tube having an open end registering with said wall opening whereby fuel may be pumped into said filler tube when the lid is moved to an open condition, and a cap having a screw thread connection with the filler tube for normally closing its open end, the improvement comprising: a rotary reversible electrical motor having a drive connection with said cap for normally holding the cap in a closed position on the filler tube; means for supplying electrical power to said motor; and a switch means located in the driver compartment of the vehicle for controlling the delivery of electrical power to said motor; said drive connection being effective so that rotation of the motor in one direction screws the cap onto the filler tube, and rotation of the motor in the other direction unscrews the cap from the filler tube.

5,066,063

REMOVABLE COVER FOR A TRUCK CARGO BOX

Regis K. Mullally, 4973 SE. Grouper Ave., Stuart, Fla. 34997

Filed Sep. 17, 1990, Ser. No. 583,591
Int. Cl.[5] B60P *7/04*
U.S. Cl. 296—100 **13 Claims**



1. A removable cover assembly for a cargo box of a truck comprising:

flexible cover means;

a cover support for elevating a portion of the cover means above the cargo box, said cover support including at least one collapsible frame for removably engaging the cargo box, said frame including top support members pivotally connected to one another at inner end thereof, and having outer ends, and a pair of vertical support members pivotally connected to said outer ends, whereby each of said top support members and vertical support members can be pivoted to positions of substantially parallel and adjacent alignment relative to each other to collapse said cover support to a size convenient for transport and storage;

front fastening means for attaching a front portion of the cover means to a front portion of the truck; and

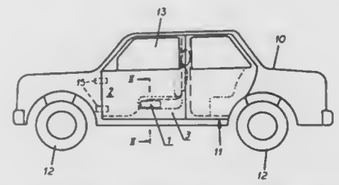
rear fastening means for connecting a rear portion of the cover means to a rear portion of the truck.

5,066,064

DOOR ASSEMBLY FOR A PASSENGER VEHICLE

Peter Garnweidner, Lamprechtshausen, Austria, assignor to Austria Metall Aktiengesellschaft, Braunau am Inn, Austria

Filed Oct. 31, 1990, Ser. No. 607,166
Claims priority, application Austria, Nov. 2, 1989, 2527/89
Int. Cl.[5] B60J *5/04*
U.S. Cl. 296—146 **11 Claims**



1. A door assembly for an automotive vehicle, comprising:

a vehicle body formed with a door opening and a threshold member extending horizontally along a bottom portion of said door opening;

a vehicle door lying in a door plane, swingably mounted on said vehicle body and having a door frame laterally juxtaposed with said threshold member at a lower portion thereof above a bottom edge of said door, and an outer door skin spanning said door frame; and

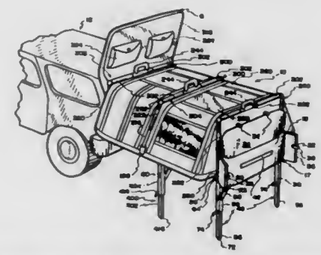
a horizontal strut positioned at a location substantially midway along a length of said door and disposed between said door frame and said skin in said door at a level with said threshold member, said strut extending normal to said plane of the door and being formed at opposite ends with abutment plates respectively juxtaposed with said frame and said skin, means being provided for securing the abutment plate juxtaposed with said frame to said frame, the abutment plate juxtaposed with said skin being spaced therefrom.

5,066,065

CONTAINERIZED RETRACTABLE/EXPANDABLE SLEEPING COMPARTMENT FOR VEHICLES

Milo Baughman, 560 E. South Temple, Salt Lake City, Utah 84102

Continuation-in-part of Ser. No. 366,553, Jun. 15, 1989, Pat. No. 5,011,216. This application Oct. 11, 1990, Ser. No. 596,891
Int. Cl.[5] B60P *3/345*
U.S. Cl. 296—165 **44 Claims**



1. A manually portable temporary shelter comprising expandable/collapsible sleeping compartment structure comprising a collapsible/extendable canopy covering having weight and by which an interior sleeping space is defined by top and side wall means of the canopy covering and collapsible/extendable support structure comprising means connected to the canopy covering so that the support structure and the canopy covering extend and collapse together in a rectilinear fashion, the support structure comprising means by which the weight of the canopy covering and any person occuyping the sleeping space is transferred with no more than inconsequential deflection to the extended support structure;

the temporary shelter further comprising a hand-held openable container comprising an interior and means associating the sleeping compartment structure with the interior of the container whereby the canopy covering and the support structure are unitarily extended entirely from within and collapsed entirely into the container and the container with the unitarily collapsed canopy covering and the support structure toted manually from place to place including independently manually into and from a vehicle.

5,066,066

PLATE TRAILER JOINTS

Howard J. Yurgevich, Monticello, and Stanley J. Navoczynski, Lafayette, both of Ind., assignors to Rosby Corporation, Monon, Ind.

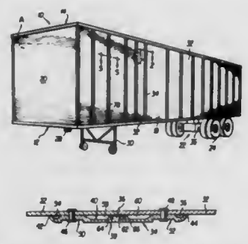
Filed Mar. 5, 1991, Ser. No. 664,668
Int. Cl.[5] B62D *33/04*
U.S. Cl. 296—181 **11 Claims**

1. A joining member for joining an adjacent pair of plates on a side of a cargo carrier, the joining member comprising:

a rectilinear strip having an outer surface, an inner surface, parallel edges joining the outer and inner surfaces, and two rows of aperatures extending between the outer and inner surfaces, one row adjacent each of the edges for receiving means for fastening the strip to said plates, the inner surface of the strip including a pair of flanges posi-

VOL 1132 ISS 3 NO 19 1991 UMI

tioned between the two rows of aperatures, and a channel of uniform depth situated between the pair of flanges, and



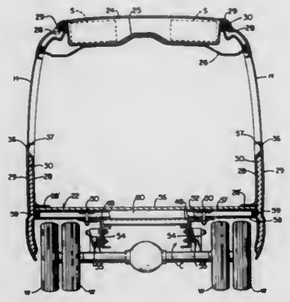
a sealing strip fixed in said channel having a width about equal to the distance between said pair of flanges, a length equal to the rectilinear strip length, and a thickness greater than the channel depth.

5,066,067

PREFABRICATED BUS HOUSING

Houshang Ferdows, Boulder, Colo., assignor to Relco, Inc., Lamar, Colo.

Filed Sep. 18, 1989, Ser. No. 408,724
Int. Cl.[5] B62D *25/00*
U.S. Cl. 296—197 **11 Claims**



1. In a prefabricated vehicle provided with a chassis and ground-engaging wheels mounted on said chassis, the improvement comprising:

an elongated housing including modular front and rear sections, a modular roof section, and modular side sections on opposite sides of said housing, each said section having inner and outer substantially rigid plastic skin members in closely spaced parallel relation to one another and a lightweight filler material between said skin members, beam members projecting inwardly at spaced intervals to one another along said side sections, said side sections having peripheral edges in adjoining relation to one another, flanges being disposed along said adjoining peripheral edges of said sections, and means interconnecting said flanges together, said beam members being of generally channel-shaped configuration with an open end of each said beam member in abutting relation to an inner surface of said outer skin member, and securing means for securing each said beam member to an inner surface of said outer skin member; and

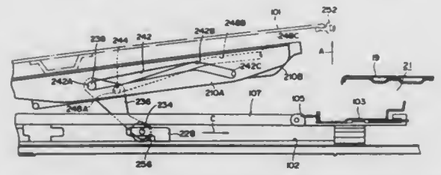
a floor section rigidly mounted on said chassis, and attaching means for rigidly attaching said front and rear sections as well as said side sections to outer peripheral edges of said floor section.

5,066,068

PANEL MOVING MECHANISM FOR SUNSHINE ROOF

Katsuhiro Suzuki; Akira Nishimura, both of Toyota; Takatsugu Yamauchi, Shinjuku; Kazuhisa Nagata, Okazaki, and Hironori Ochiai, Nagoya, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha and Aisin Seiki Kabushiki Kaisha, Japan

Continuation of Ser. No. 333,573, Apr. 5, 1989, abandoned. This application Sep. 7, 1990, Ser. No. 579,350
Claims priority, application Japan, Apr. 5, 1988, 63-46108[U]; May 9, 1988, 63-60990[U]; May 11, 1988, 63-61839[U]; May 11, 1988, 63-61840[U]
Int. Cl.[5] B60J *7/05*
U.S. Cl. 296—221 **20 Claims**



1. A panel moving mechanism for a sunshine roof of the type in which a rear end of a panel for closing an opening provided in the roof of a vehicle can be raised to a tilt-up position and lowered to a tilt-down position, the mechanism comprising:

(a) means for rotatably supporting a front end section of said panel;

(b) a guide rail mounted in the vehicle adjacent to the opening in the roof and extending in the longitudinal direction of the vehicle;

(c) a shoe mounted for movement along the guide rail;

(d) means for selectively moving the shoe along the guide rail;

(e) an arm;

(f) means for pivotally mounting said arm on said shoe; and

(g) a guide means fixed in relation to said panel, said guide means including means provided with first and second elongated guide grooves, each guide groove having a longitudinal axis and a front end and a rear end, and first and second pins mounted on said arm, each pin being inserted into a respective one of said guide grooves so as to be guided for movement between the front and rear ends of the respective groove, said first and second guide grooves being arranged in such a manner that relative movement of said shoe toward one of the front and rear ends of said guide grooves causes said arm to be gradually brought to a raised position to raise the panel, and relative movement of said shoe toward the other of the front and rear ends of said guide grooves causes said arm to be gradually brought to a horizontal position to lower the panel.

5,066,069

CHAIR BACK AND SEAT ADJUSTMENT MECHANISM

Jacob DeGelder, San Pedro, Calif., assignor to Systems Furniture Company, Torrance, Calif.

Filed May 3, 1990, Ser. No. 518,378
Int. Cl.[5] A47C *1/024*
U.S. Cl. 297—374 **4 Claims**

1. A chair adjustment mechanism for use with a chair having a seat, a back and a pedestal comprising

a) an elongated frame mounted on the pedestal in a manner to hold such frame in a substantially horizontal plane;

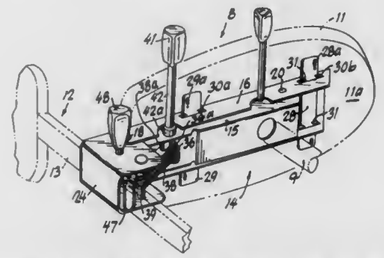
b) a seat support piece pivotally mounted about a first horizontal pivot pin on the frame;

c) a back bracket mounted about a second horizontal pivot pin on the seat support piece;

d) a first set of friction plates having elongated slots therein mounted to the second pivot;

e) a second set of friction plates having elongated slots therein mounted to a third horizontal pivot pin on the back bracket; and

f) a horizontal adjustment handle mounted through the frame and the slots of such sets of plates which first friction plate slots are aligned with one another and said



second friction plate slots are aligned with one another while each such slot set is at an angle to the other slot set and such adjustment handle is rotatable to compress the plates together in lock position

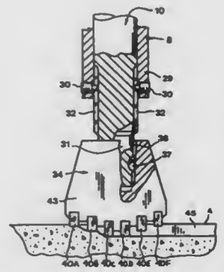
whereby the seat and back are adjustable about spaced apart pivot pins and each is capable of being held in selected independent orientations with the horizontal frame.

5,066,070

APPARATUS FOR REFLEX-PERCUSSIVE CUTTING OF CONCRETE ETC.

Ronald A. W. Clarke, 501 Wilkins St, Apt 717, London, Ontario, N6C 5G2, Canada

PCT No. PCT/GB89/00117, § 371 Date Aug. 3, 1990, § 102(e) Date Aug. 3, 1990, PCT Pub. No. WO89/07690, PCT Pub. Date Aug. 24, 1989
PCT Filed Feb. 8, 1989, Ser. No. 543,732
Claims priority, application United Kingdom, Feb. 10, 1988, 8803087
Int. Cl.[5] E01C *23/09*
U.S. Cl. 299—37 **11 Claims**



1. Apparatus for cutting a groove in the surface of a hard material by reflex percussion, characterised in that the apparatus includes:

a pneumatically operated piston;

a cutting bar, which is arranged for direct cutting contact with the surface to be cut;

a frame, which includes a cylinder in which the piston is mounted for reciprocating movement along an axis of reciprocation;

a means for fixing the cutting bar to the piston to form a hammer assembly, the said means being such that the piston and cutting bar are, at all times during operation, constrained against all movements relative to each other in the direction of reciprocation;

a double acting pneumatic circuit, which is effective to force the hammer assembly under pressure hard onto the surface to be cut, and is effective then to drive the assembly, under pressure, away from the surface, before the hammer assembly naturally bounces clear of the surface;

a drive means for moving the cutting bar over the surface, and along the line of the groove to be cut;

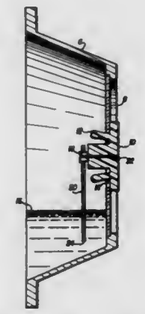
and an anti-rotation means, which is effective to constrain the cutting bar against rotation relative to the frame, about the axis of reciprocation.

5,066,071

DEVICE FOR DETECTING METALLIC PARTICLES IN LUBRICANT

Robert W. Kinser, 1069 W. 27th St., Ogden, Utah 84401

Filed Aug. 24, 1990, Ser. No. 572,234
Int. Cl.[5] B60B *7/00*
U.S. Cl. 301—108 TW **12 Claims**



1. A device for visually detecting the presence of magnetic particles in the lubricating fluid of a vehicle hub, said hub having a transparent portion at the axial end thereof for viewing the lubricating fluid from outside the hub, said hub having an access opening in the axial end thereof, said device comprising

a plug body means of elastic deformable plastics material sealably fitable into said access opening;

an elongated member of magnetic material within said vehicle hub positioned to be exposed to said lubricating fluid and pivot means on the axially inner portion of said plug body means for pivotally mounting said elongated magnetic member so that as the hub rotates the elongated magnetic member is free to remain stationary in relation to the rotation of the hub and positioned so as to be viewable through said transparent portion, said magnetic member comprising a strip of plastics material having magnetizable particles therein and having an aperture near one end, said pivot means extending through said aperture for pivotally mounting said elongated magnetic member.

5,066,072

HYDRAULIC BRAKE PRESSURE CONTROL VALVE

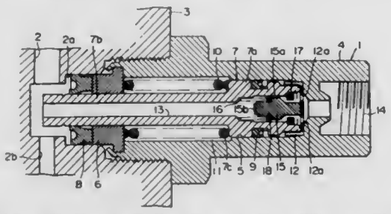
Kunio Yanagi; Mutsuro Yamakoshi, and Akihiro Kamiyoshihara, all of Higashimatsuyama, Japan, assignors to Jidosha Kiki Co., Ltd., Tokyo, Japan

Filed Aug. 6, 1990, Ser. No. 563,245
Claims priority, application Japan, Aug. 23, 1989, 1-98219[U]; Aug. 23, 1989, 1-98220[U]
Int. Cl.[5] B60T *8/26*
U.S. Cl. 303—9.75 **2 Claims**

1. A hydraulic brake pressure control valve of the type including a valve casing mounted upon a master cylinder of a hydraulic brake system and a valve piston of stepped configuration with an enlarged diameter portion and a reduced diameter portion mounted slidably and longitudinally along the

VOL 1132 ISS 3 NO 19 1991 UMI

longitudinal bore of said valve casing, said stepped valve piston being urged normally toward a non-operating position thereof, and adapted to be shifted longitudinally in the opposite direction from said non-operating position, under the effect of a difference in the cross-section areas of said enlarged and reduced diameter portions thereof upon which the hydraulic brake fluid pressure works, and said stepped valve piston being defined with a brake fluid passage means extending longitudinally therein and providing communication between brake fluid passages adjacent said reduced diameter portion and said enlarged diameter portion of said stepped valve piston, and a



fluid valve member disposed in said fluid passage means and adapted to hold said fluid passage means in an open position when said stepped valve piston is in the non-operating position thereof, and to cause said fluid valve member to be opened and closed when said stepped valve piston operates in valving function, which further comprises cap-shaped retainer means mounted for shifting radially of a stem of said fluid valve member, disposed in an opposed relation to a valve seat of said stepped valve piston, when said fluid valve is brought to either of the open and closed positions thereof, one outer wall surface of said retainer abutting an inner wall surface of said stepped valve piston.

5,066,073

BRAKE SYSTEM FOR AUTOMOTIVE VEHICLES

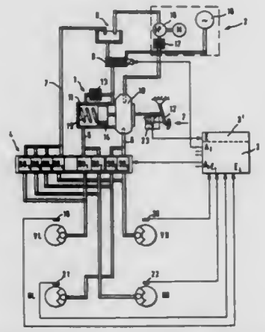
Heinz Frigger, Langen-Oberlinden, and Klaus-Dieter Blum, Kelkheim, both of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt, Fed. Rep. of Germany

Continuation of Ser. No. 733,706, May 13, 1985, abandoned. This application Jan. 14, 1986, Ser. No. 3,139

Claims priority, application Fed. Rep. of Germany, May 15, 1984, 3418044

Int. Cl.[5] B60T *17/22, 8/02*

U.S. Cl. 303—92 3 Claims



1. A brake system for automotive vehicles, said system comprising a brake pressure transmitter linked to wheel brakes through pressure medium lines, sensor means for detecting the braking effect at wheels to which the brakes are respectively attached, separating valve means for shutting off the flow of pressure medium in one switching position and located in at least one of the pressure medium paths leading to the wheel brakes, monitoring means responsive to the sensor signals for detecting failure of one wheel brake upon operation of the brakes, said monitoring means automatically switching over the separating valve means in the path leading to the failed wheel brake into a closed valve position, shutting off its flow of pressure medium, said sensor means being configured in the shape of electrical or electro-magnetic measured value pick-up units positioned at the individual wheels and generating an electric signal corresponding to the rotational behavior of the relevant wheel for input to an electronic linkage switching circuit.

5,066,074

PROCESS AND CIRCUIT ARRANGEMENT FOR CONTROLLING THE SLIP WHEN BRAKING A ROAD VEHICLE

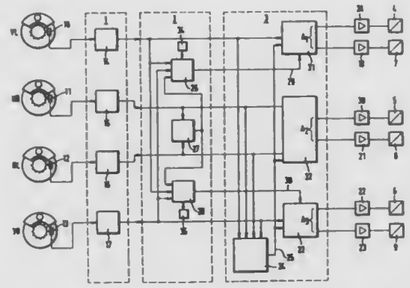
Hans Wupper, Friedrichsdorf, Fed. Rep. of Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 781,334, Sep. 30, 1985, abandoned. This application Dec. 4, 1986, Ser. No. 938,335

Claims priority, application Fed. Rep. of Germany, Oct. 18, 1984, 3438113

Int. Cl.[5] B60T *8/10*

U.S. Cl. 303—97 7 Claims



1. A process for improving control during braking of a road vehicle by controlling the slip in the presence of different adhesive values on the right and left sides of the vehicle, wherein means are provided for detecting the rotational behavior of the vehicle wheels and the vehicular velocity to provide derived measured values in signal form and wherein the said signals are logically combined and processed and wherein, upon the instabilization of a wheel including the occurrence of a lock-up tendency, the signals independently control the braking force at said respective instable front wheel is kept at least constant and upon change in signal is thereafter reincreased, said process comprising the steps of evaluating the rotational behavior of the wheels (VR, VL, HR, HL) and the vehicular deceleration according to predetermined criteria manifesting the possibility of danger due to yawing moments which are capable of impairing the driving stability of the vehicle and wherein, when a predetermined yawing moment threshold value or a corresponding measured value is reached, restricting any further increase of the yawing moment by limiting the braking force, by keeping the braking force constant, or if the yawing moment continues by reducing said braking force, and by diminishing the degree of increase of the braking force at the front wheel which has a better contact with the road surface and further wherein the same said braking force is applied to the rear wheels (HR, HL) of the vehicle, wherein control of said braking force is a function of the slip signal of the rear wheel having a worse contact with the road surface, and wherein the deceleration (v_{HRh}) of the rear wheel with a better contact with the road surface is evaluated as a measure of the vehicular deceleration when ascertaining the criteria for determining the yawing moment.

5,066,075

INTEGRATED ACTUATOR UNIT FOR ANTI-SKID BRAKE CONTROL SYSTEM FOR AUTOMOTIVE VEHICLE

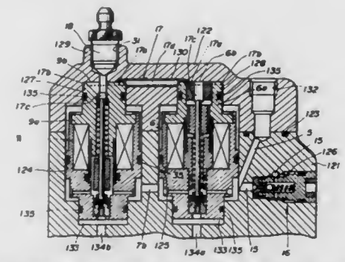
Ichiro Kaneda; Seiji Yamamoto, and Natsuji Fujii, all of Kanagawa, Japan, assignors to Atsugi Unisia Corporation, Kanagawa, Japan

Filed Dec. 26, 1989, Ser. No. 456,367

Claims priority, application Japan, Dec. 26, 1988, 63-168902[U]; Dec. 28, 1988, 63-170190[U]

Int. Cl.[5] B60T *8/32*

U.S. Cl. 303—113 R 18 Claims



1. An integrated actuator unit for an anti-skid automotive brake system comprising:

a cast casing defining a first space for receiving an inlet valve assembly for introducing a braking pressure built in a master cylinder of a hydraulic brake circuit to a wheel cylinder, and a second space for receiving an outlet valve assembly for draining braking pressure in the wheel cylinder, said inlet and outlet valves being selectively operated to open and closed positions for adjusting braking pressure in said wheel cylinder;

and wherein said casing comprises a main body defining at one end open bores in a parallel relationship to each other, which bores serve as said first and said second spaces for receiving said inlet and outlet valves, and a cover member for sealingly closing the open ends of said bores;

and wherein said casing further defines a third bore extending essentially perpendicular to said first and second bores and internally communicated at least with said first bore, said third bore serving for receiving a pressure accumulator connected to an integrally formed path which is connected a drain line of said hydraulic circuit for receiving a pressurized fluid via a fluid pump, which accumulator is connected to said first space for supplying pressurized fluid via a path integrally formed with said casing; and

fluid flow path means integrally formed with said casing for communication with said hydraulic brake circuit and said first and second spaces.

5,066,076

APPARATUS FOR FIXING THE HYDRAULIC UNIT OF AN ABS AND/OR AN ASR IN THE MOTOR SPACE OF A STREET VEHICLE

Harry Tröster, Tamm, Fed. Rep. of Germany, assignor to Mercedes-Benz AG, Fed. Rep. of Germany

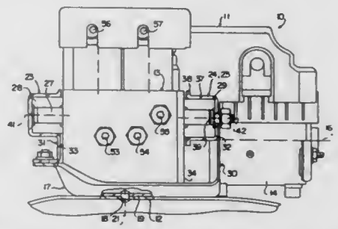
Filed Aug. 28, 1990, Ser. No. 573,692

Claims priority, application Fed. Rep. of Germany, Dec. 15, 1989, 3941401

Int. Cl.[5] B60T *8/00, 17/00;* B62D *27/06;* B60K *28/16*

U.S. Cl. 303—113 6 Claims

1. An apparatus for fixing a hydraulic unit of at least one of an antilock system (ABS) and a wheel slip control system (ASR) in a motor space of a street vehicle on the vehicle body of said street vehicle, said hydraulic unit, viewed in a longitudinal direction of the vehicle, being held between at least one forward and two rearward upwardly projecting legs of a console which is fixed on the vehicle body, characterized in that at least one holding element provided on the console and causing said fixing of the hydraulic unit against axial displacements has a defined low holding force which, starting from a specified minimum deceleration of the vehicle, is no longer sufficient for



holding the hydraulic unit fixed at the vehicle body, said minimum deceleration being clearly higher than vehicle decelerations occurring during a driving operation, but lower than longitudinal decelerations of the vehicle occurring in the case of an accident-caused impact of the vehicle on an obstacle which may lead to a deformation of the vehicle in an area of the apparatus itself.

5,066,077

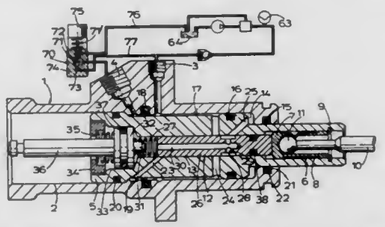
HYDRAULIC SYSTEMS FOR VEHICLES

Glyn P. R. Farr, Warwickshire, England, assignor to Lucas Industries Public Limited Company, Birmingham, England

Filed Apr. 10, 1989, Ser. No. 335,839

Int. Cl.[5] B60T *8/44*

U.S. Cl. 303—114 R 17 Claims



1. An hydraulic system for a vehicle of the type having a front pair of wheels, and a rear pair of wheels, means for driving said wheels of a least one of said pairs, and an hydrualically actuated brake on each of said wheels, said system comprising a combined booster and hydraulic master cylinder assembly for applying all said brakes, said assembly having a pressure chamber, a reservoir for fluid, and a reservoir connection for connection to said reservoir, an hydraulic accumulator, a pedal for actuating said combined asdembly to apply said brakes normally for vehicle service retardation, a sensor for sensing the speed of rotation fo each said wheel, an electronic contorl module which receives signals from said sensor, means for controlling operation of at least one of said brakes, said means being actuated by sad control module whereby to control the behaviour of a respective wheel depending upon the nature and duration of the said signal, a servo-pressure control valve operative to control generation of servo assistance for said assembly in response to pressure generated by operation of said pedal, said servo-pressure control valve being movable between a first position in which said presure camber is in communication with said reservoir connection, and a second position in which said hydraulic accumulator is in communica-

VOL 1132 ISS 3 NO 19 1991 UMI

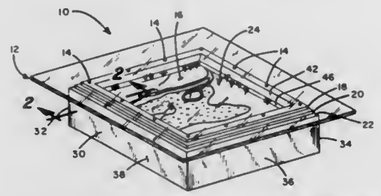
tin with said pressure chamber to energise said pressure chamber, and an auxiliary control valve means responsive to a signal from said control module to energise said pressure chamber independently of operation of said servo-pressure control valve, said auxiliary control valve means being mvoable between a first position in which said reservoir connection is in communication with said reservoir, and a second position in which said reservoir connection is in communication with said hydraulic accumulator, and wherien a first hydraulic circuit is provided for said booster and comprises said pressure chamber, said reservoir, said reservoir connector, said accumulator, said servo pressure control valve, and said auxiliary valve control means; and a second independent hydraulic circuit is provided for said master cylinder and said means for controlling operation of at least one of said brakes, there being no mixing of the hydraulic fluid between the two circuits.

5,066,078

FURNITURE TOP INSERT FEATURING LANDSCAPE

Michael Wurst, 6205 S. Knoll Dr., Edina, Minn. 55436

Filed Dec. 13, 1990, Ser. No. 626,786
Int. Cl.[5] A47F *3/00*; 312 *204, 223, 114, 242*; 108 *23*; 40 *160*
U.S. Cl. 312—114 9 Claims



1. A furniture item for displaying a scale, three-dimensional model of a scene comprising in combination:
(a) a box-like enclosure sealed from an ambient including a floor panel with four mutually perpendicular side walls extending upwardly therefrom, each having a top edge and a bottom edge, and an upper edge surface extending from said top edge of said side walls, the upper edge surface having an inner periphery including a rectangular notch;
(b) a rigid transparent sheet having its edges fitted into said rectangular notch;
(c) a three-dimensional scaled replica of a prominent geographical scene resting on and substantially covering said floor panel beneath said rigid transparent sheet; and
(d) a rigid, inflexible transparent top member disposed in spaced apart but covering relation with respect to said rigid transparent sheet.

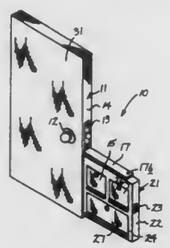
5,066,079

DOOR SAFE APPARATUS

James L. Lawrence, Rt. 6, Box 158M, Petersburg, Va. 23803

Filed May 29, 1990, Ser. No. 529,563
Int. Cl.[5] A47B *17/04*
U.S. Cl. 312—204 1 Claim

1. A door safe apparatus comprising in combination,
a door, the door including a forward door wall spaced from and parallel a rear door wall, and
the door including a rear end wall spaced from and parallel to a forward end wall, the forward end wall including a latch member mounted therewithin, and
a door cavity formed within the door positioned below the latch member, the door cavity including a slot directed through the forward end wall, and
a cover flap removably mounted in alignment with the forward wall covering the slot in a first position and displaceable to a second position orthogonally oriented relative to the forward wall removed from the slot, and
a security container mounted within the cavity selectively removable therefrom through the slot, and
wherein the cover flap includes a securement clasp to secure the cover flap in alignment with the forward end wall, and
wherein the door cavity includes a first and second "U" shaped guide, the first and second "U" shaped guide mounted within the door cavity above the container, and each of the "U" shaped guides arranged in confronting relationship to slidably receive the cover flap therewithin to secure the cover flap in the second position displaced relative to the slot, and
wherein the container includes a container forward wall and a plurality of door members mounted in the container forward wall, each door member including a latch to secure each door member to the container, and
wherein the container includes a container rear wall spaced from the forward wall, an upper and lower "T" shaped projection, the "T" shaped projections mounted to the container rear wall spaced apart a predetermined spacing,



and the rear door wall including an upper and lower track, the upper and lower track are arranged parallel relative to one another and spaced apart the predetermined spacing to respectively receive in a slidable relationship the upper and lower "T" shaped projections within each upper and lower track respectively, and
wherein each upper and lower track includes a "T" shaped slot, each "T" shaped slot of a complementary configuration to each "T" shaped projection, and
wherein each door member includes a hinge, each hinge pivotally mounting each door member to the container, and each container further includes a latch member to selectively secure each door member to the container, and
wherein the container includes a container forward end wall wherein the container forward end wall includes a handle mounted thereon to permit selective removal of the container relative to the door cavity, and
wherein the door cavity includes a door cavity floor, the door cavity floor arranged parallel to the upper and lower tracks wherein the container is spaced above the floor.

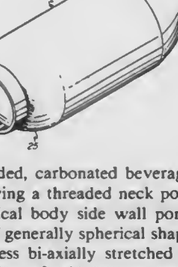
5,066,080

TAMBOUR DOOR AND METHOD OF MAKING

Bruce Woodward, Anchorage, and James Hall, Louisville, both of Ky., assignors to National Products, Inc., Louisville, Ky.

Continuation-in-part of Ser. No. 270,103, Nov. 14, 1988, abandoned. This application Aug. 16, 1989, Ser. No. 393,686
Int. Cl.[5] E06B *9/15*
U.S. Cl. 312—297 10 Claims

1. A tambour door comprising:
a plurality of elongated parallel wood members, each member having a rectangular-shaped transverse cross-section, a front surface, a back surface, and sides substantially perpendicular to the front surface, the adjacent elongated members being aligned in an abutting side-by-side relationship, the elongated members having been cut from a single panel of wood and oriented in the same relationship are to the other as they were when originally cut from the wood panel with the sides of the elongated members remaining unfinished as originally cut from the wood panel such that the grain of the wood of each elongated member substantially mates with the grain of the wood of an adjacent elongated member at the interface therebetween whereby the interfaces between adjacent members



is indistinct, and the front surfaces of the individual elongated members cooperate forming a planar overall surface providing an appearance of a solid panel; and,
a flexible backing material coextensive with the plurality of side-by-side elongated members adhesively attached to the back surfaces of the elongated members.

5,066,081

BLOW-MOLDED BOTTLE WITH BI-AXIALLY STRETCHED SKIRT

Harold D. Bartley, Springfield, and William R. Gaiser, Dayton, both of Ohio, assignors to Broadway Companies, Inc., Dayton, Ohio

Division of Ser. No. 325,169, Mar. 17, 1989, Pat. No. 4,952,134, which is a continuation-in-part of Ser. No. 157,449, Feb. 19, 1988, Pat. No. 4,861,260. This application Jul. 17, 1990, Ser. No. 554,214
The portion of the term of this patent subsequent to Apr. 2, 2008, has been disclaimed.
Int. Cl.[5] B65D *1/02, 23/00*
U.S. Cl. 215—1 C 2 Claims

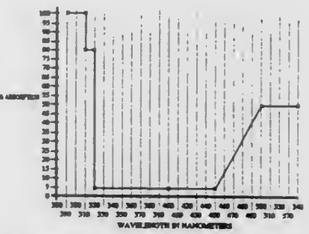
2. A blow-molded, carbonated beverage bottle formed of PET material having a threaded neck portion, a tubular and generally cylindrical body side wall portion, and a curved closure bottom of generally spherical shape, comprising:
a single thickness bi-axially stretched skirt formed as an integral portion of said bottom and extending from a location on said bottom radially inwardly of said body side wall portion in an axial direction with respect to the axis of said bottle, and terminating in a lower surface defining a common plane thereby forming a support for supporting said bottle in an upright position,
said skirt further being defined by an inwardly turned ledge at said lower surface.

5,066,082

SUNBATHING FILTER WITH INCOMPLETE UV-B ABSORPTION

Eric Longstaff, Atlanta, Ga., assignor to B.V. Interlad, Netherlands

Continuation of Ser. No. 232,145, Aug. 15, 1988, abandoned, which is a continuation of Ser. No. 930,602, Nov. 13, 1986, Pat. No. 4,793,668. This application Sep. 21, 1990, Ser. No. 586,406
Int. Cl.[5] G02B *5/22*
U.S. Cl. 359—361 2 Claims



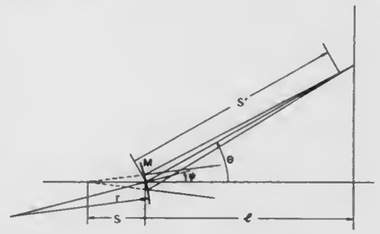
1. A solar radiation filter for promoting sunbathing, which:
is substantially transparent to the safe wavelengths of UV-A radiation in the range 320–400 nm and to light in the range 400–450 nm;
absorbs at least 80% of the UV-B radiation in the range 310–320 nm;
absorbs substantially all UV-B radiation in the range 290–310 nm; and
prevents transmittal of a biologically significant proportion of the visible radiation in the range 450–700 nm and of the IR radiation in the range 700–15,000 nm,
wherein the relatively small portion of UV-B not absorbed stimulates the production of new melanin in a sunbather, which will be later available for tanning by UV-A radiation.

5,066,083

SCANNING OPTICAL SYSTEM

Jun Makino, and Masamichi Tateoka, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 332,041, Apr. 3, 1989, abandoned. This application Jan. 11, 1991, Ser. No. 639,386
Claims priority, application Japan, Apr. 5, 1988, 63-84490; May 17, 1988, 63-121090
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—213 17 Claims



1. A scanning optical system comprising:
a light source;
a lens for converging a light beam from said light source; and
a deflector for deflecting the converged light beam from said lens in a predetermined direction, said deflector having a deflection/reflection surface which sinusoidally oscillates, wherein when a maximum deflection angle of said deflector

VOL
1132
ISS
3
NO
19
1991
UMI

is represented by ψ_{max} a within a deflection plane of said deflector, the following condition is satisfied:

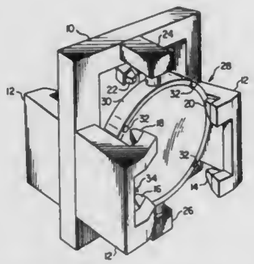
$$38° \leqq \psi_{max} \leqq 50°$$

5,066,084

CONSTANT VELOCITY SCANNING APPARATUS

Gordon W. Culp, Van Nuys, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Feb. 6, 1989, Ser. No. 306,351
Int. Cl.[5] G02B *26/08*
U.S. Cl. 359—213 **9 Claims**



1. Mirror scanning apparatus comprising, in combination:
base support means;
mirror means pivotally attached to said support means for operating in substantially constant velocity scanning cycles between given angular extremes and including indicia for facilitating the detection of pivotal positioning information of the mirror relative said base support means;
a plurality of combination impact protection means and adjustable direction thrust supplying means for measuring the impact of said mirror means at its travel extreme in a given half of a scan cycle and for supplying an appropriate thrust to said mirror means to return said mirror means to its design velocity for the other half of the scan cycle;
position detecting means mounted in a stationary position relative said base support for providing position signals indicative of angular position of said mirror means relative said base support means; and
control means connected to said impact detection means and said position detecting means for receiving position and impact information therefrom and supplying thrust signals to said thrust supplying means to control the movements of said mirror means whereby substantially constant scan velocity of said mirror means is provided over a given range of movement.

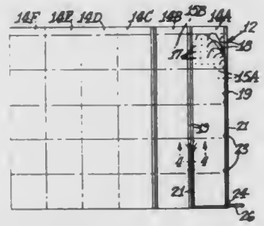
5,066,085

FIBER OPTIC CURTAIN

Aidas Gimbutas, and Marion Gimbutas, both of Wilmington, Del., assignors to Main Light Inc., Wilmington, Del.

Filed Oct. 9, 1990, Ser. No. 594,634
Int. Cl.[5] G02B *6/00*
U.S. Cl. 385—115 **9 Claims**

1. A fiber optic curtain, comprising:
a cloth panel having a front face and a rear face; and
a fiber optic strand having a tip at one end with the tip inserted into a hole through the cloth panel from the rear face and secured with adhesive applied around the strand at the rear face of the panel so that the tip is substantially perpendicular to and substantially flush with the front face



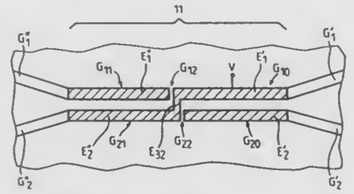
of the cloth and the other end of the fiber optic strand is connected to a light source.

5,066,086

SEMICONDUCTOR DEVICE COMPRISING A DIRECTIONAL COUPLER FOR THE TE AND TM COMPONENTS

Johannes Angenent, Paris, and Jean A. Cavailles, Saint-Mande, both of France, assignors to U.S. Philips Corp., New York, N.Y.

Filed Jul. 20, 1990, Ser. No. 558,116
Claims priority, application France, Jul. 28, 1989, 89 10189
Int. Cl.[5] G02B *6/10*
U.S. Cl. 385—41 **10 Claims**



1. An integrated semiconductor device including a directional optoelectronic coupler, which coupler comprises two parallel single-mode rectilinear radiation waveguides over a total length D, separated by a small so-called coupling distance d, of which waveguides at least one receives a radiation signal at its so-called input end the coupler further comprising four electrodes of the same conductivity type disposed two by two on each waveguide and at least one other electrode of the opposite conductivity type to permit of the creation of an electric field in the waveguides and, depending on the value of the said electric field, of the passage of the radiation into the waveguide opposed to the input waveguide, which corresponds to the so-called crossover state of the coupler, or of its propagation in the extended direction of entrance, which corresponds to the so-called straight-through state of the coupler, characterized in that the coupler has an operation which is independent of the transverse electrical and transverse magnetic radiation components, TE and TM respectively, present in random proportions in the incoming signal, under the conditions in whcih the structural parameters of the coupler render it possible to ensure that the following relations are true:

$$Z = D/2 \quad (a)$$
$$\phi_{TE} \cdot L_{CTE} = \phi_{TM} \cdot L_{CTM} \quad (b)$$
$$L_{CTM}/L_{CTE} = (1 - m/n)/\epsilon = k \quad (c)$$
$$D/L_{CTM} = [p\sqrt{8}\ /(1 - \epsilon k)]\{1/|\sin[p \cdot \pi/(1 - \epsilon k)]|\} \quad (d)$$

In which relations:
Z is the dimension of the electrodes on the waveguides,

ϕ_{TM} and ϕ_{TE} are the phase mismatches provoked by the refractive-index changes in the waveguides under the influence of an electric field for the TM component and the TE component, respectively,
L_{CTE} and L_{CTM} are the lengths necessary for the given polarization components, TE or TM, respectively, introduced into a waveguide to pass into the other waveguide, called hereinafter coupling length for TE and coupling for TM,
m, n, p are random integer numbers,
$\epsilon = \pm 1$.

5,066,087

OPTICAL FIBER COUPLER

Ryozo Yamauchi, Sakura; Noboru Kawakami, Chiba, and Fumio Suzuki, Sanhu, all of Japan, assignors to Fujikura Ltd., Tokyo, Japan

Filed Mar. 7, 1990, Ser. No. 490,026
Int. Cl.[5] G02B *6/26*
U.S. Cl. 385—43 **10 Claims**



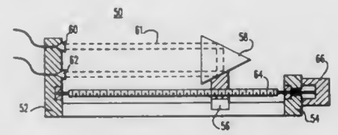
1. An optical fiber coupler formed by fusing a section of each of two or more component optical fibers, and then elongating the fused section to form a fused-elongated region in which at least one of said component optical fibers is a single mode optical fiber having a parameter range such that as the diameter of the core of said optical fiber is reduced, the diameter of the mode field for said optical fiber increases monotonically.

5,066,088

OPTICAL VARIABLE DELAY LINE AND VARIABLE-FREQUENCY FIBER-OPTIC MULTIPLEXER

David K. Davies; Peter J. Chantry, both of Churchill, and Anastasios P. Goutzoulis, Pittsburgh, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 27, 1990, Ser. No. 572,835
Int. Cl.[5] G02B *6/32*
U.S. Cl. 385—25 **10 Claims**



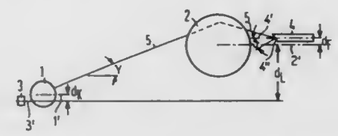
1. A high frequency optical delay line device comprising:
(a) mounting means having a carriage unit, first and second end segments provided on opposite ends of said carriage unit;
(b) a collimating lens secured to said mounting means, said collimating lens connected to a first optical fiber transmitting a signal, said collimating lens producing a collimated beam;
(c) a focusing lens secured to said mounting means and positioned to receive said collimated beam, said focusing lens connected to an optical fiber collector which collects said collimated beam and transmits it through a second optical fiber;
(d) adjustment means provided on said mounting means adapted to adjust the distance travelled by said collimated beam;
(e) a carrier provided in said carriage unit; and
(f) a reflecting means secured to said carrier, said reflecting means positioned to reflect said collimated beam from said collimating lens to said focusing lens;
whereby the adjustment of said distance travelled by said collimated beam produced a change in the delay time.

5,066,089

ARRANGEMENT FOR OPTICALLY COUPLING LIGHT BETWEEN AN ELECTRO-OPTICAL TRANSDUCER AND A LIGHT WAVEGUIDE

Andreas Greil, Munich, and Joachim Bialas, Deisenhofen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 11, 1990, Ser. No. 522,118
Claims priority, application Hague, May 29, 1989, 89 109671
Int. Cl.[5] G02B *6/32*
U.S. Cl. 385—35 **6 Claims**



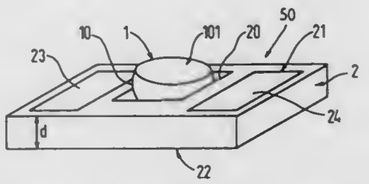
1. An arrangement for optically coupling an electro-optical transducer to a light waveguide, comprising:
first and second lenses each having an optical axis, said first lens being arranged in front of the electro-optical transducer and said second lens being arranged in front of the light waveguide, said optical axis of said first lens being axially offset relative an optical axis of the electro-optical transducer, said optical axis of said second lens being axially offset relative to an optical axis of the light waveguide, said optical axis of said first lens being offset relative to said optical axis of said optical axis of said second lens, and
an end face of the light waveguide directed toward said second lens is being inclined at a bevel angle relative to the optical axis of the light waveguide.

5,066,090

OPTICAL COUPLING ELEMENT HAVING A CONVEX MICROLENS AND THE METHOD OF MANUFACTURE

Franz Mayerhofer, Puchheim; Holger Karstensen, Hohenbrunn; Ralf Dietrich, Munich, and Werner Spaeth, Holzkirchen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 20, 1990, Ser. No. 569,624
Claims priority, application Fed. Rep. of Germany, Sep. 12, 1989, 3930433
Int. Cl.[5] G02B *6/32*; B29D *11/00*; B24B *1/00*
U.S. Cl. 385—35 **11 Claims**



1. A method for manufacturing an optical coupling element having a microlens mounted in a through-hole having a shape of a truncated cone in a carrier lamina with a flattened surface extending parallel to one of the surfaces of the carrier, said method comprising the steps of providing a carrier lamina,

VOL 1132 ISS 3 NO 19 1991 UMI

forming a through-hole having a shape like a truncated cone in the carrier lamina, securing a ball of transparent material in the through-hole with a portion of the ball projecting at least above one flat surface of the carrier lamina to form a spherical cap, and then processing the spherical cap to form a planar surface in the ball extending parallel to the one flat surface of the carrier lamina.

5,066,091

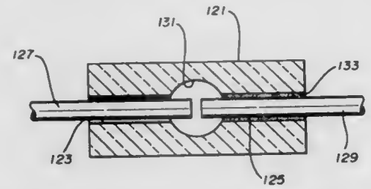
AMORPHOUS MEMORY POLYMER ALIGNMENT DEVICE WITH ACCESS MEANS

George P. Stoy, South Brunswick Township, Middlesex County, N.J.; Francis T. Delahanty, Newtown Township, Bucks County, Pa., and Vladimir A. Stoy, Princeton, N.J., assignors to Kingston Technologies, Inc., Dayton, N.J.

Continuation-in-part of Ser. No. 288,629, Dec. 22, 1988, Pat. No. 4,921,323. This application Mar. 12, 1990, Ser. No. 493,102

Int. Cl.[5] G02B *6/36*

U.S. Cl. 385—98 63 Claims



1. A device for precision alignment of two or more articles with the device permitting access to said articles, which comprises:

a unistructural mass of inherent shape memory material having three dimensions and having at least two cavity-containing ends which include a first cavity at one of said cavity-containing ends formed into the inside of said mass, and a second cavity at another of said cavity-containing ends formed into the inside of said mass to and in a predetermined alignment with said first cavity and at least one separate access cavity formed into said mass and intersecting with at least one of said first or second cavity, said mass having a first shape and a second shape:

(a) said first shape being a unique, recoverable, predetermined inherent shape wherein said first cavity and said second cavity each have a preset cross-sectional configuration to accommodate and tightly hold at least a portion of articles to be aligned with one another; and,

(b) said second shape being a deformed and enlarged shape of said inherent memory material wherein said first cavity and said second cavity each have an enlarged predetermined cross-sectional configuration greater than the cross-sectional configurations of the portions of the articles to be held so as to loosely and freely receive said portions of said articles;

said mass of inherent shape memory material being in said second shape and being capable of being returned to said first shape for precision alignment of said two or more articles by application of a non-mechanical stimulus to said mass.

5,066,092

OPTICAL ARRANGEMENT FOR A FEEDBACK-FREE COUPLING OF A LASER EMISSION EMITTED BY A SEMICONDUCTOR LASER INTO AN OPTICAL FIBER

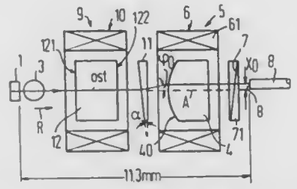
Karsten Droegemueller, Feldkirchen-Westerham, and Ekkehard Klement, Graefelfing, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Sep. 6, 1990, Ser. No. 578,418

Claims priority, application Fed. Rep. of Germany, Sep. 20, 1989, 3931380

Int. Cl.[5] G02B *6/36*

U.S. Cl. 385—33 6 Claims



1. An optical arrangement for a feedback-free coupling of a laser emission divergently emitted by a semiconductor laser into an optical fiber, said arrangement including a first optical lens for receiving the laser emission, a second optical lens arranged following the first lens in the propagation direction of the laser emission and a first optical isolator being arranged in a beam path of the laser emission, said first optical isolator being composed of a Faraday rotator and at least a first polarizer, wherein the second lens being a component part of the Faraday rotator, the improvements comprising a second optical isolator being arranged between the first lens and the first optical isolator, said second optical isolator being composed of a second Faraday rotator and of a second polarizer that has a higher blocking attenuation than a blocking attenuation of the first polarizer.

5,066,093

METHOD FOR ADJUSTING AND FIXING A LENS AND OPTICAL COUPLING ARRANGEMENT MANUFACTURED THEREWITH

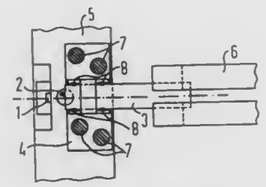
Andreas Greil, and Franz Taumberger, both of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 8, 1990, Ser. No. 490,448

Claims priority, application Fed. Rep. of Germany, Mar. 22, 1989, 3909552

Int. Cl.[5] G02B *6/32*

U.S. Cl. 385—33 19 Claims



9. An arrangement for optically coupling an optical electronic component to an optical lens that is adjusted and fixed on a carrier in front of an optical electronic component, said arrangement comprising a carrier having an opto-electronic component mounted on a surface thereof, a lens being held in an end face of a small metal tube, a metal clip for holding the small metal tube on the carrier in an adjusted position with the lens positioned in front of the opto-electronic component, said clip being welded to the carrier and said metal tube together with the lens being secured in the metal clip by a spot welding between the clip and tube

---

5,066,094

VARIABLE OPTICAL FIBER LIGHT ATTENUATOR

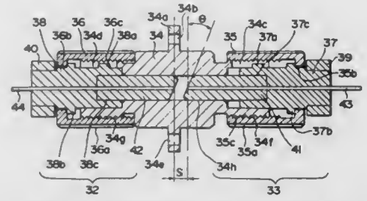
Mitsuo Takahashi, Matsudo, Japan, assignor to Selkoh Giken Co., Ltd., Matsudo, Japan

Filed Feb. 7, 1991, Ser. No. 655,134

Claims priority, application Japan, Sep. 7, 1990, 2-238737

Int. Cl.[5] G02B *6/38*

U.S. Cl. 385—73 9 Claims



1. A variable light attenuator which transmits light power from first to second optical fibers through first and second ferrules after attenuating it by a specified ratio of light power when the light power input from the first optical fiber to first ferrule is transmitted to second optical fiber through second ferrule which is coupled with the first ferrule via an intermediate air gap for use in optical power attenuation comprising:

an alignment adapter which provides an alignment through hole concentrically passing therethrough along the optical axis thereof;

first ferrule fastening means which fastens the first ferrule whose edge is exposed to the intermediate air gap together with the edge of the first optical fiber and is a certain degree inclined to the optical axis, passes the first ferrule through the alignment through hole, and then fastens the first ferrule to the alignment adapter; and

second ferrule fastening means which fastens second ferrule whose edge is exposed to the intermediate air gap together with the edge of the second optical fiber is inclined to the optical axis thereof the same degrees as those of the first ferrule, inserts the second ferrule to the alignment through hole in the opposite side to that whereto the first ferrule is inserted, advances the second ferrule toward the first ferrule without revolving the second ferrule, and sets the gap between the first and second ferrules at an arbitrary value while keeping the edge of the first ferrule together with the edge of the first optical fiber in parallel with the edge of the second ferrule together with the edge of the second optical fiber.

5,066,095

JOINTING BOX FOR OPTICAL FIBER CABLES

Bernard Dekeyser, Dunkerque, and Roland Troude, Calais, both of France, assignors to Alcatel Cable, Cedex, France

Filed Feb. 8, 1991, Ser. No. 652,711

Claims priority, application France, Feb. 9, 1990, 90 01535

Int. Cl.[5] G02B *6/38*

U.S. Cl. 385—99 5 Claims



1. Jointing box for optical fiber cables received over a sheath jointing two cables, comprising two flanges which are generally funnel-shaped, each having a larger diameter first cylindrical part and a smaller diameter second cylindrical part joined by an intermediate frustoconical part, inserted over the opposite end parts of said sheath, said flanges covering said sheath at least partially and surrounding the adjacent areas of said cables, on each respective side of said sheath, and comprising a first heat-shrink material tube shrunk onto the larger diameter first cylindrical part of the flanges and sealing means between the smaller diameter second cylindrical parts of the flanges and said cables, wherein said flanges are provided with peripheral circular grooves on the external surface of said first and second cylindrical parts, said first tube is coated on its inside surface with a sealing material and said sealing means comprise two second heat-shrink material tubes coated on their inside surface with sealing material and adapted to be shrunk onto the smaller diameter second cylindrical part of said flanges and onto said adjacent areas of said cables.

5,066,096

LIGHT WAVEGUIDE PLUG-TYPE CONNECTOR

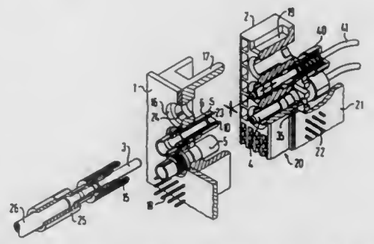
Peter Krausse, Aschheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Feb. 13. 1991, Ser. No. 654,520

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1990, 90001866[U]

Int. Cl.[5] G02B *6/38*

U.S. Cl. 385—58 8 Claims



1. A light waveguide plug-type connector for a rack mounting having two hybrid equipment strips, said connector comprising a first plug, a second plug and a centering sleeve, said centering sleeve being received in a receptacle tube, said tube being mounted in one of the two strips by a threaded sleeve being threadably received into one end of the tube, said first plug being fixably mounted on said one strip and extending into said centering sleeve and means for mounting the second plug on the other strip of the two strips for axial movement, said means for mounting including a spring so that when the two strips are brought together, the second plug extends into the centering sleeve to be centered relative to the first plug and can yield as ends of the two plugs engage each other.

5,066,097

CONNECTOR FOR AN OPTICAL CABLE

Hubert Brändle, Otelfingen; Lothar Schultheis, Fislisbach, and Walter Riiegg, Endingen, all of Switzerland, assignors to ASEA Brown Boveri Ltd., Baden, Switzerland

Filed Aug. 14, 1990, Ser. No. 566,767

Claims priority, application Switzerland, Sep. 14, 1989, 3362/89

Int. Cl.[5] G02B *6/40*

U.S. Cl. 385—76 10 Claims

1. A connector for an optical cable having a plurality of glass fibers for signal transmission, comprising:

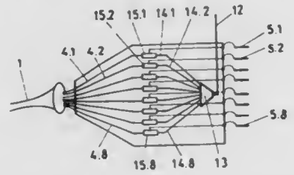
a plurality of electrical plug contacts;

first means for converting an electrical signal into an optical signal, having an electrical side in which said plurality of electrical plug contacts are disposed and an optical side in which said plurality of glass fibers are disposed, such that each of said plurality of electrical plug contacts is coupled to a corresponding one of said plurality of glass fibers, and

VOL 1132 ISS 3 NO 19 1991 UMI

having a plurality of integrated optical switches controlled by electrical signals applied to said electrical plug contacts; and

a common light source for providing light to said plurality of



glass fibers for signal transmission, said light being distributed from the common light source to said plurality of integrated optical switches and controllably transmitted to said plurality of glass fibers by said integrated optical switches.

5,066,098

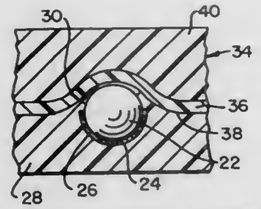
CELLULAR ENCAPSULATED-LENS HIGH WHITENESS RETROREFLECTIVE SHEETING WITH FLEXIBLE COVER SHEET

Roger R. Kult, Maplewood; Terry R. Bailey, and Howard R. Tolliver, both of Woodbury, all of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Continuation of Ser. No. 532,175, Jun. 4, 1990, abandoned, which is a continuation of Ser. No. 423,514, Oct. 13, 1989, abandoned, which is a continuation of Ser. No. 50,620, May 15, 1987, abandoned. This application Feb. 19, 1991, Ser. No. 657,874

Int. Cl.[5] G02B *5/128*

U.S. Cl. 359—540 **29 Claims**



1. A cellular, encapsulated-lens retroreflective sheeting comprising: (1) a base sheet that comprises a monolayer of retroreflective elements partially embedded in a binder layer; (2) a cover sheet disposed in spaced relation from the layer of retroreflective elements; and (3) a network of narrow intersecting bonds that extend between said cover sheet and said base sheet and comprise binder material thermoformed at the point of contact between said bonds and said cover sheet so as to adhere said base sheet and said cover sheet together and from a plurality of cells within which retroreflective elements are hermetically sealed;

wherein the cover sheet comprises an inner layer and at least a structural layer, said inner layer having an inside major surface that is in adherent contact with said intersecting bonds, and an outside major surface adhered to said structural layer of said cover sheet, and said inner layer having a Vicat Softening point of at least said structural layer of said cover sheet, said Vicat Softening Point of said inner layer also being higher than the minimum temperature at which said binder material was thermoformable into contact with said cover sheet, such that said inner layer improved the interaction between said cover sheet and said retroreflective elements so that when said binder material was thermoformed into contact with said cover sheet the flow of said binder material around the front surfaces of said retroreflective elements was improved.

5,066,099

REAR PROJECTION SCREEN AND METHOD OF PRODUCING THE SAME

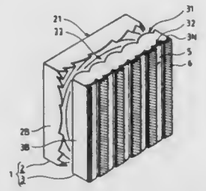
Takahoko Yoshida, Miura; Masayuki Muranaka, Yokohama; Hiroki Yoshikawa, Hiratsuka; Koji Hirata, Kamakura; Isao Yoshizaki, Yokohama; Masakuni Teratani, Setagaya, and Nobuhiro Konuma, Yokohama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 24, 1990, Ser. No. 513,854

Claims priority, application Japan, Apr. 26, 1989, 1-104435

Int. Cl.[5] G03B *21/60*

U.S. Cl. 359—457 **24 Claims**



1. A rear projection screen comprising one or more sheet members, wherein a base constituting the last sheet member, through which light transmitted sequentially through the sheet members from the side of a plane of incidence is transmitted last, comprises a transparent material, and a light diffusing layer is provided at a plane of emergence of the last sheet member, the light diffusing layer including a light diffuser and a transparent binder, the transparent binder having a refractive index different from a refractive index of the light diffuser and being at least one of an ultraviolet curable material and a colored material.

5,066,100

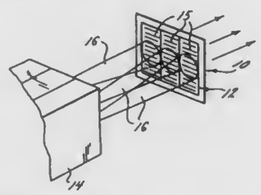
BINARY ALIGNMENT CORRECTOR

Ronald A. Ferrante, St. Charles, Mo., assignor to McDonnell Douglas Corporation, St. Louis, Mo.

Filed Dec. 24, 1990, Ser. No. 632,928

Int. Cl.[5] G02B *5/18*

U.S. Cl. 359—569 **6 Claims**



5. An apparatus for aligning a plurality of laser beams, comprising a plurality of diffraction gratings wherein each individual diffraction grating corresponds to an individual laser beam and has a grating period selected to compensate for the angular misalignment of the corresponding individual laser beam.

5,066,101

COLOR SEPARATION OPTICAL SYSTEM AND METHOD OF MANUFACTURING THE SAME

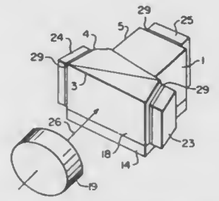
Shinichiro Aoki, Kawasaki; Koichi Kawata, Tokyo; Yasuyuki Morita, Yokohama; Akitoshi Mori, Kawasaki; Yuji-Hashidate, Tokyo; Tatsuki Tsukada, Yokohama, and Hiroshi Nakamura, Kawasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Division of Ser. No. 193,614, May 13, 1988, Pat. No. 4,890,899. This applicatioo Oct. 17, 1989, Ser. No. 422,712

Claims priority, application Japan, May 18, 1987, 62-120469; May 18, 1987, 62-120471; May 18, 1987, 62-120472; May 29, 1987, 62-135232

Int. Cl.[5] G02B *27/14, 5/04*

U.S. Cl. 359—638 **3 Claims**



1. A color separation optical system comprising:

a base;

a set of prisms separating incident light into components having different wavelengths, the prisms having a predetermined thermal expansion coefficient;

means for fixing the prism set to the base;

image pickup devices exposed to the respective light components and having a predetermined thermal expansion coefficient which differs from the thermal expansion coefficient of the prisms; and

means for bonding the image pickup devices to the prism set;

wherein the bonding means comprises means for compensating a difference in thermally induced deformation quantity between the image pickup devices and the prisms to maintain a positional relation between the image pickup devices and the prisms.

5,066,102

COMBINER FOR HEAD-UP DISPLAY AND GLASS WITH DURABLE REFLECTIVE COATING

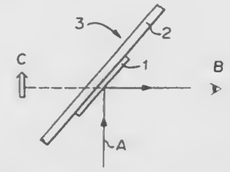
Akira Hirano, Yokohama, Japan, assignor to Asahi Glass Company, Ltd., Tokyo, Japan

Filed Oct. 9, 1990, Ser. No. 594,630

Claims priority, application Japan, Oct. 9, 1989, 1-117962[U]; Dec. 26, 1989, 1-334857

Int. Cl.[5] G02B *27/14, 5/26, 1/10*

U.S. Cl. 359—630 **10 Claims**



1. A combiner for head-up display comprising a combiner part which comprises a coating formed on a part of a surface of a windshield glass, said combiner part having a difference between a maximum reflectance and a minimum reflectance at the surface of said coating of not more than 5% in a wavelength range of 100 nm within the visible light region, said combiner part having a visible light reflectance, with an incident angle of approximately 0°, in a range of from 9 to 18% and a visible light transmittance of at least 70%, said coating being a composite oxide of Ti, Ta and Si.

5,066,103

HELICOID THREADED TUBE OF SYNTHETIC RESIN AND LENS BARREL COMPRISING IT

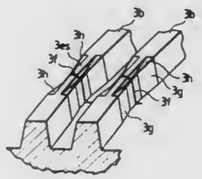
Yoshiro Kodaka, Tokyo, and Kiyonobu Takabayashi, Kawasaki, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Nov. 27, 1989, Ser. No. 441,561

Claims priority, application Japan, Nov. 29, 1988, 63-299658

Int. Cl.[5] G02B *7/02*

U.S. Cl. 359—823 **6 Claims**



4. A lens barrel, comprising:

a male helicoid threaded tube and a female helicoid threaded tube which are engageable together by means of the threads thereof, at least one of said male and female threaded tubes comprising:

a hollow cylindrical member of synthetic resin formed by molding a synthetic resin by means of a split mold having matching surface;

primary threads of predetermined height integrally formed with the cylindrical member and helically extending on the inner or outer surface thereof and having a cross section which is substantially trapezoidal at all portions thereof except split line segments thereof where the matching surfaces of the split mold intersect with the cylindrical member; and

relief thread portions centered at the split line segments and continuously extending from the primary threads with a gradually narrowing width, the relief thread portions having a height substantially equal to that of the primary threads.

5,066,104

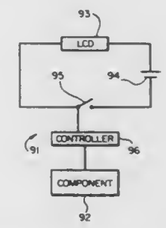
LIQUID CRYSTAL ELECTRICAL FAULT INDICATORS

Manoochehr Mohebban, Foster City; Wayne Montoya, Newark; Robert Parker, Alamo, and Dennis C. Siden, Portola Valley, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Filed Mar. 25, 1988, Ser. No. 173,407

Int. Cl.[5] G02F *1/13*

U.S. Cl. 359—43 **18 Claims**



1. An electrical apparatus having a liquid crystal fault indicator, comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

an electrical component subject to electrical fault;

a smectic liquid crystal display having an indicating element having a first and second visual state, said indicating element being capable of transitioning from the first to the second visual state upon the application of an electrical field sufficient to realign the smectic liquid crystal material contained therein and remaining in the second visual state after the removal of the electrical field and further being capable of transitioning from the second to the first visual state upon heating to at least a delatching temperature T_d sufficient to destroy the electric field induced alignment of the smectic liquid crystals and to cause the indicating element to revert to its first visual state upon cooling to ambient temperature; and

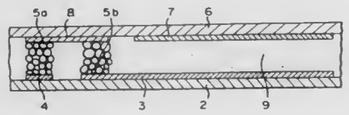
fault signal means in the form of an electrical connection between said liquid crystal display and said electrical component and responsive to the fault state of said electrical component and capable of providing, upon the occurrence of a fault, an electrical signal sufficient to cause said indicating element to transition from a visual state indicative of an unfaulted condition to a visual state indicative of a faulted condition.

5,066,105

LIQUID CRYSTAL DISPLAY DEVICE HAVING VARISTOR LAYERS SUBSTANTIALLY FREE FROM CROSS-TALK

Hataaki Yoshimoto, Chiba, and Katsuhiro Ito, Ichihara, both of Japan, assignors to UBE Industries, Ltd., Ube, Japan

Filed Oct. 17, 1990, Ser. No. 599,114
Claims priority, application Japan, Oct. 18, 1989, 1-268999
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—58 **8 Claims**



1. A liquid crystal display device comprising:

a first transparent base;

a plurality of picture element electrodes arranged on the first base;

a plurality of signal lines for supplying electric signals to the picture element electrodes and arranged adjacent to and spaced from the picture element electrodes on the first base;

a second transparent base arranged in parallel to and spaced from the first base;

a plurality of scanning electrodes arranged on the second base and facing and spaced from the picture element electrodes;

a plurality of transit electrodes arranged on the second base, facing and spaced from the corresponding signal lines and the picture element electrodes on the first base and spaced from the scanning electrodes on the second base;

a liquid crystal material layer arranged between the picture element electrodes and the scanning electrodes; and

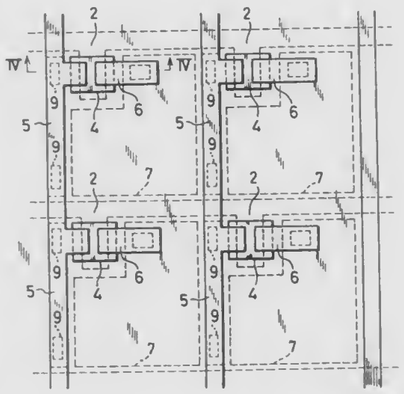
a plurality of varistor layers comprising fine varistor particles and each extending from at least one of the corresponding picture element electrode and signal line to the corresponding transit electrode to electrically connect the picture element electrodes to the signal lines through the varistor layers and the transit electrodes.

5,066,106

LIQUID CRYSTAL DISPLAY DEVICE HAVING REDUNDANT BUSES

Hirokazu Sakamoto; Makoto Ohtani; Naoki Nakagawa; Taro Maejima, and Masahiro Hayama, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 13, 1989, Ser. No. 296,763
Claims priority, application Japan, Jan. 27, 1988, 63-17808
Int. Cl.[5] G02F *1/133*; H01L *27/01*
U.S. Cl. 359—59 **5 Claims**



2. A liquid crystal display device comprising:

a transparent insulating substrate;

a transparent conductive film disposed on said substrate;

a display electrode disposed on said transparent conductive film;

a plurality of spaced apart gate electrode conductors disposed on said substrate;

a gate electrode extending from one of said gate electrode conductors and disposed on said substrate;

a gate insulation film disposed on said gate electrode, said gate electrode conductors, and said display electrode;

a semiconductor film disposed on said gate insulation film overlying said gate electrode;

a plurality of spaced apart source conductors disposed on said gate insulation film, crossing and insulated from the gate electrode conductors by said gate insulation film;

a drain electrode electrically connected to and disposed on part of said display electrode and said semiconductor film and disposed on part of said gate insulation film;

a plurality of lower layer source conductors formed simultaneously with said gate electrode conductors and disposed on said substrate; and

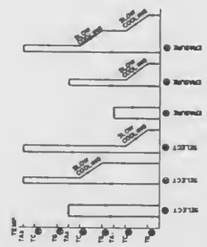
a source electrode electrically connected to one of said source conductors, electrically connected to and disposed on said semiconductor film, and disposed on part of said gate insulation film wherein said gate insulation film includes a plurality of openings, each opening being disposed beneath one of said source conductors, extending to a respective lower layer source conductor, spaced from and adjacent to a gate conductor where said gate conductor crosses the respective source conductor, a portion of the respective source conductor filling each of the respective openings in electrical contact with said respective lower layer source conductor.

5,066,107

LIQUID CRYSTAL DISPLAY MEDIUM, LIQUID CRYSTAL DISPLAY METHOD AND LIQUID CRYSTAL DISPLAY APPARATUS FOR OUTPUTTING COLOR IMAGES

Kazuo Yoshinaga, Machida; Shuzo Keneko, Yokohama; Takashi Kai, Hadano; Kazuo Isaka, and Toshikazu Ohnishi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 14, 1989, Ser. No. 365,721
Claims priority, application Japan, Jun. 16, 1988, 63-146794; Jun. 16, 1988, 63-146795; Jun. 16, 1988, 63-146796
Int. Cl.[5] G02F *1/33*
U.S. Cl. 359—45 **19 Claims**



1. A liquid crystal display medium having a display face and comprising a plurality of display layers laminated parallel to the display face, each display layer comprising a polymer liquid crystal having a mesomorphic temperature range between its glass transition temperature and the upper limit temperature of a liquid crystal phase for display, wherein the mesomorphic temperature ranges of said plurality of display layers do not overlap each other.

5,066,108

HIGH THROUGHPUT CONTRAST ENHANCEMENT FOR POLARIZED DISPLAYS

Mark E. McDonald, Playa del Rey, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Dec. 22, 1989, Ser. No. 455,115
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—65 **2 Claims**



1. A polarized display comprising:

a display source for producing source imaging illumination that includes linearly polarized imaging illumination;

a first quarter-wave retarder having a fast axis for transforming the linearly polarized imaging illumination to circularly polarized imaging illumination;

a second quarter-wave retarder having a fast axis for transforming the circularly polarized imaging illumination to linearly polarized illumination having the same polarization orientation as the source imaging illumination, said second quarter-wave retarder having its fast axis oriented 90 degrees relative to the fast axis of said first quarter-wave retarder; and

a linear polarizer responsive to the linearly polarized imaging illumination provided by said second quarter-wave retarder for providing an image viewable by an observer of the display;

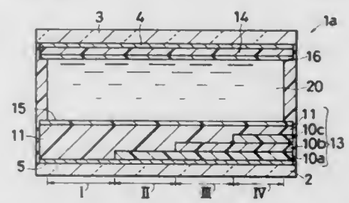
whereby said second quarter-wave retarder and said linear polarizer function to substantially block reflection that results from ambient light that passes through said second quarter-wave retarder and is reflected back through the second quarter-wave retarder toward said linear polarizer.

5,066,109

HALF-TONE LIQUID CRYSTAL DISPLAY DEVICE

Tomoaki Kuratate; Mitsuhiro Koden, and Hiroshi Hamada, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Sep. 1, 1989, Ser. No. 401,921
Claims priority, application Japan, Sep. 2, 1988, 63-220860
Int. Cl.[5] G02F *1/13*
U.S. Cl. 359—54 **24 Claims**



1. A display device having plural arrays of unit display regions each comprising:

at least a pair of electric insulating substrates having conductive films for defining the unit display regions, between which is placed a display layer possessing a threshold voltage for changing over an active state/inactive state, formed on mutually confronting surfaces thereof, said display layer of uniform thickness within each of the unit display regions; and

electric insulating films formed on the mutually confronting surfaces of said electric insulating substrates on which said conductive films are formed,

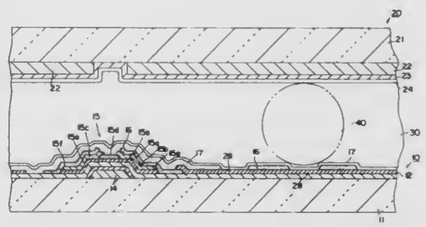
the ratio of impedance of said electric insulating film of at least one of said electric insulating substrates to impedance of said display layer is plural and of mutually different values within each unit display region.

5,066,110

LIQUID CRYSTAL DISPLAY APPARATUS

Shigeaki Mizushima, Ikoma; Eiichiro Nishimura, Nara; Seiji Fukami, Tenri; Ryuji Hashimoto, Tenri; Hisato Nagatomi, Tenri; Michihisa Onishi, Nara; Mitunobo Miyamoto, and Shoji Mitamura, both of Tenri, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 22, 1989, Ser. No. 454,781
Claims priority, application Japan, Dec. 26, 1988, 63-328150; Feb. 20, 1989, 1-41190; Oct. 23, 1989, 1-276332
Int. Cl.[5] G02F *4/43*
U.S. Cl. 359—54 **8 Claims**



1. A liquid crystal display apparatus comprising a pair of insulating substrates, a large number of picture element elec-

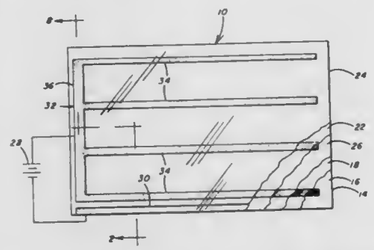
VOL
1132
ISS
3
NO
19
1991
UMI

trodes disposed into a matrix on the inner surface of one of said substrates, a function element electrically connected to each of said picture element electrodes, and a liquid crystal layer charged between said pair of substrates, wherein said display apparatus further comprises on one said substrate, an insulating protective film made of an inorganic nitride, said insulating protective film being formed on said picture element electrode except for areas that constitute window regions, and an orientation film of a polyimide resin formed on the entire surface of said insulating protective film and window region, wherein said orientation film has been rubbing-processed in a first direction.

5,066,111
ELECTROCHROMIC WINDOW WITH INTEGRATED BUS BARS

David E. Singleton, Natrona Heights; Kuo-Chuan Ho, Pittsburgh, and Charles B. Greenberg, Murrysville, all of Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Sep. 13, 1989, Ser. No. 406,477
Int. Cl.[5] G02F *1/01*
U.S. Cl. 359—275 **19 Claims**

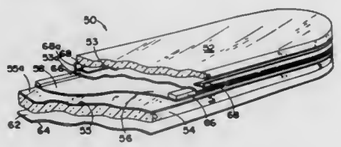


1. In a laminated article having variable transmittance in response to electric potential wherein the article includes:
electrode means comprising an electroconductive film on a surface of a transparent substrate and an electrochromic film in contact with the electroconductive film;
counter electrode means comprising an ion-conductive layer in contact with current conducting means; and
the ion-conductive layer of the counter electrode means in contact with the electrochromic film of the electrode means,
the improvement comprising:
the electrode means comprising:
at least one current conducting member in electrical contact with surface portions of the electroconductive film; and
means providing electrical connection to said at least one current conducting member.

5,066,112
PERIMETER COATED, ELECTRO-OPTIC MIRROR

Niall R. Lynam, and Richard J. Gahan, both of Holland, Mich., assignors to Donnelly Corporation, Holland, Mich.

Filed Dec. 21, 1989, Ser. No. 454,398
Int. Cl.[5] G02F *1/01*
U.S. Cl. 359—267 **54 Claims**

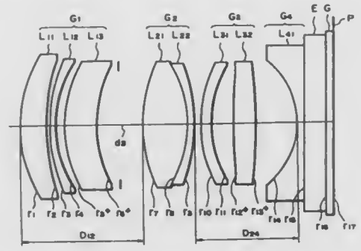


1. An electro-optic mirror assembly comprising:
at least first and second spaced, optically transparent elements, said elements each having a peripheral edge and front and rear facing surfaces and defining a space therebetween;
an electro-optic medium confined in said space the transmittance of said medium being variable upon the application of an electric field thereto;
seal means extending around the entire periphery of said assembly and extending between said first and second elements adjacent said peripheral edges for spacing said elements apart and confining said electro-optic medium in said space;
electrical means for applying an electric field to said electro-optic medium to cause variation in the light transmittance of said medium;
a reflective coating on one of said front and rear facing surfaces of said second element adapted to reflect light incident thereon through said first element and said electro-optic medium; and
a perimeter coating on at least one of a portion of said electrical means and one of said front and rear facing surfaces of said first element adjacent said peripheral edge of said first element for concealing said seal means and portions of said electrical means therebehind when said assembly is viewed from said first element toward said second element.

5,066,113
PROJECTING LENS

Masaya Nakajima, Tokyo, and Atsushi Sekine, Kasukabe, both of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Aug. 16, 1990, Ser. No. 568,045
Claims priority, application Japan, Aug. 18, 1989, 1-212674; Sep. 19, 1989, 1-242506
Int. Cl.[5] G02B *3/00*
U.S. Cl. 359—649 **32 Claims**



1. A projecting lens comprising, when viewed from a screen:
a first lens group having positive refracting power and an aspherical lens thereof;
a second lens group having positive refracting power
a third lens group having positive refracting power and an aspherical lens thereof; and
a fourth lens group having negative refracting power, wherein the following conditions are met assuming that a focal distance of said first lens group is f_{G1}, a focal distance of said third lens group f_{G3} and a focal distance of the overall system is f:

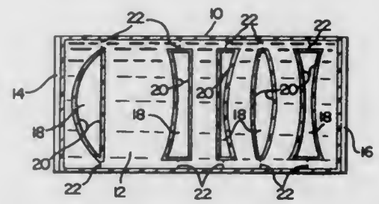
$$0 < f/f_{G1} < 0.25$$

$$0 < f/f_{G3} < 0.3.$$

5,066,114
HIGH REFRACTION INDEX ENVELOPING MEDIUM LENS SYSTEM

Marvin P. Hodges, 1565 Shadowglen Ct., Westlake Village, Calif. 91361

Filed Apr. 26, 1990, Ser. No. 514,606
Int. Cl.[5] G02B *1/06, 3/12*
U.S. Cl. 359—665 **22 Claims**

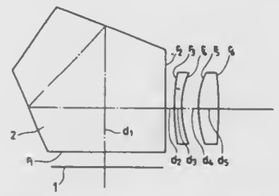


1. A lens system comprising a hollow shell; an enveloping medium having an index of refraction greater than one, said hollow shell having a window disposed at one end thereof; at least one refracting element having an index of refraction lower than that of the enveloping medium contained in said hollow shell; and a transparent chamber having substantially the same index of refraction as said enveloping medium.

5,066,115
VIEW-FINDING OPTICAL SYSTEM CAPABLE OF EYESIGHT ADJUSTMENT

Saburo Sugawara, Kawasaki, Japan, assignor to Asahi Kogaku Kogyo K.K., Tokyo, Japan

Filed Oct. 25, 1989, Ser. No. 426,376
Claims priority, application Japan, Oct. 26, 1988, 63-270383
Int. Cl.[5] G02B *15/14;* G03B *13/02, 13/10*
U.S. Cl. 359—676 **20 Claims**

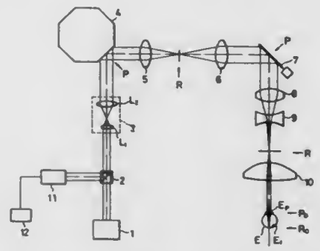


1. A view-finding optical system capable of eyesight adjustment comprising, in order to form a focusing screen side:
a pentaprism;
a negative meniscus first lens having a convex surface on the focusing screen side; and
a biconvex second lens;
wherein eyesight may be adjusted by moving the second lens along an optical axis while the first lens is in a fixed position; and
wherein a ratio of a radius of curvature of a surface of the second lens furthest from said focusing screen side to a radius of curvature of a surface of the first lens closest to the focusing side screen is greater than −2 and less than −0.8.

5,066,116
OPTICAL SYSTEM IN A LASER SCANNING EYE FUNDUS CAMERA

Akihiko Sekine, Tokyo, Japan, assignor to Kabushiki Kaisha Topcon, Tokyo, Japan

Continuation-in-part of Ser. No. 212,388, Jun. 27, 1988, Pat. No. 4,960,327. This application Jul. 6, 1990, Ser. No. 549,178
Claims priority, application Japan, Jul. 15, 1987, 62-176760; May 9, 1988, 63-112070
Int. Cl.[5] A61B *3/10*
U.S. Cl. 351—221 **26 Claims**



1. A laser scanning eye fundus camera, comprising:
an illuminating optical means for illuminating an eye fundus through an eye pupil by scanning the eye fundus with an illuminating laser light from a laser light source, said illuminating optical means including an optical scanning device;
a light receiving optical means for directing light reflected from the eye fundus to a light receiving unit, said light receiving optical system including a display device for displaying an image of the eye fundus in response to a signal from said light receiving unit;
a magnification adjusting means for changing the magnification of the image of the eye fundus on said display device;
beam diameter adjusting means disposed in said illuminating optical system at a position conjugate with the intended position of the pupil for adjusting the beam diameter of the laser beam projected onto said eye fundus; and
means for interlocking said beam diameter adjusting means with said magnification adjusting means wherein an adjustment of said magnification adjusting means to increase the magnification causes said beam diameter adjusting means to be adjusted to reduce the beam diameter.

5,066,117
PERIMETER

Isao Matsumura, Yokosuka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 333,884, Apr. 4, 1989, abandoned, which is a continuation of Ser. No. 191,734, May 2, 1988, abandoned, which is a continuation of Ser. No. 831,703, Feb. 21, 1986, abandoned. This application Jul. 10, 1990, Ser. No. 550,201
Claims priority, application Japan, Feb. 26, 1985, 60-36781; Feb. 26, 1985, 60-36782; Mar. 12, 1985, 60-48629; Mar. 12, 1985, 60-48630; Mar. 12, 1985, 60-48631
Int. Cl.[5] A61B *3/02*
U.S. Cl. 351—226 **31 Claims**

1. A perimeter, comprising in the following order in an optical path:
a semi-transparent member adapted to be disposed in a fixed position in front of an eye to be examined which transmits index light to the eye;
an index imaging system behind said semi-transparent member in the optical path, said index imaging system having a predetermined index adapted to be projected onto a fundus of the eye to be examined by said index imaging system; and

VOL 1132 ISS 3 NO 19 1991 UMI

a light-shielding cover for shielding external light, wherein said index imaging system is in one body rotatable about the iris of the eye to be examined within a range of said semi-transparent member to displace a position of an index

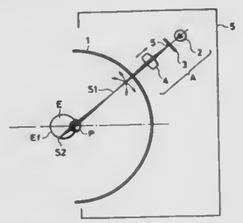


image on the fundus of the eye through said semi-transparent member, and said index imaging system comprises image forming means for moving an intermediate image of said index in the direction of the optical axis toward a position corresponding to a refractive power of the eye.

5,066,118

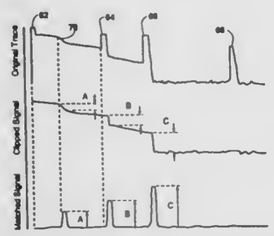
OPTICAL FAULT FINDER USING MATCHED AND CLIPPING FILTERS

Richard Buerli, Thousand Oaks, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 12, 1990, Ser. No. 508,834

Int. Cl.[5] G01N *21/88*

U.S. Cl. 356—73.1 **19 Claims**



1. A device for detectign faults in an optical fiber, comprising:

means for receiving an optical signal emanating from a near end of the optical fiber, said optical signal including at least one discrete loss;

means for optically coupling said receiving means to the near end of the optical fiber; and

processing means electrically connected to said receiving means, said processing means including matched filter means for detectign said discrete loss in said optical signal, said matched filter means sequentially operating on a set of data points derived from said optical signal, said datapoints including: a reference point, at least two datapoints succeeding said reference point.

5,066,119

OPTICAL DEVICE FOR PHASE DETECTION TESTING OPTICAL SYSTEMS, ESPECIALLY OPHTHALMIC LENSES

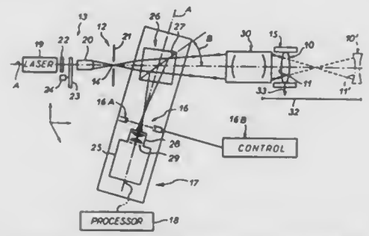
Patrick Bertrand, Issy les Moulineaux, France, assignor to Essilor International, Cie Generale d'Optique, Cretell Cedex, France

Filed May 23, 1990, Ser. No. 527,435

Claims priority, application France, Jun. 5, 1989, 89 07385

Int. Cl.[5] G01B *9/00*

U.S. Cl. 356—124 **13 Claims**



1. Optical device for phase detection testing of an optical system comprising, on an optical path having an optical axis, emission means defining a light source, a holding station for receiving an optical system under test, a diffraction array, image receiving means for receiving an image observable optically downstream of said diffraction array, data processing means connected to the receiving means for exploiting the image by phase detection, a separator element defining a semi-reflecting surface on the axis of the optical path between said emission means and said holding station, said diffraction array and said receiving means being disposed laterally of said separator means relative to the optical path and in optical alignment with said separator element, said data processing means having a ray plotting program and calibration means compensating for theoretical and manufacturing abberations due to said separator element.

5,066,120

OPTICAL DEVICE FOR PHASE DETECTION TESTING OPTICAL SYSTEM, ESPECIALLY OPHTHALMIC LENSES

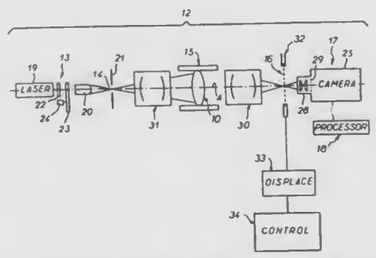
Patrick Bertrand, Issy les Moulineaux, France, assignor to Essilor International, Cie Generale d'Optique, Creteil Cedex, France

Filed May 23, 1990, Ser. No. 527,344

Claims priority, application France, Jun. 5, 1989, 89 07386

Int. Cl.[5] G01B *9/00*

U.S. Cl. 356—124 **8 Claims**



1. Optical device for phase detection testing of an optical system comprising, on an optical path, emission means defining a light source, a holding station for receiving an optical system under test, a diffraction array, image receiving means for receiving an image observable optically downstream of said diffraction array, data processing means connected to the receiving means for exploiting the image by phase detection, a convergence adapter element disposed between said holding station and said diffraction array, said data processing means having a ray plotting program and calibration means for compensating for theoretical and manufacturing abberations due to said convergence adapter element.

5,066,121

METHOD AND APPARATUS FOR MEASURING THE FLASH DURATION OF A FLASH UNIT

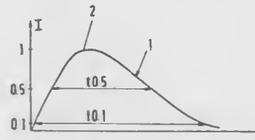
Jean-Francois Bernhard, Morrens, assignor to Bron Elektronik AG, Allschwil, Switzerland

Filed Sep. 29, 1989, Ser. No. 415,075

Claims priority, application Fed. Rep. of Germany, Sep. 30, 1988, 3833208

Int. Cl.[5] G01J *1/42; H01J 40/14*

U.S. Cl. 356—218 **12 Claims**



1. An apparatus for measuring a flash duration of a flash unit, comprising:

at least one sensing element for measuring a light intensity of a flash;

a time-lay element;

a peak detector for detecting a maximum of an electrical signal resulting from converting said light intensity of said flash, with said time-lag element and said peak detector being connected in parallel with said at least one sensing element and each having an output;

a comparator that is connected to said outputs of said time-lag element and said peak detector and itself has an output; and

a time-interval measuring circuit that is connected to said output of said comparator.

5,066,122

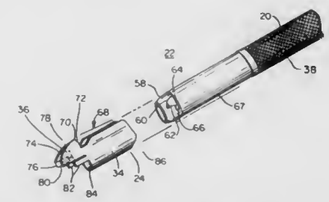
HOOKING CAP FOR BORESCOPE

Allan I. Krauter, Syracuse, N.Y., assignor to Welch Allyn, Inc., Skaneateles Falls, N.Y.

Filed Nov. 5, 1990, Ser. No. 609,464

Int. Cl.[5] G02B *23/16, 23/24*

U.S. Cl. 356—241 **17 Claims**



10. A hooking cap which removably attaches to a generally cylindrical distal tip of an elongated flexible borescope, the hooking cap comprising a generally cylindrical sleeve that circumferentially overfits said borescope distal tip; and at least one wing disposed at a distal end of said sleeve and projecting generally radially to a wing tip that lies radially outward of the tip of borescope a distance sufficient to permit hooking onto a projection, each said wing including a tab formed thereon a side away from the wing tip, the tab having an axial edge and a circumferential edge to engage axial and proximal circumferential shoulders on the borescope distal tip.

5,066,123

DEVICE FOR ELECTROTHERMAL ATOMIZING OF SAMPLES FOR SPECTROSCOPIC PURPOSES

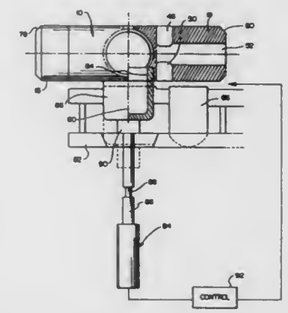
Rolf Tamm, Salem; Gunther Rodel, Owingen, and Erich Stengele, Taisersdorf, all of Fed. Rep. of Germany, assignors to Bodenseewerk Perkin Elmer GmbH, Uberlingen, Fed. Rep. of Germany

Filed Feb. 16, 1990, Ser. No. 481,834

Claims priority, application Fed. Rep. of Germany, Mar. 8, 1989, 3907454

Int. Cl.[5] G01N *21/74*

U.S. Cl. 356—312 **4 Claims**



1. In a device for electrothermal atomization of samples for spectroscopic purposes, comprising:

a furnace body made of an electrically conductive, spectroscopically inert material,

means for passing electrical current through the furnace body,

a sample receptacle comprising a pot which is separated from the furnace body and projects into a lateral aperture of the furnace body,

a rod made of thermally insulating material and comprising at least one contraction,

a driving device connected to said sample receptacle via said rod for moving said pot into and out of thermal contact with the furnace body,

a controlling device for controlling the driving device and the electrical heating current through the furnace body, for causing said sample receptacle to engage said furnace body during a drying and decomposing step and thereafter to be removed from the furnace body by said driving device, and with said sample receptacle removed, for causing said furnace body to be heated to an atomization temperature, and then moved into contact with said sample receptacle.

5,066,124

ATOMIC ABSORPTION SPECTROPHOTOMETER FOR SIMULTANEOUS MULTI-ELEMENT ANALYSIS

Jurgen Wulf, Uberlingen, Fed. Rep. of Germany, assignor to Bodenseewerk Perkin Elmer GmbH, Uberlingen, Fed. Rep. of Germany

Filed Apr. 23, 1990, Ser. No. 513,395

Claims priority, application Fed. Rep. of Germany, Jul. 21, 1989, 3924060

Int. Cl.[5] G01N *21/71, 21/74;* G01J *3/36*

U.S. Cl. 356—312 **4 Claims**

1. Atomic absorption spectrophotometer for simultaneous

VOL 1132 ISS 3 NO 19 1991 UMI

measurement of atomic absorption of a plurality of elements, comprising:

a plurality of line-emitting light sources for simultaneously emitting resonant lines of respective ones of a plurality of looked-for elements;

optical coupler means for superimposing upon each other the resonant lines simultaneously originating from said plurality of line-emitting light sources in order to form a single light beam containing the superimposed resonant lines from the plurality of line-emitting light sources;

an atomizing device for atomizing a sample under investigation and for generating an atomic vapor in which the looked-for elements of the sample are present in their atomic state;

optical means for passing the single light beam through the atomic vapor;

detector means for receiving said single light beam after passage through said atomic vapor, for separately detecting the absorptions to which the resonant lines of the different looked-for elements in the sample are subjected;

light guide means which only insignificantly absorb light in the spectral range of the resonant lines emitted by the plurality of line-emitting light sources;

said light guide means being disposed intermediate said plurality of line-emitting light sources and said optical coupler means, for guiding the emitted resonant lines from the line-emitting light sources to said optical coupler means;

said optical coupler means constituting an integrated optical system containing a plurality of entrance-side light guides for receiving the emitted resonant lines from said light guide means, and a common exit-side light guide which is coupled to said entrance-side light guides; and

an exit light guide coupled to said common exit-side light guide of said optical coupler means for directing said single light beam from said optical coupler means to said atomizing device.

5,066,125

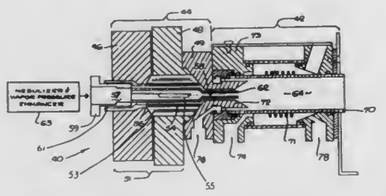
ELECTROTHERMAL DIRECT INJECTION TORCH FOR INDUCTIVELY COUPLED PLASMA

Michael D. G. Rogers, and William B. Henderson, both of Torrance, Calif., assignors to Geochemical Services, Inc., Rocklin, Calif.

Continuation of Ser. No. 191,723, May 6, 1988, abandoned, which is a continuation of Ser. No. 23,069, Mar. 6, 1987, abandoned. This application Nov. 15, 1989, Ser. No. 436,970

Int. Cl.[5] G01N *21/73, 21/74*

U.S. Cl. 356—316 **15 Claims**



1. A spectroscopy apparatus for atomizing and analyzing the spectra of test samples, comprising:

electro-thermal atomization means for atomizing test samples, the atomization means having an outlet through which the atomized test samples may exit, and heating means for heating both the test sample and the outlet; and

an inductively coupled plasma torch for ionizing and exciting the atomized test samples, said torch having a containment wall within which the atomized test samples are ionized and excited, the outlet of the atomizer means being located adjacent to or within the boundaries of the containment wall.

5,066,126

OPTICAL SPECTRUM ANALYZER

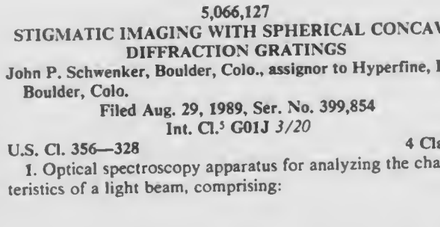
Masami Hatori, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jul. 18, 1989, Ser. No. 385,746

Claims priority, application Japan, Jul. 19, 1988, 63-179648

Int. Cl.[5] G01J *3/28, 3/06;* **G02B** *6/10*

U.S. Cl. 356—328 **4 Claims**



1. An optical spectrum analyzer comprising:

i) an optical waveguide made of a material capable of propagating a surface elastic wave therethrough;

ii) surface elastic wave generating means for generating in said optical waveguide a surface elastic wave which has a continuously varying frequency and which diffracts and deflects a guided wave as it travels across the path of a guided wave, which guided wave is introduced as a measured light beam into and travels in said optical wave guide;

iii) light detecting means for detecting said measured light beam which has been deflected by said surface elastic wave and emitted from said optical waveguide;

iv) modulating means for turning on and off said surface elastic wave by repeatedly energizing and de-energizing said surface elastic wave generating means, the frequency of the modulation being lower than the continuously varying frequency;

v) filter means for receiving a signal corresponding to said modulation frequency from said modulating means and a signal corresponding to said measured light beam from said light detecting means, and for extracting a signal component having the same frequency as said modulation frequency from said signal received from said light detecting means; and

vi) frequency detecting means which is responsive to said signal component extracted by said filter means and detects the frequency of said surface elastic wave when said measured light beam is detected by said light detecting means.

5,066,127

STIGMATIC IMAGING WITH SPHERICAL CONCAVE DIFFRACTION GRATINGS

John P. Schwenker, Boulder, Colo., assignor to Hyperfine, Inc., Boulder, Colo.

Filed Aug. 29, 1989, Ser. No. 399,854

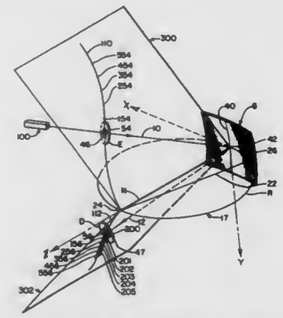
Int. Cl.[5] G01J *3/20*

U.S. Cl. 356—328 **4 Claims**

1. Optical spectroscopy apparatus for analyzing the characteristics of a light beam, comprising:

a concave spherical diffraction grating having a radius of curvature and plurality of parallel diffraction rulings inscribed thereon, wherein one of said rulings is a center ruling that passes through the center of the grating and an optical axis projects outwardly from the center of the grating through the center of curvature of the grating;

beam entrance means for projecting an entrance beam of light through an entrance point; and



beam detection means for detecting a beam of light that passes through said entrance point and is diffracted by said grating to pass through a detection point, wherein said entrance point and said detection point are located at about respective positions defined in relation to the grating and to each other by the equations:

$$Z = R\frac{(1+\cos 2\theta)}{2}$$

$$X = \pm Y = Z\sqrt{\frac{\left(\frac{R}{Z}-1\right)}{\left(2-\frac{R}{Z}\right)}}$$

$$\theta = \sin^{-1}\frac{m\lambda}{2d}$$

where:

R=radius of curvature of the grating;

d=spacing of the rulings;

m=order number of the diffracted beam being detected;

λ=wavelength of the diffracted beam being detected; and

Θ=the in-plane diffraction angle for the particular grating and wavelength; and

further, where the X, Y, and Z values are spatial positions in an X, Y, Z coordinate system wherein the origin of the coordinate system is coincident with the optical center of the grating where the light is incident, the Z coordinate axis is collinear with the optical axis, the X coordinate axis is orthogonal to both the Z axis and the central ruling, and the Y coordinate axis is orthogonal to both the Z and X coordinate axes.

5,066,128

DIGITAL PULSE COUNTING METHOD FOR MEASURING THE OPTICAL PATH DIFFERENCE OF AN IMBALANCED INTERFEROMETER

Zhuo-Jun Lu, Pierrefonds, Canada, assignor to Canadian Marconi Co., Montreal, Canada

Filed Mar. 27, 1990, Ser. No. 499,798

Claims priority, application Canada, Sep. 5, 1989, 610320

Int. Cl.[5] G01B *9/02*

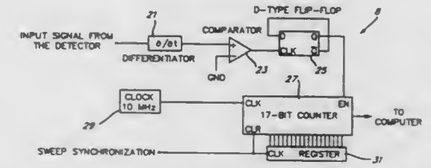
U.S. Cl. 356—349 **3 Claims**

1. A method for measuring the optical path difference of an imbalanced interferometer fed by a laser whose wavelength is modulated, said method comprising the steps of:

applying the output of said laser to said imbalanced interferometer;

measuring light intensity at the output of said imbalanced interferometer, said light intensity comprising a periodic signal having a frequency;

converting the light intensity signal to an electrical signal having the same frequency;



converting the electrical signals to a series of pulses having the sam frequency as the electrical signals;

providing a series of clock pulses having a frequency greater than the frequency of the series of pulses;

counting the clock pulses between two adjacent measured pulses, the count comprising a parameter P;

defining a frequency measurement parameter $\tau = M \times P$ where M is a given predetermined number;

determining Δ from the equation:

$$\frac{d\Delta}{\Delta_o} = -\frac{d\tau}{\tau_o}$$

where Δ_o=the initial optical path difference of the interferometer

τ_o=frequency measurement parameter at Δ

Δ=said optical path difference.

5,066,129

OPTICAL LINEAR ENCODER WITH LIGHT QUANTITY CALABRATION

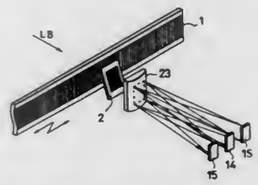
Keiji Matsui, Miwa, Japan, assignor to Kabushiki Kaisha Okuma Tekkosho, Aichi, Japan

Filed Aug. 28, 1990, Ser. No. 574,290

Claims priority, application Japan, Aug. 30, 1989, 1-224016

Int. Cl.[5] G01B *9/02*

U.S. Cl. 356—356 **3 Claims**



1. An averaged diffraction moire position detector which is capable of detecting the relative displacement of a diffraction grating in the lateral direction by using a signal change such that half the pitch P of a diffraction grating which appears at an average value is used as a cycle, comprising:

a first diffraction grating;

a second diffraction grating which is displaced in the lateral direction with respect to the first diffraction grating;

optical-path length adjustment means, disposed between said two diffraction gratings, for varying the optical-path length of the gap between said two diffraction gratings over the range of an optical-path length equivalent to a

VOL
1132
ISS
3
NO
19
1991
UMI

Fresnel number 2 or an integral multiple of 2 for each part of an effective area of said two diffraction gratings; and average value obtaining means for obtaining a signal equivalent to the average value of the diffraction moire signals over the effective areas of said two diffraction gratings, wherein said averaged diffraction moire position detector includes a calibration means for calibrating a relative displacement signal of said diffraction grating in the lateral direction obtained by detecting even-number-order diffracted lights among respective order diffracted lights diffracted by said first and second diffraction gratings, by a calibration signal obtained by detecting odd-number-order diffracted lights among said respective order diffracted lights.

5,066,130

DISPLACEMENT MEASURING APPARATUS

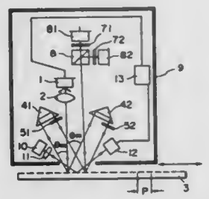
Masaaki Tsukiji, Tokyo; Tetsuharu Nishimura, Kawasaki; Koh Ishizuka, Urawa; Satoshi Ishii, Tokyo, and Yoichi Kubota, Kawasaki, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 4, 1989, Ser. No. 347,397

Claims priority, application Japan, May 10, 1988, 63-113083; Jul. 18, 1988, 63-180022

Int. Cl.[5] G01B *9/02*

U.S. Cl. 356—356 **31 Claims**



1. A displacement measuring apparatus comprising:
a scale relatively displaced to an irradiating beam;
a reading head to read said scale by the irradiating beam; and
control means to control the apparatus for avoiding substantially the leakage of the irradiating beam out of the apparatus in response to the positional error of the scale and the irradiating beam,
wherein said control means comprises modulating means to modulate the intensity of said irradiating beam.

5,066,131

STAGE MECHANISM

Mikio Iwata, Ibaraki; Takao Kariya, Tokyo, and Masaru Ohtsuka, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

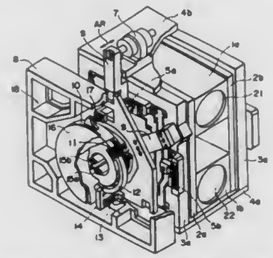
Filed Aug. 2, 1989, Ser. No. 388,484

Claims priority, application Japan, Aug. 17, 1988, 63-203110

Int. Cl.[5] G01B *11/00*

U.S. Cl. 356—401 **20 Claims**

1. A stage device, comprising:
two plate members disposed with a predetermined distance in a Z direction maintained therebetween, each of said plate members comprising a fixed portion, a leaf spring portion, and a first stage portion which are defined by a plurality of grooves, wherein in each plate member, said first stage portion is supported by said fixed portion through said lead spring portion for movement in each of X, Y, and θ directions, relative to said fixed portion;
first driving means for displacing said stage portions in each of the X, Y, and θ directions relative to said fixed portions, wherein each of said plate members is provided with a corresponding first driving means;
coupling means for coupling said stage portions of said plate members to each other;
a second stage portion supported by one of said stage portions through a resilient member, for movement in the Z direction relative to said plate members;



second driving means for displacing said second stage portion in the Z direction relative to said plate members; and
a holding chuck mounted to said second stage portion.

5,066,132

METHOD OF AND APPARATUS FOR INSPECTING PAINT COATING

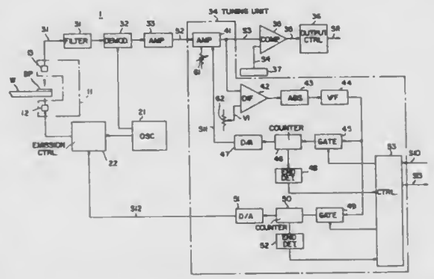
Tsuyoshi Nagata, Ibaragi, and Shinji Okuda, Takarazuka, both of Japan, assignors to Sunstar Engineering, Inc., Osaka, Japan

Filed Aug. 8, 1990, Ser. No. 564,167

Claims priority, application Japan, Aug. 9, 1989, 1-207396; Aug. 9, 1989, 1-207397

Int. Cl.[5] G01N *21/59, 21/88*

U.S. Cl. 356—432 **4 Claims**



2. An inspecting apparatus for inspecting a film-like coating formed on a workpiece, which comprises:
a light emitter and a light receiver adapted to be positioned on respective sides of the workpiece, said light receiver generating a detection signal indicative of the amount of light having passed through the workpiece;
an amplifying means for amplifying the detection signal from the light receiver and for generating an amplified output signal;
a comparing means for comparing the amplified output signal from the amplifying means with a predetermined level and for generating a control signal indicative of a difference between the amplified output signal and the predetermined level;
a zero adjusting means for adjusting the amplified output signal from the amplifier to a zero value; and
a tuning means for tuning the amplified output signal from the amplifier to a predetermined tuned value.

5,066,133

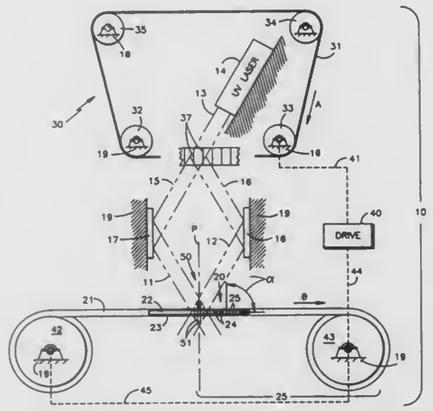
EXTENDED LENGTH EMBEDDED BRAGG GRATING MANUFACTURING METHOD AND ARRANGEMENT

Michael J. Brienza, Easton, Conn., assignor to United Technologies Corporation, Hartford, Conn.

Filed Oct. 18, 1990, Ser. No. 600,645

Int. Cl.[5] G02B *5/18*

U.S. Cl. 359—570 **10 Claims**



1. An arrangement for forming an extended length light redirecting embedded grating in an elongated solid material optical waveguide having a longitudinal axis, comprising:
a support;
means for supporting the optical waveguide on said support with the longitudinal axis extending in a predetermined direction such that a portion thereof is situated at a predetermined location;
means mounted on said support for directing a coherent light beam of a frequency in the ultraviolet range in a predetermined primary path transversely toward the waveguide;
a diffraction grating supported on said support such that a section thereof extends through a zone of said primary path that is disposed at a predetermined spacing from the waveguide, said diffraction grating having a dimension normal to said primary path that exceeds the corresponding dimension of said primary path;
means for effectuating relative movement along said direction between, said portion and said section in unison, relative to said primary path, with attendant diffraction of said light beam at said diffraction grating into two mutually frequency shifted partial light beams propagating in diverging secondary paths beyond said diffraction grating and toward the waveguide with at least one of said secondary paths being aimed at a region remote from said location; and
means, mounted on said support such as to be stationary relative to said directing means and interposed between said diffractive grating and the waveguide, for causing at least the other of said partial light beams to travel toward said location with attendant formation of an interference pattern having respective high intensity fringes which extend through the waveguide at respective positions that are stationary relative to the waveguide to effect refractive index changes at such positions along a length of the waveguide that exceeds that of said portion.

5,066,134

FLUID AGITATOR

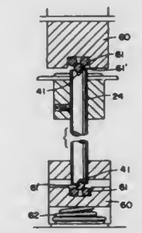
Yataro Nagai; Sanjiro Nagai; Mitsuyoshi Matsushita; Hiroshi Ohbori; Yuji Yamauchi, all of Tokyo, Japan, assignors to Tanken Seiko Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 423,648, Oct. 17, 1989, Pat. No. 4,982,373, which is a continuation of Ser. No. 45,056, Mar. 6, 1987, abandoned. This application Aug. 9, 1990, Ser. No. 589,459

Claims priority, application Japan, Aug. 8, 1985, 60-181646; Dec. 26, 1985, 60-292292

Int. Cl.[5] B01F *13/02, 7/18*

U.S. Cl. 366—102 **6 Claims**



1. A fluid agitator installed in a closed space holding fluid to be stirred, comprising:
an agitation chamber provided in said closed space, said agitation chamber comprising a fluid to be stirred inlet and a separate outlet for the stirred fluid;
a turbine chamber provided in said closed space;
sealing means substantially sealing said turbine chamber from said agitation chamber;
a turbine blade set in said turbine chamber;
means for introducing driving fluid into said turbine chamber from outside of said closed space, for driving and rotating said turbine blade;
means for transmitting the rotation of said turbine blade to the outside of said turbine chamber; and
an agitating blade connected to said transmitting means outside of said turbine chamber.

5,066,135

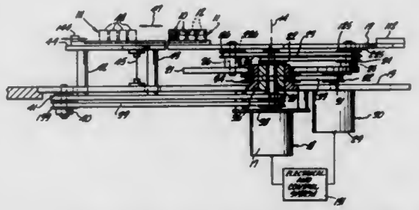
ROTATABLE VORTEXING TURNTABLE

Richard C. Meyer, La Habra, and Duane G. Barber, Yorba Linda, both of Calif., assignors to Beckman Instruments, Inc., Fullerton, Calif.

Filed Aug. 9, 1988, Ser. No. 230,208

Int. Cl.[5] B01F *11/00;* **B06B** *1/10;* **G01N** *21/13*

U.S. Cl. 366—208 **39 Claims**



1. A rotatable turntable comprising a vortexing plate on which reactants are to be located for vortexing action, a first motive drive including a shaft rotatable about a central axis for moving the plate with the vortexing action, a second motive drive including a drive shaft rotatable about an axis for causing the plate to rotate, both the first motive drive and the second motive drive include motive housings, and both the axes of rotation of the drive shafts and the motive housings being mounted to be non-rotational during operation of the first and

VOL 1132 ISS 3 NO 19 1991 UMI

the second motive drives, wherein the vortexing plate is circular, the turntable including a rotatable drive plate having a central axis of rotation cooperatively mounted below the vortexing plate, a base plate cooperatively mounted below the drive plate, and a mounting on the base plate for locating the drive plate relative to the base plate, the base plate being stationary, the drive plate being subject to rotation about the axis of rotation and being free of vortexing action, and the vortexing plate being subject to vortexing and rotational movement, wherein the vortexing plate includes radially located reactant stations about the plate, the reactants for vortexing being located at selected reactant stations, and wherein both the first and second motive housings are mounted below the drive plate.

5,066,136

VIBRATORY MIXERS

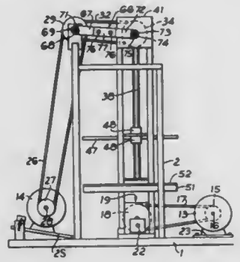
Alan S. Johnson, Maidenhead, Great Britain, assignor to Red Devil, Inc., Union, N.J.

Continuation of Ser. No. 162,548, Mar. 1, 1988, abandoned. This application Oct. 29, 1990, Ser. No. 608,023

Claims priority, application United Kingdom, Jul. 1, 1986, 8616034; Jun. 25, 1987, PCT/GB87/00446

Int. Cl.[5] **B01F** *11/00, 3/12*

U.S. Cl. 366—209 **33 Claims**



1. A vibratory mixer for mixing ingredients by shaking comprising: a load platform (**51**) for receiving a container (**88**) which holds the ingredients to be mixed, clamping means (**28, 42, 47**) cooperable with the load platform to clamp a container therebetween, means (**14, 26** to **48**) for effecting relative movement between the load platform and the clamping means so as to clamp and unclamp a container, said means comprising at least one lead screw (**38, 42**) and a first motor (**14**) operable to drive said at least one lead screw, means for permitting axial movement of said at least one lead screw in response to clamping and unclamping of said clamping means (**42**), a second motor (**13**) operable to shake the load platform (**51**), control means operable to control a sequence of operation of the apparatus, said control means including switch means (**65**) connected in circuit with the first motor (**14**), said switch means being actuatable by said axial movement of said at least one lead screw (**42**) which takes place due to the reaction of a container (**88**) being clamped between the load platform (**51**) and the clamping means (**47**), whereby the first motor (**14**) is deenergized at a predetermined axial displacement of said at least one lead screw.

5,066,137

STEAM INJECTION AND MIXING APPARATUS

Leonard T. King, 4109 Cedar Ave., Long Beach, Calif. 90807

Filed Mar. 4, 1991, Ser. No. 664,029

Int. Cl.[5] **B01F** *5/06*

U.S. Cl. 366—336 **8 Claims**

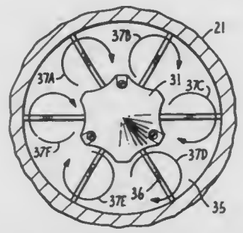
1. A device for the injection and mixing of steam into a fluid stream comprising:

a. a substantially cylindrically-shaped conduit having a longitudinal axis and substantially circular cross-section for carrying said fluid stream, said conduit also being provided with an inlet for accepting said fluid stream and an outlet for discharging said fluid stream along said longitudinal axis;

b. means for discharging steam substantially proximate said longitudinal axis within said cylindrically shaped conduit;

c. material mixing apparatus for mixing said steam with said fluid stream which is in the shape of said conduit which comprises a plurality of openings housing mixing elements which each induce a rotational angular velocity of the same sign to the fluid stream passing therethrough, said material mixing apparatus further characterized as possessing plug means for substantially blocking said steam discharge means when said plug means is in a first position but not blocking said steam discharge means when said plug means is in a second position; and

d. means for urging said plug means to said first position and resisting movement of said plug means from assuming said second position.



5,066,138

OPTICAL HEAD APPARATUS

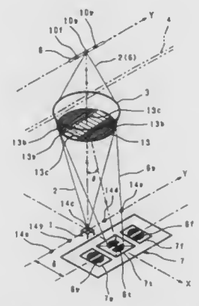
Eiichi Toide; Shinsuke Shikama, and Masayuki Kubota, all of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 12, 1989, Ser. No. 337,136

Claims priority, application Japan, Jun. 16, 1988, 63-177701; Jul. 11, 1988, 63-170824

Int. Cl.[5] **G11B** *7/00, 11/18*

U.S. Cl. 369—112 **7 Claims**



1. An optical head apparatus comprising: a light source;

a recording medium on which data is recorded in a predetermined direction;

a condensing means for condensing the light beam emitted from said light source onto the recording medium;

a beam splitter for altering the irradiating direction of the reflected light beam from said recording medium;

said beam splitter comprising one holographic element being composed of at least two grid regions having diffraction lines oriented in different directions;

a photo detector for detecting the light beams reflected from said recording medium; and

the first grid region of said holographic element splitting the light beam emitted from said light source into at least three light beams with different condensing positions on the path from said light source to said recording medium, and the second grid region of said holographic element being comprised of two sub-regions which are positioned on opposite sides of said first grid region and diffracting the light beam reflected from the recording medium and causing the light paths of said light beams to be different from the path of the light beam emitted from said light source to make the reflected light beam be bound for said photo detector.

5,066,139

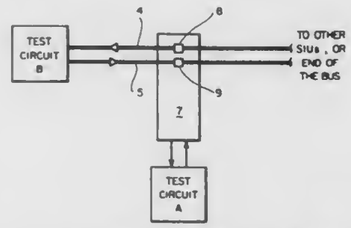
COUPLER VERIFICATION TEST CIRCUIT

Paulmer M. Soderberg; Kristin K. Foss, both of Menlo Park; Thomas E. Giles, Union City, and Ralph A. Narciso, Woodside, all of Calif., assignors to Raynet Corporation, Menlo Park, Calif.

Filed Aug. 28, 1989, Ser. No. 399,686

Int. Cl.[5] **H04L** *1/14;* **H04B** *3/46*

U.S. Cl. 371—20.1 **15 Claims**



1. A method of installing a subscriber interface unit ("SIU") onto an optical fiber telecommunications network configured so as to have an office interface unit ("OIU") which is to communicate to a plurality of SIUs when the network is operating, comprising the steps of:

attaching a first test circuit to the network at a location corresponding to where an operational OIU is later to be operating so that the network can later operate and communicate with remote systems outside the network, the first test circuit being connected to optical fiber means;

attaching electrooptic elements of the SIU to the optical fiber means;

attaching a second test circuit to the SIU;

initiating the second test circuit so as to generate an optical signal to be transmitted to the first test circuit along the optical fiber means;

monitoring the second test circuit to determine if an error or acknowledgement return signal is received from the first test circuit and detected by the SIU so as to indicate whether or not the SIU is functioning properly; the attaching, initiating and monitoring steps being done prior to having the operational OIU operating so as to communicate with the remote systems.

5,066,140

TEMPERATURE MEASUREMENT

Anthony V. Beran, Santa Ana, Calif., assignor to Respiratory Support Products, Inc., Irvine, Calif.

Filed Oct. 13, 1987, Ser. No. 107,989

Int. Cl.[5] **G01K** *7/02, 7/22;* **H03H** *11/00*

U.S. Cl. 374—134 **8 Claims**

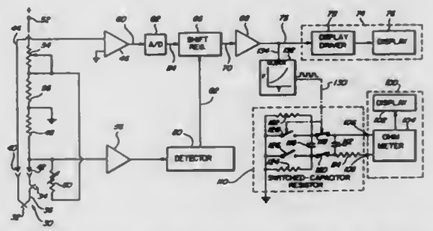
1. For connection to a temperature measuring instrument designed to receive as an input the resistance developed by a thermistor probe, said resistance varying in a nonlinear manner with the temperature at said probe, in combination:

a thermocouple circuit means for developing a potential related to the ambient temperature at said circuit means, said circuit means comprising a hot junction and a cold junction connected in a series circuit; and

signal processing means responsive to said potential for producing a resistance value which simulates the resistance developed by said thermistor probe at said ambient temperature;

said signal processing means including means for generating said resistance value, said resistance generating means comprising a capacitor and a variable rate pulse generator connected to charge the capacitor to a potential which is a function of said ambient temperature;

whereby said temperature measuring instrument is adapted to operate with said thermocouple circuit means.



5,066,141

ELECTRONIC CLINICAL THERMOMETER

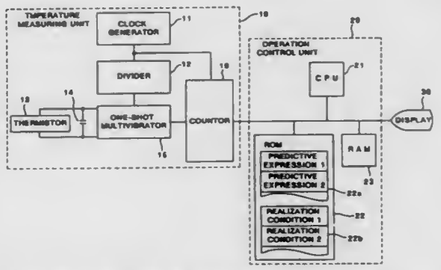
Makoto Ikeda, and Makoto Torinmi, both of Nakai, Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 4, 1990, Ser. No. 593,016

Claims priority, application Japan, Oct. 5, 1989, 1-258799

Int. Cl.[5] **G01K** *7/00, 3/04;* **G06F** *15/42*

U.S. Cl. 374—169 **15 Claims**



1. An electronic clinical thermometer, comprising:

temperature detection means for detecting temperature in a region to be measured;

classifying means for classifying states of changes in temperature into a plurality of predetermined groups in dependence upon a change in temperature during a predetermined period prior to a prediction operation;

memory means for previously storing a plurality of sets corresponding to the predetermined groups of said classifying means, each set including at least one of an operational expression and a prediction realization condition of equilibrium temperature;

prediction method setting means for selecting one of the sets stored in said memory means in accordance with changes in the temperature detected over a passage of time; and

predictive operation means for predictively calculating an

VOL 1132 ISS 3 NO 19 1991 UMI

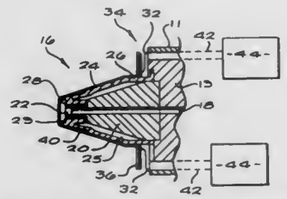
equilibrium temperature by a prediction method using the set selected by said prediction method setting means and the temperature detected by said temperature detection means.

5,066,142

PROTECTIVE APPARATUS FOR A BIOMEDICAL PROBE

Michael P. DeFrank, Temecula, and Robert J. Rosati, Carlsbad, both of Calif., assignors to IVAC Corporation, San Diego, Calif.

Filed Mar. 8, 1990, Ser. No. 490,333
Int. Cl.[5] G01K *1/08*
U.S. Cl. 374—208 22 Claims



14. A hand-held biomedical apparatus comprising:

a probe having a distal end for being directed at a patient and a base portion and comprising a waveguide formed through the probe and opening at the distal end for receiving energy from the patient and conducting the energy through the probe;

protection means for protecting the probe, the protection means comprising a protective probe cover having a frame member with an aperture sized to fit over the base portion of the probe and to be retained in a fixed position in relation to the base portion by interference fit, the probe cover having a stretchable material attached to the probe cover frame member and extending across the aperture such that when the distal end of the probe is inserted through the aperture to fit the probe cover frame member over the base portion, the material will stretch to conform generally to the shape of the probe;

the protection means further comprising waveguide protection means for providing material around the waveguide along its entire length and at its distal end opening for protecting the waveguide, the waveguide protection means comprising an outer boot mounted over and surrounding the waveguide along its length on which is formed the base portion for mounting the frame member and which forms the outer surface of the probe to which the stretchable material conforms and window means for sealing the opening of the waveguide at the distal end against contaminants while being transparent to the energy received by the waveguide and a sleeve mounted over the window means and the distal end of the waveguide for protecting the window means and waveguide from physical shocks and the outer boot is mounted over the window means, the sleeve and the waveguide along its length; and

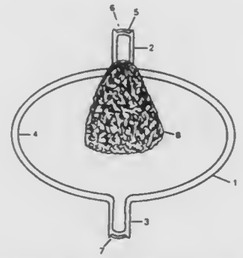
the protection means further comprises sensor means for sensing the presence of the protective probe cover at the fixed position on the probe and for providing a signal responsive to the sensing.

5,066,143

LEAF BAGGING EQUIPMENT

Stephen Sanders, 1569 Harpers Cove La., Reston, Va. 22094

Continuation-in-part of Ser. No. 388,505, Aug. 2, 1989, abandoned. This application Oct. 29, 1990, Ser. No. 605,000
Int. Cl.[5] B65D *30/10, 33/06, 33/28*
U.S. Cl. 383—4 3 Claims



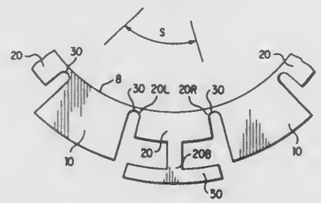
1. A single flat-lying substantially circular flexible plastic sheet with two handle shaped extensions, hereafter referred to as handles, located diametrically opposite each other along the perimeter of the said plastic sheet, said sheet completely covering the area within its entire said perimeter, said sheet being hemmed at substantially the entire said perimeter thereof to form a channel, a continuous draw string or draw tape, hereafter referred to as draw string, enclosed in said channel, openings in said channel at said handles to expose said draw string, the length of said draw string being less than the length of the said perimeter of the said sheet, said draw string used to form said sheet into a bag.

5,066,144

HYDRODYNAMIC BEARINGS HAVING A CONTINUOUS BEAM MOUNTED SUPPORT SURFACE

Russell D. Ide, P.O. Box 744, 641 Arnold Rd., Coventry, R.I. 02816

Continuation-in-part of Ser. No. 309,081, Feb. 8, 1989, which is a continuation-in-part of Ser. No. 283,529, filed as PCT US88/01841, May 27, 1988, which is a continuation-in-part of Ser. No. 55,340, May 29, 1987, abandoned. This application Apr. 30, 1990, Ser. No. 516,977
Int. Cl.[5] F16C *17/03*
U.S. Cl. 384—117 16 Claims



1. A hydrodynamic bearing adapted to support a shaft, the bearing comprising:

a continuous bearing surface;

a support structure supporting the continuous bearing surface, the support structure comprising a repeating series of support sections, each support section comprising:

(a) a fully rigid portion, the fully rigid portion being substantially rigid in all directions;

(b) a partially rigid portion, the partially rigid portions being substantially rigid in a first direction transverse to the portion of the bearing surface which it supports but flexible in a second direction which is substantially transverse to the first direction;

(c) a first connecting portion connecting the fully rigid portions to the partially rigid portion along a line, the first connecting portion being thin along the line of connection so that the first connecting portion has substantially reduced moment carrying ability; and

(d) a second connecting portion connecting the partially rigid portion to the fully rigid portion of an adjacent support section along a line, the second connecting portion being thin along the line of connection so that the second connecting portion has substantially reduced moment carrying ability;

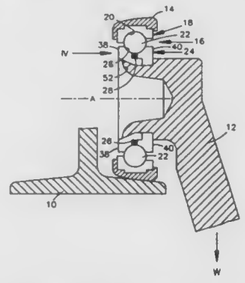
the support structure supporting the bearing surface such that under the action of friction and pressure the bearing surface deforms so as to form a substantially circumferentially spaced series of hydrodynamic wedges.

5,066,145

SOLID-LUBRICATED BEARING ASSEMBLY

Lewis B. Sibley, Paoli, and C. Brian Kelly, Secane, both of Pa., assignors to Tribology Systems, Inc., Paoli, Pa.

Filed Jun. 29, 1989, Ser. No. 374,167
Int. Cl.[5] F16C *33/66, 33/60*
U.S. Cl. 384—463 30 Claims



1. A solid-lubricated bearing assembly comprising:

a. an outer bearing member having a generally radially inwardly facing race surface formed therein adapted to receive rotatable bearing elements for rotating motion of said rotatable bearing elements respecting said outer bearing member;

b. an inner bearing member having a generally radially outwardly facing race surface formed therein adapted to receive said rotatable bearing elements for rotating motion of said rotatable bearing elements respecting said inner bearing member;

a plurality of said rotatable bearing elements retained between said race surfaces of said inner and outer bearing members;

d. solid lubricant material internally self-biased against and contacting at least one of said rotatable bearing elements for depositing a film of said solid lubricant material on said rotatable element by contact therewith as said rotatable elements rotate against said race surfaces.

5,066,146

BEARING ASSEMBLY FOR LAWN MOWER CUTTING BLADE

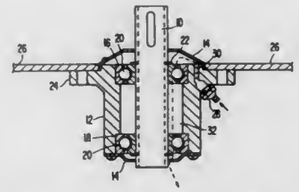
Orville R. McDonner, Conyers, Ga., assignor to Fuqua Industries, Inc., McDonough, Ga.

Filed Aug. 30, 1990, Ser. No. 575,485
Int. Cl.[5] F16C *33/66*
U.S. Cl. 384—473 18 Claims

1. A bearing assembly for a lawn mower drive shaft having its axis vertically oriented, comprising

an upper and a lower bearing race means disposed in a spaced-apart relationship on said drive shaft,

a bearing assembly housing surrounding said upper and lower bearing race means and having means defining a chamber above the upper bearing race means, and



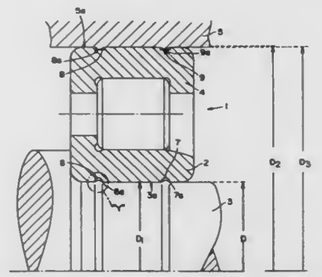
means for introducing a lubricant into said chamber above said upper bearing race means, whereby said lubricant is caused to lubricate said upper bearing race means and subsequently to migrate to said lower bearing race means.

5,066,147

MEANS FOR MOUNTING A BEARING RING

Manfred Brandenstein, Eubenheim; Armin Olschewski, Schweinfurt; Klaus Kispert, Schweinfurt; Burkhard von Bredow, Kutzberg, all of Fed. Rep. of Germany, assignors to SKF GmbH, Schweinfurt, Fed Rep. of Germany

Continuation of Ser. No. 476,840, Feb. 8, 1980, abandoned. This application Apr. 19, 1991, Ser. No. 687,849
Claims priority, application Fed. Rep. of Germany, Sep. 21, 1989, 3931447
Int. Cl.[5] F16C *33/58*
U.S. Cl. 384—585 1 Claim



1. Means for securing a hardened roller bearing ring member having a precisely machined smooth peripheral surface by means of a press fit on the softer bearing seating surface of a machine member which is a precisely machined smooth surface in a predetermined axial position, both members made of relatively hard metals and comprising means defining at least one peripheral groove (6, 7; 8, 9), which has a sharp-edged transition to the surface of the bearing ring member (2, 4) in the peripheral surface of the rolling bearing ring (2, 4) confronting the seating surface of the machine member whereby upon relative axial displacement of the ring and machine part, material flows from the seating surface into said groove under contact pressure producing a weldment adjacent said groove as a locking rib and a firm locking connection between the members.

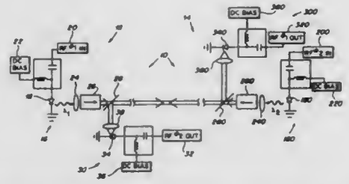
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,148

BI-DIRECTIONAL OPTICAL TRANSMISSION SYSTEM FOR RF ELECTRICAL ENERGY

Paul T. Bryant, Bowie; Joseph F. Weller, Fort Washington, both of Md., and Lew Goldberg, Fairfax, Va., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 31, 1990, Ser. No. 560,702
Int. Cl.[5] G02B *6/28*
U.S. Cl. 385—24 **16 Claims**



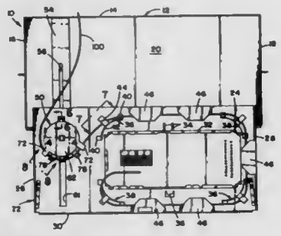
1. A bi-directional optical transmission system comprising:
first and second transmitter/receiver stations which transmit and receive light signals along an optical path therebetween, each said transmitter/receiver station including;
a laser transmitter means for transmitting a carrier light beam which is intensity modulated by a synchronization of an input radio frequency electrical signal;
a photodetector means for detecting intensity variations of the carrier light beam from the other said station and for outputting a respective radio frequency electrical signal whose synchronization is indicative thereof;
a means provided between (a) said optical path and (b) said laser transmitter means and said photodetector means, for splitting the light beams incident thereon into a passed portion and an angularly reflected portion so that said laser transmitter means and said photodetector means do not interfere with one another.

5,066,149

SPLICE TRAY WITH SLACK TAKE-UP

Todd Wheeler, Hudson, Wis., and Wayne A. Johnson, Rosemount, Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.

Filed Sep. 11, 1990, Ser. No. 580,769
Int. Cl.[5] G02B *6/36*
U.S. Cl. 385—135 **4 Claims**



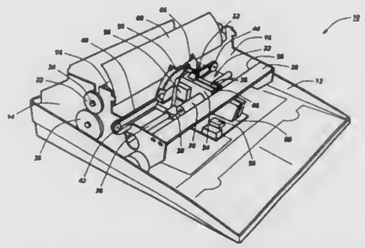
1. A splice cabinet comprising:
a chassis;
a plurality of drawers slidably mounted in the chassis and slidable between a first position with the drawer fully inserted within the chassis and the second position with the drawer extended from the interior of the chassis;
each of said drawers having disposed thereon a splice tray for splicing together optical fibers;
admitting means for admitting an optical fiber to be spliced from an exterior of a chassis into the drawer; take-up means for taking up a slack of fiber within a drawer as the drawer is moved from the first to the second position, said take-up means including a push member slidably mounted on the drawer and movable from a rear edge of a drawer toward a leading edge of the drawer.

5,066,150

LOW COST QUIET IMPACT PRINTER

Egon S. Babler, Northbrook; Johannes F. Gottwald, Park Ridge; Dennis W. Gruber, Arlington Heights; James F. Kearney; William J. Mayer, both of South Barrington, and Alf J. Olsen, Elk Grove Village, all of Ill., assignors to Xerox Corporation, Stamford, Conn.

Filed Apr. 18, 1990, Ser. No. 510,654
Int. Cl.[5] B41J *9/26*
U.S. Cl. 400—157.3 **9 Claims**



1. A serial impact printer comprising a support frame, a platen mounted for rotation upon said support frame, a print element having character imprinting portions disposed thereon, a print element selector for moving said print element to position a selected character imprinting portion at a printing position, a hammer for moving a selected character imprinting portion for deforming said platen with a printing force, and means for moving said hammer toward and away from said platen, the improvement comprising
said means for moving said hammer including a D.C. motor in combination with means for varying the rate of displacement of said hammer and a feedback system including a controller electrically connected to said D.C. motor, wherein the speed of said hammer is continually determined by said feedback system, said feedback system further including means for indicating the position, speed and direction of said motor,
a carriage mounted for reciprocating movement generally parallel to said platen, said carriage supporting thereon said print element, said print element selector, said hammer and said means for moving, and
a stationary reaction bar secured to said support frame and being spaced from and extending parallel to said platen, said reaction bar including a reaction surface against which said carriage is urged for developing said printing force as said hammer deforms said platen.

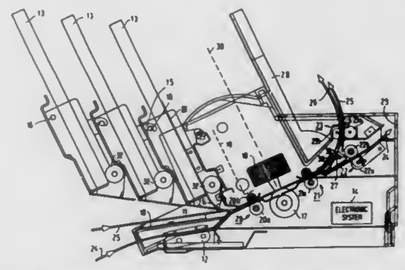
5,066,151

DEVICE COMPRISING A PRINTING MECHANISM

Heinrich Durr, Wilnsdorf-Niederdielfen; Manfred Rosenthal, Kirchen-Freusburg, and Manfred Adamek, Kirchen(Sieg)-Struth, all of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Mar. 1, 1990, Ser. No. 487,677
Claims priority, application Fed. Rep. of Germany, Mar. 2, 1989, 3906612
Int. Cl.[5] B41J *11/50*
U.S. Cl. 400—605 **19 Claims**

1. A device having a front and a rear region including an operator control panel defining said regions, said device including a printing mechanism including a printing head displaceable along an axis, means including drive rollers for transporting paper sheets, said mechanism including means for transporting endless paper by a tractor, the combination therewith including means for forming a single feed region preceding the printing mechanism relative to said rear region, said feed region for feeding paper sheets and endless paper over a given path through said printing mechanism, said feed region



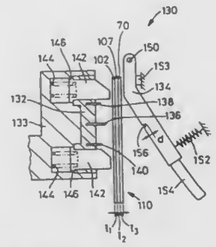
having an entrance for manually feeding paper sheets, said tractor for the transport of endless paper arranged under the entrance for the manual feeding and means for releasably receiving at least one cassette for automatically feeding paper sheets, said at least one cassette being detachably arranged above the entrance and inclined obliquely forward relative to said path.

5,066,152

RECORDING APPARATUS WITH MECHANISM FOR CUTTING PRINTED TAPE COVERED BY BACKING TAPE

Susumu Kuzuya, Gifu; Seiji Shimizu; Mikio Kato, both of Nagoya; Yujiro Ishikawa, Toyota; Takashi Sakai, Nagoya, and Eiji Yuki, Owariasahi, all of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Nov. 21, 1988, Ser. No. 273,984
Claims priority, application Japan, Nov. 28, 1987, 62-181307[U]
Int. Cl.[5] B41J *11/68*
U.S. Cl. 400—621 **14 Claims**



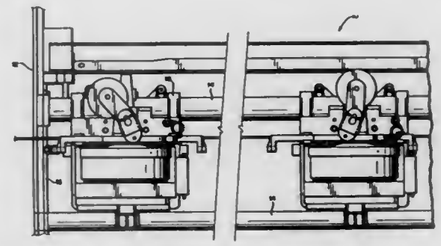
1. A recording apparatus, comprising:
a printing device for printing on a recording tape;
a tape feeding device for feeding a multi-layered tape in the longitudinal direction of said multi-layered tape, said multi-layered tape including a printed length of said recording tape printed by said printing device, and a backing tape superimposed on said printed length via an adhesive layer provided therebetween; and
a cutter mechanism for cutting said multi-layered tape into cut segments, said cutter mechanism comprising a completely cutting blade disposed so as to face said backing tape of said multi-layer tape, for cutting said multi-layered tape through an entire thickness thereof to thereby provide complete cuts which divide said multi-layered tape into said cut segments, and two partially cutting blades disposed on opposite sides of said completely cutting blade, respectively, so as to face said backing tape, in a spaced-apart relation with each other in a direction of feed of said multi-layered tape, to cut only said backing tape, wherein when said completely cutting blade executes two successive cuts of said multi-layered tape through the entire thickness thereof, there are two partial cuts in said backing tape on said cut segment thereby dividing the backing tape into three separate parts on said cut segment, wherein a center part of said divided backing tape may be removed and end parts of said divided backing tape provide gripping means for aligning and initially mounting the cut segments.

5,066,153

PAPER SHEAR FOR PRINTER

Fred O. Stephens, Waynesboro, Va., assignor to Genicom Corporation, Waynesboro, Va.

Filed Mar. 12, 1990, Ser. No. 491,839
Int. Cl.[5] B41J *11/70*
U.S. Cl. 400—621 **21 Claims**



1. A paper printer, comprising:
a paper shear having a substantially square cutting edge;
means carried by the printer mounting said paper shear for movement traversing the paper in the printer;
a shear platen carried by the printer, said platen having a surface for bearing engagement with the paper being printed and a resisting edge adjacent said surface;
means for selectively engaging and disengaging said paper shear and platen such that, when engaging said platen, said substantially square cutting edge engages the paper and the resisting edge to shear the paper in response to traversing movement of said paper shear; and cam means on said shear platen for selectively pressure engaging said paper shear and said platen such that, when engaging said platen, said paper shear engages the paper to shear the paper in response to traversing movement of said paper shear.

5,066,154

PENCIL SUPPORT FOR SECURITY HAT

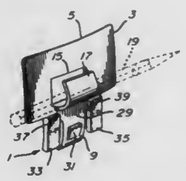
J. Maurice Renaud, 7769 rue Tellier, Montréal, Québec, Canada H1L 2Z5

Filed Sep. 21, 1990, Ser. No. 586,208
Int. Cl.[5] B43K *23/02*; A44B *21/00*
U.S. Cl. 401—131 **2 Claims**

1. Device for fixedly mounting a pencil or other article of the same type on a security hat of the type comprising a sheath disposed at the base of said hat, said sheath constituting a cavity which extends from top to bottom and is opened at both ends thereof, the lower end constituting an edge, wherein said device comprises a generally flat member formed with a slight curvature enabling it to rest on the surface of said security hat, hook means formed with said member, said hook means comprising a reversed U shape cut out formed on said flat member, and shaped to constitute a tongue, said tongue being curved to

VOL
1132
ISS
3
NO
19
1991
UMI

form a hook, enabling to introduce and hold therein said pencil or said object of the same type, said flat member having a strip intended to be introduced into said cavity, the lower end of said strip extending past the lower end of said sheath, and snapping means preventing the strip from coming out by itself once the latter has been mounted in position in said sheath, said snapping means comprising a first shoulder, which is traversed with respect to said strip, and is formed on a face of the latter



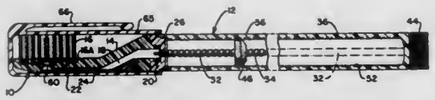
so as to rest against the lower edge of the sheath, a projection of vertical triangular cross-section formed on one face of said strip to contribute to the tightening of the strip in said sheath, said strip being divided into a central part and two terminal parts, the central part comprising said projection with triangular cross-section and said shoulder and the two terminal parts each comprising a triangular thickening, these thickenings contributing to tighten said device into said sheath.

5,066,155

TOOTHBRUSH AND PASTE DISPENSER

Philip H. English, Box 1605, Avon, Colo. 81620, and Anthony D. Szpak, 6215 Jamestown Dr., Parma, Ohio 44134

Continuation-in-part of Ser. No. 237,184, Aug. 29, 1988, abandoned. This application Dec. 26, 1989, Ser. No. 456,721
Int. Cl.[5] A46B *11/00, 11/02*
U.S. Cl. 401—175 **9 Claims**



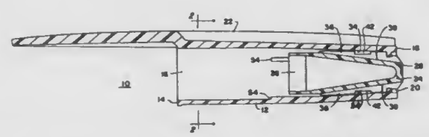
1. A toothbrush and toothpaste dispenser unit comprising:
a longitudinally extending brush head having bristles, a flexible upright discharge tube terminating near the tips of said bristles, and a longitudinally extending toothpaste receiving and dispensing opening provided therein whereby the opening forms a very shallow open recess along a substantial length of brush head;
a thin closure plate covering the open recess to define with the opening an elongated narrow channel extending a substantial length of the brush head;
a longitudinally extending disposable pre-filled toothpaste receiver and dispenser cartridge having a forward end and a back end, said cartridge at tis forward end engaging said brush head in a sealed relationship, said cartridge containing a toothpaste composed of a glycerin base which has very low thickening or hardening properties and including a rigid outer sleeve which forms a handle for and exterior wall of said unit, said outer sleeve constituting the sole wall thickness in the cartridge portion of said dispenser unit;
a dispensing piston having a radially outwardly flared resilient sealing lip resiliently and sealingly engaging the inner surface of said outer sleeve, said piston having an internally screw threaded opening for receiving a drive screw, an externally threaded drive screw for said piston, means to prevent rotation of said piston, and discharge opening means for permitting flow of toothpaste from said cartridge to said receiving and dispensing opening formed in said brush head;
a rotary drive means for said screw comprising an end cap at the back end of said cartridge for rotatably engaging an end of said screw.

5,066,156

WRITING INSTRUMENT CAP

Richard J. Petrillo, Norwell, and William T. O'Connor, Somerville, both of Mass., assignors to The Gillette Company, Boston, Mass.

Filed Mar. 19, 1990, Ser. No. 495,864
Int. Cl.[5] B43K *5/00, 9/00*
U.S. Cl. 401—213 **10 Claims**



1. A cap for a writing instrument comprising an outer shell member providing open front and rear ends, a tip seal member having an open front end and a closed rear end, said tip seal member being fixedly positioned substantially within an internal central region of the shell member at the rear end of the shell member to prevent longitudinal movement of said tip seal within said shell member, said outer shell member and tip seal member being separated from each other by a plurality of elongated ribs extending longitudinally between the outer surface of the tip seal member and the inner surface of the shell member to provide a plurality of passageways for air flow between the front and rear ends of the outer shell member, said elongated ribs connecting said tip seal member to said shell member at said rear end of said shell member.

5,066,157

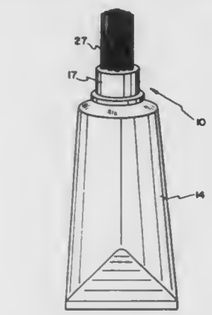
BRUSH APPLICATOR

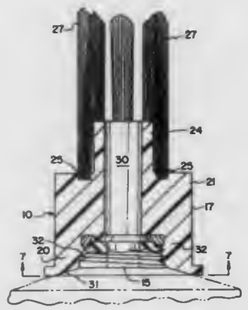
Lawrence J. Liff, 6025 W. Monroe, Phoenix, Ariz. 85043

Filed Oct. 10, 1989, Ser. No. 418,573
Int. Cl.[5] A46B *11/00*
U.S. Cl. 401—288 **5 Claims**

1. A brush applicator device, for use with a squeeze tube, comprising an annular mounting member, said mounting member having first and second axial end portions, a rigid extension member integrally connected to said second axial end portion and extending axially therefrom, a plurality of bristles permanently connected at one end portion to said second axial end portion and extending outwardly generally parallel to and around and axially beyond an end of said extension member, said extension member having an axial extent of less than one-half the axial extent of such bristles, a generally unobstructed opening extending axially through said annular mounting member from said first axial end portion thereof to said end of said extension member, means at said first axial end portion of said opening for attaching said annular mounting member to the squeeze tube, said end of said extension member being

located within said surrounding bristles and intermediate their end portions whereby material from the squeeze tube will be





delivered to the middle area of said bristles when pressure is applied to said tube.

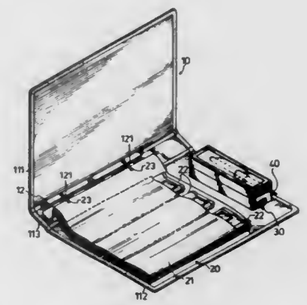
5,066,158

COMBINED NEGATIVE HOLDER AND VIEWING DEVICE

Lai-Jen Huang, Fl. 4, No. 213, Ming-Te Rd., Peitou Dist., Taipei City, Taiwan

Filed Jan. 29, 1991, Ser. No. 647,125
Int. Cl.[5] B42F *5/00*
U.S. Cl. 402—4 **8 Claims**

1. A combined negative holder and viewing device, comprising:
a loose sheet binder including a three-sided rigid folder having a front panel, a rear panel, and a center panel hinged to and provided between said front and rear panels, and a loose sheet retainer mounted on said center panel; and



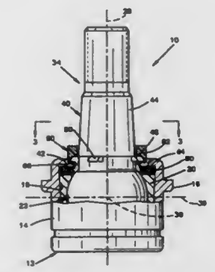
an electrical negative viewing device mounted on said rear panel to provide sufficient electrical lighting to view negatives.

5,066,159

BALL JOINT WITH INTEGRAL SEAL

Brian A. Urbach, Rochester Hills, Mich., assignor to TRW Inc., Lyndhurst, Ohio

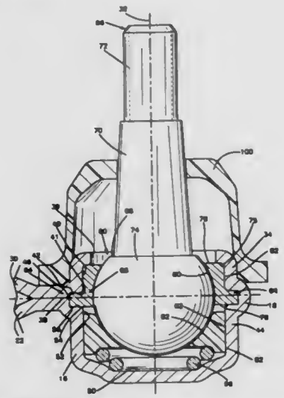
Filed Feb. 8, 1991, Ser. No. 652,439
Int. Cl.[5] F16C *11/00*
U.S. Cl. 403—134 **13 Claims**



1. Apparatus comprising:
a socket defining a chamber and having an axial end portion defining an opening in said socket;
a ball stud having a ball portion in said chamber and a shank portion projecting through said opening;
a bearing supporting said ball portion in said chamber; and
a seal member for sealing the opening between said socket and said ball stud, said seal member comprising:
a shank seal portion for sealing against said ball stud shank;
a retaining ring; and
a socket seal portion for sealing against said socket, said socket seal portion having said retaining ring molded therein, a first part of said socket seal portion being located between said axial end portion of said socket and said bearing and providing a seal between them.

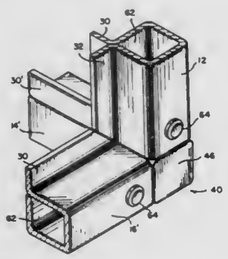
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,160
BALL JOINT
Ruey E. Wood, Mount Clemens, Mich., assignor to TRW Inc., Lyndhurst, Ohio
Filed May 14, 1990, Ser. No. 524,129
Int. Cl.[5] F16C *11/06*
U.S. Cl. 403—140 9 Claims



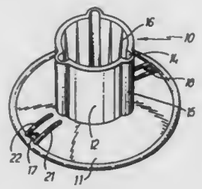
1. A ball joint comprising:
a stud having a ball end and a shank extending from said ball end along an axis of said stud;
a housing containing said ball end, said housing comprising a single piece of sheet metal having a first surface and a second surface, said piece of sheet metal being folded to place said first and second surfaces in overlying relationship to define a seam therebetween, said seam having a length extending circumferentially about said axis; and
a rigid support seat member received in said housing, said support set member having a radially inner surface slidably engaging said ball end and having a radially outer surface portion extending axially across said seam and coextensively with said seam about said axis.

5,066,161
FRAMEWORK FOR CABINET STRUCTURE
Richard C. Pinney, 2110 Deodar St., Santa Ana, Calif. 92701
Continuation-in-part of Ser. No. 348,562, May 8, 1989, Pat. No. 4,954,007. This application Jun. 25, 1990, Ser. No. 543,210
Int. Cl.[5] F16D *1/00*
U.S. Cl. 403—172 16 Claims



1. A corner structure for a frame cabinet structure, comprising:
a plurality of structural members, each structure member comprising a substantially closed square shaped tubular member having four walls and four corners therebetween, each tube having a substantially right angle flange at one of said corners, two of said four walls substantially adjacently abutting at said corner but with one wall turning outwardly therefore to form said flange substantially coplanar with the terminal end of the other substantially adjacent abutting wall and said two walls being welded together at said one corner where they substantially abut said plurality of structural members being arranged in an intersecting arrangement, said intersecting structural members having flanges formed such that at least one of said flanges of one of said plurality of structural members mutually abuts with at least one of the flanges of another of said structural members, and
means for securely attaching said plurality of structural members in a rigid corner arrangement.

5,066,162
ATTACHMENT DEVICE
Alan Wall, Stockport; Peter Grayson, Manchester, and Michael Egerton, Rochdale, all of United Kingdom, assignors to Harold Watson Limited, Lancs, United Kingdom
Filed Feb. 15, 1990, Ser. No. 481,370
Claims priority, application United Kingdom, Feb. 15, 1989, 8903455
Int. Cl.[5] B25G *3/02*
U.S. Cl. 403—361 8 Claims



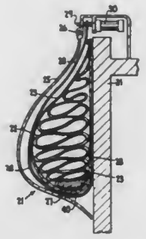
8. An attachment device for poles comprising:
a collar, means for attaching a body to a first side of the collar;
a circumferentially closed boss defining a channel with an open end for receiving a pole, at least part of the boss projecting from the side of the collar which is remote from the first side of the collar;
means for securing at least part of a pole to an interior portion of the boss and wherein means of a one-piece construction are provided for enabling the open end of the channel to expand such that the boss is adapted to accommodate poles of different diameters.

5,066,163
RESILIENT SIGN AND GUIDEPOST
Kerry Whitaker, 2905 Deep Valley, Plano, Tex. 75075
Filed Dec. 20, 1990, Ser. No. 632,952
Int. Cl.[5] E04H *17/14*; E02D *23/04*
U.S. Cl. 404—10 7 Claims

1. A resilient post suitable for use along roadways for marking or supporting roadway signs, comprising:
an elongated flexible hollow tube of resilient plastic material having an annular cross-section configuration;
the hollow tube having a lower end portion terminating in a driving stake means and an upper end portion having at least one partially flattened surface for mounting markers and sign apparatus;
the elongated flexible hollow tube having at least one reinforcing rod mounted interior of the hollow tube and in axial alignment extending from the driving stake means in which the enforcing rod is mounted through a substantial portion of the length of the elongated flexible hollow tube;
the hollow tube having sufficient diameter to allow access to the driving stake means driving head interior of the tube for driving the combination into the ground by direct driving force contact with the driving head of the driving stake means which is interior of the tube walls and exterior of the reinforcing rod.

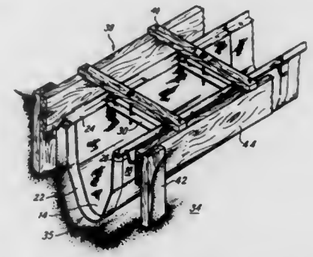


5,066,164
SPILL CONTAINMENT DEVICE FOR A SHIP
Geza Tomosy, 3900 Fish Hatchery Rd., Allentown, Pa. 18103
Filed Dec. 20, 1990, Ser. No. 630,884
Int. Cl.[5] E02B *15/06*
U.S. Cl. 405—66 21 Claims



1. A spill containment device mountable about the hull of a ship, the hull having a keel, substantially vertical walls with outer, uppermost section, and a height defined by a vertical distance between the keel and a top of the vertical walls, the device comprising:
a storage pouch having an interior and an exterior, mounted to the outer uppermost hull section, said pouch including releasable closure means;
a continuous flexible skirt attached at a first skirt edge to said interior of said pouch and having a opposing free skirt edge, the distance therebetween defining a vertical span, said skirt being sized to completely encircle the hull, and when stowed being contained within said storage pouch; and,
deployment means operable to release said closure means, thereby permitting said opposing free skirt edge to drop from within said storage pouch, said continuous flexible skirt thereby depending from said outer, uppermost section, preventing spread of any released contaminants to the surrounding water.

5,066,165
MODULAR AND COMPONENTIAL TRENCH DRAIN SYSTEM
Ray F. Wofford, 190 Broadmeadow Cove, Roswell, Ga. 30075, and George S. Potter, 7419 Nicole Cir., Charlotte, N.C. 28226
Filed Aug. 13, 1990, Ser. No. 566,975
Int. Cl.[5] E02B *5/00*
U.S. Cl. 405—119 13 Claims



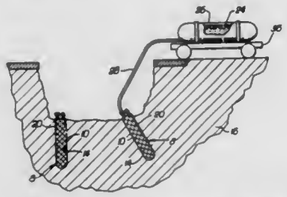
1. A forming system for in-ground formation of a trench drain for removing water from a surface comprising at least one channel, a plurality of grate frames, and a grating, said trench drain system being adapted to be supported in-ground by a supporting material formed beneath and outwardly about said drain system in conformity thereto, wherein:
said channel being a generally V-shaped component comprising a bottom wall integrally connected to a pair of opposing, spaced apart sidewalls, thus forming a trough, and a top opening opposite said bottom wall, said bottom wall and sidewalls defining a fluid carrying space and said top opening defining a fluid entrance, said sidewalls terminating in generally horizontal flanges extending outwardly from and perpendicular to said sidewalls directly above and resting on said supporting material;
each of said grate frames being a generally L-shaped component with a bottom horizontal surface of the L being secured to the upper surface of one said flange and a side vertical surface of the L disposed relatively outward from said fluid carrying space; and
said grating being placed on and supported by the interior L surfaces of said grate frames for covering said top opening;
said grating being formed of a relatively strong material sufficient for support of above-ground loads on the surface against entrance into the trough, said channel being formed of a relatively lightweight thin-walled resin material for ease of handling but generally incapable of load-bearing support of said grating and above-ground loads placed thereon, said outwardly-extending disposition of said flanges locating said grate frames above the supporting material for load bearing support of said grating and loads placed thereon substantially entirely by the supporting material.

5,066,166
APPARATUS FOR REMOVING GROUND CONTAMINANTS
Robert G. Hansen, Goleta, Calif., assignor to R. G. Hansen & Associates, Santa Barbara, Calif.
Continuation-in-part of Ser. No. 329,183, Mar. 27, 1989, Pat. No. 4,998,848. This application Oct. 17, 1990, Ser. No. 599,404
Int. Cl.[5] B09B *1/00*
U.S. Cl. 405—128 16 Claims

1. Apparatus for removing molecules of contamination from a solid material comprising:
a cylindrical container having a top and lateral surfaces for holding a cryo-adsorbing substance, said container having its lateral surface for placement adjacent said solid materials and provided with means for admitting therethrough

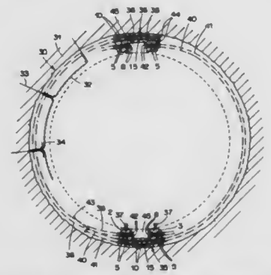
VOL 1132 ISS 3 NO 19 1991 UMI

molecules of contamination, said means being distributed to admit molecules over substantially the extent of said lateral surface;
a cryo-adsorbing substance located in said container; and



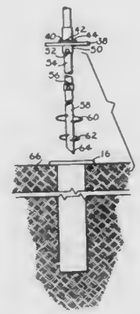
means for cooling said cryo-adsorbing substance with respect to said solid material below a temperature at which molecules of contamination are efficiently cryo-adsorbed by said substance from said solid material.

5,066,167
PRESTRESSED CONCRETE LINING IN A PRESSURE TUNNEL
Erwin Siegfried, Liebefeld, and Peter Marti, Belp, both of Switzerland, assignors to VSL International AG, Bern, Switzerland
Filed Jan. 11, 1991, Ser. No. 640,234
Claims priority, application Switzerland, Jan. 19, 1990, 178/90
Int. Cl.[5] E21D *11/10*
U.S. Cl. 405—150.1 13 Claims



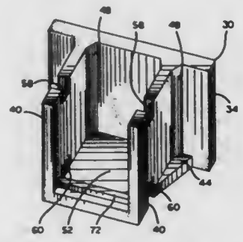
1. A prestressed concrete lining in a pressure tunnel, with several reinforcement cages (32) distributed around the circumference and along the pressure tunnel and bordering at least partially on each other, with prestressing elements (38, 39, 40, 41), which encompass at least a part of the circumference of the pressure tunnel, with stressing anchorages (42) to stress the prestressing elements, the stressing anchorages being accessible from the inside of the tunnel, and with a bottom part (35) extending along the length of the pressure tunnel, formed of several individual anchorage bodies in series, whose side surfaces are each bordered by reinforcement cages, wherein each of the anchorage bodies (1, 15, 19) has an essentially U-shaped cross section with a pair of extending arms at a distance from each other which are connected with each other at their base by a base arm, wherein each of the extending arms (2,3) of the anchorage bodies turned towards the inside of the tunnel there are a first pass-through means (5,20) for at least one of each of the prestressing elements (38, 39, 40, 41), a bearing plate (8) being disposed on the facing inner surfaces of the arms in the region of each of the first pass-through means (5, 20), and wherein the base arm there are second means (10, 21) for passing through at least one each of the prestressing elements (38, 39, 40, 41), starting from a dead end anchor (43), is fed through one of the second pass-through means (10, 21) of one of the anchorage bodies and, after crossing through one of the first pass-through means (5, 20) of one of the anchorage bodies, ends in an anchor head (48) of a stressing anchorage (42) adjacent to one of the bearing plates (8).

5,066,168
CYLINDRICAL FOUNDATION SUPPORT DRIVABLE INTO GROUND WITH REMOVABLE HELIX
Maynard L. Holdeman, Centralia, Mo., assignor to A.B. Chance Company, Centralia, Mo.
Filed Mar. 5, 1991, Ser. No. 664,944
Int. Cl.[5] E02D *7/28*
U.S. Cl. 405—249 16 Claims



1. In a foundation earth anchor and installation unit, the combination comprising:
a cylindrical foundation support which is open at opposite ends thereof and adapted to at least partially be embedded into the ground;
an installation drive component removably positioned within the support and provided with an element extending longitudinally of the support and projecting outwardly from one end thereof; and
means for releasably coupling the installation drive component to the foundation support whereby upon rotational movement of the drive component, the foundation support is rotated therewith,
said installation drive component further including helix means on the end of the element which projects outwardly from said one end of the support so that upon application of a rotational force to the assembled foundation support and drive component while a down force is applied to such assembly, the helix means on the element causes the support and drive assembly to be pulled into the ground, and
guide means on the element and engagable with the foundation support for maintaining axial alignment between the foundation support and the drive component during installation of the foundation and cooperable with said helix means to cause the foundation and drive component to be drawn into the ground during rotation of the foundation support and drive component assembly, whereby
after the foundation support has been forced into the ground to a desired level, the drive component may be disconnected from the foundation support and removed by rotation thereof in a direction opposite to the direction of installation of rotation leaving the foundation support in the ground.

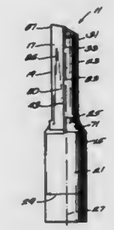
5,066,169
RETAINING WALL SYSTEM
Norman W. Gavin, 2545 Ridge Rd., North Haven, Conn. 06473, and Felix P. Jaecklin, 46 Geissbergstr, CH 5400 Ennetbaden, Switzerland
Filed Feb. 19, 1991, Ser. No. 656,914
Int. Cl.[5] E02D *29/02*
U.S. Cl. 405—284 15 Claims



1. A retaining wall system comprising:
a first module, the front of said module comprising a first wall,
said first wall being vertical and including a front, a back, a top, a bottom, a first end, and a second end,
said first module further comprising:
a second wall,
said second wall being horizontal and including a front, a back, a top and a bottom, and being attached to the bottom of said first wall along a substantial length of the back of the first wall,
a third wall,
said third wall being upstanding and being attached to the back of the first wall, to the top of the second wall, and depending back from the first wall,
a fourth wall,
said fourth wall being upstanding and being attached to the back of the first wall, to the top of the second wall, depending back from the first wall, and spaced from the third wall,
said third and fourth walls being parallel with one another, and comprising parallel, horizontal transitions in their attachments with said second wall,
the top of said first wall being generally coplanar with the tops of said third and fourth walls, and
the bottoms of said first and second walls being generally coplanar.

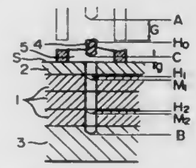
5,066,170
TOOL BIT
Michel Berryer, Cadillac, Mich., assignor to Outboard Marine Corporation, Waukegan, Ill.
Continuation of Ser. No. 407,331, Sep. 14, 1989, abandoned, which is a continuation-in-part of Ser. No. 252,595, Oct. 3, 1988, abandoned. This application Apr. 10, 1991, Ser. No. 684,432
Int. Cl.[5] B26D *1/12*
U.S. Cl. 407—54 17 Claims

1. A tool bit comprising a shank fabricated of "Sheffield #20 T.G.P." steel and including a cylindrical base portion having an axis and a diameter, an elongated end portion of generally cylindrical shape and having an axis extending coaxially with said axis of said base portion, and an outer cylindrical periphery extending for substantially the entire length of said end portion and having a constant diameter less than said diameter of said base portion, said end portion including therein a recess extending lengthwise of said end portion and being of right angle shape in a cross-section extending transversely of said end portion axis, said recess cross-section being defined by a long face extending in parallel spaced relation to a radius extending from said end portion axis and including an outer end at said cylindrical outer periphery and an inner end, and a short face extending from said inner end to said cylindrical outer periphery, and a connecting portion joining said end portion and said base portion and tapering from said base portion diameter to said end portion diameter, said connecting portion including an outwardly concave tapering surface having an exponential profile with a minimum radius adjacent said base portion and a maximum radius adjacent said end portion, said connecting portion also including a recess extension defined by a flat surface extending from said short face, and a curving surface extending from said long face, and an insert fabricated of carbide and having a transverse generally rectangular cross-section with a length extending along said short face and beyond said outer cylindrical periphery of said end portion, said insert including a main portion in said recess in



said end portion of said shank and including an exposed flat surface, an inner flat surface brazed to said short face of said recess, an inner edge surface brazed to said long face of said recess, and an outer edge surface which extends parallel to said inner edge surface, said insert also including an end portion extending from said main portion and including a flat exposed surface extending from said exposed surface of said main portion and an inner surface which is brazed to said shank and which has a first part extending in spaced generally parallel relation to said exposed surface of said insert end portion and a second part which curves from said first part toward, and intersects with, said exposed surface of said insert end portion, said insert being sharpened to provide a cutting edge.

5,066,171
METHOD FOR DRILLING A PRINTED CIRCUIT BOARD
Kunio Arai, Atsugi; Hiromi Nishiyama, Ebina; Hiroshi Aoyama, Tokyo, and Yasuhiko Kanaya, Machida, all of Japan, assignors to Hitachi Seiko Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 106,439, Oct. 9, 1987, Pat. No. 4,872,787. This application Mar. 17, 1989, Ser. No. 324,769
Claims priority, application Japan, Dec. 19, 1986, 61-301285
The portion of the term of this patent subsequent to Oct. 10, 2006, has been disclaimed.
Int. Cl.[5] B23B *35/00*
U.S. Cl. 408—1 R 10 Claims

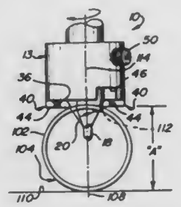


1. A method for drilling a hole in a workpiece, comprising the steps of:
moving a pressure foot associated with a drill into contact with the workpiece, and
moving a drill bit associated with the drill from a drill-starting position in to the workpiece, toward the drill-starting position and again into the workpiece while maintaining

VOL 1132 ISS 3 NO 19 1991 UMI

the pressure foot in constant contact with the workpiece, wherein the drill bit movement produces a hole with a high aspect ratio of at least 8 as defined by the length of the hole to the hole diameter.

5,066,172
COUNTERSINK TOOL ASSEMBLY
Ollie C. Swim, Jr., 18255 Westmore, Livonia, Mich. 48152
Filed Jul. 31, 1990, Ser. No. 560,364
Int. Cl.[5] B23B *51/00*
U.S. Cl. 408—1 R 13 Claims



12. A method of concentrically cutting a chamfer around a hole drilled into a curved exterior surface of a workpieces, said method comprising the steps of:

securing a countersink tool assembly to a drill apparatus for rotation about a central axis, said countersink tool assembly having cutting means for cutting the chamfer upon rotation thereof, and contact surface means displaced from said cutting means and adapted to define a line of contact with the curved exterior surface of the workpiece during cutting of the chamfer, said contact surface means comprising a pair of diametrically opposed ears formed on said first transverse end surface of said insert member;

securing the workpiece with respect to said central axis of said countersink tool assembly such that a centerline of the drilled hole is colinear with said central axis;

rotating said countersink tool assembly about said central axis;

engaging said contact surface means with the curved exterior surface of the workpiece;

maintaining engagement between said contact surface means and said curved exterior surface such that rotation of said countersink tool assembly causes said countersink tool assembly to translate rectilinearly with respect to said centerline of the drilled hole whereby said cutting means cut the chamfer having a substantially uniform cross-section around the circumference of the drilled hole.

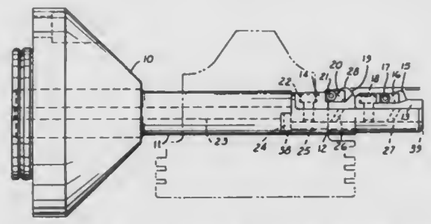
5,066,173
ALUMINUM PISTON WRIST PIN BORING TOOL
Charles Gaffan, Windsor, and Bruno K. Schwarzpech, Harrow, both of Canada, assignors to GTE Valenite Corporation, Troy, Mich.
Filed Jan. 31, 1990, Ser. No. 472,913
Int. Cl.[5] B23B *41/12*
U.S. Cl. 408—59 11 Claims

1. An aluminum wrist pin boring tool having an axis of rotation, comprising:

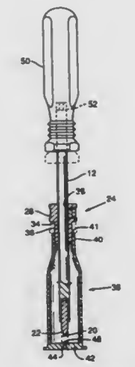
a. an adapter;

b. a shank attached to said adapter and concentric therewith, said shank passing through said adapter and having a passage extending longitudinally through the length of said shank;

c. a cartridge means for mounting semi-finish and finish boring inserts characterized by said finish inset having a cutting tip with a linear flat cutting edge, said cartridge means being attached concentrically with said shank and having a series of interconnecting branch passages, said branch of passages in communication with said shank passage and open at the cartridges to allow flow of coolant through to the boring inserts, said semi-finish insert positioned ahead of center with approximately a 5° negative effective radial rake and a 5° positive axial rake, and said finish insert having approximately a 5° negative effective radial rake and a neutral "0" axial rake, said finish insert further characterized in that said flat cutting edge extends in a closely held range from a line parallel to said axis to a ½° backward outward slope.



5,066,174
CARTRIDGE CASE FLASH HOLE FINISHING TOOL
Randy L. Smith, Centre Hall, Pa., assignor to Blount, Inc., Portland, Oreg.
Filed May 3, 1990, Ser. No. 518,755
Int. Cl.[5] B23B *41/00*
U.S. Cl. 408—79 8 Claims



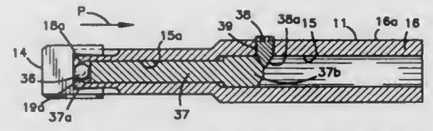
1. A tool for finishing a pre-bored flash hole aperture in a base at one end of a cartridge case, the case having an opening at its opposite end defining the entry into a cylindrical neck portion, said opening spaced from said flash hole aperture, said cylindrical neck and aperture coaxial with the longitudinal axis of the case, said tool comprising:

an elongate shank having a longitudinal axis, a pilot fixedly positioned on the shank, an outer surface of the pilot having a top and bottom and configured to fit in sliding engagement with the interior of the neck, a burr-removing, hole-finishing cutter on an end of the shank spaced from said pilot bottom a distance less than the spacing between the entry and flash hole aperture of the cartridge case, said cutter and pilot outer surface coaxial with the axis of the shank;

said outer surface of the pilot mated to the interior of the cartridge case neck whereby extension of the pilot into the cartridge case neck maintains a coaxial relationship of one to the other and thereby guides the cutter from a position short of the aperture to a position within the pre-bored

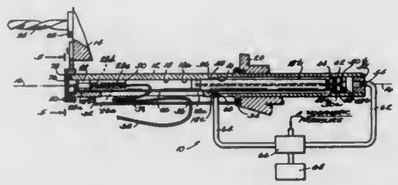
aperture to be worked therein for removing burrs from the aperture periphery.

5,066,175
CUTTING TOOL ASSEMBLY
Carl M. Newman, 61 Birch Ave., Northfield, Ohio 44067
Filed Oct. 26, 1990, Ser. No. 603,956
Int. Cl.[5] B23B *51/00*
U.S. Cl. 408—231 11 Claims



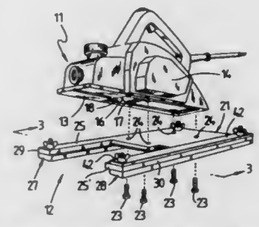
1. A cutting tool assembly for a cutting operation such as reaming or the like, said tool assembly comprising, in combination: a substantially cylindrical holder member having an outer surface, a front end, a rear end, and a central bore, said front end having a diametrically extending slot to form a pair of oppositely disposed, flexible arms; a cutting blade having cutting edges and an outwardly opening recess for accommodating said front end of said holder member to position said cutting blade for a cutting operation; and means in said holder member central bore for variably spreading said pair of arms radially outwardly in opposite directions into clamping engagement with said cutting blade on said holder member front end, thereby retaining said cutting blade for said cutting operation; wherein said cutting blade is of U-shaped configuration having a bight portion and a pair of leg portions defining said recess and means on each of said oppositely disposed arms for slidably accommodating a respective one of said leg portions in said cutting position of said blade.

5,066,176
PROBE FOR MACHINE TOOL
Richard Johnstone, Brookfield, Wis., assignor to Kearney & Trecker Corporation, West Allis, Wis.
Continuation of Ser. No. 63,451, Jun. 18, 1987, abandoned. This application Apr. 14, 1989, Ser. No. 338,470
Int. Cl.[5] B23C *1/02*
U.S. Cl. 409—133 6 Claims



1. In combination, a workpiece surface measuring probe and a machine tool having a rotary spindle adapted to drive a cutting tool to machine a workpiece, said spindle mounted extending in a direction away from a spindle head, said spindle head movable along coordinate axes of said machine tool, and a controller monitoring the coordinate position of said spindle head along said coordinate axes; mounting means mounting said probe on said spindle head to move therewith, said probe characterized by the improvement comprising sensing means including a stylus and means for generating a signal while said stylus contacts a workpiece surface as said spindle head is moved, and further including means transmitting said signal to said controller to detect the spindle head coordinate position along said coordinate axes when said stylus makes contact with said workpiece surface; said mounting means including an elongated member having said stylus affixed to one end thereof and retracting means selectively retracting said elongated member to position said stylus adjacent said spindle head when said cutting tool is machining said workpiece and extending means extending said elongated member to a fixed, extended position out from said spindle head in the direction in which said spindle extends, whenever said workpiece is to be measured; and, locating means acting on said elongated member to locate said stylus spaced away from said spindle head in a single unique precisely repeatable position with respect to said spindle head whenever said elongated member moves to said extended fixed position, whereby said controller can accomplish coordinate measurements of a workpiece by movement of said spindle head without removal of a cutting tool from said spindle.

5,066,177
ATTACHMENT TO A PORTABLE POWER PLANAR
John H. Brown, Jr., P.O. Box 473, Spanish Fort, Ala. 36527
Filed Dec. 10, 1990, Ser. No. 624,589
Int. Cl.[5] B27C *5/10*
U.S. Cl. 409—178 12 Claims



1. An attachment for producing a scarf cut of a particular angle in plywood or like material, when used with a portable power planer of the type having a body encased within said body a motor for driving a cutter having cutting blades rotably mounted about an axis transverse to said body, comprising:

(a) a mounting plate detachably secured subjacent a bottom surface of said body, said mounting plate defining an elongated opening which extends from the front of said planer to a point rearwardly of the cutter;

(b) first elongated member connected to said mounting plate subjacent a first longitudinal edge portion of said mounting plate and having a wedge shape tapering downwardly from said elongated opening; and

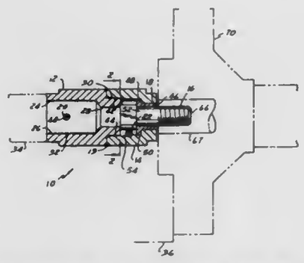
(c) second elongated member connected to said mounting plate subjacent a second longitudinal edge portion of said mounting plate parallel to said first elongated member and having a wedge shape tapering downwardly toward said elongated opening, each of said elongated members being of equal height such that said mounting plate is supported therein at an angle corresponding to the taper of said elongated members.

5,066,178
DRAW BAR ADAPTER STRUCTURE FOR AND METHOD OF SECURING A TOOL TO A SPINDLE
Bruce G. Peuterbaugh, Mt. Clemens, Mich., assignor to J. P. Tool, Inc., Warren, Mich.
Filed May 17, 1982, Ser. No. 379,254
The portion of the term of this patent subsequent to Apr. 19, 2003, has been disclaimed.
Int. Cl.[5] B23C *5/26;* B23Q *3/12*
U.S. Cl. 409—233 13 Claims

12. The method of securing a tool, having a tool draw bar carried by and movable axially of the tool to a spindle having an actuating draw bar movable axially thereof, therein comprising, securely securing the tool draw bar to the actuating draw bar by rotating the tool relative to the spindle in one

VOL 1132 ISS 3 NO 19 1991 UMI

direction until the tool and spindle are in surface to surface contact precluding relative axial movement between the tool and spindle and the draw bars, subsequently reversely rotating



the tool relative to the spindle with the tool and spindle in surface to surface contact and without loosening the connection between the draw bars to angularly align the tool with the spindle, and then securing the tool to the spindle.

5,066,179

BLIND FASTENER

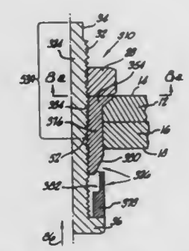
John D. Pratt, Rancho Cucamonga, Calif., assignor to MAG Aerospace Industries, Inc., Los Angeles, Calif.

Continuation of Ser. No. 583,029, Feb. 23, 1984, abandoned. This application Feb. 12, 1986, Ser. No. 828,781

The portion of the term of this patent subsequent to Nov. 6, 2007, has been disclaimed.

Int. Cl.[5] F16B *13/06*

U.S. Cl. 411—34 **4 Claims**



1. A wrench and fastener combination comprising:

a blind fastener for mounting in aligned openings through two workpieces to connect them together in overlapped outer and inner relation, the fastener including:

an internally threaded, generally tubular fastener body received within the openings in the workpieces having,

an inner end projecting inwardly beyond the inner workpiece, and

an enlarged body head engaging the outer workpiece;

an externally threaded cylindrical stem passing in threaded engagement through said fastener body, turning motion of said stem relative to said fastener body in one direction moving said stem in an axially outward direction through said body, said stem having,

an enlarged stem head spaced from the inner end of said fastener body, and

a wrench engaging region spaced outwardly from said fastener body head;

a deformable sleeve around said stem in contact with said stem head, movement of said stem outwardly through said fastener body deforming said sleeve to a fully set condition in overlying contact with the inner surface of the inner workpiece;

a drive nut separate from said fastener body threadedly mounted on said stem in contact with said body head restraining said fastener body from turning in the workpieces, at least one of said drive nut and said body head being knurled to increase the friction between said drive nut and said body head;

first wrench means engaging said drive nut for holding it against rotation;

second wrench means engaging said wrench engaging region for applying turning force to turn said stem in the one direction relative to said drive nut;

a localized weakened region in said stem at an axial location positioned substantially flush with an outer surface of said body head when said sleeve is fully set; and

an outer portion of said stem extending outwardly of said weakened region through said drive nut, said outer portion with said drive nut attached being twisted off at said weakened region by continued application of turning force to said outer portion of said stem in the one direction after said sleeve is fully set.

5,066,180

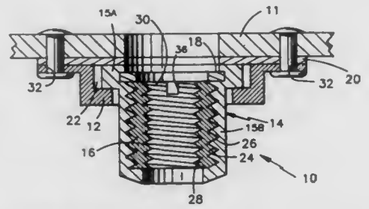
EASY ACCESS NUTPLATE

Charles F. Lang, 88 Lynn Dr., Monroe, Conn. 06468, and Henry E. Konopka, 8 Laura La., Oxford, Conn. 06483

Filed Dec. 7, 1990, Ser. No. 624,372

Int. Cl.[5] F16B *37/04, 37/08, 39/00*

U.S. Cl. 411—103 **3 Claims**



1. A nutplate assembly, comprising:

a nut element, comprising a shank having external threads and a coaxially attached, rectangularly shaped head having a larger diameter than said shank;

a retaining base, adapted to accept a portion of said nut element and to limit rotation of said nut element;

an insert, adapted to be positioned within said nut element, having an internally threaded portion and having an externally threaded portion for mating with threads of said shank; and

a lip on said nut element for attaching a snap ring to retain said insert axially within said nut element.

5,066,181

ATTACHMENT ELEMENT WITH LARGE WASHER

Gerhard Bögel, Balgach, Switzerland, assignor to Stadler AG, Heerbrugg, Switzerland

PCT No. PCT/EP88/00020, § 371 Date Sep. 21, 1988, § 102(e) Date Sep. 21, 1988, PCT Pub. No. WO88/05487, PCT Pub. Date Jul. 28, 1988

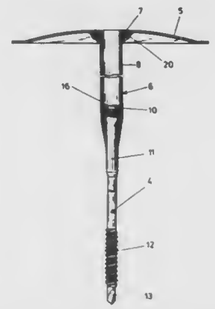
PCT Filed Jan. 13, 1988, Ser. No. 274,058

Claims priority, application Austria, Jan. 21, 1987, 104/87

Int. Cl.[5] F16B *35/02*

U.S. Cl. 411—383 **38 Claims**

1. An attachment element having a large washer and a tubular extension formed on the washer for the passage and guidance of a screw, wherein the washer (5) and the tubular extension (6) are formed as parts separate from each other, and wherein the said tubular extension (6) exhibits, at its end facing the washer, a shoulder (7), and wherein a section (8), adjoining this end area, of the tubular extension (6), corresponds approximately to the passage cross-section of an opening (9) in the washer (5), wherein the free inside diameter of the extension (6) corresponds, along its greatest length, approximately to the outside diameter of a head (10) of the screw (4) to be inserted, and wherein the free end (17) of the extension is narrowed to



the shank or outside diameter of the thread to the screw to be inserted to produce a friction-contact mounting between the extension (6) and the inserted screw such that the said tubular extensions with the inserted screws can be prestored in a magazine.

5,066,182

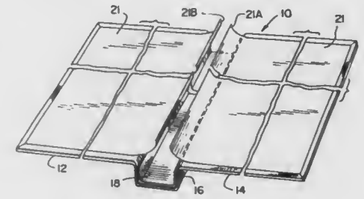
APPARATUS AND METHOD FOR ASSEMBLING A COVER CASE AND BINDER

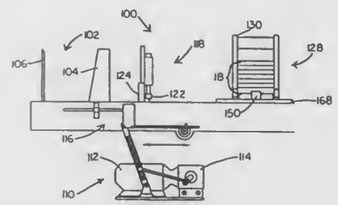
Richard L. Stonebraker, and James Lasley, both of Crawfordville, Ind., assignors to R. R. Donnelley & Sons Company, Chicago, Ill.

Filed Aug. 30, 1991, Ser. No. 575,218

Int. Cl.[5] B42C *7/00*

U.S. Cl. 412—3 **13 Claims**





1. An apparatus for assembling a cover case and a channel for binding pages in said cover case, comprising:

a hopper for holding a plurality of cover cases, said hopper including an inlet for loading cover cases in said hopper and an outlet for removing cover cases from said hopper;

an adhesive applicator adjacent said hopper;

a moving assembly including a pusher for moving said cover cases from said hopper through said outlet to said adhesive applicator;

said adhesive applicator including an adhesive dispenser for dispensing adhesive onto at least a portion of each of said cover cases;

a cartridge adjacent said adhesive applicator for holding a plurality of channels;

a channel applicator adjacent said cartridge wherein said channel applicator further includes a first side clamp and a second side clamp and an activator for clamping said first side clamp and said second side clamp on a portion of said cover case around said channel;

a first conveyor extending from said adhesive applicator to said channel applicator for moving said cover cases from said adhesive applicator to said channel applicator; and

an actuator coupled to said channel applicator for actuating said channel applicator to remove a channel from said cartridge and apply said channel onto said adhesive on said cover case.

5,066,183

METHOD FOR BINDING SHEAVES OF PAPER INTO COVERS

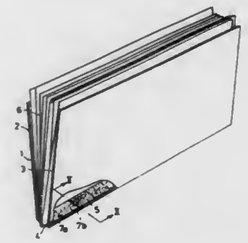
Jan Tholérus, Iäby, Sweden, assignor to Bindomatic AB, Stockholm, Sweden

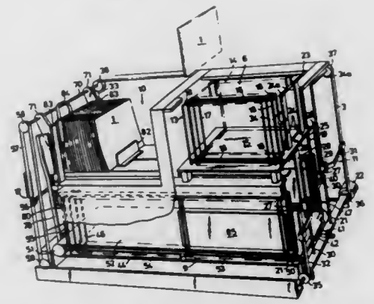
Filed Jan. 5, 1990, Ser. No. 461,280

Claims priority, application Sweden, Sep. 15, 1989, 8903049

Int. Cl.[5] B42C *11/00*

U.S. Cl. 412—4 **18 Claims**





1. A cover comprising two cover sheets and a spine therebetween, a binding agent attached to the inside of the spine, a sheaf of papers being intended to be inserted in the cover between the two cover sheets, such that one side edge of the sheaf of papers bears against the side of the binding agent farthest away from the spine, the binding agent being intended to be activated for connecting the sheaf of papers to the inside of the spine via the binding agent, and automatically readable metallic indication means associated with the cover.

6. A method for binding sheaves of papers into covers such as to form booklets, each booklet comprising a cover made up of two cover sheets, a spine therebetween, indication means associated with the cover, a binding agent attached to the inside of the spine, and a sheaf of papers inserted in the cover, one side edge of the sheaf being positioned adjacent to the

VOL 1132 ISS 3 NO 19 1991 UMI

inside of the spine, comprising the steps of activating the binding agent by an activation device such that said side edge of the sheaf of papers will be connected to the inside of the spine via the binding agent, and sensing the non-presence of the indication means on the cover using a sensing means to thereby activate a control means for preventing binding of the sheaves in the absence of the indication means.

5,066,184

METHOD FOR SEAMING PACKED CANS

Yoshiharu Taura, Takasago; Yoshinori Yuzaki, Hiroshima, and Koichi Takagi, Nagoya, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 297,937, Jan. 17, 1989, abandoned. This application Nov. 19, 1990, Ser. No. 616,804

Int. Cl.[5] B21D *51/32*

U.S. Cl. 413—4 **1 Claim**



1. A method of seaming a can lid to a can body, said method comprising:

clamping said lid and body between a chuck rotated by drive means and a lifter having a rotary axis coincident with a rotary axis of said chuck, thus forming a clamped assembly;

rotating said clamped assembly about said coincident axes while maintaining a clamping force between said lid and body;

moving a roll having a peripheral groove from a first position spaced from the thus rotating clamped assembly in a direction perpendicular to said coincident axes to a second position pressing against an edge portion of said lid and thereby deforming said edge portion and an edge portion of said body to form a sealed seam therebetween; and

maintaining said roll during said movement thereof and at both said first and second positions thereof at an orientation relative to said coincident axes wherein said rotary axis of said roll is inclined relative to said coincident axes, said maintaining comprising positioning said roll in a constant orientation such that said rotary axis thereof always is located in planes parallel to said coincident axes and tangential to cylindrical surfaces centered about said coincident axes.

5,066,185

BAR FEEDER

Giovanni Cucchi, Bussero, Italy, assignor to Cucchi Giovanni & C. S. R. L., Bussero, Italy

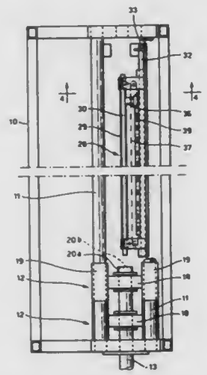
Filed Nov. 20, 1989, Ser. No. 438,963

Claims priority, application Italy, Nov. 21, 1988, 22680 A/88

Int. Cl.[5] B23B *13/08;* **B23Q** *5/22*

U.S. Cl. 414—18 **6 Claims**

1. A bar feeding device for machine tools comprising: a support structure having a longitudinal axis, slide guides for at least a first and a second carriage rotatably supporting a bar to be fed and guided toward a machine tool mandrel, first control means to move said carriages along said slide guides parallel to said axis, said device further comprising first and second bar pushing means (**20***a* and **30, 41**) for pushing a bar along said axis, said first pushing means (**20***a*) being provided on one of said carriages and remaining always on said axis, and second control means to move said second pushing means independently of said first pushing means, said second pushing means and second control means being movably supported on said



support structure for movement between an inoperative position in which said second pushing means is laterally offset from said axis and an operative position in which said second pushing means is aligned with said axis.

5,066,186

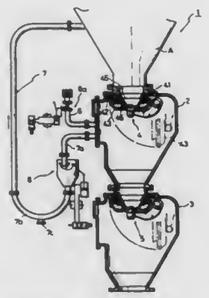
DUST DISCHARGING APPARATUS FOR A FURNACE

Kazumi Shimada, and Masaaki Chikazawa, both of Tokyo, Japan, assignors to Azuma Tekko Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 7, 1990, Ser. No. 578,918

Int. Cl.[5] F16K *1/20*

U.S. Cl. 414—221 **5 Claims**



1. A dust discharging apparatus comprising: series-connected upper and lower dust shoot chambers, said upper dust shoot chamber being connected to a lower discharging end of a dust hopper, each dust shoot chamber having a swingable discharging valve device to close and open its ceiling opening, said swingable discharging valve device comprising: a dependent hollow cylinder extending down from the ceiling of each of said upper and lower dust shoot chambers; a downstream-convergent throttle ring integrally connected to the inside of said dependent hollow cylinder; a valve seat integrally connected to the outside of said dependent hollow cylinder; and a swingable valve having a concave plate large enough to accommodate a downstream end of said dependent hollow cylinder when said plate is closed to sit on said valve seat, and an upstream-divergent bucket fixed to said concave plate, the upstream-divergent opening of said bucket being somewhat larger than the downstream-convergent opening of said throttle ring.

5,066,187

PARKING SYSTEM AND METHOD OF AUTOMATICALLY PARKING MOTOR VEHICLES

Hans Hammer, Sylvensteinstrasse 2, 8000 Munich 70, Fed. Rep. of Germany

Filed Feb. 8, 1990, Ser. No. 476,694

Continuation of PCT/EP8900618, Jun. 2, 1989, abandoned.

Int. Cl.[5] E04H *6/12*

U.S. Cl. 414—237 **13 Claims**



1. A parking mechanism for automatically parking motor vehicles (**40**) on at least two vertically stacked horizontal parking levels (**P1, P2**) each including a plurality of intersecting parking rows (**Z1–Z12**) and parking columns (**RA–RK**), an entrance zone (**EZ**) and an exit zone (**AZ**), the parking rows being arranged parallel to the entrance zone and the exit zone in a y-direction and the parking columns being arranged perpendicular thereto in an x-direction, comprising

(a) a plurality of motor vehicle pallets (**41**) for supporting motor vehicles within the parking levels;

(b) first means for driving said pallets in the x-direction from an entrance row (**Z3**) to an exit row (**Z10**);

(c) means for driving said pallets in the y-direction transverse to the columns (**RA–RK**); and

(d) a plurality of lifting units (**20, 21**) for driving said pallets vertically in a z-direction between the parking levels, said lifting units being arranged in the entrance row and in the exit row for each parking column, respectively, each lifting unit including

(11) an x-driving mechanism in a lowermost parking level, said x-driving mechanism having second x-driving means for moving said pallets solely in the x-direction; and

(2) third x-driving means (**96**) in the upper parking levels for moving said pallets solely in the x-direction, said third xdriving means being movable beneath said pallets into and out of a lifting path.

5,066,188

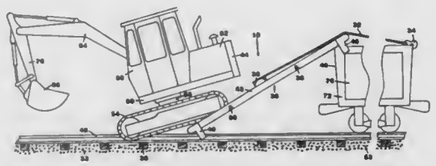
APPARATUS FOR LOADING AND UNLOADING OPEN TOP RAILROAD CARS

David E. Bush, Rte. 1 Box 77, Gary, Tex. 75643, assignor to David E. Bush, Gary, Tex.

Filed May 17, 1990, Ser. No. 525,978

Int. Cl.[5] B65G *67/02*

U.S. Cl. 414—339 **6 Claims**



4. An apparatus for supporting a material handling machine and loading and unloading an open top railroad car resting on rails supported by a rail bed, said apparatus comprising a support structure having at least two structure beam members disposed in spaced, parallel relationship; attachment pin means provided in each of said structure beam members for removably securing the material handling machine on said structure beam members; at least two structure end members carried by each end of said structure beam members in spaced, transverse relationship: and stabilizing means mounted in adjustable relationship on said structure end members for adjustably engaging the sidewall upper surfaces of the sides of the open top railroad car; winch means rotatably mounted in said support structure whereby one of said structure end members is rested against the open top railroad car with the opposite one of said structure end members engaging the railroad bed, the material handling machine is attached to said structure beam members, the material handling machine being operable relative to the railroad bed so as to elevate the said opposite one of said structure end members from its position engaging the railroad bed to a position where the support structure is generally parallel and level with the open top railroad car, and then said winch is operable to pull said support structure with said material handling machine thereon onto the sidewall upper surface of the sides of the open top railroad car.

5,066,189

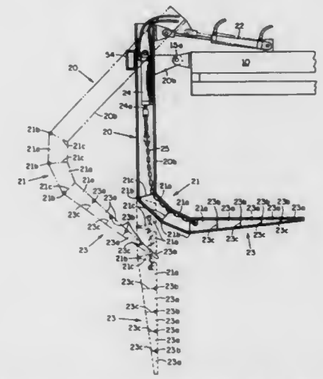
METHOD AND APPARATUS FOR HANDLING DISCRETE CARGO UNITS

Melvin E. Shell, Stephenville, Tex., assignor to Shell Material Handling Systems, Inc., Stephenville, Tex.

Filed Aug. 3, 1990, Ser. No. 562,196

Int. Cl.[5] B66F *9/00*

U.S. Cl. 414—416 **20 Claims**



1. A fork for handling a rectangular stack of cargo units without a pallet comprising:

a rectangular suspension frame having horizontal dimensions approximating those of the rectangular stack;

means on said suspension frame for attachment to crane cables for lowering and raising said suspension frame;

a plurality of forks;

each fork having a rigid upper portion and an articulated lower portion movable between a substantially 90° load carrying position relative to said upper portion and a substantially longitudinally aligned, load releasing position relative to said upper portion;

means spaced along two opposed sides of said suspension frame for horizontally pivotally mounting said upper portions of said forks, whereby one set of said forks is disposed along one side of said stack and a second set of said forks is disposed along the opposite side of said stack;

first power means for concurrently shifting said lower fork portions relative to said upper fork portions from said load releasing position to said load carrying position; and

second power means for concurrently shifting said upper portions of said forks from an angularly inclined vertical position wherein said opposed sets of forks clear said

VOL 1132 ISS 3 NOV 19 1991 UMI

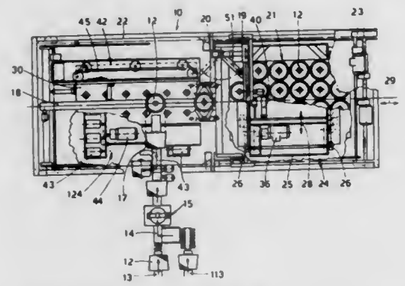
stack, to a substantially vertical position wherein both sets of said lower fork portions move under said stack in their load carrying positions, whereby said stack may be lifted and moved to another location by said suspension frame.

5,066,190

DEVICE TO PALLETIZE YARN PACKAGES

Armando D'Agnolo, Porcia, Italy, assignor to Matics Srl, Pordenone, Italy

Filed Dec. 6, 1989, Ser. No. 446,664
Claims priority, application Italy, Dec. 23, 1988, 83552 A/88
Int. Cl.[5] B65G *57/16*
U.S. Cl. 414—799 **13 Claims**



1. A device to palletise yarn packages which is suitable for installation downstream of machines that produce such yarn packages, the yarn packages being engaged substantially at the outlet of their production machine so as to be loaded in an orderly manner on means for supporting the yarn packages, the palletisation device comprising:
a movable support structure able to support additional structures;
means, mounted on said movable support structure, for transferring said yarn packages onto said movable support structure;
means, mounted on said movable support structure, for engaging and moving said yarn packages and for positioning said yarn packages on said means for supporting the yarn packages
means, mounted on said movable support structure for engaging, moving and positioning cardboard sheet supports and pallets; and at least two side-by-side work stations provided. on said movable support structure, each of said work stations including means for supporting and moving at least one of yarn packages and cardboard sheet supports for movement in two directions, said two directions being orthogonal to a direction of forward movement of the movable support structure, whereby this orthogonal movement in two directions permits work to be carried out on both sides of the device.

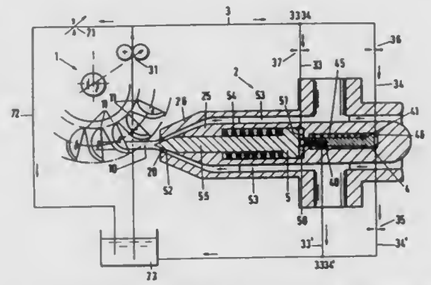
5,066,191

TURBINE WITH CONTROL SYSTEM

Wolfgang Wuehrer, Ravensburg, Fed. Rep. of Germany, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

PCT No. PCT/CH88/00209, § 371 Date Jul. 13, 1989, § 102(e) Date Jul. 13, 1989, PCT Pub. No. WO89/05402, PCT Pub. Date Jun. 15, 1989
PCT Filed Nov. 11, 1989, Ser. No. 392,938
Claims priority, application Switzerland, Nov. 30, 1987, 4664/87
Int. Cl.[5] F04D *15/02*
U.S. Cl. 415—35 **15 Claims**

1. In combination,
a turbine having a plurality of circumferentially disposed blades;
a needle valve for directing a water jet onto said blades for rotating said turbine, said valve including a first housing having a nozzle at one end for expelling a water jet therefrom, a control piston slidably mounted in said housing to control the water jet passing through said nozzle, a first chamber behind said piston relative to said nozzle, a pilot piston slidably mounted in said housing coaxially of said control piston, and a second chamber behind said pilot piston relative to said nozzle;
a hydraulic pump drivingly connected to said turbine to be



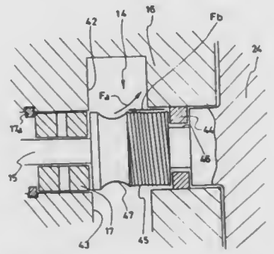
driven thereby for pumping a flow of oil therethrough at a pressure dependent on the speed of said turbine;
a first branch line between said pump and said first chamber for delivering oil thereto;
a first orifice plate in said first branch line to throttle the flow of oil therethrough;
a second branch line between said pump and said second chamber for delivering oil thereto; and
a second orifice plate in said second branch line to throttle the flow of oil therethrough.

5,066,192

OIL SEALING SYSTEM FOR A TURBO CHARGER

Mamoru Honda, and Ken Shirato, both of Toyota, Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Apr. 19, 1990, Ser. No. 511,210
Claims priority, application Japan, Apr. 19, 1989, 1-46083; Jun. 6, 1989, 1-66102; Jun. 27, 1989, 1-75097
Int. Cl.[5] F01D *11/00, 25/00*
U.S. Cl. 415—112 **5 Claims**



1. An oil sealing system for a turbo charger comprising:
a housing;
a shaft rotatably supported by the housing via a bearing;
a turbine-rotor fixed to one end of the shaft;
a compressor-rotor fixed to the other end of the shaft;
an oil conduit formed in the housing for supplying oil between the shaft and the bearing for lubrication; and
an oil sealing means for preventing oil leakage to the turbine-rotor;
the oil sealing means including:

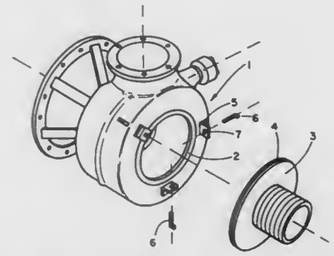
a depression formed in the housing;
a drain formed in the housing;
a ring-shaped depression formed on the shaft, wherein the ring-shaped depression has a taper portion and a vertical portion;
a groove formed on the shaft;
a seal-ring located between the housing and the groove; and
a directing means for directing oil away from said turbine-rotor, wherein said directing means comprises a screw formed on the outer circumferential portion of the shaft between the groove and the ring-shaped depression;
wherein the bearing defines an outside diameter and an inside diameter, and wherein a portion defining an outside diameter is formed on the shaft, such that the outside diameter of the portion is smaller than the outside diameter of the bearing and larger than the inside diameter of the bearing.

5,066,193

WATER PUMP HOUSING CLOSURE AND A WATER PUMP GASKET ADJUSTMENT MECHANISM

Mariano Travanti Corinti, and Giovanni Nepi Campitelli, both of Caracas, Venezuela, assignors to Bombas Auriferas & Equipos Mineros B.A.E M., C.A., Caracas, Venezuela

Filed Apr. 24, 1990, Ser. No. 514,680
Int. Cl.[5] F01D *1/00, 25/00*
U.S. Cl. 415—201 **4 Claims**



1. A water pump housing closure which consists of a housing having housing edges on lateral sides thereof, L shaped projections fixed to the housing, two suction and support covers which can be joined on both lateral sides of said housing said covers having bevelled edges to coincide with the housing edges joined hermetically by the pressure exerted by pins inserted in a radial direction through the L shaped projections which are fixed to the housing, said projections having openings for the insertion of said pins.

5,066,194

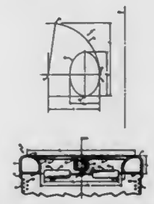
FAN ORIFICE STRUCTURE AND COVER FOR OUTSIDE ENCLOSURE OF AN AIR CONDITIONING SYSTEM

Yehia M. Amr, Manlius, N.Y.; W. Joseph Fallows, III, Windsor, Mass., and Mark R. Hogan, Manlius, N.Y., assignors to Carrier Corporation, Syracuse, N.Y.

Filed Feb. 11, 1991, Ser. No. 653,378
Int. Cl.[5] F01D *9/04*
U.S. Cl. 415—223 **12 Claims**

1. An orifice structure, for use with an axial flow fan having an axis of rotation, comprising a wall having
a circular wall leading edge,
a circular throat,
an inlet portion extending from said wall leading edge to said throat,
a wall trailing edge downstream with respect to said axial flow from said throat and
a discharge portion extending from said throat to said wall trailing edge,
said inlet portion comprising a surface produced by rotating a planar line about a coplanar axis of generation coincident with said axis of rotation, said line being a generally quarter segment of an ellipsoid having a major axis substantially parallel to said axis of generation.

2. A fan and fan orifice assembly comprising:
a fan of the axial flow type having
an axis of rotation,
a plurality of blades extending radially from an axis of rotation, each of said blades having a blade leading edge, a blade trailing edge and a tip,
a swept diameter, said swept diameter being the diameter of the circle described when that point on a blade tip that is farthest from said axis of rotation rotates about said axis of rotation, and
a blade axial depth, said blade axial depth being the normal distance between a first plane normal to said axis of rotation passing through a point on said blade leading edge that is four tenths (0.4) of said swept diameter from said axis of rotation and a second plane normal to said axis of rotation passing through a point on said blade trailing edge that is four tenths (0.4) of said swept diameter from said axis of rotation; and



an orifice structure comprising a wall having
a circular wall leading edge,
a circular throat,
an inlet portion extending from said wall leading edge to said throat,
a wall trailing edge downstream with respect to said axial flow from said throat,
a discharge portion extending from said throat to said wall trailing edge and
an axial distance from said wall leading edge to said wall trailing edge,
said inlet portion comprising a surface produced by rotating a planar line about a coplanar axis of generation coincident with said axis of rotation, said line being a generally quarter segment of an ellipsoid having
a minor axis that is between forty and seventy five thousandths (0.04 and 0.075) of said swept diameter and
a major axis that is substantially parallel to said axis of generation and two and one half ($1 < A_m \leqq 2.5$) times said minor axis,
said axial distance being one half ($\frac{1}{2}$) said blade axial depth plus six to twenty hundredths (0.06 to 0.20) of said swept diameter.

5,066,195

PROPELLER FOR AIRCRAFT OR THE LIKE

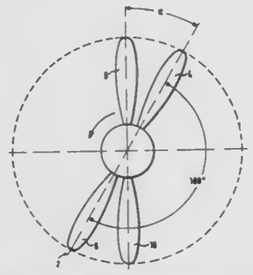
Werner M. Dobrzynski, Wolfenbüttel, Fed. Rep. of Germany, assignor to Deutsche Forschungsanstanlt Für Luft- Und Raumfahrt e.V., Cologne, Fed. Rep. of Germany

Continuation of Ser. No. 259,854, Oct. 19, 1988, abandoned. This application Jul. 10, 1990, Ser. No. 550,379
Claims priority, application Fed. Rep. of Germany, Oct. 27, 1987, 3736141
Int. Cl.[5] B64C *11/48*
U.S. Cl. 416—200 R **6 Claims**

1. A propeller having an even number of propeller blades, which are at least four in number, mounted for rotation about

VOL 1132 ISS 3 NO 19 1991 UMI

a common axis and being intended for operation at speeds characterized by respective blade tip Mach numbers in the range of about 0.4 to 0.8, said blades being situated diametrically opposite one another in pairs, said blade pairs being arranged offset in relation to one another with a spacing angle



(ε) of between about 15° and 50° between them, and the magnitude of said spacing angle being inversely related to the magnitude of said blade tip Mach numbers, thereby to effect a reduction in the level of the rotational sound harmonics by interference.

5,066,196

ENGINE-COOLING FAN MADE OF SYNTHETIC RESIN

Kunitoshi Morofushi, Shizuoka, Japan, assignor to Usui Kokusai Sangyo Kabushiki Kaisha, Japan

Continuation of Ser. No. 184,257, Apr. 21, 1988, abandoned. This application Jul. 14, 1989, Ser. No. 379,705

Int. Cl.[5] F01D *5/14*

U.S. Cl. 416—241 A **7 Claims**



1. In an engine-cooling fan made of a synthetic resin, said fan including a cylindrical hub, a plurality of fan blades provided integrally and radially on an outer peripheral wall of the hub and an integral member provided inside the hub for mounting the fan on a drive shaft extending at a right angle relative to a plane in which the fan blades lie, the improvement wherein at least two reinforcing ribs are integrally molded with the outer peripheral wall of the hub and a heel portion of each of the blades, one of said at least two reinforcing ribs being provided on a windway side of the corresponding blade, and the other one of said at least two reinforcing ribs being provided on a leeway side of the corresponding blade, and wherein an edge of each of said reinforcing ribs connected with the corresponding blade has a length not greater than one half of the radial length of the corresponding blade.

5,066,197

HYDRODYNAMIC BEARING PROTECTION SYSTEM AND METHOD

John M. Champagne, Seattle, Wash., assignor to Sundstrand Corporation, Rockford, Ill.

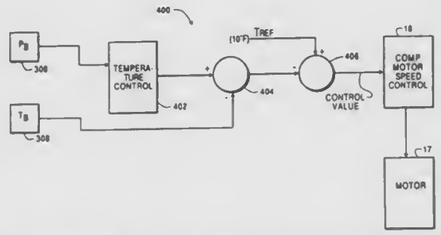
Filed Jul. 10, 1990, Ser. No. 550,506

Int. Cl.[5] F04D *27/00*

U.S. Cl. 417—18 **25 Claims**

1. A protection system for a rotatable element which is rotatably supported by hydrodynamic bearings pressurized with a lubricating fluid provided from a pressure source with the fluid being subject to a change in state from liquid to vapor when heat from the bearings during rotation of the rotatable element is absorbed by the pressurized fluid during supporting of the rotatable element comprising:

a pressure sensor in fluid communication with fluid flowing from the hydrodynamic bearings for producing a pressure signal representative of pressure of the fluid flowing from the bearings;



a temperature sensor in fluid communication with fluid flowing from the hydrodynamic bearings for producing a temperature signal representative of temperature of the fluid flowing from the bearings;

a prime mover for driving the rotatable element with a variable rotational velocity; and

a controller, responsive to the pressure and temperature signals, for controlling the velocity of the prime mover as a function the pressure and temperature signals to prevent the change in state of the fluid flowing through the bearings from liquid to vapor.

5,066,198

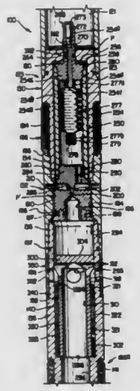
GAS LIFT VALVE

Kenneth L. Decker, Garland, Tex., assignor to Otis Engineering Corporation, Dallas, Tex.

Filed Jun. 4, 1990, Ser. No. 533,019

Int. Cl.[5] F04F *1/18*

U.S. Cl. 417—54 **27 Claims**



1. A gas lift device for controlling the flow of gas between the exterior and the interior of a well tubing, comprising:

(a) body means, said body means having inlet means, an outlet, a flow course extending between said inlet means and said outlet, means on said body for attachment to means for securing the same to said well tubing;

(b) main valve means, including:

(i) a main valve member in said body slidable between an open position wherein flow is allowed to take place through said flow course and a closed position wherein such flow is prohibited,

(ii) means biasing said main valve member toward closed position, and

(iii) a pressure responsive area on said main valve member for moving said main valve member toward open position in response to pressure exterior of the tubing acting thereon;

(c) a main chamber in said body means for containing a volume of compressible liquid;

(d) pilot valve means in said body means between said main chamber and said main valve means, said pilot valve means including a variable volume chamber for containing a compressible liquid, a restricted fluid passage for fluidly communicating said variable volume chamber with said main chamber, and pressure responsive means for moving said pilot valve means from a closed position to an open position responsive to a differential pressure across said pressure responsive means as a result of an increase in pressure exterior of said well tubing for controlling admission of fluid pressure from said exterior of said tubing to said pressure responsive area of said main valve member for moving the same to open position; and

(e) means for sealing between said main valve and said body.

5,066,199

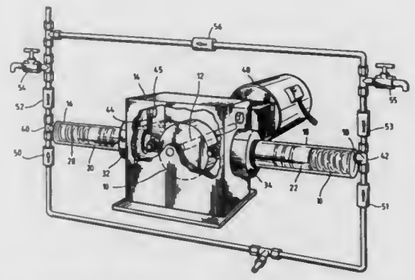
METHOD FOR INJECTING TREATMENT CHEMICALS USING A CONSTANT FLOW POSITIVE DISPLACEMENT PUMPING APPARATUS

D. Dwaine Reese, Richmond; Roy D. Sawyer, and Stanley G. Crow, both of Livingston, all of Tex., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Oct. 23, 1989, Ser. No. 425,566

Int. Cl.[5] F04B *1/02*

U.S. Cl. 417—63 **12 Claims**



1. A pumping apparatus for delivering a constant flow of liquid, the apparatus comprising:

a) one or more pairs of piston/cylinder combinations, each of the combinations comprising a piston and a cylinder, wherein each of the pistons is displaced into and out of the corresponding cylinder such that liquid is drawn into the cylinder when the piston is displaced out of the cylinder, and liquid is discharged from the cylinder when the piston is displaced into the cylinder at a rate proportional to the rate of displacement of the piston into the cylinder; and

b) a rotatable cam, the cam comprising;

a surface which contacts an end of each of said pistons so that the piston is displaced into and out of the corresponding cylinder when the cam rotates, the pistons in each pair of piston/cylinder combinations contact the cam surface at points which are 180 degrees out-of-phase from each other; and

a center of rotation, wherein the distance between the cam surface and the cam center varies as a function of the angle as the cam is rotated, and the distance between the cam surface and the cam center has a minimum value at an angle of 0 degrees and a maximum value at an angle of about 220 degrees,

wherein the distance between the cam surface and cam center increases at a first constant rate from an angle of 0 degrees to about 40 degrees,

wherein the distance between the cam surface and cam center increases at a second constant rate from an angle of about 40 degrees to about 180 degrees, said second constant rate being twice the first constant rate,

wherein the distance between the cam surface and cam center increases at the first constant rate from an angle of about 180 to an angle of about 220 degrees,

wherein the distance between the cam surface and cam center decreases from an angle of about 220 degrees to an angle of about 360 degrees.

5,066,200

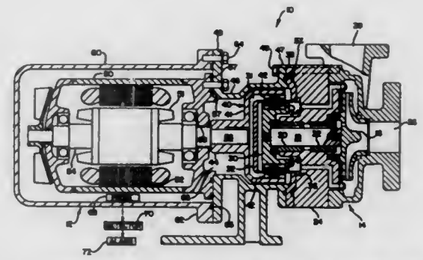
DOUBLE CONTAINMENT PUMPING SYSTEM FOR PUMPING HAZARDOUS MATERIALS

Kazuo Ooka, Morton Grove Village, Ill., assignor to Ansimag, Inc., Elk Grove Village, Ill.

Filed May 17, 1990, Ser. No. 525,125

Int. Cl.[5] F04B *49/02*

U.S. Cl. 417—63 **8 Claims**



1. A containment system for a motor-driven pump assembly having rotary pump means including a pump housing, a pump drive shaft, inlet and outlet port means, rotary motor means including motor housing means having a motor drive shaft end extending through a face of said motor housing means, and coupling means for coupling said motor drive shaft to said pump drive shaft, said containment system comprising:

first shroud means extending between said motor housing means face and said pump housing and sealingly affixed to said motor housing means face and said pump housing to enclose said motor drive shaft end and said coupling means;

sealed reservoir means for storing fluid; and

passage means communicating between the interior of said first shroud means and the interior of said reservoir means for permitting the flow of fluids escaping past said sealing wall means to be stored in said reservoir means.

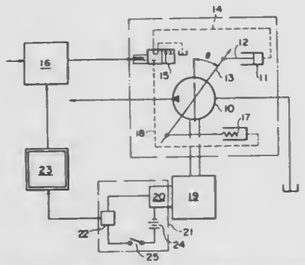
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,201

DRIVING LOAD CONTROLLER FOR VARIABLE DISPLACEMENT TYPE HYDRAULIC PUMP

Katsumi Nagai; Teruyuki Nishimyou, both of Kariya; Masataka Osawa, Nagoya, and Hitoshi Ban, Oobu, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusbo, Kariya and Kabushiki Kaisha Toyota Chuo Kenkyusho, Aichi, both of, Japan

Filed Aug. 9, 1990, Ser. No. 565,052
Claims priority, application Japan, Aug. 17, 1989, 1-210668
Int. Cl.[5] F04B *49/02*
U.S. Cl. 417—222 R **10 Claims**



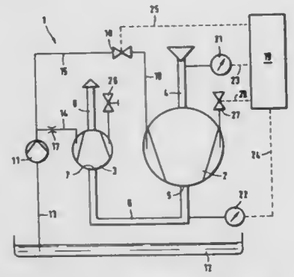
1. A driving load controller for a variable displacement type hydraulic pump comprising a relay connected in series with a starter motor for detecting that a drive source for driving said variable displacement type hydraulic pump is in a starting state, a controller for outputting a signal for minimizing the driving load of said hydraulic pump when said controller determines that said drive source is in the starting state in response to a signal from said relay switch, and driving load varying means for minimizing the driving load of said hydraulic pump by a signal from said controller.

5,066,202

METHOD AND APPARATUS FOR DELIVERING OIL TO A MULTI-STAGE PUMP

Hanns-Peter Berges, Cologne; Berthold Fischer, Erfstadt; Peter Mueller, Cologne, and Dieter Vorberg, Erfstadt, all of Fed. Rep. of Germany, assignors to Leybold Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 5, 1990, Ser. No. 533,535
Claims priority, application European Pat. Off., Jun. 6, 1989, 89110196.6
Int. Cl.[5] F04C *39/04;* **F01C** *21/04*
U.S. Cl. 417—228 **9 Claims**



1. A method of delivering oil into a pump chamber of a high-vacuum stage of a multi-stage pump, said method comprising the following steps:

sensing a first pressure at an intake region of said high-vacuum stage of said pump;

sensing a second pressure at a discharge region of said high vacuum stage of said pump;

sensing a pressure difference between said first and second pressures;

delivering oil to said high-vacuum stage of said pump in response to said pressure different; and

delivering increased quantities of oil to said high-vacuum stage of said pump when said pressure difference exceeds a predetermined value;

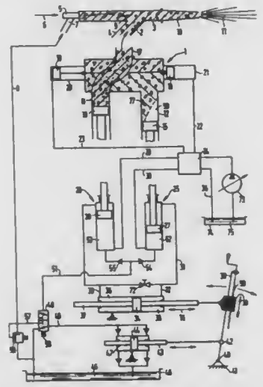
wherein said predetermined value is in a range of approximately 10 to 30 mbar.

5,066,203

APPARATUS FOR PNEUMATICALLY DISCHARGING CONCRETE

Joachim Coja, Gelsenkirchen-Buer; Karl-Ernst von Eckardsteln, Unna, and Andre J. Simnovec, Recklinghausen, all of Fed. Rep. of Germany, assignors to Friedrich Wilh. Schwing GmbH, Herne, Fed. Rep. of Germany

Continuation of Ser. No. 423,109, Oct. 18, 1989, abandoned.
This application Jan. 18, 1991, Ser. No. 644,478
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1988, 3835373; Aug. 18, 1989, 3927332
Int. Cl.[5] F04B *9/10, 35/02;* **G05D** *11/00*
U.S. Cl. 417—318 **8 Claims**



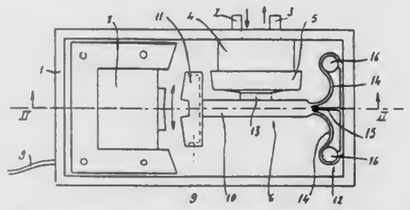
1. An apparatus for pneumatically discharging concrete fed hydromechanically in a dense stream, using for the hydromechanical feed a concrete pump having a hydraulic drive comprising at least two cylinders with opposed reciprocating pistons, the reciprocating pistons being driven by a hydraulic working medium and the opposed pistons having synchronization control by a displacer circuit between the two cylinders, the displacer circuit reciprocally conducting the working medium displaced by an advancing piston of one cylinder and discharging the working medium to the other cylinder, and having a dosing means for an additive serving as an accelerating agent, the dosing means being operated in association with the hydraulic drive of the concrete pump, characterized in that the dosing means is operated by a reciprocating piston drive (34) connected to the displacer circuit to provide hydraulic working medium from the concrete pump to reciprocally operate the piston drive, wherein the volume of working medium absorbed by the reciprocating piston drive in both directions corresponds to the amount of hydraulic working medium displaced from one cylinder by the advancing piston, the absorbed amount being added in both directions to the other cylinder.

5,066,204

DIAPHRAGM PUMP

Jacques Point, Annecy, and Pierre Joulia, Saint Jorioz, both of France, assignors to Rena S.A., Meythet, France

Filed Jul. 2, 1990, Ser. No. 546,315
Claims priority, application France, Jul. 7, 1989, 89 09902
Int. Cl.[5] F04B *17/00;* **H02K** *33/00*
U.S. Cl. 417—413 **4 Claims**



1. In a diaphragm pump for pumping gases or highly volatile liquids, comprising a vibrating arm acting on a diaphragm which serves for the suction and lift of the fluid to be pumped and placed into oscillation by a fixed electromagnet, one end of the vibrating arm being connected to pump housing and the other end holding at least one permanent magnet located opposite the electromagnet, the improvement wherein

said vibrating arm is composed of a single piece o plastic material with an enlarged head molded to said at least one permanent magnet, and having a part of said arm opposite said head attaching said arm within said housing; and

wherein said part attaching said vibrating arm within said housing comprises two symmetrical loops made of thin elastically-deformable sheets of plastic material and attached to attaching elements that are part of said housing, said sheets comprising spring means.

5,066,205

SCREW ROTOR LOBE PROFILE FOR SIMPLIFIED SCREW ROTOR MACHINE CAPACITY CONTROL

Robert A. Ingalls, Springfield, Vt., assignor to Excet Corporation, Springfield, Vt.

Division of Ser. No. 354,526, May 19, 1989, Pat. No. 4,938,672.
This application Apr. 12, 1990, Ser. No. 507,813
Int. Cl.[5] F04C *18/16*
U.S. Cl. 418—1 **3 Claims**

1. A method of making different capacity helical screw rotor machines for the compression or expansion of an elastic working fluid comprising:

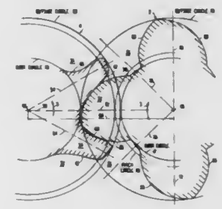
an elongated form male rotor rotatable about the central longitudinal axis and having an outside diameter, a root diameter, a pitch diameter and a length to diameter ratio with said pitch circle centered on said axis;

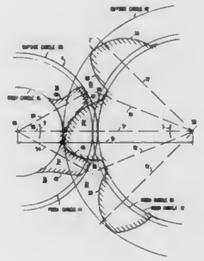
a plurality of elongated helical lobes extending longitudinally of said male rotor and circumferentially spaced about said pitch circle so as to provide intervening grooves therebetween, said screw rotor machine further comprising an elongated female formed rotor, rotatable about a central longitudinal axis and having an outside diameter, a root diameter, a pitch diameter and a length to diameter ratio with a pitch circle centered on said axis;

a plurality of elongated helical lobes extending longitudinally of said female rotor, and circumferentially spaced about said pitch circle so as to provide intervening grooves therebetween; and

wherein said lobes of said female rotor engage grooves of said male rotor such that a working fluid captured between intermeshed helical screw rotors is compressed or expanded during relative rotation of said rotors, said method of capacity control comprising:

maintaining constant for one of said rotors, the number of rotor lobes, the outside diameter, the root diameter pitch diameter and length to diameter ratio, and the basic proportion of said lobes, while varying, for the other rotor, the outside diameter, root diameter, pitch diameter, and the number of rotor lobes while maintaining the basic lobe proportions the same, such that for the same speed of rotation of said other rotor, the compression or expansion capacity of said helical screw rotor machine is significantly varied.



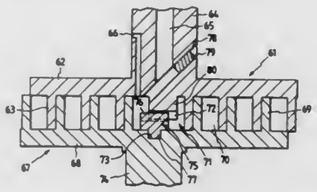


5,066,206

FLUID SCROLL MACHINE WITH TORQUE TRANSMITTING COUPLING BETWEEN SCROLLS

Masayuki Kakuda; Shin Sekiya, and Yoshihisa Kitora, all of Hyogo, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Mar. 16, 1990, Ser. No. 494,344
Claims priority, application Japan, May 11, 1989, 1-117923
Int. Cl.[5] F01C *1/04, 17/06;* **F16D** *3/04*
U.S. Cl. 418—55.3 **1 Claim**



1. A fluid scroll machine including two scrolls eccentrically combined with each other and defining a hermetically closed space which moves as said scrolls are rotated synchronously with each other, said scrolls including vortical portions, wherein the central parts of the vortical portions of said scrolls

VOL 1132 ISS 3 NO 19 1991 UMI

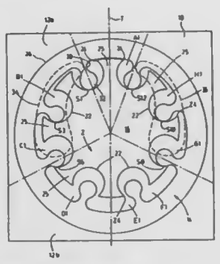
are notched so that an opening is provided between said scrolls; a coupling means for transmitting the torque of one of said scrolls to the other is provided in said opening, wherein each of said scrolls includes a base plate, the base plates of the scrolls having grooves which extend perpendicularly to each other and which are open to said opening, and wherein said coupling means comprises a body having key-like projections provided on a top and bottom thereof, said key-like projections being fitted in said grooves, respectively, and further wherein said coupling means is cylindrical shaped and has a diameter which is smaller than that of a driving shaft for driving one of said scrolls.

5,066,207

ROTARY DEVICE

William K. Valavaara, R.R. #1, Chesley, Ontario, Canada

Filed May 8, 1990, Ser. No. 520,796
Int. Cl.[5] F04C *2/063*
U.S. Cl. 418—171 **5 Claims**



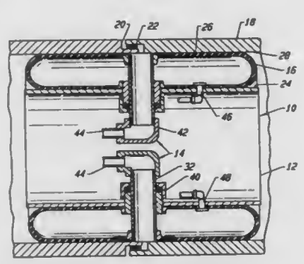
1. A rotary device comprising:
an outer rotor defining a first axis of rotation, and bearing means therefor whereby same may rotate and having an annular outer wall, defining an internal cavity;
an inner rotor mounted within said cavity and bearing means therefor whereby same may rotate in the same direction as said outer rotor, said inner rotor defining a second axis of rotation, said second axis being offset with respect to said first axis whereby to define a spacing between said rotors varying from a minimum to a maximum at respective positions on opposite sides of said inner rotor, said positions defining a transverse axis between said positions, said axis defining an inlet side of said rotors on one side of said axis and an outlet side of said rotors on the other side of said axis;
wall means at least partly enclosing said rotors, said enclosure means defining inlet port means on said inlet side and outlet port means on said outlet side whereby fluid is prevented from entering or exiting said cavity except through said port means, said wall means including a larger wall portion located around said point of maximum spacing between said inlet port means and said outlet port means, and a smaller wall portion located around said position of minimum spacing between said outlet port means and said inlet port means;
a pre-determined number of contact bodies on said outer rotor of semi-cylindrical cross-sectional shape each said body defining a cylindrical arc of at least 270 degrees, in profile;
an abutment arm member extending between each said contact body, and said cylindrical wall of said outer rotor, each said abutment member defining a narrow neck extending between its respective contact body and said outer rotor, said outer wall between said abutments defining arcuate inwardly directed wall surfaces having a predetermined first radius;
a predetermined number of recesses in said inner rotor equal to said number of contact bodies of semi-cylindrical cross-sectional shape each said recess defining a semi-cylindrical arc greater than 180 degrees and receiving respective contact bodies, each said contact body forming a wiping seal with the cylindrical surface of its respective said recess over certain pre-determined angular regions during rotation;
partition members on said inner rotor extending radially outwardly between said recesses, having free ends defining outwardly directed arcuate surfaces of a predetermined second radius less than said first radius, and,
wherein upon rotation of the two rotors together in unison any one contact body may move inwardly and outwardly within its respective recess as said spacing between said rotors varies and will slide around the cylindrical surface of said recess thereby effecting a seal between said recess and said contact body which seal is maintained over an angular region within said first enclosure portion, and at least one seal is maintained between a said contact body and said outer wall over a lesser angular region within said first enclosure portion.

5,066,208

PIPE JOINT TESTING AND GROUTING UNIT

Gerard G. Warmerdam, 17400 N. Bowser Rd., Lodi, Calif. 95240

Filed Apr. 5, 1990, Ser. No. 505,702
Int. Cl.[5] F16L *55/162*
U.S. Cl. 425—13 **6 Claims**



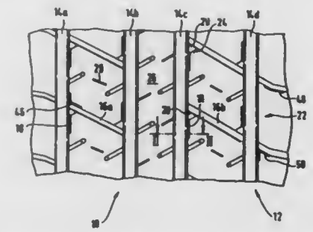
1. A pipe joint pressurizing unit comprising:
a) a rigid cylindrical core member, having an inside surface and an outside surface;
b) an expandable sleeve mounted on the outside surface of the core member, the expandable sleeve having an outer surface that is displaceable from the outside surface of the core member;
c) means for expanding the expandable sleeve from the surface of the core member, and;
d) a telescoping pipe component providing a flow-through passage from the inside of the core member to the outside of the expandable sleeve, the telescoping pipe component including a rigid guide tube on the core member and a rigid outlet pipe slidably installed through the guide tube, the outlet pipe having a distal end connected to the expandable sleeve and an opposite end located inside the core member, and the guide tube having sealing means with a deformable sealing element for sealing between the guide tube and outlet pipe and permitting the outlet pipe to slide in the guide tube on expansion of the sleeve, the outlet pipe slidably engaging the deformable sealing element of the sealing means on displacement of the pipe in the guide tube on expansion of the sleeve while maintaining a seal between the guide tube and outlet pipe.

5,066,209

VENTED TIRE MOLD

Gerhard Schmaderer, Cham, and Rainer Hilke, Berg, both of Fed. Rep. of Germany, assignors to A-Z Formen-und Maschinenbau GmbH, Munich, Fed. Rep. of Germany

Filed Apr. 27, 1990, Ser. No. 516,075
Claims priority, application Fed. Rep. of Germany, May 2, 1989, 3914649
Int. Cl.[5] B29C *35/02*
U.S. Cl. 425—28.1 **15 Claims**



1. In a vented tire mold that includes a surface that forms the tread surface of a tire and is provided on a segment member and has integrally formed thereon projecting ribs to form a corresponding profiling in said tread surface of said tire, whereby said ribs have side surfaces that extend essentially perpendicular or at an angle to said surface of said segment member, the improvement wherein:
at least one venting gap having specific dimensions is formed in said segment member and extends in its longitudinal direction along a line of intersection between one of said side surfaces of said ribs and said surface of said segment member and has a dimension of depth in a radially outward direction of said mold.

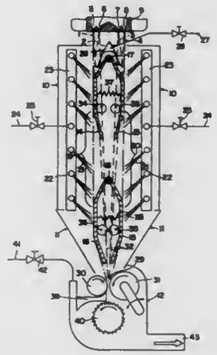
5,066,210

APPARATUS FOR COOLING AND GRANULATING EXTRUSIONS OF THERMOPLASTIC MATERIAL

Friedrich Hunke, Grossosthelm, Fed. Rep. of Germany, assignor to Automatik Apparate-Maschinenbau GmbH, Grosbostheim, Fed. Rep. of Germany

PCT No. PCT/EP88/00802, § 371 Date Apr. 26, 1989, § 102(e) Date Apr. 26, 1989, PCT Pub. No. WO89/01858, PCT Pub. Date Mar. 9, 1989
PCT Filed Sep. 2, 1988, Ser. No. 350,529
Claims priority, application Fed. Rep. of Germany, Sep. 4, 1987, 3729686
Int. Cl.[5] B29C *47/78*
U.S. Cl. 425—71 **5 Claims**

1. Apparatus for cooling and granulating extrusions of thermoplastic material issuing from extrusion dies comprising:
a pair of substantially mirror image symmetric channels arranged back to back disposed between a plurality of extrusion dies and a granulator having draw-in rollers, a cutting wheel and an entrance disposed below said extrusion dies;
each channel having an upper end exposed to a cooling water supply and a lower end directed toward said granulator entrance, each channel extending laterally beyond an imaginary straight line projected from said dies to said granulator entrance;
a plurality of spray nozzles disposed along each of said channels for cooling said channels;
said channels each being formed by a first pair of laterally spaced guide plates and a second pair of laterally spaced guide plates, said pairs of guide plates being disposed one above the other and arranged to provide a descent space therebetween to provide cooling on all sides of an extrusion directed along a said channel as it passes along said space and said guide plates of each said first and second pair of guide plates being laterally separable from one another whereby with increasing separation each said channel increases in lateral distance beyond the imaginary straight line between the dies and said granulator entrance



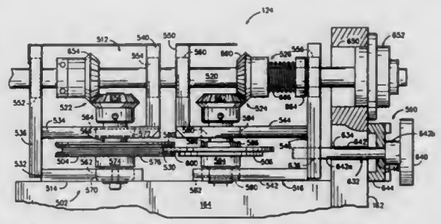
to provide increased tension in an extrusion directed along a said channel from said extrusion dies to said granulator entrance.

5,066,211

MATERIAL FEED CONTROL ASSEMBLY IN A ROTARY PRESS

William G. Wunder, Sr., Hamilton, Mich., and Eric M. Bliss, Lexington, N.C., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Mar. 1, 1990, Ser. No. 487,486
Int. Cl.[5] B30B *11/08, 15/30;* B29C *43/34*
U.S. Cl. 425—122 **13 Claims**



1. A control assembly to control the rate at which a food material is conducted to die cavities of a rotary press including a die plate forming a multitude of the die cavities, and means to force the food material into the die cavities, to mold the food material therein into tablets and then to eject the tablets from the die cavities, the control assembly comprising:
a roller support assembly;
a first roller rotatably supported by the roller support assembly;
a second roller rotatably supported by the roller support assembly and located adjacent the first roller, wherein the first and second rollers form a feed gap therebetween to receive the food material, and wherein the second roller is also supported for movement toward and away from the first roller;
adjusting means connected to the roller support assembly to move the second roller toward and away from the first roller to vary the size of the feed gap;
roller drive means connected to the first and second rollers to rotate said rollers to pull the food material through the

VOL 1132 ISS 3 NO 19 1991 UMI

feed gap and to direct the food material to the die plate, and including

i) a roller drive shaft,

ii) a first gear connected to the first roller to rotate the first roller,

iii) a second gear mounted on the drive shaft for rotation therewith and drivingly engaging the first gear to rotate said first gear,

iv) a third gear connected to the second roller to rotate the second roller, and for movement therewith toward and away from the first roller,

v) a fourth gear mounted on the drive shaft for rotation therewith and for sliding movement therealong, and drivingly engaging the third gear to rotate the third gear, and

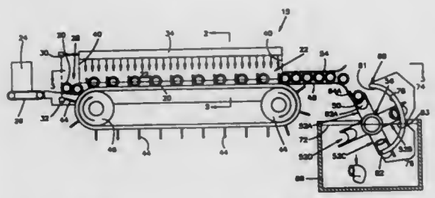
vi) biasing means engaging the fourth gear and urging the fourth gear toward the third gear to maintain the fourth and third gears in driving engagement as the second roller moves toward and away from the first roller.

5,066,212

APPARATUS FOR BENDING PIPE

Thomas F. Moran, Jr., Chagrin Falls, Ohio, assignor to Midwest Plastic Fabricators, Chagrin Falls, Ohio

Filed Mar. 21, 1990, Ser. No. 496,859
Int. Cl.[5] B29C *53/08, 53/84*
U.S. Cl. 425—145 **24 Claims**



11. An apparatus for bending lengths of pipe into elbows comprising:

a first camming surface, said first camming surface including a first distal portion and a first proximal portion;

a second camming surface, said second camming surface including a second distal portion and a second proximal portion;

a plurality of arcuate dies each defining a bending surface having a center portion and opposed end portions against which a length of pipe is formed, each of said arcuate dies being relatively U-shaped in transverse cross section and being adapted for receiving the center portion of one of the lengths of pipe;

means for moving each of said arcuate dies between a first position and a second position relative to said first and second camming surfaces, said first and second distal portions being spaced farther from the bending surface of each of said arcuate dies at said first position than said first and second proximal portions are spaced from the bending surface of each of said arcuate dies at said second position, each of said arcuate dies gradually approaching said first and second camming surfaces as each of said arcuate dies moves along a line of travel from said first position to said second position so that one end portion of each length of pipe held in each of said arcuate dies engages said first camming surface and the other end portion of each length of pipe engages said second camming surface, said first and second camming surfaces thereby urging the end portions of each length of pipe toward said arcuate dies until each length of pipe is substantially formed against one of said bending surfaces;

means for heating the center portion of the lengths of pipe before they are disposed on said arcuate dies; and

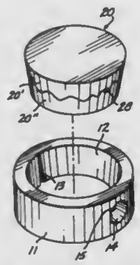
means for transporting the lengths of pipe through said heating means.

5,066,213

WAX-CASTING COMPONENTS

John Ferincz, 8920 202nd Pl. Southwest, Edmonds, Wash. 98020

Continuation-in-part of Ser. No. 331,830, Apr. 3, 1989, abandoned. This application Mar. 28, 1990, Ser. No. 501,070
Int. Cl.[5] B22C *7/02*
U.S. Cl. 425—175 **6 Claims**



1. A combination of wax-casting components for forming and retaining a mold of resilient material which mold is used for manufacture of wax models by pressure injection of wax into the mold, said combination comprising a mold-forming member having an open top, a closed bottom and a continuous circumferential wall, said wall of said member having an inner periphery which, in combination with said top and said bottom of said member, defines an interior cavity tapering in cross-sectional size from said top to said bottom, and a mold-retaining ring having an open top, and open bottom and a continuous circumferential wall defining an interior cavity of the same cross-sectional shape as the cross-sectional shape of said interior cavity of said mold-forming member, said interior cavity of said ring being tapered in cross-sectional size from top to bottom to the same degree as said cavity of said mold-forming member, the cross-sectional size of said interior cavity of said mold-retaining ring at the bottom of said ring cavity being smaller than the cross-sectional size of said interior cavity of said mold-forming member at the bottom of said cavity of said member, said wall of said mold-forming member having a sprue-positioning bore therein and said wall of said mold-retaining ring having a wax injection hole therein.

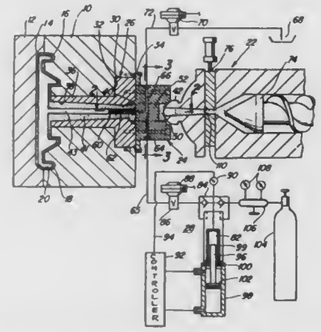
5,066,214

INJECTION MOLDING APPARATUS

Indra R. Baxl, Troy, and Erik E. Erikson, Grosse Pointe Shores, both of Mich., assignors to Encore Molding Systems, Inc., Mt. Clemens, Mich.

Filed Nov. 2, 1988, Ser. No. 266,477
Int. Cl.[5] B29C *45/20, 45/34;* B29D *22/00*
U.S. Cl. 425—190 **9 Claims**

1. In a gas assisted plastic molding apparatus having a mold, sprue means carried by said mold and having a sprue bushing defining a sprue passage communicating with a molding cavity in said mold, a gas delivery system, and means for injecting a melt stream of molten plastic through said sprue means in a direction from said injection means toward said cavity, said plastic injection means having a nozzle, the improvement comprising gas injection means located between said nozzle and said sprue bushing when said plastic injection means is operatively associated with said mold, said gas injection means being adapted for connection to said gas delivery system, said gas injection means comprising an adapter having an end face abutting an end face of said sprue bushing, and being attached thereto, said gas injection means further having a gas injection probe extending forwardly of said adapter and into said sprue bushing at said sprue passage to inject gas into molten plastic passing through said sprue passage.

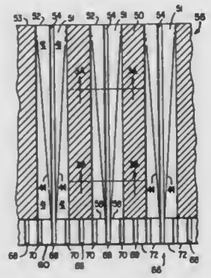


5,066,215

EXTRUSION DIE FOR FORMING THIN-WALLED HONEYCOMB STRUCTURES

Donald C. Peters, Savona, and Richard L. Seely, Horseheads, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Aug. 29, 1988, Ser. No. 237,983
Int. Cl.[5] B29C *47/30*
U.S. Cl. 425—464 **12 Claims**



1. An extrusion die for making a thin-walled honeycomb structure,

said die having an inlet portion, an outlet portion, and a junction between the inlet portion and the outlet portion;

the inlet portion having a plurality of feed holes longitudinally extending from an inlet face of said inlet portion to the junction at an outlet end of said inlet portion, at least some of the feed holes being uniformly tapered throughout their length and both diminishing in transverse cross sectional area and changing in transverse cross sectional shape along their length in a smooth and gradual transition from inlet ends of the holes at the inlet face of the inlet portion to outlet ends of the holes at the junction; and

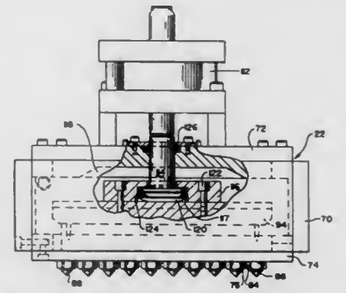
the outlet portion having a plurality of intersecting and laterally criss crossing discharge slots longitudinally extending from an inlet end of the outlet portion at the junction to an opposite outlet face of the outlet portion, said discharge slots defining a plurality of polygonal pins bordered by said discharge slots, the outlet ends of the holes opening into portions of the inlet ends of the slots at the junction, central portions of the outlet ends of the tapered feed holes being aligned at the junction with intersections of the slots at their inlet ends, whereby each tapered feed hole is adapted to directly feed a discharge slot intersection, and the transverse cross sectional area and shape of the outlet end of each tapered feed hole being the same as the transverse cross sectional area and shape of the portion of the inlet end of discharge slots into which that outlet end of a feed hole directly feeds at the junction, whereby material extruded through the discharge slots flows both laterally and toward the outlet ends of the discharge slots to form a honeycomb structure.

5,066,216

APPARATUS FOR INJECTION OF VISCOUS MATERIAL

Robert M. Kowtko, Long Valley, N.J., and Richard A. Mellwig, Tatamy, Pa., assignors to Binney & Smith Inc., Easton, Pa.

Filed Sep. 22, 1989, Ser. No. 410,937
Int. Cl.[5] B29C *45/23*
U.S. Cl. 425—562 **7 Claims**



1. An apparatus for injecting viscous material comprising a vertically adjustable manifold, said manifold having a top, a bottom and perimeter side walls to define a hollow cavity for receiving viscous material for subsequent injection into a container, means for supplying pressurized viscous material to said cavity, a plurality of injection orifices disposed in said manifold bottom, a vertically reciprocating platen disposed within said cavity and having a plurality of orifice pins corresponding to the number of injection orifices and positioned relative to said injection orifices such that when said platen is in a lowered position said orifice pins are seated within and block said orifices and when said platen is in a raised position said orifice pins are removed from said injection orifices and said injection orifices are open.

5,066,217

CLAMPING APPARATUS FOR AN INJECTION MOLDING MACHINE

Shigeo Fukuzawa; Takahide Kaneko, and Masaaki Fujimura, all of Yamaguchi, Japan, assignors to Ube Industries, Ltd., Ube, Japan

Filed Aug. 8, 1990, Ser. No. 564,188
Int. Cl.[5] B29C *45/66*
U.S. Cl. 425—589 **6 Claims**

1. A clamping apparatus comprising:

a machine base,

a fixed platen fixedly mounted on the machine base and having a plurality of clamping cylinders and a fixed mold, each clamping cylinder defining a cylinder bore therein,

a movable platen having a movable mold, said movable platen being installed on the machine base to move relative to the fixed platen,

a plurality of tie bars extending through the movable platen, each tie bar having grooves therearound at a substantially longitudinal center portion thereof,

a plurality of pistons slidably situated inside the cylinder bores of the clamping cylinders, each piston being connected to one end of each tie bar,

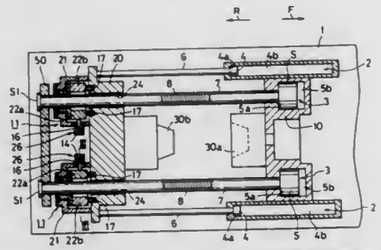
VOL 1132 ISS 3 NO 19 1991 UMI

means for moving the movable platen to and from the fixed platen,

a plurality of two-part nuts mounted on the movable platen to be engageable with the grooves of the tie bars, said two-part nuts being movable to and from the respective tie bars and along the tie bars,

means for moving the two-part nuts to and from the tie bars, and

means for moving the two-part nuts along the tie bars, said means including nut boxes fixed to the movable platen and housing the two-part nuts, said nut boxes having threaded



holes through which the tie bars extend; adjusting shafts situated inside the respective nut boxes, each adjusting shaft engaging with said threaded hole and having a through hole through which the tie bar extends and a flange with which the two-part nuts slidably contact; and pressing means disposed in the movable platen for pressing the two-part nuts toward the flanges; said two-art nuts being moved along the tie bars by rotating the adjusting shafts and positioned on the tie bars so as to mesh with the grooves of the tie bars when the movable mold is brought into contact with the fixed mold.

5,066,218

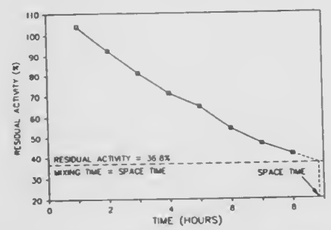
COMPOSITION OF A STEEPED STARCHED-CONTAINING GRAIN AND A CELLULASE ENZYME

Scott C. Silver, Belmont, Calif., assignor to Genencor International, Inc.

Continuation of Ser. No. 248,001, Sep. 22, 1988, abandoned, which is a division of Ser. No. 49,750, May 13, 1987, abandoned. This application Mar. 22, 1991, Ser. No. 675,013

Int. Cl.[5] A21D *2/00, 8/02*

U.S. Cl. 426—20 **1 Claim**



1. A composition consisting essentially of a steeped starch-containing grain and a cellulase enzyme in a concentration from at least about 5000 F.P.U./ton of steeped grain to about 60,000 F.P.U./ton of steeped grain.

5,066,219

METHOD AND APPARATUS FOR BURNING LIQUID FUEL

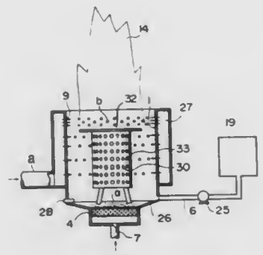
Norio Anzawa; Koji Adachi; Tetsuo Futakawa; Hironari Sato, and Akira Narita, all of Muroran, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Filed Mar. 28, 1990, Ser. No. 500,782

Claims priority, application Japan, Mar. 31, 1989, 1-81237; Mar. 31, 1989, 1-81238

Int. Cl.[5] F23M *3/04*

U.S. Cl. 431—10 **3 Claims**



1. A method of burning a liquid fuel in an apparatus for burning liquid fuel which has a combustion chamber and a liquid fuel foamer having a top and a bottom in the bottom of the combustion chamber having a porous element with only the top exposed to the interior of the combustion chamber, the method comprising the steps of:

supplying a shallow layer of liquid fuel onto the top of the porous element;

supplying air for foaming to the bottom of the porous element from beneath the porous element in an amount to cause substantially all the liquid fuel to be immediately converted into foam at a foaming expansion ratio of 5–50 times;

causing the resulting foam to enter the combustion chamber; and

supplying combustion air separately from the foaming air and mixing it with the foam in the combustion chamber for burning the foam.

5,066,220

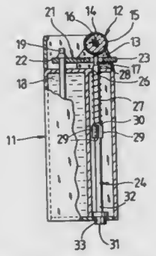
CIGARETTE LIGHTER

Henry L. Vick, 24-7 Westchester Ct., Birmingham, Ala. 35215

Filed May 7, 1990, Ser. No. 519,737

Int. Cl.[5] F23D *11/36*

U.S. Cl. 431—277 **22 Claims**



12. A cigarette lighter for creating a flame comprising:

(a) a casing;

(b) means mounted to said casing for selectively supplying a flammable gas;

(c) means mounted to said casing adjacent said gas supplying means for selectively creating a spark; and

(d) means mounted to said casing and said spark creating means for automatically deactivating said spark generating means.

5,066,221

FITTING FOR JOINING AT LEAST ONE HYBRID BURNER TO APPARATUS FOR SUPPLYING A FLUID FUEL

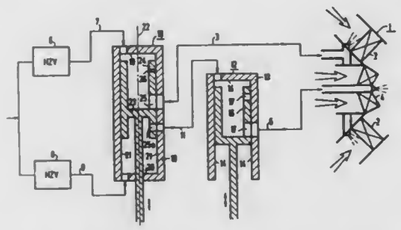
Bernard Becker, Mülheim an der Ruhr, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jan. 9, 1991, Ser. No. 639,600

Claims priority, application Fed. Rep. of Germany, Jan. 9, 1990, 4000446

Int. Cl.[5] F23Q *9/08*

U.S. Cl. 431—280 **27 Claims**



1. In a burner and supply apparatus assembly including:

at least one hybrid burner having a main burner operable with premixing combustion and an auxiliary burner operable to furnish a pilot light for the main burner, a main supply apparatus, and an auxiliary supply apparatus,

a fitting for connecting the at least one hybrid burner to the main supply apparatus and the auxiliary supply apparatus, comprising:

a) a change-over element, a main feed line for communicating between said change-over element and the main supply apparatus, an auxiliary feed line for communicating between said change-over element and the auxiliary supply apparatus, a main tie line for communicating between said change-over element and the main burner, an auxiliary tie line for communicating between said change-over element and the auxiliary burner, said change-over element being operable in at least one first and at least one second switching state, in said at least one first switching state said main feed line communicating with said main tie line and said auxiliary feed line communicating with said auxiliary tie line, and in said at least one second switching state said main feed line communicating with said auxiliary tie line and said auxiliary feed line being blocked; and

b) a switchable throttle element being connected in series with said auxiliary tie line for conducting a fuel flow, said throttle element being operable in said at least one first switching state with relatively slight throttling action and in said at least one second switching state with relatively great throttling action.

5,066,222

METHOD AND APPARATUS FOR HEATING AND CONVEYING PLASTIC PREFORMS PRIOR TO MOLD BLOWING OPERATIONS

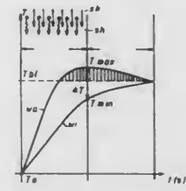
Uwe-Volker Roos, Bodenteich, and Franz Gittner, Soltendieck, both of Fed. Rep. of Germany, assignors to Bekum Maschinenfabriken GmbH, Berlin, Fed. Rep. of Germany

Filed Mar. 14, 1990, Ser. No. 493,343

Claims priority, application Fed. Rep. of Germany, Mar. 14, 1989, 3908219; Mar. 15, 1989, 3908345; Mar. 30, 1989, 3910293

Int. Cl.[5] F27D *5/00*

U.S. Cl. 432—5 **3 Claims**



1. A method for heating cold preform blanks produced by an injection method which are conveyed through heating and cooling sections and afterwards are introduced to a blow molding device for inflation of said preform blanks into hollow articles, comprising the steps of first heating said preform blanks to a temperature below their blow molding temperature, next cooling said preform blanks, then reheating said preform blanks to a temperature wherein the outer aspects of said preform blanks are slightly above their blow molding temperature, next allowing the temperatures between said preform blanks' outer and inner aspects substantially to equalize at said blow molding temperature, and introducing said preforms with their said outer and inner aspects equalized at said blow molding temperatures into a blow mold.

5,066,223

MELTING AND CASTING FURNACE

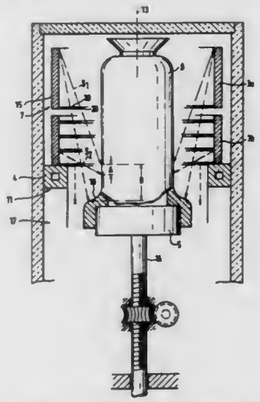
Johannes Mosch, Alzenau, Fed. Rep. of Germany, assignor to Leybold Aktiengesellschaft, Hanau I, Fed. Rep. of Germany

Filed Nov. 13, 1990, Ser. No. 612,629

Claims priority, application Fed. Rep. of Germany, Jul. 13, 1990, 4022389

Int. Cl.[5] F27D *3/12;* **F27B** *17/00*

U.S. Cl. 432—184 **9 Claims**



1. Melting and casting furnace for the production of direc-

VOL
1132
ISS
3
NO
19
1991
UMI

tionally solidified or monocrystalline structures, said furnace comprising

a housing having a bottom opening with a cooling ring disposed about the perimeter thereof,

a cooling table with a mold disposed thereon arranged for movement in and out of said housing through said bottom opening,

heating apparatus in said housing, said apparatus being arranged to heat said mold by radiation, and

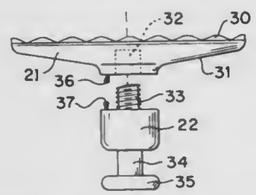
a plurality of radiation shields spaced one above the other in said housing, the lowermost said radiation shield lying above said cooling ring about said bottom opening and separating a heating zone inside said housing from a cooling zone outside said housing, said shields extending from said heating apparatus toward said mold so that radiation from the heating apparatus to the cooling zone is blocked.

5,066,224

ORTHODONTIC ANCHOR

Michael S. Block, Metairie, and David R. Hoffman, Mandeville, both of La., assignors to Oasis Implants Incorporated, Metairie, La.

Filed Feb. 25, 1991, Ser. No. 659,680
Int. Cl.[5] A61C *3/00*
U.S. Cl. 433—7 **4 Claims**



1. An orthodontic anchor system to cure malalignment of teeth which comprises in combination:

a. an onplant which is surgically placed in the subperiosteal tunnel of a patient;

b. said onplant having a onplant bone interface surface which is placed against the skeletal bone to permit biointegration;

c. an orthodontic abutment which is attached to said onplant after biointegration has occurred between the onplant and the skeletal bone;

d. an orthodontic device attached to two bands which are placed around two teeth and adapted to be attached to said onplant;

whereby said orthodontic anchor system hold said teeth stable and non-mobile, permitting the orthodontist to treat the malalignment of the teeth of the patient.

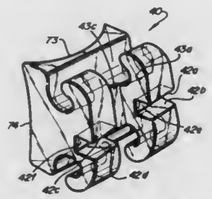
5,066,225

CRYSTALLINE ALUMINA ORTHODONTIC BRACKET

Robin M. Forbes Jones, Pennington; Carl Panzera, Bellemead, and Robert D. DeLuca, Pennington, all of N.J., assignors to Johnson & Johnson Consumer Products, Inc., Skillman, N.J.

Continuation-in-part of Ser. No. 743,851, Jun. 12, 1985, Pat. No. 4,639,218, which is a continuation-in-part of Ser. No. 602,876, Apr. 23, 1984, abandoned, and Ser. No. 707,281, Mar. 6, 1985, abandoned. This application Nov. 19, 1986, Ser. No. 932,745
The portion of the term of this patent subsequent to Jan. 27, 2004, has been disclaimed.
Int. Cl.[5] A61C *7/00*
U.S. Cl. 433—8 **7 Claims**

1. An orthodontic bracket comprising a base member for attaching to a tooth and a body member extending from the base member, said body member including walls defining an archwire groove, wherein said walls comprise crystalline alumina and wherein said bracket has a probability of survival of



at least 98 per cent, by Weibull statistical analysis. when said walls are subjected to a torque force of 1000 gram-centimeters

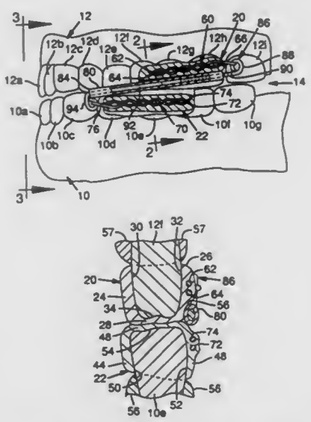
---

5,066,226

ORAL ORTHOPEDIC APPLIANCE FOR CORRECTING MANDIBULAR RETRUSION

John D. Summer, 427 NW. 23rd St., Portland, Oreg. 97210-2615

Continuation-in-part of Ser. No. 263,087, Oct. 27, 1988, Pat. No. 4,969,822. This application Nov. 13, 1990, Ser. No. 613,112
Int. Cl.[5] A61C *3/00*
U.S. Cl. 433—19 **6 Claims**



1. A telescopic, intraoral appliance for aligning the mandible and maxilla, comprising:

an upper attachment for attaching said appliance to said mandible and a lower attachment for attaching said appliance to said maxilla;

a sleeve having a first end and an open second end;

a first fastener coupled to the first end of the sleeve and coupled to one of said upper and lower attachments;

a rod attached at one end to the other of said upper and lower attachments and having its other end projecting through said open end for reciprocating telescopic movement within said sleeve; and

rod engagement means for restricting rotational movement of said rod relative to said sleeve.

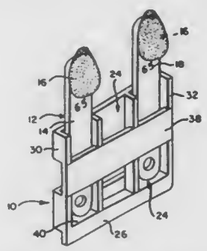
5,066,227

DENTAL TOOTH SHADE MATCHING SYSTEM

Bruno Pozzi, 425 Deseo Ave., Camarillo, Calif. 93010

Filed Apr. 17, 1991, Ser. No. 686,809
Int. Cl.[5] A61C *19/10*
U.S. Cl. 433—26 **4 Claims**

1. A system for use by a dentist in selecting a tooth color for a patient for whom artificial teeth are to be made, said system comprising a holder and dual identical shade guides being identically shaded and removably supported in said holder, each of said dual shade guides including an elongated handle having a tooth sample supported on one end thereof and identical indicia, said shade guides being removable from said holder for one to be sent to the tooth manufacture for use as a guide in making teeth for said patient while the other of said shade guides may be retained by the dentist in said frame.

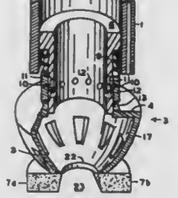


5,066,228

SALIVA EJECTOR

George J. Doundoulakis, 2498 Kayron La., North Bellmore, N.Y. 11710, and James H. Doundoulakis, 110-20 71st St., Forest Hills, N.Y. 11375

Filed Aug. 23, 1990, Ser. No. 571,182
Int. Cl.[5] A61C *17/06, 17/14*
U.S. Cl. 433—91 **6 Claims**



5. An improved saliva ejector tip for providing more efficient ejection of fluids and waste products from a patient's mouth during dental treatment with reduced likelihood aspirating soft tissue; such tip being connected to vacuum generating equipment and disposal plumbing via a flexible tube usually bent into a hook for support over a patient's lower lip, comprising:

a substantially cylindrical upper member serving as adaptor for rigidly joining said tip with the flexible tube;

a lower member providing side wall openings for allowing waste fluid and secretions from the patients mouth into said ejector tip, said lower member being movably supported onto said upper member;

spring means of a predetermined stiffness urging said lower member downwardly, away from said upper member; thereby said lower member is pushed away by said spring means when the pressure difference between inside and outside of said tip is small, and said lower member is being displaced by the action of outside atmospheric pressure upwardly, causing said spring to contract when the pressure difference increases as a consequence of excessive fluids and or soft tissue, intraorally filling the side wall openings;

a pin/slot combination between said upper and said lower member for allowing said lower member to axially slide with respect to said upper member, while preventing relative rotation between the two members;

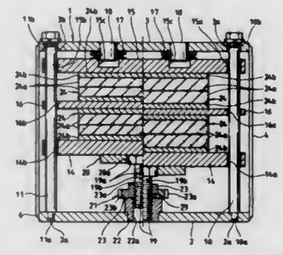
radially directed hole means on said upper and said lower member; wherein said hole means on the upper and lower members are not aligned and, therefore, do not conduct waste fluids when said lower member is at a lower position away from the flexible tube; but said hole means become aligned to conduct fluids as said lower member moves upwardly as a consequence of increased vacuum force when the side wall openings are being filled with fluid and or soft mouth tissue; thereby such additional conduction of fluids through said hole means as they become aligned, causes a drop in pressure difference and helps release of the soft tissue.

5,066,229

JIG FOR HOLDING DISC BRAKE PADS

Masaji Kitajima, Gumma, Japan, assignor to Akebono Brake Industry Co., Ltd., Tokyo, Japan

Filed Apr. 30, 1990, Ser. No. 515,755
Claims priority, application Japan, May 1, 1989, 1-50243[U]
Int. Cl.[5] F27B *3/06*
U.S. Cl. 432—160 **17 Claims**



1. A jig for holding a disc brake pads during curing thereof, the jig comprising:

a frame having a front plate and a rear plate;

a pair of hanger shafts extending between said front plate and said rear plate;

a front support plate and a rear support plate for supporting brake pads therebetween, the front support plate and the rear support plate being slidably disposed on said hanger shafts and being guided by said hanger shafts;

spring means between said rear plate and said rear support plate for urging the rear support plate toward the front plate; and

means mounted on said front support plate for driving said front support plate toward the rear support plate to apply a predetermined compression force to brake pads disposed therebetween, said driving means including a bolt connecting the front support plate to the front plate, and a gear rotatably supported by said front plate and having teeth on the outside circumferential surface thereof, said front support plate being pushed toward said rear plate by said bolt upon rotation of said gear.

5,066,230

DENTAL PRODUCT COMBINING A REAMER TOOL AND ANCHOR POST

Bernard Weissman, 225 East 48th St., New York, N.Y. 10017

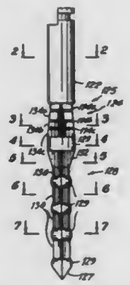
Continuation-in-part of Ser. No. 172,483, Mar. 24, 1988, Pat. No. 4,990,088. This application Nov. 18, 1988, Ser. No. 273,299
Int. Cl.[5] A61C *3/02, 5/04*
U.S. Cl. 433—165 **12 Claims**

1. A combination cutting tool and anchor device for attachment to a tooth, or the like, comprising:

a first holder end portion designed to be receivable in a dental tool holder such that the dental holder can rotate

VOL 1132 ISS 3 NO 19 1991 UMI

the cutting tool; a second drilling end portion having a proximal end and a distal tip end relative to the holder end portion, the drilling end tapering longitudinally endwardly from a maximum diameter at the proximal end to a minimum effective diameter at the distal tip end, the drilling end portion having a polygonal cross-section which provides axially facing cutting edges for drilling a bore into a tooth of a patient upon rotation of the tool; a shank portion extending intermediate the two end portions and including a first and a second axially successive, longitudinally extending shank sections; the first such shank section having laterally facing cutting surfaces and a relatively larger effective diameter, the laterally facing cutting surfaces of the first shank section being defined by



a substantially continuous curve, extending axially from the intersection with the second shank section; and the second shank section having a relatively smaller diameter relative to the first shank section and to the maximum diameter of the drilling end portion, such that upon the application of a laterally directed force while rotating the tool within a previously drilled bore, undercut portions are routed out from the interior surface of the bore, and

a crown anchoring means portion located intermediate said holder end portion and the shank portion, for anchoring a dental prosthesis with respect to a tooth; the combination device being formed as a integral, rigid unit, but the crown anchoring means being formed of a softer, more easily shaped material than the shank.

5,066,231

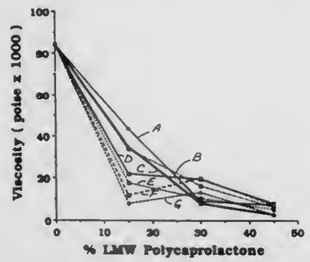
DENTAL IMPRESSION PROCESS USING POLYCAPROLACTONE MOLDING COMPOSITION

Joel D. Oxman, Minneapolis, and F. Andrew Ubel, III, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Feb. 23, 1990, Ser. No. 484,692

Int. Cl.[5] A61C *9/00*

U.S. Cl. 433—214 **7 Claims**



1. A method for making an impression of dental tissue, comprising the step of enveloping the tissue with a molten or softened molding composition comprising a blend of high molecular weight and low molecular weight polycaprolactones.

5,066,232

METHOD OF REMOVING PULP WITH AN ALKALINE PRODUCT

Febo R. Negri, Milan, and Ercole Tomasini, Mirandola, both of Italy, assignors to Biomedic S.r.l., Milan, Italy

Filed Oct. 4, 1990, Ser. No. 592,947

Claims priority, application Italy, Oct. 4, 1989, 21917 A/89

Int. Cl.[5] A61C *5/02*

U.S. Cl. 433—224 **10 Claims**

1. A method of treating pulp of a tooth root canal comprising the step of treating the tooth pulp with potassium hydroxide.

5,066,233

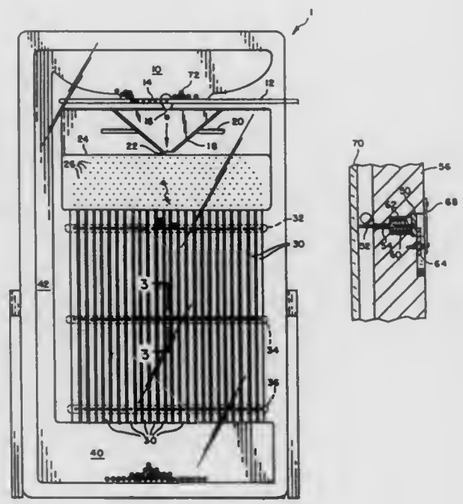
QUINCUNX WITH A REARWARDLY MOVABLE BALL-STOP

Aldo A. Laghi, P.O. Box 431, Clifton Park, N.Y. 12065

Filed Jun. 4, 1990, Ser. No. 532,441

Int. Cl.[5] G09B *1/00*

U.S. Cl. 434—188 **10 Claims**



1. A statistics training device comprising:

a support member;

a ball conduit means located on a top portion of said support member;

a pinplate means located on a front face of said support member below said ball conduit means;

a plurality of elongated groove means located on said support member below said pinplate means;

at least one ball-stop means located on said support member below at least a portion of said grooves, said ball-stop means comprising a plurality of pins mounted on a base member that can be moved in a manner which allows said pins to move from a first position wherein said pins at least partially block said groove means to a second position wherein said pins are withdrawn from said groove means and are moved rearwardly toward a rear face of said support means; and

a ball reservoir located on said support member below said at least one ball-stop means; wherein said ball-stop means further comprises at least one spring which biases said base member in one direction.

5,066,234

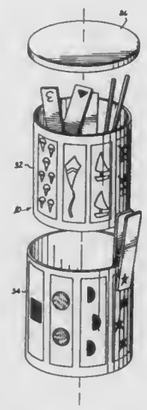
EDUCATIONAL TOY AND METHOD THEREFOR

Laura L. LeDesma, 648 W. Pantera, Mesa, Ariz. 85210

Filed Jun. 14, 1990, Ser. No. 537,823

Int. Cl.[5] G09B *1/00*

U.S. Cl. 434—205 **5 Claims**



1. An educational toy comprising:

a plurality of clips;

a first can having a cavity for storing the clips;

a larger second can having a cavity for storing the first can and having a cover;

each clip having a front board, a rear board, and a hinge connected to the front and rear boards;

the front board having respective numbers in a series disposed thereon;

the rear board having respective shapes with a selective color disposed thereon;

the first can having a plurality of first panels arranged in series disposed in a peripheral direction on the outer surface thereof;

the first panels having a series of different figures arranged in an increasing number of figures;

the second can having a plurality of second panels arranged in series and disposed in a peripheral direction on the outer surface thereof;

the second panels having a series of different geometrical shapes arranged in an increasing number of shapes; and

the shapes on each second panel having a selective color different from colors of the other second panels.

5,066,235

CONNECTOR ASSEMBLY FOR ELECTRONIC DEVICES

Fumiyuki Kobayashi, Tokyo, Japan, assignor to NEC Corporation, Japan

Filed Jul. 18, 1990, Ser. No. 554,276

Claims priority, application Japan, Jul. 21, 1989, 1-85859[U]; Jul. 27, 1989, 1-88778[U]; Jul. 17, 1990, 2-76019[U]

Int. Cl.[5] H05K *7/00*

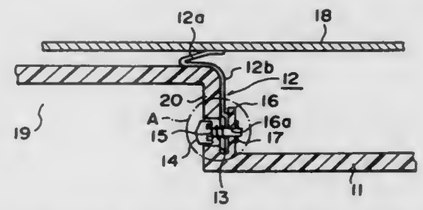
U.S. Cl. 439—76 **4 Claims**

1. A connector assembly adapted to be incorporated in an electronic device having a printed circuit board a battery pack holding section defined by a wall of a housing case for holding a battery pack, said connector assembly comprising:

a contact pattern provided on said printed circuit board; and

a spring connector having a spring contact of a leaf spring type movable by the spring force for being in contact with said contact pattern on said printed circuit board;

said spring connector including a terminal pin having a head electrically connectable to said battery pack, a coil spring carried by said terminal pin, a terminal leaf spring having a bent extended portion forming the spring contact and



having a base portion engaging with said terminal pin, and a mounting rib standing up from said housing case, each of said wall, said terminal leaf spring and said mounting rib having a hole through which said terminal pin extends and said mounting rib holding said terminal leaf spring with said coil spring pressing said terminal leaf spring against said mounting rib;

whereby the spring contact formed at the extended portion of said terminal leaf spring is in constant electric contact with the contact pattern on said printed circuit board.

5,066,236

IMPEDANCE MATCHED BACKPLANE CONNECTOR

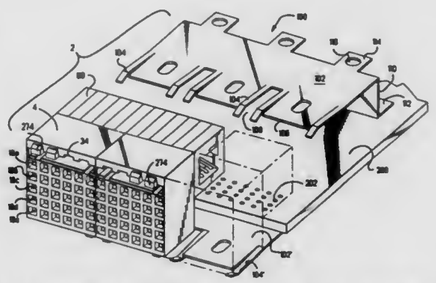
Johannes M. Broeksteeg, Ag Oss, Netherlands, assignor to AMP Incorporated, Harrisburg, Pa.

Filed Sep. 19, 1990, Ser. No. 584,672

Claims priority, application United Kingdom, Oct. 10, 1989, 8922765; Oct. 10, 1989, 8922781

Int. Cl.[5] H01R *13/648*

U.S. Cl. 439—79 **36 Claims**



1. A controlled impedance right angle electrical connector assembly (2) comprising:

an insulating housing (2) having a front mating face (6) and a rear face (14), said housing a plurality of terminal receiving passageways, with the passageways arranged in an array of columns and rows; and

at least one terminal module (60,60') where the module (60,60') comprises:

(a) a stamped lead frame (62) including a plurality of edge stamped right angle contacts (64,65,66,67,67') where the contacts each include a printed circuit board interconnection section (76,77,78,79), an intermediate section (72,73,74,75) and a mating contact section

VOL 1132 ISS 3 NO 19 1991 UMI

(68,69,70,71,71') ; each consecutive intermediate section (72,73,74,75) increasing in length from the prior and adjacent contact, and

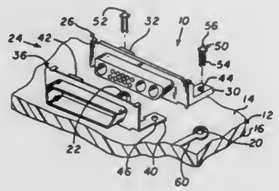
(b) an overmolded insert (82) discrete from the housing which encapsulates at least a portion of each intermediate section (72,73,74,75) in an insulative material leaving the remainder of each intermediate section (72,73,74,75) exposed to the air, the length of each intermediate section encapsulated within the insert decreasing as the intermediate portions increase in length, thereby balancing the impedance of the plurality of contacts.

5,066,237

CONNECTOR PRESS FIT EYELET

Robert J. Shiley, Riverside, Calif., assignor to ITT Corporation, New York, N.Y.

Filed Oct. 22, 1990, Ser. No. 600,654
Int. Cl.[5] H01R 9/09
U.S. Cl. 439—82 13 Claims



1. A fastener for holding the leg of a plastic connector body and the leg of a metal shell lying thereunder, of predetermined combined thickness, to a circuit board having a hole and a grounded conductive trace extending to the hole, and for electronically connecting the shell to the circuit board trace, wherein the legs and circuit board have aligned holes, comprising:

a metal eyelet with a tubular portion having an axis, a top, and a cap at the top, said tubular portion having a plurality of slits therein forming a plurality of tines that project radially outwardly from adjacent areas of the tubular portion, whereby to retain said eyelet in said circuit board hole;

each of said tines having a contact part lying a distance below said cap equal to said combined thickness of said plastic body leg and said metal shell leg to lie adjacent to the bottom of said shell, and each contact part extends with a horizontal directional component to lie adjacent to the bottom of said shell hole.

5,066,238

ELECTRICAL SOCKET

Gray Shieh, Fl. 9-4, No. 106, Sec. 3, Hsin-I Rd., Taipei City, Taiwan

Filed May 28, 1991, Ser. No. 706,297
Int. Cl.[5] H01R 13/44
U.S. Cl. 439—139 5 Claims

1. An electrical socket to receive an electrical plug having a number of contact blades, comprising:

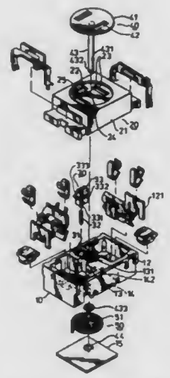
a socket housing defining a plurality of conductor receiving spaces therein and having a front face provided with a plurality of spaced socket openings each serving as a passage into one of said conductor receiving spaces, a shaft opening disposed between said socket openings, and a control piece opening;

a conductor piece provided inside each of said conductor receiving spaces and adapted to be electrically connectable to one of said contact blades;

a socket cover including a rotary plate provided in said front face of said socket housing and having a plurality of openings, and a shaft projecting rearward from said rotary plate and extending through said shaft opening, said socket cover being movable between a closed position, wherein said rotary plate covers said socket openings, and an open position, wherein each of said openings of said rotary plate is aligned with one of said socket openings, to permit insertion of said contact blades of said electrical plug into said conductor receiving spaces;

a control member including a control piece provided in said control piece opening and a spring to urge said control piece to engage one of said openings in said rotary plate when said socket cover is in said closed position, engagement of said control piece with one of said openings of said rotary plate preventing rotation of said rotary plate relative to said socket housing, said control piece being disengageable from said rotary plate to permit rotation of said rotary plate from said closed position to said open position; and

a torsion spring means provided in said socket housing and being connected to said shaft and said socket housing, said torsion spring means returning said socket cover to said closed position when said contact blades of said electrical plug are pulled out of said electrical socket.

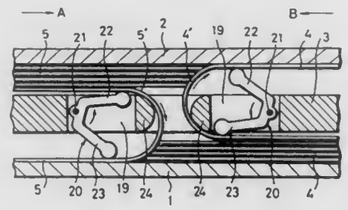


5,066,239

CLOCK SPRING

Hiroyuki Bannai, Furukawa, and Hironori Kato, Sendai, both of Japan, assignors to Alps Electric Co., Ltd., Japan

Filed Dec. 26, 1990, Ser. No. 634,244
Claims priority, application Japan, Dec. 26, 1989, 1-148721[U]
Int. Cl.[5] H01R 35/00, 39/02
U.S. Cl. 439—164 4 Claims



1. A clock spring comprising:

a stationary member defining a first cable receiving portion;

a moveable member rotatably coupled to said stationary member, said moveable member defining a second cable receiving portion;

a first plurality of cables having one end fixed to said moveable member and another end fixed to said stationary member, said first plurality of cables being wound in a first direction in said first cable receiving portion and wound in a second direction in said second cable receiving portion;

a second plurality of cables having one end fixed to said moveable member and another end fixed to said stationary member, said second plurality of cables being wound in said first direction in said second cable receiving portion and wound in said second direction in said first cable receiving portion;

a spacer rotatably disposed between said moveable member and said stationary member, said spacer including an opening; and

a plurality of guide members pivotably supported on said spacer adjacent said opening, each of said guide members having first and second arms with each arm terminating in a free end, wherein one guide member is provided for each cable of said first and second plurality of cables, and wherein each cable is trained over the free end of the first arm of its associated guide member, looped through said opening, and trained over the free end of the second arm of its associated guide member.

5,066,240

HIGH DENSITY ELECTRICAL CONNECTOR WITH ELECTROSTATIC DISCHARGE PROTECTION

Gary J. Verdun, Houston, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Jul. 24, 1990, Ser. No. 557,675
Int. Cl.[5] H01R 13/53
U.S. Cl. 439—181 16 Claims

1. A plug type electrical connector comprising:

a block of insulative material, said block of insulative material including a widened base section and a narrower section integrally formed with and extending from said widened base section, said narrower section of said block of insulative material having a top side, a bottom side and a leading edge;

at least one electrical contact mounted to each of said top and bottom sides of said narrower section of said block of insulative material;

a conductive outer shell attached to said widened base section of said block of insulative material, said conductive outer shell at least partially surrounding said narrower section of said block of insulative material; and

an electrical conductor mounted to said narrower section of said block of insulative material, said electrical conductor positioned forward of said top and bottom side mounted electrical contacts relative to said leading edge such that electrostatic voltage potentials are discharged to said electrical conductor;

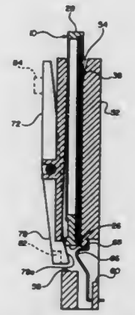
wherein said leading edge of said narrower section of said block of insulative material extends a slightly greater distance outwardly than a front edge of said conductive outer shell and wherein said narrower section of said block of insulative material further comprises sidewalls, said electrical conductor mounted on said leading edge of said insulative block extending along said sidewalls and the surface of said widened base section, said electrical conductor terminating at said conductive outer housing.

5,066,241

ELECTRICAL CONNECTOR APPARATUS FOR USE WITH AN INTEGRATED CIRCUIT CARD

Robert G. Hills, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jun. 18, 1990, Ser. No. 539,653
Int. Cl.[5] H01R 13/15
U.S. Cl. 439—260 16 Claims



1. Electrical connector apparatus providing connection to a contact area on a removable integrated circuit card, said card including a card locking member on a side opposite to the contact area, said connector apparatus comprising:

a housing having a recess for receiving the integrated circuit card;

flexible contact means for electrically connecting with the integrated circuit card, said contact means being pretensioned to project into said recess by a spring force;

a card engaging member supported for entry into said recess in opposed relation to said contact means, said card engaging member including a locking profile configured to engage said card locking member; and

means for biasing said card engaging member toward said contact means whereby the integrated circuit card is engaged therebetween and tensioned from opposing sides thereof to effect electrical connection between said contact means and said contact area on the card, said card locking member and said locking profile cooperatively engaging to secure the integrated circuit card in said recess.

5,066,242

ENVIRONMENT-PROOF ELECTRICAL CONNECTOR ASSEMBLY

Roberto Martucci, Montegrotto, Italy, assignor to Molex Incorporated, Lisle, Ill.

Filed Oct. 15, 1990, Ser. No. 597,469
Int. Cl.[5] H01R 13/40
U.S. Cl. 439—281 30 Claims

1. An environment-proof electrical connector assembly comprising:

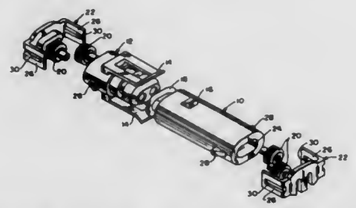
a first connector having a male terminal;

a second connector mateable with the first connector and having a female terminal including conductive receptacle means defining a blind cavity for receiving the male terminal and for establishing an electrical connection with the male terminal within the blind cavity;

seal means on the first connector for closing said cavity in

VOL 1132 ISS 3 NO 19 1991 UMI

response to mating of the connectors to seal said electrical connection from the environment; and



wherein said receptacle means and said seal means include telescoping sleeve portions sized and shaped to form a seal therebetween in response to mating of the connectors.

5,066,243

CONNECTOR HOUSING

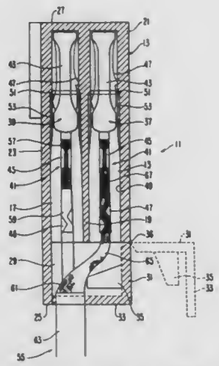
Karl Nuesslein, Birkenring 9, 8835 Pleinfeld-Mischelbach, Fed. Rep. of Germany; Antonio Motta, Via Bosiso 2, Monza 20052 MI, Italy, and Gerhard Schule, Kaadenerstr. 3, 8835 Pleinfeld, Fed. Rep. of Germany

Filed Apr. 20, 1990, Ser. No. 513,306

Claims priority, application Fed. Rep. of Germany, Apr. 21, 1989, 3913181

Int. Cl.[5] H01R *13/58*

U.S. Cl. 439—460 **11 Claims**



1. A connector housing having vertical walls made of an insulating material, comprising a plurality of contact element chambers to take up in each chamber a contact element connected to an electrical conductor, the connector housing provided with a flap at one of its vertical walls, the flap being connected to the vertical wall by means of a film hinge which allows pivoting between a releasable locking position wherein the flap is an extension of the vertical wall and an open position in which it protrudes from the vertical wall, constructed in such a way that at least one stress relieving nose protrudes from a cable inlet side of the connector housing in order to prevent a contact element located in a contact element chamber adjacent to the flap to be drawn out of the cable inlet side of the connector housing when the flap is in locking position and in order to allow the contact element to be inserted into the contact element chamber and the contact element to be removed from the contact element chamber via the cable inlet side of the connector housing when the flap is in an open position, characterized in that the connector housing has at least one pair of contact element chambers arranged parallel to each other in the direction of the stress relieving mechanism and in that the stress relieving mechanism is arranged in such a way that it narrows or engages behind the contact element chamber adjacent to the flap and in that the free end of the flap is equipped with a cover which protrudes from its interior side and closes the cable inlet side of the housing when the flap is in closing position, leaving open only an opening for an electrical conductor.

5,066,244

DETECTOR DEVICE FOR COUPLED CONNECTOR

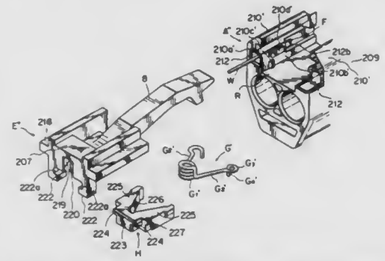
Tetsuo Kato; Naoto Taguchi, and Yoshihiro Murakami, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Mar. 21, 1991, Ser. No. 673,932

Claims priority, application Japan, Mar. 23, 1990, 2-72063; May 2, 1990, 2-115115; May 2, 1990, 2-115116

Int. Cl.[5] H01R *3/00*

U.S. Cl. 439—489 **7 Claims**



1. A detector device for coupled connectors comprising:
- a first connector housing having a flexible lock arm;
- a second connector housing having an engaging part in respect to said flexible lock arm;
- a lock confirming slider;
- sensor circuit terminals provided in the first connector housing; and
- a short-circuiting terminal automatic lock confirming resilient piece provided on one of the first connector housing and the lock confirming slider, the lock confirming slider being automatically moved forwardly in the axial direction to contact the sensor circuit terminals and the short-circuiting terminal to each other when the first and second connector housings are completely fitted to each other.

5,066,245

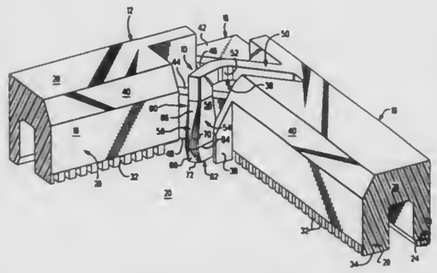
RETENTION DEVICE FOR FLAT PACK SOCKETS

Kevin E. Walker, Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Nov. 9, 1990, Ser. No. 611,247

Int. Cl.[5] H05K *1/00*

U.S. Cl. 439—526 **8 Claims**



1. A retention device for retaining bumperless plastic quad flat packs in a frame-shaped socket cover of the type having slots in the base for receiving end portions of leads extending outwardly from the pack, the retention device comprising:
- a resilient arm attached to a cover wall adjacent each corner and extending into an opening into which a flat pack may be received; and
- an engaging member attached to and extending perpendicular from an end of said arm and having a flat surface facing in and slanted outwardly, said flat surface adapted to engage a flat surface of a reversed slanted orientation on the flat pack to urge the flat pack outwardly against the restraining force of the end portions in the slots.

5,066,246

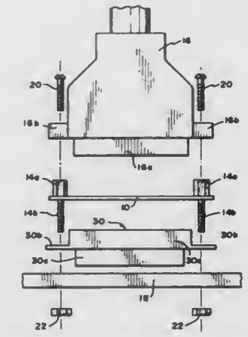
MOUNTING BRACKET FOR AN ELECTRICAL CONNECTOR

James B. Jensik, 2337 Frey Ave., Venice, Calif. 90291

Filed Nov. 27, 1990, Ser. No. 618,736

Int. Cl.[5] H01R *13/621*

U.S. Cl. 439—562 **9 Claims**



1. A mounting bracket for an electrical connector comprising:
- (a) a bracket body defining an opening to accommodate at least a portion of the electrical connector; and,
- (b) a plurality of stud members non-removably and non-rotatably attached to the bracket body, each stud member comprising:
  - (i) a head portion extending from one side of the bracket body, the head portion defining an internally threaded hole to threadingly accept a mounting screw to attach the electrical connector to the bracket; and
  - (ii) a threaded stud portion extending from an opposite side of the bracket body, the stud portion having external threads thereon.

5,066,247

ELECTRICAL FITTING FOR PANEL CONSTRUCTION

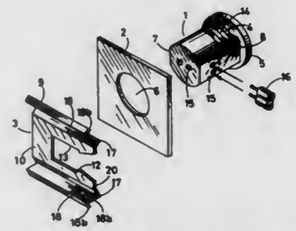
James F. Watson, 240 Calle Cemlo, La Guacima de Alajuela, Costa Rica

Filed Feb. 23, 1990, Ser. No. 483,878

Int. Cl.[5] H01R *13/74*

U.S. Cl. 439—565 **6 Claims**

1. A multi-purpose electrical fitting adaptable for use as a connector, an outlet, a light socket or a switch comprising a basically cylindrical form having a pair of diametrally opposed flat surfaces and formed on said cylindrical form and extending the length of said form, one end of said form terminating in a cylindrical flange of greater diameter than said form, an opposite end of said form having a flat surface; a plurality of diametrally opposed transverse grooves spaced along the length of said form at right angles to said pair of flat surfaces; a flat rectilinear U-shaped retaining clip of tempered material having inner edges for insertion into one pair of said opposing transverse grooves to securely hold said fitting against a panel or lamina having an opening into which said fitting is inserted, said clip having parallel leg members spaced apart equal to the spacing of the bottoms of the opposed grooves; said fitting



further having at least one pair of electrical conduit wire receiving sockets in at least one of said flat surfaces, said sockets being of electrically conductive material and integral with internal integrated electrical circuitry of said fitting.

5,066,248

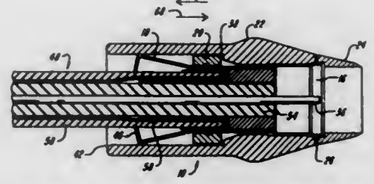
MANUALLY INSTALLABLE COAXIAL CABLE CONNECTOR

Joseph C. Gaver, Jr., Horseheads, and James C. Jorgenson, Montour Falls, both of N.Y., assignors to LRC Electronics, Inc., Horseheads, N.Y.

Filed Feb. 19, 1991, Ser. No. 657,508

Int. Cl.[5] H01R *13/00*

U.S. Cl. 439—578 **10 Claims**



1. A coaxial cable connector for mating a coaxial cable to an interface port, wherein said coaxial cable includes a center conductor, an interior insulation, a braided shield and an insulating jacket and said interface port includes a conductive receptacle and an outer sheath, said coaxial cable connector comprising:
- a housing having a cable insert end and an interface end;
- a connector body dimensioned to fit substantially within said housing, said connector body comprising a slotted collar end, a resilient fingered end and an intermediate portion therebetween, said resilient fingered end having a plurality of axial serrations disposed thereon;
- a center post having an annular portion with an outer dimension sized for engagement with said intermediate portion of said connector and a tubular portion dimensioned to receive said interior insulation and to electrically engage said braided shield of said coaxial cable; and
- a locking ring having an inner dimension to snugly, slidable engage said resilient fingered end of said connector body and an outer dimension slidably engagable with a portion of said housing,

wherein said coaxial cable is manually installable within said coaxial cable connector by actuating said housing in a first direction such that said axial serrations of said connector body pierce said insulating jacket and said coaxial cable connector is manually installable on said interface port by actuating said

VOL 1132 ISS 3 NO 19 1991 UMI

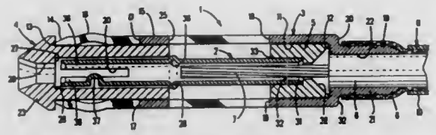
housing in a second direction to facilitate frictional engagement of said slotted collar end of said connector body and said outer sheath of said interface port.

5,066,249

COAXIAL SUBMINIATURE CONNECTOR

Dennis L. Doye, Mount Joy, and Michael R. Sneed, Harrisburg, both of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Dec. 18, 1990, Ser. No. 629,733
Int. Cl.[5] H01R *17/18*
U.S. Cl. 439—585 4 Claims



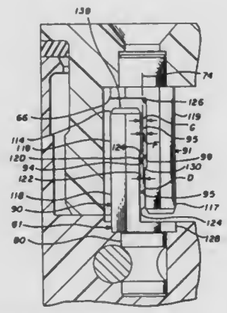
1. A coaxial connector comprising; a conductive electrical contact for connection with a signal conductor of an electrical cable, a conductive shell concentrically encircling the contact for connection with a conductive shield of the cable, a dielectric body encircled by a forward portion of the shell and concentrically between the contact and the shell, the dielectric body having a contact receiving cavity with a rear facing wall and a rear end inside the shell, the contact being received in the cavity with a front end of the contact facing the wall, projections on the exterior of the contact that are continuous with an exterior surface of the contact engaging the rear end of the dielectric body and preventing the front end of the contact from abutting the rear facing wall, buldged projections on the inside of the shell formed by indentations in the exterior of the shell radially compressing together the shell and the dielectric body and the contact, and a second dielectric body encircled by the shell and receiving a rear end of the contact, the second dielectric body having a forward facing shoulder at the rear end of the contact.

5,066,250

POLARIZING KEY PERMITTING CONNECTOR DISPLACEMENT

David E. Welsh, Tustin, Calif., assignor to ITT Corporation, New York, N.Y.

Filed Dec. 21, 1990, Ser. No. 605,445
Int. Cl.[5] H01R *13/64*
U.S. Cl. 439—681 6 Claims



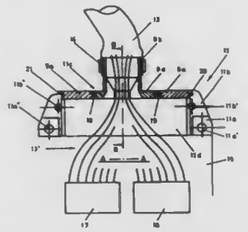
3. A connector arrangement comprising:
first and second electrical connectors which have contacts that mate when the connectors are moved in forward directions toward each other, said first connector having a first key mounted thereon and said second connector having a second key mounted thereon;
each of said keys has a keying portion with an interfitting side which lies opposite the interfitting side of the other key with an imaginary plane between said interfitting sides, when said connectors are mated, and each interfitting side has forward and rearward parts with each rearward part being indented with respect to the forward part, and with each forward part lying closer to said plane than the rearward part.

5,066,251

DEVICE CONNECTABLE TO THE REAR COVER OF A CONNECTOR

Per-Olof Lundberg, Karlskoga, and Sven-Olov Pettersson, Karlstad, both of Sweden, assignors to Aktiebolaget Bofors, Bofors, Sweden

Filed Jun. 28, 1990, Ser. No. 544,889
Claims priority, application Sweden, Jun. 30, 1989, 8902371
Int. Cl.[5] H01R *13/514*
U.S. Cl. 439—701 19 Claims



1. An apparatus connectable to the rear cover of a connector for facilitating entry and exit of the cable leads of the connector, said apparatus comprising:
a hood-shaped member having a side portion and a top portion, said top portion including at least two exchangeable modular elements including plate-like parts, at least some of said parts being apertured and provided with a transition member for entry of the cable leads, each transition member being adapted for receiving cable leads designated for different terminal blocks of the connector, and locking means provided on said modular members of said top portion and said side portion for interconnecting said modular elements therebetween to form said top portion and for connecting said top portion to said side portion.

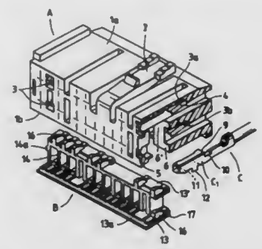
5,066,252

RETAINER FOR METAL TERMINAL OF ELECTRIC CONNECTOR

Tetsuo Kato; Kiyohito Fukuda; Hiroshi Watanabe; Katsuaki Terada, and Naoto Taguchi, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Filed Jun. 27, 1990, Ser. No. 544,727
Claims priority, application Japan, Jun. 27, 1989, 1-162627
Int. Cl.[5] H01R *13/436*
U.S. Cl. 439—752 6 Claims

1. An electric connector comprising:
a connector housing having opposed outer peripheral walls and a plurality of juxtaposed terminal receiving chambers;
a plurality of metal terminals which are inserted respectively into the terminal receiving chambers, each of said metal terminals having a retaining hole formed in a base thereof;
a terminal retainer, combined with and movable in at least two different directions within said connector housing, for shifting from a provisionally-locked condition to a completely-locked condition;
a window, provided in one of said opposed outer peripheral walls of the connector housing, the window extending across the plurality of terminal receiving chambers, and extending through the connector housing to the other of said opposed outer peripheral walls;
a hook-shaped deformable locking arm, provided at one side edge of said window in facing relation to said portion of said window extending through said connector housing;
said terminal retainer including a lid member for closing the window, the lid member having at its inner surface retaining projections each engageable in the retaining hole of a respective one of the metal terminals, and having a projection engageable with the locking arm;
partition plates connected to said lid member and corresponding in number to said plurality of terminal receiving chambers;
wherein the terminal retainer is provisionally locked to the connector housing upon insertion into the connector housing at the window in a first direction, such that, in the provisionally-locked condition, when the terminal retainer is moved in a second direction toward the locking arm, the second direction being different from the first direction, the locking arm is engaged with an end face of the projection, thereby completely locking the terminal retainer to the connector housing, and at the same time the retaining projections are engaged in the retaining holes, so as to prevent rearward withdrawal of the metal terminals.

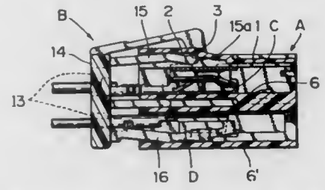


5,066,253

ELECTRIC CONNECTOR WITH A TERMINAL LOCKING MECHANISM

Isao Kameyama, Shizuoka, Japan, assignor to Yazaki Corporation, Tokyo, Japan

Filed Mar. 4, 1991, Ser. No. 663,528
Claims priority, application Japan, Mar. 19, 1990, 2-67347
Int. Cl.[5] H01R *13/514*
U.S. Cl. 439—752 3 Claims



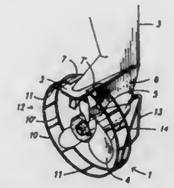
1. An electric connector with a locking mechanism, comprising:
a connector housing provided with at least one terminal chamber to accommodate herein a terminal and having at an upper wall thereof an opening communicating with said at least one terminal chamber;
a terminal locking member having a terminal holding finger adapted to be inserted into said at least one terminal chamber, said terminal locking member being capable of being joined to said connector housing at a rear end thereof in a temporarily assembled state and in a completely assembled state;
characterized in that the terminal locking member is provided with a flexible unlocking lever having at its free end an unlocking projection, said unlocking projection rests on said upper wall of the connector housing in the temporarily assembled state and the unlocking projection sinks through said opening in the upper wall into said at least one terminal chamber in the completely assembled state.

5,066,254

BOAT PROPELLER GUARD

Joseph D. Bass, 4119 N. Citrus Ave., Crystal River, Fla. 32629, and Leroy H. Steinhilber, 5849 W. Tirana La., Dunnellon, Fla. 32630

Filed Feb. 12, 1990, Ser. No. 478,444
Int. Cl.[5] B63H *5/16*
U.S. Cl. 440—72 9 Claims



1. A boat propellor guard comprising:
(a) a circular section made from two metal bars shaped into two circles each having a diameter at least slightly larger than the diameter of the circle travelled by the tips of the propellor blades, said two circular bars being spaced from and substantially parallel to each other and joined by a plurality of spacer bars spaced from each other and connected to said circular bars, each of said circular bars having an open section therein with the two said open sections being opposite to each other;
(b) a first and a second bracket means, the first bracket means attached to one pair of the ends of said circular bars at one side of said open section and the second bracket means being attached to the other pair of ends of circular bars at the said open section, said bracket means being capable of securing said guard to the cavitation plate of a boat propellor, each of said bracket means having an opening therein:
(c) a bolt and nut adapted to fit into said bracket means openings and to press said bracket means toward each other and to lock onto said cavitation plate when said nut is tightened on said bolt;
(d) at least two bars spaced from each other and joined to and extending from one of said circular bars, said bars bending inwardly to meet each other a substantial distance from the circular bar to which they are attached, the said bars being attached to said circular bar at a substantial distance from the open section in said circular bar, the arrangement of said bars extending from said circular bar having a general conical configuration; and
(e) a third bracket means positioned near the apex of said conical configuration and supported by one of said bars in said conical configuration, said third bracket means being adapted to become tightly secured against a supporting section for said propellor;
in which in said first and second bracket means each bracket means comprises a flat portion adapted to lay flat on said cavitation plate and a flap extending at an angle downward from said flat portion, said flap having at least one opening therein capable of having a bolt passed therethrough; said third bracket means comprising a single flat piece bent into a V-shaped bracket capable of being pressed against and maintaining secure contact against a supporting section for said propel-

VOL 1132 ISS 3 NO 19 1991 UMI

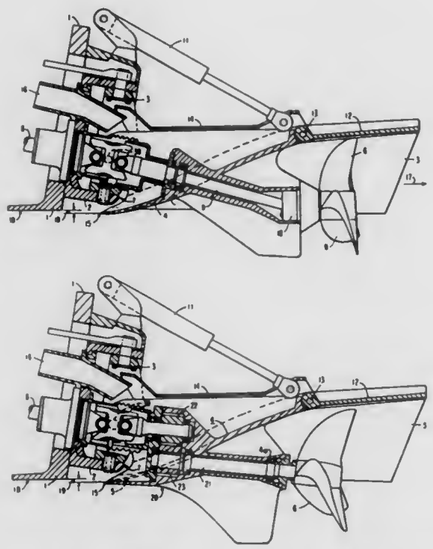
lor; said V-shaped bracket being attached to and extending inwardly from said general conical configuration toward said supporting section for said propellor.

5,066,255

DRIVE ARRANGEMENT FOR A PLANING BOAT

Roland Sand, Hintere Strasse 40, 6729 Neupotz, Fed. Rep. of Germany

Filed Jun. 20, 1990, Ser. No. 541,063
Claims priority, application European Pat. Off., Jul. 11, 1989, 89112617.9
Int. Cl.[5] B63H *23/36*
U.S. Cl. 440—112 8 Claims



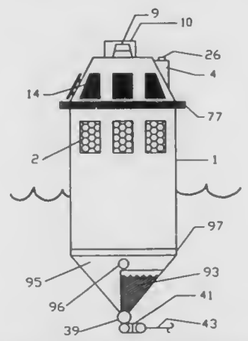
1. A drive arrangement for a planing hull boat having a motor arranged within the hull, a drive shaft extending from said motor through the stern wall of said hull and including at least one universal joint disposed outside said hull, a tunnel-shaped water flow guide structure extending backwardly from the bottom edge of said stern wall and upwardly in a curved fashion, a propeller supported in said tunnel-shaped water flow guide structure adjacent the rear end thereof so as to be rotatable about an axis which is essentially parallel to and in alignment with the planing hull bottom surface and which is operatively connected to said drive shaft by way of an intermediate shaft with an additional joint, said tunnel-shaped water flow guide structure having side wall sections and a top end section above said propeller hinged so as to be tiltable about a horizontal axis and disposed in sealing relationship with respect to the side wall sections, the front end of said tunnel-shaped water flow guide structure defining a gap which is open in the direction of movement of said boat and forming a scoop adapted to scoop up a stream of water during operation of the boat, which stream is directed over said flow guide structure thereby forming a water seal preventing any air leakage into said tunnel-shaped water flow guide structure.

5,066,256

BUOY AND RELEASING SYSTEM FOR SHIPS IN DISTRESS

Robert B. Ward, Sr., Rte. #1, Box 175, Jane Lew, W. Va. 26378

Continuation of Ser. No. 311,942, Feb. 17, 1989, abandoned.
This application Oct. 3, 1990, Ser. No. 593,466
Int. Cl.[5] B63B *22/08, 22/18*
U.S. Cl. 441—7 8 Claims



1. A buoy marker and a releasing apparatus for said marker for use on craft that may become submerged comprising:

a) Buoy means having top and bottom and signalling means located at the top of said buoy, said buoy being bottom heavy, said signalling means being in connection with a mercury switch capable of activating said signalling means, said mercury switch capable of becoming operational when said buoy is in an upright position, protective band located around the outer diameter of said buoy and close to the top of said buoy, said band having larger diameter than said buoy;

b) buoy releasing system comprising: resting plate comprising a resilient material with an aperture in the center, said aperture of larger diameter than said buoy and smaller diameter than said protective band so that said top of buoy is capable of protruding through said aperture and said protective band is capable of supporting said buoy upon said resting plate, a plurality of guide rods attached to said plate and arranged in a circular orientation to form a storage space, said storage space having bottom opening around said aperture and top opening above, so that said buoy is capable of resting within said storage space and moving out of said space through said top opening when said craft becomes submerged, frictionless reel means attached to said buoy by a cable.

5,066,257

PROCESS FOR PRODUCING FLAT PLATE ILLUMINATION DEVICES

Peter W. Farner, 3315 Lorraine, Kalamazoo, Mich. 49008, and Franklin H. Cocks, 5 Learned Pl., Durham, N.C. 27705

Filed Feb. 9, 1990, Ser. No. 477,714
Int. Cl.[5] H01J *9/39*
U.S. Cl. 445—26 11 Claims

1. A process for producing flat-plate, gas discharge, illumination devices which comprises a cutting step utilizing a high pressure water jet, said water jet carrying an abrasive grit, an assembly step comprising the placing of the integral, interior electrodes in the channels cut into a middle plate by said cutting step, together with the assembly of front and back plates about said middle plate to form a non-hermetic channel containing electrodes, said plates being assembled on the surface of a carrier platen, said carrier platen being covered with a ceramic powder to prevent adhesion of said bottom plate to said carrier platen, said ceramic powder having a sieve size less

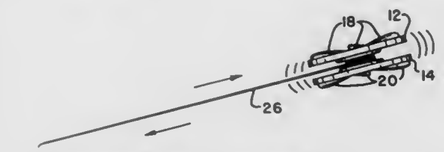
than 200, a sealing step comprising the heating of the combination of top, middle, and bottom plates, and said carrier platen to a temperature sufficiently high to soften and to seal said top, middle, and bottom plates hermetically together, including the hermetic sealing of electrical feed-throughs to the said electrodes by means of glass frit, a cooling step, comprising the cooling of the tubulated assembly to a temperature low enough to allow evacuation hoses to be connected to said tube, an evacuation and backfilling step comprising the evacuation of air from the said channel and the replacement of this evacuated air by backfilling the said channel with the desired fill gas, a final sealing step comprising the hermetic sealing of the said evacuation and backfilling tube.

5,066,258

RETURNING FLYING TOY

Rand K. Tomberlin, 4017 N. Bennington, Apt. 104, Kansas City, Mo. 64117

Filed Jan. 7, 1991, Ser. No. 638,186
Int. Cl.[5] A63H *33/18*
U.S. Cl. 446—40 20 Claims



1. A returning flying toy, comprising:

first and second rotary elements, each of said elements having a longitudinal axis and being adapted for rotation about said axes, at least said first rotary element including a plurality of first members extending outwardly from said longitudinal axis of said first rotary element, at least a portion of said plurality of first members being capable of producing aerodynamic lift in a direction substantially parallel to said longitudinal axis of said first element when said first element is rotated about its said longitudinal axis;

a hub extending between said rotary elements and coupling said elements in spaced opposed relation with said axes substantially coincident, said hub being substantially coaxial to said axes of said elements; and

a length of flexible line, a first end of said line being coupled to said hub, and said line being adapted to be wound upon, and unwound from, said hub.

5,066,259

DOLL STRUCTURE INCORPORATING MATERIAL SIMULATING NATURAL BODY WEIGHT AND FEEL

Judith S. Acker, 505 Edinburgh St., San Mateo, Calif. 94402

Filed May 17, 1990, Ser. No. 525,236
Int. Cl.[5] A63H *3/36*
U.S. Cl. 446—385 5 Claims

1. A doll structure, comprising:

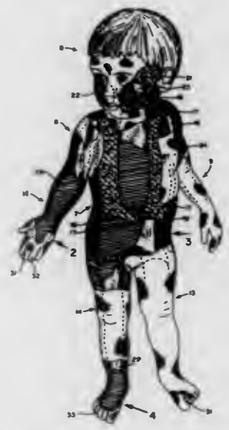
a) a doll body including trunk, head, arms and legs interconnected to form a composite simulation of a human child;

b) means within said doll body having a density attributing to said doll body a weight factor approximately the weight factor of a live child of approximately the same size;

c) means covering the exterior surface of the doll body and simulating the "feel" and appearance of human tissue;

d) said means within the doll body having a density attributing to said doll body a weight factor approximating the weight of a live child of approximately the same size comprising one or more masses of a soft, pliant, elastically compressible polymer gel material; and

e) said mass of soft, pliant and elastically compressible polymer gel material is hollow, and the hollow within said mass is filled with a soft, pliant and compressible mass of fiber-fill material constituting a mat of unoriented separate filaments of natural or synthetic fibers the density of



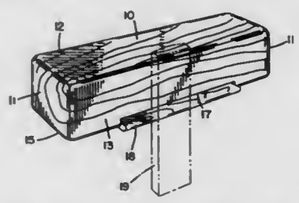
which is less than the density of the mass of polymer gel material.

5,066,260

WILD TURKEY CALLER

J. Monroe Lindler, 180 W. Hwy. 378, Lexington, S.C. 29072

Filed Feb. 26, 1988, Ser. No. 160,816
Int. Cl.[5] A63H *5/00*
U.S. Cl. 446—397 4 Claims



1. A game caller substantially rectilinear in shape having top, side and end walls of wood forming a box-like resonator chamber, a bottom vibrator plate of graphite-epoxy laminate material enclosing said chamber, a friction edging strip secured to one side edge of said vibrator plate and projecting laterally beyond the adjacent side wall said strip adapted to cause vibration of said vibrator plate when said strip is stroked by a striker bar, and the bottom edge of the side wall adjacent said edging strip having a slot therein above said edging strip to allow free vibration of said vibrator plate.

5,066,261

COIN HOPPER ASSEMBLY

Michael O. Parham, 5801 Evergreen, Las Vegas, Nev. 89107

Filed Feb. 21, 1990, Ser. No. 482,819
Int. Cl.[5] G07D *1/00*
U.S. Cl. 453—57 11 Claims

1. A coin hopper assembly comprising:

(a) a hopper frame having a mounting plate attached thereto,

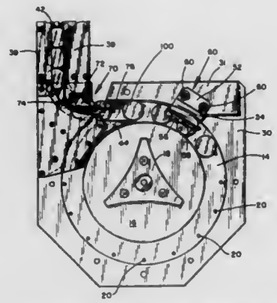
(b) a hopper basket mounted to the mounting plate,

(c) a shelf plate mounted to the mounting plate inside the hopper basket, the shelf plate including a pin wheel,

(d) a wiper member mounted to the mounting plate adjacent the pin wheel, the wiper member including an end section having a tapered coin engaging edge disposed generally

VOL 1132 ISS 3 NO 19 1991 UMI

perpendicular to the plane of travel of the pin wheel whereby only a single coin oriented on the pin wheel may pass by the wiper member, and



(e) the wiper member attached to the mounting plate by means of a mounting screw including a tension spring that allows the wiper member to move perpendicularly to the plane of travel of the pin wheel.

5,066,262

COIN DISPENSING APPARATUS

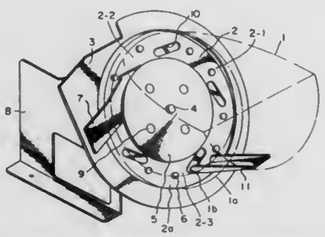
Hiroshi Abe, Tokyo, Japan, assignor to Asahi Seiko Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 27, 1990, Ser. No. 589,059

Claims priority, application Japan, Oct. 3, 1989, 1-115854[U]; Jun. 13, 1990, 1-61751[U]; Aug. 2, 1990, 1-81727[U]

Int. Cl.[5] G07D *1/00*

U.S. Cl. 453—57 5 Claims



1. A coin dispensing apparatus comprising a supporting plate inclined to the horizontal, a hopper mounted on the supporting plate for holding a supply of coins, a rotary disc rotatably supported on the supporting plate within the hopper, the rotary disc having a circular central shelf in the center thereof of a diameter depending on a diameter of a coin to be dispensed and having a plurality of sequential feeding pins spaced along the peripheral portion thereof, the hopper having an inclined bottom surface extending towards a lower peripheral portion of the rotary disc and a gutter forming lower portion connected to a lower end of the inclined bottom surface, and the peripheral portion of the rotary disc being provided with a plurality of inclined grooves inset into the rotary disc, each extending substantially in a direction tangential to the periphery of the circular central shelf and being between the sequential feeding pins.

5,066,263

RESILIENT SHAFT COUPLING

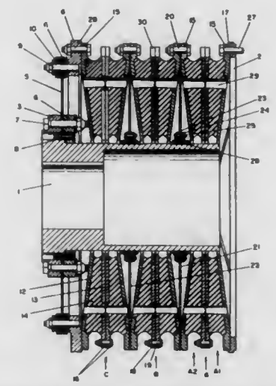
Manfred Lunke; Ulrich Falz, both of Dortmund, and Jürgen Walter, Haltern, all of Fed. Rep. of Germany, assignors to Hackforth GmbH & Co. KG, Herne, Fed. Rep. of Germany

Filed Nov. 2, 1990, Ser. No. 608,291

Claims priority, application Fed. Rep. of Germany, Nov. 17, 1989, 3938261

Int. Cl.[5] F16D *3/68*

U.S. Cl. 464—96 3 Claims



1. A resilient shaft coupling essentially comprising a hub on a drive side of said shaft coupling, a flange ring on an end of said drive shaft opposite to said drive side, said hub and said flange ring being connected in a torsionally resilient manner via a series of identical elastic annular connecting links, connected in series, which annular connecting links are formed by two abutting ring halves that are mirror-symmetrical to a dividing plane perpendicular to a rotation axis of said shaft coupling, each said ring half being provided with outer metallic ring plates, which are composed of congruent ring segments whereby said congruent ring segments are connected by rubber segments of identical surface areas which are vulcanized to said ring segments and have in their axial plane a trapezoidal cross-sectional shape with a radially outwardly increasing width, with said ring segments of said one ring half being staggered, and said outer metallic ring plates of said two abutting respective ring halves at said dividing plane being clamped at first connecting rims, and adjoining ones of said outer metallic ring plates of neighboring ones of said annular connecting links being clamped at second connecting rims, with a radial support being also provided at said hub; said resilient shaft coupling further comprising:

a metallic ring membrane being clamped between said second connecting rims of each two of said neighboring ones of said annular connecting links, with each of said ring membranes having a boring, that tightly embraces said hub through sliding means, so as to support said ring membrane at said hub in a radially rigid, but axially and in a circumferential direction flexible fashion that also allows angular motion.

5,066,264

GEAR FOR BICYCLES AND A FREEWHEEL FOR BICYCLES INCLUDING A PLURALITY OF SUCH GEARS

Antonio Romano, Padua, Italy, assignor to Campagnolo Srl, Vicenza, Italy

Filed Nov. 21, 1990, Ser. No. 616,967

Claims priority, application Italy, Nov. 21, 1989, 68028 A/89

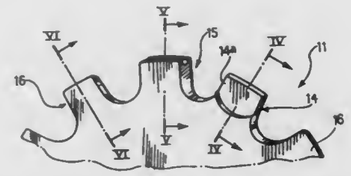
Int. Cl.[5] F16H *7/00*

U.S. Cl. 474—152 6 Claims

1. A bicycle gear which is intended to mesh with a bicycle

chain (10) as a result of the operation of a derailleur device (3) associated with the chain (10). wherein the teeth of the gear are in successive sets of three constituted each by teeth of the following three types arranged in succession in the opposite sense from that in which the gear usually rotates when the bicycle is in use:

a) a first tooth (14) with a recessed surface portion in one of its faces,



b) a second tooth (15) with a groove (19) formed in a top surface of the tooth and extending circumferentially of the gear,

c) a third tooth (16) with a top chamfer (20) on its face which is on a side opposite the recessed surface portion of the first tooth (14).

5,066,265

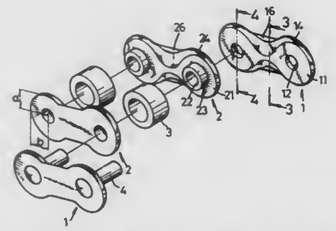
CHAIN

Chia L. Wu, No. 734, Chung Shan Rd., Kwei Jen Hsiang, Tainan Hsien, Taiwan

Filed Jan. 3, 1991, Ser. No. 637,293

Int. Cl.[5] F16G *13/00*

U.S. Cl. 474—206 2 Claims



1. A chain comprising a plurality pairs of inner and outer chain plates linked by rollers and pins, wherein the improvement comprises:

each said chain plate having a flat outer surface and an inclined surface along upper and lower edges of an inner face thereof, said inclined surface extending from first ends to second ends of said chain plates, said chain plates each having a blade portion merging with said inclined surface at central straight portions thereof, said blade portions having a greater slope than said inclined surfaces, thereby enlarging a width between two inner chain plates.

5,066,266

TRANSMISSION ARRANGEMENT FOR VEHICLE HAVING MOTOR SHAFT PARALLEL TO AUXILIARY SHAFT WHICH DRIVES A FLUID COUPLING THROUGH A PLANETARY GEAR REDUCTION

Manabu Kobayashi, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

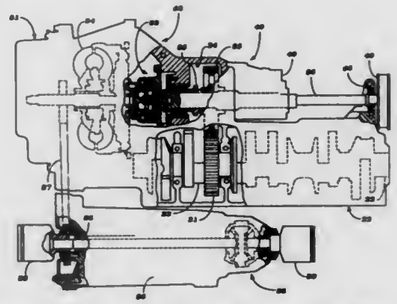
Filed Dec. 14, 1990, Ser. No. 627,727

Claims priority, application Japan, Dec. 15, 1989, 1-323988

Int. Cl.[5] F16H *37/08*

U.S. Cl. 475—59 18 Claims

1. A transmission arrangement for an internal combustion engine having an output shaft journaled for rotation about a first axis, an auxiliary shaft driven by said output shaft and rotatable about a second axis parallel to said first axis, a fluid



coupling, and transmission means for driving said fluid coupling from said auxiliary shaft at a reduced speed ratio.

5,066,267

TRANSMISSION HAVING AN ECCENTRIC AND A CYCLOID GEARING

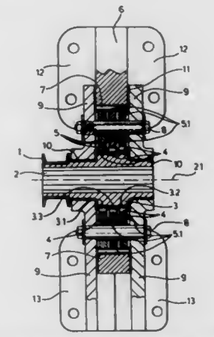
Florian Fischer, Ebersberg, and Christian Ritzer, Unterhaching, both of Fed. Rep. of Germany, assignors to Messerschmitt-Bölkow-Blohm GmbH, Fed. Rep. of Germany

Filed Oct. 10, 1990, Ser. No. 596,717

Claims priority, application Fed. Rep. of Germany, Nov. 15, 1989, 3937909

Int. Cl.[5] F16H *1/28*

U.S. Cl. 475—168 11 Claims



1. A transmission for driving a swivel joint between two parts which are rotatable relative to each other, comprising a drive shaft having a multiple eccentric, cam disks driven by said multiple eccentric, each having an outer edge in the form of a closed cycloidal path and being disposed in driving engagement with gearing of a central wheel, a driving element subdivided into two driving disks and engaging by means of driving pins with said cam disks by way of bores therein, wherein the central wheel and the cam disks are arranged between the two driving disks, the driving disks being connected by said driving pins and being arranged so that they can be rotatably moved with respect to the multiple eccentric, the cam disks and central wheel.

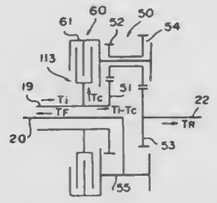
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,268

TORQUE DISTRIBUTION CONTROL SYSTEM FOR A FOUR-WHEEL DRIVE MOTOR VEHICLE

Toshio Kobayashi, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Feb. 23, 1990, Ser. No. 485,092
Claims priority, application Japan, Feb. 28, 1989, 1-048150; Jun. 30, 1989, 1-170895
Int. Cl.[5] F16H *1/42*
U.S. Cl. 475—249 2 Claims



1. A system for controlling torque distribution to front wheels and rear wheels of a motor vehicle having a manual transmission with an output shaft, the system comprising:

a planetary gear device including a first sun gear connected to said output shaft of said transmission, first and second planetary pinions integral with each other, a carrier provided to rotatably support said pinions and operatively connected to said front wheels, and a second sun gear operatively connected to said rear wheels;

said first planetary pinion being engaged with said first sun gear, and said second planetary pinion being engaged with said second sun gear;

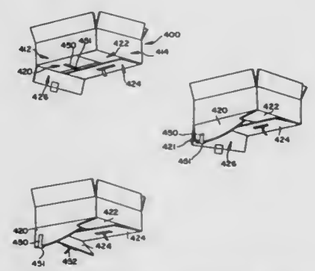
means for selectively connecting said first sun gear and said carrier of said planetary gear device so as to restrict differential operations of said planetary gear device.

5,066,269

METHOD AND APPARATUS FOR CLOSING BOTTOM END FLAPS OF A CARTON

John L. Center; William C. Mills, Jr., both of Dallas, Tex., and John R. Plaskett, Chattanooga, Tenn., assignors to Frito-Lay, Inc., Dallas, Tex.

Filed Aug. 25, 1989, Ser. No. 398,807
Int. Cl.[5] B31B *1/50*
U.S. Cl. 493—183 10 Claims



1. A method for closing the bottom end flaps of a rectangular carton having sequentially adjacent first, second, third and fourth sides which form the body of the carton, the four sides having first, second, third and fourth bottom end flaps extending respectively therefrom, the method including the steps of:

(a) providing a carton in an expanded rectangular position having its bottom end flaps extending downward relative to the body of the carton;

(b) providing biasing means to bias said end flaps outwardly with respect to the sidewalls of the body of the carton;

(c) providing a programmable sequence controller for sequentially controlling release of the biasing means and closing of the bottom end flaps;

(d) providing closing means for closing the bottom end flaps in a preset sequence under control of the sequence controller by folding each end flap whose bias has been released towards the interior of the carton while maintaining a bias on each unfolded end flap; and

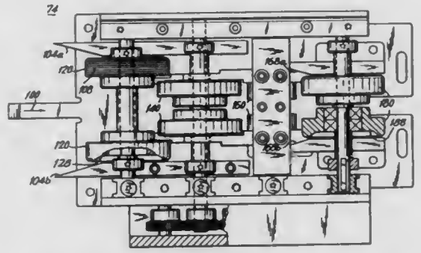
(e) providing the end flaps in a secure position by means of disposing at least two end flaps in locking relationship to each other.

5,066,270

APPARATUS FOR FORMING INNERFRAME FOR CIGARETTE PACK WITH ROUNDED CORNERS

John Tomanovits, Richmond, Va., assignor to Philip Morris Inc., New York, N.Y.

Filed Sep. 19, 1990, Ser. No. 585,224
Int. Cl.[5] B31B *3/26, 7/26*
U.S. Cl. 493—435 14 Claims



1. Apparatus for forming an innerframe for a cigarette package, said innerframe having a generally C-shaped cross section including a front surface portion, two side surface portions, and two rear flap portions, the front surface portion being between said side surface portions, and each of said side surface portions being between the front surface portion and a respective one of said rear flap portions, said front surface portion being joined to each of said side surface portions by a first corner region including a plurality of closely spaced score lines substantially parallel to the axis about which said innerframe will be bent between said front surface portion and said side surface portion, and each of said side surface portions being joined to the adjacent rear flap portion by a second corner region including a plurality of closely spaced score lines substantially parallel to the axis about which said innerframe will be bent between said side surface portion and said rear flap portion, said apparatus comprising:

a first roller having radially inwardly rounded axial end edges, the axial distance between said axial end edges corresponding to the spacing between said second corner regions, and the inward curvature of said rounded axial end edges corresponding to the curvature desired for said second corner regions;

a second roller cooperating with said first roller to form a first nip, said second roller having radially outwardly extending axial end flanges, each of said axial end flanges being axially beyond but adjacent to a respective one of the axial end edges of said first roller, and the surface of each flange opposite said rounded end edge being rounded to complement the associated rounded end edge of said first roller;

means for feeding said innerframe to said first nip with each of said second corner regions aligned with a respective one of said rounded end edges so that as said innerframe passes through said first nip, said rounded end edges and the adjacent rounded flange surfaces cooperate to bend each of said second corner regions to the desired curvature;

a third roller having radially inwardly rounded axial end edges, the axial distance between the axial end edges of said third roller corresponding to the spacing between said first corner regions, and the inward curvature of said rounded axial end edges corresponding to the curvature desired for said first corner regions;

a fourth roller cooperating with said third roller to form a second nip, said fourth roller having radially outwardly extending axial end flanges, each of the axial end flanges of said fourth roller being axially beyond but adjacent to a respective one of the axial end edges of said third roller, and the surface of each flange opposite a rounded end edge of said third roller being rounded to complement the associated rounded end edge of said third roller; and

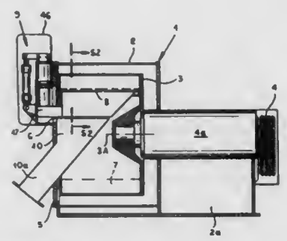
means for feeding said innerframe to said second nip with each of said first corner regions aligned with a respective one of said rounded end edges of said third roller so that as said innerframe passes through said second nip, the rounded end edges of said third roller and the adjacent rounded flange surfaces of said fourth roller cooperate to bend each of said first corner regions to the desired curvature.

5,066,271

BLADE-SUPPORT SYSTEM FOR CENTRIFUGE

Guntram Krettek, Viersen, and Wilhelm Schmitz, Schwalmtal, both of Fed. Rep. of Germany, assignors to Krupp Industrietechnik GmbH, Duisburg, Fed. Rep. of Germany

Filed Feb. 14, 1990, Ser. No. 479,711
Claims priority, application Fed. Rep. of Germany, Feb. 14, 1989, 3904358
Int. Cl.[5] B04B *11/08*
U.S. Cl. 494—58 18 Claims



1. A centrifuge comprising:

a generally stationary and closed drum housing having a housing end wall;

a drum rotatable in the drum housing about a drum axis and having an outer drum wall extending generally along the axis;

a blade extending generally axially in the drum housing generally parallel to the outer drum wall;

a blade support having

a generally axially extending beam projecting axially through the housing end wall and carrying the blade and

a generally radially extending shaft outside the drum housing and fixed to the beam;

an actuator housing fixed on the drum housing and including an upper part slidably receiving the shaft and

a lower part supporting the shaft on the drum housing for sliding movement of the support and blade on the drum housing in an adjustment direction generally radial of the drum axis;

glide pads between the actuator housing and the blade support;

at least one seal snugly engaged between the blade support and the actuator housing and hermetically sealing the actuator housing around the blade support; and

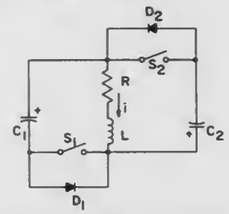
an actuator engaged between the actuator housing and the shaft for displacing the support and blade in the adjustment direction relative to the drum housing.

5,066,272

MAGNETIC NERVE STIMULATOR

Harry A. C. Eaton, Columbia, and Robert S. Fisher, Cockeysville, both of Md., assignors to The Johns Hopkins University, Baltimore, Md.

Filed Jun. 29, 1990, Ser. No. 545,801
Int. Cl.[5] A61N *1/00*
U.S. Cl. 600—9 29 Claims



1. A magnetic nerve stimulator comprising:

power supplying means for supplying electric charge;

at least two capacitor means connected to said power supplying means for accumulation said electric charge from said power supplying means;

a coil connected to said capacitor means, said coil producing a magnetic pulse when one of said capacitor means discharges said electric charge through said coil and said coil forcing an electric current induced by the magnetic field energy from said coil to charge another of said capacitor means; and

at least two switching means for connecting and disconnecting said capacitor means to said coil to permit the charging and discharging of each of said capacitor means by turns.

5,066,273

Patent Not Issued For This Number

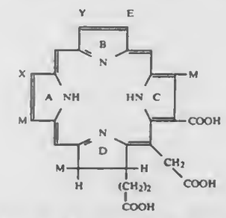
5,066,274

TETRAPYRROLE THERAPEUTIC AGENTS

Jerry C. Bommer, Ogden, and Bruce F. Burnham, Logan, both of Utah, assignors to Nippon Petrochemicals Company, Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 728,786, Apr. 30, 1985, abandoned. This application May 12, 1989, Ser. No. 351,770
The portion of the term of this patent subsequent to Sep. 15, 2004, has been disclaimed.
Int. Cl.[5] A61N *1/30*
U.S. Cl. 604—20 35 Claims

1. A pharmaceutical composition for the detection of mammalian tumors which comprises a tumor detecting effective amount of a light-sensitive tetrapyrrole compound of the formula:



or pharmaceutically acceptable salt thereof wherein

VOL 1132 ISS 3 NO 19 1991 UMI

X = H, vinyl, ethyl, acetyl or formyl;

Y = methyl, formyl or {H, methyl};

M = methyl; and

E = ethyl or {H, ethyl}

and a pharmaceutical carrier therefor, wherein said compound is capable of being activated by light of sufficient wavelength to emit fluorescence thereof.

5,066,275

Patent Not Issued For This Number

5,066,276

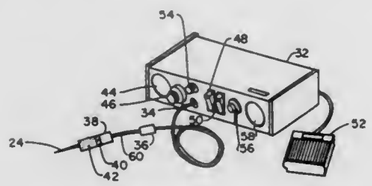
METHOD AND APPARATUS FOR INJECTING VISCOUS FLUID INTO THE EYE TO LIFT PRE-RETINAL AND POST-RETINAL MEMBRANE WITH LINEAR PRESSURE CONTROL

Carl C. T. Wang, Oakland, Calif., assignor to Alcon Laboratories, Inc., Fort Worth, Tex.

Continuation-in-part of Ser. No. 209,503, Jun. 21, 1988. This application Jun. 9, 1989, Ser. No. 363,983

Int. Cl.[5] A61M *31/00*

U.S. Cl. 604—51 **12 Claims**



1. An apparatus for injecting viscous material into an eye in the spaces between the retina and a proliferate disease membrane comprising:

an injection device having a pneumatic output and a control transducer, said injection device controlling the pressure of pressurized gas having a pneumatic pressure at said pneumatic output based on the position of said control transducer;

a pneumatic tube coupled to said pneumatic output;

a sterile filter coupled to said pneumatic output by said pneumatic tube and having a filter output; and

a sterile syringe pneumatically coupled to said filter output, said syringe having a sterile passageway formed therein with a sterile piston dividing said sterile passageway into at least first and second separate passageways with a sterile hollow needle in fluid communication with said first passageway, said pressurized gas in fluid communication with said second passageway, said syringe storing in said first passageway a sterile viscous material.

5,066,277

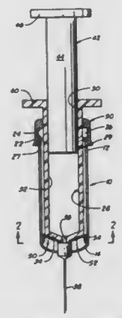
PROTECTIVE SYSTEM FOR SAFE DISPOSITION OF A HYPODERMIC SYRINGE DEVICE

Michael W. Carrell, and Stephen H. Gericke, both of Oklahoma City, Okla., assignors to Safe Medical Devices, Inc., Moore, Okla.

Continuation of Ser. No. 550,328, Jul. 9, 1990. This application Feb. 8, 1991, Ser. No. 652,521

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—110 **7 Claims**



1. A protective assembly for preventing contact with the needle of a needle-carrying syringe used to perform hypodermic injections or to withdraw body fluids into the syringe comprising:

elongated tubular protective sheath means including a tubular sheath having a first open end and having a second end defining an opening therethrough;

a syringe device adapted for attachment of a hypodermic needle thereto, said syringe device comprising:

a hollow cylindrical barrel extending through the first open end of said tubular sheath and slidably mounted coaxially within said sheath for relative axial movement between the barrel and said sheath, said hollow cylindrical barrel including:

an open, plunger-receiving first end; and

a second end portion having a tubular tip of reduced diameter relative to the diameter of the open, first end of said barrel, said second end portion of said barrel being located at least partially within said sheath, and said first end of said barrel being located outside of said sheath and spaced from said first open end of said sheath;

a movable plunger projecting into the open, first end of said cylindrical barrel and fitting slidably within said barrel to function as a piston suitable for ejecting a fluid from said barrel through said tubular tip, or drawing a fluid through said tip into said barrel for sample taking purposes;

locking means on the outer side of said barrel and around said tubular tip for cooperatively interlocking with said tubular sheath in a retracted position of the barrel in which said tubular tip is withdrawn within said sheath, and said barrel has been moved relatively from said second end of said sheath means toward said first open end thereof, said locking means slidably engaging said tubular sheath for slidably guiding the relative movement between said sheath and said barrel, said locking means on the outer side of said barrel and around said tip comprising:

a plurality of radially deformable resilient fingers carried on said barrel at circumferentially spaced intervals around the outer periphery of the barrel, said fingers bearing resiliently against the inner surface of said sheath and being configured to facilitate reciprocating sliding movement of said barrel in said sheath by bearing against the interior of said tubular sheath, each of said radially deformable resilient fingers comprising a protuberant male locking end portion; and

means on the tubular sheath adjacent its open end for interlocking with the resilient fingers of said locking means on the outer side of said barrel when said barrel is moved upwardly in said sheath to said retracted position, said interlocking means on said tubular sheath comprising at least one female opening for receiving the male locking end portion of at least one of said resilient fingers of said locking means.

5,066,278

IMPLANTABLE INJECTION BODY

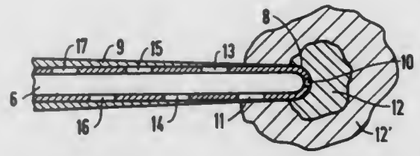
Jakub Hirschberg, Taeby, and Bengt Svensson, Järfalla, both of Sweden, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Aug. 6, 1990, Ser. No. 562,696

Claims priority, application European Pat. Off., Aug. 9, 1989, 89114770.4

Int. Cl.[5] A61M *5/14*

U.S. Cl. 604—256 **26 Claims**



1. An implantable injection body for long-term time dependent injection of a medication into a living being, the medication being stored in an implantable dosing device and operatively supplied to the injection body via a suitable pump arrangement, comprising:

two or more discharge openings in said injection body through which the medication is supplied into said living body; and

a dissolvable tissue-compatible seal material operatively initially sealing at least some of said discharge openings such that as said seal material dissolves, these initially sealed discharge openings become unsealed at different times.

5,066,279

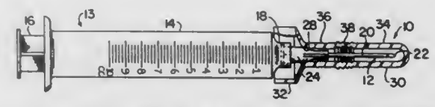
PROTECTIVE SHEATH FOR HYPODERMIC NEEDLES

Donald G. Russell, 86 Windsor Rd., Kensington, Conn. 06037

Filed Jun. 4, 1990, Ser. No. 532,456

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—110 **17 Claims**



1. A protective sheath for a hypodermic needle comprising:

a tubular sleeve having a first longitudinal end with an opening for receiving a hypodermic needle and a second longitudinal end opposite the first, the length of the sleeve between the first and second longitudinal ends being greater than the length of a hypodermic needle to be encased by the sheath, the tubular sleeve having a first relatively rigid tube section adjacent the first longitudinal end of the sleeve, a second relatively rigid tube section adjacent the second longitudinal end of the sleeve and an intermediate tube section joining the first and second tube sections, the intermediate tube section being made flexible by a plurality of circumferentially extending pleats to allow the first and second tube sections to be bent out of axial alignment with one another along with an encased hypodermic needle to decommission the needle within the protective sheath.

5,066,280

SYRINGES

Philip W. Braithwaite, Strensham, England, assignor to Technosystem Limited, Liverpool, United Kingdom

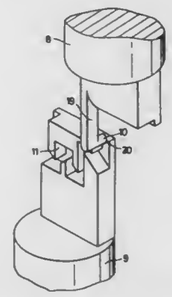
PCT No. PCT/GB88/00803, § 371 Date May 17, 1990, § 102(e) Date May 17, 1990, PCT Pub. No. WO89/02759, PCT Pub. Date Apr. 6, 1989

PCT Filed Sep. 30, 1988, Ser. No. 469,418

Claims priority, application United Kingdom, Sep. 30, 1987, 8722915

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—110 **4 Claims**



1. A syringe comprising a barrel housing both a piston and a plunger for moving the piston to enable a liquid dose to be drawn into and ejected from a portion of the barrel, a coupling member interconnecting the piston and the plunger, and decoupling linkages interconnecting the coupling member to at least one of the piston and the plunger such that the plunger is operatively disconnected from the piston after the plunger has been retracted and subsequently depressed, a flange on the piston or the coupling member, and latches on the inner wall of the barrel which interact with the flange so that the flange is able to pass the latches before disconnection of the or each of the coupling linkages but is unable to pass the latches upon attempted withdrawal of the plunger after such disconnection.

5,066,281

DISPOSABLE SYRINGE APPARATUS WITH RETRACTABLE NEEDLE, LOCKING DEVICE AND CAP DEVICE

Deborah G. C. Stevenson-Michener, 226 E. Flag Swamp Rd., Southbury, Conn. 06488

Filed Mar. 26, 1990, Ser. No. 498,957

Int. Cl.[5] A61M *5/50*

U.S. Cl. 604—110 **6 Claims**

1. A syringe apparatus which comprises:

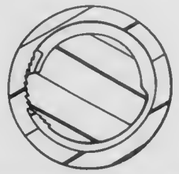
a) a substantially cylindrical hollow barrel portion herein described as cylinder having a substantially closed distal end and an open proximal end and having flange shoulder portions extending outwardly form the cylinder surface at the proximal end as a gripping means;

b) a body entering conduit at least partially contained within said hollow cylinder portion and at times partially extruding therefrom;

c) a means for the frictional sealing at the distal end of the

VOL 1132 ISS 3 NO 19 1991 UMI

cylinder so that the distal end remains closed after retraction of the body entering conduit;
d) a piston assembly movable reciprocally and axially through said cylinder;
e) means for detachably connecting the proximal end of the body entering conduit to said piston assembly distal end so that when said conduit and said assembly are connected said piston moves in unison with said body entering conduit;
f) means for detachably connecting the distal end of the piston assembly to said proximal end of the body entering conduit so that when said conduit and said assembly are connected said conduit moves in unison with said piston;



g) means for anchoring said detachable piston connecting means at said piston assembly distal end;
h) means for locking the piston assembly and the attached body entering conduit within the cylinder following retraction of the body entering conduit within the cylinder by reciprocal and axial movement thereof, said means comprising a tapering spiral ribbed cam on the piston;
i) said means for locking the piston assembly and the detachably connected body entering conduit within the cylinder following retraction of the body entering conduit within the cylinder further comprising ribbed retainers on the interior of the cylinder allowing for only one way, one time use of the syringe apparatus when engaged with said cam.

5,066,282

POSITIVE DISPLACEMENT PISTON DRIVEN BLOOD PUMP

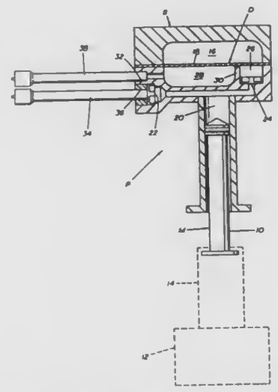
Bandula Wijay, Webster, and Paolo Angelini, Houston, both of Tex., assignors to Leocor, Inc., Houston, Tex.

Continuation-in-part of Ser. No. 100,363, Sep. 23, 1987, Pat. No. 4,921,483, which is a continuation-in-part of Ser. No. 811,162, Dec. 19, 1985, abandoned, said Ser. No. 100,363, is a continuation-in-part of Ser. No. 303,544, Jan. 27, 1989, abandoned, which is a continuation-in-part of Ser. No. 303,550, Jan. 27, 1989, abandoned. This application May 4, 1989, Ser. No. 347,406

Int. Cl.[5] A61M *1/00*

U.S. Cl. 604—152 **25 Claims**

13. A pumping source for pumping blood comprising:
a pump body;
means on said body for elevating pressure of blood passing through said body; and
means in flow communication with said body for dampening potation of the blood as it emerges from said pump body, said pulsation dampening means further comprising:
a housing defining an accumulator cavity therein; and
a membrane covering said accumulator cavity, thereby isolating blood passing through said body from said cavity;
at least one inlet valve;
at least one outlet valve;
a least one pressurization chamber defining a volume in fluid communication with both said inlet and outlet valves; and
means for varying the volume of said pressurization chamber;
said outlet valve is in flow communication with an exit port in said body;
said membrane covering said exit port when said outlet valve is in the closed position, said accumulator cavity disposed on the opposite side of said membrane from said exit port;
said body further comprising an exit chamber cavity defined therein, said exit chamber cavity spaced apart from said exit port;



said exit chamber cavity is in flow communication with said exit port when said outlet valve is open and said membrane flexes, thereby reducing the volume of said accumulator cavity.

5,066,283

DEVICE FOR THE WITHDRAWAL AND STORAGE OF INDIVIDUAL FLUID FRACTIONS LATHERED AT GIVEN INTERVALS

Falko Skrabal, Graz, Austria, assignor to AVL AG, Schaffhausen, Switzerland

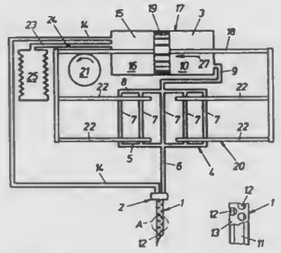
PCT No. PCT/AT88/00051, § 371 Date Mar. 8, 1989, § 102(e) Date Mar. 8, 1989, PCT Pub. No. WO89/00397, PCT Pub. Date Jan. 26, 1989

PCT Filed Jul. 11, 1988, Ser. No. 348,488

Claims priority, application Austria, Jul. 9, 1987, 1732/87

Int. Cl.[5] A61M *1/00*

U.S. Cl. 604—152 **18 Claims**



1. A device for withdrawing body fluids, such as blood, urine, tissue fluid, comprising a withdrawal unit connected to a suction unit and a storage system which is situated between said suction unit and said withdrawal unit, said storage system comprises separable individual areas for respectively receiving and holding fractions of said body fluid gathered at certain sequential intervals, permitting said fluid fractions to be clearly identified with regard to their time of withdrawal, wherein said withdrawal unit is provided with an ingoing line for a liquid to be introduced into the body and an outgoing line for said body fluid to be gathered, and wherein said ingoing line is connected to a pressure unit.

5,066,284

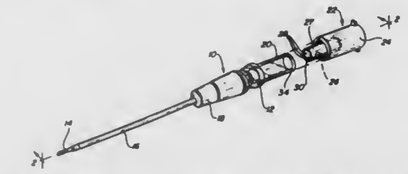
VENT FOR FLASHBACK PLUG

Steve H. Mersch, Germantown; David E. Spielvogel, Springboro, and Charles W. Daugherty, Xenia, all of Ohio, assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed May 11, 1989, Ser. No. 350,960

Int. Cl.[5] A61M *5/178*

U.S. Cl. 604—168 **14 Claims**



1. A plug for use in plugging the proximal end of a transparent flashback chamber in an intravenous needle assembly, said plug for providing air venting of said flashback chamber, said plug comprising
(a) an integral one-piece molded hollow body defining an air vent passage;
(b) a hollow neck portion positioned on the distal end of said body, said neck portion being integral with said body portion;
(c) a front face on the distal end of said neck portion;
(d) said front face being thin-walled and of the same thickness throughout;
(e) a plurality of vent holes in said front face;
(f) said vent holes being laser drilled vent holes;
(g) at least said thin-walled front face being comprised of a thermoplastic material having sufficient laser absorption characteristics to vaporize under the effect of a laser beam; and
(h) said thin-walled front face having in percent be weight an amount of an additive effective for optimizing said vaporization.

5,066,285

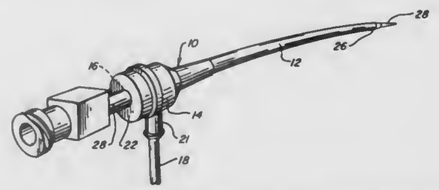
CATHETER INTRODUCER SHEATH MADE OF EXPANDED POLYTETRAFLUOROETHYLENE

Richard A. Hillstead, Miramar, Fla., assignor to Cordis Corporation, Miami Lakes, Fla.

Filed Jan. 26, 1990, Ser. No. 470,716

Int. Cl.[5] A61M *5/178*

U.S. Cl. 604—164 **7 Claims**



1. A catheter introducer adapted to be temporarily introduced into a patient's blood vessel, said catheter introducer comprising a hub containing a hemostasis valve and a tubular sheath substantially longer than said hub, said sheath being adapted to enclose a dilator which has an end which extends forward of the end of the tubular sheath when the dilator is inserted within the catheter introducer for introduction of the dilator and the tubular sheath into a patient's blood vessel, with the dilator thereafter being removed from the introducer to enable the introducer to receive a catheter, said elongated, tubular sheath being made of an expanded, fibrous plastic, whereby said sheath is highly flexible and non-kinking, but with relatively high hoop strength.

5,066,286

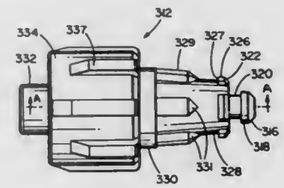
SAFETY MULTIPLE SAMPLE LUER ADAPTER ASSEMBLY

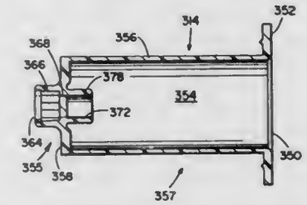
Dana W. Ryan, Franklin, Tenn., assignor to Ryan Medical, Inc., Brentwood, Tenn.

Continuation-in-part of Ser. No. 520,239, May 7, 1989. This application Nov. 8, 1990, Ser. No. 610,538

Int. Cl.[5] A61M *5/00*

U.S. Cl. 604—240 **20 Claims**





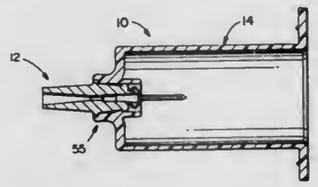
1. A safety luer adapter assembly for coupling a fluid conduit means to a fluid collection means, said safety luer adapter assembly comprising:
a) a male connector having hollow first and second end portions, said hollow first and second end portions defining a throughbore in fluid communication with said fluid conduit means, said first end portion having first locking means, said male connector having first anti-rotational means, and said second end portion having coupling means for coupling to the fluid conduit means; and
b) a hollow rear blood tube holder with an outer wall defining a receiving cylinder with an open rear end for receiving the fluid collection means, and a front end having an opening therein for accepting at least a portion of said hollow first end portion of said male connector, said front end of said hollow rear blood tube holder having second locking means, and said hollow rear blood tube holder having second anti-rotational means,
wherein in assembling said safety luer adapter assembly said first and second locking means are brought into permanent locking engagement, and said first and second anti-rotational means are brought into engagement to prevent rotation of said male connector relative to said hollow rear blood tube holder.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,287
SAFETY MULTIPLE SAMPLE REAR ADAPTER ASSEMBLY

Dana W. Ryan, Franklin, Tenn., assignor to Ryan Medical, Inc., Brentwood, Tenn.

Continuation-in-part of Ser. No. 224,920, Jul. 27, 1988, Pat. No. 4,923,445. This application May 7, 1990, Ser. No. 520,239
Int. Cl.[5] A61M *5/00*
U.S. Cl. 604—240 **11 Claims**



1. A safety rear adapter assembly for coupling a fluid conduit means to a fluid collection means, said safety rear adapter assembly comprising:

a) a male connector having hollow first and second end portions and a hollow needle, said hollow first and second end portions defining a throughbore in fluid communication with said hollow needle, said first end portion having on its outer surface a first locking means, and said second end portion having coupling means for coupling to the fluid conduit means, and said outer surface of said first end portion of said male connector comprising a first ramp of increasing diameter as it extends from said first end portion toward said second end portion, and a shoulder of relatively constant outer diameter, said first ramp terminating in a first end of said shoulder, said shoulder having a second end terminating in portion of reduced diameter relative thereto; and

b) a hollow rear blood tube holder with an outer wall defining a receiving cylinder with an open rear end for receiving the fluid collection means, and a front end having an opening therein for accepting at least a portion of said hollow first end portion of said male connector, said front end of said hollow rear blood tube holder having on its inner surface a second locking means, said inner surface of said front end of said hollow rear blood tube holder comprising a second ramp of decreasing inner diameter as it extends from said front end to said open rear end, said second ramp terminating in a chamber of inner diameter at least as large as said outer diameter of said shoulder, and said shoulder being of larger outer diameter than the inner diameter of said second ramp termination such that said termination of said second ramp and said shoulder form abutting locking surfaces,

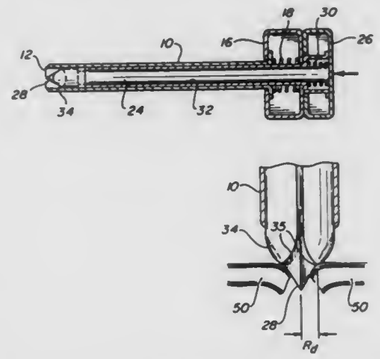
wherein in assembling said safety rear adapter assembly said first and second locking means are brought into permanent locking engagement.

5,066,288
SAFETY TROCAR

Jose C. Deniega, Flemington, and Stephen J. Failla, Chester, both of N.J., assignors to Ethicon, Inc., Somerville, N.J.

Filed Jun. 27, 1989, Ser. No. 371,953
Claims priority, application United Kingdom, Jul. 6, 1988, 8816033
Int. Cl.[5] A61M *5/46, 25/08, 25/01, 25/06*
U.S. Cl. 604—274 **6 Claims**

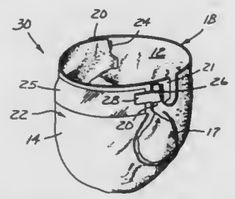
1. A trocar including a trocar tube having a proximal and a distal end, an obturator having a perforating tip and extendable through the tube to perforate tissue at the distal end of the tube, said perforating tip having a three-sided pyramidal shape, and containing three cutting edges, and further including a safety shield extendable to shield the tip of the obturator, said safety shield exhibiting a rounded distal end with a slot for passage of said obturator tip therethorugh, said slot bounded by three distally extending semicircular lobes formed on the distal end of said shield, such that the proximal ends of said lobes oppose each other on either side of said cutting edges while said obturator tip is extended through said slot, and said slot generally conforming to the geometry of said obturator tip such that each of said semicircular lobes fit against said obturator tip while entering the perforation created by the tip to spread the perforation.



5,066,289
RELEASE TREATED NON-WOVEN FASTENING TAPE PROTECTOR

Stephen P. Polski, Shoreview, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Apr. 9, 1990, Ser. No. 506,912
Int. Cl.[5] A61F *13/15, 13/20*
U.S. Cl. 604—389 **8 Claims**

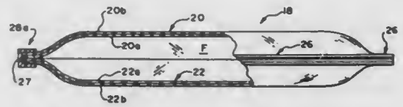


7. A diaper comprising an outer shell, a liquid permeable non-woven topsheet which contacts the wearer, a non-woven release tab attached to said non-woven topsheet at a corner of said non-woven topsheet, and a diaper fastening tab adjacent the non-woven release tab to permit engagement therewith, said non-woven release tab comprising a non-woven substrate capable of engaging a mechanical fastener, which substrate has been treated with a release agent which resists permanent attachment to a pressure sensitive adhesive such as is used on a diaper fastening tab wherein the non-woven release tab is relatively soft and non-irritating to the wearer.

5,066,290
STERILIZABLE MULTI-LAYER PLASTIC MATERIALS FOR MEDICAL CONTAINERS AND THE LIKE

Paul E. Measells, Vernon Hills; William D. Johnston, Buffalo Grove; Peter C. Kwong, McHenry; Dean G. Laurin, Lake Zurich, and Leonard F. Czuba, Lombard, all of Ill., assignors to Baxter International Inc., Deerfield, Ill.

Division of Ser. No. 143,295, Jan. 7, 1988, Pat. No. 4,892,604, which is a continuation of Ser. No. 59,132, Jun. 1, 1987, abandoned, which is a continuation of Ser. No. 827,847, Feb. 7, 1986, abandoned. This application Sep. 27, 1989, Ser. No. 413,500
The portion of the term of this patent subsequent to Jan. 9, 2007, has been disclaimed.
Int. Cl.[5] B23B *31/26*
U.S. Cl. 604—408 **23 Claims**



1. A heat sterilizable stress-free container made in accordance with the method comprising the steps of:

forming first and second film members, each having at least two integral layers, the first of the layers formed of a material which is cross-linkable and free or essentially free of leachable plasticizers and which has a heat distortion temperature at or below 110° C., the first layer material being selectively cross-linkable to obtain the desired resistance to distortion at heat sterilization temperatures, the second of the layers formed of a material which, when compared to the first layer material, is not cross-linkable and which has a heat distortion temperature above 110° C.;

positioning the first and second film members in overlapping relationship with corresponding first layers of each adjacent one another so as to form inner surfaces of the container;

melting a peripheral region of the overlapping, adjacent first layers of the container using heat sealing elements without pre-stressing said film members to form a peripheral seal between the inner first layers of the container;

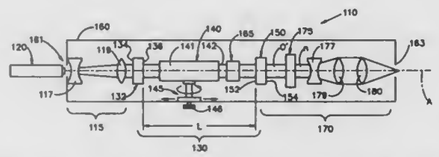
irradiating the container so as to cross-link the first layers to obtain the desired resistance to melting; and

sterilizing the container by exposure to heat at or above 110° C. without pre-stressing the material, to form a non-stressed, non-heat shrinkable container.

5,066,291
SOLID-STATE LASER FREQUENCY CONVERSION SYSTEM

Bob W. Stewart, Cincinnati, Ohio, assignor to Cincinnati Sub-Zero Products, Inc., Cincinnati, Ohio

Filed Apr. 25, 1990, Ser. No. 514,198
Int. Cl.[5] A61B *17/00;* **H03F** *7/00*
U.S. Cl. 606—3 **32 Claims**



1. A conversion system for medical applications wherein laser radiation at a predetermined wavelength from a single laser device is converted for simultaneous application of laser light energy at a plurality of predetermined wavelengths, said conversion system comprising:

means for receiving laser radiation at a single predetermined source wavelength from a laser device;

means for focusing received laser radiation at a predetermined pump wavelength into a conversion medium, said pump wavelength being in a range of wavelengths closely matched to a light absorption peak of one of either water or Hemoglobin, for medical use;

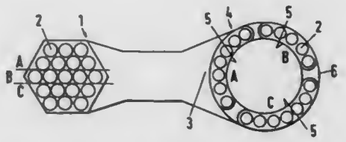
a conversion medium prepared for efficient conversion of a portion of said focused radiation at said pump wavelength to a predetermined medically usable signal wavelength, said signal wavelength being in a range of wavelengths closely matched to the other of said water or Hemoglobin light absorption peaks; and

means for coaxially transmitting laser radiation at both said pump and signal wavelengths from said conversion system for simultaneous use in a medical procedure.

5,066,292
CATHETER SYSTEM FOR VESSEL RECANALIZATION IN THE HUMAN BODY

Gerhard Müller; Hasan Kar; Klaus Dörschel, all of Berlin, and Karl-Heinz Schönborn, Mainz, all of Fed. Rep. of Germany, assignors to Schott Glaswerke, Mainz, Fed. Rep. of Germany

Filed Mar. 19, 1990, Ser. No. 494,743
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1989, 8903333[U]
Int. Cl.[5] A61M *29/02*
U.S. Cl. 606—7 **4 Claims**



1. A catheter system for the transmission of laser radiation comprising:

a catheter having a proximate end for coupling to a source of laser light and a distal end for emitting the laser light, the catheter having a wall with an inner surface defining a cavity;

a ring of lightguides extending through the cavity adjacent the inner surface of the catheter wall, the ring of lightguides being configured in separate connected groups with the groups connected by elastically extendable material; and

means adjacent the distal end and disposed within the ring of lightguides for selectively outwardly expanding and contracting the diameter of the entire ring of lightguides or selectively the individual groups of lightguides, the lightguides being bunched at the proximate end of the catheter for alignment with the source of laser light.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,293

LIGHT AMPLIFIER AND METHOD OF PHOTOTHEMOLYSIS

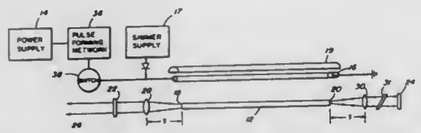
Horace Furumoto, Wellesley, Mass., assignor to Candela Laser Corporation, Wayland, Mass.

Continuation of Ser. No. 939,262, Dec. 8, 1986, Pat. No. 4,829,262, which is a continuation of Ser. No. 664,525, Oct. 25, 1984, abandoned. This application Mar. 10, 1989, Ser. No. 322,618

The portion of the term of this patent subsequent to May 9, 2006, has been disclaimed.

Int. Cl.[5] A61N *5/06*

U.S. Cl. 606—9 9 Claims



1. A method of phothermolysis of biological tissue comprising:

energizing a liquid dye medium in a dye cell including an aperture at each end thereof to an energy level at which the medium has net optical gain thereby producing an output beam from said dye cell;

from each end of the cell returning into the cell substantially all light other than the output beam, within a wavelength band emanating from the cell, such that the light traverses the cell with internal reflections off cell walls and the cell amplifies the light, the light being returned including other than spatially coherent light traveling coaxially in the cell, the output beam being of at least one hundred microsecond duration and at least one-tenth joule; and

illuminating the biological tissue with the output beam from the cell.

5,066,294

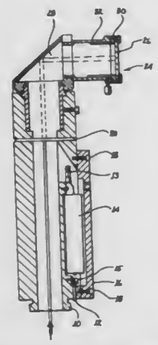
PERFORMANCE TESTER APPARATUS FOR A SURGICAL LASER SYSTEM AND METHOD THEREFOR

Ioan Cosmescu, 14449 North St., Phoenix, Ariz. 85022

Filed May 22, 1990, Ser. No. 527,140

Int. Cl.[5] A61B *17/36*

U.S. Cl. 606—11 14 Claims



1. An apparatus for testing the performance of a visible laser aiming beam and invisible laser cutting beam output of a surgical laser system comprising, in combination:

target assembly means for attachment to said visible and invisible beam output;

target means removably coupled to said target assembly means for measuring the performance attributes of said visible and invisible beam output, said target means further comprises target configuration means for indicating a precise location of impingement of said visible and invisible beam output on said target means;

light means coupled to said target assembly means for providing a source of light within said target assembly means to illuminate said location; and

eye viewing means coupled to said target assembly means for permitting visual observation of said location of said visible and invisible beam output; said target configuration means comprises a calibrated target to permit evaluation of the transverse electromagnetic mode and beam diameter of said invisible laser cutting beam and the location of said invisible laser cutting beam with respect to said visible laser aiming beam.

5,066,295

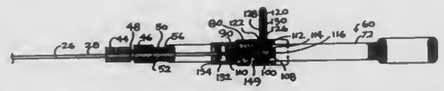
ROTATABLE SURGICAL SNARE

Mark Kozak, Euclid, and Michael Nichols, Mentor, both of Ohio, assignors to Mill-Rose Laboratories, Inc., Mentor, Ohio

Filed May 13, 1986, Ser. No. 862,683

Int. Cl.[5] A61B *17/36*

U.S. Cl. 606—47 15 Claims



1. In an endoscopic snare having a sheath, an electrically conducting cable with a snare at a distal end movable into and out of the sheath and a manual operating assembly attached to the sheath and to a proximal end of the cable, the improvement wherein the manual operating assembly comprises an elongated holder having a body portion, and a cable actuator, said body portion having a central longitudinal recess open through two opposite sides to define a pair of parallel guides upon which the actuator is slidably mounted, said pair of parallel guides each having an interiorly facing arcuate surface, said cable actuator having an electrically conducting snare-rotating member between said parallel guides, said snare-rotating member partially encircled by the interiorly facing arcuate surfaces of said parallel guides, said snare-rotating member and the proximal end of the cable each having means cooperating to form a quick disconnect connection wholly within said snare-rotating member, and said elongated holder, snare-rotating member and cable being constructed and arranged to have a common longitudinal axis.

5,066,296

APPARATUS FOR TREATING A FRACTURE

Michael W. Chapman, Sacramento, Calif.; Dana C. Mears, Pittsburgh, Pa., and Charles C. Edwards, Baltimore, Md., assignors to Pfizer Hopsital Products Group, Inc., New York, N.Y.

Filed Feb. 2, 1989, Ser. No. 305,840

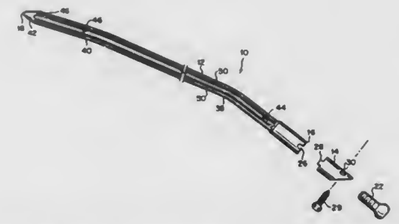
Int. Cl.[5] A61B *17/58*

U.S. Cl. 606—64 25 Claims

1. A bone implant comprising:

an implant body member for insertion into a bone cavity, said body member having a proximal end and a distal end;

an implant tab member having proximal and distal ends and at least one bone fixation aperture to allow for passage of a bone fixation screw for fastening said implant tab member to the bone, wherein the length of said tab member from said distal end to said proximal end varies at points around the periphery of said tab member to define a portion of shorter length as compared to other portions around the periphery and said least one bone fixation aperture is located to be accessible to insertion of said fixation screw by passing said screw proximally past said shorter length portion; and



means for selectively removably coupling said implant tab member distal end to said proximal end of said implant body member.

5,066,297

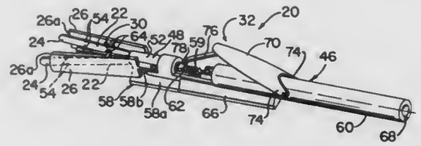
INTRAOCULAR LENS INSERTION DEVICE

J. Stuart Cumming, 1211 W. LaPalma Ave., #201, Anaheim, Calif. 92801

Division of Ser. No. 298,925, Jan. 23, 1989, Pat. No. 4,976,716. This application Jul. 30, 1990, Ser. No. 560,094

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—107 6 Claims



1. A surgical aid for holding a surgical instrument for inserting a foldable intraocular lens into a patient's eye thru a corneal incision, said instrument having an elongate body and a pair of slender lens gripping fingers at one end of the body which are pivotally movable away from one another to open positions wherein the fingers are disposed to straddle a foldable intraocular lens in its normal unfolded configuration and toward one another to closed positions to fold the lens and then grip the folded lens, said surgical aid comprising:

an instrument holder including a tubular body, instrument finger backup members at one end of said holder body, and means mounting said backup members on said holder body at opposite sides thereof for movement laterally of the holder body away from one another to normal open positions wherein the backup members are spaced to straddle the open instrument lens gripping fingers and toward one another from said normal positions to closed positions;

means for positively securing said holder backup members in their closed positions;

said holder having a normal pre-use configuration in which said backup members occupy their normal open positions and the holder is conditioned to receive said instrument in an initial position wherein (a) the instrument body extends longitudinally through said holder body, (b) the instrument lens gripping fingers occupy their open positions between the open backup members, and (c) said backup members are movable toward one another from their normal open positions to their closed positions to close the instrument lens gripping fingers and hold the lens gripping fingers in their closed positions; and

actuating means movably mounted on said holder body for engaging the body of the instrument when positioned in said holder and moving the instrument longitudinally relative to said holder to extend the closed instrument lens gripping fingers longitudinally relative to the closed holder backup members.

5,066,298

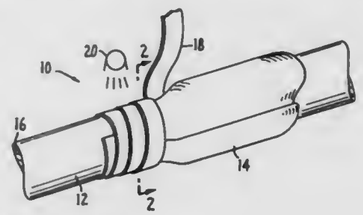
ARTICLE AND METHOD OF SHEATHING ANGIOPLASTY BALLOONS

Robert L. Hess, Portola Valley, Calif., assignor to Progressive Angioplasty Systems, Inc., Menlo Park, Calif.

Filed Nov. 30, 1989, Ser. No. 443,393

Int. Cl.[5] A61M *29/02*

U.S. Cl. 606—194 12 Claims



12. A catheter comprising:

a body portion;

a balloon portion, said balloon portion being larger in diameter than said body portion; and

a circumferential, generally helical wrap over said balloon portion, said wrap diametrically compressing said balloon portion radially inwardly, said balloon portion being set in said compressed diameter, said wrap sheathing said catheter during storage, said balloon portion being set and remaining substantially diametrically compressed when said wrap is removed for the purpose of insertion into the body.

5,066,299

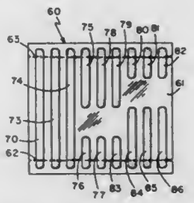
QUICK USE SUTURE PACKAGE

Godfrey Bellingham, Lake Elmo, Minn., assignor to Bellingham Medical, Inc., Lake Elmo, Minn.

Filed Jun. 29, 1990, Ser. No. 545,845

Int. Cl.[5] A61B *17/06*

U.S. Cl. 606—213 8 Claims



1. A package of wound closure strips to quickly enable a user to select the correct length would closure strip by visual inspection of the wound closure strips comprising:

a single backing sheet for supporting multiple wound closure strips in a side by side unpackaged condition, said backing sheet having a surface for releasing an article adhesively fastened thereto, said backing sheet having a generally rectangular shape with a first end and a second end, said backing sheet including a first line of weakness extending along said first end and a second line of weakness extending along said second end, said first line of weakness permitting a user to tear away said backing sheet along said first line of weakness and said second line of weakness permitting a user to tear away said backing sheet along said second line of weakness;

a first wound closure strip having a first side, a first end, and

VOL 1132 ISS 3 NO 19 1991 UMI

a second end, said first wound closure strip having a length L, said first wound closure strip having an adhesive coating extending over said first side of said first wound closure strip and releasably mounting said first wound closure strip to said backing sheet with at least one end of said first wound closure strip extending beyond said first line of weakness to permit the user to tear away said backing sheet along said first line of weakness to expose said first end of said first wound closure strip to permit the user to remove said first wound closure strip from said backing sheet;

a second wound closure strip having a first side, a first end, and a second end, said second wound closure strip having a length L_2, said second wound closure strip having an adhesive coating extending over said first side of said second wound closure strip and releasably mounting said second wound closure strip to said backing sheet with at least one end of said second wound closure strip extending beyond said first line of weakness to permit the user to tear away said backing sheet along said first line of weakness to expose said first end of said second wound closure strip to permit the user to remove said second wound closure strip from said backing sheet; and

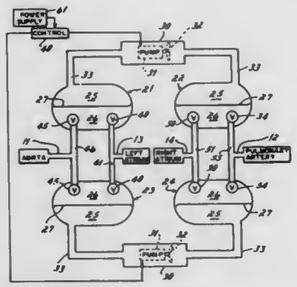
a third wound closure strip having a first side, a first end, and a second end, said third wound closure strip having a length L_3, said third wound closure strip having an adhesive coating extending over said first side of said third wound closure strip and releasably mounting said third wound closure strip to said backing sheet with at least one end of said third wound closure strip extending beyond said second line of weakness to permit the user to tear away said backing sheet along said second line of weakness to expose said first end of said third wound closure strip to permit the user to remove said third wound closure strip from said backing sheet where the length L_2 of said second wound closure strip and the length L_3 of said third wound clousre strip is less than the length L of said first suture strip.

5,066,300

TWIN REPLACEMENT HEART

Milton S. Isaacson, Dayton; Donald E. Holmes, Greenville, and Anthony P. Lioi, Dayton, all of Ohio, assignors to Nu-Tech Industries, Inc., Dayton, Ohio

Filed May 2, 1988, Ser. No. 188,906
Int. Cl.[5] A61M *1/10*
U.S. Cl. 623—3 **3 Claims**



1. A replacement heart comprising:

a housing having left and right atrial inlets and left and right ventricular outlets,

means dividing said housing into two sets of two chambers, diaphragms dividing each chamber into a blood side and a pump side,

one chamber of each set connected on its blood side to said left atrial inlet and said left ventricular outlet,

the other chamber of each set connected on its blood side to said right atrial inlet and right ventricular outlet,

each set of chambers having a pump housing and a reversible dc motor and impeller in each housing, conduit connecting said housing to the pump side of each said chamber in each set,

a hydraulic fluid in said pump housing, conduit and pump side of each set,

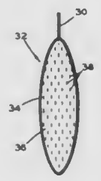
and a control system including a power supply for simultaneously operating said motors and reversing them at a rate corresponding to the rate needed to sustain a patient's activity.

5,066,301

VARIABLE FOCUS LENS

Robert G. Wiley, 4545 Brookside Rd., Toledo, Ohio 43615

Filed Oct. 9, 1990, Ser. No. 594,086
Int. Cl.[5] A61F *2/16*; G02B *26/00*; G02C *7/04, 7/02*
U.S. Cl. 623—6 **20 Claims**



1. A passive stable variable focus intraocular lens apparatus, for implantation into an eye, comprising:

a transparent, generally circular envelope;

a transparent gel having a relatively high resistance to flow encased in said envelope; and

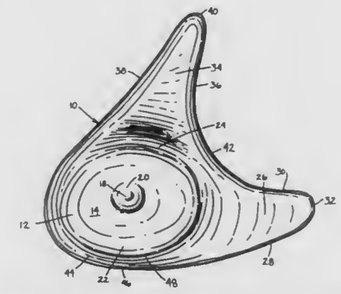
a plurality of light refracting particles suspended in a predetermined orientation in said gel, said particles being responsive to an external force for changing to a new orientation of said particles with respect to said envelope for selectively adjusting characteristics of said lens apparatus including the characteristics of power and astigmatism correction, whereby upon removal of the external force, said particles remain in said new orientation within said gel.

5,066,302

BREAST PROSTHESIS

Jean E. Rice, 1409 W. Yakima Ave., Yakima, Wash. 98902

Filed Apr. 25, 1990, Ser. No. 514,164
Int. Cl.[5] A61F *2/52*
U.S. Cl. 623—7 **9 Claims**



1. A solid breast prosthesis made entirely of a silicon compound, and comprising:

a pliable molded form of a complete female breast, said form having an inferior margin forming the edge of the lowermost portion;

an axillary supplement extending laterally from the form;

a clavicular supplement extending generally upwards from the form; and

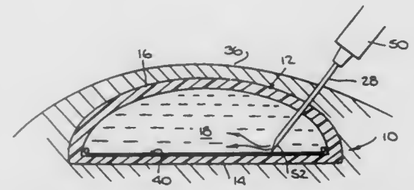
a retaining band below the inferior margin of the form.

5,066,303

SELF-SEALING TISSUE EXPANDER AND METHOD

Jeffrey E. Bark, Racine; Donald V. Hillegass, Franksville, and Eric J. Woodruff, Racine, all of Wis., assignors to Medical Engineering Corporation, Racine, Wis.

Filed Aug. 7, 1989, Ser. No. 390,267
Int. Cl.[5] A61F *2/12*
U.S. Cl. 623—8 **39 Claims**



1. A tissue expander for implantation in a patient to promote tissue growth comprising, a closed flexible shell defining an internal chamber, said shell being substantially collapsible when said chamber is empty and expandible upon infusion of fluid into said chamber, said shell including a shell wall formed of interior and exterior shell layers of relatively high durometer elastomeric material which is substantially nonflowable, and at least one median layer intermediate said interior and exterior shell layers of relatively low durometer material which is flowable for self-sealing a needle hole formed in said interior and exterior layers of said shell wall by a needle of predetermined cross section which penetrates the interior and exterior layers of said shell wall into said chamber to inject or withdraw fluid, the durometer of said median layer material being selected to enable said median layer material to flow into and seal said needle hole in said interior and exterior shell layers when said needle is withdrawn from said shell wall.

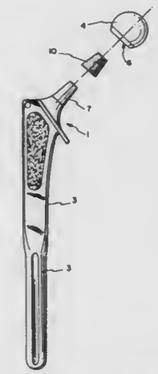
5,066,304

PROSTHETIC INTERPOSITIONAL DEVICE/COUPLER

Roy D. Crowninshield, Warsaw, and Roy Y. Hori, both of Warsaw, Ind., assignors to Zimmer, Inc., Warsaw, Ind.

Division of Ser. No. 325,799, Mar. 20, 1989, Pat. No. 5,015,257.
This application Feb. 1, 1991, Ser. No. 649,094
Int. Cl.[5] A61F *2/32*
U.S. Cl. 623—22 **3 Claims**

1. A set of implant components comprising a plurality of couplers wherein the plurality of couplers are available in a plurality of differing lengths to enable the desired length coupler to be selected for interpositioned engagement between a femoral prosthesis head and a neck of a femoral prosthesis stem to provide a desired distance therebetween, and wherein each coupler comprises a hollow sleeve having a first end and a second end and wherein the first end of each coupler in the set is open for fitting over the neck of the femoral stem, and wherein the second end of at least one of the couplers in the set includes an end wall generally transverse to a longitudinal axis of said coupler and wherein the second end of at least one other of the couplers is open without any end wall, and wherein said at least one of the couplers including said end wall has a greater length than said at least one other of the couplers having the open second end, and wherein all couplers in the set having an open second end are shorter than any couplers in the set in which the second end includes an end wall.

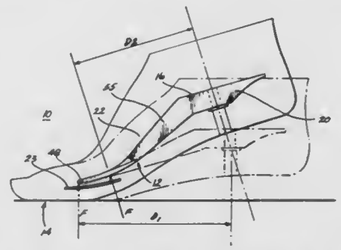


5,066,305

PROSTHETIC FOOT HAVING A LOW PROFILE CANTILEVER SPRING KEEL

David G. Firth, Seattle, Wash., assignor to Model & Instrument Development Corporation, Seattle, Wash.

Filed Oct. 25, 1988, Ser. No. 262,464
Int. Cl.[5] A61F *2/66*
U.S. Cl. 623—55 **26 Claims**



16. A keel for a prosthetic foot, comprising a cantilever spring member exhibiting viscoelastic properties, said cantilever spring member including:

(a) a mounting portion for connecting the keel to an upper prosthesis at a location approximating the location of the ankle joint of a human foot, the mounting portion having a forward section and a rearward section; and,

(b) a monolithic forefoot beam cantilevered extending forwardly and diagonally downwardly from the forward section of the mounting portion to the front end of the keel and at least approaching a point of the prosthetic foot corresponding the toes of a human foot, said beam being shaped and dimensioned to flex upwardly and thereby store strain energy during footfall and then with the following footrise, releasing such strain energy in the form of foot lift and thrust as the beam returns to its nominal configuration, with the location of the upward reaction force being applied to the beam during footfall progressively and continuously shifting rearward along the keel from the front of the keel to progressively decrease the distance between the location of the upward reaction force and the mounting portion and progressively increase the spring rate of the keel.

VOL
1132
ISS
3
NO
19
1991
UMI

5,066,306

PROCESS FOR REMOVING PERMANGANATE STAINS FROM ARTICLES

James L. Clements, Henderson, Ky., assignor to 501 P.B. & S. Chemical Company, Inc., Henderson, Ky.

Continuation-in-part of Ser. No. 387,899, Aug. 1, 1989, Pat. No. 4,961,749. This application Jul. 31, 1990, Ser. No. 564,750

Int. Cl.[5] D06L *3/06*

U.S. Cl. 8—109 40 Claims

1. A bleaching process comprising the steps of:

(a) treating a fiber, fabric, or garment with a permanganate bleaching agent; and

(b) reducing the permanganate with a reducing composition containing sulfur dioxide and ammonia in amounts so that substantially no sulfur dioxide odor is detectable during the reduction step.

5,066,307

TEXTILE FINISHING AGENTS HAVING REDUCED FORMALDEHYDE EMISSION

Robert G. Lees, Stamford, Conn., and Edward B. Lawler, Charlotte, N.C., assignors to American Cyanamid Company, Stamford, Conn.

Continuation of Ser. No. 102,459, Sep. 29, 1987, abandoned. This application Mar. 18, 1991, Ser. No. 671,188

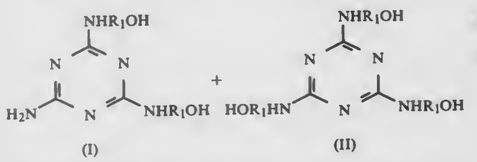
Int. Cl.[5] C08L *61/32;* D06M *13/355, 13/382*

U.S. Cl. 8—182 43 Claims

1. An amino resin composition comprising as resin forming components:

(i) from about 90 to about 50 parts by weight of a first stage amino resin; and,

(ii) from about 10 to about 50 parts by weight of a polyhydroxylalkyl melamine reactant represented by the formulae:



(I) (II)

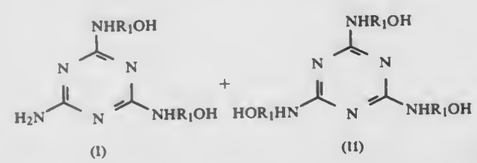
wherein the weight ratio of formula (I) to formula (II) is from about 10:90 to about 90:10, and R_1 is an alkyl group of from 2 to 8 carbor atoms.

32. A process for producing an amino resin treated textile wherein the improvement comprises:

(1) contacting a textile with an amino resin forming bath having as components;

(i) from about 90 to about 50 parts by weight of a first stage amino resin;

(ii) from about 10 to about 50 parts by weight of a polyhydroxylalkyl melamine reactant represented by the formulae:



(I) (II)

wherein the weight ratio for formula (I) to formula (II) is from about 30:70 to about 70:30 and R_1 is an alkyl group of from 2 to 8 carbon atoms;

(iii) a curing catalyst;

(iv) a liquid medium;

(2) and thereafter curing the resin forming ingredients to affix said resin to said textile.

5,066,308

END IDENTIFIER FOR MULTIDYE YARN

Ling Yeh; Hugh G. Harrelson, and Andrew M. Coons, III, all of Anderson, S.C., assignors to BASF Corporation, Parsippany, N.J.

Filed Feb. 6, 1990, Ser. No. 475,599

Int. Cl.[5] D06P *5/13*

U.S. Cl. 8—403 10 Claims

1. A method of distinguishing between two or more polyamide fibers in greige fabric, said fibers having different dye affinities, comprising the steps of adding sufficient pigment to one fiber during fiber forming to make it visible to the eye, and leaving one unpigmented fiber.

5,066,309

LIQUID METAL COMPLEX DYE PREPARATIONS, PROCESS FOR THEIR PREPARATION AND THEIR USE

Ernst Tempel, Riehen, and Pia Grimbü hler-Can, Basel, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jul. 10, 1990, Ser. No. 550,430

Claims priority, application Switzerland, Jul. 14, 1989, 2645/89

Int. Cl.[5] C09B *67/00, 45/00*

U.S. Cl. 8—527 12 Claims

1. A stable, concentrated, aqueous colloidal or dispersed preparation of a 1:2 metal complex dye, which comprises (1) 10 to 30% by weight of a 1:2 metal complex dye, (2) 3 to 30% by weight of an anionic dispersant, (3) 1 to 15% by weight of a polyalcohol of 2 to 6 hydroxy groups and 2 to 6 carbon atoms and (4) 0 to 25% by weight of a customary formulation assistant, and water in an amount such that the sum of all the components is 100%.

5,066,310

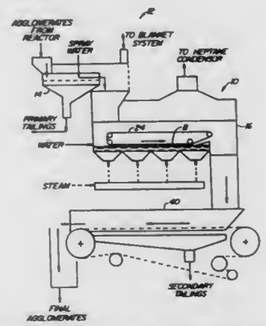
METHOD FOR RECOVERING LIGHT HYDROCARBONS FROM COAL AGGLOMERATES

Horst Huettenhain, Benicia; August D. Benz, Hillsborough, both of Calif., and John Getsoian, Ann Arbor, Mich., assignors to Bechtel Group, Inc., San Francisco, Calif. and Arcanum Corp., Ann Arbor, Mich.

Filed Aug. 13, 1990, Ser. No. 566,634

Int. Cl.[5] C10L *5/00*

U.S. Cl. 44—500 23 Claims



1. A method for recovering light hydrocarbons used as a bridging liquid from agglomerated coal particles, said method comprising:

immersing the agglomerated coal particles in water;

heating the immersed agglomerated coal particles under conditions selected to remove substantially all light hydrocarbons from said agglomerated coal particles, whereby a vapor phase containing water vapor and light hydrocarbon vapor is produced; and

recovering the light hydrocarbons from the vapor phase.

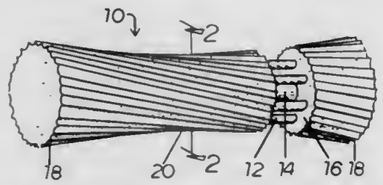
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,311

FUEL PRODUCTS FROM WASTE MATERIALS

Paul D. Chalmer, 5280 Westbury Rd., Chelsea, Mich. 48118

Filed Jun. 18, 1990, Ser. No. 539,186
Int. Cl.[5] C10L 5/00
U.S. Cl. 44—535 5 Claims



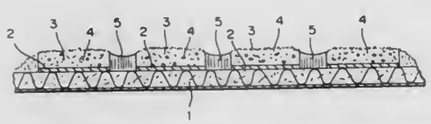
1. A fuel article comprising: a combustible material having a covering, wherein said covering comprises cellulosic wick material and said combustible material comprises a thermoplastic material.

5,066,312

FLEXIBLE ABRASIVES

Maher Ishak, Pte. Claire, and Alexander Schwartz, Westmount, both of Canada, assignors to Abrasive Technology N.A., Inc., Westerville, Ohio

Division of Ser. No. 161,940, Feb. 29, 1988, Pat. No. 4,874,478.
This application Aug. 25, 1989, Ser. No. 398,335
Claims priority, application Canada, Feb. 27, 1987, 530811; Mar. 13, 1987, 531996; Oct. 21, 1987, 549901; Nov. 20, 1987, 552387; Jan. 7, 1988, 556049
Int. Cl.[5] B24D 11/00
U.S. Cl. 51—295 17 Claims



1. An abrasive member comprising a flexible sheet having a plurality of discrete metal protuberances fixedly attached to one surface thereof, each of said protuberances comprising a lower thin layer of a first metal fixedly attached to said flexible sheet and an upper electrodeposited layer of a second metal different from said first metal and having abrasive material embedded therein.

5,066,313

WIRE ELECTRODE REPLACEMENT FOR ELECTROSTATIC PRECIPITATORS

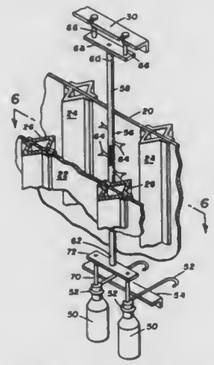
Timothy P. Mallory, Sr., Pace, Fla., assignor to Southern Environmental, Inc., Pensacola, Fla.

Filed Sep. 20, 1990, Ser. No. 585,190
Int. Cl.[5] B03C 3/00
U.S. Cl. 55—2 9 Claims

9. A method of replacing wire discharge electrodes in an electrostatic precipitator having first and second parallel vertical substantially planar grounded electrodes, each of said grounded electrodes having a plurality of vertical conductive stiffeners evenly spaced along the width thereof, corresponding stiffeners on said first and second grounded electrodes being opposed whereby an adjacent pair of stiffeners on said first grounded electrode together with a corresponding adjacent pair of stiffeners on said second grounded electrode define a discharge space partially separated from adjacent discharge spaces by said stiffeners, said precipitator further comprising a high voltage frame located above said plurality of discharge spaces and extending parallel to the planes of said grounded electrodes, said frame having a pair of spaced mounting means above each said discharge space for supporting a corresponding pair of wire discharge electrodes, a line connecting each said pair of mounting means being parallel to and equally spaced from the planes of said first and second grounded electrodes, said line having a given length, each said wire discharge electrode having shroud means on an upper end thereof mating with said corresponding mounting means and having a lower end, each said lower end of said wire discharge electrodes comprising suspending means suspending a weight individual to said wire discharge electrode in an original position, and means for restricting movement of said weights in the horizontal plane from said original positions, said method comprising:

(a) removing said pair of wire discharge electrodes;

(b) replacing said pair of wire discharge electrodes with a single rigid discharge electrode, said rigid discharge electrode comprising a rigid vertical support having a vertical



length between an upper end and a lower end thereof, and having a plurality of corona-generating members spaced along said vertical length, said corona-generating members extending laterally from and on opposite sides of said vertical support and generally parallel to the planes of said grounded electrodes to discharge regions spaced apart on opposite sides of said vertical support substantially the same distance as said given length;

(c) said rigid discharge electrode comprising a pair of shroud means on said upper end of said rigid discharge electrode, said pair of shroud means being spaced apart a distance equal to said given length and mating with said pair of mounting means; and

(d) said rigid discharge electrode comprising a pair of suspending means on said lower end of said rigid discharge electrode, said pair of suspending means being spaced apart a distance equal to said given length and suspending said weights in said original positions.

5,066,314

METHOD OF REMOVAL OF ACID COMPONENTS FROM A GAS

Iosif L. Leites; Yulya G. Karpova; Vladimir M. Berchenko, all of Moscow, U.S.S.R.; Takeshi Hibara, Zushi, Japan; Toshimitsu Shimizu, Yokohama, Japan; Norio Takahashi, and Isamu Ueno, both of Yokosuka, Japan, assignors to State Scientific-Research Designing Institute for Nitrogen Industry and for Products of Organic Synthesis, Moscow, U.S.S.R. and Toho Kagaku Kogyo Co., Ltd, Tokyo, Japan

Filed Jul. 9, 1990, Ser. No. 549,967
Claims priority, application Japan, May 14, 1990, 2-123754
Int. Cl.[5] B01D 47/06, 53/14
U.S. Cl. 55—44 4 Claims

1. A method of removal of acid components from a gas mixture containing acid components using an organic absorbent based on ethers of polyglycols, comprising the sequential steps of:

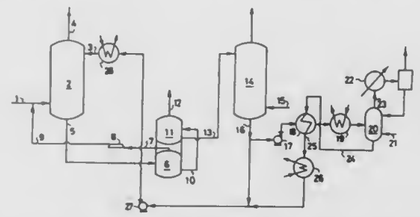
(a) absorbing acid components of the gas mixture in the absorbent by a countercurrent contact of the gas mixture and the absorbent under pressure in an absorber maintained at a temperature of less than 20° C.,

(b) discharging the resulting gas mixture from a top of the absorber,

(c) discharging the absorbent from a bottom of the absorber to an expander in which pressure is maintained lower than in the absorber, and discharging most of the acid components from the absorbent therein,

(d) discharging said absorbent from the expander to a top of a desorber where pressure is maintained lower than in the expander,

(e) discharging remaining acid components from the absorbent by a countercurrent of the absorbent and air or N_2 gas supplied at a bottom of the desorber to reduce an acid



component of the absorbent to not more than 0.5 Nm^2m^3, and extracting the absorbent from the bottom of the desorber,

(f) furnishing a major portion of said absorbent to a refrigerator, cooling the absorbent in said refrigerator to a temperature of less than 20° C., furnishing the absorbent from the refrigerator to the top of the absorber and contacting it with a new gas mixture containing acid components by a countercurrent,

(g) furnishing a remaining amount of absorbent extracted from the bottom of the desorber, after being heated at a heating device, to the top of a dehydration vessel which is maintained at a temperature of 80°–150° C. and under a pressure of 0.8–1.3 atm, where moisture contained in the absorbent is discharged by countercurrent contact with a stripping gas, and

(h) joining the resultant dehydrated absorbent with said major portion of the absorbent being furnished to the refrigerator.

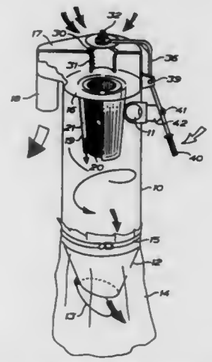
5,066,315

METHOD OF CLEANING A CYCLONE SEPARATION AND CYCLONE SEPARATOR FOR PRACTICING THE METHOD

Johann Haberl, Skärholmen, and Gösta Lundqvist, Grödinge, both of Sweden, assignors to Dustcontrol International AB, Norsborg, Sweden

PCT No. PCT/SE88/00628, § 371 Date May 21, 1990, § 102(e) Date May 21, 1990, PCT Pub. No. WO89/04711, PCT Pub. Date Jun. 1, 1989
PCT Filed Nov. 18, 1988, Ser. No. 488,049
Claims priority, application Sweden, Nov. 20, 1987, 8704568
Int. Cl.[5] B01D 46/00
U.S. Cl. 55—96 9 Claims

1. A method for cleaning a cyclone separator connected to a suction source and comprising an inlet chamber for gas mixed with dust, an outlet chamber for cleaned gas, said outlet chamber being connected to the suction source, a central outlet between said inlet chamber and said outlet chamber, and a filter unit disposed in said central outlet, said method comprising momentarily establishing a connection between the outlet chamber and the atmosphere to initiate a rapid pressure rise in the outlet chamber, said rapid pressure rise effecting a reversed gas flow through the filter unit in order to blow the filter unit, maintaining a communication between the outlet chamber and



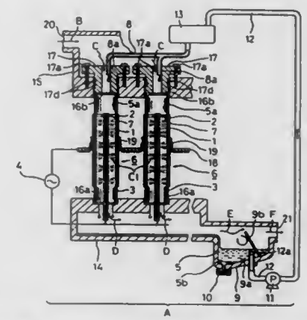
the suction source during said rapid pressure rise, and closing an inlet to the inlet chamber concurrently with or immediately before establishing said connection.

5,066,316

EXHAUST GAS PURIFYING APPARATUS

Yukio Ikeda, Ryugasaki, Japan, assignor to Niles Parts Co., Ltd., Tokyo, Japan

Filed Jul. 11, 1990, Ser. No. 551,242
Claims priority, application Japan, Oct. 6, 1989, 1-117596[U]; Oct. 6, 1989, 1-117597[U]; Oct. 6, 1989, 1-117598[U]
Int. Cl.[5] B03C 3/00
U.S. Cl. 55—122 16 Claims



1. An exhaust gas purifying apparatus comprising:

an enclosure portion including an entrance for introducing exhaust gas into said enclosure portion and an exhaust opening for exiting purified exhaust gas from said enclosure portion;

at least one first electrode composed of an electric conductor having a surface defining a projecting formation;

at least one second electrode composed of an electric conductor having a surface lying opposite said first electrode;

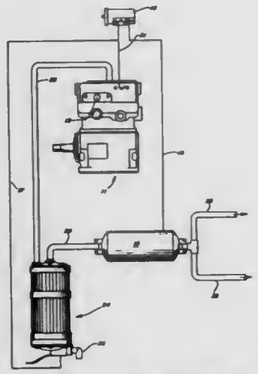
an electric insulator attached to said surface of said second electrode, opposite to said first electrode;

a streamer corona generating portion composed of a high voltage electric power source connected to said first and second electrodes for generating bridged stream coronas stably within a space defined by said first electrode and said electric insulator over an extended period of time to

VOL 1132 ISS 3 NOV 19 1991 UMI

remove fine particles and harmful gases from said exhaust gas passing through said bridged stream coronas;
means for injecting an adhesive oil onto said surface of said electric insulator so that said adhesive oil is diffused and attracted to said surface to form a viscous oil film thereon; and
means for circulating said adhesive oil through said enclosure portion.

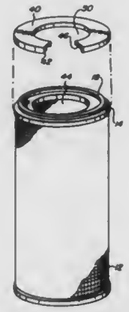
5,066,317
COMPRESSED GAS DRYER SYSTEM WITH PRESSURE RETENTION
Dario Gross, Corunna, and Roger L. Sweet, Fowlerville, both of Mich., assignors to Midland Brake, Inc., Kansas City, Mo.
Filed Dec. 15, 1989, Ser. No. 451,222
Int. Cl.[5] B01D *46/00*
U.S. Cl. 55—218 4 Claims



1. In a governor-controlled gas compressor system for maintaining gas pressure in a gas reservoir between a predetermined first pressure level at which said compressor commences to compress pressurizing intake gas from a supercharged source thereof and a predetermined higher second pressure level at which the compressor ceases to compress said gas, said system including a source of supercharged gas, a gas compressor, a governor and a gas dryer vessel intermediate said compressor and said reservoir to effect drying of the compressed gas, the said gas dryer vessel being provided with gas inlet means in communication with said compressor, and gas outlet means in communication with said reservoir, and a purge valve for exhausting purge gas therefrom, and having a drying chamber therein having a desiccant material disposed therein and a purge air chamber in communication with said drying chamber, the improvement which consists in pressure retention means within said purge valve to control exhausting purge gas therefrom only when the pressure of the purge gas in said pressure retention means exceeds the pressure of the pressurized intake gas from the supercharged source thereof.

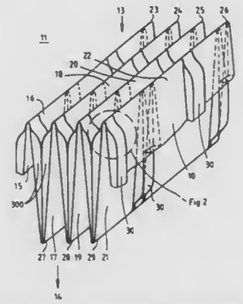
5,066,318
FILTER ELEMENT GASKET
Charles M. McDonough, Stamford, Conn., assignor to PCF Group, Inc., Stamford, Conn.
Filed Apr. 13, 1990, Ser. No. 508,560
Int. Cl.[5] B01D *29/21*
U.S. Cl. 55—502 10 Claims

1. In combination, a filter element for a dust collector having a metal flange to be sealed against leakage and a resilient gasket for sealing said flange against a metal plate, said gasket comprising:
a top wall, having an inner surface adjoining said flange and formed from an electrically conductive resilient material to dissipate static charges from said filter element to a metal plate, said top wall having a broad outer surface opposite said inner surface for sealing against said metal plate;



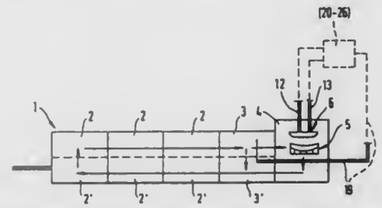
a lip extending transversely from said top wall and defining a cavity containing said flange; and
an opening aligned with a corresponding opening in said flange.

5,066,319
FILTER CARTRIDGE
Hans-Joachim Lippold, Wredeweg 8, D-1000 Berlin 22, Fed. Rep. of Germany
Filed Feb. 5, 1990, Ser. No. 474,290
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1989, 3903698; May 19, 1989, 3916838
Int. Cl.[5] B01D *46/52*
U.S. Cl. 55—521 25 Claims



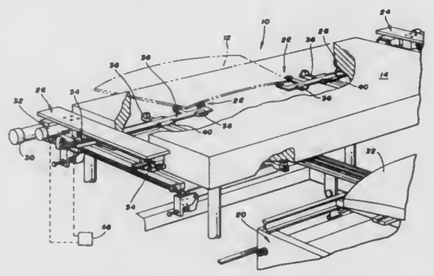
1. Filter cartridge having a block construction, comprising a plurality of zig-zag fold walls having fold edges between adjacent ones of said plurality of fold walls, said fold walls including a material folded in a zig-zag fashion for a medium to be filtered to pass through from one edge area of the plurality of zig-zag fold walls in the direction of the edge area of the opposite side of the fold walls, said filter material being made of a material which can be permeated by the medium to be filtered, said fold walls being provided with offsets which extend out on both sides of each fold wall in the direction of flow of the medium, and said offsets having side faces and a length which is greater than their width, wherein:
the offsets of adjacent fold walls lie in contact with one another to serve as spacers and stiffeners, and that the height of the offsets lying in contact with one another of two fold walls connected together by a said fold edge increases in the direction of the opposite fold edge and therefore the spacing between two adjacent fold walls decreases uniformly in the direction of flow of the medium until a point at which the medium to be filtered passes through the fold wall from which point on the spacing increases;
said offsets are of a constant width perpendicular to the direction of flow; and
the side faces of said offsets extend perpendicularly to said fold edges which connect together said plurality of fold walls.

5,066,320
METHOD FOR BENDING COMPLEX SHAPES ON A GLASS SHEET
Esko O. Lehto, Kangasala, and Jukka H. Vehmas, Tampere, both of Finland, assignors to Tamglass Oy, Tampere, Finland
Filed Jun. 27, 1990, Ser. No. 544,519
Claims priority, application Finland, Mar. 30, 1990, 901601
Int. Cl.[5] C03B *23/35*
U.S. Cl. 65—106 14 Claims



10. A method as set forth in claim 2, wherein a hot gas blown during the bending of a glass sheet through blasting orifices of the shaping surface of press bending mould is used to maintain a top surface of glass sheet at least locally hotter than a bottom surface.

5,066,321
DEVICE FOR POSITIONING HOT GLASS SHEETS
Joseph O. Kramer, Toledo; Dexter H. McMaster, Perrysburg, both of Ohio, and Eustace H. Mumford, Ottawa Lake, Mich., assignors to Glasstech, Inc., Perrysburg, Ohio
Filed Jul. 19, 1990, Ser. No. 554,373
Int. Cl.[5] C03B *35/24*
U.S. Cl. 65—182.2 13 Claims

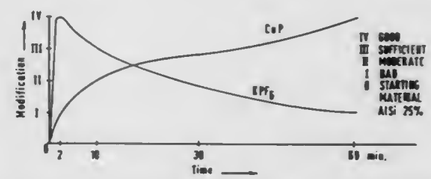


2. In a glass sheet processing apparatus including a conveyor for conveying a glass sheet for heating, a topside support device having a downwardly facing planar surface located adjacent and extending away from the conveyor at an elevation just slightly above a plane of conveyance of the glass sheet during heating for receiving the heated glass sheet from the conveyor and supporting the glass sheet by vacuum and pressure without engagement on the topside support device, a device for positioning the hot glass sheet on the topside support device, the device comprising: a pair of laterally spaced glass sheet locators fixedly mounted relative to the topside support device; each glass sheet locator including mechanical linkage having a glass sheet catcher movably mounted below the topside support device in the plane of conveyance for engaging the heated glass sheet without relative motion between said catcher and glass sheet as it arrives at the topside support device; and each locator including a first actuator for actuating longitudinal movement and a second actuator for actuating transverse movement of said glass sheet catcher via said linkage for decelerating and positioning the glass sheet at an accurate stationary position relative to the topside support device.

5,066,322
METALLIC COOLANT FOR A METALLURGICAL BATH
Jan A. Groothoff, Aerdenbout, Netherlands, assignor to Heckett Holland B.V., Ijmuiden, Netherlands
Continuation of Ser. No. 289,020, Dec. 23, 1988, abandoned. This application Jun. 7, 1990, Ser. No. 534,304
Claims priority, application Netherlands, Jan. 18, 1988, 8800095
Int. Cl.[5] B22F *1/00*
U.S. Cl. 75—255 5 Claims

1. Metallic coolant for use with a metallurgical bath in which the chemical composition of the metallurgical bath substantially corresponds to the chemical composition of the coolant, said coolant being selected from the group consisting of metallic steel and aluminum ball-shaped metallic bodies of sizes not less than 5 mm and not more than 60 mm, the ball-shape factor B of the coolant having a value of at least 0.57.

5,066,323
COMPOSITIONS COMPRISING HEXAFLUOROPHOSPHATES AND METALS AS STRUCTURE REFINER FOR ALUMINIUM-SILICON ALLOYS
Jan P. Mulder, Delfzijl, Netherlands, assignor to Shell Internationale Research Maatschappij B.V., The Hague, Netherlands
Filed Jun. 12, 1989, Ser. No. 363,848
Claims priority, application United Kingdom, Jun. 13, 1988, 8813939
Int. Cl.[5] C22C *1/06*
U.S. Cl. 75—305 7 Claims



1. Master composition suitable for addition to molten aluminum-silicon casting alloys to promote the formation of a refined grain structure during the solidification of the alloys, said composition comprising a hexafluorophosphate in an amount ranging from 20 to 80% (w/w) and one or more metals selected from the group consisting of iron, copper, manganese and zinc.

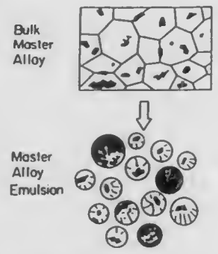
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,324

METHOD OF EVALUATION AND IDENTIFICATION FOR THE DESIGN OF EFFECTIVE INOCULATION AGENTS

John H. Perepezko, and Mark K. Hoffmeyer, both of Madison, Wis., assignors to Wisconsin Alumni Research Foundation, Madison, Wis.

Filed Feb. 26, 1991, Ser. No. 485,931
Int. Cl.[5] B22D *23/08*
U.S. Cl. 75—335 20 Claims



1. A method of evaluating or identifying effective and ineffective inoculation agents in a bulk metal or metal alloy, the method comprising the steps of:

(a) heating the bulk metal or metal alloy to a molten state;

(b) emulsifying the bulk metal or metal alloy containing the inoculation agents in a molten state in a carrier fluid to produce micron-sized droplets;

(c) cooling the metal and the carrier fluid to cause solidification of the bulk metal or metal alloy, and simultaneously recording the thermal signals produced by the metal droplets;

(d) re-heating the bulk metal or metal alloy to a molten state;

(e) emulsifying the bulk metal or metal alloy containing the inoculation agents a second time in a molten state in the carrier fluid to produce micron-sized droplets;

(f) quenching the metal droplets just below the initial nucleation onset temperature that is derived from the recordation of the thermal signals in step (c) to preserve the microstructure at the onset of the highest nucleation reaction temperature;

(g) examining the microstructures of the droplets and segregating the effective and ineffective inoculant particle based upon the microstructures associated with effective nucleation; and

(h) identifying specific active and inactive inoculant agents in the droplets.

5,066,325

COGENERATION PROCESS FOR PRODUCTION OF ENERGY AND IRON MATERIALS, INCLUDING STEEL

John M. Lehto, Cokato, Minn., assignor to Northern States Power Company, Minneapolis, Minn.

Continuation-in-part of Ser. No. 234,914, Aug. 22, 1988, which is a continuation-in-part of Ser. No. 153,242, Feb. 8, 1988, which is a continuation-in-part of Ser. No. 91,427, Aug. 31, 1987, abandoned. This application Feb. 24, 1989, Ser. No. 314,988
Int. Cl.[5] C21B *11/02*
U.S. Cl. 75—499 20 Claims

1. A process for the production of electricity with relatively efficient use of fuel material; said process including the steps of:

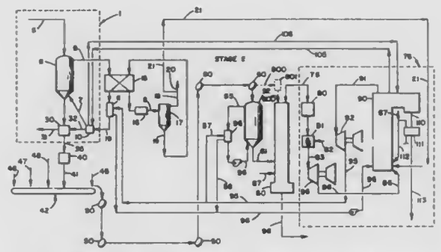
(a) providing a low grade coal fuel;

(b) performing a liquefaction procedure on said coal fuel to remove oil and volatiles therefrom, and to generate a resultant coal char product;

(c) pelletizing the coal char product to form coal char product pellets, said step of pelletizing comprising pelletizing at least a portion of the coal char product in combination with reducible solid iron material to form coal char product pellets containing reducible solid iron material;

(d) charging a cupola with the coal char product and the reducible iron material, said step of charging a cupola being characterized by charging substantially all the coal char product in the form of the coal char product pellets and substantially all the reducible solid iron material in the form of pellets containing the coal char product in combination with the reducible solid iron material;

(e) reducing and melting substantially all the reducible solid iron material in the coal char product pellets by heating



the pellets in the cupola at a suitable temperature in the presence of a sufficient upward flow of process gases, with the resultant formation of reduced molten iron material, hot slag material, and hot product gases;

(f) forming a mineral wool fiber material from the hot slag material;

(g) tapping the hot product gases from an upper portion of the cupola;

(h) directing the hot product gases downstream to electrical production equipment; and,

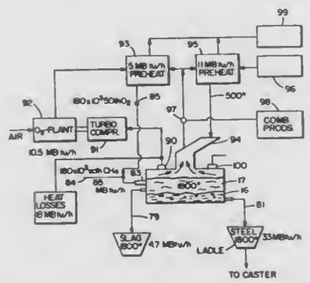
(i) producing electricity from the hot product gases.

5,066,326

GAS-FIRED STEELMELTING PROCESS

Jagdish A. Agarwal, Sudbury; Richard Gannon, Andover; Victor Goldfarb, Swampscott; David Stickler, Carlisle, and Jaime Woodroffe, Andover, all of Mass., assignors to Gas Research Institute, Chicago, Ill.

Division of Ser. No. 416,925, Oct. 4, 1989, Pat. No. 4,981,285. This application May 7, 1990, Ser. No. 519,509
Int. Cl.[5] C21B *13/10*
U.S. Cl. 75—581 9 Claims



1. A slagmelt process for melting solid ferrous metal scrap in a slagmelt furnace to produce low carbon-content steel and for insulating said scrap against contact with oxidizing gases during the melting thereof, comprising the steps of:

(a) providing a continuous layer consisting essentially of a chemically-controlled slag composition in a slagmelt furnace;

(b) superheating said layer of slag composition to molten

condition by introducing against and/or beneath the surface thereof one or more jets consisting essentially of an ignited mixture of a fuel gas and an oxidizer gas, the temperature, direction and velocity of said jets heating and circulating said slag layer to a substantially uniform temperature above the melting temperature of said ferrous metal scrap; and

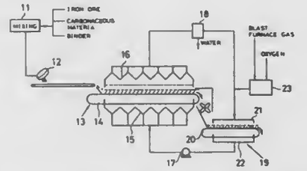
(c) immersing a supply of pieces of said solid ferrous metal scrap beneath the surface of said layer of molten slag composition to melt said scrap pieces by heat conducted and convected from said layer of molten slag composition while the scrap pieces are insulated by the layer of slag composition against oxidation and other undesirable reactions, and against exposure to carbon dioxide, water vapor, oxygen, air or other gases present in the atmosphere above said slag layer during the melting of said solid ferrous metal scrap pieces, to form a molten layer of low carbon-content ferrous metal beneath said superheated layer of slag composition.

5,066,327

METHOD FOR MANUFACTURING COLD BONDED PELLETS

Hideomi Yanaka, and Yotaro Ohno, both of Kawasaki, Japan, assignors to NKK Corporation, Tokyo, Japan

Filed Jun. 11, 1990, Ser. No. 535,496
Claims priority, application Japan, Jun. 20, 1989, 1-155687
Int. Cl.[5] C22B *1/243*
U.S. Cl. 75—770 8 Claims



1. A method for manufacturing cold bonded pellets comprising the steps of:

mixing fine iron ore with binder and pelletizing the mixture of the fine iron ore and the binder to form green pellets;

charging said green pellets into a travelling grate to form a layer of the green pellets on the travelling grate;

blowing a curing gas containing carbon dioxide through the layer of the green pellets on the travelling grate, the green pellets thereby being cured by the curing gas, and the gas having passed through the layer of the green pellets being discharged;

passing the gas having passed through the layer of the green pellets and having been discharged through a dehydrator;

mixing the gas which has passed through the dehydrator with combustion gas to form a gas mixture, the combustion gas being obtained by combusting with oxygen a blast furnace gas, which is generated in a blast furnace process wherein iron ore and coke are charged from the top of a blast furnace into the blast furnace and pure oxygen is blown from tuyeres into the blast furnace, to manufacture pig iron,

passing the pellets which have been cured through a drier, blowing said gas mixture through the pellets in the drier, and using the gas mixture passed through the drier as the curing gas.

5,066,328

ANTIMICROBIAL COATING

Clifford Zlotnik, West Mifflin, Pa., assignor to Unsmoke Systems, Inc., Braddock, Pa.

Filed Mar. 9, 1990, Ser. No. 491,260
Int. Cl.[5] A01N *33/00, 59/20*
U.S. Cl. 106—18.32 4 Claims

1. An amtimicrobial mixture comprising:

(a) copper-8-quinolinolate present in from about 0.25 to 10% by weight, mixed with

(b) a binder composition comprising about 50 to 60 wt.% dioctyl sulfosuccinate sodium salt, about 15 to 40 wt.% water, about 4 to 15 wt.% ethanol, and about 5 to 20 wt.% substituted hydantoin, said binder composition imparting sufficient fluidity to the copper-8-quinolinolate to permit the mixture to be applied as a liquid and to adhere to metal, fiberglass or plastic media.

5,066,329

WRITING FLUID

Werner Schmickl, Neumarkt, and Roland Meichsner, Buttenheim, both of Fed. Rep. of Germany, assignors to J. S. Staedtler GmbH & Co., Nuremberg, Fed. Rep. of Germany

Filed Oct. 1, 1990, Ser. No. 590,920
Claims priority, application Fed. Rep. of Germany, Dec. 16, 1989, 3941662
Int. Cl.[5] C09D *11/00, 11/16*
U.S. Cl. 106—20 11 Claims

1. A water-based writing fluid having at least one additive which reduces drying of the writing fluid at the point of a writing utensil, the additive comprising an ether having a polyglycol radical and a single alcohol of the formula $C_xH_{2x+1}—O—(CH_2—CH_2—O)_nH$, whose gel point is greater than 30° Celsius, which is dispersed in the aqueous writing fluid, the value of x being greater than or equal to 16 and less than or equal to 18 and the value of n being not greater than 8.

5,066,330

PAINTABLE COMPOSITIONS FOR PROTECTING METAL AND CERAMIC SUBSTRATES

Cressie E. Holcombe, Jr., Farragut, and Lloyd R. Chapman, Knoxville, both of Tenn., assignors to ZYP Coatings, Oak Ridge, Tenn.

Continuation-in-part of Ser. No. 205,090, Jun. 10, 1988, Pat. No. 4,898,618. This application Dec. 20, 1989, Ser. No. 453,866
The portion of the term of this patent subsequent to Feb. 6, 2007, has been disclaimed.
Int. Cl.[5] C09K *15/02*
U.S. Cl. 106—287.34 19 Claims

1. A paintable composition for producing, when dry, a coating for metal and ceramic substrates to inhibit deleterious reactions and emissions during elevated temperature operation and thermal cycling, said composition consisting essentially of:

about 6 to about 38 wt % aqueous silica-containing liquid having about 27±9 wt % silicon dioxide;

about 4.5 to about 10 wt % of at least one transition metal component selected from oxides and precursors of oxides of cobalt, chromium, iron, manganese, nickel, titanium, zinc and zirconium;

about 45 to about 65 wt % of a refractory filler material; and up to about 33 wt % aqueous diluent.

5,066,331

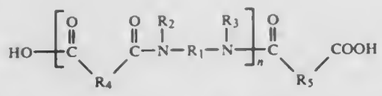
WATER-SOLUBLE ROSIN POLYAMIDE RESINS

G. Frederick Hutter, Charleston, S.C., assignor to Westvaco Corporation, New York, N.Y.

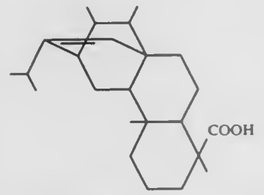
Filed Dec. 21, 1989, Ser. No. 454,416
Int. Cl.[5] C09D *11/08*
U.S. Cl. 106—30 29 Claims

15. A water soluble resin comprising at least one compound of the general form:

VOL 1132 ISS 3 NO 19 1991 UMI



wherein R_1=alkylene and R_2 and R_3 are alkyl; or wherein R_1=alkylene, R_2+R_3=alkylene and R_1, R_2, and R_3, together with the two nitrogens to which they are bonded, form a nitrogen-containing heterocyclic ring system, where at least one R_4 or R_5 is of the general form:



and any remaining R_4 or R_5 are independently alkylene, cycloalkylene or phenylene and wherein n=a positive integer.

5,066,332

LOW CORROSION HOT MELT INK

Edward A. Brown, Kent; John P. N. Haxell, Bath, and Derek E. Wilson, Somerset, all of Great Britain, assignors to Coates Electrographics Limited, Bath, England

Filed May 23, 1990, Ser. No. 528,103
Int. Cl.[5] C09D *11/12*
U.S. Cl. 106—31 10 Claims

1. A hot melt ink comprising a coloring agent, a thermoplastic vehicle containing the coloring agent, and 0.5 to 10 weight percent of a corrosion inhibitor selected from the group consisting of a basic heat stable metallo-organic sulphonate and overbased sulphurized metallo-phenate.

5,066,333

FILLER FOR PATTERNING OF CERAMICS PRODUCT AND PROCESS FOR PRODUCING THE SAME

Yutaka Tomioka; Satoru Nakanishi; Seizi Shintake, and Hideki Yoneda, all of Kitakyushu, Japan, assignors to Toto Ltd., Fukuoka, Japan

Filed Nov. 13, 1989, Ser. No. 436,302
Claims priority, application Japan, Nov. 16, 1988, 63-290775
Int. Cl.[5] C04B *14/00*
U.S. Cl. 106—400 15 Claims

1. A filler for patterning a ceramics product, wherein said ceramics product exhibits, upon firing, specific shrinkage and water absorption properties, and wherein the filler is dispersed into the ceramics product to impart a natural stone grain pattern to the ceramics product, the filler comprising

(a) a ceramics base material, said ceramics base material being present in the filler in an amount such that, and having a composition sufficiently similar to the composition of the ceramics product such that, upon firing, the filler exhibits substantially the same shrinkage and water absorption properties as the ceramics product;

b) a pigment; and

c) a binder effective substantially to prevent swelling or dissolution of the filler during mixing with a slip for the ceramics product.

5,066,334

FUNGICIDAL AND CORROSION INHIBITING PAINT PIGMENTS

John D. Pera, Cordova; Loel L. Hickman, Memphis, both of Tenn., and Lawrence S. Conoway, Dundee, Miss., assignors to Buckman Laboratories International, Inc., Memphis, Tenn.

Filed Dec. 19, 1989, Ser. No. 451,604
Int. Cl.[5] C09C *1/02*
U.S. Cl. 106—462 16 Claims

1. A silica-coated calcium pyroborate pigment in particulate form having an effective diameter of less than 40 microns, comprising hydrated calcium pyroborate hydrogen bonded to a polymerized amorphous hydrated silica containing both Si—O—Si and Si—OH bonds.

5,066,335

GLASS-LIKE POLYSACCHARIDE ABRASIVE GRIT

Christopher C. Lane, Laprairie; Ruben P. Lenz, Laval-sur-le-Lac, and Costa Athanassoulias, Montreal, all of Canada, assignors to Ogilvie Mills Ltd., Montreal, Canada

Filed May 2, 1989, Ser. No. 346,504
Int. Cl.[5] B08B *7/00*
U.S. Cl. 134—7 47 Claims

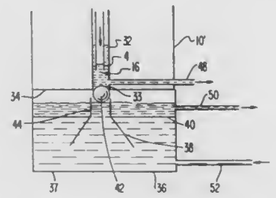
1. A method comprising the step of treating a surface with particulate, wherein the particulates are glass-like polysaccharide particles which are projected against the surface to be treated.

5,066,336

METHOD FOR CLEANING REAGENT DELIVERY PROBES

Julie F. Hoffman, Durham, N.C., and Lionel D. Jones, II, Ventura, Calif., assignors to Akzo N.V., Arnhem, Netherlands

Division of Ser. No. 443,954, Dec. 1, 1989, Pat. No. 4,989,623.
This application Sep. 29, 1990, Ser. No. 588,168
Int. Cl.[5] B08B *9/00, 9/02, 9/06*
U.S. Cl. 134—22.12 11 Claims



1. A process for cleaning a hollow delivery probe, used in a sample handling system, said probe having a free end, said process comprising:

forcing a cleaning solution through at least a portion of the probe to expel the cleaning solution from the free open end of the probe; and

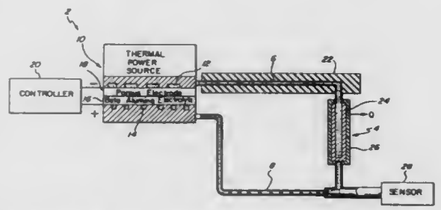
deflecting the expelled cleaning solution onto the outside of the probe by directing the expelled cleaning solution into a recess having a closed bottom and which is shaped for creating a fountain of the expelled cleaning solution wherein the deflected amount is sufficient to clean the outside of the probe.

5,066,337

THERMAL POWER TRANSFER SYSTEM USING APPLIED POTENTIAL DIFFERENCE TO SUSTAIN OPERATING PRESSURE DIFFERENCE

Pradeep Bhandari, Glendora, and Toshio Fujita, Arcadia, both of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Aug. 16, 1990, Ser. No. 568,130
Int. Cl.[5] H01L *37/00*
U.S. Cl. 136—202 6 Claims



1. A thermal power transfer system using a phase change liquid-gas fluid in a closed loop configuration, comprising:

a gas conduit;

a liquid conduit;

a heat exchange member for inputting thermal energy into the fluid so that the pressure of the gas conduit is higher than the liquid conduit;

barrier means between the gas conduit and the liquid conduit to maintain a pressure differential while permitting transmission of the fluid through the barrier means, including a solid electrolyte member having the capability of transmitting ions of the fluid through the electrolyte member and a porous electrode operatively positioned relative to the electrolyte member for creating an electrical field across the electrolyte member to drive the ions of the fluid through the solid electrolyte member;

means, attached to the electrode member, for applying an electrical field to force the ions of the fluid from the lower pressure liquid conduit to the higher pressure gas conduit, and

means, connected to the gas conduit and liquid conduit for outputting thermal energy.

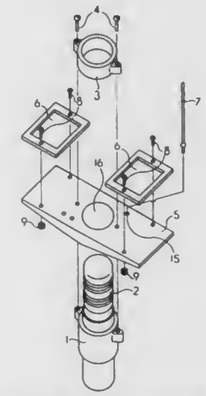
5,066,338

SOLAR POWERED NAVIGATION BUOY GENERATOR

Roy D. Meyers, 15 Cooper St., Lake George, N.Y. 12845

Filed Apr. 13, 1990, Ser. No. 512,130
Int. Cl.[5] H01L *31/042;* B63B *22/00*
U.S. Cl. 136—244 1 Claim

1. A solar generating system designed to convert existing navigation buoys using conventional throw-away batteries to more economical rechargeable batteries lasting several years, said invention comprising a flat rectangular stainless steel mounting platform with two solar panels and two flexible antennas mounted on said platform and a hole punched in the center of said platform in the space between said two solar panels and sized to fit over the existing caisson of said buoy and adapted to be secured in place on said existing buoy caisson by means of the existing lens locking nut and security bolt of said caisson, a wiring harness connected to said solar panels mounted on said flat rectangular stainless steel platform adapted to extend through the wall of said buoy caisson and to connect with said rechargeable battery, further including a



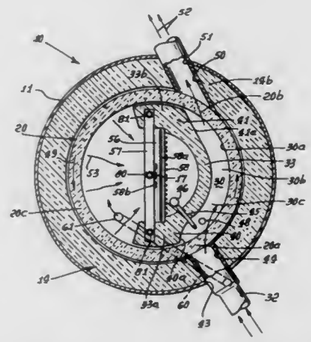
series connected blocking diode to prevent the battery from discharging during dark periods.

5,066,339

ROTARY RADIATING BED THERMOPHOTOVOLTAIC PROCESS AND APPARATUS

James G. P. Dehlsen, 21221 Carriage Dr., Tehachapi, Calif. 93561

Filed Apr. 26, 1990, Ser. No. 514,921
Int. Cl.[5] H01L *31/058*
U.S. Cl. 136—253 25 Claims



1. A combustion/emitter/regeneration process capable of operating at high temperature for sustained periods of time, that includes

a) flowing reactants including fuel and air to a combustion zone,

b) adding recuperated heat to at least two of the reactants flowing to said zone,

c) combusting the reactants at said zone to produce combustion products at high temperature,

d) extracting heat from said combustion products for return to said at least one of the reactants as said recuperated heat,

e) removing the products of combustion at reduced temperature, and

f) providing a porous bed at and to which said extracted heat is transferred,

g) rotating said bed about a rotation axis,

VOL 1132 ISS 3 NO 19 1991 UMI

h) and radiating light from said hot rotary bed and converting said radiated light into photovoltaic produced electricity,

i) said bed having a cylindrical wall, and said step a) including flowing relatively cooler air through heated extents of said rotating bed wall into said combustion zone,

j) said step d) including flowing said high temperature combustion products through said rotating bed wall to transfer heat thereto,

k) causing said cooler air to flow through the bed at a first location, and causing said combustion products to flow through the bed at a second location spaced about said axis from said first location,

l) and providing and locating a photovoltaic cell within a hollow interior defined by the bed, to receive incident light radiating inwardly from said bed spaced from said second location and said first location.

5,066,340

PHOTOVOLTAIC DEVICE

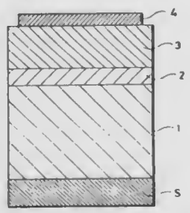
Masayuki Iwamoto, Hyogo; Kouji Minami, and Toshihiko Yamaoki, both of Osaka, all of Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Aug. 6, 1990, Ser. No. 563,567

Claims priority, application Japan, Aug. 9, 1989, 1-206143

Int. Cl.[5] H01L *31/075, 31/0368, 31/0376*

U.S. Cl. 136—258 **5 Claims**



1. A photovoltaic device comprising a crystalline layer of a first conductivity type formed of crystalline silicon semiconductor material; an amorphous layer of the opposite conductivity type formed of amorphous silicon semiconductor material, and a microcrystalline layer composed of substantially intrinsic microcrystalline silicon semiconductor material, provided between said crystalline layer and said amorphous layer.

5,066,341

METHOD OF CONDITIONING AN ARTICLE OF SHAPE MEMORY METALLIC ALLOY HAVING TWO REVERSIBLE SHAPE MEMORY STATES

Guy Grenouillet, Villers-le-Lac, France, assignor to Nivarox-FAR S. A., Switzerland

Filed Jan. 26, 1990, Ser. No. 471,140

Claims priority, application Switzerland, Feb. 8, 1989, 00428/89

Int. Cl.[5] C21D *8/00*

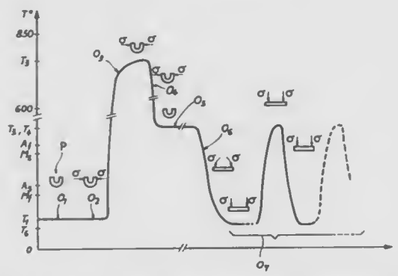
U.S. Cl. 148—11.5 C **8 Claims**

1. A method of conditioning an article made from metallic alloy capable of undergoing reversible transformation from the crystallographic phase state of the austenitic type to the crystallographic phase state of the martensitic type for causing the article to have a reversible memory of two shape memory states, which comprises:

holding the article under a mechanical stress at ambient temperature in the form constituting the first shape memory state,

maintaining the article under a mechanical stress in its first shape memory state while heating the mechanically held article to transform it into a state of the austenitic crystallographic phase while the article remains in its first shape memory state,

subjecting the article held under such mechanically stress in its first shape memory state to a sudden lowering of temperature and to thermal stabilization treatment, while preserving its austenitic state, and



subjecting the article to an education process in order to shape it into the second shape memory state.

5,066,342

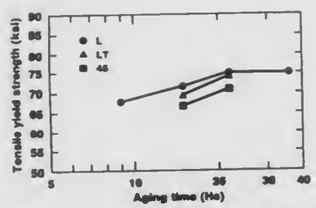
ALUMINUM-LITHIUM ALLOYS AND METHOD OF MAKING THE SAME

Roberto J. Rioja, Lower Burrell, Pa.; Joel A. Bowers, Bettendorf, Iowa, and R. Steve James, Gibsonia, Pa., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 149,802, Jan. 28, 1988. This application Jun. 19, 1989, Ser. No. 367,791

Int. Cl.[5] C22F *1/04*

U.S. Cl. 148—12.7 A **46 Claims**



1. A method of making lithium containing aluminum base flat rolled products having improved corrosion resistance and having improved toughness properties for plate and improved anisotropy for sheet, the method comprising the steps of:

(a) providing a body of aluminum base alloy consisting essentially of 0.2 to 5.0 wt. % Li, 0.05 to 6.0 wt. % Mg, at least 2.45 wt. % Cu, 0.1 to 1.0 wt. % Mn, 0.05 to 6.0 wt. % Zn, 0.5 wt. % max. Fe, 0.5 wt. % max. Si, at least one of the elements selected from the group Cr, V, Hf, Zr, Ti, Sc and Ce with Cr, V, Zr, Ti and Sc in the range of 0.01 to 0.2 wt. %, Hf up to 0.6 wt. % and Ce in the range of 0.01 to 0.5 wt. %, Mg and Zn maintained in a ratio in the range of 0.1 to less than 1, the balance aluminum and incidental impurities;

(b) bringing the body to a temperature for at least one low temperature hot working operation to put said body in a condition for recrystallization;

(c) subjecting said body to at least one controlled low temperature hot working operation to provide an intermediate product;

(d) recrystallizing said intermediate product;

(e) hot working the recrystallized product; and

(f) solution heat treating, quenching and aging said recrystallized and hot worked product to provide a product having a metallurgical structure generally lacking intense work texture characteristics, the product having said improved level of properties.

5,066,343

PROCESS FOR PREPARATION OF THIN GRAIN ORIENTED ELECTRICAL STEEL SHEET HAVING SUPERIOR IRON LOSS AND HIGH FLUX DENSITY

Shozaburo Nakashima; Kenzo Iwayama, and Isao Iwanaga, all of Kitakyushu, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

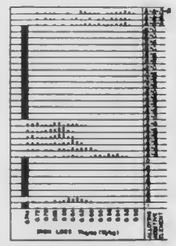
Filed May 7, 1990, Ser. No. 520,109

Claims priority, application Japan, May 13, 1989, 1-119145

The portion of the term of this patent subsequent to Aug. 14, 2007, has been disclaimed.

Int. Cl.[5] H01F *1/04*

U.S. Cl. 148—111 **2 Claims**



1. A process for the preparation of a thin grain oriented electrical steel sheet or strip having a reduced iron loss and a high flux density, which comprises casting a molten silicon steel to form a silicon steel strip having a thickness of 0.2 to 5 mm, by a synchronous continuous casting machine in which the relative movement speed of the cast strip to the inner wall surface of a casting mold is the same, which molten steel comprises 0.050 to 0.120% by weight of C, 2.8 to 4.0% by weight of Si and 0.05 to 2.25% by weight of Sn, annealing the cast steel strip at a temperature of at least 920° C. for at least 30 seconds, rolling the annealed strip at a reduction ratio of 81 to 95% at final cold rolling to obtain a final thickness of 0.05 to 0.25 mm, subjecting the resulting cold rolled steel strip to decarburization annealing, coating the decarburized steel with an anneal separator and subjecting the steel strip to finish annealing, wherein the starting cast strip further comprises up to 0.035% by weight of S and 0.005 to 0.035% by weight of Se, with the proviso that the total amount of S and Se is in the range of 0.015 to 0.060% by weight, 0.050 to 0.090% by weight of Mn, with the proviso that the Mn content is in the range of {1.5×[content (% by weight) of S+content (% by weight) of Se[} to {4.5×[content (% by weight) of S+content (% by weight) of Se]} % by weight, 0.0050 to 0.0100% by weight of N, and {[27/14]×content (% by weight) of N+0.0030} to {[27/14]×content (% by weight) of N+0.0150} % by weight of acid-soluble Al, with the balance comprising Fe and unavoidable impurities.

5,066,344

PROCESS FOR PRODUCING AN ENDLESS BELT

Junichi Inami, Nara; Koozi Kikuta, Osaka; Satoshi Nakane, Nara; Kazumi Fujito, Osaka, and Hitoshi Hirosawa, Kyoto, all of Japan, assignors to Nitta Industries Corporation, Osaka, Japan

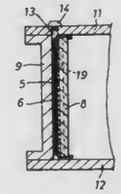
Continuation of Ser. No. 159,742, Feb. 24, 1988, abandoned. This application Feb. 13, 1990, Ser. No. 479,191

Claims priority, application Japan, Feb. 27, 1987, 62-45750; Feb. 27, 1987, 62-45751; Feb. 27, 1987, 62-45752

Int. Cl.[5] F16G *1/28*

U.S. Cl. 156—138 **15 Claims**

1. A process for producing an endless belt including a belt main body prepared from a liquid castable elastomeric material and a reinforcing fabric provided on a surface of the main body, wherein the process comprises: forming a liquid impermeable shock absorbing layer made of an elastomeric material on an inner surface of the reinforcing fabric; fitting the reinforcing fabric in a first mold die with the impermeable shock absorbing layer being exposed to another mating mold die;



forming an interspace between the fitted reinforcing fabric and the mating mold die; injecting the liquid castable elastomeric material at a pressure of up to 2 kg f/cm^2; and after filling of said interspace, applying a pressure to the injected material of from 10 to 30 kg f/cm^2 to firmly press the reinforcing fabric onto the first mold die without the cast elastomeric material permeating the reinforcing fabric.

5,066,345

APPARATUS AND METHOD FOR SPLICING WEBS OF INDETERMINATE LENGTH

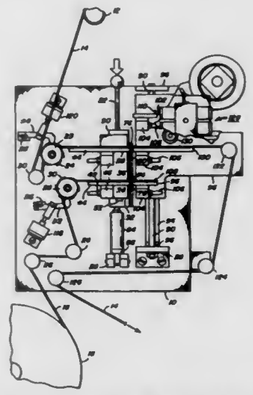
Michael Long; Lyndon R. Huttemann, both of Rochester; Robert W. Sanford, Wyoming, all of N.Y., and Robert D. Longboat, Ohsweken, Canada, assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 26, 1990, Ser. No. 471,159

The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.

Int. Cl.[5] B31F *5/00;* **B65H** *21/00*

U.S. Cl. 156—157 **14 Claims**



1. Apparatus for trimming the tail end of a first length of web and the lead end of a second length of web and for splicing such trimmed tail and lead ends together, comprising:

a first source of web of indeterminate length;

a second source of web of indeterminate length;

a first input platen for supporting web from said first source, said first platen having a first trailing edge;

a second input platen for supporting web from said second source, said second platen having a second trailing edge parallel to said first trailing edge;

means for selectively stopping movement of web from said

VOL
1132
ISS
3
NO
19
1991
UMI

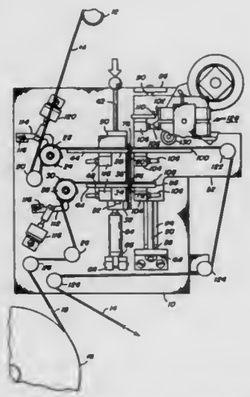
first and second sources across said first and second platens;
a process platen positioned opposite said trailing edges;
means for relatively moving said platens between a first position in which said process platen receives web from said first platen and a second position in which said process platen receives web from said second platen:
means operable in each of said first and second positions for cutting at said trailing edges web extending from both said first and said second sources, respectively, past said first and second trailing edges;
whereby a trimmed lead end of web on one of said first and second platens alternately may be abutted with and spliced to a trimmed tail end of web on said process platen as said means for moving shifts said platens between said first and second positions after actuation of said means for cutting; and
means for applying a strip of tape across such abutted tail and lead ends to splice them together.

5,066,346

APPARATUS AND METHOD FOR SPLICING WEBS OF INDETERMINATE LENGTH

Michael Long; Lyndon R. Huttemann, both of Rochester, and Robert W. Sanford, Wyoming, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 26, 1990, Ser. No. 471,176
The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.
Int. Cl.[5] B31F *5/00*; B65H *21/00*
U.S. Cl. 156—157 **13 Claims**



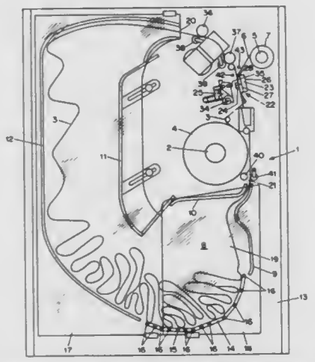
1. Apparatus for trimming the tail end of a first length of web and the lead end of a second length of web and for placing such trimmed tail and lead ends in abutment, comprising:
a first source of web of indeterminate length;
a second source of web of indeterminate length;
a first input platen for supporting web from said first source, said first platen having a first trailing edge;
a second input platen for supporting web from said second source, said second platen having a second trailing edge parallel to said first trailing edge;
means for selectively stopping movement of web from said first and second sources across said first and second platens;
a process platen positioned opposite said trailing edges;
means for relatively moving said platens between a first position in which said process platen receives web from said first platen and a second position in which said process platen receives web from said second platen; and
means operable in each of said first and second positions for cutting at said trailing edges web extending from both said first and said second sources, respectively, past said first and second trailing edges;
whereby a trimmed lead end of web on one of said first and second platens alternately may be abutted with a trimmed tail end of web on said process platen as said means for moving shifts said platens between said first and second positions after actuation of said means for cutting.

5,066,347

TAPE TRANSPORT APPARATUS AND METHOD OF INTRODUCING TAPE THERETO

Hirokazu Yoshida, Tokyo, Japan, assignor to Otari Electric Co. Ltd., Japan

Filed Jul. 11, 1988, Ser. No. 217,568
Claims priority, application Japan, Jul. 11, 1987, 62-173399
Int. Cl.[5] B31F *5/06*; B65H *69/06*
U.S. Cl. 156—159 **7 Claims**



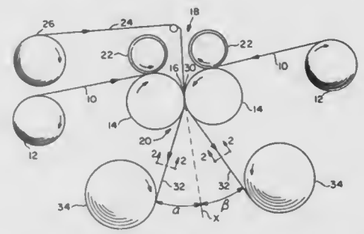
1. In a tape transport apparatus for manipulating leader tape and magnetic tape and for bidirectionally utilizing an endless-loop magnetic tape, wherein said tape transport apparatus comprises:
a loop-housing means for housing a variable length of tape and having first and second openings whereby tape may enter and exit said loop-housing means, the region between said two openings defining a tape handling path, said loop-housing means and said tape handling path defining a loop path for an endless-loop magnetic tape;
first guide means, splicing means, and second guide means disposed along the tape handling path between the said two openings, said first and second guide means disposed respectively toward said first and second openings;
tape transport means disposed along the tape handling path for running tape at one of said two openings in a first direction and in the opposite direction, and for running tape at the other of said two openings in a first direction and in the opposite direction;
said first guide means having a first position and a second position, said positions respectively guiding to the splicing means either tape from a reel means or tape from said first opening, said reel means capable of controllably supplying additional magnetic tape to said loop path and of controllably withdrawing magnetic tape from said loop path;
said second guide means having a first position and a second position, said positions respectively guiding to the splicing means either tape from said second opening or tape from a leader-tape housing means, said leader-tape housing means capable of controllably supplying leader tape to said loop path and of controllably withdrawing leader tape from said loop path;
said splicing means embracing the tape handling path between said first and second guide means, for cutting the tape guided to it by the said first and second guide means, and for splicing the tape guided to it by the said first and second guide means;
and wherein leader tape from the leader-tape housing means has initially been directed from the leader-tape housing means, through the second guide means, through the splicing means, through the first guide means, through the first opening of the loop-housing means, through the loop-housing means, through the second opening of the loop-housing means, and through the second guide means, and wherein magnetic tape from the reel means has initially been directed to the first guide means, said first and second guide means being in said first and first positions respectively, whereby an end of the magnetic tape from the reel means and an end of the leader tape are juxtaposed;
the method for establishing an endless loop of magnetic tape comprising the steps of:
actuating the splicing means so as to cut and splice the juxtaposed ends;
actuating the leader-tape housing means, the reel means, and the tape transport means to withdraw the leader tape from the first opening of the loop-housing means and to introduce a selected length of magnetic tape into the second opening of the loop-housing means;
actuating the splicing means so as to cut the magnetic tape between the reel means and the second opening of the loop-housing means and the magnetic tape between the first opening of the loop-housing means and the leader-tape housing means;
placing the first guide means in said second position, whereby ends of the magnetic tape from the loop-holding means are juxtaposed; and
actuating the splicing means so as to splice the juxtaposed ends;
whereby an endless loop of magnetic tape of said selected length is established in the loop path.

5,066,348

METHOD OF MAKING A FLANNELIZED FILM

James H. Manning, Neenah, Wis., assignor to James River Corporation, Richmond, Va.

Filed Dec. 4, 1989, Ser. No. 445,028
Int. Cl.[5] B32B *31/08*
U.S. Cl. 156—164 **6 Claims**



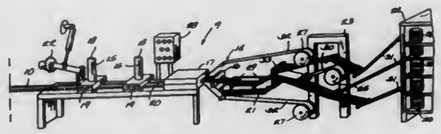
1. A method of making a flannelized film having a flannel cloth-like texture comprising:
feeding a plurality of layers of plastic film between a plurality of rollers, the rollers meeting at a nip having a feed side and an exit side;
adhering an adhesive onto one surface of each layer of plastic film before the layers of plastic film reach the nip;
laminating a layer of creped tissue comprising a plurality of sinusoidal cellulosic fibers defining a nominal plane between the layers of plastic film, the sinusoidal fibers of said layer of creped tissue coming into contact with the surface of the plastic film having adhered adhesive to form an intermediate laminate structure;
splitting the intermediate laminate structure along the nominal plane of the creped tissue such that said sinusoidal fibers are split into a plurality of U-shaped fibers, a portion of the U-shaped fibers having components extending in a substantially perpendicular direction with respect to the plane of the plastic film to provide the flannel cloth-like texture; and
feeding the split intermediate laminate structure from the exit side of the nip to a plurality of take-up rollers.

5,066,349

PROCESS FOR PULTRUDING A COMPOSITE SIGN

Jack E. Perko, Cedarburg; Gary J. Wirth, Milwaukee, and Brian A. Foxgrover, Wauwatosa, all of Wis., assignors to W. H. Brady Co., Milwaukee, Wis.

Division of Ser. No. 283,984, Dec. 16, 1988, Pat. No. 4,935,279, which is a continuation-in-part of Ser. No. 148,824, Jan. 27, 1988, abandoned. This application Jan. 22, 1990, Ser. No. 468,447
Int. Cl.[5] G09F *19/00*; B29C *55/30*
U.S. Cl. 156—166 **10 Claims**



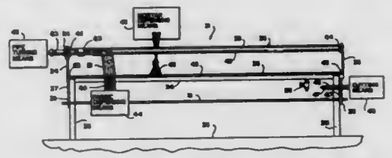
1. A process for making a sign, comprising:
printing a plurality of discrete sign panels;
affixing each sign panel to a fibrous component of the sign to make a longitudinally continuous sign panel subassembly having said plurality of sign panels spaced along the length of said subassembly;
pulling the sign panel subassembly into a die which defines the shape of a desired cross-section for the sign while holding the sign panel subassembly under tension;
saturating the sign panel subassembly with a hardenable resin;
hardening the resin in the die to that the resin retains the shape of the die when it exits the die to form a continuous pultrusion and encapsulate said sign panel subassembly; and
cutting off the pultrusion after it exits the die.

5,066,350

METHOD OF APPLYING A REFRACTORY COATING TO A CONDUIT

Harry P. Sullins, Blythewood, S.C., assignor to Richland Industrial, Inc., Columbia, S.C.

Continuation of PCT/US88/00029, Jan. 12, 1988, which is a continuation of Ser. No. 903,794, Sep. 4, 1986, Pat. No. 4,729,548, and a continuation-in-part of Ser. No. 887,989, Jul. 25, 1986, Pat. No. 4,802,940, which is a continuation of Ser. No. 521,451, Aug. 8, 1983, abandoned, which is a continuation-in-part of Ser. No. 386,638, Jun. 9, 1982, abandoned. This application Dec. 15, 1988, Ser. No. 349,735
The portion of the term of this patent subsequent to Feb. 7, 2006, has been disclaimed.
Int. Cl.[5] B65H *81/00*
U.S. Cl. 156—187 **15 Claims**



1. A method for applying a refractory coating to an elongated conduit, said method comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

mounting said conduit for axial rotation relative to a trough containing a liquid refractory coating composition;
passing a web of porous material from a web dispensing means through said trough in a position below the surface of said liquid to coat said web with said liquid;
securing said web to said conduit by placing a leading end portion of said web against said conduit to extend longitudinally along a portion of the outer surface of said conduit, wrapping an adjacent portion of said web around said conduit so that said leading end portion crosses under a first complete turn of said adjacent portion and extends beyond said first turn and between an edge of said first turn and an opposing edge of a second complete turn of said adjacent portion, and tensioning said web such that said adjacent portion of the web is drawn tightly around said conduit, the tensioning of said web causing said leading end portion to be tucked tightly under said first turn and to be engaged between said edge of said first turn and said opposing edge of said second turn so as to secure the beginning of a wrapping of said web to said conduit;
turning said conduit to pull said secured web from said web dispensing means and to wrap additional portions of said secured web around said conduit; and,
causing relative movement between said web dispensing means and said turning conduit in a direction parallel to the axis of said conduit to provide on the outer surface of said conduit a coating in the form of tightly wound spiral windings of said coated web extending along a coated length of said conduit.

5,066,351

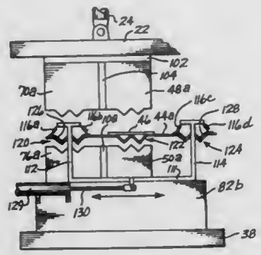
HOT/COLD PRESS FORMING METHODS FOR SHAPING THERMOFORMABLE MATERIALS

Frederick L. Knoll, Kent, Wash., assignor to The Boeing Company, Seattle, Wash.

Division of Ser. No. 233,639, Aug. 18, 1988, Pat. No. 4,948,355, which is a continuation-in-part of Ser. No. 52,622, May 20, 1987, Pat. No. 4,789,328. This application May 31, 1990, Ser. No. 531,998

Int. Cl.[5] B29C *31/08, 31/10, 51/20, 51/42*

U.S. Cl. 156—212 **55 Claims**



1 A method of forming and shaping a workpiece made of thermoformable material using a first pair of forming means at a first temperature and a second pair of forming means at a second temperature, which comprise the steps of:
(a) providing a tray means suspended in midair by suspension means;
(b) loading said workpiece made of thermoformable material on said tray means suspended in midair;
(c) moving said first pair of forming means horizontally into position above said workpiece and below said tray means;
(d) closing said first pair of forming mean against said workpiece and said tray means to heat said workpiece and to form and shape said workpiece into a formed workpiece of desired configuration;
(e) opening said first pair of forming means and moving said first pair of forming means horizontally away from said formed workpiece and said tray means;
(f) moving said second pair of forming means horizontally into position above said formed workpiece and below said tray means;
(g) closing said second pair of forming means against said formed workpiece and said tray means to cool said formed workpiece while maintaining said formed workpiece in the desired configuration; and
(h) opening said second pair of forming means and unloading said formed and cooled workpiece.

5,066,352

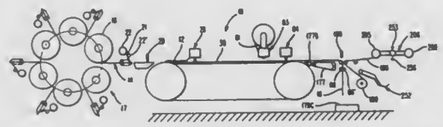
METHOD AND APPARATUS FOR FORMING COMPOSITE PIECES FROM COMPOSITE SHEET MATERIAL

Stephen J. Albers, Norwood; Michael N. Grimshaw; David A. Peterson, both of Milford; John H. Pugh, Mt. Carmel, and Jerry D. Wisbey, Cincinnati, all of Ohio, assignors to Cincinnati Milacron Inc., Cincinnati, Ohio

Filed Feb. 23, 1990, Ser. No. 484,728

Int. Cl.[5] B32B *31/00*

U.S. Cl. 156—265 **6 Claims**



1. A method for producing shaped composite pieces from composite sheet material including:
transporting composite sheet material from a supply source to a cutting position;
cutting the composite sheet material at the cutting position into segments;
transporting each of the cut segments of the composite sheet material to a support for supporting each of the cut segments;
cutting each of the cut segments of the composite sheet material supported by the support into at least one piece having any selected shape;
advancing each of the pieces having a selected shape from the support;
and separating each of the pieces having a selected shape from the remainder of each of the cut segments of the composite sheet material after advancement from the support.

5,066,353

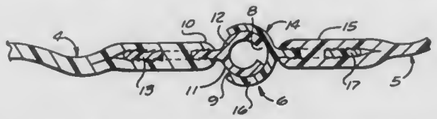
RETAINING WALL EMPLOYING FIBERGLASS PANELS FOR PREVENTING EROSION OF A SHORELINE AND METHOD FOR FABRICATING THE SAME

John L. Bourdo, Phoenix, Ariz., assignor to Durashore, Inc., Phoenix, Ariz.

Filed Sep. 21, 1990, Ser. No. 586,244

Int. Cl.[5] B32B *1/10;* **E02D** *5/02*

U.S. Cl. 156—300 **3 Claims**



1. A process of manufacture for a bulkhead retaining wall panel including the steps of:
a) emplacing a first layer constituting a mixture of fiberglass and curable resin on a support medium, said first layer, when emplaced, having a top edge boundary; a bottom edge boundary; a first side edge boundary; a second side edge boundary; a first face; and a second face;

b) positioning an elongated male interlocking unit along said first side edge boundary of said first layer, said male interlocking unit being characterized by a cross sectional shape which includes a male interlocking portion and a tail portion, said male interlocking unit being positioned such that only its tail portion overlays said first face of said first layer;
c) positioning an elongated female interlocking unit along said second side edge boundary of said first layer, said female interlocking unit being characterized by a cross sectional shape which includes a female interlocking portion and a tail portion, said female interlocking unit being positioned such that only its tail portion overlays said first face of said first layer; claim 5 cont.
d) emplacing a second layer constituting a mixture of fiberglass and curable resin over said first layer, said second layer having a top edge boundary; a bottom edge boundary; a first side edge boundary; a second side edge boundary; a first face; a second face; and substantially the same dimensions as said first layer; such that said top, bottom and first and second side edge boundaries of each said layer are coextensive with said second face of said second layer overlaying said first face of said first layer whereby the tail portions of said male and female interlocking units are captured therebetween; and
e) allowing the assembly effected during steps A), B), C) and D) to cure.

5,066,354

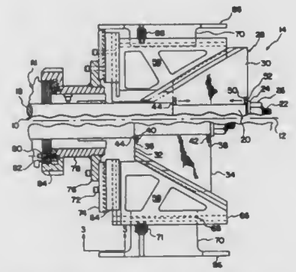
BUILDING DRUM FOR A TIRE BELT-TREAD STOCK PACKAGE

Gary H. Benjamin, Kenton, Ohio, assignor to Cooper Tire and Rubber Company, Findlay, Ohio

Filed May 25, 1990, Ser. No. 529,091

Int. Cl.[5] B29D *30/24*

U.S. Cl. 156—414 **10 Claims**



1. A tire building drum with an expandable and contractible building surface comprising:
means defining a centerline for the building drum;
an adjusting member including a cone surface coaxially positioned about said centerline;
means for axially advancing and retracting said adjusting member along said centerline;
a plurality of slides and means supporting and constraining said slides for movement radially of said centerline, said slides having slidable connections to said cone surface;
a drum segment connected to each said slide and cooperating to define a building surface on the drum;
whereby said slides are mechanically connected for movement radially with respect to said centerline in response to motion of said adjusting member axially of said centerline to expand and contract the effective building surface of the drum;
a plurality of annular shoe members each supporting one of said drum segments, each said shoe member having an adjustable mounting to one of said slides;
said annular shoe members each having complementary scalloped first and second edges transverse to the building surface such that said scalloped edges of adjacent said shoe members cooperate with each other to provide partial building surface continuity as the shoe members are concurrently moved in and out to different locations along radii of the drum.

5,066,355

METHOD OF PRODUCING HETERO STRUCTURE

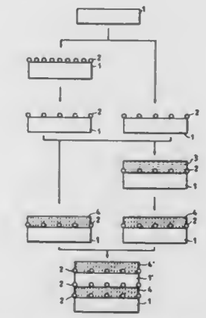
Masanobu Miyao; Kiyokazu Nakagawa, both of Saitama; Kiyonori Ohyu, Tokyo; Eiichi Murakami, Tokyo, and Takashi Ohshima, Tokyo, all of Japan, assignors to Agency of Industrial Science and Technology, Tokyo, Japan

Filed Nov. 16, 1989, Ser. No. 438,290

Claims priority, application Japan, Nov. 19, 1988, 63-291101

Int. Cl.[5] C30B *23/02, 25/14*

U.S. Cl. 156—612 **7 Claims**



1. A method of producing a hetero structure, comprising the steps of depositing hydrogen atoms or halogen atoms onto a surface of a first single crystal layer formed of semiconductor or metal silicide, and forming a second single crystal layer on said first single crystal layer by hetero epitaxial growth, said second single crystal layer being formed of semiconductor or metal silicide having a different lattice constant from the lattice constant of the material forming said first single crystal layer, wherein both of said steps are continuously conducted without taking said hetero structure out of a producing apparatus.

5,066,356

HYDROTHERMAL PROCESS FOR GROWING OPTICAL-QUALITY SINGLE CRYSTALS

August Ferretti, Wilmington, Del., and Thurman E. Gier, Chadds Ford, Pa., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 5, 1990, Ser. No. 461,562

Int. Cl.[5] C30B *7/10*

U.S. Cl. 156—623 R **20 Claims**

1. An improved hydrothermal process for growing a crystal of $MTiOXO_4$, wherein M is selected from the group consisting of K, Rb, Tl and NH_4 and mixtures thereof and X is selected from the group consisting of P and As and mixtures thereof, at an elevated temperature in a pressure vessel which has a growth region wherein said crystal grows and a nutrient region containing nutrient for growing said crystal; said process employing an aqueous mineralizer solution and a growth region temperature which is lower than the nutrient region temperature, the improvement comprising employing an aqueous mineralizer solution in which the concentration of M is at least about 8 molar, and is 20 molar or less, and also employing a nutrient region temperature of about 450° C. or less during crystallization.

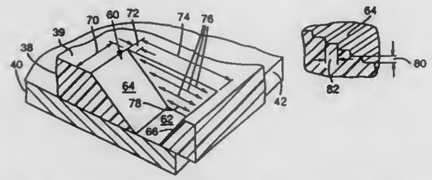
VOL 1132 ISS 3 NOV 19 1991 UMI

5,066,357

METHOD FOR MAKING FLEXIBLE CIRCUIT CARD WITH LASER-CONTOURED VIAS AND MACHINED CAPACITORS

John B. Smyth, Jr., and Ellen R. Tappon, both of Corvallis, Oreg., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 11, 1990, Ser. No. 463,695
Int. Cl.[5] B44C 1/22; B29C 37/00
U.S. Cl. 156—643 25 Claims



1. A method of forming a circuit conductor on an upper surface of a polymer substrate, the method comprising:

forming a trench in the substrate having a base spaced a predetermined distance below the substrate upper surface;

contouring the trench to include at least one lengthwise end wall defining a ramp extending at an obtuse angle between the substrate upper surface and the base of the trench; and

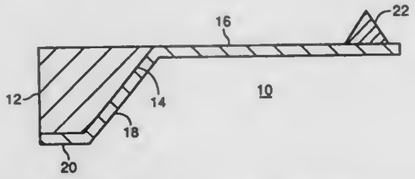
depositing and patterning an upper conductive layer to form a line trace including portions extending lengthwise continuously over a portion of the substrate upper surface, down the ramped end wall and along the base of the trench.

5,066,358

NITRIDE CANTILEVERS WITH SINGLE CRYSTAL SILICON TIPS

Calvin F. Quate, and Marco Tortonese, both of Stanford, Calif., assignors to Board of Trustees of the Leland Stanford Juninor University, Stanford, Calif.

Filed Oct. 27, 1988, Ser. No. 427,788
Int. Cl.[5] G01B 5/28; H01L 21/306
U.S. Cl. 156—647 12 Claims



1. A method of forming a microfabricated cantilever with an integral silicon tip at the free end thereof, comprising the steps of:

providing a (100) silicon substrate having a top surface and a bottom surface;

providing a top layer of doped silicon material on the top surface of said silicon substrate;

forming a top layer of silicon dioxide on the top layer of doped silicon material;

patterning and etching said top layer of silicon dioxide to provide a tip mask for subsequent formation of a silicon tip in said top layer of doped silicon material;

patterning and etching a top portion of the silicon substrate immediately beneath the top layer of doped silicon material and the top layer of doped silicon material so as to define a cantilever pattern with the tip mask being positioned to be near a free end of a cantilever to be subsequently formed;

forming a bottom layer of silicon dioxide on the bottom surface of said silicon substrate;

patterning and etching said bottom layer of silicon dioxide to define a masking aperture in the bottom silicon dioxide layer;

anisotropically etching said silicon substrate from the bottom surface of said silicon substrate through said masking aperture, said anisotropic etching stopping at the top layer of doped silicon material layer to release a cantilever free end of the patterned top layer of doped silicon material from the silicon substrate, said anisotropic etching removing all of the crystal planes of the silicon substrate except the (111) planes to leave a silicon base having an oblique surface and from which extends the free end of the top layer of the doped silicon material as a doped silicon cantilever member;

removing the bottom layer of silicon dioxide;

forming a layer of nitride over a bottom surface of the doped silicon cantilever member and the bottom and oblique surfaces of the silicon substrate to form a nitride cantilever beneath the doped silicon layer;

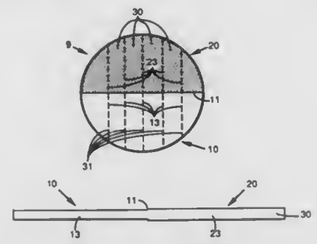
selectively removing the top layer of doped silicon material with the tip mask thereupon to form a pointed silicon tip beneath said tip mask near the free end of the nitride cantilever and to provide a nitride cantilever having an integrally formed silicon tip at the free end thereof.

5,066,359

METHOD FOR PRODUCING SEMICONDUCTOR DEVICES HAVING BULK DEFECTS THEREIN

Herng-Der Chiou, Tempe, assignor to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 4, 1990, Ser. No. 577,183
Int. Cl.[5] H01L 21/306; B44C 1/22
U.S. Cl. 156—651 16 Claims



1. A method for fabricating semiconductor devices or circuits having bulk defects therein, comprising:

providing a highly doped N-type semiconductor wafer containing a dissolved precipitatable impurity and having opposed principal surfaces;

lapping one or more surfaces leaving lapping damage therein;

etching the lapped surface to remove some but not all of the lapping damage;

heating the wafer to create bulk defects by lapping damage enhanced precipitating of the dissolved impurity; and thereafter

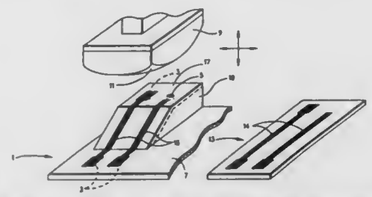
etching the lapped surface to remove the remaining lapping damage.

5,066,360

PAD PRINTING OF RESIST OVER VIA HOLES

Lawrence R. Daley, and Gerald G. Leslie, II, both of Lexington, Ky., assignors to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 24, 1990, Ser. No. 586,923
Int. Cl.[5] B44C 1/22; C23F 1/02
U.S. Cl. 156—660 6 Claims



1. A method of electrical circuit manufacture comprising applying a resist material to a transfer surface in a pattern, moderately hardening said applied resist material, transferring said pattern by applying said transfer surface to a metalized circuit board having at least one metalized via at a position at which said pattern covers said via, further hardening said resist material in a pattern defining an electrical circuit and covering said via, and then forming a circuit pattern by etching said circuit board carrying said further-hardened resist material while said via is protected from being etched by said resist material covering said via.

5,066,361

METHOD AND PRODUCT FOR IMPROVED GLASS FIBER REINFORCED AND FILLED THERMOPLASTIC AND THERMOSETTING RESIN SYSTEMS

Jonathan Scharf, 364-A7 St. Andrews Rd., Glenmoore, Pa. 19343

Filed May 15, 1990, Ser. No. 524,402
Int. Cl.[5] B44C 1/22; C03C 15/00, 25/06
U.S. Cl. 156—663 19 Claims

1. A method of providing improved glass fiber reinforced and filled resin systems, comprising the steps of:

etching the glass fiber material;

silanating the etched glass fiber material; and

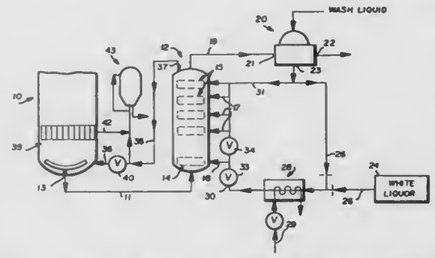
applying a resin to the etched silanated glass fiber material.

5,066,362

EXTENDED DELIGNIFICATION IN PRESSURE DIFFUSERS

Michael D. Meredith, Glens Falls, N.Y., assignor to Kamyr, Inc., Glens Falls, N.Y.

Filed Dec. 1, 1987, Ser. No. 127,055
Int. Cl.[5] D21C 3/26
U.S. Cl. 162—17 5 Claims



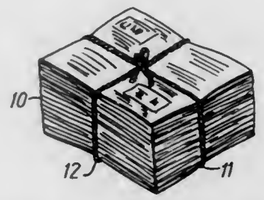
1. A method for effecting extended kraft delignification of pulp, comprising the steps of sequentially: (a) kraft cooking comminuted cellulosic fibrous material to produce kraft pulp in a continuous digester, the pulp from the digester having a blow temperature of over about 300° F.; (b) immediately after step (a), replacing the water around the pulp fibers with delignifying liquor having less than 12% dissolved solids, at least 2 gm/l effective alkali (Na_2O) concentration, and a temperature of at least about 300° F., so that the K-number of the pulp is significantly reduced; and (c) washing the pulp; and (d) adjusting the temperature or flow of the delignifying liquid with respect to the blow temperature of the pulp so as to optimize K-number reduction.

5,066,363

METHOD OF FORMING PULP BALES WITH DISSOLVABLE PVA BALING STRAP MATERIAL

Richard P. Lee, Hagerstown, Md.; Joseph F. Ley, DePere, Wis., and John A. Mortensen, Little Silver, N.J., assignors to C. M. Offray & Son, Inc., Chester, N.J.

Filed Aug. 3, 1990, Ser. No. 562,677
Int. Cl.[5] D21H 11/00
U.S. Cl. 162—100 10 Claims



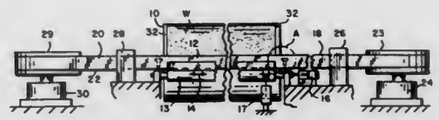
1. The method of handling and processing a bale of paper pulp laps which comprises binding a bale with one or more discrete straps, said straps comprising elongate increments of PVA yarns, PVA filaments or PVA strips maintained in mutually spaced condition, and thereafter immersing said bale in a pulping bath while still constrained by said strap or straps, whereby said PVA increments dissolve in said bath.

5,066,364

BLADE EDGE LOADING CONTROL FOR PULL THROUGH DOCTOR BLADE TRANSFER SYSTEM

Ronald F. Goodnow, Leicester, and Robert A. Reid, Charlton City, both of Mass., assignors to Thermo Electron-Web Systems, Inc., Auburn, Mass.

Filed Jun. 5, 1990, Ser. No. 533,289
Int. Cl.[5] B08B 1/02; D21G 3/00
U.S. Cl. 162—281 10 Claims



1. Apparatus for doctoring a moving surface having two lateral sides, said apparatus comprising: a flexible elongated doctor blade having a length greater than the width of said surface; a blade holder for supporting an intermediate portion of said blade at a location spanning the width of said surface; means for reciprocating said blade holder; means coacting with the reciprocation of said blade holder for shifting said blade longitudinally through said blade holder and across said surface from one side to the other side thereof; means for urging said blade holder in one direction to apply a loading force to the intermediate portion of said blade, thereby pressing a working edge of said blade against said surface; and adjustable

VOL 1132 ISS 3 NO 19 1991 UMI

means acting on said blade to relieve said loading force along the sides of said surface.

5,066,365

PROCESS FOR THE ISOLATION OF VINYL ACETATE BY DISTILLATION

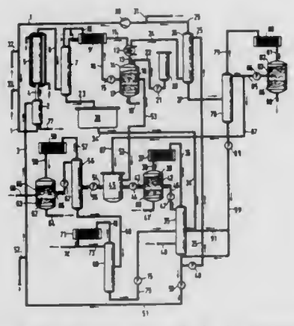
Günter Roscher, Kelkheim; Karl-Heinz Schmidt, Idstein/-Taunus; Klaus Eichler, Eschborn; Peter Hörstermann, Königstein/Taunus; Reinhard Gradl, Erftstadt, and Horst Langner, Hattersheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Oct. 15, 1990, Ser. No. 597,572

Claims priority, application Fed. Rep. of Germany, Oct. 17, 1989, 3934614

Int. Cl.[5] B01D *3/00*; C07C *67/54*

U.S. Cl. 203—042 6 Claims



1. A process for the isolation of vinyl acetate from a gas mixture containing vinyl acetate, ethyl acetate, acetic acid, water and carbon dioxide and being formed in the reaction of ethylene with acetic acid and oxygen in a reaction zone in the gas phase over catalysts containing palladium or palladium compounds, in which process

a) the gas mixture leaving the reaction zone is passed into a first distillation column yielding a gas mixture as a head product, and a product containing vinyl acetate, ethyl acetate, acetic acid, and water as a bottom product,

b) the gas mixture leaving at the head of the first distillation column is cooled to −20° C. to +50° C., as a result of which a condensate is formed from some portion of said gas mixture and then separates into an aqueous and an organic phase, while some portion of said gas mixture is not condensed,

c) the aqueous phase formed in step b) is removed,

d) the organic phase formed in step b) is reintroduced completely or in part as reflux at the head of the first distillation column used in step a) and any portion of the organic phase not used as reflux is removed,

e) said portion of the gas mixture not condensed in step b) and containing vinyl acetate is washed in a washing column with at least 90% aqueous acetic acid to give an acetic acid solution containing vinyl acetate at the bottom,

f) the bottom product of step a) containing vinyl acetate, ethyl acetate, acetic acid and water is passed to a second distillation column yielding a head vapor product and a bottom product and a side-stream containing ethyl acetate is removed from a concentration zone above the bottom thereof,

g) the bottom product of step f) containing acetic acid and water is used completely or in part for the gas washing in step e),

h) the head vapor of the step f) is cooled, as a result of which a condensate is formed and then separates into an aqueous and an organic phase,

i) the aqueous phase formed in step h) is removed,

k) a portion of the organic phase formed in step h) is reintroduced as reflux at the head of the second distillation column used in step f),

l) the remaining portion of the organic phase formed in step h) is removed,

which comprises

m) introducing the bottom product of the washing column used in step e) into a third distillation column yielding a bottom product and a head vapor product,

n) recycling the bottom product of the third distillation column used in step m) into the second distillation column used in step f) or into the washing column used in step e) or into the reaction zone,

o) cooling the head vapor product of stem m), as a result of which a condensate is formed and then separates into an aqueous and an organic phase,

p) removing the aqueous phase formed in step o),

q) re-introducing a portion of the organic phase formed in step o) as reflux at the head of the third distillation column used in step m),

r) passing the remaining portion of the organic phase formed in step o) together with the remaining organic phase removed in step l) and together with any remaining organic phase removed in step d) into a fourth distillation column yielding a head vapor product and a bottom product,

s) cooling the head vapor of step r), as a result of which a condensate is formed and then separates into an aqueous and an organic phase containing low-boiling components,

t) removing the aqueous phase formed in step s),

u) re-introducing the organic phase formed in step s) completely or in part as reflux at the head of the fourth distillation column used in step r) and removing any portion of the organic phase not used as reflux for separating off the low-boiling components,

v) passing the bottom product from step r) into a fifth distillation column,

w) removing pure vinyl acetate at the head of the fifth distillation column used in step v).

5,066,366

METHOD FOR MAKING FOIL

Lifun Lin, Hamden, Conn., assignor to Olin Corporation, Cheshire, Conn.

Filed May 4, 1990, Ser. No. 519,529

Int. Cl.[5] C25D *1/04*

U.S. Cl. 204—12 16 Claims

1. A process for making ultra-thin foil comprising:

providing a copper or copper alloy foil carrier,

cleaning said carrier,

thereafter treating said carrier with an aqueous solution of chromic acid and phosphoric acid to apply a film on said carrier to render a subsequent deposit of copper or copper alloy foil thereon to be strippable therefrom, and

depositing on said carrier an ultra-thin layer of copper or copper alloy.

5,066,367

LIMITING TIN SLUDGE FORMATION IN TIN OR TIN/LEAD ELECTROPLATING SOLUTIONS

Fred I. Nobel, Sands Point, and Barnet D. Ostrow, Roslyn, both of N.Y., assignors to Learonal Inc., Freeport, N.Y.

Continuation of Ser. No. 396,889, Aug. 22, 1989, which is a continuation of Ser. No. 188,233, Apr. 29, 1988, Pat. No. 4,871,429, which is a continuation of Ser. No. 852,063, Apr. 15, 1986, abandoned, which is a continuation-in-part of Ser. No. 778,353, Sep. 20, 1985, Pat. No. 4,617,097, and a continuation-in-part of Ser. No. 564,516, Dec. 22, 1983, Pat. No. 4,599,149, which is a continuation-in-part of Ser. No. 301,390, Sep. 11, 1981, abandoned. This application Sep. 20, 1990, Ser. No. 585,768

The portion of the term of this patent subsequent to Jan. 21, 2003, has been disclaimed.

Int. Cl.[5] C25C *3/32*; C25D *3/60*

U.S. Cl. 204—44.4 24 Claims

1. A solution for use in the electroplating of tin and tin-lead alloys comprising:

a divalent tin alkyl sulfonate;

an alkyl sulfonic acid in an amount sufficient to lower the pH of the solution to below about 3; and

a reducing agent in an amount sufficient to assist in keeping the tin in the divalent state.

5,066,368

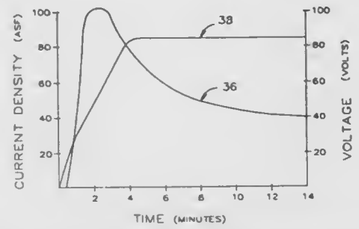
PROCESS FOR PRODUCING BLACK INTEGRALLY COLORED ANODIZED ALUMINUM COMPONENTS

Anthony M. Pasqualoni, Hamden; Deepak Mahulikar, Meriden; Satish K. Jalota, Wallingford, and Andrew J. Brock, Cheshire, all of Conn., assignors to Olin Corporation, New Haven, Conn.

Filed Aug. 17, 1990, Ser. No. 568,818

Int. Cl.[5] C25D *11/14*

U.S. Cl. 204—58 18 Claims



1. A process for producing an anodized aluminum component, comprising the steps of:

(a). providing said component to be an aluminum alloy capable of forming a light black to black color by integral color anodization;

(b). anodizing said component in an electrolytic cell suitable for integral color anodization by increasing the cell voltage at a rate effective to increase the current density from zero to over a peak value in excess of about 70 amps per square foot within about 3 minutes; and

(c). then immediately causing said current density to decrease from said peak value while thereafter maintaining a voltage in excess of about 70 volts to form a light black to black integral color anodization layer.

5,066,369

PROCESS FOR PREPARING PARA-AMINOPHENOL

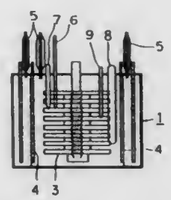
Kyung S. Yun, and Byung W. Cho, both of Seoul, Rep. of Korea, assignors to Korea Institute of Science and Technology, Rep. of Korea

Filed Jan. 3, 1990, Ser. No. 460,625

Claims priority, application Rep. of Korea, Sep. 6, 1989, 12903/1989

Int. Cl.[5] C25C *3/00*

U.S. Cl. 204—74 8 Claims



1. A process for preparing para-aminophenol from nitrobenzene comprising the step of:

electrolytically synthesizing the solution of negative electrode compartment having sulfuric acid of 1.5–3.0M and nitrobenzene of 0.5–2.0M with working electrodes of solid polymer electrolyte electrode and multi-rotating disk electrode having a plurality of disk electrodes.

5,066,370

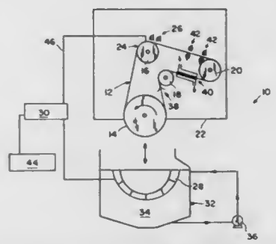
APPARATUS, ELECTROCHEMICAL PROCESS, AND ELECTROLYTE FOR MICROFINISHING STAINLESS STEEL PRINT BANDS

Joseph C. Andreshak, Mahopac; Madhav Datta, Peekskill; Lubomyr T. Romankiw, Briarcliff Manor, all of N.Y., and Luis F. Vega, Simsbury, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Sep. 7, 1990, Ser. No. 578,971

Int. Cl.[5] C25F *3/00*, *3/06*, *3/24*, *7/00*

U.S. Cl. 204—129.1 29 Claims



9. A method of electrochemically processing an anodic material provided in strip form comprising:

affixing a strip of said material to a means for moving said material at a predetermined speed, said moving means attached to a movable plate;

moving said plate toward a tank positioned at a predetermined distance from said moving means on said movable plate and containing an electrolyte, traversing said predetermined distance between said plate and said tank, so that said material engages said electrolyte in said tank;

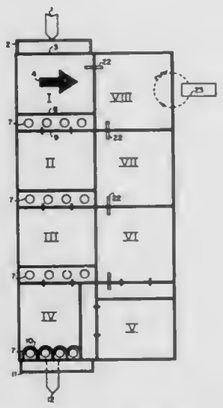
triggering movement of said strip of said material on said moving means;

simultaneously triggering operation of a first power supply having a negative pole connected to a cathode assembly mounted to said tank and surrounded by said electrolyte and a positive pole connected to said anodic material at a point of electrical connection;

VOL 1132 ISS 3 NO 19 1991 UMI

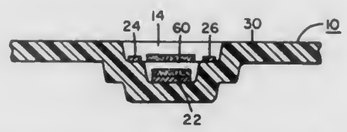
removing said electrolyte from said material after said material engages said electrolyte in said tank;
turning said power supply off;
returning said plate to its original position a predetermined distance away from said tank; and
removing said strip of said material from said moving means.

5,066,371
REMOVAL OF CONTAMINANTS AND RECOVERY OF METALS FROM WASTE SOLUTIONS
Irving W. DeVoe, Thousand Oaks, Calif.; Olwyn A. D'Sylva, Montreal, Canada, and David A. Fine, Santa Monica, Calif., assignors to Metanetix, Inc., Camarillo, Calif.
Filed Feb. 24, 1989, Ser. No. 316,201
Int. Cl.[5] C02F *1/46, 1/42*
U.S. Cl. 204—149 **14 Claims**



1. A method for removal of at least one contaminant from a liquid containing same, said method comprising:
introducing said liquid containing said contaminant into a first of a plurality of liquid treatment containers;
contacting said liquid in said first liquid treatment container with a first quantity of a solid contaminant recovery medium for removing said contaminant from aid liquid in a liquid-medium suspension for a period of time sufficient to achieve a desired efficiency of recovery of said contaminant;
cycling said liquid from said first liquid treatment container sequentially through each of said plurality of liquid treatment containers to a final liquid treatment container while contacting said liquid in each of said liquid treatment containers with additional quantities of said medium in liquid-medium suspension for period of time sufficient to achieve said desired efficiency of recovery in each of said liquid treatment containers;
cycling at least a portion of said medium from said final liquid treatment container through said plurality of liquid treatment containers to said first liquid treatment container in a direction countercurrent to flow of said liquid so as to maintain essentially a constant medium concentration in each of said liquid treatment containers, said medium being substantially separated from liquid prior to cycling from one container to another container;
transferring at least a portion of said medium from said first liquid treatment container into a medium recycling means comprising a plurality of medium recovery containers wherein said medium is treated with a contaminant recovery liquid for regenerating said medium;
cycling said medium from a first medium recovery container sequentially through said plurality of medium recovery containers to a final medium recovery container;
cycling said contaminant recovery liquid from said final medium recovery container through said plurality of medium recovery containers to said first medium recovery container in a direction countercurrent to flow of said medium through said medium recycling means, whereby said medium is at least partially regenerated; and
reintroducing at least a portion of said at least partially regenerated medium from said final medium recovery container into said final liquid treatment container.

5,066,372
UNITARY MULTIPLE ELECTRODE SENSOR
Howard H. Weetall, Sharon, Mass., assignor to Ciba Corning Diagnostics Corp., Medfield, Mass.
Continuation of Ser. No. 492,369, Mar. 9, 1990, Pat. No. 4,963,245, which is a continuation of Ser. No. 859,128, May 2, 1986, abandoned. This application Jun. 21, 1990, Ser. No. 541,566
The portion of the term of this patent subsequent to Oct. 16, 2007, has been disclaimed.
Int. Cl.[5] G01N *27/26, 27/327*
U.S. Cl. 204—153.1 **12 Claims**

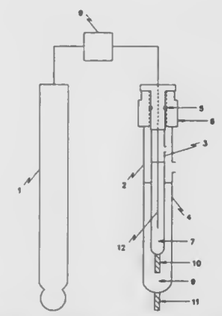


1. A method for detection of an analyte in test sample on a unitary electrochemical sensor, the method comprising:
(a) applying a test sample onto a unitary electrochemical sensor, said sensor comprising:
(i) a sensor support member including an electrically non-conductive surface; and
(ii) at least one well deposited on the support member, wherein within each well is deposited an electrode array, the array defining an area on the support member for applying a test sample, the array consisting of a working electrode, a counter electrode and a reference electrode; and wherein the electrodes of the array are spaced from one another horizontally and vertically in said well, and wherein sensor activating chemicals are located on or attached to the working electrode of the array, the sensor activating chemicals comprising an electron transfer mediator, a first conjugate including a specific binding partner for the analyte to be measured, and a second conjugate including a known amount of the said analyte attached to an oxidizing catalyst or oxidizing substrate;
(b) applying an electron source onto the array on which said test sample was applied;
(c) applying a preselected potential between the working electrode and the counter electrode of the array;
(d) measuring the current between the working electrode and the counter electrode of the array; and
(e) determining the amount of the analyte in the test sample from the measurement of the current in step d) relative to the preselected potential of step c).

5,066,373
MONITORING PH IN PHENOL ACETONE
Alan B. Levy, Randolph; Stylianos Sifniades, Madison; Lloyd C. Kent, Pompton Lakes, all of N.J., and Dominick Frollini, Jr., Trafford, Pa., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.
Filed Sep. 28, 1990, Ser. No. 590,251
Int. Cl.[5] G01N *27/26*
U.S. Cl. 204—153.21 **16 Claims**

1. In a process for producing phenol by oxidation of cumene

to cumene hydroperoxide followed by an acid catalyzed cleavage of cumene hydroperoxide to an acid cleavage reaction mixture comprising phenol, acetone, alpha-methylstyrene, and cumene, then neutralizing said acid cleavage reaction mixture followed by distillation to recover phenol, said neutralized acid cleavage reaction mixture containing 0–5 weight percent water; the method of monitoring said neutralized acid cleavage reaction mixture for acidity comprising:
immersing a standard hydrogen ion electrode and a double-junction reference electrode in said neutralized acid cleavage reaction mixture and measuring the potential difference between the two electrodes to determine level of acidity;

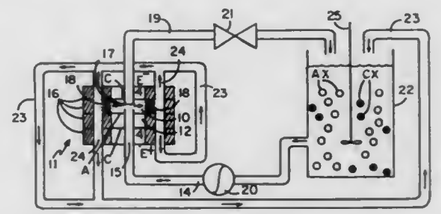


said double junction reference electrode comprising an inner body containing an inner body solution comprising a standard reference system electrolyte; an outer body containing a homogeneous outer body solution comprising a salt dissolved in a solution of phenol, acetone and water, the phenol to acetone molar ratio being from 1:10 to 10:1, the water being present in an amount of at least 1 weight percent, said salt selected to be neutral, soluble and stable in said outer body solution; a portion of said inner body being immersed in said outer body solution; first junction means disposed on said inner body to permit flow from said inner body to said outer body and second junction means disposed on said outer body to permit flow from said outer body to said neutralized acid cleavage reaction mixture.

5,066,374
ELIMINATION OF FILM DEFECTS DUE TO HYDROGEN EVOLUTION DURING CATHODIC ELECTRODEPOSITION
Mark R. Winkle, Lansdale, Pa., assignor to Robm and Haas Company, Philadelphia, Pa.
Filed Sep. 20, 1990, Ser. No. 585,428
Int. Cl.[5] C25D *13/10*
U.S. Cl. 204—181.4 **6 Claims**

1. A process for reducing pinhole defects in cataphoretically deposited films comprising electrophoretically depositing on a surface a film formed from a polymer composition comprising an aqueous solution or emulsion of at least one polymer and a compound reduced by hydrogen produced during said deposition.

5,066,375
INTRODUCING AND REMOVING ION-EXCHANGE AND OTHER PARTICULATES FROM AN ASSEMBLED ELECTRODEIONIZATION STACK
Edgardo J. Parsi, Lexington; Keith J. Sims, Framingham; Irving D. Elyanow, Somerville, and Thomas A. Prato, Cambridge, all of Mass., assignors to Ionics, Incorporated, Watertown, Mass.
Filed Mar. 19, 1990, Ser. No. 495,513
Int. Cl.[5] C02F *1/46; C25B 1/00*
U.S. Cl. 204—182.4 **20 Claims**



1. An electrodeionization apparatus comprising an assembled ion exchange membrane stack, means for transferring a suspension of ion exchange particulates in a fluid into at least one of the chambers of said ion exchange membrane stack, strainers within said chamber for retaining said particulates within said chamber to at least partially form a packed bed of particulates therein, said chamber further comprising at least one fluid flow path, said path having at least one first channel communicating with a first fluid transfer manifold adapted to transfer fluid into or out of said flow path, said path also having at least one second channel communicating with a second fluid transfer manifold adapted to transfer fluid into or out of said flowpath, said flow path also having at least one flow path width restrictor intermediate between said first channel and said second channel, said restrictor further having at least one third channel communicating with a fluid transfer manifold adapted to transfer fluid into or out of said flow path.

5,066,376
ELECTROPHORESIS MEDIA COMPRISING ACTIVE METHYLENE GROUPS
Hans W. Osterhoudt, Spencerport; Ignazio S. Ponticello, Pittsford; Kenneth G. Christy, Jr., Rochester; Wayne A. Bowman, Walworth, and Jon N. Eikenberry, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Continuation of Ser. No. 188,821, May 2, 1988. This application Nov. 2, 1989, Ser. No. 430,998
Int. Cl.[5] G01N *27/26; B01D 57/02*
U.S. Cl. 204—182.8 **11 Claims**

1. A method for preparing an electrophoresis gel medium while minimizing exposure to harmful chemicals which comprises forming a solution of (1) a water soluble, uncrosslinked, non-ionic copolymer of a mixture of uncharged vinyl monomers, said mixture comprising (a) at least about 50% by weight of a monomer selected from the unsubstituted and substituted acrylamide monomers; (b) from about 1% to about 50% by weight of a monomer that contains an active methylene group and (c) from 0 to about 49% by weight of one or more vinyl monomers different from monomers (a) and (b); and (2) an electrophoresis buffer in deionized water employing such proportions of copolymer, buffer and water as to provide a gel of the desired copolymer concentration and pH, providing means with which to form a shaped electrophoresis gel medium of the desired dimensions, adding to said solution of copolymer and buffer that reacts with the functional groups on the repeating units in the copolymer derived from monomer (b) in such concentration of crosslinking agent as to cause gelation to occur within a time period of from about 5 minutes to about 15 hours after said addition, and then promptly em-

VOL 1132 ISS 3 NO 19 1991 UMI

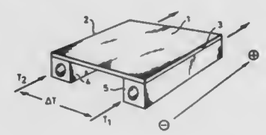
ploying said gel shaping means to form the gel medium of desired dimensions from the gel thereby produced.

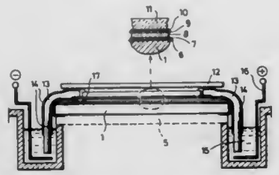
5,066,377

METHOD AND DEVICE FOR PRODUCING A CONTROLLABLE AND REPRODUCIBLE TEMPERATURE GRADIENT AND USE THEREOF

Volker Rosenbaum, Meerbusch, and Detlev Riesner, Düsseldorf, both of Fed. Rep. of Germany, assignors to Diagen Institute für molekularbiologische Diagnostik GmbH, Düsseldorf, Fed. Rep. of Germany

Continuation of Ser. No. 317,058, Feb. 28, 1989, abandoned, which is a continuation of Ser. No. 67,882, Jun. 30, 1987, abandoned. This application Jun. 29, 1990, Ser. No. 545,111
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1986, 3622591
Int. Cl.[5] G01N *27/26;* B01D *57/02*
U.S. Cl. 204—182.8 19 Claims





11. A method for separating a mixture of substances in a sheet-shaped separating medium, comprising:

placing a single heat-conducting plate in thermal connection with the sheet-shaped separating medium at a first surface of said sheet-shaped separating medium and placing insulation means for thermally insulating said sheet-shaped separating medium such that a uniform temperature can be maintained through the sheet-shaped separating medium at a surface of said sheet-shaped separating medium opposite to said first surface;

creating a linear controllable and reproducible temperature gradient across the heat-conducting plate, comprising attaching a first block having a bore therethrough to one edge of the heat conducting plate, connecting a second block having a bore therethrough to an opposing edge of the heat conducting plate, supplying liquid at a first predetermined temperature through the bore of the first block so as to controllably heat said one edge, and supplying liquid t a second predetermined temperature through the bore of the second block so as to controllably cool said opposing edge;

applying an electrical field to said sheet-shaped separating medium to create a potential gradient across said sheet-shaped separating medium; and

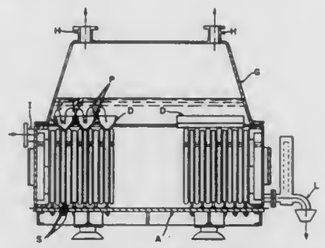
causing one substance in the mixture to undergo a thermal conversion within the controllable and reproducible temperature gradient, thereby separating said substances.

5,066,378

ELECTROLYZER

Giovanni Meneghini, Milan, Italy, assignor to DeNora Permelec S.p.A., Milan, Italy

Filed Oct. 3, 1989, Ser. No. 416,719
Claims priority, application Italy, Feb. 13, 1989, 19423 A/89
Int. Cl.[5] C25B *9/00, 11/02, 11/03, 15/08*
U.S. Cl. 204—237 17 Claims



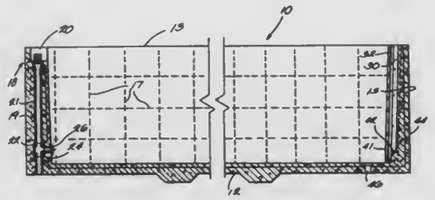
1. In a zero-gap monopolar diaphragm or pocket-type ion exchange membrane electrolyzer for chlor-alkali electrolysis, said electrolyzer comprising cathodic compartments and anodic compartments separated by a diaphragm or pocket-type ion exchange membrane containing respectively box-shaped expanded metal cathodes and anodes having an open structure and elongated in a substantially vertical direction, the improvement comprising at least part of said anodes are provided in the upper part with baffles to generate a plurality of upward recirculation motions of the anolyte-gas mixed phase and downward motions of the gas-free anolyte through electrolyte conveyors to decrease the electrolyzer voltage and to increase the faradic efficiency and the quality of the products, said upward and downward motions localized in separate areas of the anodes, said baffles being provided with upper edges of overflow holes in the lower portion of the baffle.

5,066,379

CONTAINER FOR CORROSIVE MATERIAL

John O. Harry; George Verhagen, both of Green Bay, Wis., and Rudy E. Small, Naples, Fla., assignors to Corrosion Technology, Inc., Green Bay, Wis.

Filed Jun. 14, 1990, Ser. No. 538,179
Int. Cl.[5] C25C *7/00;* C25D *17/02*
U.S. Cl. 204—279 25 Claims



1. A container for corrosive electrolyte and used in an electrolytic process, said container consisting of a cured polymer concrete shell having a pair of side walls, a pair of opposed end walls, and a bottom, the improvement comprising an overflow box formed in one side wall and including a recess formed below the upper edge of the one end wall, and including discharge passage means having one end opening in said recess and the other end opening exteriorally of the vessel, second passage means formed in and beneath the surface of the second end wall and extending from the upper end of said wall downwardly to a position adjacent its lower end, said channel defining a vertical passage in the other end wall, said second passage means being open at its upper end and adjacent the bottom of the container.

5,066,380

ELECTROCATALYTIC CATHODES AND METHOD OF PREPARATION

Carl E. Byrd, Richwood; Stephen L. Kelly, Angleton, and Richard N. Beaver, Angelton, all of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed May 29, 1990, Ser. No. 529,829
Int. Cl.[5] C25B *11/08;* B05D *5/12*
U.S. Cl. 204—290 R 25 Claims

1. A method of making an electrocatalytic cathode comprising contacting at least one surface of a metallic-surfaced substrate with a coating solution having a pH of less than about 2.8, the coating solution comprising a solvent medium, at least one primary electrocatalytic metal ion at a concentration sufficient to deposit an effective amount of at least one primary electrocatalytic metal on the surfaces, and palladium metal ion at a concentration sufficient to promote deposition of the at least one primary electrocatalytic metal in admixture with palladium metal on the surfaces, the contact being conducted under conditions and for a time sufficient to deposit on the surfaces, by non-electrolytic reduction deposition, a hard, substantially continuous and nondendritic coating of the at least one primary electrocatalytic metal and palladium metal as a metal alloy having a substantially uniform composition, the deposition of the at least one primary electrocatalytic metal being increased in comparison to use of an otherwise similar palladium-free coating solution under substantially similar conditions.

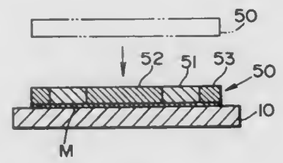
25. A cathode produced according to claim 1.

5,066,381

TARGET UNIT

Kenji Ohta, Kitakatsuragi; Yosbiteru Murakami, Nishinomiya; Nobuyuki Takamori, Nara; Kenichi Hijikata; Takyuki Shingyoji, both of Urawa, and Kazushige Takaishi, Omiya, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka and Mitsubishi Metal Corporation, Tokyo, both of, Japan

Continuation of Ser. No. 338,315, Apr. 14, 1989, abandoned. This application Oct. 24, 1990, Ser. No. 602,382
Claims priority, application Japan, Apr. 15, 1988, 63-93053; Apr. 15, 1988, 63-93054
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—298.12 26 Claims



1. A target unit comprising;

a backing plate; and

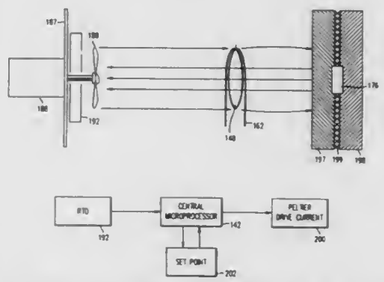
a target member disposed on said backing plate, said target member including a plurality of erosion members made of a sputtering material and at least one holding member for releasably holding said erosion members on said backing plate, said plurality of erosion members being integrally joined to said holding member by brazing while said holding member is releasably secured to said backing plate.

5,066,382

THERMAL CONTROL FOR CAPILLARY ELECTROPHORESIS APPARATUS

Scot R. Weinberger, and James L. Mills, both of Reno, Nev., assignors to Spectra-Physics, Inc., San Jose, Calif.

Filed Jan. 25, 1990, Ser. No. 470,280
Int. Cl.[5] G01N *27/26;* B01D *57/02*
U.S. Cl. 204—299 R 4 Claims



1. A system for controlling temperature in an instrument including a capillary tube holding a sample comprising:

air circulating means for circulating air across the capillary tube;

temperature sensing means for sensing the temperature of the air surrounding the capillary;

resistance sensing means for sensing an electrical resistance of the capillary tube;

heat means for providing heat to and removing heat from the air circulating across the capillary tube; and

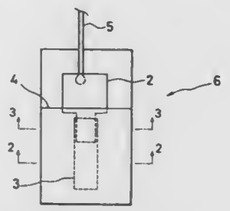
control means for receiving the resistance sensed by the resistance sensing means and the temperature of the air surrounding the capillary sensed by the temperature sensing means and controlling the heat means so as to provide more or less heat to maintain the capillary tube at a predetermined temperature.

5,066,383

REFERENCE ELECTRODE, ION SENSOR AND METHOD OF MANUFACTURING THE SAME

Shuichiro Yamaguchi; Takeshi Shimomura; Naoto Uchida, all of Shizuoka; Teruaki Katsube, and Noboru Oyama, both of Tokyo, all of Japan, assignors to Terumo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 26, 1989, Ser. No. 426,713
Claims priority, application Japan, Oct. 27, 1988, 63-271784; Feb. 6, 1989, 1-28464; Apr. 3, 1989, 1-84551
Int. Cl.[5] G01N *27/26*
U.S. Cl. 204—435 18 Claims



1. A reference electrode comprising:

an electrically conductive substrate;

a first film made up of at least two layers provided on a surface of said substrate and including a silver halide layer and a hydrophobic resin layer; and

a second film made up of at least two layers provided on a

VOL 1132 ISS 3 NO 19 1991 UMI

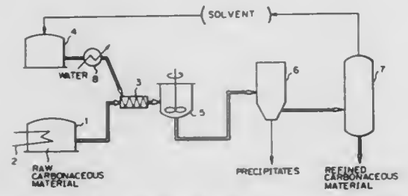
surface of said first film and including a hydrophobic resin layer and a salt layer.

5,066,384

PROCESS FOR REFINING COAL-DERIVED HEAVY CARBONACEOUS MATERIALS

Tohru Iwahashi; Yoshihiko Sunami, both of Ibaraki; Katsumi Satoh, Tokyo; Katsuyuki Ohshima, Ibaraki, and Kenichi Iwaguro, Funabashi, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka; Sumikin Chemical Co. Ltd. and Kureha Kagaku Kogyo Kabushiki Kaisha, both of Tokyo, all of, Japan

Continuation of Ser. No. 37,999, Apr. 14, 1987, abandoned, which is a continuation of Ser. No. 832,704, Feb. 25, 1986, abandoned. This application Feb. 29, 1988, Ser. No. 162,248
Claims priority, application Japan, Feb. 28, 1985, 60-039349
Int. Cl.[5] C10C *1/18*
U.S. Cl. 208—45 **14 Claims**



1. A process for refining coal-derived heavy carbonaceous materials which comprises the steps of:
providing a coal-derived heavy carbonaceous material from which all the components having normal boiling points of 270° C. or below and all or part of the components having normal boiling points ranging from 270° C. to 360° C. have been removed;
fluidizing the resulting heavy carbonaceous material by heating it to a temperature not lower than 40° C.;
mixing the heated carbonaceous material with a ketone solvent at atmospheric pressure or under pressure for a period sufficient to precipitate coarse insoluble particles in the mixture, said ketone solvent having a normal boiling point of not higher than 200° C. and being used in such an amount that the weight ratio of ketone solvent to carbonaceous material is within the range of from 0.5:1 to 3.0:1;
separating the precipitated particles from the mixture; and
removing the ketone solvent from the mixture, leaving a refined, coal-derived heavy carbonaceous material.

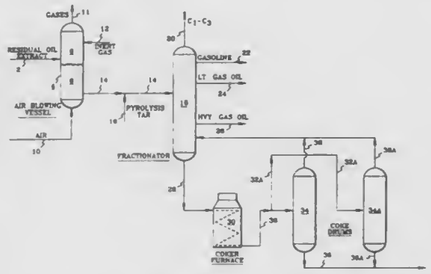
5,066,385

MANUFACTURE OF ISOTROPIC COKE

Lloyd G. Becraft, Ponca City, Okla., assignor to Conoco Inc., Ponca City, Okla.

Filed Mar. 5, 1990, Ser. No. 489,425
Int. Cl.[5] C10G *31/00*
U.S. Cl. 208—131 **8 Claims**

1. A process for producing isotropic coke having reduced sulfur content and a low CTE (coefficient of thermal expansion) ratio from a sulfur-containing residual oil selected from atmospheric and vacuum reduced crudes, which comprises:
(a) contacting the residual oil with an oxygen-containing gas at an elevated temperature to increase the softening point of the residual oil,
(b) combining the oxygen-treated residual oil with up to 50 weight percent pyrolysis tar based on the weight of the combined residual oil and pyrolysis tar, said pyrolysis tar having a lower sulfur content than the residual oil, and
(c) subjecting the combined residual oil and pyrolysis tar to delayed coking to produce isotropic coke in a yield equal to or greater than the yield obtained from the residual oil alone, said coke having a CTE (coefficient of thermal expansion) ratio less than about 1.5 and a sulfur content



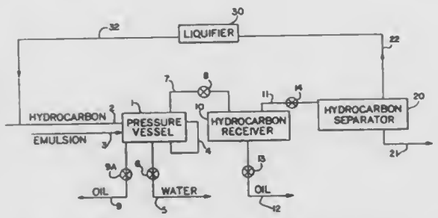
lower than the sulfur content of coke obtained from the residual oil alone.

5,066,386

EXTRACTION OF OIL FROM STABLE OIL-WATER EMULSIONS

Stephen C. Paspek, North Royalton, and Christopher P. Eppig, Cleveland Hts., both of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Continuation of Ser. No. 343,395, Apr. 25, 1989, abandoned, which is a continuation of Ser. No. 71,433, Jul. 9, 1987, Pat. No. 4,824,555. This application Jun. 14, 1990, Ser. No. 537,877
The portion of the term of this patent subsequent to Apr. 25, 2006, has been disclaimed.
Int. Cl.[5] C10G *1/00*
U.S. Cl. 208—187 **17 Claims**



1. A process of extracting oil from oil-water emulsions containing suspended solid particulates comprising the steps of:
(A) introducing said emulsion into vessel in an extraction system,
(B) pressurizing the vessel with a volatile hydrocarbon whereby said volatile hydrocarbon is in the liquefied state and forms a two-phase system with said emulsion,
(C) maintaining said pressure for a period of time sufficient to effect the replacement of at least some of the oil in the emulsion phase with said volatile hydrocarbon, the replaced oil being dissolved in the volatile hydrocarbon phase,
(D) withdrawing at least a portion of said oil-containing volatile hydrocarbon phase while maintaining the pressure on the two-phase system,
(E) reducing the pressure on the two-phase system whereby volatile hydrocarbon dissolved in the emulsion is vaporized, and the emulsion separates into a water phase and an oil phase, and
(F) recovering the oil phase from the water phase.

5,066,387

PROCESS FOR REMOVING FINE PARTICLES FROM A POWDER

Marshall E. Deutsch, Sudbury, Mass., assignor to J & S Medical Associates, Inc., Natick, Mass.

Filed Apr. 9, 1990, Ser. No. 506,937
Int. Cl.[5] B03B *1/04*
U.S. Cl. 209—5 **4 Claims**

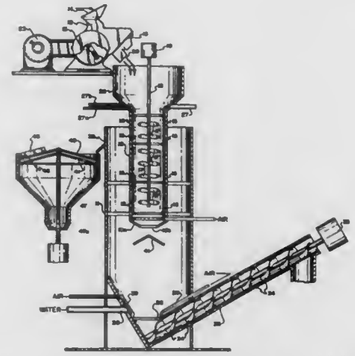
1. A process for removing fine particles from larger particles in a powder by rinsing, comprising the steps of:
providing a liquid in a container having upper and lower portions;
adding a quaternary ammonium compound having a charge to said liquid;
placing said powder in said liquid;
reducing the static attraction of said fine particles to said larger particles by the action of said quaternary ammonium compound dissipating static attraction of said fine particles to said larger particles;
settling the larger particles in the lower portion of said container;
suspending the finer particles in said liquid in the upper portion of said container; and
decanting said fine particles in said liquid from the upper portion of said container leaving the larger particles in the lower portion of said container.

5,066,388

PROCESS AND APPARATUS FOR DISENGAGING AND SEPARATING BITUMEN FROM PULVERIZED TAR SANDS USING SELECTIVE COHESION

Lena Ross, 3827 83 Ave., S. E., Mercer Island, Wash. 98040

Filed Feb. 27, 1990, Ser. No. 485,462
Int. Cl.[5] B03D *1/24*; B03B *5/62, 5/64*; C10G *1/00*
U.S. Cl. 209—170 **13 Claims**



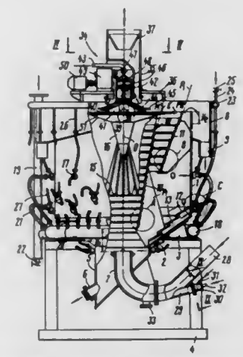
1. Apparatus for disengaging bituminous material from bituminous ores said apparatus comprising
a disengaging chamber means oriented to have a substantially vertical central axis;
means for introducing a mixture of pulverized bituminous ores and water into the disengaging chamber means at an upper end thereof;
means in the disengaging chamber means to agitate the mixture introduced thereinto;
a discharge opening through the lower end of the disengaging chamber means;
a separation vessel receiving the lower end of the disengaging chamber means, said separation vessel having a sidewall extending upwardly to a location above the level of the discharge opening of the disengaging chamber means and having a portion tapered inwardly at a lower end thereof at a level below the said discharge opening;
a deflector distributor means positioned beneath the discharge opening and directing flow from the discharge opening outwardly and downwardly toward the sidewall of the separation vessel;
means for introducing upwardly flowing water into the separation vessel adjacent to the tapered bottom thereof;
an overflow means extending through the sidewall of the separation vessel above the level of the discharge opening;
hopper means containing a plate means having an upper surface which slopes outwardly and downwardly from a central apex, with means to rotate said plate means, said hopper means being positioned to receive said overflow from the overflow means on said rotating plate means, means to maintain the surface receiving overflow at a temperature of between −5 C. and 50° C.;
means to remove adhering bituminous material from the plate means; and
means for removing collected solids from the lower end of the separation vessel.

5,066,389

FLOTATION MACHINE

Mikhail N. Zlobin, ulitsa Pavlova, 12, kv. 1, Mirny; Viktor M. Metsik, Uuitsa Dekabraskikh sobyty, 86, kv. 32; Alexandr A. Nemarov, mikroraion Jubileiny, 91, kv. 36, both of Irkutsk; Georgy P. Permyakov, ulitsa 50 let Oktyabrya, 7, kv. 37, and Nikolai T. Taraban, ulitsa Sovetskara, 15, korpus 2, kv. 15, both of Mirny, all of U.S.S.R.

Filed Sep. 27, 1990, Ser. No. 589,394
Int. Cl.[5] B03D *1/24*
U.S. Cl. 209—170 **8 Claims**



1. A flotation machine for beneficiating minerals comprising:
a vertically oriented cylindrical chamber for circulating a flotation pulp;
a downwardly tapered bottom connected to said cylindrical chamber;
feed pipe means extending into the downwardly tapered bottom and oriented to open upwardly toward said cylindrical chamber for feeding the flotation pulp containing mineral particles of fine fraction with particles of the useful ingredient of the mineral capable of floating up from the body of said flotation pulp;
discharge pipe means connected to the downwardly tapered bottom near the bottom's lowest point for discharging gangue;
trough means secured at the top part of the cylindrical chamber for collecting a froth concentrate;
a first group of hollow truncated cones positioned axially within said cylindrical chamber and having an upper base and a lower base wherein the diameter of the upper base is larger than the diameter of the lower base and a side tapering downwardly and inwardly from the upper base to the lower base defining a first angle of inclination with

VOL 1132 ISS 3 NO 19 1991 UMI

respect to the longitudinal axis of said first group of cones, each of said cones spaced at equal distances from each other and having substantially the same height, wherein the upper bases of the cones face the top part of said cylindrical chamber in a manner such that a plane passing through an edge of each upper base forms a second angle of inclination with respect to the longitudinal axis of the first group of cones and wherein the second angle of inclination is less than the first angle of inclination; and

a seocond group of hollow truncated cones positioned axially at the top part of said cylindrical chamber and lying outside of said first group of cones and having an upper base and a lower base wherein the diameter of the upper base is larger than the diameter of the lower base and a side tapering downwardly and inwardly from the upper to the lower base defining a third angle of inclination with respect to the longitudinal axis of said second group of cones, said second group of cones spaced at equal distances from each other and having substantially the same height, wherein the lower bases of said second group of cones face said tapered bottom in a manner such that a plane passing through the edge of each lower base forms a fourth angle of inclination with respect to the longitudinal axis of the second group of cones and wherein the fourth angle of inclination is greater than the third angle of inclination;

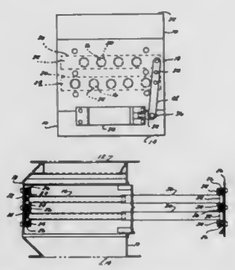
pulp aerator means secured to the walls of said cylindrical chamber for supplying a gas to the flotation pulp; and means positioned over the cylindrical chamber for feeding mineral particles of coarse fraction containing particles capable of staying in the froth layer of pulp to the cylindrical chamber.

5,066,390

MAGNETIC SEPARATOR WITH RECIPROCATING GRATE

Keith J. Rhodes, 8250 Ashare Ct., Clarkson, Mich. 48016, and Scott D. Voorheis, 6611 Balmoral, Waterford, Mich. 48054

Filed Jun. 4, 1990, Ser. No. 532,963
Int. Cl.[5] B03C *1/26*
U.S. Cl. 209—217 **15 Claims**



1. A magnetic separator comprising:

a plurality of elongated magnetic members including least one group of said elongated magnetic members having longitudinal axes lying in at least one common plane with first and second terminal ends;

first end plate means connected to said first terminal end of each of said plurality of elongated magnetic members, said first end plate means adapted for reciprocation in said common plane;

non-magnetic means for sheathing each of said plurality of elongated magnetic members, said non-magnetic means having first terminal ends adjacent said first terminal ends of said elongated magnetic members and second terminal ends adjacent said second terminal ends of said elongated magnetic members, said non-magnetic means adapted for sheathing and unsheathing movement longitudinally along each of said elongated magnetic members;

second end plate means connected to said second terminal ends of each of said non-magnetic means, said second end plate means adapted for reciprocation in said common plane; and

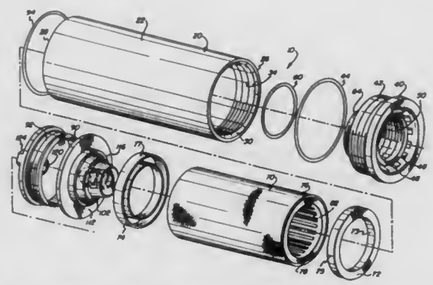
reciprocating means connected to at least one of said first and second end plate means for oscillating a grate assembly defined by said first end plate means and said connected elongated magnetic members and said second end plate means and said connected non-magnetic means, when said non-magnetic means are in a sheathing position over said elongated magnetic members.

5,066,391

REUSABLE LIQUID FILTER ASSEMBLY

Manuel S. Faria, 13897 Road 144, Tipton, Calif. 93272

Filed Aug. 22, 1990, Ser. No. 570,902
Int. Cl.[5] B01D *29/11*
U.S. Cl. 210—85 **3 Claims**



1. A reusable liquid filter assembly, comprising:

a cylindrical housing having a diameter and open ends with bevelled zones adjacent said ends and having internal threading adjacent said bevelled zones;

a first removable end wall having

a cylindrical segment having an external thread for mating with the internal threading of one of said ends of said housing,

an annular channel around the periphery of said cylindrical segment,

a sealing ring for seating in said channel for sealing fit against said bevelled zone of said one end of said housing when said first end wall is threaded together with said housing,

a central threaded outlet port extending through said end wall for discharging liquid,

a plurality of inlet ports located radially about said outlet port and extending through said end wall for receiving liquid into said filter assembly,

an annular projection for extending inwardly into said housing,

a shoulder formed around said annular projection,

a channel formed in said annular projection,

another sealing ring for seating in said channel in said annular projection, and

an annular gasket affixed to an outer surface of said first end wall;

a second removable end wall having

a cylindrical segment having an external thread for mating with the internal threading of the other of said ends of said housing,

an annular channel around the periphery of said cylindrical segment of said second end wall,

a sealing ring for seating in said channel for sealing fit against said bevelled zone of said other end of said housing when said second end wall is threaded together with said housing,

a plurality of struts for extending inwardly into said housing when said second end wall is threaded together with said housing, and

a closable port extending therethrough;

a filter subassembly having

a cylindrical filter frame having a smaller diameter than the housing diameter and having slots therein,

a filter screen for fitting onto said filter frame, and

a first annular filter end cap for fitting over one end of said filter frame, said first filter end cap being provided with rims around inner and outer peripheral diameters of said first filter end cap, said first filter end cap having an inner diameter sized to be seated on said shoulder of said annular projection, with said inner rim sized for sealing fit against said other sealing ring seated in said channel in said annular projection of said first end wall, and said outer rim sized to snugly receive one end of said filter frame and filter screen;

a second annular filter end cap for fitting over the other end of said filter frame, said second filter end cap being provided with rims around inner and outer peripheral diameters of said second filter end cap, at least one of said struts of said second end wall being sized to press against said second annular filter end cap to retain said filter subassembly in said housing, said outer rim being sized to snugly receive another end of said filter frame and filter screen;

said filter subassembly defining an outer annular chamber between said housing and filter screen for containing liquid to be filtered and an inner chamber within said filter assembly for containing filtered liquid; and

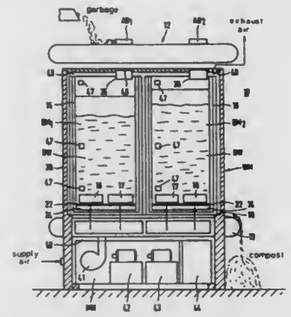
bypass valve means for connecting said inner and outer chambers and set to open at a predetermined pressure differential between said inner and outer chambers, said valve means having a flange, said flange having an annular projection for extending into said housing and centering said inner rim of said second filter end cap of said filter subassembly in said housing, said flange being centered in said housing and retained by said plurality of struts of said second end wall.

5,066,392

APPARATUS FOR MICROBIOLOGICAL DECOMPOSITION OF ORGANIC WASTE

Franz X. Kneer, Am Honigbaum 6, D-6345 Escbenburg-Eibelshausen, Fed. Rep. of Germany

Filed Aug. 11, 1989, Ser. No. 392,341
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1988, 3827288; Dec. 12, 1988, 3841804
Int. Cl.[5] C02F *11/06*
U.S. Cl. 210—96.1 **17 Claims**



1. An apparatus for the microbiological degradation of a biomass of solid organic waste, comprising:

a vessel containing at least two part vessels positioned side by side, each part vessel containing a portion of said biomass;

a perforated support tray for supporting the biomass;

a gas feed means located below the tray for passing a gaseous medium containing oxygen through the tray and into the biomass within each part vessel, the gas feed means alternately feeding the gaseous medium to each of the part vessels for a preselected time; and

a conveying means for conveying treated biomass from each part vessel, the conveying means being located above the perforated tray.

17. An apparatus for the microbiological degradation of solid organic waste, comprising:

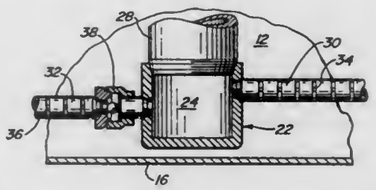
a vessel, which, as a support surface for a biomass of solid organic waste, contains a perforated tray, said vessel being divided into at least two part vessels, each part vessel containing a portion of aid biomass, gas feed means for alternately feeding a gaseous medium through said tray to each of the part vessels for a preselected time, means for determining the organic carbon content of the wasted gaseous medium leaving the vessels, and means for monitoring and maintaining the oxygen content of the gaseous medium fed in at a predetermined value of approximately 12% by volume.

5,066,393

SLOTTED FLOW COLLECTOR/DISTRIBUTOR FOR WATER TREATMENT TANK WITH ONE-WAY VALVES

Robert F. Padera, Libertyville, and Daniel C. Miller, Glenview, both of Ill., assignors to Culligan International Company, Northbrook, Ill.

Continuation-in-part of Ser. No. 400,866, Aug. 28, 1989, abandoned. This application Feb. 23, 1990, Ser. No. 483,810
Int. Cl.[5] B01D *21/24*
U.S. Cl. 210—136 **30 Claims**



1. A flow collector/distributor for a water treatment tank, which comprises: a tubular housing positioned to provide fluid communication through a wall of a water treatment tank to provide flow communication between the tank interior and the tank exterior, a plurality of slots defined in said tubular housing and positioned to communicate with the tank interior when the collector/distributor is seated in the tank wall, said slots being of a width which is narrow enough to permit water flow therethrough while substantially preventing passage therethrough of water treatment material present within said tank; said slots defining slot portions facing outwardly of said housing that are of less depth than a thickness of a housing wall that defined them, and at least one aperture extending from each of said slot portions completely through said housing wall to provide flow communication between the outer slot portions and the interior of said housing; and one-way valve means permitting water flow through all of said slots from the tank interior through said collector/distributor to the tank exterior, while preventing water flow through some but not all of said slots from the tank exterior through said collector/distributor to the tank interior.

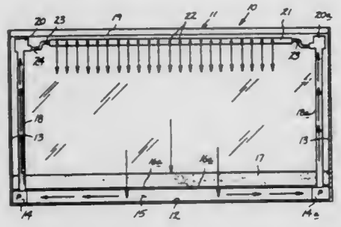
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,394

AQUARIUM AERATION AND RECYCLING APPARATUS

Mark R. Harrison, S71 W14976 Westcot Dr., Muskego, Wis. 53150

Filed Jul. 30, 1990, Ser. No. 560,350
Int. Cl.[5] E04H 3/20; A01K 63/04
U.S. Cl. 210—169 7 Claims



1. An aquarium aeration and recycling apparatus comprising in combination,

an aquarium tank, the aquarium tank including a planar floor, and

plural pairs of spaced planar side walls wherein one of the pairs of the side walls includes a first and second opposed side wall, and

a housing overlying the planar floor, and

the housing including at least one output conduit, and

the housing further including at least one pump member within the housing in operative association with the output conduit, and

a filter member coextensively mounted overlying an upper surface of the housing, and

the upper surface of the housing including a matrix of upper housing apertures directed therethrough to permit fluid flow through the filter member into the housing, and

the aquarium tank including a predetermined quantity of water, the water including a water surface level, and

at least one output conduit mounted to the housing adjacent the first side wall, and

at least one output conduit extending upwardly to the water surface level, and

a circulation tube in fluid communication with at least one output conduit arranged parallel to the planar floor, the circulation conduit including a linear array of circulation tube apertures to direct fluid flow therethrough, and

wherein the circulation tube apertures are positioned adjacent the water surface level and arranged to direct fluid flow parallel to the water surface level.

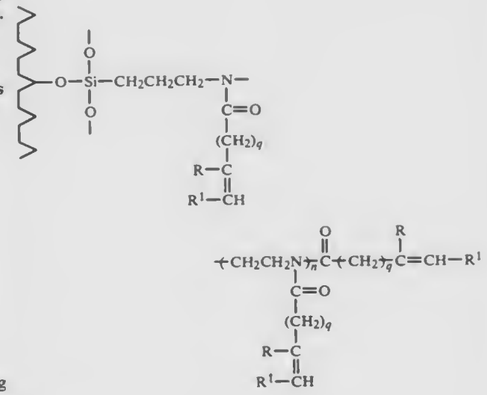
5,066,395

N-ACYLATED DERIVATIVES OF POLYETHYLENEIMINE BONDED PHASE SILICA PRODUCTS

Hugh E. Ramsden, Scotch Plains, and David R. Nau, Lebanon, both of N.J., assignors to J. T. Baker Inc., Phillipsburg, N.J.

Continuation of Ser. No. 86,617, Aug. 17, 1987, abandoned, which is a division of Ser. No. 943,954, Dec. 22, 1986, Pat. No. 4,721,573, which is a division of Ser. No. 837,051, Mar. 6, 1986, Pat. No. 4,661,248. This application Mar. 13, 1990, Ser. No. 492,219
The portion of the term of this patent subsequent to Sep. 10, 2002, has been disclaimed.
Int. Cl.[5] B01D 15/08
U.S. Cl. 210—198.2 3 Claims

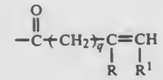
1. An N-acylated derivative of covalently bound, non-cross-linked polyethyleneimine bonded phase silica of the formula:



wherein



is the backbone of a silica gel or glass, n is an integer such that the polyethyleneiminopropyl silane group has an average molecular weight of from about 400 to about 1800; q is an integer of zero or one; R is selected from the group consisting of hydrogen, $-CH_2)_x H$ or $-CH_2)_m COOH$ where x is an integer of 1 or 2 and m is an integer of zero or 1; when R is hydrogen or $-CH_2)_x H$ then R^1 is $-CH_2)_p COOH$ where p is an integer of zero or 1, and when R is $-CH_2)_m COOH$ then R^1 is selected from the group consisting of hydrogen or $-CH_2)_y H$ where y is an integer of zero or 1, and the



acyl group is the acyl residue of an acylating agent selected from the acid, acid anhydrides and acid halides of the group consisting of maleic, fumaric, mesaconic, citraconic, glutaconic and itaconic acids.

5,066,396

TRASH APPARATUS AND COLANDER

Ramon A. Rangel, 815 Screenland Dr., Burbank, Calif. 91505

Filed Dec. 1, 1987, Ser. No. 127,194
Int. Cl.[5] B01D 35/02
U.S. Cl. 210—236 16 Claims

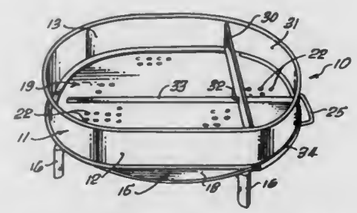
1. An apparatus for separating a mixture of articles and materials whereby the articles are retained in the apparatus and the materials are disposed of in operation of the apparatus, comprising

frame means,

a relatively shallow bin fixedly mounted to said frame means and being formed by an endless wall forming a cavity between an open bottom and an open top for the bin,

said frame means being distal from said open top and adapted for mounting said apparatus upon a receptacle, and

slidable plate means for collecting such mixture when disposed in said bin mounted on said frame means substantially at the bottom of such cavity,



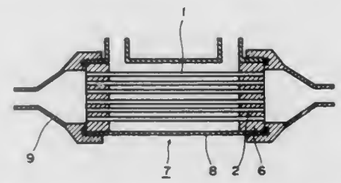
said slidable collecting plate means being slidable on said frame means between a position in alignment with such cavity and an extended position exteriorly of such wall to thereby provide communication between said cavity and receptacle for disposal of such material.

5,066,397

HOLLOW FIBER MEMBRANES WITH FUSION-BONDED END PORTIONS

Yoshihiko Muto, Moriyama; Kohei Watanabe, Fuji; Koichi Yasukata, Fuji, and Tomoyuki Sakurai, Fuji, all of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 217,782, Jul. 12, 1988, Pat. No. 4,980,060. This application Sep. 21, 1990, Ser. No. 586,234
Claims priority, application Japan, Jul. 13, 1987, 62-174451; Jul. 13, 1987, 62-174453; Feb. 26, 1988, 63-43449
The portion of the term of this patent subsequent to Dec. 25, 2007, has been disclaimed.
Int. Cl.[5] B01D 63/02, 71/06
U.S. Cl. 210—321.61 15 Claims



1. A filter element comprising a plurality of porous hollow fiber filter membranes of a thermoplastic resin, each of which membranes has two end portions and hollows passing therebetween and which are substantially equal in length and arranged in a lengthwise direction,

said membranes each having a porosity of from 30 to 90%,

at least one of said end portions of each of said membranes being directly fusion-bonded at its periphery to form a unified terminal block in which the end portions of said membranes are fluid-tightly bonded together in a fused fashion,

said membranes each being unbonded at portions other than the fusion-bonded end portions,

said unified terminal block having through-holes communicating with the hollows of the unbonded portions of said membranes,

said through-holes having diameters substantially the same as those of the hollows of the unbonded portions of said membranes which hollows communicate with said through-holes.

5,066,398

MEMBRANE FOR A FILTRATION, GAS OR LIQUID SEPARATION OR PERVAPORATION APPARATUS AND A MANUFACTURING METHOD FOR SUCH MEMBRANE

Raymond Soria, Bazet; Corinne Defalque, Tarbes, and Jacques Gillot, Odos, all of France, assignors to Societe Des Ceramiques Techniques, Bazet, France

Filed Jan. 25, 1991, Ser. No. 645,767
Claims priority, application France, Jan. 22, 1991, 91 00679
Int. Cl.[5] B01D 69/10
U.S. Cl. 210—321.89 25 Claims

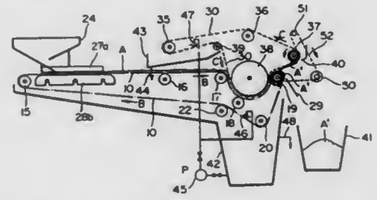
1. A membrane for a filtration, gas or liquid separation or pervaporation apparatus comprising at least one porous layer of an inorganic material selected from sintered ceramic, sintered metal, sintered glass or carbon and a separating layer of organic material, the membrane being characterized in that said organic material is a polyphosphazene, in that the average diameter of the pores in said porous layer of inorganic material is between about 5 nm and 1 μm, and in that said separating layer is continuous and only penetrates into said porous layer to a depth of less than five times the diameter of said pores in said porous inorganic layer, said layers being strongly bonded to each other.

5,066,399

BELT PRESS TYPE DEHYDRATION DEVICE

Kazutoyo Sugihara, 964-38, Niihashi, Gotenba City, Shizuoka Pref., and Yasuhide Kinoda, 2-3-16, Matsugaoka, Kugenuma, Fujisawa City, Kanagawa Pref., both of Japan

Filed May 28, 1986, Ser. No. 868,284
Int. Cl.[5] B01D 33/04
U.S. Cl. 210—401 4 Claims



1. A belt press type dehydration device comprising:

a plurality of rotatably supported first sprocket rollers having parallel axes;

a plurality of ratatably supported second sprocket rollers having axes parallel to said axes of said first sprocket rollers;

an endless first belt disposed about said first sprocket rollers and drivable in a first closed loop, said first belt comprising an outer first filter sheet layer having two edges and an inner first mesh support layer attached to said edges of said first filter sheet layer;

an endless second belt disposed about said second sprocket rollers and drivable in a second closed loop, said second belt comprising an outer second filter sheet layer having two edges and an inner second mesh support layer attached to said edges of said second filter sheet layer;

means for pressing said first belt and said second belt together;

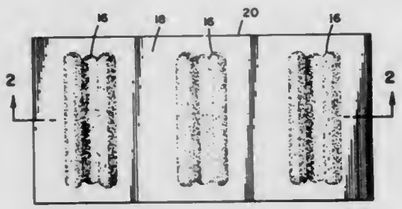
means for depositing hydrated material on at least one of said filter sheet layers;

means for driving said first and second belts along said first and second closed loops, respectively, from said means for depositing towards said means for pressing, wherein said first and second sprocket rollers are disposed so that a portion of said first belt lies closely adjacent a portion of said second belt and said means for pressing presses these portions together to dehydrate said hydrated material;

VOL 1132 ISS 3 NO 19 1991 UMI

wherein said first and second mesh layers each comprise closed loops of interlocked wire;
and wherein said first mesh layer comprises a single closed loop of interlocked wire extending from one edge of said first filter sheet to the other and said second mesh layer comprises two closed loops of interlocked wire, each extending inwardly from said attached edges of said second filter sheet.

5,066,400
SELF-SPACED PLEATED FILTER
Gary J. Rocklitz; Douglas G. Crofoot, both of Burnsville, and Richard L. Zelinka, Maplewood, all of Minn., assignors to Donaldson Company, Inc., Bloomington, Minn.
Filed Oct. 9, 1990, Ser. No. 595,177
Int. Cl.[5] B01D *27/06, 29/21*
U.S. Cl. 210—493.5 **12 Claims**

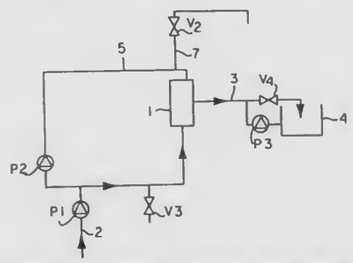


1. A pleated filter element comprising:
a sheet of filter media having a plurality of panel sections, each panel section having alternating repeating cycles of formed corrugations and a span of uncorrugated media, each cycle of formed corrugations having at least one complete corrugation and a one-half corrugation end to each cycle.

5,066,401
FLAT OR CAPILLARY MEMBRANE BASED ON A HOMOGENEOUS MIXTURE OF POLYVINYLIDENE FLUORIDE AND A SECOND POLYMER WHICH CAN BE RENDERED HYDROPHILIC BY CHEMICAL REACTION
Heinz-Joachim Müller, Wörth am Main; Heinz-Dieter Sluma, Grossostheim; Günter Eberhard, Erlenbach; Ernst Spindler, Obernburg; Lothar Krauss, Erlenbach, and Helmut Völker, Klingenberg, all of Fed. Rep. of Germany, assignors to AKZO N.V., Netherlands
Filed Jul. 13, 1990, Ser. No. 552,051
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1989, 3923128
Int. Cl.[5] B01D *71/34*
U.S. Cl. 210—500.35 **10 Claims**

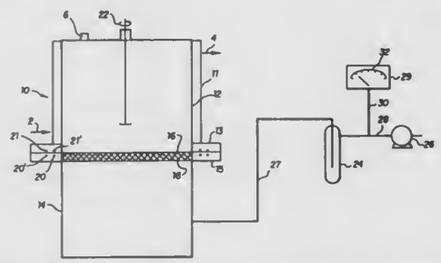
1. A membrane comprising a homogeneous mixture of 70 to 98 percent by weight of polyvinylidene fluoride and 2 to 30 percent by weight of a polymer which can be rendered hydrophilic by chemical reaction formed essentially from polymethyl and/or polyethyl acrylate, said membrane having a maximum pore size in the range from 0.005 to 10 μm.

5,066,402
METHOD OF CHANGING OPERATING MODES IN AUTOMATIC WATER FILTERING APPARATUS USING TUBULAR MEMBRANES
Christophe Anselme, Le Pecq, and Loïc Daniel, Rueil-Malmaison, both of France, assignors to Lyonnaise Des Eaux-Dumez, Paris, France
Filed Oct. 31, 1990, Ser. No. 606,947
Claims priority, application France, Aug. 31, 1990, 90 10864
Int. Cl.[5] B01D *61/20, 29/66*
U.S. Cl. 210—636 **5 Claims**



1. A method of changing operating modes in automatic water filtering apparatus comprising inside-skin tubular membrane modules for filtering water, the possible filtering modes being: dead-end filtering, cross-flow filtering, and cross-flow filtering with continuous purging, both cross-flow filtering modes including recirculation in a loop; comprising the stages of
(A) providing two types of triggering for filter membrane backwashes, a first one of said types being related to time periods between two backwashes, which time periods are predetermined for each mode of filtering, and a second one of said types being related to reference values of an operating parameter of the automatic apparatus, which reference values are predetermined for each mode of filtering; and
(B) changing the mode of filtering after a backwash has been triggered in response to one of said reference values, with changes taking place in the following order: dead-end filtering, cross-flow filtering, cross-flow filtering with continuous purging, or vice versa.

5,066,403
PROCESS FOR SEPARATING AZEOTROPIC OR CLOSE-BOILING MIXTURES BY USE OF A COMPOSITE MEMBRANE, THE MEMBRANE, AND ITS PROCESS OF MANUFACTURE
Binay K. Dutta, Calcutta, India, and Subhas K. Sikdar, Boulder, Colo., assignors to The United States of America as represented by the Secretary of Commerce, Washington, D.C.
Filed Jul. 12, 1990, Ser. No. 551,342
Int. Cl.[5] B01D *61/36*
U.S. Cl. 210—638 **18 Claims**



1. An integral composite pervaporation membrane exhibiting high pervaporation flux comprising a porous hydrophobic polytetrafluoroethylene matrix substrate having adhered to at least one side thereof a thin ion exchange membrane.

5,066,404
METHOD FOR SEPARATING SODIUM AND POTASSIUM BY ION EXCHANGE
Yu Komatsu; Yoshinori Fujiki, and Takayoshi Sasaki, all of Tsukuba, Japan, assignors to National Institute for Research in Inorganic Materials, Tsukuba, Japan
Filed Sep. 7, 1990, Ser. No. 578,415
Claims priority, application Japan, Jan. 5, 1990, 2-883
Int. Cl.[5] B01D *15/04*
U.S. Cl. 210—670 **2 Claims**

1. A method for separating sodium and potassium ions from an aqueous solution containing ions of these metals, which comprises selectively ion-exchanging sodium and potassium ions with fibrous crystal titania hydrate having the formula $TiO_2 \cdot nH_2O$ where n=0.5 to 2 obtained by subjecting potassium titanate to a potassium-removal treatment, followed by an ion exchange reaction at a temperature of from 25° to 80° C. to desorb and purify sodium and potassium ions.

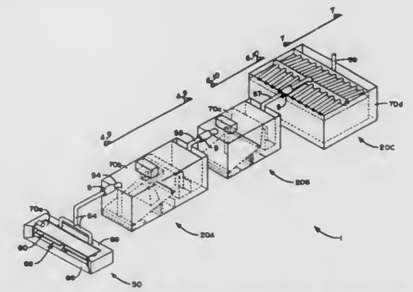
5,066,405
METHOD FOR ABSORBING PETROLEUM BASED PRODUCTS
Jack L. Liston, 2627 E. North La., Phoenix, Ariz. 85028; Michael Pipella, 4839 E. Greenway, Scottsdale, Ariz. 85254, and Pete Bathemes, 1286 E. Woodridge Cir., Salt Lake City, Utah 84121
Continuation-in-part of Ser. No. 374,189, Jul. 3, 1989, abandoned. This application Mar. 23, 1990, Ser. No. 498,027
Int. Cl.[5] B01D *15/04*
U.S. Cl. 210—693 **2 Claims**

1. A method for absorbing oils and petroleum-based products from a body of water, said method comprising the steps of:
selecting a liquid anti-static polyurethane foam material;
allowing said liquid foam material to rise;
sprinkling a hydrophobic amorphous silicate powder over said liquid foam as it rises;
allowing said liquid foam material to harden;
placing the hardened foam material in said body of water in contact with said oils and petroleum-based products; and
allowing said foam material to absorb said oils and petroleum-based products.

5,066,406

Patent Not Issued For This Number

5,066,407
PETROCHEMICAL RECOVERY MACHINE
George R. Furlow, 37,607 New River Rd., Geismar, La. 70734
Filed Jul. 16, 1990, Ser. No. 553,910
Int. Cl.[5] E02B *15/04;* **C02F** *1/40*
U.S. Cl. 210—744 **28 Claims**



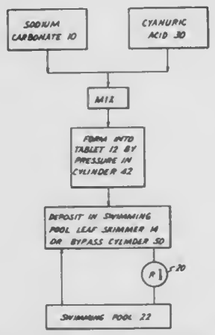
28. A method for separating immimscible liquids having different densities, comprising the steps of:
(a) providing an external housing and an intake line for the liquids;
(b) conveying the liquids through the intake line to a substantially horizontal, slotted distribution manifold larger in cross section than the intake line, and being constructed and arranged to direct the liquid flow slightly downward;
(c) distributing the liquids through the distribution manifold uniformly across the lower portion of the housing;
(d) conveying the liquids above a first baffle downstream of the distribution manifold, the first baffle being constructed and arranged as a compound overflow solid baffle having a lower vertical plate and an oblique upper plate, the lower vertical plate being secured to the bottom and side walls of the housing, the upper plate generally directed toward the distribution manifold, the height of the baffle being approximately equal to the height of the liquid stream leaving the slotted distribution manifold, the first baffle being constructed and arranged to change the direction of flow of the liquid stream to reverse and upward directions, thereby dividing the stream into an upper stream enriched in the less-dense liquid and a lower stream enriched in the more-dense liquid;
(e) discharging the stream enriched in the less-dense liquid; and
(f) separately discharging the stream enriched in the more-dense liquid.

5,066,408
MEANS AND METHOD TO TREAT SWIMMING POOL WATER
Jonathan S. Powell, 5094 Tip Top Rd., Mariposa, Calif. 95338
Filed Mar. 15, 1990, Ser. No. 493,801
Int. Cl.[5] C02F *1/66*
U.S. Cl. 210—765 **13 Claims**

3. A method of treating swimming pool water, containing calcium ions, comprising:
adding a quantity of sodium carbonate that will precipitate calcium carbonate if directly added to said pool water in

VOL 1132 ISS 3 NO 19 1991 UMI

excess of the solubility of sodium carbonate in said pool water to a quantity of cyanuric acid and mixing said quantity of sodium carbonate with said quantity of cyanuric acid before putting them in contact with the pool water and forming the mixture under pressure into tablets consisting essentially of said sodium carbonate and said cyanuric acid and providing a receptacle and a pump therefor



so that water from said pool flows into said receptacle and said pump returns water from said receptacle to said pool and placing said tablets in said receptacle so that said tablets absorb water and said sodium carbonate and said cyanuric acid chemically react to form mono sodium isocyanurate, and permitting said tablets to dissolve into water passing through said receptacle.

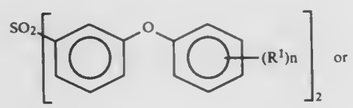
5,066,409

NOVEL ARYL ETHER SULFONES

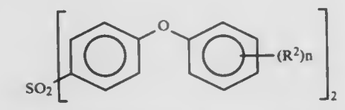
Bassam S. Nader, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Filed Sep. 12, 1990, Ser. No. 581,616
Int. Cl.[5] C07C *147/10;* C10M *1/42*
U.S. Cl. 252—48.2 **21 Claims**

1. A compound of the following formula:



or



wherein R^1 is independently in each occurrence hydrogen, hydroxyl, alkyl, alkoxy, aryl, aryloxy, polyhaloaryl, polyhaloaryloxy, polyhaloalkylaryl, or polyhaloalkylaryloxy, R^2 is independently in each occurrence alkyl, alkoxy, aryl, aryloxy, polyhaloaryl, polyhaloaryloxy, polyhaloalkylaryl, or polyhaloalkylaryloxy, and n is a whole number from 1 to 5.

5,066,410

REFRIGERATING MACHINE COMPOSITION COMPRISING A FLUORINE-CONTAINING POLYETHER OIL

Yukio Omure, Takatsuki; Katsuki Fujlwara, Sulta; Tatsumi Tsuchiya, Moriguchi; Satoshi Hishida, Takaishi; Masahiro Noguchi, Moriguchi, and Ikuo Yamamoto, Osaka, all of Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

Filed May 1, 1990, Ser. No. 517,329
Claims priority, application Japan, May 2, 1989, 1-112987; Oct. 11, 1989, 1-265609
Int. Cl.[5] C09K *5/00*
U.S. Cl. 252—68 **3 Claims**

1. A refrigerating machine composition comprising a hydrogen-containing halogenated hydrocarbon as a refrigerant and a machine oil, wherein the machine oil comprises a fluorine-containing polyether having repeated structure units represented by the formula (I)

$$-CF_2CF_2CF_2O)_l(CHFCF_2CF_2O)_m(CH_2CF_2CF_2O)_n \quad (I)$$

wherein l, m and n are all an integer of at least zero, and satisfying the relationship represented by

$$2 \leqq l + m + n \leqq 200$$

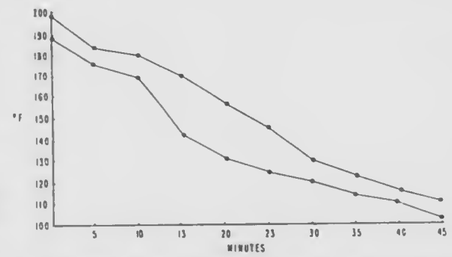
$$60 \leqq \frac{m + 2l}{(l + m + n) \times 2} \times 100 \leqq 95$$

5,066,411

SOLID, PLIABLE ORGANIC COMPOUND FOR HOT/COLD THERMAL RESERVOIR

Ruth E. Frye, 505 S. Main St., Lindsay, Okla. 73052

Filed Mar. 26, 1990, Ser. No. 499,624
Int. Cl.[5] C09K *5/00*
U.S. Cl. 252—70 **2 Claims**



1. A thermal reservoir material consisting of propylene glycol compounded with hydroxyethylcellulose in the following proportions:

propylene glycol, 20–40 volume percent of the total composition; and,

the balance, hydroxyethylcellulose.

5,066,412

FRICTION MODIFIER ADDITIVE AND LUBRICATING OIL COMPOSITION CONTAINING SAME

Cyril A. Migdal, Croton-On-Hudson; Shailaja M. Shirodkar, Wappingers Falls, both of N.Y.; Thomas F. DeRosa, Passaic, N.J., and Edward F. Miller, Wappingers Falls, N.Y., assignors to Texaco Inc., White Plains, N.Y.

Filed Feb. 1, 1991, Ser. No. 649,504
Int. Cl.[5] C10M *131/12*
U.S. Cl. 252—54.6 **7 Claims**

1. A lubricating oil composition comprising a major amount of an oil of lubricating viscosity and a minor amount of a fuel economy additive prepared by the steps comprising:

(a) reacting a perfluoroaliphatic alcohol with a polyalkenyl succinic acid anhydride in the presence of an acid catalyst to form a polyalkenyl succinic mono and/or diester mixture;

(b) heating the mixture to a temperature ranging from about 150° C. to about 180° C. for a period of about 2–4 hours to form the product of an alkenyl succinic mono and/or diester; and

(c) recovering the product polyalkenyl succinic mono and-/or diester.

5,066,413

GELLED, DRYER-ADDED FABRIC-MODIFIER SHEET

George W. Kellett, Cranford, N.J., assignor to Creative Products Resource Associates, Ltd., Clifton, N.J.

Continuation-in-part of Ser. No. 521,242, May 9, 1990, which is a continuation-in-part of Ser. No. 331,870, Apr. 4, 1989, Pat. No. 4,938,879. This application Aug. 17, 1990, Ser. No. 568,836
The portion of the term of this patent subsequent to Jul. 3, 2007, has been disclaimed.
Int. Cl.[5] B05D *3/12;* B06M *13/02, 13/17, 13/48*
U.S. Cl. 252—8.75 **7 Claims**

1. A fabric-modifier comprising dimensionally stable gelled sheet consisting essentially of about 15–30% water, about 40–60% of a water-miscible organic solvent selected from the group consisting of a polyethylene glycol, a lower alkanol, a glycol ether, a pyrrolidinone and mixtures thereof, and an amount of a fatty acid salt effective to form a dimensionally gelled stable sheet, having uniformly distributed therein an effective amount of a fabric-modifying agent selected from the group consisting of a quaternary ammonium salt, an imidazolinium salt, a stearyl amine salt, a nonionic surfactant, an amphoteric surfactant and mixtures thereof; wherein said sheet leaves an insignificant residue in a rotary hot air dryer following a laundry drying cycle.

5,066,414

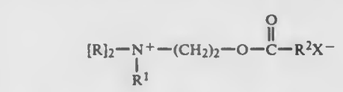
STABLE BIODEGRADABLE FABRIC SOFTENING COMPOSITIONS CONTAINING LINEAR ALKOXYLATED ALCOHOLS

Nienyuan J. Chang, Cincinnati, Ohio, assignor to The Procter & Gamble Co., Cincinnati, Ohio

Filed Mar. 6, 1989, Ser. No. 319,936
Int. Cl.[5] D06M *13/165, 13/325;* C11D *1/46, 1/835*
U.S. Cl. 252—8.8 **20 Claims**

1. A liquid fabric softening and antistatic composition, comprising:

(a) from about 1% to about 25% by weight of a quaternized ester-amine softening compound having the formula



and mixture thereof; wherein each R substituent is a C_1–C_6 alkyl or hydroxyalkyl group, or mixtures thereof; R^1 is



or C_{13}–C_{19} hydrocarbyl group; R^2 is a C_{13}–C_{21} hydrocarbyl group; and X^- is a softener compatible anion;

(b) from about 0.1% to about 10% of a linear alkoxylated alcohol selected from the group consisting of the condensation products of C_8–C_{18} linear fatty alcohols with from about 1 to about 10 moles of ethylene oxide or propylene oxide, and mixtures thereof; and

(c) from about 60% to about 98% of a liquid carrier comprising a mixture of water and a C_1–C_4 monohydric alcohol; said softening compound being present as particles which are submicron in size and which are dispersed in said liquid composition with the composition pH being maintained within the range of from about 2.0 to 5.0 and the composition further being maintained substantially free of unprotonated acyclic amines to enhance the hydrolytic stability of said quaternized ester-amine softening compound.

5,066,415

DISHWASHING AGENT

Franz-Josef Dany; Hannsjörg Ulrich, both of Erftstadt, and Lothar Westermann, Cologne, Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Aug. 24, 1990, Ser. No. 572,883
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1989, 3929896
Int. Cl.[5] C11D *7/02*
U.S. Cl. 252—135 **4 Claims**

1. A dishwashing agent based on a crystalline alkali metal layer silicate comprising a crystalline, largely water-insoluble sodium layer silicate having a molar ratio of SiO_2/Na_2O of (1.9 to 3.5):1 and a proton donor selected from the group consisting of mineral acids, polycarboxylic acids, hydroxypolycarboxylic acids, phosphonic acids, acid salts thereof and acid esters thereof, and wherein a 0.5% strength by weight aqueous solution of said dishwashing agent has a pH-value of less than 10.

5,066,416

PROCESS FOR PRODUCING MOLDABLE DETERGENTS HAVING A STABLE AVAILABLE CHLORINE CONCENTRATION

Douglas R. Martin, Orange, Conn., assignor to Olin Corporation, Cheshire, Conn.

Filed Aug. 31, 1987, Ser. No. 91,181
Int. Cl.[5] B08B *3/04;* C11D *11/00*
U.S. Cl. 252—90 **17 Claims**

1. A process for producing a moldable detergent which comprises:

a) preparing an aqueous slurry containing an alkali metal polyphosphate compound, an alkali metal silicate compound, and an available halogen compound,

b) admixing with the aqueous slurry an alkali metal phosphate compound to produce a moldable detergent composition,

the proportions of the components of steps a) and b) being such that the moldable detergent composition contains at least 50 percent by weight of solids and has an available halogen concentration of at least about 1 percent by weight.

16. A process for producing a solid molded detergent which comprises:

a) preparing an aqueous slurry containing an alkali metal polyphosphate compound, an alkali metal silicate compound, and an available halogen compound,

b) admixing with the aqueous slurry an alkali metal phosphate compound to produce a moldable detergent composition, and

c) pouring the moldable detergent composition into a mold and allowing the composition to harden,

the proportions of the components being such that the molded detergent composition contains at least 50 percent by weight of solids and has an available halogen concentration of at least about 1 percent by weight.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,417

BINARY AZEOTROPIC COMPOSITIONS OF 2,2-DICHLORO-1,2-DIFLUOROETHANE WITH METHANOL, ETHANOL, OR TRANS-1,2-DICHLOROETHYLENE

Abid N. Merchant, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jul. 20, 1989, Ser. No. 382,355
Int. Cl.[5] C11D *7/30, 7/50;* C23G *5/028;* B08B *3/00*
U.S. Cl. 252—171 10 Claims

1. An azeotrope consisting essentially of from 85 to 95 weight percent 2,2-dichloro-1,2-difluoroethane and 5 to 15 weight percent methanol wherein said azeotrope boils at about 44.0° C. at atmospheric pressure; 92 to 98 weight percent 2,2-dichloro-1,2-difluoroethane and 2 to 8 weight percent ethanol wherein said azeotrope boils at about 45.8° C. at atmospheric pressure, or 45 to 55 weight percent 2,2-dichloro-1,2-difluoroethane and 45 to 55 weight percent trans-1,2-dichloroethylene wherein said azeotrope boils at about 44.5° C. at atmospheric pressure.

5,066,418

BINARY AZEOTROPIC COMPOSITIONS OF 3-CHLORO-1,1,1-TRIFLUOROPROPANE WITH METHANOL OR ETHANOL, OR TRANS-1,2-DICHLOROETHYLENE

Abid N. Merchant, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 496,915, Mar. 21, 1990. This application Oct. 18, 1990, Ser. No. 599,283
Int. Cl.[5] C11D *7/30, 7/50;* C09K *5/04;* C23G *5/028*
U.S. Cl. 252—172 12 Claims

1. An azeotropic composition consisting essentially of about 55–62 weight percent 3-chloro-1,1,1-trifluoropropane and about 38–45 weight percent trans-1,2-dichloroethylene wherein the composition has a boiling point of about 43.0° C. when the pressure is adjusted to substantially atmospheric pressure.

5,066,419

COATED PERFUME PARTICLES

Darlene R. Walley, Loveland, Ohio; Howard J. Buttery, Newport; Robert J. Norbury, Oakdale, both of Minn.; Diane G. Schmidt, and William R. Michael, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio and Minnesota Mining & Manufacturing Co., St. Paul, Minn.

Filed Feb. 20, 1990, Ser. No. 482,441
Int. Cl.[5] C11D *3/50*
U.S. Cl. 252—174.11 9 Claims

1. A detergent composition, comprising one or more detersive surfactants, optionally, one or more builders, and perfume particles which comprise from about 5% to about 50% by weight of a perfume dispersed in from about 50% to about 95% by weight of a nonpolymeric solid fatty alcohol or fatty ester carrier material, or mixtures thereof, said alcohols or esters having a molecular weight of from about 100 to about 500 and a melting point of from about 37° C. to about 80° C., said alcohols or esters being substantially water-insoluble, said particles having a substantially water-insoluble friable coating on their outer surfaces, said coated particles having an average size less than about 350 microns.

5,066,420

PRODUCTION OF SILICA COLLOIDS

Yvonick Chevallier, Decines, France, assignor to Rhone-Poulenc Specialites Chimiques, Courbevoie, France

Continuation of Ser. No. 754,014, Jul. 11, 1985, abandoned. This application Aug. 5, 1987, Ser. No. 82,988
Claims priority, application France, Jul. 11, 1984, 84 11003
Int. Cl.[5] B01J *13/00;* C01B *33/14*
U.S. Cl. 252—313.2 20 Claims

1. A process for the production of a silica colloid comprising:
(a) forming a reaction medium by simultaneously adding an acidifying agent and an alkaline silicate solution to a reaction vessel;
(b) reacting said acidifying agent and said alkaline silicate solution to form a silica colloid which is substantially monodisperse or substantially polydisperse;
(c) maintaining a constant volume of said reaction medium by drawing off a portion of said reaction medium while additional acidifying agent and alkaline silicate solution in a constant volume are added to said reaction medium, wherein silica is present in said reaction medium in a concentration that avoids agglomeration of colloidal particles; and
(d) accumulating said portion of said reaction medium to form a silica colloid which is substantially polydisperse.

5,066,421

HEATING AND PRODUCING A HYDROCARBON STEAM MIXTURE

Francesco Giacobbe, Rome, Italy, assignor to Mannesmann AG and Kinetics KTI Group BV, both of, Fed. Rep. of Germany

Filed Dec. 7, 1988, Ser. No. 281,107
Claims priority, application Italy, Dec. 7, 1987, 48681 A/87
Int. Cl.[5] C01B *3/32*
U.S. Cl. 252—373 12 Claims

1. Method for the continuous production and preheating of a gaseous hydrocarbon and steam blend as a charge for a reforming process for the production of hydrogen or synthesis gas as a reforming product comprising the steps of:
using a single heat exchanger for (i) indirectly preheating the gaseous hydrocarbon, and including (ii) spraying water into a zone of preheating of the gaseous hydrocarbon so that the water evaporates in direct contact with the preheated gaseous hydrocarbon while simultaneously (iii) a blend of the gaseous hydrocarbon and of the steam obtains, and (iv) continuing heating the gaseous hydrocarbon and steam blend; the hydrocarbon water and steam being and remaining physically separated from a heating medium in the heat exchanger; and
extracting the preheated gaseous hydrocarbon and steam from the heat exchanger, to be used as the charge for the reforming process.

5,066,422

STATIC DISSIPATIVE VINYL SURFACE COVERING MATERIALS, METHODS FOR THEM, AND COMPOSITION FOR STATIC DISSIPATION

Richard E. Felter, Lancaster; Dean A. Markley, Mountville, and Deborah L. Musser, Lancaster, all of Pa., assignors to Armstrong World Industries, Inc., Lancaster, Pa.

Continuation-in-part of Ser. No. 201,854, Jun. 3, 1988, now Defensive Publication No. 4,976,890. This application Jun. 8, 1990, Ser. No. 535,054
The portion of the term of this patent subsequent to Dec. 11, 2007, has been disclaimed.
Int. Cl.[5] H04B *1/06;* B05D *3/02*
U.S. Cl. 252—511 20 Claims

1. A vinyl surface covering material having reduced electrical surface resistivity, comprising a fused sheet of an overcoated dry blend, wherein the dry blend includes:
(a) a polyvinyl chloride porous dry blend resin, the said porous dry blend resin comprising particles of resin with a conductive shell,
(b) a plasticizer for the polyvinyl chloride resin,
(c) a stabilizer for the polyvinyl chloride resin, and
(d) conductive particles in an amount of from 0.2 to 20% by weight of the total weight of the material, wherein the conductive particles form the conductive shell, and further, wherein the overcoated dry blend has a vinyl plastisol overcoat.

5,066,423

CONDUCTIVE CERAMIC SINTERED BODY

Yutaka Kubo, Yasugi, and Hisao Hara, Kumagaya, both of Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Dec. 19, 1988, Ser. No. 286,009
Claims priority, application Japan, Dec. 24, 1987, 62-328127; Sep. 22, 1988, 63-238281
Int. Cl.[5] H01B *1/04;* C04B *35/56, 35/58*
U.S. Cl. 252—516 7 Claims

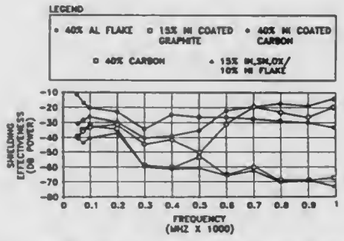
1. A conductive ceramic sintered body consisting essentially of:
a sialon-based ceramic material as a matrix said material represented by the formula $Si_{6-z}Al_zO_zN_{8-z}$, where $z \leqq 0.5$;
15–70 volume %, based on the amount of said matrix material, of a first conductive material which consists of one or more conductive compounds selected from carbides, nitrides, and their composite compounds of transition metals in Groups IVa, Va and VIa of the Periodic Table; and
3–50 volume %, based on the amount of said matrix material, of a second conductive material consisting of SiC; said body having a microstructure comprised of particles of said first and second conductive materials distributed in said matrix, said first conductive material and said second conductive material serving to form paths for electric conduction so that said body has a stable electric resistivity, and said body having high strength, high hardness, and high toughness.

5,066,424

COMPOSITE MATERIAL FOR EMI/EMP HARDENING PROTECTION IN MARINE ENVIRONMENTS

David S. Dixon, Old Lyme, Conn., and James V. Masi, Wilbraham, Mass., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 20, 1990, Ser. No. 544,297
Int. Cl.[5] H01B *1/20*
U.S. Cl. 252—518 8 Claims



1. A composite material for EMI/EMP hardening protection, comprising:
a preselected 0.01–10 weight percent of non-conducting, non-corrosive matrix material selected from a group of insulating polymers consisting of a PEEK polymer, a polycarbonate polymer and a polycarbonate polymer with an inherently conductive polypyrrole polymer plastic additive;
0–10 weight percent of conducting Nickel-flake particles, embedded in said non-conducting matrix;
5–15 weight percent of non-corrosive semi-conducting oxide particles selected from the group consisting of Indium Tin Oxide, Indium Oxide and Tin Oxide, embedded in said non-conducting matrix and acting in cooperation with said conducting particles in such a way that galvanic potential is lowered;
said preselected weight percent of matrix material comprising the remainder of said composite material.

5,066,425

FORMATION OF HIGH ACTIVE DETERGENT PARTICLES

Kofi Ofosu-Asante, and Scott E. Stephans, both of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Filed Jul. 16, 1990, Ser. No. 552,663
Int. Cl.[5] C11D *1/12, 3/33, 1/72*
U.S. Cl. 252—546 17 Claims

1. A process for producing high active detergent particles, comprising the steps of:
(a) reacting in a continuous high active neutralization loop, the acid form of an anionic surfactant with an alkali metal hydroxide solution, which is about 30 to 75% by weight of the hydroxide and is present in stoichiometric amount to slight stoichiometric excess, to produce a neutralized product;
(b) adding to said continuous high active neutralization loop, during formation of said neutralized product, an α-aminodicarboxylic acid selected from the group consisting of glutamic acid, aspartic acid, aminomalonic acid, aminoadipic acid and 2-amino-2-methyl-pentanedioic acid, or their alkali metal salts; and
(c) forming detergent particles from the molten neutralized product of step (b) by cooling and sequentially or concurrently prilling, extruding, granulating or flaking, said particles comprising from about 50 to 90 weight % of the anionic surfactant and from about 0.2 to 15 weight % of the α-aminodicarboxylic acid salt.

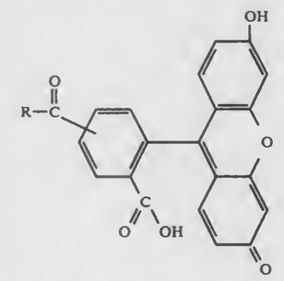
5,066,426

FLUORESCENCE POLARIZATION IMMUNOASSAY UTILIZING SUBSTITUTED CARBOXYFLUORESCEINS

Chao-Huei J. Wang, Gurnee; Stephen D. Stroupe, Libertyville, and Michael E. Jolley, Round Lake, all of Ill., assignors to Abbott Laboratories, North Chicago, Ill.

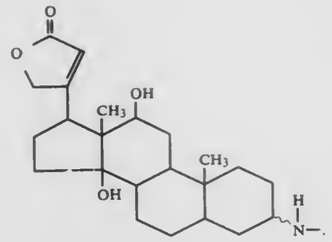
Continuation of Ser. No. 443,401, Nov. 22, 1982, abandoned, which is a division of Ser. No. 329,974, Dec. 11, 1981, abandoned, which is a continuation-in-part of Ser. No. 235,259, Feb. 17, 1981, abandoned. This application Aug. 23, 1984, Ser. No. 644,172
Int. Cl.[5] C07J *21/00, 19/00*
U.S. Cl. 540—106 1 Claim

1. A compound of the formula:



wherein R is a digoxin derivative having the formula:

VOL 1132 ISS 3 NO 19 1991 UMI



5,066,427

EICOSATRIYNOIC ACID ESTERS AND THEIR APPLICATION IN PHARMACEUTICAL AND COSMETIC PRACTICE

Braham Shroot, Antibes; Christopher Hensby, Biot; Jean Maignan, Tremblay les Gonesses; Gerard Lang, Saint Gratien; Serge Restle, Aulnay sous Bois, and Michel Colin, Livry Gargan, all of France, assignors to Centre International de Recherches Dermatologiques dite CIRD, Valbonne, France

Division of Ser. No. 881,776, Jul. 3, 1986, Pat. No. 4,877,789.
This application Sep. 22, 1989, Ser. No. 411,043
Claims priority, application France, Jul. 5, 1985, 85 10363
Int. Cl.[5] C11C *1/00*
U.S. Cl. 260—413 12 Claims

1. A compound having the formula

$$C_8H_{17}—(C{\equiv}C—CH_2)_3\ CH_2CH_2COR \quad (I)$$

wherein

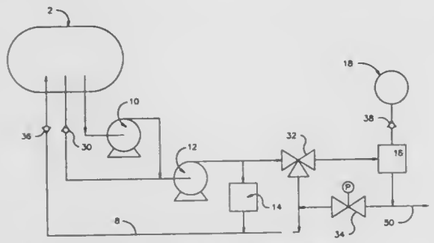
R is a C_1-C_8 lower alkoxy or C_4-C_6 cycloalkoxy group, said alkoxy or said cycloalkoxy group being substituted with one or more hydroxyl groups and/or interrupted by one or more hetero atoms chosen from oxygen and sulfur.

5,066,428

FOAM GENERATING APPARATUS

David Manlowe, and Paul A. Kittle, both of West Chester, Pa., assignors to Rusmar Incorporated, West Chester, Pa.

Filed Aug. 8, 1990, Ser. No. 564,368
Int. Cl.[5] B01F *3/04*
U.S. Cl. 261—29 11 Claims



1. A foam generating apparatus, comprising:

a storage tank for storing a foamable liquid;

means for supplying air under pressure;

means for combining air from said supplying means with said foamable liquid to produce a foam product;

pumping means for delivering said foamable liquid from said tank to said combining means;

delivery means, connected to said combining means, for permitting foam to exit said apparatus;

means providing a return path connected to said storage tank;

valve means having a first selectable position for permitting the flow of said foamable liquid from said pumping means to said combining means, and having a second selectable position for preventing the flow of said foamable liquid from said pumping means to said combining means and for permitting the flow of said foamable liquid from said pumping means through said return path to said tank;

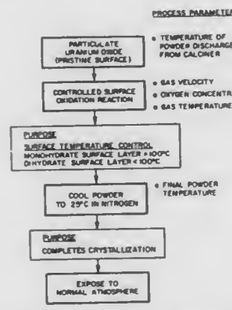
circulation pump means for pumping said foamable liquid from said tank through said pumping means and through said return path while said pumping means is not operating.

5,066,429

METHOD FOR PASSIVATING URANIUM OXIDES TO CONTROL OXIDATION, AND THE OXIDATION RESISTING URANIUM PRODUCT THEREOF

Richard I. Larson, Wilmington; Richard P. Ringle, Scotts Hill, and John L. Harmon, Wilmington, all of N.C., assignors to General Electric Company, San Jose, Calif.

Continuation of Ser. No. 232,965, Aug. 17, 1988, abandoned.
This application Oct. 12, 1990, Ser. No. 596,433
Int. Cl.[5] C01G *43/00*
U.S. Cl. 264—0.5 25 Claims



1. A method of passivating the surface portion of loose particles of moisture absorbing oxides of uranium newly produced in a water containing environment with the formation thereof of a protective hydrate surface layer to inhibit oxygen chemisorption of the particle surface, comprising subjecting the loose particles of moisture absorbent oxides of uranium nominally of uranium dioxide to the combination of conditions consisting essentially of:

a. an atmosphere containing oxygen in a concentration of about 0.03 to about 3.0 percent by volume;

b. a temperature within the range of about 40° to about 250° C.; and

c. for a period of at least about 20 minutes up to about 120 minutes whereby the oxygen interacts with the particle surface of the oxides of uranium containing absorbed moisture to produce a protective hydrate surface layer thereon.

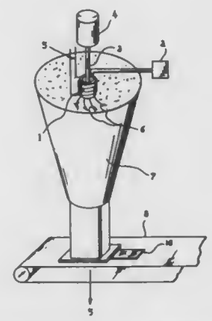
5,066,430

PROCESS FOR CENTRIFUGALLY SPINNING PITCH CARBON FIBERS

Abraham Matthews, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 20, 1989, Ser. No. 326,554
Int. Cl.[5] D01D *5/18*
U.S. Cl. 264—8 6 Claims

1. In a process for preparing carbon fibers from mesophase pitch comprising centrifugally spinning a molten mesophase pitch at a temperature of 375° C. to 550° C. over the lip of a rotor at a centrifugal force of from 200 to 25000 g, the improvement comprising dividing the molten pitch into multiple discrete streams within the rotor, the streams being confined in channels which extend to said lip.

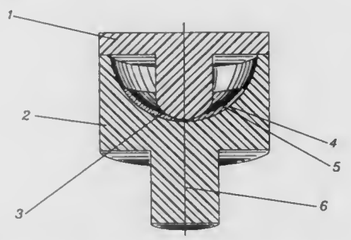


5,066,431

METHOD OF MAKING TORIC CONTACT LENSES

Charles R. Briggs, 6815 Academy Parkway West, NE., Albuquerque, N. Mex. 87109, and Charles W. Neefe, 811 Scurry St., Big Spring, Tex. 79720

Filed Apr. 20, 1990, Ser. No. 511,784
Int. Cl.[5] B29D *11/00*
U.S. Cl. 264—2.1 9 Claims



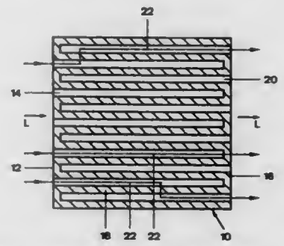
1. A method of making spin cast lenses having a toric central area by the steps of, providing a concave optical mold having a spherical concave optical surface, placing a selected liquid lens monomer in the concave spherical lens mold, placing a convex toric optical mold in the central area of the convex spherical mold thereby displacing the central liquid lens monomer, aligning the optical axis of the concave and convex optical lens molds, the assembled molds are rotated about the common optical axis directed toward the earth's gravitational center forming a spin cast peripheral lens, allowing the liquid lens monomer to polymerize forming a solid lens having a toric central area and a spin cast peripheral, removing the finished lens from the molds.

5,066,432

PROCESS FOR MANUFACTURING A CERAMIC FOAM BODY

Jean-Pierre Gabathuler, Schleitheim; Karl-Ludwig Eckert; Peter Käser, both of Schaffhausen; Albert Maurer, Thayngen, and Anton Fischer, Schaffhausen, all of Switzerland, assignors to Alusuisse-Lonza Services Ltd., Zurich, Switzerland

Filed Jul. 18, 1990, Ser. No. 554,277
Claims priority, application Switzerland, Aug. 8, 1989, 2925/89
Int. Cl.[5] B05B *3/00*; B29C *65/00*
U.S. Cl. 264—28 20 Claims



1. Process for manufacturing a Z-flow filter comprising an open pore foam body with a three dimensional ceramic structure, which comprises:

providing a soft open pore plastic foam strip;

impregnating said foamstrip at least once with a ceramic suspension;

freeing said foam strip of excess suspension;

assembling a plastic foam block with a layered structure from said impregnated plastic foam strip by either (a) forming slices from said impregnated strip and stacking at least two of said slices to form layers of impregnated plastic foam including holes therein as flow channels, or (b) coiling said impregnated plastic foam strip to form layers and forming holes as flow channels between at least two of said layers;

heating to a temperature below the melting point of the plastic; and

finally burning off the plastic foam at a temperature at which the ceramic sinters together to form the Z-flow filter with longitudinal channels therein which serve as flow channels.

5,066,433

METHOD OF MANUFACTURING CARBON FIBER USING PRELIMINARY STRETCH

James T. Paul, Jr., New Castle County, Del., assignor to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 156,389, Feb. 16, 1988, abandoned. This application Jun. 15, 1989, Ser. No. 366,393
Int. Cl.[5] D01F *9/22*
U.S. Cl. 264—29.2 8 Claims

1. In an improved process for manufacturing carbon fiber from polyacrylonitrile precursor comprising

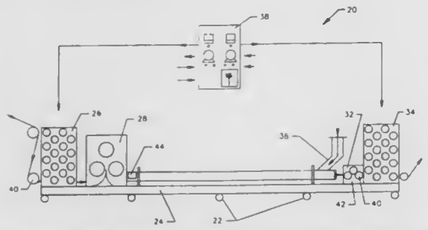
a) subjecting to a spinning operation a viscous solution of an acrylonitrile copolymer of acrylonitrile monomer with at least one ethylenic monomer comprising extruding said solution through a die to form a multitude of continuous filaments and stretching said filaments in cold water, hot water, steam, or a combination thereof to at least twice the original length of the filaments and

b) subjecting said stretched filaments to a carbonization operation comprising oxidizing said stretched filaments of the spinning operation at a temperature range of 180° to 300° C. in an oxidizing atmosphere in a series of ovens and carbonizing the oxidized filaments in progressively increasing temperatures zones at temperatures from 400° to

VOL 1132 ISS 3 NO 19 1991 UMI

2800° C. in a series of furnaces so that tar is removed in the first temperature zone, the improvement comprising

i) selecting a precursor being capable of being stretched prior to the carbonization operation at a limited temperature range of from about 140° C. to about 180° C. in air in which range less than 1% based on kinetic calculations of oxidation occurs,



ii) heating said precursor prior to the oxidizing step of the carbonizing operation but after the stretching step of the spinning operation to the limited temperature range of about 140° C. to about 180° C., and

iii) while in said limited temperature range, stretching said precursor again to at least 1.5 times its previously stretched length performed in the spinning operation.

5,066,434

METHOD OF FORMING A MULTILAYER HEAT SEALABLE FILM

Leland L. Liu, Macedon, and Patricia A. Cyr, Farmington, both of N.Y., assignors to Mobil Oil Corporation, Fairfax, Va.

Division of Ser. No. 208,307, Jun. 16, 1988, Pat. No. 4,944,990. This application Jul. 27, 1990, Ser. No. 559,868

Int. Cl.[5] B05D *7/04;* **B29C** *39/20, 47/06;* **B32B** *31/30*

U.S. Cl. 264—37 **6 Claims**

1. A method for producing a multi-layer heat sealable structure comprising:

(a) coextruding a substrate layer of a polyolefin and a second material of higher melting point with a second heat-sealable layer selected from the group consisting of ethylene-propylene random copolymer, ethylene-propylene block copolymer, ethylene-propylene butene-1 terpolymer and blends thereof to form a colayered product;

(b) biaxially orienting the colayered product of step (a) such that said substrate layer becomes white, opaque and cavitated;

(c) treating the colayered product of step (a) to increase surface energy of said second layer;

(d) applying a primer coating on a surface of said second layer having increased surface energy; and

(e) applying a heat sealable layer on said primer coating, said heat sealable layer including a vinylidene chloride copolymer containing at least 50% by weight of vinylidene chloride.

5,066,435

PROCESS AND SYSTEM FOR PRODUCING MULTI-LAYER EXTRUDATE

Hans Lorenz, Darmstadt; Heinz Gross, Rossdorf; Roland Schuchmann, Ober-Ramstadt, and Helmut Häring, Reinheim, all of Fed. Rep. of Germany, assignors to Rohm GmbH Chemische Fabrik, Darmstadt, Fed. Rep. of Germany

Filed Mar. 5, 1990, Ser. No. 488,131

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1989, 8911084[U]

Int. Cl.[5] B69C *47/92*

U.S. Cl. 264—40.5 **10 Claims**

1. A system for producing a multi-layer extrudate of thermoplastically processable plastic, comprising:

an extrusion adapted block having a main runner through which an extrudate may flow in a flow direction and at least one secondary runner connected to said main runner and through which another extrudate may flow for merger with the extrudate in said main runner to form a multi-layer extrudate;

means in said adapter block for regulating the thickness of any extrudate flowing through each said at least one secondary runner, comprising a multi-part slide comprising a plurality of side-by-side slide sections mutually spaced in a direction transverse to the flow direction and slidably fitted in said adapter block for movement to adjustably protrude into said secondary runner;

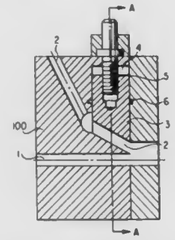
control means for separately controlling movement of at least some of said slide sections, comprising at least two independently movable control elements connected to said slide sections;

a die through which the multi-layer extrudate is extruded said die being wider than said adapter block;

means for selectively measuring the thickness of individual layers of the extruded multi-layer extrudate at a plurality of places distributed over the width thereof; and

means for driving said control elements as a function of the thicknesses measured by said measuring means at width positions assignable by means of trial adjustments to correspond to respective ones of said control elements,

whereby the thicknesses of the layers of the extruded multi-layer extrudate can be controlled during the running operation of the system.



9. A process for producing a multi-layer extrudate of thermoplastically processable plastic, comprising the steps of:

feeding at least two melted thermoformable plastic extrudates to respective runners of an extrusion adapter where said extrudates are merged to form a multi-layer extrudate;

extruding said multi-layer extrudate through a die wider than the extrusion adapted to form an extruded multi-layer extrudate;

sensing a thickness of at least one layer of said extruded multi-layer extrudate at a plurality of positions along the width of said extruded multi-layer extrudate during said extruding step;

providing at least one multi-part slide in said extrusion adapter, said multi-part slide comprising a plurality of side-by-side slide sections mutually spaced along the width of the extrusion adaptor and slidably fitted in the extrusion adaptor for movement to adjustably protrude into a respective one of said runners for adjusting the thickness of the extrudate in said respective one of said runners;

performing trial adjustments of said multi-part slide so as to assign a range of action in the width of the extruded web for each of said slide sections; and

controlling positions of said slide sections during said extruding step as a function of the sensed thickness of said at least one layer at the assigned width positions corresponding to width positions of said slide sections.

5,066,436

PROCESS FOR MICROENCAPSULATION

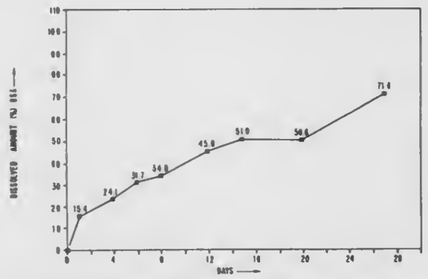
Joseph Komen, Eb Haarlem, and Jan W. Groenendaal, EE Delft, both of Netherlands, assignors to Gist-Brocades N.V., Delft, Netherlands

Filed Dec. 27, 1989, Ser. No. 457,257

Claims priority, application European Pat. Off., Jan. 4, 1989, 89200015.9

Int. Cl.[5] B01T *13/02*

U.S. Cl. 264—4.3 **19 Claims**



1. A process for microencapsulating bioactive compositions according to the phase separation principle, whereby microcapsules are formed by:

a. dispersing the bioactive composition in an organic solution of a biocompatible polymer;

b. adding a coacervation agent to the dispersion;

c. adding a hardening liquid to the dispersion and

d. collecting, washing and drying the resultant microcapsules, the improvement comprising adding as the hardening liquid an ethyl or isopropyl ester of a straight chain fatty acid having 12–18 carbon atoms to the dispersion in an excess with respect to the combined volume of solvent and coacervation agent.

5,066,437

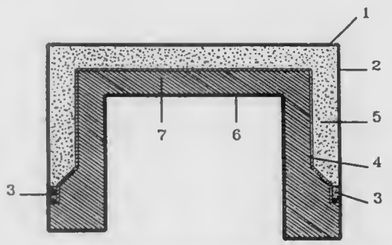
METHOD FOR INSULATING THERMAL DEVICES

Robert W. Barito, and Mary O. Barito, both of 9011 Cardiff Rd., Louisville, Ky. 40242

Filed Mar. 19, 1990, Ser. No. 495,620

Int. Cl.[5] B29C *67/22*

U.S. Cl. 264—46.5 **2 Claims**



1. A method of insulating thermal devices with a composite insulation system bounded by spaced walls comprising the following steps:

dividing the spaced walls of the thermal device into two sectors,

filling one of the two sectors through a fill port with a powder,

sealing the powder fill port,

filling the other sector with a plastic foamable material,

applying vacuum to the powder filled sector, through an evacuation port, while the plastic foamable material is expanding and curing, and

sealing the evacuation port while maintaining the vacuum.

5,066,438

METHOD OF PRODUCING SILICON NITRIDE SINTERED BODY

Michitaka Sato, and Hiroaki Nishio, both of Tokyo, Japan, assignors to NKK Corporation, Tokyo, Japan

Filed Dec. 22, 1989, Ser. No. 455,034

Claims priority, application Japan, Dec. 23, 1988, 63-323618

Int. Cl.[5] C04B *35/58*

U.S. Cl. 264—56 **5 Claims**

1. A method of producing a silicon nitride sintered body which comprises forming a molded body consisting essentially of an amorphous Si_3N_4 powder which does not contain a sintering aid, which amorphous Si_3N_4 powder has a mean particle size of 5 to 50 nm, a nitrogen content of 30 to 39 wt. %, an oxygen content of 1 to 10 wt. %, the sum of the nitrogen content and the oxygen content being 38 to 42 wt. % and having an unavoidable impurities content of less than 500 ppm as the raw material, sealing the molded body in a capsule and treating it with HIP in the range of 1000° to 1800° C. and 1000 to 2000 atm until the density becomes 3.1 to 3.4 g/cm$_3$.

5,066,439

METHOD OF MAKING POLYESTER FIBERS

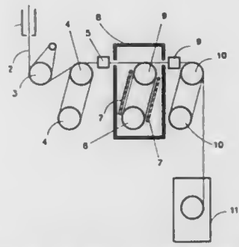
Kinsaku Nishikawa, Uji; Hiroshi Yokoyama, Jyoyo, and Masami Takahashi, Uji, all of Japan, assignors to Unitika Limited, Osaka, Japan

Filed Mar. 27, 1990, Ser. No. 499,863

Claims priority, application Japan, Mar. 27, 1989, 1-75377

Int. Cl.[5] D01D *5/12*

U.S. Cl. 264—103 **1 Claim**



1. In a continuous spin-draw process of making dimensionally stable polyester fiber having high strength and low shrinkage comprising melt spinning polyethylene terephthalate or a polyester polymer in which polyethylene terephthalate is the main component through a spinning die to produce spun yarn; passing the spun yarn through a heated cylinder installed directly adjacent the face of the spinning die; solidifying the spun yarn by cooling; applying an oil agent; passing the spun yarn to a takeup roller; then continuously drawing the resulting undrawn fiber at a drawing speed of over 2000 meters per minute and then applying a relaxation heat treatment to the drawn yarn; the improvement comprising:

said drawing step comprising multiple drawing stages of at least two stages wherein said spun yarn is passed from the takeup roller to a first pair of drawing rollers, then to a final pair of drawing rollers, then to a pair of relaxation rollers and then to yarn take up means; the surface temperature of said final pair of drawing rollers being maintained at 10° to 60° C. lower than the melting point of the drawn fiber; a non-contact type heated plate whose surface temperature is heated to 250° to 500° C. is positioned 20 to 100 mm separated from the yarn which is wound about the final pair of drawing rollers, thereby heating the yarn to

VOL
1132
ISS
3
NO
19
1991
UMI

obtain the relaxation heat treatment between the final pair of drawing rollers and the pair of relaxation rollers; and applying a commingling treatment to the drawn fiber by installing a commingling treatment apparatus between the final pair of drawing rollers and the pair of relaxation rollers.

5,066,440

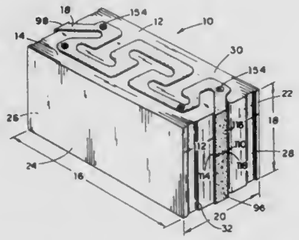
PROCESS FOR MAKING AN INSULATED BUILDING BLOCK

Francis A. Kennedy; John P. Neff, both of Williamsville, and Kenneth J. Blake, East Aurora, all of N.Y., assignors to Thermalock Products, Inc., North Tonawanda, N.Y.

Continuation-in-part of Ser. No. 433,842, Nov. 9, 1989, Pat. No. 4,986,049. This application Oct. 29, 1990, Ser. No. 605,576

Int. Cl.[5] B28B *1/10, 7/00;* **B29C** *43/04;* **B29B** *13/00*

U.S. Cl. 264—69 **15 Claims**



1. A process for preparing a building block, comprising the steps of:

(a) providing a substantially serpentine, integral, insert adapted to form a multiplicity of interlocking projections with curvilinear structure, wherein:

1. said insert is comprised of at least one projection which is curvilinear;

2. said insert consists essentially of material with a density of from about 1.0 to about 2.0 pounds per cubic foot, a flexural strength of from 25 to 125 pounds per square inch, and a shear strength from 25 to 175 pounds per square inch;

(b) providing a substantially rectangular mold;

(c) disposing said insert within said mold;

(d) providing a cementitious material, wherein said material is comprised of at least about 30 weight percent of aggregate, and at least about 5 weight percent of cement;

(e) placing said cementitious material around said insert within said mold;

(f) pressing said cementitious material to form a block until said block has a density of from about 80 to about 150 pounds per cubic foot and until said insert extends beyond the top of said block by from about 0.2 to about 0.6 inches;

(g) removing said block from said mold; and

(h) heating said block for from about 4 to about 10 hours at a temperature of from about 75 to about 250 degrees Fahrenheit.

5,066,441

PROCESS FOR COMPACTING A CALCIUM PHOSPHATE COMPOSITION

Thomas W. Gerard, Upper Saddle River, N.J., assignor to Rhone-Poulenc Basic Chemicals Co., Shelton, Conn.

Continuation of Ser. No. 746,468, Jun. 20, 1985, abandoned, which is a continuation-in-part of Ser. No. 682,570, Dec. 14, 1984, abandoned, which is a continuation of Ser. No. 594,424, Mar. 29, 1984, abandoned, which is a continuation of Ser. No. 444,009, Nov. 23, 1982, abandoned, which is a continuation of Ser. No. 215,953, Dec. 12, 1980, abandoned. This application Jun. 6, 1988, Ser. No. 206,937

Int. Cl.[5] B29B *9/12*

U.S. Cl. 264—118 **10 Claims**

7. A mechanical process for treating fine particles consisting essentially of drymixed calcium phosphate which includes the step of compacting the particles under pressure to form a compacted calcium phosphate followed by the additional step of comminuting said compacted calcium phosphate to granules.

5,066,442

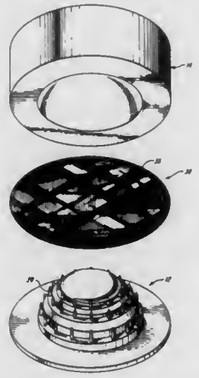
METHOD OF PRODUCING A COMPOSITE ARTICLE

Timothy G. Gutowski, Newton; Michael F. Sentovich, Boston, both of Mass., and Richard K. Okine, Wilmington, Del., assignors to Massachusetts Institute of Technology, Cambridge, Mass. and E. I. Du Pont de Nemours & Co., Wilmington, Del.

Continuation of Ser. No. 317,006, Feb. 28, 1989, abandoned. This application Sep. 6, 1990, Ser. No. 580,369

Int. Cl.[5] B29C *43/02*

U.S. Cl. 264—154 **8 Claims**



1. A method of controlling fiber movement during formation of a laminate of fibers in a thermoplastic resin matrix into a desired shaped comprising the steps of:

providing a laminate of fibers in a thermoplastic resin matrix to be formed into a desired shape;

rough forming said laminate into an approximation of said desired shape in a first shaping die having a surface portion, said first shaping die having piercing studs protruding from said surface in a preselected pattern for piercingly engaging said laminate in operation, and making holes therein;

completing the formation of said laminate in a second shaping die in the form of said desired shape, said second shaping die being free of said protruding piercing studs, whereby said holes formed by said piercing studs in said laminate are healed during said forming of said desired shapes.

5,066,443

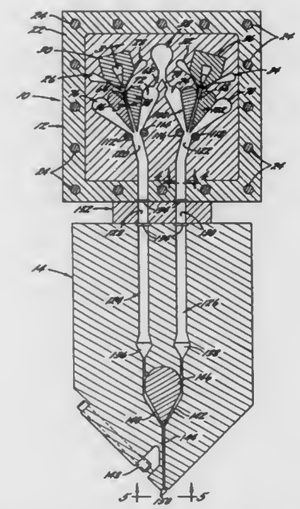
DUAL BARRIER LAMINATE PROCESS

Peter F. Cloeren, Orange, Tex., assignor to P.C.E. Corp., Orange, Tex.

Filed Apr. 11, 1990, Ser. No. 507,633

Int. Cl.[5] B29C *47/06*

U.S. Cl. 264—171 **18 Claims**



1. A coextrusion process comprising providing a first regrind stream and a second regrind stream; converging a first barrier material stream with said first regrind stream and converging said first barrier material stream with a first skin layer-forming stream to form a first composite stream having said first barrier material stream disposed between a first protective stream comprising said first regrind stream, and a second protective stream comprising said first skin layer-forming stream, said first protective stream and said second protective stream each being of sufficient thickness to overcome interfacial instability of said first barrier material stream during thinning and spreading of said first composite stream, and said first protective stream having a face uncovered by another stream; converging a second barrier material stream with said second regrind stream and converging said second barrier material stream with a second skin layer-forming stream to form a second composite stream having said second barrier material stream disposed between a third protective stream comprising said second regrind stream, and a fourth protective stream comprising said second skin layer-forming stream, said third protective stream and said fourth protective stream each being of sufficient thickness to overcome interfacial instability of said second barrier material stream during thinning and spreading of said second composite stream, and said third protective stream having a face uncovered by another stream; thereafter thinning and spreading said first composite stream and thinning and spreading said second composite stream; and thereafter converging said uncovered face of said first protective stream of said first composite stream with said uncovered face of said third protective stream of said second composite stream to form a third composite stream containing said first and second barrier material streams, having said first and second regrind streams disposed between said first and second barrier material streams, and having said first and second regrind streams separated from said first and second skin layer-forming streams.

5,066,444

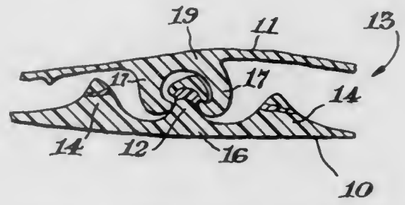
PROCESS AND APPARATUS FOR REDUCING COLOR CONTAMINATION IN THE PROCESS RECYCLE OF ZIPPERED THERMOPLASTIC BAGS

R. Douglas Behr, Midland, Mich., assignor to DowBrands Inc., Indianapolis, Ind.

Filed Jul. 5, 1990, Ser. No. 548,524

Int. Cl.[5] B29C *47/04*

U.S. Cl. 264—171 **16 Claims**



1. Apparatus for making a zipper profile having distinct colored and colorless material regimes for a zipper for a reclosable, thermoplastic bag, comprising:

(a) means for providing a continuous flow melt of a colorless thermoplastic material;

(b) means for concurrently providing a continuous flow melt of a colored thermoplastic material;

(c) means for receiving and integrating the colorless and colored flow melts into a continuous combined flow melt having distinct, continuous material regimes wherein the colored flow melt if entirely encapsulated within the colorless flow melt with substantially no intermixing of the colorless flow melt with the colorless flow melt;

(d) means for controllably initiating and terminating the flow of the colored melt to the receiving and integrating means without interrupting the flow of the colorless flow melt comprising a dump valve, the dump valve being adapted to controllably direct the flow melt to or away from the receiving and integrating means; and

(e) die means for receiving and shaping the combined flow melt into the zipper profile

4. A process for making a zipper profile having distinct colored and colorless material regimes for a zipper for a reclosable, thermoplastic bag, comprising:

(a) providing a continuous flow melt of a colorless thermoplastic material;

(b) concurrently providing a continuous flow melt of a colored thermoplastic material while controllably interrupting the flow thereof;

(c) integrating the colorless and colored flow melts into a continuous combined flow melt having distinct, continuous, colored and colorless material regimes without interrupting the flow of the colorless flow melt with colored flow melt being entirely encapsulated within the colorless flow melt with no substantial intermixing of colored flow melt with colorless flow melt; and

(d) passing the combined flow melt through a die to continuously form the zipper profile.

5,066,445

RECOVERY AND MELT EXTRUSION OF AROMATIC/ALIPHATIC COPOLYAMIDES FROM LACTAM-PLASTICIZED POLYMER

Beth E. Dunlap; Fulton F. Rogers, Jr., both of Richmond, Va., and Mark F. Teasley, Wilmington, Del., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 12, 1990, Ser. No. 508,862

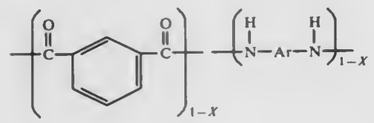
Int. Cl.[5] B29B *9/12*

U.S. Cl. 264—176.1 **6 Claims**

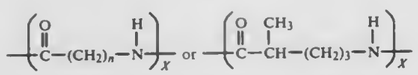
1. A process for the recovery and melt-extrusion of aromatic/aliphatic copolyamides from lactam-plasticized polymer

VOL 1132 ISS 3 NO 19 1991 UMI

comprising dissolving a lactam-plasticized polyamide consisting essentially of the following repeat units:



and



wherein n is 4 or 5; X is from 0.01 to 0.50, preferably 0.02 to 0.30; and Ar is at least one divalent aromatic radical of the group consisting of 1,3-phenylene, 1-methyl-2,4-phenylene, 1-ethyl-2,4-phenylene, 3,4'-oxydiphenylene, 1,3-bis(3-phenyleneoxy) benzene and 1,4-bis(4-phenyleneoxy)-2-phenylbenzene or a mixture of members of said group with minor amounts of 1,4-phenylene of 4,4'-oxydiphenylene radicals, and wherein the lactam is selected from caprolactam, valerolactam and 3-methylvalerolactam, in a solvent of the group consisting of dimethylacetamide, N-methylpyrrolidone, dimethyl sulfoxide and N,N'-dimethylpropyleneurea; introducing the solution into water with agitation, separating the precipitated polymer from the liquid; melting the polymer and extruding it through an orifice to form a shaped structure substantially free of lactam.

5,066,446

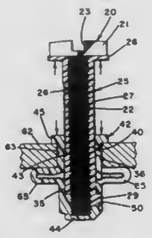
METHOD FOR MAKING A BLIND FASTENER

Ronald W. Phillips, II, Mogadore, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Division of Ser. No. 435,919, Nov. 13, 1989, Pat. No. 4,984,946. This application Aug. 8, 1990, Ser. No. 564,216

Int. Cl.[5] B29C *45/14*; F16B *13/06*

U.S. Cl. 264—242 **9 Claims**



1. The method of making a blind fastener consisting essentially of the steps of locating a threaded bolt with a longitudinally extending threaded shank and a flanged head into a first mold that has a cavity therein with such head protruding out of said mold, molding an inner longitudinally extending plastic sleeve with a lower end portion onto said threaded bolt in said first mold wherein the sleeve is interconnected to such bolt by the threads therebetween, said inner sleeve molded in said first mold to have two axially spaced projections that are radially outwardly extending, one of said projections molded in said first mold to the lower end portion of said inner sleeve, and molding an outer sleeve with a lower end portion onto said inner sleeve in a second mold while simultaneously molding at least a pair of axially spaced sockets into said outer sleeve, one of said sockets molded into the lower end portion of said outer sleeve to receive the projection on the lower end portion of said inner sleeve to lock said lower portions together, the other one of said sockets spaced axially from said one socket being an axially extending socket that receives the other one of said projections on said inner sleeve to permit relative movement between said sleeves other that said lower end portions.

5,066,447

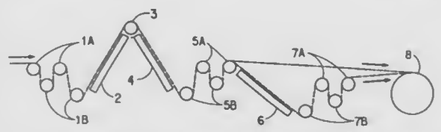
PROCESS FOR IMPROVING THE PROPERTIES OF A FEED YARN

Benjamin H. Knox, West Chester, Pa., and James B. Noe, Wilmington, N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation-in-part of Ser. No. 53,309, May 22, 1987, abandoned, which is a continuation-in-part of Ser. No. 824,363, Jan. 30, 1986, abandoned. This application Apr. 14, 1989, Ser. No. 338,251

Int. Cl.[5] D02H *7/00*

U.S. Cl. 264—290.5 **18 Claims**



1. A process for improving the properties of a feed yarn of undrawn polyester filaments, characterized in that said feed yarn is partially drawn by draw-warping to a uniform yarn by hot-drawing or by cold-drawing, with or without heat-setting, said feed yarn being of elongation-to-break (E_B) about 40 to about 120%, tenacity at 7% elongation (T_7) at least about 0.7 grams/denier, boil-off shrinkage (S_1) less than about 10%, thermal stability as shown by an S_2 value less than about +1%, net shrinkage (S_{12}) less than about 8%, maximum shrinkage tension (ST) is less than about 0.3 grams/denier, density (ρ) about 1.35 to about 1.39 grams/cubic centimeter, and crystal size (CS) about 55 to about 90Å and also at least about the following value in relation to the density:

$$CS > (250\rho - 282.5)Å.$$

5,066,448

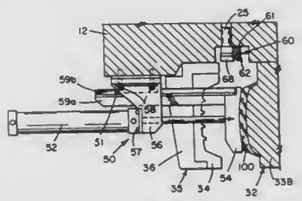
TREAD REMOVAL METHOD AND APPARATUS

Larry E. Chlebina; Norbert Majerus; John S. Rambacher, all of Akron, Ohio, and Stephen L. Felder, Mesquite, Tex., assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Filed Oct. 3, 1990, Ser. No. 592,164

Int. Cl.[5] B29B *7/10*

U.S. Cl. 264—334 **15 Claims**



1. A method for removing an annular grooved tread from an initially closed segmented mold, the segmented mold having an annular cavity formed by a plurality of mold segments circumferentially surrounding a central core, the mold also having an axial and a radial direction, the method comprising the steps of:

a) radially withdrawing a first plurality of segments:

b) restraining radial movement of the tread at a plurality of locations from which segments have been withdrawn by engaging the tread at said locations with radially movable tread restrainers

c) radially withdrawing a second plurality of segments;

d) radially retracting the tread restrainers; and

e) removing the tread from the core.

5,066,449

INJECTION MOLDING PROCESS FOR CERAMICS

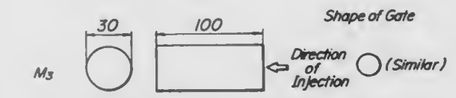
Shigeki Kato, Nagoya, and Katsuhiro Inoue, Ama, both of Japan, assignors to NGK Insulators, Ltd., Aichi, Japan

Filed Dec. 22, 1989, Ser. No. 454,912

Claims priority, application Japan, Dec. 23, 1988, 63-325574; Dec. 24, 1988, 63-326930; Dec. 24, 1988, 63-326931

Int. Cl.[5] B29B *7/00*; B29C *45/00*

U.S. Cl. 264—406 **11 Claims**



1. An injection molding process for forming flawless ceramic molded bodies, comprising injecting a molding material comprising a ceramic powder and an organic binder into a cavity of a mold of an injection molding machine through a gate having an area of at least 20% a maximum cross-sectional area of said cavity viewed from the gate side thereof such that the molding material flows along the shape of the mold cavity and air is purged smoothly and uniformly from the cavity.

5,066,450

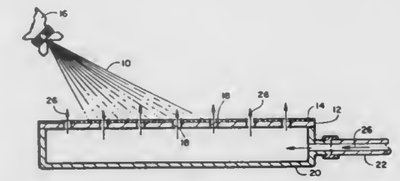
METHOD FOR MAKING PREFORMED MASKANT SHEETS

Arlo M. Steinicke, Victorville, Calif., assignor to Rohr Industries, Inc., Chula Vista, Calif.

Filed Jul. 28, 1989, Ser. No. 386,306

Int. Cl.[5] B29C *41/08*

U.S. Cl. 264—504 **4 Claims**



1. The method of making a preformed perforated maskant sheet for use on a structure to be perforated to provide a desired surface contour and pattern of perforations therethrough which comprises the steps of:

providing a shaping surface on a sheet having a front and back surface, at least said front surface having the contour of said structure which is to be perforated;

said shaping surface further having a pattern of perforations therethrough corresponding to said desired pattern of perforations in said structure to be perforated;

sealing a plenum to said back surface of said shaping surface sheet, said plenum surrounding said pattern of perforations;

flowing air into said plenum and out through said perforations in said shaping surface;

while flowing said air spraying a coating of liquid maskant material onto said shaping surface;

curing said maskant material to a self supporting perforated sheet state; and

removing said sheet from said shaping surface.

5,066,451

SINGLE-STEP MULTIPLE REPOSITIONINGS OF CONTROL ROD CLUSTER ASSEMBLY DURING EACH NUCLEAR REACTOR FUEL CYCLE

John E. Tessaro, Manor Boro, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Aug. 14, 1990, Ser. No. 567,465

Int. Cl.[5] G21C *7/08*

U.S. Cl. 376—237 **6 Claims**

1. A method of movably repositioning a control rod cluster assembly of a nuclear reactor relative to a plurality of fuel assemblies in the nuclear reactor within a maximum displacement composed of a multiplicity of separate successive single steps, said method comprising the steps of:

(a) performing a single-step repositioning of a control rod cluster assembly in a nuclear reactor by moving the control rod cluster assembly through soley a single step of such displacement; and

(b) repeating said single-step repositioning at a plurality of separate times during a given fuel cycle of the reactor to perform a sequence of at least more than one of the separate single-step repositionings of the control rod cluster assembly during the given fuel cycle of the nuclear reactor, the separate times being spaced from one another by periods of time during which the control rod cluster assembly remains stationary;

(c) said single-step repositioning being repeated at most once every month during a twelve month fuel cycle.

5,066,452

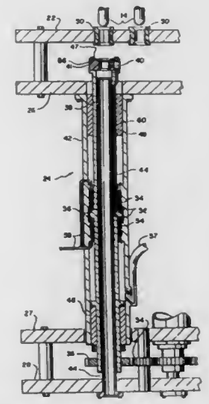
ULTRASONIC PROFILOMETRY SYSTEM FOR CONTROL ROD WEAR

Jimmy W. Hancock; Michael J. Kelly; Wayne M. Latham, and Carlton E. Stinnett, all of Lynchburg, Va., assignors to The Babcock & Wilcox Company, New Orleans, La.

Filed Jul. 24, 1989, Ser. No. 384,358

Int. Cl.[5] G21C *17/00*

U.S. Cl. 376—252 **20 Claims**



1. An apparatus for scanning the outer profile of control rods, comprising:

a module support positioned at a fixed location with respect to a control rod to be scanned, a transducer drive tube mounted for rotation about the axis of a control rod for receiving a control rod therein, a transducer holder connected to the transducer drive tube carrying ultrasonic transducer means facing an interior of said transducer drive tube, for sending an ultrasonic beam to and receiving ultrasonic echo energy from the surface of the control rod, said holder having at least one part for carrying said ultrasonic transducer means which is mounted for limited

VOL 1132 ISS 3 NOV 19 1991 UMI

radial movement with respect to said transducer drive tube;

rotation means, mounted to said module support and engaged with said transducer drive tube for rotating said transducer drive tube and said ultrasonic transducer means around the axis of the control rod; and

translation means for translating the control rod with respect to said ultrasonic transducer means, in a direction parallel to the axis of the control rod, for scanning the surface of the control rod along a helical path.

5,066,453

NUCLEAR FUEL ASSEMBLY COOLANT CONTROL

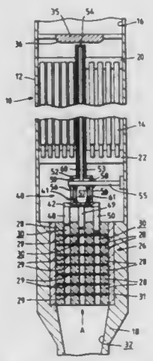
Neil G. Heppenstall, MacClesfield; Colin Betts, Altrincham, and James Ford, West Derby, all of United Kingdom, assignors to The Secretary of State for United Kingdom Atomic Energy Authority in Her Britannic Majesty's Government of The United Kingdom of Great Britain and Northern Ireland, London, England

Filed Aug. 3, 1989, Ser. No. 389,298

Claims priority, application United Kingdom, Aug. 5, 1988, 8818701

Int. Cl.[5] G21C *3/30, 15/06*

U.S. Cl. 376—352 9 Claims



1. In a nuclear fuel assembly for a fast nuclear reactor arranged to be cooled by liquid metal, the assembly comprising an elongate metal wrapper, and a plurality of nuclear fuel pins arranged lengthwise therein at a position intermediate the ends of the wrapper, and one of said ends comprising ann inlet for the flow of liquid metal through the wrapper, wherein the improvement comprises a variable flow restrictor for the liquid metal located at the inlet, the variable flow restrictor defining a plurality of ducts for the liquid metal aligned in parallel relationship longitudinally with respect tot he wrapper, means for plugging at least some of the ducts, the plugging means having an array of plugging members locatable in some of the ducts, the plugging members being of different lengths so that longitudinal displacement of the plugging means progressively opens or closes some of the ducts, responsive means disposed lengthwise in the wrapper and responsive to neutron radiation in a manner to cause a predetermined neutron-induced growth of the responsive means, and connecting means for connecting the responsive means to the plugging means so as to effect said longitudinal displacement of the plugging means in response to neutron-induced growth of the responsive means.

5,066,454

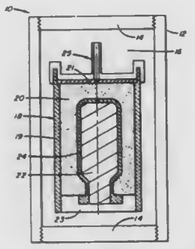
ISOSTATIC PROCESSING WITH SHROUDED MELT-AWAY MANDREL

Andrew D. Hanson, Derry, N.H., assignor to Industrial Materials Technology, Inc., Andover, Mass.

Filed Jun. 20, 1990, Ser. No. 540,683

Int. Cl.[5] B22F *1/00*

U.S. Cl. 419—42 15 Claims



1. A process for isostatic pressing of compactible material including the steps of enclosing a material charge to be compacted and a melt-away mandrel in a flexible containment bag, sealing the bag from a fluid environment in a pressurization vessel,

applying pressure via the fluid to the bag to cause hydrostatic compaction of the material against the mandrel, and

applying heat to the compacted material and mandrel until the compacted material and mandrel are separated without fracturing or uncompacting the compacted material, whereby a part having complex form can be made in an isostatic compaction process.

5,066,455

ALLOY STEEL WIRES SUITABLE FOR TIRE CORD APPLICATIONS

Dong K. Kim, Akron, and Robert M. Shemenski, North Canton, both of Ohio, assignors to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 415,948, Oct. 2, 1989, Pat. No. 4,960,473.

This application Jul. 25, 1990, Ser. No. 557,854

Int. Cl.[5] C22C *38/18*

U.S. Cl. 420—100 8 Claims

1. A steel alloy composition which is particularly suitable for use in manufacturing reinforcing wire for rubber products which consists essentially of (a) about 95.8 to about 99.3 weight percent iron, (b) about 0.40 to about 1 weight percent carbon, (c) about 0.1 to about 1.2 weight percent manganese, (d) about 0.1 to about 1 weight percent silicon, (e) about 0.05 to about 0.5 weight percent molybdenum and (f) about 0.05 to about 0.5 weight percent cobalt.

5,066,456

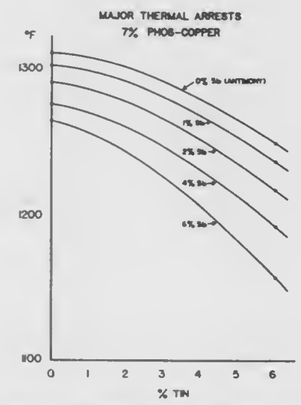
PHOSPHOROUS COPPER BASED ALLOY WITH TIN AND ANTIMONY

Richard E. Ballentine, St. Petersburg, Fla., and Joseph W. Harris, Cincinnati, Ohio, assignors to J. W. Harris Co., Inc., Cincinnati, Ohio

Filed Aug. 10, 1990, Ser. No. 566,604

Int. Cl.[5] C22C *9/02*

U.S. Cl. 420—472 3 Claims



1. A phosphorous-copper based alloy comprising by weight:

1.0–6% tin

1.0–6% antimony

7% phosphorous

and the balance copper.

5,066,457

RAPID SOLIDIFICATION ROUTE ALUMINIUM ALLOYS CONTAINING LITHIUM

Howard Jones, Sheffield; Panayiotis Tsakiropoulos, Petersfield, both of England; Charles R. Pratt, Neath, United Kingdom; Robert W. Gardiner, Farnham, England, and James E. Restall, deceased, late of Camberley, England by Janet E. Restall, executrix , assignors to The Secretary of tbe State for Defence in ber Britannic Majesty's Government of United Kingdom, London, England

PCT No. PCT/GB87/00734, § 371 Date Apr. 13, 1989, § 102(e) Date Apr. 13, 1989, PCT Pub. No. WO88/03178, PCT Pub. Date May 5, 1988

PCT Filed Oct. 19, 1987, Ser. No. 346,173

Claims priority, application United Kingdom, Oct. 21, 1986, 8625190

Int. Cl.[5] C22C *21/00, 21/06*

U.S. Cl. 420—552 5 Claims

1. An alloy formed by a rapid solidification rate process consisting essentially of the following ingredients in proportions by weight:

Li 1–5%

one or more of the following refractory elements within the individual proportions stated below and in total proportion not exceeding 5% when present in combination:

Nb 0.2–5.3%

Mo 0.2–5.0%

Hf 0.2–5.0%

Ta 0.2–5.0%

W more than 0.3–5.0 with Al as balance, save for incidental impurities and save for up to 5% in total of one or more of the following conventional strengthening ingredients within the individual proportions stated:

Cu 0–5%

Mg 0–5%

Zn 0–5%.

5,066,458

HEAT RESISTING CONTROLLED THERMAL EXPANSION ALLOY BALANCED FOR HAVING GLOBULAR INTERMETALLIC PHASE

Edward A. Wanner, Leesport, and Sunil Widge, Dryville, both of Pa., assignors to Carpenter Technology Corporation, Reading, Pa.

Filed Feb. 22, 1989, Ser. No. 313,753

Int. Cl.[5] C22C *38/52;* B32B *15/04*

U.S. Cl. 420—586 27 Claims

1. A precipitation hardenable, nickel-iron base alloy, said alloy being balanced for precipitating a globular intermetallic phase and having a good combination of elevated temperature strength and ductility, said alloy consisting essentially of, in weight percent, about

	wt. %
Carbon	0.1 max.
Manganese	0.5 max.
Silicon	A small but effective amount up to 0.7
Phosphorus	0.015 max.
Sulfur	0.010 max.
Chromium	0.8 max.
Nickel	32–52
Molybdenum	0.5 max.
Cobalt	0–20
Titanium	1–3
Aluminum	0.2 max.
Niobium	5–7
Vanadium	0.5 max.
Zirconium	0.1 max.
Boron	0–0.02
Copper	0.8 max.
Tungsten	0.5 max.

and the balance is essentially iron, wherein

(a) % Nb≧6.7−0.5(% Ti) when Ti≦1.5%;

(b) % Nb≧18.3−8.2(% Ti) when Ti≧1.5%;

(c) % Ti≦0.67(% Nb)−1.3; and

the sum, % Mn×% Cr+% Mo+% V+% Cu+% W≦2.

5,066,459

ADVANCED HIGH-TEMPERATURE BRAZING ALLOYS

Adrian M. Beltran, Ballston Spa, and Charles H. Kreischer, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed May 18, 1990, Ser. No. 524,982

Int. Cl.[5] C22C *30/00*

U.S. Cl. 420—58.8 2 Claims

1. A cobalt base, high temperature brazing alloy consisting essentially of, by weight:

Nickel	10%;
Chromium	29%;
Tungsten	7%;
Carbon	0.1%;
Boron	2.5%;
Silicon	2.5%;
Manganese	0.6%;
Hafnium	2%;
Tantalum	2%; and
Cobalt	Balance

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,460

CORROSION INHIBITION OF POLYMETHYLPENTENE

Kenneth W. Willcox, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.

Division of Ser. No. 235,137, Aug. 23, 1988, Pat. No. 4,968,736, which is a division of Ser. No. 161,938, Feb. 29, 1988, Pat. No. 4,793,972. This application Jul. 16, 1990, Ser. No. 553,021

Int. Cl.[5] C08K *5/52;* C09K *15/22;* C08F *110/14;* C23F *11/00*

U.S. Cl. 422—7 21 Claims

1. A process comprising processing a polymer composition wherein said composition comprises:

a) a polymer selected from homopolymers and copolymers of 4-methyl-1-pentene;

b) tris-(3,5-ditert-butyl-4-hydroxybenzyl)isocyanurate; and

c) bis-(2,4-ditert-butyl)pentaerythritol diphosphite;

wherein said composition imparts reduced corrosion to the processing apparatus used in said processing, compared to the corrosion imparted by said polymer without tris-(3,5-ditert-butyl-4-hydroxybenzyl)isocyanurate and bis-(2,4-ditert-butyl)-pentaerythritol diphosphite.

5,066,461

TERPINENE-MALEIC ANHYDRIDE ADDUCT DERIVATIVES AS CORROSION INHIBITORS

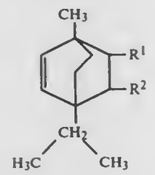
Ewa A. Bardasz, Mentor, Ohio, assignor to Union Camp Corporation, Wayne, N.J.

Filed Jul. 30, 1990, Ser. No. 559,472

Int. Cl.[5] C23F *11/10*

U.S. Cl. 422—16 10 Claims

1. A process for inhibiting corrosion of a metal exposed to oxidative conditions, which comprises; applying to the metal a corrosion inhibiting proportion of a compound selected from those having the formula:



(I)

wherein R^1 and R^2 when taken independently, each represent the monovalent group of formula:



(II)

wherein Y is a monovalent group selected from hydroxyl and a group of the formula:

$$+NH-C_mH_{2m}\frac{}{}_nX \quad \text{(III)}$$

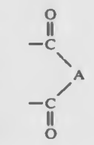
wherein m is from 1 to 6; wherein n is a whole number integer of 0 to 6; X is selected from the group consisting of hydroxyl and amino when n is from 1 to 6; and when n is 0, X is selected from monovalent groups of the formula:

$$-O-C_mH_{2m}-NR^3R^4 \quad \text{(IV)}$$

wherein m is from 1 to 6; wherein R^3 is selected from the group consisting of hydrogen and R^4; and R^4 represents a monovalent group of the formula:

$$-C_mH_{2m}-OH; \quad \text{(V)}$$

wherein m is from 1 to 6; provided that R^1 and R^2 are not both a carboxyl group; and R^1 and R^2 when taken together represent the divalent moiety of formula:



(VI)

wherein A represents one of oxygen and

$$N+C_mH_{2m}-NH\frac{}{}_nC_mH_{2m}-NH_2 \quad \text{(VII)}$$

wherein m is from 1 to 6; wherein n has the meaning previously ascribed to it.

5,066,462

ANALYTICAL ELEMENT FOR MEASURING ENZYME ACTIVITY

Kazuya Kawasaki; Mitsutoshi Tanaka; Yoshikazu Amano, and Harumi Katsuyama, all of Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 126,770, Nov. 30, 1987, abandoned. This application Aug. 29, 1989, Ser. No. 401,494

Claims priority, application Japan, Nov. 28, 1986, 61-283628

Int. Cl.[5] G01N *21/01;* C12Q *1/48*

U.S. Cl. 422—56 15 Claims

1. In a dry-type analytical element containing an indicator having color-forming sensitivity for measuring the activity of alanine aminotransferase in a liquid sample, which has one or more water-permeable layers, at least one of the water-permeable layers being a porous spreading layer and at least one of the water-permeable layers containing alanine or its salt and α-ketoglutaric acid or its salt, the improvement comprising that at least one of the water-permeable layers contains a dye which is not the indicator and which has a maximum absorption in the range from 400 to 500 nm in an amount sufficient to prevent an increase in the color-forming sensitivity of the indicator.

5,066,463

MULTIPLE-PURPOSE FECAL EXAMINATION APPARATUS

Maw-Guay Chang, P.O. Box 55-1670, Taipei (10477), Taiwan

Filed Oct. 1, 1990, Ser. No. 591,361

Int. Cl.[5] G01N *21/00*

U.S. Cl. 422—56 3 Claims

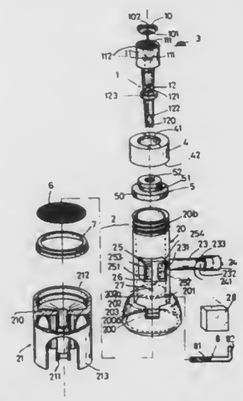
1. A multiple-purpose fecal examination apparatus comprising:

a handle means including a tubular portion having a hollow stem formed on a lower portion of the tubular handle portion and a rake member formed on a bottom portion of said stem, a shallow recess portion formed in a lower portion of said stem approximate to said rake member;

a housing including an upper hollow portion for encasing and supporting said handle means and a lower base portion having a bottom tube adapted for connecting a test tube, said handle means having said hollow stem inserted in a soft packing member sealably mounted on an upper portion of said housing, said lower base portion having a first partition plate separating said upper hollow portion and said lower base portion and having a filter retained on said first partition plate and a slot formed in said upper hollow portion adjacent to said filter for inserting a test paper through said slot for an occult blood test, said upper hollow portion having a second partition plate having a central drain hole formed therein and a valve means formed under said second partition plate for operatively opening said drain hole for draining a fecal solution downwardly into a test tube connected to said bottom tube of said lower base portion for inspecting parasites, said second partition plate defining an upper chamber and a lower chamber in said upper hollow portion;

an extension tube laterally protruding from said upper hollow portion above said second partition plate communticated with said upper champer, having a dripping hole formed in an outer portion of said extension tube rotatably closed by a rotating knob rotatably mounted on an outer end portion of said extension tube; and

a platform formed on said upper hollow portion on a side of said extension tube having two windows formed in said platform communicated with said upper chamber, and



two filter papers pre-soaked or pre-impregnated with test reagents thereon overlain on said two windows, and a protective cap shielding said filter papers and said platform;

whereby upon a charge of fecal sample into said upper chamber to spread the fecal sample on an inner port of said extension tube or on the two windows of said platform for penetrating fecal samples onto the filter papers, the test reagents may be added through the dripping hole into said extension tube or may be applied on said filter papers for conducting occult blood test of the fecal sample.

5,066,464

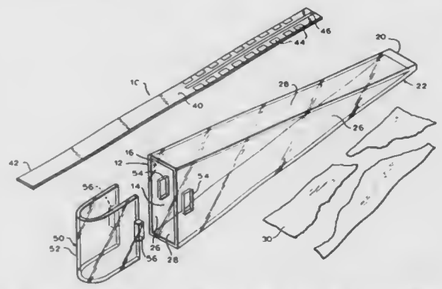
PREVACUUM STEAM STERILIZATION TEST PACK

Thomas A. Augurt, New Canaan, Conn., assignor to Propper Manufacturing Company, Inc., Long Island City, N.Y.

Filed Jan. 17, 1990, Ser. No. 466,048

Int. Cl.[5] G01N *25/14*

U.S. Cl. 422—58 14 Claims



1. A device adapted for insertion into a sterilization chamber of a prevacuum steam sterilizer for indicating the presence of unacceptable levels of noncondensable gas comprising:

(A) a housing defining a single hollow elongate chamber having an open end, a closed end wherein said open end is larger than said closed end, and wherein said open end and said closed end are disposed opposite one another, said housing further comprising continuously, a sidewall tapering from said open end to said closed end;

(B) a heat sink disposed in said chamber and extending substantially from said open end to said closed end, said heat sink constructed so as to absorb latent heat from steam until the temperature of said heat sink is in equilibrium with ambient sterilizer temperature;

said open end constructed so as to be in flow communication with the sterilization chamber when said device is inserted therein such that when steam enters said heat sink through said open end, said heat sink defines a plurality of tortuous paths through which the steam travels from said open end to said closed end, so as to provide sufficient exposure of the steam to said heat sink so that the steam condenses within said heat sink, releasing any noncondensable gas associated with the steam, forcing the noncondensable gas so released toward and concentrating such noncondensable gas within said closed end; and

(C) means disposed in said chamber adjacent said closed end for indicating the presence of noncondensable gas concentrated therein.

5,066,465

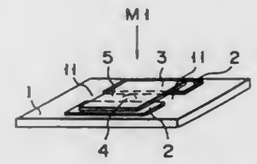
REACTION APPARATUS

Toklo Kano, Nesconset, N.Y.; Toshinobu Niimura, Hachioji, Japan, and Hiroyuki Yonekawa, St. James, N.Y., assignors to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Dec. 27, 1989, Ser. No. 457,289

Int. Cl.[5] B01N *21/01*

U.S. Cl. 422—58 14 Claims



1. A reaction apparatus for carrying out agglutination reactions, comprising:

a lower plate having an inner wall, said inner wall constructed so as to define at least one recess;

a transparent plate mounted adjacent to said lower plate, said transparent plate comprising a flat surface and communicating with said inner wall of said lower plate;

at least a portion of said inner wall of said lower plate, and said transparent plate, being spaced apart from one another over at least an area of said at least one recess;

means for maintaining said lower plate and said transparent plate positioned relative to each other so as to define a sample inlet channel space between said inner wall of said lower plate and said transparent plate, said sample inlet channel space being in flow communication with said at least one recess and being constructed so as to aspirate a sample into said at least one recess by capillary action, said at least one recess further constructed so as to allow agglutination reactions to form sedimented particle reactions; and

said transparent plate constructed so as to restrict the amount of sample contacting said sample inlet channel space, thereby regulating particle pattern formation within said at least one recess.

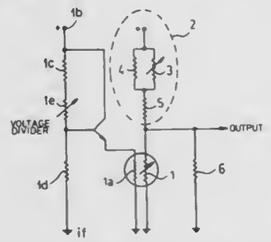
VOL
1132
ISS
3
NO
19
1991
UMI

5,066,466

APPARATUS FOR INDICATING THE PRESENCE OF TOXIC SUBSTANCES IN AIR THAT IS SUPPLIED TO A PERSONNEL-OCCUPIED SPACE

Heinz Hölter, Beisenstrasse 39-41, 4390 Gladbeck; Heinrich Igelbüscher, Gladbeck; Heinrich Gresch, Dortmund-Wickede; Heribert Dewert, Gladbeck, and Hanns Rump, Unna-Massen, all of Fed. Rep. of Germany, assignors to Heinz Hölter, Gladbeck, Fed. Rep. of Germany

Division of Ser. No. 256,145, Oct. 5, 1988, Pat. No. 4,882,287, which is a continuation of Ser. No. 30,867, Mar. 13, 1987, abandoned. This application Nov. 21, 1989, Ser. No. 440,222
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1985, 3525774; Apr. 28, 1986, 3614314; May 13, 1986, 3616052; filed as a PCT EP86/00423 Jul. 18, 1986 published as WO87/00634 Jan. 29, 1987
The portion of the term of this patent subsequent to Nov. 2, 2006, has been disclaimed.
Int. Cl.[5] G01N *27/04*
U.S. Cl. 422—98 **2 Claims**



1. An apparatus for indicating the presence of carbon monoxide in an air stream supplied to a personnel-occupied space, comprising:
a resistive sensor constructed so as to detect carbon monoxide and across which an output is tapped;
means for passing at least a portion of said air stream into contact with said sensor whereby said output across said sensor signals the detection of said carbon monoxide;
a resistive heater juxtaposed with said sensor;
a transistor circuit including a transistor connected to said heater and provided with a first voltage divider for controlling a voltage applied to said heater, said first voltage divider being provided with a first temperature-compensating component connected to a voltage source to control the voltage applied to said heater responsive to temperature of said air stream to provide a substantially constant heat output at said heater; and
an external resistance connected in series with said sensor to form a second voltage divider connected to said source and including a second temperature-compensating component, said first and second components being matched so that said first and second voltage dividers compensate each other with respect to a temperature response of the output across said sensor proportional with concentration of said carbon monoxide to be measured to eliminate a temperature effect upon the detection of said carbon monoxide.

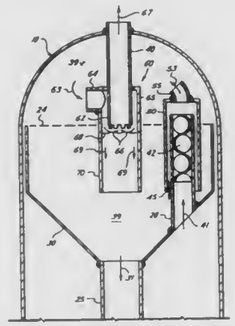
5,066,467

LIQUID DEGASSER IN AN EBULLATED BED PROCESS

Ting Y. Chan, Houston, Tex., assignor to Texaco Inc., White Plains, N.Y.

Filed Oct. 5, 1990, Ser. No. 593,403
The portion of the term of this patent subsequent to Dec. 12, 2006, has been disclaimed.
Int. Cl.[5] B01J *8/22;* **F27B** *15/02, 15/12*
U.S. Cl. 422—140 **5 Claims**

1. A liquid degasser in combination with a high pressure reaction vessel having an upper end and a lower portion,
A. said lower portion adapted for the reaction of a fluid hydrocarbon feed with a hydrogen rich gas at elevated temperatures and pressures in the presence of a bed of solid particulate catalyst, said reaction being the type wherein the gas and hydrocarbon feed are passed upwardly through the bed at velocities whereby the bed is expanded to a volume greater than its static volume and the catalyst is put in a state of random motion and wherein the mixture of hydrocarbon feed, gas and catalyst constitute a catalytic reaction zone wherein minimum catalyst settling takes place, the upper portion of which is defined by a catalyst depleted zone,
B. said reaction vessel upper end having an exit conduit adapted for the removal of products of said reaction,
said liquid degasser comprising:
1. a generally vertical recycle conduit having an enlarged



upper end in fluid communication with a phase separation zone and a lower end in fluid communication with means for recycling liquid from the catalyst depleted zone to the catalytic reaction zone and a plurality of riser conduits adapted for fluid flow therethrough extending through the enlarged upper end, each riser conduit having a lower ends in fluid communication with said catalyst depleted zone and upper ends in fluid communication with first cyclone separators, said first cyclone separators comprising vapor discharge conduits, and
2. a second cyclone separator having a gas outlet conduit in fluid communication with said reaction vessel exit conduit, and an inlet duct in fluid communication with said first cyclone separator discharge conduits.

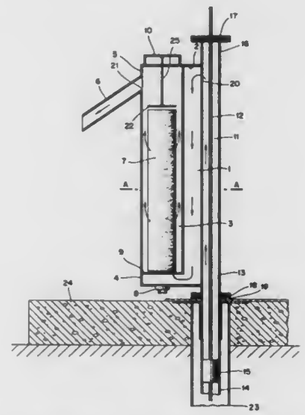
5,066,468

FOUNTAIN FOR THE RELEASE OF ACTIVE AGENTS INTO WATER DRAWN FROM WELLS

Jean-Claude Arnold, Clamart; Guy Cyprien, L'Hay Les Roses, and Jean-Francois Olivere, Olivet, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Jul. 28, 1989, Ser. No. 386,267
Claims priority, application France, Jul. 29, 1988, 88 10537
Int. Cl.[5] B01D *11/02*
U.S. Cl. 422—266 **7 Claims**

1. A fountain for the release of an active agent into water originating from a well, comprising:
a first compartment including an inlet at an upper end thereof for receiving well water and conducting the water downwardly,
a second compartment including means at a lower end thereof for receiving water from a lower end of said first compartment and conducting the water upwardly,
an outlet arranged at an upper end of said second compartment,
a cartridge arranged in at least one of said first and second compartments for releasing an active agent into water flowing past said cartridge, both said inlet and outlet being located above an upper end of said cartridge so that said cartridge is kept in water when water is not being circulated through the fountain, and
an additional compartment having an upper end communicating with said upper end of said first compartment and a



lower end adapted to communicate with a well, a movable rod extending vertically through said additional compartment, a piston being carried by said rod and adapted to draw water up to said upper end of said additional compartment and into said upper end of said first compartment.

5,066,469

LEACHING COBALT FROM METAL-CONTAINING PARTICLES

Paul J. Marcantonio, San Rafael, Calif., assignor to Chevron Research and Technology Co., San Francisco, Calif.

Continuation-in-part of Ser. No. 749,614, Jun. 26, 1985, Pat. No. 4,927,794. This application Mar. 9, 1990, Ser. No. 491,048
The portion of the term of this patent subsequent to May 22, 2007, has been disclaimed.
Int. Cl.[5] C22B *23/00*
U.S. Cl. 423—150 **13 Claims**

1. A process to extract cobalt from oxidized, metal-containing particles comprising; contacting said oxidized particles with an aqueous solution of ammonia, ammonium salt, and hydrogen peroxide; wherein said aqueous solution has an initial pH of at least 9.5 and an initial hydrogen peroxide concentration of from 0.02 to 0.2 M; and wherein said aqueous solution is maintained at a pH of greater than 9.5.

5,066,470

CYCLIC PROCESS FOR THE REMOVAL OF SULFUR DIOXIDE AND THE RECOVERY OF SULFUR FROM GASES

Ching-Lung Lo, R.D. 1/Box 51, Indian Hill La., Palisades, N.Y. 10964

Filed Jul. 9, 1990, Ser. No. 550,319
Int. Cl.[5] C01G *1/00;* **C01B** *17/00;* **C01F** *7/74*
U.S. Cl. 423—242 **21 Claims**

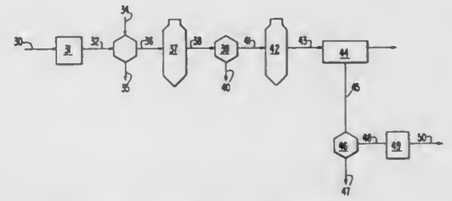
1. A process for the removal of sulfur dioxide from a gas containing sulfur dioxide comprising the steps of: contacting a gas containing sulfur dioxide with an aqueous solution comprising water, ferric chloride and a salt selected from the group consisting of barium chloride and calcium chloride to form ferrous chloride, hydrochloric acid and a precipitate selected from the group consisting of barium sulfate and calcium sulfate; and treating said aqueous solution with an oxidizing agent to convert ferrous chloride to ferric chloride.

5,066,471

LOWERING POST-PRECIPITATION IN MERCHANT ACID

Dennis H. Michalski, Lakeland, Fla., assignor to IMC Fertilizer, Inc., Northbrook, Ill.

Filed Nov. 26, 1990, Ser. No. 617,634
Int. Cl.[5] C01B *25/222, 25/234*
U.S. Cl. 423—319 **4 Claims**



1. A process for stabilizing solids-containing merchant acid solutions against post-precipitation, said process comprising:
separating an acid stream containing about 45 to about 60 wt % P_2O_5 into a solids-containing bottoms stream and a clarified acid stream;
separating said bottoms stream into a solids-enriched fraction and a merchant acid stream; and
heating said merchant acid stream at atmospheric pressures for about 12 to about 48 hours at a temperature of 180°–200° F. to produce an aged merchant product that exhibits, without further solids separation, an amount of solids formed due to post-precipitation that is less than 1 wt % after 14 days of standing at a temperature of about 70° F.

5,066,472

METHOD FOR PROCESSING THE RESIDUES OF A CHLOROSILANE DISTILLATION

Klaus Ruff, Troisdorf; Bernhard Falk, Rheinfelden-Minsein, and Werner Grätz, Rheinfelden, all of Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Troisdorf, Fed. Rep. of Germany

Continuation of Ser. No. 130,806, Dec. 9, 1987, abandoned. This application Feb. 17, 1989, Ser. No. 313,318
Claims priority, application Fed. Rep. of Germany, Dec. 11, 1986, 3642285
Int. Cl.[5] C01B *33/107, 33/08*
U.S. Cl. 423—342 **8 Claims**

1. A method for processing a chlorosilane containing residue produced as bottom product after the distillation of chlorosilanes from hydrochlorination or chlorination of silicon to recover the chlorosilanes and hydrogen chloride comprising: separating the chlorosilanes contained in the residue; treating the remaining residue with water vapor at a temperature of 100° to 300° C. in the presence of additional hydrogen chloride in amounts of 10 to 40 wt.-% with respect to the hydrogen chloride and water mixture; and recovering hydrogen chloride from a resulting gaseous mixture.

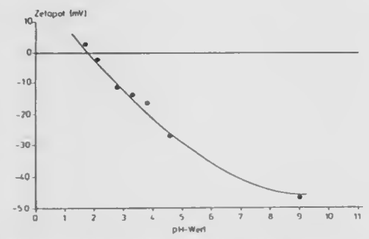
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,473

SILICON NITRIDE POWDERS OF LOW ISOELECTRIC POINT AND PROCESSES FOR THEIR PRODUCTION

Ulrike Pitzer; Gerhard Franz, and Benno Laubach, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Continuation of Ser. No. 396,330, Aug. 21, 1989, abandoned.
This application Sep. 4, 1990, Ser. No. 579,236
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1988, 3829502
The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.
Int. Cl.[5] C01B *21/068*
U.S. Cl. 423—344 3 Claims



1. Silicon nitride powder having a total oxygen content of less than 1.8% by weight and an isoelectric point in 0.001M aqueous KNO_3 solution of below pH 4.

5,066,474

METHOD FOR SULFUR DIOXIDE PRODUCTION FROM CALCIUM SULFATE BY ENTRAINED HIGH-TEMPERATURE SLAGGING REDUCTION

Douglas H. Laird, San Diego, Calif., assignor to Science Ventures, Inc., San Diego, Calif.

Continuation-in-part of Ser. No. 192,338, May 10, 1988, abandoned, which is a continuation-in-part of Ser. No. 8,763, Jan. 30, 1987, abandoned. This application Dec. 13, 1989, Ser. No. 450,328
Int. Cl.[5] C01B *17/50*
U.S. Cl. 423—541 R 21 Claims

1. A method for producing sulfur dioxide from calcium sulfate-bearing reactants comprising:

combining in a fired reaction vessel an oxygen-bearing gas, fuel, and finely divided solid particles of a calcium sulfate-bearing reactant and of a mineral fluxing agent to form a mixture, the respective amounts of fuel and oxygen in said mixture being sufficient to support continuing combustion in said reaction vessel while maintaining a reducing atmosphere sufficient to desulfurize said calcium sulfate to sulfur dioxide; and to maintain a temperature in said reaction vessel sufficiently high to form and maintain liquid slag in said reaction vessel but lower than that causing formation of substantial amounts of dust containing oxides of silicon that remains suspended in exit gas stream;

draining from a bottom region of said reaction vessel said liquid slag; and

removing from said reaction vessel a sulfur dioxide containing gas.

5,066,475

ZINC OXIDE WHISKERS HAVING A NOVEL CRYSTALLINE FORM AND METHOD FOR MAKING SAME

Minoru Yoshinaka; Eizo Asakura, both of Osaka; Toshihiro Misaki, Takarazuka; Motoi Kitano, Kawanishi, and Hideyuki Yoshida, Amagasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 29, 1988, Ser. No. 291,611
Claims priority, application Japan, Dec. 29, 1987, 62-334418; Feb. 24, 1988, 63-41329; Feb. 24, 1988, 63-41330
The portion of the term of this patent subsequent to Oct. 2, 2007, has been disclaimed.
Int. Cl.[5] C01G *9/02*
U.S. Cl. 423—622 63 Claims



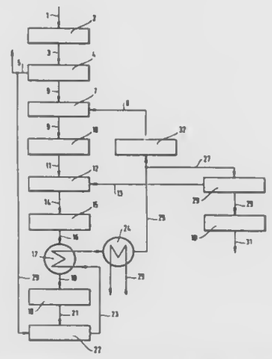
1. A method for preparing whiskers of zinc oxide which comprises providing a metallic zinc powder having an oxide film on the surfaces thereof, and thermally treating said metallic zinc powder in an atmosphere containing molecular oxygen under thermal treatment conditions sufficient to form a product comprising whiskers of zinc oxide having a crystal form including a central body and four needle crystal projections extending from the central body.

5,066,476

METHOD OF PRODUCING HYDROGEN-RICH GAS

Rolf Wetzel, Heiligenhaus, and Bernhard Firnhaber, Essen, both of Fed. Rep. of Germany, assignors to Krupp Koppers GmbH, Essen, Fed. Rep. of Germany

Filed Jul. 6, 1990, Ser. No. 550,105
Claims priority, application Fed. Rep. of Germany, Aug. 2, 1989, 3925564
Int. Cl.[5] C01B *3/02*
U.S. Cl. 423—648.1 13 Claims



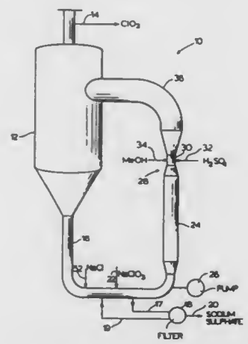
1. A method of producing a hydrogen-rich gas with a hydrogen content of at least 85 volume percent by gasifying of finely grained to pulverulent fuels at temperatures above a slag melting point, comprising the steps of gasifying a finely grained to pulverulent fuel in a gasifier to produce a partial oxidation crude gas; indirectly cooling the partial oxidation crude gas in a waste heat boiler arranged after the gasifier; cooling again the partial oxidation crude gas after the waste heat boiler by adding converted circulating gas to the gas mixture; subjecting the produced gas mixture to a dry de-dusting; saturating the dedusted gas mixture with the use of a condensate produced during cooling of a product gas partial stream and washing at dew point of the gas mixture; subjecting the purified gas mixture after heating to a CO-conversion in the presence of a sulfur resistant catalyst in a conversion reactor; cooling a CO-poor gas leaving the conversion reactor to approximately its water vapor dew point and then subdividing in a circulating gas partial stream and a product gas partial stream; supplying the circulating gas partial stream after a compression as the converted circulating gas to the partial oxidation crude gas after the waste heat boiler for cooling the partial oxidation crude gas; and subjecting the product gas partial stream to a cooling for water vapor condensation, a de-sulfurization, a CO_2 removal, and a further gas treatment for a further utilization.

5,066,477

PRODUCTION OF CHLORINE DIOXIDE

Michael S. Zell, and Maurice C. J. Fredette, both of Mississauga, Canada, assignors to Tenneco Canada Inc., Islington, Canada

Continuation of Ser. No. 230,962, Aug. 11, 1988, abandoned.
This application Sep. 18, 1990, Ser. No. 584,494
Int. Cl.[5] C01B *11/02*
U.S. Cl. 423—479 26 Claims



1. A process for preparing chlorine dioxide, which comprises :

feeding into a first elongate zone an aqueous sodium chlorate-containing stream having an elevated temperature which is about its boiling pint at a subatmospheric pressure applied to the downstream end of said first zone,

diverting a portion of the aqueous sodium chlorate-containing stream into a second elongate zone located within said first elongate zone,

feeding methanol and sulphuric acid only into said second elongate zone to form a chlorine dioxide-generating reaction medium in said second elongate zone having an acidity greater than that of said sodium chlorate-containing stream in said first elongate zone,

generating chlorine dioxide from said chlorine dioxide-generating reaction medium in said second elongate zone,

discharging chlorine dioxide and spent reaction medium from said second elongate zone and an aqueous sodium chlorate-containing stream from said first elongate zone into an evaporating and crystallizing zone wherein by-product crystalline sodium sulphate is formed, and

recovering a gaseous admixture of chlorine dioxide and steam from said evaporating and crystallizing zone and removing crystalline sodium sulphate from said evaporating and crystallizing zone.

5,066,478

RADIO LABELED ORGANIC AMINE PHOSPHONIC ACID COMPLEXES FOR THE TREATMENT OF CALCIFIC TUMORS

Jaime Simon, Angleton; David A. Wilson, Richwood, both of Tex.; Wynn A. Volkert; David E. Troutner, both of Columbia, Mo., and William F. Goeckeler, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 50,263, May 14, 1987, Pat. No. 4,898,724.
This application Jan. 30, 1990, Ser. No. 472,506
Int. Cl.[5] A61K *43/00*
U.S. Cl. 424—1.1 87 Claims

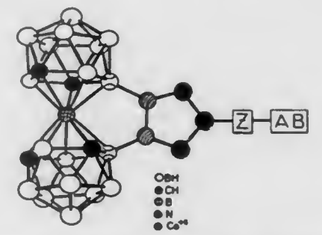
1. A therapeutically effective composition comprising an aminophosphonic acid which is ethylenediaminetetramethylenephosphonic acid or a physiologically acceptable salt thereof and at least one radionuclide selected from Gd-159, Ho-166, Lu-177 and Yb-175.

5,066,479

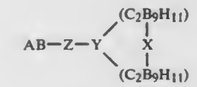
METALLACARBORANE CHELATES

M. Frederick Hawthorne, Los Angeles, Calif., assignor to The Regents of the Univ. of California, Berkeley, Calif.

Filed May 31, 1988, Ser. No. 200,750
Int. Cl.[5] A61K *49/02, 39/44;* C07K *17/06*
U.S. Cl. 424—1.1 11 Claims



1. A metallocarborane chelate-antibody compound having a formula



wherein X is a metal selected from the group consisting of Mn, Tc, Re, Fe, Ru, Os, Co, Rh, Ir, Ni, Pd, Pt, Cu, Ag and Au, Y is a rotation resistant organic chelate bridge moiety, Z is an antibody linkage moiety and AB is an antibody.

5,066,480

METHOD OF PREVENTING OR REDUCING ADVERSE REACTIONS TO PROTAMINE USING A THROMBOXANE A_2 RECEPTOR ANTAGONIST

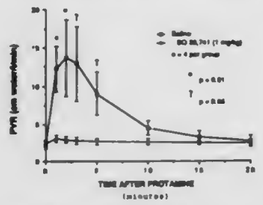
Martin L. Ogletree; William A. Schumacher, both of Newtown, Pa.; Gary J. Grover, Stockton, N.J., and Lawrence T. Friedhoff, Philadelphia, Pa., assignors to E. R. Squibb & Sons, Inc., Princeton, N.J.

Filed Apr. 11, 1988, Ser. No. 179,694
Int. Cl.[5] A61K *49/00*
U.S. Cl. 424—10 20 Claims

1. A method for treating pulmonary hypertension caused by protamine induced neutralization of heparin, in a mammalian

VOL 1132 ISS 3 NO 19 1991 UMI

species, which comprises administering to a mammalian species in need of such treatment an effective amount of a thromboxane A_2 receptor antagonist which acts only on thromboxane A_2 receptors.



5,066,481

MOUSSE HAIR COMPOSITION

Michael W. Helioff, Westfield; Krystyna Plochocka, Scotch Plains, and Mohammed Tazi, Wayne, all of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Filed Nov. 5, 1990, Ser. No. 608,949
Int. Cl.[5] A61K *7/11*
U.S. Cl. 424—47 6 Claims

1. A mousse hair composition for aerosol use consisting essentially of a resin provided by about 3-15% by weight of about a 20-50% resin active alcoholic solution of the monoester of a C_1-c_5 alkyl vinyl ether-maleic anhydride copolymer having a molecular weight of at least about one million, which is about 5-90% neutralized, about 60-95% by weight of water, about 0.3-2.0% of surfactant and about 0—30% of added ethanol.

5,066,482

COMPOSITIONS AND METHOD FOR CONTROLLING COCKROACHES

Gustave K. Kohn, Los Altos, Calif.; Robin R. Rudolph, Grand Prairie, Tex.; Gerardus B. Staal, Palo Alto; David L. Grant, Menlo Park, both of Calif.; Robert C. Pearce, Arlington, and Barbara A. Herbst, Flower Mound, both of Tex., assignors to Sandoz Ltd., Switzerland

Continuation of Ser. No. 300,152, Jan. 19, 1989, abandoned, which is a continuation of Ser. No. 167,079, Mar. 11, 1988, abandoned, which is a continuation-in-part of Ser. No. 928,071, Nov. 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 733,444, Jul. 29, 1985, abandoned. This application May 4, 1990, Ser. No. 518,274
Int. Cl.[5] A01N *37/06*; A61L *9/04*
U.S. Cl. 424—45 10 Claims

1. A method of controlling a cockroach population comprising administering to a cockroach population or its infested habitat a cockroach reproduction inhibiting amount of hydroprene comprising at least 90% of its S-(+) enantiomer.

5,066,483

ORAL RINSE COMPOSITIONS

Ronald J. Harkrader; Richard R. Jones, and Kenneth S. Peterson, all of Fort Collins, Colo., assignors to Vipont Pharmaceutical, Inc., Fort Collins, Colo.

Division of Ser. No. 322,659, Mar. 13, 1989, abandoned. This application Sep. 17, 1990, Ser. No. 583,835
Int. Cl.[5] A61K *7/22, 35/78*
U.S. Cl. 424—54 10 Claims

1. A stable oral rinse composition comprising from about 0.01 to 0.2% by weight of benzophenanthridine alkaloid in an aqueous solution and a buffer system in a quantity sufficient to adjust the pH of said composition to a pH in the range of 4.0 to 5.6.

5,066,484

NAIL ENAMELS CONTAINING GLYCERYL, GLYCOL OR CITRATE ESTERS

Anthony Castrogiovanni, Belford; Robert W. Sandewicz, Spotswood, and Steven W. Amato, Fanwood, all of N.J., assignors to Revlon, Inc., New York, N.Y.

Filed Apr. 30, 1990, Ser. No. 516,495
Int. Cl.[5] A61K *7/043*
U.S. Cl. 424—61 8 Claims

1. A nail enamel comprising a film forming component, a solvent component, and a plasticizer component, wherein the plasticizer component comprises a compound of the formula:

$$\begin{array}{l} CH_2O-C(O)-R_1 \\ CHO-C(O)-R_1 \\ CH_2O-C(O)-R_1 \end{array} \quad (I)$$

wherein R_1, R_2, and R_3 are BZ wherein BZ is a phenyl ring which is unsubstituted; or substituted with one or two groups of the formula $-C(O)OR_5$ wherein R_5 is phenyl, straight or branched alkyl containing 1 to 35 carbon atoms, or straight or branched alkenyl containing 2 to 35 carbon atoms, the alkyl and alkenyl optionally substituted with —CN, —SCN, $-NO_2$, —OH, —SH, $-NH_2$ or $-CONH_2$; or substituted with one, two or three substituents selected from the group consisting of

—CN, —SCN, —Cl, —Br, —F, $-OCH_3$, $-OC_2H_5$, $-OC_6H_5$, $-CH=CH_2$, C_{1-6}alkyl, $-CH_2CH=CH_2$, $-NO_2$, $-NH_2$, —OH, —SH, and $-SO_2NH_2$;

and wherein d is 1 to 1,000;
each y is ethoxy, isopropoxy, or propoxy;
R_4 is H— or (Alk)—C(O)— wherein (Alk) is straight or branched alkyl containing 1 to 5 carbon atoms; and
R_6 is a straight or branched alkyl containing 1 to 18 carbon atoms or straight or branched alkenyl containing 2 to 18 carbon atoms.

5,066,485

COSMETIC COMPOSITIONS COMPRISING OIL-IN-WATER EMULSION CONTAINING PIGMENT

Hernando Brieva, Manalapan, N.J.; Natividad Jose, Jamaica, and Marlene Tietjen, New York, both of N.Y., assignors to Revlon, Inc., New York, N.Y.

Continuation of Ser. No. 453,363, Dec. 19, 1989, abandoned, which is a continuation of Ser. No. 259,464, Oct. 17, 1988, abandoned, which is a continuation of Ser. No. 11,971, Feb. 6, 1987, abandoned. This application Sep. 5, 1990, Ser. No. 579,180
Int. Cl.[5] A61K *7/021*
U.S. Cl. 424—63 8 Claims

1. A cosmetic composition which is an oil-in-water emulsion comprising:
(a) About 10 to about 60 wt. % of the total weight of the composition of an oil phase which comprises
(i) About 5 to about 30 wt. % of the emulsion of a coated pigment consisting essentially of finely divided particles of pigment whose surfaces are chemically bonded to, and physically completely coated by, polysiloxane which coating renders the particles hydrophobic, and
(ii) a silicone component selected from the group consisting of dimethyl polysiloxane having the formula $(CH_3)_3SiO(Si(CH_3)_2O)_1—Si(CH_3)_3$ wherein the degree of polymerization d is effective to give the fluid a viscosity of 0.65 to one million centistokes at 25° C.; cyclomethicone having a degree of polymerization of 3 to 6; organopolysiloxane having the formula

$X(CH_3)_2SiO—Y—Si(CH_3)_2X$

wherein X is alkyl or alkoxy having 1 to 30 carbon atoms and Y is a chain of 1 to 100 repeating (Si—O) units containing 1 to 100 units of the formula $(—Si(R_3)(R_4)O)$ wherein each of R^1, R^2, R^3 and R^4 can be alkyl containing 2 to 30 carbon atoms, phenyl, or phenyl connected to the Si atom by a vinyl group or an alkylene bridge 1 to 3 carbon atoms long; wherein each R_3 and R_3 can also be $—CH_3$, and each R_1 and R_2 can also be trimethylsiloxy; and mixtures thereof;
(b) About 25 to about 60 wt. % of the total weight of the composition of an aqueous phase which comprises:
(c) About 0.5 to about 10 wt. % of a surfactant component which comprises one or more polydiorganosiloxane-polyoxyalkylene copolymers containing at least one polydiorganosiloxane segment consisting of

$R_bSiO_{(4-b)/2}$

siloxane units wherein b has a value of from 0 to 3 inclusive, there being an average of approximately two R radicals per silicon in the copolymer, and R denotes a radical selected from the group consisting of methyl, ethyl, vinyl, phenyl and a divalent radical bonding a polyoxyalkylene segment to the polydiorganosiloxane segment, at least 95 percent of all R radicals being methyl; and containing at least one polyoxyalkylene segment having an average molecular weight of less than 5000 and consisting of from 0 to 50 mol percent polyoxyalkylene units and from 50 to 100 mol percent polyoxyethylene units, at least one terminal portion of said polyoxyalkylene segment being bonded to said polydiorganosiloxane segment, any terminal portion of said polyoxyalkylene segment not bonded to said polydiorganosiloxane segment being satisfied by a terminating radical; and
wherein said surfactant component is present in an amount effective to form a stable emulsion of said oil phase in said water phase.

5,066,486

METHOD FOR PREPARING COSMETIC PRODUCTS AND THE PRODUCTS OBTAINED THEREBY

Melvin E. Kamen, Highlands, and Philip Bernstein, Glen Ridge, both of N.J., assignors to Revlon, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 258,219, Oct. 14, 1988, Pat. No. 4,938,952. This application Mar. 22, 1990, Ser. No. 497,277
Int. Cl.[5] A61K *7/021, 7/027, 7/032*
U.S. Cl. 424—63 34 Claims

10. An improved cosmetic product which is a lipstick or pencil prepared by:
a) admixing 1-25% of a binding agent consisting of a fibrillated polymer and about 75-99% of a cosmetic composition comprising at least one wax and one hydrocarbon oil;
b) forming the resultant admixture of said fibrillated polymeric binding agent and said cosmetic composition into a cosmetic lipstick or pencil.

5,066,487

ANTISUDORAL COMPOSITION COMPRISING DIBASIC ALUMINIUM SALTS OF ACYLATED AMINO ACIDS

Jean V. Morelle, and Eliane Lauzanne-Morelle, both of Paris, France, assignors to Rhone-Poulenc Chimie, France

Filed Sep. 12, 1989, Ser. No. 406,435
Claims priority, application France, Sep. 14, 1988, 88 11983
Int. Cl.[5] A61K *7/38*; C07F *5/06*
U.S. Cl. 424—68 19 Claims

1. An antisudoral composition containing a dibasic aluminium salt of an acylated amino acid having the formula

$$R—CO—NH—\underset{\displaystyle R'}{\underset{|}{CH}}—COOAl(OH)_2$$

wherein R represents a hydrocarbon chain having from 5 to 10 carbon atoms and R' represents the main chain of the illustrated α-amino acid or a mixture of such salts, together with a diluent or carrier.

5,066,488

SEMI-ANHYDROUS, SUSPENSION PROCESS FOR PREPARING UNIFORM, FREE-FLOWING, FINE, WHITE POWDERS OF SUBSTANTIALLY ANHYDROUS COMPLEXES OF PVP AND H_2O_2 CONTAINING ABOUT 18 TO ABOUT 22% H_2O_2

John J. Merianos, Middletown; Robert B. Login, Oakland, and Paul Garelick, South Plainfield, all of N.J., assignors to ISP Investments Inc., Wilmington, Del.

Division of Ser. No. 278,342, Dec. 1, 1988, Pat. No. 4,948,823. This application Jun. 6, 1990, Ser. No. 533,749
Int. Cl.[5] A61K *31/785*
U.S. Cl. 424—80 6 Claims

1. A suspension process for preparing uniform, free-flowing, fine, white powders of a complex of PVP and H_2O_2 having an H_2O_2 content between about 18 and about 22% H_2O_2 and about 2% water or less which comprises:
(a) forming a suspension of water-insolubie PVP containing less than about 1% water in anhydrous ethyl acetate;
(b) slowly adding an aqueous H_2O_2 solution containing about 70 to about 85% by weight H_2O_2, the amounts of PVP and H_2O_2 corresponding substantially to the desired molar ratio of PVP and H_2O_2 in the complex, at a temperature of about 0°-10° C., under agitation, to precipitate a PVP-H_2O_2 complex in the form of a uniform, free-flowing, fine, white powder,
(c) filtering, and
(d) drying the web precipitate with substantially no loss of H_2O_2 to form the desired powders having the improved properties defined above.

5,066,489

COMBINATION THERAPY OF IL-2 AND DTIC FOR THE TREATMENT OF MELANOMA

Carolyn M. Paradise, Emeryville, and Edward C. Bradley, Moraga, both of Calif., assignors to Cetus Corporation, Emeryville, Calif.

Division of Ser. No. 174,000, Mar. 28, 1988, Pat. No. 4,999,339. This application Jul. 24, 1990, Ser. No. 557,203
Int. Cl.[5] A61K *37/02*
U.S. Cl. 424—85.2 33 Claims

1. A method for the therapeutic treatment of melanoma in a human patient having said disease comprising parenterally administering to said patient a synergistic combination of IL-2 and DTIC effective to cause regression of the melanoma.

5,066,490

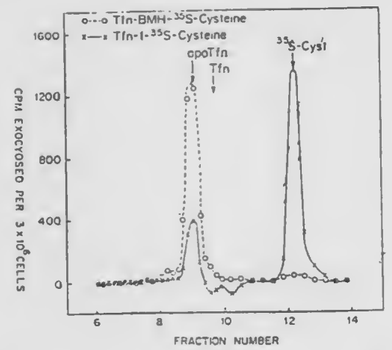
PROTEIN CROSSLINKING REAGENTS CLEAVABLE WITHIN ACIDIFIED INTRACELLULAR VESICLES

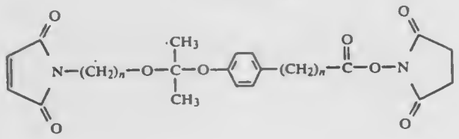
David M. Neville, Jr., Bethesda, and Kasturi Srinivasachar, Rockville, both of Md., assignors to The United States of America as represented by the Secretary of the Department of Health & Human Services, Washington, D.C.

Filed Jun. 1, 1988, Ser. No. 204,163
Int. Cl.[5] A61K *39/44, 37/48*; C07K *17/02*
U.S. Cl. 424—85.91 21 Claims

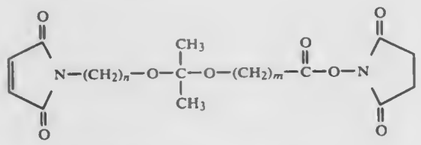
15. A pharmaceutical composition comprising:
a conjugate of a biologically active component crosslinked with a crosslinker to a targeting moiety comprising a binding partner to cell surface features wherein the crosslinker can be cleaved under mild acidic conditions and wherein the crosslinker is formed from a compound selected from the group consisting of compounds of the following formulas:

VOL 1132 ISS 3 NO 19 1991 UMI

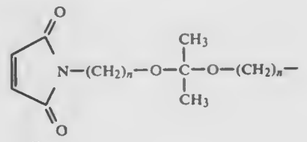




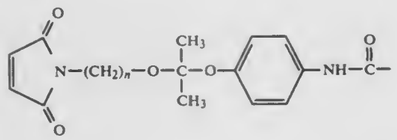
wherein n is at least 1;

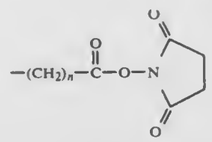


wherein n is at least 1 and m is at least 1;



wherein n is at least 1;

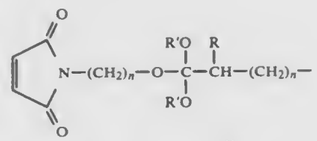


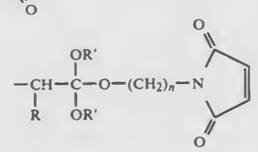


-continued

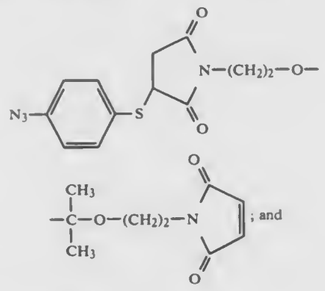
wherein n is at least 1;

wherein n is at least 1;





wherein n is at least 1, R′ is selected from the group consisting of C_1 to C_8 alkyl groups and R is selected from the group consisting of H and C_1 to C_8 alkyl groups;



; and

a pharmaceutically acceptable carrier.

5,066,491

METHOD OF DISEASE TREATMENT UTILIZING AN IMMUNOLOGICALLY ACTIVE WHEY FRACTION

Gerald H. Stott, Emmett, Id., and David O. Lucas, Plymouth, Minn., assignors to Protein Technology, Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 946,435, Dec. 29, 1986, Pat. No. 4,834,974, which is a continuation-in-part of Ser. No. 818,610, Jan. 13, 1986, Pat. No. 4,816,252, which is a continuation-in-part of Ser. No. 723,612, Apr. 15, 1985, abandoned. This application Feb. 3, 1989, Ser. No. 306,817

The portion of the term of this patent subsequent to Mar. 28, 2006, has been disclaimed.

Int. Cl.[5] A61K *39/395*

U.S. Cl. 424—85.8 **24 Claims**

1. A method of disease treatment utilizing a therapeutically effective product produced from whey having 1) a bottom fraction including lactose and minerals; 2) a middle fraction including lower molecular weight proteins; and 3) a top fraction including higher molecular weight proteins, comprising the steps of:

a. providing whey derived from ordinary milk, said whey including in the top fraction a measurable but low level concentration of immunologically active immunoglobulin including various different pathogen specific antibodies;

b. ultrafiltering said whey to reduce the bottom fraction concentration and to increase the relative middle and top fraction concentrations under conditions which substantially preserve the immunological activity of the immunoglobulin to yield a primary product;

c. ultrafiltering the primary product to reduce the middle fraction concentration and to increase the top fraction concentration under conditions which substantially preserve the immunological activity of the immunoglobulin in the primary product to yield a secondary product having a concentration of immunologically active immunoglobulin of at least about seven percent of total solids;

d. removing water from the secondary product under conditions which substantially preserve the immunological activity of the immunoglobulin in the secondary product;

e. periodically testing the secondary product to verify its activity to a specified microbe; and

f. orally administering a therapeutically effective dose of the secondary product to an animal to treat a predetermined disease.

5,066,492

METHOD OF TREATING HERPES SIMPLEX VIRUS

Gordon R. B. Skinner, Solihull, and Alexander Buchan, Birmingham, both of England, assignors to University of Birmingham, England

Continuation of Ser. No. 21,491, Mar. 4, 1987, abandoned. This application May 25, 1990, Ser. No. 528,344

Claims priority, application United Kingdom, Mar. 5, 1986, 8605390

Int. Cl.[5] A61K *39/12;* **C12N** *7/00*

U.S. Cl. 424—89 **3 Claims**

1. A method of preventing or treating herpes simplex infection of a human subject comprising inoculation of said subject with bovine mammillitis virus.

5,066,493

RAPAMYCIN IN TREATMENT OF TUMORS

Surendra N. Sehgal, Princeton, N.J., and Claude Vezina, Oka, Canada, assignors to American Home Products Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 391,334, Aug. 9, 1989, abandoned, which is a division of Ser. No. 592,193, Mar. 22, 1984, Pat. No. 4,885,171, which is a continuation of Ser. No. 126,276, Mar. 3, 1980, abandoned, which is a continuation of Ser. No. 957,626, Nov. 3, 1978, abandoned. This application Apr. 9, 1991, Ser. No. 682,813

Int. Cl.[5] H61K *31/66, 31/505, 31/415, 35/74*

U.S. Cl. 424—122 **6 Claims**

1. A method of treating colon tumors in a mammal, which comprises administering to said mammal an antitumor effective amount of rapamycin in combination with an antitumor effective amount of the antineoplastic agents 5-fluorouracil and cyclophosphamide.

5,066,494

TRANSDERMAL THERAPEUTIC SYSTEM

Frank Becher, Koblenz, Fed. Rep. of Germany, assignor to Lts Lohmann Therapie-Systeme GmbH & Co. KG, Neuwied, Fed. Rep. of Germany

PCT No. PCT/DE88/00370, § 371 Date Apr. 3, 1989, § 102(e) Date Apr. 3, 1989, PCT Pub. No. WO89/00437, PCT Pub. Date Jan. 26, 1989

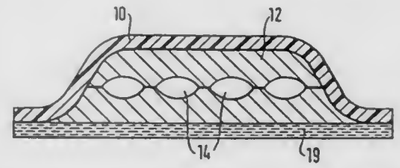
PCT Filed Jun. 21, 1988, Ser. No. 327,810

Claims priority, application Fed. Rep. of Germany, Jul. 9, 1987, 3722775

Int. Cl.[5] A61F *13/02*

U.S. Cl. 424—448 **15 Claims**

1. A transdermal therapeutic system for the controlled administration of active substance to the skin with a backing layer remote from the skin, an active substance depot, an active substance delivery control device controlling the delivery of the active substance through the system and a contact adhesive fixing means for fixing the therapeutic system to the skin, characterized in that the active substance depot is a multichamber system, in which the chambers are interconnected by



channels and are provided with active substance delivery control means.

5,066,495

PROCESSES FOR THE PREPARATION OF PHARMACEUTICAL COMPOSITIONS CONTAINING BROMOCRIPTINE HAVING HIGH STABILITY AND RELATED PRODUCTS

Luigi Moro; Achille Fiori, and Alberto Natali, all of Milan, Italy, assignors to Poli Industria Chimica S. P. A., Milano, Italy

Filed Mar. 30, 1990, Ser. No. 502,520

Claims priority, application Italy, Apr. 7, 1989, 20063 A/89

Int. Cl.[5] A61K *9/48, 9/20*

U.S. Cl. 424—451 **8 Claims**

1. A method for the preparation of a pharmaceutical composition in tablet or capsule form containing the active ingredient bromocriptine base or bromocriptine salified with organic or inorganic acids, which method comprises the following steps: (a) dissolving the active ingredient in a solvent or mixture of solvents capable of producing a solution having a concentration of active ingredient greater than about 10%, said solvent being selected from ethyl and isopropyl alcohol, acetone, ethyl acetate, chloroform, methylene chloride, water and carbon tetrachloride; (b) using the resultant solution to wet an excipient, or mixture of excipients, insoluble in said solution but subject to the swelling action thereof, said excipient being selected from cross-linked polyvinylpyrrolidone, cross-linked sodium carboxymethyl cellulose, calcium carboxymethyl cellulose, alginic acid and salts thereof, starch and derivatives thereof and ion exchange resins, whereby an expanded excipient is obtained; (c) drying said expanded excipient to produce an active ingredient-bearing excipient product having a residual moisture content of less than 1% and subjecting said product to separation; and (d) compressing said product into tablets or distributing it into capsules.

5,066,496

COMPOSITION AND METHOD FOR TREATMENT OF GASTRIC AND DUODENAL ULCERS AND MUCOSAL EROSIONS

Sandor Szabo, Brookline, Mass.; Meryl S. A. Rubin, New Rochelle, N.Y.; Michael Kilbaner, Brookline, and Ahmad R. Kamarei, Lexington, both of Mass.; Robert S. Sinn, New York, N.Y.; Nicholas Catsimpoolas, Newton Ctr., Mass., assignors to Angio-Medical Corporation, New York, N.Y. and Trustees of Boston University, Boston, Mass.

Filed Aug. 3, 1988, Ser. No. 227,739

Int. Cl.[5] A61K *35/30, 35/12*

U.S. Cl. 424—570 **6 Claims**

1. Method for reducing incidence and severity of gastric ulcers caused by aspirin compromising administering to a subject susceptible to aspirin caused ulcers an amount of a pharmaceutically acceptable mixture of bovine brain gangliosides sufficient to reduce incidence and severity of said aspirin caused ulcers from forming.

VOL 1132 ISS 3 NOV 19 1991 UMI

5,066,497

ANTIMICROBIAL VETERINARY COMPOSITIONS AND METHODS

Roy T. Witkin, Westport, Conn., assignor to Albert L. Jacobs, Jr., Chappaqua, N.Y., a part interest

Continuation-in-part of Ser. No. 225,262, Jul. 28, 1988, Pat. No. 4,935,248. This application Apr. 2, 1990, Ser. No. 503,250
The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.
Int. Cl.[5] A61K *33/18, 33/40*
U.S. Cl. 424—616 1 Claim

1. In the technology of applying, spraying, or sponging an antimicrobially effective amount of an aqueous iodophor or peroxide solution to the udder surfaces of cows, or other animals to be milked prior to milking, the improvement which avoids iodides and staining which consists essentially of the step of shampooing said udders with a non-staining shampoo containing (a) from about 0.01% to 2% of iodine in a povidone-iodine complex and (b) about 0.05% to 5% of hydrogen peroxide as a nascent oxygen source, said individual components (a) and (b) being combined, with water, at the time of use and having been maintained dry and out of contact with one another in a container or receptacle.

5,066,498

NUTRITIONAL SUPPLEMENT FOR THE HOOF AND COAT

C. Graham McCauley, III, Versailles, Ky., assignor to McCauley Brothers, Inc., Versailles, Ky.

Continuation of Ser. No. 400,830, Aug. 30, 1989, Pat. No. 5,000,964. This application Mar. 14, 1991, Ser. No. 669,673
The portion of the term of this patent subsequent to Mar. 19, 2008, has been disclaimed.
Int. Cl.[5] A23K *1/00*
U.S. Cl. 426—2 17 Claims

1. A nutritional supplement composition for the hoof and coat comprising by weight percent substantially:
96.0% to 0.0% palatable carrier;
50.0% to 2.0% methionine;
0.25% to 0.01% biotin;
20.0% to 2.0% live yeast culture and yeast fermentation solubles;
5.0% to 1.25% zinc in chelated form;
0.40% to 0.0% preservative;
1.5% to 0.0% antioxidant agent; and
20.0% to 0.0% flavoring agent.

5,066,499

PROCESS FOR MAKING LOW SODIUM CRACKERS AND PRODUCTS OBTAINED THEREBY

Henry E. Arciszewski, Franklin Lakes; Linda A. Porzio, Kinnelon; Bin Y. Chiang, Cedar Knolls; Clyde E. Spotts, Jr., Ridgewood; Kevin McHugh, Oakland, and Joseph A. Szwerc, Mahwah, all of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Division of Ser. No. 105,975, Oct. 6, 1987, Pat. No. 4,859,473, which is a continuation of Ser. No. 773,127, Sep. 6, 1985, abandoned, and a continuation-in-part of Ser. No. 584,868, Feb. 29, 1984, abandoned, which is a continuation-in-part of Ser. No. 480,431, Mar. 30, 1983, abandoned. This application Mar. 23, 1989, Ser. No. 327,709
Int. Cl.[5] A21D *8/00, 8/04, 8/02*
U.S. Cl. 426—19 35 Claims

1. A crisp cracker baked from a laminated dough composition comprising flour, water, fat or shortening, a leavening agent comprising potassium carbonate and an added acidic component selected from the group consisting of fumaric acid and monobasic calcium phosphate in an amount of about 10% to about 50% by weight of the potassium carbonate, and sodium chloride, the cracker having sodium chloride present as a topping on one of its surfaces, at least about 85 percent by weight of the sodium in the cracker, including the topping, being present as sodium chloride wherein said cracker has a sodium content of less than or equal to 140 mg Na^+ per 14.2 gm serving and has a pH of about 6.5 to about 8.0, said cracker having a substantially uniform laminar cell structure.

5,066,500

INFANT FORMULAS AND NUTRITION PRODUCTS ENRICHED WITH NUCLEOSIDES AND/OR NUCLEOTIDES AND PROCESSES FOR THEIR PREPARATION

Angel H. Gil; Daniel V. Morales, and Eduardo R. Valverde, all of Granada, Spain, assignors to Union Industrial y Agro-Ganadera, S. A. (UNIASA), Granada, Spain

Continuation of Ser. No. 55,858, Jun. 1, 1987, abandoned. This application Oct. 6, 1989, Ser. No. 418,948
Claims priority, application Spain, May 29, 1987, 8701601
Int. Cl.[5] A23C *9/00*
U.S. Cl. 426—72 17 Claims

1. A non-milk based infant formula comprising carbohydrates, a source of amino acids, vegetable oils, minerals, vitamins, wherein the formula contains at least one of uridine, uridine phosphate or mixtures thereof; guanosine, guanosine phosphate or mixtures thereof; adenosine, adenosine phosphate or mixture thereof; cytidine, cytidine phosphate or mixtures thereof or inosine, inosine phosphate or mixtures thereof.

5,066,501

FLUIDIZATION OF SOAPSTOCK

Jeffrey C. Evans, Maple Grove, Minn., assignor to Cargill, Incorporated, Minneapolis, Minn.

Continuation of Ser. No. 264,633, Oct. 31, 1988, abandoned. This application Oct. 12, 1990, Ser. No. 597,106
Int. Cl.[5] C11B *3/04;* C11C *1/00;* A23K *1/175*
U.S. Cl. 426—74 9 Claims

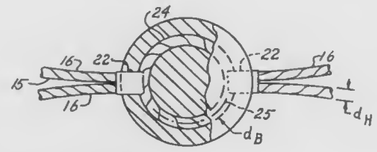
1. A method for treatment of soapstock to provide a fluid, stabilized product useful for animal feed formulation comprising
(a) providing a raw soapstock obtained from alkali refining of a fat, said soapstock comprising from about 30% to about 50% of total fatty acids, from about 25% to about 60% moisture and from about 3% to about 12% of non-fatty components; and
(b) adding propionic acid to said soapstock to provide an acidified soapstock with a pH of about 3 to about 6, said propionic acid being added at a level sufficient to solubilize the gums present in said soapstock.

5,066,502

CONFECTION AND SAFETY SUPPORT HANDLE

George E. Eales, 527 West Olive Ave., Redlands, Calif. 92373

Continuation-in-part of Ser. No. 282,946, Dec. 5, 1988, abandoned, which is a continuation-in-part of Ser. No. 48,570, May 11, 1987, abandoned. This application May 8, 1990, Ser. No. 521,320
Int. Cl.[5] A23G *3/00*
U.S. Cl. 426—75 25 Claims



1. A sucker comprising:
(a) a support member formed from a semi-rigid plastic material and having:
(i) a rod-shaped support body portion having substantially uniform cross-section along a curved body axis and forming a closed support loop having a lateral dimension of the loop sufficiently large for resisting accidental swallowing by a consumer of the sucker;
(ii) a rod-shaped handle portion having substantially uniform cross-section along a curved handle axis between end extremities thereof and forming a closed loop, the semi-rigid material of the handle portion permitting the handle portion to be deformed when grasped, but resilient enough to return to its initial configuration when it is released; and
(iii) a coupling poriton fixably connecting the end extremities of the handle portion for forming the closed, elongate handle loop, the coupling portion connecting the handle portion in spaced relation to the body portion; and
(b) a dissolvable edible material completely enclosing the body portion with the closed loop configuration of the body portion providing positive interlocking engagement of the edible material thereon, the handle loop extending from proximate the edible material, the edible material not contacting the handle portion.

5,066,503

METHOD OF PASTEURIZING OR STERILIZING FOODSTUFFS UTILIZING MICROWAVES

Giuseppe Ruozi, Reggio Emilia, Italy, assignor to Officine Meccaniche Attrezzature per Ceramiche, Italy

Division of Ser. No. 360,798, Jun. 2, 1989. This application Nov. 13, 1990, Ser. No. 611,563
Claims priority, application Italy, Jun. 7, 1988, 40090 A/88
Int. Cl.[5] A23L *3/00*
U.S. Cl. 426—234 5 Claims

1. A method of pasterizing or sterilizing packaged foodstuffs using microwaves at 2.450 MHz frequency, comprising the steps of:
(a) batching or arranging the liquid or solid edible product in containers or wrappers wholly transparent to microwave radiation;
(b) introducing the containers or wrappers into and conveying them continuously through an environment that is pressurized to a level of up to 2.5 bar max, dependent upon the properties of the edible product, in order to prevent the containers or wrappers from bursting or becoming distorted, and rendered multiresonant by a diffusion of microwaves from above and below;
(c) raising the temperature of the product initially in said pressurized environment;
(d) stabilizing the temperature reached by initial heating using circulated heated gas in combination with microwave radiation in said pressurized environment;
(e) holding the stabilized temperature using circulated heated gas in said pressurized environment; and
(f) cooling the edible product following sterilization or pasteurization in said pressurized environment.

5,066,504

DEWAXING OF DRIED OIL

Lutz S. Asbeck, Delmenhorst, Fed. Rep. of Germany, and Jacobus C. Segers, Nieuwerkerk a/d IJssel, Netherlands, assignors to Van den Bergh Foods Co., Division of Conopco, Inc., Lisle, Ill.

Filed Apr. 24, 1990, Ser. No. 513,716
Claims priority, application United Kingdom, Apr. 28, 1989, 8909804
Int. Cl.[5] A23D *9/00*
U.S. Cl. 426—417 9 Claims

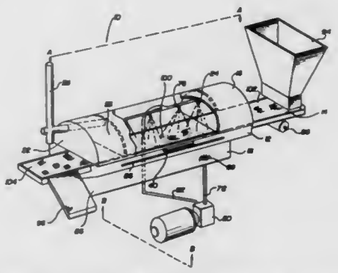
1. A method for dewaxing oil, comprising the steps of:
i) drying the oil to a water content of less than 0.5% by wt;
ii) heating the oil to a temperature at which the oil does not contain nucleation seeds for wax crystal formation;
iii) cooling the dried oil from the temperature at which it does not contain nucleation seeds for wax crystal formation, at a cooling rate of less than 15° C. per hour and at a temperature difference between the oil and the coolant medium of less than 15° C., to an oil end temperature being in the range of 2°–10° C. wherein a solid wax is formed; and
iv) removing the solid wax by microfiltration.

5,066,505

COOKING METHOD AND APPARATUS

Peter M. Vos, and David J. Vos, both of Coolbinia, Australia, assignors to Vos Fry Systems Australia Ltd., West Perth, Australia

PCT No. PCT/AU87/00119, § 371 Date Oct. 24, 1988, § 102(e) Date Oct. 24, 1988, PCT Pub. No. WO87/06445, PCT Pub. Date Nov. 5, 1987
PCT Filed Apr. 23, 1987, Ser. No. 283,490
Claims priority, application Australia, Apr. 23, 1987, PH5589
Int. Cl.[5] A21B *5/08;* A23L *1/01;* A47J *27/14, 37/12*
U.S. Cl. 426—438 22 Claims



22. A method of cooking food comprising:
providing a cooking apparatus comprising a housing;
storing cooking fluid in reservoir means;
positioning spray means in said housing for spraying said cooking fluid therefrom;
transferring said cooking fluid from said reservoir means to said spray means via cooking fluid transfer means;
conveying food in a direction of passage from a feed end to a discharge end of said cooking apparatus along conveyor means which comprises at least a first and second set of elongate members extending longitudinally in the direction of passage of said food through said housing with at least one of the elongate members of said first set of elongate members being of undulating form and movable; and
spraying cooking fluid from said spray means onto said food to cook said food as it is conveyed from said feed end to said discharge end while advancingly conveying said food from said feed end to said discharge end in a tumbling manner by said conveyor means.

5,066,506

METHOD OF PREPARING STABILIZED WHOLE GRAIN FLOUR

Dean W. Creighton, Albertville; John D. Efstathiou, Plymouth, and John A. Merboth, Minnetonka, all of Minn., assignors to General Mills, Inc., Minneapolis, Minn.

Filed Jun. 1, 1990, Ser. No. 531,670
Int. Cl.[5] A23B *4/03, 4/044*
U.S. Cl. 426—450 16 Claims

1. A method for treating a whole cereal grain that upon milling provides a raw whole cereal grain of enhanced storage stability, consisting essentially of the steps of:
A. introducing an untempered, intact raw whole cereal grain having a starchy content, selected from the group consisting of corn, wheat, rice, amarynth, sorghum, millet, barley, rye, and mixture thereof into a zone of elevated temperature and pressure,
said cereal grain having a moisture content of 9% to 14%, said zone having a temperature ranging from about 500° to

VOL 1132 ISS 3 NO 19 1991 UMI

600° F. (260° to 315° C.) and a pressure of about 50 to 70 psig (345 to 483 kPa gauge) for a residence time of about 30 to 60 seconds to form a superheated whole cereal grain having a portion of its starch component gelatinized;

B. conveying the superheated whole cereal grain to a second zone of lower temperature and pressure to form treated substantially unpuffed whole cereal grains having a moisture content of at least 8% and wherein the starchy content is partially gelatinized and has a loss in birefringence of less than 40%; and,

C. cooling the treated unpuffed whole cereal grain to ambient conditions to form an unpuffed stabilized whole cereal grain.

5,066,507

METHOD FOR REMOVING ROOTS FROM CORMATOSE PLANT BODIES

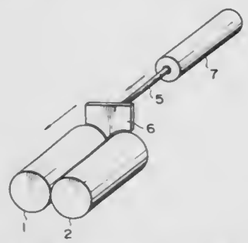
Yoshiyuki Miwa; Hiroshi Kodama; Takuya Murase, all of Tokyo; Sadao Shikae, Kagoshima; Masaya Nakagawa, and Tsutomu Kabumoto, both of Tokyo, all of Japan, assignors to Waseda University and Mitsubishi Jukogyo Kabushiki Kaisha, both of Tokyo, Japan

Filed Feb. 20, 1990, Ser. No. 482,628

Claims priority, application Japan, Feb. 22, 1989, 1-40382; Jul. 31, 1989, 1-196935

Int. Cl.[5] A23N *15/00*

U.S. Cl. 426—481 **3 Claims**



1. A method for mechanically removing beard-like roots from harvested cormatose plant bodies using a root removing device, comprising:

supplying the harvested cormatose plant bodies in between two rollers first rotating about substantially horizontal parallel axes with a roller gap between the outer peripheral surfaces of the rollers, the rollers rotating in relative directions with respect to each other so that at least one of the peripheral surfaces of the rollers on opposing adjacent inner sides is moving upwards, in order to allow each plant body to roll on the rollers and become balanced and oriented substantially axially with respect to the rollers;

changing the relative rotation of at least one of the rollers so that the peripheral surfaces on the opposing adjacent inner sides of both rollers are moving downwards;

drawing the beard-like roots of each plant body into the roller gap maintained by a suitable spacing of the rollers;

forcing each plant body away from the rollers by means of a plant body thrusting mechanism to cause the roots to be plucked from the plant body; and

discharging the so disrooted plant body out of the root removing device.

5,066,508

HOMOGENEOUS, STORAGE-STABLE CHOCOLATE MILK COMESTIBLES AND PROCESS OF MAKING

Jean-Luc Schuppiser, Claye Souilly; Antoine Coutant, Paris, and Jean-Claude Bozetto, Chilly Mazarin, all of France, assignors to Rhone- Poulenc Chimie, Courbevoie, France

Continuation of Ser. No. 90,502, Aug. 28, 1987. This application Jan. 22, 1990, Ser. No. 465,647

Claims priority, application France, Aug. 28, 1986, 86/12153

Int. Cl.[5] A23C *9/156*

U.S. Cl. 426—584 **14 Claims**

1. An essentially homogeneous and storage-stable liquid chocolate milk, having a viscosity ranging from 10 to 100 mPa.s, comprising a milk base including a suspension of cocoa particulates, and further comprising from 0.01 to less than 0.08% by weight of a suspension stabilizing amount of a xanthan/galactomannan admixture adapted for the formation of an aqueous gel therefrom, wherein the ratio by weight of xanthan/galactomannan ranges from 80/20 to 20/80.

5,066,509

STORAGE STABLE LIQUEUR OR ALCOHOL-CONTAINING BEVERAGE CONTAINING MEDIUM CHAIN TRIGLYCERIDES

Martinus M. G. M. van den Hoven, Veghel, and Hermanus W. A. Ermens, Oploo, both of Netherlands, assignors to DMV Campina B.V., Veghel, Netherlands

Filed Feb. 27, 1990, Ser. No. 485,981

Int. Cl.[5] C12G *3/04;* **A23C** *13/14*

U.S. Cl. 426—592 **16 Claims**

1. A storage stable liqueur or alcohol-containing beverage comprising as ingredients cream, yogurt or another dairy product, and further comprising alcohol-containing liquid, flavoring agents, coloring agents, emulsifiers, stabilizers, sugars or artificial sweetening agents, fats, and acids wherein the fat primarily contains esters of saturated fatty acids mainly having 6–12 carbon atoms, and the beverage comprises from 0.5 to 25 volume % of alcohol.

5,066,510

PROCESS FOR TEMPERING FLAVORED CONFECTIONERY COMPOSITIONS CONTAINING REDUCED CALORIE FATS AND RESULTING TEMPERED PRODUCTS

Albert M. Ehrman; Paul Seiden; Rose M. Weitzel, and Robert L. White, all of Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 452,880, Dec. 19, 1989, which is a continuation-in-part of Ser. No. 329,619, Mar. 28, 1989, Pat. No. 4,888,196. This application Dec. 20, 1990, Ser. No. 630,622

Int. Cl.[5] A23D *9/02*

U.S. Cl. 426—607 **7 Claims**

1. A reduced calorie fat, which comprises:

(a) at least about 85% combined MLM and MML triglycerides;

(b) no more than about 10% combined LLM and LML triglycerides;

(c) no more than about 2% LLL triglycerides;

(d) no more than about 4% MMM triglycerides;

(e) no more than about 10% other triglycerides;

wherein M is a C_6 to C_{10} saturated fatty acid and L is a C_{20} to C_{24} saturated fatty acid residue;

(f) a fatty acid composition having:

(i) from about 35 to about 60% combined C_8 and C_{10} saturated fatty acids,

(ii) a ratio of C_8 to C_{10} saturated fatty acids of from about 1:4 to about 4:1,

(iii) from about 35 to about 60% behenic fatty acid.

5,066,511

METHOD FOR PREPARING PULVERIZED POLYDEXTROSE WHICH IS SUBSTANTIALLY FREE OF ACIDS AND COMPOSITIONS CONTAINING SAME

Subraman R. Cherukuri, Towaco; Kirshna P. Raman, Randolph, both of N.J.; Lucy L. Wong, Jackson Heights; Gul Mansukhani, Staten Island, both of N.Y., and Angel Orama, Stanhope, N.J., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed May 19, 1989, Ser. No. 354,650

Int. Cl.[5] A23L *1/0522;* **A23G** *3/30*

U.S. Cl. 426—658 **10 Claims**

1. A method for preparing pulverized Polydextrose substantially free of low molecular weight organic acids and having a particle size of under about 125 microns in diameter and exhibiting reduced moisture pickup and little or no grittiness, which comprises the steps of:

(a) forming a mixture between Polydextrose which is substantially free of low molecular weight organic acids and is incapable of being pulverized to a particle size of under about 125 microns by conventional means, and from about 0.1% to about 5% by weight of the mixture of an anti-caking agent; and

(b) pulverizing the mixture from step (a) to form a pulverized Polydextrose having particles the majority of which are under about 125 microns in diameter;

(c) wherein said anti-caking agent stabilizes the static charge of said Polydextrose and thereby facilitates pulverization of the majority of said Polydextrose to the particle sizes of under about 125 microns in diameter.

5,066,512

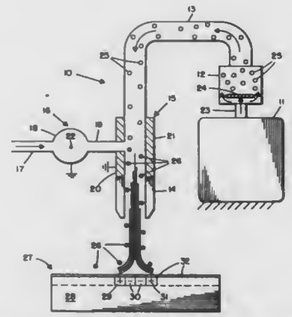
ELECTROSTATIC DEPOSITION OF LCD COLOR FILTERS

Michael P. Goldowsky, Valhalla, and William B. Pennebaker, Carmel, both of N.Y., assignors to International Business Machines Corporation, Yorktown Heights, N.Y.

Filed Dec. 8, 1989, Ser. No. 448,174

Int. Cl.[5] B05D *5/06, 1/04;* **D06P** *5/00, 5/20*

U.S. Cl. 427—14.1 **16 Claims**



13. A method of depositing a liquid dye on the surfaces of selected TFT electrodes present in a matrix of TFT electrodes, comprising the steps of:

forming said dye into droplets;

electrostatically charging said dye droplets to a first potential having a first sign;

biasing selected ones of said TFT electrodes in said matrix to a first potential having said first sign and biasing selected others of said TFT electrodes in said matrix to a second potential having a second sign, said second sign being opposite said first sign; and

placing said charged dye droplets in proximity to said matrix of electrodes whereby said droplets are selectively attracted to and deposit on said electrodes biased to said second potential.

5,066,513

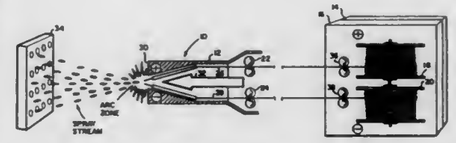
METHOD OF PRODUCING TITANIUM NITRIDE COATINGS BY ELECTRIC ARC THERMAL SPRAY

Zbigniew Zurecki, Macungie; Edward A. Hayduk, Jr., Blandon; John G. North, Pottstown, and Robert B. Swan, Bath, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Feb. 6, 1990, Ser. No. 477,400

Int. Cl.[5] B05D *3/06, 1/04*

U.S. Cl. 427—37 **7 Claims**



1. A method of improving the mechanical wear resistance of a substrate comprising the steps of:

exposing said substrate to an effluent from an electric arc thermal spray gun operated in the atmosphere using a pretreated titanium wire, said titanium wire being pretreated by annealing in nitrogen to increase the nitrogen content of the wire to at least 500 PPM, and a nitrogen gas as the atomizing/propelling gas, whereby a substantially titanium nitride coating is produced on said substrate.

5,066,514

METHOD OF FORMING OPTICAL WAVEGUIDES BY ION IMPLANTATION

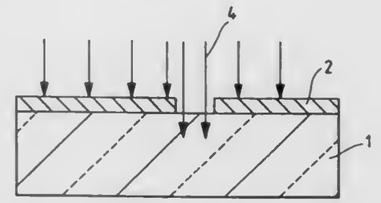
Keiji Oyoshi, Osaka, Japan, assignor to Nippon Sheet Glass Co., Ltd., Osaka, Japan

Filed Jan. 18, 1990, Ser. No. 466,838

Claims priority, application Japan, Jan. 26, 1989, 1-17071; Dec. 5, 1989, 1-315961

Int. Cl.[5] B05D *3/06;* **C23C** *14/04*

U.S. Cl. 427—38 **10 Claims**



1. A method of forming an optical waveguide, comprising a step of implanting at least two ionic species into the surface of a substrate, said ionic species being capable of forming an oxide, a nitride or a halide, wherein at least one of said two ionic species is implanted in a portion of said substrate surface which is less than the entire substrate surface, such that said ionic species combine with each other forming said oxide, nitride or halide which is thermally stable in a subsequent heat treatment of said optical waveguide.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,515

ARTIFICIAL DIAMOND FORMING METHOD

Yuzoh Ohsawa, Ohmiya, Japan, assignor to Mitsubishi Materials Corporation, Tokyo, Japan

Filed Jul. 16, 1990, Ser. No. 554,135
Claims priority, application Japan, Nov. 21, 1989, 1-302526
Int. Cl.[5] B23K *26/00*; B05D *5/12*
U.S. Cl. 427—53.1 12 Claims

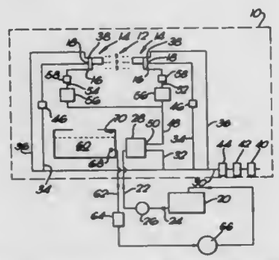
1. A method of forming an artificial diamond, comprising applying a laser beam to an outer surface of a glassy solid carbon material formed of hard carbon formed from an organic substance by solid-phase thermal decomposition thereof, while moving a point at which said laser beam is applied on said outer surface of said glassy solid carbon material so as to cause an outer surface portion of said glassy solid carbon material to be locally fused, to form pools of fused carbon, whereby each of said pools is cooled and solidified as said point moves away therefrom to form an artificial diamond, said laser beam being a carbonic acid gas laser beam and being applied to said outer surface of said glassy solid carbon material in an atmospheric gas flow at a pressure of 200 to 1000 torr at an output density of 1×10^6 to 8×10^6 W/cm^2, said atmospheric gas being a gas selected from the group consisting of He, Ar, N_2, and H_2.

5,066,516

ELECTRICAL CABLE MANUFACTURE

Kenneth R. Emery, Winchester; Harold R. Bennett, Chilbolton, and Jack Clark, Chandlers Ford, all of England, assignors to Pirelli General plc, London, England

Filed Mar. 16, 1989, Ser. No. 324,387
Claims priority, application United Kingdom, Mar. 23, 1988, 8806939; Jan. 31, 1989, 8902074
Int. Cl.[5] C23C *26/00*
U.S. Cl. 427—118 16 Claims



1. A method of manufacturing an electrical cable comprising a polymeric sheath extruded over at least one conductor core provided with polymeric insulation, said method including applying a polyol-water mixture over the polymeric insulation of the or each conductor core prior to extruding the polymeric sheath thereover such that the polymeric sheath is prevented from adhering to the polymeric insulation.

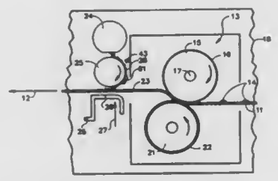
5,066,517

METHOD FOR ENHANCING THE PERMANENCE OF PRINTED IMAGES

William J. Hanson, Carlsbad, and J. Randolph Sanders, San Diego, both of Calif., assignors to AcuPrint, Inc., Carlsbad, Calif.

Filed Dec. 12, 1989, Ser. No. 449,780
Int. Cl.[5] B05D *5/00*
U.S. Cl. 427—197 11 Claims

1. A method for enhancing the permanence of printed image elements on a substrate, said method comprising the steps of:
applying lubricant powder to the image elements;
applying pressure to the lubricant powder against the image elements; and
providing enhanced temperature above ambient of the lubricant powder/image element interface;



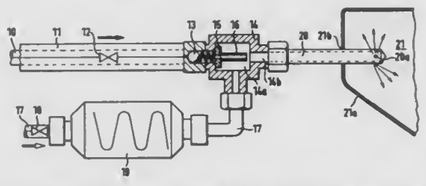
whereby the lubricant powder adheres primarily to the printed image on the substrate and not to the background area of the substrate.

5,066,518

METHOD AND APPARATUS FOR PRESERVING CAVITY SPACES

Willy Klingen, Markdorf, Fed. Rep. of Germany, assignor to J. Wagner GmbH, Fed. Rep. of Germany

Filed Mar. 6, 1990, Ser. No. 490,840
Claims priority, application Fed. Rep. of Germany, Mar. 29, 1989, 3910179
Int. Cl.[5] B05D *7/22*; B05B *7/16, 13/06*
U.S. Cl. 427—236 17 Claims



1. A method for preserving cavity spaces, whereby wax is applied to inside walls of the cavity space to be preserved with application nozzles, comprising the steps:
heating wax to a temperature to liquify the wax between 80° and 140° C.;
supplying the heated and liquified wax to a pre-atomizer nozzle under a pressure between 40 and 150 bar to atomize the wax in the form of a jet of wax drops by said pre-atomizer nozzle;
heating compressed air having a pressure between 0.5 and 5 bar to a temperature between 90° and 160° C.;
mixing said compressed air in its heated condition with the jet of wax drops that has emerged from the pre-atomizer nozzle;
supplying the hot mixture of wax drops and air to the application nozzle; and
spraying the hot mixture of wax drops and air onto the walls of the cavity space to be preserved.

5,066,519

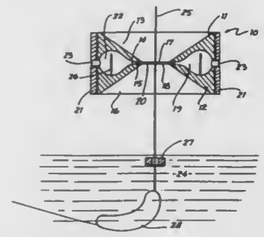
JET WIPING NOZZLE

Malcolm A. Robertson, East Maitland, Australia, assignor to Australian Wire Industries Pty. Limited, Sydney, Australia

Filed Aug. 10, 1989, Ser. No. 392,103
Claims priority, application Australia, Aug. 24, 1988, PJ0032
Int. Cl.[5] B05D *3/04*
U.S. Cl. 429—349 24 Claims

1. In a gas jet wiping process for controlling the film applied from the dip coating of a metal filament through a liquid metal bath, the improvement comprising an annular jet wiping nozzle having:
a) an upper annular part having an upper and a lower annular surface meeting in a substantially sharp annular edge,

b) a lower annular part having an upper and a lower annular surface meeting in a substantially sharp annular edge,
c) an annular gas passage defined between adjacent surfaces of the upper and lower annular parts and terminating between the sharp edges in an annular gas orifice,
d) a filament orifice through which the metal filament passes which is defined by the sharp edges and the annular gas orifice,
e)
(i) the included angle between the upper surface of the upper annular part and the direction of travel of gas leaving the gas orifice being smaller than $(80-x)°$, and
(ii) the included angle between the lower surface of the lower annular part and the direction of travel of gas leaving the gas passage being smaller than $(70+x)°$,



where x is a predetermined angle for the gas wiping nozzle and is the included angle between a plane normal to the direction of movement of the filament through the gas jet wiping nozzle and the direction of gas leaving the gas passage,
f) the lower surface of the lower annular part directly facing the liquid bath and being so disposed that the minimum included angle between that surface and the direction of movement of the filament through the gas jet wiping nozzle is at least 20°, and
g) the upper surface of the upper annular part being so disposed that the minimum included angle between that surface and the direction of movement of the filament through the gas jet nozzle is at least 10°.

5,066,520

METHOD OF PROTECTING POROUS MASONRY

Alan L. Freiberg, Midland; Harold V. Lefler, III, Sanford, and Donald T. Liles, Midland, all of Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Feb. 15, 1990, Ser. No. 480,681
Claims priority, application Japan, Dec. 27, 1988, 63-327796
Int. Cl.[5] B05D *3/02*
U.S. Cl. 427—379 7 Claims

1. A process for improving the adhesion of aqueous silicone elastomeric coatings to porous substrates consisting essentially of
(A) coating the porous substrate with an aqueous silicone emulsion which provides an elastomeric coating upon removal of the water, said emulsion having a viscosity of from 0.1 to 10 Pa.s at 25° C. and a pH of from 7.0 to 11.5 inclusive in sufficient amount to provide a continuous primer coating over the surface of the substrate, then
(B) allowing the primer coating to dry to form a film, then
(C) applying a second aqueous silicone emulsion which provides an elastomeric material upon removal of the water over the primer film of (B), said second aqueous silicone emulsion having a solids content of greater than 15 percent by weight and a viscosity of greater than 10 Pa.s at 25° C., then
(D) allowing the second aqueous silicone emulsion to dry to an elastomer.

5,066,521

COMPOSITION AND PROCESS FOR COATING SYNTHETIC FIBERS

Esam M. Morsy, Peoria, Ariz., assignor to Barbara Blair Reiter, New York, N.Y.

Filed Jul. 2, 1990, Ser. No. 546,912
Int. Cl.[5] B05D *3/02*
U.S. Cl. 427—387 22 Claims

1. A method of forming a protective film over textile fibers, comprising the following steps:
(a) applying a coating to the fibers from a working solution having the following formulation:

Component	Weight Percent Range
PVP solids	0.50–10.00
Silicone resin	0.01–1.00
Isopropyl alcohol	quantum sufficit
Purified water	0.00–20.00
Fragrance	0.01–0.20
Dye	quantum sufficit
Total	100.00

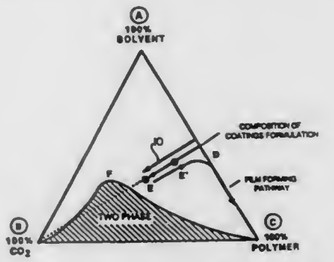
wherein said coating is permitted to dry until the solvent has been substantially removed.

5,066,522

SUPERCRITICAL FLUIDS AS DILUENTS IN LIQUID SPRAY APPLICATIONS OF ADHESIVES

Thomas A. Cole, New Fairfield, Conn., and Kenneth A. Nielsen, Charleston, W. Va., assignors to Union Carbide Chemicals and Plastics Technology Corporation, Danbury, Conn.

The portion of the term of this patent subsequent to May 8, 2007, has been disclaimed.
Continuation-in-part of Ser. No. 218,910, Jul. 14, 1988. This application Mar. 22, 1989, Ser. No. 326,945
Int. Cl.[5] B05D *1/02*
U.S. Cl. 427—422 74 Claims



1. A process for the liquid spray application of adhesive coatings to a substrate, which comprises:
(a) forming a liquid mixture in a closed system, said liquid mixture comprising:
(i) a solids fraction containing at least one polymeric compound capable of forming an adhesive coating on a substrate;
(ii) a solvent fraction containing at least one active solvent in which said at least one polymeric compound is at least partially soluble and which is at least partially miscible with supercritical fluid; and
(iii) at least one supercritical fluid, in at least an amount which when added to (i) and (ii) is sufficient to render the viscosity of said mixture to a point suitable for spray application; and
(b) spraying said liquid mixture, forming droplets having an average diameter of 1 micron or greater, onto a substrate to form a liquid coating thereon.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,523

PROCESS FOR PRODUCING CORROSION-RESISTANT LAYERS

Hans-Theo Steine, and Christopher Wasserman, both of Lausanne, Switzerland, assignors to Castolin S.A., Sulpice, Switzerland

Continuation of Ser. No. 213,790, Jun. 30, 1988, abandoned.
This application Feb. 7, 1990, Ser. No. 476,242
Claims priority, application Fed. Rep. of Germany, Jul. 8, 1987, 3722533
The portion of the term of this patent subsequent to Sep. 4, 2007, has been disclaimed.
Int. Cl.[5] B05D *1/10*
U.S. Cl. 427—423 3 Claims

1. A process for producing a protective metal layer on tubes used in firing installations comprising thermal spraying on the tubes an atomized powder being formed of an alloy consisting essentially of from about 15 to 35% Cr, from about 0.05 to 5.0% Mn, from about 0.01 to 3.0% C, from about 0.1 to 3.0% Si, from about 0.1 to 8.0% Mo, from about 2.0 to 15% Al, and balance Fe.

5,066,524

CRYSTALLIZED GLASS ARTICLE WITH COLORED SMALL MASSES DISPERSED IN A SURFACE THEREOF

Yasuhiro Baba, Hikone, and Masanori Moritake, Nagahama, Takashi Sakane, Kusatsu, Japan; Yoshio Hashibe, Gamou, Japan; Takehiro Shibuya, Yasu, Japan. All of Japan

Filed Sep. 26, 1989, Ser. No. 412,851
Claims priority, application Japan, Sep. 27, 1988, 63-243052
Int. Cl.[5] B44F *9/04*
U.S. Cl. 428—15 5 Claims

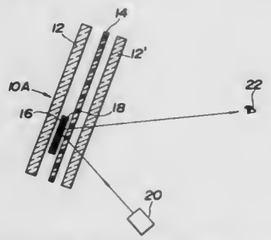
5. A heat resistant, incombustible, ornamental wall material for buildings with a colored surface pattern which comprises a substrate of a first crystallized glass of a first color having a surface and small glass masses of a second color dispersed and fusion-bonded in the surface of said substrate, said substrate and said small glass masses cooperatively defining said colored surface pattern, said colored surface pattern composed of a plurality of colored glass masses of said second color dispersed in a surface layer of said substrate of said first color to thereby impart thereto the appearance of a natural building stone.

5,066,525

LAMINATED GLASS PANEL INCORPORATING HOLOGRAM SHEET

Fumihiko Nakamachi, and Masanori Umebayashi, both of Matsusaka, Japan, assignors to Central Glass Company, Limited, Ube, Japan

Filed Jan. 18, 1990, Ser. No. 466,852
Claims priority, application Japan, Jan. 25, 1989, 1-7453[U]; Jan. 25, 1989, 1-7454[U]
Int. Cl.[5] B44F *1/10*
U.S. Cl. 428—29 9 Claims



1. A laminated glass panel, comprising:
two transparent glass plates arranged opposite and parallel to each other;
a polyvinyl butyral resin film which contains a plasticizer and is interposed between the two glass plates as adhesive means;
a hologram sheet interposed between said polyvinyl butyral resin film and one of the two glass plates; and
a transparent film which is tightly interposed between said hologram sheet and said polyvinyl butyral resin film so as to shield said hologram sheet from said polyvinyl butyral resin and prevents said plasticizer from transferring from said polyvinyl butyral resin film to said hologram sheet, wherein the surface roughness of said transparent film is not more than 2 μm at least on the side facing said polyvinyl butyral resin film.

5,066,526

THERMOPLASTIC FILMS FOR USE IN STRETCH/CLING APPLICATIONS

Paul M. German, Jr., Friendswood, Tex., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Division of Ser. No. 123,002, Nov. 19, 1987, abandoned. This application Mar. 14, 1990, Ser. No. 493,174
Int. Cl.[5] B32B *27/08*
U.S. Cl. 428—35.2 14 Claims

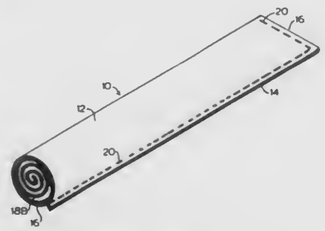
1. A thermoplastic stretch/cling film comprising:
a cling layer, absent a tackifying additive, said cling layer comprising a polymer of two or more monomers wherein a first monomer comprises ethylene and a second monomer comprises an acrylate, said polymer comprising an acrylate content of 20% to 30% by weight based upon the weight of said polymer; and
a second layer wherein said second layer comprises a slip layer.

5,066,527

SORPTIVE ARTICLE

Robert D. Newell, Roxboro, N.C., assignor to Newell Industry International, Roxboro, N.C.

Filed Jan. 26, 1990, Ser. No. 471,110
Int. Cl.[5] B27M *3/00*
U.S. Cl. 428—35.6 22 Claims



1. A fluid-sorptive article comprising:
(a) a casing member formed of a liquid permeable material; and
(b) at least one fibrous web element interiorly disposed in the casing member to form interstitial spaces capable of holding fluids.

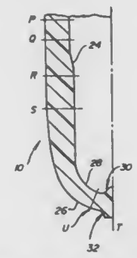
5,066,528

REFILLABLE POLYESTER CONTAINER AND PREFORM FOR FORMING THE SAME

Suppayan M. Krishnakumar, Nashua; Wayne N. Collette, Merrimack, and Thomas E. Nahill, Amherst, all of N.H., assignors to Continental PET Technologies, Inc., Danbury, Conn.

Filed Mar. 5, 1990, Ser. No. 488,247
Int. Cl.[5] B65D *1/00*
U.S. Cl. 428—36.92 8 Claims

1. In a preform for use in blow molding a container having a concaved bottom and being suitable for refilling, said preform being an injection molded member formed of a polyester, said preform having an elongated body for forming a container body and being closed at one end and open at the opposite end, said preform open end having a neck finish with said preform between said neck finish and said elongated body having a portion tapering in wall thickness for forming a container shoulder portion, said closed one end being defined by a bottom having a generally hemispherical outer surface, and be-



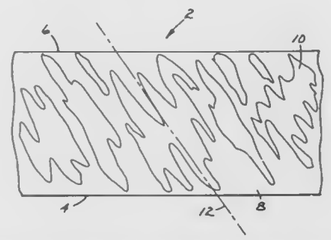
tween said closed one end and said preform body there being a cylindrical container base forming thickened portion of an increased wall thickness as compared to the wall thickness of said preform body, said preform being improved by said bottom also having a generally hemispherical inner surface with the wall thickness of said bottom gradually increasing in thickness towards said preform body and forming means for forming said container concaved bottom with a wall thickness decreasing radially outwardly.

5,066,529

CAMOUFLAGE WRAPPING TAPE

Charles D. Huber, and Donald J. Barry, both of St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Sep. 24, 1990, Ser. No. 587,753
Int. Cl.[5] B32B *3/00*
U.S. Cl. 428—40 18 Claims



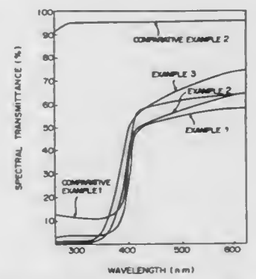
1. A camouflage tape capable of being repeatedly wrapped around an article having a diameter between 1 and 20 cm to provide a pattern giving an appearance of linearity with respect to the axis of said article perpendicular to a cross section of said article, said tape having a width of between 1.5 and 20 cm and having a colored image on at least one surface of said tape, said colored image comprising a background color having a pattern in a different color thereon, said pattern comprising elongate masses which provide the appearance of angularity with respect to the edges of the tape defining the width of said tape, the angularity giving an appearance of angles between 15° and 80° with respect to said edges.

5,066,530

LAMINA AND A COSMETIC COMPRISING THE SAME

Hidekimi Kadokura, and Kunio Saegusa, both of Niihama, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Division of Ser. No. 119,092, Nov. 10, 1987, Pat. No. 4,882,143.
This application Sep. 25, 1989, Ser. No. 412,129
Claims priority, application Japan, Nov. 17, 1986, 61-273396
Int. Cl.[5] B32B *3/00*
U.S. Cl. 428—98 15 Claims



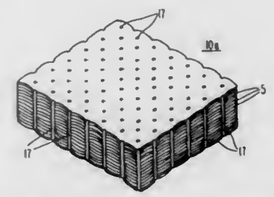
1. A lamina having an excellent capacity to scatter ultraviolet rays comprising:
a laminar substance as a matrix and
a finely divided metal or metal compound dispersed therein,
wherein the difference in refractive index between the laminar substance and the finely divided metal or metal compound is not less than 0.1,
the volume fraction of the finely divided metal or metal compound is 0.1–50%,
the laminar substance has an average thickness of 0.1–5 μm and an average size of 1–500 μm,
the laminar substance is at least one member selected from the group consisting of bivalent or higher polyvalent metals; oxides, nitrides, carbides and hydroxides of the metals; hydrolysates of metal chlorides; partial hydrolysates of organometallic compounds; and inorganic and organic compounds of a higher molecular weight, and
the finely divided metal or metal compound is at least one member selected from the group consisting of bivalent or higher polyvalent metals; oxides, nitrides, carbides and hydroxides of the metals; hydrolysates of metal chorides; partial hydrolysates of organometallic compounds; and metal sulfates.

5,066,531

VARIABLE THICKNESS FOAM PLANK

Warren F. Legg, Worthington, and Wilfred E. Willis, Grayson, both of Ky., assignors to Ametek, New York, N.Y.

Filed Sep. 5, 1989, Ser. No. 403,121
Int. Cl.[5] B32B *3/10, 3/24, 31/00*
U.S. Cl. 428—131 12 Claims



1. A relatively and controllably rigid, lightweight flat thermoplastic foam product comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

a plurality of laminated thermoplastic foam sheets bonded to one another by melt-bound perforations.

5,066,532

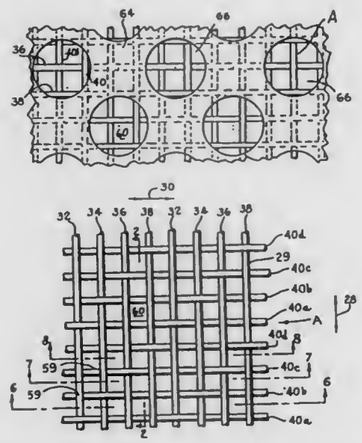
WOVEN MULTILAYER PAPERMAKING FABRIC HAVING INCREASED STABILITY AND PERMEABILITY AND METHOD

Hermann Gaisser, Schlaitdorf, Fed. Rep. of Germany, assignor to Hermann Wangner GmbH & Co., Reutlingen, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 763,039, Aug. 5, 1985. This application Jul. 16, 1987, Ser. No. 74,339

Int. Cl.[5] B32B *3/00, 3/10;* D03D *1/00, 3/04;* D21F *7/08*

U.S. Cl. 428—137 9 Claims



1. A highly permeable woven multilayer papermaking fabric for a papermaking machine having rollers about which said papermaking fabric travels endlessly, said papermaking fabric having increased fabric stability in the machine direction which corresponds to the direction said papermaking fabric travels on said papermaking machine, the machine direction stability being attributable to the running direction of stacked yarn pairs of said woven papermaking fabric said fabric being of the type which includes a paper support side and a roller contact side facilitating travel as an endless belt in said machine direction wherein said woven fabric comprises:

a first layer of first load bearing yarns in said machine direction on said paper support side of said fabric;

a second layer of second load bearing yarns in said machine direction on said roller contact side of said fabric;

stacked pairs of said machine direction yarns defined by first and second machine direction yarns of said first and second layers arranged in a superposed position one above the other;

a yarn interwoven with said machine direction yarns of said first and second layers in the cross-machine direction thereto to maintain said machine direction yarns stacked upon one another in a weave pattern;

said stacked pairs of machine direction yarns being spaced in the cross-machine direction in said weave pattern to provide a projected open fabric area; and

said projected open area of said fabric being thirty (30%) percent or more of the total fabric area.

5,066,533

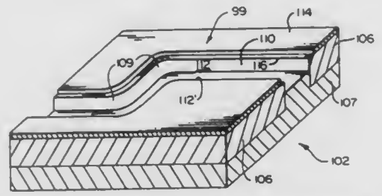
BORON NITRIDE MEMBRANE IN WAFER STRUCTURE AND PROCESS OF FORMING THE SAME

William G. America, Newtown, and Richard R. Poole, Norwalk, both of Conn., assignors to The Perkin-Elmer Corporation, Norwalk, Conn.

Continuation-in-part of Ser. No. 377,979, Jul. 11, 1989, abandoned. This application Jun. 21, 1990, Ser. No. 540,043

Int. Cl.[5] H01L *21/306;* B44C *1/22*

U.S. Cl. 428—156 6 Claims



1. A process for forming a step with a smooth wall in a wafer member, comprising diffusing boron into a portion of a selected area of a <100> surface of a silicon wafer member to form a boron diffusion layer, and exposing the selected area to a selective etchant to which the boron diffusion layer is resistant, whereby the boron diffusion layer forms a step adjacent etched silicon in the wafer member with a smooth wall substantially perpendicular to the <100> surface.

5. A miniaturized device comprising a silicon wafer member having a step therein with a smooth wall, formed by the process according to claim 1, or 2 or 3.

5,066,534

MAGNETIC RECORDING MEDIUM

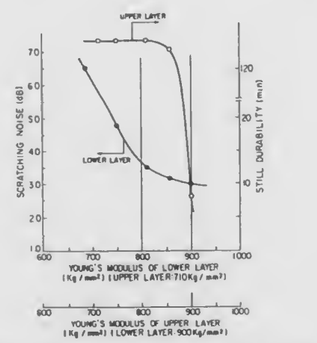
Narito Goto, and Yasuo Ando, both of Tokyo, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Jul. 31, 1990, Ser. No. 560,207

Claims priority, application Japan, Aug. 11, 1989, 1-209271

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—212 8 Claims



1. A magnetic recording medium comprising a non-magnetic support and provided thereon at least two magnetic layers each containing a ferromagnetic powder and a binder, wherein a lower magnetic layer of the at least two layers has a Young's modulus which is larger than that of an upper magnetic layer of the at least two layers and is not less than 800 kg/mm^2.

5,066,535

FABRIC PATTERNING PROCESS AND PRODUCT

Wesley D. Christie, Inman, S.C., assignor to Milliken Research Corporation, Spartanburg, S.C.

Continuation of Ser. No. 478,057, Feb. 7, 1990, abandoned, which is a continuation of Ser. No. 406,840, Sep. 13, 1989, abandoned, which is a continuation of Ser. No. 45,105, May 1, 1987, abandoned. This application Jul. 25, 1990, Ser. No. 560,465

Int. Cl.[5] B05D *5/00;* D06P *5/12, 5/20, 7/00*

U.S. Cl. 428—196 8 Claims



1. A process for dyeing selected areas of the surface of a textile fabric with an aqueous dye to form a pattern thereon, said process comprising the steps of:

(a) providing a substantially dry fabric having a surface which carries a water-insoluble composition, said composition imparting a substantially uniform hydrophobic character to said fabric surface;

(b) directing a stream of high velocity water to selected areas of said fabric surface comprising said pattern, said water stream having sufficient velocity to overcome said hydrophobic character of said fabric surface and wet said fabric surface in said selected areas, said fabric surface remaining substantially non-wetted elsewhere;

(c) contacting said fabric surface with an aqueous dye, whereby said dye substantially wets and is retained by said fabric only in said selected areas already wetted by said water stream, and is repelled by said hydrophobic character of said non-wetted fabric surface elsewhere;

(d) fixing said dye retained by said fabric in said wetted areas.

5,066,536

FIBRE REINFORCED THERMOPLASTIC COMPOSITE STRUCTURES

Frederic N. Cogswell, Guisborough, and Peter J. Meakin, Saltburn, both of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Dec. 6, 1988, Ser. No. 280,355

Claims priority, application United Kingdom, Dec. 10, 1987, 8728887

Int. Cl.[5] B32B *7/02;* D04H *1/58*

U.S. Cl. 428—216 13 Claims

1. A structural thermoplastic composite material comprising a laminate of (a) a first layer of a fibre reinforced composite comprising a first thermoformable polymer and reinforcing filaments at least 50% by weight of which have a length in excess of 3 mm; and (b) a second adherent layer comprising a second thermoformable polymer selected from the group consisting of a crystalline polymer having a melting point at least 10° C. below that of the first polymer, an amorphous polymer having a glass transition temperature which is at least 10° C. lower than the melting point of the first polymer and an amorphous polymer which is crystallisable by annealing, said second adherent layer having been applied to said first layer at a temperature above the melting point of the first polymer.

5,066,537

PRINTING BLANKET CONTAINING A HIGH ELONGATION FABRIC

Dennis O'Rell, Boxboro; Parviz Hamed, Upton, and Thomas C. DiPerna, Woburn, all of Mass., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed Oct. 4, 1990, Ser. No. 592,762

Int. Cl.[5] B32B *7/00*

U.S. Cl. 428—246 23 Claims



1. A printing blanket comprising a carcass layer, a compressible layer overlaying the carcass layer, a stabilizing layer overlaying the compressible layer and an ink transfer layer upon the stabilizing layer, wherein the stabilizing layer is formed of a fabric having a plurality of continuous filament synthetic warp yarns following a sinusoidal path over and under the weft yarns.

5,066,538

NONWOVEN INSULATING WEBS

William Huykman, Saint Louisville, Ohio, assignor to Ultrafibre, Inc., Granville, Ohio

Division of Ser. No. 224,444 Jul. 25, 1988, Pat. No. 4,933,129. This application Mar. 26, 1990, Ser. No. 499,041

Int. Cl.[5] B32B *7/00;* D02G *3/00*

U.S. Cl. 428—288 4 Claims

1. High performance fibers produced by forming a substantially two-dimensional non-woven web of fibers composed of glass, synthetic polymers or mixtures thereof, said web having a thickness such that at least 50 percent of the fibers is exposed to one or the other side of the web; vacuum metallizing the web with a metal, metal alloy, or mixtures thereof having an emissivity less than 0.1 to produce a web wherein at least 50 percent of the surface area of the web fibers is coated with a metallic material; and shredding the metallized web into individual, coated staple fibers.

5,066,539

MAGNETIC RECORDING MEDIUM WHEREIN THE MAGNETIC LAYER CONTAINS COMPONENTS HAVING SPECIFIED POLAR GROUPS, PARTICLE DIAMETERS AND SURFACE AREAS OR WHICH ARE IN SPECIFIC RELATIVE RATIOS

Makoto Inoue; Hiroshi Miura; Kaneaki Niita; Toshiyuki Sano; Yoshitaka Tsukidate, and Takahiro Miyazaki, all of Miyagi, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Mar. 28, 1990, Ser. No. 500,300

Claims priority, application Japan, Mar. 29, 1989, 1-83698; Mar. 31, 1989, 1-74834

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—328 1 Claim

1. A magnetic recording medium which comprises a non-magnetic substrate and a magnetic layer formed thereon, said magnetic layer being composed mainly of a ferromagnetic powder having a specific surface area larger than 45 m^2/g and a binder resin having a —SO_3M group or —OSO_3M group or both (where M denotes an alkali metal introduced thereinto, with the amount of said —SO_3M group or —OSO_3M group or both being 0.2 to 0.8 μmol per m^2 of the surface area of the ferromagnetic powder, and said magnetic layer containing a compound having a plurality of carboxyl groups in the molecule, with the amount of said carboxyl groups being 0.5 to 5

VOL 1132 ISS 3 NO 19 1991 UMI

μmol per m^2 of the surface area of said ferromagnetic powder, and said magnetic layer also containing carbon having an average particle diameter of 200 to 400 nm and a specific surface area of 5 to 20 m^2/g, with the amount of said carbon being 0.5 to 4 parts by weight for 100 parts by weight of said ferromagnetic powder.

5,066,540

FLAKE MATERIALS IN COATING COMPOSITIONS

Mark F. Mosser, Sellersville; Kevin B. Eddinger, Gilbertsville, and William J. Fabiny, Harleysville, all of Pa., assignors to Sermatech International, Inc., Limerick, Pa.

Division of Ser. No. 233,833, Aug. 16, 1988, Pat. No. 4,863,516, which is a continuation of Ser. No. 6,376, Jan. 23, 1987, abandoned. This application Sep. 5, 1989, Ser. No. 402,796

Int. Cl.[5] B32B *15/04, 5/16*

U.S. Cl. 428—336 **36 Claims**

1. A cured phosphate coating of improved uniform coating thickness and coverage, erosion resistance, impact resistance, bond strength and corrosion resistance, which coating comprises (a) an aqueous acid binder which comprises phosphate ions and ions selected from the group consisting of chromate and molybdate ions and binds (b) a mixture which contains powder of spherical particles, and flakes in a random distribution amongst the particles, wherein said flakes constitute at least about one percent by weight of the mixture, with the proviso that neither the powder nor the flake is zinc or magnesium and that the phosphate ions are present in major proportion and in excess of the ions selected from the group consisting of chromate and molybdate.

5,066,541

HETEROCYCLE OLIGOMER BLENDS

Hyman R. Lubowitz, Rolling Hills Estates, Calif.; Clyde H. Sheppard, Bellevue, and Ronald R. Stephenson, Kirkland, both of Wash., assignors to The Boeing Company, Seattle, Wash.

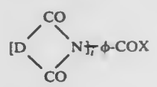
Division of Ser. No. 7,121,964, Nov. 17, 1987, Pat. No. 4,868,270, which is a continuation-in-part of Ser. No. 6,893,124, Aug. 4, 1986, abandoned, which is a continuation-in-part of Ser. No. 6,816,490, Jan. 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 6,651,826, Sep. 18, 1984, abandoned. This application Dec. 16, 1988, Ser. No. 286,028

Int. Cl.[5] C08K *3/40*

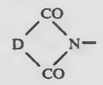
U.S. Cl. 428—378 **24 Claims**

1. A blend comprising an oligomer and a compatible non-crosslinking polymer, wherein the oligomer is formed by reacting:

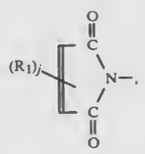
(a) 2 moles of an unsaturated, crosslinking, phenylimide carboxylic acid halide of the general formula:

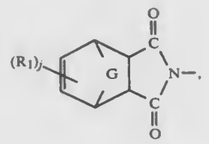


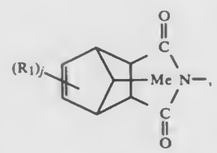
wherein

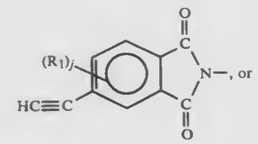


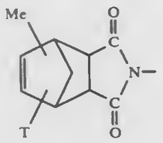
is a radical selected from the group consisting of:





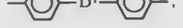




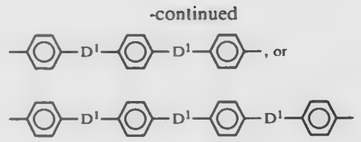


R_1 = lower alkyl, lower alkoxy, aryl, aryloxy, substituted alkyl, substituted aryl, halogen, or mixtures thereof;
j = 2, 1, or 2;
G = $—CH_2—$, —O—, —S—, or $—SO_2—$;
T = methallyl or allyl;
Me = methyl;
i = 1 or 2; and
X = halogen;

(b) n moles of a diacid halide that includes terminal carboxylic acid halide functionalities attached at the ends of a compound residue selected from the group consisting of:
(I) phenyl;
(II) naphthyl;
(III) biphenyl;
(IV) a polyaryl "sulfone" divalent radical of the general formula:

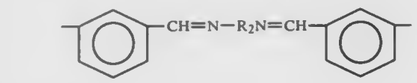


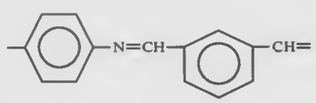
-continued

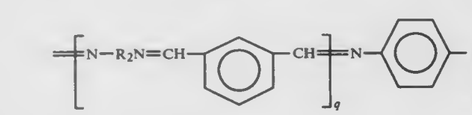


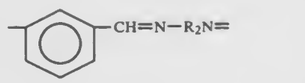
wherein D^1 = —S—, —O—, —CO—, $—SO_2—$, $—(CH_3)_2C—$, $—(CH_3)_2C—$, or mixtures thereof throughout the chain;

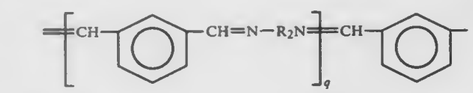
(V) a divalent radical having conductive linkages, illustrated by Schiff base compounds selected from the group consisting of:







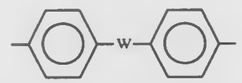




wherein

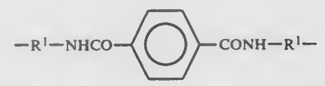
R_2 is selected from the group consisting of: phenyl; biphenyl; naphthyl; or

a divalent radical of the general formula:



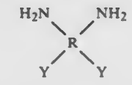
wherein W = $—SO_2—$, $—CH_2—$; and q = 0–4; or

(VI) a divalent radical of the general formula:

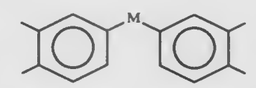


wherein R^1 = a C_2 to C_{12} divalent aliphatic, alicyclic, or aromatic radical; and

(c) n+1 moles of at least one four-functional compound of the general formula:



wherein R is selected from the group consisting of compounds of the general formula:



wherein M = —CO—, $—SO_2—$, $—(CF_3)_2C—$, —S—, or —O—;

Y is selected from the group consisting of —OH, —SH, and $—NH_2$; and

n is an integer selected so that the oligomer has an average formula weight greater than about 500.

5,066,542

RESIN BLENDS OF MALEIC ANHYDRIDE GRAFTS OF OLEFIN POLYMERS FOR EXTRUSION COATING ONTO METAL FOIL SUBSTRATES

Ricky L. Tabor, and James A. Allen, both of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 318,049, Mar. 2, 1989, abandoned, which is a continuation of Ser. No. 836,665, Mar. 5, 1986, abandoned, which is a continuation of Ser. No. 641,087, Aug. 15, 1984, abandoned. This application Oct. 15, 1990, Ser. No. 597,630

Int. Cl.[5] B32B *27/32, 15/08;* **C08L** *51/06, 23/06*

U.S. Cl. 428—461 **10 Claims**

1. A resin blend for coating metal foil substrates for use at elevated temperatures, said resin blend comprising a polymer blend consisting of about 3 to about 50 percent of grafted HDPE, the remaining percentage consisting of an ungrafted LLDPE,

wherein the grafted HDPE is derived from a grafting reaction with maleic acid or maleic anhydride, and thus contains about 0.1 to about 5 weight percent of succinic acid or succinic anhydride groups,

and wherein the HDPE, before grafting, has a melt index measured according to ASTM D-1238(E) (190° C./2.16 kg) in the range of about 0.1 grams/10 minutes to about 150 grams/10 minutes and a density in the range of about 0.94 grams/cubic centimeter to about 0.965 grams/cubic centimeter, and

wherein the LLDPE copolymer is an ethylene/1-octene copolymer having a density in the range of about 0.88 grams/cubic centimeter to about 0.94 grams/cubic centimeter and a melt index measured according to ASTM D-1238(E) (190° C./2.16 kg) in the range of about 0.1 grams/10 minutes to about 40 grams/10 minutes.

5,066,543

FILM, SHEET AND LAMINATE CAPABLE OF FORMING EASY-OPEN PACKAGINGS

Charles C. Hwo, Sugar Land, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Feb. 28, 1990, Ser. No. 486,565

Int. Cl.[5] B32B *15/08, 27/28;* **C08L** *23/20, 33/02, 33/04*

U.S. Cl. 428—412 **15 Claims**

1. A packaging film or sheet which is capable of forming peel seals, comprising a blend of:

from about 35 percent by weight to about 90 percent by weight of an ethylene unsaturated ester copolymer;

from about 10 percent by weight to about 60 percent by weight of an ethylene-carboxylic acid copolymer; and

VOL 1132 ISS 3 NO 19 1991 UMI

from about 5 percent by weight to about 55 percent by weight of a butene-1 homopolymer or copolymer.

5,066,544
DISPERSION STRENGTHENED LEAD-TIN ALLOY SOLDER

Hemant S. Betrabet, Peekskill; Otmar H. Boser, Scarsdale; Robert H. Kane, Hohokus; Susan McGee, Peekskill, and Thomas Caulfield, Croton Falls, all of N.Y., assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 27, 1990, Ser. No. 573,440
Int. Cl.[5] C22C *13/00, 11/06*
U.S. Cl. 428—614 **12 Claims**

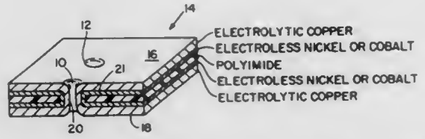


1. A dispersion strengthened lead-tin alloy solder comprising up to 5vol. % of particles of a material selected from the group consisting of nickel-tin intermetallics and/or metal sulfide, the size of said particles being less than 5μm.

5,066,545
PROCESS FOR FORMING POLYIMIDE-METAL LAMINATES

Daniel R. Walsh, Peabody, Mass., assignor to Polyonics Corporation, Newburyport, Mass.

Continuation-in-part of Ser. No. 268,246, Oct. 3, 1988, Pat. No. 4,894,124, which is a division of Ser. No. 155,897, Feb. 16, 1988, Pat. No. 4,868,071, which is a continuation-in-part of Ser. No. 18,346, Feb. 24, 1987, Pat. No. 4,725,504, and a continuation-in-part of Ser. No. 18,342, Feb. 24, 1987, Pat. No. 4,806,395. This application Jan. 12, 1990, Ser. No. 464,230
The portion of the term of this patent subsequent to Feb. 16, 2005, has been disclaimed.
Int. Cl.[5] B32B *15/08*
U.S. Cl. 428—626 **3 Claims**

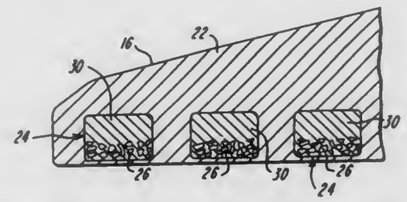


1. A laminate product which comprises a polyimide sheet having at least one through-hole extending between two surfaces of said sheet, said surfaces of said sheet and the surfaces of said through-hole being uniformly and completely hydrophilized, said polyimide sheet surfaces and the surfaces of said at least one through-hole being free of an adhesive and having a metal coating comprising an electroless nickel or cobalt coating and an electrolytic copper coating bonded to each of said nickel or cobalt coatings, said laminate sheet product having a peel strength of at least 6.0 lb./in. as measured by IPC test 2.4.9 Method A and a peel strength of at least 4.5 lb./in. as measured by IPC test 2.4.13 for solder float.

5,066,546
WEAR-RESISTANT STEEL CASTINGS

James P. Materkowski, Latrobe, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Continuation-in-part of Ser. No. 327,667, Mar. 23, 1989, abandoned. This application Dec. 8, 1989, Ser. No. 449,094
Int. Cl.[5] B32B *15/04*
U.S. Cl. 428—627 **15 Claims**

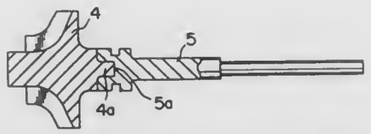


8. A tough, wear resistant composite body comprising:
(a) at least one layer of a carbide material selected from the group consisting of tungsten carbide, titanium carbide, tantalum carbide, niobium carbide, zirconium carbide, vanadium carbide, hafnium carbide, molybdenum carbide, chromium carbide, boron carbide, silicon carbide, their mixtures, solid solutions, and cemented composites;
(b) a first casted steel matrix material, wherein said carbide material is embedded in and bonded to said first casted steel matrix to form a wear resistant body; and
(c) a second steel matrix, having a melting point at least 200 degrees F. greater than the melting point of said first steel matrix, wherein said wear resistant body is embedded in and bonded to said second steel matrix.

5,066,547
METAL AND CERAMIC HEAT-CONNECTED BODY

Noboru Ishida; Masaya Ito, and Mitsuyoshi Kawamura, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Nagoya, Japan

Continuation of Ser. No. 39,602, Feb. 18, 1986, abandoned. This application Jul. 24, 1989, Ser. No. 385,991
Claims priority, application Japan, Feb. 18, 1985, 60-29685
The portion of the term of this patent subsequent to Oct. 18, 2005, has been disclaimed.
Int. Cl.[5] B32B *15/04*; F04D *29/38*
U.S. Cl. 428—627 **10 Claims**



1. A ceramic/metal composite turbine rotor assembly comprising a ceramic turbine rotor and a metal shaft which have been heat-connected to each other, wherein the ceramic turbine rotor has a coefficient of thermal expansion of about 8.0×10^{-6}/° C. or less and the metal shaft is martensite stainless steel or martensite heat-resistant steel having a Rockwell hardness HRC of at least 40 which has been quench hardened through martensite transformation in a gas or vacuum subsequent to heat-connecting at a temperature higher than the quench hardening temperature of the steel which is at least 800° C.

5,066,548
PROTECTIVE COATED IRON AND STEEL PRODUCTS

Danièle Quantin, Nogent S/Marne, and Francisco Galdon, Nanterre, both of France, assignors to Institut Recherches de la Siderurgie Francais - IRSID, Maizierer-les-Metz, France

Division of Ser. No. 011538, Feb. 6, 1987. This application Oct. 21, 1988, Ser. No. 218,548
Claims priority, application France, Feb. 6, 1986, 86 01636
Int. Cl.[5] C25D *11/02*; C23C *28/00*
U.S. Cl. 428—629 **9 Claims**

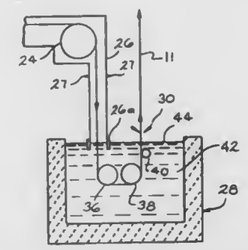


1. An elongated steel product worked off hot, comprising: a layer of adherent and rough scale with a maximum thickness of about 8 μm, directly coated with a layer of protective material.

5,066,549
HOT DIP ALUMINUM COATED CHROMIUM ALLOY STEEL

Farrell M. Kilbane, Centerville; Richard A. Coleman, Middletown; Frank C. Dunbar, West Chester, and Alan F. Gibson, Middletown, all of Ohio, assignors to Armco Inc., Middletown, Ohio

Continuation of Ser. No. 16,920, Feb. 20, 1987, Pat. No. 4,800,135, which is a division of Ser. No. 865,238, May 20, 1986, Pat. No. 4,675,214. This application Nov. 22, 1988, Ser. No. 275,147
The portion of the term of this patent subsequent to Jan. 24, 2006, has been disclaimed.
Int. Cl.[5] B32B *15/18*
U.S. Cl. 428—653 **8 Claims**



1. A ferrous base ferritic strip continuously hot dip coated with a coating metal, comprising:
the strip including at least about 6% by weight chromium,
the coating metal including aluminum or aluminum alloys,
the coating layer on the strip being substantially free of uncoated areas and formed without a thick brittle Fe-Al alloy inner layer,
the coating layer being tightly adherent to the strip and resistant to crazing or flaking during bending.

5,066,550
ELECTRIC CONTACT

Kinya Horibe; Tomio Hirano, and Minoru Ikeda, all of Shizuoka, Japan, assignors to Yazaki Corporation, Japan

Filed Jul. 25, 1990, Ser. No. 557,102
Claims priority, application Japan, Jul. 27, 1989, 1-92686
Int. Cl.[5] B32B *15/00*; H01H *1/02*
U.S. Cl. 428—670 **13 Claims**

TABLE

CONTACT EXAMPLE	N1 (CRY) (μm)	N1 (NONCRY) (μm)	F_d (μm)	A_w (μm)	R_0 (mΩ)	R_1 (mΩ)	f (R_1/R_0)
A	0	1	0.3	0	0.81	0.82	1.01
B	0	1	0.1	0.1	0.55	0.84	1.30
C	0.7	0.3	0.1	0	0.83	0.84	1.01
D	0.7	0.3	0.1	0.1	0.55	0.72	1.31
A*	1	0	0.3	0	0.84	1012.7	1200
B*	1	0	0.1	0.1	0.53	98.45	90.2
C*	1	0	1	0	0.88	1.33	1.54
D*	1	0	1	0.1	0.57	1.04	1.83

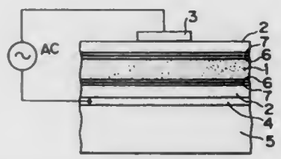
*: COMPARATIVE CONTACTS
R_0: INITIAL RESISTANCE
R_1: RESISTANCE AFTER CORROSION TEST

1. An electric contact comprising:
a) a metallic base layer;
b) a Ni-based layer formed on said metallic base layer and having a thickness of from about 0.8 to about 2 μm, said Ni-based layer being formed with a noncrystal Ni-based layer having a thickness of at least 0.08 μm and with a crystal Ni-based layer having a thickness of less than about 1.92 μm; and
c) a noble-metal-based layer formed on said noncrystal Ni-based layer having a thickness of at least about 0.08 μm.

5,066,551
ELECTROLUMINESCENT SHEET ELEMENT

Kiyoaki Kojima, Tokyo, Japan, assignor to Clarion Co., Ltd., Tokyo, Japan

Filed Jan. 23, 1990, Ser. No. 468,761
Claims priority, application Japan, Jan. 27, 1989, 1-18094
Int. Cl.[5] H05B *33/26*
U.S. Cl. 428—690 **5 Claims**



1. An electroluminescent sheet element comprising:
a fluorescent layer;
first insulating layers provided on opposite sides of said fluorescent layer;
a second thin insulating layer provide adjacent to said fluorescent layer between one of said first insulating layers and said fluorescent layer; and
an intermediate electrode provided adjacent to said one of said first insulating layers between said one of said first insulating layers and said second thin insulating layer.

5,066,552
LOW NOISE THIN FILM METAL ALLOY MAGNETIC RECORDING DISK

James K. Howard, Morgan Hill; Randall G. Simmons, and Tadashi Yogi, both of San Jose, all of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

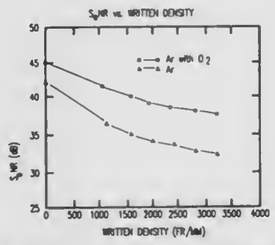
Filed Aug. 16, 1989, Ser. No. 394,784
Int. Cl.[5] G11B *23/00*
U.S. Cl. 428—694 **8 Claims**

1. A magnetic recording disk for horizontal recording comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

a rigid substrate; and

a sputter deposited magnetic layer formed over the substrate, the magnetic layer having a composition comprising cobalt, platinum and oxygen, the oxygen being present in the magnetic layer in an amount greater than approximately 5 atomic percent and less than approximately 30 atomic percent.



5,066,553

SURFACE-COATED TOOL MEMBER OF TUNGSTEN CARBIDE BASED CEMENTED CARBIDE

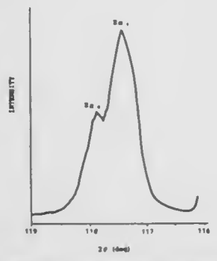
Hironori Yoshimura; Yoshihiro Sawada; Kei Nakahara; Hitoshi Kunugi, and Keiichi Sakurai, all of Tokyo, Japan, assignors to Mitsubishi Metal Corporation, Tokyo, Japan

Filed Apr. 10, 1990, Ser. No. 507,665

Claims priority, application Japan, Apr. 12, 1989, 1-92184; Jun. 14, 1989, 1-150923; Aug. 24, 1989, 1-220047; Dec. 15, 1989, 1-325558

Int. Cl.[5] B32B *15/04*

U.S. Cl. 428—698 **6 Claims**



1. A surface-coated tool member of tungsten carbide based cemented carbide having a tungsten carbide based cemented carbide substrate containing cobalt and a hard coating formed on said substrate,

wherein the cobalt content of said substrate at a surface portion at a depth of about 2 μm from a surface thereof is less than that at an interior portion at a depth of about 100 μm from said substrate by at least 10%, said surface portion of said substrate having a recrystallized structure exhibiting two X-ray diffraction peaks $K\alpha_1$ and $K\alpha_2$ indexed by index of plane (2,1,1) for tungsten carbide.

5,066,554

FIRE AND MOISTURE PROOF ANODE CONSTRUCTION FOR ALKALINE METAL OR ALKALINE EARTH METAL BATTERIES

Henry F. Hope, and Stephen F. Hope, both of Hope Insturies, Inc., Willow Grove, Pa. 19090

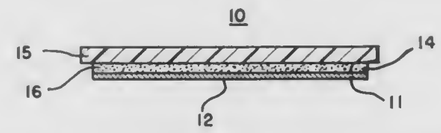
Filed Mar. 26, 1990, Ser. No. 498,696

Int. Cl.[5] H01M *6/14*

U.S. Cl. 429—48 **14 Claims**

1. In an alkaline metal or alkaline earth metal battery which has an anode at least a portion of which is of alkaline metal or alkaline earth metal with at least one exposed surface not in contact with battery material the improvement for protection which compromises

a layer of compatible protective material adjacent to and overlying said exposed surface of said anode, and



a coating of compatible adhesive on said layer of material and in adherent contact with said exposed surface of said anode.

5,066,555

CONTACT ARRARNGEMENT FOR A GALVANIC BATTERY

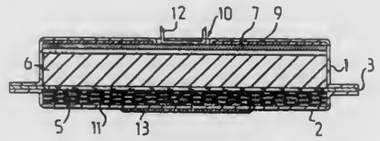
Pentti J. Tamminen, Espoo, Finland, assignor to Sporax Oy, Helsinki, Finland

Continuation of Ser. No. 653,485, Sep. 21, 1984, abandoned, which is a continuation of Ser. No. 368,540, Apr. 15, 1982, abandoned. This application Nov. 13, 1985, Ser. No. 797,763

Claims priority, application Finland, Apr. 27, 1981, 811312

Int. Cl.[5] H01M *6/46, 2/24*

U.S. Cl. 429—121 **11 Claims**



1. Contact arrangement for a battery cell of a galvanic battery comprising

(a) a positive mass layer;

(b) a negative electrode layer;

(c) a separator layer arranged between the positive mass layer and the negative electrode layer so as to separate each from the other:

(d) a positive current collector connected to the positive mass layer;

(e) a case of an insulating material which hermetically encloses the active components of the battery cell in a vacuum;

(f) contact units to create contact through the case with the positive current collector and with the negative electrode layer, respectively, and

(g) at least one additional insulation layer of a tough and adhesive material and which is limited by the case, so as to maintain the hermetic nature of the case despite the passing-through of the contact unit, wherein the additional insulation layer is at least on the negative side of the cell fitted onto the outer face of the case so that the contact unit, when passing into the case, first penetrates through the said additional insulation layer in a hermetic engagement with the additional insulation layer so as to maintain the vacuum in the cell.

5,066,556

NON-AQUEOUS ELECTROLYTE SECONDARY CELL

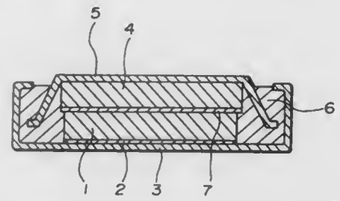
Shinichi Toyosawa, Tokorozawa; Masao Ogawa, Kawagoe; Yoshitomo Masuda, Tachikawa; Hideharu Daifuku, Akishima, and Takahiro Kawagoe, Tokorozawa, all of Japan, assignors to Bridgestone Corporation, Tokyo and Seiko Electric Components Ltd., Sendai, both of, Japan

Filed Mar. 23, 1990, Ser. No. 497,883

Claims priority, application Japan, Mar. 31, 1989, 1-78071

Int. Cl.[5] H01M *4/60, 10/40*

U.S. Cl. 429—194 **6 Claims**



1. In a nonaqueous electrolyte secondary cell comprising a positive electrode having a polyaniline as an active material, a negative electrode electrically insulated from the positive electrode, a nonaqueous electrolyte, and an outer casing having these compounds received therein, the outer casing including mutually insulated segments associated with the positive and negative electrodes,

the improvement wherein said positive electrode is affixed to the inner surface of the outer casing segment associated with said positive electrode through a polymer layer formed by applying a polymer aqueous solution comprised of a polyacrylic acid or copolymer of acrylic acid and an acrylate dissolved in water and containing carbon fine powder to said positive electrode or outer casing segment and then drying.

5,066,557

STYRENE BUTADIENE COPOLYMERS AS BINDERS IN MIXED PIGMENT GENERATING LAYER

Susan Robinette, Pittsford; Anita P. Lynch, Webster; Thomas R. Hoffend, Webster; Edward F. Grabowski, Webster, and Kathleen M. Carmichael, Williamson, all of N.Y., assignors to Xerox Corporation, Stamford, Conn.

Filed Dec. 29, 1989, Ser. No. 459,339

Int. Cl.[5] G03G *5/09*

U.S. Cl. 430—58 **20 Claims**

1. An electrophotographic imaging member comprising a charge generating layer comprised of a homogeneous dispersion of a mixture of photoconductive particles of trigonal selenium and photoconductive particles of phthalocyanine dispersed in a styrene-butadiene copolymer.

5,066,558

DEVELOPER FOR DEVELOPING ELECTROSTATIC IMAGES

Norio Hikake, and Naoto Kitamori, both of Yokohama, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 29, 1989, Ser. No. 414,297

Claims priority, application Japan, Sep. 30, 1988, 63-246303

Int. Cl.[5] G03G *9/08*

U.S. Cl. 430—109 **15 Claims**

1. A developer for developing electrostatic images, comprising: 100 wt. parts of a toner comprising toner particles and 0.01–3 wt. parts of silica powder (C) which has a particle size of 0.005–0.2 micron and is not fixed to the surfaces of the toner particles;

said toner particles and said silica powder (C) having been dispersed and mixed with each other by means of a mixer having a stirring vane rotating at a peripheral speed at the tip of the stirring vane of 5–50 m/sec;

said toner particles comprising 100 wt. parts of colored resinous particles (A) and 0.05–5 wt. parts of silica powder (B) comprising silica particles which have a particle size of 0.002–0.2 micron and have been embedded in the surfaces of the colored resinous particles (A) by a mechanical impact means; and

the amount of the silica powder (B) embedded in the surface of the colored resinous particles (A) is larger than the amount of the silica powder (C) not being fixed to the surfaces of the toner particles.

5,066,559

LIQUID ELECTROPHOTOGRAPHIC TONER

Mohamed A. Elmasry, Woodbury, and Kevin M. Kidnie, St. Paul, both of Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 22, 1990, Ser. No. 468,153

Int. Cl.[5] G03G *9/12*

U.S. Cl. 430—111 **30 Claims**

1. A liquid toner for developing an electrostatic image comprising copolymer particles dispersed in a non-polar carrier liquid, said copolymer particles comprising a thermoplastic resinous core substantially insoluble in said carrier liquid, and chemically anchored to said core a copolymeric steric stabilizer soluble in said carrier liquid and having chemically bonded thereto moieties containing organic acids having a pKa less than 4.5 to which acids are chemically bonded metal soap compounds derived from organic acids with a pKa of greater than 4.5, said metal soap compounds imparting a positive charge to said liquid toner.

5,066,560

PROCESS FOR PRODUCING TONER FOR ELECTROPHOTOGRAPHY

Ryoji Tan; Shigeyoshi Tanaka; Ken-ichi Kishi; Yasuyuki Iguchi; Takeo Kudo; Takashi Amano, and Hideki Kohno, all of Hitachi, Japan, assignors to Hitachi Chemical Company, Ltd., Tokyo, Japan

Division of Ser. No. 501,733, Mar. 30, 1990, Pat. No. 4,983,488, which is a continuation of Ser. No. 724,202, Apr. 17, 1985, abandoned. This application Sep. 7, 1990, Ser. No. 578,632

Claims priority, application Japan, Apr. 17, 1984, 59-77064; Apr. 23, 1984, 59-81483; Jan. 21, 1985, 60-8917; Jan. 21, 1985, 60-8918; Jan. 21, 1985, 60-8919

Int. Cl.[5] G03G *9/087; C08L 29/04, 27/12*

U.S. Cl. 430—137 **21 Claims**

1. A process for producing a toner for electrophotography which comprises polymerizing a polymerizable monomer dispersed by emulsification in the presence of a colorant and/or a magnetic powder to prepare a principal resin component, and then effecting the coagulation of the resulting polymerization liquid by adding a coagulating agent and at a temperature now lower than the glass transition point of the principal resin component so that the particles in the liquid after coagulation have diamcters suitable as a toner.

20. A process for producing a toner for electrophotography which comprises polymerizing a polymerizable monomer dispersed by emulsification in the presence of a colorant and/or a magnetic powder to prepare a principal resin component, and then effecting the coagulation of the resulting polymerization liquid in such a way that the particles in the liquid after coagulation have diameters suitable as a toner.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,561

METHOD FOR PRODUCING AND USING A POSITIVE PHOTORESIST WITH O-QUINONE DIAZIDE, NOVOLAK, AND PROPYLENE GLYCOL ALKYL ETHER ACETATE

Thomas R. Pampalone, Flemington, N.J., assignor to Hoechst Celanese Corporation, Somerville, N.J.

Continuation of Ser. No. 263,968, Oct. 27, 1988, abandoned, which is a continuation of Ser. No. 914,217, Oct. 2, 1986, abandoned, which is a continuation of Ser. No. 791,252, Oct. 25, 1985, abandoned, which is a continuation-in-part of Ser. No. 619,468, Jun. 11, 1984, Pat. No. 4,550,069. This application Mar. 28, 1990, Ser. No. 501,970

Int. Cl.[5] G03F *7/30, 7/022, 7/023*

U.S. Cl. 430—169 **20 Claims**

1. A method of producing and using a photoresist which consists essentially of:

a) forming a photosensitive composition containing a mixture of (i) at least one novolak resin, (ii) at least one o-quinone diazide photosensitizer, said resin and said photosensitizer being present at a relative proportion of from about 15 to 99 parts by weight resin and about 1 to 85 parts by weight photosensitizer based on the weight of the solids portion of the photosensitive composition, and (iii) a solvent composition consisting essentially of a propylene glycol alkyl ether acetate present in an amount of from about 40% to about 90% by weight of the overall photosensitive composition;

b) coating said composition on a substrate;

c) drying said composition such that it is substantially nontacky but contains residual solvent to form a photoresist composition;

d) imagewise exposing the dried photoresist composition to actinic radiation; and

e) removing the exposed areas with an aqueous alkaline developer.

5,066,562

METHOD OF HEATING IMAGE FORMATION SHEET

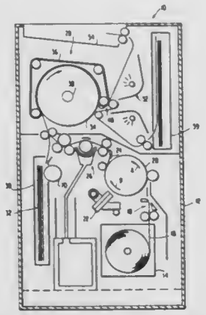
Hiroshi Nakamura, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 17, 1989, Ser. No. 324,786

Claims priority, application Japan, Mar. 17, 1988, 63-64513

Int. Cl.[5] G03C *5/00, 11/00;* **G03F** *7/34*

U.S. Cl. 430—203 **21 Claims**



1. A method of heating an image formation sheet during heat development of said image formation sheet using a drum having a peripheral surface, a length of which is a contact portions comprising the steps of:

producing a latent image on said image formation sheet by exposing said sheet; and

heating and developir.g said image formation sheet on which said image is exposed, wherein

when the total length of said image formation sheet is greater than the length of said contact portion on the periphery of the drum, said image formation sheet is heated while being continuously conveyed onto, conveyed across and conveyed from said contact portion at a first sped which is maintained constant so that the heating time required for development for the entire sheet is more than a given value, and

when said total length of said image formation sheet is less than said length of said contact portion on said periphery of said drum, said image formation sheet is wound around the periphery of said drum at a second speed higher than the first constant speed and caused to assume a stationary state on the surface of said drum, and the heat development is carried out in said stationary state, and the sheet is subsequently separated from said drum at the speed higher than the constant speed.

5,066,563

PHOTOGRAPHIC ELEMENT

Toshiaki Aono; Koichi Nakamura, and Takeshi Shibata, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation of Ser. No. 298,239, Jan. 12, 1989, abandoned, which is a continuation of Ser. No. 157,815, Feb. 19, 1988, abandoned, which is a division of Ser. No. 811,859, Dec. 20, 1985, abandoned. This application Jul. 23, 1990, Ser. No. 559,536

Claims priority, application Japan, Dec. 28, 1984, 59-277778

Int. Cl.[5] G03C *5/54*

U.S. Cl. 430—213 **5 Claims**

1. A dye-fixing material for accepting diffusible dyes diffused from a light-sensitive, dye releasing material, said dye-fixing material comprising a support, and provided on the same side of said support at least one mordant layer and a layer containing a saponified product of a copolymer composed of at least one vinyl ester and an ethylenically unsaturated carboxylic acid or derivative thereof selected from the group consisting of acrylic acid, methacrylic acid, crotonic acid, itaconic acid, maleic acid, fumaric acid, maleic acid anhydride, itaconic acid anhydride, esters of these compounds, acrylamide, and methacrylamide, and wherein a mordant in said mordant layer is a polymer mordant selected from the group consisting of (a) polymers containing tertially amino group-containing vinyl monomer units, and (b) polymers containing tertially imidazole group-containing vinyl monomer units and wherein said layer containing a saponified product of a copolymer composed of at least one vinyl ester and an ethylenically unsaturated carboxylic acid or derivatives thereof has a degree of swelling of 5 or more.

5,066,564

PHOTOPOLYMERIZABLE MIXTURE AND RECORDING MATERIAL PRODUCED THEREFROM

Rudolf Zertani, Mainz-Bretzenheim; Dieter Mohr, Budenheim, and Klaus Rode, Suzano-SP, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jul. 19, 1989, Ser. No. 381,828

Claims priority, application Fed. Rep. of Germany, Jul. 22, 1988, 3824903

Int. Cl.[5] G03F *7/029*

U.S. Cl. 430—284 **18 Claims**

1. A photopolymerizable mixture comprising, in admixture:

a) a polymeric binder in an amount sufficient to form a uniform film,

b) an acrylate or alkacrylate of a polyhydric alcohol,

c) a photoreducible dye,

d) a trihalomethyl compound that can be cleaved by irradiation, and

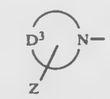
e) an acridine, phenazine or quinoxaline compound that acts as photoinitiator,

wherein the acrylate or alkacrylate is a compound of the formula I



in which

Q denotes



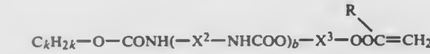
R denotes a hydrogen atom, a methyl group or an ethyl group,

X^2 denotes a saturated hydrocarbon group having 2 to 12 carbon atoms,

X^3 denotes a saturated hydrocarbon group which may be interrupted by 1 to 5 ether oxygen atoms,

D^3 denotes a saturated hydrocarbon group having 4 to 8 carbon atoms, which together with the nitrogen atom forms a 5- or 6-membered ring,

Z denotes a hydrogen atom or a group of the formula



b denotes zero or 1, and

k denotes an integer from 1 to 12, it being possible for all radicals of the same definition to be identical to or different from one another,

wherein components b, c, d and e are present in amounts sufficient to cause polymerization of component b in response to exposure to actinic radiation.

5,066,565

SELECTIVE PROTECTION OF POLY(TETRA-FLUOROETHYLENE) FROM EFFECTS OF CHEMICAL ETCHING

Robert J. Martinez, and Robert R. Rye, both of Albuquerque, N. Mex., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 29, 1989, Ser. No. 330,032

Int. Cl.[5] G03F *7/30*

U.S. Cl. 430—296 **9 Claims**

1. A photolithographic method for treating an article formed of poly(tetrafluoroethylene), comprising:

(1) subjecting portions of a surface of said article to ionizing radiation; and then

(2) subjecting said surface to chemical etching.

3. A photolithographic method according to claim 1, wherein said ionizing radiation comprises low-energy electrons.

5,066,566

RESIST MATERIALS

Anthony E. Novembre, Union, N.J., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Jul. 31, 1990, Ser. No. 560,517

Int. Cl.[5] G03F *7/039, 7/32, 7/36*

U.S. Cl. 430—296 **9 Claims**

1. A process of fabricating a device comprising the steps of exposing in a pattern a radiation sensitive material to radiation, developing a pattern in said material and using said pattern in said material as a mask in a subsequent step in said fabricating process characterized in that said radiation sensitive material comprises a polymer having a backbone chain and pendant substituents wherein a moiety is present in said backbone that induces scission of said backbone to form an acid upon said exposure and developing, wherein said substituents react with acid, and wherein there is a substantial absence of an acid generator in said material other than said polymer.

2. The process of claim 1 wherein said radiation comprises electrons.

5,066,567

IMAGE REVERSAL PROCESS UTILIZING A POSITIVE-WORKING PHOTOSENSITIVE COMPOSITION CONTAINING A DYE

Hans-Joachim Merrem, Seeheim-Jugenheim; Gerhard Buhr, Koenigstein, and Ruediger Lenz, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 260,307, Oct. 20, 1988, Pat. No. 4,927,732. This application Mar. 28, 1990, Ser. No. 500,201

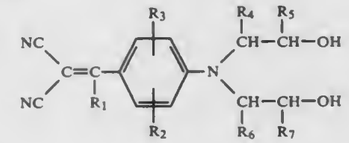
Claims priority, application Fed. Rep. of Germany, Oct. 23, 1987, 3735852

Int. Cl.[5] G03C *5/00, 1/52*

U.S. Cl. 430—325 **18 Claims**

1. A process for the production of a relief pattern according to the image reversal process, the process comprising the steps of:

coating a support with a photosensitive composition comprising in admixture a photosensitive compound selected from the group consisting of (a) a combination of a photolytic acid donor and an acid-cleavable compound containing a C—O—C group and (b) an o-quinone diazide, in an amount sufficient to change the solubility of areas of a layer of the composition that have been exposed to actinic light, a binder that is insoluble in water and soluble or swellable in an aqueous-alkaline solution in an amount sufficient to produce a uniform film when the composition is coated on the support, a crosslinking agent in an amount sufficient to effect crosslinking of the binder and a dye comprising a non-bleachable compound that absorbs light in the actinic region and corresponds to the general formula I



(I)

wherein

R_1 denotes hydrogen, alkyl, aryl, alkoxy or nitrilo,

R_2 and R_3 are identical or different and denote hydrogen, hydroxy, alkyl, aryl, alkoxy, aryloxy, nitrilo, amino, alkylamino or halogen, and

R_4, R_5, are identical or different and denote

R_6 and R_7 hydrogen, hydroxy, alkyl, aryl, alkoxy, aryloxy, amino, alkylamino or halogen,

the dye being present in an amount sufficient to reduce interference effects on optical resolution,

drying the layer,

imagewise exposing the layer to actinic light, then

subjecting the layer to an overall reexposure by means of actinic radiation, and then

developing the layer with an aqueous-alkaline solution to remove the imagewise unexposed areas and achieve image reversal.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,568

METHOD OF DEVELOPING NEGATIVE WORKING PHOTOGRAPHIC ELEMENTS

Shane Hsieh, Bridgewater, and Wayne A. Mitchell, Bound Brook, both of N.J., assignors to Hoehst Celanese Corporation, Somerville, N.J.

Division of Ser. No. 762,602, Aug. 5, 1985, Pat. No. 4,980,271.
This application Sep. 24, 1990, Ser. No. 587,210
Int. Cl.[5] G03C *5/29*
U.S. Cl. 430—325 14 Claims

1. A method for preparing a photographic element which comprises imagewise exposing a photographic element, and removing the non-image areas thereof by contacting said element with a composition consisting essentially of in admixture:

a) from at least about 5% to about 30% by weight of the developer of benzyl alcohol; and

b) from about 1% to about 20% by weight of the developer of one or more compounds selected from the group consisting of sodium xylene sulfonate and sodium cumene sulfonate; and

c) from about 5% to about 40% by weight of the developer of potassium toluene sulfonate; and

d) water in sufficient amount to formulate an effective developer for imagewise exposed photographic elements.

5,066,569

METHOD OF PROCESSING SILVER HALIDE PHOTOGRAPHIC MATERIALS

Toshiharu Nagashima, and Kazuhiro Yoshida, both of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Nov. 19, 1990, Ser. No. 615,177
Claims priority, application Japan, Nov. 20, 1989, 1-301423
Int. Cl.[5] G03C *5/38*
U.S. Cl. 430—393 17 Claims

1. A method of processing an imagewise exposed silver halide photographic material that has photographic constituent layers on a side of a support with an automatic processor, comprising:

circulating a fixing solution in a fixing bath being discharged in a volume of 30–200% per minute of a capacity of said fixing bath and at a flow rate of not less than 20 m per minute,

wherein said silver halide photographic material has a gelatin content of not more than 3.0 g/m^2 in said photographic constituent layers, and

said photographic constituent layers comprise a silver emulsion layer which contains silver halide grains having a (100) face to (111) face area ratio of not less than 5.

5,066,570

WET PROCESSING OF SILVER HALIDE PHOTOSENSITIVE MATERIAL

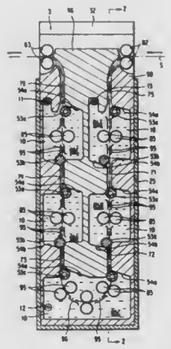
Takashi Nakamura, Minami, and Toshio Kurokawa, Odawara, both of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Continuation-in-part of Ser. No. 592,413, Oct. 2, 1990, which is a division of Ser. No. 499,746, Mar. 27, 1990, Pat. No. 4,980,714.
This application Oct. 22, 1990, Ser. No. 600,933
Claims priority, application Japan, Apr. 19, 1989, 1-99855
Int. Cl.[5] G03C *5/39*
U.S. Cl. 430—421 17 Claims

1. In a method for wet processing a silver halide photosensitive material after development by desilvering the photosensitive material with a processing solution having a desilvering function in a processing tank, the improvement comprising the steps of:

providing a plurality of compartments partitioned in the processing tank and serially connecting the compartments to define a continuous processing path having an entrance and an exit for the photosensitive material,

filling the processing path with the processing solution such that the processing solution in at least one compartment has a different composition from the processing solution in at least one of the remaining compartments, and



successively passing the photosensitive material through the compartments of the processing path without contact with the ambient air.

5,066,571

METHOD FOR PROCESSING A SILVER HALIDE COLOR PHOTOSENSITIVE MATERIAL

Kazuaki Yoshida, and Takatoshi Ishikawa, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 3, 1989, Ser. No. 416,690
Claims priority, application Japan, Oct. 3, 1988, 63-249250
Int. Cl.[5] G03C *5/24*
U.S. Cl. 430—489 14 Claims

1. A method for processing a silver halide color photosensitive material which comprises developing a color photographic light-sensitive material comprising a support having thereon having at least one light-sensitive silver halide emulsion layer containing a silver halide comprising at least 98 mol % silver chloride;

in a color developer solution comprising a primary amine color developing agent, and having a chloride concentration of from 4×10^{-2} to 1×10^{-1} mol/l, and a bromide ion concentration of from 5.0×10^{-5} to 5×10^{-4} mol/l.

5,066,572

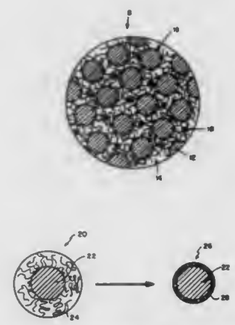
CONTROL OF PRESSURE-FOG WITH GELATIN-GRAFTED AND CASE-HARDENED GELATIN-GRAFTED SOFT POLYMER LATEX PARTICLES

Kevin M. O'Connor, Webster; Richard P. Szajewski, Rochester, and Pranab Bagchi, Webster, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Mar. 22, 1990, Ser. No. 497,456
Int. Cl.[5] G03C *1/46*
U.S. Cl. 430—503 31 Claims

1. A substantially less pressure sensitive silver halide photographic film comprising at least one light sensitive silver halide element, and at least one cushioning layer, not containing photosensitive silver halide, incorporating composite particles comprising a soft polymer core having a mean diameter from about 10 nm to 500 nm covered with a layer of gelating shell that is chemically bonded to the soft polymer particle and

cross-linked with a conventional hardener to form a hard case, whose thickness is less than 10 nm wherein said cushioning



layer is situated in between two silver containing color recording layers of a multilayer color photographic product.

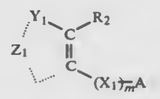
5,066,573

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Tetunori Matushita; Morio Yagihara, and Kei Sakanoue, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

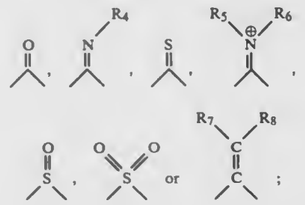
Continuation of Ser. No. 230,830, Aug. 11, 1988, abandoned.
This application Feb. 12, 1990, Ser. No. 480,348
Claims priority, application Japan, Aug. 11, 1987, 62-200233
Int. Cl.[5] G03C *1/08*
U.S. Cl. 430—542 19 Claims

1. A silver halide color photographic material comprising a support having thereon at least one of a silver halide emulsion layer and other hydrophilic colloid layers, wherein the silver halide emulsion layer or the hydrophilic colloid layer contains at least one compound represented by formula (II):

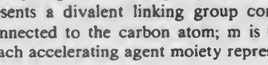


(II)

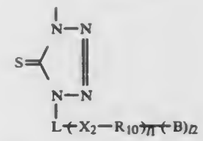
wherein Z_1 represents an atomic group necessary for forming a carbocyclic ring or a heterocyclic ring; R_2 represents a hydrogen atom or a group that can be substituted; Y_1 represents



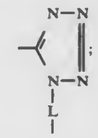
R_4, R_5, R_6, R_7 and R_8, which may be the same or different, each represents a hydrogen atom or a group that can be substituted; X_1 represents a divalent linking group containing a hetero atom connected to the carbon atom; m is 0 or 1; A represents a bleach accelerating agent moiety represented by



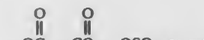
-continued



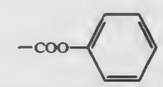
wherein R_9 represents a divalent, trivalent or tetravalent aliphatic group having from 1 to 8 carbon atoms or



L represents a divalent, trivalent or tetravalent aliphatic group having from 1 to 8 carbon atoms; X_2 represents an oxygen atom, a sulfur atom,



R_{10} represents a divalent, trivalent or tetravalent aliphatic group having 1 to 8 carbon atoms; B represents a group selected from the group consisting of —COOM, —$COOCH_3$, —$COOC_2H_5$,



and —OH, wherein M represents a hydrogen atom, an alkali metal atom, a quaternary ammonium group, or a quaternary phosphonium group; l_1 is 0, 1, 2 or 3, provided that when l_1 is 2 or 3, the plural X_2–R_{10} groups may be the same or different; and l_2 is 1, 2 or 3, provided that when l_2 is 2 or 3, the plural B groups may be the same or different; and wherein an amount of the compound represented by formula (II) to be added is from 0.01 mol % to 100 mol % based on the total amount of said silver.

5,066,574

SILVER HALIDE PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL CONTAINING A NOVEL YELLOW COUPLER

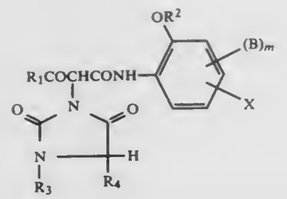
Toru Kubota; Mayumi Tomotake; Hidenobu Ohya; Atsushi Tomotake, and Noboru Mizukura, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Oct. 1, 1990, Ser. No. 591,293
Claims priority, application Japan, Oct. 8, 1989, 1-262776; Oct. 12, 1989, 1-266009; Oct. 12, 1989, 1-266010
Int. Cl.[5] G03C *7/36*
U.S. Cl. 430—557 10 Claims

1. A silver halide photographic light-sensitive material comprising a support having thereon a silver halide emulsion layer, wherein at least one of said emulsion layers contains a coupler represented by the following Formula (I), (II) or (III):

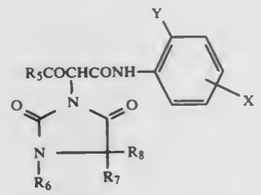
VOL 1132 ISS 3 NO 19 1991 UMI

Formula (I)



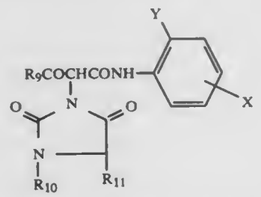
Wherein R_1 and R_2 independently represent an alkyl group, cycloalkyl group or aryl group; R_3 and R_4 independently represent an alkyl group or cycloalkyl group; B represents a substituent; m represents an integer of from 0 to 3; and X represents an acylamino group, sulfonamide group, oxycarbonyl group, carbamoyl group, sulfamoyl group, carbonyloxy group, oxycarbonylamino group, ureido group or sulfonyloxy group;

Formula (II)



wherein R_5 represents wherein an alkyl group or cycloalkyl group; R_6 and R_7 independently represent an alkyl group or cycloalkyl group, and R_8 represents a hydrogen atom, alkyl group or cycloalkyl group, provided that the total carbon number of R_6, R_7 and R_8 is 7 or less; X is the same as defined in Formula (I); and Y represents a halogen atom, amino group, alkylthio group or arylthio group;

Formula (III)



Wherein R_9 represents an aryl group; R_{10} and R_{11} independently represent an alkyl group or cycloalkyl group, provided that the total carbon number of R_{10} and R_{11} is 9 or less; X and Y are the same as defined in Formula (I) and (II).

5,066,575

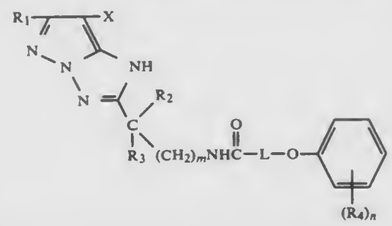
SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL CONTAINING PYRAZOLO (1,5-B)(1,2,4)TRIAZOLE MAGENTA COUPLER

Tadahisa Sato; Osamu Takahashi; Hideaki Naruse, and Yuki Mizukawa, all of Minami Ashigara, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Jan. 31, 1990, Ser. No. 473,166
Claims priority, application Japan, Jan. 31, 1989, 1-22279
Int. Cl.[5] G03C *1/08*
U.S. Cl. 430—558 **13 Claims**

1. A silver halide color photographic material, which comprises a support having thereon at least one silver halide emulsion layer, at least one of said emulsion layers containing at least one nondiffusible pyrazolo(1,5 b)(1,2,4)triazole magenta coupler represented by the following general formula (I):

(I)



wherein R_1 represents an alkyl group; R_2 and R_3 each represents a hydrogen atom or an alkyl group, provided that both are not a hydrogen atom; R_4 represents an alkyl group, an alkoxy group or a halogen atom; L represents an alkylene group; m represents an integer of 0 to 5; n represents an integer of 0 to 5, and when n is 2 or more, the R_4's may be different from one another; and X represents a halogen atom.

5,066,576

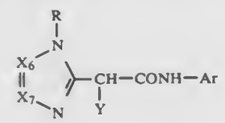
SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Seiji Ichijima; Naoki Saito; Keiji Mihayashi; Yoshio Ishii, and Akira Ogawa, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 18, 1990, Ser. No. 584,116
Claims priority, application Japan, Oct. 3, 1989, 1-258512; Jul. 16, 1990, 2-187798
Int. Cl.[5] G03C *7/36*
U.S. Cl. 430—558 **6 Claims**

1. A silver halide color photographic material comprising a support having thereon at least one light sensitive silver halide emulsion layer, wherein said emulsion layer contains a coupler represented by formula (V):

(V)



wherein:

Y represents a group which is eliminated by coupling and has substantially no photographic effect,

X_6 X_7 each represent a methine group or a nitrogen atom,

R represents an alkyl group, an aryl group or a heterocyclic ring,

Ar represents an aryl group, and

X_6 and X_7 are not bonded to each other through their substituent groups to form a condensed ring.

5,066,577

SILVER HALIDE COLOR PHOTOGRAPHIC MATERIAL

Koki Nakamura; Takayuki Ito; Masaaki Tsukase, and Toshiki Taguchi, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

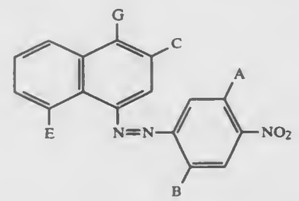
Filed Apr. 24, 1990, Ser. No. 513,736
Claims priority, application Japan, Apr. 25, 1989, 1-105424
Int. Cl.[5] G03C *5/54, 7/26*
U.S. Cl. 430—562 **5 Claims**

1. A silver halide color photographic material comprising a support having thereon at least one silver halide emulsion layer, wherein the silver halide color photographic material contains an image forming compound represented by the following general formula (I):

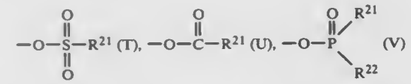
$(Dye—X)_l—y$ (I)

wherein Dye represents a cyan dye group represented by the general formula (II) described below or a precursor thereof; X represents a chemical bond or a linking group; Y represents a group having a property of releasing Dye in correspondence or counter-correspondence to development of a light-sensitive silver salt having a latent image distributed imagewise and making a difference in diffusibility between the dye thus-released and the compound represented by $(Dye—X)_l—Y$; Dye and X are connected with each other by C or E in the general formula (II); and q represents an integer of 1 or 2, and when q is 2, the two groups (Dye—X) may be the same or different:

(II)



wherein A represents a halogen atom, $—OR^1$ or $—SR^1$ (wherein R^1 represents an alkyl group, an aryl group or a heterocyclic group); B represents an electron withdrawing group having a Hammett's op value of not less than 0.3; C represents a chemical bond, a hydrogen atom, an alkyl group, a cycloalkyl group, an aryl group, a halogen atom, $—OR^4$, $—CONR^4R^5$, $—SO_2NR^4R^5$, $—N(R^3)—COR_4$ or $—N(R^3)—SO_2R_4$ (wherein R^3, R^4 and R^5 each represents a hydrogen atom or a group selected from those defined for R^1, or R^4 and R^5 may combine with each other to form a 5-membered or 6-membered ring); E represents a chemical bond, a hydrogen atom, an alkyl group, a halogen atom, $—OR^4$, $—CONR^4R^5$, $—SO_2NR^4R^5$, $—N(R^5)—COR^4$ or $—N(R^5)—SO_2R^4$ (wherein R^4 and R^5 have the same meaning as defined above); and G represents a hydroxy group or a salt thereof, or a group selected from those represented by the formula (T), (U) or (V):



(V)

wherein R^{21} and R^{22}, which may be the same or different, each represents an alkyl group, a cycloalkyl group, an alkenyl group, an aralkyl group, an aryl group, a heterocyclic group, an alkylthio group, an arylthio group, an alkoxy group, an aryloxy group or an amino group, or R^{21} and R^{22} may combine with each other to form a 5-membered or 6-membered ring.

5,066,578

LONG-TERM PRESERVATION OF ORGANS FOR TRANSPLANTATION

Joan Wikman-Coffelt, Davis, Calif., assignor to The Regents of the University of California, Oakland, Calif.

Filed Dec. 21, 1989, Ser. No. 455,562
Int. Cl.[5] A01N *1/02*
U.S. Cl. 435—1 **20 Claims**

1. An organ preservation solution suitable for long-term preservation of liver, kidney, spleen, heart-lung, pancreas, cartilage, skin and cornea for transplantation, consisting of pyruvate, inorganic salts providing ions to retain the cell action potential across the membrane and a protein selected from the group consisting of albumin and fetal calf serum.

5,066,579

HTLV-I PEPTIDE ANTIGEN AND ASSAY

Gregory R. Reyes, Palo Alto, Calif., assignor to Genelabs Incorporated, Redwood City, Calif.

Continuation of Ser. No. 948,270, Dec. 31, 1986, abandoned.
This application Jun. 13, 1989, Ser. No. 366,313
Int. Cl.[5] G01N *33/569*
U.S. Cl. 435—5 **6 Claims**

1. A recombinant peptide antigen which is selected from the group consisting of peptides which have less than about 80 amino acids, derived from HTLV-I envelope protein gp46, and which contain the immunogenic region formed by the amino acid sequence Leu-Leu-Val-Asp-Ala- Pro-Gly-Tyr-Asp-Pro-Ile-Trp-Phe-Leu-Asn-Thr-Glu-Pro-Ser-Gln-Leu-Pro-Pro-Thr-Ala-Pro-Pro-Leu-Leu-Pro-His-Ser-Asn-Leu-Asp-His-Ile-Leu-Glu-Pro-Ser; and (b) immunoreactive with anti-HTLV-I antibody produced by the cell line characterized by ATCC Number HB10571.

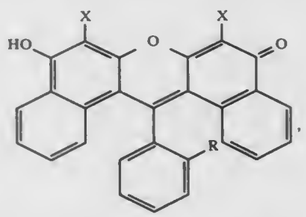
5,066,580

XANTHENE DYES THAT EMIT TO THE RED OF FLUORESCEIN

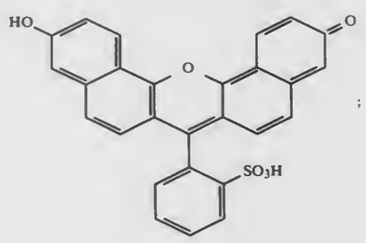
Linda Lee, Mountain View, Calif., assignor to Becton Dickinson and Company, N.J.

Division of Ser. No. 233,945, Aug. 31, 1988, Pat. No. 4,933,471.
This application Feb. 16, 1990, Ser. No. 481,010
Int. Cl.[5] C12Q *1/00, 1/44, 1/02*; G01N *33/53, 33/48, 1/30, 31/00*
U.S. Cl. 435—721 **21 Claims**

1. A method for staining cells in a sample which comprises incubating said with a tagging agent which specifically binds to said cells under conditions sufficient to allow said cells to bind with said tagging agent, said tagging agent being coupled to a fluorescent compound selected from the group consisting of

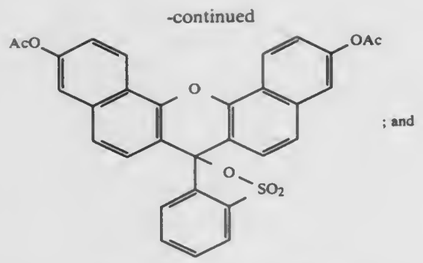


wherein R is CO_2H or SO_3H, and X is H or Br when R is CO_2H and X is H when R is SO_3H;

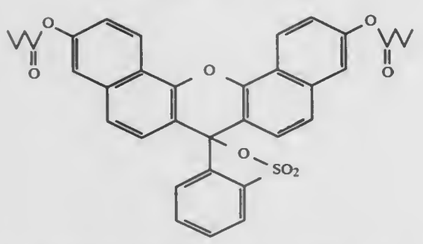


VOL 1132 ISS 3 NO 19 1991 UMI

-continued



; and

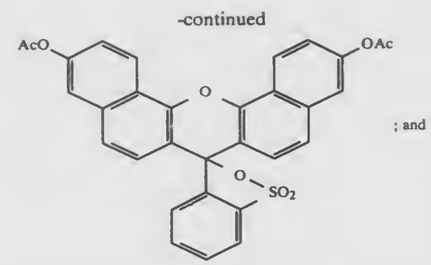


; and

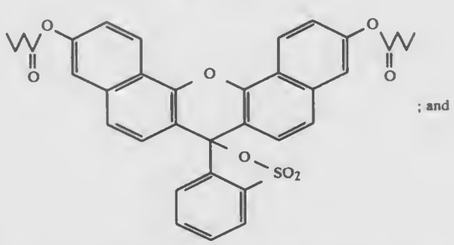
8. A method for identifying cells in a sample which comprises:

(a) incubating said cells with a tagging agent which specifically binds to said cells under conditions sufficient to allow said cells to bind with said tagging agent, said tagging agent being coupled to a fluorescent compound selected from the group consisting of of the formula

-continued



; and

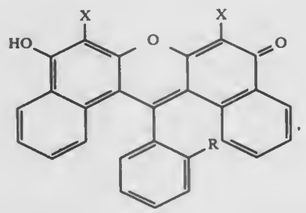


; and

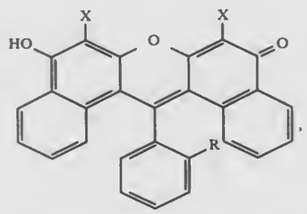
(b) detecting fluorescence emitted by said bound tagging agent as a measure of the presence of said cells.

16. A method for discriminating between live cells and dead cells in a sample which comprises:

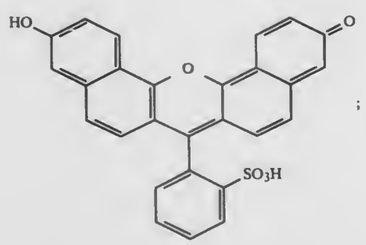
(a) incubating said cells with a fluorescent compound selected from the group consisting of



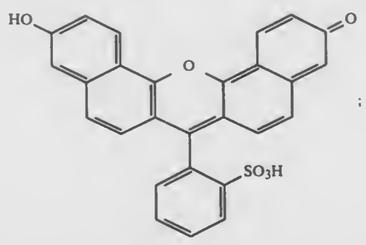
wherein R is CO_2H or SO_3H, and X is H or Br when R is CO_2H and X is H when R is SO_3H;



wherein R is CO_2H or SO_3H, and X is H or Br when R is CO_2H and X is H when R is SO_3H;

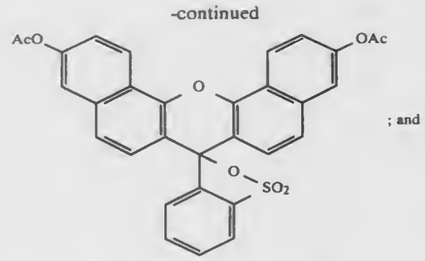


;

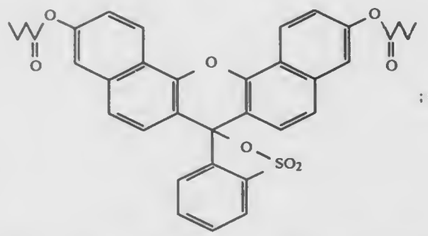


;

-continued



; and



; and

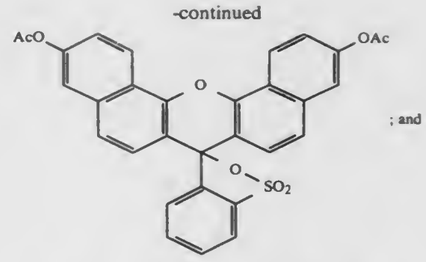
under conditions sufficient to allow uptake of said compound by said live cells; and

(b) detecting fluorescence emitted by said compound as a measure of the presence of said live cells.

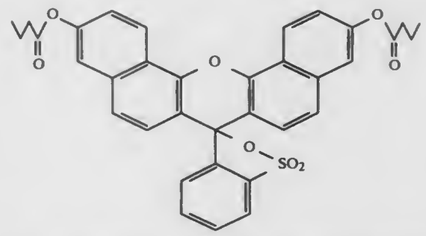
19. A method for detecting an esterase activity in a sample of cells comprising

a) incubating said cells with a fluorescent compound selected from the group consisting of

-continued

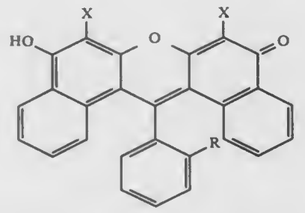


; and

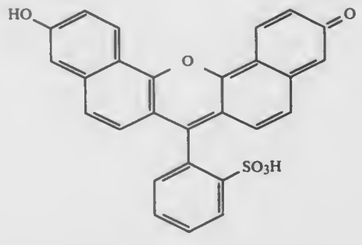


under conditions sufficient to allow uptake of said compound by said cells and cleavage of said compound by said esterase activity

b) detecting fluorescence emitted by said cleaved compound as a measure of said esterase activity.



wherein R is CO_2H or SO_3H, and X is H or Br when R is CO_2H and X is H when R is SO_3H;



5,066,581

DIFFERENTIATION ANTIGEN, NDA_3, ASSOCIATED WITH THE RECEPTOR FOR B CELL GROWTH FACTOR

Nicole Suciu-Foca, Cliffside Park, N.J., and Donald W. King, Chicago, Ill., assignors to The Trustees of Columbia University in the City of New York, New York, N.Y.

Filed Feb. 5, 1987, Ser. No. 11,004

Int. Cl.[5] C07K *15/06, 15/28;* **G01N** *33/567, 33/577*

U.S. Cl. 435—7.24 **11 Claims**

1. A purified differentiation antigen (NDA_3) associated with the growth and proliferation of activated B lymphocytes and having a molecular weight of about 36,000 daltons which comprises at least a portion of B cell growth factor receptor specific for BCGF-12 kd and which is present on activated B cells and helper T cells and is immunologically reactive with the monoclonal antibody designated MoAb NDA_3 produced by hybridoma ATCC Accession No. HB 9334.

5,066,582

METHOD AND APPARATUS FOR THE MEASUREMENT OF ANALYTE SUBSTANCES

Hitoshi Tsuruta; Hideaki Yamada, both of Kurashiki, and Michihiro Nakamura, Soja, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Filed Feb. 17, 1989, Ser. No. 311,779

Claims priority, application Japan, Feb. 19, 1988, 63-38274

Int. Cl.[5] G01N *33/543*

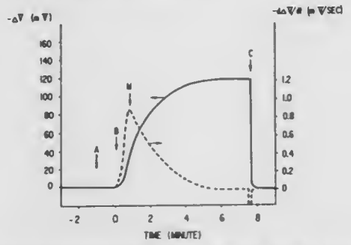
U.S. Cl. 435—7.1 **6 Claims**

4. An apparatus for measuring the amount of an analyte substance present in a sample by contacting the product of a completed analyte-receptor reaction bound to a solid phase with a solution containing a substrate capable o changing the pH of said substrate solution upon its reaction with said product, wherein change in the pH of said substrate is used to measure the amount of analyte in the sample, said apparatus comprising:

a) a cell means having an inlet means and an outlet means for said substrate solution;

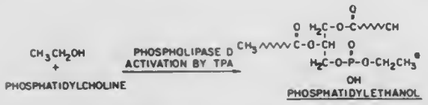
VOL 1132 ISS 3 NO 19 1991 UMI

b) a pH electrode having a pH sensitive surface housed in said cell means;
c) a pump means for supplying said substrate solution into said cell means;
d) a solid phase in said cell means comprising a small-diameter tube having an inner diameter of not more than 2.0



mm, said small-diameter tube having fixed on its inner wall a first receptor which can specifically bind said analyte; and
e) a means for positioning said solid phase in a non-touching spaced relationship with the facing the pH sensitive surface of said pH electrode such that the distance between the two is not more than 1 mm.

5,066,583
METHOD FOR DISTINGUISHING ALCOHOLICS FROM NON-ALCOHOLICS
Gerald C. Mueller, Madison, Wis., assignor to Wisconsin Alumni Research Foundation, Madison, Wis.
Filed Dec. 21, 1988, Ser. No. 287,821
Int. Cl.[5] C12Q *1/02, 1/34, 1/44*
U.S. Cl. 435—18 **4 Claims**



1. A method of determining if a person is alcohol dependent, which method comprises:
(a) determining under optimum conditions the ability of the lymphocytes of the person to synthesize phosphatidylethanol; and
(b) comparing the results obtained against a standard determined under identical conditions employing the lymphocytes of persons known not to be alcohol dependent, whereby a phosphatidylethanol level higher than the standard indicates the person may be alcohol dependent.

5,066,584
METHODS FOR GENERATING SINGLE STRANDED DNA BY THE POLYMERASE CHAIN REACTION
Ulf B. Gyllensten, Berkeley, and Henry A. Erlich, Oakland, both of Calif., assignors to Cetus Corporation, Emeryville, Calif.
Filed Sep. 23, 1988, Ser. No. 248,896
Int. Cl.[5] C12P *19/34*
U.S. Cl. 435—91 **7 Claims**

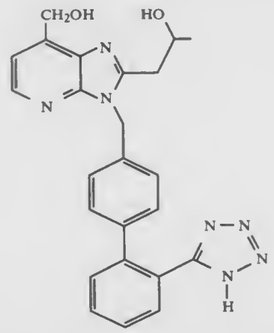
1. A method for generating single stranded DNA by the polymerase chain reaction, said method comprising:
(a) treating a nucleic acid with deoxyribonucleoside-5'-triphosphates, an agent for polymerization, and first and second oligonucleotide primers under hybridizing conditions such that an extension product of said first primer is synthesized that is complementary to a nucleotide sequence in said nucleic acid, wherein the extension product of said first primer can serve as a template for synthesis of an extension product of said second primer and the first primer is present in excess of the second primer;
(b) denaturing the extension products of said primers formed in step (a) from the templates on which they were synthesized;
(c) treating the products of step (b) with the primers and under the conditions of step (a); and
(d) repeating steps (b) and (c) until said second primer is present in a limiting concentration so that the extension product of the first primer accumulates in excess of the extension product of the second primer.

5,066,585
METHOD OF INHIBITING FUNGUS USING NOVEL ANTIFUNGAL COMPOUNDS
Alan R. Putnam, Gallatin Gateway, Mont.; Saroj K. Mishra, Houston, Tex., and Muraleedharan G. Nair, East Lansing, Mich., assignors to Board of Trustees Operating Michigan State University, East Lansing, Mich.
Division of Ser. No. 550,070, Jul. 9, 1990, which is a continuation-in-part of Ser. No. 311,299, Feb. 16, 1989, Pat. No. 4,977,084. This application Nov. 23, 1990, Ser. No. 617,219
Int. Cl.[5] A61K *31/90;* **C12R** *1/29;* **C12P** *19/56*
U.S. Cl. 424—121 **6 Claims**

1. A method of inhibiting a fungus which comprises:
contacting the fungus with an effective amount of an antifungal compound produced from mycelium of *Micromonospora spartanea* ATCC 53803, wherein the compound is selected from the group consisting of $C_{42}H_{53}O_{16}N$ with a molecular weight of 827 and $C_{42}H_{53}O_{16}N$ with a molecular weight of 827 and mixtures thereof.

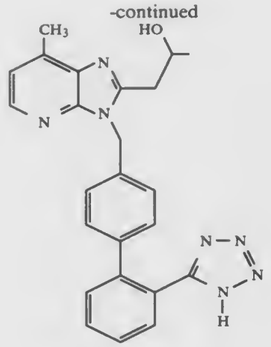
5,066,586
PROCESS FOR PREPARATION OF NOVEL ANGIOTENSIN II ANTAGONISTS
Shieh-Shung T. Chen, Morganville, and George Doss, Westfield, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.
Filed Aug. 20, 1990, Ser. No. 569,895
Int. Cl.[5] C12P *17/18*
U.S. Cl. 435—119 **4 Claims**

1. A process for the preparation of compounds represented by formula I, II, III and IV

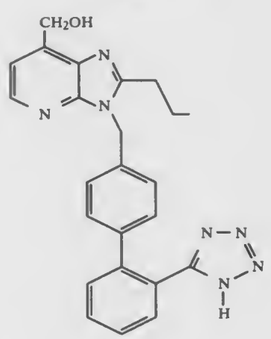


I

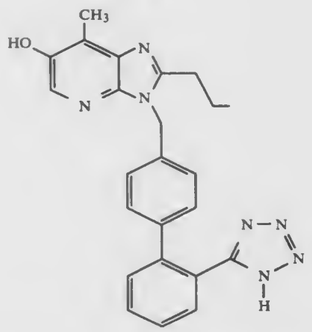
-continued



II

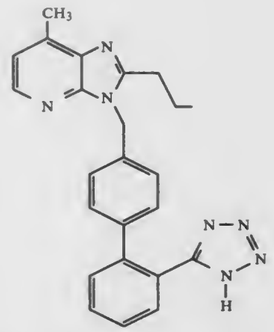


III



IV

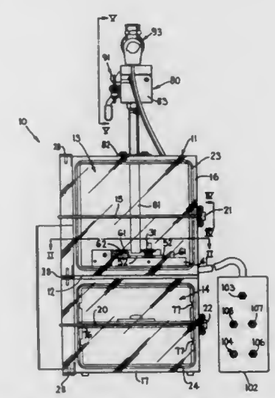
which comprises the steps of: 1) culturing the microorganism Streptomyces sp. (MA 6744) (ATCC 55041) in a nutrient medium in the presence of a substrate compound V



V

under aerobic conditions at pH 6.0–8.0 and a temperature of 26°–29° C. until a substantial amount of the compounds are produced; and 2) isolating and purifying the compounds so produced; wherein: the nutrient medium comprises an assimilable carbon source in the form of carbohydrates, an assimilable nitrogen source and mineral salts; and the substrate compound V is present at a concentration of 0.05 to 0.2 mg/ml.

5,066,587
GAS DRIVEN MICROPROJECTILE ACCELERATOR AND METHOD OF USE
Lawrence D. Jones, Portage; Paul T. Frey, Delton; David D. Gleason, Oshtemo Township, Kalamazoo County; Paula P. Chee, and Jerry L. Slightom, both of Kalamazoo, all of Mich., assignors to The Upjohn Company, Kalamazoo, Mich.
Filed Jan. 26, 1990, Ser. No. 471,216
Int. Cl.[5] C12N *15/89;* **C12M** *1/00*
U.S. Cl. 435—172.1 **7 Claims**



7. A method of injecting a foreign substance into a sample of plant cells or tissue utilizing a sample chamber for holding the sample, an injection chamber containing a movable transport member having a series of spaced-apart stopper plugs mounted thereon and movable therewith through a series of positions, a macroprojectile gun for directing a macroprojectile at one of said stopper plugs at one of said positions, passage means extending from said one stopper plug into said sample chamber, which method comprises:
maintaining a vacuum in both of said sample chamber and said injection chamber;
firing said macroprojectile gun to accelerate a macroprojec-

VOL 1132 ISS 3 NO 19 1991 UMI

tile carrying microprojectiles coated with said substance to said one stopper plug at said one position so that said macroprojectile abuts against and is sealed with respect to said stopper plug and said microprojectiles move at a high speed through said passage means and then bombard said sample chamber whereby said substance becomes lodged in the interior of the sample and when said macroprojectile seals against said one stopper plug, said passage means is closed after the microprojectiles have flowed therethrough into said sample chamber;

reloading said macroprojectile gun with another macroprojectile;

maintaining said injection chamber under vacuum;

while said injection chamber is under vacuum, shifting said transport member to bring a different one of said stopper plugs into said one position;

firing said macroprojectile gun again to bombard the sample with another quantity of microprojectiles that are coated with said substance;

continuously maintaining said sample chamber under a substantially constant vacuum during said firing steps; and

isolating said sample chamber from said injection chamber except during the flow of microprojectiles into said sample chamber.

5,066,588

STREPTOCOCCUS LACTIS CONTAINING PLASMIDS ENCODING FOR MUCOIDNESS AND METHOD FOR IDENTIFYING SUCH STRAINS

Ebenezer R. Vedamuthu, Bradenton, Fla., assignor to Microlife Technics, Inc., Sarasota, Fla.

Continuation-in-part of Ser. No. 786,631, Oct. 11, 1985, Pat. No. 4,918,014. This application May 2, 1988, Ser. No. 189,388

Int. Cl.[5] C12N *1/21, 15/10*

U.S. Cl. 435—172.3 **11 Claims**

1. *Streptococcus lactis* containing two plasmids derived form a single plasmid in *Streptococcus cremoris* NRRL-B-15995 as a result of conjugal transfer to the *Streptococcus lactis* which plasmids contain genes which are necessary to encode for mucoidness.

5,066,589

STREPTOKINASE-CODING RECOMBINANT VECTORS

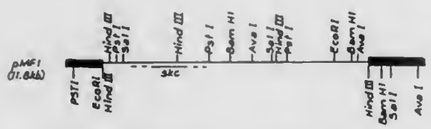
Joseph J. Ferretti, and Horst Malke, both of Oklahoma City, Okla., assignors to Board of Regents of the University of Okla., Norman, Okla.

Continuation of Ser. No. 585,417, Mar. 2, 1984. This application Jun. 27, 1988, Ser. No. 212,254

The portion of the term of this patent subsequent to Aug. 16, 2005, has been disclaimed.

Int. Cl.[5] C12N *15/00, 9/70, 1/20;* **C07H** *15/12*

U.S. Cl. 435—172.3 **32 Claims**



8. A process for preparing a recombinant vector comprising a vector into which a polydeoxyribonucleotide fragment which codes for the amino acid sequence of streptokinase has been inserted, comprising:

digesting a vector with a restriction endonuclease to produce linear vector DNA; and

ligating the linear vector DNA with a polydeoxyribonucleotide fragment which codes for the amino acid sequence of streptokinase, to produce a recombinant vector comprising a vector into which a polydeoxyribonucleotide fragment which codes for the amino acid sequence of streptokinase has been inserted; and recovering the recombinant vector.

5,066,590

SUPEROXIDE DISMUTASE COMBINED WITH A POLY(ALKYLENE OXIDE)

Akira Yabuki, and Yuji Iwashita, both of Kawasaki, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

Continuation of Ser. No. 854,792, Apr. 23, 1986, abandoned. This application Feb. 2, 1989, Ser. No. 304,914

Claims priority, application Japan, Apr. 26, 1985, 60-90605

Int. Cl.[5] C12N *11/08, 9/02;* **A61K** *37/50*

U.S. Cl. 435—180 **11 Claims**

1. A modified superoxide dismutase having a molecular structure in which both ends of a poly(alkylene oxide) molecule are attached to superoxide dismutase.

5,066,591

POLYPEPTIDES OF HUMAN COPPER/ZINC SUPEROXIDE DIMUTASE

Robert A. Hallewell, San Francisco, and Guy T. Mullenbach, Oakland, both of Calif., assignors to Chiron Corporation, Emeryville, Calif.

Division of Ser. No. 931,920, Nov. 14, 1986, which is a continuation of Ser. No. 609,412, May 11, 1984, abandoned, which is a continuation-in-part of Ser. No. 538,607, Oct. 3, 1983, abandoned. This application Nov. 16, 1987, Ser. No. 121,212

Int. Cl.[5] C12N *9/02, 15/03*

U.S. Cl. 435—189 **2 Claims**

1. A nonacetylated enzymatically active polypeptide comprising human copper/zinc superoxide dismutase.

5,066,592

TRIGRAMIN - A PLATELET AGGREGATION INHIBITING POLYPEPTIDE

Tur-Fu Huang, Taipei, Taiwan; Stefan Niewiarowski, Narberth; John C. Holt, Philadelphia, both of Pa., and Hanna Lukasiewicz, Warsaw, Poland, assignors to Temple University of the Commonwealth System of Higher Education, Philadelphia, Pa.

Continuation of Ser. No. 165,661, Mar. 8, 1988, abandoned, which is a continuation-in-part of Ser. No. 121,972, Nov. 18, 1987, abandoned. This application Sep. 19, 1990, Ser. No. 584,820

Int. Cl.[5] C12N *5/08;* **A61K** *37/02;* **C07K** *7/10, 15/08*

U.S. Cl. 435—240.2 **5 Claims**

1. The polypeptide in substantially pure chemical form having the following amino acid sequence:

EAGEDCDCGSPANPCCDAATCKLIPGAQC-GEGLCCDQCSFIEEGTVCRIARGDDLDDYCNG-RSAGCPRNPFH.

5,066,593

SYNTHETIC PEPTIDE-BASED ANTI-RABIES COMPOSITIONS AND METHODS

James W. Patrick, Solana Beach; Stephen F. Heinemann, La Jolla; Barbara D. Boss, San Diego, and W. Maxwell Cowan, Cardiff by the Sea, all of Calif., assignors to The Salk Insstitute for Biological Studies, San Diego, Calif.

Division of Ser. No. 941,163, Dec. 12, 1986, Pat. No. 4,707,356, which is a division of Ser. No. 752,222, Jul. 3, 1985, Pat. No. 4,652,629. This application Aug. 31, 1987, Ser. No. 91,509

Int. Cl.[5] C12N *5/00;* **A61K** *35/14*

U.S. Cl. 435—240.27 **9 Claims**

1. A composition comprising one or more antibodies, each of the antibodies in the composition being capable of (i) binding to a peptide with the sequence

$$(Y)_k A_{-1} CDIFTA_6 SRGKRASA_{14} G(Y)_m,$$

wherein k is 0 or 1 and m is 0 or 1 but not both k and m are 1; wherein A_{-1} is S or P, A_6 is N or T, and A_{14} is N or K, and (ii) binding to rabies virus or rabies virus coat glycoprotein.

5,066,594

METHOD FOR THE MANIPULATION OF POLLEN IN PLANTS

Lorin R. DeBonte, Delran, N.J., and Willie H. T. Loh, Philadelphia, Pa., assignors to DNA Plant Technology, Cinnaminson, N.J.

Filed May 9, 1989, Ser. No. 349,570

Int. Cl.[5] C12N *5/02, 5/04*

U.S. Cl. 435—240.4 **41 Claims**

1. A method for stabilizing a germinated pollen grain from a flowering plant which comprises treating a pollen grain bearing a growing pollen tube with an aqueous stabilization medium comprising amounts of polyethylene glycol, a salt, and an osmoticum effective in combination to suspend further growth of the pollen tube for a time up to about 2 hours sufficient to manipulate the pollen grain, after which time, upon removal of the pollen grain from the stabilization medium, the growth of the pollen tube can be resumed.

5,066,595

PROCESS FOR INCREASING FREE POOL LYSINE CONTENT IN MAIZE

Ernest T. Hubbard, Sunnyvale; Michele D. Hollingsworth, Santa Cruz; N. V. Raghava Ram, Cupertino, all of Calif., and Judith P. Cook, Madison, Wis., assignors to Sungene Technologies Corporation, Palo Alto, Calif.

Continuation of Ser. No. 939,005, Dec. 8, 1986, abandoned. This application Nov. 7, 1989, Ser. No. 433,414

Int. Cl.[5] C12N *5/00*

U.S. Cl. 435—240.45 **54 Claims**

1. A process for increasing free pool lysine content of maize seed to at least 500 μg per gram dry seed weight, or increasing an average free pool lysine content of seeds produced by a maize plant to at least 325 μg per gram dry seed weight, said process comprising:

(a) culturing immature embryo obtained from a maize plant on a callus induction medium comprising mineral salts, vitamins, sucrose and an auxin as a hormone to form callus;

(b) subculturing the callus on a selection medium comprising mineral salts, vitamins, sucrose, S-2-aminoethyl-L-cysteine and an auxin as a hormone to produce callus resistant to S-2-aminoethyl-L-cysteine; and

(c) subculturing the resistant callus on regeneration medium comprising mineral salts, vitamins and sucrose to regenerate plants.

5,066,596

BACTERIAL STRAINS HARBORING CLONED GENES CONTROLLING *VIBRIO CHOLERAE* O-ANTIGEN BIOSYNTHESIS

Paul A. Manning, Flagstaff Hill; Peter R. Reeves, Hawthorndene, and Derrick Rowley, Beaumont, all of Australia, assignors to Enterovax Limited, North Adelaide, Australia

Continuation-in-part of Ser. No. 782,720, Sep. 30, 1985, abandoned. This application Jul. 31, 1987, Ser. No. 80,362

Claims priority, application Australia, Feb. 1, 1984, PG3423; Nov. 2, 1984, PG7958; PCT Int'l Appl., Jan. 31, 1985, PCT/AU85/00015

Int. Cl.[5] C12N *1/21, 15/09, 15/31, 15/63;* **A61K** *39/02*

U.S. Cl. 435—252.33 **16 Claims**

1. An avirulent strain of *E. coli* comprising DNA encoding proteins which control the synthesis of the O-antigen, which DNA is derived from a *Vibrio cholerae* strain of the Inaba or Ogawa serotype, and is at least 16 kb in length.

5,066,597

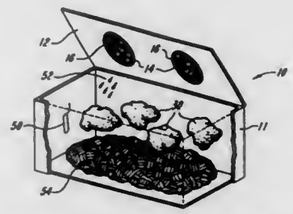
APPARATUS FOR INFECTIOUS RADIOACTIVE WASTE

Margaret C. Stinson, N. Billerica, and Mitchell S. Galanek, Plymouth, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Filed Apr. 10, 1989, Ser. No. 335,836

Int. Cl.[5] C12M *1/12*

U.S. Cl. 435—311 **9 Claims**



1. An apparatus for housing solid, radioactively and biologically contaminated waste during steam autoclave treatment thereof, comprising:

a container means for housing solid radioactive biological wastes, suitable for use during an autoclaving procedure, having at least one opening therein;

a filter means for entrapping radioactive compounds contained in gases exiting said container means during autoclave treatment, said filter means being securely disposed within an opening of the container means such that any gas exiting the container means during autoclave treatment passes through the filter means; and

indicator means for establishing that the biologically contaminated waste has been inactivated by exposure to a predetermined autoclaving temperature.

5,066,598

METHOD OF CHARACTERIZING THE EFFECTIVENESS OF BASEOIL ADDITIVES

Ghazi B. Dickakian, Houston, Tex., assignor to Exxon Chemical Patents, Inc., Linden, N.J.

Division of Ser. No. 876,460, Jun. 20, 1986, Pat. No. 4,897,176. This application Oct. 23, 1989, Ser. No. 425,421

Int. Cl.[5] G01N *5/04, 30/00, 33/26*

U.S. Cl. 436—2 **19 Claims**

1. A process for measuring the effectiveness of an additive for reducing the onset and/or progression of asphaltene formation in a baseoil, said process comprising:

(a) measuring the amount of volatile fractions and low boiling fractions present in said baseoil to determine, in the absence of said additive, the onset and/or progression of asphaltene formation in said baseoil;

(b) incorporating said additive into a sample of said baseoil, and characterizing the coking tendency of said sample by the steps of:

I. subjecting said sample to conditions which accelerate asphaltene formation in said baseoil; and

II. testing for the onset and/or progression of asphaltene formation in said sample as a function of time; and

(c) comparing the onset and/or progression of asphaltene formation in steps (a) and (b).

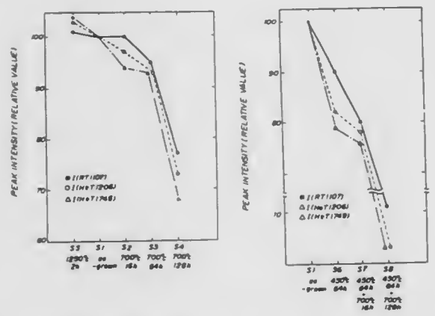
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,599

SILICON CRYSTAL OXYGEN EVALUATION METHOD USING FOURIER TRANSFORM INFRARED SPECTROSCOPY (FTIR) AND SEMICONDUCTOR DEVICE FABRICATION METHOD USING THE SAME

Hiroshi Kaneta, Kawasaki, and Shuichi Muraishi, Tokyo, both of Japan, assignors to Fujitsu Limited, Kawasaki and Jeol, Ltd., Tokyo, both of, Japan

Filed Jul. 23, 1990, Ser. No. 555,702
Claims priority, application Japan, Jul. 27, 1989, 1-194700
Int. Cl.[5] H01L *21/00*
U.S. Cl. 437—7 25 Claims



1. A silicon crystal evaluation method comprising the steps of:

a) maintaining, at room temperature, a plurality of silicon crystals, each of said silicon crystals containing oxygen impurities, said silicon crystals including a silicon crystal having an unknown thermal history and reference silicon crystals having respective known thermal histories;

b) determining an intensity of an oxygen impurity infrared absorption peak of each of said plurality of silicon crystals at a wavenumber of $1107 \pm 3\ cm^{-1}$;

c) decreasing said temperature of said plurality of silicon crystals equal to or lower than 10K;

d) determining an intensity of an oxygen impurity infrared absorption peak of each of said silicon crystals at a predetermined wavenumber;

e) determining a first peak intensity ratio between the intensity of the oxygen impurity infrared absorption peak of each of said silicon crystals at $1107 \pm cm^{-1}$ and the intensity of the oxygen impurity infrared absorption peak of each of said silicon crystals at said predetermined wavenumber;

f) increasing said temperature of said plurality of silicon crystals to change said oxygen impurities to isolated point lattice defects;

g) determining an intensity of an oxygen impurity infrared absorption peak of each of said silicon crystals at said isolated point lattice defects;

h) determining a second peak intensity ratio between the intensity of the oxygen impurity infrared absorption peaks of each of said silicon crystals at room temperature and the intensity of oxygen impurity infrared absorption peak of each of said silicon crystals at said isolated point lattice defects;

i) obtaining a first difference between said first peak intensity ratio of said silicon crystal and a corresponding, second peak intensity ratio obtained when all oxygen impurities of said silicon crystal are isolated point lattice defects;

j) obtaining a second difference between said first peak intensity ratio of each of said reference silicon crystals and said second peak intensity ratio of each of said reference silicon crystals obtained when all oxygen impurities are isolated point lattice defects; and

k) determining the unknown thermal history of said silicon crystal from reference data which defines a relationship between said second difference and said known thermal histories.

5,066,600

MULTIPLE WASTE ISOLATION SYSTEM

John M. Antonevich, Jamestown, and John E. Sundeen, Lakewood, both of N.Y., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed May 19, 1989, Ser. No. 354,018
Int. Cl.[5] G01N *35/08*
U.S. Cl. 436—52 8 Claims

1. A method of isolating discharged waste from a testing device comprising the steps of:

a. providing a common drain means connected at a first end to said testing device, a plurality of drainage means connected to a second end of said common drain means for draining fluid passing through said common drain means, a purging means connected to said second end of said common drain means for purging said common drain means and valve means; and

b. selectively positioning said valve means to direct the flow of fluid through one of said drainage means and said purging means.

5,066,601

CANCER SCREENING METHOD UTILIZING A MODIFIED MILLON'S REAGENT

Jung M. Kweon, Seoul, Rep. of Korea, assignor to Sam Il Pharmaceutical Manufacturing Co., Ltd., Rep. of Korea

Continuation of Ser. No. 316,190, Feb. 27, 1989, abandoned.
This application Aug. 16, 1990, Ser. No. 569,214
Int. Cl.[5] G01N *33/48*
U.S. Cl. 436—64 10 Claims

1. A method for determining the presence or absence of phenolic metabolites in a urine sample of a patient in an amount greater than that present in the urine of a normal and non-cancerous patient comprising:

providing a urine sample from the patient; and

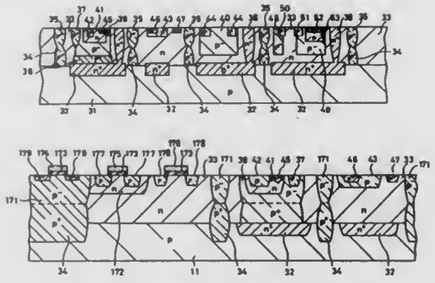
adding to the urine sample an amount of an aqueous solution comprising a water soluble mercuric salt and a water soluble mercurous salt in an amount sufficient to form a precipitate whereby the precipitate indicates the presence of phenolic metabolites in an amount greater than that present in the urine of a normal and non-cancerous patient where the precipitate includes a color and whereby the precipitate indicates the absence of phenolic metabolites in an amount greater than that present in the urine of a normal and non-cancerous patient where the precipitate is white.

5,066,602

METHOD OF MAKING SEMICONDUCTOR IC INCLUDING POLAR TRANSISTORS

Toyoki Takemoto, Yawata; Tadao Komeda, Ikoma; Haruyasu Yamada, and Tsutomu Fujita, both of Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Kadoma, Japan

Division of Ser. No. 124,423, Nov. 23, 1987, Pat. No. 4,826,780, which is a division of Ser. No. 841,688, Mar. 19, 1986, abandoned, which is a continuation of Ser. No. 485,887, Apr. 18, 1983, abandoned. This application Jan. 10, 1989, Ser. No. 295,380
Claims priority, application Japan, Apr. 19, 1982, 57-65925; Jun. 2, 1982, 57-95332; Jun. 2, 1982, 57-95333; Jun. 2, 1982, 57-95334; Jun. 2, 1982, 57-95345; Sep. 9, 1982, 57-157623; Jan. 31, 1983, 58-14896
Int. Cl.[5] H01L *21/331*
U.S. Cl. 437—31 6 Claims



1. A method of fabricating a semiconductor integrated circuit, comprising the steps of:

forming a n-type semiconductor layer on a p-type semiconductor substrate, said n-type semiconductor layer being divided into first, second, third and fourth regions of n-type;

forming fifth and sixth regions of low p-type concentration in said first and second regions from upper surfaces of said first and second regions respectively;

forming seventh and eight regions of p-type in said third region from an upper surface of said third region simultaneously to said forming fifth and sixth regions step;

forming a ninth region of an n-type in said fifth region from a upper surface of said fifth region;

forming tenth, eleventh, twelfth, thirteenth and fourteenth regions of p-type in said ninth, sixth, seventh, eight and fourth regions from upper surfaces of said ninth, sixth, seventh, eighth and fourth regions respectively; and

forming fifteenth, sixteenth and seventeenth regions of n-type in said ninth, eighth and fourteenth regions from upper surfaces of said ninth, eighth and fourteenth regions respectively,

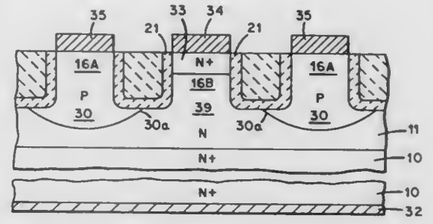
whereby a pnp type vertical bipolar transistor, resistance device, logic circuit and an npn type vertical bipolar transistor are formed in said first, second, third and fourth regions respectively.

5,066,603

METHOD OF MANUFACTURING STATIC INDUCTION TRANSISTORS

Emel S. Bulat, Framingham, and Brian T. Devlin, Haverhill, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Filed Sep. 6, 1989, Ser. No. 403,621
Int. Cl.[5] H01L *21/265*
U.S. Cl. 437—29 8 Claims



1. The method of fabricating a junction field effect transistor comprising

providing a body of semiconductor material including a first layer of semiconductor material of one conductivity type of relatively high resistivity and a second layer of semiconductor material of the one conductivity type of relatively low resistivity contiguous with said first layer, said first layer having a surface at a surface of the body:

forming a plurality of parallel grooves through said surface into said first layer of semiconductor material producing interposed ridges of semiconductor material, each of said grooves having side walls formed by the adjacent ridges of semiconductor material and having a bottom; alternate ridges being gate ridges and intervening ridges between the gate ridges being source ridges:

forming layers of a first nonconductive, protective material adherent to the side walls and bottoms of said grooves:

filling the remainder of said grooves with a second nonconductive protective material to produce surfaces thereof continuous with the surfaces of said ridges:

introducing conductivity type imparting material of the opposite conductivity type into the gate ridges of semiconductor material at said surfaces to convert zones of said first layer of semiconductor material to said opposite conductivity type thereby forming gate regions of the opposite conductivity type, each of said gate regions including the associated gate ridge and having portions extending laterally beneath the bottoms of the adjacent grooves toward the laterally extending portions associated with adjacent gate ridges to produce channel regions of the one conductivity type of relatively high resistivity therebetween;

introducing conductivity type imparting material of the one conductivity type into the source ridges of semiconductor material at said surfaces to produce a source region of the one conductivity type of relatively low resistivity in a zone adjacent to the surface in each of said source ridges; and

applying conductive material to form electrical contact in ohmic contact with said source and gate regions at the surfaces of said source and gate ridges, respectively.

VOL
1132
ISS
3
NO
19
19
1991
UMI

5,066,604

METHOD FOR MANUFACTURING A SEMICONDUCTOR DEVICE UTILIZING A SELF-ALIGNED CONTACT PROCESS

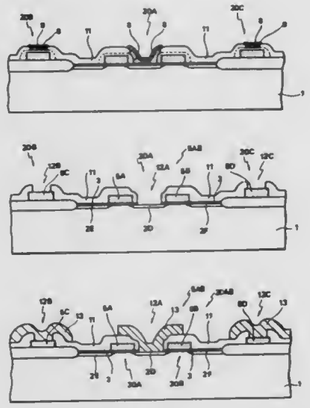
In S. Chung, Kyungki, and Dai H. Lee, Seoul, both of Rep. of Korea, assignors to Hyundai Electronics Industries Co., Ltd., Kyungki, Rep. of Korea

Filed Sep. 6, 1990, Ser. No. 578,563

Claims priority, application Rep. of Korea, Sep. 8, 1989, 89-12998

Int. Cl.[5] H01L *21/28, 21/336*

U.S. Cl. 437—44 20 Claims



12. A method for manufacturing a semiconductor device, comprising:

forming a plurality of segment separation oxide layers on a silicon substrate, with each segment separation oxide layer being spaced apart relative to one another;

depositing a gate oxide layer on the silicon substrate extending between the spaced apart segment separation oxide layers;

depositing a first conductive layer over the entire surface of the resulting structure;

removing portions of the first conducting layer to form a plurality of gate electrodes on the gate oxide layers and to form a plurality of gate electrode lines on the segment separation oxide layers, with each gate electrode being spaced apart relative to one another;

forming a plurality of lightly doped diffusion regions into portions of the silicon substrate between the spaced apart segment separation oxide layers and the gate electrodes;

depositing an spacer oxide layer on the entire surface of the resulting structure and forming from the spacer oxide layer a plurality of oxide spacers with an oxide spacer being formed on each side of each gate electrode of the plurality of gate electrodes and on each side of each gate electrode line of the plurality of gate electrode lines;

forming a plurality of diffusion regions through each lightly doped diffusion region of the plurality of lightly doped diffusion regions into the silicon substrate with each diffusion region of the plurality of diffusion regions functioning, in use, as a drain electrode or a source electrode;

forming a plurality of MOSFETs by depositing a first insulating layer on each gate electrode, each gate electrode line and each oxide spacer of the plurality of oxide spacers;

depositing an undoped polysilicon layer on the entire surface of the resulting structure;

sequentially depositing a nitride layer and a photoresist layer over the undoped polysilicon layer;

removing the photoresist layer except for those portions of the photoresist layer positioned above each gate electrode line and above each diffusion region of the plurality of diffusion regions positioned between adjacent gate electrodes of the plurality of gate electrodes to thereby define contact regions positioned over each diffusion region positioned between the gate electrodes of the MOSFETs of the plurality of MOSFETs, and over each gate electrode lines, respectively, thereby exposing the nitride layer except for those portions of the nitride layer positioned at the contact regions;

removing the nitride layer except for those portions of the nitride layer positioned at the defined contact regions, thereby exposing portions of the undoped polysilicon layer;

performing an ion-implantation process on the exposed portions of the undoped polysilicon layer to thereby form the exposed portions of the undoped polysilicon layer into a doped polysilicon layer;

removing the photoresist layer remaining above each gate electrode line and above each diffusion region of the plurality of diffusion regions positioned between adjacent gate electrodes, thereby exposing the nitride layer remaining at the contact regions;

thermally oxidizing the exposed doped polysilicon layer, thereby forming a thermal oxide layer on and into the exposed doped polysilicon layer;

sequentially removing the exposed nitride layer and the exposed underlying undoped polysilicon layer remaining at the defined contact regions to thereby expose the first insulating layer formed on each gate electrode line and to expose the gate oxide layer formed over the diffusion region positioned between the gate electrode, respectively;

forming a contact hole at each contact region by etching the thermal oxide layer, the exposed gate oxide layer positioned over the diffusion region and the first insulating layer positioned on the each gate electrode line to expose a surface of each gate electrode lines and a surface of each diffusion region positioned between gate electrodes of the plurality of gate electrodes, respectively;

depositing a second conducting layer on the entire surface of the resulting structure comprising the thermal oxide layer and the contact holes; and

removing the second conducting layer except for those portions of the second conductive layer deposited in and proximate to each contact hole such that each portion of the conducting layer forms a contact at each gate electrode lines, respectively, and a contact at each diffusion region positioned between MOSFETs of the plurality of MOSFETs, thereby enabling a selective connection to be made at each diffusion region positioned between MOSFETs of the plurality of MOSFETs and at each gate electrode line, respectively.

5,066,605

PROCESS OF PRODUCING MONOLITHICALLY INTEGRATED MULTIFUNCTION CIRCUIT ARRANGEMENTS

Erich Kasper, Pfaffenhofen; Maximilian Kuisl, Ulm; Ulf König, Ulm, and Johann F. Luy, Ulm, all of Fed. Rep. of Germany, assignors to Licentia Patent Verwaltungs-GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 21, 1989, Ser. No. 341,205

Claims priority, application Fed. Rep. of Germany, Apr. 23, 1988, 3813836

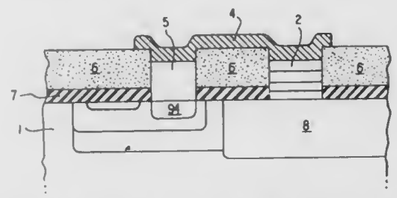
Int. Cl.[5] H01L *21/205*

U.S. Cl. 437—51 11 Claims

1. A process for producing monolithically integrated multifunction circuit arrangements composed of at least one integrated circuit integrated in a monocrystalline semiconductor substrate and at least one multilayer semiconductor component disposed on the substrate, said method including the steps of:

providing a monocrystalline semiconductor substrate having an integrated circuit formed therein adjacent one major surface and a passivating layer covering said one surface;

forming at least one window for a contact zone and at least one further window for a multilayered semiconductor component in said passivating layer above selected laterally separated respective connection regions of said integrated circuit extending to said one surface of said substrate,



epitaxially growing a structured semiconductor layer sequence on at least the portions of said one surface of said substrate within said windows to provide a monocrystalline multilayer component in one of said windows and a monocrystalline vertical contact zone in one of said further windows; and,

forming a conductive connection layer on top of said vertical contact zone and said multilayered component, whereby a planar, three-dimensional integrated circuit arrangement is formed.

5,066,606

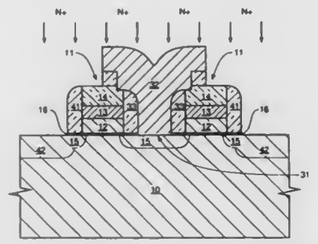
IMPLANT METHOD FOR ADVANCED STACKED CAPACITORS

Ruojia Lee, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Dec. 7, 1990, Ser. No. 624,166

Int. Cl.[5] H01L *21/70*

U.S. Cl. 437—52 20 Claims



1. A process for developing source/drain diffusion regions of an MOSFET during fabrication of a semiconductor on a silicon substrate, said process steps comprising:

a) depositing a first dielectric layer superjacent surface of said silicon substrate;

b) depositing a first conductive layer superjacent surface of said first dielectric;

c) depositing a second dielectric layer superjacent said first conductive layer;

d) masking and etching said first conductive and said second dielectric layers to form a first control line;

e) implanting a lightly doped impurity into said silicon substrate, thereby forming said source/drain diffusion regions on opposite sides of said control line;

f) said step of implanting a lightly doped impurity causing said control line to bridge said source/drain diffusion regions, thereby forming a gate isolated from said silicon substrate by said first dielectric layer, said gate bridging a pair of said source/drain diffusion regions to form said MOSFET;

g) depositing a third dielectric layer superjacent existing topology of surface of said semiconductor;

h) creating an aligned d buried contact location thereby providing a second control line junction at a first source/-drain diffusion region of said MOSFET;

i) depositing a second conductive layer superjacent said semiconductor surface, said second conductive layer making direct contact to said second control line junction at said buried contact location;

j) masking and etching said second conductive layer to form a conductive second control line;

k) anisotropically etching said third dielectric layer; and

l) implanting a heavily doped impurity into said source/-drain diffusion regions of said MOSFET, said implanting taking place at regions not covered by an implant blocking remnant of said second dielectric.

5,066,607

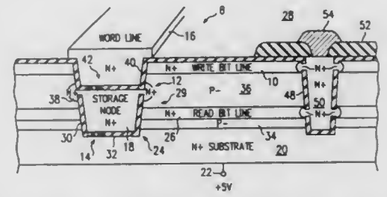
METHOD OF MAKING A TRENCH DRAM CELL WITH DYNAMIC GAIN

Sanjay K. Banerjee, Austin, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 126,523, Nov. 30, 1987. This application Aug. 16, 1990, Ser. No. 567,989

Int. Cl.[5] H01L *21/70*

U.S. Cl. 437—52 13 Claims



1. A method for forming a semiconductor DRAM cell, comprising the steps of:

forming a trench capacitor in a semiconductor substrate;

connecting a write bit line through a vertical pass transistor to said capacitor;

connecting a vertical gain transistor between a supply voltage and a read bit line;

connecting said gain transistor to said capacitor so that the conduction of said gain transistor is controlled by the voltage across said storage capacitor;

fabricating said gain transistor and said pass transistor so that said gain transistor is characterized by a faster conduction response time than said pass transistor; and

connecting a word line to said cell for controlling said pass transistor when writing said cell and for boosting the voltage across said capacitor when said cell is read to thereby control the conduction of said gain transistor.

5,066,608

METHOD OF MAKING A DRAM CELL WITH STACKED TRENCH CAPACITOR

Seong-tae Kim; Su-han Choi, and Jae-hong Ko, all of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Mar. 16, 1990, Ser. No. 494,322

Claims priority, application Rep. of Korea, Dec. 8, 1989, 89-18187

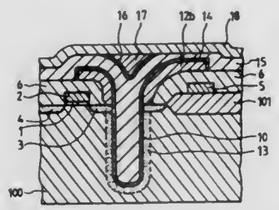
Int. Cl.[5] H01L *21/70*

U.S. Cl. 437—52 12 Claims

1. A method of manufacturing a semiconductor device, comprising the steps of:

VOL 1132 ISS 3 NO 19 1991 UMI

growing a field oxide layer on a semiconductor substrate of a first conductivity type to define an active region;
forming a first insulating layer on the sample obtained after forming a gate electrode of a first conductive layer, a source region and a drain region on said active region;
forming an opening to expose a part of said source region;
forming a first electrode pattern by depositing a second polycrystalline silicon layer on said first insulating layer and the entire surface of the exposes substrate;
forming a mask by depositing a second insulating layer on said first electrode pattern;
forming a trench in said semiconductor substrate within said source region by applying said mask;



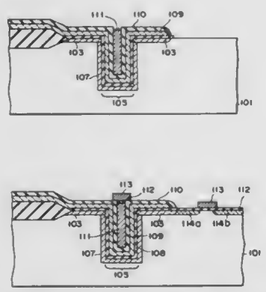
doping impurities on both said first electrode pattern and said semiconductor substrate of inside of said trench, such that said first impurity-doped electrode patterns is in direct contact with impurity-doped region formed on inside of said trench;
forming a dielectric film on both said impurity-doped first electrode pattern and said inside of said trench including said impurity-doped region;
depositing a third conductive layer, an etch blocking layer and a fourth conductive layer onto said dielectric film in turn; and
depositing a fifth conductive layer after a planarization step.

5,066,609

METHOD OF MANUFACTURING A SEMICONDUCTOR DEVICE INCLUDING A TRENCH CAPACITOR

Tadashi Yamamoto, Kawasaki; Yusuke Kohyama, and Takeshi Tanaka, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 23, 1990, Ser. No. 469,055
Claims priority, application Japan, Jul. 25, 1988, 63-185083
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—52 **9 Claims**



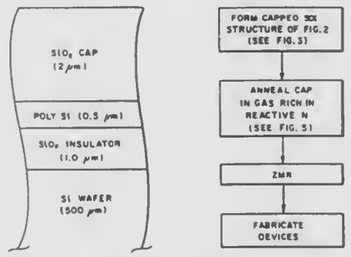
1. A method of manufacturing a semiconductor device including a trench capacitor, the method comprising the steps of:
selectively etching a semiconductor substrate to form a groove therein;
forming a conductive first layer on the sides and bottom of said groove and on said semiconductor substrate, said conductive first layer serving as a first plate electrode of said capacitor;
forming an insulating second layer on said first layer and on said semiconductor substrate, said insulating second layer serving as a dielectric of said capacitor;
forming a conductive third layer on said insulating second layer;
patterning said third layer so as to remain at a position corresponding to that of said first plate electrode, in order to form a second plate electrode of said capacitor;
forming an insulating fourth layer which covers said second plate electrode;
forming a fifth layer on said fourth layer so as to fill said groove;
etching said fifth layer so that it remains only in said groove; and
forming an insulating sixth layer on said fifth layer.

5,066,610

CAPPING TECHNIQUE FOR ZONE-MELTING RECRYSTALLIZATION OF INSULATED SEMICONDUCTOR FILMS

Chenson K. Chen, Weston, and Bor-Yeu Tsaur, Bedford, both of Mass., assignors to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 124,346, Nov. 20, 1987, Pat. No. 4,889,585, which is a continuation of Ser. No. 805,117, Dec. 4, 1985, abandoned. This application Sep. 22, 1989, Ser. No. 410,921
The portion of the term of this patent subsequent to Dec. 26, 2006, has been disclaimed.
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—83 **8 Claims**



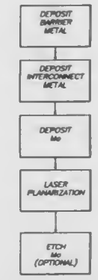
1. A method of forming an encapsulated insulated semiconductor film structure, comprising
forming an insulating layer on a substrate,
forming a semiconductor layer of amorphous or polycrystalline silicon on top of said insulating layer to form a silicon on insulator structure,
providing an atmosphere consisting essentially of inerts and a noninert gas, stable at ambient temperature, which is a source of a reactive material whose presence promotes wetting of molten silicon on silicon dioxide, said noninert gas decomposing below the melting point of silicon to release said reactive material,
annealing said structure in said atmosphere at a temperature below the melting point of silicon but high enough to decompose said gas so as to release said reactive material to deliver sufficient quantities of said reactive material to the surface of said structure to avoid agglomeration of the resulting semiconductor film,
forming a capping layer of silicon dioxide covering a substantial portion of said semiconductor layer, said reactive material being present at the interface, and
subjecting the annealed structure of the preceding steps to zone-melting recrystallization.

5,066,611

METHOD FOR IMPROVING STEP COVERAGE OF A METALLIZATION LAYER ON AN INTEGRATED CIRCUIT BY USE OF MOLYBDENUM AS AN ANTI-REFLECTIVE COATING

Chang Yu, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Aug. 31, 1990, Ser. No. 575,942
Int. Cl.[5] H01L *21/26*
U.S. Cl. 437—173 **6 Claims**



1. A method for improving step coverage of a metallization layer comprising an aluminum alloy or other low boiling point or high optical reflectivity metal on an integrated circuit during production of micron/submicron geometry contacts, surface recesses, and/or contact vias, comprising the following sequential steps:
depositing a layer of electrically conductive metal over an integrated circuit assembly;
depositing a layer of molybdenum over the conductive metal; and subjecting the resulting laminate to laser planarization at a fluence level sufficient to melt the underlying conductive metal while using the layer of molybdenum as an anti-reflective coating, thereby widening the planarization process window by the resulting increase in efficient use of laser energy by absorption of such energy into the underlying conductive metal to melt the conductive metal and a lowering of the via-fill limit, attributable to a combination of the reflective properties of molybdenum, as well as its resistance to oxidation, thermal conductivity and specific heat, without a proportional lowering of the ablation limit, which is attributable to the evaporation temperature of molybdenum.

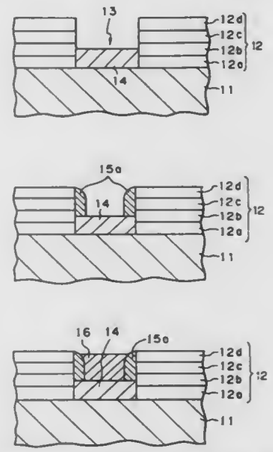
5,066,612

METHOD OF FORMING WIRING OF A SEMICONDUCTOR DEVICE

Takayuki Ohba, Yokohama; Shinji Miyagaki, Tokyo; Tatsushi Hara, Inagi; Kenji Morishita, Yokohama; Seiichi Suzuki, Kawasaki, and Seigen Ri, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 3, 1991, Ser. No. 637,152
Claims priority, application Japan, Jan. 5, 1990, 2-277; Feb. 20, 1990, 2-38826
Int. Cl.[5] H01L *21/44, 21/48*
U.S. Cl. 437—192 **16 Claims**

1. A method of forming wiring of a semiconductor device, comprising the following steps (a) to (f):
(a) forming a multilayer insulating layer (**12**) comprising at least an insulating layer (**12***c*) activating a metal selective vapor-growth and a top insulating layer (**12***d*) preventing a metal selective-growth on a semiconductor substrate (**1**);
(b) forming a contact-hole (**13**) reaching said semiconductor substrate (**1**) by selectively etching said multilayer insulating layer (**12**);
(c) growing a first metal layer (**14**) having a thickness such that a surface of the layer (**14**) is lower than the level of said insulating layer (**12***c*) preventing a metal selective vapor-growth in said contact-hole (**13**) by a selective vapor-growing method;
(d) forming an insulator side film (**15***a*) on the side wall of said contact-hole (**13**) by depositing an insulator film (**15**) preventing a metal selective vapor-growth over a whole surface of the inside surface of said contact-hole (**13**) and said top insulating layer (**12***d*) and by anisotropically etching the film (**15**) to expose the surface of said first metal layer (**14**);



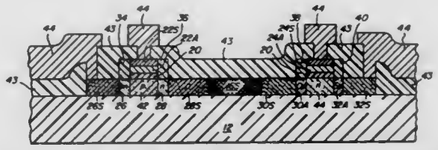
(e) filling said contact-hole (**13**) with a second metal layer (**16**) by depositing said second metal layer (**16**) on said first metal layer and within said contact-hole by a selective vapor-growing method; and
(f) forming a conductor line layer (**17**) on said second metal layer (**16**) and said top insulating layer (**12***d*).

5,066,613

PROCESS FOR MAKING SEMICONDUCTOR-ON-INSULATOR DEVICE INTERCONNECTS

Ronald E. Reedy; Graham A. Garcia, and Isaac Lagnado, all of San Diego, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jul. 13, 1989, Ser. No. 380,175
Int. Cl.[5] H01L *21/283*
U.S. Cl. 437—200 **12 Claims**



1. A process for developing conductive interconnects between integrated circuit semiconductor devices formed on an insulating substrate comprising:
forming a patterned layer of semiconductor material directly on the surface of said insulating substrate, said semiconductor material having a surface and also having an interface with said insulating substrate, said patterned layer comprising a first set of regions where at least one semi-

VOL 1132 ISS 3 NO 19 1991 UMI

conductor device will be formed and a second set of regions where electrical interconnects to said at least one semiconductor device will be formed, said second set of regions extending through the entire region between said surface and said interface;

forming said at least one semiconductor device;

converting said second set of regions to a metallic compound of said semiconductor material; and further wherein:

said at least one semiconductor device has at least two terminals comprised of said semiconductor material; and where at least a portion of at least one of said terminals is converted to said metallic compound of said semiconductor material substantially simultaneously with said conversion of said second set of regions.

5,066,614

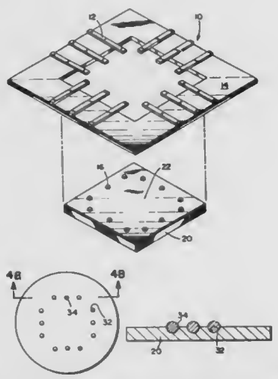
METHOD OF MANUFACTURING A LEADFRAME HAVING CONDUCTIVE ELEMENTS PREFORMED WITH SOLDER BUMPS

Thomas J. Dunaway, St. Louis Park; Richard K. Spielberger, Maple Grove; Lori A. Dicks, New Hope, and Jerald M. Loy, Anoka, all of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Division of Ser. No. 274,412, Nov. 21, 1988. This application Sep. 28, 1990, Ser. No. 589,816

Int. Cl.[5] H01L *21/60*

U.S. Cl. 437—209 **9 Claims**



1. A method of manufacturing a bond-when-ready bumped leadframe comprising the steps of:

a) providing a leadframe comprising at least one of power, ground, and signal conductive elements; and

b) preforming solder bumps onto the conductive elements to provide means for selectively bonding the conductive elements to bonding locations of an electronic device, the solder bumps being preformed with a composition for maintaining a single solid phase over the temperature range of 0° C. to 150° C.

5,066,615

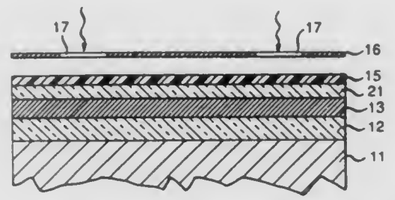
PHOTOLITHOGRAPHIC PROCESSES USING THIN COATINGS OF REFRACTORY METAL SILICON NITRIDES AS ANTIREFLECTION LAYERS

Michael F. Brady, Morrisville; John K. Dorey, II, Fairless Hills, both of Pa., and Aubrey L. Helms, Jr., Sunnyvale, Calif., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation-in-part of Ser. No. 425,134, Oct. 23, 1989. This application Aug. 6, 1990, Ser. No. 562,874

Int. Cl.[5] H01L *21/00, 21/02, 21/88*

U.S. Cl. 437—229 **21 Claims**



1. A photolithographic method for making a pattern over a reflective surface comprising the steps of: covering a reflective surface of a substrate with an antireflection coating; covering the antireflection coating with a radiation-sensitive material; selectively exposing the radiation-sensitive material to electromagnetic radiation by directing electromagnetic radiation through a patterned mask onto selected regions of the radiation-sensitive material to form a pattern; selectively removing the radiation-sensitive material in accordance with said pattern, thereby to form a patterned mask, characterized in that:

the antireflection coating is a composition containing x-silicon-nitride, where x is a metal taken from the group consisting of titanium, vanadium, chromium, zirconium, niobium, molybdenum, hafnium, tantalum and tungsten.

5,066,616

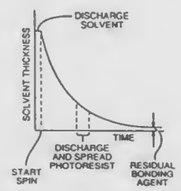
METHOD FOR IMPROVING PHOTORESIST ON WAFERS BY APPLYING FLUID LAYER OF LIQUID SOLVENT

William G. Gordon, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Continuation of Ser. No. 365,870, Jun. 14, 1989, abandoned. This application Sep. 7, 1990, Ser. No. 581,248

Int. Cl.[5] H01L *21/00, 21/02, 21/30;* B05D *1/40*

U.S. Cl. 437—229 **20 Claims**



1. In an integrated circuit fabrication process, a method for uniformly applying photoresist to a top surface of a wafer, the method comprising:

spreading a liquid solvent substantially uniformly over the wafer surface to form a liquid solvent film;

applying a liquid photoresist to the wafer surface; and

spreading the photoresist over the solvent film while a thickness of at least 100 Angstroms of liquid solvent remains on the entire wafer surface to wet the wafer surface with a mobile layer of fluid solvent such that the photoresist is distributed in a substantially uniform layer over the entire surface of the wafer.

5,066,617

METHOD FOR PRODUCING PLZT POWDER

Kei Tanemoto; Akiro Ando, and Hiroshi Kubo, all of Kawasaki, Japan, assignors to Nippon Steel Corporation, Tokyo, Japan

Continuation of Ser. No. 74,064, Jul. 16, 1987, abandoned. This application May 8, 1989, Ser. No. 351,277

Claims priority, application Japan, Jul. 23, 1986, 61-171830

Int. Cl.[5] C04B *35/49*

U.S. Cl. 501—134 **13 Claims**

13. A method for producing a PLZT ceramic comprising the steps of:

(a) preparing a first aqueous solution comprising lead based and lanthanum based components of PLZT, wherein the lead based and lanthanum based components are each independantly selected from the group consisting of metals, sulfates, nitrates, oxynitrates, acetates, chlorides, oxychlorides and oxides;

(b) preparing a second aqueous solution comprising zirconium based and titanium based components of PLZT, wherein the zirconium based and titanium based components are each independantly selected from the group consisting of metals, sulfates, nitrats, oxynitrates, acetates, chlorides, oxychlorides and oxides;

(c) forming homogeneous precipitates from said first and said second aqueous solutions by dropping the first and second aqueous solutions into a liquid body of a common precipitant, simultaneously and synchronously, while stirring the liquid body, whereby the homogeneous precipitants are formed;

(d) calcining the thus obtained homogeneous precipitates to form a calcined powder;

(e) forming a green body of said calcined powder; and

(f) sintering said green body to form a ceramic.

5,066,618

CERAMIC ARTICLES HAVING IN SITU TAILORED METALLIC COMPONENT

Robert C. Kantner; Michael A. Rocazella; Jerry G. Weinstein, all of Newark, Del., and Danny R. White, Elkton, Md., assignors to Lanxide Technology Company, LP, Newark, Del.

Continuation of Ser. No. 269,152, Nov. 9, 1988, abandoned, which is a continuation of Ser. No. 152,518, Feb. 5, 1988, Pat. No. 4,818,734, which is a continuation-in-part of Ser. No. 908,454, Sep. 17, 1986, abandoned. This application Aug. 16, 1990, Ser. No. 568,618

Int. Cl.[5] C04B *35/00*

U.S. Cl. 501—127 **16 Claims**

1. A self-supporting ceramic composite body comprising:

(a) an interconnected ceramic matrix comprising about 60–99% by volume of a polycrystalline oxidation reaction product consisting essentially of alumina and the remainder by volume of said ceramic matrix consisting essentially of a metallic constituent contained within said interconnected ceramic matrix, said metallic constituent comprising at least one metallic phase, said at least one metallic phase comprising nonoxidized precursor metal and at least one second metal; and

(b) at least one filler material embedded by said interconnected ceramic matrix, said at least one filler material being substantially non-reactive with said precursor metal, whereby said ceramic composite body has at least one property modified by the presence of said second metal.

5,066,619

GLASS-CERAMICS, PROCESS OF PRODUCING THE GLASS-CERAMICS AND DENTAL CROWN USING THE GLASS-CERAMICS

Tomoko Kasuga, and Toshihiro Kasuga, both of Akishima, Japan, assignors to Hoya Corporation, Tokyo, Japan

Filed Aug. 23, 1990, Ser. No. 571,209

Claims priority, application Japan, Sep. 5, 1989, 1-229803

Int. Cl.[5] C03C *10/16*

U.S. Cl. 501—3 **9 Claims**

1. A glass ceramics produced by precipitating from glass a calcium-potassium mica crystal consisting of Ca—K—Mg—Al—Si—O—F and at least one crystal selected from the group consisting of an enstatite crystal, an akermanite crystal and a diopside crystal, said glass containing components being present within the ranges as follows:

	Percent of weight
CaO	2 to 17
K_2O	0.5 to 5
MgO	20 to 35
SiO_2	30 to 50
Al_2O_3	5 to 30
Fluorine (calculated as F)	1.5 to 14.

5,066,620

CONDUCTIVE PASTE COMPOSITIONS AND CERAMIC SUBSTRATES

Kazuo Sunahara; Tsuneo Ichimatsu, and Yumiko Aoki, all of Yokohama, Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Division of Ser. No. 467,510, Jan. 19, 1990, Pat. No. 4,985,376. This application Jul. 27, 1990, Ser. No. 558,451

Claims priority, application Japan, Jan. 31, 1989, 1-19830

Int. Cl.[5] C03C *8/02, 8/18;* C09D *5/10;* B32B *3/00*

U.S. Cl. 501—21 **8 Claims**

1. A surface conductive paste composition to be applied to the surface of a green sheet for a ceramic substrate or to the surface of a ceramic substrate after being fired and to be then fired, the solid content of which has a composition comprising from 80 to 99.9% by weight of Au powder, from 0.1 to 20% weight of crystallized glass frit and from 0 to 19.9% by weight of non-crystallized glass frit, provided that the total of the crystallized glass frit and the non-crystallized glass frit is at most 20% by weight, and which has a lead compound powder incorporated in an amount of from 0 to 5% by weight based on the total amount of said composition.

5,066,621

SEALING GLASS COMPOSITION AND ELECTRICALLY CONDUCTIVE FORMULATION CONTAINING SAME

Masyood Akhtar, San Diego, Calif., assignor to Johnson Matthey Inc., Valley Forge, Pa.

Filed Jun. 21, 1990, Ser. No. 541,605

The portion of the term of this patent subsequent to May 7, 2008, has been disclaimed.

Int. Cl.[5] C03C *3/12;* C09D *5/00*

U.S. Cl. 501—41 **13 Claims**

1. A sealing glass composition comprising, in wt. %, 13–50% lead oxide, 20–50% vanadium oxide, 2–40% tellurium oxide, up to 40% selenium oxide, up to 20% bismuth oxide, up to 10% phosphorous oxide, up to 5% niobium oxide, up to copper oxide and up to 10% boron oxide.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,622

METHOD OF PRODUCING AND MODIFYING THE PROPERTIES OF CERAMIC COMPOSITE BODIES

Terry D. Claar, Newark; Gerhard H. Schiroky, Hockessin, and Kevin P. Pochopien, Newark, all of Del., assignors to Lanxide Technology Company, LP, Newark, Del.

Continuation of Ser. No. 137,397, Dec. 23, 1987, abandoned.
This application Jul. 13, 1990, Ser. No. 554,100
Int. Cl.[5] C04B 35/52
U.S. Cl. 501—87 8 Claims

1. A method of producing a self-supporting body comprising:

selecting a parent metal;

heating said parent metal in a substantially inert atmosphere to a temperature above its melting point to form a body of molten parent metal and contacting said body of molten parent metal with a mass comprising boron carbide and at least one additive contained within said mass and selected from the group consisting of tantalum carbide, zirconium carbide, and zirconium diboride;

maintaining said temperature for a time sufficient to permit infiltration of said molten parent metal into said mass and to permit reaction of said molten parent metal with said boron carbide to form at least one parent metal boron-containing compound; and

continuing said infiltration reaction for a time sufficient to react said boron carbide substantially completely to produce said self-supporting body comprising at least one parent metal boron-containing compound, said self-supporting body containing an amount of porosity which is less than the amount of porosity which would be contained in a self-supporting body produced by an identical method but without said at least one additive.

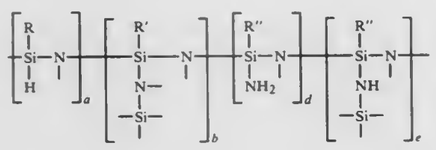
5,066,623

POLYMERIC HYDRIDOSILAZANES AND PROCESSES FOR THEIR PREPARATION, AND THEIR USE

Thomas Gerdau, Eppstein; Hans-Jerg Kleiner, Kronberg; Marcellus Peuckert; Martin Brück, both of Hofheim am Taunus, and Fritz Aldinger, Rodenbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 247,933, Sep. 22, 1988, Pat. No. 4,931,513.
This application Mar. 12, 1990, Ser. No. 491,534
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1987, 3733728
Int. Cl.[5] C04B 35/56, 35/58
U.S. Cl. 501—97 5 Claims

1. A process for the preparation of a ceramic material comprising pyrolysing a polymeric hydridosilazane of the formula



in which the free valencies of the nitrogen atoms are saturated with H atoms or silyl radicals R*SiXN< wherein X is H, Cl or N<, and in which R, R', R'' and R* denote alkyl groups having 1 to 6 carbon atoms and a, b, d and e denote the molar fractions of the particular structural units, wherein the value of a and b ranges from 0.1 to 0.8, and the value of the sum of d+e ranges from 0.1–0.8, at 800° C. to 1,400° C., in an inert nitrogen or argon atmosphere.

5,066,624

REFRACTORY THIXOTROPIC VIBRATION COMPOUND FOR THE VIBRATION LINING OF METALLURGICAL VESSELS

Gert König, Cologne, and Jürgen Baumann, Neuss, both of Fed. Rep. of Germany, assignors to Martin & Pagenstecher GmbH, Cologne, Fed. Rep. of Germany

Filed Apr. 23, 1987, Ser. No. 41,032
Claims priority, application Fed. Rep. of Germany, May 7, 1986, 3615505
Int. Cl.[5] C04B 35/16, 35/48
U.S. Cl. 501—107 9 Claims

1. A refractory thixotropic self-curing zirconium silicate-based vibration compound for obtaining a vibration density of at least 3.5 g/cm^3 having the following chemical composition (in % by mass):

20 to 30%	SiO_2
20 to 45%	Al_2O_3
0.7 to 1.4%	TiO_2
0.2 to 0.8%	P_2O_5
0 to 1.5%	$K_2O + Na_2O + LiO_2$
0 to 1.0%	Fe_2O_3
0 to 0.05%	CaO
residue	ZrO_2,

and consisting essentially of the following refractory basic material composition (in % by mass):

25 to 50%	sintered bauxite
1 to 10%	alumina
0.1 to 3.0%	amorphous silica
0.3 to 1%	aluminium metaphosphate
0.5 to 4%	alkali silicates with a molar ratio of 1:2 to 1:4
residue	zirconium silicate,

and the following grain fraction:

20 to 35%	up to 0.06 mm
25 to 60%	0.06 to 0.5 mm
5 to 55%	0.5 to 5 mm.

5,066,625

METHOD OF MAKING CONTAMINATION-FREE CERAMIC BODIES

Warren H. Philipp, Olmsted Township, Cuyahoga County, Ohio, assignor to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Nov. 9, 1990, Ser. No. 610,883
Int. Cl.[5] C04B 35/10
U.S. Cl. 501—127 14 Claims

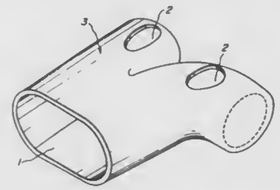
1. In a method of making a high temperature ceramic body wherein ceramic particles are mixed with a binder-deflocculant (BD) composition, formed into a structure and subsequently sintered the improvement comprising the use of a binder-deflocculant comprising a guanidine salt of a polymeric acid (polyelectrolyte) having a molecular weight of from about 1,000 to about 5,000,000.

5,066,626

CERAMIC MATERIALS FOR USE IN INSERT-CASTING AND PROCESSES FOR PRODUCING THE SAME

Kaname Fukao, Inuyama; Toshiyuki Hamanaka, Suzuka; Takashi Harada, and Noboru Kondo, both of Nagoya, all of Japan, assignors to NGK Insulators, Ltd., Tokyo, Japan

Filed Dec. 4, 1989, Ser. No. 445,486
Claims priority, application Japan, Dec. 2, 1988, 63-304002; Feb. 17, 1989, 1-38900
Int. Cl.[5] C04B 35/10, 35/46, 35/50
U.S. Cl. 501—128 15 Claims



1. A sintered ceramic material for use in insert casting, comprising:

at least 65% by volume aluminum titanate as a crystalline phase, the diameter of crystals of aluminum titanate being at least 10 μm; and

a glass intergranular phase present in an amount of not more than 20% by volume, said glass phase comprising a rare earth element in an amount of 0.5–16% by weight when calculated in the form of an oxide;

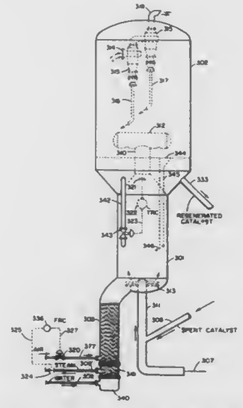
wherein said sintered ceramic material has a porosity of 5–35%, a four-point bending strength of 0.2–1.7 kgf/mm^2, a Young's modulus of 50–2,000 kgf/mm^2 and a reduction rate in cooling-heating cycling of not more than 9%.

5,066,627

PROCESS FOR SIMULTANEOUS HEATING AND COOLING A FAST FLUIDIZED BED CATALYST REGENERATOR

Hartley Owen, Belle Meade, N.J., and Paul H. Schipper, Wilmington, Del., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Jun. 8, 1990, Ser. No. 535,459
Int. Cl.[5] B01J 21/20, 38/38, 38/32; C10G 11/18
U.S. Cl. 502—43 11 Claims



1. A process for the simultaneous heating and cooling of coked fluidized catalytic cracking catalyst during high efficiency regeneration in a fast fluidized bed regeneration zone which comprises:

decoking coked fluidized catalytic cracking catalyst by contact with an oxygen-containing regeneration gas in a coke combustor operating at coke combustion conditions including a coke combustor temperature and a superficial vapor velocity sufficient to maintain said catalyst as a fast fluidized bed in said coke combustor and to at least partially decoke said catalyst to produce a dilute phase mixture of at least partially decoked catalyst and flue gas and;

discharging said dilute phase mixture up through a dilute phase transport riser and separating said dilute phase mixture to form a flue gas phase with reduced catalyst content and a bubbling dense phase fluidized bed of catalyst having a higher temperature than the coke combustor temperature; characterized by simultaneously

heating said coked catalyst in said coke combustor by direct contact heat exchange with catalyst from said bubbling dense bed by recycling to said coke combustor at least a portion of the catalyst from said bubbling dense bed to form a dense phase mixture of recycled and coked catalyst; and

cooling said dense phase mixture in said coke combustor by allowing at least a portion of said dense phase mixture of recycled and coked catalyst to flow down from said coke combustor to a heat removal zone extrinsic from said coke combustor and cooling said dense phase mixture in said extrinsic heat removal zone by indirect heat exchange with a cooling fluid to produce a cooled dense phase catalyst mixture and fluidizing said dense phase catalyst mixture in said heat removal zone by passage of a fluidizing gas in direct contact with said dense phase catalyst mixture, said fluidizing gas being added in an amount sufficient to provide a superficial vapor velocity sufficient to cause said dense phase catalyst mixture to flow up from said extrinsic cooler to said coke combustor.

5,066,628

CATALYST AND PROCESS FOR HIGH SELECTIVITY REFORMING WITH PT/RE ON BA-K-L ZEOLITE

Jeffrey T. Miller, and Victor K. Shum, both of Naperville, Ill., assignors to Amoco Corporation, Chicago, Ill.

Division of Ser. No. 287,397, Dec. 20, 1988, Pat. No. 4,954,245.
This application May 23, 1990, Ser. No. 528,038
Int. Cl.[5] B01J 29/30, 29/36
U.S. Cl. 502—66 5 Claims

1. A reforming catalyst formed by a process comprising calcining at less than 550° F. an unsulfided Zeolite L component having cationic sites ion exchanged with at least one member selected from the group consisting of potassium and barium; said catalyst further comprising a Group VIII noble metal component and a rhenium component; said rhenium component being incorporated onto the Zeolite L by impregnation with a rhenium-containing solution; where the ratio of the noble metal component to the rhenium component is from about 0.1:1 to about 10:1.

4. The catalyst of claim 1 wherein a binder is added to said catalyst.

5,066,629

OXIDATIVE COUPLING CATALYST FOR METHANE

Christopher A. Lukey, Queensland; Ashit M. Maitra, Hillsdale, and Ralph J. Tyler, Elanora Heights, all of Australia, assignors to The Broken Hill Proprietary Company Limited, Melbourne and Commonwealth Scientific and Industrial Research Organization, Campbell, both of, Australia

Filed Jul. 2, 1990, Ser. No. 545,958
Claims priority, application Australia, Jun. 30, 1989, PJ5021; Aug. 16, 1989, PJ5806
Int. Cl.[5] B01J 21/16, 23/02
U.S. Cl. 502—84 18 Claims

1. A catalyst for the oxidative coupling of methane, compris-

VOL 1132 ISS 3 NO 19 1991 UMI

ing a compound of a Group IIA element that is capable, under reaction conditions, of existing at least partly in its oxide or carbonate forms, intimately mixed with a clay capable of enhancing the catalyst performance.

6. A catalyst as claimed in any one of claims 1 to 5 in which the catalyst additionally contains a group IA element that is capable, under the reaction conditions of existing at least partly in its oxide or carbonate form.

5,066,630

METHOD FOR REMOVING NITROGEN-CONTAINING ORGANIC COMPOUNDS FROM CRYSTALLINE METALLOSILICATE

Masaru Kitamura; Hiroshi Ichihashi, and Gohfu Suzukamo, all of Osaka, Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Jun. 13, 1990, Ser. No. 537,432
Claims priority, application Japan, Jun. 30, 1989, 1-171007
Int. Cl.[5] B01J *37/08, 29/04*
U.S. Cl. 502—85 **4 Claims**

1. A method for removing nitrogen-containing organic compounds from crystalline metallosilicates which comprises firing the crystalline metallosilicates in the presence of a molecular oxygen-containing gas and a lower alcohol represented by the formula (I)

R—OH

wherein R represents an alkyl group of 1–4 carbon atoms.

5,066,631

HYDROCARBON SOLUTIONS OF ALKYLALUMINOXANE COMPOUNDS

Samuel A. Sangokoya; Milham S. Howie, and Todd A. Trumbo, all of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Oct. 16, 1990, Ser. No. 598,117
Int. Cl.[5] C08F *4/52*
U.S. Cl. 502—152 **19 Claims**

1. A hydrocarbon solvent solution of alkylaluminoxane comprising methylaluminoxane and an effective amount to solubilize said methylaluminoxane in said solvent of a tri-n-alkyl aluminum wherein the alkyl groups each contain at least two carbon atoms.

5,066,632

REFORMING CATALYST

William C. Baird, Jr., and George A. Swan, both of Baton Rouge, La., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Continuation of Ser. No. 253,423, Oct. 30, 1987, abandoned, which is a continuation of Ser. No. 944,329, Dec. 19, 1986, abandoned, which is a continuation-in-part of Ser. No. 873,589, Jun. 16, 1986, abandoned, which is a continuatioo of Ser. No. 782,113, Sep. 30, 1985, abandoned. This application Mar. 13, 1990, Ser. No. 492,210
Int. Cl.[5] B01J *27/045, 27/13, 21/04*
U.S. Cl. 502—223 **13 Claims**

1. A catalyst useful for reforming a naphtha feed at high severity reforming conditions, which comprises the metals, platinum, rhenium and iridium on a refractory porous inorganic oxide support, said support consisting essentially of alumina, wherein the concentration by weight of each of the metals platinum and rhenium is at least 0.1 percent and iridium at least 0.15 percent and at least one of the metals is present in a concentration of at least 0.3 percent, and the sum-total concentration of the metals is greater than 0.9 percent, and wherein each catalyst particle contains all three of the metals platinum, rhenium and iridium.

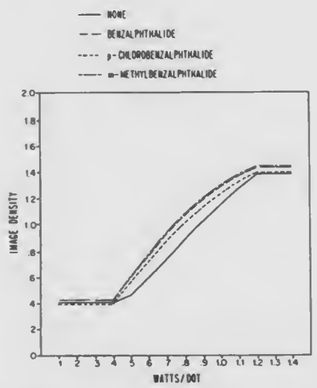
13. The composition of claim 1 wherein the catalyst contains from about 0.1 percent to about 3 percent of a halogen and from about 0.05 percent to about 0.2 percent sulfur.

5,066,633

SENSITIZER FOR HEAT SENSITIVE PAPER COATINGS

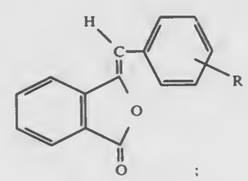
Tomoo Shibata, Amherst; John Semler, Buffalo, and George Gaesser, North Tonawanda, all of N.Y., assignors to Graphic Controls Corporation, Buffalo, N.Y.

Filed Feb. 9, 1990, Ser. No. 478,259
Int. Cl.[5] B41M *5/30*
U.S. Cl. 503—209 **23 Claims**

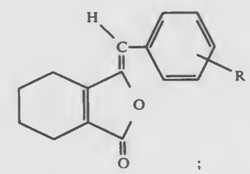


1. A heat sensitive composition comprising a colorless or light-colored dye precursor and a color developer capable of developing a color of said dye precursor with heating, said dye comprising a molecule having a five-membered spirol lactone ring on one portion, and a tertiary amino group on another portion of said molecule;

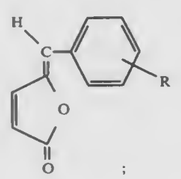
said heat sensitive composition further containing a sensitizing compound selected from the group consisting of:



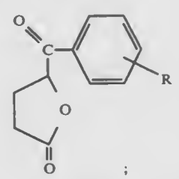
;



;

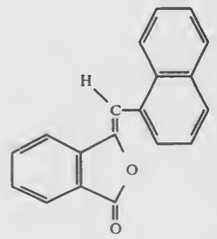


;



;

where R is selected from the group consisting of a C_1–C_4 alkane, a C_1–C_4 alkylhalide, a halogen, and hydrogen; and



23. A heat sensitive recording material comprising the composition of claim 1 coated on a paper substrate.

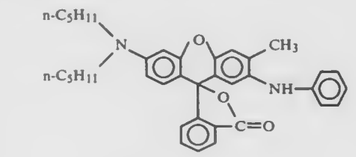
5,066,634

HEAT-SENSITIVE RECORDING SHEET

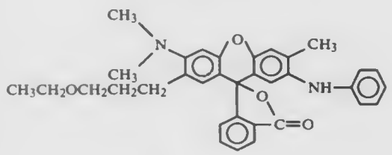
Toshiaki Minami; Tadakazu Fukuchi; Reiji Ohashi, and Toshio Kaneko, all of Tokyo, Japan, assignors to Jujo Paper Co., Ltd., Tokyo, Japan

Filed Sep. 27, 1990, Ser. No. 588,834
Claims priority, application Japan, Sep. 30, 1989, 1-255386
Int. Cl.[5] B41M *5/30*
U.S. Cl. 503—209 **8 Claims**

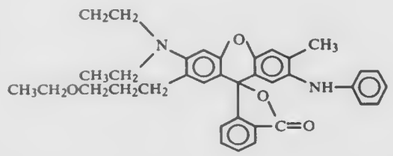
1. A heat-sensitive recording sheet comprising a support having thereon a color-developing layer which contains as main ingredients a colorless or pale colored basic chromogenic dye and an organic color-developing agent, wherein said color-developing layer comprises both 4-hydroxy-4'-n-propoxydiphenylsulfone as an organic color-developing agent and at least one fluorane-leuco dye selected from the dyes represented by the following formulae (I), (II) and (III) as a colorless or pale colored basic chromogenic dye:



(I)



(II)



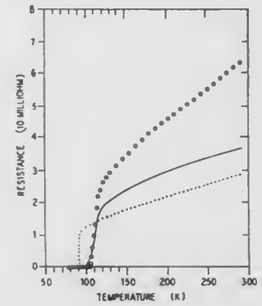
(III)

5,066,635

HIGH TEMPERATURE SUPERCONDUCTING TI-BA-CA-CU-O PHASES

Zhengzhi Sheng, Little Rock, Ark., and Allen M. Hermann, Golden, Colo., assignors to The University of Arkansas, Little Rock, Ark.

Continuation-in-part of Ser. No. 155,247, Feb. 12, 1988. This application Feb. 9, 1989, Ser. No. 308,895
Int. Cl.[5] C01F *11/02;* **C01G** *3/02, 15/00;* **H01L** *39/12*
U.S. Cl. 505—1 **4 Claims**



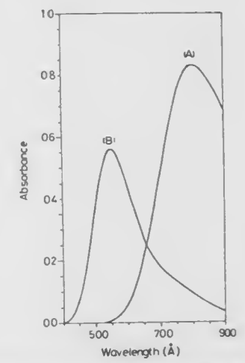
1. A high temperature superconductor phase of $Tl_2CaBa_2Cu_2O_{7+x}$, which has a tetragonal or pseudotetragonal unit cell dimensions of $5.44 \times 5.44 \times 29.5$ A^3, and has a 15 A layer repeat of thallium oxide double layers and pairs of copper-oxygen planes separated by calcium.

5,066,636

CITRATE/ETHYLENEDIAMINE GEL METHOD FOR FORMING HIGH TEMPERATURE SUPERCONDUCTORS

Ru-Shi Liu, Hsinchu; Wang-Nang Wang, Taoyuan, and Chan-Ting Chang, Hsiochu, all of Taiwan, assignors to Industrial Technology Research Institute, Taiwan

Filed Aug. 15, 1990, Ser. No. 567,940
Int. Cl.[5] H01L *39/12;* **H01B** *1/08*
U.S. Cl. 505—1 **2 Claims**



1. A citrate/ethylenediamine gel method for producing homogeneous superconducting oxide powders comprising:

(a) dissolving nitrates of constituent metals in water in desired proportions;

(b) adding an aqueous solution of citric acid into the aqueous of mixture of (a) at one gram equivalent of citric acid for

VOL 1132 ISS 3 NO 19 1991 UMI

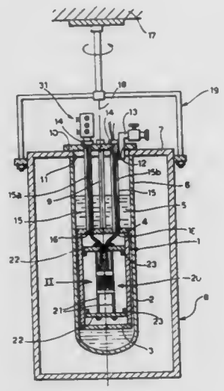
each gram equivalent of metals until the total concentration of the metal ions is about 0.5 M;
(c) adding ethylenediamine dropwise into the solution with constant stirring until the pH is 6;
(d) heating the above solution to 80°-100° C. and holding for 1-2 hours to let gradually evaporate the water content until a deep blue gel is obtained;
(e) decomposing the gel at 500° C. for 2 hours until black solid particles having an average size of about 0.3 um formed are;
(f) calcining the decomposed particles at a temperature of 800° C. to 900° C. for about 10 hours;
(g) grinding the calcined particles and compressing the mixture to form a pellet;
(h) sintering the above pellet at a temperature range of about 800° C. to 1000° C.; and
(i) grinding the pellet in (h) to form a powdery metal oxide superconductive material.

5,066,637

GYROMAGNETIC-EFFECT CRYOGENIC GYROSCOPE FOR DETECTING ANGULAR VELOCITY

Massimo Cerdonio, Noventa di Piave, and Stefano Vitale, Trento, both of Italy, assignors to AERITALIA -Societa Aerospaziale Italiana S.p.A., Turin, Italy

Filed Jun. 23, 1988, Ser. No. 210,432
Claims priority, application Italy, Jun. 23, 1987, 67544 A/87
Int. Cl.[5] G01P *9/00, 3/44;* **G01C** *19/00;* **G01R** *33/035*
U.S. Cl. 501—1 **4 Claims**



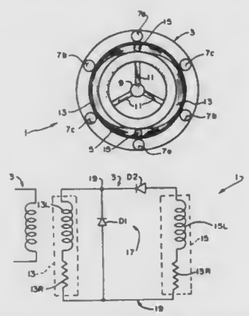
1. A cryogenic gyroscope, comprising:
a closed rigid casing made of a superconducting material
cooling means for keeping said casing at a temperature no higher than its critical superconducting temperature; and
a rotation detector device supported rigidly within said casing by the walls thereof and comprising at least one component of ferromagnetic material adapted to be magnetized by rotation of said casing, said ferromagnetic material being constituted by a plurality of ferromagnetic strips intercalated with layers of electrically insulating material wherein said ferromagnetic strips are adapted to be operatively connected to a SQUID magnetometer for emitting signals indicative of magnetization of said ferromagnetic component.

5,066,638

SUPERCONDUCTING MOTOR WITH MULTIPLE WINDING ROTOR

Jerry D. Lloyd, St. Louis, Mo., and M. A. Hilal, Madison, Wis., assignors to Emerson Electric Co., St. Louis, Mo.

Filed Sep. 10, 1990, Ser. No. 579,863
Int. Cl.[5] H01B *12/12;* **H02K** *55/04*
U.S. Cl. 505—1 **18 Claims**



14. A poly-phase, self-energizing, air-core motor comprising:
a stator having three sets of windings;
a rotor including a large rotor winding and a small rotor winding, said windings being installed so their axes are orthogonal to each other and connected to form a current loop which is exposed to a magnetic field, said stator and rotor each being made from a superconductive material, and the ratio of turns of the large winding to the small winding being between 5:1 and 10:1; and,
means for trapping a maximum number of magnetic flux lines in the loop when the magnetic field is impressed thereon and for thereafter transferring the trapped flux between the large and small winding to run the motor, the loop acting as a perfect conductor whereby no flux change occurs within the loop after the flux lines are trapped.

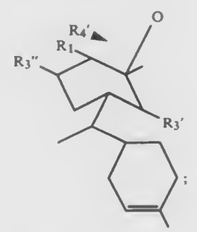
5,066,639

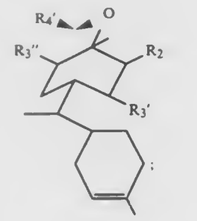
CYCLOHEXENYLMETHYLOXABICYCLOOCTANES, PROCESSES FOR PREPARING SAME, INTERMEDIATES USED IN SAID PROCESSES AND ORGANOLEPTIC USES OF SAID CYCLOHEXENYLMETHYLOXABICYCLOOCTANES AND INTERMEDIATES THEREFOR

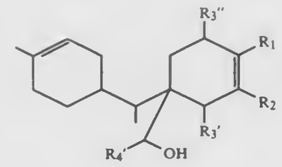
Anubhav P. S. Narula, Hazlet, and John J. DeVirgilio, Freehold, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Division of Ser. No. 588,733, Sep. 27, 1990. This application Apr. 11, 1991, Ser. No. 683,715
Int. Cl.[5] A01K *7/46*
U.S. Cl. 512—13 **7 Claims**

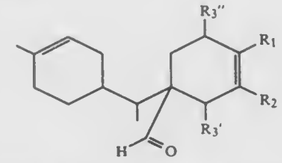
1. A process for augmenting or enhancing the aroma of a perfume composition, cologne or perfumed article comprising the step of intimately admixing with said perfume composition, cologne or perfumed article an aroma augmenting or enhancing quantity of at least one substituted cyclohexene composition defined according to a structure selected from the group consisting of:







and



wherein R_1, R_2, R_3' and R_3'' each represents hydrogen or methyl with the provisos:
(i) one or both of R_1 and R_2 is methyl;
(ii) when R_1 and R_2 are both methyl, then R_3' and r_3'' are each hydrogen;
(iii) one of R_3' and R_3'' is methyl and the other is hydrogen or R_3' and R_3'' are both hydrogen, and
(iv) when R_3' or R_3'' is methyl then R_1 is methyl and R_2 is hydrogen;
and R_4' is hydrogen or C_1-C_5 alkyl.

5,066,640

PHENYLETHL O-METHYLCINNAMATE, A PROCESS FOR PREPARATION AND A FRAGRANCE COMPOSITION CONTAINING SAME

Erdmuthe Voss; Werner Moschinsky, and Doris Hofmann-Moritz, all of Munich, Fed. Rep. of Germany, assignors to Consortium fur elektrochemische Industrie GmbH, Munich, Fed. Rep. of Germany

Filed May 11, 1989, Ser. No. 350,577
Claims priority, application Fed. Rep. of Germany, May 13, 1988, 3816452
Int. Cl.[5] A61K *7/46*
U.S. Cl. 512—21 **3 Claims**

1. Phenylethyl o-methylcinnamate.

2. A fragrance composition, comprising phenylethyl o-methylcinnamate.

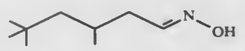
5,066,641

3,5,5-TRIMETHYLHEXANAL OXIME AND ORGANOLEPTIC USES THEREOF

Anubhav P. S. Narula, Hazlet; John J. De Virgilio, Freehold, both of N.J., and Jan T. Van Elst, Et Hilversum, Netherlands, assignors to International Flavors & Fragrances Inc., New York, N.Y.

Filed Sep. 27, 1990, Ser. No. 588,844
Int. Cl.[5] A61K *7/46*
U.S. Cl. 512—25 **5 Claims**

1. The 3,5,5-trimethylhexanal oxime having the structure:



2. A process for augmenting or enhancing the aroma of a perfume composition, cologne or perfumed article comprising the step of adding to said perfume composition, cologne or perfumed article an aroma augmenting or enhancing quantity of the product defined according to claim 1.

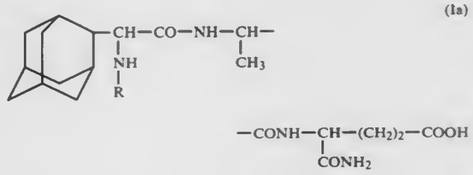
5,066,642

ADAMANTYL COMPRISING TRIPEPTIDES, DERIVATIVES AND HYDROCHLORIDES THEREOF, THEIR PREPARATION AND USE

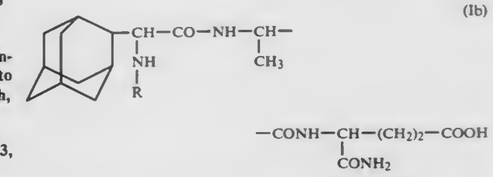
Branka Vranešić; Jelka Tomašić; Stanislav Smerdel; Darko Kantoci, all of Zagreb, Yugoslavia; Gianni Sava, Trieste, Italy, and Ivo Hršak, Zagreb, Yugoslavia, assignors to Imunoloski Zavod, Yugoslavia

Filed Feb. 9, 1990, Ser. No. 477,373
Claims priority, application Yugoslavia, Feb. 9, 1989, 305/89
Int. Cl.[5] A61K *37/00, 37/02;* **C07K** *5/00*
U.S. Cl. 514—18 **7 Claims**

1. A compound selected from the group consisting of 2-adamantyl- and 1-adamantyl-D/L-glycyl-L-alanyl-D-isoglutamine and their derivatives of the formulae



(Ia)



(Ib)

wherein R stands for a hydrogen atom or a MurNAc group, and hydrochlorides thereof.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,643

FLUORINE AND CHLORINE STATINE OR STATONE CONTAINING PEPTIDES AND METHOD OF USE

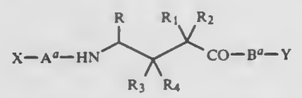
Robert H. Abeles, Waltham, Mass., and Michael H. Gelb, Seattle, Wash., assignors to Sandoz Ltd., Basle, Switzerland

Continuation of Ser. No. 311,022, Feb. 14, 1989, abandoned, which is a continuation of Ser. No. 131,089, Dec. 10, 1987, abandoned, which is a continuation of Ser. No. 829,263, Feb. 14, 1986, abandoned, which is a continuation-in-part of Ser. No. 702,651, Feb. 19, 1985, abandoned. This application Jan. 18, 1990, Ser. No. 466,803

Int. Cl.[5] A61K *37/02;* C07K *5/10, 7/06, 7/08*

U.S. Cl. 514—18 10 Claims

1. A compound of formula Ia



Ia

wherein R_1 and R_2 are independently fluorine or chlorine,

R_3 is hydroxy, alkoxy or acyloxy and

R_4 is hydrogen or

R_3 and R_4 together are oxo,

R is hydrogen, alkyl, cycloalkyl, cycloalkylalky, aryl, aralkyl, pyridinyl, pyridinylalkyl, thienyl, thienylalkyl, furyl, or furylalkyl optionally substituted in the aryl, pyridinyl, thienyl, or furyl ring,

X is hydrogen or a peptide amino-end blocking group,

Y is hydroxy or a peptide carboxy-end blocking group, and A^a and B^a are independently a peptide residue containing 1 to 7 natural amino acids, or an isoteric form thereof, in free form or in pharmaceutically acceptable salt form.

5,066,644

DERIVATIVES OF THIAZOLIDINE-4-CARBOXYLIC ACID, ITS PREPARATION AND PHARMACEUTICAL COMPOSITIONS CONTAINING IT

Stefano Poli; Germano Coppi, and Lucio Del Corona, all of Milan, Italy, assignors to Poli Industria Chimica S.p.A., Milan, Italy

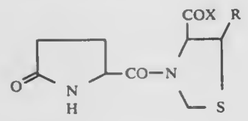
Filed Feb. 9, 1990, Ser. No. 477,507

Claims priority, application Italy, Feb. 10, 1989, 19401 A/89

Int. Cl.[5] C07K *5/06;* A61K *37/02*

U.S. Cl. 514—19 7 Claims

1. A compound of formula I



(I)

wherein X is a C_2–C_7 alkoxy or benzyloxy group, an amino group, the residue of a C_1–C_8 primary or secondary aliphatic amine optionally containing one or more double and/or triple bonds, of a C_4–C_8 cyclic aliphatic amine optionally containing an oxygen atom and benzylamine; R is hydrogen or C_1–C_8 alkyl.

5,066,645

EPIPODOPHYLLOTOXIN ALTROSIDE DERIVATIVES

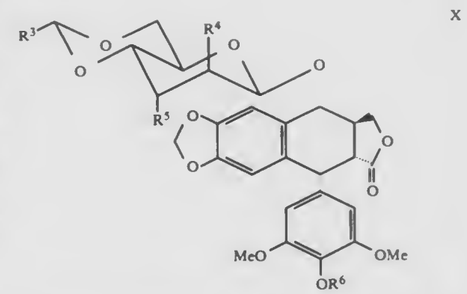
Takeshi Ohnuma, Tokyo; Hideaki Hoshi, Ichikawa; Hideo Kamei, Tokyo, and Takayuki Naito, Kawasaki, all of Japan, assignors to Bristol-Myers Company, New York, N.Y.

Filed Sep. 1, 1989, Ser. No. 401,712

Int. Cl.[5] A61K *31/70;* C07H *15/20, 15/26*

U.S. Cl. 514—27 21 Claims

1. A compound having the formula:



X

wherein R^3 is selected from the group consisting of (C_1–C_{10}) alkyl, phenyl, furyl and 2-thienyl;

wherein one of R^4 and R^5 is selected from the group consisting of hydroxy, C_1–$_5$alkoxy and C_1–$_5$acyloxy; and the other is selected from the group consisting of H, hydroxy, C_1–$_5$alkoxy, C_1–$_5$acyloxy, F, azido, and amino; or one of R^4 and R^5 is F and the other is selected from the group consisting of azido and amino; and

R^6 is selected from the group consisting of hydrogen, P(O)$(OH)_2$ and alkali or alkaline earth metal salts thereof.

21. A pharmaceutical composition comprising an antitumor effective amount of a compound of claim 1 and a pharmaceutically acceptable carrier.

5,066,646

AMPHOTERICIN DERIVATIVES

Michael J. Driver; Alexander R. Greenlees, and David T. MacPherson, all of Epsom, England, assignors to Beecham Group p.l.c., Brentford, England

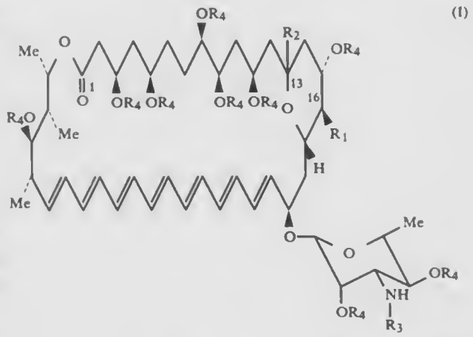
Filed Dec. 11, 1989, Ser. No. 448,698

Claims priority, application United Kingdom, Dec. 19, 1988, 8829592

Int. Cl.[5] A61K *31/70;* C07H *17/08*

U.S. Cl. 514—31 7 Claims

1. A compound of formula (I) or a pharmaceutically acceptable salt thereof:



(I)

wherein R_1 is a group -X-Y where X is a carbonyl group and Y is hydrogen, C_{1-8} alkyl, C_{2-8} alkenyl, or optionally substituted phenyl, naphthyl, a 5- or 6-membered monocyclic or 9- or 10-membered bicyclic heteroaryl containing one or two hetero atoms selected from the group consisting of nitrogen, oxygen and sulphur, which in the case of there being more than one heteroatom may be the same or different; and in which the optional substituents are selected from the group consisting of OH, C_{1-6} alkyl, C_{1-6} alkoxy, halogen and amino optionally substituted by C_{1-6} alkyl; R_2 is hydroxy or C_{1-8} alkoxy; R_3 is hydrogen or an amine protection group selected from the group consisting of acetyl, trifluoroacetyl, 9-fluroenylmethoxycarbonyl, trichloroethoxycarbonyl, 2-methylsulphonylethoxycarbonyl and 2-trimethylsilylethoxycarbonyl and each R_4 is hydrogen.

7. A method of treatment of fungal infections in animals, which comprises administering an effective antifungal amount of a compound of formula (I) or a pharmaceutically acceptable salt thereof, as defined in claim 1, to an animal in need of such treatment.

5,066,647

CYCLOPHOSPHAMIDE - ALANINE LYOPHILIZATES

Nageswara R. Palepu, and Julie A. Hutt, both of Dublin, Ohio, assignors to Erbamont, Inc., Dublin, Ohio

Continuation-in-part of Ser. No. 528,290, May 22, 1990, abandoned, which is a continuation of Ser. No. 340,978, Apr. 20, 1989, abandoned. This application Sep. 17, 1990, Ser. No. 583,896

Int. Cl.[5] A61K *31/66;* C07C *229/00*

U.S. Cl. 514—110 6 Claims

1. A lyophilized cyclophosphamide composition comprising cyclophosphamide, alanine and water wherein the amount of water ranges from approximately 0 parts to about 0.5 parts or from about 5.8 parts to about 8.2 parts per 100 parts by weight of cyclophosphamide, and wherein the amount of alanine is present in amount of about 50 to 150 parts per 100 parts by weight of cyclophosphamide.

5,066,648

PYROGLUTAMIC ACID ESTERS USED AS DERMAL PENETRATION ENHANCERS FOR DRUGS

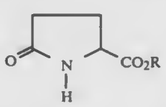
Jose Alexander, Lawrence, and Takeru Higuchi, deceased, late of Lawrence, both of Kans. by Martin B. Kickinson, Jr., executor , assignors to Merck & Co., Inc., Rahway, N.J.

Division of Ser. No. 348,914, May 8, 1989, Pat. No. 4,970,206, which is a continuation-in-part of Ser. No. 802,907, Nov. 29, 1985, Pat. No. 4,762,851. This application Sep. 13, 1990, Ser. No. 589,221

Int. Cl.[5] A61K *31/34, 31/52, 31/56, 31/58*

U.S. Cl. 514—174 17 Claims

1. A method of enhancing the rate of dermal absorption of a topically administered composition comprising a therapeutically effectically dosage amount of a drug selected from the group consisting of (i) and antiviral agent (ii) a dual cycloxygenase-lipoxygenase inhibitor and a pyroglutamic acid ester absorption enhancing agent of the formula:



wherein R is a straight or branched chain alkyl (C_5–C_{20}), alkenyl (C_5–C_{20}) with 1–6 double bonds, hydroxyalkyl (C_5–C_{20}), with 1–3 hydroxy groups, ketoalkyl (C_5–C_{20}), unsaturated hydroxyalkyl (C_5–C_{20}), carboxyalkyl (C_5–C_{20}) or alkoxycarbonylalkyl (C_5–C_{20}).

5,066,649

8,9-ANNELATED-1,2,3,4-TETRAHYDRO-β-CARBOLINE DERIVATIVES

Derk Hamminga; Ineke van Wijngaarden, and Johannes W. C. M. Jansen, all of Weesp, Netherlands, assignors to Duphar International Research B.V., Weesp, Netherlands

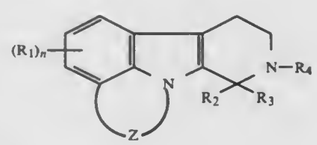
Filed Jan. 16, 1990, Ser. No. 465,460

Claims priority, application Netherlands, Jan. 19, 1989, 8900120

Int. Cl.[5] A61K *31/33, 31/38;* C07D *267/22, 487/00*

U.S. Cl. 514—183 3 Claims

1. A compound of formula I



(I)

wherein

R_1 is straight or branched alkyl having 1–3 carbon atoms, straight or branched alkoxy or alkylthio having 1–4 carbon atoms, a group of the formula R_5R_6N—CO— wherein R_5 and R_6 independently of each other are hydrogen, alkyl having 1–3 carbon atoms or together with the nitrogen atom, form a heterocyclic 5- or 6-membered ring, hydroxy, halogen, cyano or trifluoromethyl;

n has the value 0 or 1;

Z, together with the two carbon atoms and the nitrogen atom, forms a heterocyclic group which consists of 9–12 ring atoms and which, in addition to the nitrogen atom already present, may comprises a sulfur atom as a second hetero atom, said heterocyclic group being unsubstituted or substituted by 1–4 methyl groups;

R_2 is hydrogen, or is selected from the group consisting of straight or branched alkyl having 1–8 carbon atoms, or alkenyl or alkynyl having 2–8 carbon atoms, said group being unsubstituted or substituted by one or more fluorine, with a phenyl group which is unsubstituted or substituted by halogen, alkyl having 1–3 carbon atoms, methoxy or trifluoromethyl, or cyclopropyl, or R_2 is cycloalkyl having 3–8 carbon atoms which is unsubstituted or substituted by one or more alkyl groups having 1–4 carbon atoms, or R_2 is cycloalkenyl having 5–7 carbon atoms or phenyl which is substituted by 0–2 R_7 groups, wherein R_7 is straight or branched alkyl having 1–4 carbon atoms which is unsubstituted or substituted by one or more fluorine atoms or two R_7 groups bound to adjacent carbon atoms form a ring annelated to the phenyl group and consist of 5–7 carbon atoms or R_7 is cycloalkyl, cycloalkoxy or cycloalkylthio having 3–7 carbon atoms, straight or branched alkoxycarbonyl having 1–4 carbon atoms in the alkoxy group, halogen or hydroxy;

R_3 is hydrogen or straight or branched alkyl having 1–6 carbon atoms; and

R_4 is hydrogen or straight or branched alkyl having 1–4 carbon atoms; or a pharmacologically acceptable salt or prodrug thereof.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,650

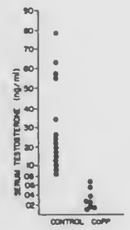
METHOD FOR SUPPRESSING THE ENDOCRINE SYSTEM

Attallah Kappas, and George S. Drummond, both of New York, N.Y., assignors to The Rockefeller University, N.Y.

Division of Ser. No. 498,289, Mar. 23, 1990, which is a continuation-in-part of Ser. No. 105,591, Nov. 13, 1987, abandoned, which is a continuation-in-part of Ser. No. 927,830, Nov. 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 832,512, Feb. 21, 1986, abandoned, and a continuation of Ser. No. 708,228, Mar. 5, 1985, abandoned, which is a continuation-in-part of Ser. No. 363,588, Mar. 30, 1982, abandoned. This application Jan. 8, 1991, Ser. No. 638,623

Int. Cl.[5] A61K *31/555*

U.S. Cl. 514—185 **5 Claims**



1. A method of limiting the production of estrogenic steroidal hormones in animals in need of such limitation which comprises parenteral administration of from 5 to 50 um/kg b.w. of cobalt protoporphyrin or cobalt mesoporphyrin.

5,066,651

PYRROLIDONE COMPOUNDS FOR TREATING CEREBRAL DISORDERS

Gilbert Regnir, Chatenay Malabry; Alain Dhainaut; Jean Lepagnol, both of Chatout, all of France, and Jean Lepagnol, both of Chatou, France, assignors to Adir et Compagnie, Courbevoie, France

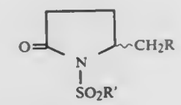
Filed May 17, 1990, Ser. No. 525,137

Claims priority, application France, May 31, 1989, 89 07153

Int. Cl.[5] A61K *31/495, 31/535, 31/54, 31/425*

U.S. Cl. 514—235.5 **12 Claims**

1. A compound selected from the group consisting of: Pyrrolidone compounds of the formula I:



(I)

in which:

R is selected from the group consisting of:

a) OR" and SR" groups in which R" is selected from the group consisting of:

a hydrogen atom,

a COR'" radical in which R'" is selected from the group consisting of:

straight-chain and branched alkyl radicals having 1 to 4 carbon atoms, inclusive,

an N (R_1R_2) radical in which R_1 and R_2, which are the same or different, are each selected from the group consisting of straight-chain and branched alkyl radicals having 1 to 5 carbon atoms, inclusive, or R_1 and R_2 together represent a polymethylene chain having 4 to 6 carbon atoms, inclusive, and such a chain containing an oxygen atom, so as to form together with the nitrogen atom to which they are bonded a heterocyclic radical selected from pyrrolidinyl, piperidino, and morpholino radicals;

straight-chain and branched alkyl groups having 1 to 6 carbon atoms, inclusive and these groups containing one and more oxygen atoms, a hydroxy radical, or an —N (R_1R_2) radical in which R_1 and R_2 have the meanings defined above;

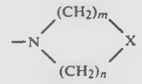
b) an —N (R_3R_4) radical in which:

R_3 and R_4, which are the same or different, are each selected from the group consisting of:

a hydrogen atom,

straight-chain and branched alkyl radicals having up to 6 carbon atoms and these radicals containing one or more oxygen atoms, a hydroxy radical, 0 COR'", or N (R_1R_2) radicals in which R'", R_1 and R_2 have the meanings defined above, or

R_3 and R_4, together with the nitrogen atom to which they are bonded, form a heterocyclic radical of the formula:



in which:

m is selected from zero, one and two;

n is an integer of from 1 to 3, inclusive, and

x is selected from the group consisting of:

a methylene radical (—CH_2—);

an oxygen or sulfur atom, or the radical SO_2;

an >N—R_5 radical in which R_5 is selected from the group consisting of:

alkyl radicals having 1 to 4 carbon atoms, inclusive,

a hydroxy alkyl radical having 1 to 4 carbon atoms, inclusive,

an (unsubstituted aryl) alkyl radical in which the alkyl moiety has 1 to 4 carbon atoms, inclusive, and such aralkyl radicals in which the aryl moiety is mono or polysubstituted by (C_1–C_4) alkoxy or a methylenedioxy radical,

unsubstituted aryl radicals and such aryl radicals mono or polysubstituted by halogen or (C_1–C_4) alkoxy radicals, and

heterocyclic radicals, having one or two heteroatoms, selected from thiazolyl, pyrimidinyl, pyrazinyl, pyridyl and quinolyl radicals, and such radicals mono or poly-substituted by halogen, trifluoromethyl, or (C_1–C_4) alkoxy radicals; and

a >CH—YZ radical in which:

Y is selected from oxygen and sulfur atoms, and

Z is selected from heterocyclic radicals having one or two heteroatoms as defined above;

R' is selected from the group consisting of:

a) straight-chain and branched alkyl radicals having 1 to 4 carbon atoms, inclusive, such radicals containing a double bond, and such radicals mono or polysubstituted by hydroxy, trifluoromethyl, amino, —N (R_1R_2) as defined above, phenyl, halophenyl, (C_1–C_5-alkyl) phenyl, (C_1–C_5 alkoxy) phenyl, nitrophenyl, or aminophenyl radicals; and

b) aryl, halo-aryl, (C_1–C_5-alkyl)-aryl, (C_1–C_5-alkoxy)-aryl, nitroaryl, and amino-aryl radicals; and

the carbon located in the 5-position of the pyrrolidine ring, which is substituted by CH_2R, has the R or S configuration,

and physiologically-tolerable acid addition salts thereof.

12. A method for treating a living animal afflicted with a cerebral disorder associated with lack of oxygen due to insufficient oxygen intake or metabolic neuronal deficiency, comprising the step of administering to the said living animal an amount of a compound of any of claims 1 through 10 which is effective for alleviation of the said condition.

5,066,652

THIOMETHYL AND SULFINYLMETHYL DERIVATIVES HAVING GASTRIC ACID ANTISECTETORY ACTIVITY AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Paolo Chiesi; Vittorino Servadio, and Roberta Razzetti, all of Parma, Italy, assignors to Chiesi Farmaceutici S.p.A., Parma, Italy

Continuation of Ser. No. 223,160, Jul. 22, 1988, abandoned. This application Mar. 14, 1990, Ser. No. 494,864

Claims priority, application Italy, Jul. 31, 1988, 21538 A/87

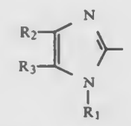
Int. Cl.[5] A61K *31/415;* **C07D** *233/56*

U.S. Cl. 514—235.8 **9 Claims**

1. A compound of the formula

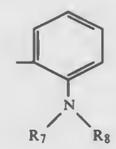
Het-$S(O)_n$-CH_2-A

in which Het has the formula



wherein R_1 is H, C_1–C_4 alkyl, benzyl or phenyl which can be substitued by C_1–C_4 alkyl, C_1–C_4 alkoxy, trifluoromethyl or halogen at any postion; R_2 and R_3 are H or phenyl, provided that when R_1 is H, R_2 and R_3 are both phenyl;

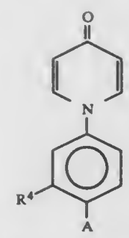
A has the formula



(IV)

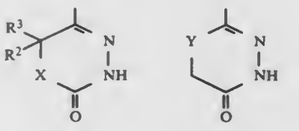
wherein R_7 and R_8, which may be the same or differenct, are H, hydroxyalkyl, C_1–C_4 alkyl which may be interrupted by the heteroatoms O or N, or together with the N atom to which they are bonded, form a pyrrolidine, piperidine, piperazine or morpholine ring;

and n is 0 or 1.



(I)

or a pharmaceutically acceptable salt thereof, wherein A is a group of sub-formula (a) or (b):



X is NH;

R^2 is hydrogen or methyl;

R^3 is hydrogen;

Y is NH; and

R^4 is hydrogen.

7. A method for stimulating cardiac activity in a host in need thereof by administration of a non-toxic but effective amount of a compound according to claim 1.

8. A method for effecting bronchodilatation in a host in need thereof by administration of a non-toxic but effective amount of a compound according to claim 1.

9. A method for effecting phosphodiesterase (type III) inhibition in a host in need thereof by administration of a non-toxic but effective amount of a compound according to claim 1.

10. A method for treating congestive heart failure in a host in need thereof by administration of a non-toxic but effective amount of a compound according to claim 1.

5,066,653

CHEMICAL COMPOUNDS

William J. Coates, Welwyn Garden City, England, assignor to Smith Kline & French Laboratories Limited, Welwyn Garden City, England

Division of Ser. No. 918,425, Oct. 14, 1986, Pat. No. 4,906,628. This application Dec. 18, 1989, Ser. No. 452,072

Claims priority, application United Kingdom, Oct. 17, 1985, 8525654; Jan. 23, 1986, 8601667

Int. Cl.[5] C07D *401/10, 417/10, 413/10;* **A61K** *31/50*

U.S. Cl. 514—242 **10 Claims**

1. A compound of the formula (1):

5,066,654

2-ARYL-3-HETEROCYCLICMETHYL-3H-IMIDAZO[4,5-B]PYRIDINES AS ANXIOLYTICS AND ANTICONVULSANTS

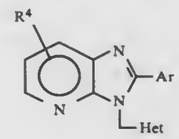
Chandler R. Taylor, Jr., Mechanicsville, and Meredith Moses, Glen Allen, both of Va., assignors to A. H. Robins Company, Incorporated, Richmond, Va.

Filed Oct. 22, 1990, Ser. No. 601,967

Int. Cl.[5] A61K *31/505, 31/435;* **C07D** *471/04*

U.S. Cl. 514—256 **19 Claims**

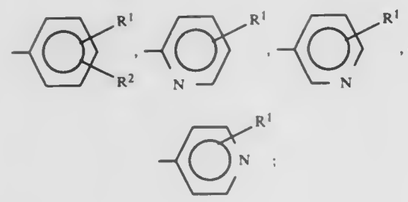
1. A compound having the formula



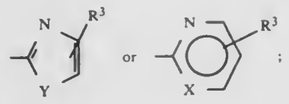
wherein

Ar is

VOL 1132 ISS 3 NO 19 1991 UMI



Het is



R^1, R^2, and R^3 are each, independently, hydrogen, alkyl of 1–6 carbon atoms, aralkyl of 7–10 carbon atoms, alkoxy of 1–6 carbon atoms, carbalkoxy of 2–7 carbon atoms, trifluoromethyl, halo, cyano, or nitro;

R^4 is hydrogen, alkyl of 1–6 carbon atoms, aralkyl of 7–10 carbon atoms, alkoxy of 1–6 carbon atoms, carbalkoxy of 2–7 carbon atoms, halo, or trifluoromethyl;

Y is NH, O, or S;

X is CH, or N;

or a pharmaceutically acceptable salt thereof.

5,066,655

N6-SUBSTITUTED 9-METHYLADENINES: A NEW CLASS OF ADENOSINE RECEPTOR ANTAGONISTS

Ray A. Olsson, Tampa, Fla., assignor to Whitby Research, Inc., Irvine, Calif.

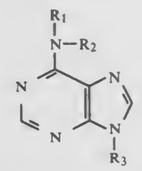
PCT No. PCT/US88/01405, § 371 Date Oct. 6, 1989, § 102(e) Date Oct. 6, 1989, PCT Pub. No. WO88/08303, PCT Pub. Date Nov. 3, 1988

PCT Filed Apr. 25, 1988, Ser. No. 424,293

Int. Cl.[5] A61K *31/52*

U.S. Cl. 514—261 **4 Claims**

1. The method of antagonizing the adenosine receptor which comprises administering to a subject an effective amount of a compound selected from the group of compounds represented by the general formula



wherein R is selected from the group consisting of cycloalkyl radicals having from 3 to 7 ring carbon atoms, alkyl radicals having from 1 to 10 carbon atoms, aryl radicals having from 6 to 10 carbon atoms, aralkyl radicals having from 8 to 10 carbon atoms and heteroatom substituted derivatives thereof wherein said heteroatom may be selected from the group consisting of halogen, nitrogen, phosphorus, sulfur and oxygen; R_2 may be hydrogen or R and R_3 is an alkyl group comprising from 1 to 4 carbon atoms.

5,066,656

PHARMACOLOGICALLY ACTIVE (6,7-DIHYDRO-5H-PYRROLO[1,2-C]IMIDAZOL-5-YL)- AND (5,6,7,8-TETRAHYDROIMIDAZO[1,5-A]PYRIDIN-5-YL) SUBSTITUTED 1H-BENZOTRIAZOLE DERIVATIVES

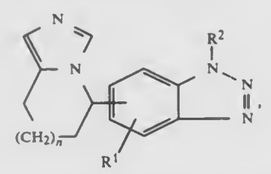
Michael N. Greco, Lansdale, Pa., and Marcel A. C. Janssen, Vosselaar, Belgium, assignors to Janssen Pharmaceutica N.V., Beerse, Belgium

Continuation-in-part of Ser. No. 430,030, Nov. 1, 1989, abandoned. This application Sep. 10, 1990, Ser. No. 580,393

Int. Cl.[5] A61K *31/435, 31/415;* **C07D** *471/04, 487/04*

U.S. Cl. 514—269 **9 Claims**

1. A compound having the formula



(I)

a pharmaceutically acceptable acid addition salt thereof or a stereochemically isomeric form thereof, wherein

n is 0 or 1;

R^1 is hydrogen, nitro, amino, mono- or di(C_{1-6}alkyl)amino, halo, C_{1-6}alkyl, hydroxy or C_{1-6}alkyloxy;

R^2 is hydrogen; C_{1-10}alkyl; C_{3-6}alkenyl; C_{3-6}alkynyl; C_{3-7}cycloalkyl; bicyclo[2.2.1]heptan-2-yl; 2,3-dihydro-1H-indenyl; 1,2,3,4-tetrahydronaphthalenyl; phenyl; substituted phenyl; C_{1-10}alkyl substituted with phenyl, substituted phenyl, naphthalenyl, thienyl, furanyl, C_{1-4}alkylfuranyl, C_{3-7}cycloalkyl, hydroxy or with C_{1-6}alkyloxy; or a radical of formula —OR^3;

R^3 is hydrogen; C_{1-10}alkyl; C_{3-6}alkenyl; phenylC_{3-6}alkenyl; C_{3-6}alkynyl; pyrimidinyl; diphenylmethyl; 1-C_{1-4}alkylpiperidin-4-yl; C_{1-10}alkyl substituted with halo, hydroxy, C_{1-6}alkyloxy, amino, mono- or di(C_{1-6}alkyl)amino, trifluoromethyl, cyano, aminocarbonyl, hydroxycarbonyl, C_{1-6}alkyloxycarbonyl, phenyl, substituted phenyl, thienyl, furanyl, C_{1-4}alkylfuranyl, pyridinyl, di(C_{1-6}alkyl-)isoxazolyl, phenoxy, phenylthio, C_{3-7}cycloalkyl, 2,3-dihydro-1,4-benzodioxinyl, 1H-benzimidazolyl, C_{1-4}alkyl substituted 1H-benzimidazolyl, (1,1'-biphenyl)-4-yl or 2,3-dihydro-2-oxo-1H-benzimidazolyl; and

each substituted phenyl independently is phenyl substituted with from 1 to 3 substituents independently selected from halo, hydroxy, hydroxymethyl, trifluoromethyl, C_{1-6}alkyl, C_{1-6}alkyloxy, C_{1-6}alkyloxycarbonyl, carboxyl, formyl, (hydroxyimino)methyl, cyano, amino, mono- and di(C_{1-6}alkyl)amino and nitro.

5,066,657

CROTONIC ACID AMIDE DERIVATIVES AND INSECTIDES CONTAINING THE SAME

Shunji Hayashi; Satoshi Yamanaka; Sayoko Kawaguchi; Teruhiko Ishii; Toshiya Kimata, and Naoaki Misu, all of Tokyo, Japan, assignors to SDS Biotech K.K., Tokyo, Japan

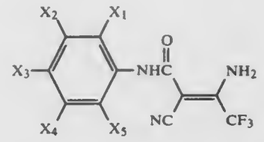
Filed May 8, 1990, Ser. No. 520,411

Claims priority, application Japan, May 9, 1989, 1-114090

Int. Cl.[5] A61K *31/275, 31/495;* **C07D** *239/02;* **C07C** *255/50*

U.S. Cl. 514—269 **5 Claims**

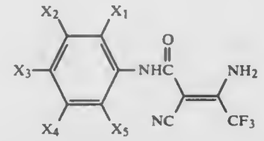
1. A crotonic acid amide derivative represented by formula (I):



(I)

wherein X_1, X_2, X_3, X_4, and X_5, which may be the same or different, each represents a hydrogen atom, a halogen atom, a substituted or unsubstituted lower alkyl group, a substituted or unsubstituted lower alkoxy group, a lower haloalkyl group, a lower haloalkoxy group, a nitro group, a substituted or unsubstituted lower alkanesulfonyl group, a substituted or unsubstituted alkanesulfonyloxy group, a substituted or unsubstituted benzenesulfonyl group, a substituted or unsubstituted benzenesulfonyloxy group, a substituted or unsubstituted phenoxy group, a substituted or unsubstituted benzyloxy group, a dialkylamino group, a mono- or di-lower alkanesulfonylamino group, a substituted or unsubstituted lower alkylthio group, a —SO_2R_1 wherein R_1 represents a lower alkyl group or a lower haloalkyl group, a lower alkoxycarbonyloxy group, a substituted or unsubstituted alkoxycarbonyl group, a —CH=N—OR_2 group wherein R_2 represents a lower alkyl group, a substituted or unsubstituted pyrazolyl-1-yl group, a substituted or unsubstituted pyridyloxy group, or a pyrimidyl group; X_2 may be bonded to X_1 or X_3 to form a ring.

2. An insecticide composition comprising an insecticidal effective amount of a crotonic acid amine derivative represented by formula (I) below and a carrier:



(I)

wherein X_1, X_2, X_3, X_4 and X_5, which may be the same or different, each represents a hydrogen atom, a halogen atom, a substituted or unsubstituted lower alkyl group, a substituted or unsubstituted lower alkoxy group, a lower haloalkyl group, a lower haloalkoxy group, a nitro group, a substituted or unsubstituted lower alkanesulfonyl group, a substituted or unsubstituted alkanesulfonyloxy group, a substituted or unsubstituted benzenesulfonyl group, a substituted or unsubstituted benzenesulfonyloxy group, a substituted or unsubstituted phenoxy group, a substituted or unsubstituted benzyloxy group, a dialkylamino group, a mono- or di-lower alkanesulfonylamino group, a substituted or unsubstituted lower alkylthio group, a —SO_2R_1 wherein R_1 represents a lower alkyl group or a lower haloalkyl group, a lower alkoxycarbonyloxy group, a substituted or unsubstituted alkoxycarbonyl group, a —CH=N—OR_2 group wherein R_2 represents a lower alkyl group, a substituted or unsubstituted pyrazolyl-1-yl group, a substituted or unsubstituted pyridyloxy group, or a pyrimidyl group; X_2 may be bonded to X_1 to X_3 to form a ring, as an active ingredient.

5,066,658

SUBSTITUTED HYDROXYUREAS

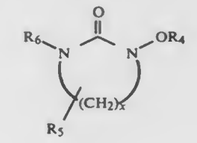
James P. Demers, New York, N.Y., and Richard B. Sulsky, Somerville, N.J., assignors to Ortho Pharmaceutical Corporation, Raritan, N.J.

Continuation-in-part of Ser. No. 269,808, Nov. 10, 1988, abandoned, which is a continuation-in-part of Ser. No. 21,815, Mar. 4, 1987, abandoned. This application Feb. 7, 1990, Ser. No. 477,000

Int. Cl.[5] A61K *31/505, 31/415;* **C07D** *239/02, 235/30*

U.S. Cl. 514—269 **10 Claims**

1. A hydroxyurea selected from the group consisting of



III

wherein

R_4 is hydrogen or lower alkanoyl,

R_5 is C_5 to C_{10} alkyl or lower alkoxycarbonyl

R_6 is C_1 to C_{10} alkyl.

10. A method for treating an inflammatory skin disease of a mammal which comprises topically administering to a mammal an effective amount of a compound of claim **1** or a pharmaceutically acceptable salt thereof.

5,066,659

SPIRO-HETEROAZALONES FOR TREATMENT OF DIABETIC COMPLICATIONS

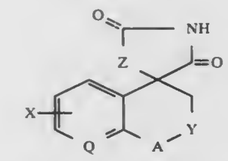
Christopher A. Lipinski, Waterford, Conn., assignor to Pfizer Inc., New York, N.Y.

Continuation of Ser. No. 370,143, Jun. 23, 1989, abandoned, which is a continuation of Ser. No. 44,400, filed as PCT/US84/01767 Oct. 30, 1984, published as WO86/02647 May 9, 1986, abandoned. This application Jul. 12, 1990, Ser. No. 554,952

Int. Cl.[5] A61K *31/41;* **C07D** *471/10*

U.S. Cl. 514—278 **3 Claims**

1. A compound of the formula:



or a pharmaceutically acceptable salt thereof wherein,

A is methylene, hydroxymethylene or methine;

Y is methylene, alkylmethylene, methine, or alkylmethine wherein alkyl in each instance has 1–4 carbon atoms, with the proviso that when A is methine, Y is methine or alkylmethine;

Z is nitrogen substituted by hydrogen;

Q is nitrogen; and

X is in the 3'-position and is hydrogen, halo, alkyl, alkoxy having 1–4 carbon atoms alkylthio, alkylsulfinyl, alkylsulfonyl, phenoxy, phenylthio or nitro; or X is in the 2'-position and is hydrogen, alkyl or alkoxy having 1–4 carbon atoms; provided that when X s hydrogen A and Y cannot both be methylene.

2. A pharmaceutical composition compriing a compuund according to claim **1** in an amount feffective for the treatment of diabetes-associated complications and a pharmaceutically acceptable carrier or diluent.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,660

INDOLE DERIVATIVES

Alexander W. Oxford; Ian H. Coates, both of Hertford, and Darko Butina, Bedfordshire, all of England, assignors to Glaxo Group Limited, London, England

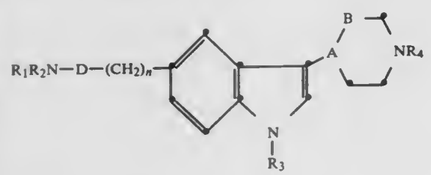
Continuation of Ser. No. 231,260, Aug. 12, 1988, abandoned. This application Aug. 21, 1990, Ser. No. 570,513

Claims priority, application United Kingdom, Aug. 13, 1987, 8719167

Int. Cl.[5] **C07D** *401/04;* **A61K** *31/445*

U.S. Cl. 514—323 **25 Claims**

1. A compound of formula (I)



(I)

wherein

R_1 represents a hydrogen atom, or a C_{1-6} alkyl group;

R_2 represents a hydrogen atom, a C_{1-6} alkyl group, a C_{3-7} cycloalkyl group, a C_{3-6} alkenyl group, or a phenyl or phen(C_{1-3}) alkyl group in which the phenyl ring is optionally substituted by a halogen atom, a C_{1-4} alkoxy group, a hydroxy group or a C_{1-3} alkyl group;

R_3 represents a hydrogen atom, a C_{1-3} alkyl group or a group $—CO_2R_5$, $—COR_5$, $—COCO_2R_5$ or $—CONHR_5$, where R_5 represents a hydrogen atom, a C_{1-4} alkyl group, a C_{3-7} cycloalkyl group, a C_{2-4} alkenyl group or an aryl or ar(C_{1-4})alkyl group in which the aryl group is phenyl which may be unsubstituted or substituted by a halogen atom, a C_{1-4} alkoxy group, a C_{1-4} alkyl group or a hydroxy group, provided that when R_3 represents $—CO_2R_5$,

R_5 is other than hydrogen;

R_4 represents a hdyrogen atom, a C_{1-3} alkyl group, a C_{3-6} alkenyl group, a phenyl group or a phen(C_{1-3})alkyl group;

A—B represents the group CH—CH_2— or C═CH—;

D represents the group $—SO_2—$;

n represents zero or an integer from 1 to 5;

or a pharmaceutically acceptable salt or solvate thereof, provided that when n is 2, R_3 is hydrogen and R_4 is hydrogen or C_{1-3} alkyl, then R_2 is other than hydrogen or C_{1-6} alkyl.

5,066,661

AGENTS FOR PROTECTING PLANTS AGAINST DISEASES

Walter Kunz, Oberwil; Rolf Schurter, Binningen, and Robert Nyfeler, Basle, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

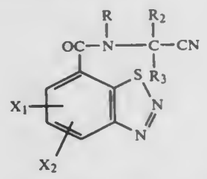
Filed Mar. 6, 1990, Ser. No. 489,414

Claims priority, application Switzerland, Mar. 8, 1989, 864/89

Int. Cl.[5] **C07D** *285/14;* **A01N** *43/82*

U.S. Cl. 514—361 **17 Claims**

1. A compound of the formula I



(I)

in which X_1 and X_2 independently of one another are hydrogen or 1 to 3 halogen; R is hydrogen, C_1–C_4alkyl, or C_3–C_5alkenyl; R_2 is C_1–C_6alkoxy, or is C_1–C_6alkylthio, or is furyl or thienyl, each of which is bonded in the 2- or 3-position; and R_3 is hydrogen or C_1–C_4alkyl.

5,066,662

SUBSTITUTED OXAZOLIDIN-2-ONES AND 1,2,4-OXADIAZOLIN-5-ONES AND DERIVATIVES THEREOF ACTING AT MUSCARINIC RECEPTORS

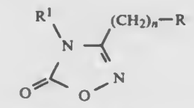
Sheila H. Hobbs, Dexter, and Stephen J. Johnson, Ann Arbor, both of Mich., assignors to Warner-Lambert Company, Morris Plains, N.J.

Filed May 21, 1990, Ser. No. 526,422

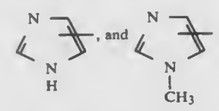
Int. Cl.[5] **A61K** *31/41;* **C07D** *413/06*

U.S. Cl. 514—364 **5 Claims**

1. A compound of Formula I



wherein R is selected from the group consisting of



R^1 is a hydrogen, alkyl of from one to ten carbon atoms, alkynyl of from two to ten carbon atoms, phenyl or phenyl substituted by one to four substituents selected from C1-C10 alkyl, C1-C10 alkoxy, C1-C10 alkyl thio, halogen or trifluoromethyl; n is zero or an integer of one or two; or a pharmaceutically acceptable acid addition salt thereof.

5,066,663

SUBSTITUTED-HETERO-CYCLOPENTANONES AND CYCLOPENTENONES AND DERIVATIVES THEREOF ACTING AT MUSCARINIC RECEPTORS

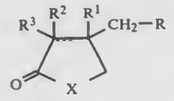
Sheila H. Hobbs, Dexter, Mich., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed May 21, 1990, Ser. No. 526,361

Int. Cl.[5] **A61K** *31/44;* **C07D** *405/02*

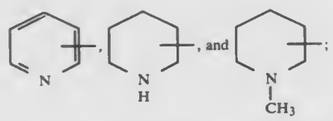
U.S. Cl. 514—326 **6 Claims**

1. A compound of Formula I



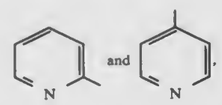
I

wherein X is oxygen, sulfur, or —N—R^4 wherein R^4 is hydrogen or alkyl of from one to ten carbon atoms; R is selected from the group consisting of



R^1, R^2, and R^3 are each independently hydrogen, alkyl of from one to ten carbon atoms, alkynyl of from two to ten carbon atoms or, phenyl or phenyl substituted by one to four substituents selected from C_1–C_{10} alkyl, alkoxy, C_1–C_{10}, halogen or

trifluromethyl; ---------- represents a single or double bond with the proviso that when ------ represents a double bond R^1 and R^2 are absent; or a pharmaceutically acceptable acid addition salt thereof, excluding a compound wherein X is oxygen; R is selected from the group consisting of



R^1 is hydrogen; R^2 is hydrogen; R^3 is alkyl of from one to ten carbon atoms; and represents a single bond.

5,066,664

2-(HYDROXY-2-ALKYLPHENYLAMINO)-OXAZOLINES AND THIAZOLINES AS ANTI-GLAUCOMA AND VASOCONSTRICTIVE AGENTS

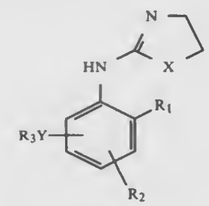
Charles Gluchowski, Mission Viejo, Calif., assignor to Allergan, Inc., Irvine, Calif.

Filed Feb. 28, 1990, Ser. No. 486,382

Int. Cl.[5] **C07D** *263/28;* **A61K** *31/42*

U.S. Cl. 514—377 **21 Claims**

1. A compound of the formula



where X is O R_1 is selected from a group consisting of straight chain lower alkyl having 1 to 6 carbons and branched chain lower alkyl having only primary, secondary or tertiary carbons adjacent to the phenyl ring and a total of 6 carbons; R_2 is selected from a group consisting of H straight chain lower alkyl having 1 to 6 carbons and branched chain lower alkyl having only primary, secondary or tertiary carbons adjacent to the phenyl ring and a total of 6 carbons, or OR^*_2 where R^*_2 is lower alkyl having 1 to 6 carbons; Y is O, S or NH; and R_3 is H, or $C(O)R^*_3$ where R^*_3 is lower alkyl having 1 to 5 carbons, with the proviso that the YR_3 group is not disposed in ortho position on the benzene nucleus relative to the NH—(C-═N—CH_2—CH—X) group, and a pharmaceutically acceptable salt thereof.

5,066,665

SUBSTITUTED ISOXAZOLIDIN-3-ONES AND DERIVATIVES THEREOF ACTING AT MUSCARINIC RECEPTORS

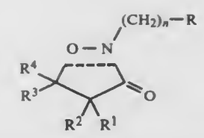
Sheila H. Hobbs, Dexter, Mich., assignor to Warner-Lambert Co., Morris Plains, N.J.

Filed May 21, 1990, Ser. No. 526,350

Int. Cl.[5] **C07D** *413/12;* **A61K** *31/42*

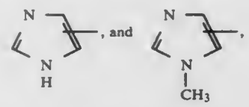
U.S. Cl. 514—380 **5 Claims**

1. A compound of Formula I



I

wherein R is selected from the group consisting



R^1, R^2, R^3, and R^4 are each independently hydrogen, alkyl of from one to ten carbon atoms, alkynyl of from two to ten carbon atoms, phenyl or phenyl substituted by one to four substituents selected from C1–C10alkyl, alkoxy, C1–C10halogen or trifluoromethyl; n is an integer of one or two; or a pharmaceutically acceptable acid addition salt thereof.

5,066,666

AMINOAZOLE DERIVATIVES AND THEIR PRODUCTION AND USE

Yukinori Ozato, Takarazuka; Nobuhiko Tamura, Toyonaka; Hiroaki Masumori, Ibaraki; Michihiro Yamamoto, Nishinomiya; Atsuyuki Kojima, Takarazuka; Fumio Nishikaku, Itami, and Yoshihiko Kimura, Osaka, all of Japan, assignors to Sumitomo Pharmaceuticals Company, Limited, Osaka, Japan

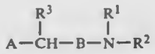
Division of Ser. No. 55,079, May 28, 1987, Pat. No. 4,914,112. This application Jan. 26, 1990, Ser. No. 470,731

Claims priority, application Japan, Jun. 3, 1986, 61-128910; Jul. 11, 1986, 61-164508

Int. Cl.[5] **C07D** *261/14, 31/42*

U.S. Cl. 514—380 **7 Claims**

1. A compound of the formula:



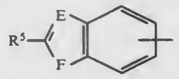
wherein A is the group of the formula:

$Ar^1—D—Ar^2—$

wherein Ar^1 is phenyl or thienyl which may be optionally substituted with at least one of the same or different halogen; Ar^2 is phenylene or thienylene which may be optionally substituted with at least one of the same or different halogen; D is a divalent radical selected from the group consisting of >C═N—OR^4 wherein R^4 is hydrogen or lower alkyl, >C═O,

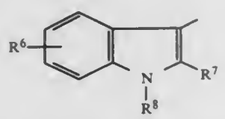


>CHOH, >NH and a single bond, or A is the group of the formula:



VOL 1132 ISS 3 NO 19 1991 UMI

wherein R^5 is lower alkoxy or phenyl which may be optionally substituted with at least one of the same or different halogen; E is methine or nitrogen; F is vinylene or oxygen, or a is a group of the formula:



wherein R^6 is lower alkoxy; R^7 is lower alkyl; R^8 is benzoyl which may be optionally substituted with at least one of the same or different halogen, B is the divalent azole group, isoxazolediyl R^1 is hydrogen or lower alkyl; R^2 is hydrogen, lower alkyl, phenyllower alkyl, or the group of the formula:

$$R^9—G—$$

wherein R^9 is hydrogen, lower alkyl, halo-lower alkyl, amino-lower alkyl, phenyl or phenyl-lower alkyl or the group of the formula:



wherein R^{10} is hydrogen or lower alkyl; R^{11} is hydrogen, lower alkyl, lower alkenyl, lower cycloalkyl, phenyl-lower alkyl, phenyl or aroyl, or the group of the formula: $—NR^{10}R^{11}$ which is pyrrolidinyl, piperidinyl or hexahydroazepinyl; or the group of the formula:

$$R^{12}—O—$$

wherein R^{12} is lower alkyl or polyhalo-lower alkyl; G is a divalent group selected from the group consisting of >C=O, >C=S, $>(C=O)_2$ and $>SO_2$ radical; and the group of the formula: $—NR^1R^2$ which is pyrrolidinyl, piperidinyl or hexahydroazepinyl; R^3 is hydrogen or lower alkyl, or its acid addition salts.

5,066,667

THIOXOTETRAZOLINES AND INSECTICIDAL USE THEREOF

Josef Ehrenfreund, Allschwil, and Erich Stamm, Huttil, both of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

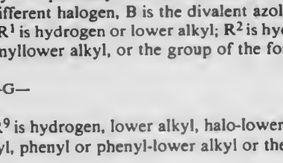
Filed Jun. 18, 1990, Ser. No. 539,755

Claims priority, application Switzerland, Jun. 26, 1989, 2369/89

Int. Cl.[5] C07D *257/04;* **A01N** *43/713*

U.S. Cl. 514—381 **15 Claims**

1. A 1-phenyl-5-thioxo-2-tetrazoline of formula I



(I)

in which

R^1 is C_1–C_8alkyl, C_3–C_6alkenyl, C_3–C_6alkynyl, C_3–C_6cycloalkyl, C_5–C_6-cycloalkenyl, C_1–C_4alkyl- or halo-substituted C_3–C_6cycloalkyl, C_1–C_4-alkyl- or halo-substituted C_5–C_6cycloalkenyl, halo-, C_1–C_4alkoxy- or phenyl-substituted C_3–C_6alkenyl, halo-, C_1–C_4alkoxy- or phenyl-substituted C_3–C_8alkynyl, or C_1–C_8alkyl that is substituted by halogen, C_1–C_4-alkoxy, C_1–C_4alkylthio, C_1–C_4alkoxycarbonyl, C_3–C_6cycloalkyl, phenyl, cyano, hydroxy, halophenyl, C_1–C_4alkylphenyl or by a heteroaromatic radical,

R^2 is C_1–C_6alkyl, C_2–C_6alkenyl, C_2–C_6alkynyl, C_3–C_6cycloalkyl, cyclopentenyl or cyclohexenyl, or is C_1–C_6alkyl that is substituted by halogen, by C_1–C_4alkoxy or by C_1–C_4alkylthio,

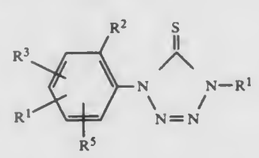
each of R^3 and R^4, independently of the other, is hydrogen, halogen, C_1–C_4alkyl, C_1–C_4haloalkyl, C_1–C_4alkoxy, C_1–C_4alkylthio, C_3–C_6cycloalkyl, C_2–C_4alkenyl, C_2–C_4alkynyl, C_2–C_6alkoxyalkyl, C_2–C_6alkylthioalkyl, C_1–C_4cyanoalkyl, phenyl-C_2–C_4alkenyl or phenyl-C_2–C_4alkynyl, or R^3 and R^4 together are a —CH=CH—CH=CH—, $—CH_2—CH=CH—$, $—(CH_2)_4—$, $—(CH_2)_3—$, $—O—CH_2—O—$, $—O—CH_2—CH_2—O—$, $—CH_2—O—CH_2—$, $—(CH_2)_2—CH=CH—$ or $—CH_2—CH=CH—CH_2—$ bridge, each of which may be substituted by one or two C_1–C_4alkyl groups, and

R^5 is hydrogen or a —Z—R^6 group in which

R^6 is phenyl, naphthyl or pyridyl, or is phenyl, napthyl or pyridyl each of which is substituted by one or two substituents selected from the group consisting of halogen, C_1–C_4alkyl, C_1–C_4alkoxy, C_1–C_4haloalkoxy, C_1–C_4haloalkyl, C_1–C_4alkylthio, C_1–C_4haloalkylthio, di-C_1–C_4alkylamino, nitro, cyano, C_1–C_4alkoxycarbonyl and C_1–C_4alkylcarbonyl, and

Z is oxygen, sulfur, a direct bond, —NH—, $—N(C_1$–C_2alkyl)—, —N(CHO)—, $—CH_2—$, $—CH(CH_3)—$ or $—C(CH_3)_2—$.

14. A method of controlling insects and arachnids that are harmful to animals and plants which comprises treating said animals or plants or the locus thereof with an effective amount of a compound of formula I



(I)

in which

R^1 is C_1–C_8alkyl, C_3–C_6alkenyl, C_3–C_6alkynyl, C_3–C_6cycloalkyl, C_5–C_6-cycloalkenyl, C_1–C_4alkyl- or halo-substituted C_3–C_6cycloalkyl, C_1–C_4-alkyl- or halo-substituted C_5–C_6cycloalkenyl, halo-, C_1–C_4alkoxy- or phenyl-substituted C_3–C_6alkenyl, halo-, C_1–C_4alkoxy- or phenyl-substituted C_3–C_8alkynyl, or C_1–C_8alkyl that is substituted by halogen, C_1–C_4-alkoxy, C_1–C_4alkylthio, C_1–C_4alkoxycarbonyl, C_3–C_6cycloalkyl, phenyl, cyano, hydroxy, halophenyl, C_1–C_4alkylphenyl or by a heteroaromatic radical,

R^2 is C_1–C_6alkyl, C_2–C_6alkenyl, C_2–C_6alkynyl, C_3–C_6cycloalkyl, cyclopentenyl or cyclohexenyl, or is C_1–C_6alkyl that is substituted by halogen, by C_1–C_4alkoxy or by C_1–C_4alkylthio,

each of R^3 and R^4, independently of the other, is hydrogen, halogen, C_1–C_4alkyl, C_1–C_4haloalkyl, C_1–C_4alkoxy, C_1–C_4alkylthio, C_3–C_6cycloalkyl, C_2–C_4alkenyl, C_2–C_4alkynyl, C_2–C_6alkoxyalkyl, C_2–C_6alkylthioalkyl, C_1–C_4cyanoalkyl, phenyl-C_2–C_4alkenyl or phenyl-C_2–C_4alkynyl, or R^3 and R^4 together are a —CH=CH—CH=CH—, $—CH_2—CH=CH—$, $—(CH_2)_4—$, $—(CH_2)_3—$, $—O—CH_2—O—$, $—O—CH_2—CH_2—O—$, $—CH_2—O—CH_2—$, $—(CH_2)_2—CH=CH—$ or $—CH_2—CH=CH—CH_2—$ bridge, each of which may be substituted by one or two C_1–C_4alkyl groups, and

R^5 is hydrogen or a —Z—R^6 group in which

R^6 is phenyl, naphthyl or pyridyl, or is phenyl, naphthyl or pyridyl each of which is substituted by one or two substituents selected from the group consisting of halogen, C_1–C_4alkyl, C_1–C_4alkoxy, C_1–C_4haloalkoxy, C_1–C_4haloalkyl, C_1–C_4alkylthio, C_1–C_4haloalkylthio, di-C_1–C_4alkylamino, nitro, cyano, C_1–C_4alkoxycarbonyl and C_1–C_4alkylcarbonyl, and

Z is oxygen, sulfur, a direct bond, —NH—, $—N(C_1$–C_2alkyl)—, —N(CHO)—, $—CH_2—$, $—CH(CH_3)—$ or $—C(CH_3)_2—$.

5,066,668

TRIAZOLE DERIVATIVES OF FENAMATES AS ANTIINFLAMMATORY AGENTS

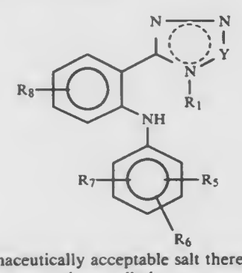
Diane H. Boschelli, Novi; David T. Connor, Ann Arbor, both of Mich.; Daniel L. Flynn, Mundelein, Ill.; Jagadish C. Sircar, Ann Arbor, and Milton L. Hoefle, both of, Ann Arbor, Mich., assignors to Warner-Lambert Co., Morris Plains, N.J.

Division of Ser. No. 364,345, Jun. 9, 1989, Pat. No. 4,962,119. This application Apr. 3, 1990, Ser. No. 504,169

Int. Cl.[5] A61K *31/41*

U.S. Cl. 514—384 **6 Claims**

1. A pharmaceutical composition for use as an antiinflammatory agent comprising an antiinflammatory effective amount of a compound of the formula (I)



I

and a pharmaceutically acceptable salt thereof; wherein

R_1 is hydrogen or lower alkyl;

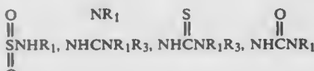
Y is (1) C-SR_1 wherein R_1 is H or lower alkyl

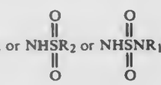


wherein R_2 is lower alkyl,



wherein R_2 is independently defined above, (4) C-NR_1R_3 wherein R_1 is independently as defined above and R_3 is hydrogen or lower alkyl, (5) COR_1 wherein R_1 is independently as defined above, (6) CR_4 wherein R_4 is hydrogen, lower alkyl, halogen, CF_3, CO_2R_1, or





wherein R_1, R_2, and R_3 are independently as defined above; and

R_5, R_6, R_7 and R_8 are independently hydrogen, fluoro, chloro, bromo, iodo, trifluoromethyl, lower alkyl, CN, hydroxy, lower alkoxy, $—S(O)_n—$lower alkyl, NO_2, or NR_9R_{10} wherein R_9 or R_{10} are independently H, lower alkyl or acyl; and n is an integer of 0 through 2; additionally comprising an antiinflammatory effective amount of a second active ingredient that is a non-steroidal antiinflammatory drug and a pharmaceutically acceptable carrier.

5,066,669

BENZOFURAN DERIVATIVES

Tameo Iwasaki, Nishinomiya; Masaki Sugiura, Kawanishi; Yuzo Matsuoka, Toyonaka; Mamoru Matsumoto, Nara, and Kazuyuki Kitamura, Urawa, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

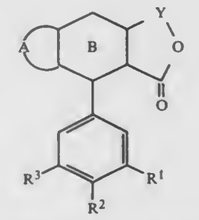
Filed Mar. 7, 1990, Ser. No. 489,565

Claims priority, application Japan, Mar. 9, 1989, 1-57349

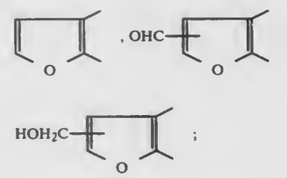
Int. Cl.[5] C07D *307/77;* **A61K** *31/34*

U.S. Cl. 514—449 **5 Claims**

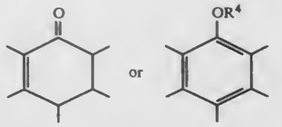
1. A benzofuran derivative of the formula:



wherein Ring A is a ring of the formula



ring B is a ring of the formula



R^1 is hydrogen; each of R^2 and R^3 is hydrogen or lower alkoxy, or R^2 and R^3 are combined together to form lower alkylenedioxy; R^4 is lower alkyl; and Y is methylene, or a pharmaceutically acceptable salt thereof.

5,066,670

MACROLIDE DERIVATIVES WITH PARASITICIDAL ACTIVITY

Roderick J. Dorgan, Epsom, and Graham S. Macaulay, Tadworth, both of England, assignors to Beecham Group p.l.c.

Filed Mar. 9, 1990, Ser. No. 491,564

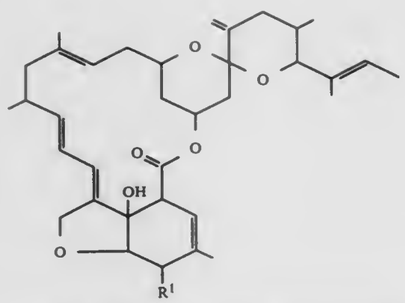
Claims priority, application United Kingdom, Mar. 11, 1989, 8905605

Int. Cl.[5] A61K *31/365;* **C07D** *313/00, 307/93*

U.S. Cl. 514—450 **5 Claims**

1. A compound of formula (I):

VOL 1132 ISS 3 NO 19 1991 UMI



(I)

wherein R^1 is methoxy or optionally protected hydroxy.

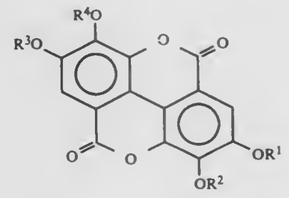
5,066,671

ELLAGIC ACID DERIVATIVES AS PHOSPHOLIPASE A_2 INHIBITORS

Craig E. Caufield, Middlesex, N.J., assignor to American Home Products Corporation, New York, N.Y.

Filed Jul. 16, 1990, Ser. No. 552,659
Int. Cl.[5] A61K *31/35*
U.S. Cl. 514—453 3 Claims

1. A method of preventing or treating immunoinflammatory conditions in a mammal in need thereof by administering an immunoinflammatory amount of a compound having the formula



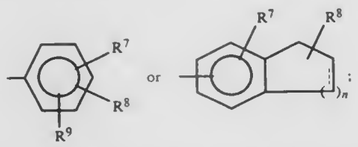
wherein

R^1, R^2, R^3, and R^4 are each, independently, hydroge, alkyl of 1–9 carbon atoms, aralkyl of 7–10 carbon atoms, aryl, or



X is alkyl of 1–6 carbon atoms, aryl, or $—NR^5R^6$;

R^5 and R^6 are each independently hydrogen, alkyl of 1–6 carbon atoms, or aryl; aryl is



where the dotted line represents an optional double bond;

R^7, R^8 and R^9 are each, independently, hydrogen, alkyl of 1–6 carbon atoms, hydroxy, alkoxy of 1–6 carbon atoms, carbalkoxy of 2–7 carbon atoms, halo, nitro, amino, cyano, trifluoromethyl, or a carboxylic acid;

n=1–3;

or a pharmaceutically acceptable salt thereof.

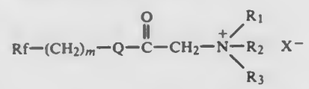
5,066,672

POLYFLUOROALKYL ACETATES, THIOACETATES AND ACETAMIDES, AND THEIR APPLICATIONS

Alain Sismondi; Parfait Abenin, and Aimé Cambon, all of Nice, France, assignors to Societe Atochem, France

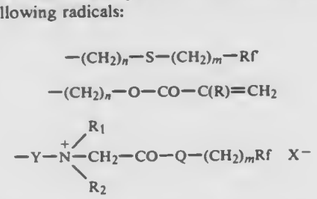
Filed Dec. 27, 1989, Ser. No. 457,565
Claims priority, application France, Dec. 27, 1988, 88 17240
Int. Cl.[5] A01N *37/00*; C07C *69/74, 327/00, 229/00*
U.S. Cl. 514—513 4 Claims

1. A compound of the formula:

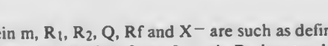


(I)

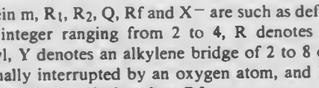
in which Rf denotes a linear or branched perfluoroalkyl radical containing from 2 to 16 carbon atoms, m is an integer ranging from 1 to 4, Q denotes an oxygen or sulphur atom or an NH group, X^- denotes an monovalent anion or its equivalent, R_1 denotes an alkyl radical containing from 1 to 3 carbon atoms, R_2 denotes allyl or a linear or branched alkyl radical containing from 1 to 18 carbon atoms, and R_3 denotes a linear or branched alkyl radical containing from 7 to 18 carbon atoms or one of the following radicals:



(II)



(III)



(IV)

wherein m, R_1, R_2, Q, Rf and X^- are such as defined above, n is an integer ranging from 2 to 4, R denotes hydrogen or methyl, Y denotes an alkylene bridge of 2 to 8 carbon atoms optionally interrupted by an oxygen atom, and Rf' denotes a perfluoroalkyl radical such as Rf.

4. A method of using the compound according to claim 1 as a surface-active agent or as a monomer for the manufacture of artificial vesicles.

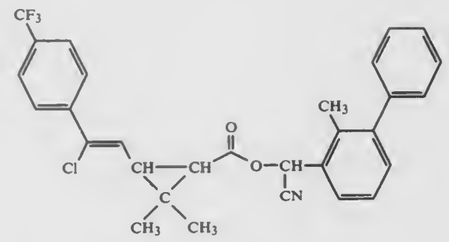
5,066,673

SUBSTITUTED BENZYL 2-PHENYL-1-ALK(EN)YLCYCLOPROPANE-CARBOXYLATES AND THE USE THEREOF FOR CONTROLLING PESTS

Winfried Zombik, Ilvesheim; Hans Theobald, Limburgerhof; Bernd Wolf, Fussgoenheim; Ludwig Schuster, Limburgerhof; Peter Hofmeister, Neustadt, and Christoph Kuenast, Otterstadt, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Feb. 22, 1990, Ser. No. 482,890
Claims priority, application Fed. Rep. of Germany, Mar. 4, 1989, 3907069
Int. Cl.[5] C07C *255/31, 69/743*; A01N *37/08*
U.S. Cl. 514—521 5 Claims

4. A pesticidal composition comprising a pesticide carrier and a pesticidally effective amount of a compound selected from the group consisting of 2'-methyl-3'-phenylbenzyl-3-(2-chloro-2-(4-chlorophenyl)-ethenyl)-2,2-dimethylcyclopropanecarboxylate and a compound having the structural formula:



5,066,674

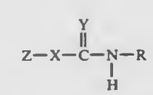
CARBAMATE INHIBITORS OF CHOLESTEROL ESTERASE AND THEIR USE AS HYPOLIPIDEMIC AND HYPOCALORIC AGENTS

Daniel M. Quinn, Iowa City, Iowa, assignor to University of Iowa Research Foundation, Iowa City, Iowa

Filed Jun. 4, 1990, Ser. No. 533,079
Int. Cl.[5] A61K *31/22*
U.S. Cl. 514—529 10 Claims

1. A method of decreasing the absorption of dietary cholesterol and fats through the wall of the intestinal tract, said method comprising:

administering to a mammal a small but cholesterol esterase inhibiting effective amount of a compound of the formula:



wherein Z equals an aryl moiety selected from the group consisting of 2-naphthyl and p-acetamidophenyl, X and Y are oxygen, and R is a C_1 to C_8 alkyl.

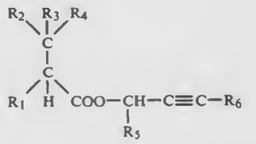
5,066,675

SUBSTITUTED PHENYL ACID ESTERS, THEIR PREPARATION AND THEIR USE AS INSECTICIDES AND ACARICIDES

Ulrich Bühmann; Hartmut Joppien, and Dietrich Baumert, all of Berlin, Fed. Rep. of Germany, assignors to Schering Aktiengesellschaft, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 403,023, Aug. 31, 1989, abandoned, which is a continuation of Ser. No. 85,973, Aug. 14, 1987, abandoned. This application Aug. 31, 1990, Ser. No. 575,674
Claims priority, application Fed. Rep. of Germany, Aug. 15, 1986, 3627712
Int. Cl.[5] A01N *37/10*
U.S. Cl. 514—544 11 Claims

1. Phenylacetic acid derivatives of general formula I



(I)

in which

R_1 is phenyl, optionally substituted by one or more of the same or different groups selected from halogen, hydroxy, C_{1-4}-alkyl, halo-C_{1-4}-alkyl, C_{3-6}-cycloalkyl, halo-C_{3-6}-cycloalkyl, C_{1-6}-alkoxy, (optionally substituted by halogen, C_{1-4}-alkoxy, C_{1-4}-alkylthio, C_{1-4}-aklylamino or di-C_{1-4}-4-alkylamino), C_{2-6}-alkynyloxy, halo-C_{2-6}-alkynyloxy, C_{2-6}-alkenyloxy, halo-C_{2-6}-alkenyloxy, C_{3-6}-cycloalkoxy, (optionally substituted by halogen , C_{3-6}-cycloalkylmethoxy, halo-C_{3-6}-cycloalkylmethoxy, C_{1-6}-alkylthio, (optionally substituted by halogen), C_{1-6}-alkylsulphinyl, C_{1-6}-alkylsulphony, phenoxy, halophenoxy, amino, C_{1-4}-alkylamino, di-C_{1-4}-alkylamino, cyano, nitro and the group OX, wherein X is the acyl group R_7CO or the sulphonyl group R_7SO_2, in which R_7 is C_{1-6}-alkyl, (optionally substituted by halogen, C_{1-4}-alkoxy, C_{1-4}-alkylamino or di-C_{1-4}-alkylamino), C_{3-6}-cycloalkyl, (optionally substituted by halogen), C_{2-6}-alkynyl, (optionally substituted by halogen), C_{2-6}-alkenyl or phenyl;

R_2, R_3 and R_4 are the same or different and are C_{1-4}-alkyl, optionally substituted by halogen, C_{2-6}-alkoxy and/or C_{1-4}-alkylthio;

R_5 and R_6 are the same or different and are hydrogen, C_{1-4}-alkyl or C_{3-6}-cycloalkyl, each optionally substituted by halogen, C_{1-4}-alkoxy, C_{1-4}-alkylthio, C_{1-4}-alkylamino or di-C_{1-4}-alkylamino; C_{2-6}-alkenyl or C_{2-6}-alkynyl, each optionally substituted by halogen, or C_{1-6}-alkyl, substituted by the group —OY, wherein Y is hydrogen, the acyl group R_7CO or the sulphonyl group R_7SO_2, in which R_7 has the meaning given above.

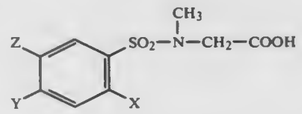
5,066,676

SULFONAMIDO DERIVATIVE INHIBITING THE ALDOSE REDUCTASE ENZYME SYSTEM AND PHARMACEUTICAL COMPOSITIONS CONTAINING THEM

Giulio Caccia, Viareggio, and Massimo Baldacci, Pisa, both of Italy, assignors to Laboratori Baldacci SpA, Pisa, Italy

Division of Ser. No. 245,165, Sep. 16, 1988, Pat. No. 4,927,849. This application Feb. 8, 1990, Ser. No. 476,762
Claims priority, application Italy, Sep. 16, 1987, 21930 A/87
Int. Cl.[5] A61K *31/19*; C07C *317/14*
U.S. Cl. 514—562 4 Claims

1. A sulfonamido derivative having the general formula:

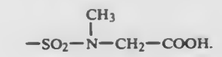


(I)

wherein

X and Y represent alkyl, alkoxy or halogen, and

Z represents the group



4. A method of inhibiting aldose reductase in a patient comprising administering to said patient an amount of said sulfonamido derivative according to claim 1 sufficient to effect said inhibition.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,677

NOVEL OXAMIC ACID COMPOUNDS AND PHARMACEUTICAL COMPOSITION FOR USE IN IMPROVEMENT OF DAMAGED CEREBRAL FUNCTIONS OF BRAIN

Yasuo Sato, Yokohama; Shinsuke Kato, Sendai; Takako Taniguchi; Kunio Atsumi, both of Yokohama; Mitsugu Hachisu, and Seiji Shibahara, both of Yokohama, all of Japan, assignors to Meiji Seika Kaisha, Ltd., Japan

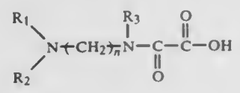
Filed Jul. 6, 1990, Ser. No. 489,358

Claims priority, application Japan, Mar. 8, 1989, 1-53687

Int. Cl.[5] A61K *31/195*

U.S. Cl. 514—563 3 Claims

1. A method for protecting against anoxic brain damages in a mammalian animal, which comprises parenterally or orally administering an oxamic acid compound having the formula (I)



(I)

wherein R_1 and R_2 are same or different from each other and are individually a linear or branched alkyl group of 1 to 4 carbon atoms and R_3 is a hydrogen atom or a linear or branched alkyl group of 1 to 4 carbon atoms and n is an integer of 2 to 4, or a pharmacologically acceptable salt thereof, to the animal in an amount sufficient to protect the animal against anoxic brain damage.

5,066,678

PHENETHANDAMINE DERIVATIVES AND PHARMACEUTICAL USE THEREOF

Ian F. Skidmore, Welwyn; Lawrence H. C. Lunts, Broxbourne; Harry Finch, Letchworth; Alan Naylor, Royston; Ian B. Campbell, Dane End; Charles Willbe, Bishop's Stortford; William L. Mitchell, London; Stephen Swanson, and Brian D. Judkins, both of Ware, all of England, assignors to Glaxo Group Limited, London, England

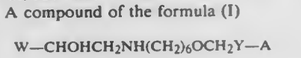
Filed Apr. 23, 1990, Ser. No. 512,874

Claims priority, application United Kingdom, Apr. 24, 1989, 8909273

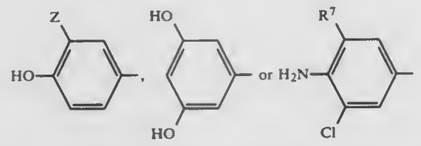
Int. Cl.[5] A61K *31/135;* C07C *215/60*

U.S. Cl. 514—597 28 Claims

1. A compound of the formula (I)



or a physiologically acceptable salt of solvate thereof; wherein: Y represents a direct bond or a C_{1-6}alkylene group; and A represents a C_{1-6}alkoxy group, with the proviso that the sum total of carbon atoms in Y and A is not less than 5; and W represents a group



wherein Z represents a group $R^3(CH_2)_q$ where q is 0, 1 or 2 and R^3 is a group R^4CONH—, $R^4NHCONH$—, $R^4R^5NSO_2NH$—, R_6SO_2NH— or —OH; R^4 and R^5 each represent a hydrogen atom or a C_{1-3}alkyl group; R^6 represents a C_{1-3}alkyl group; R^7 represents a chlorine atom or the group $-CF_3$.

17. A method of treating a disease associated with reversible airways obstruction which comprises administering to a patient an effective amount to relieve said disease of at least one compound of formula (I) as defined in claim 1 or a physiologically acceptable salt or solvate thereof.

5,066,679

PHENOLIC THIOALKYLAMIDES AS INHIBITORS OF 5-LIPOXYGENASE

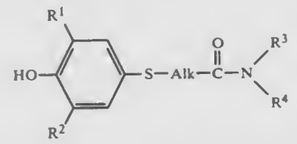
Richard A. Mueller, Glencoe, and Richard A. Partis, Evanston, both of Ill., assignors to G. D. Searle & Co., Chicago, Ill.

Continuation of Ser. No. 58,431, Jun. 5, 1987, Pat. No. 4,835,189. This application Mar. 9, 1989, Ser. No. 321,034

Int. Cl.[5] A61K *31/65;* C07C *323/22*

U.S. Cl. 514—618 5 Claims

1. A compound of the formula



or a pharmaceutically acceptable base addition salt thereof; wherein R^1 and R^2 are independently C_4–C_{10} tert-alkyl; Alk is ethylene;

R^3 is

a) benzoylalkyl or

b) phenylalkyl; and

R^4 is:

a) hydrogen or

b) C_1–C_6 alkyl.

5,066,680

SUBSTITUTED-ACETAMIDE COMPOUND AND A PROCESS FOR THE PREPARATION THEREOF

Youichi Shiokawa, Ibaraki; Kazuo Okumura; Kazuhiko Take, both of Osaka, and Kazunori Tsubaki, Ikeda, all of Japan, assignors to Fujisawa Pharmaceutical Co., Ltd., Osaka, Japan

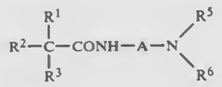
Filed Feb. 5, 1990, Ser. No. 475,301

Claims priority, application United Kingdom, Feb. 14, 1989, 8903253; Apr. 28, 1989, 8909796

Int. Cl.[5] A61K *31/165*

U.S. Cl. 514—622 9 Claims

1. A compound of the formula



wherein R^1 is selected from the group consisting of phenyl and phenyl substituted by 1 to 3 substituents independently selected from the group consisting of halo, lower alkyl and lower alkoxy;

R^2 is selected from the group consisting of phenyl; phenyl substituted by 1 to 3 substituents independently selected from the group consisting of halo, lower alkyl and lower alkoxy; and cyclo(lower)alkyl;

R^3 is hydroxy;

A is lower alkynylene;

R^5 is selected from the group consisting a lower alkyl; hydroxy(lower)alkyl; cyclo(lower)alkyl; phenyl; phenyl(lower)alkyl; and phenyl(lower)alkyl wherein the phenyl ring is substituted by 1 to 3 lower alkoxy substituents; and

R^6 is hydrogen or lower alkyl;

or a pharmaceutically acceptable salt thereof.

5,066,681

1-TRIFLUOROMETHYL-1-NITRO-2-ALKOXY-2-ARYL-ETHANES, THEIR PREPARATION AND ANTIMYCOTIC AGENTS CONTAINING THEM

Bernd Baasner; Gunther Beck; Helmut Heitzer, all of Leverkusen, and Klaus Scaller, Wuppertal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

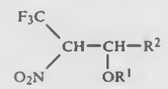
Filed Sep. 20, 1989, Ser. No. 409,909

Claims priority, application Fed. Rep. of Germany, Oct. 8, 1988, 3834326

Int. Cl.[5] C07C *205/31;* A01N *33/20*

U.S. Cl. 514—716 4 Claims

1. 1-Trifluoromethyl-1-nitro-2-alkoxy-2-arylethanes of the formula (I)

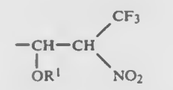


(I)

in which

R^1 represents a straight-chain or branched alkyl radical having 1 to 6 C-atoms and

R^2 represents an unsubstituted phenyl radical or phenyl radical substituted by 1 to 3 halogen atoms, 1 or 2 nitro groups, 1 or 2 alkoxy groups, 1 or 2 CHO groups or a radical of the type



in which

R^1 has the meaning indicated in formula (I), as substituents.

5,066,682

PROCESS FOR PREPARING AN ION EXCHANGE MEMBRANE

Makoto Miyazaki, Iwaki, and Tatsuo Hiyoshi, Yokohama, both of Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Jun. 5, 1990, Ser. No. 533,400

Claims priority, application Japan, Jun. 5, 1989, 1-140987

Int. Cl.[5] C08J *5/20*

U.S. Cl. 521—27 19 Claims

1. A process for preparing an ion exchange membrane comprising the steps of:

(1) providing a membrane of a fluorinated resin containing a pendant precursor ion exchange group represented by the formula:

$$-SO_2X$$

wherein X represents a halogen atom,

said membrane having an equivalent weight of from 600 to 1600 and a thickness of from 100 to 200 μm, and

(2) contacting said membrane having said precursor group with an aqueous solution at a temperature of from 60° to 130° C. for a period of from 20 minutes to 24 hours,

said aqueous solution containing at least one alkali metal or alkaline earth metal hydroxide and at least one water soluble organic compound selected from the group consisting of dimethyl sulfoxide, methanol, ethanol and propanol,

the proportions of the alkali metal or alkaline earth metal hydroxide and the water soluble organic compound in said aqueous solution being, respectively, in the range of from 15 to 50% by weight and in the range of from 0.1 to 30% by weight, based on the weight of said aqueous solution,

thereby hydrolyzing said precursor group of formula —SO_2X to a sulfonate group while causing a membrane volume increase of from 10 to 55%,

said membrane volume increase (ΔV) being defined by the following formula:

$$\Delta V = \frac{b - a}{a} \times 100\,(\%)$$

wherein a represents the volume at 25° C. of the membrane having the precursor group before hydrolysis, and b represents the volume of the membrane after hydrolysis as measured in said aqueous solution at 25° C.

5,066,683

MICROPOROUS WATERPROOF AND MOISTURE VAPOR PERMEABLE STRUCTURES, PROCESSES OF MANUFACTURE AND USEFUL ARTICLES THEREOF

Joseph E. Dillon, and Mark E. Dillon, both of Huntington Valley, Pa., assignors to Tetratec Corporation, Feasterville, Pa.

Continuation-in-part of Ser. No. 389, Jan. 5, 1987, Pat. No. 4,945,125. This application May 1, 1990, Ser. No. 518,435

Int. Cl.[5] C08J *9/40*

U.S. Cl. 521—54 2 Claims

1. A microporous film consisting essentially of a matrix of microporous biaxially fibrillated semi-interpenetrating polymer networks of polytetrafluoroethylene and silicone, said matrix having an internal microstructure consisting of nodes interconnected by fibrils, wherein said internal microstructure is coated with a sufficient amount of a hydrophobic material so as to increase resistance to surfactant activity and wherein the hydrophobic material is selected from the group consisting of cured silicone compositions, non-cured silicone compositions and compositions resulting from the curing of a mixture of a curable silicone composition and a non-curable silicone composition.

5,066,684

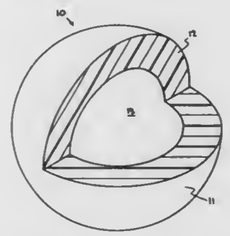
LOW DENSITY MICROCELLULAR FOAMS

James D. LeMay, Castro Valley, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 8, 1990, Ser. No. 535,007

Int. Cl.[5] C08J *9/08, 9/28*

U.S. Cl. 521—64 13 Claims



1. A process for preparing low density foam material which comprises:

(a) mixing a multifunctional epoxy oligomer resin with a non-reactive diluent to form a resin-diluent mixture;

(b) forming a diluent containing cross-linked epoxy gel from said resin-diluent mixture;

(c) replacing said diluent with a solvent therefore;

(d) replacing said solvent with liquid carbon dioxide; and

(e) vaporizing off said liquid carbon dioxide under supercritical conditions, whereby a foam having a density in the range of 35–150 mg/cc and cell diameters less than about 1 μm is produced.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,685

FIBRE-REINFORCED RIGID POLYURETHANE FOAM AND POLYOL COMPONENT THEREFOR

Pavel Hanak, Thuit Signol, France; Philippe Motte, Media, Pa., and Patrice Gosset, Verneuil en Halatte, France, assignors to ARCO Chemical Technology, Inc., Wilmington, Del.

Filed Feb. 22, 1990, Ser. No. 483,605

Claims priority, application United Kingdom, Jul. 3, 1989, 8905206

Int. Cl.[5] C08G *18/14*

U.S. Cl. 521—163 30 Claims

1. A polyol composition suitable for use in the production of fiber reinforced rigid polyurethane foams, said composition comprising (a) at least one amino polyol obtainable by reacting an alkylene oxide with an initiator which has a functionality greater than 2, at least one aromatic ring and at least one amino nitrogen atom and (b) at least 3% by weight, based on the total weight of (a) plus (b), of an adduct of a tertiary amine and an alkylene carbonate.

5,066,686

DEODORIZING ODOROUS POLYOLEFINS WITH LOW CONCENTRATIONS OF INORGANIC OXIDIZING AGENTS

Lawrence M. Fodor, and Kenneth W. Willcox, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 16, 1990, Ser. No. 552,956

Int. Cl.[5] A61L *2/16;* C08K *3/38, 3/22, 3/16*

U.S. Cl. 523—102 16 Claims

1. A process for deodorizing odorous aliphatic polyolefins which comprises:

(a) contacting about 0.0001 weight percent to about 0.1 weight percent of inorganic oxidizing agent selected from the group consisting of ammonium perchlorate, potassium perchlorate, sodium perchlorate, sodium chlorate, potassium chlorate, sodium peroxide, sodium peroxyborate, hydrogen peroxide, and mixtures thereof, where the weight percent of inorganic oxidizing agent is based upon the weight of the aliphatic polyolefin; with

(b) said odorous aliphatic polyolefin;

to reduce the odor intensity and neutralize the odor quality of said aliphatic polyolefin.

5,066,687

POWDERED AZO PIGMENTS WITH IMPROVED RHEOLOGICAL PROPERTIES, PROCESS FOR THEIR PREPARATION AND THEIR USE

Wolfgang Rieper, Frankfurt am Main, and Otmar Hafner, Glashütten/Taunus, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 380,727, Jul. 13, 1989, abandoned, which is a continuation of Ser. No. 154,456, Feb. 8, 1988, abandoned, which is a continuation of Ser. No. 902,458, Aug. 11, 1986, abandoned. This application May 2, 1990, Ser. No. 526,692

Claims priority, application Fed. Rep. of Germany, Dec. 18, 1984, 3446088; Dec. 18, 1984, 3448044; European Pat. Off., Dec. 12, 1985, PCT/EP85/00699

Int. Cl.[5] C08K *9/04;* B32B *5/16*

U.S. Cl. 523—205 12 Claims

1. A powdered azo pigment with improved rheological properties for use in paint system on an alkyd/melamine, acrylic/melamine, acrylate/isocyanate or polyester/isocyanate basis both of the conventional nature and of a modern nature of the "high solids type", comprising coated azo pigment,

the surface of the base azo pigment having been coated with 1 to 20% by weight of an active substance consisting of a paint additive of the polyurethane series, said paint additive prepared by reacting polyisocyanurates which carry free isocyanate groups, said groups being provided by toluylene diisocyanates, hexamethylene diisocyanate or mixtures thereof

with each of the following reactants (1) aliphatic mono- or polyhydroxycarboxylic acid C_1–C_{20}-alkyl esters (degree of polycondensation 2–50) (2) polyethylene glycols having average molecular weight of 500–1500 and (3) 5- or 6-membered, saturated or unsaturated heterocyclic compounds which contain at least one nitrogen atom in the ring and contain reactive amino or hydroxy-C_1–C_6- alkyl groups, in such a quantity that the reactants react with said free isocyanate groups until isocyanate groups are no longer detectable,

the azo pigment is coated by mixing in the form of a dispersion of the base azo pigment in water or in an organic solvent or in a mixture of water and an organic solvent, while stirring, with a solution of the said active substance

in an organic solvent which is insoluble or not infinitely soluble in water, or

in an organic solvent which is at least partially water-miscible, or

in an aliphatic carboxylic acid of 1 to 4 carbon atoms,

and subsequently distilling off any organic solvent which may be present except for said aliphatic carboxylic acid of 1–4 carbon atoms, and the water, if present, remains.

5,066,688

CATHODIC ELECTRODEPOSITION COATINGS CONTAINING A REACTIVE ADDITIVE

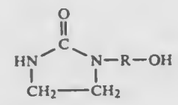
Ding Y. Chung, Rochester Hills; Tapan K. Debroy, Shelby Township, Macomb County, and Sioe-Heng A. Tjoe, Troy, all of Mich., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Apr. 10, 1991, Ser. No. 683,051

Int. Cl.[5] C08G *59/40;* C09D *5/44*

U.S. Cl. 523—415 10 Claims

1. In a cathodic electrocoating composition, comprising an aqueous carrier having dispersed therein a film forming binder comprising an epoxy-amine adduct and a blocked polyisocyanate crosslinking agent; wherein the improvement comprises a reactive additive of the formula



wherein R is an aliphatic hydrocarbon group.

5,066,689

AQUEOUS COATING MATERIAL METHOD FOR ITS PREPARATION AND ITS USE FOR ELECTROPHORETIC COATING

Hans-Peter Patzschke, and Armin Goebel, both of Wuppertal, Fed. Rep. of Germany, assignors to Herberts GmbH, Wuppertal, Fed. Rep. of Germany

Continuation of Ser. No. 180,482, Apr. 12, 1988, abandoned. This application Aug. 28, 1990, Ser. No. 574,544

Claims priority, application Fed. Rep. of Germany, Apr. 15, 1987, 3712805

Int. Cl.[5] C08L *63/00;* C09D *5/44;* C25D *13/00*

U.S. Cl. 523—415 9 Claims

1. An aqueous coating material which contains an organic synthetic resin binding agent and which can be diluted with water after protonization with acids, comprising a synthetic resin component and a crosslinking agent, wherein the organic synthetic resin binding agent comprises

(i) from about 40 to about 95% by weight of an amino epoxide synthetic resin containing at least one primary amino moiety and at least one urea moiety per molecule, said amino epoxide resin being the product of

(a) the defunctionalization of a polyepoxide resin by reaction with monofunctional alkyl or alkylaryl compounds of the formula R—X—H, in which X is —O—, —S—, —NR—, —CONH—, or —COO—, and R is a linear, branched, cyclic, saturated or unsaturated C_{2-20} alkyl moiety which optionally contains ether bonds in the chain or in the ring, and/or is substituted by hydroxyl groups and/or C_{1-4} alkoxy moieties, or said R is an aryl moiety which is substituted by from one to three of said C_{2-20} alkyl moiety in an amount whereby 0.5 to 1.2 epoxide groups per molecule remain free;

(b) followed by a reaction with excess polyamine containing no other functional groups than optional secondary amino groups which are reactive with epoxy group;

(c) then a reaction of from about 40% to about 90% by weight of the modified epoxy resin/polyamine adduct obtained in step (b), with an aldehyde or ketone in such an amount that the ratio of primary amino groups to aldehydes or ketones if from about 1:1.1 to about 1:5, to form an imine,

(d) then a reaction of said imine with from about 10 to about 60% by weight of polyisocyanates, wherein the weight percentages of said imine and of the polyisocyanates add up to 100%; and

(e) then hydrolysis of the aldimine or ketimine groups of the imine by additional water;

(ii) said synthetic resin having at least one primary amino and one secondary amino group and from about two to about six hydroxyl groups in the molecule;

(iii) said crosslinking agent is from about 5% to about 60% by weight of a compound reactive with amino and/or hydroxyl groups.

5,066,690

COATING RESIN COMPOSITION BASED ON EPOXY POLYOL ESTERS OF UNSATURATED FATTY ACIDS

Roger A. Schmidt, Chanhassen, and Bryan R. Swenson, Monticello, both of Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.

Continuation of Ser. No. 324,193, Mar. 16, 1989, abandoned. This application Jul. 3, 1990, Ser. No. 547,372

Int. Cl.[5] C09D *3/58;* C08L *63/00*

U.S. Cl. 523—423 14 Claims

1. A polymeric vehicle which is suitable for neutralization with a base to provide a water dispersible polymeric vehicle for a formulated coating, the polymeric vehicle comprising:

a reaction product of from about 25 to about 90 parts by weight based upon the weight of solids of the polymeric vehicle of an epoxy polyol ester resin and from about 10 to about 75 parts by weight based upon the weight of solids of the polymeric vehicle of a blend of two or more unsaturated monomers each monomer having polymerizable double bonds;

the epoxy polyol ester resin comprising a reaction product of from about 10 to about 65 parts by weight based upon the weight of solids of the epoxy polyol ester resin of an epoxy resin having an epoxy functionality of from about 1.8 to 2.5 and an average epoxy equivalent weight of from about 150 to about 800, from about 1 to about 30 parts by weight based upon the weight of solids of the epoxy polyol ester resin of a polyol having at least three hydroxy groups and a molecular weight of at least about 120, and from about 25 to about 85 parts by weight based upon the weight of solids of the epoxy polyol ester resin of an unsaturated partially conjugated fatty acid having from 16 to 20 carbon atoms having double bonds of which from about 20 to about 50 percent are conjugated, the epoxy resin, the polyol and the partially conjugated fatty acid ester being reacted together in a reaction mixture which includes all three reactants; and

the blend of unsaturated monomers comprising an unsaturated monobasic acid and at least a second monomer, the unsaturated monobasic acid monomer being in effective amount to bring the acid value of the polymeric vehicle in the range of from about 15 to about 100.

5,066,691

ADHESIVE COMPOSITION FOR METAL-CLAD LAMINATES

Toshihisa Kumakura; Ken Nanaumi; Ryoichi Ikezawa, and Hideki Eriguchi, all of Shimodate, Japan, assignors to Hitachi Chemical Co., Ltd., Tokyo, Japan

Filed Nov. 29, 1989, Ser. No. 442,637

Claims priority, application Japan, Dec. 5, 1988, 63-307617

Int. Cl.[5] C08K *3/22;* C08L *29/04*

U.S. Cl. 523—438 4 Claims

2. An adhesive composition for metal-clad laminates which consists essentially of:

(a) 100 parts by weight of a polyvinylbutyral having an average polymerization degree of from 500 to 3,000 and a degree of butyralization of at least 60 mol %,

(b) from 10 to 200 parts by weight of an epoxidized polybutadiene per 100 parts by weight of the polyvinylbutyral, the epoxidized polybutadiene having a number average molecular weight of from 1,000 to 10,000 and an epoxy equivalent weight of from 200 to 2,000,

(c) from 1 to 10 parts by weight of a hardener for the epoxidized polybutadiene per 100 parts by weight of the epoxidized polybutadiene, and

(d) from 10 to 200 parts by weight of aluminum hydroxide having an average particle size of from 0.1 to 10 μm as a filler.

5,066,692

ELECTROMAGNETIC WAVE SHIELDING COMPOSITION COMPRISING EPOXY RESIN AND COPPER PARTICLES

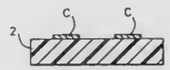
Yamahiro Isawa; Isao Morooka, both of Hachioji, and Yoichi Oba, Higasiyamato, all of Japan, assignors to Asahi Chemical Research Laboratory Co., Ltd., Tokyo, Japan

Division of Ser. No. 313,083, Feb. 21, 1989, Pat. No. 4,970,354. This application Jun. 21, 1990, Ser. No. 541,826

Claims priority, application Japan, Feb. 21, 1988, 63-37798

Int. Cl.[5] C08K *5/00;* C08L *63/00;* G21F *1/10*

U.S. Cl. 523—458 2 Claims



1. A coating material for shielding an electromagnetic waves having contained therein 100% by weight of copper particles and a binder of epoxy resin in an amount not less than 12% and not more than 25% by weight of the copper particles so as to provide the coating material with substantial capacity for adherence to base material and for ease of plating deposition.

5,066,693

MOLDING COMPOSITIONS OF RESOLE PHENOLIC RESIN AND EPOXY RESIN

Manoj K. Gupta, Southfield, Mich., assignor to Occidental Chemical Corporation, Niagara Falls, N.Y.

Division of Ser. No. 244,192, Sep. 14, 1988, Pat. No. 5,015,529, which is a continuation-in-part of Ser. No. 946,350, Dec. 24, 1986, abandoned. This application Feb. 12, 1990, Ser. No. 478,894

Int. Cl.[5] C08L *61/10;* C08K *03/34, 03/40*

U.S. Cl. 523—466 12 Claims

1. A molding composition comprising in percent by weight based on the total composition,

1) about 20 to about 60 percent resole phenolic resin,

2) about 0.1 to about 15 percent of a curing agent selected

VOL 1132 ISS 3 NO 19 1991 UMI

from the group consisting of alkaline earth metal oxides, alkaline earth metal hydroxides and mixtures thereof.

3) about 5 to about 60 percent of a filler other than fiber reinforcement which is chemically different from said curing agent, and

4) an epoxy resin, wherein the epoxy resin is present in a proportion of about 5 to about 25 weight percent of epoxy resin based on the total weight of resole phenolic resin and epoxy resin.

5,066,694

NOVEL PRESSURE SENSITIVE ADHESIVE COMPOSITIONS (C-2511)

Pawan K. Agarwal, Bridgewater, N.J., and Thomas Pugel, Riegelsville, Pa., assignors to Exxon Research and Engineering Company, Florham Park, N.J.

Continuation-in-part of Ser. No. 491,403, Mar. 9, 1990, abandoned, which is a continuation of Ser. No. 287,421, Dec. 21, 1988, abandoned. This application Sep. 27, 1990, Ser. No. 589,296

Int. Cl.[5] C08L *95/00;* **C08K** *5/09*

U.S. Cl. 524—60 **5 Claims**

1. A pressure sensitive adhesive emulsion system which comprises:

(a) an emulsion of a metal or amine neutralized sulfonated copolymer of a conjugated diene of from 4 to 12 carbon atoms and styrene sulfonate, said metal or amine neutralized sulfonated copolymer having a out 5 to about 250 meq. of neutralized sulfonated groups per 100 grams of said neutralized sulfonated copolymer, wherein aid neutralized sulfonated copolymer has at least 80% by weight of said conjugated diene;

(b) about 1 to about 75 parts by weight (dry basis) of an emulsion of a preferential plasticizer per 100 parts by weight of the neutralized sulfonated copolymer, the plasticizer being selected from the group consisting of a fatty acid or a metal salt of a fatty acid, wherein said fatty acid has about 5 to about 30 carbon atoms and the metal cation is selected from the group consisting of Groups IA, IIA, IB and IIB of the Periodic Table of the Elements; and

(c) about 25 to about 300 parts by weight (dry basis) of an emulsion of a hydrocarbon tackifying resin based on a petroleum or coal tar distillate over 100 parts by weight of said neutralized sulfonated copolymer.

5,066,695

HIGH-MOLECULAR WEIGHT ORGANIC MATERIAL CONTAINING A METAL COMPLEX PIGMENT BASAED ON HYDRAZONE

Georg Cseh, Posat; Paul Llenhard, Frenkendorf, and Walter Wiedemann, Riehen, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

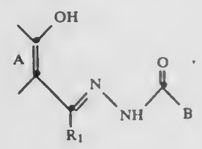
Filed Jun. 29, 1989, Ser. No. 374,321

Claims priority, application Switzerland, Jul. 1, 1988, 2514/88

Int. Cl.[5] C08K *5/34*

U.S. Cl. 524—87 **9 Claims**

1. High-molecular weight organic material containing at least one metal complex of a ligand of formula I:



(I)

wherein A is a carbocyclic aromatic or heterocyclic aromatic radical, B is a carbocyclic aromatic radical or a heterocyclic aromatic radical containing at least one N atom, it being necessary for at least one of the radicals A and B to be heterocyclic, and R_1 is $—C_1-C_{18}$-alkyl, a carbocyclic aromatic radical or a heterocyclic aromatic radical containing at least one N atom, and the metal is a transition metal cation carrying a double positive charge selected from Ni^{2+}, Cu^{2+}, Co^{2+}, Zn^{2+}, Mn^{2+}, Fe^{2+}, Cd^{2+} or Pt^{2+} or the radical VO^{2+}.

5,066,696

POLYMERS STABILIZED AGAINST LIGHT AND HEAT DEGRADATION

Newman M. Bortnick, Oreland; Robert A. Wanat, Langhorne, and Darnel Degraff, Bensalem, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Feb. 12, 1990, Ser. No. 478,807

Int. Cl.[5] C08K *5/0492*

U.S. Cl. 524—91 **38 Claims**

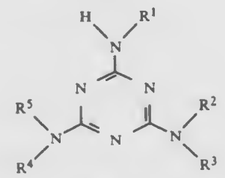
1. A polymer composition stabilized against heat and/or light selected from the group consisting of a polymers of:

a) one or more (meth)acrylic esters and acids;

b) a vinyl halide; or

c) blends of the above polymers;

and an effective stabilizing amount of a tertiary-alkyl-substituted melamine having the formula



where R^1 is a C_4-C_{18} tertiary alkyl and R^2-R^5 are selected from the same or different C_1-C_{18} straight- or branched-chain alkyls and hydrogen.

5,066,697

POLYBENZIMIDAZOLE SOLUTIONS

Robert B. Sandor, Charlotte, and Theodore S. Thornburg, Harrisburg, both of N.C., assignors to Hoechst Celanese Corporation, Charlotte, N.C.

Filed Jun. 8, 1990, Ser. No. 537,469

Int. Cl.[5] C08K *5/04*

U.S. Cl. 524—233 **9 Claims**

1. A solution of polybenzimidazole, the solution being resistant to phase separations, comprising:

a polybenzimidazole;

a solvent capable of dissolving said polybenzimidazole; and

a minor amount of ammonium acetate.

5,066,698

COATING COMPOSITION OF AN ACRYLIC POLYMER, A CROSSLINKING AGENT AND A SILANE OLIGOMER

Isidor Hazan, Clementon, N.J., and John D. Nordstrom, Detroit, Mich., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed May 10, 1990, Ser. No. 521,556

Int. Cl.[5] C08K *5/54*

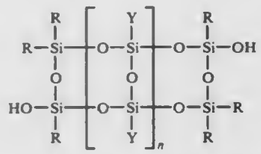
U.S. Cl. 524—269 **12 Claims**

1. A high solids coating composition comprising about 40–80% by weight of a binder and correspondingly about 20–60% by of a liquid organic carrier; wherein the binder consist essentially of about:

a. 15–70% by weight, based on the weight of the binder, of an acrylic polymer being in solution consisting essentially of polymerized monomers of ethylenically unsaturated esters of acrylic acid or methacrylic acid and a hydroxy alkyl acrylate or methacrylic and the polymer has a hydroxyl no. of about 50–200 and a weight average molecular weight of about 4,000–20,000;

b. 5–25% by weight, based on the weight of the polymer, of a dispersed polymer of polymerized monomers comprising stabilizer resin segment that is soluble in the organic carrier and dispersed resin segment that is relatively insoluble in the organic carrier;

c. 10–40% by weight, based on the weight of the binder, of a siloxane oligomer having the following structural formula:



where n is 0–10, R is an alkyl group having 1–6 carbon atoms or an aryl group and Y is either R or —OH and the oligomer has a hydroxyl content of about 3–10% by weight and a weight average molecular weight of about 500–5000; and

d. 15–40% by weight, based on the weight of the binder, of an alkylated melamine formaldehyde resin.

5,066,699

STORAGE STABLE HEAT CURABLE ORGANOSILOXANE COMPOSITIONS CONTAINING A MICROENCAPSULATED CATALYST AND METHOD FOR PREPARING SAID CATALYST

Chi-Long Lee, and Ming-Hsiung Yeh, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Aug. 31, 1990, Ser. No. 575,780

Int. Cl.[5] C08K *5/05*

U.S. Cl. 524—379 **11 Claims**

1. In an improved one-part, storage stable, heat curable organosiloxane composition comprising

A. a liquid or gum type curable polyorganosiloxane containing at least two of a first reactive group;

B. a curing agent for said composition selected from organosilicon compounds containing at least two of a second reactive group that reacts with said first reactive group to yield a cured material, where

said first reactive group is a silicon-bonded hydroxyl group or silicon-bonded terminally unsaturated alkenyl radical,

said second reactive group is silicon-bonded hydrogen when said first reactive group is silicon-bonded hydroxyl or silicon-bonded alkenyl, or said second reactive group is silicon-bonded alkoxy only when said first reactive group is silicon-bonded hydroxyl,

the concentration of said curing agent relative to said curable polyorganosiloxane (A) is sufficient to cure said composition in the presence of a curing catalyst, and

the sum of the average number of said first reactive groups per molecule of said polyorganosiloxane (A) and the average number of said second reactive groups per molecule of said curing agent (B) is greater than 4,

C. an amount of a liquid or solubilized curing catalyst sufficient to promote curing of said composition, where said catalyst is microencapsulated within a matrix or layer of a solid organic polymer derived from an ethylenically unsaturated organic compound,

the improvement comprising preparing said microencapsulated curing catalyst by

(1) forming a solution comprising

(a) a precursor for said organic polymer selected from that polymerize in the presence of ultraviolet light, where said precursor is a hydroxyl-containing ethylenically unsaturated organic compound selected from the group consisting of vinyl esters of carboxylic acids, hydroxyl-containing ethylenically unsaturated carboxylic acids, esters of said ethylenically unsaturated carboxylic acids, and esters derived from an ethylenically unsaturated carboxylic acid and an alcohol containing at least two hydroxyl groups per molecule,

(b) a photoinitiator in an amount sufficient to initiate polymerization of said precursor in the presence of ultraviolet light to form said organic polymer,

(c) said curing catalyst in the form of a solubilized coordination complex of a metal with either (i) an ethylenically or acetylenically unsaturated organic compound or (ii) the residue remaining following removal of the hydrogen atom from the carboxyl group of a carboxylic acid, said metal being selected from the group consisting of platinum group metals and titanium, and

(d) a solvent selected from the group consisting of mono- and polyhydric alcohol

(2) irradiating said solution with an amount of ultraviolet light sufficient to polymerize said precursor to form the organic polymer portion of said microencapsulated catalyst, where said microencapsulated catalyst is formed as a dispersion of solid particles in said solution, a majority of said particles are less than one micron in diameter and substantially none exceed three microns in diameter.

5,066,700

PLASTOELASTOMERIC POLYOLEFINIC COMPOSITIONS AND PROCESS FOR PREPARING THEM ACCORDING TO DYNAMIC VULCANIZABLE METHODS

Vittorio Braga; Michele Manica, both of Ferrara; Emilio Martini, Pontecchio Marconi, and Federico Milani, Maria Maddalena, all of Italy, assignors to Ausimont S.p.A., Milan, Italy

Division of Ser. No. 406,971, Sep. 13, 1989, Pat. No. 4,963,612. This application May 29, 1990, Ser. No. 529,488

Claims priority, application Italy, Sep. 13, 1988, 21906 A/88

Int. Cl.[5] C08C *5/05*

U.S. Cl. 524—380 **5 Claims**

1. A process for preparing the plastoelastomeric polyolefinic compositions comprising an intimate mixture of the following components, in the indicated percentage by weight:

A) 10–50% of non cross-linked polypropylene,

B) 2–10% of an ethylene/propylene elastomeric non cross-linked copolymer, or of an ethylene/propylene/diene elastomeric non cross-linked terpolymer,

C) 30–45% of a polymeric product insoluble in xylene at 135° C., comprising polypropylene and ethylene/propylene copolymer or ethylene/propylene/diene termpolymer, and

D) 5–58% of an extender oil, which comprises the following consecutive steps:

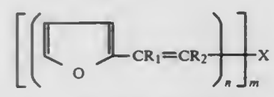
1) preparing an intimate mixture comprising, in % by weight of the whole mixture:

(a) from 20 to 80% of polypropylene or of a copolymer of propylene with up to 10% by weight of ethylene;

(b) from 80 to 20% of an ethylene/propylene elastomeric copolymer or of an ethylene/propylene/diene elastomeric terpolymer;

(c) from 0.1 to 10%, referred to the elastomeric copolymer or terpolymer, of an organic peroxide as a vulcanizing agent;

(d) from 5 to 60% referred to the organic peroxide, of at least one compound selected from the group consisting of the following formulae:



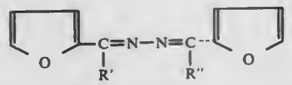
(I)

where: X is a radical of formula: —CHO, —COOH, $—CONH_2$, —CN, $—NO_2$, —COOCO—, —COOR, —CO—, $—CH_2COCH_2COOR$, $CH(COOR)_2$, where R

VOL 1132 ISS 3 NO 19 1991 UMI

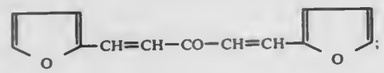
is an aryl containing 6 to 8 carbon atoms or an alkyl containing 1 to 4 carbon atoms, R_1, and R_2, which are equal to, or different from each other, can be H or C_1–C_3 alkyl, n=1 or 2, and m=a number equal to the free valence of X;

(II)

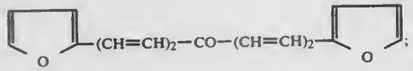


where R' and R", which are equal to or different from each other, may be hydrogen, or alkyl radicals containing 1 to 4 carbon atoms, or cycloalkyl radicals containing from 5 to 8 carbon atoms;

(III)

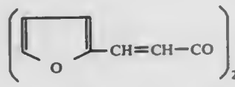


(IV)



; and

(V)



CH_2; and

(e) an amount from 0 to lower than 4%, based on the total polymeric material, of polyethylene;

2) heating the mixture during mixing, or mastication, or while the mixture is subjected to other shearing stresses to a temperature ranging from 160° C. to 240° C. such that melting of polypropylene and cross-linking of about 50–85% by weight of the originally present elastomeric copolymer or terpolymer occurs; and

3) adding to the resulting product, by means of intimate mixing, an extender oil in an amount ranging from 6 to 100 parts by weight of the product.

5,066,701

STABILIZED POLYKETONE POLYMERS

Eric R. George, and Lynn H. Slaugh, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Oct. 31, 1990, Ser. No. 610,286
Int. Cl.[5] C08K *3/32, 3/10*
U.S. Cl. 524—417 **22 Claims**

1. A stabilized polymer composition comprising:

a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon; and

a mixture of a hydroxyapatite and a zinc aluminate, wherein the mixture is present in the composition in a stabilizing amount.

5,066,702

RUBBER COMPOSITION FOR TIRE TREADS

Hirofumi Hayashi, Ibaraki, and Yo Matsumoto, Itami, both of Japan, assignors to Toyo Tire & Rubber Company, Limited, Osaka, Japan

Filed Apr. 12, 1990, Ser. No. 508,196
Claims priority, application Japan, Apr. 13, 1989, 1-93881
Int. Cl.[5] B60C *11/14;* C08K *3/20, 3/26;* C08L *9/00*
U.S. Cl. 524—426 **4 Claims**

1. A tire tread rubber composition comprising a diene rubber hand filler, and at least one of silica and carbon black, the composition being characterized in that the amount of extract (E), as defined below, satisfies the equation (1) and that at least one hard filler is selected from the group consisting of alumina, granite, quartz and limestone, said hard filler being 0.01 to 5 mm in mean particle size and at least 100 kg/mm² in Knoop hardness, said hard filler being used in an amount of 3 to 80 parts by weight per 100 parts by weight of the rubber component resulting from the subjection to extraction with acetone/-chloroform of the vulcanized composition, wherein said equation is

$$E<0.4\,(A-38) \qquad (1)$$

and wherein:

E represents the amount in parts by weight of the acetone/-chloroform extract per 100 parts by weight of the rubber component of the vulcanized composition which has been subjected to the extraction, and

A represents the sum of the amount in parts by weight of carbon black and one-half of the amount in parts by weight of silica per 100 parts by weight of the rubber component, as determined for the vulcanized composition which has been subjected to the extraction, wherein at least one of silica and carbon black is added in an amount of 30 to 80 parts by weight per 100 parts by weight of the rubber component prior to vulcanization.

5,066,703

TRANSPARENT COATING FOR RUBBER ARTICLES

George M. Hart, Adrian, and Mark E. Hayford, Blissfield, both of Mich., assignors to Wacker Silicones Corporation, Adrian, Mich.

Continuation of Ser. No. 285,174, Dec. 16, 1988, abandoned, which is a continuation-in-part of Ser. No. 245,486, Sep. 19, 1988, abandoned. This application Apr. 30, 1990, Ser. No. 515,534
Int. Cl.[5] C08K *3/10*
U.S. Cl. 524—437 **13 Claims**

1. A composition for applying to an outer surface of a rubber tire prior to vulcanization, which when vulcanized forms a transparent coating thereon comprising (A) from 1 to 80 percent by weight based on the weight of the composition of a preformed latex selected from the class consisting of natural rubber and synthetic polymers obtained from the in situ polymerization of emulsified monomers, said synthetic polymers are selected from the class consisting of homopolymers of the conjugated diense and monomers having monoethylenic unsaturation selected from the class consisting of sytrene, substituted sytrenes, and vinyl pyridine, (B) from 0.01 to 20 percent by weight of the composition of an emulsifying agent selected from the class consisting of anionic and nonionic emulsifying agents, (C) from 2 to 80 percent by weight of the composition of a filler consisting of an inorganic fluoro-containing compound having a refractive index in the range of from 1.32 to 1.49, which is selected from the group consisting of an alkali metal fluoro compound, an alkaline earth metal fluoro compound, aluminum fluoride and sodium fluoaluminate, (D) from 0.01 to 10 percent by weight based on the weight of the composition of a thickening agent, selected from the class consisting of synthetic gums, water soluble polysaccharides, polyacrylic acids and mixtures thereof and (G) from 20 to 85 percent by weight of water based on the weight of the composition.

5,066,704

FILLED THERMOPLASTS WITH LOW SHRINKAGE ANISOTROPY

Wolfgang Wehnert, Krefeld; Klaus Reinking, Wermelskirchen, both of Fed. Rep. of Germany; Peter Bier, Coraopolis, Pa.; Klaus Kraft, and Erhard Tresper, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Cootinuation of Ser. No. 303,154, Jan. 27, 1989, abandoned. This application May 21, 1990, Ser. No. 526,388
Claims priority, application Fed. Rep. of Germany, Feb. 5, 1988, 3803475
Int. Cl.[5] C08F *2/16*
U.S. Cl. 524—449 **13 Claims**

1. A mixture comprising:

A) from 20 to 80% by weight of polyarylene sulphide,

B) from 10 to 60% weight of glass fibers and

C) from 60 to 10% by weight, of commercial mica MICRO MICA W1® which is Norwegian talc containing about 91% by weight of particles smaller than 10 μm, the percentages by weight being based on the sum of the weight of components A+B+C.

5,066,705

AMBIENT CURE PROTECTIVE COATINGS FOR PLASTIC SUBSTRATES

Frank A. Wickert, Olmsted Township, Cuyahoga County, Ohio, assignor to The Glidden Company, Cleveland, Ohio

Filed Jan. 17, 1990, Ser. No. 466,679
Int. Cl.[5] C08G *18/72*
U.S. Cl. 524—457 **12 Claims**

1. An aqueous dispersed, thermosetting, protective coating composition for application to a plastic substrate, the coating composition containing a thermosetting polymeric binder comprising on a volume solids basis:

between 50% and 80% an emulsion copolymer comprising copolymerized ethylenically unsaturated monomers including a carboxyl functional monomer, said emulsion copolymer having an Acid No. between 20 and 100, and between 20% and 50% of a water-dispersed carboxyl functional polyurethane having an Acid No. between 20 and 100; and

from 2% to 10% volume solids of polycarbodiimide based on the volume solids of said emulsion copolymer and said polyurethane.

5,066,706

PROCESS FOR PREPARING A LATEX BASED ON POLYPYRROLE AND USE OF THIS LATEX TO FORM A CONDUCTING FILM

Elise Destryker, Sint-Pieters-Leeuw, and Etienne Hannecart, Tervueren, both of Belgium, assignors to Solvay & Cie (Société Anonyme), Brussels, Belgium

Filed Mar. 6, 1989, Ser. No. 319,314
Claims priority, application France, Mar. 21, 1988, 88 03778
Int. Cl.[5] C08F *2/16*
U.S. Cl. 524—459 **16 Claims**

1. A process for preparing a latex based on pyrrole or a pyrrole derivative, the latex forming an electrically conductive film upon drying, comprising the following operations:

1) in a first stage, water a ferric salt, a polyvinyl alcohol or derivative of this alcohol and a codispersant agent are introduced into a reactor, to form a reaction medium, wherein said codispersant is an organic compound capable of giving rise to anions selected from the group consisting of alkyl sulphates, aryl sulphates, alkyl sulphonates and aryl sulphonates, and

2) in a second stage, pyrrole or the pyrrole derivative is added to the reaction medium in the presence of water.

5,066,707

COMPOSITION

Linda H. Nelson, Evansville, Ind., assignor to General Electric Company, Mt. Vernon, Ind.

Filed Dec. 19, 1989, Ser. No. 452,480
Int. Cl.[5] C08K *5/01*
U.S. Cl. 524—490 **7 Claims**

1. A composition comprising a resin of

(a) about 10 to 90 weight percent of a mixture of acrylonitrile or methylmethacrylate and styrene or alpha-methyl styrene wherein the acrylonitrile is from about 10 to 50 weight percent of the reactant mixture and the styrene and/or alpha-methyl styrene is from about 50 to 90 weight percent of the reactant mixture and

(b) about 90 to 10 weight percent of polybutadiene or polyisoprene wherein up to 50 weight of the polybutadiene or polyisoprene is replaceable by a styrene or alpha-methylstyrene,

in admixture with a mold release effective amount of a fluid hydrogenated oligomer of an alpha olefin with the proviso that polyvinylchoride is absent from the composition.

5,066,708

NOVEL DAMPING COMPOSITIONS

Robert D. Koller, Sr., Valbonne, France, and Carl P. Hemenway, Glenside, Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 336,187, Apr. 11, 1989, Pat. No. 5,008,324. This application Jan. 10, 1991, Ser. No. 639,622
Int. Cl.[5] C08K *3/04;* C08L *51/00;* F16F *1/36, 7/12*
U.S. Cl. 524—504 **4 Claims**

1. A process for damping comprising:

a) preparing in emulsion a multi-phase, thermoplastic elastomeric polymer having at least two polymeric phases comprising:

i) an initial linear or lightly crosslinked polymeric phase polymerized from an alpha,beta-ethylenically unsaturated monomer, wherein said alpha, beta-ethylenically unsaturated monomer comprises from 0 to about two percent by weight of multi-ethylenically unsaturated monomer,

ii) a second polymeric phase in the form of discrete domains of about 2 to about 50 nanometers in diameter dispersed within said initial polymeric phase, wherein said second polymeric phase is polymerized from at least one ethylenically unsaturated monomer comprised of about 5 percent to 100 percent by weight multifunctional monomer having at least two sites of ethylenic unsaturation,

wherein the weight ratio of said second polymeric phase to said initial polymeric phase plus said second polymeric phase is from about 1:100 to about 1:2;

b) isolating said multi-phase polymer in solid form;

c) processing said solid multi-phase polymer into a shaped object;

d) placing said shaped object between two surfaces, at least one of which is subject to vibrations, and damping said vibrations.

5,066,709

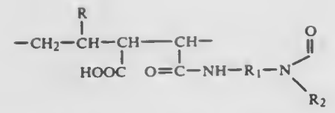
BIOADHESIVE COMPOSITION

Ratan K. Chaudhuri, Butler; Rama K. Haldar, Randolph, and Balgopal Gangadharan, Caldwell, all of N.J., assignors to GAF Chemicals Corporation, Wayne, N.J.

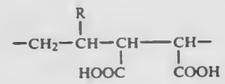
Filed Sep. 20, 1990, Ser. No. 585,326
Int. Cl.[5] C08L *39/00*
U.S. Cl. 524—516 **13 Claims**

1. A bioadhesive composition comprising a non-toxic carrier and a polymer comprising between about 45 and about 70 weight % of units having the structure

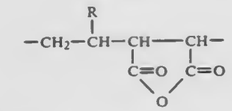
VOL 1132 ISS 3 NO 19 1991 UMI



between about 50 and about 30 weight % of units having the structure



and/or



and 2 to 7 weight % of an amine salt containing a lactam functionality derived from A and/or B, wherein R is hydrogen, alkoxy, phenyl, carboxyl or —N lactam having from to 6 carbon atoms; R_1 is C_1 to C_6 alkylene and R_2 is C_2 to C_4 alkylene; said copolymer having a number average molecular weight of about 40,000 to about 500,000 and a relatively small particle size.

5,066,710

THICKENING AGENT WHICH MODIFIES THE RHEOLOGICAL CHARACTERISTICS OF CHARGED AND/OR PIGMENTED, WHITE OR COLORED AQUEOUS COMPOSITIONS

Benoit Simonet, Lozanne; Pierre Fabre, Collonges-Au-Mont-D'Or; Jacques Laluet, Lyons, and Jean-Bernard Egraz, Ecully, all of France, assignors to Coatex, S.A., Caluire, France

Division of Ser. No. 376,126, Jul. 6, 1989. This application Mar. 15, 1990, Ser. No. 493,793

Claims priority, application France, Jul. 7, 1988, 88 09509

Int. Cl.[5] C08L *39/00*

U.S. Cl. 524—555 **4 Claims**

1. An aqueous composition, comprising:

(i) as principle components, an aqueous phase of at least one pigment, a natural or synthetic binding agent and from 0.1 to 10% by dry weight in relation to the total weight of the aqueous composition, of an associative thickening copolymer composed of:

(a) at least one monomer having an ethylenic site of unsaturation and at least one carboxylic acid functional group;

(b) at least one monomer having an ethylenic site of unsaturation and no carboxylic acid functional group; and

(c) at least one surfactant monomer having at least one urethane functional group resulting from the reaction of an isocyanate compound containing an ethylenic site of unsaturation with a surfactant compound containing a hydroxyl function which is reactive to the isocyanate group of the isocyanate compound, wherein said copolymer, when placed in an aqueous solution with 2% by weight of active thickener and brought to a pH of 9 by the addition of ammonia, at a temperature of 20° C., has a Brookfield viscosity at 100 revolutions per minute of at most equal to 220 centipoises; and

(ii) secondary components of (1) a dispersing agent and (2) at least one member selected from the group consisting of coalescing agents, biocidal agents, tensio-active agents and antifoaming agents.

5,066,711

WETNESS INDICATING HOT-MELT ADHESIVES

Herman Colon, Monsey, N.Y., and Albert Maletsky, Franklin Lakes, N.J., assignors to The International Group, Inc., Lyndhurst, N.J.

Continuation of Ser. No. 209,404, Jun. 20, 1988, Pat. No. 4,895,567, which is a continuation-in-part of Ser. No. 178,662, Apr. 7, 1988, abandoned, which is a continuation of Ser. No. 70,206, Jul. 14, 1987, Pat. No. 4,743,238, which is a continuation-in-part of Ser. No. 839,943, Mar. 17, 1986, Pat. No. 4,681,576. This application Nov. 15, 1989, Ser. No. 437,471

The portion of the term of this patent subsequent to Jan. 23, 2007, has been disclaimed.

Int. Cl.[5] C08J *23/00;* **C08L** *31/00, 91/08*

U.S. Cl. 524—556 **10 Claims**

1. A wetness indicating hot-melt adhesive composition comprising

(A) at least one polymer selected from the group consisting of ethylene/vinyl acetate copolymer and ethylene/acrylic acid copolymer;

(B) an acidic material

(C) 0 to 40 wt. % of water soluble wax;

(D) 0 to 60 wt. % of glycerol monostearate;

(E) 0 to 55 wt. % of hydrogenated castor oil;

(F) 0 to 15 wt. % of polyalkylene wax;

(G) 0 to 60 wt. % of compatible plasticizer;

(H) particles of a dyestuff insoluble in the composition but soluble in water, the color of the dyestuff particles being substantially invisible in the composition, whereby when the composition is wet with water the dyestuff particles dissolve in the water and permeate the composition, and

(I) a surfactant.

5,066,712

EMULSION COPOLYMERIZATION

Ian D. Lewis, Cheam, England, assignor to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Continuation of Ser. No. 192,023, May 9, 1988, abandoned. This application Jul. 3, 1989, Ser. No. 374,587

Claims priority, application United Kingdom, May 8, 1987, 8710912

Int. Cl.[5] C08L *27/06, 31/04, 83/06;* **C08J** *3/03*

U.S. Cl. 524—563 **7 Claims**

1. A process of preparing a vinyl copolymer emulsion wherein

i) the monomer components are reacted under pressure emulsion polymerization conditions from about 20 bar to about 100 bar in the presence of a surfactant including C14 to C20 alkenylene moiety to provide an emulsion of vinyl polymer particles with a surface capable of reacting with an expoxy moiety and

ii) the emulsion is reacted chemically with from about 0.1% to about 3% by weight of an epoxy silane material.

5,066,713

PROCESS FOR THE PREPARATION OF AQUEOUS, RADIATION-CURABLE URETHANEACRYLATE DISPERSIONS

Werner Flakus, Recklinghausen, Fed. Rep. of Germany, assignor to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Apr. 2, 1990, Ser. No. 502,692

Claims priority, application Fed. Rep. of Germany, May 19, 1989, 3916340

Int. Cl.[5] C08G *18/08, 18/67;* **C09D** *175/16*

U.S. Cl. 524—591 **18 Claims**

1. A process for preparing an aqueous, radiation-curable, urethane-acrylate dispersion, comprising the steps:

(i) reacting isophorone diisocyanate with a hydroxyacrylate at a temperature of 25° C. to 50° C., in a ratio of equivalents of NCO to OH of 3:1 to 5:1 to obtain an NCO-containing urethane-acrylate;

(ii) reacting said NCO-containing urethane acrylate with a COOH-containing ester polyol, prepared from a polyol and a dicarboxylic anhydride, in the absence of a solvent at a temperature of 50° C. to 100° C., to obtain a substantially NCO-free, COOH-containing urethane-acrylate; and

(iii) emulsifying said NCO-free, COOH-containing urethane-acrylate at a temperature of 85° C. to 95° C. with an aqueous solution of a base.

5,066,714

CURABLE ORGANOPOLYSILOXANE PUTTY-LIKE COMPOSITION

Yoshio Inoue; Masachika Yoshino, both of Annaka, and Hironao Fujiki, Takasaki, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Japan

Filed Oct. 17, 1989, Ser. No. 422,206

Claims priority, application Japan, Oct. 18, 1988, 63-262120

Int. Cl.[5] C08K *5/24*

U.S. Cl. 524—731 **23 Claims**

1. A curable organopolysiloxane putty-like composition which comprises:

(1) 100 parts by weight of an organopolysiloxane having at least two alkenyl groups in one molecule;

(2) an organohydrogenpolysiloxane having at least three ≡SiH groups in one molecule wherein the hydrogen atoms are directly bonded to the respective silicon atoms and used in an amount sufficient to provide 0.5 to 5 times by mole of the ≡SiH groups relative to the alkenyl groups in the ingredient (1);

(3) a catalytic amount of platinum or a platinum compound;

(4) from 20 to 600 parts by weight of an inorganic filler; and

(5) from 5 to 60 parts by weight of an organopolysiloxane having from 5 to 50 mole % of alkyl groups having from 7 to 30 carbon atoms based on the total organic groups bonded to silicon atoms.

5,066,715

AQUEOUS SYNTHETIC RESIN DISPERSIONS

Maximilian Angel, Mutterstadt, and Andreas Einwiller, Mannheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Mar. 30, 1990, Ser. No. 502,236

Claims priority, application Fed. Rep. of Germany, Apr. 12, 1989, 3911943

Int. Cl.[5] C08L *33/24*

U.S. Cl. 524—812 **3 Claims**

1. An aqueous synthetic resin dispersion, obtained by single-stage emulsion polymerization of a monomer mixture consisting of

(a) from 35 to 70.5% by weight of vinyl acetate, vinyl propionate or combinations thereof (monomer A),

(b) 0.5–10% by weight of acrylamidoglycolic acid, methacrylamidoglycolic acid, or combinations thereof (monomer B),

(c) 25–64.5% by weight of at least one monomer selected from the group consisting of acrylonitrile, styrene and esters of an α,β-monoethylenically unsaturated monocarboxylic acid of 2 to 5 carbon atoms and an alcohol of 1 to 4 carbon atoms (monomer C), and

(d) 0–5% by weight of at least one α,β-monoethylenically unsaturated mono- and/or dicarboxylic acid of 3 to 5 carbon atoms and/or its unsubstituted amides (monomer D), the weights of monomers A, C, and D being selected within the stated limits so that a polymer composed only of these monomers has a glass transition temperature of −50° to +60° C.

5,066,716

SYNTHESIS OF CHLOROACETYL AND BROMOACETYL MODIFIED PEPTIDES FOR THE PREPARATION OF SYNTHETIC PEPTIDE POLYMERS, CONJUGATED PEPTIDES, AND CYCLIC PEPTIDES

Frank A. Robey, Bethesda; Raymond L. Fields, Mount Airy, both of Md., and Wolfgang Lindner, Graz, Austria, assignors to The United States of America as represented by the Secretary of the Department of Health and Human Services, Washington, D.C.

Filed Dec. 13, 1988, Ser. No. 283,849

Int. Cl.[5] A61K *37/02;* **C08G** *63/44, 63/91, 69/00*

U.S. Cl. 525—54.1 **22 Claims**

1. A method for the preparation of bromoacetyl or chloroacetyl derivatized peptides, which comprises the steps of:

coupling a bromoacetyl or chloroacetyl group onto a fully protected peptide to form an amide linkage between said bromoacetyl or chloroacetyl group and said fully protected peptide; and

deprotecting said fully protected peptide while still preserving the presence of said bromoacetyl or chloroacetyl group on said peptide.

5,066,717

THERMOPLASTIC MOULDING COMPOUNDS BASED ON AROMATIC POLYCARBONATES AND VINYL POLYMERS WITH IMPROVED THERMOSTABILITY

Herbert Eichenauer, Dormagen; Dieter Wittmann; Adolf Schmidt, both of Cologne, and Karl-Heinz Ott, Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Apr. 20, 1990, Ser. No. 511,680

Claims priority, application Fed. Rep. of Germany, Apr. 25, 1989, 3913507

Int. Cl.[5] C08L *69/00, 51/06, 20/00;* **C08F** *2/26*

U.S. Cl. 525—67 **3 Claims**

1. Thermoplastic moulding compounds of

A) from 95–10% by weight of a thermoplastic aromatic polycarbonate or of a mixture of several aromatic polycarbonates and

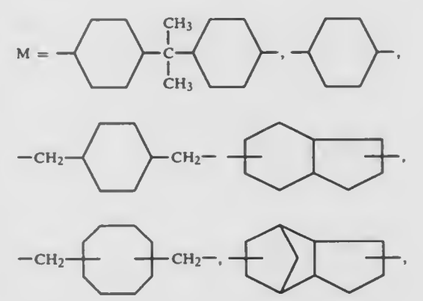
B) from 5 to 90% by weight of a mixture of

Ba) form 100 to 0 parts by weight of one or more graft polymers containing a graft base of a rubber having a Tg≦0° C. and

Bb) from 0 to 100 parts by weight of one or more thermoplastic vinyl copolymers, wherein the emulsifiers used for the preparation of polymers Ba and/or Bb by emulsion polymerisation are compounds which have been obtained by melting together 1 mol of a diol corresponding to formula I

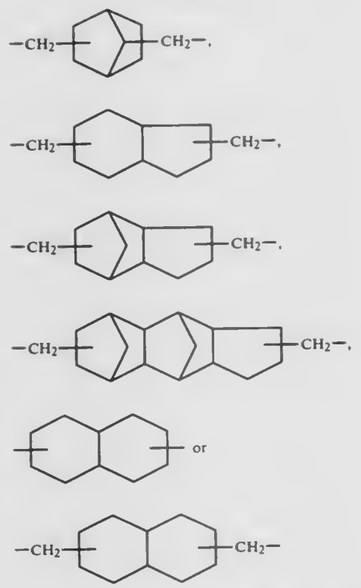
HO—M—OH I

wherein

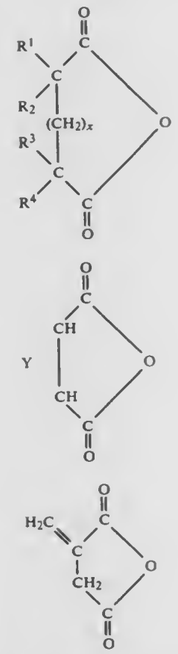


VOL 1132 ISS 3 NO 19 1991 UMI

-continued



with 2 mol of a carboxylic acid anhydride corresponding to formula II and/or III and/or IV



in which X=0 or 1, when

x=0,

R^1, R^2, R^3 and R^4 denote hydrogen or

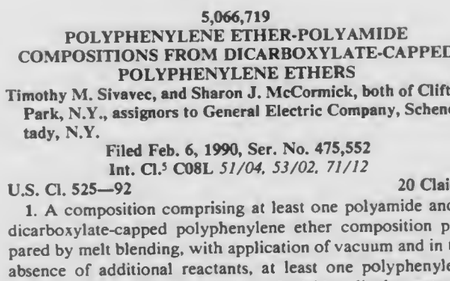
R^1 and/or R^3 denote C_1 to C_{35}-alkyl or alkenyl and

R^2 and R^4 and optionally R^1 or R^3 denote hydrogen or

R^1 and R^4 together denote a chemical bond and R^2 and R^3 denote hydrogen or

R^1 and R^4 denote a chemical bond and R^2 and R^3 together with the carbon atoms denote an o-phenylene group, and when x=1,

R^1, R^2, R^3 and R^4 denote hydrogen and



at temperatures from 100° C. to 300° C. under an inert gas followed by conversion of the reaction products into alkali metal salts or ammonium salts.

5,066,718

COMPATIBLE POLYMER MIXTURES

Werner Siol, Darmstadt-Eberstadt, and Ulrich Terbrack, Reinheim, both of Fed. Rep. of Germany, assignors to Rohm GmbH Chemische Fabrik, Darmstadt, Fed. Rep. of Germany

Filed Sep. 18, 1989, Ser. No. 408,527

Claims priority, application Fed. Rep. of Germany, Sep. 16, 1988, 3831500

Int. Cl.[5] C08L *33/12, 33/08, 25/14*

U.S. Cl. 525—84 **20 Claims**

1. A compatible polymer mixture of two disparate polymers consisting essentially of:

A) 0.1-99.9 wt. % of a non-crosslinked copolymer comprised of the following monomer units

a) 90–10 wt. % methyl acrylate;

b) 10–90 wt. % styrene; and

c) 0 to <10 wt. % of one or more other monomeric vinyl compounds, other than methyl acrylate and styrene; and

B) 99.9–0.1 wt. % of a polymer comprised of the following monomer units

a) >90 to 100 wt. % methyl methacrylate; and

b) 0 to <10 wt. % of at least one monomeric vinyl compound other than methyl methacrylate.

5,066,719

POLYPHENYLENE ETHER-POLYAMIDE COMPOSITIONS FROM DICARBOXYLATE-CAPPED POLYPHENYLENE ETHERS

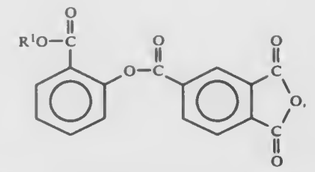
Timothy M. Sivavec, and Sharon J. McCormick, both of Clifton Park, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Feb. 6, 1990, Ser. No. 475,552

Int. Cl.[5] C08L *51/04, 53/02, 71/12*

U.S. Cl. 525—92 **20 Claims**

1. A composition comprising at least one polyamide and a dicarboxylate-capped polyphenylene ether composition prepared by melt blending, with application of vacuum and in the absence of additional reactants, at least one polyphenylene ether with at least one trimellitic anhydride salicylate ester of the formula



(I)

wherein R^1 is C_{1-6} alkyl or a C_{6-10} aromatic hydrocarbon radical.

5,066,720

RESINOUS COMPOSITION FOR COATING USE

Hiroharu Ohsugi; Akihiro Kanakura, both of Osaka; Hirotoshi Umemoto, Kyoto; Yoshio Okamura, Gunma; Mitsuhiro Takarada, Gunma, and Kenji Yamamoto, Gunma, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka and Shinetsu Chemical Industries, Ltd., Tokyo, both of, Japan

Filed Feb. 21, 1989, Ser. No. 313,231

Claims priority, application Japan, Feb. 19, 1988, 63-38311

Int. Cl.[5] C08F *8/00*

U.S. Cl. 525—100 **11 Claims**

1. A resinous composition for coating use comprising

(a) 3 to 70% by weight of organopolysiloxane represented by the formula:

$$R^1{}_nR^2{}_mSiO_{(4-n-m)/2}$$

wherein R^1 represents hydrogen, allyloxy group, an alkoxy group having 1 to 20 carbon atoms, an aryl group, methyl group, or the residue, other than said allyloxy and alkoxy groups, of an organic compound having 2–100 methylene groups in its main chain which may be interrupted with ester bonding, ether bonding, urethane bonding or carbon-carbon unsaturation bonding and which may contain functional groups other than a hydroxyl group; R^2 is a hydroxyl group bearing organic group having 2 to 100 carbon atoms; m and n each represents a positive number fulfilling the requirements of $0<n<4$, $0<m<4$ and $2\leqq m+n<4$, having a number average molecular weight of 200 to 100,000 and a hydroxyl value of 20 to 400,

(b) 97 to 30% by weight of a hydroxyl group containing acrylic, alkyd, polyester, epoxy, aminoplast, acryl modified alkyd or acryl modified polyester resin having a hydroxyl value of 20 to 300, and

(c) a crosslinking agent having at least two groups which are reactive with a hydroxyl group.

5,066,721

TIRES MADE OF SILICA FILLED, SILANE MODIFIED RUBBER

Tatsuro Hamada, Higashi-murayama; Hiromi Fukuoka; Hideki Komatsu, both of Kodaira, and Tatsuo Fujimaki, Higashimurayama, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan

PCT No. PCT/JP87/00738, 371 Date May 31, 1988, 102(e) Date May 31, 1988, PCT Pub. No. WO88/05448, PCT Pub. Date Jul. 28, 1988

PCT Filed Oct. 3, 1987, Ser. No. 202,658

Claims priority, application Japan, Jan. 14, 1987, 62-6568

Int. Cl.[5] C08L *83/08, 47/00*

U.S. Cl. 525—102 **9 Claims**

1. A tire, characterized in that a rubber composition comprising:

(A) as a rubber ingredient, not less than 10% by weight of a polymer rubber modified with a silane compound obtained by reacting an active terminal of a living polymer, which is obtained by polymerizing an unsaturated monomer in the presence of an organic alkali metal catalyst, with a silane compound represented by the following general formula:

$$X_nSi(OR)_mR'_{4-m-n}$$

wherein X is a halogen atom selected from a chlorine atom, a bromine atom and an iodine atom, OR is a non-hydrolyzable alkoxy group having a carbon number of 4~20, a non-hydrolyzable aryloxy group or a non-hydrolyzable cycloalkoxy group, R' is an alkyl group having a carbon number of 1~20, an aryl group, a vinyl group or a halogenated alkyl group, m is an integer of 1~4, n is an integer of 0~2, and a sum of n and m is 2~4; and

(B) 5~200 parts by weight of silica based on 100 parts by weight of the rubber ingredient,

is applied to at least one portion among rubber portions of the tire.

5,066,722

HEAT-LATENT CURING CATALYST AND RESIN COMPOSITIONS CONTAINING THE SAME

Shinji Nakano, Takatsuki; Hiroharu Ohsugi, Hirakata; Satoshi Urano, Tanabecho; Masamichi Furukawa, Osakasayama; Ryozo Takagawa, Toyonaka; Yoshio Eguchi, Ikeda, and Takeshi Endo, Yokohama, all of Japan, assignors to Nippon Paint Co., Ltd., Osaka, Japan

Filed Mar. 1, 1990, Ser. No. 485,897

Claims priority, application Japan, Mar. 3, 1989, 1-52674; Mar. 3, 1989, 1-52675; Mar. 29, 1989, 1-79469; Apr. 25, 1989, 1-106737

Int. Cl.[5] C08L *61/00, 61/20, 29/02*

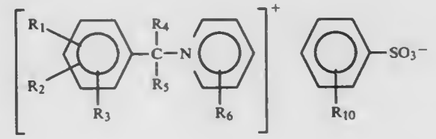
U.S. Cl. 525—162 **2 Claims**

1. A heat-curable resinous composition comprising:

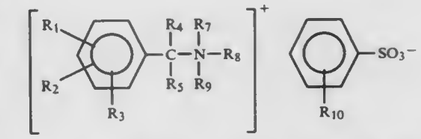
(a) a hydroxy group-containing, film-forming resin;

(b) an amount of a melamine resin at a ratio on solids basis relative to said film-forming resin of 50:50 to 5:95, and

(c) 0.01 to 10% by weight relative to the cumulative amount of said film-forming resin and said melamine resin on solids basis of a compound of the formula:



or



wherein R_1, R_2, R_3 and R_6 are each H, halogen, an alkyl, an alkoxy, nitro, amino, an alkylamino, cyano, an alkoxycarbonyl or carbamoyl; R_4 and R_5 are each H, an alkyl or halogen; R_7, R_8 and R_9 are each an alkyl, an alkenyl or phenyl which may be substituted with nitro, cyano, amino, halgen, an alkyl or a dialkylamino; and R10 is H or an alkyl.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,723

IMPACT-MODIFIED POLYMERS (P-1304)

James C. Randall, Jr., Seabrook, and Terrence Huff, Baytown, both of Tex., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Continuation of Ser. No. 219,681, Jul. 15, 1988, abandoned. This application Dec. 21, 1990, Ser. No. 632,179

Int. Cl.[5] C08L *23/26, 23/10, 23/04;* C08F *297/08*

U.S. Cl. 525—194 17 Claims

1. A process for preparing a high impact propylene polymer composition which does not contain rubber materials comprising:

a. polymerizing propylene or a mixture of propylene and one or more monomers selected from C_2 or C_4-C_{10} alpha olefins in the presence of a Ziegler catalyst, wherein a substantially isotactic propylene polymer containing at least about 90 wt.% of polymerized propylene is obtained;

b. polymerizing ethylene or a mixture of ethylene and one or more C_3 to C_{10} alpha olefin monomers in the presence of the propylene polymer composition of step (a) and optionally in the presence of additional Ziegler catalyst wherein a reactor blend comprising a continuous phase propylene polymer and a discontinuous phase thermoplastic polymer containing at least about 90 wt% of polymerized ethylene is obtained;

c. recovering the reactor blend of step (b); and

d. heating said reactor blend of step (c) in the presence of a free radical source to provide a visbroken reactor blend.

5,066,724

NOVEL FILM COMPOSITIONS

Gary J. Reich, Chippewa Falls, Wis., and Richard L. Partlow, Naperville, Ill., assignors to Rexene Products Company, Odessa, Tex.

Continuation of Ser. No. 277,821, Nov. 30, 1988, abandoned, which is a continuation-in-part of Ser. No. 112,344, Oct. 26, 1987, abandoned, which is a division of Ser. No. 855,972, Apr. 25, 1986, abandoned. This application Apr. 6, 1990, Ser. No. 506,526

Int. Cl.[5] C08L *23/20, 33/08, 23/08;* C08J *5/18*

U.S. Cl. 525—227 3 Claims

1. A resin composition suitable for processing into film consisting essentially of from about 30 to about 80 wt. % of an ethylene-methyl acrylate copolymer and from about 20 to about 70 wt. % of a very low density polyethylene having a density from about 0.902 to about 0.910 gms/cm^3, said very low density polyethylene being a non-elastomeric copolymer of ethylene and at least one comonomer selected from alpha-olefins containing from 4 to 10 carbon atoms, said film being soft, pliable, heat sealable and having a thickness from about 0.1 mils to about 10 mils.

5,066,725

POLYETHYLENE COMPOSITION, OBJECTS MADE THEREFROM AND PROCESS FOR THE MANUFACTURE OF FOAMED OBJECTS

Franciscus J. J. Haselier, Schinnen, Netherlands, assignor to Stamicarbon B.V., Geleen, Netherlands

Filed Apr. 14, 1989, Ser. No. 337,874

Claims priority, application Netherlands, May 19, 1988, 8801297

Int. Cl.[5] C08L *23/06, 23/18, 23/26;* C08J *9/00*

U.S. Cl. 525—240 7 Claims

1. Polyethylene composition comprising 20–98 wt % branched polyethylene a) with a density of between 915 and 940 kg/m^3 and a melt flow index of between 0.05 and 40 dg/minute, prepared by a high pressure radical process, and 2–80 wt % substantially linear polyethylene b) with a density of between 850 and 915 kg/m^3, a melt flow index of between 0.05 and 25 dg/minute and a DSC crystallinity at 23° C. of at least 10%, prepared with the aid of a transition metal catalyst, the difference between the highest crystallization temperature of branched polyethylene a) and the highest DSC crystallization temperature of linear polyethylene b) being at most 10° C. and the mixture having a modulus of elasticity of at most 280 N/mm^2.

5,066,726

PROCESS FOR MELT GRAFTING EPOXY COMPOUNDS TO POLYMERS

Michael J. Modic, Richmond, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Apr. 23, 1990, Ser. No. 513,392

Int. Cl.[5] C08F *255/06, 279/02, 265/08, 287/00*

U.S. Cl. 525—263 22 Claims

1. A melt phase process to graft epoxy containing functional monomers to a base polymer, wherein the base polymer is any polymer which is graftable with alpha-beta ethylenically unsaturated monomers and is in a melt phase at a temperature of less than 240° C., to produce an epoxy functionalized polymer comprising the steps of:

a) providing a melt of the base polymer, the base polymer being essentially free of functional groups that are reactive with epoxy functionality;

b) contacting the melt of the base polymer with a functional monomer in the presence of 1,1-bis(t-butylperoxy)-3,3,5-trimethylcyclohexane at a temperature not exceeding 240° C., the functional monomer comprising alpha-beta ethylenic unsaturation and epoxy functionality; and

c) recovering an epoxy functionalized polymer.

5,066,727

RESIN FOR TONER AND TONER CONTAINING SAME

Hironori Aizawa, Tokyo; Masaaki Shin, Fujisawa, and Atsuo Okubo, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals Incorporated, Tokyo, Japan

PCT No. PCT/JP87/00858, § 371 Date Jun. 26, 1989, § 102(e) Date Jun. 26, 1989, PCT Pub. No. WO89/04509, PCT Pub. Date May 18, 1989

PCT Filed Nov. 6, 1987, Ser. No. 381,748

Int. Cl.[5] C08F *265/10;* C08K *3/04*

U.S. Cl. 525—296 16 Claims

1. A toner resin comprising as a principal component a polymer obtained by mixing 20–80 parts by weight of a low molecular weight polymer having a number average molecular weight of 1,000–5,000 and a glass transition temperature (Tg) of 40°–75° C., wherein said low molecular weight polymer is prepared by polymerizing monomers selected from the group consisting of acrylic esters, methacrylic esters, aromatic vinyl monomers, dialkyl esters of unsaturated dibasic acids, vinyl esters, nitrogen-containing vinyl monomers, unsaturated monocarboxylic acids, unsaturated dicarboxylic acids, monoesters of unsaturated dicarboxylic acids, styrenesulfonic acid, acrylamide, methacrylamide, N-substituted acrylamides, N-substituted methacrylamides, and acrylamide propanesulfonic acid, 80–20 parts by weight of a vinyl monomer, the sum of said low molecular weight polymer and vinyl monomer being 100 parts by weight, 0.01–5 parts by weight of a polymerization initiator and 0–3 parts by weight of a crosslinking agent, dispersing the resultant mixture in water and then polymerizing the same.

5,066,728

RADIATION-REACTIVE PHENYLBUTADIENE MULTIBLOCK COPOLYMERS

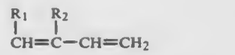
Jay D. Audett, Browndeer, Wis., assignor to Exxon Chemical Patents Inc., Linden, N.J.

Filed Sep. 27, 1990, Ser. No. 589,139

Int. Cl.[5] C08F *293/00;* C08J *3/28*

U.S. Cl. 525—314 11 Claims

1. A radiation-reactive multiblock copolymer, comprising: endblocks comprising polymerized monomer of the formula:



wherein at least one of R_1 and R_2 is phenyl or hydrocarbyl-substituted phenyl, and one of R_1 and R_2 can be hydrogen; and

an elastomeric midblock of a conjugated diene.

5,066,729

DIENE POLYMERS AND COPOLYMERS TERMINATED BY REACTION WITH N-ALKYL AND N-ARYL IMINES

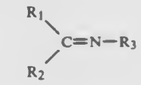
Mark L. Stayer, Jr., Suffield; Thomas A. Antkowiak, Wadsworth; David F. Lawson, Uniontown, and Russell W. Koch, Hartville, all of Ohio, assignors to Bridgestone/Firestone, Inc., Akron, Ohio

Filed Apr. 9, 1990, Ser. No. 506,306

Int. Cl.[5] C08F *8/32*

U.S. Cl. 525—315 28 Claims

1. A process for preparing a terminally functionalized polymer from a living polymer suitable for use in compositions for the tread portion of tires obtained by anionic polymerization of a diene monomer or mixture of a diene monomer and a vinyl aromatic hydrocarbon monomer which comprises reacting the living polymer with a compound having the formula:



Wherein R_1 and R_2 are selected from the group consisting of H, alkyl, cycloalkyl, aryl, dialkylaminoaryl, aralkyl, and aprotic O, N and S-containing alkyl, cycloalkyl, aryl, and aralkyl groups; wherein R_3 is selected from the group consisting of alkyl, cycloalkyl, aryl, dialkylaminoaryl, aralkyl, and aprotic O, N and S- containing alkyl, cycloalkyl, aryl and aralkyl groups;

With the proviso that at least one of the R_1, R_2, and R_3 groups must be a dialkylaminoaryl group and that not all of the R_1, R_2, and R_3 groups can be aryl groups.

5,066,730

LIVING POLYMERIZATION OF OLEFINS TO END-FUNCTIONALIZED POLYMERS

Joseph P. Kennedy, and Munmaya K. Mishra, both of Akron, Ohio, assignors to The University of Akron, Akron, Ohio

Division of Ser. No. 173,049, Mar. 28, 1988, Pat. No. 4,929,683. This application Mar. 28, 1990, Ser. No. 500,771

Int. Cl.[5] C08F *255/00, 293/00, 4/06, 2/00, 10/10*

U.S. Cl. 525—319 14 Claims

1. A method of producing a living polymer complex exhibiting supernonnucleophilic counter anions comprising the steps of:

a. reacting a Lewis acid and an organic ether at −10° C. or lower to yield a carbocationic center; and

b. reacting said carbocationic center with an olefin monomer to yield said living polymer complex wherein said supernonnucleophilic counter anions do not cause deprotonation of the growing living polymer complex and chain transfer to the monomer does not occur.

5,066,731

PROCESS FOR MODIFYING ELECTROCONDUCTIVE POLYMERS USING ION EXCHANGE

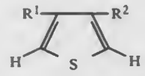
Michael Feldhues, Bad Soden am Taunus; Günther Kämpf, Oestrich-Winkel, and Thomas Mecklenburg, Butzbach, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 261,359, Oct. 24, 1988, abandoned. This application May 2, 1990, Ser. No. 517,924

Int. Cl.[5] C08G *85/00*

U.S. Cl. 525—417 5 Claims

1. A process for the preparation of a modified intrinsically electrically conducting polymer in the oxidized (doped) form, said polymer consisting essentially of at least one polymer radical cation and the equivalent amount of at least one anion, wherein the polymer radical cation on the average comprises 20 to 100% of structural units which through linkage via the 2-position and/or 5-position are derived from at least one monomer of the formula



(I)

in which

R^1 represents a C_1-C_{12}-alkoxy group, C_2 to C_{22} alkyl group, $—CH_2O(CH_2CH_2O)_nCH_3$ or $—O(CH_2CH_2O)_nCH_3$, where n is 1 to 4 and

R^2 represents a hydrogen atom, a C_1-C_{12}-alkyl group or a C_1-C_{12} alkoxy group,

0 to 80% of structural units which are derived from at least one electron-rich heteroaromatic compound which can form electrically conducting polymers and is copolymerizable with the monomers (I),

and the anions consist essentially of:

from at least about 10% to essentially 100% by weight of at least one monomeric or polymeric organic one inorganic ion having at least one atom or at least one functional group which can carry at least one negative charge and represents the conjugate base of a Bronsted acid, and

from essentially 0% up to essentially the balance of said anions being an inorganic anion selected from the group consisting of halides, pseudohalides, halo complex anions of an element from groups 3a, 4a and 5a of the periodic table of the elements, oxo complex anions of an element from groups 3a, 4a, 5a, 6a and 7a and anionic complexes of the transition metals, or an organic ion

the degree of polymerization of the polymer radical cation ranging from three to one hundred structural units, said process comprising:

exchanging from at least 10% to essentially 100% by weight of the inorganic anion residually present because of the inorganic anion-containing electrolyte used during doping for at least one monomer or polymer organic anion in solution in the presence of a dissolved salt containing said monomer or polymer organic anion, the anion exchange taking place by establishing the solution equilibrium, taking into account the solubility products of the salts present, and

obtaining the said modified intrinsically electrically conducting polymer in the oxidized (doped form, the chemical structure and the degree of polymerization of the polymer radical cation being independent of the particular anion or anions present in the polymer structure.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,732

NOVEL NON-IONIC POLYURETHANE RESINS HAVING POLYETHER BACKBONES IN WATER-DILUTABLE BASECOATS

Thomas G. Savino, Northville; Thomas C. Balch, West Bloomfield; Alan J. Steinmetz, Milford; Sergio E. Balatin, West Bloomfield, and Nicholas Caiozzo, St. Clair Shores, all of Mich., assignors to BASF Corporation, Inmont Division, Clifton, N.J.

Division of Ser. No. 288,434, Dec. 22, 1988, Pat. No. 4,946,910. This application May 2, 1990, Ser. No. 518,037

Int. Cl.[5] C08L *75/04*

U.S. Cl. 525—440 59 Claims

1. A multi-layer composition comprising:

A) a water-borne basecoat composition comprising:

i) a laterally stabilized polyurethane resin comprised of the reaction product of (a) at least one organic compound having two or more reactive hydrogen functionalities; (b) a nonionic stabilizer prepared by the reaction of: (i) a polyether having at least one active hydrogen functionality with a first polyisocyanate compound to produce a partially capped isocyanate intermediate; and (ii) a compound having at least one active amine hydrogen and at least two active hydroxyl groups: and (c) at least one second isocyanate-containing compound;

ii) a cross-linking agent;

iii) a pigment; and

B) a clear topcoat composition overcoating said basecoat composition.

5,066,733

CHIP RESISTANT COATINGS AND METHODS OF APPLICATION

Jonathan T. Martz, Glenshaw, Pa.; Thomas W. Kelly, Bloomington, Ill.; Rostyslaw Dowbenko, Monroeville, Pa.; James A. Meier, St. Saulve, France, and Anthony C. Palermo, Gibsonia, Pa., assignors to PPG Industries, Inc., Pittsburgh, Pa.

Division of Ser. No. 333,352, Apr. 3, 1989, Pat. No. 4,971,837. This application Jul. 23, 1990, Ser. No. 556,681

Int. Cl.[5] C08L *75/06*

U.S. Cl. 525—455 9 Claims

1. A liquid coating composition, useful for making a chip resistant coating, comprising a binder of: a first and a second urethane resin each having a final free NCO content of from 0 percent to about 20 percent by weight and containing terminal, reactive ethylenically unsaturated groups, each urethane resin prepared by reacting components comprising

(A) an isocyanate-terminated prepolymer having a final free NCO content ranging from about 0.5 percent to about 30 percent by weight which is the product of reacting an organic polyisocyanate with an organic polyol having an average equivalent weight of from 50 to 1000 with

(B) an isocyanate reactive group-containing unsaturated monomer selected from the group consisting of hydroxyalkyl acrylates, hydroxyalkyl methacrylates and hydroxyalkyl acrylamides

wherein the organic polyol for said first urethane resin has a hydroxyl functionality of 3 or more, the organic polyol for said second urethane resin has a hydroxyl functionality of less than three, and the average functionality of the polyols utilized for said first and second urethane resins is less than three.

5,066,734

POLYSILAZANE CERAMIC PRECURSORS AND CERAMIC SHAPED ARTICLES PRODUCED BY PYROLYSIS THEREOF

Christian Colombier, Lyons, France, assignor to Atochem, Puteaux, France

Filed Dec. 7, 1989, Ser. No. 447,528

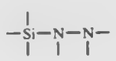
Claims priority, application France, Dec. 7, 1988, 88 16065

Int. Cl.[5] C08F *283/00*

U.S. Cl. 525—478 10 Claims

1. A ceramic precursor composition which comprises:

(i) at least one precursor polysilazane comprising a plurality of recurring structural units of the formula:



(I)

and

(ii) at least one precursor polysilazane comprising a plurality of recurring structural units of the formula:



(II)

in which formulae the available valencies of the silicon and nitrogen atoms are bonded to a saturated or unsaturated aliphatic hydrocarbon radical or to a mono- or polycyclic aryl, alkylaryl or arylalkyl radical, with the provisos that such substituents may be different or identical, at least one of the available valencies of the silicon atom or of the nitrogen atoms in formula (I) and/or the nitrogen atom in formula (II) may be satisfied by a hydrogen atom, and the silicon atom of formula (II) may be satisfied by a second hydrogen atom, in which instance the nitrogen atom in said formula (II) is substituted by a methyl radical.

5,066,735

CURABLE COMPOSITION CONTAINING A DIFUNCTIONAL EPOXY RESIN, A POLYFUNCTIONAL EPOXY RESIN, A DIFUNCTIONAL PHENOL AND A POLYFUNCTIONAL PHENOL

Louis L. Walker, Clute, and Paul A. Larson, Lake Jackson, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 372,581, Jun. 27, 1989, Pat. No. 4,959,425, which is a division of Ser. No. 121,329, Nov. 16, 1987, Pat. No. 4,868,059. This application Apr. 12, 1990, Ser. No. 509,002

Int. Cl.[5] C08G *59/00, 65/08, 65/14*

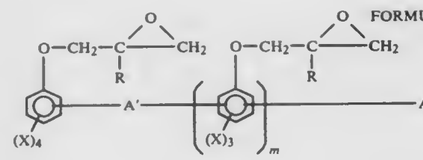
U.S. Cl. 525—482 16 Claims

1. A composition which comprises

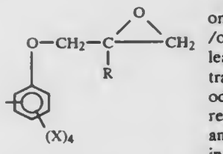
(A) an epoxy-containing component comprising a substantially unreacted mixture of

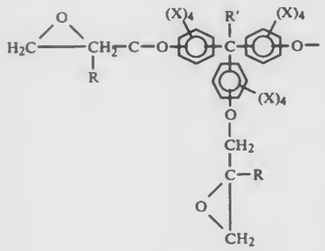
(1) from about 5 to about 95 percent by weight of at least one epoxy resin having an average of not more than 2 vicinal epoxide groups per molecule; and

(2) from about 95 to about 5 percent by weight of at least one epoxy resin having an average of more than 2 vicinal epoxide groups per molecule represented by the following formulas III or IV or a combination of such resins

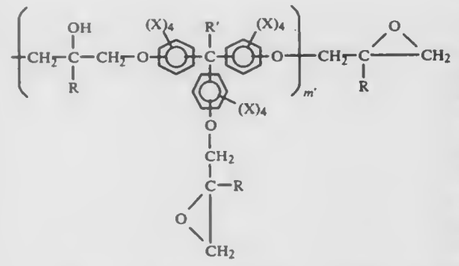


FORMULA III





FORMULA IV



wherein each A′ is independently a divalent hydrocarbyl group having from 1 to about 4 carbon atoms; each R is independently hydrogen or an alkyl group having from 1 to about 3 carbon atoms; each R′ is independently hydrogen or a hydrocarbyl group having from 1 to about 5 carbon atoms; each X is independently hydrogen, an alkyl group having from 1 to about 10 carbon atoms; m has a value from about 1 to about 4; and m′ has a value from zero to about 1; and

(B) a phenolic hydroxyl-containing component consisting essentially of

(1) from about 10 to about 70 equivalent percent of at least one phenolic hydroxyl-containing compound having an average of not more than 2 phenolic hydroxyl groups per molecule; and

(2) from about 90 to about 30 equivalent percent of at least one phenolic hydroxyl-containing compound having an average of more than 2 phenolic hydroxyl groups per molecule; and

(C) optionally, a stabilizing quantity of one or more stabilizers; and

wherein components (A) and (B) are present in quantities which provide a ratio of phenolic hydroxyl groups for each epoxy group of from about 0.75:1 to about 1.2:1.

5,066,736

GAS-PHASE ALPHA-OLEFIN POLYMERIZATION PROCESS IN THE PRESENCE OF AN ACTIVITY RETARDER

Andre Dumain; Jean Engel, and Laszlo Havas, all of Martigues, France, assignors to BP Chemicals Limited, London, England

Filed Sep. 5, 1989, Ser. No. 403,187

Claims priority, application France, Sep. 13, 1988, 88 12066; Apr. 27, 1989, 89 05846

Int. Cl.[5] C08F *2/38, 4/24*

U.S. Cl. 526—82 14 Claims

1. A process for the continuous gas phase polymerization of one or more alpha-olefins in a reactor having a fluidized and/or mechanically stirred bed which comprises polymerizing at least one alpha-olefin in the presence of a catalyst based on a transition metal belonging to Groups IV, V or VI of the Periodic Table of elements and continuously introducing into the reactor a very small amount of an activity retarder so that the amount of activity retarder in the gaseous mixture circulating in the reactor is less than 0.1 part per million by weight, said activity retarder being introduced at a flow rate which is varied in time in response to the polymerization rate or in response to the content of the transition metal in the polymer product so as to keep substantially constant either the polymerization rate or the content of transition metal in the polymer product.

5,066,737

OLEFIN POLYMERIZATION CATALYST

Robert C. Job, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Oct. 22, 1990, Ser. No. 600,781

Int. Cl.[5] C08F *4/654*

U.S. Cl. 526—119 11 Claims

1. In the process of polymerizing lower α-olefins under polymerization conditions in the presence of a catalyst formed from a titanium-based procatalyst, an organoaluminum cocatalyst and a selectivity control agent, the improvement of using as the procatalyst the olefin polymerization procatalyst produced by contacting (A) the procatalyst precursor obtained by (1) reacting magnesium alkoxide wherein each alkoxide independently has up to 4 carbon atoms inclusive, titanium tetraalkoxide wherein each alkoxide independently has up to 4 carbon atoms inclusive, and a phenolic compound selected from phenol and phenol substituted with ring carbon atom substituent free from active hydrogen atoms and which is ortho-para directing relative to aromatic ring substitution, (2) reacting the resulting product with a magnesium halide alcoholate wherein the alcohol moieties are alkanol moieties having up to 4 carbon atoms inclusive, and (3) removing alkanol from the resulting product mixture, with (B) a tetravalent titanium halide, (C) a halohydrocarbon and (D) an electron donor.

5,066,738

POLYMERIZATION OF OLEFINS WITH AN IMPROVED CATALYST SYSTEM USING A NEW ELECTRON DONOR

John A. Ewen, Houston, Tex., assignor to Fina Technology, Inc., Dallas, Tex.

Division of Ser. No. 282,985, Dec. 2, 1988, Pat. No. 4,927,797, which is a continuation-in-part of Ser. No. 36,080, Apr. 9, 1987, abandoned. This application Apr. 20, 1990, Ser. No. 512,283

Int. Cl.[5] C08F *4/649*

U.S. Cl. 526—124 10 Claims

1. A process for the polymerization of olefins, comprising:

(a) preparing a solid catalyst component by: (i) suspending a dialkoxy magnesium in an aromatic hydrocarbon that is liquid at normal temperatures, (ii) contacting the dialkoxy magnesium with a titanium halide and further contacting the resulting composition a second time with the titanium halide, and (iii) contacting the dialkoxy magnesium with a diester of an aromatic dicarboxylic acid at some point during the treatment with the titanium halide in (ii);

VOL 1132 ISS 3 NO 19 1991 UMI

(b) contacting the catalyst component with an organoaluminum compound;
(c) contacting said catalyst component with an electron donor either simultaneously with or after step (b) to form a catalyst system, said electron donor being described by the formula:



wherein R_1 is a bulky, alkyl or cycloalkyl group containing at least one secondary or tertiary carbon atom; R_2 and R_3 are each independently an alkyl or aryl group; and R_4 is an alkyl group with a primary carbon atom attached to the silicon atom;
(d) introducing said catalyst system into a polymerization reaction zone containing an olefin monomer; and
(e) polymerizing said monomer.

5,066,739

OLEFIN POLYMERIZATION WITH CYCLOPENTADIENYL LANTHANIDEALKYL OF HYDRIDE IN PRESENCE OF HYDROGEN

Ted M. Pettijohn, and Henry L. Hsieh, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Jul. 30, 1990, Ser. No. 560,652
Int. Cl.[5] C08F *4/52, 10/02*
U.S. Cl. 526—127 **13 Claims**

1. A process for polymerizing ethylene comprising contacting ethylene under suitable reaction conditions with a catalyst comprising a catalytic amount of at least one compound of the formula Cp_2MR wherein Cp is cyclopentadienyl or cyclopentadienyl substituted with an alkyl or an alkyl silyl radical, M is a metal selected from scandium, yttrium, and metals having atomic numbers in the range of 57 to 71, and R is selected from hydrogen, alkyl radicals having 1 to 12 carbon atoms, aralkyl radicals having 7 to 12 carbon atoms, aryl radicals containing 6 to 12 carbon atoms, and alkaryl radicals containing 7 to 12 carbon atoms, said polymerization being carried out in the presence of hydrogen in an amount sufficient to increase the active lifetime of the catalyst.

5,066,740

PYRIDINIUM METATHESIS CATALYSTS FOR CYCLOOLEFIN POLYMERIZATION

Larry F. Rhodes, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Company, Akron, Ohio

Filed Dec. 26, 1989, Ser. No. 457,042
Int. Cl.[5] C08F *4/78*
U.S. Cl. 526—160 **20 Claims**

1. A process for preparing a polymer by ring opening polymerization in the presence of a metathesis catalyst system, said process comprising the steps of polymerizing a monomer charge comprising a norbornene-type monomer, or a mixture thereof, in the presence of an effective amount of a metathesis catalyst component selected from the group consisting of substituted pyridinium heteropolymolybdates, substituted pyridinium isopolymolybdates, substituted pyridinium heteropolytungstates, substituted pyridinium isopolytungstate, and mixtures thereof, and an effective amount of a metathesis cocatalyst component, and said norbornene-type monomer is selected from polycycloolefins which contain at least one norbornene group.

5,066,741

PROCESS FOR PREPARATION OF SYNDIOTACTIC VINYL AROMATIC POLYMERS

Richard E. Campbell, Jr., Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 498,162, Mar. 22, 1990, abandoned, which is a continuation-in-part of Ser. No. 414,846, Sep. 29, 1989, abandoned. This application Jul. 30, 1990, Ser. No. 559,475
Int. Cl.[5] C08F *4/76, 12/08*
U.S. Cl. 526—171 **15 Claims**

1. A process for preparing polymers of vinyl aromatic monomers having a high degree of syndiotacticity comprising contacting one or more vinyl aromatic monomers under polymerization conditions with a catalytically effective amount of a catalyst comprising a metal complex containing compound the formula:

$$[Cp_mMX_nX'_p]^+A^-$$

wherein:
Cp is a single η^5-cyclopentadienyl or η^5-substituted cyclopentadienyl group, the substituted cyclopentadienyl group being optionally also bonded to M through a substituent:
M is a metal of Group 3, 4, 5, 6, 8, 9, 10 or the Lanthanide Series of the Periodic Table;
X each occurrence is an inert anionic ligand, with the proviso that at least one X is R:
X' is an inert, neutral, donor ligand:
R is hydride, hydrocarbyl, silyl, a combination thereof or a halo or alkoxy substituted derivative thereof having up to 20 carbon, silicon or carbon and silicon atoms:
m and p are independently 0 or 1;
n is an integer greater than or equal to 1, the sum of m and n is one less than the valence of M, or when Cp is optionally bonded to M through the substituent, the sum of m and n is two less than the valence of M; and
A^- is a noncoordinating, compatible anion of a Bronsted acid salt.

5,066,742

MANUFACTURE OF C2-C8 OLEFIN/MALEIC ANHYDRIDE COPOLYMERS

Vijai P. Gupta, Berwyn, Pa., assignor to ARCO Chemical Technology, Inc., Wilmington, Del.

Filed Aug. 6, 1990, Ser. No. 562,765
Int. Cl.[5] C08F *2/00*
U.S. Cl. 526—216 **15 Claims**

1. A method for producing a C_2–C_8 olefin/maleic anhydride copolymer comprising:
(a) polymerizing maleic anhydride and a C_2–C_8 olefin in the presence of a free radical polymerization catalyst in a blend of a reaction solvent selected from the group consisting of esters of acetic acid, formic acid, and propionic acid and a C_6 to C_{12} hydrocarbon diluent to form a polymerized mixture;
(b) distilling the polymerized mixture to remove substantially all of the reaction solvent and any unreacted maleic anhydride;
(c) adding a sufficient amount of water to the polymerized mixture containing the C_2–C_8 olefin/maleic anhydride copolymer, hydrocarbon diluent, and catalyst residue to facilitate the removal of the hydrocarbon diluent and volatile catalyst residue; and
(d) distilling to remove substantially all of the hydrocarbon diluent and volatile catalyst residue and to provide an aqueous C_2–C_8 olefin/maleic anhydride copolymer suspension.

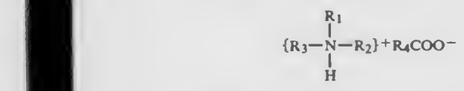
5,066,743

TWO-PART COMPOSITION COMPRISING A CYANOACRYLATE ADHESIVE AND A PRIMER COMPRISING A TERTIARY AMMONIUM CARBOXYLATE COMPOUND

Yoshihisa Okamoto, Avon, and Philip T. Klemarczyk, Collinsville, both of Conn., assignors to Loctite Corporation, Hartford, Conn.

Division of Ser. No. 329,221, Mar. 27, 1989, Pat. No. 4,979,993. This application Aug. 16, 1990, Ser. No. 568,386
Int. Cl.[5] C08F *2/00, 20/34*
U.S. Cl. 526—215 **25 Claims**

1. A two-part composition for adhesively bonding surfaces, comprising:
(a) a cyanoacrylate adhesive composition; and
(b) a primer comprising at least one tertiary ammonium carboxylate compound of the formula:



wherein:
R_1, R_2, R_3, and R_4 may each vary independently of the others and are each selected from the group consisting of alkyl, alkenyl, alkynyl, alkylaryl, and aralkyl.

5,066,744

METHOD OF POLYMERIZING VINYL CHLORIDE

Shuji Suyama, and Tomoyuki Nakamura, both of Aichi, Japan, assignors to Nippon Oil and Fats Company, Limited, Tokyo, Japan

Filed Dec. 11, 1989, Ser. No. 448,637
Claims priority, application Japan, Dec. 22, 1988, 63-322154
Int. Cl.[5] C08F *4/38*
U.S. Cl. 526—228 **1 Claim**

1. In a method of polymerizing vinyl chloride monomer alone or together with a vinyl monomer copolymerizable therewith, an improvement comprising using a combination system polymerization initiator consisting of
(A) α,α'-bis(neodecanoylperoxy)-diisopropylbenzene, and
(B) at least one of peroxy ester, diacyl peroxide and peroxy dicarbonate, each of which has a 10-hour half-life period temperature within the range of 40°-60° C. in its 0.1 concentration solution in benzene,
wherein the polymerization temperature is within the range of more than 30° C. but less than 60° C., component (A) is present in an amount of 0.001–1 part by weight based on 100 parts by weight of the vinyl chloride monomer alone or together with the vinyl monomer copolymerizable therewith, and component (B) is present in an amount ¼-4 times that of component (A).

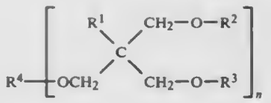
5,066,745

ALKENYLPHOSPHONIC AND —PHOSPHINIC ACID ESTERS, PROCESS FOR THEIR PREPARATION, HYDROGELS PRODUCED USING THEM, AND THEIR USE

Friedrich Engelhardt; Ulrich Riegel, both of Frankfurt; Joachim Gersdorf, Wiesbaden, and Hans-Jerg Kleiner, Kronberg, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

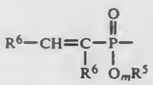
Division of Ser. No. 348,395, May 8, 1989, Pat. No. 4,959,441. This application May 29, 1990, Ser. No. 529,653
Claims priority, application Fed. Rep. of Germany, May 21, 1988, 3817425
Int. Cl.[5] C08F *30/02, 30/04*
U.S. Cl. 526—240 **3 Claims**

1. Water-swellable hydrogels prepared by copolymerization of ethylenically unsaturated hydrophilic monomers and a crosslinking amount of compounds of the formula



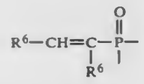
(I)

in which
n denotes 1 or 2
R^1 denotes alkyl having 1 to 4 carbon atoms, CH_2OH or CH_2OR^7 in which R^7 denotes the formula (III)



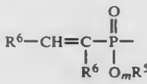
(III)

in which m denotes 0 or 1 and R^5 denotes alkyl having 1 to 4 carbon atoms, where, if a compound of the formula I contains more than one of formula III, each R^5 is independent of one another and R^6, independently of one another, denote hydrogen or alkyl having 1 to 4 carbon atoms or, when n is 1, R^7 is together with R^4, a moiety of the formula (II)



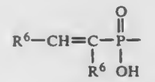
(II)

where R^6 is as defined above,
R^2 denotes the formula (III)



(III)

where m, R^5, and R^6 are as defined above,
R^3 denotes hydrogen or a moiety of formula (III), or R^2 and R^3 together form a moiety of formula (II),
where n is 1, R^4 denotes hydrogen, a moiety of formula (III) or, when R^1 represents alkyl having 1 to 4 carbon atoms and R^2 and R^3 together are a moiety of the formula (II), R^4 denotes a moiety of the general formula (IV)



(IV)

and, when n is 2, R^4 denotes a moiety of the formula (II).

5,066,746

PERFLUOROCYCLOBUTANE RING-CONTAINING POLYMERS

Katherine S. Clement; David A. Babb, both of Lake Jackson, Tex., and Bobby R. Ezzell, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 364,667, Jun. 9, 1989. This application Jun. 7, 1990, Ser. No. 534,819
Int. Cl.[5] C08F *14/18*
U.S. Cl. 526—242 **18 Claims**

1. A process for preparing a polymer having perfluorocyclobutane rings comprising the steps of:
(a) contacting monomers having at least two dimerizable perfluorovinyl groups; and

VOL 1132 ISS 3 NO 19 1991 UMI

(b) exposing the monomers to sufficient heat and for a sufficient time that a polymer containing perfluorocyclobutane rings is formed

wherein at least about 0.05 mole percent of the monomers have at least three dimerizable perfluorovinyl groups.

5,066,747

VINYL ETHERS AND FLUORINE-CONTAINING COPOLYMERS PREPARED THEREFROM

Tatsushiro Yoshimura; Nobuyuki Tomihashi; Tsutomu Terada, all of Takatsuki; Masayuki Yamana, Osaka; Kazuhiro Nakai, and Takayuki Araki, both of Osaka, all of Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

Division of Ser. No. 168,073, Mar. 9, 1988, Pat. No. 4,970,331. This application Sep. 27, 1990, Ser. No. 588,872

Claims priority, application Japan, Mar. 10, 1987, 62-54690; Jul. 29, 1987, 62-189590; Jul. 29, 1987, 62-189591

The portion of the term of this patent subsequent to Aug. 28, 2007, has been disclaimed.

Int. Cl.[5] C08F *12/20*

U.S. Cl. 526—249 **4 Claims**

1. Fluorine-containing copolymers prepared by copolymerizing fluoroolefins with vinyl ethers of the formula (I):

$$CH_2{=}CHOR^1OC(=O)R^2C(=O)O(H)_nM \quad (I)$$

wherein R^1 is a divalent aliphatic residue of 2 to 10 carbon atoms, R^2 is a divalent organic residue, and M is an alkali metal, or a mono-functional basic compound which contains nitorgen atom or phosphorus atom and has a pKa of 6 to 12, and n is O when M is the alkali metal, and is 1 when M is other, or monomer compositions of the vinyl ethers (I) and vinyl ethers of the formula (II):

$$CH_2{=}CHOR^1OC(=O)R^2C(=O)OH \quad (II)$$

wherein R^1 and R^2 are as defined above, and said monomer compositions containing the vinyl ethers (I) in an amount of not less than 1% by mole of the vinyl ethers (II).

5,066,748

SILICON CONTAINING ELECTROCONDUCTIVE POLYMERS AND STRUCTURES MADE THEREFROM

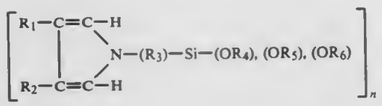
Ganesan Nagasubramanian, La Crescenta; Salvador DiStefano, Alhambra, and Ranty H. Liang, Arcadia, all of Calif., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Feb. 7, 1990, Ser. No. 479,485

Int. Cl.[5] H01B *1/00*

U.S. Cl. 526—258 **11 Claims**

1. A solid polymer of the formula:



where n is an integer such that the polymer is a solid, R_1 and R_2 are independently selected from hydrogen or organic substituents, containing up to 14 carbon atoms which are free of olefinic or alkynyl unsaturation, R_3 is a divalent organic radical selected from the group consisting having from 4 to about 7 atoms and phenyl groups, and R_4, R_5 and R_6 are independently selected from the group consisting of unsubstituted phenyl groups, unsubstituted cycloalkyl containing 1 to 7 carbon atoms and straight or branched alkyl group having from 1 to about 7 carbon atoms.

5,066,749

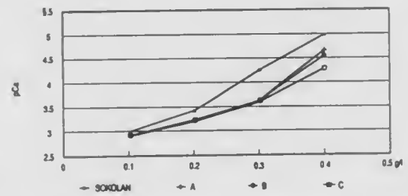
HYDROPHOBICALLY-MODIFIED POLYCARBOXYLATES AND PROCESS FOR THEIR PREPARATION

John C. Leighton, Flanders; Carmine P. Iovine, Bridgewater, both of N.J.; Michael P. Aronson, West Nyack, N.Y., and David L. Elliott, Hawthorne, N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

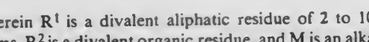
Filed Sep. 11, 1990, Ser. No. 580,695

Int. Cl.[5] C08F *34/02, 122/04, 222/04, 8/14*

U.S. Cl. 526—271 **12 Claims**



1. An interpolymer comprising repeating units of the structure:



wherein m is a mole fraction from 0.70 to 0.95; n is a mole fraction from 0.05 to 0.30; A and B are a polymerized residue of ethenically unsaturated carboxylic acid monomer(s), selected from monocarboxylic acids, dicarboxylic acids and their anhydrides and esters, and B is not A; and C is:

a polymerized residue of at least one monomer, selected from the group consisting of C_8–C_{18} linear or branched alkyl ester(s) of ethylenically unsaturated carboxylic acid(s); C_8–C_{18} alpha-olefin(s); and vinyl esters of C_8–C_{18} carboxylic acid(s); the interpolymer being prepared by polymerizing the monomers in a solvent system in which the monomers and interpolymer are soluble, whereby the monomer of which C is the polymerized residue is instantaneously and homogeneously copolymerized with the carboxylic acid monomers.

5,066,750

VINYL ESTER RESINS CONTAINING MESOGENIC/RIGID RODLIKE MOIETIES

Robert E. Hefner, Jr.; Paul M. Puckett, and Jimmy D. Earls, all of Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich.

Division of Ser. No. 298,460, Jan. 17, 1989. This application Jun. 4, 1990, Ser. No. 532,544

Int. Cl.[5] C08F *24/00, 124/00, 224/00, 8/00*

U.S. Cl. 526—273 **8 Claims**

1. A thermosettable mixture comprising

(A) a thermosettable vinyl ester prepared by reacting

(1) one or more polyepoxide compounds; with

(2) one or more polymerizable monounsaturated monocarboxylic acids; and blending said reaction product with

(B) one or more polymerizable ethylenically unsaturated monomers, at least one of which contains a mesogenic or rigid rodlike moiety.

5,066,751

RESIST MATERIAL FOR ENERGY BEAM LITHOGRAPHY AND METHOD OF USING THE SAME

Akiko Kotachi, Yokohama; Satoshi Takechi, Machida, and Yuko Nakamura, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jan. 22, 1990, Ser. No. 468,083

Claims priority, application Japan, Jan. 20, 1989, 1-012447

Int. Cl.[5] C08F *30/08*

U.S. Cl. 526—279 **10 Claims**

1. A resist material comprising a copolymer of silicon containing methacrylic ester the and acrylic ester, alpha-position of the acrylic ester being substituted by an electron attracting group.

5,066,752

FLAME RETARDANT BROMINATED STYRENE-BASED POLYMERS

Nicolai A. Favstritsky, and Jin-Liang Nang, both of Lafayette, Ind., assignors to Great Lakes Chemical Corporation, West Lafayette, Ind.

Filed Jun. 20, 1990, Ser. No. 541,057

Int. Cl.[5] C08F *12/16*

U.S. Cl. 526—293 **33 Claims**

1. A thermally and hydrolytically stable flame retardant copolymer comprising:

about 95 to about 5 weight percent of units from ring brominated, ethylenically unsaturated aromatic monomer, said monomer including greater than about 1 and up to about 4 bromines per unit; and

about 5 to about 95 weight percent of units from aliphatic conjugated diene monomer having from 4 to 10 carbon atoms,

said copolymer having a molecular weight of at least about 25,000.

5,066,753

POLYMERIZABLE CATIONIC VISCOELASTIC MONOMER FLUIDS

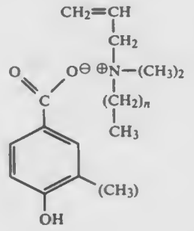
Dennis G. Peiffer, East Brunswick, N.J., assignor to Exxon Research and Engineering Company, Florham Park, N.J.

Filed Dec. 21, 1987, Ser. No. 135,596

Int. Cl.[5] C08F *265/04*

U.S. Cl. 526—310 **4 Claims**

1. A water soluble polymerizable monomer characterized by the formula:



wherein n is 6 to 22.

5,066,754

NARROW MOLECULAR WEIGHT DISTRIBUTION HYDROCARBON SOLUBLE HOMOPOLYMER OF 1,4-PENTADIENE

Yoshiharu Doi, Kanagawa; Satoshi Ueki, and Hiroyuki Furuhashi, both of Saitama, all of Japan, assignors to Tonen Corporation, Tokyo, Japan

Filed Mar. 14, 1990, Ser. No. 493,254

Claims priority, application Japan, Mar. 28, 1989, 1-73986

Int. Cl.[5] C08F *136/20*

U.S. Cl. 526—336 **1 Claim**

1. Hydrocarbon soluble homopolymer of 1,4-pentadiene having a Mn in range of about 2,000 to 500,000 and a Mw/Mn of 1.05 to 1.4, having side chain unsaturation.

5,066,755

NOVEL IRRADIATED POLYETHYLENE FILAMENTS TAPES AND FILMS AND PROCESS THEREFOR

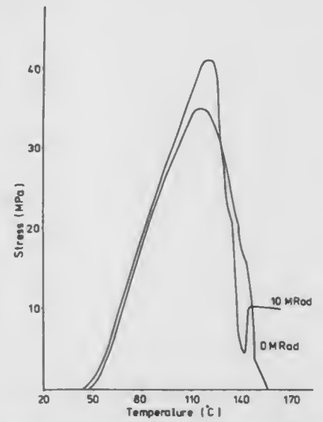
Pieter J. Lemstra, Brunssum, Netherlands, assignor to Stamicarbon B.V., Geleen, Netherlands

Continuation-in-part of Ser. No. 61,672, Jun. 15, 1987, abandoned, which is a continuation of Ser. No. 705,284, Feb. 25, 1985, abandoned, which is a continuation-in-part of Ser. No. 621,767, Jun. 18, 1984, abandoned, and a continuation-in-part of Ser. No. 161,424, Feb. 24, 1988, abandoned, which is a continuation of Ser. No. 20,702, Mar. 2, 1987, abandoned, which is a continuation of Ser. No. 822,409, Jan. 3, 1986, abandoned. This application Mar. 2, 1989, Ser. No. 302,352

Claims priority, application Netherlands, May 11, 1984, 8401518; Aug. 25, 1984, 8402600; Sep. 28, 1984, 8402965; Oct. 5, 1985, PCT/EP85/00223

Int. Cl.[5] D01F *6/04*; D01D *5/12*

U.S. Cl. 526—348.1 **25 Claims**



1. A gel-spun, irradiated and drawn, and at least partially cross-linked branched ultra high strength polyethylene article in the form of a film, tape or fiber possessing high shrink properties and exhibiting the following characteristics in combination

(1) a tensile strength of at least (2.3-1.3×10 $^{-2}$D) GPa where D is the thickness or diameter of uniaxially oriented tapes and filaments, in μm, or a tensile strength of at least 0.5 GPa in case of biaxially drawn films;

(2) a modulus of at least 30 GPa;

(3) a xylene insoluble content of at least 25%;

(4) an at least 20% retained peak area under the DSC main melting point curve, upon second heating after an initial heating about 170° C.;

(5) a retention of a retractive force plateau after reaching thermal equilibrium upon heating the fiber to a temperature above about 170° C.; and

VOL 1132 ISS 3 NO 19 1991 UMI

(6) retention, after heating and reaching thermal equilibrium above 170 ° C. under restraint, of an X-ray diffraction pattern substantially corresponding to the oriented, crystallized polyethylene.

12. A process for the production of novel irradiated ultra high strength polyethylene filaments, tapes and films which essentially consists in

(a) forming a solution of a high molecular weight polyethylene

(b) spinning or extruding said solution through an orifice

(c) quenching the extrudate from step (b) to a temperature below the gel point of said solution to form a gel-state article in the form of filament, tape or film

(d) irradiating said gel-state article while in the gel-state

(e) and drawing or stretching said gel-state article either during or after said irradiation to form a drawn or stretched article composed of at least partially cross-linked or long-chain branched polyethylene molecules having the combination of properties

(1) a tensile strength of at least (2.3-1.3×10^{-2}D) GPa where D is the thickness or diameter of uniaxially oriented tapes and filaments, in μm, or a tensile strength of at least 0.5 GPa in case of biaxially drawn films;

(2) a modulus of at least 30 GPa;

(3) a xylene insoluble content of at least 25%;

(4) an at least 20% retained peak area under the DSC main melting point curve, upon second heating after an initial heating about 170° C.;

(5) a retention of a retractive force plateau after reaching thermal equilibrium upon heating the fiber to a temperature above about 170° C.; and

(6) retention, after heating and reaching thermal equilibrium above 170° C. under restraint, of an X-ray diffraction pattern substantially corresponding to the oriented, crystallized polyethylene.

5,066,756

SILICONE SURFACTANTS

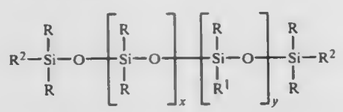
William J. Raleigh, Rensselaer; Raymond J. Thimineur, Scotia, and Anthony A. Zotto, Troy, all of N.Y., assignors to General Electric Company, Waterford, N.Y.

Division of Ser. No. 291,909, Dec. 29, 1988, Pat. No. 5,008,103. This application Oct. 25, 1990, Ser. No. 603,081

Int. Cl.[5] C08G *77/20*

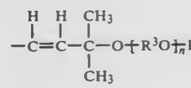
U.S. Cl. 528—32 11 Claims

1. A polysiloxane surface active agent comprising polymers of the general formula (I):



(I)

wherein each R individually is chosen from the group consisting of alkyl radicals having from 1 to 4 carbon atoms; R^1 is a polyoxyalkylene radical of the formula



(II)

wherein each R^3 individually is an alkylene radical having from 2 to 6 carbon atoms, R^4 is chosen from the group consisting of R, acyl groups having at least 2 carbon atoms, and hydrogen, and n has a value from at least 1 to about 200; each R^2 individually is chosen from the group consisting of R and R^1; x has a value from about 5 to about 400; and y has a value of at least 1 except that when R^2 is R^1, y may be zero.

5,066,757

ONE-CAN HEAT-CURABLE RESIN COMPOSITIONS AND PRECOATED METAL

Shigeaki Miyabayashi, Kobe; Takuro Sakamoto, Kawanishi; Hiroshi Kanai, Kimitsu, and Joji Oka, Tokyo, all of Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

Filed Jan. 3, 1990, Ser. No. 460,552

Claims priority, application Japan, Jan. 6, 1989, 1-001476

Int. Cl.[5] C08G *18/80*

U.S. Cl. 528—45 6 Claims

1. A one-can heat-curable resin composition which comprises: (1) a polyester polyol having at least three functional groups; (2) an adduct of an epoxy resin with at least one member selected from the group consisting of an alkanol amine and a monovalent phenol; and (3) a blocked organic polyisocyanate or a product of blocking of a prepolymer having terminal NCO groups obtained by reaction of an organic polyisocyanate with an active hydrogen-containing compound.

5,066,758

CARRIER RESIN FOR PIGMENT PASTES, AND ITS PREPARATION AND USE

Michael Hönel; Peter Ziegler, both of Mainz; Walter Sprenger, Dieburg, and Wolfgang Wendt, Wuppertal, all of Fed. Rep. of Germany, assignors to Hoechst AG, Fed. Rep. of Germany

Filed Jul. 26, 1989, Ser. No. 385,908

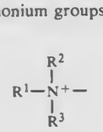
Claims priority, application Fed. Rep. of Germany, Jul. 28, 1988, 3825584

Int. Cl.[5] C09D *17/00*

U.S. Cl. 528—45 25 Claims

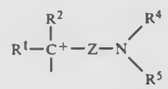
1. A paste resin based on an epoxy compound, this paste resin containing

(a) quaternary ammonium groups of the formula (Ia)



Ia

in which the radicals R^1 to R^3 independently of one another represent a hydrocarbon radical having 1 to 7 carbon atoms, or two of these radicals form a cyclo-aliphatic ring, or quaternary ammonium groups of the formula (Ib)



Ib

in which the radicals R^1 and R^2 have the meaning above, represents a linear, branched or cyclic alkylene radical having 2 to 18 carbon atoms, which may optionally carry OH groups and/or contain oxygen atoms, and

R^4 and R^5 independently of one another denote a hydrocarbon radical having 2 to 50 carbon atoms, which may optionally carry OH and/or silane groups and/or contain oxygen atoms, or one of the two radicals R^4/R^5 may form a ring, or mixtures of the groups (Ia) and (Ib),

(b) OH groups and

(c) urethane groups and of which at least 10 mol% are derived from a long-chain, monofunctional isocyanate having at least 8 carbon atoms,

the mean molecular weight (M_n) of these paste resins being 500 to 10,000.

5,066,759

PROCESS FOR THE PREPARATION OF MACROMONOMERS AND MACROMONOMERS PREPARED BY THIS PROCESS

Hans-Dieter Hille, Bergisch Gladbach, and Arnold Dobbelstein, Munster, both of Fed. Rep. of Germany, assignors to BASF Lacke & Farben AG, Munster-Hiltrup, Fed. Rep. of Germany

PCT No. PCT/EP88/00969, § 371 Date Jun. 13, 1990, § 102(e) Date Jun. 13, 1990, PCT Pub. No. WO89/04333, PCT Pub. Date May 18, 1989

PCT Filed Oct. 27, 1988, Ser. No. 466,438

Claims priority, application Fed. Rep. of Germany, Nov. 10, 1987, 3738079

Int. Cl.[5] C08G *18/10*

U.S. Cl. 528—60 15 Claims

1. A process for the preparation of macromonomers which carry at least two hydroxyl groups at one end, which comprises

(1) reacting a polyester, polyether, polyurethane, polyurea or polyamide prepolymer which has a number average molecular weight of 300 to 3000, and contains an average of one terminal hydroxyl or amino group and at least one carboxyl group per molecule, with a diisocyanate to form an intermediate which contains an average of one terminal isocyanate group and at least one carboxyl group per molecule, and; subsequently reacting this intermediate with a compound which has a molecular weight of 90 to 800, and contains at least two hydroxyl groups in addition to the group which is reactive to isocyanate groups, to form a macromonomer which carries an average of at least one carboxyl group and, at one end, at least two hydroxyl groups per molecule.

5,066,760

MIXED POLYIMIDES AND PROCESS FOR PREPARING THEM

Sigrid Seidl, Seewalchen; Klaus Weinrotter, Vöcklabruck, and Reinhold Simharl, Lenzing, all of Austria, assignors to Lenzing Aktiengesellschaft, Lenzing, Austria

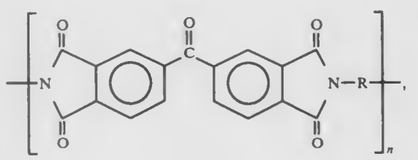
Filed Jun. 29, 1990, Ser. No. 546,517

Claims priority, application Austria, Jul. 13, 1989, 1700/89

Int. Cl.[5] C08G *18/00*

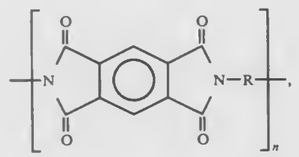
U.S. Cl. 528—51 9 Claims

1. In mixed polyimides having structural units of the general formulae



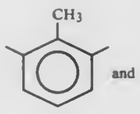
(I)

and



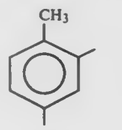
(II)

wherein n is an integer larger than 1 and R represents a divalent aromatic residue, the improvement wherein R represents at least one of the groups selected from



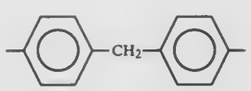
(IIIa)

and



(IIIb)

and



(IV)

and wherein the glass transition temperature lies above 325° C., with the proviso that R represents at least one of the groups (IIIa) and (IV) if it also stands for the group (IIIb).

5,066,761

CURABLE POLYURETHANE CASTING SYSTEMS AND AMINE HARDENERS THEREFOR

Teruko Miyazaki, Okemos, Mich., assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 274,081, Nov. 21, 1988, Pat. No. 4,927,901. This application Feb. 5, 1990, Ser. No. 475,050

Int. Cl.[5] C08G *18/10*

U.S. Cl. 528—64 6 Claims

1. An amine hardener comprising

(a) diethyltoluenediamine or t-butyl-meta-toluenediamine and

((b) 4,4'-dimethylene-bis-ortho-ethylaniline in a molar ratio of from about 99:1 to about 1:99.

5,066,762

THERMOPLASTIC POLYURETHANE RESIN FROM P-PHENYLENE DIISOCYANATE, A POLY(HEXAMETHYLENE CARBONATE) POLYOL, AND A SHORT CHAIN POLYOL

Yukio Ohbuchi; Yoshiaki Maeda; Masahiro Kawasaki; Susumu Sato, and Mamoru Akimoto, all of Yokohama, Japan, assignors to Nippon Polyurethane Industry Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 247,107, Sep. 20, 1988, abandoned. This application Feb. 27, 1990, Ser. No. 488,397

Claims priority, application Japan, Oct. 6, 1987, 62-250652

Int. Cl.[5] C08G *18/10, 18/20, 18/24, 18/44*

U.S. Cl. 528—85 20 Claims

1. A thermoplastic polyurethane resin which is the product of reacting:

(A) p-phenylene diisocyanate,

(B) a hydroxyl terminated poly(hexamethylene carbonate) polyol having a molecular weight of from 850 to 5000 which is obtained by the reaction of 1,6-hexane diol and carbonic acid esters, and

(C) a short chain polyol having from 2 to 10 carbon atoms as a chain extending agent,

wherein the molar ratio of (B) to (C) is from 1:2 to 1:0.05, and the molar ratio of isocyanate groups to total active hydrogen groups is from 0.93:1 to 1.20:1.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,763

MONOEPOXIDE-POLYOL ADDUCTS AND PROCESS FOR PREPARING THE SAME

Olivier L. P. Andre, and Henricus P. H. Scholten, both of Louvain-la-Neuve, Belgium, assignors to Shell Oil Company, Houston, Tex.

Filed Jun. 13, 1990, Ser. No. 539,415

Claims priority, application United Kingdom, Jun. 20, 1989, 8914161

Int. Cl.[5] C08G *59/68, 65/10*

U.S. Cl. 528—92 26 Claims

1. A curable coating composition comprising:

(1) an adduct prepared by reacting, in the presence of an etherification catalyst selected from tin, zinc, and iron compounds:

a) at least one polyhydric alcohol of formula $R(OH)_n$ in which R is an aliphatic or heterocyclic moiety of from 2 to 18 carbon atoms, the hydroxyl groups are attached to a primary carbon atom or a secondary carbon atom in which the second hydroxyl group is attached to a carbon atom no more than 4 carbon atoms away from said secondary carbon atom, and n is an integer of from 2 to 6, and

b) at least an equimolar amount of at least one monoepoxide of formula



in which R' is an unsubstituted or substituted aromatic moiety of up to 14 carbon atoms,

said adduct having a molecular weight distribution Mz/Mw within the range of 1 to 1.1; and

(2) an effective amount of a crosslinking resin to cure the adduct.

5,066,764

STERICALLY HINDERED DITERTIARY BUTYL BRIDGED DI(CYCLOHEXYLAMINES)

Jeremiah P. Casey, Emmaus; Peter A. Lucas, Allentown, and Menas S. Vratsanos, Breinigsville, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

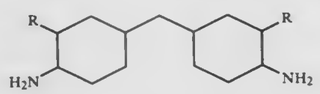
Filed Jun. 26, 1990, Ser. No. 543,899

Int. Cl.[5] C08G *59/50*

U.S. Cl. 528—122 6 Claims

1. In a polyepoxide resin composition comprising a glycidyl ether of a polyhydric phenol, glycidyl polyester or glycidyl amine cured with an amine curing agent, the improvement which comprises utilizing as said curing agent, or component thereof, 3,3'ditertiarybutylmethylenedi(cyclohexylamine).

6. A bridged di(cyclohexylamine) of the structure



wherein R is tert-butyl.

5,066,765

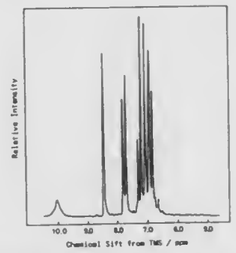
POLY(AZOMETHINE-ESTER) HAVING FILM-FORMING ABILITY, AND HEAT RESISTANCE PRE AND REGULATED MONOMER SEQUENCES IN THE POLYMER BACKBONE

Keiichiro Wada, San Marcos; Patrick E. Cassidy, and William S. Hager, both of Austin, all of Tex., assignors to Nippon Steel Chemical Co., Ltd., Tokyo, Japan

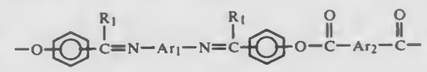
Filed Apr. 11, 1990, Ser. No. 507,536

Int. Cl.[5] C08G *63/00*

U.S. Cl. 528—185 5 Claims



1. A poly(azomethine-ester) having a repeating structural unit of the following formula (1)



(1)

wherein Ar_1 and Ar_2 are the same or different and are at least one member selected from the group consisting of phenylene and divalent organic radicals terminated with an aromatic ring on the both ends of the each radical, respectively, and R_1 is at least one member selected from the group consisting of hydrogen, alkyl, alkoxy and aryl radical.

5,066,766

PROCESS FOR THE PREPARATION OF POLY(ESTER-CARBONATES)

Winston J. Jackson, Jr., Kingsport, Tenn., and William R. Darnell, Weber City, Va., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Apr. 13, 1990, Ser. No. 508,756

Int. Cl.[5] C08G *63/02, 63/00, 67/00, 69/00*

U.S. Cl. 528—190 6 Claims

1. Process for the preparation of a poly(ester-carbonate) which comprises contacting (1) an aromatic diol, (2) methyl phenyl carbonate and (3) a carboxylate alkyl ester component selected from an aromatic dicarboxylate ester, a hydroxy aromatic carboxylate ester or a mixture thereof in the presence of a transesterification/polycondensation catalyst under transesterification/polycondensation conditions of pressure and temperature.

5,066,767

WHOLLY AROMATIC POLYESTERS COMPRISING ISOPHTHALIC ACID, TEREPHTHALIC ACID, P-HYDROXYBENZOIC ACID, HYDROQUINONE AND AN ARYLENE DIOL

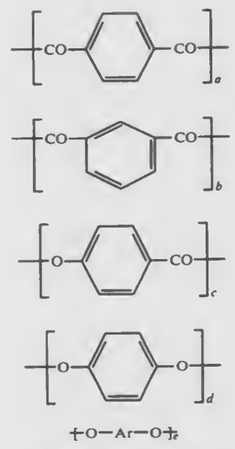
Markus Matzner, Edison, N.J., and Richard Layton, Augusta, Ga., assignors to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 317,525, Mar. 1, 1989, abandoned. This application Dec. 18, 1989, Ser. No. 454,732

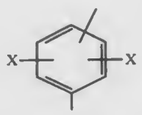
Int. Cl.[5] C08G *63/02, 63/18*

U.S. Cl. 528—193 11 Claims

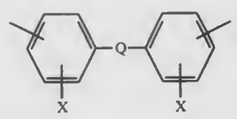
1. A wholly aromatic polyester comprising the units (1)-(5)



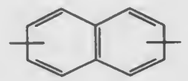
wherein Ar is at least one member selected from a divalent substituted mononuclear aromatic radical of the formula



wherein X is independently hydrogen, a C_1 to C_5 alkyl group, a halide atom or an aryl group; with the proviso that when the valence bonds are para to each other at least one group X must be other than hydrogen; a divalent dinuclear aromatic radical of the formula



wherein X is as previously defined and Q is at least one member selected from the group consisting of a chemical bond O, S, SO, S—S, SO_2, and CO; and a divalent naphthalene radical of the formula



or isomers thereof

and wherein a+b is approximately equal to d+e; the ratio of a to b being in the range of from about 1:4:1 to about 10:1; the ratio of d to e being in the range of from about 4:1 to about 21:1; and c being in the range of from about 0.6 to about 7, based on the total number of moles of a+b.

5,066,768

PREPARATION METHOD OF SPHERICAL MELAMINE RESIN PARTICULATES HAVING CROSSLINKED STRUCTURE

(1) Saburo Hiraoka, Kasugai, and Kenji Niikawa, Nagoya, both of Japan, assignors to Mitsubishi Rayon Co., Ltd., Tokyo, Japan

Filed Jun. 20, 1990, Ser. No. 540,793

Claims priority, application Japan, Jun. 23, 1989, 1-159456

Int. Cl.[5] C08G *16/04*

(2) U.S. Cl. 528—230 6 Claims

1. A preparation method of spherical melamine resin particulates having crosslinked structure comprising the steps of adding an acid catalyst to an aqueous solution containing at least 0.5 to less than 5% by weight of a melamine derivative (3) which is polymerizable in the acid region, to adjust the pH of said aqueous solution to at least 4 to less than 5, and carrying out heat-treatment of the solution to complete particulate forming reaction of the melamine derivative.

---

(4) 5,066,769

CROSSLINKABLE RIGID-ROD AROMATIC HETEROCYCLIC POLYMER

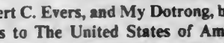
Robert C. Evers, and My Dotrong, both of Dayton, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

(5) Filed Mar. 23, 1990, Ser. No. 498,253

Int. Cl.[5] C08G *75/32*

U.S. Cl. 528—337 5 Claims

1. A para-ordered, rigid-rod aromatic heterocyclic copolymer having repeating groups of the formula:



wherein x has a value of 0.50 to 0.99, FI is a 2,7-fluorene moiety, Ar is a para-ordered arylene group and Ba is a benzazole group of the formula:

wherein Y is S.

5,066,770

PROCESS AND APPARATUS FOR MANUFACTURING POLYMERS

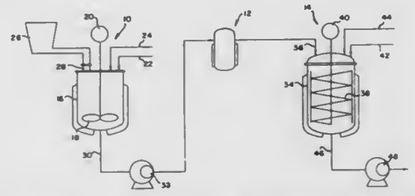
Takehiko Noguchi, Nagaokakyo; Takashi Sakubata, and Hirosaku Nagano, both of Ohtsu, all of Japan, assignors to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha, Osaka, Japan

Filed Apr. 7, 1989, Ser. No. 334,424

Claims priority, application Japan, Apr. 10, 1988, 63-87576; Apr. 11, 1988, 63-89462

Int. Cl.[5] C08G *69/26;* C08F *2/38*

U.S. Cl. 528—353 12 Claims



1. In a process for manufacturing a polymer by reacting two starting materials in the presence of an organic solvent, the improvement which comprises:

the first step of reacting a solution of a diamine in an organic

VOL 1132 ISS 3 NO 19 1991 UMI

solvent with a tetracarboxylic dianhydride in the form of a powder to produce a reaction product having a viscosity of not greater than 500 poise; and

the second step of reacting a solution of the reaction product of said first step in an organic solvent with a solution of additional said dianhydride in an organic solvent.

5,066,771

METHOD FOR PRODUCING AN IMIDE OLIGOMER

Seiichi Hino, Yokohama; Shoichi Satou, Sagamihara; Kouji Koura, and Osamu Suzuki, both of Yokohama, all of Japan, assignors to Kozo Iizuka, Director-General of Agency of Industrial Science and Technology, Tokyo, Japan

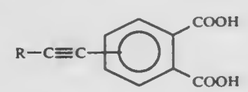
Continuation of Ser. No. 152,490, Feb. 5, 1988, abandoned. This application Apr. 2, 1990, Ser. No. 502,741

Claims priority, application Japan, Feb. 10, 1987, 62-027219

Int. Cl.[5] C08G *69/26, 69/28, 8/02;* **C08F** *22/40*

U.S. Cl. 528—353 **10 Claims**

1. A method for producing an imide oligomer soluble in an organic solvent by reacting as three components (i) an aromatic tetracarboxylic acid or its derivative, (ii) an aromatic diamine and (iii) an end-capping agent, the molar ratio of said tetracarboxylic acid (i) to said diamine (ii) being 1 to 2, wherein the aromatic diamine is a condensation product of o-ethylaniline with formaldehyde, and the end-capping agent is an ethynyl phthalic acid of the formula:



[I]

wherein R is a hydrogen atom or a monovalent group selected from the group consisting of an aliphatic group, an alicyclic group and an aromatic group, or its derivative.

5,066,772

MEDICAL DEVICES FABRICATED TOTALLY OR IN PART FROM COPOLYMERS OF RECURRING UNITS DERIVED FROM CYCLIC CARBONATES AND LACTIDES

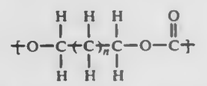
Reginald T. Tang, Warren; Frank Mares, Whippany; William J. Boyle, Jr., Parsippany; Tin-Ho Chiu, Millburn, and Kundan M. Patel, Landing, all of N.J., assignors to Allied-Signal Inc., Morristown, N.J.

Division of Ser. No. 226,706, Aug. 1, 1988, Pat. No. 4,916,193, which is a continuation-in-part of Ser. No. 134,321, Dec. 17, 1987, Pat. No. 4,891,263, and a continuation-in-part of Ser. No. 134,339, Dec. 17, 1987. This application Jan. 18, 1990, Ser. No. 467,067

Int. Cl.[5] C08G *63/64, 63/62*

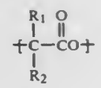
U.S. Cl. 528—354 **47 Claims**

1. A medical device formed totally or in part of one or more random copolymers having at least one type of recurring monomeric unit of the General Structure I:



Structure I

and having at least one type of recurring monomeric unit of the Structure II:



Structure II

wherein:

n is from 1 to about 8; and

R_1 and R_2 are the same or different and are hydrogen, alkyl or phenyl.

5,066,773

FORMATION OF POLY(BENZIMIDAZOLE)

Harry W. Gibson, and Yajnanarayana H. R. Jois, both of Blacksburg, Va., assignors to Virginia Tech Intellectual Properties, Inc., Blacksburg, Va.

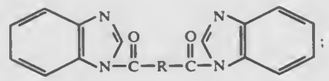
Filed Oct. 6, 1989, Ser. No. 418,313

Int. Cl.[5] C08G *73/18*

U.S. Cl. 528—362 **3 Claims**

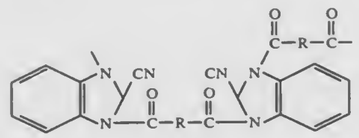
1. A process for forming a polymer which comprises:

(a) reaction of benzimidazole with an aliphatic diacid chloride to form bisbenzimidazole of the formula



; and

(b) reaction of the bisbenzimidazole with an aliphatic diacid chloride and cyanide to form the polymer having the repeating unit



where R is alkylene.

5,066,774

METHOD FOR THE PRODUCTION OF LIGHT COLORED AROMATIC SULFIDE/SULFONE POLYMERS WITH 1,3-DIALKYL-2-IMIDAZOLIDINONE DILUENT

Jon F. Geibel; Rex L. Bobsein, and Harold D. Yelton, all of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Continuation of Ser. No. 458,043, Dec. 28, 1989, abandoned. This application Sep. 25, 1990, Ser. No. 587,836

Int. Cl.[5] C08G *75/20*

U.S. Cl. 528—388 **10 Claims**

1. A process for preparing a poly(arylene sulfide/sulfone) polymer by reacting reactants comprising a dihalo aromatic sulfone with a sulfur-containing compound in the presence of an alkali metal carboxylate and a diluent consisting essentially of a 1,3-dialkyl-2-imidazolidinone, under polymerization conditions.

5,066,775

COPOLY ARYLENE/ALKYLENE SULFIDE

Ernst-Ulrich Dorf, Krefeld; Klaus Reinking, Wermelskirchen; Wolfgang Jakob, Moers; Erhard Tresper, Krefeld, and Wolfgang Rüsseler, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 5, 1990, Ser. No. 475,267

Claims priority, application Fed. Rep. of Germany, Feb. 16, 1989, 3904706

Int. Cl.[5] C08G *75/16*

U.S. Cl. 528—388 **3 Claims**

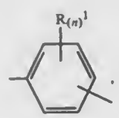
1. Sulphur-containing copolymer consisting essentially of

a) 60 to 99.5 mol % of identical or different arylene sulphide units of the formula (I)

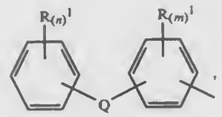
—Ar—S— (I),

in which

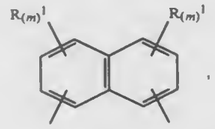
Ar represents a radical of the formula (II), (III) or (IV)



(II)



(III)



(IV)

in which

R^1 denotes identical or different hydrogen, C_1-C_4-alkyl, C_5-C_{10}-cycloalkyl, C_6-C_{10}-aryl, C_7-C_{14}-alkylaryl or C_7-C_{14}-arylalkyl, or two R^1's in the ortho-position relative to one another together with the adjacent carbon atoms represent a C_5-C_{14}-ring which is aromatic or represent a C_5-C_{14} heterocyclic when the two R^1's are bridged by N, O or S hetero atoms,

Q represents a single bond or Q represents $—CR^1{}_2—$, —C(O)—, —S(O)—, $—S(O)_2—$, $—NR^1—$, —C(-C)O—, $—C(O)NR^1—$, $(—C(O))_2N—$, $—C(O)N-R^1—Ar—NR^1C(O)—$ or $—C(O)—AR—C(O)—$, wherein R^1 and Ar are as defined supra,

n represents the number 1, 2 or 3 or 4,

m represents the number 1, 2 or 3,

b) 0.5 to 40 mol % of identical or different alkylene sulphide units and,

c) 0 to 3 mol % based on the sum of a) and b) of units of formula (VIII)

ArX_p (VIII),

in which

X represents halogen,

Ar represents a C_6-C_{24}-aromatic or -heteroaromatic and

p represents the number 3 or 4.

5,066,776

PROCESS FOR THE MANUFACTURE OF POLYARYLENE SULPHIDES

Wolfgang Rüsseler; Karsten-Josef Idel; Ernst-Ulrich Dorf; Wolfgang Alewelt, and Dieter Freitag, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 13, 1990, Ser. No. 565,729

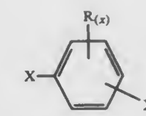
Claims priority, application Fed. Rep. of Germany, Aug. 24, 1989, 3927929

Int. Cl.[5] C08G *75/16*

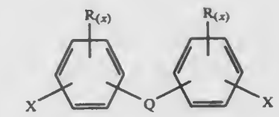
U.S. Cl. 528—388 **5 Claims**

1. A process for the manufacture of polyarylene sulphides from

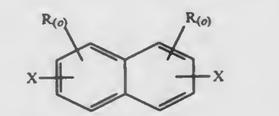
a) dihalogen-(hetero)aromatic compounds of formulate (I), (II) or (III)



(I)



(II)



(III)

wherein

X signifies halogen,

R^1 is hydrogen, C_1-C_4 alkyl, C_5-C_{10} cycloalkyl, C_6-C_{10} aryl, C_7-C_{14} alkylaryl, C_7-C_{14} arylalkyl, or two R^1 residues together in the ortho position together with the adjacent carbon atoms in the ring form a C_5-C_{14} aromatic residue with or without up to three heteroatoms comprising N, O or S,

Q stands for a single bond or $—CR^1{}_2—$, —Ar—, —O—, —S—, $—NR^1—$, —C(O)—, —C(O)—Ar—C(O)—, $—C(O)—NR^1—C(O)—$, whereby R^1 has the meaning stated above and Ar stands for a C_6-C_{24} aromatic with or without a N, O or S heteroatom,

x stands for the numbers 1, 2, 3 or 4,

o stands for the numbers 1, 2 or 3,

whereby up to 20 mol % of the aromatic dihalogen residues are optionally replaced by C_1-C_{36} aliphatic dihalogen residues or C_8-C_{36} aromatic residues containing at least two aliphatically bound halogens,

b) optionally 0.05 to 3 mol %, relative to the sum of a), of tri- or tetrahalogen aromatic residues of formula (IV)

ArX_n (IV)

wherein

X stands for halogen,

Ar stands for C_6-C_{24} aromatic residue with or without up to 3 carbon atoms replaced by heteroatoms comprising O or S, and

n stands for the number 3 or 4, and optionally,

0.05 to 7.5 mol %, relative to the sum of a), of compounds for regulating the molecular weight,

c) alkali sulphides prepared in situ from alkali hydroxide and hydrogen sulphide, optionally with alkali hydrogen sulphides,

d) in a polar, aprotic organic solvent, characterized in that

i) a 1.8 to 2.4 molar amount, relative to the sum of aromatic dihalogen compounds in a), of alkali hydroxide is placed in a reactor with the polar solvent at room temperature and normal pressure or elevated pressure up to 10 bar, and

ii) optionally, with simultaneous heating, a 0.9 to 1.2 molar amount, relative to the sum of aromatic dihalogen compounds in a), of gaseous or condensed hydrogen sulphide is introduced, and

iii) heated to a temperature of at least 150° C.,

iv) the aromatic dihalogen compound(s) of a) are added, and

v) by azeotropic distillation the pressure of the aromatic dihalogen compounds at a minimum temperature corresponding to the boiling point of the water-containing azeotrope, water is separated in a period of 5–100 minutes, and

VOL 1132 ISS 3 NO 19 1991 UMI

vi) the temperature is continuously increased to 230°–250° C.

5,066,777

POLYMERIZATION OF CO/OLEFIN WITH DIPHOSPHINE/HYDROCARBYL PALLADIUM SALT COMPLEX CATALYST

Petrus W. N. M. Van Leeuwen; Cornelis F. Roobeek, both of Amsterdam, Netherlands, and Pui K. Wong, Katy, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Feb. 5, 1990, Ser. No. 474,959

Claims priority, application Netherlands, Mar. 15, 1989, 8900629

Int. Cl.[5] C08G *67/02*

U.S. Cl. 528—392 **9 Claims**

1. In the process for the production of linear alternating polymers of carbon monoxide and at least one ethylenically unsaturated hydrocarbon by contacting the carbon monoxide and hydrocarbon under polymerization conditions in the presence of a reaction diluent and a catalytic quantity of a diphosphine/hydrocarbylpalladium salt complex, the improvement wherein the complex comprises a tetraaryldiphosphine/hydrocarbylpalladium cation and the anion of a non-hydrohalogenic acid having a pKa below 2.

5,066,778

CARBON MONOXIDE/CYCLOPENTEN COPOLYMER AND PREPARATION WITH AROMATIC DINITRO COMPOUND

Josephus H. Van Deursen; Johannes A. Van Doorn; Eit Drent, all of Amsterdam, Netherlands, and Pui K. Wong, Katy, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Jan. 30, 1990, Ser. No. 472,146

Claims priority, application Netherlands, Mar. 2, 1989, 8900513

Int. Cl.[5] C08G *67/02*

U.S. Cl. 528—392 **10 Claims**

1. A process for producing a linear alternating copolymer of carbon monoxide and a cyclopentene compound having a hydrogen substituent on each carbon atom of the carbon-carbon double bond, which comprises contacting the carbon monoxide and cyclopentene in a reaction diluent under polymerization conditions, in the presence of a catalyst composition formed from a palladium compound, an anion of a non-hydrohalogenic acid having a pKa below 2, a bidentate ligand, and an aromatic m-dinitro compound.

5,066,779

CATALYTIC PROCESS FOR PRODUCING RAW MATERIAL PITCH FOR CARBON MATERIALS FROM NAPHTHALENE

Ikuo Seo, Iwaki; Tooru Oono, Fujushima, and Yosinobu Murakami, Iwaki, all of Japan, assignors to Kureha Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 30, 1990, Ser. No. 472,260

Claims priority, application Japan, Feb. 2, 1989, 1-24592

Int. Cl.[5] C08G *61/10, 83/00*

U.S. Cl. 528—396 **11 Claims**

1. A process for producing a raw material pitch for carbon materials comprising the steps of:

adding aluminum chloride to naphthalene or naphthalene derivative as a catalyst; polymerizing said naphthalene or naphthalene derivative at a temperature of 100° to 330° C. to obtain a polymer; adding water to said polymer to obtain a mixture thereof; maintaining said mixture in an emulsified state for a predetermined time under stirring and removing water containing a residual catalyst from said polymer.

5,066,780

METHOD OF VULCANIZING RUBBER WITH HEAT TRANSFER LIQUID

Werner Michel, Emmering, Fed. Rep. of Germany, assignor to Metzeler GmbH, Munich, Fed. Rep. of Germany

Filed Oct. 12, 1989, Ser. No. 420,167

Claims priority, application Fed. Rep. of Germany, Oct. 12, 1988, 3834772; Aug. 1, 1989, 3925482

Int. Cl.[5] C08C *19/20*

U.S. Cl. 528—481 **9 Claims**

1. Method of vulcanizing strands of rubber profiles, which comprises:

preparing a salt melt of potassium nitrate including a content of lithium nitrate and having a viscosity lower than 40 mPa×s,

heating the salt melt to a temperature substantially between 180° and 260°, and

continuously passing the strands of rubber profiles through the salt melt and vulcanizing the strands of rubber profiles.

5,066,781

HEAT TREATED POLYARYLENE SULPHIDE CONTAINING PHOSPHINE GROUPS

Burkhard Köhler, and Rolf-Volker Meyer, both of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

Division of Ser. No. 436,127, Nov. 13, 1989, Pat. No. 5,010,169, which is a division of Ser. No. 336,716, Apr. 12, 1989, abandoned. This application Jul. 16, 1990, Ser. No. 552,808

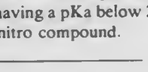
Claims priority, application Fed. Rep. of Germany, Apr. 29, 1988, 3714533

Int. Cl.[5] C08G *75/16*

U.S. Cl. 528—481 **4 Claims**

I. Linear or branched phosphorous containing polyarlene sulphide prepared by:

a. the reaction of 0.1 to 10 mol-% of at least one monomer corresponding to the following formula



(I)

wherein

P denotes phosphorous,

Ar denotes a C_6-C_{14} aromatic group or a C_5-C_{14} heteroaromatic group containing 1 to 3 halogen atoms,

R^1 is identical to Ar or denotes a C_1-C_{22}-alkyl, C_6-C_{15}-aralkyl or C_6-C_{14}-aryl group,

R^2 is identical to Ar to R^1,

from 90 to 99.9 mol-% of at least one monomer corresponding to the formula II

(II)

wherein

Ph represents a para- or metaphenylene group of a 4,4'-diphenylene group and

Hal represents halogen and the sum of all the halogen atoms is at least 2, and 1 to 2 equivalents of an alkali metal sulfide and

b. the subsequent heating of the isolated reaction product of step a. to 280°–450° C. for 1–100 minutes.

5,066,782

RETROVIRUS CAPABLE OF CAUSING AIDS, MEANS AND METHOD FOR DETECTING IT IN VITRO

Luc Montagnier, Le Plessis Robinson; Solange Chamaret, Paris; Denise Guetard, Paris; Marc Alizon, Paris; Francois Clavel, Paris; Mireille Guyader, Paris; Pierre Sonigo, Paris; Francoise Brun-Vezinet, Paris; Marianne Rey, Paris; Christine Rouzioux, Paris, and Christine Katlama, Paris, all of France, assignors to Institut Pasteur, Paris, France

Continuation of Ser. No. 150,645, Nov. 20, 1987, abandoned, which is a continuation-in-part of Ser. No. 3,764, Jan. 16, 1987, which is a continuation-in-part of Ser. No. 933,184, Nov. 21, 1986, which is a continuation-in-part of Ser. No. 916,080, Oct. 6, 1986, abandoned, which is a continuation-in-part of Ser. No. 835,228, Mar. 3, 1986, Pat. No. 4,839,288. This application Jan. 10, 1990, Ser. No. 462,908

Claims priority, application France, Jan. 22, 1986, 86 00910; Jan. 22, 1986, 86 00911; Feb. 6, 1986, 86 01635; Feb. 13, 1986, 86 01985; Mar. 18, 1986, 86 03881; Mar. 24, 1986, 86 04215; Jan. 22, 1987, PCT/FR87/00025

Int. Cl.[5] C07K *13/00, 15/14, 15/04*

U.S. Cl. 530—324 **8 Claims**

1. Antigen of Human Immunodeficiency Virus Type 2 (HIV-2), wherein the antigen is selected from the group consisting of p12 protein and p42 protein, and wherein the antigen is substantially pure and is capable of specifically reacting with antibodies serum of a patient afflicted with Lymphadenopathy Syndrome (LAS) or Acquired Immune Deficiency Syndrome (AIDS).

5,066,783

ANTIVIRAL PEPTIDES AND MEANS FOR TREATING HERPES INFECTIONS

Eric A. Cohen, 2175 Stevens, St. Laurent, Quebec, Canada H4M 1G6 ; Pierrette Gaudreau, 776 Andrien, Greenfield Park, Quebec, Canada J4V 3L4 ; Jacques Michaud, 115 Ste. Catherine, O. Apt. #302, Montreal, Quebec, Canada H2V 4R3 ; Paul Brazeau, 12460 Odette Oligny, Cartierville, Montreal, Quebec, Canada H4J 9Z7 , and Yves Langelier, 4671 Christophe Colomb, Montreal, Quebec, Canada H2J 3G7

Continuation-in-part of Ser. No. 46,707, May 7, 1987, Pat. No. 4,795,740. This application Sep. 15, 1988, Ser. No. 244,879

The portion of the term of this patent subsequent to Jan. 3, 2006, has been disclaimed.

Int. Cl.[5] C07K *7/06*

U.S. Cl. 530—328 **1 Claim**

1. A polypeptide selected from a group consisting of the following polypeptide

(18-1) H—Tyr—Ala—Gly—Thr—Val—Ile—Asn—Asp—Leu—OH,

(18-2) Ac—Tyr—Ala—Gly—Thr—Val—Ile—Asn—Asp—Leu—OH,

(18-3) Ac—Tyr(OAc)—Ala—Gly—Phe—Val—Ile—Asn—Asp—Leu—OH,

(18-4) Ac—Tyr—Ala—Gly—Ser—Val—Ile—Asn—Asp—Leu—OH,

(18-5) Ac—Tyr—Ala—Gly—Val—Val—Ile—Asn—Asp—Leu—OH,

(18-6) Ac—Tyr—Ala—Gly—Cys—Val—Ile—Asn—Asp—Leu—OH,

(18-7) Ac—Tyr—Ala—Ala—Thr—Val—Ile—Asn—Asp—Leu—OH,

(18-8) Ac—Tyr—Ala—Val—Thr—Val—Ile—Asn—Asp—Leu—OH,

(18-9) Ac—Tyr—Ser—Gly—Thr—Val—Ile—Asn—Asp—Leu—OH,

-continued

(18-10) Ac—Tyr—Cys—Gly—Thr—Val—Ile—Asn—Asp—Leu—OH,

(18-11) Ac—Tyr—Ala—Gly—Phe—Val—Ile—Asn—Asp—Leu—OH,

(18-12) Ac—Tyr—Ala—Pro—Ala—Val—Ile—Asn—Asp—Leu—OH,

Ac—Tyr—Ser—Val—Ile—Asn—Asp—Leu—OH, (18-13)

Ac—Phe—Val—Ile—Asn—Asp—Leu—OH, (18-14)

desamino—Tyr—Val—Ile—Asn—Asp—Leu—OH, (18-15)

Ac—Tyr—Val—Ile—Asn—Asp—Leu—OH, (18-16)

: nd

Ac—Tyr(OMe)—Val—Ile—Asn—Asp—Leu—OH, (18-17)

or a therapeutically acceptable salt of said polypeptide.

or a therapeutically acceptable salt of said polypetide.

5,066,784

METHOD FOR USING SUBSTRATE IN PEPTIDE SYNTHESES

David C. Sherrington, Kirkintilloch, Scotland, and Philip W. Small, Merseyside, United Kingdom, assignors to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Division of Ser. No. 185,672, Apr. 25, 1988, Pat. No. 4,965,289. This application May 25, 1990, Ser. No. 528,492

Claims priority, application United Kingdom, Apr. 24, 1987, 8709689; Nov. 24, 1987, 8727474

Int. Cl.[5] A61K *37/02;* C07K *5/00*

U.S. Cl. 530—334 **10 Claims**

1. A process of peptide synthesis using a substrate comprising a porous cross-linked vinyl polymeric material having a pore structure providing an open porosity of at least 75% and comprising cells having a diameter in the range 1 to 100 μm interconnected by holes and a gel contained and retained in said pore structure by chemical binding to the surfaces of the said polymeric material, said gel being polymeric and having reactive functional groups used in the peptide synthesis, said cells and holes of said polymeric material having a shape and conformation resulting from polymerization of vinyl material in a high internal phase emulsion system, said peptide synthesis comprising sequentially passing reagents through the pore structure of said substrate so as to perform the steps of

a) chemically bonding a first amino acid residue to said gel via said reactive functional groups of said gel;

b) chemically bonding a second amino acid residue to said first amino acid residue to form a peptide chain;

c) chemically bonding further amino acids sequentially to increase said peptide chain; and

d) chemically cleaving the peptide resulting from step c) from said gel.

5,066,785

CARBOXYL TERMINAL PEPTIDE AND PROTEIN SEQUENCING

Chad G. Miller, Los Angeles, Calif., assignor to City of Hope, Duarte, Calif.

Continuation-in-part of Ser. No. 271,328, Nov. 15, 1988, Pat. No. 4,935,494. This application Feb. 17, 1989, Ser. No. 311,966

The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.

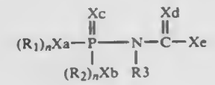
Int. Cl.[5] C07K *1/10*

U.S. Cl. 530—345 **10 Claims**

1. In a process for the sequential degradation of a peptide which includes reacting the carboxy terminus of said peptide with a coupling reagent to form a peptidyl derivative which is

VOL 1132 ISS 3 NO 19 1991 UMI

cleavable to provide a derivative of the amino acid residue previously at said carboxy terminus and a peptide lacking such amino acid residue, the improvment which comprises utilizing, as the coupling reagent, a compound of the schematic structural formula:



in which

Xa and Xb are O (oxygen), S (sulfur) or N (nitrogen)

R_1 and R_2 are H, or any alkyl ar aryl radical having not more than about 10 carbon atoms,

n is 1 when Xa and Xb are O or S;

n is 2 when Xa or Xb is N

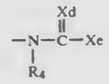
when Xa and Xb are both N $(R_1)_nXa$ and $(R_2)_nXb$ may be included in an acylic amine or a nitrogen heterocycle;

R_4 is an alkyl or aryl radical having not more than about 10 carbon atoms:

Xc is O or S

Xd is O, S or NR_4 wherein R_4 is H or any alkyl or aryl radical having not more than about 10 carbon atoms

Xe is OR_5, SR_5 or $N(R_5)_2$ wherein R_5 is an alkyl or aryl radical having not more than about 12 carbon atoms, and in which



may be included in a ring system

5,066,786

METHOD FOR THE PURIFICATION OF INTERFERON

Otello Protasi, and Paolo Rappuoli, both of Siena, Italy, assignors to Sclavo, S.p.A., Siena, Italy

Filed Jul. 18, 1988, Ser. No. 220,312

Claims priority, application Italy, Jul. 31, 1987, 21560 A/87

Int. Cl.[5] C07K *15/26, 3/18, 3/20*

U.S. Cl. 530—351 **12 Claims**

1. A method for the purification of human interferon from solutions containing it, the method comprising the steps of

a) providing a column of siliceous material;

b) disinfecting said column with an aqueous solution of formaldehyde;

c) passing an interferon solution through said column to substantially completely adsorb said interferon;

d) washing the column with non-pyrogenic, sterile, deionized water;

e) eluting of the column successively with a 1.4 M aqueous solution of Nacl in non-pyrogenic, sterile, deionized water, and with an aqueous solution of acetic acid having a molar concentration of from 0.001 M to 0.003 M, to remove residual extraneous proteins;

f) eluting of the column with an aqueous solution of acetic Acid having a molar concentration of from 0.01 to 0.03 M, to obtain a fraction or fractions of the interferon from the column; and

g) recovering and lyophilizing the fraction or fractions containing the interferon thus purified.

5,066,787

BLOOD COAGULATION INHIBITING PROTEINS, PROCESSES FOR PREPARING THEM AND THEIR USES

Christian P. M. Reutelingsperger, Maastricht, Netherlands, assignor to Boehringer Ingelheim International GmbH, Ingelheim am Rhein, Fed. Rep. of Germany

Division of Ser. No. 779,287, Sep. 23, 1985, Pat. No. 4,736,018. This application Nov. 23, 1987, Ser. No. 123,970

Claims priority, application Netherlands, Sep. 21, 1984, 8402904; Mar. 4, 1985, 8500601

Int. Cl.[5] C07K *15/06;* **A61K** *37/02*

U.S. Cl. 530—380 **18 Claims**

1. A substantially purified anti-coagulant protein, having an anti-coagulation activity, belonging to the group of vascular anti-coagulants which do not inactivate the coagulation factors, wherein said anti-coagulant protein inhibits:

(1) a modified prothrombin-time experiment;

(2) a modified, activated, partial thromboplastin-time experiment;

(3) a non-modified prothrombin-time experiment;

(4) prothrombin activation by coagulation factor X_a in the presence of negatively charged phospholipids and Ca^{2+};

(5) intrinsic X-activation by factor IX_a in the presence of negatively charged phospholipids and Ca^{2+};

(6) prothrombin activation of isolated, stimulated blood platelets;

(7) coagulation induced by blood vessel walls; and

(8) coagulation-dependent aggregation of platelets; and

wherein said anti-coagulant protein does not inhibit the biological and amidolytic activity of factors X_a and II_a, per se; and wherein said anti-coagulant protein inhibits coagulation induced by a vascular coagulant or by factor X_a, but does not inhibit coagulation of thrombin.

5,066,788

BLOOD COAGULATION INHIBITING PROTEINS, PROCESSES FOR PREPARING THEM AND THEIR USES

Christian M. Reutelingsperger, Maastricht, Denmark, assignor to Boehringer Ingelheim International GmbH, Fed. Rep. of Germany

Continuation of Ser. No. 123,970, Nov. 23, 1987, which is a division of Ser. No. 779,287, Nov. 23, 1985, Pat. No. 4,736,018. This application Dec. 7, 1989, Ser. No. 447,065

Claims priority, application Netherlands, Sep. 21, 1984, 8402904; Mar. 4, 1985, 8500601

Int. Cl.[5] C07K *15/06;* **A61K** *37/02*

U.S. Cl. 530—381 **1 Claim**

1. A substantially purified anti-coagulant protein obtainable from the walls of mammalian blood vessels and belonging to the group of vascular anti-coagulants which inhibit the coagulation induced by a vascular coagulant or by factor X_a, but does not inactivate the coagulation factors, inhibit the biological and amidolytic activity of factors X_a and II_a, or inhibit coagulation induced by thrombin.

5,066,789

TARGETING SUBSTANCE-DIAGNOSTIC/THERAPEUTIC AGENT CONJUGATES HAVING SCHIFF BASE LINKAGES

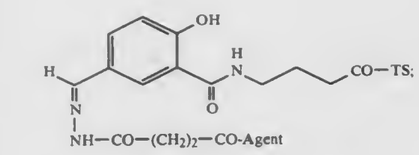
Ananthachari Srinivasan, Kirkland; Diana I. Brixner, Lynnwood; Vivekananda M. Vrudhula, Edmonds, all of Wash., assignors to NeoRx Corporation, Seattle, Wash.

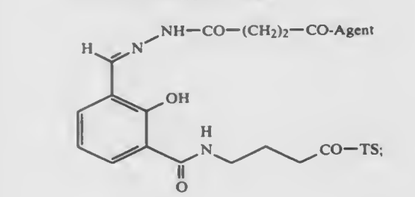
Continuation-in-part of Ser. No. 252,298, Sep. 30, 1988, abandoned. This application Sep. 29, 1989, Ser. No. 415,154

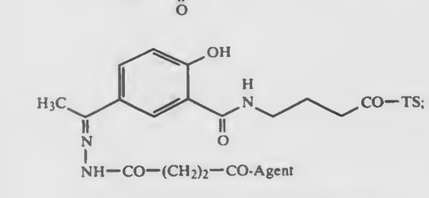
Int. Cl.[5] C07K *15/28*

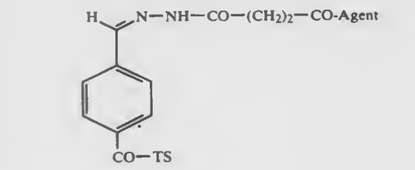
U.S. Cl. 530—388 **4 Claims**

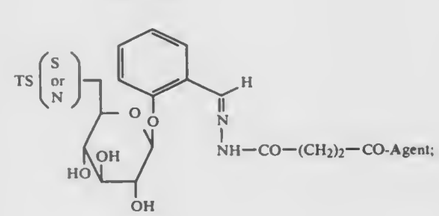
1. A targeting substance-diagnostic/therapeutic agent conjugate joined by a hydrazone linker and having the formula:

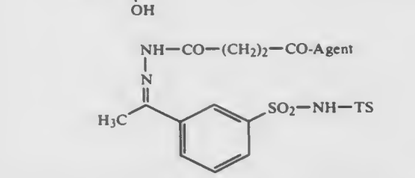












wherein "TS" represents a targeting substance and "Agent" represents a diagnostic or therapeutic agent.

5,066,790

METHOD OF PRODUCING STAR-LIKE POLYMERS FROM LIGNIN

Wolfgang G. Glasser; Willer De Oliveira, both of Blacksburg, Va.; Stephen S. Kelley, Kingsport, Tenn., and Li S. Nieh, Blacksburg, Va., assignors to Center for Innovative Technology, Herndon and Virginia Polytechnic Institute and State University, Blacksburg, both of, Va.

Division of Ser. No. 7,183,213, Apr. 19, 1988, Pat. No. 4,918,167. This application Jan. 4, 1990, Ser. No. 460,989

Int. Cl.[5] C07G *1/00;* **C08L** *97/00*

U.S. Cl. 530—502 **19 Claims**

1. A method of preparing a prepolymer having multiple functionality comprising:

dissolving a lignin derivative comprising an alkylene oxide modified lignin in a solvent;

admixing a chain extending agent to the mixture under non-aqueous conditions in the presence of a catalyst, at a temperature and pressure sufficient to react the chain extending agent and the lignin, to produce a chain extended lignin derivative; and

then removing the solvent and any remaining chain extending agent to isolate the chain extended lignin derivative.

5,066,791

PYRIDONEAZO DYES WITH AN M-AMINOBENZOIC ESTER AS THE DIAZO COMPONENT

Guenter Hansen, Ludwigshafen; Gunther Lamm, Hassloch, and Hermann Loeffler, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

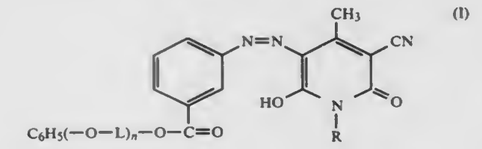
Continuation of Ser. No. 263,884, Oct. 28, 1988, abandoned. This application Feb. 14, 1990, Ser. No. 480,359

Claims priority, application Fed. Rep. of Germany, Oct. 30, 1987, 3736817

Int. Cl.[5] C09B *29/42;* **D06D** *3/52*

U.S. Cl. 534—772 **2 Claims**

1. A pyridoneazo dye of the formula I



(I)

where L is ethylene, R is methyl or ethyl and n is 1.

5,066,792

GENE PROBE FOR DETECTION OF SPECIFIC HUMAN LEUKEMIAS

Grady F. Saunders, and Wendy M. Mars, both of Houston, Tex., assignors to Board of Regents University of Texas, Austin, Tex.

Continuation-in-part of Ser. No. 94,099, Sep. 4, 1987, Pat. No. 4,857,466, which is a continuation of Ser. No. 655,942, Sep. 28, 1984, abandoned. This application Dec. 2, 1988, Ser. No. 279,451

Int. Cl.[5] C07H *21/04;* **C12Q** *1/68*

U.S. Cl. 536—27 **3 Claims**

1. A nucleic acid probe having a sequence consisting essen-

VOL 1132 ISS 3 NO 19 1991 UMI

tially of that found in the transformed *E. coli* which is designated ATCC no. 39868 and which encodes a protein for which



the corresponding mRNA is highly expressed in chronic myelogenous leukemia.

5,066,793

FINELY PARTICULATE CELLULOSE ESTERS OF AROMATIC OR AROMATIC-ALIPHATIC CARBOXYLIC ACIDS, PROCESS FOR THEIR PREPARATION, AND THE USE THEREOF

Eric Francotte, Kaiseraugst, Switzerland, and Gabriele Baisch, Weil-Friedlingen, Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Oct. 13, 1988, Ser. No. 257,363

Claims priority, application Switzerland, Oct. 26, 1987, 4202/87; Jun. 24, 1988, 2431/88

Int. Cl.[5] **C08B** *3/12, 3/26, 3/28*

U.S. Cl. 536—50 **18 Claims**

1. Cellulose ester particles of an aromatic or aromatic-aliphatic carboxylic acid having an average diameter of 1 to 200 μm, a specific surface area of 10 to 300 m^2/g, and a heat of fusion determined by calorimetry of 1 to 50 J/g, resulting from the process which comprises

(a) adding a solution of a cellulose ester of an aromatic or aromatic-aliphatic carboxylic acid in an organic solvent that contains 1 to 50% by volume, based on the amount of the solvent, of a C_5–C_{22}alkanol to a solution of an anionic surfactant in water,

(b) removing the organic solvent with continued stirring

(c) isolating, washing and drying the solid particles.

5,066,794

PROCESS FOR PREPARING A DISACCHARIDE DERIVATIVE

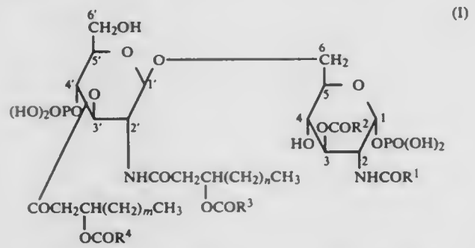
Tetsuo Shiba, Osaka, Japan, assignor to Daiichi Pharmaceutical Co., Ltd., Tokyo, Japan

Continuation of Ser. No. 342,639, Apr. 19, 1989, abandoned, which is a continuation of Ser. No. 769,289, Aug. 26, 1985, abandoned. This application Jan. 29, 1990, Ser. No. 471,064

Int. Cl.[5] **C07H** *5/06, 1/02*

U.S. Cl. 536—55.3 **3 Claims**

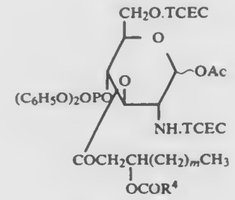
1. A process for preparing a disaccharide derivative represented by formula (I)



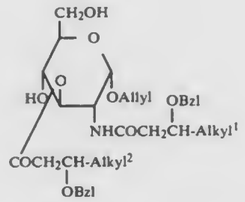
(I)

wherein R^1CO— and R^2CO— each represents a residue of a straight chain fatty acid having from 8 to 20 carbon atoms and having a hydroxyl group at the 3-position thereof; R^3CO— and R^4CO— each represents a residue of a straight chain fatty acid having from 8 to 20 carbon atoms; and m and n each represents an integer of from 8 to 12, and a salt thereof, comprising

A) condensing a compound of the formula (II):

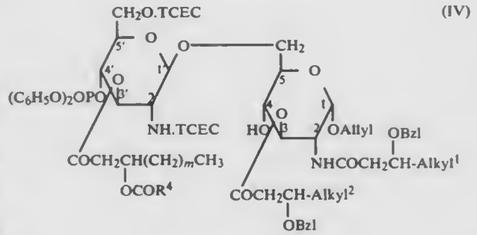


with a compound of formula (III)



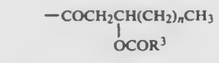
(III)

to obtain a compound of the formula (IV)



(IV)

B) removing TCEC groups bonded to the 2'-amino group and the 6-hydroxyl group of compound (IV), and, at the same time, bonding a group represented by the formula (VI)

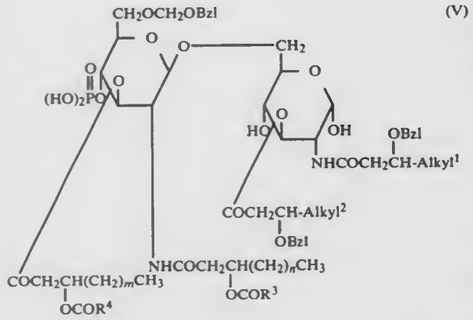


(VI)

to the 2'-amino group,

C) protecting the 6'-hydroxyl group with a protecting group for hydroxyl group,

D) removing the protecting allyl group at the 1-hydroxyl group to obtain a compound represented by formula (V)



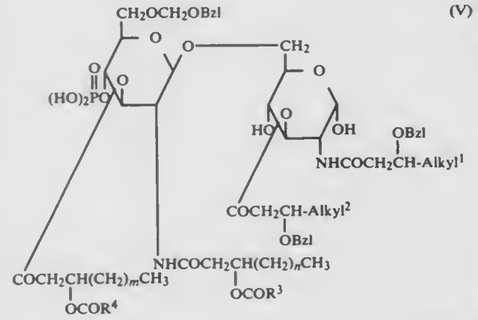
(V)

and

E) reacting the compound of formula (V) with dibenzyl phosphorochloridate to introduce a phosphono group into the 1-hydroxyl group, and then removing the benzyl group protecting functional groups by catalytic reduction to obtain the compound of formula (I);

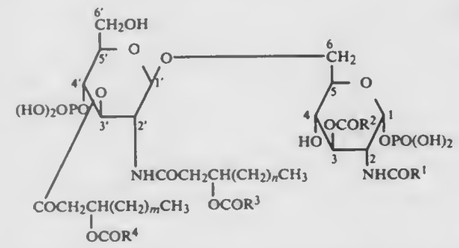
wherein the foregoing formulae TCEC represents a trichloroethoxycarbonyl group; Allyl represents an allyl group; Ac represents an acetyl group; Bzl represents a benzyl group; $Alkyl^1$ and $Alkyl^2$ each represents an alkyl group having from 5 to 17 carbon atoms; and R^3CO—, R^4CO—, and m and n each is the same as defined above for the formula (I).

3. A process for preparing a disaccharide derivative comprising reacting a compound of formula (V)



(V)

with dibenzyl phosphorochloridate to introduce a phosphono group into the 1-hydroxyl group, and then removing the benzyl group protecting functional groups by catalytic reduction to obtain a compound of formula (I)



(I)

wherein Bzl represents a benzyl group, $Alkyl^1$ and $Alkyl^2$ each represents an alkyl group having from 5 to 17 carbon atoms, R^1CO— and R^2CO— each represents a residue of a straight chain fatty acid having from 8 to 20 carbon atoms and having a hydroxyl group at the 3—position thereof, R^3CO— and R^4CO— each represents a residue of a straight chain fatty acid having from 8 to 20 carbon atoms, and m and n each represents an integer of from 8 to 12, and a salt thereof.

5,066,795

PERFLUOROALKYL-CONTAINING COMPOUND

Teruo Umemoto, and Sumi Ishihara, both of Sagamihara, Japan, assignors to Sagami Chemical Research Center, Tokyo, Japan

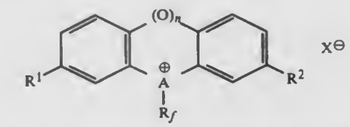
Filed Feb. 7, 1990, Ser. No. 476,542

Claims priority, application Japan, Feb. 10, 1989, 1-29705; Apr. 18, 1989, 1-96325

Int. Cl.[5] **C07D** *329/00, 345/00, 333/76, 327/04*

U.S. Cl. 540—1 **6 Claims**

1. A (perfluoroalkyl)dibenzonium salt represented by the following general formula



(I)

wherein R_f represents a perfluoroalkyl group having 1 to 10 carbon atoms, A represents a sulfur or selenium atom, R^1 and R^2, independently from each other, represents a hydrogen atom or a nitro group, $X^\ominus$ represents a conjugated base of Brönsted acid, and n is 0 or 1.

5,066,796

ELECTROPHOTOGRAPHIC IMAGING MEMBERS WITH BICHROMOPHORIC BISAZO PHTHALOCYANINE PHOTOCONDUCTIVE MATERIALS

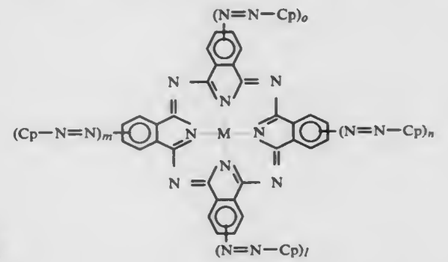
Kock-Yee Law, Penfield, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed May 31, 1990, Ser. No. 531,378

Int. Cl.[5] **G03G** *5/06*

U.S. Cl. 540—140 **22 Claims**

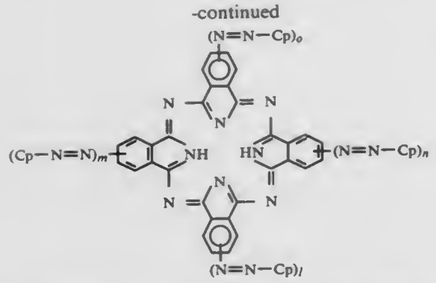
1. An imaging member which comprises a conductive substrate and a photogenerator layer containing a photogenerating compound selected from the group consisting of:



I

VOL 1132 ISS 3 NO 19 1991 UMI

-continued



II

and mixtures thereof, wherein Cp represents a coupler group, l, m, n, and o can each be 0, 1, 2, 3, or 4, the sum of l, m, n, and o is from 1 to 8, and M is selected from the group consisting of metals, metal oxides, metal halides, and metal hydroxy compounds.

5,066,797

PROCESS FOR PREPARING CEPHAM INTERMEDIATES

Jack E. Baldwin, Hinksey Hill, England, assignor to Lilly Industries Limited, Hampshire, England

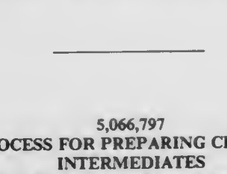
Filed Jul. 10, 1989, Ser. No. 377,371

Claims priority, application United Kingdom, Jul. 12, 1988, 8816546

Int. Cl.[5] C07D *501/04*

U.S. Cl. 540—215 **8 Claims**

1. A process for preparing a compound of the formula



(I)

in which

R^1 is an amino group, a protected amino group, an acylamino group or a diacylamino group,

R^2 is hydrogen, C_{1-4} alkoxy or C_{1-4} alkylthio,

R^3 is hydrogen, a salt ion or an ester-forming group, and

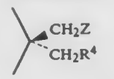
R^4 is hydrogen or C_{1-3} alkyl, which comprises reacting a compound of the formula

(II)

in which Y is a bridging group of the formula

or

-continued



Z is chloro, bromo or iodo, and R^1, R^2, R^3 and R^4 have the above defined values, with a reagent providing cobalt I, under reducing conditions.

5,066,798

CRYSTALLINE CEPHALOSPORIN DERIVATIVE

Bernhard C. Prager, Wörgl, Austria, assignor to Biochemie Gesellschaft m.b.H., Tyrol, Austria

Continuation of Ser. No. 458,279, Dec. 28, 1989, abandoned, which is a continuation of Ser. No. 336,278, Apr. 11, 1989, abandoned, which is a division of Ser. No. 57,552, Jun. 3, 1987, Pat. No. 4,826,972. This application Jun. 15, 1990, Ser. No. 538,795

Claims priority, application Austria, Jun. 4, 1986, 1511/86

Int. Cl.[5] C07D *501/38*; A61K *31/545*

U.S. Cl. 540—225 **2 Claims**

1. Crystalline (6R, 7R)-7 -2-(2-Amino-4-thiazolyl)-(Z)-2-(1-diphenylmethoxycarbonyl-1-methylethoxy)imino acetamido -3-(1-pyridiniummethyl)-3-cephem-4-carboxylate.

5,066,799

INTERMEDIATES FOR THE PREPARATION OF AMINOTHIAZOLOXIMINO CEPHALOSPORINS

William V. Curran, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn.

Division of Ser. No. 375,108, Jun. 30, 1989, Pat. No. 4,959,495, which is a division of Ser. No. 163,599, Mar. 3, 1988, abandoned, which is a division of Ser. No. 890,000, Jul. 28, 1986, abandoned. This application Jun. 29, 1990, Ser. No. 546,136

Int. Cl.[5] C07D *501/36*

U.S. Cl. 540—226 **4 Claims**

1. 7-[4-chloro-2-(Z)-methoxyimino-3-oxobutyramido]-3[(1,2,3-thiadiazol-5-yl)thiomethyl]ceph-3-em-4-carboxylic acid.

5,066,800

QUNOLINE INTERMEDIATES USEFUL THEREIN FOR SYNTHESIZING ANTIBACTERIAL COMPOUNDS

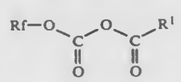
Masami Okabe, Passaic, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J.

Filed Apr. 27, 1990, Ser. No. 515,958

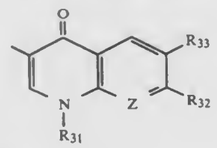
Int. Cl.[5] C07D *471/06, 245/00, 487/06, 239/28, 239/00*

U.S. Cl. 540—471 **7 Claims**

1. A compound of the formula



wherein R^1 is a group of the formula



wherein Z is



or N, R_{30} is hydrogen or halogen; R_{31} is hydrogen, halogen, lower alkyl, lower alkenyl, C_3–C_7 cycloalkyl, halo lower alkyl or mono, di and tri-halophenyl; R_{30} and R_{31} when taken together represent lower alkylene of 3–5 carbon atoms, a lower alkylene mono-oxy group of 2–4 carbon atoms or a lower alkylene dioxy group having 1–2 carbon atoms; R_{32} is hydrogen, halogen, lower alkyl, a 5 or 6 membered heterocyclic ring containing 1–3 hetero atoms selected from the group consisting of O, N and S, the heterocyclic ring being unsubstituted or substituted with lower alkyl, lower alkoxy, halogen, halo substituted lower alkyl, amino lower alkyl, lower alkyl amino lower alkyl, amino, mercapto, hydroxy, carbamoyl or carboxy; R_{33} is hydrogen or halogen; R_{32} and R_{33} when taken together represent a C_1–C_4 lower alkylene dioxy group; and R_f is (i) alkyl or alkenyl, either of which may be unsubstituted or substituted with at least one halo, amino or cyano, (ii) aryl which may be unsubstituted or substituted with at least one halo, hydroxy, lower alkyl, amino, cyano, lower alkoxy or alkoxycarbonyl, (iii) aralkyl, or (iv) cycloalkyl which may be unsubstituted or substituted with at least one lower alkyl or lower alkenyl group.

5,066,801

PREPARATION OF SULFONIC ACID ESTERS

Hans-Ulrich Blaser, Ettingen; Hans-Peter Jalett, Dornach, and Gottfried Sedelmeier, Schallstadt, all of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 320,902, Mar. 7, 1989, abandoned, which is a continuation of Ser. No. 129,576, Dec. 7, 1987, abandoned, which is a continuation-in-part of Ser. No. 869,799, Jun. 2, 1986, Pat. No. 4,785,089. This application Jun. 26, 1990, Ser. No. 544,076

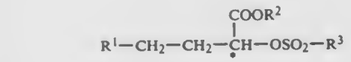
Claims priority, application Switzerland, Jun. 13, 1985, 2501/85

The portion of the term of this patent subsequent to Nov. 15, 2005, has been disclaimed.

Int. Cl.[5] C07D *223/16*

U.S. Cl. 540—523 **32 Claims**

1. A process for the preparation of a compound of formula I



(I)

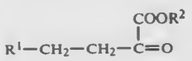
wherein

R^1 is C_5–C_6 cycloalkyl which is unsubstituted or substituted by C_1–C_7 alkyl or unsubstituted or substituted phenyl;

R^2 is C_1–C_7 alkyl;

R^3 is phenyl which is substituted by halogen or nitro; and the asterisk denotes a carbon atom that is either present in the preponderant number of molecules in the S configuration or in the preponderant number of molecules in the R configuration,

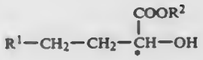
comprising enantio-selectively reducing a compound of formula III



(III)

wherein

R^1 and R^2 are as defined for formula I, in the presence of (a) a platinum catalyst on an alumina carrier and (b) a cinchona alkaloid, to a compound of formula II



(II)

wherein

R^1, R_2^2 and the asterick are as defined for formula I, and reacting said compound of formula II with an R^3-sulfonyl-anhydride or an R_3-sulfonyl-halide, wherein R_3 is defined as above.

5,066,802

PROCESS FOR PREPARING PYRIDO-BENZOTHIAZINE DERIVATIVES HAVING HIGH ANTIBACTERIAL ACTIVITY AND HIGH BIOAVAILABILITY TO TISSUES

Patrizia Terni; Stefano Maiorana; Antonio Papagni, and Piergiuseppe Pagella, all of Milan, Italy, assignors to Mediolanum Farmaceutici Srl., Milan, Italy

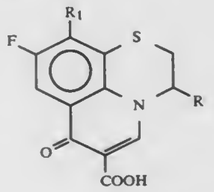
Continuation of Ser. No. 251,457, Sep. 30, 1988, Pat. No. 4,923,859. This application Dec. 7, 1989, Ser. No. 447,406

Claims priority, application Italy, Oct. 6, 1987, 22156 A/87

Int. Cl.[5] C07D *279/02*

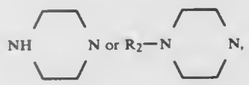
U.S. Cl. 544—32 **11 Claims**

1. A process for preparing pyrido-benzothiazine derivatives possessing high antibacterial activity and tissue bio-availability, having the formula:

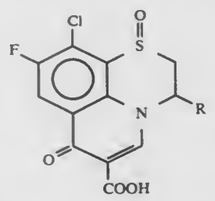


(I)

in which R is H or a C_1–C_6 alkyl or a C_1–C_6 fluoroalkyl, and R_1 is N-alkyl-3-pyrrolidynalkylamine with C_1 to C_6 alkyls or



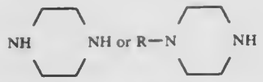
where R_2 is a C_1–C_6 alkyl or a C_2–C_6 alkenyl or a lower hydrocarbyl arylalkyl, unsubstituted or substituted by halogen, hydroxy or keto-groups, wherein the intermediate compound



(XXXV)

in which R has the above defined meaning, is prepared through a first reaction cycle starting from 2,4-difluoro-3-chloronitrobenzene, and that, through a second reaction cycle, the nucleophilic substitution of chlorine atom in (XXXV) with a N-alkyl-3-pyrrolidinalkylamine or with

VOL 1132 ISS 3 NO 19 1991 UMI



is carried out and successively the sulphoxide group is reduced to sulfide.

5,066,803

2- AND 3-AMINOMETHYL-6-ARYLCARBONYL-2,3-DIHYDROPYRROLO[1,2,3-DE]-1,4-BENZOXAZINES

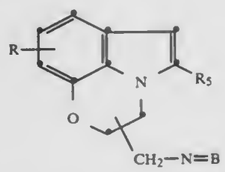
Thomas E. D'Ambra, North Greenbush, and Malcolm R. Bell, East Greenbush, both of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Division of Ser. No. 447,469, Dec. 7, 1989, Pat. No. 4,939,138, Continuation-in-part of Ser. No. 291,905, Dec. 29, 1988, abandoned. This application Apr. 16, 1990, Ser. No. 509,441

Int. Cl.[5] C07D *413/04*

U.S. Cl. 544—101 4 Claims

1. A member of the group consisting of (A) compounds having the formula



where:

R is hydrogen or from one to two substituents selected from the group consisting of lower-alkyl, lower-alkoxy, hydroxy or halogen in the 7-, 8-, or 9-positions;

R_5 is hydrogen or lower-alkyl; and

N=B is amino, N-lower-alkylamino, N,N-di-lower-alkylamino, 4-morpholinyl, 4-thiomorpholinyl, 1-piperidinyl, 1-pyrrolidinyl, 1-azetidinyl, 4-lower-alkyl-1-piperazinyl or 1-(hexahydro-4H-1,4-diazepinyl);

(B) acid-addition salts thereof; and (C) the racemic mixtures and the d- and l-enantiomers thereof.

5,066,804

PREPARATION OF ALKYL MORPHOLINONES

Wei-Yang Su, Austin, Tex., assignor to Texaco Chemical Company, White Plains, N.Y.

Filed Oct. 12, 1990, Ser. No. 596,642

Int. Cl.[5] C07D *265/32*

U.S. Cl. 544—173 6 Claims

1. A method for the preparation of a 4-alkyl-2-morpholinone which comprises reacting glyoxal with a N-alkyl monoethanolamine at a temperature of about −10° to 20° C. for about 1 to 5 hours in solution in a solvent that will form an azeotrope with water selected from the group consisting of toluene, xylene and ethyl benzene and then heating the reaction mixture to a temperature of at least about 110° C. to remove an azeotrope of water and solvent from the mixture to thereby substantially selectively convert the N-alkylmonoethanolamine to the corresponding 4-alkyl-2-morpholinone, and recovering the 4-alkyl-2-morpholinone,

the alkyl group of said N-alkyl monoethanolamine containing 1 to 18 carbon atoms.

5,066,805

CATALYTIC HYDROGENATION OF 2-AMINO-6-CHLOROPURINE

Peter M. Kincey, Epsom, England, assignor to Beecham Group, p.l.c., Brentford, England

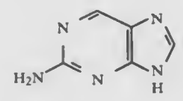
Filed Jul. 18, 1989, Ser. No. 381,584

Claims priority, application United Kingdom, Jul. 20, 1988, 8817270

Int. Cl.[5] C07D *473/32*

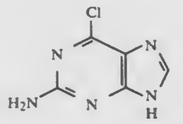
U.S. Cl. 544—277 4 Claims

1. A process for the preparation of a compound of formula (I):



(I)

which process comprises the reduction in an aqueous solution in the presence of a base essentially devoid of an organic solvent of a compound of formula (II):



(II)

by catalytic hydrogenation using palladium on charcoal as catalyst.

5,066,806

NOVEL SEPARATION PROCESS

Emmerich Pastorek, Hemsbach; Winfried Orth, Hassloch; Wolfgang Weiss, Neckarhausen, and Hans W. Kleffner, Battenberg, all of Fed. Rep. of Germany, assignors to Rutgerswerke AG, Fed. Rep. of Germany

Filed Aug. 13, 1990, Ser. No. 566,961

Claims priority, application Fed. Rep. of Germany, Sep. 27, 1989, 3932136

Int. Cl.[5] C07D *215/18*

U.S. Cl. 546—180 9 Claims

1. A process for the recovery of isomeric pure 7-chloroquinaldine from isomeric mixtures of chloro-quinaldines comprising dissolving the isomeric mixture of chloro-quinaldines in an organic solvent, adding an aqueous tartaric acid solution to the organic solution to form the tartrate of 7-chloroquinaldine in crystalline form, recovering the crystals and treating the same with a base to obtain 7-chloro-quinaldine.

5,066,807

PROCESS FOR THE PREPARATION OF CASTANOSPERMINE

Peter B. Anzeveno, Zionsville; Paul T. Angell, and Laura J. Creemer, both of Indianapolis, all of Ind., assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Filed Mar. 12, 1990, Ser. No. 492,507

Int. Cl.[5] C07D *471/04, 493/14, 493/04*

U.S. Cl. 546—183 4 Claims

1. A process for converting 5-(t-BOC)amino-5-deoxy-l,2 O-isopropylidene-α-D-glucuronolactone to castanospermine which comprises (a) reacting 5-(t-BOC)amino-5-deoxy-l,2-O-isopropylidene-α-D-glucuronolactone (I) with ethyl acetate and a strong base in an inert solvent at low temperature whereby the ethyl acetate adds across the carbonyl group of the lactone to give the corresponding cyclic hemiketal of a β-keto ester (II); (b) hydrogenating the hemiketal catalytically under pressure over a platinum catalyst in ethyl acetate to reduce the β-keto function and give β-hydroxy ester (III); (c)

treating the β-hydroxy ester with formic acid in an inert solvent with cooling to remove the protecting group from the amine followed by basification to provide internal cyclization of the amine to give lactam (IV); (d) reducing the lactam with an aluminum hydride reducing agent to give the corresponding pyrrolidine (V); and (e) treating the pyrrolidine first with trifluoroacetic acid with cooling and then hydrogenating over platinum catalyst under pressure to give castanospermine (VI).

3. A process according to claim 1 wherein the starting 5-(t-BOC)amino-5-deoxy-1,2-O-isopropylidene -α-D-glucuronolactone is obtained from 1,2-O-isopropylidene -5-oxo-60-D-glucuronolactone by reacting that lactone with O-benzylhydroxylamine or O-(trimethylsilyl)hydroxyl amine to give the corresponding 5-oxime followed by catalytic hydrogenation of the oxime, using palladium on carbon, in the presence of t-BOC-anhydride.

5,066,808

PYRIDYL INSECTICIDALLY ACTIVE CYANO COMPOUNDS

Kozo Shiokawa, Kawakasaki; Shiuichi Tsuboi, Hino; Koichi Moriya, Tokyo; Ikuro Honda, Tanashi; Yumi Hattori, and Katsuhiko Shibuya, both of Hachioji, all of Japan, assignors to Nihon Tokushu Noyaku Seizo K.K., Tokyo, Japan

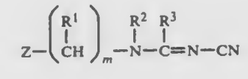
Filed Sep. 14, 1990, Ser. No. 584,398

Claims priority, application Japan, Oct. 21, 1988, 63-264020; Mar. 13, 1989, 1-57813

Int. Cl.[5] A01N *47/42;* C07D *213/40*

U.S. Cl. 514—231.5 5 Claims

1. A cyano compound of the formula (I)



wherein

R^1 is hydrogen, methyl, ethyl or propyl,

m is 1

R^2 is hydrogen, C_{1-6} alkyl,

R^3 is



in which

R^4 is C_{1-6} alkyl R^5 and R^6 are hydrogen, C_{1-9} alkyl and in addition, R^5 and R^6 may form, together with the N-atom to which they are bonded, pyrrolidino, piperidino, 2-methylpiperidino, morpholino, piperazino or isoxazolidino, and Z is a 6 membered heterocyclic group which is substituted by halogen or C_{1-2} alkyl and contains one heteroatom N, as a ring member, provided that where Z is pyridyl substituted by halogen, m is 1, R^2 is methyl, ethyl or propyl and R^3 is —S-alkyl (C_{1-3}) or —S-benzyl, then R^1 is methyl, ethyl or propyl.

5,066,809

PREPARATION OF 3-METHYLPYRIDINE FROM 2-METHYLGLUTARONITRILE

Dev D. Suresh, Hudson, Ohio; Robert DiCosimo, Wilmington, Del.; Richard Loiseau, Bainbridge, Ohio; Maria S. Friedrich, Lyndhurst, Ohio, and Hsiao-Chiung Szabo, Mentor, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Sep. 27, 1990, Ser. No. 589,307

Int. Cl.[5] C07D *213/08*

U.S. Cl. 546—250 7 Claims

1. A process for making 3-methylpyridine by contacting 2-methylglutaronitrile in admixture with hydrogen gas with a supported solid catalyst containing palladium metal promoted with at least one of Cr, W, Ni, Co and Ge.

5,066,810

3,5-DIMETHYL-4-METHOXYPYRIDINE DERIVATIVES

Karl Baumann, Vienna, Austria, assignor to CL Pharma Aktiengesellschaft, Linz, Austria

Filed Nov. 7, 1989, Ser. No. 432,874

Claims priority, application Austria, Nov. 15, 1988, 2789/88

Int. Cl.[5] C07D *213/68*

U.S. Cl. 546—300 1 Claim

1. 3,5-Dimethyl-4-methoxy-2 aminomethylpyridine.

5,066,811

POLYIMIDAZOLES VIA AROMATIC NUCLEOPHILIC DISPLACEMENT

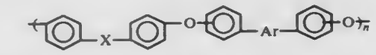
John W. Connell, and Paul M. Hergenrother, both of Yorktown, Va., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 12, 1990, Ser. No. 508,316

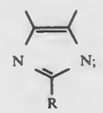
Int. Cl.[5] C07F *9/28;* C07D *211/70, 211/82*

U.S. Cl. 548—119 8 Claims

1. A polyimidazole having the general structural formula:

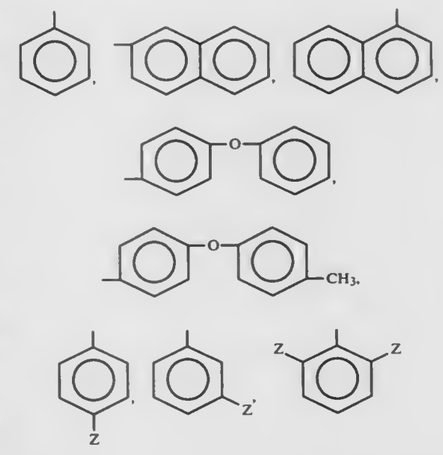


wherein the substitution of oxygen is selected from the group consisting of meta meta, para para, and para meta; wherein Ar is a radical selected from the group consisting of:



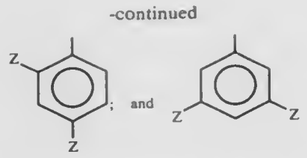
(a)

wherein R is selected from the group consisting of: H, CH_3, CF_3, CH_2CH_3, OCH_3,



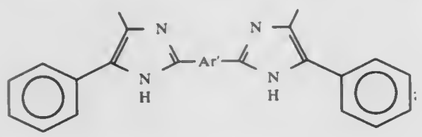
VOL 1132 ISS 3 NO 19 1991 UMI

-continued

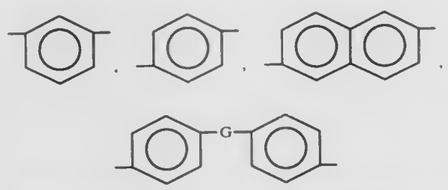


wherein Z is a radical selected from the group consisting of: CF_3, F, Cl, Br, I, CH_3, OCH_3, CH_2CH_3, NO_2, and Ph; and

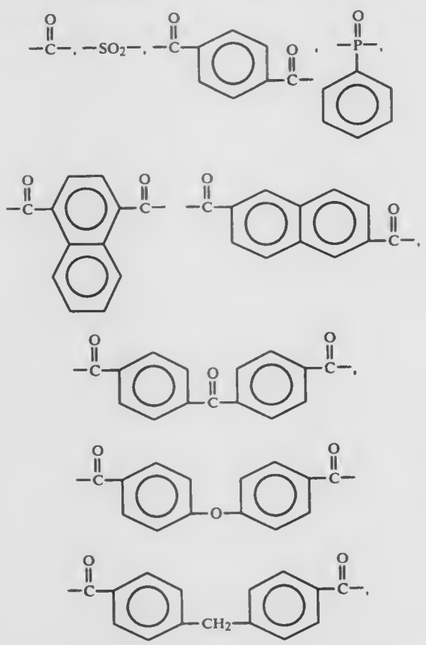
(b)



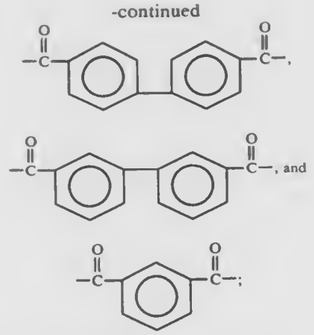
wherein Ar' is selected from the group consisting of:



wherein G is a bond or is a substituent selected from the group consisting of: CH_2, O, S, C=O, and SO_2; wherein X is a radical selected from the group consisting of:



-continued



and wherein n is an integer between 4 and 100.

5,066,812

3-PROPENYLCEPHEM DERIVATIVE

Kamiya Takashi; Naito Toshihiko; Negi Shigeto; Komatu Yuuki; Kai Yasunobu; Nakamura Takaharu; Sugiyama Isao; Machida Yoshimasa; Nomoto Seiichiro; Kitoh Kyosuke; Katsu Kanemasa, and Yamauchi Hiroshi, all of Ibaraki, Japan, assignors to Eisai Co., Ltd., Tokyo, Japan

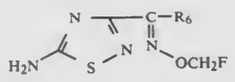
Division of Ser. No. 107,631, Oct. 13, 1987, Pat. No. 4,921,850. This application Jan. 11, 1990, Ser. No. 463,514

Claims priority, application Japan, Oct. 13, 1986, 61-241480; Nov. 6, 1986, 61-262799; Dec. 10, 1986, 61-292574; Feb. 3, 1987, 62-21866; Sep. 3, 1987, 62-219230; Sep. 7, 1987, 62-222147

Int. Cl.[5] C07D *285/08*

U.S. Cl. 548—128 **5 Claims**

1. A compound of the formula:



wherein R_6 represents carboxyl, a halogenocarbonyl, carbamoyl or cyano group, a compound wherein said amino and/or carboxyl group is protected with a protective group, or a salt thereof.

5,066,813

METHOD FOR PRODUCTION OF 1,3-THIAZOLIDIN-2-ONES

Masao Kitano, Kamakura; Mitsuaki Yagisawa, Kawasaki, and Yutaka Morimoto, Yokohama, all of Japan, assignors to Nippon Shokubai Kagaku Kogyo Co., Ltd., Osaka, Japan

Filed Mar. 7, 1990, Ser. No. 489,672

Claims priority, application Japan, Mar. 8, 1989, 1-53867

Int. Cl.[5] C07D *277/14*

U.S. Cl. 548—182 **3 Claims**

1. A method for the production of 1,3-thiazolidin-2-one which comprising causing 2,2-dimethyl-1,3-thiazolidine with urea in the absence of water at a temperature of 80° to 200° C.

5,066,814

2-DICARBOXIMIDEFLUORANE OR 3-DICARBOXIMIDEFLUORANE COMPOUNDS

Rudolf Zink, Therwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Feb. 23, 1990, Ser. No. 485,355

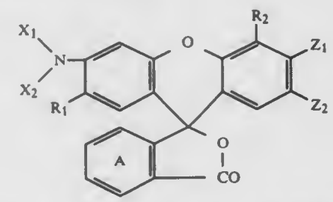
Claims priority, application Switzerland, Feb. 24, 1989, 675/89

Int. Cl.[5] C07D *493/10*

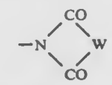
U.S. Cl. 548—407 **13 Claims**

1. A 2-dicarboximidefluorane or 3-dicarboximidefluorane compound of the formula

(I)



in which R_1 and R_2 independently of one another are each hydrogen, halogen, lower alkyl or lower alkoxy, one of Z_1 and Z_2 is the dicarboximide group



and the other is hydrogen, halogen, lower alkyl or lower alkoxy, W is a radical of a dicarboxylic acid containing at least 2 carbon atoms, X_1 and X_2 independently of one another are each hydrogen, alkyl which has not more than 12 carbon atoms and is unsubstituted or substituted by halogen, hydroxyl, cyano, tetrahydrofuryl or lower alkoxy, cycloalkyl which has 5 to 10 carbon atoms or benzyl or phenyl each of which is unsubstituted or substituted by halogen, cyano, nitro, lower alkyl, lower alkoxy, lower alkoxycarbonyl, —NX'X" or -4-NX'X"-phenylamino in which X' and X" independently of one another are hydrogen, lower alkyl, cyclohexyl, benzyl or phenyl, or X_1 and X_2, together with the nitrogen atom linking them, are a five-membered or six-membered heterocyclic radical, and in which the ring A is unsubstituted or substituted by halogen, nitro, lower alkyl, lower alkoxy, lower alkylthio, lower alkoxycarbonyl, amino, mono-lower alkylamino or di-lower alkylamino.

5,066,815

PROCESS FOR PREPARING OPTICALLY ACTIVE ALCOHOL

Noboru Sayo; Hidenori Kumobayashi; Susumo Akutagawa, all of Kanagawa; Ryoji Noyori, and Hidemasa Takaya, both of Aichi, all of Japan, assignors to Takasago International Corporation, Tokyo, Japan

Continuation of Ser. No. 207,476, Jun. 16, 1988, abandoned. This application May 8, 1990, Ser. No. 520,149

Claims priority, application Japan, Jun. 19, 1987, 62-152483

Int. Cl.[5] C07D *307/33*

U.S. Cl. 549—319 **2 Claims**

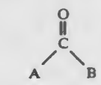
1. A process for preparing an optically active alcohol represented by formula (I):

(I)



wherein A represents a lower alkyl group, phenyl or benzyl and B represents a lower alkoxycarbonyl group, a haloalkyl group, a lower alkoxyalkyl group, a hydroxymethyl group, a halophenyl group, or a lower alkyl-substituted aminomethyl group, provided that A and B cannot be the same simultaneously, which comprises asymmetrically hydrogenating a carbonyl compound represented by formula (II):

(II)



wherein A and B are as defined above, in the presence of a ruthenium-optically active phosphine complex as a catalyst.

5,066,816

PROCESSES FOR PREPARING OPTICALLY ACTIVE 3,4-DIHYDRO-3,4-EPOXY-2H-1-BENZOPYRAN COMPOUNDS AND INTERMEDIATES THEREFOR

Shinro Setoguchi; Mineo Tsuruda, both of Fukuoka; Chiaki Kitami, Mie, and Tsutomu Yamanaka, Nakatsu, all of Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka, Japan

Filed Feb. 28, 1990, Ser. No. 486,100

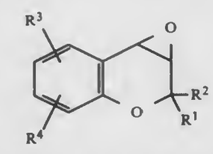
Claims priority, application Japan, Mar. 3, 1989, 1-52700; May 23, 1989, 1-131014

Int. Cl.[5] C07D *311/78*

U.S. Cl. 549—331 **1 Claim**

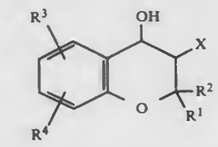
1. A process for preparing an optically active 3,4-dihydro-3,4-epoxy-2H-1-benzopyran compound of the formula (I):

(I)



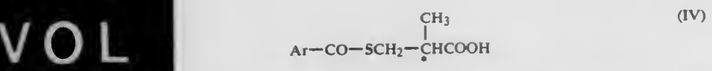
wherein R^1 and R^2 are the same or different, and each is hydrogen or C_{1-6} alkyl, or R^1 and R^2 combined together form C_{2-5} alkylene, R^3 and R^4 are the same or different, and each is hydrogen, halogen, nitro, cyano, amino, C_{1-6} alkyl, halo-C_{1-6} alkyl, C_{1-6} alkoxy, carboxy, formyl, C_{2-6} alkanoyl, halo-C_{2-6} alkanoyl, benzoyl, naphthoyl, phenyl-C_{2-6} alkanoyl, naphthyl-C_{2-6} alkanoyl, formylamino, C_{2-6} alkanoylamino, benzoylamino, naphthoylamino, phenyl-C_{2-6} alkanoylamino, naphthyl-C_{2-6} alkanoylamino, carbamoyl, C_{1-6} alkylcarbamoyl, di-C_{1-6} alkylcarbamoyl, C_{1-6} alkylsulfinyl, phenylsulfinyl, naphthylsulfinyl, C_{1-6} alkylsulfonyl, phenylsulfonyl, naphthylsulfonyl, sulfamoyl, C_{1-6} alkylsulfamoyl or di-C_{1-6} alkylsulfamoyl, in which the terms "phenyl", "naphthyl", "benzoyl", and "naphthoyl" include substituted phenyl, substituted naphthyl, substituted benzoyl and substituted naphthoyl the substituents being at least one substituent selected from the group consisting of halogen, hydroxy, amino, nitro, cyano, C_{1-6} alkyl, C_{1-6} alkoxy and trifluoromethyl on the ring, which comprises (i) reacting a compound of the formula (III):

(III)



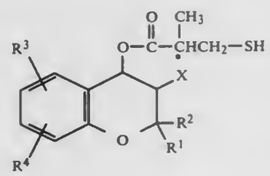
wherein X is bromine, chlorine or iodine and other symbols are as defined above, with a compound of the formula (IV):

VOL 1132 ISS 3 NO 19 1991 UMI



(IV)

wherein Ar is phenyl, naphthyl, thienyl, furyl, pyridyl, or substituted phenyl, naphthyl, thienyl, furyl, pyridyl said groups being substituted by 1 to 3 substituents selected from the group consisting of halogen, amino, nitro, hydroxy, C_{1-6} alkyl and C_{1-6} alkoxy and the asterisked carbon atom has (S)-(−)- or (R)-(+)- configuration, or the corresponding reactive derivative on the carboxyl group, or (ii) reacting a compound of the formula (II-a):



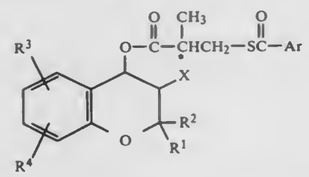
(II-a)

wherein each symbol is as defined above, with a compound of the formula (V):



(V)

wherein Ar is as defined above, or the corresponding reactive derivative on the carboxyl group, subjecting the thus obtained compound from step (i) or (ii) of the formula (II-b):



(II-b)

wherein each symbol is as defined above, to fractional crystallization followed by hydrolysis and cyclization.

5,066,817

DC115A COMPOUNDS PRODUCED BY STREPTOMYCES SP.

Hirofumi Nakano; Mitsunobu Hara, both of Machida; Tsuyoshi Mokudai, Hofu; Isao Kawamoto, Hiratsuka; Mayumi Yoshida, Sagamihara, and Eiji Kobayashi, Shizuoka, all of Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

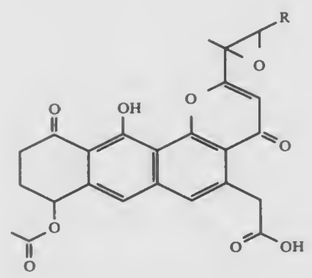
Filed Apr. 30, 1990, Ser. No. 516,304

Claims priority, application Japan, May 8, 1989, 1-114783; Nov. 6, 1989, 1-288553

Int. Cl.[5] C07D *311/78, 311/94*

U.S. Cl. 549—384 **5 Claims**

1. DC115A compounds represented by the following general formula:



wherein R represents ethyl, propyl or 1-propenyl.

5,066,818

PHOTOCHROMIC NAPHTHOPYRAN COMPOUNDS

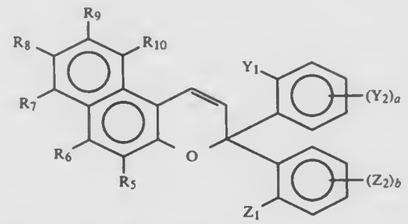
Barry V. Gemert, Murrsyville, Pa., and Maria P. Bergoml, Akron, Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed Mar. 7, 1990, Ser. No. 490,031

Int. Cl.[5] C07D *311/92*

U.S. Cl. 549—389 **35 Claims**

1. A naphthopyran compound represented by the following graphic formula:



wherein Y_1 is selected from the group consisting of C_1–C_5 alkyl, C_1–C_5 alkoxy, fluoro and chloro; Z_1 is selected from the group consisting of hydrogen and Y_1; Y_2 and Z_2 are each selected from the group consisting of C_1–C_5 alkyl, C_1–C_5 alkoxy, cyano, hydroxy, halogen, acrylyl, methacrylyl, acryloxy (C_1–C_4) alkyl and methacryloxy (C_1–C_4) alkyl; a and b are each integers selected from the group consisting of 0, 1 and 2; and R_5–R_{10} are each selected from the group consisting of hydrogen, C_1–C_{10} alkyl, C_5–C_7 cycloalkyl, phenyl, mono- or di- substituted phenyl, C_1–C_4 alkoxy, halogen, acrylyl, methacrylyl, acryloxy (C_1–C_4) alkyl, methacryloxy (C_1–C_4) alkyl, furyl and thienyl, said phenyl substituents being selected from the group consisting of C_1–C_4 alkyl, C_1–C_4 alkoxy, chloro and bromo.

5,066,819

PROCESS FOR THE PREPARATION OF ARYL ESTERS OF N-ALKYL CARBAMIC ACIDS

Gurunath H. Kulkarni; Rajan H. Naik, and Srinivasachari Rajappa, all of Maharashtra, India, assignors to Council of Scientific & Industrial Research, New Delhi, India

Filed Mar. 20, 1990, Ser. No. 496,427

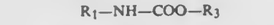
Int. Cl.[5] C07D *317/26, 317/64, 271/44*

U.S. Cl. 549—438 **8 Claims**

1. A process for the preparation of aryl esters of N-alkyl carbamic acids, said esters having the general formula:

wherein R_1 is an alkyl group and R_2 is an aryl group which

comprises reacting an alkyl N-alkyl carbamate of the general formula:



wherein R_1 and R_3 are both alkyl groups, with a substituted phenol in the presence of a halogen-containing of phosphorous compound selected from the group consisting of phosphoryl chloride, phosphorous tribromide and phosphorus pentachloride, the R_2 aryl group being derived from the substituted phenol reactant.

5,066,820

PROCESS FOR THE PREPARATION OF 1-AMINO-2-CARBOXYANTHRAQUINONES

Reinhard Helwig, Gruenstadt, and Helmut Hoch, Weisenheim, both of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

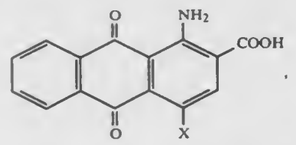
Filed Jul. 12, 1990, Ser. No. 551,953

Claims priority, application Fed. Rep. of Germany, Jul. 28, 1989, 3925060

Int. Cl.[5] C07C *50/24, 97/24;* **C09B** *1/16*

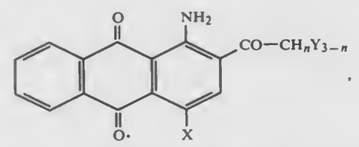
U.S. Cl. 522—249 **6 Claims**

1. A process for the preparation of a 1-amino-2-carboxyanthraquinone of the general formula I



(I)

in which X denotes hydrogen, chlorine or bromine, by oxidation, under alkaline conditions, of a 1-aminoanthraquinone substituted in the 2-position by an oxidizable carbo-organic radical followed by acidification of the reaction mixture, wherein a 1-amino-2-haloacetylanthraquinone of the general formula II



(II)

in which Y denotes chlorine or bromine and n is equal to 0, 1 or 2, is reacted with a peroxide compound or oxygen as oxidizing agent.

5,066,821

PROCESS FOR PREPARING POSITIVE ELECTROSTATIC LIQUID DEVELOPERS WITH ACIDIFIED CHARGE DIRECTORS

William A. Houle, Kimberton; James R. Larson, West Chester, both of Pa., and Kathryn A. Pearlstine, Wilmington, Del., assignors to DXImaging, Lionville, Pa.

Filed May 11, 1990, Ser. No. 522,283

Int. Cl.[5] G03G *9/06*

U.S. Cl. 430—137 **30 Claims**

1. A process for preparing a positive electrostatic liquid developer comprising

(A) dispersing at an elevated temperature in a vessel a thermoplastic resin and a nonpolar liquid having a Kauributanol value of less than 30, while maintaining the temperature in the vessel at a temperature sufficient to plasticize and liquify the resin and below that at which the nonpolar liquid degrades and the resin decomposes,

(B) cooling the dispersion, either

(1) without stirring to form a gel or solid mass, followed by shredding the gel or solid mass and grinding by means of particulate media;

(2) with stirring to form a viscous mixture and grinding by means of particulate media; or

(3) while grinding by means of particulate media to prevent the formation of a gel or solid mass;

(C) separating the dispersion of toner particles having an average particle size of less than 30 μm from the particulate media, and

(D) adding to the dispersion subsequent to Step (A) a nonpolar liquid soluble ionic or zwitterionic charge director compound mixed with an acid having a pKa of <4.2 and a solubility of at least 0.5% based on the weight of charge director compound in the mixture of nonpolar liquid and charge director compound.

5,066,822

DI-T-BUTYLPHENOLS SUBSTITUTED BY AN ALKOXY OR BENZYLOXY GROUP OR A BENZYLTHIO GROUP

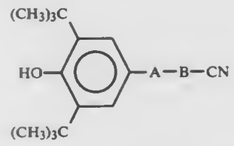
Mark A. Rustad, Afton, Minn., assignor to Riker Laboratories, Inc, St. Paul, Minn.

Division of Ser. No. 248,586, Sep. 26, 1988, Pat. No. 4,968,710, which is a continuation-in-part of Ser. No. 120,468, Nov. 13, 1987, abandoned. This application Jun. 29, 1990, Ser. No. 571,925

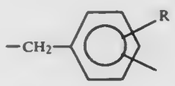
Int. Cl.[5] C07C *255/32, 255/37, 255/50*

U.S. Cl. 558—389 **1 Claim**

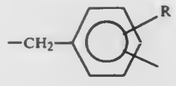
1. A compound of the formula



wherein A is an oxygen or sulfur atom; and B is a straight chain alkylene group of 3 to 8 carbon atoms or



wherein the methylene group is bonded to A, and R is hydrogen, halogen, lower alkyl or lower alkoxy; with the proviso that when A is sulfur, B is



wherein the methylene group is bonded to A.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,823

PREPARATION OF 5-ACYLAMINO-2,4,6-TRIIODO- OR TRIBROMO-BENZOIC ACID DERIVATIVES

Ernest Felder; Carlo Musu; Luciano Fumagalli, and Fulvio Uggeri, all of Milan, Italy, assignors to Bracco Industria Chemica S.P.A., Milan, Italy

PCT No. PCT/EP88/00453, § 371 Date Oct. 10, 1989, § 102(e) Date Oct. 10, 1989, PCT Pub. No. WO88/09328, PCT Pub. Date Dec. 1, 1988

PCT Filed May 20, 1988, Ser. No. 424,216

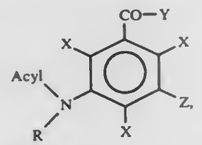
Claims priority, application Italy, May 22, 1987, 20647 A/87; May 10, 1988, 47935 A/88

Int. Cl.[5] C07C *315/04*

U.S. Cl. 560—13 **12 Claims**

1. A process for the preparation of 5-acylamino-2,4,6-triiodo or tribromo-benzoic acid derivatives of formula I

I

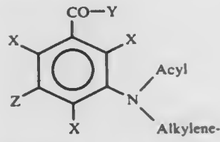


wherein:

X is I or Br, with the proviso that they are all the same;

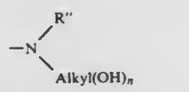
Acyl is a C_2–C_6 hydroxyalkanoyl, alkoxyalkanoyl or alkoxy-hydroxyalkanoyl group or a C_2–C_4 unsubstituted alkanoyl group,

R is H or a C_1–C_6 alkyl, hydroxyalkyl, alkoxyalkyl or alkoxy-hydroxyalkyl group, or a $H(OCH_2CH_2)_{2-5}$—, $Me(OCH_2CH_2)_{2-4}$— or $Et(OCH_2CH_2)_{2-4}$— group, or a group of formula



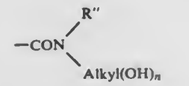
wherein X, Y, Z and Acyl have respectively the same meanings as in formula I and Alkylene- is a straight or branched C_2–C_8 alkylene group, which is unsubstituted or substituted by hydroxy groups and/or interrupted by O,S, SO or SO_2,

Y is a hydroxy, alkoxy, hydroxyalkoxy, alkylamino group or a hydroxyalkylamino group of formula



wherein R'' is H or a C_1–C_5 alkyl, hydroxyalkyl, alkoxyalkyl or alkoxy-hydroxyalkyl group, Alkyl is a C_2–C_5 straight or branched alkyl group and n=1, 2 or 3,

Z has the same meaning of CO—Y in formula I or is a hydroxyalkylaminocarbonyl group of formula

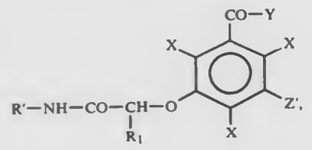


wherein R'', Alkyl and n are as above defined or Z is a C_2–C_5 acylamino, hydroxyacylamino, N-alkyl-acylamino, N-hydroxyalkylacylamino or acylaminomethyl group,

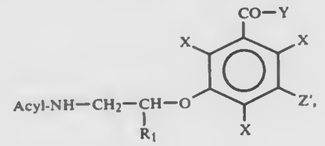
with the proviso that at least one of the two Acyl or R groups is hydroxy substituted,

said process being characterized in that 5-(alkylaminocarbonyl-alkoxy)-2,4,6-triiodo or tribromo-benzoic acid derivatives of formula II, or 5-(acylamino-alkoxy)-2,4,6-triiodo or tribromo-benzoic acid derivatives of formula III

II



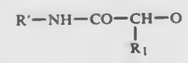
III



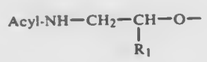
wherein:

X and Y have the same meanings as in formula I,

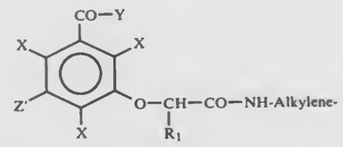
Z' is a) the same as Z in formula I, b) a group of formula



or c)



wherein R', R_1 and Acyl are as hereinbelow defined, R' is a), H; b) a C_1–C_6 alkyl, hydroxyalkyl, alkoxyalkyl or alkoxy-hydroxyalkyl group; c) a $H(OCH_2CH_2)_{2-5}$—, $Me(OCH_2CH_2)_{2-4}$— or $et(OCH_2CH_2)_{2-4}$— group, or d) a group of formula



wherein X, Y, Z' are as above defined, R_1 is as hereinbelow defined, Alkylene- is a straight or branched C_2–C_8 alkylene group, which is unsubstituted or substituted by hydroxy groups and/or interrupted by O, S, SO or SO_2,

R_1 is H or a C_1–C_3 alkyl, hydroxyalkyl or alkoxyalkyl group,

Acyl is a a) C_2–C_6 hydroxyalkanoyl, b) alkoxyalkanoyl c) alkoxy-hydroxyalkanoyl group or an unsubstituted C_2–C_4 alkanoyl group, are subjected, to a rearrangement reaction to give the desired compounds of formula I in the presence of a base in an aqueous medium, said base being sodium hydroxide, lithium hydroxide, potassium hydroxide, an alkali metal carbonate or alkali metal bicarbonate, an alkali metal borate, a tertiary amine or a quaternary ammonium hydroxide.

5,066,824

NOVEL PROCESS FOR THE PREPARATION OF AMINE-TERMINATED COMPOUNDS

Robson Mafoti, and Josef Sanders, both of Pittsburgh, Pa., assignors to Mobay Corporation, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 524,268, May 15, 1990, abandoned. This application Aug. 3, 1990, Ser. No. 562,293

Int. Cl.[5] C07C *209/00*

U.S. Cl. 560—44 **8 Claims**

1. A process for the preparation of an amine-terminated compound comprising reacting a polyfunctional acetoacetic acid ester with either ammonia or an organic compound which contains one or more primary amino groups in the presence of a solvent and an acidic catalyst selected from the group consisting of (i) boron trifluoride etherate and (ii) organic acids having pKa values of from 0.1 to 0.8, with the proviso that if the primary amino group containing compound contains no aromatically bound amino groups, the pKa of said organic acid is from 0.1 to less than 0.7.

5,066,825

PROCESS FOR PREPARING A NAPHTHALENE DERIVATIVE

Takashi Suzuki, Kawanishi; Minehiko Yamamura, Itami, and Shinichi Yamada, Ashiya, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Nov. 16, 1989, Ser. No. 437,065

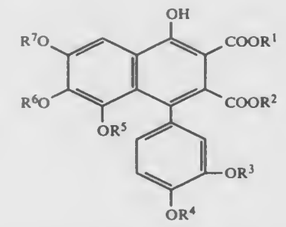
Claims priority, application Japan, Nov. 29, 1988, 303335

Int. Cl.[5] C07C *69/76*

U.S. Cl. 560—56 **10 Claims**

1. In a process for preparing a naphthalene derivative of the formula:

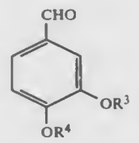
(I)



wherein R^1, R^2, R^3, R^4, R^5, R^6 and R^7 are a lower alkyl group, or a pharmaceutically acceptable salt thereof, which comprises the steps of:

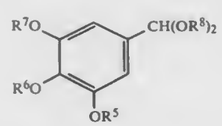
A) reacting a compound of the formula:

(II)



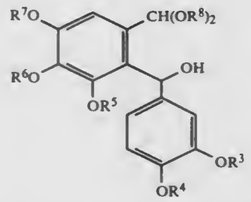
wherein R^3 and R^4 are the same as defined above, with a compound of the formula:

(III)



wherein R^5, R^6 and R^7 are the same as defined above and R^8 is a lower alkyl group, to give a compound of the formula;

(IV)



wherein R^3, R^4, R^5, R^6, R^7 and R^8 are the same as defined above,

B) reacting the compound (IV) or a salt thereof with a compound of the formula:

$$R^1OOC—C{\equiv}C—COOR^2 \quad (V)$$

wherein R^1 and R^2 are the same as defined above, and

C) if required, further converting the product into a pharmaceutically acceptable salt thereof; the improvement comprising using a non-brominated compound for compound (III).

5,066,826

PROCESS FOR RACEMIZATION OF OPTICALLY ACTIVE 4-PHENYLBUTANOIC ACID ESTERS

Hiroyuki Nohira, Urawa; Takashi Onishi; Kazuo Yamamoto, both of Kurashiki, and Noriaki Kumagai, Kamisu, all of Japan, assignors to Kuraray Company, Ltd., Kurashiki, Japan

Filed Sep. 26, 1990, Ser. No. 588,545

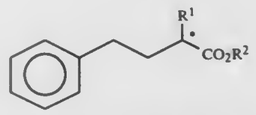
Claims priority, application Japan, Oct. 6, 1989, 1-262516

Int. Cl.[5] C07C *69/76*

U.S. Cl. 560—60 **6 Claims**

1. A process for the racemization of optically active 4-phenylbutanoic acid esters which comprises treating optically active 4-phenylbutanoic acid esters of the general formula (1)

(1)



wherein R^1 represents a hydroxy group, a hydroxy group protected by vinyl ether, or a lower acyloxy group and R^2 represents a lower alkyl group with a base selected from the group consisting of alkali metal alcoholates, alkali metal hydrides, and alkali metal amides.

5,066,827

PREPARATION OF METHYLENEDI(PHENYLURETHANE)

Michel Gubelmann; Christophew Rochin, both of Lyons, and Christian Allandrieu, Villeurbanne, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Jun. 29, 1990, Ser. No. 545,502

Claims priority, application France, Jun. 29, 1989, 89 09001

Int. Cl.[5] C07C *269/06*

U.S. Cl. 560—163 **11 Claims**

1. In a process for the preparation of methylenedi(phenylurethane) by condensing an alkyl N-phenylcarbamate with a methylenating agent in the presence of a catalytically effective amount of a protonic acid, the improvement which comprises utilizing as the protonic acid catalyst therefor, hydrofluoric acid.

VOL
1132
ISS
3
NO
19
1991
UMI

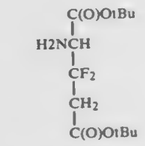
5,066,828

DIFLUOROGLUTAMIC ACID CONJUGATES WITH FOLATES AND ANTI-FOLATES FOR THE TREATMENT OF NEOPLASTIC DISEASES

Philippe Bey, and H. Michael Kolb, both of Cincinnati, Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Filed Apr. 12, 1990, Ser. No. 508,874
Int. Cl.[5] C07C *229/24*
U.S. Cl. 560—171 3 Claims

1. A compound of the formula



or a basic or an acid addition salt thereof.

5,066,829

PREPARATION OF CARBOXYLIC ACID ESTERS

Herbert E. Fried, and Thomas H. Johnson, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Apr. 17, 1990, Ser. No. 510,309
Int. Cl.[5] C07C *67/02*
U.S. Cl. 560—217 7 Claims

1. A process for the preparation of higher alkyl acrylic acid esters which comprises contacting and reacting under a temperature in the range of from about 40° C. to about 220° C. and a pressure in the range of from about 0 psig and about 1000 psig at least one olefin with at least one alkyl acrylic acid ester in the presence of a catalytically effective amount of tantalum pentachloride.

5,066,830

PEPPER GAMETOCLONAL VARIATION

Robert A. Morrison, and David A. Evans, both of Palmyra, N.J., assignors to DNA Plant Technology Corporation, Cinnaminson, N.J.

Filed Jan. 12, 1988, Ser. No. 142,961
Int. Cl.[5] A01H *1/04*
U.S. Cl. 800—230 17 Claims

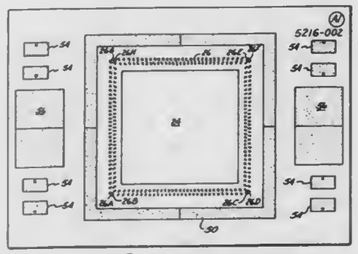
1. A plant of the pepper species capsicum annuum which regularly produces low-seed fruit having 0 to about 20 seeds, which plant possesses neither a male sterile nor female sterile trait and which low seed trait is not a result of environmental or chemical induction.

5,066,831

UNIVERSAL SEMICONDUCTOR CHIP PACKAGE

Richard K. Spielberger, Maple Grove, and Thomas J. Dunaway, St. Louis Park, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Continuation-in-part of Ser. No. 112,851, Oct. 23, 1987, abandoned. This application Oct. 13, 1989, Ser. No. 421,364
Int. Cl.[5] H01L *23/02*
U.S. Cl. 174—52.4 14 Claims



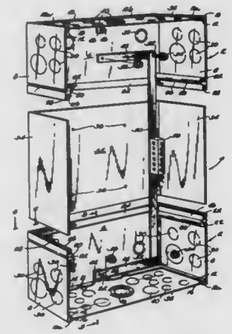
1. A semiconductor chip package, comprising:
a plurality of programmable pads located on a surface of a semiconductor chip package, each pad being adapted for interconnection with a semiconductor chip;
a plurality of signal connectors located on a surface of the package;
a plurality of signal connections, each signal connection providing an electrically conductive path between an individual programmable pad and a corresponding individual signal connector;
a plurality of dedicated power or ground connectors located on a surface of the package; and
connection means comprising electrically conductive paths within the package for selectively connecting any programmable pad to a dedicated power or ground connector, any programmable pad so connected also remaining connected to a corresponding signal connector.

5,066,832

PLASTIC ENCLOSURE BOX FOR ELECTRICAL APPARATUS

Robert J. Clarey, Brookfield, and Richard A. Reiner, Colgate, both of Wis., assignors to Eaton Corporation, Cleveland, Ohio

Filed Oct. 26, 1989, Ser. No. 426,839
Int. Cl.[5] H05K *5/00*
U.S. Cl. 174—50 20 Claims



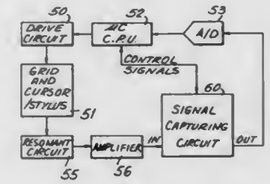
1. A plastic enclosure box adapted to receive an electrical distribution panelboard therein comprising:
first and second end sections each comprising a rear wall, side walls extending forwardly from opposite sides of said rear wall, and an end wall continuous with said side walls and said rear wall extending forwardly from said rear wall;
an intermediate section of uniform cross-section comprising a rear wall and opposed side walls;
said end sections disposed at opposite ends of said intermediate section wherein said rear wall and side walls of said intermediate section are contiguous with respective rear walls and side walls of said end sections thereby defining a box having an open front side;
openings in said end walls; and
rigid flat filler plates slidably attached to said end walls fully losing said openings, said filler plates having deflectable tab cable retainers or knockouts for attaching electrical conductor means directly to said filler plates.

5,066,833

LOW POWER SENSING APPARATUS FOR DIGITIZER TABLETS

Thomas C. Zalenski, Killingworth, Conn., assignor to Summagraphics Corporation, Seymour, Conn.

Filed Nov. 13, 1990, Ser. No. 612,530
Int. Cl.[5] G08C *21/00*
U.S. Cl. 178—19 19 Claims



1. A digitizer tablet comprising:
(a) an electrode array comprising conductors extending along one coordinate axis,
(b) means for producing and applying current pulses to selected ones of the conductors to generate fields,
(c) a pointing device comprising means for interacting with the fields to generate an induced signal,
(d) means connected to the pointing device means for generating from the induced signal an AC signal having positive and negative peaks,
(e) means for measuring and storing a value representative of the AC signal peaks generated when each of the selected conductors is pulsed,
(f) means for processing the values stored by the means of element (e) for determining the position of the pointing device relative to the selected conductors.

5,066,834

FLEXIBLE GUIDE RAIL AND METHOD FOR MANUFACTURING SAME

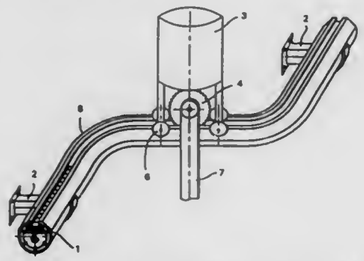
Hans Richter, Ortierstrasse 77, D-8900 Augsburg, Fed. Rep. of Germany

PCT No. PCT/EP89/00647, § 371 Date Feb. 12, 1990, § 102(e) Date Feb. 12, 1990, PCT Pub. No. WO89/12595, PCT Pub. Date Dec. 28, 1989
PCT Filed Jun. 9, 1989, Ser. No. 478,515
Claims priority, application Fed. Rep. of Germany, Jun. 13, 1988, 3820055
Int. Cl.[5] H02G *1/02*
U.S. Cl. 191—40 8 Claims

1. A method for manufacturing multi-dimensionally curved guide rails having tubular cross-sections for passenger and material transportation vehicle systems characterized by the following steps: bending a hose-like plastic tube of any tubular

VOL 1132 ISS 3 NO 19 1991 UMI

cross-section, filling said bent tube with a filling compound to stabilize the shape of said tube, said bent and filled tube being



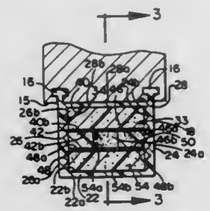
provided as a guide rail for enabling guidance of a driven vehicle thereon.

5,066,835

SENSING EDGE

Norman K. Miller, and Bearge D. Miller, both of Concordville, Pa., assignors to Miller Edge, Inc., Concordville, Pa.

Filed Sep. 19, 1990, Ser. No. 585,332
Int. Cl.[5] H01H *3/16*
U.S. Cl. 200—61.43 9 Claims



1. A sensing edge for causing a closing door to open by actuation of a device upon force being applied to the sensing edge, the sensing edge comprising:

a sheath compressible upon the application of external pressure anywhere along its surface and fabricated of a flexible material for attachment to a door edge, the sheath including a top wall and a non-linear wall each wall having an exterior surface and an interior surface, the interior surfaces of said top and non-linear walls at least partially defining an area for receiving at least a portion of a switch means, one of the surfaces of the non-linear wall including a groove therein extending toward the other of the surfaces of the non-linear wall to provide an area of reduced wall thickness to thereby enhance the compressibility of the sheath; and

at least a portion of a switch means positioned within the area for actuation of the device upon application of external pressure to the sheath, whereby the groove increases the sensitivity of the sensing edge.

5,066,836

GAS DAMPED DECELERATION SWITCH

Kevin J. Gunning, Tokyo, Japan, and David F. Gallup, San Dimas, Calif., assignors to TRW Technar Inc., Irwindale, Calif.

Continuation of Ser. No. 491,450, Mar. 9, 1990, abandoned. This application Mar. 5, 1991, Ser. No. 664,497
Int. Cl.[5] H01H *35/14*
U.S. Cl. 200—61.45 R 24 Claims

2. A gas damped sensor mechanism comprising:

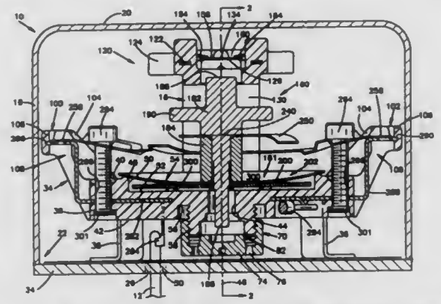
a base having a surface and a passage communicating with said surface;

a mass;

means for supporting said mass for movement relative to said base;

means for sensing a predetermined amount of movement of said mass relative to said base;

a movable damping member connected to said mass for movement with said mass relative to said base, said damping member having an initial position wherein said damping member and said surface define a chamber having an



initial volume, said movement of said damping member increasing the volume of said chamber and causing a pressure reduction in said chamber, said pressure reduction restraining movement of said damping member and said mass relative to said base and causing a flow of gas into said chamber through said passage; and

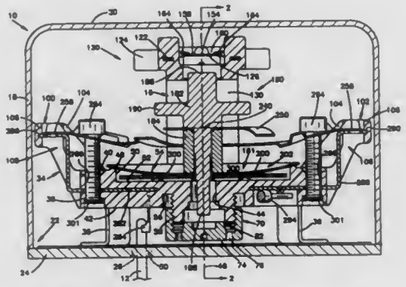
means for controlling said pressure reduction and said movement of said mass by adjusting at least one of said passage and the initial volume of said chamber.

5,066,837

GAS DAMPED DECELERATION SWITCH

Kevin J. Gunning, Tokyo, Japan; David F. Gallup, San Dimas, and Lon E. Bell, Pasadena, both of Calif., assignors to TRW Technar Inc., Irwindale, Calif.

Continuation of Ser. No. 491,110, Mar. 9, 1990, abandoned. This application Mar. 5, 1991, Ser. No. 664,499
Int. Cl.[5] H01H *35/14*
U.S. Cl. 200—61.45 R 52 Claims



1. A gas damped deceleration sensor comprising:

a movable mass;

means for supporting said mass for movement in response to deceleration;

means for sensing a predetermined amount of said movement of said mass to indicate a predetermined amount of deceleration over a time interval;

a structure having a first surface;

a flexible damping disk assembly having a second surface, said damping disk assembly having a position wherein said second surface is engaged with a portion of said first surface to define a space between said structure and said damping disk assembly;

said damping disk assembly being connected to said mass to flex relative to said base from said position to enlarge said space and to cause a pressure reduction in said space in response to said movement of said mass, said pressure reduction restraining movement of said mass; and

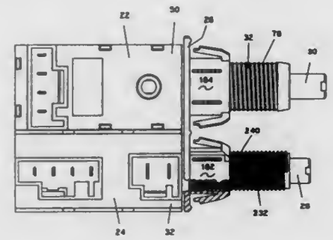
said damping disk assembly comprising a flexible sealing disk having said second surface, and a flexible spring disk which biases said flexible sealing disk toward said first surface when said damping disk assembly is in said position.

5,066,838

AUTOMOBILE BRAKE SWITCH ASSEMBLY

John W. Smith, and Benjamin F. Chestnut, both of Indianapolis, Ind., assignors to Emhart Industries, Inc., Farmington, Conn.

Filed Jan. 31, 1990, Ser. No. 472,723
Int. Cl.[5] H01H *3/14*
U.S. Cl. 200—61.89 7 Claims



1. An automobile brake switch assembly comprising:

a mounting clip;

first brake switch means carried by said mounting clip comprising: a first switch housing having a hollow first plunger housing; one or more electrical switches enclosed in said switch housing; a first plunger slidable within said first plunger housing; the exterior of said plunger housing having first thread means for connecting said first switch housing to said mounting clip;

second brake switch means carried by said mounting clip comprising: a second switch housing having a hollow second plunger housing; one or more electrical switches enclosed in said second switch housing; a second plunger slidable within said second plunger housing; the exterior of said second plunger housing having second thread means for connecting said second switch housing to said mounting clip; and

said mounting clip comprising:

first ratchet means for engaging said first thread means on said first plunger housing sufficiently firmly to prevent movement of said first plunger housing with respect to said mounting clip while said first plunger is moving in said first plunger housing and sufficiently loosely to allow ratcheting movement of said first plunger housing with respect to said mounting clip when brake mechanism pressure is exerted on said first plunger housing during mounting of said mounting clip to an automobile, and without exerting force on said first plunger housing, in a direction perpendicular to the direction of movement of said first plunger, sufficient to deflect the walls of said first plunger housing;

second ratchet means for engaging said second thread means on said second plunger housing sufficiently firmly to prevent movement of said second plunger housing with respect to said mounting clip while said second plunger is moving in said second plunger housing and sufficiently loosely to allow ratcheting movement of said second plunger housing with respect to said mounting clip when brake mechanism pressure is exerted on said second plunger housing during mounting of said mounting clip to an automobile, and without exerting force on said second plunger housing, in a direction perpendicular to the direction of movement of said second plunger, sufficient to deflect the walls of said second plunger housing; and

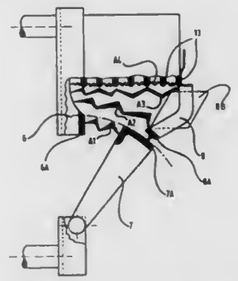
said mounting clip including means for fastening said mounting clip to an automobile so the the automobile brake mechanism engages said first and second plungers.

5,066,839

HIGH OR MEDIUM TENSION CIRCUIT BREAKER

Jean Maineult, Ceyzeriat, and Raymond Pluveau, Macon, both of France, assignors to GEC Alsthom SA, Paris, France

Filed Jan. 9, 1990, Ser. No. 462,362
Claims priority, application France, Jan. 10, 1989, 89 00215
Int. Cl.[5] H01H *33/10, 33/74*
U.S. Cl. 200—144 R 9 Claims



1. A medium or high tension circuit breaker comprising a shell filled with a dielectric gas under pressure and containing: a fixed main contact, a moving main contact, a fixed arcing contact, and a moving arcing contact, an interrupting chamber disposed adjacent to said fixed arcing contact and an arc being established during contact separation between said moving arcing contact and said fixed arcing contact, said arc interrupting chamber including a plurality of laterally spaced partitions forming a plurality of separate compartments for said interrupting chamber, means for splitting up the arc into a large number of elementary arcs comprising a plurality of spaced metal plates disposed parallel to each other in a plurality of compartments such that for each compartment, two partitions are parallel to each other and perpendicular to said plates positioned therein, said compartments being closed except over an arcing zone, and each partition being equipped with a metal electrode having a portion fitted astride each partition and having two unitary wings extending in respective ones of said adjacent compartments, said wings being planar and extending perpendicular to the plane of the plates in respective compartments, and said wings being at an angle of about 90° to each other.

5,066,840

MANUAL OPERATOR FOR AN ELECTRICAL SWITCH

Dominik M. Wiktor, Cranford, and Siegfried Schlindwein, Secasunna, both of N.J., assignors to Automatic Switch Company, Florham Park, N.J.

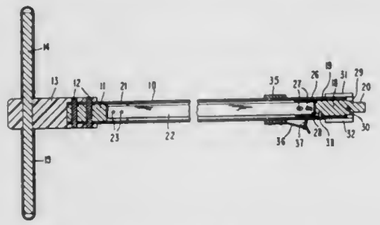
Filed Oct. 9, 1990, Ser. No. 597,197
Int. Cl.[5] H01H *3/10*
U.S. Cl. 200—330 14 Claims

1. A manual operator for opening and closing an electrical switch having a mechanism including a portion adapted to be rotated to operate the switch, comprising:

a switch-driving element adapted to non-rotatably engage the rotatable portion of the switch mechanism,

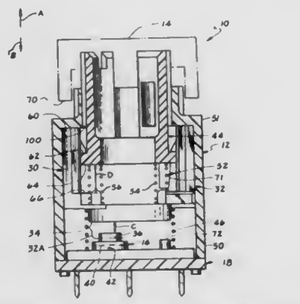
VOL 1132 ISS 3 NO 19 1991 UMI

a handle element rotatable with respect to the switch-driving element,
resilient means operatively interposed between the switch-driving element and the handle element, the resilient means being tensioned when the handle element is rotated while the driving element is maintained stationary,
an abutment fixed to and moveable with one of the elements, and
a follower fixed to and moveable with the other of the elements, the follower being located in the path of movement of the abutment, and the follower and abutment being so relatively located that the abutment engages the follower



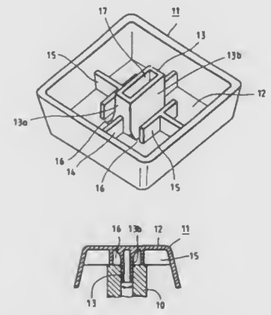
only after the resilient means has been tensioned by rotation of the handle element,
so that when the switch-driving element engages the rotatable portion of the switch mechanism, initial rotation of the handle element causes the resilient means to be tensioned and the abutment to engage the follower, further rotation of the handle element being transmitted through the abutment and follower to the switch-driving element to initiate movement of the switch mechanism, following which the resilient means instantly shifts the switch mechanism through the remainder of its movement to snap the switch open or closed.

5,066,841
DUAL PLUNGER SWITCH
Jon P. Zoller, Prior Lake, and Jeffrey J. Norris, Bloomington, both of Minn., assignors to ITT Corporation, New York, N.Y.
Continuation-in-part of Ser. No. 378,726, Jul. 12, 1989, abandoned. This application Jul. 31, 1990, Ser. No. 560,919
Int. Cl.[5] H01H *3/48*
U.S. Cl. 200—342 **6 Claims**



1. A switch assembly of the type that is operable by pressing a button or the like inwardly, and wherein release of the button or the like allows it to move outwardly to an unoperated position, comprising:
a housing having inner and outer end portions, said outer end portion lying outwardly of said inner end portion;
a plunger assembly slideably mounted to move in opposite inner and outer directions in said housing and including inner and outer plungers and an outer spring resiliently biasing the outer plunger outwardly with respect to the inner plunger, each of said plungers being separately moveable in opposite inner and outer directions and said inner plunger being moveable along a predetermined path;
an inner spring biasing said inner plunger outwardly with respect to said housing;
a short travel switch lying in said housing inward of said inner plunger and having a deflectable part lying along the path of said inner plunger, said switch being operable by depression of said deflectable part;
said outer plunger having a shoulder that abuts said inner plunger at a position that preloads said outer spring;
the preloads and spring rates of said inner and outer springs being chosen so that said outer spring is partially compressed from the position at which said shoulder abuts said inner plunger, when said inner plunger first contact said deflectable part of said short travel switch.

5,066,842
KEY TOP
Kazuyoshi Yamagata, Sumiyoshi; Masaaki Kageyama, and Kyoichi Kaneko, both of Iwaki, all of Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan
Filed Jul. 30, 1990, Ser. No. 559,467
Claims priority, application Japan, Oct. 27, 1989, 1-278628
Int. Cl.[5] H01H *3/12*
U.S. Cl. 200—345 **4 Claims**

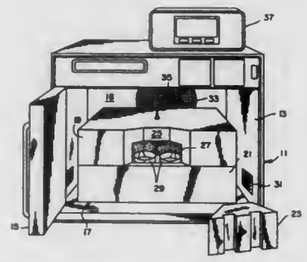


1. A key top comprising:
a top plate having top and bottom surfaces;
an engaging protrusion extending from said bottom surface of said top plate and disposed at the approximately central portion of said bottom surface of said top plate, said engaging protrusion terminating in a free end; and
a plurality of reinforcing ribs extending from said bottom surface of said top plate and disposed adjacent to said engaging protrusion, characterized in that at least two gaps are disposed between said engaging protrusion and at least two of said ribs.

5,066,843
HEAT RESISTANT AND LIGHT WEIGHT CONTAINER FOR MATERIALS TO BE ASHED, AND PROCESS FOR MANUFACTURE THEREOF
Robert N. Revesz, Monroe, N.C., assignor to CEM Corporation, Matthews, N.C.
Filed Jan. 18, 1989, Ser. No. 298,553
Int. Cl.[5] H05B *6/80*; G01N *31/12*
U.S. Cl. 219—10.55 R **15 Claims**

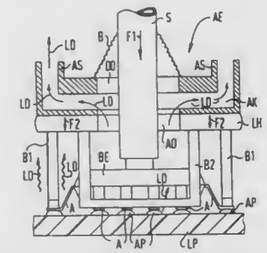
1. A container for an ashable material which is to be ashed by heat in an ashing furnace, which container is heat resistant during ashing operations in which it is heated to a temperature

up t o 500° C., light in weight, porous and includes integral bottom and side wall portions made of quartz microfibers



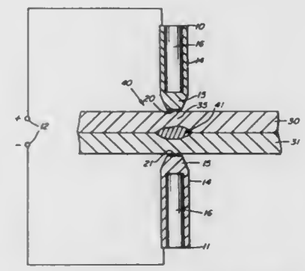
which are held together in walled and bottomed container form.

5,066,844
SOLDERING DEVICE WITH STIRRUP ELECTRODES AND A SUCTION PIPETTE
Rudolf Schuster, Heimstetten, and Josef Raschke, Gelting, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Sep. 25, 1990, Ser. No. 587,793
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1989, 3932651
Int. Cl.[5] H05B *1/00*; B23K *3/00*; B08B *15/04*
U.S. Cl. 219—85.16 **1 Claim**



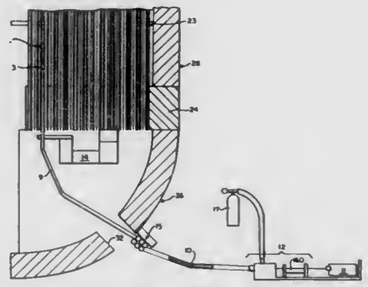
1. A soldering device for soldering components onto printed circuitboards, comprising:
a soldering stirrup holder;
at least two soldering stirrups mounted spaced apart on said stirrup holder for electrical resistance heating;
said stirrup holder comprising aperture means defining a central aperture therethrough between said soldering stirrups;
a suction pipette extending through said central aperture for picking up, conveying and placing a component onto an assigned soldering location on a printed circuitboard; and
vapor extraction means mounted adjacent said stirrup holder for extracting soldering vapors, and including extraction opening means defining an extraction opening communicating with said central aperture to support vapor flow away from said soldering stirrups, said vapor extraction means comprising a first plate mounted on said stirrup holder and including said extraction opening therethrough aligned with said central aperture, a second plate spaced from said first plate and defining an extraction chamber therebetween, port means defining at least one port at the peripheries of said first and second plates in communication with said extraction chamber, means defining a pipette opening through said second plate for receiving said pipette therethrough, and a flexible bellows sealing said second plate to said pipette on the side thereof opposite said extraction chamber.

5,066,845
RESISTANCE WELDING ELECTRODE COATED WITH CERAMIC LAYER
Stephen L. Anderson, Traverse City, Mich., assignor to Alcotec Wire Company, Traverse City, Mich.
Continuation-in-part of Ser. No. 405,868, Sep. 11, 1989, Pat. No. 4,947,024. This application Aug. 6, 1990, Ser. No. 563,377
Int. Cl.[5] B23K *9/24*
U.S. Cl. 219—119 **16 Claims**



1. A resistance welding electrode comprising:
(a) a metal body defining a tip having an outer surface which abuts against a metal workpiece during welding; and
(b) a coating on at least a portion of said outer surface, said coating comprising a layer of a ceramic material having a thickness of about 5000 angstroms or less, said ceramic material being selected from the group consisting of a sulfide of tungsten, titanium, molybdenum, or zirconium; a silicide of tentalum or vanadium; and a boride of hafnium, titanium, vanadium, or zirconium.

5,066,846
SYSTEM AND METHOD FOR LASER WELDING THE INNER SURFACE OF HEAT EXCHANGER TUBES
William E. Pirl, Levelgreen, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Jun. 26, 1990, Ser. No. 543,983
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.63 **23 Claims**



1. A system for laser welding the inner surface of a conduit, comprising:
an elongated tubular housing having a distal and a proximal end;
a laser source for generating light energy;
a light conduit for conducting light energy generated by the laser source through said tubular housing;

VOL 1132 ISS 3 NO 19 1991 UMI

a beam deflection assembly rotatably mounted on the distal end of said housing and optically connected to said light conduit for directing said light energy to the inner surface of the conduit, and

a rotary drive assembly for rotating said beam deflection assembly to direct said light energy around the inner surface of the conduit, including a motion transducer for converting linear movement parallel to the longitudinal axis of the housing to rotary motion, said transducer having a driven member including a follower means disposed in said housing and connected to said beam deflection assembly, and an elongated drive member axially movable within said housing that includes a helical groove that receives said follower means.

5,066,847

AUTOMATIC WELDING MACHINE PATH CORRECTION METHOD

Hajimu Kishi, Hino; Tohru Mizuno, Tama, and Yuichi Kanda, Kitakata, all of Japan, assignors to Fanuc Ltd., Yamanashi, Japan

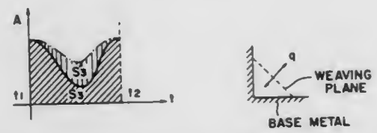
PCT No. PCT/JP88/00396, § 371 Date Oct. 28, 1988, § 102(e) Date Oct. 28, 1988, PCT Pub. No. WO88/08350, PCT Pub. Date Nov. 3, 1988

PCT Filed Apr. 22, 1988, Ser. No. 269,742

Claims priority, application Japan, Apr. 23, 1987, 62-100912

Int. Cl.[5] B23K 9/127

U.S. Cl. 219—124.34 1 Claim



1. A path correction method in an automatic welding machine in which a torch of a welding machine is grasped by a robot and welding is performed while the welding torch is weaved to the left and right of a welding line, which method comprises the steps of:

computing, every half cycle, an integrated value of welding current of the torch weaved with respect to a given welding line;

deciding a correction direction;

deciding an amount of correction by performing a computation, which is based on said integrated value, in dependence upon the correction direction and

correcting a weaving path of said torch every half cycle by multiplying the decided amount of correction by a predetermined coefficient;

wherein welding is performed while the welding torch is weaved in a weaving plane to the left and right of a welding line, and method includes storing a reference value of the integrated value of said half cycle of welding current determining an actual integrated value of said half cycle, comparing said reference value to said actual integrated value, and determining a correction amount in a direction which will vary a distance between the weaving plane and a workpiece in dependence upon a difference in the actual integrated value with respect to said reference value.

5,066,848

AUTOMATIC COPYING METHOD FOR A WELDING TORCH IN AN ARC WELDING ROBOT

Seigo Nishikawa; Shinji Okumura; Tadayuki Amano, and Kazutoshi Hata, all of Kitakyushu, Japan, assignors to Kabushiki Kaisha Yaskawa Denkiseisakusho, Kukuoka, Japan

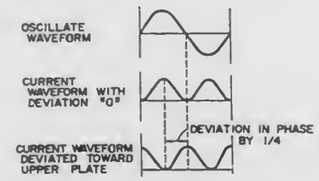
Division of Ser. No. 291,304, Dec. 28, 1988, Pat. No. 4,937,426.

This application Apr. 25, 1990, Ser. No. 514,553

Claims priority, application Japan, Dec. 28, 1987, 62-329720; Feb. 19, 1988, 63-38074

Int. Cl.[5] B23K 9/127

U.S. Cl. 219—124.34 2 Claims



1. A method of correcting the travel path of an oscillating robotic welding torch, said robotic welding torch tracing a groove line defined by an upper and lower plate and oscillating laterally relative said groove line to define a center of oscillation and opposite first and second ends of oscillation, said fist end of oscillation extending towards the upper plate and said second end of oscillation extending towards the lower plate, said robotic welding torch having a welding current which has a value related to a distance between the robotic welding torch and the upper and lower plate, said method comprising the steps of:

extracting a current component signal of the welding current having a frequency which is twice an oscillating frequency of the robotic welding torch; and,

determining a travel path adjustment of the robotic vehicle according to a phase deviation between the current component signal and an oscillating frequency signal of the oscillating robotic welding torch.

5,066,849

SOLDERING IRON FOR SURFACE MOUNTED COMPONENTS

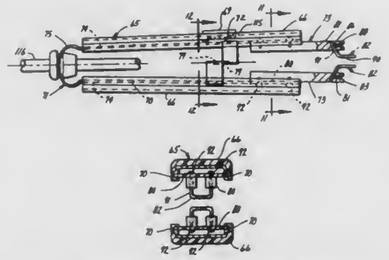
Cornelius T. DeKam, 24565 Tamarack Circle, Southfield, Mich. 48075

Division of Ser. No. 000,204, Jan. 2, 1987, Pat. No. 4,822,979.

This application Apr. 10, 1989, Ser. No. 335,886

Int. Cl.[5] H05B 1/02; B23K 3/02

U.S. Cl. 219—233 12 Claims



1. In an electrically heated soldering iron of the type having at least one soldering tip heated by an electric heating element, the improvement which comprises:

said soldering iron comprising a pair of said soldering tips, each tip comprising a pair of conductors made from dissimilar metals joined together to unitarily provide the soldering tip, the heating element and a thermocouple for sensing the temperature of the tip, an end portion of one conductor being joined to an end portion of the other conductor to provide the soldering tip and the other end portions of the conductors being operatively connected to a power supply such that when current is supplied to the conductors, the soldering tip is heated and a voltage is generated by said joined end portions indicative of the temperature of said tip;

a pair of channel-shaped arms each supporting one of said pair of soldering tips, said arms adapted to be rotatably joined together at one end portion and resiliently biased apart from each other to a normally open position, and selectively adjustable toward each other by a user to an operative position with said soldering tips in juxtaposition;

a unitary member attached to both of said arms for rotatably joining together said arms and resiliently biasing them apart from each other;

a pair of overlapping members attached to said arms for defining said normally open position;

means mounting said soldering tips to the other end of said arms; and

said power supply operatively connected to said end portions of the dissimilar conductors for heating said conductors and generating a voltage indicative of the temperature of said conductors.

5,066,850

SOLDERING APPARATUS OF A REFLOW TYPE

Kenshi Kondo, Tokyo, Japan, assignor to Nihon Den-Netsu Keiki Co., Ltd., Tokyo, Japan

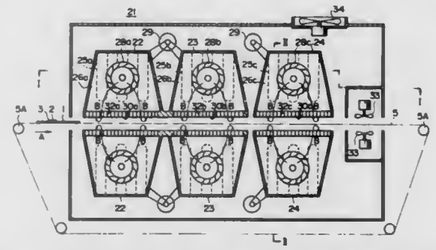
Filed Oct. 3, 1989, Ser. No. 416,456

Claims priority, application Japan, Oct. 4, 1988, 63-249053

The portion of the term of this patent subsequent to Jul. 3, 2007, has been disclaimed.

Int. Cl.[5] F27B 9/24; B23K 1/005

U.S. Cl. 219—388 3 Claims



1. In a reflow type soldering apparatus having a conveyor means for conveying through the apparatus a printed circuit board on which a chip is temporarily mounted with a solder paste, a preheating chamber for preheating the printed circuit board, a reflow chamber for achieving soldering of the chip on the printed circuit board by fusion of the solder paste, and a fan in each of the chambers for circulating air through each respective chamber, the improvement comprising:

a first heater mounted adjacent to a side wall of the preheating chamber, said side wall of the preheating chamber extending along the direction of conveyance of the printed circuit board;

a first screening member mounted adjacent to said first heater so as to prevent direct radiation of radiant heat into the preheating chamber and to the printed circuit board, said first screening member defining with said preheating chamber side wall a first heating subchamber for heating air therein;

a second heater mounted adjacent to a side wall of the reflow chamber, said side wall of the reflow chamber extending along the direction of conveyance of the printed circuit board;

a second screening member mounted adjacent to said second heater so as to prevent direction radiation of radiant heat into the reflow chamber and to the printed circuit board; said second screening member defining with said reflow chamber side wall a second heating subchamber for heating air therein;

a first air inlet and a first air outlet disposed in said preheating chamber to permit circulation of heated air in said preheating chamber, said first inlet directing air through said first heating subchamber and to the circulating fan in said preheating chamber, and said first outlet directing heated air toward said conveyor means to preheat said printed circuit boards;

a second air inlet and a second air outlet dispoed in said reflow chamber to permit circulation of heated air in said reflow chamber, said second inlet directing air through said second heating subchamber and to the circulating fan in said reflow chamber, and said second outlet directing heated air toward said conveyor means to heat and fuse the solder paste; and

an air flow transforming member provided in each of said first and second air outlets, downstream of each of said ciruclating fans, to provide a uniform flow of non-turbulent heated air toward said conveyor means,

the fan and air flow transforming member in each of said preheating and said reflow chamber being disposed to direct non-turbulent heated air substantially evenly and uniformly across the width of said conveyor means to evenly heat the printed circuit board across the width of the board.

5,066,851

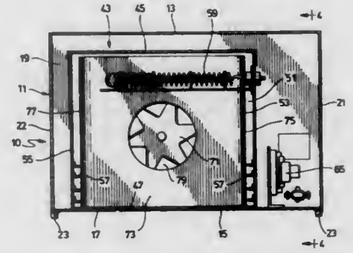
FORCED CONVECTION OVEN

Richard M. Darvin, Richardson, Tex., assignor to QNC, Inc., Dallas, Tex.

Continuation-in-part of Ser. No. 422,233, Oct. 2, 1989, Pat. No.

Int. Cl.[5] A21B 1/26, 1/22; F24C 15/32

U.S. Cl. 219—400 6 Claims



1. Forced convection cooking apparatus comprising:

a housing defining an enclosed cooking chamber which substantially prevents entrance or escape of air;

a resistance heater suspended in the upper portion of the cooking chamber;

a first opening in the front face of said cooking chamber adapted to receive a cooking tray;

a cooking tray positioned near the bottom of the cooking chamber for supporting food to be cooked and adapted to permit liquids to drip therethrough and air to flow therethrough, said cooking tray removably fitting within said first opening to prevent the flow of air through said first opening;

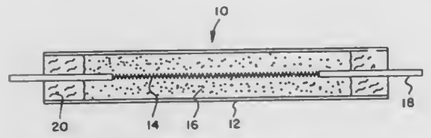
a handle on the front of the cooking tray for facilitating removal and insertion of the cooking tray from said first opening;

a second opening in said front face adapted to receive and support a drip tray below said cooking tray;

VOL 1132 ISS 3 NO 19 1991 UMI

a drip tray removably fitting within said second opening to prevent the flow of air through said second opening and positioned below said cooking tray to receive liquids dripping from said cooking tray;
a handle on the front of said drip tray for facilitating removal and insertion of the drip tray from said second opening;
a vertical baffle positioned near the rear of the cooking chamber and having a hole wherein air can flow through the hole and around the sides of the vertical baffle; and
a fan for drawing air through the hole toward the rear of the cooking chamber and for forcing air around the sides of the baffle toward the front of the cooking chamber.

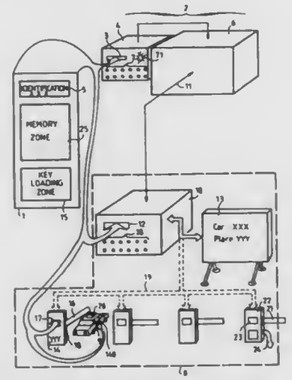
5,066,852
THERMOPLASTIC END SEAL FOR ELECTRIC HEATING ELEMENTS
Henry O. Willbanks, Cookeville, Tenn., assignor to Teledyne Ind. Inc., Cookeville, Tenn.
Filed Sep. 17, 1990, Ser. No. 583,248
Int. Cl.[5] H05B *3/10*
U.S. Cl. 219—544 **11 Claims**



1. An electric heating device comprising:
a generally tubular sheath;
an elongated coil of electrical resistance heating wire passing through a portion of said sheath and spaced therefrom;
an elongated first metal terminal arranged at one end of said sheath, one end of said first terminal being electrically connected to one end of said wire at the interior of said sheath and spaced therefrom, the other end of said first terminal being disposed at the exterior of said sheath;
an elongated second metal terminal arranged at the other end of said sheath, one end of said second terminal being electrically connected to the other end of said wire at the interior of said sheath and spaced therefrom, the other end of said second terminal being disposed at the exterior of said sheath;
a mass of granular, heat conducting, electrically insulating material disposed within said sheath and embedding said wire and said terminals and retaining said wire and said terminals in spaced relation with said sheath;
a seal disposed at least one end of said sheath between said terminal and said sheath, said seal formed of a thermoplastic material having a melting temperature in the range of the temperature of the terminal when the heating device is in heated condition, said thermoplastic material being substantially permeable to gases while melted, and substantially impermeable to gases while solid.

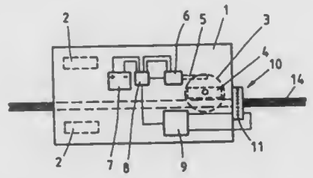
5,066,853
SYSTEM FOR RESERVING A SUPPLY OF GOODS OR SERVICES
Pierre Brisson, Meyrargues, France, assignor to SGS Thomson Microelectronics SA, Gentilly, France
Filed Sep. 20, 1988, Ser. No. 247,085
Claims priority, application France, Sep. 21, 1987, 87 13017
Int. Cl.[5] G06F *15/21, 7/10*
U.S. Cl. 235—381 **4 Claims**

1. A system for reserving the supply of a good or service to be obtained by self-service, said system comprising
chip cards assigned to customers of said good or service,
a central reservation device having a card reading apparatus designed to receive a customer card during a reservation operation, and interface means for communication with a customer, said central reservation system capable of writing in the card information relating to a reservation made by the owner of the card through said interface means,
local terminals connected to said central reservation device and remote from said central reservation device, said local terminals adapted to receive a customer card,
means associated with and controlled by each of said local terminals for physically delivering said good or service near said local terminal in response to information stored in the same card with which reservation of the good or service has been made,



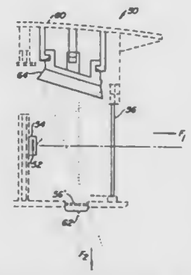
wherein means are provided at said local terminal to write in the card an access key for one specific good or service among the available goods or services at that local terminal,
said means for physically delivering a good or service comprise a card reading apparatus located at a remote place from said local terminal where said specific good or service is available, and
means for enabling delivery of said specific good or service in response to reading said access key from the card in said last mentioned card reading apparatus.

5,066,854
METHOD OF AND APPARATUS FOR GUIDING A SELF-STEERING VEHICLE ALONG AN OPTICAL GUIDEWAY
Urs Meyer, Niederglatt; Rene F. Oberhansli, Wiesendangen, and Dominik Häusler, Unterageri, all of Switzerland, assignors to Rieter Machine Works Ltd., Winterthur, Switzerland
Filed Feb. 14, 1990, Ser. No. 480,205
Claims priority, application Switzerland, Feb. 16, 1989, 00538/89
Int. Cl.[5] G05B *1/00*
U.S. Cl. 250—202 **24 Claims**



1. A method of guiding a self-steering vehicle along an optical guideway, comprising the steps of:
scanning the optical guideway by means of light pulses emitted in a predetermined frequency by sensors comprising the step of using a row of individual sensors providing analog measurement values and the further step of digitally processing the analog measurement values;
said step of using a row of individual sensors comprising the step of using transmitters which emit light pulses and receivers which receive light pulses, said sensors being transversely arranged relative to the direction of travel of the vehicle;
said step of scanning the optical guideway comprising the step of successively effecting the scanning operation in chronological sequence relative to the number of sensors;
generating a signal from the intensity of the reflected light, received by said receivers, by means of an electronic evaluation unit comprising the step of evaluating the reflected light signals by means of a computer unit; and
using the signal to control a steering mechanism.

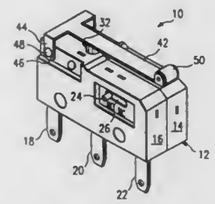
5,066,855
INFRARED INTRUSION DETECTOR
Wade Lee, Alamo, Calif., assignor to Intelectron, Hayward, Calif.
Filed Jan. 24, 1990, Ser. No. 469,630
Int. Cl.[5] G01V *9/04*
U.S. Cl. 250—221 **11 Claims**



1. In an infrared intrusion detection device having a first field of view including a first optical path having a fresnel lens array disposed in front of an infrared radiation sensor to direct incident radiation directly onto the sensor, the improvement comprising:
a housing encompassing a portion of the first optical path, said portion including the lens array and the sensor;
said housing having a first and a second aperture, with said first aperture disposed to provide the first field of view and the second aperture disposed to provide a second field of view at least about ninety degrees to the first field of view, said aperture permitting incident infrared radiation received from said second field of view to enter said housing along a second optical path; and
an optical element disposed in said housing along said second optical path, said optical element directing said incident infrared radiation received from said second field of view to said sensor.

5,066,856
OPTICAL MICRO-SWITCH APPARATUS
Ronald J. Crouse, Dallas, Tex., assignor to Optoswitch, Inc., McKinney, Tex.
Filed Mar. 23, 1990, Ser. No. 498,811
Int. Cl.[5] G01D *5/34*
U.S. Cl. 250—229 **20 Claims**

1. An optical switch comprising:
a housing:
an input lead, an output lead and a common lead extending from said housing;
a light-emitting device position within said housing and operatively connected at least between said input lead and said common lead;
a light-sensing device positioned within said housing and operatively connected at least between said output lead and said common lead, said light-sensing device and said light-emitting device disposed at respective ends of a light transmission path;
an operator-movable means positioned in said light transmission path, movable between a first position which configures the optical switch for normally switch-open position and operation and a second position which configures the optical switch operation and a second position which configures the optical switch for normally switch-closed position and operation and including light-blocking means and light-passing means; and
a switch-actuating means positioned in said light transmission path, movable between a first position and a second position and including light-blocking means and light-passing means;



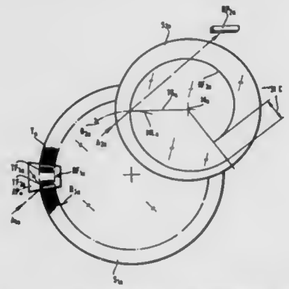
whereby said optical switch is in the switch-open position without an output voltage available on said output lead and with the light transmission path blocked when said operator-movable means and said switch-actuating means are both positioned in said first position, said optical switch is in the switch-open position with the light transmission path blocked when said operator-movable means and said switch-actuating means are both position in said second position, said optical switch is the switch-closed position with an output voltage available on said output lead and with the light transmission path not blocked when said operator-movable means is positioned in said first position and said switch-actuating means is positioned in said second position, said optical switch is in the switch-closed position with the light transmission path not blocked when said operator-movable means is positioned in said second position and said switch-actuating means is positioned in said first position.

5,066,857
INCREMENTAL ANGLE ENCODER HAVING SPIRAL SCANNING FIELD AND MULTIPLE DISCS
Alfons Ernst, Traunreut, Fed. Rep. of Germany, assignor to Johannes Heidenheim GmbH, Traunreut, Fed. Rep. of Germany
Filed Aug. 13, 1990, Ser. No. 566,550
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1989, 3926799
Int. Cl.[5] G01D *5/34*
U.S. Cl. 250—231.15 **21 Claims**

1. An incremental angle encoder which generates signals from which the number of revolutions can be determined thereby indicating an absolute measurement comprising:
a first disk having an incremental angular graduation and at least a first reference mark and a second reference mark;
an encoder shaft connected to said first disk;
a second disk having a spiral shaped reference scanning field;
a second shaft connected to said second disk;
a reduction gear connecting said encoder shaft with said second shaft wherein said reduction gear creates a reduction ratio between said first disk and said second disk; and

VOL 1132 ISS 3 NO 19 1991 UMI

scanning means for generating a first reference signal by scanning said first reference mark on said first disk and a second reference signal by means of scanning said second



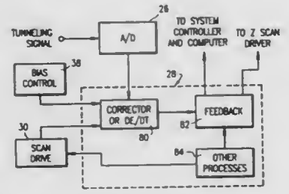
reference mark through said spiral shaped reference scanning field of said second disk wherein the number of revolutions of said encoder shaft is determined by the offset between the first and second reference signals.

5,066,858

SCANNING TUNNELING MICROSCOPES WITH CORRECTION FOR COUPLING EFFECTS

Virgil B. Elings, and John A. Gurley, both of Santa Barbara, Calif., assignors to Digital Instruments, Inc., Goleta, Calif.

Filed Apr. 18, 1990, Ser. No. 510,612
Int. Cl.[5] H01J *37/00*
U.S. Cl. 250—307 28 Claims



1. A method of correcting a scanning tunneling microscope system for coupling effects of parasitic impedances and geometric capacitance, said scanning tunneling microscope system comprising a scanning tip and a signal lead connected to said tip constituting a tunneling current circuit, a transducer for scanning said tip over a surface of a sample to be observed by said microscope system and to move said tip towards and away from said surface, electrodes on said transducer, means for applying scan drive voltages to said electrodes, and bias means for applying a bias voltage to said sample, said method comprising:

withdrawing said tip to a position at which no tunneling current will flow from said sample;

applying a test signal to one of said electrodes and bias means;

acquiring the response induced in said tunneling current circuit in response to said application of said test signal;

determining from said response the correction required by said scanning tunneling microscope system to correct for said coupling effects; and

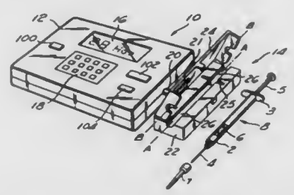
using said correction when said tip is lowered to a position at which tunneling current will flow from the sample to said tip to correct said tunneling current for said coupling effects.

5,066,859

HEMATOCRIT AND OXYGEN SATURATION BLOOD ANALYZER

Maurice N. Karkar, 26842 Calle Maria, Mission Viejo, Calif. 92692, and James C. Velnosky, 6014 Amethyst Ave., Alta Loma, Calif. 91701

Filed May 18, 1990, Ser. No. 526,184
Int. Cl.[5] G01J *1/00*
U.S. Cl. 250—339 26 Claims



1. An apparatus for measuring hematocrit and oxygen saturation levels of a volume of blood, comprising:

a housing including a key pad and display panel thereon;

a receptacle sized to store a quantity of blood therein;

a carriage electrically connected to said housing, said carriage being sized and configured to receive and support said receptacle;

a light source disposed adjacent said carriage, said light source being operative to illuminate said quantity of blood within said receptacle with first and second wavelengths of light;

a first sensing means disposed adjacent said carriage for producing a hematocrit signal as a function of said first wavelength of light after scattering thereof by said blood;

a second sensing means disposed adjacent said carriage for producing an oxygen saturation signal as a function of said first and said second wavelengths of light after scattering thereof by said blood;

a third sensing means disposed adjacent said carriage for producing a calibration signal for the purpose of calibrating said apparatus; and

a signal processing means disposed within said housing, said signal processing means comprising:

(a) means for filtering said hematocrit signal and said oxygen saturation signal from system noise and outside interference;

(b) means for producing an adjusted hematocrit signal and an adjusted oxygen saturation signal, said adjusted hematocrit signal comprising said hematocrit signal as compensated for effects of oxygen saturation, temperature, and blood pH and said adjusted oxygen saturation signal comprising said oxygen saturation signal as compensated for effects of hematocrit, temperature, and blood pH; and

(c) means for converting said adjusted hematocrit signal and said adjusted oxygen saturation signal to hematocrit and oxygen saturation measurements for output on said display panel.

5,066,860

OPTICAL SENSOR

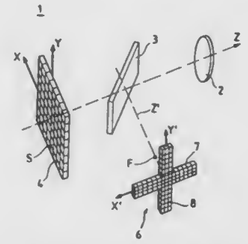
Helmut Zinner, Haar, Fed. Rep. of Germany, assignor to Messerschmitt-Bölkow-Blohm GmbH, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 452,114, Dec. 15, 1989, abandoned.
This application Apr. 1, 1991, Ser. No. 680,606
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1988, 3843470
Int. Cl.[5] G01C *21/12*
U.S. Cl. 250—349 10 Claims

1. An optical sensor for detecting a target and for determining characteristic motion of a missile approaching the target, comprising:

an optical system having a focal plane for forming an image of a scene containing the target lying within a field of view of the optical system onto at least a first and a second detector;

the first detector comprising a plurality of first detector



elements configured in a planar matrix, and the scene containing the target being sharply imaged onto said first detector elements;

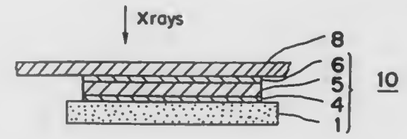
the second detector comprising at least two intersecting sensor bars having a group of second detector elements lying outside of the focal plane of the optical system, so that an image of a target point situated at infinity is imaged onto several second detector elements.

5,066,861

X RAY DETECTING DEVICE

Takehisa Nakayama; Akimine Hayashi; Masataka Kondo; Satoru Murakami; Minori Yamaguchi; Yoshihisa Tawada; Masahiko Hosomi, all of Hyogo, Japan, assignors to Kanegafuchi Chemical Industry Co., Ltd., Osaka, Japan

Filed Jan. 19, 1989, Ser. No. 299,103
Claims priority, application Japan, Jul. 22, 1987, 62-184056; Aug. 7, 1987, 62-198377; Aug. 7, 1987, 62-198378; Oct. 28, 1987, 62-272640; Oct. 28, 1987, 62-272641; Oct. 28, 1987, 62-272642
Int. Cl.[5] G01T *1/20*
U.S. Cl. 250—370.09 23 Claims



1. An X ray detecting device for placement between an X ray source and an object to be measured or an X ray photographic film comprising:

XL converting means for receiving X rays and generating visible light, the intensity of the generated visible light corresponding to the intensity of the received X rays, and

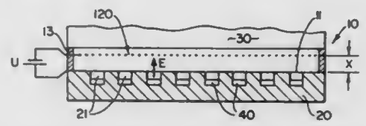
LE converting means for receiving the light generated from said XL converting means and generating an electrical signal corresponding to the intensity of the visible light, said LE converting means comprising a base layer, an amorphous semiconductor light to electric converting layer, and electrode means for deriving the electric signal, said LE converting means being made not to substantially absorb the X rays.

5,066,862

DEVICE FOR DETECTING IONIZING RADIATION

Heinz Filthuth, Bahnhofstrasse 29, D-7540 Neuenburg, Fed. Rep. of Germany

Filed May 14, 1990, Ser. No. 522,714
Claims priority, application Fed. Rep. of Germany, May 12, 1989, 3915612
Int. Cl.[5] H01J *47/00*
U.S. Cl. 250—393 8 Claims



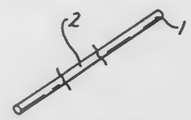
1. A device for detecting low energy ionizing radiation emanating from a plurality of samples, said device comprising: a receptacle having a surface and provided with a plurality of recesses each for holding a respective sample, each said recess being open at said surface; a cover member separate from said receptacle and having at least one planar electrically conductive member provided with openings, said conductive member being spaced from said receptacle and being disposed parallel to said surface; and a voltage source means connected between said receptacle and said conductive member to place said electrically conductive member at a potential which is positive relative to the potential of said surface and to create an electric field which substantially extends from said receptacle surface to said electrically conductive member.

5,066,863

ASCERTAINING HIGH ENERGY RADIATION

Ferdinand Hanisch, Burgwedel, and Eckard Schleese, Stadthagen, both of Fed. Rep. of Germany, assignors to Kabelmetal Electro GmbH, Hanover, Fed. Rep. of Germany

PCT No. PCT/DE89/00108, § 371 Date Nov. 1, 1989, § 102(e) Date Nov. 1, 1989, PCT Pub. No. WO89/08267, PCT Pub. Date Sep. 8, 1989
PCT Filed Feb. 24, 1989, Ser. No. 439,035
Claims priority, application Fed. Rep. of Germany, Mar. 3, 1988, 3806867
Int. Cl.[5] G01T *1/04, 3/00*
U.S. Cl. 250—474.1 28 Claims



1. Device for ascertaining the integral and cumulative dosage of high energy radiation to be ascertained in particular locations comprising, an extruded strand element of elongated construction of selectible length that has been cut from a considerably longer strand, and including a polymeric host material; alanine added to the host, said alanine undergoes molecular changes subject to detection; and a pigment included in the strand, which undergoes optical variations which are visible on exposure to high energy radiation.

VOL 1132 ISS 3 NOV 19 1991 UMI

5,066,864

STIMULABLE PHOSPHOR RADIATION IMAGE STORAGE SCREEN HAVING AN ANTI-REFLECTION LAYER

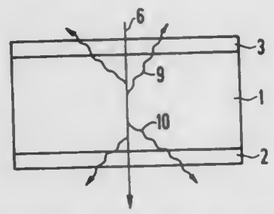
Gerhard Brandner, Zirndorf, and Peter Hoebel, Buckenhof, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jan. 17, 1991, Ser. No. 642,651

Claims priority, application European Pat. Off., Feb. 7, 1990, 90102430

Int. Cl.[5] G03B *42/00*

U.S. Cl. 250—484.1 9 Claims



1. A luminescent storage screen for storing latent x-ray images, said storage screen being read-out by excitation with stimulating radiation having a first wavelength, said storage screen comprising:

a stimulable phosphor in which said x-ray image is latently stored which is reactive to said radiation of first wavelength to emit radiation of a second wavelength; and

at least one optical layer coating a surface of said stimulable phosphor layer for reducing reflections at least of said radiation having said first wavelength and being highly transmissive at least for said radiation having said first wavelength.

5,066,865

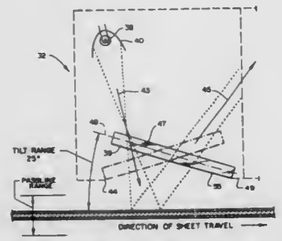
SINGLE SIDED REFLECTANCE SENSOR FOR MEASURING SELECT PHYSICAL PROPERTIES OF A MATERIAL USING ONE OR MORE WAVELENGTHS OF RADIATION

Gunnar Wennerberg, Cupertino, Calif., assignor to Measurex Corporation, Cupertino, Calif.

Filed Sep. 1, 1989, Ser. No. 401,942

Int. Cl.[5] G01N *21/88*

U.S. Cl. 250—572 18 Claims



1. A sensor, substantially insensitive to sheet flutter, for measuring a select physical property of a traveling sheet having a machine-direction and a cross-direction, and first and second major surfaces, comprising:

an electromagnetic radiation source disposed for projecting an incident beam onto the first surface of the sheet;

an elongated convex lens located in the optical path between the electromagnetic radiation source and the first surface of the sheet, for projecting the beam onto the first surface of the sheet, the lens being disposed with respect to the sheet so that the lengthwise axis of the lens and the machine-direction of the sheet form an angle of anywhere between ±25 degrees at the trailing edge of the lens and so that the beam projected onto the first surface of the sheet is smaller in the cross-section than in the machine direction; and

reflectance sensing means for sensing the intensity of the portion of the beam reflected from the first surface of the sheet.

5,066,866

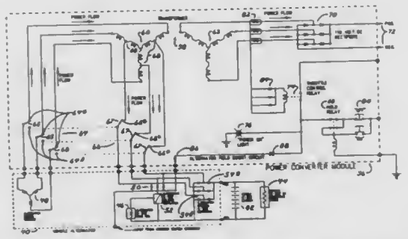
POWER CONVERTER SYSTEM

William M. Hallidy, 620 E. Laurel Ave., Glendora, Calif. 91740

Filed Dec. 26, 1989, Ser. No. 456,990

Int. Cl.[5] H02P *9/00*

U.S. Cl. 290—1 R 11 Claims



1. An electric power generating apparatus for use with the electrical system of an engine-driven vehicle, the apparatus comprising:

an engine-driven alternator having a rotor with magnetic poles and with a field coil adapted to receive an electric current and thereby produce lines of magnetic flux in said magnetic poles, a stator armature having windings that generate a voltage in response to said lines of magnetic flux when the rotor is rotated in respect to said stator, and output terminals connected to said windings;

voltage regulator means, having an input terminal, for controlling the magnitude of the current in the rotor field coil such that the voltage regulator means allows the field coil current to increase or decrease until a voltage of a predetermined level is received at the voltage regulator means input terminal;

a transformer having a primary winding with input terminals connected to the full primary winding, taps connected to a portion of the primary winding to provide a reduced portion of the full voltage applied to said input terminals, and a secondary winding with output terminals;

first switching means for switching the apparatus between a normal power state and a high power state, wherein the switching means in the normal power state directs substantially all of the voltage generated in the stator windings to the vehicle electrical system and to the voltage regulator means input terminal, and in the high power state directs substantially all of the voltage generated in the stator windings to the primary winding of the transformer; and

second switching means wherein said second switching means in the high power state directs the reduced portion of the full alternator generated voltage from the taps on the transformer primary winding to the vehicle electrical system and to the voltage regulator means; wherein

the voltage regulator means, in response to said reduced portion of the full alternator generated voltage applied to the voltage regulator means, increases the field coil current and thereby causes the alternator to generate a higher than normal voltage in the full stator windings to maintain the reduced portion of the full alternator generated voltage at the predetermined voltage level at the voltage regulator means input terminal.

5,066,867

METHOD AND DEVICE FOR GENERATING ELECTRIC POWER BY USE OF WAVE FORCE

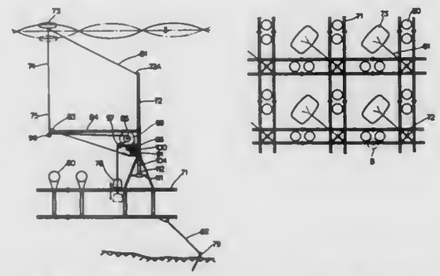
Hyun J. Shim, 350-39 Sangdo 3-dong, Dongjak-ku, Seoul, Rep. of Korea

Filed Jul. 6, 1987, Ser. No. 70,353

Claims priority, application Rep. of Korea, Jul. 7, 1986, 5475/1896

Int. Cl.[5] F03B *13/10, 13/12*

U.S. Cl. 290—53 3 Claims



1. A device for generating electric power from waves on a surface of a body of water, comprising:

a lattice-shaped frame;

a rotary column mounted on said frame;

a floatation bladder floating up-and-down on the water surface in response to rise and fall motion of the waves;

means for transmitting the up-and-down motion of the floatation bladder to a transducer, including a chain coupled to said floatation bladder and a plurality of sprockets being coupled to said rotary column and rotating in gear with the chain; and

means for maintaining said frame at a predetermined depth under mean water level.

5,066,868

APPARATUS FOR GENERATING PHASE SHIFTED CLOCK SIGNALS

James H. Doty, II; David L. Albean, and Harold Blatter, all of Indianapolis, Ind., assignors to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Filed Aug. 13, 1990, Ser. No. 566,182

Int. Cl.[5] H03K *5/00, 19/20, 5/159, 5/13*

U.S. Cl. 307—262 5 Claims

1. Apparatus for generating a phase shifted clock signal comprising:

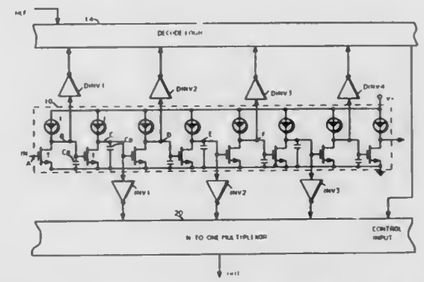
a clock input terminal for applying a clock signal;

a plurality of similar inverting amplifiers, each having input and output terminals, one of said amplifiers having its input terminal coupled to said clock input terminal, and the remaining amplifiers coupled in cascade with the one of said amplifiers wherein the output terminal of a preceding amplifier is coupled to the input terminal of a succeeding amplifier;

a plurality of similar valued capacitances respectively coupled between the output terminals of each of said amplifiers and a point of substantially constant potential;

signal selection means having a plurality of input terminals, and an output terminal for providing said phase shifted clock signal;

a plurality of buffer amplifier means, each having an input terminal exhibiting an impedance, and having respective output terminals, said buffer amplifier means respectively



coupled between respective input terminals of said signal selection means and the output terminals of every other one of said cascade connected amplifiers; and

a plurality of circuit means, each having an input terminal exhibiting an impedance which substantially emulates the impedance exhibited by the respective input terminals of said buffer amplifier means, and the input terminals of said plurality of circuit means being coupled to respective output terminals of inverting amplifiers which are not coupled to said buffer amplifier means, for providing delayed representations of said clock signal.

5,066,869

RESET CIRCUIT WITH PNP SATURATION DETECTOR

Robert A. Neidorff, Bedford, N.H., assignor to Unitrode Corporation, Lexington, Mass.

Filed Apr. 9, 1990, Ser. No. 506,465

Int. Cl.[5] H03K *17/20, 17/22, 17/16, 3/013*

U.S. Cl. 307—272.3 6 Claims

1. A reset circuit including an NPN transistor with a PNP transistor forming a saturation detector, comprising:

an NPN transistor including base, emitter and collector regions;

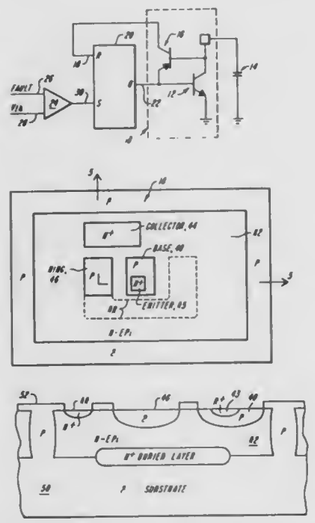
a PNP transistor including base, emitter and collector regions, energizable in response to saturation of said NPN transistor; and

a latch circuit element having set and reset input control ports and at least one output port, said reset input port coupled to the collector of said PNP transistor, and said at least one output port coupled to the base of said NPN transistor and emitter of said PNP transistor; and

said at least one output port responsive to an input signal on said input port for energizing said NPN transistor, and

VOL 1132 ISS 3 NO 19 1991 UMI

responsive to the energization of said PNP transistor input on said reset input port, for de-energizing said NPN transistor as a function of said PNP transistor detecting saturation of said NPN transistor.

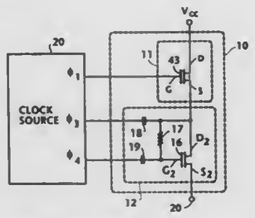


5,066,870

CHARGE PUMP HAVING PULL-UP CIRCUIT OPERATING WITH TWO CLOCK PULSE SEQUENCES

Hiroyuki Kobatake, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 20, 1990, Ser. No. 541,808
Claims priority, application Japan, Jun. 20, 1989, 1-158587
Int. Cl.[5] H03K *3/01, 5/13, 19/01;* **H03L** *5/00*
U.S. Cl. 307—296.1 **12 Claims**



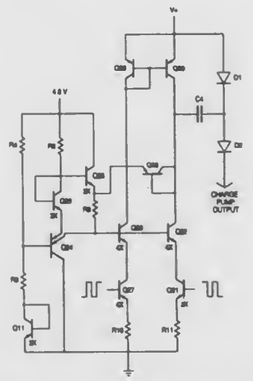
1. A charge pump comprising:
a charge-up circuit connected to a voltage source;
clock generator means for generating first and second clock pulse sequences respectively at first and second output terminals of the clock generator means;
a field-effect transistor having a drain-source path connected between said charge-up circuit and an output terminal of the charge pump, and a gate electrode; and
a time constant circuit having first and second capacitive elements and a resistive element connected therebetween, said time constant circuit being connected across said first and second output terminals of said clock generator means for successively applying voltages to one end of the drain-source path and gate electrode of said transistor in response to said first and second clock pulse sequences.

5,066,871

MAXIMUM SWING CASCODE CIRCUIT FOR A BIPOLAR CHARGE PUMP

Milton E. Wilcox, Saratoga, Calif., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Continuation of Ser. No. 433,505, Nov. 8, 1989, abandoned. This application May 9, 1991, Ser. No. 698,365
Int. Cl.[5] H03K *3/01;* **H02M** *3/18*
U.S. Cl. 307—296.1 **3 Claims**



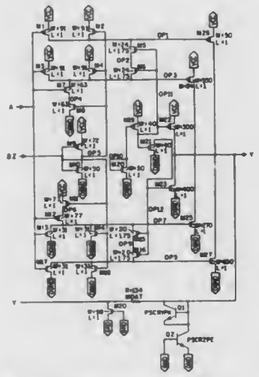
1. A bipolar charge pump that generates an output voltage greater than its supply voltage, the charge pump comprising:
(a) a pump capacitor having a first plate connected to the supply voltage via a first diode and a second plate selectively connectable to the supply voltage or to ground;
(b) a firsts NPN cascode transistor having a base, collector and an emitter;
(c) a first NPN input transistor having a base, a collector and an emitter, the collector of the first input transistor connected to the emitter of the first cascode transistor to form a cascode connection therebetween, the emitter of the first input transistor connected to ground via first resistive element;
(d) a second NPN cascode transistor having a base, a collector and an emitter, the collector of the second cascode transistor connected to the second plate of the group capacitor;
(e) a second NPN input transistor having a base, a collector and an emitter, the collector of the second input transistor connected to the emitter of the second cascode transistor to form a cascode connection therebetween, the emitter of the second input transistor connected to ground via a second resistive element;
(f) a current mirror comprising first and second PNP current mirror transistor, each current mirror transistor having a base, a collector and an emitter, the base of the first current mirror transistor connected to the base of the second current mirror transistor, the base of the first current mirror transistor connected to the collector of the first current mirror transistor, the emitter of the first current mirror transistor connected to the supply voltage, the collector of the second current mirror transistor connected to the second plate of the pump capacitor, the emitter of the second current mirror transistor connected to the supply voltage;
The base of the first input transistor and the base of the second input transistor being responsive to first and second opposing square waves, respectively, for causing current to alternately flow through the first cascode transistor and the second cascode transistor to the current mirror thereby switching the second plate of the pump capacitor between a low potential when the second cascode transistor is turned on and the supply voltage when the first cascode transistor and the current mirror are turned on; and
(g) a biasing network connected to the collector of the second cascode transistor for preventing the second cascode transistor from saturating when the second plate of the pump capacitor is switched to the low potential.

5,066,872

SPEED-UP TECHNIQUE FOR A CONSTANT DI/DT BUFFER

Stephen R. Schenck, McKinney, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 11, 1990, Ser. No. 535,815
Int. Cl.[5] H03K *17/16*
U.S. Cl. 307—443 **20 Claims**



1. An electronic circuit which comprises:
(a) an input node for receiving an input voltage signal;
(b) an output node;
(c) a first transistor coupled to said output node;
(d) voltage control circuitry coupled between said input node and said first transistor and responsive to predetermined voltage at said input node to control the voltage driving said first transistor with respect to time to provide a constant rate of change of current with respect to time in said first transistor; and
(e) a second transistor coupled to said output node and responsive to said predetermined voltage at said input node to turn on prior to said first transistor.

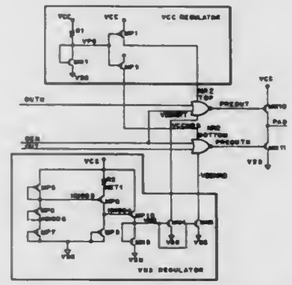
5,066,873

INTEGRATED CIRCUITS WITH REDUCED SWITCHING NOISE

Yiu-Fai Chan, Los Altos Hills; Chang-Chia Hsiao, Cupertino, and James A. Watson, Santa Clara, all of Calif., assignors to Altera Corporation, San Jose, Calif.

Filed Dec. 4, 1989, Ser. No. 444,993
Int. Cl.[5] H03K *17/16, 5/12, 19/003*
U.S. Cl. 307—443 **25 Claims**

1. An integrated circuit comprising:
a source of relatively high potential,
a source of relatively low potential,
an output pad,
an output driver circuit for selectively connecting said output pad to either of said sources,
at least one NOR gate for producing an output signal for controlling said output driver circuit, said NOR gate having logical inputs whose logical states determine the logical state of said output signal, a first reference voltage input for receiving a relatively high reference voltage, and a second reference voltage input for receiving a relatively low reference voltage input, the difference between said first and second reference voltages influencing the speed at which said NOR gate output signal changes logical state in response to changes in the logical states of said logical inputs,
first means for connecting said source of relatively high potential to said first reference voltage input, and
second means for connecting said source of relatively low potential to said second reference voltage input, at least one of said first and second means including:



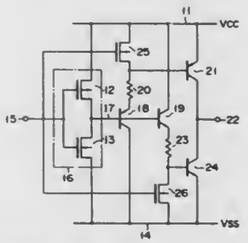
a resistor element connected in series between the associated source and reference voltage input for decreasing the difference between said first and second reference voltages in response to a decrease in the difference between said relatively high potential and said relatively low potential in order to decrease the speed at which said NOR gate output signal changes logical state in response to changes in the logical states of said logical inputs.

5,066,874

SIGNAL OUTPUT CIRCUIT HAVING BIPOLAR TRANSISTOR IN OUTPUT STAGE AND ARRANGED IN CMOS SEMICONDUCTOR INTEGRATED CIRCUIT

Kiichi Koya, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 14, 1990, Ser. No. 612,458
Claims priority, application Japan, Nov. 15, 1989, 1-296567
Int. Cl.[5] H03K *19/01*
U.S. Cl. 307—446 **7 Claims**



1. A signal output circuit comprising:
at least one input terminal;
an output terminal;
first and second nodes for respectively receiving power supply voltages having different values;
a CMOS logic gate for receiving a signal from said input terminal and for generating an output corresponding to the input;
a first bipolar transistor of a first polarity having a base for receiving the output from said logic gate;
a second bipolar transistor of a second polarity having a base for receiving the output from said logic gate;

VOL 1132 ISS 3 NO 19 1991 UMI

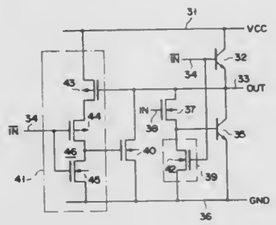
a first resistor having one terminal connected to an emitter of said first bipolar transistor;
a second resistor having one terminal connected to an emitter of said second bipolar transistor;
a third bipolar transistor of the first polarity having an emitter connected to said first node, a collector connected to said output terminal, and a base connected to the other terminal of said first resistor; and
a fourth bipolar transistor of the second polarity having an emitter connected to said second node, a collector connected to said output terminal, and a base connected to the other terminal of said second resistor.

5,066,875

SIGNAL OUTPUT CIRCUIT HAVING BIPOLAR TRANSISTORS AT OUTPUT, FOR USE IN A MOS SEMICONDUCTOR INTEGRATED CIRCUIT

Masaji Ueno, Chofu, and Kumi Ofusa, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 3, 1990, Ser. No. 592,236
Claims priority, application Japan, Oct. 6, 1989, 1-261577
Int. Cl.[5] H03K *19/096, 17/16*
U.S. Cl. 307—446 **13 Claims**



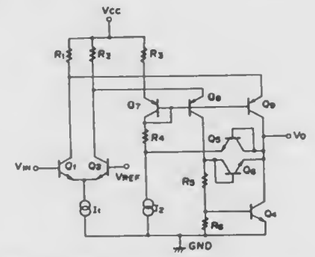
1. A signal output circuit having a bipolar transistor at an output, for use in a CMOS integrated circuit, said signal output circuit comprising:
a first node for outputting a signal;
a second node to which a first power-supply potential is applied;
a first bipolar transistor of a first polarity having a base and collector-emitter path connected between said first and second nodes;
a first MOS transistor of the first polarity having a source-drain path connected between said first node and the base of said first bipolar transistor, and controlled by a first input signal;
a second MOS transistor of the first polarity having a gate and a source-drain path connected between said first and second nodes; and
a control signal generating means for generating and supplying a control signal to the gate of said second MOS transistor, whereby said second MOS transistor is off while the output signal at said first node is falling to a predetermined level between a first voltage corresponding to a high logical level and a second voltage corresponding to a low logical level, and said second MOS transistor is on after the output signal falls below the predetermined level.

5,066,876

CIRCUIT FOR CONVERTING ECL LEVEL SIGNALS TO MOS LEVEL SIGNALS

Shinri Fukuda, and Eiichi Ishii, both of Tokyo, Japan, assignors to NEC Corporation, Japan

Filed Dec. 21, 1990, Ser. No. 632,167
Claims priority, application Japan, Dec. 28, 1989, 1-344543
Int. Cl.[5] H03K *19/092, 19/086*
U.S. Cl. 307—475 **17 Claims**



1. A transistor circuit comprising:
a first and a second power supply terminal and an output terminal;
a first and a second transistor differentially connected with each other and having bases receiving an input signal therebetween;
a first and a second resistor respectively connected between collectors of said first and second transistors and said first power supply terminal;
a third transistor having an emitter receiving a voltage dropped by said first resistor and a collector connected to said output terminal;
a fourth transistor having an emitter receiving a voltage dropped by said second resistor;
a fifth transistor having a collector connected to said output terminal and an emitter connected to said second power supply terminal;
a first means connected between said first and second power supply terminals for providing biasing voltages to bases of said third and fourth transistors thereby causing said fourth transistor to be in a conductive state when said voltage dropped by said first resistor is larger than that said voltage dropped by said second resistor and causing said third transistor to be in a conductive state when said voltage dropped by said first resistor is smaller than said voltage dropped by said second resistor; and
a second means for rendering said fifth transistor to become conductive when said fourth transistor is in a conductive state.

5,066,877

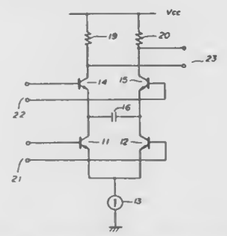
DATA DELAY CIRCUIT AND CLOCK EXTRACTION CIRCUIT USING THE SAME

Hiroshi Hamano, Kawasaki; Izumi Amemiya, Yokohama; Takuji Yamamoto, Kawasaki; Yasunari Arai, Tokyo, and Takeshi Ihara, Kawasaki, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 467,246, Jan. 19, 1990, abandoned. This application Feb. 28, 1991, Ser. No. 662,502
Claims priority, application Japan, Jan. 19, 1989, 1-8645
Int. Cl.[5] H03K *5/13, 5/159*
U.S. Cl. 307—603 **15 Claims**

1. A data delay circuit connectable to receive first and second voltages, to receive input data having a first polarity and to receive control data having a second polarity opposite the first polarity and having an amplitude level corresponding to a desired delay time of the input data, and comprising:
a first transistor having a base connectable to receive the input data, an emitter and a collector;

a second transistor having a base connectable to receive the input data, an emitter and a collector;
a constant-current source coupled to the emitters of said first and second transistors and to receive the first voltage;
a capacitor coupled between the collector of said first transistor and the collector of said second transistor;
a third transistor having a base connectable to receive the control data, a collector, and an emitter coupled to the collector of said first transistor;



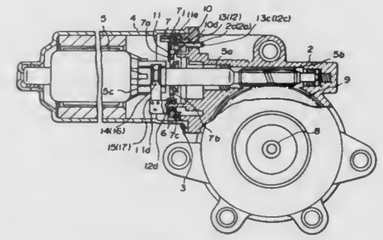
a fourth transistor having a base connectable to receive the control data, a collector, and an emitter coupled to the collector of said second transistor,; and
first and second load resistors respectively coupled to the collectors of said third and fourth transistor and to receive the second voltage,
delayed input data being drawn from the collectors of said third and fourth transistors.

5,066,878

SMALL-SIZED ELECTRIC MOTOR HOUSING CIRCUIT BREAKER

Shuji Sekine; Takeo Furuya, and Katsuhiro Sato, all of Yokohama, Japan, assignors to Jidosha Denki Kogyo K.K., Kanagawa, Japan

Filed Dec. 17, 1990, Ser. No. 628,138
Claims priority, application Japan, Dec. 18, 1989, 1-145707[U]
Int. Cl.[5] H02K *11/00*
U.S. Cl. 310—68 C **4 Claims**



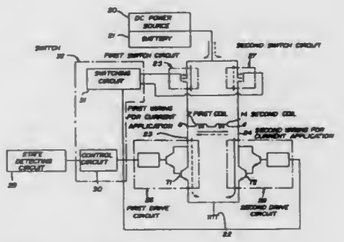
1. A small-sized electric motor comprising:
an armature provided with a commutator;
a brush in contact with the commutator of said armature;
a metallic brush holder directly fitted with said brush;
a fixed metallic holder retainer electrically connected with said brush holder;
a metallic terminal plate;
an electrically insulative holder base attached with said holder retainer and provided with a hole; and
a circuit breaker having a pair of electrical connective plates and inserted into said hole of said holder base together with said holder retainer and said terminal plate such that said electrical connective plates are in contact electrically with said holder retainer and said terminal plate so as to conduct an electric current to said armature through the terminal plate and the holder retainer.

5,066,879

SINGLE POWER SOURCE MAGNETIC BEARING DEVICE

Akira Yamamura, Tokyo, Japan, assignor to Nippon Ferrofluidics Corporation, Tokyo, Japan

Filed Apr. 27, 1990, Ser. No. 515,951
Int. Cl.[5] H02K *7/09;* **G05F** *1/08;* **F16C** *32/04*
U.S. Cl. 310—90.5 **1 Claim**



1. A magnetic bearing device, comprising:
a magnetic movable member;
a first supporting member having a first coil and a permanent magnet;
a second supporting member having a second coil and a permanent magnet, a top end of the first coil being connected to a top end of the second coil, said first and second supporting members being located so as to position said movable member therebetween and wherein during operation said movable member is magnetically supported so as not to be in contact with either of said supporting members;
state detecting means for detecting a state of displacement of said movable member;
a first wiring for application of current, said first wiring having a first switch circuit connected to a first drive circuit, a bottom end of the first coil being connected between the first switch circuit and the first drive circuit;
a second wiring for application of current, said first and second wirings being connected in parallel to each other between a dc power source and ground, said second wiring having a second switch circuit connected to a second drive circuit, a bottom end of the second coil being connected between the second switch circuit and the second drive circuit; and
switching means connected to said first and second wirings for switching direction of current applied to the first and second coils by switching to either a simultaneous closing state of said first switch circuit and said second drive circuit or a simultaneous closing state of said second switch circuit and said first drive circuit in accordance with the state detected by said state detecting means.

5,066,880

PERMANENT MAGNET POLYPHASE SYNCHRONOUS MACHINE

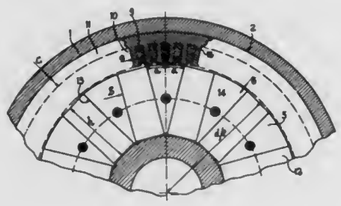
Louis Banon, 27 Bd des Italiens, 75002 Paris, France

Filed Apr. 4, 1990, Ser. No. 503,963
Claims priority, application France, Apr. 4, 1989, 89 04414
Int. Cl.[5] H02K *21/12*
U.S. Cl. 310—156 **7 Claims**

1. An apparatus comprising:
a flux concentration rotor including
a shaft made of a non-magnetic material,
parallelopipedal radial disposed permanent magnets adjacent said shaft through which induction flux passes, and

VOL 1132 ISS 3 NO 19 1991 UMI

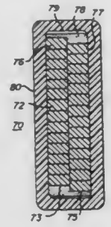
polar pieces disposed between said magnets; and a stator, having a bore diameter, including
a frame,
a plurality of semi-closed notches provided in said frame,
a stator yoke delimiting said notches, and
induction coils received in said notches, said stator and said rotor defining an air gap, said apparatus being constructed in accordance with a first ratio r1 defined by the equation



$$r1 = h/d$$

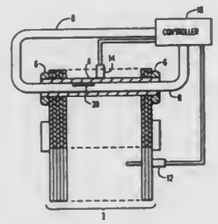
wherein:
h is a height of a section of one of said magnets, and
d is a bore diameter of said stator,
the value of said first ratio r1 being between 0.19 and 0.27.

5,066,881
SEMI-CONDUCTING LAYER FOR INSULATED ELECTRICAL CONDUCTORS
Richard K. Elton, Altamont, and William R. Schultz, Jr., Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.
Division of Ser. No. 351,235, May 15, 1989, which is a division of Ser. No. 643,908, Aug. 23, 1984, Pat. No. 4,853,565. This application Jul. 23, 1990, Ser. No. 555,621
Int. Cl.[5] H02K *3/14*
U.S. Cl. 310—213 2 Claims



1. An internal grading layer for an electrically conductive winding which includes a plurality of conductive strands bundled together in at least two adjacent columns and a first strand of said plurality of conductive strands being transposed with respect to a second strand of said plurality of conductive strands in an adjacent column, an inert transposition filler material disposed proximate said conductive first and second strands to round off that portion of the bundled together conductive strands, said bundled together conductive strands and said filler material being surrounded by an insulative material, the internal grading layer comprising:
a semi-conducting pyrolyzed glass fiber layer having a resistivity in a range of 200 to 10,000,000 ohms per square disposed between said filler material and said insulative material in intimate contact with said insulative material and electrically coupled to said conductive first and second strands.

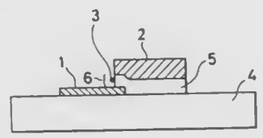
5,066,882
STATOR CORE ASSEMBLY
John B. Sargeant, Oviedo, Fla., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.
Filed Jan. 7, 1991, Ser. No. 637,721
Int. Cl.[5] H02K *5/04*
U.S. Cl. 310—217 9 Claims



1. In a stator core assembly comprising a plurality of steel punchings, and a plurality of fastening devices including bolts holding the punchings together in a stack and pressing adjacent punchings against one another, the bolts being of a material having a coefficient of thermal expansion different from that of the steel punchings, the improvement wherein: said bolts are constituted by hollow tubes; and said assembly further comprises temperature control means for introducing a fluid having a selected temperature to the interior of said tubes in order to minimize temperature dependent changes in the compressive force exerted by said fastening devices on said stack.

7. A method for controlling the compressive force exerted by a plurality of bolts on a stator core assembly, the stator core assembly including a plurality of steel punchings held together in a stack, and pressed against one another, by the bolts, each bolt being constituted by a hollow tube, said method comprising:
monitoring the temperatures of the bolts and the punchings;
causing a fluid to flow through each hollow tube; and
controlling the fluid in a manner to minimize temperature dependent changes in the compression forces exerted by the bolts on the stack.

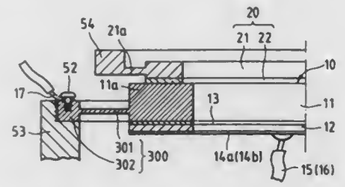
5,066,883
ELECTRON-EMITTING DEVICE WITH ELECTRON-EMITTING REGION INSULATED FROM ELECTRODES
Seishiro Yoshioka, Hiratsuka; Ichiro Nomura, Yamato; Hidetoshi Suzuki, Atsugi; Toshihiko Takeda, Tokyo; Tetsuya Kaneko, Yokohama; Yoshikazu Banno, Atsugi, and Kojiro Yokono, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Jul. 13, 1988, Ser. No. 218,203
Claims priority, application Japan, Jul. 15, 1987, 62-174837; Oct. 2, 1987, 62-250448; Oct. 9, 1987, 62-255063; Oct. 9, 1987, 62-255068; Apr. 27, 1988, 63-102485; Apr. 27, 1988, 63-102486; Apr. 27, 1988, 63-102487; Apr. 27, 1988, 63-102488; Jun. 21, 1988, 63-154516
Int. Cl.[5] H01J *1/02*
U.S. Cl. 313—309 49 Claims



1. An electron-emitting device comprising a laminate having

an insulating layer disposed between opposing electrodes on a planar substrate, said insulating layer having an electron-emitting region spaced apart from said electrodes, wherein a first portion of said insulating layer is disposed between said opposing electrodes, wherein a second portion of said insulating layer is disposed between one of said electrodes and said planar substrate, said emitting region being disposed in said first portion of said insulating layer and wherein electrons are emitted from said electron-emitting region by applying a voltage to said electrodes.

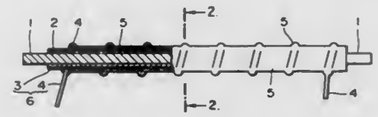
5,066,884
ULTRASONIC MOTOR HAVING HIGH DRIVE EFFICIENCY
Tadao Takagi, Yokohama; Daisuke Saya, Urayasu, and Shigehisa Nemoto, Kamagaya, all of Japan, assignors to Nikon Corporation, Tokyo, Japan
Filed Feb. 5, 1990, Ser. No. 475,000
Claims priority, application Japan, Feb. 10, 1989, 1-32085; Mar. 1, 1989, 1-50711; Sep. 16, 1989, 1-240375; Oct. 12, 1989, 1-265793; Dec. 21, 1989, 1-332299
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—323 23 Claims



1. An ultrasonic motor which comprises:
a stator having a piezoelectric member which is vibrated by a drive signal, and an elastic member, a junction surface of which is coupled to said piezoelectric member, and which generates a traveling vibration wave in a drive surface thereof upon vibration of said piezoelectric member;
a rotor which is urged against the drive surface of said elastic member and is driven by the generated traveling vibration wave;
a support member having a thin plate portion contiguous with an outermost peripheral surface of said elastic member, and a thick portion contiguous with an outer peripheral edge of said thin plate portion and having a larger thickness than that of said thin plate portion, said support member projecting integrally from said elastic member; and
means engaging said thick portion for fixing and supporting said support member,
wherein one end face of said thick portion is formed at the same level as the junction surface of said elastic member.

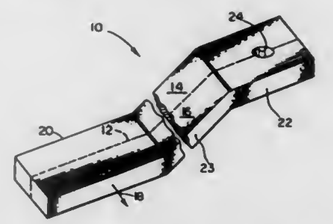
5,066,885
INDIRECTLY HEATED FILAMENTARY CATHODE
Kiyoshi Morimoto; Shigeo Itoh; Takeshi Tonegawa, and Takahiro Niiyama, all of Mobara, Japan, assignors to Futaba Denshi Kogyo Kabushiki Kaisha, Mobara, Japan
Filed Apr. 26, 1989, Ser. No. 343,366
Claims priority, application Japan, Apr. 30, 1988, 63-108815
Int. Cl.[5] H01J *1/24*
U.S. Cl. 313—340 1 Claim

1. An indirectly heat filamentary cathode comprising:
a heating core wire;
an electrically insulating layer for covering said heating core wire, said electrically insulating layer including a first layer formed of sintered aluminum oxide particles and a second layer formed of an intermediate film layer made of an organic material, said second layer being formed on the surface of said first layer so as to be placed on a part of said first layer;
a cathode substrate provided on said electrically insulating layer, said cathode substrate including metal conductive



layer formed of electroless plating on the surface of said second electrically insulating layer and a fine metal wire; and
an electron emitting layer provided on said cathode substrate.

5,066,886
THERMALLY RESPONSIVE ARTICLE, METHOD OF MAKING SAME, AND A DEVICE INCORPORATAING SAID ARTICLE
Leslie L. Harner, Ruscombmanor Township, Berks County, and Earl L. Frantz, Reading, both of Pa., assignors to Carpenter Technology Corporation, Reading, Pa.
Filed Oct. 31, 1989, Ser. No. 429,711
Int. Cl.[5] H01J *29/80*
U.S. Cl. 313—404 14 Claims



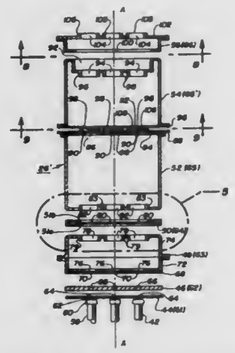
1. A monometallic, thermally responsive article that provides controlled displacement corresponding to a given temperature in a predetermined temperature range, said article comprising first and second portions formed of the same material and having a first phase in said first portion characterized by a first coefficient of thermal expansion and a second phase in said second portion characterized by a second coefficient of thermal expansion, whereby said first portion has a first coefficient of thermal expansion over said temperature range and said second portion has a second coefficient of thermal expansion different from said first coefficient over said temperature range.

5,066,887
COLOR PICTURE TUBE HAVING AN INLINE ELECTRON GUN WITH AN ASTIGMATIC PREFOCUSING LENS
David A. New, Mercerville, N.J., assignor to RCA Thomson Licensing Corp., Princeton, N.J.
Filed Feb. 22, 1990, Ser. No. 483,487
Int. Cl.[5] H01J *29/50*
U.S. Cl. 313—414 14 Claims

1. In a color cathode-ray tube including an envelope having therein an inline electron gun for generating and directing three inline electron beams, including a center beam and two outer beams, along initially coplanar beam paths toward and screen on an interior portion of said envelope, said gun having six electrodes forming three electron lenses including a beam-forming lens, a prefocusing lens and a main focusing lens, the improvement wherein

VOL 1132 ISS 3 NO 19 1991 UMI

said prefocusing lens includes four active surfaces, at least one of which has a recess formed therein, said active surfaces produce quadrupole fields which form an astig-



matic prefocusing lens, said recess provides a preconverging action on said outer electron beams, three circular apertures being provided within said recess.

5,066,888

ALKALI METAL VAPOUR DISPENSER

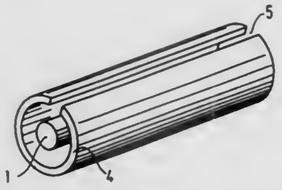
Cornelis Van Der Marel, and Arnoldus D. J. Smoorenburg, Both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed Aug. 31, 1989, Ser. No. 401,887

Claims priority, application Netherlands, Sep. 2, 1988, 8802171

Int. Cl.[5] H01J *17/26;* **H01B** *1/02*

U.S. Cl. 313—564 **10 Claims**



1. A device for releasing metal vapour of an alkali metal by heating, characterized in that the device comprises a metal carrier of a metal which does not react with or hardly reacts with silicon or germanium, and up to 10% by weight of silicon or germanium, predominantly present along the grain boundaries of the carrier material, and present at least partly in the form of a silicon alkali metal compound or germanium alkali metal compound.

5,066,889

SEALED LED LAMP HOUSING

Geoffrey S. Edwards, Grange-over-Sands, England, assignor to Oxley Developments Company Limited, Cumbria, England

Filed Apr. 18, 1990, Ser. No. 510,894

Claims priority, application United Kingdom, Jul. 1, 1989, 8915167

Int. Cl.[5] H01L *23/13;* **H05B** *33/02*

U.S. Cl. 313—512 **3 Claims**

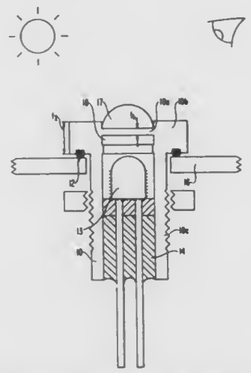
1. A sealed LED lamp housing, comprising:

(a) a unitary housing member made of a semi-transparent polymer of neutral optical density;

(b) the unitary housing member has a first, elongate, cylindrical portion defining an internal cylindrical cavity which receives the LED therewithin;

(c) the unitary housing member has a second portion forming a cylindrical lens located in front of the LED and disposed in said cylindrical cavity;

(d) the unitary housing member has a third, annular portion which is coaxial with the first portion and laterally surrounds the second portion;



(e) the third portion is of greater thickness than the second portion relative to the axial direction of the first, cylindrical portion, so as to provide a contrast annulus surrounding the second portion;

(f) the third portion is of greater diameter than the first cylindrical portion so that the third portion overlaps the first portion; and

(g) means for sealing between said overlap and an external apparatus receiving said housing.

5,066,890

PLASMA PANELS IN DELIMITED DISCHARGE ZONES

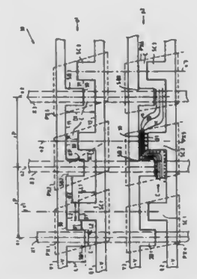
Serge Salavin, St Egreve; Jacques Deschamps, Grenoble; Michel Gay, Le Fontanil, and Michel Specty, Echirolles, all of France, assignors to Thomson Tubes Electroniques, Boulogne Billancourt, France

Filed Jun. 25, 1990, Ser. No. 542,592

Claims priority, application France, Jun. 23, 1989, 89 08386

Int. Cl.[5] H01J *17/49*

U.S. Cl. 313—585 **2 Claims**



1. A coplanar sustaining plasma panel, comprising:

addressing electrodes;

sustaining electrodes arranged in pairs and crossing said addressing electrodes, each sustaining electrode pair being formed by an addressing-sustaining electrode and a sustaining-only electrode;

a pixel formed approximately at each crossing of an addressing electrode with one of said sustaining electrode pairs, each of said electrodes of said sustaining electrode pairs comprising projecting surface, wherein said addressing electrodes cross said sustaining electrode pairs above said projecting surfaces belonging to said addressing-sustaining electrodes, and said projecting surfaces are oriented facing each other and offset relative to one another along different axes such that adjacent projecting surfaces alternately belong to an addressing-sustaining electrode and a sustaining-only electrode.

5,066,891

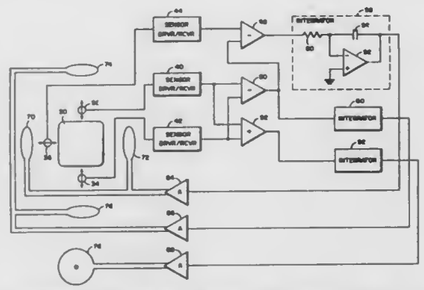
MAGNETIC FIELD CANCELLATION CIRCUIT

William J. Harrold, Derry, N.H.; Joseph A. Sansone, Rehoboth, Mass.; Joseph W. Bonfiglio, West Newton, Mass., and Seung K. Kim, Shrewsbury, Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Jan. 2, 1990, Ser. No. 459,867

Int. Cl.[5] H01J *29/06*

U.S. Cl. 315—8 **20 Claims**



1. Apparatus for controlling the total magnetic field in the vicinity of a substantially plane opening of a partially open magnetic shield to a predetermined level, said magnetic shield including a flange portion defining said substantially plane opening, said apparatus comprising:

a plurality of coil means disposed on said shield, said plurality of coil means including first coil means disposed on an external surface of said flange portion adjacent said shield opening, and second coil means disposed on said shield surrounding said opening, said plurality of coil means for generating a magnetic field in the vicinity of said shield opening;

means for sensing magnetic field intensity in the vicinity of said shield opening; and

means responsive to said sensing means for applying currents selectively to said plurality of coil means and for controlling the total magnetic field in the vicinity of said shield opening to said predetermined level.

5,066,892

GLOW DISCHARGE LAMP WITH INCANDESCENT FILAMENT

Andre C. Bouchard, Peabody; Radomir Lagushenko, and Jakob Maya, both of Brookline, all of Mass., assignors to GTE Products Corporation, Danvers, Mass.

Filed Dec. 7, 1990, Ser. No. 678,571

Int. Cl.[5] H05B *41/00*

U.S. Cl. 315—46 **16 Claims**

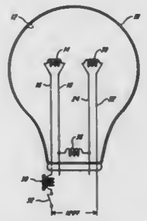
1. A glow discharge lamp comprising:

a sealed lamp envelope enclosing a noble gas and mercury;

cathode electrode means including a cathode disposed in said lamp envelope;

anode electrode means including an anode disposed in said lamp envelope; and

light-emitting means for emitting visible light for illumination substantially instantaneously upon application of power to the glow discharge lamp and for emitting little or no visible light for illumination after a glow discharge is formed between said cathode electrode means and said



anode electrode means, said light-emitting means being electrically connected such that said cathode, said light-emitting means and said anode are electrically connected in series.

5,066,893

DRIVING CIRCUIT FOR AN ELECTROLUMINESCENCE DEVICE

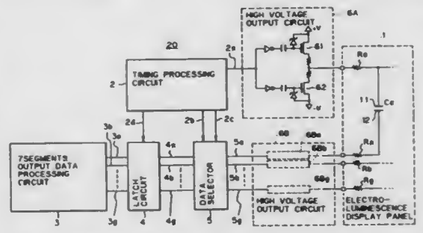
Masahiko Osada, Hekinan; Masumi Arai, and Shigeyuki Akita, both of Okazaki, all of Japan, assignors to Nippoo Soken, Inc., Nishio, Japan

Filed Dec. 7, 1990, Ser. No. 624,217

Claims priority, application Japan, Dec. 8, 1989, I 320308

Int. Cl.[5] G09G *3/10*

U.S. Cl. 315—169.3 **5 Claims**



1. A driving circuit for an electroluminescence device which comprises:

a plurality of driving electrodes provided on at least one electroluminescence layer;

a common electrode oppositely arranged to said driving electrodes with said electroluminescence layer interposed therebetween and commonly conducted;

a common voltage supplying means for applying a common pulse voltage to said common electrode;

a luminescence voltage supplying means for supplying a luminescence pulse voltage having an inversed phase to and a predetermined delay time from said common pulse voltage to said driving electrodes to discharge said electroluminescence layer during said predetermined delay time and to charge the same to luminesce in the rest of the time of said luminescence pulse voltage, and

a non-luminescence voltage supplying means which operates alternately with said luminescence voltage supplying means for supplying a non-luminescence pulse voltage having approximately the same phase as that of said common pulse voltage to said driving electrodes to discharge said corresponding electroluminescence layer to extinguish.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,894

ELECTRONIC BALLAST

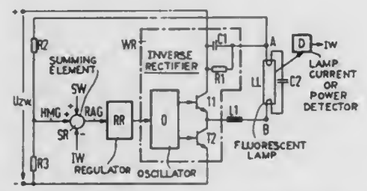
Juergen Klier, Traunreut, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 3, 1990, Ser. No. 592,125

Claims priority, application European Pat. Off., Oct. 9, 1989, 89118713

Int. Cl.[5] H05B *37/02*

U.S. Cl. 315—224 9 Claims



1. An electronic ballast for a fluorescent lamp having an A.C. maintaining voltage thereacross, comprising:

a capacitor connected in parallel with the fluorescent lamp;

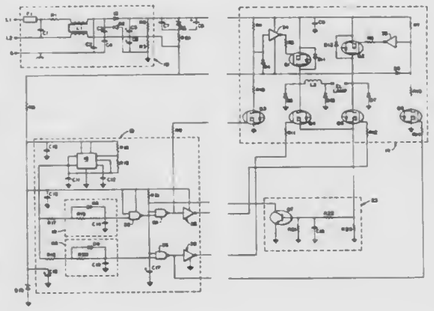
a lamp inductor connected in series with the fluorescent lamp;

a D.C. voltage supply including first and second poles;

an inverter rectifier including a control input, and an output connected to said series circuit of said lamp inductor and said parallel-connected fluorescent lamp and capacitor, said inverter rectifier including switch means connected to said output and connected to said first and second poles of said D.C. voltage supply;

a regulator including an error input, and an output connected to said control input of said inverter rectifier; and

error means connected to the fluorescent lamp and to said error input of said regulator and operable in response to a predetermined lamp operating parameter to compare the value of that parameter with a reference value to produce an error signal for controlling said inverter rectifier via said regulator to stabilize the brightness of the fluorescent lamp, including means for producing at least one auxiliary controlled variable value and superposing the same so that the error signal resulting from the comparison of said lamp operating parameter with said reference value only takes effect of said auxiliary controlled variable value at the lower limit of the range of brightness control of the fluorescent lamp.



5,066,895

ELECTROLUMINESCENT LAMP DRIVER

David S. Alessio, West Haven, Conn., assignor to Alrit Corporation, Prospect, Conn.

Filed Oct. 20, 1989, Ser. No. 424,403

Int. Cl.[5] H05B *37/02*

U.S. Cl. 315—226 10 Claims

1. Apparatus for providing electrical power to an electroluminescent lamp load comprising:

a source of direct current;

four solid state switches, said switches comprising field effect transistors, said transistors being interconnected such that each comprises one leg of a bridge circuit, said bridge circuit having four node points where pairs of said legs are connected to one another;

means connecting said current source to a pair of oppositely disposed of said node points of said bridge circuit;

means connecting the electroluminescent lamp load between the other pair of said node points of said bridge circuit, said connecting means including an inductance connected in series with the load;

logic circuit means for generating first and second command signal for said transistors, said first and second command signals each comprising a series of pulses, the pulses of said first and second command signals being non-overlapping;

means responsive to a first of said command signals for simultaneously applying gating signals to the transistors comprising a first pair of oppositely disposed legs of said bridge circuit whereby said transistors of said first pair will be simultaneously switched to the conductive state and current will flow from said source through the load and said series connected inductance in a first direction; and

means responsive to the second of said command signals for applying gating signals to the transistors comprising the second pair of oppositely disposed legs of said bridge circuit whereby current will flow from said source through the load and said series connected inductance in a second direction opposite to said first direction of current flow, the current flow in said first and second directions through said load being in synchronism with said non-overlapping command signals.

5,066,896

ELECTRIC LIGHTING AND POWER CONTROLLERS THEREFOR

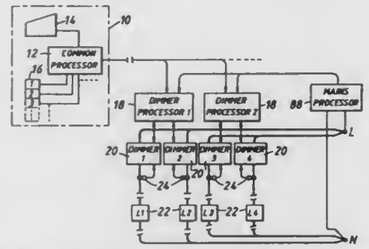
David R. Bertenshaw, Lightwater; Richard Williamson, Twickenham, both of United Kingdom, and John Wright, Sunbury, Great Britain, assignors to Strand Lighting Limited, Isleworth, United Kingdom

Filed Dec. 12, 1989, Ser. No. 450,294

Claims priority, application United Kingdom, Dec. 20, 1988, 8829717

Int. Cl.[5] H05B *39/08*

U.S. Cl. 315—291 9 Claims



1. A method of controlling power supplied from an AC supply to a lighting load by a circuit including a controllable switch, the method comprising the steps of:

measuring the supply voltage a multiplicity of times over a half-wave cycle of the supply;

producing from the measured voltages a table indicating how the switch should be operated to obtain any of a multiplicity of RMS output voltages; receiving a signal indicative of a desired RMS output voltage;

determining from the table the switch operation required for the desired RMS output voltage; and operating the controllable switch in the determined manner.

5,066,897

LINEAR DRIVING APPARATUS

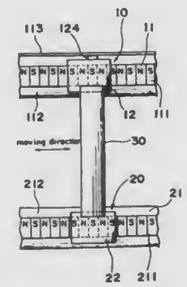
Tetuyuki Ueda, Nara, and Masayoshi Tsunezawa, Sakai, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 7,356,173, May 24, 1989, abandoned. This application Feb. 5, 1991, Ser. No. 652,205

Claims priority, application Japan, May 26, 1988, 63-129982; Aug. 30, 1988, 63-217276; Nov. 30, 1988, 63-304357

Int. Cl.[5] G02K *41/02*

U.S. Cl. 318—135 9 Claims



1. A linear driving apparatus comprising:

first and second linear motors, each of which includes,

a stator having a plurality of permanent magnets, and

a movable member having polyphase windings and being freely movable through a gap on a top face of said stator;

a coupling member for mutually coupling said movable members of said first and second linear motors and being driven by said movable members through a polyphase excitation of said polyphase windings of said first and second linear motors; and

connecting means for connecting electrically the polyphase windings having a first phase of said movable member of said first linear motor with the polyphase windings having said first phase of said movable member of said second linear motor in series or in parallel, and the polyphase windings having said second phase of said movable member of said first linear motor with the polyphase windings having said second phase of said movable member of said second linear motor in series or in parallel.

5,066,898

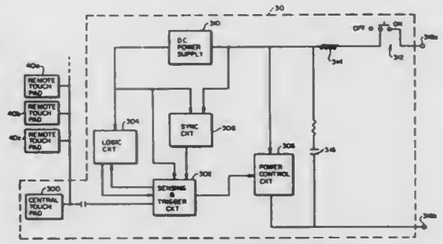
MULTI-WAY SWITCH SYSTEM HAVING PLURAL REMOTE TOUCH PADS

Ronald E. Miller, Zanesville, and Robert L. James, Cambridge, both of Ohio, assignors to Delat Systems, Incorporated, Cambridge, Ohio

Filed May 3, 1990, Ser. No. 518,464

Int. Cl.[5] H05B *37/02*

U.S. Cl. 315—362 9 Claims



1. A multi-way switch system comprising:

at least one remote switching means for generating an activation signal;

central switching means, located remotely from said remote switching means and coupled thereto by a single conducting wire, for controlling power to a load, said central switching means comprising:

means for sensing the activation signal produced by said remote switching means;

logic means responsive to said activation signal for producing a control signal;

means joined to the logic for receiving said control signal and producing a trigger signal;

means for providing a synchronization signal to synchronize said trigger signal; and

power control means responsive to the synchronized trigger signal for controlling power applied to the load, wherein the power to the load is varied in accordance with a time interval between said control signal and said synchronization signal, the power being reduced as the time interval becomes longer.

5,066,899

CONTROL METHOD OF INDUCTION MOTOR AND DEVICE THEREFOR

Masayuki Nashiki, Ooguchi, Japan, assignor to Kabushiki Kaisha Okuma Tekkosho, Aichi, Japan

Filed Mar. 22, 1990, Ser. No. 497,256

Claims priority, application Japan, Mar. 24, 1989, 1-72089

Int. Cl.[5] H02P *5/40*

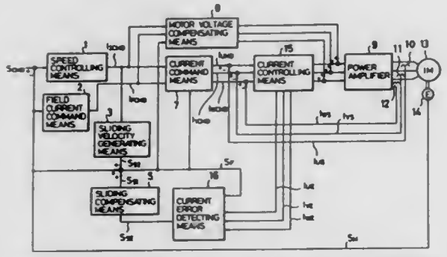
U.S. Cl. 318—807 20 Claims

1. An induction motor control device having a current control loop, said device comprising:

VOL 1132 ISS 3 NOV 19 1991 UMI

means for detecting a current of the induction motor and for outputting corresponding current error detection signals, said current error corresponding to a difference between said current detection signals and a current command signal of the control device;

slip compensation means for processing said current error detecting signals to obtain a slip compensation value and for outputting the slip compensation value;



slip frequency generating means for generating and outputting a slip frequency signal based on a secondary current command of the control device;

means for detecting a motor speed of the induction motor and outputting a corresponding motor speed signal; and,

means for generating a field speed signal for the induction motor, said field speed signal being generated based on a sum of said slip frequency signal, said slip compensation value and said motor speed signal.

5,066,900

DC/DC CONVERTER SWITCHING AT ZERO VOLTAGE

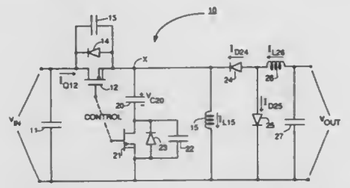
John A. Bassett, Pleasanton, Calif., assignor to Computer Products, Inc., Boca Raton, Fla.

Continuation-in-part of Ser. No. 436,394, Nov. 14, 1989, Pat. No. 4,959,764. This application Jun. 22, 1990, Ser. No. 542,478

The portion of the term of this patent subsequent to Sep. 25, 2007, has been disclaimed.

Int. Cl.[5] H02M *3/335;* **G05F** *1/618*

U.S. Cl. 323—224 **19 Claims**



1. A DC/DC switching converter circuit comprising:

a transformer having a primary winding and a first secondary winding;

a first switching means for selectively coupling power from a power supply to the primary winding of said transformer, said first switching means including an intrinsic capacitance;

a first capacitive element having a first and a second plate, the first plate connected to the primary winding of said transformer;

a second switching means connected to the second plate of said first capacitive element and in series with said first capacitive element across the primary winding of said transformer, said second switching means including an intrinsic capacitance;

a first diode having a first terminal and a second terminal, the first terminal connected to a first terminal of the first secondary winding of said transformer;

a second diode having a first terminal and a second terminal, the first terminal connected to a second terminal of the first secondary winding of said transformer and the second terminal of said second diode connected to the second terminal of said first diode; and

an inductor having a first and a second terminal, said first terminal connected to said second diode;

wherein energy stored in the primary winding of said transformer discharges the intrinsic capacitance of said first switching means prior to turning on said first switching means, and wherein energy stored in the primary of said transformer discharges the intrinsic capacitance of said second switching means prior to turning on said second switching means.

5,066,901

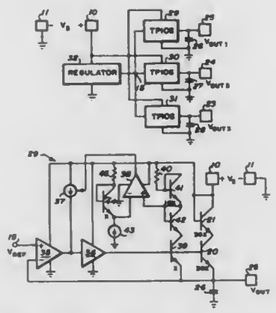
TRANSIENT PROTECTED ISOLATOR OUTPUT STAGE

Chun-Foong Cheah, Sunnyvale, and Timothy J. Skovmand, San Jose, both of Calif., assignors to National Semiconductor Corporation, Santa Clara, Calif.

Filed Sep. 18, 1990, Ser. No. 584,568

Int. Cl.[5] G05F *3/30, 1/565*

U.S. Cl. 323—267 **9 Claims**



1. In a plural output voltage regulator operating from a single d-c source, wherein a single circuit provides plural regulated output voltages, and currents, which operate individually and independently from each other so as to withstand output malfunctions created by adverse load conditions such as shorting to ground or below or to a high voltage line, a plurality of transient protected isolator output stage (TPIOS) circuits, each one comprising:

an input for supplying a reference voltage to said TPIOS circuit;

an NPN output pass transistor, having emitter, base and collector electrodes, which provides one of said output voltages at its emitter;

a primary negative feedback loop which compares said output voltage with said reference voltage and drives the base of said output pass transistor whereby said output voltage is regulated; and

a secondary negative feedback loop which compares a fraction of said output current with a reference current and controls the base of said output pass transistor to limit said output current to a predetermined maximum value.

5,066,902

AUTOMATIC NOMINAL DATA SETTING METHOD IN A VISUAL SENSOR SYSTEM

Atsushi Watanabe, Oshimo, Japan, assignor to Fanuc Ltd, Minamitsuru, Japan

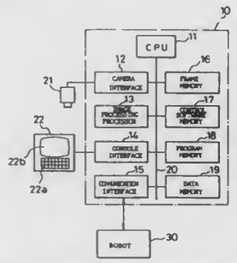
PCT No. PCT/JP89/00661, § 371 Date Feb. 20, 1990, § 102(e) Date Feb. 20, 1990, PCT Pub. No. WO90/00109, PCT Pub. Date Jan. 11, 1990

PCT Filed Jun. 30, 1989, Ser. No. 465,108

Claims priority, application Japan, Jul. 1, 1988, 63-162657

Int. Cl.[5] G05B *19/18;* **G06F** *15/46*

U.S. Cl. 318—568.16 **4 Claims**



1. An automatic nominal data setting method in a visual sensor system, comprising the steps of:

(a) operating the visual sensor system to execute a program including a predetermined routine for obtaining nominal data;

(b) automatically detecting a value of a predetermined image parameter associated with the nominal data during execution of the predetermined routine while said operating is performed in step (a); and

(c) automatically storing, as the nominal data, the value of the predetermined image parameter detected in step (b), by executing the predetermined routine.

5,066,903

OPTICAL CURRENT TRANSFORMER

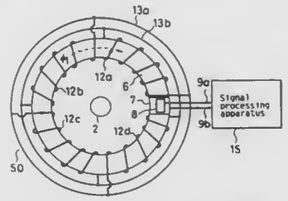
Naoki Ochi, Amagasaki, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 5, 1990, Ser. No. 608,813

Claims priority, application Japan, Dec. 14, 1989, 1-326289

Int. Cl.[5] G01R *33/032, 1/20*

U.S. Cl. 324—96 **2 Claims**



1. An optical current transformer comprising:

a C-letter-shaped circular iron core which has a gap part and is provided around a bus bar in which a current to be detected flows;

a magnetooptical cell which is provided in said gap part of said circular iron core for detecting a magnetic flux in said circular iron core for outputting a physically changed signal responding to intensity of said magnetic flux;

means for measuring said physically changed signal; and

at least four windings which have the same number of turns, widths of said windings being evenly provided along the whole part of said circular iron core, and terminals of respective of said windings having the same polarity being commonly connected.

5,066,904

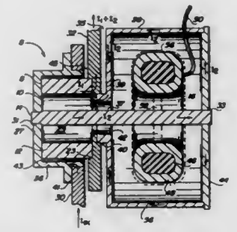
COAXIAL CURRENT SENSORS

Donald F. Bullock, Madbury, N.H., assignor to General Electric Company, Somersworth, N.H.

Continuation of Ser. No. 259,234, Oct. 18, 1988, abandoned. This application Aug. 28, 1989, Ser. No. 399,344

Int. Cl.[5] G01R *1/20*

U.S. Cl. 324—127 **48 Claims**



1. A coaxial current sensor for providing an output signal proportional to current supplied thereto, comprising:

(a) a coaxial current divider for dividing current supplied thereto, including,

(i) a first conductor, having an aperture extending therethrough between opposite ends thereof, possessing a resistance of a value R_1,

(ii) a second conductor coaxially disposed in the aperture of said first conductor, said second conductor being connected at opposite ends thereof to corresponding opposite ends of said first conductor, and possessing a resistance of a value R_2, whereby an input current, I_{in}, supplied to one end of said first and second conductors, divides into currents I_1 and I_2 flowing in said first and second conductors respectively, and wherein the current I_2 flowing in said second conductor is given by:

$$I_2 = \frac{I_{in}}{K} \text{ where } K = \left[\frac{R2}{R1} + 1\right]; \text{ and}$$

(b) output means coaxially disposed about said second conductor and inductively coupled thereto, for sensing the current I_2 flowing in said second conductor and providing an output signal having a magnitude proportional to the magnitude of the current I_{in} supplied to said current sensor.

5,066,905

BATTERY CABLE ASSEMBLY WITH IN-LINE SWITCH

Arnold L. Betton, Reseda, and Edgar A. Hirzel, Granada Hills, both of Calif., assignors to Baton Labs, Inc., Granada Hills, Calif.

Continuation-in-part of Ser. No. 271,243, Nov. 14, 1988, abandoned. This application Oct. 24, 1989, Ser. No. 426,944

Int. Cl.[5] G01R *19/145;* **H01R** *13/62*

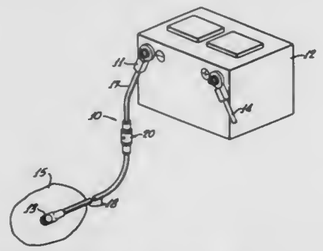
U.S. Cl. 324—133 **24 Claims**

23. A battery cable switch for connection to a terminal of a storage battery in circuit relation with an electrical system, to enable electrical connection and disconnection of said storage battery from said electrical system while maintaining physical connection between the battery and the electrical system, said battery cable switch comprising:

first and second battery conductors having first and second electrically conductive end caps respectively fixed thereto,

VOL 1132 ISS 3 NO 19 1991 UMI

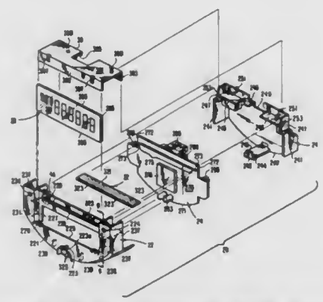
an electrically nonconductive housing having a cylindrical switch chamber extending transversely therethrough, and having first and second conductor end cap receiving ends,
said first conductive end cap being received in said first housing end, and said second conductive end cap being received in said second housing end, said end caps each having a circular surface forming a cylindrical boundary portion of said switch chamber and being mutually spaced from each other across said switch chamber,
a first nonconductive housing closure fixed to said first housing end,
a first spring interposed between said first closure and said first end cap and configured to urge said first end cap inwardly of said switch chamber,
a second nonconductive housing closure fixed to said second housing end,
a second spring interposed between said second end cap and said second end closure and configured to urge said second end cap inwardly of said switch chamber,
a rotary contact member rotatably mounted in said switch chamber and having a circularly cylindrical outer surface



in sliding contact with the circular cylindrical surfaces of said first and second end caps, said rotary contact member comprising first and second longitudinally extending electrically conductive cylindrical segments and an electrical insulator interposed between said segments and secured thereto, thereby insulating said cylindrical segments from each other, said rotary contact member being rotatable within said switch chamber between a switch open position in which each of said cylindrical segments is in electrical contact with one of said end caps and is insulated from the other, and a switch closed position in which each of said cylindrical segments is in electrical contact with both of said end caps,
a lamp mounted to said housing,
means in circuit relation with said cylindrical segments and end caps for energizing said lamp from the battery only when the rotary contact member is in said switch open position, thereby providing a visual indication of said switch open position, and
a handle connected to said rotary contact member for rotating the rotary contact member between said positions.

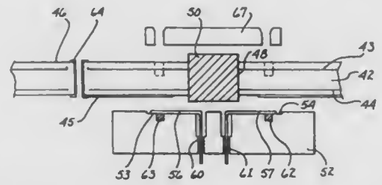
5,066,906
TIME OF USE REGISTER FOR USE WITH A UTILITY METER
Lester C. Moore, West Lafayette, Ind., assignor to Landis & Gyr Metering, Inc., Lafayette, Ind.
Filed Sep. 22, 1989, Ser. No. 410,805
Int. Cl.[5] G01R *1/20*
U.S. Cl. 324—142 **10 Claims**

5. A register for use with an electric meter for registering electrical energy usage and adapted to be readily assembled and disassembled without the use of separate fasteners, comprising:
a circuit board having electronic circuitry for registering electrical energy usage;
a display;
an electrical conductor between said circuit board and said display for operation of said display;
a housing including;
a front cover having means for supporting said display;
a back cover slidably interengagable with said front cover;
complementary portions on said front cover and said back cover configured to support said circuit board therebetween and to restrain said circuit board against movement within said housing; and
a resilient clamping mechanism operable to releasably clamp said front cover and said back cover together with said circuit board contained therebetween;



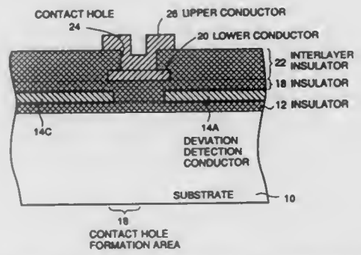
wherein said resilient clamping mechanism includes:
catch means between lower portions of said front cover and said back cover, said catch means including a resilient finger and notch arrangement wherein the finger is resiliently engageable within said notch;
a resilient clip adapted to span between said front cover and said back cover at top portions of both said covers; and
snap-fit means between said clip and each said top portions of said front and back covers for snapping said clip over each said top portions to clamp said front and back covers together.

5,066,907
PROBE SYSTEM FOR DEVICE AND CIRCUIT TESTING
John W. Tarzwell, Scottsdale; Patrick J. Tarzwell, Mesa; Theodore R. Myers, Tempe; Barry M. Hyland, Scottsdale; John C. Dahl, Mesa, and Jack L. Eddings, Scottsdale, all of Ariz., assignors to Cerprobe Corporation, Tempe, Ariz.
Filed Feb. 6, 1990, Ser. No. 475,820
Int. Cl.[5] G01R *1/06, 31/02*
U.S. Cl. 324—158 P **7 Claims**



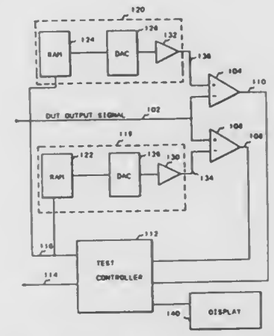
1. In a probe assembly for use in testing electrical circuits, the improvement comprising:
(a) a plurality of probes, each having a bend therein to form a supported length and a depending portion, said depending portion extending downwardly from said supported length for making temporary electrical contact with a predetermined location on an electrical circuit to be tested;
(b) a probe guide for supporting said probes, said guide having a plurality of slots each for receiving the supported length of a different one of said probes, and having a plurality of holes each aligned with a different one of said slots for receiving a depending portion of a probe supported by said one of said slots;
(c) a first elastomeric means positioned within a recess provided therefor in said probe guide for contacting the supported lengths of said probes and urging them upwardly into contact with corresponding signal traces;
(d) a pressure plate having an upper and a lower surface, said lower surface including a plurality of signal traces each corresponding to a different one of said probes and positioned over the supported length of a corresponding probe for making electrical contact therewith;
(e) means contacting a signal trace on said lower surface to conduct signals on said signal trace to the upper surface of said pressure plate; and
(f) second elastomeric means positioned between said pressure plate and said probe guide, contacting said probes and urging the depending portions thereof into said holes.

5,066,908
METHOD FOR ELECTRICALLY DETECTING POSITIONAL DEVIATION OF CONTACT HOLE IN SEMICONDUCTOR DEVICE
Yasushi Takahashi, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Feb. 27, 1990, Ser. No. 485,719
Claims priority, application Japan, Feb. 27, 1989, 1-47781
Int. Cl.[5] G01R *31/00*
U.S. Cl. 324—158 R **8 Claims**



1. A method for detecting a positional deviation of a contact hole which is formed in a semiconductor integrated circuit formed on a semiconductor substrate, said contact hole being formed in an interlayer insulator layer to mutually connect a pair of conducting layers separated from each other by the interlayer insulator layer, comprising the following steps:
forming a detection conductor pattern on a substrate at a peripheral portion of a contact hole formation area in which the contact hole is to be formed,
then forming a first insulating layer to cover said detection conductor pattern,
further forming a first conducting layer of a predetermined pattern on said first insulating layer so as to cover said contact hole formation area,
then forming a second insulating layer to cover said first conducting layer so as to form said interlayer insulator layer,
thereafter forming said contact hole at the contact hole formation area in said second insulating layer,
further forming a second conducting layer on said second insulation layer so that said second conducting layer is deposited within said contact hole to contact said first conducting layer in said contact hole, and
detecting a short-circuit between said detection conductor pattern and one of said first and second conducting layers, whereby, when said short-circuit is detected, it is judged that the formed contact hole adversely deviates from a position of said first conducting layer because the contact hole formed with adverse deviation from said position of said first conducting layer perforates through said first insulating layer to reach said detection conductor pattern and therefore said second conducting layer deposited within said contact hole is in short-circuit with said detection conductor pattern.

5,066,909
APPARATUS FOR TESTING AN ELECTRONIC CIRCUIT HAVING AN ARBITRARY OUTPUT WAVEFORM
Kamran Firooz, Loveland, Colo., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Jan. 30, 1990, Ser. No. 472,505
Int. Cl.[5] G01R *23/16*; G06F *15/31*
U.S. Cl. 324—158 R **12 Claims**



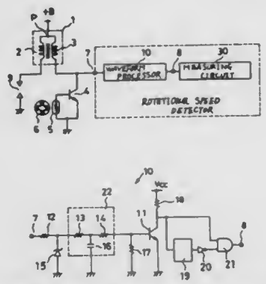
5. A system for testing an arbitrary output waveform of a device under test, said system comprising:
first waveform generator means for creating an upper output limit waveform;
second waveform generator means for creating a lower output limit waveform;
first comparator means for comparing said device under test output waveform to said generator upper output limit waveform and for generating a first error signal when said device under test output exceeds said upper limit output;
second comparator means for comparing said device under test output to said generator lower output limit waveform and for generating a second error signal when said device under test output exceeds said lower limit output; and
controller means for stimulating said device under test and said first and second generators and for detecting said first and second error signals.

5,066,910
ROTATIONAL SPEED DETECTOR FOR AN INTERNAL COMBUSTION ENGINE COMPRISING A WAVEFORM PROCESSOR FOR ELIMINATING UNWANTED PULSES
Naoki Sugiyama, Toyota, Japan, assignor to Aisin Seiki Kabushiki Kaisha, Kariya City, Japan
Continuation of Ser. No. 237,409, Aug. 29, 1988, abandoned.
This application Dec. 19, 1990, Ser. No. 629,030
Claims priority, application Japan, Aug. 31, 1987, 62-215353
Int. Cl.[5] G01P *3/487*
U.S. Cl. 324—166 **12 Claims**

1. A rotational speed detector for an internal combustion engine comprising:
a waveform processor for processing an input ignition waveform and for eliminating unwanted pulses therefrom;
the unwanted pulses being generated within a predetermined period of time after a desired ignition signal pulse in the input ignition waveform appears;
the waveform processor particularly comprising a square

VOL 1132 ISS 3 NO 19 1991 UMI

wave waveform shaper responsive to the input ignition waveform for providing a square wave output, a monostable multi-vibrator responsive to the square wave output of the waveform shaper, a logic circuit responsive to the monostable multi-vibrator and the square wave output of



the waveform shaper to provide an output signal with unwanted pulses eliminated therefrom; and

measuring means responsive to the output signal of the logic circuit of the waveform processor for measuring a rotational speed.

5,066,911

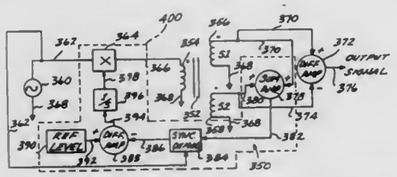
APPARATUS AND METHOD FOR SENSING DISPLACEMENT USING VARIATIONS MAGNETIC FLUX LINKAGE

Rand H. Hulsing, II., Redmond, Wash., assignor to Sundstrand Data Control, Inc., Redmond, Wash.

Filed Apr. 7, 1989, Ser. No. 335,141

Int. Cl.[5] G01B *7/14*

U.S. Cl. 324—207.18 **30 Claims**



1. Apparatus for producing a signal indicative of displacement, comprising:

(a) an electromagnetic core, said core integrally including a primary leg and two secondary legs and having a primary pole formed on the primary leg, separated by gaps from two secondary poles that are each formed on adjacent facing surfaces of the two secondary legs;

(b) a primary coil disposed around the primary leg of the core, said primary coil being adapted to connect to a source of electric current, said electric current causing magnetic fields to be developed across the gaps that separate the primary pole from each of the secondary poles;

(c) two secondary coils, each disposed around one of the two secondary legs of the core; and

(d) two pole pieces, each disposed generally within one of the gaps, displacement of the pole pieces within said gaps varying a reluctance to magnetic flux across each gap by changing the extent to which each pole piece lies with the gap between the primary pole and one of the secondary poles, variations in the reluctance due to said displacement of the pole pieces causing an electric signal induced in each of the secondary coils by the magnetic flux flowing within the core and across the gaps to vary in a substantially linear manner.

5,066,912

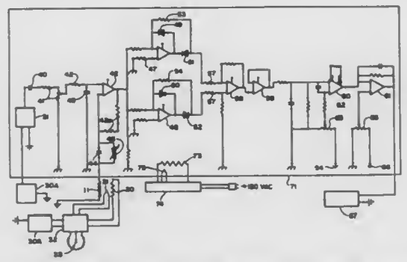
CALIBRATABLE NON-CONTACT INDUCTIVE DISTANCE MEASURING DEVICE

Richard F. Kwiatkowski, 540 Pearce Mill Rd., Wexford, Pa. 15090

Filed Jul. 9, 1990, Ser. No. 549,894

Int. Cl.[5] G01R *35/00, 33/00;* **G01N** *27/72*

U.S. Cl. 324—224 **12 Claims**



1. Apparatus for measuring the distance between detecting coil and a metal object, said apparatus including:

a detecting coil enveloped in an enclosure to maintain an elevated operating temperature for the detection coil;

means for supplying a controlled air flow used in conjunction with said heater and thermocouple to maintain a desired operating temperature to said detecting coil;

an electronic circuit including an amplifier responsive to a signal by said detecting coil whereby a signal appearing at the output of said amplifier will vary as a function of the distance between said detecting coil and an adjacent metallic objection; and

control means including an electrical heater coupled to a temperature control responsive to a signal of a thermocouple for maintaining said detecting coil at an predetermined constant operating temperature of at lest 400° F. in conjunction with said means for supplying a controlled air flow to minimize temperature variations affecting operation of said detecting coil.

5,066,913

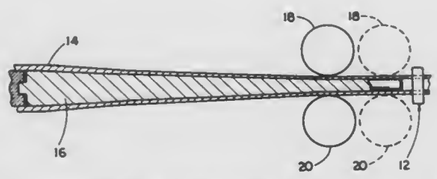
FERROUS METAL DETECTOR FOR DETECTING A BROKEN MANDREL IN A COLD PILGERING OPERATION

John A. Catanese, Seward, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 2, 1990, Ser. No. 517,887

Int. Cl.[5] G01N *27/72;* **G01R** *33/12*

U.S. Cl. 324—226 **9 Claims**



1. In combination wit pilger tooling of cold reduction of the cross-sectional size of tubing composed of non-ferrous metal, said tooling including an elongated stationary mandrel composed of ferrous metal for supporting a length of tubing thereon in position for cold reduction and a pair of roller dies positioned along opposing sides of said mandrel and in oppositely-facing relation for coacting with said mandrel in cold reduction of the cross-sectional size of the tubing as the tubing is moved along a predetermined path relative to said mandrel and between said dies, a ferrous metal detector, comprising:

(a) sensing means located adjacent to said roller dies and an end of said mandrel and including a primary winding and a secondary winding positioned along the path of tubing movement and sufficiently close to one another to be magnetically coupled together by a piece of said ferrous mandrel when located therebetween; and

(b) means connected to said primary winding for exciting said primary winding with a substantially constant predetermined signal being transparent to the non-ferrous metal of the tubing so as to couple a substantially constant voltage in said secondary winding unaffected by the presence of the tubing; and

(c) means connected to said secondary winding for detecting a change in the constant voltage in said secondary winding as would be produced by an increase in magnetic coupling between said primary and secondary windings due to the presence between said windings of a piece of the mandrel composed of ferrous material.

5,066,914

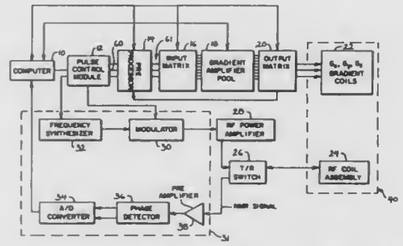
GRADIENT AMPLIFIER SYSTEM WITH FLEXIBLE AMPLIFIER ALLOCATION

Robert M. Vavrek, Waukesha, and Thomas G. McFarland, Hartland, both of Wis., assignors to General Electric Company, Milwaukee, Wis.

Filed Mar. 26, 1990, Ser. No. 498,731

Int. Cl.[5] G01R *33/20*

U.S. Cl. 324—309 **5 Claims**



1. In an MRI apparatus including gradient coils for applying a sequence of gradient fields to an imaged object during a NMR imaging sequence, each gradient field associated with a corresponding gradient axis, a gradient amplifier system comprising:

a gradient waveform preprocessor for generating a gradient master signal for a gradient axis;

a plurality of amplifiers having inputs and outputs;

an input switch matrix for generating at least one input signal from the master signal and selectively connecting the input signal to the input of at least one amplifier to form an amplifier stack in which the amplifiers in the stack operate together in response to the gradient master signal; and

an output switch matrix for combining the outputs of the amplifiers in the stack to produce a gradient output signal for driving the gradient coil associated with the gradient axis of the master signal;

whereby the amplifiers may be selectively added or removed from the stacks by means of the input and output switch matrices.

5,066,915

RF COIL POSITIONING DEVICE FOR MRI

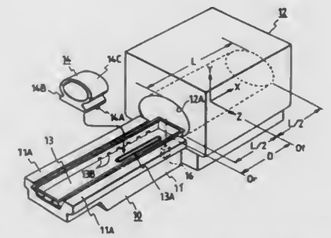
Katsuhisa Omori, Atsugi, and Masaya Yamashita, Hiratsuka, both of Japan, assignors to Siemens-Asahi Medical System, Ltd., Tokyo, Japan

Filed Jun. 20, 1990, Ser. No. 540,720

Claims priority, application Japan, Jun. 28, 1989, 64-167494

Int. Cl.[5] G01R *33/20*

U.S. Cl. 324—318 **18 Claims**



1. An RF coil positioning device for MRI in which a pallet movably mounted on a mount is moved by drive means so that an RF coil unit mounted on said pallet is moved from its initial positioned at an imaging position in a magnetostatic field generator, said coil positioning device comprising:

coil detecting means provided at a predetermined position along a path of said pallet, for detecting the passage of said RF coil unit through a reference position on said path and generating a detection signal, the distance between said reference position and said imaging position being preknown;

distance detecting means for detecting the distance of travel of said pallet; and

drive control means supplied with signals from said coil detecting means and said distance detecting means, for controlling said drive means to move said pallet until the distance of its travel after the generation of said detection signal becomes equal to the distance from said reference position to said imaging position;

wherein said coil detecting means is provided below the underside of said pallet.

5,066,916

TECHNIQUE FOR SEPARATING ELECTROMAGNETIC REFRACTED SIGNALS FROM REFLECTED SIGNALS IN DOWN HOLE ELECTROMAGNETIC TOOLS

Rama N. Rau, League City, Tex., assignor to Halliburton Logging Services, Inc., Houston, Tex.

Filed Jan. 10, 1990, Ser. No. 463,204

Int. Cl.[5] G01V *3/30*

U.S. Cl. 324—338 **12 Claims**

8. An apparatus for conducting a survey of formations adjacent to a well borehole the apparatus comprising:

(a) a transmitter means for forming a signal to be transmitted in the frequency range from 20 megahertz to 2.0 gigahertz;

(b) transmitter antenna means connected to said transmitter for forming a transmitted signal, said antenna means forming a signal having a known direction of circular polarization and for transmitting said signal into the borehole and surrounding earth formation;

(c) receiver antenna means longitudinally spaced from said transmitter antenna for receiving a signal returned by formations adjacent to the well borehole as a result of operation of said transmitter; and

VOL 1132 ISS 3 NO 19 1991 UMI

(d) said receiver means further including means responsive to polarization of the received returned signal thereat for

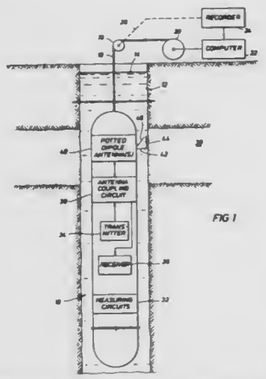


FIG 1

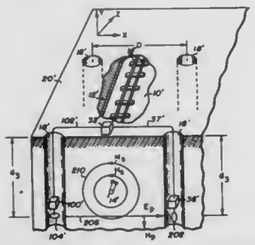
indicating the direction thereof, wherein the direction of polarization indicates reflected or refracted waves.

5,066,917

LONG FEATURE VERTICAL OR HORIZONTAL ELECTRICAL CONDUCTOR DETECTION METHODOLOGY USING PHASE COHERENT ELECTROMAGNETIC INSTRUMENTATION

Larry G. Stolarczyk, Raton, N. Mex., assignor to Stolar, Inc., Raton, N. Mex.

Filed Jan. 17, 1990, Ser. No. 466,494
Int. Cl.[5] G01V *3/12, 3/08, 3/30, 3/26*
U.S. Cl. 324—338 **9 Claims**



1. A method for detecting underground electrical conductors which comprises:

a. placing a transmitter having a transmitter tuned magnetic dipole antenna in a first drillhole extending into a first region suspected of containing an underground conductor, the transmitter being adapted for transmitting a primary, phase coherent continuous radio wave capable of inducing current flow in said conductor from said transmitter tuned magnetic dipole antenna;

b. placing a receiver capable of receiving a scattered wave generated by said current flow in said conductor in a second drillhole extending into a second region suspected of containing said underground conductor, the receiver having a receiver tuned loop magnetic dipole antenna oriented to receive said scattered wave and to discriminate against reception of said primary phase coherent continuous radio wave,

c. transmitting said primary phase coherent radio wave from said transmitter through said tuned magnetic dipole antenna into said first region; and

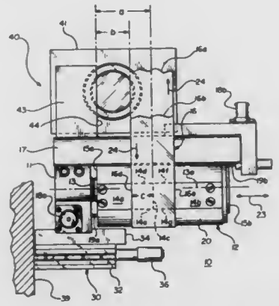
d. receiving said scattered wave at said receiver tuned loop magnetic dipole antenna as a received signal.

5,066,918

APPARATUS AND METHOD FOR MEASURING LATERAL CHARGE DISTRIBUTION ON A MOVING WEB

Robert J. Pazda, Waterloo; Kenneth L. Clum, Webster, and Harrison P. Hood, III, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1990, Ser. No. 627,174
Int. Cl.[5] G01N *27/61;* **G03G** *15/00*
U.S. Cl. 324—452 **5 Claims**



1. Apparatus for measuring lateral charge distribution on an elongated moving web comprising:

a cylindrical roller rotatable about a central axis of rotation, the outer surface of the roller including a plurality of closely adjacent charge measurement segments electrically isolated from each other along a line of separation therebetween, the measurement segments being oriented end-to-end, at the line of separation, in a direction parallel with the axis of rotation of the roller, the measurement segments being adapted during rotation of the roller to periodically engage the moving web in an area of surface contact between the web and at least one of the measurement segments during conveyance of the moving web across a portion of the circumference of the roller;

means for translating the roller in a direction perpendicular to the direction of travel of the web so as to move the line of separation between the segments laterally across the web thereby varying the relative areas of surface contact of each segment with the web;

dimensional measurement means for periodically measuring the lateral dimension of the area of surface contact between the web and one of the segments as the roller translates laterally across the web;

and means coupled to both segments adapted for periodic measurement of the charge separately on each segment in the respective area of surface contact between each segment and the web, whereby lateral integral charge distribution on the web can be determined as a function of the web contact surface area of one segment to the total web contact surface area of both segments.

5,066,919

FAULT DETECTION AND ISOLATION IN AUTOMOTIVE WIRING HARNESS BY NETWORK ANALYSIS METHOD

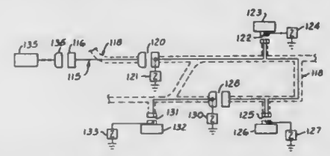
David J. Klassen, Dearborn, and Edward G. Anderson, Bloomfield Hills, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 3, 1990, Ser. No. 504,458
Int. Cl.[5] G01R *31/00*
U.S. Cl. 324—538 **9 Claims**

1. An automotive electrical system comprising:

a plurality of electrical components including at least one termination device;

a wiring harness system interconnecting said electrical components and including a plurality of harness conductors and a plurality of connectors, at least one of said connectors being a termination connector connected to a termination device, said wiring harness system including a dedicated test line provided by a termination conductor disposed in said termination connector and provided by more than one of said harness conductors, said dedicated test line including a test point, selected ones of said connectors including an impedance, each impedance coupling



said dedicated test line in each respective connector to a predetermined electrical potential;

electrical source means connected to said test point for applying a test signal to said dedicated test line at said test point; and

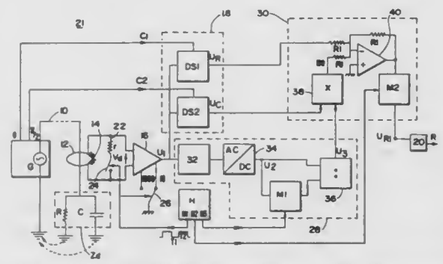
measuring means connected to said test point for sensing a response of said dedicated test line during application of said test signal, whereby an electrical characteristic of said response identifies a connector fault in said wiring harness system.

5,066,920

CORRECTION PROCEDURE OF THE PHASE DIFFERENCE INTRODUCED BY A ZERO SEQUENCE TOROID OF LEAKAGE CURRENT AND ISOLATION MONITOR THIS PROCEDURE

Eric Suptitz, Grenoble, France, assignor to Merlin Gerin, France

Filed May 22, 1990, Ser. No. 526,909
Claims priority, application France, May 22, 1989, 89 06769
Int. Cl.[5] G01R *31/02*
U.S. Cl. 324—544 **14 Claims**



1. A procedure for measuring a phase difference introduced by a toroid in a system for monitoring an earth leakage current indicative of isolation in an electrical power system having at least one conductor, said procedure comprising the steps of:

continuously injecting an AC reference signal having a frequency less than that of said power system on to said at least one conductor in such a manner that said signal is injected between said conductor and a ground;

disposing a differential transformer including a zero sequence toroid around said conductor and connecting a switchably engaged load across the terminals of said toroid and in parallel therewith;

measuring with said differential transformer a signal propagating through said conductor which is indicative of a leakage current propagating through a ground fault of said conductor;

said measuring step further including the steps of measuring at least an amplitude of a no-load voltage across said terminals, when said load is not engaged, and measuring an amplitude of a load voltage across said terminals at a second frequency, when said load is engaged;

obtaining a predetermined ratio assimilated to the tangent of the angle of phase difference by dividing said load voltage amplitude by said no-load voltage amplitude;

analyzing a phase and magnitude of said measured signal to discriminate between and to obtain resistive and capacitive components thereof; and

mathematically combining said ratio and said resistive and capacitive components to obtain an essentially true measure of said phase difference introduced by said toroid.

5,066,921

RADOME DIAGNOSTIC SYSTEM

Eugene L. Rope, El Cajon; Dary R. Stewart, San Diego; Gus P. Tricoles, San Diego; Gary L. Vance, San Diego; Jonathan Roussos, San Diego, and Roy S. Luoma, Fallbrook, all of Calif., assignors to General Dynamics, Electronics Division, San Diego, Calif.

Filed Aug. 1, 1990, Ser. No. 561,318
Int. Cl.[5] G01R *27/000;* **H01Q** *1/420*
U.S. Cl. 324—639 **11 Claims**

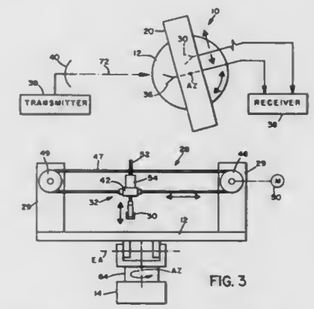


FIG. 3

1. A radome diagnostic system, comprising:

a turntable;

mounting means for rotatably mounting the turntable horizontally for rotation about a central, vertical axis;

support means on the turntable for mounting a radome in a radome support area extending across the turntable;

transmitter means remote from the turntable for directing radiation towards the radome support area on the turntable;

a scanning assembly mounted on the turntable including a probe antenna for receiving radiation transmitted from said transmitter means through said radome, and scanning means for mounting the probe antenna for movement along a series of parallel scanning paths over a scanning plane in the radome support area;

a reference antenna at a fixed position on the turntable for receiving radiation transmitted from the transmitter means to provide a reference signal, said radiation received by said reference antenna being unperturbed by said radome mounted in said radome support area; and

receiver means connected to the probe antenna and reference antenna for sampling the phase and amplitude of radiation received by said probe antenna relative to said reference signal.

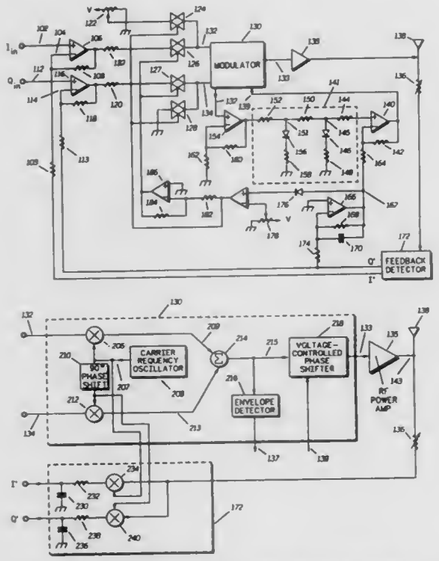
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,922

STABILIZING CIRCUIT FOR FEEDBACK RF AMPLIFIER

Clifford D. Leitch, Coral Springs, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Continuation of Ser. No. 422,267, Oct. 16, 1989, abandoned.
This application Apr. 18, 1991, Ser. No. 686,852
Int. Cl.[5] H03F 1/26
U.S. Cl. 330—51 12 Claims



1. A linear amplifier for receiving an input signal and producing an output signal, comprising:
a feedback loop for providing a feedback signal;
feedforward phase correction means comprising a nonlinear network with a characteristic selected to approximately cancel the AM to PM conversion characteristic of the linear amplifier;
feedback phase correction means comprising phase detection means for detecting a difference between the phase of the feedback signal and the phase of the input signal; and,
a voltage-controlled phase shifter for correcting slowly-varying phase effects.

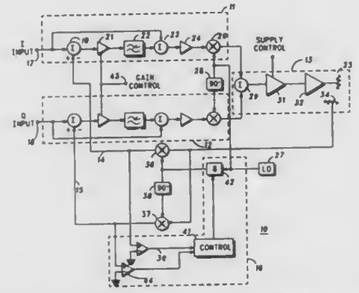
3. A linear amplifier, with a feedback loop, for receiving an input signal and producing an output signal, comprising:
detection means for detecting oscillation in the linear amplifier; and
a soft start circuit to force the open loop gain of the feedback loop to be less than one for a period of time beginning at startup, to prevent oscillation from occurring before a normal phase relationship has been established in the linear amplifier.

5,066,923

LINEAR TRANSMITTER TRAINING METHOD AND APPARATUS

Paul H. Gailus, Prospect Heights; Francis R. Yester, Arlington Heights, and William J. Turney, Schaumburg, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Oct. 31, 1990, Ser. No. 606,653
Int. Cl.[5] H03F 1/36
U.S. Cl. 330—107 16 Claims



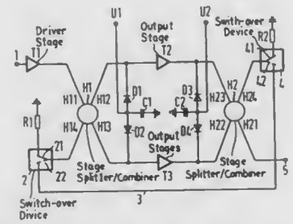
1. A method of maintaining linear operation of a negative feedback amplifier, comprising the steps of:
A) during a first mode of operation:
i) phase adjusting a feedback signal with respect to an input signal to provide a phase adjustment setting; and
ii) determining a clip level for the amplifier;
B) during a normal mode of operation:
i) using the phase adjustment setting to assist in ensuring negative feedback operation; and
ii) operating the amplifier at a power level not exceeding the clip level.

5,066,924

PULSE POWER AMPLIFIER

Peter Wendt, Augsburg, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany and Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Feb. 25, 1991, Ser. No. 659,889
Int. Cl.[5] H03F 3/68
U.S. Cl. 330—124 R 3 Claims



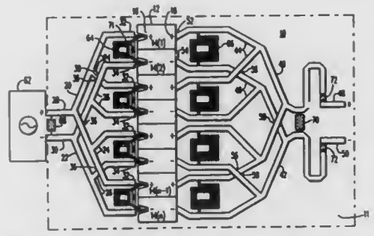
1. A pulse power amplifier comprising:
a driver stage including an input for receiving a pulse to be amplified, and an output; first and second output stages each including an input and an output;
a first splitter/combiner stage including an input, a first output connected to said input of said first output stage, a second output connected to said input of said second output stage, and a third output;
a first switch-over device operable to first and second switch conditions and including a first terminal connected to said third output of said first splitter/combiner stage, a second terminal, a first terminating impedance connected to said second terminal, and a third terminal;
a second splitter/combiner stage including a first input connected to said output of said first output stage, a second input connected to said output of said second output stage, a first output serving as an output for said pulse power amplifier, and a second output;
a second switch-over device operable to first and second switch conditions and including a first terminal connected to said second output of said second splitter/combiner stage, a second terminal, a second terminating impedance connected to said second terminal, and a third terminal connected to said third terminal of said first switch-over device; and
control means including first and second control inputs for receiving control signals and control switches connected to said control inputs and to said inputs and outputs of said output stages,
said pulse power amplifier operable with maximum signal gain and in response to first control signals on said control inputs such that said first and second switch-over devices are in their first switch conditions and in which said first and second terminals thereof are connected and said control switches provide a high-impedance with respect to a predetermined impedance at said inputs and outputs of said output stages so as to provide a maximum output power at said first output of said second switching device, and with a minimum signal gain and in response to second control signals at said control inputs such that said first and second switch-over devices are in their second switch conditions in which said first and third terminals thereof are connected and said control switches provide a low high-frequency impedance with respect to said predetermined impedance at said inputs and outputs of said output stages so as to provide a reflection of the power output of said driver stage and feeding of the same via said first splitter/combiner stage, said first and second switch-over devices and said second splitter/combiner stage, for reflection at said output of said output stages and via said second splitter/combiner stage to said output of said power amplifier.

5,066,925

MULTI PUSH-PULL MMIC POWER AMPLIFIER

Ronald G. Freitag, Catonsville, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Dec. 10, 1990, Ser. No. 625,398
Int. Cl.[5] H03F 3/26
U.S. Cl. 330—269 16 Claims



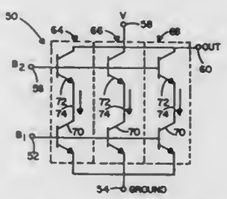
1. A composite MMIC amplifier comprising:
a plurality of active devices arranged in antiphase pairs on a substrate and having inputs and outputs; and
a pair of input and output transmission lines respectively coupled in antiphase arrangement to corresponding inputs and outputs of the antiphase pairs of active devices forming a virtual ground therebetween, the input and output transmission lines each include common and branched portions, the branched portions extending between the common portion to which the branched portions are connected and one active device for each branched portion, the branched portions of the input transmission lines crossover and are coupled to the inputs of alternate active devices and the branched portions of the output transmission lines crossover and are coupled to the output terminals of the alternate active devices.

5,066,926

SEGMENTED CASCODE HBT FOR MICROWAVE-FREQUENCY POWER AMPLIFIERS

Ravi Ramachandran, San Jose, and Allen F. Podell, Palo Alto, both of Calif., assignors to Pacific Monolithics, Sunnyvale, Calif.

Filed Jun. 26, 1990, Ser. No. 588,766
Int. Cl.[5] H03F 3/04
U.S. Cl. 330—311 2 Claims



1. A segmented cascode transistor for microwave-frequency power amplifiers for producing an amplified output signal from an input signal, comprising:
an input terminal for receiving the input signal;
an output terminal for outputting the output signal;
a base terminal connectable to ground;
an emitter terminal connectable to ground;
a predetermined plurality of common-base heterojunction bipolar transistor means (HBTs), each common-base HBT having a base coupled to a base terminal, and a collector coupled to the output terminal; and
the predetermined plurality of common-emitter HBTs, each common-emitter HBT being associated with one of the common-base HBTs, and having a base coupled to the input terminal, an emitter coupled to the emitter terminal, and a collector coupled to only the emitter of the associated common-base HBT;
whereby current flowing in each common-base HBT is the same as the current flowing in each associated common-emitter HBT.

5,066,927

DUAL MODULUS COUNTER FOR USE IN A PHASE LOCKED LOOP

Paul Dent, Stehag, Sweden, assignor to Ericsson GE Mobile Communication Holding, Inc., Paramus, N.J.

Filed Sep. 6, 1990, Ser. No. 578,259
Int. Cl.[5] H03K 21/00, 7/18
U.S. Cl. 331—1 A 14 Claims

1. A variable ratio frequency divider circuit comprising:
programmable dividing means, having division ratios R1 and R2, for dividing an input signal into a divided output signal;
counting means, having a relatively long word length, responsive to a predetermined value N1 and the divided output signal of the programmable dividing means, for generating a plurality of outputs including a predetermined intermediate output;
first comparing means, having a relatively short word length, for comparing the output of said counting means to a second predetermined value N2 and for generating an output when the output of said counting means corresponds to the value N2; and
logic means, responsive to said counting means and said

VOL 1132 ISS 3 NO 19 1991 UMI

comparing means, for generating selection signals for the programmable dividing means such that the programmable dividing means divides the input signal by the ratio R1, N1 times and by the ratio R2, N2 times.

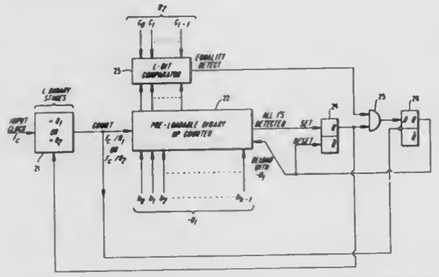
11. A phase locked loop comprising:

a voltage controlled oscillator for generating an output;

variable dividing means for dividing the output of said voltage controlled oscillator, said variable dividing means including;

programmable dividing means having division ratios R1 and R2, for dividing an input signal into a divided output signal;

counting means, responsive to a predetermined value N1 having a relatively logic word length and the divided output signal of the programmable dividing means, for generating an output including a predetermined intermediate output;



comparing means for comparing the output of said counting means to a second predetermined value N2 having a relatively short word length and for generating an output when the output of said counting means corresponds to the value N2; and

logic means, responsive to said counting means and said comparing means, for generating selection signals for the programmable dividing means such that the programmable dividing means divides the clock signal by the ratio R1, N1 times and by the ratio R2, N2 times; and

phase comparison means for comparing the divided output signal of said variable dividing means to a reference signal to generating a phase error signal which si supplied to said voltage controlled oscillator.

5,066,928

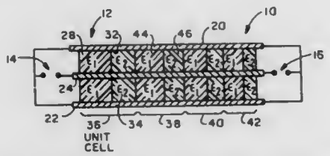
SOLITON PULSE COMPRESSOR

Hiroyuki Ikezi, Rancho Santa Fe; Yuh-Ren Lin-Liu, San Diego, and John S. deGrassie, Encinitas, all of Calif., assignors to General Atomics, San Diego, Calif.

Filed May 2, 1990, Ser. No. 517,941

Int. Cl.[5] H03K *5/04*

U.S. Cl. 333—20 **20 Claims**



1. A pulse compressor for soliton pulses, comprising:

a continuous double-ended body;

input terminals at one end of said body for receiving a soliton pulse having a preselected width;

output terminals at the other end of said body at which the soliton pulse is produced with a reduced temporal width;

said body defining a path between said input and said output terminals for the non-linear coupling of said soliton pulse therebetween, said path having at least one of non-linear field-dependent permittivity and permeability along its length, and for selectively dispersing a portion of said pulse therealong so as to steepen the wavefront of said soliton pulse with an amplitude dependent speed as the pulse travels between said input and said output ends;

said path having a progressively reduced, spatially reduced time constant, so as to compress the soliton pulse travelling between said input and said output terminals so as to progressively compress the time length of the soliton pulse in a manner to produce a temporally compressed soliton pulse at said output terminal.

5,066,929

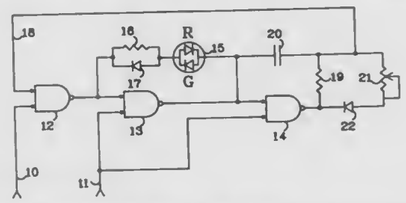
CIRCUIT FOR PRODUCING FOUR INDICATIONS ON A BICOLOR LIGHT EMITTING DIODE HAVING TWO LEADS

Keith R. Frantz, 6 Bungalow St., Richland, Pa. 17087

Filed Jan. 2, 1991, Ser. No. 636,669

Int. Cl.[5] H03K *3/03;* **G08B** *5/36*

U.S. Cl. 331—57 **4 Claims**



1. A circuit for producing four indications on a bicolor light emitting diode having two leads comprising:

a plurality of inversion means connected in cascade to form an oscillator, having one or more additional inputs capable of forcing the output to a given state regardless of the state of the other inputs, the light emitting diode being connected between outputs of two said inversion means;

a current modifying means for reducing the amplitude of the current in one direction through said light emitting diode relative to the current in the other direction; and

a duty cycle adjustment means for controlling the relative durations of the current flow through said light emitting diode in one direction relative to the other.

5,066,930

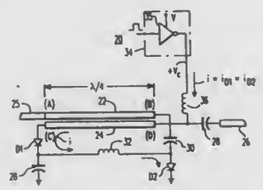
HIGH EFFICIENCY DIODE PHASE SHIFTER

Alfred W. Morse, Ellicott City, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 22, 1990, Ser. No. 600,650

Int. Cl.[5] H01P *1/185*

U.S. Cl. 333—164 **17 Claims**



1. A diode phase shifter comprising a four port microwave coupler formed of a pair of RF coupled first and second transmission lines, said coupler having an input port and a first tunable port on the first transmission line and an output port and a second tunable port on a second transmission line;

first and second serially interconnected gateable diode means, the first diode means being coupled to the first tunable port and the second diode means being coupled to the second tunable port, said diode means for shunting the first and second tunable ports when forward biased and for opening the first and second tunable ports when reverse biased; and

RF coupling means in series with each of the tunable ports and each of the first and second diode means for providing an RF path to ground for each diode means and for isolating the path from DC current.

5,066,931

FILTER CONNECTOR WITH LATCHABLE MOUNTING FRAME

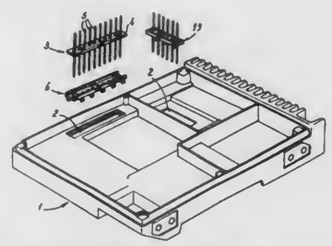
Guillaume Francois G. Thelissen, RG 'S-Hertogenbosch, Netherlands, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Sep. 18, 1990, Ser. No. 584,162

Claims priority, application Netherlands, Sep. 29, 1989, 8902429

Int. Cl.[5] H01R *13/658*

U.S. Cl. 333—182 **5 Claims**



1. A filter connector adapted to releasably latch in a metal chassis of an electrical apparatus comprising

a filter unit formed of a flat substrate of electrically insulating material having a plurality of filter capacitor elements formed on at least one side thereof, a plurality of contact elements extending through apertures in said substrate aligned with said filter capacitor elements, each of said contact elements being in electrical contact with one of said filter capacitor elements, a common ground electrode formed along at least one of peripheral lateral side edges of said substrate, and

a mounting frame of electrically conducting material having a flat base with a plurality of apertures therein corresponding to said contact elements, said filter unit being secured to said mounting frame so that a bottom surface of said flat substrate rests adjacent a top surface of said flat base and the contact elements extending from said bottom surface of said flat substrate pass through said respective corresponding apertures in the flat base, said common ground electrode being in electrical contact with said mounting frame, a plurality of resilient mounting lips formed integrally with said flat base, each said mounting lip extending away from a bottom surface of the flat base at an angle so as to extend beyond the planes of one or the other of the respective lateral peripheral sides of the flat base,

whereby when the filter connector is inserted through an aperture in the metal chassis, said mounting lips are resiliently flexed inward toward said planes of said lateral peripheral side of the substrate until fully inserted into the chassis aperture when said mounting lips return to their initial position to releasably latch and electrically connect said filter connector to said metal chassis.

5,066,932

HELICAL FILTER

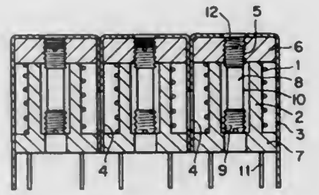
Noboru Takada, and Masami Osawa, both of Tsurugashima, Japan, assignors to Toko Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 22, 1990, Ser. No. 570,783

Claims priority, application Japan, Aug. 30, 1989, 1-223979

Int. Cl.[5] H01P *1/20*

U.S. Cl. 333—202 **6 Claims**



1. A helical filter, comprising:

a plurality of elongated bobbins oriented substantially parallel to one another and each having respective first and second end portions, at least one of said bobbins having a hollow interior region;

a plurality of coupled helical coils, each of said coils being wound on one of said bobbins respectively, each of said coils having an open end at a first end thereof and a grounded end at a second end thereof;

a member for adjusting the resonance frequency of said filter, said member being provided at the first end portion of at least one of said bobbins so as to be adjustably movable relative to said one of said bobbins to adjust said resonance frequency; and

a screw provided in said hollow interior region of said at least on of said bobbins, said screw being accessible from the second end portion of said at least one of said bobbins having said hollow interior region to be rotatable to adjust the bandwidth of said filter.

5,066,933

BAND-PASS FILTER

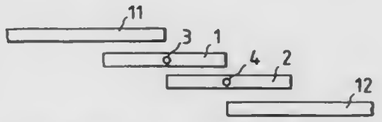
Yasuhiko Komeda, Tokyo, Japan, assignor to Kyocera Corporation, Kyoto, Japan

Filed Aug. 7, 1990, Ser. No. 564,373

Claims priority, application Japan, Aug. 30, 1989, 1-223759

Int. Cl.[5] H01P *1/203*

U.S. Cl. 333—204 **5 Claims**



1. A band-pass filter comprising:

a dielectric substrate;

a grounded conductor layer formed on a back surface of the dielectric subsrtrate;

an input transmission line conductor and an output transmission line conductor both formed on a front surface of the dielectric substrate;

a plurality of resonators, each resonator having a fundamental resonance frequency f_0, each resonator comprising a $\lambda/2$-length microstrip conductor (where λ is the line wavelength correspond to the fundamental resonance frequency, f_0) formed on the front surface of the dielectric substrate between the input and output transmission line conductors such that an adjacent pair of the plurality of microstrip conductors align in parallel over a predeter-

VOL 1132 ISS 3 NO 19 1991 UMI

mined length which is equal to or less than the λ/4 length; and

a through hole formed through each of the plurality of microstrip conductors, the dielectric substrate and the grounded conductor layer at a center of the microstrip conductor, the through hole having a conductive layer formed on a wall of the dielectric substrate and electrically connecting the microstrip conductor and the grounded conductor layer;

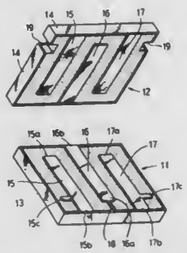
wherein the band-pass filter is rendered in a resonance condition only at the fundamental resonance frequency f_0.

5,066,934

METHOD OF ADJUSTING A FREQUENCY RESPONSE IN A STRIPLINE FILTER DEVICE

Kenji Ito; Hiroyuki Shimizu, and Naomasa Wakita, all of Nagoya, Japan, assignors to NGK Spark Plug Co., Ltd., Aichi, Japan

Filed Jan. 10, 1991, Ser. No. 639,352
Claims priority, application Japan, Jan. 12, 1990, 2-5552
Int. Cl.[5] H01P *1/203*
U.S. Cl. 333—205 **6 Claims**



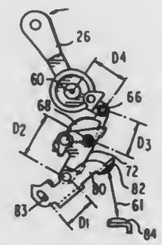
1. A method of adjusting a frequency response of a stripline filter device which comprises a pair of dielectric substrates each having a peripheral and outer surfaces provided with an external ground conducting layer, and a plurality of stripline resonator conducting layers sandwiched between the dielectric substrates, each resonator conducting layer having a short circuit end connected to the ground conducting layer on one lateral surface of each substrate and an open circuit end spaced from the ground conducting layer on the opposite lateral surface of each substrate, wherein the method comprises the steps of electrically connecting the open circuit end of one or more specific resonator conducting layers to the external ground conducting layer on the peripheral surface of each substrate by means of a fine strip member, assembling the dielectric substrates with the resonator conducting layers therebetween, adjusting the frequency response characteristics of the resonator conducting layers provided with no fine strip member at the open circuit ends thereof, and then adjusting sequentially the frequency response characteristics of the resonator conducting layers each provided with the fine strip member by disconnecting the associated fine strip member so as to separate the open circuit ends from the external ground conducting layer.

5,066,935

CIRCUIT BREAKER

George S. Harper, Cambridge, Md., assignor to North American Philips Corporation, New York, N.Y.

Continuation of Ser. No. 362,258, Jun. 6, 1989, abandoned, which is a division of Ser. No. 189,790, May 3, 1988, abandoned, which is a division of Ser. No. 848,169, May 22, 1986, abandoned, which is a division of Ser. No. 486,716, Apr. 20, 1983, abandoned. This application Feb. 5, 1991, Ser. No. 651,115
Int. Cl.[5] H01H *9/00*
U.S. Cl. 335—172 **15 Claims**



1. A circuit breaker which exhibits a contacts-open and a contacts-closed position, comprising:

a first electrical contact which includes a center;

a contact arm bearing a second electrical contact which also includes a center, said contact arm being mounted for pivotal movement about a first pivot axis which is spaced from the center of said second electrical contact by a distance L, the pivotal movement of said contact arm about said first pivot axis in first and second directions serving to bring said second electrical contact into and out of electrical contact with said first electrical contact, the centers of said electrical contacts, in the contacts-open position of said circuit breaker, being spaced apart a distance G;

a toggle mechanism including first and second toggle link members, said first toggle link member being pivotably connected to said contact arm for pivotal movement about a second pivot axis, said first and second pivot axes being spaced apart a distance D_1, and said second toggle link member being pivotably connected to said first toggle link member for pivotal movement about a third pivot axis, said second and third pivot axes being spaced apart a distance D_2;

a handle, pivotably connected to said second toggle link member for pivotal movement about a fourth pivot axis, said third and fourth pivot axes being spaced apart a distance D_3;

a frame including a main body portion and first and second arms extending outwardly from said main body portion, said first arm including handle mounting means for mounting said handle for pivotal movement about a fifth pivot axis, said fourth and fifth pivot axes being spaced apart a distance D_4, and said second arm including contact arm mounting means for mounting said contact arm for pivotal movement about said first pivot axis;

wherein said handle mounting means and said contact arm mounting means have pivot centers which together define the end points of the hypotenuse of a right triangle, the sides of which have dimensions D_5 and D_6;

wherein the pivot center of said contact arm mounting means is spaced from a plane parallel to the side of said right triangle of dimension D_5 by a distance D_7, said plane intersecting said main body portion; and

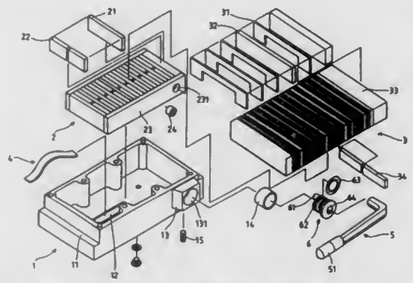
wherein D_1, D_2, D_3, D_4, D_5, D_6 and D_7 are chosen so that the ratio G/L is greater than 0.60.

5,066,936

STRUCTURE OF PERMANENT MAGNETIC WORK HOLDER

P. J. Hsu, No. 5, Alley 1, Lane 250, Min Chuan East Road, Taipei, Taiwan

Filed Feb. 21, 1991, Ser. No. 658,618
Int. Cl.[5] H01F *7/04, 7/20;* **B25B** *11/00*
U.S. Cl. 335—295 **1 Claim**



1. A new structure of permanent magnetic work holder comprising first and second sleeves, a base, a magnet conductive disk, a work holder, a support plate spring, an operating lever and a cam, in which the base is a light-weight aluminum alloy having two pads mounted on the bottom thereof, shoulder portions at each lateral side, a plate spring receiver at the bottom thereof, a block mounted thereon with a hole therein for receiving a first sleeve, at the front edge, and a set screw for securing the sleeve in the block; said magnetic conductive disk being composed of magnet conductive plate and magnet separated from each other and a tin plate having a guide hole for holding of a second sleeve and mounting said conductive plate and magnet; the holder being composed of a copper plate and a magnetic conductive plate which are separated from each other and a magnet, and a board mounting said plates at each side thereof, the copper plate being U-shaped and receiving the magnet between the legs thereof; the support plate spring being a plate spring received in said base; and the operating lever being L-shaped with cylindrical handle at the front end; the cam having an eccentric shaft, a circular groove to hold an O-ring, and a hexagonal socket on the end face; and characterized by the application of fusion weld at high temperature for assembly of the magnetic conductive disk and the holder, in which the support plate spring is first placed in the plate spring receiver in the base, the magnetic conductive disk, the eccentric shaft of the cam is turned and inserted into a second sleeve received in the guide hold in the magnetic conductive disk and tin plate, and the holder is mounted on the base, the pads on the base being made of aluminum alloy to facilitate use of the electromagnetic holder; and the first sleeve extending through the hole in the block on said base for holding the cam which in turn receives an end of the operating lever to eliminate the possibility of it being seized.

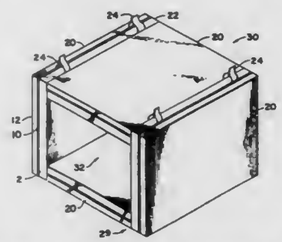
5,066,937

SEARCH COIL ASSEMBLY WITH LAMINATE FRAME MEMBERS AND METHOD FOR MAKING SAME

James M. Moran, Leominster, Mass., assignor to Barkley & Dexter Laboratories, Fitchburg, Mass.

Filed Jun. 24, 1990, Ser. No. 557,626
Int. Cl.[5] H01F *15/04, 27/28*
U.S. Cl. 336—84 C **1 Claim**

1. A metal detector search coil assembly comprising a frame assembly having an aperture therethrough, electrically conductive strands wound upon said frame assembly, potting plastic disposed on external surfaces of said frame assembly and embedding said strands, and a metal housing enclosing said potting plastic, said frame assembly comprising four frame members joined together to form said aperture, each of said frame members comprising a first sheet of rigid plastic, a second sheet of rigid plastic of substantially the same configuration and substantially the same size as said first sheet, an electrically conductive material disposed between said first and second rigid plastic sheets, said conductive material being spaced from peripheral edges of said sheets, and adhesive disposed on margins of said sheets between said peripheral edges and said conductive material and including pockets of adhesive surrounded by said conductive material, to bond said sheets together with said conductive material bonded therebetween, and means for interconnecting each of said frame members conductive material with at least one other frame member conductive material, said interconnecting means comprising metallic foil strips and being operative at three corners of said frame assembly for interconnecting said conductive materials of two adjoining frame members, two metallic foil strips on one frame member being joined to two metallic foil strips on each of said adjoining frame members.

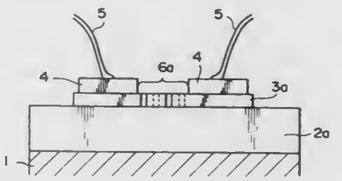


5,066,938

DIAMOND FILM THERMISTOR

Koji Kobashi, Nishinomiya, Japan; Koichi Miyata, Raleigh, N.C.; Kazuo Kumagai; Takayoshi Inoue, both of Kobe, Japan; Hiroyuki Tachibana, Tsukuba, Japan, and Akimitsu Nakaue, Kobe, Japan, assignors to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Oct. 11, 1990, Ser. No. 596,068
Claims priority, application Japan, Oct. 16, 1989, 1-270085
Int. Cl.[5] H01C *7/10*
U.S. Cl. 338—22 SD **2 Claims**



1. A diamond thin film thermistor comprising:

a substrate;

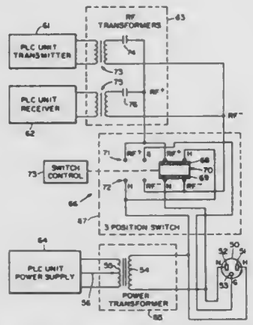
an electrically insulating diamond layer formed on the substrate by vapor-phase synthesis;

a semiconducting diamond layer formed by vapor-phase synthesis as a temperature-sensing part on the electrically insulating diamond layer; and

metal thin film electrodes attached to the semiconducting diamond layer.

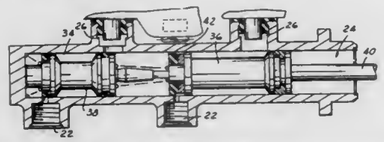
VOL 1132 ISS 3 NO 19 1991 UMI

5,066,939
METHOD AND MEANS OF OPERATING A POWER LINE CARRIER COMMUNICATION SYSTEM
Amos R. Mansfield, Jr., 4080 Devonshire Dr., Provo, Utah 84604
Filed Oct. 4, 1989, Ser. No. 416,852
Int. Cl.[5] H04M *11/04*
U.S. Cl. 340—310 R **33 Claims**



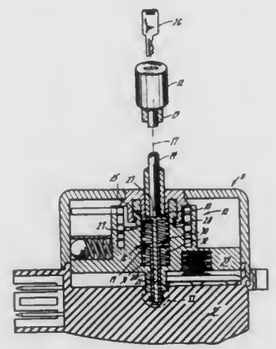
1. A power line carrier (PLC) communication system for operation on an electric power distribution system in a premises wherein said power distribution system includes one or more power lines having three wire conductors comprising:
(a) a transmitter unit of said PLC system for transmitting radio frequency (RF) signals over said power line;
(b) a receiver unit of said PLC system for receiving said transmitted RF signals from said power line,
(c) means at said transmitter unit for selectively coupling said RF signals to one pair of two or more different pairs of said power line three wire conductors, and
(d) means at said receiver unit for coupling said RF signals from two or more different pairs of said power line three wire conductors to said receiver unit.

5,066,940
BRAKE PEDAL TRAVEL WARNING SYSTEM
Norman G. Schmidt, Toledo, Ohio, assignor to Ford Motor Company, Dearborn, Mich.
Filed Oct. 10, 1990, Ser. No. 596,649
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 340—453 **17 Claims**



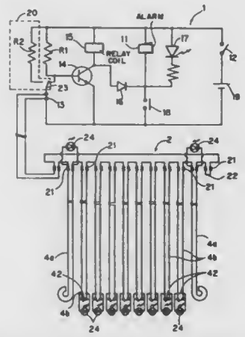
1. A brake pedal travel warning system for use in an automotive vehicle, comprising:
a brake pedal;
a master cylinder operatively associated with said brake pedal through a connecting link, said master cylinder including:
a fluid reservoir containing fluid;
a housing including an internal bore communicating with said fluid reservoir through a reservoir port, said bore defining a chamber therein;
an actuator rod extending from said housing and operatively communicating with said connecting link;
a piston slidably disposed in said chamber and operative to reciprocally move therein, a first end of said piston operative to engage said actuator rod; and
signal generation means operatively associated with said piston for generating a signal after said piston has traveled a predetermined distance in said chamber, said signal generation means comprising a magnetic member producing a magnetic field disposed on said piston and a magnetic field responsive switch member operative to generate a signal in response to the presence of said magnetic field.

5,066,941
INTERNAL KEY-IN-IGNITION-WARNING/IGNITION SWITCH
Daniel Lau, Canton, Mich., assignor to United Technologies Automotive, Dearborn, Mich.
Filed Oct. 23, 1990, Ser. No. 603,980
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 340—457 **4 Claims**



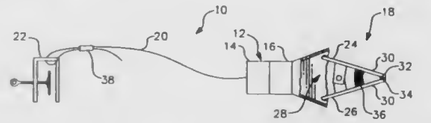
1. A key-in-ignition warning switch integrally attached to a rotatable in a housing ignition switch, said warning switch positioned concentric with the rotational axis of the ignition switch, wherein said warning switch rotates with the ignition switch, comprises:
an outer plunger having a cap end, a shaft midsection, and a first shaft flange attached to the end opposite said outer plunger cap end, wherein said first shaft flange includes a first electrical contact surface, and wherein said outer plunger includes a bore extending through said shaft midsection;
an inner plunger which comprises a cap end, a shaft midsection, and a second shaft flange attached to the end opposite said inner plunger cap end, wherein said second shaft flange includes a second electrical contact surface, and wherein said inner plunger extends through said bore
a plunger spring positioned between the shaft side of said inner plunger cap end and the outside surface of said outer plunger cap end, and wherein said plunger spring is concentric with said inner plunger; and
a housing spring positioned between the shaft side of said outer plunger cap end and the housing, and wherein said housing spring is concentric with said plungers.

5,066,942
ANTITHEFT DEVICE FOR ARTICLES
Toichiro Matsuo, Arao, Japan, assignor to Matsuo Sangyo Kabushiki Kaisha, Omuta, Japan
Filed Sep. 11, 1990, Ser. No. 580,674
Claims priority, application Japan, Jun. 1, 1990, 2-58580[U]
Int. Cl.[5] G08B *13/02*
U.S. Cl. 340—568 **6 Claims**



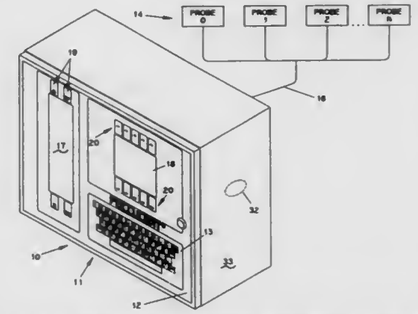
1. An antitheft device for articles comprising:
a plurality of article connection cords, each cord connected to a respective article;
a cord connection part including a plurality of terminal parts connected in series by connection to said plurality of cords, respectively;
a monitor part connected to said cord connection part, such that said monitor part will not operate when said terminal parts are connected in series by said cords and will operate when a) at least one of said terminal parts is disconnected from said cords or b) when at least one of said cords is cut or loosened;
auxiliary alarm means connected in parallel to at least one of the terminal parts in said cord connection part; and
drive means for driving said auxiliary alarm means, corresponding to said terminal part or parts which is disconnected, when said monitor part outputs an alarm.

5,066,943
PATENT MONITORING SYSTEM
Osman S. Demirel, 21729 Cypress Way, and John D. Sanwick, 21026 22nd Ave. W., both of Lynnwood, Wash. 98036
Filed Nov. 28, 1990, Ser. No. 619,226
Int. Cl.[5] G08B *23/00*
U.S. Cl. 340—573 **21 Claims**



1. A patient monitoring system comprising:
audible message means, including a prerecorded voice message means, that alerts a health care provider of patient movement and informs, instructs, calms, reassures, and orients a patient of his status such that the patient is informed and calmed;
a switch means for attaching to a patient's clothing and for activating said audible message means when said switch means is removed from the patient's clothing; and
means for connecting said switch means to an anchor means such that movement of the patient a predetermined distance away from said anchor means causes said switch means to be removed from the patient's clothing, thereby activating said audible message means.

5,066,944
FLUID DETECTION SYSTEM WITH RELAY RELEASE AND RELATCH FUNCTION
Laurence S. Slocum, Indianapolis, Ind., assignor to Emerson Electric Co., St. Louis, Mo.
Filed Sep. 25, 1990, Ser. No. 588,023
Int. Cl.[5] G08B *21/00*
U.S. Cl. 340—603 **3 Claims**



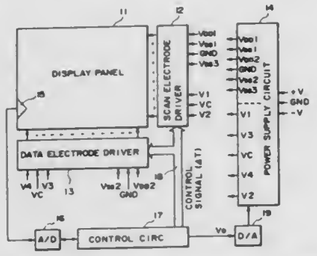
1. A fluid status detection system comprising: a controller and a plurality of probes for sensing the status of fluids at probe locations remote from the controller, each of said probes including means for providing a plurality of probe signals to said controller indicative of the fluid status at the probe location, said controller comprising:
a relay;
storage means for storing a plurality of latching conditions for said relay;
latching means responsive to said probe signals and communicating with said means for storing for latching said relay upon receipt of a first probe signal corresponding to one of said latching conditions;
release and relatch means for deactivating said relay automatically when said relay is latched and a second probe signal corresponding to the same said latching condition is received while the first probe signal is still present and for relatching said relay after a predetermined time corresponding to the second probe signal being present.

5,066,945
DRIVING APPARATUS FOR AN ELECTRODE MATRIX SUITABLE FOR A LIQUID CRYSTAL PANEL
Hideo Kanno, Kawasaki; Hiroshi Inoue, Yokohama, and Atsushi Mizutome, Fujisawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Oct. 25, 1988, Ser. No. 262,576
Claims priority, application Japan, Oct. 26, 1987, 62-271120; Nov. 12, 1987, 62-284158
Int. Cl.[5] G09G *3/36*
U.S. Cl. 340—784 **40 Claims**

1. A driving apparatus, comprising:
a) a driving unit including a scanning electrode driver and a data electrode driver for driving an electrode matrix formed of scanning electrodes and data electrodes, and
b) a drive voltage generating unit including a first means for generating a fixed voltage, a second means for generating a source voltage for providing drive voltages for driving the electrode matrix, and a third means for generating a first voltage equal to a subtraction of the fixed voltage from the source voltage and a second voltage equal to a subtraction of the source voltage from the fixed voltage,

VOL 1132 ISS 3 NO 19 1991 UMI

wherein the first voltage and the second voltage are of mutually opposite polarities with respect to the fixed voltage, and the fixed voltage is a voltage set to an intermediate value between a maximum output voltage and a minimum output voltage of the drive voltage generating unit.



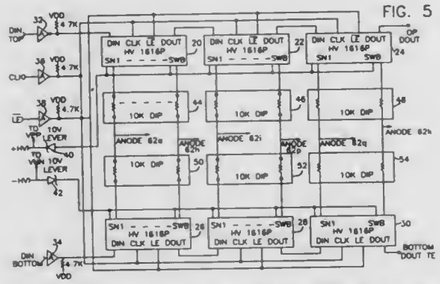
5,066,946

ELECTROPHORETIC DISPLAY PANEL WITH SELECTIVE LINE ERASURE

Frank J. Disanto, North Hills, and Denis A. Krusos, Lloyd Harbor, both of N.Y., assignors to Copytele, Inc., Huntington Station, N.Y.

Filed Jul. 3, 1989, Ser. No. 375,056
Int. Cl.[5] G09G *3/34*
U.S. Cl. 340—787 **15 Claims**

FIG. 5



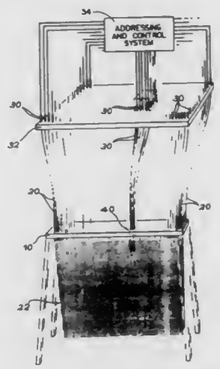
1. An electrophoretic display apparatus comprises a display panel having a display surface and containing an electrophoretic dispersion of particles in a suspension medium, writing means for forming an image on the display surface in a write mode by attracting charged particles from the dispersion onto the display surface in a plurality of image lines, and line erasing means for selectively erasing a particular image line from among said plurality of image lines during a line erase mode, said particular image being erased by repelling charged particles from only a portion of the display surface corresponding to the image line to be erased such that a remainder of said plurality of image lines remains undisturbed during said line erase mode thereby allowing a new frame having substantial portions the same as the previous frame.

5,066,947

VERY LARGE SIZE DISPLAY SCREEN

Francois Du Castel, 103 Avenue Félix Faure, 75015 Paris, France

Filed Jan. 26, 1989, Ser. No. 302,625
Claims priority, application France, Feb. 3, 1988, 88 01251
Int. Cl.[5] G08B *5/00*; G09F *19/12*
U.S. Cl. 340—815.31 **3 Claims**



1. A display device for very large size displays comprising:
at least a solid horizontal rectangular frame having front and rear sides and two lateral sides;
optical fibers having first and second ends, said first ends being secured to said frame so that said optical fibers are suspended from said frame, said second ends being freely suspended, the fibers belonging to a vertical plane parallel to said front and rear sides of said frame having an equal length and the fibers belonging to a vertical plane parallel to said lateral sides having a length increasing from front to rear, said second freely suspended ends defining a large substantially plane display screen;
light emitting diodes located above said frame and optically coupled to said first ends of said optical fibers; and
an addressing and control system connected to said light emitting diodes.

5,066,948

RECEIVER FOR USE IN REMOTE CONTROL SYSTEM

Yoshiyuki Kaneko, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 100,828, Sep. 25, 1987, abandoned. This application Sep. 4, 1990, Ser. No. 577,075
Claims priority, application Japan, Oct. 1, 1986, 61-234160
Int. Cl.[5] H04Q *7/00*
U.S. Cl. 340—825.69 **10 Claims**

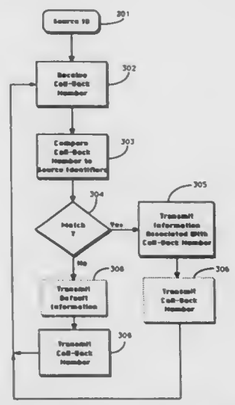
1. A receiver for use in a remote control system in a portable apparatus which makes use of a remote control signal of a predetermined frequency, comprising:
(A) receiving means for receiving a remote control signal wherein said receiving means comprises means for converting a received signal to a digital pulse signal;
(B) counter means for counting the frequency of the digital signal;
(C) control means for controlling said counter means so as to operate in a stand-by state capable of performing the counting operation in synchronism with the frequency of the remote control signal, said control means comprising:
(i) digital change-over means for enabling said control means to commence the controlling operation in synchronism with the reception of the remote control signal received by said receiving means, said digital change-over means being responsive to a level of the digital signal;
(ii) first digital reset means for resetting said counter means, digitally in response to said receiving means receiving the remote control signal such that a converted digital signal is at a high level at least two times while said counter means is in a stand-by state capable of performing the counting operation;
(iii) second digital reset means for resetting said counter means, digitally in response to said receiving means receiving the remote control signal while said counter means is in an idle state not capable of performing the counting operation;
(D) means for setting a predetermined period; and
(E) judging means responsive to the counter means for judging the signal received by said receiving means as being the remote control signal when the value counted by said counter means has reached a predetermined value in the predetermined period.

5,066,949

SENDING DIFFERENT IDENTIFIERS TO SELECTED RECEIVERS, TO REPRESENT THE SAME SOURCE

Robert L. Breeden; Richard E. Johnson, both of Boynton Beach; Amy R. Kabcenell, Highland Beach, and Thomas F. Holmes, Boynton Beach, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Nov. 8, 1989, Ser. No. 433,242
Int. Cl.[5] G08B *5/22*; H04Q *1/30*; H04M *11/00*
U.S. Cl. 340—825.44 **2 Claims**



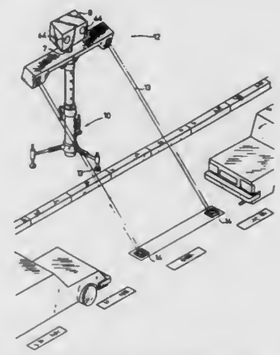
2. A terminal for generating a selective cell message to first and second selective cell receivers, comprising:
(a) means for receiving a signal comprising a received source identifier and a message to provide a received signal;
(b) means for comparing said received source identifier with stored source identifiers within said terminal to determine first and second transmitted source labels; and
(c) means for transmitting said message and said first transmitted source label to said first selective cell receiver, and said message and said second transmitted source label to said second selective cell receiver.

5,066,950

TRAFFIC SAFETY MONITORING APPARATUS

Naftali Schweitzer; Joseph S. Bodenheimr, both of Jerusalem, and Gerald B. David, Savion, all of Israel, assignors to Driver Safety Systems Ltd., Herzliya on Sea, Israel

Filed Apr. 27, 1989, Ser. No. 344,161
Claims priority, application Israel, Apr. 27, 1988, 86202
Int. Cl.[5] G08G *1/017, 1/054*
U.S. Cl. 340—937 **19 Claims**



1. A traffic monitoring system comprising:
means for establishing a pair of precisely spaced radiation beams in association with a thoroughfare, whereby passage of a vehicle along the thoroughfare interrupts the radiation beams;
means for sensing interruption of the radiation beams and providing output indications of vehicle speed and separation between adjacent vehicles; and
means for photographing vehicles fulfilling predetermined criteria including photography trigger apparatus which is responsive to the sensed vehicle speed of the vehicle being photographed for timing the acquisition of a photographic record of the vehicle, thereby providing a consistently positioned photographic record of the vehicle, irrespective of vehicle speed.

5,066,951

CIRCUIT ARRANGEMENT FOR ADJUSTING THE TRIGGERING POINT OF AN INDUCTIVE KEYBOARD

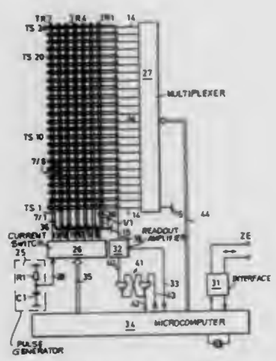
Horst Münster, Brigachtal, and Hans-Jürgen Wendt, Villingen-Schwenningen, both of Fed. Rep. of Germany, assignors to Mannesmann Kienzle GmbH, Villingen-Schwenningen, Fed. Rep. of Germany

Filed Oct. 24, 1989, Ser. No. 426,893
Claims priority, application Fed. Rep. of Germany, Oct. 28, 1988, 3836733
Int. Cl.[5] H03M *11/00*; G06F *3/02*
U.S. Cl. 341—32 **19 Claims**

1. In a circuit for an inductive keyboard wherein each key comprises a magnetic member which when moved into primary and secondary windings alters the coupling generating a coupling signal when a current pulse drives the primary wind-

VOL 1132 ISS 3 NO 19 1991 UMI

ing and having means for adjusting the triggering level of the moved member while reducing mechanical and electric tolerances, the improvement comprising means under the control of



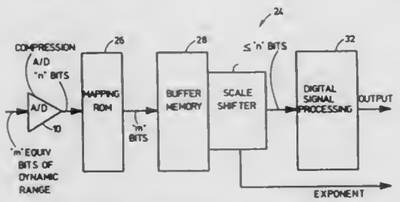
a microcomputer for changing the steepness of the driving current pulse for presetting the triggering level for each keyboard key.

5,066,952

NON-LINEAR DATA CONVERSION SYSTEM FOR DYNAMIC RANGE DIGITAL SIGNAL PROCESSING

Steve J. Koerner, Inyokern, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 25, 1989, Ser. No. 412,248
Int. Cl.[5] H03M *1/62, 7/00, 7/30*
U.S. Cl. 341—138 17 Claims



1. A data acquisition arrangement for a data signal processing system, comprising:

a non-linear data compression and conversion arrangement, said arrangement including

(a) means for converting an analog signal to a digital signal,

(b) means for defining a multiplicity of graduated reference voltages of unequal values relative to one another operatively associated with an input to said converting means, and

(c) means operatively disposed between an output of said defining means and the input to said converting means for comparing an analog signal concurrently to said multiplicity of granduated reference voltages and providing a non-liner compressed analog signal to said converting means as a result of the comparison for producing said digital signal in the form of a compressed conversion of said analog signal; and

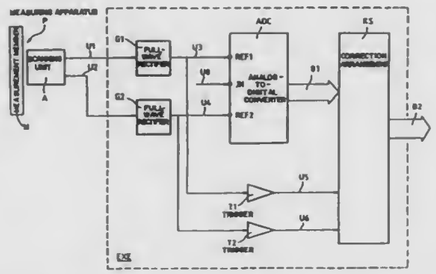
a data decompression and scaling arrangement connected to and located downstream of said converting means of said data compression and conversion arrangement for receiving said compressed digital signal from said converting means and for decompressing and scaling said compressed digital signal so as to provide only the most significant bits of a decompressed digital signal for data signal processing.

5,066,953

POSITION MEASURING APPARATUS WITH A SUBDIVISION CIRCUIT FOR SUBDIVIDING SINUSOIDAL SCANNING SIGNALS

Hans Lengenfelder, Mühldorf, and Robert Wasthuber, Garching, both of Fed. Rep. of Germany, assignors to Dr. Johannes Heidenhain GmbH, Traunreut, Fed. Rep. of Germany

Filed Nov. 7, 1989, Ser. No. 432,587
Claims priority, application Fed. Rep. of Germany, Nov. 11, 1988, 3838291
Int. Cl.[5] H03M *1/34*
U.S. Cl. 341—155 20 Claims



1. Position measuring apparatus having a subdivision circuit for subdividing position-dependent analog periodic scanning signals, the subdivision circuit having first and second analog periodic scanning signals phase-displaced with respect to one another as inputs thereto and a digital N-bit data word which represents intermediate values of a signal period of the first and second analog periodic scanning signals as an output therefrom, characterized in that the subdivision circuit includes an analog-to-digital converter and rectifier circuits which derive from the first and second analog periodic scanning signals first and second full-wave rectified signals, so that to a first input of the analog-to-digital converter there is applied the first full-wave rectified signal having signal values only greater than or equal to a direct-voltage constituent of the analog periodic scanning signals, and to a second input of the analog-to-digital converter there is applied the second full-wave rectified signal having signal values only smaller than or equal to the direct-voltage constituent of the analog periodic scanning signals.

5,066,954

ANALOG TO DIGITAL CONVERTER WITH REFERENCE VOLTAGE CONTROL AND ANALOG STYLE DISPLAY

Johannes Bürgel, Tettnang, and Jean L. Lamarche, Langenargen, both of Fed. Rep. of Germany, assignors to I F M Electronic GmbH, Essen, Fed. Rep. of Germany

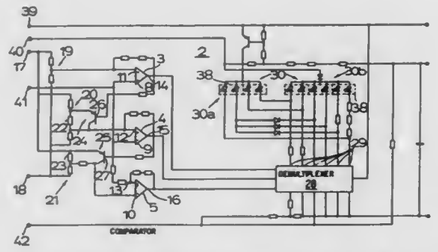
Filed Apr. 4, 1990, Ser. No. 504,473
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1989, 3911457
Int. Cl.[5] H03M *1/34*
U.S. Cl. 341—158 20 Claims

1. A circuit arrangement for converting an analog measured voltage into a digital measurement signal, having

a plurality of comparators, where the measured voltage and various reference voltage dividers are provided for obtaining the reference voltages and the voltage dividers are connected to a standard voltage, where the reference voltage for the second comparator is controllable by the initial signal of the first comparator,

a reference voltage for the third comparator which is controllable by the output signal of the first comparator, the output signal of the second comparator or both the output signals of the first and second comparators, and where the measurement signal displayable by the sum of the output signals of all comparators,

where the voltage divider for the reference voltage of the second comparator and the voltage divider for the reference voltage of the third comparator each have a voltage divider resistor which can be short-circuited,



where control transistors are assigned to the voltage divider resistors which can be short-circuited,

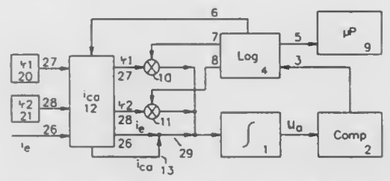
where the base of each of the control transistors is connected to the output of a comparator, and where an analog demultiplexer is connected to the outputs of the comparators.

5,066,955

ANALOG TO DIGITAL CONVERTERS WITH CONVERGENCE ACCELERATING SIGNALS

Joachim Scheerer, Am Fort Weisenau 38, 6500 Mainz 1, and Hartmut Grützediek, An der Klosterheck 16, 6500 Mainz 43, both of Fed. Rep. of Germany

Filed Jun. 27, 1990, Ser. No. 544,682
Claims priority, application Fed. Rep. of Germany, Jul. 4, 1989, 3921976
Int. Cl.[5] H03M *1/50*
U.S. Cl. 341—168 26 Claims



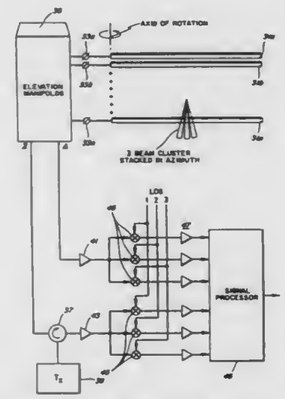
1. Analog to digital converter comprising a charge storage or charge summation circuit which continuously up-integrates the input signal i_e, followed by a comparator, a logic circuit which at periodically recurring instants defined by an oscillator, a timebase counter and a bistable stage, the time between two successive such instants being called a sub-measurement, connects via an analog switch a first reference current/voltage to the charge storage or charge summation circuit for additional integration and disconnects the previously up-integrated second reference current/voltage with the aid of a second analog switch and after a predefined number of oscillator pulse flanks after the next following passage of the output voltage of the charge storage or charge summation circuit through the comparator threshold switches off again the first reference current/voltage and the second reference current/voltage on again, a gate and a result counter contained in the logic circuit which by counting the oscillator pulses during the time in which the first or the second reference current/voltage is being up-integrated in addition to the input signal, determines a first digital value which is passed on to a measured value processing circuit, wherein at the input of the charge storage or charge summation circuit used for the input signal or at one of its other inputs, convergence accelerating signals are superimposed after every nth (n=1,2,3, . . .) sub-measurement whereby the Taylor series expansions of these convergence accelerating signals according to time in the time interval of a sub-measurement are first or higher order polynomials.

5,066,956

AZIMUTH-STACKED RADAR METHOD AND APPARATUS

Raymond G. Martin, Ellicott City, Md., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Nov. 27, 1989, Ser. No. 441,801
Int. Cl.[5] G01S *13/44;* H01Q *3/22*
U.S. Cl. 342—154 7 Claims



1. A surveillance radar system, comprising:

a transmitter for generating at an output thereof radiant energy pulses of a predetermined duration and interpulse period, each of the generated pulses including a plurality of contiguous subpulses, each subpulse having a frequency different and sufficiently separated from the frequency of the other subpulses of the same generated pulse to create a distinct beam in an azimuth direction different and sufficiently separated from the distinct beam of each of the other subpulses of the same pulse when applied to an antenna having azimuth squint characteristics;

a mechanically rotatable antenna having a plurality of horizontal end-fed rows of antenna elements connected to the output of the transmitter, each of said antenna elements having azimuth squint characteristics, said antenna including antenna elevation manifolding means configured to form an elevation beam pair having sum and difference receive elevation patterns; and

a plurality of distinct receiving means, each of said plurality being associated with one of the subpulses of a radiant energy pulse, for receiving return energy of a corresponding frequency, each of the plurality of distinct receiving means includes a first receiver for receiving an elevation sum (Σ) signal of each beam pair, and a second receiver for receiving an elevation difference (Δ) signal of each beam pair.

VOL 1132 ISS 3 NO 19 1991 UMI

5,066,957

HYBRID MODULATION SATELLITE COMMUNICATION SYSTEM

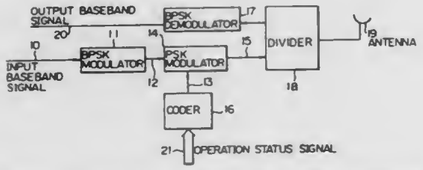
Toshio Mizuno, Sayama; Takuro Muratani, Noda; Yasuhiko Ito, Tokyo; Tatsuo Watanabe, Tokyo, and Takashi Inoue, Tokyo, all of Japan, assignors to Kokusai Denshin Denwa Co., Ltd., Tokyo, Japan

Filed Apr. 20, 1990, Ser. No. 511,681

Claims priority, application Japan, Apr. 21, 1989, 1-99936; Jan. 23, 1990, 2-11926

Int. Cl.[5] H04B *7/005, 7/185*

U.S. Cl. 342—352 **11 Claims**



1. Hybrid modulation satellite communication system, comprising:

a satellite;

relay earth station;

a plurality of small earth stations operably coupled with one another through said satellite and said relay earth station,

each of said plurality of small earth stations having smaller antenna and weaker transmit power than those of said relay earth station,

each of said small earth stations having primary modulator means for receiving and modulating carrier wave based on a first information signal, and for transmitting a primary information signal therefrom,

said relay earth station having first demodulator means for receiving and demodulating said primary information signal from said plurality of small earth stations,

at least one of said small earth stations having a secondary modulator means for receiving said primary information signal from said primary modulator means and for secondary modulation of said primary information signal, wherein said secondary modulator means further receives a second information signal, wherein said secondary modulator means modulates said primary information signal based on said second information signal, wherein said second information signal includes operation status information, and wherein a secondary modulated signal outputted from said secondary modulator means carries said primary information signal and said secondary information signal, and

said relay earth station further having a secondary demodulator means for receiving and demodulating said secondary modulated signal from said plurality of small earth stations.

5,066,958

DUAL FREQUENCY COAXIAL FEED ASSEMBLY

Gerry B. Blachley, Simi Valley, Calif., assignor to Antenna Down Link, Inc., Las Vegas, Nev.

Filed Aug. 2, 1989, Ser. No. 389,014

Int. Cl.[5] H01Q *13/02*

U.S. Cl. 343—756 **8 Claims**

1. A dual frequency, coaxial feed assembly for receiving electromagnetic signals and conveying them to a signal utilization means outside of said coaxial feed assembly, comprising:

a body defining a front aperture and a first closed rear waveguide cavity therein having at least one sidewall and an end wall;

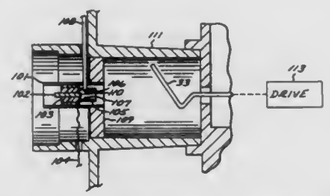
a first probe mounted within said first waveguide cavity for receiving electomagnetic energy in a first preselected band of frequencies;

means conducting electromagnetic energy received by said first probe through the rear of said body to a signal utilization means;

means defining a second front aperture and second closed rear waveguie cavity therein of smaller dimension than said first closed rear waveguide cavity;

a second probe mounted within said second waveguide cavity for receiving electomagnetic energy in a second preselected band of frequencies, said second preselected band of frequencies being higher than said first band of frequencies;

support means supporting said second probe in said second waveguide cavity;



means mounting said second waveguide cavity coaxially within said first waveguide cavity and spaced apart from each of the walls of said first waveguide cavity;

wherein the support means includes electronic switch means for changing the polarization of incident energy received by at least one of said first probe and second probe;

control lead means for carrying electrical control signals to said electronic switch means, to control the polarization of incident energy received by at least one of said first probe and second probe;

a coaxial line extending into said first waveguide cavity, spaced from said first probe, for conducting electromagnetic energy received by said second probe to the exterior of said assembly.

5,066,959

MODE COUPLER FOR MONOPULSE APPLICATIONS HAVING H_{01} MODE EXTRACTING MEANS

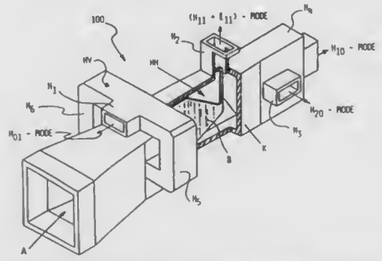
Bernhard Huder, Ulm, Fed. Rep. of Germany, assignor to Telefunken Systemtechnik GmbH, Ulm, Fed. Rep. of Germany

Filed Dec. 1, 1989, Ser. No. 443,955

Claims priority, application Fed. Rep. of Germany, Dec. 1, 1988, 3840450

Int. Cl.[5] H01P *1/161;* **H01Q** *25/02*

U.S. Cl. 343—786 **5 Claims**



1. In a mode coupler for monopulse applications in an antenna feed system for obtaining angle deviations in azimuth and elevation, said coupler having a rectangular main wave guide with a portion at one end in which a plurality of electromagnetic wave modes, including a dominant H_{10} mode, and higher order H_{20} and $(H_{11}+E_{11})$ modes, of an illuminating signal can be propagated, a plurality of mode-selective input and output coupling ports which are all formed as respective simple standard rectangular wave guides mounted on the main wave guide where each standard rectangular wave guide has a shorter and a longer cross-sectional axis and is of a size for propagation of only said H_{10} mode, means for coupling out the $(H_{11}+E_{11})$ mode including a separator plate means disposed in said main wave guide portion for converting the $(H_{11}+E_{11})$ mode into two phase-opposed wave guide waves and for coupling said two waves, via a coupling loop, into one of said standard wave guides which is mounted on a side of said main wave guide portion, and which has its said longer cross-sectional axis transverse to a longitudinal axis of said main wave guide, said separation plate means being disposed so that a front edge of said separator plate means is a reflector for the H_{01} mode, means for coupling out the H_{10} mode including a further one of said standard wave guides connected to an end of said main wave guide opposed said one end and having a longitudinal axis extending parallel to said longitudinal axis of said main wave guide, and means for coupling out the H_{01} mode including at least one of said standard wave guides, the improvement wherein:

said means for coupling out the H_{01} mode from said main wave guide portion includes a pair of said standard wave guides having first respective ends mounted symmetrically on opposite sides of said main wave guide portion adjacent said front edge of said separator plate means and having their respective other ends connected by a wave guide junction, consisting of an H-plane junction, to a common output of one of said standard wave guides.

5. A mode coupler as defined in claim 1, further comprising an antenna coupled to said one end of said main wave guide, with said antenna being in the shape of a pyramidal horn.

5,066,960

THERMAL PRINTING HEAD

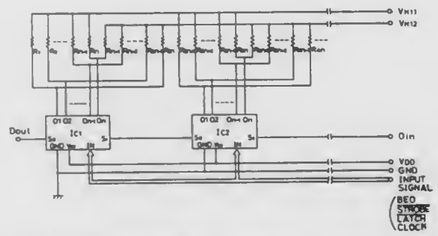
Katsuyasu Deguchi, Nara; Takatoshi Mizoguchi, Kyoto; Takayuki Taminaga, Yamatokoriyama, and Akiyoshi Fujii, Nara, all of Japan, assignors to Sharp, Osaka, Japan

Filed Apr. 4, 1990, Ser. No. 503,974

Claims priority, application Japan, Apr. 5, 1989, 1-86480; Aug. 25, 1989, 1-219203; Aug. 28, 1989, 1-222174

Int. Cl.[5] B41J *2/335*

U.S. Cl. 346—76 PH **11 Claims**



1. A thermal printing head, comprising:

an insulating substrate formed of a heat resisting cloth impregnated with a heat resisting resin;

a plurality of heating elements of an electrically resistive material linearly disposed on said substrate including 2n elements numbered from 1 to 2n in linear arrangement (n being a natural number);

a shield layer interposed between said plurality of heating elements and said insulating substrate for preventing said insulating substrate from exerting chemical influence on said plurality of heating elements;

conduction controlling means, mounted on said insulating substrate, for controlling electric conduction of said plurality of heating elements corresponding to printing of data;

a common electrode formed on said insulating substrate for commonly connecting an end of each of said plurality of heating elements, wherein said common electrode is separated into first and second common electrodes and;

a plurality of discrete electrodes formed on said substrate, said plurality of discrete electrodes for connecting the other end of each of said plurality of heating elements to said conduction controlling means; and

a metal layer interposed between said plurality of heating elements and said plurality of discrete electrodes for connection in a ohmic contact,

said plurality of heating elements being divided into a first block of heating elements numbered from 1 to n and a second block of heating elements numbered from n+1 to 2n,

one end of each of said plurality of heating elements in the first block being connected to said first common electrode, and one end of each of said plurality of elements in the second block being connected to said second common electrode,

a pair of the other ends of said elements numbered 1 and 2n, elements numbered 2 and 2,−1, . . . , elements numbered i and 2n+1−i (i being a natural number, 1<i<n . . .), elements numbered n and n+1 being connected to said conduction controlling means.

5,066,961

TONAL PRINTER UTILIZING HEAT PREDICTION AND TEMPERATURE DETECTION MEANS

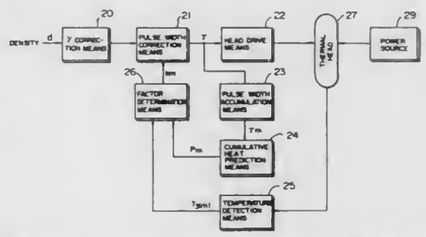
Haruo Yamashita, Osaka, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Feb. 12, 1990, Ser. No. 478,477

Claims priority, application Japan, Feb. 17, 1989, 1-038609

Int. Cl.[5] G01D *15/10*

U.S. Cl. 346—76 PH **10 Claims**



1. A tonal printer comprising: γcorrection means for converting tonal data including at least one of density data and luminance data supplied thereto into corresponding pulse width data required to obtain a predetermined recording density;

a thermal head comprising an alignment of heating elements, a heating element substrate and a head mount;

head drive means for driving each heating element of said thermal head;

a power source which supplies power to said thermal head;

cumulative head prediction means for providing an output representing a prediction of an amount of cumulative heat in a portion of said heating element substrate of said thermal head;

temperature detection means for providing an output representing a temperature in a portion of said head mount of said thermal head; and

factor determination means for determining a compensation factor of energy, which is applied to said thermal head, from said output representing the temperature of said head mount and said output of said cumulative heat prediction means,

VOL
1132
ISS
3
NO
19
1991
UMI

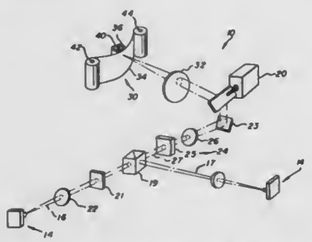
said printer operating to vary the applied energy to said heating elements of said thermal head by using said compensation factor.

5,066,962

LASER THERMAL PRINTER HAVING A LIGHT SOURCE PRODUCED FROM COMBINED BEAMS

Sanwal P. Sarraf, Webster, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 27, 1989, Ser. No. 457,593
Int. Cl.[5] H04N *1/23*
U.S. Cl. 346—76 L 15 Claims



6. A thermal printer for forming an image on a thermal medium, said medium including a dye is transferred by sublimation from a donor to a receiver as a result of heating the dye in the donor, said printer comprising:

means for supporting a thermal medium, said supporting means including means for supporting a donor element and means for supporting a receiver element;

means for driving said means for supporting a thermal medium;

a light source which includes a pair of diode lasers;

means for modulating said diode lasers in accordance with an information signal to produce modulated beams;

means for combining said modulated beams to form a combined beam;

optical means for shaping said combined beam;

means for scanning said combined beam across said medium; and

means for controlling said scanning means, said modulating means, and said driving means in timed relation to each other, said controlling means including means for controlling said modulating means so that said combined beam contains a single information signal.

5,066,963

INK JET HEAD HAVING HEAT-GENERATING RESISTOR COMPRISED OF A COMPLEX COMPOUND

Isao Kimura, Hiratsuka, and Kenji Hasegawa, Isehara, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

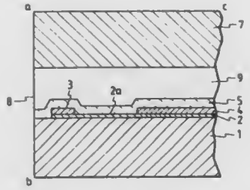
Continuation of Ser. No. 510,885, Apr. 18, 1990, abandoned. This application Mar. 15, 1991, Ser. No. 670,402
Claims priority, application Japan, Apr. 18, 1989, 1-96419
Int. Cl.[5] B41J *2/05*
U.S. Cl. 346—140 R 26 Claims

1. An ink jet head, comprising:

a discharge opening for discharging ink and an electrothermal transducer having a heat-generating resistor member which generates in accordance with a signal heat energy for discharging the ink through said discharge opening, wherein

said heat-generating resistor member comprises a complex compound comprising each of a metal element, B, Si and N, said complex compound having the compositional ratios:

8 atomic % ≦ metal element ≦ 31 atomic %



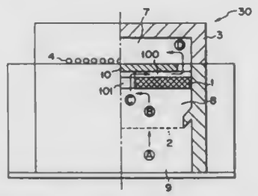
7 atomic % ≦ B ≦ 58 atomic %
5 atomic % ≦ Si ≦ 53 atomic %
6 atomic % ≦ N < 45 atomic %.

5,066,964

RECORDING HEAD HAVING COOLING MECHANISM THEREFOR

Tsuguhiro Fukuda, Yokohama; Hiroshi Nakagomi, Yamato, and Seiichirou Karita, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 385,078, Jul. 25, 1989, abandoned. This application Feb. 20, 1991, Ser. No. 658,435
Claims priority, application Japan, Jul. 26, 1988, 63-184691
Int. Cl.[5] B41J *2/05*
U.S. Cl. 346—140 R 8 Claims



1. A liquid-jet recording head comprising:

an ejection opening for ejecting liquid;

a first liquid path communicating with the ejection opening;

a substrate having an electrothermal energy transducer for generating heat energy provided in correspondence with the ejection opening; and

a heat-capacity member, wherein said substrate and said heat-capacity member together form a second liquid path of predetermined length along said substrate for supplying the liquid to the first liquid path, wherein the second liquid path permits liquid to be held in and to flow therethrough.

5,066,965

WATERPROOF AND/OR WATER-RESISTANT CAMERA

Hitoshi Tanaka, and Kosei Kosako, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

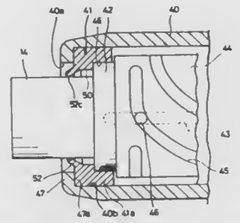
Filed Sep. 12, 1990, Ser. No. 581,363
Claims priority, application Japan, Feb. 6, 1990, 2-10650[U]; Feb. 6, 1990, 2-26739
Int. Cl.[5] G03B *17/08*
U.S. Cl. 354—64 14 Claims

1. A waterproof and/or water-resistant camera, comprising:

an opening in a camera body in which a photographing lens barrel is movable in an optical axis direction; and

an annular seal member which is positioned between said photographing lens barrel and said opening,

wherein said annular seal member is provided, on an outer periphery, with a secured portion to be secured to an inner periphery of said opening and is provided, on an inner periphery, with a lip portion which elastically comes into close contact with an outer periphery of said photographing lens barrel, and which is elastically deformable independently from said secured portion, said lip portion projecting forwardly in the optical axis direction as viewed from said camera body.

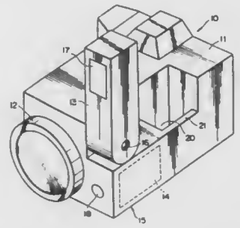


5,066,966

HOLDING MECHANISM FOR A CAMERA

Kiyoshi Kawano, Rochester, N.Y., assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 22, 1990, Ser. No. 497,351
Claims priority, application Japan, Mar. 27, 1989, 1-34637[U]
Int. Cl.[5] G03B *29/00*
U.S. Cl. 354—82 9 Claims



1. A holding mechanism for a camera including a taking lens barrel and a camera body, said camera body having a bottom surface, said holding mechanism comprising an opening portion successively formed with and adjacent to a bottom surface of said taking lens barrel of said camera, and an arm member arranged to be rotatable between a first position at which said arm member is opposed to an object to be photographed and a second position at which said arm covers said opening portion, said arm member being provided with a strobe light element for radiating light when the object is photographed.

5,066,967

SINGLE-LENS REFLEX CAMERA WITH BUILT-IN FLASH

Masato Yamamoto; Susumu Koshino; Toshimasa Yamanaka; Koji Sato; Akihiro Arai, and Masahiro Koinuma, all of Tokyo, Japan, assignors to Asahi Kogaku Kogyo K.K., Tokyo, Japan

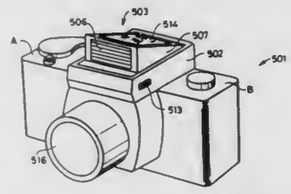
Continuation of Ser. No. 244,271, Sep. 14, 1988, Pat. No. 4,910,542, which is a continuation of Ser. No. 934,055, Nov. 24, 1986, now Re. 4,893,140. This application Nov. 20, 1989, Ser. No. 450,886
Claims priority, application Japan, Nov. 22, 1985, 60-261238; Dec. 4, 1985, 60-271373; Dec. 25, 1985, 60-198374[U]; Jan. 31, 1986, 61-11595[U]; Feb. 5, 1986, 61-14482[U]
Int. Cl.[5] G03B *15/03*
U.S. Cl. 354—149.11 7 Claims

1. A single-lens reflex camera, comprising:

a single-lens reflex camera body having a principal photographic axis;

a pentaprism included in said camera body over said principal photographic axis for operator viewing along said principal photographic axis;

a movable light emitter built into said camera body, disposed at least partially above said pentaprism and being movable from an operating position in which said camera is operable for taking flash pictures to a non-operating position in



which said camera is operable for taking non-flash pictures; and

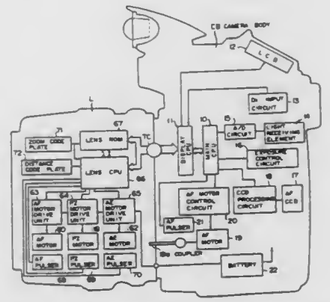
an information display member mounted on a housing of said light emitter and electrically displaying conditions of said camera, said information display member being movable with said light emitter when said light emitter moves from said operating position to said non-operating position, and being operational and viewable when said light emitter is in the non-operating position.

5,066,968

AUTOFOCUSING SYSTEM FOR A CAMERA

Noboru Suzuki; Shigeo Toji, both of Tokyo, and Masahiro Kawasaki, Saitama, all of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 29, 1989, Ser. No. 414,477
Claims priority, application Japan, Sep. 29, 1988, 63-245683; Sep. 29, 1988, 63-245684
Int. Cl.[5] G03B *13/00*
U.S. Cl. 354—400 46 Claims



1. An autofocusing system for a camera having a photographic lens including a focusing lens group and a zooming lens group, said system comprising:

means for driving said focusing lens group to obtain an in-focus condition of an object to be photographed;

means for driving said zooming lens group for zooming said photographic lens;

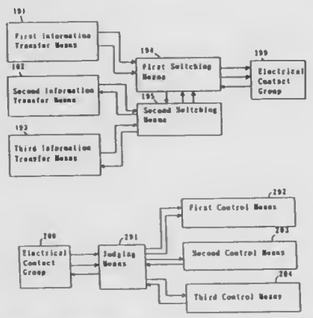
focus lock means for disabling said focus-drive means once said photographic lens is brought into said in-focus condition; and

re-focus means for re-enabling said focus drive means to drive said focus lens group so as to ensure that said photographic lens is in said in-focus condition when said zoom-

VOL
1132
ISS
3
NO
19
1991
UMI

ing lens group is driven by said zoom drive means after said focus drive means is disabled by said focus lock means.

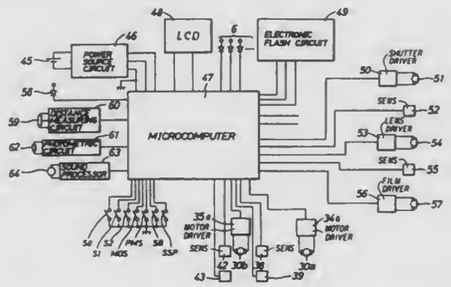
5,066,969
CAMERA SYSTEM
Masahiro Kawasaki, Tokyo, Japan, assignor to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 29, 1989, Ser. No. 400,014
Claims priority, application Japan, Aug. 30, 1988, 63-215991
Int. Cl.[5] G03B *13/36, 5/00, 7/20*
U.S. Cl. 354—402 35 Claims



1. A photographic lens detachably mounted to a camera body, comprising:
a group of electrical contacts which are selectively connected to said camera body;
first information transfer means for transmitting a first set of information peculiar to said lens through at least a part of said electrical contact group;
second information transfer means for transmitting a plurality of variable information peculiar to said lens through memory means connected to said electrical contact group to said camera body;
third information transfer means for transmitting and receiving information to and from said camera body through an arithmetic/control means connected said electrical contact group; and
switching means for selecting said first information transfer means, second information transfer means or third information transfer means, based on the electrical connection of said electrical contact group to said camera body.

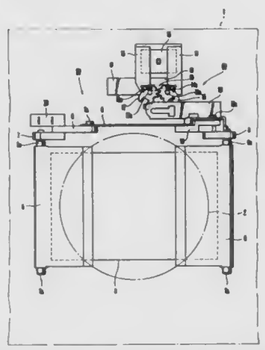
5,066,970
SWINGING TYPE CAMERA
Tsuyoshi Kakita, and Masazi Yoshimura, both of Hachioji, Japan, assignors to Konica Corporation, Tokyo, Japan
Filed Oct. 12, 1990, Ser. No. 596,396
Claims priority, application Japan, Oct. 16, 1989, 1-268323
Int. Cl.[5] G03B *13/00*
U.S. Cl. 354—402 4 Claims

1. A camera comprising:
means for measuring distance from the camera to an object;
means for automatically photographing a frame in response to detection of a sound;
means for rotating the camera in at least one plane;
means for detecting the rotational angle of the camera;
first means for determining, prior to photographing, distances and angular extents of each of several objects surrounding the camera;
second means for determining which of said objects have said distances and angular extents consistent with predetermined criteria and for storing the rotational angle of the so-determined objects; and



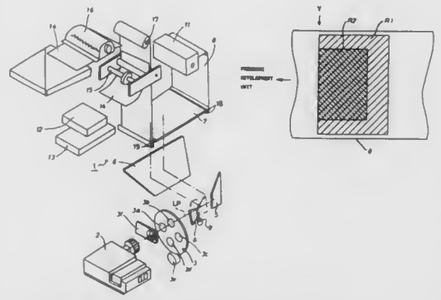
means for successively rotating the camera to each stored angular position.

5,066,971
CAMERA
Takanori Kodaira, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 222,388, Jul. 21, 1988, abandoned, which is a continuation of Ser. No. 105,016, Oct. 6, 1987, abandoned. This application Jan. 17, 1989, Ser. No. 298,315
Claims priority, application Japan, Oct. 9, 1986, 61-240836; Oct. 9, 1986, 61-240837; Oct. 9, 1986, 61-240838; Oct. 9, 1986, 61-240839
Int. Cl.[5] G03B *17/18, 1/00, 13/02*
U.S. Cl. 354—465 7 Claims



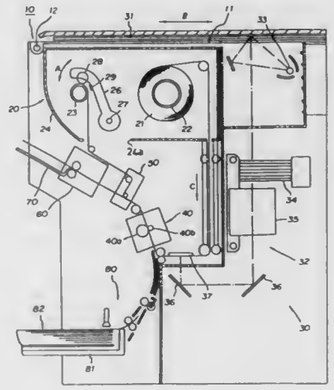
1. A camera capable of changing the picture frame size, comprising:
changeable picture frame forming means for changing the picture frame size;
a finder device;
finder state changeable means for changing the state of said finder device in response to a change of said picture frame size by said changeable picture frame forming means, said finder state changeable means constituting a unit together with said finder device; and
fastener means for fixing said unit to a body of the camera, said fastener means being able to adjust the fixed position.

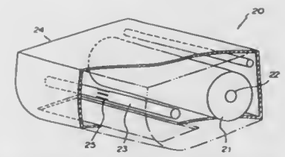
5,066,972
IMAGE FORMING APPARATUS WITH POSITIONAL ADJUSTMENT OF EXPOSURE AREA ACCORDING TO IMAGE SIZE
Osamu Nagata, Aichi, and Kazumasa Makino, Nagoya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Japan
Filed Dec. 20, 1990, Ser. No. 630,509
Claims priority, application Japan, Dec. 29, 1989, 1-151433[U]
Int. Cl.[5] G03B *27/52*
U.S. Cl. 355—27 18 Claims



1. An image forming apparatus comprising:
means for storing an elongated photosensitive recording medium;
feed means for feeding the photosensitive recording medium from the storing means along a predetermined feed path;
exposure means for exposing the photosensitive recording medium to a light image, the exposure means having an exposure position downstream of the storing means in the feed path;
development means, disposed downstream of the exposure position in the feed path, for developing an exposed portion of the photosensitive recording medium to form a visible output image;
size selection means for selecting a desired size of the visible output image from among plural different image sizes including a maximum image size; and
exposure area setting means for setting an exposure area to be exposed to the light image on the photosensitive recording medium placed at the exposure position, the exposure area corresponding to the image size selected by the size selection means, wherein a center line of the exposure area corresponding to the image size smaller than the maximum image size is offset from a center line of the exposure area corresponding to the maximum image size in a downstream direction of the feed path.

5,066,973
IMAGE FORMING APPARATUS USING AN ELONGATED WEB-LIKE RECORDING MEDIUM
Satoru Kuwabara, Chiryu, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Nov. 16, 1990, Ser. No. 614,235
Claims priority, application Japan, Feb. 13, 1990, 2-31942
Int. Cl.[5] G03B *27/52*
U.S. Cl. 355—27 16 Claims





1. An image forming apparatus for forming an image using an elongated web-like recording medium, comprising:
a supply member detachably installed in said apparatus on which said recording medium is wound;
image forming means for forming the image on said recording medium supplied from said supply member;
a winding member detachably installed in said apparatus to take up said recording medium supplied from said supply member, wherein said winding member has information on specific characteristics of said recording medium;
reading means for reading said characteristics information; and
control means for controlling said image forming means according to said characteristics information read by said reading means, wherein said information comprises a bar code and said reading means comprises an optics type reader.

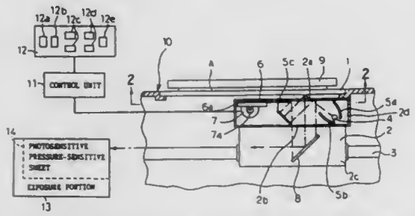
5,066,974
AUXILIARY EXPOSURE DEVICE FOR IMAGE RECORDING APPARATUS
Takashi Nakata, and Tauyoshi Suzuki, both of Nagoya, Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan
Filed Nov. 19, 1990, Ser. No. 615,804
Claims priority, application Japan, Jan. 19, 1990, 2-4213[U]
Int. Cl.[5] G03B *27/72*
U.S. Cl. 355—71 16 Claims

7. An auxiliary exposure device for an image forming apparatus for forming an image copy on a recording medium by moving an original image and a light source relative to one another and irradiating the recording medium with light emit-

VOL 1132 ISS 3 NO 19 1991 UMI

ted from the light source and reflected from the original image: comprising:

a reflection member controllably insertable into a light path from the light source to the recording medium, a lower surface of said reflection member providing a reflection surface for light from the light source;



drive means for inserting and withdrawing said reflection member from the light path;

input means for inputting copying conditions; and

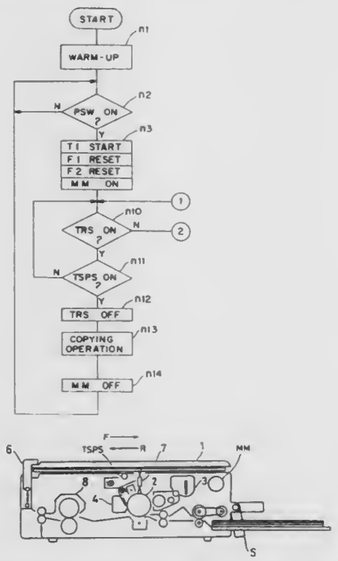
a control means for controlling said drive means on the basis of information from said input means.

5,066,975

SYSTEM FOR CONTROLLING MOVEMENT OF A DOCUMENT TABLE IN A COPYING APPARATUS

Yasushi Nakanishi, Yamatokoriyama, and Takahiro Fukunaga, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 17, 1989, Ser. No. 353,045
Claims priority, application Japan, May 31, 1988, 63-135320
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—200 **4 Claims**



1. An improved system for controlling movement of a document table in a copying apparatus which is provided with a print switch, a movable document table and a lock member for locking said document table, said lock member being disposed on one side of the apparatus perpendicular to a direction of movement of the document table, wherein the improvement comprises:

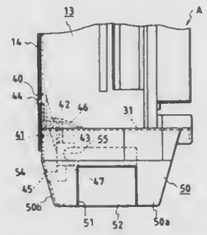
means for moving the document table in a direction in which said document table is released from said lock member so that upon operation of said print switch, said document table initially moves to automatically disengages said document table from said lock member, said means further moving said document able to a start position from which the apparatus can start a copying operation.

5,066,976

IMAGE FORMING APPARATUS HAVING A PRINT CARTRIDGE

Takashi Kanagawa; Yutaka Shiino, and Tetsuya Furuyama, all of Kanagawa, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo, Japan

Filed Mar. 14, 1991, Ser. No. 672,977
Claims priority, application Japan, Mar. 19, 1990, 2-69203
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—200 **4 Claims**



1. An image forming apparatus comprising an apparatus body having a guide rail; and a print cartridge movable along said guide rail;

said guide rail having a first engaging portion;

said print cartridge including a holder member and a cover covering said holder member;

said cover having a opening portion; and

said holder member having a second engagement portion which is adapted to be pushed so as to be engaged with said first engaging portion, and an operating portion which is responsive to the engagement of said second engagement portion with said first engaging portion so as to be moved into and out of said cover through said opening portion of said cover.

5,066,977

SYSTEM FOR MANAGING THE NUMBER OF IMAGE FORMING OPERATIONS IN AN IMAGE FORMING APPARATUS

Ken Yoshizuka, Nagaokakyo, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan

Filed Aug. 14, 1990, Ser. No. 567,078
Claims priority, application Japan, Aug. 31, 1989, 1-226758
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—201 **4 Claims**

1. A system for managing the number of image forming operations of an image forming apparatus comprising:

a code input means for inputting a user code;

a sheet counter for counting a number of sheets processed by a main unit of said image forming apparatus;

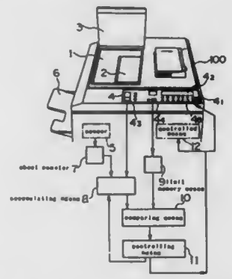
an accumulating means for calculating an accumulated number of sheets for each user from data in said user code supplied from said code input means and a count number counted by said sheet counter;

a limit setting means for setting a predetermined number of sheets assigned to said user;

a limit memory means for recording said predetermined number of sheets said user set by said limit setting means;

a comparing means for comparing between said predetermined number of sheets recorded in said limit memory means and said accumulated number of sheets calculated by said accumulating means; and

a controlling means for, upon judging from said comparing at said comparing means that said accumulated number of sheets of said user exceeds said predetermined number of sheets, forcing image forming operation of said apparatus



to continue up to a specified number of sheets desired at the time by said user and means for delivering an instruction to said main unit of said apparatus for inhibiting image forming operation of said apparatus by said user from the next time and designating an excess number of sheets over said predetermined number of sheets as an initial setting number of said accumulating means for calculation of an accumulated number of sheets after resetting by a renewal arrangement.

5,066,978

IMAGE FORMING APPARATUS HAVING AN EXCHANGEABLE UNIT EXCHANGE TIMING INDICATING DEVICE

Shinichi Watarai, Yokohama; Megumi Yasuda, Kawasaki; Yoji Houki, Tokyo, and Yukio Nishio, Tama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 31, 1989, Ser. No. 359,012
Claims priority, application Japan, Jun. 2, 1988, 63-136115
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—206 **10 Claims**

1. An image forming apparatus for forming an image on a medium wherein said apparatus comprises;

a driving source;

a plurality of processing devices for forming an image on said medium and being consumable and exchangeable individually, and said processing devices including at least a drum unit, a developing unit, and a fixing unit;

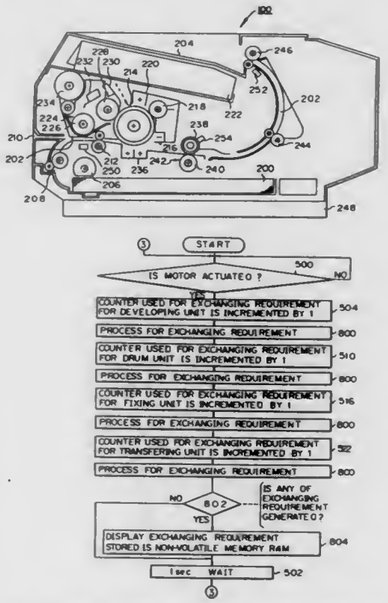
a means for transmitting the driving force of said driving source to each said processing devices so as to rotate said drum unit, said developing unit, and said fixing unit in accordance with driving motion of said driving source;

means for integrating a working time of each of the processing devices respectively in accordance with a driving time of said driving source to obtain an integrated working time of each processing device respectively;

a memory means for storing said integrated working time of each processing device respectively therein;

a life time setting means in which a predetermined life time of each processing device is set out respectively; and

a means for generating an exchanging requirement signal for said processing device when said integrated working time



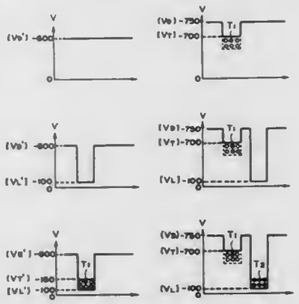
thereof reaches said life time of said processing device, set out in said life time setting means.

5,066,979

COLOR IMAGE FORMING APPARATUS WHEREIN PLURAL COLORS CAN BE FORMED THROUGH ONE PRINTING CYCLE

Masahiro Goto, Kawasaki; Takahiro Inoue, Yokohama; Junichi Kato, Sagamihara, and Tatsuya Kobayashi, Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jan. 11, 1990, Ser. No. 463,443
Claims priority, application Japan, Jan. 13, 1989, 1-004760; May 9, 1989, 1-115532
Int. Cl.[5] G03G *15/01*
U.S. Cl. 355—208 **28 Claims**



1. An image forming apparatus comprising:

a movable image bearing member;

latent image forming means for forming first and second electrostatic latent images on said image bearing member;

VOL 1132 ISS 3 NO 19 1991 UMI

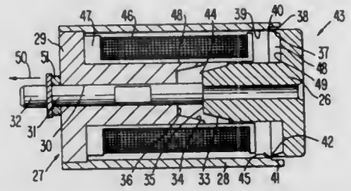
first developing mean for forming a first visualized image by developing the first electrostatic latent image;
second developing means for providing a second visualized image by developing the second electrostatic latent image, wherein said second developing means acts on said image bearing member after the first visualized image is formed on said image bearing member, and wherein said second developing means includes developer carrying means for carrying a developer to a developing position where the developer is supplied to said image bearing member;
means for applying a vibratory voltage to said developer carrying means of said second developing means; and
control means for changing a duty ratio of the vibratory voltage,
wherein the vibratory voltage has a first peak for forming an electric field to urge the developer away from said developing carrying means toward said image bearing member and a second peak for forming an electric field to urge the developer away from said image bearing member toward said developer carrying means,
wherein the first peak and second peak are alternately applied, wherein said control means changes a duty ratio while maintaining the second peak substantially constant, and
wherein said control means changes the duty ratio by changing the first peak.

5,066,980

SOLENOID PLUNGER MAGNET AND ITS USE AS PRINT HAMMER IN A PRINT HAMMER DEVICE

Horst Schweizer, Wangerland, Fed. Rep. of Germany, assignor to AEG Olympia Office GmbH, Wilhelmshaven, Fed. Rep. of Germany

PCT No. PCT/DE89/00542, § 371 Date Apr. 30, 1990, § 102(e) Date Apr. 30, 1990, PCT Pub. No. WO90/03037, PCT Pub. Date Mar. 22, 1990
PCT Filed Aug. 19, 1989, Ser. No. 478,007
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1988, 3829676
Int. Cl.[5] H10F *3/00, 7/08*
U.S. Cl. 335—255 **16 Claims**



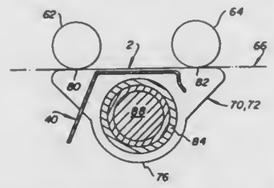
1. A solenoid plunger magnet comprising an excitation coil, a solenoid plunger partially projecting into this coil and a yoke of a high permeability material configured to serve as a flux guiding means for forming, together with the solenoid plunger, a path of magnetic flux for the magnetic field generated by the excitation coil, the magnet further being provided with a central recess for guiding a non-magnetic guide member along the plunger, with a first air gap being provided within the coil, when the solenoid plunger is in its starting position, and a second air gap outside the coil between a face of the solenoid plunger and a respectively adjacent, correspondingly configured counter-face of the yoke, characterized in that the faces facing the air gaps at the solenoid plunger and counter-faces of the yoke are configured in such a manner that at least one of the two air gaps is cylindrical and has an external cone control; and that the magnetic flux in both air gaps is utilized for conversion into the desired motion force component for the solenoid plunger, the faces facing the outer air gap are cylindrical, with the plunger being provided with a cavity within the cylindrical exterior face, and when seen in the direction opposite to the direction of movement of the solenoid plunger, the inner circumferential face of the cavity extends conically toward the coil axis from the outer edge to the bottom face of the cavity when the coil is excited so as to form an external cone control, and the outer and inner circumferential faces forming the outer air gap are provided with edges configured as regions of denser magnetic flux in order to augment the thrust of the plunger.

5,066,981

MECHANISM FOR RESPONSIVELY SPACING A DEVELOPMENT ROLLER

Satyan R. Kalyandurg, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 15, 1990, Ser. No. 597,137
Int. Cl.[5] G03G *15/06*
U.S. Cl. 355—245 **8 Claims**



1. In an electrostatographic copier or printer having a flexible image-bearing member or film for electrostatically forming latent images on a frontside thereof, and a development apparatus positioned adjacent the frontside of the film and including a development roller for developing such latent images with toner particles, a spacing mechanism for responsively and precisely spacing the development roller from such frontside of the film, the spacing mechanism including:
(a) first and second backup rollers or ski rods for forming a film plane generally parallel to a tangential plane to the development roller, said first and second ski rods being mounted spaced side-by-side from each other in contact with a backside of the film, and across from the development roller or the development apparatus;
(b) spring means connected to a frame of the copier or printer for supporting the development apparatus urgeably toward or away from the frontside of the film; and
(c) a pair of generally triangular members, precisely spacing the development roller from said first and second ski rods, each said triangular members being mounted at an end of said development roller, and each said triangular members, as mounted, acting against a force of said spring means and simultaneously contacting said first and second ski rods, for moving said development roller responsively to any movement of said first and second ski rods and, hence, responsively to movement of the frontside of the film or image-bearing member.

5,066,982

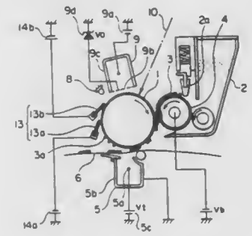
CLEANER-LESS IMAGE FORMING APPARATUS

Masahiro Hosoya, Okegawa; Mitsunaga Saito, Tokyo; Shuitsu Sato, Kawasaki; Yoshimitsu Ohtaka, Mishima; Mitsuharu Endo, Susono, and Yukio Futamata, Shizuoka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa and Tokyo Electric Co., Ltd., Tokyo, both of, Japan

Filed Mar. 30, 1990, Ser. No. 501,864
Claims priority, application Japan, Mar. 31, 1989, 1-081921; Oct. 13, 1989, 1-266815
Int. Cl.[5] G03G *15/06, 15/24*
U.S. Cl. 355—269 **21 Claims**

1. An image forming apparatus comprising:
an electrostatic latent image holding member;
means for forming a latent image on said electrostatic latent image holding member;

a development unit for supplying and adhering toner on the latent image being formed so as to develop the latent image;
a transfer unit for transferring the latent image on an image holding material; and
residual toner image equalization means for equalizing the distribution of a residual toner image which stays on said electrostatic latent image holding member after said latent image is transferred, wherein



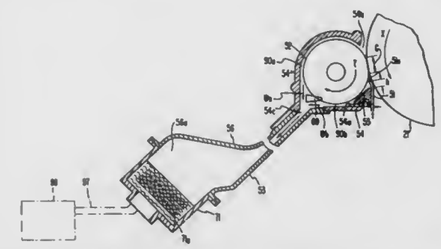
said development unit develops said latent image held on said electrostatic latent image holding member while attracting and collecting residual toner which remains on said electrostatic latent image holding member,
said residual toner image equalization means comprising a plurality of electrode members which are contactably and approachably disposed to said electrostatic latent image holding member.

5,066,983

CLEANING UNIT FOR CLEANING RECORDING MEDIUM OF AN ELECTROPHOTOGRAPHIC APPARATUS

Yoshihiro Tonomoto, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 284,101, Dec. 14, 1988, Pat. No. 4,984,028. This application May 24, 1990, Ser. No. 527,836
Claims priority, application Japan, Dec. 18, 1987, 62-318637
Int. Cl.[5] G03G *21/00*
U.S. Cl. 355—297 **10 Claims**



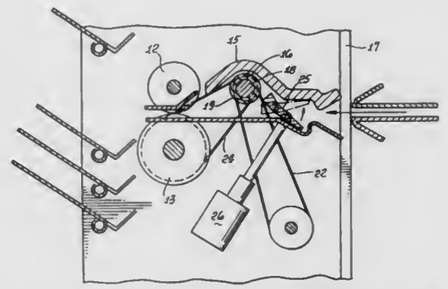
1. An image forming apparatus comprising:
a rotatable image bearing member for forming a toner image;
a toner image transfer means disposed adjacent to said image bearing member for transferring said toner image to a printing medium; and
a cleaning unit disposed downstream from said toner image transfer means with respect to the rotation of said image bearing member, for cleaning said image bearing member after image transfer, said cleaning unit comprising:
a blade having an upwardly directed cleaning edge in contact with a downwardly moving portion of said image bearing member for scraping said image bearing member to remove contaminants thereon as said image bearing member rotates;
rotatable cleaning means disposed immediately upstream from said blade without contacting said blade and in engagement with said image bearing member for removing an outer portion of a pile of contaminants remaining thereon adjacent to said cleaning edge and accumulated directly in front of said cleaning edge as said image bearing member rotates, whereby larger particles of contaminants at an outer portion of said pile are continuously removed and smaller remaining particles of contaminants serve to lubricate the area between said blade and said image bearing member.

5,066,984

DECURLER

Peter M. Coombs, Tustin, Calif., assignor to Gradco Systems, Inc., Irvine, Calif.

Filed Nov. 17, 1987, Ser. No. 122,145
Int. Cl.[5] G03G *15/00*
U.S. Cl. 355—309 **2 Claims**



1. A device for removing curl from sheets of paper exiting a printing machine comprising: means for decurling sheets including a rotary driven sheets of feed shaft having a paper drive roll thereon and an arched guide member extending partially about said drive roll in closely spaced relation to the outer periphery of said drive roll and forming an arcuate gap exceeding the thickness of the sheets of to longitudinally deform the sheet between said roll and said guide and causing drive friction between said roll and the sheets of, and means for rotating said shaft.

5,066,985

COLOR CORRECTED IMAGE RECORDING APPARATUS USING YELLOW, MAGENTA AND CYAN LIQUID TONERS

Motoaki Yamanashi, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Japan

Filed Mar. 22, 1990, Ser. No. 497,208
Claims priority, application Japan, Mar. 22, 1989, 1-69856
Int. Cl.[5] G03G *15/01*
U.S. Cl. 355—326 **7 Claims**

1. A color image recording apparatus for recording a color image of an original document on a photosensitive paper using at least yellow, magenta and cyan liquid toners respectively containing yellow, magenta and cyan color materials as primary color components, at least one of the three liquid toners further containing the primary color components of the rest of two liquid toners as foreign color components, wherein the color image recording is separately and sequentially performed with respect to the yellow, magenta and cyan liquid toners, and wherein each time one of the liquid toners is used, the photosensitive paper is exposed to light to form a latent image thereon corresponding to the color image of the original document, the apparatus comprising:

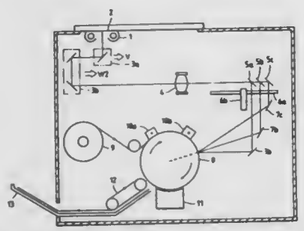
VOL 1132 ISS 3 NO 19 1991 UMI

scanning means for scanning the color image of the original document and providing an imaging light;

charging means for uniformly charging the photosensitive paper;

light separation means for separating the imaging light into blue, green and red light components;

filter means for receiving the blue, green and red light components and changing light transmission rates passing through said filter means so as to be equal to a proportion of that color material to be used for reproduction which is contained in the yellow, magenta and cyan liquid toners, the light transmission rates being changed each time when one of the yellow, magenta and cyan liquid toners is used;



an optical unit for applying the blue, green and red light components passed through said filter means onto the photosensitive paper to form a latent image thereon corresponding to the color image of the original document, light paths of the blue, green and red light components being the same length, the blue, green and red light components passed through said filter means being focused on the same point on the photosensitive paper; and

developing means for developing the latent image with the liquid toner containing the color material to be reproduced as the main color component.

5,066,986

IMAGE RECORDING SYSTEM FOR CONTROLLING DEVELOPING DEVICES

Kiyoshi Emori, and Hiroshi Maekawa, both of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Filed Feb. 1, 1989, Ser. No. 304,610

Claims priority, application Japan, Feb. 3, 1988, 63-24504

Int. Cl.[5] G03G *15/01*

U.S. Cl. 355—326 **5 Claims**

1. A printer apparatus connected to a host means for forming images which comprises:

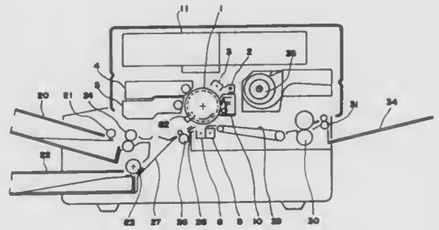
a photosensitive member;

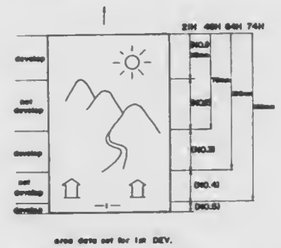
an image forming means for forming an electrostatic latent image on the surface of said photosensitive member;

a plurality of developing devices, respectively containing different colors of developer, each of which is driven independently of one another and is selectively driven to develop the electrostatic latent image formed on the surface of the photosensitive member;

an image transfer means for transferring the developed image to a record medium; and

control means for controlling driving of said plurality of developing devices in a plurality of different modes during the development of the electrostatic latent image, in which only one of said developing device is driven to develop a first part of the electrostatic latent image in a first mode, at least two developing devices are driven to develop a second part of the electrostatic latent image in a second mode, and all of the developing devices are maintanined deenergized to prevent the development of a third





part of the electrostatic latent image in a third mode, said control means using at least two of said three modes.

5,066,987

SHADING BOARD FOR COPYING APPARATUS

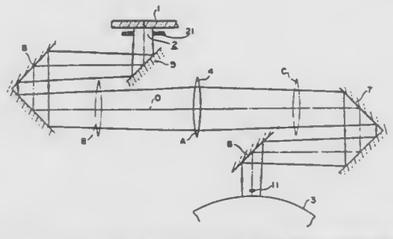
Nobutaka Minefuji, Fujimi, and Yasunori Arai, Saitama, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 14, 1989, Ser. No. 450,468

Claims priority, application Japan, Dec. 19, 1988, 63-319905

Int. Cl.[5] G03G *15/04; G03B 27/50*

U.S. Cl. 355—233 **7 Claims**



1. An electrophotographic copying apparatus wherein light reflected from an original subject is directed to a light receiving means through slit, which comprises:

optical means provided between said original subject and said light receiving means for varying the size of the reflected light being passed through said slit; and

a shading member, positioned within the width of reflected light passing through said slit and fixed at a predetermined positioned between said optical means and said light receiving means along a longitudinal direction of said optical image.

5,066,988

ELECTROPHOTOGRAPHIC APPARATUS HAVING MEANS FOR AVOIDING BLURRING EFFECTS CAUSED BY IDLE INTERVALS

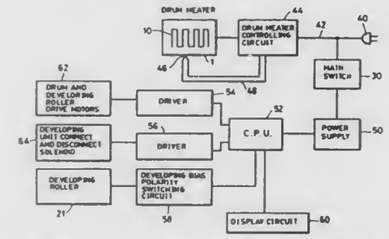
Nobuyuki Miyake, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 11, 1989, Ser. No. 405,238

Claims priority, application Japan, Sep. 30, 1988, 63-246311

Int. Cl.[5] G03G *15/06*

U.S. Cl. 355—245 **7 Claims**



1. In an electrophotographic apparatus having a heater for heating a photosensitive body both when the apparatus is in operation and when the apparatus is not in operation, a main switch arranged to turn the apparatus on and off without turning the heater on or off, and a developing device including a developing roller for applying developer to the photosensitive body, and means for forcibly removing developer from said roller during an interval after said main switch is turned on and before a copying operation.

5,066,989

CLEANING METHOD FOR USE IN COPY APPARATUS AND TONER USED THEREFOR

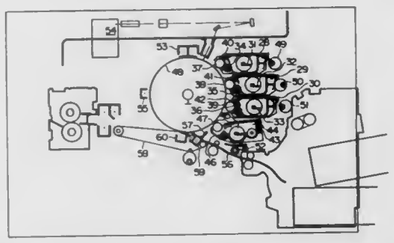
Hajime Yamamoto, Ibaraki, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 6, 1990, Ser. No. 578,279

Claims priority, application Japan, Sep. 26, 1989, 1-249531

Int. Cl.[5] G03G *15/06*

U.S. Cl. 355—270 **5 Claims**



1. A cleaning method for use in a color electrophotographic apparatus in which color toner images formed by using a plurality of color toners on a photosensitive medium by repeating charging, exposure and reversal developing steps are transferred to a sheet of paper at one stroke, the method comprising the steps of:

providing said toners including color toners and a black toner, each of said color toners being a toner for a DC electric field jump developing method which serves to develop without making contract with the photosensitive medium and said black toner being a toner for a two-component magnetic brush developer and being mixed with a carrier to be charged, and using said two-component brush developer as a cleaning agent serving to clean the toners remaining on the photosensitive medium after a transfer operation, said two-component brush developer being also used as a developer serving to develop in contract with the photosensitive medium.

5,066,990

REFLECTOR SYSTEM FOR MICHELSON INTERFEROMETERS

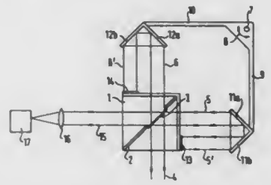
Harald Rippel, München, Fed. Rep. of Germany, assignor to Erwin Kayser - Threde GmbH, Munich, Fed. Rep. of Germany

Filed Nov. 16, 1989, Ser. No. 437,198

Claims priority, application European Pat. Off., Nov. 17, 1988, 88119124.1

Int. Cl.[5] G01B *9/02*

U.S. Cl. 356—346 **10 Claims**



1. A reflector system for a Michelson interferometer, comprising:

a beam splitter arranged in a measurement beam path and having a partially transparent reflector for dividing a measurement light beam into first and second split beam paths;

first and second multi-reflecting arrangements respectively arranged in said first and second split beam paths for reflecting an incident light beam parallel to its incident beam path;

first and second mirrors respectively arranged in said parallel beam paths of said first and second multi-reflecting arrangement for reflecting light beam incident thereon back to said first and second multi-reflecting arrangements;

a movable two-arm pendulum for carrying said first and second multi-reflecting arrangements; and

a carrier for carrying said beam splitter and said first and second mirrors, said carrier being formed of one unitary piece, wherein said one unitary piece comprises first and second perpendicular side walls, said beam splitter being mounted on a diagonal wall between planes of said first and second side walls, and said first and second mirrors being respectively mounted on said first and second side walls on surfaces opposite said beam splitter.

5,066,991

SEMICONDUCTOR DIODE AND METHOD

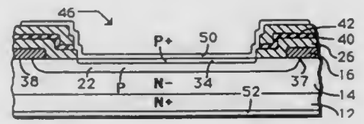
Kevin B. Jackson, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 456,913, Dec. 26, 1989, Pat. No. 4,978,636.

This application Aug. 20, 1990, Ser. No. 570,200

Int. Cl.[5] H01L *29/90, 21/94*

U.S. Cl. 357—13 **3 Claims**

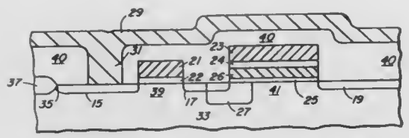


1. A passivated diode comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

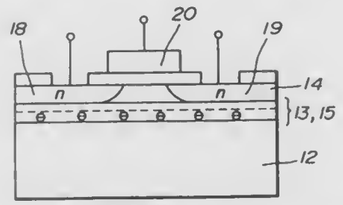
a substrate of a first conductivity type and with a lightly doped surface;
a first doped region of a second conductivity type opposite the first type in the substrate and extending to the surface and forming a PN junction with the substrate intersecting the surface; and
a passivation layer extending above the intersection of the PN junction with the surface, comprising, a thermal oxide against the surface, a first deposited oxide over the thermal oxide, a nitride over the first deposited oxide, and a second deposited oxide over the nitride.

5,066,992
PROGRAMMABLE AND ERASABLE MOS MEMORY DEVICE
Tsung-Ching Wu, San Jose, and Geeng-Chuan Chern, Cupertino, both of Calif., assignors to Atmel Corporation, San Jose, Calif.
Continuation of Ser. No. 370,731, Jun. 23, 1989, abandoned, which is a division of Ser. No. 332,879, Apr. 3, 1989, abandoned.
This application Oct. 29, 1990, Ser. No. 609,017
Int. Cl.[5] H01L *29/78*
U.S. Cl. 357—23.5 4 Claims



1. An electrically programmable and electrically erasable MOS memory device comprising,
a semiconductor substrate of a first conductivity type with at least one active memory area defined therein,
a field isolation oxide layer disposed on the substrate in all nonactive areas,
a plurality of implants of a second conductivity type extending to a first depth, having a first doping concentration and having edges spaced lengthwise apart in said active memory area, said implants defining first and second channels therebetween,
a program-and-erase implant of said second conductivity type extending to a second depth, greater than the first depth, and located in said active memory area, said program-and-erase implant overlapping one of said plurality of spaced apart implants in said active memory area and extending into said second channel,
a relatively thin oxide tunnel layer disposed over the entire second channel including over that portion of said program-and-erase implant which extends into said second channel,
a relatively thick oxide layer disposed over the entire first channel,
a polysilicon floating gate disposed over said thin oxide tunnel portion above said second channel, said floating gate having opposed edges, one of the edges aligned with one edge of two of said plurality of implants of the second conductivity type, said floating gate also covering said portion of said program-and-erase implant which extends into said second channel with said thin oxide tunnel portion therebetween, said thin oxide tunnel portion underlying the entire length of said floating gate,
a polysilicon select gate disposed over said relatively thick oxide layer above said first channel, thereby forming a select transistor,
a interpoly insulation layer of substantially uniform thickness disposed over said floating gate, and
a control gate disposed over said interpoly insulative layer and capacitively coupling to said floating gate for enabling tunneling of charge carriers between said program-and-erase implant and said floating gate through said thin oxide tunnel portion.

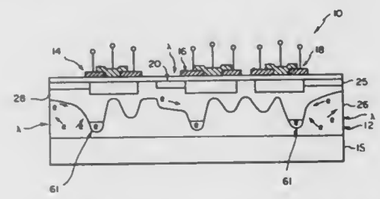
5,066,993
SEMICONDUCTOR DEVICE HAVING SEMICONDUCTOR-ON-INSULATOR STRUCTURE
Takao Miura, Tokyo, and Kazunori Imaoka, Komae, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed Dec. 7, 1989, Ser. No. 447,524
Claims priority, application Japan, Dec. 8, 1988, 63-310458
Int. Cl.[5] H01L *29/78*
U.S. Cl. 357—23.7 8 Claims



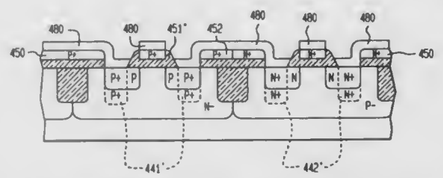
1. A semiconductor-on-insulator structure comprising:
a base substrate having a main surface;
an insulator layer at least on the main surface of said base substrate and having a top surface, said insulator layer including impurities therein establishing a first fixed charge in said insulator layer, said impurities having a predetermined density distribution relative to the distance from the top surface of the insulator layer and the top surface of the insulator layer having an impurity density which corresponds approximately to the maximum impurity density in the predetermined density distribution;
an active substrate of a semiconductor material and having a bottom surface bonded to and defining an interface with the top surface of the insulator layer, said active substrate having a second fixed charge at the interface of the insulator layer and said active substrate, said second fixed charge having a polarity opposite to that of said first fixed charge and a density corresponding to said maximum impurity density of said first charge; and
at least one semiconductor element formed in a region of said active substrate at least above the first fixed charge of said base substrate.

5,066,994
IMAGE SENSOR
Herbert J. Erhardt, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Mar. 31, 1989, Ser. No. 331,156
Int. Cl.[5] H01L *29/78*
U.S. Cl. 357—24 15 Claims

1. An image sensor comprising:
a semiconductor substrate of a first conductivity type, said substrate having opposed major surfaces and opposed edges between said surfaces, one of said edges having a surface which is receptive to light;
an image sensor element formed in said substrate and located adjacent said one edge, said image sensor element including a charge collection and transfer means and an image sensing region in which charge carriers are generated by light impinging on the surface of said one edge, said image sensor element further including means for creating a storage region in said substrate for receiving charge carriers generated by light impinging on said edge surface and means for effecting the transfer of charge carriers from said storage region to said charge collection and transfer means; and
means in said substrate for guiding charge carriers in said image sensing region into said storage region.

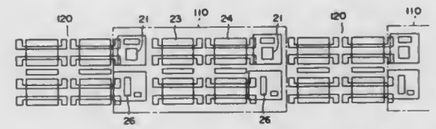


5,066,995
DOUBLE LEVEL CONDUCTOR STRUCTURE
William R. Young, and Anthony L. Rivoli, both of Palm Bay, Fla., assignors to Harris Corporation, Melbourne, Fla.
Filed Mar. 13, 1987, Ser. No. 25,435
Int. Cl.[5] H01L *27/02, 29/04, 29/06*
U.S. Cl. 357—42 5 Claims



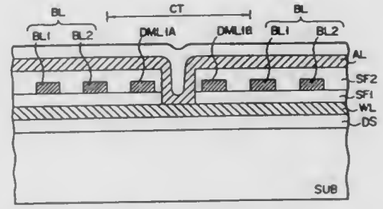
1. A complementary field effect transistor device comprising:
a silicon substrate having a sidewall isolating region defining a first and second isolated region on a first and second side of said sidewall isolating region respectively, wherein said first isolated region is of a first conductivity type, and said second isolated region is of a second conductivity type,
a dielectric layer covering portions of said first and second isolated regions,
a first semiconductor layer formed on said dielectric layer and, a second semiconductor layer formed on said first semiconductor layer and on said substrate, and wherein said second semiconductor layer has a first resistance to the passage of impurities therethrough, and said combined first and second semiconductor layers have a substantially greater resistance to the passage of impurities therethrough,
and wherein said first isolated region includes a source and a drain region of said second conductivity type and said second isolated region includes a source and a drain region of said first conductivity type, and
wherein a portion of said second semiconductor layer extends contiguously over said sidewall isolating region, and
further comprising drain extension regions which extend into said portion of said second semiconductor layer that extends contiguously over said sidewall isolating region.

5,066,996
CHANNELLESS GATE ARRAY WITH A SHARED BIPOLAR TRANSISTOR
Hiroyuki Hara, Tokyo; Yasuhiro Sugimoto, and Tetsu Nagamatsu, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 311,256, Feb. 16, 1989, abandoned.
This application Apr. 15, 1991, Ser. No. 684,513
Claims priority, application Japan, Feb. 19, 1988, 63-35171
Int. Cl.[5] H01L *27/02, 27/10*
U.S. Cl. 357—43 5 Claims



1. A semiconductor device having a channelless gate array, comprising:
a gate array chip; and
a plurality of standard cell rows disposed on said gate array chip such that no space exists between adjacent standard cell rows; each of said plurality of standard cell rows including a plurality of adjacent standard cells; each of said plurality of standard cells including a plurality of P-type and N-type MOS transistors, one bipolar transistor and one or more resistors; wherein said one bipolar transistor and said one or more resistors of each standard cell are shared by an adjacent standard cell to provide BiCMOS logic gates in each of said plurality of standard cell rows.

5,066,997
SEMICONDUCTOR DEVICE
Kiyofumi Sakurai; Syuso Fujii, both of Kawasaki, and Mitsuru Shimizu, Sakura, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Nov. 15, 1989, Ser. No. 436,646
Claims priority, application Japan, Nov. 15, 1988, 63-288438
Int. Cl.[5] H01L *27/10, 27/15*
U.S. Cl. 357—45 23 Claims



1. A semiconductor device comprising:
a semiconductor chip in which a plurality of circuit elements having essentially the same structure are arranged in a regular manner;
a first insulating layer formed on the semiconductor chip;
a plurality of first wiring lines connected to said circuit elements grouped in pair and arranged in parallel formed on said first insulating layer with a first predetermined interval between each of said wiring lines in the same pair and a second predetermined interval between said pairs said plurality of first wiring lines formed substantially in a first plane;
a second insulating layer formed on the plurality of first wiring lines;
a plurality of second wiring lines formed on said second insulating layer and arranged in parallel third and fourth

VOL 1132 ISS 3 NO 19 1991 UMI

predetermined intervals in a direction perpendicular to said first wiring lines, each of said second wiring lines having a plurality of segments extending through the first insulating layer, the first plane and the second insulating layer in the direction of said semiconductor chip at a plurality of first predetermined positions, said first predetermined positions being located within the second predetermined intervals; and

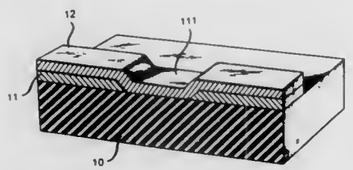
a plurality of first dummy wiring lines formed substantially in the first plane and in parallel with said first wiring lines, said first dummy wiring lines being arranged within said second predetermined interval such that a first dummy wiring line is between each first predetermined position and each pair of first wiring lines.

5,066,998

SEVERABLE CONDUCTIVE PATH IN AN INTEGRATED-CIRCUIT DEVICE

Frederick H. Fischer; Kuo-hua Lee, both of Lower Macungie Township, Lehigh County; William J. Nagy, Bethlehem, and Nur Selamoglu, Philadelphia, all of Pa., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Continuation of Ser. No. 374,423, Jun. 30, 1989, abandoned.
This application Aug. 20, 1990, Ser. No. 569,755
Int. Cl.[5] H01L *27/02, 23/48*
U.S. Cl. 357—51 2 Claims



1. An integrated circuit device comprising a conductive path which includes a programmable link,

said conductive path having: a uniform width, a bottom surface, a first top surface outside of said programmable link and a second top surface at said programmable link; and having a first thickness away from said programmable link and having a second thickness at said programmable link;

said first thickness being defined between a first reference plane said bottom surface and a second reference plane at said first top surface, and said second thickness being defined between said first reference plane and a third reference plane at said second top surface;

and said programmable link being of the same material as said conductive path.

5,066,999

RESISTOR UNDER WIREBOND PAD

Stephen L. Casper, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed Oct. 23, 1989, Ser. No. 425,675
Int. Cl.[5] H01L *27/02*
U.S. Cl. 357—51 12 Claims

1. IC apparatus comprising:

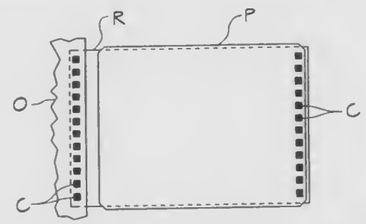
(a) a semiconductor substrate, having active circuitry formed thereon;

(b) a resistor including a layer of polysilicon disposed over said substrate;

(c) a wirebond pad, said wirebond pad being remote from said active circuitry;

(d) a first group of contacts, contacting said wirebond pad to said resistor; and

(e) a second group of contacts, contacting said resistor to other circuitry located on said substrate;



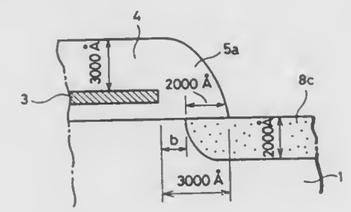
wherein said wirebond pad is disposed over a portion of said resistor.

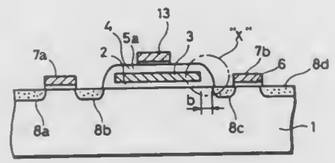
5,067,000

SEMICONDUCTOR DEVICE HAVING FIELD SHIELD ISOLATION

Takahisa Eimori; Shinichi Satoh; Wataru Wakamiya; Hiroji Ozaki, and Yoshinori Tanaka, all of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 9, 1989, Ser. No. 391,008
Claims priority, application Japan, Sep. 29, 1988, 63-247672
Int. Cl.[5] H01L *29/40, 27/01, 29/10, 27/02*
U.S. Cl. 357—53 13 Claims





1. A semiconductor device for electrically isolating a first device from a second formed on a common substrate therewith, comprising:

a semiconductor substrate of a first conductivity type having a major surface,

a conductor formed over a region of the semiconductor substrate and separated therefrom by an insulating film, said conductor having a lateral dimension extending at least in a lateral direction over said region of said semiconductor substrate,

first and second impurity regions of a second conductivity type opposite to the first conductivity type, formed on opposite sides of said conductor at predetermined lateral spacing therefrom along the major surface of said semiconductor substrate, said lateral spacing being established by a lateral thickness of sidewalls of said insulating film extending from said opposite sides of said conductor, and

said first impurity region being included in said first device and said second impurity region being included in said second device,

further comprising an interlayer insulating film on said conductor, said interlayer insulating film having a predetermined vertical thickness,

wherein said lateral thickness of said sidewalls of said insulating film extending from said opposite sides of said conductor corresponds to said predetermined vertical thickness of said interlayer insulating film,

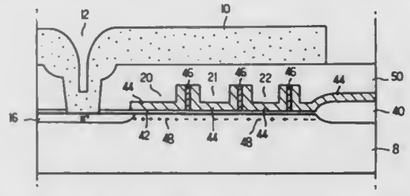
wherein said first and second impurity regions of said first and second devices are formed in said substrate and have a predetermined depth less than said predetermined thickness of said interlayer insulating film.

5,067,001

STRUCTURE AND METHOD FOR MANUFACTURING A SERIES READ ONLY MEMORY WITH SPACER FILM

Jung-Hyuk Choi, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Suwon, Rep. of Korea

Continuation of Ser. No. 359,125, May 31, 1989, abandoned.
This application Oct. 30, 1990, Ser. No. 607,760
Claims priority, application Rep. of Korea, May 5, 1989, 1989/6137[U]
Int. Cl.[5] H01L *29/34*
U.S. Cl. 357—54 24 Claims



21. A mask read only memory having a plurality of memory strings with a plurality of memory cells formed on a surface of a substrate of a first conduction type and connected between each of a plurality of contact regions of a second conduction type on the substrate and a reference region of the second conduction type, comprising:

gate oxide layers formed on the surface of said substrate on which said memory cells are formed;

channel regions having ions of the first conduction type under one of said memory cells adjacent to a connection region and oxide layers of a selected memory cell or cells;

channel regions having ions of the second conduction type under oxide layer or layers of a non-selected memory cell or cells;

a plurality of said channel regions being connected in series in each of said memory strings;

each of said memory strings having a plurality of spaced-apart side wall layers disposed over said channel regions, with each of said side wall layers in each of said memory strings being spaced-apart in an array disposed between said connection region and a reference region in order to isolate the memory cells in each of said memory strings; and

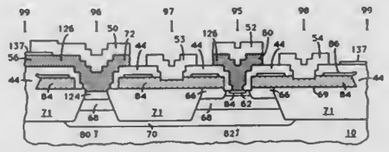
gate electrodes formed between side walls of the side wall layers and over each of said gate oxide layers and adjacent memory cells.

5,067,002

INTEGRATED CIRCUIT STRUCTURES HAVING POLYCRYSTALLINE ELECTRODE CONTACTS

Peter J. Zdebel, Mesa; Raymond J. Balda, Tempe; Bor-Yuan Hwang, Chandler, and Allen J. Wagner, Phoenix, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Division of Ser. No. 9,322, Jan. 30, 1987, Pat. No. 4,837,176.
This application Jan. 31, 1989, Ser. No. 304,984
Int. Cl.[5] H01L *29/04, 29/10, 27/02, 29/72*
U.S. Cl. 357—59 20 Claims



1. An electronic device comprising:

a semiconductor substrate having therein at least one region laterally enclosed by a dielectric isolation region and extending to a principal surface of said substrate;

a conductor layer on said substrate, having a first end extending onto a first portion of said dielectric isolation region and a second end extending onto a first portion of said one region;

an oxidation resistant layer on said conductor layer, having a third end extending beyond said first end of said conductor layer; and

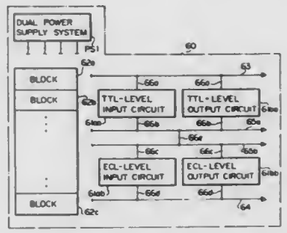
a dielectric layer of a material different than said oxidation resistant layer having a first portion above said oxidation resistant layer, and a second portion above said isolation region, and a third portion surrounding said third end of said oxidation resistant layer.

5,067,003

SEMICUSTOM-MADE SEMICONDUCTOR INTEGRATED CIRCUIT HAVING INTERFACE CIRCUIT SELECTIVELY COUPLED TO DIFFERENT VOLTAGE SOURCE

Hitoshi Okamura, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Sep. 19, 1990, Ser. No. 584,910
Claims priority, application Japan, Sep. 25, 1989, 1-248534
Int. Cl.[5] H01L *23/48, 25/16*
U.S. Cl. 357—68 15 Claims



1. A semicustom-made semiconductor integrated circuit fabricated on a single semiconductor chip, comprising:

a) a first high level voltage line;

b) a first low level voltage line;

c) a first interface circuit coupled between said first high level voltage lie and said first low level voltage line;

d) a second high level voltage line;

e) a second low level voltage line, said first high and low level voltage lines and said second high and low level voltage lines extending substantially parallel and adjacent to one another;

VOL 1132 ISS 3 NO 19 1991 UMI

f) a second interface circuit coupled between said second high level voltage line and said second low level voltage line; and

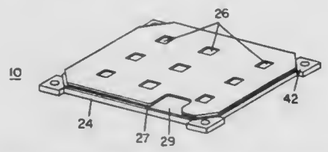
g) coupling means for alternatively coupling said first low level voltage line with said second high level voltage line and said first high and low level voltage lines with said second high and low level voltage lines, respectively, wherein said first high and low level voltage lines and said second high and low level voltage lines are coupled between either dual or single power supply system and said first and second interface circuits whereby coupling arrangements between said first and second high and low level voltage lines and said first interface circuit and between said second high and low level voltage lines and said second interface circuit in said dual power supply system being similar to coupling arrangements between said first high and low level voltage lines and said first interface circuit and between said second high and low level voltage lines and said second interface circuit in said single power supply system, said dual power supply system producing two power voltage levels different from each other, said single power supply system producing a single power voltage level.

5,067,004

MODULE FOR INTERCONNECTING INTEGRATED CIRCUITS

Donald E. Marshall, Harvard, Mass., and James B. McElroy, Cupertino, Calif., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Dec. 13, 1989, Ser. No. 450,219
Int. Cl.[5] H01L *23/48*
U.S. Cl. 357—71 16 Claims



1. A signal carrying arrangement for an electronic circuit, comprising:

a thermally conductive base, having a top surface and a body constructed to provide a rigid platform to enhance planarity and minimize warping of the signal carrying arrangement;

a plurality of electronic circuit die, each having a bottom surface mounted over the top surface of and thermally coupled to the base, having leads for carrying signals;

a multilayered substrate having a bottom surface disposed adjacent the top surface of the base, electrical conductors in layers of the substrate for interconnecting the die and a plurality of apertures for receiving the respective die therein; and

an electrical connector arrangement to coupled signals between the leads of the electronic circuit die and the electrical conductors in the substrate.

5,067,005

SEMICONDUCTOR DEVICE

Kazunari Michii, and Masataka Takehara, both of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Continuation of Ser. No. 571,127, Aug. 23, 1990, abandoned. This application Mar. 26, 1991, Ser. No. 675,040
Claims priority, application Japan, Aug. 28, 1989, 1-218660
Int. Cl.[5] H01L *23/28*
U.S. Cl. 357—72 10 Claims

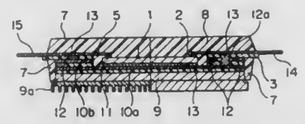
1. A resin-packaged semiconductor device comprising:

a semiconductor element having obverse and reverse surfaces and a plurality of electrodes on said obverse surface;

an insulating tape peripherally disposed around said semiconductor element and having obverse and reverse surfaces;

a plurality of leads, each having inner and outer ends and including a power supply lead, a grounding lead, and signal line leads, fixed to said obverse surface of said insulating tape, said leads being connected at their inner ends to respective electrodes, the outer ends of said leads extending beyond said insulating tape;

capacitive circuit means on which said semiconductor element, said insulating tape, and said plurality of leads are mounted, said capacitive circuit means including first and second electrically conductive plates respectively electri-



cally connected to at least one of said plurality of leads and said semiconductor element, and first and second insulating layers, said second insulating layer being disposed between said electrically conductive plates to form a decoupling capacitor, said reverse surface of said semiconductor element being disposed on said first insulating layer;

a heat radiating layer disposed on said first insulating layer opposite said semiconductive element for radiating heat generated in the semiconductor device; and

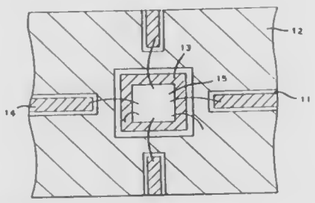
a resin encapsulating said semiconductor element, said first and second conductive plates, and said first and second insulating layers, the outer end portions of said leads extending from the resin and at least part of said heat radiating layer not being encapsulated by said resin.

5,067,006

SEMICONDUCTOR DEVICE

Nobuo Shiga, Yokohama, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed Aug. 15, 1990, Ser. No. 567,814
Claims priority, application Japan, Aug. 28, 1989, 1-220847
Int. Cl.[5] H01L *23/02*
U.S. Cl. 357—74 3 Claims



1. A semiconductor device comprising:

an insulating substrate;

a first conducting pattern and a second conducting patter formed on said substrate, said first conducting pattern and said second conducting pattern being electrically insulated from each other and said second conducting pattern being connected to ground; and

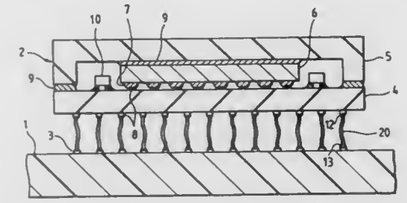
a semiconductor chip having (a) a reception circuit formed therein, said reception circuit including a capacitor, and (b) a metal film formed on a back surface of said chip, said chip being die-bonded on said first conducting pattern, said capacitor being formed in said chip and including a first terminal and a second terminal, one of said first terminal and said second terminal being electrically connected to said first conducting pattern, whereby an electrical potential of said capacitor is transmitted to said metal film.

5,067,007

SEMICONDUCTOR DEVICE HAVING LEADS FOR MOUNTING TO A SURFACE OF A PRINTED CIRCUIT BOARD

Otsuka Kanji, Higashiyamato; Kato Masao, Hadano; Kumagai Takashi, Isehara; Usami Mitsuo; Kuroda Shigeo, both of Ohme; Sahara Kunizo, Nishitama; Yamada Takeo, Koganei; Miyamoto Seiji, Fuchuu; Shirai Yuuji, Kodaira; Okinaga Takayuki, Akishima; Kubo Kazutoshi, Akishima; Tachi Hiroshi, Akishima, and Kawashima Masayuki, Higashimurayama, all of Japan, assignors to Hitachi, Ltd. and Hitachi VLSI Engineering Corp., both of Tokyo, Japan

Continuation of Ser. No. 363,750, Jun. 9, 1989, abandoned. This application Jan. 24, 1991, Ser. No. 645,357
Claims priority, application Japan, Jun. 13, 1988, 63-145203
Int. Cl.[5] H01L *23/12, 21/60*
U.S. Cl. 357—74 11 Claims



1. A semiconductor device having leads for mounting to a printed circuit board surface, comprising:

an insulating substrate having a plurality of first electrodes arranged on one side of said substrate, said first electrodes being electrically connected to the other side of said substrate by internal wirings;

a semiconductor chip having integrated circuits and external terminals formed on one surface of said chip, said chip mounted to said other side of said substrate so that said external terminals are electrically connected to said first electrodes by said internal wirings;

said leads having first and second connecting junctions, said first connecting junctions connecting to said first electrodes, and said leads extending substantially perpendicular to said substrate; and

a plurality of second electrodes arranged on one side of said printed circuit board surface, said second connecting junctions mounted to said second electrodes of said circuit board surface to electrically connect said external terminals of said chip to said second electrodes,

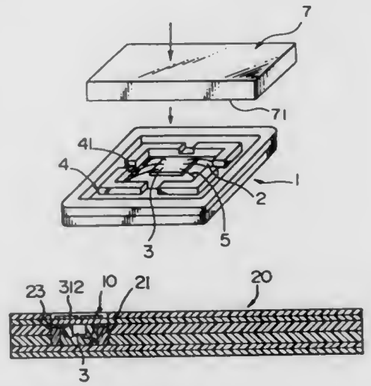
wherein said leads have a deformation strength that is smaller than the junction strength at each connecting junction of the leads and the electrodes, said leads comprising any one of tungsten, molybdenum, carbon amorphous metal, or bundles of composite fine wires; pseudo elastic material consisting any of Ti-Ni, Ag-Cd, Cu-Al-Ni, Ti-Ni-Fe alloy; ultra-high tension material a heat resistant ultra-high tension material.

5,067,008

IC PACKAGE AND IC CARD INCORPORATING THE SAME THEREINTO

Yoshimi Yanaka, Toride, and Keiji Miyamoto, Ibaraki, both of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Filed Aug. 7, 1990, Ser. No. 563,628
Claims priority, application Japan, Aug. 11, 1989, 1-209360
Int. Cl.[5] H01L *23/02*
U.S. Cl. 357—81 13 Claims



1. An IC package comprising:

an integrated circuit chip;

a substrate on which said integrated circuit chip is mounted;

a wall for surrounding said integrated circuit chip provided on said substrate to define therebetween a cavity;

recess means provided in said surrounding wall for communicating with said cavity; and

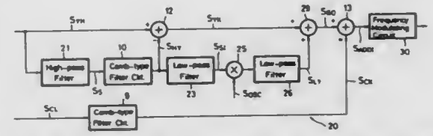
resin for filling said cavity and said recess means for sealing said integrated circuit chip.

5,067,009

APPARATUS FOR RECORDING AND/OR REPRODUCING A COMPONENT VIDEO SIGNAL HAVING A LUMINANCE SIGNAL OF A WIDE FREQUENCY BAND AND A CHROMA SIGNAL IN A BAND BELOW THE HIGH END OF THE LUMINANCE SIGNAL BAND AND WITHIN THE LATTER

Shigeru Ganse, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 3, 1990, Ser. No. 503,768
Claims priority, application Japan, Apr. 6, 1989, 1-88317
Int. Cl.[5] H04N *9/85*
U.S. Cl. 358—12 17 Claims



1. In an apparatus for recording a component video signal having a luminance signal of a relatively wide frequency band so as to reproducible for obtaining a picture of high resolution and a chroma signal in a chroma band included within said frequency band of the luminance signal and being substantially below the high end thereof, a signal processing circuit comprising:

means receiving said luminance signal for separating there-

VOL 1132 ISS 3 NO 19 1991 UMI

from a slant direction luminance signal formed of slant direction luminance information in a frequency band that includes and extends substantially above said chroma band;

means for suppressing said luminance signal by said slant direction luminance signal so as to obtain a suppressed luminance signal;

frequency-converting means for frequency-converting a component of said slant direction luminance signal in said chroma band to a frequency-converted slant direction luminance signal which is frequency interleaved with said suppressed luminance signal and which is in a frequency band higher than said chroma band;

means for frequency interleaving said chroma signal with said suppressed luminance signal; and

means for adding said suppressed luminance signal, said frequency-converted slant direction luminance signal and said chroma signal interleaved with the suppressed luminance signal so as to provide an added signal to be recorded.

5,067,010

COLOR VIDEO SIGNAL PROCESSING DEVICE WITH ENCODING AND COMPRESSION

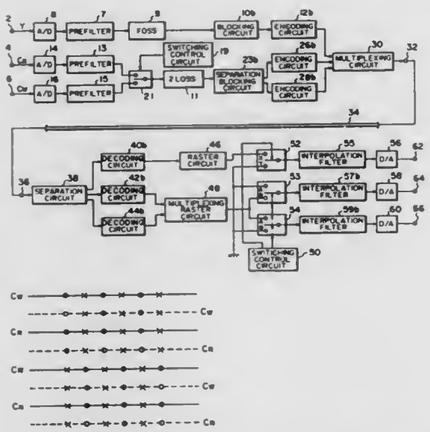
Yoshiki Ishii, Hadano, and Makoto Shimokoriyama, Zama, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 6, 1989, Ser. No. 334,196

Claims priority, application Japan, Apr. 11, 1988, 63-90105; Apr. 11, 1988, 63-90106; Apr. 11, 1988, 63-90107; Apr. 11, 1988, 63-90108; Apr. 12, 1988, 63-89539; Apr. 13, 1988, 63-90799

Int. Cl.[5] H04N *11/04*

U.S. Cl. 358—13 **21 Claims**



1. A color video signal processing device comprising:

(a) color subsampling means for thinning out pixels for a whole picture plane with respect to each of two kinds of digital color difference signals in accordance with a predetermined rule, said color subsampling means executing a field offset subsampling;

(b) color blocking means for forming color blocks each consisting of (n×m) pixels (n and m being integers not less than 2) with respect to each of the two kinds of color difference signals whose pixels were thinned out by said subsampling means; and

(c) color encoding means for encoding and compressing each of the two kinds of color difference signals whose pixels are thinned out by said subsampling means and divided into said color blocks by said color blocking means, color block by color block.

5,067,011

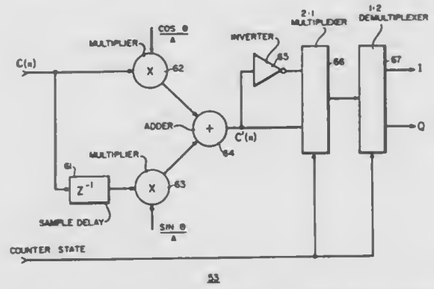
METHOD AND APPARATUS FOR DEMODULATING CHROMINANCE SIGNALS USING A TRAINING SIGNAL IN PLACE OF A COLOR BURST SIGNAL

Carlo Basile, Flushing; Alan P. Cavallerano, Ossining, and Mikhail Tsinberg, Riverdale, all of N.Y., assignors to North American Philips Corporation, New York, N.Y.

Continuation of Ser. No. 346,323, May 1, 1989, Pat. No. 4,947,241, which is a continuation of Ser. No. 224,203, Jul. 22, 1988, abandoned, which is a continuation of Ser. No. 57,880, Jun. 2, 1987, abandoned. This application Jun. 27, 1990, Ser. No. 545,329

Int. Cl.[5] H04N *9/66*

U.S. Cl. 358—23 **6 Claims**



2. A television receiver comprising apparatus for demodulation chrominance signals present in a conventional television signal transmitted over a transmission path, said television signal comprising a training signal having a place of a conventional color burst signal, a color subcarrier portion occurring during the vertical blanking intervals of said television signal, said apparatus comprising:

reference means for providing a reference signal corresponding to said training signal as transmitted;

means for sampling said training signal from said television signal thereby providing a second signal which represents said training signal as received over said transmission path;

means coupled to said sampling means for processing said second signal with respect to said reference signal so as to generate a plurality of coefficients comprising $\sin\theta/A$ and $\cos\theta/A$, whereθ is represents the phase difference between said second signal and a sampling signal and A represents the gain of the transmission path; and

means coupled to said processing means, for utilizing said coefficients to demodulate said chrominance signals.

5,067,012

METHODS AND SYSTEMS FOR SCANNING AND INSPECTING IMAGES

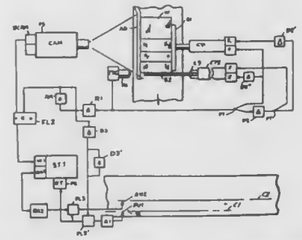
Jerome H. Lemelson, 48 Parkside Dr., Princeton, N.J. 08540

Continuation of Ser. No. 906,969, Sep. 15, 1986, which is a continuation of Ser. No. 723,183, Apr. 15, 1985, Pat. No. 4,660,086, which is a continuation of Ser. No. 394,946, Jul. 2, 1982, Pat. No. 4,511,918, which is a division of Ser. No. 13,608, Feb. 16, 1979, Pat. No. 4,338,626, which is a division of Ser. No. 778,331, Mar. 16, 1977, Pat. No. 4,148,061, which is a continuation of Ser. No. 254,710, May 18, 1972, Pat. No. 4,118,730, which is a continuation-in-part of Ser. No. 267,377, Mar. 11, 1963, abandoned, which is a continuation-in-part of Ser. No. 626,211, Dec. 4, 1956, Pat. No. 3,801,379, and a continuation-in-part of Ser. No. 477,467, Dec. 24, 1954, abandoned. This application Mar. 27, 1990, Ser. No. 500,287

The portion of the term of this patent subsequent to Oct. 3, 1995, has been disclaimed.

Int. Cl.[5] H06N *7/18*

U.S. Cl. 358—93 **8 Claims**



1. An automatic inspection apparatus comprising:

(a) means for positioning an object to be inspected at an inspection work station;

(b) electronic scanning means disposed at the work station for examining the object under inspection;

(c) said scanning means including means for generating analog information signals that are representative of variations in the physical characteristics of the object under inspection;

(d) means for effecting relative movement between the object under inspection and the electronic scanning means so as to present different portions of the object in the field scanned by the scanning means; and

(e) electronic circuit means for analyzing the information content of the analog information signals generated by the electronic scanning means.

5,067,013

PROCEDURE AND APPARATUS FOR LOCATING A CONTAINER FOR LIFTING

Mikko Lindholm, and Pentti Vähä, both of Oulu, Finland, assignors to Kone OY, Helsinki, Finland

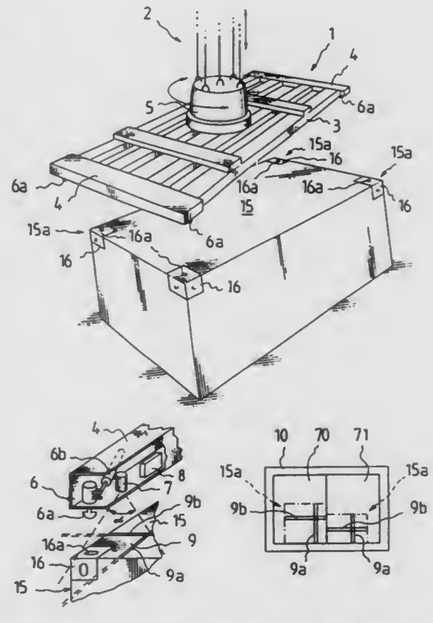
Filed Dec. 7, 1990, Ser. No. 623,767

Claims priority, application Finland, Dec. 8, 1989, 895892

Int. Cl.[5] H04N *7/18*

U.S. Cl. 358—93 **11 Claims**

1. Procedure for locating a container to enable the loading device of a container crane, or an equivalent container handling apparatus, to be moved into position for interlocking means of graspers of the loading device to be engaged with corner pieces of the container so as to allow the container to be lifted; wherein the area below the loading device is observed by means of video devices placed in the vicinity of at least two of the interlocking means such that, based on the video data obtained from each video device, the edges and/or corner pieces of the container are recognized, and, by the aid of video information derived from said video data, the loading device is brought into the correct position in relation to the container so



that the interlocking means of the graspers can be fastened to the corner pieces of the container.

5,067,014

THREE-FRAME TECHNIQUE FOR ANALYZING TWO MOTIONS IN SUCCESSIVE IMAGE FRAMES DYNAMICALLY

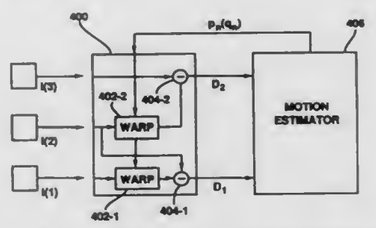
James R. Bergen, Hopewell Township, Mercer County; Peter J. Burt, Princeton Township, Mercer County; Rajesh Hingorani, Plainsboro Township, Middlesex County, all of N.J., and Shmuel Peleg, Jerusalem, Israel, assignors to David Sarnoff Research Center, Inc., Princeton, N.J.

Filed Dec. 13, 1990, Ser. No. 624,343

Claims priority, application United Kingdom, Jan. 23, 1990, 9001468

Int. Cl.[5] G06K *9/36*

U.S. Cl. 358—105 **18 Claims**



1. A feedback loop for iteratively motion-processing image-data pixels within respective analysis regions of a first-occurring frame, a second-occurring frame, and a third-occurring frame of a motion-picture during each of successive cycles of

VOL 1132 ISS 3 NO 19 1991 UMI

operation thereof; wherein the image-data pixels within said analysis regions of these motion-picture frames may define first and second differently-moving patterns; said feedback loop comprising:

first warp means for shifting the position of said first of said moving patterns within said first-occurring frame analysis region toward the position of said first of said moving patterns within said second-occurring frame analysis region by an amount determined by the value of a warp-control signal applied to said first warp means during any odd cycle of iterative operation of said feedback loop;

second warp means for shifting the position of said first of said moving patterns within said second-occurring frame analysis region toward the position of said first of said moving patterns within said third-occurring frame analysis region by an amount determined by the value of said warp-control signal applied to said second warp means during that odd cycle of iterative operation of said feedback loop;

first computation means coupled to said first warp means for performing a predetermined computation on corresponding image-data pixel values of said second-occurring frame and said shifted-pattern first-occurring frame for deriving first computation image data;

second computation means coupled to said second warp means for performing said predetermined computation on corresponding image-data pixel values of said third-occurring frame and said shifted-pattern second-occurring frame for deriving second computation image data; and

motion estimation means, responsive to both said first and said second computation image data derived during that odd cycle of iterative operation, for computing a first warp-control-signal value for application to said first and second warp means during the immediately following even cycle of iterative operation, which first computed value results in the position of said second of said moving patterns within said respective first-occurring and second-occurring frame analysis regions being shifted toward the position of said second of said moving patterns within said respective second-occurring and third-occurring frame analysis regions by an amount determined by said first computed value.

5,067,015

METHOD OF PROCESSING VIDEO IMAGE DATA FOR USE IN THE STORAGE OR TRANSMISSION OF MOVING DIGITAL IMAGES

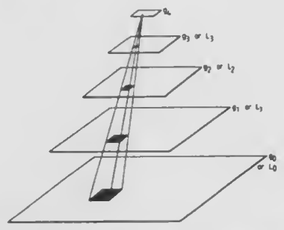
Brian L. Combridge; David Robson, and Daniel R. E. Timson, all of Stevenage, United Kingdom, assignors to British Aerospace Public Limited Company, London, England

Filed Jun. 18, 1990, Ser. No. 539,814

Claims priority, application United Kingdom, Jun. 28, 1989, 8914843

Int. Cl.[5] H04N *7/13*

U.S. Cl. 358—133 **15 Claims**



1. A method of processing video image data for use in the storage or transmission of moving digital video images, comprising the steps of:

decomposing each frame image into an equivalent set of sub-images containing information on different length scales,

deriving encoded prediction rules from the sub-images decomposed in said decomposing step;

approximating each sub-image using data from the immediately preceding compressed sub-image and data from the current sub-image to produce compressed data of an image for subsequent storage or transmission to a receiver; and

reconstructing de-compressed current frame data, after retrieval or receipt, by comparison of the compressed data received for the current frame image with a reconstruction of the preceding frame image.

5,067,016

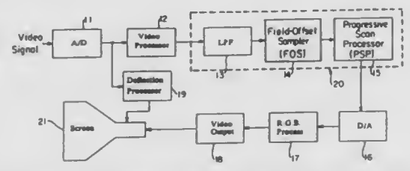
PROGRESSIVE SCAN SYSTEM WITH FIELD-OFFSET SAMPLING

Jinn-Shyan Wang, Hsin-Chu, China, assignor to Industrial Technology Research Institute, Taiwan

Filed Mar. 7, 1990, Ser. No. 489,808

Int. Cl.[5] H04N *7/01, 7/18, 7/12, 11/06*

U.S. Cl. 358—140 **8 Claims**



1. A method for generating non-interlaced video signals for displaying a picture having a higher displayed line-rate than the combined rate of the fields of a standard interlaced incoming video signal, comprising the steps of:

sub-sampling the incoming interlaced video signal so that the signal in the first field is sub-sampled with diagonal offset with respect to that in the second field;

generating interpolated line signals from said subsampled interlaced signal; and

using the higher displayed line-rate, interposing, with diagonal offset, each interpolated line signal generated between two adjacent sub-sampled interlaced line signals.

5,067,017

COMPATIBLE AND SPECTRUM EFFICIENT HIGH DEFINITION TELEVISION

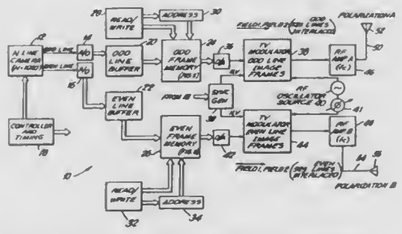
Leo Zucker, 2591 Dunning Dr., Yorktown Heights, N.Y. 10598

Continuation-in-part of Ser. No. 303,917, Jan. 30, 1989, Pat. No. 4,905,084. This application Feb. 13, 1990, Ser. No. 479,340

The portion of the term of this patent subsequent to Feb. 27, 2007, has been disclaimed.

Int. Cl.[5] H04N *17/04, 11/06, 5/44, 7/08*

U.S. Cl. 358—141 **24 Claims**



1. Television transmitting apparatus, comprising:

image source means for generating image line signals corresponding to an image frame having a resolution of N scan lines, wherein successive lines n comprising the image frame are consecutively numbered from n=1 to N;

first modulator means coupled to the image source means for modulating image line signals corresponding to odd numbered lines of the image frame on a first radio frequency (RF) carrier wave signal of a certain phase to produce corresponding odd line image signals;

second modulator means coupled to the image source means for modulating image line signals corresponding to even numbered lines of the image frame on a second RF carrier wave signal of a certain phase to produce corresponding even line image signals; and

control means coupled to the image source means for causing the image source means to supply the image line signals to the first and the second modulator means so that corresponding portions of the image line signals are modulated on said carrier wave signals simultaneously with one another by both of said first and said second modulator means.

5,067,018

FREQUENCY-DIVISION MULTIPLEXING ARRANGEMENT FOR PREVENTING INTERFERENCE BETWEEN A MAIN TELEVISION SIGNAL AND A HELPER SIGNAL THEREOF

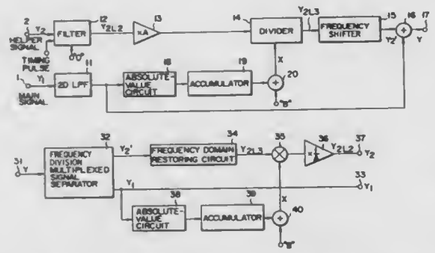
Noriya Sakamoto; Seijiro Yasuki, both of Yokohama, and Kiyoyuki Kawai, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 1, 1990, Ser. No. 531,745

Claims priority, application Japan, Jun. 7, 1989, 1-144947

Int. Cl.[5] H04N *7/04*

U.S. Cl. 358—142 **14 Claims**



1. A multiplexed signal transmitter comprising:

energy detecting means for detecting energy of a plurality of pixels of a main signal as a television signal;

level control means for controlling a level of a helper signal having a correlation with said main signal, based on a detection output of said energy detecting means; and

frequency-division multiplexing means for frequency-division multiplexing said helper signal having its level controlled by said level control means, with said main signal.

5,067,019

PROGRAMMABLE REMAPPER FOR IMAGE PROCESSING

Richard D. Juday, Houston, and Jeffrey B. Sampsell, Plano, both of Tex., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Mar. 31, 1989, Ser. No. 331,551

Int. Cl.[5] H04N *5/262*

U.S. Cl. 358—160 **16 Claims**

1. An image processing system comprising

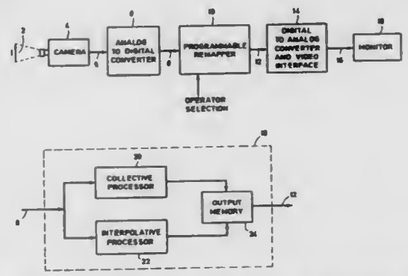
means for converting an image into a plurality of representative input pixels, said input pixels arranged in a first Cartesian matrix of i columns and j rows, each input pixel including a pixel value,

an output memory for storing representations of output pixels arranged in a second Cartesian matrix of k columns and n rows,

storage means for storing a plurality of look-up table sets, each look-up table set representative of a separate transformation of said input pixels into said output pixels,

processor means adapted to employ one of said look-up table sets for transforming said input pixel values into said output pixels, wherein said processor means includes,

a collective processor means for transforming the input pixel



values of a first set of input pixels into a corresponding first set of output pixels, said first set of input pixels characterized by the condition that the pixel values of more than one input pixel are transformed to affect one output pixel, and

an interpolative processor means for transforming the input pixel values of a second set of input pixels into a corresponding second set of output pixels, said second set of input pixels characterized by the condition that the pixel value of one input pixel affects the value of more than one output pixel, and

means for selecting one of said plurality of look-up tables sets for use by said processor means.

5,067,020

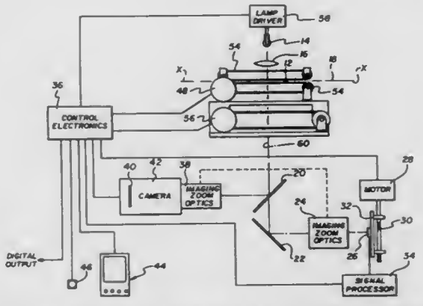
DUAL SENSOR FILM SCANNER HAVING COUPLED OPTICS AND A VIDEO VIEWFINDER

David L. Funston, Batavia, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 14, 1989, Ser. No. 450,762

Int. Cl.[5] H04N *5/253, 3/36*

U.S. Cl. 358—214 **9 Claims**



1. In an electronic scanning apparatus including means for projecting a selected image from a medium located in the film plane and bearing plural images, said apparatus including means for orienting the medium at each of a plurality of image-projecting positions, the improvement comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

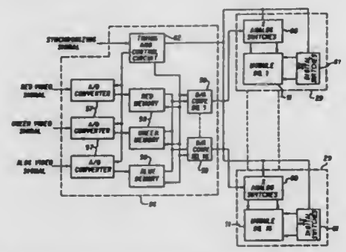
means for illuminating and projecting a selected one of said plural images;
a two dimensional array of light sensitive elements have a first output;
a linear array of light sensitive elements having a second output;
means for directing at least a portion of the light of said selected image onto each array;
display means for displaying the output of the two dimensional array for initially viewing said image; and
selecting the sensitivity of the light sensitive elements in each of the arrays such that their sensitivity which corresponds to the amount of light falling thereon, is such that the output of a light sensitive element in one array can be used to predict the corresponding output of the light sensitive elements in the other array based on the selected sensitivities.

5,067,021

MODULAR FLAT-SCREEN TELEVISION DISPLAYS AND MODULES AND CIRCUIT DRIVES THEREFOR

Thomas P. Brody, 5823 Kentucky Ave., Pittsburgh, Pa. 15232

Filed Jul. 21, 1988, Ser. No. 222,523
Int. Cl.[5] H04N *9/30*; H05B *37/00*
U.S. Cl. 358—241 16 Claims



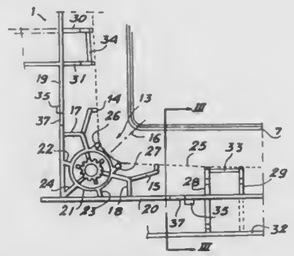
1. A flat-screen television display comprising:
A. a plurality of modules positioned adjacent each other to form an array the size of the desired flat-screen display;
B. each of said modules having a substrate with first and second major surfaces and edge surfaces, a matrix of picture elements extending over the first major surface of the substrate in a regular pattern with boundary picture elements adjacent the edge surfaces of the substrate to distances such that the regular pattern is continued substantially uninterrupted between adjacent said modules, a matrix of electrical switching elements extending over the first major surface of the substrate with each of said switching elements capable of activating one of said picture elements upon receiving electrical signals through both row and column conductive strips, said row and column conductive strips each extending over the first major surface from adjacent an edge surface to adjacent an opposite edge surface of the substrate such that each said switching element can be electrically activated by a row and a column conductive strip, an electrical drive circuit positioned adjacent the second major surface of the substrate and capable of electrically activating the switching elements in correspondence to desired video images to be formed by the picture elements over the first major surface, and interconnecting conductors electrically connecting the drive circuit with the row and column conductive strips on the first major surface and electrically insulated from similar interconnecting conductors of an adjacent module; and
C. an electrical control circuit capable of categorizing incoming video signals corresponding to the modules in the array and directing electrical signals corresponding to the categorized video signals to the drive circuit of each said module according to the portion of said desired video images to be reproduced by the picture elements on that module.

5,067,022

TELEVISION SET FASCIA

Dominique Huerre, Angers, and Jacques Mehu, Saint Barthelemy D'Anjou, both of France, assignors to Societe Electronique de la Region Pays de Loire, Courbevoie, France

PCT No. PCTFR/89/00515, § 371 Date May 14, 1990, § 102(e) Date May 14, 1990, PCT Pub. No. WO90/04902, PCT Pub. Date May 3, 1990
PCT Filed Oct. 6, 1989, Ser. No. 487,958
Claims priority, application France, Oct. 19, 1988, 88 13761
Int. Cl.[5] H04N *5/645*
U.S. Cl. 358—248 5 Claims



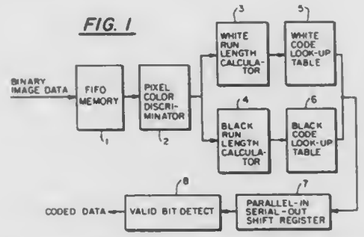
1. A television set fascia comprising:
an inner rim having a surface which faces and contacts a screen of a cathode-ray tube of said television set, said surface of said inner rim defining a step-portion of reduced thickness with respect to said inner rim for reducing debris caused by friction between said surface and said screen and catching the debris from said friction in said step portion; and
two elastic tabs for centering the cathode-ray tube located on each corner of an inner face of said fascia, said two elastic tabs being symmetrically arranged with respect to a bisector on each of said corners.

5,067,023

IMAGE DATA CODING APPARATUS

Eun J. Kim, Seoul, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jun. 28, 1990, Ser. No. 544,946
Claims priority, application Rep. of Korea, Jun. 29, 1989, 89-9105
Int. Cl.[5] H04N *1/419*
U.S. Cl. 358—261.1 4 Claims



1. An image data coding apparatus for coding binary image data, comprising:
a FIFO memory for sequentially reading binary image data, for outputting them in the inputted order;

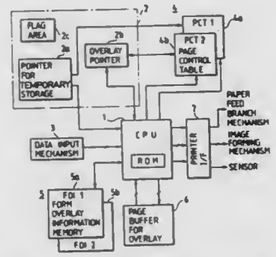
a pixel color discriminating section for discriminating the colors of the pixels outputted from said FIFO memory;
black and white run length calculating sections for calculating the run lengths of the pixels of which color has been discriminated by said pixel color discriminating section;
black and white code look-up tables for receiving the address of the code position corresponding to the pixel run lengths outputted from said black and white run length calculating sections;
parallel input/serial output shift registers for shifting the parallel data outputted by said look-up tables into serial data form; and
a valid bit detecting section for extracting only valid bits among serial data outputted from said parallel input/serial output shift register, and for generating parallel data in byte units.

5,067,024

RECORDING APPARATUS WITH CONTROL OF STORED OVERLAPPING FORM DATA FOR TWO SIDED PRINTING

Katsuhiko Anzai, Ichihara, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 374,657, Jun. 30, 1989, abandoned.
This application Mar. 15, 1991, Ser. No. 670,401
Claims priority, application Japan, Jul. 8, 1988, 63-168869
Int. Cl.[5] H04N *1/21, 1/23*
U.S. Cl. 358—296 11 Claims



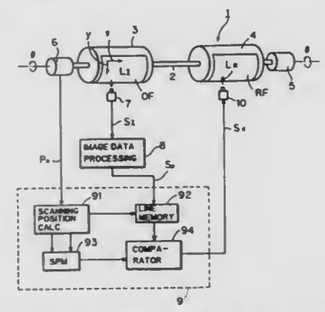
1. A recording control apparatus comprising:
input means for entering data from external equipment;
first and second memory means for storing form data;
output means for outputting to a recording means the data entered via said input means and the form data in an overlaid manner as recording data for a first face or a second face of a recording material;
first designating means for indicating that the form data is new form data to be overlaid;
second designating means for indicating that the form data is previous form data; and
control means for controlling said first and second memory means in such a manner that when first form data is entered from the external equipment, said first form data is stored in said first memory means, and when second form data is entered from the external equipment, said second form data is stored in said second memory means,
wherein said first designating means is adapted, in storage of the first form data, to designate said first memory means, and while said first designating means is adapted, in storage of the second form data, to designate said second memory means, said second designating means is adapted to designate said first memory means.

5,067,025

METHOD OF RECORDING HALFTONE DOT IMAGE

Osamu Kitagawa, Kyoto, Japan, assignor to Dainippon Screen Mfg. Co., Ltd., Japan

Filed Sep. 14, 1990, Ser. No. 582,236
Claims priority, application Japan, Sep. 14, 1989, 1-239056
Int. Cl.[5] H04N *1/23*
U.S. Cl. 358—298 15 Claims



1. A method of recording a halftone dot color image on a recording medium, comprising the steps of:
(a) separating an original image into a plurality of color component images;
(b) converting said plurality of color component images into a plurality of color component halftone dot images under a procedure including the following conditions (b-1) through (b-5);
(b-1) said plurality of color component halftone dot images have respective arrays of unit regions defining cells in halftone dot representation;
(b-2) said respective arrays of unit regions have a substantially same array pitch and a substantially same orientation;
(b-3) a plurality of core positions are defined in each unit region in said respective arrays;
(b-4) a plurality of linear dot elements which have a substantially same area and which extend from said plurality of core positions along respective predetermined directions are obtained in said unit regions when a halftone dot area rate of corresponding color component halftone dot image is in a predetermined range of dot area rate; and
(b-5) said respective predetermined directions are different for each color component halftone dot image; and
(c) overprinting said plurality of color component halftone dot images on a recording medium to obtain a halftone dot color image on said recording medium.

5,067,026

APPARATUS FOR RECORDING AND REPRODUCING A VIDEO SIGNAL

Shinji Kaneko, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Apr. 28, 1989, Ser. No. 344,827
Claims priority, application Japan, May 6, 1988, 63-110088; May 16, 1988, 63-118608
Int. Cl.[5] H04N *5/21, 9/80*
U.S. Cl. 358—340 2 Claims

1. An apparatus for recording and reproducing a video luminance signal comprising:
a record medium providing a transfer characteristic similar to that of a limiter in respect to a signal recorded on, and reproduced from said record medium;
frequency-modulating means for frequency-modulating an input video luminance signal so that a sine wave modulated signal is generated thereby as an output signal having a base band and low-order and high-order upper and

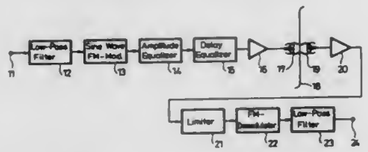
VOL 1132 ISS 3 NO 19 1991 UMI

lower side bands; p1 phase equalizer means connected to said frequency-modulating means for successively rotating a phase of said output signal of the frequency-modulating means, so that phases of said high-order upper and lower side bands are relatively shifted by about 180 degrees and brought into substantial equality with each other;

amplitude equalizer means for compensating for variations in the amplitude of the phase-rotated output signal caused by said phase equalizer means so that the level of the resulting amplified signal is suitable for the recording thereof;

means for recording said amplified signal from said amplifying means on the record medium;

pick-up means for reproducing said signal recorded on the record medium and providing therefrom a reproduced video luminance signal which includes noise and in which said high-order side bands are suppressed by said transfer characteristic similar to that of a limiter;



noise reducing means connected to said pick-up means for reducing said noise included in said reproduced video luminance signal, said noise reducing means including at least first and second serially connected signal processing circuits;

each of said signal processing circuits having a limiter which receives a respective input signal for equalizing amplitudes of upper and lower side band components of said respective input signal, a high-pass filter connected in series to said limiter of the respective signal processing circuit so as to receive an output signal of said limiter, a low-pass filter also connected to receive said input signal received by said limiter of said respective signal processing circuit and an adder for adding output signal of said high-pass filter and low-pass filter, respectively; and

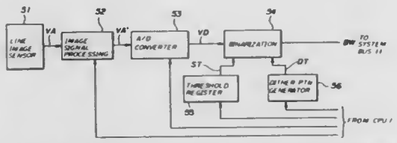
means for frequency demodulating an output signal or said second signal processing circuit.

5,067,027

IMAGE DATA TRANSMISSION METHOD AND APPARATUS

Satoshi Yano, Kawasaki, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 10, 1989, Ser. No. 392,044
Claims priority, application Japan, Aug. 18, 1988, 63-203787
Int. Cl.[5] H04N *1/00*
U.S. Cl. 358—439 **15 Claims**



1. An image data transmission method wherein a transmitter having a document reading system sends image data to a receiver having an image recording system, said method comprising the steps of:

calling said receiver from said transmitter;

letting the transmitter know an image recording characteristic of said image recording system provided in said receiver to said transmitter when said receiver is called, an image being recorded, by said image recording system, on a recording medium according to said image recording characteristic;

adjusting a document reading characteristic of said document reading system provided in the transmitter so as to match said image recording characteristic of the image recording system provided in said receiver, wherein when said image recording characteristic of the image recording system in the receiver is set to a low image density, said adjusting step adjusts said document reading characteristic to a high image density so as to match said image recording characteristic of the image recording system;

reading the document according to said document reading characteristic by said document reading system provided in said transmitter;

sending image data obtained by reading said document to said receiver; and

recording, by said image recording system provided in the receiver, an image formed by said image data supplied from said transmitter according to said image recording characteristic.

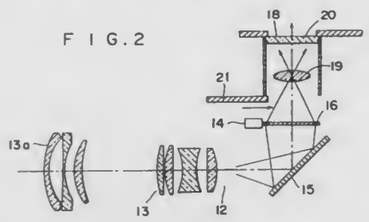
5,067,028

IMAGE PICKUP PRINTING DEVICE

Wataru Ogura, Suwa, and Hiroshi Kamijima, Okaya, both of Japan, assignors to Chinon Kabushiki Kaisha, Nagano, Japan

Continuation of Ser. No. 295,755, Jan. 11, 1989, abandoned. This application Sep. 25, 1990, Ser. No. 587,633
Claims priority, application Japan, Jan. 25, 1988, 63-13796
Int. Cl.[5] H04N *1/04*
U.S. Cl. 358—494 **1 Claim**

FIG. 2



1. An image pickup printing device comprising:

an objective lens;

an optical view-finder for monitoring an image through said objective lens, said optical view-finder including a reflection mirror for reflecting said image, a focusing plate for focusing said reflected image, and enlarging means for enlarging said focused image;

a line image sensor arranged to slide with said focusing plate, for scanning said focused image;

a line printer for printing an image obtained by said line image sensor; and

shutter means, comprising a shutter which is slidably movable into a position between said view-finder and said focusing plate, for preventing light from reaching said line image sensor via said view-finder, said shutter means further comprising driving means for automatically positioning said shutter into said position between said view-finder and said focusing plate upon starting said printing;

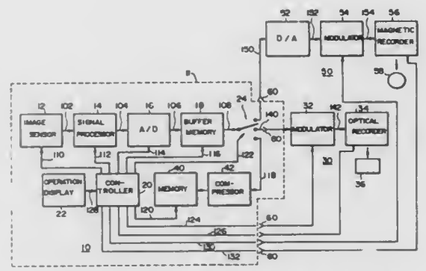
wherein said view-finder and said focusing plate are disposed along a common optical path.

5,067,029

ELECTRONIC STILL CAMERA CAPABLE OF SELECTING RECORDING MEDIA

Yohnosuke Takahashi, Shizuoka, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Apr. 6, 1989, Ser. No. 333,914
Claims priority, application Japan, Apr. 8, 1988, 63-85120
Int. Cl.[5] H04N *5/225*
U.S. Cl. 358—909 **8 Claims**



7. An electronic still camera for shooting an object field to record a still picture representative of the object field in a recording medium, comprising:

imaging means for shooting the object field to produce a video signal representative of the object field;

analog-to-digital signal converter means for converting said video signal produced from said imaging means into a digital signal corresponding to said video signal;

storage means for temporarily storing said digital signal produced from said analog-to-digital signal converter means, said storage means being operative at a plurality of readout speeds;

digital-to-analog signal converter means for converting said digital signal produced from said storage means into an analog signal corresponding to said digital signal;

first recording means for recording said analog signal developed from said digital-to-analog signal converter means in an analog, magnetic recording medium at a first recording rate;

signal compressing means for compressing said digital signal read out from said storage means to produce a resultant signal;

third recording means for recording said resultant signal produced from said signal compressing means in a semiconductor storage medium at a third recording rate lower than said first recording rate;

second recording means for recording said digital signal read out from said storage means in an optical storage medium at a second recording rate lower than said first recording rate and said third recording rate, at least one of said magnetic recording medium and said semiconductor storage medium being detachably connectable to a corresponding one of said first and second recording means;

selector means for delivering said digital signal read out from said storage means selectively to either one of said digital-to-analog signal converter means, and said second recording means said signal compressing means; and

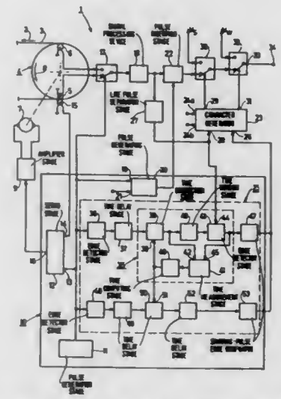
control means for controlling said imaging means, said analog-to-digital signal converter means, said storage means, said first and, second, and third recording means said selector means to read out said digital signal from said storage means to selectively supply said digital signal to either one of said first, second, and third recording means to any of said first, second, and third recording rates.

5,067,030

SYSTEM FOR REPRODUCING PICTURE SIGNALS AND INSERTING CHARACTER SIGNALS IN THE REPRODUCED PICTURE SIGNALS

Franz Kuchar, Vienna, Austria, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 7, 1989, Ser. No. 377,362
Claims priority, application Austria, Jan. 27, 1989, 164/89
Int. Cl.[5] G11B *27/02*; H04N *5/78*
U.S. Cl. 360—14.1 **3 Claims**



1. A system for reproducing a plurality of picture signals recorded in juxtaposed inclined tracks on magnetic tape and comprising a character generator for inserting character signals into said reproduced picture signals each of which comprises a plurality of line pulses, said system further comprising:

a) at least one rotatable magnetic head for consecutively scanning said tracks;

b) a pulse generating device coupled to said magnetic head, for generating a position-pulse at the beginning of each scan of a track by said magnetic head;

c) a control device comprising a detector for detecting a line pulse n, where n is an integer, from each of said picture signals, and means for generating a starting-pulse edge at a variable time interval defined by the position-pulse and the occurrence of said nth line pulse.

5,067,031

METHOD AND APPARATUS FOR PROCESSING VIDEO SIGNALS RECORDED ON OR RECOVERED FROM MAGNETIC MEDIA

Tatsuo Yamasaki, and Toshifumi Fujii, both of Kyoto, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 113,883, Oct. 27, 1987, abandoned. This application Mar. 6, 1990, Ser. No. 489,877
Claims priority, application Japan, Oct. 28, 1986, 61-257406; Nov. 19, 1986, 61-275689
Int. Cl.[5] G11B *5/02*; H04N *5/78*
U.S. Cl. 360—22 **3 Claims**

1. A recording apparatus for processing a video signal of one television field for recording on a magnetic recording medium comprising:

means for separating the video signal of one television field into a plurality of segments, each segment including a plurality of video lines;

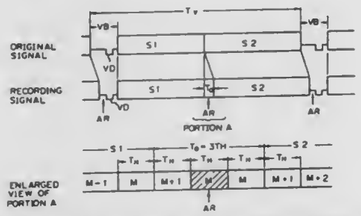
means for detecting a joint portion between adjoining segments;

means for inserting an additional time period between adjoining segments of the video signal;

a first means for inserting further signals into the additional

VOL 1132 ISS 3 NO 19 1991 UMI

time period, wherein said further signals include signals corresponding to signals of at least one video line included in at least one of the segments adjoining the detected joint portion wherein said signals of at least one video line are the signals of a first video line of the segment located immediately after the detected portion; and



a second means for inserting, into the additional time period, the signal of a last video line of the segment located immediately before the detected joint portion between the inserted signal of the first video line of the segment located immediately after the detected joint portion and the segment located immediately after the detected joint portion.

5,067,032

HEAD DRIVER

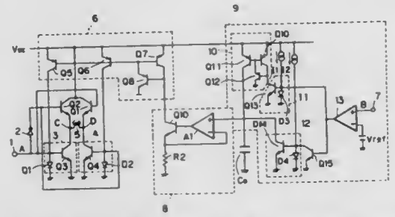
Shizuo Ida, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed May 17, 1989, Ser. No. 352,877

Claims priority, application Japan, Dec. 9, 1988, 63-312675

Int. Cl.[5] G11B *5/09, 5/02*

U.S. Cl. 360—46 **15 Claims**



1. A head driver for driving a coil head for recording a signal responsive to a current flowing through the coil head in a magnetic recording medium, comprising:

first and second source terminals for supplying first and second potentials, respectively;

a capacitor having first and second ends, said first end being connected to said first source terminal;

a control terminal for receiving a control signal having first and second levels for switching charging and discharging of said capacitor;

a charging and discharging circuit provided between said first and second source terminals, having an input connected to said control terminal and an output connected to said second end of said capacitor, for charging said capacitor in response to said first level of said control signal and discharging said capacitor in response to said second level of said control signal;

a voltage-current conversion circuit connected to said second end of said capacitor for converting a charging voltage of said capacitor to output a first current responsive to a level of the charging voltage; and

a first current supply circuit connected with said coil head and said voltage-current conversion circuit for supplying said first current output from said voltage-current conversion circuit to said coil head.

5,067,033

ROTATION CONTROL DEVICE USING REPRODUCED SYNCHRONIZING SIGNAL

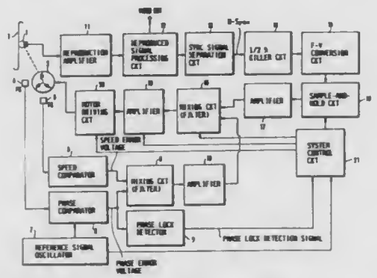
Tetsuya Wakui, Chiba, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 15, 1989, Ser. No. 369,011

Claims priority, application Japan, Jun. 21, 1988, 63-154515

Int. Cl.[5] G11B *21/04*

U.S. Cl. 360—70 **23 Claims**



1. A rotation control device comprising:

a) a rotary body for moving a recording medium and a head means relative to each other;

b) speed control means for detecting a speed deviation of said rotary body and for controlling a rotation speed of said rotary body according to the speed deviation detected;

c) phase control means for detecting a rotation phase deviation of said rotary body and for controlling a rotation phase of said rotary body according to the rotation phase deviation detected;

d) gate means for extracting a synchronizing signal in the video signal reproduced from the recording medium by said head means; and

e) synchronizing control means for synchronizing, when detecting that the rotation phase of said rotary body has been locked, said rotary body with the synchronizing signal extracted by said gate means.

5,067,034

TAPE RECORDER HAVING A BASE PLATE COMPRISED OF A SYNTHETIC MAIN PLATE HELD BETWEEN AND INTEGRAL WITH TWO AUXILIARY PLATES MADE OF A METAL MATERIAL

Kunio Kido, Wako, Japan, assignor to Tanashin Denki Co., Ltd., Tokyo, Japan

Filed Mar. 9, 1989, Ser. No. 321,177

Claims priority, application Japan, Jun. 15, 1988, 63-79327[U]; Oct. 27, 1988, 63-140807[U]; Nov. 22, 1988, 63-152895[U]

Int. Cl.[5] G11B *15/48*

U.S. Cl. 360—74.1 **2 Claims**

1. An automatic reversing tape recorder apparatus having a magnetic head, comprising:

a base plate, said base plate including a main base plate formed of a synthetic resin material, said main base plate being held between and integral to first and second auxiliary base plates each made of a metal material;

a pair of reel receivers disposed on said base plate, each of said reel receivers having a reel gear provide at a lower end portion thereof;

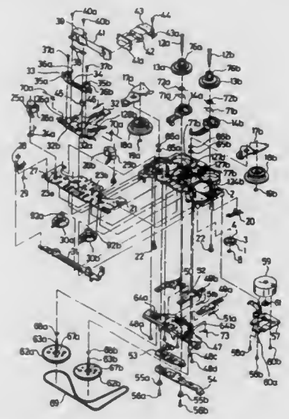
a pair of capstans selectively connected to said reel gears via a pair of fixed speed rotation transmitting gears or a pair of high speed rotation transmitting gears which transmit rotation of said capstans to said respective reel gears;

a pair of pinch roller supporting members each having a pinch roller supported for rotation thereon;

a pair of upright support shafts disposed on said first auxiliary base plate, each of said support shafts supporting a corresponding one of said pinch roller supporting members for pivotal motion thereon;

a plate-formed operating lever for operation of said tape recorder at a fixed speed operatively coupled to said magnetic head for moving said magnetic head to a tape reproducing position;

a pair of plate-formed operation levers for operation of said tape recorder at a high speed and a plate-formed stopping



operating lever supported for back and forth movement with respect to the main base plate;

a tape feeding direction reversing plate operatively coupled to said first auxiliary plate for reversing the tape feeding direction; and

at least one spacing formed in said main base plate for accommodating said reel gears, said fixed speed rotation transmitting gears and said high speed rotation transmitting gears.

5,067,035

ERROR PREVENTION IN A RECORDING AND REPRODUCING DEVICE WITH AT LEAST ONE ROTATING HEAD

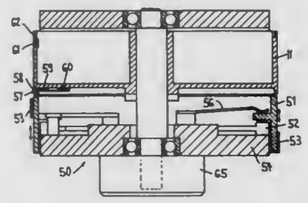
Stefan Kudelski, Le Mont; Jean-Claude Schlup, Cugy, and Ernest Rosselet, Assens, all of Switzerland, assignors to Kudelski SA fabrique de'enregistreurs Nagra, Chesequx, Switzerland

PCT No. PCT/CH87/00057, § 371 Date Mar. 17, 1989, § 102(e) Date Mar. 17, 1989, PCT Pub. No. WO88/09550, PCT Pub. Date Dec. 1, 1988

PCT Filed May 22, 1987, Ser. No. 314,063

Int. Cl.[5] G11B *15/665, 15/61*

U.S. Cl. 360—85 **3 Claims**



1. A device for recording/reproducing signals comprising at least one rotatable head for recording/reproducing said signals by helical scanning, comprising:

a flexible support having a plurality of tracks on which said signals are recorded/reproduced by said rotatable head;

a scanner with a rotatable drum bearing said at least one head, said flexible support being wound and shifted helically around said rotatable drum, said scanner further comprising a stationary drum bearing a helical ramp for laterally guiding said flexible support during its helical shifting around said rotatable drum; and

said device further comprising means for producing a resilient deformation of said stationary drum to enable modification of the step and angle of the helix of the helical ramp to correct for errors in the scanning of said tracks due to a modification of the moving speed of said flexible support.

5,067,036

CASSETTE LOADING MECHANISM FOR ACCOMMODATING CASSETTES OF VARIOUS SIZES

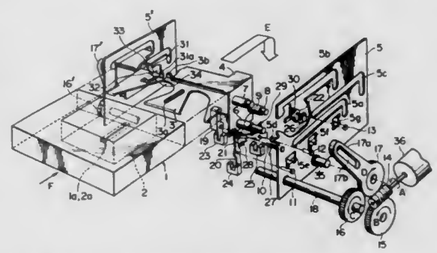
Tsugutaro Ozawa, Mito, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 21, 1990, Ser. No. 482,705

Claims priority, application Japan, Feb. 28, 1989, 1-045297

Int. Cl.[5] G11B *15/675, 15/18*

U.S. Cl. 360—96.5 **11 Claims**



1. A cassette loading mechanism comprising:

a cassette holder for holding a cassette positioned at a first position;

a support member for supporting said cassette holder so that said cassette holder can be moved along a predetermined path from said first position to a second position at which the cassette is arranged in a loaded position;

a driving member for moving said cassette holder along said path;

first detection means for detecting a movement of said cassette holder from said first position to said second position;

second detection means for detecting a movement of said cassette holder from said second position to said first position, wherein said driving member is controlled in accordance with an output from each of said first detection means and said second detection means;

specific position detection means for detecting a reaching of said cassette holder at a specific position along said predetermined path, said specific position being a position different from either said first position or said second position so that said driving member is controlled by an output from said specific position detection means during movement of said cassette holder from said second position to said first position and said cassette holder is stopped at said specific position, whereby said cassette can be pulled out from said cassette holder.

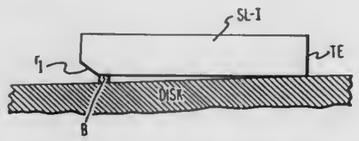
VOL 1132 ISS 3 NO 19 1991 UMI

5,067,037

SLIDER WITH BOSS

Raju S. Ananth, San Jose, and Michael A. Verdone, Hillsborough, both of Calif., assignors to Unisys Corp., Detroit, Mich.

Division of Ser. No. 422,186, Oct. 16, 1989, Pat. No. 5,034,828.
This application Mar. 5, 1991, Ser. No. 664,727
Int. Cl.[5] G11B *5/60*
U.S. Cl. 360—103 17 Claims



1. In a magnetic disk recording slider means for presenting transducer means, said slider means including disk-confronting slider face portions for defining a prescribed flight-plane in its moving transducing mode, the improvement therein of anti-stiction boss means disposed on each said disk-confronting portion face so as to project toward a subject disk, said boss means being adapted for spacing said face from a subject disk and comprising:

slug means disposed medically on forward portions, only, of at least some slider face portions, said slug means projecting sufficiently to cross this "flight plane" and barely extend therebeyond, and to thereby reduce "stiction", and pitch-up the slider means when the said slider is "landing", or is "taking-off" or is "at rest" on the associated disk.

5,067,038

ROTARY MAGNETIC HEAD DEVICE HAVING TWO DIFFERENT KINDS OF HEADS

Toshio Tsuchiya; Mitsuo Abe, both of Kanagawa; Nobuo Arai, Tokyo; Masumi Hisatomi, Kanagawa, and Hideo Zama, Ibaraki, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jul. 5, 1990, Ser. No. 548,628
Claims priority, application Japan, Jul. 5, 1989, 1-171784
Int. Cl.[5] G11B *5/52, 5/027, 15/60*
U.S. Cl. 360—107 7 Claims



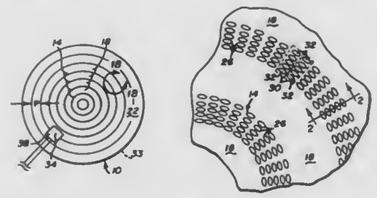
1. A helical scan type rotary magnetic head device comprising a rotary cylinder on which a magnetic tape is to be wound and magnetic head means mounted on and carried by said rotary cylinder, said magnetic head means being adapted to scan said magnetic tape in a slated direction with respect to a longitudinal direction of said tape, said magnetic head means including at least one thin film magnetic head composed of a non-magnetic substrate, a thin film magnetic core formed on said non-magnetic substrate and a thin film signal coil formed on said non-magnetic substrate, and at least one bulk type magnetic head composed of a bulk magnetic core and a signal coil wound on said bulk magnetic core.

5,067,039

HIGH TRACK DENSITY MAGNETIC MEDIA WITH PITTED OPTICAL SERVO TRACKS AND METHOD FOR STAMPING THE TRACKS ON THE MEDIA

Jimmy D. Godwin, and Stephen P. Williams, both of San Jose, Calif., assignors to Insite Peripherals, Inc., San Jose, Calif.

Filed Oct. 20, 1989, Ser. No. 424,658
Int. Cl.[5] G11B *5/596, 5/82*
U.S. Cl. 360—135 15 Claims



1. An information storage device having a magnetic layer suspended in a polymer binder coated on a substrate, comprising:

a magnetic medium having a flat substrate covered on a first side by a first magnetic coating;

a plurality of reduced reflectivity areas arranged to function as optical servo tracks on said first side of the magnetic medium, each of the areas having had its reflectivity to light reduced by means to disturb the surface contours of the first magnetic coating; and

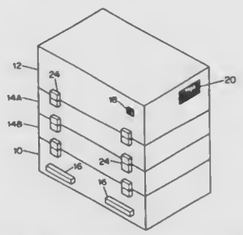
a plurality of areas for recording of magnetic data on said first side of the magnetic medium, substantially all of the individual areas for recording being positioned between each of the reduced reflectivity areas.

5,067,040

EXPANDABLE REFRIGERATED ENCLOSURE FOR COMPUTER BOARDS

Joel Fallik, 56 Arthur Pl., Yonkers, N.Y. 10701

Filed Sep. 24, 1990, Ser. No. 587,014
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—384 12 Claims



1. An expandable refrigerated enclosure for electronic circuit boards, comprising:

a first section suitable for enclosing an electronic circuit board and including data input and output means and an air-flow opening in a principal horizontal surface;

a service section including an air-flow opening in a principal horizontal surface cooperating with said first section air-flow opening, partition means for containing a space within said service section adjoining said service section air-flow opening, and thermoelectric cooling means for transferring heat through a secured opening in said partition to provide cooled air in said space; and

first and second data and power coupling means, respectively supported by said first section and said service section for releasably mating when said first section and service section air-flow openings are in cooperating alignment and for enabling releasable mating to data and power coupling means of an insertable expansion section which includes bottom and top air-flow openings adapted to cooperate with said air-flow openings of said first and service sections;

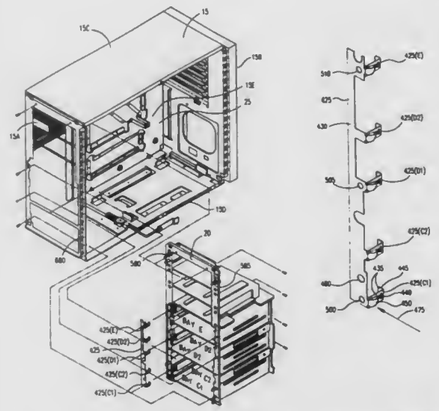
whereby a two section enclosure is adapted for insertion of an expansion section having cooperating air-flow openings and data and power coupling means and cooled air is enabled to flow through said cooperating air-flow openings between said first and service sections to cool an internal space which is enclosed to inhibit entry of external air.

5,067,041

APPARATUS FOR REDUCING ELECTROMAGNETIC RADIATION FROM A COMPUTER DEVICE

Kevin K. Cooke, Delray Beach; John R. Dewitt, and John E. McCloskey, both of Boca Raton, all of Fla., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 27, 1989, Ser. No. 428,390
Int. Cl.[5] H05K *5/02, 9/00;* H01R *13/648*
U.S. Cl. 361—394 22 Claims



1. An enclosure for a computer, said enclosure comprising:

(a) an electrically conductive case and a non conductive I/O mounting structure situated within said case, said I/O mounting structure including means defining a plurality of bays for receiving I/O devices;

(b) a retainer removably connectable to said case to hold I/O devices within said bays;

(c) a grounding spring in electrical contact with at least one of said I/O devices; and

(d) a shielding strip, in electrical contact with said grounding spring, including a main body portion extending longitudinally along a first side of said case and in intimate conductive contact therewith, said main body portion located intermediate said first side of said case and said I/O mounting structure, and a plurality of spring structures extending laterally away from said main body portion and toward said bays, each of said spring structures including a first spring portion for contacting a conductive portion of an I/O device mounted in one of said bays and a second spring portion for contacting said retainer.

17. An electromagnetic interference (EMI)/radio interference (RFI) shielding spring structure, for use in an electrical device enclosure including an electrically conductive case, a nonconductive device support structure located within said case, at least one electrical device mounted within said support structure, a set of grounding springs, each of which is in electrical contact with said at least one electrical device, for electrically bridging said nonconductive device support structure for each device mounted therein, and a conductive device retainer, for retaining said at least one electrical device within said support structure, comprising:

(a) an electrically conductive spring strip; and

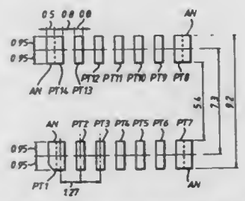
(b) a plurality of dual spring structures, each of which may be placed in electrical contact with one of said grounding springs, said case and said retainer, wherein said plurality of dual spring structures (1) are integrally formed with and extend from one side of said spring strip, (2) each comprise a first spring member that may be placed in electrical contact with a given one of said grounding springs to thereby ground the electrical device in contact with the given grounding spring to said case, and (3) each comprise a second spring member that may be placed in electrical contact with said device retainer to thereby ground said device retainer to said case, wherein said first spring member further comprises a contact plate which integrally extends from, and is oriented perpendicularly with respect to, said spring strip.

5,067,042

WIRING BOARD FOR FLAT PACKAGE TYPE INTEGRATED CIRCUIT DEVICE

Katsumi Nagano, Tokyo, Japan, assignor to Kabushiki Kaisha Toshiba, Tokyo, Japan

Continuation of Ser. No. 121,238, Nov. 16, 1987, abandoned.
This application Jan. 23, 1989, Ser. No. 300,233
Claims priority, application Japan, Dec. 6, 1986, 61-290797
Int. Cl.[5] H01R *9/00*
U.S. Cl. 361—406 4 Claims



1. A wiring board for solder mounting a flat package type integrated circuit device having a plurality of leads arranged in pairs in first and second parallel lines, the first line including a reference lead, an end lead, and remaining leads positioned between the reference and end leads, and the second line including two end leads and remaining leads positioned between the end leads, the wiring board comprising:

a board;

a plurality of first pattern pads, each having a first predetermined surface area, arranged on the board in positions corresponding to the remaining leads;

a reference pattern pad having a second predetermined surface area including a mounting portion arranged on the board in a position corresponding to the reference lead and a first width extension portion, the second predetermined surface area being larger than the first predetermined surface area and the first width extension portion

VOL 1132 ISS 3 NO 19 1991 UMI

defining a unique pad shape such that the width of the reference pattern pad is greater than the width of the first pattern pads; and

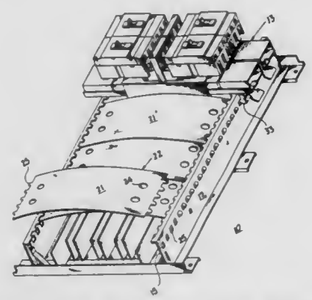
end pattern pads having a third predetermined surface area including a mounting portion arranged on the board in positions corresponding to the end leads and a second width extension portion, the third predetermined surface area being larger than the first predetermined surface area and the second width extension portion defining a pad shape such that the width of the end pattern pad is greater than the width of the first pattern pads.

5,067,043

ELECTRIC POWER DISTRIBUTION PANELBOARD-SWITCHBOARD BUS BAR INSULATION SHIELD

Robert G. Markowski, East Haven; Denis A. Perzan, Plainville; John A. Morby, Farmington, and Dean A. Robarge, New Britain, all of Conn., assignors to General Electric Company, New York, N.Y.

Filed Dec. 13, 1990, Ser. No. 627,147
Int. Cl.[5] H02B *1/20*
U.S. Cl. 361—361 10 Claims



1. An interior for an electric switch or circuit breaker enclosure comprising:

support means supporting a plurality of electric switches or circuit breakers;

a plurality of electric bus bars extending along said support means and arranged for connecting with said electric switches or circuit breakers;

a pair of support rails arranged at opposing ends of said support means, said support rails including a plurality of slots through said support rails; and

an electrically insulating shield removeable attaching between said support rails and arranged over said bus bars thereby preventing access to said bus bars.

5,067,044

SENSOR FOR DETECTING A QUENCH IN A SUPERCONDUCTOR USING AN OPTICAL COUPLING

George T. Mallick, Jr., Monroeville; James R. Logan, Hampton Township, Allegheny County, and David Marschik, Murrysville, all of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Mar. 5, 1990, Ser. No. 489,137
Int. Cl.[5] H02H *9/00*
U.S. Cl. 361—19 18 Claims

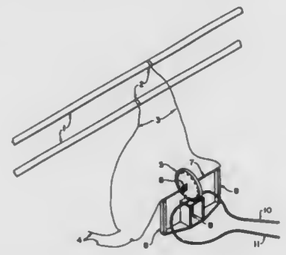
1. A sensor for detecting a quench in a superconducting coil comprising:

a readout coil located in a magnetic field produced by the superconducting coil that will move in response to a current flow between two potential leads connected to voltage taps on the superconducting coil caused by the presence of a quench in the superconducting coil;

at least one light source;

at least one light sensor aligned with the light source;

an optical encoder integrally attached to the readout coil and capable of interrupting light emitted by the light source and impinging on the light sensor;



a means of biasing the readout coil to return it to an original position when a quench is not present in the superconducting coil; and

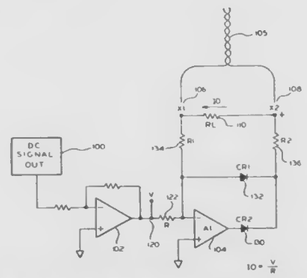
a means of remotely decoding the transmitted and interrupted light received by the light sensor to indicate the presence of a quench in the superconducting coil.

5,067,045

OUTPUT PROTECTION SCHEME FOR UNIPOLAR CONSTANT CURRENT SOURCE

Thaddeus J. Schweiger, St. Petersburg, Fla., assignor to Square D Company, Palatine, Ill.

Continuation of Ser. No. 69,334, Jul. 1, 1987, abandoned. This application May 30, 1989, Ser. No. 358,746
Int. Cl.[5] H02H *9/04*
U.S. Cl. 361—56 13 Claims



13. A cable driving and protective circuit transmitting an unipolar time varying signal to a cable and protecting the cable driving and protective circuit from extraneous surge voltages on the cable, comprising:

an operational amplifier having an input and an output, and having said unipolar signal connected to an input, said operational amplifier transmitting unipolar signal current to said cable;

a blocking diode connected to the output of said operational amplifier oriented to conduct said unipolar signal from the output of said operational amplifier, in a designed forward conduction mode with a low forward voltage drop, to said cable through a diode output terminal, and to block extraneous voltage of the same polarity but of greater magnitude than said unipolar signal by having a relatively high peak inverse voltage to prevent said blocking diode from conducting in an undesired reverse conduction mode; and

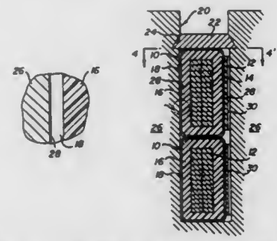
a shorting diode essentially shunting a voltage of a polarity opposite the polarity of said unipolar signal in a forward conduction mode connected between the input of said operational amplifier and the output terminal of said diode said shorting diode being of the same diode type as that of said blocking diode.

5,067,046

ELECTRIC CHARGE BLEED-OFF STRUCTURE USING PYROLYZED GLASS FIBER

Richard K. Elton, Altamont, and William R. Schultz, Jr., Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Division of Ser. No. 643,908, Aug. 23, 1984, Pat. No. 4,853,565.
This application May 15, 1989, Ser. No. 351,235
The portion of the term of this patent subsequent to Apr. 9, 2002, has been disclaimed.
Int. Cl.[5] H05F *3/00*
U.S. Cl. 361—220 11 Claims



1. Structure for bleeding off static electrical charge or an electric charge developed on a finite segment of an insulator surrounding an electrical conductor due to the existence of an electric potential along said segment between said conductor and a region adjacent said finite segment of said insulator, said structure comprising:

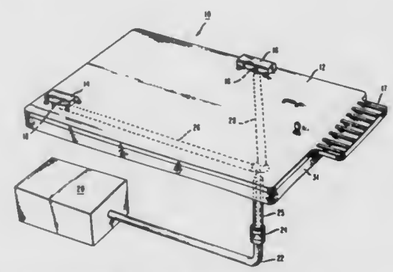
a layer of semi-conducting pyrolyzed glass fiber material having resistivity in the range of 200 to 10,000,000 ohms per square in intimate contact with said finite segment of said insulator and in electrical contact with an electrical ground.

5,067,047

CIRCUIT PACK WITH INBOARD JET COOLING

Kaveh Azar, Westwood, Mass., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed May 11, 1990, Ser. No. 522,290
Int. Cl.[5] H05K *7/20*
U.S. Cl. 361—384 12 Claims



1. A fluid-cooled circuit pack comprising:

a circuit board having front and back major surfaces with at least one heat generating component mounted on the front surface;

conduit means connectable to a source of compressed fluid and attached to the back surface of said circuit board to form a sealed plenum for conducting cooling fluid in a direction essentially parallel to said surfaces to a predetermined area at the back surface of said board; and

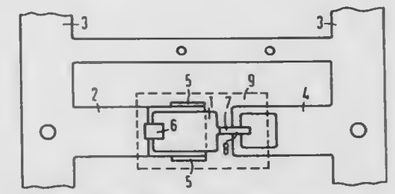
at least one hole in said circuit board connected to said conduit means, said hole extending from the back surface to the front surface in sufficient proximity to said component to form a cooling jet impinging on said component when said conduit means is connected to said source.

5,067,048

SOLID ELECTROLYTE CAPACITOR IN A CHIP STRUCTURE AND METHOD FOR THE MANUFACTURING THEREOF

Werner Schnabel, Nattheim, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Aug. 30, 1990, Ser. No. 574,797
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1989, 3931245
Int. Cl.[5] H01G *9/00, 5/01*
U.S. Cl. 361—540 6 Claims



1. A solid electrolyte capacitor, comprising:

a sintered anode member including a valve metal;

an oxide layer on said valve metal serving as a dielectric;

an anode wire sintered to and extending from said anode member;

a solid electrolyte on said oxide layer serving as a cathode;

an anode terminal electrically connected to said anode wire;

a cathode terminal electrically connected to said cathode, said cathode terminal comprising a first U-shaped clip partially embracing said anode member and a second auxiliary clip connected to said first U-shaped clip and oriented parallel and opposed to said first U-shaped clip and partially engaging said anode member; and

an envelope of plastic material covering said capacitor with said anode and cathode terminals extending therethrough.

5,067,049

PHOTOGRAPHIC STUDIO LIGHT REFLECTING APPARATUS

Daniel P. F. Milaire, 34288 Woodbine Crescent, Abbotsford, British Columbia, Canada V2S 2R5

Filed Feb. 12, 1990, Ser. No. 478,952
Int. Cl.[5] G03B *15/02*
U.S. Cl. 362—18 18 Claims

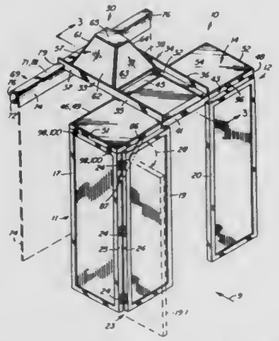
1. A light reflecting apparatus for photography, the apparatus comprising:

(a) left hand and right hand laterally spaced apart vertical side wall pairs, each side wall pair having a stationary side wall panel and a movable side wall panel with inwardly facing diffuse light reflecting surfaces, the movable wall panel and stationary wall panel of each vertical side wall pair being hinged together about a vertical hinge to permit the movable panel to rotate relative to the stationary panel, the stationary panels of each pair having lower portions for setting on a supporting surface to support each pair of panels so that the panels thereof are essentially vertical,

(b) a horizontal top wall panel supported on and extending between the stationary side wall panels, the top wall panel

VOL 1132 ISS 3 NO 19 1991 UMI

having a downwardly facing diffuse light reflecting surface and being releasably connected to the stationary side wall panels, the movable panels being clear of the top wall



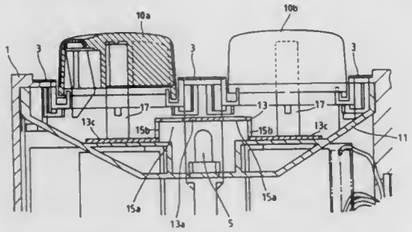
panel to permit each movable panel to rotate about the respective vertical hinge relative to the adjacent stationary panel.

5,067,050

ILLUMINATED ELECTRICAL PART

Minoru Oyama, and Misturu Furudate, both of Furukawa, Japan, assignors to Alps Electric Co., Ltd., Tokyo, Japan

Filed Mar. 7, 1991, Ser. No. 666,097
Claims priority, application Japan, May 1, 1990, 2-45100[U]
Int. Cl.[5] G01D *11/28*
U.S. Cl. 362—30 2 Claims



1. An illuminated electrical part comprising:
a case;
an indicator panel fixed to the front open end of the case;
a housing attached to the case so as to define an illuminating space behind the indicator panel; and
an illuminating device comprising:
a light source disposed behind the indicator panel and mounted on the housing; and
a cover formed of a highly heat-conductive material, fixed to the housing so as to cover the light source, and provided with light control slits in its top wall extending between the indicator panel and the light source and with control apertures in its side walls.

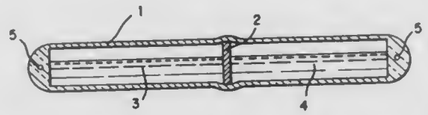
5,067,051

CHEMILUMINESCENT LIGHTING ELEMENT

Jacques Ladyjensky, Brussels, Belgium, assignor to American Cyanamid Company, Stamford, Conn.

Filed Jun. 22, 1990, Ser. No. 542,138
Claims priority, application Belgium, Jul. 7, 1989, 08900744
Int. Cl.[5] F21K *2/00*
U.S. Cl. 362—34 11 Claims

1. A chemiluminescent element comprising a tube made of a flexible, light-emitting and chemically stable material, which is closed at both of its ends and which comprises at least two compartments which are filled with liquids which produce chemiluminescent light when mixed, characterized by the fact that it contains, between said ends, at least one internal diaphragm or disk which separates the tube into said compartments, said diaphragm or disk 1) having approximately a circular shape with a cross-section which is approximately rectangular in profile and a peripheral sharp edge, 2) being positioned transversely with respect to the axis of the tube, 3) having its periphery in continuous contact with the interior of the tube



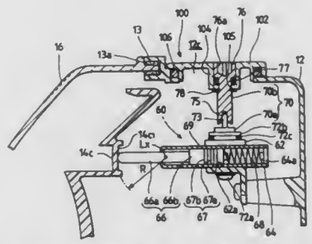
wall, 4) being significantly more rigid than the material of which the tube is formed and 5) a thickness not greater than about one half the interior diameter of the tube, the elasticity, the external and internal diameters of the tube and the diameter of the diaphragm or disk being selected in such a manner that the diaphragm or disk can be tilted by simple pressure, manual measure or any equivalent means against the external walls of the tube, which pressure imparts a tilting torque on said diaphragm or disk and repositions said diaphragm or disk substantially parallel with respect to the axis of the tube thereby allowing the liquids in said compartments to mix.

5,067,052

VEHICULAR HEADLAMP HAVING INCLINATION DETECTOR

Takanori Suzuki, and Makoto Ito, both of Shizuoka, Japan, assignors to Koito Manufacturing Co. Ltd., Tokyo, Japan

Filed Apr. 23, 1991, Ser. No. 689,563
Claims priority, application Japan, May 24, 1990, 2-132547
Int. Cl.[5] R60Q *1/00*
U.S. Cl. 362—61 17 Claims



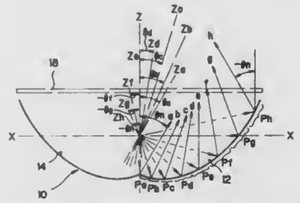
1. A vehicular headlamp in which an inclination member with a light reflecting surface for setting the axis of irradiation of a lamp is supported by an aiming mechanism in such a manner that said inclination member is inclinable with respect to a reference member arranged behind said inclination member, said vehicular headlamp having an inclination detector which comprises:
a stationary holder secured to said reference member;
a movable holder coupled to said stationary holder in such a manner that said movable holder is slidable forwardly and rearwardly relative to said stationary holder, a rack being formed on one side of said movable holder;
a slider engaged with said movable holder in such a manner that said slider is slidable forwardly and rearwardly relative to said movable holder, said slider being elastically urged so that a front end thereof is abutted against said inclination member, whereby said slider is allowed to slide as said inclination member inclines about a vertical axis; and
a zero point adjustment shaft having a gear mounted thereon which is engaged with said rack formed on one side of said movable holder, said zero point adjustment shaft being supported by said stationary holder and extending in a direction perpendicular to a sliding direction of said movable holder.

5,067,053

AUTOMOTIVE HEADLAMP

Kunio Akizuki, Shiraokamachi, Japan, assignor to Ichikoh Industries Ltd., Tokyo, Japan

Filed Nov. 30, 1989, Ser. No. 443,449
Claims priority, application Japan, Nov. 30, 1988, 63-300973
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—61 13 Claims



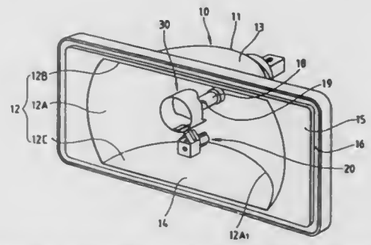
1. An automotive headlamp, comprising a concave mirror having an inner reflecting surface, a lamp bulb as light source having its center thereof disposed nearly on an optical axis of said concave mirror and a substantially transparent cover disposed in front of said lamp bulb and covering the concave mirror, the inner reflecting surface of said concave mirror being composed of multiple different paraboloidal surfaces of revolution taking as common focus a predetermined point on said optical axis and smoothly joined to each other and said lamp bulb being so disposed as to have the center thereof disposed in the vicinity of the common focus, the center axis of each paraboloidal surface of revolution being a straight line passing through the common focus and offset a predetermined angle from said optical axis in a horizontal plane in which said optical axis lies, the inner reflecting surface consisting of a first reflecting zone, a second reflecting zone adjoining said first reflecting zone and a third reflecting zone adjoining said second reflecting zone, which are defined depending upon their distances from the common focus, said plural paraboloidal surfaces of revolution belonging to said first reflecting zone reflecting or diverging the light rays emitted from said lamp bulb and incident upon positions nearer to the common focus in directions away from said optical axis, the plural paraboloidal surfaces of revolution included in said second reflecting zone reflecting the rays incident from said lamp bulb in directions nearly parallel to said optical axis, and the plural paraboloidal surfaces of revolution belonging to said third reflecting zone reflecting or converging the rays emitted from said lamp bulb and incident upon positions away from the common focus in directions nearer to said optical axis.

5,067,054

BEAM-FORMING SHADE FOR VEHICULAR HEADLAMP

Hirohiko Oshio; Noboru Koike, and Takasi Ochiai, all of Shizuoka, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan

Filed Oct. 9, 1990, Ser. No. 594,572
Claims priority, application Japan, Oct. 11, 1989, I-118283[U]; Aug. 31, 1990, 2-228218
Int. Cl.[5] B60Q *1/00*
U.S. Cl. 362—61 13 Claims



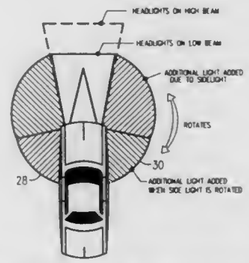
1. A beam-forming shade for a vehicular headlamp, comprising:
a cylindrical shade body disposed horizontally in surrounding relation to a bulb of the vehicular headlamp; and
means for connecting said shade body to the headlamp, said connecting means having a single hole for inserting a screw,
wherein said cylindrical shade body and said connecting means are integrally formed from a single thin metal plate of a predetermined shape, said connecting means being formed by at least partially overlapped end portions of said single thin metal plate, said overlapped end portions each having a hole therein, said holes being aligned with one another to define said single hole for inserting a screw.

5,067,055

AUTOMOBILE HEADLAMP AND ROTATABLE SIDELAMP OF INTEGRATED CONSTRUCTION AND SWITCHING CIRCUIT FOR OPERATING SAME

Elmer D. Farnsworth, 9860 Brownlee Rd., Sweet, Id. 83670

Filed Jun. 15, 1990, Ser. No. 538,824
Int. Cl.[5] B60Q *1/06*
U.S. Cl. 362—66 4 Claims

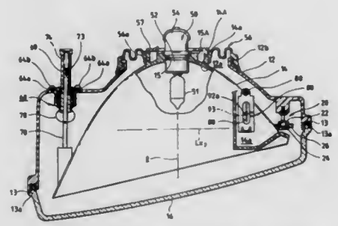


1. In combination, a headlamp and sidelamp apparatus for an automobile wherein said sidelamp is rotatably mounted adjacent to said headlamp and having an initial and rotatable field of view which joins each side of the field of view of said headlamp and is operative upon receipt of lamp control motion signals to be rotated to a second field of view which is approximately ninety degrees displaced with respect to said initial field of view of said sidelamp to thereby rapidly aid and assist passengers in departing from the automobile at night in an unfa-

VOL
1132
ISS
3
NO
19
1991
UMI

miliar location, lamp control means connected to said sidelamp for rotating and sweeping the field of illumination of said sidelamp to a chosen side angle field of view extending to 180 degrees with respect to the forward direction of travel of said automobile, thereby providing automatic blind spot illumination for a driver travelling in a dark area.

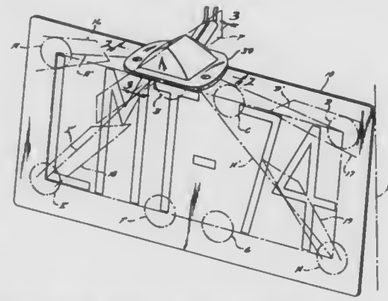
5,067,056
VEHICULAR HEADLAMP
Takanori Suzuki, and Yoshio Suzuki, both of Shizuoka, Japan, assignors to Koito Manufacturing Co., Ltd., Tokyo, Japan
Filed May 2, 1991, Ser. No. 694,716
Claims priority, application Japan, May 23, 1990, 2-131354
Int. Cl.[5] B60Q *1/06*
U.S. Cl. 362—66 **10 Claims**



1. A vehicular headlamp in which an inclination member with a light reflecting surface which defines an axis of irradiation of said lamp is supported on one pivot point fixed in position with respect to a reference member and two aiming points which are engaged with two aiming screws supported by said reference member in such a manner that the distances of said two aiming points from said reference member are adjusted by turning said aiming screws, said one pivot point and two aiming points being positioned at respective vertices of a triangle, one side of which is horizontal as viewed from front, and said inclination member being swung about an inclination axis passing through said pivot point by turning said two aiming screws to adjust a direction of irradiation of said lamp, the improvement wherein said pivot point is positioned at one of the vertices of said triangle other than the vertex of the angle subtending the oblique side of said triangle, one of said aiming points which is moved away from said pivot point in a vertical direction being employed as a vertical aiming point, while the other of said aiming points, which is moved away from said pivot point in a horizontal plane, is employed as a horizontal aiming point, and an inclination detector for detecting an amount of inclination of said inclination member in a horizontal plane is provided between said reference member and said inclination member, said inclination detector being mounted in a horizontal plane including said pivot point as viewed from the front of said headlamp.

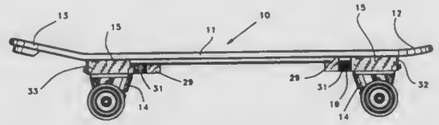
5,067,057
MULTIPLE PARABOLA LICENSE PLATE LAMP
William C. Stapel, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich.
Filed Feb. 28, 1991, Ser. No. 661,967
Int. Cl.[5] B60Q *1/56*
U.S. Cl. 362—83.2 **12 Claims**

1. A lamp assembly for use in conjunction with a rectangular panel for illuminating a defined front surface of said panel from a location that is slightly forward and to one side of said panel, comprising:
a reflector housing having an opening oriented towards said panel and containing a plurality of parabolically curved first surface reflectors with a common focal point and separately oriented imaging fields;
an incandescent light source located within said housing at the common focus of said plurality of reflectors; and



a lens element attached to said housing and covering said opening.

5,067,058
SKATEBOARD HAVING LIGHTING SYSTEM
Michael P. Standley, 5785 W. Rochelle Ave., Apt. 206, Las Vegas, Nev. 89103
Continuation-in-part of Ser. No. 335,991, Jul. 31, 1989, abandoned. This application Mar. 28, 1990, Ser. No. 501,280
Int. Cl.[5] B60Q *1/26*; B62M *1/00*; G02B *5/12*
U.S. Cl. 362—83.3 **10 Claims**



1. An improved skateboard having adjacent one of its ends a roller truck attached to the underside of a skateboard deck, the truck being insulated from the skateboard deck by a riser pad, wherein the improvement comprises:
a self-contained battery operated lamp housed in the riser pad,
the lamp having a cylindrical body forming a battery compartment that is expanded at one end to form a bulb containing compartment,
the riser pad having a stepped bore that is complementary to the shape of the lamp and contains the lamp therein,
the lamp being positioned to direct a light beam emanated therefrom from beneath the deck beyond the one end thereof, and
switch means for turning the lamp on and off.

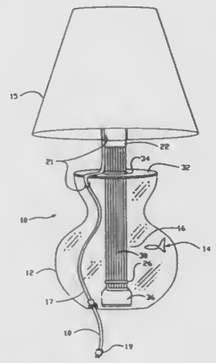
5,067,059
AQUARIUM ORNAMENT LAMP SOURCE
Steven Hwang, 4F., No. 6-6, Alley 1, Lane 147, Sec. 3, Hsin Yi Road, Taipei, Taiwan
Filed May 8, 1991, Ser. No. 696,867
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—101 **2 Claims**



1. An aquarium ornament lamp source, comprising:
an optical fiber unit comprised of a plurality of optical fibers, having one end tied up together forming into a light ray

input terminal and an opposite end loosely arranged into a plurality of light ray output terminals;
a lamp source unit comprising a base plate having a rotary wheel pivoted thereto at the top and driven by a motor to rotate, said rotary wheel having a color filter around the periphery thereof, and a light source set in said rotary wheel to emit light through said color filter; characterized in that:
said bundle of optical fibers is fastened in an aquarium with said light ray output terminals loosely attached over the artificial landscape arranged in said aquarium; said lamp source unit is attached to the outside of said aquarium with said color filter aligned with said light ray input terminal; and wherein:
connection of power supply to said lamp source unit causes said motor to drive said rotary wheel to rotate and simultaneously causes said light source to emit light through said color filter toward said light ray input terminal so as to produce a variable lighting effect through said light ray output terminals.

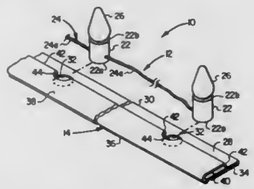
5,067,060
AQUARIUM LAMP
Leo C. Sieracki, 1878 Market St., No. 202, San Francisco, Calif. 94102
Filed Apr. 5, 1989, Ser. No. 334,098
Int. Cl.[5] F21V *33/00*
U.S. Cl. 362—101 **13 Claims**



1. A lamp comprising:
an aquarium;
light source means mounted to and located above the aquarium;
aquatic life support means including an air pump for mechanically forcing the necessary gases sufficient to support aquatic life into said aquarium; and
load support means extending from a top of said aquarium down into said aquarium and including a conduit communicating said gases into said aquarium, said load support means supporting said light source means and a portion of said aquatic life support means above said aquarium.

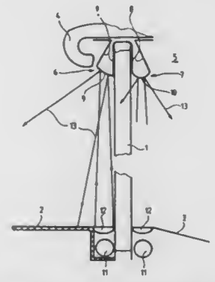
5,067,061
DECORATIVE EXTERIOR TRIM LIGHTING SYSTEM
Robert B. Prickett, 3816 Mockingbird La., Dallas, Tex. 75205
Continuation-in-part of Ser. No. 464,200, Jan. 12, 1990, Pat. No. 4,974,128. This application Aug. 29, 1990, Ser. No. 575,154
Int. Cl.[5] F21S *1/02*
U.S. Cl. 362—145 **7 Claims**

1. Apparatus for supporting a light string along a surface to be decoratively illuminated, said light string including a mutually spaced series of bulb sockets having first end portions operatively receiving the base portions of a series of light bulbs, and second end portions operatively connected to longitudinal segments of a length of electrical power supply wiring, said apparatus comprising:
a first elongated strip portion having opposite side edge portions extending along its length, said first elongated strip portion being laterally securable to said surface to extend longitudinally therealong;
a longitudinally spaced series of openings formed through said first elongated strip portion and positioned between



its opposite side edge portions, said openings being sized to releasably receive said second end portions of said sockets; and
holding means, carried by said first elongated strip portion, for overlying and releasably holding in cavities along a surface of said first elongated strip portion, said longitudinal segments of said length of electrical power supply wiring when said second end portions of said bulb sockets are releasably received in said openings in said first elongated strip portion.

5,067,062
ILLUMINATION DEVICE FOR A TRANSPORT SYSTEM, ESPECIALLY ESCALATORS OR PASSENGER WALKWAY
Gerhart Rülke, Vienna, Austria, assignor to Inventio AG, Hergiswil NW, Switzerland
Filed Jul. 9, 1990, Ser. No. 550,185
Claims priority, application Switzerland, Jul. 14, 1989, 02652/89-0
Int. Cl.[5] F21S *3/14*
U.S. Cl. 362—146 **19 Claims**



1. An illumination device for the illumination of a transport system, such as escalators or passenger walkways, comprising:
at least one active light source configured for arrangement at at least a first predeterminate portion of said transport system for emitting light;
lens means cooperating with said at least one active light source for guidance of the emitted light;
means for reflecting light emitted by said at least one active light source configured for arrangement at at least a second predeterminate portion of said transport system; and
said transport system comprises a balustrade skirting, a balustrade cooperating with said balustrade skirting and a

VOL 1132 ISS 3 NO 19 1991 UMI

handrail support device carried by said balustrade, said handrail support device having an underside, wherein:

said at least one active light source for emitting light and said lens means are configured for being arranged in said balustrade skirting; and

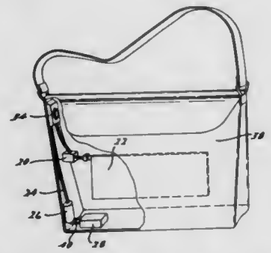
said means for reflecting light is configured for being arranged at the underside of said handrail support device.

5,067,063

HANDBAG LIT WITH ELECTROLUMINESCENCE

Marilyn J. Granneman, and Gary N. Granneman, both of 7206 Crest La., Indianapolis, Ind. 46256

Filed Nov. 6, 1990, Ser. No. 609,809
Int. Cl.[5] A45C *15/6*
U.S. Cl. 362—156 10 Claims



1. In a carrying case having at least a pair of sidewalls defining an interior compartment and closure means for selectively opening and closing the case in order to respectively gain and block access to the interior compartment, an illumination system comprising:

a power source circuit permanently installed in the interior compartment, said power source circuit including a battery holder adapted to receive a replaceable direct current battery electrically connected to said power source circuit, inverter means electrically connected to said battery holder for converting direct current from said battery to alternating current, a first releasable electrical connector means, and switch means selectively actuable between on and off positions for respectively electrically connecting and disconnecting said battery holder and said inverter means to said first releasable electrical connector means;

a thin, flexible electroluminescent lamp having a second releasable electrical connector means for selective electrical connection with, and disconnection from, said first releasable electrical connector, said lamp and said second releasable electrical connector means being selectively insertable into, and removable from, the interior compartment; and

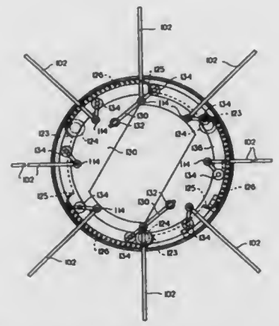
a thin transparent sheath-like pocket having an opening therein and being disposed on a first of the sidewalls of the carrying case, said lamp being selectively insertable through said opening into said pocket for illuminating the interior compartment when said first and second electrical connector means are electrically connected with one another and said switch means is actuated to said on position, and said lamp and said second electrical connector means being selectively removable from said pocket and said interior compartment for interchangeable installation and use in a second of said carrying cases having a second of said power source circuits permanently installed therein.

5,067,064

PATTERN CHANGE MECHANISM

Joel C. Gebly, McKean; David Zolner, Fairview, and James M. Szumigala, Erie, all of Pa., assignors to American Sterilizer Company, Erie, Pa.

Filed Mar. 16, 1990, Ser. No. 495,253
Int. Cl.[5] F21V *13/02*
U.S. Cl. 362—277 19 Claims



1. Apparatus for changing the size distribution of light emitted from a lighting fixture having a light source and a reflector superposing the light source in a partially circumscribing radially spaced relationship relative to the axis of symmetry of the lighting fixture for intersecting light radiating from the light source and directing the light toward a target surface, said apparatus comprising:

means for blocking light directed toward a target surface;

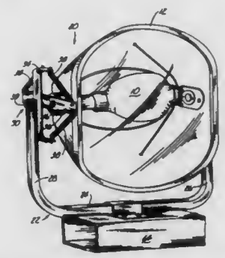
means for moving said blocking means into at least a first position and a second position, wherein, in said first position, no light is blocked to produce a first pattern of light distribution having a peak illuminance, and wherein, in said second position, a first portion of light directed toward the target surface is blocked to produce a second pattern of light distribution smaller than said first pattern such that said peak illuminance remains relatively constant.

5,067,065

SHOCK ABSORBENT BULBHOLDER MOUNTING

Douglas L. Dahlgren, Holdrege, Nebr., assignor to Allmand Bros. Inc., Holdrege, Nebr.

Filed Oct. 31, 1990, Ser. No. 607,420
Int. Cl.[5] F21V *15/04*
U.S. Cl. 362—369 3 Claims



1. A bulbholder mounting assembly comprising:

a support member having a center section and a pair of spaced, transverse arm sections extending from said center section; and

means resiliently supporting said bulbholder from said support member between said arm sections comprising:

an elongated arm strap attached to a respective arm section;

an elongated bulbholder strap attached to said bulbholder, said arm strap and said bulbholder strap being disposed in spaced parallel planes, said arm strap and said bulbholder strap having longitudinal axes disposed at right angles to one another; and

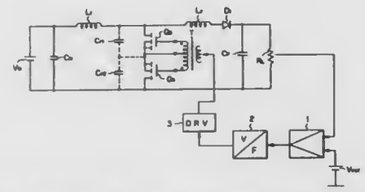
springs connected to said arm strap and said bulbholder strap such that each end of each strap is connected by two springs to opposite ends of the other strap, each spring being oriented at a 45° angle with respect to the longitudinal axes of the straps.

5,067,066

VOLTAGE-MODE QUASI-RESONANT DC/DC CONVERTER

Jun Chida, Yokohama, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Feb. 6, 1991, Ser. No. 651,518
Claims priority, application Japan, Feb. 6, 1990, 2-025062
Int. Cl.[5] H02M *3/335*
U.S. Cl. 363—16 13 Claims



10. An apparatus for use in a voltage-mode quasi-resonant converter, comprising:

an inductor;

a first MOSFET switch connected in series with said inductor;

a second MOSFET switch connected in series with said first MOSFET switch so that first and second anodes of respective first and second parasitic diodes of respective first and second MOSFET switches are connected,

said inductor, said first MOSFET switch and said second MOSFET switch being for use in the voltage-mode quasi-resonant converter.

5,067,067

METHOD FOR EVALUATING AND DESIGNING LENSES

Lee R. Estelle, Rochester, and Svetlana Z. Short, Penfield, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jul. 5, 1989, Ser. No. 376,269
Int. Cl.[5] G05B *13/00*
U.S. Cl. 364—156 16 Claims

1. In a method of making a lens, including the steps of creating an initial lens design, and optimizing the design using a merit function, the improvement comprising the steps of:

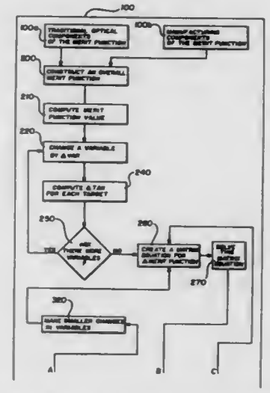
(a) defining a plurality of merit function components, each of which reflects a particular optical or manufacturing parameter, wherein one of said components reflects the manufacturability of aspheric surfaces, said manufacturability of said aspheric surfaces being evaluated based on the amount of aspheric bending in such aspheric surfaces;

(b) computing a numerical value for each of said merit function components based on corresponding features of a preliminary design of said lens;

(c) selecting weighting factors for various ones of said merit function components;

(d) computing from said merit function components and said weighting factors an overall merit function value expressable in numerical terms that reflect both optical and manufacturing criteria;

(e) successively varying at least one design feature of said lens and recomputing the resulting overall merit function value with each successive variation until the resulting



overall merit function reaches a predetermined acceptable value;

(f) obtaining the parameters of the optimized lens having said predetermined acceptable value for the resulting overall merit function; and

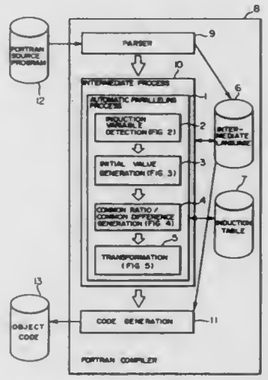
(g) implementing said parameters to make a lens.

5,067,068

METHOD FOR CONVERTING AN ITERATIVE LOOP OF A SOURCE PROGRAM INTO PARELLELLY EXECUTABLE OBJECT PROGRAM PORTIONS

Kyoko Iwasawa, Tokyo; Yoshikazu Tanaka, Omiya, and Shizuo Gotou, Machida, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Jun. 2, 1988, Ser. No. 201,772
Claims priority, application Japan, Jun. 5, 1987, 62-139729
Int. Cl.[5] G06F *9/38, 9/45*
U.S. Cl. 395—650 4 Claims



1. A method for operating a data processor to compile a loop portion of a source program into a plurality of simultaneously executable object program portions for respective execution by a plurality of parallel processors, each said processor being

VOL 1132 ISS 3 NO 19 1991 UMI

assigned loop iterations of said loop portion, comprising the steps of:

detecting whether said loop portion, stored in a first storage area of the data processor, includes a variable recursively defined during loop iteration;

producing, into a second storage area of the data processor, a computation program portion, when said recursively defined variable is detected, for calculating a value of the recursively defined variable for an arbitrary loop iteration number; and,

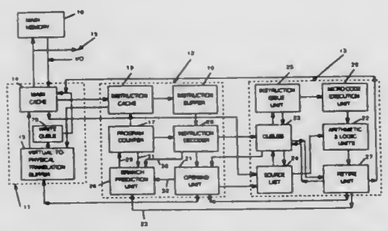
generating, into a third storage area of the data processor, a plurality of simultaneously executable object program portions, each said object program portion comprising one of a plurality of respective loop iterations of the loop portion, wherein each of said plurality of simultaneously executable object program portions includes a portion for executing the produced computation program portion for a respective loop iteration number to calculate a value of the recursively defined variable.

5,067,069

CONTROL OF MULTIPLE FUNCTIONAL UNITS WITH PARALLEL OPERATION IN A MICROCODED EXECUTION UNIT

Elaine H. Fite; Tryggve Fossum, both of Northboro; William R. Gruodmann, Hudson; Francis X. McKeen, Westboro, and Ronald M. Salett, Framingham, all of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Feb. 3, 1989, Ser. No. 306,832
Int. Cl.[5] G06F *9/22, 9/28, 9/30, 9/38*
U.S. Cl. 395—375 **20 Claims**



1. A method of preprocessing and executing multiple instructions in a pipelined processor, said instructions including opcodes and operand specifiers, said pipelined processor including multiple and separate functional units for executing various classes of said instructions, said method comprising the steps of:

decoding said instructions to obtain said opcodes and operand specifiers;

fetching source operands specified by said operand specifiers;

operating a microcode-controlled issue unit to issue the source operands to the respective functional units indicated by the decoded opcodes, and for each of the instructions, to insert an entry into a result queue when an instruction is issued to a functional unit and the destination for the result is known, the entry indicating the particular functional unit and the destination for the result of the functional unit, wherein instructions are issued before their destinations are known;

operating the functional units in parallel to execute the various classes of said instructions including integer instructions, floating point instructions, multiply instructions, and divide instructions; and

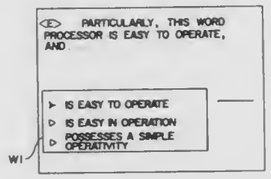
successively retiring results by retiring the result from the functional unit indicated by the entry at the head of the result queue when the result is available and when the destination indicated by the entry is available, and removing the entry from the head of the queue.

5,067,070

WORD PROCESSOR WITH OPERATOR INPUTTED CHARACTER STRING SUBSTITUTION

Kouji Miyao, Kashihara, and Hajime Asano, Nara, both of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 222,770, Jul. 22, 1988, abandoned. This application Sep. 4, 1990, Ser. No. 577,816
Claims priority, application Japan, Jul. 22, 1987, 62-184128; Jul. 30, 1987, 62-192976; Aug. 1, 1987, 62-193002
Int. Cl.[5] G06F *7/00, 15/20*
U.S. Cl. 395—146 **19 Claims**



1. A word processor for editing selected portions of a text comprising:

means for supplying text to be edited and for storing the text in a first memory;

designating means, responsive to said means for supplying, for designating a portion of said text as a designated character string, the designating portion being designated by an operator of the word processor after the operator has reviewed the text to be edited;

input means for introducing into the word processor at least one substitute character string composed by the operator after the operator has reviewed the text to be edited;

a second memory for storing said at least one substitute character string;

substitute means, responsive to said designating means and input means, for substituting by selection performed by the operator said at least one substitute character string, for said designated character string in said text; and

alternative substitute string development means responsive to said substitute means for storing in said second memory said designated character string as another substitute character string for later use by said substitute means after said designated character string has been replaced in the text by said at least substitute character string.

5,067,071

MULTIPROCESSOR COMPUTER SYSTEM EMPLOYING A PLURALITY OF TIGHTLY COUPLED PROCESSORS WITH INTERRUPT VECTOR BUS

David J. Schanin, Sudbury; Russel L. Moore, Hudson; John R. Bartlett, Acton; Charles S. Namias, Burlington; David W. Zopf, Marlboro, all of Mass.; Brian D. Gill, Londondery, N.H.; Trevor A. Creary; Stephen S. Corbin, both of Natick, Mass.; Mark J. Matale, Sterling, Mass.; David F. Ford, Boston, Mass., and Steven J. Frank, Westboro, Mass., assignors to Encore Computer Corporation, Fort Lauderdale, Fla.

Filed Feb. 27, 1985, Ser. No. 706,142
Int. Cl.[5] G06F *9/46*
U.S. Cl. 395—275 **3 Claims**

1. A multiprocessor computer system comprising:

a plurality of processor modules, each module having at least one processor and having coupling interface means through which data, addresses and interrupts are communicated to and from each processor module, said processor modules also including a cache memory means for storing contents of frequently accessed memory locations;

system memory means having coupling interfaces through which data and addresses are communicated to and from said system memory means, said system memory means is accessible to each of said processors;

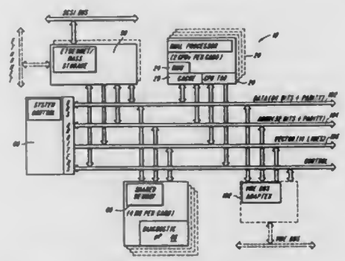
operation control means for allocating and controlling the operation of a plurality of processes on said plurality of processors, said operation control means including timing means for generating timing signals that define successive transaction intervals;

system bus means connected to said coupling interfaces of said plurality of processor modules and to said coupling interfaces of said system memory means including:

a) address bus means for transferring memory addressed from one of said plurality of processor modules to said system memory means;

b) data bus means for transferring data from said system memory means to said plurality of processor modules and from said plurality of processor modules to said system memory means;

c) vector bus means for transferring vectored interrupt signals between one of said plurality of processor modules and another of said plurality of processor modules, said vector bus means being independent from said



address and said data bus means; said vector bus means further comprising means for segregating system components including processor modules, I/O modules and operation control means into a plurality of groups that may receive vectored interrupt signals and for providing an even distribution of vectored interrupt signals within said groups so that all groups of the same type of components receive a substantially even number of vectored interrupt signals;

d) control line means for providing a path for signals to be transferred from said operation control means to said processor modules and said system memory means and from said processor modules and system memory means to said operation control means;

means for arbitrating access to each of said address, data and vector bus means;

whereby said operation control means allows said system to operate at high speeds by efficiently distributing processes to said processor modules which are tightly coupled.

5,067,072

VIRTUAL SOFTWARE MACHINE WHICH PREPROCESSES APPLICATION PROGRAM TO ISOLATE EXECUTION DEPENDENCIES AND USES TARGET COMPUTER PROCESSES TO IMPLEMENT THE EXECUTION DEPENDENCIES

Kirit K. Talati, Sunoyvale, and C. Willard Lackie, Garland, both of Tex., assignors to VISystems, Inc., Dallas, Tex.

Continuation of Ser. No. 391,691, Aug. 10, 1989, Pat. No. 4,961,133, which is a continuation of Ser. No. 118,307, Nov. 6, 1987, abandoned. This application Oct. 1, 1990, Ser. No. 591,463
The portion of the term of this patent subsequent to Oct. 2, 2007, has been disclaimed.
Int. Cl.[5] G06F *9/455*
U.S. Cl. 395—650 **7 Claims**

1. A virtual software machine for providing a virtual execution environment in a target computer system for an application software program having one or more execution dependencies that are incompatible with a software execution environment on the target computer system, comprising:

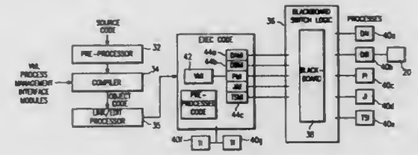
a plurality of independent processes;

a virtual control mechanism having a virtual management interface (VMI) for generating requests for execution to the plurality of independent processes and receiving results of such processing, wherein the requests for execution and the results are communicated via a message exchange mechanism;

pre-processing means for identifying at least one execution dependency of the application software program and in response thereto generating a pre-processed application software program that isolates the identified execution dependency from the application software program;

means connected to the pre-processing means for converting the pre-processed application software program and the virtual control mechanism into executable code for the target computer; and

run-time means run by the operating system of the target



computer system for executing the application software program in the target computer system despite the execution dependency that is incompatible with the target computer system software execution environment, wherein the run-time means comprises:

means for generating a request for execution when the execution dependency is encountered as the executable code is running in the target computer system;

means connected to the generating means for evaluating the request for execution to identify which of the plurality of independent processes is required to execute the request for execution;

means connected to the evaluating means for delivering the request for execution via a message to the identified independent process;

means connected to the delivering means for processing the request for execution using the identified independent process to thereby execute the request; and

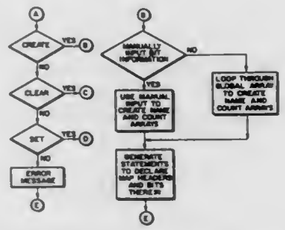
means for returning results of the executed request back to the virtual management interface via a message.

5,067,073

EMBEDDED TRACING METHOD FOR IDENTIFYING PROGRAM EXECUTED PATHS

Paul N. Andrews, Tucson, Ariz., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Aug. 2, 1988, Ser. No. 227,844
Int. Cl.[5] G06F *11/10, 11/00*
U.S. Cl. 395—375 **5 Claims**



1. A data processing system comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

means for inputting data to and outputting data from the data processing system;

means for processing the data input to the system, said processing means coupled to said inputting and outputting means;

means for storing a program for enabling the machine executed operation of said processing means, said storing means coupled to said processing means; and

a program having a plurality of branch points comprising:

means for inserting a plurality of embedded trace points, each trace point being logically located near a predetermined one of the plurality of branch points;

means for creating at least one bit map having a plurality of separately accessible bits, each of the bits logically associated with one of the trace points such that there is a one-to-one correspondence between the bits and the trace points, whereby each bit represents the status of the corresponding trace point;

means for placing each of the bits in a known state; and

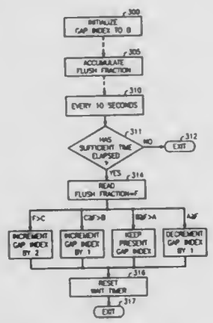
means for setting the state of a bit to a referenced state when a respective logically associated trace point is referenced during a tracing interval, only one bit being set per referenced trace point.

5,067,074

CONTROL OF OVERLOAD IN COMMUNICATIONS NETWORKS

Richard A. Farel, Englishtown, and Mohan Gawande, East Windsor, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Oct. 27, 1989, Ser. No. 428,268
Int. Cl.[5] H04M *11/00*
U.S. Cl. 395—200 15 Claims



1. In a first system for controlling a gap in a plurality of second systems using gap control to reject overload communication traffic, a method of controlling said gap for said second systems comprising:

in the first system, initializing an indication of a gap value;

measuring a fraction of communication traffic that cannot be processed in the first system;

responsive to said measuring, adjusting the value of the gap upward if the fraction exceeds a first threshold, downward, but not below zero, if the fraction is less than a second threshold and maintaining the value of the gap if the fraction is between the first and second threshold;

transmitting the value of the adjusted gap to the second system;

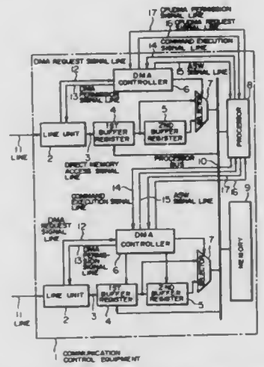
repeating the measuring, adjusting, and transmitting steps recurrently.

5,067,075

METHOD OF DIRECT MEMORY ACCESS CONTROL

Minoru Sugano; Akira Horiki, both of Yokohama; Zenichi Yasbiro, Iruma, and Hironori Matsushima, Sapporo, all of Japan, assignors to Hitacbi, Ltd. and Nippon Telegraph & Telephone Corp., both of Tokyo, Japan

Filed May 10, 1988, Ser. No. 192,133
Claims priority, application Japan, May 13, 1987, 62-114684
Int. Cl.[5] G06F *13/28*
U.S. Cl. 395—425 9 Claims



1. For use in a system comprising an input/output device, a memory, a processor for controlling said input/output device and said memory, a processor bus connected to said memory and said processor and means connected between said input-/output device and said processor bus for temporarily storing direct memory access information which is to be stored in said memory, a method of controlling direct memory access from said input/output device to said memory via said processor bus, comprising the steps of:

receiving and storing direct memory access information from said input/output device into said temporary storing means via a signal line having a significant delay; thereafter

requesting from said processor a right to usage of said processor bus for transmission of direct memory access information after said direct memory access information is stored in said temporary storing means; and

transmitting all of the direct memory access information stored in said temporary storing means to said processor bus for storage in said memory.

5,067,076

CIRCUIT ARRANGEMENT FOR SERIAL DATA TRANSFER

Hartmut Hantsch, Bad Friedrichshall; Peter Thoma, Hollern, and Josef Mahalek, Neufahrn, all of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke Aktiengesellschaft, Munich and Telefunken Electronic GmbH, Heilbronn, both of, Fed. Rep. of Germany

Continuation of Ser. No. 323,203, Mar. 13, 1989, abandoned, which is a continuation of Ser. No. 940,396, Dec. 11, 1986, abandoned. This application Apr. 15, 1991, Ser. No. 685,179
Claims priority, application Fed. Rep. of Germany, Dec. 20, 1985, 3645293
Int. Cl.[5] H04J *3/08*
U.S. Cl. 395—275 11 Claims

1. Circuit arrangement for parallel-serial-parallel data transfer, comprising:

a cascaded plurality of transmitting means, which are similar, coupled to a plurality of cascaded receiving means, which are similar, by a serial data transfer line, each of said transmitting means receiving a respective plurality of bit-parallel input information units and converting them into serial data in the form of a corresponding data block, and each of said receiving means correspondingly converting serial data into a plurality of bit-parallel output information units;

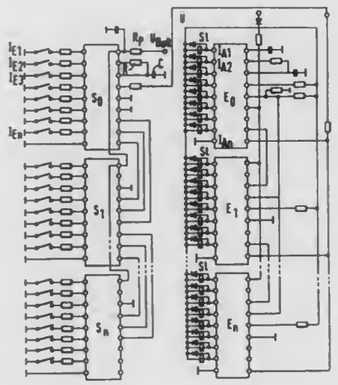
said cascaded plurality of transmitting means being sequentially connected and producing serial data which is transferred on said serial data transfer line, said serial data being composed of data words, each data word having a start pulse, a plurality of information units corresponding to a predetermined number of bit-parallel input information units which together form a data block, and a defined data pause, wherein said predetermined number of bit-parallel input information units, which can be assembled into a data block, is determined by the number of cascaded transmitting and receiving means;

each of said transmitting means having internal clock means for producing an internal timing signal, a clock input terminal for receiving an external timing signal, and first master-slave-programming means, responsive to a control signal, for causing said transmitting means to operate as either a transmitting means master stage or a transmitting means slave stage such that each data word on said data transfer line is formed by sequential joining of a corresponding number of data blocks each having the same number of information units, said first master-slave-programming means including first means for selecting one of said internal timing signal and said external timing signal, wherein each of said transmitting means operating as a transmitting means slave stage is responsive to said external timing signal, only one of said cascaded plurality of transmitting means being said transmitting means master stage and producing said control signal and said external timing signal for each said transmitting means slave stage, and said transmitting means master stage being responsive to said internal timing signal;

each of said receiving means having internal clock means for producing an internal timing signal, a clock input terminal for receiving an external timing signal, and second master-slave-programming means for causing said second master-slave-programming means to operate as either a receiving means master stage or a receiving means slave stage, said second master-slave-programming means including second means for selecting as said timing signal one of said internal timing signal and said external timing signal, only one of said cascaded plurality of receiving means being said receiving means master stage and producing said external timing signal for each said receiving means slave stage

each of said transmitting means further comprising first cascading circuit means operable in conjunction with said first master-slave-programming means for sequentially joining its corresponding data block to the ones of said data blocks on said data transfer line, said ones of said data blocks being respectively joined corresponding to the sequence in which said transmitting means are connected, said first cascading circuit means including an externally programmable storage means; and

each of said receiving means further comprising second cascading circuit means operable in conjunction with said second master-slave-programming means for causing said data blocks to be respectively decoded by corresponding ones of said receiving means, said second cascading circuit means including a programmable storage device.

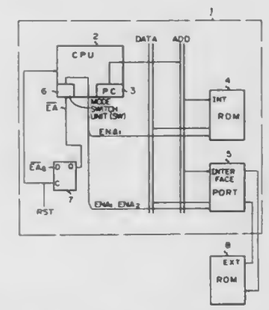


5,067,077

SINGLE CHIP MICROCOMPUTER HAVING UNAUTHORIZED MEMORY SPACE ACCESS PROTECTION

Yasuhiro Wakimoto, Yokohama, and Tetsuo Suzuki, Tokyo, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Continuation of Ser. No. 285,310, Dec. 15, 1988, abandoned, which is a continuation of Ser. No. 652,074, Sep. 19, 1984, abandoned. This application Mar. 19, 1991, Ser. No. 671,660
Claims priority, application Japan, Sep. 22, 1983, 58-175977
Int. Cl.[5] G06F *12/00, 12/14*
U.S. Cl. 395—400 8 Claims



1. A single-chip microcomputer connectable to an external memory having first and second address spaces and comprising:

an internal read-only memory having said second address space;

a central processor, operatively connected to said internal read-only memory, operating in a first mode to access said internal read-only memory and said first address space of said external memory and a second mode to access said first and second address spaces of said external memory said central processor including:

a program counter for generating an address used to access said external memory, and

switching means for switching, in response to a switching signal, between the first mode and the second mode; and

inhibiting means, connected to said switching means, for receiving an input the switching signal and the address generated by said program counter, and for inhibiting, when the address is in said first address space only, output of said switching signal as input to said switching means to prevent switching from said second mode to said first mode.

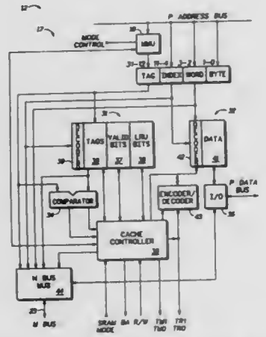
VOL 1132 ISS 3 NOV 19 1991 UMI

5,067,078

CACHE WHICH PROVIDES STATUS INFORMATION

Yoav Talgam, Tel-Aviv, Israel; James A. Klingshirn, and James B. Gullette, both of Austin, Tex., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Apr. 17, 1989, Ser. No. 339,464
Int. Cl.[5] G06F *7/00, 7/04, 7/20;* G11C *8/00*
U.S. Cl. 395—400 9 Claims



1. An integrated circuit cache, having an address bus for receiving processor addresses from a processor, a data bus for providing requested data to the processor, and a multiplexed bus for accessing a main memory using memory addresses, said processor addresses and said memory addresses having a TAG portion and an index portion, comprising:

a TAG memory, coupled to the address bus, having a plurality of valid bits and a plurality of TAG locations for storing a plurality of TAG addresses, each TAG location having a valid bit of the plurality of valid bits associated therewith, said TAG locations characterized as being arranged in sets of TAG locations, each set of TAG locations corresponding to a particular index portion;

a data memory, coupled to the address bus, having a plurality of storage locations for storing data, wherein said stored data may be invalid, each storage location corresponding to a TAG location of the plurality of TAG locations, and to a valid bit of said plurality of valid bits for indicating if data stored in the storage location is invalid;

determination means, coupled to the TAG memory and to the address bus, for determining if the TAG portion of the processor address present on the address bus corresponds to a TAG address present in the selected set of TAG locations which correspond to the index portion of the processor address and providing a TAG select signal to the data memory to indicate which one of the TAG locations of the selected set of TAG locations contains the TAG portion of the processor address;

output means, coupled to the TAG memory, for providing, onto the multiplexed bus, the memory address with the TAG portion having the TAG address of one of the TAG locations of the set of TAG locations which corresponds to the index portion of the memory address; and

cache controller means, coupled to the output means, for providing a plurality of trace signals and status signals external to said cache integrated circuit, said plurality of status signals indicating if the valid bit which corresponds to the TAG location of the TAG address which is provided on the memory bus is set, and said trace signals indicating which one of the TAG locations of the set of TAG locations corresponding to the index portion of the memory address on the memory address has its TAG address on the multiplexed bus; and

wherein said integrated circuit cache has a plurality of monitor states which comprise:

a first state, in which said integrated circuit cache performs a memory cycle on the multiplexed bus for which an address TAG is being validated;

a second state, in which said integrated circuit cache performs a memory cycle on the multiplexed bus for which an address TAG is being invalidated; and

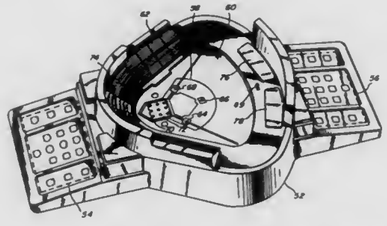
a third state, in which said integrated circuit cache performs a memory cycle on the multiplexed bus for which an address TAG is not affected.

5,067,079

INTERACTIVE AUDIO BASEBALL GAME

Jay Smith, III, Los Angeles, and Jeffrey W. Fort, Santa Barbara, both of Calif., assignors to Smith Engineering, Culver City, Calif.

Filed Feb. 6, 1989, Ser. No. 307,301
Int. Cl.[5] G06F *15/44;* A63F *9/00, 7/06*
U.S. Cl. 364—410 15 Claims



1. A microprocessor based interactive audio baseball game having a predetermined number of possible game states comprising:

visual means for designating the path of a ball thrown with a pitch game play and for producing a flashing visual output representative of the path of the simulated flight of the thrown ball and the time interval during which a hit game play may take place, said visual means comprising a plurality of visual indicators arranged in a grid that represents the flight of a thrown ball through a vertical cross section of the strike zone, said visual indicators being sequentially flashed a predetermined number of times and in a predetermined pattern for a particular variety of pitch, said predetermined number of flashes indicating the time interval during which the hit game play may take place and said predetermined pattern indicating the path of the simulated flight of the thrown ball;

input means for at least one participant to vary the state of the game, said input means including a grid of keys corresponding to said plurality of visual indicators arranged in a grid whereby said participant, by depressing an appropriate one of said keys, may simulate a swing at a particular time and through a particular location in response to a simulated pitch;

audio means for providing to the participant an audio output indicative of a particular game state, and

means for variably selecting one of a plurality of audio outputs which correspond to a particular game state whereby the participant is provided with a variety of different audio outputs for the same game state.

9. An audio baseball game where the play of the game is affected by a combination of major league baseball player' statistics and at lease one user's directions comprising:

means for storing and retrieving pitcher and batter statistical sets;

game play processing means for simulating the game plays of a baseball game based upon the statistical sets and for producing output results, said game plays comprising pitching, batting, and base running game plays;

visual means for indicating the position of a simulated ball thrown in the pitching game play, said visual means comprising a uniform grid of visual indicators that are sequentially flashed, the number of flashed visual indicators representing a simulated position between the pitcher and home plate and the pattern defined by the flashed visual indicators representing a simulated position from the catcher's viewpoint;

input means for allowing at least one user to direct the play of the game play processing means in conjunction with the statistical sets, to thereby affect the output results;

said input means including a grid of keys corresponding to said uniform grid of visual indicators whereby said participant, by depressing an appropriate one of said keys, may simulate a swing at a particular time and through a particular location in response to a simulated pitch; audio means for vocalizing a particular output result whereby the user is provided with a vocal description of the game play.

5,067,080

DIGITAL CONTROL SYSTEM

Brian F. Farman, Endicott, N.Y., assignor to Lucas Industries Public Limited Company, Birmingham, England

Continuation of Ser. No. 780,930, Apr. 11, 1985, abandoned. This application Jan. 4, 1988, Ser. No. 143,240
Int. Cl.[5] G06F *15/48*
U.S. Cl. 364—431.04 11 Claims

1. A digital control system having two control lanes which are selectively operable to control an apparatus, each lane comprising:

a digital computer;

input and output devices;

an input-output bus for connecting said devices to said computer;

means responsive to selection of that lane as inoperable to control said apparatus for isolating said computer from said input-output bus; and

an interface unit, said interface unit including;

means, responsive to a signal selecting that lane as operable to control said apparatus, for transmitting data from said computer to the input-output bus in the other lane and for receiving data from the input-output bus in said other lane;

means, responsive to a signal selecting that lane as inoperable to control said apparatus, for transmitting data from said input-output bus to the computer in said other lane, and for receiving data from the computer in said other lane;

means for generating an indicating signal for separate groups of data transmitted; and

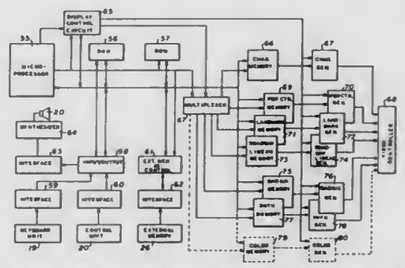
means responsive to indicating signals from the other lane for generating control signals for handling an indicated data group from that other lane.

5,067,081

PORTABLE ELECTRONIC NAVIGATION AID

Carl E. Person, 221 W. 41st St., New York, N.Y. 10036

Filed Aug. 30, 1989, Ser. No. 400,324
Int. Cl.[5] G06F *15/50*
U.S. Cl. 364—444 31 Claims



1. A portable electronic navigation apparatus utilizing universal latitude and longitude coordinates for determining current location or a specific destination and the distance and bearing thereof relative to landmark data input by a user comprising:

a portable housing;

a microcomputer contained within said housing including; a first memory having stored navigational data representing the identity and latitude and longitude coordinates for the approximate physical center of various points or landmarks in a geographical area to be navigated, a second memory having stored calculation programs to calculate differences in latitude and longitude coordinates, convert the calculated differences to mileage and determine the bearing or direction between the latitude and longitude coordinates, a temporary memory for temporarily storing data in the course of computation, a video display controller, input and output ports, and a central processing unit responsive to user input to control the operation of said memories, said input and output ports, and said video display controller;

a video display screen operatively connected to said microcomputer video display controller;

a keyboard operatively connected to said microcomputer and having user input keys for inputting data and operation control keys for controlling the operation of said microcomputer;

power connection means operatively connected to said microcomputer for connecting said microcomputer to a source of electrical power,

external memory receiving means operatively connected to said microcomputer for removably receiving external memory means,

external memory means removably received within said external memory receiving means and having additional stored navigation data representing the identity and latitude and longitude coordinates for the approximate physical center of various points or landmarks in a geographical area to be navigated,

said navigational data being read from said first memory said external memory means into said temporary memory and processed by said central processing unit responsive to user input from said keyboard and calculated by said programs in said second memory relative to other data inputted by the user and the results of the calculations displayed on said video display screen by said video controller, whereby

upon the user typing in a destination location said microcomputer records the destination location in said tem-

VOL 1132 ISS 3 NO 19 1991 UMI

porary memory and retrieves from said first memory or said external memory means the identity of the destination location and its latitude and longitude coordinates and displays the retrieved information on said video display screen or indicates that the destination location does not exist in said first memory or said external memory means, and the user can selectively edit the retrieved information or add the destination location data by typing in the identity or latitude and longitude coordinates for the destination location and record the edited data in said temporary memory, and

upon the user typing in a starting location or a current location said microcomputer records the starting location or current location in said temporary memory and retrieves from said first memory or said external memory means the identity of the starting location or current location and its latitude and longitude coordinates and displays the retrieved information on said video display screen or indicates that the starting or current location does not exist in said first memory or said external memory means, and the user can selectively edit the retrieved information or add the starting location or current location data by typing in the identity or latitude and longitude coordinates for the starting location or current location and record the edited data in said temporary memory, and

after the destination location and starting location or current location data have been entered into said temporary memory, the user presses a key to cause one of said programs in said second memory to calculate the differences between the latitude and longitude coordinates of the destination location and the starting location or current location, convert the calculated differences to mileage, determine the bearing or direction from the starting location to the destination location, and display the mileage and bearing or direction from the starting location to the destination location on said video display screen.

5,067,082

NAVIGATION APPARATUS

Mitsuhiro Nimura; Akimasa Nanba, and Shoji Yokoyama, all of Anjo, Japan, assignors to Aisin AW Co., Ltd. and Kabushiki Kaisha Shinsangyokaihatsu, both of, Japan

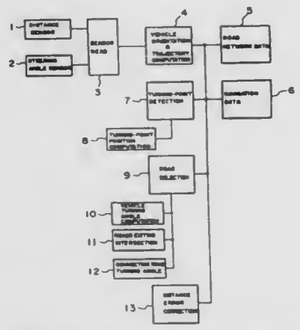
PCT No. PCT/JP88/01300, § 371 Date Aug. 23, 1989, § 102(e) Date Aug. 23, 1989, PCT Pub. No. WO90/01679, PCT Pub. Date Feb. 22, 1990

PCT Filed Dec. 23, 1988, Ser. No. 408,504

Claims priority, application Japan, Aug. 11, 1988, 63-202473; Aug. 11, 1988, 63-202475

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—449 **6 Claims**



1. A navigation apparatus for a vehicle which, by being provided with an input of a desired destination, performs course exploration up to the destination to furnish a course to the destination while keeping track of present position of the vehicle, said apparatus comprising:

storage means for storing road network data including road network information having intersections as reference points,

means for detecting the steering angle of the vehicle,

means for detecting the travel distance of the vehicle,

computing means for computing the vehicle orientation and trajectory from said detected steering angle and said detected travel distance,

turning-point detecting means for detecting a turning point from said detected steering angle and said computed vehicle orientation and computing the position of the turning point, and

road selecting means for determining an actual vehicle turning angle from the turning-point position and comparing the actual vehicle turning angle with the turning angle of a road leading to an intersection obtained from the road network data, and selecting a road in a travelling direction which passes through the intersection based on the comparison,

wherein said vehicle turning angle is determined based on three points, namely, the turning-point position, the turn starting point and the turn end points, and said present position is calculated based on the selected road in the travelling direction and intersection information.

5,067,083

VEHICLE DRIVING AZIMUTH DETECTING APPARATUS FOR CORRECTING A DISTURBED GEOMAGNETIC AZIMUTH

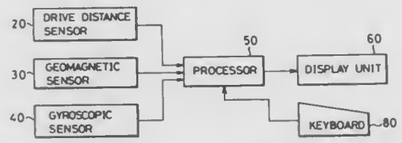
Okihiko Nakayama, Kamakura, and Hiroshi Tsuda, Yokohama, both of Japan, assignors to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Feb. 28, 1989, Ser. No. 316,836

Claims priority, application Japan, Feb. 29, 1988, 63-47189

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—453 **5 Claims**



1. An apparatus for detecting a present driving azimuth of a vehicle, said apparatus comprising:

a geomagnetic sensor which senses a plurality of geomagnetic azimuth values of said vehicle to produce a first geomagnetic variation amount in said plurality of geomagnetic azimuth values;

a gyroscopic sensor which senses a plurality of gyroscopic azimuth values of said vehicle to produce a second gyroscopic variation amount in said plurality of gyroscopic azimuth values;

a processor which determines a geomagnetic condition surrounding said vehicle by calculating a difference between said first geomagnetic variation amount and said second gyroscopic variation amount and outputs a geomagnetic condition signal representative of geomagnetic conditions surrounding said vehicle, said processor also determining said present driving azimuth of said vehicle based on said difference between said first geomagnetic variation amount and said second gyroscopic variation amount and on said geomagnetic condition signal such that a plurality of differences of said first geomagnetic variation amount and said second gyroscopic variation amount are acquired and averaged to obtain an averaged difference according to

$$\beta = \sum_{1}^{M} |\Delta\theta_G - \Delta\theta_M| / M,$$

where M is a number of azimuth detections ($M \geqq 2$), $\Delta\theta_G$ is said second gyroscopic variation amount, and, $\Delta\theta_M$ is said first geomagnetic variation amount and said present driving azimuth θ_3 is generated according to

$$\theta_3 = \{\alpha/(\beta^n + 1)\} \cdot (\theta_M - \theta_2) + \theta_2,$$

where α is a first constant ($0 \leqq \alpha \leqq 1$), n is a second constant, θ_M is said geomagnetic azimuth, and θ_2 corresponds to $\Delta\theta_G + \theta_3$ acquired in a previous azimuth detection.

5,067,084

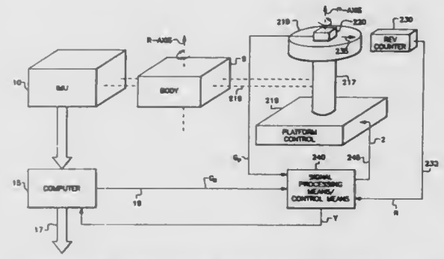
INERTIAL MEASUREMENT UNIT WITH AIDING FROM ROLL ISOLATED GYRO

Shing P. Kau, Seminole, Fla., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 25, 1989, Ser. No. 357,383

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—453 **3 Claims**



1. An inertial measurement apparatus comprising:

an inertial measurement unit having at least a first rotation sensor for providing a first rotation signal indicative of rotation of a vehicle body about a first axis, said first rotation sensor being rigidly secured relative to said vehicle body;

a rotatable platform having a platform rotation axis;

a platform control means for controlling the rate of rotation of said rotatable platform about said platform rotation axis, and in which the axis is substantially in parallel with such vehicle body axis in response to a first control signal;

a second rotation sensor originally fixed to said platform, said second rotation sensor having a sensing input axis substantially in parallel with such vehicle body axis, said second rotation sensor further providing a second rotation signal indicative to rotation of said second rotation sensor about said platform rotation axis;

means for counting complete revolutions of said rotatable platform and providing a count signal representative of said complete revolutions;

signal processing means responsive to said first rotation signal and said second rotation signal to provide said first control signal such that said rotatable platform turns at a rate of rotation substantially equal to said rotation of said vehicle body about said first axis, but in an opposite direction; and

said signal processing means for generating an error signal as a function of said first rotation signal, said second rotation signal, and said count signal, and said error signal being related to rotation measurement error of said first rotation signal due to high spin rates of said inertial measurement apparatus.

5,067,085

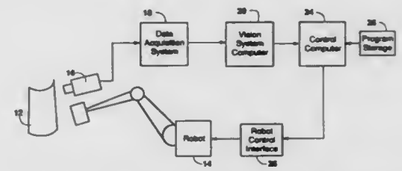
OPTICAL ROBOTIC CANOPY POLISHING SYSTEM

Dennis J. Wenzel, and David S. McFalls, II, both of San Antonio, Tex., assignors to Southwest Research Institute, San Antonio, Tex.

Filed May 15, 1989, Ser. No. 352,600

Int. Cl.[5] G06F *15/46*

U.S. Cl. 364—474.06 **11 Claims**



1. A system for removing flaws from the surface of a material, such as a transparent aircraft canopy, comprising:

a canopy;

means for obtaining a video signal representation of the surface of said canopy, wherein said means for obtaining a video signal representation of said canopy comprises means for mapping said surface of said canopy to obtain a plurality of mapped sectors, the location of said flaws being correlated with the location of said mapped sectors;

means for processing said video signal representation of said surface of said canopy to locate flaws in said surface;

means for determining an optimal grinding pattern for removing said flaws from said canopy; and

means for polishing the surface of said canopy in accordance with said grinding pattern to remove said flaws from said surface.

5,067,086

THREE-DIMENSIONAL SHAPE MACHINING LASER DEVICE

Etsuo Yamazaki, Hachioji, and Nobuaki Iehisa, Minamitsuru, both of Japan, assignors to Fanuc, Ltd., Minamitsuru, Japan

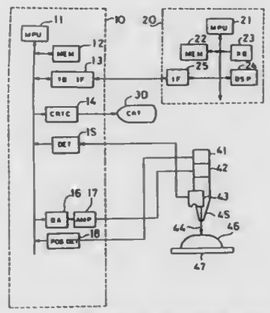
PCT No. PCT/JP89/00005, § 371 Date Aug. 21, 1989, § 102(e) Date Aug. 21, 1989, PCT Pub. No. WO89/06174, PCT Pub. Date Jul. 13, 1989

PCT Filed Jan. 6, 1989, Ser. No. 397,460

Claims priority, application Japan, Jan. 8, 1988, 63-002143

Int. Cl.[5] G06F *15/46; B23K 26/02*

U.S. Cl. 364—474.08 **4 Claims**



1. A three-dimensional shape machining laser device for performing three-dimensional machining of a work using a nozzle, comprising:

means for generating NC commands relating to X, Y and Z axes and a pose of the nozzle;

command storage means for storing the NC commands;

VOL 1132 ISS 3 NO 19 1991 UMI

NC command execution means for executing the NC commands;

sensor means for detecting a distance between the distal end and the work;

tracing means for controlling the distance between the nozzle and the work to a predetermined value in accordance with the distance detected by said sensor means;

interrupt control means for performing tracer control during execution of the NC commands, for detecting a deviation of the distal end from a path defined by the NC commands, and for interrupting the execution of an NC command program when an amount of said deviation exceeds a predetermined value;

correction value calculation means for calculating correction command values used for correcting coordinate values of the X, y and Z axes, based on the amount of deviation, the coordinate values and pose data of the nozzle; and

correction means for correcting NC command values in accordance with said correction command values.

5,067,087

COMPOSITE-FIGURE DEFINITION METHOD

Masaki Seki; Takashi Takegahara, both of Tokyo, and Takeshi Arakaki, Yamanashi, all of Japan, assignors to Fanuc Ltd., Minamitsuru, Japan

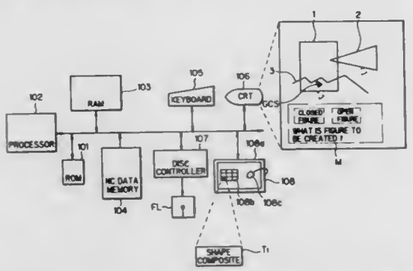
PCT No. PCT/JP88/01262, § 371 Date Aug. 21, 1989, § 102(e) Date Aug. 21, 1989, PCT Pub. No. WO89/06006, PCT Pub. Date Jun. 29, 1989

PCT Filed Dec. 13, 1988, Ser. No. 415,235

Claims priority, application Japan, Dec. 21, 1987, 62-323425

Int. Cl.[5] B23Q *15/22*

U.S. Cl. 364—474.24 **11 Claims**



1. A composite-figure definition method for combining already defined first and second figures to define a new figure, characterized by:

designating said first and second figures;

determining whether said designated first and second figures have a point of intersection;

displaying an error if there is no point of intersection;

determining whether at least one of said designated first and second figures is an open figure if there is a point of intersection;

successively painting closed figures, which are obtained by combining said designated first and second figures, if neither of said designated first and second figures is an open figure; and

when a desired closed figure is painted, selecting said closed figure, thereby defining the composite figure.

5,067,088

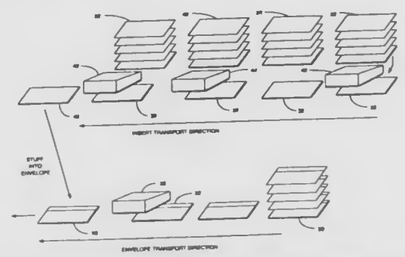
APPARATUS AND METHOD FOR ASSEMBLING MASS MAIL ITEMS

Edward M. Schneiderhan, Glenview, Ill., assignor to Johnson & Quin, Inc., Niles, Ill.

Filed Feb. 16, 1990, Ser. No. 481,480

Int. Cl.[5] G06F *15/20*; B65H *39/02*

U.S. Cl. 364—478 **8 Claims**



1. A matching system for use with an inserting device adapted to insert into an envelope component at least one mail component, a plurality of the components personalized for a predetermined recipient, said matching system comprising:

a plurality of video cameras, each of said cameras positioned to sense an alpha-numeric sequence indicator on a corresponding one of said personalized components, creating an electrical signal in accordance with the sensed indicator, the sequence indicator corresponding to the predetermined recipient for whom that component is personalized

means for processing the electrical signal from each of said cameras to develop a digital representation of that signal and for storing said digital representation; and

control means for receiving said stored digital representations and for determining therefrom whether the sequence indicators on the personalized components match.

5,067,089

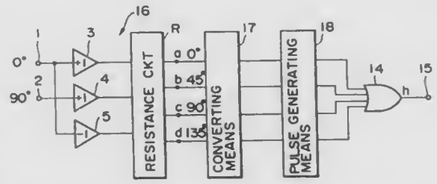
DEVICE HAVING SIGNAL INTERPOLATION CIRCUIT AND DISPLACEMENT MEASURING APPARATUS COMPRISING THE DEVICE

Satoshi Ishii; Masaaki Tsukiji, both of Tokyo; Tetsuharu Nishimura, Kawasaki, and Koh Ishizuka, Urawa, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 11, 1989, Ser. No. 419,705

Int. Cl.[5] G01R *29/02*; H03M *1/48*

U.S. Cl. 364—486 **20 Claims**



5. A device comprising:

output means for receiving signals having predetermined phases and outputtting first and second signals having different phase angles and amplitudes;

a first comparator, having a first hysteresis settable to a first width, for converting said first signal into a first binary signal;

a second comparator, having a second hysteresis settable to a second width, for converting said second signal into a second binary signal, the first and second hysteresis

widths being set so that said first and second binary signals have substantially equal widths regardless of a difference in amplitude of said first and second signals; and

generating means for generating first and second pulses according to the phase angles on the basis of said first and second binary signals.

5,067,090

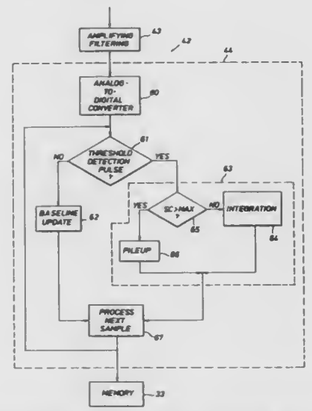
NUCLEAR SPECTROSCOPY METHOD AND APPARATUS FOR DIGITAL PULSE HEIGHT ANALYSIS

Bronislaw Seeman, Missouri City, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex.

Filed May 1, 1989, Ser. No. 344,729

Int. Cl.[5] G01R *29/02*; G06F *15/52*

U.S. Cl. 364—486 **27 Claims**



1. A nuclear spectroscopy method for pulse height analysis of an electrical signal containing pulses representative of nuclear particles, the amplitude of said pulses being a measure of the energy of said nuclear particles, said method comprising the following successive steps:

(1) detecting said particles and forming an electrical signal containing pulses representative of said particles;

(2) continuously converting said signal to digital samples, at a given rate;

(3) determining whether said digital sample is representative of a pulse, and forming a digital image of each pulse; and

(4) sorting said digital images into a plurality of channels according to the energy of the corresponding particles.

5,067,091

CIRCUIT DESIGN CONVERSION APPARATUS

Masahisa Nakazawa, Kawasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 19, 1989, Ser. No. 298,909

Claims priority, application Japan, Jan. 21, 1988, 63-11382; Mar. 31, 1988, 63-76092; Nov. 7, 1988, 63-279301

Int. Cl.[5] G06F *15/60*

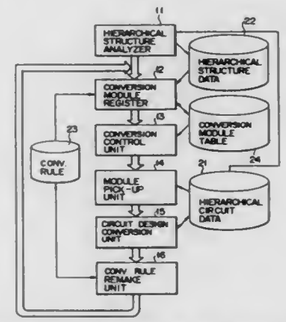
U.S. Cl. 364—490 **14 Claims**

1. A circuit design conversion apparatus responsive to circuit connection data representing connection between modules of a circuit with an hierarchical structure, hierarchical structure data representing the hierarchical structure of the circuit, and a conversion rule indicating a scannable module of the circuit, comprising:

means for providing a conversion module table representing modules higher in level than the scannable module indicated by the conversion rule, in accordance with the hierarchical structure data and the conversion rule, the table including a pointer indicating the module to be scan-design-converted;

circuit design converting means for converting the circuit connection data of the module indicated by the pointer of said conversion module table into a scannable design; and

updating means for adding the name of the module which



is scan-design-converted into said conversion rule, adding the name of the module higher in level than the module which is scan-design-converted into said conversion module table, and shifting the pointer of said conversion module table in accordance with the name of the module which is scan-design-converted.

5,067,092

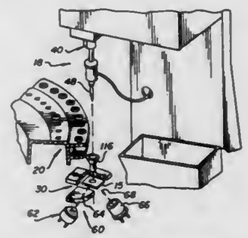
PRESPOT DETECTION METHOD AND APPARATUS IN AN ANALYZER

J. Eric Hamann, Spencerport, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 24, 1990, Ser. No. 469,860

Int. Cl.[5] G01N *35/00, 33/18*

U.S. Cl. 364—496 **5 Claims**



1. A method of detecting improper wetting of a test element by a liquid dispenser using a wetness detector that produces an R-C time decay curve of reflectivity measured using an absorption wavelength of water that decreases abruptly if moisture is present on the element, the method comprising the steps of:

a) prior to intended liquid dispensing, generating an R-C time decay signal of data points representing reflectivity of a test element at said absorption wavelength of water,

b) for each data point in said signal, calculating an estimated first and second derivative of said signal over time,

c) comparing said second derivative for each data point against a threshold noise value representing the second derivative caused by motion of a test element,

d) determining if comparison step c) produces a value greater than said threshold value for two consecutive data points,

e) issuing an error statement if step d) finds such two consecutive data points producing a value greater than said threshold, and

VOL 1132 ISS 3 NO 19 1991 UMI

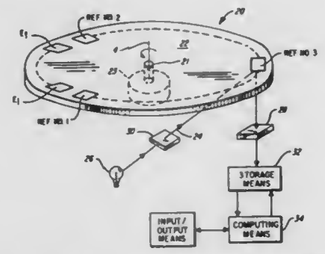
f) redoing the assay of the test element in the event step e) results in the execution of an error statement.

5,067,093

REFERENCE READING IN AN ANALYZER

Catherine S. Przybylowicz, Rochester; Edwin W. Brill, Jr., Pittsford, and Luigi A. Carrozziere, Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Jan. 24, 1990, Ser. No. 469,887
Int. Cl.[5] G01N *21/55*; G06F *15/20*
U.S. Cl. 364—498 **8 Claims**



1. In a method for quantitatively assaying for an analyte in a biological liquid, comprising the steps of

a) scanning with a light beam a test element bearing a sample of liquid having an analyte of unknown concentration;

b) scanning a reference element with said light beam;

c) detecting the amount of light diffusely reflected from said test element and said reference element;

d) filtering the light beam before or after reflection from said elements and before detection, at a preselected wavelength that is the same for both said test element and said reference element;

e) storing the detected amounts of diffuse reflection for each scanning of the reference element and test element, and

f) comparing the detected reflectance of the test element with said stored reference detected reflectance to determine how much analyte is present, said reference element being scanned repeatedly, each time for a predetermined multiple of test elements scanned, a reference reflectance value being stored for each scanning;

the improvement wherein said step e) comprises the steps of always selecting from said stored reference reflectance detections at said wavelength that which is either detected by step c) at a point of time closest to the time at which said test element is scanned at said wavelength in step a), or that which is computed to be the equivalent reference reflectance at the actual time the test element reflectance was read, and comparing said selected reference reflectance detection in said step f) with the detected test element reflectance, whereby the effect of drift in the reading of the reference element is minimized.

5,067,094

QUANTIFYING ISOLATION VALVE LEAKAGE

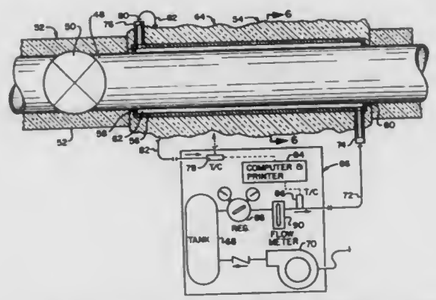
James K. Hayes, Chattanooga, Tenn., assignor to Combustion Engineering, Inc., Windsor, Conn.

Continuation-in-part of Ser. No. 337,625, Apr. 13, 1989, abandoned. This application Jul. 12, 1990, Ser. No. 552,330
Int. Cl.[5] G01M *3/26*
U.S. Cl. 364—510 **30 Claims**

17. A system for measuring steam leakage through a steam isolation valve connected between an upstream pipe containing steam from a process condition and a downstream pipe at a known bypass condition, the pipes having tubular walls defining inner and outer surfaces between which heat is transferred when the surfaces are at respective inner and outer temperatures, the system comprising:

means for storing a quantitative relation between an index dependent on the heat transfer characteristics through the outer surface of the wall of the upstream pipe and steam leakage through the valve at a given process condition;

means secured to a selected outer surface of said upstream



pipe for measuring a thermal variable on said pipe which is dependent on said heat transfer characteristics;

means for generating a heat transfer index signal from the measured thermal variable;

processor means responsive to the index signal and coupled to the means for storing a quantitative relation for computing steam leak rate from said quantitative relation; and

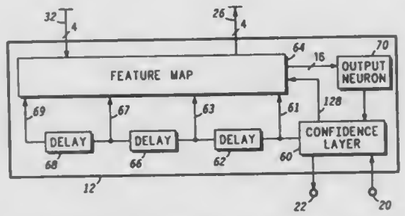
means for recording the computed leak rate.

5,067,095

SPANN: SEQUENCE PROCESSING ARTIFICIAL NEURAL NETWORK

William M. Peterson, Scottsdale; Howard C. Anderson, Tempe; Robert Leivian, Chandler, and Sidney C. Garrison, Tempe, all of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Jan. 9, 1990, Ser. No. 462,203
Int. Cl.[5] G06G *7/12*
U.S. Cl. 395—24 **34 Claims**



1. A neural network responsive to first and second input signals applied at first and second inputs for providing first and second output signals at first and second outputs symbolic of the information content thereof, comprising:

first means responsive to the first output signal for providing a prediction of the first input signal of the neural network at an output;

second means having first and second outputs and first and second inputs coupled for receiving the first input signal of the neural network and said prediction of the first input signal respectively for monitoring the correlation between the first input signal and said prediction of the first input signal and gating a signal through said second means to said first output of said second means in response to first and second degrees of correlation between the first input signal and said prediction of the first input signal, wherein the first input signal is gated through to said first output of said second means upon detecting said first degree of correlation and said prediction of the first input signal is gated through to said first and second outputs of said second means upon detecting said second degree of correlation, said second output of said second means being coupled to the second output of the neural network;

third means for progressively delaying said signal gated through said second means to provide a spatial vector of said signal gated through said second means at a plurality of tap points; and

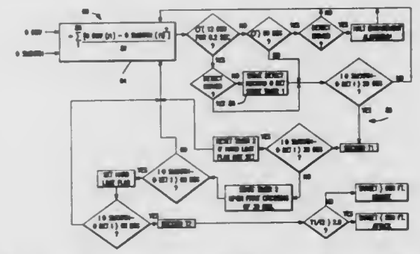
fourth means responsive to said spatial vector of said signal gated through said second means and to the second input signal of the neural network for providing the first output signal symbolic of the information content of the first and second input signals.

5,067,096

TARGET ENGAGEMENT SYSTEM FOR DETERMINING PROXIMITY TO A TARGET

David P. Olson, Mound, and Jonathan C. Werder, Maple Grove, both of Minn., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Sep. 14, 1990, Ser. No. 582,574
Int. Cl.[5] G01S *15/00*
U.S. Cl. 364—517 **21 Claims**



20. A method for engaging a target, comprising the steps of:

(a) receiving an azimuth signal including a target bearing and an average target bearing;

(b) waiting until the standard deviation of the target bearing and the average target bearing is less than a predetermined first deviation limit;

(c) recording the target bearing;

(d) measuring a first time interval as the time it takes for the target to move through a predetermined first bearing angle; and

(e) measuring a second time interval as the time it takes for the target to move through a predetermined second bearing angle; and

(f) engaging said target if the ratio of said first time interval to said second time interval is greater than a predetermined ratio.

5,067,097

IMAGE MEMORY CONTROLLER

Hideki Yamazaki, Hitachi; Hiroshi Takeda, Higashi-yamamato, and Yoshikazu Yokota, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

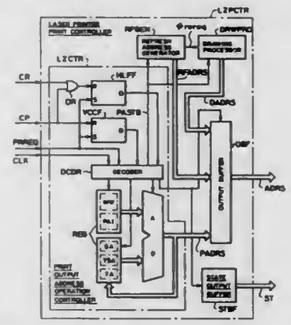
Continuation of Ser. No. 173,355, Mar. 25, 1988, abandoned. This application Mar. 8, 1990, Ser. No. 494,874
Claims priority, application Japan, Mar. 27, 1987, 62-71441
Int. Cl.[5] G06F *15/626*
U.S. Cl. 395—115 **20 Claims**

6. An image memory controller comprising:

a state designation signal generation means coupled to a printer, said generation means generating at least two state designation signals including a print address output request signal, a page changing signal representing a change in a page of paper to be printed upon by the printer, and a line changing signal representing a change of a line to be printed by the printer;

first address signal generation means for generating a first address signal in response to at least one of the state designation signals representing the operation state of printer disposed in such a manner as to correspond to an image memory;

second address signal generation means for generating a refresh second address signal for said image memory;



third address signal generation means for generating a third address signal used for rewriting at least part of data stored in said image memory; and,

address signal selection means for sending selectively any of said first, second and third address signals to said image memory.

5,067,098

SLOPE-ASPECT COLOR SHADING FOR PARAMETRIC SURFACES

Harold J. Moellering, Columbus, Ohio, and A. Jon Kimerling, Corvallis, Oreg., assignors to The Ohio State University Research Foundation, Columbus, Ohio

Filed Mar. 31, 1989, Ser. No. 331,929
Int. Cl.[5] G06F *15/62*; G09B *29/12*; G09G *5/02*
U.S. Cl. 395—126 **13 Claims**



12. A method for generating an image on a two dimensional surface representing a three dimensional surface which has been subdivided into an array of contiguous surface elements on a positional coordinate system, each element being defined by stored data including at least two positional coordinate parameters to define a position and a slope-aspect azimuth interval parameter for each position defining the direction the element faces, the image also having a selected light origin azimuth, the method comprising:

(a) effecting the radiation of light having the color yellow from all coordinate positions on the two dimensional surface having a slope-aspect interval identical to the light origin interval;

(b) effecting the radiation of light having the color blue from all coordinate positions on the two dimensional surface

VOL 1132 ISS 3 NO 19 1991 UMI

having a slope aspect azimuth interval diametrically opposite the light origin azimuth interval;

(c) effecting the radiation of light having the color red from all coordinate positions on the two dimensional surface having one of the two slope aspect azimuth intervals which are orthogonal to the light origin azimuth interval; and

(d) effecting the radiation of light having the color green from the other of said two orthogonal intervals.

5,067,099

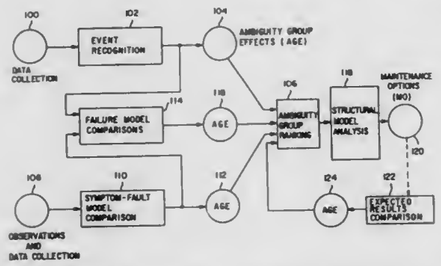
METHODS AND APPARATUS FOR MONITORING SYSTEM PERFORMANCE

Patricia M. McCown, Cresskill; Timothy J. Conway, Highland Park, and Karl M. Jessen, Bayonne, all of N.J., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 266,722, Nov. 3, 1988. This application Apr. 10, 1989, Ser. No. 335,464

Int. Cl.[5] G06F *15/74*

U.S. Cl. 364—550 **41 Claims**



27. Apparatus for monitoring a system's performance, comprising:

data acquisition means for collecting a plurality of operational data samples from the system during a period of operation;

an event record database for providing a plurality of event records, each of said plurality of event records pre-defining an event that can occur during operation of the system by those events on whose occurrence the occurrence of said pre-defined event is dependent and by one or more critical parameters defining operational data which must occur during the system's performance for said pre-defined event to occur, each of said plurality of event records further having a plurality of data defining actions to be performed;

event recognition means for accessing successive event records in said plurality of event records and for each of said plurality of event records, comparing said event on whose occurrence the occurrence of said event pre-defined by said event record is dependent and if a match is found, then comparing said one or more critical parameters to each successive operational data sample and if a match is found, recognizing said event pre-defined by said event record as having occurred;

means for accessing said event records which pre-define each of said recognized events and performing the specified action.

5,067,100

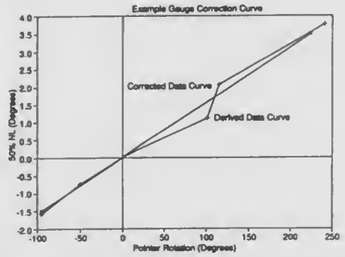
METHOD OF CALIBRATING MECHANICAL PRESSURE GAUGES

Robert D. Bissell, Orange, and Nicholas E. Ortyl, III, Middletown, both of Conn., assignors to Dresser Industries, Inc., Dallas, Tex.

Filed Aug. 22, 1990, Ser. No. 570,913

Int. Cl.[5] G01L *7/04*; G06F *15/46*

U.S. Cl. 364—571.01 **22 Claims**



1. Method of calibrating pressure gauges having a pressure responsive element which moves proportionate to applied pressure, the element being unrigidly linked at a gain producing span adjusting distance from the pivot point of a segment gear, the segment gear being pivoted in a movement drivingly engaging a pinion gear mounted in the movement to operate a dial indicating pointer shaft and pointer, the movement being rotatably positionable about the pointer shaft between maximum and minimum starting teeth engagement of the pinion gear with the segment gear, the method comprising:

(1) developing an analogue baseline model of a calibrated gauge linkage within design dimensions and design movement of the pressure responsive element from zero to full span pressure;

(2) manipulating the baseline model to selected segment angles representative of the possible starting positions of the pinion gear on the segment gear and determining deviation in percent non-linearity full scale from the baseline condition as a function of pointer rotation; and

(3) calibrating a pressure gauge by adjustment of the gain to span the gauge at full pressure followed by application of a reference pressure most selective of linkage non-linearity, applying the relationship developed in step (2) to determine pointer angle which is corrective of the linkage non-linearity found, unpressurizing the gauge, rotating the movement to produce the corrective pointer angle and replacing the pointer at zero.

5,067,101

TOPOGRAPHY SIMULATION METHOD

Tatsuya Kunikiyo; Masato Fujinaga, and Norihiko Kotani, all of Itami, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Japan

Filed Sep. 21, 1989, Ser. No. 410,723

Claims priority, application Japan, Nov. 29, 1988, 63-302857

Int. Cl.[5] G06F *15/72*

U.S. Cl. 364—578 **2 Claims**

1. A method of predicting the three-dimensional shape of a surface of a workpiece from which material is removed by etching with an etchant comprising:

specifying a time T during which a workpiece will be exposed to an etchant;

establishing a three-dimensional grid of points;

specifying an initial three-dimensional shape of a surface of the workpiece that will be exposed to the etchant at each point on the grid of points;

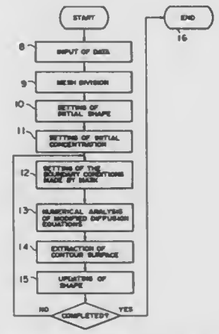
specifying the initial concentration of the etchant at the surface of the workpiece that will be exposed to the etchant;

specifying the three-dimensional diffusion coefficient of the etchant;

specifying the three-dimensional etching rate of the workpiece at each location corresponding to a point on the grid of points;

successively solving the modified three-dimensional diffusion model equations for each of a plurality of time intervals representing etching of the workpiece beginning from the specified initial three-dimensional shape of the surface of the workpiece at the beginning of the first interval, the initial etchant concentration, the three-dimensional diffusion coefficient of the etchant, and the three-dimensional etching rates of the workpiece at each point on the grid of points to determine the shape of the etched surface of the workpiece at the end of each interval from the shape of the etched surface of the workpiece at the beginning of that interval by the finite difference method until the total length of the time intervals reaches the specified time T, thereby producing the final shape of the etched surface of the workpiece after etching with the etchant for the time T; and

graphically displaying the shape of the workpiece after etching with the etchant for the time T.



5,067,102

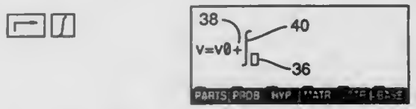
METHOD AND APPARATUS FOR DISPLAYING AND EDITING MATHEMATICAL EXPRESSIONS IN TEXTBOOK FORMAT

Gabe L. Eisenstein, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Jan. 31, 1990, Ser. No. 472,684

Int. Cl.[5] G06F *3/00*

U.S. Cl. 364—709.12 **10 Claims**



1. In a hand-held calculator having a display screen and keyboard, apparatus for displaying in textbook format a mathematical expression comprised of objects, comprising:

a plurality of keys for entering objects into the calculator to form a mathematical expression;

means responsive to a key press for displaying an object associated with the key in a nonlinear textbook format;

means for implicitly entering and displaying an object in response to entry of a predetermined pattern of objects; and

a cursor responsive to a currently entered object for indicating where a next object to be entered is displayed,

the displaying means further responsive to a currently entered object for controlling the display of the next object to maintain the textbook format of the expression.

5,067,103

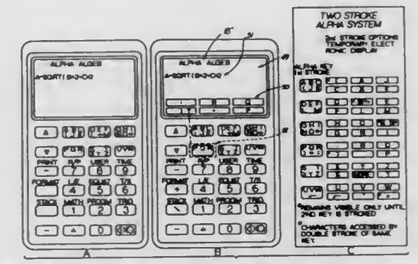
HAND HELD COMPUTERS WITH ALPHA KEYSTROKE

James M. Lapeyre, New Orleans, La., assignor to The Laitram Corporation, New Orleans, La.

Continuation of Ser. No. 246,127, Sep. 23, 1988, abandoned, which is a continuation-in-part of Ser. No. 60,225, Jun. 10, 1987, Pat. No. 5,008,847, which is a continuation-in-part of Ser. No. 844,872, Mar. 27, 1986, abandoned, which is a continuation-in-part of Ser. No. 729,559, May 2, 1985, abandoned, which is a continuation-in-part of Ser. No. 459,998, Jan. 21, 1983, Pat. No. 4,547,860. This application Sep. 28, 1990, Ser. No. 590,325

Int. Cl.[5] G06F *3/023*

U.S. Cl. 364—709.16 **18 Claims**



16. In a hand held multi-function alphanumeric computer with the capability of processing hundreds of data characters and alphanumeric command functions mounted in a housing having a common panel with a manual entry keyboard and a temporary display panel for displaying computer processed data indicia, the improvement comprising, means operable with said display panel to display alphanumeric data thereon in a plurality of lines of alpha characters, a limited number of keyboard keys divided into two mutually exclusive subsets of keys for entry respectively of decimal digits and alphabet characters, computer control means operable by the keyboard keys for selecting and automatically entering when selected a variety of computer input instructions and data input characters including a set of alphabetic characters in a two stroke per entry mode from said alphabet character subset of keys, computer operating means for controlling the keyboard and computer system means responding to keyboard keystroke entries to respond simultaneously to two keyboard input modes of operation, namely single stroke per entry for ten decimal digits from said subset of keys for decimal digits, and two stroke per entry for a set of alphabetic characters from said subset of keys for alphabet characters and computer data organization means for organizing and displaying on said temporary display panel in two mutually exclusive regions of the panel respectively (1) keystroke selection instructions in the multiple stroke per entry mode in the form of a multiple-choice chart identifying the functional response of individual keys in said alphabet character subset of keys on the keyboard to enter alphabetic characters in said set and (2) multiple line alphanumeric data messages processed by the computer in response to actuation of the keyboard keys.

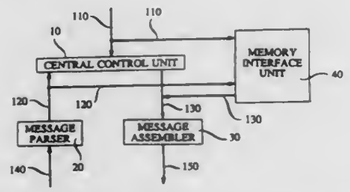
VOL 1132 ISS 3 NO 19 1991 UMI

5,067,104

PROGRAMMABLE PROTOCOL ENGINE HAVING CONTEXT FREE AND CONTEXT DEPENDENT PROCESSES

Anjur S. Krishnakumar, Warren; Bala Krishnamurthy, Morganville, and Krishan K. Sabnani, Berkeley Heights, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed May 1, 1987, Ser. No. 45,904
Int. Cl.[5] H04J *3/12*; G06F *3/00, 13/10, 13/14*
U.S. Cl. 395—375 13 Claims



1. A protocol engine comprising:

a programmable message parser connected to a first interface, including a port for programming said message parser, and responsive to incoming message signals from said first interface for parsing said incoming message into outgoing message component signals;

a programmable message assembler, including a port for programming said message assembler, connected to said first interface for assembling incoming message component signals from an internal interface to form outgoing message signals for said first interface; and

a central control unit coupled to said message parser, to said message assembler at said internal interface, and to a second interface, for affecting communications between said first interface and said second interface by receiving said outgoing messages of said programmable message parser, modifying them in accordance with alterably installed transmission and signaling rules of a predefined protocol to develop a message packet and applying the message packet to said second interface, by receiving a message packet from said second interface, modifying it in accordance alterably installed with transmission and signaling rules of a predefined protocol to develop said incoming message component signals.

5,067,105

SYSTEM AND METHOD FOR AUTOMATICALLY CONFIGURING TRANSLATION OF LOGICAL ADDRESSES TO A PHYSICAL MEMORY ADDRESS IN A COMPUTER MEMORY SYSTEM

John M. Borkenhagen; Quentin G. Schmierer, and Charles P. Geer, all of Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 16, 1987, Ser. No. 120,884
Int. Cl.[5] G06F *11/00*
U.S. Cl. 395—400 7 Claims

1. A method for automatically configuring the translation of a logical memory address to a physical memory address in a computer system, comprising the steps of:

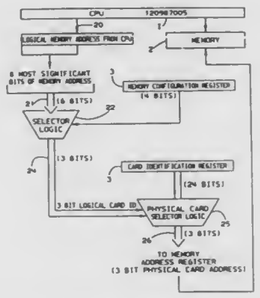
a. testing cards containing memory to identify those cards providing error free operation;

b. storing the physical addresses of the cards so tested and providing error free operation in a card identification register at locations corresponding to a logical address range;

c. reading identification data on said memory cards to determine the number of storage addresses on each card;

d. translating a first portion of the logical memory address to a logical card address based on the identification data;

e. accessing said register with said logical card address to obtain therefrom a physical card address; and



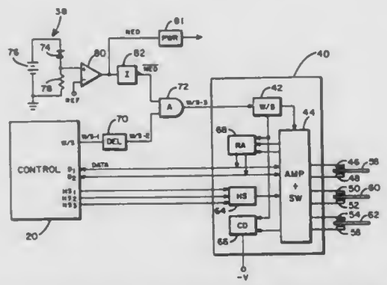
f. combining said physical card address with a second portion of said logical memory address to obtain therefrom a physical memory address.

5,067,106

RADIATION DETECTION AND SIGNAL DELAY CIRCUITRY FOR PROTECTING RECORDED DATA

Richard C. Pedersen, Burnsville; Richard M. Sedro, Roseville, both of Minn., assignors to Control Data Corporation, Minneapolis, Minn.

Filed Sep. 5, 1989, Ser. No. 402,504
Int. Cl.[5] G06F *12/16*
U.S. Cl. 395—575 18 Claims



1. An apparatus for preserving the integrity of electronically recorded data in the event of exposure to radiation, including:

a memory for storing information and a data entry means operatively associated with said memory, said data entry means, when enabled, recording information onto said memory responsive to receiving electrical data signals representing said information;

a control means operatively associated with said data entry means for providing said electrical data signals to said data entry means and for generating a first control signal to enable said data entry means to record the information;

a signal transmitting element having alternative active and inactive states and operatively connected between the control means and the data entry means, said signal transmitting element providing an enabling signal to the data entry means when in the active state and receiving the first control signal, said signal transmitting element providing a disabling signal to said data entry means when in the inactive state;

a radiation detector for sensing radiation and for generating a second control signal responsive to sensing radiation of at least a predetermined level, and a means for electrically coupling the detector and signal transmitting element to provide the second control signal to the signal transmitting element and thereby force the signal transmitting element into said inactive state; and

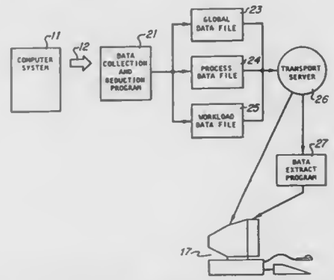
a radiation resistant delay means electrically coupled between the control means and the signal transmitting element; for delaying the propagation of the first control signal from the control means to the signal transmitting element, by a predetermined amount of time at least as long as the time for propagation of said second control signal from the radiation detector to the signal transmitting element.

5,067,107

CONTINUOUS COMPUTER PERFORMANCE MEASUREMENT TOOL THAT REDUCES OPERATING SYSTEM PRODUCED PERFORMANCE DATA FOR LOGGING INTO GLOBAL, PROCESS, AND WORKLOAD FILES

Gerald T. Wade, Auburn, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif.

Filed Nov. 5, 1988, Ser. No. 229,573
Int. Cl.[5] G06F *11/34, 7/14, 15/401*
U.S. Cl. 395—500 1 Claim



1. A performance and measurement system embedded within a computing system for measuring performance of the computing system, the performance and measurement system comprising:

performance data production means within an operating system of the computing system for producing performance data;

at least one data file; and

data collection and reduction means, coupled to the performance data production means and to the at least one data file, for receiving the performance data, reducing the performance data into standardized metrics to produce reduced data, and logging the reduced data into the at least one data file; and

wherein said at least one data file comprises

a global data file into which said data collection and reduction means logs information about the computing system as a whole;

a process data file into which said data collection and reduction means logs information about selected processes selected by the data collection and reduction means, wherein said selected processes include processes which during a specified interval are terminated, and processes which during a specified interval use at least a predetermined amount of a given resource of the computing system; and

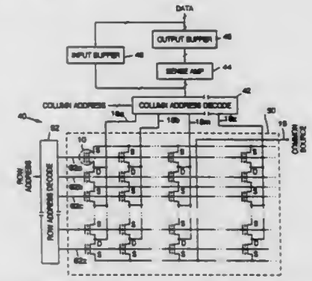
a workload data file into which said data collection and reduction means logs information about classes of processes.

5,067,108

SINGLE TRANSISTOR NON-VOLATILE ELECTRICALLY ALTERABLE SEMICONDUCTOR MEMORY DEVICE WITH A RE-CRYSTALLIZED FLOATING GATE

Ching-Shi Jenq, San Jose, Calif., assignor to Silicon Storage Technology, Inc., Sunnyvale, Calif.

Filed Jan. 22, 1990, Ser. No. 467,918
The portion of the term of this patent subsequent to Jul. 2, 2008, has been disclaimed.
Int. Cl.[5] G11C *16/02*
U.S. Cl. 365—185 3 Claims



1. An electrically programmable and erasable memory device having a plurality of storage sites, a plurality of row lines, a plurality of column lines, and a common line, wherein each combination of one of the plurality of row lines and one of the plurality of column lines define a different one of the plurality of storage sites, and further wherein each of the plurality of storage sites comprises a single transistor, said single transistor comprising:

a source coupled to said common line;

a drain coupled to an associated one of the plurality of column lines;

a control gate coupled to an associated one of the plurality of row lines;

a recrystallized floating gate positioned between the control gate and the source and the drain and being capacitively coupled to the drain;

means for injecting hot electrons generated by an abrupt potential drop onto the recrystallized floating gate when selected ones of the column and row lines are raised to a first predetermined potential above that of the common line, with the potential applied to said selected one of the column lines being above the potential applied to said selected one of the row lines; and

means for inducing Fowler-Nordheim tunneling of charges from the floating gate to the control gate when the selected row line is raised to a second predetermined potential above the selected column line.

5,067,109

DATA OUTPUT BUFFER CIRCUIT FOR A SRAM

Byeong-Yun Kim, Seoul; Tae-Sung Jung, Buchun, and Yong-Bo Park, Busan, all of Rep. of Korea, assignors to Samsung Semiconductor and Telecommunications Co., Ltd., both of Gumi, Rep. of Korea

Filed Aug. 30, 1988, Ser. No. 238,247
Claims priority, application Rep. of Korea, Aug. 31, 1987, 87-9589[U]
Int. Cl.[5] G11C *8/00*
U.S. Cl. 365—189.05 5 Claims

1. For an SRAM having a sense amplifier which amplifies memory data and a read/write control circuit which controls operations of said sense amplifier, a data output buffer circuit comprising:

a drive output node from which said data output buffer circuit provides output data; and

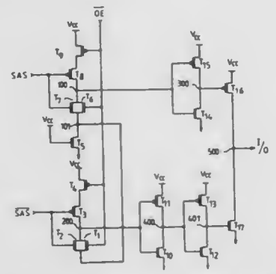
means for generating a high impedance state on said drive

VOL 1132 ISS 3 NO 19 1991 UMI

output node in response to a first signal (SAS) and a second signal ($\overline{SAS}$) provided by said sense amplifier, said second signal ($\overline{SAS}$) being an inversion of said first signal (SAS); said generating means comprising:

(a) first means for providing a NOR function of the SAS signal and an output enable signal (OE) from said read/-write control circuit;

(b) second means for providing a NOR function of the $\overline{SAS}$ signal and the output enable signal (OE) from said read/write control circuit;



(c) third means connected to said first and second means for eliminating noise produced by transition in the output of said first and second means and for enhancing a response time;

(d) fourth means for inverting the output signal of said first means;

(e) fifth means for inverting twice, sequentially, the output of said second means; and

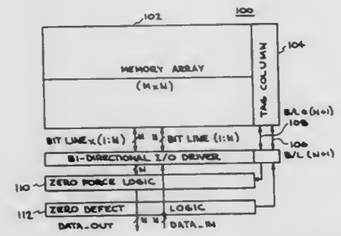
(f) sixth means responsive to said fourth and fifth means, for providing said high impedance state on said drive output node.

5,067,110

GLOBAL RESET AND ZERO DETECTION FOR A MEMORY SYSTEM

Thomas J. Runaldue, San Jose, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Oct. 10, 1989, Ser. No. 418,680
Int. Cl.[5] G11C *11/40*
U.S. Cl. 365—189.07 **4 Claims**



1. A memory system having a global reset capability, comprising:

(MEMORY ARRAY) a memory array having an array of memory cells arranged in rows and columns;

(TAG COLUMN) tag bit storage means, having one tag-memory cell associated with each row of memory cells, each of said tag-memory cells having a zero state, which is indicative of all of the data information stored in the memory cells of an associated row actually being in the zero state or which is alternatively indicative of all of the data information being stored in the memory cells of an associated row being treated as being in the zero state, each of said tag-memory cells having a one state, which is indicative that at least one of the memory cells of an associated row contains data information in a non-zero state;

(INPUT DATA ZERO DETECT LOGIC) detection means for detecting that input data signals to a row of memory cells are all zeroes, said detection means including means for providing an output signal indicative of all zero input to said row of memory cells;

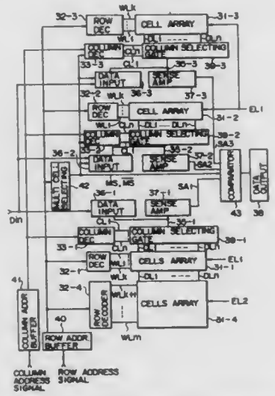
(RESET LINE) means for resetting a tag-memory cell to a zero state to indicate that the data information stored in the associated row is actually or is to be treated as containing all zeros, independent of the actual state of the data information being stored in the associated row of memory cells, thereby providing a global reset function for the entire array of memory cells without having to individually reset the data information stored in the array of memory cells.

5,067,111

SEMICONDUCTOR MEMORY DEVICE HAVING A MAJORITY LOGIC FOR DETERMINING DATA TO BE READ OUT

Masamichi Asano, Tokyo; Hiroshi Iwahashi, Yokohama, and Sadayuki Yokoyama, Kawasaki, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Oct. 26, 1989, Ser. No. 426,803
Claims priority, application Japan, Oct. 28, 1988, 63-272046
Int. Cl.[5] G11C *7/00*; G06F *11/08*
U.S. Cl. 365—189.08 **18 Claims**



1. A semiconductor memory device comprising:

a first array of memory cells having a first area of M memory cells and a second area, in which data can be written electrically;

a first means for accessing a memory cell of the first array;

a plurality of second arrays of memory cells in which data can be written electrically, each second array having M memory cells, each memory cell of each second array corresponding to a respective memory cell of the first area;

means for determining when the first memory accessing means accesses a memory cell in the first area including means for determining when the first memory accessing means reads a memory cell from the first area;

means for determining when the first memory accessing means reads a memory cell from the second area;

second means, active when the first accessing means accesses a memory cell in the first area, for accessing a corresponding memory cell in each second array;

means for reading data to an external device including first means, active when the first accessing means reads a memory cell in the first area, for reading data to an external device in accordance with a majority logic processing of a first read data from the first area and of a corresponding second read data from each second array; and

second means, active when the first accessing means reads a memory cell in the second area, for reading data to an external device in accordance with read data from the second area.

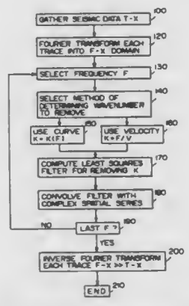
$$\begin{bmatrix} R(0)+\sigma^2 & R^*(1) & \dots & R^*(p-1) \\ R(1) & R(0)+\sigma^2 & \dots & R^*(p-2) \\ . & . & . & . \\ . & . & . & . \\ . & . & . & . \\ R(p-1) & R(p-1) & \dots & R(0)+\sigma^2 \end{bmatrix} \begin{bmatrix} a(0) \\ a(1) \\ . \\ . \\ . \\ a(p-1) \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ . \\ . \\ . \\ 0 \end{bmatrix}$$

5,067,112

METHOD FOR REMOVING COHERENT NOISE FROM SEISMIC DATA THROUGH F-X FILTERING

Robert A. Meek, Sanger, and Andrew F. Linville, Jr., Dallas, both of Tex., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Jan. 4, 1991, Ser. No. 637,422
Int. Cl.[5] G01V *1/28, 1/36*
U.S. Cl. 367—43 **4 Claims**



I. In seismic exploration wherein seismic sources are activated at spaced locations along a line of exploration and the amplitude of reflections from subsurface formations are recorded as a function of time and distance along said line of exploration to produce a time-distance array of seismic traces, said traces comprised of a seismic signal component and a coherent noise component; a method of processing said seismic traces to remove said coherent noise component, comprising the steps of:

a) transforming said time-distance (t-x) array of seismic traces with a fast Fourier transform into a frequency-distance (f-x) domain D (f,x) in accordance with the following:

$$D(f,x) = \sum_{t=0}^{j-1} d(t,x)e^{-i2\pi ft/j}$$

where d(t,x) are the seismic traces in the t-x domain for x=1...n; n is the number of seismic traces; t=0,...,j; j is the number of time samples; D(f,x) are the seismic traces in the f-x domain; f=0 ... j.

b) determining a frequency within a range wherein said coherent noise component resides, said frequency range being dependent on the bandwidth of said coherent noise component,

c) determining a wavenumber corresponding to the coherent noise component of the determined frequency,

d) determining a least squares filter a(m) for removing said determined wavenumber from the frequency-distance domain seismic traces, D(f,x), in accordance with the following:

$$\begin{bmatrix} R(0)+\sigma^2 & R^*(1) & \dots & R^*(p-1) \\ R(1) & R(0)+\sigma^2 & \dots & R^*(p-2) \\ . & . & . & . \\ . & . & . & . \\ . & . & . & . \\ R(p-1) & R(p-1) & \dots & R(0)+\sigma^2 \end{bmatrix} \begin{bmatrix} a(0) \\ a(1) \\ . \\ . \\ . \\ a(p-1) \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ . \\ . \\ . \\ 0 \end{bmatrix}$$

where * means complex conjugate, $R(m)=e^{i2\pi km\Delta x}$ for m=0...p-1; σ^2 is a random noise term added to the diagonals; σ^2 governs how deep the wavenumber notch will be (for small σ^2 the notch will be deep and for a larger σ^2 the notch will be shallow); and the width of the notch is controlled by the number (p) of coefficients generated,

e) convolving said least squares filter a(m) with D(f,x), the (f,x) domain seismic traces to remove the determined wavenumber in accordance with the following:

$$D'(f,x) = \sum_{m=0}^{p-1} a(m)D(f,x-m) \quad \text{for } x = 1 \dots n$$

where D'(f,x) is the filtered data and n is the number of traces, and

f) transforming said filtered (f,x) domain seismic traces, D(f,x), with a fast Fourier transform back to the time-distance (t-x) domain to produce a time-distance (t-x) array of seismic traces with said coherent noise component removed in accordance with the following:

$$d'(t,x) = \frac{1}{j}\sum_{t=0}^{j-1} D(f,x)e^{i2\pi ft/j}$$

where d'(t,x) represents the data after coherent noise removal.

5,067,113

EFFICIENT GENERATION OF TRAVELTIME TABLES FOR TWO DIMENSIONAL AND THREE DIMENSIONAL PRESTACK DEPTH MIGRATION

Douglas W. Hanson; Shein S. Wang, and William S. Harlan, all of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Oct. 30, 1990, Ser. No. 606,378
Int. Cl.[5] G01V *1/28, 1/30*
U.S. Cl. 367—50 **9 Claims**

9. A method for generating traveltimes through multiple layers for traveltime tables for application in depth migration comprising the steps of:

receiving a velocity model including a plurality of velocities in multiple layers between various subsurface reflectors;

plotting the model on a two dimensional grid with the subsurface reflectors identified;

determining a traveltime to each grid point and each point on a first reflector that intersects a vertical grid line;

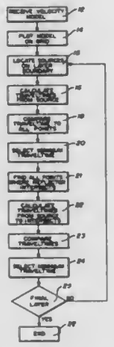
identifying all points where the first reflector intersects the grid;

generating the traveltimes to a second reflector using the intersection points on the first reflector as secondary sources and determining traveltimes from said reflection

VOL 1132 ISS 3 NOV 19 1991 UMI

points on the first reflector to a second reflector by comparing the traveltimes to all points on the second reflector that intersect a vertical grid line from each secondary source and selecting the minimum traveltime from said secondary sources to each intersection point as the true traveltime from the first reflector;

identifying all points where the second reflector intersects the grid; and

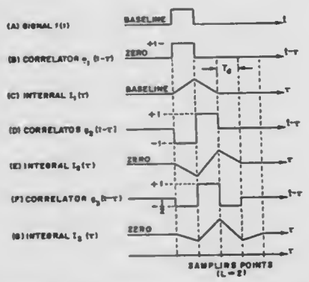


generating the traveltimes to a third reflector using the intersection points on the second reflector as secondary sources and determining traveltimes from said reflection points on the second reflector to a third reflector by comparing the traveltimes to all points on the third reflector that intersect a vertical grid line from each secondary source on said second reflector and selecting the minimum traveltime from said secondary sources on said second reflector to each intersection point as the true traveltime from the second reflector.

5,067,114
CORRELATION FOR COMBINATIONAL CODED TELEMETRY

Louis H. Rorden, Los Altos, Calif., assignor to Develco, Inc., San Jose, Calif.

Continuation of Ser. No. 334,268, Apr. 6, 1989, abandoned, which is a continuation of Ser. No. 212,670, Jun. 28, 1988, Pat. No. 4,908,804, which is a division of Ser. No. 907,727, Sep. 15, 1986, Pat. No. 4,787,093, which is a continuation of Ser. No. 477,003, Mar. 21, 1983, abandoned. This application Mar. 26, 1990, Ser. No. 500,107
Int. Cl.[5] H04N *9/00*
U.S. Cl. 367—81 **8 Claims**



7. The method of communicating a datum, W, across a communication channel from a data source to a data receiver, by a sequence of time displaced, nonadjacent, constant width pulses within a fixed time interval T_w, said time interval having beginning and final ends and being independent of said datum W, comprising the steps,

(a) ordering a combinatorial set of said sequence of pulses,

(b) determining from said datum, a particular one of said sequence of time displaced pulses of said combinatorial set,

(c) generating and transmitting said determined sequence of time displaced pulses across said communication channel,

(d) recovering said transmitted sequence of time displaced pulses from said communication channel,

(e) performing the inverse of the determination of step (b) on the recovered sequence of pulses to obtain a representation of said datum W, and

(f) said step of recovering including correlating a baseline signal having said determined sequence of time displayed pulses with a correlator signal having a zero moment and a plurality of convolutions, each of which has adjacent positive and negative values relative to a zero level.

5,067,115
ULTRASONIC OBSTACLE SENSOR

Shunichi Wada, Himeji, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed Nov. 5, 1990, Ser. No. 608,787
Claims priority, application Japan, Nov. 6, 1989, 1-287347
Int. Cl.[5] G01S *15/00*
U.S. Cl. 367—99 **6 Claims**

1. An ultrasonic obstacle sensor comprising:

timing instruction means for generating an instruction signal for intermittently providing ultrasonic waves;

an ultrasonic wave generator for generating ultrasonic waves based on the instruction signal from said timing instruction means;

an ultrasonic transmitter for transmitting the ultrasonic waves toward a road surface;

an ultrasonic receiver for receiving the ultrasonic waves reflected from the road surface to generate a reception signal;

reception signal processing means for AM demodulating the reception signal to provide an AM demodulation signal;

time calculation means for calculating a time elapsing from the time of generation of the instruction signal;

a discrimination signal generator for generating a discrimination signal having an intensity which increases before a lapse of a predetermined time from the time of generation of the instruction signal, and decreases thereafter; and

a comparison circuit for making a comparison between the AM demodulation signal and the discrimination signal to generate an output signal representative of the presence or absence of an obstacle on the road surface.

5,067,116
AUTOMATIC DISC CHANGER APPARATUS

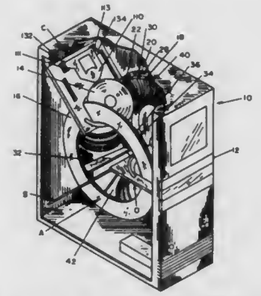
Kenneth A. Kadrmas, 9114 Hogan Dr., Huntsville, Ala. 35802

Filed May 7, 1990, Ser. No. 519,753
Int. Cl.[5] G11B *17/22, 15/10*
U.S. Cl. 369—37 **27 Claims**

1. An automatic optical disc data storage and retrieval system comprising:

an annular disc storage carrousel member having adjacent disc storage compartments, said storage carrousel member disposed for receiving and storing optical discs therein regardless of physical orientation of said storage carrousel member, said carousal having an upper annular plate and a lower circular plate, said plates disposed in spaced relation and having spaced aligned grooves thereon to define radially arranged compartments to receive an optical disc therein;

an optical disc insert and ejector means for inserting and ejecting said optical discs into and out of said annular disc storage member;



at least one optical disc player disposed for receiving and playing an optical disc;

optical disc displacement means associated with said optical disc player for moving said optical disc radially into and out of a predetermined compartment of said annular disc storage member in a linear path;

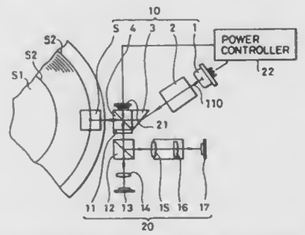
an enclosure for enclosing said annular disc storage member, said optical disc insert and ejector means, and said optical disc displacement means;

and means for rotating said carrousel.

5,067,117
OUTPUT STABILIZING APPARATUS FOR AN OPTICAL HEAD

Hideo Shimizu, and Yasuhiro Takahashi, both of Kawasaki, Japan, assignors to Fuji Electric Co., Ltd., Kawasaki, Japan

Filed Oct. 25, 1989, Ser. No. 426,278
Claims priority, application Japan, Oct. 28, 1988, 63-272318
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—116 **8 Claims**



1. An output stabilizing apparatus for an optical head, comprising:

a semiconductor laser;

a beam splitter having a half mirror surface for dividing a laser beam emitted from said semiconductor laser into a first beam transmitted through said half mirror surface and a second beam reflected from said half mirror surface;

an optical projection system for projecting said laser beam emitted from said semiconductor laser onto said beam splitter and for projecting said first beam transmitted through said beam splitter onto a data storage medium;

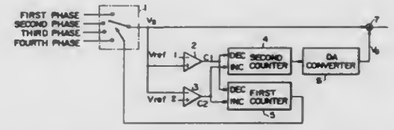
photodetector means for receiving said second beam split by said beam splitter and for converting said second beam received thereby into an electrical signal; and

control means for controlling the intensity of said laser beam emitted from said semiconductor laser in response to said photodetector means.

5,067,118
POSITION DETECTING DEVICE FOR USE BY SWITCHING PLURAL ALTERNATING SIGNALS HAVING DIFFERENT PHASES FROM EACH OTHER

Shigeto Kanda, Machida, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 6, 1989, Ser. No. 334,195
Claims priority, application Japan, Apr. 7, 1988, 63-084024
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—44.27 **26 Claims**



1. A position detecting device comprising:

alternating signal generating means for generating a plurality of alternating, phase-shifted signals which alternate in accordance with changes in position or angle of a movable member;

selecting means for selecting one of the plurality of alternating signals;

signal supplying means for selectively supplying signals having output levels different from each other;

adding means for adding one of the alternating signals selected by said selecting means and one of the signals supplied from said signal supplying means, and for outputting a sum signal as a position detection signal; and

phase detecting means for detecting the selected alternating signal and for outputting signals to said selecting means and said signal supplying means when a phase of the selected alternating signal reaches a predetermined phase, and said selecting means comprising means for switching the selected alternating signal and said signal supplying means comprising means for supplying another one of the signals having a different output level to said adding means, in response to a signal from said phase detecting means.

5,067,119
RECORDING MEDIUM PLAYING APPARATUS WITH AUTOMATIC TONAL RESPONSE SETTING FUNCTION

Masayuki Yoshida; Junichi Yoshio, and Osamu Watanabe, all of Tokorozawa, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Division of Ser. No. 442,769, Nov. 29, 1989. This application Apr. 22, 1991, Ser. No. 688,798
Claims priority, application Japan, Jun. 1, 1989, 1-139434
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—47 **4 Claims**

1. An apparatus for playing recording media carrying audio signals, comprising:

a storing part for simultaneously storing a plurality of recording medium of a similar shape, wherein each recording medium is stored in separate positions within the storing part;

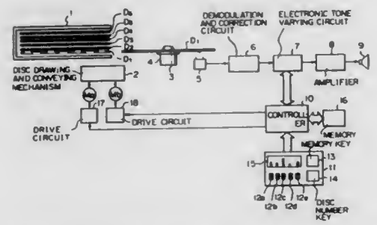
a tone response control means for controlling the tone of sounds reproduced from said audio signals, by controlling signal levels of frequency components in a plurality of frequency bands, which are set to divide the frequency range of said audio signals, to designated variation ratios;

a memory means;

VOL 1132 ISS 3 NO 19 1991 UMI

a command means for generating a reproducing-tone memorizing command and said variation ratios of said signal levels;

a memory control means for storing, in response to said reproducing-tone memorizing command, data representing said variation ratios in said memory means corresponding to identification information of each of said recording media, said data representing said variation ratios being stored as tone data sets, wherein each of said data sets is associated with a unique identification code and each of said identification codes is associated with one of said separate storing positions; and

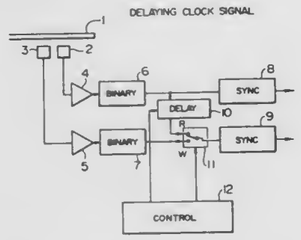


a tone response setting means for reading out said tone data sets dependent upon which identification code is selected, said selected identification code corresponding to a selected storing position of a selected recording medium to be played, and subsequently supplying said variation ratios represented by said read out tone data set to said tone response control means, thereby setting the tone of the reproduced sound, wherein said tone response setting means automatically changes the readout tone data to correspond with an automatic change of the selected storing position.

5,067,120
DISK DRIVE APPARATUS

Satoru Yamauchi, Ibaraki, Japan, assignor to Hitachi Maxell, Ltd., Osaka, Japan

Filed Apr. 7, 1989, Ser. No. 334,562
Claims priority, application Japan, Apr. 7, 1988, 63-84142; Jun. 7, 1988, 63-138541
Int. Cl.[5] G11B *7/00*
U.S. Cl. 369—59 **6 Claims**



1. A disk drive apparatus for deriving a 0-order light and a 1-order light from an output laser beam of a single laser source by a diffraction grating, reading a prepit train on a disk by the 0-order light and the 1-order light to reproduce synchronization signals, generating a first clock by a first synchronization circuit based on the synchronization signal reproduced by the 0-order light, and generating a second clock by a second synchronization circuit by the synchronization signal reproduced by the 1-order light, comprising:

first and second detecting means for supplying first and second read signals;

delay means for delaying the synchronization signal reproduced by the 0-order light; and

selection means for selecting the synchronization signal reproduced by the 1-order light in a write mode and the synchronization signal produced by said delay means in a read mode and supplying the selected synchronization signal to said second synchronization circuit;

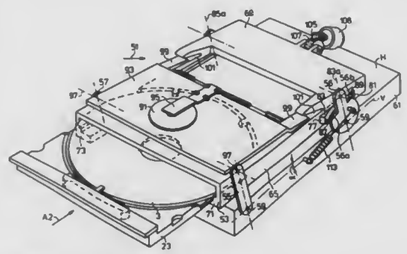
said first clock being used as a data write clock in the write mode and as a data read clock in the read mode,

said second clock being used as the data read clock in the write mode.

5,067,121
DISC-RECORD PLAYER COMPRISING A DISC-LOADING DEVICE FOR A DISC SUPPORTED ON A TRAY

Hermanus F. Einhaus, Ham, Belgium, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Oct. 27, 1988, Ser. No. 263,660
Claims priority, application Netherlands, Nov. 2, 1987, 8702604
Int. Cl.[5] G11B *17/04*
U.S. Cl. 369—75.2 **18 Claims**



1. A disc-record player comprising:

a frame and a turntable mounted to be rotatable about an axis of rotation with respect to said frame, said turntable comprising a supporting surface for a disc placed on the turntable,

a device for recording and/or reading information on/from a disc placed on said turntable, and

a disc-loading device comprising a holder which is adapted for receiving, while the holder is in an initial position, a tray having a supporting surface for a disc placed thereon; and means for moving said holder, and for transferring said tray and disc to said turntable and separating said disc from said tray, during movement in a loading direction from said initial position, and for returning said disc by an unloading movement to the initial position,

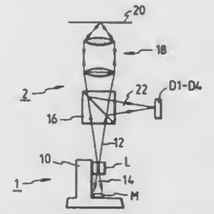
characterized in that said disc-loading device comprises two pivotal elements which are pivotally connected to the frame, and are movably connected to the holder at respective sides of the holder transverse to the loading direction,

said pivotal elements being pivoted in a first direction during said movement in a loading direction to move the supporting surface of the tray at least in a direction parallel to the axis of rotation of the turntable to a position beyond the supporting surface of the turntable, thereby placing the disc on the turntable supporting surface; and being pivoted in an opposite second direction during said unloading movement to life the disc off the turntable.

5,067,122
METHOD OF DETERMINING THE MONITOR SENSITIVITY OF, AND METHOD AND SYSTEM FOR CONTROLLING A RADIATION EMITTING ARRANGEMENT, AND OPTICAL RECORDING AND/OR REPRODUCING APPARATUS INCLUDING SUCH A SYSTEM

Philip J. L. McGee, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Feb. 16, 1990, Ser. No. 482,375
Claims priority, application United Kingdom, Feb. 27, 1989, 8904406
Int. Cl.[5] G11B *7/00, 7/85*
U.S. Cl. 369—116 **17 Claims**



1. A method of determining the monitoring sensitivity of a radiation source which is monitored by a radiation detector, the radiation detector producing a monitor signal which is related to the optical output of the radiation source, the monitoring sensitivity being the rate of change of the monitor signal level relative to the optical output level of the radiation source; said method comprising the steps of:

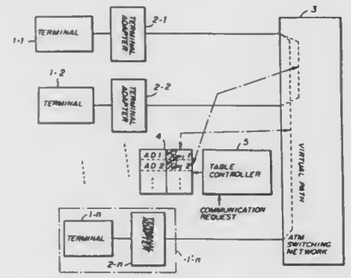
(i) supplying a varying drive signal to the radiation source and measuring the rate of change of the monitor signal relative to the supplied drive signal; and

(ii) determining the monitoring sensitivity by combining the measured rate of change of the monitor signal with a predetermined differential efficiency which is indicative of the rate of change of the optical output of the radiation source relative to the drive signal supplied thereto.

5,067,123
SYSTEM FOR CONTROLLING DATA TRANSMISSION IN ATM SWITCHING NETWORK

Ryuji Hyodo, Kawasaki; Eisuke Iwabuchi, Yokohama; Tetsuo Nishino, Kawasaki; Osamu Isono, Kawasaki; Tetsuo Tachibana, Kawasaki, and Toshimasa Fukui, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed Jul. 3, 1990, Ser. No. 547,198
Claims priority, application Japan, Jul. 3, 1989, 1-169772
Int. Cl.[5] H04J *3/02*
U.S. Cl. 370—58.1 **43 Claims**



1. A transmission control system comprising:

an asynchronous transfer mode (ATM) switching network providing virtual channels;

a plurality of terminals;

a plurality of terminal adapters connected to said ATM switching network and respectively connected to said plurality of terminals, each of said terminal adapters coupling a corresponding one of said terminals to said ATM switching network, data being transferred between any pair of said terminals through two corresponding terminal adapters from among said terminal adapters and said ATM switching network;

management table means, including a management table, for registering the virtual channels presently formed in said ATM switching network in said management table, each of said virtual channels mutually connecting two corresponding terminal adapters through said ATM switching network;

retrieval means for receiving a communication request from a first one of said terminals and for determining whether said management table registers a virtual channel corresponding to the communication request, data output from the first one of said terminals being transferred to a second one of said terminals addressed by the communication request through the virtual channel corresponding to the communication request and the two corresponding terminal adapters corresponding to the first and second ones of said terminals when said retrieval means determines that said management table has the virtual channel corresponding to the communication request;

virtual channel setting means for registering the virtual channel corresponding to the communication request in said management table when said retrieval means determines that said management table does not have the virtual channel corresponding to the communication request, data output from the first one of said terminals being transferred to the second one of said terminals addressed by the communication request through the virtual channel registered in said management table by said virtual channel setting means; and

virtual channel releasing means for deleting any of said virtual channels from said management table of said management table means satisfying a predetermined condition of virtual channel use within said ATM switching network to release said virtual channels unlikely to be reused.

5,067,124
PACKET SWITCHING NETWORK FOR A COMMUNICATION SYSTEM

Ulrich Killat, Hamburg, and Johann Kruger, Quickborn, both of Fed. Rep. of Germany, assignors to U.S. Philips Corporation, New York, N.Y.

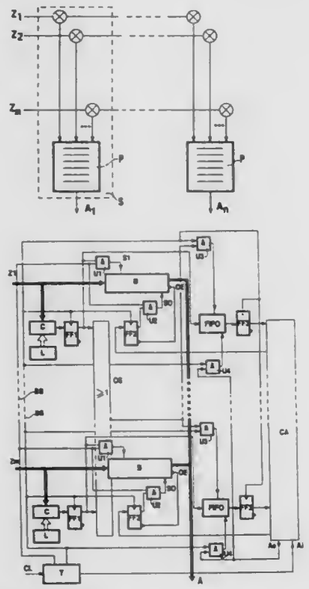
Filed Sep. 28, 1989, Ser. No. 414,036
Claims priority, application Fed. Rep. of Germany, Oct. 1, 1988, 3833490
Int. Cl.[5] H04Q *11/04*; H04J *3/24*
U.S. Cl. 370—60 **12 Claims**

1. Switching network for a communication system, comprising m/1 stages which include auxiliary lines (Z1 . . . Zm) and have each a trunk line (A) and in which cells are switched through on the basis of routing information contained in a header of each cell and in which a cell arriving at an auxiliary line is written into a buffer (B) dedicated to a trunk line (A) if the routing information and address of this trunk line match and in which a decision circuit (CA) is included in each m/1 stage, characterized in that, in each m/1 stage,

each auxiliary line (Z1 . . . Zm) is assigned a memory (FIFO) to which are applied the results of the comparisons of the routing information and address of the trunk line (A) and

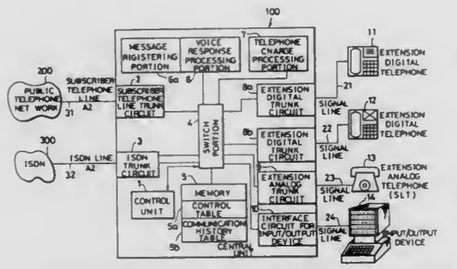
VOL 1132 ISS 3 NO 19 1991 UMI

the contents of the memory (FIFO) are applied to the decision circuit (CA) which, on the basis of these contents,



determines the order in which the cells stored in the buffers (B) are read out.

5,067,125
TELEPHONE SYSTEM FOR ISDN AND PUBLIC TELEPHONE NETWORKS
Shinji Tsuchida, Zama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 22, 1989, Ser. No. 396,651
Claims priority, application Japan, Aug. 25, 1988, 63-209455
Int. Cl.[5] H04J *3/02*
U.S. Cl. 370—79 16 Claims



1. A telephone system connected to at least an ISDN and a public telephone network capable of accommodating an extension line connected to an analog signal I/O terminal and an extension line connected to a digital signal I/O terminal, said telephone system comprising:

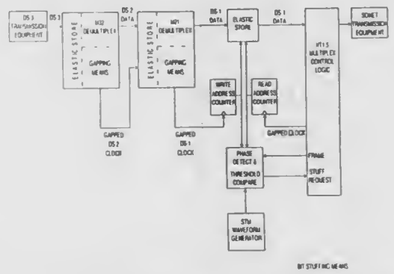
D/A conversion means capable of converting digital communication information into a corresponding analog communication information;

A/D conversion means capable of converting analog communication information into a corresponding digital communication information; and

communication line control means capable of controlling a communication line arranged between a line connected to said ISDN, a line connected to said public telephone network, and said accommodated extension lines,

wherein a call made from said ISDN and said public telephone network can be responded to by both said analog signal I/O terminal and said digital signal I/O terminal which are connected to said extension lines, through use of said D/A conversion means and A/D conversion means.

5,067,126
METHOD AND APPARATUS FOR MAPPING A DIGITAL SIGNAL CARRIER TO ANOTHER
Thomas E. Moore, Edmonton, Canada, assignor to Telecommunications Research Laboratories, Edmonton, Canada
Filed Aug. 4, 1989, Ser. No. 389,768
Claims priority, application Canada, May 30, 1989, 601201
Int. Cl.[5] H04J *3/04, 3/22*
U.S. Cl. 370—112 4 Claims



1. A process for the mapping of a first digital signal carrier carrying a first multiplexed digital signal to a second digital signal carrier comprising:

demultiplexing the first digital signal to produce a second digital signal and to derive a gapped clock;

writing the second digital signal to an elastic store using the gapped clock; and

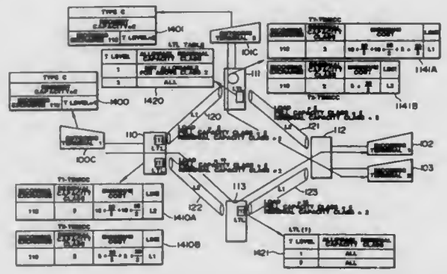
reading the second digital signal from the elastic store.

5,067,127
CONGESTION AVOIDANCE CONTROL SYSTEM AND METHOD FOR COMMUNICATION NETWORK
Tamiya Ochiai, Hachioji, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 19, 1990, Ser. No. 584,660
Claims priority, application Japan, Sep. 21, 1989, 1-246104
Int. Cl.[5] H04Q *11/04*
U.S. Cl. 370—58.1 13 Claims

1. A congestion avoidance control system for a communication network having a plurality of exchanges interconnected by a plurality of lines for deciding one of communication routes leading from outgoing one of said plurality of exchanges including an outgoing terminal to incoming one thereof including an incoming terminal, each of said exchanges comprising:

every-line residual-capacity minimum-cost memory means for storing one of a plurality of line residual capacity classes of line capacity units corresponding to a full line capacity of its own exchange minus a line capacity being now used thereof as a residual line capacity, minimum cost one of lines forming the routes leading from its own exchange to the incoming exchange, and a minimum cost value;

retrieval means, when a calling request having a request use capacity as an application data is issued from said outgoing terminal, for retrieving said minimum cost line of one of the line residual capacity classes satisfying said request use capacity from said every-line residual-capacity minimum-cost memory means;



decision means for deciding one of the communication routes on the basis of the minimum cost line retrieved by said retrieval means; and

correction means for correcting the minimum cost value of said every-line residual-capacity minimum-cost memory means with use of a reciprocal of a ratio of the own residual line capacity to an intra-network line full capacity multiplied by a line fixed load value.

5,067,128
RECORDED DATA READING SYSTEM
Hiroshi Nakane, Kanagawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan
Filed Sep. 22, 1989, Ser. No. 411,389
Claims priority, application Japan, Sep. 30, 1988, 63-243829
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—5.5 24 Claims

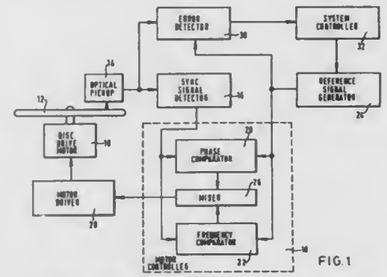


FIG. 1

1. An apparatus for reading data stored on a data storage medium, comprising:

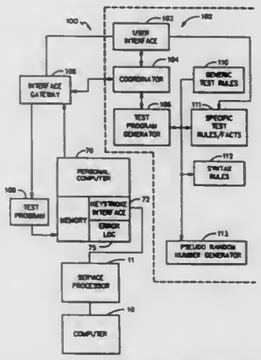
data readout means for reproducing data stored on the data storage medium;

error detection means, coupled to the data readout means, for detecting an error rate at which errors occur in the data reproduced by the data readout means;

readout control means for operating the data readout means at a selected data readout rate; and

system control means, coupled to the error detection means and the readout control means, for comparing the error rate to a predetermined system maximum error rate and for increasing the selected data readout rate when the error rate is below the predetermined system maximum error rate.

5,067,129
SERVICE PROCESSOR TESTER
Timothy G. Evans, Endicott; Mark W. Gould, Johnson City, and Timothy J. McNamara, Endicott, all of N.Y., assignors to International Business Machines Corp., Armonk, N.Y.
Filed Aug. 16, 1989, Ser. No. 394,696
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—16.1 17 Claims



1. Apparatus for testing a service processor associated with and coupled to a computer, said computer including a hierarchical arrangement of actual screens in storage for display by said service processor, said apparatus comprising:

storage means for storing a map indicating a correct hierarchical order of screens; and

program generating means, coupled to said storage means, for generating a program to (a) direct said service processor to display said actual screens in a hierarchical order reflecting said hierarchical arrangement of actual screens in said storage of said computer and (b) compare the map provided by said storage means to the hierarchical order of actual screens displayed by said service processor to determine if said service processor displays the correct hierarchical order of actual screens.

5,067,130
METHOD FOR ACQUIRING DATA IN A LOGIC ANALYZER
Ronald M. Jackson, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.
Filed Sep. 29, 1989, Ser. No. 414,337
Int. Cl.[5] G06F *11/00*
U.S. Cl. 371—22.1 16 Claims

A	B	C	D	E	F
4th TO LAST TRIG.	3rd TO LAST TRIG.	2nd TO LAST TRIG.	LAST TRIG.	DATA IMMEDIATELY PRECEDING STOP	5th TO LAST TRIG.

1. A method for acquiring data in a logic analyzer having a plurality of memory sections, the method comprising the steps of:

automatically storing data in one of the plurality of memory sections upon in occurrence of a trigger condition;

repeating the automatically storing step upon the further occurrence of the trigger condition until all of the memory sections have been used;

continuing to repeat the automatically storing step after all of the memory sections have been used once by reusing the memory sections to store new data;

VOL 1132 ISS 3 NO 19 1991 UMI

automatically ascertaining that the trigger condition is no longer occurring; and

automatically stopping the logic analyzer to complete the data acquisition in response to the ascertaining step.

5,067,131

APPARATUS AND METHOD FOR RECORDING AND/OR REPRODUCING A DIGITAL SIGNAL

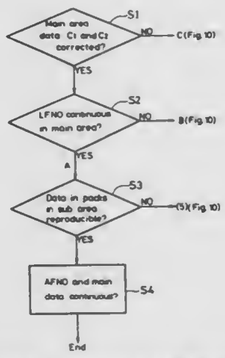
Kentaro Odaka, Tokyo; Shinya Ozaki, Kanagawa; Yoshizumi Inazawa, Kanagawa; Masaki Yamada, Kanagawa; Hiroshi Ishibashi, Kanagawa, and Tatsuya Iijima, Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan

Division of Ser. No. 262,487, Oct. 25, 1988. This application May 25, 1990, Ser. No. 529,884

Claims priority, application Japan, Oct. 27, 1987, 62-270531; Dec. 14, 1987, 62-315789

Int. Cl.[5] H03M *13/00*

U.S. Cl. 371—40.1 **14 Claims**



1. An apparatus for reproducing a digital signal containing main data, sub-data, and check data recorded in tracks formed on a recording medium, with each track having a main area in which is recorded the main data and a sub-area in which is recorded the sub-data and the check data for detecting an error in data recorded in said main area, the reproducing apparatus comprising:

means for reproducing the main data, the sub-data, and the check data recorded in the tracks formed on the recording medium, thereby generating reproducing main data, reproduced sub-data, and reproduced check data;

means for extracting said reproduced check data from the reproduced main data and the reproduced sub-data; and

means for comparing the reproduced check data with the reproduced main data, and determining whether an error exists in the main data.

5,067,132

ONE OUT OF N CHECKING APPARATUS AND METHOD

John A. Blakkan, Santa Clara, Calif., assignor to Tandem Computers Incorporated, Cupertino, Calif.

Filed May 18, 1989, Ser. No. 353,717

Int. Cl.[5] H03M *13/02*

U.S. Cl. 371—52 **13 Claims**

2. An apparatus for checking N signal lines to determine whether exactly one of the N signal lines is active, comprising:

a plurality of leaf nodes, each leaf node including:

two leaf inputs, at least one of which is coupled to one of the N signal lines and any unused leaf input signal line is set to be inactive; and

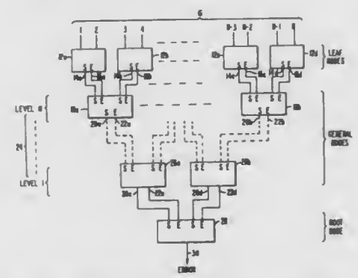
a seen-error (S-E) pair leaf output wherein the seen component is active when at least one of the leaf inputs is active and the error component is active when both inputs are active;

a plurality of general nodes configured in a hierarchy of M levels such that M is a whole number, each general node including:

two S-E pair general inputs for receiving at least one S-E pair from one of either (i) an S-E pair leaf output or (ii) an SE pair general output; and

a single S-E pair general output including:

a seen component which is active if at least one of the S inputs is active; and



an error component which is active if (i) one or more of the E inputs is active or (ii) both S inputs are active; and

a root node including.

two S-E pair root inputs for receiving two S-E pair general outputs from the M level of the general nodes; and

a root error output for outputting an error signal when (i) the seen components of both of the M level general node outputs are active, (ii) the seen components of both of the M level general node outputs are inactive, or (iii) at least one of the error components of the M level general note outputs is active.

5,067,133

ERROR-CORRECTION OF STORED TELEVISION SIGNALS

Robert Billing, Crowthorne, Great Britain, assignor to Questech Limited, Wokingham, United Kingdom

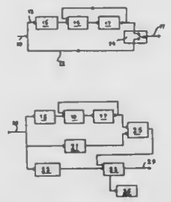
PCT No. PCT/GB87/00922, § 371 Date Aug. 18, 1989, § 102(e) Date Aug. 18, 1989, PCT Pub. No. WO88/05245, PCT Pub. Date Jul. 14, 1988

PCT Filed Dec. 30, 1987, Ser. No. 377,832

Claims priority, application United Kingdom, Dec. 30, 1986, 8631027; Jun. 3, 1987, 8713018

Int. Cl.[5] G06F *11/10*; H04N *5/907*

U.S. Cl. 371—53 **8 Claims**



1. A method of storing a digital television picture image in a solid state store comprising the steps of generating a code from the data contained in each line of the video raster and storing a code value corresponding to said code in association with the data relating to each line of the picture signal, the code value being derived from the stored data in such a manner that an error occurring in any bit of the data relating to a given line, following storage thereof, can be detected by re-computing a code value from data retrieved from the store in relation to said line and comparing the re-computed code value with that originally stored in relation to the same line, wherein said code value is derived by summing, for each byte of data in each line of the picture signal, the value of each bit multiplied by the position of that bit in the line.

5,067,134

DEVICE FOR GENERATING BLUE LASER LIGHT

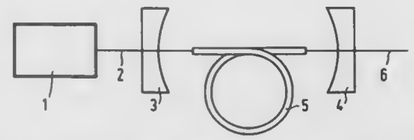
Emmanuel W. J. L. Oomen, Eindhoven, Netherlands, assignor to U.S. Philips Corp., New York, N.Y.

Filed Mar. 8, 1991, Ser. No. 667,610

Claims priority, application Netherlands, Mar. 8, 1990, 9000532

Int. Cl.[5] H01S *3/17*

U.S. Cl. 372—6 **7 Claims**



1. A device for generating blue laser light having a wavelength of 445 to 455 nm by means of an upconversion process, said device including a pumping laser and a resonator cavity comprising a fluoride-containing material having trivalent thulium ions, characterized in that the fluoride-containing material is a glass composition of heavy-metal fluorides and in that a single semiconductor laser is used as the pumping laser which emits light having a wavelength of 640 to 700 nm.

5,067,135

GAS LASER APPARATUS

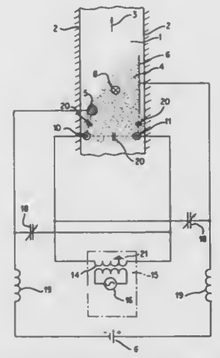
Peter R. Perzl, Fürstenfeldbruck; Wolfgang Rüberg, Aschheim, and Heinz B. Puell, Munich, all of Fed. Rep. of Germany, assignors to Haraeus Holding GmbH, Hanau am Main, Fed. Rep. of Germany

Filed May 4, 1990, Ser. No. 519,130

Claims priority, application Fed. Rep. of Germany, May 6, 1989, 3914923

Int. Cl.[5] H01S *3/0971*

U.S. Cl. 372—83 **7 Claims**



1. Apparatus for the input of electrical energy into an active gas in a laser, said apparatus comprising

a gas discharge chamber through which said gas flows at high velocity, said chamber comprising an input end and an exit end defining a direction of flow of said gas,

an anode and an elongated cathode lying opposite each other in said discharge chamber and having like lengths extending transversely of the direction of flow,

a DC power supply connected to said anode and said cathode for applying a voltage therebetween to maintain a steady glow discharge of said active gas flowing therebetween,

two elongated pre-ionizing electrodes lying opposite each other in said discharge chamber, each electrode being enveloped in dielectric material and having a like length as said anode and said cathode, one of said electrodes being placed ahead of the anode in the direction of flow, the other electrode being placed ahead of the cathode in the direction of flow, and

an AC power supply connected to said pre-ionizing electrodes and including means for operating said electrodes out of phase with each other so that a potential difference is produced between said electrodes and an auxiliary discharge burns ahead of said cathode and said anode in the direction flow.

5,067,136

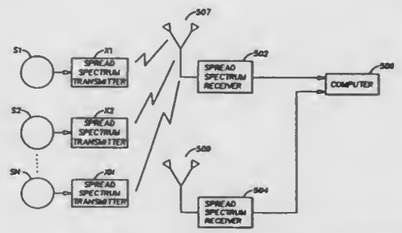
WIRELESS ALARM SYSTEM

James D. Arthur, Costa Mesa, Calif.; H. Britton Sanderford, Jr., New Orleans, La.; Robert E. Rouquette, Kenner, La., and Robert J. Davis, New Orleans, La., assignors to Axonn Corporation, New Orleans, La.

Continuation-in-part of Ser. No. 266,461, Nov. 2, 1988, Pat. No. 4,977,577. This application Jul. 12, 1990, Ser. No. 551,815

Int. Cl.[5] H04B *15/00*

U.S. Cl. 375—1 **14 Claims**



1. In a method for communicating over a communications channel using spread spectrum modulation from a transmitter to a receiver by modulating a data-bit sequence with a chip sequence having a pseudorandom chip code, the improvement characterized by:

generating a preamble for receiver chip code synchronization having one of the group of alternating 1-bits and 0-bits, wherein the data-bit sequence ranges from a one to one ratio to a ten to one ratio.

5,067,137

ADJACENT CHANNEL INTERFERENCE CANCELLER WITH MEANS FOR MINIMIZING INTERSYMBOL INTERFERENCE

Ichiro Kaneko, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 30, 1990, Ser. No. 501,901

Claims priority, application Japan, Mar. 31, 1989, 1-82810

Int. Cl.[5] H04B *3/06*

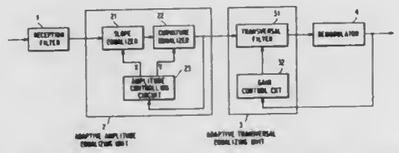
U.S. Cl. 375—14 **2 Claims**

1. A device for use in processing a device input signal carrying a digital symbol sequence to produce a device output signal, said device comprising a reception filter for filtering said device input signal to produce a filter output signal having an amplitude distortion resulting in a predetermined frequency

VOL 1132 ISS 3 NO 19 1991 UMI

band from adjacent interference on said predetermined frequency band by other frequency bands adjacent to said predetermined frequency band, said amplitude distortion including a linear slope distortion and a high order curvature distortion, the device comprising:

adaptive amplitude equalizing means including a slope equalizer and a curvature equalizer, said slope equalizer being responsive to said filter output signal for equalizing



said linear slope distortion to produce a slope equalized signal, said curvature equalizer being responsive to said slope equalized signal for equalizing said high order curvature distortion to produce a first equalized signal having intersymbol interference; and

adaptive transversal equalizing means responsive to said first equalized signal for equalizing said intersymbol interference to produce a second equalized signal as said device output signal.

5,067,138

PHASE-LOCKED-LOOP CIRCUIT AND BIT-DETECTION ARRANGEMENT COMPRISING SUCH A PHASE-LOCKED-LOOP CIRCUIT

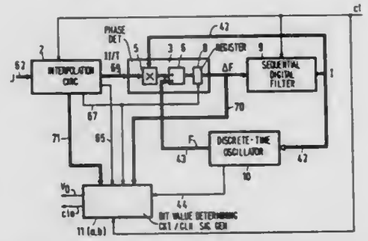
Antonia C. Van Rens; Eise C. Dijkmans, and Eduard F. Stikvoort, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 285,131, Dec. 15, 1988, Pat. No. 4,912,729. This application Apr. 27, 1989, Ser. No. 344,184

Claims priority, application Netherlands, May 16, 1988, 8801254

Int. Cl.[5] H03D *3/02*

U.S. Cl. 375—81 **11 Claims**



11. A phase-locked loop circuit for deriving, from an input sequence of samples of a band-limited data signal, the phase of the data signal at corresponding sampling instants, said phase-locked loop circuit comprising signal generating means for generating, in synchronism with the samples, a sequence of phase values characterizing a periodic signal having an amplitude which varies as a substantially linear function of time between a first and a second limit value, said first and said second limit values being constant, and a frequency which is proportional to a control value, means for deriving an interpolation value representing an instant, defined by the samples, at which the data signal crosses a detection level, phase comparison means for deriving from the phase values and the samples, a difference value which is indicative of the difference between the phase value and the interpolation value, and control means for controlling the signal generating means depending on the difference value is in such a way that the phase indicated by the phase value is maintained substantially equal to the phase of the data signal, characterized in that said phase comparison means comprises means for deriving as the difference value a value which substantially indicates a linear combination of the phase value and a product of the interpolation value and the control value, the control means varying the control value depending on the difference value thus determined.

5,067,139

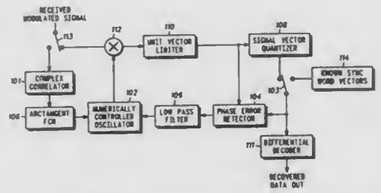
COHERENT DETECTOR FOR QPSK MODULATION IN A TDMA SYSTEM

James C. Baker, Hanover Park; Henry L. Kazecki, Arlington Heights, and Steven H. Goode, Barrington, all of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 17, 1990, Ser. No. 628,747

Int. Cl.[5] H04L *27/22*

U.S. Cl. 375—86 **10 Claims**



1. A coherent detector apparatus having a vector input that has been data modulated and a recovered data output, the data comprising synchronization words and data words, the apparatus comprising:

a) multiplying means having an output and a first and a second input;

b) correlation means for generating a synchronization word correlation vector from the vector input;

c) arctangent function means for generating an angle for the synchronization word correlation vector;

d) first switching means for coupling the vector input to the correlation means in a first position and the vector input to the first input of the multiplying means in a second position;

e) vector limiting means, coupled to the output of the multiplying means, for limiting the vector input to unity;

f) signal vector quantizing means, coupled to the output of the vector limiting means, for generating a quantized received signal vector;

g) phase error detection means, coupled to the vector limiting means, for generating a phase error signal;

h) synchronization word storage means for storing the synchronization words;

i) controllable oscillator means, having a first input coupled to the arctangent function means, a second input coupled to the phase error detection means, for receiving the phase error signal, and an output coupled to the second input of the multiplying means, the controllable oscillator means generating a variable frequency signal in response to the phase error signal when the first switching means is in the second position and in response to the angle when the first switching means is in the first position;

j) second switching means for coupling the synchronization word storage means to the phase error detection means in a first position and the phase error detection means to the signal vector quantizing means in a second position; and

k) decoding means, having an input coupled to the signal quantizing means and an output coupled to the recovered data output, for decoding the phase data signal into data bits.

5,067,140

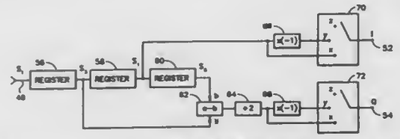
CONVERSION OF ANALOG SIGNAL INTO I AND Q DIGITAL SIGNALS WITH ENHANCED IMAGE REJECTION

Fritz K. Weinert, San Diego, Calif., assignor to Titan Linkabit Corporation, San Diego, Calif.

Filed Aug. 16, 1989, Ser. No. 395,011

Int. Cl.[5] H04L *27/38*

U.S. Cl. 375—77 **3 Claims**



1. A system for converting an analog signal into (I) in-phase and a (Q) quadrature-phase digital signals, comprising

means for converting an analog input signal A·sin $((\omega_o+\omega_s)t+\phi))$ at a sampling rate of $f=1/\tau=4\,f_o/(4\,m+2\,a-1)$, wherein m is 0, 1, 2, . . . ; and a is either 0 or 1, to provide a sequence of digital signal samples:

$S_0=A\cdot\sin\,\phi$,

$S_1=A\cdot\cos\,(\omega_s\tau+\phi)$,

$S_2=-A\cdot\sin\,(\omega_s 2\tau+\phi)$,

$S_3=-A\cdot\cos\,(\omega_s 3\tau+\phi)$,

$S_4=A\cdot\sin\,(\omega_s 4\tau+\phi)$,

$S_5=A\cdot\cos\,(\omega_s 5\tau+\phi)$,

$S_6=-A\cdot\sin\,(\omega_s 6\tau+\phi)$, . . . ;

wherein ω_s is the baseband frequency, ω_o is the IF center frequency, and ϕ is the phase of the analog input signal; and

means for processing said sequence of digital signal samples to derive either an I digital signal or a Q digital signal as a first digital output signal from a first series of alternate samples and to derive the other of the I and Q digital signals as a second digital output signal by computing the average of the absolute values of alternate samples that immediately precede and follow the samples of the first series, with the sign depending on the sampling mode (i.e. whether a=0 or a=1).

5,067,141

INTERPOLATOR FOR VARYING A SIGNAL SAMPLING RATE

David N. Critchlow; Graham M. Avis; Sandra J. K. Earlam, all of San Diego; Karle J. Johnson, Carlsbad; Bruce A. Smetana, Escondido; Gregory L. Westling, Poway, all of Calif.; Eric Paneth, Givataiim, Israel, and Moshe Yehushua, San Diego, Calif., assignors to International Mobile Machine Corporation, King of Prussia, Pa.

Division of Ser. No. 256,415, Oct. 12, 1988, Pat. No. 4,893,317, which is a division of Ser. No. 893,916, Aug. 7, 1986, Pat. No. 4,825,448. This application Oct. 10, 1989, Ser. No. 419,501

Int. Cl.[5] H04L *27/06*

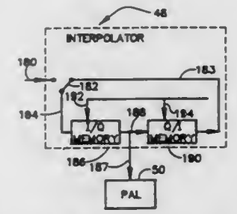
U.S. Cl. 375—97 **7 Claims**

1. An interpolator for varying the sampling rate of digital input signals having paired in-phase and quadrature components comprising;

an input means for said input signals at a first sampling rate;

a first memory for alternately storing the in-phase and quadrature components, said first memory being coupled to said input means and also being serially coupled to a second memory for alternately storing the quadrature and in-phase components;

means to circulate said input signals through both of said memories at a second and increased sampling rate whereby each in-phase and quadrature component is circulated more than once through said memories before



the next in-phase and quadrature pair of signals is input from said input means; and

output means coupled with said memories which taps the circulation of signals circulated through the memories whereby the resultant output signal is a resampled and remultiplexed signal output at said second higher rate.

5,067,142

X-RAY DIAGNOSTICS INSTALLATION WITH A GATING UNIT FOR THE DOMINANT IMAGE REGION

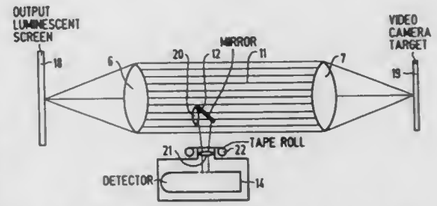
Arthur Gall, Langensendelbach, and Adelbert Kupfer, Poxdorf, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Jan. 16, 1991, Ser. No. 641,787

Claims priority, application European Pat. Off., Jan. 15, 1990, 90100756.7

Int. Cl.[5] H05G *1/64*

U.S. Cl. 378—99 **8 Claims**



1. In an x-ray diagnostics installation for producing x-ray images having an x-ray image intensifier and means for measuring the average image brightness in a dominant image region of the output luminescent screen of the x-ray image intensifier, the improvement of a gating device disposed in a light beam path between said output luminescent screen and said detector, said gating device comprising:

a tape roll consisting of optically opaque material and having a plurality of openings therein of respectively different sizes, shapes and positions; and

means for operating said tape roll to selectively position one of said openings in said beam path to limit the light in said beam path which is incident on said detector.

VOL 1132 ISS 3 NOV 19 1991 UMI

5,067,143

CURRENT DETECTING CIRCUIT FOR X-RAY TUBE

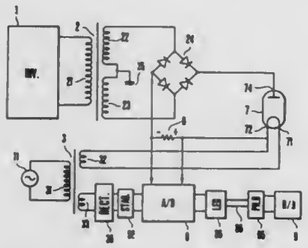
Kiyomi Watanabe, and Tetsuya Matsumoto, both of Tokyo, Japan, assignors to Origin Electric Co., Ltd., Tokyo, Japan

Filed Jun. 20, 1990, Ser. No. 541,154

Claims priority, application Japan, Jun. 26, 1989, 1-163098; May 14, 1990, 2-123660

Int. Cl.[5] H05G *1/34*

U.S. Cl. 378—110 9 Claims



1. A detecting circuit for detecting a current of an X-ray tube, comprising:

a DC voltage generating circuit for generating and supplying a direct current voltage across a filament and an anode of the X-ray tube;

current detecting means connected in series between a filament terminal of said X-ray tube and a terminal of said DC voltage generating circuit for detecting current passing through said X-ray tube;

an isolation transformer having a primary winding, a secondary winding for supplying a power for the filament, an additional secondary winding disposed adjacent to said secondary winding, and an insulating means disposed between said primary winding and both of said secondary and additional secondary windings, said insulating means having a sufficient dielectric strength to insulate with respect to a voltage which is the highest produced by said DC voltage generating circuit;

a rectifier circuit for rectifying a current from said additional secondary winding of said isolation transformer;

a signal transmitting circuit arranged to be powered from said rectifier circuit, said transmitting circuit being responsive to said current detecting means for transmitting an output signal;

a signal receiving circuit for receiving the output signal from said signal transmitting circuit, said signal receiving circuit being held at a ground potential; and

electrically isolated transmission means for transmitting the signal from said signal transmitting circuit to said signal receiving circuit.

5,067,144

EQUALIZED RADIOGRAPHY USING SPECIAL MODULATOR PINS

William F. Aitkenhead, Sharon, and Russell J. Gershman, Middleborough, both of Mass., assignors to Hologic, Inc., Waltham, Mass.

Filed May 18, 1990, Ser. No. 525,498

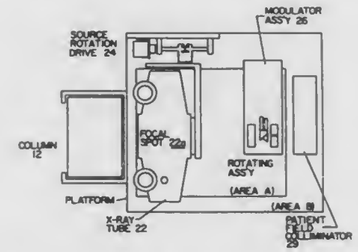
Int. Cl.[5] G21K *5/10*

U.S. Cl. 378—146 20 Claims

1. A system for examining an object with penetrating radiation, comprising:

a source/modulator which generates a fan of penetrating radiation scanning an object position and comprises wedge-shaped pins of a radiation attenuating material movable into the fan in the scanning direction and arranged in at least one row extending in a direction transverse to both the scanning direction and the propagation direction of said radiation;

each of said pins having a ridge pointing to or away from the origin of the fan and each pin having sections of different areas in different planes normal to the scanning direction; and



a control circuit moving said pins individually to respective degrees into the scanning fan.

5,067,145

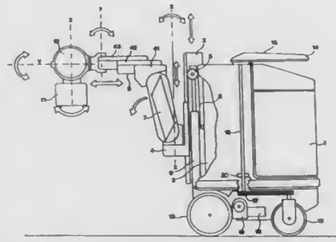
MOBILE X-RAY APPARATUS

Bernard W. Siczek, and Aldona A. Siczek, both of 1252 Chinook Way, Boulder, Colo. 80303

Filed Mar. 16, 1990, Ser. No. 494,478

Int. Cl.[5] H05G *1/02*

U.S. Cl. 378—198 1 Claim



1. A mobile X-ray apparatus for use in medical diagnostic examinations comprising:

a base comprising:

an X-ray generator,

a steering means,

a sensing means,

wheels supporting said bas and including at least one manually steerable wheel and one pair of wheels wherein each wheel is connected to a power means, and wherein:

said steering means are connected to the manually steerable wheel or wheels,

said sensing means are coupled to said steering means for sensing steering momentum and providing differential energizing of the power means for differentially driving said second pair of the wheels.

5,067,146

X-RAY RADIATOR

Fred Meinel, Eckental, and Dorothea Wilke, Erlangen, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Oct. 31, 1990, Ser. No. 606,919

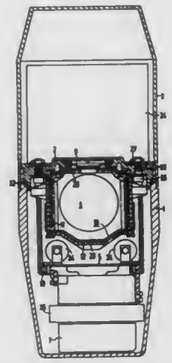
Claims priority, application European Pat. Off., Nov. 9, 1989, 89120807

Int. Cl.[5] H01J *35/10*

U.S. Cl. 378—199 4 Claims

1. In an x-ray radiator having a tank and an insertable closure forming a housing filled with coolant, and an x-ray tube having a longitudinal axis disposed in said housing, the improvement comprising:

a tube carrier which holds said x-ray tube in said housing; and



retaining means for mounting said tube carrier to said housing, said retaining means having a portion thereof accessible at an exterior of said housing for adjusting the position of said tube carrier and said x-ray tube by displacing said longitudinal axis of said x-ray tube relative to said housing.

5,067,147

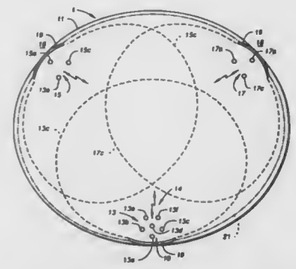
MICROCELL SYSTEM FOR CELLULAR TELEPHONE SYSTEM

William C. Lee, Corona Del Mar, Calif., assignor to PacTel Corporation, San Francisco, Calif.

Continuation of Ser. No. 432,800, Nov. 7, 1989, abandoned, which is a continuation-in-part of Ser. No. 307,070, Feb. 6, 1989, Pat. No. 4,932,049. This application Apr. 26, 1991, Ser. No. 693,779

Int. Cl.[5] H04M *11/00*

U.S. Cl. 379—60 2 Claims



1. A cellular telephone system comprising,

a plurality of contiguous cells, said cells being arranged in a plurality of clusters wherein each cell in a cluster has an assigned set of transmission frequencies, each of which frequencies is assignable to a given mobile telephone within said cell for all locations of said given mobile telephone within said cell,

frequency handoff means for maintaining continuous communication with mobile telephones moving from cell to cell by assigning thereto, respectively, a frequency from the corresponding assigned set as the mobile telephone moves into a new cells, each of said cells having a plurality of antenna means each of what is arranged and configured to limit propagation of signals substantially to one of a plurality of regions within the boundaries of said cell, which regions are each substantially less in area than the area of said cell but collectively occupy the entire cell area, and

means for terminating transmission by said antenna means, at any one frequency in a given assigned set of transmission frequencies for said cells in all regions except for the region wherein the strongest signal is received by said antenna means from the mobile telephone to which such one frequency has been assigned,

said clusters being arranged with a frequency reuse pattern of three and a ratio of co-channel separation distance to cell radius of less than four.

5,067,148

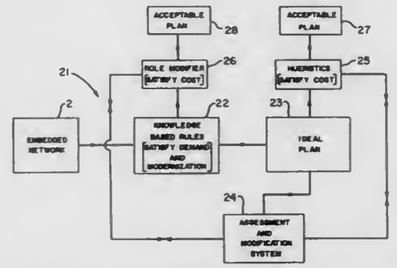
METHOD AND APPARATUS FOR PLANNING TELEPHONE FACILITIES NETWORKS

Sanjeev Sardana, Stamford, Conn., assignor to Nynex Corporation, New York, N.Y.

Filed Dec. 14, 1990, Ser. No. 627,646

Int. Cl.[5] H04M *7/00*

U.S. Cl. 379—111 30 Claims



1. A method for developing an acceptable plan for changing the links serving the nodes of a telephone network comprising the steps of:

developing an ideal plan for changing the links using knowledge based rules adapted to satisfy one or more first constraints;

assessing whether the ideal plan satisfies one or more second constraints and if so identifying the ideal plan as the acceptable plan;

and if the ideal plan fails to satisfy said one or more second constraints, modifying the ideal plan to satisfy at least one of said first constraints and one or more of said second constraints to realize said acceptable plan.

5,067,149

TELEPHONE LINE COMMUNICATIONS CONTROL SYSTEM WITH DYNAMIC CALL STREAMING

Michael R. Schneld, Pasadena, and John R. Prohs, Palmdale, both of Calif., assignors to Ambassador College, Pasadena, Calif.

Continuation-in-part of Ser. No. 249,220, Sep. 19, 1988, Pat. No. 4,837,799, which is a continuation of Ser. No. 106,726, Oct. 5, 1987, abandoned. This application Jun. 5, 1989, Ser. No. 362,038 The portion of the term of this patent subsequent to Jun. 6, 2006, has been disclaimed.

Int. Cl.[5] H04M *3/00*

U.S. Cl. 379—224 15 Claims

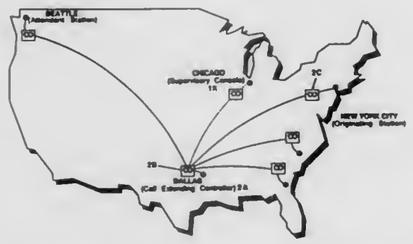
1. A telecommunications control system for accepting a plurality of multi-purpose stations on the public switched network for use as remote attendant stations in an attendant service complex to service calls directed to the system from originating stations, the system comprising:

a first plurality of station connection controllers, each sta-

VOL 1132 ISS 3 NO 19 1991 UMI

tion connection controller in the first plurality for cooperating with a respective one of a plurality of multi-purpose stations in defining opposite ends of a call connection path, and each such station connection controller having controllable switching means for opening the call connection path and releasing the respective multi-purpose station;

a second plurality of station connection controllers, each station connection controller in the second plurality for cooperating with a respective one of a plurality of originating stations in defining opposite ends of call connection path;



controllable inter-connection means arranged between the first and second plurality of station connection controllers;

means for controlling the inter-connection means such that incoming calls from originating stations are extended to multi-purpose stations that have been accepted as attendant stations; and

means for measuring the interval of time between incoming calls for each of the second plurality of station connection controllers, during which interval of time the remote attendant is online.

5,067,150

TELEPHONE NUMBER DISPLAY DEVICE

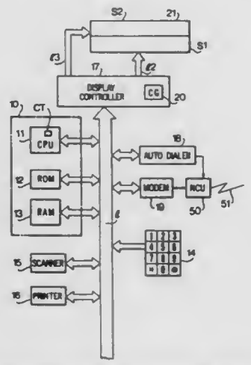
Mitsuo Satomi, Kyoto; Kazuaki Oshita, Hirakata, and Tetsuya Kuwahara, Shiga, all of Japan, assignors to Murata Kikai Kabushiki Kaisha, Kyoto, Japan

Filed Feb. 27, 1990, Ser. No. 485,958

Claims priority, application Japan, Mar. 1, 1989, 1-23719[U]

Int. Cl.[5] H04M *1/26*

U.S. Cl. 379—354 **4 Claims**



1. A telephone number display device adapted to a facsimile machine having a telephone function, comprising:

telephone number input means for entering a telephone number comprising a plurality of characters;

display means having first and second display areas for displaying a telephone number given by the telephone number input means, the first display area being disposed below the second display area and the first display area comprising a plurality of display positions equal in number to n, where n is an integer; and

display mode control means for controlling the display means so as to display the telephone number given by the telephone number input means in the first display area to maximum number of places thereof and, when the telephone number overflows the first display area, the telephone number is divided into two groups and displayed in the first and second display areas, the display mode control means comprising:

means for displaying the characters of the telephone number in the first display area from left to right as the characters of the telephone number are entered by the telephone number input means, and

means for transferring the first n characters of the telephone number provided by the telephone number input means from the first display area to the second display area when the number of characters of the telephone number entered by the telephone input means exceeds n,

whereby the number of characters of the telephone number in excess of n are displayed in the first display area from left to right as the characters of the telephone number are entered by the telephone number input means.

5,067,151

TELEPHONE HANDSET WITH ELECTROSTATIC DISCHARGE PREVENTION

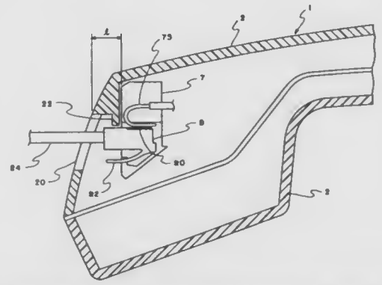
Masaru Inagaki, Tokyo, and Toshio Matsushita, Shizuoka, both of Japan, assignors to NEC Corporation, Japan

Filed Jun. 29, 1989, Ser. No. 374,084

Claims priority, application Japan, Jun. 30, 1988, 63-87743[U]

Int. Cl.[5] H04M *1/00*

U.S. Cl. 379—433 **4 Claims**



1. A telephone handset comprising a modular plug fitting on an end of a telephone cord, an electrostatic discharge prevention means connectable to a telephone body by said cord on, said modular plug having a resilient leaf spring locking tongue for locking it in place,

said handset comprising:

a modular jack having electrical contacts for receiving the modular plug, said handset having an opening through which said plug may be inserted, said jack being disposed in said handset in a position which is at least a distance of l as measured from said opening which is formed through said handset for the insertion of said plug, said distance being great enough to prevent the locking tongue of the plug from protruding from said handset to the outside thereof;

a wall molded integrally within said handset and positioned outwardly of said electrical contacts of said modular jack for concealing said electrical contacts from the opening in said hand set;

a handset cover and a handset case;

said handset cover having an interior comprising a pair of parallel first guide members positioned at opposite sides adjacent to an inner surface of said handset cover where the opening is located, and a pair of parallel second guide members which are spaced apart from said first guide members by a predetermined distance, said first and second guide members being molded integrally with said handset cover;

said wall being positioned between said first guide members; and

said modular jack being retained between said first and said second guide members.

5,067,152

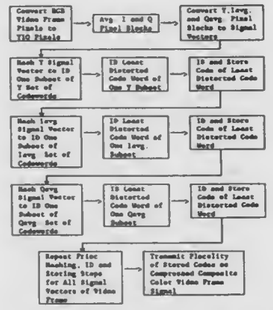
METHOD AND APPARATUS FOR VECTOR QUANTIZATION

Gregory H. Kisor, Boca Raton, Fla., and Edward J. King, Milpitas, Calif., assignors to Information Technologies Research, Inc., Boca Raton, Fla.

Continuation-in-part of Ser. No. 303,795, Jan. 30, 1989, Pat. No. 4,979,039. This application Mar. 16, 1990, Ser. No. 494,658

Int. Cl.[5] H04N *7/167*

U.S. Cl. 380—10 **16 Claims**



1. A method of compressing an original signal convertible into a plurality of binary signal vectors, each signal vector containing a plurality of data elements of the original signal to be compressed, the method comprising the steps of:

hashing a first signal vector converted from the original signal to identify one of at least three different subsets of a first set of code words, each code word of the first set having a unique, associated binary code, each code associated with the first set of code words having a first predetermined length less than the length of the first signal vector;

storing a first code associated with one of the code words from the one identified subset of the first set as a compressed representation of the first signal vector;

hashing a second signal vector converted from the original signal to identify one of at least three different subsets of a second set of code words, each code word of the second set having a unique, associated binary code, each code associated with the second set of code words having a second predetermined length less than the length of the second signal vector and the second set of code words differing from the first set of code words; and

storing a second code associated with one of the code words from the one selected subset of the second set as a compressed representation of the second signal vector.

5,067,153

METHOD FOR TRANSMITTING SUBSCRIBER DATA IN COMMUNICATION SYSTEMS FROM ONE SECRET SUBSCRIBER EQUIPMENT TO ANOTHER

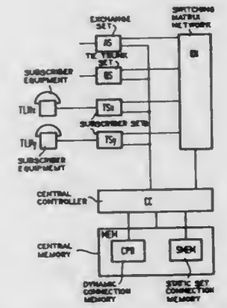
Klaus Willie; Helmut Kienberger, and Erika Marwitz, all of Munich, Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed Sep. 27, 1990, Ser. No. 589,385

Claims priority, application Fed. Rep. of Germany, Sep. 28, 1989, 3932498; Nov. 15, 1989, 3938000

Int. Cl.[5] H04K *1/00, 9/00;* **H04M** *1/24*

U.S. Cl. 380—23 **15 Claims**



1. A method of transmitting subscriber data including the name and subscriber connection number of a calling party between a secret status calling subscriber station and a called subscriber station which has a display for displaying the subscriber data, in a receiving communication system which comprises a central controller and a central memory, comprising the steps of:

(a) storing the subscriber data and inhibit information assigned thereto in the central memory for the subscriber stations of those subscribers who are authorized a secret status;

(b) upon setup of a connection between the secret status calling subscriber station and the called subscriber station, transmitting cancel secrecy information to the central controller to activate a program-oriented identification procedure;

(c) in response to the activation of the program-oriented identification procedure, generating identification information;

(d) in response to the identification information, suppressing the inhibit information and reading the stored subscriber data of the secret status calling subscriber station from the central memory; and

(e) transmitting the read subscriber data to the called subscriber station for display.

5,067,154

TERMINAL MANAGEMENT METHOD AND APPARATUS

Yoshiyuki Hosobuchi, and Takayuki Takahashi, both of Hadano, Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Apr. 11, 1990, Ser. No. 508,110

Claims priority, application Japan, Apr. 17, 1989, 1-095112

Int. Cl.[5] H04L *9/00*

U.S. Cl. 380—25 **18 Claims**

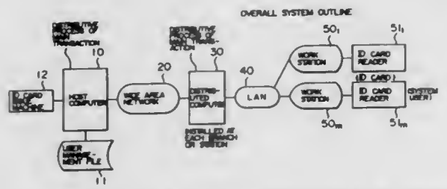
1. A terminal management method for an information processing system including a host system, means for storing user discrimination information, and a plurality of terminal systems, each terminal system having a variably settable address that is responsive to a recording medium written with discrimination information stored in the means for storing, thereby enabling

VOL 1132 ISS 3 NO 19 1991 UMI

an information processing with the host system, comprising the steps of:

recording user discrimination information in said means for storing, said user discrimination information uniquely discriminating a user, and storing in said recording medium said discrimination information specific to said discriminated user, in accordance with said user discrimination information recorded in said means for storing; and

entering said discrimination information recorded in said recording medium in any one of said plurality of terminal systems to set thereto an address of said terminal system correspondingly to said discrimination information specific to said discriminated user.

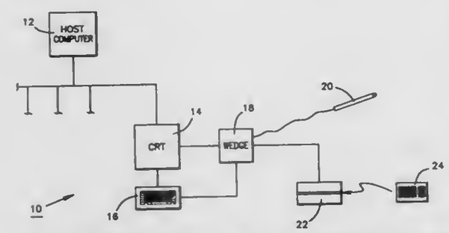


5,067,155

METHOD AND MEANS TO LIMIT ACCESS TO COMPUTER SYSTEMS

James S. Bianco; James T. Madsen, both of Enfield; Michael Ceppetelli, Broadbrook, all of Conn., and John S. Fahy, Agawam, Mass., assignors to Control Module Inc., Enfield, Conn.

Filed May 9, 1990, Ser. No. 520,763
Int. Cl.[5] G11B *23/28;* H04K *1/00*
U.S. Cl. 380—25 5 Claims



1. A method of limiting access to a computer system, said system being accessible by means of a security code, comprising:

(a) reading an identification code on identifying indicia by machine means connected to said computer system;

(b) scrambling, with said machine means, said identification code as a function of current time to produce said security code;

(c) transmitting directly from said machine means to said computer system said security code;

(d) descrambling, in said computer system, said security code to determine if said security code is valid for the then current date and time; and

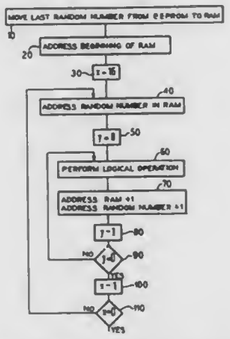
(e) permitting said security code, if valid, to be used for access to said computer system for a selected interval of time only.

5,067,156

METHOD FOR GENERATING A RANDOM NUMBER FOR THE ENCODED TRANSMISSION OF DATA UPON EMPLOYMENT OF A VARIABLE STARTING VALUE

Guenter Martin, Neubaldham, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Mar. 8, 1990, Ser. No. 490,433
Claims priority, application Fed. Rep. of Germany, Mar. 8, 1989, 3907526
Int. Cl.[5] H04L *9/00*
U.S. Cl. 380—46 3 Claims



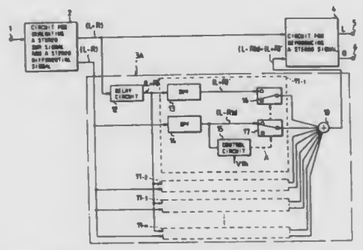
1. Method for generating a random number for the encoded transmission of data in a data exchange system having chip cards, each having a processor, using a secret cipher, a ciphering algorithm allocated to a random number generator, and a variable starting value that is logically combined with a most recently used and intermediately stored random number, comprising the steps of: performing a logical operation on every byte of the stored random number with a respective byte of each data block of a plurality of data blocks in the working memo the processor, each data block being n-bytes wide; and using the result of this multiple operation as a starting value for generating a new random number.

5,067,157

NOISE REDUCTION APPARATUS IN AN FM STEREO TUNER

Kohji Ishida; Yasushi Nishimura, and Shigeru Yamaguchi, all of Tokyo, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 29, 1989, Ser. No. 442,770
Claims priority, application Japan, Feb. 3, 1989, 1-25296; Feb. 3, 1989, 1-25297
Int. Cl.[5] H04H *5/00*
U.S. Cl. 381—13 9 Claims



1. A noise reduction apparatus in an FM stereo tuner comprising:

a circuit for generating a stereo sum signal and a first stereo differential signal;

a noise eliminating circuit for dividing said stereo sum signal and said first stereo differential signal, in accordance with a plurality of frequency bands, into a plurality of divisional differential signals and a plurality of divisional sum signals, for eliminating a low-level divisional stereo differential signal in each of said plurality of frequency bands so as to output a second differential signal representing those first differential signals not eliminated, and for outputting a composite signal representing the second stereo differential signal and only those divisional stereo sum signals in the same divisional band as said eliminated divisional stereo differential signals; and

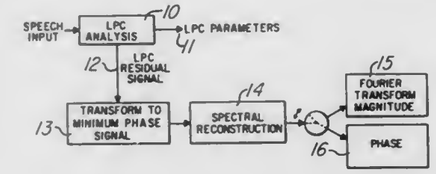
a circuit for reproducing a stereo signal from said composite signal and said stereo sum signal.

5,067,158

LINEAR PREDICTIVE RESIDUAL REPRESENTATION VIA NON-ITERATIVE SPECTRAL RECONSTRUCTION

Masud M. Arjmand, Richardson, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 11, 1985, Ser. No. 744,171
Int. Cl.[5] G10L *7/06*
U.S. Cl. 381—51 11 Claims



1. A method of encoding a linear predictive residual signal as derived from an analog speech signal, wherein said linear predictive residual signal is in the form of a plurality of frames of digital speech data, said method comprising the steps of:

transforming each frame of digital speech data to a frame of digital speech data at least approximating minimum phase; and

subjecting the transformed frame of digital speech data at least approximating minimum phase to a Fourier Transform procedure, thereby providing an encoded version of the frame in which one of the magnitude and the phase information is representative of the original frame of digital speech data which forms part of the original linear predictive residual signal, and the other of the magnitude and the phase information does not occur in the encoded version of the frame.

5,067,159

STRUCTURE OF A SPEAKER APPARATUS

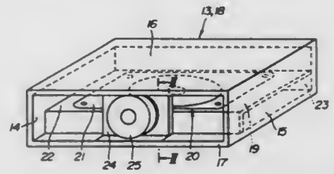
Junichi Kasai; Wataru Yagihashi, both of Kanagawa; Akira Yatsunami, Saitama, and Kazuyuki Kurano, Saitama, all of Japan, assignors to Nissan Motor Company, Limited, Yokohama and Clarion Company, Limited, Tokyo, both of, Japan

Filed Jul. 13, 1988, Ser. No. 218,261
Claims priority, application Japan, Jul. 14, 1987, 62-175327
Int. Cl.[5] H04R *1/02*
U.S. Cl. 381—90 17 Claims

1. A speaker apparatus, comprising:

(a) a speaker unit having a vibrating plate thereon;

(b) a cabinet of substantially rectangular cross section having a partitioning plate in a space between an upper plate portion and a bottom plate portion thereof, the speaker unit being installed on the partitioning plate so that a front surface of the vibrating plate of the speaker unit is faced against an opposing surface of the upper plate portion via the space within the cabinet, the cabinet having a first opening provided along a lower part of a first side plate portion between the upper plate portion and bottom plate portion, the first opening serving as an exit for sound wave signals generated from a rear surface of the vibrating plate of the speaker unit, and having a second opening provided along an upper part of a second side plate portion of the cabinet between the upper plate portion and bottom plate portion, the second opening serving as an exit for the sound wave signals generated from the front surface of the vibrating plate and reflected against the opposing surface of the upper plate portion of the cabinet; and



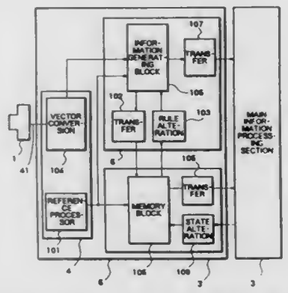
(c) means, located over a predetermined part of the second opening, for shielding the sound wave signals distorted due to peaks and dips of the sound wave signals in a particular frequency band caused by repeated reflections between the front surface of the vibrating plate and the opposing surface of the upper plate portion from propagating over the predetermined part of the second opening in the direction toward an outer surface of the predetermined part and for reproducing the sound wave signals generated from the front surface of the vibrating plate of the speaker unit in the particular frequency band so as to compensate for the sound wave signals which have peaks and dips in the particular frequency band.

5,067,160

MOTION-PATTERN RECOGNITION APPARATUS

Satoshi Omata, Machida; Hiroshi Shimizu, and Yoko Yamaguchi, both of Tokyo, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 24, 1989, Ser. No. 328,547
Claims priority, application Japan, Apr. 26, 1988, 63-102920
Int. Cl.[5] G06K *9/00*
U.S. Cl. 382—1 26 Claims



1. A motion-pattern recognition apparatus for recognizing the motion of an object contained in time-varying image data, comprising:

input means arranged for input of time-varying image data;

arithmetic means connected to said input means for computing vectors indicative of local variations in the input time-varying image data;

image forming means connected to said arithmetic means for forming an image corresponding to the motion of the

VOL 1132 ISS 3 NO 19 1991 UMI

object from said vectors computed by said arithmetic means in accordance with a predetermined rule;

memory means for retrievably storing in advance different kinds of conceptualized meanings of motion;

retrieving means connected to said image forming means and said memory means for retrieving a conceptualized meaning close to the image formed by said image forming means; and

rule altering means connected to said retrieving means and said image forming means for altering said predetermined rule on the basis of said conceptualized meaning retrieved by said retrieving means.

5,067,161

IMAGE RECOGNITION DEVICE

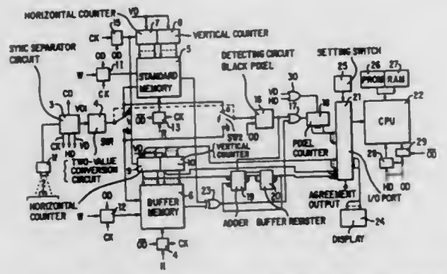
Kazuo Mikami, Kyoto; Hideshi Ishihara, Takatsuki; Masahiro Nishimura, Kyoto; Noriyuki Tsukiyama, and Seisuke Hinoda, both of Uji, all of Japan, assignors to Omron Tateisi Electronics Co., Nagaokakyo, Japan

Continuation of Ser. No. 752,737, Jul. 8, 1985, abandoned. This application Aug. 3, 1988, Ser. No. 228,836

Claims priority, application Japan, Jul. 9, 1984, 59-143072

Int. Cl.[5] G06K *9/00*

U.S. Cl. 382—1 **1 Claim**



1. A visual recognition device which receives video signals representing an object to be recognized from a video camera, converts said video signals to a two-valued input pattern, and compares said input pattern with a standard pattern to recognize said object, comprising:

an auxiliary computing means for carrying out a predetermined auxiliary computation during a horizontal scan period of said video camera, according to a state of the input pattern;

a main computation means for performing a main computation operation based on computation results of said auxiliary computation means, said main computation operation being carried out only during a vertical return scan blanking period of said video camera; and

a recognition means for recognizing said input pattern with respect to said standard pattern based on said computation results of said main computation means with respect to said patterns.

5,067,162

METHOD AND APPARATUS FOR VERIFYING IDENTITY USING IMAGE CORRELATION

Edward C. Driscoll, Jr., Portola Valley; Craig O. Martin, Menlo Park, both of Calif.; Kenneth Ruby, Florence, Oreg.; James J. Russell, Mountain View, and John G. Watson, Menlo Park, both of Calif., assignors to Identix Incorporated, Sunnyvale, Calif.

Filed Jun. 30, 1986, Ser. No. 879,987

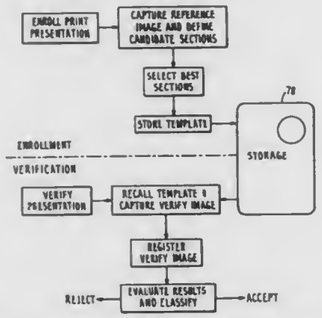
Int. Cl.[5] G06K *9/62*

U.S. Cl. 382—5 **48 Claims**

1. An image correlation method for verifying the identity of an object, said method comprising the steps of:

forming a two-dimensional reference image of a reference object;

identifying a plurality of two-dimensional reference sections from said reference image by the steps of partitioning said reference image into a plurality of two-dimensional candidate reference sections from which said reference sections will be selected, performing an autocorrelation calculation for each candidate reference section to determine the degree of distinctiveness of said candidate reference section relative to a two-dimensional local region of said reference section by comparing pixels of the two-dimensional image data of said candidate reference section to corresponding pixels of the two-dimensional image data of equal-sized areas throughout said local region, wherein said local region is larger than said candidate reference section and smaller than said reference image, and selecting said reference sections from the most distinctive of said candidate reference sections based on the results of the autocorrelation calculations; and then



forming a two-dimensional verify image of an object whose identity is to be verified, wherein said verify image includes a plurality of two-dimensional verify regions each corresponding in position to one of said reference sections and each larger in extent than its corresponding reference section;

determining a best-match location within each verify region at which the image data is most similar to the image data of its corresponding reference section;

determining the relative positioning of said best-match locations relative to each other and comparing that positioning to the relative positioning of the reference sections relative to each other; and

verifying the identity of said object according to the degree of similarity between the image data of said best-match locations and said corresponding reference sections, and according to the degree of similarity between the relative positioning of said best-match locations and the relative positioning of said corresponding reference sections.

5,067,163

METHOD FOR DETERMINING A DESIRED IMAGE SIGNAL RANGE FROM AN IMAGE HAVING A SINGLE BACKGROUND

Yuuma Adachi, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 27, 1989, Ser. No. 413,159

Claims priority, application Japan, Sep. 28, 1988, 63-243436

Int. Cl.[5] G06K *9/38;* **H05B** *33/00;* **G03G** *5/16;* **G06F** *15/00*

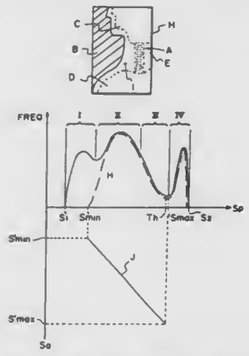
U.S. Cl. 382—6 **3 Claims**

1. A method for finding a desired image signal range of an image signal representative of an image having an object image portion and a single background region, which comprises the steps of:

i) converting said image signal, which is made up of a plural-

ity of image signal components whose values represent picture elements of said image, into a two-valued system using a predetermined threshold value in order to form a binary image which comprises a region approximately corresponding to the object image and a region approximately corresponding to the background region,

creating a second area defining a region approximately corresponding to the background region by reassigning the picture element corresponding to the image signal component having the value closest to said predetermined threshold value from the image signal components corresponding to all or some of the picture elements, which are located in said region approximately corresponding to the object image and which constitute and edge of said binary



image, to said second area defining the region approximately corresponding to the background region, thereby forming the background region out of two areas which are separated by said region approximately corresponding to the object image,

iii) repeating the formation of the binary image with the said predetermined threshold value being changed sequentially so that said two areas which form said region approximately corresponding to the background region expand until they become connected to each other, and

iv) finding the desired image signal range from the values of the image signal components corresponding to the picture elements located in said two areas which have become connected to each other through the performance of step (iii) herein.

5,067,164

HIERARCHICAL CONSTRAINED AUTOMATIC LEARNING NEURAL NETWORK FOR CHARACTER RECOGNITION

John S. Denker, Leonardo; Richard E. Howard, Highland Park; Lawrence D. Jackel, Holmdel, and Yann LeCun, Middletown, all of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Nov. 30, 1989, Ser. No. 444,455

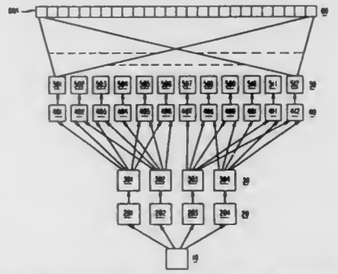
Int. Cl.[5] G06K *9/62*

U.S. Cl. 382—15 **5 Claims**

1. A massively parallel computation network for character recognition of an image map having a plurality of image units, said network comprising

first and second feature detection layer means wherein each of said feature detection layer means includes a plurality of constrained feature maps and a corresponding plurality of feature reduction maps, each constrained feature map and each feature reduction map comprising a plurality of units and a corresponding plurality of computation elements for generating values for said units in said map, each of said feature reduction maps having fewer units than each of said constrained feature maps, said computation element having a weighting kernel associated therewith and being responsive to a plurality of substantially neighboring units from at least a predetermined other map for mapping a dot product of said associated weighting kernel with said predetermined plurality of substantially neighboring units into an output value in accordance with a selected nonlinear criterion, said computation element responsive to a different plurality of substantially neighboring units than each other computation element associated with the same map, said second feature detection layer means having fewer units than said first feature detection layer means,

said constrained feature maps of said first feature detection



layer means responsive to image units, each feature reduction map of said first feature detection layer means responsive to units from its corresponding constrained feature map, said constrained feature maps of said second feature detection layer means responsive to units from at least one feature reduction map in said first feature detection layer means, each feature reduction map of said second feature detection layer means responsive to units from its corresponding constrained feature map,

said network further including a character classification layer fully connected to all feature reduction maps of said second feature detection layer means for generating an indication representative of the character recognized by the network.

5,067,165

CHARACTER RECOGNITION METHOD

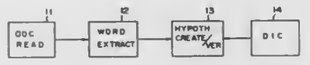
Hirobumi Nishida, Sagamihara, Japan, assignor to Ricoh Company, Ltd., Japan

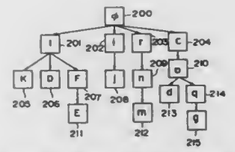
Filed Apr. 16, 1990, Ser. No. 508,727

Claims priority, application Japan, Apr. 19, 1989, 1-99575; Apr. 19, 1989, 1-99576; Feb. 21, 1990, 2-40498

Int. Cl.[5] G06K *9/46*

U.S. Cl. 382—19 **5 Claims**





1. A method for recognizing a character string comprising one or more alphanumeric characters read from a document,

VOL 1132 ISS 3 NO 19 1991 UMI

said character string being defined by a first end and a second end, each of the alphanumeric characters comprising a plurality of structural elements disposed with a predetermined geometrical relationship so as to form the alphanumeric character, said method comprising the processes of:

(a) providing a dictionary having each alphanumeric character stored as a graph, the graph comprising nodes and links connecting the nodes;

(1) each of the nodes corresponding to one of the structural elements and carrying an attribute representative thereof; and

(2) each of the links representing the geometrical relationship which exists between the nodes which are connected by the link;

(b) reading a character string from a document;

(c) extracting one or more structural elements and a geometrical relationship existing therebetween from the character string read from the document, starting from a starting location of character recognition at the first end of the character string and proceeding consecutively to the second end of the character string;

(d) verifying that the structural elements and the geometrical relationship extracted in the process of extraction exist in the dictionary, wherein said step of verifying includes searching the dictionary:

(1) starting from a simple alphanumeric character having a small number of structural elements; and

(2) proceeding to complex alphanumeric characters having a large number of structural elements;

(e) predicting the structural elements and the geometrical relationship existing in the character string at a location immediately adjacent to the former location in the character string, based on the result of the process of verification, by assuming a candidate character; and

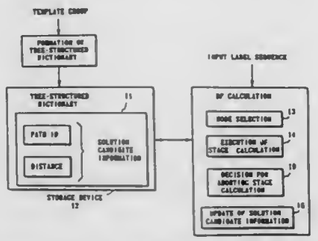
(f) recognizing the character string by moving the location step by step consecutively along the character string towards the second end, while repeatedly performing the processes of extraction, verification, and prediction in each of the steps.

5,067,166

METHOD AND APPARATUS FOR DP MATCHING USING MULTIPLE TEMPLATES

Nobuyasu Ito, Kawasaki, Japan, assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 23, 1990, Ser. No. 498,310
Claims priority, application Japan, Mar. 24, 1989, 1-70442
Int. Cl.[5] G06K *9/68*
U.S. Cl. 382—37 **14 Claims**



1. A method for DP matching multiple label-sequences which form templates comprising the steps of:

(a) generating from said multiple label-sequences a tree-structured dictionary having a root node, a plurality of intermediate nodes, a plurality of end nodes, and a plurality of paths from the root node through intermediate nodes to end nodes, each intermediate and each end node having only one incoming path segment from the root node to the intermediate node, each intermediate node having one ancestor node adjacent to the intermediate node along the incoming path segment into the intermediate node, each intermediate node having at least one outgoing path segment from the intermediate node to an end node, each intermediate node having one or more descendent nodes adjacent to the intermediate node along the outgoing path segments from the intermediate node, where each node corresponds to one label, and storing it in a storage device,

(b) providing such label node in said tree-structured dictionary with a buffer area in said storage device,

(b1) selecting an ancestor node in said tree-structured dictionary, said selected ancestor node having at least two descendent nodes,

(c) selecting one descendent node of the two or more descendent nodes of the selected ancestor node, performing a stage calculation between the label corresponding to the selected descendent node and an input label sequence and storing the result in the buffer provided for the selected descendent node, the step (c) comprising the sub-steps of:

(c1) referring to the stage calculation result stored in the buffer for the selected ancestor node,

(c2) determining a label in the input label sequence providing the minimum value of the stage calculation result obtained in said sub-step (c1) and

(c3) selecting a descendent node of the selected ancestor node, which descendent node corresponds to a label having the minimum distance from a label immediately after the label determined in the sub-step (c2) in the input label sequence, and

(d1) if the selected descendent node is not an end node, then replacing the selected ancestor node with the selected descendent node, and repeating step (c), and

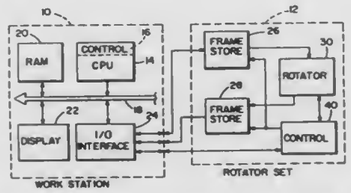
(d2) after performing the stage calculation for the node which corresponds to the end of one template, storing the stage calculation result obtained for the end node with the identification data of the template as solution candidate information into said storage device.

5,067,167

APPARATUS AND METHOD FOR ROTATING OF THREE-DIMENSIONAL IMAGES

Scott B. Berger, New York, N.Y., assignor to Cornell Research Foundation, Inc., Ithaca, N.Y.

Filed Oct. 10, 1990, Ser. No. 595,233
Int. Cl.[5] G06K *9/32, 9/54;* G06F *15/00;* G09G *1/06*
U.S. Cl. 382—46 **7 Claims**



1. A system for rotating a three-dimensional image so that a selected projection thereof is oriented to a chosen angular orientation in a three-dimensional space, said three-dimensional image comprising a plurality of pixels, each said pixel identified by a three-dimensional spatial coordinate value and a grey scale value, said system comprising:

data processing means for storing said pixel coordinates, and including means for rapidly altering said pixel spatial coordinate values to accomplish 90° rotations of said three-dimensional image about axes of said three-dimensional space;

a pipeline processor for altering pixel spatial coordinate values to rotate a three-dimensional image to an arbitrary angle, but only about an axis perpendicular to a rotator plane of said three-dimensional space;

means for controlling said data processing means to modify spatial coordinate values of said three-dimensional image to rotate said image through said three-dimensional space until said selected projection of said image is coplanar with said rotator plane in order to obtain an oriented three-dimensional image; and

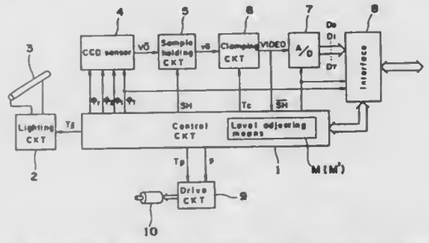
means for controlling said pipeline processor to to rotate said oriented three-dimensional image to said chosen angle about said perpendicular axis to said rotator plane.

5,067,168

READER FOR ORIGINAL DOCUMENTS AND METHOD

Fumikazu Nagano, Yamatokoriyama, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed May 9, 1990, Ser. No. 520,888
Claims priority, application Japan, May 16, 1989, 1-122542
Int. Cl.[5] G06K *9/38*
U.S. Cl. 382—53 **14 Claims**



1. In a reader in which a quantity of light emitted from a light source can be turned on in response to a lighting signal from a control circuit and the light can be reflected by an original document or transmitted through the original document for reading by a solid image sensor receiving a clock signals from said control circuit so as to be converted into an analog signal and that analog signal is convertible by an A–D converter into a digital image signal having a predetermined number of bits, the improvement comprising:

the control circuit including a level adjusting means for adjusting a while level of the analog signal to a reference white level, prior to a reading of the original document, by detecting a white level of an analog signal produced by light from the original document and comparing the detected white level to a reference white level;

said level adjusting means outputting, prior to reading the original document, the clock signal for increasing or decreasing a period for storing electric charge in said solid image sensor so that a value of the analog signal which is read from the original document will have the reference white level and will be inputted to said A–D converter to be converted into a full-range digital image signal by said A–D converter, independent of the density of the original document;

5,067,169

PORTABLE HUMIDIFIER

Bernard Chiu, Ashland, Mass., assignor to Duracraft Corporation, Sudbury, Mass.

Filed Aug. 1, 1990, Ser. No. 560,957
Int. Cl.[5] H05B *3/78, 11/0;* F22B *1/16*
U.S. Cl. 392—406 **14 Claims**

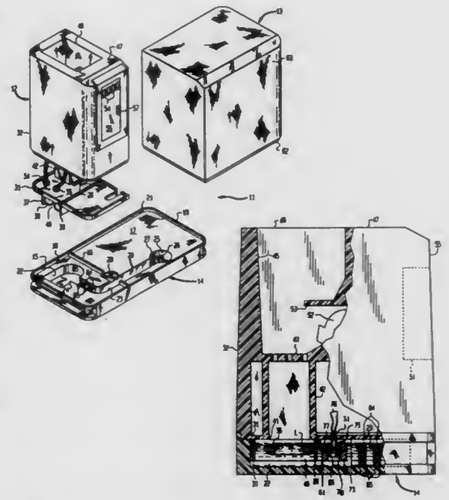
1. A humidifier comprising:

a base means defining a boiler cavity;

a liquid supply means supported on said base means and having a discharge opening communicating with said boiler cavity and adapted to maintain a given level of liquid therein;

an evaporation unit removably mounted on said base means and comprising an electrically energized heater means projecting into said cavity and adapted to induce evaporation of liquid contained thereby, and a vapor passage defining means having a receiving end communicating with said cavity so as to receive Vapor therefrom and a discharge end for discharging the vapor received from said cavity;

electrical supply means for supplying electrical energy to said evaporator means; and



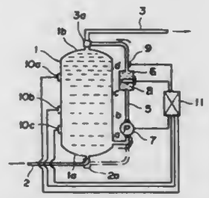
an enclosure means mounted on said evaporation unit and defining a restricted chamber enclosing said heater means, a lower portion of said enclosure means defining orifice means providing liquid communication between said cavity and said chamber and physical access to said heater means so as to permit cleaning thereof.

5,067,170

ELECTRIC WATER WARMING SYSTEM

Seiko Nagashima, Ibaraki, and Takanobu Serizawa, Susono, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 27, 1989, Ser. No. 457,496
Claims priority, application Japan, Jan. 5, 1989, 64-629
Int. Cl.[5] F24H *1/18*
U.S. Cl. 392—461 **5 Claims**



1. An electric water warming system comprising:

VOL 1132 ISS 3 NO 19 1991 UMI

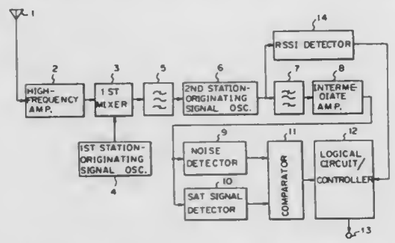
a first water storage tank to be installed in a vertical fashion;
a water feed pipe means connected to a bottom portion of said first water storage tank for feeding water therein;
a hot water flow-out pipe means connected to a top portion of said first water storage tank for flowing out not water therefrom;
a first detecting means for detecting a temperature of hot water stored in te first water storage tank at a plurality of levels thereof;
a circulation pipe means for circulating water from a water feed side to a hot water flow-out side of said first water storage tank;
a second water storage tank incorporated in said circulation pipe means, said second water storage tank having an inlet portion and an outlet portion;
a heating means disposed in said second water storage tank;
a second detecting means disposed at the outlet portion of said second water storage tank for detecting a temperature of hot water stored in said second water storage tank, said second detecting means comprising a temperature sensor mounted on said circulation pipe means near the outlet portion of said second water storage tank;
a pump means incorporated in said circulation pipe means at a portion between an upstream side of said second water storage tank and a downstream side of said first water storage tank to circultate water in said circulation pipe means; and
means for controlling said heating means, said first and second detecting means and said pump means, and regulating temperatures of the hot waters through said first and second detecting means.

5,067,171

METHOD AND APPARATUS FOR HAND-OFF OF CALL IN PROGRESS

Minori Kawano, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 11, 1988, Ser. No. 167,634
Claims priority, application Japan, Mar. 31, 1987, 62-79942
Int. Cl.[5] H04Q *7/04*
U.S. Cl. 455—33 **35 Claims**



1. In a small-cell mobile radio communication system having a central switching office provided with a hand-off apparatus for determining optimal timing of a hand-off of a call-in-progress and for sending out a hand-off signal at the determined time of a hand-off, a plurality of base stations and a mobile station,

said hand-off apparatus including:

a signal input means for receiving and amplifying a high-frequency signal from a mobile station and for converting the amplified signal into an intermediate-frequency signal;
a signal-to-noise ratio detecting means connected to said signal input means for converting the intermediate-frequency signal into a voice signal, for detecting the signal-to-noise ratio of the voice signal, and for outputting a first on-state signal when the detected signal-to-noise ratio exceeds to equals a predetermined first threshold and a first off-state signal when the detected signal-to-noise ratio is below the first threshold;
a received signal strength input detecting means connected to said signal input means for detecting and received signal strength input of the intermediate-frequency signal independently of said signal-to-noise ratio detecting means, for outputting a second on-state signal when the detected received signal strength input exceeds or equals a predetermined second threshold and a second off-state signal when the detected received signal strength input is below the second threshold; and
control logic means connection to both said signal-to-noise ratio detecting means and said received signal strength input detecting means for selecting the outputs from said signal-to-noise ratio and received signal strength input detecting means, for measuring a first total length of time in which at least one of the signal-to-noise ratio and the received signal strength input is below said corresponding first or second threshold, respectively, by counting said first or second off-state signals, for evaluating the ratio of said first total length of time to a predetermined measuring time of the signal-to-noise ratio and received signal strength input, and for sending out a hand-off signal when the evaluated ratio exceeds a predetermined third threshold thereby determining optimal timing of a hand-off of a call-in-progress.

5,067,172

AIR TO GROUND COMMUNICATIONS SYSTEM AND METHOD

Gerald R. Schloemer, Edwards Subdivision, P.O. Box 307, Round Lake, Ill. 60073

Filed May 30, 1989, Ser. No. 358,147
Int. Cl.[5] H04Q *7/00*
U.S. Cl. 455—34 **3 Claims**



3. A radio telephone communications system selectively providing air-to-ground communications between a plurality of bases each having transmitters and receivers and a plurality of aircraft each having transmitters and receivers, transmitting means for providing signal transmitting patterns from said aircraft each pattern being substantially an inverted cone and covering areas on the ground dependent upon the height of the aircraft, means for assigning frequency channels for transmission and reception based upon the amplitude of signals received at base sites independently of locations and altitudes of aircraft, means evaluating all communicating signals present in the system, and means for assigning a channel to each aircraft to provide a coverage which does not interfere with signals from any other aircraft or base site.

5,067,173

MICROCELLULAR COMMUNICATIONS SYSTEM USING SPACE DIVERSITY RECEPTION

Alexander Gordon, Rutherford, and George P. Vella-Coleiro, Summit, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Dec. 20, 1990, Ser. No. 630,674
Int. Cl.[5] H04B *1/00;* **H04M** *11/00*
U.S. Cl. 359—152 **15 Claims**

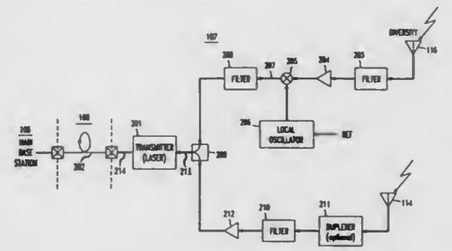
12. A microcellular communications system comprising:

a first antenna for receiving radio signals in a first range of radio frequencies;
a diversity antenna for receiving radio signals in the first range of radio frequencies;

frequency down conversion means coupled to the diversity antenna for reducing the frequency range of signals received at the diversity antenna;

combining means coupled to the first antenna and the frequency conversion means for generating combined signals in two different frequency bands;

a laser transmitter coupled to the combining means for generating an optical wavelength carrier signal modulated by the combined signals; and



an optical transmission path coupled to the laser transmitter for transmitting the optical carrier signal to a remote cellular base station.

VOL
1132

ISS
3

NO
19

1991

UMI

DESIGN PATENTS

GRANTED NOV. 19, 1991

ERRATA

For CLASS	See PATENT NO.
D007-622	321,654
D021-238	321,742
D022-142	321,744

VOL
1132

ISS
3

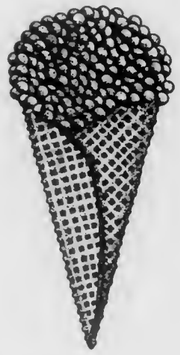
NO
19

1991

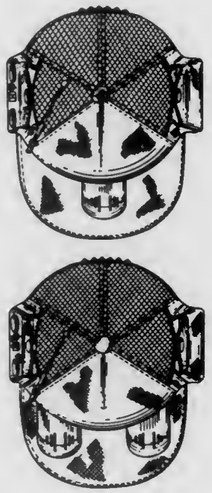
UMI

DESIGNS

321,580
COMBINED ICE CREAM AND CONE THEREFOR
Curt D. Jones, 571 New Cir. NE., Lexington, Ky. 40505
Filed Dec. 7, 1988, Ser. No. 280,892
Term of patent 14 years
U.S. Cl. D1—116



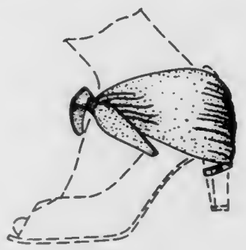
321,581
COMBINED CAP AND RADIO
Shing-Lam Li, Tuen Mun, Hong Kong, assignor to Antibes, Inc., Monrovia, Liberia
Filed Aug. 7, 1989, Ser. No. 390,335
Term of patent 14 years
U.S. Cl. D2—244



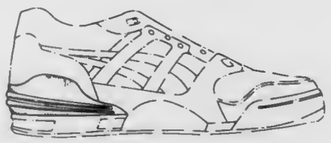
321,582
LEGGING
Ellen J. Pennington, 526 Anderson, Apt. 2, Franklin, Ohio 45005
Filed Nov. 2, 1989, Ser. No. 430,790
Term of patent 14 years
U.S. Cl. D2—267



321,583
HEEL PROTECTOR
Gladys McCoy, 6650 N. Amherst, Portland, Oreg. 97203
Filed Apr. 3, 1989, Ser. No. 334,588
Term of patent 14 years
U.S. Cl. D2—277

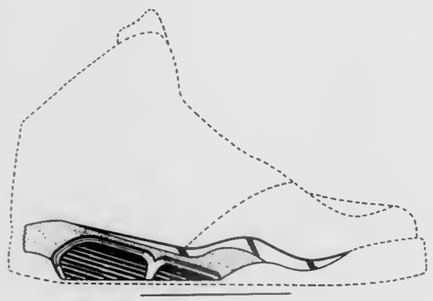


321,584
SHOE HEEL PROTECTOR
Shigeyuki Mitsui, Kobe, Japan, assignor to ASICS Corporation, Kobe, Japan
Filed May 19, 1989, Ser. No. 354,259
Claims priority, application Japan, Nov. 25, 1988, 63-46220
Term of patent 14 years
U.S. Cl. D2—277



VOL 1132 ISS 3 NO 19 1991 UMI

321,585
SURFACE ORNAMENTATION FOR THE SIDES OF A SHOE MIDSOLE
Bruce E. Rogers, Portland, Oreg., assignor to Nike, Inc. and Nike International Ltd., both of Beaverton, Oreg.
Filed Jun. 15, 1990, Ser. No. 539,523
Term of patent 14 years
U.S. Cl. D2—314



321,586
SHOE UPPER
Michael A. Aveni, Lake Oswego, Oreg., assignor to Nike, Inc. and Nike International, Ltd., both of Beaverton, Oreg.
Filed Jun. 14, 1990, Ser. No. 537,766
Term of patent 14 years
U.S. Cl. D2—314



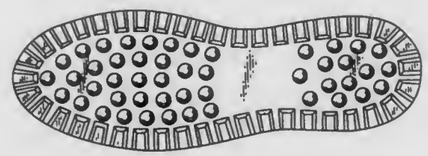
321,587
SHOE SOLE
Yoshiaki Hase, Kobe, Japan, assignor to ASICS Corporation, Kobe, Japan
Filed Mar. 23, 1989, Ser. No. 327,566
Claims priority, application Japan, Sep. 27, 1988, 63-38126
Term of patent 14 years
U.S. Cl. D2—320



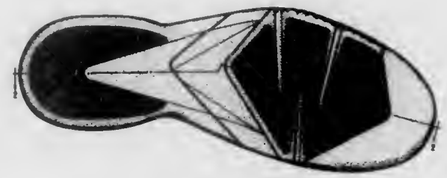
321,588
SHOE SOLE
James E. Issler, Westport, Conn., assignor to H. H. Brown Shoe Company, Inc., New York, N.Y.
Filed Sep. 1, 1989, Ser. No. 402,144
Term of patent 14 years
U.S. Cl. D2—320



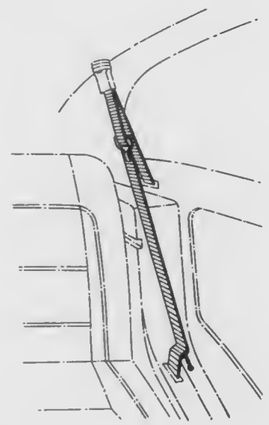
321,589
SHOE SOLE
Eric E. Merk, Portland, and Rodney E. Boast, Gresham, both of Oreg., assignors to Danner Shoe Manufacturing Co., Portland, Oreg.
Filed May 29, 1990, Ser. No. 529,254
Term of patent 14 years
U.S. Cl. D2—320



321,590
SHOE SOLE BOTTOM
Wilsoo W. Smith, III, Portland, Oreg., assignor to Nike Inc. and Nike International Ltd., Beaverton, Oreg.
Filed Mar. 22, 1991, Ser. No. 673,663
Term of patent 14 years
U.S. Cl. D2—320



321,591
SAFETY BELT FOR CARS
Hendrikus F. Marinussen, Beek en Donk, Netherlands, assignor to Volvo Car B.V., Steenovenweg, Netherlands
Filed Dec. 30, 1986, Ser. No. 947,923
Term of patent 14 years
U.S. Cl. D2—627



321,592
UMBRELLA HANDLE
Ann S. Cain, Cincinnati, Ohio, assignor to 'Totes', Incorporated, Loveland, Ohio
Filed Jan. 23, 1991, Ser. No. 645,008
Term of patent 14 years
U.S. Cl. D3—12

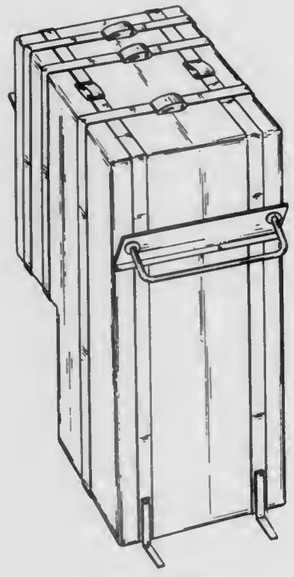


321,593
LUGGAGE CASE
Hyun S. Kim, New Castle, Pa., assignor to Airway Industries, Inc., Ellwood City, Pa.
Filed Oct. 17, 1988, Ser. No. 258,337
Term of patent 14 years
U.S. Cl. D3—71

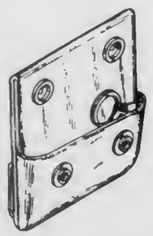


VOL 1132 ISS 3 NO 19 1991 UMI

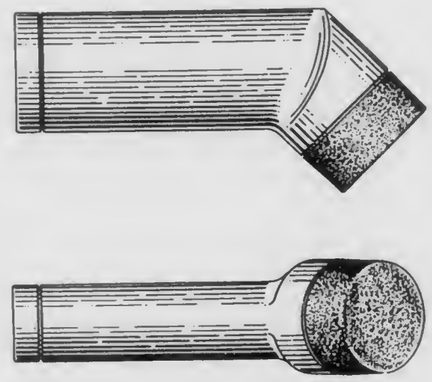
321,594
AIRPLANE SEAT ATTACHABLE BAG
John R. Bennetts, 54 Solomon St., Palmyra, Western Australia, Australia 6157
Filed Sep. 13, 1988, Ser. No. 243,764
Term of patent 14 years
U.S. Cl. D3—77



321,595
MOUNTABLE POUCH
Charles P. Costello, 1600 Alpine Ave., Boulder, Colo. 80304
Filed Jul. 31, 1989, Ser. No. 386,960
Term of patent 14 years
U.S. Cl. D3—106



321,596
SHOE POLISH APPLICATOR
Clarence D. Zierhut, Richardson, Tex., assignor to King Imports, Inc., San Antonio, Tex.
Filed Feb. 13, 1989, Ser. No. 309,537
Term of patent 14 years
U.S. Cl. D4—114



321,597
TEXTILE FABRIC
Rudolf Cerny, Steinfurt, Fed. Rep. of Germany, assignor to Arnold Kock GmbH u. Co. KG, Steinfurt, Fed. Rep. of Germany
Filed Aug. 23, 1988, Ser. No. 235,338
Claims priority, application Fed. Rep. of Germany, Feb. 25, 1988, 8MRBd.5B1.660
Term of patent 14 years
U.S. Cl. D5—55



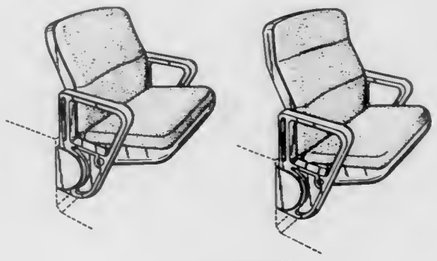
321,598
TEXTILE FABRIC
Rudolf Cerny, Steinfurt, Fed. Rep. of Germany, assignor to Arnold Kock GmbH u. Co. KG, Steinfurt, Fed. Rep. of Germany
Filed Aug. 23, 1988, Ser. No. 235,339
Claims priority, application Fed. Rep. of Germany, Feb. 25, 1988, 8MRBd.5B1.660
Term of patent 14 years
U.S. Cl. D5—61



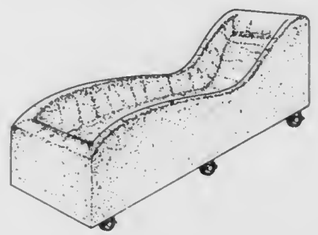
321,599
CHAIR FOR A BABY
Takehiko Takahashi; Yoshiyasu Ishii, and Hiroaki Matsuda, all of Tokyo, Japan, assignors to Combi Co. Ltd., Tokyo, Japan
Filed Oct. 19, 1988, Ser. No. 260,326
Claims priority, application Japan, Apr. 21, 1988, 63-15949
Term of patent 14 years
U.S. Cl. D6—333



321,600
THEATER SEAT
James W. Brennan, Bankstown, Australia, assignor to Sebel Furniture Limited, Bankstown, Australia
Filed Dec. 4, 1987, Ser. No. 129,102
Term of patent 14 years
U.S. Cl. D6—362



321,601
CHAISE LONGUE
Paul J. Zanki, Geebung, Australia, assignor to Qfoam Pty. Ltd., Geebung, Australia
Filed Nov. 30, 1988, Ser. No. 278,150
Claims priority, application Australia, May 31, 1988, 1794/88
Term of patent 14 years
U.S. Cl. D6—361



VOL 1132 ISS 3 NO 19 1991 UMI

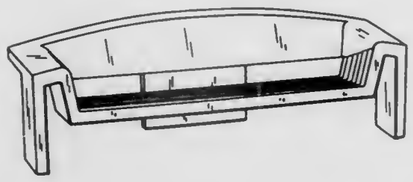
321,602
CHAIR FRAME
Herbert C. Saiger, Troy, Ohio, assignor to Crown Leisure Products, Inc., Owosso, Mich.
Filed Sep. 13, 1988, Ser. No. 243,697
Term of patent 14 years
U.S. Cl. D6—379



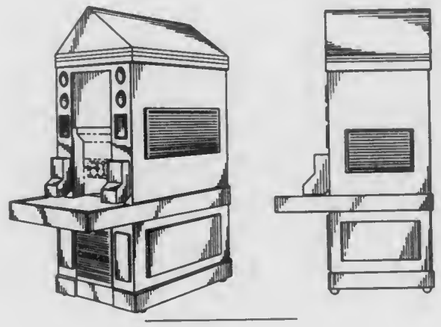
321,603
CHAIR FRAME
Stephen C. Hess, Birmingham, Ala., assignor to Winston Furniture Company of Alabama, Inc., Birmingham, Ala.
Filed Nov. 17, 1988, Ser. No. 272,863
Term of patent 14 years
U.S. Cl. D6—379



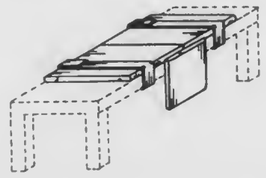
321,604
BENCH
Emilio F. Paris, Barcelona, Spain, assignor to Hijo De E. F. Escofet S.A., Barcelona, Spain
Filed Nov. 29, 1988, Ser. No. 277,273
Claims priority, application Spain, May 31, 1988, 116.103
Term of patent 14 years
U.S. Cl. D6—381



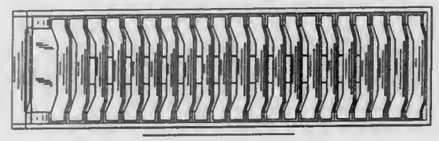
321,605
MODULAR FROZEN YOGURT DISPENSING KIOSK OR SIMILAR ARTICLE
Mark K. Gordon, Carrollton, and David W. Boyd, Grand Prairie, both of Tex., assignors to I Can't Believe It's Yogurt, Ltd., Dallas, Tex.
Filed May 25, 1990, Ser. No. 529,938
Term of patent 14 years
U.S. Cl. D6—396



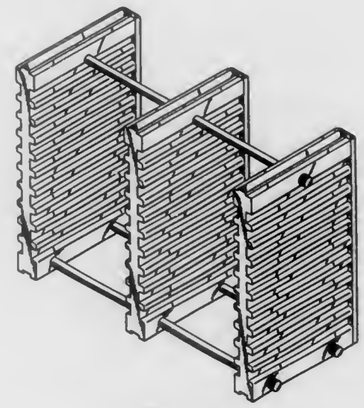
321,606
FOLDABLE INSTRUMENT MAT AND CARRIER POCKET COMBINATION
Steven J. McKinney, and Mary J. McKinney, both of North Little Rock, Ark., assignors to Instrumat, Inc., North Little Rock, Ark.
Filed Apr. 1, 1988, Ser. No. 176,414
Term of patent 14 years
U.S. Cl. D6—397



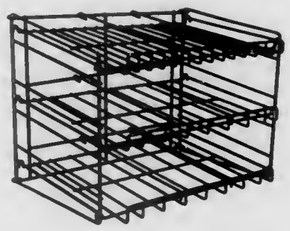
321,607
COMPACT DISC HOLDER
Chow Y. Sheung, Kowloon, Hong Kong, assignor to Sun Hing Audio Equipment Manufactory Limited, Kowloon, Hong Kong
Filed Feb. 28, 1989, Ser. No. 318,197
Claims priority, application United Kingdom, Aug. 31, 1988, 1053334
Term of patent 14 years
U.S. Cl. D6—407



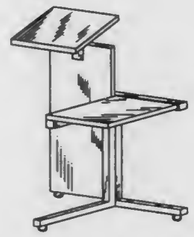
321,608
STORAGE RACK
James E. Hay, 21080 Oriole La., Bend, Oreg. 97701
Filed Jul. 20, 1989, Ser. No. 383,348
Term of patent 14 years
U.S. Cl. D6—407



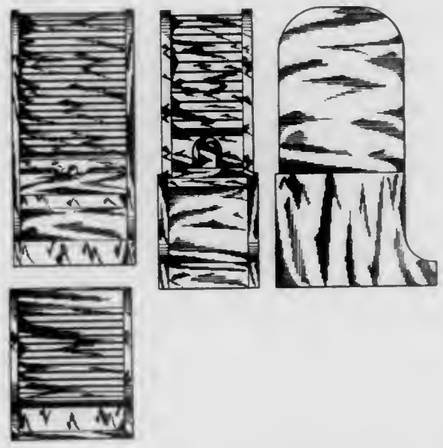
321,609
WIRE SHELVING UNIT FOR CANNED GOODS
Shahriar Dardashti, 141 N. Clark Dr., Ste. 2, Los Angeles, Calif. 90048
Filed Dec. 20, 1988, Ser. No. 286,778
Term of patent 14 years
U.S. Cl. D6—408



321,610
LECTERN
Robert L. Rienecker, 2633 Martinez Dr., Burlingame, Calif. 94010
Filed Nov. 21, 1988, Ser. No. 274,300
Term of patent 14 years
U.S. Cl. D6—419

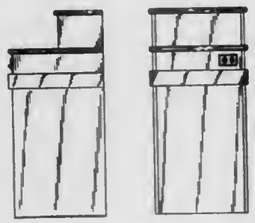


321,611
CABINET FOR A BEVERAGE DISPENSER
Lawrence A. Melberg, 428 N. Lake St., Neenah, Wis. 54956
Filed Dec. 13, 1988, Ser. No. 283,942
Term of patent 14 years
U.S. Cl. D6—433

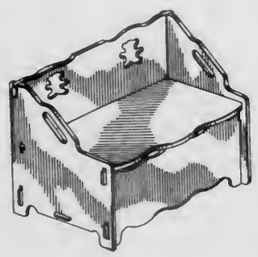


VOL 1132 ISS 3 NO 19 1991 UMI

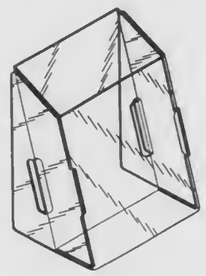
321,612
REFRESHMENT CENTER
Marty E. Sixt, Bellevue, Wash., assignor to Pure-Best Water, Inc., West Sacramento, Calif.
Filed May 1, 1989, Ser. No. 346,394
Term of patent 14 years
U.S. Cl. D6—438



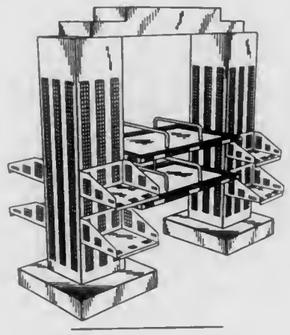
321,613
CHEST OR THE LIKE
Paul J. Gandy, Tucson, Ariz., assignor to Marana Unique Products Inc., Tucson, Ariz.
Filed May 8, 1989, Ser. No. 349,332
Term of patent 14 years
U.S. Cl. D6—440



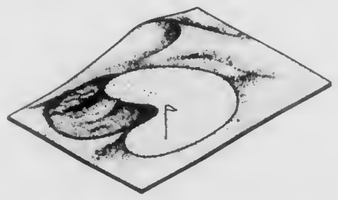
321,614
DISPLAY HOLDER FOR BROCHURES AND THE LIKE
Richard M. Liptak, Parma Heights, Ohio, assignor to Integral Design, Inc., Cleveland, Ohio
Filed Jun. 22, 1989, Ser. No. 369,912
Term of patent 14 years
U.S. Cl. D6—475



321,615
DISPLAY STAND
Marcia F. Lavine, Cold Spring, Minn., and Michael E. Jekot, Prairie Village, Kans., assignors to M. Lavine Design Workshop, Inc., Cold Spring, Minn. and The Lee Apparel Company, Inc., Merriam, Kans.
Filed Apr. 7, 1989, Ser. No. 334,992
Term of patent 14 years
U.S. Cl. D6—479



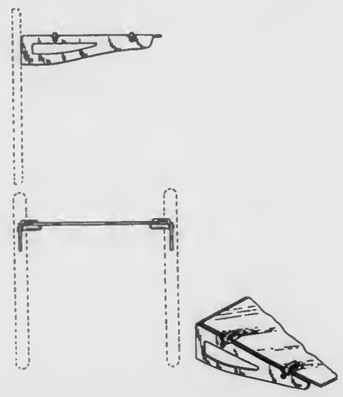
321,616
GOLFING GREEN INSERT FOR TABLE
Jesse Barfield, 4208 Canterwood Dr., Houston, Tex. 77068
Filed Aug. 17, 1989, Ser. No. 395,408
Term of patent 14 years
U.S. Cl. D6—491



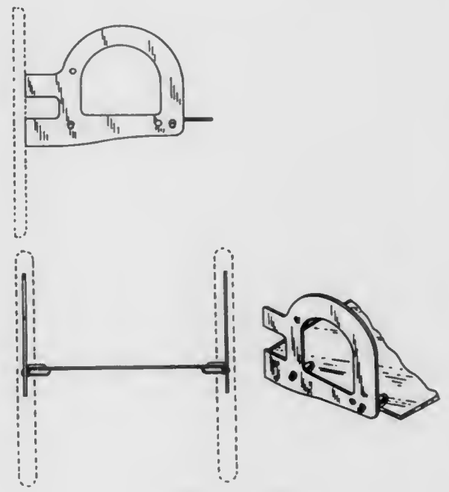
321,617
CHAIR ARM
Ronald B. Kemnitzer, Kansas City, Mo., assignor to Fixtures Manufacturing Corporation, Kansas City, Mo.
Filed May 23, 1988, Ser. No. 197,398
Term of patent 14 years
U.S. Cl. D6—501



321,618
COMBINED BRACKET AND SHELF ASSEMBLY
William E. Stumpf, Minneapolis; Casey L. Carlson, Edina, both of Minn., and Richard S. Knape, Grand Rapids, Mich., assignors to Knape & Vogt Manufacturing Company, Grand Rapids, Mich.
Filed Jul. 14, 1989, Ser. No. 380,631
Term of patent 14 years
U.S. Cl. D6—574



321,619
COMBINED BOOK END BRACKET AND SHELF ASSEMBLY
William E. Stumpf, Minneapolis; Casey L. Carlson, Edina, both of Minn., and Richard S. Knape, Grand Rapids, Mich., assignors to Knape & Vogt Manufacturing Company, Grand Rapids, Mich.
Filed Jul. 14, 1989, Ser. No. 380,646
Term of patent 14 years
U.S. Cl. D6—574

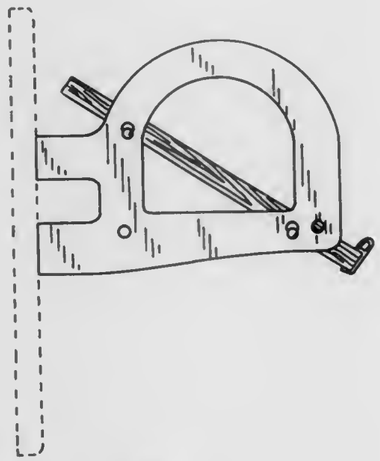


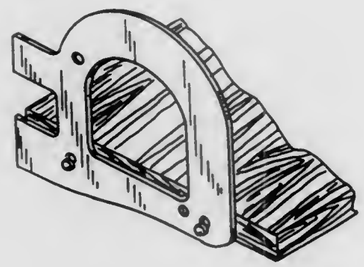
321,620
COMBINED BRACKET AND SHELF ASSEMBLY
William E. Stumpf, Minneapolis; Casey L. Carlson, Edina, both of Minn., and Richard S. Knape, Grand Rapids, Mich., assignors to Knape & Vogt Manufacturing Company, Grand Rapids, Mich.
Filed Jul. 14, 1989, Ser. No. 380,647
Term of patent 14 years
U.S. Cl. D6—574

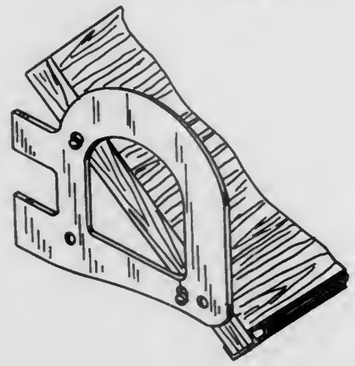


VOL 1132 ISS 3 NO 19 1991 UMI

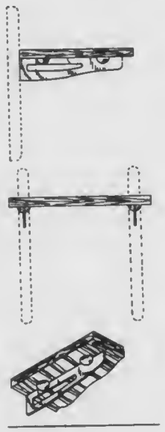
321,621
COMBINED BOOK END BRACKET AND SHELF ASSEMBLY
William E. Stumpf, Minneapolis; Casey L. Carlson, Edina, both of Minn., and Ricahrd S. Knape, Grand Rapids, Mich., assignors to Knape & Vogt Manufacturing Company, Grand Rapids, Mich.
Filed Jul. 14, 1989, Ser. No. 380,648
Term of patent 14 years
U.S. Cl. D6—574



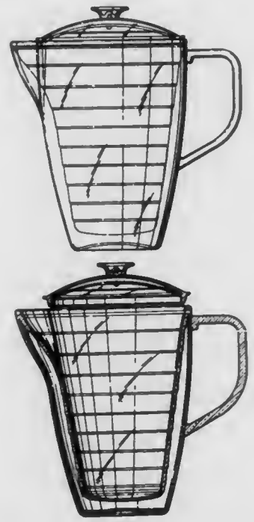




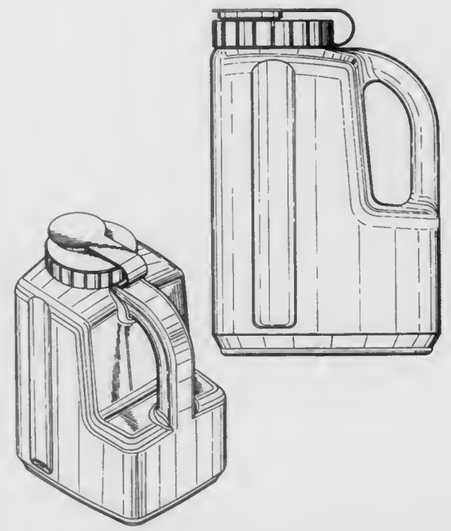
321,622
COMBINED BRACKET AND SHELF ASSEMBLY
William E. Stumpf, Minneapolis, and Casey L. Carlson, Edina, both of Minn., assignors to Knape & Vogt Manufacturing Company, Grand Rapids, Mich.
Filed Jul. 14, 1989, Ser. No. 380,651
Term of patent 14 years
U.S. Cl. D6—574



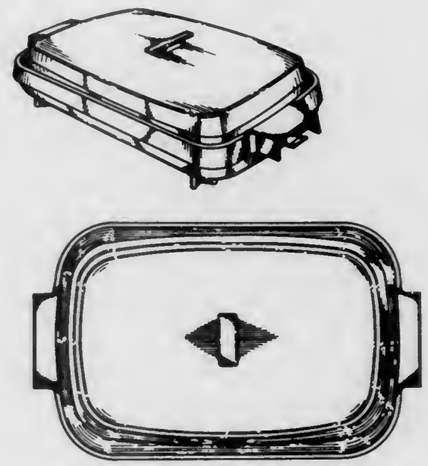
321,623
COVERED JUG
Cliff K. Sun, Kwung Tong, Hong Kong, assignor to Kin Hip Metal & Plastic Factory Limited, Kwun Tong, Hong Kong
Filed Dec. 6, 1988, Ser. No. 280,656
Claims priority, application United Kingdom, Nov. 2, 1988, 1054722
Term of patent 14 years
U.S. Cl. D7—317



321,624
PITCHER
Joseph F. Fiore, and John C. Weyer, Sr., both of Wooster, Ohio, assignors to Rubbermaid Incorporated, Wooster, Ohio
Filed Jan. 12, 1989, Ser. No. 296,035
Term of patent 14 years
U.S. Cl. D7—321



321,625
ELECTRIC SKILLET
William C. Dobson, West Bend, Wis., and William C. Cesaroni, Glenview, Ill., assignors to The West Bend Company, West Bend, Wis.
Filed Nov. 14, 1988, Ser. No. 271,189
Term of patent 14 years
U.S. Cl. D7—360

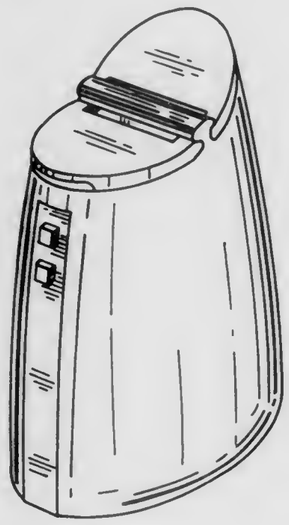


321,626
COMBINED CONTAINER WITH DISPENSING SPOUT AND STRAW
Larry L. Kouts, 1372 Lewisburg - Western Rd., Lewisburg, Ohio 45338
Filed Jun. 22, 1988, Ser. No. 210,128
Term of patent 14 years
U.S. Cl. D7—510

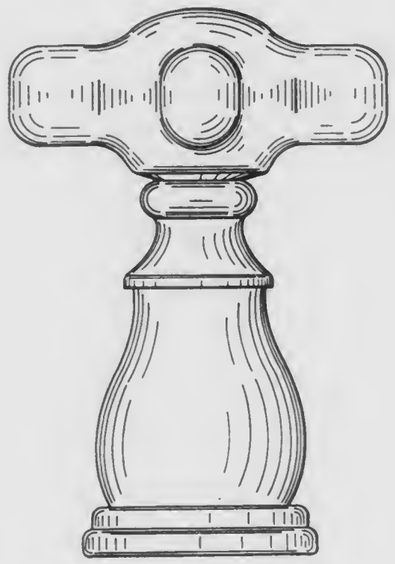


VOL 1132 ISS 3 NO 19 1991 UMI

321,627
TWO SPICE DISPENSER
Harold Plough, 2000 W. Illinois Ave., Aurora, Ill. 60507
Filed Mar. 11, 1991, Ser. No. 668,405
Term of patent 14 years
U.S. Cl. D7—596



321,629
CONDIMENT MILL
Fred Hollinger, Kings Park, N.Y., assignor to Metrokane Ioc., New York, N.Y.
Filed Nov. 13, 1989, Ser. No. 434,121
Term of patent 14 years
U.S. Cl. D7—679



321,628
VACUUM BOTTLE
Ikuo Kobayashi, and Nobuyuki Kitamura, both of Kyoto, Japan, assignors to Japan Oxygen Co., Ltd., Japan
Filed Aug. 24, 1987, Ser. No. 88,969
Term of patent 14 years
U.S. Cl. D7—608



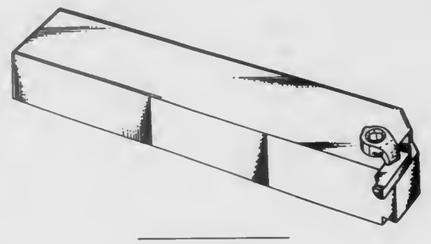
321,630
CONDIMENT MILL
Fred Hollinger, Kings Park, N.Y., assignor to Metrokane, Inc., New York, N.Y.
Filed Nov. 13, 1989, Ser. No. 434,975
Term of patent 14 years
U.S. Cl. D7—679



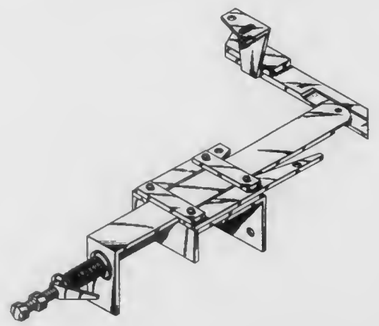
321,631
LEAF SCOOP
Elaine Shaw, 9345 Baird Rd., Shreveport, La. 71118
Filed May 4, 1990, Ser. No. 518,847
Term of patent 14 years
U.S. Cl. D8—10



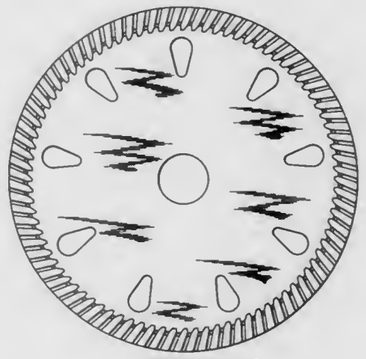
321,632
COMBINED CUTTING TOOL HOLDER AND CUTTING TIP
Wlajko Mihic, Tegnérvägen 9, Gävle, S-802 28, Sweden
Division of Ser. No. 888,189, Jul. 21, 1989, Pat. No. D. 311,747.
This application Jul. 9, 1990, Ser. No. 549,719
Claims priority, application Sweden, Jan. 29, 1986, 86-0221
Term of patent 14 years
U.S. Cl. D8—41



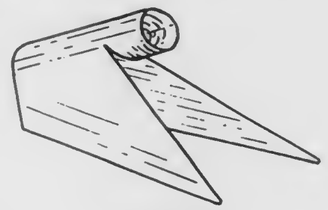
321,633
ANTI-BITE-OFF DEVICE FOR A WOOD MOULDER OR THE LIKE
Randall W. Rigney, P.O. Box 343, Rocky Mount, Va. 24151
Filed Oct. 18, 1988, Ser. No. 259,135
Term of patent 14 years
U.S. Cl. D8—70



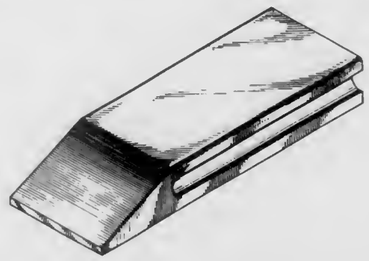
321,634
DIAMOND ABRASIVE SAW BLADE
Jiro Inoue, Ebina, Japan, assignor to Sankyo Diamond Industrial Co., Ltd., Japan
Filed Jan. 27, 1989, Ser. No. 303,383
Term of patent 14 years
U.S. Cl. D8—70



321,635
TOOL HOLDER
Daniel B. Kerrigan, 333 E. 6th & 84–11, Battle Mountain, Nev. 89820
Filed Nov. 14, 1988, Ser. No. 270,121
Term of patent 14 years
U.S. Cl. D8—71

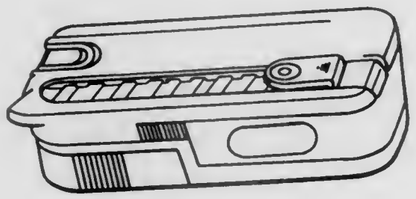


321,636
TAMPING BLOCK
Henry Ciciliot, Box 270-A Lorraine Cir., R.D. #1, Allentown, Pa. 18104
Filed Feb. 6, 1989, Ser. No. 306,459
Term of patent 14 years
U.S. Cl. D8—75



VOL 1132 ISS 3 NO 19 1991 UMI

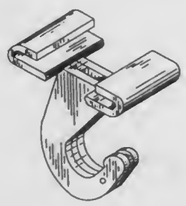
321,637
MULTIPURPOSE STATIONERY KIT
Kwong-Chi Chan, 8th Floor, Block B, Sun Kong Building, 2J-2Q Sai Yuen Choi Street, Hong Kong, Hong Kong
Filed Feb. 11, 1988, Ser. No. 155,009
Claims priority, application United Kingdom, Aug. 28, 1987, 1044486
Term of patent 14 years
U.S. Cl. D8—105



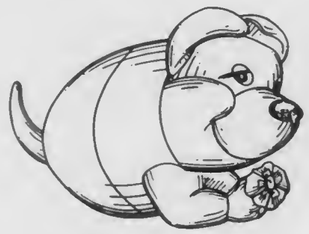
321,638
HANDLE
Herbert V. Kohler, Jr., Kohler, and Mary J. Reid, Sheboygan, both of Wis., assignors to Kohler Co., Kohler, Wis.
Filed Jan. 17, 1989, Ser. No. 297,915
Term of patent 14 years
U.S. Cl. D8—307



321,639
CEILING HOOK
William E. Adams, Box 1, Portersville, Pa. 16051
Filed Jan. 2, 1990, Ser. No. 459,580
Term of patent 14 years
U.S. Cl. D8—373



321,640
CONTAINER FOR CONFECTIONERY PRODUCTS
Pietro Ferrero, Brussels, Belgium, assignor to Ferrero Ardennes S.A., Arlon, Belgium
Filed Feb. 12, 1990, Ser. No. 479,548
Claims priority, application Italy, Sep. 29, 1989, 53387-B/89
Term of patent 14 years
U.S. Cl. D9—318



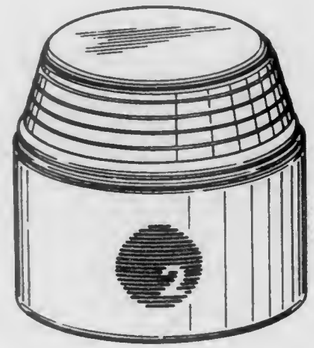
321,641
CONTAINER FOR CONFECTIONERY PRODUCTS
Pietro Ferrero, Brussels, Belgium, assignor to Ferrero Ardennes S.A., Arlon, Belgium
Filed Feb. 13, 1990, Ser. No. 479,554
Claims priority, application Italy, Sep. 29, 1989, 53387-B/89
Term of patent 14 years
U.S. Cl. D9—318



321,642
SIMULATIVE BOTTLE
Marco Messeni-Petruzzelli, Santo Spirito, Italy, assignor to Marconix Azienda Agricola del Feudo, Bari, Italy
Filed Jul. 25, 1989, Ser. No. 384,524
Claims priority, application Italy, Jan. 27, 1989, 52842/89[U]
Term of patent 14 years
U.S. Cl. D9—329



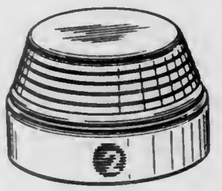
321,643
COSMETIC CONTAINER
Hirofumi Katada, and Hiroyuki Matsuyama, both of Tokyo, Japan, assignors to Pola Chemical Industries, Inc., Shizuoka, Japan
Filed Nov. 20, 1989, Ser. No. 437,995
Claims priority, application Japan, Jun. 30, 1989, 1-24176
The portion of the term of this patent subsequent to Nov. 19, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D9—333



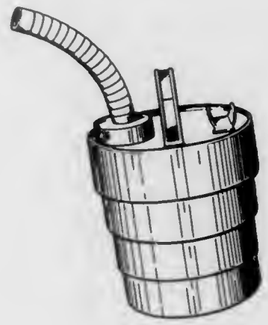
321,644
COSMETIC CONTAINER
Hirofumi Katada, and Hiroyuki Matsuyama, both of Tokyo, Japan, assignors to Pola Chemical Industries Inc., Shizuoka, Japan
Filed Nov. 20, 1989, Ser. No. 437,996
Claims priority, application Japan, Jun. 30, 1989, 1-24175
The portion of the term of this patent subsequent to Nov. 19, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D9—333



321,645
COSMETIC CONTAINER
Hirofumi Katada, and Hiroyuki Matsuyama, both of Tokyo, Japan, assignors to Pola Chemical Industries Inc., Shizuoka, Japan
Filed Nov. 20, 1989, Ser. No. 437,997
Claims priority, application Japan, Jun. 30, 1989, 1-24177
The portion of the term of this patent subsequent to Nov. 19, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D9—333



321,646
CONTAINER
Gerald J. Robertson, 510 Avenida Presidio, Walnut, Calif. 91789
Filed May 9, 1988, Ser. No. 191,493
Term of patent 14 years
U.S. Cl. D9—337

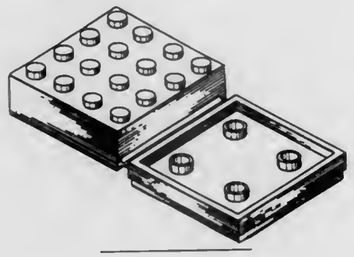


321,647
SUPPLY BOX FOR GRAVITY FED DISPLAY
Dennis Oldorf, 8178 Round Hills Cir., Las Vegas, Nev. 89113
Filed Dec. 13, 1989, Ser. No. 450,123
Term of patent 14 years
U.S. Cl. D9—339



VOL 1132 ISS 3 NO 19 1991 UMI

321,648
CONTAINER
Vero Ricci, 106 E. Stiles Ave., Collingswood, N.J. 08108
Filed Jul. 10, 1989, Ser. No. 377,456
Term of patent 14 years
U.S. Cl. D9—341



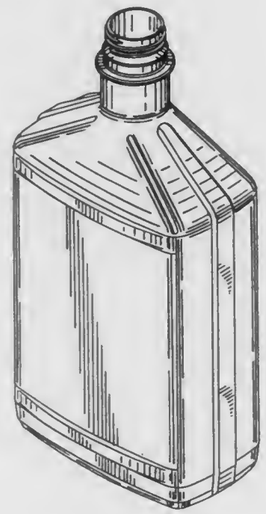
321,649
COMBINED CONTAINER AND CAP
James J. Lambe, Jr.; Margery M. Lambe, both of 616 Lakeview Cir. SE., Rio Rancho, N. Mex. 87124, and
Filed Nov. 8, 1988, Ser. No. 268,528
Term of patent 14 years
U.S. Cl. D9—353



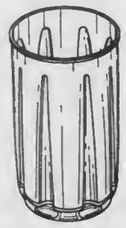
321,650
COMBINED BOTTLE AND CAP OR SIMILAR ARTICLE
Paul A. Braginetz, 214 Oak Ridge Cir., Staunton, Va. 24401
Filed Oct. 24, 1989, Ser. No. 426,000
Term of patent 14 years
U.S. Cl. D9—374



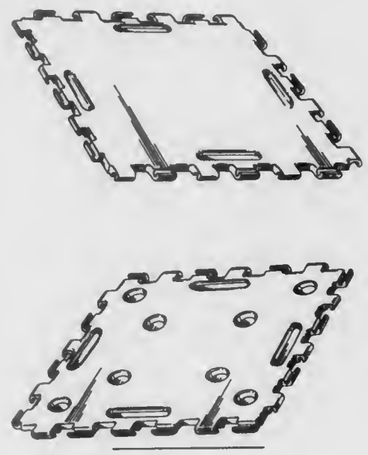
321,651
PLASTIC OIL BOTTLE
Donald D. Cochran, Bartlett, Ill., assignor to American National Can Company, Chicago, Ill.
Filed Jan. 23, 1989, Ser. No. 300,354
Term of patent 14 years
U.S. Cl. D9—403



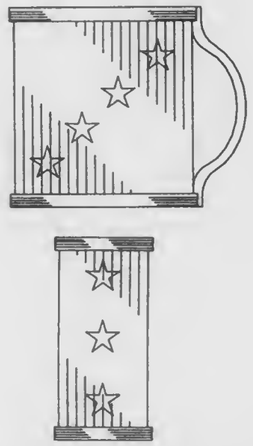
321,652
STACKABLE CONTAINER
Stephen P. Palisin, Jr., South Euclid, Ohio, assignor to Berwick Manufacturing, Inc., Cleveland, Ohio
Filed Nov. 14, 1988, Ser. No. 270,123
The portion of the term of this patent subsequent to Oct. 15, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D9—429



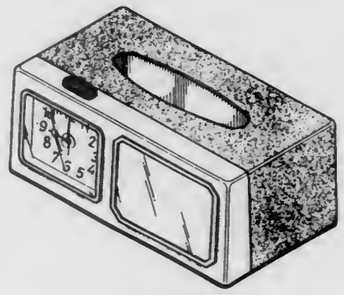
321,653
CONTAINER PANEL
Benno Elgner, King City, Canada, assignor to ABC Group Product Development, Brampton, Canada
Filed Sep. 13, 1989, Ser. No. 406,509
Claims priority, application Canada, Jun. 19, 1989, 1906897
Term of patent 14 years
U.S. Cl. D9—434



321,654
BOX DRINK HOLDER
Michael J. White, 1465 Bobo Rd., Dallas, Ga. 30132
Filed Dec. 7, 1989, Ser. No. 447,087
Term of patent 14 years
U.S. Cl. D7—622



321,655
COMBINED ALARM CLOCK, TISSUE CASE, AND PHOTO FRAME
Chuan K. Lai, No. 3, Lane 133, Sec. 1, Chungshan Rd., Ton Chia Village, Tan Tzu Hsiang, Taichung Hsien, Taiwan
Filed Nov. 25, 1988, Ser. No. 275,794
Term of patent 14 years
U.S. Cl. D10—2



321,656
CLOCK
Masahiro Aikawa, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Sep. 11, 1989, Ser. No. 405,670
Term of patent 14 years
U.S. Cl. D10—6

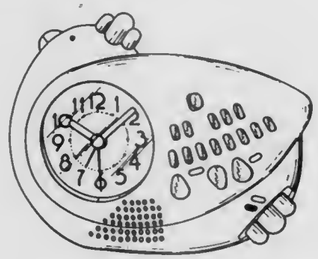


321,657
CLOCK
Keiko Nomura, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Jun. 9, 1989, Ser. No. 364,187
Term of patent 14 years
U.S. Cl. D10—7

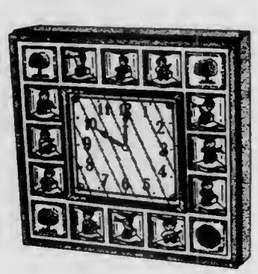


VOL 1132 ISS 3 NO 19 1991 UMI

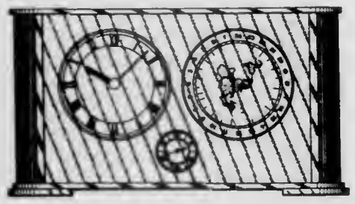
321,658
CLOCK
Koji Ohmaki, Tokyo, Japan, assignor to Rhythm Watch Co., Ltd., Tokyo, Japan
Filed Jun. 29, 1989, Ser. No. 374,643
Claims priority, application Japan, Jan. 17, 1989, 1-1301
Term of patent 14 years
U.S. Cl. D10—7



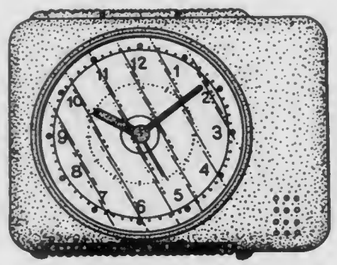
321,659
CLOCK
Keiko Nomura, and Mariko Minami, both of Tokyo, Japan, assignors to Seikosha Co., Ltd., Japan
Filed Sep. 29, 1989, Ser. No. 415,115
Term of patent 14 years
U.S. Cl. D10—8

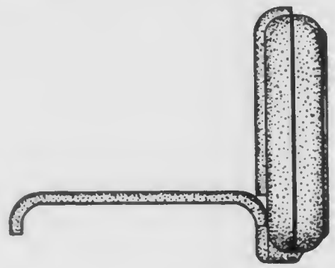


321,660
CLOCK
Masahiro Aikawa, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Apr. 24, 1989, Ser. No. 342,390
Claims priority, application Japan, Nov. 28, 1988, 63-46351
Term of patent 14 years
U.S. Cl. D10—10



321,661
CLOCK
Katsumi Shimamura, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed May 5, 1989, Ser. No. 348,024
Claims priority, application Japan, Dec. 2, 1988, 63-47144
Term of patent 14 years
U.S. Cl. D10—18





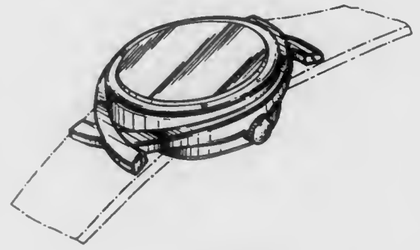
321,662
TRAVEL ALARM CLOCK
Mitsuo Wada, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Jun. 5, 1989, Ser. No. 361,096
Claims priority, application Japan, Dec. 6, 1988, 63-47593
Term of patent 14 years
U.S. Cl. D10—18



321,663
TRAVEL ALARM CLOCK
Mamoru Tanaka, Tokyo, Japan, assignor to Seikosha Co., Ltd., Japan
Filed Aug. 3, 1989, Ser. No. 389,106
Claims priority, application Japan, Apr. 6, 1989, 1-12752
Term of patent 14 years
U.S. Cl. D10—18



321,664
WATCH CASE AND ATTACHMENT
Mary A. Kennedy, Brewster, N.Y., assignor to Timex Corporation, Waterbury, Conn.
Filed May 1, 1989, Ser. No. 346,091
Term of patent 14 years
U.S. Cl. D10—30



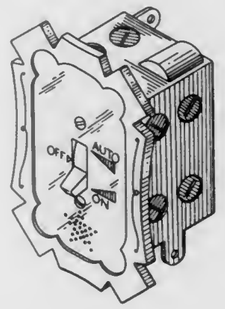
321,665
WRISTWATCH AND STRAP
Carlo Crocco, Lugano, Switzerland, assignor to Montres Mom Fabrication S.A., Nyon, Switzerland
Filed Jun. 22, 1988, Ser. No. 210,010
Claims priority, application Int'l Pat. Institute, Dec. 23, 1987, DM/009921
Term of patent 14 years
U.S. Cl. D10—32



321,666
WRISTWATCH AND STRAP
Eddy Burgener, Moutier, Switzerland, assignor to Roventa-Henex SA, Bienne, Switzerland
Filed Jul. 13, 1988, Ser. No. 218,067
Claims priority, application World Int. Prop. O., Jan. 19, 1988, DM/010096
Term of patent 14 years
U.S. Cl. D10—32

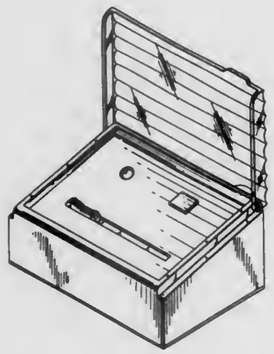


321,667
LIGHT TIMER
Thomas G. Baker, Jr., 1519 - 78th St., University City, Mo. 63130
Filed Jun. 21, 1989, Ser. No. 369,275
Term of patent 14 years
U.S. Cl. D10—40



VOL 1132 ISS 3 NO 19 1991 UMI

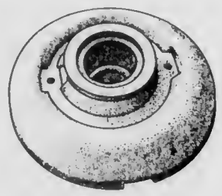
321,668
ELECTRICAL TIMER
Frederic W. Schwartz, Providence, R.I., assignor to Cable Electric Products, Inc., Providence, R.I.
Filed Feb. 27, 1991, Ser. No. 655,131
Term of patent 14 years
U.S. Cl. D10—40



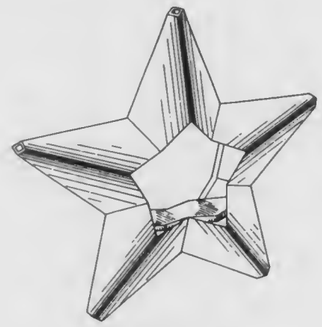
321,669
HOURGLASS TIMER
George Hoehne, Crescent Beach Rd., Glen Cove, N.Y. 11542
Filed Nov. 14, 1988, Ser. No. 271,063
Term of patent 14 years
U.S. Cl. D10—44



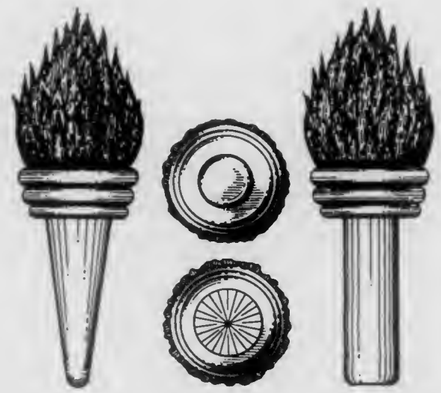
321,670
CHRISTMAS TREE STAND
Carman Buonito, Scarbourgh, and Donald Shaw, Willowdale, both of Canada, assignors to Integrated Plastics Limited, Agincourt, Canada
Filed Dec. 28, 1989, Ser. No. 458,533
Claims priority, application Canada, Jun. 28, 1989, 28-06-89-1
Term of patent 14 years
U.S. Cl. D11—130.1



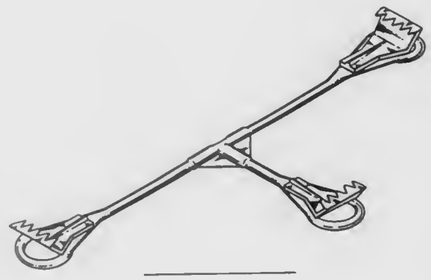
321,671
CHRISTMAS ORNAMENT
Richard F. Goonen, 2522 Eckman Pl., Apt. F-2, Lafayette, Ind. 10910
Filed Nov. 21, 1988, Ser. No. 274,788
Term of patent 14 years
U.S. Cl. D11—117



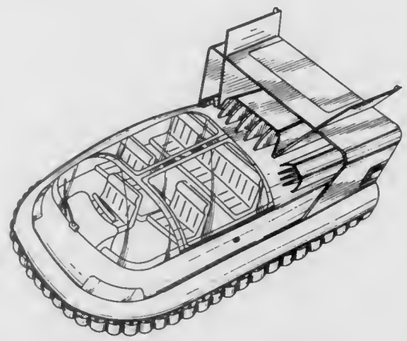
321,672
NOVELTY TORCH
Sandra L. Armstrong, 5814 S. Cheyenne St., Tacoma, Wash. 98409
Filed Dec. 18, 1989, Ser. No. 451,547
Term of patent 14 years
U.S. Cl. D11—157



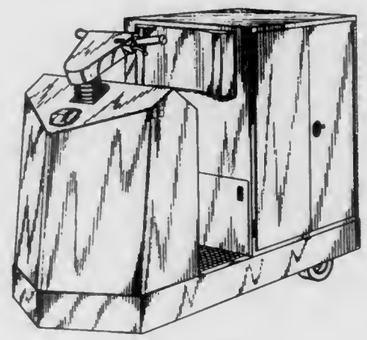
321,673
DIAPER FASTENER
Japie Crafford, Pretoria, South Africa, assignor to Snappi Holdings (Proprietary) Limited, Pretoria, South Africa
Filed Mar. 14, 1989, Ser. No. 323,548
Claims priority, application South Africa, Sep. 14, 1988, 88/0968
The portion of the term of this patent subsequent to Sep. 19, 2003, has been disclaimed.
Term of patent 14 years
U.S. Cl. D11—200



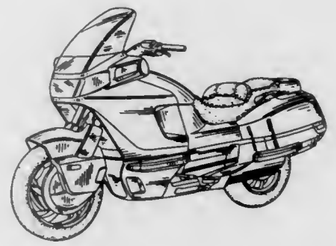
321,674
HOVERCRAFT
Peter Chia, Chia Enterprises, Suite #111, #2 Levandale Road, Richmond Hill, Ontario L4C 4H2, Canada
Filed Aug. 18, 1989, Ser. No. 395,951
Term of patent 14 years
U.S. Cl. D12—5

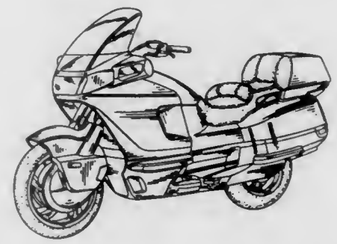


321,675
VEHICLE
Arunas P. Oslapas, Holland, Mich., assignor to JWI, Inc., Holland, Mich.
Filed Jun. 16, 1989, Ser. No. 367,216
Term of patent 14 years
U.S. Cl. D12—85



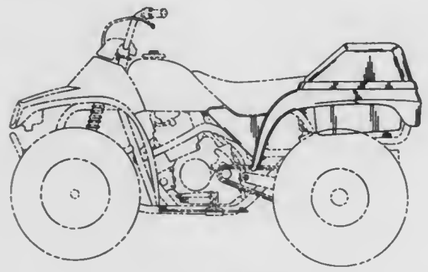
321,676
MOTORCYCLE
Makoto Kitagawa, Shiki; Toshio Kurihara, Tokorozawa, and Elizi Ozawa, Asaka, all of Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Mar. 13, 1989, Ser. No. 322,822
Claims priority, applicatioo Japan, Sep. 13, 1988, 63-36166; Dec. 28, 1988, 63-51560
Term of patent 14 years
U.S. Cl. D12—110



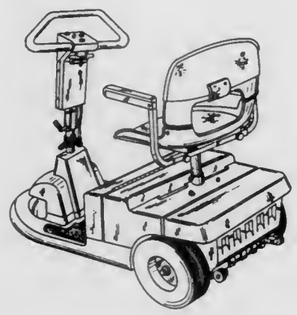


VOL 1132 ISS 3 NO 19 1991 UMI

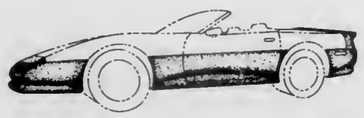
321,677
FENDER RECEPTACLE UNIT FOR A FOUR WHEEL VEHICLE
Kazuhiko Saito, Rancho Palos Verdes, and Yutaka Kawasaki, Redondo Beach, both of Calif., assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed Apr. 12, 1989, Ser. No. 337,124
Term of patent 14 years
U.S. Cl. D12—117



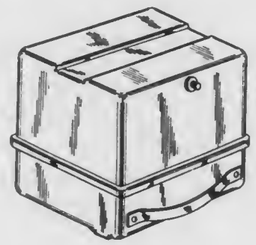
321,678
POWERED INVALID VEHICLE
Wendell G. Blount, P.O. Box 1032, Calhoun City, Miss. 38916; Ronald J. Mosetich, Rte. II, Box 35, Koscinsko, Miss. 39090, and Bedford F. Peeples, 1609 Deering St., Cleveland, Miss. 38732
Filed Feb. 22, 1990, Ser. No. 483,005
Term of patent 14 years
U.S. Cl. D12—131

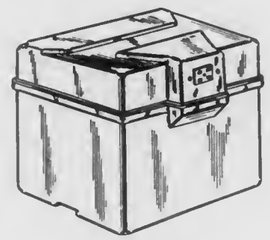


321,679
EXTERIOR BODY PANEL KIT FOR ATTACHMENT TO AN AUTOMOBILE BODY
Lawrence K. Shinoda, West Bloomfield, Mich., assignor to Shinoda-Williams Design, Inc., Pasadena, Calif.
Filed Dec. 20, 1989, Ser. No. 453,468
Term of patent 14 years
U.S. Cl. D12—196

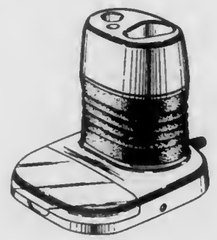


321,680
BATTERY CASE
Wendell G. Blount, P.O. Box 1032, Madison at Randolph St.; Henry L. Lackey, P.O. Drawer "T", both of Calhoun City, Miss. 38916; Ronald J. Mosetich, Rte, II Box 35, Kosciusko, Miss. 39090; Bedford F. Peeples, 1609 Derring St., Cleveland, Miss. 38732; David L. Kimbro, 138 Gregory St., Calhoun City, Miss. 38916; William J. Saunders, 6011 Patillo Way, Lithonia, Ga. 30058; Lloyd M. Yardley, 1222 Timberglen Ct., Lilburn, Ga. 30247; J. Douglas Alsup, 3302 Creekside Ct., Convers, Ga. 30208, and Samuel C. Crosby, 1367 Red Fox Run, Lilburn, Ga. 30247
Filed Mar. 13, 1989, Ser. No. 322,232
Term of patent 14 years
U.S. Cl. D13—103

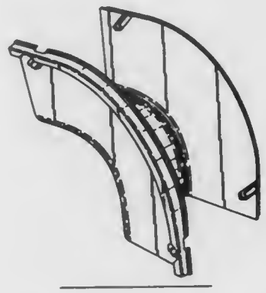




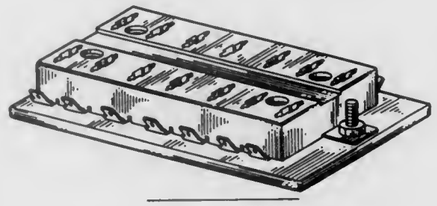
321,681
BATTERY CHARGER FOR ELECTRIC ERASER
Keiichi Ohashi, Shizuoka, Japan, assignor to Skylite Industry Co., Ltd., Shizuoka, Japan
Filed Dec. 19, 1989, Ser. No. 452,330
Term of patent 14 years
U.S. Cl. D13—108



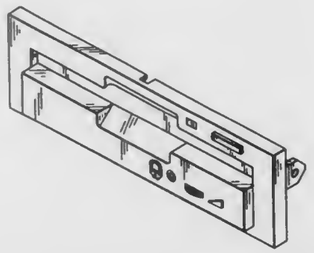
321,682
GUIDING THROUGH, 90 DEGREE DOWN ELBOW FOR OPTICAL FIBERS
Roy Henneberger, 1596 Clemson Dr., Eagan, Minn. 55122
Filed Jul. 31, 1989, Ser. No. 387,637
Term of patent 14 years
U.S. Cl. D13—155



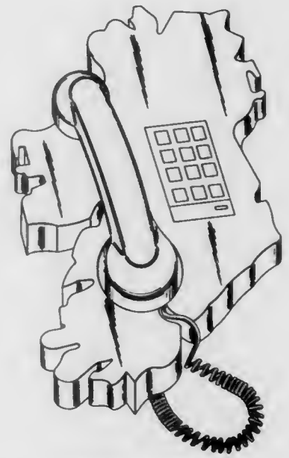
321,683
BLADE-TYPE FUSE BLOCK
David R. Marach, Marengo, Ill., assignor to Cooper Industries, Inc., Houston, Tex.
Continuation-in-part of Ser. No. 232,322, Aug. 15, 1988, Pat. No. 4,872,262. This application Jul. 10, 1989, Ser. No. 377,866
Term of patent 14 years
U.S. Cl. D13—173



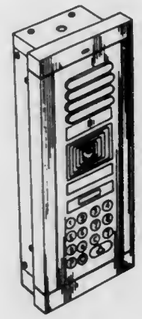
321,684
FRONT PANEL FOR OPTICAL DRIVE
Jeffrey L. Kline, and Tristan A. Merino, both of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Filed Jan. 29, 1990, Ser. No. 471,982
Term of patent 14 years
U.S. Cl. D14—115



321,685
TELEPHONE SET
Andrew W. Bradley, Dublin, Ireland, assignor to Northern Telecom (Dublin) Limited, Dublin, Ireland
Filed Jan. 19, 1990, Ser. No. 477,348
Claims priority, application Iran, Jul. 20, 1989, 280/89
Term of patent 14 years
U.S. Cl. D14—143

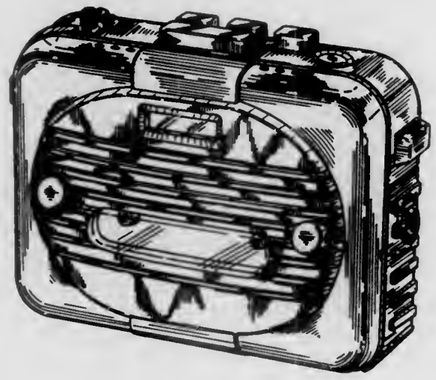


321,686
INTERCOMMUNICATIONS UNIT
Lisio Plozner, Pordenone, Italy, assignor to B.P.T. S.p.A., Italy
Filed Oct. 10, 1989, Ser. No. 419,856
Claims priority, application Italy, Apr. 7, 1989, 53004/89[U]
Term of patent 14 years
U.S. Cl. D14—159

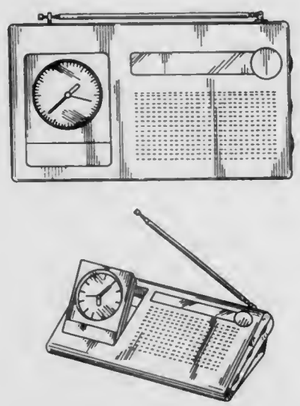


VOL 1132 ISS 3 NO 19 1991 UMI

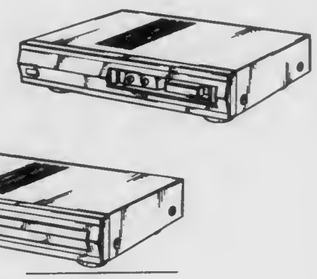
321,687
CASSETTE TAPE PLAYER
Hiroyuki Miyai, Osaka, Japan, assignor to Sanyo Electric Co., Ltd., Osaka, Japan
Filed Aug. 21, 1989, Ser. No. 396,465
Claims priority, application Japan, Feb. 20, 1989, 1-6158
Term of patent 14 years
U.S. Cl. D14—165



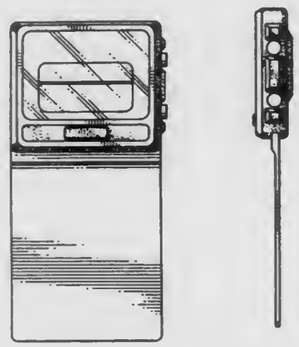
321,688
CLOCK RADIO
William To Yung Pang, Kowloon, Hong Kong, assignor to Saple International Ltd., Kowloon, Hong Kong
Filed Aug. 14, 1989, Ser. No. 393,509
Claims priority, application United Kingdom, May 24, 1989, 1059701
Term of patent 14 years
U.S. Cl. D14—170



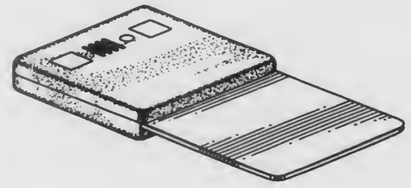
321,689
AUDIO AMPLIFIER
Yoshiro Yamakawa, Tokyo, Japan, assignor to Yamaha Corporation, Shizuoka, Japan
Filed Jun. 1, 1989, Ser. No. 360,707
Claims priority, application Japan, Dec. 3, 1988, 63-47350
Term of patent 14 years
U.S. Cl. D14—188

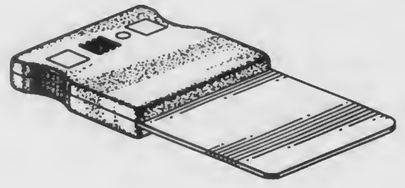


321,690
COMBINED PAGER AND MAGNETIC KEY
Beverly J. Brenda, 25021 Acacia La., Laguna Hills, Calif. 92653; Hassin A. Abiney, 18233 Muirwoods Ct., Fountain Valley, Calif. 92708, and Roger McDiarmid, 8531 Meadow Brook Ave., #204, Garden Grove, Calif. 92704
Filed Mar. 1, 1990, Ser. No. 487,175
Term of patent 14 years
U.S. Cl. D14—191

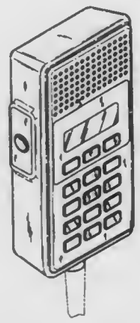


321,691
COMBINED PAGER AND MAGNETIC KEY
Beverly J. Brenda, 25021 Acacia La., Laguna Hills, Calif. 92653; Hassin A. Abiney, 18233 Muirwoods Ct., Fountain Valley, Calif. 92708, and Roger McDiarmid, 8531 Meadow Brook Ave., #204, Garden Grove, Calif. 92704
Filed Mar. 1, 1990, Ser. No. 487,176
Term of patent 14 years
U.S. Cl. D14—191

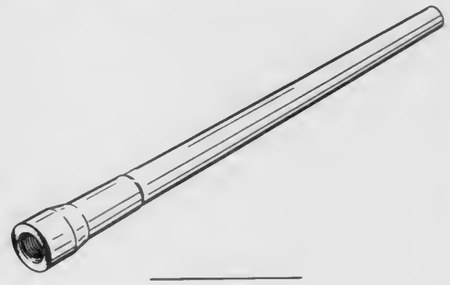




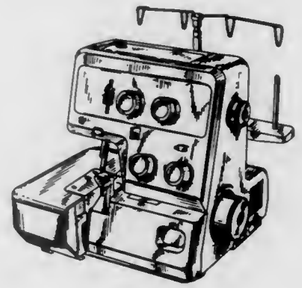
321,692
COMBINED MICROPHONE AND RADIO CONTROL UNIT OR SIMILAR ARTICLE
Craig F. Siddoway, Davie; Scott H. Richards, Sunrise, and Bruce A. Claxton, Coral Springs, all of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Sep. 28, 1989, Ser. No. 415,148
Term of patent 14 years
U.S. Cl. D14—226



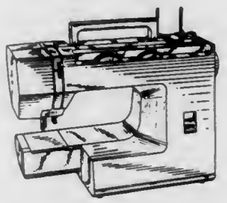
321,693
ANTENNA STUB
Peter Mailandt, Dallas, Tex., assignor to Alliance Telecommunications Corp., Dallas, Tex.
Filed Mar. 13, 1989, Ser. No. 322,228
Term of patent 14 years
U.S. Cl. D14—234



321,694
SEWING MACHINE
Koji Uchida, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Aug. 10, 1989, Ser. No. 392,132
Claims priority, application Japan, Jun. 28, 1989, 1-23672
Term of patent 14 years
U.S. Cl. D15—69

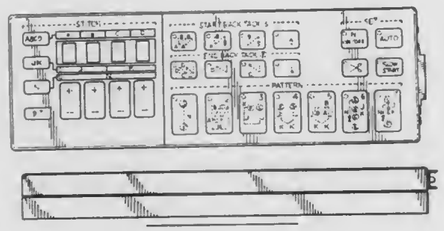


321,695
SEWING MACHINE
Nobufusa Kuroki, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Mar. 17, 1989, Ser. No. 325,354
Claims priority, application Japan, Sep. 22, 1988, 63-37052
Term of patent 14 years
U.S. Cl. D15—70

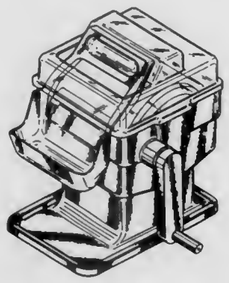


VOL 1132 ISS 3 NO 19 1991 UMI

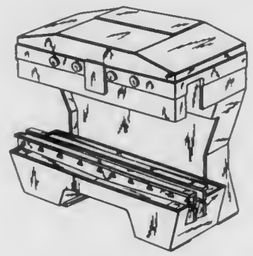
321,696
CONTROLLER FOR A SEWING MACHINE
Hiroshi Kumatani; Satomi Yamauchi, both of Nagoya, and Takanobu Fujimoto, Kamakura, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 14, 1989, Ser. No. 436,172
Claims priority, application Japan, May 15, 1989, 1-17589
Term of patent 14 years
U.S. Cl. D15—72



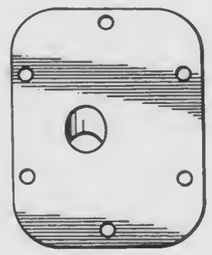
321,697
ICE CREAM MAKER
Lawrence A. Blaustein, Moreland Hills, and Patrick W. Brown, North Olmsted, both of Ohio, assignors to Tyco Industries, Inc., Mt. Laurel, N.J.
Filed Jun. 20, 1989, Ser. No. 369,548
Term of patent 14 years
U.S. Cl. D15—82



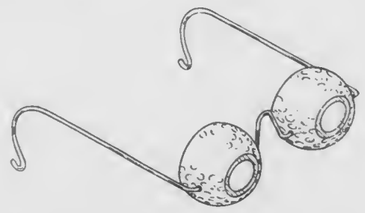
321,698
BASE FOR ROTARY ARC RAM
John F. Riera, 3689 Sandburg Dr., Troy, Mich. 48084; Billy J. Bielawski, Sr., 2270 Flanders Dr., Rochester Hills, and John J. Pavelec, 413 Dalton, Rochester, both of Mich. 48063
Filed Oct. 24, 1988, Ser. No. 263,558
Term of patent 14 years
U.S. Cl. D15—141



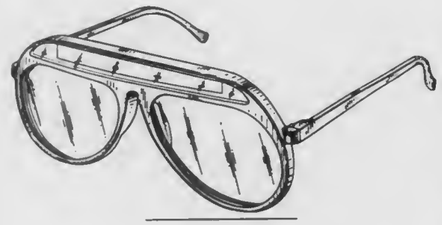
321,699
ADAPTOR FOR AN AUXILIARY TRANSMISSION
Clayton D. Macomber, 9514—164th St. NE., Arlington, Wash. 98223
Filed Nov. 1, 1988, Ser. No. 265,462
Term of patent 14 years
U.S. Cl. D15—149



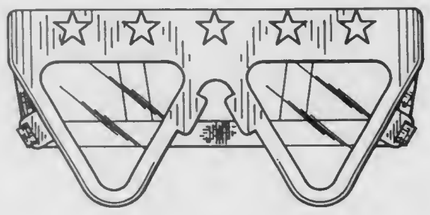
321,700
NOVELTY EYEGLASSES
Theodore A. Smith, 1420 Hepburn Ave., Louisville, Ky. 40204
Filed Apr. 25, 1990, Ser. No. 514,356
Term of patent 14 years
U.S. Cl. D16—104



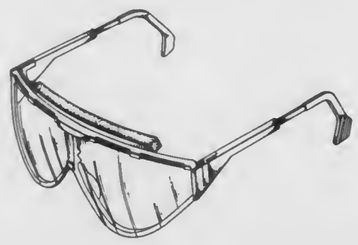
321,701
LIQUID CRYSTAL SUNGLASSES
Yasuhiro Nomura, and Koichi Takahashi, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Nov. 20, 1989, Ser. No. 438,366
Claims priority, application Japan, May 22, 1989, 018578/89
Term of patent 14 years
U.S. Cl. D16—102



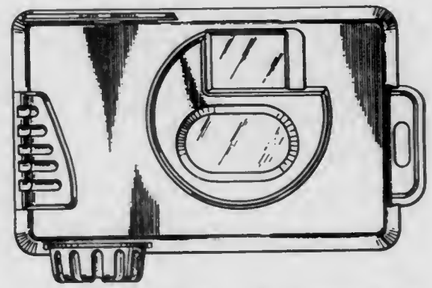
321,702
SUNGLASSES FOR AN INFANT
Gary M. Jennings, 127 N. Locust #5, Ripon, Calif. 95366
Filed Dec. 1, 1988, Ser. No. 278,424
Term of patent 14 years
U.S. Cl. D16—107

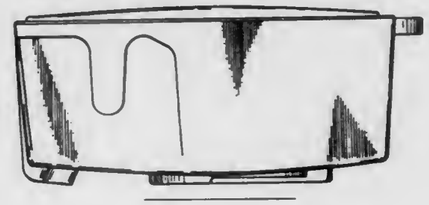


321,703
SUNGLASSES
Werner E. Grau, Friedberg-Haberskirch, Fed. Rep. of Germany, assignor to Uvex Winter Optical, Inc., Smithfield, R.I.
Filed Dec. 1, 1989, Ser. No. 445,981
Term of patent 14 years
U.S. Cl. D16—112

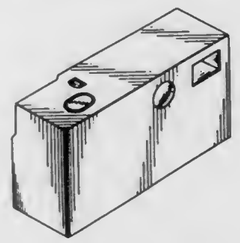


321,704
ALL-WEATHER CAMERA
Bruce A. Leonard, Honeoye Falls; Ralph M. Lyon, and Jerry L. Hargrave, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.
Filed Apr. 14, 1989, Ser. No. 339,412
Term of patent 14 years
U.S. Cl. D16—200





321,705
DISPOSABLE CAMERA
Hiroshi Ohmura, and Takuya Arai, both of Tokyo, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Filed Feb. 28, 1989, Ser. No. 316,929
Claims priority, application Japan, Aug. 31, 1988, 63-34474; Aug. 31, 1988, 63-34476; Aug. 31, 1988, 63-34477; Aug. 31, 1988, 63-34480
Term of patent 14 years
U.S. Cl. D16—208

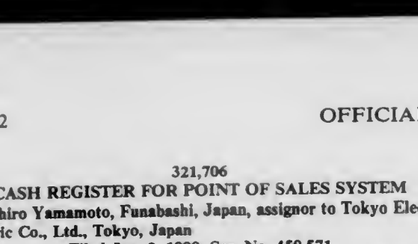


VOL 1132 ISS 3 NO 19 1991 UMI

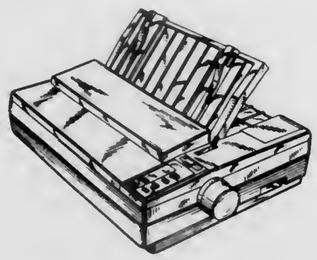
321,706
CASH REGISTER FOR POINT OF SALES SYSTEM
Yoshiro Yamamoto, Funabashi, Japan, assignor to Tokyo Electric Co., Ltd., Tokyo, Japan
Filed Jan. 2, 1990, Ser. No. 459,571
Claims priority, application Japan, Jun. 30, 1989, 1-24200
Term of patent 14 years
U.S. Cl. D18—4



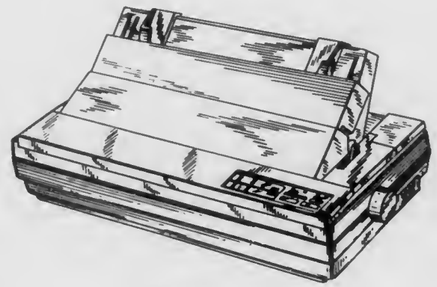
321,707
PRINTER
Toru Irie; Yoshinori Kakiuchi, both of Kawasaki, and Akira Tsukamoto, Tokyo, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
Filed Apr. 14, 1989, Ser. No. 338,126
Claims priority, application Japan, Oct. 14, 1988, 63-40425
Term of patent 14 years
U.S. Cl. D18—54



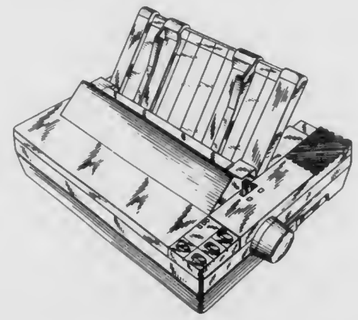
321,708
PRINTER FOR ELECTRONIC COMPUTER
Noritaka Uchibori, and Toshimutsu Ohara, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Apr. 17, 1989, Ser. No. 339,430
Claims priority, application Japan, Oct. 28, 1988, 42437/88
Term of patent 14 years
U.S. Cl. D18—54



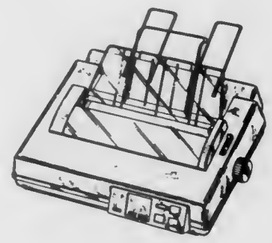
321,709
PRINTER FOR ELECTRONIC COMPUTER
Noritaka Uchibori, and Michiyo Ichikawa, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed May 18, 1989, Ser. No. 353,734
Claims priority, application Japan, Nov. 26, 1988, 46114/88
Term of patent 14 years
U.S. Cl. D18—54



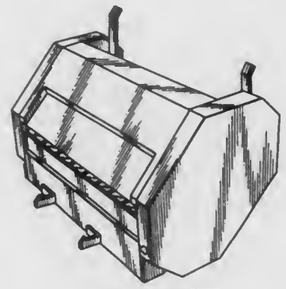
321,710
PRINTER FOR ELECTRONIC COMPUTER
Noritaka Uchibori; Hitoshi Igarashi, both of Nagano, Japan, and Mitsuru Iseki, Aichi, all of Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Jul. 19, 1989, Ser. No. 382,811
Claims priority, application Japan, Feb. 10, 1989, 5060/89
Term of patent 14 years
U.S. Cl. D18—54



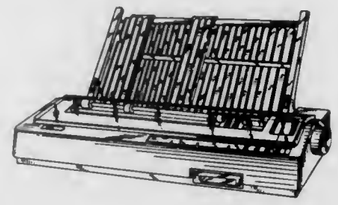
321,711
PRINTER
Tsutomu Yoshihara, Ayase, and Shigeru Nezu, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan
Filed Aug. 14, 1989, Ser. No. 393,321
Claims priority, application Japan, Feb. 16, 1989, 1-5914
Term of patent 14 years
U.S. Cl. D18—54



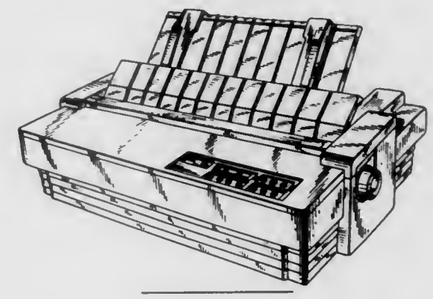
321,712
SHEET FEEDER
Eiji Tsutsui, Hyogo, Japan, assignor to Mita Industrial Co., Ltd., Osaka, Japan
Filed Aug. 28, 1989, Ser. No. 400,233
Claims priority, application Japan, Mar. 7, 1989, 1-8252
Term of patent 14 years
U.S. Cl. D18—49



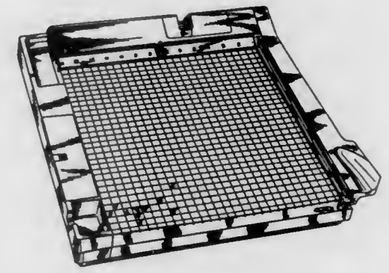
321,713
PRINTER FOR A COMPUTER
Akihiko Matsuo; Akio Takeda, and Kiyoshi Fujii, all of Tokyo, Japan, assignors to Seikosha Co., Ltd., Tokyo, Japan
Filed Feb. 16, 1989, Ser. No. 311,681
Claims priority, application Japan, Sep. 2, 1988, 63-34798
Term of patent 14 years
U.S. Cl. D18—54



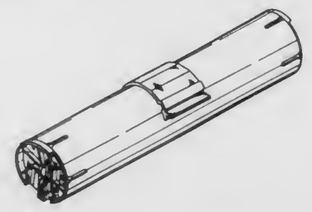
321,714
PRINTER FOR ELECTRONIC COMPUTER
Friedrich F. Frenkler, Tokyo; Masayuki Ono, Nagano; Akira Suzuki, Nagano, and Noritaka Uchibori, Nagano, all of Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed May 15, 1989, Ser. No. 352,216
Claims priority, application Japan, Nov. 14, 1988, 63-44477
Term of patent 14 years
U.S. Cl. D18—54



321,715
COMBINED PAPER TRIMMER AND DISPENSER WITH STORAGE FOR OFFICE SUPPLIES
Steven J. Beno, and Joseph R. Mango, both of c/o Ideal School Supply Corporation, 2245 Delany Rd., Waukegan, Ill. 60087
Filed Mar. 22, 1989, Ser. No. 327,155
Term of patent 14 years
U.S. Cl. D18—34

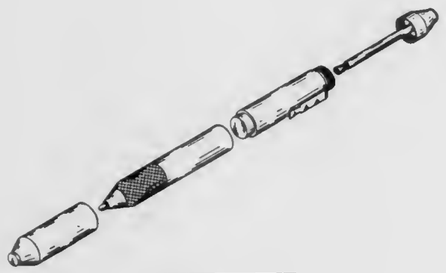


321,716
TONER CARTRIDGE
Hiroshi Kikuchi; Hisao Ono; Yoshiharu Momiyama, and Shigeki Nakajima, all of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan
Filed Nov. 13, 1989, Ser. No. 433,831
Claims priority, application Japan, Sep. 6, 1989, 1-32357
Term of patent 14 years
U.S. Cl. D18—43



VOL 1132 ISS 3 NO 19 1991 UMI

321,717
COMBINED BALL-POINT PEN AND CORRECTION FLUID APPLICATOR
Larry L. Hager, 14027 35th Ave., South, Seattle, Wash. 98168
Filed Mar. 27, 1989, Ser. No. 328,607
Term of patent 14 years
U.S. Cl. D19—36



321,718
BALL POINT PEN WITH RETRACTABLE CAP
Emilio Ambasz, 295 Central Park West, New York, N.Y. 10024
Filed Jan. 5, 1989, Ser. No. 293,871
Term of patent 14 years
U.S. Cl. D19—48



321,719
FELT TIP PEN
Tomio Nitta, Yokohama, Japan, assignor to Tokai Corporation, Yokohama, Japan
Filed Apr. 25, 1989, Ser. No. 344,143
Claims priority, application Japan, Oct. 17, 1988, 63-40312
Term of patent 14 years
U.S. Cl. D19—48



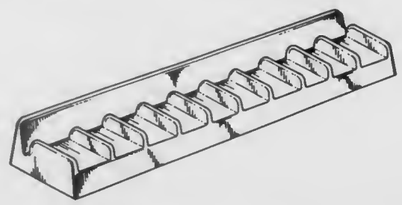
321,720
BALL-POINT PEN
Hidemi Sakurada, Setagaya, Japan, assignor to Nikko Pen Co., Ltd., Japan
Filed Jun. 16, 1989, Ser. No. 367,225
Claims priority, application Japan, Sep. 28, 1988, 63-38029
Term of patent 14 years
U.S. Cl. D19—51



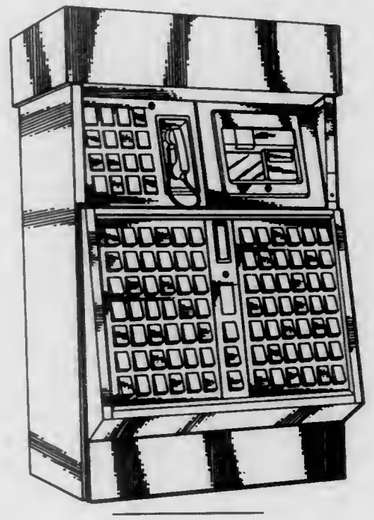
321,721
DOLL ILLUSTRATING DENTAL FEATURES
Joy Prager, 7921 Avenida Diestro, La Costa, Calif. 92009
Filed Feb. 16, 1989, Ser. No. 311,198
Term of patent 14 years
U.S. Cl. D19—59



321,722
CARD BOARD FOR MEMORY OR THE LIKE
Nancy Helm-Estabrooks, Boston, and Edith Kaplan, Lexington, both of Mass., assignors to Special Press, Inc., San Antonio, Tex.
Filed Oct. 27, 1989, Ser. No. 427,628
Term of patent 14 years
U.S. Cl. D19—64



321,723
VIDEO DISPENSING MACHINE
John A. Lack, New York, N.Y., assignor to Nelson Vending Technology Limited, Mississauga, Canada
Filed May 16, 1989, Ser. No. 352,844
Term of patent 14 years
U.S. Cl. D20—1

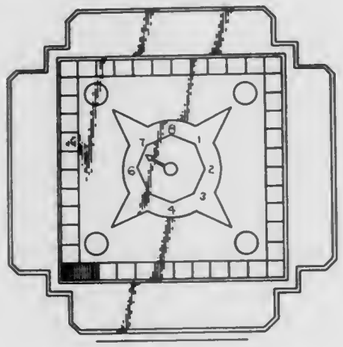


321,724
ADJUSTABLE AND RETRACTABLE MENU AND ORDER DISPLAY UNIT FOR DRIVE-IN RESTAURANTS OR THE LIKE
Frank R. Casale; Nicola D. Casale; Antonio A. Casale, and Richard P. Bennett, all of Albuquerque, N. Mex., assignors to Nunzio's Pizza, Inc., Beverly Hills, Calif.
Filed May 26, 1989, Ser. No. 358,196
Term of patent 14 years
U.S. Cl. D20—19

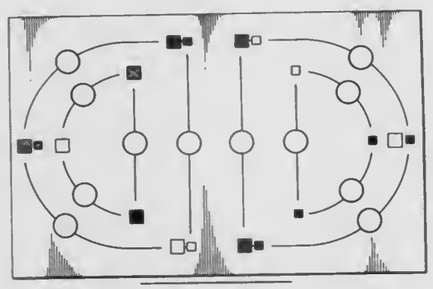


VOL 1132 ISS 3 NO 19 1991 UMI

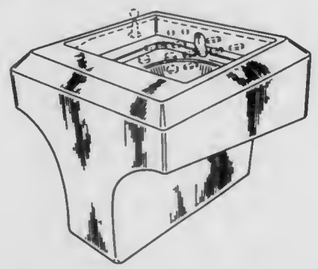
321,725
GAME BOARD
Larry Burleson, 1130 E. Ledbetter Dr., Dallas, Tex. 75216
Filed Aug. 7, 1989, Ser. No. 390,353
Term of patent 14 years
U.S. Cl. D21—22



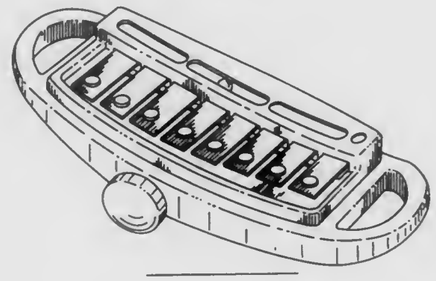
321,726
GAME BOARD
Robert A. Page, 30473 Mulholland Hwy. #139, Agoura, Calif. 91301
Filed Aug. 9, 1990, Ser. No. 565,106
Term of patent 14 years
U.S. Cl. D21—34



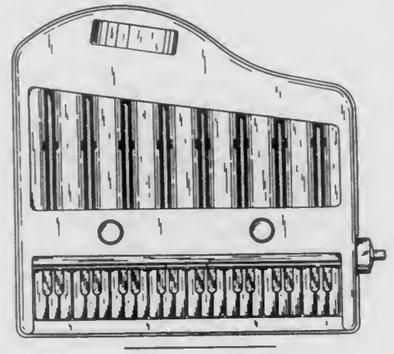
321,727
GAME CONTROL HOLDER
David C. Urbanski, 1794 Covington La., Eagan, Minn. 55126
Filed Oct. 16, 1989, Ser. No. 421,722
Term of patent 14 years
U.S. Cl. D21—48



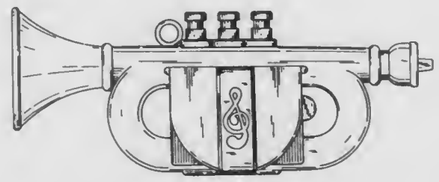
321,728
MUSICAL TOY
Stephen D. Wehmeyer, Cincinnati, Ohio, assignor to The Quaker Oats Company, Chicago, Ill.
Filed Oct. 16, 1989, Ser. No. 421,695
Term of patent 14 years
U.S. Cl. D21—64



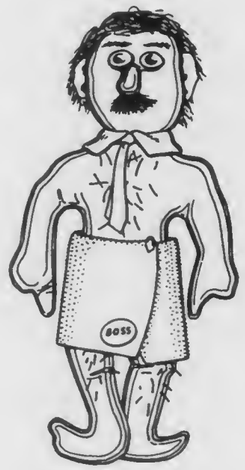
321,729
TOY PIANO
Wade A. F. Maple, Elma, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Oct. 23, 1989, Ser. No. 425,850
Term of patent 14 years
U.S. Cl. D21—64



321,730
TOY TRUMPET
Craig J. McElhaney, East Aurora, N.Y., assignor to The Quaker Oats Company, Chicago, Ill.
Filed Oct. 23, 1989, Ser. No. 425,973
Term of patent 14 years
U.S. Cl. D21—64



321,731
BOSS DOLL
Linda S. Carlson, Marathon; Kimberly J. Doering, and Suzanne M. Berner, both of Wausau, all of Wis., assignors to Hadit, Inc., Marathon, Wis.
Filed Nov. 1, 1989, Ser. No. 430,200
Term of patent 14 years
U.S. Cl. D21—171



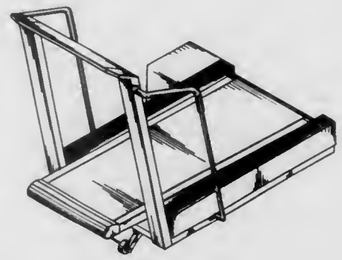
321,732
AERIAL TOY
Anton Furst, London, England, assignor to DC Comics Inc., New York, N.Y.
Filed Sep. 20, 1989, Ser. No. 410,246
Claims priority, application United Kingdom, Mar. 20, 1989, 1058000
Term of patent 14 years
U.S. Cl. D21—87



321,733
ISOKINETIC OSCILLATING EXERCISER
Bruce Hymanson, P.O. Box 5100, Playa del Rey, Calif. 90256
Continuation-in-part of Ser. No. 263,820, Oct. 28, 1988, Pat. No. 4,964,633. This application Oct. 27, 1989, Ser. No. 428,075
Term of patent 14 years
U.S. Cl. D21—191

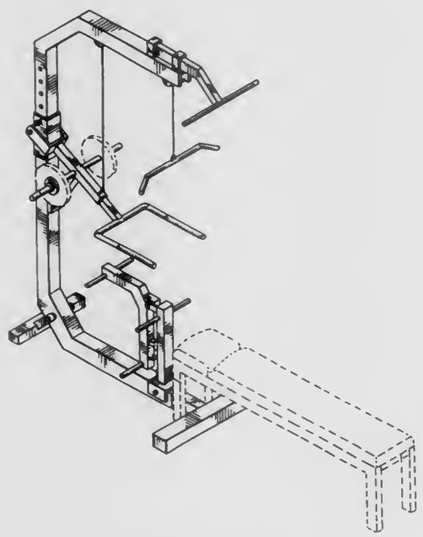


321,734
LOW IMPACT TREADMILL
Paul T. Dunham, Everett; David J. Littrell, and Timothy O. Armstrong, both of Bellevue, all of Wash., assignors to Precor Incorporated, Bothell, Wash.
Filed Dec. 6, 1989, Ser. No. 443,427
Term of patent 14 years
U.S. Cl. D21—192



VOL 1132 ISS 3 NO 19 1991 UMI

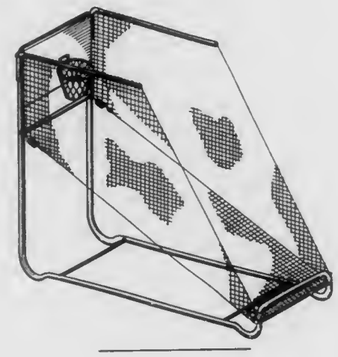
321,735
PHYSICAL EXERCISER
Jeffrey A. Blubaugh, 2351 South 183 West, Goddard, Kans. 67052
Filed Oct. 2, 1989, Ser. No. 415,535
Term of patent 14 years
U.S. Cl. D21—195



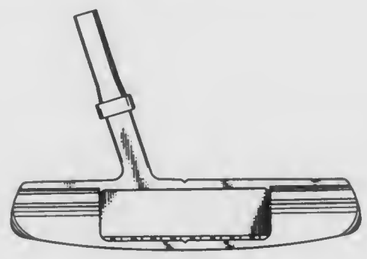
321,736
TABLETOP FOOTBALL GOAL AND NET
Irving H. Franklin, Brockton; Larry J. Franklin, Chestnut Hill; Richard Ferenz, Cohasset, and Kurt M. Gluck, North Easton, all of Mass., assignors to Franklin Sports Industries, Inc., Stoughton, Mass.
Filed Jul. 27, 1989, Ser. No. 385,915
Term of patent 14 years
U.S. Cl. D21—200



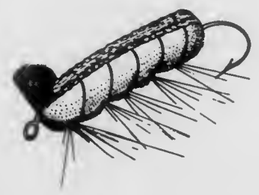
321,737
BASKETBALL TRAINING GOAL
Yuan H. Lo, No. 8-1, Tou Chien, Kan Kou Tsun, Lu Chu Hsiang, Tao Yuan Hsien, Taiwan
Filed Dec. 29, 1989, Ser. No. 458,819
Term of patent 14 years
U.S. Cl. D21—201



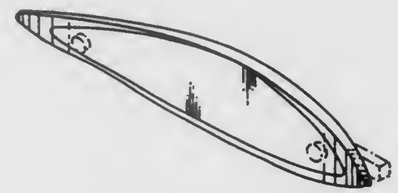
321,738
GOLF PUTTER HEAD
Jon R. Brown. Dallas, Tex., assignor to Highpoint Golf, Inc., Dallas, Tex.
Filed May 23, 1988, Ser. No. 197,898
Term of patent 14 years
U.S. Cl. D21—219



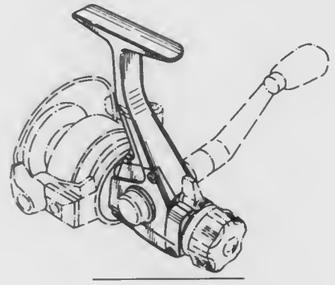
321,739
FISHING FLY
D. F. Tommy Thompson, 11329 38th Dr., Northeast, Marysville, Wash. 98270
Filed May 2, 1989, Ser. No. 346,094
Term of patent 14 years
U.S. Cl. D22—128



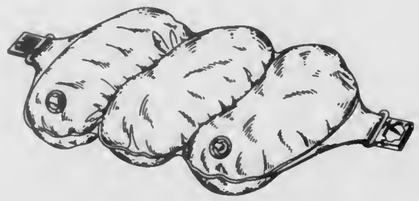
321,740
FISHING LURE
Dan L. Hook, 6535 Seaview Ave. Northwest, Seattle, Wash. 98117
Continuation of Ser. No. 122,411, Nov. 19, 1987, abandoned. This application Sep. 13, 1990, Ser. No. 583,708
Term of patent 14 years
U.S. Cl. D22—133



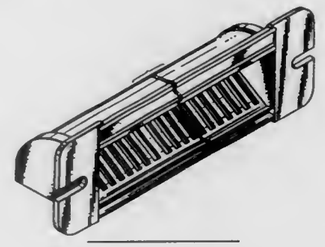
321,741
FISHING REEL BODY
Yasuhisa Kameda, and Akihisa Shiozaki, both of Musashino, Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan
Filed Jan. 17, 1989, Ser. No. 297,545
Claims priority, application Japan, Jul. 19, 1988, 63-28674
Term of patent 14 years
U.S. Cl. D22—141



321,742
ARM SWIM FLOAT
Francis F. J. Yu, Taipei, Taiwan, assignor to Union Plastic Products Ltd., Taipei, Taiwan
Filed May 18, 1989, Ser. No. 353,517
Term of patent 14 years
U.S. Cl. D21—238



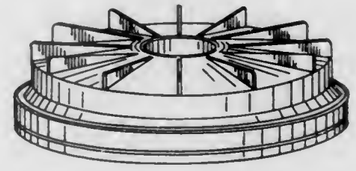
321,743
HOOD FOR VENT MOUNTING ON WINDOW SILL OR FRAME
Alan V. Logue, and William Divers, both of Dunmurry, Ireland, assignors to Brook Design Products Limited, Dunmurry, Northern Ireland
Filed Jun. 14, 1989, Ser. No. 365,562
Claims priority, application United Kingdom, Dec. 14, 1988, 1055688
Term of patent 14 years
U.S. Cl. D23—388



321,744
REEL SEAT FOR FISHING ROD
Yoshihiro Naeki, and Teiji Matsubara, both of Higashikurume, Japan, assignors to Daiwa Seiko, Inc., Tokyo, Japan
Filed Jan. 17, 1989, Ser. No. 297,544
Claims priority, application Japan, Jul. 19, 1988, 63-28673
Term of patent 14 years
U.S. Cl. D22—142

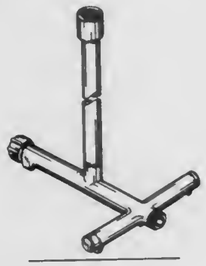


321,745
WATER FILTER
Spencer Murrell, Delaware City, Ohio, assignor to Wilton Industries, Inc., Woodridge, Ill.
Filed Jun. 15, 1990, Ser. No. 538,510
Term of patent 14 years
U.S. Cl. D23—209

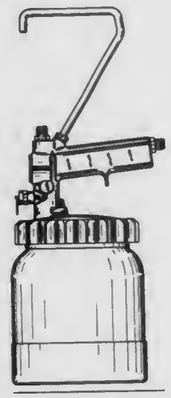


VOL 1132 ISS 3 NOV 19 1991 UMI

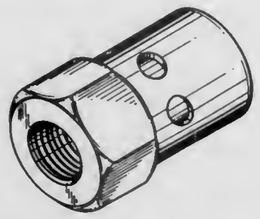
321,746
COMBINED SPRINKLER SUPPORT AND HOSE COUPLER
Haggie I. Cockman, P.O. Box 1725, Sanford, Fla. 32772-1725
Filed Jun. 23, 1988, Ser. No. 210,764
Term of patent 14 years
U.S. Cl. D23—221



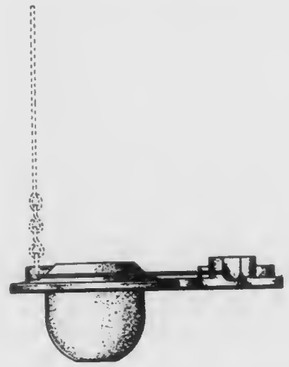
321,747
PRESSURIZED PAINT CUP
Marvin D. Burns, Millbury, Ohio, assignor to Ransburg Corporation, Indianapolis, Ind.
Filed Feb. 7, 1990, Ser. No. 477,205
Term of patent 14 years
U.S. Cl. D23—225



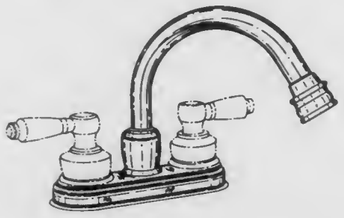
321,748
AIR GAP ANTI-SIPHON VALVE
Ralph Brito, 1514 Trenton Pl., Anaheim, Calif. 92802
Filed Nov. 21, 1988, Ser. No. 274,038
Term of patent 14 years
U.S. Cl. D23—235



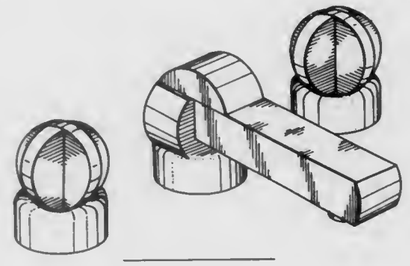
321,749
FLUSH TANK FLAPPER VALVE
Charles L. Wesolowsky, 8017 13th Ave. S., St. Petersburg, Fla. 33707
Filed May 30, 1989, Ser. No. 357,878
Term of patent 14 years
U.S. Cl. D23—236



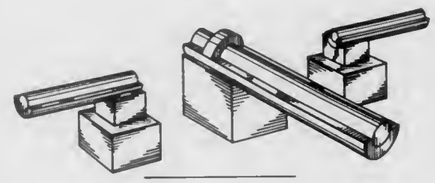
321,750
FAUCET BODY
Anthony G. Spangler, Sheridan, Ind., assignor to Masco Corporation of Indiana, Taylor, Mich.
Filed Mar. 18, 1988, Ser. No. 170,423
Term of patent 14 years
U.S. Cl. D23—241



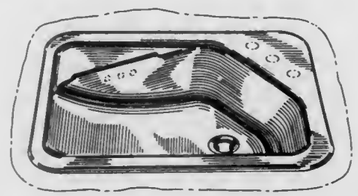
321,751
FAUCET SET
Stanley M. Paul, Greenwich, Conn., assignor to Paul Associates, Inc., Long Island City, N.Y.
Filed Feb. 8, 1989, Ser. No. 308,248
Term of patent 14 years
U.S. Cl. D23—242



321,752
FAUCET SET
Stanley M. Paul, Greenwich, Conn., assignor to Paul Associates, Inc., Long Island City, N.Y.
Filed Feb. 8, 1989, Ser. No. 308,249
Term of patent 14 years
U.S. Cl. D23—242



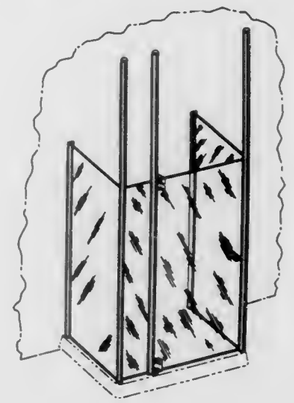
321,753
LAVATORY
Alan D. Bengtson, Sheboygan, and Robert S. Davis, Grafton, both of Wis., assignors to Kohler Co., Kohler, Wis.
Filed Jan. 17, 1989, Ser. No. 297,917
Term of patent 14 years
U.S. Cl. D23—284



321,754
LAVATORY
Mary J. Reid, Sheboygan, Wis., assignor to Kohler Co., Kohler, Wis.
Division of Ser. No. 214,709, Jul. 1, 1988. This application Apr. 29, 1991, Ser. No. 693,275
Term of patent 14 years
U.S. Cl. D23—292

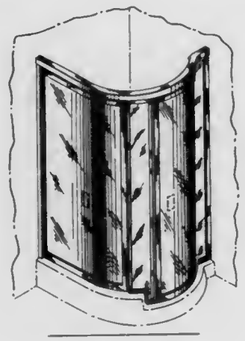


321,755
SHOWER ENCLOSURE
Keith L. Poulson, Canyon Country, Calif., and Todd D. Dannenberg, Sheboygan, Wis., assignors to Kohler Co., Kohler, Wis.
Filed Jan. 11, 1988, Ser. No. 142,877
The portion of the term of this patent subsequent to Oct. 1, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D23—305

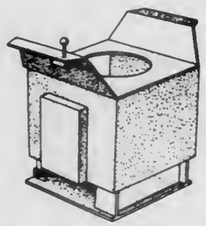


VOL 1132 ISS 3 NO 19 1991 UMI

321,756
SHOWER ENCLOSURE
Todd D. Dannenberg, Sheboygan, Wis., and Keith L. Poulson, Canyon Country, Calif., assignors to Kohler Co., Kohler, Wis.
Continuation-in-part of Ser. No. 142,871, Jan. 11, 1988. This application May 4, 1988, Ser. No. 190,274
Term of patent 14 years
U.S. Cl. D23—305



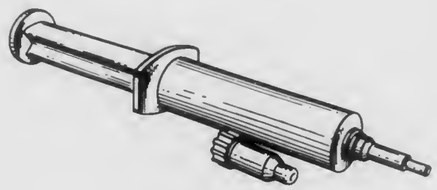
321,757
POWERED LIFT FOR COMMODE SEAT
T. Eric Aldred, 1105 Eighth St., Albany, Ga. 31707, and Hal A. Council, Albany, Ga., assignors to T. Eric Aldred, Albany, Ga.
Filed Aug. 25, 1989, Ser. No. 398,730
Term of patent 14 years
U.S. Cl. D23—311



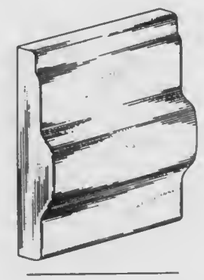
321,758
COVER FOR AN INTRAVENOUS BAG
Anita L. Colella, 4700 Sandyland Dr., #118, Carpenteria, Calif. 93013
Filed Mar. 9, 1989, Ser. No. 321,446
Term of patent 14 years
U.S. Cl. D24—127



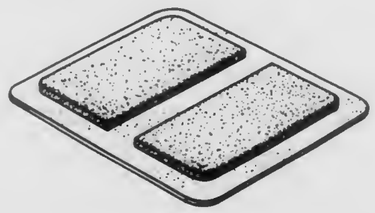
321,759
SYRINGE
John F. Buswell, Redhill; Victor C. Cracknell, Windlesham, and Noshir J. Khambatta, Sussex, all of England, assignors to Beecham Group p.l.c., Brentford, England
Filed Dec. 2, 1988, Ser. No. 280,192
Claims priority, application United Kingdom, Jun. 4, 1988, 1051272
Term of patent 14 years
U.S. Cl. D24—130



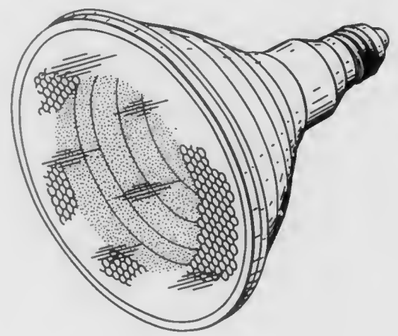
321,760
ORTHOPEDIC BACK SUPPORT PILLOW
Steven H. Carney, Denver, Colo., assignor to Steven Hull, Inc., Denver, Colo.
Filed Jun. 12, 1989, Ser. No. 364,985
Term of patent 14 years
U.S. Cl. D24—190

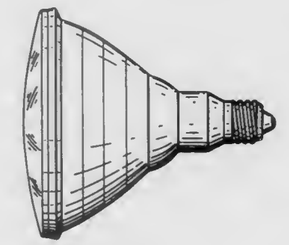


321,761
PAD FOR USE WITH A BODY ELECTRODE
Chuji Shimizu, Tokyo, Japan, assignor to Fukuda Denshi Co., Ltd., Tokyo, Japan
Filed Dec. 30, 1988, Ser. No. 292,000
Claims priority, application Japan, Sep. 5, 1988, 63-34987
Term of patent 14 years
U.S. Cl. D24—187

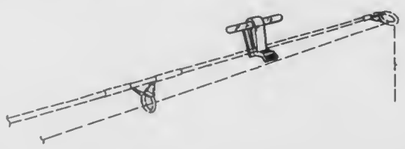


321,762
REFLECTOR SPOT LAMP
Mohammad Mujahid, Little Rock, and Joe O. Sullivan, Maumelle, both of Ark., assignors to North American Philips Corporation, New York, N.Y.
Filed Feb. 17, 1989, Ser. No. 312,779
Term of patent 14 years
U.S. Cl. D26—2

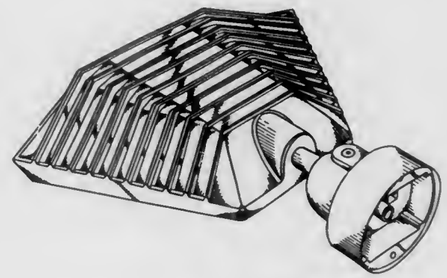




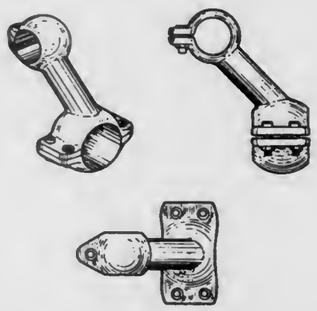
321,763
FISHING ROD LIGHT
Glenn N. Short, Rte. 4, Box 422, Rogersville, Mo. 65742
Filed Mar. 17, 1989, Ser. No. 325,890
Term of patent 14 years
U.S. Cl. D26—37



321,764
ADJUSTABLE LAMP
Hans Von Klier, Milan, Italy, assignor to Olivetti Synthesis SpA, Italy
Division of Ser. No. 287,997, Dec. 21, 1988, Pat. No. D. 315,804.
This application Jun. 13, 1990, Ser. No. 537,107
Claims priority, application Italy, Jun. 27, 1988, 53260/88[U]
Term of patent 14 years
U.S. Cl. D26—63



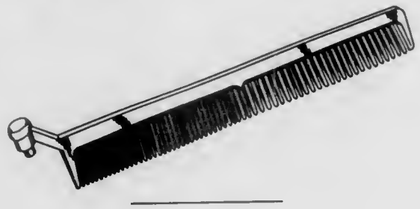
321,765
FLASHLIGHT BRACKET FOR A BICYCLE
William E. Morse, P.O. Box 3496, Santa Cruz, Calif. 95063
Filed Nov. 6, 1989, Ser. No. 432,665
Term of patent 14 years
U.S. Cl. D26—138



VOL 1132 ISS 3 NO 19 1991 UMI

321,766
COMBINED COMB AND HOLDER FOR PERMANENT WAVE PAPER
Lowell C. Babcock, 1647 Park Ave., Sycamore, Ill. 60178, and Betty J. Bolger, R.R. 1, Box 534, Genoa, Ill. 60135
Filed Oct. 12, 1989, Ser. No. 420,833
Term of patent 14 years
U.S. Cl. D28—25

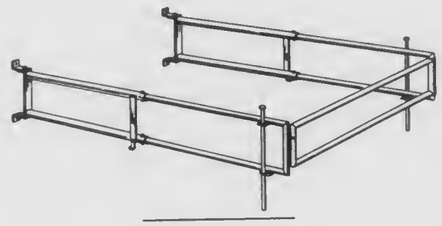




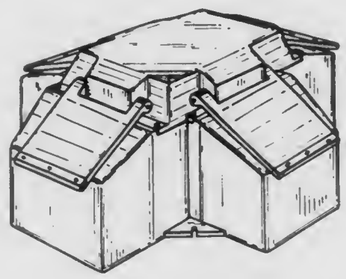
321,767
DENTAL FLOSS DISPENSER OR SIMILAR ARTICLE
Joseph Hemsley, Jr., 211 Bridgeboro Rd., Morrestown, N.J. 08057
Filed Feb. 20, 1990, Ser. No. 482,679
Term of patent 14 years
U.S. Cl. D28—64



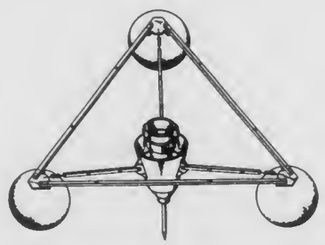
321,768
TRAIL STALL FOR LIVESTOCK
Charles O. Yeager, Rte. 2, Box 77A, Otterville, Mo. 65348
Filed Jan. 12, 1989, Ser. No. 296,042
Term of patent 14 years
U.S. Cl. D30—114



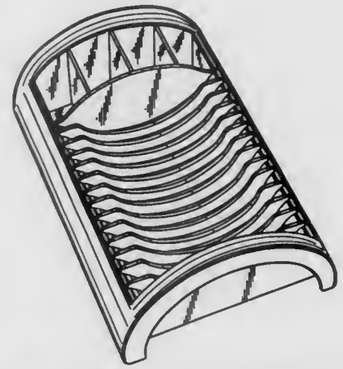
321,769
ANIMAL DRINKER
Kenneth L. Schafer, Rte. 3, Box 73, LeSueur, Minn. 56058
Filed Feb. 20, 1990, Ser. No. 482,670
Term of patent 14 years
U.S. Cl. D30—132

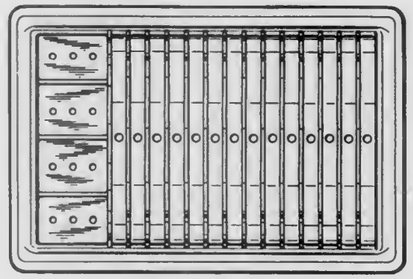


321,770
SUSPENDED SUCTION HEAD FOR REMOVAL OF FREE FLOATING OIL
Patrick C. Armour, 667 Kingman Dr., Vacaville, Calif. 95687
Filed May 2, 1989, Ser. No. 346,754
Term of patent 14 years
U.S. Cl. D32—25



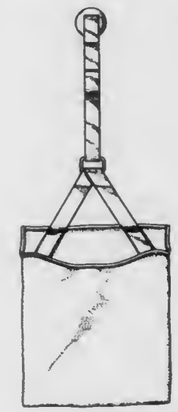
321,771
DRAINING-BOARD FOR DISHES AND CUTLERY
Sergio Cavicchia, Rome, Italy, assignor to Fratelli Guzzini S.p.A., Recanati, Italy
Filed Feb. 5, 1991, Ser. No. 650,647
Claims priority, application Italy, Aug. 8, 1990, 21635/90[U]
Term of patent 14 years
U.S. Cl. D32—55



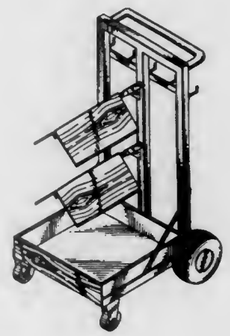




321,772
MOTOR VEHICLE REFUSE BAG OR SIMILAR ARTICLE
Steven J. Johnson, 235 Oakcrest Dr., Sharpeburg, Ga. 30277
Filed Mar. 8, 1991, Ser. No. 491,133
Term of patent 14 years
U.S. Cl. D34—1



321,773
TACK CART
Raymond R. Chiang, P.O. Box 1281 North Rd., Whitefish, Mont. 59937
Filed Aug. 3, 1989, Ser. No. 388,917
Term of patent 14 years
U.S. Cl. D34—17



VOL
1132
ISS
3
NO
19
1991
UMI

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF NOVEMBER, 1991

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A. H. Robins Company, Incorporated: *See—*
Taylor, Chandler R., Jr.; and Moses, Meredith, 5,066,654, Cl. 514-256.000.

A. Rifkin Co.: *See—*
Williams, George W.; and Rifkin, Arnold S., 5,065,602, Cl. 70-68.000.

A-Z Formen-und Maschinenbau GmbH: *See—*
Schmaderer, Gerhard; and Hilke, Rainer, 5,066,209, Cl. 425-28.100.

Aaldenberg, Eric: *See—*
Hawes, Robert E., Jr.; Dellacroce, Cheryl; Aaldenberg, Eric; and Lynch, James J., 5,066,045, Cl. 281-45.000.

Abbott, Alan D.: *See—*
Dudley, Kevin F.; Dunshee, Kevin B.; and Abbott, Alan D., 5,065,593, Cl. 62-182.000.

Abbott Laboratories: *See—*
Wang, Chao-Huei J.; Stroupe, Stephen D.; and Jolley, Michael E., 5,066,426, Cl. 540-106.000.

Abe, Hiroshi, to Asahi Seiko Kabushiki Kaisha. Coin dispensing apparatus. 5,066,262, Cl. 453-57.000.

Abe, Mitsuo: *See—*
Tsuchiya, Toshio; Abe, Mitsuo; Arai, Nobuo; Hisatomi, Masunii; and Zama, Hideo, 5,067,038, Cl. 360-107.000.

Abe, Toshiro: *See—*
Doi, Kazuhiro; Fujiwara, Yasuhiko; Abe, Toshiro; and Matsui, Shinichi, 5,065,869, Cl. 207-140.100.

Abeles, Robert H.; and Gelb, Michael H., to Sandoz Ltd. Fluorine and chlorine statine or statone containing peptides and method of use. 5,066,643, Cl. 514-18.000.

Abenin, Parfait: *See—*
Sismondi, Alain; Abenin, Parfait; and Cambon, Aime , 5,066,672, Cl. 514-513.000.

Abramovich, Albert. Tie plate rail fastening system. 5,065,940, Cl. 238-334.000.

Abrasive Technology N.A., Inc.: *See—*
Ishak, Maher; and Schwartz, Alexander, 5,066,312, Cl. 51-295.000.

Ace Conveyor Equipment Limited: *See—*
Brumby, John A., 5,065,859, Cl. 198-499.000.

Ace Demolition Incorporated: *See—*
Gross, Sol N., 5,065,514, Cl. 30-134.000.

Acker, Judith S. Doll structure incorporating material simulating natural body weight and feel. 5,066,259, Cl. 446-385.000.

AcuPrint, Inc.: *See—*
Hanson, William J.; and Sanders, J. Randolph, 5,066,517, Cl. 427-197.000.

Adachi, Koji: *See—*
Anzawa, Norio; Adachi, Koji; Futakawa, Tetsuo; Sato, Hironari; and Narita, Akira, 5,066,219, Cl. 431-10.000.

Adachi, Yoshinori: *See—*
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.

Adachi, Yuuma, to Fuji Photo Film Co., Ltd. Method for determining a desired image signal range from an image having a single background. 5,067,163, Cl. 382-6.000.

Adamek, Manfred: *See—*
Durr, Heinrich; Rosenthal, Manfred; and Adamek, Manfred, 5,066,151, Cl. 400-605.000.

Adams, William J.; Jex Courter, Barbara G.; Fong, Craig S.; Murray, Robert C.; and Marshall, Paul A., to Rockwell International Corporation. Digital power controller. 5,065,962, Cl. 244-234.000.

Adasek, Kenneth P. Ski guards. 5,066,044, Cl. 280-815.000.

ADC Telecommunications, Inc.: *See—*
Wheeler, Todd; and Johnson, Wayne A., 5,066,149, Cl. 385-135.000.

Adir et Compagnie: *See—*
Regnir, Gilbert; Dhainaut, Alain; Lepagnol, Jean; and Lepagnol, Jean, 5,066,651, Cl. 514-235.500.

Advanced Micro Devices, Inc.: *See—*
Runaldue, Thomas J., 5,067,110, Cl. 365-189.070.

AEG Olympia Office GmbH: *See—*
Schweizer, Horst, 5,066,980, Cl. 335-255.000.

AERITALIA -Societa Aerospaziale Italiana S.p.A.: *See—*
Cerdonio, Massimo; and Vitale, Stefano, 5,066,637, Cl. 501-1.000.

Agarwal, Jagdish A.; Gannon, Richard; Goldfarb, Victor; Stickler, David; and Woodroffe, Jaime, to Gas Research Institute. Gas-fired steelmelting process. 5,066,326, Cl. 75-581.000.

Agarwal, Pawan K.; and Pugel, Thomas, to Exxon Research and Engineering Company. Novel pressure sensitive adhesive compositions (C-2511). 5,066,694, Cl. 524-60.000.

Agency of Industrial Science and Technology: *See—*
Miyao, Masanobu; Nakagawa, Kiyokazu; Ohyu, Kiyonori; Murakami, Eiichi; and Ohshima, Takashi, 5,066,355, Cl. 156-612.000.

Aiba, Kazuyuki: *See—*
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.

Air Products and Chemicals, Inc.: *See—*
Casey, Jeremiah P.; Lucas, Peter A.; and Vratsanos, Menas S., 5,066,764, Cl. 528-122.000.
Zurecki, Zbigniew; Hayduk, Edward A., Jr.; North, John G.; and Swan, Robert B., 5,066,513, Cl. 427-37.000.

Aisin AW Co., Ltd.: *See—*
Nimura, Mitsuhiro; Nanba, Akimasa; and Yokoyama, Shoji, 5,067,082, Cl. 364-449.000.

Aisin Seiki Kabushiki Kaisha: *See—*
Honda, Mamoru; and Shirato, Ken, 5,066,192, Cl. 415-112.000.
Nishii, Michiharu, 5,065,580, Cl. 60-547.100.
Nomura, Yoshihisa; Kato, Masahiko; and Nishii, Michiharu, 5,065,573, Cl. 60-551.000.
Sugiyama, Naoki, 5,066,910, Cl. 324-166.000.
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, 5,066,068, Cl. 296-221.000.

Aisin Seiki Kabushiki Kaisha Kariya: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Aitkenhead, William F.; and Gershman, Russell J., to Hologic, Inc. Equalized radiography using special modulator pins. 5,067,144, Cl. 378-146.000.

Aizawa, Hironori; Shin, Masaaki; and Okubo, Atsuo, to Mitsui Toatsu Chemicals Incorporated. Resin for toner and toner containing same. 5,066,727, Cl. 525-296.000.

Ajinomoto Co., Inc.: *See—*
Yabuki, Akira; and Iwashita, Yuji, 5,066,590, Cl. 435-180.000.

Akam, Nigel J.; Cameron, Donald M.; Halliday, David K.; and Paterson, Raymond, to International Business Machines Corporation. Gas-fed transfer track. 5,065,858, Cl. 198-493.000.

Akebono Brake Industry Co., Ltd.: *See—*
Kitajima, Masaji, 5,066,229, Cl. 432-160.000.

Akhtar, Masyood, to Johnson Matthey Inc. Sealing glass composition and electrically conductive formulation containing same. 5,066,621, Cl. 501-41.000.

Akimoto, Mamoru: *See—*
Ohbuchi, Yukio; Maeda, Yoshiaki; Kawasaki, Masahiro; Sato, Susumu; and Akimoto, Mamoru, 5,066,762, Cl. 528-85.000.

Akita, Shigeyuki: *See—*
Osada, Masahiko; Arai, Masumi; and Akita, Shigeyuki, 5,066,893, Cl. 315-169.300.

Akiyama, Eitetsu: *See—*
Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, 5,065,834, Cl. 180-197.000.

Akizuki, Kunio, to Ichikoh Industries Ltd. Automotive headlamp. 5,067,053, Cl. 362-61.000.

Aktiebolaget Bofors: *See—*
Lundberg, Per-Olof; and Pettersson, Sven-Olov, 5,066,251, Cl. 439-701.000.

A.B. Chance Company: *See—*
Holdeman, Maynard L., 5,066,168, Cl. 405-249.000.

Aktiebolaget Electrolux: *See—*
Henriksson, Soren N., 5,065,710, Cl. 123-185.00B.

Akutagawa, Susumo: *See—*
Sayo, Noboru; Kumobayashi, Hidenori; Akutagawa, Susumo; Noyori, Ryoji; and Takaya, Hidemasa, 5,066,815, Cl. 549-319.000.

Akzo N.V.: *See—*
Hoffman, Julie F.; and Jones, Lionel D., II, 5,066,336, Cl. 134-22.120.
Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, 5,066,401, Cl. 210-500.350.

Albarda, Scato; Thoren, Werner; Kahning, Stefan; and Vehrens, Peter, to Dragerwerk Aktiengesellschaft. Valve arrangement of microstructured components. 5,065,978, Cl. 251-129.060.

Albean, David L.: *See—*
Doty, James H., II; Albean, David L.; and Blatter, Harold, 5,066,868, Cl. 307-262.000.

Albers, Stephen J.; Grimshaw, Michael N.; Peterson, David A.; Pugh, John H.; and Wisbey, Jerry D., to Cincinnati Milacron Inc. Method

VOL 1132 ISS 3 NO 19 1991 UMI

and apparatus for forming composite pieces from composite sheet material. 5,066,352, Cl. 156-265.000.

Albion Hat & Cap Company Pty., Ltd.: *See—*
Henson, Anthony E., 5,065,457, Cl. 2-2.000.

Alcatel Cable: *See—*
Dekeyser, Bernard; and Troude, Roland, 5,066,095, Cl. 385-99.000.

Alcon Laboratories, Inc.: *See—*
Wang, Carl C. T., 5,066,276, Cl. 604-51.000.

Alcotec Wire Company: *See—*
Anderson, Stephen L., 5,066,845, Cl. 219-119.000.

Aldinger, Fritz: *See—*
Gerdau, Thomas; Kleiner, Hans-Jerg; Peuckert, Marcellus; Bruck, Martin; and Aldinger, Fritz, 5,066,623, Cl. 501-97.000.

Alessio, David S., to Alrit Corporation. Electroluminescent lamp driver. 5,066,895, Cl. 315-226.000.

Alewelt, Wolfgang: *See—*
Russeler, Wolfgang; Idel, Karsten-Josef; Dorf, Ernst-Ulrich; Alewelt, Wolfgang; and Freitag, Dieter, 5,066,776, Cl. 528-388.000.

Alexander, Jose; and Higuchi, Takeru, deceased (by Kickinson, Martin B., Jr., executor), to Merck & Co., Inc. Pyroglutamic acid esters used as dermal penetration enhancers for drugs. 5,066,648, Cl. 514-174.000.

Alfred Teves GmbH: *See—*
Frigger, Heinz; and Blum, Klaus-Dieter, 5,066,073, Cl. 303-92.000.
Kornas, Christof, 5,065,790, Cl. 137-514.500.
Wupper, Hans, 5,066,074, Cl. 303-97.000.

Alfredson, Henry M. Hot and cold lunch box for automobile travel. 5,065,867, Cl. 206-542.000.

Alizon, Marc: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Allandrieu, Christian: *See—*
Gubelmann, Michel; Rochin, Christophew; and Allandrieu, Christian, 5,066,827, Cl. 560-163.000.

Allen, Ernest W. Instant sealing spray canister. 5,065,907, Cl. 222-183.000.

Allen, James A.: *See—*
Tabor, icky L.; and Allen, James A., 5,066,542, Cl. 428-461.000.

Allen, Rhandall A. Nocturnal rifle sight organization. 5,065,538, Cl. 42-103.000.

Allergan, Inc.: *See—*
Gluchowski, Charles, 5,066,664, Cl. 514-377.000.

Alletto, John S.; and Maurer, Maurice M., to Panduit Corp. Stretched strap cable tie tensioning and severing tool. 5,065,798, Cl. 140-123.600.

Allied-Signal Inc.: *See—*
—Levy, Alan B.; Sifniades, Stylianos; Kent, Lloyd C.; and Frollini, Dominick, Jr., 5,066,373, Cl. 204-153.210.
—McCown, Patricia M.; Conway, Timothy J.; and Jessen, Karl M., 5,067,099, Cl. 364-550.000.
—Tang, Reginald T.; Mares, Frank; Boyle, William J., Jr.; Chiu, Tin-Ho; and Patel, Kundan M., 5,066,772, Cl. 528-354.000.

Alimand Bros. Inc.: *See—*
Dahlgren, Douglas L., 5,067,065, Cl. 362-369.000.

Alps Electric Co., Ltd.: *See—*
Bannai, Hiroyuki; and Kato, Hironori, 5,066,239, Cl. 439-164.000.
Oyama, Minoru; and Furudate, Misturu, 5,067,050, Cl. 362-30.000.
Yamagata, Kazuyoshi; Kageyama, Masaaki; and Kaneko, Kyoichi, 5,066,842, Cl. 200-345.000.

Alrit Corporation: *See—*
Alessio, David S., 5,066,895, Cl. 315-226.000.

Altera Corporation: *See—*
Chan, Yiu-Fai; Hsiao, Chang-Chia; and Watson, James A., 5,066,873, Cl. 307-443.000.

Altmann, Joachim; Rose, Friedhelm; Schwartz, Roman; and Schmitt, Horst. Housing in particular for accommodating electrical equipment, with integrable hinges. 5,065,878, Cl. 220-3.800.

Aluminum Company of America: *See—*
Rioja, Roberto J.; Bowers, Joel A.; and James, R. Steve, 5,066,342, Cl. 148-12.70A.

Alusuisse-Lonza Services Ltd.: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,066,432, Cl. 264-28.000.

Alvarez, Robert J.; Martineau, Tom N.; and VanderBurgh, Steven D., to Mile High Equipment Company. Auger type ice flaking machine with enhanced heat transfer capacity evaporator/freezing section. 5,065,817, Cl. 165-153.000.

Amano, Hide: *See—*
Nishiyama, Shigeru; and Amano, Hide, 5,065,720, Cl. 123-363.000.

Amano, Tadayuki: *See—*
Nishikawa, Seigo; Okumura, Shinji; Amano, Tadayuki; and Hata, Kazutoshi, 5,066,848, Cl. 219-124.340.

Amano, Takashi: *See—*
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.

Amano, Yoshikazu: *See—*
Kawasaki, Kazuya; Tanaka, Mitsutoshi; Amano, Yoshikazu; and Katsuyama, Harumi, 5,066,462, Cl. 422-56.000.

Amante, Philip A., to Lucas Duralith Art Corporation. Method for modifying electrical performance characteristics of circuit paths on circuit panels. 5,065,502, Cl. 29-620.000.

Amato, Steven W.: *See—*
Castrogiovanni, Anthony; Sandewicz, Robert W.; and Amato, Steven W., 5,066,484, Cl. 424-61.000.

Ambassador College: *See—*
Schneid, Michael R.; and Prohs, John R., 5,067,149, Cl. 379-224.000.

Amemiya, Izumi: *See—*
Hamano, Hiroshi; Amemiya, Izumi; Yamamoto, Takuji; Arai, Yasunari; and Ihara, Takeshi, 5,066,877, Cl. 307-603.000.

America, William G.; and Poole, Richard R., to Perkin-Elmer Corporation, The. Boron nitride membrane in wafer structure and process of forming the same. 5,066,533, Cl. 428-156.000.

American Construction Products, Inc.: *See—*
Mason, Martin B., 5,065,561, Cl. 52-309.120.

American Cyanamid Company: *See—*
—Curran, William V., 5,066,799, Cl. 540-226.000.
—Ladyjensky, Jacques, 5,067,051, Cl. 362-34.000.
—Lees, Robert G.; and Lawler, Edward B., 5,066,307, Cl. 8-182.000.
—Miller, Edward E.; and Strydom, Peter J., 5,065,822, Cl. 166-295.000.

American Home Products Corporation: *See—*
Caufield, Craig E., 5,066,671, Cl. 514-453.000.
Sehgal, Surendra N.; and Vezina, Claude, 5,066,493, Cl. 424-122.000.

American Laundry Machinery, Inc.: *See—*
Gill, Sarupinderpal S.; and Mohan, Manohar, 5,065,535, Cl. 38-22.000.

American Sterilizer Company: *See—*
Gehly, Joel C.; Zolner, David; and Szumigala, James M., 5,067,064, Cl. 362-277.000.

American Tourister, Inc.: *See—*
Schmitt, Wayne I., 5,065,864, Cl. 206-278.000.

Americraft Corporation: *See—*
Bailey, Raymond J., 5,065,537, Cl. 40-618.000.

Ametek: *See—*
Legg, Warren F.; and Willis, Wilfred E., 5,066,531, Cl. 428-131.000.

Amey, Louis F. R., to McCord Winn Textron Inc. Method and machine for finishing commutators. 5,065,651, Cl. 82-1.110.

Amner, John A., to Ford Motor Company. Stowage tray. 5,065,920, Cl. 224-275.000.

Amoco Corporation: *See—*
—Matzner, Markus; and Layton, Richard, 5,066,767, Cl. 528-193.000.
—Miller, Jeffrey T.; and Shum, Victor K., 5,066,628, Cl. 502-66.000.

AMP Incorporated: *See—*
Brocksteeg, Johannes M., 5,066,236, Cl. 439-79.000.
Doye, Dennis L.; and Sneed, Michael R., 5,066,249, Cl. 439-585.000.
Henschen, Homer E.; McKee, Michael J.; and Pawlikowski, Joseph M., 5,065,501, Cl. 29-611.000.
Walker, Kevin E., 5,066,245, Cl. 439-526.000.

Amr, Yehia M.; Fallows, W. Joseph, III; and Hogan, Mark R., to Carrier Corporation. Fan orifice structure and cover for outside enclosure of an air conditioning system. 5,066,194, Cl. 415-223.000.

Ananth, Raju S.; and Verdone, Michael A., to Unisys Corp. Slider with boss. 5,067,037, Cl. 360-103.000.

Anderson, Edward G.: *See—*
Klassen, David J.; and Anderson, Edward G., 5,066,919, Cl. 324-538.000.

Anderson, Howard C.: *See—*
Peterson, William M.; Anderson, Howard C.; Leivian, Robert; and Garrison, Sidney C., 5,067,095, Cl. 395-24.000.

Anderson, J. Edward C.; and Jeromson, James R., Jr., to Milbar Corporation. Hand tool. 5,065,650, Cl. 81-486.000.

Anderson, Nestor A., to Champion International Corporation. Gable top carton with resealable pour spout. 5,065,938, Cl. 229-125.080.

Anderson, Stephen L., to Alcotec Wire Company. Resistance welding electrode coated with ceramic layer. 5,066,845, Cl. 219-119.000.

Ando, Akiro: *See—*
Tanemoto, Kei; Ando, Akiro; and Kubo, Hiroshi, 5,066,617, Cl. 501-134.000.

Ando, Hamae: *See—*
Nishida, Masamitsu; Ando, Hamae; and Kugimiya, Koichi, 5,065,946, Cl. 241-16.000.

Ando, Yasuo: *See—*
Goto, Narito; and Ando, Yasuo, 5,066,534, Cl. 428-212.000.

Andre, Olivier L. P.; and Scholten, Henricus P. H., to Shell Oil Company. Monoepoxide-polyol adducts and process for preparing the same. 5,066,763, Cl. 528-92.000.

Andreas Stihl: *See—*
Wehle, Anton; Hoppner, Klaus; and Weiss, Hermann, 5,065,708, Cl. 123-52.0MC.

Andreshak, Joseph C.; Datta, Madhav; Romankiw, Lubomyr T.; and Vega, Luis F., to International Business Machines Corporation. Apparatus, electrochemical process, and electrolyte for microfinishing stainless steel print bands. 5,066,370, Cl. 204-129.100.

Andrew Tool Company: *See—*
Dulebohn, David H., 5,065,516, Cl. 30-245.000.

Andrews, Paul N., to International Business Machines Corporation. Embedded tracing method for identifying program executed paths. 5,067,073, Cl. 395-375.000.

Angel, Maximilian; and Einwiller, Andreas, to BASF Aktiengesellschaft. Aqueous synthetic resin dispersions. 5,066,715, Cl. 524-812.000.

Angelini, Paolo: *See—*
Wijay, Bandula; and Angelini, Paolo, 5,066,282, Cl. 604-152.000.

Angell, Paul T.: *See—*
Anzeveno, Peter B.; Angell, Paul T.; and Creemer, Laura J., 5,066,807, Cl. 546-183.000.

Angelosanto, John P.; and Sgourakes, George E., to Foxboro Company, The. System for calibrating the span of pressure measuring instruments. 5,065,611, Cl. 73-4.00R.

Angenent, Johannes; and Cavailles, Jean A., to U.S. Philips Corp. Semiconductor device comprising a directional coupler for the TE and TM components. 5,066,086, Cl. 385-41.000.

Angio-Medical Corporation: *See—*
Szabo, Sandor; Rubin, Meryl S. A.; Klibaner, Michael; and Kamarei, Ahmed R., 5,066,496, Cl. 424-570.000.

Anselme, Christophe; and Daniel, Loic, to Lyonnaise Des Eaux-Dumez. Method of changing operating modes in automatic water filtering apparatus using tubular membranes. 5,066,402, Cl. 210-636.000.

Ansimag, Inc.: *See—*
Ooka, Kazuo, 5,066,200, Cl. 417-63.000.

Antenna Down Link, Inc.: *See—*
Blachley, Gerry B., 5,066,958, Cl. 343-756.000.

Antkowiak, Thomas A.: *See—*
Stayer, Mark L., Jr.; Antkowiak, Thomas A.; Lawson, David F.; and Koch, Russell W., 5,066,729, Cl. 525-315.000.

Antonevich, John M.; and Sundeen, John E., to Cummins Engine Company, Inc. Multiple waste isolation system. 5,066,600, Cl. 436-52.000.

Anzai, Katsuhiko, to Canon Kabushiki Kaisha. Recording apparatus with control of stored overlapping form data for two sided printing. 5,067,024, Cl. 358-296.000.

Anzawa, Norio; Adachi, Koji; Futakawa, Tetsuo; Sato, Hironari; and Narita, Akira, to Nippon Steel Corporation. Method and apparatus for burning liquid fuel. 5,066,219, Cl. 431-10.000.

Anzeveno, Peter B.; Angell, Paul T.; and Creemer, Laura J., to Merrell Dow Pharmaceuticals Inc. Process for the preparation of castanospermine. 5,066,807, Cl. 546-183.000.

Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, to Matsushita Electric Industrial Co., Ltd. Color separation optical system and method of manufacturing the same. 5,066,101, Cl. 359-638.000.

Aoki, Yumiko: *See—*
Sunahara, Kazuo; Ichimatsu, Tsuneo; and Aoki, Yumiko, 5,066,620, Cl. 501-21.000.

Aono, Toshiaki; Nakamura, Koichi; and Shibata, Takeshi, to Fuji Photo Film Co., Ltd. Photographic element. 5,066,563, Cl. 430-213.000.

Aoyama, Hiroshi: *See—*
Arai, Kunio; Nishiyama, Hiromi; Aoyama, Hiroshi; and Kanaya, Yasuhiko, 5,066,171, Cl. 408-1.00R.

Arai, Akihiro: *See—*
Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, 5,066,967, Cl. 354-149.110.

Arai, Kunio; Nishiyama, Hiromi; Aoyama, Hiroshi; and Kanaya, Yasuhiko, to Hitachi Seiko Ltd. Method for drilling a printed circuit board. 5,066,171, Cl. 408-1.00R.

Arai, Masumi: *See—*
Osada, Masahiko; Arai, Masumi; and Akita, Shigeyuki, 5,066,893, Cl. 315-169.300.

Arai, Nobuo: *See—*
Tsuchiya, Toshio; Abe, Mitsuo; Arai, Nobuo; Hisatomi, Masumi; and Zama, Hideo, 5,067,038, Cl. 360-107.000.

Arai, Yasunari: *See—*
Hamano, Hiroshi; Amemiya, Izumi; Yamamoto, Takuji; Arai, Yasunari; and Ihara, Takeshi, 5,066,877, Cl. 307-603.000.

Arai, Yasunori: *See—*
Minefuji, Nobutaka; and Arai, Yasunori, 5,066,987, Cl. 355-233.000.

Arakaki, Takeshi: *See—*
Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, 5,067,087, Cl. 364-474.240.

Araki, Takayuki: *See—*
Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, 5,066,747, Cl. 526-249.000.

Arato, Koji: *See—*
Sato, Takashi; Iwanabe, Yoji; Arato, Koji; Sakagami, Rokuro; and Yoneda, Yasuo, 5,065,809, Cl. 164-61.000.

Arcanum Corp.: *See—*
Huettenhain, Horst; Benz, August D.; and Getsoian, John, 5,066,310, Cl. 44-500.000.

Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., to Nabisco Brands, Inc. Process for making low sodium crackers and products obtained thereby. 5,066,499, Cl. 426-19.000.

ARCO Chemical Technology, Inc.: *See—*
Gupta, Vijai P., 5,066,742, Cl. 526-216.000.
Hanak, Pavel; Motte, Philippe; and Gosset, Patrice, 5,066,685, Cl. 521-163.000.

Ariga, Tadashi: *See—*
Sakaguchi, Shigeyuki; Ariga, Tadashi; and Maruyama, Hirotsugu, 5,065,727, Cl. 123-489.000.

Arjmand, Masud M., to Texas Instruments Incorporated. Linear predictive residual representation via non-iterative spectral reconstruction. 5,067,158, Cl. 381-51.000.

Armco Inc.: *See—*
Kilbane, Farrell M.; Coleman, Richard A.; Dunbar, Frank C.; and Gibson, Alan F., 5,066,549, Cl. 428-653.000.

Armstrong International, Inc.: *See—*
Deacon, Walter T.; and Vyve, Albert V., 5,065,785, Cl. 137-185.000.

Armstrong World Industries, Inc.: *See—*
Felter, Richard E.; Markley, Dean A.; and Musser, Deborah L., 5,066,422, Cl. 252-511.000.

Arnold, Jean-Claude; Cyprien, Guy; and Olivere, Jean-Francois, to Rhone-Poulenc Chimie. Fountain for the release of active agents into water drawn from wells. 5,066,468, Cl. 422-266.000.

Aronson, Michael P.: *See—*
Leighton, John C.; Iovine, Carmine P.; Aronson, Michael P.; and Elliott, David L., 5,066,749, Cl. 526-271.000.

Art Guild, Inc.: *See—*
Zegel, Douglas R.; Jensen, Gary S.; Hernick, Mark R.; and Daniels, Michael J., 5,065,559, Cl. 52-239.000.

Arthur, James D.; Sanderford, H. Britton, Jr.; Rouquette, Robert E.; and Davis, Robert J., to Axonn Corporation. Wireless alarm system. 5,067,136, Cl. 375-1.000.

Asahi Chemical Research Laboratory Co., Ltd.: *See—*
Isawa, Yamahiro; Morooka, Isao; and Oba, Yoichi, 5,066,692, Cl. 523-458.000.

Asahi Glass Company, Ltd.: *See—*
Hirano, Akira, 5,066,102, Cl. 359-630.000.
Sunahara, Kazuo; Ichimatsu, Tsuneo; and Aoki, Yumiko, 5,066,620, Cl. 501-21.000.

Asahi Kasei Kogyo Kabushiki Kaisha: *See—*
Miyazaki, Makoto; and Hiyoshi, Tatsuo, 5,066,682, Cl. 521-27.000.
Muto, Yoshihiko; Watanabe, Kohei; Yasukata, Koichi; and Sakurai, Tomoyuki, 5,066,397, Cl. 210-321.610.

Asahi Kogaku Kogyo K.K.: *See—*
Sugawara, Saburo, 5,066,115, Cl. 359-676.000.
Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, 5,066,967, Cl. 354-149.110.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See—*
Kawano, Kiyoshi, 5,066,966, Cl. 354-82.000.
Kawasaki, Masahiro, 5,066,969, Cl. 354-402.000.
Minefuji, Nobutaka; and Arai, Yasunori, 5,066,987, Cl. 355-233.000.
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, 5,066,968, Cl. 354-400.000.
Tanaka, Hitoshi; and Kosako, Kosei, 5,066,965, Cl. 354-64.000.

Asahi Seiko Kabushiki Kaisha: *See—*
Abe, Hiroshi, 5,066,262, Cl. 453-57.000.

Asakura, Eizo: *See—*
Yoshinaka, Minoru; Asakura, Eizo; Misaki, Toshihiro; Kitano, Motoi; and Yoshida, Hideyuki, 5,066,475, Cl. 423-622.000.

Asano, Hajime: *See—*
Miyao, Kouji; and Asano, Hajime, 5,067,070, Cl. 395-146.000.

Asano, Masamichi; Iwahashi, Hiroshi; and Yokoyama, Sadayuki, to Kabushiki Kaisha Toshiba. Semiconductor memory device having a majority logic for determining data to be read out. 5,067,111, Cl. 365-189.080.

Asbeck, Lutz S.; and Segers, Jacobus C., to Van den Bergh Foods Co., Division of Conopco, Inc. Dewaxing of dried oil. 5,066,504, Cl. 426-417.000.

ASEA Brown Boveri Ltd.: *See—*
Brandle, Hubert; Schultheis, Lothar; and Ruegg, Walter, 5,066,097, Cl. 385-76.000.

Ashikawa, Noboru: *See—*
Hamada, Tetsuro; Noro, Yoshiki; and Ashikawa, Noboru, 5,065,836, Cl. 180-245.000.

Ashmore, Sam C.: *See—*
Hodges, Hency C., Sr.; Hodges, Henry C., Jr.; Ashmore, Sam C.; and Piersol, Allan G., 5,065,618, Cl. 73-146.000.

Ashpitel, William G.; and Parsons, Ralph G. W., to British Petroleum Company, p.l.c., The. Gauge for measuring bending of structures. 5,065,631, Cl. 73-849.000.

AT&T Bell Laboratories: *See—*
—Azar, Kaveh, 5,067,047, Cl. 361-384.000.
—Basavanhally, Nagesh R., 5,065,933, Cl. 228-102.000.
—Brady, Michael F.; Dorey, John K., II; and Helms, Aubrey L., Jr., 5,066,615, Cl. 437-229.000.
—Denker, John S.; Howard, Richard E.; Jackel, Lawrence D.; and LeCun, Yann, 5,067,164, Cl. 382-15.000.
—Farel, Richard A.; and Gawande, Mohan, 5,067,074, Cl. 395-200.000.
—Fischer, Frederick H.; Lee, Kuo-hua; Nagy, William J.; and Selamoglu, Nur, 5,066,998, Cl. 357-51.000.
—Gordon, Alexander; and Vella-Coleiro, George P., 5,067,173, Cl. 359-152.000.
—Hollesen, David B.; Kaczorek, Joseph W.; and Treible, Edwin S., 5,065,692, Cl. 118-302.000.
—Krishnakumar, Anjur S.; Krishnamurthy, Bala; and Sabnani, Krishan K., 5,067,104, Cl. 395-375.000.
—Liu, Jay J.; and Wong, Y. H., 5,065,931, Cl. 228-19.000.
—Novembre, Anthony E., 5,066,566, Cl. 430-296.000.

Athanassoulias, Costa: *See—*
Lane, Christopher C.; Lenz, Ruben P.; and Athanassoulias, Costa, 5,066,335, Cl. 134-7.000.

Athans, George C.: *See—*
Athans, Leonidas; and Athans, George C., 5,066,035, Cl. 280-441.100.

Athans, Leonidas; and Athans, George C. Trailer bearing plate for fifth wheel. 5,066,035, Cl. 280-441.100.

Atlantic Richfield Company: *See—*
Bloys, James B.; and Wilton, Bonsall S., 5,065,820, Cl. 166-291.000.

Atmel Corporation: *See—*
Wu, Tsung-Ching; and Chern, Geeng-Chuan, 5,066,992, Cl. 357-23.500.

VOL 1132 ISS 3 NO 19 1991 UMI

Atochem: *See—*
Colombier, Christian, 5,066,734, Cl. 525-478.000.
Atsugi Unisia Corporation: *See—*
Kaneda, Ichiro; Yamamoto, Seiji; and Fujii, Natsuji, 5,066,075, Cl. 303-113.00R.
Atsumi, Kunio: *See—*
Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, 5,066,677, Cl. 514-563.000.
Audett, Jay D., to Exxon Chemical Patents Inc. Radiation-reactive phenylbutadiene multiblock copolymers. 5,066,728, Cl. 525-314.000.
Augurt, Thomas A., to Propper Manufacturing Company, Inc. Prevacuum steam sterilization test pack. 5,066,464, Cl. 422-58.000.
Aulabaugh, R. Michael. Trash bag holder. 5,065,965, Cl. 248-99.000.
Ausimont S.p.A.: *See—*
Braga, Vittorio; Manica, Michele; Martini, Emilio; and Milani, Federico, 5,066,700, Cl. 524-380.000.
Austin, Leslie W.: *See—*
Van Vooren, Charles R.; and Austin, Leslie W., 5,066,032, Cl. 280-304.100.
Australian National University, The: *See—*
Maddess, Teddy L., 5,065,767, Cl. 128-745.000.
Australian Wire Industries Pty. Limited: *See—*
Robertson, Malcolm A., 5,066,519, Cl. 429-349.000.
Austria Metall Aktiengesellschaft: *See—*
Garnweidner, Peter, 5,066,064, Cl. 296-146.000.
Automatic Switch Company: *See—*
Wiktor, Dominik M.; and Schlindwein, Siegfried, 5,066,840, Cl. 200-330.000.
Automatik Apparate-Maschinenbau GmbH: *See—*
Hunke, Friedrich, 5,066,210, Cl. 425-71.000.
Avis, Graham M.: *See—*
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.
AVL AG: *See—*
Skrabal, Falko, 5,066,283, Cl. 604-152.000.
Axis S.p.A.: *See—*
Luciano, Santandrea; and Massimo, Lombardi, 5,065,499, Cl. 29-799.000.
Axis, U.S.A., Inc.: *See—*
Luciani, Sabatino; and Lumini, Antonio, 5,065,503, Cl. 29-735.000.
Axonn Corporation: *See—*
Arthur, James D.; Sanderford, H. Britton, Jr.; Rouquette, Robert E.; and Davis, Robert J., 5,067,136, Cl. 375-1.000.
Axtell, Lloyd L., to Hyster Company. Compound pull cable operating lever. 5,065,643, Cl. 74-501.600.
Azar, Kaveh, to AT&T Bell Laboratories. Circuit pack with inboard jet cooling. 5,067,047, Cl. 361-384.000.
Azrak-Hamway International Inc.: *See—*
Driska, John J., 5,066,006, Cl. 273-1.50R.
Azuma Tekko Kabushiki Kaisha: *See—*
Shimada, Kazumi; and Chikazawa, Masaaki, 5,066,186, Cl. 414-221.000.
B. F. Goodrich Company, The: *See—*
Phillips, Ronald W., II, 5,066,446, Cl. 264-242.000.
Rhodes, Larry F., 5,066,740, Cl. 526-160.000.
Baach, Miachel K.: *See—*
Kroon, David H.; Goldsmith, Gary; Baach, Miachel K.; and Bushman, James B., 5,065,893, Cl. 220-565.000.
Baasner, Bernd; Beck, Gunther; Heitzer, Helmut; and Scaller, Klaus, to Bayer Aktiengesellschaft. 1-trifluoromethyl-1-nitro-2-alkoxy-2-arylethanes, their preparation and antimycotic agents containing them. 5,066,681, Cl. 514-716.000.
Baba, Yasuhiro; and Moritake, Masanori, to Nippon Electric Glass Co., Ltd. Crystallized glass article with colored small masses dispersed in a surface thereof. 5,066,524, Cl. 428-15.000.
Babb, David A.: *See—*
Clement, Katherine S.; Babb, David A.; and Ezzell, Bobby R., 5,066,746, Cl. 526-242.000.
Babcock & wilcox Co., The: *See—*
Carpenter, Steven P.; Cavinee, James C.; and Krannitz, James J., 5,065,472, Cl. 15-317.000.
Hancock, Jimmy W.; Kelly, Michael J.; Latham, Wayne M.; and Stinnett, Carlton E., 5,066,452, Cl. 376-252.000.
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., to Xerox Corporation. Low cost quiet impact printer. 5,066,150, Cl. 400-157.300.
Babuder, Gerald A.: *See—*
Weigl, Jeffrey L.; and Babuder, Gerald A., 5,066,051, Cl. 285-328.000.
Backus, Walter E.: *See—*
Bhatia, Kumar G.; Backus, Walter E.; and Hagelin, Jack S., 5,065,959, Cl. 244-54.000.
Bagchi, Pranab: *See—*
O'Connor, Kevin M.; Szajewski, Richard P.; and Bagchi, Pranab, 5,066,572, Cl. 430-503.000.
Bailey, John M., to Caterpillar Inc. Particulate trap regeneration apparatus and method. 5,065,574, Cl. 60-274.000.
Bailey, Raymond J., to Americraft Corporation. Changeable letter sign system. 5,065,537, Cl. 40-618.000.
Bailey, Terry R.: *See—*
Kult, Roger R.; Bailey, Terry R.; and Tolliver, Howard R., 5,066,098, Cl. 359-540.000.
Baird, William C., Jr.; and Swan, George A., to Exxon Research & Engineering Company. Reforming catalyst. 5,066,632, Cl. 502-223.000.
Baisch, Gabriele: *See—*
Francotte, Eric; and Baisch, Gabriele, 5,066,793, Cl. 536-50.000.
Baker, Christopher W.: *See—*
Hartman, Thomas G.; Manura, John J.; Overton, Santford V.; Baker, Christopher W.; and Manos, John N., 5,065,614, Cl. 73-23.350.
Baker Hughes Incorporated: *See—*
Kruger, Volker; and Panzke, Rolf, 5,065,826, Cl. 175-75.000.
Young, Terry G., 5,065,666, Cl. 91-518.000.
Baker, James C.; Kazecki, Henry L.; and Goode, Steven H., to Motorola, Inc. Coherent detector for QPSK modulation in a TDMA system. 5,067,139, Cl. 375-86.000.
Balakrishnan, Ramesh: *See—*
Taylor, Bruce S.; and Balakrishnan, Ramesh, 5,065,673, Cl. 100-40.000.
Balatin, Sergio E.: *See—*
Savino, Thomas G.; Balch, Thomas C.; Steinmetz, Alan J.; Balatin, Sergio E.; and Caiozzo, Nicholas, 5,066,732, Cl. 525-440.000.
Balavich, Nancy P., to Revlon, Inc. Composite containers. 5,065,875, Cl. 215-10.000.
Balch, Thomas C.: *See—*
Savino, Thomas G.; Balch, Thomas C.; Steinmetz, Alan J.; Balatin, Sergio E.; and Caiozzo, Nicholas, 5,066,732, Cl. 525-440.000.
Balda, Raymond J.: *See—*
Zdebel, Peter J.; Balda, Raymond J.; Hwang, Bor-Yuan; and Wagner, Allen J., 5,067,002, Cl. 357-59.000.
Baldacci, Massimo: *See—*
Caccia, Giulio; and Baldacci, Massimo, 5,066,676, Cl. 514-562.000.
Baldwin, Jack E., to Lilly Industries Limited. Process for preparing cepham intermediates. 5,066,797, Cl. 540-215.000.
Ballard Medical Products: *See—*
—Jensen, Billy M., 5,065,754, Cl. 128-200.260.
Ballentine, Richard E.; and Harris, Joseph W., to J. W. Harris Co., Inc. Phosphorous copper based alloy with tin and antimony. 5,066,456, Cl. 420-472.000.
Ban, Hitoshi: *See—*
Nagai, Katsumi; Nishimyou, Teruyuki; Osawa, Masataka; and Ban, Hitoshi, 5,066,201, Cl. 417-222.00R.
Ban, Shigeru: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.
Banerjee, Sanjay K., to Texas Instruments Incorporated. Method of making a trench DRAM cell with dynamic gain. 5,066,607, Cl. 437-52.000.
Bannai, Hiroyuki; and Kato, Hironori, to Alps Electric Co., Ltd. Clock spring. 5,066,239, Cl. 439-164.000.
Banno, Yoshikazu: *See—*
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.
Banon, Louis. Permanent magnet polyphase synchronous machine. 5,066,880, Cl. 310-156.000.
Barb, Lewis E.: *See—*
Chapman, Richard L.; and Barb, Lewis E., 5,065,488, Cl. 29-278.000.
Barber, Duane G.: *See—*
Meyer, Richard C.; and Barber, Duane G., 5,066,135, Cl. 366-208.000.
Bardasz, Ewa A., to Union Camp Corporation. Terpinene-maleic anhydride adduct derivatives as corrosion inhibitors. 5,066,461, Cl. 422-16.000.
Bardin, Christian; Pignard, Guy; Boulet, Jean; and Morin, Pierre, to Institut Francais du Petrole. Method and device for remote-controlling drill string equipment by a sequence of information. 5,065,825, Cl. 175-38.000.
Barens, Ivor. Variable ratio transmission. 5,065,638, Cl. 74-351.000.
Bares, Steven J., to Hewlett-Packard Company. Method and apparatus for measuring the print quality of print media receiving ink jet inks. 5,065,620, Cl. 73-159.000.
Barett, David M.: *See—*
Barrett, David M.; and Brown, Timothy J., 5,065,805, Cl. 160-23.100.
Barito, Mary O.: *See—*
Barito, Robert W.; and Barito, Mary O., 5,066,437, Cl. 264-46.500.
Barito, Robert W.; and Barito, Mary O. Method for insulating thermal devices. 5,066,437, Cl. 264-46.500.
Bark, Jeffrey E.; Hillegass, Donald V.; and Woodruff, Eric J., to Medical Engineering Corporation. Self-sealing tissue expander and method. 5,066,303, Cl. 623-8.000.
Barkley & Dexter Laboratories: *See—*
Moran, James M., 5,066,937, Cl. 336-84.00C.
Baroid Technology, Inc.: *See—*
Egbert, Gary L.; and Ziegler III, Philip L., 5,066,059, Cl. 294-82.160.
Read, Shannon R., 5,066,052, Cl. 285-334.000.
Baron, Carl N.; Merkel, Stephen L.; and Hall, Robert C., to Nordson Corporation. Apparatus for compensating for non-linear flow characteristics in dispensing a coating material. 5,065,695, Cl. 118-688.000.
Barrett, David M.; and Brown, Timothy J., to Barett, David M. Display enclosure and segmented flexible closure therefor. 5,065,805, Cl. 160-23.100.

Barrett, David M. Brake-disc-rotor attacher impeller (intersecting-/locker). 5,065,848, Cl. 192-1.360.
Barry, Donald J.: *See—*
Huber, Charles D.; and Barry, Donald J., 5,066,529, Cl. 428-40.000.
Bartlett, John R.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Bartlett, Robert L.: *See—*
Legler, John G.; Bartlett, Robert L.; and Flora, David D., 5,065,652, Cl. 83-168.000.
Bartley, Harold D.; and Gaiser, William R., to Broadway Companies, Inc. Blow-molded bottle with bi-axially stretched skirt. 5,066,081, Cl. 215-1.00C.
Basavanhally, Nagesh R., to AT&T Bell Laboratories. Electronic device manipulating apparatus and method. 5,065,933, Cl. 228-102.000.
BASF Aktiengesellschaft: *See—*
Angel, Maximilian; and Einwiller, Andreas, 5,066,715, Cl. 524-812.000.
Hansen, Guenter; Lamm, Gunther; and Loeffler, Hermann, 5,066,791, Cl. 534-772.000.
Helwig, Reinhard; and Hoch, Helmut, 5,066,820, Cl. 522-249.000.
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, 5,066,673, Cl. 514-521.000.
BASF Corporation: *See—*
Yeh, Ling; Harrelson, Hugh G.; and Coons, Andrew M., III, 5,066,308, Cl. 8-403.000.
BASF Corporation, Inmont Division: *See—*
Savino, Thomas G.; Balch, Thomas C.; Steinmetz, Alan J.; Balatin, Sergio E.; and Caiozzo, Nicholas, 5,066,732, Cl. 525-440.000.
BASF Lacke & Farben AG: *See—*
Hille, Hans-Dieter; and Dobbelstein, Arnold, 5,066,759, Cl. 528-60.000.
Basile, Carlo; Cavallerano, Alan P.; and Tsinberg, Mikhail, to North American Philips Corporation. Method and apparatus for demodulating chrominance signals using a training signal in place of a color burst signal. 5,067,011, Cl. 358-23.000.
Bass, Joseph D.; and Steinhilber, Leroy H. Boat propeller guard. 5,066,254, Cl. 440-72.000.
Bassett, John A., to Computer Products, Inc. DC/DC converter switching at zero voltage. 5,066,900, Cl. 323-224.000.
Bathemes, Pete: *See—*
Liston, Jack L.; Pipella, Michael; and Bathemes, Pete, 5,066,405, Cl. 210-693.000.
Baton Labs, Inc.: *See—*
Betton, Arnold L.; and Hirzel, Edgar A., 5,066,905, Cl. 324-133.000.
Battelle Memorial Institute: *See—*
—Bunnell, Lee R., Sr., 5,065,948, Cl. 241-199.500.
Baughman, Milo. Containerized retractable/expandable sleeping compartment for vehicles. 5,066,065, Cl. 296-165.000.
Bauman, Randall L.: *See—*
Greenberg, William M.; and Bauman, Randall L., 5,065,696, Cl. 118-718.000.
Baumann, Jurgen: *See—*
Konig, Gert; and Baumann, Jurgen, 5,066,624, Cl. 501-107.000.
Baumann, Karl, to CL Pharma Aktiengesellschaft. 3,5-dimethyl-4-methoxypyridine derivatives. 5,066,810, Cl. 546-300.000.
Baumbach, Thorkild O. Method and means for connecting a branch conduit to an existing conduit. 5,065,780, Cl. 137-15.000.
Baumert, Dietrich: *See—*
Buhmann, Ulrich; Joppien, Hartmut; and Baumert, Dietrich, 5,066,675, Cl. 514-544.000.
Baverische Motoren Werke AG: *See—*
Kindermann, Siegfried; Gyory, Emil; and Heiland, Hans, 5,066,041, Cl. 280-772.000.
Baxi, Indra R.; and Erikson, Erik E., to Encore Molding Systems, Inc. Injection molding apparatus. 5,066,214, Cl. 425-190.000.
Baxter, Dennis E.; and Stoneham, Jeffrey R., to Eastman Kodak Company. Film cassette with film exposure status indicator. 5,065,952, Cl. 242-71.100.
Baxter International Inc.: *See—*
Measells, Paul E.; Johnston, William D.; Kwong, Peter C.; Laurin, Dean G.; and Czuba, Leonard F., 5,066,290, Cl. 604-408.000.
Bayer Aktiengesellschaft: *See—*
Baasner, Bernd; Beck, Gunther; Heitzer, Helmut; and Scaller, Klaus, 5,066,681, Cl. 514-716.000.
Dorf, Ernst-Ulrich; Reinking, Klaus; Jakob, Wolfgang; Tresper, Erhard; and Russeler, Wolfgang, 5,066,775, Cl. 528-388.000.
Eichenauer, Herbert; Wittmann, Dieter; Schmidt, Adolf; and Ott, Karl-Heinz, 5,066,717, Cl. 525-67.000.
Kohler, Burkhard; and Meyer, Rolf-Volker, 5,066,781, Cl. 528-481.000.
Pitzer, Ulrike; Franz, Gerhard; and Laubach, Benno, 5,066,473, Cl. 423-344.000.
Russeler, Wolfgang; Idel, Karsten-Josef; Dorf, Ernst-Ulrich; Alewelt, Wolfgang; and Freitag, Dieter, 5,066,776, Cl. 528-388.000.
Wehnert, Wolfgang; Reinking, Klaus; Bier, Peter; Kraft, Klaus; and Tresper, Erhard, 5,066,704, Cl. 524-449.000.
Bayerische Motoren Werke Aktiengesellschaft: *See—*
Dangl, Wolfgang; Schick, Gerald; Nowack, Reinhard; and Reuber, Gerhard, 5,066,040, Cl. 280-756.000.
Hantsch, Hartmut; Thoma, Peter; and Mahalek, Josef, 5,067,076, Cl. 395-275.000.
Bea-Bar Enterprises Ltd.: *See—*
McLean, John A. B., 5,065,969, Cl. 248-282.000.
Beaver, Richard N.: *See—*
Byrd, Carl E.; Kelly, Stephen L.; and Beaver, Richard N., 5,066,380, Cl. 204-290.00R.
Becher, Frank, to Lts Lohmann Therapie-Systeme GmbH & Co. KG. Transdermal therapeutic system. 5,066,494, Cl. 424-448.000.
Bechtel Group, Inc : *See—*
Huettenhain, Horst; Benz, August D.; and Getsoian, John, 5,066,310, Cl. 44-500.000.
Beck, Gunther: *See—*
Baasner, Bernd; Beck, Gunther; Heitzer, Helmut; and Scaller, Klaus, 5,066,681, Cl. 514-716.000.
Becker, Bernard, to Siemens Aktiengesellschaft. Fitting for joining at least one hybrid burner to apparatus for supplying a fluid fuel. 5,066,221, Cl. 431-280.000.
Beckman Instruments, Inc.: *See—*
Meyer, Richard C.; and Barber, Duane G., 5,066,135, Cl. 366-208.000.
Becraft, Lloyd G., to Conoco Inc. Manufacture of isotropic coke. 5,066,385, Cl. 208-131.000.
Becton Dickinson and Company: *See—*
Lee, Linda, 5,066,580, Cl. 435-721.000.
Mersch, Steve H.; Spielvogel, David E.; and Daugherty, Charles W., 5,066,284, Cl. 604-168.000.
Beecham Group p.l.c.: *See—*
Dorgan, Roderick J.; and Macaulay, Graham S., 5,066,670, Cl. 514-450.000.
Driver, Michael J.; Greenlees, Alexander R.; and MacPherson, David T., 5,066,646, Cl. 514-31.000.
Kincey, Peter M., 5,066,805, Cl. 544-277.000.
Begemann, Malcolm J. S.; de Vries, Bernhard; and van der Veen, Johannes S., to Vitatron Medical B.V. Pacemaker with optimized rate responsiveness and method of rate control. 5,065,759, Cl. 128-419.0PG.
Behr, R. Douglas, to DowBrands Inc. Process and apparatus for reducing color contamination in the process recycle of zippered thermoplastic bags. 5,066,444, Cl. 264-171.000.
Bekum Maschinenfabriken GmbH: *See—*
Roos, Uwe-Volker; and Gittner, Franz, 5,066,222, Cl. 432-5.000.
Belikan, Thomas; and Krauss, Werner, to Richard Wolf GmbH. Ultrasonic wave coupler for locating transducer in a lithotriptic apparatus. 5,065,742, Cl. 128-24.0EL.
Bell, Lon E.: *See—*
Gunning, Kevin J.; Gallup, David F.; and Bell, Lon E., 5,066,837, Cl. 200-61.45R.
Bell, Malcolm R.: *See—*
D'Ambra, Thomas E.; and Bell, Malcolm R., 5,066,803, Cl. 544-101.000.
Bellingham, Godfrey, to Bellingham Medical, Inc. Quick use suture package. 5,066,299, Cl. 606-213.000.
Bellingham Medical, Inc.: *See—*
Bellingham, Godfrey, 5,066,299, Cl. 606-213.000.
Beloit Corporation: *See—*
Skaugen, Borgeir; and Wedel, Gregory L., 5,065,529, Cl. 34-117.000.
Beltran, Adrian M.; and Kreischer, Charles H., to General Electric Company. Advanced high-temperature brazing alloys. 5,066,459, Cl. 420-58.800.
Bemis, Claude: *See—*
Castrigno, Steven; Rafferty, Scott E.; Nichols, Lawrence R.; and Bemis, Claude, 5,066,037, Cl. 280-732.000.
Bemis, Peter F.: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.
Bender, Franz: *See—*
Panten, Detlef; Hertweck, Gernot; and Bender, Franz, 5,065,719, Cl. 123-339.000.
Bendix Atlantic Inflator Company: *See—*
Frantom, Richard L.; Pickett, David A.; Rogerson, William E.; Rose, James; and Schubert, Robert, 5,066,038, Cl. 200-737.000.
Benecke, Wolfgang, to Fraunhofer Gesellschaft zur Forderung der angewandten Forschung e.V. Instrument for measuring accelerations and process of making the same. 5,065,628, Cl. 73-517.00R.
Benjamin, Gary H., to Cooper Tire and Rubber Company. Building drum for a tire belt-tread stock package. 5,066,354, Cl. 156-414.000.
Bennett, Harold R.: *See—*
Emery, Kenneth R.; Bennett, Harold R.; and Clark, Jack, 5,066,516, Cl. 427-118.000.
Benz, August D.: *See—*
Huettenhain, Horst; Benz, August D.; and Getsoian, John, 5,066,310, Cl. 44-500.000.
Beran, Anthony V., to Respiratory Support Products, Inc. Temperature measurement. 5,066,140, Cl. 374-134.000.
Berchenko, Vladimir M.: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.
Bercu, Barry B., to University of South Florida. Method for improving the accuracy of diagnosis of growth hormone deficiency. 5,065,747, Cl. 128-630.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Bercu, Barry B., to University of South Florida. Method of diagnosing growth hormone disorders employing somatostatin and growth hormone releasing hormone. 5,065,748, Cl. 128-630.000.

Bergen, James R.; Burt, Peter J.; Hingorani, Rajesh; and Peleg, Shmuel, to David Sarnoff Research Center, Inc. Three-frame technique for analyzing two motions in successive image frames dynamically. 5,067,014, Cl. 358-105.000.

Berger, Scott B., to Cornell Research Foundation, Inc. Apparatus and method for rotating of three-dimensional images. 5,067,167, Cl. 382-46.000.

Berges, Hanns-Peter; Fischer, Berthold; Mueller, Peter; and Vorberg, Dieter, to Leybold Aktiengesellschaft. Method and apparatus for delivering oil to a multi-stage pump. 5,066,202, Cl. 417-228.000.

Bergomi, Maria P.: *See—*
Gemert, Barry V.; and Bergomi, Maria P., 5,066,818, Cl. 549-389.000.

Berkeley, Arnold D.; Bernstein, Alec; and Carney, Daniel C., to Berkeley, Arnold D. Interactive electronic thermostat with installation assistance. 5,065,813, Cl. 165-1.000.

Bernhard, Jean-Francois, to Bron Elektronik AG. Method and apparatus for measuring the flash duration of a flash unit. 5,066,121, Cl. 356-218.000.

Bernstein, Alec: *See—*
Berkeley, Arnold D.; Bernstein, Alec; and Carney, Daniel C., 5,065,813, Cl. 165-1.000.

Bernstein, Philip: *See—*
Kamen, Melvin E.; and Bernstein, Philip, 5,066,486, Cl. 424-63.000.

Bernstein, Steven: *See—*
Speiser, Robert D.; Bernstein, Steven; Miller, Charles N.; and Shearer, Dane, 5,065,549, Cl. 51-288.000.

Berryer, Michel, to Outboard Marine Corporation. Tool bit. 5,066,170, Cl. 407-54.000.

Bertenshaw, David R.; Williamson, Richard; and Wright, John, to Strand Lighting Limited. Electric lighting and power controllers therefor. 5,066,896, Cl. 315-291.000.

Bertin, Patrice; and Pankowiak, Christian, to Valeo. Actuator for a servo controlled clutch with lubricating mechanism. 5,065,850, Cl. 192-90.000.

Bertrand, Patrick, to Essilor International, Cie Generale d'Optique. Optical device for phase detection testing optical systems, especially ophthalmic lenses. 5,066,119, Cl. 356-124.000.

Bertrand, Patrick, to Essilor International, Cie Generale d'Optique. Optical device for phase detection testing optical system, especially ophthalmic lenses. 5,066,120, Cl. 356-124.000.

Betrabet, Hemant S.; Boser, Otmar H.; Kane, Robert H.; McGee, Susan; and Caulfield, Thomas, to U.S. Philips Corporation. Dispersion strengthened lead-tin alloy solder. 5,066,544, Cl. 428-614.000.

Betton, Arnold L.; and Hirzel, Edgar A., to Baton Labs, Inc. Battery cable assembly with in-line switch. 5,066,905, Cl. 324-133.000.

Betts, Colin: *See—*
Heppenstall, Neil G.; Betts, Colin; and Ford, James, 5,066,453, Cl. 376-352.000.

Beutler Heating and Air Conditioning, Inc.: *See—*
Wylie, Calvin R.; and Crites, Patrick H., 5,065,585, Cl. 62-89.000.

Bey, Philippe; and Kolb, H. Michael, to Merrell Dow Pharmaceuticals Inc. Difluoroglutamic acid conjugates with folates and anti-folates for the treatment of neoplastic diseases. 5,066,828, Cl. 560-171.000.

Bhandari, Pradeep; and Fujita, Toshio, to United States of America, National Aeronautics and Space Administration. Thermal power transfer system using applied potential difference to sustain operating pressure difference. 5,066,337, Cl. 136-202.000.

Bhatia, Kumar G.; Backus, Walter E.; and Hagelin, Jack S., to Boeing Company, The. Vibration damping aircraft engine attachment. 5,065,959, Cl. 244-54.000.

Bialas, Joachim: *See—*
Greil, Andreas; and Bialas, Joachim, 5,066,089, Cl. 385-35.000.

Bianco, James S.; Madsen, James T.; Ceppetelli, Michael; and Fahy, John S., to Control Module Inc. Method and means to limit access to computer systems. 5,067,155, Cl. 380-25.000.

BICC plc.: *See—*
Davey, Rodney J.; Handley, Graham R.; and Ward-Smith, Alfred J., 5,065,928, Cl. 226-7.000.

Bielsteiner Verschlusstechnik GmbH: *See—*
Rosenthal, Karl-Heinz, 5,065,912, Cl. 222-517.000.

Bier, Peter: *See—*
Wehnert, Wolfgang; Reinking, Klaus; Bier, Peter; Kraft, Klaus; and Tresper, Erhard, 5,066,704, Cl. 524-449.000.

Billing, Robert, to Questech Limited. Error-correction of stored television signals. 5,067,133, Cl. 371-53.000.

Billingsley, Henry C.: *See—*
Broughton, George L.; Binversie, Gregory B.; and Billingsley, Henry C., 5,065,723, Cl. 123-413.000.

Bindomatic AB: *See—*
Tholerus, Jan, 5,066,183, Cl. 412-4.000.

Bindon, Glyn A. J., to Trijicon, Inc. Iron sight with illuminated pattern. 5,065,519, Cl. 33-241.000.

Binney & Smith Inc.: *See—*
Kowtko, Robert M.; and Mellwig, Richard A., 5,066,216, Cl. 425-562.000.

Binversie, Gregory B.: *See—*
Broughton, George L.; Binversie, Gregory B.; and Billingsley, Henry C., 5,065,723, Cl. 123-413.000.

Biochemie Gesellschaft m.b.H.: *See—*
Prager, Bernhard C., 5,066,798, Cl. 540-225.000.

Biomedic S.r.l.: *See—*
Negri, Febo R.; and Tomasini, Ercole, 5,066,232, Cl. 433-224.000.

Bissell, Robert D.; and Ortyl, Nicholas E., III, to Dresser Industries, Inc. Method of calibrating mechanical pressure gauges. 5,067,100, Cl. 364-571.010.

Blachley, Gerry B., to Antenna Down Link, Inc. Dual frequency coaxial feed assembly. 5,066,958, Cl. 343-756.000.

Black & Decker Inc.: *See—*
Krasznai, Charles Z.; and Kosten, Richard B., 5,065,473, Cl. 15-339.000.

Blake, Kenneth J.: *See—*
Kennedy, Francis A.; Neff, John P.; and Blake, Kenneth J., 5,066,440, Cl. 264-69.000.

Blakkan, John A., to Tandem Computers Incorporated. One out of N checking apparatus and method. 5,067,132, Cl. 371-52.000.

Blanchard, Frederick W.; and Moore, Thomas J., to SSI Medical Services, Inc. Apparatus for transferring a patient between patient support surfaces. 5,065,464, Cl. 5-81.00R.

Blanco, Agustin R.: *See—*
Cornelissen, Roger E.; Haubach, Claus C. F.; and Blanco, Agustin R., 5,065,868, Cl. 206-494.000.

Blaser, Hans-Ulrich; Jalett, Hans-Peter; and Sedelmeier, Gottfried, to Ciba-Geigy Corporation. Preparation of sulfonic acid esters. 5,066,801, Cl. 540-523.000.

Blatter, Harold: *See—*
Doty, James H., II; Albean, David L.; and Blatter, Harold, 5,066,868, Cl. 307-262.000.

Bliss, Eric M.; and Wunder, William G., Sr., to Nabisco Brands, Inc. Material feed control assembly in a rotary press. 5,066,211, Cl. 425-122.000.

Block, Michael S.; and Hoffman, David R., to Oasis Implants Incorporated. Orthodontic anchor. 5,066,224, Cl. 433-7.000.

Blount, Inc.: *See—*
Smith, Randy L., 5,066,174, Cl. 408-79.000.

Bloys, James B.; and Wilton, Bonsall S., to Atlantic Richfield Company. Control of lost circulation in wells. 5,065,820, Cl. 166-291.000.

Bluff Manufacturing, Inc.: *See—*
Sherrod, Danny G., 5,065,468, Cl. 14-72.500.

Blum, Klaus-Dieter: *See—*
Frigger, Heinz; and Blum, Klaus-Dieter, 5,066,073, Cl. 303-92.000.

Board of Regents University of Texas: *See—*
Saunders, Grady F.; and Mars, Wendy M., 5,066,792, Cl. 536-27.000.

Board of Trustees Operating Michigan State University: *See—*
Putnam, Alan R.; Mishra, Saroj K.; and Nair, Muraleedharan G., 5,066,585, Cl. 424-121.000.

Boatsman, W. Harley, to Gibraltar World International, Ltd. Prefabricated modular building construction system. 5,065,558, Cl. 52-239.000.

Bob's Space Racers, Inc.: *See—*
Dobson, Michael J., 5,066,014, Cl. 273-110.000.

Bobsein, Rex L.: *See—*
Geibel, Jon F.; Bobsein, Rex L.; and Yelton, Harold D., 5,066,774, Cl. 528-388.000.

Bobst SA: *See—*
Yerly, Marcel, 5,065,926, Cl. 225-93.000.

Bodenheimr, Joseph S.: *See—*
Schweitzer, Naftali; Bodenheimr, Joseph S.; and David, Gerald B., 5,066,950, Cl. 340-937.000.

Bodenseewerk Perkin Elmer GmbH: *See—*
Tamm, Rolf; Rodel, Gunther; and Stengele, Erich, 5,066,123, Cl. 356-312.000.
Wulf, Jurgen, 5,066,124, Cl. 356-312.000.

Boehringer Ingelheim International GmbH: *See—*
Reutelingsperger, Christian M., 5,066,788, Cl. 530-381.000.
Reutelingsperger, Christian P. M., 5,066,787, Cl. 530-380.000.

Boeing Company, The: *See—*
Bhatia, Kumar G.; Backus, Walter E.; and Hagelin, Jack S., 5,065,959, Cl. 244-54.000.
Knoll, Frederick L., 5,066,351, Cl. 156-212.000.
Lubowitz, Hyman R.; Sheppard, Clyde H.; and Stephenson, Ronald R., 5,066,541, Cl. 428-378.000.

Bogel, Gerhard, to Stadler AG. Attachment element with large washer. 5,066,181, Cl. 411-383.000.

Boger, Bentley J.; and Jenkins, Thomas C., to Nordson Corporation. Nozzle cap for an adhesive dispenser. 5,065,943, Cl. 239-298.000.

Bombas Auriferas & Equipos Mineros B.A.E M., C.A.: *See—*
Travanti Corinti, Mariano; and Nepi Campitelli, Giovanni, 5,066,193, Cl. 415-201.000.

Bommer, Jerry C.; and Burnham, Bruce F., to Nippon Petrochemicals Company, Ltd. Tetrapyrrole therapeutic agents. 5,066,274, Cl. 604-20.000.

Bonfiglio, Joseph W.: *See—*
Harrold, William J.; Sansone, Joseph A.; Bonfiglio, Joseph W.; and Kim, Seung K., 5,066,891, Cl. 315-8.000.

Bontempo, Donald T. Swimming pool leak detector. 5,065,690, Cl. 116-264.000.

Boothe, Bobby L.; and Godsey, Edward P., to Chesapeake Packaging Company. Sharps container and blank. 5,065,939, Cl. 229-151.000.

Borkenhagen, John M.; Schmierer, Quentin; and Geer, Charles P., to International Business Machines Corporation. System and method for automatically configuring translation of logical addresses to a physical memory address in a computer memory system. 5,067,105, Cl. 395-400.000.

Bortnick, Newman M.; Wanat, Robert A.; and Degrafft, Darnel, to Rohm and Haas Company. Polymers stabilized against light and heat degradation. 5,066,696, Cl. 524-91.000.

Boschelli, Diane H.; Connor, David T.; Flynn, Daniel L.; Sircar, Jagadish C.; and Hoefle, Milton L., to Warner-Lambert Co. Triazole derivatives of fenamates as antiinflammatory agents. 5,066,668, Cl. 514-384.000.

Boser, Otmar H.: *See—*
Betrabet, Hemant S.; Boser, Otmar H.; Kane, Robert H.; McGee, Susan; and Caulfield, Thomas, 5,066,544, Cl. 428-614.000.

Boss, Barbara D.: *See—*
Patrick, James W.; Heinemann, Stephen F.; Boss, Barbara D.; and Cowan, W. Maxwell, 5,066,593, Cl. 435-240.270.

Boston Scientific Corporation: *See—*
de Toledo, Fernando A., 5,065,769, Cl. 128-772.000.

Boston University, Trustees of: *See—*
Szabo, Sandor; Rubin, Meryl S. A.; Klibaner, Michael; and Kamarei, Ahmed R., 5,066,496, Cl. 424-570.000.

Bouchard, Andre C.; Lagushenko, Radomir; and Maya, Jakob, to GTE Products Corporation. Glow discharge lamp with incandescent filament. 5,066,892, Cl. 315-46.000.

Boulet, Jean: *See—*
Bardin, Christian; Pignard, Guy; Boulet, Jean; and Morin, Pierre, 5,065,825, Cl. 175-38.000.

Bourdo, John L., to Durashore, Inc. Retaining wall employing fiberglass panels for preventing erosion of a shoreline and method for fabricating the same. 5,066,353, Cl. 156-300.000.

Bourgeois, Norman R.; and Robichaux, Bradley A., to Metal Fusion, Inc. Convertible burner apparatus. 5,065,735, Cl. 126-40.000.

Bouse, James R.: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.

Boutet, John C.; and Unruh, Gary R., to Eastman Kodak Company; and Lumisys. Storage phosphor cassette assembly. 5,065,866, Cl. 206-455.000.

Bowers, Joel A.: *See—*
Rioja, Roberto J.; Bowers, Joel A.; and James, R. Steve, 5,066,342, Cl. 148-12.70A.

Bowman, Wayne A.: *See—*
Osterhoudt, Hans W.; Ponticello, Ignazio S.; Christy, Kenneth G., Jr.; Bowman, Wayne A.; and Eikenberry, Jon N., 5,066,376, Cl. 204-182.800.

Boyle, William J., Jr.: *See—*
Tang, Reginald T.; Mares, Frank; Boyle, William J., Jr.; Chiu, Tin-Ho; and Patel, Kundan M., 5,066,772, Cl. 528-354.000.

Bozetto, Jean-Claude: *See—*
Schuppiser, Jean-Luc; Coutant, Antoine; and Bozetto, Jean-Claude, 5,066,508, Cl. 426-584.000.

BP Chemicals Limited: *See—*
Dumain, Andre; Engel, Jean; and Havas, Laszlo, 5,066,736, Cl. 526-82.000.

BPS Systems, Inc.: *See—*
Takken, Paul E.; Scheckel, Robert G.; and Peo, Steven D., 5,065,469, Cl. 15-89.000.

Bracco Industria Chemica S.p.A.: *See—*
Felder, Ernest; Musu, Carlo; Fumagalli, Luciano; and Uggeri, Fulvio, 5,066,823, Cl. 560-13.000.

Bradley, Edward C.: *See—*
Paradise, Carolyn M.; and Bradley, Edward C., 5,066,489, Cl. 424-85.200.

Brady, David L. Cue ball scratch indicator. 5,066,009, Cl. 273-14.000.

Brady, Michael F.; Dorey, John K., II; and Helms, Aubrey L., Jr., to AT&T Bell Laboratories. Photolithographic processes using thin coatings of refractory metal silicon nitrides as antireflection layers. 5,066,615, Cl. 437-229.000.

Braga, Vittorio; Manica, Michele; Martini, Emilio; and Milani, Federico, to Ausimont S.p.A. Plastoelastomeric polyolefinic compositions and process for preparing them according to dynamic vulcanizable methods. 5,066,700, Cl. 524-380.000.

Braithwaite, Philip W., to Technosystem Limited. Syringes. 5,066,280, Cl. 604-110.000.

Brandenstein, Manfred; and Olschewski, Armin, to SKF GmbH. Means for mounting a bearing ring. 5,066,147, Cl. 384-585.000.

Brandle, Hubert; Schultheis, Lothar; and Ruegg, Walter, to ASEA Brown Boveri Ltd. Connector for an optical cable. 5,066,097, Cl. 385-76.000.

Brandner, Gerhard; and Hoebel, Peter, to Siemens Aktiengesellschaft. Stimulable phosphor radiation image storage screen having an antireflection layer. 5,066,864, Cl. 250-484.100.

Brane, Douglas K.: *See—*
Brane, Earl P.; and Brane, Douglas K., 5,065,901, Cl. 222-20.000.

Brane, Earl P.; and Brane, Douglas K. Apparatus for monitoring a flow of fluid through a filter medium. 5,065,901, Cl. 222-20.000.

Braun, Rainer: *See—*
Riedisser, Gunter; and Braun, Rainer, 5,065,636, Cl. 74-40.000.

Braun, Stephen A.; O'Neill, Michael J.; and Cutshall, Donald L., to Deere & Company. Mower deck height adjustment mechanism. 5,065,568, Cl. 56-14.900.

Brazeau, Paul: *See—*
Cohen, Eric A.; Gaudreau, Pierrette; Michaud, Jacques; Brazeau, Paul; and Langelier, Yves, 5,066,783, Cl. 530-328.000.

Breeden, Robert L.; Johnson, Richard E.; Kabcenell, Amy R.; and Holmes, Thomas F., to Motorola, Inc. Sending different identifiers to selected receivers, to represent the same source. 5,066,949, Cl. 340-825.440.

Brett, William A.; and Zaun, Richard D., to Deere & Company. Cushioned wheel assembly for a sprayer. 5,066,030, Cl. 280-92.000.

Breyer, Karl-Hermann, to Carl-Zeiss-Stiftung. Probing device for a coordinate measuring apparatus. 5,065,526, Cl. 33-702.000.

Bridgestone Corporation: *See—*
Hamada, Tatsuro; Fukuoka, Hiromi; Komatsu, Hideki; and Fujimaki, Tatsuo, 5,066,721, Cl. 525-102.000.
Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hideharu; and Kawagoe, Takahiro, 5,066,556, Cl. 429-194.000.

Bridgestone/Firestone, Inc.: *See—*
Stayer, Mark L., Jr.; Antkowiak, Thomas A.; Lawson, David F.; and Koch, Russell W., 5,066,729, Cl. 525-315.000.

Brienza, Michael J., to United Technologies Corporation. Extended length embedded Bragg grating manufacturing method and arrangement. 5,066,133, Cl. 359-570.000.

Brieva, Hernando; Jose, Natividad; and Tietjen, Marlene, to Revlon, Inc. Cosmetic compositions comprising oil-in-water emulsion containing pigment. 5,066,485, Cl. 424-63.000.

Briggs, Charles R.; and Neefe, Charles W. Method of making toric contact lenses. 5,066,431, Cl. 264-2.100.

Brighton, Jack E. Fluid flow indicator. 5,065,691, Cl. 116-274.000.

Brill, Edwin W., Jr.: *See—*
Przybylowicz, Catherine S.; Brill, Edwin W., Jr.; and Carrozziere, Luigi A., 5,067,093, Cl. 364-498.000.

Brimeyer, Dennis A.: *See—*
Rudolph, Leroy, Jr.; and Brimeyer, Dennis A., 5,065,646, Cl. 76-101.100.

Brisson, Pierre, to SGS Thomson Microelectronics SA. System for reserving a supply of goods or services. 5,066,853, Cl. 235-381.000.

Bristol-Myers Company: *See—*
Ohnuma, Takeshi; Hoshi, Hideaki; Kamei, Hideo; and Naito, Takayuki, 5,066,645, Cl. 514-27.000.

British Aerospace Public Limited Company: *See—*
Combridge, Brian L.; Robson, David; and Timson, Daniel R. E., 5,067,015, Cl. 358-133.000.

British Petroleum Company, p.l.c., The: *See—*
Ashpitel, William G.; and Parsons, Ralph G. W., 5,065,631, Cl. 73-849.000.

Brixner, Diana I.: *See—*
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.

Broadway Companies, Inc.: *See—*
Bartley, Harold D.; and Gaiser, William R., 5,066,081, Cl. 215-1.00C.

Brock, Andrew J.: *See—*
Pasqualoni, Anthony M.; Mahulikar, Deepak; Jalota, Satish K.; and Brock, Andrew J., 5,066,368, Cl. 204-58.000.

Brody, Thomas P. Modular flat-screen television displays and modules and circuit drives therefor. 5,067,021, Cl. 358-241.000.

Broeksteeg, Johannes M., to AMP Incorporated. Impedance matched backplane connector. 5,066,236, Cl. 439-79.000.

Broken Hill Proprietary Company Limited, The: *See—*
Lukey, Christopher A.; Maitra, Ashit M.; and Tyler, Ralph J., 5,066,629, Cl. 502-84.000.

Bron Elektronik AG: *See—*
Bernhard, Jean-Francois, 5,066,121, Cl. 356-218.000.

Brook, Alan R. Tree guard mat. 5,065,543, Cl. 47-25.000.

Brother Kogyo Kabushiki Kaisha: *See—*
Hayashi, Kazutoshi, 5,065,683, Cl. 112-292.000.
Kuwabara, Satoru, 5,066,973, Cl. 355-27.000.
Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, 5,066,152, Cl. 400-621.000.
Nagata, Osamu; and Makino, Kazumasa, 5,066,972, Cl. 355-27.000.
Nakata, Takashi; and Suzuki, Tauyoshi, 5,066,974, Cl. 355-71.000.
Yamanashi, Motoaki, 5,066,985, Cl. 355-326.000.

Broughton, George L.; Binversie, Gregory B.; and Billingsley, Henry C., to Outboard Marine Corporation. Marine propulsion device with spark timing and fuel supply control mechanism. 5,065,723, Cl. 123-413.000.

Broughton, Timothy C. Ski binding. 5,066,036, Cl. 280-615.000.

Brown, Edward A.; Haxell, John P. N.; and Wilson, Derek E., to Coates Electrographics Limited. Low corrosion hot melt ink. 5,066,332, Cl. 106-31.000.

Brown, John H., Jr. Attachment to a portable power planar. 5,066,177, Cl. 409-178.000.

Brown, Timothy J.: *See—*
Barrett, David M.; and Brown, Timothy J., 5,065,805, Cl. 160-23.100.

Bruck, Martin: *See—*
Gerdau, Thomas; Kleiner, Hans-Jerg; Peuckert, Marcellus; Bruck, Martin; and Aldinger, Fritz, 5,066,623, Cl. 501-97.000.

Bruggink, Bradley J.: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.

Brumby, John A., to Ace Conveyor Equipment Limited. Conveyor belt scraper. 5,065,859, Cl. 198-499.000.

Brun-Vezinet, Francoise: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Bryant, Paul T.; Weller, Joseph F.; and Goldberg, Lew, to United States of America, Navy. Bi-directional optical transmission system for RF electrical energy. 5,066,148, Cl. 385-24.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Buchan, Alexander: *See—*
Skinner, Gordon R. B.; and Buchan, Alexander, 5,066,492, Cl. 424-89.000.

Buckman Laboratories International, Inc.: *See—*
Pera, John D.; Hickman, Loel L.; and Conoway, Lawrence S., 5,066,334, Cl. 106-462.000.

Buckshaw, Dennis J.; and Clark, James A. Corner bumper. 5,065,972, Cl. 248-345.100.

Buerli, Richard, to Minnesota Mining and Manufacturing Company. Optical fault finder using matched and clipping filters. 5,066,118, Cl. 356-73.100.

Buhmann, Ulrich; Joppien, Hartmut; and Baumert, Dietrich, to Schering Aktiengesellschaft. Substituted phenyl acid esters, their preparation and their use as insecticides and acaricides. 5,066,675, Cl. 514-544.000.

Buhr, Gerhard: *See—*
Merrem, Hans-Joachim; Buhr, Gerhard; and Lenz, Ruediger, 5,066,567, Cl. 430-325.000.

Bulat, Emel S.; and Devlin, Brian T., to GTE Laboratories Incorporated. Method of manufacturing static induction transistors. 5,066,603, Cl. 437-29.000.

Bullis, Stephen J.; Duke, Steven R.; Cozzy, Thomas W.; and Rossier, Glenn E., to General Electric Company. Firing mechanism for revolving battery gun. 5,065,662, Cl. 89-12.000.

Bullock, Donald F., to General Electric Company. Coaxial current sensors. 5,066,904, Cl. 324-127.000.

Bulter Manufacturing Company: *See—*
Evers, David E.; and Milburn, Charles A., 5,065,649, Cl. 81-458.000.

Bunka Shutter Co., Ltd.: *See—*
Kondoh, Kohichi, 5,065,806, Cl. 160-36.000.

Bunnell, Lee R., Sr., to Battelle Memorial Institute. Apparatus for producing thin flakes. 5,065,948, Cl. 241-199.500.

Burgel, Johannes; and Lamarche, Jean L., to I F M Electronic GmbH. Analog to digital converter with reference voltage control and analog style display. 5,066,954, Cl. 341-158.000.

Burnham, Bruce F.: *See—*
Bommer, Jerry C.; and Burnham, Bruce F., 5,066,274, Cl. 604-20.000.

Burt, Peter J.: *See—*
Bergen, James R.; Burt, Peter J.; Hingorani, Rajesh; and Peleg, Shmuel, 5,067,014, Cl. 358-105.000.

Burtner, Lee W.; and Chizmar, David A., to Westinghouse Electric Corp. Apparatus and method for inspecting an item having grooves machined therein. 5,065,635, Cl. 73-866.500.

Busak + Luyken GmbH & Co.: *See—*
Edlund, Roy, 5,066,027, Cl. 277-165.000.

Busato, Murray F.: *See—*
Cook, John E.; and Busato, Murray F., 5,065,575, Cl. 60-290.000.

Busch, Rainer; and Malina, Ludek, to Maschinenfabrik Rieter AG. Thread tube. 5,065,951, Cl. 242-46.210.

Bush, David E., to Bush, David E. Apparatus for loading and unloading open top railroad cars. 5,066,188, Cl. 414-339.000.

Bushman, James B.: *See—*
Kroon, David H.; Goldsmith, Gary; Baach, Miachel K.; and Bushman, James B., 5,065,893, Cl. 220-565.000.

Butina, Darko: *See—*
Oxford, Alexander W.; Coates, Ian H.; and Butina, Darko, 5,066,660, Cl. 514-323.000.

Buttery, Howard J.: *See—*
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., 5,066,419, Cl. 252-174.110.

Butts, Richard E.; and Davis, John C., to Xerox Corporation. Sheet inverter and stacking apparatus. 5,065,997, Cl. 271-187.000.

B.V. Interlad: *See—*
Longstaff, Eric, 5,066,082, Cl. 359-361.000.

Byczynski, Dean G.; and Reed, William A., to U-Line Corporation. Hot gas bypass defrosting system. 5,065,584, Cl. 62-81.000.

Byles, Michael N., to Guilford Mills, Inc. Textile fabric with opposed absorbent and non-absorbent layers and method of fabricating same. 5,065,600, Cl. 66-193.000.

Byrd, Carl E.; Kelly, Stephen L.; and Beaver, Richard N., to Dow Chemical Company, The. Electrocatalytic cathodes and method of preparation. 5,066,380, Cl. 204-290.00R.

C. M. Offray & Son, Inc.: *See—*
Lee, Richard P.; Ley, Joseph F.; and Mortensen, John A., 5,066,363, Cl. 162-100.000.

Caccia, Giulio; and Baldacci, Massimo, to Laboratori Baldacci SpA. Sulfonamido derivative inhibiting the aldose reductase enzyme system and pharmaceutical compositions containing them. 5,066,676, Cl. 514-562.000.

Cadigan, Lloyd. Swimming pool safety ladder. 5,065,840, Cl. 182-93.000.

Caiozzo, Nicholas: *See—*
Savino, Thomas G.; Balch, Thomas C.; Steinmetz, Alan J.; Balatin, Sergio E.; and Caiozzo, Nicholas, 5,066,732, Cl. 525-440.000.

Cajon Company: *See—*
Weigl, Jeffrey L.; and Babuder, Gerald A., 5,066,051, Cl. 285-328.000.

Cambon, Aime : *See—*
Sismondi, Alain; Abenin, Parfait; and Cambon, Aime , 5,066,672, Cl. 514-513.000.

Cameron, Donald M.: *See—*
Akam, Nigel J.; Cameron, Donald M.; Halliday, David K.; and Paterson, Raymond, 5,065,858, Cl. 198-493.000.

Campagnolo Srl: *See—*
Romano, Antonio, 5,066,264, Cl. 474-152.000.

Campbell, Ian B.: *See—*
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.

Campbell, Richard E., Jr., to Dow Chemical Company, The. Process for preparation of syndiotactic vinyl aromatic polymers. 5,066,741, Cl. 526-171.000.

Campbell, Timothy J.: *See—*
Farfaglia, Leonard T., deceased; Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., 5,065,597, Cl. 62-262.000.

Canadian Marconi Co.: *See—*
Lu, Zhuo-Jun, 5,066,128, Cl. 356-349.000.

Candela Laser Corporation: *See—*
Furumoto, Horace, 5,066,293, Cl. 606-9.000.

Canon Kabushiki Kaisha: *See—*
Anzai, Katsuhiko, 5,067,024, Cl. 358-296.000.
Fukuda, Tsuguhiro; Nakagomi, Hiroshi; and Karita, Seiichirou, 5,066,964, Cl. 346-140.00R.
Goto, Masahiro; Inoue, Takahiro; Kato, Junichi; and Kobayashi, Tatsuya, 5,066,979, Cl. 355-208.000.
Hikake, Norio; and Kitamori, Naoto, 5,066,558, Cl. 430-109.000.
Ishii, Satoshi; Tsukiji, Masaaki; Nishimura, Tetsuharu; and Ishizuka, Koh, 5,067,089, Cl. 364-486.000.
Ishii, Yoshiki; and Shimokoriyama, Makoto, 5,067,010, Cl. 358-13.000.
Iwata, Mikio; Kariya, Takao; and Ohtsuka, Masaru, 5,066,131, Cl. 356-401.000.
Kanda, Shigeto, 5,067,118, Cl. 369-44.270.
Kaneko, Yoshiyuki, 5,066,948, Cl. 340-825.690.
Kanno, Hideo; Inoue, Hiroshi; and Mizutome, Atsushi, 5,066,945, Cl. 340-784.000.
Kataoka, Kenichi; Nishimoto, Yoshifumi; Igaki, Masahiko; and Yanagi, Eiichi, 5,065,999, Cl. 271-265.000.
Kimura, Isao; and Hasegawa, Kenji, 5,066,963, Cl. 346-140.00R.
Kodaira, Takanori, 5,066,971, Cl. 354-465.000.
Koike, Atsushi, 5,065,698, Cl. 118-719.000.
Makino, Jun; and Tateoka, Masamichi, 5,066,083, Cl. 359-213.000.
Matsumura, Isao, 5,066,117, Cl. 351-226.000.
Miyake, Nobuyuki, 5,066,988, Cl. 355-245.000.
Omata, Satoshi; Shimizu, Hiroshi; and Yamaguchi, Yoko, 5,067,160, Cl. 382-1.000.
Sasaki, Shosuke; and Kitano, Yasuyuki, 5,065,583, Cl. 62-51.300.
Tsuchida, Shinji, 5,067,125, Cl. 370-79.000.
Tsukiji, Masaaki; Nishimura, Tetsuharu; Ishizuka, Koh; Ishii, Satoshi; and Kubota, Yoichi, 5,066,130, Cl. 356-356.000.
Wakui, Tetsuya, 5,067,033, Cl. 360-70.000.
Yoneda, Kou; and Sawada, Takeshi, 5,065,500, Cl. 29-603.000.
Yoshinaga, Kazuo; Keneko, Shuzo; Kai, Takashi; Isaka, Kazuo; and Ohnishi, Toshikazu, 5,066,107, Cl. 359-45.000.
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.

Cardey, Dale L.: *See—*
Cowan, Louis G.; and Cardey, Dale L., 5,065,654, Cl. 83-255.000.

Cargill, Incorporated: *See—*
Evans, Jeffrey C., 5,066,501, Cl. 426-74.000.
Schmidt, Roger A.; and Swenson, Bryan R., 5,066,690, Cl. 523-423.000.

Carl-Zeiss-Stiftung: *See—*
Breyer, Karl-Hermann, 5,065,526, Cl. 33-702.000.

Carl-Zeiss-Stiftung, Heidenheim/Brenz: *See—*
Szenger, Franz, 5,065,525, Cl. 33-702.000.

Carlstedt, Richard A.: *See—*
Fong, Ding-Huei R.; and Carlstedt, Richard A., 5,065,874, Cl. 213-31.000.

Carmichael, Kathleen M.: *See—*
Robinette, Susan; Lynch, Anita P.; Hoffend, Thomas R.; Grabowski, Edward F.; and Carmichael, Kathleen M., 5,066,557, Cl. 430-58.000.

Carney, Daniel C.: *See—*
Berkeley, Arnold D.; Bernstein, Alec; and Carney, Daniel C., 5,065,813, Cl. 165-1.000.

Carpenter, Steven P.; Cavinee, James C.; and Krannitz, James J., to Babcock & wilcox Co., The. Spring loaded brake assembly for indexing sootblower. 5,065,472, Cl. 15-317.000.

Carpenter Technology Corporation: *See—*
Harner, Leslie L.; and Frantz, Earl L., 5,066,886, Cl. 313-404.000.
Wanner, Edward A.; and Widge, Sunil, 5,066,458, Cl. 420-586.000.

Carr, Larrey, to Heiden, Gene, a part interest. Car towing apparatus with surge brake. 5,066,034, Cl. 280-428.000.

Carr, Roy D.: *See—*
Sessions, Robert W.; and Carr, Roy D., 5,065,752, Cl. 128-156.000.

Carrell, Michael W.; and Gericke, Stephen H., to Safe Medical Devices, Inc. Protective system for safe disposition of a hypodermic syringe device. 5,066,277, Cl. 604-110.000.

Carrier Corporation: *See—*
Amr, Yehia M.; Fallows, W. Joseph, III; and Hogan, Mark R., 5,066,194, Cl. 415-223.000.
Etemad, Shahrokh; and Fraser, Howard H., Jr., 5,065,550, Cl. 51-317.000.
Shapiro-Baruch, Ian, 5,065,586, Cl. 62-93.000.
Shaw, David N., 5,065,591, Cl. 62-175.000.

Carrozziere, Luigi A.: *See—*
Przybylowicz, Catherine S.; Brill, Edwin W., Jr.; and Carrozziere, Luigi A., 5,067,093, Cl. 364-498.000.

Carter, William R.: *See—*
Ellis, Larry G.; and Carter, William R., 5,065,961, Cl. 244-137.400.

Casey, Jeremiah P.; Lucas, Peter A.; and Vratsanos, Menas S., to Air Products and Chemicals, Inc. Sterically hindered ditertiary butyl bridged di(cyclohexylamines). 5,066,764, Cl. 528-122.000.

Casey, Robert G. Removable or fixed inner ring device for trash receptacle liners. 5,065,891, Cl. 220-404.000.

Casey, William J., III: *See—*
Lawson, Jerry W.; and Casey, William J., III, 5,065,776, Cl. 131-365.000.

Casio Computer Co., Ltd.: *See—*
Uchiyama, Shigeru; and Murata, Yoshiyuki, 5,065,659, Cl. 84-723.000.

Casper, Stephen L., to Micron Technology, Inc. Resistor under wirebond pad. 5,066,999, Cl. 357-51.000.

Cassella Aktiengesellschaft: *See—*
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,066,745, Cl. 526-240.000.

Cassidy, Patrick E.: *See—*
Wada, Keiichiro; Cassidy, Patrick E.; and Hager, William S., 5,066,765, Cl. 528-185.000.

Castellucci, Nicholas T., to Northrop Corporation. Gap filler for advanced aircraft to reduce radar detectability. 5,065,960, Cl. 244-131.000.

Castolin S.A.: *See—*
Steine, Hans-Theo; and Wasserman, Christopher, 5,066,523, Cl. 427-423.000.

Castrigno, Steven; Rafferty, Scott E.; Nichols, Lawrence R.; and Bemis, Claude, to Davidson Textron Inc. Instrument panel with airbag deployment door. 5,066,037, Cl. 280-732.000.

Castrogiovanni, Anthony; Sandewicz, Robert W.; and Amato, Steven W., to Revlen, Inc. Nail enamels containing glyceryl, glycol or citrate esters. 5,066,484, Cl. 424-61.000.

Catanese, John A., to Westinghouse Electric Corp. Ferrous metal detector for detecting a broken mandrel in a cold pilgering operation. 5,066,913, Cl. 324-226.000.

Caterpillar Inc.: *See—*
Bailey, John M., 5,065,574, Cl. 60-274.000.

Caufield, Craig E., to American Home Products Corporation. Ellagic acid derivatives as phospholipase A_2 inhibitors. 5,066,671, Cl. 514-453.000.

Caulfield, Thomas: *See—*
Betrabet, Hemant S.; Boser, Otmar H.; Kane, Robert H.; McGee, Susan; and Caulfield, Thomas, 5,066,544, Cl. 428-614.000.

Cavailles, Jean A.: *See—*
Angenent, Johannes; and Cavailles, Jean A., 5,066,086, Cl. 385-41.000.

Cavallerano, Alan P.: *See—*
Basile, Carlo; Cavallerano, Alan P.; and Tsinberg, Mikhail, 5,067,011, Cl. 358-23.000.

Cavinee, James C.: *See—*
Carpenter, Steven P.; Cavinee, James C.; and Krannitz, James J., 5,065,472, Cl. 15-317.000.

CEM Corporation: *See—*
Revesz, Robert N., 5,066,843, Cl. 219-10.55R.

Center for Innovative Technology: *See—*
Glasser, Wolfgang G.; De Oliveira, Willer; Kelley, Stephen S.; and Nieh, Li S., 5,066,790, Cl. 530-502.000.

Center, John L.; Mills, William C., Jr.; and Plaskett, John R., to Frito-Lay, Inc. Method and apparatus for closing bottom end flaps of a carton. 5,066,269, Cl. 493-183.000.

Centercore, Inc.: *See—*
Mitchell, George; and Pelosi, Michael H., III, 5,065,668, Cl. 98-31.500.

Central Glass Company, Limited: *See—*
Nakamachi, Fumihiko; and Umebayashi, Masanori, 5,066,525, Cl. 428-29.000.

Centre International de Recherches Dermatologiques dite CIRD: *See—*
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, 5,066,427, Cl. 260-413.000.

Ceppetelli, Michael: *See—*
Bianco, James S.; Madsen, James T.; Ceppetelli, Michael; and Fahy, John S., 5,067,155, Cl. 380-25.000.

Cerdonio, Massimo; and Vitale, Stefano, to AERITALIA -Societa Aerospaziale Italiana S.p.A. Gyromagnetic-effect cryogenic gyroscope for detecting angular velocity. 5,066,637, Cl. 501-1.000.

Cerprobe Corporation: *See—*
Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., 5,066,907, Cl. 324-158.00P.

Cetus Corporation: *See—*
Gyllensten, Ulf B.; and Erlich, Henry A., 5,066,584, Cl. 435-91.000.
Paradise, Carolyn M.; and Bradley, Edward C., 5,066,489, Cl. 424-85.200.

Chalmer, Paul D. Fuel products from wast materials. 5,066,311, Cl. 44-535.000.

Chamaret, Solange: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Champagne, John M., to Sundstrand Corporation. Hydrodynamic bearing protection system and method. 5,066,197, Cl. 417-18.000.

Champion International Corporation: *See—*
Anderson, Nestor A., 5,065,938, Cl. 229-125.080.

Chan, Huan-Yin. Multi-deck type of rotary shoe rack. 5,065,871, Cl. 211-37.000.

Chan, Ting Y., to Texaco Inc. Liquid degasser in an ebullated bed process. 5,066,467, Cl. 422-140.000.

Chan, Yiu-Fai; Hsiao, Chang-Chia; and Watson, James A., to Altera Corporation. Integrated circuits with reduced switching noise. 5,066,873, Cl. 307-443.000.

Chance, Richard F.: *See—*
Hadcock, Richard N.; Chipman, Richard R.; Horn, Michael; and Chance, Richard F., 5,065,630, Cl. 73-802.000.

Chang, Chan-Ting: *See—*
Liu, Ru-Shi; Wang, Wang-Nang; and Chang, Chan-Ting, 5,066,636, Cl. 505-1.000.

Chang, Maw-Guay. Multiple-purpose fecal examination apparatus. 5,066,463, Cl. 422-56.000.

Chang, Nienyuan J., to Procter & Gamble Co., The. Stable biodegradable fabric softening compositions containing linear alkoxylated alcohols. 5,066,414, Cl. 252-8.800.

Chantry, Peter J.: *See—*
Davies, David K.; Chantry, Peter J.; and Goutzoulis, Anastasios P., 5,066,088, Cl. 385-25.000.

Chapman, Leland D.: *See—*
Whitehead, James L.; and Chapman, Leland D., 5,065,758, Cl. 128-402.000.

Chapman, Lloyd R.: *See—*
Holcombe, Cressie E., Jr.; and Chapman, Lloyd R., 5,066,330, Cl. 106-287.340.

Chapman, Michael W.; Mears, Dana C.; and Edwards, Charles C., to Pfizer Hopsital Products Group, Inc. Apparatus for treating a fracture. 5,066,296, Cl. 606-64.000.

Chapman, Richard L.; and Barb, Lewis E. Tandem axle trailer pin extracter device. 5,065,488, Cl. 29-278.000.

Charles Stark Draper Laboratory, Inc., The: *See—*
Hansberry, Mitchell L., 5,065,684, Cl. 112-311.000.

Charng, Cedric S. K., to China Wiper Special Rubber Co., Ltd. Multiple position adapter for mounting wiper-blade assembly on wiper arm. 5,065,474, Cl. 15-250.320.

Chaudhuri, Ratan K.; Haldar, Rama K.; and Gangadharan, Balgopal, to GAF Chemicals Corporation. Bioadhesive composition. 5,066,709, Cl. 524-516.000.

Cheah, Chun-Foong; and Skovmand, Timothy J., to National Semiconductor Corporation. Transient protected isolator output stage. 5,066,901, Cl. 323-267.000.

Chee, Paula P.: *See—*
Jones, Lawrence D.; Frey, Paul T.; Gleason, David D.; Chee, Paula P.; and Slightom, Jerry L., 5,066,587, Cl. 435-172.100.

Cheetham, Eric, to Phoenix Environmental, Ltd. Method and apparatus for making solid waste material environmentally safe using heat. 5,065,680, Cl. 110-342.000.

Chen, Chenson K.; and Tsaur, Bor-Yeu, to Massachusetts Institute of Technology. Capping technique for zone-melting recrystallization of insulated semiconductor films. 5,066,610, Cl. 437-83.000.

Chen, Shieh-Shung T.; and Doss, George, to Merck & Co., Inc. Process for preparation of novel angiotensin II antagonists. 5,066,586, Cl. 435-119.000.

Chern, Geeng-Chuan: *See—*
Wu, Tsung-Ching; and Chern, Geeng-Chuan, 5,066,992, Cl. 357-23.500.

Cherukuri, Subraman R.; Raman, Kirschna P.; Wong, Lucy L.; Manaukhani, Gul; and Orama, Angel, to Warner-Lambert Company. Method for preparing pulverized polydextrose which is substantially free of acids and compositions containing same. 5,066,511, Cl. 426-658.000.

Chesapeake Packaging Company: *See—*
Boothe, Bobby L.; and Godsey, Edward P., 5,065,939, Cl. 229-151.000.

Chestnut, Benjamin F.: *See—*
Smith, John W.; and Chestnut, Benjamin F., 5,066,838, Cl. 200-61.890.

Cheung, Steven D., to Union Carbide Industrial Gases Technology Corporation. Gas flow distribution system. 5,065,794, Cl. 137-883.000.

Chevallier, Yvonick, to Rhone-Poulenc Specialites Chimiques. Production of silica colloids. 5,066,420, Cl. 252-313.200.

Chevron Research and Technology Co.: *See—*
Marcantonio, Paul J., 5,066,469, Cl. 423-150.000.

Chiang, Bin Y.: *See—*
Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., 5,066,499, Cl. 426-19.000.

Chiang, Chieh-Tseng. Structure of isometric ellipse scale. 5,065,523, Cl. 33-562.000.

Chida, Jun, to Fujitsu Limited. Voltage-mode quasi-resonant dc/dc converter. 5,067,066, Cl. 363-16.000.

Chiesi Farmaceutici S.p.A.: *See—*
Chiesi, Paolo; Servadio, Vittorino; and Razzetti, Roberta, 5,066,652, Cl. 514-235.800.

Chiesi, Paolo; Servadio, Vittorino; and Razzetti, Roberta, to Chiesi Farmaceutici S.p.A. Thiomethyl and sulfinylmethyl derivatives having gastric acid antisectetory activity and pharmaceutical compositions containing them. 5,066,652, Cl. 514-235.800.

Chikazawa, Masaaki: *See—*
Shimada, Kazumi; and Chikazawa, Masaaki, 5,066,186, Cl. 414-221.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Chilvers, David: *See—*
Davies, Anthony R.; Downward, Steven J.; and Chilvers, David, 5,065,784, Cl. 137-116.000.
China Wiper Special Rubber Co., Ltd.: *See—*
Charng, Cedric S. K., 5,065,474, Cl. 15-250.320.
Chinon Kabushiki Kaisha: *See—*
Ogura, Wataru; and Kamijima, Hiroshi, 5,067,028, Cl. 358-494.000.
Chiou, Herng-Der, to Motorola, Inc. Method for producing semiconductor devices having bulk defects therein. 5,066,359, Cl. 156-651.000.
Chipman, Richard R.: *See—*
Hadcock, Richard N.; Chipman, Richard R.; Horn, Michael, and Chance, Richard F., 5,065,630, Cl. 73-802.000.
Chiron Corporation: *See—*
Hallewell, Robert A.; and Mullenbach, Guy T., 5,066,591, Cl. 435-189.000.
Chiu, Bernard, to Duracraft Corporation. Portable humidifier. 5,067,169, Cl. 392-406.000.
Chiu, Tin-Ho: *See—*
Tang, Reginald T.; Mares, Frank; Boyle, William J., Jr.; Chiu, Tin-Ho; and Patel, Kundan M., 5,066,772, Cl. 528-354.000.
Chizmar, David A.: *See—*
Burtner, Lee W.; and Chizmar, David A., 5,065,635, Cl. 73-866.500.
Chlebina, Larry E.; Majerus, Norbert; Rambacher, John S.; and Felder, Stephen L., to Goodyear Tire & Rubber Company, The. Tread removal method and apparatus. 5,066,448, Cl. 264-334.000.
Cho, Byung W.: *See—*
Yun, Kyung S.; and Cho, Byung W., 5,066,369, Cl. 204-74.000.
Choi, Jung-Hyuk, to SamSung Electronics Co., Ltd. Structure and method for manufacturing a series read only memory with spacer film. 5,067,001, Cl. 357-54.000.
Choi, Su-han: *See—*
Kim, Seong-tae; Choi, Su-han; and Ko, Jae-hong, 5,066,608, Cl. 437-52.000.
Chollet, Jean-Louis, to Etablissements Marius Millet & Cie. One-piece container with a pouring tube, made from a thermoplastic material. 5,065,914, Cl. 222-529.000.
Christie, Wesley D., to Milliken Research Corporation. Fabric patterning process and product. 5,066,535, Cl. 428-196.000.
Christy, Kenneth G., Jr.: *See—*
Osterhoudt, Hans W.; Ponticello, Ignazio S.; Christy, Kenneth G., Jr.; Bowman, Wayne A.; and Eikenberry, Jon N., 5,066,376, Cl. 204-182.800.
Chun, Byoung E.; Chun, Nam H.; and Chun, Woo S. Film case holder for pocket camera. 5,065,918, Cl. 224-191.000.
Chun, Nam H.: *See—*
Chun, Byoung E.; Chun, Nam H.; and Chun, Woo S., 5,065,918, Cl. 224-191.000.
Chun, Woo S.: *See—*
Chun, Byoung E.; Chun, Nam H.; and Chun, Woo S., 5,065,918, Cl. 224-191.000.
Chung, Ding Y.; Debroy, Tapan K.; and Tjoe, Sioe-Heng A., to Du Pont de Nemours, E. I., and Company. Cathodic electrodeposition coatings containing a reactive additive. 5,066,688, Cl. 523-415.000.
Chung, In S.; and Lee, Dai H., to Hyundai Electronics Industries Co., Ltd. Method for manufacturing a semiconductor device utilizing a self-aligned contact process. 5,066,604, Cl. 437-44.000.
Ciba Corning Diagnostics Corp.: *See—*
Weetall, Howard H., 5,066,372, Cl. 204-153.100.
Ciba-Geigy Corporation: *See—*
Blaser, Hans-Ulrich; Jalett, Hans-Peter; and Sedelmeier, Gottfried, 5,066,801, Cl. 540-523.000.
Cseh, Georg; Lienhard, Paul; and Wiedemann, Walter, 5,066,695, Cl. 524-87.000.
Ehrenfreund, Josef; and Stamm, Erich, 5,066,667, Cl. 514-381.000.
Francotte, Eric; and Baisch, Gabriele, 5,066,793, Cl. 536-50.000.
Kunz, Walter; Schurter, Rolf; and Nyfeler, Robert, 5,066,661, Cl. 514-361.000.
Miyazaki, Teruko, 5,066,761, Cl. 528-64.000.
Tempel, Ernst; and Grimbu / hler-Can, Pia, 5,066,309, Cl. 8-527.000.
Zink, Rudolf, 5,066,814, Cl. 548-407.000.
Cincinnati Milacron Inc.: *See—*
Albers, Stephen J.; Grimshaw, Michael N.; Peterson, David A.; Pugh, John H.; and Wisbey, Jerry D., 5,066,352, Cl. 156-265.000.
Cincinnati Sub-Zero Products, Inc.: *See—*
Stewart, Bob W., 5,066,291, Cl. 606-3.000.
City of Hope: *See—*
Miller, Chad G., 5,066,785, Cl. 530-345.000.
CL Pharma Aktiengesellschaft: *See—*
Baumann, Karl, 5,066,810, Cl. 546-300.000.
Claar, Terry D.; Schiroky, Gerhard H.; and Pochopien, Kevin P., to Lanxide Technology Company, LP. Method of producing and modifying the properties of ceramic composite bodies. 5,066,622, Cl. 501-87.000.
Clarey, Robert J.; and Reiner, Richard A., to Eaton Corporation. Plastic enclosure box for electrical apparatus. 5,066,832, Cl. 174-50.000.
Clarion Company, Limited: *See—*
Kasai, Junichi; Yagihashi, Wataru; Yatsunami, Akira; and Kurano, Kazuyuki, 5,067,159, Cl. 381-90.000.
Kojima, Kiyoaki, 5,066,551, Cl. 428-690.000.
Clark, Jack: *See—*
Emery, Kenneth R.; Bennett, Harold R.; and Clark, Jack, 5,066,516, Cl. 427-118.000.
Clark, James A.: *See—*
Buckshaw, Dennis J.; and Clark, James A., 5,065,972, Cl. 248-345.100.
Clarke, Ronald A. W. Apparatus for reflex-percussive cutting of concrete etc. 5,066,070, Cl. 299-37.000.
Clavel, Francois: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.
Cleaning Technology Limited: *See—*
Fraser, George M., 5,065,551, Cl. 51-410.000.
Clement, Heinz: *See—*
Eichengerger, Hansulrich; and Clement, Heinz, 5,065,477, Cl. 19-150.000.
Clement, Katherine S.; Babb, David A.; and Ezzell, Bobby R., to Dow Chemical Company, The. Perfluorocyelobutane ring-containing polymers. 5,066,746, Cl. 526-242.000.
Clements, James L., to 501 P.B. & S. Chemical Company, Inc. Process for removing permanganate stains from articles. 5,066,306, Cl. 8-109.000.
Cloeren, Peter F., to P.C.E. Corp. Dual barrier laminate process. 5,066,443, Cl. 264-171.000.
Clum, Kenneth L.: *See—*
Pazda, Robert J.; Clum, Kenneth L.; and Hood, Harrison P., III, 5,066,918, Cl. 324-452.000.
Coates Electrographics Limited: *See—*
Brown, Edward A.; Haxell, John P. N.; and Wilson, Derek E., 5,066,332, Cl. 106-31.000.
Coates, Ian H.: *See—*
Oxford, Alexander W.; Coates, Ian H.; and Butina, Darko, 5,066,660, Cl. 514-323.000.
Coates, William J., to Smith Kline & French Laboratories Limited. Chemical compounds. 5,066,653, Cl. 514-242.000.
Coatex, S.A.: *See—*
Simonet, Benoit; Fabre, Pierre; Laluet, Jacques; and Egraz, Jean-Bernard, 5,066,710, Cl. 524-555.000.
Cocks, Franklin H.: *See—*
Farner, Peter W.; and Cocks, Franklin H., 5,066,257, Cl. 445-26.000.
Cogema Compagnie Generale des Matieres Nuclearies: *See—*
Guyard, Alain, 5,066,058, Cl. 294-1.100.
Cogswell, Frederic N.; and Meakin, Peter J., to Imperial Chemical Industries PLC. Fibre reinforced thermoplastic composite structures. 5,066,536, Cl. 428-216.000.
Cohen, Eric A.; Gaudreau, Pierrette; Michaud, Jacques; Brazeau, Paul; and Langelier, Yves. Antiviral peptides and means for treating herpes infections. 5,066,783, Cl. 530-328.000.
Coja, Joachim; von Eckardstein, Karl-Ernst; and Simnovec, Andrej, to Friedrich Wilh. Schwing GmbH. Apparatus for pneumatically discharging concrete. 5,066,203, Cl. 417-318.000.
Cole, Thomas A.; and Nielsen, Kenneth A., to Union Carbide Chemicals and Plastics Technology Corporation. Supercritical fluids as diluents in liquid spray applications of adhesives. 5,066,522, Cl. 427-422.000.
Coleman, Charles M.; and Kendrick, William G., Sr., to Safe-Tec Clinical Products, Inc. Self-sealing fluid conduit and collection device. 5,065,768, Cl. 128-760.000.
Coleman, Richard A.: *See—*
Kilbane, Farrell M.; Coleman, Richard A.; Dunbar, Frank C.; and Gibson, Alan F., 5,066,549, Cl. 428-653.000.
Colin Electronics Co., Ltd.: *See—*
Eckerle, Joseph S.; and Kornbluh, Roy, 5,065,765, Cl. 128-672.000.
Colin, Michel: *See—*
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, 5,066,427, Cl. 260-413.000.
Collette, Wayne N.: *See—*
Krishnakumar, Suppayan M.; Collette, Wayne N.; and Nahill, Thomas E., 5,066,528, Cl. 428-36.920.
Collins, Roy S., to Trisport Ltd. Studs for footwear. 5,065,534, Cl. 36-134.000.
Colombier, Christian, to Atochem. Polysilazane ceramic precursors and ceramic shaped articles produced by pyrolysis thereof. 5,066,734, Cl. 525-478.000.
Colon, Herman; and Maletsky, Albert, to International Group, Inc., The. Wetness indicating hot-melt adhesives. 5,066,711, Cl. 524-556.000.
Columbia University in the City of New York, The Trustees of: *See—*
Suciu-Foca, Nicole; and King, Donald W., 5,066,581, Cl. 435-7.240.
Combridge, Brian L.; Robson, David; and Timson, Daniel R. E., to British Aerospace Public Limited Company. Method of processing video image data for use in the storage or transmission of moving digital images. 5,067,015, Cl. 358-133.000.
Combustion Engineering, Inc.: *See—*
Hayes, James K., 5,067,094, Cl. 364-510.000.
Wivagg, Adrian P.; and Martin, Kenneth A., 5,065,490, Cl. 29-402.170.
Comezoglu, F. Taha: *See—*
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.
Commonwealth Scientific and Industrial Research Organization: *See—*
Lukey, Christopher A.; Maitra, Ashit M.; and Tyler, Ralph J., 5,066,629, Cl. 502-84.000.
Compaq Computer Corporation: *See—*
Verdun, Gary J., 5,066,240, Cl. 439-181.000.

Computer Products, Inc.: *See—*
Bassett, John A., 5,066,900, Cl. 323-224.000.
Conder Enterprises, Inc.: *See—*
Conder, O. Ray, Jr., 5,065,870, Cl. 211-13.000.
Conder, O. Ray, Jr., to Conder Enterprises, Inc. Taco holder. 5,065,870, Cl. 211-13.000.
Connell, John W.; and Hergenrother, Paul M., to United States of America, National Aeronautics and Space Administration. Polyimidazoles via aromatic nucleophilic displacement. 5,066,811, Cl. 548-119.000.
Connor, David T.: *See—*
Boschelli, Diane H.; Connor, David T.; Flynn, Daniel L.; Sircar, Jagadish C.; and Hoefle, Milton L., 5,066,668, Cl. 514-384.000.
Conoco Inc.: *See—*
Becraft, Lloyd G., 5,066,385, Cl. 208-131.000.
Hanson, Douglas W.; Wang, Shein S.; and Harlan, William S., 5,067,113, Cl. 367-50.000.
Conoway, Lawrence S.: *See—*
Pera, John D.; Hickman, Loel L.; and Conoway, Lawrence S., 5,066,334, Cl. 106-462.000.
Consortium fur elektrochemische Industrie GmbH: *See—*
Voss, Erdmuthe; Moschinsky, Werner; and Hofmann-Moritz, Doris, 5,066,640, Cl. 512-21.000.
Container Corporation of America: *See—*
Ritter, Karl M., 5,065,937, Cl. 229-117.130.
Udell, Theodore H., 5,065,883, Cl. 220-276.000.
Conti, Rino, to Dart Industries Inc. Covered dish with vent. 5,065,889, Cl. 220-366.000.
Continental Baking Company: *See—*
Leiweke, Michael E., 5,065,670, Cl. 99-405.000.
Continental PET Technologies, Inc.: *See—*
Krishnakumar, Suppayan M.; Collette, Wayne N.; and Nahill, Thomas E., 5,066,528, Cl. 428-36.920.
Continental Plastics, Inc.: *See—*
Mengeu, Gary L., 5,065,908, Cl. 222-480.000.
Control Data Corporation: *See—*
Pedersen, Richard C.; and Sedro, Richard M., 5,067,106, Cl. 395-575.000.
Control Module Inc.: *See—*
Bianco, James S.; Madsen, James T.; Ceppetelli, Michael; and Fahy, John S., 5,067,155, Cl. 380-25.000.
Conway, Timothy J.: *See—*
McCown, Patricia M.; Conway, Timothy J.; and Jessen, Karl M., 5,067,099, Cl. 364-550.000.
Coody, Archibald S., to Fred Arbogast Company, Inc. Artifical fishing lures. 5,065,541, Cl. 43-42.290.
Cook, John E.; and Busato, Murray F., to Siemens Automotive Limited. Air flow/check valve. 5,065,575, Cl. 60-290.000.
Cook, Judith P.: *See—*
Hubbard, Ernest T.; Hollingsworth, Michele D.; Ram, N. V. Raghava; and Cook, Judith P., 5,066,595, Cl. 435-240.450.
Cooke, Kevin K.; Dewitt, John R.; and McCloskey, John E., to International Business Machines Corporation. Apparatus for reducing electromagnetic radiation from a computer device. 5,067,041, Cl. 361-394.000.
Cooksey, Andrew G.; and Reesing, David L., to Otis Engineering Corp. Running tool. 5,066,060, Cl. 294-86.180.
Coombs, Peter M., to Gradco Systems, Inc. Decurler. 5,066,984, Cl. 355-309.000.
Coons, Andrew M., III: *See—*
Yeh, Ling; Harrelson, Hugh G.; and Coons, Andrew M., III, 5,066,308, Cl. 8-403.000.
Cooper Industries, Inc.: *See—*
Farrell, Thomas J., 5,066,048, Cl. 285-18.000.
Gill, David, 5,066,029, Cl. 277-236.000.
Cooper Tire and Rubber Company: *See—*
Benjamin, Gary H., 5,066,354, Cl. 156-414.000.
Earnheart, William G., Jr., 5,065,694, Cl. 118-669.000.
Coppi, Germano: *See—*
Poli, Stefano; Coppi, Germano; and Del Corona, Lucio, 5,066,644, Cl. 514-19.000.
Copytele, Inc.: *See—*
Disanto, Frank J.; and Krusos, Denis A., 5,066,946, Cl. 340-787.000.
Corbin, Stephen S.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Cordell, Melinda. Portable exercise device. 5,066,002, Cl. 272-93.000.
Cordis Corporation: *See—*
Hillstead, Richard A., 5,066,285, Cl. 604-164.000.
Cornelissen, Roger E.; Haubach, Claus C. F.; and Blanco, Agustin R. Package consisting of a paper bag compactly packing compressed flexible articles. 5,065,868, Cl. 206-494.000.
Cornell Research Foundation, Inc.: *See—*
Berger, Scott B., 5,067,167, Cl. 382-46.000.
Corning Incorporated: *See—*
Peters, Donald C.; and Seely, Richard L., 5,066,215, Cl. 425-464.000.
Corning Limited: *See—*
Davey, Rodney J.; Handley, Graham R.; and Ward-Smith, Alfred J., 5,065,928, Cl. 226-7.000.
Corrosion Technology, Inc.: *See—*
Harry, John O.; Verhagen, George; and Small, Rudy E., 5,066,379, Cl. 204-279.000.
Corrpro Companies Inc.: *See—*
Kroon, David H.; Goldsmith, Gary; Baach, Miachel K.; and Bushman, James B., 5,065,893, Cl. 220-565.000.
Cosmescu, Ioan. Performance tester apparatus for a surgical laser system and method therefor. 5,066,294, Cl. 606-11.000.
Cotter, Patrick J., to TRW Vehicle Safety Systems Inc. Release mechanism. 5,065,954, Cl. 242-107.700.
Council of Scientific & Industrial Research: *See—*
Kulkarni, Gurunath H.; Naik, Rajan H.; and Rajappa, Srinivasachari, 5,066,819, Cl. 549-438.000.
Coutant, Antoine: *See—*
Schuppiser, Jean-Luc; Coutant, Antoine; and Bozetto, Jean-Claude, 5,066,508, Cl. 426-584.000.
Cowan, Louis G.; and Cardey, Dale L., to W. A. Whitney Corp. Machine for punching and shearing angle iron and flat stock. 5,065,654, Cl. 83-255.000.
Cowan, W. Maxwell: *See—*
Patrick, James W.; Heinemann, Stephen F.; Boss, Barbara D.; and Cowan, W. Maxwell, 5,066,593, Cl. 435-240.270.
Cox, Ernest J. Storage tank cleanout apparatus. 5,065,781, Cl. 137-15.000.
Cox, James E., Jr., to Inamed Corporation. Inflatable cerivical pessary. 5,065,772, Cl. 128-836.000.
Cozzy, Thomas W.: *See—*
Bullis, Stephen J.; Duke, Steven R.; Cozzy, Thomas W.; and Rossier, Glenn E., 5,065,662, Cl. 89-12.000.
Crater, Arthur H.: *See—*
Mullen, Charles E.; and Crater, Arthur H., 5,065,489, Cl. 29-281.500.
Creary, Trevor A.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Creative Products Resource Associates, Ltd.: *See—*
Kellett, George W., 5,066,413, Cl. 252-8.750.
Creedon, Richard L., to General Atomics. Prestressed concrete articles. 5,065,795, Cl. 138-176.000.
Creemer, Laura J.: *See—*
Anzeveno, Peter B.; Angell, Paul T.; and Creemer, Laura J., 5,066,807, Cl. 546-183.000.
Creighton, Dean W.; Efstathiou, John D.; and Merboth, John A., to General Mills, Inc. Method of preparing stabilized whole grain flour. 5,066,506, Cl. 426-450.000.
Crellin B.V.: *See—*
Tameris, Hendrikus M., 5,065,671, Cl. 99-456.000.
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, to International Mobile Machine Corporation. Interpolator for varying a signal sampling rate. 5,067,141, Cl. 375-97.000.
Crites, Patrick H.: *See—*
Wylie, Calvin R.; and Crites, Patrick H., 5,065,585, Cl. 62-89.000.
Crofoot, Douglas G.: *See—*
Rocklitz, Gary J.; Crofoot, Douglas G.; and Zelinka, Richard L., 5,066,400, Cl. 210-493.500.
Cross, David L., to Se Lab Group, Inc. Shutter for animal-watering valve. 5,065,700, Cl. 119-725.000.
Crouse, Ronald J., to Optoswitch, Inc. Optical micro-switch apparatus. 5,066,856, Cl. 250-229.000.
Crow, Stanley G.: *See—*
Reese, D. Dwaine; Sawyer, Roy D.; and Crow, Stanley G., 5,066,199, Cl. 417-63.000.
Crowley, H. W., to Roll Systems, Inc. Method for processing web material. 5,065,992, Cl. 270-39.000.
Crowninshield, Roy D.; and Hori, Roy Y., to Zimmer, Inc. Prosthetic interpositional device/coupler. 5,066,304, Cl. 623-22.000.
Cseh, Georg; Lienhard, Paul; and Wiedemann, Walter, to Ciba-Geigy Corporation. High-molecular weight organic material containing a metal complex pigment basaed on hydrazone. 5,066,695, Cl. 524-87.000.
Cucchi, Giovanni, to Cucchi Giovanni & C. S. R. L. Bar feeder. 5,066,185, Cl. 414-18.000.
Cucchi Giovanni & C. S. R. L.: *See—*
Cucchi, Giovanni, 5,066,185, Cl. 414-18.000.
Cullen, Joao A. D.: *See—*
Lorento, Gustavo F.; Mendes, Jose A. C.; and Cullen, Joao A. D., 5,065,508, Cl. 29-888.042.
Culligan International Company: *See—*
Padera, Robert F.; and Miller, Daniel C., 5,066,393, Cl. 210-136.000.
Culp, Gordon W., to Rockwell International Corporation. Constant velocity scanning apparatus. 5,066,084, Cl. 359-213.000.
Cumming, J. Stuart. Intraocular lens insertion device. 5,066,297, Cl. 606-107.000.
Cummins Engine Company, Inc.: *See—*
Antonevich, John M.; and Sundeen, John E., 5,066,600, Cl. 436-52.000.
Curran, William V., to American Cyanamid Company. Intermediates for the preparation of aminothiazoloximino cephalosporins. 5,066,799, Cl. 540-226.000.
Currin, Debra L. Commode seat lifting apparatus. 5,065,460, Cl. 4-251.000.
Cutshall, Donald L.: *See—*
Braun, Stephen A.; O'Neill, Michael J.; and Cutshall, Donald L., 5,065,568, Cl. 56-14.900.

VOL 1132 ISS 3 NO 19 1991 UMI

Cykana, Daniel: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.

Cyprien, Guy: *See—*
Arnold, Jean-Claude; Cyprien, Guy; and Olivere, Jean-Francois, 5,066,468, Cl. 422-266.000.

Cyr, Patricia A.: *See—*
Liu, Leland L.; and Cyr, Patricia A., 5,066,434, Cl. 264-37.000.

Czuba, Leonard F.: *See—*
Measells, Paul E.; Johnston, William D.; Kwong, Peter C.; Laurin, Dean G.; and Czuba, Leonard F., 5,066,290, Cl. 604-408.000.

D.E.M. Controls of Canada: *See—*
D'Amato, mark, 5,065,944, Cl. 239-550.000.

D'Agnolo, Armando, to Matics Srl. Device to palletize yarn packages. 5,066,190, Cl. 414-799.000.

Dahl, John C.: *See—*
Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., 5,066,907, Cl. 324-158.00P.

Dahlgren, Douglas L., to Allmand Bros. Inc. Shock absorbent bulb-holder mounting. 5,067,065, Cl. 362-369.000.

Daifuku Co., Ltd.: *See—*
Usui, Junichi; and Tanizawa, Hideichi, 5,065,963, Cl. 246-187.00B.

Daifuku, Hideharu: *See—*
Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hideharu; and Kawagoe, Takahiro, 5,066,556, Cl. 429-194.000.

Daiichi Pharmaceutical Co., Ltd.: *See—*
Shiba, Tetsuo, 5,066,794, Cl. 536-55.300.

Daikin Industries, Ltd.: *See—*
Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, 5,066,410, Cl. 252-68.000.
Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, 5,066,747, Cl. 526-249.000.

Daimler-Benz AG: *See—*
Richter, Karl-Heinz; Rollmann, Gerhard; Struck, Helmut; and Eilert, Gerd, 5,065,835, Cl. 180-197.000.

Dainippon Screen Mfg. Co., Ltd.: *See—*
Kitagawa, Osamu, 5,067,025, Cl. 358-298.000.

Daley, Lawrence R.; and Leslie, Gerald G., II, to International Business Machines Corp. Pad printing of resist over via holes. 5,066,360, Cl. 156-660.000.

D'Amato, mark, to D.E.M. Controls of Canada. Reinforced spray manifold. 5,065,944, Cl. 239-550.000.

D'Ambra, Thomas E.; and Bell, Malcolm R., to Sterling Drug Inc. 2- and 3-aminomethyl-6-arylcarbonyl-2,3-dihydropyrrolo[1,2,3-de]-1,4-benzoxazines. 5,066,803, Cl. 544-101.000.

Dangl, Wolfgang; Schick, Gerald; Nowack, Reinhard; and Reuber, Gerhard, to Bayerische Motoren Werke Aktiengesellschaft. Motor vehicle rollover bar driving system. 5,066,040, Cl. 280-756.000.

Daniel, Loic: *See—*
Anselme, Christophe; and Daniel, Loic, 5,066,402, Cl. 210-636.000.

Daniels, Michael J.: *See—*
Zegel, Douglas R.; Jensen, Gary S.; Hernick, Mark R.; and Daniels, Michael J., 5,065,559, Cl. 52-239.000.

Dantani Co., Ltd.: *See—*
Maeda, Kenji; and Yamada, Nobuyuki, 5,065,807, Cl. 160-206.000.

Dany, Franz-Josef; Ulrich, Hannsjorg; and Westermann, Lothar, to Hoechst Aktiengesellschaft. Dishwashing agent. 5,066,415, Cl. 252-135.000.

Darnell, William R.: *See—*
Jackson, Winston J., Jr.; and Darnell, William R., 5,066,766, Cl. 528-190.000.

Darragh, Charles T., to Solar Turbines Incorporated. Sealing system for a circular heat exchanger. 5,065,816, Cl. 165-125.000.

Dart Industries Inc.: *See—*
Conti, Rino, 5,065,889, Cl. 220-366.000.

Darvin, Richard M., to QNC, Inc. Forced convection oven. 5,066,851, Cl. 219-400.000.

Datta, Madhav: *See—*
Andreshak, Joseph C.; Datta, Madhav; Romankiw, Lubomyr T.; and Vega, Luis F., 5,066,370, Cl. 204-129.100.

Daubenbis, Stanley D.: *See—*
Martin, Norman D., 5,065,544, Cl. 49-177.000.

Daugherty, Charles W.: *See—*
Mersch, Steve H.; Spielvogel, David E.; and Daugherty, Charles W., 5,066,284, Cl. 604-168.000.

Daugherty, David W., Jr.: *See—*
Wallace, William D.; Lynch, Edward G., Jr.; Daugherty, David W., Jr.; Kanjo, Dajih; and Hawryszkow, Michael G., 5,065,679, Cl. 105-3.000.

Davey, Rodney J.; Handley, Graham R.; and Ward-Smith, Alfred J., to BICC plc.; and Corning Limited. Method and apparatus for blowing an optical fibre member. 5,065,928, Cl. 226-7.000.

David, Gerald B.: *See—*
Schweitzer, Naftali; Bodenheimr, Joseph S.; and David, Gerald B., 5,066,950, Cl. 340-937.000.

David, Helmut; Malik, J. Ernst; and Schmidt, Rainer, to Man Gutehoffnungshutte Aktiengesellschaft. Force free suspension of heat exchange bundles with high temperature admission flow. 5,065,815, Cl. 165-67.000.

David Sarnoff Research Center, Inc.: *See—*
Bergen, James R.; Burt, Peter J.; Hingorani, Rajesh; and Peleg, Shmuel, 5,067,014, Cl. 358-105.000.

Davidson Textron Inc.: *See—*
Castrigno, Steven; Rafferty, Scott E.; Nichols, Lawrence R.; and Bemis, Claude, 5,066,037, Cl. 280-732.000.

Davies, Anthony R.; Downward, Steven J.; and Chilvers, David, to Smiths Industries public limited company. Valve assemblies and means. 5,065,784, Cl. 137-116.000.

Davies, David K.; Chantry, Peter J.; and Goutzoulis, Anastasios P., to Westinghouse Electric Corp. Optical variable delay line and variable-frequency fiber-optic multiplexer. 5,066,088, Cl. 385-25.000.

Davis, John C.: *See—*
Butts, Richard E.; and Davis, John C., 5,065,997, Cl. 271-187.000.

Davis, Robert J.: *See—*
Arthur, James D.; Sanderford, H. Britton, Jr.; Rouquette, Robert E.; and Davis, Robert J., 5,067,136, Cl. 375-1.000.

Davlyn Manufacturing Co.: *See—*
Weil, Thomas L., 5,066,028, Cl. 277-181.000.

Deacon, Walter T.; and Vyve, Albert V., to Armstrong International, Inc. Steam trap with separate steam and condensate inlets. 5,065,785, Cl. 137-185.000.

Dean, William R.; and Waters, John H., to Hitchcox Targets Limited. Thermally-emissive, weaponry target, training aid or arc designator structure. 5,066,019, Cl. 273-348.100.

DeBonte, Lorin R.; and Loh, Willie H. T., to DNA Plant Technology. Method for the manipulation of pollen in plants. 5,066,594, Cl. 435-240.400.

De Bortoli, Giuseppe, to Nordica S.p.A. Fastening and adjusting device, particularly for ski boots. 5,065,480, Cl. 24-68.0SK.

Debroy, Tapan K.: *See—*
Chung, Ding Y.; Debroy, Tapan K.; and Tjoe, Sioe-Heng A., 5,066,688, Cl. 523-415.000.

de Buda, Eric. Piano tuning system. 5,065,660, Cl. 84-200.000.

Decker, Kenneth L., to Otis Engineering Corporation. Gas lift valve. 5,066,198, Cl. 417-54.000.

Deere & Company: *See—*
Braun, Stephen A.; O'Neill, Michael J.; and Cutshall, Donald L., 5,065,568, Cl. 56-14.900.
Brett, William A.; and Zaun, Richard D., 5,066,030, Cl. 280-92.000.
Hadley, Howard C., 5,065,681, Cl. 111-55.000.
Rudolph, Leroy, Jr.; and Brimeyer, Dennis A., 5,065,646, Cl. 76-101.100.
Schlueter, Francis E., 5,065,569, Cl. 56-16.600.

Defalque, Corinne: *See—*
Soria, Raymond; Defalque, Corinne; and Gillot, Jacques, 5,066,398, Cl. 210-321.890.

DeFrank, Michael P.; and Rosati, Robert J., to IVAC Corporation. Protective apparatus for a biomedical probe. 5,066,142, Cl. 374-208.000.

DeGelder, Jacob, to Systems Furniture Company. Chair back and seat adjustment mechanism. 5,066,069, Cl. 297-374.000.

Degraff, Darnel: *See—*
Bortnick, Newman M.; Wanat, Robert A.; and Degraff, Darnel, 5,066,696, Cl. 524-91.000.

deGrassie, John S.: *See—*
Ikezi, Hiroyuki; Lin-Liu, Yuh-Ren; and deGrassie, John S., 5,066,928, Cl. 333-20.000.

Deguchi, Katsuyasu; Mizoguchi, Takatoshi; Taminaga, Takayuki; and Fujii, Akiyoshi, to Sharp. Thermal printing head. 5,066,960, Cl. 346-76.0PH.

Dehlsen, James G. P. Rotary radiating bed thermophotovoltaic process and apparatus. 5,066,339, Cl. 136-253.000.

DeKam, Cornelius T. Soldering iron for surface mounted components. 5,066,849, Cl. 219-233.000.

Dekeyser, Bernard; and Troude, Roland, to Alcatel Cable. Jointing box for optical fiber cables. 5,066,095, Cl. 385-99.000.

Delahanty, Francis T.: *See—*
Stoy, George P.; Delahanty, Francis T.; and Stoy, Vladimir A., 5,066,091, Cl. 385-98.000.

Delat Systems, Incorporated: *See—*
Miller, Ronald E.; and James, Robert L., 5,066,898, Cl. 315-362.000.

Del Corona, Lucio: *See—*
Poli, Stefano; Coppi, Germano; and Del Corona, Lucio, 5,066,644, Cl. 514-19.000.

Dellacroce, Cheryl: *See—*
Hawes, Robert E., Jr.; Dellacroce, Cheryl; Aaldenberg, Eric; and Lynch, James J., 5,066,045, Cl. 281-45.000.

DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, to Westinghouse Electric Corp. Space dividing partition system having an electrical raceway. 5,065,556, Cl. 52-221.000.

De Luca, Raymond F.; and Jespersen, Paul W., to Georgia Pacific Corporation. Variable support for fan-folded paper dispenser. 5,065,895, Cl. 221-54.000.

DeLuca, Robert D.: *See—*
Forbes Jones, Robin M.; Panzera, Carl; and DeLuca, Robert D., 5,066,225, Cl. 433-8.000.

DeLucia, Paul V. Arrow system. 5,066,021, Cl. 273-421.000.

Demers, James P.; and Sulsky, Richard B., to Ortho Pharmaceutical Corporation. Substituted hydroxyureas. 5,066,658, Cl. 514-269.000.

Demirel, Osman S.; and Sanwick, John D. Patent monitoring system. 5,066,943, Cl. 340-573.000.

Deniega, Jose C.; and Failla, Stephen J., to Ethicon, Inc. Safety trocar. 5,066,288, Cl. 604-274.000.

Denker, John S.; Howard, Richard E.; Jackel, Lawrence D.; and LeCun, Yann, to AT&T Bell Laboratories. Hierarchical constrained automatic learning neural network for character recognition. 5,067,164, Cl. 382-15.000.

Denki Kagaku Kogyo Kabushiki Kaishi: *See—*
Kobayashi, Kazuhiro; Kouguthi, Hifumi; and Hara, Toshio, 5,065,674, Cl. 101-44.000.

DeNora Permelec S.p.A.: *See—*
Meneghini, Giovanni, 5,066,378, Cl. 204-237.000.

Dent, Paul, to Ericsson GE Mobile Communication Holding, Inc. Dual modulus counter for use in a phase locked loop. 5,066,927, Cl. 331-1.00A.

De Oliveira, Willer: *See—*
Glasser, Wolfgang G.; De Oliveira, Willer; Kelley, Stephen S.; and Nieh, Li S., 5,066,790, Cl. 530-502.000.

DeRosa, Thomas F.: *See—*
Migdal, Cyril A.; Shirodkar, Shailaja M.; DeRosa, Thomas F.; and Miller, Edward F., 5,066,412, Cl. 252-54.600.

Deschamps, Jacques: *See—*
Salavin, Serge; Deschamps, Jacques; Gay, Michel; and Specty, Michel, 5,066,890, Cl. 313-585.000.

Desjardin, Warren. Integral tool and clip for vertical support in a container. 5,065,977, Cl. 248-692.000.

Destryker, Elise; and Hannecart, Etienne, to Solvay & Cie (Societe Anonyme). Process for preparing a latex based on polypyrrole and use of this latex to form a conducting film. 5,066,706, Cl. 524-459.000.

de Toledo, Fernando A., to Boston Scientific Corporation. Small diameter guidewires of multi-filar, cross-wound coils. 5,065,769, Cl. 128-772.000.

Detweiler, Charles A.; and Schultz, Richard A., to Lectron Products, Inc. Constant current vacuum regulator. 5,065,979, Cl. 251-129.160.

Deutsch, Marshall E., to J & S Medical Associates, Inc. Process for removing fine particles from a powder. 5,066,387, Cl. 209-5.000.

Deutsche Forschungsanstault Fur Luft- Und Raumfahrt e.V.: *See—*
Dobrzynski, Werner M., 5,066,195, Cl. 416-200.00R.

Develco, Inc.: *See—*
Rorden, Louis H., 5,067,114, Cl. 367-81.000.

DeVirgilio, John J.: *See—*
Narula, Anubhav P. S.; and DeVirgilio, John J., 5,066,639, Cl. 512-13.000.
Narula, Anubhav P. S.; De Virgilio, John J.; and Van Elst, Jan T., 5,066,641, Cl. 512-25.000.

Devlin, Brian T.: *See—*
Bulat, Emel S.; and Devlin, Brian T., 5,066,603, Cl. 437-29.000.

DeVoe, Irving W.; D'Sylva, Olwyn A.; and Fine, David A., to Metanetix, Inc. Removal of contaminants and recovery of metals from waste solutions. 5,066,371, Cl. 204-149.000.

de Vries, Bernhard: *See—*
Begemann, Malcolm J. S.; de Vries, Bernhard; and van der Veen, Johannes S., 5,065,759, Cl. 128-419.0PG.

Dewert, Heribert: *See—*
Holter, Heinz; Igelbuscher, Heinrich; Gresch, Heinrich; Dewert, Heribert; and Rump, Hanns, 5,066,466, Cl. 422-98.000.

Dewitt, John R.: *See—*
Cooke, Kevin K.; Dewitt, John R.; and McCloskey, John E., 5,067,041, Cl. 361-394.000.

Dhainaut, Alain: *See—*
Regnir, Gilbert; Dhainaut, Alain; Lepagnol, Jean; and Lepagnol, Jean, 5,066,651, Cl. 514-235.500.

Diagen Institute fur molekularbiologische Diagnostik GmbH: *See—*
Rosenbaum, Volker; and Riesner, Detlev, 5,066,377, Cl. 204-182.800.

Diamond, Albert J. Toothbrush. 5,065,470, Cl. 15-106.000.

Diasonics, Inc.: *See—*
Pell, James W., 5,065,761, Cl. 128-660.030.

DiBello, Louis M.: *See—*
Mousseau, Carlton R.; DiBello, Louis M.; and Nicholas, Nicholas J., 5,065,862, Cl. 206-151.000.

Dickakian, Ghazi B., to Exxon Chemical Patents, Inc. Method of characterizing the effectiveness of baseoil additives. 5,066,598, Cl. 436-2.000.

Dicks, Lori A.: *See—*
Dunaway, Thomas J.; Spielberger, Richard K.; Dicks, Lori A.; and Loy, Jerald M., 5,066,614, Cl. 437-209.000.

DiCosimo, Robert: *See—*
Suresh, Dev D.; DiCosimo, Robert; Loiseau, Richard; Friedrich, Maria S.; and Szabo, Hsiao-Chiung, 5,066,809, Cl. 546-250.000.

Diehm, Martin R. Device for pulling boots on with handle and clamp. 5,065,917, Cl. 223-113.000.

Diesel Kiki Co., Ltd.: *See—*
Kono, Hiromi; and Ohtsuka, Masuhiro, 5,065,849, Cl. 192-0.076.

Dietrich, Ralf: *See—*
Mayerhofer, Franz; Karstensen, Holger; Dietrich, Ralf; and Spaeth, Werner, 5,066,090, Cl. 385-35.000.

DiFrank, Frank J., to Owens-Illinois Plastic Products Inc. Method and apparatus for applying carriers to containers. 5,065,565, Cl. 53-398.000.

Digital Equipment Corporation: *See—*
Fite, Elaine H.; Fossum, Tryggve; Grundmann, William R.; McKeen, Francis X.; and Salett, Ronald M., 5,067,069, Cl. 395-375.000.
Marshall, Donald E.; and McElroy, James B., 5,067,004, Cl. 357-71.000.

Digital Instruments, Inc.: *See—*
Elings, Virgil B.; and Gurley, John A., 5,066,858, Cl. 250-307.000.

Dijkmans, Eise C.: *See—*
Van Rens, Antonia C.; Dijkmans, Eise C.; and Stikvoort, Eduard F., 5,067,138, Cl. 375-81.000.

Dillon, Joseph E.; and Dillon, Mark E., to Tetratec Corporation. Microporous waterproof and moisture vapor permeable structures, processes of manufacture and useful articles thereof. 5,066,683, Cl. 521-54.000.

Dillon, Mark E.: *See—*
Dillon, Joseph E.; and Dillon, Mark E., 5,066,683, Cl. 521-54.000.

DiPerna, Thomas C.: *See—*
O'Rell, Dennis; Hamed, Parviz; and DiPerna, Thomas C., 5,066,537, Cl. 428-246.000.

Disanto, Frank J.; and Krusos, Denis A., to Copytele, Inc. Electrophoretic display panel with selective line erasure. 5,066,946, Cl. 340-787.000.

Dischler, Helmut, to Novopress GmbH, KG. Press for pressing of casings, cable shoes or similar items. 5,065,609, Cl. 72-453.150.

DiStefano, Salvador: *See—*
Nagasubramanian, Ganesan; DiStefano, Salvador; and Liang, Ranty H., 5,066,748, Cl. 526-258.000.

Dixon, David S.; and Masi, James V., to United States of America, Navy. Composite material for EMI/EMP hardening protection in marine environments. 5,066,424, Cl. 252-518.000.

DMV Campina B.V.: *See—*
van den Hoven, Martinus M. G. M.; and Ermens, Hermanus W. A., 5,066,509, Cl. 426-592.000.

DNA Plant Technology: *See—*
DeBonte, Lorin R.; and Loh, Willie H. T., 5,066,594, Cl. 435-240.400.

DNA Plant Technology Corporation: *See—*
Morrison, Robert A.; and Evans, David A., 5,066,830, Cl. 800-230.000.

Dobbelstein, Arnold: *See—*
Hille, Hans-Dieter; and Dobbelstein, Arnold, 5,066,759, Cl. 528-60.000.

Dobrzynski, Werner M., to Deutsche Forschungsanstault Fur Luft- Und Raumfahrt e.V. Propeller for aircraft or the like. 5,066,195, Cl. 416-200.00R.

Dobson, Michael J., to Bob's Space Racers, Inc. Sidewinder amusement game. 5,066,014, Cl. 273-110.000.

Dr. Johannes Heidenhain GmbH: *See—*
Lengenfelder, Hans; and Wasthuber, Robert, 5,066,953, Cl. 341-155.000.

Dohse, Hans-Peter; and Kramer, Jochen, to Stihl, Andreas. Handle arrangement for a handheld portable tool. 5,065,476, Cl. 16-114.00R.

Doi, Kazuhiro; Fujiwara, Yasuhiko; Abe, Toshiro; and Matsui, Shinichi, to Nissan Motor Co., Ltd. Electronically controllable vibration damping device. 5,065,869, Cl. 207-140.100.

Doi, Yoshiharu; Ueki, Satoshi; and Furuhashi, Hiroyuki, to Tonen Corporation. Narrow molecular weight distribution hydrocarbon soluble homopolymer of 1,4-pentadiene. 5,066,754, Cl. 526-336.000.

Dolan, Francis P. Portable multi-surface track. 5,066,000, Cl. 272-70.000.

Domon, Masayuki: *See—*
Kaneko, Aijiro; and Domon, Masayuki, 5,065,528, Cl. 34-93.000.

Domon, Taisuke: *See—*
Nakagawa, Shiro; Domon, Taisuke; Imai, Takehiro; and Tsuchida, Atsuko, 5,065,625, Cl. 73-336.500.

Donaldson Company, Inc.: *See—*
Rocklitz, Gary J.; Crofoot, Douglas G.; and Zelinka, Richard L., 5,066,400, Cl. 210-493.500.

Donnelly Corporation: *See—*
Kane, Edmund J.; and Koops, Roger L., 5,065,545, Cl. 49-375.000.
Lynam, Niall R.; and Gahan, Richard J., 5,066,112, Cl. 359-267.000.

Doorenbos, Daryl E. Pressure-regulated bandage applicator. 5,065,865, Cl. 206-409.000.

Dorey, John K., II: *See—*
Brady, Michael F.; Dorey, John K., II; and Helms, Aubrey L., Jr., 5,066,615, Cl. 437-229.000.

Dorf, Ernst-Ulrich; Reinking, Klaus; Jakob, Wolfgang; Tresper, Erhard; and Russeler, Wolfgang, to Bayer Aktiengesellschaft. Copolyarylene/alkylene sulfide. 5,066,775, Cl. 528-388.000.

Dorf, Ernst-Ulrich: *See—*
Russeler, Wolfgang; Idel, Karsten-Josef; Dorf, Ernst-Ulrich; Alewelt, Wolfgang; and Freitag, Dieter, 5,066,776, Cl. 528-388.000.

Dorgan, Roderick J.; and Macaulay, Graham S., to Beecham Group p.l.c. Macrolide derivatives with parasiticidal activity. 5,066,670, Cl. 514-450.000.

Dorschel, Klaus: *See—*
Muller, Gerhard; Kar, Hasan; Dorschel, Klaus; and Schonborn, Karl-Heinz, 5,066,292, Cl. 606-7.000.

Doss, George: *See—*
Chen, Shieh-Shung T.; and Doss, George, 5,066,586, Cl. 435-119.000.

Dotrong, My: *See—*
Evers, Robert C.; and Dotrong, My, 5,066,769, Cl. 528-337.000.

Doty, James H., II; Albean, David L.; and Blatter, Harold, to Thomson Consumer Electronics, Inc. Apparatus for generating phase shifted clock signals. 5,066,868, Cl. 307-262.000.

Doundoulakis, George J.; and Doundoulakis, James H. Saliva ejector. 5,066,228, Cl. 433-91.000.

Doundoulakis, James H.: *See—*
Doundoulakis, George J.; and Doundoulakis, James H., 5,066,228, Cl. 433-91.000.

Dow Chemical Company, The: *See—*
Byrd, Carl E.; Kelly, Stephen L.; and Beaver, Richard N., 5,066,380, Cl. 204-290.00R.
Campbell, Richard E., Jr., 5,066,741, Cl. 526-171.000.

VOL
1132
ISS
3
NO
19
1991
UMI

Clement, Katherine S.; Babb, David A.; and Ezzell, Bobby R., 5,066,746, Cl. 526-242.000.
Hefner, Robert E., Jr.; Puckett, Paul M.; and Earls, Jimmy D., 5,066,750, Cl. 526-273.000.
Nader, Bassam S., 5,066,409, Cl. 252-48.200.
Simon, Jaime; Wilson, David A.; Volkert, Wynn A.; Troutner, David E.; and Goeckeler, William F., 5,066,478, Cl. 424-1.100.
Tabor, icky L.; and Allen, James A., 5,066,542, Cl. 428-461.000.
Walker, Louis L.; and Larson, Paul A., 5,066,735, Cl. 525-482.000.

Dow Corning Corporation: *See—*
Freiberg, Alan L.; Lefler, Harold V., III; and Liles, Donald T., 5,066,520, Cl. 427-379.000.
Lee, Chi-Long; and Yeh, Ming-Hsiung, 5,066,699, Cl. 524-379.000.

Dowbenko, Rostyslaw: *See—*
Martz, Jonathan T.; Kelly, Thomas W.; Dowbenko, Rostyslaw; Meier, James A.; and Palermo, Anthony C., 5,066,733, Cl. 525-455.000.

DowBrands Inc.: *See—*
Behr, R. Douglas, 5,066,444, Cl. 264-171.000.

Downward, Steven J.: *See—*
Davies, Anthony R.; Downward, Steven J.; and Chilvers, David, 5,065,784, Cl. 137-116.000.

Doye, Dennis L.; and Sneed, Michael R., to AMP Incorporated. Coaxial subminiature connector. 5,066,249, Cl. 439-585.000.

Draftex Industries Limited: *See—*
Goedderz, Dieter, 5,065,486, Cl. 29-235.000.

Dragerwerk: *See—*
Steen, Hans-Wilhelm, 5,065,746, Cl. 128-205.240.

Dragerwerk Aktiengesellschaft: *See—*
Albarda, Scato; Thoren, Werner; Kahning, Stefan; and Vehrens, Peter, 5,065,978, Cl. 251-129.060.

Dragisic, Branislav M.; and Markley, Finley W. Shielding to protect material from laser light. 5,065,757, Cl. 128-207.140.

Drake, David E.: *See—*
Meyers, John A.; Drake, David E.; and Witt, Charles W., 5,065,827, Cl. 175-414.000.

Draper Corporation: *See—*
Roach, Ernest F.; Frick, Stephen D.; and Sample, Randell F., 5,065,796, Cl. 139-300.000.

Drent, Eit: *See—*
Van Deursen, Josephus H.; Van Doorn, Johannes A.; Drent, Eit; and Wong, Pui K., 5,066,778, Cl. 528-392.000.

Dresser Industries, Inc.: *See—*
Bissell, Robert D.; and Ortyl, Nicholas E., III, 5,067,100, Cl. 364-571.010.

Driscoll, Edward C., Jr.; Martin, Craig O.; Ruby, Kenneth; Russell, James J.; and Watson, John G., to Identix Incorporated. Method and apparatus for verifying identity using image correlation. 5,067,162, Cl. 382-5.000.

Driska, John J., to Azrak-Hamway International Inc. Basket for basketball-type game. 5,066,006, Cl. 273-1.50R.

Driver, Michael J.; Greenlees, Alexander R.; and MacPherson, David T., to Beecham Group p.l.c. Amphotericin derivatives. 5,066,646, Cl. 514-31.000.

Driver Safety Systems Ltd.: *See—*
Schweitzer, Naftali; Bodenheimr, Joseph S.; and David, Gerald B., 5,066,950, Cl. 340-937.000.

Droegemueller, Karsten; and Klement. Ekkehard, to Siemens Aktiengesellschaft. Optical arrangement for a feedback-free coupling of a laser emission emitted by a semiconductor laser into an optical fiber. 5,066,092, Cl. 385-33.000.

Drummond, George S.: *See—*
Kappas, Attallah; and Drummond, George S., 5,066,650, Cl. 514-185.000.

D'Sylva, Olwyn A.: *See—*
DeVoe, Irving W.; D'Sylva, Olwyn A.; and Fine, David A., 5,066,371, Cl. 204-149.000.

Du Castel, Francois. Very large size display screen. 5,066,947, Cl. 340-815.310.

Dudley, Kevin F.; Dunshee, Kevin B.; and Abbott, Alan D., to Electric Power Research Institute, Inc. Method for controlling indoor coil freeze-up of heat pumps and air conditioners. 5,065,593, Cl. 62-182.000.

Duke, Steven R.: *See—*
Bullis, Stephen J.; Duke, Steven R.; Cozzy, Thomas W.; and Rossier, Glenn E., 5,065,662, Cl. 89-12.000.

Dulebohn, David H., to Andrew Tool Company. Disassemblable scissors means. 5,065,516, Cl. 30-245.000.

Dumain, Andre; Engel, Jean; and Havas, Laszlo, to BP Chemicals Limited. Gas-phase alpha-olefin polymerization process in the presence of an activity retarder. 5,066,736, Cl. 526-82.000.

Dunaway, Thomas J.; Spielberger, Richard K.; Dicks, Lori A.; and Loy, Jerald M., to Honeywell Inc. Method of manufacturing a leadframe having conductive elements preformed with solder bumps. 5,066,614, Cl. 437-209.000.

Dunaway, Thomas J.: *See—*
Spielberger, Richard K.; and Dunaway, Thomas J., 5,066,831, Cl. 174-52.400.

Dunbar, Frank C.: *See—*
Kilbane, Farrell M.; Coleman, Richard A.; Dunbar, Frank C.; and Gibson, Alan F., 5,066,549, Cl. 428-653.000.

Dunlap, Beth E.; Rogers, Fulton F., Jr.; and Teasley, Mark F., to Du Pont de Nemours, E. I., and Company. Recovery and melt extrusion of aromatic/aliphatic copolyamides from lactam-plasticized polymer. 5,066,445, Cl. 264-176.100.

Dunshee, Kevin B.: *See—*
Dudley, Kevin F.; Dunshee, Kevin B.; and Abbott, Alan D., 5,065,593, Cl. 62-182.000.

Duphar International Research B.V.: *See—*
Hamminga, Derk; van Wijngaarden, Ineke; and Jansen, Johannes W. C. M., 5,066,649, Cl. 514-183.000.

Du Pont de Nemours, E. I., and Company: *See—*
Chung, Ding Y.; Debroy, Tapan K.; and Tjoe, Sioe-Heng A., 5,066,688, Cl. 523-415.000.
Dunlap, Beth E.; Rogers, Fulton F., Jr.; and Teasley, Mark F., 5,066,445, Cl. 264-176.100.
Ferretti, August; and Gier, Thurman E., 5,066,356, Cl. 156-623.00R.
Gutowski, Timothy G.; Sentovich, Michael F.; and Okine, Richard K., 5,066,442, Cl. 264-154.000.
Hazan, Isidor; and Nordstrom, John D., 5,066,698, Cl. 524-269.000.
Knox, Benjamin H.; and Noe, James B., 5,066,447, Cl. 264-290.500.
Matthews, Abraham, 5,066,430, Cl. 264-8.000.
Merchant, Abid N., 5,066,417, Cl. 252-171.000.
Merchant, Abid N., 5,066,418, Cl. 252-172.000.
Thelissen, Guillaume Francois G., 5,066,931, Cl. 333-182.000.

Duracraft Corporation: *See—*
Chiu, Bernard, 5,067,169, Cl. 392-406.000.

Durashore, Inc.: *See—*
Bourdo, John L., 5,066,353, Cl. 156-300.000.

Durfee, David, to Durfee, Susan M. Vise jaw accessory system for attaching and releasing vise accessories while maintaining positional accuracy of the accessories. 5,065,990, Cl. 269-282.000.

Durfee, Susan M.: *See—*
Durfee, David, 5,065,990, Cl. 269-282.000.

Durr, Heinrich; Rosenthal, Manfred; and Adamek, Manfred, to U.S. Philips Corporation. Device comprising a printing mechanism. 5,066,151, Cl. 400-605.000.

Dustcontrol International AB: *See—*
Haberl, Johann; and Lundqvist, Gosta, 5,066,315, Cl. 55-96.000.

Dutta, Binay K.; and Sikdar, Subhas K., to United States of America, Commerce. Process for separating azeotropic or close-boiling mixtures by use of a composite membrane, the membrane, and its process of manufacture. 5,066,403, Cl. 210-638.000.

DXImaging: *See—*
Houle, William A.; Larson, James R.; and Pearlstine, Kathryn A., 5,066,821, Cl. 430-137.000.

Dykstra, Douglas L.; and Herbruck, Steven L. Flashing light ball. 5,066,011, Cl. 273-58.00G.

E. R. Squibb & Sons, Inc.: *See—*
Ogletree, Martin L.; Schumacher, William A.; Grover, Gary J.; and Friedhoff, Lawrence T., 5,066,480, Cl. 424-10.000.

Eales, George E. Confection and safety support handle. 5,066,502, Cl. 426-75.000.

Earlam, Sandra J. K.: *See—*
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.

Earls, Jimmy D.: *See—*
Hefner, Robert E., Jr.; Puckett, Paul M.; and Earls, Jimmy D., 5,066,750, Cl. 526-273.000.

Earnheart, William G., Jr., to Cooper Tire and Rubber Co. Automatic white sidewall spraying apparatus. 5,065,694, Cl. 118-669.000.

Eastman Kodak Company: *See—*
Baxter, Dennis E.; and Stoneham, Jeffrey R., 5,065,952, Cl. 242-71.100.
Boutet, John C.; and Unruh, Gary R., 5,065,866, Cl. 206-455.000.
Erhardt, Herbert J., 5,066,994, Cl. 357-24.000.
Estelle, Lee R.; and Short, Svetlana Z., 5,067,067, Cl. 364-156.000.
Funston, David L., 5,067,020, Cl. 358-214.000.
Hamann, J. Eric, 5,067,092, Cl. 364-496.000.
Hills, Robert G., 5,066,241, Cl. 439-260.000.
Jackson, Winston J., Jr.; and Darnell, William R., 5,066,766, Cl. 528-190.000.
Kalyandurg, Satyan R., 5,066,981, Cl. 355-245.000.
Long, Michael; Huttemann, Lyndon R.; Sanford, Robert W.; and Longboat, Robert D., 5,066,345, Cl. 156-157.000.
Long, Michael; Huttemann, Lyndon R.; and Sanford, Robert W., 5,066,346, Cl. 156-157.000.
Mullen, Charles E.; and Crater, Arthur H., 5,065,489, Cl. 29-281.500.
O'Connor, Kevin M.; Szajewski, Richard P.; and Bagchi, Pranab, 5,066,572, Cl. 430-503.000.
Osterhoudt, Hans W.; Ponticello, Ignazio S.; Christy, Kenneth G., Jr.; Bowman, Wayne A.; and Eikenberry, Jon N., 5,066,376, Cl. 204-182.800.
Pazda, Robert J.; Clum, Kenneth L.; and Hood, Harrison P., III, 5,066,918, Cl. 324-452.000.
Przybylowicz, Catherine S.; Brill, Edwin W., Jr.; and Carrozziere, Luigi A., 5,067,093, Cl. 364-498.000.
Sarraf, Sanwal P., 5,066,962, Cl. 346-76.00L.

Eaton Corporation: *See—*
Clarey, Robert J.; and Reiner, Richard A., 5,066,832, Cl. 174-50.000.
Nellums, Richard A., 5,065,855, Cl. 192-53.00E.
Stephenson, Dwight B.; and Marks, Dennis R., 5,065,793, Cl. 137-625.240.

Eaton, Harry A. C.; and Fisher, Robert S., to Johns Hopkins University, The. Magnetic nerve stimulator. 5,066,272, Cl. 600-9.000.

Eberhard, Gunter: *See—*
Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, 5,066,401, Cl. 210-500.350.

Ebihara, Yasuhiro; Sakaniwa, Hiroyuki; and Saito, Hiroshi, to Nissan Motor Company, Ltd. Method of securing fastener. 5,065,494, Cl. 29-525.200.

Eckerle, Joseph S.; and Kornbluh, Roy, to Colin Electronics Co., Ltd. Compensation for tonometer sensor crosstalk and element spacing. 5,065,765, Cl. 128-672.000.

Ecker, Karl-Ludwig: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,066,432, Cl. 264-28.000.

Eddinger, Kevin B.: *See—*
Mosser, Mark F.; Eddinger, Kevin B.; and Fabiny, William J., 5,066,540, Cl. 428-336.000.

Eddings, Jack L.: *See—*
Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., 5,066,907, Cl. 324-158.00P.

Eddy, James A.; and Keller, Alan N., to Xerox Corporation. Hardware delivery system. 5,065,905, Cl. 222-132.000.

Edlund, Roy, to Busak + Luyken GmbH & Co. Sealing ring apparatus. 5,066,027, Cl. 277-165.000.

Edo Corporation: *See—*
Lukez, Rudy, 5,065,892, Cl. 220-465.000.

Edwards, Charles C.: *See—*
Chapman, Michael W.; Mears, Dana C.; and Edwards, Charles C., 5,066,296, Cl. 606-64.000.

Edwards, Geoffrey S., to Oxley Developments Company Limited. Sealed LED lamp housing. 5,066,889, Cl. 313-512.000.

Edwards, Michael E.: *See—*
Grubbs, Robert E.; Haberkern, Richard G.; Edwards, Michael E.; and Frederickson, James D., 5,065,774, Cl. 131-291.000.

Efstathiou, John D.: *See—*
Creighton, Dean W.; Efstathiou, John D.; and Merboth, John A., 5,066,506, Cl. 426-450.000.

Egbert, Gary L.; and Ziegler III, Philip L., to Baroid Technology, Inc. Drill string compensator with improved transloaders. 5,066,059, Cl. 294-82.160.

Egerton, Michael: *See—*
Wall, Alan; Grayson, Peter; and Egerton, Michael, 5,066,162, Cl. 403-361.000.

Egraz, Jean-Bernard: *See—*
Simonet, Benoit; Fabre, Pierre; Laluet, Jacques; and Egraz, Jean-Bernard, 5,066,710, Cl. 524-555.000.

Eguchi, Yoshio: *See—*
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.

Ehrenfreund, Josef; and Stamm, Erich, to Ciba-Geigy Corporation. Thioxotetrazolines and insecticidal use thereof. 5,066,667, Cl. 514-381.000.

Ehrman, Albert M.; Seiden, Paul; Weitzel, Rose M.; and White, Robert L., to Procter & Gamble Company, The. Process for tempering flavored confectionery compositions containing reduced calorie fats and resulting tempered products. 5,066,510, Cl. 426-607.000.

Eichenauer, Herbert; Wittmann, Dieter; Schmidt, Adolf; and Ott, Karl-Heinz, to Bayer Aktiengesellschaft. Thermoplastic moulding compounds based on aromatic polycarbonates and vinyl polymers with improved thermostability. 5,066,717, Cl. 525-67.000.

Eichengerger, Hansulrich; and Clement, Heinz, to Rieter Machine Works, Ltd. Calendar rollers with rounded teeth for crimping sliver and increasing cohesion length. 5,065,477, Cl. 19-150.000.

Eichler, Klaus: *See—*
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, 5,066,365, Cl. 203-042.000.

Eikenberry, Jon N.: *See—*
Osterhoudt, Hans W.; Ponticello, Ignazio S.; Christy, Kenneth G., Jr.; Bowman, Wayne A.; and Eikenberry, Jon N., 5,066,376, Cl. 204-182.800.

Eilert, Gerd: *See—*
Richter, Karl-Heinz; Rollmann, Gerhard; Struck, Helmut; and Eilert, Gerd, 5,065,835, Cl. 180-197.000.

Eimori, Takahisa; Satoh, Shinichi; Wakamiya, Wataru; Ozaki, Hiroji; and Tanaka, Yoshinori, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor device having field shield isolation. 5,067,000, Cl. 357-53.000.

Einhaus, Hermanus F., to U.S. Philips Corporation. Disc-record player comprising a disc-loading device for a disc supported on a tray. 5,067,121, Cl. 369-75.200.

Einwiller, Andreas: *See—*
Angel, Maximilian; and Einwiller, Andreas, 5,066,715, Cl. 524-812.000.

Eisai Co., Ltd.: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Eisenstein, Gabe L., to Hewlett-Packard Company. Method and apparatus for displaying and editing mathematical expressions in textbook format. 5,067,102, Cl. 364-709.120.

Electric Power Research Institute, Inc.: *See—*
Dudley, Kevin F.; Dunshee, Kevin B.; and Abbott, Alan D., 5,065,593, Cl. 62-182.000.
Lee, Robert A. S., 5,065,703, Cl. 122-382.000.

Elings, Virgil B.; and Gurley, John A., to Digital Instruments, Inc. Scanning tunneling microscopes with correction for coupling effects. 5,066,858, Cl. 250-307.000.

Elliott, Bernard. Portable convertible barbeque grill. 5,065,734, Cl. 126-9.00R.

Elliott, David L.: *See—*
Leighton, John C.; Iovine, Carmine P.; Aronson, Michael P.; and Elliott, David L., 5,066,749, Cl. 526-271.000.

Ellis, Larry G.; and Carter, William R., to Teleflex Incorporated. Ordnance ejector system for an aircraft. 5,065,961, Cl. 244-137.400.

Elmasry, Mohamed A.; and Kidnie, Kevin M., to Minnesota Mining and Manufacturing Company. Liquid electrophotographic toner. 5,066,559, Cl. 430-111.000.

Elsbett, Gunter: *See—*
Elsbett, Ludwig; Elsbett, Gunter; and Elsbett, Klaus, 5,065,707, Cl. 123-41.420.

Elsbett, Klaus: *See—*
Elsbett, Ludwig; Elsbett, Gunter; and Elsbett, Klaus, 5,065,707, Cl. 123-41.420.

Elsbett, Ludwig; Elsbett, Gunter; and Elsbett, Klaus. Oil-cooled cylinder head. 5,065,707, Cl. 123-41.420.

Elton, Richard K.; and Schultz, William R., Jr., to General Electric Company. Semi-conducting layer for insulated electrical conductors. 5,066,881, Cl. 310-213.000.

Elton, Richard K.; and Schultz, William R., Jr., to General Electric Company. Electric charge bleed-off structure using pyrolyzed glass fiber. 5,067,046, Cl. 361-220.000.

Elyanow, Irving D.: *See—*
Parsi, Edgardo J.; Sims, Keith J.; Elyanow, Irving D.; and Prato, Thomas A., 5,066,375, Cl. 204-182.400.

Emerson Electric Co.: *See—*
Lloyd, Jerry D.; and Hilal, M. A., 5,066,638, Cl. 505-1.000.
Slocum, Laurence S., 5,066,944, Cl. 340-603.000.

Emery, Kenneth R.; Bennett, Harold R.; and Clark, Jack, to Firelli General plc. Electrical cable manufacture. 5,066,516, Cl. 427-118.000.

Emhart Industries, Inc.: *See—*
Smith, John W.; and Chestnut, Benjamin F., 5,066,838, Cl. 200-61.890.

Emori, Kiyoshi; and Maekawa, Hiroshi, to Minolta Camera Kabushiki Kaisha. Image recording system for controlling developing devices. 5,066,986, Cl. 355-326.000.

Encore Computer Corporation: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.

Encore Molding Systems, Inc.: *See—*
Baxi, Indra R.; and Erikson, Erik E., 5,066,214, Cl. 425-190.000.

Endo, Mitsuharu: *See—*
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.

Endo, Takeshi: *See—*
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.

Energy Resources & Logistics, Inc.: *See—*
Jenkins, Christopher P., 5,065,581, Cl. 60-668.000.

Engel, Jean: *See—*
Dumain, Andre; Engel, Jean; and Havas, Laszlo, 5,066,736, Cl. 526-82.000.

Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, to Cassella Aktiengesellschaft. Alkenylphosphonic and —phosphinic acid esters, process for their preparation, hydrogels produced using them, and their use. 5,066,745, Cl. 526-240.000.

Engineered Air Systems, Inc.: *See—*
Mutchler, Paul A., 5,065,736, Cl. 126-110.00B.

English, Philip H.; and Szpak, Anthony D. Toothbrush and paste dispenser. 5,066,155, Cl. 401-175.000.

Enterovax Limited: *See—*
Manning, Paul A.; Reeves, Peter R.; and Rowley, Derrick, 5,066,596, Cl. 435-252.330.

Environmental Water Technology, Inc.: *See—*
Miller, Steven L.; Wathen, Ronald L.; and Palazzo, Raymond E., Jr., 5,065,791, Cl. 137-515.000.

Eppig, Christopher P.: *See—*
Paspek, Stephen C.; and Eppig, Christopher P., 5,066,386, Cl. 208-187.000.

Erbamont, Inc.: *See—*
Palepu, Nageswara R.; and Hutt, Julie A., 5,066,647, Cl. 514-110.000.

Erhardt, Herbert J., to Eastman Kodak Company. Image sensor. 5,066,994, Cl. 357-24.000.

Ericsson GE Mobile Communication Holding, Inc.: *See—*
Dent, Paul, 5,066,927, Cl. 331-1.00A.

Eriguchi, Hideki: *See—*
Kumakura, Toshihisa; Nanaumi, Ken; Ikezawa, Ryoichi; and Eriguchi, Hideki, 5,066,691, Cl. 523-438.000.

Erikson, Erik E.: *See—*
Baxi, Indra R.; and Erikson, Erik E., 5,066,214, Cl. 425-190.000.

Erlich, Henry A.: *See—*
Gyllensten, Ulf B.; and Erlich, Henry A., 5,066,584, Cl. 435-91.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Ermens, Hermanus W. A.: *See*—
van den Hoven, Martinus M. G. M.; and Ermens, Hermanus W. A., 5,066,509, Cl. 426-592.000.
Ernst, Alfons, to Johannes Heidenheim GmbH. Incremental angle encoder having spiral scanning field and multiple discs. 5,066,857, Cl. 250-231.150.
Erowa AG: *See*—
Schneider, Rudolf, 5,065,991, Cl. 269-309.000.
Erwin Kayser - Threde GmbH: *See*—
Rippel, Harald, 5,066,990, Cl. 356-346.000.
Esco Corporation: *See*—
Ottestad, Jack B., 5,065,824, Cl. 173-134.000.
Eslinger, David M., to Halliburton Company. Back pressure regulating valve for ultra high pressures. 5,065,789, Cl. 137-513.500.
Esselte Pendaflex Corporation: *See*—
Hawes, Robert E., Jr.; Dellacroce, Cheryl; Aaldenberg, Eric; and Lynch, James J., 5,066,045, Cl. 281-45.000.
Essilor International, Cie Generale d'Optique: *See*—
Bertrand, Patrick, 5,066,119, Cl. 356-124.000.
Bertrand, Patrick, 5,066,120, Cl. 356-124.000.
Etablissements Proteor: *See*—
Palfray, Michel, 5,065,770, Cl. 128-774.000.
Estelle, Lee R.; and Short, Svetlana Z., to Eastman Kodak Company. Method for evaluating and designing lenses. 5,067,067, Cl. 364-156.000.
Etablissements Marius Millet & Cie: *See*—
Chollet, Jean-Louis, 5,065,914, Cl. 222-529.000.
Etemad, Shahrokh; and Fraser, Howard H., Jr., to Carrier Corporation. Lapping of involute spiral scroll element. 5,065,550, Cl. 51-317.000.
Ethicon, Inc.: *See*—
Deniega, Jose C.; and Failla, Stephen J., 5,066,288, Cl. 604-274.000.
Schulze, Dale R.; Sherman, Jon A.; and Mereness, W. Michael, 5,065,929, Cl. 227-19.000.
Ethyl Corporation: *See*—
—Sangokoya, Samuel A.; Howie, Milham S.; and Trumbo, Todd A., 5,066,631, Cl. 502-152.000.
Evans, David A.: *See*—
Morrison, Robert A.; and Evans, David A., 5,066,830, Cl. 800-230.000.
Evans, Jeffrey C., to Cargill, Incorporated. Fluidization of soapstock. 5,066,501, Cl. 426-74.000.
Evans, Robert L., to University of British Columbia, The. Squish jet combustion chamber. 5,065,715, Cl. 123-263.000.
Evans, Timothy G.; Gould, Mark W.; and McNamara, Timothy J., to International Business Machines Corp. Service processor tester. 5,067,129, Cl. 371-16.100.
Evers, David E.; and Milburn, Charles A., to Bulter Manufacturing Company. Device for holding fasteners. 5,065,649, Cl. 81-458.000.
Evers, Robert C.; and Dotrong, My, to United States of America, Air Force. Crosslinkable rigid-rod aromatic heterocyclic polymer. 5,066,769, Cl. 528-337.000.
Ewen, John A., to Fina Technology, Inc. Polymerization of olefins with an improved catalyst system using a new electron donor. 5,066,738, Cl. 526-124.000.
Excet Corporation: *See*—
Ingalls, Robert A., 5,066,205, Cl. 418-1.000.
Exxon Chemical Patents Inc.: *See*—
—Audett, Jay D., 5,066,728, Cl. 525-314.000.
—Dickakian, Ghazi B., 5,066,598, Cl. 436-2.000.
—German, Paul M., Jr., 5,066,526, Cl. 428-35.200.
—Randall, James C., Jr.; and Huff, Terrence, 5,066,723, Cl. 525-194.000.
Exxon Research and Engineering Company: *See*—
—Agarwal, Pawan K.; and Pugel, Thomas, 5,066,694, Cl. 524-60.000.
—Baird, William C., Jr.; and Swan, George A., 5,066,632, Cl. 502-223.000.
—Peiffer, Dennis G., 5,066,753, Cl. 526-310.000.
EZ Drill, Inc.: *See*—
Hake, Leon M.; and Zerr, Ronald D., 5,065,984, Cl. 254-18.000.
Ezzell, Bobby R.: *See*—
Clement, Katherine S.; Babb, David A.; and Ezzell, Bobby R., 5,066,746, Cl. 526-242.000.
Fabiny, William J.: *See*—
Mosser, Mark F.; Eddinger, Kevin B.; and Fabiny, William J., 5,066,540, Cl. 428-336.000.
Fabre, Pierre: *See*—
Simonet, Benoit; Fabre, Pierre; Laluet, Jacques; and Egraz, Jean-Bernard, 5,066,710, Cl. 524-555.000.
Fagg, Barry S., to R. J. Reynolds Tobacco Company. Tobacco processing. 5,065,775, Cl. 131-297.000.
Fahy, John S.: *See*—
Bianco, James S.; Madsen, James T.; Ceppetelli, Michael; and Fahy, John S., 5,067,155, Cl. 380-25.000.
Failla, Stephen J.: *See*—
Deniega, Jose C.; and Failla, Stephen J., 5,066,288, Cl. 604-274.000.
Falk, Bernhard: *See*—
Ruff, Klaus; Falk, Bernhard; and Gratz, Werner, 5,066,472, Cl. 423-342.000.
Fallik, Joel. Expandable refrigerated enclosure for computer boards. 5,067,040, Cl. 361-384.000.
Fallows, W. Joseph, III: *See*—
Amr, Yehia M.; Fallows, W. Joseph, III; and Hogan, Mark R., 5,066,194, Cl. 415-223.000.
Falz, Ulrich: *See*—
Lunke, Manfred; Falz, Ulrich; and Walter, Jurgen, 5,066,263, Cl. 464-96.000.
Fanuc Ltd.: *See*—
Kishi, Hajimu; Mizuno, Tohru; and Kanda, Yuichi, 5,066,847, Cl. 219-124.340.
Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, 5,067,087, Cl. 364-474.240.
Yamazaki, Etsuo; and Iehisa, Nobuaki, 5,067,086, Cl. 364-474.080.
Fanuc Ltd: *See*—
Watanabe, Atsushi, 5,066,902, Cl. 318-568.160.
Farel, Richard A.; and Gawande, Mohan, to AT&T Bell Laboratories. Control of overload in communications networks. 5,067,074, Cl. 395-200.000.
Farfaglia, Leonard T., deceased (by Farfaglia, Mary M., legal representative); Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., to Whirlpool Corporation. Dual side discharge air housing for room air conditioner. 5,065,597, Cl. 62-262.000.
Farfaglia, Leonard T., deceased: *See*—
Harris, James E.; Farfaglia, Leonard T., deceased; and Wetherholt, Steven D., 5,065,596, Cl. 62-262.000.
Farfaglia, Mary M., legal representative: *See*—
Farfaglia, Leonard T., deceased; Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., 5,065,597, Cl. 62-262.000.
Harris, James E.; Farfaglia, Leonard T., deceased; and Wetherholt, Steven D., 5,065,596, Cl. 62-262.000.
Faria, Manuel S. Reusable liquid filter assembly. 5,066,391, Cl. 210-85.000.
Farman, Brian F., to Lucas Industries Public Limited Company. Digital control system. 5,067,080, Cl. 364-431.040.
Farner, Peter W.; and Cocks, Franklin H. Process for producing flat plate illumination devices. 5,066,257, Cl. 445-26.000.
Farnsworth, Elmer D. Automobile headlamp and rotatable sidelamp of integrated construction and switching circuit for operating same. 5,067,055, Cl. 362-66.000.
Farnsworth, Thomas L., to Invequest, Inc. Method of shredding carbon paper. 5,065,947, Cl. 241-30.000.
Farr, Glyn P. R., to Lucas Industries Public Limited Company. Hydraulic systems for vehicles. 5,066,077, Cl. 303-114.00R.
Farrell, Thomas J., to Cooper Industries, Inc. Weight set connecting mechanism for subsea tubular members. 5,066,048, Cl. 285-18.000.
Fattal, Jean A., to Raytheon Company. Method for detecting changes in spin rate of a missile in flight. 5,065,956, Cl. 244-3.200.
Faulkner, William G. Connectors for woven conveyor belts. 5,065,860, Cl. 198-848.000.
Favstritsky, Nicolai A.; and Nang, Jin-Liang, to Great Lakes Chemical Corporation. Flame retardant brominated styrene-based polymers. 5,066,752, Cl. 526-293.000.
Federighi, George J., Sr. Peeler for garlic or the like with centrifugal discharge. 5,065,672, Cl. 99-631.000.
Felder, Ernest; Musu, Carlo; Fumagalli, Luciano; and Uggeri, Fulvio, to Bracco Industria Chemica S.p.A. Preparation of 5-acylamino-2,4,6-triiodo- or tribromo-benzoic acid derivatives. 5,066,823, Cl. 560-13.000.
Felder, Stephen L.: *See*—
Chlebina, Larry E.; Majerus, Norbert; Rambacher, John S.; and Felder, Stephen L., 5,066,448, Cl. 264-334.000.
Feldhues, Michael; Kampf, Gunther; and Mecklenburg, Thomas, to Hoechst Aktiengesellschaft. Process for modifying electroconductive polymers using ion exchange. 5,066,731, Cl. 525-417.000.
Fell, Roger, to Scan Group Limited. Installations for measuring liquid depth. 5,065,624, Cl. 73-290.00V.
Felter, Richard E.; Markley, Dean A.; and Musser, Deborah L., to Armstrong World Industries, Inc. Static dissipative vinyl surface covering materials, methods for them, and composition for static dissipation. 5,066,422, Cl. 252-511.000.
Ferdows, Houshang, to Relco, Inc. Prefabricated bus housing. 5,066,067, Cl. 296-197.000.
Ferguson, Jo A. Prophylactic/contraceptive device. 5,065,771, Cl. 128-835.000.
Ferincz, John. Wax-casting components. 5,066,213, Cl. 425-175.000.
Ferrante, Ronald A., to McDonnell Douglas Corporation. Binary alignment corrector. 5,066,100, Cl. 359-569.000.
Ferretti, August; and Gier, Thurman E., to Du Pont de Nemours, E. I., and Company. Hydrothermal process for growing optical-quality single crystals. 5,066,356, Cl. 156-623.00R.
Ferretti, Joseph J.; and Malke, Horst, to University of Okla., Board of Regents of the. Streptokinase-coding recombinant vectors. 5,066,589, Cl. 435-172.300.
Ferris Mfg. Co.: *See*—
Sessions, Robert W.; and Carr, Roy D., 5,065,752, Cl. 128-156.000.
Fersht, Samuel N.: *See*—
Stewart, Robert E.; and Fersht, Samuel N., 5,065,627, Cl. 73-505.000.
Fiedler, Edgar F. Dispenser head for flowable materials. 5,065,910, Cl. 222-504.000.
Fields, Raymond L.: *See*—
Robey, Frank A.; Fields, Raymond L.; and Lindner, Wolfgang, 5,066,716, Cl. 525-54.100.
Fildan Accessories Corp.: *See*—
Fildan, Gerhard, 5,065,916, Cl. 223-91.000.
Fildan, Gerhard, to Fildan Accessories Corp. Garment hanger with molded integral clips. 5,065,916, Cl. 223-91.000.
Filthuth, Heinz. Device for detecting ionizing radiation. 5,066,862, Cl. 250-393.000.
Fina Technology, Inc.: *See*—
Ewen, John A., 5,066,738, Cl. 526-124.000.

Finch, Harry: *See*—
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.
Fine, David A.: *See*—
DeVoe, Irving W.; D'Sylva, Olwyn A.; and Fine, David A., 5,066,371, Cl. 204-149.000.
Finley, Arthur C. Movable support for window washers and the like. 5,065,838, Cl. 182-38.000.
Fiori, Achille: *See*—
Moro, Luigi; Fiori, Achille; and Natali, Alberto, 5,066,495, Cl. 424-451.000.
Firnhaber, Bernhard: *See*—
Wetzel, Rolf; and Firnhaber, Bernhard, 5,066,476, Cl. 423-648.100.
Firooz, Kamran, to Hewlett-Packard Company. Apparatus for testing an electronic circuit having an arbitrary output waveform. 5,066,909, Cl. 324-158.00R.
Firth, David G., to Model & Instrument Development Corporation. Prosthetic foot having a low profile cantilever spring keel. 5,066,305, Cl. 623-55.000.
Fischer, Anton: *See*—
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,066,432, Cl. 264-28.000.
Fischer, Berthold: *See*—
Berges, Hanns-Peter; Fischer, Berthold; Mueller, Peter; and Vorberg, Dieter, 5,066,202, Cl. 417-228.000.
Fischer, Florian; and Ritzer, Christian, to Messerschmitt-Bolkow-Blohm GmbH. Transmission having an eccentric and a cycloid gearing. 5,066,267, Cl. 475-168.000.
Fischer, Frederick H.; Lee, Kuo-hua; Nagy, William J.; and Selamoglu, Nur, to AT&T Bell Laboratories. Severable conductive path in an integrated-circuit device. 5,066,998, Cl. 357-51.000.
Fisher, Robert S.: *See*—
Eaton, Harry A. C.; and Fisher, Robert S., 5,066,272, Cl. 600-9.000.
Fite, Elaine H.; Fossum, Tryggve; Grundmann, William R.; McKeen, Francis X.; and Salett, Ronald M., to Digital Equipment Corporation. Control of multiple functional units with parallel operation in a microcoded execution unit. 5,067,069, Cl. 395-375.000.
Flakus, Werner, to Huels Aktiengesellschaft. Process for the preparation of aqueous, radiation-curable urethaneacrylate dispersions. 5,066,713, Cl. 524-591.000.
Flanhardt, Michael; Roth, Andreas; and Nienhaus, Clemens, to Jean Walterscheid GmbH. Double bevel gear angular drive. 5,065,639, Cl. 74-417.000.
Flisram, Dennis G., to Oscar Mayer Foods Corporation. Food slicing with multiple cutting surface blade. 5,065,656, Cl. 83-356.003.
Flora, David D.: *See*—
Legler, John G.; Bartlett, Robert L.; and Flora, David D., 5,065,652, Cl. 83-168.000.
Flynn, Daniel L.: *See*—
Boschelli, Diane H.; Connor, David T.; Flynn, Daniel L.; Sircar, Jagadish C.; and Hoefle, Milton L., 5,066,668, Cl. 514-384.000.
FMC Corporation: *See*—
Lochmann, Bernhard, 5,065,787, Cl. 137-315.000.
Fodor, Lawrence M.; and Willcox, Kenneth W., to Phillips Petroleum Company. Deodorizing odorous polyolefins with low concentrations of inorganic oxidizing agents. 5,066,686, Cl. 523-102.000.
Fohl, Artur, to TRW Repa GmbH. Belt lock for a safety belt system provided with a tightening means. 5,066,042, Cl. 280-806.000.
Fong, Craig S.: *See*—
Adams, William J.; Jex Courter, Barbara G.; Fong, Craig S.; Murray, Robert C.; and Marshall, Paul A., 5,065,962, Cl. 244-234.000.
Fong, Ding-Huei R.; and Carlstedt, Richard A., to Miner Enterprises, Inc. Preshortening insert for a draft gear. 5,065,874, Cl. 213-31.000.
Forbes Jones, Robin M.; Panzera, Carl; and DeLuca, Robert D., to Johnson & Johnson Consumer Products, Inc. Crystalline alumina orthodontic bracket. 5,066,225, Cl. 433-8.000.
Ford, David F.: *See*—
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Ford, James: *See*—
Heppenstall, Neil G.; Betts, Colin; and Ford, James, 5,066,453, Cl. 376-352.000.
Ford Motor Company: *See*—
Amner, John A., 5,065,920, Cl. 224-275.000.
Johnson, Jonathon S., 5,065,647, Cl. 76-108.600.
Klassen, David J.; and Anderson, Edward G., 5,066,919, Cl. 324-538.000.
Ma, Thomas T., 5,066,023, Cl. 277-2.000.
Schmidt, Norman G., 5,066,940, Cl. 340-453.000.
Stapel, William C., 5,067,057, Cl. 362-83.200.
Forrest, William J.; and Taylor, Lewis C. Retractor support assembly. 5,065,739, Cl. 128-20.000.
Forsyth, Richard C. E., to Mabey & Johnson Limited. Prefabricated lattice panels for a bridge. 5,065,467, Cl. 14-13.000.
Fort, Jeffrey W.: *See*—
Smith, Jay, III; and Fort, Jeffrey W., 5,067,079, Cl. 364-410.000.
Foss, Kristin K.: *See*—
Soderberg, Paulmer M.; Foss, Kristin K.; Giles, Thomas E.; and Narciso, Ralph A., 5,066,139, Cl. 371-20.100.
Fossum, Tryggve: *See*—
Fite, Elaine H.; Fossum, Tryggve; Grundmann, William R.; McKeen, Francis X.; and Salett, Ronald M., 5,067,069, Cl. 395-375.000.
Foster, Lewis R. Sail batten compression adjustment fitting. 5,065,686, Cl. 114-103.000.
Foxboro Company, The: *See*—
Angelosanto, John P.; and Sgourakes, George E., 5,065,611, Cl. 73-4.00R.
Foxgrover, Brian A.: *See*—
Perko, Jack E.; Wirth, Gary J.; and Foxgrover, Brian A., 5,066,349, Cl. 156-166.000.
Francotte, Eric; and Baisch, Gabriele, to Ciba-Geigy Corporation. Finely particulate cellulose esters of aromatic or aromatic-aliphatic carboxylic acids, process for their preparation, and the use thereof. 5,066,793, Cl. 536-50.000.
Frank, Steven J.: *See*—
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Frantom, Richard L.; Pickett, David A.; Rogerson, William E.; Rose, James; and Schubert, Robert, to Bendix Atlantic Inflator Company. Driver side hybrid inflator and air bag module. 5,066,038, Cl. 200-737.000.
Frantz, Earl L.: *See*—
Harner, Leslie L.; and Frantz, Earl L., 5,066,886, Cl. 313-404.000.
Frantz, Keith R. Circuit for producing four indications on a bicolor light emitting diode having two leads. 5,066,929, Cl. 331-57.000.
Franz, Gerhard: *See*—
Pitzer, Ulrike; Franz, Gerhard; and Laubach, Benno, 5,066,473, Cl. 423-344.000.
Fraser, George M., to Cleaning Technology Limited. Abrasive cleaning or cutting. 5,065,551, Cl. 51-410.000.
Fraser, Howard H., Jr.: *See*—
Etemad, Shahrokh; and Fraser, Howard H., Jr., 5,065,550, Cl. 51-317.000.
Fraunhofer Gesellschaft zur Forderung der angewandten Forschung e.V.: *See*—
Benecke, Wolfgang, 5,065,628, Cl. 73-517.00R.
Fred Arbogast Company, Inc.: *See*—
Coody, Archibald S., 5,065,541, Cl. 43-42.290.
Frederickson, James D.: *See*—
Grubbs, Robert E.; Haberkern, Richard G.; Edwards, Michael E.; and Frederickson, James D., 5,065,774, Cl. 131-291.000.
Fredette, Maurice C. J.: *See*—
Zell, Michael S.; and Fredette, Maurice C. J., 5,066,477, Cl. 423-479.000.
Freiberg, Alan L.; Lefler, Harold V., III; and Liles, Donald T., to Dow Corning Corporation. Method of protecting porous masonry. 5,066,520, Cl. 427-379.000.
Freitag, Dieter: *See*—
Russeler, Wolfgang; Idel, Karsten-Josef; Dorf, Ernst-Ulrich; Alewelt, Wolfgang; and Freitag, Dieter, 5,066,776, Cl. 528-388.000.
Freitag, Ronald G., to Westinghouse Electric Corp. Multi push-pull MMIC power amplifier. 5,066,925, Cl. 330-269.000.
Frey, Paul T.: *See*—
Jones, Lawrence D.; Frey, Paul T.; Gleason, David D.; Chee, Paula P.; and Slightom, Jerry L., 5,066,587, Cl. 435-172.100.
Frick, Stephen D.: *See*—
Roach, Ernest F.; Frick, Stephen D.; and Sample, Randell F., 5,065,796, Cl. 139-300.000.
Fried, Herbert E.; and Johnson, Thomas H., to Shell Oil Company. Preparation of carboxylic acid esters. 5,066,829, Cl. 560-217.000.
Friedhoff, Lawrence T.: *See*—
Ogletree, Martin L.; Schumacher, William A.; Grover, Gary J.; and Friedhoff, Lawrence T., 5,066,480, Cl. 424-10.000.
Friedrich, Maria S.: *See*—
Suresh, Dev D.; DiCosimo, Robert; Loiseau, Richard; Friedrich, Maria S.; and Szabo, Hsiao-Chiung, 5,066,809, Cl. 546-250.000.
Friedrich Wilh. Schwing GmbH: *See*—
Coja, Joachim; von Eckardstein, Karl-Ernst; and Simnovec, Andrej, 5,066,203, Cl. 417-318.000.
Frigger, Heinz; and Blum, Klaus-Dieter, to Alfred Teves GmbH. Brake system for automotive vehicles. 5,066,073, Cl. 303-92.000.
Frito-Lay, Inc.: *See*—
Center, John L.; Mills, William C., Jr.; and Plaskett, John R., 5,066,269, Cl. 493-183.000.
Fritzsche, Peter: *See*—
Soltermann, Roland; Fritzsche, Peter; and Muller, Kurt, 5,065,637, Cl. 74-99.00R.
Frollini, Dominick, Jr.: *See*—
Levy, Alan B.; Sifniades, Stylianos; Kent, Lloyd C.; and Frollini, Dominick, Jr., 5,066,373, Cl. 204-153.210.
Frye, Ruth E. Solid, pliable organic compound for hot/cold thermal reservoir. 5,066,411, Cl. 252-70.000.
Fuji Electric Co., Ltd.: *See*—
—Shimizu, Hideo; and Takahashi, Yasuhiro, 5,067,117, Cl. 369-116.000.
Fuji Jukogyo Kabushiki Kaisha: *See*—
Kobayashi, Toshio, 5,066,268, Cl. 475-249.000.
Takagaki, Katsumi, 5,065,841, Cl. 184-6.180.
Fuji Kiko Company, Limited: *See*—
Yamamoto, Yoshimi; and Kino, Keisuke, 5,065,641, Cl. 74-473.0SW.

VOL 1132 ISS 3 NO 19 1991 UMI

Fuji Photo Film Co., Ltd.: *See*—
Adachi, Yuuma, 5,067,163, Cl. 382-6.000.
Aono, Toshiaki; Nakamura, Koichi; and Shibata, Takeshi, 5,066,563, Cl. 430-213.000.
Hatori, Masami, 5,066,126, Cl. 356-328.000.
Ichijima, Seiji; Saito, Naoki; Mihayashi, Keiji; Ishii, Yoshio; and Ogawa, Akira, 5,066,576, Cl. 430-558.000.
Kawasaki, Kazuya; Tanaka, Mitsutoshi; Amano, Yoshikazu; and Katsuyama, Harumi, 5,066,462, Cl. 422-56.000.
Matushita, Tetunori; Yagihara, Morio; and Sakanoue, Kei, 5,066,573, Cl. 430-542.000.
Nakamura, Hiroshi, 5,066,562, Cl. 430-203.000.
Nakamura, Koki; Ito, Takayuki; Tsukase, Masaaki; and Taguchi, Toshiki, 5,066,577, Cl. 430-562.000.
Nakamura, Takashi; and Kurokawa, Toshio, 5,066,570, Cl. 430-421.000.
Sato, Tadahisa; Takahashi, Osamu; Naruse, Hideaki; and Mizukawa, Yuki, 5,066,575, Cl. 430-558.000.
Takahashi, Yohnosuke, 5,067,029, Cl. 358-909.000.
Yoshida, Kazuaki; and Ishikawa, Takatoshi, 5,066,571, Cl. 430-489.000.

Fuji Xerox Co., Ltd.: *See*—
Kanagawa, Takashi; Shiino, Yutaka; and Furuyama, Tetsuya, 5,066,976, Cl. 355-200.000.

Fujii, Akiyoshi: *See*—
Deguchi, Katsuyasu; Mizoguchi, Takatoshi; Taminaga, Takayuki; and Fujii, Akiyoshi, 5,066,960, Cl. 346-76.0PH.

Fujii, Hiroshi, to Sony Corporation. Tape cassette having outer and inner lids locked by the inner lid. 5,065,955, Cl. 242-198.000.

Fujii, Natsuji: *See*—
Kaneda, Ichiro; Yamamoto, Seiji; and Fujii, Natsuji, 5,066,075, Cl. 303-113.00R.

Fujii, Syuso: *See*—
Sakurai, Kiyofumi; Fujii, Syuso; and Shimizu, Mitsuru, 5,066,997, Cl. 357-45.000.

Fujii, Toshifumi: *See*—
Yamasaki, Tatsuo; and Fujii, Toshifumi, 5,067,031, Cl. 360-22.000.

Fujii, Yozo: *See*—
Yoshino, Kunihisa; Motohashi, Mitsuo; and Fujii, Yozo, 5,065,693, Cl. 118-657.000.

Fujiki, Hironao: *See*—
Inoue, Yoshio; Yoshino, Masachika; and Fujiki, Hironao, 5,066,714, Cl. 524-731.000.

Fujiki, Yoshinori: *See*—
Komatsu, Yu; Fujiki, Yoshinori; and Sasaki, Takayoshi, 5,066,404, Cl. 210-670.000.

Fujikura Ltd.: *See*—
Yamauchi, Ryozo; Kawakami, Noboru; and Suzuki, Fumio, 5,066,087, Cl. 385-43.000.

Fujimaki, Tatsuo: *See*—
Hamada, Tatsuro; Fukuoka, Hiromi; Komatsu, Hideki; and Fujimaki, Tatsuo, 5,066,721, Cl. 525-102.000.

Fujimoto, Sachito; and Koike, Yuzuru, to Honda Giken Kogyo Kabushiki Kaisha. System for preventing overheat of engine for vehicle. 5,065,705, Cl. 123-41.150.

Fujimoto, Shinji; and Yamaguchi, Mitsugu, to Kabushiki Kaisha Daikin Seisakusho. Lockup clutch of torque converter. 5,065,853, Cl. 192-3.290.

Fujimoto, Yoshitomi: *See*—
Kanazawa, Hirotaka; Fujimoto, Yoshitomi; and Suzuki, Michio, 5,065,576, Cl. 60-295.000.

Fujimura, Masaaki: *See*—
Fukuzawa, Shigeo; Kaneko, Takahide; and Fujimura, Masaaki, 5,066,217, Cl. 425-589.000.

Fujimura, Yuji: *See*—
Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, 5,065,834, Cl. 180-197.000.

Fujinaga, Masato: *See*—
Kunikiyo, Tatsuya; Fujinaga, Masato; and Kotani, Norihiko, 5,067,101, Cl. 364-578.000.

Fujisawa Pharmaceutical Co., Ltd.: *See*—
Shiokawa, Youichi; Okumura, Kazuo; Take, Kazuhiko; and Tsubaki, Kazunori, 5,066,680, Cl. 514-622.000.

Fujita, Toshio: *See*—
Bhandari, Pradeep; and Fujita, Toshio, 5,066,337, Cl. 136-202.000.

Fujita, Tsutomu: *See*—
Takemoto, Toyoki; Komeda, Tadao; Yamada, Haruyasu; and Fujita, Tsutomu, 5,066,602, Cl. 437-31.000.

Fujito, Kazumi: *See*—
Inami, Junichi; Kikuta, Koozi; Nakane, Satoshi; Fujito, Kazumi; and Hirosawa, Hitoshi, 5,066,344, Cl. 156-138.000.

Fujitsu Limited: *See*—
Chida, Jun, 5,067,066, Cl. 363-16.000.
Hamano, Hiroshi; Amemiya, Izumi; Yamamoto, Takuji; Arai, Yasunari; and Ihara, Takeshi, 5,066,877, Cl. 307-603.000.
Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, 5,067,123, Cl. 370-58.100.
Kaneta, Hiroshi; and Muraishi, Shuichi, 5,066,599, Cl. 437-7.000.
Kotachi, Akiko; Takechi, Satoshi; and Nakamura, Yuko, 5,066,751, Cl. 526-279.000.
Miura, Takao; and Imaoka, Kazunori, 5,066,993, Cl. 357-23.700.
Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, 5,066,612, Cl. 437-192.000.
Tonomoto, Yoshihiro, 5,066,983, Cl. 355-297.000.
Wakimoto, Yasuhiro; and Suzuki, Tetsuo, 5,067,077, Cl. 395-400.000.
Watarai, Shinichi; Yasuda, Megumi; Houki, Yoji; and Nishio, Yukio, 5,066,978, Cl. 355-206.000.

Fujiwara, Katsuki: *See*—
Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, 5,066,410, Cl. 252-68.000.

Fujiwara, Yasuhiko: *See*—
Doi, Kazuhiro; Fujiwara, Yasuhiko; Abe, Toshiro; and Matsui, Shinichi, 5,065,869, Cl. 207-140.100.

Fukami, Seiji: *See*—
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.

Fukao, Kaname; Hamanaka, Toshiyuki; Harada, Takashi; and Kondo, Noboru, to NGK Insulators, Ltd. Ceramic materials for use in insert-casting and processes for producing the same. 5,066,626, Cl. 501-128.000.

Fukuchi, Tadakazu: *See*—
Minami, Toshiaki; Fukuchi, Tadakazu; Ohashi, Reiji; and Kaneko, Toshio, 5,066,634, Cl. 503-209.000.

Fukuda, Kiyohito: *See*—
Kato, Tetsuo; Fukuda, Kiyohito; Watanabe, Hiroshi; Terada, Katsuaki; and Taguchi, Naoto, 5,066,252, Cl. 439-752.000.

Fukuda, Shinri; and Ishii, Eiichi, to NEC Corporation. Circuit for converting ECL level signals to MOS level signals. 5,066,876, Cl. 307-475.000.

Fukuda, Tsuguhiro; Nakagomi, Hiroshi; and Karita, Seiichirou, to Canon Kabushiki Kaisha. Recording head having cooling mechanism therefor. 5,066,964, Cl. 346-140.00R.

Fukui, Toshimasa: *See*—
Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, 5,067,123, Cl. 370-58.100.

Fukunaga, Takahiro: *See*—
Nakanishi, Yasushi; and Fukunaga, Takahiro, 5,066,975, Cl. 355-200.000.

Fukuoka, Hiromi: *See*—
Hamada, Tatsuro; Fukuoka, Hiromi; Komatsu, Hideki; and Fujimaki, Tatsuo, 5,066,721, Cl. 525-102.000.

Fukuzawa, Shigeo; Kaneko, Takahide; and Fujimura, Masaaki, to Ube Industries, Ltd. Clamping apparatus for an injection molding machine. 5,066,217, Cl. 425-589.000.

Fumagalli, Luciano: *See*—
Felder, Ernest; Musu, Carlo; Fumagalli, Luciano; and Uggeri, Fulvio, 5,066,823, Cl. 560-13.000.

Fumanti, Robert R. V.: *See*—
Kolstad, Lawrence E.; and Fumanti, Robert R. V., 5,066,033, Cl. 280-414.100.

Funston, David L., to Eastman Kodak Company. Dual sensor film scanner having coupled optics and a video viewfinder. 5,067,020, Cl. 358-214.000.

Fuqua Industries, Inc.: *See*—
McDonner, Orville R., 5,066,146, Cl. 384-473.000.

Furlow, George R. Petrochemical recovery machine. 5,066,407, Cl. 210-744.000.

Furtak, Hans; Naber, Wilfrid; and Lejeune, Raymond, to Isover Saint-Gobain. Process and device for the reception of mineral fibers. 5,065,478, Cl. 19-296.000.

Furudate, Misturu: *See*—
Oyama, Minoru; and Furudate, Misturu, 5,067,050, Cl. 362-30.000.

Furuhashi, Hiroyuki: *See*—
Doi, Yoshiharu; Ueki, Satoshi; and Furuhashi, Hiroyuki, 5,066,754, Cl. 526-336.000.

Furukawa, Masamichi: *See*—
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.

Furumoto, Horace, to Candela Laser Corporation. Light amplifier and method of photothemolysis. 5,066,293, Cl. 606-9.000.

Furuta, Katsumi; and Yamaguchi, Takashi, to Nissan Motor Co., Ltd. Bumper structure. 5,066,057, Cl. 293-121.000.

Furuya, Takeo: *See*—
Sekine, Shuji; Furuya, Takeo; and Sato, Katsuhiro, 5,066,878, Cl. 310-68.00C.

Furuyama, Tetsuya: *See*—
Kanagawa, Takashi; Shiino, Yutaka; and Furuyama, Tetsuya, 5,066,976, Cl. 355-200.000.

Futaba Denshi Kogyo Kabushiki Kaisha: *See*—
Morimoto, Kiyoshi; Itoh, Shigeo; Tonegawa, Takeshi; and Niiyama, Takahiro, 5,066,885, Cl. 313-340.000.

Futakawa, Tetsuo: *See*—
Anzawa, Norio; Adachi, Koji; Futakawa, Tetsuo; Sato, Hironari; and Narita, Akira, 5,066,219, Cl. 431-10.000.

Futamata, Yukio: *See*—
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.

G. D. Searle & Co.: *See*—
Mueller, Richard A.; and Partis, Richard A., 5,066,679, Cl. 514-618.000.

Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, to Alusuisse-Lonza Services Ltd. Process for manufacturing a ceramic foam body. 5,066,432, Cl. 264-28.000.

Gaesser, George: *See*—
Shibata, Tomoo; Semler, John; and Gaesser, George, 5,066,633, Cl. 503-209.000.

GAF Chemicals Corporation: *See*—
Chaudhuri, Ratan K.; Haldar, Rama K.; and Gangadharan, Balgopal, 5,066,709, Cl. 524-516.000.

Gaffan, Charles; and Schwarzpech, Bruno K., to GTE Valenite Corporation. Aluminum piston wrist pin boring tool. 5,066,173, Cl. 408-59.000.

Gahan, Richard J.: *See*—
Lynam, Niall R.; and Gahan, Richard J., 5,066,112, Cl. 359-267.000.

Gailus, Paul H.; Yester, Francis R.; and Turney, William J., to Motorola, Inc. Linear transmitter training method and apparatus. 5,066,923, Cl. 330-107.000.

Gaiser, William R.: *See*—
Bartley, Harold D.; and Gaiser, William R., 5,066,081, Cl. 215-1.00C.

Gaisser, Hermann, to Hermann Wangner GmbH & Co. Woven multilayer papermaking fabric having increased stability and permeability and method. 5,066,532, Cl. 428-137.000.

Galanek, Mitchell S.: *See*—
Stinson, Margaret C.; and Galanek, Mitchell S., 5,066,597, Cl. 435-311.000.

Galdon, Francisco: *See*—
Quantin, Daniele; and Galdon, Francisco, 5,066,548, Cl. 428-629.000.

Gall, Arthur; and Kupfer, Adelbert, to Siemens Aktiengesellschaft. X-ray diagnostics installation with a gating unit for the dominant image region. 5,067,142, Cl. 378-99.000.

Gallagher, Thomas A., to Van Dorn Company. Improved ringless paint container with step down lid. 5,065,888, Cl. 220-355.000.

Gallup, David F.: *See*—
Gunning, Kevin J.; and Gallup, David F., 5,066,836, Cl. 200-61.45R.
Gunning, Kevin J.; Gallup, David F.; and Bell, Lon E., 5,066,837, Cl. 200-61.45R.

Gangadharan, Balgopal: *See*—
Chaudhuri, Ratan K.; Haldar, Rama K.; and Gangadharan, Balgopal, 5,066,709, Cl. 524-516.000.

Gannon, Richard: *See*—
Agarwal, Jagdish A.; Gannon, Richard; Goldfarb, Victor; Stickler, David; and Woodroffe, Jaime, 5,066,326, Cl. 75-581.000.

Ganse, Shigeru, to Sony Corporation. Apparatus for recording and/or reproducing a component video signal having a luminance signal of a wide frequency band and a chroma signal in a band below the high end of the luminance signal band and within the latter. 5,067,009, Cl. 358-12.000.

Garcia, Graham A.: *See*—
Reedy, Ronald E.; Garcia, Graham A.; and Lagnado, Isaac, 5,066,613, Cl. 437-200.000.

Gardiner, Robert W.: *See*—
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased, 5,066,457, Cl. 420-552.000.

Garelick, Paul: *See*—
Merianos, John J.; Login, Robert B.; and Garelick, Paul, 5,066,488, Cl. 424-80.000.

Garland, Patricia A. Dispenser for bandages. 5,065,894, Cl. 221-25.000.

Garnweidner, Peter, to Austria Metall Aktiengesellschaft. Door assembly for a passenger vehicle. 5,066,064, Cl. 296-146.000.

Garrison, Sidney C.: *See*—
Peterson, William M.; Anderson, Howard C.; Leivian, Robert; and Garrison, Sidney C., 5,067,095, Cl. 395-24.000.

Gas Research Institute: *See*—
Agarwal, Jagdish A.; Gannon, Richard; Goldfarb, Victor; Stickler, David; and Woodroffe, Jaime, 5,066,326, Cl. 75-581.000.
Monahan, Russell, 5,065,579, Cl. 60-524.000.

Gates, David E. Trimmer attachment for mowing decks. 5,065,566, Cl. 56-12.700.

Gaube, Guy. Height adjustable plant hanging device. 5,065,971, Cl. 248-330.100.

Gaudreau, Pierrette: *See*—
Cohen, Eric A.; Gaudreau, Pierrette; Michaud, Jacques; Brazeau, Paul; and Langelier, Yves, 5,066,783, Cl. 530-328.000.

Gaver, Joseph C., Jr.; and Jorgenson, James C., to LRC Electronics, Inc. Manually installable coaxial cable connector. 5,066,248, Cl. 439-578.000.

Gavin, Norman W.; and Jaecklin, Felix P. Retaining wall system. 5,066,169, Cl. 405-284.000.

Gawande, Mohan: *See*—
Farel, Richard A.; and Gawande, Mohan, 5,067,074, Cl. 395-200.000.

Gay, Michel: *See*—
Salavin, Serge; Deschamps, Jacques; Gay, Michel; and Specty, Michel, 5,066,890, Cl. 313-585.000.

GEC Alsthom SA: *See*—
Maineult, Jean; and Pluveau, Raymond, 5,066,839, Cl. 200-144.00R.

Geer, Charles P.: *See*—
Borkenhagen, John M.; Schmierer, Quentin; and Geer, Charles P., 5,067,105, Cl. 395-400.000.

Gehly, Joel C.; Zolner, David; and Szumigala, James M., to American Sterilizer Company. Pattern change mechanism. 5,067,064, Cl. 362-277.000.

Geibel, Jon F.; Bobsein, Rex L.; and Yelton, Harold D., to Phillips Petroleum Company. Method for the production of light colored aromatic sulfide/sulfone polymers with 1,3-dialkyl-2-imidazolidinone diluent. 5,066,774, Cl. 528-388.000.

Gelb, Michael H.: *See*—
Abeles, Robert H.; and Gelb, Michael H., 5,066,643, Cl. 514-18.000.

Gemcor Engineering Corporation: *See*—
Michalewski, David; and Roberts, Bradley M., 5,065,898, Cl. 221-171.000.

Gemert, Barry V.; and Bergomi, Maria P., to PPG Industries, Inc. Photochromic naphthopyran compounds. 5,066,818, Cl. 549-389.000.

Genelabs Incorporated: *See*—
Reyes, Gregory R., 5,066,579, Cl. 435-5.000.

Genencor International, Inc.: *See*—
Silver, Scott C., 5,066,218, Cl. 426-20.000.

General Atomics: *See*—
Creedon, Richard L., 5,065,795, Cl. 138-176.000.
Ikezi, Hiroyuki; Lin-Liu, Yuh-Ren; and deGrassie, John S., 5,066,928, Cl. 333-20.000.

General Dynamics, Electronics Division: *See*—
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., 5,066,921, Cl. 324-639.000.

General Electric Company: *See*—
Beltran, Adrian M.; and Kreischer, Charles H., 5,066,459, Cl. 420-58.800.
Bullis, Stephen J.; Duke, Steven R.; Cozzy, Thomas W.; and Rossier, Glenn E., 5,065,662, Cl. 89-12.000.
Bullock, Donald F., 5,066,904, Cl. 324-127.000.
Elton, Richard K.; and Schultz, William R., Jr., 5,066,881, Cl. 310-213.000.
Elton, Richard K.; and Schultz, William R., Jr., 5,067,046, Cl. 361-220.000.
Larson, Richard I.; Ringle, Richard P.; and Harmon, John L., 5,066,429, Cl. 264-0.500.
Markowski, Robert G.; Perzan, Denis A.; Morby, John A.; and Robarge, Dean A., 5,067,043, Cl. 361-361.000.
Nelson, Linda H., 5,066,707, Cl. 524-490.000.
Raleigh, William J.; Thimineur, Raymond J.; and Zotto, Anthony A., 5,066,756, Cl. 528-32.000.
Sivavec, Timothy M.; and McCormick, Sharon J., 5,066,719, Cl. 525-92.000.
Vavrek, Robert M.; and McFarland, Thomas G., 5,066,914, Cl. 324-309.000.

General Mills, Inc.: *See*—
Creighton, Dean W.; Efstathiou, John D.; and Merboth, John A., 5,066,506, Cl. 426-450.000.

Genicom Corporation: *See*—
Stephens, Fred O., 5,066,153, Cl. 400-621.000.

Geochemical Services, Inc.: *See*—
Rogers, Michael D. G.; and Henderson, William B., 5,066,125, Cl. 356-316.000.

George, Eric R.; and Slaugh, Lynn H., to Shell Oil Company. Stabilized polyketone polymers. 5,066,701, Cl. 524-417.000.

Georgia Pacific Corporation: *See*—
De Luca, Raymond F.; and Jespersen, Paul W., 5,065,895, Cl. 221-54.000.

Gerard, Thomas W., to Rhone-Poulenc Basic Chemicals Co. Process for compacting a calcium phosphate composition. 5,066,441, Cl. 264-118.000.

Gerdau, Thomas; Kleiner, Hans-Jerg; Peuckert, Marcellus; Bruck, Martin; and Aldinger, Fritz, to Hoechst Aktiengesellschaft. Polymeric hydridosilazanes and processes for their preparation, and their use. 5,066,623, Cl. 501-97.000.

Gericke, Stephen H.: *See*—
Carrell, Michael W.; and Gericke, Stephen H., 5,066,277, Cl. 604-110.000.

German, Paul M., Jr., to Exxon Chemical Patents Inc. Thermoplastic films for use in stretch/cling applications. 5,066,526, Cl. 428-35.200.

Gersdorf, Joachim: *See*—
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,066,745, Cl. 526-240.000.

Gershman, Russell J.: *See*—
Aitkenhead, William F.; and Gershman, Russell J., 5,067,144, Cl. 378-146.000.

Getsoian, John: *See*—
Huettenhain, Horst; Benz, August D.; and Getsoian, John, 5,066,310, Cl. 44-500.000.

Giacobbe, Francesco, to Mannesmann AG; and Kinetics KTI Group BV. Heating and producing a hydrocarbon steam mixture. 5,066,421, Cl. 252-373.000.

Gibraltar World International, Ltd.: *See*—
Boatsman, W. Harley, 5,065,558, Cl. 52-239.000.

Gibson, Alan F.: *See*—
Kilbane, Farrell M.; Coleman, Richard A.; Dunbar, Frank C.; and Gibson, Alan F., 5,066,549, Cl. 428-653.000.

Gibson, Harry W.; and Jois, Yajnanarayana H. R., to Virginia Tech Intellectual Properties, Inc. Formation of poly(benzimidazole). 5,066,773, Cl. 528-362.000.

Gien, Abraham; and Gien, Bernard L. Extraction device for pneumatically actuated drilling tools. 5,065,823, Cl. 173-91.000.

Gien, Bernard L.: *See*—
Gien, Abraham; and Gien, Bernard L., 5,065,823, Cl. 173-91.000.

Gier, Thurman E.: *See*—
Ferretti, August; and Gier, Thurman E., 5,066,356, Cl. 156-623.00R.

Gil, Angel H.; Morales, Daniel V.; and Valverde, Eduardo R., to Union Industrial y Agro-Ganadera, S. A. (UNIASA). Infant formulas and

VOL 1132 ISS 3 NO 19 1991 UMI

nutrition products enriched with nucleosides and/or nucleotides and processes for their preparation. 5,066,500, Cl. 426-72.000.

Giles, Homer. Mail box support apparatus. 5,065,975, Cl. 248-545.000.

Giles, Thomas E.: *See—*
Soderberg, Paulmer M.; Foss, Kristin K.; Giles, Thomas E.; and Narciso, Ralph A., 5,066,139, Cl. 371-20.100.

Gill, Brian D.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.

Gill, David, to Cooper Industries, Inc. Annular sealing apparatus. 5,066,029, Cl. 277-236.000.

Gill, Sarupinderpal S.; and Mohan, Manohar, to American Laundry Machinery, Inc. Indexing system for rotary garment press. 5,065,535, Cl. 38-22.000.

Gillette Company, The: *See—*
Petrillo, Richard J.; and O'Connor, William T., 5,066,156, Cl. 401-213.000.

Gillot, Jacques: *See—*
Soria, Raymond; Defalque, Corinne; and Gillot, Jacques, 5,066,398, Cl. 210-321.890.

Gimbutas, Aidas; and Gimbutas, Marion, to Main Light Inc. Fiber optic curtain. 5,066,085, Cl. 385-115.000.

Gimbutas, Marion: *See—*
Gimbutas, Aidas; and Gimbutas, Marion, 5,066,085, Cl. 385-115.000.

Gipson, Billy P.: *See—*
Farfaglia, Leonard T., deceased; Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., 5,065,597, Cl. 62-262.000.

Gist-Brocades N.V.: *See—*
Komen, Joseph; and Groenendaal, Jan W., 5,066,436, Cl. 264-4.300.

Gittner, Franz: *See—*
Roos, Uwe-Volker; and Gittner, Franz, 5,066,222, Cl. 432-5.000.

Glasener, Thomas H. Pouring and dispensing spout for a container. 5,065,913, Cl. 222-528.000.

Glasser, Wolfgang G.; De Oliveira, Willer; Kelley, Stephen S.; and Nieh, Li S., to Center for Innovative Technology; and Virginia Polytechnic Institute and State University. Method of producing star-like polymers from lignin. 5,066,790, Cl. 530-502.000.

Glasstech, Inc.: *See—*
Kramer, Joseph O.; McMaster, Dexter H.; and Mumford, Eustace H., 5,066,321, Cl. 65-182.200.

Glaxo Group Limited: *See—*
Oxford, Alexander W.; Coates, Ian H.; and Butina, Darko, 5,066,660, Cl. 514-323.000.
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.

Gleason, David D.: *See—*
Jones, Lawrence D.; Frey, Paul T.; Gleason, David D.; Chee, Paula P.; and Slightom, Jerry L., 5,066,587, Cl. 435-172.100.

Glidden Company, The: *See—*
Wickert, Frank A., 5,066,705, Cl. 524-457.000.

Glover, Clarence B.: *See—*
Waldrop, John L.; and Glover, Clarence B., 5,065,521, Cl. 33-361.000.

Gluchowski, Charles, to Allergan, Inc. 2-(hydroxy-2-alkylphenylamino)-oxazolines and thiazolines as anti-glaucoma and vasoconstrictive agents. 5,066,664, Cl. 514-377.000.

Godsey, Edward P.: *See—*
Boothe, Bobby L.; and Godsey, Edward P., 5,065,939, Cl. 229-151.000.

Godwin, Jimmy D.; and Williams, Stephen P., to Insite Peripherals, Inc. High track density magnetic media with pitted optical servo tracks and method for stamping the tracks on the media. 5,067,039, Cl. 360-135.000.

Goebel, Armin: *See—*
Patzschke, Hans-Peter; and Goebel, Armin, 5,066,689, Cl. 523-415.000.

Goeckeler, William F.: *See—*
Simon, Jaime; Wilson, David A.; Volkert, Wynn A.; Troutner, David E.; and Goeckeler, William F., 5,066,478, Cl. 424-1.100.

Goedderz, Dieter, to Draftex Industries Limited. Apparatus for fitting flexible strips. 5,065,486, Cl. 29-235.000.

Goldberg, Lew: *See—*
Bryant, Paul T.; Weller, Joseph F.; and Goldberg, Lew, 5,066,148, Cl. 385-24.000.

Goldfarb, Victor: *See—*
Agarwal, Jagdish A.; Gannon, Richard; Goldfarb, Victor; Stickler, David; and Woodroffe, Jaime, 5,066,326, Cl. 75-581.000.

Goldowsky, Michael P.; and Pennebaker, William B., to International Business Machines Corporation. Electrostatic deposition of LCD color filters. 5,066,512, Cl. 427-14.100.

Goldsmith, Gary: *See—*
Kroon, David H.; Goldsmith, Gary; Baach, Miachel K.; and Bushman, James B., 5,065,893, Cl. 220-565.000.

Goode, Steven H.: *See—*
Baker, James C.; Kazecki, Henry L.; and Goode, Steven H., 5,067,139, Cl. 375-86.000.

Goodnow, Ronald F.; and Reid, Robert A., to Thermo Electron-Web Systems, Inc. Blade edge loading control for pull through doctor blade transfer system. 5,066,364, Cl. 162-281.000.

Goodyear Tire & Rubber Company, The: *See—*
Chlebina, Larry E.; Majerus, Norbert; Rambacher, John S.; and Felder, Stephen L., 5,066,448, Cl. 264-334.000.
Kim, Dong K.; and Shemenski, Robert M., 5,066,455, Cl. 420-100.000.

Gordon, Alexander; and Vella-Coleiro, George P., to AT&T Bell Laboratories. Microcellular communications system using space diversity reception. 5,067,173, Cl. 359-152.000.

Gordon, William G., to Hewlett-Packard Company. Method for improving photoresist on wafers by applying fluid layer of liquid solvent. 5,066,616, Cl. 437-229.000.

Gorza, Roberto, to Nordica S.p.A. Closure device, particularly for ski boots, allowing greater working length of the tightening cables. 5,065,532, Cl. 36-117.000.

Gorza, Roberto: *See—*
Pozzobon, Alessandro; and Gorza, Roberto, 5,065,530, Cl. 36-50.000.

Gosset, Patrice: *See—*
Hanak, Pavel; Motte, Philippe; and Gosset, Patrice, 5,066,685, Cl. 521-163.000.

Goto, Masahiro; Inoue, Takahiro; Kato, Junichi; and Kobayashi, Tatsuya, to Canon Kabushiki Kaisha. Color image forming apparatus wherein plural colors can be formed through one printing cycle. 5,066,979, Cl. 355-208.000.

Goto, Narito; and Ando, Yasuo, to Konica Corporation. Magnetic recording medium. 5,066,534, Cl. 428-212.000.

Gotou, Shizuo: *See—*
Iwasawa, Kyoko; Tanaka, Yoshikazu; and Gotou, Shizuo, 5,067,068, Cl. 395-650.000.

Gottwald, Johannes F.: *See—*
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., 5,066,150, Cl. 400-157.300.

Gould, Mark W.: *See—*
Evans, Timothy G.; Gould, Mark W.; and McNamara, Timothy J., 5,067,129, Cl. 371-16.100.

Goutzoulis, Anastasios P.: *See—*
Davies, David K.; Chantry, Peter J.; and Goutzoulis, Anastasios P., 5,066,088, Cl. 385-25.000.

Governale, Claudio. Venturi-type conveyor for fiber laying in nonwoven material production. 5,065,479, Cl. 19-303.000.

Grabowski, Edward F.: *See—*
Robinette, Susan; Lynch, Anita P.; Hoffend, Thomas R.; Grabowski, Edward F.; and Carmichael, Kathleen M., 5,066,557, Cl. 430-58.000.

Gradco Systems, Inc.: *See—*
Coombs, Peter M., 5,066,984, Cl. 355-309.000.

Gradl, Reinhard: *See—*
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, 5,066,365, Cl. 203-042.000.

Graf & Cie AG: *See—*
Graf, Ralph, 5,065,511, Cl. 29-895.211.

Graf, Ralph, to Graf & Cie AG. Method of mounting saw-tooth wires onto a roller for textile machines. 5,065,511, Cl. 29-895.211.

Granger, Maurice. Paper towel dispenser with central unwinding. 5,065,924, Cl. 225-46.000.

Granneman, Gary N.: *See—*
Granneman, Marilyn J.; and Granneman, Gary N., 5,067,063, Cl. 362-156.000.

Granneman, Marilyn J.; and Granneman, Gary N. Handbag lit with electroluminescence. 5,067,063, Cl. 362-156.000.

Grant, David L.: *See—*
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., 5,066,482, Cl. 424-45.000.

Graphic Controls Corporation: *See—*
Shibata, Tomoo; Semler, John; and Gaesser, George, 5,066,633, Cl. 503-209.000.

Graphic Management Associates, Inc.: *See—*
Hatt, Walter, 5,065,994, Cl. 270-55.000.

Gratz, Werner: *See—*
Ruff, Klaus; Falk, Bernhard; and Gratz, Werner, 5,066,472, Cl. 423-342.000.

Graves Spray Supply, Inc.: *See—*
McNab, John G., 5,065,902, Cl. 222-31.000.

Grayson, Peter: *See—*
Wall, Alan; Grayson, Peter; and Egerton, Michael, 5,066,162, Cl. 403-361.000.

Great Lakes Chemical Corporation: *See—*
Favstritsky, Nicolai A.; and Nang, Jin-Liang, 5,066,752, Cl. 526-293.000.

Greco, Michael N.; and Janssen, Marcel A. C., to Janssen Pharmaceutica N.V. Pharmacologically active (6,7-dihydro-5H-pyrrolo[1,2-c]imidazol-5-yl)- and (5,6,7,8-tetrahydroimidazo[1,5-a]pyridin-5-yl) substituted 1H-benzotriazole derivatives. 5,066,656, Cl. 514-269.000.

Green, Philip S.; Ostrem, John S.; and Whitehurst, Todd K., to SRI International. Combined reflection and transmssion untrasonic imaging method and apparatus. 5,065,763, Cl. 128-660.070.

Greenbaum, George. Comply system. 5,065,890, Cl. 220-401.000.

Greenberg, Charles B.: *See—*
Singleton, David E.; Ho, Kuo-Chuan; and Greenberg, Charles B., 5,066,111, Cl. 359-275.000.

Greenberg, William M.; and Bauman, Randall L., to Libbey-Owens-Ford Co. Temperature controlled distributor beam for chemical vapor deposition. 5,065,696, Cl. 118-718.000.

Greene, George O.: *See—*
Loeber, Frederick W.; and Greene, George O., 5,065,814, Cl. 165-41.000.

Greene, Michael D.; and Spector, George. Treated dental floss and dispenser. 5,065,861, Cl. 206-63.500.

Greenlees, Alexander R.: *See—*
Driver, Michael J.; Greenlees, Alexander R.; and MacPherson, David T., 5,066,646, Cl. 514-31.000.

Greil, Andreas; and Bialas, Joachim, to Siemens Aktiengesellschaft. Arrangement for optically coupling light between an electro-optical transducer and a light waveguide. 5,066,089, Cl. 385-35.000.

Greil, Andreas; and Taumberger, Franz, to Siemens Aktiengesellschaft. Method for adjusting and fixing a lens and optical coupling arrangement manufactured therewith. 5,066,093, Cl. 385-33.000.

Grenouillet, Guy, to Nivarox-FAR S. A. Method of conditioning an article of shape memory metallic alloy having two reversible shape memory states. 5,066,341, Cl. 148-11.50C.

Gresch, Heinrich: *See—*
Holter, Heinz; Igelbuscher, Heinrich; Gresch, Heinrich; Dewert, Heribert; and Rump, Hanns, 5,066,466, Cl. 422-98.000.

Griep, Winfried: *See—*
Ostermann, Friedrich; Plath, Hans-Heinrich; and Griep, Winfried, 5,065,510, Cl. 29-894.324.

Grimbu / hler-Can, Pia: *See—*
Tempel, Ernst; and Grimbu / hler-Can, Pia, 5,066,309, Cl. 8-527.000.

Grimshaw, Michael N.: *See—*
Albers, Stephen J.; Grimshaw, Michael N.; Peterson, David A.; Pugh, John H.; and Wisbey, Jerry D., 5,066,352, Cl. 156-265.000.

Groenendaal, Jan W.: *See—*
Komen, Joseph; and Groenendaal, Jan W., 5,066,436, Cl. 264-4.300.

Groothoff, Jan A., to Heckett Holland B.V. Metallic coolant for a metallurgical bath. 5,066,322, Cl. 75-255.000.

Groshens, Pierre, to Lainiere de Picardie, S.A. Textile support of the knitted type and an interliner, cloth and textile assembly. 5,065,599, Cl. 66-84.00A.

Gross, Dario; and Sweet, Roger L., to Midland Brake, Inc. Compressed gas dryer system with pressure retention. 5,066,317, Cl. 55-218.000.

Gross, Ing. H.: *See—*
Lorenz, Hans; Gross, Ing. H.; Schuchmann, Roland; and Haring, Helmut, 5,066,435, Cl. 264-40.500.

Gross, Shelly. Bracket to support a tissue box on a sun visor. 5,065,970, Cl. 248-311.200.

Gross, Sol N., to Ace Demolition Incorporated. Attachment for metal demolition shears. 5,065,514, Cl. 30-134.000.

Grover, Gary J.: *See—*
Ogletree, Martin L.; Schumacher, William A.; Grover, Gary J.; and Friedhoff, Lawrence T., 5,066,480, Cl. 424-10.000.

Grubbs, Robert E.; Haberkern, Richard G.; Edwards, Michael E.; and Frederickson, James D., to R. J. Reynolds Tobacco Company. Process for expanding tobacco under moderate conditions. 5,065,774, Cl. 131-291.000.

Gruber, Dennis W.: *See—*
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., 5,066,150, Cl. 400-157.300.

Grumman Aerospace Corporation: *See—*
Hadcock, Richard N.; Chipman, Richard R.; Horn, Michael; and Chance, Richard F., 5,065,630, Cl. 73-802.000.

Grundmann, William R.: *See—*
Fite, Elaine H.; Fossum, Tryggve; Grundmann, William R.; McKeen, Francis X.; and Salett, Ronald M., 5,067,069, Cl. 395-375.000.

Grutzediek, Hartmut: *See—*
Scheerer, Joachim; and Grutzediek, Hartmut, 5,066,955, Cl. 341-168.000.

GTE Laboratories Incorporated: *See—*
—Bulat, Emel S.; and Devlin, Brian T., 5,066,603, Cl. 437-29.000.

GTE Products Corporation: *See—*
—Bouchard, Andre C.; Lagushenko, Radomir; and Maya, Jakob, 5,066,892, Cl. 315-46.000.

GTE Valenite Corporation: *See—*
Gaffan, Charles; and Schwarzpech, Bruno K., 5,066,173, Cl. 408-59.000.

Gubelmann, Michel; Rochin, Christophew; and Allandrieu, Christian, to Rhone-Poulenc Chimie. Preparation of methylenedi(phenylurethane). 5,066,827, Cl. 560-163.000.

Guetard, Denise: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Guilford Mills, Inc.: *See—*
Byles, Michael N., 5,065,600, Cl. 66-193.000.

Gullette, James B.: *See—*
Talgam, Yoav; Klingshirn, James A.; and Gullette, James B., 5,067,078, Cl. 395-400.000.

Gunning, Kevin J.; and Gallup, David F., to TRW Technar Inc. Gas damped deceleration switch. 5,066,836, Cl. 200-61.45R.

Gunning, Kevin J.; Gallup, David F.; and Bell, Lon E., to TRW Technar Inc. Gas damped deceleration switch. 5,066,837, Cl. 200-61.45R.

Gupta, Manoj K., to Occidental Chemical Corporation. Molding compositions of resole phenolic resin and epoxy resin. 5,066,693, Cl. 523-466.000.

Gupta, Vijai P., to ARCO Chemical Technology, Inc. Manufacture of C2-C8 olefin/maleic anhydride copolymers. 5,066,742, Cl. 526-216.000.

Gurley, John A.: *See—*
Elings, Virgil B.; and Gurley, John A., 5,066,858, Cl. 250-307.000.

Guse, Rudolf: *See—*
Scholz, Heinrich; and Guse, Rudolf, 5,065,811, Cl. 164-460.000.

Gutowski, Timothy G.; Sentovich, Michael F.; and Okine, Richard K., to Massachusetts Institute of Technology; and Du Pont de Nemours, E. I., and Company. Method of producing a composite article. 5,066,442, Cl. 264-154.000.

Guyader, Mireille: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Guyard, Alain, to Cogema Compagnie Generale des Matieres Nucleaires. Pneumatic gripper. 5,066,058, Cl. 294-1.100.

Gyllensten, Ulf B.; and Erlich, Henry A., to Cetus Corporation. Methods for generating single stranded DNA by the polymerase chain reaction. 5,066,584, Cl. 435-91.000.

Gyory, Emil: *See—*
Kindermann, Siegfried; Gyory, Emil; and Heiland, Hans, 5,066,041, Cl. 280-772.000.

Haber, Terry M. Pill strip dispenser. 5,065,655, Cl. 83-322.000.

Haberkern, Richard G.: *See—*
Grubbs, Robert E.; Haberkern, Richard G.; Edwards, Michael E.; and Frederickson, James D., 5,065,774, Cl. 131-291.000.

Haberl, Johann; and Lundqvist, Gosta, to Dustcontrol International AB. Method of cleaning a cyclone separation and cyclone separator for practicing the method. 5,066,315, Cl. 55-96.000.

Hachisu, Mitsugu: *See—*
Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, 5,066,677, Cl. 514-563.000.

Hacker, Robert G. Hand held electronic keyboard instrument. 5,065,661, Cl. 84-719.000.

Hackforth GmbH & Co. KG: *See—*
Lunke, Manfred; Falz, Ulrich; and Walter, Jurgen, 5,066,263, Cl. 464-96.000.

Hadcock, Richard N.; Chipman, Richard R.; Horn, Michael; and Chance, Richard F., to Grumman Aerospace Corporation. Integrated system for aircraft crack detection. 5,065,630, Cl. 73-802.000.

Hadley, Howard C., to Deere & Company. Hydraulic down pressure structure for an implement with multiple ground engaging tools. 5,065,681, Cl. 111-55.000.

Haeussler, Horst; Ortmann, Hubert; and Stoerr, Harald, to Lindauer Dornier Gesellschaft m.b.H. Gripper head for shuttleless looms. 5,065,797, Cl. 139-448.000.

Hafner, Otmar: *See—*
Rieper, Wolfgang; and Hafner, Otmar, 5,066,687, Cl. 523-205.000.

Hagelin, Jack S.: *See—*
Bhatia, Kumar G.; Backus, Walter E.; and Hagelin, Jack S., 5,065,959, Cl. 244-54.000.

Hager, William S.: *See—*
Wada, Keiichiro; Cassidy, Patrick E.; and Hager, William S., 5,066,765, Cl. 528-185.000.

Hagg, Dieter: *See—*
Reisinger, Lothar; Hagg, Dieter; Wenzl, Werner; and Walther, Klaus, 5,066,024, Cl. 277-53.000.

Hake, Leon M.; and Zerr, Ronald D., to EZ Drill, Inc. Clamp assembly for removing pins from a concrete form. 5,065,984, Cl. 254-18.000.

Haldar, Rama K.: *See—*
Chaudhuri, Ratan K.; Haldar, Rama K.; and Gangadharan, Balgopal, 5,066,709, Cl. 524-516.000.

Hall, James: *See—*
Woodward, Bruce; and Hall, James, 5,066,080, Cl. 312-297.000.

Hall, Robert C.: *See—*
Baron, Carl N.; Merkel, Stephen L.; and Hall, Robert C., 5,065,695, Cl. 118-688.000.

Hallewell, Robert A.; and Mullenbach, Guy T., to Chiron Corporation. Polypeptides of human copper/zinc superoxide dimutase. 5,066,591, Cl. 435-189.000.

Halliburton Company: *See—*
Eslinger, David M., 5,065,789, Cl. 137-513.500.

Halliburton Logging Services, Inc.: *See—*
Myska, Glen A., 5,065,619, Cl. 73-152.000.
Rau, Rama N., 5,066,916, Cl. 324-338.000.

Halliday, David K.: *See—*
Akam, Nigel J.; Cameron, Donald M.; Halliday, David K.; and Paterson, Raymond, 5,065,858, Cl. 198-493.000.

Hallidy, William M. Power converter system. 5,066,866, Cl. 290-1.00R.

Halton OY: *See—*
Lehtola, Raimo, 5,065,857, Cl. 198-457.000.

Hamada, Hiroshi: *See—*
Kuratate, Tomoaki; Koden, Mitsuhiro; and Hamada, Hiroshi, 5,066,109, Cl. 359-54.000.

Hamada, Tatsuro; Fukuoka, Hiromi; Komatsu, Hideki; and Fujimaki, Tatsuo, to Bridgestone Corporation. Tires made of silica filled, silane modified rubber. 5,066,721, Cl. 525-102.000.

Hamada, Tetsuro; Noro, Yoshiki; and Ashikawa, Noboru, to Honda Giken Kogyo Kabushiki Kaisha. Four-wheel drive motor vehicle having a controlled differential device. 5,065,836, Cl. 180-245.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Hamanaka, Toshiyuki: *See—*
Fukao, Kaname; Hamanaka, Toshiyuki; Harada, Takashi; and Kondo, Noboru, 5,066,626, Cl. 501-128.000.

Hamann, J. Eric, to Eastman Kodak Company. Prespot detection method and apparatus in an analyzer. 5,067,092, Cl. 364-496.000.

Hamano, Hiroshi; Amemiya, Izumi; Yamamoto, Takuji; Arai, Yasunari; and Ihara, Takeshi, to Fujitsu Limited. Data delay circuit and clock extraction circuit using the same. 5,066,877, Cl. 307-603.000.

Hamed, Parviz: *See—*
O'Rell, Dennis; Hamed, Parviz; and DiPerna, Thomas C., 5,066,537, Cl. 428-246.000.

Hammer Corporation: *See—*
Jones, Gary A., 5,066,003, Cl. 272-134.000.
Jones, Gary A., 5,066,004, Cl. 272-134.000.

Hammer, Hans. Parking system and method of automatically parking motor vehicles. 5,066,187, Cl. 414-237.000.

Hamminga, Derk; van Wijngaarden, Ineke; and Jansen, Johannes W. C. M., to Duphar International Research B.V. 8,9-annelated-1,2,3,4-tetrahydro-β-carboline derivatives. 5,066,649, Cl. 514-183.000.

Hampton, James E. Mooring system. 5,065,687, Cl. 114-230.000.

Hanak, Pavel; Motte, Philippe; and Gosset, Patrice, to ARCO Chemical Technology, Inc. Fibre-reinforced rigid polyurethane foam and polyol component therefor. 5,066,685, Cl. 521-163.000.

Hancock, Jimmy W.; Kelly, Michael J.; Latham, Wayne M.; and Stinnett, Carlton E., to Babcock & Wilcox Company, The. Ultrasonic profilometry system for control rod wear. 5,066,452, Cl. 376-252.000.

Handley, Graham R.: *See—*
Davey, Rodney J.; Handley, Graham R.; and Ward-Smith, Alfred J., 5,065,928, Cl. 226-7.000.

Hanisch, Ferdinand; and Schleese, Eckard, to Kabelmetal Electro GmbH. Ascertaining high energy radiation. 5,066,863, Cl. 250-474.100.

Hanke, Wilhelm: *See—*
Krause, Norbert; Hanke, Wilhelm; and Ruhl, Juergen, 5,065,760, Cl. 128-653.500.

Hannecart, Etienne: *See—*
Destryker, Elise; and Hannecart, Etienne, 5,066,706, Cl. 524-459.000.

Hanrahan, Paul R. Brush seal assembly. 5,066,025, Cl. 277-53.000.

Hansberry, Mitchell L., to Charles Stark Draper Laboratory, Inc., The. Limp material segment transport apparatus for sewing machines. 5,065,684, Cl. 112-311.000.

Hansen, Guenter; Lamm, Gunther; and Loeffler, Hermann, to BASF Aktiengesellschaft. Pyridoneazo dyes with an M-aminobenzoic ester as the diazo component. 5,066,791, Cl. 534-772.000.

Hansen, Robert G., to R. G. Hansen & Associates. Apparatus for removing ground contaminants. 5,066,166, Cl. 405-128.000.

Hanson, Andrew D., to Industrial Materials Technology, Inc. Isostatic processing with shrouded melt-away mandrel. 5,066,454, Cl. 419-42.000.

Hanson, Douglas W.; Wang, Shein S.; and Harlan, William S., to Conoco Inc. Efficient generation of traveltime tables for two dimensional and three dimensional prestack depth migration. 5,067,113, Cl. 367-50.000.

Hanson, Richard A. Pendulous assembly for use in an accelerometer. 5,065,626, Cl. 73-497.000.

Hanson, William J.; and Sanders, J. Randolph, to AcuPrint, Inc. Method for enhancing the permanence of printed images. 5,066,517, Cl. 427-197.000.

Hantsch, Hartmut; Thoma, Peter; and Mahalek, Josef, to Bayerische Motoren Werke Aktiengesellschaft; and Telefunken Electronic GmbH. Circuit arrangement for serial data transfer. 5,067,076, Cl. 395-275.000.

Hara, Hiroyuki; Sugimoto, Yasuhiro; and Nagamatsu, Tetsu, to Kabushiki Kaisha Toshiba. Channelless gate array with a shared bipolar transistor. 5,066,996, Cl. 357-43.000.

Hara, Hisao: *See—*
Kubo, Yutaka; and Hara, Hisao, 5,066,423, Cl. 252-516.000.

Hara, Mitsunobu: *See—*
Nakano, Hirofumi; Hara, Mitsunobu; Mokudai, Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, 5,066,817, Cl. 549-384.000.

Hara, Tatsushi: *See—*
Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, 5,066,612, Cl. 437-192.000.

Hara, Toshio: *See—*
Kobayashi, Kazuhiro; Kouguthi, Hifumi; and Hara, Toshio, 5,065,674, Cl. 101-44.000.

Harada, Takashi: *See—*
Fukao, Kaname; Hamanaka, Toshiyuki; Harada, Takashi; and Kondo, Noboru, 5,066,626, Cl. 501-128.000.

Haraeus Holding GmbH: *See—*
Perzl, Peter R.; Ruberg, Wolfgang; and Puell, Heinz B., 5,067,135, Cl. 372-83.000.

Hardin, Philip J. Axially reversing roller for printing presses and sheet coating machines. 5,065,676, Cl. 101-349.000.

Haring, Helmut: *See—*
Lorenz, Hans; Gross, Ing. H.; Schuchmann, Roland; and Haring, Helmut, 5,066,435, Cl. 264-40.500.

Harkrader, Ronald J.; Jones, Richard R.; and Peterson, Kenneth S., to Vipont Pharmaceutical, Inc. Oral rinse compositions. 5,066,483, Cl. 424-54.000.

Harlan, William S.: *See—*
Hanson, Douglas W.; Wang, Shein S.; and Harlan, William S., 5,067,113, Cl. 367-50.000.

Harmon, John L.: *See—*
Larson, Richard I.; Ringle, Richard P.; and Harmon, John L., 5,066,429, Cl. 264-0.500.

Harner, Leslie L.; and Frantz, Earl L., to Carpenter Technology Corporation. Thermally responsive article, method of making same, and a device incorporataing said article. 5,066,886, Cl. 313-404.000.

Harold Watson Limited: *See—*
Wall, Alan; Grayson, Peter; and Egerton, Michael, 5,066,162, Cl. 403-361.000.

Harper, George S., to North American Philips Corporation. Circuit breaker. 5,066,935, Cl. 335-172.000.

Harrelson, Hugh G.: *See—*
Yeh, Ling; Harrelson, Hugh G.; and Coons, Andrew M., III, 5,066,308, Cl. 8-403.000.

Harrington, Richard H. Swim goggle sealant. 5,066,022, Cl. 277-1.000.

Harris, Charles C. Container holding system. 5,065,922, Cl. 224-42.320.

Harris Corporation: *See—*
Young, William R.; and Rivoli, Anthony L., 5,066,995, Cl. 357-42.000.

Harris, James E.; Farfaglia, Leonard T., deceased (by Farfaglia, Mary M., legal representative); and Wetherholt, Steven D., to Whirlpool Corporation. Dual louvered side air discharge openings for room air conditioner. 5,065,596, Cl. 62-262.000.

Harris, Joseph W.: *See—*
Ballentine, Richard E.; and Harris, Joseph W., 5,066,456, Cl. 420-472.000.

Harrison, Mark R. Aquarium aeration and recycling apparatus. 5,066,394, Cl. 210-169.000.

Harrold, William J.; Sansone, Joseph A.; Bonfiglio, Joseph W.; and Kim, Seung K., to Raytheon Company. Magnetic field cancellation circuit. 5,066,891, Cl. 315-8.000.

Harry, John O.; Verhagen, George; and Small, Rudy E., to Corrosion Technology, Inc. Container for corrosive material. 5,066,379, Cl. 204-279.000.

Hart, George M.; and Hayford, Mark E., to Wacker Silicones Corporation. Transparent coating for rubber articles. 5,066,703, Cl. 524-437.000.

Hartke, Dennis V. Portable holder to support a recapped container of effervescent liquid in an inverted position to retain the liquid's freshness. 5,065,966, Cl. 248-146.000.

Hartman, Thomas G.; Manura, John J.; Overton, Santford V.; Baker, Christopher W.; and Manos, John N., to Rutgers University. Short path thermal desorption apparatus for use in gas chromatography techniques. 5,065,614, Cl. 73-23.350.

Hasebe, Noboru; and Ito, Shoji, to Misawa Homes Institute of Research & Development. Fingertip pulse wave sensor. 5,065,749, Cl. 128-664.000.

Hasegawa, Hideo: *See—*
Tajima, Ikuo; and Hasegawa, Hideo, 5,065,682, Cl. 112-103.000.

Hasegawa, Kenji: *See—*
Kimura, Isao; and Hasegawa, Kenji, 5,066,963, Cl. 346-140.00R.

Haselier, Franciscus J. J., to Stamicarbon B.V. Polyethylene composition, objects made therefrom and process for the manufacture of foamed objects. 5,066,725, Cl. 525-240.000.

Hashidate, Yuji: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.

Hashimoto, Ryuji: *See—*
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.

Hasiuk, Aaron S. Disposable litter container. 5,065,702, Cl. 119-168.000.

Hata, Kazutoshi: *See—*
Nishikawa, Seigo; Okumura, Shinji; Amano, Tadayuki; and Hata, Kazutoshi, 5,066,848, Cl. 219-124.340.

Hatanaka, Setsumi: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Hatori, Masami, to Fuji Photo Film Co., Ltd. Optical spectrum analyzer. 5,066,126, Cl. 356-328.000.

Hatt, Walter, to Graphic Management Associates, Inc. Non-lap opener. 5,065,994, Cl. 270-55.000.

Hattori, Yumi: *See—*
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, 5,066,808, Cl. 514-231.500.

Haubach, Claus C. F.: *See—*
Cornelissen, Roger E.; Haubach, Claus C. F.; and Blanco, Agustin R., 5,065,868, Cl. 206-494.000.

Hausler, Dominik: *See—*
Meyer, Urs; Oberhansli, Rene F.; and Hausler, Dominik, 5,066,854, Cl. 250-202.000.

Havas, Laszlo: *See—*
Dumain, Andre; Engel, Jean; and Havas, Laszlo, 5,066,736, Cl. 526-82.000.

Hawes, Robert E., Jr.; Dellacroce, Cheryl; Aaldenberg, Eric; and Lynch, James J., to Esselte Pendaflex Corporation. Hanging laminated folder. 5,066,045, Cl. 281-45.000.

Hawryszkow, Michael G.: *See—*
Wallace, William D.; Lynch, Edward G., Jr.; Daugherty, David W., Jr.; Kanjo, Dajih; and Hawryszkow, Michael G., 5,065,679, Cl. 105-3.000.

Hawthorne, M. Frederick, to Univ. of California, The Regents of the. Metallacarborane chelates. 5,066,479, Cl. 424-1.100.

Haxell, John P. N.: *See—*
Brown, Edward A.; Haxell, John P. N.; and Wilson, Derek E., 5,066,332, Cl. 106-31.000.

Hayama, Masahiro: *See—*
Sakamoto, Hirokazu; Ohtani, Makoto; Nakagawa, Naoki; Maejima, Taro; and Hayama, Masahiro, 5,066,106, Cl. 359-59.000.

Hayashi, Akimine: *See—*
Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, 5,066,861, Cl. 250-370.090.

Hayashi, Hirofumi; and Matsumoto, Yo, to Toyo Tire & Rubber Company, Limited. Rubber composition for tire treads. 5,066,702, Cl. 524-426.000.

Hayashi, Kazutoshi, to Brother Kogyo Kabushiki Kaisha. Thread trimmer mechanism for sewing machines. 5,065,683, Cl. 112-292.000.

Hayashi, Masaaki: *See—*
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, to SDS Biotech K.K. Crotonic acid amide derivatives and insectides containing the same. 5,066,657, Cl. 514-269.000.

Hayashi, Tsutomu: *See—*
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.

Hayden, Jack W.: *See—*
Toelke, Lester W., 5,065,617, Cl. 73-49.800.

Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., to International Business Machines Corporation. Solder placement nozzle with inert cover gas and inert gas bleed. 5,065,932, Cl. 228-55.000.

Hayduk, Edward A., Jr.: *See—*
Zurecki, Zbigniew; Hayduk, Edward A., Jr.; North, John G.; and Swan, Robert B., 5,066,513, Cl. 427-37.000.

Hayes, James K., to Combustion Engineering, Inc. Quantifying isolation valve leakage. 5,067,094, Cl. 364-510.000.

Hayford, Mark E.: *See—*
Hart, George M.; and Hayford, Mark E., 5,066,703, Cl. 524-437.000.

Hazan, Isidor; and Nordstrom, John D., to Du Pont de Nemours, E. I., and Company. Coating composition of an acrylic polymer, a cross-linking agent and a silane oligomer. 5,066,698, Cl. 524-269.000.

Heck, John A.; and Wilhelm, H. Randall, to Kaydon Corporation. Gas face seal. 5,066,026, Cl. 277-96.100.

Heckett Holland B.V.: *See—*
Groothoff, Jan A., 5,066,322, Cl. 75-255.000.

Heffner, Joseph H.: *See—*
Seener, G. Thomas; and Heffner, Joseph H., 5,065,595, Cl. 62-212.000.

Hefner, Robert E., Jr.; Puckett, Paul M.; and Earls, Jimmy D., to Dow Chemical Company, The. Vinyl ester resins containing mesogenic/-rigid rodlike moieties. 5,066,750, Cl. 526-273.000.

Heidelberger Druckmaschinen AG: *See—*
Reponty, Andre , 5,065,993, Cl. 270-49.000.

Heiden, Gene: *See—*
Carr, Larrey, 5,066,034, Cl. 280-428.000.

Heiland, Hans: *See—*
Kindermann, Siegfried; Gyory, Emil; and Heiland, Hans, 5,066,041, Cl. 280-772.000.

Heinemann, Stephen F.: *See—*
Patrick, James W.; Heinemann, Stephen F.; Boss, Barbara D.; and Cowan, W. Maxwell, 5,066,593, Cl. 435-240.270.

Heinzl, Alfred: *See—*
Stadler, Heinz; Heinzl, Alfred; and Krakowetz, Wilhelm, 5,065,663, Cl. 91-361.000.

Heitzer, Helmut: *See—*
Baasner, Bernd; Beck, Gunther; Heitzer, Helmut; and Scaller, Klaus, 5,066,681, Cl. 514-716.000.

Helioff, Michael W.; Plochocka, Krystyna; and Tazi, Mohammed, to ISP Investments Inc. Mousse hair composition. 5,066,481, Cl. 424-47.000.

Helms, Aubrey L., Jr.: *See—*
Brady, Michael F.; Dorey, John K., II; and Helms, Aubrey L., Jr., 5,066,615, Cl. 437-229.000.

Helwig, Reinhard; and Hoch, Helmut, to BASF Aktiengesellschaft. Process for the preparation of 1-amino-2-carboxyanthraquinones. 5,066,820, Cl. 522-249.000.

Hemenway, Carl P.: *See—*
Koller, Robert D., Sr.; and Hemenway, Carl P., 5,066,708, Cl. 524-504.000.

Henderson, William B.: *See—*
Rogers, Michael D. G.; and Henderson, William B., 5,066,125, Cl. 356-316.000.

Henriksson, Soren N., to Aktiebolaget Electrolux. Rope starter. 5,065,710, Cl. 123-185.00B.

Hensby, Christopher: *See—*
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, 5,066,427, Cl. 260-413.000.

Henschen, Homer E.; McKee, Michael J.; and Pawlikowski, Joseph M., to AMP Incorporated. Generating electromagnetic fields in a self regulating temperature heater by positioning of a current return bus. 5,065,501, Cl. 29-611.000.

Henson, Anthony E., to Albion Hat & Cap Company Pty., Ltd. Body protector. 5,065,457, Cl. 2-2.000.

Heppenstall, Neil G.; Betts, Colin; and Ford, James, to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for United Kingdom Atomic Energy Authority in Her Britannic Majesty's Government of the. Nuclear fuel assembly coolant control. 5,066,453, Cl. 376-352.000.

Herberts GmbH: *See—*
Patzschke, Hans-Peter; and Goebel, Armin, 5,066,689, Cl. 523-415.000.

Herbruck, Steven L.: *See—*
Dykstra, Douglas L.; and Herbruck, Steven L., 5,066,011, Cl. 273-58.00G.

Herbst, Barbara A.: *See—*
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., 5,066,482, Cl. 424-45.000.

Hercules Incorporated: *See—*
Paul, James T., Jr., 5,066,433, Cl. 264-29.200.

Hergenrother, Paul M.: *See—*
Connell, John W.; and Hergenrother, Paul M., 5,066,811, Cl. 548-119.000.

Hermann, Allen M.: *See—*
Sheng, Zhengzhi; and Hermann, Allen M., 5,066,635, Cl. 505-1.000.

Hermann Wangner GmbH & Co.: *See—*
Gaisser, Hermann, 5,066,532, Cl. 428-137.000.

Hernick, Mark R.: *See—*
Zegel, Douglas R.; Jensen, Gary S.; Hernick, Mark R.; and Daniels, Michael J., 5,065,559, Cl. 52-239.000.

Herrera, Michael L. Food product measuring device. 5,065,518, Cl. 33-1.0BB.

Herrig, Doyle G.: *See—*
Howland, Leland L.; Parker, Jan M.; Herrig, Doyle G.; and Swanson, David A., 5,065,587, Cl. 62-131.000.

Hertweck, Gernot: *See—*
Panten, Detlef; Hertweck, Gernot; and Bender, Franz, 5,065,719, Cl. 123-339.000.

Hess, Robert L., to Progressive Angioplasty Systems, Inc. Article and method of sheathing angioplasty balloons. 5,066,298, Cl. 606-194.000.

Hewlett-Packard Company: *See—*
Bares, Steven J., 5,065,620, Cl. 73-159.000.
Eisenstein, Gabe L., 5,067,102, Cl. 364-709.120.
Firooz, Kamran, 5,066,909, Cl. 324-158.00R.
Gordon, William G., 5,066,616, Cl. 437-229.000.
Smyth, John B., Jr.; and Tappon, Ellen R., 5,066,357, Cl. 156-643.000.
Wade, Gerald T., 5,067,107, Cl. 395-500.000.

Hibino, Hiroki: *See—*
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Hickman, Loel L.: *See—*
Pera, John D.; Hickman, Loel L.; and Conoway, Lawrence S., 5,066,334, Cl. 106-462.000.

Hicks, Christopher A.: *See—*
Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., 5,065,932, Cl. 228-55.000.

Higashida, Akio: *See—*
Matsuoka, Toshio; Higashida, Akio; and Satake, Tokuki, 5,065,833, Cl. 180-117.000.

Higuchi, Takeru, deceased: *See—*
Alexander, Jose; and Higuchi, Takeru, deceased, 5,066,648, Cl. 514-174.000.

Hihara, Takeshi: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.

Hijikata, Kenichi: *See—*
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.

Hikake, Norio; and Kitamori, Naoto, to Canon Kabushiki Kaisha. Developer for developing electrostatic images. 5,066,558, Cl. 430-109.000.

Hilal, M. A.: *See—*
Lloyd, Jerry D.; and Hilal, M. A., 5,066,638, Cl. 505-1.000.

Hilke, Rainer: *See—*
Schmaderer, Gerhard; and Hilke, Rainer, 5,066,209, Cl. 425-28.100.

Hill, Geoffrey E. Passive atmospheric liquid water measuring system and process. 5,065,615, Cl. 73-29.010.

Hille, Hans-Dieter; and Dobbelstein, Arnold, to BASF Lacke & Farben AG. Process for the preparation of macromonomers and macromonomers prepared by this process. 5,066,759, Cl. 528-60.000.

Hillegass, Donald V.: *See—*
Bark, Jeffrey E.; Hillegass, Donald V.; and Woodruff, Eric J., 5,066,303, Cl. 623-8.000.

Hills, Robert G., to Eastman Kodak Company. Electrical connector apparatus for use with an integrated circuit card. 5,066,241, Cl. 439-260.000.

Hillstead, Richard A., to Cordis Corporation. Catheter introducer sheath made of expanded polytetrafluoroethylene. 5,066,285, Cl. 604-164.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Hiney, Leonard L.: *See—*
Kadis, Paul M.; and Hiney, Leonard L., 5,065,607, Cl. 72-351.000.

Hingorani, Rajesh: *See—*
Bergen, James R.; Burt, Peter J.; Hingorani, Rajesh; and Peleg, Shmuel, 5,067,014, Cl. 358-105.000.

Hino, Seiichi; Satou, Shoichi; Koura, Kouji; and Suzuki, Osamu, to Kozo Iizuka, Director-General of Agency of Industrial Science and Technology. Method for producing an imide oligomer. 5,066,771, Cl. 528-353.000.

Hinoda, Seisuke: *See—*
Mikami, Kazuo; Ishihara, Hideshi; Nishimura, Masahiro; Tsukiyama, Noriyuki; and Hinoda, Seisuke, 5,067,161, Cl. 382-1.000.

Hinton, Dean S. Deformable sphere with a suction cup exterior. 5,066,018, Cl. 273-344.000.

Hipp, Paul: *See—*
Muller, Gottfried; and Hipp, Paul, 5,065,669, Cl. 98-40.110.

Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, to Honda Giken Kogyo Kabushiki Kaisha. Driving wheel slip control system having failsafe function. 5,065,834, Cl. 180-197.000.

Hirai, Junichi: *See—*
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.

Hirano, Akira, to Asahi Glass Company, Ltd. Combiner for head-up display and glass with durable reflective coating. 5,066,102, Cl. 359-630.000.

Hirano, Kazuo: *See—*
Ooka, Akihiro; and Hirano, Kazuo, 5,065,612, Cl. 73-1.00D.

Hirano, Tomio: *See—*
Horibe, Kinya; Hirano, Tomio; and Ikeda, Minoru, 5,066,550, Cl. 428-670.000.

Hiraoka, Saburo; and Niikawa, Kenji, to Mitsubishi Rayon Co., Ltd. Preparation method of spherical melamine resin particulates having crosslinked structure. 5,066,768, Cl. 528-230.000.

Hirata, Koji: *See—*
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.

Hirosawa, Hitoshi: *See—*
Inami, Junichi; Kikuta, Koozi; Nakane, Satoshi; Fujito, Kazumi; and Hirosawa, Hitoshi, 5,066,344, Cl. 156-138.000.

Hiroshi, Yamauchi: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Hirotaka Manufacturing Co., Ltd.: *See—*
Kimura, Takashi, 5,065,665, Cl. 91-433.000.

Hirschberg, Jakub; and Svensson, Bengt, to Siemens Aktiengesellschaft. Implantable injection body. 5,066,278, Cl. 604-256.000.

Hirzel, Edgar A.: *See—*
Betton, Arnold L.; and Hirzel, Edgar A., 5,066,905, Cl. 324-133.000.

Hisatomi, Masumi: *See—*
Tsuchiya, Toshio; Abe, Mitsuo; Arai, Nobuo; Hisatomi, Masumi; and Zama, Hideo, 5,067,038, Cl. 360-107.000.

Hishida, Satoshi: *See—*
Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, 5,066,410, Cl. 252-68.000.

Hitachi Chemical Co., Ltd.: *See—*
Kumakura, Toshihisa; Nanaumi, Ken; Ikezawa, Ryoichi; and Eriguchi, Hideki, 5,066,691, Cl. 523-438.000.
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.

Hitachi, Ltd.: *See—*
Hosobuchi, Yoshiyuki; and Takahashi, Takayuki, 5,067,154, Cl. 380-25.000.
Iwasawa, Kyoko; Tanaka, Yoshikazu; and Gotou, Shizuo, 5,067,068, Cl. 395-650.000.
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.
Ozawa, Tsugutaro, 5,067,036, Cl. 360-96.500.
Sugano, Minoru; Horiki, Akira; Yashiro, Zenichi; and Matsushima, Hironori, 5,067,075, Cl. 395-425.000.
Tsuchiya, Toshio; Abe, Mitsuo; Arai, Nobuo; Hisatomi, Masumi; and Zama, Hideo, 5,067,038, Cl. 360-107.000.
Yamazaki, Hideki; Takeda, Hiroshi; and Yokota, Yoshikazu, 5,067,097, Cl. 395-115.000.
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.

Hitachi Maxell, Ltd.: *See—*
Yamauchi, Satoru, 5,067,120, Cl. 369-59.000.
Yanaka, Yoshimi; and Miyamoto, Keiji, 5,067,008, Cl. 357-81.000.

Hitachi Metals, Ltd.: *See—*
Kubo, Yutaka; and Hara, Hisao, 5,066,423, Cl. 252-516.000.

Hitachi Seiko Ltd.: *See—*
Arai, Kunio; Nishiyama, Hiromi; Aoyama, Hiroshi; and Kanaya, Yasuhiko, 5,066,171, Cl. 408-1.00R.

Hitachi VLSI Engineering Corp.: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Hitchcox Targets Limited: *See—*
Dean, William R.; and Waters, John H., 5,066,019, Cl. 273-348.100.

Hiyoshi, Tatsuo: *See—*
Miyazaki, Makoto; and Hiyoshi, Tatsuo, 5,066,682, Cl. 521-27.000.

Ho, Cheng W. Worktable. 5,065,989, Cl. 269-139.000.

Ho, Kuo-Chuan: *See—*
Singleton, David E.; Ho, Kuo-Chuan; and Greenberg, Charles B., 5,066,111, Cl. 359-275.000.

Hobbs, Sheila H.; and Johnson, Stephen J., to Warner-Lambert Company. Substituted oxazolidin-2-ones and 1,2,4-oxadiazolin-5-ones and derivatives thereof acting at muscarinic receptors. 5,066,662, Cl. 514-364.000.

Hobbs, Sheila H., to Warner-Lambert Company. Substituted-heterocyclopentanones and cyclopentenones and derivatives thereof acting at muscarinic receptors. 5,066,663, Cl. 514-326.000.

Hobbs, Sheila H., to Warner-Lambert Co. Substituted isoxazolidin-3-ones and derivatives thereof acting at muscarinic receptors. 5,066,665, Cl. 514-380.000.

Hocfbaum, Gerald E., Jr. Oil filter wrench. 5,065,648, Cl. 81-64.000.

Hoch, Helmut: *See—*
Helwig, Reinhard; and Hoch, Helmut, 5,066,820, Cl. 522-249.000.

Hochfeld, Stanley: *See—*
Johnson, Gary D.; and Hochfeld, Stanley, 5,065,779, Cl. 135-33.700.

Hodges, Hency C., Sr.; Hodges, Henry C., Jr.; Ashmore, Sam C.; and Piersol, Allan G., to Hodges Transportation Inc. Method and apparatus for determining terrain surface profiles. 5,065,618, Cl. 73-146.000.

Hodges, Henry C., Jr.: *See—*
Hodges, Hency C., Sr.; Hodges, Henry C., Jr.; Ashmore, Sam C.; and Piersol, Allan G., 5,065,618, Cl. 73-146.000.

Hodges, Marvin P. High refraction index enveloping medium lens system. 5,066,114, Cl. 359-665.000.

Hodges Transportation Inc.: *See—*
Hodges, Hency C., Sr.; Hodges, Henry C., Jr.; Ashmore, Sam C.; and Piersol, Allan G., 5,065,618, Cl. 73-146.000.

Hoebel, Peter: *See—*
Brandner, Gerhard; and Hoebel, Peter, 5,066,864, Cl. 250-484.100.

Hoechst AG: *See—*
Honel, Michael; Ziegler, Peter; Sprenger, Walter; and Wendt, Wolfgang, 5,066,758, Cl. 528-45.000.

Hoechst Aktiengesellschaft: *See—*
Dany, Franz-Josef; Ulrich, Hannsjorg; and Westermann, Lothar, 5,066,415, Cl. 252-135.000.
Feldhues, Michael; Kampf, Gunther; and Mecklenburg, Thomas, 5,066,731, Cl. 525-417.000.
Gerdau, Thomas; Kleiner, Hans-Jerg; Peuckert, Marcellus; Bruck, Martin; and Aldinger, Fritz, 5,066,623, Cl. 501-97.000.
Merrem, Hans-Joachim; Buhr, Gerhard; and Lenz, Ruediger, 5,066,567, Cl. 430-325.000.
Rieper, Wolfgang; and Hafner, Otmar, 5,066,687, Cl. 523-205.000.
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, 5,066,365, Cl. 203-042.000.
Zertani, Rudolf; Mohr, Dieter; and Rode, Klaus, 5,066,564, Cl. 430-284.000.

Hoechst Celanese Corporation: *See—*
Pampalone, Thomas R., 5,066,561, Cl. 430-169.000.
Sandor, Robert B.; and Thornburg, Theodore S., 5,066,697, Cl. 524-233.000.

Hoefer, Clovia: *See—*
Hoefer, Richard; and Hoefer, Clovia, 5,065,923, Cl. 220-694.000.

Hoefer, Richard; and Hoefer, Clovia. Food supporting element for attachment to a food container. 5,065,923, Cl. 220-694.000.

Hoefle, Milton L.: *See—*
Boschelli, Diane H.; Connor, David T.; Flynn, Daniel L.; Sircar, Jagadish C.; and Hoefle, Milton L., 5,066,668, Cl. 514-384.000.

Hoehst Celanese Corporation: *See—*
Hsieh, Shane; and Mitchell, Wayne A., 5,066,568, Cl. 430-325.000.

Hoffend, Thomas R.: *See—*
Robinette, Susan; Lynch, Anita P.; Hoffend, Thomas R.; Grabowski, Edward F.; and Carmichael, Kathleen M., 5,066,557, Cl. 430-58.000.

Hoffman, David R.: *See—*
Block, Michael S.; and Hoffman, David R., 5,066,224, Cl. 433-7.000.

Hoffman, Julie F.; and Jones, Lionel D., II, to Akzo N.V. Method for cleaning reagent delivery probes. 5,066,336, Cl. 134-22.120.

Hoffmann-La Roche Inc.: *See—*
Okabe, Masami, 5,066,800, Cl. 540-471.000.

Hoffmeyer, Mark K.: *See—*
Perepezko, John H.; and Hoffmeyer, Mark K., 5,066,324, Cl. 75-335.000.

Hofmann-Moritz, Doris: *See—*
Voss, Erdmuthe; Moschinsky, Werner; and Hofmann-Moritz, Doris, 5,066,640, Cl. 512-21.000.

Hofmeister, Peter: *See—*
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, 5,066,673, Cl. 514-521.000.

Hogan, Mark R.: *See—*
Amr, Yehia M.; Fallows, W. Joseph, III; and Hogan, Mark R., 5,066,194, Cl. 415-223.000.

Holcombe, Cressie E., Jr.; and Chapman, Lloyd R., to ZYP Coatings. Paintable compositions for protecting metal and ceramic substrates. 5,066,330, Cl. 106-287.340.

Holdeman, Maynard L., to A.B. Chance Company. Cylindrical foundation support drivable into ground with removable helix. 5,066,168, Cl. 405-249.000.

Holder, Jon A. Visually enhanced weather vane apparatus. 5,065,621, Cl. 73-188.000.

Hollerbach, Eric T.: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.

Hollesen, David B.; Kaczorek, Joseph W.; and Treible, Edwin S., to AT&T Bell Laboratories. Solder flux applicator. 5,065,692, Cl. 118-302.000.

Hollingsworth, Michele D.: *See—*
Hubbard, Ernest T.; Hollingsworth, Michele D.; Ram, N. V. Raghava; and Cook, Judith P., 5,066,595, Cl. 435-240.450.

Holmes, Donald E.: *See—*
Isaacson, Milton S.; Holmes, Donald E.; and Lioi, Anthony P., 5,066,300, Cl. 623-3.000.

Holmes, Thomas F.: *See—*
Breeden, Robert L.; Johnson, Richard E.; Kabcenell, Amy R.; and Holmes, Thomas F., 5,066,949, Cl. 340-825.440.

Hologic, Inc.: *See—*
Aitkenhead, William F.; and Gershman, Russell J., 5,067,144, Cl. 378-146.000.

Holt, John C.: *See—*
Huang, Tur-Fu; Niewiarowski, Stefan; Holt, John C.; and Lukasiewicz, Hanna, 5,066,592, Cl. 435-240.200.

Holter, Heinz; Igelbuscher, Heinrich; Gresch, Heinrich; Dewert, Heribert; and Rump, Hanns, to Holter, Heinz. Apparatus for indicating the presence of toxic substances in air that is supplied to a personnel-occupied space. 5,066,466, Cl. 422-98.000.

Holtz, Leonard: *See—*
Johnson, Gary D.; and Hochfeld, Stanley, 5,065,779, Cl. 135-33.700.

Hon, Clarence C., to Mobil Oil Corporation. Hydraulic platform and level correcting control system. 5,065,844, Cl. 187-17.000.

Honda Giken Kogyo K.K.: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Honda Giken Kogyo Kabushiki Kaisha: *See—*
Fujimoto, Sachito; and Koike, Yuzuru, 5,065,705, Cl. 123-41.150.
Hamada, Tetsuro; Noro, Yoshiki; and Ashikawa, Noboru, 5,065,836, Cl. 180-245.000.
Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, 5,065,834, Cl. 180-197.000.
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.
Shimada, Toshio, 5,065,644, Cl. 74-603.000.
Shitanoki, Kazuaki; Kawaguchi, Masaaki; and Kobayashi, Saburo, 5,066,039, Cl. 280-741.000.
Wakamori, Takehisa; Ogawa, Takashi; Ito, Ryoji; and Shimanaka, Chikafumi, 5,065,507, Cl. 29-888.010.

Honda Giken Koyo Kabushiki Kaisha: *See—*
Ito, Yasutoshi; Kamiyama, Toshihiro; and Kawashima, Fuminori, 5,065,709, Cl. 123-90.150.

Honda, Ikuro: *See—*
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, 5,066,808, Cl. 514-231.500.

Honda, Mamoru; and Shirato, Ken, to Aisin Seiki Kabushiki Kaisha. Oil sealing system for a turbo charger. 5,066,192, Cl. 415-112.000.

Honel, Michael; Ziegler, Peter; Sprenger, Walter; and Wendt, Wolfgang, to Hoechst AG. Carrier resin for pigment pastes, and its preparation and use. 5,066,758, Cl. 528-45.000.

Honeywell Inc.: *See—*
Dunaway, Thomas J.; Spielberger, Richard K.; Dicks, Lori A.; and Loy, Jerald M., 5,066,614, Cl. 437-209.000.
Kau, Shing P., 5,067,084, Cl. 364-453.000.
Olson, David P.; and Werder, Jonathan C., 5,067,096, Cl. 364-517.000.
Spielberger, Richard K.; and Dunaway, Thomas J., 5,066,831, Cl. 174-52.400.
Waldrop, John L.; and Glover, Clarence B., 5,065,521, Cl. 33-361.000.

Hood, Harrison P., III: *See—*
Pazda, Robert J.; Clum, Kenneth L.; and Hood, Harrison P., III, 5,066,918, Cl. 324-452.000.

Hoopingarner, Brett R., to Hudson, E. W., III. Method and apparatus for allocating and recording time blocks on VCR tapes. 5,066,046, Cl. 283-70.000.

Hope, Henry F.; and Hope, Stephen F. Fire and moisture proof anode construction for alkaline metal or alkaline earth metal batteries. 5,066,554, Cl. 429-48.000.

Hope, Stephen F.: *See—*
Hope, Henry F.; and Hope, Stephen F., 5,066,554, Cl. 429-48.000.

Hopperdietzel, Siegfried, to Rehau AG & Co. Tambour door for box-type furniture. 5,065,808, Cl. 160-231.200.

Hoppner, Klaus: *See—*
Wehle, Anton; Hoppner, Klaus; and Weiss, Hermann, 5,065,708, Cl. 123-52.0MC.

Hori, Roy Y.: *See—*
Crowninshield, Roy D.; and Hori, Roy Y., 5,066,304, Cl. 623-22.000.

Horibe, Kinya; Hirano, Tomio; and Ikeda, Minoru, to Yazaki Corporation. Electric contact. 5,066,550, Cl. 428-670.000.

Horiki, Akira: *See—*
Sugano, Minoru; Horiki, Akira; Yashiro, Zenichi; and Matsushima, Hironori, 5,067,075, Cl. 395-425.000.

Horn, Michael: *See—*
Hadcock, Richard N.; Chipman, Richard R.; Horn, Michael; and Chance, Richard F., 5,065,630, Cl. 73-802.000.

Horner, Tom. Splash resistant cup lid. 5,065,880, Cl. 220-711.000.

Horstermann, Peter: *See—*
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, 5,066,365, Cl. 203-042.000.

Hosaka, Yukihiro: *See—*
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.

Hoshi, Hideaki: *See—*
Ohnuma, Takeshi; Hoshi, Hideaki; Kamei, Hideo; and Naito, Takayuki, 5,066,645, Cl. 514-27.000.

Hosobuchi, Yoshiyuki; and Takahashi, Takayuki, to Hitachi, Ltd. Terminal management method and apparatus. 5,067,154, Cl. 380-25.000.

Hosokai, Tetsushi; Takaba, Tetsuro; Ishihara, Toshihiro; and Kobayashi, Hideki, to Mazda Motor Corporation. Idle speed control system for engine. 5,065,717, Cl. 123-339.000.

Hosono, Masaki: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, to Kabushiki Kaisha Toshiba; and Tokyo Electric Co., Ltd. Cleaner-less image forming apparatus. 5,066,982, Cl. 355-269.000.

Houki, Yoji: *See—*
Watarai, Shinichi; Yasuda, Megumi; Houki, Yoji; and Nishio, Yukio, 5,066,978, Cl. 355-206.000.

Houle, William A.; Larson, James R.; and Pearlstine, Kathryn A., to DXImaging. Process for preparing positive electrostatic liquid developers with acidified charge directors. 5,066,821, Cl. 430-137.000.

Hounsel, Mack A., to J T Thorpe Company. Refractory ceramic fiber ladle covers. 5,065,987, Cl. 266-283.000.

Howard, James K.; Simmons, Randall G.; and Yogi, Tadashi, to International Business Machines Corporation. Low noise thin film metal alloy magnetic recording disk. 5,066,552, Cl. 428-694.000.

Howard, Richard E.: *See—*
Denker, John S.; Howard, Richard E.; Jackel, Lawrence D.; and LeCun, Yann, 5,067,164, Cl. 382-15.000.

Howie, Milham S.: *See—*
Sangokoya, Samuel A.; Howie, Milham S.; and Trumbo, Todd A., 5,066,631, Cl. 502-152.000.

Howland, Leland L.; Parker, Jan M.; Herrig, Doyle G.; and Swanson, David A., to Thermo King Corporation. Compartmentalized transport refrigeration system. 5,065,587, Cl. 62-131.000.

Hoya Corporation: *See—*
Kasuga, Tomoko; and Kasuga, Toshihiro, 5,066,619, Cl. 501-3.000.

Hrsak, Ivo: *See—*
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, 5,066,642, Cl. 514-18.000.

Hsiao, Chang-Chia: *See—*
Chan, Yiu-Fai; Hsiao, Chang-Chia; and Watson, James A., 5,066,873, Cl. 307-443.000.

Hsieh, Dick M. Briefcase formed with thermoformed laminate shells. 5,065,847, Cl. 190-125.000.

Hsieh, Henry L.: *See—*
Pettijohn, Ted M.; and Hsieh, Henry L., 5,066,739, Cl. 526-127.000.

Hsieh, Shane; and Mitchell, Wayne A., to Hoehst Celanese Corporation. Method of developing negative working photographic elements. 5,066,568, Cl. 430-325.000.

Hsu, Jack J.: *See—*
Huang, Wann-Sheng; and Hsu, Jack J., 5,065,821, Cl. 166-245.000.

Hsu, P. J. Structure of permanent magnetic work holder. 5,066,936, Cl. 335-295.000.

Huang, Lai-Jen. Combined negative holder and viewing device. 5,066,158, Cl. 402-4.000.

Huang, Tur-Fu; Niewiarowski, Stefan; Holt, John C.; and Lukasiewicz, Hanna, to Temple University of the Commonwealth System of Higher Education. Trigramin - a platelet aggregation inhibiting polypeptide. 5,066,592, Cl. 435-240.200.

Huang, Wann-Sheng; and Hsu, Jack J., to Texaco Inc. Gas flooding with horizontal and vertical wells. 5,065,821, Cl. 166-245.000.

Hubbard, Ernest T.; Hollingsworth, Michele D.; Ram, N. V. Raghava; and Cook, Judith P., to Sungene Technologies Corporation. Process

VOL 1132 ISS 3 NO 19 1991 UMI

for increasing free pool lysine content in maize. 5,066,595, Cl. 435-240.450.

Hubbell Incorporated: *See—*
Kesler, Gregory J.; and Schnell, Kenneth R., 5,065,968, Cl. 248-205.100.

Huber, Charles D.; and Barry, Donald J., to Minnesota Mining and Manufacturing Company. Camouflage wrapping tape. 5,066,529, Cl. 428-40.000.

Huber, Werner; and Spiegel, Guenter, to Robert Bosch GmbH. Apparatus having a control motor for intervention into a force transmission device. 5,065,722, Cl. 123-399.000.

Huder, Bernhard, to Telefunken Systemtechnik GmbH. Mode coupler for monopulse applications having H_{01} mode extracting means. 5,066,959, Cl. 343-786.000.

Hudson, E. W., III: *See—*
Hoopingarner, Brett R., 5,066,046, Cl. 283-70.000.

Huels Aktiengesellschaft: *See—*
Flakus, Werner, 5,066,713, Cl. 524-591.000.
Ruff, Klaus; Falk, Bernhard; and Gratz, Werner, 5,066,472, Cl. 423-342.000.

Huerre, Dominique; and Mehu, Jacques, to Societe Electronique de la Region Pays de Loire. Television set fascia. 5,067,022, Cl. 358-248.000.

Huettenhain, Horst; Benz, August D.; and Getsoian, John, to Bechtel Group, Inc.; and Arcanum Corp. Method for recovering light hydrocarbons from coal agglomerates. 5,066,310, Cl. 44-500.000.

Huff, Terrence: *See—*
Randall, James C., Jr.; and Huff, Terrence, 5,066,723, Cl. 525-194.000.

Huffy Corporation: *See—*
Niver, Michael A., 5,066,007, Cl. 273-1.50R.

Hughes Aircraft Company: *See—*
McDonald, Mark E., 5,066,108, Cl. 359-65.000.
Woody, George, 5,065,976, Cl. 248-549.000.

Hulsing, Rand H., II., to Sundstrand Data Control, Inc. Apparatus and method for sensing displacement using variations magnetic flux linkage. 5,066,911, Cl. 324-207.180.

Hundleby, Giles E., to Ricardo Group PLC. Internal combustion engines. 5,065,712, Cl. 123-188.00M.

Hunke, Friedrich, to Automatik Apparate-Maschinenbau GmbH. Apparatus for cooling and granulating extrusions of thermoplastic material. 5,066,210, Cl. 425-71.000.

Hunt, Gary D.: *See—*
Reid, Laurie M.; Koster, Archie; and Hunt, Gary D., 5,065,856, Cl. 198-419.300.

Hutt, Julie A.: *See—*
Palepu, Nageswara R.; and Hutt, Julie A., 5,066,647, Cl. 514-110.000.

Huttemann, Lyndon R.: *See—*
Long, Michael; Huttemann, Lyndon R.; Sanford, Robert W.; and Longboat, Robert D., 5,066,345, Cl. 156-157.000.
Long, Michael; Huttemann, Lyndon R.; and Sanford, Robert W., 5,066,346, Cl. 156-157.000.

Hutter, G. Frederick, to Westvaco Corporation. Water-soluble rosin polyamide resins. 5,066,331, Cl. 106-30.000.

Huykman, William, to Ultrafibre, Inc. Nonwoven insulating webs. 5,066,538, Cl. 428-288.000.

Hwang, Bor-Yuan: *See—*
Zdebel, Peter J.; Balda, Raymond J.; Hwang, Bor-Yuan; and Wagner, Allen J., 5,067,002, Cl. 357-59.000.

Hwang, Steven. Aquarium ornament lamp source. 5,067,059, Cl. 362-101.000.

Hwo, Charles C., to Shell Oil Company. Film, sheet and laminate capable of forming easy-open packagings. 5,066,543, Cl. 428-412.000.

Hyland, Barry M.: *See—*
Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., 5,066,907, Cl. 324-158.00P.

Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, to Fujitsu Limited. System for controlling data transmission in ATM switching network. 5,067,123, Cl. 370-58.100.

Hyperfine, Inc.: *See—*
Schwenker, John P., 5,066,127, Cl. 356-328.000.

Hyster Company: *See—*
Axtell, Lloyd L., 5,065,643, Cl. 74-501.600.

Hyundai Electronics Industries Co., Ltd.: *See—*
Chung, In S.; and Lee, Dai H., 5,066,604, Cl. 437-44.000.

I F M Electronic GmbH: *See—*
Burgel, Johannes; and Lamarche, Jean L., 5,066,954, Cl. 341-158.000.

Ichihashi, Hiroshi: *See—*
Kitamura, Masaru; Ichihashi, Hiroshi; and Suzukamo, Gohfu, 5,066,630, Cl. 502-85.000.

Ichijima, Seiji; Saito, Naoki; Mihayashi, Keiji; Ishii, Yoshio; and Ogawa, Akira, to Fuji Photo Film Co., Ltd. Silver halide color photographic material. 5,066,576, Cl. 430-558.000.

Ichikoh Industries Ltd.: *See—*
Akizuki, Kunio, 5,067,053, Cl. 362-61.000.

Ichimatsu, Tsuneo: *See—*
Sunahara, Kazuo; Ichimatsu, Tsuneo; and Aoki, Yumiko, 5,066,620, Cl. 501-21.000.

Ida, Shizuo, to Mitsubishi Denki Kabushiki Kaisha. Head driver. 5,067,032, Cl. 360-46.000.

Ide, Russell D. Hydrodynamic bearings having a continuous beam mounted support surface. 5,066,144, Cl. 384-117.000.

Idel, Karsten-Josef: *See—*
Russeler, Wolfgang; Idel, Karsten-Josef; Dorf, Ernst-Ulrich; Alewelt, Wolfgang; and Freitag, Dieter, 5,066,776, Cl. 528-388.000.

Identix Incorporated: *See—*
Driscoll, Edward C., Jr.; Martin, Craig O.; Ruby, Kenneth; Russell, James J.; and Watson, John G., 5,067,162, Cl. 382-5.000.

Iderosa, Richard A., to Warner-Lambert Company. Thermally assisted shaving system. 5,065,515, Cl. 30-140.000.

Iehisa, Nobuaki: *See—*
Yamazaki, Etsuo; and Iehisa, Nobuaki, 5,067,086, Cl. 364-474.080.

Ifflaender, Helmut; Matura, Eike; Polster, Walter; and Rattner, Manfred, to Siemens Aktiengesellschaft. Extracorporeal lithotripsy apparatus for the disintegration of calculi having an unattenuated locating field. 5,065,762, Cl. 128-660.030.

Igaki, Masahiko: *See—*
Kataoka, Kenichi; Nishimoto, Yoshifumi; Igaki, Masahiko; and Yanagi, Eiichi, 5,065,999, Cl. 271-265.000.

Igelbuscher, Heinrich: *See—*
Holter, Heinz; Igelbuscher, Heinrich; Gresch, Heinrich; Dewert, Heribert; and Rump, Hanns, 5,066,466, Cl. 422-98.000.

Iguchi, Yasuyuki: *See—*
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.

Ihara, Takeshi: *See—*
Hamano, Hiroshi; Amemiya, Izumi; Yamamoto, Takuji; Arai, Yasunari; and Ihara, Takeshi, 5,066,877, Cl. 307-603.000.

Iijima, Tatsuya: *See—*
Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, 5,067,131, Cl. 371-40.100.

Ikeda, Hideaki: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Ikeda, Makoto; and Toriumi, Makoto, to Terumo Kabushiki Kaisha. Electronic clinical thermometer. 5,066,141, Cl. 374-169.000.

Ikeda, Minoru: *See—*
Horibe, Kinya; Hirano, Tomio; and Ikeda, Minoru, 5,066,550, Cl. 428-670.000.

Ikeda, Yukio, to Niles Parts Co., Ltd. Exhaust gas purifying apparatus. 5,066,316, Cl. 55-122.000.

Ikeuchi, Masaki: *See—*
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.

Ikezawa, Ryoichi: *See—*
Kumakura, Toshihisa; Nanaumi, Ken; Ikezawa, Ryoichi; and Eriguchi, Hideki, 5,066,691, Cl. 523-438.000.

Ikezi, Hiroyuki; Lin-Liu, Yuh-Ren; and deGrassie, John S., to General Atomics. Soliton pulse compressor. 5,066,928, Cl. 333-20.000.

Imai, Takehiro: *See—*
Nakagawa, Shiro; Domon, Taisuke; Imai, Takehiro; and Tsuchida, Atsuko, 5,065,625, Cl. 73-336.500.

Imaoka, Kazunori: *See—*
Miura, Takao; and Imaoka, Kazunori, 5,066,993, Cl. 357-23.700.

IMC Fertilizer, Inc.: *See—*
Michalski, Dennis H., 5,066,471, Cl. 423-319.000.

Imperial Chemical Industries PLC: *See—*
Cogswell, Frederic N.; and Meakin, Peter J., 5,066,536, Cl. 428-216.000.

Imunoloski Zavod: *See—*
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, 5,066,642, Cl. 514-18.000.

Inagaki, Masaru; and Matsushita, Toshio, to NEC Corporation. Telephone handset with electrostatic discharge prevention. 5,067,151, Cl. 379-433.000.

Inamed Corporation: *See—*
Cox, James E., Jr., 5,065,772, Cl. 128-836.000.

Inami, Junichi; Kikuta, Koozi; Nakane, Satoshi; Fujito, Kazumi; and Hirosawa, Hitoshi, to Nitta Industries Corporation. Process for producing an endless belt. 5,066,344, Cl. 156-138.000.

Inazawa, Yoshizumi: *See—*
Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, 5,067,131, Cl. 371-40.100.

Industrial Materials Technology, Inc.: *See—*
Hanson, Andrew D., 5,066,454, Cl. 419-42.000.

Industrial Technology Research Institute: *See—*
Liu, Ru-Shi; Wang, Wang-Nang; and Chang, Chan-Ting, 5,066,636, Cl. 505-1.000.
Wang, Jinn-Shyan, 5,067,016, Cl. 358-140.000.
Yo, Yuh-Yuan, 5,065,594, Cl. 62-195.000.

Information Technologies Research, Inc.: *See—*
Kisor, Gregory H.; and King, Edward J., 5,067,152, Cl. 380-10.000.

Ingalls, Robert A., to Excet Corporation. Screw rotor lobe profile for simplified screw rotor machine capacity control. 5,066,205, Cl. 418-1.000.

Ingenhoven, Jurgen, to Kiekert GmbH & Kommanditgesellschaft. Motor-vehicle door latch with antitheft feature. 5,066,054, Cl. 292-201.000.

Inoue, Hiroshi: *See—*
Kanno, Hideo; Inoue, Hiroshi; and Mizutome, Atsushi, 5,066,945, Cl. 340-784.000.

Inoue, Katsuhiro: *See—*
Kato, Shigeki; and Inoue, Katsuhiro, 5,066,449, Cl. 264-406.000.

Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, to Sony Corporation. Magnetic recording medium wherein the magnetic layer contains components having specified polar groups, particle diameters and surface areas or which are in specific relative ratios. 5,066,539, Cl. 428-328.000.

Inoue, Masahiro: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Inoue, Shigeru: *See—*
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.

Inoue, Takahiro: *See—*
Goto, Masahiro; Inoue, Takahiro; Kato, Junichi; and Kobayashi, Tatsuya, 5,066,979, Cl. 355-208.000.

Inoue, Takashi: *See—*
Mizuno, Toshio; Muratani, Takuro; Ito, Yasuhiko; Watanabe, Tatsuo; and Inoue, Takashi, 5,066,957, Cl. 342-352.000.

Inoue, Takayoshi: *See—*
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, 5,066,938, Cl. 338-22.0SD.

Inoue, Yoshio; Yoshino, Masachika; and Fujiki, Hironao, to Shin-Etsu Chemical Co., Ltd. Curable organopolysiloxane putty-like composition. 5,066,714, Cl. 524-731.000.

Insite Peripherals, Inc.: *See—*
Godwin, Jimmy D.; and Williams, Stephen P., 5,067,039, Cl. 360-135.000.

Institut Francais du Petrole: *See—*
Bardin, Christian; Pignard, Guy; Boulet, Jean; and Morin, Pierre, 5,065,825, Cl. 175-38.000.

Institut Pasteur: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Institut Recherches de la Siderurgie Francais - IRSID: *See—*
Quantin, Daniele; and Galdon, Francisco, 5,066,548, Cl. 428-629.000.

Insul Company, Inc.: *See—*
Perri, Joseph A., 5,065,986, Cl. 266-217.000.

Intelectron: *See—*
Lee, Wade, 5,066,855, Cl. 250-221.000.

International Business Machines Corporation: *See—*
Akam, Nigel J.; Cameron, Donald M.; Halliday, David K.; and Paterson, Raymond, 5,065,858, Cl. 198-493.000.
Andreshak, Joseph C.; Datta, Madhav; Romankiw, Lubomyr T.; and Vega, Luis F., 5,066,370, Cl. 204-129.100.
Andrews, Paul N., 5,067,073, Cl. 395-375.000.
Borkenhagen, John M.; Schmierer, Quentin; and Geer, Charles P., 5,067,105, Cl. 395-400.000.
Cooke, Kevin K.; Dewitt, John R.; and McCloskey, John E., 5,067,041, Cl. 361-394.000.
Daley, Lawrence R.; and Leslie, Gerald G., II, 5,066,360, Cl. 156-660.000.
Evans, Timothy G.; Gould, Mark W.; and McNamara, Timothy J., 5,067,129, Cl. 371-16.100.
Goldowsky, Michael P.; and Pennebaker, William B., 5,066,512, Cl. 427-14.100.
Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., 5,065,932, Cl. 228-55.000.
Howard, James K.; Simmons, Randall G.; and Yogi, Tadashi, 5,066,552, Cl. 428-694.000.
Ito, Nobuyasu, 5,067,166, Cl. 382-37.000.
Zammit, Robert P., 5,065,483, Cl. 29-603.000.

International Clamp Company: *See—*
Miller, Jack E., 5,066,053, Cl. 285-373.000.

International Flavors & Fragrances Inc.: *See—*
Narula, Anubhav P. S.; and DeVirgilio, John J., 5,066,639, Cl. 512-13.000.
Narula, Anubhav P. S.; De Virgilio, John J.; and Van Elst, Jan T., 5,066,641, Cl. 512-25.000.

International Group, Inc., The: *See—*
Colon, Herman; and Maletsky, Albert, 5,066,711, Cl. 524-556.000.

International Mobile Machine Corporation: *See—*
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.

Inui, Masaki: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Inventio AG: *See—*
Rulke, Gerhart, 5,067,062, Cl. 362-146.000.
Schroder, Joris, 5,065,846, Cl. 187-127.000.

Invequest, Inc.: *See—*
Farnsworth, Thomas L., 5,065,947, Cl. 241-30.000.

Ionics, Incorporated: *See—*
Parsi, Edgardo J.; Sims, Keith J.; Elyanow, Irving D.; and Prato, Thomas A., 5,066,375, Cl. 204-182.400.

Iovine, Carmine P.: *See—*
Leighton, John C.; Iovine, Carmine P.; Aronson, Michael P.; and Elliott, David L., 5,066,749, Cl. 526-271.000.

Isaacson, Milton S.; Holmes, Donald E.; and Lioi, Anthony P., to Nu-Tech Industries, Inc. Twin replacement heart. 5,066,300, Cl. 623-3.000.

Isaka, Kazuo: *See—*
Yoshinaga, Kazuo; Keneko, Shuzo; Kai, Takashi; Isaka, Kazuo; and Ohnishi, Toshikazu, 5,066,107, Cl. 359-45.000.

Isao, Sugiyama: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Isawa, Yamahiro; Morooka, Isao; and Oba, Yoichi, to Asahi Chemical Research Laboratory Co., Ltd. Electromagnetic wave shielding composition comprising epoxy resin and copper particles. 5,066,692, Cl. 523-458.000.

Ishak, Maher; and Schwartz, Alexander, to Abrasive Technology N.A., Inc. Flexible abrasives. 5,066,312, Cl. 51-295.000.

Ishibashi, Hiroshi: *See—*
Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, 5,067,131, Cl. 371-40.100.

Ishida, Kohji; Nishimura, Yasushi; and Yamaguchi, Shigeru, to Pioneer Electronic Corporation. Noise reduction apparatus in an FM stereo tuner. 5,067,157, Cl. 381-13.000.

Ishida, Masatoshi: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Ishida, Noboru; Ito, Masaya; and Kawamura, Mitsuyoshi, to NGK Spark Plug Co., Ltd. Metal and ceramic heat-connected body. 5,066,547, Cl. 428-627.000.

Ishihara, Hideshi: *See—*
Mikami, Kazuo; Ishihara, Hideshi; Nishimura, Masahiro; Tsukiyama, Noriyuki; and Hinoda, Seisuke, 5,067,161, Cl. 382-1.000.

Ishihara, Kouichiro: *See—*
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Ishihara, Sumi: *See—*
Umemoto, Teruo; and Ishihara, Sumi, 5,066,795, Cl. 540-1.000.

Ishihara, Toshihiro: *See—*
Hosokai, Tetsushi; Takaba, Tetsuro; Ishihara, Toshihiro; and Kobayashi, Hideki, 5,065,717, Cl. 123-339.000.

Ishii, Eiichi: *See—*
Fukuda, Shinri; and Ishii, Eiichi, 5,066,876, Cl. 307-475.000.

Ishii, Koji: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Ishii, Satoshi; Tsukiji, Masaaki; Nishimura, Tetsuharu; and Ishizuka, Koh, to Canon Kabushiki Kaisha. Device having signal interpolation circuit and displacement measuring apparatus comprising the device. 5,067,089, Cl. 364-486.000.

Ishii, Satoshi: *See—*
Tsukiji, Masaaki; Nishimura, Tetsuharu; Ishizuka, Koh; Ishii, Satoshi; and Kubota, Yoichi, 5,066,130, Cl. 356-356.000.

Ishii, Teruhiko: *See—*
Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, 5,066,657, Cl. 514-269.000.

Ishii, Yoshiki; and Shimokoriyama, Makoto, to Canon Kabushiki Kaisha. Color video signal processing device with encoding and compression. 5,067,010, Cl. 358-13.000.

Ishii, Yoshio: *See—*
Ichijima, Seiji; Saito, Naoki; Mihayashi, Keiji; Ishii, Yoshio; and Ogawa, Akira, 5,066,576, Cl. 430-558.000.

Ishii, Yukihisa: *See—*
Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, 5,065,834, Cl. 180-197.000.

Ishikawa, Takatoshi: *See—*
Yoshida, Kazuaki; and Ishikawa, Takatoshi, 5,066,571, Cl. 430-489.000.

Ishikawa, Yujiro: *See—*
Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, 5,066,152, Cl. 400-621.000.

Ishizuka, Koh: *See—*
Ishii, Satoshi; Tsukiji, Masaaki; Nishimura, Tetsuharu; and Ishizuka, Koh, 5,067,089, Cl. 364-486.000.
Tsukiji, Masaaki; Nishimura, Tetsuharu; Ishizuka, Koh; Ishii, Satoshi; and Kubota, Yoichi, 5,066,130, Cl. 356-356.000.

Isoe, Hirosuke: *See—*
Motoda, Kenro; and Isoe, Hirosuke, 5,065,522, Cl. 33.1-366.000.

Isono, Osamu: *See—*
Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, 5,067,123, Cl. 370-58.100.

VOL 1132 ISS 3 NO 19 1991 UMI

Isover Saint-Gobain: *See—*
Furtak, Hans; Naber, Wilfrid; and Lejeune, Raymond, 5,065,478, Cl. 19-296.000.
ISP Investments Inc.: *See—*
Helioff, Michael W.; Plochocka, Krystyna; and Tazi, Mohammed, 5,066,481, Cl. 424-47.000.
Merianos, John J.; Login, Robert B.; and Garelick, Paul, 5,066,488, Cl. 424-80.000.
Isuzu Motors Limited: *See—*
Matsuoka, Hiroshi, 5,065,714, Cl. 123-254.000.
Ito, Katsuhiro: *See—*
Yoshimoto, Hataaki; and Ito, Katsuhiro, 5,066,105, Cl. 359-58.000.
Ito, Kenichi, to Nippon Thompson Co., Ltd. Method of manufacturing rod end joint. 5,065,934, Cl. 228-112.000.
Ito, Kenji; Shimizu, Hiroyuki; and Wakita, Naomasa, to NGK Spark Plug Co., Ltd. Method of adjusting a frequency response in a stripline filter device. 5,066,934, Cl. 333-205.000.
Ito, Makoto: *See—*
Suzuki, Takanori; and Ito, Makoto, 5,067,052, Cl. 362-61.000.
Ito, Masaya: *See—*
Ishida, Noboru; Ito, Masaya; and Kawamura, Mitsuyoshi, 5,066,547, Cl. 428-627.000.
Ito, Nobuyasu, to International Business Machines Corporation. Method and apparatus for DP matching using multiple templates. 5,067,166, Cl. 382-37.000.
Ito, Ryoji: *See—*
Wakamori, Takehisa; Ogawa, Takashi; Ito, Ryoji; and Shimanaka, Chikafumi, 5,065,507, Cl. 29-888.010.
Ito, Shoji: *See—*
Hasebe, Noboru; and Ito, Shoji, 5,065,749, Cl. 128-664.000.
Ito, Takayuki: *See—*
Nakamura, Koki; Ito, Takayuki; Tsukase, Masaaki; and Taguchi, Toshiki, 5,066,577, Cl. 430-562.000.
Ito, Yasuhiko: *See—*
Mizuno, Toshio; Muratani, Takuro; Ito, Yasuhiko; Watanabe, Tatsuo; and Inoue, Takashi, 5,066.957, Cl. 342-352.000.
Ito, Yasutoshi; Kamiyama, Toshihiro; and Kawashima, Fuminori, to Honda Giken Koyo Kabushiki Kaisha. Valve operating system for internal combustion engine. 5,065,709, Cl. 123-90.150.
Itoh, Ayao, to Kabushiki Kaisha Toshiba. Ultrasonic medical treatment apparatus. 5,065,740, Cl. 128-24.0EL.
Itoh, Shigeo: *See—*
Morimoto, Kiyoshi; Itoh, Shigeo; Tonegawa, Takeshi; and Niiyama, Takahiro, 5,066,885, Cl. 313-340.000.
ITT Corporation: *See—*
Schap, William W., 5,066,056, Cl. 292-341.160.
Shiley, Robert J., 5,066,237, Cl. 439-82.000.
Welsh, David E., 5,066,250, Cl. 439-681.000.
Zoller, Jon P.; and Norris, Jeffrey J., 5,066,841, Cl. 200-342.000.
IVAC Corporation: *See—*
DeFrank, Michael P.; and Rosati, Robert J., 5,066,142, Cl. 374-208.000.
Iwabuchi, Eisuke: *See—*
Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, 5,067,123, Cl. 370-58.100.
Iwaguro, Kenichi: *See—*
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.
Iwahashi, Hiroshi: *See—*
Asano, Masamichi; Iwahashi, Hiroshi; and Yokoyama, Sadayuki, 5,067,111, Cl. 365-189.080.
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, to Sumitomo Metal Industries, Ltd.; Sumikin Chemical Co. Ltd.; and Kureha Kagaku Kogyo Kabushiki Kaisha. Process for refining coal-derived heavy carbonaceous materials. 5,066,384, Cl. 208-45.000.
Iwamoto, Ken; and Narukawa, Atsushi, to Sharp Kabushiki Kaisha. Sheet supplying device. 5,065,995, Cl. 271-9.000.
Iwamoto, Masayuki; Minami, Kouji; and Yamaoki, Toshihiko, to Sanyo Electric Co., Ltd. Photovoltaic device. 5,066,340, Cl. 136-258.000.
Iwanabe, Yoji: *See—*
Sato, Takashi; Iwanabe, Yoji; Arato, Koji; Sakagami, Rokuro; and Yoneda, Yasuo, 5,065,809, Cl. 164-61.000.
Iwanaga, Isao: *See—*
Nakashima, Shozaburo; Iwayama, Kenzo; and Iwanaga, Isao, 5,066,343, Cl. 148-111.000.
Iwasaki, Katsuhiro: *See—*
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.
Iwasaki, Tameo; Sugiura, Masaki; Matsuoka, Yuzo; Matsumoto, Mamoru; and Kitamura, Kazuyuki, to Tanabe Seiyaku Co., Ltd. Benzofuran derivatives. 5,066,669, Cl. 514-449.000.
Iwasawa, Kyoko; Tanaka, Yoshikazu; and Gotou, Shizuo, to Hitachi, Ltd. Method for converting an iterative loop of a source program into parellelly executable object program portions. 5,067,068, Cl. 395-650.000.
Iwashita, Yuji: *See—*
Yabuki, Akira; and Iwashita, Yuji, 5,066,590, Cl. 435-180.000.
Iwata, Mikio; Kariya, Takao; and Ohtsuka, Masaru, to Canon Kabushiki Kaisha. Stage mechanism. 5,066,131, Cl. 356-401.000.
Iwayama, Kenzo: *See—*
Nakashima, Shozaburo; Iwayama, Kenzo; and Iwanaga, Isao, 5,066,343, Cl. 148-111.000.
J. P. Tool, Inc.: *See—*
Peuterbaugh, Bruce G., 5,066,178, Cl. 409-233.000.
J & S Medical Associates, Inc.: *See—*
Deutsch, Marshall E., 5,066,387, Cl. 209-5.000.
J. S. Staedtler GmbH & Co.: *See—*
Schmickl, Werner; and Meichsner, Roland, 5,066,329, Cl. 106-20.000.
J. T. Baker Inc.: *See—*
Ramsden, Hugh E.; and Nau, David R., 5,066,395, Cl. 210-198.200.
J T Thorpe Company: *See—*
Hounsel, Mack A., 5,065,987, Cl. 266-283.000.
J. W. Harris Co., Inc.: *See—*
Ballentine, Richard E.; and Harris, Joseph W., 5,066,456, Cl. 420-472.000.
J. Wagner GmbH: *See—*
Klingen, Willy, 5,066,518, Cl. 427-236.000.
Jackel, Lawrence D.: *See—*
Denker, John S.; Howard, Richard E.; Jackel, Lawrence D.; and LeCun, Yann, 5,067,164, Cl. 382-15.000.
Jackson, Aaron, Jr.: *See—*
Jackson, Efram W.; and Jackson, Aaron, Jr., 5,065,773, Cl. 128-876.000.
Jackson, Efram W.; and Jackson, Aaron, Jr. Weightlifter's belt. 5,065,773, Cl. 128-876.000.
Jackson, Kevin B., to Motorola, Inc. Semiconductor diode and method. 5,066,991, Cl. 357-13.000.
Jackson, Ronald M., to Tektronix, Inc. Method for acquiring data in a logic analyzer. 5,067,130, Cl. 371-22.100.
Jackson, Winston J., Jr.; and Darnell, William R., to Eastman Kodak Company. Process for the preparation of poly(ester-carbonates). 5,066,766, Cl. 528-190.000.
Jacobs, Albert L., Jr.: *See—*
Witkin, Roy T., 5,066,497, Cl. 424-616.000.
Jaecklin, Felix P.: *See—*
Gavin, Norman W.; and Jaecklin, Felix P., 5,066,169, Cl. 405-284.000.
Jakob, Wolfgang: *See—*
Dorf, Ernst-Ulrich; Reinking, Klaus; Jakob, Wolfgang; Tresper, Erhard; and Russeler, Wolfgang, 5,066,775, Cl. 528-388.000.
Jalett, Hans-Peter: *See—*
Blaser, Hans-Ulrich; Jaleit, Hans-Peter; and Sedelmeier, Gottfried, 5,066,801, Cl. 540-523.000.
Jalota, Satish K.: *See—*
Pasqualoni, Anthony M.; Mahulikar, Deepak; Jalota, Satish K.; and Brock, Andrew J., 5,066,368, Cl. 204-58.000.
James, R. Steve: *See—*
Rioja, Roberto J.; Bowers, Joel A.; and James, R. Steve, 5,066,342, Cl. 148-12.70A.
James River Corporation: *See—*
Manning, James H., 5,066,348, Cl. 156-164.000.
James, Robert L.: *See—*
Miller, Ronald E.; and James, Robert L., 5,066,898, Cl. 315-362.000.
Jansen, Johannes W. C. M.: *See—*
Hamminga, Derk; van Wijngaarden, Ineke; and Jansen, Johannes W. C. M., 5,066,649, Cl. 514-183.000.
Janssen, Marcel A. C.: *See—*
Greco, Michael N.; and Janssen, Marcel A. C., 5,066,656, Cl. 514-269.000.
Janssen Pharmaceutica N.V.: *See—*
Greco, Michael N.; and Janssen, Marcel A. C., 5,066,656, Cl. 514-269.000.
Japan Aviation Electronics Industry, Ltd.: *See—*
Suzuki, Takao; Noda, Atsuhito; Komoto, Mitsuo; and Umesato, Shoji, 5,065,941, Cl. 439-264.000.
Japan Electronic Control Systems Co., Ltd.: *See—*
Nakaniwa, Shinpei, 5,065,728, Cl. 123-489.000.
Japan Tobacco Inc.: *See—*
Sagawa, Takayoshi; and Tani, Shichisei, 5,065,800, Cl. 141-67.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., to Westinghouse Electric Corp. Process for making a superconducting magnet coil assembly for particle accelerators. 5,065,496, Cl. 29-599.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., to Westinghouse Electric Corp. Apparatus for making a superconducting magnet for particle accelerators. 5,065,497, Cl. 29-564.700.
Jean Walterscheid GmbH: *See—*
Flanhardt, Michael; Roth, Andreas; and Nienhaus, Clemens, 5,065,639, Cl. 74-417.000.
Jenkins, Christopher P., to Energy Resources & Logistics, Inc. Power plant and method of production of synchronous commercial electric power using diesel electric locomotives. 5,065,581, Cl. 60-668.000.
Jenkins, Thomas C.: *See—*
Boger, Bentley J.; and Jenkins, Thomas C., 5,065,943, Cl. 239-298.000.
Jennings, Howard. Method and apparatus for the automatic determination of surface area. 5,065,634, Cl. 73-865.500.
Jenq, Ching-Shi, to Silicon Storage Technology, Inc. Single transistor non-volatile electrically alterable semiconductor memory device with a re-crystallized floating gate. 5,067,108, Cl. 365-185.000.
Jensen, Billy M., to Ballard Medical Products. Aspirating catheter tube inserter. 5,065,754, Cl. 128-200.260.
Jensen, Gary S.: *See—*
Zegel, Douglas R.; Jensen, Gary S.; Hernick, Mark R.; and Daniels, Michael J., 5,065,559, Cl. 52-239.000.

Jensik, James B. Mounting bracket for an electrical connector. 5,066,246, Cl. 439-562.000.
Jeol, Ltd.: *See—*
Kaneta, Hiroshi; and Muraishi, Shuichi, 5,066,599, Cl. 437-7.000.
Jeromson, James R., Jr.: *See—*
Anderson, J. Edward C.; and Jeromson, James R., Jr., 5,065,650, Cl. 81-486.000.
Jespersen, Paul W.: *See—*
De Luca, Raymond F.; and Jespersen, Paul W., 5,065,895, Cl. 221-54.000.
Jessen, Karl M.: *See—*
McCown, Patricia M.; Conway, Timothy J.; and Jessen, Karl M., 5,067,099, Cl. 364-550.000.
Jex Courter, Barbara G.: *See—*
Adams, William J.; Jex Courter, Barbara G.; Fong, Craig S.; Murray, Robert C.; and Marshall, Paul A., 5,065,962, Cl. 244-234.000.
Jidosha Denki Kogyo K.K.: *See—*
Sekine, Shuji; Furuya, Takeo; and Sato, Katsuhiro, 5,066,878, Cl. 310-68.00C.
Jidosha Kiki Co., Ltd.: *See—*
Yanagi, Kunio; Yamakoshi, Mutsuro; and Kamiyoshihara, Akihiro, 5,066,072, Cl. 303-9.750.
Job, Robert C., to Shell Oil Company. Olefin polymerization catalyst. 5,066,737, Cl. 526-119.000.
Johannes Heidenheim GmbH: *See—*
Ernst, Alfons, 5,066,857, Cl. 250-231.150.
Johns Hopkins University, The: *See—*
Eaton, Harry A. C.; and Fisher, Robert S., 5,066,272, Cl. 600-9.000.
Lapp, Roger H., 5,065,974, Cl. 248-476.000.
Johnson, Alan S., to Red Devil, Inc. Vibratory mixers. 5,066,136, Cl. 366-209.000.
Johnson, Gary D.; and Hochfeld, Stanley, to Holtz, Leonard. Windproof umbrella. 5,065,779, Cl. 135-33.700.
Johnson & Johnson Consumer Products, Inc.: *See—*
Forbes Jones, Robin M.; Panzera, Carl; and DeLuca, Robert D., 5,066,225, Cl. 433-8.000.
Johnson, Jonathon S., to Ford Motor Company. Bit for drilling cast iron. 5,065,647, Cl. 76-108.600.
Johnson, Karle J.: *See—*
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.
Johnson, Mary S. Appearance modifying garments. 5,065,458, Cl. 2-69.000.
Johnson Matthey Inc.: *See—*
Akhtar, Masyood, 5,066,621, Cl. 501-41.000.
Johnson & Quin, Inc.: *See—*
Schneiderhan, Edward M., 5,067,088, Cl. 364-478.000.
Johnson, Richard E.: *See—*
Breeden, Robert L.; Johnson, Richard E.; Kabcenell, Amy R.; and Holmes, Thomas F., 5,066,949, Cl. 340-825.440.
Johnson, Stephen J.: *See—*
Hobbs, Sheila H.; and Johnson, Stephen J., 5,066,662, Cl. 514-364.000.
Johnson, Thomas H.: *See—*
Fried, Herbert E.; and Johnson, Thomas H., 5,066,829, Cl. 560-217.000.
Johnson, Wayne A.: *See—*
Wheeler, Todd; and Johnson, Wayne A., 5,066,149, Cl. 385-135.000.
Johnston, William D.: *See—*
Measells, Paul E.; Johnston, William D.; Kwong, Peter C.; Laurin, Dean G.; and Czuba, Leonard F., 5,066,290, Cl. 604-408.000.
Johnstone, Richard, to Kearney & Trecker Corporation. Probe for machine tool. 5,066,176, Cl. 409-133.000.
Jois, Yajnanarayana H. R.: *See—*
Gibson, Harry W.; and Jois, Yajnanarayana H. R., 5,066,773, Cl. 528-362.000.
Jolley, Michael E.: *See—*
Wang, Chao-Huei J.; Stroupe, Stephen D.; and Jolley, Michael E., 5,066,426, Cl. 540-106.000.
Jones, Gary A., to Hammer Corporation. Leg curl exercise machine. 5,066,003, Cl. 272-134.000.
Jones, Gary A., to Hammer Corporation. Leg extension exercise machine. 5,066,004, Cl. 272-134.000.
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased (by Restall, Janet E., executrix), to Secretary of the State for Defence in her Britannic Majesty's Government of United Kingdom, The. Rapid solidification route aluminium alloys containing lithium. 5,066,457, Cl. 420-552.000.
Jones, Lawrence D.; Frey, Paul T.; Gleason, David D.; Chee, Paula P.; and Slightom, Jerry L., to Upjohn Company, The. Gas driven microprojectile accelerator and method of use. 5,066,587, Cl. 435-172.100.
Jones, Lionel D., II: *See—*
Hoffman, Julie F.; and Jones, Lionel D., II, 5,066,336, Cl. 134-22.120.
Jones, Richard R.: *See—*
Harkrader, Ronald J.; Jones, Richard R.; and Peterson, Kenneth S., 5,066,483, Cl. 424-54.000.
Joppien, Hartmut: *See—*
Buhmann, Ulrich; Joppien, Hartmut; and Baumert, Dietrich, 5,066,675, Cl. 514-544.000.
Jorgenson, James C.: *See—*
Gaver, Joseph C., Jr.; and Jorgenson, James C., 5,066,248, Cl. 439-578.000.
Jose, Natividad: *See—*
Brieva, Hernando; Jose, Natividad; and Tietjen, Marlene, 5,066,485, Cl. 424-63.000.
Joulia, Pierre: *See—*
Point, Jacques; and Joulia, Pierre, 5,066,204, Cl. 417-413.000.
Joyce, Michael, to Joyce Molding Corp. Child-proof container and flip-top closure for dry or for liquid contents. 5,065,876, Cl. 215-206.000.
Joyce Molding Corp.: *See—*
Joyce, Michael, 5,065,876, Cl. 215-206.000.
Juday, Richard D.; and Sampsell, Jeffrey B., to United States of America, National Aeronautics and Space Administration. Programmable remapper for image processing. 5,067,019, Cl. 358-160.000.
Judkins, Brian D.: *See—*
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.
Jujo Paper Co., Ltd.: *See—*
Minami, Toshiaki; Fukuchi, Tadakazu; Ohashi, Reiji; and Kaneko, Toshio, 5,066,634, Cl. 503-209.000.
Jung, Tae-Sung: *See—*
Kim, Byeong-Yun; Jung, Tae-Sung; and Park, Yong-Bo, 5,067,109, Cl. 365-189.050.
Jurgich, Donald. Label dispenser. 5,065,896, Cl. 221-73.000.
Kabcenell, Amy R.: *See—*
Breeden, Robert L.; Johnson, Richard E.; Kabcenell, Amy R.; and Holmes, Thomas F., 5,066,949, Cl. 340-825.440.
Kabelmetal Electro GmbH: *See—*
Hanisch, Ferdinand; and Schleese, Eckard, 5,066,863, Cl. 250-474.100.
Kabumoto, Tsutomu: *See—*
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.
Kabushiki Kaisha Daikin Seisakusho: *See—*
Fujimoto, Shinji; and Yamaguchi, Mitsugu, 5,065,853, Cl. 192-3.290.
Sahashi, Masayoshi, 5,065,509, Cl. 29-889.210.
Kabushiki Kaisha Kobe Seiko Sho: *See—*
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, 5,066,938, Cl. 338-22.0SD.
Murakami, Yoshiaki; and Nishihara, Seiji, 5,065,967, Cl. 248-161.000.
Kabushiki Kaisha Kosmek: *See—*
Yonezawa, Keitaro, 5,065,610, Cl. 72-462.000.
Kabushiki Kaisha Light Kohki Seisakusho: *See—*
Shimizu, Fumio; Nishikubo, Yasutoshi; and Naito, Tadaharu, 5,065,520, Cl. 33-241.000.
Kabushiki Kaisha Okuma Tekkosho: *See—*
Matsui, Keiji, 5,066,129, Cl. 356-356.000.
Nashiki, Masayuki, 5,066,899, Cl. 318-807.000.
Kabushiki Kaisha Shinsangyokaihatsu: *See—*
Nimura, Mitsuhiro; Nanba, Akimasa; and Yokoyama, Shoji, 5,067,082, Cl. 364-449.000.
Kabushiki Kaisha Topcon: *See—*
Sekine, Akihiko, 5,066,116, Cl. 351-221.000.
Kabushiki Kaisha Toshiba: *See—*
Asano, Masamichi; Iwahashi, Hiroshi; and Yokoyama, Sadayuki, 5,067,111, Cl. 365-189.080.
Hara, Hiroyuki; Sugimoto, Yasuhiro; and Nagamatsu, Tetsu, 5,066,996, Cl. 357-43.000.
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.
Itoh, Ayao, 5,065,740, Cl. 128-24.0EL.
Koya, Kiichi, 5,066,874, Cl. 307-446.000.
Nagano, Katsumi, 5,067,042, Cl. 361-406.000.
Nagashima, Seiko; and Serizawa, Takanobu, 5,067,170, Cl. 392-461.000.
Nakane, Hiroshi, 5,067,128, Cl. 371-5.500.
Nakazawa, Masahisa, 5,067,091, Cl. 364-490.000.
Ochiai, Tamiya, 5,067,127, Cl. 370-58.100.
Sakamoto, Noriya; Yasuki, Seijiro; and Kawai, Kiyoyuki, 5,067,018, Cl. 358-142.000.
Sakurai, Kiyofumi; Fuji, Syuso; and Shimizu, Mitsuru, 5,066,997, Cl. 357-45.000.
Ueno, Masaji; and Ofusa, Kumi, 5,066,875, Cl. 307-446.000.
Yamamoto, Tadashi; Kohyama, Yusuke; and Tanaka, Takeshi, 5,066,609, Cl. 437-52.000.
Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See—*
Kanazawa, Hirotaka; Fujimoto, Yoshitomi; and Suzuki, Michio, 5,065,576, Cl. 60-295.000.
Nagai, Katsumi; Nishimyou, Teruyuki; Osawa, Masataka; and Ban, Hitoshi, 5,066,201, Cl. 417-222.00R.
Ohta, Shuji; and Takeuchi, Toshiyuki, 5,065,664, Cl. 91-420.000.
Saitoh, Takeshi; and Kohno, Nozomu, 5,066,055, Cl. 292-228.000.
Kabushiki Kaisha Toyota Chuo Kenkyusho: *See—*
Nagai, Katsumi; Nishimyou, Teruyuki; Osawa, Masataka; and Ban, Hitoshi, 5,066,201, Cl. 417-222.00R.
Kabushiki Kaisha Yaskawa Denkiseisakusho: *See—*
Nishikawa, Seigo; Okumura, Shinji; Amano, Tadayuki; and Hata, Kazutoshi, 5,066,848, Cl. 219-124.340.
Kabushiki Kaisya Advance Kaihatsu Kenkyujo: *See—*
Sasaki, Minoru, 5,065,766, Cl. 128-708.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Kaczorek, Joseph W.: *See—*
Hollesen, David B.; Kaczorek, Joseph W.; and Treible, Edwin S., 5,065,692, Cl. 118-302.000.

Kadis, Paul M., to Teledyne Industries, Inc. Press assembly with cushion assembly and auxiliary apparatus. 5,065,606, Cl. 72-348.000.

Kadis, Paul M.; and Hiney, Leonard L., to Teledyne Industries, Inc. Piston and cylinder assembly. 5,065,607, Cl. 72-351.000.

Kadokura, Hidekimi; and Saegusa, Kunio, to Sumitomo Chemical Company, Limited. Lamina and a cosmetic comprising the same. 5,066,530, Cl. 428-98.000.

Kadrmas, Kenneth A. Automatic disc changer apparatus. 5,067,116, Cl. 369-37.000.

Kageyama, Masaaki: *See—*
Yamagata, Kazuyoshi; Kageyama, Masaaki; and Kaneko, Kyoichi, 5,066,842, Cl. 200-345.000.

Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, to Aisin Seiki Kabushiki Kaisha Kariya; and Toyota Jidosha Kabushiki Kaisha, Toyoto. Apparatus for absorbing torque variation. 5,065,642, Cl. 74-574.000.

Kahning, Stefan: *See—*
Albarda, Scato; Thoren, Werner; Kahning, Stefan; and Vehrens, Peter, 5,065,978, Cl. 251-129.060.

Kai, Takashi: *See—*
Yoshinaga, Kazuo; Keneko, Shuzo; Kai, Takashi; Isaka, Kazuo; and Ohnishi, Toshikazu, 5,066,107, Cl. 359-45.000.

KAI Technologies: *See—*
Kasevich, Raymond S., 5,065,819, Cl. 166-248.000.

Kajima Corporation: *See—*
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Kakita, Tsuyoshi; and Yoshimura, Masazi, to Konica Corporation. Swinging type camera. 5,066,970, Cl. 354-402.000.

Kakuda, Masayuki; Sekiya, Shin; and Kitora, Yoshihisa, to Mitsubishi Denki K.K. Fluid scroll machine with torque transmitting coupling between scrolls. 5,066,206, Cl. 418-55.300.

Kalishman, Calvin. Air-moisture generation system. 5,065,753, Cl. 128-200.110.

Kalkbrenner, Ralph W.: *See—*
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,496, Cl. 29-599.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,497, Cl. 29-564.700.

Kalyandurg, Satyan R., to Eastman Kodak Company. Mechanism for responsively spacing a development roller. 5,066,981, Cl. 355-245.000.

Kamarei, Ahmed R.: *See—*
Szabo, Sandor; Rubin, Meryl S. A.; Klibaner, Michael; and Kamarei, Ahmed R., 5,066,496, Cl. 424-570.000.

Kamei, Hideo: *See—*
Ohnuma, Takeshi; Hoshi, Hideaki; Kamei, Hideo; and Naito, Takayuki, 5,066,645, Cl. 514-27.000.

Kamen, Melvin E.; and Bernstein, Philip, to Revlon, Inc. Method for preparing cosmetic products and the products obtained thereby. 5,066,486, Cl. 424-63.000.

Kameyama, Isao, to Yazaki Corporation. Electric connector with a terminal locking mechanism. 5,066,253, Cl. 439-752.000.

Kamijima, Hiroshi: *See—*
Ogura, Wataru; and Kamijima, Hiroshi, 5,067,028, Cl. 358-494.000.

Kamiya, Masakazu: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Kamiyama, Toshihiro: *See—*
Ito, Yasutoshi; Kamiyama, Toshihiro; and Kawashima, Fuminori, 5,065,709, Cl. 123-90.150.

Kamiyoshihara, Akihiro: *See—*
Yanagi, Kunio; Yamakoshi, Mutsuro; and Kamiyoshihara, Akihiro, 5,066,072, Cl. 303-9.750.

Kampf, Gunther: *See—*
Feldhues, Michael; Kampf, Gunther; and Mecklenburg, Thomas, 5,066,731, Cl. 525-417.000.

Kamyr, Inc.: *See—*
Meredith, Michael D., 5,066,362, Cl. 162-17.000.

Kanagawa, Takashi; Shiino, Yutaka; and Furuyama, Tetsuya, to Fuji Xerox Co., Ltd. Image forming apparatus having a print cartridge. 5,066,976, Cl. 355-200.000.

Kanai, Hiroshi: *See—*
Miyabayashi, Shigeaki; Sakamoto, Takuro; Kanai, Hiroshi; and Oka, Joji, 5,066,757, Cl. 528-45.000.

Kanakura, Akihiro: *See—*
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.

Kanaya, Yasuhiko: *See—*
Arai, Kunio; Nishiyama, Hiromi; Aoyama, Hiroshi; and Kanaya, Yasuhiko, 5,066,171, Cl. 408-1.00R.

Kanazawa, Hirotaka; Fujimoto, Yoshitomi; and Suzuki, Michio, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Exhaust gas purifying device for a diesel engine. 5,065,576, Cl. 60-295.000.

Kanda, Shigeto, to Canon Kabushiki Kaisha. Position detecting device for use by switching plural alternating signals having different phases from each other. 5,067,118, Cl. 369-44.270.

Kanda, Yuichi: *See—*
Kishi, Hajimu; Mizuno, Tohru; and Kanda, Yuichi, 5,066,847, Cl. 219-124.340.

Kane, Edmund J.; and Koops, Roger L., to Donnelly Corporation. Panel assembly for vehicles with molded regulator attachment. 5,065,545, Cl. 49-375.000.

Kane, Robert H.: *See—*
Betrabet, Hemant S.; Boser, Otmar H.; Kane, Robert H.; McGee, Susan; and Caulfield, Thomas, 5,066,544, Cl. 428-614.000.

Kaneda, Ichiro; Yamamoto, Seiji; and Fujii, Natsuji, to Atsugi Unisia Corporation. Integrated actuator unit for anti-skid brake control system for automotive vehicle. 5,066,075, Cl. 303-113.00R.

Kanegafuchi Chemical Industry Co., Ltd.: *See—*
Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, 5,066,861, Cl. 250-370.090.

Kanegafuchi Kagaku Kogyo Kabushiki Kaisha: *See—*
Noguchi, Takehiko; Sakubata, Takashi; and Nagano, Hirosaku, 5,066,770, Cl. 528-353.000.

Kaneko Agricultural Machinery Co., Ltd.: *See—*
Kaneko, Aijiro; and Domon, Masayuki, 5,065,528, Cl. 34-93.000.

Kaneko, Aijiro; and Domon, Masayuki, to Kaneko Agricultural Machinery Co., Ltd. Drying apparatus utilizing solar heat. 5,065,528, Cl. 34-93.000.

Kaneko, Ichiro, to NEC Corporation. Adjacent channel interference canceller with means for minimizing intersymbol interference. 5,067,137, Cl. 375-14.000.

Kaneko, Kyoichi: *See—*
Yamagata, Kazuyoshi; Kageyama, Masaaki; and Kaneko, Kyoichi, 5,066,842, Cl. 200-345.000.

Kaneko, Shinji, to Sony Corporation. Apparatus for recording and reproducing a video signal. 5,067,026, Cl. 358-340.000.

Kaneko, Takahide: *See—*
Fukuzawa, Shigeo; Kaneko, Takahide; and Fujimura, Masaaki, 5,066,217, Cl. 425-589.000.

Kaneko, Tetsuya: *See—*
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.

Kaneko, Toshio: *See—*
Minami, Toshiaki; Fukuchi, Tadakazu; Ohashi, Reiji; and Kaneko, Toshio, 5,066,634, Cl. 503-209.000.

Kaneko, Yoshiyuki, to Canon Kabushiki Kaisha. Receiver for use in remote control system. 5,066,948, Cl. 340-825.690.

Kanemasa, Katsu: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Kaneta, Hiroshi; and Muraishi, Shuichi, to Fujitsu Limited; and Jeol, Ltd. Silicon crystal oxygen evaluation method using fourier transform infrared spectroscopy (FTIR) and semiconductor device fabrication method using the same. 5,066,599, Cl. 437-7.000.

Kanjo, Dajih: *See—*
Wallace, William D.; Lynch, Edward G., Jr.; Daugherty, David W., Jr.; Kanjo, Dajih; and Hawryszkow, Michael G., 5,065,679, Cl. 105-3.000.

Kanno, Hideo; Inoue, Hiroshi; and Mizutome, Atsushi, to Canon Kabushiki Kaisha. Driving apparatus for an electrode matrix suitable for a liquid crystal panel. 5,066,945, Cl. 340-784.000.

Kano, Tokio; Niimura, Toshinobu; and Yonekawa, Hiroyuki, to Olympus Optical Co., Ltd. Reaction apparatus. 5,066,465, Cl. 422-58.000.

Kantner, Robert C.; Rocazella, Michael A.; Weinstein, Jerry G.; and White, Danny R., to Lanxide Technology Company, LP. Ceramic articles having in situ tailored metallic component. 5,066,618, Cl. 501-127.000.

Kantoci, Darko: *See—*
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, 5,066,642, Cl. 514-18.000.

Kapp GmbH: *See—*
Lorenz, Manfred, 5,065,546, Cl. 51-134.50R.

Kappas, Attallah; and Drummond, George S., to Rockefeller University, The. Method for suppressing the endocrine system. 5,066,650, Cl. 514-185.000.

Kar, Hasan: *See—*
Muller, Gerhard; Kar, Hasan; Dorschel, Klaus; and Schonborn, Karl-Heinz, 5,066,292, Cl. 606-7.000.

Karita, Seiichirou: *See—*
Fukuda, Tsuguhiro; Nakagomi, Hiroshi; and Karita, Seiichirou, 5,066,964, Cl. 346-140.00R.

Kariya, Takao: *See—*
Iwata, Mikio; Kariya, Takao; and Ohtsuka, Masaru, 5,066,131, Cl. 356-401.000.

Karkar, Maurice N.; and Velnosky, James C. Hematocrit and oxygen saturation blood analyzer. 5,066,859, Cl. 250-339.000.

Karpova, Yulya G.: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.

Karppinen, Eino; and Sjonell, Goran. Container with lid. 5,065,877, Cl. 215-239.000.

Karstensen, Holger: *See—*
Mayerhofer, Franz; Karstensen, Holger; Dietrich, Ralf; and Spaeth, Werner, 5,066,090, Cl. 385-35.000.

Kasai, Junichi; Yagihashi, Wataru; Yatsunami, Akira; and Kurano, Kazuyuki, to Nissan Motor Company, Limited; and Clarion Company, Limited. Structure of a speaker apparatus. 5,067,159, Cl. 381-90.000.

Kaser, Peter: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,066,432, Cl. 264-28.000.

Kasevich, Raymond S., to KAI Technologies. Electromagnetic apparatus and method for in situ heating and recovery of organic and inorganic materials. 5,065,819, Cl. 166-248.000.

Kasper, Erich; Kuisl, Maximilian; Konig, Ulf; and Luy, Johann F., to Licentia Patent Verwaltungs-GmbH. Process of producing monolithically integrated multifunction circuit arrangements. 5,066,605, Cl. 437-51.000.

Kasuga, Tomoko; and Kasuga, Toshihiro, to Hoya Corporation. Glass-ceramics, process of producing the glass-ceramics and dental crown using the glass-ceramics. 5,066,619, Cl. 501-3.000.

Kasuga, Toshihiro: *See—*
Kasuga, Tomoko; and Kasuga, Toshihiro, 5,066,619, Cl. 501-3.000.

Kataoka, Kenichi; Nishimoto, Yoshifumi; Igaki, Masahiko; and Yanagi, Eiichi, to Canon Kabushiki Kaisha. Sheet feeding device utilizing vibration waves. 5,065,999, Cl. 271-265.000.

Katlama, Christine: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.

Kato, Hironori: *See—*
Bannai, Hiroyuki; and Kato, Hironori, 5,066,239, Cl. 439-164.000.

Kato, Junichi: *See—*
Goto, Masahiro; Inoue, Takahiro; Kato, Junichi; and Kobayashi, Tatsuya, 5,066,979, Cl. 355-208.000.

Kato, Masahiko: *See—*
Nomura, Yoshihisa; Kato, Masahiko; and Nishii, Michiharu, 5,065,573, Cl. 60-551.000.

Kato, Masao: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Kato, Mikio: *See—*
Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, 5,066,152, Cl. 400-621.000.

Kato, Shigeki; and Inoue, Katsuhiro, to NGK Insulators, Ltd. Injection molding process for ceramics. 5,066,449, Cl. 264-406.000.

Kato, Shinsuke: *See—*
Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, 5,066,677, Cl. 514-563.000.

Kato, Tetsuo; Taguchi, Naoto; and Murakami, Yoshihiro, to Yazaki Corporation. Detector device for coupled connector. 5,066,244, Cl. 439-489.000.

Kato, Tetsuo; Fukuda, Kiyohito; Watanabe, Hiroshi; Terada, Katsuaki; and Taguchi, Naoto, to Yazaki Corporation. Retainer for metal terminal of electric connector. 5,066,252, Cl. 439-752.000.

Katsube, Teruaki: *See—*
Yamaguchi, Shuichiro; Shimomura, Takeshi; Uchida, Naoto; Katsube, Teruaki; and Oyama, Noboru, 5,066,383, Cl. 204-435.000.

Katsuyama, Harumi: *See—*
Kawasaki, Kazuya; Tanaka, Mitsutoshi; Amano, Yoshikazu; and Katsuyama, Harumi, 5,066,462, Cl. 422-56.000.

Kau, Shing P., to Honeywell Inc. Inertial measurement unit with aiding from roll isolated gyro. 5,067,084, Cl. 364-453.000.

Kaufmann, Josef, to Schweizerische Gesellschaft fur Tuillindustries, AG. Stretchable Raschel goods. 5,065,601, Cl. 66-195.000.

Kawabuchi, Masami: *See—*
Nakamura, Yasuhiro; Sakai, Ikuo; and Kawabuchi, Masami, 5,065,764, Cl. 128-661.090.

Kawagoe, Takahiro: *See—*
Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hideharu; and Kawagoe, Takahiro, 5,066,556, Cl. 429-194.000.

Kawaguchi, Masaaki: *See—*
Shitanoki, Kazuaki; Kawaguchi, Masaaki; and Kobayashi, Saburo, 5,066,039, Cl. 280-741.000.

Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, to Honda Giken Kogyo K.K. Method of producing mechanical parts by mold casting. 5,065,810, Cl. 164-76.100.

Kawaguchi, Sayoko: *See—*
Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, 5,066,657, Cl. 514-269.000.

Kawai, Kiyoyuki: *See—*
Sakamoto, Noriya; Yasuki, Seijiro; and Kawai, Kiyoyuki, 5,067,018, Cl. 358-142.000.

Kawakami, Masahiro: *See—*
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.

Kawakami, Noboru: *See—*
Yamauchi, Ryozo; Kawakami, Noboru; and Suzuki, Fumio, 5,066,087, Cl. 385-43.000.

Kawamoto, Isao: *See—*
Nakano, Hirofumi; Hara, Mitsunobu; Mokudai Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, 5,066,817, Cl. 549-384.000.

Kawamura, Mitsuyoshi: *See—*
Ishida, Noboru; Ito, Masaya; and Kawamura, Mitsuyoshi, 5,066,547, Cl. 428-627.000.

Kawano, Kiyoshi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Holding mechanism for a camera. 5,066,966, Cl. 354-82.000.

Kawano, Minori, to Mitsubishi Denki Kabushiki Kaisha. Method and apparatus for hand-off of call in progress. 5,067,171, Cl. 455-33.000.

Kawasaki, Kazuya; Tanaka, Mitsutoshi; Amano, Yoshikazu; and Katsuyama, Harumi, to Fuji Photo Film Co., Ltd. Analytical element for measuring enzyme activity. 5,066,462, Cl. 422-56.000.

Kawasaki, Masahiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Camera system. 5,066,969, Cl. 354-402.000.

Kawasaki, Masahiro: *See—*
Ohbuchi, Yukio; Maeda, Yoshiaki; Kawasaki, Masahiro; Sato, Susumu; and Akimoto, Mamoru, 5,066,762, Cl. 528-85.000.
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, 5,066,968, Cl. 354-400.000.

Kawashima, Fuminori: *See—*
Ito, Yasutoshi; Kamiyama, Toshihiro; and Kawashima, Fuminori, 5,065,709, Cl. 123-90.150.

Kawashima, Masayuki: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Kawata, Koichi: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.

Kaydon Corporation: *See—*
Heck, John A.; and Wilhelm, H. Randall, 5,066,026, Cl. 277-96.100.

Kazecki, Henry L.: *See—*
Baker, James C.; Kazecki, Henry L.; and Goode, Steven H., 5,067,139, Cl. 375-86.000.

Kearney, James F.: *See—*
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., 5,066,150, Cl. 400-157.300.

Kearney & Trecker Corporation: *See—*
Johnstone, Richard, 5,066,176, Cl. 409-133.000.

Keller, Alan N.: *See—*
Eddy, James A.; and Keller, Alan N., 5,065,905, Cl. 222-132.000.

Kellett, George W., to Creative Products Resource Associates, Ltd. Gelled, dryer-added fabric-modifier sheet. 5,066,413, Cl. 252-8.750.

Kelley, Stephen S.: *See—*
Glasser, Wolfgang G.; De Oliveira, Willer; Kelley, Stephen S.; and Nieh, Li S., 5,066,790, Cl. 530-502.000.

Kelly, C. Brian: *See—*
Sibley, Lewis B.; and Kelly, C. Brian, 5,066,145, Cl. 384-463.000.

Kelly, Michael J.: *See—*
Hancock, Jimmy W.; Kelly, Michael J.; Latham, Wayne M.; and Stinnett, Carlton E., 5,066,452, Cl. 376-252.000.

Kelly, Neal F.: *See—*
Mailloux, Dennis R.; Smith, Harry A.; and Kelly, Neal F., 5,066,047, Cl. 283-86.000.

Kelly, Stephen L.: *See—*
Byrd, Carl E.; Kelly, Stephen L.; and Beaver, Richard N., 5,066,380, Cl. 204-290.00R.

Kelly, Thomas W.: *See—*
Martz, Jonathan T.; Kelly, Thomas W.; Dowbenko, Rostyslaw; Meier, James A.; and Palermo, Anthony C., 5,066,733, Cl. 525-455.000.

Kendrick, William G., Sr.: *See—*
Coleman, Charles M.; and Kendrick, William G., Sr., 5,065,768, Cl. 128-760.000.

Keneko, Shuzo: *See—*
Yoshinaga, Kazuo; Keneko, Shuzo; Kai, Takashi; Isaka, Kazuo; and Ohnishi, Toshikazu, 5,066,107, Cl. 359-45.000.

Kennametal Inc.: *See—*
Materkowski, James P., 5,066,546, Cl. 428-627.000.

Kennedy, Francis A.; Neff, John P.; and Blake, Kenneth J., to Thermalock Products, Inc. Process for making an insulated building block. 5,066,440, Cl. 264-69.000.

Kennedy, George W. Spiral feed fastener. 5,065,930, Cl. 227-130.000.

Kennedy, Joseph P.; and Mishra, Munmaya K., to University of Akron, The. Living polymerization of olefins to end-functionalized polymers. 5,066,730, Cl. 525-319.000.

Kent, Lloyd C.: *See—*
Levy, Alan B.; Sifniades, Stylianos; Kent, Lloyd C.; and Frollini, Dominick, Jr., 5,066,373, Cl. 204-153.210.

Kesler, Gregory J.; and Schnell, Kenneth R., to Hubbell Incorporated. Electrical box mounting apparatus. 5,065,968, Cl. 248-205.100.

Kickinson, Martin B., Jr., executor: *See—*
Alexander, Jose; and Higuchi, Takeru, deceased, 5,066,648, Cl. 514-174.000.

Kidnie, Kevin M.: *See—*
Elmasry, Mohamed A.; and Kidnie, Kevin M., 5,066,559, Cl. 430-111.000.

Kido, Kunio, to Tanashin Denki Co., Ltd. Tape recorder having a base plate comprised of a synthetic main plate held between and integral with two auxiliary plates made of a metal material. 5,067,034, Cl. 360-74.100.

VOL 1132 ISS 3 NO 19 1991 UMI

Kiekert GmbH & Kommanditgesellschaft: *See*—
Ingenhoven, Jurgen, 5,066,054, Cl. 292-201.000.
Kielwein, Thomas: *See*—
Schmid, Johannes; and Kielwein, Thomas, 5,065,953, Cl. 242-74.000.
Kienberger, Helmut: *See*—
Wille, Klaus; Kienberger, Helmut; and Marwitz, Erika, 5,067,153, Cl. 380-23.000.
Kikuta, Koozi: *See*—
Inami, Junichi; Kikuta, Koozi; Nakane, Satoshi; Fujito, Kazumi; and Hirosawa, Hitoshi, 5,066,344, Cl. 156-138.000.
Kilbane, Farrell M.; Coleman, Richard A.; Dunbar, Frank C.; and Gibson, Alan F., to Armco Inc. Hot dip aluminum coated chromium alloy steel. 5,066,549, Cl. 428-653.000.
Killat, Ulrich; and Kruger, Johann, to U.S. Philips Corporation. Packet switching network for a communication system. 5,067,124, Cl. 370-60.000.
Kim, Byeong-Yun; Jung, Tae-Sung; and Park, Yong-Bo, to Telecommunications Co., Ltd. Data output buffer circuit for a SRAM. 5,067,109, Cl. 365-189.050.
Kim, Dong K.; and Shemenski, Robert M., to Goodyear Tire & Rubber Company, The. Alloy steel wires suitable for tire cord applications. 5,066,455, Cl. 420-100.000.
Kim, Eun J., to Samsung Electronics Co., Ltd. Image data coding apparatus. 5,067,023, Cl. 358-261.100.
Kim, Seong-tae; Choi, Su-han; and Ko, Jae-hong, to Samsung Electronics Co., Ltd. Method of making a DRAM cell with stacked trench capacitor. 5,066,608, Cl. 437-52.000.
Kim, Seung K.: *See*—
Harrold, William J.; Sansone, Joseph A.; Bonfiglio, Joseph W.; and Kim, Seung K., 5,066,891, Cl. 315-8.000.
Kimata, Toshiya: *See*—
Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, 5,066,657, Cl. 514-269.000.
Kimerling, A. Jon: *See*—
Moellering, Harold J.; and Kimerling, A. Jon, 5,067,098, Cl. 395-126.000.
Kimura, Hiroshi: *See*—
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.
Kimura, Isao; and Hasegawa, Kenji, to Canon Kabushiki Kaisha. Ink jet head having heat-generating resistor comprised of a complex compound. 5,066,963, Cl. 346-140.00R.
Kimura, Takashi, to Hirotaka Manufacturing Co., Ltd. Directional control valve for pneumatic cylinder. 5,065,665, Cl. 91-433.000.
Kimura, Yoshihiko: *See*—
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.
Kincey, Peter M., to Beecham Group, p.l.c. Catalytic hydrogenation of 2-amino-6-chloropurine. 5,066,805, Cl. 544-277.000.
Kindermann, Siegfried; Gyory, Emil; and Heiland, Hans, to Baverische Motoren Werke AG. Control system for stabilizing the rolling of a vehicle. 5,066,041, Cl. 280-772.000.
Kinetics KTI Group BV: *See*—
Giacobbe, Francesco, 5,066,421, Cl. 252-373.000.
King, Byron. Collapsible multi-layer insulator for a beverage container. 5,065,879, Cl. 220-739.000.
King, Charles S. Collapsible box for tissues/papers. 5,065,936, Cl. 229-101.000.
King, Donald W.: *See*—
Suciu-Foca, Nicole; and King, Donald W., 5,066,581, Cl. 435-7.240.
King, Edward J.: *See*—
Kisor, Gregory H.; and King, Edward J., 5,067,152, Cl. 380-10.000.
King, Leonard T. Steam injection and mixing apparatus. 5,066,137, Cl. 366-336.000.
Kingston Technologies, Inc.: *See*—
Stoy, George P.; Delahanty, Francis T.; and Stoy, Vladimir A., 5,066,091, Cl. 385-98.000.
Kino, Keisuke: *See*—
Yamamoto, Yoshimi; and Kino, Keisuke, 5,065,641, Cl. 74-473.0SW.
Kinoda, Yasuhide: *See*—
Sugihara, Kazutoyo; and Kinoda, Yasuhide, 5,066,399, Cl. 210-401.000.
Kinser, Robert W. Device for detecting metallic particles in lubricant. 5,066,071, Cl. 301-108.0TW.
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, to Sumimoto Rubber Industries, Ltd. Cutter supporting unit for tire grooving apparatus. 5,065,804, Cl. 157-13.000.
Kiribayashi, Shoji, to Sharp Kabushiki Kaisha. Method of manufacturing circuit board. 5,065,506, Cl. 29-632.000.
Kishi, Hajimu; Mizuno, Tohru; and Kanda, Yuichi, to Fanuc Ltd. Automatic welding machine path correction method. 5,066,847, Cl. 219-124.340.
Kishi, Ken-ichi: *See*—
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.
Kisor, Gregory H.; and King, Edward J., to Information Technologies Research, Inc. Method and apparatus for vector quantization. 5,067,152, Cl. 380-10.000.
Kitagawa Iron Works Co., Ltd.: *See*—
Ohta, Koziro; Kurogi, Yoshihito; and Suzuki, Yasuo, 5,065,792, Cl. 137-580.000.
Kitagawa, Osamu, to Dainippon Screen Mfg. Co., Ltd. Method of recording halftone dot image. 5,067,025, Cl. 358-298.000.
Kitajima, Masaji, to Akebono Brake Industry Co., Ltd. Jig for holding disc brake pads. 5,066,229, Cl. 432-160.000.
Kitami, Chiaki: *See*—
Setoguchi, Shinro; Tsuruda, Mineo; Kitami, Chiaki; and Yamanaka, Tsutomu, 5,066,816, Cl. 549-331.000.
Kitamori, Naoto: *See*—
Hikake, Norio; and Kitamori, Naoto, 5,066,558, Cl. 430-109.000.
Kitamura, Kazuyuki: *See*—
Iwasaki, Tameo; Sugiura, Masaki; Matsuoka, Yuzo; Matsumoto, Mamoru; and Kitamura, Kazuyuki, 5,066,669, Cl. 514-449.000.
Kitamura, Masaru; Ichihashi, Hiroshi; and Suzukamo, Gohfu, to Sumitomo Chemical Company, Limited. Method for removing nitrogen-containing organic compounds from crystalline metallosilicate. 5,066,630, Cl. 502-85.000.
Kitani, Fumihiko: *See*—
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.
Kitano, Masao; Yagisawa, Mitsuaki; and Morimoto, Yutaka, to Nippon Shokubai Kagaku Kogyo Co., Ltd. Method for production of 1,3-thiazolidin-2-ones. 5,066,813, Cl. 548-182.000.
Kitano, Motoi: *See*—
Yoshinaka, Minoru; Asakura, Eizo; Misaki, Toshihiro; Kitano, Motoi; and Yoshida, Hideyuki, 5,066,475, Cl. 423-622.000.
Kitano, Yasuyuki: *See*—
Sasaki, Shosuke; and Kitano, Yasuyuki, 5,065,583, Cl. 62-51.300.
Kitora, Yoshihisa: *See*—
Kakuda, Masayuki; Sekiya, Shin; and Kitora, Yoshihisa, 5,066,206, Cl. 418-55.300.
Kitterman, Lawrence R.: *See*—
Rohr, Robert D.; and Kitterman, Lawrence R., 5,065,911, Cl. 222-517.000.
Kittle, Paul A.: *See*—
Manlowe, David; and Kittle, Paul A., 5,066,428, Cl. 261-29.000.
Klafta, Jerome M. Protective sheath for cuff or single or double lumen endotracheal tube. 5,065,755, Cl. 128-200.260.
Klassen, David J.; and Anderson, Edward G., to Ford Motor Company. Fault detection and isolation in automotive wiring harness by network analysis method. 5,066,919, Cl. 324-538.000.
Kleffner, Hans W.: *See*—
Pastorek, Emmerich; Orth, Winfried; Weiss, Wolfgang; and Kleffner, Hans W., 5,066,806, Cl. 546-180.000.
Kleiner, Hans-Jerg: *See*—
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,066,745, Cl. 526-240.000.
Gerdau, Thomas; Kleiner, Hans-Jerg; Peuckert, Marcellus; Bruck, Martin; and Aldinger, Fritz, 5,066,623, Cl. 501-97.000.
Klemarczyk, Philip T.: *See*—
Okamoto, Yoshihisa; and Klemarczyk, Philip T., 5,066,743, Cl. 526-215.000.
Klement, Ekkehard: *See*—
Droegemueller, Karsten; and Klement, Ekkehard, 5,066,092, Cl. 385-33.000.
Klenk, Martin, to Robert Bosch GmbH. Learning control method for an internal combustion engine and apparatus therefor. 5,065,726, Cl. 123-480.000.
Klibaner, Michael: *See*—
Szabo, Sandor; Rubin, Meryl S. A.; Klibaner, Michael; and Kamarei, Ahmed R., 5,066,496, Cl. 424-570.000.
Klier, Juergen, to Siemens Aktiengesellschaft. Electronic ballast. 5,066,894, Cl. 315-224.000.
Klingen, Willy, to J. Wagner GmbH. Method and apparatus for preserving cavity spaces. 5,066,518, Cl. 427-236.000.
Klingshirn, James A.: *See*—
Talgam, Yoav; Klingshirn, James A.; and Gullette, James B., 5,067,078, Cl. 395-400.000.
Kloke, Harrell F. Tubular bicycle lock and method for mounting same. 5,065,603, Cl. 70-233.000.
Klotzner, Winfried: *See*—
Krauter, Immanuel; and Klotzner, Winfried, 5,065,729, Cl. 123-643.000.
Kluver, Ernst P. Archery bow string prop. 5,065,730, Cl. 124-35.200.
Kneer, Franz X. Apparatus for microbiological decomposition of organic waste. 5,066,392, Cl. 210-96.100.
Knoll, Frederick L., to Boeing Company, The. Hot/cold press forming methods for shaping thermoformable materials. 5,066,351, Cl. 156-212.000.
Knox, Benjamin H.; and Noe, James B., to Du Pont de Nemours, E. I., and Company. Process for improving the properties of a feed yarn. 5,066,447, Cl. 264-290.500.
Ko, Jae-hong: *See*—
Kim, Seong-tae; Choi, Su-han; and Ko, Jae-hong, 5,066,608, Cl. 437-52.000.
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, to Kabushiki Kaisha Kobe Seiko Sho. Diamond film thermistor. 5,066,938, Cl. 338-22.0SD.
Kobatake, Hiroyuki, to NEC Corporation. Charge pump having pull-up circuit operating with two clock pulse sequences. 5,066,870, Cl. 307-296.100.

Kobayashi, Eiji: *See*—
Nakano, Hirofumi; Hara, Mitsunobu; Mokudai, Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, 5,066,817, Cl. 549-384.000.
Kobayashi, Fumiyuki, to NEC Corporation. Connector assembly for electronic devices. 5,066,235, Cl. 439-76.000.
Kobayashi, Hideki: *See*—
Hosokai, Tetsushi; Takaba, Tetsuro; Ishihara, Toshihiro; and Kobayashi, Hideki, 5,065,717, Cl. 123-339.000.
Kobayashi, Kazuhiro; Kouguthi, Hifumi; and Hara, Toshio, to Denki Kagaku Kogyo Kabushiki Kaishi. System for permeation printing a plastic body. 5,065,674, Cl. 101-44.000.
Kobayashi, Kiyonori: *See*—
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.
Kobayashi, Manabu, to Yamaha Hatsudoki Kabushiki Kaisha. Transmission arrangement for vehicle having motor shaft parallel to auxiliary shaft which drives a fluid coupling through a planetary gear reduction. 5,066,266, Cl. 475-59.000.
Kobayashi, Saburo: *See*—
Shitanoki, Kazuaki; Kawaguchi, Masaaki; and Kobayashi, Saburo, 5,066,039, Cl. 280-741.000.
Kobayashi, Tatsuya: *See*—
Goto, Masahiro; Inoue, Takahiro; Kato, Junichi; and Kobayashi, Tatsuya, 5,066,979, Cl. 355-208.000.
Kobayashi, Toshio, to Fuji Jukogyo Kabushiki Kaisha. Torque distribution control system for a four-wheel drive motor vehicle. 5,066,268, Cl. 475-249.000.
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, to Kajima Corporation. Active seismic response control system for use in structure. 5,065,552, Cl. 52-1.000.
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, to Kajima Corporation. Elasto-plastic damper. 5,065,555, Cl. 52-167.0DF.
Koch, Russell W.: *See*—
Stayer, Mark L., Jr.; Antkowiak, Thomas A.; Lawson, David F.; and Koch, Russell W., 5,066,729, Cl. 525-315.000.
Kodaira, Takanori, to Canon Kabushiki Kaisha. Camera. 5,066,971, Cl. 354-465.000.
Kodaka, Yoshiro; and Takabayashi, Kiyonobu, to Nikon Corporation. Helicoid threaded tube of synthetic resin and lens barrel comprising it. 5,066,103, Cl. 359-823.000.
Kodama, Hiroshi: *See*—
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.
Koden, Mitsuhiro: *See*—
Kuratate, Tomoaki; Koden, Mitsuhiro; and Hamada, Hiroshi, 5,066,109, Cl. 359-54.000.
Koerner, Steve J., to United States of America, Navy. Non-linear data conversion system for dynamic range digital signal processing. 5,066,952, Cl. 341-138.000.
Kohler, Burkhard; and Meyer, Rolf-Volker, to Bayer Aktiengesellschaft. Heat treated polyarylene sulphide containing phosphine groups. 5,066,781, Cl. 528-481.000.
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., to Sandoz Ltd. Novel compositions and method for controlling cockroaches. 5,066,482, Cl. 424-45.000.
Kohno, Hideki: *See*—
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.
Kohno, Nozomu: *See*—
Saitoh, Takeshi; and Kohno, Nozomu, 5,066,055, Cl. 292-228.000.
Kohyama, Yusuke: *See*—
Yamamoto, Tadashi; Kohyama, Yusuke; and Tanaka, Takeshi, 5,066,609, Cl. 437-52.000.
Koike, Atsushi, to Canon Kabushiki Kaisha. Film forming apparatus capable of preventing adhesion of film deposits. 5,065,698, Cl. 118-719.000.
Koike, Mitsuhiro; and Wadaka, Shusou, to Mitsubishi Denki Kabushiki Kaisha. Ultrasonic insection apparatus. 5,065,629, Cl. 73-602.000.
Koike, Noboru: *See*—
Oshio, Hirohiko; Koike, Noboru; and Ochiai, Takasi, 5,067,054, Cl. 362-61.000.
Koike, Yuzuru: *See*—
Fujimoto, Sachito; and Koike, Yuzuru, 5,065,705, Cl. 123-41.150.
Koinuma, Masahiro: *See*—
Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, 5,066,967, Cl. 354-149.110.
Koito Manufacturing Co., Ltd.: *See*—
Oshio, Hirohiko; Koike, Noboru; and Ochiai, Takasi, 5,067,054, Cl. 362-61.000.
Suzuki, Takanori; and Ito, Makoto, 5,067,052, Cl. 362-61.000.
Suzuki, Takanori; and Suzuki, Yoshio, 5,067,056, Cl. 362-66.000.
Kojima, Atsuyuki: *See*—
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.
Kojima, Kiyoaki, to Clarion Co., Ltd. Electroluminescent sheet element. 5,066,551, Cl. 428-690.000.
Kokusai Denshin Denwa Co., Ltd.: *See*—
Mizuno, Toshio; Muratani, Takuro; Ito, Yasuhiko; Watanabe, Tatsuo; and Inoue, Takashi, 5,066,957, Cl. 342-352.000.
Kolb, H. Michael: *See*—
Bey, Philippe; and Kolb, H. Michael, 5,066,828, Cl. 560-171.000.
Koller, Robert D., Sr.; and Hemenway, Carl P., to Rohm and Haas Company. Novel damping compositions. 5,066,708, Cl. 524-504.000.
Kolstad, Lawrence E.; and Fumanti, Robert R. V., to L. & B. Diversified Products. Method and apparatus for launching a small boat using rope retention guided. 5,066,033, Cl. 280-414.100.
Komatsu, Hideki: *See*—
Hamada, Tatsuro; Fukuoka, Hiromi; Komatsu, Hideki; and Fujimaki, Tatsuo, 5,066,721, Cl. 525-102.000.
Komatsu, Yu; Fujiki, Yoshinori; and Sasaki, Takayoshi, to National Institute for Research in Inorganic Materials. Method for separating sodium and potassium by ion exchange. 5,066,404, Cl. 210-670.000.
Komeda, Tadao: *See*—
Takemoto, Toyoki; Komeda, Tadao; Yamada, Haruyasu; and Fujita, Tsutomu, 5,066,602, Cl. 437-31.000.
Komeda, Yasuhiko, to Kyocera Corporation. Band-pass filter. 5,066,933, Cl. 333-204.000.
Komen, Joseph; and Groenendaal, Jan W., to Gist-Brocades N.V. Process for microencapsulation. 5,066,436, Cl. 264-4.300.
Komoto, Mitsuo: *See*—
Suzuki, Takao; Noda, Atsuhito; Komoto, Mitsuo; and Umesato, Shoji, 5,065,941, Cl. 439-264.000.
Kondo, Kenshi, to Nihon Den-Netsu Keiki Co., Ltd. Soldering apparatus of a reflow type. 5,066,850, Cl. 219-388.000.
Kondo, Masataka: *See*—
Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, 5,066,861, Cl. 250-370.090.
Kondo, Noboru: *See*—
Fukao, Kaname; Hamanaka, Toshiyuki; Harada, Takashi; and Kondo, Noboru, 5,066,626, Cl. 501-128.000.
Kondo, Toshio: *See*—
Suzuki, Atsushi; and Kondo, Toshio, 5,065,718, Cl. 123-339.000.
Kondoh, Kohichi, to Bunka Shutter Co., Ltd. Panel shutter assembly. 5,065,806, Cl. 160-36.000.
Kone OY: *See*—
Lindholm, Mikko; and Vaha, Pentti, 5,067,013, Cl. 358-93.000.
Konica Corporation: *See*—
Goto, Narito; and Ando, Yasuo, 5,066,534, Cl. 428-212.000.
Kakita, Tsuyoshi; and Yoshimura, Masazi, 5,066,970, Cl. 354-402.000.
Kubota, Toru; Tomotake, Mayumi; Ohya, Hidenobu; Tomotake, Atsushi; and Mizukura, Noboru, 5,066,574, Cl. 430-557.000.
Nagashima, Toshiharu; and Yoshida, Kazuhiro, 5,066,569, Cl. 430-393.000.
Yoshino, Kunihisa; Motohashi, Mitsuo; and Fujii, Yozo, 5,065,693, Cl. 118-657.000.
Konig, Gert; and Baumann, Jurgen, to Martin & Pagenstecher GmbH. Refractory thixotropic vibration compound for the vibration lining of metallurgical vessels. 5,066,624, Cl. 501-107.000.
Konig, Ulf: *See*—
Kasper, Erich; Kuisl, Maximilian; Konig, Ulf; and Luy, Johann F., 5,066,605, Cl. 437-51.000.
Kono, Hiromi; and Ohtsuka, Masuhiro, to Diesel Kiki Co., Ltd. Method for correcting data used for a clutch control operation. 5,065,849, Cl. 192-0.076.
Kono, Hiromi: *See*—
Otsuka, Masuhiro; and Kono, Hiromi, 5,065,851, Cl. 192-103.00R.
Konopka, Henry E.: *See*—
Lang, Charles F.; and Konopka, Henry E., 5,066,180, Cl. 411-103.000.
Konuma, Nobuhiro: *See*—
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.
Koops, Roger L.: *See*—
Kane, Edmund J.; and Koops, Roger L., 5,065,545, Cl. 49-375.000.
Korea Institute of Science and Technology: *See*—
Yun, Kyung S.; and Cho, Byung W., 5,066,369, Cl. 204-74.000.
Koren, Yoram; and Weinstein, Yechiel, to University of Michigan, The Regents of the. Inflatable structure. 5,065,640, Cl. 74-469.000.
Kornas, Christof, to Alfred Teves GmbH. Check valve. 5,065,790, Cl. 137-514.500.
Kornbluh, Roy: *See*—
Eckerle, Joseph S.; and Kornbluh, Roy, 5,065,765, Cl. 128-672.000.
Kosako, Kosei: *See*—
Tanaka, Hitoshi; and Kosako, Kosei, 5,066,965, Cl. 354-64.000.
Koshino, Susumu: *See*—
Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, 5,066,967, Cl. 354-149.110.
Kosten, Richard B.: *See*—
Krasznai, Charles Z.; and Kosten, Richard B., 5,065,473, Cl. 15-339.000.
Koster, Archie: *See*—
Reid, Laurie M.; Koster, Archie; and Hunt, Gary D., 5,065,856, Cl. 198-419.300.
Kotachi, Akiko; Takechi, Satoshi; and Nakamura, Yuko, to Fujitsu Limited. Resist material for energy beam lithography and method of using the same. 5,066,751, Cl. 526-279.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Kotani, Norihiko: *See*—
Kunikiyo, Tatsuya; Fujinaga, Masato; and Kotani, Norihiko, 5,067,101, Cl. 364-578.000.

Kouguthi, Hifumi: *See*—
Kobayashi, Kazuhiro; Kouguthi, Hifumi; and Hara, Toshio, 5,065,674, Cl. 101-44.000.

Koura, Kouji: *See*—
Hino, Seiichi; Satou, Shoichi; Koura, Kouji; and Suzuki, Osamu, 5,066,771, Cl. 528-353.000.

Kowtko, Robert M.; and Mellwig, Richard A., to Binney & Smith Inc. Apparatus for injection of viscous material. 5,066,216, Cl. 425-562.000.

Koya, Kiichi, to Kabushiki Kaisha Toshiba. Signal output circuit having bipolar transistor in output stage and arranged in CMOS semiconductor integrated circuit. 5,066,874, Cl. 307-446.000.

Kozak, Mark; and Nichols, Michael, to Mill-Rose Laboratories, Inc. Rotatable surgical snare. 5,066,295, Cl. 606-47.000.

Kozo Iizuka, Director-General of Agency of Industrial Science and Technology: *See*—
Hino, Seiichi; Satou, Shoichi; Koura, Kouji; and Suzuki, Osamu, 5,066,771, Cl. 528-353.000.

Kraft, Klaus: *See*—
Wehnert, Wolfgang; Reinking, Klaus; Bier, Peter; Kraft, Klaus; and Tresper, Erhard, 5,066,704, Cl. 524-449.000.

Krakowetz, Wilhelm: *See*—
Stadler, Heinz; Heinzl, Alfred; and Krakowetz, Wilhelm, 5,065,663, Cl. 91-361.000.

Kramer, Jochen: *See*—
Dohse, Hans-Peter; and Kramer, Jochen, 5,065,476, Cl. 16-114.00R.

Kramer, Joseph O.; McMaster, Dexter H.; and Mumford, Eustace H., to Glasstech, Inc. Device for positioning hot glass sheets. 5,066,321, Cl. 65-182.200.

Krammer-Herbst, Maria. Stretch frame for a stretch bed sheet. 5,065,536, Cl. 38-102.910.

Krannitz, James J.: *See*—
Carpenter, Steven P.; Cavinee, James C.; and Krannitz, James J., 5,065,472, Cl. 15-317.000.

Kranz, Walter, to Messerschmitt-Bolkow-Blohm GmbH. Device for controlling aerodynamic bodies. 5,065,957, Cl. 244-3.210.

Krasznai, Charles Z.; and Kosten, Richard B., to Black & Decker Inc. Filter assembly for a vacuum cleaner. 5,065,473, Cl. 15-339.000.

Krause, Norbert; Hanke, Wilhelm; and Ruhl, Juergen, to Siemens Aktiengesellschaft. Cable guide for a nuclear magnetic resonance tomography apparatus. 5,065,760, Cl. 128-653.500.

Krauss, Lothar: *See*—
Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, 5,066,401, Cl. 210-500.350.

Krauss, Werner: *See*—
Belikan, Thomas; and Krauss, Werner, 5,065,742, Cl. 128-24.0EL.

Krausse, Peter, to Siemens Aktiengesellschaft. Light waveguide plug-type connector. 5,066,096, Cl. 385-58.000.

Krauter, Allan I., to Welch Allyn, Inc. Hooking cap for borescope. 5,066,122, Cl. 356-241.000.

Krauter, Immanuel; and Klotzner, Winfried, to Robert Bosch GmbH. Cylinder recognition apparatus for a distributorless ignition system. 5,065,729, Cl. 123-643.000.

Kreischer, Charles H.: *See*—
Beltran, Adrian M.; and Kreischer, Charles H., 5,066,459, Cl. 420-58.800.

Kreiseder, Walter J.: *See*—
Schuh, Robert R.; Terrell, Nancy E.; Kreiseder, Walter J.; and Vogel, Allen J., 5,065,887, Cl. 220-338.000.

Kretchman, Gerald L., to Whirlpool Corporation. Dryer transition duct. 5,066,050, Cl. 285-319.000.

Krettek, Guntram; and Schmitz, Wilhelm, to Krupp Industrietechnik GmbH. Blade-support system for centrifuge. 5,066,271, Cl. 494-58.000.

Krishnakumar, Anjur S.; Krishnamurthy, Bala; and Sabnani, Krishan K., to AT&T Bell Laboratories. Programmable protocol engine having context free and context dependent processes. 5,067,104, Cl. 395-375.000.

Krishnakumar, Suppayan M.; Collette, Wayne N.; and Nahill, Thomas E., to Continental PET Technologies, Inc. Refillable polyester container and preform for forming the same. 5,066,528, Cl. 428-36.920.

Krishnamurthy, Bala: *See*—
Krishnakumar, Anjur S.; Krishnamurthy, Bala; and Sabnani, Krishan K., 5,067,104, Cl. 395-375.000.

Krogstad, Ivar, to Pusnes A/S. Turret device. 5,065,689, Cl. 114-230.000.

Krones AG Hermann Kronseder Maschinenfabrik: *See*—
Weiss, Wilhelm, 5,065,799, Cl. 141-39.000.

Kroon, David H.; Goldsmith, Gary; Baach, Miachel K.; and Bushman, James B., to Corrpro Companies Inc. Cathodic protection system and method for above-ground storage tank bottoms. 5,065,893, Cl. 220-565.000.

Kruger, Johann: *See*—
Killat, Ulrich; and Kruger, Johann, 5,067,124, Cl. 370-60.000.

Kruger, Volker; and Panzke, Rolf, to Baker Hughes Incorporated. Apparatus for optional straight or directional drilling underground formations. 5,065,826, Cl. 175-75.000.

Krupp Industrietechnik GmbH: *See*—
Krettek, Guntram; and Schmitz, Wilhelm, 5,066,271, Cl. 494-58.000.

Krupp Koppers GmbH: *See*—
Wetzel, Rolf; and Firnhaber, Bernhard, 5,066,476, Cl. 423-648.100.

Krupp Widia GmbH: *See*—
Von Haas, Rainer; and Tack, Hans, 5,065,492, Cl. 29-426.600.

Krusos, Denis A.: *See*—
Disanto, Frank J.; and Krusos, Denis A., 5,066,946, Cl. 340-787.000.

Kubo, Hiroshi: *See*—
Tanemoto, Kei; Ando, Akiro; and Kubo, Hiroshi, 5,066,617, Cl. 501-134.000.

Kubo, Kazutoshi: *See*—
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Kubo, Yutaka; and Hara, Hisao, to Hitachi Metals, Ltd. Conductive ceramic sintered body. 5,066,423, Cl. 252-516.000.

Kubota Corporation: *See*—
Nishiyama, Shigeru; and Amano, Hide, 5,065,720, Cl. 123-363.000.

Kubota, Masayuki: *See*—
Toide, Eiichi; Shikama, Shinsuke; and Kubota, Masayuki, 5,066,138, Cl. 369-112.000.

Kubota, Takayuki. Kubotai restraint device having two batons bound together by a cord at points spaced from the ends of the batons. 5,066,013, Cl. 273-84.00R.

Kubota, Tetsumaru: *See*—
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Kubota, Toru; Tomotake, Mayumi; Ohya, Hidenobu; Tomotake, Atsushi; and Mizukura, Noboru, to Konica Corporation. Silver halide photographic light-sensitive material containing a novel yellow coupler. 5,066,574, Cl. 430-557.000.

Kubota, Yoichi: *See*—
Tsukiji, Masaaki; Nishimura, Tetsuharu; Ishizuka, Koh; Ishii, Satoshi; and Kubota, Yoichi, 5,066,130, Cl. 356-356.000.

Kuchar, Franz, to U.S. Philips Corporation. System for reproducing picture signals and inserting character signals in the reproduced picture signals. 5,067,030, Cl. 360-14.100.

Kudelski SA fabrique de'enregistreurs Nagra: *See*—
Kudelski, Stefan; Schlup, Jean-Claude; and Rosselet, Ernest, 5,067,035, Cl. 360-85.000.

Kudelski, Stefan; Schlup, Jean-Claude; and Rosselet, Ernest, to Kudelski SA fabrique de'enregistreurs Nagra. Error prevention in a recording and reproducing device with at least one rotating head. 5,067,035, Cl. 360-85.000.

Kudo, Takeo: *See*—
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.

Kuehn, Melvin C. Bi-fold hay rake system. 5,065,570, Cl. 56-377.000.

Kuenast, Christoph: *See*—
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, 5,066,673, Cl. 514-521.000.

Kugimiya, Koichi: *See*—
Nishida, Masamitsu; Ando, Hamae; and Kugimiya, Koichi, 5,065,946, Cl. 241-16.000.

Kuisl, Maximilian: *See*—
Kasper, Erich; Kuisl, Maximilian; Konig, Ulf; and Luy, Johann F., 5,066,605, Cl. 437-51.000.

Kulkarni, Gurunath H.; Naik, Rajan H.; and Rajappa, Srinivasachari, to Council of Scientific & Industrial Research. Process for the preparation of aryl esters of N-alkyl carbamic acids. 5,066,819, Cl. 549-438.000.

Kult, Roger R.; Bailey, Terry R.; and Tolliver, Howard R., to Minnesota Mining and Manufacturing Company. Cellular encapsulated-lens high whiteness retroreflective sheeting with flexible cover sheet. 5,066,098, Cl. 359-540.000.

Kumagai, Kazuo: *See*—
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, 5,066,938, Cl. 338-22.0SD.

Kumagai, Noriaki: *See*—
Nohira, Hiroyuki; Onishi, Takashi; Yamamoto, Kazuo; and Kumagai, Noriaki, 5,066,826, Cl. 560-60.000.

Kumagai, Takashi: *See*—
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Kumakura, Toshihisa; Nanaumi, Ken; Ikezawa, Ryoichi; and Eriguchi, Hideki, to Hitachi Chemical Co., Ltd. Adhesive composition for metal-clad laminates. 5,066,691, Cl. 523-438.000.

Kumobayashi, Hidenori: *See*—
Sayo, Noboru; Kumobayashi, Hidenori; Akutagawa, Susumo; Noyori, Ryoji; and Takaya, Hidemasa, 5,066,815, Cl. 549-319.000.

Kunikiyo, Tatsuya; Fujinaga, Masato; and Kotani, Norihiko, to Mitsubishi Denki Kabushiki Kaisha. Topography simulation method. 5,067,101, Cl. 364-578.000.

Kunugi, Hitoshi: *See*—
Yoshimura, Hironori; Sawada, Yoshihiro; Nakahara, Kei; Kunugi, Hitoshi; and Sakurai, Keiichi, 5,066,553, Cl. 428-698.000.

Kunz, Walter; Schurter, Rolf; and Nyfeler, Robert, to Ciba-Geigy Corporation. Agents for protecting plants against diseases. 5,066,661, Cl. 514-361.000.

Kupfer, Adelbert: *See*—
Gall, Arthur; and Kupfer, Adelbert, 5,067,142, Cl. 378-99.000.

Kurano, Kazuyuki: *See*—
Kasai, Junichi; Yagihashi, Wataru; Yatsunami, Akira; and Kurano, Kazuyuki, 5,067,159, Cl. 381-90.000.

Kuraray Company, Ltd.: *See*—
Nohira, Hiroyuki; Onishi, Takashi; Yamamoto, Kazuo; and Kumagai, Noriaki, 5,066,826, Cl. 560-60.000.
Tsuruta, Hitoshi; Yamada, Hideaki; and Nakamura, Michihiro, 5,066,582, Cl. 435-7.100.

Kurata, Narito: *See*—
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.

Kuratate, Tomoaki; Koden, Mitsuhiro; and Hamada, Hiroshi, to Sharp Kabushiki Kaisha. Half-tone liquid crystal display device. 5,066,109, Cl. 359-54.000.

Kureha Kagaku Kogyo Kabushiki Kaisha: *See*—
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.
Seo, Ikuo; Oono, Tooru; and Murakami, Yosinobu, 5,066,779, Cl. 528-396.000.

Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, to Mitsubishi Denki Kabushiki Kaisha. Ice thermal storage apparatus. 5,065,598, Cl. 62-330.000.

Kurland, Jeffrey. Suction cup projectile for use in paddle game. 5,066,017, Cl. 273-344.000.

Kuroda, Shigeo: *See*—
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Kurogi, Yoshihito: *See*—
Ohta, Koziro; Kurogi, Yoshihito; and Suzuki, Yasuo, 5,065,792, Cl. 137-580.000.

Kurokawa, Toshio: *See*—
Nakamura, Takashi; and Kurokawa, Toshio, 5,066,570, Cl. 430-421.000.

Kurosawa, Masaaki: *See*—
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Kuwabara, Satoru, to Brother Kogyo Kabushiki Kaisha. Image forming apparatus using an elongated web-like recording medium. 5,066,973, Cl. 355-27.000.

Kuwahara, Tetsuya: *See*—
Satomi, Mitsuo; Oshita, Kazuaki; and Kuwahara, Tetsuya, 5,067,150, Cl. 379-354.000.

Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, to Brother Kogyo Kabushiki Kaisha. Recording apparatus with mechanism for cutting printed tape covered by backing tape. 5,066,152, Cl. 400-621.000.

Kweon, Jung M., to Sam Il Pharmaceutical Manufacturing Co., Ltd. Cancer screening method utilizing a modified millon's reagent. 5,066,601, Cl. 436-64.000.

Kwiatkowski, Richard F. Calibratable non-contact inductive distance measuring device. 5,066,912, Cl. 324-224.000.

Kwong, Peter C.: *See*—
Measells, Paul E.; Johnston, William D.; Kwong, Peter C.; Laurin, Dean G.; and Czuba, Leonard F., 5,066,290, Cl. 604-408.000.

Kyocera Corporation: *See*—
Komeda, Yasuhiko, 5,066,933, Cl. 333-204.000.

Kyosuke, Kitoh: *See*—
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Kyowa Hakko Kogyo Co., Ltd.: *See*—
Nakano, Hirofumi; Hara, Mitsunobu; Mokudai, Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, 5,066,817, Cl. 549-384.000.

L. & B. Diversified Products: *See*—
Kolstad, Lawrence E.; and Fumanti, Robert R. V., 5,066,033, Cl. 280-414.100.

L. Schuler Pressen GmbH: *See*—
Riedisser, Gunter; and Braun, Rainer, 5,065,636, Cl. 74-40.000.

Laboratori Baldacci SpA: *See*—
Caccia, Giulio; and Baldacci, Massimo, 5,066,676, Cl. 514-562.000.

Lackie, C. Willard: *See*—
Talati, Kirit K.; and Lackie, C. Willard, 5,067,072, Cl. 395-650.000.

Ladyjensky, Jacques, to American Cyanamid Company. Chemiluminescent lighting element. 5,067,051, Cl. 362-34.000.

Laghi, Aldo A. Quincunx with a rearwardly movable ball-stop. 5,066,233, Cl. 434-188.000.

Lagnado, Isaac: *See*—
Reedy, Ronald E.; Garcia, Graham A.; and Lagnado, Isaac, 5,066,613, Cl. 437-200.000.

Lagushenko, Radomir: *See*—
Bouchard, Andre C.; Lagushenko, Radomir; and Maya, Jakob, 5,066,892, Cl. 315-46.000.

Lainiere de Picardie, S.A.: *See*—
Groshens, Pierre, 5,065,599, Cl. 66-84.00A.

Laird, Douglas H., to Science Ventures, Inc. Method for sulfur dioxide production from calcium sulfate by entrained high-temperature slagging reduction. 5,066,474, Cl. 423-541.00R.

Laitram Corporation, The: *See*—
Lapeyre, James M., 5,067,103, Cl. 364-709.160.

Laluet, Jacques: *See*—
Simonet, Benoit; Fabre, Pierre; Laluet, Jacques; and Egraz, Jean-Bernard, 5,066,710, Cl. 524-555.000.

Lamarche, Jean L.: *See*—
Burgel, Johannes; and Lamarche, Jean L., 5,066,954, Cl. 341-158.000.

Lamm, Gunther: *See*—
Hansen, Guenter; Lamm, Gunther; and Loeffler, Hermann, 5,066,791, Cl. 534-772.000.

Landis & Gyr Metering, Inc.: *See*—
Moore, Lester C., 5,066,906, Cl. 324-142.000.

Lane, Christopher C.; Lenz, Ruben P.; and Athanassoulias, Costa, to Ogilvie Mills Ltd. Glass-like polysaccharide abrasive grit. 5,066,335, Cl. 134-7.000.

Lang, Charles F.; and Konopka, Henry E. Easy access nutplate. 5,066,180, Cl. 411-103.000.

Lang, Gerard: *See*—
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, 5,066,427, Cl. 260-413.000.

Langelier, Yves: *See*—
Cohen, Eric A.; Gaudreau, Pierrette; Michaud, Jacques; Brazeau, Paul; and Langelier, Yves, 5,066,783, Cl. 530-328.000.

Langner, Horst: *See*—
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, 5,066,365, Cl. 203-042.000.

Langowski, Andreas; Schultz, Wolfgang; and Walter, Gerhard, to Mauser-Werke Oberndorf GmbH. Device for measuring the internal diameter of tubes. 5,065,524, Cl. 33-544.200.

Lanxide Technology Company, LP: *See*—
Claar, Terry D.; Schiroky, Gerhard H.; and Pochopien, Kevin P., 5,066,622, Cl. 501-87.000.
Kantner, Robert C.; Rocazella, Michael A.; Weinstein, Jerry G.; and White, Danny R., 5,066,618, Cl. 501-127.000.

Lapeyre, James M., to Laitram Corporation, The. Hand held computers with alpha keystroke. 5,067,103, Cl. 364-709.160.

Laplante, Russell; Rockar, James A.; and Stegeman, Robert H., Jr., to Robertson-CECO Corporation. Curtain wall system with individually removable wall panels. 5,065,557, Cl. 52-235.000.

Laplante, Sylvain. Antifreeze self-spraying and -warming windshield wiper. 5,065,471, Cl. 15-250.040.

Lapp, Roger H., to Johns Hopkins University, The. Mirror micro-radian angular adjustment, locking, and mounting device and process. 5,065,974, Cl. 248-476.000.

Larsen, Douglas C.; and Vaughan, Robert A., to Standard Products Company, The. Sealing and fastening system for greenhouses. 5,065,562, Cl. 52-772.000.

Larson, James R.: *See*—
Houle, William A.; Larson, James R.; and Pearlstine, Kathryn A., 5,066,821, Cl. 430-137.000.

Larson, Paul A.: *See*—
Walker, Louis L.; and Larson, Paul A., 5,066,735, Cl. 525-482.000.

Larson, Richard I.; Ringle, Richard P.; and Harmon, John L., to General Electric Company. Method for passivating uranium oxides to control oxidation, and the oxidation resisting uranium product thereof. 5,066,429, Cl. 264-0.500.

Lasley, James: *See*—
Stonebraker, Richard L.; and Lasley, James, 5,066,182, Cl. 412-3.000.

Latham, Wayne M.: *See*—
Hancock, Jimmy W.; Kelly, Michael J.; Latham, Wayne M.; and Stinnett, Carlton E., 5,066,452, Cl. 376-252.000.

Lau, Daniel, to United Technologies Automotive. Internal key-in-ignition-warning/ignition switch. 5,066,941, Cl. 340-457.000.

Laubach, Benno: *See*—
Pitzer, Ulrike; Franz, Gerhard; and Laubach, Benno, 5,066,473, Cl. 423-344.000.

Laurin, Dean G.: *See*—
Measells, Paul E.; Johnston, William D.; Kwong, Peter C.; Laurin, Dean G.; and Czuba, Leonard F., 5,066,290, Cl. 604-408.000.

Lauzanne-Morelle, Eliane: *See*—
Morelle, Jean V.; and Lauzanne-Morelle, Eliane, 5,066,487, Cl. 424-68.000.

Law, Kock-Yee, to Xerox Corporation. Electrophotographic imaging members with bichromophoric bisazo phthalocyanine photoconductive materials. 5,066,796, Cl. 540-140.000.

Lawler, Edward B.: *See*—
Lees, Robert G.; and Lawler, Edward B., 5,066,307, Cl. 8-182.000.

Lawrence, James L. Door safe apparatus. 5,066,079, Cl. 312-204.000.

Lawson, David F.: *See*—
Stayer, Mark L., Jr.; Antkowiak, Thomas A.; Lawson, David F.; and Koch, Russell W., 5,066,729, Cl. 525-315.000.

Lawson, Jerry W.; and Casey, William J., III, to R. J. Reynolds Tobacco Company. Cigarette with tobacco/glass fuel wrapper. 5,065,776, Cl. 131-365.000.

Layton, Richard: *See*—
Matzner, Markus; and Layton, Richard, 5,066,767, Cl. 528-193.000.

Le, Mike. Structure of shower with swivel brush and multi-step drain control. 5,065,463, Cl. 4-606.000.

Leader, Charles B., Jr., to Leader Engineering Fabrication Inc. Printing plate mounting and proofing apparatus. 5,065,677, Cl. 101-415.100.

VOL 1132 ISS 3 NO 19 1991 UMI

Leader Engineering Fabrication Inc.: *See—*
Leader, Charles B., Jr., 5,065,677, Cl. 101-415.100.

Learonal Inc.: *See—*
Nobel, Fred I.; and Ostrow, Barnet D., 5,066,367, Cl. 204-44.400.

Lectron Products, Inc.: *See—*
Detweiler, Charles A.; and Schultz, Richard A., 5,065,979, Cl. 251-129.160.

LeCun, Yann: *See—*
Denker, John S.; Howard, Richard E.; Jackel, Lawrence D.; and LeCun, Yann, 5,067,164, Cl. 382-15.000.

Ledermann, Peter G.: *See—*
Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., 5,065,932, Cl. 228-55.000.

LeDesma, Laura L. Educational toy and method therefor. 5,066,234, Cl. 434-205.000.

Lee, Chi-Long; and Yeh, Ming-Hsiung, to Dow Corning Corporation. Storage stable heat curable organosiloxane compositions containing a microencapsulated catalyst and method for preparing said catalyst. 5,066,699, Cl. 524-379.000.

Lee, Dai H.: *See—*
Chung, In S.; and Lee, Dai H., 5,066,604, Cl. 437-44.000.

Lee, Kuo-hua: *See—*
Fischer, Frederick H.; Lee, Kuo-hua; Nagy, William J.; and Selamoglu, Nur, 5,066,998, Cl. 357-51.000.

Lee, Linda, to Becton Dickinson and Company. Xanthene dyes that emit to the red of fluorescein. 5,066,580, Cl. 435-721.000.

Lee, Richard P.; Ley, Joseph F.; and Mortensen, John A., to C. M. Offray & Son, Inc. Method of forming pump bales with dissolvable PVA baling strap material. 5,066,363, Cl. 162-100.000.

Lee, Robert A. S., to Electric Power Research Institute, Inc. Flexible lance for steam generator secondary side sludge removal. 5,065,703, Cl. 122-382.000.

Lee, Ruojia, to Micron Technology, Inc. Implant method for advanced stacked capacitors. 5,066,606, Cl. 437-52.000.

Lee, Wade, to Intelectron. Infrared intrusion detector. 5,066,855, Cl. 250-221.000.

Lee, William C., to PacTel Corporation. Microcell system for cellular telephone system. 5,067,147, Cl. 379-60.000.

Lees, Robert G.; and Lawler, Edward B., to American Cyanamid Company. Textile finishing agents having reduced formaldehyde emission. 5,066,307, Cl. 8-182.000.

Lefler, Harold V., III: *See—*
Freiberg, Alan L.; Lefler, Harold V., III; and Liles, Donald T., 5,066,520, Cl. 427-379.000.

Legg, Warren F.; and Willis, Wilfred E., to Ametek. Variable thickness foam plank. 5,066,531, Cl. 428-131.000.

Legler, John G.; Bartlett, Robert L.; and Flora, David D., to Shopsmith, Inc. Scroll saw. 5,065,652, Cl. 83-168.000.

Lehnert, Michael; Modlinski, Ulrich; and Roess, Rudi, to Rosemount GmbH & Co. Method for the direct presentation of a differential measured quantity in terms of its correct physical unit. 5,065,613, Cl. 73-23.200.

Lehto, Esko O.; and Vehmas, Jukka H., to Tamglass Oy. Method for bending complex shapes on a glass sheet. 5,066,320, Cl. 65-106.000.

Lehto, John M., to Northern States Power Company. Cogeneration process for production of energy and iron materials, including steel. 5,066,325, Cl. 75-499.000.

Lehtola, Raimo, to Halton OY. Method in handling of returnable bottles and device for handling of returnable bottles. 5,065,857, Cl. 198-457.000.

Leighton, John C.; Iovine, Carmine P.; Aronson, Michael P.; and Elliott, David L., to National Starch and Chemical Investment Holding Corporation. Hydrophobically-modified polycarboxylates and process for their preparation. 5,066,749, Cl. 526-271.000.

Leitch, Clifford D., to Motorola, Inc. Stabilizing circuit for feedback RF amplifier. 5,066,922, Cl. 330-51.000.

Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, to State Scientific-Research Designing Institute for Nitrogen Industry and for Products of Organic Synthesis; and Toho Kagaku Kogyo Co., Ltd. Method of removal of acid components from a gas. 5,066,314, Cl. 55-44.000.

Leivian, Robert: *See—*
Peterson, William M.; Anderson, Howard C.; Leivian, Robert; and Garrison, Sidney C., 5,067,095, Cl. 395-24.000.

Leiweke, Michael E., to Continental Baking Company. Conveyor for doughnut fryer. 5,065,670, Cl. 99-405.000.

Lejeune, Raymond: *See—*
Furtak, Hans; Naber, Wilfrid; and Lejeune, Raymond, 5,065,478, Cl. 19-296.000.

Leland Stanford Juninor University, Board of Trustees of the: *See—*
Quate, Calvin F.; and Tortonese, Marco, 5,066,358, Cl. 156-647.000.

LeMay, James D., to United States of America, Energy. Low density microcellular foams. 5,066,684, Cl. 521-64.000.

Lemelson, Jerome H. Methods and systems for scanning and inspecting images. 5,067,012, Cl. 358-93.000.

Lemstra, Pieter J., to Stamicarbon B.V. Novel irradiated polyethylene filaments tapes and films and process therefor. 5,066,755, Cl. 526-348.100.

Lengenfelder, Hans; and Wasthuber, Robert, to Dr. Johannes Heidenhain GmbH. Position measuring apparatus with a subdivision circuit for subdividing sinusoidal scanning signals. 5,066,953, Cl. 341-155.000.

Lenz, Ruben P.: *See—*
Lane, Christopher C.; Lenz, Ruben P.; and Athanassoulias, Costa, 5,066,335, Cl. 134-7.000.

Lenz, Ruediger: *See—*
Merrem, Hans-Joachim; Buhr, Gerhard; and Lenz, Ruediger, 5,066,567, Cl. 430-325.000.

Lenzing Aktiengesellschaft: *See—*
Seidl, Sigrid; Weinrotter, Klaus; and Simharl, Reinhold, 5,066,760, Cl. 528-51.000.

Leocor, Inc.: *See—*
Wijay, Bandula; and Angelini, Paolo, 5,066,282, Cl. 604-152.000.

Lepagnol, Jean: *See—*
Regnir, Gilbert; Dhainaut, Alain; Lepagnol, Jean; and Lepagnol, Jean, 5,066,651, Cl. 514-235.500.
Regnir, Gilbert; Dhainaut, Alain; Lepagnol, Jean; and Lepagnol, Jean, 5,066,651, Cl. 514-235.500.

Lesley, Samuel, to Ricardo Group PLC. Internal combustion engines. 5,065,711, Cl. 123-188.00M.

Leslie, Gerald G., II: *See—*
Daley, Lawrence R.; and Leslie, Gerald G., II, 5,066,360, Cl. 156-660.000.

Levy, Alan B.; Sifniades, Stylianos; Kent, Lloyd C.; and Frollini, Dominick, Jr., to Allied-Signal Inc. Monitoring pH in phenol acetone. 5,066,373, Cl. 204-153.210.

Lewis, Ian D., to Unilever Patent Holdings B.V. Emulsion copolymerization. 5,066,712, Cl. 524-563.000.

Ley, Joseph F.: *See—*
Lee, Richard P.; Ley, Joseph F.; and Mortensen, John A., 5,066,363, Cl. 162-100.000.

Leybold Aktiengesellschaft: *See—*
Berges, Hanns-Peter; Fischer, Berthold; Mueller, Peter; and Vorberg, Dieter, 5,066,202, Cl. 417-228.000.
Mosch, Johannes, 5,066,223, Cl. 432-184.000.

Liang, Ranty H.: *See—*
Nagasubramanian, Ganesan; DiStefano, Salvador; and Liang, Ranty H., 5,066,748, Cl. 526-258.000.

Libbey-Owens-Ford Co.: *See—*
Greenberg, William M.; and Bauman, Randall L., 5,065,696, Cl. 118-718.000.

Licentia Patent Verwaltungs-GmbH: *See—*
Kasper, Erich; Kuisl, Maximilian; Konig, Ulf; and Luy, Johann F., 5,066,605, Cl. 437-51.000.

Lienhard, Paul: *See—*
Cseh, Georg; Lienhard, Paul; and Wiedemann, Walter, 5,066,695, Cl. 524-87.000.

Liff, Lawrence J. Brush applicator. 5,066,157, Cl. 401-288.000.

Liles, Donald T.: *See—*
Freiberg, Alan L.; Lefler, Harold V., III; and Liles, Donald T., 5,066,520, Cl. 427-379.000.

Lilly Industries Limited: *See—*
Baldwin, Jack E., 5,066,797, Cl. 540-215.000.

Lin, Lifun, to Olin Corporation. Method for making foil. 5,066,366, Cl. 204-12.000.

Lin-Liu, Yuh-Ren: *See—*
Ikezi, Hiroyuki; Lin-Liu, Yuh-Ren; and deGrassie, John S., 5,066,928, Cl. 333-20.000.

Lindaberry, Harold L. Multi weighted spring driven lure attachment. 5,065,542, Cl. 43-42.740.

Lindauer Dornier Gesellschaft m.b.H.: *See—*
Haeussler, Horst; Ortmann, Hubert; and Stoerr, Harald, 5,065,797, Cl. 139-448.000.

Lindberg, Ralf: *See—*
Neva, Pertti; and Lindberg, Ralf, 5,065,554, Cl. 52-82.000.

Lindholm, Mikko; and Vaha, Pentti, to Kone OY. Procedure and apparatus for locating a container for lifting. 5,067,013, Cl. 358-93.000.

Lindler, J. Monroe. Wild turkey caller. 5,066,260, Cl. 446-397.000.

Lindner, Wolfgang: *See—*
Robey, Frank A.; Fields, Raymond L.; and Lindner, Wolfgang, 5,066,716, Cl. 525-54.100.

Linville, Andrew F., Jr.: *See—*
Meek, Robert A.; and Linville, Andrew F., Jr., 5,067,112, Cl. 367-43.000.

Lioi, Anthony P.: *See—*
Isaacson, Milton S.; Holmes, Donald E.; and Lioi, Anthony P., 5,066,300, Cl. 623-3.000.

Lipinski, Christopher A., to Pfizer Inc. Spiro-heteroazalones for treatment of diabetic complications. 5,066,659, Cl. 514-278.000.

Lippold, Hans-Joachim. Filter cartridge. 5,066,319, Cl. 55-521.000.

Liston, Jack L.; Pipella, Michael; and Bathemes, Pete. Method for absorbing petroleum based products. 5,066,405, Cl. 210-693.000.

Litton Systems, Inc.: *See—*
Stewart, Robert E.; and Fersht, Samuel N., 5,065,627, Cl. 73-505.000.

Liu, Jay J.; and Wong, Y. H., to AT&T Bell Laboratories. Device for removing solder. 5,065,931, Cl. 228-19.000.

Liu, Leland L.; and Cyr, Patricia A., to Mobil Oil Corporation. Method of forming a multilayer heat sealable film. 5,066,434, Cl. 264-37.000.

Liu, Ru-Shi; Wang, Wang-Nang; and Chang, Chan-Ting, to Industrial Technology Research Institute. Citrate/ethylenediamine gel method for forming high temperature superconductors. 5,066,636, Cl. 505-1.000.

Lloyd, Jerry D.; and Hilal, M. A., to Emerson Electric Co. Superconducting motor with multiple winding rotor. 5,066,638, Cl. 505-1.000.

Lo, Ching-Lung. Cyclic process for the removal of sulfur dioxide and the recovery of sulfur from gases. 5,066,470, Cl. 423-242.000.

Lochmann, Bernhard, to FMC Corporation. Choke valve safety device. 5,065,787, Cl. 137-315.000.

Loctite Corporation: *See—*
Okamoto, Yoshihisa; and Klemarczyk, Philip T., 5,066,743, Cl. 526-215.000.

Loeber, Frederick W.; and Greene, George O., to Terex Corporation. Reduced noise modular cooling system. 5,065,814, Cl. 165-41.000.

Loeffler, Hermann: *See—*
Hansen, Guenter; Lamm, Gunther; and Loeffler, Hermann, 5,066,791, Cl. 534-772.000.

Lofy, Stephen J. Securing apparatus. 5,065,482, Cl. 24-712.100.

Logan, James R.: *See—*
Mallick, George T., Jr.; Logan, James R.; and Marschik, David, 5,067,044, Cl. 361-19.000.

Login, Robert B.: *See—*
Merianos, John J.; Login, Robert B.; and Garelick, Paul, 5,066,488, Cl. 424-80.000.

Loh, Willie H. T.: *See—*
DeBonte, Lorin R.; and Loh, Willie H. T., 5,066,594, Cl. 435-240.400.

Loiseau, Richard: *See—*
Suresh, Dev D.; DiCosimo, Robert; Loiseau, Richard; Friedrich, Maria S.; and Szabo, Hsiao-Chiung, 5,066,809, Cl. 546-250.000.

Long, Michael; Huttemann, Lyndon R.; Sanford, Robert W.; and Longboat, Robert D., to Eastman Kodak Company. Apparatus and method for splicing webs of indeterminate length. 5,066,345, Cl. 156-157.000.

Long, Michael; Huttemann, Lyndon R.; and Sanford, Robert W., to Eastman Kodak Company. Apparatus and method for splicing webs of indeterminate length. 5,066,346, Cl. 156-157.000.

Longboat, Robert D.: *See—*
Long, Michael; Huttemann, Lyndon R.; Sanford, Robert W.; and Longboat, Robert D., 5,066,345, Cl. 156-157.000.

Longstaff, Eric, to B.V. Interlad. Sunbathing filter with incomplete UV-B absorption. 5,066,082, Cl. 359-361.000.

Look, S.A.: *See—*
Mercat, Jean-Pierre, 5,065,633, Cl. 73-862.340.

Lorento, Gustavo F.; Mendes, Jose A. C.; and Cullen, Joao A. D., to Metal Leve S.A. Industria E Comercio. Two-piece piston and method of manufacturing the same. 5,065,508, Cl. 29-888.042.

Lorenz, Hans; Gross, Ing. H.; Schuchmann, Roland; and Haring, Helmut, to Rohm GmbH Chemische Fabrik. Process and system for producing multi-layer extrudate. 5,066,435, Cl. 264-40.500.

Lorenz, Manfred, to Kapp GmbH. Grinding wheel for producing internal profilings. 5,065,546, Cl. 51-134.50R.

Loy, Jerald M.: *See—*
Dunaway, Thomas J.; Spielberger, Richard K.; Dicks, Lori A.; and Loy, Jerald M., 5,066,614, Cl. 437-209.000.

LRC Electronics, Inc.: *See—*
Gaver, Joseph C., Jr.; and Jorgenson, James C., 5,066,248, Cl. 439-578.000.

Lts Lohmann Therapie-Systeme GmbH & Co. KG: *See—*
Becher, Frank, 5,066,494, Cl. 424-448.000.

Lu, Zhuo-Jun, to Canadian Marconi Co. Digital pulse counting method for measuring the optical path difference of an imbalanced interferometer. 5,066,128, Cl. 356-349.000.

Lubowitz, Hyman R.; Sheppard, Clyde H.; and Stephenson, Ronald R., to Boeing Company, The. Heterocycle oligomer blends. 5,066,541, Cl. 428-378.000.

Lucas, David O.: *See—*
Stott, Gerald H.; and Lucas, David O., 5,066,491, Cl. 424-85.800.

Lucas Duralith Art Corporation: *See—*
Amante, Philip A., 5,065,502, Cl. 29-620.000.

Lucas Industries Public Limited Company: *See—*
Farman, Brian F., 5,067,080, Cl. 364-431.040.
Farr, Glyn P. R., 5,066,077, Cl. 303-114.00R.

Lucas, Peter A.: *See—*
Casey, Jeremiah P.; Lucas, Peter A.; and Vratsanos, Menas S., 5,066,764, Cl. 528-122.000.

Luciani, Sabatino; and Lumini, Antonio, to Axis, U.S.A., Inc. Apparatus for connecting stator coil leads. 5,065,503, Cl. 29-735.000.

Luciano, Santandrea; and Massimo, Lombardi, to Axis S.p.A. Apparatus for making electric motor parts employing pallet with removable workpiece holder. 5,065,499, Cl. 29-799.000.

Luecke, Thomas W. Enhanced core movement training bench. 5,066,005, Cl. 272-136.000.

Lukasiewicz, Hanna: *See—*
Huang, Tur-Fu; Niewiarowski, Stefan; Holt, John C.; and Lukasiewicz, Hanna, 5,066,592, Cl. 435-240.200.

Lukey, Christopher A.; Maitra, Ashit M.; and Tyler, Ralph J., to Broken Hill Proprietary Company Limited, The; and Commonwealth Scientific and Industrial Research Organization. Oxidative coupling catalyst for methane. 5,066,629, Cl. 502-84.000.

Lukez, Rudy, to Edo Corporation. Structure for mounting liquid level sensors and the like in liquid containers. 5,065,892, Cl. 220-465.000.

Lumini, Antonio: *See—*
Luciani, Sabatino; and Lumini, Antonio, 5,065,503, Cl. 29-735.000.

Lumisys: *See—*
Boutet, John C.; and Unruh, Gary R., 5,065,866, Cl. 206-455.000.

Lundberg, Per-Olof; and Pettersson, Sven-Olov, to Aktiebolaget Bofors. Device connectable to the rear cover of a connector. 5,066,251, Cl. 439-701.000.

Lundqvist, Gosta: *See—*
Haberl, Johann; and Lundqvist, Gosta, 5,066,315, Cl. 55-96.000.

Lunke, Manfred; Falz, Ulrich; and Walter, Jurgen, to Hackforth GmbH & Co. KG. Resilient shaft coupling. 5,066,263, Cl. 464-96.000.

Lunts, Lawrence H. C.: *See—*
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.

Luoma, Roy S.: *See—*
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., 5,066,921, Cl. 324-639.000.

Luy, Johann F.: *See—*
Kasper, Erich; Kuisl, Maximilian; Konig, Ulf; and Luy, Johann F., 5,066,605, Cl. 437-51.000.

Lynam, Niall R.; and Gahan, Richard J., to Donnelly Corporation. Perimeter coated, electro-optic mirror. 5,066,112, Cl. 359-267.000.

Lynch, Anita P.: *See—*
Robinette, Susan; Lynch, Anita P.; Hoffend, Thomas R.; Grabowski, Edward F.; and Carmichael, Kathleen M., 5,066,557, Cl. 430-58.000.

Lynch, Edward G., Jr.: *See—*
Wallace, William D.; Lynch, Edward G., Jr.; Daugherty, David W., Jr.; Kanjo, Dajih; and Hawryszkow, Michael G., 5,065,679, Cl. 105-3.000.

Lynch, James J.: *See—*
Hawes, Robert E., Jr.; Dellacroce, Cheryl; Aaldenberg, Eric; and Lynch, James J., 5,066,045, Cl. 281-45.000.

Lyonnaise Des Eaux-Dumez: *See—*
Anselme, Christophe; and Daniel, Loic, 5,066,402, Cl. 210-636.000.

Ma, Thomas T., to Ford Motor Company. Ionization sensor. 5,066,023, Cl. 277-2.000.

Mabey & Johnson Limited: *See—*
Forsyth, Richard C. E., 5,065,467, Cl. 14-13.000.

Macaulay, Graham S.: *See—*
Dorgan, Roderick J.; and Macaulay, Graham S., 5,066,670, Cl. 514-450.000.

MacPherson, David T.: *See—*
Driver, Michael J.; Greenlees, Alexander R.; and MacPherson, David T., 5,066,646, Cl. 514-31.000.

Maddess, Teddy L., to Australian National University, The. Method for use in diagnosis of glaucoma. 5,065,767, Cl. 128-745.000.

Madsen, James T.: *See—*
Bianco, James S.; Madsen, James T.; Ceppetelli, Michael; and Fahy, John S., 5,067,155, Cl. 380-25.000.

Maeda, Kenji; and Yamada, Nobuyuki, to Dantani Co., Ltd.; and Murakoshi Screw Mfg. Co., Ltd. Folding door structure. 5,065,807, Cl. 160-206.000.

Maeda, Shozo: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Maeda, Yoshiaki: *See—*
Ohbuchi, Yukio; Maeda, Yoshiaki; Kawasaki, Masahiro; Sato, Susumu; and Akimoto, Mamoru, 5,066,762, Cl. 528-85.000.

Maeder, August. Double-chambered cartridge having semi-cylindrical pistons for use in a press-out gun. 5,065,906, Cl. 222-137.000.

Maejima, Taro: *See—*
Sakamoto, Hirokazu; Ohtani, Makoto; Nakagawa, Naoki; Maejima, Taro; and Hayama, Masahiro, 5,066,106, Cl. 359-59.000.

Maekawa, Hiroshi: *See—*
Emori, Kiyoshi; and Maekawa, Hiroshi, 5,066,986, Cl. 355-326.000.

Mafoti, Robson; and Sanders, Josef, to Mobay Corporation. Novel process for the preparation of amine-terminated compounds. 5,066,824, Cl. 560-44.000.

MAG Aerospace Industries, Inc.: *See—*
Pratt, John D., 5,066,179, Cl. 411-34.000.

Magid, Sanford J. Roof flashing unit. 5,065,553, Cl. 52-58.000.

Mahalek, Josef: *See—*
Hantsch, Hartmut; Thoma, Peter; and Mahalek, Josef, 5,067,076, Cl. 395-275.000.

Mahle GmbH: *See—*
Zvonkovic, Josip, 5,065,706, Cl. 123-41.350.

Mahulikar, Deepak: *See—*
Pasqualoni, Anthony M.; Mahulikar, Deepak; Jalota, Satish K.; and Brock, Andrew J., 5,066,368, Cl. 204-58.000.

Maignan, Jean: *See—*
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, 5,066,427, Cl. 260-413.000.

Mailloux, Dennis R.; Smith, Harry A.; and Kelly, Neal F., to Polaroid Corporation. Process for incorporating hologram into laminar structure with photograph. 5,066,047, Cl. 283-86.000.

Main Light Inc.: *See—*
Gimbutas, Aidas; and Gimbutas, Marion, 5,066,085, Cl. 385-115.000.

Maineult, Jean; and Pluveau, Raymond, to GEC Alsthom SA. High or medium tension circuit breaker. 5,066,839, Cl. 200-144.00R.

Maiorana, Stefano: *See—*
Terni, Patrizia; Maiorana, Stefano; Papagni, Antonio; and Pagella, Piergiuseppe, 5,066,802, Cl. 544-32.000.

Maitra, Ashit M.: *See—*
Lukey, Christopher A.; Maitra, Ashit M.; and Tyler, Ralph J., 5,066,629, Cl. 502-84.000.

Majerus, Norbert: *See—*
Chlebina, Larry E.; Majerus, Norbert; Rambacher, John S.; and Felder, Stephen L., 5,066,448, Cl. 264-334.000.

Makino, Jun; and Tateoka, Masamichi, to Canon Kabushiki Kaisha. Scanning optical system. 5,066,083, Cl. 359-213.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Makino, Kazumasa: *See—*
Nagata, Osamu; and Makino, Kazumasa, 5,066,972, Cl. 355-27.000.
Maletsky, Albert: *See—*
Colon, Herman; and Maletsky, Albert, 5,066,711, Cl. 524-556.000.
Malik, J. Ernst: *See—*
David, Helmut; Malik, J. Ernst; and Schmidt, Rainer, 5,065,815, Cl. 165-67.000.
Malina, Ludek: *See—*
Busch, Rainer; and Malina, Ludek, 5,065,951, Cl. 242-46.210.
Malke, Horst: *See—*
Ferretti, Joseph J.; and Malke, Horst, 5,066,589, Cl. 435-172.300.
Mallick, George T., Jr.; Logan, James R.; and Marschik, David, to Westinghouse Electric Corp. Sensor for detecting a quench in a superconductor using an optical coupling. 5,067,044, Cl. 361-19.000.
Mallory, Timothy P., Sr., to Southern Environmental, Inc. Wire electrode replacement for electrostatic precipitators. 5,066,313, Cl. 55-2.000.
Man Gutehoffnungshutte Aktiengesellschaft: *See—*
David, Helmut; Malik, J. Ernst; and Schmidt, Rainer, 5,065,815, Cl. 165-67.000.
Mancel, James D., to Shorewood Technologies, Inc. No wrap boxes. 5,065,935, Cl. 229-40.000.
Manica, Michele: *See—*
Braga, Vittorio; Manica, Michele; Martini, Emilio; and Milani, Federico, 5,066,700, Cl. 524-380.000.
Manlowe, David; and Kittle, Paul A., to Rusmar Incorporated. Foam generating apparatus. 5,066,428, Cl. 261-29.000.
Mannesmann AG: *See—*
Giacobbe, Francesco, 5,066,421, Cl. 252-373.000.
Mannesmann Kienzle GmbH: *See—*
Munster, Horst; and Wendt, Hans-Jurgen, 5,066,951, Cl. 341-32.000.
Manning, James H., to James River Corporation. Method of making a flannelized film. 5,066,348, Cl. 156-164.000.
Manning, Paul A.; Reeves, Peter R.; and Rowley, Derrick, to Enterovax Limited. Bacterial strains harboring cloned genes controlling *Vibrio cholerae* O-antigen biosynthesis. 5,066,596, Cl. 435-252.330.
Manos, John N.: *See—*
Hartman, Thomas G.; Manura, John J.; Overton, Santford V.; Baker, Christopher W.; and Manos, John N., 5,065,614, Cl. 73-23.350.
Mansfield, Amos R., Jr. Method and means of operating a power line carrier communication system. 5,066,939, Cl. 340-310.00R.
Mansukhani, Gul: *See—*
Cherukuri, Subraman R.; Raman, Kirschna P.; Wong, Lucy L.; Mansukhani, Gul; and Orama, Angel, 5,066,511, Cl. 426-658.000.
Manura, John J.: *See—*
Hartman, Thomas G.; Manura, John J.; Overton, Santford V.; Baker, Christopher W.; and Manos, John N., 5,065,614, Cl. 73-23.350.
Marcantonio, Paul J., to Chevron Research and Technology Co. Leaching cobalt from metal-containing particles. 5,066,469, Cl. 423-150.000.
Mares, Frank: *See—*
Tang, Reginald T.; Mares, Frank; Boyle, William J., Jr.; Chiu, Tin-Ho; and Patel, Kundan M., 5,066,772, Cl. 528-354.000.
Mark, Edward H., to Packard Industries, Inc. Multiple section work station. 5,065,832, Cl. 108-60.000.
Markes, Robby M. Circle cutter. 5,065,517, Cl. 30-300.000.
Markley, Dean A.: *See—*
Felter, Richard E.; Markley, Dean A.; and Musser, Deborah L., 5,066,422, Cl. 252-511.000.
Markley, Finley W.: *See—*
Dragisic, Branislav M.; and Markley, Finley W., 5,065,757, Cl. 128-207.140.
Markowski, Robert G.; Perzan, Denis A.; Morby, John A.; and Robarge, Dean A., to General Electric Company. Electric power distribution panelboard-switchboard bus bar insulation shield. 5,067,043, Cl. 361-361.000.
Marks, Dennis R.: *See—*
Stephenson, Dwight B.; and Marks, Dennis R., 5,065,793, Cl. 137-625.240.
Markunas, Albert L., to Sundstrand Corporation. Hydromechanical displacement control for a power drive unit. 5,065,577, Cl. 60-450.000.
Mars, Wendy M.: *See—*
Saunders, Grady F.; and Mars, Wendy M., 5,066,792, Cl. 536-27.000.
Marschik, David: *See—*
Mallick, George T., Jr.; Logan, James R.; and Marschik, David, 5,067,044, Cl. 361-19.000.
Marshall, Donald E.; and McElroy, James B., to Digital Equipment Corporation. Module for interconnecting integrated circuits. 5,067,004, Cl. 357-71.000.
Marshall, Paul A.: *See—*
Adams, William J.; Jex Courter, Barbara G.; Fong, Craig S.; Murray, Robert C.; and Marshall, Paul A., 5,065,962, Cl. 244-234.000.
Marshall, Shelly. Mobile pet protection cage. 5,065,699, Cl. 119-17.000.
Marti, Jaime S. Machine for automatically positioning and feeding containers. 5,065,852, Cl. 198-392.000.
Marti, Peter: *See—*
Siegfried, Erwin; and Marti, Peter, 5,066,167, Cl. 405-150.100.
Martin, Craig O.: *See—*
Driscoll, Edward C., Jr.; Martin, Craig O.; Ruby, Kenneth; Russell, James J.; and Watson, John G., 5,067,162, Cl. 382-5.000.
Martin, Douglas R., to Olin Corporation. Process for producing moldable detergents having a stable available chlorine concentration. 5,066,416, Cl. 252-90.000.
Martin, Guenter, to Siemens Aktiengesellschaft. Method for generating a random number for the encoded transmission of data upon employment of a variable starting value. 5,067,156, Cl. 380-46.000.
Martin, Kenneth A.: *See—*
Wivagg, Adrian P.; and Martin, Kenneth A., 5,065,490, Cl. 29-402.170.
Martin, Norman D., to Nuckolls, Thomas B.; and Daubenbis, Stanley D., part interest to each. Window assembly. 5,065,544, Cl. 49-177.000.
Martin & Pagenstecher GmbH: *See—*
Konig, Gert; and Baumann, Jurgen, 5,066,624, Cl. 501-107.000.
Martin, Raymond G., to Westinghouse Electric Corp. Azimuth-stacked radar method and apparatus. 5,066,956, Cl. 342-154.000.
Martineau, Tom N.: *See—*
Alvarez, Robert J.; Martineau, Tom N.; and VanderBurgh, Steven D., 5,065,817, Cl. 165-153.000.
Martinez, Robert J.; and Rye, Robert R., to United States of America, Energy. Selective protection of poly(tetra-fluoroethylene) from effects of chemical etching. 5,066,565, Cl. 430-296.000.
Martini, Emilio: *See—*
Braga, Vittorio; Manica, Michele; Martini, Emilio; and Milani, Federico, 5,066,700, Cl. 524-380.000.
Martucci, Roberto, to Molex Incorporated. Environment-proof electrical connector assembly. 5,066,242, Cl. 439-281.000.
Martz, Jonathan T.; Kelly, Thomas W.; Dowbenko, Rostyslaw; Meier, James A.; and Palermo, Anthony C., to PPG Industries, Inc. Chip resistant coatings and methods of application. 5,066,733, Cl. 525-455.000.
Maruyama, Hirotsugu: *See—*
Sakaguchi, Shigeyuki; Ariga, Tadashi; and Maruyama, Hirotsugu, 5,065,727, Cl. 123-489.000.
Marwitz, Erika: *See—*
Wille, Klaus; Kienberger, Helmut; and Marwitz, Erika, 5,067,153, Cl. 380-23.000.
Maschinenfabrik Alfred Schmermund GmbH & Co.: *See—*
Oberdorf, Manfred, 5,065,564, Cl. 53-150.000.
Maschinenfabrik Rieter AG: *See—*
Busch, Rainer; and Malina, Ludek, 5,065,951, Cl. 242-46.210.
Soltermann, Roland; Fritzsche, Peter; and Muller, Kurt, 5,065,637, Cl. 74-99.00R.
Masi, James V.: *See—*
Dixon, David S.; and Masi, James V., 5,066,424, Cl. 252-518.000.
Mason, Martin B., to American Construction Products, Inc. Form work system. 5,065,561, Cl. 52-309.120.
Massachusetts Institute of Technology: *See—*
Chen, Chenson K.; and Tsaur, Bor-Yeu, 5,066,610, Cl. 437-83.000.
Gutowski, Timothy G.; Sentovich, Michael F.; and Okine, Richard K., 5,066,442, Cl. 264-154.000.
Stinson, Margaret C.; and Galanek, Mitchell S., 5,066,597, Cl. 435-311.000.
Massimo, Lombardi: *See—*
Luciano, Santandrea; and Massimo, Lombardi, 5,065,499, Cl. 29-799.000.
Masuda, Yoshitomo: *See—*
Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hideharu; and Kawagoe, Takahiro, 5,066,556, Cl. 429-194.000.
Masumori, Hiroaki: *See—*
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.
Matale, Mark J.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Matambo, Thompson: *See—*
Farfaglia, Leonard T., deceased; Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., 5,065,597, Cl. 62-262.000.
Materkowski, James P., to Kennametal Inc. Wear-resistant steel castings. 5,066,546, Cl. 428-627.000.
Matics Srl: *See—*
D'Agnolo, Armando, 5,066,190, Cl. 414-799.000.
Matsubara, Hiroshi; and Nukii, Takashi, to Sharp Kabushiki Kaisha. Method for connecting circuit boards. 5,065,505, Cl. 29-830.000.
Matsui, Keiji, to Kabushiki Kaisha Okuma Tekkosho. Optical linear encoder with light quantity calabration. 5,066,129, Cl. 356-356.000.
Matsui, Shinichi: *See—*
Doi, Kazuhiro; Fujiwara, Yasuhiko; Abe, Toshiro; and Matsui, Shinichi, 5,065,869, Cl. 207-140.100.
Matsumoto, Mamoru: *See—*
Iwasaki, Tameo; Sugiura, Masaki; Matsuoka, Yuzo; Matsumoto, Mamoru; and Kitamura, Kazuyuki, 5,066,669, Cl. 514-449.000.
Matsumoto, Tetsuya: *See—*
Watanabe, Kiyomi; and Matsumoto, Tetsuya, 5,067,143, Cl. 378-110.000.
Matsumoto, Yo: *See—*
Hayashi, Hirofumi; and Matsumoto, Yo, 5,066,702, Cl. 524-426.000.
Matsumura, Isao, to Canon Kabushiki Kaisha. Perimeter. 5,066,117, Cl. 351-226.000.
Matsuo, Nobuki: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Matsuo Sangyo Kabushiki Kaisha: *See—*
Matsuo, Toichiro, 5,066,942, Cl. 340-568.000.
Matsuo, Toichiro, to Matsuo Sangyo Kabushiki Kaisha. Antitheft device for articles. 5,066,942, Cl. 340-568.000.
Matsuoka, Hiroshi, to Isuzu Motors Limited. Heat-insulating structure of swirl chamber and its production method. 5,065,714, Cl. 123-254.000.
Matsuoka, Toshio; Higashida, Akio; and Satake, Tokuki, to Mitsubishi Jukogyo Kabushiki Kaisha. Ground-surface-effect wing plane. 5,065,833, Cl. 180-117.000.
Matsuoka, Yuzo: *See—*
Iwasaki, Tameo; Sugiura, Masaki; Matsuoka, Yuzo; Matsumoto, Mamoru; and Kitamura, Kazuyuki, 5,066,669, Cl. 514-449.000.
Matsushima, Hironori: *See—*
Sugano, Minoru; Horiki, Akira; Yashiro, Zenichi; and Matsushima, Hironori, 5,067,075, Cl. 395-425.000.
Matsushita Electric Industrial Co., Ltd.: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.
Nakamura, Yasuhiro; Sakai, Ikuo; and Kawabuchi, Masami, 5,065,764, Cl. 128-661.090.
Nishida, Masamitsu; Ando, Hamae; and Kugimiya, Koichi, 5,065,946, Cl. 241-16.000.
Takemoto, Toyoki; Komeda, Tadao; Yamada, Haruyasu; and Fujita, Tsutomu, 5,066,602, Cl. 437-31.000.
Yamamoto, Hajime, 5,066,989, Cl. 355-270.000.
Yamashita, Haruo, 5,066,961, Cl. 346-76.0PH.
Yoshida, Yoshikazu; Tanaka, Kunio; and Nishikawa, Yukio, 5,065,697, Cl. 118-719.000.
Yoshinaka, Minoru; Asakura, Eizo; Misaki, Toshihiro; Kitano, Motoi; and Yoshida, Hideyuki, 5,066,475, Cl. 423-622.000.
Matsushita, Toshio: *See—*
Inagaki, Masaru; and Matsushita, Toshio, 5,067,151, Cl. 379-433.000.
Matthews, Abraham, to Du Pont de Nemours, E. I., and Company. Process for centrifugally spinning pitch carbon fibers. 5,066,430, Cl. 264-8.000.
Matura, Eike: *See—*
Ifflaender, Helmut; Matura, Eike; Polster, Walter; and Rattner, Manfred, 5,065,762, Cl. 128-660.030.
Matushita, Tetunori; Yagihara, Morio; and Sakanoue, Kei, to Fuji Photo Film Co., Ltd. Silver halide color photographic material. 5,066,573, Cl. 430-542.000.
Matzner, Markus; and Layton, Richard, to Amoco Corporation. Wholly aromatic polyesters comprising isophthalic acid, terephthalic acid, p-hydroxybenzoic acid, hydroquinone and an arylene diol. 5,066,767, Cl. 528-193.000.
Maurer, Albert: *See—*
Gabathuler, Jean-Pierre; Eckert, Karl-Ludwig; Kaser, Peter; Maurer, Albert; and Fischer, Anton, 5,066,432, Cl. 264-28.000.
Maurer, Maurice M.: *See—*
Alletto, John S.; and Maurer, Maurice M., 5,065,798, Cl. 140-123.600.
Mauser-Werke Oberndorf GmbH: *See—*
Langowski, Andreas; Schultz, Wolfgang; and Walter, Gerhard, 5,065,524, Cl. 33-544.200.
Maxwell, Robert L. Manipulative skill testing apparatus. 5,065,750, Cl. 128-745.000.
Maya, Jakob: *See—*
Bouchard, Andre C.; Lagushenko, Radomir; and Maya, Jakob, 5,066,892, Cl. 315-46.000.
Mayer, William J.: *See—*
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., 5,066,150, Cl. 400-157.300.
Mayerhofer, Franz; Karstensen, Holger; Dietrich, Ralf; and Spaeth, Werner, to Siemens Aktiengesellschaft. Optical coupling element having a convex microlens and the method of manufacture. 5,066,090, Cl. 385-35.000.
Mazda Motor Corporation: *See—*
Hosokai, Tetsushi; Takaba, Tetsuro; Ishihara, Toshihiro; and Kobayashi, Hideki, 5,065,717, Cl. 123-339.000.
McCaffrey, Joseph T.; and McKay, Stewart P. Personal protection device. 5,065,904, Cl. 222-3.000.
McCauley Brothers, Inc.: *See—*
McCauley, C. Graham, III, 5,066,498, Cl. 426-2.000.
McCauley, C. Graham, III, to McCauley Brothers, Inc. Nutritional supplement for the hoof and coat. 5,066,498, Cl. 426-2.000.
McCloskey, John E.: *See—*
Cooke, Kevin K.; Dewitt, John R.; and McCloskey, John E., 5,067,041, Cl. 361-394.000.
McCord Winn Textron Inc.: *See—*
Amey, Louis F. R., 5,065,651, Cl. 82-1.110.
McCormick, Sharon J.: *See—*
Sivavec, Timothy M.; and McCormick, Sharon J., 5,066,719, Cl. 525-92.000.
McCown, Patricia M.; Conway, Timothy J.; and Jessen, Karl M., to Allied-Signal Inc. Methods and apparatus for monitoring system performance. 5,067,099, Cl. 364-550.000.
McDonald, Mark E., to Hughes Aircraft Company. High throughput contrast enhancement for polarized displays. 5,066,108, Cl. 359-65.000.
McDonnell Douglas Corporation: *See—*
Ferrante, Ronald A., 5,066,100, Cl. 359-569.000.
McDonner, Orville R., to Fuqua Industries, Inc. Bearing assembly for lawn mower cutting blade. 5,066,146, Cl. 384-473.000.
McDonough, Charles M., to PCF Group, Inc. Filter element gasket. 5,066,318, Cl. 55-502.000.
McElroy, James B.: *See—*
Marshall, Donald E.; and McElroy, James B., 5,067,004, Cl. 357-71.000.
McFalls, David S., II: *See—*
Wenzel, Dennis J.; and McFalls, David S., II, 5,067,085, Cl. 364-474.060.
McFarland, Thomas G.: *See—*
Vavrek, Robert M.; and McFarland, Thomas G., 5,066,914, Cl. 324-309.000.
McGee, Philip J. L., to U.S. Philips Corporation. Method of determining the monitor sensitivity of, and method and system for controlling a radiation emitting arrangement, and optical recording and/or reproducing apparatus including such a system. 5,067,122, Cl. 369-116.000.
McGee, Susan: *See—*
Betrabet, Hemant S.; Boser, Otmar H.; Kane, Robert H.; McGee, Susan; and Caulfield, Thomas, 5,066,544, Cl. 428-614.000.
McGraw, Thomas C.; Van Ryne, Randall E.; Scarlata, Richard F.; and Sze, Cho Y., to Xerox Corporation. Disk stacker including movable gate for insertion of sheets into disk slots. 5,065,996, Cl. 271-176.000.
McHugh, Kevin: *See—*
Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., 5,066,499, Cl. 426-19.000.
McKay, Stewart P.: *See—*
McCaffrey, Joseph T.; and McKay, Stewart P., 5,065,904, Cl. 222-3.000.
McKee, Michael J.: *See—*
Henschen, Homer E.; McKee, Michael J.; and Pawlikowski, Joseph M., 5,065,501, Cl. 29-611.000.
McKeen, Francis X.: *See—*
Fite, Elaine H.; Fossum, Tryggve; Grundmann, William R.; McKeen, Francis X.; and Salett, Ronald M., 5,067,069, Cl. 395-375.000.
McKenzie, Archibald M. Multiple bit power drill. 5,065,498, Cl. 29-568.000.
McLean, John A. B., to Bea-Bar Enterprises Ltd. Apparatus for mounting an antenna for rotation on a mast. 5,065,969, Cl. 248-282.000.
McManigal, Paul G.; and Vaughan, Philip A. Accurate high-flow clean regulator with input-pressure balancing. 5,065,788, Cl. 137-505.180.
McMaster, Dexter H.: *See—*
Kramer, Joseph O.; McMaster, Dexter H.; and Mumford, Eustace H., 5,066,321, Cl. 65-182.200.
McNab, John G., to Graves Spray Supply, Inc. Pneumatic material dispensing monitor. 5,065,902, Cl. 222-31.000.
McNamara, Timothy J.: *See—*
Evans, Timothy G.; Gould, Mark W.; and McNamara, Timothy J., 5,067,129, Cl. 371-16.100.
Meakin, Peter J.: *See—*
Cogswell, Frederic N.; and Meakin, Peter J., 5,066,536, Cl. 428-216.000.
Mears, Dana C.: *See—*
Chapman, Michael W.; Mears, Dana C.; and Edwards, Charles C., 5,066,296, Cl. 606-64.000.
Measells, Paul E.; Johnston, William D.; Kwong, Peter C.; Laurin, Dean G.; and Czuba, Leonard F., to Baxter International Inc. Sterilizable multi-layer plastic materials for medical containers and the like. 5,066,290, Cl. 604-408.000.
Measurex Corporation: *See—*
Taylor, Bruce S.; and Balakrishnan, Ramesh, 5,065,673, Cl. 100-40.000.
Wennerberg, Gunnar, 5,066,865, Cl. 250-572.000.
Mecaplastic: *See—*
Robache, Patrick, 5,065,563, Cl. 53-69.000.
Mecklenburg, Thomas: *See—*
Feldhues, Michael; Kampf, Gunther; and Mecklenburg, Thomas, 5,066,731, Cl. 525-417.000.
Medical Engineering Corporation: *See—*
Bark, Jeffrey E.; Hillegass, Donald V.; and Woodruff, Eric J., 5,066,303, Cl. 623-8.000.
Mediolanum Farmaceutici Srl.: *See—*
Terni, Patrizia; Maiorana, Stefano; Papagni, Antonio; and Pagella, Piergiuseppe, 5,066,802, Cl. 544-32.000.
Meek, Robert A.; and Linville, Andrew F., Jr., to Mobil Oil Corporation. Method for removing coherent noise from seismic data through f-x filtering. 5,067,112, Cl. 367-43.000.
Mehu, Jacques: *See—*
Huerre, Dominique; and Mehu, Jacques, 5,067,022, Cl. 358-248.000.
Meichsner, Roland: *See—*
Schmickl, Werner; and Meichsner, Roland, 5,066,329, Cl. 106-20.000.
Meier, James A.: *See—*
Martz, Jonathan T.; Kelly, Thomas W.; Dowbenko, Rostyslaw; Meier, James A.; and Palermo, Anthony C., 5,066,733, Cl. 525-455.000.
Meier, Peter, to Micronel AG. Portable respiratory protection device. 5,065,745, Cl. 128-205.120.

VOL 1132 ISS 3 NO 19 1991 UMI

Meiji Seika Kaisha, Ltd.: *See*—
Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, 5,066,677, Cl. 514-563.000.
Meinel, Fred; and Wilke, Dorothea, to Siemens Aktiengesellschaft. X-ray radiator. 5,067,146, Cl. 378-199.000.
Meinz, Hans W. Fluid delivery system for controlling fluid flow. 5,065,903, Cl. 222-71.000.
Mellwig, Richard A.: *See*—
Kowtko, Robert M.; and Mellwig, Richard A., 5,066,216, Cl. 425-562.000.
Mendes, Jose A. C.: *See*—
Lorento, Gustavo F.; Mendes, Jose A. C.; and Cullen, Joao A. D., 5,065,508, Cl. 29-888.042.
Mendola, Edward G.: *See*—
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,496, Cl. 29-599.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,497, Cl. 29-564.700.
Meneghini, Giovanni, to DeNora Permelec S.p.A. Electrolyzer. 5,066,378, Cl. 204-237.000.
Mengeu, Gary L., to Continental Plastics, Inc. Dispensing fitment and container therefore. 5,065,908, Cl. 222-480.000.
Merboth, John A.: *See*—
Creighton, Dean W.; Efstathiou, John D; and Merboth, John A., 5,066,506, Cl. 426-450.000.
Mercat, Jean-Pierre, to Look, S.A. Apparatus for the measurement of drive torques. 5,065,633, Cl. 73-862.340.
Mercedes-Benz AG: *See*—
Panten, Detlef; Hertweck, Gernot; and Bender, Franz, 5,065,719, Cl. 123-339.000.
Troster, Harry, 5,066,076, Cl. 303-113.000.
Merchant, Abid N., to Du Pont de Nemours, E. I., and Company. Binary zeotropic compositions of 2,2-dichloro-1,2-difluoroethane with methanol, ethanol, or trans-1,2-dichloroethylene. 5,066,417, Cl. 252-171.000.
Merchant, Abid N., to Du Pont de Nemours, E. I., and Company. Binary azeotropic compositions of 3-chloro-1,1,1-trifluoropropane with methanol or ethanol, or trans-1,2-dichloroethylene. 5,066,418, Cl. 252-172.000.
Merck & Co., Inc.: *See*—
Alexander, Jose; and Higuchi, Takeru, deceased, 5,066,648, Cl. 514-174 000.
Chen, Shieh-Shung T.; and Doss, George, 5,066,586, Cl. 435-119.000.
Meredith, Michael D., to Kamyr, Inc. Extended delignification in pressure diffusers. 5,066,362, Cl. 162-17.000.
Mereness, W. Michael: *See*—
Schulze, Dale R.; Sherman, Jon A.; and Mereness, W. Michael, 5,065,929, Cl. 227-19.000.
Merianos, John J.; Login, Robert B.; and Garelick, Paul, to ISP Investments Inc. Semi-anhydrous, suspension process for preparing uniform, free-flowing, fine, white powders of substantially anhydrous complexes of PVP and H_2O_2 containing about 18 to about 22% H_2O_2. 5,066,488, Cl. 424-80.000.
Merkel, Stephen L.: *See*—
Baron, Carl N.; Merkel, Stephen L.; and Hall, Robert C., 5,065,695, Cl. 118-688.000.
Merlin Gerin: *See*—
Suptitz, Eric, 5,066,920, Cl. 324-544.000.
Merrell Dow Pharmaceuticals Inc.: *See*—
Anzeveno, Peter B.; Angell, Paul T.; and Creemer, Laura J., 5,066,807, Cl. 546-183.000.
Bey, Philippe; and Kolb, H. Michael, 5,066,828, Cl. 560-171.000.
Merrem, Hans-Joachim; Buhr, Gerhard; and Lenz, Ruediger, to Hoechst Aktiengesellschaft. Image reversal process utilizing a positive-working photosensitive composition containing a dye. 5,066,567, Cl. 430-325.000.
Mersch, Steve H.; Spielvogel, David E.; and Daugherty, Charles W., to Becton, Dickinson and Company. Vent for flashback plug. 5,066,284, Cl. 604-168.000.
Messerschmitt-Bolkow-Blohm GmbH: *See*—
Fischer, Florian; and Ritzer, Christian, 5,066,267, Cl. 475-168.000.
Kranz, Walter, 5,065,957, Cl. 244-3.210.
Zinner, Helmut, 5,066,860, Cl. 250-349.000.
Metal Fusion, Inc.: *See*—
Bourgeois, Norman R.; and Robichaux, Bradley A., 5,065,735, Cl. 126-40.000.
Metal Leve S.A. Industria E Comercio: *See*—
Lorento, Gustavo F.; Mendes, Jose A. C.; and Cullen, Joao A. D., 5,065,508, Cl. 29-888.042.
Metanetix, Inc.: *See*—
DeVoe, Irving W.; D'Sylva, Olwyn A.; and Fine, David A., 5,066,371, Cl. 204-149.000.
Metsik, Viktor M.: *See*—
Zlobin, Mikhail N.; Metsik, Viktor M.; Nemarov, Alexandr A.; Permyakov, Georgy P.; and Taraban, Nikolai T., 5,066,389, Cl. 209-170.000.
Metzeler GmbH: *See*—
Michel, Werner, 5,066,780, Cl. 528-481.000.
Meyer, Richard C.; and Barber, Duane G., to Beckman Instruments, Inc. Rotatable vortexing turntable. 5,066,135, Cl. 366-208.000.
Meyer, Rolf-Volker: *See*—
Kohler, Burkhard; and Meyer, Rolf-Volker, 5,066,781, Cl. 528-481.000.
Meyer, Urs; Oberhansli, Rene F.; and Hausler, Dominik, to Rieter Machine Works Ltd. Method of and apparatus for guiding a self-steering vehicle along an optical guideway. 5,066,854, Cl. 250-202.000.
Meyers, John A.; Drake, David E.; and Witt, Charles W., to Smith International, Inc. Hammer bit retention tool. 5,065,827, Cl. 175-414.000.
Meyers, Roy D. Solar powered navigation buoy generator. 5,066,338, Cl. 136-244.000.
Michael, William R.: *See*—
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., 5,066,419, Cl. 252-174.110.
Michalewski, David; and Roberts, Bradley M., to Gemcor Engineering Corporation. Apparatus for orienting and injecting fasteners. 5,065,898, Cl. 221-171.000.
Michalski, Dennis H., to IMC Fertilizer, Inc. Lowering post-precipitation in merchant acid. 5,066,471, Cl. 423-319.000.
Michaud, Jacques: *See*—
Cohen, Eric A.; Gaudreau, Pierrette; Michaud, Jacques; Brazeau, Paul; and Langelier, Yves, 5,066,783, Cl. 530-328.000.
Michel, Werner, to Metzeler GmbH. Method of vulcanizing rubber with heat transfer liquid. 5,066,780, Cl. 528-481.000.
Michii, Kazunari; and Takehara, Masataka, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor device. 5,067,005, Cl. 357-72.000.
Microelectronics and Computer Technology Corporation: *See*—
Olla, Michael A., 5,065,504, Cl. 29-827.000.
Microlife Technics, Inc.: *See*—
Vedamuthu, Ebenezer R., 5,066,588, Cl. 435-172.300.
Micron Technology, Inc.: *See*—
Casper, Stephen L., 5,066,999, Cl. 357-51.000.
Lee, Ruojia, 5,066,606, Cl. 437-52.000.
Yu, Chang, 5,066,611, Cl. 437-173.000.
Micronel AG: *See*—
Meier, Peter, 5,065,745, Cl. 128-205.120.
Midland Brake, Inc.: *See*—
Gross, Dario; and Sweet, Roger L., 5,066,317, Cl. 55-218.000.
Midwest Plastic Fabricators: *See*—
Moran, Thomas F., Jr., 5,066,212, Cl. 425-145.000.
Miehle, Ernest C. Apparatus and method for cleaning a gas range burner. 5,065,737, Cl. 126-214.00R.
Migdal, Cyril A.; Shirodkar, Shailaja M.; DeRosa, Thomas F.; and Miller, Edward F., to Texaco Inc. Friction modifier additive and lubricating oil composition containing same. 5,066,412, Cl. 252-54.600.
Mihayashi, Keiji: *See*—
Ichijima, Seiji; Saito, Naoki; Mihayashi, Keiji; Ishii, Yoshio; and Ogawa, Akira, 5,066,576, Cl. 430-558.000.
Mikami, Kazuo; Ishihara, Hideshi; Nishimura, Masahiro; Tsukiyama, Noriyuki; and Hinoda, Seisuke, to Omron Tateisi Electronics Co. Image recognition device. 5,067,161, Cl. 382-1.000.
Milaire, Daniel P. F. Photographic studio light reflecting apparatus. 5,067,049, Cl. 362-18.000.
Milani, Federico: *See*—
Braga, Vittorio; Manica, Michele; Martini, Emilio; and Milani, Federico, 5,066,700, Cl. 524-380.000.
Milbar Corporation: *See*—
Anderson, J. Edward C.; and Jeromson, James R., Jr., 5,065,650, Cl. 81-486.000.
Milburn, Charles A.: *See*—
Evers, David E.; and Milburn, Charles A., 5,065,649, Cl. 81-458.000.
Mile High Equipment Company: *See*—
Alvarez, Robert J.; Martineau, Tom N.; and VanderBurgh, Steven D., 5,065,817, Cl. 165-153.000.
Mill-Rose Laboratories, Inc.: *See*—
Kozak, Mark; and Nichols, Michael, 5,066,295, Cl. 606-47.000.
Miller, Bearge D.: *See*—
Miller, Norman K.; and Miller, Bearge D., 5,066,835, Cl. 200-61.430.
Miller, Chad G., to City of Hope. Carboxyl terminal peptide and protein sequencing. 5,066,785, Cl. 530-345.000.
Miller, Charles N.: *See*—
Speiser, Robert D.; Bernstein, Steven; Miller, Charles N.; and Shearer, Dane, 5,065,549, Cl. 51-288.000.
Miller, Daniel C.: *See*—
Padera, Robert F.; and Miller, Daniel C., 5,066,393, Cl. 210-136.000.
Miller, Douglas C., to Plasta Fiber Industries, Inc. Sunvisor including a method and attachment mechanism for securing a covering to the sunvisor. 5,066,061, Cl. 296-97.100.
Miller Edge, Inc.: *See*—
Miller, Norman K.; and Miller, Bearge D., 5,066,835, Cl. 200-61.430.
Miller, Edward E.; and Strydom, Peter J., to American Cyanamid Company. Crosslinking water soluble polymers with iron to form gels for use in subterranean profile modification. 5,065,822, Cl. 166-295.000.
Miller, Edward F.: *See*—
Migdal, Cyril A.; Shirodkar, Shailaja M.; DeRosa, Thomas F.; and Miller, Edward F., 5,066,412, Cl. 252-54.600.
Miller, Jack E., to International Clamp Company. Clamp with pipe branch. 5,066,053, Cl. 285-373.000.
Miller, Jeffrey T.; and Shum, Victor K., to Amoco Corporation. Catalyst and process for high selectivity reforming with PT/RE on BA-K-L zeolite. 5,066,628, Cl. 502-66.000.
Miller, Norman K.; and Miller, Bearge D., to Miller Edge, Inc. Sensing edge. 5,066,835, Cl. 200-61.430.

Miller, Ronald E.; and James, Robert L., to Delat Systems, Incorporated. Multi-way switch system having plural remote touch pads. 5,066,898, Cl. 315-362.000.
Miller, Steven L.; Wathen, Ronald L.; and Palazzo, Raymond E., Jr., to Environmental Water Technology, Inc. Fluid purifying apparatus and method of purifying fluids. 5,065,791, Cl. 137-515.000.
Milliken Research Corporation: *See*—
Christie, Wesley D., 5,066,535, Cl. 428-196.000.
Mills, James L.: *See*—
Weinberger, Scot R.; and Mills, James L., 5,066,382, Cl. 204-299.00R.
Mills, William C., Jr.: *See*—
Center, John L.; Mills, William C., Jr.; and Plaskett, John R., 5,066,269, Cl. 493-183.000.
Minakata, Rumi: *See*—
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.
Minami, Kouji: *See*—
Iwamoto, Masayuki; Minami, Kouji; and Yamaoki, Toshihiko, 5,066,340, Cl. 136-258.000.
Minami, Toshiaki; Fukuchi, Tadakazu; Ohashi, Reiji; and Kaneko, Toshio, to Jujo Paper Co., Ltd. Heat-sensitive recording sheet. 5,066,634, Cl. 503-209.000.
Minefuji, Nobutaka; and Arai, Yasunori, to Asahi Kogaku Kogyo Kabushiki Kaisha. Shading board for copying apparatus. 5,066,987, Cl. 355-233.000.
Miner Enterprises, Inc.: *See*—
Fong, Ding-Huei R.; and Carlstedt, Richard A., 5,065,874, Cl. 213-31.000.
Minnesota Mining and Manufacturing Company: *See*—
Buerli, Richard, 5,066,118, Cl. 356-73.100.
Elmasry, Mohamed A.; and Kidnie, Kevin M., 5,066,559, Cl. 430-111.000.
Huber, Charles D.; and Barry, Donald J., 5,066,529, Cl. 428-40.000.
Kult, Roger R.; Bailey, Terry R.; and Tolliver, Howard R., 5,066,098, Cl. 359-540.000.
Oxman, Joel D.; and Ubel, F. Andrew, III, 5,066,231, Cl. 433-214.000.
Polski, Stephen P., 5,066,289, Cl. 604-389.000.
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., 5,066,419, Cl. 252-174.110.
Minolta Camera Kabushiki Kaisha: *See*—
Emori, Kiyoshi; and Maekawa, Hiroshi, 5,066,986, Cl. 355-326.000.
Misaki, Toshihiro: *See*—
Yoshinaka, Minoru; Asakura, Eizo; Misaki, Toshihiro; Kitano, Motoi; and Yoshida, Hideyuki, 5,066,475, Cl. 423-622.000.
Misawa Homes Institute of Research & Development: *See*—
Hasebe, Noboru; and Ito, Shoji, 5,065,749, Cl. 128-664.000.
Mishra, Munmaya K.: *See*—
Kennedy, Joseph P.; and Mishra, Munmaya K., 5,066,730, Cl. 525-319.000.
Mishra, Saroj K.: *See*—
Putnam, Alan R.; Mishra, Saroj K.; and Nair, Muraleedharan G., 5,066,585, Cl. 424-121.000.
Misu, Naoaki: *See*—
Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, 5,066,657, Cl. 514-269.000.
Mita Industrial Co., Ltd.: *See*—
Yoshizuka, Ken, 5,066,977, Cl. 355-201.000.
Mitamura, Shoji: *See*—
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.
Mitchell, George; and Pelosi, Michael H., III, to Centercore, Inc. Air circulation system. 5,065,668, Cl. 98-31.500.
Mitchell, Wayne A.: *See*—
Hsieh, Shane; and Mitchell, Wayne A., 5,066,568, Cl. 430-325.000.
Mitchell, William L.: *See*—
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.
Mitsuba Electric Mfg. Co., Ltd.: *See*—
Takahara, Katsuo; Okajima, Shigeru; and Onodera, Tugio, 5,065,605, Cl. 72-340.000.
Mitsubishi Denki K.K.: *See*—
Kakuda, Masayuki; Sekiya, Shin; and Kitora, Yoshihisa, 5,066,206, Cl. 418-55.300.
Wada, Shunichi, 5,067,115, Cl. 367-99.000.
Mitsubishi Denki Kabushiki Kaisha: *See*—
Eimori, Takahisa; Satoh, Shinichi; Wakamiya, Wataru; Ozaki, Hiroji; and Tanaka, Yoshinori, 5,067,000, Cl. 357-53.000.
Ida, Shizuo, 5,067,032, Cl. 360-46.000.
Kawano, Minori, 5,067,171, Cl. 455-33.000.
Koike, Mitsuhiro; and Wadaka, Shusou, 5,065,629, Cl. 73-602.000.
Kunikiyo, Tatsuya; Fujinaga, Masato; and Kotani, Norihiko, 5,067,101, Cl. 364-578.000.
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.
Michii, Kazunari; and Takehara, Masataka, 5,067,005, Cl. 357-72.000.
Ochi, Naoki, 5,066,903, Cl. 324-96.000.
Sakamoto, Hirokazu; Ohtani, Makoto; Nakagawa, Naoki; Maejima, Taro; and Hayama, Masahiro, 5,066,106, Cl. 359-59.000.
Toide, Eiichi; Shikama, Shinsuke; and Kubota, Masayuki, 5,066,138, Cl. 369-112.000.
Yamasaki, Tatsuo; and Fujii, Toshifumi, 5,067,031, Cl. 360-22.000.
Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Matsuoka, Toshio; Higashida, Akio; and Satake, Tokuki, 5,065,833, Cl. 180-117.000.
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.
Taura, Yoshiharu; Yuzaki, Yoshinori; and Takagi, Koichi, 5,066,184, Cl. 413-4.000.
Mitsubishi Materials Corporation: *See*—
Ohsawa, Yuzoh, 5,066,515, Cl. 427-53.100.
Mitsubishi Metal Corporation: *See*—
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.
Yoshimura, Hironori; Sawada, Yoshihiro; Nakahara, Kei; Kunugi, Hitoshi; and Sakurai, Keiichi, 5,066,553, Cl. 428-698.000.
Mitsubishi Rayon Co., Ltd.: *See*—
Hiraoka, Saburo; and Niikawa, Kenji, 5,066,768, Cl. 528-230.000.
Mitsui Engineering & Shipbuilding Co., Ltd.: *See*—
Sato, Takashi; Iwanabe, Yoji; Arato, Koji; Sakagami, Rokuro; and Yoneda, Yasuo, 5,065,809, Cl. 164-61.000.
Mitsui Toatsu Chemicals Incorporated: *See*—
Aizawa, Hironori; Shin, Masaaki; and Okubo, Atsuo, 5,066,727, Cl. 525-296.000.
Miura, Hiroshi: *See*—
Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, 5,066,539, Cl. 428-328.000.
Miura, Takao; and Imaoka, Kazunori, to Fujitsu Limited. Semiconductor device having semiconductor-on-insulator structure. 5,066,993, Cl. 357-23.700.
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, to Waseda University; and Mitsubishi Jukogyo Kabushiki Kaisha. Method for removing roots from cormatose plant bodies. 5,066,507, Cl. 426-481.000.
Miyabayashi, Shigeaki; Sakamoto, Takuro; Kanai, Hiroshi; and Oka, Joji, to Takeda Chemical Industries, Ltd. One-can heat-curable resin compositions and precoated metal. 5,066,757, Cl. 528-45.000.
Miyagaki, Shinji: *See*—
Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, 5,066,612, Cl. 437-192.000.
Miyake, Nobuyuki, to Canon Kabushiki Kaisha. Electrophotographic apparatus having means for avoiding blurring effects caused by idle intervals. 5,066,988, Cl. 355-245.000.
Miyamoto, Keiji: *See*—
Yanaka, Yoshimi; and Miyamoto, Keiji, 5,067,008, Cl. 357-81.000.
Miyamoto, Mitunobo: *See*—
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.
Miyamoto, Seiji: *See*—
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.
Miyao, Kouji; and Asano, Hajime, to Sharp Kabushiki Kaisha. Word processor with operator inputted character string substitution. 5,067,070, Cl. 395-146.000.
Miyao, Masanobu; Nakagawa, Kiyokazu; Ohyu, Kiyonori; Murakami, Eiichi; and Ohshima, Takashi, to Agency of Industrial Science and Technology. Method of producing hetero structure. 5,066,355, Cl. 156-612.000.
Miyata, Koichi: *See*—
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, 5,066,938, Cl. 338-22.0SD.
Miyazaki, Makoto; and Hiyoshi, Tatsuo, to Asahi Kasei Kogyo Kabushiki Kaisha. Process for preparing an ion exchange membrane. 5,066,682, Cl. 521-27.000.
Miyazaki, Takahiro: *See*—
Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, 5,066,539, Cl. 428-328.000.
Miyazaki, Teruko, to Ciba-Geigy Corporation. Curable polyurethane casting systems and amine hardeners therefor. 5,066,761, Cl. 528-64.000.
Miyazawa, Kenichi: *See*—
Mizoguchi, Toshiaki; and Miyazawa, Kenichi, 5,065,812, Cl. 164-480.000.
Mizoguchi, Takatoshi: *See*—
Deguchi, Katsuyasu; Mizoguchi, Takatoshi; Taminaga, Takayuki; and Fujii, Akiyoshi, 5,066,960, Cl. 346-76.0PH.
Mizoguchi, Toshiaki; and Miyazawa, Kenichi, to Nippon Steel Corporation. Process for the twin-roll type, continuous casting of metal sheets. 5,065,812, Cl. 164-480.000.
Mizukawa, Yuki: *See*—
Sato, Tadahisa; Takahashi, Osamu; Naruse, Hideaki; and Mizukawa, Yuki, 5,066,575, Cl. 430-558.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Mizukura, Noboru: *See—*
Kubota, Toru; Tomotake, Mayumi; Ohya, Hidenobu; Tomotake, Atsushi; and Mizukura, Noboru, 5,066,574, Cl. 430-557.000.

Mizuno, Tohru: *See—*
Kishi, Hajimu; Mizuno, Tohru; and Kanda, Yuichi, 5,066,847, Cl. 219-124.340.

Mizuno, Toshio; Muratani, Takuro; Ito, Yasuhiko; Watanabe, Tatsuo; and Inoue, Takashi, to Kokusai Denshin Denwa Co., Ltd. Hybrid modulation satellite communication system. 5,066,957, Cl. 342-352.000.

Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, to Sharp Kabushiki Kaisha. Liquid crystal display apparatus. 5,066,110, Cl. 359-54.000.

Mizutome, Atsushi: *See—*
Kanno, Hideo; Inoue, Hiroshi; and Mizutome, Atsushi, 5,066,945, Cl. 340-784.000.

Mobay Corporation: *See—*
Mafoti, Robson; and Sanders, Josef, 5,066,824, Cl. 560-44.000.

Mobil Oil Corporation: *See—*
Hon, Clarence C., 5,065,844, Cl. 187-17.000.
Liu, Leland L.; and Cyr, Patricia A., 5,066,434, Cl. 264-37.000.
Meek, Robert A.; and Linville, Andrew F., Jr., 5,067,112, Cl. 367-43.000.
Owen, Hartley; and Schipper, Paul H., 5,066,627, Cl. 502-43.000.

Mobley, Mark H. Bicycle rack for mounting on a van. 5,065,921, Cl. 224-324.000.

Model & Instrument Development Corporation: *See—*
Firth, David G., 5,066,305, Cl. 623-55.000.

Modic, Michael J., to Shell Oil Company. Process for melt grafting epoxy compounds to polymers. 5,066,726, Cl. 525-263.000.

Modlinski, Ulrich: *See—*
Lehnert, Michael; Modlinski, Ulrich; and Roess, Rudi, 5,065,613, Cl. 73-23.200.

Moellering, Harold J.; and Kimerling, A. Jon, to Ohio State University Research Foundation, The. Slope-aspect color shading for parametric surfaces. 5,067,098, Cl. 395-126.000.

Mohan, Manohar: *See—*
Gill, Sarupinderpal S.; and Mohan, Manohar, 5,065,535, Cl. 38-22.000.

Mohebban, Manoochehr; Montoya, Wayne; Parker, Robert; and Siden, Dennis C., to Raychem Corporation. Liquid crystal electrical fault indicators. 5,066,104, Cl. 359-43.000.

Mohr, Dieter: *See—*
Zertani, Rudolf; Mohr, Dieter; and Rode, Klaus, 5,066,564, Cl. 430-284.000.

Mokudai, Tsuyoshi: *See—*
Nakano, Hirofumi; Hara, Mitsunobu; Mokudai, Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, 5,066,817, Cl. 549-384.000.

Molex Incorporated: *See—*
Martucci, Roberto, 5,066,242, Cl. 439-281.000.

Monahan, Russell, to Gas Research Institute. Feedback air-fuel control system for Stirling engines. 5,065,579, Cl. 60-524.000.

Monogram Sanitation, a division of MAG Aerospace Industries, Inc.: *See—*
Rozenblatt, Mike M., 5,065,786, Cl. 137-202.000.

Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, to Institut Pasteur. Retrovirus capable of causing AIDS, means and method for detecting it in vitro. 5,066,782, Cl. 530-324.000.

Montoya, Wayne: *See—*
Mohebban, Manoochehr; Montoya, Wayne; Parker, Robert; and Siden, Dennis C., 5,066,104, Cl. 359-43.000.

Monzyk, Bruce F.; and Woodard, Lloyd A. Device for measuring subsurface temperatures of liquid bodies, useful for determining optimum fishing locations. 5,065,539, Cl. 43-4.000.

Moody, Paul E., to United States of America, Navy. Flexible weapon handling support system. 5,065,688, Cl. 114-238.000.

Moore, Lester C., to Landis & Gyr Metering, Inc. Time of use register for use with a utility meter. 5,066,906, Cl. 324-142.000.

Moore, Russel L.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.

Moore, Thomas E., to Telecommunications Research Laboratories. Method and apparatus for mapping a digital signal carrier to another. 5,067,126, Cl. 370-112.000.

Moore, Thomas J.: *See—*
Blanchard, Frederick W.; and Moore, Thomas J., 5,065,464, Cl. 5-81.00R.

Morales, Daniel V.: *See—*
Gil, Angel H.; Morales, Daniel V.; and Valverde, Eduardo R., 5,066,500, Cl. 426-72.000.

Moran, James M., to Barkley & Dexter Laboratories. Search coil assembly with laminate frame members and method for making same. 5,066,937, Cl. 336-84.00C.

Moran, Thomas F., Jr., to Midwest Plastic Fabricators. Apparatus for bending pipe. 5,066,212, Cl. 425-145.000.

Morby, John A.: *See—*
Markowski, Robert G.; Perzan, Denis A.; Morby, John A.; and Robarge, Dean A., 5,067,043, Cl. 361-361.000.

Morelle, Jean V.; and Lauzanne-Morelle, Eliane, to Rhone-Poulenc Chimie. Antisudoral composition comprising dibasic aluminium salts of acylated amino acids. 5,066,487, Cl. 424-68.000.

Morgan, A. Charles, Jr.: *See—*
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.

Mori, Akitoshi: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.

Morimoto, Kiyoshi; Itoh, Shigeo; Tonegawa, Takeshi; and Niiyama, Takahiro, to Futaba Denshi Kogyo Kabushiki Kaisha. Indirectly heated filamentary cathode. 5,066,885, Cl. 313-340.000.

Morimoto, Yutaka: *See—*
Kitano, Masao; Yagisawa, Mitsuaki; and Morimoto, Yutaka, 5,066,813, Cl. 548-182.000.

Morin, Pierre: *See—*
Bardin, Christian; Pignard, Guy; Boulet, Jean; and Morin, Pierre, 5,065,825, Cl. 175-38.000.

Morishita, Kenji: *See—*
Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, 5,066,612, Cl. 437-192.000.

Morita, Yasuyuki: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.

Moritake, Masanori: *See—*
Baba, Yasuhiro; and Moritake, Masanori, 5,066,524, Cl. 428-15.000.

Moriya, Koichi: *See—*
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, 5,066,808, Cl. 514-231.500.

Moro, Luigi; Fiori, Achille; and Natali, Alberto, to Poli Industria Chimca S. p. A. Processes for the preparation of pharmaceutical compositions containing bromocriptine having high stability and related products. 5,066,495, Cl. 424-451.000.

Morofushi, Kunitoshi, to Usui Kokusai Sangyo Kabushiki Kaisha. Engine-cooling fan made of synthetic resin. 5,066,196, Cl. 416-241.00A.

Morooka, Isao: *See—*
Isawa, Yamahiro; Morooka, Isao; and Oba, Yoichi, 5,066,692, Cl. 523-458.000.

Morrison, Robert A.; and Evans, David A., to DNA Plant Technology Corporation. Pepper gametoclonal variation. 5,066,830, Cl. 800-230.000.

Morse, Alfred W., to Westinghous Electric Corp. High efficiency diode phase shifter. 5,066,930, Cl. 333-164.000.

Morsy, Esam M., to Reiter, Barbara Blair. Composition and process for coating synthetic fibers. 5,066,521, Cl. 427-387.000.

Mortensen, John A.: *See—*
Lee, Richard P.; Ley, Joseph F.; and Mortensen, John A., 5,066,363, Cl. 162-100.000.

Mosch, Johannes, to Leybold Aktiengesellschaft. Melting and casting furnace. 5,066,223, Cl. 432-184.000.

Moschinsky, Werner: *See—*
Voss, Erdmuthe; Moschinsky, Werner; and Hofmann-Moritz, Doris, 5,066,640, Cl. 512-21.000.

Moses, Meredith: *See—*
Taylor, Chandler R., Jr.; and Moses, Meredith, 5,066,654, Cl. 514-256.000.

Mosser, Mark F.; Eddinger, Kevin B.; and Fabiny, William J., to Sermatech International, Inc. Flake materials in coating compositions. 5,066,540, Cl. 428-336.000.

Motoda Electronics, Co. Ltd.: *See—*
Motoda, Kenro; and Isoe, Hirosuke, 5,065,522, Cl. 33.1-366.000.

Motoda, Kenro; and Isoe, Hirosuke, to Motoda Electronics, Co. Ltd. Method of detecting vertically, detector therefor and level maintaining base which employs said detector and which acts to mount mechanism or apparatus. 5,065,522, Cl. 33.1-366.000.

Motohashi, Mitsuo: *See—*
Yoshino, Kunihisa; Motohashi, Mitsuo; and Fujii, Yozo, 5,065,693, Cl. 118-657.000.

Motorola, Inc.: *See—*
Baker, James C.; Kazecki, Henry L.; and Goode, Steven H., 5,067,139, Cl. 375-86.000.
Breeden, Robert L.; Johnson, Richard E.; Kabcenell, Amy R.; and Holmes, Thomas F., 5,066,949, Cl. 340-825.440.
Chiou, Herng-Der, 5,066,359, Cl. 156-651.000.
Gailus, Paul H.; Yester, Francis R.; and Turney, William J., 5,066,923, Cl. 330-107.000.
Jackson, Kevin B., 5,066,991, Cl. 357-13.000.
Leitch, Clifford D., 5,066,922, Cl. 330-51.000.
Peterson, William M.; Anderson, Howard C.; Leivian, Robert; and Garrison, Sidney C., 5,067,095, Cl. 395-24.000.
Talgam, Yoav; Klingshirn, James A.; and Gullette, James B., 5,067,078, Cl. 395-400.000.
Zdebel, Peter J.; Balda, Raymond J.; Hwang, Bor-Yuan; and Wagner, Allen J., 5,067,002, Cl. 357-59.000.

Motta, Antonio: *See—*
Nuesslein, Karl; Motta, Antonio; and Schule, Gerhard, 5,066,243, Cl. 439-460.000.

Motte, Philippe: *See—*
Hanak, Pavel; Motte, Philippe; and Gosset, Patrice, 5,066,685, Cl. 521-163.000.

Mousseau, Carlton R.; DiBello, Louis M.; and Nicholas, Nicholas J., to Owens-Illinois Plastic Products Inc. Plastic can carrier and method of making. 5,065,862, Cl. 206-151.000.

Moyet-Ortiz, Francisco. Sterile glove packaging and method of preventing contamination from spreading from one environment to another. 5,065,863, Cl. 206-210.000.

MTU Motoren- Und Turbinen-Union Munchen GmbH: *See—*
Reisinger, Lothar; Hagg, Dieter; Wenzl, Werner; and Walther, Klaus, 5,066,024, Cl. 277-53.000.

Mudd, MaryAnn: *See—*
Wessel, Lloyd F.; Wessel, Edward O.; and Mudd, MaryAnn, 5,065,567, Cl. 56-13.700.

Mueller, Gerald C., to Wisconsin Alumni Research Foundation. Method for distinguishing alcoholics from non-alcoholics. 5,066,583, Cl. 435-18.000.

Mueller, Peter: *See—*
Berges, Hanns-Peter; Fischer, Berthold; Mueller, Peter; and Vorberg, Dieter, 5,066,202, Cl. 417-228.000.

Mueller, Richard A.; and Partis, Richard A., to G. D. Searle & Co. Phenolic thioalkylamides as inhibitors of 5-lipoxygenase. 5,066,679, Cl. 514-618.000.

Mukae, Masakatsu: *See—*
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.

Mulder, Jan P., to Shell Internationale Research Maatschappij B.V. Compositions comprising hexafluorophosphates and metals as structure refiner for aluminium-silicon alloys. 5,066,323, Cl. 75-305.000.

Mullally, Regis K. Removable cover for a truck cargo box. 5,066,063, Cl. 296-100.000.

Mullen, Charles E.; and Crater, Arthur H., to Eastman Kodak Company. Apparatus for aligning and mounting machine components. 5,065,489, Cl. 29-281.500.

Mullenbach, Guy T.: *See—*
Hallewell, Robert A.; and Mullenbach, Guy T., 5,066,591, Cl. 435-189.000.

Muller, Gerhard; Kar, Hasan; Dorschel, Klaus; and Schonborn, Karl-Heinz, to Schott Glaswerke. Catheter system for vessel recanalization in the human body. 5,066,292, Cl. 606-7.000.

Muller, Gottfried; and Hipp, Paul, to Schako Metallwarenfabrik. Device for conveying cold and/or warm supply air into a space. 5,065,669, Cl. 98-40.110.

Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, to AKZO N.V. Flat or capillary membrane based on a homogeneous mixture of polyvinylidene fluoride and a second polymer which can be rendered hydrophilic by chemical reaction. 5,066,401, Cl. 210-500.350.

Muller, Kurt: *See—*
Soltermann, Roland; Fritzsche, Peter; and Muller, Kurt, 5,065,637, Cl. 74-99.00R.

Mumford, Eustace H.: *See—*
Kramer, Joseph O.; McMaster, Dexter H.; and Mumford, Eustace H., 5,066,321, Cl. 65-182.200.

Munster, Horst; and Wendt, Hans-Jurgen, to Mannesmann Kienzle GmbH. Circuit arrangement for adjusting the triggering point of an inductive keyboard. 5,066,951, Cl. 341-32.000.

Muraishi, Shuichi: *See—*
Kaneta, Hiroshi; and Muraishi, Shuichi, 5,066,599, Cl. 437-7.000.

Murakami, Eiichi: *See—*
Miyao, Masanobu; Nakagawa, Kiyokazu; Ohyu, Kiyonori; Murakami, Eiichi; and Ohshima, Takashi, 5,066,355, Cl. 156-612.000.

Murakami, Satoru: *See—*
Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, 5,066,861, Cl. 250-370.090.

Murakami, Shinichi, to Nissan Motor Co., Ltd. Mounting arrangement for final drive unit for automotive vehicles. 5,065,831, Cl. 180-55.000.

Murakami, Yoshiaki; and Nishihara, Seiji, to Kabushiki Kaisha Kobe Seiko Sho. Seat device for very small size shovel car. 5,065,967, Cl. 248-161.000.

Murakami, Yoshihiro: *See—*
Kato, Teisuo; Taguchi, Naoto; and Murakami, Yoshihiro, 5,066,244, Cl. 439-489.000.

Murakami, Yoshiteru: *See—*
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.

Murakami, Yosinobu: *See—*
Seo, Ikuo; Oono, Tooru; and Murakami, Yosinobu, 5,066,779, Cl. 528-396.000.

Murakoshi Screw Mfg. Co., Ltd.: *See—*
Maeda, Kenji; and Yamada, Nobuyuki, 5,065,807, Cl. 160-206.000.

Muramatsu, Masatoshi: *See—*
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.

Muranaka, Masayuki: *See—*
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.

Murase, Takuya: *See—*
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.

Murata Kikai Kabushiki Kaisha: *See—*
Otoshima, Hiroo, 5,065,950, Cl. 242-43.200.
Satomi, Mitsuo; Oshita, Kazuaki; and Kuwahara, Tetsuya, 5,067,150, Cl. 379-354.000.
Tone, Shoichi, 5,065,949, Cl. 242-35.50R.

Murata, Yoshiyuki: *See—*
Uchiyama, Shigeru; and Murata, Yoshiyuki, 5,065,659, Cl. 84-723.000.

Muratani, Takuro: *See—*
Mizuno, Toshio; Muratani, Takuro; Ito, Yasuhiko; Watanabe, Tatsuo; and Inoue, Takashi, 5,066,957, Cl. 342-352.000.

Murray, Robert C.: *See—*
Adams, William J.; Jex Courter, Barbara G.; Fong, Craig S.; Murray, Robert C.; and Marshall, Paul A., 5,065,962, Cl. 244-234.000.

Musser, Deborah L.: *See—*
Felter, Richard E.; Markley, Dean A.; and Musser, Deborah L., 5,066,422, Cl. 252-511.000.

Musu, Carlo: *See—*
Felder, Ernest; Musu, Carlo; Fumagalli, Luciano; and Uggeri, Fulvio, 5,066,823, Cl. 560-13.000.

Mutchler, Paul A., to Engineered Air Systems, Inc. Air heating apparatus and method of heating an air stream. 5,065,736, Cl. 126-110.00B.

Muto, Yoshihiko; Watanabe, Kohei; Yasukata, Koichi; and Sakurai, Tomoyuki, to Asahi Kasei Kogyo Kabushiki Kaisha. Hollow fiber membranes with fusion-bonded end portions. 5,066,397, Cl. 210-321.610.

Myers, Theodore R.: *See—*
Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., 5,066,907, Cl. 324-158.00P.

Myska, Glen A., to Halliburton Logging Services, Inc. Method for testing a cased hole formation. 5,065,619, Cl. 73-152.000.

Naber, Wilfrid: *See—*
Furtak, Hans; Naber, Wilfrid; and Lejeune, Raymond, 5,065,478, Cl. 19-296.000.

Nabisco Brands, Inc.: *See—*
Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., 5,066,499, Cl. 426-19.000.
Bliss, Eric M.; and Wunder, William G., Sr., 5,066,211, Cl. 425-122.000.

Nader, Bassam S., to Dow Chemical Company, The. Novel aryl ether sulfones. 5,066,409, Cl. 252-48.200.

Nagai, Katsumi; Nishimyou, Teruyuki; Osawa, Masataka; and Ban, Hitoshi, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho; and Kabushiki Kaisha Toyota Chuo Kenkyusho. Driving load controller for variable displacement type hydraulic pump. 5,066,201, Cl. 417-222.00R.

Nagaishi, Hatsuo: *See—*
Nakagawa, Toyoaki; and Nagaishi, Hatsuo, 5,065,716, Cl. 123-326.000.

Nagamatsu, Tetsu: *See—*
Hara, Hiroyuki; Sugimoto, Yasuhiro; and Nagamatsu, Tetsu, 5,066,996, Cl. 357-43.000.

Nagano, Fumikazu, to Sharp Kabushiki Kaisha. Reader for original documents and method. 5,067,168, Cl. 382-53.000.

Nagano, Hirosaku: *See—*
Noguchi, Takehiko; Sakubata, Takashi; and Nagano, Hirosaku, 5,066,770, Cl. 528-353.000.

Nagano, Katsumi, to Kabushiki Kaisha Toshiba. Wiring board for flat package type integrated circuit device. 5,067,042, Cl. 361-406.000.

Nagaoka, Tadao: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Nagase, Kazuhiko; and Nakamura, Hideki, to Niigata Converter Co., Ltd. Power transmission device. 5,065,645, Cl. 74-859.000.

Nagashima, Seiko; and Serizawa, Takanobu, to Kabushiki Kaisha Toshiba. Electric water warming system. 5,067,170, Cl. 392-461.000.

Nagashima, Toshiharu; and Yoshida, Kazuhiro, to Konica Corporation. Method of processing silver halide photographic materials. 5,066,569, Cl. 430-393.000.

Nagasubramanian, Ganesan; DiStefano, Salvador; and Liang, Ranty H., to United States of America, National Aeronautics and Space Administration. Silicon containing electroconductive polymers and structures made therefrom. 5,066,748, Cl. 526-258.000.

Nagata, Kazuhisa: *See—*
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, 5,066,068, Cl. 296-221.000.

Nagata, Osamu; and Makino, Kazumasa, to Brother Kogyo Kabushiki Kaisha. Image forming apparatus with positional adjustment of exposure area according to image size. 5,066,972, Cl. 355-27.000.

Nagata, Tsuyoshi; and Okuda, Shinji, to Sunstar Engineering, Inc. Method of and apparatus for inspecting paint coating. 5,066,132, Cl. 356-432.000.

Nagatomi, Hisato: *See—*
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.

Nagayasu, Hideaki: *See—*
Nakatani, Akihiro; and Nagayasu, Hideaki, 5,065,803, Cl. 152-543.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Nagy, William J.: *See—*
Fischer, Frederick H.; Lee, Kuo-hua; Nagy, William J.; and Selamoglu, Nur, 5,066,998, Cl. 357-51.000.

Nahar, Rathindra, to NCR Corporation. Removable window carrier for mounting in a scanner checkout counter. 5,065,842, Cl. 186-61.000.

Nahill, Thomas E.: *See—*
Krishnakumar, Suppayan M.; Collette, Wayne N.; and Nahill, Thomas E., 5,066,528, Cl. 428-36.920.

Naik, Rajan H.: *See—*
Kulkarni, Gurunath H.; Naik, Rajan H.; and Rajappa, Srinivasachari, 5,066,819, Cl. 549-438.000.

Nair, Muraleedharan G.: *See—*
Putnam, Alan R.; Mishra, Saroj K.; and Nair, Muraleedharan G., 5,066,585, Cl. 424-121.000.

Naito, Tadaharu: *See—*
Shimizu, Fumio; Nishikubo, Yasutoshi; and Naito, Tadaharu, 5,065,520, Cl. 33-241.000.

Naito, Takayuki: *See—*
Ohnuma, Takeshi; Hoshi, Hideaki; Kamei, Hideo; and Naito, Takayuki, 5,066,645, Cl. 514-27.000.

Nakagawa, Kiyokazu: *See—*
Miyao, Masanobu; Nakagawa, Kiyokazu; Ohyu, Kiyonori; Murakami, Eiichi; and Ohshima, Takashi, 5,066,355, Cl. 156-612.000.

Nakagawa, Masaya: *See—*
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.

Nakagawa, Naoki: *See—*
Sakamoto, Hirokazu; Ohtani, Makoto; Nakagawa, Naoki; Maejima, Taro; and Hayama, Masahiro, 5,066,106, Cl. 359-59.000.

Nakagawa, Shiro; Domon, Taisuke; Imai, Takehiro; and Tsuchida, Atsuko, to TDK Corporation. Humidity meter. 5,065,625, Cl. 73-336.500.

Nakagawa, Toyoaki; and Nagaishi, Hatsuo, to Nissan Motor Company, Limited. Fuel supply control system for internal combustion engine with improved engine acceleration characterisitcs after fuel cut-off operation. 5,065,716, Cl. 123-326.000.

Nakagomi, Hiroshi: *See—*
Fukuda, Tsuguhiro; Nakagomi, Hiroshi; and Karita, Seiichirou, 5,066,964, Cl. 346-140.00R.

Nakahara, Kei: *See—*
Yoshimura, Hironori; Sawada, Yoshihiro; Nakahara, Kei; Kunugi, Hitoshi; and Sakurai, Keiichi, 5,066,553, Cl. 428-698.000.

Nakai, Kazuhiro: *See—*
Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, 5,066,747, Cl. 526-249.000.

Nakajima, Masaya; and Sekine, Atsushi, to Nikon Corporation. Projecting lens. 5,066,113, Cl. 359-649.000.

Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, to Honda Giken Kogyo Kabushiki Kaisha. Hydrostatic continously variable transmission with adjustable clutch valve. 5,065,578, Cl. 60-464.000.

Nakamachi, Fumihiko; and Umebayashi, Masanori, to Central Glass Company, Limited. Laminated glass panel incorporating hologram sheet. 5,066,525, Cl. 428-29.000.

Nakamura, Hideki: *See—*
Nagase, Kazuhiko; and Nakamura, Hideki, 5,065,645, Cl. 74-859.000.

Nakamura, Hiroshi, to Fuji Photo Film Co., Ltd. Method of heating image formation sheet. 5,066,562, Cl. 430-203.000.

Nakamura, Hiroshi: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.

Nakamura, Kazuhiko: *See—*
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.

Nakamura, Koichi: *See—*
Aono, Toshiaki; Nakamura, Koichi; and Shibata, Takeshi, 5,066,563, Cl. 430-213.000.

Nakamura, Koki; Ito, Takayuki; Tsukase, Masaaki; and Taguchi, Toshiki, to Fuji Photo Film Co., Ltd. Silver halide color photographic material. 5,066,577, Cl. 430-562.000.

Nakamura, Michihiro: *See—*
Tsuruta, Hitoshi; Yamada, Hideaki; and Nakamura, Michihiro, 5,066,582, Cl. 435-7.100.

Nakamura, Takashi; and Kurokawa, Toshio, to Fuji Photo Film Co., Ltd. Wet processing of silver halide photosensitive material. 5,066,570, Cl. 430-421.000.

Nakamura, Tomoyuki: *See—*
Suyama, Shuji; and Nakamura, Tomoyuki, 5,066,744, Cl. 526-228.000.

Nakamura, Yasuhiro; Sakai, Ikuo; and Kawabuchi, Masami, to Matsushita Electric Industrial Co., Ltd. Ultrasonic doppler blood flow velocity detection apparatus. 5,065,764, Cl. 128-661.090.

Nakamura, Yuko: *See—*
Kotachi, Akiko; Takechi, Satoshi; and Nakamura, Yuko, 5,066,751, Cl. 526-279.000.

Nakane, Hiroshi, to Kabushiki Kaisha Toshiba. Recorded data reading system. 5,067,128, Cl. 371-5.500.

Nakane, Mototaka: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Nakane, Satoshi: *See—*
Inami, Junichi; Kikuta, Koozi; Nakane, Satoshi; Fujito, Kazumi; and Hirosawa, Hitoshi, 5,066,344, Cl. 156-138.000.

Nakanishi, Satoru: *See—*
Tomioka, Yutaka; Nakanishi, Satoru; Shintake, Seizi; and Yoneda, Hideki, 5,066,333, Cl. 106-400.000.

Nakanishi, Yasushi; and Fukunaga, Takahiro, to Sharp Kabushiki Kaisha. System for controlling movement of a document table in a copying apparatus. 5,066,975, Cl. 355-200.000.

Nakaniwa, Shinpei, to Japan Electronic Control Systems Co., Ltd. System and method for controlling air/fuel mixture ratio of air and fuel mixture supplied to internal combustion engine using oxygen sensor. 5,065,728, Cl. 123-489.000.

Nakano, Hirofumi; Hara, Mitsunobu; Mokudai, Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, to Kyowa Hakko Kogyo Co., Ltd. DC115A compounds produced by streptomyces sp. 5,066,817, Cl. 549-384.000.

Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, to Nippon Paint Co., Ltd. Heat-latent curing catalyst and resin compositions containing the same. 5,066,722, Cl. 525-162.000.

Nakano, Tadaaki: *See—*
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.

Nakashima, Shozaburo; Iwayama, Kenzo; and Iwanaga, Isao, to Nippon Steel Corporation. Process for preparation of thin grain oriented electrical steel sheet having superior iron loss and high flux density. 5,066,343, Cl. 148-111.000.

Nakata, Takashi; and Suzuki, Tauyoshi, to Brother Kogyo Kabushiki Kaisha. Auxiliary exposure device for image recording apparatus. 5,066,974, Cl. 355-71.000.

Nakatani, Akihiro; and Nagayasu, Hideaki, to Sumitomo Rubber Industries, Ltd. Tire and wheel rim assembly. 5,065,803, Cl. 152-543.000.

Nakaue, Akimitsu: *See—*
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, 5,066,938, Cl. 338-22.0SD.

Nakayama, Okihiko; and Tsuda, Hiroshi, to Nissan Motor Co., Ltd. Vehicle driving azimuth detecting apparatus for correcting a disturbed geomagnetic azimuth. 5,067,083, Cl. 364-453.000.

Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, to Hitachi, Ltd. Air-conditioner system. 5,065,588, Cl. 62-160.000.

Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, to Kanegafuchi Chemical Industry Co., Ltd. X ray detecting device. 5,066,861, Cl. 250-370.090.

Nakazawa, Masahisa, to Kabushiki Kaisha Toshiba. Circuit design conversion apparatus. 5,067,091, Cl. 364-490.000.

Nalco Chemical Company: *See—*
Reese, D. Dwaine; Sawyer, Roy D.; and Crow, Stanley G., 5,066,199, Cl. 417-63.000.

Namias, Charles S.: *See—*
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.

Nanaumi, Ken: *See—*
Kumakura, Toshihisa; Nanaumi, Ken; Ikezawa, Ryoichi; and Eriguchi, Hideki, 5,066,691, Cl. 523-438.000.

Nanba, Akimasa: *See—*
Nimura, Mitsuhiro; Nanba, Akimasa; and Yokoyama, Shoji, 5,067,082, Cl. 364-449.000.

Nang, Jin-Liang: *See—*
Favstritsky, Nicolai A.; and Nang, Jin-Liang, 5,066,752, Cl. 526-293.000.

Napier, George W. Escape system. 5,065,839, Cl. 182-47.000.

Narciso, Ralph A.: *See—*
Soderberg, Paulmer M.; Foss, Kristin K.; Giles, Thomas E.; and Narciso, Ralph A., 5,066,139, Cl. 371-20.100.

Narita, Akira: *See—*
Anzawa, Norio; Adachi, Koji; Futakawa, Tetsuo; Sato, Hironari; and Narita, Akira, 5,066,219, Cl. 431-10.000.

Naritomi, Hiromi; and Oshida, Tsutomu, to Nissan Motor Co., Ltd.; and Nifco Inc. Lid opener and container using same 5,065,884, Cl. 220-264.000.

Narukawa, Atsushi: *See—*
Iwamoto, Ken; and Narukawa, Atsushi, 5,065,995, Cl. 271-9.000.

Narula, Anubhav P. S.; and DeVirgilio, John J., to International Flavors & Fragrances Inc. Cyclohexenylmethyloxabicycloctanes, processes for preparing same, intermediates used in said processes and organoleptic uses of said cyclohexenylmethyloxabicyclooctanes and intermediates therefor. 5,066,639, Cl. 512-13.000.

Narula, Anubhav P. S.; De Virgilio, John J.; and Van Elst, Jan T., to International Flavors & Fragrances Inc. 3,5,5-trimethylhexanal oxime and organoleptic uses thereof. 5,066,641, Cl. 512-25.000.

Naruse, Hideaki: *See—*
Sato, Tadahisa; Takahashi, Osamu; Naruse, Hideaki; and Mizukawa, Yuki, 5,066,575, Cl. 430-558.000.

Narushima, Masaki; and Takao, Itaru, to Tokyo Electron Limited. Method for holding a plate-like member. 5,065,495, Cl. 29-559.000.

Nashiki, Masayuki, to Kabushiki Kaisha Okuma Tekkosho. Control method of induction motor and device therefor. 5,066,899, Cl. 318-807.000.

Nasu, Tadashi: *See—*
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.

Natali, Alberto: *See—*
Moro, Luigi; Fiori, Achille; and Natali, Alberto, 5,066,495, Cl. 424-451.000.

National Institute for Research in Inorganic Materials: *See—*
Komatsu, Yu; Fujiki, Yoshinori; and Sasaki, Takayoshi, 5,066,404, Cl. 210-670.000.

National Products, Inc.: *See—*
Woodward, Bruce; and Hall, James, 5,066,080, Cl. 312-297.000.

National Semiconductor Corporation: *See—*
Cheah, Chun-Foong; and Skovmand, Timothy J., 5,066,901, Cl. 323-267.000.
Wilcox, Milton E., 5,066,871, Cl. 307-296.100.

National Starch and Chemical Investment Holding Corporation: *See—*
Leighton, John C.; Iovine, Carmine P.; Aronson, Michael P.; and Elliott, David L., 5,066,749, Cl. 526-271.000.

Nau, David R.: *See—*
Ramsden, Hugh E.; and Nau, David R., 5,066,395, Cl. 210-198.200.

Navoczynski, Stanley J.: *See—*
Yurgevich, Howard J.; and Navoczynski, Stanley J., 5,066,066, Cl. 296-181.000.

Naylor, Alan: *See—*
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.

NCR Corporation: *See—*
Nahar, Rathindra, 5,065,842, Cl. 186-61.000.

NEC Corporation: *See—*
Fukuda, Shinri; and Ishü, Eiichi, 5,066,876, Cl. 307-475.000.
Inagaki, Masaru; and Matsushita, Toshio, 5,067,151, Cl. 379-433.000.
Kaneko, Ichiro, 5,067,137, Cl. 375-14.000.
Kobatake, Hiroyuki, 5,066,870, Cl. 307-296.100.
Kobayashi, Fumiyuki, 5,066,235, Cl. 439-76.000.
Okamura, Hitoshi, 5,067,003, Cl. 357-68.000.
Suzuki, Takao; Noda, Atsuhito; Komoto, Mitsuo; and Umesato, Shoji, 5,065,941, Cl. 439-264.000.
Takahashi, Yasushi, 5,066,908, Cl. 324-158.00R.

Neefe, Charles W.: *See—*
Briggs, Charles R.; and Neefe, Charles W., 5,066,431, Cl. 264-2.100.

Neff, John P.: *See—*
Kennedy, Francis A.; Neff, John P.; and Blake, Kenneth J., 5,066,440, Cl. 264-69.000.

Negri, Febo R.; and Tomasini, Ercole, to Biomedic S.r.l. Method of removing pulp with an alkaline product. 5,066,232, Cl. 433-224.000.

Neidorff, Robert A., to Unitrode Corporation. Reset circuit with PNP saturation detector. 5,066,869, Cl. 307-272.300.

Nellums, Richard A., to Eaton Corporation. Self-energizing splines for a synchronizer. 5,065,855, Cl. 192-53.00E.

Nelson, Linda H., to General Electric Company. Composition. 5,066,707, Cl. 524-490.000.

Nemarov, Alexandr A.: *See—*
Zlobin, Mikhail N.; Metsik, Viktor M.; Nemarov, Alexandr A.; Permyakov, Georgy P.; and Taraban, Nikolai T., 5,066,389, Cl. 209-170.000.

Nemoto, Shigehisa: *See—*
Takagi, Tadao; Saya, Daisuke; and Nemoto, Shigehisa, 5,066,884, Cl. 310-323.000.

NeoRx Corporation: *See—*
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.

Nepi Campitelli, Giovanni: *See—*
Travanti Corinti, Mariano; and Nepi Campitelli, Giovanni, 5,066,193, Cl. 415-201.000.

Neva, Pertti; and Lindberg, Ralf. Shell structure. 5,065,554, Cl. 52-82.000.

Neville, David M., Jr.; and Srinivasachar, Kasturi, to United States of America, Health & Human Services. Protein crosslinking reagents cleavable within acidified intracellular vesicles. 5,066,490, Cl. 424-85.910.

New, David A., to RCA Thomson Licensing Corp. Color picture tube having an inline electron gun with an astigmatic prefocusing lens. 5,066,887, Cl. 313-414.000.

New York University: *See—*
Rapoport, David M., 5,065,756, Cl. 128-204.180.

Newell Industry International: *See—*
Newell, Robert D., 5,066,527, Cl. 428-35.600.

Newell, Robert D., to Newell Industry International. Sorptive article. 5,066,527, Cl. 428-35.600.

Newman, Carl M. Cutting tool assembly. 5,066,175, Cl. 408-231.000.

NGK Insulators, Ltd.: *See—*
Fukao, Kaname; Hamanaka, Toshiyuki; Harada, Takashi; and Kondo, Noboru, 5,066,626, Cl. 501-128.000.
Kato, Shigeki; and Inoue, Katsuhiro, 5,066,449, Cl. 264-406.000.

NGK Spark Plug Co., Ltd.: *See—*
Ishida, Noboru; Ito, Masaya; and Kawamura, Mitsuyoshi, 5,066,547, Cl. 428-627.000.
Ito, Kenji; Shimizu, Hiroyuki; and Wakita, Naomasa, 5,066,934, Cl. 333-205.000.

Nguyne, Alvin D.: *See—*
Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., 5,065,932, Cl. 228-55.000.

Nicholas, Nicholas J.: *See—*
Mousseau, Carlton R.; DiBello, Louis M.; and Nicholas, Nicholas J., 5,065,862, Cl. 206-151.000.

Nichols, Lawrence R.: *See—*
Castrigno, Steven; Rafferty, Scott E.; Nichols, Lawrence R.; and Bemis, Claude, 5,066,037, Cl. 280-732.000.

Nichols, Michael: *See—*
Kozak, Mark; and Nichols, Michael, 5,066,295, Cl. 606-47.000.

Nieh, Li S.: *See—*
Glasser, Wolfgang G.; De Oliveira, Willer; Kelley, Stephen S.; and Nieh, Li S., 5,066,790, Cl. 530-502.000.

Nielsen, Kenneth A.: *See—*
Cole, Thomas A.; and Nielsen, Kenneth A., 5,066,522, Cl. 427-422.000.

Nienhaus, Clemens: *See—*
Flanhardt, Michael; Roth, Andreas; and Nienhaus, Clemens, 5,065,639, Cl. 74-417.000.

Niewiarowski, Stefan: *See—*
Huang, Tur-Fu; Niewiarowski, Stefan; Holt, John C.; and Lukasiewicz, Hanna, 5,066,592, Cl. 435-240.200.

Nifco Inc.: *See—*
Naritomi, Hiromi; and Oshida, Tsutomu, 5,065,884, Cl. 220-264.000.

Nihon Den-Netsu Keiki Co., Ltd.: *See—*
Kondo, Kenshi, 5,066,850, Cl. 219-388.000.

Nihon Tokushu Noyaku Seizo K.K.: *See—*
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, 5,066,808, Cl. 514-231.500.

Niigata Converter Co., Ltd.: *See—*
Nagase, Kazuhiko; and Nakamura, Hideki, 5,065,645, Cl. 74-859.000.

Niikawa, Kenji: *See—*
Hiraoka, Saburo; and Niikawa, Kenji, 5,066,768, Cl. 528-230.000.

Niimura, Toshirobu: *See—*
Kano, Tokio; Niimura, Toshinobu; and Yonekawa, Hiroyuki, 5,066,465, Cl. 422-58.000.

Niita, Kaneaki: *See—*
Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, 5,066,539, Cl. 428-328.000.

Niiyama, Takahiro: *See—*
Morimoto, Kiyoshi; Itoh, Shigeo; Tonegawa, Takeshi; and Niiyama, Takahiro, 5,066,885, Cl. 313-340.000.

Nikon Corporation: *See—*
Kodaka, Yoshiro; and Takabayashi, Kiyonobu, 5,066,103, Cl. 359-823.000.
Nakajima, Masaya; and Sekine, Atsushi, 5,066,113, Cl. 359-649.000.
Takagi, Tadao; Saya, Daisuke; and Nemoto, Shigehisa, 5,066,884, Cl. 310-323.000.

Niles Parts Co., Ltd.: *See—*
Ikeda, Yukio, 5,066,316, Cl. 55-122.000.

Nimura, Mitsuhiro; Nanba, Akimasa; and Yokoyama, Shoji, to Aisin AW Co., Ltd.; and Kabushiki Kaisha Shinsangyokaihatsu. Navigation apparatus. 5,067,082, Cl. 364-449.000.

Nippon Electric Glass Co., Ltd.: *See—*
Baba, Yasuhiro; and Moritake, Masanori, 5,066,524, Cl. 428-15.000.

Nippon Ferrofluidics Corporation: *See—*
Yamamura, Akira, 5,066,879, Cl. 310-90.500.

Nippon Oil and Fats Company, Limited: *See—*
Suyama, Shuji; and Nakamura, Tomoyuki, 5,066,744, Cl. 526-228.000.

Nippon Paint Co., Ltd.: *See—*
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.

Nippon Petrochemicals Company, Ltd.: *See—*
Bommer, Jerry C.; and Burnham, Bruce F., 5,066,274, Cl. 604-20.000.

Nippon Polyurethane Industry Co., Ltd.: *See—*
Ohbuchi, Yukio; Maeda, Yoshiaki; Kawasaki, Masahiro; Sato, Susumu; and Akimoto, Mamoru, 5,066,762, Cl. 528-85.000.

Nippon Seiko Kabushiki Kaisha: *See—*
Tokugawa, Osamu, 5,066,043, Cl. 280-808.000.

Nippon Sheet Glass Co., Ltd.: *See—*
Oyoshi, Keiji, 5,066,514, Cl. 427-38.000.

Nippon Shokubai Kagaku Kogyo Co., Ltd.: *See—*
Kitano, Masao; Yagisawa, Mitsuaki; and Morimoto, Yutaka, 5,066,813, Cl. 548-182.000.

Nippon Soken, Inc.: *See—*
Osada, Masahiko; Arai, Masumi; and Akita, Shigeyuki, 5,066,893, Cl. 315-169.300.

VOL 1132 ISS 3 NO 19 1991 UMI

Nippon Steel Chemical Co., Ltd.: *See—*
Wada, Keiichiro; Cassidy, Patrick E.; and Hager, William S., 5,066,765, Cl. 528-185.000.

Nippon Steel Corporation: *See—*
Anzawa, Norio; Adachi, Koji; Futakawa, Tetsuo; Sato, Hironari; and Narita, Akira, 5,066,219, Cl. 431-10.000.
Mizoguchi, Toshiaki; and Miyazawa, Kenichi, 5,065,812, Cl. 164-480.000.
Nakashima, Shozaburo; Iwayama, Kenzo; and Iwanaga, Isao, 5,066,343, Cl. 148-111.000.
Tanemoto, Kei; Ando, Akiro; and Kubo, Hiroshi, 5,066,617, Cl. 501-134.000.

Nippon Telegraph & Telephone Corp.: *See—*
Sugano, Minoru; Horiki, Akira; Yashiro, Zenichi; and Matsushima, Hironori, 5,067,075, Cl. 395-425.000.

Nippon Thompson Co., Ltd.: *See—*
Ito, Kenichi, 5,065,934, Cl. 228-112.000.

Nippondenso Co., Ltd.: *See—*
Suzuki, Atsushi; and Kondo, Toshio, 5,065,718, Cl. 123-339.000.

Nishida, Hirobumi, to Ricoh Company, Ltd. Character recognition method. 5,067,165, Cl. 382-19.000.

Nishida, Masamitsu; Ando, Hamae; and Kugimiya, Koichi, to Matsushita Electric Industrial Co., Ltd. Media agitating mill and method for milling ceramic powder. 5,065,946, Cl. 241-16.000.

Nishihara, Seiji: *See—*
Murakami, Yoshiaki; and Nishihara, Seiji, 5,065,967, Cl. 248-161.000.

Nishii, Michiharu, to Aisin Seiki Kabushiki Kaisha. Tandem master cylinder with limited-motion booster piston at pedal-remote end of master cylinder and with booster fluid cut valve. 5,065,580, Cl. 60-547.100.

Nishii, Michiharu: *See—*
Nomura, Yoshihisa; Kato, Masahiko; and Nishii, Michiharu, 5,065,573, Cl. 60-551.000.

Nishikaku, Fumio: *See—*
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.

Nishikawa, Kinsaku; Yokoyama, Hiroshi; and Takahashi, Masami, to Unitika Limited. Method of making polyester fibers. 5,066,439, Cl. 264-103.000.

Nishikawa, Seigo; Okumura, Shinji; Amano, Tadayuki; and Hata, Kazutoshi, to Kabushiki Kaisha Yaskawa Denkiseisakusho. Automatic copying method for a welding torch in an arc welding robot. 5,066,848, Cl. 219-124.340.

Nishikawa, Yukio: *See—*
Yoshida, Yoshikazu; Tanaka, Kunio; and Nishikawa, Yukio, 5,065,697, Cl. 118-719.000.

Nishikubo, Yasutoshi: *See—*
Shimizu, Fumio; Nishikubo, Yasutoshi; and Naito, Tadaharu, 5,065,520, Cl. 33-241.000.

Nishimoto, Yoshifumi: *See—*
Kataoka, Kenichi; Nishimoto, Yoshifumi; Igaki, Masahiko; and Yanagi, Eiichi, 5,065,999, Cl. 271-265.000.

Nishimura, Akira: *See—*
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, 5,066,068, Cl. 296-221.000.

Nishimura, Eiichiro: *See—*
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.

Nishimura, Isao: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Nishimura, Masahiro: *See—*
Mikami, Kazuo; Ishihara, Hideshi; Nishimura, Masahiro; Tsukiyama, Noriyuki; and Hinoda, Seisuke, 5,067,161, Cl. 382-1.000.

Nishimura, Tetsuharu: *See—*
Ishii, Satoshi; Tsukiji, Masaaki; Nishimura, Tetsuharu; and Ishizuka, Koh, 5,067,089, Cl. 364-486.000.
Tsukiji, Masaaki; Nishimura, Tetsuharu; Ishizuka, Koh; Ishii, Satoshi; and Kubota, Yoichi, 5,066,130, Cl. 356-356.000.

Nishimura, Yasushi: *See—*
Ishida, Kohji; Nishimura, Yasushi; and Yamaguchi, Shigeru, 5,067,157, Cl. 381-13.000.

Nishimyou, Teruyuki: *See—*
Nagai, Katsumi; Nishimyou, Teruyuki; Osawa, Masataka; and Ban, Hitoshi, 5,066,201, Cl. 417-222.00R.

Nishino, Tetsuo: *See—*
Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, 5,067,123, Cl. 370-58.100.

Nishio, Hiroaki: *See—*
Sato, Michitaka; and Nishio, Hiroaki, 5,066,438, Cl. 264-56.000.

Nishio, Yukio: *See—*
Watarai, Shinichi; Yasuda, Megumi; Houki, Yoji; and Nishio, Yukio, 5,066,978, Cl. 355-206.000.

Nishiyama, Hiromi: *See—*
Arai, Kunio; Nishiyama, Hiromi; Aoyama, Hiroshi; and Kanaya, Yasuhiko, 5,066,171, Cl. 408-1.00R.

Nishiyama, Shigeru; and Amano, Hide, to Kubota Corporation. Engine with mechanical governor and decompression device. 5,065,720, Cl. 123-363.000.

Nissan Motor Co., Ltd.: *See—*
Doi, Kazuhiro; Fujiwara, Yasuhiko; Abe, Toshiro; and Matsui, Shinichi, 5,065,869, Cl. 207-140.100.
Ebihara, Yasuhiro; Sakaniwa, Hiroyuki; and Saito, Hiroshi, 5,065,494, Cl. 29-525.200.
Furuta, Katsumi; and Yamaguchi, Takashi, 5,066,057, Cl. 293-121.000.
Kasai, Junichi; Yagihashi, Wataru; Yatsunami, Akira; and Kurano, Kazuyuki, 5,067,159, Cl. 381-90.000.
Murakami, Shinichi, 5,065,831, Cl. 180-55.000.
Nakagawa, Toyoaki; and Nagaishi, Hatsuo, 5,065,716, Cl. 123-326.000.
Nakayama, Okihiko; and Tsuda, Hiroshi, 5,067,083, Cl. 364-453.000.
Naritomi, Hiromi; and Oshida, Tsutomu, 5,065,884, Cl. 220-264.000.
Sakaguchi, Shigeyuki; Ariga, Tadashi; and Maruyama, Hirotsugu, 5,065,727, Cl. 123-489.000.

Nitta Industries Corporation: *See—*
Inami, Junichi; Kikuta, Koozi; Nakane, Satoshi; Fujito, Kazumi; and Hirosawa, Hitoshi, 5,066,344, Cl. 156-138.000.

Nivarox-FAR S. A.: *See—*
Grenouillet, Guy, 5,066,341, Cl. 148-11.50C.

Niver, Michael A., to Huffy Corporation. Differential breakaway basketball goal. 5,066,007, Cl. 273-1.50R.

Niwa, Naoki: *See—*
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.

NKK Corporation: *See—*
Sato, Michitaka; and Nishio, Hiroaki, 5,066,438, Cl. 264-56.000.
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.
Yanaka, Hideomi; and Ohno, Yotaro, 5,066,327, Cl. 75-770.000.

Nobel, Fred I.; and Ostrow, Barnet D., to Learonal Inc. Limiting tin sludge formation in tin or tin/lead electroplating solutions. 5,066,367, Cl. 204-44.400.

Noda, Atsuhito: *See—*
Suzuki, Takao; Noda, Atsuhito; Komoto, Mitsuo; and Umesato, Shoji, 5,065,941, Cl. 439-264.000.

Nodvik, Robert L.: *See—*
Tjahaja, Surja; and Nodvik, Robert L., 5,065,459, Cl. 4-144.200.

Noe, James B.: *See—*
Knox, Benjamin H.; and Noe, James B., 5,066,447, Cl. 264-290.500.

Noguchi, Masahiro: *See—*
Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, 5,066,410, Cl. 252-68.000.

Noguchi, Takehiko; Sakubata, Takashi; and Nagano, Hirosaku, to Kanegafuchi Kagaku Kogyo Kabushiki Kaisha. Process and apparatus for manufacturing polymers. 5,066,770, Cl. 528-353.000.

Nohira, Hiroyuki; Onishi, Takashi; Yamamoto, Kazuo; and Kumagai, Noriaki, to Kuraray Company, Ltd. Process for racemization of optically active 4-phenylbutanoic acid esters. 5,066,826, Cl. 560-60.000.

Nomura, Ichiro: *See—*
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.

Nomura, Yoshihisa; Kato, Masahiko; and Nishii, Michiharu, to Toyota Jidosha Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Hydraulic power booster including backup actuator in addition to lever device, for booster control valve. 5,065,573, Cl. 60-551.000.

Norbury, Robert J.: *See—*
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., 5,066,419, Cl. 252-174.110.

Nordica S.p.A.: *See—*
De Bortoli, Giuseppe, 5,065,480, Cl. 24-68.0SK.
Gorza, Roberto, 5,065,532, Cl. 36-117.000.
Pozzobon, Alessandro; and Gorza, Roberto, 5,065,530, Cl. 36-50.000.

Nordson Corporation: *See—*
Baron, Carl N.; Merkel, Stephen L.; and Hall, Robert C., 5,065,695, Cl. 118-688.000.
Boger, Bentley J.; and Jenkins, Thomas C., 5,065,943, Cl. 239-298.000.

Nordstrom, John D.: *See—*
Hazan, Isidor; and Nordstrom, John D., 5,066,698, Cl. 524-269.000.

Noro, Yoshiki: *See—*
Hamada, Tetsuro; Noro, Yoshiki; and Ashikawa, Noboru, 5,065,836, Cl. 180-245.000.

Norris, Jeffrey J.: *See—*
Zoller, Jon P.; and Norris, Jeffrey J., 5,066,841, Cl. 200-342.000.

North American Philips Corporation: *See—*
Basile, Carlo; Cavallerano, Alan P.; and Tsinberg, Mikhail, 5,067,011, Cl. 358-23.000.
Harper, George S., 5,066,935, Cl. 335-172.000.

North, John G.: *See—*
Zurecki, Zbigniew; Hayduk, Edward A., Jr.; North, John G.; and Swan, Robert B., 5,066,513, Cl. 427-37.000.

Northern States Power Company: *See—*
Lehto, John M., 5,066,325, Cl. 75-499.000.

Northrop Corporation: *See—*
Castellucci, Nicholas T., 5,065,960, Cl. 244-131.000.

Novembre, Anthony E., to AT&T Bell Laboratories. Resist materials. 5,066,566, Cl. 430-296.000.

Novopress GmbH, KG: *See—*
Dischler, Helmut, 5,065,609, Cl. 72-453.150.

Nowack, Reinhard: *See—*
Dangl, Wolfgang; Schick, Gerald; Nowack, Reinhard; and Reuber, Gerhard, 5,066,040, Cl. 280-756.000.

Noyori, Ryoji: *See—*
Sayo, Noboru; Kumobayashi, Hidenori; Akutagawa, Susumo; Noyori, Ryoji; and Takaya, Hidemasa, 5,066,815, Cl. 549-319.000.

Nu-Tech Industries, Inc.: *See—*
Isaacson, Milton S.; Holmes, Donald E.; and Lioi, Anthony P., 5,066,300, Cl. 623-3.000.

Nuckolls, Thomas B.: *See—*
Martin, Norman D., 5,065,544, Cl. 49-177.000.

Nuesslein, Karl; Motta, Antonio; and Schule, Gerhard. Connector housing. 5,066,243, Cl. 439-460.000.

Nukii, Takashi: *See—*
Matsubara, Hiroshi; and Nukii, Takashi, 5,065,505, Cl. 29-830.000.

Nyfeler, Robert: *See—*
Kunz, Walter; Schurter, Rolf; and Nyfeler, Robert, 5,066,661, Cl. 514-361.000.

Nynex Corporation: *See—*
Sardana, Sanjeev, 5,067,148, Cl. 379-111.000.

Nystad, Jan. Water mattress for a therapy water bed. 5,065,465, Cl. 5-450.000.

Oasis Implants Incorporated: *See—*
Block, Michael S.; and Hoffman, David R., 5,066,224, Cl. 433-7.000.

Oba, Yoichi: *See—*
Isawa, Yamahiro; Morooka, Isao; and Oba, Yoichi, 5,066,692, Cl. 523-458.000.

Oberdorf, Manfred, to Maschinenfabrik Alfred Schmermund GmbH & Co. Apparatus for the formation of cigarette groups. 5,065,564, Cl. 53-150.000.

Oberhansli, Rene F.: *See—*
Meyer, Urs; Oberhansli, Rene F.; and Hausler, Dominik, 5,066,854, Cl. 250-202.000.

Occidental Chemical Corporation: *See—*
Gupta, Manoj K., 5,066,693, Cl. 523-466.000.

Ochi, Naoki, to Mitsubishi Denki Kabushiki Kaisha. Optical current transformer. 5,066,903, Cl. 324-96.000.

Ochiai, Hironori: *See—*
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, 5,066,068, Cl. 296-221.000.

Ochiai, Takasi: *See—*
Oshio, Hirohiko; Koike, Noboru; and Ochiai, Takasi, 5,067,054, Cl. 362-61.000.

Ochiai, Tamiya, to Kabushiki Kaisha Toshiba. Congestion avidance control system and method for communication network. 5,067,127, Cl. 370-58.100.

O'Connor, Kevin M.; Szajewski, Richard P.; and Bagchi, Pranab, to Eastman Kodak Company. Control of pressure-fog with gelatin-grafted and case-hardened gelatin-grafted soft polymer latex particles. 5,066,572, Cl. 430-503.000.

O'Connor, William T.: *See—*
Petrillo, Richard J.; and O'Connor, William T., 5,066,156, Cl. 401-213.000.

Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, to Sony Corporation. Apparatus and method for recording and/or reproducing a digital signal. 5,067,131, Cl. 371-40.100.

Officine Meccaniche Attrezzature per Ceramiche: *See—*
Ruozi, Giuseppe, 5,066,503, Cl. 426-234.000.

Ofosu-Asante, Kofi; and Stephans, Scott E., to Procter & Gamble Company, The. Formation of high active detergent particles. 5,066,425, Cl. 252-546.000.

Ofusa, Kumi: *See—*
Ueno, Masaji; and Ofusa, Kumi, 5,066,875, Cl. 307-446.000.

Ogawa, Akira: *See—*
Ichijima, Seiji; Saito, Naoki; Mihayashi, Keiji; Ishii, Yoshio; and Ogawa, Akira, 5,066,576, Cl. 430-558.000.

Ogawa, Masao: *See—*
Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hideharu; and Kawagoe, Takahiro, 5,066,556, Cl. 429-194.000.

Ogawa, Takashi: *See—*
Wakamori, Takehisa; Ogawa, Takashi; Ito, Ryoji; and Shimanaka, Chikafumi, 5,065,507, Cl. 29-888.010.

Ogilvie Mills Ltd.: *See—*
Lane, Christopher C.; Lenz, Ruben P.; and Athanassoulias, Costa, 5,066,335, Cl. 134-7.000.

Ogle, George B., II, to Ogle, George Braddock, II. Valve with self-sealing internal cannula. 5,065,783, Cl. 137-68.100.

Ogle, George Braddock, II: *See—*
Ogle, George B., II, 5,065,783, Cl. 137-68.100.

Ogletree, Martin L.; Schumacher, William A.; Grover, Gary J.; and Friedhoff, Lawrence T., to E. R. Squibb & Sons, Inc. Method of preventing or reducing adverse reactions to protamine using a thromboxane A_2 receptor antagonist. 5,066,480, Cl. 424-10.000.

Oguni, Kensaku: *See—*
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.

Ogura, Wataru; and Kamijima, Hiroshi, to Chinon Kabushiki Kaisha. Image pickup printing device. 5,067,028, Cl. 358-494.000.

Ohashi, Reiji: *See—*
Minami, Toshiaki; Fukuchi, Tadakazu; Ohashi, Reiji; and Kaneko, Toshio, 5,066,634, Cl. 503-209.000.

Ohata, Koichi: *See—*
Kurisu, Yoshitaka; Kimura, Hiroshi; Mukae, Masakatsu; Aiba, Kazuyuki; Hosaka, Yukihiro; Ohata, Koichi; Nakano, Tadaaki; and Ikeuchi, Masaki, 5,065,598, Cl. 62-330.000.

Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, to Fujitsu Limited. Method of forming wiring of a semiconductor device. 5,066,612, Cl. 437-192.000.

Ohbori, Hiroshi; and Yamauchi, Yuji, to Tanken Seiko Kabushiki Kaisha. Fluid agitator. 5,066,134, Cl. 366-102.000.

Ohbuchi, Yukio; Maeda, Yoshiaki; Kawasaki, Masahiro; Sato, Susumu; and Akimoto, Mamoru, to Nippon Polyurethane Industry Co., Ltd. Thermoplastic polyurethane resin from p-phenylene diisocyanate, a poly(hexamethylene carbonate) polyol, and a short chain polyol. 5,066,762, Cl. 528-85.000.

Ohio State University Research Foundation, The: *See—*
Moellering, Harold J.; and Kimerling, A. Jon, 5,067,098, Cl. 395-126.000.

Ohnishi, Toshikazu: *See—*
Yoshinaga, Kazuo; Keneko, Shuzo; Kai, Takashi; Isaka, Kazuo; and Ohnishi, Toshikazu, 5,066,107, Cl. 359-45.000.

Ohno, Yotaro: *See—*
Yanaka, Hideomi; and Ohno, Yotaro, 5,066,327, Cl. 75-770.000.

Ohnuma, Takeshi; Hoshi, Hideaki; Kamei, Hideo; and Naito, Takayuki, to Bristol-Myers Company. Epipodophyllotoxin altroside derivatives. 5,066,645, Cl. 514-27.000.

Ohsawa, Yuzoh, to Mitsubishi Materials Corporation. Artificial diamond forming method. 5,066,515, Cl. 427-53.100.

Ohshima, Katsuyuki: *See—*
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.

Ohshima, Takashi: *See—*
Miyao, Masanobu; Nakagawa, Kiyokazu; Ohyu, Kiyonori; Murakami, Eiichi; and Ohshima, Takashi, 5,066,355, Cl. 156-612.000.

Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, to Nippon Paint Co., Ltd.; and Shinetsu Chemical Industries, Ltd. Resinous composition for coating use. 5,066,720, Cl. 525-100.000.

Ohsugi, Hiroharu: *See—*
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.

Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, to Sharp Kabushiki Kaisha; and Mitsubishi Metal Corporation. Target unit. 5,066,381, Cl. 204-298.120.

Ohta, Koziro; Kurogi, Yoshihito; and Suzuki, Yasuo, to Kitagawa Iron Works Co., Ltd. Coupling mechanisms for rotary fluid cylinders. 5,065,792, Cl. 137-580.000.

Ohta, Shuji; and Takeuchi, Toshiyuki, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Control circuit for a cylinder allowing flow between an upper and a lower chamber. 5,065,664, Cl. 91-420.000.

Ohtaka, Yoshimitsu: *See—*
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.

Ohtani, Makoto: *See—*
Sakamoto, Hirokazu; Ohtani, Makoto; Nakagawa, Naoki; Maejima, Taro; and Hayama, Masahiro, 5,066,106, Cl. 359-59.000.

Ohtsuka, Masaru: *See—*
Iwata, Mikio; Kariya, Takao; and Ohtsuka, Masaru, 5,066,131, Cl. 356-401.000.

Ohtsuka, Masuhiro: *See—*
Kono, Hiromi; and Ohtsuka, Masuhiro, 5,065,849, Cl. 192-0.076.

Ohya, Hidenobu: *See—*
Kubota, Toru; Tomotake, Mayumi; Ohya, Hidenobu; Tomotake, Atsushi; and Mizukura, Noboru, 5,066,574, Cl. 430-557.000.

Ohyu, Kiyonori: *See—*
Miyao, Masanobu; Nakagawa, Kiyokazu; Ohyu, Kiyonori; Murakami, Eiichi; and Ohshima, Takashi, 5,066,355, Cl. 156-612.000.

Oiles Corporation: *See—*
Ozora, Kazuo, 5,065,493, Cl. 29-505.000.

Oka, Joji: *See—*
Miyabayashi, Shigeaki; Sakamoto, Takuro; Kanai, Hiroshi; and Oka, Joji, 5,066,757, Cl. 528-45.000.

Okabe, Masami, to Hoffmann-La Roche Inc. Qunoline intermediates useful therein for synthesizing antibacterial compounds. 5,066,800, Cl. 540-471.000.

Okajima, Shigeru: *See—*
Takahara, Katsuo; Okajima, Shigeru; and Onodera, Tugio, 5,065,605, Cl. 72-340.000.

Okamoto, Yoshihisa; and Klemarczyk, Philip T., to Loctite Corporation. Two-part composition comprising a cyanoacrylate adhesive and a primer comprising a tertiary ammonium carboxylate compound. 5,066,743, Cl. 526-215.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Okamura, Hitoshi, to NEC Corporation. Semicustom-made semiconductor integrated circuit having interface circuit selectively coupled to different voltage source. 5,067,003, Cl. 357-68.000.

Okamura, Yoshio: *See—*
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.

Okinaga, Takayuki: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Okine, Richard K.: *See—*
Gutowski, Timothy G.; Sentovich, Michael F.; and Okine, Richard K., 5,066,442, Cl. 264-154.000.

Okubo, Atsuo: *See—*
Aizawa, Hironori; Shin, Masaaki; and Okubo, Atsuo, 5,066,727, Cl. 525-296.000.

Okuda, Shinji: *See—*
Nagata, Tsuyoshi; and Okuda, Shinji, 5,066,132, Cl. 356-432.000.

Okumura, Kazuo: *See—*
Shiokawa, Youichi; Okumura, Kazuo; Take, Kazuhiko; and Tsubaki, Kazunori, 5,066,680, Cl. 514-622.000.

Okumura, Shinji: *See—*
Nishikawa, Seigo; Okumura, Shinji; Amano, Tadayuki; and Hata, Kazutoshi, 5,066,848, Cl. 219-124.340.

Okunishi, Hiromu: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Olin Corporation: *See—*
—Lin, Lifun, 5,066,366, Cl. 204-12.000.
—Martin, Douglas R., 5,066,416, Cl. 252-90.000.
—Pasqualoni, Anthony M.; Mahulikar, Deepak; Jalota, Satish K.; and Brock, Andrew J., 5,066,368, Cl. 204-58.000.

Olivere, Jean-Francois: *See—*
Arnold, Jean-Claude; Cyprien, Guy; and Olivere, Jean-Francois, 5,066,468, Cl. 422-266.000.

Olla, Michael A., to Microelectronics and Computer Technology Corporation. Method of forming flexible metal leads on integrated circuits. 5,065,504, Cl. 29-827.000.

Olschewski, Armin: *See—*
Brandenstein, Manfred; and Olschewski, Armin, 5,066,147, Cl. 384-585.000.

Olsen, Alf J.: *See—*
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., 5,066,150, Cl. 400-157.300.

Olson, David P.; and Werder, Jonathan C., to Honeywell Inc. Target engagement system for determining proximity to a target. 5,067,096, Cl. 364-517.000.

Olsson, Ray A., to Whitby Research, Inc. N6-substituted 9-methyladenines: a new class of adenosine receptor antagonists. 5,066,655, Cl. 514-261.000.

Olympus Optical Co., Ltd.: *See—*
Kano, Tokio; Niimura, Toshinobu; and Yonekawa, Hiroyuki, 5,066,465, Cl. 422-58.000.
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Omata, Satoshi; Shimizu, Hiroshi; and Yamaguchi, Yoko, to Canon Kabushiki Kaisha. Motion-pattern recognition apparatus. 5,067,160, Cl. 382-1.000.

Omori, Katsuhisa; and Yamashita, Masaya, to Siemens-Asahi Medical System, Ltd. RF coil positioning device for MRI. 5,066,915, Cl. 324-318.000.

Omron Tateisi Electronics Co.: *See—*
Mikami, Kazuo; Ishihara, Hideshi; Nishimura, Masahiro; Tsukiyama, Noriyuki; and Hinoda, Seisuke, 5,067,161, Cl. 382-1.000.

Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, to Daikin Industries, Ltd. Refrigerating machine composition comprising a fluorine-containing polyether oil. 5,066,410, Cl. 252-68.000.

Onda, Hiroshi: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

O'Neill, Mark D. Method of playing a box-office movie game. 5,066,016, Cl. 273-249.000.

O'Neill, Michael J.: *See—*
Braun, Stephen A.; O'Neill, Michael J.; and Cutshall, Donald L., 5,065,568, Cl. 56-14.900.

Onishi, Michihisa: *See—*
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.

Onishi, Takashi: *See—*
Nohira, Hiroyuki; Onishi, Takashi; Yamamoto, Kazuo; and Kumagai, Noriaki, 5,066,826, Cl. 560-60.000.

Onodera, Tugio: *See—*
Takahara, Katsuo; Okajima, Shigeru; and Onodera, Tugio, 5,065,605, Cl. 72-340.000.

Ooba, Takeshi: *See—*
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Ooka, Akihiro; and Hirano, Kazuo, to Sumitomo Electric Industries, Ltd. Method of correcting zero point of gyro and apparatus therefor. 5,065,612, Cl. 73-1.00D.

Ooka, Kazuo, to Ansimag, Inc. Double containment pumping system for pumping hazardous materials. 5,066,200, Cl. 417-63.000.

Oomen, Emmanuel W. J. L., to U.S. Philips Corp. Device for generating blue laser light. 5,067,134, Cl. 372-6.000.

Oono, Tetsuya: *See—*
Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, 5,065,834, Cl. 180-197.000.

Oono, Tooru: *See—*
Seo, Ikuo; Oono, Tooru; and Murakami, Yosinobu, 5,066,779, Cl. 528-396.000.

Optoswitch, Inc.: *See—*
Crouse, Ronald J., 5,066,856, Cl. 250-229.000.

Orama, Angel: *See—*
Cherukuri, Subraman R.; Raman, Kirschna P.; Wong, Lucy L.; Mansukhani, Gul; and Orama, Angel, 5,066,511, Cl. 426-658.000.

O'Rell, Dennis; Hamed, Parviz; and DiPerna, Thomas C., to W. R. Grace & Co.-Conn. Printing blanket containing a high elongation fabric. 5,066,537, Cl. 428-246.000.

Origin Electric Co., Ltd.: *See—*
Watanabe, Kiyomi; and Matsumoto, Tetsuya, 5,067,143, Cl. 378-110.000.

Orth, Winfried: *See—*
Pastorek, Emmerich; Orth, Winfried; Weiss, Wolfgang; and Kleffner, Hans W., 5,066,806, Cl. 546-180.000.

Ortho Pharmaceutical Corporation: *See—*
Demers, James P.; and Sulsky, Richard B., 5,066,658, Cl. 514-269.000.

Ortmann, Hubert: *See—*
Haeussler, Horst; Ortmann, Hubert; and Stoerr, Harald, 5,065,797, Cl. 139-448.000.

Ortyl, Nicholas E., III: *See—*
Bissell, Robert D.; and Ortyl, Nicholas E., III, 5,067,100, Cl. 364-571.010.

Osada, Masahiko; Arai, Masumi; and Akita, Shigeyuki, to Nippon Soken, Inc. Driving circuit for an electroluminescence device. 5,066,893, Cl. 315-169.300.

Osawa, Masami: *See—*
Takada, Noboru; and Osawa, Masami, 5,066,932, Cl. 333-202.000.

Osawa, Masataka: *See—*
Nagai, Katsumi; Nishimyou, Teruyuki; Osawa, Masataka; and Ban, Hitoshi, 5,066,201, Cl. 417-222.00R.

Oscar Mayer Foods Corporation: *See—*
Flisram, Dennis G., 5,065,656, Cl. 83-356.003.

Oshida, Tsutomu: *See—*
Naritomi, Hiromi; and Oshida, Tsutomu, 5,065,884, Cl. 220-264.000.

Oshio, Hirohiko; Koike, Noboru; and Ochiai, Takasi, to Koito Manufacturing Co., Ltd. Beam-forming shade for vehicular headlamp. 5,067,054, Cl. 362-61.000.

Oshita, Kazuaki: *See—*
Satomi, Mitsuo; Oshita, Kazuaki; and Kuwahara, Tetsuya, 5,067,150, Cl. 379-354.000.

Osterboudt, Hans W.; Ponticello, Ignazio S.; Christy, Kenneth G., Jr.; Bowman, Wayne A.; and Eikenberry, Jon N., to Eastman Kodak Company. Electrophorests media comprising active methylene groups. 5,066,376, Cl. 204-182.800.

Ostermann, Friedrich; Plath, Hans-Heinrich; and Griep, Winfried, to Vereinigte Aluminium-Werke Aktiengesellschaft. Method for the manufacture of a light metal vehicle wheel. 5,065,510, Cl. 29-894.324.

Ostrem, John S.: *See—*
Green, Philip S.; Ostrem, John S.; and Whitehurst, Todd K., 5,065,763, Cl. 128-660.070.

Ostrow, Barnet D.: *See—*
Nobel, Fred I.; and Ostrow, Barnet D., 5,066,367, Cl. 204-44.400.

Otari Electric Co. Ltd.: *See—*
Yoshida, Hirokazu, 5,066,347, Cl. 156-159.000.

Otis Elevator Company: *See—*
Richards, Douglas, 5,065,843, Cl. 187-1.00R.

Otis Engineering Corp.: *See—*
Cooksey, Andrew G.; and Reesing, David L., 5,066,060, Cl. 294-86.180.
Decker, Kenneth L., 5,066,198, Cl. 417-54.000.

Otoshima, Hiroo, to Murata Kikai Kabushiki Kaisha. Traverse drum. 5,065,950, Cl. 242-43.200.

Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, to Hitachi, Ltd.; and Hitachi VLSI Engineering Corp. Semiconductor device having leads for mounting to a surface of a printed circuit board. 5,067,007, Cl. 357-74.000.

Otsuka, Masuhiro; and Kono, Hiromi, to Zexel Corporation. Clutch control unit. 5,065,851, Cl. 192-103.00R.

Ott, Karl-Heinz: *See—*
Eichenauer, Herbert; Wittmann, Dieter; Schmidt, Adolf; and Ott, Karl-Heinz, 5,066,717, Cl. 525-67.000.

Ottestad, Jack B., to Esco Corporation. Hydraulically powered repetitive impact hammer. 5,065,824, Cl. 173-134.000.

Outboard Marine Corporation: *See—*
Berryer, Michel, 5,066,170, Cl. 407-54.000.
Broughton, George L.; Binversie, Gregory B.; and Billingsley, Henry C., 5,065,723, Cl. 123-413.000.

Overton, Santford V.: *See—*
Hartman, Thomas G.; Manura, John J.; Overton, Santford V.; Baker, Christopher W.; and Manos, John N., 5,065,614, Cl. 73-23.350.

Owen, Hartley; and Schipper, Paul H., to Mobil Oil Corporation. Process for simultaneous heating and cooling a fast fluidized bed catalyst regenerator. 5,066,627, Cl. 502-43.000.

Owens-Illinois Plastic Products Inc.: *See—*
DiFrank, Frank J., 5,065,565, Cl. 53-398.000.
Mousseau, Carlton R.; DiBello, Louis M.; and Nicholas, Nicholas J., 5,065,862, Cl. 206-151.000.

Owens, William F., Jr., to P. H. Glatfelter Company. Thermally stable ash conditioners for cigarette paper, methods of making such cigarette paper and smoking articles made from such wrappers—case III. 5,065,777, Cl. 131-365.000.

Oxford, Alexander W.; Coates, Ian H.; and Butina, Darko, to Glaxo Group Limited. Indole derivatives. 5,066,660, Cl. 514-323.000.

Oxley Developments Company Limited: *See—*
Edwards, Geoffrey S., 5,066,889, Cl. 313-512.000.

Oxman, Joel D.; and Ubel, F. Andrew, III, to Minnesota Mining and Manufacturing Company. Dental impression process using polycaprolactone molding composition. 5,066,231, Cl. 433-214.000.

Oyama, Minoru; and Furudate, Misturu, to Alps Electric Co., Ltd. Illuminated electrical part. 5,067,050, Cl. 362-30.000.

Oyama, Noboru: *See—*
Yamaguchi, Shuichiro; Shimomura, Takeshi; Uchida, Naoto; Katsube, Teruaki; and Oyama, Noboru, 5,066,383, Cl. 204-435.000.

Oyoshi, Keiji, to Nippon Sheet Glass Co., Ltd. Method of forming optical waveguides by ion implantation. 5,066,514, Cl. 427-38.000.

Ozaki, Hiroji: *See—*
Eimori, Takahisa; Satoh, Shinichi; Wakamiya, Wataru; Ozaki, Hiroji; and Tanaka, Yoshinori, 5,067,000, Cl. 357-53.000.

Ozaki, Shinya: *See—*
Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, 5,067,131, Cl. 371-40.100.

Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, to Sumitomo Pharmaceuticals Company, Limited. Aminoazole derivatives and their production and use. 5,066,666, Cl. 514-380.000.

Ozawa, Kazunori: *See—*
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,547, Cl. 51-154.000.
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,548, Cl. 51-154.000.

Ozawa, Tsugutaro, to Hitachi, Ltd. Cassette loading mechanism for accommodating cassettes of various sizes. 5,067,036, Cl. 360-96.500.

Ozora, Kazuo, to Oiles Corporation. Method of making a spherical sealing body used for exhaust pipe joint. 5,065,493, Cl. 29-505.000.

P.C.E. Corp.: *See—*
Cloeren, Peter F., 5,066,443, Cl. 264-171.000.

P. H. Glatfelter Company: *See—*
Owens, William F., Jr., 5,065,777, Cl. 131-365.000.

Pacific Monolithics: *See—*
Ramachandran, Ravi; and Podell, Allen F., 5,066,926, Cl. 330-311.000.

Packard Industries, Inc.: *See—*
Mark, Edward H., 5,065,832, Cl. 108-60.000.

PacTel Corporation: *See—*
Lee, William C., 5,067,147, Cl. 379-60.000.

Padera, Robert F.; and Miller, Daniel C., to Culligan International Company. Slotted flow collector/distributor for water treatment tank with one-way valves. 5,066,393, Cl. 210-136.000.

Pagella, Piergiuseppe: *See—*
Terni, Patrizia; Maiorana, Stefano; Papagni, Antonio; and Pagella, Piergiuseppe, 5,066,802, Cl. 544-32.000.

Palazzo, Raymond E., Jr.: *See—*
Miller, Steven L.; Wathen, Ronald L.; and Palazzo, Raymond E., Jr., 5,065,791, Cl. 137-515.000.

Palepu, Nageswara R.; and Hutt, Julie A., to Erbamont, Inc. Cyclophosphamide - alanine lyophilizates. 5,066,647, Cl. 514-110.000.

Palermo, Anthony C.: *See—*
Martz, Jonathan T.; Kelly, Thomas W.; Dowbenko, Rostyslaw; Meier, James A.; and Palermo, Anthony C., 5,066,733, Cl. 525-455.000.

Palfray, Michel, to Etablissements Proteor. Apparatus for plotting the configuration of a lower limb of the human body with a view to producing an orthesis for paraplegic. 5,065,770, Cl. 128-774.000.

Pampalone, Thomas R., to Hoechst Celanese Corporation. Method for producing and using a positive photoresist with o-quinone diazide, novolak, and propylene glycol alkyl ether acetate. 5,066,561, Cl. 430-169.000.

Panduit Corp.: *See—*
Alletto, John S.; and Maurer, Maurice M., 5,065,798, Cl. 140-123.600.

Paneth, Eric: *See—*
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.

Pankowiak, Christian: *See—*
Bertin, Patrice; and Pankowiak, Christian, 5,065,850, Cl. 192-90.000.

Panten, Detlef; Hertweck, Gernot; and Bender, Franz, to Mercedes-Benz AG. Actuating device for a throttle valve arranged in an intake pipe of a diesel internal combustion engine. 5,065,719, Cl. 123-339.000.

Panzera, Carl: *See—*
Forbes Jones, Robin M.; Panzera, Carl; and DeLuca, Robert D., 5,066,225, Cl. 433-8.000.

Panzke, Rolf: *See—*
Kruger, Volker; and Panzke, Rolf, 5,065,826, Cl. 175-75.000.

Papagni, Antonio: *See—*
Terni, Patrizia; Maiorana, Stefano; Papagni, Antonio; and Pagella, Piergiuseppe, 5,066,802, Cl. 544-32.000.

Paradise, Carolyn M.; and Bradley, Edward C., to Cetus Corporation. Combination therapy of IL-2 and DTIC for the treatment of melanoma. 5,066,489, Cl. 424-85.200.

Parham, Michael O. Coin hopper assembly. 5,066,261, Cl. 453-57.000.

Paris, Jean, to Salomon S. A. Rear entry ski boot. 5,065,533, Cl. 36-117.000.

Park, Yong-Bo: *See—*
Kim, Byeong-Yun; Jung, Tae-Sung; and Park, Yong-Bo, 5,067,109, Cl. 365-189.050.

Parker Hannifin Corporation: *See—*
Staples, Peter J., 5,066,049, Cl. 285-80.000.

Parker, Jan M.: *See—*
Howland, Leland L.; Parker, Jan M.; Herrig, Doyle G.; and Swanson, David A., 5,065,587, Cl. 62-131.000.

Parker, Robert: *See—*
Mohebban, Manoochehr; Montoya, Wayne; Parker, Robert; and Siden, Dennis C., 5,066,104, Cl. 359-43.000.

Parsi, Edgardo J.; Sims, Keith J.; Elyanow, Irving D.; and Prato, Thomas A., to Ionics, Incorporated. Introducing and removing ion-exchange and other particulates from an assembled electrodeionization stack. 5,066,375, Cl. 204-182.400.

Parsons, Ralph G. W.: *See—*
Ashpitel, William G.; and Parsons, Ralph G. W., 5,065,631, Cl. 73-849.000.

Partis, Richard A.: *See—*
Mueller, Richard A.; and Partis, Richard A., 5,066,679, Cl. 514-618.000.

Partlow, Richard L.: *See—*
Reich, Gary J.; and Partlow, Richard L., 5,066,724, Cl. 525-227.000.

Paspek, Stephen C.; and Eppig, Christopher P., to Standard Oil Company, The. Extraction of oil from stable oil-water emulsions. 5,066,386, Cl. 208-187.000.

Pasqualoni, Anthony M.; Mahulikar, Deepak; Jalota, Satish K.; and Brock, Andrew J., to Olin Corporation. Process for producing black integrally colored anodized aluminum components. 5,066,368, Cl. 204-58.000.

Pastorek, Emmerich; Orth, Winfried; Weiss, Wolfgang; and Kleffner, Hans W., to Rutgerswerke AG. Novel separation process. 5,066,806, Cl. 546-180.000.

Patel, Kundan M.: *See—*
Tang, Reginald T.; Mares, Frank; Boyle, William J., Jr.; Chiu, Tin-Ho; and Patel, Kundan M., 5,066,772, Cl. 528-354.000.

Paterson, Raymond: *See—*
Akam, Nigel J.; Cameron, Donald M.; Halliday, David K.; and Paterson, Raymond, 5,065,858, Cl. 198-493.000.

Patrick, James W.; Heinemann, Stephen F.; Boss, Barbara D.; and Cowan, W. Maxwell, to Salk Insstitute for Biological Studies, The. Synthetic peptide-based anti-rabies compositions and methods. 5,066,593, Cl. 435-240.270.

Pattock, Greg R., to Sparton Corporation. Ignition interlock system. 5,065,604, Cl. 70-239.000.

Patzschke, Hans-Peter; and Goebel, Armin, to Herberts GmbH. Aqueous coating material method for its preparation and its use for electrophoretic coating. 5,066,689, Cl. 523-415.000.

Paul, James T., Jr., to Hercules Incorporated. Method of manufacturing carbon fiber using preliminary stretch. 5,066,433, Cl. 264-29.200.

Pawlikowski, Joseph M.: *See—*
Henschen, Homer E.; McKee, Michael J.; and Pawlikowski, Joseph M., 5,065,501, Cl. 29-611.000.

Pazda, Robert J.; Clum, Kenneth L.; and Hood, Harrison P., III, to Eastman Kodak Company. Apparatus and method for measuring lateral charge distribution on a moving web. 5,066,918, Cl. 324-452.000.

PCF Group, Inc.: *See—*
McDonough, Charles M., 5,066,318, Cl. 55-502.000.

Pearce, Robert C.: *See—*
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., 5,066,482, Cl. 424-45.000.

Pearlstine, Kathryn A.: *See—*
Houle, William A.; Larson, James R.; and Pearlstine, Kathryn A., 5,066,821, Cl. 430-137.000.

Pearson, David B. Speed governor safety device for stopping an elevator car. 5,065,845, Cl. 187-89.000.

Pedersen, Borge C. Diaphragm valve. 5,065,980, Cl. 251-144.000.

Pedersen, Richard C.; and Sedro, Richard M., to Control Data Corporation. Radiation detection and signal delay circuitry for protecting recorded data. 5,067,106, Cl. 395-575.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Peiffer, Dennis G., to Exxon Research and Engineering Company. Polymerizable cationic viscoelastic monomer fluids. 5,066,753, Cl. 526-310.000.

Peleg, Shmuel: *See—*
Bergen, James R.; Burt, Peter J.; Hingorani, Rajesh; and Peleg, Shmuel, 5,067,014, Cl. 358-105.000.

Pell, James W., to Diasonics, Inc. Lithotripsy system. 5,065,761, Cl. 128-660.030.

Pelosi, Michael H., III: *See—*
Mitchell, George; and Pelosi, Michael H., III, 5,065,668, Cl. 98-31.500.

Pennebaker, William B.: *See—*
Goldowsky, Michael P.; and Pennebaker, William B., 5,066,512, Cl. 427-14.100.

Peo, Steven D.: *See—*
Takken, Paul E.; Scheckel, Robert G.; and Peo, Steven D., 5,065,469, Cl. 15-89.000.

Pera, John D.; Hickman, Loel L.; and Conoway, Lawrence S., to Buckman Laboratories International, Inc. Fungicidal and corrosion inhibiting paint pigments. 5,066,334, Cl. 106-462.000.

Perepezko, John H.; and Hoffmeyer, Mark K., to Wisconsin Alumni Research Foundation. Method of evaluation and identification for the design of effective inoculation agents. 5,066,324, Cl. 75-335.000.

Perkin-Elmer Corporation, The: *See—*
America, William G.; and Poole, Richard R., 5,066,533, Cl. 428-156.000.

Perko, Jack E.; Wirth, Gary J.; and Foxgrover, Brian A., to W. H. Brady Co. Process for pultruding a composite sign. 5,066,349, Cl. 156-166.000.

Permyakov, Georgy P.: *See—*
Zlobin, Mikhail N.; Metsik, Viktor M.; Nemarov, Alexandr A.; Permyakov, Georgy P.; and Taraban, Nikolai T., 5,066,389, Cl. 209-170.000.

Perri, Joseph A., to Insul Company, Inc. Automatic gas hookup to a ladle. 5,065,986, Cl. 266-217.000.

Persing, Brian J.: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.

Person, Carl E. Portable electronic navigation aid. 5,067,081, Cl. 364-444.000.

Perzan, Denis A.: *See—*
Markowski, Robert G.; Perzan, Denis A.; Morby, John A.; and Robarge, Dean A., 5,067,043, Cl. 361-361.000.

Perzl, Peter R.; Ruberg, Wolfgang; and Puell, Heinz B., to Haraeus Holding GmbH. Gas laser apparatus. 5,067,135, Cl. 372-83.000.

Peters, Donald C.; and Seely, Richard L., to Corning Incorporated. Extrusion die for forming thin-walled honeycomb structures. 5,066,215, Cl. 425-464.000.

Peterson, David A.: *See—*
Albers, Stephen J.; Grimshaw, Michael N.; Peterson, David A.; Pugh, John H.; and Wisbey, Jerry D., 5,066,352, Cl. 156-265.000.

Peterson, Kenneth D. Dado lathe. 5,065,802, Cl. 144-2.00R.

Peterson, Kenneth S.: *See—*
Harkrader, Ronald J.; Jones, Richard R.; and Peterson, Kenneth S., 5,066,483, Cl. 424-54.000.

Peterson, William M.; Anderson, Howard C.; Leivian, Robert; and Garrison, Sidney C., to Motorola Inc. SPANN: Sequence processing artificial neural network. 5,067,095, Cl. 395-24.000.

Petrillo, Richard J.; and O'Connor, William T., to Gillette Company, The. Writing instrument cap. 5,066,156, Cl. 401-213.000.

Pettersson, Sven-Olov: *See—*
Lundberg, Per-Olof; and Pettersson, Sven-Olov, 5,066,251, Cl. 439-701.000.

Pettijohn, Ted M.; and Hsieh, Henry L., to Phillips Petroleum Company. Olefin polymerization with cyclopentadienyl lanthanidealkyl of hydride in presence of hydrogen. 5,066,739, Cl. 526-127.000.

Peuckert, Marcellus: *See—*
Gerdau, Thomas; Kleiner, Hans-Jerg; Peuckert, Marcellus; Bruck, Martin; and Aldinger, Fritz, 5,066,623, Cl. 501-97.000.

Peuterbaugh, Bruce G., to J. P. Tool, Inc. Draw bar adapter structure for and method of securing a tool to a spindle. 5,066,178, Cl. 409-233.000.

Pfeifer, Gerhard, to Wild Leitz GmbH. Automatic locking mechanism for the drive device of a microtome. 5,065,657, Cl. 83-703.000.

Pfizer Hopsital Products Group, Inc.: *See—*
Chapman, Michael W.; Mears, Dana C.; and Edwards, Charles C., 5,066,296, Cl. 606-64.000.

Pfizer Inc.: *See—*
Lipinski, Christopher A., 5,066,659, Cl. 514-278.000.

Philip Morris Inc.: *See—*
Tomanovits, John, 5,066,270, Cl. 493-435.000.

Philipp, Warren H., to United States of America, National Aeronautics and Space Administration. Method of making contamination-free ceramic bodies. 5,066,625, Cl. 501-127.000.

Phillips Petroleum Company: *See—*
Fodor, Lawrence M.; and Willcox, Kenneth W., 5,066,686, Cl. 523-102.000.
Geibel, Jon F.; Bobsein, Rex L.; and Yelton, Harold D., 5,066,774, Cl. 528-388.000.
Pettijohn, Ted M.; and Hsieh, Henry L., 5,066,739, Cl. 526-127.000.
Willcox, Kenneth W., 5,066,460, Cl. 422-7.000.

Phillips, Ronald W., II, to B. F. Goodrich Company, The. Method for making a blind fastener. 5,066,446, Cl. 264-242.000.

Phoenix Environmental, Ltd.: *See—*
Cheetham, Eric, 5,065,680, Cl. 110-342.000.

Pickett, David A.: *See—*
Frantom, Richard L.; Pickett, David A.; Rogerson, William E.; Rose, James; and Schubert, Robert, 5,066,038, Cl. 200-737.000.

Piersol, Allan G.: *See—*
Hodges, Hency C., Sr.; Hodges, Henry C., Jr.; Ashmore, Sam C.; and Piersol, Allan G., 5,065,618, Cl. 73-146.000.

Pignard, Guy: *See—*
Bardin, Christian; Pignard, Guy; Boulet, Jean; and Morin, Pierre, 5,065,825, Cl. 175-38.000.

Pinchott, Gordon A., to Sundstrand Corporation. Rotating rectifier assembly. 5,065,484, Cl. 29-25.020.

Pingston, Mark. Ball dispensing machine. 5,066,010, Cl. 273-26.00D.

Pinney, Richard C. Framework for cabinet structure. 5,066,161, Cl. 403-172.000.

Pino, Giovanni; Scherer, Thomas W.; and Stephens, Ruth A., to Threeco. Vented beverage can cover having pivotal spout. 5,065,909, Cl. 222-484.000.

Pioneer Electronic Corporation: *See—*
Ishida, Kohji; Nishimura, Yasushi; and Yamaguchi, Shigeru, 5,067,157, Cl. 381-13.000.
Yoshida, Masayuki; Yoshio, Junichi; and Watanabe, Osamu, 5,067,119, Cl. 369-47.000.

Pipella, Michael: *See—*
Liston, Jack L.; Pipella, Michael; and Bathemes, Pete, 5,066,405, Cl. 210-693.000.

Pirelli General plc: *See—*
Emery, Kenneth R.; Bennett, Harold R.; and Clark, Jack, 5,066,516, Cl. 427-118.000.

Pirl, William E., to Westinghouse Electric Corp. System and method for laser welding the inner surface of heat exchanger tubes. 5,066,846, Cl. 219-121.630.

Pitzer, Ulrike; Franz, Gerhard; and Laubach, Benno, to Bayer Aktiengesellschaft. Silicon nitride powders of low isoelectric point and processes for their production. 5,066,473, Cl. 423-344.000.

Plaskett, John R.: *See—*
Center, John L.; Mills, William C., Jr.; and Plaskett, John R., 5,066,269, Cl. 493-183.000.

Plasta Fiber Industries, Inc.: *See—*
Miller, Douglas C., 5,066,061, Cl. 296-97.100.

Plath, Hans-Heinrich: *See—*
Ostermann, Friedrich; Plath, Hans-Heinrich; and Griep, Winfried, 5,065,510, Cl. 29-894.324.

Plochocka, Krystyna: *See—*
Helioff, Michael W.; Plochocka, Krystyna; and Tazi, Mohammed, 5,066,481, Cl. 424-47.000.

Pluveau, Raymond: *See—*
Maineult, Jean; and Pluveau, Raymond, 5,066,839, Cl. 200-144.00R.

Pochopien, Kevin P.: *See—*
Claar, Terry D.; Schiroky, Gerhard H.; and Pochopien, Kevin P., 5,066,622, Cl. 501-87.000.

Podell, Allen F.: *See—*
Ramachandran, Ravi; and Podell, Allen F., 5,066,926, Cl. 330-311.000.

Point, Jacques; and Joulia, Pierre, to Rena S.A. Diaphragm pump. 5,066,204, Cl. 417-413.000.

Polak, Comer F. Cord caddie. 5,065,964, Cl. 248-51.000.

Polaroid Corporation: *See—*
Mailloux, Dennis R.; Smith, Harry A.; and Kelly, Neal F., 5,066,047, Cl. 283-86.000.

Poli Industria Chimca S. p. A.: *See—*
Moro, Luigi; Fiori, Achille; and Natali, Alberto, 5,066,495, Cl. 424-451.000.

Poli Industria Chimica S.p.A.: *See—*
Poli, Stefano; Coppi, Germano; and Del Corona, Lucio, 5,066,644, Cl. 514-19.000.

Poli, Stefano; Coppi, Germano; and Del Corona, Lucio, to Poli Industria Chimica S.p.A. Derivatives of thiazolidine-4-carboxylic acid, its preparation and pharmaceutical compositions containing it. 5,066,644, Cl. 514-19.000.

Polski, Stephen P., to Minnesota Mining and Manufacturing Company. Release treated non-woven fastening tape protector. 5,066,289, Cl. 604-389.000.

Polster, Walter: *See—*
Ifflaender, Helmut; Matura, Eike; Polster, Walter; and Rattner, Manfred, 5,065,762, Cl. 128-660.030.

Polyonics Corporation: *See—*
Walsh, Daniel R., 5,066,545, Cl. 428-626.000.

Ponticello, Ignazio S.: *See—*
Osterhoudt, Hans W.; Ponticello, Ignazio S.; Christy, Kenneth G., Jr.; Bowman, Wayne A.; and Eikenberry, Jon N., 5,066,376, Cl. 204-182.800.

Poole, Richard R.: *See—*
America, William G.; and Poole, Richard R., 5,066,533, Cl. 428-156.000.

Porzio, Linda A.: *See—*
Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., 5,066,499, Cl. 426-19.000.

Potter, George S.: *See—*
Wofford, Ray F.; and Potter, George S., 5,066,165, Cl. 405-119.000.

Potter, William S., Jr. Striking rod holder. 5,065,540, Cl. 43-21.200.

Powell, James W.; Voss, Mark G.; and Waineo, Bryan N., to Williams International Corporation. Refrigeration system with high speed, high frequency compressor motor. 5,065,590, Cl. 62-175.000.

Powell, Jonathan S. Means and method to treat swimming pool water. 5,066,408, Cl. 210-765.000.

Powell, Robert C. Internal combustion engine and kit therefore. 5,065,704, Cl. 123-25.00J.

Pozzi, Bruno. Dental tooth shade matching system. 5,066,227, Cl. 433-26.000.

Pozzobon, Alessandro; and Gorza, Roberto, to Nordica S.p.A. Closure device, particularly for ski boots. 5,065,530, Cl. 36-50.000.

PPG Industries, Inc.: *See—*
Gemert, Barry V.; and Bergomi, Maria P., 5,066,818, Cl. 549-389.000.
Martz, Jonathan T.; Kelly, Thomas W.; Dowbenko, Rostyslaw; Meier, James A.; and Palermo, Anthony C., 5,066,733, Cl. 525-455.000.
Singleton, David E.; Ho, Kuo-Chuan; and Greenberg, Charles B., 5,066,111, Cl. 359-275.000.

Prager, Bernhard C., to Biochemie Gesellschaft m.b.H. Crystalline cephalosporin derivative. 5,066,798, Cl. 540-225.000.

Prato, Thomas A.: *See—*
Parsi, Edgardo J.; Sims, Keith J.; Elyanow, Irving D.; and Prato, Thomas A., 5,066,375, Cl. 204-182.400.

Pratt, Charles R.: *See—*
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased, 5,066,457, Cl. 420-552.000.

Pratt, John D., to MAG Aerospace Industries, Inc. Blind fastener. 5,066,179, Cl. 411-34.000.

Prestridge, Patrick L. Attachment device for providing detachable uppers in footwear and the like. 5,065,531, Cl. 36-100.000.

Prickett, Robert B. Decorative exterior trim lighting system. 5,067,061, Cl. 362-145.000.

Procter & Gamble Co., The: *See—*
Chang, Nienyuan J., 5,066,414, Cl. 252-8.800.
Ehrman, Albert M.; Seiden, Paul; Weitzel, Rose M.; and White, Robert L., 5,066,510, Cl. 426-607.000.
Ofosu-Asante, Kofi; and Stephans, Scott E., 5,066,425, Cl. 252-546.000.
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., 5,066,419, Cl. 252-174.110.

Progressive Angioplasty Systems, Inc.: *See—*
Hess, Robert L., 5,066,298, Cl. 606-194.000.

Prohs, John R.: *See—*
Schneid, Michael R.; and Prohs, John R., 5,067,149, Cl. 379-224.000.

Propper Manufacturing Company, Inc.: *See—*
Augurt, Thomas A., 5,066,464, Cl. 422-58.000.

Protasi, Otello; and Rappuoli, Paolo, to Sclavo, S.p.A. Method for the purification of interferon. 5,066,786, Cl. 530-351.000.

Protein Technology, Inc.: *See—*
Stott, Gerald H.; and Lucas, David O., 5,066,491, Cl. 424-85.800.

Przybylowicz, Catherine S.; Brill, Edwin W., Jr.; and Carrozziere, Luigi A., to Eastman Kodak Company. Reference reading in an analyzer. 5,067,093, Cl. 364-498.000.

Puckett, Paul M.: *See—*
Hefner, Robert E., Jr.; Puckett, Paul M.; and Earls, Jimmy D., 5,066,750, Cl. 526-273.000.

Puell, Heinz B.: *See—*
Perzl, Peter R.; Ruberg, Wolfgang; and Puell, Heinz B., 5,067,135, Cl. 372-83.000.

Pugel, Thomas: *See—*
Agarwal, Pawan K.; and Pugel, Thomas, 5,066,694, Cl. 524-60.000.

Pugh, John H.: *See—*
Albers, Stephen J.; Grimshaw, Michael N.; Peterson, David A.; Pugh, John H.; and Wisbey, Jerry D., 5,066,352, Cl. 156-265.000.

Punt, Harvard A. Neck holding device for livestock. 5,065,701, Cl. 119-147.100.

Pusnes A/S: *See—*
Krogstad, Ivar, 5,065,689, Cl. 114-230.000.

Putnam, Alan R.; Mishra, Saroj K.; and Nair, Muraleedharan G., to Board of Trustees Operating Michigan State University. Method of inhibiting fungus using novel antifungal compounds. 5,066,585, Cl. 424-121.000.

QNC, Inc.: *See—*
Darvin, Richard M., 5,066,851, Cl. 219-400.000.

Quantin, Daniele; and Galdon, Francisco, to Institut Recherches de la Siderurgie Francais - IRSID. Protective coated iron and steel products. 5,066,548, Cl. 428-629.000.

Quate, Calvin F.; and Tortonese, Marco, to Leland Stanford Juninor University, Board of Trustees of the. Nitride cantilevers with single crystal silicon tips. 5,066,358, Cl. 156-647.000.

Questech Limited: *See—*
Billing, Robert, 5,067,133, Cl. 371-53.000.

Quinn, Daniel M., to University of Iowa Research Foundation. Carbamate inhibitors of cholesterol esterase and their use as hypolipidemic and hypocaloric agents. 5,066,674, Cl. 514-529.000.

R. G. Hansen & Associates: *See—*
Hansen, Robert G., 5,066,166, Cl. 405-128.000.

R. J. Reynolds Tobacco Company: *See—*
Fagg, Barry S., 5,065,775, Cl. 131-297.000.
Grubbs, Robert E.; Haberkern, Richard G.; Edwards, Michael E.; and Frederickson, James D., 5,065,774, Cl. 131-291.000.
Lawson, Jerry W.; and Casey, William J., III, 5,065,776, Cl. 131-365.000.

R. R. Donnelley & Sons Company: *See—*
Stonebraker, Richard L.; and Lasley, James, 5,066,182, Cl. 412-3.000.
Tapper, Lee C., 5,065,675, Cl. 101-153.000.

Raabe, Charles G.: *See—*
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.

Rafferty, Scott E.: *See—*
Castrigno, Steven; Rafferty, Scott E.; Nichols, Lawrence R.; and Bemis, Claude, 5,066,037, Cl. 280-732.000.

Raichle Sportschuh AG: *See—*
Walkhoff, Klaus, 5,065,481, Cl. 24-68.0SK.

Rajappa, Srinivasachari: *See—*
Kulkarni, Gurunath H.; Naik, Rajan H.; and Rajappa, Srinivasachari, 5,066,819, Cl. 549-438.000.

Raleigh, William J.; Thimineur, Raymond J.; and Zotto, Anthony A., to General Electric Company. Silicone surfactants. 5,066,756, Cl. 528-32.000.

Ram, N. V. Raghava: *See—*
Hubbard, Ernest T.; Hollingsworth, Michele D.; Ram, N. V. Raghava; and Cook, Judith P., 5,066,595, Cl. 435-240.450.

Ramachandran, Ravi; and Podell, Allen F., to Pacific Monolithics. Segmented cascode HBT for microwave-frequency power amplifiers. 5,066,926, Cl. 330-311.000.

Raman, Kirschna P.: *See—*
Cherukuri, Subraman R.; Raman, Kirschna P.; Wong, Lucy L.; Mansukhani, Gul; and Orama, Angel, 5,066,511, Cl. 426-658.000.

Rambacher, John S.: *See—*
Chlebina, Larry E.; Majerus, Norbert; Rambacher, John S.; and Felder, Stephen L., 5,066,448, Cl. 264-334.000.

Ramsden, Hugh E.; and Nau, David R., to J. T. Baker Inc. N-acylated derivatives of polyethyleneimine bonded phase silica products. 5,066,395, Cl. 210-198.200.

Rand, John H.: *See—*
Stubstad, John M.; and Rand, John H., 5,065,958, Cl. 244-17.170.

Randall, James C., Jr.; and Huff, Terrence, to Exxon Chemical Patents Inc. Impact-modified polymers (p-1304). 5,066,723, Cl. 525-194.000.

Rangel, Ramon A. Trash apparatus and colander. 5,066,396, Cl. 210-236.000.

Rapoport, David M., to New York University. Method and apparatus for the treatment of obstructive sleep apnea. 5,065,756, Cl. 128-204.180.

Rappuoli, Paolo: *See—*
Protasi, Otello; and Rappuoli, Paolo, 5,066,786, Cl. 530-351.000.

Raschke, Josef: *See—*
Schuster, Rudolf; and Raschke, Josef, 5,066,844, Cl. 219-85.160.

Rattner, Manfred: *See—*
Ifflaender, Helmut; Matura, Eike; Polster, Walter; and Rattner, Manfred, 5,065,762, Cl. 128-660.030.

Rau, Rama N., to Halliburton Logging Services, Inc. Technique for separating electromagnetic refracted signals from reflected signals in down hole electromagnetic tools. 5,066,916, Cl. 324-338.000.

Raychem Corporation: *See—*
Mohebban, Manoochehr; Montoya, Wayne; Parker, Robert; and Siden, Dennis C., 5,066,104, Cl. 359-43.000.

Raynet Corporation: *See—*
Soderberg, Paulmer M.; Foss, Kristin K.; Giles, Thomas E.; and Narciso, Ralph A., 5,066,139, Cl. 371-20.100.

Raytheon Company: *See—*
Fattal, Jean A., 5,065,956, Cl. 244-3.200.
Harrold, William J.; Sansone, Joseph A.; Bonfiglio, Joseph W.; and Kim, Seung K., 5,066,891, Cl. 315-8.000.

Razzetti, Roberta: *See—*
Chiesi, Paolo; Servadio, Vittorino; and Razzetti, Roberta, 5,066,652, Cl. 514-235.800.

RCA Thomson Licensing Corp.: *See—*
New, David A., 5,066,887, Cl. 313-414.000.

Read, Shannon R., to Baroid Technology, Inc. Threaded pipe joint having improved seal ring entrapment. 5,066,052, Cl. 285-334.000.

Red Devil, Inc.: *See—*
Johnson, Alan S., 5,066,136, Cl. 366-209.000.

Reed, Michael W.: *See—*
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.

Reed, William A.: *See—*
Byczynski, Dean G.; and Reed, William A., 5,065,584, Cl. 62-81.000.

Reedy, Ronald E.; Garcia, Graham A.; and Lagnado, Isaac, to United States of America, Navy. Process for making semiconductor-on-insulator device interconnects. 5,066,613, Cl. 437-200.000.

Reese, D. Dwaine; Sawyer, Roy D.; and Crow, Stanley G., to Nalco Chemical Company. Method for injecting treatment chemicals using a constant flow positive displacement pumping apparatus. 5,066,199, Cl. 417-63.000.

Reesing, David L.: *See—*
Cooksey, Andrew G.; and Reesing, David L., 5,066,060, Cl. 294-86.180.

Reeves, Peter R.: *See—*
Manning, Paul A.; Reeves, Peter R.; and Rowley, Derrick, 5,066,596, Cl. 435-252.330.

Regnir, Gilbert; Dhainaut, Alain; Lepagnol, Jean; and Lepagnol, Jean, to Adir et Compagnie. Pyrrolidone compounds for treating cerebral disorders. 5,066,651, Cl. 514-235.500.

Rehau AG & Co.: *See—*
Hopperdietzel, Siegfried, 5,065,808, Cl. 160-231.200.

Reich, Gary J.; and Partlow, Richard L., to Rexene Products Company. Novel film compositions. 5,066,724, Cl. 525-227.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Reid, Laurie M.; Koster, Archie; and Hunt, Gary D., to Simplimatic Engineering Company. Apparatus and method for packaging articles. 5,065,856, Cl. 198-419.300.
Reid, Robert A.: *See—*
Goodnow, Ronald F.; and Reid, Robert A., 5,066,364, Cl. 162-281.000.
Reiner, Richard A.: *See—*
Clarey, Robert J.; and Reiner, Richard A., 5,066,832, Cl. 174-50.000.
Reinking, Klaus: *See—*
Dorf, Ernst-Ulrich; Reinking, Klaus; Jakob, Wolfgang; Tresper, Erhard; and Russeler, Wolfgang, 5,066,775, Cl. 528-388.000.
Wehnert, Wolfgang; Reinking, Klaus; Bier, Peter; Kraft, Klaus; and Tresper, Erhard, 5,066,704, Cl. 524-449.000.
Reisinger, Lothar; Hagg, Dieter; Wenzl, Werner; and Walther, Klaus, to MTU Motoren- Und Turbinen-Union Munchen GmbH. Brush-type seal. 5,066,024, Cl. 277-53.000.
Reiswig, Gary J. Artificial fingernail clipper. 5,065,513, Cl. 30-29.000.
Reiter, Barbara Blair: *See—*
Morsy, Esam M., 5,066,521, Cl. 427-387.000.
Relco, Inc.: *See—*
Ferdows, Houshang, 5,066,067, Cl. 296-197.000.
Rena S.A.: *See—*
Point, Jacques; and Joulia, Pierre, 5,066,204, Cl. 417-413.000.
Renaud, J. Maurice. Pencil support for security hat. 5,066,154, Cl. 401-131.000.
Reponty, Andre , to Heidelberger Druckmaschinen AG. Accumulator cylinder assembly for a folding machine of a printing press. 5,065,993, Cl. 270-49.000.
Respiratory Support Products, Inc.: *See—*
Beran, Anthony V., 5,066,140, Cl. 374-134.000.
Restall, James E., deceased: *See—*
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased, 5,066,457, Cl. 420-552.000.
Restall, Janet E., executrix: *See—*
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased, 5,066,457, Cl. 420-552.000.
Restle, Serge: *See—*
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, 5,066,427, Cl. 260-413.000.
Reuber, Gerhard: *See—*
Dangl, Wolfgang; Schick, Gerald; Nowack, Reinhard; and Reuber, Gerhard, 5,066,040, Cl. 280-756.000.
Reutelingsperger, Christian M., to Boehringer Ingelheim International GmbH. Blood coagulation inhibiting proteins, processes for preparing them and their uses. 5,066,788, Cl. 530-381.000.
Reutelingsperger, Christian P. M., to Boehringer Ingelheim International GmbH. Blood coagulation inhibiting proteins, processes for preparing them and their uses. 5,066,787, Cl. 530-380.000.
Reuter, Peter A. Flow line weighing device. 5,065,632, Cl. 73-861.730.
Revesz, Robert N., to CEM Corporation. Heat resistant and light weight container for materials to be ashed, and process for manufacture thereof. 5,066,843, Cl. 219-10.55R.
Revlon, Inc.: *See—*
Balavich, Nancy P., 5,065,875, Cl. 215-10.000.
Brieva, Hernando; Jose, Natividad; and Tietjen, Marlene, 5,066,485, Cl. 424-63.000.
Castrogiovanni, Anthony; Sandewicz, Robert W.; and Amato, Steven W., 5,066,484, Cl. 424-61.000.
Kamen, Melvin E.; and Bernstein, Philip, 5,066,486, Cl. 424-63.000.
Rexene Products Company: *See—*
Reich, Gary J.; and Partlow, Richard L., 5,066,724, Cl. 525-227.000.
Rey, Marianne: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.
Reyes, Gregory R., to Genelabs Incorporated. HTLV-I peptide antigen and assay. 5,066,579, Cl. 435-5.000.
Rhodes, Arthur B. Conveyor system with transverse pusher to transfer load carrier between seperate conveying paths. 5,065,678, Cl. 104-88.000.
Rhodes, Keith J.; and Voorheis, Scott D. Magnetic separator with reciprocating grate. 5,066,390, Cl. 209-217.000.
Rhodes, Larry F., to B. F. Goodrich Company, The. Pyridinium metathesis catalysts for cycloolefin polymerization. 5,066,740, Cl. 526-160.000.
Rhone-Poulenc Basic Chemicals Co.: *See—*
Gerard, Thomas W., 5,066,441, Cl. 264-118.000.
Rhone-Poulenc Chimie: *See—*
Arnold, Jean-Claude; Cyprien, Guy; and Olivere, Jean-Francois, 5,066,468, Cl. 422-266.000.
Gubelmann, Michel; Rochin, Christophew; and Allandrieu, Christian, 5,066,827, Cl. 560-163.000.
Morelle, Jean V.; and Lauzanne-Morelle, Eliane, 5,066,487, Cl. 424-68.000.
Schuppiser, Jean-Luc; Coutant, Antoine; and Bozetto, Jean-Claude, 5,066,508, Cl. 426-584.000.
Rhone-Poulenc Specialites Chimiques: *See—*
Chevallier, Yvonick, 5,066,420, Cl. 252-313.200.
ki, Seigen: *See—*
Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, 5,066,612, Cl. 437-192.000.
Ricardo Group PLC: *See—*
Hundleby, Giles E., 5,065,712, Cl. 123-188.00M.
Lesley, Samuel, 5,065,711, Cl. 123-188.00M.
Rice, Jean E. Breast prosthesis. 5,066,302, Cl. 623-7.000.
Richard Wolf GmbH: *See—*
Belikan, Thomas; and Krauss, Werner, 5,065,742, Cl. 128-24.0EL.
Richards, Douglas, to Otis Elevator Company. Method for installing elevator system components. 5,065,843, Cl. 187-1.00R.
Richland Industrial, Inc.: *See—*
Sullins, Harry P., 5,066,350, Cl. 156-187.000.
Richter, Hans. Flexible guide rail and method for manufacturing same. 5,066,834, Cl. 191-40.000.
Richter, Karl-Heinz; Rollmann, Gerhard; Struck, Helmut; and Eilert, Gerd, to Daimler-Benz AG. Motor vehicle with wheels driven via differential gearing or the like. 5,065,835, Cl. 180-197.000.
Ricoh Company, Ltd.: *See—*
Nishida, Hirobumi, 5,067,165, Cl. 382-19.000.
Yano, Satoshi, 5,067,027, Cl. 358-439.000.
Ridenour, Carlene. Tape dispensing devices. 5,065,925, Cl. 225-78.000.
Riedisser, Gunter; and Braun, Rainer, to L. Schuler Pressen GmbH. Drive arrangement for a male-die-side ejector slidably disposed in a slide of a mechanical metal-forming press. 5,065,636, Cl. 74-40.000.
Riegel, Ulrich: *See—*
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,066,745, Cl. 526-240.000.
Rieper, Wolfgang; and Hafner, Otmar, to Hoechst Aktiengesellschaft. Powdered azo pigments with improved rheological properties, process for their preparation and their use. 5,066,687, Cl. 523-205.000.
Riesner, Detlev: *See—*
Rosenbaum, Volker; and Riesner, Detlev, 5,066,377, Cl. 204-182.800.
Rieter Machine Works, Ltd.: *See—*
Eichengerger, Hansulrich; and Clement, Heinz, 5,065,477, Cl. 19-150.000.
Meyer, Urs; Oberhansli, Rene F.; and Hausler, Dominik, 5,066,854, Cl. 250-202.000.
Rifkin, Arnold S.: *See—*
Williams, George W.; and Rifkin, Arnold S., 5,065,602, Cl. 70-68.000.
Riker Laboratories, Inc: *See—*
Rustad, Mark A., 5,066,822, Cl. 558-389.000.
Ringle, Richard P.: *See—*
Larson, Richard I.; Ringle, Richard P.; and Harmon, John L., 5,066,429, Cl. 264-0.500.
Rinkewich, Isaac. Self-propelled vehicle. 5,066,031, Cl. 280-221.000.
Rioja, Roberto J.; Bowers, Joel A.; and James, R. Steve, to Aluminum Company of America. Aluminum-lithium alloys and method of making the same. 5,066,342, Cl. 148-12.70A.
Rippel, Harald, to Erwin Kayser - Threde GmbH. Reflector system for michelson interferometers. 5,066,990, Cl. 356-346.000.
Ritter, Karl M., to Container Corporation of America. Container with end wall opening for handle access. 5,065,937, Cl. 229-117.130.
Ritzer, Christian: *See—*
Fischer, Florian; and Ritzer, Christian, 5,066,267, Cl. 475-168.000.
Rivera, Roberto S. Electronic voice and control system for billiards. 5,066,008, Cl. 273-2.000.
Rivoli, Anthony L.: *See—*
Young, William R.; and Rivoli, Anthony L., 5,066,995, Cl. 357-42.000.
Roach, Ernest F.; Frick, Stephen D.; and Sample, Randell F., to Draper Corporation. Loom temple control system to vary pick density. 5,065,796, Cl. 139-300.000.
Robache, Patrick, to Mecaplastic. Packaging machine for closing packaging trays or the like after filling, by welding a film of thermoplastic material. 5,065,563, Cl. 53-69.000.
Robarge, Dean A.: *See—*
Markowski, Robert G.; Perzan, Denis A.; Morby, John A.; and Robarge, Dean A., 5,067,043, Cl. 361-361.000.
Robert Bosch GmbH: *See—*
Huber, Werner; and Spiegel, Guenter, 5,065,722, Cl. 123-399.000.
Klenk, Martin, 5,065,726, Cl. 123-480.000.
Krauter, Immanuel; and Klotzner, Winfried, 5,065,729, Cl. 123-643.000.
Spoetter, Detlef, 5,065,725, Cl. 123-463.000.
Roberts, Bradley M.: *See—*
Michalewski, David; and Roberts, Bradley M., 5,065,898, Cl. 221-171.000.
Robertson-CECO Corporation: *See—*
Laplante, Russell; Rockar, James A.; and Stegeman, Robert H., Jr., 5,065,557, Cl. 52-235.000.
Robertson, Malcolm A., to Australian Wire Industries Pty. Limited. Jet wiping nozzle. 5,066,519, Cl. 429-349.000.
Robey, Frank A.; Fields, Raymond L.; and Lindner, Wolfgang, to United States of America, Health and Human Services. Synthesis of chloroacetyl and bromoacetyl modified peptides for the preparation of synthetic peptide polymers, conjugated peptides, and cyclic peptides. 5,066,716, Cl. 525-54.100.
Robichaux, Bradley A.: *See—*
Bourgeois, Norman R.; and Robichaux, Bradley A., 5,065,735, Cl. 126-40.000.
Robinette, Susan; Lynch, Anita P.; Hoffend, Thomas R.; Grabowski, Edward F.; and Carmichael, Kathleen M., to Xerox Corporation. Styrene butadiene copolymers as binders in mixed pigment generating layer. 5,066,557, Cl. 430-58.000.

Robson, David: *See—*
Combridge, Brian L.; Robson, David; and Timson, Daniel R. E., 5,067,015, Cl. 358-133.000.
Rocazella, Michael A.: *See—*
Kantner, Robert C.; Rocazella, Michael A.; Weinstein, Jerry G.; and White, Danny R., 5,066,618, Cl. 501-127.000.
Rochin, Christophew: *See—*
Gubelmann, Michel; Rochin, Christophew; and Allandrieu, Christian, 5,066,827, Cl. 560-163.000.
Rockar, James A.: *See—*
Laplante, Russell; Rockar, James A.; and Stegeman, Robert H., Jr., 5,065,557, Cl. 52-235.000.
Rockefeller University, The: *See—*
Kappas, Attallah; and Drummond, George S., 5,066,650, Cl. 514-185.000.
Rocklitz, Gary J.; Crofoot, Douglas G.; and Zelinka, Richard L., to Donaldson Company, Inc. Self-spaced pleated filter. 5,066,400, Cl. 210-493.500.
Rockwell International Corporation: *See—*
Adams, William J.; Jex Courter, Barbara G.; Fong, Craig S.; Murray, Robert C.; and Marshall, Paul A., 5,065,962, Cl. 244-234.000.
Culp, Gordon W., 5,066,084, Cl. 359-213.000.
Rode, Klaus: *See—*
Zertani, Rudolf; Mohr, Dieter; and Rode, Klaus, 5,066,564, Cl. 430-284.000.
Rodel, Gunther: *See—*
Tamm, Rolf; Rodel, Gunther; and Stengele, Erich, 5,066,123, Cl. 356-312.000.
Roess, Rudi: *See—*
Lehnert, Michael; Modlinski, Ulrich; and Roess, Rudi, 5,065,613, Cl. 73-23.200.
Rogers, Fulton F., Jr.: *See—*
Dunlap, Beth E.; Rogers, Fulton F., Jr.; and Teasley, Mark F., 5,066,445, Cl. 264-176.100.
Rogers, Michael D. G.; and Henderson, William B., to Geochemical Services, Inc. Electrothermal direct injection torch for inductively coupled plasma. 5,066,125, Cl. 356-316.000.
Rogerson, William E.: *See—*
Frantom, Richard L.; Pickett, David A.; Rogerson, William E.; Rose, James; and Schubert, Robert, 5,066,038, Cl. 200-737.000.
Rohm GmbH Chemische Fabrik: *See—*
Lorenz, Hans; Gross, Ing. H.; Schuchmann, Roland; and Haring, Helmut, 5,066,435, Cl. 264-40.500.
Siol, Werner; and Terbrack, Ulrich, 5,066,718, Cl. 525-84.000.
Rohm and Haas Company: *See—*
Bortnick, Newman M.; Wanat, Robert A.; and Degraff, Darnel, 5,066,696, Cl. 524-91.000.
Koller, Robert D., Sr.; and Hemenway, Carl P., 5,066,708, Cl. 524-504.000.
Winkle, Mark R., 5,066,374, Cl. 204-181.400.
Rohr Industries, Inc.: *See—*
Steinicke, Arlo M., 5,066,450, Cl. 264-504.000.
Rohr, Robert D.; and Kitterman, Lawrence R., to Seaquist Closures. Two-piece dispensing closure with cantilevered biasing member. 5,065,911, Cl. 222-517.000.
Roll Systems, Inc.: *See—*
Crowley, H. W., 5,065,992, Cl. 270-39.000.
Rollmann, Gerhard: *See—*
Richter, Karl-Heinz; Rollmann, Gerhard; Struck, Helmut; and Eilert, Gerd, 5,065,835, Cl. 180-197.000.
Romankiw, Lubomyr T.: *See—*
Andreshak, Joseph C.; Datta, Madhav; Romankiw, Lubomyr T.; and Vega, Luis F., 5,066,370, Cl. 204-129.100.
Romano, Antonio, to Campagnolo Srl. Gear for bicycles and a free-wheel for bicycles including a plurality of such gears. 5,066,264, Cl. 474-152.000.
Romano, James J.: *See—*
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,065,466, Cl. 5-453.000.
Romano, Raymond. Handicap-accessible restroom. 5,065,462, Cl. 4-604.000.
Roobeek, Cornelis F.: *See—*
Van Leeuwen, Petrus W. N. M.; Roobeek, Cornelis F.; and Wong, Pui K., 5,066,777, Cl. 528-392.000.
Roos, Uwe-Volker; and Gittner, Franz, to Bekum Maschinenfabriken GmbH. Method and apparatus for heating and conveying plastic preforms prior to mold blowing operations. 5,066,222, Cl. 432-5.000.
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., to General Dynamics, Electronics Division. Radome diagnostic system. 5,066,921, Cl. 324-639.000.
Rorden, Louis H., to Develco, Inc. Correlation for combinational coded telemetry. 5,067,114, Cl. 367-81.000.
Rosati, Robert J.: *See—*
DeFrank, Michael P.; and Rosati, Robert J., 5,066,142, Cl. 374-208.000.
Rosby Corporation: *See—*
Yurgevich, Howard J.; and Navoczynski, Stanley J., 5,066,066, Cl. 296-181.000.
Rosch, Wilhelm. Hinged multiple garment hanger. 5,065,915, Cl. 223-89.000.
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, to Hoechst Aktiengesellschaft. Process for the isolation of vinyl acetate by distillation. 5,066,365, Cl. 203-042.000.
Rose, Friedhelm: *See—*
Altmann, Joachim; Rose, Friedhelm; Schwartz, Roman; and Schmitt, Horst, 5,065,878, Cl. 220-3.800.
Rose, James: *See—*
Frantom, Richard L.; Pickett, David A.; Rogerson, William E.; Rose, James; and Schubert, Robert, 5,066,038, Cl. 200-737.000.
Rosemount GmbH & Co.: *See—*
Lehnert, Michael; Modlinski, Ulrich; and Roess, Rudi, 5,065,613, Cl. 73-23.200.
Rosenbaum, Volker; and Riesner, Detlev, to Diagen Institute fur molekularbiologische Diagnostik GmbH. Method and device for producing a controllable and reproducible temperature gradient and use thereof. 5,066,377, Cl. 204-182.800.
Rosenthal, Karl-Heinz, to Bielsteiner Verschlusstechnik GmbH. Biased swivel closure. 5,065,912, Cl. 222-517.000.
Rosenthal, Manfred: *See—*
Durr, Heinrich; Rosenthal, Manfred; and Adamek, Manfred, 5,066,151, Cl. 400-605.000.
Ross, Lena. Process and apparatus for disengaging and separating bitumen from pulverized tar sands using selective cohesion. 5,066,388, Cl. 209-170.000.
Rosselet, Ernest: *See—*
Kudelski, Stefan; Schlup, Jean-Claude; and Rosselet, Ernest, 5,067,035, Cl. 360-85.000.
Rossier, Glenn E.: *See—*
Bullis, Stephen J.; Duke, Steven R.; Cozzy, Thomas W.; and Rossier, Glenn E., 5,065,662, Cl. 89-12.000.
Roth, Andreas: *See—*
Flanhardt, Michael; Roth, Andreas; and Nienhaus, Clemens, 5,065,639, Cl. 74-417.000.
Rouquette, Robert E.: *See—*
Arthur, James D.; Sanderford, H. Britton, Jr.; Rouquette, Robert E.; and Davis, Robert J., 5,067,136, Cl. 375-1.000.
Roussos, Jonathan: *See—*
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., 5,066,921, Cl. 324-639.000.
Rouzioux, Christine: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.
Rowley, Derrick: *See—*
Manning, Paul A.; Reeves, Peter R.; and Rowley, Derrick, 5,066,596, Cl. 435-252.330.
Rozenblatt, Mike M., to Monogram Sanitation, a division of MAG Aerospace Industries, Inc. Flow control valve. 5,065,786, Cl. 137-202.000.
Ruberg, Wolfgang: *See—*
Perzl, Peter R.; Ruberg, Wolfgang; and Puell, Heinz B., 5,067,135, Cl. 372-83.000.
Rubin, Meryl S. A.: *See—*
Szabo, Sandor; Rubin, Meryl S. A.; Klibaner, Michael; and Kamarei, Ahmed R., 5,066,496, Cl. 424-570.000.
Ruby, Kenneth: *See—*
Driscoll, Edward C., Jr.; Martin, Craig O.; Ruby, Kenneth; Russell, James J.; and Watson, John G., 5,067,162, Cl. 382-5.000.
Rudolph, Leroy, Jr.; and Brimeyer, Dennis A., to Deere & Company. Process for fabricating a moldboard blade. 5,065,646, Cl. 76-101.100.
Rudolph, Robin R.: *See—*
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., 5,066,482, Cl. 424-45.000.
Ruegg, Walter: *See—*
Brandle, Hubert; Schultheis, Lothar; and Ruegg, Walter, 5,066,097, Cl. 385-76.000.
Ruff, Klaus; Falk, Bernhard; and Gratz, Werner, to Huels Aktiengesellschaft. Method for processing the residues of a chlorosilane distillation. 5,066,472, Cl. 423-342.000.
Ruhl, Juergen: *See—*
Krause, Norbert; Hanke, Wilhelm; and Ruhl, Juergen, 5,065,760, Cl. 128-653.500.
Rulke, Gerhart, to Inventio AG. Illumination device for a transport system, especially escalators or passenger walkway. 5,067,062, Cl. 362-146.000.
Rump, Hanns: *See—*
Holter, Heinz; Igelbuscher, Heinrich; Gresch, Heinrich; Dewert, Heribert; and Rump, Hanns, 5,066,466, Cl. 422-98.000.
Runaldue, Thomas J., to Advanced Micro Devices, Inc. Global reset and zero detection for a memory system. 5,067,110, Cl. 365-189.070.
Ruozi, Giuseppe, to Officine Meccaniche Attrezzature per Ceramiche. Method of pasteurizing or sterilizing foodstuffs utilizing microwaves. 5,066,503, Cl. 426-234.000.
Rusmar Incorporated: *See—*
Manlowe, David; and Kittle, Paul A., 5,066,428, Cl. 261-29.000.
Russeler, Wolfgang; Idel, Karsten-Josef; Dorf, Ernst-Ulrich; Alewelt, Wolfgang; and Freitag, Dieter, to Bayer Aktiengesellschaft. Process for the manufacture of polyarylene sulphides. 5,066,776, Cl. 528-388.000.
Russeler, Wolfgang: *See—*
Dorf, Ernst-Ulrich; Reinking, Klaus; Jakob, Wolfgang; Tresper, Erhard; and Russeler, Wolfgang, 5,066,775, Cl. 528-388.000.
Russell, Donald G. Protective sheath for hypodermic needles. 5,066,279, Cl. 604-110.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Russell, James J.: *See—*
Driscoll, Edward C., Jr.; Martin, Craig O.; Ruby, Kenneth; Russell, James J.; and Watson, John G., 5,067,162, Cl. 382-5.000.

Rustad, Mark A., to Riker Laboratories, Inc. Di-t-butylphenols substituted by an alkoxy or benzyloxy group or a benzylthio group. 5,066,822, Cl. 558-389.000.

Rutgers University: *See—*
Hartman, Thomas G.; Manura, John J.; Overton, Santford V.; Baker, Christopher W.; and Manos, John N., 5,065,614, Cl. 73-23.350.

Rutgerswerke AG: *See—*
Pastorek, Emmerich; Orth, Winfried; Weiss, Wolfgang; and Kleffner, Hans W., 5,066,806, Cl. 546-180.000.

Ryan, Dana W., to Ryan Medical, Inc. Safety multiple sample luer adapter assembly. 5,066,286, Cl. 604-240.000.

Ryan, Dana W., to Ryan Medical, Inc. Safety multiple sample rear adapter assembly. 5,066,287, Cl. 604-240.000.

Ryan Medical, Inc.: *See—*
Ryan, Dana W., 5,066,286, Cl. 604-240.000.
Ryan, Dana W., 5,066,287, Cl. 604-240.000.

Rye, Robert R.: *See—*
Martinez, Robert J.; and Rye, Robert R., 5,066,565, Cl. 430-296.000.

Sabnani, Krishan K.: *See—*
Krishnakumar, Anjur S.; Krishnamurthy, Bala; and Sabnani, Krishan K., 5,067,104, Cl. 395-375.000.

Saegusa, Kunio: *See—*
Kadokura, Hidekimi; and Saegusa, Kunio, 5,066,530, Cl. 428-98.000.

Safe Medical Devices, Inc.: *See—*
Carrell, Michael W.; and Gericke, Stephen H., 5,066,277, Cl. 604-110.000.

Safe-T-Jack, Inc.: *See—*
Slay, Clyde E., 5,065,983, Cl. 254-8.00B.

Safe-Tec Clinical Products, Inc.: *See—*
Coleman, Charles M.; and Kendrick, William G., Sr., 5,065,768, Cl. 128-760.000.

Sagami Chemical Research Center: *See—*
Umemoto, Teruo; and Ishihara, Sumi, 5,066,795, Cl. 540-1.000.

Sagawa, Takayoshi; and Tani, Shichisei, to Japan Tobacco Inc. Liquid charging method and a liquid charging apparatus. 5,065,800, Cl. 141-67.000.

Sahara, Kunizo: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Sahashi, Masayoshi, to Kabushiki Kaisha Daikin Seisakusho. Method of securing a blade for a torque converter. 5,065,509, Cl. 29-889.210.

Saito, Hiroshi: *See—*
Ebihara, Yasuhiro; Sakaniwa, Hiroyuki; and Saito, Hiroshi, 5,065,494, Cl. 29-525.200.

Saito, Mitsunaga: *See—*
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.

Saito, Mitsuru: *See—*
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.

Saito, Naoki: *See—*
Ichijima, Seiji; Saito, Naoki; Mihayashi, Keiji; Ishii, Yoshio; and Ogawa, Akira, 5,066,576, Cl. 430-558.000.

Saitoh, Takeshi; and Kohno, Nozomu, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho. Locking device for hood. 5,066,055, Cl. 292-228.000.

Sakagami, Rokuro: *See—*
Sato, Takashi; Iwanabe, Yoji; Arato, Koji; Sakagami, Rokuro; and Yoneda, Yasuo, 5,065,809, Cl. 164-61.000.

Sakaguchi, Shigeyuki; Ariga, Tadashi; and Maruyama, Hirotsugu, to Nissan Motor Company, Limited. Air/fuel ratio control system for internal combustion engine. 5,065,727, Cl. 123-489.000.

Sakai, Ikuo: *See—*
Nakamura, Yasuhiro; Sakai, Ikuo; and Kawabuchi, Masami, 5,065,764, Cl. 128-661.090.

Sakai, Takashi: *See—*
Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, 5,066,152, Cl. 400-621.000.

Sakamoto, Hirokazu; Ohtani, Makoto; Nakagawa, Naoki; Maejima, Taro; and Hayama, Masahiro, to Mitsubishi Denki Kabushiki Kaisha. Liquid crystal display device having redundant buses. 5,066,106, Cl. 359-59.000.

Sakamoto, Noriya; Yasuki, Seijiro; and Kawai, Kiyoyuki, to Kabushiki Kaisha Toshiba. Frequency-division multiplexing arrangement for preventing interference between a main television signal and a helper signal thereof. 5,067,018, Cl. 358-142.000.

Sakamoto, Takuro: *See—*
Miyabayashi, Shigeaki; Sakamoto, Takuro; Kanai, Hiroshi; and Oka, Joji, 5,066,757, Cl. 528-45.000.

Sakaniwa, Hiroyuki: *See—*
Ebihara, Yasuhiro; Sakaniwa, Hiroyuki; and Saito, Hiroshi, 5,065,494, Cl. 29-525.200.

Sakanoue, Kei: *See—*
Matushita, Tetunori; Yagihara, Morio; and Sakanoue, Kei, 5,066,573, Cl. 430-542.000.

Sakubata, Takashi: *See—*
Noguchi, Takehiko; Sakubata, Takashi; and Nagano, Hirosaku, 5,066,770, Cl. 528-353.000.

Sakurai, Keiichi: *See—*
Yoshimura, Hironori; Sawada, Yoshihiro; Nakahara, Kei; Kunugi, Hitoshi; and Sakurai, Keiichi, 5,066,553, Cl. 428-698.000.

Sakurai, Kiyofumi; Fujii, Syuso; and Shimizu, Mitsuru, to Kabushiki Kaisha Toshiba. Semiconductor device. 5,066,997, Cl. 357-45.000.

Sakurai, Tomoyuki: *See—*
Muto, Yoshihiko; Watanabe, Kohei; Yasukata, Koichi; and Sakurai, Tomoyuki, 5,066,397, Cl. 210-321.610.

Salavin, Serge; Deschamps, Jacques; Gay, Michel; and Specty, Michel, to Thomson Tubes Electroniques. Plasma panels in delimited discharge zones. 5,066,890, Cl. 313-585.000.

Salett, Ronald M.: *See—*
Fite, Elaine H.; Fossum, Tryggve; Grundmann, William R.; McKeen, Francis X.; and Salett, Ronald M., 5,067,069, Cl. 395-375.000.

Salk Insstitute for Biological Studies, The: *See—*
Patrick, James W.; Heinemann, Stephen F.; Boss, Barbara D.; and Cowan, W. Maxwell, 5,066,593, Cl. 435-240.270.

Salomon, James A., to Xerox Corporation. Lateral sheet registration system. 5,065,998, Cl. 271-251.000.

Salomon S. A.: *See—*
Paris, Jean, 5,065,533, Cl. 36-117.000.

Sam Il Pharmaceutical Manufacturing Co., Ltd.: *See—*
Kweon, Jung M., 5,066,601, Cl. 436-64.000.

Sample, Randell F.: *See—*
Roach, Ernest F.; Frick, Stephen D.; and Sample, Randell F., 5,065,796, Cl. 139-300.000.

Sampsell, Jeffrey B.: *See—*
Juday, Richard D.; and Sampsell, Jeffrey B., 5,067,019, Cl. 358-160.000.

SamSung Electronics Co., Ltd.: *See—*
Choi, Jung-Hyuk, 5,067,001, Cl. 357-54.000.
Kim, Eun J., 5,067,023, Cl. 358-261.100.
Kim, Seong-tae; Choi, Su-han; and Ko, Jae-hong, 5,066,608, Cl. 437-52.000.

Sand, Roland. Drive arrangement for a planing boat. 5,066,255, Cl. 440-112.000.

Sanden Corporation: *See—*
Taguchi, Yukihiko, 5,065,589, Cl. 62-161.000.

Sanderford, H. Britton, Jr.: *See—*
Arthur, James D.; Sanderford, H. Britton, Jr.; Rouquette, Robert E.; and Davis, Robert J., 5,067,136, Cl. 375-1.000.

Sanders, J. Randolph: *See—*
Hanson, William J.; and Sanders, J. Randolph, 5,066,517, Cl. 427-197.000.

Sanders, Josef: *See—*
Mafoti, Robson; and Sanders, Josef, 5,066,824, Cl. 560-44.000.

Sanders, Stephen. Leaf bagging equipment. 5,066,143, Cl. 383-4.000.

Sandewicz, Robert W.: *See—*
Castrogiovanni, Anthony; Sandewicz, Robert W.; and Amato, Steven W., 5,066,484, Cl. 424-61.000.

Sandor, Robert B.; and Thornburg, Theodore S., to Hoechst Celanese Corporation. Polybenzimidazole solutions. 5,066,697, Cl. 524-233.000.

Sandoz Ltd.: *See—*
Abeles, Robert H.; and Gelb, Michael H., 5,066,643, Cl. 514-18.000.
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., 5,066,482, Cl. 424-45.000.

Sanford, Robert W.: *See—*
Long, Michael; Huttemann, Lyndon R.; Sanford, Robert W.; and Longboat, Robert D., 5,066,345, Cl. 156-157.000.
Long, Michael; Huttemann, Lyndon R.; and Sanford, Robert W., 5,066,346, Cl. 156-157.000.

Sangokoya, Samuel A.; Howie, Milham S.; and Trumbo, Todd A., to Ethyl Corporation. Hydrocarbon solutions of alkylaluminoxane compounds. 5,066,631, Cl. 502-152.000.

Sano, Toshiyuki: *See—*
Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, 5,066,539, Cl. 428-328.000.

Sansone, Joseph A.: *See—*
Harrold, William J.; Sansone, Joseph A.; Bonfiglio, Joseph W.; and Kim, Seung K., 5,066,891, Cl. 315-8.000.

Sanwick, John D.: *See—*
Demirel, Osman S.; and Sanwick, John D., 5,066,943, Cl. 340-573.000.

Sanyo Electric Co., Ltd.: *See—*
Iwamoto, Masayuki; Minami, Kouji; and Yamaoki, Toshihiko, 5,066,340, Cl. 136-258.000.
Takano, Yoshiaki; Sato, Koichi; and Shimose, Yutaka, 5,065,592, Cl. 62-180.000.

Sanz, Antonio H.: *See—*
Serrano, Martin S.; and Sanz, Antonio H., 5,065,854, Cl. 192-8.00R.

Sardana, Sanjeev, to Nynex Corporation. Method and apparatus for planning telephone facilities networks. 5,067,148, Cl. 379-111.000.

Sargeant, John B., to Westinghouse Electric Corp. Stator core assembly. 5,066,882, Cl. 310-217.000.

Sarraf, Sanwal P., to Eastman Kodak Company. Laser thermal printer having a light source produced from combined beams. 5,066,962, Cl. 346-76.00L.

Sasaki, Minoru, to Kabushiki Kaisya Advance Kaihatsu Kenkyujo. Device for detecting R-waves in electrocardiogram. 5,065,766, Cl. 128-708.000.

Sasaki, Shosuke and Kitano, Yasuyuki, to Canon Kabushiki Kaisha. Method of storing volatile substances, container for storing said substances, and flow-control method for surface flow of superfluid helium. 5,065,583, Cl. 62-51.300.

Sasaki, Takayoshi: *See—*
Komatsu, Yu; Fujiki, Yoshinori; and Sasaki, Takayoshi, 5,066,404, Cl. 210-670.000.

Satake, Tokuki: *See—*
Matsuoka, Toshio; Higashida, Akio; and Satake, Tokuki, 5,065,833, Cl. 180-117.000.

Sato, Hironari: *See—*
Anzawa, Norio; Adachi, Koji; Futakawa, Tetsuo; Sato, Hironari; and Narita, Akira, 5,066,219, Cl. 431-10.000.

Sato, Katsuhiro: *See—*
Sekine, Shuji; Furuya, Takeo; and Sato, Katsuhiro, 5,066,878, Cl. 310-68.00C.

Sato, Koichi: *See—*
Takano, Yoshiaki; Sato, Koichi; and Shimose, Yutaka, 5,065,592, Cl. 62-180.000.

Sato, Koji: *See—*
Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, 5,066,967, Cl. 354-149.110.

Sato, Kuniaki: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Sato, Michitaka; and Nishio, Hiroaki, to NKK Corporation. Method of producing silicon nitride sintered body. 5,066,438, Cl. 264-56.000.

Sato, Shuitsu: *See—*
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.

Sato, Susumu: *See—*
Ohbuchi, Yukio; Maeda, Yoshiaki; Kawasaki, Masahiro; Sato, Susumu; and Akimoto, Mamoru, 5,066,762, Cl. 528-85.000.

Sato, Tadahisa; Takahashi, Osamu; Naruse, Hideaki; and Mizukawa, Yuki, to Fuji Photo Film Co., Ltd. Silver halide color photographic material containing pyrazolo (1,5-b)(1,2,4)triazole magenta coupler. 5,066,575, Cl. 430-558.000.

Sato, Takashi; Iwanabe, Yoji; Arato, Koji; Sakagami, Rokuro; and Yoneda, Yasuo, to Mitsui Engineering & Shipbuilding Co., Ltd.; Yoneda, Yasuo; and Sato, Takashi. Method for casting titanium or titanium-based alloy. 5,065,809, Cl. 164-61.000.

Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, to Meiji Seika Kaisha, Ltd. Novel oxamic acid compounds and pharmaceutical composition for use in improvement of damaged cerebral functions of brain. 5,066,677, Cl. 514-563.000.

Satoh, Katsumi: *See—*
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.

Satoh, Shinichi: *See—*
Eimori, Takahisa; Satoh, Shinichi; Wakamiya, Wataru; Ozaki, Hiroji; and Tanaka, Yoshinori, 5,067,000, Cl. 357-53.000.

Satomi, Mitsuo; Oshita, Kazuaki; and Kuwahara, Tetsuya, to Murata Kikai Kabushiki Kaisha. Telephone number display device. 5,067,150, Cl. 379-354.000.

Satou, Shoichi: *See—*
Hino, Seiichi; Satou, Shoichi; Koura, Kouji; and Suzuki, Osamu, 5,066,771, Cl. 528-353.000.

Saunders, Grady F.; and Mars, Wendy M., to Board of Regents University of Texas. Gene probe for detection of specific human leukemias. 5,066,792, Cl. 536-27.000.

Sava, Gianni: *See—*
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, 5,066,642, Cl. 514-18.000.

Savino, Thomas G.; Balch, Thomas C.; Steinmetz, Alan J.; Balatin, Sergio E.; and Caiozzo, Nicholas, to BASF Corporation, Inmont Division. Novel non-ionic polyurethane resins having polyether backbones in water-dilutable basecoats. 5,066,732, Cl. 525-440.000.

Sawada, Takeshi: *See—*
Yoneda, Kou; and Sawada, Takeshi, 5,065,500, Cl. 29-603.000.

Sawada, Yoshihiro: *See—*
Yoshimura, Hironori; Sawada, Yoshihiro; Nakahara, Kei; Kunugi, Hitoshi; and Sakurai, Keiichi, 5,066,553, Cl. 428-698.000.

Sawyer, Roy D.: *See—*
Reese, D. Dwaine; Sawyer, Roy D.; and Crow, Stanley G., 5,066,199, Cl. 417-63.000.

Saya, Daisuke: *See—*
Takagi, Tadao; Saya, Daisuke; and Nemoto, Shigehisa, 5,066,884, Cl. 310-323.000.

Sayo, Noboru; Kumobayashi, Hidenori; Akutagawa, Susumo; Noyori, Ryoji; and Takaya, Hidemasa, to Takasago International Corporation. Process for preparing optically active alcohol. 5,066,815, Cl. 549-319.000.

Scaller, Klaus: *See—*
Baasner, Bernd; Beck, Gunther; Heitzer, Helmut; and Scaller, Klaus, 5,066,681, Cl. 514-716.000.

Scan Group Limited: *See—*
Fell, Roger, 5,065,624, Cl. 73-290.00V.

Scarlata, Richard F.: *See—*
McGraw, Thomas C.; Van Ryne, Randall E.; Scarlata, Richard F.; and Sze, Cho Y., 5,065,996, Cl. 271-176.000.

Scaroni, Damiano, to Scaroni F.lli S.p.A. Airtight container. 5,065,885, Cl. 220-326.000.

Scaroni F.lli S.p.A.: *See—*
Scaroni, Damiano, 5,065,885, Cl. 220-326.000.

Schako Metallwarenfabrik: *See—*
Muller, Gottfried; and Hipp, Paul, 5,065,669, Cl. 98-40.110.

Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., to Encore Computer Corporation. Multiprocessor computer system employing a plurality of tightly coupled processors with interrupt vector bus. 5,067,071, Cl. 395-275.000.

Schap, William W., to ITT Corporation. Power striker for automotive door latch. 5,066,056, Cl. 292-341.160.

Scharf, Jonathan. Method and product for improved glass fiber reinforced and filled thermoplastic and thermosetting resin systems. 5,066,361, Cl. 156-663.000.

Scheckel, Robert G.: *See—*
Takken, Paul E.; Scheckel, Robert G.; and Peo, Steven D., 5,065,469, Cl. 15-89.000.

Scheerer, Joachim; and Grutzediek, Hartmut. Analog to digital converters with convergence accelerating signals. 5,066,955, Cl. 341-168.000.

Scheindel, Christian T. Barrier can prefill seal. 5,065,900, Cl. 222-1.000.

Schenck, Stephen R., to Texas Instruments Incorporated. Speed-up technique for a constant di/dt buffer. 5,066,872, Cl. 307-443.000.

Scherer, Thomas W.: *See—*
Pino, Giovanni; Scherer, Thomas W.; and Stephens, Ruth A., 5,065,909, Cl. 222-484.000.

Schering Aktiengesellschaft: *See—*
Buhmann, Ulrich; Joppien, Hartmut; and Baumert, Dietrich, 5,066,675, Cl. 514-544.000.

Schick, Gerald: *See—*
Dangl, Wolfgang; Schick, Gerald; Nowack, Reinhard; and Reuber, Gerhard, 5,066,040, Cl. 280-756.000.

Schipper, Paul H.: *See—*
Owen, Hartley; and Schipper, Paul H., 5,066,627, Cl. 502-43.000.

Schiroky, Gerhard H.: *See—*
Claar, Terry D.; Schiroky, Gerhard H.; and Pochopien, Kevin P., 5,066,622, Cl. 501-87.000.

Schleese, Eckard: *See—*
Hanisch, Ferdinand; and Schleese, Eckard, 5,066,863, Cl. 250-474.100.

Schlindwein, Siegfried: *See—*
Wiktor, Dominik M.; and Schlindwein, Siegfried, 5,066,840, Cl. 200-330.000.

Schloemer, Gerald R. Air to ground communications system and method. 5,067,172, Cl. 455-34.000.

Schlueter, Francis E., to Deere & Company. Valve interlock system for a harvester having an unloadable crop receiving receptacle. 5,065,569, Cl. 56-16.600.

Schlumberger Technology Corporation: *See—*
Seeman, Bronslaw, 5,067,090, Cl. 364-486.000.

Schlup, Jean-Claude: *See—*
Kudelski, Stefan; Schlup, Jean-Claude; and Rosselet, Ernest, 5,067,035, Cl. 360-85.000.

Schmaderer, Gerhard; and Hilke, Rainer, to A-Z Formen-und Maschinenbau GmbH. Vented tire mold. 5,066,209, Cl. 425-28.100.

Schmickl, Werner; and Meichsner, Roland, to J. S. Staedtler GmbH & Co. Writing fluid. 5,066,329, Cl. 106-20.000.

Schmid, Johannes; and Kielwein, Thomas, to TRW Repa GmbH. Safety belt retractor. 5,065,953, Cl. 242-74.000.

Schmidt, Adolf: *See—*
Eichenauer, Herbert; Wittmann, Dieter; Schmidt, Adolf; and Ott, Karl-Heinz, 5,066,717, Cl. 525-67.000.

Schmidt, Diane G.: *See—*
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., 5,066,419, Cl. 252-174.110.

Schmidt, Karl-Heinz: *See—*
Roscher, Gunter; Schmidt, Karl-Heinz; Eichler, Klaus; Horstermann, Peter; Gradl, Reinhard; and Langner, Horst, 5,066,365, Cl. 203-042.000.

Schmidt, Norman G., to Ford Motor Company. Brake pedal travel warning system. 5,066,940, Cl. 340-453.000.

Schmidt, Rainer: *See—*
David, Helmut; Malik, J. Ernst; and Schmidt, Rainer, 5,065,815, Cl. 165-67.000.

Schmidt, Roger A.; and Swenson, Bryan R., to Cargill, Incorporated. Coating resin composition based on epoxy polyol esters of unsaturated fatty acids. 5,066,690, Cl. 523-423.000.

Schmierer, Quentin: *See—*
Borkenhagen, John M.; Schmierer, Quentin; and Geer, Charles P., 5,067,105, Cl. 395-400.000.

Schmitt, Horst: *See—*
Altmann, Joachim; Rose, Friedhelm; Schwartz, Roman; and Schmitt, Horst, 5,065,878, Cl. 220-3.800.

Schmitt, Wayne I., to American Tourister, Inc. Laundry valet. 5,065,864, Cl. 206-278.000.

Schmitz, Wilhelm: *See—*
Krettek, Guntram; and Schmitz, Wilhelm, 5,066,271, Cl. 494-58.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Schnabel, Werner, to Siemens Aktiengesellschaft. Solid electrolyte capacitor in a chip structure and method for the manufacturing thereof. 5,067,048, Cl. 361-540.000.

Schneid, Michael R.; and Prohs, John R., to Ambassador College. Telephone line communications control system with dynamic call streaming. 5,067,149, Cl. 379-224.000.

Schneider, Rudolf, to Erowa AG. Apparatus for fixing a workpiece to the worktable of a machine tool. 5,065,991, Cl. 269-309.000.

Schneiderhan, Edward M., to Johnson & Quin, Inc. Apparatus and method for assembling mass mail items. 5,067,088, Cl. 364-478.000.

Schnell, Kenneth R.: *See—*
Kesler, Gregory J.; and Schnell, Kenneth R., 5,065,968, Cl. 248-205.100.

Scholten, Henricus P. H.: *See—*
Andre, Olivier L. P.; and Scholten, Henricus P. H., 5,066,763, Cl. 528-92.000.

Scholz, Heinrich; and Guse, Rudolf, to SMS Schloemann-Siemag Aktiengesellschaft. Apparatus for the manufacture of hot rolled steel strip. 5,065,811, Cl. 164-460.000.

Schonborn, Karl-Heinz: *See—*
Muller, Gerhard; Kar, Hasan; Dorschel, Klaus; and Schonborn, Karl-Heinz, 5,066,292, Cl. 606-7.000.

Schott Glaswerke: *See—*
Muller, Gerhard; Kar, Hasan; Dorschel, Klaus; and Schonborn, Karl-Heinz, 5,066,292, Cl. 606-7.000.

Schroder, Joris, to Inventio AG. Elevator group control for the immediate assignment of destination calls. 5,065,846, Cl. 187-127.000.

Schubert, Robert: *See—*
Frantom, Richard L.; Pickett, David A.; Rogerson, William E.; Rose, James; and Schubert, Robert, 5,066,038, Cl. 200-737.000.

Schuchmann, Roland: *See—*
Lorenz, Hans; Gross, Ing. H.; Schuchmann, Roland; and Haring, Helmut, 5,066,435, Cl. 264-40.500.

Schuh, Robert R.; Terrell, Nancy E.; Kreiseder, Walter J.; and Vogel, Allen J., to Scott Paper Company. Container with hinged cover. 5,065,887, Cl. 220-338.000.

Schule, Gerhard: *See—*
Nuesslein, Karl; Motta, Antonio; and Schule, Gerhard, 5,066,243, Cl. 439-460.000.

Schultheis, Lothar: *See—*
Brandle, Hubert; Schultheis, Lothar; and Ruegg, Walter, 5,066,097, Cl. 385-76.000.

Schultz, Richard A.: *See—*
Detweiler, Charles A.; and Schultz, Richard A., 5,065,979, Cl. 251-129.160.

Schultz, William R., Jr.: *See—*
Elton, Richard K.; and Schultz, William R., Jr., 5,066,881, Cl. 310-213.000.
Elton, Richard K.; and Schultz, William R., Jr., 5,067,046, Cl. 361-220.000.

Schultz, Wolfgang: *See—*
Langowski, Andreas; Schultz, Wolfgang; and Walter, Gerhard, 5,065,524, Cl. 33-544.200.

Schulze, Dale R.; Sherman, Jon A.; and Mereness, W. Michael, to Ethicon, Inc. Surgical stapler with locking means. 5,065,929, Cl. 227-19.000.

Schumacher, William A.: *See—*
Ogletree, Martin L.; Schumacher, William A.; Grover, Gary J.; and Friedhoff, Lawrence T., 5,066,480, Cl. 424-10.000.

Schuppiser, Jean-Luc; Coutant, Antoine; and Bozetto, Jean-Claude, to Rhone- Poulenc Chimie. Homogeneous, storage-stable chocolate milk comestibles and process of making. 5,066,508, Cl. 426-584.000.

Schurter, Rolf: *See—*
Kunz, Walter; Schurter, Rolf; and Nyfeler, Robert, 5,066,661, Cl. 514-361.000.

Schuster, Ludwig: *See—*
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, 5,066,673, Cl. 514-521.000.

Schuster, Peter. Hydrostatic line testing and method. 5,065,616, Cl. 73-49.200.

Schuster, Rudolf; and Raschke, Josef, to Siemens Aktiengesellschaft. Soldering device with stirrup electrodes and a suction pipette. 5,066,844, Cl. 219-85.160.

Schwartz, Alexander: *See—*
Ishak, Maher; and Schwartz, Alexander, 5,066,312, Cl. 51-295.000.

Schwartz, Roman: *See—*
Altmann, Joachim; Rose, Friedhelm; Schwartz, Roman; and Schmitt, Horst, 5,065,878, Cl. 220-3.800.

Schwarzpech, Bruno K.: *See—*
Gaffan, Charles; and Schwarzpech, Bruno K., 5,066,173, Cl. 408-59.000.

Schweiger, Thaddeus J., to Square D Company. Output protection scheme for unipolar constant current source. 5,067,045, Cl. 361-56.000.

Schweitzer, Naftali; Bodenheimr, Joseph S.; and David, Gerald B., to Driver Safety Systems Ltd. Traffic safety monitoring apparatus. 5,066,950, Cl. 340-937.000.

Schweizer, Horst, to AEG Olympia Office GmbH. Solenoid plunger magnet and its use as print hammer in a print hammer device. 5,066,980, Cl. 335-255.000.

Schweizerische Gesellschaft fur Tuillindustries, AG: *See—*
Kaufmann, Josef, 5,065,601, Cl. 66-195.000.

Schwenker, John P., to Hyperfine, Inc. Stigmatic imaging with spherical concave diffraction gratings. 5,066,127, Cl. 356-328.000.

Science Ventures, Inc.: *See—*
Laird, Douglas H., 5,066,474, Cl. 423-541.00R.

Sclavo, S.p.A.: *See—*
Protasi, Otello; and Rappuoli, Paolo, 5,066,786, Cl. 530-351.000.

Scott Paper Company: *See—*
Schuh, Robert R.; Terrell, Nancy E.; Kreiseder, Walter J.; and Vogel, Allen J., 5,065,887, Cl. 220-338.000.

SDS Biotech K.K.: *See—*
Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, 5,066,657, Cl. 514-269.000.

Se Lab Group, Inc.: *See—*
Cross, David L., 5,065,700, Cl. 119-725.000.

Seaquist Closures: *See—*
Rohr, Robert D.; and Kitterman, Lawrence R., 5,065,911, Cl. 222-517.000.

Seats, William R. Mounting brackets for mounting engine asseccories. 5,065,713, Cl. 123-195.00A.

Secretary of the State for Defence in her Britannic Majesty's Government of United Kingdom, The: *See—*
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased, 5,066,457, Cl. 420-552.000.

Sedelmeier, Gottfried: *See—*
Blaser, Hans-Ulrich; Jalett, Hans-Peter; and Sedelmeier, Gottfried, 5,066,801, Cl. 540-523.000.

Sedro, Richard M.: *See—*
Pedersen, Richard C.; and Sedro, Richard M., 5,067,106, Cl. 395-575.000.

Seely, Richard L.: *See—*
Peters, Donald C.; and Seely, Richard L., 5,066,215, Cl. 425-464.000.

Seeman, Bronslaw, to Schlumberger Technology Corporation. Nuclear spectroscopy method and apparatus for digital pulse height analysis. 5,067,090, Cl. 364-486.000.

Seener, G. Thomas; and Heffner, Joseph H., to Sporlan Valve Company. Thermostatic expansion valve. 5,065,595, Cl. 62-212.000.

Segers, Jacobus C.: *See—*
Asbeck, Lutz S.; and Segers, Jacobus C., 5,066,504, Cl. 426-417.000.

Sehgal, Surendra N.; and Vezina, Claude, to American Home Products Corporation. Rapamycin in treatment of tumors. 5,066,493, Cl. 424-122.000.

Seiden, Paul: *See—*
Ehrman, Albert M.; Seiden, Paul; Weitzel, Rose M.; and White, Robert L., 5,066,510, Cl. 426-607.000.

Seidl, Sigrid; Weinrotter, Klaus; and Simharl, Reinhold, to Lenzing Aktiengesellschaft. Mixed polyimides and process for preparing them. 5,066,760, Cl. 528-51.000.

Seifert, Heinrich, to Siemens Aktiengesellschaft. Dewar vessel for a superconducting magnetometer device. 5,065,582, Cl. 62-45.100.

Seiichiro, Nomoto: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Seiko Electric Components Ltd.: *See—*
Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hidcharu; and Kawagoe, Takahiro, 5,066,556, Cl. 429-194.000.

Seikoh Giken Co., Ltd.: *See—*
Takahashi, Mitsuo, 5,066,094, Cl. 385-73.000.

Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, to Fanuc Ltd. Composite-figure definition method. 5,067,087, Cl. 364-474.240.

Sekine, Akihiko, to Kabushiki Kaisha Topcon. Optical system in a laser scanning eye fundus camera. 5,066,116, Cl. 351-221.000.

Sekine, Atsushi: *See—*
Nakajima, Masaya; and Sekine, Atsushi, 5,066,113, Cl. 359-649.000.

Sekine, Shuji; Furuya, Takeo; and Sato, Katsuhiro, to Jidosha Denki Kogyo K.K. Small-sized electric motor housing circuit breaker. 5,066,878, Cl. 310-68.00C.

Sekino, Naomi: *See—*
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Sekiya, Shigenobu: *See—*
Hirabayashi, Kazuo; Oono, Tetsuya; Akiyama, Eitetsu; Ishii, Yukihisa; Sekiya, Shigenobu; and Fujimura, Yuji, 5,065,834, Cl. 180-197.000.

Sekiya, Shin: *See—*
Kakuda, Masayuki; Sekiya, Shin; and Kitora, Yoshihisa, 5,066,206, Cl. 418-55.300.

Sekulovski, Bill G. Fuel tank lock. 5,066,062, Cl. 296-97.220.

Selamoglu, Nur: *See—*
Fischer, Frederick H.; Lee, Kuo-hua; Nagy, William J.; and Selamoglu, Nur, 5,066,998, Cl. 357-51.000.

Semler, John: *See—*
Shibata, Tomoo; Semler, John; and Gaesser, George, 5,066,633, Cl. 503-209.000.

Senshu, Takao: *See—*
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.

Sentovich, Michael F.: *See—*
Gutowski, Timothy G.; Sentovich, Michael F.; and Okine, Richard K., 5,066,442, Cl. 264-154.000.

Seo, Ikuo; Oono, Tooru; and Murakami, Yosinobu, to Kureha Kagaku Kogyo Kabushiki Kaisha. Catalytic process for producing raw material pitch for carbon materials from naphthalene. 5,066,779, Cl. 528-396.000.

Serizawa, Takanobu: *See—*
Nagashima, Seiko; and Serizawa, Takanobu, 5,067,170, Cl. 392-461.000.

Sermatech International, Inc.: *See—*
Mosser, Mark F.; Eddinger, Kevin B.; and Fabiny, William J., 5,066,540, Cl. 428-336.000.

Serrano, Martin S.; and Sanz, Antonio H. Security and regulation mechanism to be used as instantaneous antireturn system in both rotational turns levoturn and dextrotur. 5,065,854, Cl. 192-8.00R.

Servadio, Vittorino: *See—*
Chiesi, Paolo; Servadio, Vittorino; and Razzetti, Roberta, 5,066,652, Cl. 514-235.800.

Sessions, Robert W.; and Carr, Roy D., to Ferris Mfg. Co. Hydrophilic foam compositions. 5,065,752, Cl. 128-156.000.

Setoguchi, Shinro; Tsuruda, Mineo; Kitami, Chiaki; and Yamanaka, Tsutomu, to Yoshitomi Pharmaceutical Industries, Ltd. Processes for preparing optically active 3,4-dihydro-3,4-epoxy-2H-1-benzopyran compounds and intermediates therefor. 5,066,816, Cl. 549-331.000.

Sgourakes, George E.: *See—*
Angelosanto, John P.; and Sgourakes, George E., 5,065,611, Cl. 73-4.00R.

SGS Thomson Microelectronics SA: *See—*
Brisson, Pierre, 5,066,853, Cl. 235-381.000.

Shannon, Timothy L. Shower spray system. 5,065,942, Cl. 239-282.000.

Shapiro-Baruch, Ian, to Carrier Corporation. Air conditioner with dehumidifying mode. 5,065,586, Cl. 62-93.000.

Sharp: *See—*
Deguchi, Katsuyasu; Mizoguchi, Takatoshi; Taminaga, Takayuki; and Fujii, Akiyoshi, 5,066,960, Cl. 346-76.0PH.

Sharp Kabushiki Kaisha: *See—*
Iwamoto, Ken; and Narukawa, Atsushi, 5,065,995, Cl. 271-9.000.
Kiribayashi, Shoji, 5,065,506, Cl. 29-632.000.
Kuratate, Tomoaki; Koden, Mitsuhiro; and Hamada, Hiroshi, 5,066,109, Cl. 359-54.000.
Matsubara, Hiroshi; and Nukii, Takashi, 5,065,505, Cl. 29-830.000.
Miyao, Kouji; and Asano, Hajime, 5,067,070, Cl. 395-146.000.
Mizushima, Shigeaki; Nishimura, Eiichiro; Fukami, Seiji; Hashimoto, Ryuji; Nagatomi, Hisato; Onishi, Michihisa; Miyamoto, Mitunobo; and Mitamura, Shoji, 5,066,110, Cl. 359-54.000.
Nagano, Fumikazu, 5,067,168, Cl. 382-53.000.
Nakanishi, Yasushi; and Fukunaga, Takahiro, 5,066,975, Cl. 355-200.000.
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.
Ueda, Tetuyuki; and Tsunezawa, Masayoshi, 5,066,897, Cl. 318-135.000.

Shaw, David N., to Carrier Corporation. Refrigeration temperature control system. 5,065,591, Cl. 62-175.000.

Shaw, Howard C. Length measuring and positive drive apparatus. 5,065,527, Cl. 33-734.000.

Shearer, Dane: *See—*
Speiser, Robert D.; Bernstein, Steven; Miller, Charles N.; and Shearer, Dane, 5,065,549, Cl. 51-288.000.

Shehan, Billy C.; Shehan, Billy C., Jr.; and Stubbeman, Thomas R. Swimming pool and cover. 5,065,461, Cl. 4-503.000.

Shehan, Billy C., Jr.: *See—*
Shehan, Billy C.; Shehan, Billy C., Jr.; and Stubbeman, Thomas R., 5,065,461, Cl. 4-503.000.

Shell Internationale Research Maatschappij B.V.: *See—*
Mulder, Jan P., 5,066,323, Cl. 75-305.000.

Shell Material Handling Systems, Inc.: *See—*
Shell, Melvin E., 5,066,189, Cl. 414-416.000.

Shell, Melvin E., to Shell Material Handling Systems, Inc. Method and apparatus for handling discrete cargo units. 5,066,189, Cl. 414-416.000.

Shell Oil Company: *See—*
Andre, Olivier L. P.; and Scholten, Henricus P. H., 5,066,763, Cl. 528-92.000.
Fried, Herbert E.; and Johnson, Thomas H., 5,066,829, Cl. 560-217.000.
George, Eric R.; and Slaugh, Lynn H., 5,066,701, Cl. 524-417.000.
Hwo, Charles C., 5,066,543, Cl. 428-412.000.
Job, Robert C., 5,066,737, Cl. 526-119.000.
Modic, Michael J., 5,066,726, Cl. 525-263.000.
Van Deursen, Josephus H.; Van Doorn, Johannes A.; Drent, Eit; and Wong, Pui K., 5,066,778, Cl. 528-392.000.
Van Egmond, Cornelis F. H., 5,065,818, Cl. 166-60.000.
Van Leeuwen, Petrus W. N. M.; Roobeek, Cornelis F.; and Wong, Pui K., 5,066,777, Cl. 528-392.000.

Shemenski, Robert M.: *See—*
Kim, Dong K.; and Shemenski, Robert M., 5,066,455, Cl. 420-100.000.

Sheng, Zhengzhi; and Hermann, Allen M., to University of Arkansas, The. High temperature superconducting Ti-Ba-Ca-Cu-O phases. 5,066,635, Cl. 505-1.000.

Sheppard, Clyde H.: *See—*
Lubowitz, Hyman R.; Sheppard, Clyde H.; and Stephenson, Ronald R., 5,066,541, Cl. 428-378.000.

Sher, Chen-Hsien. Structure of dust bin. 5,065,886, Cl. 220-331.000.

Sherman, Jon A.: *See—*
Schulze, Dale R.; Sherman, Jon A.; and Mereness, W. Michael, 5,065,929, Cl. 227-19.000.

Sherrington, David C.; and Small, Philip W., to Unilever Patent Holdings B.V. Method for using substrate in peptide synthesis. 5,066,784, Cl. 530-334.000.

Sherrod, Danny G., to Bluff Manufacturing, Inc. Portable dock plate. 5,065,468, Cl. 14-72.500.

Shiba, Tetsuo, to Daiichi Pharmaceutical Co., Ltd. Process for preparing a disaccharide derivative. 5,066,794, Cl. 536-55.300.

Shibahara, Seiji: *See—*
Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, 5,066,677, Cl. 514-563.000.

Shibata, Eiji: *See—*
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,065,804, Cl. 157-13.000.

Shibata, Takeshi: *See—*
Aono, Toshiaki; Nakamura, Koichi; and Shibata, Takeshi, 5,066,563, Cl. 430-213.000.

Shibata, Tomoo; Semler, John; and Gaesser, George, to Graphic Controls Corporation. Sensitizer for heat sensitive paper coatings. 5,066,633, Cl. 503-209.000.

Shibuya, Katsuhiko: *See—*
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, 5,066,808, Cl. 514-231.500.

Shieh, Gray. Electrical socket. 5,066,238, Cl. 439-139.000.

Shiga, Nobuo, to Sumitomo Electric Industries, Ltd. Semiconductor device. 5,067,006, Cl. 357-74.000.

Shigeto, Negi: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Shih, Sen-Tein. Push-button type controlling-water device. 5,065,982, Cl. 251-320.000.

Shiino, Yutaka: *See—*
Kanagawa, Takashi; Shiino, Yutaka; and Furuyama, Tetsuya, 5,066,976, Cl. 355-200.000.

Shikae, Sadao: *See—*
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.

Shikama, Shinsuke: *See—*
Toide, Eiichi; Shikama, Shinsuke; and Kubota, Masayuki, 5,066,138, Cl. 369-112.000.

Shiley, Robert J., to ITT Corporation. Connector press fit eyelet. 5,066,237, Cl. 439-82.000.

Shim, Hyun J. Method and device for generating electric power by use of wave force. 5,066,867, Cl. 290-53.000.

Shimada, Kazumi; and Chikazawa, Masaaki, to Azuma Tekko Kabushiki Kaisha. Dust discharging apparatus for a furnace. 5,066,186, Cl. 414-221.000.

Shimada, Toshio, to Honda Giken Kogyo Kabushiki Kaisha. Counterbalance mechanism for internal combustion engine. 5,065,644, Cl. 74-603.000.

Shimanaka, Chikafumi: *See—*
Wakamori, Takehisa; Ogawa, Takashi; Ito, Ryoji; and Shimanaka, Chikafumi, 5,065,507, Cl. 29-888.010.

Shimizu, Fumio; Nishikubo, Yasutoshi; and Naito, Tadaharu, to Kabushiki Kaisha Light Kohki Seisakusho. Reticule device for a fire sighting scope. 5,065,520, Cl. 33-241.000.

Shimizu, Hideo; and Takahashi, Yasuhiro, to Fuji Electric Co., Ltd. Centput stabilizing apparatus for an optical head. 5,067,117, Cl. 369-116.000.

Shimizu, Hiroshi: *See—*
Omata, Satoshi; Shimizu, Hiroshi; and Yamaguchi, Yoko, 5,067,160, Cl. 382-1.000.

Shimizu, Hiroyuki: *See—*
Ito, Kenji; Shimizu, Hiroyuki; and Wakita, Naomasa, 5,066,934, Cl. 333-205.000.

Shimizu, Mitsuru: *See—*
Sakurai, Kiyofumi; Fujii, Syuso; and Shimizu, Mitsuru, 5,066,997, Cl. 357-45.000.

Shimizu, Seiji: *See—*
Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, 5,066,152, Cl. 400-621.000.

Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, to Speedfam Company, Ltd. Surface processing machine for hard disks and the like. 5,065,547, Cl. 51-154.000.

Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, to Speedfam Company, Ltd. Surface treating tape cartridge and surface treating machine. 5,065,548, Cl. 51-154.000.

Shimizu, Toshimitsu: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.

Shimokoriyama, Makoto: *See—*
Ishii, Yoshiki; and Shimokoriyama, Makoto, 5,067,010, Cl. 358-13.000.

Shimomura, Takeshi: *See—*
Yamaguchi, Shuichiro; Shimomura, Takeshi; Uchida, Naoto; Katsube, Teruaki; and Oyama, Noboru, 5,066,383, Cl. 204-435.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Shimose, Yutaka: *See—*
Takano, Yoshiaki; Sato, Koichi; and Shimose, Yutaka, 5,065,592, Cl. 62-180.000.
Shin-Etsu Chemical Co., Ltd.: *See—*
Inoue, Yoshio; Yoshino, Masachika; and Fujiki, Hironao, 5,066,714, Cl. 524-731.000.
Shin, Masaaki: *See—*
Aizawa, Hironori; Shin, Masaaki; and Okubo, Atsuo, 5,066,727, Cl. 525-296.000.
Shinetsu Chemical Industries, Ltd.: *See—*
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.
Shingyoji, Takyuki: *See—*
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.
Shintake, Seizi: *See—*
Tomioka, Yutaka; Nakanishi, Satoru; Shintake, Seizi; and Yoneda, Hideki, 5,066,333, Cl. 106-400.000.
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, to Nihon Tokushu Noyaku Seizo K.K. Pyridyl insecticidally active cyano compounds. 5,066,808, Cl. 514-231.500.
Shiokawa, Youichi; Okumura, Kazuo; Take, Kazuhiko; and Tsubaki, Kazunori, to Fujisawa Pharmaceutical Co., Ltd. Novel substituted-acetamide compound and a process for the preparation thereof. 5,066,680, Cl. 514-622.000.
Shirai, Yuuji: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.
Shirato, Ken: *See—*
Honda, Mamoru; and Shirato, Ken, 5,066,192, Cl. 415-112.000.
Shirodkar, Shailaja M.: *See—*
Migdal, Cyril A.; Shirodkar, Shailaja M.; DeRosa, Thomas F.; and Miller, Edward F., 5,066,412, Cl. 252-54.600.
Shitanoki, Kazuaki; Kawaguchi, Masaaki; and Kobayashi, Saburo, to Honda Giken Kogyo Kabushiki Kaisha. Air bag device for protecting a vehicle occupant. 5,066,039, Cl. 280-741.000.
Shopsmith, Inc.: *See—*
Legler, John G.; Bartlett, Robert L.; and Flora, David D., 5,065,652, Cl. 83-168.000.
Shorewood Technologies, Inc.: *See—*
Mancel, James D., 5,065,935, Cl. 229-40.000.
Short, Svetlana Z.: *See—*
Estelle, Lee R.; and Short, Svetlana Z., 5,067,067, Cl. 364-156.000.
Shroot, Braham; Hensby, Christopher; Maignan, Jean; Lang, Gerard; Restle, Serge; and Colin, Michel, to Centre International de Recherches Dermatologiques dite CIRD. Eicosatriynoic acid esters and their application in pharmaceutical and cosmetic practice. 5,066,427, Cl. 260-413.000.
Shum, Victor K.: *See—*
Miller, Jeffrey T.; and Shum, Victor K., 5,066,628, Cl. 502-66.000.
Sibley, Lewis B.; and Kelly, C. Brian, to Tribology Systems, Inc. Solid-lubricated bearing assembly. 5,066,145, Cl. 384-463.000.
Siczek, Aldona A.: *See—*
Siczek, Bernard W.; and Siczek, Aldona A., 5,067,145, Cl. 378-198.000.
Siczek, Bernard W.; and Siczek, Aldona A. Mobile X-ray apparatus. 5,067,145, Cl. 378-198.000.
Siden, Dennis C.: *See—*
Mohebban, Manoochehr; Montoya, Wayne; Parker, Robert; and Siden, Dennis C., 5,066,104, Cl. 359-43.000.
Siegfried, Erwin; and Marti, Peter, to VSL International AG. Prestressed concrete lining in a pressure tunnel. 5,066,167, Cl. 405-150.100.
Siemens Aktiengesellschaft: *See—*
Becker, Bernard, 5,066,221, Cl. 431-280.000.
Brandner, Gerhard; and Hoebel, Peter, 5,066,864, Cl. 250-484.100.
Droegemueller, Karsten; and Klement, Ekkehard, 5,066,092, Cl. 385-33.000.
Gall, Arthur; and Kupfer, Adelbert, 5,067,142, Cl. 378-99.000.
Greil, Andreas; and Bialas, Joachim, 5,066,089, Cl. 385-35.000.
Greil, Andreas; and Taumberger, Franz, 5,066,093, Cl. 385-33.000.
Hirschberg, Jakub; and Svensson, Bengt, 5,066,278, Cl. 604-256.000.
Ifflaender, Helmut; Matura, Eike; Polster, Walter; and Rattner, Manfred, 5,065,762, Cl. 128-660.030.
Klier, Juergen, 5,066,894, Cl. 315-224.000.
Krause, Norbert; Hanke, Wilhelm; and Ruhl, Juergen, 5,065,760, Cl. 128-653.500.
Krausse, Peter, 5,066,096, Cl. 385-58.000.
Martin, Guenter, 5,067,156, Cl. 380-46.000.
Mayerhofer, Franz; Karstensen, Holger; Dietrich, Ralf; and Spaeth, Werner, 5,066,090, Cl. 385-35.000.
Meinel, Fred; and Wilke, Dorothea, 5,067,146, Cl. 378-199.000.
Schnabel, Werner, 5,067,048, Cl. 361-540.000.
Schuster, Rudolf; and Raschke, Josef, 5,066,844, Cl. 219-85.160.
Seifert, Heinrich, 5,065,582, Cl. 62-45.100.
Stadler, Heinz; Heinzl, Alfred; and Krakowetz, Wilhelm, 5,065,663, Cl. 91-361.000.
Wendt, Peter, 5,066,924, Cl. 330-124.00R.
Wendt, Peter, 5,066,924, Cl. 330-124.00R.
Wille, Klaus; Kienberger, Helmut; and Marwitz, Erika, 5,067,153, Cl. 380-23.000.
Ziegler, Elmar, 5,065,667, Cl. 98-2.000.
Siemens-Asahi Medical System, Ltd.: *See—*
Omori, Katsuhisa; and Yamashita, Masaya, 5,066,915, Cl. 324-318.000.
Siemens Automotive L.P.: *See—*
Wiggins, Kregg S.; and Wright, Danny O., 5,065,721, Cl. 123-399.000.
Siemens Automotive Limited: *See—*
Cook, John E.; and Busato, Murray F., 5,065,575, Cl. 60-290.000.
Sieracki, Leo C. Aquarium lamp. 5,067,060, Cl. 362-101.000.
Sifniades, Stylianos: *See—*
Levy, Alan B.; Sifniades, Stylianos; Kent, Lloyd C.; and Frollini, Dominick, Jr., 5,066,373, Cl. 204-153.210.
Sikdar, Subhas K.: *See—*
Dutta, Binay K.; and Sikdar, Subhas K., 5,066,403, Cl. 210-638.000.
Silicon Storage Technology, Inc.: *See—*
Jenq, Ching-Shi, 5,067,108, Cl. 365-185.000.
Silver, Scott C., to Genencor International, Inc. Composition of a steeped starched-containing grain and a cellulase enzyme. 5,066,218, Cl. 426-20.000.
Simharl, Reinhold: *See—*
Seidl, Sigrid; Weinrotter, Klaus; and Simharl, Reinhold, 5,066,760, Cl. 528-51.000.
Simmons, Randall G.: *See—*
Howard, James K.; Simmons, Randall G.; and Yogi, Tadashi, 5,066,552, Cl. 428-694.000.
Simnovec, Andrej: *See—*
Coja, Joachim; von Eckardstein, Karl-Ernst; and Simnovec, Andrej, 5,066,203, Cl. 417-318.000.
Simon, David, to White Storage & Retrieval Systems, Inc. Dual access storage and retrieval system. 5,065,872, Cl. 211-122.000.
Simon, Jaime; Wilson, David A.; Volkert, Wynn A.; Troutner, David E.; and Goeckeler, William F., to Dow Chemical Company, The. Radio labeled organic amine phosphonic acid complexes for the treatment of calcific tumors. 5,066,478, Cl. 424-1.100.
Simonet, Benoit; Fabre, Pierre; Laluet, Jacques; and Egraz, Jean-Bernard, to Coatex, S.A. Thickening agent which modifies the rheological characteristics of charged and/or pigmented, white or colored aqueous compositions. 5,066,710, Cl. 524-555.000.
Simplimatic Engineering Company: *See—*
Reid, Laurie M.; Koster, Archie; and Hunt, Gary D., 5,065,856, Cl. 198-419.300.
Sims, George W. Sling support apparatus. 5,065,919, Cl. 224-257.000.
Sims, Keith J.: *See—*
Parsi, Edgardo J.; Sims, Keith J.; Elyanow, Irving D.; and Prato, Thomas A., 5,066,375, Cl. 204-182.400.
Singleton, David E.; Ho, Kuo-Chuan; and Greenberg, Charles B., to PPG Industries, Inc. Electrochromic window with integrated bus bars. 5,066,111, Cl. 359-275.000.
Siol, Werner; and Terbrack, Ulrich, to Rohm GmbH Chemische Fabrik. Compatible polymer mixtures. 5,066,718, Cl. 525-84.000.
Sircar, Jagadish C.: *See—*
Boschelli, Diane H.; Connor, David T.; Flynn, Daniel L.; Sircar, Jagadish C.; and Hoefle, Milton L., 5,066,668, Cl. 514-384.000.
Sismondi, Alain; Abenin, Parfait; and Cambon, Aime , to Societe Atochem. Polyfluoroalkyl acetates, thioacetates and acetamides, and their applications. 5,066,672, Cl. 514-513.000.
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, to NeoRx Corporation. Targeting substance-diagnostic/therapeutic agent conjugates having Schiff base linkages. 5,066,789, Cl. 530-388.000.
Sivavec, Timothy M.; and McCormick, Sharon J., to General Electric Company. Polyphenylene ether-polyamide compositions from dicarboxylate-capped polyphenylene ethers. 5,066,719, Cl. 525-92.000.
Sjonell, Goran: *See—*
Karppinen, Eino; and Sjonell, Goran, 5,065,877, Cl. 215-239.000.
Skaugen, Borgeir; and Wedel, Gregory L., to Beloit Corporation. Apparatus for drying a web. 5,065,529, Cl. 34-117.000.
Skelton, Clifford W.: *See—*
Skelton, Stuart P.; and Skelton, Clifford W., 5,065,608, Cl. 72-409.000.
Skelton, Stuart P.; and Skelton, Clifford W. Hand-operated batten seamer tool. 5,065,608, Cl. 72-409.000.
SKF GmbH: *See—*
Brandenstein, Manfred; and Olschewski, Armin, 5,066,147, Cl. 384-585.000.
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., to Glaxo Group Limited. Phenethandamine derivatives and pharmaceutical use thereof. 5,066,678, Cl. 514-597.000.
Skinner, Gordon R. B.; and Buchan, Alexander, to University of Birmingham. Method of treating herpes simplex virus. 5,066,492, Cl. 424-89.000.
Skovmand, Timothy J.: *See—*
Cheah, Chun-Foong; and Skovmand, Timothy J., 5,066,901, Cl. 323-267.000.
Skrabal, Falko, to AVL AG. Device for the withdrawal and storage of individual fluid fractions lathered at given intervals. 5,066,283, Cl. 604-152.000.
Slaugh, Lynn H.: *See—*
George, Eric R.; and Slaugh, Lynn H., 5,066,701, Cl. 524-417.000.

Slay, Clyde E., to Safe-T-Jack, Inc. Hydraulic power unit for jack system. 5,065,983, Cl. 254-8.00B.
Slightom, Jerry L.: *See—*
Jones, Lawrence D.; Frey, Paul T.; Gleason, David D.; Chee, Paula P.; and Slightom, Jerry L., 5,066,587, Cl. 435-172.100.
Slocum, Laurence S., to Emerson Electric Co. Fluid detection system with relay release and relatch function. 5,066,944, Cl. 340-603.000.
Sluma, Heinz-Dieter: *See—*
Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, 5,066,401, Cl. 210-500.350.
Small, Philip W.: *See—*
Sherrington, David C.; and Small, Philip W., 5,066,784, Cl. 530-334.000.
Small, Rudy E.: *See—*
Harry, John O.; Verhagen, George; and Small, Rudy E., 5,066,379, Cl. 204-279.000.
Smerdel, Stanislav: *See—*
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, 5,066,642, Cl. 514-18.000.
Smetana, Bruce A.: *See—*
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.
Smith, Bill, to Smith Brothers Archery Accessories, Inc. Arrow rest assembly. 5,065,731, Cl. 124-44.500.
Smith Brothers Archery Accessories, Inc: *See—*
Smith, Bill, 5,065,731, Cl. 124-44.500.
Smith Engineering: *See—*
Smith, Jay, III; and Fort, Jeffrey W., 5,067,079, Cl. 364-410.000.
Smith, Harry A.: *See—*
Mailloux, Dennis R.; Smith, Harry A.; and Kelly, Neal F., 5,066,047, Cl. 283-86.000.
Smith International, Inc.: *See—*
Meyers, John A.; Drake, David E.; and Witt, Charles W., 5,065,827, Cl. 175-414.000.
Smith, Jay, III; and Fort, Jeffrey W., to Smith Engineering. Interactive audio baseball game. 5,067,079, Cl. 364-410.000.
Smith, John W.; and Chestnut, Benjamin F., to Emhart Industries, Inc. Automobile brake switch assembly. 5,066,838, Cl. 200-61.890.
Smith Kline & French Laboratories Limited: *See—*
Coates, William J., 5,066,653, Cl. 514-242.000.
Smith, Randy L., to Blount, Inc. Cartridge case flash hole finishing tool. 5,066,174, Cl. 408-79.000.
Smith, Robert D. Universal dispensing apparatus for stacked articles. 5,065,897, Cl. 221-130.000.
Smith, Ronald, to Wray-Tech Instruments, Inc. Hydraulic control system for weighing. 5,065,828, Cl. 177-139.000.
Smith, Ronald, to Wray-Tech Instruments, Inc. Hydraulic control system for weighing. 5,065,829, Cl. 177-139.000.
Smith, Scott D. Bow Sling. 5,065,732, Cl. 124-88.000.
Smiths Industries public limited company: *See—*
Davies, Anthony R.; Downward, Steven J.; and Chilvers, David, 5,065,784, Cl. 137-116.000.
Smoorenburg, Arnoldus D. J.: *See—*
Van Der Marel, Cornelis; and Smoorenburg, Arnoldus D. J., 5,066,888, Cl. 313-564.000.
SMS Schloemann-Siemag Aktiengesellschaft: *See—*
Scholz, Heinrich; and Guse, Rudolf, 5,065,811, Cl. 164-460.000.
Smyth, John B., Jr.; and Tappon, Ellen R., to Hewlett-Packard Company. Method for making flexible circuit card with laser-contoured vias and machined capacitors. 5,066,357, Cl. 156-643.000.
Sneed, Michael R.: *See—*
Doye, Dennis L.; and Sneed, Michael R., 5,066,249, Cl. 439-585.000.
Societe Atochem: *See—*
Sismondi, Alain; Abenin, Parfait; and Cambon, Aime , 5,066,672, Cl. 514-513.000.
Societe des Ceramiques Techniques: *See—*
Soria, Raymond; Defalque, Corinne; and Gillot, Jacques, 5,066,398, Cl. 210-321.890.
Societe Electronique de la Region Pays de Loire: *See—*
Huerre, Dominique; and Mehu, Jacques, 5,067,022, Cl. 358-248.000.
Soderberg, Paulmer M.; Foss, Kristin K.; Giles, Thomas E.; and Narciso, Ralph A., to Raynet Corporation. Coupler verification test circuit. 5,066,139, Cl. 371-20.100.
Solar Turbines Incorporated: *See—*
Darragh, Charles T., 5,065,816, Cl. 165-125.000.
Soltermann, Roland; Fritzsche, Peter; and Muller, Kurt, to Maschinenfabrik Rieter AG. Adjusting device and adjustable textile fiber carding apparatus. 5,065,637, Cl. 74-99.00R.
Solvay & Cie (Societe Anonyme): *See—*
Destryker, Elise; and Hannecart, Etienne, 5,066,706, Cl. 524-459.000.
Sonigo, Pierre: *See—*
Montagnier, Luc; Chamaret, Solange; Guetard, Denise; Alizon, Marc; Clavel, Francois; Guyader, Mireille; Sonigo, Pierre; Brun-Vezinet, Francoise; Rey, Marianne; Rouzioux, Christine; and Katlama, Christine, 5,066,782, Cl. 530-324.000.
Sony Corporation: *See—*
Fujii, Hiroshi, 5,065,955, Cl. 242-198.000.
Ganse, Shigeru, 5,067,009, Cl. 358-12.000.
Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, 5,066,539, Cl. 428-328.000.
Kaneko, Shinji, 5,067,026, Cl. 358-340.000.
Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, 5,067,131, Cl. 371-40.100.
Soria, Raymond; Defalque, Corinne; and Gillot, Jacques, to Societe des Ceramiques Techniques. Membrane for a filtration, gas or liquid separation or pervaporation apparatus and a manufacturing method for such membrane. 5,066,398, Cl. 210-321.890.
Southern Environmental, Inc.: *See—*
Mallory, Timothy P., Sr., 5,066,313, Cl. 55-2.000.
Southwest Research Institute: *See—*
Wenzel, Dennis J.; and McFalls, David S., II, 5,067,085, Cl. 364-474.060.
Spaeth, Werner: *See—*
Mayerhofer, Franz; Karstensen, Holger; Dietrich, Ralf; and Spaeth, Werner, 5,066,090, Cl. 385-35.000.
Sparton Corporation: *See—*
Pattock, Greg R., 5,065,604, Cl. 70-239.000.
Spector, George: *See—*
Greene, Michael D.; and Spector, George, 5,065,861, Cl. 206-63.500.
Wahl, Seymour; and Spector, George, 5,065,927, Cl. 222-185.000.
Spectra-Physics, Inc.: *See—*
Weinberger, Scot R.; and Mills, James L., 5,066,382, Cl. 204-299.00R.
Specty, Michel: *See—*
Salavin, Serge; Deschamps, Jacques; Gay, Michel; and Specty, Michel, 5,066,890, Cl. 313-585.000.
Speedfam Company, Ltd.: *See—*
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,547, Cl. 51-154.000.
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,548, Cl. 51-154.000.
Speiser, Robert D.; Bernstein, Steven; Miller, Charles N.; and Shearer, Dane, to Union Broach. Method and apparatus for manufacturing K-files and reamers. 5,065,549, Cl. 51-288.000.
Spiegel, Guenter: *See—*
Huber, Werner; and Spiegel, Guenter, 5,065,722, Cl. 123-399.000.
Spielberger, Richard K.; and Dunaway, Thomas J., to Honeywell Inc. Universal semiconductor chip package. 5,066,831, Cl. 174-52.400.
Spielberger, Richard K.: *See—*
Dunaway, Thomas J.; Spielberger, Richard K.; Dicks, Lori A.; and Loy, Jerald M., 5,066,614, Cl. 437-209.000.
Spielvogel, David E.: *See—*
Mersch, Steve H.; Spielvogel, David E.; and Daugherty, Charles W., 5,066,284, Cl. 604-168.000.
Spindler, Ernst: *See—*
Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, 5,066,401, Cl. 210-500.350.
Spoetter, Detlef, to Robert Bosch GmbH. Pressure control valve, in particular for fuel injection systems. 5,065,725, Cl. 123-463.000.
Sporax Oy: *See—*
Tamminen, Pentti J., 5,066,555, Cl. 429-121.000.
Sporlan Valve Company: *See—*
Seener, G. Thomas; and Heffner, Joseph H., 5,065,595, Cl. 62-212.000.
Spotts, Clyde E., Jr.: *See—*
Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., 5,066,499, Cl. 426-19.000.
Spraying Systems Co.: *See—*
Vidusek, Daniel A.; and White, Justin D., 5,065,945, Cl. 239-556.000.
Sprenger, Walter: *See—*
Honel, Michael; Ziegler, Peter; Sprenger, Walter; and Wendt, Wolfgang, 5,066,758, Cl. 528-45.000.
Square D Company: *See—*
Schweiger, Thaddeus J., 5,067,045, Cl. 361-56.000.
SRI International: *See—*
Green, Philip S.; Ostrem, John S.; and Whitehurst, Todd K., 5,065,763, Cl. 128-660.070.
Srinivasachar, Kasturi: *See—*
Neville, David M., Jr.; and Srinivasachar, Kasturi, 5,066,490, Cl. 424-85.910.
Srinivasan, Ananthachari: *See—*
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.
SSI Medical Services, Inc.: *See—*
Blanchard, Frederick W.; and Moore, Thomas J., 5,065,464, Cl. 5-81.00R.
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,065,466, Cl. 5-453.000.
Staal, Gerardus B.: *See—*
Kohn, Gustave K.; Rudolph, Robin R.; Staal, Gerardus B.; Grant, David L.; Pearce, Robert C.; and Herbst, Barbara A., 5,066,482, Cl. 424-45.000.
Stadler AG: *See—*
Bogel, Gerhard, 5,066,181, Cl. 411-383.000.
Stadler, Heinz; Heinzl, Alfred; and Krakowetz, Wilhelm, to Siemens Aktiengesellschaft. Electropneumatic or electrohydraulic linear drive mechanism. 5,065,663, Cl. 91-361.000.
Stahlecker, Fritz, to Stahlecker, Hans, a part interest. Fiber supply arrangement for open-end rotor spinning. 5,065,572, Cl. 57-413.000.
Stahlecker, Fritz: *See—*
Stahlecker, Hans, 5,065,512, Cl. 29-898.090.

VOL 1132 ISS 3 NO 19 1991 UMI

Stahlecker, Hans, 5,065,571, Cl. 57-105.000.
Stahlecker, Hans, to Stahlecker, Fritz, a part interest. Method of making a bearing for spindles of spinning or twisting machines. 5,065,512, Cl. 29-898.090.
Stahlecker, Hans, to Stahlecker, Fritz, a part interest. Tangential belt drive for a spinning or twisting machine. 5,065,571, Cl. 57-105.000.
Stahlecker, Hans: *See—*
Stahlecker, Fritz, 5,065,572, Cl. 57-413.000.
Stamicarbon B.V.: *See—*
Haselier, Franciscus J. J., 5,066,725, Cl. 525-240.000.
Lemstra, Pieter J., 5,066,755, Cl. 526-348.100.
Stamm, Erich: *See—*
Ehrenfreund, Josef; and Stamm, Erich, 5,066,667, Cl. 514-381.000.
Standard Oil Company, The: *See—*
—Paspek, Stephen C.; and Eppig, Christopher P., 5,066,386, Cl. 208-187.000.
—Suresh, Dev D.; DiCosimo, Robert; Loiseau, Richard; Friedrich, Maria S.; and Szabo, Hsiao-Chiung, 5,066,809, Cl. 546-250.000.
Standard Products Company, The: *See—*
Larsen, Douglas C.; and Vaughan, Robert A., 5,065,562, Cl. 52-772.000.
Standley, Michael P. Skateboard having lighting system. 5,067,058, Cl. 362-83.300.
Stant Inc.: *See—*
Szlaga, Emil, 5,065,782, Cl. 137-39.000.
Stapel, William C., to Ford Motor Company. Multiple parabola license plate lamp. 5,067,057, Cl. 362-83.200.
Staples, Peter J., to Parker Hannifin Corporation. Lockout device for hose fitting. 5,066,049, Cl. 285-80.000.
Stark, Steven P. Polar lighted ball. 5,066,012, Cl. 273-65.0EF.
State Scientific-Research Designing Institute for Nitrogen Industry and for Products of Organic Synthesis: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.
Stayer, Mark L., Jr.; Antkowiak, Thomas A.; Lawson, David F.; and Koch, Russell W., to Bridgestone/Firestone, Inc. Diene polymers and copolymers terminated by reaction with N-alkyl and N-aryl imines. 5,066,729, Cl. 525-315.000.
Steen, Hans-Wilhelm, to Dragerwerk. Expiration valve control arrangement for a ventilating apparatus. 5,065,746, Cl. 128-205.240.
Stegeman, Robert H., Jr.: *See—*
Laplante, Russell; Rockar, James A.; and Stegeman, Robert H., Jr., 5,065,557, Cl. 52-235.000.
Steinbach, Stephen C.: *See—*
Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., 5,065,932, Cl. 228-55.000.
Steine, Hans-Theo; and Wasserman, Christopher, to Castolin S.A. Process for producing corrosion-resistant layers. 5,066,523, Cl. 427-423.000.
Steinhilber, Leroy H.: *See—*
Bass, Joseph D.; and Steinhilber, Leroy H., 5,066,254, Cl. 440-72.000.
Steinicke, Arlo M., to Rohr Industries, Inc. Method for making preformed maskant sheets. 5,066,450, Cl. 264-504.000.
Steinmetz, Alan J.: *See—*
Savino, Thomas G.; Balch, Thomas C.; Steinmetz, Alan J.; Balatin, Sergio E.; and Caiozzo, Nicholas, 5,066,732, Cl. 525-440.000.
Stengele, Erich: *See—*
Tamm, Rolf; Rodel, Gunther; and Stengele, Erich, 5,066,123, Cl. 356-312.000.
Stephans, Scott E.: *See—*
Ofosu-Asante, Kofi; and Stephans, Scott E., 5,066,425, Cl. 252-546.000.
Stephens, Fred O., to Genicom Corporation. Paper shear for printer. 5,066,153, Cl. 400-621.000.
Stephens, Ruth A.: *See—*
Pino, Giovanni; Scherer, Thomas W.; and Stephens, Ruth A., 5,065,909, Cl. 222-484.000.
Stephenson, Dwight B.; and Marks, Dennis R., to Eaton Corporation. Fluid controller with load sensing priority flow control capability. 5,065,793, Cl. 137-625.240.
Stephenson, Ronald R.: *See—*
Lubowitz, Hyman R.; Sheppard, Clyde H.; and Stephenson, Ronald R., 5,066,541, Cl. 428-378.000.
Sterling Drug Inc.: *See—*
D'Ambra, Thomas E.; and Bell, Malcolm R., 5,066,803, Cl. 544-101.000.
Stevenson-Michener, Deborah G. C. Disposable syringe apparatus with retractable needle, locking device and cap device. 5,066,281, Cl. 604-110.000.
Stevenson, Steven. Portable apparatus to weigh and measure infants. 5,065,830, Cl. 177-263.000.
Stevenson, William H., IV. Marine sail with batten attachment assembly. 5,065,685, Cl. 114-102.000.
Stewart, Bob W., to Cincinnati Sub-Zero Products, Inc. Solid-state laser frequency conversion system. 5,066,291, Cl. 606-3.000.
Stewart, Dary R.: *See—*
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., 5,066,921, Cl. 324-639.000.
Stewart, Robert E.; and Fersht, Samuel N., to Litton Systems, Inc. Three axis inertial measurement unit with counterbalanced, low inertia mechanical oscillator. 5,065,627, Cl. 73-505.000.
Stickler, David: *See—*
Agarwal, Jagdish A.; Gannon, Richard; Goldfarb, Victor; Stickler, David; and Woodroffe, Jaime, 5,066,326, Cl. 75-581.000.
Stihl, Andreas: *See—*
Dohse, Hans-Peter; and Kramer, Jochen, 5,065,476, Cl. 16-114.00R.
Stikvoort, Eduard F.: *See—*
Van Rens, Antonia C.; Dijkmans, Eise C.; and Stikvoort, Eduard F., 5,067,138, Cl. 375-81.000.
Stinnett, Carlton E.: *See—*
Hancock, Jimmy W.; Kelly, Michael J.; Latham, Wayne M.; and Stinnett, Carlton E., 5,066,452, Cl. 376-252.000.
Stinson, Margaret C.; and Galanek, Mitchell S., to Massachusetts Institute of Technology. Apparatus for infectious radioactive waste. 5,066,597, Cl. 435-311.000.
Stoerr, Harald: *See—*
Haeussler, Horst; Ortmann, Hubert; and Stoerr, Harald, 5,065,797, Cl. 139-448.000.
Stolar, Inc.: *See—*
Stolarczykz, Larry G., 5,066,917, Cl. 324-338.000.
Stolarczykz, Larry G., to Stolar, Inc. Long feature vertical or horizontal electrical conductor detection methodology using phase coherent electromagnetic instrumentation. 5,066,917, Cl. 324-338.000.
Stolpmann, James R.: *See—*
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,065,466, Cl. 5-453.000.
Stonebraker, Richard L.; and Lasley, James, to R. R. Donnelley & Sons Company. Apparatus and method for assembling a cover case and binder. 5,066,182, Cl. 412-3.000.
Stoneham, Jeffrey R.: *See—*
Baxter, Dennis E.; and Stoneham, Jeffrey R., 5,065,952, Cl. 242-71.100.
Stott, Gerald H.; and Lucas, David O., to Protein Technology, Inc. Method of disease treatment utilizing an immunologically active whey fraction. 5,066,491, Cl. 424-85.800.
Stoy, George P.; Delahanty, Francis T.; and Stoy, Vladimir A., to Kingston Technologies, Inc. Amorphous memory polymer alignment device with access means. 5,066,091, Cl. 385-98.000.
Stoy, Vladimir A.: *See—*
Stoy, George P.; Delahanty, Francis T.; and Stoy, Vladimir A., 5,066,091, Cl. 385-98.000.
Strand Lighting Limited: *See—*
Bertenshaw, David R.; Williamson, Richard; and Wright, John, 5,066,896, Cl. 315-291.000.
Stroupe, Stephen D.: *See—*
Wang, Chao-Huei J.; Stroupe, Stephen D.; and Jolley, Michael E., 5,066,426, Cl. 340-106.000.
Struck, Helmut: *See—*
Richter, Karl-Heinz; Rollmann, Gerhard; Struck, Helmut; and Eilert, Gerd, 5,065,835, Cl. 180-197.000.
Strydom, Peter J.: *See—*
Miller, Edward E.; and Strydom, Peter J., 5,065,822, Cl. 166-295.000.
Stubbeman, Thomas R.: *See—*
Shehan, Billy C.; Shehan, Billy C., Jr.; and Stubbeman, Thomas R., 5,065,461, Cl. 4-503.000.
Stubstad, John M.; and Rand, John H., to United States of America, Army. Helicopter soft snow landing aid. 5,065,958, Cl. 244-17.170.
Su, Wei-Yang, to Texaco Chemical Company. Preparation of alkyl morpholinones. 5,066,804, Cl. 544-173.000.
Suciu-Foca, Nicole; and King, Donald W., to Columbia University in the City of New York, The Trustees of. Differentiation antigen, NDA_3, associated with the receptor for B cell growth factor. 5,066,581, Cl. 435-7.240.
Sugano, Minoru; Horiki, Akira; Yashiro, Zenichi; and Matsushima, Hironori, to Hitachi, Ltd.; and Nippon Telegraph & Telephone Corp. Method of direct memory access control. 5,067,075, Cl. 395-425.000.
Sugawara, Saburo, to Asahi Kogaku Kogyo K.K. View-finding optical system capable of eyesight adjustment. 5,066,115, Cl. 359-676.000.
Sugihara, Kazutoyo; and Kinoda, Yasuhide. Belt press type dehydration device. 5,066,399, Cl. 210-401.000.
Sugimoto, Yasuhiro: *See—*
Hara, Hiroyuki; Sugimoto, Yasuhiro; and Nagamatsu, Tetsu, 5,066,996, Cl. 357-43.000.
Sugiura, Masaki: *See—*
Iwasaki, Tameo; Sugiura, Masaki; Matsuoka, Yuzo; Matsumoto, Mamoru; and Kitamura, Kazuyuki, 5,066,669, Cl. 514-449.000.
Sugiyama, Naoki, to Aisin Seiki Kabushiki Kaisha. Rotational speed detector for an internal combustion engine comprising a waveform processor for eliminating unwanted pulses. 5,066,910, Cl. 324-166.000.
Sugiyama, Shigeru. Beverage can top. 5,065,882, Cl. 220-269.000.
Sullins, Harry P., to Richland Industrial, Inc. Method of applying a refractory coating to a conduit. 5,066,350, Cl. 156-187.000.
Sulsky, Richard B.: *See—*
Demers, James P.; and Sulsky, Richard B., 5,066,658, Cl. 514-269.000.
Sulzer Brothers Limited: *See—*
Wuehrer, Wolfgang, 5,066,191, Cl. 415-35.000.
Sumikin Chemical Co. Ltd.: *See—*
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.
Sumimoto Rubber Industries, Ltd.: *See—*
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,065,804, Cl. 157-13.000.

Sumitomo Chemical Company, Limited: *See—*
Kadokura, Hidekimi; and Saegusa, Kunio, 5,066,530, Cl. 428-98.000.
Kitamura, Masaru; Ichihashi, Hiroshi; and Suzukamo, Gohfu, 5,066,630, Cl. 502-85.000.
Sumitomo Electric Industries, Ltd.: *See—*
Ooka, Akihiro; and Hirano, Kazuo, 5,065,612, Cl. 73-1.00D.
Shiga, Nobuo, 5,067,006, Cl. 357-74.000.
Sumitomo Metal Industries, Ltd.: *See—*
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.
Sumitomo Pharmaceuticals Company, Limited: *See—*
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.
Sumitomo Rubber Industries, Ltd.: *See—*
Nakatani, Akihiro; and Nagayasu, Hideaki, 5,065,803, Cl. 152-543.000.
Summagraphics Corporation: *See—*
Zalenski, Thomas C., 5,066,833, Cl. 178-19.000.
Summer, John D. Oral orthopedic appliance for correcting mandibular retrusion. 5,066,226, Cl. 433-19.000.
Sumrall, Terry. Board game apparatus and method of playing. 5,066,015, Cl. 273-243.000.
Sunahara, Kazuo; Ichimatsu, Tsuneo; and Aoki, Yumiko, to Asahi Glass Company Ltd. Conductive paste compositions and ceramic substrates. 5,066,620, Cl. 501-21.000.
Sunami, Yoshihiko: *See—*
Iwahashi, Tohru; Sunami, Yoshihiko; Satoh, Katsumi; Ohshima, Katsuyuki; and Iwaguro, Kenichi, 5,066,384, Cl. 208-45.000.
Sundeen, John E.: *See—*
Antonevich, John M.; and Sundeen, John E., 5,066,600, Cl. 436-52.000.
Sunderman, Wallace H.: *See—*
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,496, Cl. 29-599.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,497, Cl. 29-564.700.
Sundstrand Corporation: *See—*
Champagne, John M., 5,066,197, Cl. 417-18.000.
Markunas, Albert L., 5,065,577, Cl. 60-450.000.
Pinchott, Gordon A., 5,065,484, Cl. 29-25.020.
Sundstrand Data Control, Inc.: *See—*
Hulsing, Rand H., II., 5,066,911, Cl. 324-207.180.
Sungene Technologies Corporation: *See—*
Hubbard, Ernest T.; Hollingsworth, Michele D.; Ram, N. V. Raghava; and Cook, Judith P., 5,066,595, Cl. 435-240.450.
Sunstar Engineering, Inc.: *See—*
Nagata, Tsuyoshi; and Okuda, Shinji, 5,066,132, Cl. 356-432.000.
Suptitz, Eric, to Merlin Gerin. Correction procedure of the phase difference introduced by a zero sequence toroid of leakage current and isolation monitor this procedure. 5,066,920, Cl. 324-544.000.
Suresh, Dev D.; DiCosimo, Robert; Loiseau, Richard; Friedrich, Maria S.; and Szabo, Hsiao-Chiung, to Standard Oil Company, The. Preparation of 3-methylpyridine from 2-methylglutaronitrile. 5,066,809, Cl. 546-250.000.
Sutherland, W. Don. Kneader. 5,065,743, Cl. 128-60.000.
Sutton, William T.: *See—*
Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., 5,065,466, Cl. 5-453.000.
Suyama, Shuji; and Nakamura, Tomoyuki, to Nippon Oil and Fats Company, Limited. Method of polymerizing vinyl chloride. 5,066,744, Cl. 526-228.000.
Suzukamo, Gohfu: *See—*
Kitamura, Masaru; Ichihashi, Hiroshi; and Suzukamo, Gohfu, 5,066,630, Cl. 502-85.000.
Suzuki, Atsushi; and Kondo, Toshio, to Nippondenso Co., Ltd. Engine idle control valve. 5,065,718, Cl. 123-339.000.
Suzuki, Fumio: *See—*
Yamauchi, Ryozo; Kawakami, Noboru; and Suzuki, Fumio, 5,066,087, Cl. 385-43.000.
Suzuki, Hidetoshi: *See—*
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, to Toyota Jidosha Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Panel moving mechanism for sunshine roof. 5,066,068, Cl. 296-221.000.
Suzuki, Michio: *See—*
Kanazawa, Hirotaka; Fujimoto, Yoshitomi; and Suzuki, Michio, 5,065,576, Cl. 60-295.000.
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Autofocusing system for a camera. 5,066,968, Cl. 354-400.000.
Suzuki, Osamu: *See—*
Hino, Seiichi; Satou, Shoichi; Koura, Kouji; and Suzuki, Osamu, 5,066,771, Cl. 528-353.000.
Suzuki, Seiichi: *See—*
Ohba, Takayuki; Miyagaki, Shinji; Hara, Tatsushi; Morishita, Kenji; Suzuki, Seiichi; and Ri, Seigen, 5,066,612, Cl. 437-192.000.
Suzuki, Takanori; and Ito, Makoto, to Koito Manufacturing Co. Ltd. Vehicular headlamp having inclination detector. 5,067,052, Cl. 362-61.000.
Suzuki, Takanori; and Suzuki, Yoshio, to Koito Manufacturing Co., Ltd. Vehicular headlamp. 5,067,056, Cl. 362-66.000.
Suzuki, Takao; Noda, Atsuhito; Komoto, Mitsuo; and Umesato, Shoji, to Japan Aviation Electronics Industry, Ltd.; and NEC Corporation. Apparatus for carrying out connection and disconnection of a circuit member to an electrical connector. 5,065,941, Cl. 439-264.000.
Suzuki, Takashi; Yamamura, Minehiko; and Yamada, Shinichi, to Tanabe Seiyaku Co., Ltd. Process for preparing a naphthalene derivative. 5,066,825, Cl. 560-56.000.
Suzuki, Tauyoshi: *See—*
Nakata, Takashi; and Suzuki, Tauyoshi, 5,066,974, Cl. 355-71.000.
Suzuki, Tetsuo: *See—*
Wakimoto, Yasuhiro; and Suzuki, Tetsuo, 5,067,077, Cl. 395-400.000.
Suzuki, Yasuo: *See—*
Ohta, Koziro; Kurogi, Yoshihito; and Suzuki, Yasuo, 5,065,792, Cl. 137-580.000.
Suzuki, Yoshio: *See—*
Suzuki, Takanori; and Suzuki, Yoshio, 5,067,056, Cl. 362-66.000.
Svensson, Bengt: *See—*
Hirschberg, Jakub; and Svensson, Bengt, 5,066,278, Cl. 604-256.000.
Swan, George A.: *See—*
Baird, William C., Jr.; and Swan, George A., 5,066,632, Cl. 502-223.000.
Swan, Robert B.: *See—*
Zurecki, Zbigniew; Hayduk, Edward A., Jr.; North, John G.; and Swan, Robert B., 5,066,513, Cl. 427-37.000.
Swanson, David A.: *See—*
Howland, Leland L.; Parker, Jan M.; Herrig, Doyle G.; and Swanson, David A., 5,065,587, Cl. 62-131.000.
Swanson, Stephen: *See—*
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.
Sweet, Roger L.: *See—*
Gross, Dario; and Sweet, Roger L., 5,066,317, Cl. 55-218.000.
Swenson, Bryan R.: *See—*
Schmidt, Roger A.; and Swenson, Bryan R., 5,066,690, Cl. 523-423.000.
Swenson, Henry F. Dressing tool for form dressing of a grinding wheel. 5,065,733, Cl. 125-39.000.
Swim, Ollie C., Jr. Countersink tool assembly. 5,066,172, Cl. 408-1.00R.
Systems Furniture Company: *See—*
DeGelder, Jacob, 5,066,069, Cl. 297-374.000.
Szabo, Hsiao-Chiung: *See—*
Suresh, Dev D.; DiCosimo, Robert; Loiseau, Richard; Friedrich, Maria S.; and Szabo, Hsiao-Chiung, 5,066,809, Cl. 546-250.000.
Szabo, Sandor; Rubin, Meryl S. A.; Klibaner, Michael; and Kamarei, Ahmed R., to Angio-Medical Corporation; and Boston University, Trustees of. Composition and method for treatment of gastric and duodenal ulcers and mucosal erosions. 5,066,496, Cl. 424-570.000.
Szajewski, Richard P.: *See—*
O'Connor, Kevin M.; Szajewski, Richard P.; and Bagchi, Pranab, 5,066,572, Cl. 430-503.000.
Sze, Cho Y.: *See—*
McGraw, Thomas C.; Van Ryne, Randall E.; Scarlata, Richard F.; and Sze, Cho Y., 5,065,996, Cl. 271-176.000.
Szenger, Franz, to Carl-Zeiss-Stiftung, Heidenheim/Brenz. Length or angle measuring device. 5,065,525, Cl. 33-702.000.
Szlaga, Emil, to Stant Inc. Tank venting control assembly. 5,065,782, Cl. 137-39.000.
Szpak, Anthony D.: *See—*
English, Philip H.; and Szpak, Anthony D., 5,066,155, Cl. 401-175.000.
Szudy, Katherine A. Handrail for aiding visually handicapped. 5,065,837, Cl. 182-18.000.
Szumigala, James M.: *See—*
Gehly, Joel C.; Zolner, David; and Szumigala, James M., 5,067,064, Cl. 362-277.000.
Szwerc, Joseph A.: *See—*
Arciszewski, Henry E.; Porzio, Linda A.; Chiang, Bin Y.; Spotts, Clyde E., Jr.; McHugh, Kevin; and Szwerc, Joseph A., 5,066,499, Cl. 426-19.000.
Tabor, icky L.; and Allen, James A., to Dow Chemical Company, The. Resin blends of maleic anhydride grafts of olefin polymers for extrusion coating onto metal foil substrates. 5,066,542, Cl. 428-461.000.
Tachi, Hiroshi: *See—*
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.
Tachibana, Hiroyuki: *See—*
Kobashi, Koji; Miyata, Koichi; Kumagai, Kazuo; Inoue, Takayoshi; Tachibana, Hiroyuki; and Nakaue, Akimitsu, 5,066,938, Cl. 338-22.0SD.
Tachibana, Tetsuo: *See—*
Hyodo, Ryuji; Iwabuchi, Eisuke; Nishino, Tetsuo; Isono, Osamu; Tachibana, Tetsuo; and Fukui, Toshimasa, 5,067,123, Cl. 370-58.100.
Tack, Hans: *See—*
Von Haas, Rainer; and Tack, Hans, 5,065,492, Cl. 29-426.600.
Tagami, Jun: *See—*
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

VOL 1132 ISS 3 NO 19 1991 UMI

Taguchi, Naoto: *See*—
Kato, Tetsuo; Taguchi, Naoto; and Murakami, Yoshihiro, 5,066,244, Cl. 439-489.000.
Kato, Tetsuo; Fukuda, Kiyohito; Watanabe, Hiroshi; Terada, Katsuaki; and Taguchi, Naoto, 5,066,252, Cl. 439-752.000.

Taguchi, Toshiki: *See*—
Nakamura, Koki; Ito, Takayuki; Tsukase, Masaaki; and Taguchi, Toshiki, 5,066,577, Cl. 430-562.000.

Taguchi, Yukihiko, to Sanden Corporation. Control apparatus used for a refrigerant circuit having a compressor with a variable displacement mechanism. 5,065,589, Cl. 62-161.000.

Tajima, Ikuo; and Hasegawa, Hideo, to Tokai Kogyo Mishin Kabushiki Kaisha. Embroidering machine. 5,065,682, Cl. 112-103.000.

Tajima, Norio: *See*—
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Takaba, Tetsuro: *See*—
Hosokai, Tetsushi; Takaba, Tetsuro; Ishihara, Toshihiro; and Kobayashi, Hideki, 5,065,717, Cl. 123-339.000.

Takabayashi, Kiyonobu: *See*—
Kodaka, Yoshiro; and Takabayashi, Kiyonobu, 5,066,103, Cl. 359-823.000.

Takada, Noboru; and Osawa, Masami, to Toko Kabushiki Kaisha. Helical filter. 5,066,932, Cl. 333-202.000.

Takada, Shigeki, to Yoshida Kogyo K. K. Method for producing curved slide fastener chains and method for producing curved slide fasteners. 5,065,491, Cl. 29-408.000.

Takagaki, Katsumi, to Fuji Jukogyo Kabushiki Kaisha. Lubricating system for a vertical shaft engine. 5,065,841, Cl. 184-6.180.

Takagawa, Ryozo: *See*—
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.

Takagi, Koichi: *See*—
Taura, Yoshiharu; Yuzaki, Yoshinori; and Takagi, Koichi, 5,066,184, Cl. 413-4.000.

Takagi, Tadao; Saya, Daisuke; and Nemoto, Shigehisa, to Nikon Corporation. Ultrasonic motor having high drive efficiency. 5,066,884, Cl. 310-323.000.

Takahara, Katsuo; Okajima, Shigeru; and Onodera, Tugio, to Mitsuba Electric Mfg. Co., Ltd. Method of forming shaped configuration at end of long element. 5,065,605, Cl. 72-340.000.

Takaharu, Nakamura: *See*—
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, to NKK Corporation. Method for smelting reduction of iron ore and apparatus therefor. 5,065,985, Cl. 266-156.000.

Takahashi, Masami: *See*—
Nishikawa, Kinsaku; Yokoyama, Hiroshi; and Takahashi, Masami, 5,066,439, Cl. 264-103.000.

Takahashi, Mitsuo, to Seikoh Giken Co., Ltd. Variable optical fiber light attenuator. 5,066,094, Cl. 385-73.000.

Takahashi, Motoichi: *See*—
Kobori, Takuji; Takahashi, Motoichi; Nasu, Tadashi; Niwa, Naoki; Kurata, Narito; Hirai, Junichi; and Adachi, Yoshinori, 5,065,552, Cl. 52-1.000.

Takahashi, Norio: *See*—
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.

Takahashi, Osamu: *See*—
Sato, Tadahisa; Takahashi, Osamu; Naruse, Hideaki; and Mizukawa, Yuki, 5,066,575, Cl. 430-558.000.

Takahashi, Takayuki: *See*—
Hosobuchi, Yoshiyuki; and Takahashi, Takayuki, 5,067,154, Cl. 380-25.000.

Takahashi, Yasuhiro: *See*—
Shimizu, Hideo; and Takahashi, Yasuhiro, 5,067,117, Cl. 369-116.000.

Takahashi, Yasushi, to NEC Corporation. Method for electrically detecting positional deviation of contact hole in semiconductor device. 5,066,908, Cl. 324-158.00R.

Takahashi, Yohnosuke, to Fuji Photo Film Co., Ltd. Electronic still camera capable of selecting recording media. 5,067,029, Cl. 358-909.000.

Takaishi, Kazushige: *See*—
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.

Takami, Masao: *See*—
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,065,804, Cl. 157-13.000.

Takamori, Nobuyuki: *See*—
Ohta, Kenji; Murakami, Yoshiteru; Takamori, Nobuyuki; Hijikata, Kenichi; Shingyoji, Takyuki; and Takaishi, Kazushige, 5,066,381, Cl. 204-298.120.

Takano, Yoshiaki; Sato, Koichi; and Shimose, Yutaka, to Sanyo Electric Co., Ltd. Cold box. 5,065,592, Cl. 62-180.000.

Takao, Itaru: *See*—
Narushima, Masaki; and Takao, Itaru, 5,065,495, Cl. 29-559.000.

Takarada, Mitsuhiro: *See*—
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.

Takasago International Corporation: *See*—
Sayo, Noboru; Kumobayashi, Hidenori; Akutagawa, Susumo; Noyori, Ryoji; and Takaya, Hidemasa, 5,066,815, Cl. 549-319.000.

Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, to Eisai Co., Ltd. 3-propenylcephem derivative. 5,066,812, Cl. 548-128.000.

Takaya, Hidemasa: *See*—
Sayo, Noboru; Kumobayashi, Hidenori; Akutagawa, Susumo; Noyori, Ryoji; and Takaya, Hidemasa, 5,066,815, Cl. 549-319.000.

Takayama, Syuichi: *See*—
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Take, Kazuhiko: *See*—
Shiokawa, Youichi; Okumura, Kazuo; Take, Kazuhiko; and Tsubaki, Kazunori, 5,066,680, Cl. 514-622.000.

Takechi, Satoshi: *See*—
Kotachi, Akiko; Takechi, Satoshi; and Nakamura, Yuko, 5,066,751, Cl. 526-279.000.

Takeda Chemical Industries, Ltd.: *See*—
Miyabayashi, Shigeaki; Sakamoto, Takuro; Kanai, Hiroshi; and Oka, Joji, 5,066,757, Cl. 528-45.000.

Takeda, Hiroshi: *See*—
Yamazaki, Hideki; Takeda, Hiroshi; and Yokota, Yoshikazu, 5,067,097, Cl. 395-115.000.

Takeda, Toshihiko: *See*—
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.

Takeda, Yuji, to Toyota Jidosha Kabushiki Kaisha. Ignition timing control apparatus for internal combustion engine. 5,065,724, Cl. 123-425.000.

Takegahara, Takashi: *See*—
Seki, Masaki; Takegahara, Takashi; and Arakaki, Takeshi, 5,067,087, Cl. 364-474.240.

Takehana, Sakae: *See*—
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Takehara, Masataka: *See*—
Michii, Kazunari; and Takehara, Masataka, 5,067,005, Cl. 357-72.000.

Takemoto, Toyoki; Komeda, Tadao; Yamada, Haruyasu; and Fujita, Tsutomu, to Matsushita Electric Industrial Co., Ltd. Method of making semiconductor IC including polar transistors. 5,066,602, Cl. 437-31.000.

Takenaka, Yasuo: *See*—
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Takeuchi, Toshiyuki: *See*—
Ohta, Shuji; and Takeuchi, Toshiyuki, 5,065,664, Cl. 91-420.000.

Takken, Paul E.; Scheckel, Robert G.; and Peo, Steven D., to BPS Systems, Inc. Apparatus for removing debris from a cutting bed. 5,065,469, Cl. 15-89.000.

Talati, Kirit K.; and Lackie, C. Willard, to VISystems, Inc. Virtual software machine which preprocesses application program to isolate execution dependencies and uses target computer processes to implement the execution dependencies. 5,067,072, Cl. 395-650.000.

Talgam, Yoav; Klingshirn, James A.; and Gullette, James B., to Motorola, Inc. Cache which provides status information. 5,067,078, Cl. 395-400.000.

Tameris, Hendrikus M., to Crellin B.V. Plastic cheese mold with drainage slits formed during the manufacture of the upright wall by injection moulding. 5,065,671, Cl. 99-456.000.

Tamglass Oy: *See*—
Lehto, Esko O.; and Vehmas, Jukka H., 5,066,320, Cl. 65-106.000.

Taminaga, Takayuki: *See*—
Deguchi, Katsuyasu; Mizoguchi, Takatoshi; Taminaga, Takayuki; and Fujii, Akiyoshi, 5,066,960, Cl. 346-76.0PH.

Tamm, Rolf; Rodel, Gunther; and Stengele, Erich, to Bodenseewerk Perkin Elmer GmbH. Device for electrothermal atomizing of samples for spectroscopic purposes. 5,066,123, Cl. 356-312.000.

Tamminen, Pentti J., to Sporax Oy. Contact arrangement for a galvanic battery. 5,066,555, Cl. 429-121.000.

Tamura, Nobuhiko: *See*—
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.

Tamura, Tadahiko: *See*—
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,065,804, Cl. 157-13.000.

Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, to Hitachi Chemical Company, Ltd. Process for producing toner for electrophotography. 5,066,560, Cl. 430-137.000.

Tanabe, Haruyoshi: *See*—
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.

Tanabe Seiyaku Co., Ltd.: *See*—
Iwasaki, Tameo; Sugiura, Masaki; Matsuoka, Yuzo; Matsumoto, Mamoru; and Kitamura, Kazuyuki, 5,066,669, Cl. 514-449.000.
Suzuki, Takashi; Yamamura, Minehiko; and Yamada, Shinichi, 5,066,825, Cl. 560-56.000.

Tanaka, Hitoshi; and Kosako, Kosei, to Asahi Kogaku Kogyo Kabushiki Kaisha. Waterproof and/or water-resistant camera. 5,066,965, Cl. 354-64.000.

Tanaka, Kunio: *See*—
Yoshida, Yoshikazu; Tanaka, Kunio; and Nishikawa, Yukio, 5,065,697, Cl. 118-719.000.

Tanaka, Mitsutoshi: *See*—
Kawasaki, Kazuya; Tanaka, Mitsutoshi; Amano, Yoshikazu; and Katsuyama, Harumi, 5,066,462, Cl. 422-56.000.

Tanaka, Shigeyoshi: *See*—
Tan, Ryoji; Tanaka, Shigeyoshi; Kishi, Ken-ichi; Iguchi, Yasuyuki; Kudo, Takeo; Amano, Takashi; and Kohno, Hideki, 5,066,560, Cl. 430-137.000.

Tanaka, Takeshi: *See*—
Yamamoto, Tadashi; Kohyama, Yusuke; and Tanaka, Takeshi, 5,066,609, Cl. 437-52.000.

Tanaka, Yoshikazu: *See*—
Iwasawa, Kyoko; Tanaka, Yoshikazu; and Gotou, Shizuo, 5,067,068, Cl. 395-650.000.

Tanaka, Yoshinori: *See*—
Eimori, Takahisa; Satoh, Shinichi; Wakamiya, Wataru; Ozaki, Hiroji; and Tanaka, Yoshinori, 5,067,000, Cl. 357-53.000.

Tanashin Denki Co., Ltd.: *See*—
Kido, Kunio, 5,067,034, Cl. 360-74.100.

Tandem Computers Incorporated: *See*—
Blakkan, John A., 5,067,132, Cl. 371-52.000.

Tanemoto, Kei; Ando, Akiro; and Kubo, Hiroshi, to Nippon Steel Corporation. Method for producing PLZT powder. 5,066,617, Cl. 501-134.000.

Tang, Reginald T.; Mares, Frank; Boyle, William J., Jr.; Chiu, Tin-Ho; and Patel, Kundan M., to Allied-Signal Inc. Medical devices fabricated totally or in part from copolymers of recurring units derived from cyclic carbonates and lactides. 5,066,772, Cl. 528-354.000.

Tani, Kazunori: *See*—
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,547, Cl. 51-154.000.
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,548, Cl. 51-154.000.

Tani, Shichisei: *See*—
Sagawa, Takayoshi; and Tani, Shichisei, 5,065,800, Cl. 141-67.000.

Taniguchi, Akira: *See*—
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Taniguchi, Takako: *See*—
Sato, Yasuo; Kato, Shinsuke; Taniguchi, Takako; Atsumi, Kunio; Hachisu, Mitsugu; and Shibahara, Seiji, 5,066,677, Cl. 514-563.000.

Tanizawa, Hideichi: *See*—
Usui, Junichi; and Tanizawa, Hideichi, 5,065,963, Cl. 246-187.00B.

Tanken Seiko Kabushiki Kaisha: *See*—
Ohbori, Hiroshi; and Yamauchi, Yuji, 5,066,134, Cl. 366-102.000.

Tapper, Lee C., to R. R. Donnelley & Sons Company. Boundary layer air scraper for a rotogravure printing press. 5,065,675, Cl. 101-153.000.

Tappon, Ellen R.: *See*—
Smyth, John B., Jr.; and Tappon, Ellen R., 5,066,357, Cl. 156-643.000.

Taraban, Nikolai T.: *See*—
Zlobin, Mikhail N.; Metsik, Viktor M.; Nemarov, Alexandr A.; Permyakov, Georgy P.; and Taraban, Nikolai T., 5,066,389, Cl. 209-170.000.

Tarng, Min M. Tangs drinking can and cap. 5,065,881, Cl. 220-258.000.

Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., to Cerprobe Corporation. Probe system for device and circuit testing. 5,066,907, Cl. 324-158.00P.

Tarzwell, Patrick J.: *See*—
Tarzwell, John W.; Tarzwell, Patrick J.; Myers, Theodore R.; Hyland, Barry M.; Dahl, John C.; and Eddings, Jack L., 5,066,907, Cl. 324-158.00P.

Tateoka, Masamichi: *See*—
Makino, Jun; and Tateoka, Masamichi, 5,066,083, Cl. 359-213.000.

Taumberger, Franz: *See*—
Greil, Andreas; and Taumberger, Franz, 5,066,093, Cl. 385-33.000.

Taura, Yoshiharu; Yuzaki, Yoshinori; and Takagi, Koichi, to Mitsubishi Jukogyo Kabushiki Kaisha. Method for seaming packed cans. 5,066,184, Cl. 413-4.000.

Tawada, Yoshihisa: *See*—
Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, 5,066,861, Cl. 250-370.090.

Taylor, Bruce S.; and Balakrishnan, Ramesh, to Measurex Corporation. Cross-directional moisture control system and method. 5,065,673, Cl. 100-40.000.

Taylor, Chandler R., Jr.; and Moses, Meredith, to A. H. Robins Company, Incorporated. 2-aryl-3-heterocyclicmethyl-3H-imidazo[4,5-b]pyridines as anxiolytics and anticonvulsants. 5,066,654, Cl. 514-256.000.

Taylor, Lewis C.: *See*—
Forrest, William J.; and Taylor, Lewis C., 5,065,739, Cl. 128-20.000.

Tazi, Mohammed: *See*—
Helioff, Michael W.; Plochocka, Krystyna; and Tazi, Mohammed, 5,066,481, Cl. 424-47.000.

TDK Corporation: *See*—
Nakagawa, Shiro; Domon, Taisuke; Imai, Takehiro; and Tsuchida, Atsuko, 5,065,625, Cl. 73-336.500.

Teasley, Mark F.: *See*—
Dunlap, Beth E.; Rogers, Fulton F., Jr.; and Teasley, Mark F., 5,066,445, Cl. 264-176.100.

Technosystem Limited: *See*—
Braithwaite, Philip W., 5,066,280, Cl. 604-110.000.

Tektronix, Inc.: *See*—
Jackson, Ronald M., 5,067,130, Cl. 371-22.100.

Telecommunications Co., Ltd.: *See*—
Kim, Byeong-Yun; Jung, Tae-Sung; and Park, Yong-Bo, 5,067,109, Cl. 365-189.050.

Telecommnanications Research Laboratories: *See*—
Moore, Thomas E., 5,067,126, Cl. 370-112.000.

Teledyne Ind. Inc.: *See*—
Willbanks, Henry O., 5,066,852, Cl. 219-544.000.

Teledyne Industries, Inc.: *See*—
Kadis, Paul M., 5,065,606, Cl. 72-348.000.
Kadis, Paul M.; and Hiney, Leonard L., 5,065,607, Cl. 72-351.000.

Teleflex Incorporated: *See*—
Ellis, Larry G.; and Carter, William R., 5,065,961, Cl. 244-137.400.

Telefunken Electronic GmbH: *See*—
Hantsch, Hartmut; Thoma, Peter; and Mahalek, Josef, 5,067,076, Cl. 395-275.000.

Telefunken Systemtechnik GmbH: *See*—
Huder, Bernhard, 5,066,959, Cl. 343-786.000.

Tempel, Ernst; and Grimbu / hler-Can, Pia, to Ciba-Geigy Corporation. Liquid metal complex dye preparations, process for their preparation and their use. 5,066,309, Cl. 8-527.000.

Temple University of the Commonwealth System of Higher Education: *See*—
Huang, Tur-Fu; Niewiarowski, Stefan; Holt, John C.; and Lukasiewicz, Hanna, 5,066,592, Cl. 435-240.200.

Tenneco Canada Inc.: *See*—
Zell, Michael S.; and Fredette, Maurice C. J., 5,066,477, Cl. 423-479.000.

Terada, Hirokiyo: *See*—
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.

Terada, Katsuaki: *See*—
Kato, Tetsuo; Fukuda, Kiyohito; Watanabe, Hiroshi; Terada, Katsuaki; and Taguchi, Naoto, 5,066,252, Cl. 439-752.000.

Terada, Osamu: *See*—
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.

Terada, Tsutomu: *See*—
Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, 5,066,747, Cl. 526-249.000.

Teratani, Masakuni: *See*—
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.

Terbrack, Ulrich: *See*—
Siol, Werner; and Terbrack, Ulrich, 5,066,718, Cl. 525-84.000.

Terex Corporation: *See*—
Loeber, Frederick W.; and Greene, George O., 5,065,814, Cl. 165-41.000.

Terni, Patrizia; Maiorana, Stefano; Papagni, Antonio; and Pagella, Piergiuseppe, to Mediolanum Farmaceutici Srl. Process for preparing pyrido-benzothiazine derivatives having high antibacterial activity and high bioavailability to tissues. 5,066,802, Cl. 544-32.000.

Terrell, Joye L. Finger nail polish removing device. 5,065,778, Cl. 132-74.500.

Terrell, Nancy E.: *See*—
Schuh, Robert R.; Terrell, Nancy E.; Kreiseder, Walter J.; and Vogel, Allen J., 5,065,887, Cl. 220-338.000.

Terumo Kabushiki Kaisha: *See*—
Ikeda, Makoto; and Toriumi, Makoto, 5,066,141, Cl. 374-169.000.
Yamaguchi, Shuichiro; Shimomura, Takeshi; Uchida, Naoto; Katsube, Teruaki; and Oyama, Noboru, 5,066,383, Cl. 204-435.000.

Tessaro, John E., to Westinghouse Electric Corp. Single-step multiple repositionings of control rod cluster assembly during each nuclear reactor fuel cycle. 5,066,451, Cl. 376-237.000.

Tetratec Corporation: *See*—
Dillon, Joseph E.; and Dillon, Mark E., 5,066,683, Cl. 521-54.000.

Texaco Chemical Company: *See*—
Su, Wei-Yang, 5,066,804, Cl. 544-173.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Texaco Inc.: *See—*
Chan, Ting Y., 5,066,467, Cl. 422-140.000.
Huang, Wann-Sheng; and Hsu, Jack J., 5,065,821, Cl. 166-245.000.
Migdal, Cyril A.; Shirodkar, Shailaja M.; DeRosa, Thomas F.; and Miller, Edward F., 5,066,412, Cl. 252-54.600.

Texas Instruments Incorporated: *See—*
Arjmand, Masud M., 5,067,158, Cl. 381-51.000.
Banerjee, Sanjay K., 5,066,607, Cl. 437-52.000.
Schenck, Stephen R., 5,066,872, Cl. 307-443.000.

Thelissen, Guillaume Francois G., to Du Pont de Nemours, E. I., and Company. Filter connector with latchable mounting frame. 5,066,931, Cl. 333-182.000.

Theobald, Hans: *See—*
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, 5,066,673, Cl. 514-521.000.

Thermalock Products, Inc.: *See—*
Kennedy, Francis A.; Neff, John P.; and Blake, Kenneth J., 5,066,440, Cl. 264-69.000.

Thermo Electron-Web Systems, Inc.: *See—*
Goodnow, Ronald F.; and Reid, Robert A., 5,066,364, Cl. 162-281.000.

Thermo King Corporation: *See—*
Howland, Leland L.; Parker, Jan M.; Herrig, Doyle G.; and Swanson, David A., 5,065,587, Cl. 62-131.000.

Thimineur, Raymond J.: *See—*
Raleigh, William J.; Thimineur, Raymond J.; and Zotto, Anthony A., 5,066,756, Cl. 528-32.000.

Tholerus, Jan, to Bindomatic AB. Method for binding sheaves of paper into covers. 5,066,183, Cl. 412-4.000.

Thoma, Peter: *See—*
Hantsch, Hartmut; Thoma, Peter; and Mahalek, Josef, 5,067,076, Cl. 395-275.000.

Thomas, James M. C.; Stolpmann, James R.; Sutton, William T.; and Romano, James J., to SSI Medical Services, Inc. Quick disconnect coupling for a low air loss patient support. 5,065,466, Cl. 5-453.000.

Thompson, Christoper M.: *See—*
Farfaglia, Leonard T., deceased; Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., 5,065,597, Cl. 62-262.000.

Thomson Consumer Electronics, Inc.: *See—*
Doty, James H., II; Albean, David L.; and Blatter, Harold, 5,066,868, Cl. 307-262.000.

Thomson Tubes Electroniques: *See—*
Salavin, Serge; Deschamps, Jacques; Gay, Michel; and Specty, Michel, 5,066,890, Cl. 313-585.000.

Thoren, Werner: *See—*
Albarda, Scato; Thoren, Werner; Kahning, Stefan; and Vehrens, Peter, 5,065,978, Cl. 251-129.060.

Thornburg, Theodore S.: *See—*
Sandor, Robert B.; and Thornburg, Theodore S., 5,066,697, Cl. 524-233.000.

Threeco: *See—*
Pino, Giovanni; Scherer, Thomas W.; and Stephens, Ruth A., 5,065,909, Cl. 222-484.000.

Tietjen, Marlene: *See—*
Brieva, Hernando; Jose, Natividad; and Tietjen, Marlene, 5,066,485, Cl. 424-63.000.

Tilman, Paul, to Zip-Pak Incorporated. Sectional or pre-cut zipper strips, magazine storage and feed means, and method. 5,065,899, Cl. 221-305.000.

Timson, Daniel R. E.: *See—*
Combridge, Brian L.; Robson, David; and Timson, Daniel R. E., 5,067,015, Cl. 358-133.000.

Titan Linkabit Corporation: *See—*
Weinert, Fritz K., 5,067,140, Cl. 375-77.000.

Tjahaja, Surja; and Nodvik, Robert L. Disposable portable urinal. 5,065,459, Cl. 4-144.200.

Tjoe, Sioe-Heng A.: *See—*
Chung, Ding Y.; Debroy, Tapan K.; and Tjoe, Sioe-Heng A., 5,066,688, Cl. 523-415.000.

Toelke, Lester W., to Hayden, Jack W. Multiple diameter pipe test end closure. 5,065,617, Cl. 73-49.800.

Toho Kagaku Kogyo Co., Ltd: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.

Toide, Eiichi; Shikama, Shinsuke; and Kubota, Masayuki, to Mitsubishi Denki Kabushiki Kaisha. Optical head apparatus. 5,066,138, Cl. 369-112.000.

Toji, Shigeo: *See—*
Suzuki, Noboru; Toji, Shigeo; and Kawasaki, Masahiro, 5,066,968, Cl. 354-400.000.

Tokai Kogyo Mishin Kabushiki Kaisha: *See—*
Tajima, Ikuo; and Hasegawa, Hideo, 5,065,682, Cl. 112-103.000.

Toko Kabushiki Kaisha: *See—*
Takada, Noboru; and Osawa, Masami, 5,066,932, Cl. 333-202.000.

Tokugawa, Osamu, to Nippon Seiko Kabushiki Kaisha. Adjustable shoulder anchorage. 5,066,043, Cl. 280-808.000.

Tokusa, Kenji: *See—*
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.

Tokyo Electric Co., Ltd.: *See—*
Hosoya, Masahiro; Saito, Mitsunaga; Sato, Shuitsu; Ohtaka, Yoshimitsu; Endo, Mitsuharu; and Futamata, Yukio, 5,066,982, Cl. 355-269.000.

Tokyo Electron Limited: *See—*
Narushima, Masaki; and Takao, Itaru, 5,065,495, Cl. 29-559.000.

Tolliver, Howard R.: *See—*
Kult, Roger R.; Bailey, Terry R.; and Tolliver, Howard R., 5,066,098, Cl. 359-540.000.

Tomanovits, John, to Philip Morris Inc. Apparatus for forming innerframe for cigarette pack with rounded corners. 5,066,270, Cl. 493-435.000.

Tomasic, Jelka: *See—*
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, 5,066,642, Cl. 514-18.000.

Tomasini, Ercole: *See—*
Negri, Febo R.; and Tomasini, Ercole, 5,066,232, Cl. 433-224.000.

Tomberlin, Rand K. Returning flying toy. 5,066,258, Cl. 446-40.000.

Tomihashi, Nobuyuki: *See—*
Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, 5,066,747, Cl. 526-249.000.

Tomioka, Yutaka; Nakanishi, Satoru; Shintake, Seizi; and Yoneda, Hideki, to Toto Ltd. Filler for patterning of ceramics product and process for producing the same. 5,066,333, Cl. 106-400.000.

Tomosy, Geza. Spill containment device for a ship. 5,066,164, Cl. 405-66.000.

Tomotake, Atsushi: *See—*
Kubota, Toru; Tomotake, Mayumi; Ohya, Hidenobu; Tomotake, Atsushi; and Mizukura, Noboru, 5,066,574, Cl. 430-557.000.

Tomotake, Mayumi: *See—*
Kubota, Toru; Tomotake, Mayumi; Ohya, Hidenobu; Tomotake, Atsushi; and Mizukura, Noboru, 5,066,574, Cl. 430-557.000.

Tone, Shoichi, to Murata Kikai Kabushiki Kaisha. Automatic inspecting apparatus for yarn joining device. 5,065,949, Cl. 242-35.50R.

Tonegawa, Takeshi: *See—*
Morimoto, Kiyoshi; Itoh, Shigeo; Tonegawa, Takeshi; and Niiyama, Takahiro, 5,066,885, Cl. 313-340.000.

Tonen Corporation: *See—*
Doi, Yoshiharu; Ueki, Satoshi; and Furuhashi, Hiroyuki, 5,066,754, Cl. 526-336.000.

Tonomoto, Yoshihiro, to Fujitsu Limited. Cleaning unit for cleaning recording medium of an electrophotographic apparatus. 5,066,983, Cl. 355-297.000.

Toolrite Manufacturing Company: *See—*
Werner, John A., 5,065,653, Cl. 83-199.000.

Toriumi, Makoto: *See—*
Ikeda, Makoto; and Toriumi, Makoto, 5,066,141, Cl. 374-169.000.

Tortonese, Marco: *See—*
Quate, Calvin F.; and Tortonese, Marco, 5,066,358, Cl. 156-647.000.

Toshihiko, Naito: *See—*
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Toto Ltd.: *See—*
Tomioka, Yutaka; Nakanishi, Satoru; Shintake, Seizi; and Yoneda, Hideki, 5,066,333, Cl. 106-400.000.

Toyo Tire & Rubber Company, Limited: *See—*
Hayashi, Hirofumi; and Matsumoto, Yo, 5,066,702, Cl. 524-426.000.

Toyosawa, Shinichi; Ogawa, Masao; Masuda, Yoshitomo; Daifuku, Hideharu; and Kawagoe, Takahiro, to Bridgestone Corporation; and Seiko Electric Components Ltd. Non-aqueous electrolyte secondary cell. 5,066,556, Cl. 429-194.000.

Toyota Jidosha Kabushiki Kaisha: *See—*
Nomura, Yoshihisa; Kato, Masahiko; and Nishii, Michiharu, 5,065,573, Cl. 60-551.000.
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, 5,066,068, Cl. 296-221.000.
Takeda, Yuji, 5,065,724, Cl. 123-425.000.

Toyota Jidosha Kabushiki Kaisha, Toyoto: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Travanti Corinti, Mariano; and Nepi Campitelli, Giovanni, to Bombas Auriferas & Equipos Mineros B.A.E M., C.A. Water pump housing closure and a water pump gasket adjustment mechanism. 5,066,193, Cl. 415-201.000.

Treible, Edwin S.: *See—*
Hollesen, David B.; Kaczorek, Joseph W.; and Treible, Edwin S., 5,065,692, Cl. 118-302.000.

Tresper, Erhard: *See—*
Dorf, Ernst-Ulrich; Reinking, Klaus; Jakob, Wolfgang; Tresper, Erhard; and Russeler, Wolfgang, 5,066,775, Cl. 528-388.000.
Wehnert, Wolfgang; Reinking, Klaus; Bier, Peter; Kraft, Klaus; and Tresper, Erhard, 5,066,704, Cl. 524-449.000.

Tribology Systems, Inc.: *See—*
Sibley, Lewis B.; and Kelly, C. Brian, 5,066,145, Cl. 384-463.000.

Tricoles, Gus P.: *See—*
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., 5,066,921, Cl. 324-639.000.

Trijicon, Inc.: *See—*
Bindon, Glyn A. J., 5,065,519, Cl. 33-241.000.

Trisport Ltd.: *See—*
Collins, Roy S., 5,065,534, Cl. 36-134.000.

Troster, Harry, to Mercedes-Benz AG. Apparatus for fixing the hydraulic unit of an ABS and/or an ASR in the motor space of a street vehicle. 5,066,076, Cl. 303-113.000.

Troude, Roland: *See—*
Dekeyser, Bernard; and Troude, Roland, 5,066,095, Cl. 385-99.000.

Troutner, David E.: *See—*
Simon, Jaime; Wilson, David A.; Volkert, Wynn A.; Troutner, David E.; and Goeckeler, William F., 5,066,478, Cl. 424-1.100.

Trudeau, Albert D. Dart card game board. 5,066,020, Cl. 273-408.000.

Trumbo, Todd A.: *See—*
Sangokoya, Samuel A.; Howie, Milham S.; and Trumbo, Todd A., 5,066,631, Cl. 502-152.000.

TRW Inc.: *See—*
Urbach, Brian A., 5,066,159, Cl. 403-134.000.
Wood, Ruey E., 5,066,160, Cl. 403-140.000.

TRW Repa GmbH: *See—*
Fohl, Artur, 5,066,042, Cl. 280-806.000.
Schmid, Johannes; and Kielwein, Thomas, 5,065,953, Cl. 242-74.000.

TRW Technar Inc.: *See—*
Gunning, Kevin J.; and Gallup, David F., 5,066,836, Cl. 200-61.45R.
Gunning, Kevin J.; Gallup, David F.; and Bell, Lon E., 5,066,837, Cl. 200-61.45R.

TRW Vehicle Safety Systems Inc.: *See—*
Cotter, Patrick J., 5,065,954, Cl. 242-107.700.

Tsakiropoulos, Panayiotis: *See—*
Jones, Howard; Tsakiropoulos, Panayiotis; Pratt, Charles R.; Gardiner, Robert W.; and Restall, James E., deceased, 5,066,457, Cl. 420-552.000.

Tsaur, Bor-Yeu: *See—*
Chen, Chenson K.; and Tsaur, Bor-Yeu, 5,066,610, Cl. 437-83.000.

Tseng, Chun-Chu. Shelf frame. 5,065,873, Cl. 211-187.000.

Tsinberg, Mikhail: *See—*
Basile, Carlo; Cavallerano, Alan P.; and Tsinberg, Mikhail, 5,067,011, Cl. 358-23.000.

Tsubaki, Kazunori: *See—*
Shiokawa, Youichi; Okumura, Kazuo; Take, Kazuhiko; and Tsubaki, Kazunori, 5,066,680, Cl. 514-622.000.

Tsuboi, Shinichi: *See—*
Shiokawa, Kozo; Tsuboi, Shinichi; Moriya, Koichi; Honda, Ikuro; Hattori, Yumi; and Shibuya, Katsuhiko, 5,066,808, Cl. 514-231.500.

Tsuchida, Atsuko: *See—*
Nakagawa, Shiro; Domon, Taisuke; Imai, Takehiro; and Tsuchida, Atsuko, 5,065,625, Cl. 73-336.500.

Tsuchida, Shinji, to Canon Kabushiki Kaisha. Telephone system for ISDN and public telephone networks. 5,067,125, Cl. 370-79.000.

Tsuchiya, Tatsumi: *See—*
Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, 5,066,410, Cl. 252-68.000.

Tsuchiya, Toshio; Abe, Mitsuo; Arai, Nobuo; Hisatomi, Masumi; and Zama, Hideo, to Hitachi, Ltd. Rotary magnetic head device having two different kinds of heads. 5,067,038, Cl. 360-107.000.

Tsuda, Hiroshi: *See—*
Nakayama, Okihiko; and Tsuda, Hiroshi, 5,067,083, Cl. 364-453.000.

Tsukada, Tatsuki: *See—*
Aoki, Shinichiro; Kawata, Koichi; Morita, Yasuyuki; Mori, Akitoshi; Hashidate, Yuji; Tsukada, Tatsuki; and Nakamura, Hiroshi, 5,066,101, Cl. 359-638.000.

Tsukase, Masaaki: *See—*
Nakamura, Koki; Ito, Takayuki; Tsukase, Masaaki; and Taguchi, Toshiki, 5,066,577, Cl. 430-562.000.

Tsukaya, Takashi: *See—*
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Tarayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Tsukidate, Yoshitaka: *See—*
Inoue, Makoto; Miura, Hiroshi; Niita, Kaneaki; Sano, Toshiyuki; Tsukidate, Yoshitaka; and Miyazaki, Takahiro, 5,066,539, Cl. 428-328.000.

Tsukiji, Masaaki; Nishimura, Tetsuharu; Ishizuka, Koh; Ishii, Satoshi; and Kubota, Yoichi, to Canon Kabushiki Kaisha. Displacement measuring apparatus. 5,066,130, Cl. 356-356.000.

Tsukiji, Masaaki: *See—*
Ishii, Satoshi; Tsukiji, Masaaki; Nishimura, Tetsuharu; and Ishizuka, Koh, 5,067,089, Cl. 364-486.000.

Tsukiyama, Noriyuki: *See—*
Mikami, Kazuo; Ishihara, Hideshi; Nishimura, Masahiro; Tsukiyama, Noriyuki; and Hinoda, Seisuke, 5,067,161, Cl. 382-1.000.

Tsunezawa, Masayoshi: *See—*
Ueda, Tetuyuki; and Tsunezawa, Masayoshi, 5,066,897, Cl. 318-135.000.

Tsunoda, Tadashi: *See—*
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.

Tsuruda, Mineo: *See—*
Setoguchi, Shinro; Tsuruda, Mineo; Kitami, Chiaki; and Yamanaka, Tsutomu, 5,066,816, Cl. 549-331.000.

Tsuruta, Hitoshi; Yamada, Hideaki; and Nakamura, Michihiro, to Kuraray Co., Ltd. Method and apparatus for the measurement of analyte substances. 5,066,582, Cl. 435-7.100.

Turney, William J.: *See—*
Gailus, Paul H.; Yester, Francis R.; and Turney, William J., 5,066,923, Cl. 330-107.000.

Tyler, Ralph J.: *See—*
Lukey, Christopher A.; Maitra, Ashit M.; and Tyler, Ralph J., 5,066,629, Cl. 502-84.000.

U-Line Corporation: *See—*
Byczynski, Dean G.; and Reed, William A., 5,065,584, Cl. 62-81.000.

Ube Industries, Ltd.: *See—*
Fukuzawa, Shigeo; Kaneko, Takahide; and Fujimura, Masaaki, 5,066,217, Cl. 425-589.000.
Yoshimoto, Hataaki; and Ito, Katsuhiro, 5,066,105, Cl. 359-58.000.

Ubel, F. Andrew, III: *See—*
Oxman, Joel D.; and Ubel, F. Andrew, III, 5,066,231, Cl. 433-214.000.

Uchida, Naoto: *See—*
Yamaguchi, Shuichiro; Shimomura, Takeshi; Uchida, Naoto; Katsube, Teruaki; and Oyama, Noboru, 5,066,383, Cl. 204-435.000.

Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.

Uchiyama, Shigeru; and Murata, Yoshiyuki, to Casio Computer Co., Ltd. Apparatus for detecting the positions where strings are operated, and electronic musical instruments provided therewith. 5,065,659, Cl. 84-723.000.

Udell, Theodore H., to Container Corporation of America. Tamper evident closure. 5,065,883, Cl. 220-276.000.

Ueda, Tetuyuki; and Tsunezawa, Masayoshi, to Sharp Kabushiki Kaisha. Linear driving apparatus. 5,066,897, Cl. 318-135.000.

Ueki, Satoshi: *See—*
Doi, Yoshiharu; Ueki, Satoshi; and Furuhashi, Hiroyuki, 5,066,754, Cl. 526-336.000.

Ueno, Isamu: *See—*
Leites, Iosif L.; Karpova, Yulya G.; Berchenko, Vladimir M.; Hihara, Takeshi; Shimizu, Toshimitsu; Takahashi, Norio; and Ueno, Isamu, 5,066,314, Cl. 55-44.000.

Ueno, Masaji; and Ofusa, Kumi, to Kabushiki Kaisha Toshiba. Signal output circuit having bipolar transistors at output, for use in a MOS semiconductor integrated circuit. 5,066,875, Cl. 307-446.000.

Uggeri, Fulvio: *See—*
Felder, Ernest; Musu, Carlo; Fumagalli, Luciano; and Uggeri, Fulvio, 5,066,823, Cl. 560-13.000.

Ulrich, Hannsjorg: *See—*
Dany, Franz-Josef; Ulrich, Hannsjorg; and Westermann, Lothar, 5,066,415, Cl. 252-135.000.

Ultrafibre, Inc.: *See—*
Huykman, William, 5,066,538, Cl. 428-288.000.

Umebayashi, Masanori: *See—*
Nakamachi, Fumihiko; and Umebayashi, Masanori, 5,066,525, Cl. 428-29.000.

Umemoto, Hirotoshi: *See—*
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.

Umemoto, Teruo; and Ishihara, Sumi, to Sagami Chemical Research Center. Perfluoroalkyl-containing compound. 5,066,795, Cl. 540-1.000.

Umesato, Shoji: *See—*
Suzuki, Takao; Noda, Atsuhito; Komoto, Mitsuo; and Umesato, Shoji, 5,065,941, Cl. 439-264.000.

Umeyama, Mitsuhiro: *See—*
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.

Unilever Patent Holdings B.V.: *See—*
Lewis, Ian D., 5,066,712, Cl. 524-563.000.
Sherrington, David C.; and Small, Philip W., 5,066,784, Cl. 530-334.000.

Union Broach: *See—*
Speiser, Robert D.; Bernstein, Steven; Miller, Charles N.; and Shearer, Dane, 5,065,549, Cl. 51-288.000.

Union Camp Corporation: *See—*
Bardasz, Ewa A., 5,066,461, Cl. 422-16.000.

Union Carbide Chemicals and Plastics Technology Corporation: *See—*
Cole, Thomas A.; and Nielsen, Kenneth A., 5,066,522, Cl. 427-422.000.

Union Carbide Industrial Gases Technology Corporation: *See—*
Cheung, Steven D., 5,065,794, Cl. 137-883.000.

Union Industrial y Agro-Ganadera, S. A. (UNIASA): *See—*
Gil, Angel H.; Morales, Daniel V.; and Valverde, Eduardo R., 5,066,500, Cl. 426-72.000.

Unisys Corp.: *See—*
Ananth, Raju S.; and Verdone, Michael A., 5,067,037, Cl. 360-103.000.

United Kingdom of Great Britain and Northern Ireland, The Secretary of State for United Kingdom Atomic Energy Authority in Her Britannic Majesty's Government of the: *See—*
Heppenstall, Neil G.; Betts, Colin; and Ford, James, 5,066,453, Cl. 376-352.000.

United States of America

VOL 1132 ISS 3 NO 19 1991 UMI

Air Force: *See*—
Evers, Robert C.; and Dotrong, My, 5,066,769, Cl. 528-337.000.
Army: *See*—
Stubstad, John M.; and Rand, John H., 5,065,958, Cl. 244-17.170.
Commerce: *See*—
Dutta, Binay K.; and Sikdar, Subhas K., 5,066,403, Cl. 210-638.000.
Energy: *See*—
LeMay, James D., 5,066,684, Cl. 521-64.000.
Martinez, Robert J.; and Rye, Robert R., 5,066,565, Cl. 430-296.000.
Health and Human Services: *See*—
Robey, Frank A.; Fields, Raymond L.; and Lindner, Wolfgang, 5,066,716, Cl. 525-54.100.
Health & Human Services: *See*—
Neville, David M., Jr.; and Srinivasachar, Kasturi, 5,066,490, Cl. 424-85.910.
National Aeronautics and Space Administration: *See*—
Bhandari, Pradeep; and Fujita, Toshio, 5,066,337, Cl. 136-202.000.
Connell, John W.; and Hergenrother, Paul M., 5,066,811, Cl. 548-119.000.
Juday, Richard D.; and Sampsell, Jeffrey B., 5,067,019, Cl. 358-160.000.
Nagasubramanian, Ganesan; DiStefano, Salvador; and Liang, Ranty H., 5,066,748, Cl. 526-258.000.
Philipp, Warren H., 5,066,625, Cl. 501-127.000.
Navy: *See*—
Bryant, Paul T.; Weller, Joseph F.; and Goldberg, Lew, 5,066,148, Cl. 385-24.000.
Dixon, David S.; and Masi, James V., 5,066,424, Cl. 252-518.000.
Koerner, Steve J., 5,066,952, Cl. 341-138.000.
Moody, Paul E., 5,065,688, Cl. 114-238.000.
Reedy, Ronald E.; Garcia, Graham A.; and Lagnado, Isaac, 5,066,613, Cl. 437-200.000.
U.S. Philips Corp.: *See*—
Angenent, Johannes; and Cavailles, Jean A., 5,066,086, Cl. 385-41.000.
Betrabet, Hemant S.; Boser, Otmar H.; Kane, Robert H.; McGee, Susan; and Caulfield, Thomas, 5,066,544, Cl. 428-614.000.
Durr, Heinrich; Rosenthal, Manfred; and Adamek, Manfred, 5,066,151, Cl. 400-605.000.
Einhaus, Hermanus F., 5,067,121, Cl. 369-75.200.
Killat, Ulrich; and Kruger, Johann, 5,067,124, Cl. 370-60.000.
Kuchar, Franz, 5,067,030, Cl. 360-14.100.
McGee, Philip J. L., 5,067,122, Cl. 369-116.000.
Oomen, Emmanuel W. J. L., 5,067,134, Cl. 372-6.000.
Van Der Marel, Cornelis; and Smoorenburg, Arnoldus D. J., 5,066,888, Cl. 313-564.000.
Van Rens, Antonia C.; Dijkmans, Eise C.; and Stikvoort, Eduard F., 5,067,138, Cl. 375-81.000.
United Technologies Automotive: *See*—
Lau, Daniel, 5,066,941, Cl. 340-457.000.
United Technologies Corporation: *See*—
Brienza, Michael J., 5,066,133, Cl. 359-570.000.
Unitika Limited: *See*—
Nishikawa, Kinsaku; Yokoyama, Hiroshi; and Takahashi, Masami, 5,066,439, Cl. 264-103.000.
Unitrode Corporation: *See*—
Neidorff, Robert A., 5,066,869, Cl. 307-272.300.
Univ. of California, The Regents of the: *See*—
Hawthorne, M. Frederick, 5,066,479, Cl. 424-1.100.
University of Akron, The: *See*—
Kennedy, Joseph P.; and Mishra, Munmaya K., 5,066,730, Cl. 525-319.000.
University of Arkansas, The: *See*—
Sheng, Zhengzhi; and Hermann, Allen M., 5,066,635, Cl. 505-1.000.
University of Birmingham: *See*—
Skinner, Gordon R. B.; and Buchan, Alexander, 5,066,492, Cl. 424-89.000.
University of British Columbia, The: *See*—
Evans, Robert L., 5,065,715, Cl. 123-263.000.
University of California, The Regents of the: *See*—
Wikman-Coffelt, Joan, 5,066,578, Cl. 435-1.000.
University of Iowa Research Foundation: *See*—
Quinn, Daniel M., 5,066,674, Cl. 514-529.000.
University of Michigan, The Regents of the: *See*—
Koren, Yoram; and Weinstein, Yechiel, 5,065,640, Cl. 74-469.000.
University of Okla., Board of Regents of the: *See*—
Ferretti, Joseph J.; and Malke, Horst, 5,066,589, Cl. 435-172.300.
University of South Florida: *See*—
Bercu, Barry B., 5,065,747, Cl. 128-630.000.
Bercu, Barry B., 5,065,748, Cl. 128-630.000.
Unruh, Gary R.: *See*—
Boutet, John C.; and Unruh, Gary R., 5,065,866, Cl. 206-455.000.
Unsmoke Systems, Inc.: *See*—
Zlotnik, Clifford, 5,066,328, Cl. 106-18.320.
Upjohn Company, The: *See*—
Jones, Lawrence D.; Frey, Paul T.; Gleason, David D.; Chee, Paula P.; and Slightom, Jerry L., 5,066,587, Cl. 435-172.100.
Urano, Satoshi: *See*—
Nakano, Shinji; Ohsugi, Hiroharu; Urano, Satoshi; Furukawa, Masamichi; Takagawa, Ryozo; Eguchi, Yoshio; and Endo, Takeshi, 5,066,722, Cl. 525-162.000.
Urata, Kazumoto: *See*—
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.
Urbach, Brian A., to TRW Inc. Ball joint with integral seal. 5,066,159, Cl. 403-134.000.
Usami, Mitsuo: *See*—
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.
Usui, Junichi; and Tanizawa, Hideichi, to Daifuku Co., Ltd. Transporting train travel control system. 5,065,963, Cl. 246-187.00B.
Usui Kokusai Sangyo Kabushiki Kaisha: *See*—
Morofushi, Kunitoshi, 5,066,196, Cl. 416-241.00A.
Vaha, Pentti: *See*—
Lindbolm, Mikko; and Vaha, Pentti, 5,067,013, Cl. 358-93.000.
Valavaara, William K. Rotary device. 5,066,207, Cl. 418-171.000.
Valeo: *See*—
Bertin, Patrice; and Pankowiak, Christian, 5,065,850, Cl. 192-90.000.
Valverde, Eduardo R.: *See*—
Gil, Angel H.; Morales, Daniel V.; and Valverde, Eduardo R., 5,066,500, Cl. 426-72.000.
Van den Bergh Foods Co., Division of Conopco, Inc.: *See*—
Asbeck, Lutz S.; and Segers, Jacobus C., 5,066,504, Cl. 426-417.000.
Van Dorn Company: *See*—
Gallagher, Thomas A., 5,065,888, Cl. 220-355.000.
Vance, Gary L.: *See*—
Rope, Eugene L.; Stewart, Dary R.; Tricoles, Gus P.; Vance, Gary L.; Roussos, Jonathan; and Luoma, Roy S., 5,066,921, Cl. 324-639.000.
Van Dam, David J. Laryngoscope blade sheath. 5,065,738, Cl. 128-11.000.
van den Hoven, Martinus M. G. M.; and Ermens, Hermanus W. A., to DMV Campina B.V. Storage stable liqueur or alcohol-containing beverage containing medium chain triglycerides. 5,066,509, Cl. 426-592.000.
VanderBurgh, Steven D.: *See*—
Alvarez, Robert J.; Martineau, Tom N.; and VanderBurgh, Steven D., 5,065,817, Cl. 165-153.000.
Van Der Marel, Cornelis; and Smoorenburg, Arnoldus D. J., to U.S. Philips Corporation. Alkali metal vapor dispenser. 5,066,888, Cl. 313-564.000.
van der Veen, Johannes S.: *See*—
Begemann, Malcolm J. S.; de Vries, Bernhard; and van der Veen, Johannes S., 5,065,759, Cl. 128-419.0PG.
Van Deursen, Josephus H.; Van Doorn, Johannes A.; Drent, Eit; and Wong, Pui K., to Shell Oil Company. Carbon monoxide/cyclopenten copolymer and preparation with aromatic dinitro compound. 5,066,778, Cl. 528-392.000.
Van Doorn, Johannes A.: *See*—
Van Deursen, Josephus H.; Van Doorn, Johannes A.; Drent, Eit; and Wong, Pui K., 5,066,778, Cl. 528-392.000.
Van Egmond, Cornelis F. H., to Shell Oil Company. Subterranean heaters. 5,065,818, Cl. 166-60.000.
Van Elst, Jan T.: *See*—
Narula, Anubhav P. S.; De Virgilio, John J.; and Van Elst, Jan T., 5,066,641, Cl. 512-25.000.
Van Leeuwen, Petrus W. N. M.; Roobeek, Cornelis F.; and Wong, Pui K., to Shell Oil Company. Polymerization of co/olefin with diphosphine/hydrocarbyl palladium salt complex catalyst. 5,066,777, Cl. 528-392.000.
Van Rens, Antonia C.; Dijkmans, Eise C.; and Stikvoort, Eduard F., to U.S. Philips Corporation. Phase-locked-loop circuit and bit-detection arrangement comprising such a phase-locked-loop circuit. 5,067,138, Cl. 375-81.000.
Van Ryne, Randall E.: *See*—
McGraw, Thomas C.; Van Ryne, Randall E.; Scarlata, Richard F.; and Sze, Cho Y., 5,065,996, Cl. 271-176.000.
Van Vooren, Charles R.; and Austin, Leslie W. Wheel chair cycle apparatus. 5,066,032, Cl. 280-304.100.
van Wijngaarden, Ineke: *See*—
Hamminga, Derk; van Wijngaarden, Ineke; and Jansen, Johannes W. C. M., 5,066,649, Cl. 514-183.000.
Vario, Fred F. Water line test cap. 5,065,981, Cl. 251-148.000.
Vaughan, Philip A.: *See*—
McManigal, Paul G.; and Vaughan, Philip A., 5,065,788, Cl. 137-505.180.
Vaughan, Robert A.: *See*—
Larsen, Douglas C.; and Vaughan, Robert A., 5,065,562, Cl. 52-772.000.
Vavrek, Robert M.; and McFarland, Thomas G., to General Electric Company. Gradient amplifier system with flexible amplifier allocation. 5,066,914, Cl. 324-309.000.
Vedamuthu, Ebenezer R., to Microlife Technics, Inc. *Streptococcus Lactis* containing plasmids encoding for mucoidness and method for identifying such strains. 5,066,588, Cl. 435-172.300.
Veenstra, Steven E. Wind direction indicator. 5,065,622, Cl. 73-188.000.
Vega, Luis F.: *See*—
Andreshak, Joseph C.; Datta, Madhav; Romankiw, Lubomyr T.; and Vega, Luis F., 5,066,370, Cl. 204-129.100.
Vehmas, Jukka H.: *See*—
Lehto, Esko O.; and Vehmas, Jukka H., 5,066,320, Cl. 65-106.000.
Vehrens, Peter: *See*—
Albarda, Scato; Thoren, Werner; Kahning, Stefan; and Vehrens, Peter, 5,065,978, Cl. 251-129.060.

Vella-Coleiro, George P.: *See*—
Gordon, Alexander; and Vella-Coleiro, George P., 5,067,173, Cl. 359-152.000.
Velnosky, James C.: *See*—
Karkar, Maurice N.; and Velnosky, James C., 5,066,859, Cl. 250-339.000.
Verdone, Michael A.: *See*—
Ananth, Raju S.; and Verdone, Michael A., 5,067,037, Cl. 360-103.000.
Verdun, Gary J., to Compaq Computer Corporation. High density electrical connector with electrostatic discharge protection. 5,066,240, Cl. 439-181.000.
Vereinigte Aluminium-Werke Aktiengesellschaft: *See*—
Ostermann, Friedrich; Plath, Hans-Heinrich; and Griep, Winfried, 5,065,510, Cl. 29-894.324.
Verhagen, George: *See*—
Harry, John O.; Verhagen, George; and Small, Rudy E., 5,066,379, Cl. 204-279.000.
Vezina, Claude: *See*—
Sehgal, Surendra N.; and Vezina, Claude, 5,066,493, Cl. 424-122.000.
Vick, Henry L. Cigarette lighter. 5,066,220, Cl. 431-277.000.
Vidusek, Daniel A.; and White, Justin D., to Spraying Systems Co. Multiple head spray nozzle assembly with common supply manifold. 5,065,945, Cl. 239-556.000.
Vincent, Alex. Lathe attachment duplicating device. 5,065,801, Cl. 142-38.000.
Vipont Pharmaceutical, Inc.: *See*—
Harkrader, Ronald J.; Jones, Richard R.; and Peterson, Kenneth S., 5,066,483, Cl. 424-54.000.
Virginia Polytechnic Institute and State University: *See*—
Glasser, Wolfgang G.; De Oliveira, Willer; Kelley, Stephen S.; and Nieh, Li S., 5,066,790, Cl. 530-502.000.
Virginia Tech Intellectual Properties, Inc.: *See*—
Gibson, Harry W.; and Jois, Yajnanarayana H. R., 5,066,773, Cl. 528-362.000.
VISystems, Inc.: *See*—
Talati, Kirit K.; and Lackie, C. Willard, 5,067,072, Cl. 395-650.000.
Vitale, Stefano: *See*—
Cerdonio, Massimo; and Vitale, Stefano, 5,066,637, Cl. 501-1.000.
Vitatron Medical B.V.: *See*—
Begemann, Malcolm J. S.; de Vries, Bernhard; and van der Veen, Johannes S., 5,065,759, Cl. 128-419.0PG.
Vogel, Allen J.: *See*—
Schuh, Robert R.; Terrell, Nancy E.; Kreiseder, Walter J.; and Vogel, Allen J., 5,065,887, Cl. 220-338.000.
Volker, Helmut: *See*—
Muller, Heinz-Joachim; Sluma, Heinz-Dieter; Eberhard, Gunter; Spindler, Ernst; Krauss, Lothar; and Volker, Helmut, 5,066,401, Cl. 210-500.350.
Volkert, Wynn A.: *See*—
Simon, Jaime; Wilson, David A.; Volkert, Wynn A.; Troutner, David E.; and Goeckeler, William F., 5,066,478, Cl. 424-1.100.
von Eckardstein, Karl-Ernst: *See*—
Coja, Joachim; von Eckardstein, Karl-Ernst; and Simnovec, Andrej, 5,066,203, Cl. 417-318.000.
Von Haas, Rainer; and Tack, Hans, to Krupp Widia GmbH. Method of and assembly for releasably connecting a tool head to a tool base holder of a tool turret machine tool. 5,065,492, Cl. 29-426.600.
Voorheis, Scott D.: *See*—
Rhodes, Keith J.; and Voorheis, Scott D., 5,066,390, Cl. 209-217.000.
Vorberg, Dieter: *See*—
Berges, Hanns-Peter; Fischer, Berthold; Mueller, Peter; and Vorberg, Dieter, 5,066,202, Cl. 417-228.000.
Vos, David J.: *See*—
Vos, Peter M.; and Vos, David J., 5,066,505, Cl. 426-438.000.
Vos Fry Systems Australia Ltd.: *See*—
Vos, Peter M.; and Vos, David J., 5,066,505, Cl. 426-438.000.
Vos, Peter M.; and Vos, David J., to Vos Fry Systems Australia Ltd. Cooking method and apparatus. 5,066,505, Cl. 426-438.000.
Voss, Erdmuthe; Moschinsky, Werner; and Hofmann-Moritz, Doris, to Consortium fur elektrochemische Industrie GmbH. Phenylethl o-methylcinnamate, a process for preparation and a fragrance composition containing same. 5,066,640, Cl. 512-21.000.
Voss, Mark G.: *See*—
Powell, James W.; Voss, Mark G.; and Waineo, Bryan N., 5,065,590, Cl. 62-175.000.
Vranesic, Branka; Tomasic, Jelka; Smerdel, Stanislav; Kantoci, Darko; Sava, Gianni; and Hrsak, Ivo, to Imunoloski Zavod. Adamantyl comprising tripeptides, derivatives and hydrochlorides thereof, their preparation and use. 5,066,642, Cl. 514-18.000.
Vratsanos, Menas S.: *See*—
Casey, Jeremiah P.; Lucas, Peter A.; and Vratsanos, Menas S., 5,066,764, Cl. 528-122.000.
Vrudhula, Vivekananda M.: *See*—
Sivam, Gowsala P.; Reed, Michael W.; Srinivasan, Ananthachari; Morgan, A. Charles, Jr.; Brixner, Diana I.; Vrudhula, Vivekananda M.; and Comezoglu, F. Taha, 5,066,789, Cl. 530-388.000.
VSL International AG: *See*—
Siegfried, Erwin; and Marti, Peter, 5,066,167, Cl. 405-150.100.
Vyve, Albert V.: *See*—
Deacon, Walter T.; and Vyve, Albert V., 5,065,785, Cl. 137-185.000.
W. A. Whitney Corp.: *See*—
Cowan, Louis G.; and Cardey, Dale L., 5,065,654, Cl. 83-255.000.
W. H. Brady Co.: *See*—
Perko, Jack E.; Wirth, Gary J.; and Foxgrover, Brian A., 5,066,349, Cl. 156-166.000.
W. R. Grace & Co.-Conn.: *See*—
O'Rell, Dennis; Hamed, Parviz; and DiPerna, Thomas C., 5,066,537, Cl. 428-246.000.
Wacker Silicones Corporation: *See*—
Hart, George M.; and Hayford, Mark E., 5,066,703, Cl. 524-437.000.
Wada, Keiichiro; Cassidy, Patrick E.; and Hager, William S., to Nippon Steel Chemical Co., Ltd. Poly(azomethine-ester) having film-forming ability, and heat resistance pre and regulated monomer sequences in the polymer backbone. 5,066,765, Cl. 528-185.000.
Wada, Shunichi, to Mitsubishi Denki K.K. Ultrasonic obstacle sensor. 5,067,115, Cl. 367-99.000.
Wadaka, Shusou: *See*—
Koike, Mitsuhiro; and Wadaka, Shusou, 5,065,629, Cl. 73-602.000.
Wade, Gerald T., to Hewlett-Packard Company. Continuous computer performance measurement tool that reduces operating system produced performance data for logging into global, process, and workload files. 5,067,107, Cl. 395-500.000.
Wagner, Allen J.: *See*—
Zdebel, Peter J.; Balda, Raymond J.; Hwang, Bor-Yuan; and Wagner, Allen J., 5,067,002, Cl. 357-59.000.
Wahl, Seymour; and Spector, George. Apparatus for evenly dispensing melted butter. 5,065,927, Cl. 222-185.000.
Waineo, Bryan N.: *See*—
Powell, James W.; Voss, Mark G.; and Waineo, Bryan N., 5,065,590, Cl. 62-175.000.
Wakahara, Kaoru: *See*—
Kagiyama, Junji; Kobayashi, Kiyonori; Nakane, Mototaka; Kamiya, Masakazu; Umeyama, Mitsuhiro; Inui, Masaki; Wakahara, Kaoru; and Hosono, Masaki, 5,065,642, Cl. 74-574.000.
Wakamiya, Wataru: *See*—
Eimori, Takahisa; Satoh, Shinichi; Wakamiya, Wataru; Ozaki, Hiroji; and Tanaka, Yoshinori, 5,067,000, Cl. 357-53.000.
Wakamori, Takehisa; Ogawa, Takashi; Ito, Ryoji; and Shimanaka, Chikafumi, to Honda Giken Kogyo Kabushiki Kaisha. Method for installing bearings on engine components. 5,065,507, Cl. 29-888.010.
Wakimoto, Yasuhiro; and Suzuki, Tetsuo, to Fujitsu Limited. Single chip microcomputer having unauthorized memory space access protection. 5,067,077, Cl. 395-400.000.
Wakita, Naomasa: *See*—
Ito, Kenji; Shimizu, Hiroyuki; and Wakita, Naomasa, 5,066,934, Cl. 333-205.000.
Wakui, Tetsuya, to Canon Kabushiki Kaisha. Rotation control device using reproduced synchronizing signal. 5,067,033, Cl. 360-70.000.
Waldrop, John L.; and Glover, Clarence B., to Honeywell Inc. Magnetic field measurement and compass calibration in areas of magnetic disturbance. 5,065,521, Cl. 33-361.000.
Walker, Kevin E., to AMP Incorporated. Retention device for flat pack sockets. 5,066,245, Cl. 439-526.000.
Walker, Louis L.; and Larson, Paul A., to Dow Chemical Company, The. Curable composition containing a difunctional epoxy resin, a polyfunctional epoxy resin, a difunctional phenol and a polyfunctional phenol. 5,066,735, Cl. 525-482.000.
Walkhoff, Klaus, to Raichle Sportschuh AG. Clamping device for a ski boot. 5,065,481, Cl. 24-68.0SK.
Wall, Alan; Grayson, Peter; and Egerton, Michael, to Harold Watson Limited. Attachment device. 5,066,162, Cl. 403-361.000.
Wallace, William D.; Lynch, Edward G., Jr.; Daugherty, David W., Jr.; Kanjo, Dajih; and Hawryszkow, Michael G., to Westinghouse Air Brake Company. Articulated coupling apparatus for connecting adjacent ends of a pair of railway cars together in a semipermanent manner. 5,065,679, Cl. 105-3.000.
Walley, Darlene R.; Buttery, Howard J.; Norbury, Robert J.; Schmidt, Diane G.; and Michael, William R., to Procter & Gamble Company, The; and Minnesota Mining & Manufacturing Co. Coated perfume particles. 5,066,419, Cl. 252-174.110.
Walsh, Daniel R., to Polyonics Corporation. Process for forming polyimide-metal laminates. 5,066,545, Cl. 428-626.000.
Walter, Gerhard: *See*—
Langowski, Andreas; Schultz, Wolfgang; and Walter, Gerhard, 5,065,524, Cl. 33-544.200.
Walter, Jurgen: *See*—
Lunke, Manfred; Falz, Ulrich; and Walter, Jurgen, 5,066,263, Cl. 464-96.000.
Walther, Klaus: *See*—
Reisinger, Lothar; Hagg, Dieter; Wenzl, Werner; and Walther, Klaus, 5,066,024, Cl. 277-53.000.
Wanat, Robert A.: *See*—
Bortnick, Newman M.; Wanat, Robert A.; and Degraff, Darnel, 5,046,696, Cl. 524-91.000.
Wang, Carl C. T., to Alcon Laboratories, Inc. Method and apparatus for injecting viscous fluid into the eye to lift pre-retinal and post-retinal membrane with linear pressure control. 5,066,276, Cl. 604-51.000.
Wang, Chao-Huei J.; Stroupe, Stephen D.; and Jolley, Michael E., to Abbott Laboratories. Fluorescence polarization immunoassay utilizing substituted carboxyfluoresceins. 5,066,426, Cl. 540-106.000.
Wang, Jinn-Shyan, to Industrial Technology Research Institute. Progressive scan system with field-offset sampling. 5,067,016, Cl. 358-140.000.
Wang, Shein S.: *See*—
Hanson, Douglas W.; Wang, Shein S.; and Harlan, William S., 5,067,113, Cl. 367-50.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Wang, Wang-Nang: *See*—
Liu, Ru-Shi; Wang, Wang-Nang; and Chang, Chan-Ting, 5,066,636, Cl. 505-1.000.
Wang, Yeong-Jing. Smooth surface fixing setter. 5,065,973, Cl. 248-362.000.
Wanner, Edward A.; and Widge, Sunil, to Carpenter Technology Corporation. Heat resisting controlled thermal expansion alloy balanced for having globular intermetallic phase. 5,066,458, Cl. 420-586.000.
Ward, Robert B., Sr. Buoy and releasing system for ships in distress. 5,066,256, Cl. 441-7.000.
Ward-Smith, Alfred J.: *See*—
Davey, Rodney J.; Handley, Graham R.; and Ward-Smith, Alfred J., 5,065,928, Cl. 226-7.000.
Warmerdam, Gerard G. Pipe joint testing and grouting unit. 5,066,208, Cl. 425-13.000.
Warner-Lambert Co.: *See*—
Boschelli, Diane H.; Connor, David T.; Flynn, Daniel L.; Sircar, Jagadish C.; and Hoefle, Milton L., 5,066,668, Cl. 514-384.000.
Cherukuri, Subraman R.; Raman, Kirschna P.; Wong, Lucy L.; Mansukhani, Gul; and Orama, Angel, 5,066,511, Cl. 426-658.000.
Hobbs, Sheila H.; and Johnson, Stephen J., 5,066,662, Cl. 514-364.000.
Hobbs, Sheila H., 5,066,663, Cl. 514-326.000.
Hobbs, Sheila H., 5,066,665, Cl. 514-380.000.
Iderosa, Richard A., 5,065,515, Cl. 30-140.000.
Waseda University: *See*—
Miwa, Yoshiyuki; Kodama, Hiroshi; Murase, Takuya; Shikae, Sadao; Nakagawa, Masaya; and Kabumoto, Tsutomu, 5,066,507, Cl. 426-481.000.
Wasserman, Christopher: *See*—
Steine, Hans-Theo; and Wasserman, Christopher, 5,066,523, Cl. 427-423.000.
Wasthuber, Robert: *See*—
Lengenfelder, Hans; and Wasthuber, Robert, 5,066,953, Cl. 341-155.000.
Watanabe, Atsushi, to Fanuc Ltd. Automatic nominal data setting method in a visual sensor system. 5,066,902, Cl. 318-568.160.
Watanabe, Hiroshi: *See*—
Kato, Tetsuo; Fukuda, Kiyohito; Watanabe, Hiroshi; Terada, Katsuaki; and Taguchi, Naoto, 5,066,252, Cl. 439-752.000.
Watanabe, Kiyomi; and Matsumoto, Tetsuya, to Origin Electric Co., Ltd. Current detecting circuit for X-ray tube. 5,067,143, Cl. 378-110.000.
Watanabe, Kohei: *See*—
Muto, Yoshihiko; Watanabe, Kohei; Yasukata, Koichi; and Sakurai, Tomoyuki, 5,066,397, Cl. 210-321.610.
Watanabe, Nobuhiko: *See*—
Uchiyama, Naoki; Tsukaya, Takashi; Ishihara, Kouichiro; Takehana, Sakae; Kubota, Tetsumaru; Takayama, Syuichi; Taniguchi, Akira; Watanabe, Nobuhiko; Sekino, Naomi; Hibino, Hiroki; and Hayashi, Masaaki, 5,065,741, Cl. 128-24.0EL.
Watanabe, Osamu: *See*—
Yoshida, Masayuki; Yoshio, Junichi; and Watanabe, Osamu, 5,067,119, Cl. 369-47.000.
Watanabe, Tatsuo: *See*—
Mizuno, Toshio; Muratani, Takuro; Ito, Yasuhiko; Watanabe, Tatsuo; and Inoue, Takashi, 5,066,957, Cl. 342-352.000.
Watarai, Shinichi; Yasuda, Megumi; Houki, Yoji; and Nishio, Yukio, to Fujitsu Limited. Image forming apparatus having an exchangeable unit exchange timing indicating device. 5,066,978, Cl. 355-206.000.
Waters, John H.: *See*—
Dean, William R.; and Waters, John H., 5,066,019, Cl. 273-348.100.
Wathen, Ronald L.: *See*—
Miller, Steven L.; Wathen, Ronald L.; and Palazzo, Raymond E., Jr., 5,065,791, Cl. 137-515.000.
Watson, James A.: *See*—
Chan, Yiu-Fai; Hsiao, Chang-Chia; and Watson, James A., 5,066,873, Cl. 307-443.000.
Watson, James F. Electrical fitting for panel construction. 5,066,247, Cl. 439-565.000.
Watson, John G.: *See*—
Driscoll, Edward C., Jr.; Martin, Craig O.; Ruby, Kenneth; Russell, James J.; and Watson, John G., 5,067,162, Cl. 382-5.000.
Watt, Allan. Handle attachment for an implement having an elongate handle shaft. 5,065,475, Cl. 16-114.00R.
Wedel, Gregory L.: *See*—
Skaugen, Borgeir; and Wedel, Gregory L., 5,065,529, Cl. 34-117.000.
Wedell, Anders S. Spring for compression and tension, mainly in axial direction. 5,065,988, Cl. 267-149.000.
Weetall, Howard H., to Ciba Corning Diagnostics Corp. Unitary multiple electrode sensor. 5,066,372, Cl. 204-153.100.
Wehle, Anton; Hoppner, Klaus; and Weiss, Hermann, to Andreas Stihl. Internal combustion engine for a portable handheld work apparatus. 5,065,708, Cl. 123-52.0MC.
Wehnert, Wolfgang; Reinking, Klaus; Bier, Peter; Kraft, Klaus; and Tresper, Erhard, to Bayer Aktiengesellschaft. Filled thermoplasts with low shrinkage anisotropy. 5,066,704, Cl. 524-449.000.
Weigl, Jeffrey L.; and Babuder, Gerald A., to Cajon Company. Anti-twist coupling assembly with biasing means. 5,066,051, Cl. 285-328.000.
Weil, Thomas L., to Davlyn Manufacturing Co. Gasket assembly. 5,066,028, Cl. 277-181.000.
Weinberger, Scot R.; and Mills, James L., to Spectra-Physics, Inc. Thermal control for capillary electrophoresis apparatus. 5,066,382, Cl. 204-299.00R.
Weinert, Fritz K., to Titan Linkabit Corporation. Conversion of analog signal into I and Q digital signals with enhanced image rejection. 5,067,140, Cl. 375-77.000.
Weinrotter, Klaus: *See*—
Seidl, Sigrid; Weinrotter, Klaus; and Simharl, Reinhold, 5,066,760, Cl. 528-51.000.
Weinstein, Jerry G.: *See*—
Kantner, Robert C.; Rocazella, Michael A.; Weinstein, Jerry G.; and White, Danny R., 5,066,618, Cl. 501-127.000.
Weinstein, Yechiel: *See*—
Koren, Yoram; and Weinstein, Yechiel, 5,065,640, Cl. 74-469.000.
Weiss, Hermann: *See*—
Wehle, Anton; Hoppner, Klaus; and Weiss, Hermann, 5,065,708, Cl. 123-52.0MC.
Weiss, Wilhelm, to Krones AG Hermann Kronseder Maschinenfabrik. Apparatus for filling cans. 5,065,799, Cl. 141-39.000.
Weiss, Wolfgang: *See*—
Pastorek, Emmerich; Orth, Winfried; Weiss, Wolfgang; and Kleffner, Hans W., 5,066,806, Cl. 546-180.000.
Weissman, Bernard. Dental product combining a reamer tool and anchor post. 5,066,230, Cl. 433-165.000.
Weitzel, Rose M.: *See*—
Ehrman, Albert M.; Seiden, Paul; Weitzel, Rose M.; and White, Robert L., 5,066,510, Cl. 426-607.000.
Welch Allyn, Inc.: *See*—
Krauter, Allan I., 5,066,122, Cl. 356-241.000.
Weller, Joseph F.: *See*—
Bryant, Paul T.; Weller, Joseph F.; and Goldberg, Lew, 5,066,148, Cl. 385-24.000.
Welsh, David E., to ITT Corporation. Polarizing key permitting connector displacement. 5,066,250, Cl. 439-681.000.
Wendt, Hans-Jurgen: *See*—
Munster, Horst; and Wendt, Hans-Jurgen, 5,066,951, Cl. 341-32.000.
Wendt, Peter, to Siemens Aktiengesellschaft; and Siemens Aktiengesellschaft. Pulse power amplifier. 5,066,924, Cl. 330-124.00R.
Wendt, Wolfgang: *See*—
Honel, Michael; Ziegler, Peter; Sprenger, Walter; and Wendt, Wolfgang, 5,066,758, Cl. 528-45.000.
Wennerberg, Gunnar, to Measurex Corporation. Single sided reflectance sensor for measuring select physical properties of a material using one or more wavelengths of radiation. 5,066,865, Cl. 250-572.000.
Wenzel, Dennis J.; and McFalls, David S., II, to Southwest Research Institute. Optical robotic canopy polishing system. 5,067,085, Cl. 364-474.060.
Wenzl, Werner: *See*—
Reisinger, Lothar; Hagg, Dieter; Wenzl, Werner; and Walther, Klaus, 5,066,024, Cl. 277-53.000.
Werder, Jonathan C.: *See*—
Olson, David P.; and Werder, Jonathan C., 5,067,096, Cl. 364-517.000.
Werner, John A., to Toolrite Manufacturing Company. Twist-shearing apparatus. 5,065,653, Cl. 83-199.000.
Wessel, Edward O.: *See*—
Wessel, Lloyd F.; Wessel, Edward O.; and Mudd, MaryAnn, 5,065,567, Cl. 56-13.700.
Wessel, Lloyd F.; Wessel, Edward O.; and Mudd, MaryAnn. Lawn edger. 5,065,567, Cl. 56-13.700.
Westermann, Lothar: *See*—
Dany, Franz-Josef; Ulrich, Hannsjorg; and Westermann, Lothar, 5,066,415, Cl. 252-135.000.
Westinghous Electric Corp.: *See*—
Morse, Alfred W., 5,066,930, Cl. 333-164.000.
Westinghouse Air Brake Company: *See*—
Wallace, William D.; Lynch, Edward G., Jr.; Daugherty, David W., Jr.; Kanjo, Dajih; and Hawryszkow, Michael G., 5,065,679, Cl. 105-3.000.
Westinghouse Electric Corp.: *See*—
Burtner, Lee W.; and Chizmar, David A., 5,065,635, Cl. 73-866.500.
Catanese, John A., 5,066,913, Cl. 324-226.000.
Davies, David K.; Chantry, Peter J.; and Goutzoulis, Anastasios P., 5,066,088, Cl. 385-25.000.
DeLong, Ronald B.; Persing, Brian J.; Raabe, Charles G.; Bouse, James R.; Bemis, Peter F.; Hollerbach, Eric T.; Bruggink, Bradley J.; and Cykana, Daniel, 5,065,556, Cl. 52-221.000.
Freitag, Ronald G., 5,066,925, Cl. 330-269.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,496, Cl. 29-599.000.
Jarabak, Andrew J.; Sunderman, Wallace H.; Mendola, Edward G.; and Kalkbrenner, Ralph W., 5,065,497, Cl. 29-564.700.
Mallick, George T., Jr.; Logan, James R.; and Marschik, David, 5,067,044, Cl. 361-19.000.
Martin, Raymond G., 5,066,956, Cl. 342-154.000.
Pirl, William E., 5,066,846, Cl. 219-121.630.
Sargeant, John B., 5,066,882, Cl. 310-217.000.
Tessaro, John E., 5,066,451, Cl. 376-237.000.
Westling, Gregory L.: *See*—
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.
Westvaco Corporation: *See*—
Hutter, G. Frederick, 5,066,331, Cl. 106-30.000.

Wetherholt, Steven D.: *See*—
Harris, James E.; Farfaglia, Leonard T., deceased; and Wetherholt, Steven D., 5,065,596, Cl. 62-262.000.
Wetzel, Rolf; and Firnhaber, Bernhard, to Krupp Koppers GmbH. Method of producing hydrogen-rich gas. 5,066,476, Cl. 423-648.100.
Wheeler, Todd; and Johnson, Wayne A., to ADC Telecommunications, Inc. Splice tray with slack take-up. 5,066,149, Cl. 385-135.000.
Whirlpool Corporation: *See*—
Farfaglia, Leonard T., deceased; Campbell, Timothy J.; Gipson, Billy P.; Matambo, Thompson; and Thompson, Christoper M., 5,065,597, Cl. 62-262.000.
Harris, James E.; Farfaglia, Leonard T., deceased; and Wetherholt, Steven D., 5,065,596, Cl. 62-262.000.
Kretchman, Gerald L., 5,066,050, Cl. 285-319.000.
Whitaker, Kerry. Resilient sign and guidepost. 5,066,163, Cl. 404-10.000.
Whitby Research, Inc.: *See*—
Olsson, Ray A., 5,066,655, Cl. 514-261.000.
White, Danny R.: *See*—
Kantner, Robert C.; Rocazella, Michael A.; Weinstein, Jerry G.; and White, Danny R., 5,066,618, Cl. 501-127.000.
White, Justin D.: *See*—
Vidusek, Daniel A.; and White, Justin D., 5,065,945, Cl. 239-556.000.
White, Robert L.: *See*—
Ehrman, Albert M.; Seiden, Paul; Weitzel, Rose M.; and White, Robert L., 5,066,510, Cl. 426-607.000.
White Storage & Retrieval Systems, Inc.: *See*—
Simon, David, 5,065,872, Cl. 211-122.000.
Whitehead, James L.; and Chapman, Leland D. Cold pack for treatment of injuries. 5,065,758, Cl. 128-402.000.
Whitehurst, Todd K.: *See*—
Green, Philip S.; Ostrem, John S.; and Whitehurst, Todd K., 5,065,763, Cl. 128-660.070.
Wickert, Frank A., to Glidden Company, The. Ambient cure protective coatings for plastic substrates. 5,066,705, Cl. 524-457.000.
Widge, Sunil: *See*—
Wanner, Edward A.; and Widge, Sunil, 5,066,458, Cl. 420-586.000.
Wiedemann, Walter: *See*—
Cseh, Georg; Lienhard, Paul; and Wiedemann, Walter, 5,066,695, Cl. 524-87.000.
Wiggins, Kregg S.; and Wright, Danny O., to Siemens Automotive L.P. Power supply circuit for dual throttle position sensors of an electronic engine throttle control. 5,065,721, Cl. 123-399.000.
Wijay, Bandula; and Angelini, Paolo, to Leocor, Inc. Positive displacement piston driven blood pump. 5,066,282, Cl. 604-152.000.
Wikman-Coffelt, Joan, to University of California, The Regents of the. Long-term preservation of organs for transplantation. 5,066,578, Cl. 435-1.000.
Wiktor, Dominik M.; and Schlindwein, Siegfried, to Automatic Switch Company. Manual operator for an electrical switch. 5,066,840, Cl. 200-330.000.
Wilcox, Allen. Water Monitor. 5,065,623, Cl. 73-290.00R.
Wilcox, Milton E., to National Semiconductor Corporation. Maximum swing cascode circuit for a bipolar charge pump. 5,066,871, Cl. 307-296.100.
Wild Leitz GmbH: *See*—
Pfeifer, Gerhard, 5,065,657, Cl. 83-703.000.
Wiley, Robert G. Variable focus lens. 5,066,301, Cl. 623-6.000.
Wilhelm, H. Randall: *See*—
Heck, John A.; and Wilhelm, H. Randall, 5,066,026, Cl. 277-96.100.
Wilke, Dorothea: *See*—
Meinel, Fred; and Wilke, Dorothea, 5,067,146, Cl. 378-199.000.
Wilkinson, William T. Portable, foldable, adjustable, aerobic exercise bench/step/mat. 5,066,001, Cl. 272-70.000.
Willbanks, Henry O., to Teledyne Ind. Inc. Thermoplastic end seal for electric heating elements. 5,066,852, Cl. 219-544.000.
Willbe, Charles: *See*—
Skidmore, Ian F.; Lunts, Lawrence H. C.; Finch, Harry; Naylor, Alan; Campbell, Ian B.; Willbe, Charles; Mitchell, William L.; Swanson, Stephen; and Judkins, Brian D., 5,066,678, Cl. 514-597.000.
Willcox, Kenneth W., to Phillips Petroleum Company. Corrosion inhibition of polymethylpentene. 5,066,460, Cl. 422-7.000.
Willcox, Kenneth W.: *See*—
Fodor, Lawrence M.; and Willcox, Kenneth W., 5,066,686, Cl. 523-102.000.
Wille, Klaus; Kienberger, Helmut; and Marwitz, Erika, to Siemens Aktiengesellschaft. Method for transmitting subscriber data in communication systems from one secret subscriber equipment to another. 5,067,153, Cl. 380-23.000.
Williams, George W.; and Rifkin, Arnold S., to A. Rifkin Co. Lockable container for securing valuables. 5,065,602, Cl. 70-68.000.
Williams International Corporation: *See*—
Powell, James W.; Voss, Mark G.; and Waineo, Bryan N., 5,065,590, Cl. 62-175.000.
Williams, Stephen P.: *See*—
Godwin, Jimmy D.; and Williams, Stephen P., 5,067,039, Cl. 360-135.000.
Williamson, Richard: *See*—
Bertenshaw, David R.; Williamson, Richard; and Wright, John, 5,066,896, Cl. 315-291.000.
Willis, Wilfred E.: *See*—
Legg, Warren F.; and Willis, Wilfred E., 5,066,531, Cl. 428-131.000.
Wilson, David A.: *See*—
Simon, Jaime; Wilson, David A.; Volkert, Wynn A.; Troutner, David E.; and Goeckeler, William F., 5,066,478, Cl. 424-1.100.
Wilson, Derek E.: *See*—
Brown, Edward A.; Haxell, John P. N.; and Wilson, Derek E., 5,066,332, Cl. 106-31.000.
Wilton, Bonsall S.: *See*—
Bloys, James B.; and Wilton, Bonsall S., 5,065,820, Cl. 166-291.000.
Winkle, Mark R., to Rohm and Haas Company. Elimination of film defects due to hydrogen evolution during cathodic electrodeposition. 5,066,374, Cl. 204-181.400.
Wirth, Gary J.: *See*—
Perko, Jack E.; Wirth, Gary J.; and Foxgrover, Brian A., 5,066,349, Cl. 156-166.000.
Wisbey, Jerry D.: *See*—
Albers, Stephen J.; Grimshaw, Michael N.; Peterson, David A.; Pugh, John H.; and Wisbey, Jerry D., 5,066,352, Cl. 156-265.000.
Wisconsin Alumni Research Foundation: *See*—
Mueller, Gerald C., 5,066,583, Cl. 435-18.000.
Perepezko, John H.; and Hoffmeyer, Mark K., 5,066,324, Cl. 75-335.000.
Witkin, Roy T., to Jacobs, Albert L., Jr., a part interest. Antimicrobial veterinary compositions and methods. 5,066,497, Cl. 424-616.000.
Witt, Charles W.: *See*—
Meyers, John A.; Drake, David E.; and Witt, Charles W., 5,065,827, Cl. 175-414.000.
Wittmann, Dieter: *See*—
Eichenauer, Herbert; Wittmann, Dieter; Schmidt, Adolf; and Ott, Karl-Heinz, 5,066,717, Cl. 525-67.000.
Wivagg, Adrian P.; and Martin, Kenneth A., to Combustion Engineering, Inc. Threaded insert for repairing a nuclear assembly. 5,065,490, Cl. 29-402.170.
Wofford, Ray F.; and Potter, George S. Modular and componential trench drain system. 5,066,165, Cl. 405-119.000.
Wolf, Bernd: *See*—
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, 5,066,673, Cl. 514-521.000.
Wolf, Gerald L. Method and apparatus for reversibly occluding a biological tube. 5,065,751, Cl. 128-831.000.
Wong, Lucy L.: *See*—
Cherukuri, Subraman R.; Raman, Kirschna P.; Wong, Lucy L.; Mansukhani, Gul; and Orama, Angel, 5,066,511, Cl. 426-658.000.
Wong, Pui K.: *See*—
Van Deursen, Josephus H.; Van Doorn, Johannes A.; Drent, Eit; and Wong, Pui K., 5,066,778, Cl. 528-392.000.
Van Leeuwen, Petrus W. N. M.; Roobeek, Cornelis F.; and Wong, Pui K., 5,066,777, Cl. 528-392.000.
Wong, Y. H.: *See*—
Liu, Jay J.; and Wong, Y. H., 5,065,931, Cl. 228-19.000.
Wood, Ruey E., to TRW Inc. Ball joint. 5,066,160, Cl. 403-140.000.
Woodard, Lloyd A.: *See*—
Monzyk, Bruce F.; and Woodard, Lloyd A., 5,065,539, Cl. 43-4.000.
Woodroffe, Jaime: *See*—
Agarwal, Jagdish A.; Gannon, Richard; Goldfarb, Victor; Stickler, David; and Woodroffe, Jaime, 5,066,326, Cl. 75-581.000.
Woodruff, Eric J.: *See*—
Bark, Jeffrey E.; Hillegass, Donald V.; and Woodruff, Eric J., 5,066,303, Cl. 623-8.000.
Woodward, Bruce; and Hall, James, to National Products, Inc. Tambour door and method of making. 5,066,080, Cl. 312-297.000.
Woody, George, to Hughes Aircraft Company. Support structure. 5,065,976, Cl. 248-549.000.
Wray-Tech Instruments, Inc.: *See*—
Smith, Ronald, 5,065,828, Cl. 177-139.000.
Smith, Ronald, 5,065,829, Cl. 177-139.000.
Wright, Danny O.: *See*—
Wiggins, Kregg S.; and Wright, Danny O., 5,065,721, Cl. 123-399.000.
Wright, John: *See*—
Bertenshaw, David R.; Williamson, Richard; and Wright, John, 5,066,896, Cl. 315-291.000.
Wu, Chia L. Chain. 5,066,265, Cl. 474-206.000.
Wu, Tsung-Ching; and Chern, Geeng-Chuan, to Atmel Corporation. Programmable and erasable MOS memory device. 5,066,992, Cl. 357-23.500.
Wuehrer, Wolfgang, to Sulzer Brothers Limited. Turbine with control aystem. 5,066,191, Cl. 415-35.000.
Wulf, Jurgen, to Bodenseewerk Perkin Elmer GmbH. Atomic absorption spectrophotometer for simultaneous multi-element analysis. 5,066,124, Cl. 356-312.000.
Wunder, William G., Sr.: *See*—
Bliss, Eric M.; and Wunder, William G., Sr., 5,066,211, Cl. 425-122.000.
Wupper, Hans, to Alfred Teves GmbH. Process and circuit arrangement for controlling the slip when braking a road vehicle. 5,066,074, Cl. 303-97.000.
Wnrst, Michael. Furniture top insert featuring landscape. 5,066,078, Cl. 312-114.000.
Wylie, Calvin R.; and Crites, Patrick H., to Beutler Heating and Air Conditioning, Inc. System for cooling the interior of a building. 5,065,585, Cl. 62-89.000.
Xerox Corporastion: *See*—
McGraw, Thomas C.; Van Ryne, Randall E.; Scarlata, Richard F.; and Sze, Cho Y., 5,065,996, Cl. 271-176.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Xerox Corporation: *See*—
Babler, Egon S.; Gottwald, Johannes F.; Gruber, Dennis W.; Kearney, James F.; Mayer, William J.; and Olsen, Alf J., 5,066,150, Cl. 400-157.300.
Butts, Richard E.; and Davis, John C., 5,065,997, Cl. 271-187.000.
Eddy, James A.; and Keller, Alan N., 5,065,905, Cl. 222-132.000.
Law, Kock-Yee, 5,066,796, Cl. 540-140.000.
Robinette, Susan; Lynch, Anita P.; Hoffend, Thomas R.; Grabowski, Edward F.; and Carmichael, Kathleen M., 5,066,557, Cl. 430-58.000.
Salomon, James A., 5,065,998, Cl. 271-251.000.

Yabuki, Akira; and Iwashita, Yuji, to Ajinomoto Co., Inc. Superoxide dismutase combined with a poly(alkylene oxide). 5,066,590, Cl. 435-180.000.

Yagihara, Morio: *See*—
Matushita, Tetunori; Yagihara, Morio; and Sakanoue, Kei, 5,066,573, Cl. 430-542.000.

Yagihashi, Wataru: *See*—
Kasai, Junichi; Yagihashi, Wataru; Yatsunami, Akira; and Kurano, Kazuyuki, 5,067,159, Cl. 381-90.000.

Yagisawa, Mitsuaki: *See*—
Kitano, Masao; Yagisawa, Mitsuaki; and Morimoto, Yutaka, 5,066,813, Cl. 548-182.000.

Yamada, Haruyasu: *See*—
Takemoto, Toyoki; Komeda, Tadao; Yamada, Haruyasu; and Fujita, Tsutomu, 5,066,602, Cl. 437-31.000.

Yamada, Hideaki: *See*—
Tsuruta, Hitoshi; Yamada, Hideaki; and Nakamura, Michihiro, 5,066,582, Cl. 435-7.100.

Yamada, Kenzo: *See*—
Takahashi, Kenji; Iwasaki, Katsuhiro; Inoue, Shigeru; Tanabe, Haruyoshi; Kawakami, Masahiro; Yamada, Kenzo; and Terada, Osamu, 5,065,985, Cl. 266-156.000.

Yamada, Masaki: *See*—
Odaka, Kentaro; Ozaki, Shinya; Inazawa, Yoshizumi; Yamada, Masaki; Ishibashi, Hiroshi; and Iijima, Tatsuya, 5,067,131, Cl. 371-40.100.

Yamada, Nobuyuki: *See*—
Maeda, Kenji; and Yamada, Nobuyuki, 5,065,807, Cl. 160-206.000.

Yamada, Shinichi: *See*—
Suzuki, Takashi; Yamamura, Minehiko; and Yamada, Shinichi, 5,066,825, Cl. 560-56.000.

Yamada, Shunichi: *See*—
Kobori, Takuji; Yamada, Shunichi; Ban, Shigeru; Ishii, Koji; Nishimura, Isao; Ishida, Masatoshi; Sato, Kuniaki; Takenaka, Yasuo; Maeda, Shozo; and Tagami, Jun, 5,065,555, Cl. 52-167.0DF.

Yamada, Takeo: *See*—
Otsuka, Kanji; Kato, Masao; Kumagai, Takashi; Usami, Mitsuo; Kuroda, Shigeo; Sahara, Kunizo; Yamada, Takeo; Miyamoto, Seiji; Shirai, Yuuji; Okinaga, Takayuki; Kubo, Kazutoshi; Tachi, Hiroshi; and Kawashima, Masayuki, 5,067,007, Cl. 357-74.000.

Yamagata, Kazuyoshi; Kageyama, Masaaki; and Kaneko, Kyoichi, to Alps Electric Co., Ltd. Key top. 5,066,842, Cl. 200-345.000.

Yamaguchi, Minori: *See*—
Nakayama, Takehisa; Hayashi, Akimine; Kondo, Masataka; Murakami, Satoru; Yamaguchi, Minori; and Tawada, Yoshihisa, 5,066,861, Cl. 250-370.090.

Yamaguchi, Mitsugu: *See*—
Fujimoto, Shinji; and Yamaguchi, Mitsugu, 5,065,853, Cl. 192-3.290.

Yamaguchi, Shigeru: *See*—
Ishida, Kohji; Nishimura, Yasushi; and Yamaguchi, Shigeru, 5,067,157, Cl. 381-13.000.

Yamaguchi, Shuichiro; Shimomura, Takeshi; Uchida, Naoto; Katsube, Teruaki; and Oyama, Noboru, to Terumo Kabushiki Kaisha. Reference electrode, ion sensor and method of manufacturing the same. 5,066,383, Cl. 204-435.000.

Yamaguchi, Takashi: *See*—
Furuta, Katsumi; and Yamaguchi, Takashi, 5,066,057, Cl. 293-121.000.

Yamaguchi, Yoko: *See*—
Omata, Satoshi; Shimizu, Hiroshi; and Yamaguchi, Yoko, 5,067,160, Cl. 382-1.000.

Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Kobayashi, Manabu, 5,066,266, Cl. 475-59.000.

Yamakoshi, Mutsuro: *See*—
Yanagi, Kunio; Yamakoshi, Mutsuro; and Kamiyoshihara, Akihiro, 5,066,072, Cl. 303-9.750.

Yamamoto, Hajime, to Matsushita Electric Industrial Co., Ltd. Cleaning method for use in copy apparatus and toner used therefor. 5,066,989, Cl. 355-270.000.

Yamamoto, Ikuo: *See*—
Omure, Yukio; Fujiwara, Katsuki; Tsuchiya, Tatsumi; Hishida, Satoshi; Noguchi, Masahiro; and Yamamoto, Ikuo, 5,066,410, Cl. 252-68.000.

Yamamoto, Kazuo: *See*—
Nohira, Hiroyuki; Onishi, Takashi; Yamamoto, Kazuo; and Kumagai, Noriaki, 5,066,826, Cl. 560-60.000.

Yamamoto, Kenji: *See*—
Ohsugi, Hiroharu; Kanakura, Akihiro; Umemoto, Hirotoshi; Okamura, Yoshio; Takarada, Mitsuhiro; and Yamamoto, Kenji, 5,066,720, Cl. 525-100.000.

Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, to Asahi Kogaku Kogyo K.K. Single-lens reflex camera with built-in flash. 5,066,967, Cl. 354-149.110.

Yamamoto, Michihiro: *See*—
Ozato, Yukinori; Tamura, Nobuhiko; Masumori, Hiroaki; Yamamoto, Michihiro; Kojima, Atsuyuki; Nishikaku, Fumio; and Kimura, Yoshihiko, 5,066,666, Cl. 514-380.000.

Yamamoto, Seiji: *See*—
Kaneda, Ichiro; Yamamoto, Seiji; and Fujii, Natsuji, 5,066,075, Cl. 303-113.00R.

Yamamoto, Tadashi; Kohyama, Yusuke; and Tanaka, Takeshi, to Kabushiki Kaisha Toshiba. Method of manufacturing a semiconductor device including a trench capacitor. 5,066,609, Cl. 437-52.000.

Yamamoto, Takuji: *See*—
Hamano, Hiroshi; Amemiya, Izumi; Yamamoto, Takuji; Arai, Yasunari; and Ihara, Takeshi, 5,066,877, Cl. 307-603.000.

Yamamoto, Yoshimi; and Kino, Keisuke, to Fuji Kiko Company, Limited. Shift lever arrangement for operating automatic power transmission. 5,065,641, Cl. 74-473.0SW.

Yamamura, Akira, to Nippon Ferrofluidics Corporation. Single power source magnetic bearing device. 5,066,879, Cl. 310-90.500.

Yamamura, Minehiko: *See*—
Suzuki, Takashi; Yamamura, Minehiko; and Yamada, Shinichi, 5,066,825, Cl. 560-56.000.

Yamana, Masayuki: *See*—
Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, 5,066,747, Cl. 526-249.000.

Yamanaka, Satoshi: *See*—
Hayashi, Shunji; Yamanaka, Satoshi; Kawaguchi, Sayoko; Ishii, Teruhiko; Kimata, Toshiya; and Misu, Naoaki, 5,066,657, Cl. 514-269.000.

Yamanaka, Toshimasa: *See*—
Yamamoto, Masato; Koshino, Susumu; Yamanaka, Toshimasa; Sato, Koji; Arai, Akihiro; and Koinuma, Masahiro, 5,066,967, Cl. 354-149.110.

Yamanaka, Tsutomu: *See*—
Setoguchi, Shinro; Tsuruda, Mineo; Kitami, Chiaki; and Yamanaka, Tsutomu, 5,066,816, Cl. 549-331.000.

Yamanashi, Motoaki, to Brother Kogyo Kabushiki Kaisha. Color corrected image recording apparatus using yellow, magenta and cyan liquid toners. 5,066,985, Cl. 355-326.000.

Yamaoki, Toshihiko: *See*—
Iwamoto, Masayuki; Minami, Kouji; and Yamaoki, Toshihiko, 5,066,340, Cl. 136-258.000.

Yamasaki, Tatsuo; and Fujii, Toshifumi, to Mitsubishi Denki Kabushiki Kaisha. Method and apparatus for processing video signals recorded on or recovered from magnetic media. 5,067,031, Cl. 360-22.000.

Yamashita, Haruo, to Matsushita Electric Industrial Co., Ltd. Tonal printer utilizing heat prediction and temperature detection means. 5,066,961, Cl. 346-76.0PH.

Yamashita, Masaya: *See*—
Omori, Katsuhisa; and Yamashita, Masaya, 5,066,915, Cl. 324-318.000.

Yamauchi, Ryozo; Kawakami, Noboru; and Suzuki, Fumio, to Fujikura Ltd. Optical fiber coupler. 5,066,087, Cl. 385-43.000.

Yamauchi, Satoru, to Hitachi Maxell, Ltd. Disk drive apparatus. 5,067,120, Cl. 369-59.000.

Yamauchi, Takatsugu: *See*—
Suzuki, Katsuhiro; Nishimura, Akira; Yamauchi, Takatsugu; Nagata, Kazuhisa; and Ochiai, Hironori, 5,066,068, Cl. 296-221.000.

Yamauchi, Yuji: *See*—
Ohbori, Hiroshi; and Yamauchi, Yuji, 5,066,134, Cl. 366-102.000.

Yamazaki, Etsuo; and Iehisa, Nobuaki, to Fanuc, Ltd. Three-dimensional shape machining laser device. 5,067,086, Cl. 364-474.080.

Yamazaki, Hideki; Takeda, Hiroshi; and Yokota, Yoshikazu, to Hitachi, Ltd. Image memory controller. 5,067,097, Cl. 395-115.000.

Yamazaki, Katsumi: *See*—
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.

Yanagi, Eiichi: *See*—
Kataoka, Kenichi; Nishimoto, Yoshifumi; Igaki, Masahiko; and Yanagi, Eiichi, 5,065,999, Cl. 271-265.000.

Yanagi, Kunio; Yamakoshi, Mutsuro; and Kamiyoshihara, Akihiro, to Jidosha Kiki Co., Ltd. Hydraulic brake pressure control valve. 5,066,072, Cl. 303-9.750.

Yanaka, Hideomi; and Ohno, Yotaro, to NKK Corporation. Method for manufacturing cold bonded pellets. 5,066,327, Cl. 75-770.000.

Yanaka, Yoshimi; and Miyamoto, Keiji, to Hitachi Maxell, Ltd. IC package and IC card incorporating the same thereinto. 5,067,008, Cl. 357-81.000.

Yano, Satoshi, to Ricoh Company, Ltd. Image data transmission method and apparatus. 5,067,027, Cl. 358-439.000.

Yashiro, Zenichi: *See*—
Sugano, Minoru; Horiki, Akira; Yashiro, Zenichi; and Matsushima, Hironori, 5,067,075, Cl. 395-425.000.

Yasuda, Hiromu: *See*—
Nakayama, Susumu; Oguni, Kensaku; Yasuda, Hiromu; Minakata, Rumi; Urata, Kazumoto; Muramatsu, Masatoshi; Tokusa, Kenji; Senshu, Takao; Terada, Hirokiyo; and Kitani, Fumihiko, 5,065,588, Cl. 62-160.000.

Yasuda, Megumi: *See*—
Watarai, Shinichi; Yasuda, Megumi; Houki, Yoji; and Nishio, Yukio, 5,066,978, Cl. 355-206.000.

Yasukata, Koichi: *See*—
Muto, Yoshihiko; Watanabe, Kohei; Yasukata, Koichi; and Sakurai, Tomoyuki, 5,066,397, Cl. 210-321.610.

Yasuki, Seijiro: *See*—
Sakamoto, Noriya; Yasuki, Seijiro; and Kawai, Kiyoyuki, 5,067,018, Cl. 358-142.000.

Yasunobu, Kai: *See*—
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Yatsunami, Akira: *See*—
Kasai, Junichi; Yagihashi, Wataru; Yatsunami, Akira; and Kurano, Kazuyuki, 5,067,159, Cl. 381-90.000.

Yazaki Corporation: *See*—
Horibe, Kinya; Hirano, Tomio; and Ikeda, Minoru, 5,066,550, Cl. 428-670.000.
Kameyama, Isao, 5,066,253, Cl. 439-752.000.
Kato, Tetsuo; Taguchi, Naoto; and Murakami, Yoshihiro, 5,066,244, Cl. 439-489.000.
Kato, Tetsuo; Fukuda, Kiyohito; Watanabe, Hiroshi; Terada, Katsuaki; and Taguchi, Naoto, 5,066,252, Cl. 439-752.000.

Yazawa, Kenji: *See*—
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,547, Cl. 51-154.000.
Shimizu, Tatsuo; Ozawa, Kazunori; Yazawa, Kenji; and Tani, Kazunori, 5,065,548, Cl. 51-154.000.

Yeh, Ling; Harrelson, Hugh G.; and Coons, Andrew M., III, to BASF Corporation. End identifier for multidye yarn. 5,066,308, Cl. 8-403.000.

Yeh, Ming-Hsiung: *See*—
Lee, Chi-Long; and Yeh, Ming-Hsiung, 5,066,699, Cl. 524-379.000.

Yehushua, Moshe: *See*—
Critchlow, David N.; Avis, Graham M.; Earlam, Sandra J. K.; Johnson, Karle J.; Smetana, Bruce A.; Westling, Gregory L.; Paneth, Eric; and Yehushua, Moshe, 5,067,141, Cl. 375-97.000.

Yelton, Harold D.: *See*—
Geibel, Jon F.; Bobsein, Rex L.; and Yelton, Harold D., 5,066,774, Cl. 528-388.000.

Yerly, Marcel, to Bobst SA. Telescopic tool for stripping waste within a sheet processing machine. 5,065,926, Cl. 225-93.000.

Yester, Francis R.: *See*—
Gailus, Paul H.; Yester, Francis R.; and Turney, William J., 5,066,923, Cl. 330-107.000.

Yo, Yuh-Yuan, to Industrial Technology Research Institute. Automatic purger for absorption heat pump. 5,065,594, Cl. 62-195.000.

Yoder, Eli J. Concrete block inspection forms. 5,065,560, Cl. 52-306.000.

Yogi, Tadashi: *See*—
Howard, James K.; Simmons, Randall G.; and Yogi, Tadashi, 5,066,552, Cl. 428-694.000.

Yokono, Kojiro: *See*—
Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, 5,066,883, Cl. 313-309.000.

Yokota, Yoshikazu: *See*—
Yamazaki, Hideki; Takeda, Hiroshi; and Yokota, Yoshikazu, 5,067,097, Cl. 395-115.000.

Yokoyama, Hiroshi: *See*—
Nishikawa, Kinsaku; Yokoyama, Hiroshi; and Takahashi, Masami, 5,066,439, Cl. 264-103.000.

Yokoyama, Sadayuki: *See*—
Asano, Masamichi; Iwahashi, Hiroshi; and Yokoyama, Sadayuki, 5,067,111, Cl. 365-189.080.

Yokoyama, Shoji: *See*—
Nimura, Mitsuhiro; Nanba, Akimasa; and Yokoyama, Shoji, 5,067,082, Cl. 364-449.000.

Yoneda, Hideki: *See*—
Tomioka, Yutaka; Nakanishi, Satoru; Shintake, Seizi; and Yoneda, Hideki, 5,066,333, Cl. 106-400.000.

Yoneda, Kou; and Sawada, Takeshi, to Canon Kabushiki Kaisha. Method of manufacturing a magnetic head assembly including a magnetic recording medium slide surface having grooves formed thereon. 5,065,500, Cl. 29-603.000.

Yoneda, Yasuo: *See*—
Sato, Takashi; Iwanabe, Yoji; Arato, Koji; Sakagami, Rokuro; and Yoneda, Yasuo, 5,065,809, Cl. 164-61.000.

Yonekawa, Hiroyuki: *See*—
Kano, Tokio; Niimura, Toshinobu; and Yonekawa, Hiroyuki, 5,066,465, Cl. 422-58.000.

Yonezawa, Keitaro, to Kabushiki Kaisha Kosmek. Clamping apparatus for press brake. 5,065,610, Cl. 72-462.000.

Yoshida, Hideyuki: *See*—
Yoshinaka, Minoru; Asakura, Eizo; Misaki, Toshihiro; Kitano, Motoi; and Yoshida, Hideyuki, 5,066,475, Cl. 423-622.000.

Yoshida, Hirokazu, to Otari Electric Co. Ltd. Tape transport apparatus and method of introducing tape thereto. 5,066,347, Cl. 156-159.000.

Yoshida, Kazuaki; and Ishikawa, Takatoshi, to Fuji Photo Film Co., Ltd. Method for processing a silver halide color photosensitive material. 5,066,571, Cl. 430-489.000.

Yoshida, Kazuhiro: *See*—
Nagashima, Toshiharu; and Yoshida, Kazuhiro, 5,066,569, Cl. 430-393.000.

Yoshida Kogyo K. K.: *See*—
Takada, Shigeki, 5,065,491, Cl. 29-408.000.

Yoshida, Masayuki; Yoshio, Junichi; and Watanabe, Osamu, to Pioneer Electronic Corporation. Recording medium playing apparatus with automatic tonal response setting function. 5,067,119, Cl. 369-47.000.

Yoshida, Mayumi: *See*—
Nakano, Hirofumi; Hara, Mitsunobu; Mokudai, Tsuyoshi; Kawamoto, Isao; Yoshida, Mayumi; and Kobayashi, Eiji, 5,066,817, Cl. 549-384.000.

Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, to Hitachi, Ltd. Rear projection screen and method of producing the same. 5,066,099, Cl. 359-457.000.

Yoshida, Yoshihiro: *See*—
Nakajima, Yoshihiro; Saito, Mitsuru; Hayashi, Tsutomu; Tsunoda, Tadashi; Yamazaki, Katsumi; Yoshida, Yoshihiro; and Nakamura, Kazuhiko, 5,065,578, Cl. 60-464.000.

Yoshida, Yoshikazu; Tanaka, Kunio; and Nishikawa, Yukio, to Matsushita Electric Industrial Co., Ltd. Laser sputtering apparatus. 5,065,697, Cl. 118-719.000.

Yoshikawa, Hiroki: *See*—
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.

Yoshimasa, Machida: *See*—
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.

Yoshimoto, Hataaki; and Ito, Katsuhiro, to UBE Industries, Ltd. Liquid crystal display device having varistor layers substantially free from cross-talk. 5,066,105, Cl. 359-58.000.

Yoshimura, Hironori; Sawada, Yoshihiro; Nakahara, Kei; Kunugi, Hitoshi; and Sakurai, Keiichi, to Mitsubishi Metal Corporation. Surface-coated tool member of tungsten carbide based cemented carbide. 5,066,553, Cl. 428-698.000.

Yoshimura, Masazi: *See*—
Kakita, Tsuyoshi; and Yoshimura, Masazi, 5,066,970, Cl. 354-402.000.

Yoshimura, Tatsushiro; Tomihashi, Nobuyuki; Terada, Tsutomu; Yamana, Masayuki; Nakai, Kazuhiro; and Araki, Takayuki, to Daikin Industries, Ltd. Vinyl ethers and fluorine-containing copolymers prepared therefrom. 5,066,747, Cl. 526-249.000.

Yoshinaga, Hiroshi: *See*—
Kawaguchi, Masatoshi; Tajima, Norio; Hatanaka, Setsumi; Yoshinaga, Hiroshi; Inoue, Masahiro; Nagaoka, Tadao; Okunishi, Hiromu; Kurosawa, Masaaki; Ikeda, Hideaki; Ooba, Takeshi; Matsuo, Nobuki; and Onda, Hiroshi, 5,065,810, Cl. 164-76.100.

Yoshinaga, Kazuo; Keneko, Shuzo; Kai, Takashi; Isaka, Kazuo; and Ohnishi, Toshikazu, to Canon Kabushiki Kaisha. Liquid crystal display medium, liquid crystal display method and liquid crystal display apparatus for outputting color images. 5,066,107, Cl. 359-45.000.

Yoshinaka, Minoru; Asakura, Eizo; Misaki, Toshihiro; Kitano, Motoi; and Yoshida, Hideyuki, to Matsushita Electric Industrial Co., Ltd. Zinc oxide whiskers having a novel crystalline form and method for making same. 5,066,475, Cl. 423-622.000.

Yoshino, Kunihisa; Motohashi, Mitsuo; and Fujii, Yozo, to Konica Corporation. Developing device. 5,065,693, Cl. 118-657.000.

Yoshino, Masachika: *See*—
Inoue, Yoshio; Yoshino, Masachika; and Fujiki, Hironao, 5,066,714, Cl. 524-731.000.

Yoshio, Junichi: *See*—
Yoshida, Masayuki; Yoshio, Junichi; and Watanabe, Osamu, 5,067,119, Cl. 369-47.000.

Yoshioka, Seishiro; Nomura, Ichiro; Suzuki, Hidetoshi; Takeda, Toshihiko; Kaneko, Tetsuya; Banno, Yoshikazu; and Yokono, Kojiro, to Canon Kabushiki Kaisha. Electron-emitting device with electron-emitting region insulated from electrodes. 5,066,883, Cl. 313-309.000.

Yoshitomi Pharmaceutical Industries, Ltd.: *See*—
Setoguchi, Shinro; Tsuruda, Mineo; Kitami, Chiaki; and Yamanaka, Tsutomu, 5,066,816, Cl. 549-331.000.

Yoshizaki, Isao: *See*—
Yoshida, Takahoko; Muranaka, Masayuki; Yoshikawa, Hiroki; Hirata, Koji; Yoshizaki, Isao; Teratani, Masakuni; and Konuma, Nobuhiro, 5,066,099, Cl. 359-457.000.

Yoshizuka, Ken, to Mita Industrial Co., Ltd. System for managing the number of image forming operations in an image forming apparatus. 5,066,977, Cl. 355-201.000.

Yother, Cecil. Oil pump installation tool. 5,065,487, Cl. 29-275.000.

Young, Terry G., to Baker Hughes Incorporated. Sequence valve. 5,065,666, Cl. 91-518.000.

Young, William R.; and Rivoli, Anthony L., to Harris Corporation. Double level conductor structure. 5,066,995, Cl. 357-42.000.

Yu, Chang, to Micron Technology, Inc. Method for improving step coverage of a metallization layer on an integrated circuit by use of molybdenum as an anti-reflective coating. 5,066,611, Cl. 437-173.000.

Yu, Stanley K.: *See*—
Hayden, Terry F.; Hicks, Christopher A.; Ledermann, Peter G.; Nguyne, Alvin D.; Steinbach, Stephen C.; and Yu, Stanley K., 5,065,932, Cl. 228-55.000.

Yuki, Eiji: *See*—
Kuzuya, Susumu; Shimizu, Seiji; Kato, Mikio; Ishikawa, Yujiro; Sakai, Takashi; and Yuki, Eiji, 5,066,152, Cl. 400-621.000.

Yun, Kyung S.; and Cho, Byung W., to Korea Institute of Science and Technology. Process for preparing para-aminophenol. 5,066,369, Cl. 204-74.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Yurgevich, Howard J.; and Navoczynski, Stanley J., to Rosby Corporation. Plate trailer joints. 5,066,066, Cl. 296-181.000.
Yuuki, Komatu: *See*—
Takashi, Kamiya; Toshihiko, Naito; Shigeto, Negi; Yuuki, Komatu; Yasunobu, Kai; Takaharu, Nakamura; Isao, Sugiyama; Yoshimasa, Machida; Seiichiro, Nomoto; Kyosuke, Kitoh; Kanemasa, Katsu; and Hiroshi, Yamauchi, 5,066,812, Cl. 548-128.000.
Yuzaki, Yoshinori: *See*—
Taura, Yoshiharu; Yuzaki, Yoshinori; and Takagi, Koichi, 5,066,184, Cl. 413-4.000.
Zalenski, Thomas C., to Summagraphics Corporation. Low power sensing apparatus for digitizer tablets. 5,066,833, Cl. 178-19.000.
Zama, Hideo: *See*—
Tsuchiya, Toshio; Abe, Mitsuo; Arai, Nobuo; Hisatomi, Masumi; and Zama, Hideo, 5,067,038, Cl. 360-107.000.
Zammit, Robert P., to International Business Machines Corporation. Method of lapping magnetic recording heads. 5,065,483, Cl. 29-603.000.
Zaun, Richard D.: *See*—
Brett, William A.; and Zaun, Richard D., 5,066,030, Cl. 280-92.000.
Zdebel, Peter J.; Balda, Raymond J.; Hwang, Bor-Yuan; and Wagner, Allen J., to Motorola, Inc. Integrated circuit structures having polycrystalline electrode contacts. 5,067,002, Cl. 357-59.000.
Zegel, Douglas R.; Jensen, Gary S.; Hernick, Mark R.; and Daniels, Michael J., to Art Guild, Inc. Wall system and method of construction. 5,065,559, Cl. 52-239.000.
Zelinka, Richard L.: *See*—
Rocklitz, Gary J.; Crofoot, Douglas G.; and Zelinka, Richard L., 5,066,400, Cl. 210-493.500.
Zell, Michael S.; and Fredette, Maurice C. J., to Tenneco Canada Inc. Production of chlorine dioxide. 5,066,477, Cl. 423-479.000.
Zerr, Ronald D.: *See*—
Hake, Leon M.; and Zerr, Ronald D., 5,065,984, Cl. 254-18.000.
Zertani, Rudolf; Mohr, Dieter; and Rode, Klaus, to Hoechst Aktiengesellschaft. Photopolymerizable mixture and recording material produced therefrom. 5,066,564, Cl. 430-284.000.
Zexel Corporation: *See*—
Otsuka, Masuhiro; and Kono, Hiromi, 5,065,851, Cl. 192-103.00R.
Ziegelmeyer, Lynn J. Cutter link. 5,065,658, Cl. 83-834.000.
Ziegler, Elmar, to Siemens Aktiengesellschaft. Heating or air conditioning control device for a motor vehicle. 5,065,667, Cl. 98-2.000.
Ziegler III, Philip L.: *See*—
Egbert, Gary L.; and Ziegler III, Philip L., 5,066,059, Cl. 294-82.160.
Ziegler, Peter: *See*—
Honel, Michael; Ziegler, Peter; Sprenger, Walter; and Wendt, Wolfgang, 5,066,758, Cl. 528-45.000.
Zimmer, Inc.: *See*—
Crowninshield, Roy D.; and Hori, Roy Y., 5,066,304, Cl. 623-22.000.
Zink, Rudolf, to Ciba-Geigy Corporation. 2-dicarboximidefluorane or 3-dicarboximidefluorane compounds. 5,066,814, Cl. 548-407.000.
Zinner, Helmut, to Messerschmitt-Bolkow-Blohm GmbH. Optical sensor. 5,066,860, Cl. 250-349.000.
Zip-Pak Incorporated: *See*—
Tilman, Paul, 5,065,899, Cl. 221-305.000.
Zlobin, Mikhail N.; Metsik, Viktor M.; Nemarov, Alexandr A.; Permyakov, Georgy P.; and Taraban, Nikolai T. Flotation machine. 5,066,389, Cl. 209-170.000.
Zlotnik, Clifford, to Unsmoke Systems, Inc. Antimicrobial coating. 5,066,328, Cl. 106-18.320.
Zocco, George. Enclosed innerspring mattress cover and process for assembling same. 5,065,485, Cl. 29-91.100.
Zoller, Jon P.; and Norris, Jeffrey J., to ITT Corporation. Dual plunger switch. 5,066,841, Cl. 200-342.000.
Zolner, David: *See*—
Gehly, Joel C.; Zolner, David; and Szumigala, James M., 5,067,064, Cl. 362-277.000.
Zombik, Winfried; Theobald, Hans; Wolf, Bernd; Schuster, Ludwig; Hofmeister, Peter; and Kuenast, Christoph, to BASF Aktiengesellschaft. Substituted benzyl 2-phenyl-1-alk(en)ylcyclopropane-carboxylates and the use thereof for controlling pests. 5,066,673, Cl. 514-521.000.
Zopf, David W.: *See*—
Schanin, David J.; Moore, Russel L.; Bartlett, John R.; Namias, Charles S.; Zopf, David W.; Gill, Brian D.; Creary, Trevor A.; Corbin, Stephen S.; Matale, Mark J.; Ford, David F.; and Frank, Steven J., 5,067,071, Cl. 395-275.000.
Zotto, Anthony A.: *See*—
Raleigh, William J.; Thimineur, Raymond J.; and Zotto, Anthony A., 5,066,756, Cl. 528-32.000.
Zucker, Leo. Compatible and spectrum efficient high definition television. 5,067,017, Cl. 358-141.000.
Zurecki, Zbigniew; Hayduk, Edward A., Jr.; North, John G.; and Swan, Robert B., to Air Products and Chemicals, Inc. Method of producing titanium nitride coatings by electric arc thermal spray. 5,066,513, Cl. 427-37.000.
Zusmanovsky, Zinovy A. Device for treatment of sexual impotence in human males. 5,065,744, Cl. 128-79.000.
Zvonkovic, Josip, to Mahle GmbH. Cooled plunger piston for internal combustion engines. 5,065,706, Cl. 123-41.350.
ZYP Coatings: *See*—
Holcombe, Cressie E., Jr.; and Chapman, Lloyd R., 5,066,330, Cl. 106-287.340.
501 P.B. & S. Chemical Company, Inc.: *See*—
Clements, James L., 5,066,306, Cl. 8-109.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 19TH DAY OF NOVEMBER, 1991

NOTE—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Barnes, James M.: *See*—
Meyborg, Holger; Wagner, Kuno; Barnes, James M.; and Salzburg, Herbert, Re. 33,748, Cl. 521-176.000.
Bayer Aktiengesellschaft: *See*—
Meyborg, Holger; Wagner, Kuno; Barnes, James M.; and Salzburg, Herbert, Re. 33,748, Cl. 521-176.000.
Dow Corning Corporation: *See*—
Lee, Chi-Long; Juen, Donnie R.; Saam, John C.; and Willis, Robin L., Jr., Re. 33,749, Cl. 525-100.000.
Hans Oetiker AG Maschinen- und Apparatefabrik: *See*—
Oetiker, Hans, Re. 33,744, Cl. 24-20.00R.
Hartley, Dwight N.: *See*—
Hartley, Tyrus W.; and Hartley, Dwight N., Re. 33,747, Cl. 405-266.000.
Hartley, Tyrus W.; and Hartley, Dwight N., to Soli-Tech, Inc. Rigidification of semi-solid agglomerations. Re. 33,747, Cl. 405-266.000.
Ihara Chemical Industry Co., Ltd.: *See*—
Yamaguchi, Mikio; Watase, Yukihiro; Kambe, Takeshi; and Katou, Susumu, Re. 33,745, Cl. 71-90.000.
Integrated Tech Systems, Inc.: *See*—
Lucas, Gary H., Re. 33,746, Cl. 239-744.000.
Juen, Donnie R.: *See*—
Lee, Chi-Long; Juen, Donnie R.; Saam, John C.; and Willis, Robin L., Jr., Re. 33,749, Cl. 525-100.000.
Kambe, Takeshi: *See*—
Yamaguchi, Mikio; Watase, Yukihiro; Kambe, Takeshi; and Katou, Susumu, Re. 33,745, Cl. 71-90.000.
Katou, Susumu: *See*—
Yamaguchi, Mikio; Watase, Yukihiro; Kambe, Takeshi; and Katou, Susumu, Re. 33,745, Cl. 71-90.000.
Kumiai Chemical Industry Co., Ltd.: *See*—
Yamaguchi, Mikio; Watase, Yukihiro; Kambe, Takeshi; and Katou, Susumu, Re. 33,745, Cl. 71-90.000.
Lee, Chi-Long; Juen, Donnie R.; Saam, John C.; and Willis, Robin L., Jr., to Dow Corning Corporation. Storage stable heat curable organosiloxane compositions containing microencapsulated platinum-containing catalysts. Re. 33,749, Cl. 525-100.000.
Lucas, Gary H., to Integrated Tech Systems, Inc. Programmable sprinkler system. Re. 33,746, Cl. 239-744.000.
Meyborg, Holger; Wagner, Kuno; Barnes, James M.; and Salzburg, Herbert, to Bayer Aktiengesellschaft. Process for the preparation of polyurethane plastics using dianhydro-hexite diols. Re. 33,748, Cl. 521-176.000.
Oetiker, Hans, to Hans Oetiker AG Maschinen- und Apparatefabrik. Earless clamp structure. Re. 33,744, Cl. 24-20.00R.
Saam, John C.: *See*—
Lee, Chi-Long; Juen, Donnie R.; Saam, John C.; and Willis, Robin L., Jr., Re. 33,749, Cl. 525-100.000.
Salzburg, Herbert: *See*—
Meyborg, Holger; Wagner, Kuno; Barnes, James M.; and Salzburg, Herbert, Re. 33,748, Cl. 521-176.000.
Soli-Tech, Inc.: *See*—
Hartley, Tyrus W.; and Hartley, Dwight N., Re. 33,747, Cl. 405-266.000.
Wagner, Kuno: *See*—
Meyborg, Holger; Wagner, Kuno; Barnes, James M.; and Salzburg, Herbert, Re. 33,748, Cl. 521-176.000.
Watase, Yukihiro: *See*—
Yamaguchi, Mikio; Watase, Yukihiro; Kambe, Takeshi; and Katou, Susumu, Re. 33,745, Cl. 71-90.000.
Willis, Robin L., Jr.: *See*—
Lee, Chi-Long; Juen, Donnie R.; Saam, John C.; and Willis, Robin L., Jr., Re. 33,749, Cl. 525-100.000.
Yamaguchi, Mikio; Watase, Yukihiro; Kambe, Takeshi; and Katou, Susumu, to Kumiai Chemical Industry Co., Ltd.; and Ihara Chemical Industry Co., Ltd. Thiadiazabicyclononane derivatives, processes for their production and herbicidal compositions. Re. 33,745, Cl. 71-90.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Hieftje, Gary M.; Honigs, David E.; and Hirschfeld, Thomas B., to Indiana University Foundation. Method and devices for near-infared evaluation of physical properties of samples. B1 4,800,279, 11-19-91, Cl. 250-339.000.
Hirschfeld, Thomas B.: *See*—
Hieftje, Gary M.; Honigs, David E.; and Hirschfeld, Thomas B., B1 4,800,279, Cl. 250-339.000.
Honigs, David E.: *See*—
Hieftje, Gary M.; Honigs, David E.; and Hirschfeld, Thomas B., B1 4,800,279, Cl. 250-339.000.
Indiana University Foundation: *See*—
Hieftje, Gary M.; Honigs, David E.; and Hirschfeld, Thomas B., B1 4,800,279, Cl. 250-339.000.
Kuethe, Arnold M., to University of Michigan, The. Boundary layer control of flow separation and heat exchange. B1 3,578,264, 11-19-91, Cl. 244-199.000.
University of Michigan, The: *See*—
Kuethe, Arnold M., B1 3,578,264, Cl. 244-199.000.

LIST OF DESIGN PATENTEES

ABC Group Product Development: *See*—
Elgner, Benno, 321,653, Cl. D9-434.000.
Abiney, Hassin A.: *See*—
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger, 321,690, Cl. D14-191.000.
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger, 321,691, Cl. D14-191.000.
Adams, William E. Ceiling hook. 321,639, 11-19-91, Cl. D8-373.000.
Aikawa, Masahiro, to Seikosha Co., Ltd. Clock. 321,656, 11-19-91, Cl. D10-6.000.
Aikawa, Masahiro, to Seikosha Co., Ltd. Clock. 321,660, 11-19-91, Cl. D10-10.000.
Airway Industries, Inc.: *See*—
Kim, Hyun S., 321,593, Cl. D3-71.000.
Aldred, T. Eric; and Council, Hal A., to Aldred, T. Eric. Powered lift for commode seat. 321,757, 11-19-91, Cl. D23-311.000.
Alliance Telecommunications Corp.: *See*—
Mailandt, Peter, 321,693, Cl. D14-234.000.
Alsup, J. Douglas: *See*—
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yard-

VOL 1132 ISS 3 NO 19 1991 UMI

ley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Ambasz, Emilio. Ball point pen with retractable cap. 321,718, 11-19-91, Cl. D19-48.000.
American National Can Company: *See—*
Cochran, Donald D., 321,651, Cl. D9-403.000.
Antibes, Inc.: *See—*
Li, Shing-Lam, 321,581, Cl. D2-244.000.
Arai, Takuya: *See—*
Ohmura, Hiroshi; and Arai, Takuya, 321,705, Cl. D16-208.000.
Armour, Patrick C. Suspended suction head for removal of free floating oil. 321,770, 11-19-91, Cl. D32-25.000.
Armstrong, Sandra L. Novelty torch. 321,672, 11-19-91, Cl. D11-157.000.
Armstrong, Timothy O.: *See—*
Dunham, Paul T.; Littrell, David J.; and Armstrong, Timothy O., 321,734, Cl. D21-192.000.
Arnold Kock GmbH u. Co. KG: *See—*
Cerny, Rudolf, 321,597, Cl. D5-55.000.
Cerny, Rudolf, 321,598, Cl. D5-61.000.
ASICS Corporation: *See—*
Hase, Yoshiaki, 321,587, Cl. D2-320.000.
Mitsui, Shigeyuki, 321,584, Cl. D2-277.000.
Aveni, Michael A., to Nike, Inc.; and Nike International, Ltd. Shoe upper. 321,586, 11-19-91, Cl. D2-314.000.
B.P.T. S.p.A.: *See—*
Plozner, Lisio, 321,686, Cl. D14-159.000.
Babcock, Lowell C.; and Bolger, Betty J. Combined comb and holder for permanent wave paper. 321,766, 11-19-91, Cl. D28-25.000.
Baker, Thomas G., Jr. Light timer. 321,667, 11-19-91, Cl. D10-40.000.
Barfield, Jesse. Golfing green insert for table. 321,616, 11-19-91, Cl. D6-491.000.
Beecham Group p.l.c.: *See—*
Buswell, John F.; Cracknell, Victor C.; and Khambatta, Noshir J., 321,759, Cl. D24-130.000.
Bengtson, Alan D.; and Davis, Robert S., to Kohler Co. Lavatory. 321,753, 11-19-91, Cl. D23-284.000.
Bennett, Richard P.: *See—*
Casale, Frank R.; Casale, Nicola D.; Casale, Antonio A.; and Bennett, Richard P., 321,724, Cl. D20-19.000.
Bennetts, John R. Airplane seat attachable bag. 321,594, 11-19-91, Cl. D3-77.000.
Beno, Steven J.; and Mango, Joseph R. Combined paper trimmer and dispenser with storage for office supplies. 321,715, 11-19-91, Cl. D18-34.000.
Berner, Suzanne M.: *See—*
Carlson, Linda S.; Doering, Kimberly J., and Berner, Suzanne M., 321,731, Cl. D21-171.000.
Berwick Manufacturing, Inc.: *See—*
Palisin, Stephen P., Jr., 321,652, Cl. D9-429.000.
Bielawski, Billy J., Sr.: *See—*
Riera, John F.; Bielawski, Billy J., Sr.; and Pavelec, John J., 321,698, Cl. D15-141.000.
Blaustein, Lawrence A.; and Brown, Patrick W., to Tyco Industries, Inc. Ice cream maker. 321,697, 11-19-91, Cl. D15-82.000.
Blount, Wendell G.; Mosetich, Ronald J.; and Peeples, Bedford F. Powered invalid vehicle. 321,678, 11-19-91, Cl. D12-131.000.
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C. Battery case. 321,680, 11-19-91, Cl. D13-103.000.
Blubaugh, Jeffrey A. Physical exerciser. 321,735, 11-19-91, Cl. D21-195.000.
Boast, Rodney E.: *See—*
Merk, Eric E.; and Boast, Rodney E., 321,589, Cl. D2-320.000.
Bolger, Betty J.: *See—*
Babcock, Lowell C.; and Bolger, Betty J., 321,766, Cl. D28-25.000.
Boyd, David W.: *See—*
Gordon, Mark K.; and Boyd, David W., 321,605, Cl. D6-396.000.
Bradley, Andrew W., to Northern Telecom (Dublin) Limited. Telephone set. 321,685, 11-19-91, Cl. D14-143.000.
Braginetz, Paul A. Combined bottle and cap or similar article. 321,650, 11-19-91, Cl. D9-374.000.
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger. Combined pager and magnetic key. 321,690, 11-19-91, Cl. D14-191.000.
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger. Combined pager and magnetic key. 321,691, 11-19-91, Cl. D14-191.000.
Brennan, James W., to Sebel Furniture Limited. Theater seat. 321,600, 11-19-91, Cl. D6-362.000.
Brito, Ralph. Air gap anti-siphon valve. 321,748, 11-19-91, Cl. D23-235.000.
Brook Design Products Limited: *See—*
Logue, Alan V.; and Divers, William, 321,743, Cl. D23-388.000.
Brown, Jon R., to Highpoint Golf, Inc. Golf putter head. 321,738, 11-19-91, Cl. D21-219.000.
Brown, Patrick W.: *See—*
Blaustein, Lawrence A.; and Brown, Patrick W., 321,697, Cl. D15-82.000.
Buonito, Carman; and Shaw, Donald, to Integrated Plastics Limited. Christmas tree stand. 321,670, 11-19-91, Cl. D11-130.100.
Burgener, Eddy, to Roventa-Henex SA. Wristwatch and strap. 321,666, 11-19-91, Cl. D10-32.000.
Burleson, Larry. Game board. 321,725, 11-19-91, Cl. D21-22.000.
Burns, Marvin D., to Ransburg Corporation. Pressurized paint cup. 321,747, 11-19-91, Cl. D23-225.000.
Buswell, John F.; Cracknell, Victor C.; and Khambatta, Noshir J., to Beecham Group p.l.c. Syringe. 321,759, 11-19-91, Cl. D24-130.000.
Cable Electric Products, Inc.: *See—*
Schwartz, Frederic W., 321,668, Cl. D10-40.000.
Cain, Ann S., to 'Totes', Incorporated. Umbrella handle. 321,592, 11-19-91, Cl. D3-12.000.
Canon Kabushiki Kaisha: *See—*
Yoshihara, Tsutomu; and Nezu, Shigeru, 321,711, Cl. D18-54.000.
Carlson, Casey L.: *See—*
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,618, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,619, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,620, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Ricahrd S., 321,621, Cl. D6-574.000.
Stumpf, William E.; and Carlson, Casey L., 321,622, Cl. D6-574.000.
Carlson, Linda S.; Doering, Kimberly J.; and Berner, Suzanne M., to Hadit, Inc. Boss doll. 321,731, 11-19-91, Cl. D21-171.000.
Carney, Steven H., to Steven Hull, Inc. Orthopedic back support pillow. 321,760, 11-19-91, Cl. D24-190.000.
Casale, Antonio A.: *See—*
Casale, Frank R.; Casale, Nicola D.; Casale, Antonio A.; and Bennett, Richard P., 321,724, Cl. D20-19.000.
Casale, Frank R.; Casale, Nicola D.; Casale, Antonio A.; and Bennett, Richard P., to Nunzio's Pizza, Inc. Adjustable and retractable menu and order display unit for drive-in restaurants or the like. 321,724, 11-19-91, Cl. D20-19.000.
Casale, Nicola D.: *See—*
Casale, Frank R.; Casale, Nicola D.; Casale, Antonio A.; and Bennett, Richard P., 321,724, Cl. D20-19.000.
Cavicchia, Sergio, to Fratelli Guzzini S.p.A. Draining-board for dishes and cutlery. 321,771, 11-19-91, Cl. D32-55.000.
Cerny, Rudolf, to Arnold Kock GmbH u. Co. KG. Textile fabric. 321,597, 11-19-91, Cl. D5-55.000.
Cerny, Rudolf, to Arnold Kock GmbH u. Co. KG. Textile fabric. 321,598, 11-19-91, Cl. D5-61.000.
Cesaroni, William C.: *See—*
Dobson, William C.; and Cesaroni, William C., 321,625, Cl. D7-360.000.
Chan, Kwong-Chi. Multipurpose stationery kit. 321,637, 11-19-91, Cl. D8-105.000.
Chia, Peter. Hovercraft. 321,674, 11-19-91, Cl. D12-5.000.
Chiang, Raymond R. Tack cart. 321,773, 11-19-91, Cl. D34-17.000.
Ciciliot, Henry. Tamping block. 321,636, 11-19-91, Cl. D8-75.000.
Claxton, Bruce A.: *See—*
Siddoway, Craig F.; Richards, Scott H.; and Claxton, Bruce A., 321,692, Cl. D14-226.000.
Cochran, Donald D., to American National Can Company. Plastic oil bottle. 321,651, 11-19-91, Cl. D9-403.000.
Cockman, Haggie I. Combined sprinkler support and hose coupler. 321,746, 11-19-91, Cl. D23-221.000.
Colella, Anita L. Cover for an intravenous bag. 321,758, 11-19-91, Cl. D24-127.000.
Combi Co. Ltd.: *See—*
Takahashi, Takehiko; Ishii, Yoshiyasu; and Matsuda, Hiroaki, 321,599, Cl. D6-333.000.
Cooper Industries, Inc.: *See—*
Marach, David R., 321,683, Cl. D13-173.000.
Costello, Charles P. Mountable pouch. 321,595, 11-19-91, Cl. D3-106.000.
Council, Hal A.: *See—*
Aldred, T. Eric; and Council, Hal A., 321,757, Cl. D23-311.000.
Cracknell, Victor C.: *See—*
Buswell, John F.; Cracknell, Victor C.; and Khambatta, Noshir J., 321,759, Cl. D24-130.000.
Crafford, Japie, to Snappi Holdings (Proprietary) Limited. Diaper fastener. 321,673, 11-19-91, Cl. D11-200.000.
Crocco, Carlo, to Montres Mom Fabrication S.A. Wristwatch and strap. 321,665, 11-19-91, Cl. D10-32.000.
Crosby, Samuel C.: *See—*
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Crown Leisure Products, Inc.: *See—*
Saiger, Herbert C., 321,602, Cl. D6-379.000.
Daiwa Seiko, Inc.: *See—*
Kameda, Yasuhisa; and Shiozaki, Akihisa, 321,741, Cl. D22-141.000.
Naeki, Yoshihiro; and Matsubara, Teiji, 321,744, Cl. D22-142.000.
Dannenberg, Todd D.; and Poulson, Keith L., to Kohler Co. Shower Enclosure. 321,756, 11-19-91, Cl. D23-305.000.
Dannenberg, Todd D.: *See—*
Poulson, Keith L.; and Dannenberg, Todd D., 321,755, Cl. D23-305.000.
Danner Shoe Manufacturing Co.: *See—*
Merk, Eric E.; and Boast, Rodney E., 321,589, Cl. D2-320.000.
Dardashti, Shahriar. Wire shelving unit for canned goods. 321,609, 11-19-91, Cl. D6-408.000.
Davis, Robert S.: *See—*
Bengtson, Alan D.; and Davis, Robert S., 321,753, Cl. D23-284.000.
DC Comics Inc.: *See—*
Furst, Anton, 321,732, Cl. D21-87.000.

Divers, William: *See—*
Logue, Alan V.; and Divers, William, 321,743, Cl. D23-388.000.
Dobson, William C.; and Cesaroni, William C., to West Bend Company, The. Electric skillet. 321,625. 11-19-91, Cl. D7-360.000.
Doering, Kimberly J.: *See—*
Carlson, Linda S.; Doering, Kimberly J.; and Berner, Suzanne M., 321,731, Cl. D21-171.000.
Dunham, Paul T.; Littrell, David J.; and Armstrong, Timothy O., to Precor Incorporated. Low impact treadmill. 321,734, 11-19-91, Cl. D21-192.000.
Eastman Kodak Company: *See—*
Leonard, Bruce A.; Lyon, Ralph M.; and Hargrave, Jerry L., 321,704, Cl. D16-200.000.
Elgner, Benno, to ABC Group Product Development. Container panel. 321,653, 11-19-91, Cl. D9-434.000.
Ferenz, Richard: *See—*
Franklin, Irving H.; Franklin, Larry J.; Ferenz, Richard; and Gluck, Kurt M., 321,736, Cl. D21-200.000.
Ferrero Ardennes S.A.: *See—*
Ferrero, Pietro, 321,640, Cl. D9-318.000.
Ferrero, Pietro, 321,641, Cl. D9-318.000.
Ferrero, Pietro, to Ferrero Ardennes S.A. Container for confectionery products. 321,640, 11-19-91, Cl. D9-318.000.
Ferrero, Pietro, to Ferrero Ardennes S.A. Container for confectionery products. 321,641, 11-19-91, Cl. D9-318.000.
Fiore, Joseph F.; and Weyer, John C., Sr., to Rubbermaid Incorporated. Pitcher. 321,624, 11-19-91, Cl. D7-321.000.
Fixtures Manufacturing Corporation: *See—*
Kemnitzer, Ronald B., 321,617, Cl. D6-501.000.
Franklin, Irving H.; Franklin, Larry J.; Ferenz, Richard; and Gluck, Kurt M., to Franklin Sports Industries, Inc. Tabletop football goal and net. 321,736, 11-19-91, Cl. D21-200.000.
Franklin, Larry J.: *See—*
Franklin, Irving H.; Franklin, Larry J.; Ferenz, Richard; and Gluck, Kurt M., 321,736, Cl. D21-200.000.
Franklin Sports Industries, Inc.: *See—*
Franklin, Irving H.; Franklin, Larry J.; Ferenz, Richard; and Gluck, Kurt M., 321,736, Cl. D21-200.000.
Fratelli Guzzini S.p.A.: *See—*
Cavicchia, Sergio, 321,771, Cl. D32-55.000.
Frenkler, Friedrich F.; Ono, Masayuki; Suzuki, Akira; and Uchibori, Noritaka, to Seiko Epson Corporation. Printer for electronic computer. 321,714, 11-19-91, Cl. D18-54.000.
Fuji Photo Film Co., Ltd.: *See—*
Ohmura, Hiroshi; and Arai, Takuya, 321,705, Cl. D16-208.000.
Fujii, Kiyoshi: *See—*
Matsuo, Akihiko; Takeda, Akio; and Fujii, Kiyoshi, 321,713, Cl. D18-54.000.
Fujimoto, Takanobu: *See—*
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,696, Cl. D15-72.000.
Fujitsu Limited: *See—*
Irie, Toru; Kakiuchi, Yoshinori; and Tsukamoto, Akira, 321,707, Cl. D18-54.000.
Fukuda Denshi Co., Ltd.: *See—*
Shimizu, Chuji, 321,761, Cl. D24-187.000.
Furst, Anton, to DC Comics Inc. Aerial toy. 321,732, 11-19-91, Cl. D21-87.000.
Gandy, Paul J., to Marana Unique Products Inc. Chest or the like. 321,613, 11-19-91, Cl. D6-440.000.
Gluck, Kurt M.: *See—*
Franklin, Irving H.; Franklin, Larry J.; Ferenz, Richard; and Gluck, Kurt M., 321,736, Cl. D21-200.000.
Goonen, Richard F. Christmas ornament. 321,671, 11-19-91, Cl. D11-117.000.
Gordon, Mark K.; and Boyd, David W., to I Can't Believe It's Yogurt, Ltd. Modular frozen yogurt dispensing kiosk or similar article. 321,605, 11-19-91, Cl. D6-396.000.
Grau, Werner E., to Uvex Winter Optical, Inc. Sunglasses. 321,703, 11-19-91, Cl. D16-112.000.
H. H. Brown Shoe Company, Inc.: *See—*
Issler, James E., 321,588, Cl. D2-320.000.
Hadit, Inc.: *See—*
Carlson, Linda S.; Doering, Kimberly J.; and Berner, Suzanne M., 321,731, Cl. D21-171.000.
Hager, Larry L. Combined ball-point pen and correction fluid applicator. 321,717, 11-19-91, Cl. D19-36.000.
Hargrave, Jerry L.: *See—*
Leonard, Bruce A.; Lyon, Ralph M.; and Hargrave, Jerry L., 321,704, Cl. D16-200.000.
Hase, Yoshiaki, to ASICS Corporation. Shoe sole. 321,587, 11-19-91, Cl. D2-320.000.
Hay, James E. Storage rack. 321,608, 11-19-91, Cl. D6-407.000.
Helm-Estabrooks, Nancy; and Kaplan, Edith, to Special Press, Inc. Card board for memory or the like. 321,722, 11-19-91, Cl. D19-64.000.
Hemsley, Joseph, Jr. Dental floss dispenser or similar article. 321,767, 11-19-91, Cl. D28-64.000.
Henneberger, Roy. Guiding through, 90 degree down elbow for optical fibers. 321,682, 11-19-91, Cl. D13-155.000.
Hess, Stephen C., to Winston Furniture Company of Alabama, Inc. Chair frame. 321,603, 11-19-91, Cl. D6-379.000.
Highpoint Golf, Inc.: *See—*
Brown, Jon R., 321,738, Cl. D21-219.000.
Hijo De E. F. Escofet S.A.: *See—*
Paris, Emilio F., 321,604, Cl. D6-381.000.
Hoehne, George. Hourglass timer. 321,669, 11-19-91, Cl. D10-44.000.
Hollinger, Fred, to Metrokane Inc. Condiment mill. 321,629, 11-19-91, Cl. D7-679.000.
Hollinger, Fred, to Metrokane, Inc. Condiment mill. 321,630, 11-19-91, Cl. D7-679.000.
Honda Giken Kogyo Kabushiki Kaisha: *See—*
Kitagawa, Makoto; Kurihara, Toshio; and Ozawa, Elizi, 321,676, Cl. D12-110.000.
Saito, Kazuhiko; and Kawasaki, Yutaka, 321,677, Cl. D12-117.000.
Hook, Dan L. Fishing lure. 321,740, 11-19-91, Cl. D22-133.000.
Hymanson, Bruce. Isokinetic oscillating exerciser. 321,733, 11-19-91, Cl. D21-191.000.
I Can't Believe It's Yogurt, Ltd.: *See—*
Gordon, Mark K.; and Boyd, David W., 321,605, Cl. D6-396.000.
Ichikawa, Michiyo: *See—*
Uchibori, Noritaka; and Ichikawa, Michiyo, 321,709, Cl. D18-54.000.
Igarashi, Hitoshi: *See—*
Uchibori, Noritaka; Igarashi, Hitoshi; and Iseki, Mitsuru, 321,710, Cl. D18-54.000.
Inoue, Jiro, to Sankyo Diamond Industrial Co., Ltd. Diamond abrasive saw blade. 321,634, 11-19-91, Cl. D8-70.000.
Instrumat, Inc.: *See—*
McKinney, Steven J.; and McKinney, Mary J., 321,606, Cl. D6-397.000.
Integral Design, Inc.: *See—*
Liptak, Richard M., 321,614, Cl. D6-475.000.
Integrated Plastics Limited: *See—*
Buonito, Carman; and Shaw, Donald, 321,670, Cl. D11-130.100.
International Business Machines Corporation: *See—*
Kline, Jeffrey L.; and Merino, Tristan A., 321,684, Cl. D14-115.000.
Irie, Toru; Kakiuchi, Yoshinori; and Tsukamoto, Akira, to Fujitsu Limited. Printer. 321,707, 11-19-91, Cl. D18-54.000.
Iseki, Mitsuru: *See—*
Uchibori, Noritaka; Igarashi, Hitoshi; and Iseki, Mitsuru, 321,710, Cl. D18-54.000.
Ishii, Yoshiyasu: *See—*
Takahashi, Takehiko; Ishii, Yoshiyasu; and Matsuda, Hiroaki, 321,599, Cl. D6-333.000.
Issler, James E., to H. H. Brown Shoe Company, Inc. Shoe sole. 321,588, 11-19-91, Cl. D2-320.000.
Janome Sewing Machine Co., Ltd.: *See—*
Kuroki, Nobufusa, 321,695, Cl. D15-70.000.
Uchida, Koji, 321,694, Cl. D15-69.000.
Japan Oxygen Co., Ltd.: *See—*
Kobayashi, Ikuo; and Kitamura, Nobuyuki, 321,628, Cl. D7-608.000.
Jekot, Michael E.: *See—*
Lavine, Marcia F.; and Jekot, Michael E., 321,615, Cl. D6-479.000.
Jennings, Gary M. Sunglasses for an infant. 321,702, 11-19-91, Cl. D16-107.000.
Johnson, Steven J. Motor vehicle refuse bag or similar article. 321,772, 11-19-91, Cl. D34-1.000.
Jones, Curt D. Combined ice cream and cone therefor. 321,580, 11-19-91, Cl. D1-116.000.
JWI, Inc.: *See—*
Oslapas, Arunas P., 321,675, Cl. D12-85.000.
Kakiuchi, Yoshinori: *See—*
Irie, Toru; Kakiuchi, Yoshinori; and Tsukamoto, Akira, 321,707, Cl. D18-54.000.
Kameda, Yasuhisa; and Shiozaki, Akihisa, to Daiwa Seiko, Inc. Fishing reel body. 321,741, 11-19-91, Cl. D22-141.000.
Kaplan, Edith: *See—*
Helm-Estabrooks, Nancy; and Kaplan, Edith, 321,722, Cl. D19-64.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, to Pola Chemical Industries, Inc. Cosmetic container. 321,643, 11-19-91, Cl. D9-333.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, to Pola Chemical Industries Inc. Cosmetic container. 321,644, 11-19-91, Cl. D9-333.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, to Pola Chemical Industries Inc. Cosmetic container. 321,645, 11-19-91, Cl. D9-333.000.
Kawasaki, Yutaka: *See—*
Saito, Kazuhiko; and Kawasaki, Yutaka, 321,677, Cl. D12-117.000.
Kemnitzer, Ronald B., to Fixtures Manufacturing Corporation. Chair arm. 321,617, 11-19-91, Cl. D6-501.000.
Kennedy, Mary A., to Timex Corporation. Watch case and attachment. 321,664, 11-19-91, Cl. D10-30.000.
Kerrigan, Daniel. Tool holder. 321,635, 11-19-91, Cl. D8-71.000.
Khambatta, Noshir J.: *See—*
Buswell, John F.; Cracknell, Victor C.; and Khambatta, Noshir J., 321,759, Cl. D24-130.000.
Kikuchi, Hiroshi; Ono, Hisao; Momiyama, Yoshiharu; and Nakajima, Shigeki, to Oki Electric Industry Co., Ltd. Toner cartridge. 321,716, 11-19-91, Cl. D18-43.000.
Kim, Hyun S., to Airway Industries, Inc. Luggage case. 321,593, 11-19-91, Cl. D3-71.000.
Kimbro, David L.: *See—*
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Kin Hip Metal & Plastic Factory Limited: *See—*
Sun, Cliff K., 321,623, Cl. D7-317.000.
King Imports, Inc.: *See—*
Zierhut, Clarence D., 321,596, Cl. D4-114.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Kitagawa, Makoto; Kurihara, Toshio; and Ozawa, Elizi, to Honda Giken Kogyo Kabushiki Kaisha. Motorcycle. 321,676, 11-19-91, Cl. D12-110.000.
Kitamura, Nobuyuki: *See—*
Kobayashi, Ikuo; and Kitamura, Nobuyuki, 321,628, Cl. D7-608.000.
Kline, Jeffrey L.; and Merino, Tristan A., to International Business Machines Corporation. Front panel for optical drive. 321,684, 11-19-91, Cl. D14-115.000.
Knape, Ricahrd S.: *See—*
Stumpf, William E.; Carlson, Casey L.; and Knape, Ricahrd S., 321,621, Cl. D6-574.000.
Knape, Richard S.: *See—*
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,618, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,619, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,620, Cl. D6-574.000.
Knape & Vogt Manufacturing Company: *See—*
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,618, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,619, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., 321,620, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Ricahrd S., 321,621, Cl. D6-574.000.
Stumpf, William E.; and Carlson, Casey L., 321,622, Cl. D6-574.000.
Kobayashi, Ikuo; and Kitamura, Nobuyuki, to Japan Oxygen Co., Ltd. Vacuum bottle. 321,628, 11-19-91, Cl. D7-608.000.
Kohler Co.: *See—*
Bengtson, Alan D.; and Davis, Robert S., 321,753, Cl. D23-284.000.
Dannenberg, Todd D.; and Poulson, Keith L., 321,756, Cl. D23-305.000.
Kohler, Herbert V., Jr.; and Reid, Mary J., 321,638, Cl. D8-307.000.
Poulson, Keith L.; and Dannenberg, Todd D., 321,755, Cl. D23-305.000.
Reid, Mary J., 321,754, Cl. D23-292.000.
Kohler, Herbert V., Jr.; and Reid, Mary J., to Kohler Co. Handle. 321,638, 11-19-91, Cl. D8-307.000.
Kouts, Larry L. Combined container with dispensing spout and straw. 321,626, 11-19-91, Cl. D7-510.000.
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, to Mitsubishi Denki Kabushiki Kaisha. Controller for a sewing machine. 321,696, 11-19-91, Cl. D15-72.000.
Kurihara, Toshio: *See—*
Kitagawa, Makoto; Kurihara, Toshio; and Ozawa, Elizi, 321,676, Cl. D12-110.000.
Kuroki, Nobufusa, to Janome Sewing Machine Co., Ltd. Sewing machine. 321,695, 11-19-91, Cl. D15-70.000.
Lack, John A., to Nelson Vending Technology Limited. Video dispensing machine. 321,723, 11-19-91, Cl. D20-1.000.
Lackey, Henry L.: *See—*
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Lai, Chuan K. Combined alarm clock, tissue case, and photo frame. 321,655, 11-19-91, Cl. D10-2.000.
Lambe, James J., Jr.; and Lambe, Margery M. Combined container and cap. 321,649, 11-19-91, Cl. D9-353.000.
Lambe, Margery M.: *See—*
Lambe, James J., Jr.; and Lambe, Margery M., 321,649, Cl. D9-353.000.
Lavine, Marcia F.; and Jekot, Michael E., to M. Lavine Design Workshop, Inc.; and Lee Apparel Company, Inc., The. Display stand. 321,615, 11-19-91, Cl. D6-479.000.
Lee Apparel Company, Inc., The: *See—*
Lavine, Marcia F.; and Jekot, Michael E., 321,615, Cl. D6-479.000.
Leonard, Bruce A.; Lyon, Ralph M.; and Hargrave, Jerry L., to Eastman Kodak Company. All-weather camera. 321,704, 11-19-91, Cl. D16-200.000.
Li, Shing-Lam, to Antibes, Inc. Combined cap and radio. 321,581, 11-19-91, Cl. D2-244.000.
Liptak, Richard M., to Integral Design, Inc. Display holder for brochures and the like. 321,614, 11-19-91, Cl. D6-475.000.
Littrell, David J.: *See—*
Dunham, Paul T.; Littrell, David J.; and Armstrong, Timothy O., 321,734, Cl. D21-192.000.
Lo, Yuan H. Basketball training goal. 321,737, 11-19-91, Cl. D21-201.000.
Logue, Alan V.; and Divers, William, to Brook Design Products Limited. Hood for vent mounting on window sill or frame. 321,743, 11-19-91, Cl. D23-388.000.
Lyon, Ralph M.: *See—*
Leonard, Bruce A.; Lyon, Ralph M.; and Hargrave, Jerry L., 321,704, Cl. D16-200.000.
M. Lavine Design Workshop, Inc.: *See—*
Lavine, Marcia F.; and Jekot, Michael E., 321,615, Cl. D6-479.000.
Macomber, Clayton D. Adaptor for an auxiliary transmission. 321,699, 11-19-91, Cl. D15-149.000.
Mailandt, Peter, to Alliance Telecommunications Corp. Antenna stub. 321,693, 11-19-91, Cl. D14-234.000.
Mango, Joseph R.: *See—*
Beno, Steven J.; and Mango, Joseph R., 321,715, Cl. D18-34.000.
Maple, Wade A. F., to Quaker Oats Company, The. Toy piano. 321,729, 11-19-91, Cl. D21-64.000.
Marach, David R., to Cooper Industries, Inc. Blade-type fuse block. 321,683, 11-19-91, Cl. D13-173.000.
Marana Unique Products Inc.: *See—*
Gandy, Paul J., 321,613, Cl. D6-440.000.
Marconix Azienda Agricola del Feudo: *See—*
Messemi-Petruzzelli, Marco, 321,642, Cl. D9-329.000.
Marinussen, Hendrikus F., to Volvo Car B.V. Safety belt for cars. 321,591, 11-19-91, Cl. D2-627.000.
Masco Corporation of Indiana: *See—*
Spangler, Anthony G., 321,750, Cl. D23-241.000.
Matsubara, Teiji: *See—*
Naeki, Yoshihiro; and Matsubara, Teiji, 321,744, Cl. D22-142.000.
Matsuda, Hiroaki: *See—*
Takahashi, Takehiko; Ishii, Yoshiyasu; and Matsuda, Hiroaki, 321,599, Cl. D6-333.000.
Matsuo, Akihiko; Takeda, Akio; and Fujii, Kiyoshi, to Seikosha Co., Ltd. Printer for a computer. 321,713, 11-19-91, Cl. D18-54.000.
Matsuyama, Hiroyuki: *See—*
Katada, Hirofumi; and Matsuyama, Hiroyuki, 321,643, Cl. D9-333.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, 321,644, Cl. D9-333.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, 321,645, Cl. D9-333.000.
McCoy, Gladys. Heel protector. 321,583, 11-19-91, Cl. D2-277.000.
McDiarmid, Roger: *See—*
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger, 321,690, Cl. D14-191.000.
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger, 321,691, Cl. D14-191.000.
McElhaney, Craig J., to Quaker Oats Company, The. Toy trumpet. 321,730, 11-19-91, Cl. D21-64.000.
McKinney, Mary J.: *See—*
McKinney, Steven J.; and McKinney, Mary J., 321,606, Cl. D6-397.000.
McKinney, Steven J.; and McKinney, Mary J., to Instrumat, Inc. Foldable instrument mat and carrier pocket combination. 321,606, 11-19-91, Cl. D6-397.000.
Melberg, Lawrence A. Cabinet for a beverage dispenser. 321,611, 11-19-91, Cl. D6-433.000.
Merino, Tristan A.: *See—*
Kline, Jeffrey L.; and Merino, Tristan A., 321,684, Cl. D14-115.000.
Merk, Eric E.; and Boast, Rodney E., to Danner Shoe Manufacturing Co. Shoe sole. 321,589, 11-19-91, Cl. D2-320.000.
Messemi-Petruzzelli, Marco, to Marconix Azienda Agricola del Feudo. Simulative bottle. 321,642, 11-19-91, Cl. D9-329.000.
Metrokane Inc.: *See—*
Hollinger, Fred, 321,629, Cl. D7-679.000.
Hollinger, Fred, 321,630, Cl. D7-679.000.
Mihic, Wlajko. Combined cutting tool holder and cutting tip. 321,632, 11-19-91, Cl. D8-41.000.
Minami, Mariko: *See—*
Nomura, Keiko; and Minami, Mariko, 321,659, Cl. D10-8.000.
Mita Industrial Co., Ltd.: *See—*
Tsutsui, Eiji, 321,712, Cl. D18-49.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,696, Cl. D15-72.000.
Mitsui, Shigeyuki, to ASICS Corporation. Shoe heel protector. 321,584, 11-19-91, Cl. D2-277.000.
Miyai, Hiroyuki, to Sanyo Electric Co., Ltd. Cassette tape player. 321,687, 11-19-91, Cl. D14-165.000.
Momiyama, Yoshiharu: *See—*
Kikuchi, Hiroshi; Ono, Hisao; Momiyama, Yoshiharu; and Nakajima, Shigeki, 321,716, Cl. D18-43.000.
Montres Mom Fabrication S.A.: *See—*
Crocco, Carlo, 321,665, Cl. D10-32.000.
Morse, William E. Flashlight bracket for a bicycle. 321,765, 11-19-91, Cl. D26-138.000.
Mosetich, Ronald J.: *See—*
Blount, Wendell G.; Mosetich, Ronald J.; and Peeples, Bedford F., 321,678, Cl. D12-131.000.
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Motorola, Inc.: *See—*
Siddoway, Craig F.; Richards, Scott H.; and Claxton, Bruce A., 321,692, Cl. D14-226.000.
Mujahid, Mohammad; and Sullivan, Joe O., to North American Philips Corporation. Reflector spot lamp. 321,762, 11-19-91, Cl. D26-2.000.
Murrell, Spencer, to Wilton Industries, Inc. Water filter. 321,745, 11-19-91, Cl. D23-209.000.
Naeki, Yoshihiro; and Matsubara, Teiji, to Daiwa Seiko, Inc. Reel seat for fishing rod. 321,744, 11-19-91, Cl. D22-142.000.
Nakajima, Shigeki: *See—*
Kikuchi, Hiroshi; Ono, Hisao; Momiyama, Yoshiharu; and Nakajima, Shigeki, 321,716, Cl. D18-43.000.
Nelson Vending Technology Limited: *See—*
Lack, John A., 321,723, Cl. D20-1.000.
Nezu, Shigeru: *See—*
Yoshihara, Tsutomu; and Nezu, Shigeru, 321,711, Cl. D18-54.000.

Nike, Inc.: *See—*
Aveni, Michael A., 321,586, Cl. D2-314.000.
Rogers, Bruce E., 321,585, Cl. D2-314.000.
Smith, Wilson W., III, 321,590, Cl. D2-320.000.
Nike International, Ltd.: *See—*
Aveni, Michael A., 321,586, Cl. D2-314.000.
Rogers, Bruce E., 321,585, Cl. D2-314.000.
Smith, Wilson W., III, 321,590, Cl. D2-320.000.
Nikko Pen Co., Ltd.: *See—*
Sakurada, Hidemi, 321,720, Cl. D19-51.000.
Nitta, Tomio, to Tokai Corporation. Felt tip pen. 321,719, 11-19-91, Cl. D19-48.000.
Nomura, Keiko, to Seikosha Co., Ltd. Clock. 321,657, 11-19-91, Cl. D10-7.000.
Nomura, Keiko; and Minami, Mariko, to Seikosha Co., Ltd. Clock. 321,659, 11-19-91, Cl. D10-8.000.
Nomura, Yasuhiro; and Takahashi, Koichi, to Seiko Epson Corporation. Liquid crystal sunglasses. 321,701, 11-19-91, Cl. D16-102.000.
North American Philips Corporation: *See—*
Mujahid, Mohammad; and Sullivan, Joe O., 321,762, Cl. D26-2.000.
Northern Telecom (Dublin) Limited: *See—*
Bradley, Andrew W., 321,685, Cl. D14-143.000.
Nunzio's Pizza, Inc.: *See—*
Casale, Frank R.; Casale, Nicola D.; Casale, Antonio A.; and Bennett, Richard P., 321,724, Cl. D20-19.000.
Ohara, Toshimutsu: *See—*
Uchibori, Noritaka; and Ohara, Toshimutsu, 321,708, Cl. D18-54.000.
Ohashi, Keiichi, to Skylite Industry Co., Ltd. Battery charger for electric eraser. 321,681, 11-19-91, Cl. D13-108.000.
Ohmaki, Koji, to Rhythm Watch Co., Ltd. Clock. 321,658, 11-19-91, Cl. D10-7.000.
Ohmura, Hiroshi; and Arai, Takuya, to Fuji Photo Film Co., Ltd. Disposable camera. 321,705, 11-19-91, Cl. D16-208.000.
Oki Electric Industry Co., Ltd.: *See—*
Kikuchi, Hiroshi; Ono, Hisao; Momiyama, Yoshiharu; and Nakajima, Shigeki, 321,716, Cl. D18-43.000.
Oldorf, Dennis. Supply box for gravity fed display. 321,647, 11-19-91, Cl. D9-339.000.
Olivetti Synthesis SpA: *See—*
Von Klier, Hans, 321,764, Cl. D26-63.000.
Ono, Hisao: *See—*
Kikuchi, Hiroshi; Ono, Hisao; Momiyama, Yoshiharu; and Nakajima, Shigeki, 321,716, Cl. D18-43.000.
Ono, Masayuki: *See—*
Frenkler, Friedrich F.; Ono, Masayuki; Suzuki, Akira; and Uchibori, Noritaka, 321,714, Cl. D18-54.000.
Oslapas, Arunas P., to JWI, Inc. Vehicle. 321,675, 11-19-91, Cl. D12-85.000.
Ozawa, Elizi: *See—*
Kitagawa, Makoto; Kurihara, Toshio; and Ozawa, Elizi, 321,676, Cl. D12-110.000.
Page, Robert A. Game board. 321,726, 11-19-91, Cl. D21-34.000.
Palisin, Stephen P., Jr., to Berwick Manufacturing, Inc. Stackable container. 321,652, 11-19-91, Cl. D9-429.000.
Paris, Emilio F., to Hijo De E. F. Escofet S.A. Bench. 321,604, 11-19-91, Cl. D6-381.000.
Paul Associates, Inc.: *See—*
Paul, Stanley M., 321,751, Cl. D23-242.000.
Paul, Stanley M., 321,752, Cl. D23-242.000.
Paul, Stanley M., to Paul Associates, Inc. Faucet set. 321,751, 11-19-91, Cl. D23-242.000.
Paul, Stanley M., to Paul Associates, Inc. Faucet set. 321,752, 11-19-91, Cl. D23-242.000.
Pavelec, John J.: *See—*
Riera, John F.; Bielawski, Billy J., Sr.; and Pavelec, John J., 321,698, Cl. D15-141.000.
Peeples, Bedford F.: *See—*
Blount, Wendell G.; Mosetich, Ronald J.; and Peeples, Bedford F., 321,678, Cl. D12-131.000.
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Pennington, Ellen J. Legging. 321,582, 11-19-91, Cl. D2-267.000.
Plough, Harold. Two spice dispenser. 321,627, 11-19-91, Cl. D7-596.000.
Plozner, Lisio, to B.P.T. S.p.A. Intercommunications unit. 321,686, 11-19-91, Cl. D14-159.000.
Pola Chemical Industries, Inc.: *See—*
Katada, Hirofumi; and Matsuyama, Hiroyuki, 321,643, Cl. D9-333.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, 321,644, Cl. D9-333.000.
Katada, Hirofumi; and Matsuyama, Hiroyuki, 321,645, Cl. D9-333.000.
Poulson, Keith L.; and Dannenberg, Todd D., to Kohler Co. Shower enclosure. 321,755, 11-19-91, Cl. D23-305.000.
Poulson, Keith L.: *See—*
Dannenberg, Todd D.; and Poulson, Keith L., 321,756, Cl. D23-305.000.
Prager, Joy. Doll illustrating dental features. 321,721, 11-19-91, Cl. D19-59.000.
Precor Incorporated: *See—*
Dunham, Paul T.; Littrell, David J.; and Armstrong, Timothy O., 321,734, Cl. D21-192.000.
Pure-Best Water, Inc.: *See—*
Sixt, Marty E., 321,612, Cl. D6-438.000.
Qfoam Pty. Ltd.: *See—*
Zanki, Paul J., 321,601, Cl. D6-361.000.
Quaker Oats Company, The: *See—*
Maple, Wade A. F., 321,729, Cl. D21-64.000.
McElhaney, Craig J., 321,730, Cl. D21-64.000.
Wehmeyer, Stephen D., 321,728, Cl. D21-64.000.
Ransburg Corporation: *See—*
Burns, Marvin D., 321,747, Cl. D23-225.000.
Reid, Mary J., to Kohler Co. Lavatory. 321,754, 11-19-91, Cl. D23-292.000.
Reid, Mary J.: *See—*
Kohler, Herbert V., Jr.; and Reid, Mary J., 321,638, Cl. D8-307.000.
Rhythm Watch Co., Ltd.: *See—*
Ohmaki, Koji, 321,658, Cl. D10-7.000.
Ricci, Vero. Container. 321,648, 11-19-91, Cl. D9-341.000.
Richards, Scott H.: *See—*
Siddoway, Craig F.; Richards, Scott H.; and Claxton, Bruce A., 321,692, Cl. D14-226.000.
Rienecker, Robert L. Lectern. 321,610, 11-19-91, Cl. D6-419.000.
Riera, John F.; Bielawski, Billy J., Sr.; and Pavelec, John J. Base for rotary arc ram. 321,698, 11-19-91, Cl. D15-141.000.
Rigney, Randall W. Anti-bite-off device for a wood moulder or the like. 321,633, 11-19-91, Cl. D8-70.000.
Robertson, Gerald J. Container. 321,646, 11-19-91, Cl. D9-337.000.
Rogers, Bruce E., to Nike, Inc.; and Nike International Ltd. Surface ornamentation for the sides of a shoe midsole. 321,585, 11-19-91, Cl. D2-314.000.
Roventa-Henex SA: *See—*
Burgener, Eddy, 321,666, Cl. D10-32.000.
Rubbermaid Incorporated: *See—*
Fiore, Joseph F.; and Weyer, John C., Sr., 321,624, Cl. D7-321.000.
Saiger, Herbert C., to Crown Leisure Products, Inc. Chair frame. 321,602, 11-19-91, Cl. D6-379.000.
Saito, Kazuhiko; and Kawasaki, Yutaka, to Honda Giken Kogyo Kabushiki Kaisha. Fender receptacle unit for a four wheel vehicle. 321,677, 11-19-91, Cl. D12-117.000.
Sakurada, Hidemi, to Nikko Pen Co., Ltd. Ball-point pen. 321,720, 11-19-91, Cl. D19-51.000.
Sankyo Diamond Industrial Co., Ltd.: *See—*
Inoue, Jiro, 321,634, Cl. D8-70.000.
Sanyo Electric Co., Ltd.: *See—*
Miyai, Hiroyuki, 321,687, Cl. D14-165.000.
Saple International Ltd.: *See—*
To Yung Pang, William, 321,688, Cl. D14-170.000.
Saunders, William J.: *See—*
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Schafer, Kenneth L. Animal drinker. 321,769, 11-19-91, Cl. D30-132.000.
Schwartz, Frederic W., to Cable Electric Products, Inc. Electrical timer. 321,668, 11-19-91, Cl. D10-40.000.
Sebel Furniture Limited: *See—*
Brennan, James W., 321,600, Cl. D6-362.000.
Seiko Epson Corporation: *See—*
Frenkler, Friedrich F.; Ono, Masayuki; Suzuki, Akira; and Uchibori, Noritaka, 321,714, Cl. D18-54.000.
Nomura, Yasuhiro; and Takahashi, Koichi, 321,701, Cl. D16-102.000.
Uchibori, Noritaka; and Ohara, Toshimutsu, 321,708, Cl. D18-54.000.
Uchibori, Noritaka; and Ichikawa, Michiyo, 321,709, Cl. D18-54.000.
Uchibori, Noritaka; Igarashi, Hitoshi; and Iseki, Mitsuru, 321,710, Cl. D18-54.000.
Seikosha Co., Ltd.: *See—*
Aikawa, Masahiro, 321,656, Cl. D10-6.000.
Aikawa, Masahiro, 321,660, Cl. D10-10.000.
Matsuo, Akihiko; Takeda, Akio; and Fujii, Kiyoshi, 321,713, Cl. D18-54.000.
Nomura, Keiko, 321,657, Cl. D10-7.000.
Nomura, Keiko; and Minami, Mariko, 321,659, Cl. D10-8.000.
Shimamura, Katsumi, 321,661, Cl. D10-18.000.
Tanaka, Mamoru, 321,663, Cl. D10-18.000.
Wada, Mitsuo, 321,662, Cl. D10-18.000.
Shaw, Donald: *See—*
Buonito, Carman; and Shaw, Donald, 321,670, Cl. D11-130.100.
Shaw, Elaine. Leaf scoop. 321,631, 11-19-91, Cl. D8-10.000.
Sheung, Chow Y., to Sun Hing Audio Equipment Manufactory Limited. Compact disc holder. 321,607, 11-19-91, Cl. D6-407.000.
Shimamura, Katsumi, to Seikosha Co., Ltd. Clock. 321,661, 11-19-91, Cl. D10-18.000.
Shimizu, Chuji, to Fukuda Denshi Co., Ltd. Pad for use with a body electrode. 321,761, 11-19-91, Cl. D24-187.000.
Shinoda, Lawrence K., to Shinoda-Williams Design, Inc. Exterior body panel kit for attachment to an automobile body. 321,679, 11-19-91, Cl. D12-196.000.
Shinoda-Williams Design, Inc.: *See—*
Shinoda, Lawrence K., 321,679, Cl. D12-196.000.
Shiozaki, Akihisa: *See—*
Kameda, Yasuhisa; and Shiozaki, Akihisa, 321,741, Cl. D22-141.000.
Short, Glenn N. Fishing rod light. 321,763, 11-19-91, Cl. D26-37.000.

VOL 1132 ISS 3 NO 19 1991 UMI

Siddoway, Craig F.; Richards, Scott H.; and Claxton, Bruce A., to Motorola, Inc. Combined microphone and radio control unit or similar article. 321,692, 11-19-91, Cl. D14-226.000.
Sixt, Marty E., to Pure-Best Water, Inc. Refreshment center. 321,612, 11-19-91, Cl. D6-438.000.
Skylite Industry Co., Ltd.: *See—*
Ohashi, Keiichi, 321,681, Cl. D13-108.000.
Smith, Theodore A. Novelty eyeglasses. 321,700, 11-19-91, Cl. D16-104.000.
Smith, Wilson W., III, to Nike Inc.; and Nike International Ltd. Shoe sole bottom. 321,590, 11-19-91, Cl. D2-320.000.
Snappi Holdings (Proprietary) Limited: *See—*
Crafford, Japie, 321,673, Cl. D11-200.000.
Spangler, Anthony G., to Masco Corporation of Indiana. Faucet body. 321,750, 11-19-91, Cl. D23-241.000.
Special Press, Inc.: *See—*
Helm-Estabrooks, Nancy; and Kaplan, Edith, 321,722, Cl. D19-64.000.
Steven Hull, Inc.: *See—*
Carney, Steven H., 321,760, Cl. D24-190.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., to Knape & Vogt Manufacturing Company. Combined bracket and shelf assembly. 321,618, 11-19-91, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., to Knape & Vogt Manufacturing Company. Combined book end bracket and shelf assembly. 321,619, 11-19-91, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Richard S., to Knape & Vogt Manufacturing Company. Combined bracket and shelf assembly. 321,620, 11-19-91, Cl. D6-574.000.
Stumpf, William E.; Carlson, Casey L.; and Knape, Ricahrd S., to Knape & Vogt Manufacturing Company. Combined book end bracket and shelf assembly. 321,621, 11-19-91, Cl. D6-574.000.
Stumpf, William E.; and Carlson, Casey L., to Knape & Vogt Manufacturing Company. Combined bracket and shelf assembly. 321,622, 11-19-91, Cl. D6-574.000.
Sullivan, Joe O.: *See—*
Mujahid, Mohammad; and Sullivan, Joe O., 321,762, Cl. D26-2.000.
Sun, Cliff K., to Kin Hip Metal & Plastic Factory Limited. Covered jug. 321,623, 11-19-91, Cl. D7-317.000.
Sun Hing Audio Equipment Manufactory Limited: *See—*
Sheung, Chow Y., 321,607, Cl. D6-407.000.
Suzuki, Akira: *See—*
Frenkler, Friedrich F.; Ono, Masayuki; Suzuki, Akira; and Uchibori, Noritaka, 321,714, Cl. D18-54.000.
Takahashi, Koichi: *See—*
Nomura, Yasuhiro; and Takahashi, Koichi, 321,701, Cl. D16-102.000.
Takahashi, Takehiko; Ishii, Yoshiyasu; and Matsuda, Hiroaki, to Combi Co. Ltd. Chair for a baby. 321,599, 11-19-91, Cl. D6-333.000.
Takeda, Akio: *See—*
Matsuo, Akihiko; Takeda, Akio; and Fujii, Kiyoshi, 321,713, Cl. D18-54.000.
Tanaka, Mamoru, to Seikosha Co., Ltd. Travel alarm clock. 321,663, 11-19-91, Cl. D10-18.000.
Thompson, D. F. Tommy. Fishing fly. 321,739, 11-19-91, Cl. D22-128.000.
Timex Corporation: *See—*
Kennedy, Mary A., 321,664, Cl. D10-30.000.
To Yung Pang, William, to Saple International Ltd. Clock radio. 321,688, 11-19-91, Cl. D14-170.000.
Tokai Corporation: *See—*
Nitta, Tomio, 321,719, Cl. D19-48.000.
Tokyo Electric Co., Ltd.: *See—*
Yamamoto, Yoshiro, 321,706, Cl. D18-4.000.
'Totes', Incorporated: *See—*
Cain, Ann S., 321,592, Cl. D3-12.000.
Tsukamoto, Akira: *See—*
Irie, Toru; Kakiuchi, Yoshinori; and Tsukamoto, Akira, 321,707, Cl. D18-54.000.
Tsutsui, Eiji, to Mita Industrial Co., Ltd. Sheet feeder. 321,712, 11-19-91, Cl. D18-49.000.
Tyco Industries, Inc.: *See—*
Blaustein, Lawrence A.; and Brown, Patrick W., 321,697, Cl. D15-82.000.
Uchibori, Noritaka; and Ohara, Toshimutsu, to Seiko Epson Corporation. Printer for electronic computer. 321,708, 11-19-91, Cl. D18-54.000.
Uchibori, Noritaka; and Ichikawa, Michiyo, to Seiko Epson Corporation. Printer for electronic computer. 321,709, 11-19-91, Cl. D18-54.000.
Uchibori, Noritaka; Igarashi, Hitoshi; and Iseki, Mitsuru, to Seiko Epson Corporation. Printer for electronic computer. 321,710, 11-19-91, Cl. D18-54.000.
Uchibori, Noritaka: *See—*
Frenkler, Friedrich F.; Ono, Masayuki; Suzuki, Akira; and Uchibori, Noritaka, 321,714, Cl. D18-54.000.
Uchida, Koji, to Janome Sewing Machine Co. Ltd. Sewing machine. 321,694, 11-19-91, Cl. D15-69.000.
Union Plastic Products Ltd.: *See—*
Yu, Francis F. J., 321,742, Cl. D21-238.000.
Urbanski, David C. Game control holder. 321,727, 11-19-91, Cl. D21-48.000.
Uvex Winter Optical, Inc.: *See—*
Grau, Werner E., 321,703, Cl. D16-112.000.
Volvo Car B.V.: *See—*
Marinussen, Hendrikus F., 321,591, Cl. D2-627.000.
Von Klier, Hans, to Olivetti Synthesis SpA. Adjustable lamp. 321,764, 11-19-91, Cl. D26-63.000.
Wada, Mitsuo, to Seikosha Co., Ltd. Travel alarm clock. 321,662, 11-19-91, Cl. D10-18.000.
Wehmeyer, Stephen D., to Quaker Oats Company, The. Musical toy. 321,728, 11-19-91, Cl. D21-64.000.
Wesolowsky, Charles L. Flush tank flapper valve. 321,749, 11-19-91, Cl. D23-236.000.
West Bend Company, The: *See—*
Dobson, William C.; and Cesaroni, William C., 321,625, Cl. D7-360.000.
Weyer, John C., Sr.: *See—*
Fiore, Joseph F.; and Weyer, John C., Sr., 321,624, Cl. D7-321.000.
White, Michael J. Box drink holder. 321,654, 11-19-91, Cl. D7-622.000.
Wilton Industries, Inc.: *See—*
Murrell, Spencer, 321,745, Cl. D23-209.000.
Winston Furniture Company of Alabama, Inc.: *See—*
Hess, Stephen C., 321,603, Cl. D6-379.000.
Yamaha Corporation: *See—*
Yamakawa, Yoshiro, 321,689, Cl. D14-188.000.
Yamakawa, Yoshiro, to Yamaha Corporation. Audio amplifier. 321,689, 11-19-91, Cl. D14-188.000.
Yamamoto, Yoshiro, to Tokyo Electric Co., Ltd. Cash register for point of sales system. 321,706, 11-19-91, Cl. D18-4.000.
Yamauchi, Satomi: *See—*
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,696, Cl. D15-72.000.
Yardley, Lloyd M.: *See—*
Blount, Wendell G.; Lackey, Henry L.; Mosetich, Ronald J.; Peeples, Bedford F.; Kimbro, David L.; Saunders, William J.; Yardley, Lloyd M.; Alsup, J. Douglas; and Crosby, Samuel C., 321,680, Cl. D13-103.000.
Yeager, Charles O. Trail stall for livestock. 321,768, 11-19-91, Cl. D30-114.000.
Yoshihara, Tsutomu; and Nezu, Shigeru, to Canon Kabushiki Kaisha. Printer. 321,711, 11-19-91, Cl. D18-54.000.
Yu, Francis F. J., to Union Plastic Products Ltd. Arm swim float. 321,742, 11-19-91, Cl. D21-238.000.
Zanki, Paul J., to Qfoam Pty. Ltd. Chaise longue. 321,601, 11-19-91, Cl. D6-361.000.
Zierhut, Clarence D., to King Imports, Inc. Shoe polish applicator. 321,596, 11-19-91, Cl. D4-114.000.

LIST OF PLANT PATENTEES

Centre d'Experimentation de Pepinieres: *See—*
Masseron, Alain; and Grillet, Elisa, 7,714, Cl. 34.000.
Masseron, Alain; and Grillet, Elisa, 7,715, Cl. 34.000.
Centre Technique Interprofessionnel des Fruits et Legumes: *See—*
Masseron, Alain; and Grillet, Elisa, 7,714, Cl. 34.000.
Masseron, Alain; and Grillet, Elisa, 7,715, Cl. 34.000.
Fruehwirth, Franz, to Paul Ecke Ranch, Inc. Poinsettia plant 'Lilo Pink'. 7,716, 11-19-91, Cl. 86.000.
Grillet, Elisa: *See—*
Masseron, Alain; and Grillet, Elisa, 7,714, Cl. 34.000.
Masseron, Alain; and Grillet, Elisa, 7,715, Cl. 34.000.
Masseron, Alain; and Grillet, Elisa, to Centre d'Experimentation de Pepinieres; and Centre Technique Interprofessionnel des Fruits et Legumes. Apple rootstock — Lancep variety. 7,714, 11-19-91, Cl. 34.000.
Masseron, Alain; and Grillet, Elisa, to Centre d'Experimentation de Pepinieres; and Centre Technique Interprofessionnel des Fruits et Legumes. Apple rootstock - Cepiland variety. 7,715, 11-19-91, Cl. 34.000.
Paul Ecke Ranch, Inc.: *See—*
Fruehwirth, Franz, 7,716, Cl. 86.000.

CLASSIFICATION OF PATENTS

ISSUED NOVEMBER 19, 1991

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2
2 5,065,457
69 5,065,458

CLASS 4
144.2 5,065,459
251 5,065,460
503 5,065,461
604 5,065,462
606 5,065,463

CLASS 5
81 R 5,065,464
450 5,065,465
453 5,065,466

CLASS 8
109 5,066,306
182 5,066,307
403 5,066,308
527 5,066,309

CLASS 14
13 5,065,467
72.5 5,065,468

CLASS 15
89 5,065,469
106 5,065,470
250.04 5,065,471
250.32 5,065,474
317 5,065,472
339 5,065,473

CLASS 16
114 R 5,065,475
5,065,476

CLASS 19
150 5,065,477
296 5,065,478
303 5,065,479

CLASS 24
20 R Re.33,744
68 SK 5,065,480
5,065,481
712.1 5,065,482

CLASS 29
25.02 5,065,484
91.1 5,065,485
235 5,065,486
275 5,065,487
278 5,065,488
281.5 5,065,489
402.17 5,065,490
408 5,065,491
426.6 5,065,492
505 5,065,493
525.2 5,065,494
559 5,065,495
564.7 5,065,497
568 5,065,498
599 5,065,496
603 5,065,483
5,065,500
611 5,065,501
620 5,065,502
632 5,065,506
735 5,065,503
799 5,065,499
827 5,065,504
830 5,065,505
888.01 5,065,507
888.042 5,065,508
889.21 5,065,509
894.324 5,065,510
895.211 5,065,511
898.09 5,065,512

CLASS 30
29 5,065,513
134 5,065,514
140 5,065,515
245 5,065,516
300 5,065,517

CLASS 33
1 BB 5,065,518
241 5,065,519
5,065,520
361 5,065,521
544.2 5,065,524
562 5,065,523
702 5,065,525
5,065,526
734 5,065,527

CLASS 34
93 5,065,528
117 5,065,529

CLASS 36
50 5,065,530
100 5,065,531
117 5,065,532
5,065,533
134 5,065,534

CLASS 38
22 5,065,535
102.91 5,065,536

CLASS 40
618 5,065,537

CLASS 42
103 5,065,538

CLASS 43
4 5,065,539
21.2 5,065,540
42.29 5,065,541
42.74 5,065,542

CLASS 44
500 5,066,310
535 5,066,311

CLASS 47
25 5,065,543

CLASS 49
177 5,065,544
375 5,065,545

CLASS 51
134.5 R 5,065,546
154 5,065,547
5,065,548
288 5,065,549
295 5,066,312
317 5,065,550
410 5,065,551

CLASS 52
1 5,065,552
58 5,065,553
82 5,065,554
167 DF 5,065,555
221 5,065,556
235 5,065,557
239 5,065,558
5,065,559
306 5,065,560
309.12 5,065,561
772 5,065,562

CLASS 53
69 5,065,563
150 5,065,564
398 5,065,565

CLASS 55
2 5,066,313
44 5,066,314
96 5,066,315
122 5,066,316
218 5,066,317
502 5,066,318
521 5,066,319

CLASS 56
12.7 5,065,566
13.7 5,065,567
14.9 5,065,568
16.6 5,065,569
377 5,065,570

CLASS 57
105 5,065,571
413 5,065,572

CLASS 60
274 5,065,574
290 5,065,575
295 5,065,576
450 5,065,577
464 5,065,578
524 5,065,579
547.1 5,065,580
551 5,065,573
668 5,065,581

CLASS 62
45.1 5,065,582
51.3 5,065,583
81 5,065,584
89 5,065,585
93 5,065,586
131 5,065,587
160 5,065,588
161 5,065,589
175 5,065,590
5,065,591
180 5,065,592
182 5,065,593
195 5,065,594
212 5,065,595
262 5,065,596
5,065,597
330 5,065,598

CLASS 65
106 5,066,320
182.2 5,066,321

CLASS 66
84 A 5,065,599
193 5,065,600
195 5,065,601

CLASS 70
68 5,065,602
233 5,065,603
239 5,065,604

CLASS 71
90 Re.33,745

CLASS 72
340 5,065,605
348 5,065,606
351 5,065,607
409 5,065,608
453.15 5,065,609
462 5,065,610

CLASS 73
1 D 5,065,612
4 R 5,065,611
23.2 5,065,613
23.35 5,065,614
29.01 5,065,615
49.2 5,065,616
49.8 5,065,617
146 5,065,618
152 5,065,619
159 5,065,620
188 5,065,621
5,065,622
290 R 5,065,623
290 V 5,065,624
336.5 5,065,625
497 5,065,626
505 5,065,627
517 R 5,065,628
602 5,065,629
802 5,065,630
849 5,065,631
861.73 5,065,632
862.34 5,065,633
865.5 5,065,634
866.5 5,065,635

CLASS 74
40 5,065,636
99 R 5,065,637
351 5,065,638
417 5,065,639
469 5,065,640
473 SW 5,065,641
501.6 5,065,643
574 5,065,642
603 5,065,644
859 5,065,645

CLASS 75
255 5,066,322
305 5,066,323
335 5,066,324
499 5,066,325
581 5,066,326
770 5,066,327

CLASS 76
101.1 5,065,646
108.6 5,065,647

CLASS 81
64 5,065,648
458 5,065,649
486 5,065,650

CLASS 82
1.11 5,065,651

CLASS 83
168 5,065,652
199 5,065,653
255 5,065,654
322 5,065,655
356.003 5,065,656
703 5,065,657
834 5,065,658

CLASS 84
200 5,065,660
719 5,065,661
723 5,065,659

CLASS 89
12 5,065,662

CLASS 91
361 5,065,663
420 5,065,664
433 5,065,665
518 5,065,666

CLASS 98
2 5,065,667
31.5 5,065,668
40.11 5,065,669

CLASS 99
405 5,065,670
456 5,065,671
631 5,065,672

CLASS 100
40 5,065,673

CLASS 101
44 5,065,674
153 5,065,675
349 5,065,676
415.1 5,065,677

CLASS 104
88 5,065,678

CLASS 105
3 5,065,679

CLASS 106
18.32 5,066,328
20 5,066,329
30 5,066,331
31 5,066,332
287.34 5,066,330
400 5,066,333
462 5,066,334

CLASS 108
60 5,065,832

CLASS 110
342 5,065,680

CLASS 111
55 5,065,681

CLASS 112
103 5,065,682
292 5,065,683
311 5,065,684

CLASS 114
102 5,065,685
103 5,065,686
230 5,065,687
5,065,689
238 5,065,688

CLASS 116
264 5,065,690
274 5,065,691

CLASS 118
302 5,065,692
657 5,065,693
669 5,065,694
688 5,065,695
718 5,065,696
719 5,065,697
5,065,698

CLASS 119
17 5,065,699
147.1 5,065,701
168 5,065,702
725 5,065,700

CLASS 122
382 5,065,703

CLASS 123
25 J 5,065,704
41.15 5,065,705
41.35 5,065,706
41.42 5,065,707
52 MC 5,065,708
90.15 5,065,709
185 B 5,065,710
188 M 5,065,711
5,065,712
195 A 5,065,713
254 5,065,714
263 5,065,715
326 5,065,716
339 5,065,717
5,065,718
5,065,719
363 5,065,720
399 5,065,721
5,065,722
413 5,065,723
425 5,065,724
463 5,065,725
480 5,065,726
489 5,065,727
5,065,728
643 5,065,729

CLASS 124
35.2 5,065,730
44.5 5,065,731
88 5,065,732

CLASS 125
39 5,065,733

CLASS 126
9 R 5,065,734
40 5,065,735
110 B 5,065,736
214 R 5,065,737

CLASS 128
11 5,065,738
20 5,065,739
24 EL 5,065,740
5,065,741
5,065,742
60 5,065,743
79 5,065,744
156 5,065,752
200.11 5,065,753
200.26 5,065,754
5,065,755
204.18 5,065,756
205.12 5,065,745
205.24 5,065,746
207.14 5,065,757
402 5,065,758
419.0 PG 5,065,759
630 5,065,747
5,065,748
653.5 5,065,760
660.03 5,065,761
5,065,762
660.07 5,065,763
661.09 5,065,764
664 5,065,749
672 5,065,765
708 5,065,766
745 5,065,750
5,065,767
760 5,065,768
772 5,065,769
774 5,065,770
831 5,065,751
835 5,065,771
836 5,065,772
876 5,065,773

CLASS 131
291 5,065,774
297 5,065,775
365 5,065,776
5,065,777

CLASS 132
74.5 5,065,778

CLASS 134
7 5,066,335
22.12 5,066,336

CLASS 135
33.7 5,065,779

CLASS 136
202 5,066,337
244 5,066,338
253 5,066,339
258 5,066,340

CLASS 137
15 5,065,780
5,065,781
39 5,065,782
68.1 5,065,783
116 5,065,784
185 5,065,785
202 5,065,786
315 5,065,787
505.18 5,065,788
513.5 5,065,789
514.5 5,065,790
515 5,065,791
580 5,065,792
625.24 5,065,793
883 5,065,794

CLASS 138
176 5,065,795

CLASS 139
300 5,065,796
448 5,065,797

CLASS 140
123.6 5,065,798

CLASS 141
39 5,065,799
67 5,065,800

CLASS 142
38 5,065,801

CLASS 144
2 R 5,065,802

CLASS 148
11.5 C 5,066,341
12.7 A 5,066,342
111 5,066,343

CLASS 152
543 5,065,803

CLASS 156
138 5,066,344
157 5,066,345
5,066,346
159 5,066,347
164 5,066,348
166 5,066,349
187 5,066,350
212 5,066,351
265 5,066,352
300 5,066,353
414 5,066,354
612 5,066,355
623 R 5,066,356
643 5,066,357
647 5,066,358
651 5,066,359
660 5,066,360
663 5,066,361

CLASS 157
13 5,065,804

VOL 1132 ISS 3 NO 19 1991 UMI

CLASS 160

23.1 5,065,805
36 5,065,806
206 5,065,807
231.2 5,065,808

CLASS 162

17 5,066,362
100 5,066,363
281 5,066,364

CLASS 164

61 5,065,809
76.1 5,065,810
460 5,065,811
480 5,065,812

CLASS 165

1 5,065,813
41 5,065,814
67 5,065,815
125 5,065,816
153 5,065,817

CLASS 166

60 5,065,818
245 5,065,821
248 5,065,819
291 5,065,820
295 5,065,822

CLASS 173

91 5,065,823
134 5,065,824

CLASS 174

50 5,066,832
52.4 5,066,831

CLASS 175

38 5,065,825
75 5,065,826
414 5,065,827

CLASS 177

139 5,065,828
5,065,829
263 5,065,830

CLASS 178

19 5,066,833

CLASS 180

55 5,065,831
117 5,065,833
197 5,065,834
5,065,835
245 5,065,836

CLASS 182

18 5,065,837
38 5,065,838
47 5,065,839
93 5,065,840

CLASS 184

6.18 5,065,841

CLASS 186

61 5,065,842

CLASS 187

1 R 5,065,843
17 5,065,844
89 5,065,845
127 5,065,846

CLASS 190

125 5,065,847

CLASS 191

40 5,066,834

CLASS 192

0.076 5,065,849
1.36 5,065,848
3.29 5,065,853
8 R 5,065,854
53 E 5,065,855
90 5,065,850
103 R 5,065,851

CLASS 198

392 5,065,852
419.3 5,065,856
457 5,065,857
493 5,065,858
499 5,065,859
848 5,065,860

CLASS 200

61.43 5,066,835
61.45 R 5,066,836
5,066,837
61.89 5,066,838
144 R 5,066,839
330 5,066,840
342 5,066,841
345 5,066,842
737 5,066,038

CLASS 203

042 5,066,365

CLASS 204

12 5,066,366
44.4 5,066,367
58 5,066,368
74 5,066,369
129.1 5,066,370
149 5,066,371
153.1 5,066,372
153.21 5,066,373
181.4 5,066,374
182.4 5,066,375
182.8 5,066,376
5,066,377
237 5,066,378
279 5,066,379
290 R 5,066,380
298.12 5,066,381
299 R 5,066,382
435 5,066,383

CLASS 206

63.5 5,065,861
151 5,065,862
210 5,065,863
278 5,065,864
409 5,065,865
455 5,065,866
494 5,065,868
542 5,065,867

CLASS 207

140.1 5,065,869

CLASS 208

45 5,066,384
131 5,066,385
187 5,066,386

CLASS 209

5 5,066,387
170 5,066,388
5,066,389
217 5,066,390

CLASS 210

85 5,066,391
96.1 5,066,392
136 5,066,393
169 5,066,394
198.2 5,066,395
236 5,066,396
321.61 5,066,397
321.89 5,066,398
401 5,066,399
493.5 5,066,400
500.35 5,066,401
636 5,066,402
638 5,066,403
670 5,066,404
693 5,066,405
744 5,066,407
765 5,066,408

CLASS 211

13 5,065,870
37 5,065,871
122 5,065,872
187 5,065,873

CLASS 213

31 5,065,874

CLASS 215

1 C 5,066,081
10 5,065,875
206 5,065,876
239 5,065,877

CLASS 219

10.55 R 5,066,843
85.16 5,066,844
119 5,066,845
121.63 5,066,846
124.34 5,066,847
5,066,848
233 5,066,849
388 5,066,850
400 5,066,851
544 5,066,852

CLASS 220

3.8 5,065,878
258 5,065,881
264 5,065,884
269 5,065,882
276 5,065,883
326 5,065,885
331 5,065,886
338 5,065,887
355 5,065,888
366 5,065,889
401 5,065,890
404 5,065,891
465 5,065,892
565 5,065,893
694 5,065,923
711 5,065,880
739 5,065,879

CLASS 221

25 5,065,894
54 5,065,895
73 5,065,896
130 5,065,897
171 5,065,898
305 5,065,899

CLASS 222

1 5,065,900
3 5,065,904
20 5,065,901
31 5,065,902
71 5,065,903
132 5,065,905
137 5,065,906
183 5,065,907
185 5,065,927
480 5,065,908
484 5,065,909
504 5,065,910
517 5,065,911
5,065,912
528 5,065,913
529 5,065,914

CLASS 223

89 5,065,915
91 5,065,916
113 5,065,917

CLASS 224

42.32 5,065,922
191 5,065,918
257 5,065,919
275 5,065,920
324 5,065,921

CLASS 225

46 5,065,924
78 5,065,925
93 5,065,926

CLASS 226

7 5,065,928

CLASS 227

19 5,065,929
130 5,065,930

CLASS 228

19 5,065,931
55 5,065,932
102 5,065,933
112 5,065,934

CLASS 229

40 5,065,935
101 5,065,936
117.13 5,065,937
125.08 5,065,938
151 5,065,939

CLASS 235

381 5,066,853

CLASS 238

334 5,065,940

CLASS 239

282 5,065,942
298 5,065,943
550 5,065,944
556 5,065,945
744 Re.33,746

CLASS 241

16 5,065,946
30 5,065,947
199.5 5,065,948

CLASS 242

35.5 R 5,065,949
43.2 5,065,950
46.21 5,065,951
71.1 5,065,952
74 5,065,953
107.7 5,065,954
198 5,065,955

CLASS 244

3.2 5,065,956
3.21 5,065,957
17.17 5,065,958
54 5,065,959
131 5,065,960
137.4 5,065,961
199 B1 3,578,264
234 5,065,962

CLASS 246

187 B 5,065,963

CLASS 248

51 5,065,964
99 5,065,965
146 5,065,966
161 5,065,967
205.1 5,065,968
282 5,065,969
311.2 5,065,970
330.1 5,065,971
345.1 5,065,972
362 5,065,973
476 5,065,974
545 5,065,975
549 5,065,976
692 5,065,977

CLASS 250

202 5,066,854
221 5,066,855
229 5,066,856
231.15 5,066,857
307 5,066,858
339 5,066,859
B1 4,800,279
349 5,066,860
370.09 5,066,861
393 5,066,862
474.1 5,066,863
484.1 5,066,864
572 5,066,865

CLASS 251

129.06 5,065,978
129.16 5,065,979
144 5,065,980
148 5,065,981
320 5,065,982

CLASS 252

8.75 5,066,413
8.8 5,066,414
48.2 5,066,409
54.6 5,066,412
68 5,066,410
70 5,066,411
90 5,066,416
135 5,066,415
171 5,066,417
172 5,066,418
174.11 5,066,419
313.2 5,066,420
373 5,066,421
511 5,066,422
516 5,066,423
518 5,066,424
546 5,066,425

CLASS 254

8 B 5,065,983
18 5,065,984

CLASS 260

413 5,066,427

CLASS 261

29 5,066,428

CLASS 264

0.5 5,066,429
2.1 5,066,431
4.3 5,066,436
8 5,066,430
28 5,066,432
29.2 5,066,433
37 5,066,434
40.5 5,066,435
46.5 5,066,437
56 5,066,438
69 5,066,440
103 5,066,439
118 5,066,441
154 5,066,442
171 5,066,443
5,066,444
176.1 5,066,445
242 5,066,446
290.5 5,066,447
334 5,066,448
406 5,066,449
504 5,066,450

CLASS 266

156 5,065,985
217 5,065,986
283 5,065,987

CLASS 267

149 5,065,988

CLASS 269

139 5,065,989
282 5,065,990
309 5,065,991

CLASS 270

39 5,065,992
49 5,065,993
55 5,065,994

CLASS 271

9 5,065,995
176 5,065,996
187 5,065,997
251 5,065,998
265 5,065,999

CLASS 272

70 5,066,000
5,066,001
93 5,066,002
134 5,066,003
5,066,004
136 5,066,005

CLASS 273

1.5 R 5,066,006
5,066,007
2 5,066,008
14 5,066,009
26 D 5,066,010
58 G 5,066,011
65 EF 5,066,012
84 R 5,066,013
110 5,066,014
243 5,066,015
249 5,066,016
344 5,066,017
5,066,018
348.1 5,066,019
408 5,066,020
421 5,066,021

CLASS 277

1 5,066,022
2 5,066,023
53 5,066,024
5,066,025
96.1 5,066,026
165 5,066,027
181 5,066,028
236 5,066,029

CLASS 280

92 5,066,030
221 5,066,031
304.1 5,066,032
414.1 5,066,033
428 5,066,034
441.1 5,066,035
615 5,066,036
732 5,066,037
741 5,066,039
756 5,066,040
772 5,066,041
806 5,066,042
808 5,066,043
815 5,066,044

CLASS 281

45 5,066,045

CLASS 283

70 5,066,046
86 5,066,047

CLASS 285

18 5,066,048
80 5,066,049
319 5,066,050
328 5,066,051
334 5,066,052
373 5,066,053

CLASS 290

1 R 5,066,866
53 5,066,867

CLASS 292

201 5,066,054
228 5,066,055
341.16 5,066,056

CLASS 293

121 5,066,057

CLASS 294

1.1 5,066,058
82.16 5,066,059
86.18 5,066,060

CLASS 296

97.1 5,066,061
97.22 5,066,062
100 5,066,063
146 5,066,064
165 5,066,065
181 5,066,066
197 5,066,067
221 5,066,068

CLASS 297

374 5,066,069

CLASS 299

37 5,066,070

CLASS 3.1

366 5,065,522

CLASS 301

108 TW 5,066,071

CLASS 303

9.75 5,066,072
92 5,066,073
97 5,066,074
113 5,066,076
113 R 5,066,075
114 R 5,066,077

CLASS 307

262 5,066,868
272.3 5,066,869
296.1 5,066,870
5,066,871
443 5,066,872
5,066,873
446 5,066,874
5,066,875
475 5,066,876
603 5,066,877

CLASS 310

68 C 5,066,878
90.5 5,066,879
156 5,066,880
213 5,066,881
217 5,066,882
323 5,066,884

CLASS 312

114 5,066,078
204 5,066,079
297 5,066,080

CLASS 313

309 5,066,883
340 5,066,885
404 5,066,886
414 5,066,887
512 5,066,889
564 5,066,888
585 5,066,890

CLASS 315

8 5,066,891
46 5,066,892
169.3 5,066,893
224 5,066,894
226 5,066,895
291 5,066,896
362 5,066,898

CLASS 318

135 5,066,897
568.16 5,066,902
807 5,066,899

CLASS 323

224 5,066,900
267 5,066,901

CLASS 324

96 5,066,903
127 5,066,904
133 5,066,905
142 5,066,906
158 P 5,066,907
158 R 5,066,908
5,066,909
166 5,066,910
207.18 5,066,911
224 5,066,912
226 5,066,913
309 5,066,914
318 5,066,915
338 5,066,916
5,066,917
452 5,066,918
538 5,066,919
544 5,066,920
639 5,066,921

CLASS 330

51 5,066,922
107 5,066,923
124 R 5,066,924
269 5,066,925
311 5,066,926

CLASS 331

1 A 5,066,927
57 5,066,929

CLASS 333

20 5,066,928
164 5,066,930
182 5,066,931
202 5,066,932
204 5,066,933
205 5,066,934

CLASS 335

172 5,066,935
255 5,066,980
295 5,066,936

CLASS 336

84 C 5,066,937

CLASS 338

22 SD 5,066,938

CLASS 340

310 R 5,066,939
453 5,066,940
457 5,066,941
568 5,066,942
573 5,066,943
603 5,066,944
784 5,066,945
787 5,066,946
815.31 5,066,947
825.44 5,066,949
825.69 5,066,948
937 5,066,950

CLASS 341

32 5,066,951
138 5,066,952
155 5,066,953
158 5,066,954
168 5,066,955

CLASS 342

154 5,066,956
352 5,066,957

CLASS 343

756 5,066,958
786 5,066,959

CLASS 346

76 L 5,066,962
76 PH 5,066,960
5,066,961
140 R 5,066,963
5,066,964

CLASS 351

221 5,066,116
226 5,066,117

CLASS 354

64 5,066,965
82 5,066,966
149.11 5,066,967
400 5,066,968
402 5,066,969
5,066,970
465 5,066,971

CLASS 355

27 5,066,972
5,066,973
71 5,066,974
200 5,066,975
5,066,976
201 5,066,977
206 5,066,978
208 5,066,979
233 5,066,987
245 5,066,981
5,066,988
269 5,066,982
270 5,066,989
297 5,066,983
309 5,066,984
326 5,066,985
5,066,986

CLASS 356

73.1 5,066,118
124 5,066,119
5,066,120
218 5,066,121
241 5,066,122
312 5,066,123
5,066,124
316 5,066,125
328 5,066,126
5,066,127
346 5,066,990
349 5,066,128
356 5,066,129
5,066,130
401 5,066,131
432 5,066,132

CLASS 357

13 5,066,991
23.5 5,066,992
23.7 5,066,993
24 5,066,994
42 5,066,995
43 5,066,996
45 5,066,997
51 5,066,998
5,066,999
53 5,067,000
54 5,067,001
59 5,067,002
68 5,067,003
71 5,067,004
72 5,067,005
74 5,067,006
5,067,007
81 5,067,008

CLASS 358

12 5,067,009
13 5,067,010
23 5,067,011
93 5,067,012
5,067,013
105 5,067,014
133 5,067,015
140 5,067,016
141 5,067,017
142 5,067,018
160 5,067,019
214 5,067,020
241 5,067,021
248 5,067,022
261.1 5,067,023
296 5,067,024
298 5,067,025
340 5,067,026
439 5,067,027
494 5,067,028
909 5,067,029

CLASS 359

43 5,066,104
45 5,066,107
54 5,066,109
5,066,110
58 5,066,105
59 5,066,106
65 5,066,108
152 5,067,173
213 5,066,083
5,066,084
267 5,066,112
275 5,066,111
361 5,066,082
457 5,066,099
540 5,066,098
569 5,066,100
570 5,066,133
630 5,066,102
638 5,066,101
649 5,066,113
665 5,066,114
676 5,066,115
823 5,066,103

CLASS 360

14.1 5,067,030
22 5,067,031
46 5,067,032
70 5,067,033
74.1 5,067,034
85 5,067,035
96.5 5,067,036
103 5,067,037
107 5,067,038
135 5,067,039

CLASS 361

19 5,067,044
56 5,067,045
220 5,067,046
361 5,067,043
384 5,067,040
5,067,047
394 5,067,041
406 5,067,042
540 5,067,048

CLASS 362

18 5,067,049
30 5,067,050
34 5,067,051
61 5,067,052
5,067,053
5,067,054
66 5,067,055
5,067,056
83.2 5,067,057
83.3 5,067,058
101 5,067,059
5,067,060
145 5,067,061
146 5,067,062
156 5,067,063
277 5,067,064
369 5,067,065

CLASS 363

16 5,067,066

CLASS 364

156 5,067,067
410 5,067,079
431.04 5,067,080
444 5,067,081
449 5,067,082
453 5,067,083
5,067,084
474.06 5,067,085
474.08 5,067,086
474.24 5,067,087
478 5,067,088
486 5,067,089
5,067,090
490 5,067,091
496 5,067,092
498 5,067,093
510 5,067,094
517 5,067,096
550 5,067,099
571.01 5,067,100
578 5,067,101
709.12 5,067,102
709.16 5,067,103

CLASS 365

185 5,067,108
189.05 5,067,109
189.07 5,067,110
189.08 5,067,111

CLASS 366

102 5,066,134
208 5,066,135
209 5,066,136
336 5,066,137

CLASS 367

43 5,067,112
50 5,067,113
81 5,067,114
99 5,067,115

CLASS 369

37 5,067,116
44.27 5,067,118
47 5,067,119
59 5,067,120
75.2 5,067,121
112 5,066,138
116 5,067,117
5,067,122

CLASS 370

58.1 5,067,123
5,067,127
60 5,067,124
79 5,067,125
112 5,067,126

CLASS 371

5.5 5,067,128
16.1 5,067,129
20.1 5,066,139
22.1 5,067,130
40.1 5,067,131
52 5,067,132
53 5,067,133

CLASS 372

6 5,067,134
83 5,067,135

CLASS 374

134 5,066,140
169 5,066,141
208 5,066,142

CLASS 375

1 5,067,136
14 5,067,137
77 5,067,140
81 5,067,138
86 5,067,139
97 5,067,141

CLASS 376

237 5,066,451
252 5,066,452
352 5,066,453

CLASS 378

99 5,067,142
110 5,067,143
146 5,067,144
198 5,067,145
199 5,067,146

CLASS 379

60 5,067,147
111 5,067,148
224 5,067,149
354 5,067,150
433 5,067,151

CLASS 380

10 5,067,152
23 5,067,153
25 5,067,154
5,067,155
46 5,067,156

CLASS 381

13 5,067,157
51 5,067,158
90 5,067,159

CLASS 382

1 5,067,160
5,067,161
5 5,067,162
6 5,067,163
15 5,067,164
19 5,067,165
37 5,067,166
46 5,067,167
53 5,067,168

CLASS 383

4 5,066,143

CLASS 384

117 5,066,144
463 5,066,145
473 5,066,146
585 5,066,147

CLASS 385

24 5,066,148
25 5,066,088
33 5,066,092
5,066,093
35 5,066,089
5,066,090
41 5,066,086
43 5,066,087
58 5,066,096
73 5,066,094
76 5,066,097
98 5,066,091
99 5,066,095
115 5,066,085
135 5,066,149

CLASS 392

406 5,067,169
461 5,067,170

CLASS 395

24 5,067,095
115 5,067,097
126 5,067,098
146 5,067,070
200 5,067,074
275 5,067,071
5,067,076
375 5,067,069
5,067,073
5,067,104
400 5,067,077
5,067,078
5,067,105
425 5,067,075
500 5,067,107
575 5,067,106
650 5,067,068
5,067,072

CLASS 400

157.3 5,066,150
605 5,066,151
621 5,066,152
5,066,153

CLASS 401

131 5,066,154
175 5,066,155
213 5,066,156
288 5,066,157

CLASS 402

4 5,066,158

CLASS 403

134 5,066,159
140 5,066,160
172 5,066,161
361 5,066,162

CLASS 404

10 5,066,163

CLASS 405

66 5,066,164
119 5,066,165
128 5,066,166
150.1 5,066,167
249 5,066,168
266 Re.33,747
284 5,066,169

CLASS 407

54 5,066,170

CLASS 408

1 R 5,066,171
5,066,172
59 5,066,173
79 5,066,174
231 5,066,175

CLASS 409

133 5,066,176
178 5,066,177
233 5,066,178

CLASS 411

34 5,066,179
103 5,066,180
383 5,066,181

CLASS 412

3 5,066,182
4 5,066,183

CLASS 413

4 5,066,184

CLASS 414

18 5,066,185
221 5,066,186
237 5,066,187
339 5,066,188
416 5,066,189
799 5,066,190

CLASS 415

35 5,066,191
112 5,066,192
201 5,066,193
223 5,066,194

CLASS 416

200 R 5,066,195
241 A 5,066,196

CLASS 417

18 5,066,197
54 5,066,198
63 5,066,199
5,066,200
222 R 5,066,201
228 5,066,202
318 5,066,203
413 5,066,204

CLASS 418

1 5,066,205
55.3 5,066,206
171 5,066,207

CLASS 419

42 5,066,454

CLASS 420

58.8 5,066,459
100 5,066,455
472 5,066,456
552 5,066,457
586 5,066,458

CLASS 422

7 5,066,460
16 5,066,461
56 5,066,462
5,066,463
58 5,066,464
5,066,465
98 5,066,466
140 5,066,467
266 5,066,468

CLASS 423

150 5,066,469
242 5,066,470
319 5,066,471
342 5,066,472
344 5,066,473
479 5,066,477
541 R 5,066,474
622 5,066,475
648.1 5,066,476

CLASS 424

1.1 5,066,478
5,066,479
10 5,066,480
45 5,066,482
47 5,066,481
54 5,066,483
61 5,066,484
63 5,066,485
5,066,486
325 5,066,567
5,066,568
393 5,066,569
421 5,066,570
489 5,066,571
503 5,066,572
542 5,066,573
557 5,066,574
558 5,066,575
5,066,576
562 5,066,577

CLASS 426

2 5,066,498
19 5,066,499
20 5,066,218
72 5,066,500
74 5,066,501
75 5,066,502
234 5,066,503
417 5,066,504
438 5,066,505
450 5,066,506
481 5,066,507
584 5,066,508
592 5,066,509
607 5,066,510
658 5,066,511

CLASS 427

14.1 5,066,512
37 5,066,513
38 5,066,514
53.1 5,066,515
118 5,066,516
197 5,066,517
236 5,066,518
379 5,066,520
387 5,066,521
422 5,066,522
423 5,066,523

CLASS 428

15 5,066,524
29 5,066,525
35.2 5,066,526
35.6 5,066,527
36.92 5,066,528
40 5,066,529
98 5,066,530
131 5,066,531
137 5,066,532
156 5,066,533
196 5,066,535
212 5,066,534
216 5,066,536
246 5,066,537
288 5,066,538
328 5,066,539
336 5,066,540
378 5,066,541
412 5,066,543
461 5,066,542
614 5,066,544
626 5,066,545
627 5,066,546
5,066,547
629 5,066,548
653 5,066,549
670 5,066,550
690 5,066,551
694 5,066,552
698 5,066,553

CLASS 429

48 5,066,554
121 5,066,555
194 5,066,556
349 5,066,519

CLASS 430

58 5,066,557
109 5,066,558
111 5,066,559
137 5,066,560
5,066,821
169 5,066,561
203 5,066,562
213 5,066,563
284 5,066,564
296 5,066,565
5,066,566
325 5,066,567
5,066,568
393 5,066,569
421 5,066,570
489 5,066,571
503 5,066,572
542 5,066,573
557 5,066,574
558 5,066,575
5,066,576
562 5,066,577

CLASS 431

10 5,066,219
277 5,066,220
280 5,066,221
71 5,066,210
122 5,066,211
145 5,066,212
175 5,066,213
190 5,066,214
464 5,066,215
562 5,066,216
589 5,066,217

CLASS 432

5 5,066,222
160 5,066,229
184 5,066,223

CLASS 433

7 5,066,224
8 5,066,225
19 5,066,226
26 5,066,227
91 5,066,228
165 5,066,230
214 5,066,231
224 5,066,232

CLASS 434

188 5,066,233
205 5,066,234

CLASS 435

1 5,066,578
5 5,066,579
7.1 5,066,582
7.24 5,066,581
18 5,066,583
91 5,066,584
119 5,066,586
172.1 5,066,587
172.3 5,066,588
5,066,589
180 5,066,590
189 5,066,591
240.2 5,066,592
240.27 5,066,593
240.4 5,066,594
240.45 5,066,595
252.33 5,066,596
311 5,066,597
721 5,066,580

CLASS 436

2 5,066,598
52 5,066,600
64 5,066,601

CLASS 437

7 5,066,599
29 5,066,603
31 5,066,602
44 5,066,604
51 5,066,605
52 5,066,606
5,066,607
5,066,608
5,066,609
83 5,066,610
173 5,066,611
192 5,066,612
200 5,066,613
209 5,066,614
229 5,066,615
5,066,616

CLASS 439

76 5,066,235
79 5,066,236
82 5,066,237
139 5,066,238
164 5,066,239
181 5,066,240
260 5,066,241
264 5,065,941
281 5,066,242
460 5,066,243
489 5,066,244
526 5,066,245
562 5,066,246
565 5,066,247
578 5,066,248
585 5,066,249
681 5,066,250
701 5,066,251
752 5,066,252
5,066,253

CLASS 440

72 5,066,254
112 5,066,255

CLASS 441

7 5,066,256

CLASS 445

26 5,066,257

CLASS 446

40 5,066,258
385 5,066,259
397 5,066,260

CLASS 453

57 5,066,261
5,066,262

CLASS 455

33 5,067,171
34 5,067,172

CLASS 464

96 5,066,263

CLASS 474

152 5,066,264
206 5,066,265

CLASS 475

59 5,066,266
168 5,066,267
249 5,066,268

CLASS 493

183 5,066,269
435 5,066,270

CLASS 494

58 5,066,271

CLASS 501

1 5,066,637
3 5,066,619
21 5,066,620
41 5,066,621
87 5,066,622
97 5,066,623
107 5,066,624
127 5,066,618
5,066,625
128 5,066,626
134 5,066,617

CLASS 502

43 5,066,627
66 5,066,628
84 5,066,629
85 5,066,630
152 5,066,631
223 5,066,632

CLASS 503

209 5,066,633
5,066,634

CLASS 505

1 5,066,635
5,066,636
5,066,638

CLASS 512

13 5,066,639
21 5,066,640
25 5,066,641

CLASS 514

18 5,066,642
5,066,643
5,066,644
19 5,066,645
27 5,066,646
31 5,066,647
110 5,066,648
174 5,066,649
183 5,066,650
185 5,066,808
231.5 5,066,651
235.5 5,066,652
235.8 5,066,653
242 5,066,654
256 5,066,655
261 5,066,656
269 5,066,657
5,066,658
278 5,066,659
323 5,066,660
326 5,066,663
361 5,066,661
364 5,066,662
377 5,066,664
380 5,066,665
5,066,666
381 5,066,667
384 5,066,668
449 5,066,669
450 5,066,670
453 5,066,671
513 5,066,672
521 5,066,673
529 5,066,674
544 5,066,675
562 5,066,676
563 5,066,677
597 5,066,678
618 5,066,679
622 5,066,680
716 5,066,681

CLASS 521

27 5,066,682
54 5,066,683
64 5,066,684
163 5,066,685
176 Re.33,748

CLASS 522

249 5,066,820

CLASS 523

102 5,066,686
205 5,066,687
415 5,066,688
5,066,689
423 5,066,690
438 5,066,691
458 5,066,692
466 5,066,693

CLASS 524

60 5,066,694
87 5,066,695
91 5,066,696
233 5,066,697
269 5,066,698
379 5,066,699
380 5,066,700
417 5,066,701
426 5,066,702
437 5,066,703
449 5,066,704
457 5,066,705
459 5,066,706
490 5,066,707
504 5,066,708
516 5,066,709
555 5,066,710
556 5,066,711
563 5,066,712
591 5,066,713
731 5,066,714
812 5,066,715

CLASS 525

54.1 5,066,716
67 5,066,717
84 5,066,718
92 5,066,719
100 Re.33,749
5,066,720
102 5,066,721
162 5,066,722
194 5,066,723
227 5,066,724
240 5,066,725
263 5,066,726
296 5,066,727
314 5,066,728
315 5,066,729
319 5,066,730
417 5,066,731
440 5,066,732
455 5,066,733
478 5,066,734
482 5,066,735

CLASS 526

82 5,066,736
119 5,066,737
124 5,066,738
127 5,066,739
160 5,066,740
171 5,066,741
215 5,066,743
216 5,066,742
228 5,066,744
240 5,066,745
242 5,066,746
249 5,066,747
258 5,066,748
271 5,066,749
273 5,066,750
279 5,066,751
293 5,066,752
310 5,066,753
336 5,066,754
348.1 5,066,755

CLASS 528

32 5,066,756
45 5,066,757
5,066,758
51 5,066,760
60 5,066,759
64 5,066,761
85 5,066,762
92 5,066,763
122 5,066,764
185 5,066,765
190 5,066,766
193 5,066,767
230 5,066,768
337 5,066,769
353 5,066,770
5,066,771
354 5,066,772
362 5,066,773
388 5,066,774
5,066,775
5,066,776
392 5,066,777
5,066,778
396 5,066,779
481 5,066,780
5,066,781

CLASS 530

324 5,066,782
328 5,066,783
334 5,066,784
345 5,066,785
351 5,066,786
380 5,066,787
381 5,066,788
388 5,066,789
502 5,066,790

CLASS 534

772 5,066,791

CLASS 536

27 5,066,792
50 5,066,793
55.3 5,066,794

CLASS 540

1 5,066,795
106 5,066,426
140 5,066,796
215 5,066,797
225 5,066,798
226 5,066,799
471 5,066,800
523 5,066,801

CLASS 544

32 5,066,802
101 5,066,803
173 5,066,804
277 5,066,805

CLASS 546

180 5,066,806
183 5,066,807
250 5,066,809
300 5,066,810

CLASS 548

119 5,066,811
128 5,066,812
182 5,066,813
407 5,066,814

CLASS 549

319 5,066,815
331 5,066,816
384 5,066,817
389 5,066,818
438 5,066,819

CLASS 558

389 5,066,822

CLASS 560

13 5,066,823
44 5,066,824
56 5,066,825
60 5,066,826
163 5,066,827
171 5,066,828
217 5,066,829

CLASS 600

9 5,066,272

CLASS 604

20 5,066,274
51 5,066,276
110 5,066,277
5,066,279
5,066,280
5,066,281
152 5,066,282
5,066,283
164 5,066,285
168 5,066,284
240 5,066,286
5,066,287
256 5,066,278
274 5,066,288
389 5,066,289
408 5,066,290

CLASS 606

3 5,066,291
7 5,066,292
9 5,066,293
11 5,066,294
47 5,066,295
64 5,066,296
107 5,066,297
194 5,066,298
213 5,066,299

CLASS 623

3 5,066,300
6 5,066,301
7 5,066,302
8 5,066,303
22 5,066,304
55 5,066,305

CLASS 800

230 5,066,830

D1— 116 321,580
D2— 244 321,581
267 321,582
277 321,583
321,584
314 321,585
321,586
320 321,587
321,588
321,589
321,590
627 321,591
D3— 12 321,592
71 321,593
77 321,594
106 321,595
D4— 114 321,596
D5— 55 321,597
61 321,598
D6— 333 321,599
361 321,601
362 321,600
379 321,602
321,603
381 321,604
396 321,605
397 321,606
407 321,607
321,608
408 321,609
419 321,610
433 321,611
438 321,612

D7— 317 321,623
321 321,624
360 321,625
510 321,626
596 321,627
608 321,628
622 321,654
679 321,629
321,630
D8— 10 321,631
41 321,632
70 321,633
321,634
71 321,635
75 321,636
105 321,637
307 321,638
373 321,639
D9— 318 321,640
321,641
329 321,642
333 321,643
321,644
440 321,613
475 321,614
479 321,615
491 321,616
501 321,617
574 321,618
321,619
321,620
321,621
321,622
D10— 2 321,655
6 321,656
7 321,657
321,658
8 321,659
10 321,660
18 321,661
321,662
321,663
30 321,664
32 321,665
321,666
40 321,667
321,668
44 321,669
D11— 117 321,671
130.1 321,670
157 321,672
200 321,673
D12— 5 321,674
85 321,675
110 321,676
117 321,677
321,645
337 321,646
339 321,647
341 321,648
353 321,649
374 321,650
403 321,651
D14— 115 321,684
429 321,652
434 321,653
159 321,686
165 321,687
170 321,688
188 321,689
191 321,690
321,691
226 321,692
234 321,693
D15— 69 321,694
70 321,695
72 321,696
82 321,697
141 321,698
149 321,699
D16— 102 321,701
104 321,700
107 321,702
112 321,703
200 321,704
208 321,705
D18— 4 321,706
34 321,715
43 321,716
49 321,712
131 321,678
196 321,679
D13— 103 321,680
108 321,681
155 321,682
173 321,683
115 321,685
143 321,685
D19— 36 321,717
48 321,718
321,719
51 321,720
59 321,721
64 321,722
D20— 1 321,723
19 321,724
D21— 22 321,725
34 321,726
48 321,727
64 321,728
321,729
321,730
87 321,732
171 321,731
191 321,733
192 321,734
195 321,735
200 321,736
201 321,737
219 321,738
238 321,742
D22— 128 321,739
133 321,740
54 321,707
321,708
321,709
321,710
321,711
321,713
321,714
D23— 209 321,745
221 321,746
225 321,747
235 321,748
236 321,749
241 321,750
242 321,751
321,752
284 321,753
292 321,754
305 321,755
321,756
311 321,757
388 321,743
D24— 127 321,758
130 321,759
187 321,761
190 321,760
D26— 2 321,762
37 321,763
63 321,764
138 321,765
D28— 25 321,766
64 321,767
D30— 114 321,768
132 321,769
D32— 25 321,770
55 321,771
D34— 1 321,772
17 321,773
141 321,741
142 321,744

P.— 34 7,714
7,715
86 7,716

VOL 1132 ISS 3 NO 19 1991 UMI

VOL
1132

ISS
3

NO
19

1991

UMI

GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 : 5,065,838	5,065,936	5,066,502	5,066,127	5,065,894	5,067,088
5,066,177	5,065,960	5,066,517	5,066,155	5,065,930	5,067,139
5,066,220	5,065,962	5,066,541	5,066,483	5,065,964	5,067,172
5,067,116	5,065,975	5,066,552	5,066,909	5,065,965	18 : 5,065,675
02 : 5,065,699	5,065,976	5,066,578	5,067,145	5,066,063	5,065,734
04 : 5,065,483	5,065,983	5,066,579	09 : 5,065,462	5,066,254	5,065,782
5,065,704	5,066,002	5,066,580	5,065,473	5,066,285	5,065,832
5,065,890	5,066,011	5,066,584	5,065,490	5,066,313	5,065,968
5,066,009	5,066,013	5,066,591	5,065,515	5,066,456	5,066,066
5,066,046	5,066,017	5,066,593	5,065,550	5,066,471	5,066,182
5,066,157	5,066,020	5,066,595	5,065,794	5,066,588	5,066,304
5,066,234	5,066,032	5,066,613	5,065,895	5,066,655	5,066,707
5,066,294	5,066,034	5,066,621	5,065,998	5,066,882	5,066,752
5,066,353	5,066,069	5,066,664	5,066,025	5,066,922	5,066,807
5,066,359	5,066,084	5,066,684	5,066,133	5,066,949	5,066,838
5,066,405	5,066,104	5,066,748	5,066,169	5,066,995	5,066,868
5,066,521	5,066,108	5,066,785	5,066,180	5,067,041	5,066,906
5,066,907	5,066,114	5,066,855	5,066,279	5,067,045	5,066,944
5,066,991	5,066,118	5,066,858	5,066,281	5,067,084	5,067,063
5,067,002	5,066,125	5,066,859	5,066,307	5,067,152	4,800,279
5,067,073	5,066,135	5,066,865	5,066,318	13 : 5,065,943	19 : 5,065,569
5,067,095	5,066,137	5,066,866	5,066,366	5,065,958	5,065,646
05 : 5,066,635	5,066,139	5,066,871	5,066,368	5,066,082	5,065,681
06 : 5,065,459	5,066,140	5,066,873	5,066,416	5,066,146	5,065,701
5,065,460	5,066,142	5,066,900	5,066,424	5,066,165	5,065,802
5,065,482	5,066,161	5,066,901	5,066,464	16 : 5,066,491	5,065,865
5,065,487	5,066,166	5,066,905	5,066,497	5,066,606	5,066,030
5,065,517	5,066,179	5,066,921	5,066,522	5,066,611	5,066,674
5,065,518	5,066,208	5,066,926	5,066,533	5,066,999	20 : 5,065,488
5,065,544	5,066,218	5,066,928	5,066,659	5,067,055	5,065,649
5,065,561	5,066,227	5,066,952	5,066,743	17 : 5,065,484	5,066,648
5,065,585	5,066,237	5,066,958	5,066,833	5,065,574	21 : 5,065,461
5,065,603	5,066,246	5,066,984	5,066,895	5,065,577	5,065,567
5,065,619	5,066,250	5,066,992	5,067,043	5,065,654	5,065,678
5,065,627	5,066,259	5,067,037	5,067,100	5,065,679	5,065,731
5,065,655	5,066,276	5,067,039	5,067,148	5,065,723	5,065,791
5,065,672	5,066,296	5,067,060	5,067,155	5,065,752	5,065,919
5,065,673	5,066,297	5,067,079	10 : 5,066,085	5,065,755	5,066,003
5,065,686	5,066,298	5,067,107	5,066,356	5,065,757	5,066,004
5,065,700	5,066,310	5,067,108	5,066,417	5,065,798	5,066,080
5,065,713	5,066,337	5,067,110	5,066,418	5,065,874	5,066,306
5,065,737	5,066,339	5,067,114	5,066,430	5,065,911	5,066,360
5,065,761	5,066,358	5,067,132	5,066,433	5,065,937	5,066,437
5,065,763	5,066,371	5,067,136	5,066,618	5,065,945	5,066,498
5,065,765	5,066,391	5,067,140	5,066,622	5,066,035	5,066,531
5,065,772	5,066,396	5,067,141	12 : 5,065,537	5,066,150	22 : 5,065,661
5,065,783	5,066,408	5,067,147	5,065,540	5,066,200	5,065,735
5,065,786	5,066,450	5,067,149	5,065,560	5,066,290	5,065,827
5,065,788	5,066,469	5,067,162	5,065,747	5,066,393	5,066,224
5,065,795	5,066,474	08 : 5,065,615	5,065,748	5,066,426	5,066,407
5,065,816	5,066,479	5,065,817	5,065,753	5,066,628	5,066,631
5,065,824	5,066,482	5,066,005	5,065,805	5,066,679	5,066,632
5,065,881	5,066,489	5,066,067	5,065,856	5,066,923	5,067,103

24 : 5,065,581 5,065,621 5,065,685 5,065,813 5,065,974 5,066,001 5,066,018 5,066,026 5,066,148 5,066,272 5,066,363 5,066,490 5,066,716 5,066,925 5,066,930 5,066,935 5,066,956
25 : 5,065,611 5,065,651 5,065,684 5,065,690 5,065,703 5,065,769 5,065,819 5,065,889 5,065,956 5,065,992 5,066,047 5,066,156 5,066,293 5,066,326 5,066,364 5,066,372 5,066,375 5,066,387 5,066,442 5,066,496 5,066,537 5,066,545 5,066,597 5,066,603 5,066,610 5,066,643 5,066,892 5,066,937 5,067,004 5,067,047 5,067,069 5,067,071 5,067,144 5,067,169
26 : Re.33,747 Re.33,749 5,065,469 5,065,519 5,065,527 5,065,545 5,065,556 5,065,562 5,065,579 5,065,590 5,065,604 5,065,616 5,065,622 5,065,640 5,065,647 5,065,691 5,065,721 5,065,730 5,065,732 5,065,738 5,065,785 5,065,907 5,065,909 5,065,954 5,065,972 5,065,979 5,066,010 5,066,022 5,066,038 5,066,044 5,066,050 5,066,056 5,066,061 5,066,112 5,066,159 5,066,160 5,066,170 5,066,172 5,066,178 5,066,214 5,066,257 5,066,311 5,066,317 5,066,390 5,066,409 5,066,444 5,066,520 5,066,587 5,066,662 5,066,663 5,066,665 5,066,668 5,066,688 5,066,693

5,066,699 5,066,703 5,066,732 5,066,741 5,066,761 5,066,845 5,066,849 5,066,919 5,066,941 5,067,057 3,578,264
27 : 5,065,516 5,065,570 5,065,587 5,065,793 5,066,012 5,066,033 5,066,078 5,066,098 5,066,231 5,066,289 5,066,299 5,066,325 5,066,400 5,066,501 5,066,506 5,066,529 5,066,559 5,066,614 5,066,690 5,066,831 5,066,841 5,067,096 5,067,105 5,067,106
28 : 5,065,694
29 : 5,065,539 5,065,557 5,065,566 5,065,595 5,065,670 5,065,736 5,065,922 5,066,100 5,066,168 5,066,258 5,066,638
30 : 5,065,923 5,066,585
31 : 5,067,065
32 : 5,065,618 5,066,261 5,066,382 5,067,058
33 : 5,065,502 5,066,037 5,066,454 5,066,528 5,066,869 5,066,891 5,066,904
34 : Re.33,746 5,065,559 5,065,733 5,065,840 5,065,844 5,065,845 5,065,861 5,065,872 5,065,876 5,065,931 5,065,933 5,065,938 5,066,006 5,066,016 5,066,031 5,066,049 5,066,091 5,066,216 5,066,225 5,066,288 5,066,373 5,066,395 5,066,413 5,066,441 5,066,481 5,066,484 5,066,485 5,066,486 5,066,488 5,066,493 5,066,499 5,066,511 5,066,561 5,066,566 5,066,568 5,066,581 5,066,586 5,066,594 5,066,627 5,066,639 5,066,641 5,066,671 5,066,694 5,066,698

5,066,709 5,066,749 5,066,753 5,066,767 5,066,772 5,066,800 5,066,830 5,066,840 5,066,887 5,067,012 5,067,014 5,067,074 5,067,099 5,067,104 5,067,164 5,067,173
35 : 5,065,521 5,066,431 5,066,565 5,066,917
36 : 5,065,470 5,065,489 5,065,549 5,065,553 5,065,586 5,065,591 5,065,593 5,065,614 5,065,630 5,065,634 5,065,756 5,065,779 5,065,830 5,065,866 5,065,867 5,065,875 5,065,898 5,065,899 5,065,905 5,065,927 5,065,940 5,065,952 5,065,977 5,065,996 5,065,997 5,066,021 5,066,045 5,066,122 5,066,194 5,066,215 5,066,228 5,066,230 5,066,233 5,066,241 5,066,248 5,066,338 5,066,345 5,066,346 5,066,362 5,066,367 5,066,370 5,066,376 5,066,412 5,066,434 5,066,440 5,066,459 5,066,465 5,066,470 5,066,512 5,066,544 5,066,557 5,066,572 5,066,600 5,066,633 5,066,650 5,066,658 5,066,711 5,066,719 5,066,756 5,066,796 5,066,799 5,066,803
37 : 5,065,600 5,065,774 5,065,775 5,065,776

5,065,777 5,065,796 5,065,870 5,066,211 5,066,336 5,066,429 5,066,527 5,066,697 5,066,843
39 : 5,065,472 5,065,531 5,065,535 5,065,565 5,065,606 5,065,607 5,065,648 5,065,650 5,065,652 5,065,677 5,065,695 5,065,696 5,065,837 5,065,842 5,065,862 5,065,888 5,065,901 5,065,913 5,065,929 5,065,942 5,065,947 5,066,051 5,066,081 5,066,175 5,066,212 5,066,284 5,066,291 5,066,295 5,066,300 5,066,301 5,066,321 5,066,352 5,066,354 5,066,386 5,066,414 5,066,419 5,066,425 5,066,446 5,066,448 5,066,455 5,066,461 5,066,510 5,066,538 5,066,549 5,066,625 5,066,647 5,066,705 5,066,729 5,066,730 5,066,740 5,066,769 5,066,809 5,066,828 5,066,898 5,066,940 5,067,098
40 : 5,065,739 5,065,789 5,065,814 5,065,848 5,065,860 5,065,917 5,065,984 5,066,277 5,066,385 5,066,411 5,066,460 5,066,589 5,066,686 5,066,739 5,066,774 5,067,113
41 : 5,065,513 5,065,558 5,065,620 5,065,643 5,065,658 5,065,758 5,066,226 5,066,357 5,066,616 5,067,102 5,067,130
42 : 5,065,496 5,065,497 5,065,501 5,065,514 5,065,542 5,065,602 5,065,635 5,065,668 5,065,680 5,065,692 5,065,702 5,065,751

5,065,768 5,065,883 5,065,897 5,065,904 5,065,925 5,065,970 5,065,981 5,065,986 5,065,990 5,065,994 5,066,028 5,066,088 5,066,111 5,066,145 5,066,164 5,066,174 5,066,245 5,066,249 5,066,328 5,066,342 5,066,361 5,066,374 5,066,422 5,066,428 5,066,447 5,066,451 5,066,458 5,066,480 5,066,513 5,066,540 5,066,546 5,066,554 5,066,615 5,066,656 5,066,683 5,066,696
49 : 5,066,733 5,066,742 5,066,764 5,066,818 5,066,821 5,066,824 5,066,835 5,066,846
50 : 5,066,886 5,066,912 5,066,913 5,066,929 5,066,998
51 : 5,067,021 5,067,044 5,067,064
43 : 5,065,863 5,066,008
44 : 5,065,688 5,065,864 5,066,144
45 : 5,065,464 5,065,466 5,066,260 5,066,308 5,066,331 5,066,350 5,066,535
52 : 5,065,596
53 : 5,065,597 5,065,921 5,066,286 5,066,287 5,066,330 5,066,334 5,066,766 5,066,852 5,067,094
48 : 5,065,468 5,065,504 5,065,541 5,065,543 5,065,617 5,065,666 5,065,771 5,065,773
54 : 5,065,778
55 : 5,065,781 5,065,787 5,065,818 5,065,820 5,065,821 5,065,822 5,065,880 5,065,893 5,065,932 5,065,987 5,066,000 5,066,015 5,066,048 5,066,052 5,066,053 5,066,059 5,066,060 5,066,163 5,066,188 5,066,189 5,066,198

5,066,199 5,066,240 5,066,269 5,066,282 5,066,380 5,066,443 5,066,467 5,066,478 5,066,526 5,066,542 5,066,543 5,066,598 5,066,607 5,066,701 5,066,723 5,066,726 5,066,735 5,066,737 5,066,738 5,066,746 5,066,750 5,066,765 5,066,792 5,066,804 5,066,829 5,066,851 5,066,856 5,066,872 5,066,916 5,067,019 5,067,061 5,067,072 5,067,085 5,067,090 5,067,112 5,067,158
49 : 5,065,754 5,065,892 5,065,961 5,066,036 5,066,065 5,066,071 5,066,274 5,066,939
50 : 5,065,623 5,065,662 5,065,900 5,066,205
51 : 5,065,458 5,065,485 5,065,538 5,065,891 5,065,939 5,066,079 5,066,143 5,066,153 5,066,270 5,066,445 5,066,452 5,066,654 5,066,773 5,066,790 5,066,811
52 : 5,065,879
53 : 5,065,608 5,065,626 5,065,750 5,065,896 5,065,948 5,065,959 5,065,966 5,066,197 5,066,213 5,066,302 5,066,305 5,066,351 5,066,388 5,066,789 5,066,822 5,066,911 5,066,943
54 : 5,065,908 5,066,256
55 : 5,065,529 5,065,568 5,065,584 5,065,653 5,065,656 5,065,676 5,065,887 5,066,007 5,066,149 5,066,176 5,066,303 5,066,324 5,066,348 5,066,349 5,066,379 5,066,394 5,066,583 5,066,724 5,066,728 5,066,832 5,066,914

01 : 321,603
04 : 321,613
05 : 321,606 321,762
06 : 321,609 321,610 321,646 321,677 321,690 321,691 321,702 321,721 321,726 321,733 321,748 321,755 321,758 321,765 321,770
08 : 321,595 321,760
09 : 321,588 321,751 321,752
12 : 321,692 321,746 321,749
13 : 321,654 321,757
17 : 321,627 321,651 321,683 321,715 321,766
18 : 321,671
20 : 321,735
21 : 321,580 321,700
22 : 321,631
25 : 321,722
26 : 321,736
27 : 321,615 321,618 321,619 321,620 321,621 321,622 321,682 321,727 321,769
28 : 321,678
29 : 321,617 321,667 321,763 321,768
30 : 321,773
32 : 321,647
34 : 321,648 321,767
35 : 321,649 321,724
36 : 321,629 321,630 321,664 321,669 321,704 321,718 321,723 321,729 321,730
39 : 321,582 321,592 321,602 321,614 321,624 321,626
41 : 321,583 321,585 321,586 321,589 321,590 321,608 321,593 321,636 321,639 321,772
42 : 321,668 321,725 321,596 321,605 321,616
44 : 321,652 321,697 321,728 321,745 321,747 321,583 321,585 321,586 321,589 321,590 321,608 321,593 321,636 321,639 321,772
47 : 321,668 321,725 321,596 321,605 321,616
48 : 321,684 321,693 321,738
49 : 321,635
51 : 321,633
53 : 321,650 321,612 321,672 321,699 321,717 321,734 321,739 321,740
55 : 321,611 321,625 321,638 321,731 321,753 321,754 321,756

PLANT PATENTS

06 : 7,716

U.S. GOVERNMENT PRINTING OFFICE : 0–1991

VOL 1132 ISS 3 NO 19 1991 UMI

VOL
1132

ISS
3

NO
19

1991

UMI

CHANGE OF ADDRESS FORM

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

Mail this form to: NEW ADDRESS

Superintendent of Documents
Government Printing Office SSOM
Washington, D.C. 20402

Attach last subscription label here.

SUBSCRIPTION ORDER FORM

SUBSCRIPTION ORDER FORM

ENTER MY SUBSCRIPTION TO:

@ $ Domestic; @ $ Foreign.

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

☐ Remittance Enclosed (Make checks payable to Superintendent of Documents)

☐ Charge to my Deposit Account No. .....

MAIL ORDER FORM TO:
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

VOL
1132

ISS
3

NO
19

1991

UMI

VOL
1132

ISS
3

NO
19

1991

U.S. DEPARTMENT OF COMMERCE
Robert A. Mosbacher, *Secretary*
PATENT AND TRADEMARK OFFICE
Harry F. Manbeck, Jr., *Commissioner*

UMI

VOL
1132

ISS
4

NO
26

1991

UMI

Vol. 1132 Number 4

OFFICIAL GAZETTE

of the

UNITED STATES PATENT AND TRADEMARK OFFICE

Route to:

EVEREADY BATTERY
TECH.

DEC 05 1991

P.O. BOX 45035
WESTLAKE, OHIO 44

U.S.
DEPARTMENT
OF COMMERCE

Patent
and
Trademark
Office

November 26, 1991

PUBLISHED WEEKLY BY AUTHORITY OF CONGRESS

VOL
1132

ISS
4

NO
26

1991

UMI

OFFICIAL GAZETTE of the
UNITED STATES PATENT AND TRADEMARK OFFICE
November 26, 1991 Volume 1132 Number 4

CONTENTS

	Page
Patent and Trademark Office Notices	
Patent Cooperation Treaty (PCT) Information	1132 OG 42
Notice of Maintenance Fees Payable	1132 OG 42
Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees	1132 OG 43
Notification of Acceptance of Delayed Payment of Maintenance Fee	1132 OG 46
Reissue Applications Filed	1132 OG 46
Requests for Reexaminations Filed	1132 OG 47
Interference Practice: Consideration of Fraud and Inequitable Conduct	1132 OG 48
Telephone Changes for Deposit Account Status Line	1132 OG 48
Status of PTO Services	1132 OG 49
Patent Certificates of Correction	1132 OG 51
Special Boxes for Mail	1132 OG 52
Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries	1132 OG 53
Patent Examining Corps	1132 OG 55
Reexaminations	1807
Reissue Patents Granted (33,750)	1811
Plant Patents Granted (7,717)	1815
Patents Granted	
General and Mechanical (5,067,174)	1817
Chemical (5,067,966)	2091
Electrical (5,068,491)	2235
Design Patents Granted (321,774)	2385
Index of Patentees	PI 1
Indices of Reissue, Reexamination, Design and Plant Patents	PI 75
Classification of	
Patents (Including Reissues and Reexaminations)	PI 83
Designs, and Plants Applications	PI 87
Geographical Index of Residence of Inventors	
Patents (Including Reissues and Reexaminations)	PI 89
Designs and Plant Applications	PI 91
Change of Address Form and Subscription Order Form	PI 93

The following are mailed under direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402, to whom all subscriptions should be made payable and all communications addressed.
THE OFFICIAL GAZETTE (PATENT SECTION), issued weekly.
THE OFFICIAL GAZETTE (TRADEMARK SECTION), issued weekly.
GENERAL INFORMATION concerning PATENTS.
GENERAL INFORMATION concerning TRADEMARKS.

COPIES OF PATENTS are furnished by the Patent and Trademark Office at $1.50 each; PLANT PATENTS in color, $10.00 each; copies of TRADEMARKS at $1.50 each. Address orders to the Commissioner of Patents and Trademarks, Washington, D.C., 20231.

Printing authorized by Section 11(a)3 of Title 35, U.S. P.T.O.

For sale by the U.S. Government Printing Office
Superintendent of Documents, Mail Stop: SSOP, Washington, DC 20402-9328

VOL
1132
ISS
4
NO
26
1991
UMI

PATENT AND TRADEMARK OFFICE NOTICES

Patent Cooperation Treaty (PCT) Information

For information concerning PCT member countries, see the notice appearing in the *Official Gazette* at 1126 O.G. 2, on May 7, 1991.

For use of the European Patent Office as an International Searching Authority for international applications filed in the United States Receiving Office, see the notice appearing in the *Official Gazette* at 1022 O.G. 52, on Sept. 28, 1982.

For use of the European Patent Office as an International Preliminary Examining Authority for international applications filed in the United States Receiving Office, see the notices appearing in the *Official Gazette* at 1080 O.G. 2, on July 7, 1987 and at 1091 O.G. 2, on June 7, 1988. There is no longer a limit on the number of such international applications accepted for international preliminary examination by the European Patent Office; see the notice appearing at 1116 O.G. 32, on July 17, 1990.

The search fee of the European Patent Office was changed on July 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the German mark, and was announced in the *Official Gazette* at 1126 O. G. 76 on May 28, 1991.

International fees were changed on August 1, 1991, due to a difference in the exchange rate of the U.S. dollar in relation to the Swiss franc, and were announced in the *Official Gazette* at 1128 O.G. 46, on July 23, 1991.

Certain domestic PCT fees and charges for International Search and Preliminary Examination have been changed effective Apr. 17, 1989 and were announced in the *Official Gazette* at 1100 O.G. 24 on Mar. 7, 1989.

The current schedule of PCT fees (in U.S. dollars) is as follows:

Transmittal fee:	170.00
Search Fee	
U.S. Patent and Trademark Office (USPTO) as International Searching Authority (ISA)	
—No corresponding prior U.S. national application filed	550.00
—Corresponding prior U.S. national application filed	380.00
—Supplemental search fee, per additional invention	150.00
European Patent Office as ISA	1320.00
Preliminary examination fee	
USPTO as International Preliminary Examining Authority (IPEA)	
—Search fee paid to USPTO as ISA	400.00
—Additional examination fee, per additional invention	130.00
—ISA not the USPTO	600.00
—Additional examination fee, per additional invention	200.00
International fees	
Basic fee	490.00
Basic Supplemental fee (for each page over 30)	10.00
Designation fee per country or region for the first 10 national or regional offices	119.00
Designation fee for 11th and subsequent designations	No Charge
Handling fee	150.00

U.S. National Stage fees

	Small Entity	Regular
USPTO was IPEA	165.00	330.00
USPTO was ISA but not IPEA	185.00	370.00
USPTO was neither ISA nor IPEA	250.00	500.00
USPTO was IPEA and all claims presented satisfied provisions of PCT Article 33(2) to (4)	25.00	50.00
—For each independent claim in excess of 3	18.00	36.00
—For each claim in excess of 20	6.00	12.00
—For each application containing a multiple dependent claim	60.00	120.00
—Surcharge for filing national fee or oath or declaration after the time limit applicable under PCT Article 22 or 39(1)	60.00	120.00
—Processing fee for filing English translation after the time limit applicable under PCT Article 22 or 39(1)	30.00	30.00

June 27, 1991

HARRY F. MANBECK, Jr.
Assistant Secretary and Commissioner of Patents and Trademarks.

Notice of Maintenance Fees Payable

Title 37, Code of Federal Regulations, Section 1.362(d), effective Nov. 1, 1984, provides that maintenance fees may be paid without surcharge for a six-month period beginning 3, 7, and 11 years after the date of issue of patents based on application filed on or after Dec. 12, 1980. An additional six-month grace period is provided by 35 U.S.C. 41(b) and 37 CFR 1.362(e) for payment of the maintenance fee with the surcharge set forth in 37 CFR 1.20(k) or (l), as amended effective Apr. 17, 1989. If the maintenance fee is not paid in a patent requiring such payment the patent will expire on the 4th, 8th or 12th anniversary of the patent.

Attention is drawn to the patents which were issued on November 22, 1988 for which maintenance fees due at 3 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,785,476 through 4,787,098
Reissue Patents based on the above identified patents.

Attention is drawn to the patents which were issued on November 20, 1984 for which maintenance fees due at 7 years and six months may now be paid. The patents have patent numbers within the following ranges:

Utility Patents 4,483,019 through 4,484,358
Reissue Patents based on the above identified patents.

No maintenance fees are required for design or plant patents.

Payments of maintenance fees in patents should be directed to "Commissioner of Patents and Trademarks, Box M. Fee, Washington, D.C. 20231."

The current amounts of the maintenance fees due at 3 years and six months and seven years and six months are set forth in 37 CFR 1.20(e), and (f), as amended Nov. 5, 1990, which are reproduced below:

37 CFR § 1.20 Post-issuance fees and surcharges

"(e) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 4 years; the fee is due by three years and six months after the original grant.....$245.00

"(f) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant.....$495.00"

"(h) For maintaining an original or reissue patent except a design or plant patent, based on an application filed on or after Aug. 27,1982, in force beyond 4 years; the fee is due by three years and six months after the original grant:

By a small entity (§1.9(f)).....$415.00
By other than a small entity.....$830.00"

"(i) For maintaining an original or reissue patent, except a design or plant patent, based on an application filed on or after Aug. 27, 1982, in force beyond 8 years; the fee is due by seven years and six months after the original grant:

By a small entity (§1.9(f)).....$835.00
By other than a small entity.....$1670.00"

The amounts of the surcharges for paying the maintenance fee during the grace period or after the expiration of the patent are set forth in 37 CFR 1.20(k), (l) and (m), which are reproduced below:

"(k) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months , seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Dec. 12, 1980 and before Aug. 27, 1982.....$120.00"

"(l) Surcharge for paying a maintenance fee during the 6-month grace period following the expiration of three years and six months, seven years and six months, and eleven years and six months after the date of the original grant of a patent based on an application filed on or after Aug. 27, 1982:

By a small entity(§1.9(f)).....$60.00
By other than a small entity.....$120.00"

"(m) Surcharge for accepting a maintenance fee after expiration of a patent for non-timely payment of a maintenance fee where the delay is shown to the satisfaction of the Commissioner to have been unavoidable.....$550.00"

Notice of Expiration of Patents Due to Failure to Pay Maintenance Fees

35 U.S.C. 41 and 37 CFR 1.362(g) provide that if the required maintenance fee and any applicable surcharge are not paid in a patent requiring such payment, the patent will expire at the end of the 4th, 8th, or 12th anniversary of the grant of the patent depending on the first maintenance fee which was not paid.

According to the records of the Office, the patents listed below have expired due to failure to pay the required maintenance fee and any applicable surcharge.

PATENTS WHICH EXPIRED SEPTEMBER 8, 1991
DUE TO FAILURE TO PAY MAINTENANCE FEES

Patent Number	Serial Number	Issue Date
4,402,092	06/307,846	9/06/83
4,402,094	06/359,578	9/06/83
4,402,102	06/323,189	9/06/83
4,402,104	06/311,389	9/06/83
4,402,107	06/256,993	9/06/83
4,402,111	06/312,402	9/06/83
4,402,114	06/235,684	9/06/83
4,402,118	06/306,197	9/06/83
4,402,119	06/296,944	9/06/83
4,402,122	06/319,949	9/06/83
4,402,138	06/263,998	9/06/83
4,402,141	06/365,302	9/06/83
4,402,147	06/267,630	9/06/83
4,402,151	06/308,097	9/06/83
4,402,162	06/335,667	9/06/83
4,402,163	06/245,028	9/06/83
4,402,164	06/244,219	9/06/83
4,402,165	06/237,724	9/06/83
4,402,166	06/270,613	9/06/83
4,402,171	06/341,797	9/06/83
4,402,186	06/275,232	9/06/83
4,402,188	06/307,757	9/06/83
4,402,189	06/320,358	9/06/83
4,402,197	06/293,635	9/06/83
4,402,200	06/299,533	9/06/83
4,402,203	06/400,880	9/06/83
4,402,208	06/253,778	9/06/83
4,402,216	06/298,195	9/06/83
4,402,224	06/246,617	9/06/83
4,402,225	06/272,954	9/06/83
4,402,228	06/270,495	9/06/83
4,402,230	06/284,050	9/06/83
4,402,232	06/270,963	9/06/83
4,402,237	06/278,622	9/06/83
4,402,240	06/221,094	9/06/83
4,402,243	06/235,843	9/06/83
4,402,252	06/254,758	9/06/83
4,402,264	06/273,773	9/06/83
4,402,275	06/298,726	9/06/83
4,402,277	06/321,057	9/06/83
4,402,279	06/341,986	9/06/83
4,402,284	06/238,572	9/06/83
4,402,294	06/343,495	9/06/83
4,402,302	06/275,439	9/06/83
4,402,303	06/343,579	9/06/83
4,402,304	06/303,908	9/06/83
4,402,305	06/236,656	9/06/83
4,402,316	06/257,537	9/06/83
4,402,322	06/247,481	9/06/83
4,402,323	06/262,882	9/06/83
4,402,329	06/306,050	9/06/83
4,402,332	06/218,393	9/06/83
4,402,334	06/330,538	9/06/83
4,402,336	06/261,614	9/06/83
4,402,342	06/312,325	9/06/83
4,402,347	06/254,155	9/06/83
4,402,348	06/252,042	9/06/83
4,402,354	06/406,693	9/06/83
4,402,360	06/324,457	9/06/83
4,402,361	06/293,195	9/06/83
4,402,364	06/331,531	9/06/83
4,402,367	06/273,968	9/06/83
4,402,374	06/304,030	9/06/83
4,402,375	06/222,169	9/06/83
4,402,377	06/298,124	9/06/83
4,402,382	06/262,110	9/06/83
4,402,392	06/294,098	9/06/83
4,402,408	06/380,520	9/06/83
4,402,413	06/322,897	9/06/83
4,402,414	06/219,552	9/06/83
4,402,415	06/312,072	9/06/83
4,402,422	06/320,108	9/06/83
4,402,424	06/327,574	9/06/83
4,402,431	06/226,143	9/06/83
4,402,434	06/338,597	9/06/83
4,402,436	06/282,164	9/06/83
4,402,443	06/253,318	9/06/83
4,402,444	06/255,837	9/06/83
4,402,449	06/392,642	9/06/83
4,402,453	06/277,111	9/06/83
4,402,457	06/288,729	9/06/83
4,402,462	06/270,269	9/06/83
4,402,465	06/269,587	9/06/83

VOL
1132
ISS
4
NO
26
1991
UMI

Patent Number	Serial Number	Issue Date
4,402,466	06/264,169	9/06/83
4,402,478	06/239,361	9/06/83
4,402,490	06/361,124	9/06/83
4,402,495	06/311,500	9/06/83
4,402,499	06/349,864	9/06/83
4,402,515	06/359,145	9/06/83
4,402,518	06/313,954	9/06/83
4,402,522	06/241,556	9/06/83
4,402,523	06/237,073	9/06/83
4,402,525	06/276,293	9/06/83
4,402,530	06/295,656	9/06/83
4,402,532	06/218,179	9/06/83
4,402,533	06/258,204	9/06/83
4,402,539	06/230,166	9/06/83
4,402,544	06/337,531	9/06/83
4,402,553	06/250,544	9/06/83
4,402,568	06/232,659	9/06/83
4,402,569	06/267,732	9/06/83
4,402,573	06/274,988	9/06/83
4,402,574	06/255,630	9/06/83
4,402,577	06/233,566	9/06/83
4,402,578	06/281,416	9/06/83
4,402,584	06/351,034	9/06/83
4,402,590	06/282,448	9/06/83
4,402,593	06/336,114	9/06/83
4,402,606	06/238,236	9/06/83
4,402,620	06/333,599	9/06/83
4,402,622	06/249,235	9/06/83
4,402,623	06/330,178	9/06/83
4,402,633	06/235,015	9/06/83
4,402,634	06/270,505	9/06/83
4,402,639	06/242,915	9/06/83
4,402,646	06/230,676	9/06/83
4,402,650	06/282,271	9/06/83
4,402,668	06/240,303	9/06/83
4,402,673	06/302,283	9/06/83
4,402,701	06/304,239	9/06/83
4,402,716	06/336,564	9/06/83
4,402,729	06/376,097	9/06/83
4,402,733	06/255,517	9/06/83
4,402,735	06/380,177	9/06/83
4,402,743	06/263,983	9/06/83
4,402,753	06/288,577	9/06/83
4,402,755	06/414,916	9/06/83
4,402,758	06/348,681	9/06/83
4,402,762	06/269,741	9/06/83
4,402,769	06/448,868	9/06/83
4,402,774	06/323,436	9/06/83
4,402,777	06/287,669	9/06/83
4,402,781	06/363,726	9/06/83
4,402,786	06/298,525	9/06/83
4,402,788	06/372,233	9/06/83
4,402,810	06/263,738	9/06/83
4,402,814	06/339,268	9/06/83
4,402,821	06/321,135	9/06/83
4,402,827	06/284,931	9/06/83
4,402,834	06/250,945	9/06/83
4,402,835	06/319,923	9/06/83
4,402,836	06/445,886	9/06/83
4,402,845	06/267,158	9/06/83
4,402,848	06/385,925	9/06/83
4,402,849	06/218,239	9/06/83
4,402,858	06/368,332	9/06/83
4,402,863	06/320,165	9/06/83
4,402,874	06/456,667	9/06/83
4,402,875	06/303,542	9/06/83
4,402,880	06/316,600	9/06/83
4,402,898	06/306,468	9/06/83
4,402,912	06/333,967	9/06/83
4,402,914	06/282,252	9/06/83
4,402,931	06/383,332	9/06/83
4,402,932	06/376,066	9/06/83
4,402,933	06/257,402	9/06/83
4,402,942	06/238,715	9/06/83
4,402,943	06/337,114	9/06/83
4,402,946	06/337,175	9/06/83
4,402,951	06/252,839	9/06/83
4,402,952	06/313,547	9/06/83
4,402,955	06/307,983	9/06/83
4,402,956	06/234,065	9/06/83
4,402,961	06/271,877	9/06/83
4,402,962	06/393,806	9/06/83
4,402,963	06/327,880	9/06/83
4,402,966	06/252,674	9/06/83
4,402,969	06/340,241	9/06/83
4,402,979	06/315,769	9/06/83
4,402,981	06/243,746	9/06/83
4,402,982	06/337,104	9/06/83
4,402,986	06/286,088	9/06/83
4,402,987	06/300,623	9/06/83
4,402,988	06/361,038	9/06/83
4,402,989	06/297,893	9/06/83
4,402,990	06/296,568	9/06/83
4,402,992	06/328,760	9/06/83
4,402,993	06/245,937	9/06/83
4,402,995	06/343,490	9/06/83
4,403,000	06/312,417	9/06/83
4,403,004	06/314,314	9/06/83
4,403,008	06/356,174	9/06/83
4,403,016	06/417,806	9/06/83
4,403,019	06/362,749	9/06/83
4,403,022	06/221,977	9/06/83
4,403,032	06/342,352	9/06/83
4,403,040	06/350,801	9/06/83
4,403,046	06/308,412	9/06/83
4,403,049	06/327,829	9/06/83
4,403,059	06/349,830	9/06/83
4,403,078	06/414,767	9/06/83
4,403,085	06/330,290	9/06/83
4,403,096	06/278,350	9/06/83
4,403,098	06/357,126	9/06/83
4,403,100	06/316,480	9/06/83
4,403,108	06/249,686	9/06/83
4,403,110	06/263,982	9/06/83
4,403,118	06/245,914	9/06/83
4,403,121	06/289,787	9/06/83
4,403,133	06/326,784	9/06/83
4,403,135	06/252,568	9/06/83
4,403,143	06/226,449	9/06/83
4,403,151	06/250,217	9/06/83
4,403,165	06/375,895	9/06/83
4,403,168	06/295,148	9/06/83
4,403,183	06/252,749	9/06/83
4,403,188	06/247,240	9/06/83
4,403,196	06/256,373	9/06/83
4,403,203	06/323,444	9/06/83
4,403,227	06/309,871	9/06/83
4,403,229	06/316,479	9/06/83
4,403,244	06/231,924	9/06/83
4,403,251	06/274,506	9/06/83
4,403,258	06/315,580	9/06/83
4,403,279	06/317,169	9/06/83
4,403,312	06/221,600	9/06/83
4,403,325	06/240,620	9/06/83
4,403,326	06/276,860	9/06/83
4,403,327	06/256,139	9/06/83
4,403,330	06/281,904	9/06/83
4,403,342	06/251,644	9/06/83
4,403,345	06/302,675	9/06/83
4,403,347	06/232,005	9/06/83
4,403,352	06/326,556	9/06/83
4,691,388	06/853,691	9/08/87
4,691,389	06/926,507	9/08/87
4,691,391	06/872,146	9/08/87
4,691,395	06/941,071	9/08/87
4,691,396	06/941,310	9/08/87
4,691,397	06/871,878	9/08/87
4,691,401	06/838,273	9/08/83
4,691,403	06/847,667	9/08/87
4,691,405	06/759,896	9/08/87
4,691,409	06/941,790	9/08/87
4,691,416	06/912,773	9/08/87
4,691,419	06/797,132	9/08/87
4,691,420	06/846,969	9/08/87
4,691,423	06/824,736	9/08/87
4,691,425	06/562,416	9/08/87

Patent Number	Serial Number	Issue Date
4,691,432	06/785,705	9/08/87
4,691,441	07/008,278	9/08/87
4,691,443	06/910,084	9/08/87
4,691,446	06/902,655	9/08/87
4,691,450	06/788,275	9/08/87
4,691,453	06/906,262	9/08/87
4,691,454	06/820,405	9/08/87
4,691,457	06/663,718	9/08/87
4,691,459	06/825,148	9/08/87
4,691,460	06/774,027	9/08/87
4,691,461	06/917,919	9/08/87
4,691,462	06/844,134	9/08/87
4,691,463	06/591,120	9/08/87
4,691,466	06/854,923	9/08/87
4,691,468	06/869,338	9/08/87
4,691,470	06/861,825	9/08/87
4,691,471	06/947,621	9/08/87
4,691,472	06/740,842	9/08/87
4,691,473	06/707,884	9/08/87
4,691,477	06/889,762	9/08/87
4,691,478	06/911,513	9/08/87
4,691,480	06/819,281	9/08/87
4,691,481	06/863,365	9/08/87
4,691,484	06/839,600	9/08/87
4,691,491	06/841,285	9/08/87
4,691,504	06/819,157	9/08/87
4,691,505	06/870,723	9/08/87
4,691,512	06/668,018	9/08/87
4,691,515	06/709,509	9/08/87
4,691,517	06/929,507	9/08/87
4,691,518	06/929,508	9/08/87
4,691,543	06/843,673	9/08/87
4,691,552	06/818,475	9/08/87
4,691,553	06/836,837	9/08/87
4,691,556	06/824,666	9/08/87
4,691,563	06/934,922	9/08/87
4,691,566	06/765,839	9/08/87
4,691,575	06/814,401	9/08/87
4,691,576	06/801,685	9/08/87
4,691,580	06/817,077	9/08/87
4,691,582	06/803,954	9/08/87
4,691,585	06/859,088	9/08/87
4,691,586	06/835,893	9/08/87
4,691,587	06/811,733	9/08/87
4,691,599	06/816,066	9/08/87
4,691,610	06/873,800	9/08/87
4,691,611	06/785,764	9/08/87
4,691,623	06/898,960	9/08/87
4,691,624	06/790,405	9/08/87
4,691,626	06/939,627	9/08/87
4,691,627	06/819,751	9/08/87
4,691,644	06/794,439	9/08/87
4,691,658	06/871,480	9/08/87
4,691,660	06/862,037	9/08/87
4,691,664	06/826,316	9/08/87
4,691,668	06/754,729	9/08/87
4,691,672	06/811,916	9/08/87
4,691,685	06/881,637	9/08/87
4,691,688	06/919,086	9/08/87
4,691,689	06/938,479	9/08/87
4,691,690	06/907,721	9/08/87
4,691,692	06/804,828	9/08/87
4,691,698	06/852,819	9/08/87
4,691,700	06/870,140	9/08/87
4,691,709	06/911,375	9/08/87
4,691,712	06/747,017	9/08/87
4,691,719	06/845,849	9/08/87
4,691,720	06/768,468	9/08/87
4,691,721	06/679,259	9/08/87
4,691,724	06/790,614	9/08/87
4,691,726	06/640,687	9/08/87
4,691,732	06/892,037	9/08/87
4,691,733	06/881,778	9/08/87
4,691,741	06/754,283	9/08/87
4,691,743	06/888,225	9/08/87
4,691,764	06/839,357	9/08/87
4,691,770	06/813,927	9/08/87
4,691,773	06/759,359	9/08/87
4,691,777	06/849,125	9/08/87
4,691,778	07/013,078	9/08/87
4,691,782	06/680,190	9/08/87
4,691,795	06/746,786	9/08/87
4,691,798	06/786,078	9/08/87
4,691,800	06/815,100	9/08/87
4,691,803	06/799,350	9/08/87
4,691,804	06/817,295	9/08/87
4,691,821	06/818,530	9/08/87
4,691,824	06/924,990	9/08/87
4,691,827	06/861,337	9/08/87
4,691,837	06/923,016	9/08/87
4,691,839	06/920,929	9/08/87
4,691,842	06/712,924	9/08/87
4,691,848	06/677,352	9/08/87
4,691,860	06/941,229	9/08/87
4,691,863	06/863,687	9/08/87
4,691,864	06/799,868	9/08/87
4,691,873	06/872,210	9/08/87
4,691,890	06/827,304	9/08/87
4,691,895	06/886,735	9/08/87
4,691,904	06/763,670	9/08/87
4,691,917	06/799,554	9/08/87
4,691,919	06/930,644	9/08/87
4,691,920	06/817,549	9/08/87
4,691,922	06/837,794	9/08/87
4,691,923	06/842,229	9/08/87
4,691,928	06/774,655	9/08/87
4,691,945	06/926,050	9/08/87
4,691,953	06/852,191	9/08/87
4,691,963	06/768,448	9/08/87
4,691,964	06/880,591	9/08/87
4,691,965	06/906,447	9/08/87
4,691,967	06/793,224	9/08/87
4,691,976	06/831,007	9/08/87
4,691,979	06/520,151	9/08/87
4,691,987	06/512,403	9/08/87
4,691,991	06/624,701	9/08/87
4,692,003	06/549,157	9/08/87
4,692,004	06/918,706	9/08/87
4,692,006	06/834,429	9/08/87
4,692,016	06/839,911	9/08/87
4,692,046	06/843,913	9/08/87
4,692,051	06/446,884	9/08/87
4,692,053	06/912,523	9/08/87
4,692,059	06/826,619	9/08/87
4,692,060	06/882,081	9/08/87
4,692,079	06/650,703	9/08/87
4,692,084	06/802,052	9/08/87
4,692,085	06/790,131	9/08/87
4,692,087	06/549,268	9/08/87
4,692,094	06/825,069	9/08/87
4,692,095	06/816,127	9/08/87
4,692,097	06/878,304	9/08/87
4,692,100	06/706,266	9/08/87
4,692,101	06/754,419	9/08/87
4,692,112	06/904,863	9/08/87
4,692,113	06/906,120	9/08/87
4,692,118	06/823,456	9/08/87
4,692,120	06/914,452	9/08/87
4,692,126	06/728,320	9/08/87
4,692,128	06/878,547	9/08/87
4,692,132	06/829,938	9/08/87
4,692,134	06/870,881	9/08/87
4,692,137	06/719,179	9/08/87
4,692,151	06/835,942	9/08/87
4,692,155	06/808,280	9/08/87
4,692,158	06/825,506	9/08/87
4,692,164	06/837,094	9/08/87
4,692,170	06/556,137	9/08/87
4,692,173	06/829,481	9/08/87
4,692,174	06/547,752	9/08/87
4,692,198	06/694,828	9/08/87
4,692,202	06/434,722	9/08/87
4,692,203	06/899,941	9/08/87
4,692,208	06/654,834	9/08/87
4,692,210	06/789,783	9/08/87
4,692,218	06/471,785	9/08/87

VOL 1132 ISS 4 NO 26 1991 UMI

Patent Number	Serial Number	Issue Date
4,692,237	06/718,134	9/08/87
4,692,242	06/813,672	9/08/87
4,692,244	06/671,599	9/08/87
4,692,246	06/853,053	9/08/87
4,692,249	06/910,477	9/08/87
4,692,260	06/757,039	9/08/87
4,692,262	06/908,697	9/08/87
4,692,265	06/623,336	9/08/87
4,692,273	06/723,391	9/08/87
4,692,276	06/783,688	9/08/87
4,692,285	06/750,443	9/08/87
4,692,308	06/827,151	9/08/87
4,692,313	06/597,314	9/08/87
4,692,320	06/813,169	9/08/87
4,692,321	06/887,752	9/08/87
4,692,323	06/878,976	9/08/87
4,692,333	06/520,088	9/08/87
4,692,338	06/716,609	9/08/87
4,692,345	06/868,153	9/08/87
4,692,353	06/567,782	9/08/87
4,692,356	06/703,679	9/08/87
4,692,363	06/889,581	9/08/87
4,692,365	06/666,522	9/08/87
4,692,367	06/856,064	9/08/87
4,692,372	06/878,250	9/08/87
4,692,376	06/936,128	9/08/87
4,692,384	06/923,986	9/08/87
4,692,431	06/809,441	9/08/87
4,692,436	06/861,471	9/08/87
4,692,438	06/764,372	9/08/87
4,692,450	06/817,638	9/08/87
4,692,452	06/873,616	9/08/87
4,692,453	06/797,563	9/08/87
4,692,456	06/838,972	9/08/87
4,692,461	06/933,492	9/08/87
4,692,465	06/640,850	9/08/87
4,692,474	06/874,329	9/08/87
4,692,482	06/921,463	9/08/87
4,692,491	06/907,563	9/08/87
4,692,493	06/847,640	9/08/87
4,692,495	06/512,768	9/08/87
4,692,509	06/675,373	9/08/87
4,692,515	06/874,917	9/08/87
4,692,523	06/916,373	9/08/87
4,692,526	06/797,111	9/08/87
4,692,532	06/674,217	9/08/87
4,692,536	06/917,948	9/08/87
4,692,537	06/810,307	9/08/87
4,692,542	06/622,571	9/08/87
4,692,543	06/832,760	9/08/87
4,692,544	06/768,709	9/08/87
4,692,558	06/493,700	9/08/87
4,692,567	06/733,874	9/08/87
4,692,571	06/902,909	9/08/87
4,692,584	06/802,984	9/08/87
4,692,586	06/871,361	9/08/87
4,692,588	06/720,403	9/08/87
4,692,593	06/694,780	9/08/87
4,692,594	06/793,207	9/08/87
4,692,614	06/855,184	9/08/87
4,692,622	06/803,967	9/08/87
4,692,623	06/835,826	9/08/87
4,692,625	06/747,731	9/08/87
4,692,632	06/832,925	9/08/87
4,692,647	06/367,680	9/08/87
4,692,661	06/830,152	9/08/87
4,692,668	06/516,598	9/08/87
4,692,669	06/705,740	9/08/87
4,692,671	06/893,946	9/08/87
4,692,678	06/916,993	9/08/87
5,692,682	06/812,633	9/08/87
4,692,684	06/908,219	9/08/87
4,692,692	06/784,119	9/08/87
4,692,693	06/694,439	9/08/87
4,692,703	06/704,253	9/08/87
4,692,706	06/706,376	9/08/87
4,692,720	06/717,116	9/08/87
4,692,722	06/660,491	9/08/87
4,692,726	06/890,686	9/08/87
4,692,742	06/789,568	9/08/87
4,692,744	06/815,586	9/08/87
4,692,751	06/902,771	9/08/87
4,692,764	06/876,979	9/08/83
4,692,771	06/717,498	9/08/87
4,692,772	06/650,069	9/08/87
4,692,775	06/792,329	9/08/87
4,692,802	06/812,146	9/08/87
4,692,820	06/881,621	9/08/87
4,692,821	06/815,371	9/08/87
4,692,826	06/851,799	9/08/87
4,692,830	06/623,147	9/08/87
4,692,838	06/882,398	9/08/87
4,692,847	06/769,825	9/08/87
4,692,850	06/814,329	9/08/87
4,692,851	06/708,011	9/08/87
4,692,868	06/692,465	9/08/87
4,692,882	06/689,549	9/08/87
4,692,889	06/655,657	9/08/87
4,692,906	06/808,704	9/08/87
4,692,926	06/727,251	9/08/87
4,692,940	06/711,821	9/08/87
4,692,945	06/933,367	9/08/87

NOTIFICATION OF ACCEPTANCE OF DELAYED PAYMENT OF MAINTENANCE FEE (35 U.S.C. 41(c); 37 CFR 1.378)

The patent(s) listed below are considered as not having expired but are subject to the conditions set forth in 35 U.S.C. 41(c)(2), in view of the Petition to Accept Late Payment of the maintenance fees which has been GRANTED BY THE COMMISSIONER OF PATENTS AND TRADEMARKS, as provided for under 35 U.S.C. 41(c)(1) and 37 CFR 1.378.

Patent No.	Serial No.	Patent Date	Application Filing Date	Delayed Payment Acceptance Date
4,371,421	06/254,871	2/01/83	4/16/81	10/09/91
4,375,316	06/237,592	3/01/83	2/24/81	10/09/91
4,610,728	06/681,609	9/09/86	12/14/84	10/09/91
4,621,176	06/788,514	11/04/86	10/18/85	9/24/91
4,629,191	06/751,956	12/16/86	7/05/85	10/09/91
4,674,365	06/517,673	6/23/87	7/27/83	10/09/91

Reissue Applications Filed

Notice under 37 CFR 1.11 (b). The reissue applications listed below are open to inspection by the general public in the indicated Examining Groups and copies may be obtained by paying the fee therefor (37 CFR 1.21 (b)).

4,791,085, Re. S.N. 07/745,542, Filed Aug. 15, 1991, Cl. 502/068, BARIUM TITANIUM OXIDE-CONTAINING FLUIDIZABLE CRACKING CATALYST COMPOSITION, Cornelis J. Groenenboom, Owner of Record: *AkzoN.V., Arnhem, Netherlands*, Attorney or Agent: William P. Berridge, Ex. Gp.: 113

4,804,003, Re. S.N. 07/774,578, Filed Oct. 10, 1991, Cl. 132/53, COMBINED HEAD COVERING WIGLET, Leanna L. Moen, Owner of Record: *Inventor*, Attorney or Agent: H. Vincent Harsha, Ex. Gp.: 333

4,810,358, Re. S.N. 07/745,541, Filed Aug. 15, 1991, Cl. 208/121, PROCESS FOR CRACKING METAL-CONTAINING HYDROCARBON FEEDSTOCKS, Cornelis J. Groenenboom, Owner of Record: *Akzo N.V., Arnhem, Netherlands*, Attorney or Agent: William P. Berridge, Ex. Gp.: 119

4,867,119, Re. S.N. 07/762,203, Filed Sept. 19, 1991, Cl. 123/193P, ENGINE PISTON ASSEMBLY AND FORGED PISTON MEMBER THEREFOR HAVING A COOKING RECESS, Bruce C. Cooper, et. al., Owner of Record: *Caterpilar Inc., Peoria, Ill.*, Attorney or Agent: Edward J. Kessler, Ex. Gp.: 342

4,873,101, Re. S.N. 07/774,468, Filed Oct. 10, 1991, Cl. 426/113, MICROWAVE FOOD PACKAGE AND GREASE ABSORBENT PAD THEREFOR, Curtis L. Larson, et. al., Owner of Record: *Minnesota Mining & Manufacturing Co., St. Paul, Minn.*, Attorney or Agent: Mark W. Binder, Ex. Gp.: 132

4,874,357, Re. S.N. 07/776,083, Filed Oct. 11, 1991, Cl. 494/26, CENTRIFUGAL FLOTATION APPARATUS AND METHOD, Thomas P. Campbell, Owner of Record: *Inventor*, Attorney or Agent: Richard J. St. John, Ex. Gp.: 242

4,874,617, Re. S.N. 07/777,195, Filed Oct. 16, 1991, Cl. 426/49, BANANA PROCESSING, Pedro Sole, Owner of Record: *Chiquita Brands, Inc., Cincinnati, Ohio*, Attorney or Agent: Timothy A. French, Ex. Gp.: 132

4,883,527, Re. S.N. 07/775,418, Filed Oct. 15, 1991, Cl. 65/273, GLASS SHEET BENDING AND TEMPERING APPARATUS, Harold A. McMaster, et. al., Owner of Record: *Glasstech International L.P., Scarsdale, N.Y.*, Attorney or Agent: Christopher J. Fildes, Ex. Gp.: 133

4,998,817, Re. S.N. 07/766,830, Filed Sept. 27, 1991, Cl. 351/162, CONTACT LENS FOR CORRECTION OF COLOR BLINDNESS, Harry I. Zelter, Owner of Record: *Joseph Zallen, Fort Lauderdale, Fla.*, Attorney or Agent: Joseph Zallen, Ex. Gp.: 257

Requests for Reexamination Filed

Notice under 37 CFR 1.11 (c). The requests for reexamination listed below are open to inspection by the general public in the indicated Examining Groups. Copies of the requests and related papers may be obtained by paying the fee therefor established in the Rules (37 CFR 1.19 (a)).

In the event correspondence to the patent owner is not received, this notice will be considered to be constructive notice to the patent owner and reexamination will proceed (37 CFR 1.248(a)(5) and 1.525(b)).

3,940,221, Reexam No. 90/002,483, Requested Oct. 21, 1991, Cl. 425/141, THICKNESS CONTROL SYSTEM FOR AN EXTRUSION DIE, Frank R. Nissel, Owner of Record: *W Bar E, Inc., Marianna, Fla.*, Attorney or Agent: Austin R. Miller, Philadelphia, Pa. Ex. Gp.: 135, Requester: The Clorer Co., Orange, Tex.

4,388,288, Reexam No. 90/002,495, Requested Oct. 25, 1991, Cl. 423/416, PREPARATION OF SHAPED TITANIUM DIOXIDE CATALYST/CARRIER AND CATALYSIS OF GASEOUS SULFUR COMPOUNDS THEREWITH, Thierry Dupin, et. al., Owner of Record: *Rhone-Poulenc Industries, Paris, France*, Attorney or Agent: Norman H. Stepno, Burns, Doane, Swecker & Mathis, Alexandria, Va., Ex. Gp.: 113, Requester: La Roche Chemicals, Inc., Baton Rouge, La.

4,475,319, Reexam No. 90/002,491, Requested Oct. 22, 1991, Cl. 428/290.000, THERMOPLASTIC INTERLEAFED RESIN MATRIX COMPOSITES WITH IMPROVED IMPACT STRENGTH AND TOUGHNESS, Robert E. Evans, et. al., Owner of Record: *American Cyanamid Co., Stanford, Conn.*, Attorney or Agent: *Steven J. Hultquist, American Cyanamid Co., Stamford, Conn.* Ex. Gp.: 154, Requester: Toray Industries, Inc., Tokyo, Japan

4,615,385, Reexam No. 90/002,479, Requested Oct. 15, 1991, Cl. 165/175, HEAT EXCHANGER, Zalman P. Saperstein, et. al., Owner of Record: *Modine Manufacturing Co., Racine, Wis.*, Attorney or Agent: William Vansanten, Wood, Phillips, Mason, Recktenwald & Vansanten, Chicago, Ill., Ex. Gp.: 347, Requester: Jordan M. Meschkow, Phoenix, Ariz.

4,628,180, Reexam No. 90/002,482, Requested Oct. 16, 1991, Cl. 219/124.010, WELDING SYSTEM FOR TIG WELDING, Heini Edberg, Owner of Record: *Heini Edberg, Hunseby, Denmark*, Attorney or Agent: Merchant, Gould, Smith, Edell, Welter & Schmidt, Minneapolis, Minn., Ex. Gp.: 216, Requester: Nils H. Ljungman, Greensburg, Pa.

4,637,802, Reexam No. 90/002,488, Requested Oct. 21, 1991, Cl. 440/075.00, TWIN OUTBOARD DRIVE FOR WATERCRAFT, Michihiro Taguchi, et. al., Owner of Record: *Sanshin Kogyo Kabushiki Kaisha, Hamamatsu-Shi, Japan*, Attorney or Agent: Ernest A. Beutler, Newport Beach, Calif., Ex. Gp.: 315, Requester: Michael Best & Friedrich, Milwaukee, Wis.

4,711,251, Reexam No. 90/002,494, Requested Sept. 10, 1991, Cl. 128/784, BODY IMPLANTABLE LEAD, Kenneth B. Stokes, Owner of Record: *Medtronic, Inc., Minneapolis, Minn.*, Attorney or Agent: Oliver F. Arrett, Vidas & Arrett, Minneapolis, Minn., Ex. Gp.: 335, Requester: Jeffrey G. Sheldon, Pasadena, Calif.

4,733,665, Reexam No. 90/002,493, Requested Oct. 23, 1991, Cl. 606/108, EXPANDABLE INTRALUMINAL GRAFT, AND METHOD AND APPARATUS FOR IMPLANTING AND EXPANDABLE INTRALUMINAL GRAFT, Julio C. Palmaz, Owner of Record: *Expandable Grafts Partnership, Antonio, Tex.*, Attorney or Agent: Ben D. Tobor, Houston, Tex., Ex. Gp.: 339, Requester: Owner

4,748,962, Reexam No. 90/002,480, Requested Oct. 17, 1991, Cl. 124/025.6, COMPOUND ARCHERY BOWS, Marlow W. Larson, Owner of Record: *Browning Arms Co., Morgan, Utah.*, Attorney or Agent: David V. Trask, Trask, Britt & Rossa, Salt Lake City, Utah, Ex. Gp.: 351, Requester: Proline Co., Hastings, Mich.

4,889,726, Reexam No.: 90/002,486, Requested: Oct. 21, 1991, Cl. 426/003.000, USING COCOA POWDER TO ENHANCE THE FLAVOR OF A MINT-FLAVORED CHEWING GUM, Jayant C. Dave, et. al., Owner of Record: *Willaim Wrigley Jr. Co., Chicago, Ill.*, Attorney or Agent: Maxwell J. Peterson, Willian, Brinks, Olds, Hofer, Gilson & Lione, Chicago, Ill., Ex. Gp.: 132, Requester: Owner

4,889,727, Reexam No. 90/002,487, Requested Oct. 21, 1991, Cl. 426/003.000, USING COCOA POWDER TO ENHANCE THE FLAVOR OF SYNTHETIC CHEWING BASE, Jayant C. Dave, et. al., Owner of Record: *William Wrigley Jr. Co., Chicago, Ill.*, Attorney or Agent: Maxwell J. Peterson, Willian, Brinks, Olds, Hofer, Gilson & Lione, Chicago, Ill., Ex. Gp.: 132, Requester: Owner

4,942,928, Reexam No. 90/002,485, Requested Oct. 16, 1991, Cl. 172/219, BIDIRECTIONAL MOLDBOARD PLOW WITH ADJUSTABLE TILTING MECHANISM, Pompeyo B. Gomez, Owner of Record: *Industrias John Deere, Nueno Leon, Mexico*, Attorney or Agent: Oblon, Fisher, Spivak, McClelland & Maier, Arlington, Va., Ex. Gp.: 351, Requester: Harrell Equipment Co., Inc., Pelham, Ga.

4,985,404, Reexam No. 90/002,490, Requested Oct. 22, 1991, Cl. 514/006.000, PROLONGED RELEASE OF BIOLOGICALLY ACTIVE POLYPEPTIDES, James W. Mitchell, Owner of Record: *Monsanto Co., St. Louis, Mo.*, Attorney or Agent: Wayne R. Eberhardt, St. Louis, Mo. Ex. Gp.: 188, Requester: Owner

VOL 1132 ISS 4 NO 26 1991 UMI

5,008,725, Reexam No. 90/002,478, Requested Oct. 9, 1991, Cl. 357/023.4, PLURAL POLYGON SOURCE PATTERN FOR MOSFET, Alexander Lidow, et. al., Owner of Record: Alexander Lidow, Manhattan Beach, Calif., Thomas Herman, Redondo Beach, Calif., Vladimir Rumennik, El Segundo, Calif., Attorney or Agent: Samuel H. Weiner, Ostrolenk, Faber, Gerb & Soffen, New York, N.Y., Ex. Gp.: 258, Requester: Harris Corp., Melbourne, Fla.

5,009,654, Reexam No. 90/002,489, Requested Oct. 18, 1991, Cl. 604/410, STERILE PRODUCT AND METHOD FOR STERILIZING AND ASSEMBLING SUCH PRODUCT, Billy W. Minshall, Owner of Record: *Baxter International, Inc., Deerfield, Ill.*, Attorney or Agent: Bradford R. L. Price, Deerfield, Ill. Ex. Gp.: 331, Requester: Owner

5,020,507, Reexam No. 90/002,477, Requested Oct. 15, 1991, Cl. 124/025.6, COMPOUND ARCHERY BOW, Marlow W. Larson, Owner of Record: Browning Arms Co., Morgan, Utah, Attorney or Agent: David V. Trask, Trask, Britt & Rossa, Salt Lake City, Utah, Ex. Gp.: 351, Requester: Proline Co., Hastings, Mich.

5,028,667, Reexam No. 90/002,484, Requested Oct. 21, 1991, Cl. 525/415, YTTRIUM ANF RARE EARTH COMPOUNDS CATALYZED LACTONE POLYMERIZATION, Stephen J. McLain, et. al., Owner of Record: *E. I. du Pont de Nemours & Co., Wilmington, Del.*, Attorney or Agent: Barbara C. Siegell, Wilmington, Del., Ex. Gp.: 153, Requester: Owner

5,030,502, Reexam No. 90/002,492, Requested Oct. 21, 1991, Cl. 428/193, CEMENTITIOUS CONSTRUCTION PANEL, John W. Teare, Owner of Record: *Inventor, Hamilton, Ohio*, Attorney or Agent: none, Ex. Gp.: 158, Requester: Owner

5,037,384, Reexam No. 90/002,481, Requested Oct. 17, 1991, Cl. 604/028, METHOD AND APPARATUS FOR THE TREATMENT OF COMPLICATED RETINAL DETACHMENTS, Stanley Chang, Owner of Record: *Cornell Research Foundation, Inc., Ithaca, N.Y.*, Attorney or Agent: George M. Yahwak, Yahwak & Associates, Trumbull, Conn., Ex. Gp.: 333, Requester: David J. Josephic, Wood, Herron & Evans, Cincinnati, Ohio

---

Interference Practice: Consideration of Fraud and Inequitable Conduct

The Commissioner's Notice of Oct. 24, 1991, *Consideration of Fraud and Inequitable Conduct in Patent Interference Cases*, provides that:

> Effective immediately, fraud and inequitable conduct issues will be considered when properly raised *inter partes* in patent interference cases.

* * * * *

> The Chairman, the Vice Chairman, an Examiner-in-Chief or a panel of the Board of Patent Appeals and Interferences, as may be appropriate, are authorized to determine the manner in which fraud and inequitable conduct can be raised in any interference pending before the Board at this time.

The present notice sets forth the policy which will be applied by the Board of Patent Appeals and Interferences (Board) in determining whether the issues of fraud and inequitable conduct raised in a pending interference proceeding will be given consideration.

1. Issues of fraud and inequitable conduct which were raised in an interference for the first time before the date of the Commissioner's Notice (Oct. 24, 1991) will not be considered by the Board.

2. Issues of fraud and inequitable conduct raised in an interference for the first time after the date of the Commissioner's Notice will be considered by the Board if:

(a) They are raised by way of a motion for judgment under 37 CFR 1.633(a) which was filed before the expiration of the period set for filing preliminary motions, or

(b) They are raised subsequent to the period set for filing preliminary motions, and the party raising them shows good cause under 37 CFR 1.655(b)(3) as to why they were not timely raised during the preliminary motion period. An assertion that the issues were not raised earlier because the Board was precluded from considering them by the Commissioner's Notice of October 17, 1988 (1096 Off. Gaz. PTO 19, Nov. 8, 1988) shall not be deemed good cause. Examples of good cause would be (i) where the fraud or inequitable conduct was not discovered until after the close of the period for filing preliminary motions, or (ii) where the period for filing preliminary motions expired after the Oct. 24, 1991, date of the Commissioner's Notice but before publication of the notice in the *Official Gazette*, and the preliminary motion for judgment raising the issue of fraud and inequitable conduct was filed promptly after the notice was published.

Counsel who are contemplating raising issues of fraud and inequitable conduct should direct their attention to the Commissioner's Notice of Dec. 23, 1986, *Interference Practice: Fraud and Inequitable Conduct Allegations* (1074 Off. Gaz. Pat. Office, Jan. 27, 1987).

Oct. 30, 1991

SAUL I. SEROTA
Chairman, Board of Patent Appeals and Interferences

Telephone Changes for Deposit Account Status Line

Effective Nov. 18, 1991, new telephone exchange numbers will be made for the Deposit Account Status Line. On that date, Deposit Account Balance information can be obtained by calling **(703) 305-8735 or (703) 305-8746** from **6:30 a.m. until midnight**, Eastern time, Monday thru Friday, except for Federal holidays.

Questions that may arise pertaining to the information received through use of the status line may be referred to the Deposit Account Division at **(703) 308-0902**. Calls will be received on the answering machine 24 hours a day, seven days a week.

Oct. 31, 1991

BRADFORD HUTHER
Assistant Commissioner for Finance and Planning

Status of PTO Services

The following is an update of the status of PTO services for Oct. 1991:

Service Item	FY 1991 Goal (Calendar Days)*	Monthly Average (Calendar Days)*
Filing Receipts:		
Patents	22	17
Trademarks	30	28
Patent/Trademark Copies:		
Special Window Coupons	24 Hours	14 Hours
Window Coupons	5	2
Mail Coupons	12	7
Letter Orders	16	20
Electronic Ordering Service (EOS)	11	5
Certified Copies:		
Trademark Registrations	21	14
Applications-As-Filed	17	16
File-Wrapper/Contents	N/A	19
Walk-up Certification	1	1
Patent Application Expedited	5	6
Trademark Search Library:		
Filing Pending Marks	23	32
Filing Reg. Certificates	Issue Date + 2 days	Issue + 2
Filing Temp. Drawings	8	11
Assignments:		
Recording Patent-New Applications	20**	13
Recording Patent-Mail Room Recpts.	20	8
Return Patents-New Applications	34**	36
Return Patents-Mail Room Recpts.	34	32
Recording Trademarks	20	10
Returning Trademark Documents	34	30
Avg. Days from Issue Fee Payment to Issue Date	90-100	106
Issue Fee Receipts Mailed	4 weeks prior to Issue Date	On Time
Patent Copies Available	95% on Issue Date	91% on Issue Date
Trademark Copies Available	95% on Issue Date	99% on Issue Date

*Unless otherwise noted.
**Goal reflects the number of days from the date the filing receipt is mailed.

•Helpful Hints

Change of Correspondence Address

The Patent and Trademark Office's responsibility is to assure office correspondence reaches the correspondent's address of record. Recent studies conducted of mail returned to the PTO from the United States Postal Service (USPS) as undeliverable indicates that the majority of this mail is not delivered due to the expiration of a forwarding order placed with the UPPS.

Whenever the correspondence address for a patent, patent application, registered trademark or trademark application changes, the applicant or his/her representative needs to submit a change of address (See Section 601.03 of the Manual of Patent Examining Procedures and Section 603 of the Trademark Manual of Examining Procedures). The mere inclusion of a new correspondence address in a paper being filed for another purpose would not ordinarily be recognized or deemed as instructions to change the address on the file record.

Although a change of correspondence address notification need take no particular form, a separate notification must be filed for each application. At a minimum, the following information should be provided:

- •Identify the documents as a "Change of Address"
- •Prepare the new correspondence address
- •For a patent: State the patent number and serial number
- •For a registered trademark: Provide the registrant's name and the number and date of the certificate.
- •For a trademark application: Provide the name of the applicant, the serial number and filing date of the application, along with the Trademark law office in which the case is pending. See Trademark Rule 1.5.
- •For a national patent application: Identify the application number (consisting of the series code and the serial number (e.g., 07/123,456)); or the serial number and filing date assigned to that application by the PTO. In addition, provide the group art unit where the application is pending or other unit prosecuting the application (e.g., the Board of Patent Appeals and Interferences).
- •For an international application: Identify the international application number (e.g., PCT/US91/11111)

VOL
1132
ISS
4
NO
26
1991
UMI

For patents and patent applications, as required by 37 CFR 1.33(a), a change of correspondence address notification must be signed by an attorney or agent of record or by the applicant unless the assignee of record has intervened as provided by 37 CFR 1.32. In those instances where a change of address of a registered attorney or agent is necessary, provisions exist for changing a large number of applications and are contained in Section 601.03 of the Manual of Patent Examining Procedure.

November 1, 1991

THERESA A. BRELSFORD
Assistant Commissioner for
Public Services and Administration

PATENT NOTICES

Certificates of Correction For Week of November 26, 1991

D. 303,442	4,861,352	4,920,138	4,947,042
PP. 7,281	4,862,316	4,920,357	4,947,827
Re. 33,092	4,863,857	4,920,793	4,949,221
4,596,935	4,864,029	4,921,828	4,949,282
4,617,334	4,872,428	4,923,057	4,949,306
4,639,859	4,873,053	4,926,180	4,949,425
4,646,245	4,873,182	4,927,704	4,950,278
4,649,548	4,876,295	4,930,879	4,950,287
4,723,984	4,877,694	4,930,982	4,950,354
4,753,850	4,880,791	4,931,533	4,950,391
4,773,742	4,885,145	4,932,072	4,950,980
4,780,447	4,889,577	4,932,766	4,950,995
4,784,543	4,891,267	4,932,951	4,951,655
4,796,637	4,891,690	4,933,041	4,951,671
4,797,253	4,892,407	4,933,092	4,951,838
4,800,026	4,893,651	4,933,543	4,952,116
4,813,197	4,897,038	4,933,768	4,952,873
4,818,440	4,900,704	4,933,909	4,953,642
4,820,689	4,901,511	4,933,976	4,954,629
4,824,779	4,904,478	4,934,649	4,954,843
4,828,216	4,906,507	4,934,994	4,956,651
4,829,102	4,907,076	4,935,083	4,956,702
4,830,500	4,907,286	4,938,288	4,957,113
4,830,808	4,909,851	4,939,178	4,957,785
4,830,852	4,910,625	4,939,279	4,957,797
4,832,832	4,911,020	4,939,954	4,958,034
4,833,519	4,911,992	4,939,988	4,958,169
4,839,690	4,913,471	4,940,188	4,974,968
4,840,139	4,913,785	4,940,999	4,979,191
4,845,528	4,914,052	4,941,624	5,007,714
4,848,879	4,914,235	4,942,053	5,008,898
4,850,102	4,915,802	4,942,634	5,014,229
4,850,970	4,916,224	4,942,830	5,016,747
4,852,992	4,916,895	4,942,899	5,017,527
4,855,433	4,917,510	4,942,917	5,019,648
4,855,927	4,918,420	4,943,873	5,032,087
4,856,348	4,918,534	4,944,986	5,033,563
4,858,148	4,918,780	4,945,390	5,035,291
4,860,230	4,920,035	4,946,780	

VOL
1132
ISS
4
NO
26
1991
UMI

SPECIAL BOXES FOR MAIL

Special PTO mail box numbers should be used to allow forwarding of particular types of mail to the appropriate areas as quickly as possible. Such mail is forwarded directly to the appropriate area without being opened. Only the specified type of document should be placed in an envelope addressed to one of these boxes. If any documents other than the specified type identified for each box are addressed to that box, they will be delayed in reaching the appropriate area for which they are intended.

The following special boxes should be used only for their specified purpose. Address mail as follows:

Box _____
Commissioner of Patents and Trademarks
Washington, D.C. 20231

Box 3	Mail for the Office of personel for NFC
Box 4	Mail for the Assistant Commissioner for External Affairs and the Office of Legislation and International Affairs.
Box 5	"No Fee" mail related to trademarks.
Box 6	Mail for the Office of Procurement
Box 7	Reissue applications for patents involved in litigation and subsequently filed related papers.
Box 8	All papers for the Office of the Solicitor *except* communications relating to *pending litigation*; papers relating to pending litigation shall be mailed only to Office of the Solicitor, P.O. Box 15667, Arlington, Va. 22215
Box 9	Coupon orders for U.S. patent and trademark copies.
Box 10	Orders for certified copies of PTO documents except: trademark registrations and assignments.
Box 11	Electronic Ordering Service (EOS).
Box 12	Contributions to the Examiner Education Program.
Box 13	Mail for the Employee and Labor Relations Division.
Box 14	Invoices directed to the Office of Finance.
Box 15	Mail for the Advisory Commission on Patent Law Reform.
Box 16	Deposit Account Replenishment Checks
Box 171	Vacancy Announcement Applications.
Box AF	Expedited procedure for processing amendments and other responses after final rejection.
Box DAC	Petitions to revive, petitions to accept late payment of fees, petitions to defer issue, and petitions to withdraw an application from issue.
Box Assignment	All assignment documents except those filed with new applications.
Box DD	Mail related to Disclosure Documents.
Box EEO	Mail for the Office of Equal Employment Programs.
Box FWC	Requests for File Wrapper Continuation Applications (under 37 CFR 1.62)
Box Interference	Communications relating to interferences and applications and patents involved in interference.
Box Issue Fee	All Communications following the receipt of a PTOL-85. "Notice of Allowance and Issue Fee Due," and prior to the issuance of a patent should be addressed to Box Issue Fee, unless advised to the contrary. Assignments should be submitted in a separate envelope and not be sent to Box Issue Fee.
Box ITU	All intent to use documents, excluding the initial application and amendments to allege use.
Box M. Fee	Correspondence related to a patent that is subject to the payment of a maintenance fee.
Box Non-Fee-Amendment	Non-fee amendments to patent applications. (Use Box AF for responses after final rejection).
Box OED	Mail for the Office of Enrollment and Discipline
Box PATENT APPLICATION	New patent application and associated papers and fees.
Box TRADEMARK	New trademark application and associated papers and APPLICATION fees.
Box Pat. Ext.	Applications for patent term extension.
Box PCT	Mail related to applications filed under the Patent Cooperation Treaty.
Box Reexam	Requests for Reexamination for *original* request papers *only*.
Box Sequence	Submission of diskette for biotechnical application.
Box SN	For fee and petitions under 37 CFR 1.182 to obtain date received and/or serial number for patent applications *prior* to the Office's standard notification (return postcard or the official "Filing Receipt," "Notice to File Missing Parts," or "Notice of Incomplete Application").

Reference Collections of U.S. Patents Available for Public Use in Patent Depository Libraries

The following libraries, designated as Patent Depository Libraries (PDLs), receive current issues of U.S. Patents and maintain collections of earlier-issued patents. The scope of these collections varies from library to library, ranging from patents of only recent years to all or most of the patents issued since 1790.

These patent collections, which are organized in patent number sequence, are available for use by the public free of charge. Each of the PDLs, in addition, offers supplemental reference publications of the U.S. Patent Classification System, including the *Manual of Classification, Index to the U.S. Patent Classification, Classification Definitions*, and provides technical staff assistance in their use to aid the public, in gaining effctive access to information contained in patents. CASSIS (Classification And Search Support Information System); which provides direct, on-line access to Patent and Trademark Office data, is available at all PDLs. Facilities for making paper copies of patents from either microfilm or paper collections are generally provided for a fee.

Since there are variations in the scope of patent collections among the PDLs and in their hours of service to the public, anyone contemplating use of the patents at a particular library is urged to contact that library, in advance, about its collection and hours in order to avert possible inconvenience.

State	*Name of Library*	*Telephone Contact*
Alabama	Auburn University Libraries	(205) 844-1747
	Birmingham Public Library	(205) 226-3680
Alaska	Anchorage: Z. J. Loussac Public Library	(907) 261-2916
Arizona	Tempe: Noble Library, Arizona State University	(602) 965-7010
Arkansas	Little Rock: Arkansas State Library	(501) 682-2053
California	Los Angeles Public Library	(213) 612-3273
	Sacramento: California State Library	(916) 654-0069
	San Diego Public Library	(619) 236-5813
	Sunnyvale Patent Clearinghouse	(408) 730-7290
Colorado	Denver Public Library	(303) 640-8847
Connecticut	New Haven: Science Park Library	(203) 786-5447
Delaware	Newark: University of Delaware Library	(302) 451-2965
Dist. of Columbia	Washington: Howard University Libraries	(202) 806-7252
Florida	Fort Lauderdale: Broward County Main Library	(305) 357-7444
	Miami-Dade Public Library	(305) 375-2665
	Orlando: University of Central Florida Libraries	(407) 823-2562
	Tampa: Tampa Campus Library, University of South Florida	(813) 974-2726
Georgia	Atlanta: Price Gilbert Memorial Library, Georgia Institute of Technology	(404) 894-4508
Hawaii	Honolulu: Hawaii State Public Library System	(808) 586-3477
Idaho	Moscow: University of Idaho Library	(208) 885-6235
Illinois	Chicago Public Library	(312) 269-2865
	Springfield: Illinois State Library	(217) 782-5659
Indiana	Indianapolis-Marion County Public Library	(317) 269-1741
	West Lafayette: Purdue University Libraries	(317) 494-2873
Iowa	Des Moines: State Library of Iowa	(515) 281-4118
Kansas	Wichita: Ablah Library, Wichita State University	(316) 689-3155
Kentucky	Louisville Free Public Library	(502) 561-8617
Louisiana	Baton Rouge: Troy H. Middleton Library, Louisiana State University	(504) 388-2570
Maryland	College Park: Engineering and Physical Sciences Library, University of Maryland	(301) 405-9157
Massachusetts	Amherst: Physical Sciences Library, University of Massachusetts	(413) 545-1370
	Boston Public Library	(617) 536-5400 Ext. 265
Michigan	Ann Arbor: Engineering Transportation Library, University of Michigan	(313) 764-7494
	Detroit Public Library	(313) 833-1450
Minnesota	Minneapolis Public Library and Information Center	(612) 372-6570
Misssissippi	Jackson: Mississippi Library Commission	Not Yet Operational
Missouri	Kansas City: Linda Hall Library	(816) 363-4600
	St. Louis Public Library	(314) 241-2288 Ext. 390
Montana	Butte: Montana College of Mineral Science and Technology Library	(406) 496-4281
Nebraska	Lincoln: Engineering Library, University of Nebraska-Lincoln	(402) 472-3411
Nevada	Reno: University of Nevada-Reno Library	(702) 784-6579
New Hampshire	Durham: University of New Hampshire Library	(603) 862-1777
New Jersey	Newark Public Library	(201) 733-7782
	Piscataway: Library of Science and Medicine, Rutgers University	(908) 932-2895
New Mexico	Albuquerque: University of New Mexico General Library	(505) 277-4412
New York	Albany: New York State Library	(518) 473-4636
	Buffalo and Erie County Public Library	(716) 858-7101
	New York Public Library (The Research Libraries)	(212) 714-8529
North Carolina	Raleigh: D.H. Hill Library, North Carolina State University	(919) 515-3280
North Dakota	Grand Forks: Chester Fritz Library, University of North Dakota	(701) 777-4888
Ohio	Cincinnati and Hamilton County, Public Library of	(513) 369-6936
	Cleveland Public Library	(216) 623-2870
	Columbus: Ohio State University Libraries	(614) 292-6175
	Toledo/Lucas County Public Library	(419) 259-5212
Oklahoma	Stillwater: Oklahoma State University Library	(405) 744-7086
Oregon	Salem: Oregon State Library	(503) 378-4239
Pennsylvania	Philadelphia, The Free Library of	(215) 686-5331
	Pittsburgh, Carnegie Library of	(412) 622-3138

VOL
1132
ISS
4
NO
26
1991
UMI

Reference Collections of U. S. Patents Available for Public Use in Patent Depository Libraries—(continued)

State	*Name of Library*	*Telephone Contact*
	University Park: Pattee Library, Pennsylvania State University	(814) 865-4861
Rhode Island	Providence Public Library	(401) 455-8027
South Carolina	Charleston: Medical University of South Carolina Library	(803) 792-2372
Tennessee	Memphis & Shelby County Public Library and Information Center	(901) 725-8876
	Nashville: Stevenson Science Library,Vanderbilt University	(615) 322-2775
Texas	Austin: McKinney Engineering Library, University of Texas at Austin	(512) 495-4500
	College Station: Sterling C. Evans Library, Texas A & M University	(409) 845-2551
	Dallas Public Library	(214) 670-1468
	Houston: The Fondren Library, Rice University	(713) 527-8101 Ext.2587
Utah	Salt Lake City: Marriott Library, University of Utah	(801) 581-8394
Virginia	Richmond: James Branch Cabell Library, Virginia Commonwealth University	(804) 367-1104
Washington	Seattle: Engineering Library, University of Washington	(206) 543-0740
Wisconsin	Madison: Kurt F. Wendt Library, University of Wisconsin Madison	(608) 262-6845
	Milwaukee Public Library	(414) 278-3247

PATENT EXAMINING CORPS

JAMES E. DENNY, Assistant Commissioner
STEPHEN G. KUNIN, Deputy Assistant Commissioner

PATENT EXAMINING GROUPS	Phone Number Area Code 703	New Case Date*
CHEMICAL EXAMINING GROUPS		
GENERAL METALLURGICAL, INORGANIC, PETROLEUM AND ELECTRICAL CHEMISTRY, AND ENGINEERING, GROUP 110 — D. E. TALBERT, Director	308-0661	7/29/90
ORGANIC CHEMISTRY, GROUP 120 — JOHN F. TERAPANE, JR., Director	308-1235	3/29/91
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 130 — BARRY S. RICHMAN, Director	308-0651	2/1/91
HIGH POLYMER CHEMISTRY, PLASTICS, COATING, PHOTOGRAPHY, STOCK MATERIALS AND COMPOSITIONS, GROUP 150 — J. O. THOMAS, Director	308-2351	7/6/90
BIOTECHNOLOGY, GROUP 180 — EDWARD E. KUBASIEWICZ, Director	308-0196	6/2/90
ELECTRICAL EXAMINING GROUPS		
INDUSTRIAL ELECTRONICS, PHYSICS AND RELATED ELEMENTS, GROUP 210 — D. G. KELLY, Director	308-1782	4/17/90
SPECIAL LAWS ADMINISTRATION, GROUP 220 — ROBERT E. GARRETT, Director	308-0511	3/24/90
INFORMATION PROCESSING, STORAGE, AND RETRIEVAL, GROUP 230 — GERALD GOLDBERG, Director	308-0754	8/15/89
PACKAGES, CLEANING, TEXTILES AND GEOMETRICAL INSTRUMENTS GROUP 240 — CARLTON CROYLE, Director	308-0771	9/15/90
ELECTRONIC AND OPTICAL SYSTEMS AND DEVICES, GROUP 250 — JOSEPH J. ROLLA, Director	308-0956	12/1/90
COMMUNICATIONS, MEASURING, TESTING AND LAMP/DISCHARGE GROUP, GROUP 260 — BOBBY R. GRAY, Director	308-0962	6/22/90
DESIGN, GROUP 290 — ROBERT E. GARRETT, Director	308-0511	2/20/89
MECHANICAL EXAMINING GROUPS		
HANDLING AND TRANSPORTATION MEDIA, GROUP 310 — F. R. SCHMIDT, Director	308-1113	1/22/91
MATERIAL SHAPING, ARTICLE MANUFACTURING AND TOOLS, GROUP 320 — N. GODICI, Director	308-1148	1/29/91
MECHANICAL TECHNOLOGIES AND HUSBANDRY PERSONAL TREATMENT INFORMATION, GROUP 330 — J. J. LOVE, Director	308-0858	10/1/90
SOLAR, HEAT, POWER, AND FLUID ENGINEERING DEVICES, GROUP 340 — JOHN KITTLE, Director	308-0861	12/7/90
GENERAL CONSTRUCTION, PETROLEUM AND MINING ENGINEERING, GROUP 350 — A. L. SMITH, Director	308-0651	10/1/90

*A communication from the examiner should have been received in most applications filed prior to this date.

Expiration of Patents: The patents within the range of numbers indicated below expire during October 1991 except those which may have had their terms curtailed by disclaimer under the provisions of 35 U.S.C. 253. Other patents, issued after the dates of the range of numbers indicated below, may have expired before the full term of 17 years for the same reasons, or have lapsed under the provisions of 35 U.S.C. 151

Patents ..... Numbers 3,838,466 to 3,845,503 inclusive
Plant Patents ..... 3,628 to 3,643

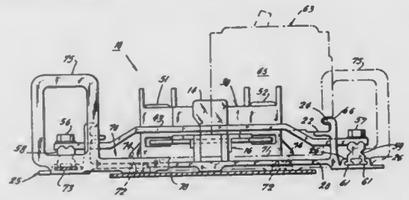
VOL
1132
ISS
4
NO
26
1991
UMI

REEXAMINATIONS

NOVEMBER 26, 1991

Matter enclosed in heavy brackets [ ] appears in the patent but forms no part of this reexamination specification; matter printed in italics indicates additions made by reexamination.

B1 4,167,769 (1592nd)
PANELBOARD HAVING DISTRIBUTED NEUTRAL
Roger D. Luke, Norcross, and John M. Rhodes, Atlanta, both of Ga., assignors to Siemens-Allis, Inc.
Reexamination Request Nos. 90/002,069, Jun. 25, 1990 and 90/002,132, Sep. 10, 1990.
Reexamination Certificate for Patent No. 4,167,769, issued Sep. 11, 1979, Ser. No. 920,154, Jun. 29, 1978.
Int. Cl.[5] H02B *1/04*
U.S. Cl. 361—355



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

Claims **1** and **3** are determined to be patentable as amended.

Claims **2** and **4–6**, dependent on an amended claim, are determined to be patentable.

1. An electrical power distribution device including a base, first and second parallel elongated neutral bars mounted to said base, first and second elongated mounting formations on said base for supporting load ends of circuit breakers when the latter are mounted to said device, said first and second mounting formations being in the vicinity of the respective first and second neutral bars and being positioned inboard thereof, [a line contact array] *first and second main busses having a plurality of circuit breaker engageable stab portions* disposed between said *first and second* mounting formations, *said stab* portions to be electrically engaged with circuit breakers when the latter are mounted to said device, an electrical conductor disposed at one end of said array and having its opposite ends secured to said first and second neutral bars to provide an electrical connection therebetween.

B1 4,336,554 (1593rd)

Patent Not Issued For This Number

B2 4,569,444 (1594th)
EGG PROCESSING SYSTEM
John C. McEvoy, Canton; George N. Bliss, Franklin, and Leslie P. Thomas, Canton, all of Mich., assignors to Diamond Automations, Inc.
Reexamination Request No. 90/001/573, Aug. 5. 1988 and 90/001,948, Feb. 25, 1990
Reexamination Certificate for Patent No. 4,569,444, issued Feb. 11, 1986, Ser. No. 394,162, Jul. 1, 1982.
Reexamination Certificate B1 4,569,444, issued Aug. 9, 1988.
Int. Cl.[5] A01K *43/08*; B65G *47/46*
U.S. Cl. 209—510

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **54** and **55** is confirmed.

Claims **2** and **24** are cancelled.

Claims **1**, **10**, **14**, **25**, **29–33**, **40**, **44**, **48**, **53** and **56** are determined to be patentable as amended.

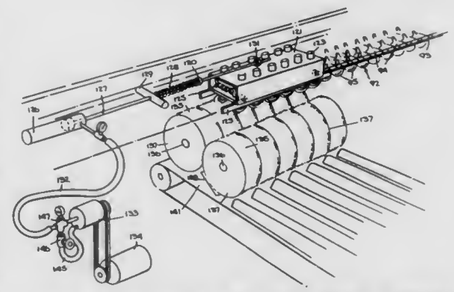
Claims **3–9**, **11–13**, **15–23**, **26–28**, **34–39**, **41–43**, **45–47** and **49–52**, dependent on an amended claim, are determined to be patentable.

New claims **57–76** are added and determined to be patentable.

1. An apparatus for transferring eggs continuously conveyed by a first conveyor means to a receiving station of an egg grading apparatus at which the eggs are packaged according to their physical characteristics, comprising:

means for determining a physical characteristic of each of the eggs and storing the measured characteristics;

means disposed *above and* adjacent to said first conveyor means at said receiving station, for *selectively* releasing eggs having the same physical characteristics from said first conveyor means *according to a drop trajectory determined by the conveyor speed* in a predetermined sequence *determined by the stored physical characteristics of the eggs,*



into a receiving means at said receiving station, said releasing means being movable *along the direction of conveyance of the eggs* with respect to said receiving station,

said first conveyor means including a plurality of releasable egg-engaging means for continuously conveying and delivering a plurality of eggs in spaced-apart, aligned relationship to said receiving station, and

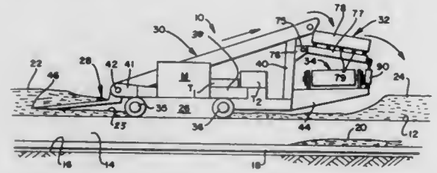
means operatively communicative with drive means for said first conveyor means and responsive to said drive means and coupled to said releasing means, for varying the position of said releasing means with respect to said receiving station according to the speed of said first conveyor means, said means for varying being responsive to variations in the speed of said first conveyor means thereby to adjust the position of said releasing means to compensate for said variations in the speed of said first conveyor means, *said releasing means comprising means movable into the path of said releasable egg-engaging means of said first conveyor means for selectively actuating said releasable egg-engaging means in said predetermined sequence responsive to the stored physical characteristics so as selectively to release the eggs carried by said egg-engaging means into the receiving means.*

B1 4,633,602 (1595th)

METHOD AND APPARATUS FOR PADDING PIPE

Ricky L. Layh, and Christy B. Landrum, Jr., both of Hobbs, N. Mex., assignors to CRC-Evans Pipeline International, Inc., Tex.

Reexamination Request No. 90/002,311, Apr. 1, 1991.
Reexamination Certificate for Patent No. 4,633,602, issued Jan. 6, 1987, Ser. No. 771,840, Sep. 3, 1985.
Int. Cl.[5] E02F *5/12*
U.S. Cl. 37—195



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claim 3 is confirmed.

Claims **1** and **4** are determined to be patentable as amended.

Claims **2** and **5**, dependent on an amended claim, are determined to be patentable.

New claims **6–30** and **31** are added and determined to be patentable.

1. Apparatus for continuously moving along the ground parallel to the *pipeline* ditch while continuously gathering and processing excavated material which lies on the ground adjacent to **[a]** *the* pipeline ditch so as to enable padding material to be separated from the gathered material and conveyed back into the ditch, with the residue from the processed material being returned to the ground adjacent to the ditch;

said apparatus having a longitudinal conveyor arranged parallel to the path of travel of the apparatus, and means forming a gathering head at the forward marginal end of the conveyor for gathering excavated material from the ground and forcing the excavated material onto the leading end of the conveyor; said conveyor having a forward end opposed to a discharge end and translocates the gathered material rearwardly to an elevated position;

means by which said gathering head is pivotally mounted to said apparatus and forms the forward marginal end thereof; said gathering head has a ground engaging lip at the forward end thereof, said gathering head can be pivotally moved vertically respective to the excavated material in order to gather a controlled amount of excavated material for subsequently processing into *the* padding material;

a separator means supported at the rear end of the apparatus for separating padding material and residual processed material from the translocated gathered material; said separator means being located in underlying relationship respective to the discharge end of the longitudinal conveyor;

a lateral conveyor means positioned in underlying relationship respective to the separator means for translocating the padding material received from the separator into the ditch and thereby covering a pipe which may be located in the ditch;

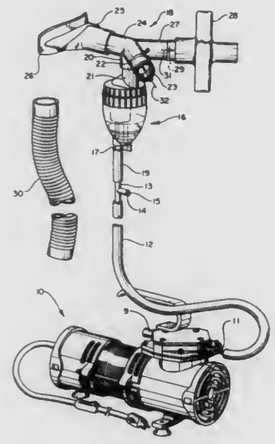
and means for redepositing the residual processed material from the separator onto the remaining said material which lies on the ground along a path which is parallel to the ditch.

B1 4,823,784 (1596th)

AEROSOL INHALATION APPARATUS

Maurice E. Bordoni, Westtown, and Ephraim Lieberman, Suffern, both of N.Y., assignors to Cadema Medical Products, Inc., Middletown, N.Y.

Reexamination Request No. 90/002,147, Sep. 25, 1990.
Reexamination Certificate for Patent No. 4,823,784, issued Apr. 25, 1989, Ser. No. 115,903, Nov. 2, 1987.
Int. Cl.[5] A61M *11/00*; B05B *17/06*; A62B *7/00*
U.S. Cl. 128—200.14



AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **10–19** and **25** is confirmed.

Claims **1**, **5**, **6**, **9** and **20–24** are determined to be patentable as amended.

Claims **2–4**, **7** and **8**, dependent on an amended claim, are determined to be patentable.

1. An aerosol inhalation apparatus for supplying an aerosol mist to a subject comprising:

a disposable aerosol inhalation device, the device including a nebulizer having a compressed air inlet and an outlet for an aerosol mist generated therein, a first conduit in fluid communication with said outlet of said nebulizer, a second conduit having a first one-way valve therein for providing one-way fluid communication from ambient to an intersection between said first conduit and said second conduit, a third conduit providing fluid communication from the intersection between said first conduit and said second conduit, a filter coupled to said third conduit, a second one-way valve positioned in said third conduit for providing one-way fluid communication from the intersection to ambient via said filter and fourth conduit providing fluid communication between an airway of a patient and the intersection;

a source of compressed air; and

means coupling said source of compressed air to said compressed air inlet of said nebulizer for delivering compressed air thereto;

whereby said one-way fluid communication from ambient to the intersection between said first conudit and said second conduit eases said patient's breathing by allowing inhalation independent of said source of compressed air.

B1 4,970,243 (1597th)

PROCESS FOR THE PRODUCTION OF FLEXIBLE SLABSTOCK POLYURETHANE FOAMS

Gundolf Jacobs, Bergisch Gladbach; Peter Haas, Haan; Hans-Walter Illger, Roesrath-Forsbach; Hans-Joachim Kogelnik, Bergisch Gladbach, and Klaus-Dieter Wolf, Cologne, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Reexamination Request No. 90/002,279, Feb. 8, 1991.
Reexamination Certificate for Patent No. 4,970,243, issued Nov. 13, 1990, Ser. No. 361,896, Jun. 6, 1989.
Claims priority, application Fed. Rep. of Germany, Jun. 11, 1988, 3819940
Int. Cl.[5] C08G *18/14*
U.S. Cl. 521—155

AS A RESULT OF REEXAMINATION, IT HAS BEEN DETERMINED THAT:

The patentability of claims **1–13** is confirmed.

1. A process for the production of an elastic, open-cell flexible slabstock polyurethane foam comprising reacting at an isocyanate index less than about 80,

(a) one or more polyisocyanates selected from the group consisting of tolylene diisocyanates, hexamethylene diisocyanate, and isophorone diisocyanate, with

(b) a compound containing at least two isocyanate-reactive hydrogen atoms and having a molecular weight of about 400 to about 10,000, in the presence of

(c) water as blowing agent in a quantity of about 5 to about 15 parts by weight for every 100 parts by weight of component (b).

VOL 1132 ISS 4 NO 26 1991 UMI

VOL
1132
ISS
4
NO
26
1991
UMI

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

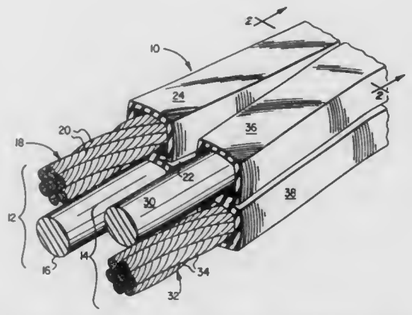
Re. 33,750
SIGNAL CABLE ASSEMBLY

Noel Lee, 47 W. Park Dr., Daly City, Calif. 94015

Original No. 4,731,506, dated Mar. 15, 1988, Ser. No. 925,831, Oct. 29, 1986. Application for reissue Oct. 4, 1988, Ser. No. 253,227

Int. Cl.[5] H01B *11/02*

U.S. Cl. 174—115 12 Claims



7. A signal cable assembly for transferring positive and negative signals between a source and a load, said cable assembly comprising:

(1) a first cable for carrying the positive portion of said signal, said first cable comprising:

(a) a first conductor comprising at least one wire;

(b) a second conductor comprising a plurality of bundles of wires;

(c) the diameter of at least one of said wires of said bundles being different from the diameter of said at least one wire of said first conductor;

(d) a first insulating material extending around said first conductor; and

(e) a second insulating material extending around said second conductor; and

(2) a second cable extending to the side of said first cable in a spaced parallel relationship for carrying the negative portion of said signal, said second cable comprising:

(a) a first conductor comprising at least one wire;

(b) a second conductor comprising a plurality of bundles of wires;

(c) the diameter of at least one of said wires of said bundles being different from the diameter of said at least one wire of said first conductor;

(d) a first insulating material extending around said first conductor; and

(e) a second insulating material extending around said second conductor; and

(3) each of said first conductors of said first and second cables being adapted to carry the relatively low frequency components of said signal and each of said second conductors of said first and second cables being adapted to carry the relatively high frequency portions of said signal.

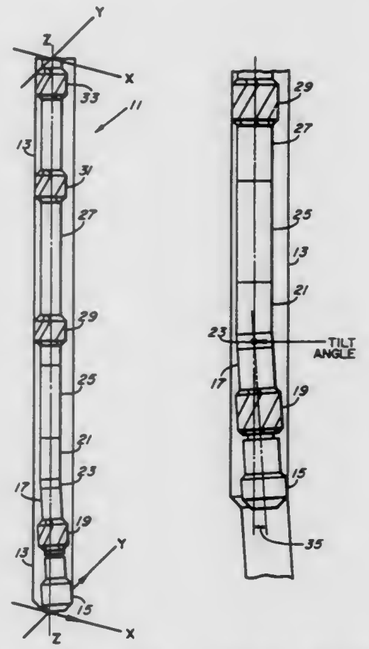
Re. 33,751
SYSTEM AND METHOD FOR CONTROLLED DIRECTIONAL DRILLING

Bela Geczy, Houston, Tex., and Frank DeLucia, Aberdeen, Scotland, assignors to Smith International, Inc., Houston, Tex.

Original No. 4,667,751, dated May 26, 1987, Ser. No. 786,817, Oct. 11, 1985. Application for reissue May 23, 1989, Ser. No. 356,270

Int. Cl.[5] E21B *7/08*

U.S. Cl. 175—61 36 Claims



1. An improved system for controlled directional and straight drilling of a borehole wherein the entire drillstring is rotatable from the surface, including a bottomhole assembly comprised of a drill bit connected to the output shaft of a downhole motor for independent rotation from the drillstring, said motor connected at its uphole end to the drillstring, the improvement in the bottomhole assembly, comprising:

a first, concentric stabilizer, having a preselected diameter slightly smaller than the diameter of the borehole, mounted between the drill bit and motor at a preselected distance from the bit around the output shaft of said downhole motor, said shaft being concentrically located therein;

a [heat] *bent* motor housing connected to the downhole end of said downhole motor that has a bend from its geometric center at a predetermined angle α at its downhole end, thereby offsetting the centerline of said first stabilizer and the centerline of the drill bit face from the borehole centerline by said angle α;

VOL 1132 ISS 4 NO 26 1991 UMI

a second concentric stabilizer, having a preselected diameter slightly smaller than the diameter of the borehole, mounted at a preselected distance from said first concentric stabilizer on the drillstring, said drillstring being concentrically located therein; and

a third concentric stabilizer, having a preselected diameter slightly smaller than the diameter of the borehole, mounted at a preselected distance from said second concentric stabilizer on the drillstring, said drillstring being concentrically located therein;

wherein the angle α of the bend in the motor housing, and the diameter and placement of the concentric stabilizers are determined by the desired path of the borehole to be drilled, said system drilling a curved borehole when only the downhole motor is activated, and drilling a straight borehole when the downhole motor is activated and both the drillstring and downhole motor housing are rotated.

Re. 33,752

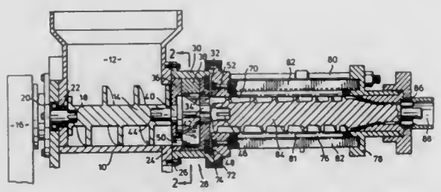
APPARATUS FOR THE SEPARATION OF MIXTURES OF MATERIALS OF DIFFERENT CONSISTENCIES SUCH AS MEAT AND BONE

Werner Poss, 159 Castle Crs., Oakville-Ontario, Canada L6J 5H4

Original No. 4,638,954, dated Jan. 27, 1987, Ser. No. 690,215, Jan. 10, 1985. Continuation-in-part of Ser. No. 513,487, Jul. 13, 1983, abandoned. Application for reissue Nov. 28, 1988, Ser. No. 276,982

Int. Cl.[5] **B02C** *19/22, 23/16*

U.S. Cl. 241—74 **33 Claims**



1. Apparatus for the separation of a composite mixture of different materials of different consistencies into separate fractions of the different consistencies comprising:

an apparatus body having an apparatus inlet for the composite mixture to be separated and respective outlets for the separated fractions,

a rotary vaned pump having a pump compartment mounted by the said body, the pump compartment having an inlet thereto receiving the mixture from the apparatus inlet into the pump compartment and the pump pressurising it in the pump compartment to an operative separation pressure *of at least 70 Kg/sq. cm. (1000 p.s.i.)*,

said rotary vaned pump having a pump rotor carrying at least one vane rotatable about a rotor axis, said one vane being mounted in a respective radially-extending slot in the rotor and moving radially therein as the rotor rotates, and defining at least two pump chambers in the pump compartment, said pump chambers being formed about a chamber longitudinal axis radially displaced from said rotor axis so that each pump chamber decreases in volume as the pump vane moves from the pump means inlet toward the pump means outlet and increases in volume as the pump vane moves from the outlet towards the inlet,

separator screen means mounted by the said body against a front face of which the pressurised mixture is delivered for the corresponding softer first fraction thereof to pass through the screen to a rear face thereof and for the remaining second harder fraction to be retained by the screen, and

means connecting at least the front face of the screen to a respective outlet for the respective separated second harder fraction,

said separator screen means and the outlet for the second harder fraction maintaining the pressure of the pressurized mixture at [an] *said* operative separation pressure.

Re. 33,753

AUSTENITIC STEEL WITH IMPROVED HIGH-TEMPERATURE STRENGTH AND CORROSION RESISTANCE

Sergio Vacchiano, Rome; Giovanni Lanfranco, St. Vincent, and Roberto Gubiotti, Terni, all of Italy, assignors to Centro Sviluppo Materiali S.p.A., Rome, Italy

Original No. 4,824,636, dated Apr. 25, 1989, Ser. No. 22,204, Mar. 5, 1987. Application for reissue Dec. 29, 1989, Ser. No. 459,304

Claims priority, application Italy, Mar. 17, 1986, 47782 A/86

Int. Cl.[5] **C22C** *38/44*

U.S. Cl. 420—47 **2 Claims**

1. Austenitic steel with improved and long-term constant high-temperature strength and resistance to aggressive agents, [comprising] *consisting essentially of* the following elements in % by weight:

0.40–0.65 carbon
0.35–0.60 nitrogen
[2.0–3.0 manganese]
about 2.30 manganese
22.0–24.0 chromium
7.5–8.5 nickel
0.7–1.3 molybdenum
0.6–1.2 vanadium
0.7–1.5 niobium
up to 0.3 silicon
up to 0.03 sulphur
up to 0.025 phosphorus

balance essentially iron, carbon, nitrogen, vanadium, molybdenum and niobium being intercorrelated by specific ratios, said specific ratios being expressed in atomic fractions through the following mathematical relations:

(A) Nb+V/C+N=0.25–0.45
(B) N/C=0.60–1.10
(C) V/Nb=0.50–2.0
(D) Mo/C=0.15–0.25.

Re. 33,754

GREASE COMPATIBLE EXTENDED POLYURETHANES

Melvin Brauer, East Brunswick; William J. Downey, Linden; Frank C. Naughton, Mountainside, and Jerry C. Chao, Bayonne, all of N.J., assignors to CasChem, Inc., Bayonne, N.J.

Original No. 4,596,743, dated Jun. 24, 1986, Ser. No. 713,378, Mar. 19, 1985. Continuation-in-part of Ser. No. 553,196, Nov. 18, 1983, Pat. No. 4,533,598. Application for reissue Apr. 20, 1990, Ser. No. 512,310

Int. Cl.[5] **C08K** *5/01, 5/10;* **C08L** *75/04*

U.S. Cl. 428—380 **27 Claims**

1. A grease compatible cyclic olefin extended polyurethane composition comprising from about 10 to 90 parts of the liquid reaction product of an organic polyisocyanate with a polyol in the presence of a liquid cyclic olefin, the polyisocyanate polyol reaction product being present in a range from about 8 to 99 parts by weight, and said cyclic olefin being present in range of from about 92 to 1 part by weight, and from about 90 to 10 parts by weight of a plasticizer having a total solubility parameter of between about 9.1 and 9.7 [or between about 8.3 and 8.9].

12. A process for providing a fluid impervious protective seal around an insulated electrical device which comprises introducing the components of the composition of claim 1 into a confined space surrounding the section of a device to be protected and allowing said composition to cure to a gel.

Re. 33,755

ESTER PLASTICIZERS FOR POLYURETHANE COMPOSITIONS

William J. Downey, Linden; Melvin Brauer, East Brunswick, and Jerry C. Chao, Bayonne, all of N.J., assignors to CasChem, Inc., Bayonne, N.J.

Original No. 4,666,968, dated May 19, 1987, Ser. No. 837,554, Mar. 3, 1986. Continuation-in-part of Ser. No. 713,377, Mar. 19, 1985, abandoned. Application for reissue Oct. 30, 1989, Ser. No. 428,700

The portion of the term of this patent subsequent to May 19, 2004, has been disclaimed.

Int. Cl.[5] **C08K** *5/10, 5/12;* **C08L** *75/04*

U.S. Cl. 524—296 **15 Claims**

1. A polyurethane gel composition comprising about 10 to 90 parts by weight of the liquid reaction product of an organic polyisocyanate and a polyol having an equivalent weight above 250 in the presence of about 90 to 10 parts by weight of an ester plasticizer compound having a total solubility parameter of [between about 8.3 and 8.9] or between about 9.1 and 9.7.

VOL
1132
ISS
4
NO
26
1991
UMI

PLANT PATENTS

GRANTED NOVEMBER 26, 1991

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

7,717
ROSE PLANT JACORAL
William A. Warriner, Tustin, Calif., assignor to Bear Creek Gardens, Inc., Medford, Oreg.
Filed Apr. 23, 1990, Ser. No. 512,990
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—9 **1 Claim**

1. A new and distinct variety of rose plant of the miniature class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of its dwarf upright habit of growth, dark green glossy foliage, and unusual pink flower color with darker pink at the center.

7,718
ROSE PLANT—MEICAUF VARIETY
Marie-Louise Meilland, deceased, late of Antibes, France by Jean-Pierre Le Naour, Legal Representative , assignor to The Conard-Pyle Company, West Grove, Pa.
Filed May 22, 1990, Ser. No. 526,989
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—20 **1 Claim**

1. A new and distinct variety of Hybrid Tea rose plant characterized by the following combination of characteristics:

(a) forms continuously and in abundance attractive long lasting double blossoms which are turkey red on the upper surface and cardinal red on the under surface,
(b) exhibits an erect growth habit,
(c) exhibits very vigorous vegetation,
(d) is particularly suited for growing in parks and gardens, and
(e) is not particularly affected by cryptogamic diseases;

substantially as herein shown and described.

7,719
***JASMINE MULTIFLORUM* 'TIFFANY'**
Wesley C. Fisher, Sebring, Fla., assignor to Hidden Acres Nursery Inc., Sebring, Fla.
Filed May 17, 1990, Ser. No. 526,998
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—54 **1 Claim**

1. A new and distinctive variety of *Jasminum multiflorum* substantially as shown and described herein, characterized particularly as to novelty by the random pattern of contrasting yellow colors as variegations on the green leaves, with hardy, profuse production, other characteristics being typical of *Jasminum multiflorum* including pubescence, and delicate fragrance of the flowers which are white.

7,720
VARIETY OF GERANIUM NAMED MONIQUE
Jacques Guillou; Bernard Guillou, and Maurice Guillou, all of Saint-Malo, France, assignors to Etablissement Guillou Freres Jacques, Bernard et Maurice, Saint-Malo, France
Filed Aug. 27, 1990, Ser. No. 572,441
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct ivy Geranium, as shown and described herein.

7,721
VARIETY OF GERANIUM NAMED YVETTE
Jacques Guillou; Bernard Guillou, and Maurice Guillou, all of Saint-Malo, France, assignors to Etablissement Guillou Freres Jacques, Bernard et Maurice, Saint-Malo, France
Filed Aug. 27, 1990, Ser. No. 572,442
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct ivy Geranium as shown and described herein.

7,722
ALSTROEMERIA PLANT NAMED ALICIA
Erwin Mojonnier, 237 Quail Dr., Encinitas, Calif. 92024
Filed Jul. 24, 1990, Ser. No. 556,402
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—68 **1 Claim**

1. A new and distinct cultivar of Alstroemeria plant named Alicia, as illustrated and described.

7,723
AFRICAN VIOLET NAMED KATY
Eiichi Yoshida, P.O. Box 4836, Hayward, Calif. 94540-4836
Filed May 14, 1990, Ser. No. 524,127
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—69 **1 Claim**

1. A new and distinct cultivar of African violet named 'Katy', as described and illustrated, and particularly characterized by its profuse flowering, upright flower stems, compact bouquet, vigorous growth habit, flowers 11 to 12 weeks after potting and its long lasting and non-dropping flowers which gives the plant a substantially continuous beauty.

7,724
CHRYSANTHEMUM PLANT NAMED GOLD RUSH
Janet S. Foess, 9011 Red Hill Rd., New Hartford, N.Y. 13413
Filed Jun. 26, 1990, Ser. No. 543,381
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—74 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum plant named Gold Rush, as described and illustrated.

7,725
CHRYSANTHEMUM PLANT NAMED FORT KNOX
Janet S. Fuess, 9011 Red Hill Rd., New Hartford, N.Y. 13413
Filed Jun. 26, 1990, Ser. No. 543,382
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—78 **1 Claim**

1. A new and distinct cultivar of Chrysanthemum plant named Fort Knox, as described and illustrated.

7,726
POINSETTIA PLANT 'C-27 PINK'
Franz Fruehwirth, Encinitas, Calif., assignor to Paul Ecke Ranch, Inc., Encinitas, Calif.
Filed May 24, 1990, Ser. No. 528,237
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—86 **1 Claim**

1. A new and distinct Poinsettia cultivar, substantially as herein shown and described, characterized by its large, erect and bright pink flower bracts and stiff stems.

7,727
GUZMANIA PLANT NAMED TWILIGHT
Gerardus J. Bak, Assendelft, Netherlands, assignor to Corn. Bak B.V., Netherlands
Filed Apr. 24, 1990, Ser. No. 513,881
Int. Cl.[5] A01H *5/00*
U.S. Cl. Plt.—88 **1 Claim**

1. A plant of a new and distinct cultivar of Guzmania plant named 'Twilight', as illustrated and described.

VOL
1132

ISS
4

NO
26

1991

UMI

PATENTS

GRANTED NOV. 26, 1991

ERRATA

For CLASS	See PATENT NO.
5-002	5,067,183
62-515	5,067,322
229-214	5,067,613
229-123	5,067,614
229-230	5,067,615
241-036	5,067,666
359-350	5,067,781
359-202	5,067,782
385-060	5,067,783
385-053	5,067,784
385-038	5,067,785
385-013	5,067,786
385-050	5,067,787
385-002	5,067,788
385-027	5,067,789
385-100	5,067,790
385-101	5,067,791

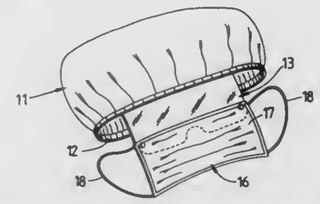
VOL
1132
ISS
4
NO
26
1991
UMI

PATENTS

GRANTED NOVEMBER 26, 1991

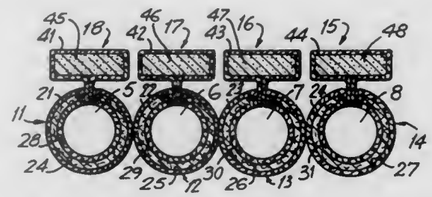
GENERAL AND MECHANICAL

5,067,174
PROTECTIVE HEADGEAR
Albert E. Ritchey, 2109 Cloud Croft Cir., Birmingham, Ala. 35216, and Thomas C. Reeves, 3501 Mountain La., Birmingham, Ala. 35213
Continuation-in-part of Ser. No. 356,447, May 24, 1989. This application Sep. 4, 1990, Ser. No. 576,963
Int. Cl.[5] A42B *1/06*
U.S. Cl. 2—10 **10 Claims**



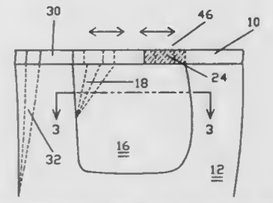
1. Apparatus for providing a protective cover to the head of a health care professional or like user exposed to a contaminating environment comprising:
(a) a protective head covering means made from a spun polypropylene fabric having an elastomeric band encircling the head and circumscribing a singular opening in a protective covering such that the user's head is situated within the opening and covered above the elastomeric band means by the protective covering;
(b) A clear visor extending across the face of the user having a strip attached along an upper margin thereof made from a hooked portion of hook and loop material, wherein said strip detachably engages said polypropylene fabric in hook and loop relation being easily detached and reattached; and
(c) a face mask attached to the visor at a lower periphery thereof and providing means for attachment of said face mask and said visor to the face of the user.

5,067,175
PADDED GARMENT
Danny Gold, 23 Repulse Bay Rd., Apt. 4B, Hong Kong, Hong Kong
Filed Aug. 31, 1990, Ser. No. 576,614
Int. Cl.[5] A41D *13/00*
U.S. Cl. 2—16 **20 Claims**



1. A padded garment for covering at least a portion of a body part, comprising:
garment panel means for forming an outer surface of the garment, the garment panel means including at least first and second panel members, each of the first and second panel members including a panel section and a seam tolerance section separated by a seam location;
padding means for protecting at least a portion of the body part;
chamber means coupled to the first and second panel members at their respective seam locations for creating a chamber for containing the padding means in a position proximate the outer surface of the garment; and
coupling means for joining the chamber means and the seam locations of the first and second panel members, the chamber means being joined to the garment panel means between the seam locations of the first and second panel members.

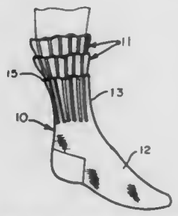
5,067,176
SELF-ADJUSTING TROUSER WAISTBAND SYSTEM
Vincent Carabillo, 90 Trenton Ave., Clifton, N.J. 07011
Filed Oct. 15, 1990, Ser. No. 597,839
Int. Cl.[5] A41D *1/06*
U.S. Cl. 2—237 **12 Claims**



1. A self-adjusting trouser waistband system, comprising:
(a) a pair of trousers having a circumferential waist having respective ends starting at respective opposite sides of a trouser fly;
(b) left and right pockets, including therein extensible means near the tops thereof, for stretching horizontally, said means located within both an outside surface of said pocket and an inside surface of said pocket;
(c) left and right forward linear elastic elements each having first and second ends, said first ends secured to respective opposite side areas of said trouser fly;
(d) left and right forward non-extensible linear elements, each having first and second ends, each first end of said forward linear elements secured in the area of said trouser fly, lower portions of each of said forward non-extensible elements secured to said outer surface extensible means of said pocket;
(e) left and right rear non-extensible linear elements, each having first and second end, each of said first ends secured to said second ends of said forward elastic elements, and said second end secured to said circumferential waist of the trousers at a region proximal to the rear of each pocket, lower portions of each of said rear non-extensible elements secured to said inner surface extensible means of said pocket; and
(f) left and right rear linear elastic elements having first and second ends, said first ends secured to said second ends of said forward non-extensible elements and said second ends secured to said circumferential trouser waist in said region of the rear of each pocket,
whereby the horizontal dimension of said trouser waist and pocket areas will expand and contract in response to changes in the effective girth of the waist of the user resulting from changes of girth resulting from eating of meals, time of day, sitting, bending, standing and other causes.

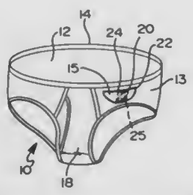
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,177
CUFF-LIKE TUBULAR EXTENSIONS FOR WEARING APPAREL
Margaret L. Binder, 7334 Palmleaf La., Worthington, Ohio 43235
Filed May 18, 1990, Ser. No. 525,409
Int. Cl.[5] A41B *11/00, 7/00*
U.S. Cl. 2—239 2 Claims



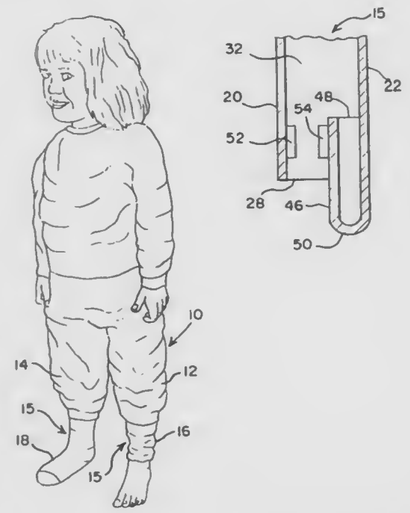
1. An article of wearing apparel comprising
a sock having a foot portion for receiving a person's foot and an ankle portion of elongated tubular configuration connected with and extending from said foot portion having a marginal end portion open at a terminal end through which a person's leg extends, said marginal end portion sized to be in constrictive engagement with a person's leg extending therethrough,
a cuff element of elongated, open-ended tubular configuration having first and second marginal end portions, said cuff element positionable on a person's leg in axially aligned relationship to said ankle portion with said cuff element's first marginal end portion projected a distance into the marginal end portion of said ankle portion with said second marginal end portion extending a distance axially outward from said ankle portion whereby it is exposed for visual observation, said cuff element's first marginal end portion sized to constrictively engage with the wearer's leg for retention thereon in substantially fixed position.

5,067,178
UNDERGARMENT
Michael P. Katchka, 180 Mohawk, Pontiac, Mich. 48053
Continuation-in-part of Ser. No. 210,495, Jun. 23, 1988. This application Sep. 18, 1989, Ser. No. 408,844
Int. Cl.[5] A41B *9/00*; A41C *3/00*
U.S. Cl. 2—250 17 Claims



1. An undergarment for retaining personal effects in a secure manner during the normal course of activities of a wearer of the undergarment, the undergarment comprising:
(a) a body portion to be worn about the trunk below the waist of the wearer, the body portion being made of a body-portion material;
(b) a waistband that is affixed to the body portion, the waistband being wearable about the waist of the wearer; and
(c) a pocket being secured to the body portion, the pocket being made of a pocket material which is different from the body-portion material, the pocket material being elastic in one direction only, the pocket having an opening disposed across a portion thereof, an elasticized band of material being disposed across the pocket adjacent the opening, the elasticized band of material being stretched taut across the pocket opening, the top portion of the pocket having a double density of the pocket material.

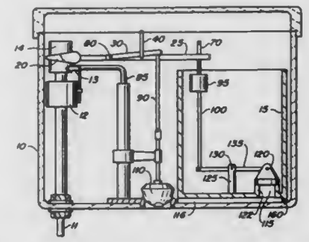
5,067,179
CONVERTIBLE GARMENT LEG CONSTRUCTION
Walter S. Wormser, Highland Park, Ill., assignor to The Wormser Company, Northbrook, Ill.
Filed Nov. 5, 1990, Ser. No. 609,411
Int. Cl.[5] A41D *10/00, 27/10*
U.S. Cl. 2—269 27 Claims



21. A convertible garment leg construction, suitable for use in a child's pajamas, which comprises in combination a garment leg having an open bottom end, elongated front and rear panels of stretchable material joined at longitudinal edge seams to provide an elongated tubular sleeve having a first open end that is attached to said garment leg open bottom end and is circumferentially stretchable in a direction transverse of said longitudinal edge seams, the length of the sleeve being such as to provide a foot receiving sock element at a second sleeve open end spaced from said first sleeve open end when the sleeve is extended to its full length, the second open end of the sleeve defining thereon an elongated cuff located partially within the sleeve across an inside surface of said rear panel and having one transverse folded edge thereof integral with said rear panel, the cuff having longitudinal side edges attached to spaced portions of the sleeve at seams that are extensions of the said longitudinal edge seams, said longitudinal side edges and seams of the cuff extending axially of the sleeve and tapering inwardly from an upper free edge of the cuff to the folded edge of the cuff that is integral with the rear panel, said seam lines at the side edges of the cuff being spaced from each other so as to provide that the elongated cuff is stretchable with the circumferentially stretchable sleeve, the length of the free edge of the cuff extending along substantially one-half of the circumferential periphery of the sleeve, the cuff being manipulatable between a first, stored-away position in which it is adjacent the interior of the sleeve so as not to obstruct the second open end of the tubular sleeve and so as to permit the stretchable sleeve and cuff to contract to form a neat anklet-cuffing for the garment leg, and a second sleeveclosing position where the cuff

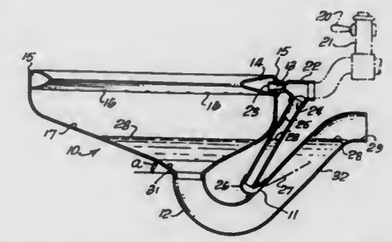
extends across the second open end of the sleeve to close same, a hook-and-loop type fastener unit having a first fastener element containing a plurality of loops and having a second fastener element containing a plurality of hooks for grippingly engaging said loops, one of said fastener elements being mounted on an inside of said sleeve front panel proximate said second open end of the sleeve and the other one of said fastener elements being mounted on an inwardly facing outer surface of said cuff in a position across from said one of said fastener elements and located to provide that a wearer of said garment may manipulate said front panel and said cuff to bring said fastener elements into gripping engagement to close off said sleeve second open end and provide said foot receiving sock element, and a third fastener element containing a plurality of hooks mounted on an outside surface of said sleeve front panel, and positioned proximate said sleeve second open end.

5,067,180
METHOD AND APPARATUS FOR CONSERVING WATER USED IN THE DISPOSAL OF HUMAN BODY WASTE
Kenneth J. Figerold, 474 Wilmer St., Carmichael, Calif. 95608
Filed Apr. 17, 1990, Ser. No. 510,079
Int. Cl.[5] E03D *1/14*
U.S. Cl. 4—326 18 Claims



1. A water saving apparatus for toilets, comprising:
(a) a secondary water container, said secondary water container having a bottom and an open top, said bottom including an opening;
(b) a secondary valve, said secondary valve positioned over said opening, said secondary valve being operable to open and close said opening;
(c) a pressure arm, said pressure arm having a first end and a second end, said first end coupled to said secondary valve;
(d) a float arm, said float arm coupled to said second end of said pressure arm;
(e) a base, said base attached to said bottom of said secondary water container in proximity to said opening, said pressure arm pivotally coupled to said base at a point near the longitudinal midpoint along said pressure arm;
(f) a float, said float attached to said float arm;
(g) attachment means for attaching said secondary water container to a toilet of the type having a primary water container, waste containment means for containing human body waste, and a primary valve for discharging water from said primary water container into said waste containment means;
(h) first actuating means for actuating said primary valve;
(i) second actuating means for actuating said secondary valve; and
(j) coupling means for coupling said secondary actuating means to said first actuating means whereby the user can selectively actuate said secondary valve independently or actuate said primary valve and said secondary valve concurrently.

5,067,181
BLOW OUT TOILET WITH LOW WATER VOLUME USAGE
V. Walter Hafner, and Keith D. Marshall, both of Whittier, Calif., assignors to Acorn Engineering Company, Los Angeles, Calif.
Filed Mar. 13, 1990, Ser. No. 492,953
Int. Cl.[5] E03D *11/18*
U.S. Cl. 4—425 8 Claims



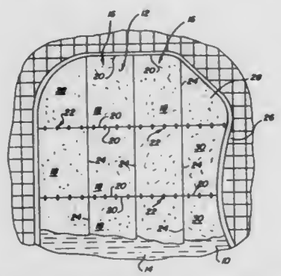
1. An improved blow out toilet of the type having a toilet bowl, a trap affixed to the base of the bowl and leading downwardly, then curving upwardly to a straight portion at an angle of about 45 and then curving to approximately a horizontal orientation, which trap permits water to fill the bowl to a predetermined level, a rinse water outlet ring near the top of the interior of the bowl, said rinse water outlet ring having rinse water outlet openings, a rinse water nozzle including an orifice with its outlet directed into the rinse water outlet ring, a flush water nozzle including an orifice positioned in the trap below the predetermined water level and aimed rearwardly therein and a flush valve and piping providing a predetermined volume of water to be less than 1.6 gallons simultaneously to said nozzles when opened, wherein the improvement comprises:
a shallow angled toilet bowl base smoothly shaped that no more than about 0.66 gallon of water is held in the bowl and trap while providing an area of water coverage of at least about 10″×12″;
a generally frusto-conically shaped ring at the base of the shallow angled toilet bowl providing a transition between the bowl and the trap;
a rinse water nozzle orifice between 0.21 and 0.26 inch in diameter;
a flush water nozzle orifice between 0.21 and 0.26 inch in diameter, said flush water orifice being mounted in the top of the trap at the beginning of the straight portion thereof.

5,067,182
SWIMMING POOL COVER
Lester M. Koelsch, 1100 Via Formia, Punta Gorda, Fla. 33950
Filed Aug. 3, 1990, Ser. No. 563,029
Int. Cl.[5] E04H *4/00*
U.S. Cl. 4—498 19 Claims

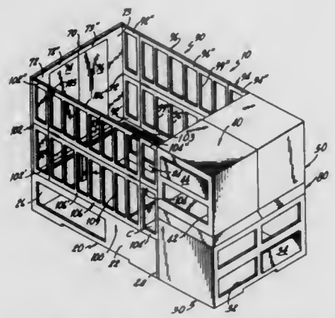
1. A protective floating pool cover comprising:
a plurality of buoyant rectangular panels, said panels having parallel ends and parallel sides, said ends having a hinge portion with hinge pin receiving apertures;
a hinge link received in the hinge portions of adjacent panels, said hinge links having spaced hinge pin apertures; and
a hinge pin received in said hinge pin apertures in said hinge portions and said hinge links, said hinge pin pivotally joining the ends of adjacent panels to permit swinging of any one panel in either direction relative to the adjacent panel until a selected one of either the upper or lower faces of said adjacent panels are in contact with each other, said panels being swingable from a storage position

VOL
1132
ISS
4
NO
26
1991
UMI

in which said panels are folded over in an accordion fashion, one on top of the other, to an open use position floating on the liquid surface of a pool with the ends adjacent each other and said panels in alignment with each other.



5,067,183
CONVERTIBLE INFANT BED ASSEMBLY
Omar Urquiola, 235 SW. Le Jeune Rd., Miami, Fla. 33134
Filed Mar. 4, 1991, Ser. No. 663,967
Int. Cl.[5] A47D *11/00*
U.S. Cl. 5—2.1 12 Claims



1. A set of furniture pieces that are convertible from a crib to a youth bed with a dresser assembly, all resting on a horizontal floor, comprising in cooperative combination:

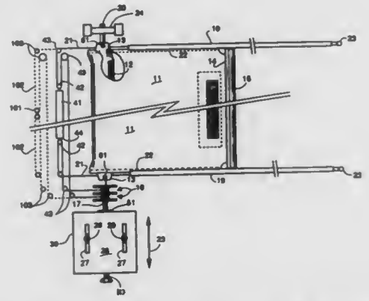
A. a base assembly including two lateral and two shorter end members having an upper edge and forming a rectangular frame and further including platform means mounted on top of said base assembly defining a horizontal plane, spaced apart from said floor and further including extension members removably mounted to said lateral members so that the length of said rectangular frame can be readily extended;

B. rail means removably mounted on the lateral members of said base assembly as an extension thereof and said rail means includes right and left rail assemblies and each one of said rail assemblies having one section comprising two rail members that are hingedly mounted to each other;

C. a head board assembly removably mounted on the upper edge of one of said end members of said base assembly as an extension thereof and also removably attached to said rail assemblies;

D. a lower chest assembly wherein its width is substantially the same as the length of said shorter end members, having a top surface and said lower chest assembly having a rear wall that is removably mounted to said other end member of said base assembly.

5,067,184
COVER DRUM HAVING TAPERED ENDS AND AUTOMATIC SWIMMING POOL COVER
Harry J. Last, 1246 Birchwood Dr., Sunnyvale, Calif. 94089
Continuation-in-part of Ser. No. 258,000, Oct. 17, 1988, Pat. No. 4,939,798. This application Mar. 16, 1990, Ser. No. 494,564
Int. Cl.[5] E04H *4/10*
U.S. Cl. 4—502 37 Claims



1. A system for extending and retracting a flexible rectangular cover having beaded side edges back and forth across a liquid contained in a pool where the cover is supported by and slides on the surface of the liquid, and is anchored by its respective beaded side edges, each of which are captured and slide within a "C" channel of a pool cover track secured along opposite side edges of the pool, comprising, in combination:

a rigid structural boom spanning across the pool secured to the front edge/end of the cover for carrying and supporting the front edge of the cover above the liquid surface as the cover is drawn back and forth across the pool;

means for supporting the rigid boom as it translates back and forth across the pool;

a cylindrical cover drum having a length less than the width of the cover supported for rotation about its longitudinal axis at one end of the pool by axles extending from its respective ends, the cover winding and unwinding from around the periphery of the drum as it retracts and extends across the pool;

a conically tapering hub located at each end of the cover drum coaxially rotating with the cover drum around which the respective beaded side edges of the cover wind and unwind as the cover retracts and extends across the pool;

a cable extending from the respective beaded side edges at the cover's front corners, the cables extending from the front corners of the cover to wind and unwind from around at least one rotatable cable take-up reel;

drive means mechanically coupled to one axle supporting the cover drum and to the cable take-up reel for rotating the cover drum and the cable take-up reel to extend and retract the cover across the pool;

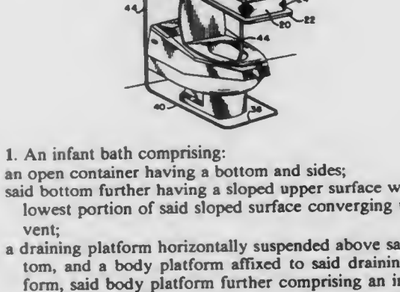
means for translating the cover drum and conically tapering hubs longitudinally along the longitudinal and rotational axis of the cover drum simultaneously increasing a diameter which one beaded side edge of the cover winds about one hub and decreasing a diameter which the other side edge of the cover winds about the other hub.

5,067,185
TOILET BOWL PROTECTOR
Frederick H. Kohler, 13527 98th Avenue, Surrey, British Columbia, Canada V3T 1B9
Filed Jun. 19, 1990, Ser. No. 540,574
Int. Cl.[5] A47K *13/00*
U.S. Cl. 4—661 7 Claims

1. A removable toilet bowl protector for use with a toilet bowl having an upper rim, a waist portion and a base portion, said protector comprising:

(a) a flexible waterproof sheet which is adapted to cover the exterior surfaces of a toilet bowl and which sheet has a hole in the central area thereof, a portion of the sheet around the hole being adapted to fit about an upper rim of the toilet bowl;

(b) attachment means for enabling the portion around the hole to be releasably attached to the upper rim of the toilet bowl;

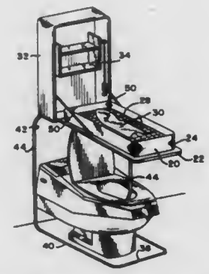


(c) a bead around at least a portion of the exterior circumference of the sheet, the bead being adapted to rest on a floor surrounding the base portion of the toilet bowl;

(d) an intermediate portion adapted to fit around the waist portion of said bowl;

(e) wherein with said portion around the hole attached to the rim and said intermediate portion fitting around the waist portion, said bead will extend completely around the base portion of the bowl.

5,067,186
BABY BIDET APPARATUS WITH RETRACTION AND HEIGHT ADJUSTMENT MEANS
Glenn Ayers, 2581 NE. 10 Ct., Pompano Beach, Fla. 33062
Filed Jun. 2, 1989, Ser. No. 360,767
Int. Cl.[5] A47K *3/00*
U.S. Cl. 4—665 1 Claim



1. An infant bath comprising:

an open container having a bottom and sides;

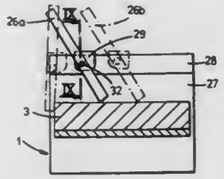
said bottom further having a sloped upper surface with the lowest portion of said sloped surface converging upon a vent;

a draining platform horizontally suspended above said bottom, and a body platform affixed to said draining platform, said body platform further comprising an inclined support surface above said draining platform;

a storage console having at least one convenience shelf, with hinge and support arm means for positioning the container relative to the console horizontally and alternately vertically concealably nested within said console;

the console further supported on a frame having a base with at least one telescoping vertical member having height adjustment means.

5,067,187
SOFA BED WITH PIVOTABLE AND SLIDABLY ADJUSTABLE BACK REST
Rosario Messina, Seregno, Italy, assignor to Flou S.p.A., Meda, Italy
Division of Ser. No. 404,871, Sep. 8, 1989, Pat. No. 5,038,422. This application Apr. 12, 1991, Ser. No. 685,232
Claims priority, application Italy, Sep. 13, 1988, 21916 A/88
Int. Cl.[5] A47C *17/04*
U.S. Cl. 5—12.1 4 Claims



1. A sofa bed comprising:

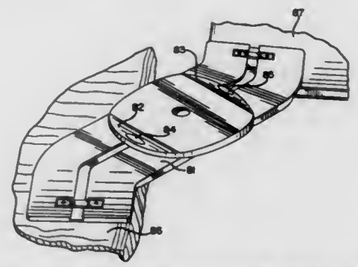
a seat-back adjustable in position;

a pair of arm rests lateral to said seat-back and formed with upper edges;

means for adjusting said position of said seat-back;

a pair of U-shaped saddles engaged upon said upper edges of said arm rests and connected in a pivoted manner to sides of said seat-back said saddles adapted to be moved forwardly or rearwardly on said arm rests.

5,067,188
SLIDING TRANSFER DEVICE
Robert F. Brantman, 1400 N. Waukegan Rd., Lake Forest, Ill. 60045
Continuation-in-part of Ser. No. 519,290, May 4, 1990, Pat. No. 4,987,621. This application Jan. 17, 1991, Ser. No. 642,416
The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.
Int. Cl.[5] A61G *7/053, 7/10*
U.S. Cl. 5—81 R 17 Claims



1. A portable sliding transfer device comprising a seat that is adapted to support a human user for movement between one body support, such as a bed, to another body support, such as a wheelchair, said device comprising:

a) a lower support plate having a substantially flat top surface, and ends adapted to be removably positioned proximate and in contact with said body supports, and

b) an upper seat which is attached to the lower support plate such that the upper seat is slidable over the top surface of the lower support plate and the upper seat is pivotable with respect to the top surface of the lower support plate.

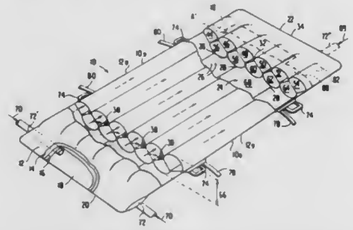
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,189

AIR CHAMBER TYPE PATIENT MOVER AIR PALLET WITH MULTIPLE CONTROL FEATURES

Robert E. Weedling; William R. Swallen, both of c/o LCI Medical, Inc., P.O. Box 100, Rte. 191 at Rte. 33 Interchange, Stockertown, Pa. 18083; Raynor Johnson, 100 Dayett Mills Rd., Newark, Del. 19702; Jack Wegener, Rte. 2, Box 195, Preston, Md. 21655, and David T. Davis, R.D. 1, Box 356A, Easton, Pa. 18042

Filed Apr. 11, 1990, Ser. No. 507,534
Int. Cl.[5] B65G *7/06;* A61G *7/14*
U.S. Cl. 5—81 R 26 Claims



1. A patient mover air pallet for frictionless movement of a patient over an underlying, relatively fixed support surface, said patient mover air pallet comprising:

top, intermediate and bottom thin flexible sheets,

means for sealing given sheets together linearly to define a plenum chamber between said intermediate and bottom sheets,

at least one backing member cavity between said top sheet and said intermediate sheet, said bottom thin flexible sheet including a portion defined by the footprint of the load having a plurality of closely spaced small diameter pin hole type perforations opening directly into the plenum chamber and directly onto said support surface,

air inlet means communicating with the plenum chamber at one end thereof for permitting low pressure air flow pressurization of the plenum chamber for initially jacking the load and for subsequent discharge through the perforations to create a thin air film between the bottom thin flexible sheet and the support surface,

means including said top thin flexible sheet defining a semi-rigid backing member so as to define with the plenum chamber air dispersion means for insuring air flow throughout the plenum chamber when the air pallet is under load at the time of air pressurization of the plenum chamber and constituting with said bottom thin flexible sheet, means for controlling pillowing of the thin flexible sheet material to permit jacking of the semi-rigid backing member and the load while preventing ballooning of the thin flexible sheet material, wherein said semi-rigid backing member permits deflection of the patient mover somewhat to conform the patient mover to depressions within the support surface to permit transport of the patient via the patient mover air pallet over said support surface wherein said top thin flexible sheet is sealed to said intermediate thin flexible sheet along longitudinal parallel lines at laterally spaced positions across the surface of the intermediate thin flexible sheet and at both ends thereof to form a series of longitudinally extending tubes, and wherein means are provided for supplying air under pressure to the individual tubes formed thereby in addition to air pressurization of the plenum chamber such that the tubes cradle the patient while facilitating transport of the patient over the support surface on the frictionless air film,

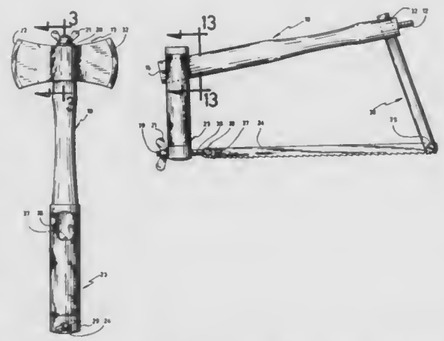
the improvement comprising means for substantially restricting lateral shrinkage of the portion of the plenum chamber in the area of said perforations parallel to the plane of the developed air film for maintaining the footprint of the air film generally equal to that of the footprint of the load to insure stable support of the patient on the patient mover air pallet, and for preventing loss of said air film and grounding of the air pallet to the underlying support surface.

5,067,190

COMBINATION TOOL ASSEMBLY

Yvon Gagnon, 231, 1st Avenue, Saint-Honoré , Canada G0V 1L0

Filed Apr. 23, 1990, Ser. No. 512,804
Int. Cl.[5] B25F *1/02*
U.S. Cl. 7—149 5 Claims



1. A dismantleable bucksaw defining an open quadrangular frame in assembled condition and a single tubular body in dismantled condition, said bucksaw consisting of:

(a) an elongated saw blade having one and another ends;

(b) a tubular hollow handle, defining a closed end and a opposite mouth portion provided with an axially offset, first, transverse through-channel;

(c) first securing means, operative in said assembled condition for releasably anchoring said blade one end to said handle closed end transversely thereof;

(d) an elongated brace member, defining one and another end;

(e) second securing means, operative in said assembled condition for releasably anchoring said brace member one end to said blade other end;

(f) an elongated hollow shaft, defining a mouth portion and a closed end portion having an axially offset, second, transverse through-channel; wherein in said dismantled condition, said brace member and blade are fully engaged into the hollow of said shaft through said mouth portion thereof, and the handle is then fitted by its mouth portion onto said shaft mouth portion exteriorly thereof to close the latter and thus to fully enclose the brace and blade therewithin; and

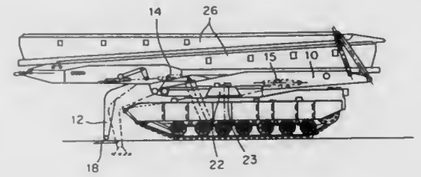
wherein in said assembled condition, said brace member endwisely releasably engages said second through-channel, said shaft endwisely releasably engages said first through-channel, and said brace member makes an acute angle with respect to said blade.

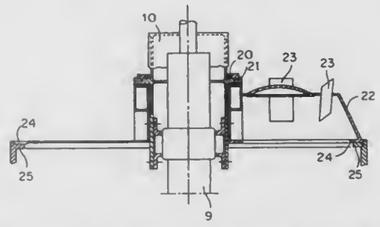
5,067,191

BRIDGE LAYER

Walter Kinzel, Mainz, and Eberhard Illgner, Niederolm, both of Fed. Rep. of Germany, assignors to MAN Gutehoffnungshütte AG, Oberhausen, Fed. Rep. of Germany

PCT No. PCT/EP88/01026, § 371 Date Apr. 25, 1990, § 102(e) Date Apr. 25, 1990, PCT Pub. No. WO90/05215, PCT Pub. Date May 17, 1990
PCT Filed Nov. 12, 1988, Ser. No. 466,391
Int. Cl.[5] E01D *15/12*
U.S. Cl. 14—2.4 8 Claims





1. A bridge laying vehicle with laying means for laying stacked bridges or bridge sections, comprising: an armored tracked vehicle having a gun turret ring with gun turret removed, said gun turret being mounted on the ring when not removed therefrom; a movable arm at front of said vehicle and said laying means and having means for advancing bridges or bridge sections; a movable boom at the rear of said laying means and having supporting means; guide means and carriage means for displacing said movable boom back and forth on said guide means; said guide means having a ring for mounting said guide means on said gun turret ring and removing said guide means from said gun turret ring.

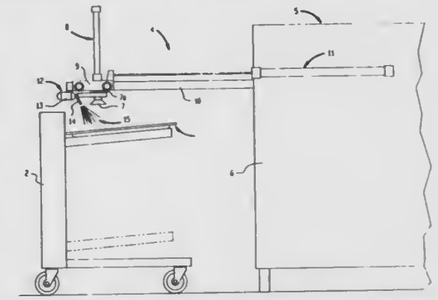
5,067,192

AUTOMATIC MACHINE FOR WASHING SELF-SERVICE TRAYS AND SIMILAR ITEMS

Ferdinando Guelfi, and Elio Lippi, both of Lucca, Italy, assignors to Colged S.p.A., Lucca, Italy

Filed Dec. 4, 1990, Ser. No. 622,023
Claims priority, application Italy, Dec. 4, 1989, 9577 A/89
Int. Cl.[5] A47L *5/38*
U.S. Cl. 15—302 4 Claims

1. Improvements to an automatic machine for washing self-service meal trays, comprising a sucker (7) operated by pneumatic cylinders (8, 11) and serving to pick up soiled trays (3) from a first stacking trolley (2), and a conveying system by which the soiled trays are taken through a washing and drying tunnel (5) toward a second trolley (2) on which the washed and dried trays are restacked, wherein the improvements comprise a cleaning device (12) occupying a position coinciding substantially with that of the sucker (7), said device comprising a reservoir (13) charged with compressed air, and means (14) associated with the reservoir by which a jet of compressed air (15) is directed at each successive tray (3a) immediately prior to the approach of the sucker, in such a way as to clear the tray of any residual waste matter and enable the sucker to establish a firm grip, said conveying system (16, 17) consisting of a horizontally disposed power driven belt extending the entire length of the tunnel (5), on which the trays (3) remain in position without the use of constraints, means being further provided for emptying the trays of rinsing water before being dried, installed internally of the tunnel (5) and beyond the washing station (18).

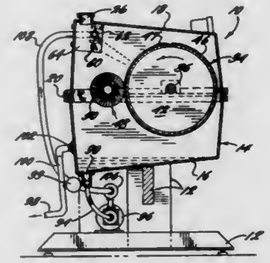


5,067,193

ROTARY PRINTING PLATE WASHING APPARATUS

Daniel J. Thomas, Raleigh, N.C., assignor to Container Graphics Corporation, Cary, N.C.

Filed Jul. 26, 1990, Ser. No. 558,692
Int. Cl.[5] B08B *11/02;* B41N *3/04*
U.S. Cl. 15—88.3 19 Claims



1. Apparatus for washing arcuate printing plates, comprising:

an elongate housing, said housing including a lower trough-like section, and an upper cover section mounted for movement between a closed position wherein said cover section overlies said trough-like section and an open position wherein said cover section permits access to the interior of said housing;

an elongate plate supporting drum mounted within said housing for rotation about its longitudinal axis, said drum being adapted to support at least one printing plate upon its peripheral surface;

drive means for imparting said rotation to said drum, and to a printing plate supported thereon;

a source of clean plate washing fluid;

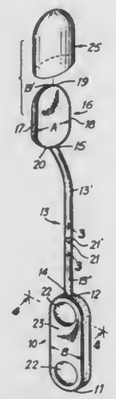
a fluid spray manifold connected to said fluid source, said spray manifold being mounted within and movable with said cover section of said housing, and at desired times spraying fluid from said source onto a printing plate supported by said drum; and

a brush mounted within said housing in generally parallel adjacent relationship to said plate supporting member,

VOL 1132 ISS 4 NO 26 1991 UMI

said brush being engageable with the printing plate carried by said drum.

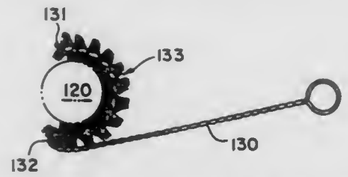
5,067,194
SANITARY DEVICE
Anne Rosenfeld, 83-15 Lefferts Blvd., Kew Gardens, N.Y. 11415, and Frank Barkman, 35-11 85th St., Jackson Heights, N.Y. 11372
Filed Apr. 10, 1989, Ser. No. 335,914
Int. Cl.[5] A47K *10/16*
U.S. Cl. 15—144 A **8 Claims**



1. A sanitary device comprising a handle having a free proximal end and a distal end for mounting a shaft, a shaft extending from the distal end of the handle and having a proximal end fixed to the distal end of the handle and a distal end for mounting a wiper member, the wiper member having a wider lateral edge and a narrower lateral edge and also having a proximal end fixed to the distal end of the shaft and a free distal end, the handle and the wiper member each having a widthwise dimension approximately normal to the shaft and the respective widthwise dimensions of the handle and the wiper member being rotationally offset from each other, the handle and the wiper member each having a thickness substantially less than the widthwise dimension thereof and said thickness being normal to the shaft and to the widthwise dimension, the shaft comprising two parts including joint means rotatably connecting together the two shaft parts at a position between the handle and the wiper member whereby the handle and the wiper member are infinitely rotationally adjustable relative to each other thereby to adjust the rotational offset and further comprising indicia on the two shaft parts for indicating the relative extend of the rotational offset.

5,067,195
DEVICE FOR CLEANING DENTAL IMPLANT POSTS
Harold I. Sussman, 64 Popham Rd., Scarsdale, N.Y. 10583
Continuation-in-part of Ser. No. 302,025, Jan. 25, 1989, Pat. No. 4,941,227. This application Jul. 16, 1990, Ser. No. 553,974
Int. Cl.[5] D46B *9/04*
U.S. Cl. 15—167.001 **18 Claims**

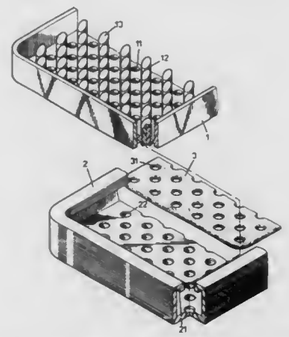
1. A device for cleaning dental implant posts, said cleaning device comprising:
handle means for manually grasping said device; and
brushing means secured to one end portion of said handle means, said brushing means including:
i) a flexible, resilient, spring-like brush member means connected to said one end of said handle means and having a generally semicircular or U-shaped configuration, said generally semicircular or U-shaped configuration defining a receiving space therein for receiving an implant post to be cleaned and resiliently surrounding a major portion of the periphery of the received implant post, said brush member means having first and second free ends at the ends of said generally semicircular or U-shaped configuration which are in opposing and in at least partially facing relation to each other so as to define a gap between said first and second free ends for insertion of an implant post to be cleaned through said gap between said free ends and into said receiving space; and
ii) a plurality of bristles secured to said brush member means, said bristles at least being directed inwardly and downwardly of said generally semicircular or U-shaped configuration, said inwardly directed bristles extending into said receiving space for engaging an implant post received in said receiving space over substantially the complete extent of said generally semicircular or U-shaped configuration so as to simultaneously brush a major portion of the periphery of the received implant post; and said downwardly directed bristles engaging gum tissue adjacent the implant post for keratinizing the outer layer of the engaged tissue;



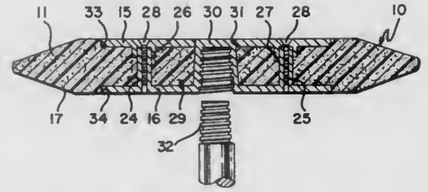
said flexible, resilient, spring-like brush member means with said plurality of bristles secured thereto being dimensioned so as to be receivable between adjacent teeth at least at the gingival area, and being arranged to brush a dental implant post supporting a tooth at the lingual surface of said post, at the buccal surface of said post, and at the gingival margin adjacent said post, said brush member means and said bristles together engaging around said received post over said major portion of the periphery of said post; said brush member means being resiliently deflectable or spreadable apart when passed between teeth and over a post to engage over said major portion of the received post.

5,067,196
MUD ABSORBENT MAT
Lung-Hsien Chen, 940, Chung Cheng Rd., Yung Kang Hsiang, Tainan Hsien, Taiwan
Filed Nov. 15, 1990, Ser. No. 612,986
Int. Cl.[5] A47L *23/22*
U.S. Cl. 15—238 **1 Claim**

1. An absorbent mud mat comprising:
a plate member having a plurality of holes and scraper members, said plate member having a frame formed about the periphery thereof, said scraper members having inclined upper surfaces, each of said scraper members having a lower section forming a plug member;
an integrally formed base having a plurality of blind holes, each of said blind holes in alignment with and larger than a corresponding one of said plug members, said base having a peripheral rail formed at a top inner edge;
a sponge corresponding in dimensional extent with said plate and having a pattern of holes coinciding with said holes of said base, said frame of said plate member engaging the rail of said base with said plug members of said scrapers passing through said holes in said sponge and being inserted into the blind holes of said base.



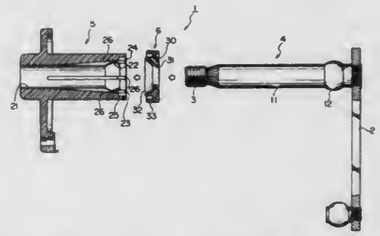
5,067,197
SNOW RAKE
Frederick P. Cormier, 10 Overlook Dr., Spencer, Mass. 01562
Filed Sep. 26, 1990, Ser. No. 588,611
Int. Cl.[5] A47L *13/46*
U.S. Cl. 15—244.1 **8 Claims**



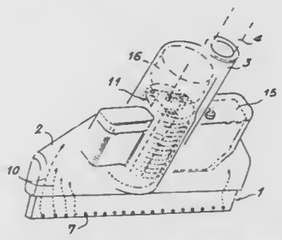
1. A snow rake comprising:
(a) an elongated generally rectangular single, integral main body of resilient low density foamed thermoplastic material, said main body having a broad front surface and broad back surface, and at least one narrow scraping edge, said front surface having a shallow front recess, said back surface having a shallow back recess,
(b) a rigid flat front plate of high density solid thermoplastic material which lies in said front recess,
(c) a rigid flat back plate of high density solid thermoplastic material which lies in said back recess,
(d) an elongated handle which is removably attached to said back plate so that the handle extends substantially at a right angle to said back surface, and
(e) connecting means for fixing said front plate to said back plate so that said main body is clamped between said front and back plates.

5,067,198
WIPER PIVOT
Masaru Ishikawa, and Yuichi Ito, both of Yokohama, Japan, assignors to Jidosha Denki Kogyo K.K., Kanagawa, Japan
Filed Nov. 9, 1989, Ser. No. 434,960
Claims priority, application Japan, Nov. 11, 1988, 63-147177[U]
Int. Cl.[5] B60S *1/04*
U.S. Cl. 15—250.34 **3 Claims**

1. A wiper pivot for converting reciprocative motion of a connecting rod driven by a drive means into oscillatory motion of a wiper arm, comprising:
a pivot arm;
a pivot shaft connected to said pivot arm at one end thereof and adapted to be connected to the wiper arm at an opposite end thereof for converting said reciprocative motion of the connecting rod connected to said pivot arm into said oscillatory motion of the wiper arm, said pivot shaft being provided with a spherical convex part; and
an elongated pivot holder with a longitudinally extending through hole for rotatably supporting said pivot shaft therein, said pivot holder including a spherical concave part at one end thereof for fitting on the spherical convex part of said pivot shaft to provide a spherical connection, an annular lip portion extending axially outwardly from said end and having a plurality of cut-out portions adjacent an open end of said spherical concave part in the fitting direction of said pivot shaft and an axially extending annular projection formed radially outwardly but spaced from said lip portion, an annular groove formed therebetween; and
a waterproof member made from elastic material and having a projection fitted into said annular groove of said pivot holder to cover said open end of said pivot holder and prevent outward movemet of said lip portion to retain said spherical convex part of said pivot shaft in said spherical concave part of said pivot holder.



5,067,199
SUCTION DEVICE WITH A SQUEEGEE FOR ELIMINATING DIRTY WATER WHILE CLEANING CERTAIN SURFACES
Jean Alazet, 26, rue des Fossés St. Bernard, 75005 Paris, France
Filed Oct. 2, 1990, Ser. No. 592,118
Claims priority, application France, Oct. 13, 1989, 89 13394
Int. Cl.[5] A47L *7/00*
U.S. Cl. 15—320 **5 Claims**



1. A suction device with a squeegee for eliminating dirtied water after the cleaning of certain surfaces, of the type comprising an elastic squeegee as well as suction orifices or ducts for sucking out the cleaning liquid spread on such a surface, by means of a pump connected to a collector tank, wherein:
the cleaning squeegee (**1**, **1***a*, **1***b*, **1***c*) consists in a blade of elastic material within which are formed suction ducts (5,

VOL
1132
ISS
4
NO
26
1991
UMI

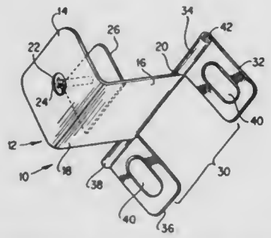
5a, 5b) opening in at least one of the two faces of said squeegee through orifices (7, 7a, 7b) aligned in parallel with the corresponding lowermost edge (8) of said squeegee and in close vicinity to said edge;

the suction ducts (5, 5a, 5b) thus provided are connected with at least one flexible tube (10) leading to a roller-type pump (11) which is further connected to a collector tank (15) for collecting the dirtied cleaning liquid which is to be eliminated.

5,067,200
HINGE FOR INSET DOORS

Norman L. Stowell, P.O. Box 1560; Brian D. Stowell, 285 Bonmark Dr., both of Claremont, N.H. 03743, and Gregory T. Stowell, 169 Portsmouth St., No. 6, Concord, N.H. 03301

Filed May 25, 1990, Ser. No. 529,110
Int. Cl.[5] E05D 7/04
U.S. Cl. 16—237 8 Claims



1. A hinge assembly for an inset door which mounts to a sidewall of a door frame and swingably engages the door frame, the inset door having a slot substantially normal to an edge of the door forming a slotted edge and an opening in the back surface of the door communicating with the slot, the hinge assembly comprising;

a door wing having a first leg and a second leg which meet at an intersection forming about a 90° angle, said first leg overlying the back surface of the door and said second leg overlying the edge of the door and extending there beyond;

a second leg knuckle defining an end of said second leg, said second leg knuckle having a second leg passage therethrough, said second leg passage being substantially parallel to said intersection of said first leg and said second leg;

a first leg passage through said first leg;

a fastening means passing through said first leg passage and through the opening in the back surface of the door;

a clamping plate substantially parallel to said first leg engaging said fastening means, said clamping plate being engageable in the slot in the slotted edge of the door;

a split cabinet wing having a first wing tab spaced apart from a second wing tab with said second leg of said door wing fitting therebetween when the door is in a closed position, said first wing tab having a first wing tab knuckle with a first wing tab knuckle passage therethrough and a first elongated wing tab slot substantially normal to said first wing tab knuckle,

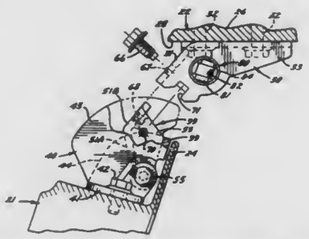
and said second wing tab having a second wing tab knuckle with a second wing knuckle passage therethrough and a second elongated wing tab slot substantially normal to said second wing tab knuckle; and

a pin passing through said second leg passage in said second leg knuckle and said first wing tab passage and said second wing tab passage, said first wing tab knuckle passage and said second wing tab knuckle passage being located adjacent to the opposite ends of said second leg passage in said second leg knuckle.

5,067,201
DOOR ON-DOOR OFF VEHICLE HINGE WITH ANTI-SLAP HOLD-OPEN MECHANISM

Joseph H. Marchione, Rockford, Ill., assignor to Atwood Industries, Inc., Rockford, Ill.

Filed Nov. 6, 1989, Ser. No. 432,156
Int. Cl.[5] E05D 7/12
U.S. Cl. 16—270 6 Claims

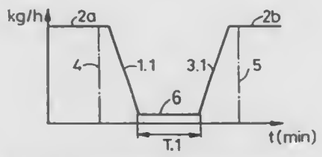


5. A hinge for mounting a door for swinging between open and closed positions on the body of a vehicle, said hinge comprising a door section, an intermediate section and a body section, means for securing said door section and said body section to the vehicle door and body, respectively, means for pivotally connecting said intermediate section to said door section, said body section and said intermediate sections each having a generally upright web and each having upper and lower vertically spaced and generally horizontal plates, said intermediate section being cradled within said body section with the lower plate of said intermediate section resting on the lower plate of said body section, means for detachably connecting said intermediate section to said body section whereby said intermediate section may be quickly released from and quickly re-attached to said body section to permit the door to be quickly removed from and re-installed on the vehicle body, said last-mentioned means comprising an upright pinon one of the plates of one of said intermediate and body sections, a notch formed in the corresponding plate of the other of said intermediate and body sections and receiving said pin, said notch being generally U-shaped and opening generally horizontally out of said corresponding plate to enable said pin to move generally horizontally into and out of said notch, said pin and said notch coacting with said lower plates to locate said intermediate section relative to said body section, and a threaded fastener extending through said webs to releasably connect said intermediate section to said body section.

5,067,202
METHOD OF MAINTAINING A PREDETERMINED QUANTITY OF SLIVER IN A CARD AND/OR DRAWFRAME

Robert Demuth, Nürensdorf, Switzerland, assignor to Maschinenfabrik Rieter AG, Winterthur, Switzerland

Filed Jul. 9, 1990, Ser. No. 549,756
Claims priority, application Switzerland, Jul. 26, 1989, 02788/89
Int. Cl.[5] D01G 21/00
U.S. Cl. 19—65 A 11 Claims

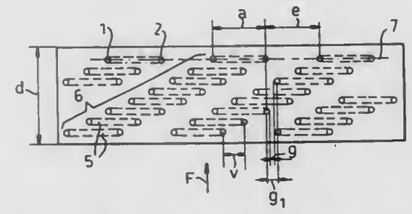


1. A method of maintaining a predetermined quality of a carded silver produced in a card and/or drafted in a drawframe, the sliver being delivered into a can by a sliver delivery device in a continuous spinning mill process, wherein said card and/or drawframe each include a predetermined overproduction relative to a spinning machine associated with the process and a predetermined temporary decrease in production temporarily compensates correspondingly for the overproduction, and wherein the sliver produced during the decrease in production is automatically separated out from the working process.

5,067,203
CARD CLOTHING

Frank P. Hollmann, Ramsdorf, Fed. Rep. of Germany, assignor to Peter Wolters AG, Rendsburg, Fed. Rep. of Germany

Filed Jul. 27, 1990, Ser. No. 558,862
Claims priority, application Fed. Rep. of Germany, Jul. 27, 1989, 3924890
Int. Cl.[5] D01G 15/84
U.S. Cl. 19—114 6 Claims



1. A card clothing for a yarn carder, comprising:

a card fillet; and

a multiplicity of tooth members set into said card fillet and each being formed with two tooth shanks projecting from said card fillet and formed with a spacing a therebetween and a connecting element interconnecting said shanks and lying transverse to a fiber travel direction upon carding of fiber with the card clothing in said yarn carder,

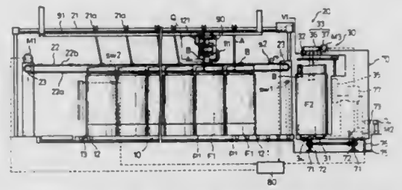
said tooth members being arrayed with their tooth shanks parallel to one another in a plurality of diagonal groups each consisting of a multiplicity of mutually parallel tooth members staggered transversely to said fiber travel direction and with a constant offset (v) perpendicular to said fiber travel direction between successive tooth members of each group so that corresponding first tooth shanks of said members lie on one side of each group and corresponding second tooth shanks of said members lie on an opposite side of each group, said first tooth shanks of a group being offset transverse to said fiber travel direction relative to successive first tooth shanks of the same group in said fiber travel direction by said constant offset (v),

said groups being inclined to said fiber travel direction and at least partly overlapping neighboring ones of said groups is said fiber travel direction, neighboring groups being spaced from one another at a spacing e equal to said spacing a, said tooth members of said groups lying in respective tooth rows perpendicular to said fiber travel direction, for an even number of said tooth rows and a correspondingly odd number of offsets of tooth members between the tooth rows of the even number, a first or second tooth shank of a leading tooth member of each of said groups with respect to said fiber travel direction being in line in said fiber travel direction only with a respective first or second tooth shank of a trailing member of said even number of tooth rows of a neighboring group and with no other tooth shank within said even number of tooth rows.

5,067,204
METHOD FOR CONTINUOUSLY SUPPLYING SLIVERS TO A ROVING FRAME

Kunio Shinkai, Handa; Toyoo Suzuki, Nishio; Yukitaka Nomura, Gifu; Yoshio Kurachi, Nishikasugai, and Hiroyuki Kureishi, Nagoya, all of Japan, assignors to Howa Machinery Ltd., Japan

Filed Mar. 20, 1990, Ser. No. 495,912
Claims priority, application Japan, Mar. 23, 1989, 1-71310
Int. Cl.[5] D01H 9/18; B65H 67/08
U.S. Cl. 19—159 A 4 Claims



1. An improved method of continuously supplying slivers to a roving frame provided with a plurality of drafting units, including an automatic piecing operation of a sliver coming from a sliver supply can with a corresponding free end of a sliver from a full packaged sliver can, wherein a plurality of sliver cans are arranged in each of a plurality of spaces formed along a longitudinal direction of said roving frame in parallel to each other, while said slivers are supplied from respective sliver cans to the corresponding drafting units of said roving frame, in a supply condition such that the arrangement of said sliver cans between said spaces with respect to the volume of sliver contained therein is maintained in a tapered condition, comprising,

forming each one of said spaces as a pair of parallel units spaces, each of said unit spaces being capable of arranging an alignment of said sliver cans for supplying sliver to a corresponding one of said drafting units, and said full packaged sliver cans,

mechanically arranging full packaged sliver cans in either one of said unit spaces of a particular one of said spaces, wherein said supply sliver cans for supplying sliver to said roving frame, are arranged in another unit space thereof and contain a smallest volume of sliver in comparison with other sliver cans arranged in said spaces, except for said particular spaces, by regulating a standby position of each of said full packaged sliver cans at a position facing the corresponding one of said sliver supplying cans,

regulating an angular position of said free end of sliver from each one of said full packaged sliver cans with respect to a longitudinal axis of said full packaged sliver can at a predetermined angular position when said full packaged sliver cans are arranged in said unit space of said particular space,

mechanically piecing said free ends of said supplied slivers with corresponding free ends of slivers from said full packaged sliver cans arranged at said standby positions facing corresponding said sliver cans in an exhausted condition, with respect to sliver supply cans of said particular space,

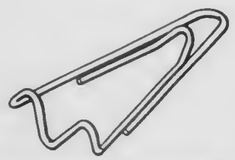
carrying out said unit sliver piecing operation for all sliver supplying cans in an identical alignment under a condition of mixing slivers of free end portions of both said slivers,

thereafter discharging said sliver cans at which said sliver end piecing operation is completed from said unit space of said particular space,

applying said unit operation composed of said sliver piecing operation and discharging operation of sliver supply cans in an exhausted condition to all of said sliver supply cans at other spaces according to a consumption of sliver in each sliver supply cans, one space by one space, of said space arrangement.

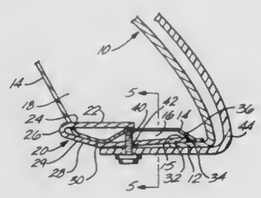
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,205
STRUCTURE OF PAPER CLIP
Chue-Hui Chen, No. 132-3, Tu-Cheng Rd., Chin-Cheng Tsun, Ta-Li Hsiang, Taichung Hsien, and Guu-Trang Lin, No. 198, Sec. 3, Ching-Tao Rd., Taichung, Taichung, both of Taiwan
Filed Sep. 27, 1990, Ser. No. 588,727
Int. Cl.[5] B42F *1/02*
U.S. Cl. 24—67.9 4 Claims



1. A paper clip including a front end and a back end, the clip being formed of resilient steel wire bent to define first and second bend portions extending in the same direction toward the front end for clamping paper therebetween, the first and second bend portions being collectively disposed in a first single plane, a third bend portion joining the first and second bend portions at the back end, the third bend portions being of a wave configuration defined by at least one peak portion and one trough portion, the third bend portion being disposed in a second single plane perpendicular to the first single plane, whereby the third bend permits the first and second bend portions to securely clamp a pile of paper sheets therebetween such that each of the first and second bend portions substantially entirely engages the top and bottom surfaces of the stack.

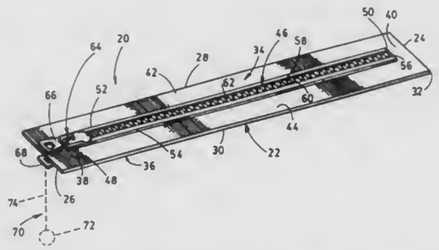
5,067,206
FASTENER FOR VEHICLES
William M. Metcalfe, 93 Prince Alfred Parade, Newport 2106, NSW, Australia
Filed Jun. 25, 1990, Ser. No. 543,219
Int. Cl.[5] B60R *13/04*
U.S. Cl. 24—290 22 Claims



1. A fastener for attaching a device to a vehicle body, the body having surfaces which define a recess and which define an oppositely facing land, the fastener comprising:
a bracket having a hook for engaging the land and a bar for extending from the hook over the recess;
a pin for engaging the bar and extending from the bar into the recess to secure the hook in engagement with the land; and
means for attaching the device to the fastener.

5,067,207
ZIPPER ATTACHMENT ASSEMBLY
William Semons, 14 Highland Ave., Salem, Mass. 01970
Filed Aug. 7, 1990, Ser. No. 563,349
Int. Cl.[5] A44B *19/00*
U.S. Cl. 24—381 6 Claims

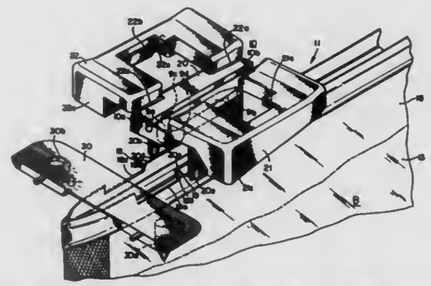
1. A unitary zipper attachment assembly comprising:
A) a monolithic one-piece base having two outside end edges, two outside side edges, a front surface and a back surface;
B) a zipper mechanism mounted on said base front surface adjacent to and spaced from both of said outside side edges and adjacent to and spaced from both of said outside end edges to be completely surrounded by said base, said base having a monolithic border completely surrounding said zipper mechanism, said zipper mechanism having a first end located adjacent to and spaced from a first outside end edge of said base end edges, a second end located adjacent to and spaced from a second outside end edge of said base end edges, a first side located adjacent to and spaced from one outside side edge of said base side edges, a second side located adjacent to and spaced from a second outside side edge of said base side edges, a first end piece on said zipper mechanism first end, and a second end piece on said zipper mechanism second end;



C) zipper side elements attaching said zipper mechanism to said base front surface and spacing said zipper mechanism from said base;
D) adhesive material on said base back surface and covering essentially the entire base back surface;
E) a monolithic, uninterrupted one-piece protective cover releasably attached to said base back surface via said adhesive material to cover essentially the entire base back surface; and
F) an opening defined through said base beneath said zipper mechanism, said opening including a first end located adjacent to said zipper mechanism first end, a second end located adjacent to said zipper mechanism second end, said border completely surrounding said opening on all peripheral locations of said opening.

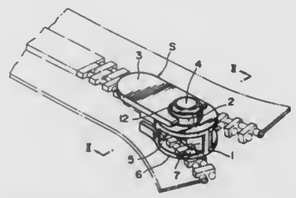
5,067,208
PLASTIC RECLOSABLE FASTENER WITH SELF-LOCKING SLIDER
F. John Herrington, Jr., Holcomb, and Eric A. St. Phillips, Fairport, both of N.Y., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Mar. 22, 1991, Ser. No. 673,707
Int. Cl.[5] A44B *19/16*
U.S. Cl. 24—400 6 Claims

1. A plastic reclosable fastener with self-locking slider particularly suited for plastic bags and the like for closing or opening the reclosable fastener, said reclosable fastener comprising a pair of flexible plastic strips having separable fastener means extending along the length thereof comprising reclosable interlocking male and female profile elements on the respective strips, said strips including profiled tracks extending along the length thereof parallel to said male and female elements, said slider having a separator finger and interlocking complementary structure formed from plastic for moving along the fastener in straddling relation, the complementary structure comprising a transfer support member having said separator finger depending therefrom, said support member being positioned on the top edges of said tracks with said separator finger inserted therebetween, a pair of side walls on the opposite sides of said support member for receiving said pair of strips therebetween, said separator finger and said side walls extending from an opening end of the slider to a closing end, said separator finger being wider at said opening end of said slider than at the closing end of said slider, the side walls being spaced wider apart at the opening end to permit separation of the male and female elements by the wider end of said separator finger extending between the side walls at the opening end, the side walls being spaced sufficiently close together at closing end to press the male and female elements into interlocking relationship as the slider is moved in a fastener closing direction, and means for restraining said slider in closed position and maintaining said male and female elements in inter-



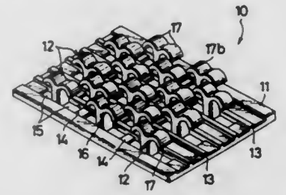
locking relation when said slider reaches the closed end of its travel along said tracks comprising a protrusion on said wider end of said separator finger adjacent said opening end of said slider and notch structure at the adjacent end of said tracks, said notch structure having an end located on said tracks to permit said wider end of said separator finger to move beyond said end from between said tracks and into said notch structure, said protrusion being engageable with the end of said notch structure when said slider is at the closed end of its travel on said tracks thereby restraining said wider end of said separator finger from moving out of said notch structure and between said tracks and inadvertently opening said male and female elements of said fastener.

5,067,209
SLIDE FASTENER SLIDER
Yasuharu Terada, Uozu; Susumu Ishii, Kurobe, and Hiroshi Mizuno, Toyama, all of Japan, assignors to Yoshida Kogyo K.K., Tokyo, Japan
Filed Oct. 9, 1990, Ser. No. 594,697
Claims priority, application Japan, Oct. 17, 1989, 1-121345[U]
Int. Cl.[5] A44B *19/26*
U.S. Cl. 24—429 7 Claims



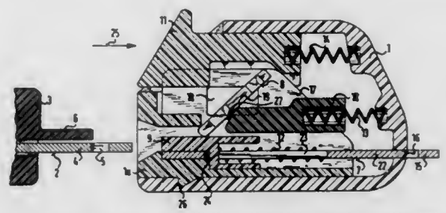
1. A slide fastener slider comprising:
(a) a slider body including a pair of spaced upper and lower wings connected at their front end by a guide post, said slider body having a mounting hole extending through the thickness of said upper wing and said lower wing;
(b) a circular disk having a central guide hole and disposed on said upper wing with said guide hole aligned with said mounting hole, wherein said mounting hole further extends through said guide post;
(c) a pull tab pivotally connected to said circular disk; and
(d) a retainer pin having an enlarged head and a shank extending centrally from one side of said head, said head having a diameter substantially the same as the outside diameter of said circular disk, said shank extending loosely through said guide hole and firmly fitted in said mounting hole to join said retainer pin with said slider body while allowing said circular disk to rotate freely about said shank.

5,067,210
SURFACE-TYPE FASTENER
Keiichi Kyaki, Kurobe, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan
Filed Oct. 3, 1990, Ser. No. 592,126
Claims priority, application Japan, Oct. 3, 1989, 1-116535
Int. Cl.[5] A44B *13/00*
U.S. Cl. 24—452 5 Claims



1. A surface-type fastener comprising a pair of base strips each having longitudinal ridges and transverse ribs defining therebetween elongate apertures and a plurality of rows of interengaging elements, said apertures extending through said base strips, said interengaging elements each having a stem portion extending substantially vertically upward from said longitudinal ridges, and a hookable engaging arm which is substantially as large as said aperture, and said interengaging elements in one row being offset in position with respect to those elements in the next adjoining row, and spaced-apart longitudinally to provide an engaging space in which said arms of said base strips can be resiliently engaged with one another when said base strips are pressed together.

5,067,211
BELT LOCK FOR BELT STRAP RETAINING SYSTEMS
Reiner van Riesen, Besenbeide 36, 2200 Elmsborn, Fed. Rep. of Germany
Filed Jun. 22, 1990, Ser. No. 542,301
Claims priority, application Fed. Rep. of Germany, Jun. 23, 1989, 3920565
Int. Cl.[5] A44B *11/25*
U.S. Cl. 24—641 7 Claims



1. A belt lock for a belt strap retaining system, comprising:
a belt strap end piece having a locking tongue and a control member,
a closure mechanism arranged and constructed to receive said tongue and said control member,
a V-shaped metal frame having elongated lateral guide re-

VOL 1132 ISS 4 NO 26 1991 UMI

cesses, said lateral recesses extending in a direction substantially parallel with an insertion path and being arranged and constructed to guide said pins in a parallel direction without vertical play,

a substantially flat plate locking member mounted in said frame, said locking member engageable by said control member to lock said tongue in said frame,

pins disposed in said recesses, said pins arranged and constructed to mount said locking member in said frame,

a spring loaded ejector arranged and constructed to eject said tongue from said closure mechanism,

a spring loaded locking member support movable in a direction substantially parallel with an insertion path, said locking member support arranged and constructed to secure said locking member in a tongue locking position, said locking member support disposed behind said locking member, above said ejector,

a spring loaded release button arranged and constructed to move said locking member to a tongue releasing position,

a cross piece disposed on said frame,

a first stop disposed on said cross piece, said first stop arranged and constructed to stop and lock said locking member in a locking position, and

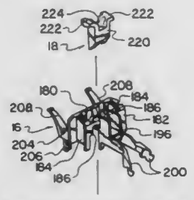
a second stop disposed at an upper region of said locking member, said second stop arranged and constructed to engage said release button and move said locking member to said releasing position.

5,067,212

SEAT BELT BUCKLE

Robert P. Ellis, Rochester, Mich., assignor to TRW Vehicle Safety Systems Inc., Lyndhurst, Ohio

Filed Aug. 27, 1990, Ser. No. 573,877
Int. Cl.[5] A44B *11/25*
U.S. Cl. 24—642 20 Claims



1. A buckle for a seat belt locking tongue, said buckle comprising:

a pushbutton member supported for movement along an axis; and

an ejector member supported for movement along said axis, said ejector member having an ejector surface for engaging and moving the tongue, an upper horizontal surface, a lower horizontal surface spaced vertically from said upper horizontal surface a distance approximately equal to the thickness of the tongue, and a contact surface for engaging and moving said pushbutton member, said contact surface being located entirely between said upper and lower horizontal surfaces.

5,067,213

SWIMMING POOL ANCHOR AND REMOVAL TOOL

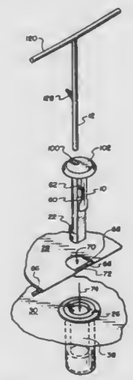
Kelly J. Ragsdale, Salt Lake City, and Cory Brady, West Jordan, both of Utah, assignors to Cover-Pools, Inc., Salt Lake City, Utah

Continuation-in-part of Ser. No. 377,235, Jul. 7, 1989, Pat. No. 4,953,269. This application Sep. 4, 1990, Ser. No. 577,944
Int. Cl.[5] F16B *21/00;* B25B *13/06*
U.S. Cl. 24—704.1 3 Claims

1. In combination, a fastener for use in releasably securing a first member defining an aperture therethrough and a second member defining a receiving aperture therethrough and a removal tool for removing from fastener from said first member aperture said second member aperture; said fastener comprising:

a first shaft having two longitudinally-extending legs, said legs being positioned spatially apart from one another to define a laterally-extending first channel therebetween; a first said leg having a lip on a free end thereof; said first shaft defining a pair of longitudinally-extending open second channels configured in an exterior sidewall of said first shaft, said second channels communicating with said first channel said first channel and said second channels being dimensioned to receive a cord mounted on said first member proximate said aperture in said first member;

a head mounted on said first shaft, said head defining a slot therein, wherein said shaft defines a third longitudinal open channel in said exterior sidewall; said shaft further defining an open, laterally-extending fourth channel in said exterior sidewall, said fourth channel being an interface of said head and said shaft; said fourth channel communicating with said slot and said third channel;



wherein said fastener is adapted to engage said first member cord in said first and second channels and be insert through said apertures of said first and second members, said lip engageable with said second member to retain said fastener and cord within said second member aperture and said removal tool comprising:

a handle;

a second shaft mounted on said handle, said second shaft being dimensioned to be inserted through said slot in said head and thereafter be received in said third longitudinal channel; and

an extension mounted on said second shaft to extend laterally therefrom said exterior being dimensioned to be received through said slot and upon a rotation of said second shaft be received in said fourth channel;

said tool being adaptable for use in applying a disengaging force against said fastener from its engagement with said second member.

5,067,214

TENTER FRAME APPARATUS AND METHOD

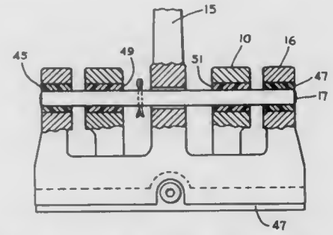
Christopher E. Hosmer, Taylors, S.C., and John F. Whaley, Warwick, R.I., assignors to Marshall and Williams Company, Providence, R.I.

Continuation-in-part of Ser. No. 244,300, Sep. 15, 1988, Pat. No. 4,926,529. This application May 22, 1990, Ser. No. 527,015
Int. Cl.[5] D06C *3/04*
U.S. Cl. 26—89 1 Claim

1. A lubrication free tenter clip having a supporting member for processing sheet material comprising:

mold bushings constructed of low friction wear resistant polyimide resin press fitted into a bore defined by a supporting member;

said bushings having been axially bored while press fitted to



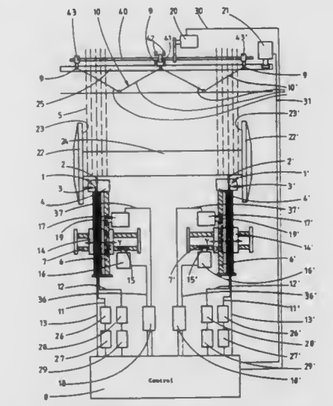
increase the size of an opening in said bushings to accommodate a pin and minimize the thickness of he bushings; whereby breakage of he bushings during boring is avoided while the bushing thickness is minimal.

5,067,215

AUTOMATIC ADJUSTING SELVEDGE CONTROL DEVICE FOR A TEXTILE WEB USING MULTIPLE SENSORS

Klaus Behl, Neumunster; Karl-Heinz Erren, Aukrug-Homfeld, and Ekkehard Mantz, Gross-Kummerfeld, all of Fed. Rep. of Germany, assignors to Norddeutsche Faserwerke GmbH, Neumunster, Fed. Rep. of Germany

Filed Sep. 10, 1990, Ser. No. 579,951
Claims priority, application Fed. Rep. of Germany, Sep. 13, 1989, 3931066
Int. Cl.[5] D02H *13/16*
U.S. Cl. 28—190 5 Claims



1. A device for controlling the take up of yarn on a beam with a movable reed, and comprising

at least one sensor head mounted on a holding device, said sensor head having a first, a second and a third sensor with each connected by an electrical line to a programmable control means,

said second and third sensors extending at an angle of 90° with respect to each other and said first sensor extending at an angle of 45° with respect to both said second and third sensors,

said holding device being carried on support means for moving said holding device along a first and a second axis which extend perpendicularly to one another, said support means including first and second motor means each for effecting movement along one of said axes of said holding device, said motor means being connected to and operated by said control means,

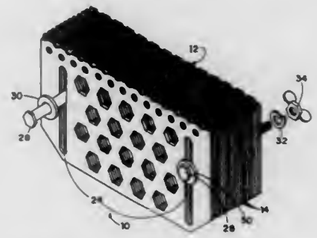
a first reed moving motor for moving said movable reed parallel to said beam and a second reed motor for adjusting the lap width of said movable reed, said reed motors each being connected to and controlled by said control means.

5,067,216

ADJUSTABLE LINE BLOCK FOR AUTOBODIES

Kevin D. Hargraves, 1102 - 606 Victoria Avenue, Saskatoon, Saskatchewan, Canada S7N 0Z1

Filed Dec. 6, 1989, Ser. No. 446,619
Int. Cl.[5] B23D *71/08*
U.S. Cl. 29—79 8 Claims



1. An adjustable line block for finishing a profiled surface of a workpiece, said line block comprising:

a plurality of stacked plates each having an elongate cutting edge;

a plurality of notches uniformly spaced along the cutting edge of each plate;

a plurality of symmetrical cutting teeth formed in the cutting edge of each plate between each two adjacent notches, the teeth of each plate being aligned along the cutting edge for simultaneous engagement of the teeth with the profiled surface;

means for holding the plates together with their cutting edges parallel and with adjacent notches in the cutting edges of adjacent plates offset from one another in the direction of the cutting edges, while permitting relative movement of the plates transversely of the cutting edge; and

means for clamping the plates together to prevent relative movement thereof.

5,067,217

SPIRAL SHRINK BELT AND A PERFORATED ROLL

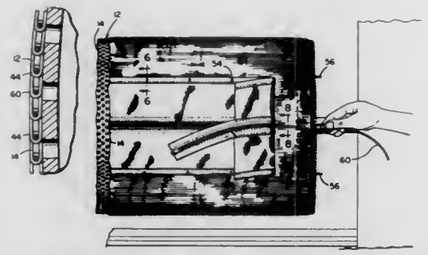
Michael Maguire, Waycross, Ga., assignor to Scapa, Inc., Waycross, Ga.

Filed Dec. 6, 1990, Ser. No. 622,967
Int. Cl.[5] B21B *27/03*
U.S. Cl. 29—121.3 3 Claims

1. In combination, a spiral fabric shrink belt and a perforated roll, said spiral fabric shrink belt being mounted directly on and about a periphery of said perforated roll and said spiral fabric shrink belt having two ends, said two ends being interengaged and forming a channel between interdigitated coils

VOL 1132 ISS 4 NO 26 1991 UMI

located at said two ends as present in spiral fabric, and a joining wire extending through the channel to secure said two ends

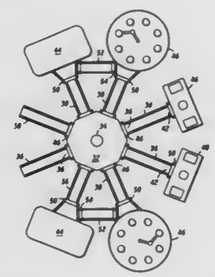


together of said spiral fabric shrink belt around said perforated roll.

5,067,218
VACUUM WAFER TRANSPORT AND PROCESSING SYSTEM AND METHOD USING A PLURALITY OF WAFER TRANSPORT ARMS

Owen P. Williams, Phoenix, Ariz., assignor to Motorola, Inc., Schaumburg, Ill.

Filed May 21, 1990, Ser. No. 526,255
Int. Cl.[5] H01L *21/30, 21/46, 21/50;* **C23C** *14/56*
U.S. Cl. 29—25.01 **21 Claims**

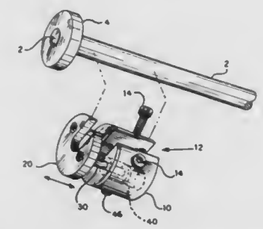


1. A vacuum wafer transport and processing system comprising:
a central vacumm chamber;
wafer holding means disposes in said central vacuum chamber;
a plurality of wafer transport arms to transfer wafers to and from said central vacuum chamber, each having a first end coupled to said central vacuum chamber and a second end; and
a plurality of wafer process chambers coupled to said second ends of at least some of said plurality of wafer transport arms.

5,067,219
FAN BLADE REMOVER

Peter F. Ulmer, P.O. Box 435, Empire, La. 70050

Filed Oct. 22, 1990, Ser. No. 603,959
Int. Cl.[5] E21B *19/00*
U.S. Cl. 29—252 **14 Claims**



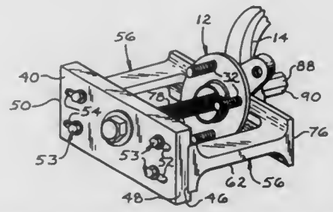
1. A remover for removing a hub from a shaft by exerting a repulsive force between said shaft and said hub thereupon, comprising:
a body;
a groove extending through said body, said groove defining a U-shaped groove outline and including a substantially straight bottom, said groove adapted to accept said shaft within said bottom of said groove;
clamping means for preventing relative motion of said body and said shaft when said shaft lies in said bottom of said groove;
a generally planar plate slidably attached to said body, and adapted to move relative to said body in a direction parallel to said bottom of said groove.
said plate generally perpendicular to said bottom of said groove;
an indentation in said plate defining a U-shaped indentation outline congruent with said groove outline to pass said shaft therethrough when said shaft lies in said bottom of said groove; and
force means for exerting said repulsive force between said body and said plate to remove said plate in said direction parallel to said bottom of said groove away from said body,
said force means symmetrically disposed about said shaft;
whereby, said shaft may be laterally inserted into said groove and when said shaft lies in said bottom of said groove and said clamping means are engaged, said plate may exert said repulsive force on said hub, and said hub may be moved relative to said shaft.

5,067,220
FRONT WHEEL DRIVE HUB PULLER

Todd M. Combs, Jackson; Gary K. Deraedt, Rives Junction, and Duane A. Goodrich, Battle Creek, all of Mich., assignors to Dowley Manufacturing, Inc., Spring Arbor, Mich.

Filed Dec. 11, 1990, Ser. No. 625,416
Int. Cl.[5] B23P *19/04*
U.S. Cl. 29—259 **3 Claims**

1. A hub puller for removing hubs from the bearing of front wheel drive vehicles having a knuckle housing wherein the housing includes a bearing having an axis and an exterior outwardly facing shoulder surface transversely disposed to the bearing axis adjacent a knuckle housing cylindrical surface concentric to the bearing axis, and an annular hub press fitted into the bearing having an inner end, in combination an elongated yoke having a central region and first and second sides, a pair of compression resistant arms extending from said first yoke side, each of said arms having a free end, a head defined on each arm free end, an abutment surface defined upon each arm head facing away from said yoke adapted to engage the knuckle housing shoulder surface, a concave cylindrical surface defined upon each arm head adapted to engage the knuckle housing cylindrical surface when the arms' abutment surface engages the housing shoulder, a threaded shaft having

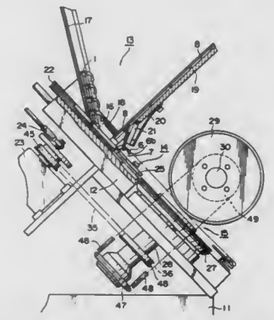


an inner end extending between said arm heads and an outer end extending through said yoke central region, an adapter mounted on said shaft inner end adapted to engage the hub inner end, and threaded drive means associated with said shaft and yoke for axially displacing said shaft through said yoke and the hub toward said yoke.

5,067,221
METHOD OF AND APPARATUS FOR ASSEMBLING SLIDE FASTENER SLIDERS

Yoshio Oyama, Toyama, Japan, assignor to Yoshida Kogyo K.K., Tokyo, Japan

Filed Apr. 19, 1991, Ser. No. 687,628
Claims priority, application Japan, Apr. 20, 1990, 2-106270
Int. Cl.[5] E21D *53/54;* **A41H** *37/06*
U.S. Cl. 29—409 **8 Claims**



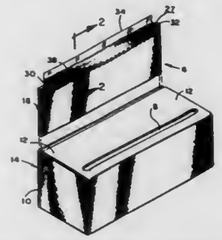
1. A method of assembling a slide fastener slider by fitting together a slider body having an attachment lug provided on the upper surface thereof and a pull tab having an aperture in one end thereof, there being a large enough gap between a distal end of the attachment lug and the upper surface of the slider body to allow the distal end to pass through the aperture of the pull tab, the method comprising the steps of:
(a) transporting the slider body along a transport path continuously with the distal end of the attachment lug directed forward;
(b) placing a pull tab on the transport path with the aperture disposed in registry with the path of the distal end to cause the distal end of the attachment lug to catch the aperture of the pull tab while the slider body is transported along the transport path; and
(c) gradually pressing the distal end of the attachment lug toward the slider body as the slider body is transported along the transport path, so as to join the pull tab to the slider body.

3. An apparatus for assembling a slide fastener slider by fitting together a slider body having an attachment lug provided on the upper surface thereof and a pull tab having an aperture in the one end thereof, there being a large enough gap between a distal end of the attachment lug and the upper surface of the slider body to allow the distal end to pass through the aperture of the pull tab, the apparatus comprising:
(a) a base;
(b) a transport channel provided on the base to transport the slider body along a transport path;
(c) a first chute communicating with the transport channel adjacent its one end for feeding the slider body into the transport channel with the distal end of the attachment lug directed forward;
(d) a second chute communicating with the transport channel downstream of the first chute for feeding the pull tab to the transport channel and placing the pull tab thereon with the aperture thereof in registry with the path of the distal end of the attachment lug;
(e) a pusher mounted reciprocally movable on and along the transport channel beyond the second chute to cause the distal end of the attachment lug to catch the aperture of the pull tab;
(f) means disposed downstream of the second chute and driven for continuous rotation for transporting the slider body thereon continuously and constituting a die; and
(g) a punch roller rotatably mounted on a horizontal axle provided over the transporting-and-die-constituting means and disposed normal to the transport channel to gradually press the distal end of the attachment lug toward the transporting-and-die-constituting means.

5,067,222
METHOD OF MANUFACTURING A GUARDED CUTTING EDGE FOR A WRAPPING MATERIAL DISPENSER

Armin C. Frank, Philadelphia, and Harry E. Sulzer, Perkasie, both of Pa., assignors to Mef Co., Inc., North Wales, Pa.

Filed Sep. 5, 1990, Ser. No. 577,932
Int. Cl.[5] B23P *17/00*
U.S. Cl. 29—411 **7 Claims**



6. The method of claim 5 wherein said feed of the subassembly into said assembly station is controlled to position the leading end of said subassembly at a predetermined point relative to leading edge of the container board stack.

5,067,223
METHOD FOR DETACHING A HYPODERMIC NEEDLE THREADABLY ENGAGED TO A SYRINGE

John Bruno, 77-83 Second Ave., Paterson, N.J. 07514

Division of Ser. No. 423,977, Oct. 19, 1989. This application Dec. 14, 1990, Ser. No. 627,319
Int. Cl.[5] B23P *19/00*
U.S. Cl. 29—426.5 **5 Claims**

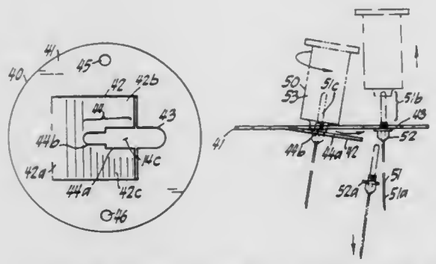
1. A method for detaching a hypodermic needle threadably engaged to a syringe body via a needle hub member, and safely storing the detached needle for disposal, comprising the steps of:

VOL 1132 ISS 4 NO 26 1991 UMI

inserting the needle into a first needle receiving slot formed in a needle removal device affixed to a container providing first entry means in communication with said needle removal device;

engaging said needle hub member with said needle removal device by slidably translating said needle hub member through said first receiving slot into a needle engaging slot formed contiguously with said first needle receiving slot;

rotating the syringe body to threadably detach the syringe body from the needle; and



removing the detached needle and syringe body from said needle engaging slot and slidably translating them back through said first needle receiving slot into a second needle receiving slot formed in said needle removal device at a generally higher elevation with respect to said first needle receiving slot to position the needle hub member on the underside of the needle removal device and permit the needle to drop into said container through said first entry means.

5,067,224

METHOD OF INSTALLING SELF-ATTACHING FASTENER AND APPARATUS

R. M. Muller, Frankfurt, Fed. Rep. of Germany, assignor to Multifastener Corporation, Detroit, Mich.

Continuation-in-part of Ser. No. 196,209, May 19, 1988, Pat. No. 4,915,558, which is a division of Ser. No. 892,017, Aug. 1, 1986, Pat. No. 4,765,057, which is a division of Ser. No. 773,387, Sep. 6, 1985, Pat. No. 4,633,560, which is a division of Ser. No. 563,833, Dec. 21, 1983, Pat. No. 4,555,838, which is a continuation-in-part of Ser. No. 504,074, Jun. 14, 1983, Pat. No. 4,543,701, which is a continuation-in-part of Ser. No. 485,099, Mar. 28, 1983, Pat. No. 4,459,073, said Ser. No. 504,074, is a continuation of Ser. No. 229,274, Jan. 28, 1981, abandoned, said Ser. No. 485,099, is a division of Ser. No. 229,274, Jan. 28, 1981, abandoned. This application Feb. 26, 1990, Ser. No. 485,340

The portion of the term of this patent subsequent to Oct. 1, 2002, has been disclaimed.

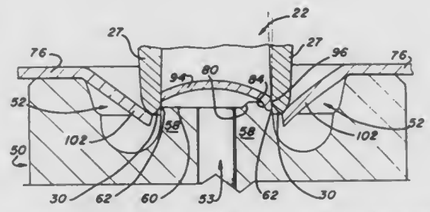
Int. Cl.[5] B23P *11/00*

U.S. Cl. 29—432.2 **13 Claims**

1. A method of attaching a self-piercing and riveting fastener to a panel, said fastener including an annular barrel portion having barrel side walls which define an opening into said barrel and a piercing surface adjacent said opening, said method comprising the following steps:

(a) driving said barrel piercing surface against said panel, thereby piercing a slug from said panel, and forming an opening through said panel;

(b) driving said barrel piercing surface through said panel



opening and deforming said barrel side walls adjacent said opening radially outwardly, thereby riveting said barrel portion to said panel; and

(c) driving said panel slug into said barrel portion through said barrel opening and staking said slug against said barrel side walls, said stalking thereby lodging said slug against said barrel side walls.

5,067,225

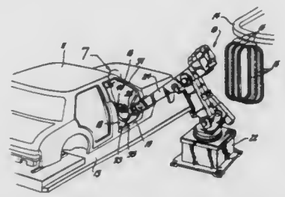
METHOD OF A ROBOT FOR INSTALLING WEATHER STRIPPING IN A DOOR OR LIKE OPENING

Stephen St. Angelo, Jr., Rochester Hills; John J. Lucci, Lansing, both of Mich.; George C. Carver, Albany, Ga.; Alan Heads, New Market, and James F. Mitchell, Oshawa, both of Canada, assignors to General Motors Corporation, Detroit, Mich.

Division of Ser. No. 285,989, Dec. 19, 1988, abandoned. This application Mar. 7, 1991, Ser. No. 666,176

Int. Cl.[5] B23P *21/00*; **B23Q** *15/00*

U.S. Cl. 29—451 **2 Claims**



1. A method for utilizing a robot with an arm having an idler roller for supporting a fixed length of weather stripping, a guide roller having a first position for engagement with said fixed length of weather stripping opposite said idler roller and a second position for nonengagement with said fixed length of weather stripping, a fork and a pressure roller to install said fixed length of weather stripping into a body opening, said method in combination including:

bracketing said fixed length by surrounding said fixed length with said fork;

engaging said fixed length with said guide roller opposite said pressure roller thereby aligning said fixed length with said pressure roller; and

interacting said pressure roller with said opening whereby said fixed length is guided and affixed with said opening of said body.

5,067,226

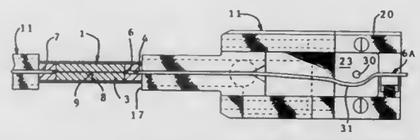
METHOD OF ASSEMBLING AN OPTICAL FIBER BY APPLYING PRESSURE TO ABUTTING OPTICAL FACES

Walter A. Egner, Oberlin; Ronald R. Schaffer, Harrisburg; Larry R. Stauffer, Camp Hill, and Gary N. Warner, Harrisburg, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Division of Ser. No. 209,257, Jun. 20, 1988, Pat. No. 4,907,335. This application Mar. 17, 1989, Ser. No. 324,944

Int. Cl.[5] B23P *19/04*; **G02B** *6/38*

U.S. Cl. 29—452 **5 Claims**



1. A method for assembling an optical fiber in a passage of a connector by applying axial force to the fiber to maintain an optical face of the fiber in abutment with an optical face of an optical device mounted to the connector, the method comprising the steps of:

holding the fiber with a tool separate from the connector while the tool applies a bend in the fiber to reduce resistance of the fiber to buckling under pressure,

inserting the fiber into the passage of the connector while holding the bend of the fiber by the tool,

applying axial force to the fiber without restricting bending of the fiber in the tool to apply pressure between abutting optical faces of the fiber and the device, and

securing the fiber to the connector to maintain the pressure between the abutting optical faces.

5,067,227

DOUBLE WRAP BRAKE BAND AND ITS MANUFACTURING METHOD

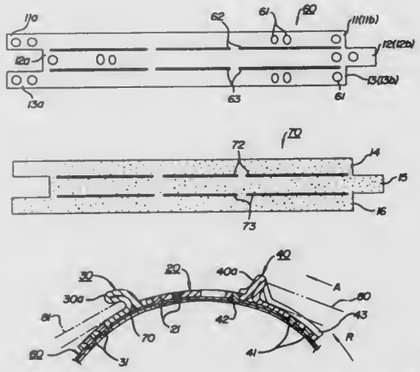
Terubiko Tanaka, Osaka, Japan, assignor to Kabushiki Kaisha Daikin Seisakusho, Osaka, Japan

Division of Ser. No. 402,411, Sep. 5, 1989, Pat. No. 5,012,905. This application Oct. 1, 1990, Ser. No. 590,867

Claims priority, application Japan, Sep. 12, 1988, 63-227680

Int. Cl.[5] B23P *21/00*

U.S. Cl. 29—469 **3 Claims**



1. A method for manufacturing a double wrap brake band comprising the steps of forming a sheet metal strap having rivet holes at the opposite ends thereof for securing brackets thereto and slit groups in two parallel rows extending intermittently in a longitudinal direction of said strap into a substantially perfect annular shape by bending said strap; fastening a band-shaped friction facing having extending groups of slits corresponding in length and number to said slits in said metal strap to the inner annular surface of said strap, said slits in said strap and friction facing dividing said strap, with said friction facing thereon, into three annular bands, one band at each of the opposite outer side portions of said annular shaped strap outwardly of said two parallel rows of slits and one intermediate annular band intermediate said two parallel rows and outer bands, said two outer bands and said intermediate band each having said rivet holes at the opposite ends thereof; forming first and second sheet metal brackets having outwardly extending edge portions, said edge portion of one of said brackets being formed for receiving a piston and said edge portion of the other of said brackets being formed for receiving an anchor pin connected to said piston, said first and second sheet metal brackets having rivet holes extending therethrough for alignment with said rivet holes on said outer bands and said intermediate band, respectively, one of said sheet metal brackets for riveting to said intermediate band having wing-shaped reinforcing members extending outwardly from opposite sides of said one bracket for covering portions of said outside bands when the other of said brackets is secured to said outside bands and said one bracket is secured to said intermediate band; and securing said one of said brackets to said intermediate band and said other of said brackets to said outside bands by inserting rivets in said rivet holes in said one bracket and said intermediate band and through said rivet holes in said other of said brackets and said outer bands and caulking said rivets in said holes.

5,067,228

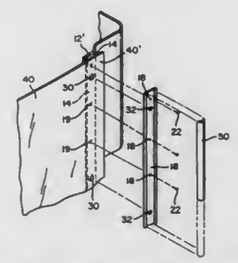
APPARATUS AND METHOD FOR BLIND ATTACHMENT OF A LINER TO A POOL SUPPORT STRUCTURE

John Gardenier, Guilderland, N.Y., assignor to Saratoga Spa & Bath Co., Latham, N.Y.

Filed May 9, 1990, Ser. No. 521,335

Int. Cl.[5] B23Q *3/00*

U.S. Cl. 29—525.1 **9 Claims**



1. In a water containment structure including a preformed structural module, a membranous liner and faceplate sealing means for fixed securing of the liner to a protruding flat margin of the module in a water-tight configuration, an improvement for effecting a blind overlay installation of the faceplate sealing means so that it secures integrally the liner in said configuration, said improvement comprising a flat template strip having at least one detent-in-receptacle indexing pair means that is associated with an index compliment pair means disposed on the margin of the module; and fixing means for fixing said indexing pair means to said index compliment pair means with the liner secured therebetween.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,229

CUTTING DEVICE FOR USE IN MANUFACTURING ELECTRONIC COMPONENTS

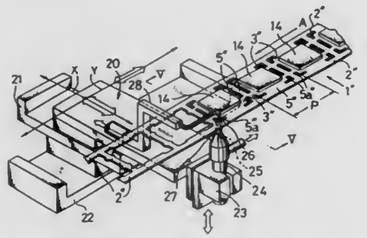
Nobuyuki Nakamura; Kyoto, Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Division of Ser. No. 488,129, Mar. 5, 1990. This application Oct. 22, 1990, Ser. No. 601,934

Claims priority, application Japan, Mar. 7, 1989, 1-26342[U]

Int. Cl.[5] B23P *23/00*

U.S. Cl. 29—566.1 4 Claims



1. A cutting device for use in manufacturing electronic components from a board supply frame which comprises a parallel pair of elongate side bands, said board supply frame further comprising a plurality of unit circuit boards integrally incorporated in said frame by means of connecting webs and arranged between said pair of side bands at a predetermined interval therealong, said cutting device comprising:

an X-Y table arranged in a path of transfer of said frame, said table having a supporting portion which is reciprocally movable in an X-Y plane along an X-axis as well as along a Y-axis perpendicular to said X-axis, said plane being parallel to another plane containing said frame; and

a spindle rotatably supported at said supporting portion of said X-Y table to extend toward said frame, said spindle having a front end provided with a rotary cutting or grinding element for severing said connecting webs of said frame.

5,067,230

METHOD FOR THE MANUFACTURE OF PLANAR MAGNETIC HEADS BY MAKING CAVITIES IN A NON-MAGNETIC WAFER

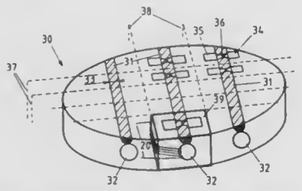
Paul-Louis Meunier, Paris; Jean-Marc Coutellier, Maurepas, and Jean-Claude Lehureau, Sainte Genevieve Des Bots, all of France, assignors to Thomson-CSF, Puteaux, France

Filed Jun. 21, 1990, Ser. No. 541,331

Claims priority, application France, Jul. 4, 1989, 89 08962

Int. Cl.[5] G11B *5/42*

U.S. Cl. 29—603 20 Claims



1. A method for manufacturing magnetic heads with planar structure used for the encoding and reading of magnetic tapes, each of said magnetic heads having a microgap formed between two magnetic poles and facing a gap defined between two wire-wound ferrite cores, comprising the steps of:

depositing said magnetic poles as thin layers on a first face of a wafer of non-magnetic material; and

hollowing out, in an opposing face of said water, at least one housing cavity in which said wire-wound cores are disposed, said cores being disposed on a second wafer, so as to obtain a calibrated spacing or a junction between an upper part of said wire-wound cores and said thin layer magnetic poles.

5,067,231

SYSTEM FOR PRESS-FITTING PARTS INTO WORKPIECE

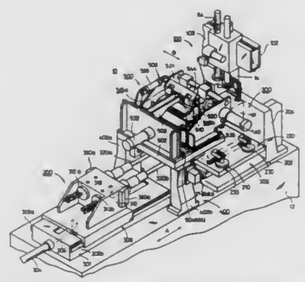
Tsugio Ueno; Masato Sato, and Yoshiaki Mori, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 17, 1990, Ser. No. 510,451

Claims priority, application Japan, Apr. 17, 1989, 1-96759; Apr. 17, 1989, 1-96760; Apr. 17, 1989, 1-96761; May 19, 1989, 1-127549; Jun. 23, 1989, 1-161987

Int. Cl.[5] B23Q *7/10*

U.S. Cl. 29—809 26 Claims



1. A system for press-fitting a part into a workpiece, comprising:

a positioning device for positioning a workpiece; and

a pressing device for press-fitting a part into the workpiece which is positioned by said positioning device;

said positioning device comprising:

a jig base having a stationary reference surface;

a movable table movable toward and away from said stationary reference surface; and

pushing means for pushing said movable table to create a gap between an end surface of the workpiece and said stationary reference surface when the workpiece is placed on said movable table;

said pressing device comprising:

a presser unit including a presser rod for holding the part thereon said presser unit being movable toward and away from said movable base; and

presser means for pressing the end surface of the workpiece against said stationary reference surface to position the workpiece before the part is press-fitted into the workpiece by said presser rod.

5,067,232

METHOD FOR CONTACTING SHIELDING PLATES

Peter Seidel, Groebenzell, and Karl Zell, Niederpoecking, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

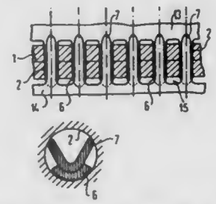
Filed May 8, 1991, Ser. No. 697,004

Claims priority, application European Pat. Off., May 16, 1990, 90109254.4

Int. Cl.[5] H05K *3/30*

U.S. Cl. 29—837 3 Claims

1. A method for contacting upper shielding plates having press-in pins and located on an upper side of a printed circuit board to lower shielding plates having press-in pins and located on a lower side of the printed circuit board, comprising the steps of: providing arcuate press-in zones for the press-in pins of the upper shielding plates and providing V-shaped press-in zones for the press-in pins of the lower shielding plates, apexes of the arcurate and V-shaped press-in zones of the press-in pins of the upper and lower shielding plates always lying at the same side; placing the press-in pins of the upper



shielding plate free of force into holes to be through-connected in the printed circuit board; and pressing the V-shaped press-in pins of the lower shielding plate into the already occupied holes of the printed circuit board to produce a firm contacting between the respective press-in pins and the printed circuit board.

5,067,233

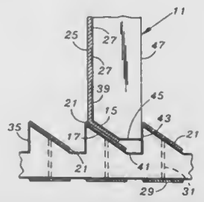
METHOD OF FORMING AN INTEGRATED CIRCUIT MODULE

Allen L. Solomon, Fullerton, Calif., assignor to Grumman Aerospace Corporation, Bethpage, N.Y.

Division of Ser. No. 383,429, Jul. 24, 1989, Pat. No. 4,992,908. This application Jan. 12, 1990, Ser. No. 464,440

Int. Cl.[5] H01K *3/10*

U.S. Cl. 29—852 8 Claims



1. A method of forming an integrated circuit module including a plurality of circuit layers bounded on at least one end by a contact board, the method comprising:

a. anisotropically etching at least one V-shaped groove in the first surface of a plurality of layers;

b. forming a trench within each of said V-shaped grooves, said trench extending into the silicon substrate beyond the depth of the V-shaped groove;

c. forming an integrated circuit structure on a first surface on each of the layers;

d. forming first conductive pads on a first inclined surface of the V-shaped groove of each of the layers, said pad being in electrical communication with the integrated circuit structure;

e. thinning each of the layers such that the thickness of each layer is substantially equal to the depth of the trench, thereby severing a portion of the layer along the trench side walls such that said first inclined surface and a first trench sidewall define a first edge portion of each layer;

f. forming a plurality of trenches on a first surface of a first contact board;

g. anisotropically etching a first vertical edge surfaces of the contact board trenches to form a plurality of layer receiving channels, each of said channels including repetitive sawtooth pattern on the circuit board first surface, each sawtooth pattern including a vertical surface and a second inclined surface and horizontal portion;

h. forming second conductive pads on each of the second inclined surfaces;

i. forming a plurality of third conductive pads along a second surface of the contact board;

j. forming conductive vias extending through the contact board connecting each of the second conductive pads with a third conductive pad; and

k. connecting a plurality of the layers to the contact board such that each layer receiving channel receives and supports one of the layers in a direction substantially orthogonal to the contact board second surface, and wherein electrical communication is effected between the third conductive pads and the integrated circuit structures.

5,067,234

TURBINE BLADE REPAIR

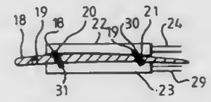
Michael J. Fraser, Droitwich, United Kingdom, assignor to Refurbished Turbine Components Limited, United Kingdom

Filed Dec. 19, 1990, Ser. No. 629,838

Claims priority, application United Kingdom, Dec. 22, 1989, 8929005

Int. Cl.[5] B23P *7/00*

U.S. Cl. 29—889.1 8 Claims



1. A method of repairing a turbine blade of the type having a discontinuity, the method comprising the steps of:

(a) providing a plug of approximately the same cross-section as said discontinuity;

(b) driving said plug into said discontinuity so that the plug is a tight fit in the discontinuity, without the need for any welding;

(c) carrying out the repair step to the turbine blade involving the input of stress to the blade;

(d) applying heat treatment to the blade for stress relief at least in any area where considerable thermal energy has been applied to the blade;

(e) removing said plug from said discontinuity.

5,067,235

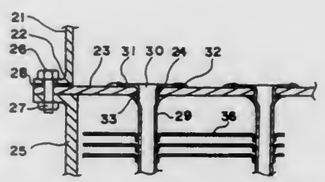
METHOD FOR JOINING HEAT EXCHANGER TUBES WITH HEADERS

Hisataka Kato, and Satoshi Takahashi, both of Hadano, Japan, assignors to Toyo Radiator Co., Ltd., Tokyo, Japan

Filed May 4, 1990, Ser. No. 519,534

Int. Cl.[5] B21D *53/06*

U.S. Cl. 29—890.043 7 Claims



1. A method for joining a plurality of flat heat exchanger tubes with multiple headers of a heat exchanger, said flat tubes being formed with major and minor axis side walls, said major axis side walls being shorter in length and spaced further apart than said minor axis side walls, wherein each of said headers is provided with a plurality of elliptical holes through which

VOL 1132 ISS 4 NO 26 1991 UMI

each of said headers is joined with said flat tubes to form liquid-tight joints therebetween, a peripheral portion of each of said headers being joined with a flange portion of a tank body to form a tank for receiving a cooling liquid, which flows through said tubes, said method comprising the steps of:

obliquely cutting end portions of said major axis side walls of each of said plurality of flat tubes, to form trapezoidally shaped end portions of said minor axis side walls;

passing each of said end portions through corresponding ellipitical holes;

flaring each of said end portions;

bending radially outward said major and minor axis side walls of said end portions to form a bent portion which abuts each of said headers and has a relatively small width in a direction parallel to said major axis of a cross section of each of said flat tubes and a relatively large width in a direction parallel to said minor axis of said cross section of each of said flat tubes; and

brazing or soldering said bent portions to said headers and brazing or soldering each of said plurality of flat tubes to said headers.

5,067,236

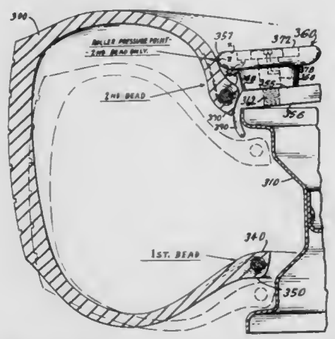
METHOD FOR MANUFACTURING AN AUTOMATIC TIRE MOUNTING AND DEMOUNTING MACHINE ROLLER

Richard E. Shifferly, 9717 Waterville-Neapous Rd., Waterville, Ohio 43566

Continuation of Ser. No. 250,527, Sep. 9, 1988, abandoned, which is a continuation of Ser. No. 247,281, Oct. 15, 1981, abandoned. This application Sep. 6, 1989, Ser. No. 403,386

Int. Cl.[5] B21D *53/00*

U.S. Cl. 29—895.3 **2 Claims**



1. A method for manufacturing a tire mounting roller rotatably affixed to a tire mounting tool for mounting a flexible tire on a tire rim, and wherein said roller has a longitudinally extending vertical central axis about which said roller is symmetrically formed and about which vertical axis said roller is rotatably mounted for free rotation relative to said tire mounting tool, said method comprising:

(a) forming a lower portion on said roller, said lower portion having an upper part and a lower part and said lower portion being shaped in the form of an inverted truncated cone with the upper part of said lower portion of said roller having a larger diameter than the lower part thereof;

(b) forming an upper portion on said roller, wherein said upper portion has an outer surface, said upper portion on said roller being formed respectively with an upper and lower part, with the lower part of said upper portion being adjacent to the upper part of said lower portion in a flush concentric manner;

(c) forming the outer surface of the upper part of the upper portion of said roller with two separate arcurate portions, each such arcuate portion having a different center point being located within the upper portion on said roller, each said arcuate portion being of different length.

5,067,237

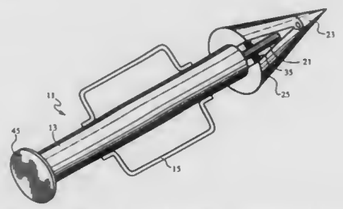
BATTERING RAM

Michael D. Holder, 244 Monterrey, Hewitt, Tex. 76643

Filed Jan. 17, 1991, Ser. No. 642,533

Int. Cl.[5] B21C *1/00*

U.S. Cl. 30—1 **20 Claims**



1. A battering ram for forcible entry through a door, comprising in combination:

an elongated body;

a pair of barbs carried by the body, extending rearward and laterally outward; and

spring means for biasing the barbs apart from each other, so that the barbs will contract when piercing the door, and expand outward once the door is pierced, hooking the door with the battering ram to enable the door to be pulled in a rearward direction with the battering ram.

5,067,238

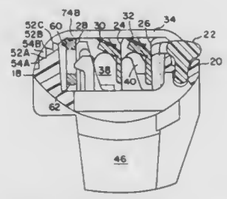
SHAVING SYSTEM

Gary R. Miller, Tewksbury; Frederick R. Borden, Brockton, and Robert A. Trotta, Pembroke, all of Mass., assignors to The Gillette Company, Boston, Mass.

Filed Sep. 28, 1990, Ser. No. 589,998

Int. Cl.[5] B26B *19/42, 21/22*

U.S. Cl. 30—34.002 **15 Claims**



12. A shaving system comprising

body structure that incorporates guide structure,

and fixed skin-engaging structure that has skin-tensioning surface structure thereon;

blade structure carried by said body structure rearwardly of said fixed skin-engaging structure, said blade structure having a cutting edge extending along the length of said body structure,

movable guard structure carried by said body structure between and adjacent to said fixed skin-engaging structure and said cutting edge of said blade structure, said movable guard structure including a U-shaped carrier member and at least two metal strips that have crest portions extending parallel to said cutting edge and spaced less than one millimeter apart and that are secured in said carrier member, said crest portions being disposed for skin-engagement between and adjacent to said fixed skin-engaging structure and said cutting edge and having radii of curvature of about 0.01 millimeter, said movable guard structure further including integral tab portions, said guide structure in said body structure including opposed slots in which said tab portions are disposed for guiding movement of said movable guard structure along a predetermined path relative to said body structure;

a shaving aid member carried by said body structure on the other side of said blade structure from said movable guard structure;

said movable guard structure being positioned about two millimeters rearwardly of the front surface of said body structure, the cutting edge of said blade structure being positioned about three millimeters rearwardly of said front surface; and the leading edge of said shaving aid member being positioned about said millimeters rearwardly of said front surface; and

biasing structure, said movable guard structure being positioned in said body structure in engagement with said biasing structure for dynamic movement of said movable guard structure against said biasing structure as guided by said guide structure in the course of shaving.

5,067,239

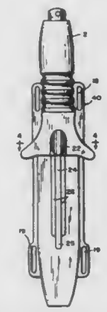
LOCK FOR KNIFE/SHEATH COMBINATION

Walter W. Collins, North, S.C., assignor to Wenoka Seastyle - A Div. of Schur, Inc., West Palm Beach, Fla.

Continuation of Ser. No. 345,695, May 1, 1989, abandoned. This application Aug. 1, 1990, Ser. No. 561,285

Int. Cl.[5] B26B *3/06*

U.S. Cl. 30—151 **7 Claims**



1. A tool and sheath combination having releasably interlocking means comprising:

said tool having a handle and a working element extending longitudinally from the end of the handle;

said sheath having inner and outer facing walls defining a pocket to receive said element on any one of a plurality of orientations;

a pair of engaging means formed on opposite sides of said handle adjacent to said working element, and a recess defining channels on either side of said engaging means; and

outwardly extending lock means on said outer wall positioned to engage said engaging means on insertion of said working element into said pocket whereby said tool is locked into said sheath, said sheath further comprising rail means positioned on said inner wall such that when said tool is inserted in said sheath, said recesses on said handle facing the inner wall of said sheath engage said rail means;

and means for supporting and moving said lock means under finger pressure from a normal lock position in a plane parallel to said facing walls to positions out of engagement with said engaging means whereby said tool may be removed from said sheath.

5,067,240

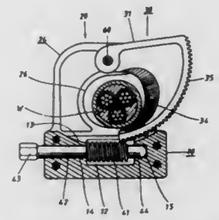
CUTTER FOR CABLE, PLASTIC PIPE OR THE LIKE

Yen-Jen You, 8F-1, No. 998 Min-Sheng E Rd., Taipei, Taiwan R.O.C.

Filed May 30, 1991, Ser. No. 707,568

Int. Cl.[5] B26B *13/00*

U.S. Cl. 30—2.49 **4 Claims**



1. A cutter for cable, a plastic pipe or the like comprising:

a base having an upper surface;

a screw rod rotatably received in said base, and including a screw portion protruding beyound said upper surface and a driving end protruding out of said base;

an immovable blade fixed to said base, and having a first curved portion having a first curved knife-edges; and

a movable blade pivotably fixed to said immovable blade, and having a second curved portion which cooperates with said first curved portion to contain therebetween a work piece and includes a second inner curved knife-edge and an outer toothed surface capable of engaging with said screw portion in a manner that when said driving end is rotated, said first and second curved knife-edges can be set in a relative motion to cut said work piece.

5,067,241

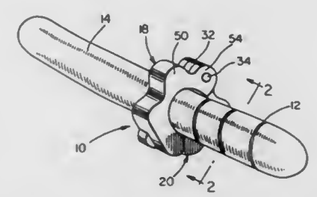
ADJUSTABLE SPIRAL SLITTER FOR HOT DOGS

Morris G. Goodman, P.O. Box 629, Freehold, N.J. 07728-0629

Filed May 8, 1990, Ser. No. 520,449

Int. Cl.[5] B26B *29/00, 3/00, 29/06*

U.S. Cl. 30—289 **2 Claims**

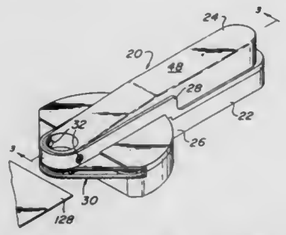


1. An adjustable spiral slitter for hot dogs having an external casing completely enclosing a quantity of ground meat, said slitter comprising a pair of members having opposed semi-cylindrical recesses therein, means hingedly connecting said members at one end, means adjustably connecting said members at the other end with the adjustably connected ends being separable to enable the members to be pivoted between an open and closed position, one of said members including a straight blade mounted in the recess, said blade being oriented in an inclined relation to a transverse plane perpendicular to the longitudinal center axis of the semi-cylindrical recess, said blade having a straight cutting edge and being rigidly and stationarily affixed in said one member, said recesses forming an annular passage with the blade cutting edge generally paralleling and spaced laterally from a diameter of the annular passage with the size of the interior of the annular passage

VOL
1132
ISS
4
NO
26
1991
UMI

being adjustable by moving the adjustably connected ends to different adjusted positions to enable a hot dog having different circumferential sizes to be inserted through the slitter and rotated simultaneously with the cutting edge of the blade forming a spiral slit through the external casing of the hot dog with the slit extending only partially into the ground meat within the hot dog casing thereby leaving the casing and the ground meat integrally assembled thereby enabling the hot dog to be cooked in various conventional manners in a pot, pan or grill with the slit enhancing the cooking operation by eliminating the tendency of the hot dog to curl, enhancing the flavor and appearance of the hot dog and enabling the hot dog to be more easily inserted into a hot dog roll or bun.

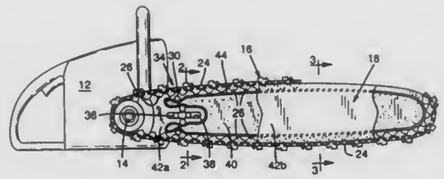
5,067,242
MULTIPLE DESIGN PUNCH AND EMBOSSER
Mark G. Singer, 32 E. Princeton Rd., Bala Cynwyd, Pa. 19004
Filed Jan. 23, 1991, Ser. No. 644,642
Int. Cl.[5] B26F *1/00*
U.S. Cl. 30—364 **16 Claims**



1. A punch device for punching out a plurality of designs in a sheet, said punch including a base, a multiple punch cassette and a handle, said handle having a free end and being pivotally connected to said base, said base having a punch station disposed adjacent said handle, said base punch station comprising a platform parallel to the plane in which the axis of pivot of said handle is disposed to support said cassette, said handle containing a member which contacts said cassette when said free end of said handle is pivoted toward said base, said cassette comprising a first plate containing a plurality of punches and a second plate each containing a plurality of dyes each of which is aligned with one of said punches and having a complementary opening to the shape of said punch shape, said first plate normally being spaced from and spring urged away from said second plate so that a sheet may be placed between said plates, said handle member being urged against said first plate when said free end of said handle is pivoted towards said base to cause said first plate to be urged against said second plate, said member contacting said top plate adjacent the center of said plate so that said first plate remains aligned with and substantially parallel to said second plate throughout movement of said first plate with respect to said second plate.

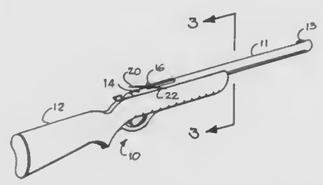
5,067,243
LAMINATED ADHESIVE CORE CHAIN SAW GUIDE BAR WITH CONTAINMENT AND SPACING WIRE
Timothy H. O'Neel, Milwaukie, Oreg., assignor to Blount, Inc., Portland, Oreg.
Filed Mar. 22, 1991, Ser. No. 673,413
Int. Cl.[5] B27B *17/00*; B23D *57/00*; B29C *67/00*
U.S. Cl. 30—387 **6 Claims**

1. A laminated chain saw guide bar comprising:
first and second similarly shaped outer laminates each having an inner surface in face-to-face relation to the other inner surface;
a wire structure intermediate said outer laminates and contacting said inner surfaces to define a relative spacing therebetween, an exposed portion of said wire structure defining in combination with exposed portions of said inner surfaces a groove about the periphery of said guide bar, an unexposed portion of said wire structure defining in combination with unexposed portions of said inner surfaces an inner core cavity; and



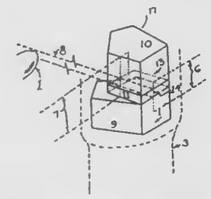
an adhesive core material occupying said inner core cavity and adhering to said inner surfaces and to said wire structure.

5,067,244
GUN SIGHT FOR SHOOTING MOVING TARGET
Fredrick N. Montalvo, #7, Box 7390, Nacogdoches, Tex. 75961
Continuation-in-part of Ser. No. 283,150, Dec. 9, 1988, Pat. No. 4,937,944. This application Jul. 3, 1990, Ser. No. 547,613
Int. Cl.[5] F41G *1/00*
U.S. Cl. 33—261 **12 Claims**



1. A gun sight for assisting a shooter in hitting a moving target with a gun having a barrel connected to a stock comprising:
a. sight ring assembly connected to the top of a gun barrel near the rear end of the gun barrel for alignment of the gun with a moving target, said sight ring assembly having
i. a base means, said base means having a top side, a bottom side, and two vertical sides, said bottom side being connected to the top of said gun barrel,
ii. a semi-circular sight ring connected to said top side of said base means, said sight ring being generally semi-circular in shape, said sight ring extending vertically upward from the top of said gun barrel, the plane in which said sight ring lies being perpendicular to the centerline of said gun barrel, and
iii. two horizontal arm means connected to said vertical sides of said base means, said arm means extending outwardly from said gun barrel generally perpendicular to the vertical axis of the stock attached to the gun barrel.

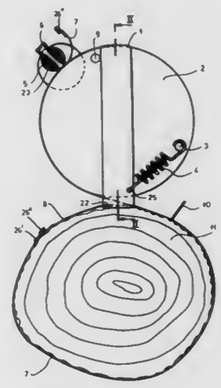
5,067,245
INSTANT PLACEMENT DOWN ROD
David W. Millard, P.O. Box 275, Hollywood, S.C. 29449
Continuation of Ser. No. 52,444, May 21, 1987, abandoned. This application Mar. 23, 1990, Ser. No. 497,839
Int. Cl.[5] G01C *15/00*
U.S. Cl. 33—289 **10 Claims**



1. A sighting device for determining the position of a football on a football field relative to a sideline of said field, said device comprising:
a rod having a housing member carried thereby;
said housing member having four apertures, a first two of said apertures are arranged along one axis and a second two of said apertures are arranged along a second axis which is perpendicular to said first axis;
a compound prism member mounted within said housing so as to intersect said first and second axises;
said compound prism member being comprised of an upper prism, an intermediate glass lens and a lower prism;
said upper prism accomodating a line of sight from one of said first of said two apertures through one of said second two apertures;
the lower prism accomodating a line of sight from said one of said first two apertures through the other of said second two apertures;
said glass lens accomodating a line of sight through said one of said first two apertures and which is at right angles to the lines of sight through said second two apertures whereby when the lines of sight through said one and said other of said second two apertures are vertically spaced and aligned parallel with said sideline, the line of sight through said second of said first two apertures is perpendicular to said sideline intermediate said one and said other line of sight so that the exact position of the football on the football field relative to said sideline is determined.

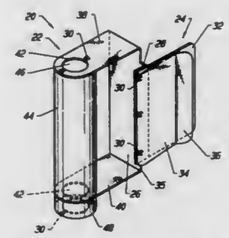
5,067,246
GAUGE FOR MEASURING TREE-TRUNK GROWTH AND THE LIKE
Benno Hesske, Salzburg; Franz Adnrae, Wilhelmsburg, and Peter Weber, Salzburg, all of Austria, assignors to Feinmechanische Optische Betriebsgesellschaft m.b.H., Salzburg, Austria
Filed Mar. 1, 1991, Ser. No. 663,101
Int. Cl.[5] G01B *3/10*
U.S. Cl. 33—555.4 **14 Claims**

1. A gauge for measuring a change in a dimension between one location and an adjacent location on at least one object, the gauge comprising:
a support;
means for fixing the support at one of the locations;
a wheel pivotal on the support about an upright axis and having an outer periphery, the wheel periphery and the support having juxtaposed portions one of which is provided with a pointer and the other of which is provided with a scale, whereby the pointer moves along the scale as the wheel pivots on the support;
a flexible belt having an inner end anchored at the other location, a middle portion, and an outer end lying against the periphery of the wheel;
means for fixing the outer end to the wheel periphery; and
spring means for urging the wheel rotationally on the support in a direction pulling the middle belt portion tight between the locations, whereby as the relative positions of



the locations changes the pointer move relative to the scale.

5,067,247
APPARATUS FOR INSTALLING A BOX INTO A WALL
Gilbert Milichichi, 39095 Zacate Ave., Fremont, Calif. 94539, and Richard G. Milichichi, 525 Saddleback Ct., Fremont, Calif. 94536
Filed Mar. 22, 1991, Ser. No. 673,677
Int. Cl.[5] B25B *11/00, 3/00*
U.S. Cl. 33—613 **10 Claims**



1. An apparatus for installing a box into a wall, comprising:
(A) a fastening member for temporarily securing a box to be installed into a wall; and
(B) a positioning member coupled to said fastening member, said positioning member including a handle wherein said handle includes
(1) a central vertical support;
(2) an arm including a first and a second end, said first end connected to said central vertical support; and
(3) a sleeve attached to said arm proximate to said second end of said arm, said sleeve including a central longitudinal axis with a conduit along the length of said longitudinal axis, said positioning member vertically positioning said box at a desired location in respect to said wall such that said box may be permanently secured at said location while said fastening member holds said box.

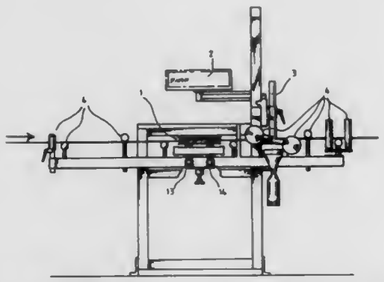
VOL 1132 ISS 4 NOV 26 1991 UMI

5,067,248

LINEAR MEASURING APPARATUS

Bengt A. Nortenius, Hudiksvall; Per-Erik B. Olsson, Näsviken, and Nils-Erik G. Grip, Hudiksvall, all of Sweden, assignors to Telefonaktiebolaget L M Ericsson, Stockholm, Sweden

Filed Apr. 26, 1991, Ser. No. 691,799
Claims priority, application Sweden, May 17, 1990, 9001790
Int. Cl.[5] G01B 5/04, 3/12
U.S. Cl. 33—744 7 Claims



1. A linear measuring apparatus for measuring elongated material, comprising:

a measuring station which includes two endless belts which run over two belt pulleys and between which material to be measured is drawn, sensors connected to said measuring station, and a counter unit connected to said sensors for indicating material lengths, wherein said endless belts are arranged horizontally, side-by-side, and in resilient abutment with the material to be measured, wherein said sensors are pusle generators which are each connected to one belt pulley of each endless belt, pulses produced by said pulse generators being sent to said counter unit, wherein a mean value of said pulses is generated to represent the measured length;

a marking unit arranged downstream of said measuring station and connected to said counter unit, for marking the elongated material at selected points of the measured length; and

a further pulse generator connected to an other pulley of one of said belts, said pulses produced by said further pulse generator being sent to said marking unit, via said counter unit, to supply speed information to said marking unit.

5,067,249

MAP SCALING INSTRUMENT

Matthew Terrigno, 7321 Rokeby Dr., Manassas, Va. 22110

Filed Aug. 7, 1990, Ser. No. 563,604
Int. Cl.[5] G01B 3/12
U.S. Cl. 33—773 11 Claims

1. An instrument for measuring and converting scale dimensions, comprising:

an elongate housing having first and second ends;

a tracing wheel rotatably supported on one end of the housing for rolling movement along a dimension to be measured;

an actuator cylinder rotatably supported in the housing between the ends of the housing for rotation about an axis parallel to the axis of the housing;

gear means connected between the tracing wheel and the actuator cylinder for rotating the actuator cylinder as the tracing wheel rotates along the dimension being measured;

an electronic digital numerical display device on a side of the housing for displaying a scale measurement of the dimension being measured;

actuator means on the actuator cylinder adapted to actuate the digital numerical display device upon rotation of the tracing wheel and actuator cylinder; and

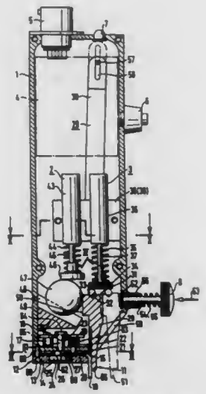
scale adjusting means on the other end of the housing, connected with the actuator cylinder for adjusting the position of the actuator cylinder relative to the digital numerical display device, whereby the instrument may be calibrated to obtain and display different scale measurements.

5,067,250

DEVICE FOR MEASUREMENT OF GAP AND FLUSH

Willi Auweiler, Cologne; Bernd Solbach, Pulheim, and Robert Luetzeler, Cologne, all of Fed. Rep. of Germany, assignors to Ford Motor Company, Dearborn, Mich.

PCT No. PCT/GB89/00872, § 371 Date Feb. 8, 1991, § 102(e) Date Feb. 8, 1991, PCT Pub. No. WO90/01672, PCT Pub. Date Feb. 22, 1990
PCT Filed Jul. 31, 1989, Ser. No. 651,237
Claims priority, application Fed. Rep. of Germany, Aug. 8, 1988, 3826884
Int. Cl.[5] G01B 7/14
U.S. Cl. 33—783 11 Claims



1. A measuring device for measuring the gap and/or flush between two parts (70, 71), comprising

a housing (1) having a base (13) with an application face (14) which, in use, is placed on the surface of one of the parts (70),

a probe (11) which projects from the housing (1) and which is movable against a return force (35) in the direction of the housing (1), the probe (11) being placed in used against the other of the parts, and

at least one electro-mechanical transducer disposed within the housing (1) for detecting the displacement of the probe, characterised in that

the base (13) is pivotably connected to the housing (1), and

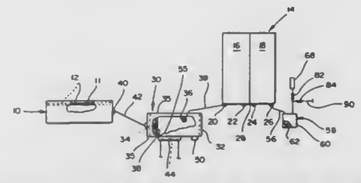
orientation sensing means (63, 7) are provided for sensing when the housing is in a predetermined orientation in relation to the base (13).

5,067,251

VACUUM PUMP WITH HEATED VAPOR PRE-TRAP

Yury Zlobinsky, Massapequa, and Donald A. Mattes, Huntington, both of N.Y., assignors to Savant Instruments, Inc., Framingdale, N.Y.

Division of Ser. No. 514,120, Apr. 25, 1990. This application Jan. 8, 1991, Ser. No. 638,627
Int. Cl.[5] F26B 5/04
U.S. Cl. 34—5 5 Claims



1. A method for vacuum drying an aqueous and like solvents-containing specimen which comprises

disposing the specimen in a sealed drying chamber,

connecting the interior of the drying chamber to an inlet to a pre-trap chamber disposed a distance below the drying chamber so that the flow course between the drying chamber and the pre-trap inclines downwardly,

connecting the suction side of a vacuum diaphragm pump disposed a distance above the pre-trap chamber to an outlet of said pre-trap chamber in a flow course which inclines upwardly from said pre-trap chamber outlet in the direction of said pump suction side so that operation of said pump withdraws liquid and vapor solvent from said specimen along with gas products from said drying chamber as a flow into said pre-trap chamber,

gravity separating liquid solvent from the gas products in said pre-trap chamber and collecting said liquid solvent as a pool in said pre-trap chamber, and

heating the liquid solvent in said pre-trap chamber to vaporize same so that it can be withdrawn through the pump in that form and discharged to an environment outside said pump.

5,067,252

METHOD AND APPARATUS TO CONDUCT FLUIDIZATION OF COHESIVE SOLIDS BY PULSATING VAPOR FLOW

Lloyd A. Baillie, Plano, Tex., assignor to Atlantic Richfield Company, Los Angeles, Calif.

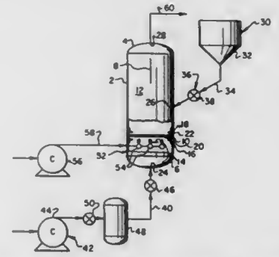
Division of Ser. No. 330,330, Mar. 29, 1989, Pat. No. 4,939,850. This application May 3, 1990, Ser. No. 518,376
Int. Cl.[5] F26B 17/00
U.S. Cl. 34—57 A 5 Claims

1. Apparatus comprising:

a vessel having an upper end and a lower end; and

a gas permeable partition positioned in the vessel between the upper end and the lower end, said partition dividing the vessel into a first chamber and a second chamber, at least a portion of the gas permeable partition being movable along an axis drawn normal to the plane of the partition between a first longitudinal position and a second longitudinal position, said vessel having an inlet in the first chamber for the introduction of a fluid, an inlet in the second chamber for the introduction of a finely divided solid, and an outlet in the second chamber for exhausting a mixture of the fluid and the finely divided solid from the second chamber; and

a pulsating source of fluidizing gas to said first chamber.

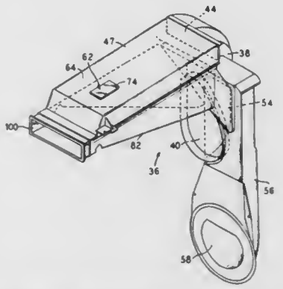


5,067,253

LINT COLLECTING DEVICE

Dennis W. Hauch, Baroda Township, Berrien County, and Kurt Werner, St. Joseph Township, Berrien County, both of Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich.

Division of Ser. No. 576,956, Sep. 4, 1990. This application Nov. 7, 1990, Ser. No. 610,026
Int. Cl.[5] B01D 55/43; F26B 21/06
U.S. Cl. 34—82 6 Claims



1. A lint collecting device mounted within an outer enclosure comprising:

an air duct, positioned within said enclosure and adjacent to a wall of said enclosure, through which lint laden air is directed;

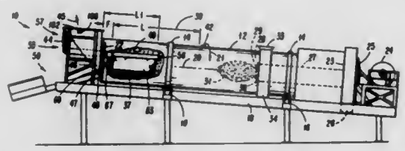
means for collecting lint positioned in an enclosed lint collecting zone in said duct;

an air inlet and an air outlet for said air duct being positioned so as not to be visible from an exterior of said enclosure; and

air impermeable means for rendering at least a portion of said means for collecting lint in said lint collecting zone visible through said wall of said enclosure.

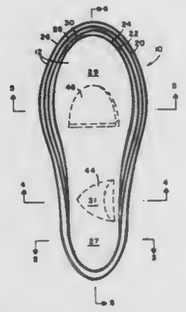
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,254
METHOD AND APPARATUS FOR MODIFYING A VEIL OF MATERIALS IN A DRUM OF A DRYING APPARATUS
Don R. Linkletter, Cedar Rapids, and Joseph E. Musil, Ely, both of Iowa, assignors to Cedarapids, Inc., Cedar Rapids, Iowa
Filed May 25, 1990, Ser. No. 529,136
Int. Cl.[5] F26B *11/02*
U.S. Cl. 34—137 22 Claims



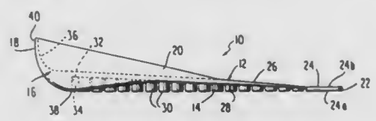
1. A method of drying aggregate material which comprises:
scattering the material from an upper wall of an elongate chamber over a predetermined length of the chamber to generate a veil of substantially evenly distributed falling material in an interior space of the chamber and extending in thickness over substantially the predetermined length of the chamber;
flowing hot drying gases longitudinally of the chamber through the chamber, the hot gases traversing the veil of falling materials for transferring heat energy from the hot gases to the falling materials to dry and heat the materials;
forming within the length of the veil a channel substantially void of falling material longitudinally of and within the chamber, causing at least some of the hot gases to bypass the veil of falling materials; and
gradually varying the cross-sectional area of the channel to vary the extend to which the hot gases bypass the materials in the veil of falling materials, such bypassing hot gases retaining heat energy for controlling the temperature of gases exhausting from the chamber.

5,067,255
CUSHIONING IMPACT STRUCTURE FOR FOOTWEAR
Robert E. Hutcheson, 69 Sturges Rd., Reading, Mass. 01867
Filed Dec. 4, 1990, Ser. No. 624,071
Int. Cl.[5] A43B *13/38*
U.S. Cl. 36—43.0 20 Claims



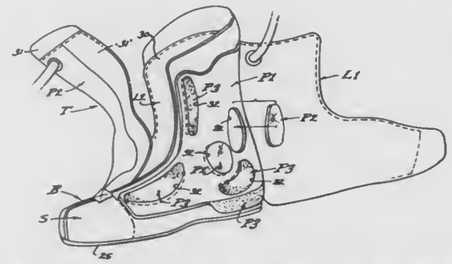
1. A cushioning and impact absorbing insole device adapted to be placed within articles of footwear, said insole device comprising:
an upper layer and a lower layer formed of a flexible fluid impermeable material;
said upper and lower layers being sealed together by a plurality of spaced surface lines contoured to parallel each other from the outer peripheral edges to a selected inner spaced surface line;
said plurality of spaced surface lines forming a plurality of sealed laterally spaced separate tubular chambers;
said inner spaced surface line forming an inner main chamber;
said inner main chamber comprising a heel chamber section, an arch chamber section and a metatarsal chamber section;
said upper and lower layers of the transverse section of the arch chamber section being sealed together by spaced surface lines thereby forming a plurality of fluid metering jet chambers to thereby control the flow of fluid back and forth between the heel chamber section and the metatarsal chamber section;
said spaced tubular members being separately and selectively removable to thereby reduce the size of said insole device to conform to the size of a selected footwear article; and
a selected volume of fluid disposed within said main chamber and said tubular chambers.

5,067,256
ACUPRESSURE HEEL CUP
H. Darrel Darby, Huntington, W. Va., assignor to Darco International Inc., Huntington, W. Va.
Filed Nov. 29, 1990, Ser. No. 619,582
Int. Cl.[5] A43B *23/08;* A61F *5/14*
U.S. Cl. 36—69 11 Claims



1. An acupressure heel cup for incorporation in footwear below the heel of the user, said heel cup comprising:
a relatively thin sole of a generally non-compressible, resilient, flexible material extending from a heel towards an arch of a foot of the user and having front, rear, laterally opposite side portions, and a bottom surface,
the rear and side portions being curved upwardly, and forming a thickened, reinforced arcuate heel support,
a horseshoe shaped rim integral with the sole portion and the heel support and projecting below the bottom surface of the sole at the rear thereof,
a plurality of laterally and longitudinally, closely spaced pegs integral with the sole over a major bottom surface area thereof, and projecting outwardly of the bottom surface of the sole,
said pegs being of decreasing vertical height from the rim to the front of said sole,
and said pegs adjacent to said rim, having a vertical height extending plantarily beyond said rim in excess of the vertical height of said rim, whereby;
during ambulation, the posterior plantar aspect of the heel first makes contact at a proximal portion of the heel cup, the weight of the user is gradually transferred from the back to the front of the heel cup, the pegs are forced upwardly, creating individual pressure points against the soft tissues of the heel and a firm wave-like action of gentle pressure and massage is repeated, at each step of the user.

5,067,257
INJECTION FITTED BOOT LINER
Sven Coomer, P. O. Box 1929, 6175 Minaret Rd., Mammoth Lakes, Calif. 93546
Filed Oct. 18, 1990, Ser. No. 599,683
Int. Cl.[5] A43B *7/14*
U.S. Cl. 36—93 24 Claims



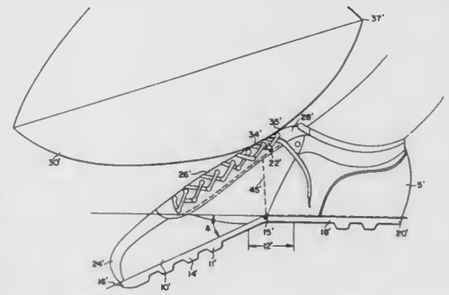
9. A protective boot liner for insertion into and custom fitting to a wearer's anatomy by means of fluid resin injection and its subsequent solidification and including;
an outer liner for insertion into a boot shell worn over the wearer's anatomy to be protected and shaped to the general configuration of said anatomy,
an inner liner complementary to and within the outer liner and sealed therewith forming a bladder coextensive with at least one anatomical area to be protected and for the reception of fluid resin,
and a layer of nonporous padding coextensive with the inner liner and disposed within the bladder between the outer liner and the inner liner and impermeable to said fluid resin and having at least one opening at a select area of said anatomy,
there being fluid resin injection means to fill the bladder surrounding the padding and over said opening in the padding, thereby inflating the bladder and contiguously engaging the outer liner with said boot shell and the inner liner with the wearer's anatomy and to set thereat by subsequent solidification.

5,067,258
FLEXIBILITY ADJUSTER DEVICE, PARTICULARLY FOR SKI BOOTS
Pietro Martignago, Montebelluna, Italy, assignor to Nordica S.p.A., Montebelluna, Italy
Filed Jul. 5, 1990, Ser. No. 548,339
Claims priority, application Italy, Jul. 31, 1989, 82572 A/89
Int. Cl.[5] A43B *11/00, 5/04*
U.S. Cl. 36—117 15 Claims



1. Flexibility adjuster device, particularly for ski boots having at least one quarter associated with a shell, comprising a locking means operated by the skier for selecting the mutual sliding between at least two overlapping flaps provided rearward to said shell, said shell having, at a rear region, a first and second flaps which mutually partially overlap, said first and second flaps partially affecting the longitudinal extension of said quarter, a depression being provided below said flaps transversely to said shell, wherein the terminal ends of said first and second flaps are mutually interconnected by means of an adapted S-shaped plate.

5,067,259
PUNTING AND SOCCER-STYLE KICKING SHOE
Paul Frugé, 828 W. 46th St., Norfolk, Va. 23508
Filed Jul. 30, 1990, Ser. No. 559,141
Int. Cl.[5] A43B *5/02*
U.S. Cl. 36—133 9 Claims



1. A kicking shoe for permitting proper kicking of a sports ball comprising:
(1) an upper having:
(a) a top having a front top surface above a forward position of a user's foot, and an upper arched region above an arch of the user's foot; and
(b) a bottom arch region below the arch of the user's foot;
(2) a laced region extending along the front top surface and upper arched region of said upper, said laced region having laces therealong for securing said shoe to said user's foot and defining a forward laced region on the top front surface and an upper laced arched region on the upper arched region, said forward laced region and upper laced arched region being contiguous to one another;
(3) a bendable sole, said sole having a rear portion and a front portion, the front portion and rear portion lying in separate planes which intersect to form an angle adjacent the bottom arch region, such that when the shoe is in its normal unstressed state the front portion of the sole angles downwardly from the plane containing the rear portion but the sole is sufficiently pliable so that it will become flat under the weight of a wearer; and
(4) said laced region of said upper lying substantially in a plane angled downwardly from the plane containing said rear portion of said bendable sole so as to permit facile bending of the user's foot for achieving a desired toe depression for optimum kicking.

5,067,260
OVERBOOT WADERS
Robert B. Jenkins, Jr., P.O. Box 2089, Gastonia, N.C. 28053
Filed Mar. 19, 1990, Ser. No. 495,083
Int. Cl.[5] A43B *3/16*
U.S. Cl. 36—7.10 R 3 Claims

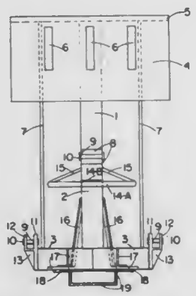
1. In an overboot wader having a leg portion, a foot portion and a sole, the improvement which comprises making the leg portion and foot portion from a first panel of a lightweight waterproof composition, said lightweight waterproof composition consisting of a single piece of tightly woven textile fabric, a heat-sealable waterproof liner adhered to the inner surface of said textile fabric and a coating of a water impervious substance on the outer surface of the textile fabric, and the sole consisting of two panels of the same lightweight waterproof

VOL
1132
ISS
4
NO
26
1991
UMI

composition heat sealed to each other and heat sealed to the first panel, whereby a pair of overboot waders may be conveniently folded into a compact package for carrying between intended uses of the overboot waders, as for wading across streams and standing in water while fishing.



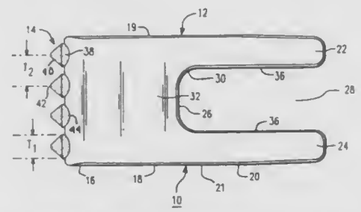
5,067,261
BRUSH GOPHER
James G. Betts, Rte. 5 Box 895, Coalgate, Okla. 74538
Filed Feb. 19, 1991, Ser. No. 621,852
Int. Cl.[5] A01G *23/06*
U.S. Cl. 37—2 P 7 Claims



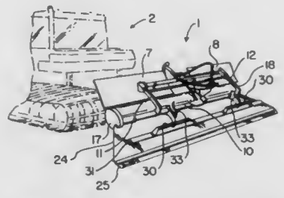
1. A device for clearing land of brush, roots, trees and stumps comprising:
a main frame having means for attachment of said main frame to a vehicle;
a plurality of tines extending from a lower portion of said main frame, having blade means thereon for penetrating soil to remove material from the soil, wherein said blades means have an upper cutting portion extending along the length of said tines and a lower cutting portion attached to the bottom of said upper cutting portion to form an opening whereby soil is allowed to pass therethrough;
guide means, connected to said main frame, for assisting in removal of said material; and
a protective shield connected to said main frame.

5,067,262
DIGGING TOOTH
Stephen P. Stiffler, New Enterprise; Wayne H. Beach, Roaring Spring, both of Pa., and Robert L. Frost, Sherman, Tex., assignors to Kennametal Inc., Latrobe, Pa. and Reedrill, Inc., Sherman, Tex.
Filed Aug. 3, 1990, Ser. No. 562,343
Int. Cl.[5] E02F *9/28*
U.S. Cl. 37—142 R 11 Claims

1. A replaceable digging tooth for drilling comprising:
a body portion having a generally planar distal portion, a medial portion and a bifurcated proximal portion having at least two prongs separated from each other to form a slot which extends forwardly from said proximal end of said tooth; and
a plurality of conical inserts made of a hard wear resistant material secured to and spaced along said distal portion secured within a plurality of insert receiving holes formed in said distal portion, said conical inserts having a generally cylindrical body portion and a top portion which tapers to a point to form a tip to provide a point contact cutting attack for drilling.



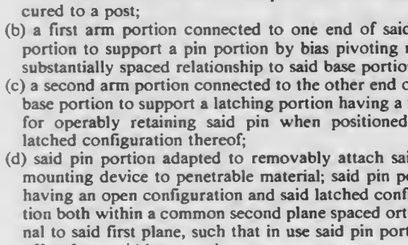
5,067,263
VARIABLE GEOMETRY TILLER
Michel Pelletier, Rockforest, Canada, assignor to Bombardier Inc., Canada
Filed Nov. 14, 1990, Ser. No. 612,463
Claims priority, application Canada, Jan. 22, 1990, 2008235
Int. Cl.[5] E01C *19/22*
U.S. Cl. 37—220 16 Claims



1. A snow tiller device adapted to be pulled along a snow surface, comprising:
a horizontally disposed cutting drum;
a snow chamber located to the rear of said cutting drum and extending substantially parallel thereto, said snow chamber being open at its front and bottom and including a flexible membrane by which the top of said snow chamber is bounded; and
a varying means for varying the size of said snow chamber depending on snow conditions.

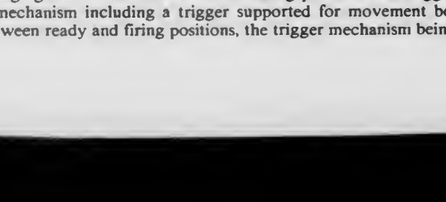
5,067,264
FLEXIBLE ROTARY SNOW TILLER
Michael G. Beeley, Logan, Utah, assignor to Logan Manufacturing Company, Logan, Utah
Filed Apr. 21, 1987, Ser. No. 40,820
Int. Cl.[5] E01H *4/00;* A01B *33/16*
U.S. Cl. 37—222 27 Claims

1. A rotary snow tiller having means permitting the movement thereof over the snow by a propelling vehicle, and means permitting control thereof by the operator of the vehicle, said tiller comprising:
at least two tiller sections each having a frame and an elongate cutter bar with outstanding snow cutting teeth;
means flexibly connecting the tiller sections together end to end, said connecting means comprising hinges connecting the frames, each frame hinge having an axis lying generally in the direction of tiller travel, and universally flexing joints connecting the cutter bars, each joint having a center of flexure geometrically fixed with respect to said joint and being supported in fixed relationship to one of the frames so that the associated frame hinge axis passes through said fixed center of flexure, and so that the frame and the cutter bar of each tiller section are constrained to rotate about an associated frame hinge as a unit in fixed geometric relationship to each other; and



means connecting at least one of the tiller sections to the propelling vehicle.

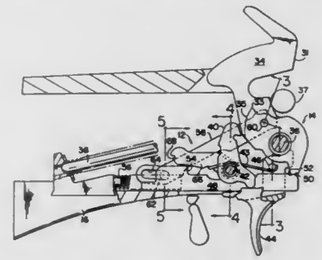
5,067,265
BADGE AND MOUNTING ASSEMBLY
Jeffrey W. Harms, Olathe, Kans., assignor to Gill Studios, Inc., Shawnee Mission, Kans.
Filed May 23, 1990, Ser. No. 528,035
Int. Cl.[5] A44C *3/00*
U.S. Cl. 40—1.5 7 Claims



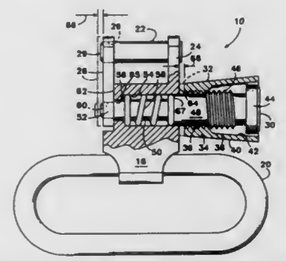
1. A latchable pin mounting device comprising:
(a) a base portion in the form of a circular segment and lying in a first plane having an arc greater than a semi-circle such that said base portion has a curved configuration located about an axis and is adapted to be coaxially secured to a post;
(b) a first arm portion connected to one end of said base portion to support a pin portion by bias pivoting means substantially spaced relationship to said base portion;
(c) a second arm portion connected to the other end of said base portion to support a latching portion having a finger for operably retaining said pin when positioned in a latched configuration thereof;
(d) said pin portion adapted to removably attach said pin mounting device to penetrable material; said pin portion having an open configuration and said latched configuration both within a common second plane spaced orthogonal to said first plane, such that in use said pin portion is offset from said base portion.

5,067,266
HAMMER SAFETY MECHANISM
David Findlay, Guilford, Conn., assignor to Guilford Engineering Associates, Inc., Guilford, Conn.
Filed Oct. 10, 1990, Ser. No. 595,189
Int. Cl.[5] F41A *17/48, 17/76*
U.S. Cl. 42—70.08 21 Claims

1. In a firearm having a hammer supported for movement between cocked and striking positions, biasing means for urging the hammer towards its striking position, and trigger mechanism including a trigger supported for movement between ready and firing positions, the trigger mechanism being operative to hold the hammer in its cocked position when the trigger is in its ready position and to release the hammer from its cocked position in response to movement of the trigger to its firing position, the improvement comprising a hammer block supported for movement between hammer blocking position wherein said hammer block is disposed in the path of hammer movement toward its striking position and hammer releasing position wherein said hammer block is out of the path of movement of the hammer to its striking position, connecting means for moving said hammer block to hammer releasing position in response to movement of said hammer to its cocked position and retaining said hammer block in hammer releasing position while said hammer remains in said cocked position, enabling means for moving said hammer block to hammer blocking position in response to release of said hammer from its cocking position while said trigger is in its ready position and retaining said hammer block in hammer blocking position to prevent said hammer from attaining its striking position, and disabling means for releasably securing said hammer block in hammer releasing position in response to movement of said trigger to its firing position when said hammer is in its cocked position to permit said hammer to move to its striking position.



5,067,267
QUICK-DETACHABLE SECURITY-TYPE SLING SWIVEL
Robert K. Ives, Corbett, Oreg., assignor to Michaels of Oregon Co., Portland, Oreg.
Filed Nov. 9, 1990, Ser. No. 611,165
Int. Cl.[5] F41C *23/02*
U.S. Cl. 42—85 6 Claims



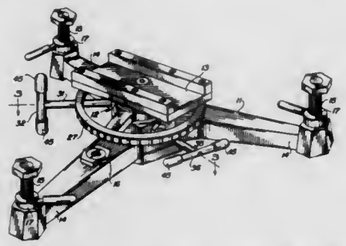
1. A quick-detachable firearm sling swivel, comprising:
(a) a body;
(b) selectively openable attachment means operatively associated with said body, for attaching said sling swivel to a mounting base;
(c) plunger means for opening said attachment means, said plunger means including a plunger interconnected with said attachment means and attached movably to said body so as to be movable with respect to said body between an extended position, in which said attachment means is in a secured condition, and a releasing position, in which said

VOL 1132 ISS 4 NO 26 1991 UMI

attachment means is openable to permit said sling swivel to be attached to or removed from said mounting base; and

(d) security means mounted on said plunger for selectively preventing said plunger from being moved to said releasing position, said security means being movable on said plunger between an operative first position, wherein said security means is rotatable on said plunger without moving axially therealong and wherein said security means prevents said plunger from being moved to said releasing position, and an inoperative second position wherein said security means is displaced axially of said plunger from said operative first position, and wherein said security means does not prevent said plunger from being moved to said releasing position.

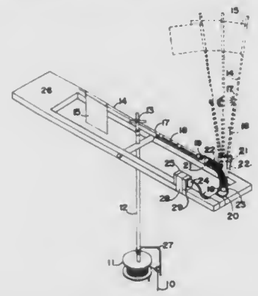
5,067,268
RIFLE REST
Charles R. Ransom, 134 S. Horizon Cr., Prescott, Ariz. 86303
Filed Aug. 27, 1990, Ser. No. 572,703
Int. Cl.[5] F41A *23/14*
U.S. Cl. 42—94 **5 Claims**



1. A rifle rest comprising a base, a cradle, and a mechanism for permitting adjustment of the elevation of the cradle with respect to said base, said mechanism comprising a hub formed in said base, a collar slidably received in said hub, means connecting said collar to said cradle, means for locking said collar in position in said hub, said locking means comprising a locking member, a shaft having one end connected to said member and extending radially outwardly from said collar, the other end of said shaft having a handle thereon, the portions of said shaft and said handle which are spaced outwardly of said hub being fabricated substantially entirely of tubular material.

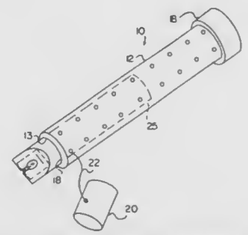
5,067,269
ICE FISHING TIP-UP WITH INDICATOR LIGHT AND FLAG
David M. Eppley, 2312 8th Ave. N., and Robert L. Charpentier, 3518 3rd Ave. N., both of Great Falls, Mont. 59401
Filed Jan. 24, 1991, Ser. No. 645,986
Int. Cl.[5] A01K *97/00*
U.S. Cl. 43—17 **1 Claim**

1. A tip-up for use in ice fishing, said tip-up comprising:
a horizontal base to be placed across a hole in an ice surface,
a fishing line supply means depending from said base for Ser. No. 07/645,986 (Eppley, Charpentier) Amndmnt A, contd. insertion in said hole in said ice surface;
trigger means on said base and operatively engageable with said fishing line supply means to be operated in response to a strike on said line;
moveable signal means adjoined to said base by a bias coil spring, said signal means having operative vertical and inoperative horizontal positions and being engageable with said trigger means to hold said signal means in its inoperative position in the absence of said fish strike on said line, said visual signal means being in the form of a flag and a staff mounted on said base by said bias coil spring and moveable by actuation of said trigger means from said inoperative position to an operative upright vertical position;
a lighting device connected to said moveable signal means and to said bias coil spring comprising;
a bulb connected to wiring, said wiring in turn is connected to two collars, one of which is a non-conductive collar



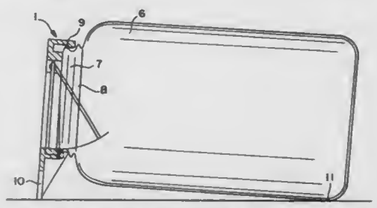
with a metal plate and one of which is a conductive collar that is inserted into said base, said collars and bulb connected to a power source by way of said wiring, said metal plate completes an electrical circuit when it plate comes into contact with said bias coil spring when the visual signaling device flag staff comes into a stationary upright position.

5,067,270
METHOD AND APPARATUS FOR DISPENSING LIVE FISHING BAIT
James C. Garrick, Grove Hill, Ala., assignor to Judges Kricket Kisser, Inc., Grove Hill, Ala.
Filed Apr. 20, 1990, Ser. No. 512,171
Int. Cl.[5] A01K *97/04*
U.S. Cl. 43—55 **17 Claims**



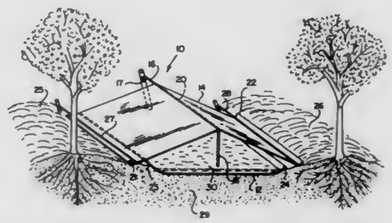
1. A confinement and dispensing apparatus for live fishing bait of the type including crickets, grasshoppers or the like, said confinement and dispensing apparatus comprising:
a storage chamber having at least one air ventilation passage and being operable to contain live bait within said storage chamber;
means for inserting live bait into said storage chamber; and
a containment and hooking chamber axially positioned at one end of said storage chamber and being operable to facilitate hooking engagement and removal of live bait from said storage chamber, said containment and hooking chamber including,
a first end of said containment and hooking chamber operable to allow passage of live bait from an interior portion of said storage chamber to an interior portion of said containment and hooking chamber,
a hooking station at a second end of said containment and hooking chamber operable for facilitating impaling live bait upon a fishing hook, said hooking station having a longitudinal channel extending away from said first end of said containment and hooking station, and
an end closure operable to be releasably attached to said first end and having an aperture for permitting the passage of air into said containment and hooking chamber such that externally applied air pressure operably forces live bait contained within said containment and hooking chamber toward said longitudinal channel, and
at least one slot extending longitudinally along said hooking station and having a depth such that said at least one slot opens into said longitudinal channel, said at least one slot operable to guide a hook from one side of said hooking station through live bait positioned in said hooking station and to permit exit of the hook from said hooking station with live bait attached.

5,067,271
IMPRISONING TRAP
Joergensen Henning, Noerrehald 4, Ebeltoft, Denmark
PCT No. PCT/DK89/00040, § 371 Date Aug. 30, 1990, § 102(e) Date Aug. 30, 1990, PCT Pub. No. WO89/07887, PCT Pub. Date Sep. 8, 1989
PCT Filed Feb. 22, 1989, Ser. No. 571,596
Claims priority, application Denmark, Mar. 1, 1988, 1093/88; Nov. 17, 1988, 6430/88
Int. Cl.[5] A01M *23/02*
U.S. Cl. 43—60 **6 Claims**



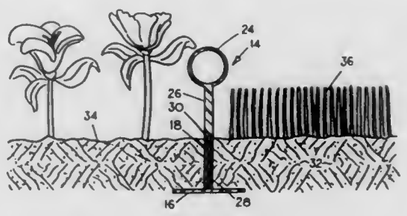
1. A trap for capturing small animals or reptiles which comprises a transparent receptacle having a neck that defines an entrance mouth and first connecting means, and a cover which is releasably engaged with the receptacle, said cover including:
a frame member which defines an entrance opening, two support legs, and a second connecting means, said second connecting means engaging said first connecting means so as to attach said frame member to said receptacle so that said entrance opening is in communication with said entrance mouth, said frame member defining a contact surface facing said receptacle,
a grating member pivotally connected to said frame member so as to move between open and closed positions relative to said entrance opening, said grating member contacting said contact surface when in said closed position, said grating member including a locking hook, and
holding means for retaining said grating member in said closed position, said holding means comprising a stop latch provided at one end with a serrated pawl for engagement with said locking hook, said pawl having a steep side, and a substantially U-shaped flat spring having two legs, one of said two legs being connected to said stop latch and a second of said two legs being capable of exerting a spring force perpendicular to said steep side of said pawl and wedging the locking hook against said pawl.

5,067,272
APPARATUS FOR WATER DESALINATION AND DRIP IRRIGATION OF ROW CROPS
James E. Constantz, Portola Valley, Calif., assignor to The United States of America as represented by the Secretary of the Interior, Washington, D.C.
Filed Jun. 9, 1989, Ser. No. 265,109
Int. Cl.[5] A01G *27/00, 13/04*
U.S. Cl. 47—27 **10 Claims**



1. An apparatus for providing purified water to row crops comprising:
a lower layer of dark plastic sheeting designed to be placed over the length of a strip of land between two crop rows, said dark plastic sheeting layer capable of providing a basin for impaired water;
a supporting means disposed lengthwise above said dark plastic sheeting layer and capable of supporting a clear plastic sheet in such a manner that the clear plastic sheet will take the shape of an inverted V over said dark plastic sheeting layer when draped over said supporting means;
an upper clear plastic sheet positionable above said dark plastic sheeting layer and retainable in an inverted V shape by said supporting means, said supporting means running lengthwise down the center of said clear plastic sheet so as to form the apex of the inverted V, the lateral outer edges of said clear plastic sheet extending to a point beyond the lateral outer ends of said dark plastic sheeting layer so that the outer edges of said clear plastic sheet are not connected to the lateral outer ends of said dark plastic sheeting layer and so that purified water which condenses on the underside of said clear plastic sheet due to the evaporation if impaired water in the basin provided by the dark plastic sheeting layer is directed to roll down along the underside of said clear plastic sheet and contact the ground in the vicinity of a crop row; and
means to firmly hold down the outer lateral edges of said clear plastic sheet against the soil in the vicinity of a crop row.

5,067,273
LAWN EDGING
Mark H. Richwine, 7921 Stockwell St., Lincoln, Nebr. 68506
Filed May 17, 1990, Ser. No. 525,120
Int. Cl.[5] A01G *1/00*
U.S. Cl. 47—33 **2 Claims**

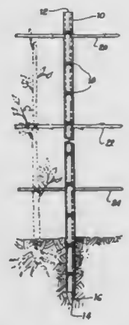


1. Lawn edging, comprising:

VOL 1132 ISS 4 NO 26 1991 UMI

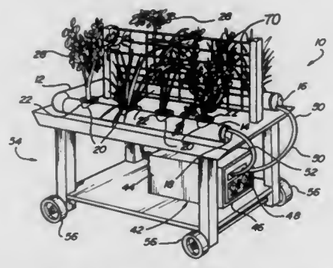
an elongated top portion removably cooperable with an elongated base portion;
said base portion having a pair of parallel upstanding walls with a slot formed between said walls; and
said top portion having a depending flange adapted to cooperate with said slot to form a single integrated unit, said depending flange having a length, depth and thickness substantially equal to said slot so as to slide vertically within the slot to completely fill said slot when said top portion and base portion are cooperably joined;
said top portion including a generally vertical strap extending the length of the top portion, said strap having a lower edge;
said depending flange having a thickness less than that of the strap and depending generally centrally from the lower edge thereof, so as to form shoulders on each side of the flange at the juncture to said lower edge;
said upstanding walls and slot therebetween having a total thickness equal to the thickness of said strap, so as to form flush vertical surfaces from said strap to said walls when said top and base portion are cooperably joined;
said base portion further comprising a generally horizontally oriented base strip from which said parallel walls project vertically upwardly, said strip located so as to project perpendicularly outwardly from said walls;
said top portion including an enlarged ridge portion wider than said depending flange and extending the length of said top portion to strengthen said top portion.

5,067,274
TOMATO IRRIGATION AND SUPPORT POLE
Richard L. Lewis, 4080 Hancock St. #3806, San Diego, Calif. 92110
Continuation-in-part of Ser. No. 371,824, Jun. 27, 1989, abandoned. This application Jan. 22, 1990, Ser. No. 468,234
Int. Cl.[5] A01G *17/14*
U.S. Cl. 47—47 **1 Claim**



1. A tomato growing pole comprising an elongated member having a pointed bottom end that is substantially tapered to a point to be driven into the soil and having a plurality of longitudinally spaced V-shaped notches entrant at an angle between orthogonally and parallely of said member, each notch converging substantially uniformly from its widest portion at the entrance into the side of said pole to its narrowest portion at the point of the notch furthest into the interior of the pole, with the narrowest portion of each notch being longitudinally displaced on said pole toward said bottom portion from said widest portion, such that when driven partially into the soil at said bottom end said notches can seat variously shaped and sized sticks and poles when wedged into respective ones of said notches, with the weight of the sticks and poles holding them in the notches due to the angular orientation of the notches to support a tomato plant.

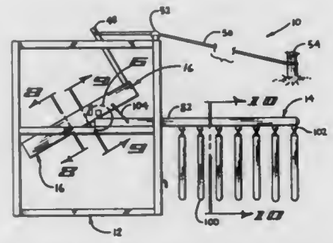
5,067,275
HYDROPONIC GARDEN
Gerald D. Constance, 7225 Warren Rd., Ann Arbor, Mich. 48105
Filed Feb. 22, 1990, Ser. No. 482,889
Int. Cl.[5] A01G *31/00*
U.S. Cl. 47—62 **7 Claims**



1. A hydroponic garden, comprising:
a closed conduit having an upper wall with spaced openings therethrough;
a plurality of plant growing chambers, one chamber for each of said openings, said chambers having a side wall and a bottom wall and being open at the top of said side wall, said chambers further having an aperture through said bottom wall, said chambers being placed in said openings in said conduit to support said chambers therein;
means for periodically filling said conduit with a plant nutrient solution to a level above the bottom wall of said chambers and for draining said nutrient solution from said conduit, said filling and draining means includes a reservoir for said nutrient solution disposed at an elevation below said conduit, pump means in fluid communication with said reservoir, a fill tube coupled at one end to said pump means outlet and coupled at the opposite end to said conduit at a level below the bottom walls of said chambers and an overflow tube coupled at one end to said conduit at a level above the bottom walls of said chambers and routed downwardly therefrom to said reservoir whereby when said pump means is operated nutrient solution flows into said conduit from said fill tube raising the level of nutrient solution in said conduit to the level of said overflow tube after which nutrient solution flows through said overflow tube back to said reservoir and after said pump means is stopped, nutrient solution drains from said conduit through said fill tube and pump means back into said reservoir to lower the nutrient solution level in said conduit to the level of said fill tube therein.

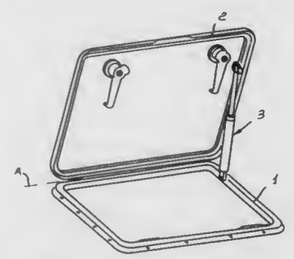
5,067,276
SEMI-AUTOMATIC GATE
Kenneth R. Brandt, Sr., 1022 Avenue D, Billings, Mont. 59102
Filed Feb. 19, 1991, Ser. No. 657,413
Int. Cl.[5] E05F *11/00*; E06B *11/00*
U.S. Cl. 49—331 **5 Claims**

1. A new and improved semi-automatic gate comprising,
frame support means;
gate means for selectively blocking a roadway and being pivotally attached to said frame support means;
balance means mounted to the frame means and the gate means for effecting a pivotal movement of said gate means;
manual control means for controlling said balance means, thereby to effect said pivotal movement of said gate means;
said balance means comprises a closed container pivotally attached to said frame support means, said closed container having a supply of selectively shiftable fluid container therein, said manual control means being operable to effect a pivotal movement of said closed container to thereby shift said fluid within said container, thus to effect said pivotal movement of said gate means, and



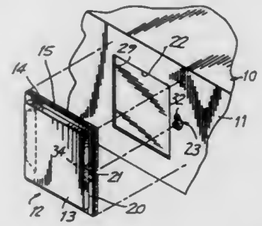
wherein said gate means includes a closed compartment having a second fluid supply contained therein, said second fluid supply being shiftable within said closed compartment to further assist said pivotal movement of said gate means.

5,067,277
SHUTTER OPENING DEVICE PARTICULARLY FOR PLEASURE CRAFT HATCHWAYS
Gianfranco Magalotti, Cella, Italy, assignor to NEMO S.p.A., Sarsina, Italy
Filed Jul. 30, 1990, Ser. No. 559,911
Claims priority, application Italy, Aug. 4, 1989, 4886/89[U]
Int. Cl.[5] E05F *1/10*
U.S. Cl. 49—386 **1 Claim**



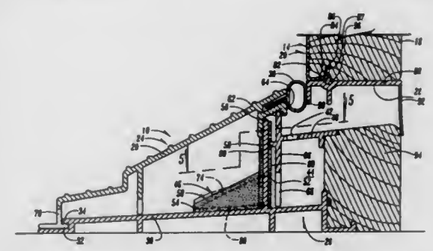
1. Shutter opening device, particularly for pleasure craft hatchways, comprising a pneumatic cylinder of the "gas spring" type for the actuation of the closure shutter of the hatchway, said cylinder having a stem provided with an end tang wherefrom a control rod protrudes, a head associated to said tang, said head being formed by two mutually parallel walls which are separated by an interspace and are joined by a lower bridge, one of said walls having a through opening and the other of said wall extending with a sleeve which is coaxial with said through opening, thus defining a seat extending through said interspace, a comand lever for actuating said control rod articulated to the end of the stem and a button slidably engaging said seat and adapted for keeping said lever in one of two positions, said lever actuating, in one of said positions, the rod in a position for the free sliding of the stem in both directions, said lever actuating, in the other position, said rod in a position for securing the stem, said sleeve having an internal raised portion which defines a shoulder and said button being constituted by a pin having two portions with different diameters which define a shoulder, the smaller-diameter portion engaging said sleeve and the larger-diameter portion having a notch formed proximate to said shoulder, a spring being superimposed on said smaller-diameter portion, said spring being compressed between said shoulder of the button and said shoulder of the sleeve, said lever comprising two arms which are perpendicular to one another, a first one of said arms extending substantially parallel to the stem of said cylinder, the other one extending with a handgrip, said first arm engaging said notch in said position for securing the stem and out of said notch in said position for free sliding of the stem.

5,067,278
ACCESS DOOR FOR AIR FLOW CONDUITS
John Lyons, Leviton, N.Y., assignor to Duro Dyne Corporation, Farmingdale, N.Y.
Filed Dec. 7, 1990, Ser. No. 623,366
Int. Cl.[5] E06B *3/32*
U.S. Cl. 49—463 **3 Claims**



1. An access door assembly for an air flow duct comprising a door including a generally planar back portion, a perimeter member projecting from the margins of said back portion, a continuous surrounding flange extending from said perimeter member, the surfaces of said flange being disposed in co-planar alignment, gasket means fixed to said surfaces of said flange for forming a continuous seal against a duct surface, a ramp member forming an extension of said flange, said ramp member extending in a direction angularly away from said back portion and projecting outward beyond said perimeter member, said ramp member defining an acute angle with said flange, clamp means adapted to be pivotally mounted to said duct at a position overlying said flange and diametrically opposite said ramp, said clamp means including first arcuate cam surface means positioned to engage said perimeter member for urging said door member laterally away from said clamp means, and second cam surface means for engaging said flange and urging said door tightly against said duct responsive to pivotal movement of said clamp means.

5,067,279
SELF DRAINING DOOR THRESHOLD
Bruce A. Hagemeyer, Pella, Iowa, assignor to Rolscreen Company, Pella, Iowa
Filed Feb. 4, 1991, Ser. No. 650,225
Int. Cl.[5] E06B *1/70*
U.S. Cl. 49—471 **26 Claims**



1. A self draining door threshold comprising,
a threshold having a sill, said sill having an exterior section adapted to be positioned on the exterior side of a door and

VOL 1132 ISS 4 NO 26 1991 UMI

an interior section adapted to be positioned on the interior side of a door,

a check valve positioned in said sill and having an inlet side for receiving water from the interior section and an outlet side adapted to open to operatively drain water to the exterior side of a door, and

said check valve including a passageway converging from a substantially open end at said inlet side to a substantially normally closed end at said outlet side, said passageway including a flexible side wall in said exterior section which is adapted to be exposed to the exterior air pressure whereby water will flow through said check valve when pressure generated by said water in said passageway exceeds the opposing exterior air pressure combined with pressure required to flex said flexible side wall to open said closed end.

5,067,280

WEATHER STRIP AND APPARATUS AND PROCESS FOR MANUFACTURING THE SAME

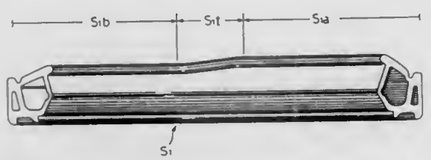
Hidetoshi Arima, Obu, Japan, assignor to Tokai Kogyo Kabushiki Kaisha, Obu, Japan

Filed Nov. 13, 1990, Ser. No. 611,940

Claims priority, application Japan, Nov. 14, 1989, 1-295616; Nov. 22, 1989, 1-303756

Int. Cl.[5] E06B 7/16

U.S. Cl. 49—498 **9 Claims**



1. A weather strip for use on an automotive door to seal a clearance formed between the door and an opening edge of a body when the door is closed, comprising a first weather strip portion and a second weather strip portion which are integrally formed as a unit, the outer circumferential length of said second weather strip portion being less than the outer circumferential length of said first weather strip portion, the inner circumferential length of said second weather strip portion being also less than the inner circumferential length of said first weather strip portion so that the thickness of said second weather strip portion is substantially identical with the thickness of said first weather strip portion, the reduction in the outer and inner circumferential length being achieved during extrusion of the weather strip.

5,067,281

DOOR GLASS CASSETTE FOR VEHICLES

Ronald E. Dupuy, Wabash, Ind., assignor to Gen Corp Inc., Fairlawn, Ohio

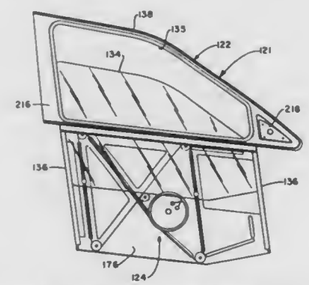
Continuation-in-part of Ser. No. 412,978, Sep. 26, 1989, Pat. No. 5,001,867. This application Oct. 25, 1990, Ser. No. 604,682

Int. Cl.[5] B60J 5/04

U.S. Cl. 49—502 **48 Claims**

1. A door glass cassette adapted to be fitted within and secured to a vehicular door structure to provide a raisable and lowerable glass window, said door glass cassette comprising:

a frame and seal assembly comprising two laterally spaced curvilinear side channels adapted to provide vertical runs for raising and lowering the glass pane, a curvilinear top channel extending between the side channels at the top of each said side channel, and lateral guide means comprising transversely spaced lateral guides secured between said side channels, said lateral guide means being a Z-shape inside channel and a short vertical height I-shape outside channel, said channels and guide means collectively defining a glass opening in said door glass cassette, each said channel and said guide means having secured thereto an



interior seal and an exterior seal adapted to cooperatively engage said glass pane adjacent to said glass opening.

5,067,282

METHOD AND APPARATUS FOR NON-CONTACT MEASURING AND, IN CASE, ABRASIVE WORKING OF SURFACES

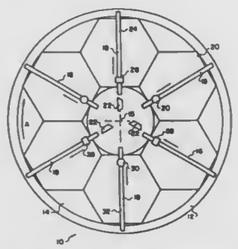
Karl-Hermann Netzel, assignor to HPO Hanseatische Prazisions-und Orbittechnik GmbH, Fahrenheitstrasse, Fed. Rep. of Germany

Continuation of Ser. No. 365,746, Jun. 13, 1989, abandoned. This application Dec. 7, 1990, Ser. No. 625,640

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1988, 3820225

Int. Cl.[5] B24B 49/00

U.S. Cl. 51—165.77 **60 Claims**



1. Method for the non-contacting measuring of surfaces, in particular of large-surface mirrors, with which, for determining contour deviations of the surface, established is the difference between interferometrically detected surface contour actual values and preselected surface contour desired values, characterized by the fact that

a) a reference contour of at least one reference element, the extension of which corresponds essentially to a measuring region of the surface, is measured interferometrically relative to a standard whose geometry is known to within the allowable contour tolerance of the surface;

b) that the surface to be measured is brought into a defined spatial location relative to the reference element and

c) the distance of the reference contour from the measuring region of the surface is detected incrementally by interferometric means and the relevant difference between actual value and desired value is determined.

5,067,283

METHOD AND DEVICE FOR THE TREATMENT OF THE UPPER SURFACES OF RAILS

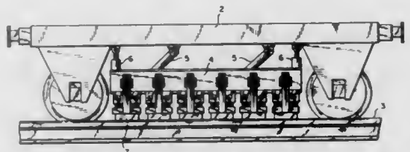
Josef Pomikacsek, Altmunster, Austria, assignor to Firma, Linsinger Maschinenbau GmbH, Steyrermuhl, Austria

Filed Nov. 13, 1990, Ser. No. 611,793

Claims priority, application Fed. Rep. of Germany, Nov. 14, 1989, 3937812

Int. Cl.[5] E01B 31/17

U.S. Cl. 51—178 **20 Claims**



1. A method for the treatment of the surfaces of rails, where the surfaces of the rails are acted upon by means of a plurality of movable grinding blocks disposed on a bogie which is moved along on the tracks, comprising the steps of:

a. periodically lowering at least one of said grinding blocks into a work position during operation and subsequently lifting said at least one of said grinding blocks into a position of rest,

b. maintaining at least one grinding block in a work position during operation, and

c. cleaning the work face of each grinding block while it is in the position of rest.

5,067,284

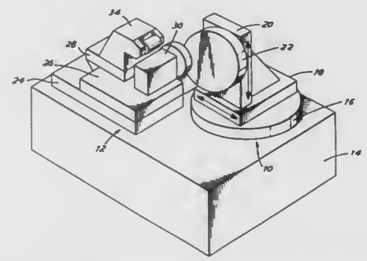
MACHINE TOOL

Peter H. Putnam, Enderby, and Michael P. Durcan, Ravenstone, both of England, assignors to Ex-Cell-O GmbH, Eisling/Fils, Fed. Rep. of Germany

Continuation of Ser. No. 242,881, Sep. 12, 1988, abandoned. This application Dec. 21, 1989, Ser. No. 454,693

Int. Cl.[5] B24B 1/00

U.S. Cl. 51—281 R **8 Claims**



1. A method of machining a workpiece by a cutting tool, comprising:

mounting said workpiece on a workhead;

positioning defined locations of a shape to be machined on said mounted workpiece in a plane of interpolation by positioning said workhead about a first machining axis being a rotary axis and extending perpendicular to said plane of interpolation, positioning said workhead along a second rectilinear machining axis being an X-axis and extending parallel to said plane of interpolation, and positioning said workhead along a third rectilinear machining axis being a Y-axis and extending parallel to said plane of interpolation;

arranging a working tool rotating about a tool axis with said tool axis being in a predetermined orientation with respect to said plane of interpolation; and

controlling said positioning about said first machining axis and along said second and third rectilinear machining axes for obtaining a movement of said workhead in said plane of interpolation such that said workpiece is moved with respect to said working tool according to said shape to be machined.

5,067,285

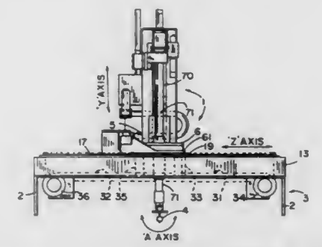
SEAL BELT ASSEMBLY FOR COMPARTMENTS IN WHICH BLASTING, SPRAYING AND THE LIKE OPERATIONS ARE PERFORMED

Martin J. Hilbrands, Grand Rapids, Mich., assignor to Progressive Blasting Systems, Inc., Grand Rapids, Mich.

Filed Apr. 16, 1990, Ser. No. 509,957

Int. Cl.[5] B04C 9/00

U.S. Cl. 51—426 **8 Claims**



1. Apparatus for treating an object within an entirely enclosed compartment having enclosed sides and an enclosed ceiling covering the top of said compartment including an operative device manipulated by a robot manipulator means having an elongated mast extending downwardly through the ceiling of said compartment and supporting said device at its lower end for movement within said compartment;

means for enclosing said ceiling in which said manipulator means adjusts the mast during such treatment and while it is extending through said ceiling, such adjustment being in directions at least along a given axis;

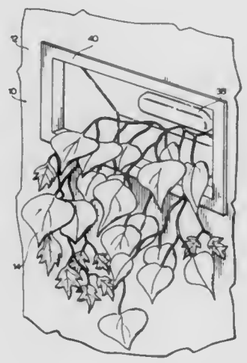
said manipulator means including an elongated carriage assembly extending in a direction orthogonal to said given axis and spanning the distance between first and second parallel sides of said compartment; means for causing said carriage to move along said given axis between third and fourth compartment sides extending between said first and second compartment sides;

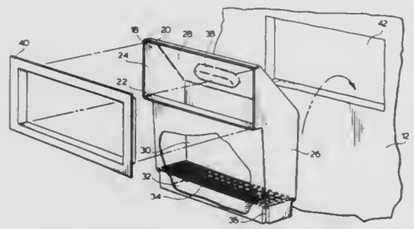
a seal belt subassembly connected to the longitudinal sides of said carriage and extending over said top of said compartment to said third and fourth sides, whereby as said carriage moves, said seal belt subassembly covers the openings in the compartment top between said carriage and third and fourth sides; the improvement comprising:

said seal belt subassembly including a flexible belt material with a plurality of rigid elongated members attached to said belt material and extending between said first and second sides; said rigid elongated members providing support for said flexible belt, to prevent said belt from sagging, said members providing a noise restraining means, and said members having means to sustain the weight of a worker to provide a safety feature should a worker accidentally step on said seal belt subassembly.

VOL 1132 ISS 4 NOV 26 1991 UMI

5,067,286
PLANTER
Raymond P. Richer, 872 Lochness Crescent, Oshawa, Ontario, Canada L1J 7P8
Filed Feb. 13, 1990, Ser. No. 479,426
Claims priority, application Canada, Feb. 13, 1990, 590910
Int. Cl.[5] A47G *7/02*
U.S. Cl. 52—27 10 Claims

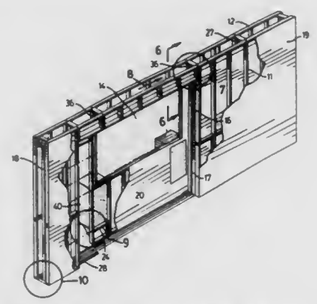




1. A planter for mounting within a wall comprising a generally rectangular front port opening into a plant display portion having a downwardly sloped rear wall such that said display portion rapidly decreases in size from said front port to a point of maximum depth of said display portion, and a downwardly tapered soil holding portion of a height greater than the height of said front port, said soil holding portion being located below said front port and located below and within the depth of said plant display portion, said downwardly sloped rear wall of said display portion and said tapered soil holding portion being of a shape and cooperating to accommodate insertion of said planter through an aperture in a wall generally corresponding to the front port with a clearance behind the wall generally equal to the maximum depth of said display portion.

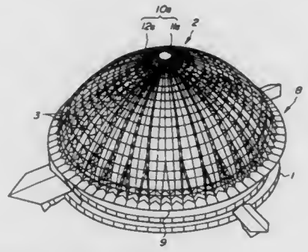
5,067,287
DISPLAY WALL ASSEMBLY
Kenneth T. Lewis, 77 Willett Crescent, Richmond Hill, Ontario, Canada L4C 7W5
Filed Jun. 25, 1990, Ser. No. 542,876
Int. Cl.[5] G09B *5/06;* B43L *1/10*
U.S. Cl. 52—29 9 Claims

1. A wall assembly for displaying visual messages comprising:
a front sound absorption portion, a rear portion which when assembled with said front portion provides between them a storage space, a display area providing an opening through said front and rear portions, a projector screen unit stored in said storage space and movable across said open space, a whiteboard panel movable sideways from said storage space to cover said opening, a right cover panel and a left cover panel both stored in and movable



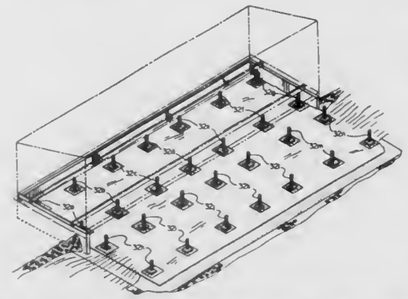
from opposite sides of said storage space to cover said display area.

5,067,288
DOME STRUCTURE
Yoshibiro Takahama; Kazushige Kurihara, and Takayuki Nishiya, all of Tokyo, Japan, assignors to Shimizu Construction Co., Ltd., Tokyo, Japan
Filed May 15, 1990, Ser. No. 523,720
Claims priority, application Japan, May 16, 1989, 1-122637
Int. Cl.[5] E04B *01/32*
U.S. Cl. 52—80 5 Claims



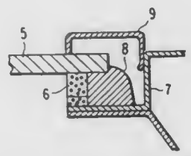
1. A dome structure, comprising:
a base;
an upper assembly erected on and extending upward and inward from the base, and including
i) a bottom section contacting and supported by the base, and
ii) a plurality of arch-shaped steel trusses connected to and extending upward and inward from said bottom section, each of the trusses including an upper end portion, a plurality of upper chord members and a plurality of lower chord members; and
a ring assembly engaging and supporting the upper end portions of the trusses, and including at least upper and lower pairs of rings engaging upper end portions of the trusses, and wherein
i) each ring of each of said pairs has a diameter different than the diameter of the other ring of the pair,
ii) the rings of the upper pair of rings are connected to and support the upper chord members, and
iii) the rings of the lower pair of rings are connected to and support the lower chord members.

5,067,289
FOUNDATION SYSTEM FOR MANUFACTURED HOUSING
Dale L. Ouderkirk, R.R. 1, Box 107, and Donald R. Ouderkirk, Rte. 47, both of Redfield, N.Y. 13437
Filed Jun. 28, 1990, Ser. No. 545,381
Int. Cl.[5] E04B *1/02;* E04G *21/00;* E02D *27/10*
U.S. Cl. 52—169.11 16 Claims



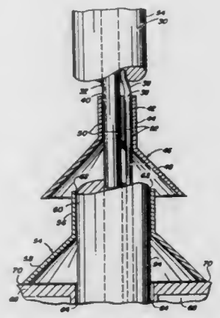
11. A foundation system for providing frost-free below-grade basement spaces for modular and mobile manufactured housing units which comprises in combination:
a footing structure formed below basement grade about a space corresponding to the manufactured housing unit to be mounted on the foundation system;
said footing structure including a layer of footing material, a plate member and a plurality of stub wall sections dimensioned so that the top thereof is at basement grade;
a plurality of modular foundation wall units positioned on said stub wall sections sized to extend from basement grade upward above site grade and adapted to receive thereon a housing unit,
said stub all sections and modular foundation wall units being fabricated of material suitable for long term contact with the ground, and
at least one secondary support member having a height substantially equal to the height of said foundation wall unit, fabricated of material suitable for long term contact with the ground;
so that mobile and modular housing units may be placed on a foundation by a wheeled trailer unit which can be removed therefrom after erection of sufficient wall units and secondary support members.

5,067,290
DAM RUBBER FOR CAR WINDOW AND ADHERED WINDOW STRUCTURE
Yasuhiro Kuroda, and Hideo Suzuki, both of Osaka, Japan, assignors to Nitto Denko Corporation, Osaka, Japan
Filed Dec. 29, 1989, Ser. No. 459,237
Claims priority, application Japan, Apr. 14, 1989, 1-96029
Int. Cl.[5] B60R *13/06;* B60J *9/02*
U.S. Cl. 52—208 7 Claims



1. A dam rubber for adhesive fixation of a car window having a spacing function, said dam rubber consisting essentially of:
a laminate of at least two highly flexible, gas permeable open cell foamed layers having different compressive resistances that facilitate the escape of air as adhesive is applied to permit smooth hardening of adhesive.

5,067,291
PASS-THROUGH ROOF SEAL SYSTEM
Laurence P. Evensen, 7711 Millwood Ave., Canoga Park, Calif. 91304
Filed Jun. 8, 1990, Ser. No. 534,989
Int. Cl.[5] E04D *13/14*
U.S. Cl. 52—219 5 Claims



1. An improved pass-through roof pipe seal system, said system comprising, in combination:
a) an adapter comprising an inverted funnel having an upstanding vertical upper tube and an integral lower skirt flaring downwardly and outwardly therefrom, said tube and skirt defining a central cavity;
b) an air-conditioning coolant pipe assembly comprising an external, flexible insulated jacket disposed around a pipe, said assembly including a vertical pipe portion from which said jacket has ben cut-away to form a cut-away pipe portion, which pipe portion passes down through said adapter cavity and wherein said pipe is directly sealed to said tube, said skirt covering the lower edge of said cut-away pipe portion for maximum moisture protection;
c) an inverted funnel-shaped vent cup having an upper vertical tube and lower skirt, said cup being secured directly to the outside of said jacket below said adapter, such that said cup is displaced from said coolant pipe by said insulated jacket; and
d) wherein said adapter funnel tube has a pair of spaced vertical openings parallel to each other and extending down to said skirt, wherein said coolant pipe assembly includes a return pipe parallel to said coolant pipe, and wherein said pipes are disposed in and sealed directly to said openings in said tube.

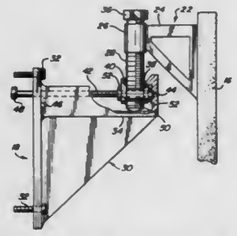
5,067,292
BRACKET SYSTEM
Andrew M. Finean, 37, Brydale House, Rotherhithe New Road, Surrey Docks, London SE16 2PT, United Kingdom
Filed May 19, 1989, Ser. No. 354,620
Claims priority, application United Kingdom, May 19, 1988, 8811833
Int. Cl.[5] E04B *2/88*
U.S. Cl. 52—235 11 Claims

1. A bracket system for positioning and supporting a component on a structure, comprising;
a framework;
at lease one panel;

VOL 1132 ISS 4 NO 26 1991 UMI

a plurality of brackets mounted on said framework, said brackets attaching said panel to said framework;

at least one hook connected to said panel, said hook engaging said brackets to support said panel thereon; and



means for three-dimensional adjustment of said panel, said means for adjustment contained in said bracket.

5,067,293

BUILDING SYSTEM

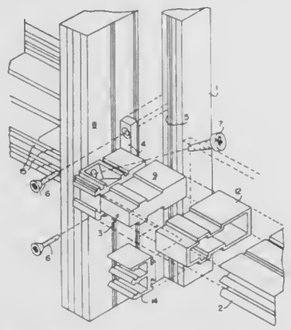
Donald A. Reynolds, Bradford, England, assignor to Don Reynolds International Limited, Bradford, Great Britain

Filed Aug. 9, 1990, Ser. No. 565,376

Claims priority, application United Kingdom, Aug. 16, 1989, 8918707

Int. Cl.[5] **E04C** *2/40*

U.S. Cl. 52—235 **10 Claims**



1. A curtain wall system, comprising;

a vertical member;

a joint member including means for fastening said joint member to said vertical member and a projection member extending transversely to said vertical member in a horizontal orientation and having bearing surfaces extending horizontally;

a horizontal member of extended length, said horizontal member being contoured in cross-section to slidingly receive and retain said projection member telescopically and at least partially within said horizontal member in the length direction of said horizontal member; and

a low friction layer portioned on the bearing surfaces of said projection member for facilitating sliding motion between said projection member and said horizontal member, said horizontal member and said joint member being subject to relative motion upon thermal expansion or contraction of the horizontal member.

5,067,294

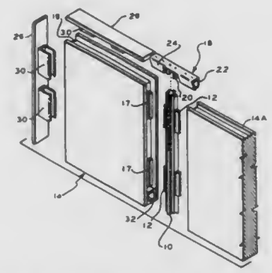
PARTITION ASSEMBLY

Bruce McGowan, 101 Creek Rd., Andover, N.J. 07821

Filed Jul. 30, 1990, Ser. No. 532,622

Int. Cl.[5] **E04H** *1/00;* **E04B** *2/78*

U.S. Cl. 52—241 **18 Claims**



1. A partition assembly comprising:

a hollow post having an upper open end;

a panel having an exterior facade, an edge recess and a post clip, said post clip being mounted in an intermediate position extending along a predetermined interval of said recess, said interval being separated from the ends of said recess, said post clip being operable to releasably attach to said hollow post by thrusting together said panel and said post without lifting said panel and without removing said exterior facing from said panel, said panel being sized to rest on its bottom without bearing down upon said post; and

a spanner having a central prong sized to fit into said upper open end of said hollow post, said spanner having a pair of panel clips oppositely positioned about said central prong, each of said panel clips being operable to releasably attach to the top of said panel, said panel clips being spaced from said post clip.

5,067,295

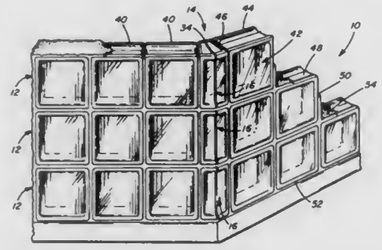
45 DEGREE BLOCK

Charles A. Francik, Murrysville; Harry A. Fleming, Jr., Smethport, both of Pa., and Donald E. Hock, Olean, N.Y., assignors to Pittsburgh Corning Corporation, Pittsburgh, Pa.

Filed Sep. 18, 1990, Ser. No. 584,534

Int. Cl.[5] **E04B** *5/46*

U.S. Cl. 52—306 **17 Claims**



1. A translucent block comprising:

a block having a pair of parallel upper and lower surfaces each having a generally pentagonal shape,

said block having a pair of generally rectangular opposing side faces which are nonparallel, said side faces having a first preselected height and a first preselected width, said side faces being joined to said upper and said lower surfaces and being perpendicular therewith,

said pair of nonparallel side faces having planes formed by the projection of an imaginary line parallel to each said nonparallel side face and the intersection of said imaginary lines forming a 45° dihedral angle,

a generally rectangular, first opposing end wall having said first preselected height and a second preselected width, said first end wall being perpendicular to and joined to said upper and said lower surfaces, said first opposing end wall being joined to said side faces proximal to said 45° dihedral angle formed by said projected planes of said side faces,

a second opposing end wall having said first preselected height and a third preselected width, said second opposing end wall being joined to said upper and said lower surfaces and being perpendicular therewith, said second opposing end wall being joined to said side faces distal from said 45° dihedral angle formed by said projected planes of said side faces,

said second opposing end wall being formed of two generally rectangular equal portions at an obtuse angle to each other,

the vertex of said obtuse angle formed by the juncture of said portions pointing outwardly and away from said dihedral angle,

said block being formed of two identical halves, each said half including one of said pair of side faces, an adjoining half of said first end wall, an adjoining half of said second end wall and an adjoining half of said upper and said lower surfaces.

5,067,296

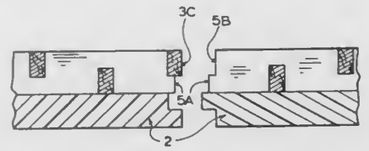
MODULAR INSULATED WALL PANEL SYSTEM

Robert T. K. Brown, 66 East Beach Road, Bowmanville, Ontario, Canada L1C 3K3 , and Ronald W. Smith, 37 Parkway Crescent, Bowmanville, Ontario, Canada L1C 1B9 , assignors to Robert T. K. Brown; Ronald W. Smith, both of Bowmanville and Patrick W. Olive, Unionville, all of, Canada

Filed Jul. 10, 1989, Ser. No. 377,584

Int. Cl.[5] **E04C** *1/00*

U.S. Cl. 52—309.7 **14 Claims**



1. A panel having two ends and two sides, the panel having a peripheral frame and having at the sides thereof a first surface and a second surface separated by a predetermined distance, the predetermined distance extending from end to end of the panel; the panel having non opposing studs located proximate the first and second surfaces separated by a predetermined distance, said studs of said first surface being offset or staggered laterally a predetermined distance from said studs proximate said second surface; and insulating means having two ends and two sides located proximate the surfaces extending within the peripheral frame between the first and second surfaces with the studs embedded in the surfaces; said insulating means extending to each end of the panel, whereby the panel is rigidified by the lateral staggering of the studs; a joint proximate each end of the panel for interconnecting adjacent panels, the joint comprising some of the insulating means and some of the frame, wherein the side of said stud member extends a predetermined distance beyond the end of the insulating means to form a stepped interlocking joint the joint extending from top to bottom of each panel and ends thereof.

5,067,297

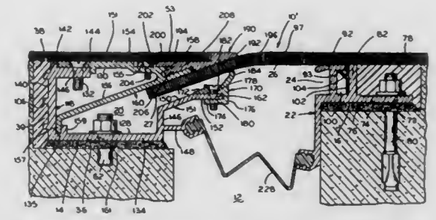
EXPANSION-JOINT COVER ASSEMBLIES

John E. Sobol, Grand Island, N.Y., assignor to Watson Bowman Acme Corp., Grand Island, N.Y.

Filed Nov. 20, 1990, Ser. No. 615,891

Int. Cl.[5] **E04F** *15/14;* **E04B** *1/60*

U.S. Cl. 52—396 **14 Claims**



1. In an improved expansion-joint cover assembly for a joint formed between first and second adjacent, spaced structural sections comprising:

a first base ember stationarily secured to said first structural section;

a second base member stationarily secured to said second structural section;

a cover member, having a first end secured to said first base member, extending across said joint in a cantilever manner overlying and covering said joint, said cover member having a second end for placement within a passageway formed in said second base member;

said second base member including first and second walls defining said passageway therein for receiving said second end of said cover member in supporting, sliding engagement, the improvement comprising:

an interchangeable trim strip portion removably secured at one end to the end of said first wall defining said passageway, said trim strip portion has a laterally-elongate body portion having an upper horizontal surface and an inclined lower surface, said trim strip portion terminating in a trim piece at a free end distal to the end of said trim strip portion which is removably secured to said first wall; and

means to removably secure said trim strip portion to said first wall defining said passageway.

5,067,298

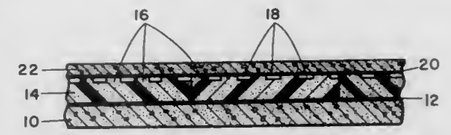
METHOD FOR PLAZA DECK CONSTRUCTION

Wayne E. Petersen, Eden Prairie, Minn., assignor to The Dow Chemical Company, Midland, Mich.

Filed Jun. 28, 1990, Ser. No. 545,154

Int. Cl.[5] **E04G** *21/00;* **E04C** *1/00, 2/32*

U.S. Cl. 52—741 **26 Claims**



1. A method for constructing a plaza deck/parking structure, comprising:

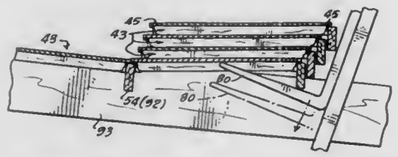
providing a plurality of panels of foam plastic insulation having an alternatively channeled and ribbed surface structure;

providing a porous fabric layer sufficiently porous to permit the passage of water vapor therethrough but not so porous that wet concrete would significantly penetrate therethrough;

VOL 1132 ISS 4 NO 26 1991 UMI

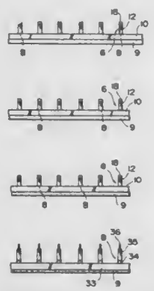
affixing the fabric layer to the top of said ribs on each of said panels;
providing a base deck;
placing a waterproof membrane on top of said base deck;
placing the plurality of panels of foam plastic insulating on top of said waterproof membrane; and
pouring wet concrete on top of the moisture permeable fabric layer and allowing the concrete to cure to a solid layer.

5,067,299
METHOD OF STACKING AND INSTALLING UNITIZED ROOFING SCHEMES
Christopher W. French, 27614 Renwick Ct., Saugus, Calif. 91350
Filed Jul. 31, 1989, Ser. No. 387,693
Int. Cl.[5] E04G *21/14*; E04D *3/34*
U.S. Cl. 52—745 **19 Claims**



1. A method of stacking a plurality of unitized roofing schemes each of which including a panel assembly fastened to a purlin or the like, comprising
(1) positioning stacking means at a station,
(2) mounting a purlin or the like to said stacking means,
(3) fastening said panel assembly to said purlin or the like and thereby achieving the unitized roofing scheme to be stacked, and
(4) repeating steps (2) and (3) at least once more to thereby achieve another like unitized roofing scheme in a stacked relationship to the first-mentioned scheme.

5,067,300
METHOD OF ATTACHING CURTAIN WALL UNITS TO A BUILDING SKELETON FRAMEWORK
Akihiko Takeda, Tokyo, Japan, assignor to Yoshida Kogyo K. K., Tokyo, Japan
Continuation of Ser. No. 602,510, Oct. 24, 1990, abandoned. This application Apr. 1, 1991, Ser. No. 678,804
Claims priority, application Japan, Oct. 24, 1989, 1-275055
Int. Cl.[5] E04G *21/14*; E04C *2/48*
U.S. Cl. 52—745 **9 Claims**

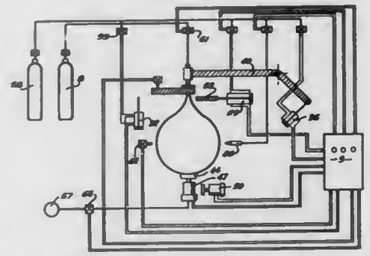


1. A method of attaching curtain wall units to a building skeleton framework to construct a unit curtain wall, each curtain wall unit including a rectangular frame having at least one oblong pin-guide hole extending longitudinally in a lower edge of the frame, said method comprising the steps of:
(a) attaching a lowermost connecting device and a building-side supporting unit of each of a plurality of connector assemblies to the building skeleton framework at vertically spaced intervals while positioning them relative to the building skeleton framework in a first horizontal direction parallel to a general plane of the unit curtain wall, in a second horizontal direction perpendicular to the general plane of the unit curtain wall, and in a vertical direction, the lowermost connecting device including a first positioning pin extending vertically upwardly and slidably receivable in the pin-guide hole in a lowermost curtain wall unit;
(b) preassembling each curtain wall unit with a frame-side retaining unit of each fastener assembly and also with a positioning plate having a pin-guide cutaway groove by attaching the frame-side retaining unit to an upper edge of the frame of the curtain wall unit and temporarily fastening the positioning plate to the lower edge of the frame, with the pin-guide cutaway groove lying across the pin-guide hole, the frame-side retaining unit including a second positioning pin extending vertically upwardly and slidably receivable in the pin-guide hole in an upper curtain wall unit;
(c) engaging the pin-guide cutaway groove and the pin-guide hole with the first positioning pin to position the lowermost curtain wall unit in said first and second horizontal directions relative to the building skeleton framework, and at the same time, engaging the frame-side retaining unit on the lowermost curtain wall unit with the building-side supporting unit of a lowermost connector assembly to hang a lowermost curtain wall unit on the building skeleton framework, and subsequently firmly joining the frame-side retaining unit and the building-side supporting unit by at least one screw fastener, thereby attaching the lowermost curtain wall unit to the building skeleton framework;
(d) thereafter, engaging the pin-guide cutaway groove and the pin-guide hole in an upper curtain wall unit with the second positioning pin of the lowermost curtain wall unit to position the upper curtain wall unit in the first and second horizontal directions relative to the lowermost curtain wall unit, and at the same time, engaging the frame-side retaining unit of the upper curtain wall unit with the building-side supporting unit of an upper connector assembly to hang the upper curtain wall unit on the building skeleton framework, and subsequently firmly joining the frame-side retaining unit and the building-side supporting unit by at least one screw fastener, thereby attaching the upper curtain wall unit to the building skeleton framework; and
(e) subsequently, repeating the preceding step (d), thereby attaching a row of vertically adjacent curtain wall units successively one above another from the bottom to the top of the row of curtain wall units.

5,067,301
BALLOON INFLATING MACHINE
William P. Shore, Ashfield, Australia, assignor to The Commonwealth Industrial Gases Ltd., St. Leonards, Australia
Filed Aug. 13, 1990, Ser. No. 566,598
Claims priority, application Australia, Aug. 15, 1989, PJ5785
Int. Cl.[5] B65B *31/06, 67/12, 43/36*
U.S. Cl. 53—79 **18 Claims**

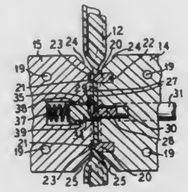
1. An apparatus for inflating balloons of the kind having a body and a filling neck terminating in a beaded edge, said apparatus comprising a balloon support plate having a sealing surface and an open ended slot extending from one edge thereof to receive the filling neck of a balloon such that the beaded edge is adjacent said sealing surface and the body of the balloon is disposed on the remote side of the plate; a filling head selectively moveable toward said sealing surface to clamp said beaded edge between the filling head and sealing surface

and establish a substantially gas tight seal between the filling head and beaded edge; and a pressurised gas flow passage



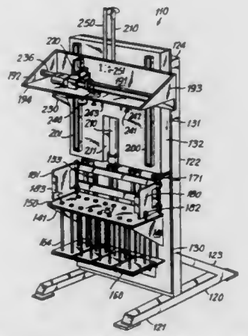
through said filling head to the neck of a clamped balloon for inflation of the balloon.

5,067,302
SEALING JAWS FOR ZIPPERED FOIL OR FILM IN FORM, FILL AND SEAL MACHINES
Hugo Boeckmann, Arlington Heights, Ill., assignor to Zip-Pak Incorporated, Northbrook, Ill.
Filed Jan. 26, 1990, Ser. No. 470,803
Int. Cl.[5] B65B *51/30*
U.S. Cl. 53—374.8 **4 Claims**



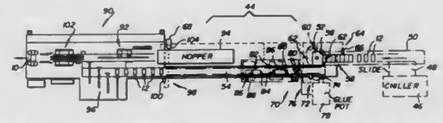
1. A sealing jaw structure for simultaneously sealing adjacent tubular bags sealing the trailing end of one bag and the leading end of another comprising in combination:
first and second cooperating sealing jaws for receiving multilayered tubular thermoplastic bag material therebetween and being reciprocal to move together to a clamping sealing position and apart to a spread position;
means for heating each of said jaws;
a laterally extending heated upper and a laterally extended heated lower extruding rib projecting from a face of the first jaw a predetermined distance and located respectively at the upper and lower edges of the jaw to form lateral seals across the bag material;
laterally extending upper and lower heated grooves in the second jaw corresponding in position with the ribs, each of said extruding ribs having a depth so that said ribs do not completely extend into said grooves when said jaws are in said clamping position, so that thermoplastic material is extruded into said grooves by the ribs;
a knife member located between said ribs for cutting the material of the bags when the jaws are in said clamping position;
said ribs and said grooves heated by said heating means for simultaneously anchoring said thermoplastic material during cutting by said knife member and for forming an extruded seal of the thermoplastic material extruded into the grooves by the ribs; and
a heated sealing face in each jaw located on each side of the knife between the knife and the ribs with said faces forming respective further seal continuous with the respective extruded seals at the ends of the bags with the extruded seal formed by the ribs being inwardly from the seal formed by said face.

5,067,303
AUTOMATED BOX BLANK HANDLING SYSTEM
Donald L. Brookman, Richmond; Everett C. Grollimund; Gary E. Grollimund, both of Midlothian, and Steven F. Spiers, Richmond, all of Va., assignors to Philip Morris Incorporated, New York, N.Y.
Filed Oct. 19, 1990, Ser. No. 600,437
Int. Cl.[5] B65B *69/00, 43/39*
U.S. Cl. 53—381.2 **16 Claims**



11. The machine of claim 9, wherein said means for opening the upper flaps of said shipping case comprises:
a) a hood slideably mounted on said frame above said support plate;
b) means for moving said hood from a first position adjacent the top of said shipping case to a second position remote from the top of said shipping case;
c) a pair of suction cups mounted on the underside of said hood;
d) a plurality of holddown bars mounted on said hood;
e) cutting means located on the underside of said hood for opening the upper flaps of said shipping case;
f) means for inducing a vacuum in said suction cups so that said cutting means can open said upper flaps of said shipping case; and
g) means for urging said holddown bars through said apertures in the top of said shipping case against said upper insert while said cutting means opens the upper flaps of said shipping case.

5,067,304
PACKAGING WITH UTENSIL
David F. Kuethe, Madison, Wis., assignor to Oscar Mayer Foods Corporation, Madison, Wis.
Filed Feb. 12, 1991, Ser. No. 653,914
Int. Cl.[5] B65B *61/00*
U.S. Cl. 53—410 **15 Claims**



10. A continuous and automatic method for packing a container with a utensil applied thereto in a carton to form a finished package comprising the steps of:
transferring containers travelling along an infeed conveyor to a flighted belt, including the step of sensing the pres-

VOL 1132 ISS 4 NO 26 1991 UMI

ence of a backlog of containers at a transferring means and enabling the transferring means when the backlog is sensed;

applying a respective wrapped utensil to a surface of each container passing along on the flighted belt, including the step of sensing a presence of each successive container on the flighted belt;

matching a selected line speed of the containers on the flighted belt with a transferring speed of the transferring means;

placing each successive container with a utensil applied thereto in a carton; and

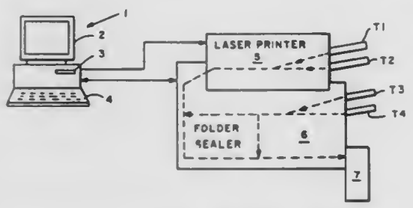
closing each carton about the container to form the finished package.

5,067,305

SYSTEM AND METHOD FOR CONTROLLING AN APPARATUS TO PRODUCE MAIL PIECES IN NON-STANDARD CONFIGURATIONS

Walter J. Baker, 378 N. Abram St., Stratford, Conn. 06497, and Christopher S. Riello, 2838 Whitney Ave. #14, Hamden, Conn. 06518

Filed Mar. 12, 1990, Ser. No. 491,871
Int. Cl.[5] B65B *57/16, 61/02*
U.S. Cl. 53—411 **5 Claims**



1. Apparatus for preparing a mail piece, comprising:

a) input means for input of information defining a mail piece configuration;

b) a printer for printing text on at least a sheet and an address on an associated envelope form;

c) sheet processing means for receiving at least said sheet and said envelope form from said printer and for accumulating at least said sheet and said envelope form, folding said accumulated sheet and envelope form and then sealing said envelope form to form said mail pieces, said sheet processing means having a capacity to process mail pieces having a predetermined maximum value of a parameter, said parameter defining the number of sheets in said mail pieces;

d) diverting means for selectively diverting sheets and envelope forms output by said printer from input to said sheet processing means; and

e) control means responsive to said input means for:

e1) determining the value of said parameter in accordance with said defining information; and,

e2) if the value of said parameter is less than said maximum value, controlling said sheet.

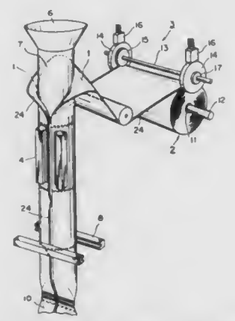
5,067,306

PROCESS AND APPARATUS FOR PROCESSING EASY-OPENING BAG

Kazumi Umezawa, Tokyo, Japan, assignor to Asahi Chemical Polyflex Co., Ltd., Tokyo, Japan

Filed Jun. 1, 1990, Ser. No. 531,996
Claims priority, application Japan, Jun. 2, 1989, 1-139075
Int. Cl.[5] B65B *61/18*
U.S. Cl. 53—412 **20 Claims**

1. In a process for producing a sealed and packed bag by means of an automatic bag-making packer, a process for providing easy-opening of the sealed and packed bag comprising pressing on each outermost side margin of an outermost turn of a roll of film a cylindrical surface of a respective one of a pair of cutting rollers of the automatic bag-making packer, the cylindrical surface of each said cutting roller having multiple edged projections, to form microcuts in said outermost side margins with said edged projections so that a subsequently packed and heat-sealed bag is easily opened from heat-sealed



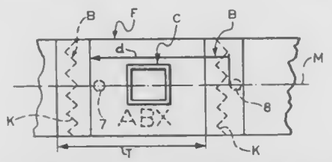
outermost side margins of the sealed and packed bag having said microcuts therein without reducing mechanical strength of a film consituting the sealed and packed bag, and positioning an inner side surface of each of a pair of positioning rollers against respective side surfaces of said roll of film, including said outermost turn, and against respective outer side surfaces of said cutting rollers to prevent transverse movement of said roll of film during said pressing.

5,067,307

METHOD AND APPARATUS FOR CONTROLLING THE ADVANCE OF A WRAPPING FILM

Renzo Francioni, Prato Sesia, and Duilio Pavese, Borgosesia, both of Italy, assignors to Cavanna S.p.A., Italy

Filed Dec. 28, 1990, Ser. No. 635,864
Claims priority, application Italy, Dec. 29, 1989, 68192 A/89
Int. Cl.[5] B65B *41/18, 57/04, 9/20*
U.S. Cl. 53—450 **10 Claims**



1. A method of detecting, by optical means, the positions of reference marks reproduced at given intervals on a film for wrapping products advancing in a given direction in a wrapping machine, in which further marks which can be detected by the optical means are reproduced at the said intervals of the film with said reference marks having a length greater than a length of said further marks, the method including the steps of:

providing at least first and second optical detection units disposed one upstream of the other in the direction of advance of the film and separated by a distance which differs at least slightly from the said given intervals, in order to generate first and second signals relating to the passage of the marks in correspondence with the first and second optical detection units respectively, and

generating a locating signal when the first and second detection signals are present simultaneously so that the locating signal is indicative of the positions of the reference marks but is substantially unaffected by the presence of the further marks;

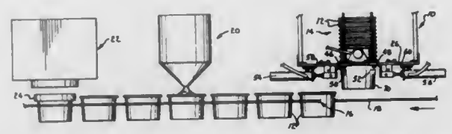
wherein the said distance differs from the given interval by a value between the lengths of the further marks and the lengths of the reference marks, the lengths being measured in the direction of advance of the film.

5,067,308

MECHANISM AND METHOD FOR SUPPORTING AND INDIVIDUAL DISPENSING OF NESTED CONTAINERS

Larry K. Ward, Kansas City, Mo., assignor to Sealright Co., Inc., Mo.

Filed Jan. 8, 1990, Ser. No. 462,138
Int. Cl.[5] B65B *3/04*
U.S. Cl. 53—471 **21 Claims**



15. A process for supporting a nested container stack and dispensing individual containers from the stack, said processing comprising the steps of:

(a) supporting a lowermost container in the nested container stack on a lower support plate which is movable between support and released positions;

(b) supporting the remainder of the nested container stack on an upper support plate which is movable between support and released positions;

(c) moving the lower support plate to the released position to release the lowermost container, thereby activating a thrusting finger

(d) returning the lower support plate to the support position;

(e) moving the upper support plate to exert a downward force on the released container and thus dispense the released container to the released position to permit downward indexing of the container stack and then returning the upper support plate to the support position when the lowermost container remaining in the container stack descends into engagement with the lower supper plate; and

(f) then repeating steps (a) through (e) to dispense additional containers from the nested container stack.

5,067,309

APPARATUS FOR CUTTING AND ASSEMBLING BATCHES OF DIAGNOSTIC STRIPS FOR TRANSFER TO CONTAINERS

David L. Carlberg, Sonora; Theodore V. Meigs, Jr., and Dennis L. May, both of Twain Harte, all of Calif., assignors to Kinematic Corporation, Sonora, Calif.

Filed Jun. 29, 1990, Ser. No. 545,633
Int. Cl.[5] B26D *7/06;* **A21C** *15/04;* **B65B** *63/00*
U.S. Cl. 53—520 **18 Claims**

1. Apparatus for cutting cards into a plurality of strips and for assembling batches of the strips for transfer into containers, comprising:

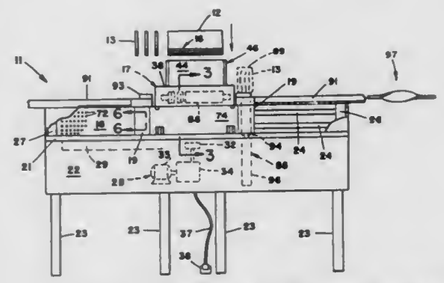
a rotary knife set having a first plurality of spaced apart cutting disks aligned along a first axis of rotation and a second plurality of spaced apart cutting disks aligned along a second parallel axis of rotation, said disks being positioned to cut cards which pass between said axes of rotation into a plurality of strips,

a strip carrier extending in parallel relationship with said axes of rotation, said carrier having spaced apart strip receiving slots on first and second sides thereof,

means for directing alternate ones of the strips that are cut from each card into said slots at said first side of said carrier and for directing the others of said strips that are cut from the card into said slots at said second side of said carrier,

at least a first and a second strip collector each having an interior chamber and a strip receiving passage communicated therewith,

means for enabling relative movement of said carrier and said strip collectors to bring successive ones of said strips



in said slots at said first side of said carrier to said first collector and to bring successive ones of said strips in said slots at said second side of said carrier to said second collector,

means for transferring said strips from said carrier to said first and second collectors as said strips arrive thereat and

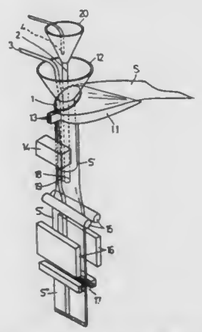
means for transferring batches of said strips from said collectors to said containers.

5,067,310

RAW MATERIAL SUPPLY DEVICE AT A STOW-PACKAGING MACHINE

Mitsuaki Yamanaka, Koshigaya, Japan, assignor to Chuo Packaging Machinery Co., Ltd., Tokyo, Japan

Filed Aug. 29, 1990, Ser. No. 574,089
Int. Cl.[5] B65B *9/06*
U.S. Cl. 53—551 **4 Claims**



1. In a material packaging machine having means for feeding film or sheet material continuously around a guide tube and forming a tubular packaging member having side edges and a longitudinal axis extending substantially in the feeding direction, said guide tube having upper and lower ends, means for sealing the side edges in the feeding direction, means for sealing the tubular member in a direction transverse to the longitudinal axis intermittently at first and second spaced positions to provide a sealed package for containing contents therein, said second position being above said first position and sealed after sealing said first position, the improvement comprising:

a liquid supply tube disposed in said guide tube for supplying liquid material into said tubular packaging member

VOL
1132
ISS
4
NO
26
1991
UMI

through said guide tube after sealing at said first position and before sealing at said second position;

said liquid supply tube having a lower end terminating below said lower end of said guide tube;

a solid material supply tube disposed in said guide tube and having an upper end for supplying solid pulverulent material soluble in said liquid material into said tubular packaging member through said guide tube simultaneously with said liquid material;

said solid material supply tube having a lower end at substantially the level of said lower end of said liquid supply tube; and

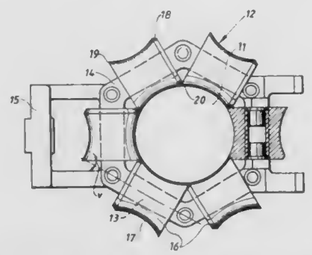
a blast pipe within said solid material supply tube for supplying dry gaseous material into said solid material supply tube for preventing said solid material from being moisturized prior to mixing with said liquid in said tubular packaging member.

5,067,311

APPARATUS FOR FORMING PACKAGING MATERIAL INTO A TUBE

Helge Andersson, Lund, Sweden, assignor to Tetra Pak Holdings S.A., Pully, Switzerland

Filed Oct. 30, 1990, Ser. No. 605,408
Claims priority, application Sweden, Nov. 7, 1989, 8903718
Int. Cl.[5] B65B *9/06*
U.S. Cl. 53—551 **16 Claims**



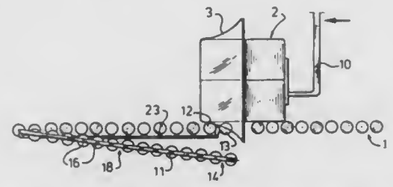
1. An apparatus for forming a web of packaging material into a hollow configuration comprising: a plurality of forming rollers arranged adjacent to one another to define a material aperture therebetween through which the web is to be conveyed in order to be formed into a hollow configuration, each of said forming rollers having a longitudinal axis and oppositely positioned end surfaces extending substantially radially of said longitudinal axis, each of said forming rollers also having a working surface disposed between the end surfaces and a roller edge positioned between the working surface and each end surface, at least one pair of adjacent forming rollers including a first forming roller having one roller edge in which the working surface and one end surface are separated by a chamfered portion and a second forming roller having one roller edge in which the working surface and one end surface intersect directly, the first forming roller being positioned with respect to the second forming roller such that the chamfered portion of the first forming roller faces said one end surface of the second forming roller.

5,067,312

PROCESS AND DEVICE FOR PACKING OBJECTS IN STRETCH FILM

Dick Van Dijk, Ermelo, Netherlands, assignor to Apollo B.V., Nijkerk, Netherlands

Filed Nov. 29, 1990, Ser. No. 619,410
Claims priority, application Netherlands, Dec. 5, 1989, 8902994
Int. Cl.[5] B65B *11/08*
U.S. Cl. 53—556 **6 Claims**



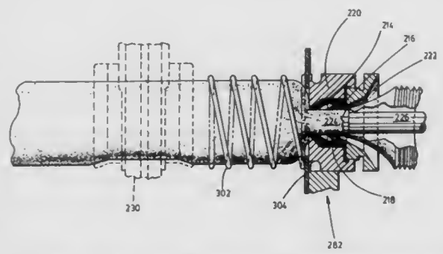
1. In a device for packaging objects in stretch film, provided with a horizontal conveyor track for conveyance of the objects to be packed, feed and tensioning means for the film disposed on either longitudinal side of said track for feeding the film in a vertical plane across the track so that as said object is moved into the film the front side and the two longitudinal sides are wrapped by the film, and means for fitting, welding and cutting the film on the rear side of the objects; the improvement in which the film intersects the supporting face of the conveyor track and extends below said track, the conveyor track at least partially is of a width which is smaller than that of the objects to be packed, in such a way that the latter project at the longitudinal sides relative to said conveyor track and that the part of the film situated below said supporting face can wrap around the bottom longitudinal edges against and on the edge areas of the bottom side of the objects to be packed, a transverse part of the conveyor track having transverse section downstream of said plane which in the direction of conveyance of the objects connects directly to the plane where the film intersects said conveyor track and is movably mounted relative to said track, and means for moving said transverse section out of the conveyor track after the weld is cut, so that a space is formed in said track adjacent said plane in which space the film projecting below said track wraps around the rear, bottom transvese edge of the objects against and on said edge area.

5,067,313

PACKAGING DEVICE WITH LOOP ATTACHMENT MECHANISM AND SKIN BRAKE

Alfred J. Evans, Raleigh, N.C., assignor to Delaware Capital Formation, Inc., Apex, N.C.

Filed May 18, 1990, Ser. No. 526,060
Int. Cl.[5] B65B *43/42, 51/05, 61/14*
U.S. Cl. 53—576 **3 Claims**



1. In a stuffing machine for stuffing comminuted material in

casing to form chubs, the machine comprising a stuffing horn means for the passage of comminuted material and for the provision of casing, and further comprising casing brake means for controlling casing withdrawal from the horn means in relation to the exiting of comminuted material from the horn means, the improvement comprising:

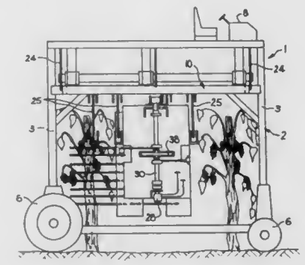
a product support comprising a helical spring mounted adjacent the discharge end of the casing brake means defining and extending along the path of the stuffed casing, the spring, having a diameter sized to permit the spring to surround the stuffed casing exiting the casing brake means and having a lateral strength to support the stuffed casing.

5,067,314

HARVESTER FOR GRAPES

Desmond C. Burke, Mildura, Australia, assignor to U.R. Engineering Pty., Ltd., Mildura, Australia

Continuation of Ser. No. 552,429, Jul. 13, 1990, abandoned, which is a continuation of Ser. No. 361,173, Jun. 5, 1989, abandoned. This application Apr. 18, 1991, Ser. No. 687,201
Int. Cl.[5] A01D *46/00*
U.S. Cl. 56—330 **11 Claims**



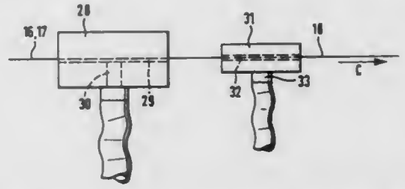
1. A harvesting machine suitable for grapes and like crops, the harvesting machine comprising a mobile carriage having a picking head operatively connected thereto, said picking head including a main frame which is operatively connected to said carriage, said main frame having an axis which extends generally in the same direction as the normal line of travel of the harvesting machine, picking means operatively connected to said main frame, said picking means comprising a plurality of picking rods which are movable back and forth laterally of said axis of said main frame, said picking rods being arranged in banks with at least one bank being disposed on one side of said main frame axis, and at least one other of said banks being disposed on the other side of said main frame axis, said rods in each bank being arranged side by side in spaced apart in relation to a longitudinal axis extending between one end of the bank to the other end, said banks of picking rods being pivotally mounted with respect to said main frame of said picking head about pivot axes which extend generally parallel to the main frame axis so that said banks of picking rods can adopt an operating mode in which the banks of picking rods are freely pivotable about the pivot axes so that, in use, the banks can change position as the harvester moves along the row of vines and wherein said main frame of said picking head is mounted so as to be suspended from said carriage and freely pivotable relative thereto about an axis which extends generally parallel to the main frame axis.

5,067,315

PROCESS FOR SPLICING THE ENDS OF TWO DOUBLE YARNS

Fritz Stahlecker, Bad Ueberkingen, Fed. Rep. of Germany, assignor to Hans Stahlecker, Fed. Rep. of Germany, a part interest

Continuation of Ser. No. 365,841, Jun. 15, 1989, abandoned. This application Nov. 19, 1990, Ser. No. 614,677
Claims priority, application Fed. Rep. of Germany, Jun. 25, 1988, 3821570
Int. Cl.[5] D01H *1/115, 15/00*
U.S. Cl. 57—22 **9 Claims**



1. A process for splicing the ends of two double yarns during a piecing operation at a spinning unit of the type which spins two yarns which are guided together to form the double yarn and, as the double yarn, are wound onto a spool which serves as a feeding package for subsequent twisting, said process comprising:

preparing the yarn ends to be spliced by reducing their fiber quantity level below the fiber quantity level of normally spun yarn,

and splicing the yarn ends to form a spliced section which has less fibers per cross-section than overlapping sections of normally spun yarn,

thereby forming an intentionally weaker thin spliced section to be subsequently twisted,

wherein said reducing of their fiber quantity includes reducing their fiber quantity to less than half their normally spun fiber quantity, thereby assuring that the spliced section has less fiber per cross-section than normally spun yarn.

5,067,316

ROCKET ENGINE EXPANSION NOZZLE WITH COMPLEMENTARY ANNULAR NOZZLE

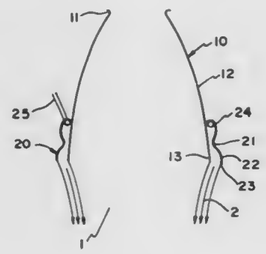
Claude E. Bonniot, Gisors, France, assignor to Societe Europeene De Propulsion, Suresnes, France

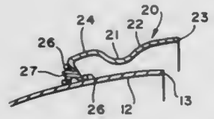
Filed Nov. 16, 1989, Ser. No. 437,201
Claims priority, application France, Nov. 21, 1988, 88 15122
Int. Cl.[5] F02K *11/00;* **B63H** *25/46*
U.S. Cl. 60—263 **30 Claims**

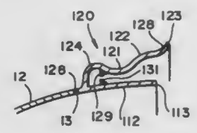
1. An expansion nozzle for a rocket engine destined to function successively in atmospheric and space conditions, comprising a main wall defining a surface of revolution that splays outwardly between a nozzle throat and a downstream extremity of said expansion nozzle, wherein said expansion nozzle further comprises a complementary annular convergent and divergent nozzle of small vertical extent having an exhaust port as well as an axis coinciding with a principal axis of said main wall, said complementary annular nozzle along with the exhaust port being located outside said main wall in the region of said downstream extremity of said expansion nozzle and having a gas distribution torus cooperating with gas flow supply means to produce an annular flow of gas exhausted from the diverging part of said complementary annular nozzle, said annular flow of gas surrounding a main flow of gas exhausted at said downstream extremity of said main wall of said

VOL 1132 ISS 4 NO 26 1991 UMI

expansion nozzle and forming a source of static pressure Ps that is substantially lower than atmospheric pressure Pa and Ps







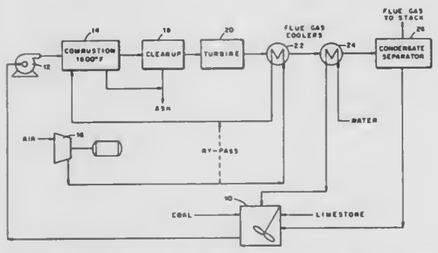
having a value of between 0.3 and 0.8 times atmospheric pressure Pa.

5,067,317

PROCESS FOR GENERATING ELECTRICITY IN A PRESSURIZED FLUIDIZED-BED COMBUSTOR SYSTEM

Stanley Kasper, Pittsburgh, Pa., assignor to The United States of America as represented by the United State Department of Energy, Washington, D.C.

Filed Feb. 26, 1990, Ser. No. 484,303
Int. Cl.[5] F02C *3/26*
U.S. Cl. 60—39.05 **11 Claims**



1. A method of generating electric power from coal using a pressurized fluidized-bed combustor system, the method comprising the steps of:

(a) supplying coal in a feed slurry comprising water, coal and a sulfur sorbent to a combustor;

(b) combusting the coal with air in a pressurized combustor chamber in the combustor to produce a flue gas;

(c) controlling the combustor temperature by varying an amount of excess air and water supplied to the combustor, whereby increasing the excess air and water reduces the combustor operating temperature;

(d) allowing the flue gas to expand through a turbine to generate electric power, and

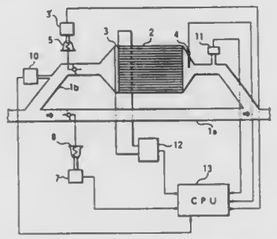
(e) cooling the flue gas, after exiting from the turbine, by heat exchange with a system fluid whereafter spent gas is outputted at the atmosphere and liquid condensed from the flue gas is returned to the feed slurry.

5,067,318

REGENERATION SYSTEM FOR PARTICULATE TRAP

Minoru Arai, Fujisawa, Japan, assignor to Isuzu Motors Limited, Tokyo, Japan

Filed May 17, 1990, Ser. No. 524,466
Claims priority, application Japan, Jun. 16, 1989, 1-153935
Int. Cl.[5] F01N *3/02*
U.S. Cl. 60—286 **8 Claims**



1. A regeneration system for a particulate trap (2) provided in an exhaust pipe (1) of an engine comprising;

means (10, 11) for sensing the pressure loss across said trap (2),

means (4) for sensing the temperature of said trap (2), and

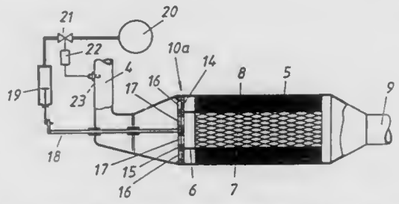
control means (13) for initiating the regeneration when said pressure loss has reached a preset value, and then for renewing said preset value when the peak value of said temperature through the regeneration resides outside a predetermined range, the initial value of said preset value being determined on the basis of the minimum value within the variation of the pressure loss of cleaned traps.

5,067,319

SYSTEM FOR PURIFYING THE EXHAUST GASES OF DIESEL ENGINES

Franz Moser, Steyr, Austria, assignor to Steyr-Daimler-Puch AG, Vienna, Austria

Filed Feb. 13, 1990, Ser. No. 479,374
Claims priority, application Austria, Feb. 15, 1989, 334/89
Int. Cl.[5] F01N *3/28*
U.S. Cl. 60—288 **7 Claims**



1. A system for purifying exhaust gas of a diesel engine, comprising

an exhaust line,

two branch lines comprising a filter line and a by-pass line,

respectively, and arranged downstream of said exhaust line,

a soot filter incorporated in said filter line,

a common end line, which is connected to said filter line downstream of said soot filter and to said by-pass line,

change-over valve means, for connecting said exhaust line in alternation only to said filter line and only to said by-pass line,

valve-actuating means, for operating said change-over valve means in dependence on the load on said engine so that they connect said exhaust line only to said filter line when said engine is operating under a load in excess of a predetermined load, which is lower than its full load, and so that they connect said exhaust line only to said by-pass line when said engine is operating under a load which is not in excess of said predetermined load,

an oxidation-inducing catalyst for diesel soot downstream of said change-over valve means and incorporated in one of said by-pass or common end lines, and

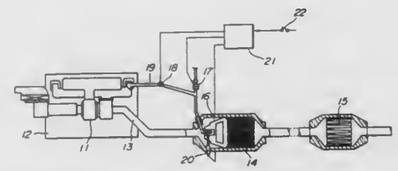
heat-conductive means for interconnecting said soot filter and said oxidation-inducing catalyst.

5,067,320

EXHAUST PARTICLE REMOVING SYSTEM FOR INTERNAL COMBUSTION ENGINE

Nobukazu Kanesaki, Kanagawa, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Jan. 22, 1990, Ser. No. 467,397
Claims priority, application Japan, Jan. 24, 1989, 1-13155
Int. Cl.[5] F01N *3/02*
U.S. Cl. 60—297 **6 Claims**



1. An exhaust particle removing system for an engine, comprising:

a first filer disposed in an engine exhaust passage for trapping particles unopened in exhaust gas;

combustion means disposed near the inlet of the first filter for burning off particles deposited on the first filter; and

a second filer, disposed in the engine exhaust passage downstream of the fist filter in series therewith for trapping particles suspended in exhaust gas passing through the first filter, said second filter being coated with a catalyst and separate from the first filer by a predetermined distance so that h particles deposited on the second filter are burned off by means of an elevated temperature of gas passing through the first filter.

5,067,321

HYDRAULIC HOISTING CIRCUIT WITH ELECTRICAL CONTROL FOR RELIEF VALVE ADJUSTMENT PILOT AND PILOT DISABLE VALVE

Satoshi Miyaoka, Hiroshima, Japan, assignor to Kabushiki Kaisha Kobe Seiko Sho, Kobe, Japan

Filed Feb. 14, 1990, Ser. No. 480,145
Claims priority, application Japan, Feb. 23, 1989, 1-44839
Int. Cl.[5] E02F *3/32, 9/20, 9/22*; F15B *11/02*
U.S. Cl. 60—426 **3 Claims**

2. A hydraulic circuit comprising:

a main pump;

a plurality of hydraulic selector valves adapted to be supplied with a discharge pressure oil from said main pump;

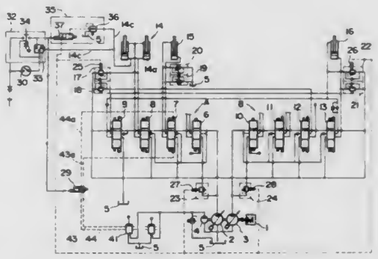
a plurality of actuators for operating a plurality of working devices;

a main relief valve for relieving the discharge pressure from said main pump when the discharge pressure exceeds a predetermined pressure;

a plurality of port relief valves for preventing pressures in lines connected to said actuators from becoming higher than a predetermined pressure;

boost receiving means associated with said main relief valve and with at least one of said port relief valves;

a hydraulic signal generating means for supplying a hydraulic signal to said boost receiving means for boosting set pressures of said main relief valve and said at least one of said port relief valves;



an operation suppressing means for maintaining a specific one of said plurality of hydraulic selector valves in a neutral position when said set pressures are boosted;

an electrical control switch arbitrarily controllable by an operator for simultaneously sending an electrical control signal to said hydraulic signal generating means and to said operation suppressing means to simultaneously boost said set pressures and maintain said specific one of said hydraulic selector valves in a neutral position; and

a retaining circuit containing a pressure switch, said pressure switch closing in response to a predetermined pressure in a hydraulic line of said hydraulic circuit to prevent elimination of a boosted condition of said set pressures if said engine stops or if said electrical control switch is opened before the pressure in said hydraulic line drops below said predetermined pressure.

5,067,322

REFRIGERATOR WITH SPINE FIN EVAPORATOR

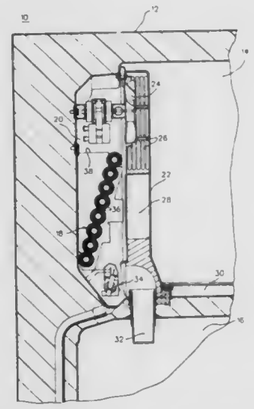
David G. Beers, Evansville, Ind., assignor to General Electric Company, Louisville, Ky.

Filed Oct. 5, 1990, Ser. No. 593,750
Int. Cl.[5] F25B *39/02*
U.S. Cl. 62—515 **12 Claims**

1. A refrigerator having at least one compartment to be refrigerated and a refrigerant evaporator normally operable to refrigerate said at least one compartment; said evaporator

VOL 1132 ISS 4 NO 26 1991 UMI

including an elongated evaporator tube to receive refrigerant and an elongated ribbon of spine fin material wound in an open



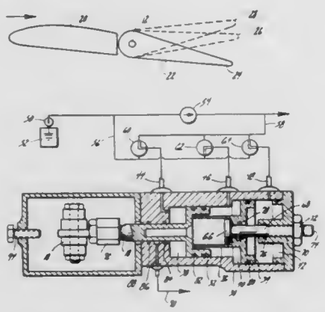
spiral about the outer surface of said tube and in intimate heat transfer relationship with said outer surface of said tube.

5,067,323

THREE POSITION ACTUATOR ARRANGEMENT

Keith N. Bennett, West Palm Beach, and Richard H. Pangretic, Jr., Palm Beach Gardens, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jun. 13, 1990, Ser. No. 537,965
Int. Cl.[5] F02C *1/00*; F01B *7/02*
U.S. Cl. 60—734 **7 Claims**



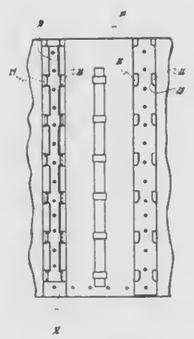
1. A three position actuator arrangement for use in an aircraft gas turbine engine comprising:
a cylindrical housing;
a first small diameter piston having a drive shaft slideably passing through said housing;
a second large diameter piston;
said first and second pistons abutable with lost motion spacing therebetween;
said pistons and housing defining axially spaced chambers comprising a first chamber between one end of said housing and said first piston, a second central chamber between said first and second pistons, and a third chamber between said second piston and the other end of said housing;
a first conduit in fluid communication with said first chamber;
a second conduit in fluid communication with said second chamber;
a third conduit in fluid communication with said third chamber;
a high pressure fluid source;
a low pressure fluid sink;
selection means for selectively connecting each of said chambers with said source and sink; and
an adjustable stop rod adjustably secured to said housing adjacent said third chamber, slideably and sealingly passing through said second large diameter piston, and having a radial extension within said second chamber abutable with said second larger piston.

5,067,324

ENGINE NOZZLE LINER RETAINER

Deane Beytes, Tequesta, and Erik A. Lindstrom, Palm Beach Gardens, both of Fla., assignors to United Technologies Corporation, Hartford, Conn.

Filed Apr. 4, 1990, Ser. No. 504,230
Int. Cl.[5] F02C *1/00*
U.S. Cl. 60—752 **5 Claims**



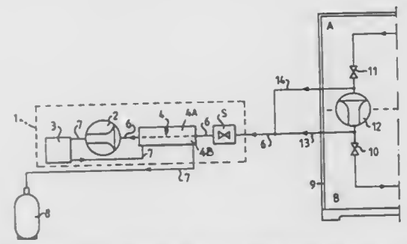
1. A liner retaining arrangement for retaining a nozzle liner against a nozzle wall comprising:
a flexible liner having a plurality of arcuate sections and axially extending linear portions located between said arcuate portions;
a planar impingement plate;
a plurality of axially slideable interlocking clip pairs, a first clip of each pair secured to said linear portion and a second clip of each pair secured to said impingement plate, said clip pairs each having a length and spacing between pairs such that said liner may be placed with said clip pairs clearing each other and axially slid into engagement;
at least one axial retaining structure comprising;
a fixed stop in one of said liner and impingement plate abutable with a clip on the other of said liner and impingement plate in a first direction;
a depressible spring on one of said liner and impingement plate abutable with a clip on the other of said liner and impingement plate on the second direction when the spring is in its undepressed condition, but not when it is in its depressed condition.

5,067,325

METHOD AND ARRANGEMENT FOR PUMPING REFRIGERANTS

Jan-Olov L. Åhman, Norrtälje, Sweden, assignor to Clas Ove Olsson, Norrtalje, Sweden

PCT No. PCT/SE89/00029, § 371 Date Jul. 24, 1990, § 102(e) Date Jul. 24, 1990, PCT Pub. No. WO89/07227, PCT Pub. Date Aug. 10, 1989
PCT Filed Jan. 27, 1989, Ser. No. 543,809
Claims priority, application Sweden, Jan. 28, 1988, 8800282
Int. Cl.[5] F25B *45/00*
U.S. Cl. 62—77 **12 Claims**



1. A method of recovering refrigerant from a system comprising
feeding refrigerant from a system in liquid or gaseous state to a pressure reduction valve,
expanding the refrigerant in said valve,
passing the refrigerant through a heat exchanger,
heating the refrigerant in said heat exchanger such that when the refrigerant is discharged from the heat exchanger, the refrigerant is in a gaseous state,
compressing the refrigerant in gaseous state in a compressor,
passing the refrigerant from the compressor through said heat exchanger in counterflow with the refrigerant passing through the heat exchanger from the pressure reduction valve,
transferring heat from the refrigerant passing through the heat exchanger from the compressor to the refrigerant passing through the heat exchanger from the pressure reduction valve to cool the refrigerant from the compressor and heat the refrigerant from the pressure reduction valve, and
discharging the refrigerant from the heat exchanger which came from the compressor.

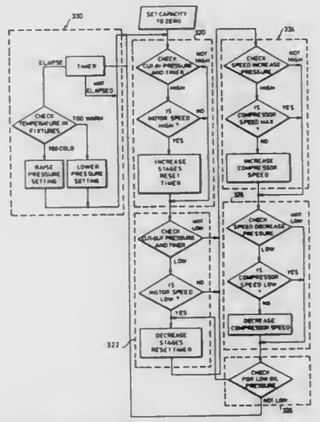
5,067,326

METHOD AND APPARATUS FOR CONTROLLING CAPACITY OF A MULTIPLE-STAGE COOLING SYSTEM

Richard H. Alsenz, 2402 Creekmeadows Dr., Missouri City, Tex. 77459

Division of Ser. No. 146,285, Jan. 21, 1988, Pat. No. 4,951,475, which is a continuation-in-part of Ser. No. 62,390, Jun. 15, 1987, Pat. No. 4,825,662, which is a continuation of Ser. No. 819,387, Jan. 16, 1986, which is a continuation-in-part of Ser. No. 706,403, Feb. 27, 1985, Pat. No. 4,628,700, which is a continuation of Ser. No. 458,914, Jan. 18, 1983, abandoned, which is a continuation of Ser. No. 257,113, Apr. 24, 1981, Pat. No. 4,612,776, which is a continuation of Ser. No. 62,525, Jul. 31, 1979, abandoned. This application Aug. 23, 1990, Ser. No. 571,746
Int. Cl.[5] F25B *31/00*; F04B *49/10*
U.S. Cl. 62—193 **13 Claims**

1. Apparatus for controlling the capacity of a refrigeration system having a variable speed compressor, said compressor having an associated suction pressure and a minimum operating oil pressure, said compressor being adapted to operate at variable speeds between a maximum and a minimum speed, said system coprising:
(a) pressure selecting means for establishing an operating suction pressure range;
(b) pressure detection means for sensing the suction pressure and for cooperating with said pressure selecting means to generate a first increase speed signal when said suction pressure exceeds the pressure range, and to generate a decrease speed signal when said suction pressure falls below the pressure range;



(c) oil pressure detection means for providing a second increase speed signal when said oil pressure falls below said minimum operating oil pressure; and
(d) selection means for receiving said first and second increase speed signals and causing the speed of the compressor to increase in respective response thereto, and for receiving the decrease speed signal and causing the speed of the compressor to decrease in response thereto.

5,067,327

REFRIGERANT RECOVERY AND RECHARGING DEVICE

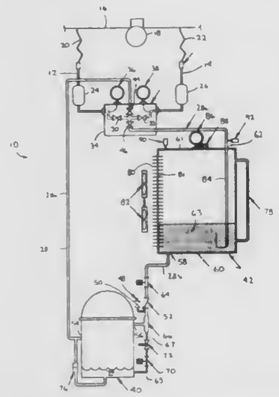
Charles B. Leblanc, Cocagne, Canada, assignor to Enspeco Inc., Cocagne, Canada

Filed Sep. 18, 1990, Ser. No. 584,073
Int. Cl.[5] F25B *45/00*
U.S. Cl. 62—292 **10 Claims**

1. A device for recovering refrigerant from a refrigeration circuit, comprising:
inlet means for connection to a refrigeration circuit;
an activatable compressor having a low pressure inlet and a high pressure outlet, said inlet of said compressor connected to said inlet means;
a tank means, for functioning as a refrigerant condenser and storage means, having heat conducting walls and having an inlet through a bottom wall thereof, said tank means constructed so that any liquid in said tank means fills said tank from the bottom thereof, said tank means inlet connected to said outlet of said compressor;
activatable means to cool the walls of said tank means; and
a valve means connected between said compressor inlet and said inlet means; whereby said device may be coupled to a refrigeration circuit, said valve means opened and said compressor and cooling means activated whereupon refrigerant vapour is drawn from said refrigeration circuit and is pushed through said tank means inlet into said tank means, said refrigerant vapour condensing on contacting the walls of said tank means and the resultant liquid refrig-

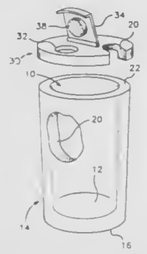
VOL 1132 ISS 4 NO 26 1991 UMI

erant collecting at the bottom of said tank means such that refrigerant vapour entering said tank means inlet bubbles



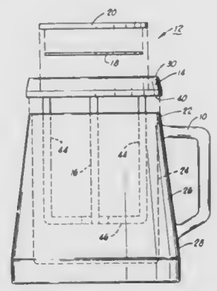
through any collected liquid refrigerant and is thereby cooled.

5,067,328
COOLING VESSEL FOR BEVERAGES
Victor Medina, and Rebecca Medina, both of 1300 N. 10th St., Poplar Bluff, Mo. 63901
Filed Jul. 12, 1989, Ser. No. 378,653
Int. Cl.[5] F25D *3/08*
U.S. Cl. 62—457.2 3 Claims



1. A cooling vessel for beverages comprising:
a cylindrical member having an open top and a bottom wall that closes its bottom end, said cylindrical members having a predetermined outer diameter and a predetermined height;
an outer tubular member having a bottom wall, said outer tubular member having a height greater than that of said cylindrical member and an inner diameter greater than the outer diameter of said cylindrical member so that said cylindrical member can be inserted into said outer tubular member and be spaced from its respective walls thus forming a chamber surrounding the side walls and bottom wall of said cylindrical member;
a refrigerant filling said chamber between said cylindrical member and said outer tubular member, said refrigerant being a freezable gelatin such as blue ice;
an annular top wall connecting the top edge of said outer tubular member and the top edge of said cylindrical member; and
a removable lid having a top surface spaced upwardly from a bottom surface to form a chamber that is filled with a freezable gelatin such as blue ice, said removable lid having a vertically oriented pouring aperture therein, a tab member having a front end, a rear end and a bottom surface, hinge means connecting the bottom end of said tab member to the top surface of said lid, a rubber stopper secured to the bottom surface of said tab member for closing said pouring aperture.

5,067,329
CANNED BEVERAGE HOLDER
David L. Tomlinson, 1414 N. Minnesota, Shawnee, Okla. 74801, assignor to T Z & B Products and David L. Tomlinson, both of Shawnee, Okla., a part interest
Filed Sep. 25, 1990, Ser. No. 587,739
Int. Cl.[5] F25D *3/08*
U.S. Cl. 62—457.4 3 Claims

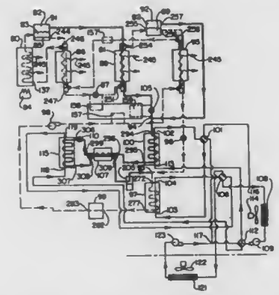


1. A can holder in combination with a thermally insulated drinking mug having an entry lip and being adapted to contain a selected coolant, comprising:
an annular cap having an inner wall, an upper rim and bottom surface with a circular slot extending upward through the bottom surface, said circular slot being adapted for tightly receiving said entry lip therein, having an annular shoulder formed inwardly adjacent the inner wall of the annular cap;
a plurality of generally equally spaced bail struts connected to extend in parallel disposition from adjacent the inner wall of the annular cap into the drinking mug;
a bail base member connected between the respective bail struts within the drinking mug;
sealing means having an axial opening disposed within said annular cap to receive a can therethrough in sealed joinder for positioning as supported on said bail base in contact with the drinking mug coolant; and
a snap ring firmly received within the annular cap inner wall to retain said sealing means in position.

5,067,330
HEAT TRANSFER APPARATUS FOR HEAT PUMPS
F. Bert Cook, Columbus; Stephen E. Petty, Dublin; Howard C. Meacham, Jr., Upper Arlington; Richard N. Christensen, Columbus, and Kevin R. McGahey, Hilliard, all of Ohio, assignors to Columbia Gas System Service Corporation, Wilmington, Del.
Filed Feb. 9, 1990, Ser. No. 478,269
Int. Cl.[5] F25B *15/00*
U.S. Cl. 62—485 27 Claims

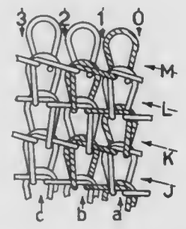
4. In a continuous absorption system for both refrigeration and heating modes and having a condenser, an absorber, a refrigerant vapor, a weak solution and a working fluid, the improvement being a condenser/absorber module comprising a cylindrical housing containing:
(a) a condenser means for condensation of said refrigerant vapor in both refrigeration and heating modes of said system and comprising a plurality of coils with the coils juxtaposed one to the next in a generally annular composite form with said condenser means being in heat-exchange relationship with said working fluid; and

(b) an absorber means for absorption of said refrigerant vapor in said weak solution in both refrigeration and heating modes of said system comprising a plurality of coils with the coils juxtaposed one to the next in a gener-



ally annular composite form with said absorber means being in heat-exchange relationship with said working fluid and said absorber means being juxtaposed and in concentric relation with at least a portion of said condenser means.

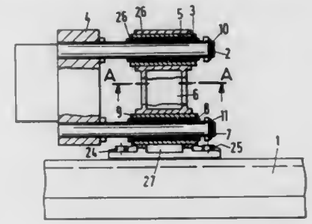
5,067,331
WARP KNIT FABRIC STRUCTURE AND METHOD OF PRODUCTION
Allan W. H. Porter, Stosswald 1290, C.H.9062 Lustmühle A.R., Switzerland
Continuation-in-part of Ser. No. 432,363, Nov. 6, 1989, abandoned. This application Mar. 11, 1991, Ser. No. 701,683
Int. Cl.[5] D04B *21/00*
U.S. Cl. 66—195 5 Claims



1. A warp knit fabric structure formed by means of a single needle and single guide bar comprising one thread forming a single knit loop only for each needle wale with the last part of the thread overlapping across the needle of a last needle wale traversed by each thread as overlaps across two or more needle wales at every course of knitting.

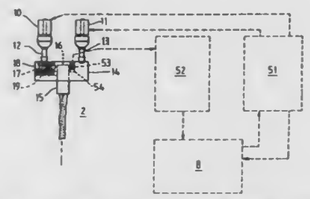
5,067,332
GUIDE BAR BEARING FOR WARP KNITTING MACHINES
Josef Roth, Seligenstadt, Fed. Rep. of Germany, assignor to Karl Mayer Textilmaschinenfabrik GmbH, Obertshausen, Fed. Rep. of Germany
Filed Aug. 11, 1989, Ser. No. 392,440
Claims priority, application Fed. Rep. of Germany, Aug. 22, 1988, 3828469
Int. Cl.[5] D04B *27/06*
U.S. Cl. 66—207 11 Claims

1. Guide arrangement for a warp knitting machine comprising:
a guide bar bracket;
a guide bar frame having an upper and lower end and wherein said bearings comprise;
two parallel sleeves separately affixed about said upper and lower ends of said guide bar frame;
a guide bar attached to said guide bar frame; and
a connecting arrangement connecting between said guide bar frame and said guide bar bracket, and comprising:



(a) at least one linear bearing bolt attached to said guide bar bracket; and
(b) a bearing slidable relative to said linear bearing bold, said bearing being attached to said guide bar frame and having a ribbed bar having one transverse rib, the breadth of the transverse rib corresponding to the length of the sleeves.

5,067,333
FLOW CONTROL SYSTEMS AND/OR LAUNDRY MACHINES INCLUDING SUCH FLOW CONTROL SYSTEMS
Gerald Duncan; Frank W. Shacklock, and Murray Greenman, all of Auckland, New Zealand, assignors to Fisher & Paykel Limited, Auckland, New Zealand
Division of Ser. No. 307,275, Feb. 7, 1989, Pat. No. 4,978,058.
This application Oct. 19, 1990, Ser. No. 599,867
Claims priority, application New Zealand, Feb. 9, 1988, 223460
Int. Cl.[5] D06F *33/02*; G05D *23/13*
U.S. Cl. 68—23.7 8 Claims



1. A laundry machine comprising a cabinet in which an agitator is mounted on a vertical shaft so as to rotate therewith and is oscillated back and forth within a coaxially mounted perforated spin tub, the spin tub and the agitator rotating continuously in one direction to give a spin action and the perforated spin tub and agitator in turn being mounted within a stationary water tight container; the cabinet containing an electronically controlled electric motor having a rotor and a stator and driving means to oscillate said agitator back and forth or rotate said spin tub continuously in one direction; a flow control system to control the temperature of a mixture of two liquids, a first liquid having a high temperature level and a second liquid having a low temperature level, said flow control system comprising a mixing chamber, a first valve through which one of said two liquids flows to said mixing chamber, a second valve through which the other of said two liquids flows to said mixing chamber, at least said first valve being a proportional control valve having a valve seat, a spring loaded valve member spring loaded to a closed position against said valve seat, and an electromagnet means effective on ener-

VOL 1132 ISS 4 NO 26 1991 UMI

gization thereof to actuate said valve member towards a fully open position, temperature sensing means positioned in said mixing chamber for sensing the temperature level of the mixed liquid in said mixing chamber, second valve control means responsive to said sensing means to open on actuation thereof said second valve to a desired degree of opening, and first valve control means responsive to said sensing means so that in operation with said second valve opened to said desired degree, current flowing through said electromagnet means of said first valve is controlled by said first valve control means to desired levels responsive to signals from said sensing means in a manner such that said first valve is progressively opened or closed substantially according to current flowing in said electromagnet means thereof so that the temperature of mixed liquid in said mixing chamber is maintained equal to or approaching a desired temperature level; said mixing chamber having an outlet conduit, an inlet to said outlet conduit disposed in said mixing chamber for maintaining a quantity of liquid in said mixing chamber, and an exit from said outlet conduit leading to said water tight container;

container means;

electronic devices which produce heat in use, at least some of said electronic devices being grouped and positioned together in said container means; and

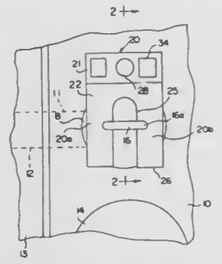
at least one surface on said container means exposed to a flow of liquid for the purpose of cooling said electronic devices.

5,067,334

DOOR LOCK SECURITY DEVICE

Clayton O. Sorkilmo, 5447 - 72nd Cir. North, Brooklyn Center, Minn. 55429

Filed Oct. 29, 1990, Ser. No. 604,971
Int. Cl.[5] E05B *17/00*
U.S. Cl. 70—416 **10 Claims**



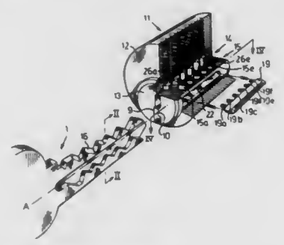
1. In combination with a door, the door having an interior surface, a door knob mounted by the door and extending inwardly of the door interior surface and a dead bolt lock mounted by the door and having a lock housing mounted by the door, and a dead bolt handle rotatably mounted by the housing and having a shaft portion extending away from the door interior surface and a cross bar portion that is of a larger transverse dimension than the shaft portion and joined to the shaft portion remote from the door interior surface, and a longitudinally elongated security member removably mounted on the door and at least in part mounted by the dead bolt lock, the security member having a first surface, a first longitudinally elongated end portion having at least part of the first surface, and a second end portion joined to the first end portion to extend longitudinally away therefrom, the second end portion having a second surface opposite from the first surface for abutting against the cross bar portion, the second end portion having a first transverse terminal edge longitudinally opposite of the first end portion and a longitudinally extending notch opening through said member surfaces and to the transverse edge for having the dead bolt handle shaft portion extended therethrough, and ribs joined to the first surface to extend away therefrom in a direction opposite the second surface for abutting against the door interior surface to decrease the possibility of the security member moving relative to the door interior surface.

5,067,335

CYLINDER LOCK AND LOCKING TUMBLER

Bo Widén, P.O. Box 37, S-644 00 Torsbälla, Sweden

PCT No. PCT/SE88/00015, § 371 Date Sep. 12, 1990, § 102(e) Date Sep. 12, 1990, PCT Pub. No. WO89/06733, PCT Pub. Date Jul. 27, 1989
PCT Filed Jan. 20, 1988, Ser. No. 536,671
Int. Cl.[5] E05B *27/10*
U.S. Cl. 70—495 **10 Claims**



1. A cylinder lock comprising:

a cylinder shell;

a key plug rotationally mounted in said cylinder shell to provide a shear line between the cylinder shell and the key plug;

a longitudinal key slot extending into said key plug generally parallel to a rotational axis thereof for receiving a key blade, the key blade having an elongated generally longitudinally extending wave-like code pattern;

a row of lock tumblers, each of said tumblers having a body part and a finger, each of the body parts of the tumblers being non-rotatably guided for elevational movement only in an associated transverse cavity in said key plug, each of the fingers of the tumblers projecting transversely outwardly from said body part to extend into said key slot and engage the code pattern of a properly shaped key blade inserted into the key slot, said fingers being located in such predetermined positions that a free end portion of each finger forms a specific, irregular longitudinal distribution pattern different from a longitudinal distribution of the tumbler body parts; and

a fence member for blockingly associating the locking tumblers with the cylinder shell so that elevational positioning of said locking tumblers with said properly shaped key blade enables clearance of the shear line.

5,067,336

DEVICE FOR PRESSING SHEET MATERIAL

Gabriel de Smet, Nogent sur Oise, France, assignor to Isoform, France

Filed Dec. 28, 1989, Ser. No. 458,169
Claims priority, application France, Dec. 30, 1988, 88 17525
Int. Cl.[5] B21D *22/12, 26/00*
U.S. Cl. 72—57 **19 Claims**

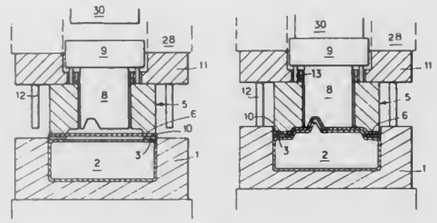
1. A device for pressing a sheet material blank, in particular a sheet metal blank, comprising:

a cushion comprising an elastic material,

a retaining box surrounding the cushion,

means for preforming the sheet blank comprising an outer slide, an upper blank holder operatively connected to the outer slide, and means for finally forming the sheet blank comprising a central slide, and a punch operatively connected to the central slide, and

supporting and maintaining means for at least a portion of the sheet blank comprising a movable lower blank holder comprising a rigid structure wherein said lower blank holder is positioned directly on the elastic cushion and cooperates with the upper blank holder for gripping the sheet blank at least in localized regions thereof.

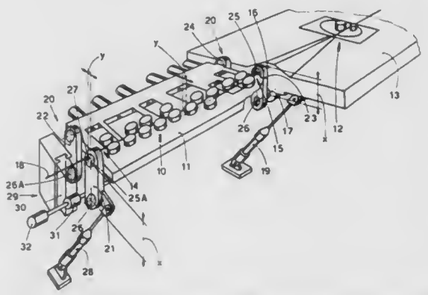


5,067,337

DEVICE FOR THE CONTROLLED AND INDEPENDENT ROCKING OF STRAIGHTENING AND BENDING PLATFORMS

Giorgio Del Fabro, Montegnacco, Italy, assignor to M.E.P. Macchine Elettroniche Piegatrici, SpA, Reana Del Rojale, Italy

Filed Oct. 5, 1990, Ser. No. 593,757
Claims priority, application Italy, Oct. 20, 1989, 83490 A/89
Int. Cl.[5] B21D *3/02, 7/024*
U.S. Cl. 72—161 **9 Claims**



1. A bending-shaping machine for shaping rod being fed therethrough, comprising:

a straightening platform having a straightening assembly provided thereon for straightening said rod;

a bending platform having a bending assembly provided thereon, said bending platform being located downstream of said straightening platform and being orientable independently from siad straightening platform said bending assembly performing a different shaping operation on said rod than said straightening assembly;

means for inclining said bending platform by rotating said bending platform about an axis of rotation so as to have a preferred angle of inclination dependent on a shape to be given the rod being processed, said axis of rotation being positioned below and at a distance "x" from an axis of inlet of rod to said bending platform; and

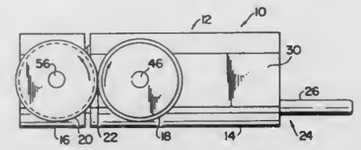
a parallelogram system for supporting and positioning said straightening platform, said parallelogram system comprising a pair of frontal arms and a pair of rear arms positioned at four parallel sides of a parallelogram, each of said arms having an upper pivot and a lower pivot, said straightening platform being supported at said upper pivots, a pivot axis of said lower pivots of said frontal arms coinciding with said axis of rotation of said bending platform and being distant by said value "x" from an axis which passes through said upper pivots of said frontal arms and which coincides substantially with said axis of inlet of said rod into said bending platform.

5,067,338

METAL WORKING ATTACHMENT FOR PORTABLE POWER TOOL

Ronald Wilchynski, P.O. Box 494, Cheshire, Conn. 06410

Filed Jan. 18, 1990, Ser. No. 466,971
Int. Cl.[5] B21D *5/14*
U.S. Cl. 72—182 **16 Claims**



1. Metal working tool attachment for a portable power tool having a rotary output shaft and comprising an elongate generally cylindrical body assembly which defines a first longitudinal axis, said body assembly having a front part and a rear part, mounting means for supporting said front part for rectilinear movement along said first longitudinal axis toward and away from said rear part, a rotary drive tool journalled for rotation on said rear part and about a first transverse axis generally normal to the direction of extent of said first longitudinal axis, driving means on said rear part for coupling engagement with said output shaft on said associated portable power tool to rotate said drive tool and including a drive shaft journalled on said rear part along a second longitudinal axis parallel to said first longitudinal axis, said drive shaft extending in a rearward direction from and beyond said rear part for rotation about said second longitudinal axis, at least one rotary reaction tool journalled for free rotation on said front part about a second transverse axis parallel to said first transverse axis, said reaction tool cooperating with said drive tool to form a nip region therebetween, and adjusting means for moving said front part in a direction along said first longitudinal axis toward and away from said rear part to adjust the position of said reaction tool relative to said drive tool.

5,067,339

CUTTING AND FORMING TOOL FOR COMPLICATED FLAT STRUCTURES

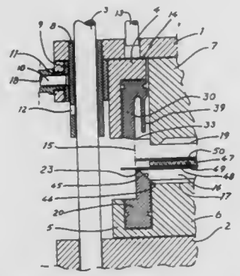
Gerhard Pircbl, Birrwil, Switzerland, assignor to AAW Producktions Aktiengesellschaft, Fu Rstentum, Liechtenstein

PCT No. PCT/CH88/00187, § 371 Date Aug. 15, 1989, § 102(e) Date Aug. 15, 1989, PCT Pub. No. WO89/03751, PCT Pub. Date May 5, 1989
PCT Filed Oct. 11, 1988, Ser. No. 392,948
Claims priority, application Switzerland, Oct. 29, 1987, 4241/87-8
Int. Cl.[5] B21D *28/14;* B26F *1/44*
U.S. Cl. 72—329 **8 Claims**

1. A cutting and forming tool for cutting and forming flat objects with at least one complicated nonlinear cutting and forming line to form complex flat structures, the cutting and

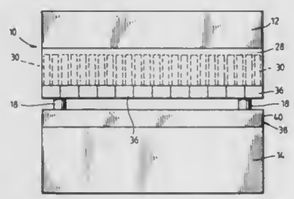
VOL 1132 ISS 4 NO 26 1991 UMI

forming tool including a tool upper part with a cutting stamp and a tool lower part with a cutting plate, the cutting stamp and cutting plate being movable along an axis towards and away from one another with the distinction that the cutting plate (5) and the cutting stamp (4) each include a plurality of adjoining cutting elements (20, 30) the cutting elements of the cutting plate cooperating with the cutting elements of the cutting stamp, each cutting element having the form of a prism and having a polygonal cross-sectional area taken in a direction transverse to the axis and lined up one after another in the zone



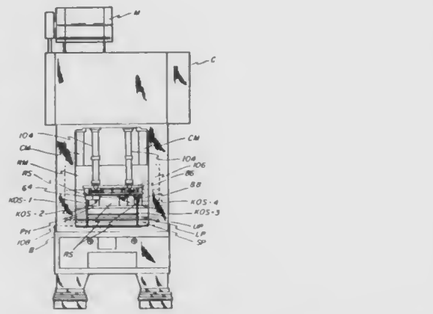
of a cutting line (15), each of the cutting elements (20, 30) being the same size and having a cross-sectional area of the same form, each of the cutting elements (20, 30) having a cutting edge (23, 33) in a first end surface (21, 31), the cutting edges (23, 33) of the cutting elements (20, 30) forming a continuous nonlinear cutting line, each of the cutting elements (20, 30) having a second end surface (22, 32) which is opposite the first end surface (21, 31), the second end surface (22, 32) of each of the cutting elements (20, 30) and the adjoining end portion of each of the cutting elements (20, 30) being anchored into the respective cutting plate (5) and the cutting stamp (4).

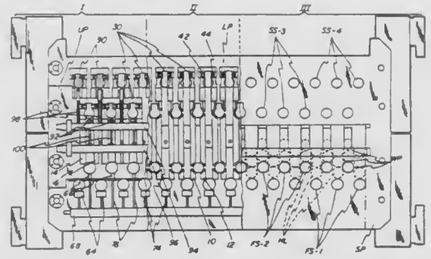
5,067,340
PRECISION PRESS BRAKE
Donald C. MacGregor, 13 Hunters Trail, Warren, N.J. 07060
Continuation-in-part of Ser. No. 190,632, May 5, 1988, abandoned. This application May 3, 1989, Ser. No. 345,675
Int. Cl.[5] B21D *5/01*
U.S. Cl. 72—389 **17 Claims**



1. A bending press, comprising:
(a) a fixed lower frame member;
(b) a fixed upper frame member mounted above the lower frame member;
(c) tool holding means positioned in operative association with one of the frame members for holding bending tool means;
(d) die holding means positioned in operative association with the other of the frame members for holding die means;
(e) a plurality of first hydraulic rams mounted in laterally spaced relationship to be operative between the tool holding means and the associated frame member;
(f) a plurality of second hydraulic rams mounted in laterally spaced relationship to be operative between the die holding means and the associated frame member;
(g) the first hydraulic rams being adapted to be hydraulically connected together during use for hydraulic fluid to distribute a load applied to a workpiece during use evenly between the first hydraulic rams and provide compensation for frame member deflection during use;
(h) the second hydraulic rams being adapted to be hydraulically connected together during use for hydraulic fluid to distribute a load applied to a workpiece during use evenly between the second hydraulic rams and provide compensation for frame member deflection during use; and
(i) deactivation means for selectively deactivating one or more of the hydraulic rams.

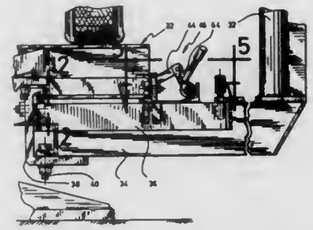
5,067,341
TRANSFER PLATE LIFTS FOR SHELL PRESS
David K. Wynn, Tipp City, and Omar L. Brown, Dayton, both of Ohio, assignors to Dayton Reliable Tool & Mfg. Co., Dayton, Ohio
Filed Jan. 19, 1990, Ser. No. 467,811
Int. Cl.[5] B21D *43/00*
U.S. Cl. 72—426 **29 Claims**





26. A method for providing access to tooling elements for the production of shells, as for can ends, in a ram press, having a base and a ram supported for movement between an upstroke and a downstroke position above said base, comprising:
supporting cooperating upper and lower tooling on the press ram and the press base respectively and dividing the tooling into first and second tooling stations;
supporting knock-out bars at a stationary operative lower position below a lower surface of said ram and above said first and second station upper toolings wherein said knock-out bars carry downwardly extending knock-out stems for cooperating with an upper portion of said upper toolings when said ram is in said upstroke position;
supporting a lower transfer plate above said press base and below said ram;
supporting an upper transfer plate above said lower transfer plate and below said ram;
moving said ram to said upstroke position;
moving said knock-out bars upwardly away from said base to a point closely adjacent to the lower surface of said ram; and
raising said ram and said knock-out bars together above said upstroke position of said ram.

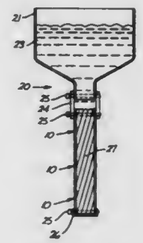
5,067,342
SLIDING AND LOCKING SYSTEM FOR A FORCE APPLYING STRUCTURE ON A VEHICLE STRAIGHTENING BENCH
Marcel J. Bergeron, 288, Rang St-Edouard, Iberville, Quebec J2X 4J3, Canada
Filed May 7, 1990, Ser. No. 519,660
Int. Cl.[5] B21D *1/12*
U.S. Cl. 72—447 **8 Claims**



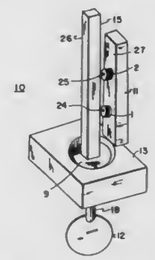
1. A sliding and locking system for a force applying structure on a vehicle straightening bench having a generally rectangular pathway for supporting a vehicle, said pathway being characterized by a truss beam having a rectangular cross-section with a lower face having an outer and an inner marginal ledge, said system comprising:
a primary transverse beam disposed crosswise under said pathway and extending outwardly from said pathway for supporting said force applying structure, said primary transverse beam being vertically spaced from the lower face of said pathway;
first roller means rotatably fixed to said primary transverse beam adapted to support said transverse beam on the upper surface of the outer marginal ledge, and act as a fulcrum for said transverse beam;
second roller means rotatably fixed to said primary transverse beam adapted to contact the lower surface of the inner marginal ledge upon leverage action of the transvers beam around said fulcrum, said first and second roller means allowing said primary transverse beam to rotatably slide along said pathway;
locking means secured on the primary transverse beam adapted to exert a downward pressure on the upper surface of said outer marginal ledge for producing a reverse action to said leverage action and tightening said outer marginal ledge on said primary transverse beam.

5,067,343
METHOD FOR TESTING WATER IMPERVIOUS CABLE
James H. Sullivan, Carrollton, Ga., assignor to Southwire Company, Carrollton, Ga.
Filed Sep. 4, 1990, Ser. No. 577,190
Int. Cl.[5] G01M *3/22*
U.S. Cl. 73—40.7 **4 Claims**

1. A method for testing the continuity of a water blocking compound, said compound having been applied to the interstitial spacing of a stranded electrical conductor, comprising the steps of:
providing a sample of stranded conductor, said conductor having a first and a second end, said conductor treated with moisture blocking compound;
applying a sealing and supporting means to said stranded conductor for sealing and supporting said stranded conductor strands;
connecting said first end of said conductor to a source of colored liquid; and
monitoring said second end of said conductor for penetration of said colored liquid.



5,067,344
VIBRATORY VISCOMETER TRANSDUCER WITH ISOLATION SUPPORT FOR INLINE VISCOSITY SENSOR
John V. Fitzgerald, Metuchen, and Teresa M. Walsh, Lawrenceville, both of N.J., assignors to Natonal Metal and Refining Company, Inc., Metuchen, N.J.
Continuation of Ser. No. 348,695, May 8, 1989, abandoned. This application Mar. 8, 1991, Ser. No. 667,238
Int. Cl.[5] G01N *11/16*
U.S. Cl. 73—54 **10 Claims**



1. A transducer for a vibratory viscometer, comprising:
a support member having a base part and a driver/pickup supporting part having a transducer mounting surface including drive means and pickup means, said base part containing a relatively compliant isolation plate, and wherein said drive means and pickup means are located in said driver/pickup supporting part exclusively;
an elongated relatively rigid unitary bar extending through said isolation plate, a peripheral region of said bar being secured and sealed to the adjacent portion of said isolation plate, said bar having an upper portion of rectangular cross-section to facilitate interaction with said drive means and pickup means disposed on one side of said isolation plate and a lower portion of circular cross-section to reduce the effects of turbulence disposed on the other side of said isolation plate;
a sensor tip in the form of a narrow blade-like disk or plate having opposed major surfaces secured to the lower portion of circular cross-section of said bar and adapted for immersion in a fluid;
drive means operatively associated with the upper portion of said bar for flexurally oscillating said bar with respect to

VOL 1132 ISS 4 NO 26 1991 UMI

the base part of said support member at the mechanical resonant frequency of the bar-isolation plate-fluid system, in a direction parallel to the planes of the major surfaces of said sensor tip and perpendicular to the transducer mounting surface of said driver/pickup supporting part, so as to maximize generation of shear waves and minimize generation of compression waves in said fluid; and

pickup means operatively associated with the upper portion of said bar for detecting the oscillation of said bar.

5,067,345

METHOD AND APPARATUS FOR MEASURING AND CALCULATING BULK WATER IN CRUDE OIL OR BULK WATER IN STEAM

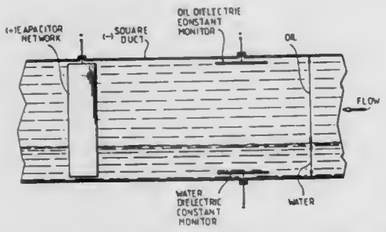
Marcel L. Mougne, 1107 Briarpark Dr., Houston, Tex. 77042

Continuation-in-part of Ser. No. 215,058, Jul. 5, 1988, Pat. No. 4,916,940. This application Apr. 16, 1990, Ser. No. 509,896

The portion of the term of this patent subsequent to Apr. 17, 2007, has been disclaimed.

Int. Cl.[5] G01N *27/22, 33/22*

U.S. Cl. 73—61.10 R **22 Claims**



1. An improved apparatus for detecting and calculating bulk water content in steam comprising:

a) a capacitor array, said array conforming to the cross-section of a duct used to transfer the steam, said capacitor array inserted in the steam duct;

b) a capacitance measurement system;

c) a means to calculate the water content of the steam conveyed in said duct based on the measured capacitance.

5,067,346

PENETRATING MEASURING INSTRUMENT

John S. Field, Berowa Heights, Australia, assignor to Commonwealth Scientific and Industrial Research Organization, Campbell, Australia

PCT No. PCT/AU87/00202, § 371 Date Jan. 10, 1989, § 102(e) Date Jan. 10, 1989, PCT Pub. No. WO88/00691, PCT Pub. Date Jan. 28, 1988

PCT Filed Jul. 7, 1987, Ser. No. 299,835

Claims priority, application Australia, Jul. 10, 1986, PH6842

Int. Cl.[5] G01N *3/42*

U.S. Cl. 73—81 **10 Claims**

1. A penetration measuring apparatus comprising:

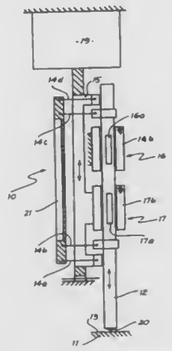
a stage for mounting a sample of the material to be tested thereon;

a probe having one end thereof proximal to said stage and having a longitudinal axis extending orthogonally of said stage;

an ultra-micro hardness indenter located in said one end of said probe;

a carriage assembly to which said probe is connected via only an intermediate member, first elastic connection means of known stiffness connecting said probe to said intermediate member and second elastic connection means of known stiffness connecting said intermediate member to said carriage assembly, said first and second elastic connection means thereby allowing axial movement of said probe but preventing movement of said probe in any other direction;

means for driving said carriage assembly towards and away from said stage;



first means for measuring the movement of said probe relative to a stationary datum; and

second means for measuring the deformation of said first and second elastic connection means connecting said probe to said carrier assembly.

5,067,347

METHOD AND APPARATUS FOR TESTING A PNEUMATIC TIRE

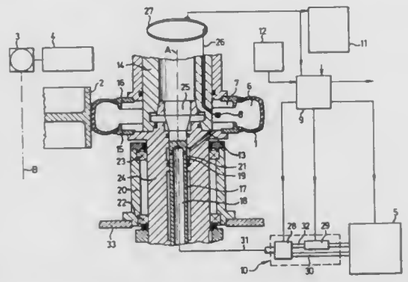
Uwe Mönch, Bensheim, Fed. Rep. of Germany, assignor to Gebr. Hofmann GmbH & Co. KG Maschinenfabrik, Pfungstadt, Fed. Rep. of Germany

Filed Jul. 19, 1990, Ser. No. 554,402

Claims priority, application Fed. Rep. of Germany, Sep. 29, 1989, 3932674

Int. Cl.[5] G01M *17/02*

U.S. Cl. 73—146 **14 Claims**



8. Apparatus for controlled inflation of a pneumatic tire with compressed air in a tire testing machine comprising a stationary compressed air source, a compressed air conduit for supplying compressed air from said source to the interior of the tire to be tested, a control means for controlling the supply of compressed air in dependence on an air pressure detected by a pressure sensor, a temperature setting means arranged in the compressed air conduit between said source and the interior of the tire, for setting the temperature of the air passing in the compressed air conduit, a temperature sensor adapted to sense a temperature in the interior of the tire, and a control means connected to the temperature sensor for actuating the temperature setting means in dependence on the temperature detected by the temperature sensor.

5,067,348

ROTARY MEMBER MEASURING APPARATUS WITH IMPROVED SUPPORT BED

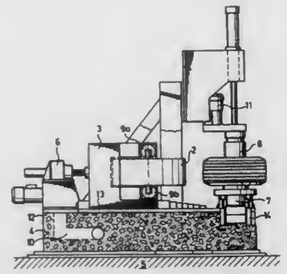
Günther Himmler, Darmstadt, and Uwe Moench, Bensheim, both of Fed. Rep. of Germany, assignors to Gebr. Hofmann GmbH & Co. KG Maschinenfabrik, Pfungstadt, Fed. Rep. of Germany

Filed Apr. 19, 1990, Ser. No. 511,084

Claims priority, application Fed. Rep. of Germany, Jun. 14, 1989, 3919450

Int. Cl.[5] G01M *1/02*

U.S. Cl. 73—460 **6 Claims**



1. A rotary member measuring apparatus for measuring at least one of the periodically varying forces and moments produced by a rotating rotary member, where at least one of a radial, lateral, and tangential force fluctuation is detected, comprising:

mounting means for rotatably mounting the rotary member;

means for detecting at least one of a radial, lateral, and tangential force; and

a stationary machine bed providing a foundation for the measuring apparatus and which serves as a common supporting component for the detecting means and the rotary member mounting means, the machine bed being in the form of a block-shaped casting comprised of polymer concrete.

5,067,349

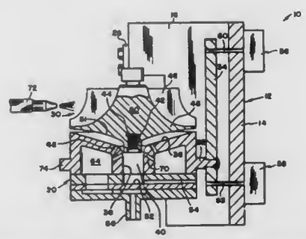
METHOD AND APPARATUS FOR BALANCING ROTATING COMPONENTS

Richard A. Hirchert, Pacific Palisades, Calif., assignor to Allied-Signal Inc., Morristown, N.J.

Filed Mar. 27, 1990, Ser. No. 500,434

Int. Cl.[5] G01M *1/02*

U.S. Cl. 73—472 **4 Claims**



1. Apparatus for dynamically balancing components rotatable about an axis of rotation comprising a fixed support, a balancing fixture, flexure means for mounting said balancing fixture on the fixed support for movement relative thereto, said balancing fixture defining an arborless balancing surface contoured for compatibility with a corresponding surface defined on said component, said component including a hub projecting along said axis, said balancing surface including a portion defining the wall of a recess receiving said hub, means for injecting fluid under pressure between the balancing surface and the corresponding surface on said component to support the component on a fluid film between said surfaces for rotation relative thereto, said injecting means including a fluid manifold defined within said balancing fixture, a first set of spaced-apart pressure jets extending through the balancing surface for communicating said manifold with the interface between said balancing surface and the corresponding surface on the component, and a second set of spaced-apart pressure jets for injecting fluid under pressure in the interface between said hub and the portion of the balancing surface defining said recess, means for rotation said component about said axis relative to said surface, and means for measuring displacement of the surface to determine unbalance of said component.

5,067,350

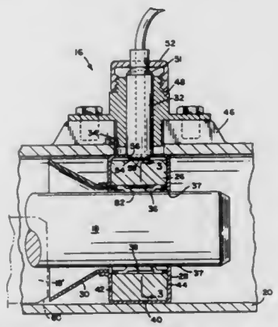
SENSOR TO DETERMINE ROTATIONAL PARAMETERS

John M. Grillo, Torrington; James A. Hilby, Watertown; Mark E. La Croix, New Hartford; Mark A. Polinsky, Torrington, and Gordon L. Steltzer, Torrington, all of Conn., assignors to The Torrington Company, Torrington, Conn.

Continuation of Ser. No. 482,694, Feb. 21, 1990, abandoned. This application Dec. 14, 1990, Ser. No. 626,423

Int. Cl.[5] G01P *1/02*

U.S. Cl. 73—494 **16 Claims**



1. An apparatus for determining parameters of relative rotation of a rotatable shaft mounted within a tube, comprising:

a substantially annular shaped target;

attachment means for attaching the target to the shaft to restrain relative rotation which permits axial movement therebetween;

target retaining means for restraining axial movement of the target relative to the tube in both axial directions, the target retaining means being securely attached to an inner wall of the tube, the target being rotatable relative to said target retaining means;

a sensor extending through a wall opening formed in the tube; and

mounting means for mounting the sensor relative to the tube.

5,067,351

MAGNETOHYDRODYNAMIC ANGULAR RATE SENSOR FOR MEASURING LARGE ANGULAR RATES

Darren R. Laughlin, Albuquerque, N. Mex., assignor to Applied Technology Associates, Inc., Albuquerque, N. Mex.

Filed Oct. 25, 1989, Ser. No. 426,254

Int. Cl.[5] G01P *15/00*

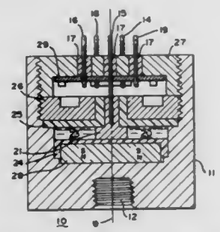
U.S. Cl. 73—516 LM **7 Claims**

1. An electronic angular rate sensor comprising:

a metallic case open at one end having a high magnetic flux density including a central cavity;

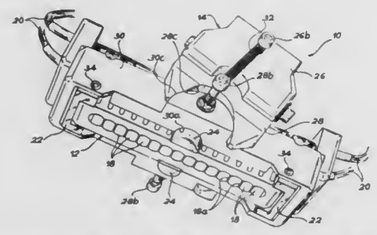
VOL 1132 ISS 4 NO 26 1991 UMI

a magnet located at the bottom of said case, having a north-/south axis oriented in the direction of said cavity axis;
an insulating member covering said magnet and sealing said magnet from the remaining portion of said cavity;
a conductive center post having one end supported on said insulating member, extending along the axis of said cavity;
a channel cap disposed in said cavity and spaced apart from said insulating member, forming a sealed channel with said



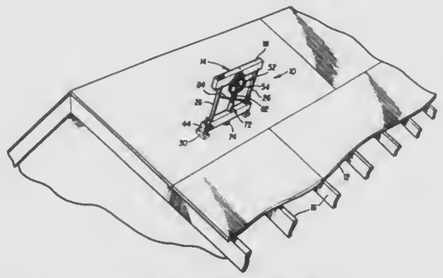
insulating member and said metallic case, said channel containing mercury, said channel cap having a central opening through which said center post extends; and,
an amplifying circuit mounted on a header which closes said cavity, having first and second input connections connected respectively to said metallic case and said center post, providing a voltage proportional to the angular rate of said metallic case about said central cavity axis.

5,067,352
ULTRASONIC CONTROL HEAD FOR PARTS WHOSE SHAPE EVOLVES DURING PRODUCTION
Michel Floret, Gennevilliers, France, assignor to Aerospatiale Societe Nationale Industrielle, Gennevilliers, France
Filed Jan. 24, 1990, Ser. No. 469,846
Claims priority, application France, Feb. 2, 1989, 89 01344; May 30, 1989, 89 07110
Int. Cl.[5] G01N *29/24. 29/10*
U.S. Cl. 73—583 **18 Claims**



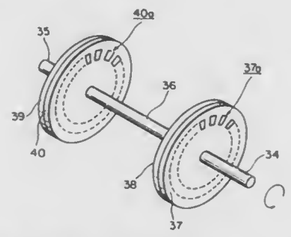
1. Head for control by ultrasonics of parts of any shape and comprising a ductile small bar which supports a set of ultrasonic transducers with coplanar axes and functioning by a reflected wave, said ductile small bar being made of an elastic material and at rest presents a curve along a longitudinal direction of said bar, and contact blocks distributed along the small bar and being suitably-adapted to be brought simultaneously into support on a surface of a part to be controlled so that the axes of all the transducers are approximately perpendicular to this surface and cut said surface at points separated by approximately constant distances independent of the shape of said part, wherein the ductile small bar roughly forms a comb comprising a linking branch with a variable curve and suitable for being turned towards said part, and teeth remaining approximately perpendicular to the linking branch and housing each of the transducers.

5,067,353
ROOF SHEATHING TEST SYSTEM
Stanley J. Sersen, 1138 Valley Dr., Pasadena, Md. 21122
Filed Mar. 26, 1991, Ser. No. 674,959
Int. Cl.[5] G01N *3/20*
U.S. Cl. 73—849 **20 Claims**



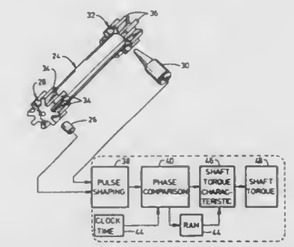
1. A roof sheathing test system comprising:
(a) a test frame mounted to at least a pair of roof structural members;
(b) means for mounting said test frame to said roof structural members;
(c) a load cell coupled to said test frame member for registering a force load applied to said sheathing;
(d) means for applying said force load to said sheathing; and,
(e) means for measuring a deflection of said sheathing responsive to said force load applied to said sheathing.

5,067,354
TORQUE TRANSDUCER AND TORQUE MEASURING DEVICE
Masayasu Kawai, Tokyo, Japan, assignor to Kyowa Electronic Instruments Co., Ltd., Tokyo, Japan
Filed May 24, 1989, Ser. No. 356,789
Claims priority, application Japan, May 31, 1988, 63-131467
Int. Cl.[5] G01L *3/12*
U.S. Cl. 73—862.34 **15 Claims**



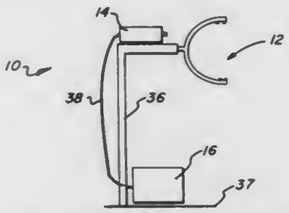
2. A torque transducer comprising:
a drive side rotating member and a load side rotating member mounted on the drive side and load side respectively and each being provided with a plurality of first slits having a similar shape;
a drive side stationary member and a load side stationary member fixedly mounted on a stationary part adjacent to said drive side rotating member and load side rotating member, respectively, and each being provided with a plurality of second slits having a similar shape, and the shape of said second slits being different from the shape of said first slits;
a drive side opening amount detector and a load side opening amount detector for detecting a relative amount of opening formed by a first slit and a second slit on said drive side and a relative amount of opening formed by a first slit and a second slit on said load side, respectively, and for converting these relative opening amounts into electric signals, to thereby detect a torque transmitted to a torque transmission shaft by detecting a relative phase difference between said both rotating members based on periodic changes in the outputs received from said both opening amount detectors;
a plurality of said drive side opening amount detectors and a plurality of said load side opening amount detectors being arranged in a circumferential direction at equiangular intervals and facing said second slits formed in said stationary members at said drive side and at said load side, to obtain a periodic change of said relative opening amount formed at an arbitrary time by said first slits and said second slits on the drive side, and said first slits and said second slits on said load side, respectively, and said relative opening amount being repeatedly and periodically gradually increased and decreased in the circumferential direction over at least one cycle.

5,067,355
SHAFT TORQUE MEASUREMENT
James R. Witte, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio
Filed Jul. 13, 1990, Ser. No. 552,393
Int. Cl.[5] G01L *3/10*
U.S. Cl. 73—862.34 **6 Claims**



1. A method of determining the power output of a gas turbine engine having a compressor coupled therewith, the engine including a power shaft, at least one multiple blade turbine disk coupled to the shaft, a speed sensor, and a pyrometer, the method comprising the steps of:
rotating the shaft under relatively low load conditions and obtaining a first set of signals from the speed sensor corresponding to the angular rotation of the shaft and a second set of signals from the pyrometer representing the temperature of each blade turbine disk as each blade passes a predetermined point adjacent the pyrometer;
conditioning the first and second sets of signals to develop corresponding first and second sets of pulse signals in which each pulse signal in the first set of pulse signals has a determinable first phase relationship to each pulse signal in the second set of pulse signals;
operating the engine under at least another relatively higher load condition and obtaining another first set of signals from the speed sensor and another second set of signals from the pyrometer;
conditioning the another first and second sets of signals to develop another corresponding set of pulse signals;
determining another phase relationship between at least one pulse developed from the another first set of signals and at least one pulse developed from the another second set of signals;
comparing the first phase relationship to the another phase relationship and obtaining a difference therebetween;
determining the degree of twist in the engine shaft corresponding to the obtained phase relationship difference; and
converting engine shaft twist to a corresponding torque value which will induce such twist for determining the power output of the engine from predetermined relationships between torque and power.

5,067,356
CONDITIONAL SAMPLING TECHNIQUE FOR FLUX MEASUREMENT
Joost A. Businger, Anacortes, Wash., assignor to University Corporation for Atmospheric Research, Boulder, Colo.
Filed Feb. 26, 1990, Ser. No. 485,152
Int. Cl.[5] G01N *1/00*
U.S. Cl. 73—863.02 **18 Claims**



1. Apparatus for determining the vertical flux of a component carried by a vertically moving gas in an ambient environment over a predetermined sampling item period, comprising:
means for measuring the magnitude and direction of the vertical velocity of said moving gas and for supplying a gas movement signal indicative of said magnitude and direction;
control mans responsive to said gas movement signal for comparing the absolute value of said magnitude of said vertical gas velocity to a predetermined threshold value, and for supplying (an up signal upon said gas movement signal including that said measured vertical gas velocity is in an upward direction and said magnitude of the measured vertical gas velocity exceeds said predetermined threshold value, and for supplying (b) a down signal upon said gas movement signal indicating that said measured vertical gas velocity is in a downward direction and said magnitude o he measured vertical gas velocity exceeds said predetermined threshold value;
component collection means comprising:
a first and a second reservoir means or each receiving and containing samples of said gas and said component,
valve means responsive to aid up and down signals for conducting samples of said gas and said component from the environment into said first or second reservoir means respectively;
said valve means open substantially fully without restriction to conduct one of said samples to said first reservoir means upon receipt of said upon signal and costing to fully terminate the flow of said one sample to said fist reservoir means upon elimination of said up signal;
said valve means opening subsonically fully without restriction to conduct one of said samples to said second reservoir means upon receipt of said down signal and closing to fully terminate the flow of said one sample to said second reservoir means upon termination of said down signal;
said control means periodically storing data indicative of said measured magnitude and direction and calculating the standard deviation of said magnitude f the vertical velocity of said gas from said stored data during said sampling time period; and
said control means further multiplying aid standard aviation by a predetermined coefficient and the difference in concentrations of said component conducted into said fist and second reservoir means.

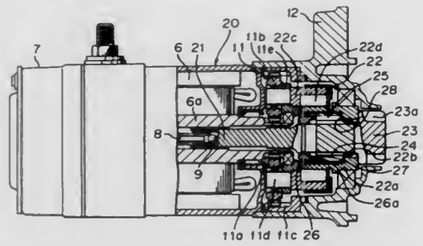
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,357

COAXIAL TYPE STARTER DEVICE

Shuzou Isozumi, Himeji, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed Jul. 19, 1990, Ser. No. 554,650
Claims priority, application Japan, Aug. 19, 1989, 1-213687
Int. Cl.[5] F02N *11/00*
U.S. Cl. 74—7 E 3 Claims



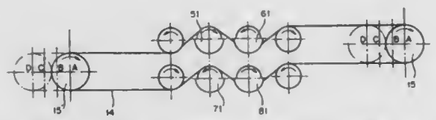
1. A coaxial type starter device which comprises an overrunning clutch device having a clutch inner member and a pinion shaft with a pinion at an end, said pinion shaft being inserted in said clutch inner member so as to be engageable therewith by means of helical splines formed at said pinion shaft and said clutch inner member so that a torque is transmitted from said clutch inner member to said pinion shaft and a radial load by said pinion shaft is borne by the helical spline of said clutch inner member, wherein the helical splines of said clutch inner member and said pinion shaft have radially contacting portions wherein either the outer surfaces of the teeth of the helical spline of said clutch inner member or the bottom surfaces of the teeth of said pinion shaft are in slide-contact with the corresponding parts of the helical spline of said pinion shaft or said clutch inner member, and have radially non-contacting portions wherein the other portions of the helical spline of said clutch inner member or said pinion shaft face, with gaps, the corresponding parts of the helical spline of said pinion shaft or said clutch inner member, and wherein the total surface area of said radially contacting portions is larger than that of said radially non-contacting portions.

5,067,358

VIBRATING TABLE INSTALLATION FOR THE MANUFACTURE OF CONCRETE PRODUCTS

Daniel M. Ancrenaz, Bonneville, France, assignor to Etablissements Balbinot S.A., Bonneville, France

Filed Jun. 1, 1990, Ser. No. 531,931
Claims priority, application France, Jun. 2, 1989, 89 07564
Int. Cl.[5] B28B *1/08, 7/22*
U.S. Cl. 74—61 9 Claims



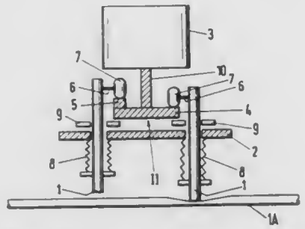
1. A vibrating table installation for the manufacturing of concrete products comprising:
a vibrating table flexibly mounted on a stand;
shafts contained in housings connected to the table for vibrating said table, said shafts being equipped with eccentric weights, axes of said shafts being parallel, and said axes disposed such that a first pair of shafts lies in a first plane and a second pair of shafts lies in a second plane, said first plane and said second planes being parallel and spaced apart from one another, each shaft carrying at one end a notched drive roller;
at least one rotating cylinder motor for driving a double-sided notched belt, said motor having an axis parallel to said shafts and disposed in a third plane parallel to said first and second planes;
a return roller having an axis parallel to said shafts and disposed in a fourth plane parallel to said third plane, said return roller placed on the opposite side of said shafts from said motor;
said double-sided notched belt passing alternatively under and above, or above and under, the notched drive rollers for the first pair of shafts, then around said return roller, before passing alternatively respectively above and under, or under and above, the notched drive rollers for the second pair of shafts, and then returns to roll around the motor; and
a slide for supporting the motor and the return roller, said slide being movable transversely in relation to the shafts in a fifth plane parallel to said third and fourth planes in order to alter the relative angular position of the eccentric weights for each pair of shafts.

5,067,359

APPARATUS FOR CLAMPING FLEXIBLE TUBES

Hans-Jürgen Flaig, Lauterbach, and Paul Jahn, Frankfurt, both of Fed. Rep. of Germany, assignors to Fresenius AG, Bad Homburg Von der Hohe, Fed. Rep. of Germany

Filed Jul. 3, 1990, Ser. No. 548,165
Claims priority, application Fed. Rep. of Germany, Jul. 19, 1989, 3923837
Int. Cl.[5] F16H *21/44;* F16K *31/02*
U.S. Cl. 74—107 23 Claims



1. An apparatus for clamping flexible tubes comprising:
at least one plunger means longitudinally displaceable along a first longitudinal axis, said plunger means adapted to be biased in a first longitudinal direction;
at least one support means; and
at least one cam element rotatably movable by drive means for longitudinally moving said plunger along said first longitudinal axis, said cam element comprising a cam disc adapted to rotate about a second longitudinal axis parallel to said first longitudinal axis of said plunger means, said cam disk having on at least one surface a cam path having elevated and recessed portions for interacting with said plunger means.

5,067,360

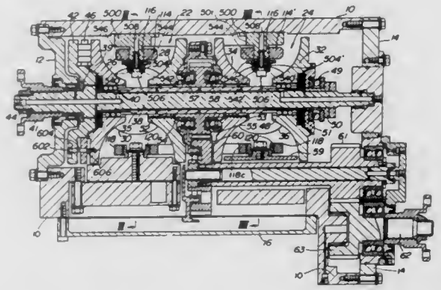
TOROIDAL CONTINUOUSLY VARIABLE TRANSMISSION

Masaki Nakano, Kawasaki, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Sep. 21, 1990, Ser. No. 586,084
Claims priority, application Japan, Sep. 26, 1989, 1-249889
Int. Cl.[5] F16H *15/08*
U.S. Cl. 74—200 9 Claims

1. A toroidal continuously variable transmission comprising:
a housing;

first coaxial input and output toric elements rotatably supported in said housing and being arranged opposite each other such that a first toric cavity is formed therebetween;
second coaxial input and output toric elements rotatably supported in said housing and being arranged opposite each other such that a second toric cavity is formed therebetween;
said first and second input and output toric elements being coaxial and rotatable about an axis and arranged such that said first and second output toric elements are disposed between said first and second input toric elements;
first motion transmitting traction rollers, disposed in said first toric cavity in radial symmetry with respect to said axis and in engagement with said opposite first input and output toric elements, for the transmission of motion therebetween;
second motion transmitting traction rollers, disposed in said second toric cavity in radial symmetry with respect to said axis and in engagement with said opposite second input and output toric elements, for the transmission of motion therebetween;



a first roller support structure for each of said first motion transmitting traction rollers;
a second roller support structure for each of said first motion transmitting traction rollers;
tension sheets for said first and second roller support structures for balancing forces applied to said first and second motion transmitting traction rollers, said tension sheets including a first tension sheet extending between and interconnecting said first roller support structures, and a second tension sheet extending between and interconnecting said second roller support structures, said first and second tension sheets each having a central portion and a guide structure associated therewith in said central portion thereof, each of said guide structures including a guide block; and
a guide block support member, mounted to said housing and interconnecting said guide blocks of said guide structures associated with said first and second tension sheets, for balancing forces applied to said guide blocks integrally interconnected thereby.

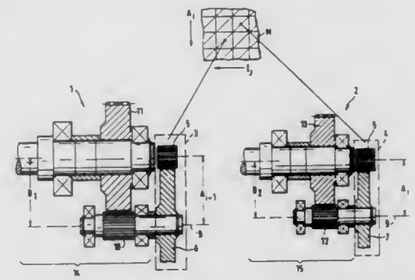
5,067,361

TRANSMISSION SERIES

Sepp Lachenmaier, Händelstrasse 9, 7500 Karlsruhe 21, Fed. Rep. of Germany

Filed Apr. 9, 1991, Ser. No. 682,293
Claims priority, application Fed. Rep. of Germany, Apr. 14, 1990, 4012188
Int. Cl.[5] F16H *3/08*
U.S. Cl. 74—325 9 Claims

1. A series of gear transmissions comprising:
a plurality of gear transmissions of different sizes ($B_i=B_1 \ldots B_m$) and different transmission ratios ($I_i=I_1 \ldots I_n$);
a variable gear stage in each of said plurality of transmissions comprised of a first gear and a second gear meshing with said first gear, said first gear and said second gear having a different center distance ($A_i=A_1 \ldots A_m$) for each transmission size (B_i); said variable gear stage within said series of gear transmissions comprising:
(i) a range of permissible sizes ($B_i=B_1 \ldots B_m$) with respective center distances ($A_i=A_1 \ldots A_m$) and
(ii) a range of permissible nominal transmission ratios ($I_i=I_1 \ldots I_n$) which is the same for all sizes (B_i), so that the center distances (A_i) and the transmission ratios (I_i) form a matrix (M),



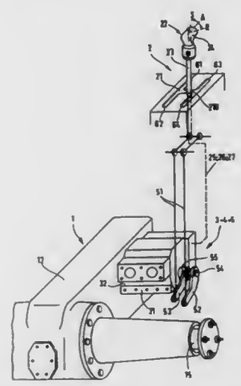
said graduated center distances and transmission ratios being correlated so that a same size first gear is common to a variation stage sequence (S) comprising a plurality of different transmission size and ratio combinations of said matrix.

5,067,362

CONTROL DEVICE

Willy Holdenried, Immenstaad, Fed. Rep. of Germany, assignor to Zahnradfabrik Friedrichshafen AG, Friedrichshafen, Fed. Rep. of Germany

PCT No. PCT/EP88/00424, § 371 Date Nov. 22, 1989, § 102(e) Date Nov. 22, 1989, PCT Pub. No. WO88/09452, PCT Pub. Date Dec. 1, 1988
PCT Filed May 18, 1988, Ser. No. 445,843
Claims priority, application Fed. Rep. of Germany, May 27, 1987, 3717935
Int. Cl.[5] F16H *5/36*
U.S. Cl. 74—335 11 Claims



1. A transmission system, especially for farm tractors, comprising:
a transmission shiftable in a standard H pattern connectable between an input shaft and an output shaft;
first gearing means forming a road travel group between said

VOL 1132 ISS 4 NO 26 1991 UMI

shafts for coupling said shafts with each other through said transmission with a first set of forward drive speeds selectable by shifting of said transmission;

second gearing means forming a farming operation group between said shafts for coupling said shafts with each other through said transmission with a second set of forward drive speeds selectable by shifting of said transmission;

third gearing means forming a reverse drive group between said shafts for coupling said shafts with each other through said transmission with a set of reverse drive speeds selectable by shifting of said transmission;

a gear box receiving said transmission and said gear means;

a manual gear-selection lever operatively connected to said gearbox and shiftable in said pattern to select said drive speeds;

a servocontrol selector on said gear-selection lever for selecting amoung said groups; and

a gear-shift mechanism on said gearbox and including:

an electrohydraulic control unit responsive to electrical signals from said servocontrol selector for selecting among said groups,

a power-assisted servo unit hydraulically responsive to said control unit for operating said gearing means, and

coupling means connecting said manual gear-selection lever to said transmission for manual selection of gears thereof.

5,067,363

CLEARANCE-FREE SPINDLE DRIVE

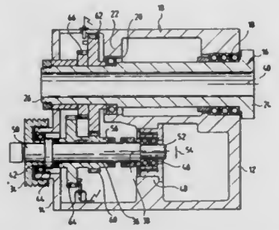
Dietmar F. Hafla, Hohengehren, Fed. Rep. of Germany, assignor to Index-Werke GmbH & Co. KG Hahn & Tessky, Fed. Rep. of Germany

Filed Sep. 5, 1990, Ser. No. 579,353

Claims priority, application Fed. Rep. of Germany, Sep. 11, 1989, 3930334

Int. Cl.[5] F16H *35/08*

U.S. Cl. 74—392 **22 Claims**



1. A spindle drive for machine tools, comprising a housing, a spindle mounted in said housing, a drive motor arranged on said housing and a gear arranged in said housing and comprising an intermediate shaft driven by said drive motor and mounted in said housing via two shaft bearings spaced from one another as well as a first gear wheel seated on said intermediate shaft, wherein for driving said spindle as C-axis said first gear wheel engages in a first position with a second gear wheel driving said spindle so as to mesh with said second gear wheel without clearance, characterized in that said first shaft bearing (**42**) fixes one position of said intermediate shaft (**56**) immovably on said housing (**10**) in a direction transverse to its axis (**38**) and that said intermediate shaft (**56**) is adapted to be moved back and forth by said second shaft bearing (**46**) relative to said second gear wheel (**62**) in an adjusting direction (**54, 54'**) between said first position and a second position, the gear wheels (**60, 62**) meshing with one another in said second position with clearance.

5,067,364

DEVICE FOR ELIMINATING RATTLE IN A GEAR BOX

Grzegorz Janiszewski, Angered, Sweden, assignor to AB Volvo, Gothenburg, Sweden

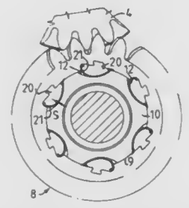
PCT No. PCT/SE89/00233, § 371 Date Dec. 20, 1989, § 102(e) Date Dec. 20, 1989, PCT Pub. No. WO89/10504, PCT Pub. Date Nov. 2, 1989

PCT Filed Apr. 26, 1989, Ser. No. 438,406

Claims priority, application Sweden, Apr. 26, 1988, 8801557

Int. Cl.[5] F16H *55/18*

U.S. Cl. 74—440 **3 Claims**



1. In a device for reducing mechanical rattle between a pairt of interengaging gears, comprising a gear element cooperating with one gear, said gear elements being rotatably mounted on a hub portion joined to said one gear having the same tooth profile and number of teeth as said one gear and being connected to said one gear via rotationally resilient elements, which are pre-tensioned in an engagement position of gears; the improvement wherein said resilient elements comprise elastic elements (**13**; **20**) which are disposed in opposing, circumferentially spaced cavities (**11, 12**) in said hub portion (**9**) and in a circumferentially inner surface of said gear element (**8**) that faces said hub portion (**9**) disposed to keep said gear elements and said one gear angularly displaced relatively to each other before they are brought into engagement with the other of said pair of interengaging gears, said cavities (**12**) in said portion (**9**) being arcuate, as viewed in a radial plane, while said cavities (**11**) in said gear element (**8**) have a first limiting surface (**11***a*) which is tangential relative to a circumference of the hub, and a second limiting surface (**11***b*) which extends essentially perpendicular to and radially inward from a radially outer end of said first limiting surface.

5,067,365

ADJUSTING MECHANISM FOR A CONTROL MEMBER

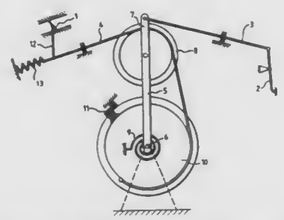
Peter Lauer, Frankfurt am Main, Fed. Rep. of Germany, assignor to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 5, 1990, Ser. No. 505,872

Claims priority, application Fed. Rep. of Germany, Apr. 5, 1989, 3910909

Int. Cl.[5] F16C *1/10;* **G05G** *1/14*

U.S. Cl. 74—501.5 R **16 Claims**



1. An adjusting mechanism for a control member which

influences automotive vehicle engine torques, said mechanism comprising:

an actuating member;

a control member;

a first pulley;

a second pulley;

a lever extending between the rotation axes of said first and said second pulleys;

a first connecting link coupled between said actuating member and said lever;

and a second connecting link coupled between said control member and said second pulley and wrapped around portions of said first and said second pulleys.

5,067,366

SERVO-ASSISTED DEVICE FOR OPERATING A VEHICLE PARKING BRAKE

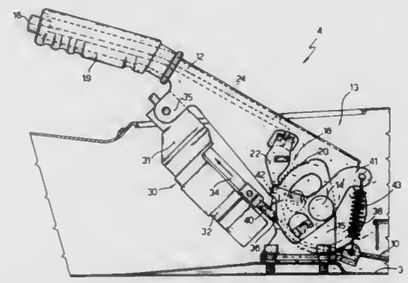
Romolo Gandiglio, Villanova D'Asti, Italy, assignor to Fiat Auto S.p.A., Turin, Italy

Filed Jun. 29, 1990, Ser. No. 545,715

Claims priority, application Italy, Jul. 28, 1989, 67646 A/89

Int. Cl.[5] G05G *5/06;* **F16D** *65/14, 19/00*

U.S. Cl. 74—535 **18 Claims**



1. A servo-system device for operating a vehicle parking brake, comprising:

a) a support bracket including a pivot;

b) a control lever rotatably secured to said pivot and operably associated with one end of a tension wire of a vehicle parking brake for actuating the tension wire;

c) a ratchet mechanism adapted to permit rotation of said control lever in a predetermined direction;

d) means for disengaging the ratchet mechanism;

e) an actuator adapted to cause the tension wire to be tensioned independently of said control lever;

f) said actuator being disposed between said control lever and the one end of the tension wire such that said control lever, said actuator and the tension wire form a chain in which said actuator is disposed mechanically in series, thereby permitting said control lever to actuate the tension wire independently of said actuator;

g) said actuator comprising an outer body pivotally connected to and disposed underneath said control lever; and,

h) said actuator including a movable element carried by said outer body and connected to the one end of the tension wire for actuating the tension wire when said movable element is displaced.

5,067,367

STEERING WHEEL

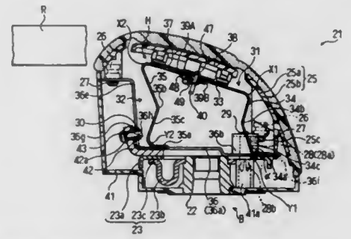
Takahiro Hashiba, and Kouichi Kaga, both of Aichi, Japan, assignors to Toyoda Gosei Co., Ltd., Nishikasugai, Japan

Filed Nov. 20, 1989, Ser. No. 438,269

Claims priority, application Japan, Nov. 30, 1988, 63-156378[U]

Int. Cl.[5] B62D *1/04;* **B60R** *21/05*

U.S. Cl. 74—552 **6 Claims**



1. A steering wheel comprising:

a ring portion;

a boss portion having a boss and disposed substantially at the center of said ring portion;

a spoke portion connecting said boss portion and said ring portion;

a pad, a front side of said pad being lower than a rear side thereof, said pad being disposed above said boss portion; and

an impact energy absorber composed of a deformation portion having a substantially inverted U-shape and a base portion connected to a lower end of said deformation portion, said impact energy absorber being disposed between said pad and said boss,

said deformation portion including an upper wall portion inclining to a front side, leg portions extending downwardly from front and rear edges of said upper wall portion and a bending portion defined respectively at lower ends of said front and rear leg portions and being connected to said base portion,

said front leg portion and said rear leg portion being provided with buckling points at substantially vertical midportions thereof and being buckled to extend inwardly of said impact energy absorber,

an intersection of said front leg portion and said bending portion being substantially vertically below and in a vertical plane of an intersection between said upper wall portion and said front leg portion, and

said bending portion defined at said lower end of said front leg portion being bent towards a front side of said impact energy absorber at an obtuse angle to a portion of said front leg portion below said buckling point of said front leg portion.

5,067,368

PEDAL MECHANISM FOR SEWING MACHINE DRIVE DEVICE

Tadakatsu Itakura, and Tatsuya Sawato, both of Aichi, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Dec. 11, 1989, Ser. No. 449,217

Claims priority, application Japan, Dec. 24, 1988, 63-326720

Int. Cl.[5] G05G *1/14;* **D05B** *69/14*

U.S. Cl. 74—560 **10 Claims**

1. A pedal mechanism for a sewing machine drive device, comprising:

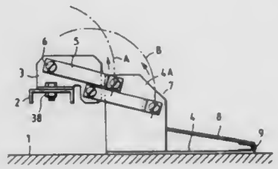
(a) a support member fixedly mounted on a support plate extending horizontally between legs of a sewing machine table;

(b) a pedal mounting base mounted adjacent to said support plate, a foot-operated pedal being mounted on said pedal

VOL 1132 ISS 4 NOV 26 1991 UMI

mounting base, said pedal transmitting an operation signal to a sewing machine controller when said pedal is pressed down; and

(c) a pair of connecting members for connecting said support member and said pedal mounting base, said connecting



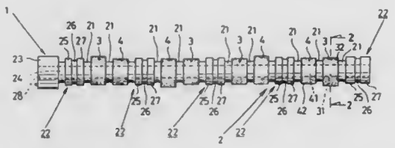
members being attached to sides of said pedal mounting base which are perpendicular to said support plate, so as to move said pedal mounting base upward and downward while maintaining said base in a horizontal condition, so that said pedal mounting base can be placed on said support plate.

5,067,369

CERAMIC CAMSHAFT

Masato Taniguchi, Nagoya, Japan, assignor to NGK Spark Plug, Nagoya, Japan

Filed Apr. 12, 1990, Ser. No. 538,310
Claims priority, application Japan, Apr. 12, 1989, 1-42577[U]
Int. Cl.[5] F16H *53/00*; F01L *1/04*
U.S. Cl. 74—567 3 Claims



1. A camshaft structure comprising:

a plurality of axially aligned shaft portions, each of which is made of metallic material; and

cylindrical cam portions each made from a ceramic material, and alternately arranged between the shaft portions with end surfaces of the cam portions being integrally bonded to adjacent surfaces of the shaft portions by means of a thermal bonding agent which has been brazed.

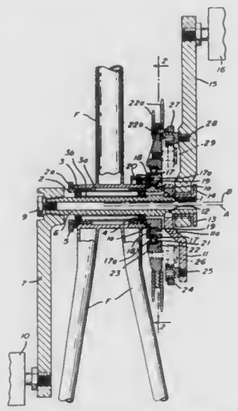
5,067,370

VARIABLE CRANK PEDAL DRIVE FOR BICYCLES AND THE LIKE

Joseph R. Lemmens, 6208 Sandy Forks Rd., Raleigh, N.C. 27615

Filed Jun. 13, 1989, Ser. No. 365,541
Int. Cl.[5] G05G *1/14*
U.S. Cl. 74—594.2 7 Claims

1. A drive system particularly useful for a foot-operated bicycle, comprising: a support, a pair of oppositely-directed input torque crank arms supported by said support, for rotation about a first axis independently of each other, an eccentric collar rotatably carried by said support, an output torque wheel rotatably carried by said collar for rotation about a second axis spaced from and parallel to said first axis, torque-transferring linkage means connecting each crank arm to said output torque wheel, said eccentric collar rotatably mounted on said support and means to releasably and adjustably lock



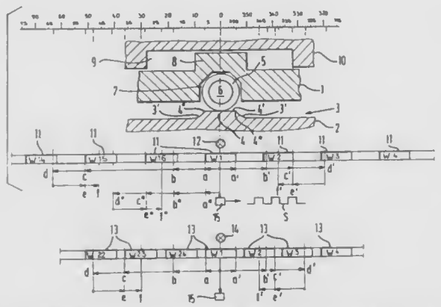
said eccentric collar in adjusted rotated position, so as to adjust the angular orientation of the plane containing said two axes.

5,067,371

METHOD AND APPARATUS TO CONTROL LOCKING OF A TOOL TURRET

Willy Sauter, Reutlingen; Helmut Thumm, Metzigen; Rainer Wahl, Grafenberg, and Dieter Widmann, Neckartenzlingen, all of Fed. Rep. of Germany, assignors to Sauter Feinmechanik GmbH, Metzingen, Fed. Rep. of Germany

Filed Mar. 20, 1990, Ser. No. 496,019
Claims priority, application Fed. Rep. of Germany, Apr. 8, 1989, 3911522
Int. Cl.[5] B23Q *16/00*
U.S. Cl. 74—813 L 13 Claims



3. An apparatus for controlling and synchronizing locking of a rotatable tool holder of a tool turret during rotation of the tool holder into different angular positions distributed uniformly around an entire periphery of the tool holder, comprising:

first and second driven parts coupled nonrotatably relative to the tool holder;

a driving part having coupling means for coupling said driving part to a drive motor so as to be rotated thereby, said driving part being coupled by form-locking means to said second driven part with backlash travel in rotary directions for rotary movement relative to said first and second driven parts between a first position in which the tool holder is locked and a second position in which the tool holder is unlocked;

a cam surface with two different levels and follower elements engaging said cam surface located between said driven and driving parts for axial movement of said driving part relative to one of said first and second driven parts; and

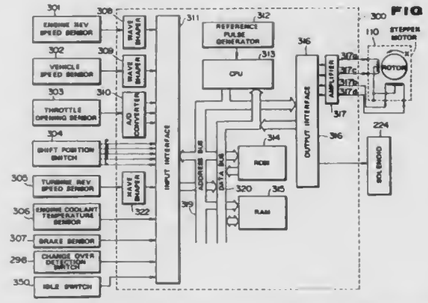
a rotating transmitter coupled to said driving part for simultaneous rotation therewith, said rotating transmitter including a signal transmitter producing one digital control signal for each angular position of the tool holder which can be selected, each said signal having a middle aligned with a middle of one level portion of said cam surface and having flanks aligned with level changes in said cam surface for locking and unlocking of the tool holder.

5,067,372

CONTROL SYSTEM FOR CONTINUOUSLY VARIABLE TRANSMISSION

Yutaka Suzuki, Atsugi, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Aug. 7, 1990, Ser. No. 563,309
Claims priority, application Japan, Aug. 11, 1989, 1-206668
Int. Cl.[5] B60K *41/12*
U.S. Cl. 74—866 5 Claims



1. A control system for a continuously variable transmission for a motor vehicle having an accelerator and an engine, the continuously variable transmission including a hydrokinetic torque transmitting unit having an input element coupled with the engine and an output element, the hydrokinetic torque transmitting unit having a hydraulically operated lock-up mechanism having a lock-up state where the input element and a lock-up release state where the input element is fluidly connected with the output element, the continuously variable transmission being continuously variable between a maximum reduction ratio and a minimum reduction ratio, the control system comprising:

means for detecting operating variables which the motor vehicle is involved in and generating operating variables indicative signals indicative of said operating variables detected, said operating variables indicative signals including a vehicle speed indicative signal indicative of a vehicle speed of the motor vehicle;

a lock-up control valve having a lock-up position where the lock-up mechanism assumes the lock-up state thereof and a lock-up release position where the lock-up mechanism assumes the lock-up release state thereof;

a shift command valve including a spool movable within a normal stroke range between a minimum reduction ratio position and a maximum reduction ration position and also movable beyond said maximum reduction ratio position into an overstroke range next to adjacent to said normal stroke range;

means, including said shift command valve, for shifting the continuously variable transmission to a reduction ratio between the minimum reduction ratio and the maximum reduction ratio in response to a position which said spool of said shift command valve is moved to within said normal stroke range, but keeping the continuously variable transmission at the maximum reduction ratio during movement of said spool of said shift command valve within said overstroke range;

electromagnetic means for effecting a pressure regulation and generating a hydraulic fluid pressure signal;

said spool of said shift command valve including means for connecting said electromagnetic means to said lock-up control valve means to subject said lock-up control valve to said hydraulic pressure signal during movement of said spool within said normal stroke range and disconnecting said electromagnetic means from said lock-up control valve means to allow said lock-up control valve to assume said lock-up release position thereof during movement of said spool within said overstroke range; and

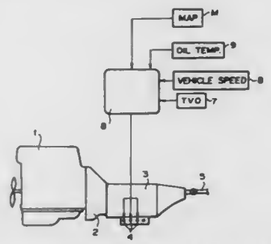
means for holding said spool of said shift command valve within said overstroke range until said vehicle speed indicative signal exceeds a predetermined vehicle speed value after a driver's demand for moving the motor vehicle from a standstill, and subsequently shifting said spool of said shift command valve from said overstroke range to said normal stroke range when said vehicle speed indicative signal exceeds said predetermined vehicle speed value.

5,067,373

AUTOMATIC-TRANSMISSION CONTROL SYSTEM

Takahiro Kyohzuka, and Toshiyuki Kikuchi, both of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima-ken, Japan

Filed Jan. 5, 1990, Ser. No. 461,282
Claims priority, application Japan, Jan. 10, 1989, 1-3251
Int. Cl.[5] B60K *41/04*
U.S. Cl. 74—866 9 Claims



6. An automatic-transmission control system for controlling a gear speed to be shifted according to a gear shifting pattern in which the gear speed to be shifted is determined according to at least engine load and vehicle speed conditions, said automatic-transmission control system comprising:

a gear-shifting limiting means for allowing an automatic transmission, when a jump upshift from a certain gear speed to a final gear speed higher than the certain gear speed by two or more stages is required, to shift to an intermediate gear speed for a predetermined time interval and then shift to the final gear speed irrespective of controlling by said gear shift pattern; and

a limit release means for allowing the automatic transmission to directly upshift to the final gear speed without once shifting to the intermediate gear speed when the jump upshift is required while the vehicle speed is not lower than a predetermined value.

VOL
1132
ISS
4
NO
26
1991
UMI

5,067,374

VEHICLE AUTOMATIC TRANSMISSION CONTROL SYSTEM

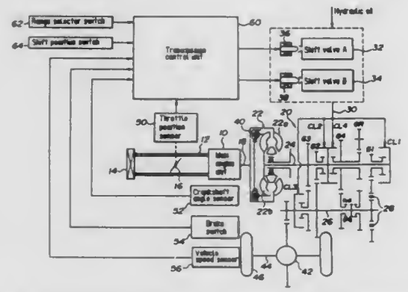
Ichiro Sakai; Yasuhisa Arai; Masataka Yamamoto, and Hiroki Matsui, all of Saitama, Japan, assignors to Honda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 20, 1989, Ser. No. 439,298

Claims priority, application Japan, Nov. 18, 1988, 63-291702; Nov. 18, 1988, 63-291705

Int. Cl.[5] B60K *41/06*

U.S. Cl. 74—866 19 Claims



1. A system for controlling a gear-ratio of an automatic transmission in a vehicle, comprising:

first means for determining parameters relating to operating conditions of the vehicle including degree of throttle opening and vehicle speed;

second means for establishing a membership function of a fuzzy set of at least one of the determined parameters in accordance with a first set of at lest one fuzzy production rule defining a respective conclusion for adjusting at least one of said determined parameters and for carrying out a first fuzzy reasoning based on said first set of fuzzy production rules to adjust at least one of said determined parameters;

third means for establishing another membership function of a fuzzy set of at least one of the determined or adjusted parameters in accordance with a second set of fuzzy production rules defining respective gear ratio shifting conclusions and for carrying out a second fuzzy reasoning based on said second set of fuzzy production rules to determine a gear ratio to be engaged; and

actuator means for driving a gear ratio shift mechanism in response to the determine gear ratio.

5,067,375

POWER OPERATED WIRE STRIPPER

Eric H. Wolter, Rockford, and James A. Wennemar, Sycamore, both of Ill., assignors to Ideal Industries, Inc., Sycamore, Ill.

Filed Nov. 15, 1990, Ser. No. 613,993

Int. Cl.[5] H02G *1/12*

U.S. Cl. 81—9.42 3 Claims

1. A power operated stripper for removing insulation from the ends of electric wires, comprising:

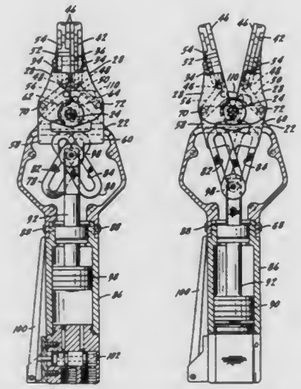
a housing;

a power cylinder connected to one end of the housing, a piston in the power cylinder, and a piston rod connected to the piston and extending therefrom in a defined direction into the housing;

first and second levers pivotally mounted on a common pivot on the other end of the housing, extending in the defined direction away from the housing and arranged to perform a pivoted opening and closing action relative to each other in a direction generally at right angles to the defined direction;

a pair of clamping jaws on one lever and a pair of stripping jaws on the other constructed to open and close on an insulated wire placed between them;

first and second links each having an opening for pivotally mounting the links on said common pivot, the first and second links also each having a downward extension which joins a cam portion, the cam portions defining cam slots which extend at oppositely-directed angles to the defined direction, the links being mounted one on top of the other so that the cam slots overlap one another;



third and fourth links pivotally connecting the first and second links to the first and second levers; and

a cam roller connected to the piston rod and disposed in both cam slots such that linear translation of the piston causes pivoting of the first and second links about the common pivot, thereby causing the third and fourth links to open and close the jaws and to open and close the levers upon operation of the power cylinder.

5,067,376

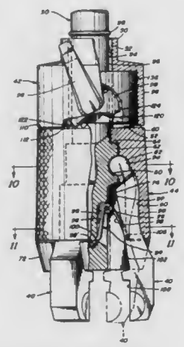
ADJUSTABLE EXTENSION WRENCH FOR RATCHET DRIVE

Gregory Fosella, 97 Main St., Osterville, Mass. 02655

Filed Aug. 10, 1989, Ser. No. 392,206

Int. Cl.[5] B25B *13/32*

U.S. Cl. 81—115 16 Claims



1. An adjustable wrench comprising;

a drive shaft having a longitudinal axis and an input and an output end,

a ratchet housing keyed to the drive shaft for rotation therewith and open at one end facing in the direction of the output end of the shaft,

a second housing mounted on and surrounding the shaft beyond said one end of the ratchet housing, said second housing being rotatable on and with respect to the shaft,

pivot recesses formed by the second housing and the shaft,

a plurality of jaws having pivot heads at one end pivotally mounted in the pivot recesses between the shaft and the second housing and having gripping pads at their opposite ends for engaging a work piece movable toward and away from the longitudinal axis of the shaft and positioned beyond the output end of the shaft and extending out of the second housing,

springs engaging each of the jaws and biasing them away from one another,

a plurality of cam surfaces formed on the second housing and engaging the jaws below the pivot heads for pivoting the jaws inwardly toward the axis against a workpiece when the second housing is rotated on the shaft in one direction,

and a two position ratchet mechanism in the ratchet housing including a manually operated control lever, said mechanism in one position enabling the second housing to rotate in one direction with respect to the shaft to move the jaws toward the axis and in a second position enabling the second housing to rotate in the opposite direction to move the jaws away from the axis under the influence of the springs.

5,067,377

METHOD OF MANUFACTURING A MASTER FOR THE FABRICATION OF PROJECTION SCREENS AND TOOL FOR CARRYING OUT THE METHOD

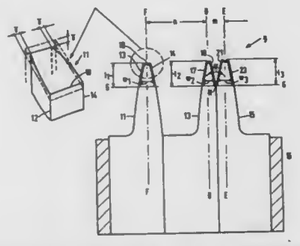
Marinus J. J. Dona, and Johannes M. M. Swinkels, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Division of Ser. No. 370,649, Jun. 23, 1989, Pat. No. 4,955,937, which is a continuation of Ser. No. 134,667, Dec. 18, 1987, abandoned. This application May 15, 1990, Ser. No. 524,253

Claims priority, application Netherlands, Oct. 7, 1987, 8702384

Int. Cl.[5] B23G *5/02*

U.S. Cl. 82—138 2 Claims



1. A chisel for manufacturing a master for the fabrication of projection screens, the chisel being of multiple construction and being composed of three subchisels, a precutting chisel, a cutting chisel and a finishing chisel, characterized in that the distance between the median planes of the cutting chisel and the precutting chisel is a multiple of the distance between the median planes of the cutting chisel and the finishing chisel, and in that the distance between the median planes of the cutting chisel and the finishing chisel is equal to the pitch distance between the grooves to be cut, so that during operation the two flanks of a rib being formed are tooled simultaneously, whereby the rib is supported at the two flanks by the cutting chisel and the finishing chisel and is loaded substantially uniformly so that undesired deformations of the rib in the transverse direction are avoided.

5,067,378

BLADE FOR CUTTING SHEET MATERIAL AND RELATED CUTTING METHOD

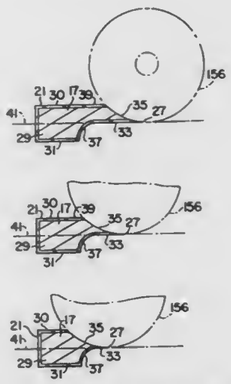
Heinz J. Gerber, West Hartford, Conn., assignor to Gerber Garment Technology, Inc., Tolland, Conn.

Division of Ser. No. 370,649, Jun. 23, 1989, Pat. No. 4,991,481.

This application Nov. 28, 1990, Ser. No. 619,296

Int. Cl.[5] B26D *7/27*; D06H *7/00*

U.S. Cl. 83—13 2 Claims



1. A method for cutting sheet material, said method comprising the steps of:

providing a cutting blade comprised of an elongated piece of base material having a lower cutting part extending along a longitudinal axis which cutting part has a forward cutting edge providing portion and a rear body portion, said body portion having first and second generally flat side faces parallel to and spaced from one another, said cutting edge providing portion having first, second, third and fourth side surfaces, said first side surface being located on a middle reference plane parallel to and located substantially mid-way between said first and second side faces of said body portion, said fourth side surface being located in the same plane as the first side face of said body portion, said second side surface being inclined relative to said reference plane, extending between said first side surface and said fourth side surface and intersecting said first side surface to define a cutting edge extending parallel to said longitudinal axis, and said third side surface extending from the rear of said first side surface to said second side face of said body portion and being inclined relative to said reference plane, at least said first side surface of said cutting edge providing portion being covered with a thin layer of hard material harder than that of said base material,

providing a quantity of sheet material spread on and supported by a supporting surface,

cutting said sheet material by reciprocating said blade along an axis of reciprocation generally parallel to said longitudinal axis and generally perpendicular to said sheet material and moving said blade forwardly along a desired line of cut to cut said sheet material while said cutting edge is in cutting engagement with said sheet material, and

periodically sharpening said cutting portion of said blade by grinding only said second side surface so as to cause said cutting edge to be defined substantially entirely by said hard material, said cutting edge as a result of repeated grindings of said second side surface gradually moving rearwardly toward said body portion and remaining on said middle reference plane.

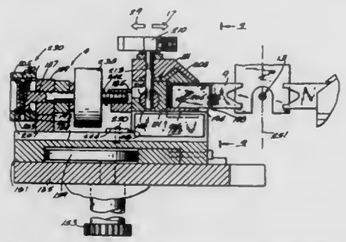
VOL 1132 ISS 4 NOV 26 1991 UMI

5,067,379

ELECTRONIC DISPLAY SYSTEM FOR WIRE STRIPPING MACHINE

John D. Butler, Germantown, and Vinod K. Chopra, Brookfield, both of Wis., assignors to Mechtrix Corporation, Menomonee Falls, Wis.

Filed Mar. 20, 1989, Ser. No. 325,435
Int. Cl.[5] H02G 1/12
U.S. Cl. 83—13 28 Claims



1. A method of setting blades for circumferentially cutting the insulation of an insulated electrical conductor to a selected diameter of insulation cut comprising the steps of:

providing left and right yokes adapted to reciprocate perpendicularly toward and away from the insulated electrical conductor;

providing respective tool holder assemblies on the left and right yokes, each tool holder assembly being translatable perpendicular to the insulated electrical conductor along the respective yoke;

clamping blades in the respective tool holder assemblies for closing and opening over the insulated electrical conductor as the yokes reciprocate toward and away therefrom, the blades cooperating when closed to a true zero position to define a theoretical optimum blade cutting hole diameter;

translating the left and right tool holder assemblies and respective blades and simultaneously sensing and displaying selected information representing positional information of the blades relative to the true zero position;

the step of translating the blades and simultaneously sensing and displaying selected information comprising:

translating each tool holder assembly away from the true zero position to predetermined home positions equidistant from the true zero position; and

sensing and displaying selected information representative of the blade home positions.

5,067,380

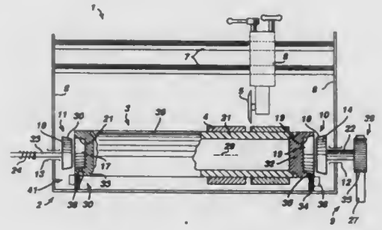
CUTTING MECHANISM FOR MATERIALS IN WEB OR LAYER FORM

Joachim Seefeldt, Neuffen, Fed. Rep. of Germany, assignor to bielomatik Leuze GmbH & Co., Fed. Rep. of Germany

Filed Mar. 2, 1990, Ser. No. 487,544
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1989, 3908010
Int. Cl.[5] B26D 1/22
U.S. Cl. 83—481 29 Claims

1. a cutting mechanism for web or layer materials comprising:

a base a cutting roller having roller ends and mounted on said base in a vicinity of said roller ends in an operating position at least one rapid assembly coupling having operationally disengageable first and second coupling members for mounting and detaching at least one associated section of said cutting roller by moving at least one of said first and second coupling members in an axial coupling movement, and drive means providing a drive connection for driving said cutting roller, via a disengageable drive engagement of disconnectably interengaging first and second drive faces, said first and second drive faces defining a disengagement movement provided for disengaging said first drive faces from said second drive faces,



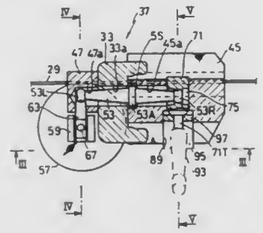
wherein at least one of said drive faces is operationally displaceably mounted on said base to perform said disengagement movement with respect to said base, said disengagement movement being an axial movement.

5,067,381

VIBRATION PREVENTION DEVICE FOR BANDSAW MACHINES

Kenji Ohnishi, Isehara; Isomi Washio, Hatano, and Koji Nakano, Odawara, all of Japan, assignors to Amada Company, Limited, Japan

Division of Ser. No. 156,819, Feb. 17. 1988, Pat. No. 4,972,746.
This application Aug. 2, 1990, Ser. No. 561,824
Claims prior ty, application Japan, Feb. 18, 1987, 62-21427
Int. Cl.[5] B23D 55/08
U.S. Cl. 83—820 2 Claims



1. A bandsaw blade guide device which is mounted on one end of the bandsaw guide arm for guiding the bandsaw blade that runs between a pair of bandsaw blade wheels, comprising:

a first supporting member which is mounted on guide arm and is free to contact one side surface of the bandsaw blade;

a second supporting member which is mounted on the guide arm facing the first supporting member across the bandsaw blade and is free to contact a first portion of the other side surface of the bandsaw blade;

a third supporting member comprising a roller which is mounted on the guide arm, separated from the second supporting member along a direction of travel of the bandsaw blade and is free to contact a second portion of the other side surface of the bandsaw blade;

a fourth supporting member comprising a roller which is mounted on the guide arm facing the third supporting member across the bandsaw blade and is free to contact the one side surface of the bandsaw blade; and

a pressure applying means mounted on the guide arm for applying pressure to the second supporting member and the third supporting member separately to hold the bandsaw blade between the first and the second supporting member and the third and fourth supporting members, respectively, the pressure applying means applying a pressure to the third supporting member higher than 40% of that applied to the second supporting member; and

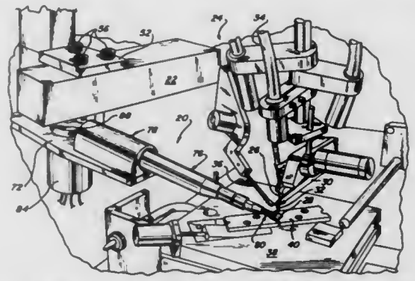
said third and fourth supporting members being positioned upstream of said first and second supporting members, wherein the pressure applying means comprises: a first hydraulic cylinder for pressing the second supporting member against the first supporting member; a lever for pressing the third supporting member against the fourth supporting member; and a second hydraulic cylinder to actuate said lever.

5,067,382

METHOD AND APPARATUS FOR NOTCHING A LEAD WIRE ATTACHED TO AN IC CHIP TO FACILITATE SEVERING THE WIRE

Eckehart Zimmerman, and Thomas A. Thorson, both of Colorado Springs, Colo., assignors to Cray Computer Corporation, Colorado Springs, Colo.

Filed Nov. 2, 1990, Ser. No. 608,258
Int. Cl.[5] B26D 3/14
U.S. Cl. 83—879 29 Claims



27. A method of forming a notch in a wire with a pair of spaced apart cutting blades to facilitate a subsequent separation of the wire by applying linear tensile separation force to a remaining portion of the wire at the notched location, comprising the steps of:

moving the cutting blades for reciprocative movement toward and away from each other,

moving the blades into and out of straddling relationship with the wire,

moving the blades into straddling relationship with the wire,

subsequently moving the blades into notching engagement with the wire to leave a remaining portion of the wire at the notched location,

removing the blades from notching engagement with the wire after creation of the remaining portion, and

removing the blades from straddling engagement with the wire.

5,067,383

DRIVE ADAPTER FOR FIREARM CARTRIDGE RELOADER

Ransom Rowe, Sarasota, Fla., assignor to K&R Manufacturing, Inc., Hasting-on-Hudson, N.Y.

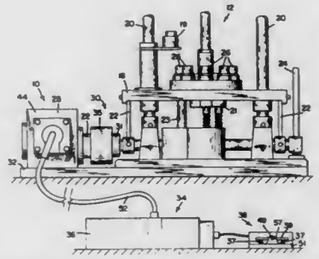
Filed Jan. 8, 1991, Ser. No. 638,758
Int. Cl.[5] F42B 33/02
U.S. Cl. 86—23 11 Claims

1. A drive adaptor for a firearm cartridge reloader which includes a frame and a horizontal drive shaft which is mounted on the frame for oscillation about its central longitudinal axis for providing the actuating functions of the reloader, said adaptor comprising:

(a) a fluid pump,

(b) a double acting fluid oscillator which has an output shaft and two fluid driven actuating elements, one of said actuating elements being effective to rotate said output shaft in a clockwise direction and the other of said actuating elements being effective to rotate said output shaft in a counter clockwise direction,

(c) a base for supporting the reloader and the oscillator so that the oscillator is maintained in a fixed position relative to the reloader,



(d) coupling means for operatively connecting said output shaft to said horizontal shaft for clockwise and counter clockwise rotation of said horizontal shaft when viewed from one end, and

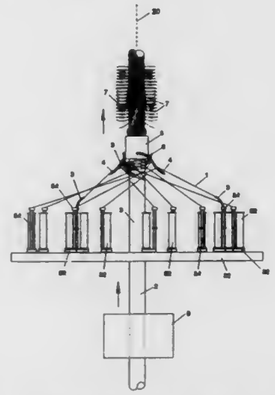
(e) fluid control means for selectively connecting said actuating elements to said fluid pump for selective clockwise and counterclockwise rotation of said horizontal shaft.

5,067,384

BRAIDER METHOD AND APPARATUS FOR MANUFACTURED FAIRED ROPE OR CABLE

Eraldus Scala, Ithaca, N.Y., assignor to Cortland Cable Company, Inc., Cortland, N.Y.

Filed Jan. 23, 1989, Ser. No. 299,774
Int. Cl.[5] D04C 3/10
U.S. Cl. 87—6 2 Claims



1. A method of manufacturing an elongated structure having a core and a plurality of flexible members extending outwardly from the core at spaced intervals along its length, as the advancing core moves up through a common axis of two endless sinusoidal paths of a plurality of moving bobbins with the direction of movement of the bobbins in each sinusoidal path being in the opposite direction and the bobbins in each path being maintained evenly distributed through 360 degrees and with each bobbin paying out threads through thread tensioning means for braiding thread material around the said elongated structure having a core as the elongated structure advances

VOL 1132 ISS 4 NO 26 1991 UMI

upwardly along the common axis with the plurality of flexible members extending outwardly from the core being obtained by the following steps:

(a) raising the level upward of the thread leaving the thread tensioning means associated with at least one bobbin paying out thread to provide the flexible members extending laterally outward from the core by adding a spooler guide extension upward for the thread leaving the thread tensioning means;

(b) catching the thread leaving the said thread tensioning means via the spooler guide extension by disposing a hook, above the plural bobbins and associated thread tensioning means moving along the said sinusoidal paths in opposite directions, at a radial angle location corresponding to the point on the circumference of where the operator wishes the flexible members extending laterally outward from the core to be located and at a height at which the hook will catch the thread coming off of the spooler guide extension but not the other thread tensioning means associated with the other bobbins moving in the two sinusoidal paths;

(c) and as said plurality of bobbins and thread tensioning means continue to move along the sinusoidal paths in opposite directions the thread so hooked moves up the inclined plane of the hook continuing to become an integral part of the braid over said core and the loop formed by the portion of the thread which does not become a part of the braid moves toward the top of the hook that reaches a point that the loop of thread is cut forming the laterally extended threads at the selected point of the circumference of the core determined by the aforesaid radial angle selected for the hook.

5,067,385

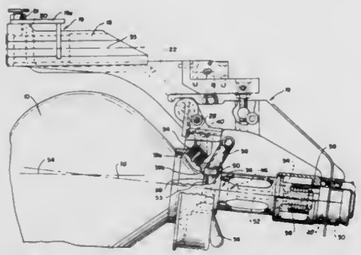
METHOD AND APPARATUS FOR ALIGNING SPIN-STABILIZED SELF-PROPELLED MISSILES

Michael F. Steele, Fountain Valley, Calif., assignor to Brunswick Corporation, Skokie, Ill.

Filed Jul. 19, 1990, Ser. No. 554,556

Int. Cl.[5] F41C *27/06*; F41F *3/048*; F42B *10/26*

U.S. Cl. 89—1.808 **18 Claims**



7. For use with a launching apparatus for a spin-stabilized self-propelled missile, which includes rotary missile support means defining a spin axis and receiving the missile with a missile axis of rotation, and connection means operative to hold the missile on the support means, a method of aligning the missile axis of rotation with said spin axis, comprising the steps of:

supporting the rotary missile support means and missile on a fixture for rotation about said spin axis;

rotating the rotary missile support means and missile relative to the fixture about said spin axis;

determining the amount of eccentricity between the missile axis of rotation and said spin axis;

adjustably moving the missile relative to the rotary support means to coincidently align the missile axis of rotation with said spin axis; and

tightening said connection means to maintain said coincident alignment of the axes.

5,067,386

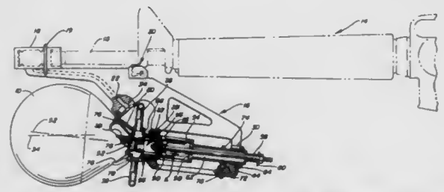
RELEASE APPARATUS FOR SPIN STABILIZED SELF-PROPELLED PROJECTILES

Nathan N. Shiovitz, Anaheim; John G. Maloney, Diamond Bar, and Michael F. Steele, Fountain Valley, all of Calif., assignors to Brunswick Corporation, Skokie, Ill.

Filed May 18, 1988, Ser. No. 195,657

Int. Cl.[5] F41C *27/06*; F41F *3/048, 3/052*

U.S. Cl. 89—1.808 **20 Claims**



1. A release mechanism for facilitating launching a spin-stabilized self-propelled missile, comprising:

a missile;

missile support means including rotary means having receptacle means defining a spin axis, and fixed support means for supporting the rotary means for rotation about the spin axis and for movement axially of the spin axis;

nozzle means adapted to extend from the missile into said receptacle means, including fusible joint means for heating by high-temperature exhaust gases expelled by the missile to release the missile, and an aft nozzle section movable away from the missile on fusing and separation of the fusible joint means; and

abutment means on the rotary means in the path of movement of the aft nozzle section for striking by the aft nozzle section to effect rapid movement of the rotary means and receptacle means axially away from the missile on fusing and separation of the fusible joint means.

5,067,387

RAIL GUNS

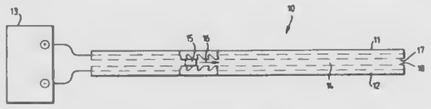
Graham A. Reynolds, Coventry, England, assignor to Rolls-Royce plc, England

Filed Aug. 28, 1990, Ser. No. 573,996

Claims priority, application United Kingdom, Oct. 13, 1989, 8923126

Int. Cl.[5] F41B *6/00*

U.S. Cl. 89—8 **7 Claims**



1. A rail gun comprising two elongate co-extensive spaced apart rail electrodes for carrying an electric current, said electrodes being arranged to be operationally of opposite polarity, each of said electrodes having a surface of toothed cross-section configuration along the majority of its length, each of said teeth extending transversely to the longitudinal extent of its respective rail electrodes, each tooth on one of said electrodes having a face which confronts a corresponding face on a tooth of the other rail electrode so that said confronting tooth faces are parallel, each of said confronting tooth faces being coplanar with the confronting faces of the remaining teeth on its respective rail electrodes.

5,067,388

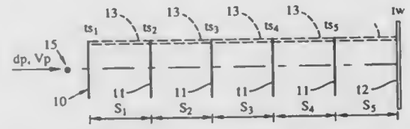
HYPERVELOCITY IMPACT SHIELD

Jeanne L. Crews, Arcadia, and Burton G. Cour-Palais, Houston, both of Tex., assignors to The United States of America as represented by the Administrator of the National Aeronautics and Space Administration, Washington, D.C.

Filed Apr. 30, 1990, Ser. No. 516,573

Int. Cl.[5] F41H *5/04*

U.S. Cl. 89—36.02 **10 Claims**



1. A hypervelocity impact shield for protecting a wall structure from impact with particles of matter having impact velocities up to 16 km/s and densities of about 2.7 g/cm^3, said impact shield being mounted over said wall structure in a position to intercept said particles of matter and comprising an array of ultra thin sheets of impactor disrupting material, means for supporting and maintaining said sheets in a spaced relationship to one another and to said wall where the outermost sheet of impactor disrupting material which is first impacted by said particle of matter produces fragmentation and scattering of the impacting material and a debris plume of liquid and vapor from the impacting material and the sheet material, and where each of the sheets between the outermost sheet and the wall structure has a thickness such that the ratio of sheet thickness to the diameter of said particles of matter which may be of spherical form or to the length of cylindrical particles of said matter is in the range of 0.03 to 0.05 and wherein the spacing between adjacent sheets is arranged so that the debris plume resulting from impacting material penetrating a sheet does not puncture the next adjacent sheet prior to the arrival of material and shield particulates at such adjacent sheet, said sheets being of a number and spacing such that said impacting material and the resulting particulates thereof are successively impact shocked by the sheets to a state of total melt and/or vaporization prior to reaching said wall structure.

5,067,389

LOAD CHECK AND PRESSURE COMPENSATING VALVE

Gene R. St. Germaio, Plainfield, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Filed Aug. 30, 1990, Ser. No. 574,864

Int. Cl.[5] F15B *11/08*

U.S. Cl. 91—446 **9 Claims**

1. A control valve for use in a hydraulic system having at least one other control valve therein, at least one hydraulic motor connected to each of the control valves, and a load pressure signal network operatively connected to the motors and having a control pressure line which receives the highest load pressure occurring at the motors, said control valve comprising:

an inlet port;

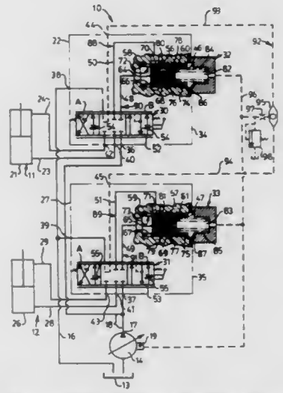
a pair of service passages connectable to the associated hydraulic motor;

a valve member movable in opposite directions from a neutral position to infinitely variable operating positions;

a load check and pressure compensating valve element movable from a load check position to an infinitely variable operating position;

means defining a flow control flow path from the inlet port to one of the service passages when the valve member and the valve element are at operating positions, the flow path including a metering orifice and a pressure control orifice disposed in series flow relationship downstream of the metering orifice with the size of the metering orifice being determined by the extent to which the valve member is moved from the neutral position and the size of the control orifice being determined by the extent to which the valve element is moved from the load check position, the valve element being moved to the operating position by fluid passing through the metering orifice;

a load piston normally biasing the valve element to the load check position;



a first variable volume chamber between the valve element and the load piston;

a second variable volume chamber defined in part by the load piston and adapted to be connected to the control pressure line;

a spring disposed in the second chamber biasing the load piston toward the valve element and hence the valve element to the load check position;

means for communicating load pressure from the one service passage into the first chamber.

5,067,390

DOUBLE-ACTING FLEXIBLE WALL ACTUATOR

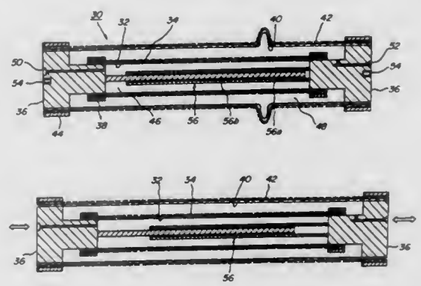
Koichi Negishi, Kodaira, Japan, assignor to Bridgestone Corporation, Tokyo, Japan

Filed Jul. 11, 1990, Ser. No. 550,929

Claims priority, application Japan, Jul. 11, 1989, 1-177073

Int. Cl.[5] F01B *19/00*

U.S. Cl. 92—48 **8 Claims**



1. A double-acting actuator comprising a first tubular body

VOL
1132
ISS
4
NO
26
1991
UMI

made of an elastic material, a first reinforcing braided structure surrounding the first tubular body, a second tubular body made of an elastic material surrounding the first reinforcing braided structure to form a space outwardly thereof, a second reinforcing braided structure surrounding the second tubular body, closure members for closing and joining ends of the first and second tubular bodies and reinforcing braided structures, and guide means for permitting axial movements of the first and second tubular bodies but restraining lateral movements thereof, said first reinforcing braided structure having initial braided angles permitting elongation movements of the first tubular body in axial directions on being supplied with a pressurized fluid thereinto and said second reinforcing braided structure having initial braided angles permitting contracting movements of the second tubular body in axial directions on being supplied with the pressurized fluid thereinto, thereby enabling the actuator to do reciprocative movements by supplying and exhausting the pressurized fluid into and from the respective tubular bodies.

5,067,391

TAMPER-RESISTANT BRAKE ACTUATOR

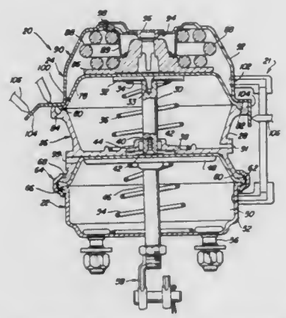
Graydon J. Choinski, Utica, Mich.; Allen L. Gummer, Santa Rosa, Calif., and David W. Brooks, Royal Oak, Mich., assignors to Indian Head Industries, Inc., Southfield, Mich.

Continuation of Ser. No. 118,372, Nov. 6, 1987, Pat. No. 4,960,036. This application Sep. 17, 1990, Ser. No. 583,795

The portion of the term of this patent subsequent to Oct. 2, 2007, has been disclaimed.

Int. Cl.[5] F01B *19/00*

U.S. Cl. 92—48 **10 Claims**



1. A tamper-resistant fluid operated brake actuator comprising:

a flange case having a pair of opposed chamber portions defining portions of a spring chamber and a service chamber respectively, said flange case having an annular flange which extends generally radially outwardly from said portion defining part of said spring chamber;

a service chamber housing defining said service chamber with said flange case portion, a diaphragm received said service chamber housing and said flange case, a spring mounted between said service chamber housing and said service chamber diaphragm and biasing said service chamber diaphragm towards said flange case;

a head having an annular rim secured to said annular flange to define said spring chamber;

a spring chamber diaphragm disposed between said annular flange of said flange case and said annular rim of said head, a power spring piston mounted on said spring chamber diaphragm, a power spring mounted in contact with said power spring piston, and between said power spring piston and said head;

a second spring mounted between said spring chamber diaphragm and said flange case;

a push rod mounted in contact with said spring chamber diaphragm and extending through said flange case, into said service chamber and outwardly through said service chamber housing and adapted to be connected to a yoke assembly; and

a securing member securing said annular rim to said flange, said securing member having a portion radially aligned with said annular flange, and on a side of said spring chamber diaphragm spaced towards said head, said securing member being deformed beyond its elastic limit around said annular flange to retain said head in contact with said flange case such that said head is rigidly secured to said flange case by said securing member, whereby to remove said head from said flange case, said securing member must be deformed beyond its elastic limit.

5,067,392

PNEUMATIC BOOSTER

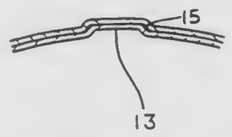
Jean-Pierre Gautier, Aulnay sous Bois, France, assignor to Bendix Europe Services Techniques, Drancy, France

Filed Aug. 16, 1990, Ser. No. 568,149

Claims priority, application France, Sep. 5, 1989, 89 11565

Int. Cl.[5] F01B *19/00;* **F16J** *3/00*

U.S. Cl. 92—98 D **2 Claims**



1. A pneumatic booster of the vacuum type, comprising a housing divided into two chambers by a movable wall structure comprising a substantially radial plate and a flexible diaphragm which is secured by an outer peripheral edge to said housing and forming a fold in a space between said plate and housing, said plate being centrally connected with a hub structure housing a distribution valve device and linked to a control member and to controlled member, said plate having at an outer edge thereof an extension cooperating in a non-leaktight manner with an internal wall of said housing in order to ensure axial guidance of said movable wall inside said housing, said extension being constructed of a plurality of fingers with at least one of said fingers engaging in a groove in said internal wall to prevent rotation of said plate.

5,067,393

PISTON HEAD BLOCK FOR INTERNAL COMBUSTION ENGINE

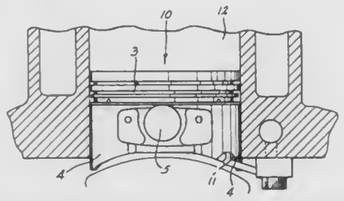
Isamu Kawasaki, and Kazunari Hirata, both of Kanagawa, Japan, assignors to Atsugi Motor Parts Company Limited, Kanagawa, Japan

Filed Aug. 23, 1989, Ser. No. 397,522

Claims priority, application Japan, Aug. 31, 1988, 63-114463

Int. Cl.[5] F01P *3/00*

U.S. Cl. 92—186 **11 Claims**



1. A piston for an internal combustion engine which has a lubricant injection nozzle, comprising:

a piston head block having a head section and a skirt section, said skirt section being formed with a cut-out for receiving said lubricant injection nozzle at a piston stroke position in the vicinity of bottom-dead center in the piston stroke, said cut-out extending into said skirt portion; and

means for defining a clearance between an outer periphery of a lower edge portion of said skirt section containing said cut-out and an inner periphery of an engine cylinder wall, said clearance avoiding direct contact of said lower edge portion with said inner periphery of said cylinder wall so as to prevent a transverse force in a direction perpendicular to a piston stroke axis from being exerted on said lower edge portion where said cut-out is formed.

5,067,394

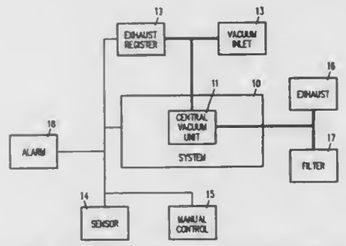
AIRBORNE PARTICLE EXHAUST SYSTEM

Thomas Cavallero, 5714 Maywood Dr., Foresthill, Calif. 95631

Filed Aug. 2, 1990, Ser. No. 562,036

Int. Cl.[5] F24F *11/00*

U.S. Cl. 98—42.03 **11 Claims**



1. A central vacuum cleaning device, incorporating a safety device, the safety device comprising:

means for detecting airborne particulants;

means responsive to said detecting means remotely locatable therefrom and for supplying a vacuum for operating said vacuum cleaning device as a safety device in response to said detecting means and for otherwise operating said vacuum cleaning device as a central vacuum cleaner;

means coupled to said vacuum means remotely locatable therefrom and for porting detected airborne particulants from a structure in response to said vacuum means when said vacuum cleaning device is operated in response to said detecting means as a safety device and for porting particles collected when said vacuum cleaning device is operated as a central vacuum cleaner;

means coupled to said vacuum means remotely locatable therefrom and for discharging said airborne particulants collected by said porting means at a collection or dispersal location when said vacuum cleaning device is operated in response to said detecting means as a safety device.

5,067,395

DEVICE FOR PREPARING HOT DRINKS

Eberhard Timm, Rahheideweg 15, D-2114 Appel, Fed. Rep. of Germany

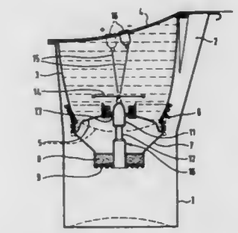
Filed Feb. 6, 1990, Ser. No. 475,682

Claims priority, application Fed. Rep. of Germany, Feb. 9, 1989, 3903815; Mar. 3, 1989, 8902598[U]

Int. Cl.[5] A47J *31/10, 31/30;* **A23F** *5/26*

U.S. Cl. 99—282 **22 Claims**

1. Device for preparing hot drinks having a liquid-storage vessel, an electric heating element arranged therein, a current supply circuit and a collecting vessel for the prepared drink, characterized in that the liquid-storage vessel **3** is designed as a unit separate from the current supply circuit **17** and is closed by a valve **10–13** which opens irreversibly at a predetermined pressure inside he storage vessel, the storage vessel **3** being provided with contacts **16** for the supply of electric scent which are connected to he heating element **14** via and electric line **15**, and the storage vessel **3** being insertable into the collecting vessel **1** in an operative position in such a way that spa e defined by collecting vessel is situated essentially below the



storage vessel **3** and that the current feed to the heating element **14** is designed such that the current feed is interrupted when the valve **10–13** opens.

5,067,396

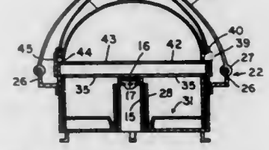
COOKING DEVICE WITH HEAT FUNNEL

Dent G. Sorensen, 80 N. 3rd East, Salina, Utah 84654, and Newell J. Hatch, Aurora, Utah 84620

Continuation-in-part of Ser. No. 389,731, Aug. 4, 1989, abandoned. This application Apr. 23, 1990, Ser. No. 514,407

Int. Cl.[5] A47J *27/12*

U.S. Cl. 99—340 **8 Claims**



1. A cooking device comprising

a pan having a continuous, upstanding side wall and a bottom wall, with the side wall forming an enclosure about an interior of the pan;

a top pending for the pan, said top opening being defined by the upper edge of said side wall;

a central opening in the bottom wall of the pan;

a tubular heat funnel having a continuous upstanding side wall, a top wall closing the top end of said heat funnel and an open bottom end attached to said bottom wall of said pan so that the opening in said bottom wall coincides with the open bottom of said heat funnel, said side wall of said heat funnel extending upwardly into the interior of the pan from the bottom wall to just below the top opening;

a plurality of openings in the side wall of said heat funnel, with the openings being spaced around the circumference of said side wall of said heat funnel, and with the openings further being positioned closely adjacent to the top wall of said heat funnel;

a flat griddle member positioned on the upper edge of said side wall of said pan such that the flat griddle forms a top for the interior of the pane as well as a cooking surface that is heated by heat rising through said heat funnel and then distributed uniformly about the flat griddle by the openings in the side wall of said heat funnel;

a curved first handle having opposite ends hingedly attached to the side wall of said pan at diametrically opposite locations on the side wall of said pan, whereby said first handle can be raised to a substantially vertical position lying in a vertical plane passing through the center, vertical axis of said interior of said pan, and further wherein said first

VOL 1132 ISS 4 NO 26 1991 UMI

handle can be lowered to a position below the upper edge of said pan;

a pair of curved handles having opposite ends hingedly attached to an exterior surface of said griddle, with the opposite ends of each respective pair of second handles being displaced by an equal distance away from a center line through the griddle, with one pair of second handles being displaced on one side of said center line and with the other pair of second handles being displaced on the other side of said center line; and

said pair of curved handles are of a size and shape that when said griddle is positioned on the upper edge of said side wall and the pair of second handles are raised and rotated toward each other, the central portions of said second handles meet in an adjacent side-by-side relationship with each other and further lie in a close adjacent relationship with the central portion of said first handle when said first handle is raised to its vertical position,

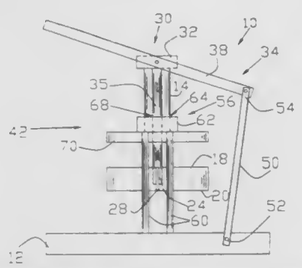
whereby the pan and griddle positioned on the upper edge of said side wall of said pan can be lifted and moved as a stable unit by lifting the device at a common position formed by the adjacent central portions of said pair of second handles that lie in closed adjacent relationship to the central portion of said first handle.

5,067,397

PINEAPPLE CUTTING AND CORING DEVICE

Daniel P. Healy, 10206 Bayport Rd., Louisville, Ky. 40299

Filed Mar. 28, 1991, Ser. No. 676,321
Int. Cl.[5] A23N *4/00, 4/20, 7/00, 7/08*
U.S. Cl. 99—542 **9 Claims**



1. A pineapple cutting and coring apparatus, comprising:

a cutting board base plate for supporting a pineapple in an upright position and for resisting a cutting force applied to the pineapple;

an inside cylindrical cutting blade for separating the core of a pineapple from the flesh of a pineapple located above and perpendicular to the cutting board;

an outside cylindrical blade disposed coaxially around the inner cylindrical blade for removing the shell from the flesh of the pineapple on the cutting board;

first and second diametrically opposed radially symmetric cutting blades extending outwardly from the outside cylindrical blade for splitting the outer shell of the pineapple into halves;

blade moving means for moving the concentric inside blade, outside blade and radial blades in unison downwardly toward and upwardly away from the cutting board; and

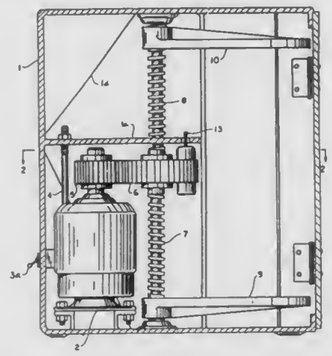
stationary blade guide means located a distance above the cutting board slidably engaging the outer perimeter of the inside cylindrical cutting blade for guiding the inside cylindrical cutting blade, outside cylindrical cutting blade and radial blades as they are moved downwardly toward and upwardly away from the cutting board.

5,067,398

CAN CRUSHER

Norman E. Thoma, 112 Longmount Dr., Pittsburgh, Pa. 15214

Filed Sep. 11, 1989, Ser. No. 405,287
Int. Cl.[5] B30B *15/14, 1/18*
U.S. Cl. 100—53 **2 Claims**



1. A can crusher comprising a vertically extending container having a side door, a top wall, a bottom wall, and an intermediate horizontal wall extending within said container, a reversible motor vertically mounted within said container and supported below said horizontally extending wall, an "on-off" switch connected to said reversible motor and mounted on an exterior surface of said container, a pinion gear within said container and driven by said reversible motor, a second gear within said container and driven by said pinion gear, a vertically extending threaded shaft extending through said second gear and said horizontal wall and rotatably driven by said second gear and rotatably mounted to the top and bottom of said container and having right hand threads and left hand threads on opposing sides of said second gear and horizontally extending wall, a first and second horizontally extending can-crushing arms, threaded, one to said right hand threads and one to said left hand threads, said arms moving a predetermined distance toward one another from a first position to a second position to effect the crushing of a can placed therebetween, and a reversing switch connected to said reversible motor and extending through said intermediate horizontal wall and actuated by one of said can-crushing arms after moving said predetermined distance to said second position to effect reversal of said motor to thereby move said can-crushing arms from said second position to said first position.

5,067,399

WIRE MARKING APPARATUS FOR MARKING SELECTED CODES ONTO ANY OF A PLURALITY OF WIRES

Stephen R. Berry, Naperville, Ill., assignor to Molex Incorporated, Lisle, Ill.

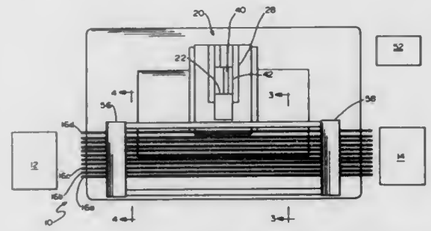
Filed Apr. 20, 1990, Ser. No. 511,685
Int. Cl.[5] B41F *17/10*
U.S. Cl. 101—11 **23 Claims**

1. A wire marking apparatus for use with a supply of wire and a wire processing means for drawing wire from the supply, said wire marking apparatus including a marking head for marking a selected code onto the wire and an anvil for supporting the wire while marking the code thereon, wherein the improvement comprises:

support means for supporting a plurality of wires to be marked in a parallel array, each wire to be marked being aligned with an anvil means;

longitudinal positioning means for moving the marking apparatus in a direction extending generally parallel to the wires;

wire selection means for moving at least a portion of the wire marking apparatus in a direction extending generally orthogonal to axes of the wires for positioning a selected



portion of the wire marking apparatus relative to a selected wire to be marked; and

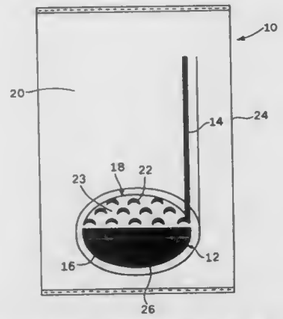
moving means for moving each said wire to be marked relatively toward and into engagement with said marking head to place a selected code thereon.

5,067,400

SCREEN PRINTING WITH AN ABRASIVE INK

Gary L. Bezella, and Steven T. Bezella, both of 5124 Island View Dr., Oshkosh, Wis. 54901

Filed Jan. 25, 1990, Ser. No. 470,144
Int. Cl.[5] B41F *15/00*
U.S. Cl. 101—129 **18 Claims**



1. A method of screen printing wherein an ink formulation is pressed through a substantially conventional screen having a plurality of individual strands in woven-like array defining a mesh with openings between the strands, and wherein the screen conventionally has a blocked portion thereof blocking passage of ink through the screen thereat whereby ink may only pass through the multistrand mesh openings at the remaining unblocked portion of the screen,

said method comprising the steps of:

(a) selecting as an ink base an ink having a viscosity of about 2,000 to about 50,000 centipoises at ambient conditions;

(b) combining with said ink base hard abrasive particles having roughened and irregular surfaces including generally sharp edges to form an abrasive ink formulation, said particles having a size to pass through said mesh screen openings;

(c) mixing said ink base and said particles to obtain a substantially uniform dispersion of said particles in said ink base;

(d) pressing said abrasive ink formulation through said screen onto a printable substrate thereby to print said abrasive ink formulation on said substrate; and,

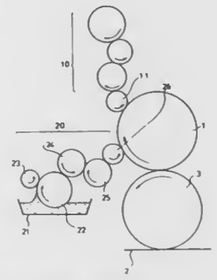
(e) drying said ink formulation on said substrate thereby to provide an abrasive texture thereon.

5,067,401

MOISTENING WATER SUPPLY APPARATUS FOR PRINTING PRESS

Hiroaki Kusanagi, Numazu, Japan, assignor to Toshiba Kikai Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 8, 1989, Ser. No. 433,782
Claims priority, application Japan, Nov. 10, 1988, 63-285211
Int. Cl.[5] B41F *7/26, 7/32*
U.S. Cl. 101—148 **7 Claims**



1. A printing apparatus, comprising:

a printing cylinder;

means for applying ink to said printing cylinder;

water storage means;

a transfer roller having at least a surface portion formed of a rubber material;

means for applying water, including at least one roller, from said water storage means to said transfer roller;

a moistening roller; and

means, including at least one roller, for supplying water from said transfer roller to said moistening roller, a surface of said moistening roller being solely in contact with said printing cylinder and said supply means and separate from said means for applying ink;

said transfer roller supplying water to said moistening roller, said moistening roller supplying water to said printing cylinder, said surface of said transfer roller and said surface of said moistening roller having different hydrophilic properties so as to cause a water contact angle of said transfer roller to be less than a water contact angle of said moistening roller so that the water wetability of said transfer roller is greater than the water wetability of said moistening roller.

5,067,402

APPARATUS FOR THE PREVENTION OF PRINTING MACHINE DAMAGE

Helmut H. Marx, Wurzburg, Fed. Rep. of Germany, assignor to Koenig & Bauer Aktiengesellschaft, Wurzburg, Fed. Rep. of Germany

Filed Nov. 16, 1990, Ser. No. 614,119
Claims priority, application Fed. Rep. of Germany, Nov. 20, 1989, 3938478
Int. Cl.[5] B65H *26/02*
U.S. Cl. 101—226 **3 Claims**

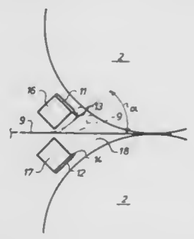
1. A paper web dividing apparatus for the prevention of printing maching damage for a web-fed rotary printing machine having spaced cooperating paper web printing cylinders, said apparatus comprising:

at least a first cross bar positioned adjacent to a peripheral surface of a cylinder of a printing unit which is the last to contact a web passing through a web-fed rotary printing machine, said at least first cross bar being positioned

VOL 1132 ISS 4 NO 26 1991 UMI

downstream, in the direction of paper web travel, from said last web contacting cylinder and being generally parallel to an axis of rotation of said last web contacting cylinder;

at least a first paper web dividing knife attached to said at least first cross bar, said at least first paper web dividing knife having a planar surface which is arranged generally parallel to, and spaced at a small distance from, said peripheral surface of said last web contacting cylinder;



a cutting edge on said at least first paper web dividing knife, said cutting edge and said planar surface extending generally upstream, in the direction of web travel, toward said web adjacent said last web contacting cylinder and being positioned to divide the paper web which is wrapped back on said cylinder of the printing unit which is the last to contack said web passing through the printing unit.

5,067,403

CIRCUMFERENTIAL REGISTER ADJUSTMENT SYSTEM FOR A PRINTING MACHINE CYLINDER

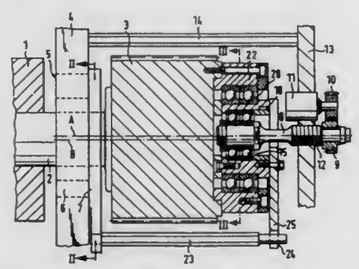
Hartmut Massierer, Neusäss, Fed. Rep. of Germany, assignor to Man Roland Druckmaschinen AG, Offenbach am Main, Fed. Rep. of Germany

Filed May 24, 1990, Ser. No. 528,584

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1989, 3921583

Int. Cl.[5] **B41F** *13/14*

U.S. Cl. 101—248 **7 Claims**



1. In a rotary printing machine having

a printing cylinder (**1**) and a cylinder shaft (**2**), said cylinder and cylinder shaft defining a cylinder axis of rotation (B),

said printing machine having a side wall (**4**), a bearing (**5**) for the shaft (**2**) of the cylinder;

eccentric means (**6**, **7**) rotatably retaining said bearing in said side wall for rotation about a bearing axis (A) which is eccentric with respect to said axis of rotation;

an axially movable drive gear (**3**) with inclined or spiral gear teeth thereon, secured to said cylinder shaft;

a threaded rotatable positioning shaft (**8**); and

threaded shaft positioning means (**13**) secured in fixed position with respect to said side wall (**4**) and receiving a thread of said positioning shaft (**8**),

a circumferential register adjustment system for the printing cylinder (**1**),

comprising, in accordance with the invention,

a coupling system for coupling said positioning shaft (**8**) to the drive gear at any selected position of the bearing means (**5**) in said side wall, and regardless of the relative positions of said bearing axis (A) with respect to said cylinder axis (**B**),

said system including

an eccentric bushing (**18**) located on said positioning shaft (**8**), axially fixed thereon and rotatable with respect thereto;

rotatable means (**20**, **22**) for coupling said eccentric bushing to the drive gear (**3**), said rotatable coupling means maintaining an axially fixed predetermined relation between said eccentric bushing (!8) and said drive gear (3) while permitting relative rotation of said bushing and said drive gear;

connecting link means (**23**, **24**, **25**) coupling said eccentric means (**6**, **7**) and said eccentric bushing (**18**) for conjoint rotation; and

wherein the eccentricities of the eccentric means (**6**, **7**) and of the eccentric bushing (**18**) are arranged relative to each other to maintain the position of the axis (A) of the positioning shaft (**8**) invariable with respect to the bearing axis upon rotation of said eccentric means (**5**, **6**).

5,067,404

METHOD AND APPARATUS FOR PRINTING BY INKING A LATENT THERMAL IMAGE

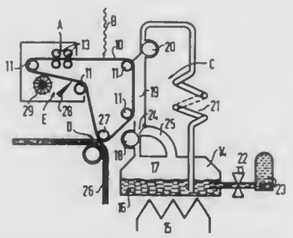
Henning Frunder, Munich, and Manfred Wiedemer, Ismaning, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

PCT No. PCT/DE88/00099, § 371 Date Aug. 21, 1990, § 102(e) Date Aug. 21, 1990, PCT Pub. No. WO89/08286, PCT Pub. Date Sep. 8, 1989

PCT Filed Feb. 26, 1988, Ser. No. 555,406

Int. Cl.[5] **B41L** *35/14*

U.S. Cl. 101—488 **9 Claims**



1. A printing process, comprising the following method steps:

a) bringing a medium movably guided in a printer to a uniform temperature;

b) producing a latent thermal character image on the medium with a writing means that is controlled in character-dependent fashion to produce characters when desired; and

c) developing the latent thermal character image to form a developed character image in a development station by one of: condensation of a colored vapor, and separate inking after condensation of a vapor, whereby condensation behavior of the vapor and temperature of the medium are selected such that the vapor precipitates on the medium to define a character to be printed in one of: a positive and negative image; and

d) transferring the developed character image onto a recording medium in a transfer printing station.

5,067,405

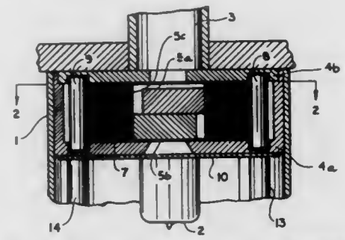
SAFING AND ARMING DEVICE

Dragolyoub Popovitch, 1766 Meadowcrest Dr., Pittsburgh, Pa. 15241, and Herbert L. Andrews, 4256 E. Mercer Ln., Phoeniz, Ariz. 85020

Filed Apr. 12, 1990, Ser. No. 507,992

Int. Cl.[5] **F42C** *15/23, 15/26, 15/34*

U.S. Cl. 102—232 **5 Claims**



1. In a weapon subject to a sequence of acceleration followed by spin, including a detonator and an explosive charge, the improvement comprising a barrier comprising two superimposed blocks, each having a curved end, which blocks are located between said detonator and explosive charge to normally form an obstruction to prevent accidental detonation of said explosive charge by said detonator, a split cylinder surrounding said blocks, mechanical locking means for normally locking said barrier in place to provide said obstruction, said mechanical locking means responsive to said sequence of acceleration followed by spin in predetermined amounts to remove said barrier and provide an unobstructed path between said detonator and explosive charge.

5,067,406

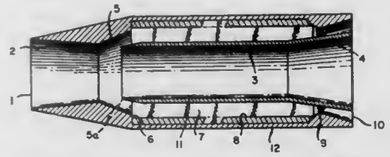
SUPERSONIC, LOW-DRAG, SOLID FUEL RAMJET TUBULAR PROJECTILE

Donald N. Olson, Lutherville, and Joseph Huerta, Aberdeen, both of Md., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 5, 1990, Ser. No. 608,915

Int. Cl.[5] **F42B** *10/34, 15/10*

U.S. Cl. 102—374 **4 Claims**



1. A supersonic projectile comprising an essentially tubular body having a forward end and an aft end, including an essentially cylindrical tubular member having a forward constant diameter section and a rearward expansion section which extends to the aft end of the tubular body mounted axially in said tubular body, said tubular member having an axial through bore therein, and open-ended, means for supporting said tubular member within said tubular body such that an annular hollow cylindrical passageway is formed between the tubular member's outside perimeter and the inside surface of said tubular body, said annular passageway, coaxial with said through bore, said tubular body further comprising a first means for diverting portions of air flow passing through said through bore when the projectile is in flight into said annular passageway, such air flow portions in said annular passageway being subsonic when the air flow passing through said through bore is supersonic, and a nozzle means in said tubular body for permitting exit of gas flows from said annular passageway and accelerating said gas flows out the aft end of the said projectile at supersonic speeds, said annular passageway containing a self igniting lining of solid fuel propellant lining an inner wall of the tubular body, whereby said propellant is ignited by the air flow portions in said annular passageway when said projectile is launched at supersonic velocities, such accelerated gas flows exiting the nozzle means providing thrust to said projectile, such thrust augmenting the velocity of the projectile.

5,067,407

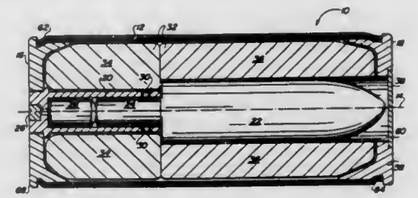
CASED TELESCOPED AMMUNITION ROUND

Wilford E. Martwick, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn.

Filed May 17, 1990, Ser. No. 524,617

Int. Cl.[5] **F42B** *5/045*

U.S. Cl. 102—434 **4 Claims**



3. In a cartridge case for a cased telescoped ammunition round having a hollow cylindrical outer skin having a rear portion, and a front portion, a rear seal, a front seal, and an axis of symmetry; the improvements comprising:

fabricating the outer skin by rolling a thin sheet of spring tempered high carbon steel into a spirally wrapped cylinder having a plurality of layers;

the rear seal and the front seal each having a base and an annular side wall integral with its base, each side wall of the seals having a cylindrical outer surface and an outwardly tapering inner wall terminating in a lip, a crimp groove formed in the outer surface of the side wall of each seal, a wall of the crimp grooves of each seal nearest the lips forming a cam surface; the rear portion of the outer skin being crimped into the crimp groove of the rear seal and the front portion of the outer skin being crimped into the crimp groove of the front seal; only the front and rear portions of the outer skin being annealed prior to being crimped into the crimp grooves of the front and rear seals;

during firing of the round, the circumference of the outer skin increases as the layers of the outer skin unwind, the circumference of the outer skin substantially returning to its initial value prior to being fired when the pressure of the gases produced by the ignited main propellant charge acting on the outer skin returns to ambient pressure after the round is fired; and axial growth of the casing forcing the front and rear portions of the outer skin crimped into the crimp grooves of the front and rear seals to ride up the cam surfaces of said grooves, expanding the diameter of the crimped portions of the outer skin, the stress induced in the expanded crimped portions retracting the end seal when the pressure within the round returns to ambient.

5,067,408

CASED TELESCOPED AMMUNITION ROUND

Wilford E. Martwick, Minneapolis, Minn., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed May 17, 1990, Ser. No. 524,619

Int. Cl.[5] **F42B** *5/045*

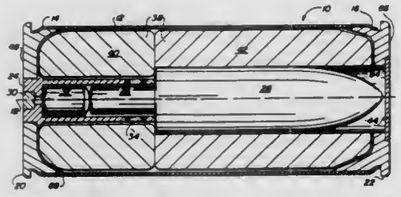
U.S. Cl. 102—434 **4 Claims**

3. In a cased telescoped ammunition round having a hollow cylindrical outer skin having a rear portion, and a front portion, a rear seal, a front seal, and an axis of symmetry; the improvements comprising:

VOL 1132 ISS 4 NO 26 1991 UMI

fabricating the outer skin from a stainless steel;

the rear seal and the front seal each having a base and an annular side wall integral with its base, each side wall of the seals having a cylindrical outer surface and an outwardly tapering inner wall terminating in a lip, a crimp groove formed in the outer surface of the side wall of each seal, a wall of the crimp grooves of each seal nearest the lips forming a cam surface; the rear portion of the outer skin being crimped into the crimp groove of the rear seal and the front portion of the outer skin being crimped into the crimp groove of the front seal; only the front and rear



portions of the outer skin being annealed prior to being crimped into the crimp grooves of the front and rear seals;

during firing of the round, radial expansion of the outer skin causing elastic deformation of the outer skin, and axial growth of the round forcing the front and rear portions of the outer skin crimped into the crimp grooves of the front and rear seals to ride up the cam surfaces of said grooves, expanding the diameter of the crimped portions of the outer skin, the stress induced in the expanded crimped portions retracting the end seal when the pressure within the round returns to ambient.

5,067,409

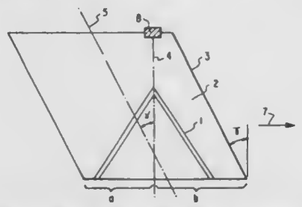
SHAPED CHARGE FOR COMBATING ARMORED TARGETS

Manfred Schildknecht, Friedrichsdorf, and Günter Honcia, Kelkheim-Eppenheim, both of Fed. Rep. of Germany, assignors to Battelle Institut e.V., Frankfurt, Fed. Rep. of Germany

Filed Nov. 12, 1986, Ser. No. 929,768

Int. Cl.[5] F42B *1/028, 12/10*

U.S. Cl. 102—476 **20 Claims**



1. In a shaped hollow charge disposed in a missle for combatting armored targets and including an explosive charge body having a liner, in the form of a metallic hollow body, extending inwardly from a base end of the charge body, and with said liner having a longitudinal axis extending from said base end and forming an angle between 20° and 160° with the longitudinal axis of the missle; the improvement wherein said explosive charge body has the shape of an oblique cylinder which is inclined with respect to said base end and whose longitudinal axis forms an angle with said longitudinal axis of said liner.

5,067,410

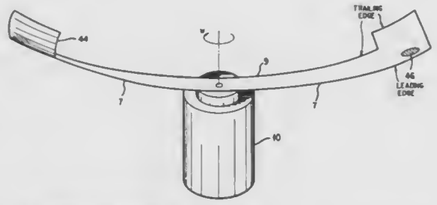
FLEXIBLE WING

James F. Murnane, III, Andover, and William G. Kuhnle, Hopatcong, both of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Dec. 21, 1990, Ser. No. 632,211

Int. Cl.[5] F42B *10/48;* **F42C** *15/00*

U.S. Cl. 102—489 **2 Claims**



1. A munition system comprising:

at least one submunition system including;

a flexible fabric wing having two opposing blades for delivering the at least one submunition system in substantially a vertical direction, and for supplying toque, each of said blades having a flap at a trailing outer edge and having a weight at a leading outer edge, said flaps pointed in an opposed direction relative to said wing,

a warhead means for imparting an explosion,

a submunition body for housing said warhead means, an alternator means, located in said submunition body, operatively connected to said flexible wing, and an electronic fuze for electronically arming said at least one submunition system, located in said submunition body, operatively connected between said alternator and said warhead, said alternator and said wing operatively producing electric power for said fuze by rotation of said blades,

whereby each of said blades of said flexible wing forming a swept configuration functionally producing a low drag and a low polar moment of inertia during a first predetermined period of time after launch and during high deployment velocities, and each of said blades of aid wing extend to a near perpendicular orientation relative to a submunition spin axis producing a high polar moment of inertia configuration in shape during a second subsequent predetermined period of time after launch.

2. A munition system of claim 1 having a carrier including a plurality of separate submunition systems.

5,067,411

WEAPON SYSTEMS

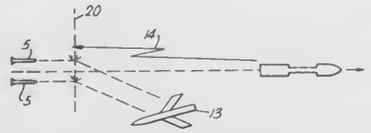
Richard F. Ball, Bristol, United Kingdom, assignor to British Aerospace PLC, London, England

Filed Aug. 6, 1990, Ser. No. 562,955

Claims priority, application United Kingdom, Aug. 10, 1989, 8982679

Int. Cl.[5] F42B *12/58;* **F41G** *7/00*

U.S. Cl. 102—489 **5 Claims**



1. A weapon system for at least damaging a target, said system comprising:

a primary weapon; and

at least one secondary weapon carried by said primary weapon; said primary weapon including:

means for releasing said at least one secondary weapon from said primary weapon;

homing means for guiding said primary weapon towards said target;

sensor means for detecting any target miss-distance; and

transmitter means for transmitting data generated by said sensor means to said at least one secondary weapon; said at least one secondary weapon including:

receiving means for receiving said data transmitted from said primary weapon; and

means for altering course of said at least one secondary weapon relative to said primary weapon in response to said received data in order to damage said target.

5,067,412

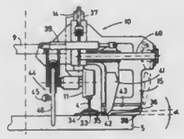
TIE PLATE INSERTING MACHINE

Josef Theurer, Vienna, and Herbert Wörgötter, Linz, both of Austria, assignors to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H., Vienna, Austria

Filed Oct. 22, 1990, Ser. No. 602,413

Int. Cl.[5] E01B *9/02*

U.S. Cl. 104—16 **12 Claims**



1. A machine for inserting a tie plate between a tie and a rail having a head and a base interconnected by a web, which comprises

(a) a machine frame supported on undercarriages on a railroad track including two of said rails resting on a multiplicity of said ties,

(b) a drive for propelling the machine frame along the track in an operating direction,

(c) an operating unit mounted on the machine frame and comprising (1) a vertically adjustable magazine for storing at least one of said tie plates and (2) a drive for vertically adjusting the magazine,

(d) a tie plate inserting arm for moving a respective one of the tie plates stored in the magazine from the magazine to a position between the tie and the base of the rail, the tie plate inserting arm being transversely displaceable with respect to the machine frame and being connected tot he operating unit,

(e) a drive connected to the tie plate inserting arm for transversely displacing the tie plate inserting arm,, and

(f) a rail lifting device arranged on the machine frame.

5,067,413

APPARATUS FOR CONVEYING TRAVELABLE BODY

Naoyuki Kiuchi, Ibaraki; Masanori Fujimaru, Osaka; Susumu Nakagawa, Amagasaki; Eiji Taguchi, Osaka; Masao Kasagi, Tokyo; Akio Kimura, Yokosuka, and Shinji Kawabe, Yokosuka, all of Japan, assignors to Daifuku Co., Ltd. and Kanto Jidosha Kogyo Kabushiki Kaisha, both of, Japan

Filed Feb. 1, 1990, Ser. No. 474,265

Claims priority, application Japan, Feb. 9, 1989, 1-30494; Feb. 9, 1989, 1-30495; Jul. 10, 1989, 1-178791; Jul. 10, 1989, 1-178792

Int. Cl.[5] B65G *39/00*

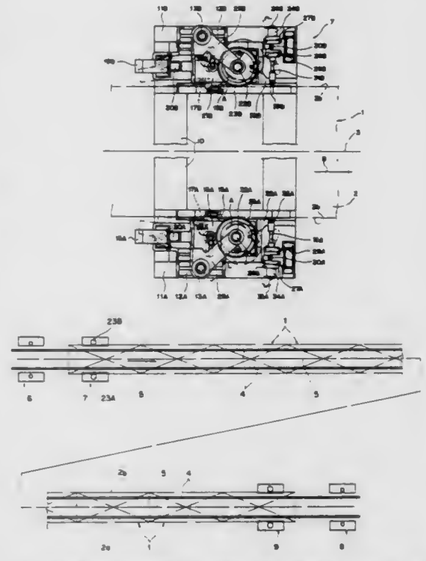
U.S. Cl. 104—168 **10 Claims**

1. A device for conveying travelable bodies provided with:

a fixed path allowing a string of travelable bodies to freely travel thereon with a front edge of one travelable body always kept in contact with a rear edge of another travelable body;

means to transmit traveling power to said travelable bodies; said means to transmit traveling power to said travelable bodies comprising means for subjecting one side of each of said travelable bodies to friction drive and back-up means for subjecting the other side of each of said travelable bodies to pressure at a point opposite said friction drive, and means for applying braking power to both sides of to said travelable bodies; and

said means to transmit traveling power to said travelable



bodies and said means for applying braking power to said travelable bodies being disposed in a manner such that, when a leading one of said travelable bodies comes to have both its sides pressed laterally by said means for applying braking power to said travelable bodies, a rearmost one of said travelable bodies comes to have both its sides pressed laterally by said means to transmit traveling power to said travelable bodies.

5,067,414

SELF-ADJUSTING SHOCK ABSORBING CARRIER

Archie S. Moore, deceased, late of Kansas City, Mich. by Rosalie I. Moore, personal representative ; Robert J. Teske, Eudora, Kans., and Gareth D. Summa, Riverside, Mich., assignors to Mid-West Conveyor Company, Inc., Kansas City, Kans.

Continuation-in-part of Ser. No. 478,686, Feb. 12, 1990. This application Dec. 13, 1990, Ser. No. 627,184

Int. Cl.[5] B61B *12/04*

U.S. Cl. 104—172.2 **20 Claims**

1. A self-adjusting shock absorbing load carrier for a conveyor including means forming a carrier support surface and a carrier drive member engageable with said carrier to propel same along said support surface, said carrier comprising:

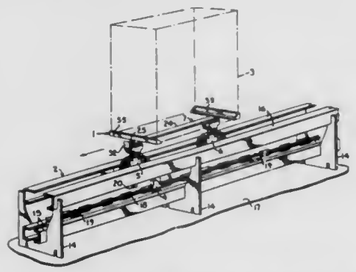
(a) an elongated carrier frame member adapted for supporting a load;

(b) a support trolley connected to said frame member and adapted to engage said support surface for movement therealong;

(c) a drive trolley adapted to engage said support surface, to at least partially support said load, and to be drivingly engaged by said drive member to propel said carrier along said support surface; and

VOL 1132 ISS 4 NO 26 1991 UMI

(d) friction means movably engaging said drive trolley with said frame member and causing frictional resistance to relative movement therebetween in proportion to a



weight of said load supported by said frame member whereby shock generated by engagement of said drive member with said drive trolley and braking thereof is damped to reduce transmission of said shock to said load.

5,067,415

TRANSPORTING SYSTEM OF FLOATED CARRIER TYPE WITH ZERO POWER CONTROL AT VARYING LOAD WEIGHTS

Mimpei Morishita, and Teruo Azukizawa, both of Tokyo, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

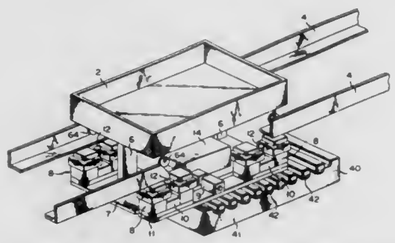
Continuation of Ser. No. 36,175, Apr. 8, 1987, which is a continuation of Ser. No. 726,975, Jun. 25, 1985, abandoned. This application May 25, 1990, Ser. No. 528,752

Claims priority, application Japan, Oct. 23, 1984, 59-222702; Jan. 22, 1985, 60-9774

The portion of the term of this patent subsequent to Jun. 13, 2006, has been disclaimed.

Int. Cl.[5] B60L *13/04*

U.S. Cl. 104—281 **12 Claims**



1. A transporting system for transporting cargo to a predetermined position, comprising:

a carrier for carrying cargo;

at least one rail extending along a running path of said carrier and having a bottom section made of a ferromagnetic material;

floating means including a plurality of magnetic units having respective combinations of permanent magnets and electromagnets provided on said carrier such as to face said rail, said carrier being caused to float with respect to said rail by electromagnetic attractive forces acting between said magnets and the bottom section of said rail, each of said magnetic units comprising two faces which are located opposite the bottom section of said rail, each magnetic unit producing a magnetic flux which emerges from one of said faces and extends through a gap to the bottom section of said rail, passes through said bottom section, and returns to the magnetic unit through a gap between the bottom section and the other face;

means for sensing a gap between each said magnetic unit and said rail to generate an output signal;

means for generating an exciting current;

means for energizing said electromagnets by supplying the exciting current thereto according to the output of said sensing means to maintain said carrier in a stable floating condition, the exciting current supplied to said electromagnet being controlled to be substantially zero during a steady state in which all external forces applied to said carrier are overcome and said carrier is maintained in said stable floating condition; and

means coupled to said carrier, for supporting said magnets to allow the gaps between said magnets and said rail to be changed, independently.

5,067,416

PROCESS FOR PRODUCING AN ACID-RESISTANT BARRIER SEAL IN SOIL, AND CONCRETE USABLE FOR THIS PURPOSE

Francis M. L. Delmas, Paris, and Michel A. G. Gandais, Perthes, both of France, assignors to Sondages Injections Furages "S.I.F." Enterprise Bachy, Levallois-Perret, France

Division of Ser. No. 357,954, May 30, 1989, Pat. No. 4,983,075. This application Oct. 17, 1990, Ser. No. 599,119

Claims priority, application France, May 31, 1988, 88 07206

Int. Cl.[5] C04B *12/04*

U.S. Cl. 106—632 **5 Claims**

1. A sealing concrete mixture which will solidify when contacted with acidic water, said concrete mixture comprising water, a clay, an acid-resistant granulate having self-filtering properties, an aqueous solution of a silicate selected from the group consisting of sodium silicate and potassium silicate, said silicate being present in an amount corresponding to 5 to 70 kg of SiO_2 per cubic meter of concrete, said concrete mixture being devoid of any acidic or acid-generating matter liable to form a solid silicic acid gel with the silicate.

5,067,417

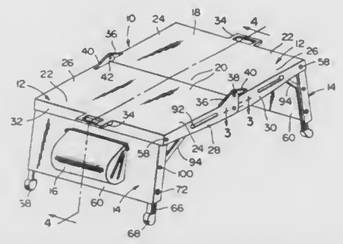
FOLDABLE LIGHT WEIGHT TABLE

Enzo Marmentini, and Joyce Marmentini, both of 1382 Ramona Dr., Newbury, Calif. 91320

Filed Feb. 22, 1990, Ser. No. 482,856

Int. Cl.[5] A47B *3/00*

U.S. Cl. 108—36 **10 Claims**



1. A foldable light weight table including a pair generally horizontal table top half sections including generally co-planar upper surfaces, adjacent and remote margins and opposite side margins extending between said adjacent and remote margins, said remote margins each including downwardly extendible and upwardly retractable leg means, said adjacent margins each, at each of the ends thereof adjacent the corresponding side margins, including a mounting ear disposed generally normal to said adjacent margins and projecting upward above the corresponding upper surface and outwardly beyond the corresponding adjacent margin with the mounting ears of each half section being laterally overlapped relative to the mounting ears of the other half section, and pivot means pivotally interconnecting the overlapped portions of said mounting ears

adjacent each pair of corresponding side margins for upward swinging of said remote margins relative to said adjacent margins and movement of said half sections into closely opposing, parallel collapsed positions, said leg means including upper and lower ends and said upper ends being pivotally mounted from said remote margins for upward swinging retraction of the lower ends of said legs toward the corresponding adjacent margins of said table half sections, said table top half sections defining downwardly opening cavities into which said leg means are at least substantially upwardly retractable, said leg means each including upper and lower sections thereof, said lower sections being adjustably extendible and retractable relative to said upper sections, inclined brace means pivotally attached at their lower ends to said upper sections and slidably attached to said side margins for movement therealong at their upper ends, said side margins and upper ends including means operative to releasably anchor said upper ends in positions defining limit positions of movement along said side margins toward said remote margins.

5,067,418

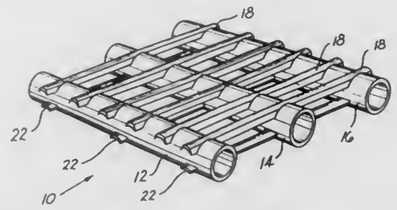
RECYCLABLE PAPERBOARD PALLET

Leewood C. Carter, Riceville, Tenn., assignor to Reusable Rolls, Inc., Riceville, Tenn.

Filed Jul. 24, 1990, Ser. No. 557,184

Int. Cl.[5] B65D *19/12*

U.S. Cl. 108—56.3 **9 Claims**



1. A pallet comprising a load supporting deck and a plurality of spaced apart longitudinally elongated runners, said runners being formed from substantially identical cross section thick walled hollow paperboard cylindrical cores having an outside diameter of at least 4 inches and a wall thickness of at least 0.3 inch, each core including a plurality of longitudinally spaced apart substantially identically configured notches extending transversely therethrough and opening outwardly onto a longitudinal top peripheral surface of the respective runner, each of said notches having a pair of longitudinally spaced apart linear side edges, each side edge including at least a portion inclined from said top peripheral surface in diverging manner relative to the other edge of the pair, each of said notches further including a linear edge extending longitudinally and spaced intermediate said top peripheral surface and the axis of the respective cylindrical core runners, said runners being disposed so that the notches of each runner are aligned vertically and longitudinally with corresponding notches in other runners, said deck including a plurality of transversely extending spaced apart deck members, each of said deck members being a longitudinally extending arcuate segment of a thick walled hollow paperboard cylindrical core having an outside diameter of at least 4 inches and a wall thickness of at least 0.3 inch, each segment having a pair of longitudinally extending edges, a convex surface and a concave surface, and each segment being slidably received and positioned within respective aligned notches of the runners with said longitudinally extending edges in tight frictional engagement with portions of said linear side edges, with said concave surface disposed entirely within the respective notches, and with said convex surface disposed in the respective notches and having a central portion in substantially the same plane as the top peripheral surfaces of said runners, whereby said deck members are tightly and securely held within respective notches only by frictional engagement with the side edges of said notches.

5,067,419

LOW NOX BOILER

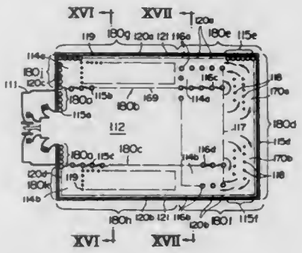
Hironobu Kobayashi, Katsuta; Shigeru Azuhata, Hitachi; Kiyoshi Narato; Kenichi Sohma, both of Ibaraki; Yasuo Yoshii, Katsuta; Norio Arashi, Hitachi; Shigekazu Nishimoto; Isao Koyama, both of Yokohama; Tooru Inata, Hitachi; Hideo Kikuchi, Hitachi; Tadayoshi Murakami, Hitachi; Masayuki Taniguchi, Katsuta; Hiroshi Miyadera, Hitachi; Fumio Koda, Kure; Tatsuzou Enomoto, Kure, and Kenshi Kobayashi, Kure, all of Japan, assignors to Hitachi, Ltd. and Hitachi Babcock Kabushiki-kaisha, both of Tokyo, Japan

Filed Dec. 26, 1989, Ser. No. 456,561

Claims priority, application Japan, Dec. 26, 1988, 63-325847

Int. Cl.[5] F23M *3/02*; F23C *7/00*; F23D *14/02*; F23R *3/18*

U.S. Cl. 110—234 **7 Claims**



1. A low-NOx boiler comprising:

a furnace;

a burner provided in said furnace for burning gaseous fuel, said burner having nozzle means for injecting a premixture of gaseous fuel and combustion air, and flame holding means located near a downstream side of said nozzle means to interrupt a flow of said premixture to form a circulating flow on a downstream side of said flame holding thereby forming swirls of combustion gas inside and outside of a premixture flame;

heat transfer pipe means for heating water by combustion heat of said burner to generate steam, said heat transfer pipe means being located in said furnace and having a passage through which water flows;

the steam drum means communicating with said heat transfer pipe means and accumulating therein said steam from said heat transfer pipe means;

exhaust gas duct means located in said furnace for exhausting combustion gas generated by combustion of the gaseous fuel outside of said boiler; and

uncombusted gas combusting means located in said exhaust gas duct for combusting an uncombusted content in said combustion gas flowing in said exhaust gas duct means.

5,067,420

METHOD AND APPARATUS FOR LINING THE INTERIOR SURFACE OF A HIGH TEMPERATURE CHAMBER WITH HEAT INSULATION MATERIAL

James P. Rast, 9510 Herring Hill Rd., Millington, Tenn. 38053

Filed Mar. 20, 1990, Ser. No. 496,004

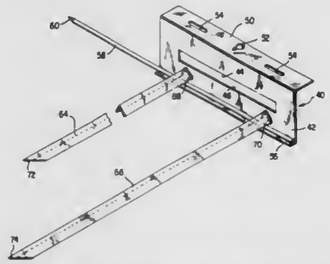
Int. Cl.[5] F23M *5/00*

U.S. Cl. 110—336 **15 Claims**

1. An insulation lining for the interior surface of a high temperature chamber comprising, a plurality of insulation modules, each of said modules comprising a blanket of heat insulation material which is folded upon itself to form a body means of pleated configuration having opposite sides and lateral sides joining said opposite sides, each module also including a hanger means having a support portion with elongated

VOL 1132 ISS 4 NO 26 1991 UMI

prong means extending therefrom, the support portion of said hanger means being disposed adjacent one of said opposite sides of the associated body means, the outer end portions of the prong means of said hanger means extending outwardly beyond the other of the opposite sides of the associated body means, said modules being supported from said interior sur-



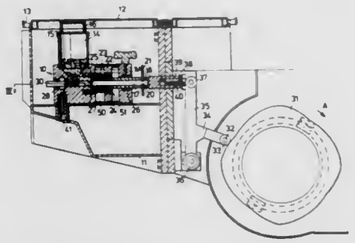
face, pairs of adjacent modules having certain ones of said opposite sides thereof in abutting relationship and the outer end portion of the prong means of one of a pair of adjacent modules directly engaging the support portion of the other one of said pair of adjacent modules to stabilize the adjacent modules and ensure that they are accurately located and maintained in operative position.

5,067,421

SEED-DISPENSING APPARATUS

Morgan Andersson, Lit, Sweden, assignor to Robur Maskin AB, Bracke, Sweden

Filed May 3, 1990, Ser. No. 518,124
Claims priority, application Sweden, May 31, 1989, 8901954
Int. Cl.[5] A01C *7/18*
U.S. Cl. 111—36 **9 Claims**



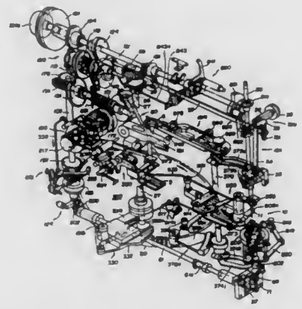
1. An apparatus for sowing seed comprising:
at least one seed-magazine;
at least one seed-dispensing aperture,
at least one seed-carrier provided with means for receiving a fixed number of seeds from said magazine;
a piston-cylinder device having a reciprocable piston connected to said seed carrier;
means for generating a substantially vertical air flow in said seed-dispensing aperture which coacts with said piston, in at least one direction of piston movement; and
force-transmission means operative to move said seed-carrier between a seed receiving position and at least one seed-dispensing position, in which said seed carrier communicates with said seed-dispensing aperture and in which seed-dispensing position the seed carried by said carrier is caused to fall down through said seed-dispensing aperture.

5,067,422

BUTTONHOLE SEWING MACHINE

Kouichi Sakuma, Yamagata, Japan, assignor to Suzuki Manufacturing Co., Ltd., Japan

Division of Ser. No. 84,551, Aug. 12, 1988, Pat. No. 4,903,619, which is a division of Ser. No. 775,088, Sep. 11, 1985, Pat. No. 4,727,817. This application Nov. 2, 1989, Ser. No. 421,551
Claims priority, application Japan, Sep. 14, 1984, 59-194346
Int. Cl.[5] D05B *3/06, 69/00*
U.S. Cl. 112—68 **16 Claims**



7. A buttonhole sewing machine comprising:
an electric motor for driving said sewing machine;
a machine body including a bed for holding a workpiece in cooperation with a work clamping means;
stitch forming means for stitching buttonholes in said work and including a needle bar driving mechanism for driving a needle bar for supporting a needle, a stitch feeding mechanism, a looper-spreader mechanism for driving a looper and a spreader, and a turning mechanism for turning said needle bar, said looper and said spreader, said needle bar driving mechanism being provided with an up/down moving mechanism and a needle vibrating mechanism;
an arm shaft for driving said up/down moving mechanism;
a bed shaft for driving said looper-spreader mechanism;
a cutting mechanism for forming buttonholes in said work;
a rapid feed mechanism for rapidly feeding said bed;
a control cam mechanism for controlling operation of said rapid feed mechanism and said stitch feeding mechanism;
a vertical shaft driven off of said arm shaft for driving said needle vibrating mechanism, said bed shaft, and said stitch feeding mechanism;
a rapid feed drive shaft for driving said rapid feed mechanism and said cutting mechanism;
clutch means for selectively transmitting the torque of said motor (1) to said rapid feed drive shaft for rapid feeding or cutting or (2) to said arm shaft for stitch forming; and
mode change-over means for controlling the respective operations and operational sequences of said cutting mechanism and/or said rapid feed mechanism.

5,067,423

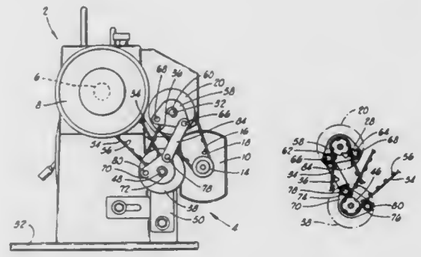
SEWING MACHINE DRIVE ASSEMBLY, INCLUDING PULLEY BELT TRACTION ENHANCEMENT DEVICE

Elmer R. Thompson, 2408 47th St., Lubbock, Tex. 79412

Filed Jun. 6, 1990, Ser. No. 534,049
Int. Cl.[5] D05B *69/12;* **F16H** *7/12*
U.S. Cl. 112—220 **8 Claims**

1. An apparatus for enhancing traction between a pulley belt and a pulley forming part of a sewing machine main crankshaft drive assembly, said apparatus comprising:
a support member having a hole defined therein for receiving a shaft on which the pulley forming part of the sewing machine main crankshaft drive assembly is mounted; and

first and second belt engagement members connected to said support member at respective locations spaced from said hole so that the pulley belt mounted on the pulley is



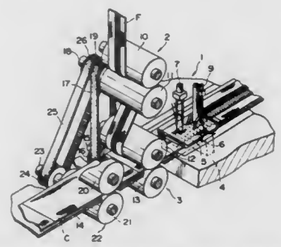
pinched at two locations by said engagement members inwardly generally towards the pulley when said support member is mounted on the shaft on which the pulley is mounted.

5,067,424

APPARATUS FOR SEWING FABRIC PIECES TO SLIDE FASTENER CHAIN

Kiichirou Ishikawa; Chet Dudek, both of Marietta, and James Hutcherson, Kennesaw, all of Ga., assignors to Yoshida Kogyo K.K., Tokyo, Japan

Filed Sep. 7, 1990, Ser. No. 578,750
Int. Cl.[5] D05B *3/12, 23/00*
U.S. Cl. 112—307 **6 Claims**



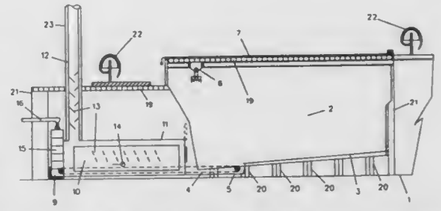
4. An apparatus for automatically sewing a succession of fabric pieces to a continuous slide fastener chain, the apparatus comprising:
a sewing machine for feeding and sewing the fabric pieces and slide fastener chain together;
guiding means disposed upstream of the sewing machine and including a pair of opposed guide rollers urged towards each other with the slide fastener chain interposed therebetween so as to be driven via the slide fastener chain by the sewing machine while guiding the slide fastener chain towards the sewing machine;
feeding means disposed between the guiding means and the sewing machine and including a pair of opposed feed rollers urged towards each other so as to convergently place therebetween the slide fastener chain into superimposed relation with the fabric pieces and to feed the fabric pieces with the slide fastener chain thus superimposed thereon to the sewing machine;
means for linking one feed roller of the pair of feed rollers of the feeding means and one guide roller of the pair of guide rollers of the guiding means so as to cause said one feed roller and said one guide roller to rotate with each other;
supplying means disposed upstream of the feeding means and including a pair of supply rollers urged towards each other to feed through therebetween the fabric pieces to the feeding means;
and an additional linking means for linking one supply roller of the pair of supply rollers of the supplying means and an individual guide roller of the pair of guide rollers of the guiding means so as to cause the one supply roller and the individual guide roller to rotate with each other.

5,067,425

REFUSE DISPOSAL DEVICE

Arthur O. Sporleder, 6440 Everhart Rd., #3D, Corpus Christi, Tex. 78413

Filed Feb. 5, 1991, Ser. No. 650,938
Int. Cl.[5] B63B *35/28*
U.S. Cl. 114—26 **6 Claims**



1. Within a self-propelled sea-going vessel comprising means of propulsion, steering, fuel storage, and crew quarters; (1) a common refuse-storage hopper having a bottom mounted within the vessel with an overhead longitudinally-mounted crane, and (2) at least one incinerator mounted within the vessel, said incinerator comprising a shell, an exhaust stack, and baffles therewithin; for each incinerator there shall be: (2a) an ignition and auxiliary fuel feed source mounted through a wall of the incinerator, (2b) a main conveyer mounted longitudinally from below an opening in the bottom of the hopper through the incinerator discharging to an ash pit, (2c) a trough mounted under the opening in the bottom of the hopper, under the main conveyer, and discharging in an ash pit, (2d) an ash pit, and (2e) a lift conveyer from the ash pit to a point above the water line of the vessel.

5,067,426

EIGHT MAN ROWING SHELL

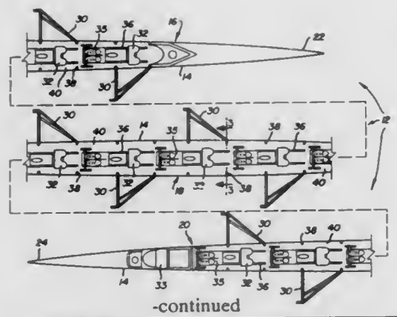
Michael Vespoli, 604 West Lake Avenue, Guilford, Conn. 06437; Bruce D. Nelson, 4604 Alhambra St., San Diego, Calif. 92107; Carl Scragg, 1861 Montgomery Ave., Cardiff By The Sea, Calif. 92007, and Paul Fuchs, 32 Ridge St., Greenwich, Conn. 06830

Filed Sep. 1, 1989, Ser. No. 402,074
Int. Cl.[5] B63B *1/00*
U.S. Cl. 114—56 **10 Claims**

1. An eight man rowing shell comprising an elongated hull having a pointed bow and stern and a smoothly tapered hull surface therebetween, said hull surface having a waterline length of 56.625 feet, an entry angle, as measured at the foremost point of the hull along the waterline, of about 4.04 degrees, an exit angle, as measured at the aft-most point of the hull along the waterline, of about 5.25 degrees, and the following cross-section areas, in square feet, below the waterline at stations spaced along the hull waterline when the shell is normally loaded:

station 0	0.000
station 0.5	0.086
station 1	0.224
station 2	0.492
station 3	0.683
station 4	0.816

VOL 1132 ISS 4 NO 26 1991 UMI



-continued

station 5	0.868
station 6	0.823
station 7	0.692
station 8	0.492
station 9	0.227
station 9.5	0.079
station 10	0.000

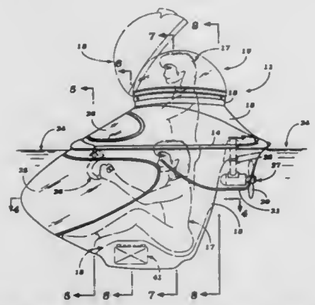
wherein station 0 signifies the fore-most point of the hull, and station 10 signifies the aft-most point of the hull, along the waterline, and wherein a unit station spacing is one-tenth of the waterline length.

5,067,427

SEMI-SUBMERGED WATER VEHICLE

Noboru Kobayashi, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Aug. 6, 1990, Ser. No. 562,715
Claims priority, application Japan, Aug. 9, 1989, 1-207749
Int. Cl.[5] B63B *1/00*
U.S. Cl. 114—56 16 Claims



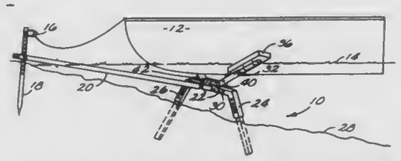
1. A semi-submerged watercraft having a hull defining a rider's compartment for accommodating at least a single rider seated below the water level, the buoyancy of said watercraft being such that a seated rider's eyes are substantially at water level at all times when said watercraft is in a body of water of sufficient depth for said watercraft to float in its semi-submerged condition, a hatch positioned above the water level for entry and exit of the rider, said hull having an underwater porthole through which a rider may view underwater scenes when seated in said rider's compartment, and an above-the-water porthole formed by said hull through which said rider may determine his course when seated in said rider's compartment for operating said watercraft.

5,067,428

PORTABLE BOAT DOCK

Mack F. Dickerson, 948 W. Simmons, Tucson, Ariz. 85705; Curt J. Hendricks, 6990 N. Blue Sky Ter., Tucson, Ariz. 85741, and Gregory A. Hendricks, 5303 E. Cortland Blvd., Apt. J-8, Flagstaff, Ariz. 86004

Filed Sep. 21, 1990, Ser. No. 585,953
Int. Cl.[5] B63B *21/00*
U.S. Cl. 114—230 14 Claims



1. A portable boat dock for receiving and securing opposite sides of a boat in a body of water having a shoreline and a bottom, said portable boat dock comprising:

a platform adapted to reside substantially under water, said platform including a central horizontal member, a pair of legs attached to said central horizontal member, a pair of plates also attached to said central horizontal member, and a pair of upwardly protruding arms operably attached to said pair of plates, said pair of legs adapted to reside on the bottom of the body of water and said upwardly protruding arms adapted to reside on opposite sides of the boat being secured;

a tongue attached to said platform to secure said platform in an upright position; and

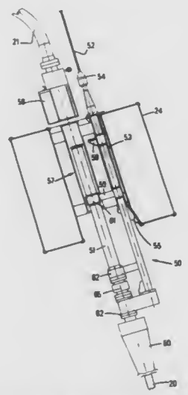
a front holding stake adapted to be secured proximate the shoreline, said stake operably connected to said tongue whereby said platform is secured upright proximate the shoreline.

5,067,429

METHOD FOR MOORING AND CONNECTING AN END OF A FLEXIBLE LINE WITH A CONDUIT OF A FLOATING OFFSHORE EDIFICE

Yvon Castel, Croissy sur Seine, France, assignor to Institut Francais Du Petrole, Rueil-Malmaison, France

Filed Sep. 22, 1989, Ser. No. 410,899
Claims priority, application France, Sep. 22, 1988, 88 12405
Int. Cl.[5] F16L *1/00*
U.S. Cl. 114—230 9 Claims



1. A method of mooring and connecting at least one flexible line end connected with a bottom base with a conduit of an edifice disposed at a surface of an aquatic medium, said bottom base being adapted to be utilized for oil effluent production, the method comprising the steps of:

mooring a harpoon attached to a first cable to a float,

pulling the first cable to bring said float toward a support integral with said edifice,

mooring said float to said support,

fixing an arm to an end of said flexible line and attaching the flexible line to a second cable,

at least one of bringing and positioning said flexible line using said second cable to a position for permitting a connection with said conduit,

placing said conduit in a vicinity of said end of said flexible line,

assembling and connecting said conduit and said end of said flexible line together, and

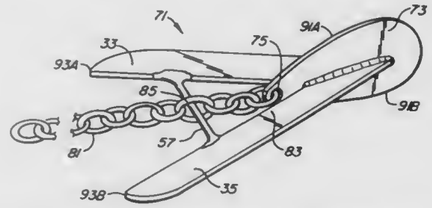
connecting said end of said flexible line to said float.

5,067,430

ANCHOR WITH AXIS CONTROL BAR

Charles H. Ford, Oakland, Calif., assignor to The Charles Henry Ford Trust, Created 4/1/88, Oakland, Calif.

Filed Jun. 7, 1990, Ser. No. 534,781
Int. Cl.[5] B63B *21/34*
U.S. Cl. 114—294 27 Claims



1. An anchor including no moving parts, comprising:

a first planar member having a first end and a second end formed with a point;

a second planar member having a first end and a second end formed with a point, the first end of said second planar member being joined to said first end of said first planar member such that said first and second planar members are in the shape of a "V";

an axis control bar extending between said first planar member and said second planar member;

a first vane joined to a first side and at said first ends of said first and second planar members in a plane substantially perpendicular to said first and second planar members;

a second vane joined to a second side and at said first ends of said first and second planar members in a plane substantially perpendicular to said first and second planar members; and

a first means for receiving and attaching a chain or rope to said anchor, said first means being spaced from said axis control bar, and said first means being non-moving with respect to said first and second planar members.

5,067,431

VIBRATING ARTICLE COATING AND CONVEYING APPARATUS

Charles E. Heitmiller, Crestwood, Ky., assignor to Carrier Vibrating Equipment, Inc., Louisville, Ky.

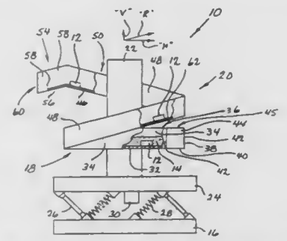
Filed Feb. 6, 1990, Ser. No. 475,446
Int. Cl.[5] B65G *27/02*; B05C *11/02*
U.S. Cl. 118—57 4 Claims

1. A vibrating coating and conveying apparatus for coating articles with a surface coating material and conveying the articles, comprising:

a base;

a reservoir disposed above the base for containing the surface coating material and for receiving the articles to be coated;

a vertically oriented helical conveying flight structure of multiple spiral flights having its bottom end open to the reservoir to receive coated articles from the reservoir through the open bottom end, and for conveying the coated articles generally upwardly out and away from the reservoir to an article discharge at the top end of the flight structure, the spiral flights of the flight structure being all of substantially equal circumferential dimension, the spiral



flights having a floor, side walls and open top, and at least a portion of the floor of at least one of the uppermost spiral flights of the multiple spiral flights being of open reticulated construction for the passage of excess coating material downwardly therethrough and into the next lower spiral flight through the open top of the next lower spiral flight to assure complete coating of the articles being conveyed in the helical structure; and,

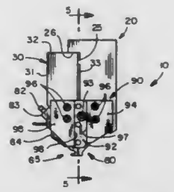
means for imparting a cyclical generally torsional motion to the reservoir and vertically oriented helical flight structure.

5,067,432

REPLACEABLE WIPING INSERT FOR SLOT DIE HEAD

Harry G. Lippert, Chippewa Falls, Wis., assignor to Extrusion Dies, Inc., Chippewa Falls, Wis.

Filed May 23, 1990, Ser. No. 527,362
Int. Cl.[5] B05C *3/18*
U.S. Cl. 118—413 16 Claims



1. In apparatus for applying a coating fluid to a web of material traveling under tension, including a die head having upstream and downstream lips relative to the direction of movement of the web, wherein the lips cooperate to define a slot orifice from which coating fluid may be emitted onto a surface of the web, the improvement comprising: means removably attaching the downstream lip to the die head, means accommodating resilient movement of the downstream lip independently of the upstream lip in directions substantially normal to the surface of the web in response to differential shear levels in the coating fluid.

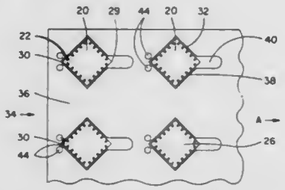
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,433

APPARATUS AND METHOD FOR APPLYING SOLDER TO AN ELECTRICAL COMPONENT

Wilfred A. Doll, Jr, Antwerp, Ohio, and Gregory W. Ison, Fort Wayne, Ind., assignors to ITT Corporation, New York, N.Y.

Filed Aug. 15, 1989, Ser. No. 395,241
Int. Cl.[5] B05C *13/00*
U.S. Cl. 118—500 7 Claims



1. An apparatus for applying a solder material to a leadless chip carrier comprising:

a pallet having a carrying surface which is moved in one direction of movement adjacent to a source of solder material, said carrying surface having a plurality of cavities therein each of which is shaped and adapted to hold a chip carrier inserted therein, each of said cavities having a shape matching that of the respective carrier, and an elongated recess portion extending from a leading edge of the carrier to allow easy insertion and removal of the carrier;

a plurality of chip carriers held in said cavities of said pallet, wherein each chip carrier has a given thickness such that, when it is inserted in the respective cavity of said pallet, a first surface thereof faces toward the source of solder material and projects by a given height above said carrying surface, said first surface being formed in a quadrilateral shape with a diagonal axis thereof arranged in parallel with the direction of movement of said pallet such that said leading edge of the chip carrier is located at one end of the diagonal axis and is a first portion to make contact with the solder material, and an opposed trailing edge of the chip carrier is located at an opposite end of the diagonal axis and is a last portion to make contact with the solder material as the solder material traverses,said upper surface by the relative movement of said pallet in said one direction of movement;

each of said chip carriers having a pair of rows of contact pads symmetrically arranged on its first surface on opposite sides of the diagonal axis extending between said leading and trailing edges of the respective carrier, and each of said contact pads having a given solderable surface area and a predetermined spacing from its adjacent contact pads; and

at least one solderable body for each chip carrier positioned on said carrying surface of said pallet spaced from the trailing edge of each respective chip carrier, said solderable body being spaced by a predetermined distance from the last ones of said contact pads in said rows which is substantially equal to the predetermined spacing between adjacent contact pads, and having a solderable surface area at least equal to the solderable surface area of said last contact pads and a height above said carrying surface of said pallet substantially equal to the height of said first surface of the chip carrier above said carrying surface of said pallet,

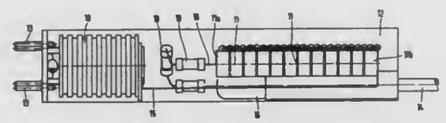
whereby said at least one solderable body conforms in solderable surface area, height, and spacing to said contact pads such that the solder material will break away from the last contact pads at the trailing edge of the respective chip carrier and attach to said solderable body with a uniform surface tension as it attached to the contact pads.

5,067,434

ELECTROSTATIC PAINT SPRAY GUN

Alex Thür, Hinterforst, and Kurt Seitz, Widnau, both of Switzerland, assignors to Wagner International AG, Switzerland

Filed Jun. 21, 1990, Ser. No. 541,514
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1989, 3921213
Int. Cl.[5] B05B *5/00, 5/02;* H02M *7/10*
U.S. Cl. 118—629 9 Claims



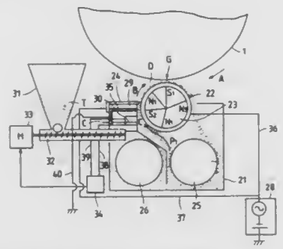
1. An electrostatic paint spray gun comprising a built-in high-voltage generator that is composed of a transformer and a high-voltage cascade extending in the gun barrel, whereby a low-voltage input of the cascade is connected to the transformer output and a high-voltage output is connected to the high-voltage electrode of the gun with a stranded lead, and whereby transformer and cascade are cast into an insulating member, wherein the high-voltage output is conducted out of the insulating member as a stranded electrode lead clad with an insulating hose, a gap is provided between said insulating hose and said insulating member, said gap being filled with an insulating oil and being closed with a sealing member.

5,067,435

TONER DENSITY SENSOR IN CLOSE PROXIMITY TO THE REGULATING BLADE

Akihito Hosaka, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 31, 1990, Ser. No. 575,680
Claims priority, application Japan, Aug. 31, 1989, 1-225374
Int. Cl.[5] G03G *15/08*
U.S. Cl. 118—€53 9 Claims



1. A developing apparatus comprising:

a developer bearing member for bearing developer including toner particles and carrier particles to feed the developer to a developing station;

a regulating member disposed in confronting relation to said developer bearing member and adapted to regulate an amount of the developer fed to said developing station;

a voltage source for outputting an alternating bias voltage, an output of which is applied to said developer bearing member and to said regulating member;

a detecting element disposed in the vicinity of said regulating member and in confronting relation to said developer bearing member and adapted to detect toner density in the developer born by said developer bearing member; and

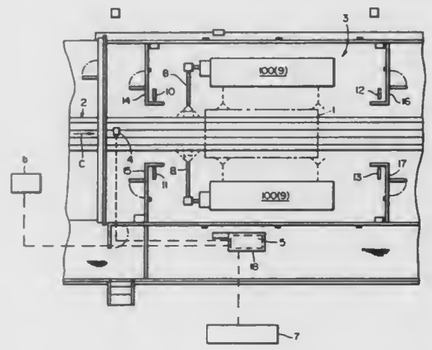
an electrical shield member disposed between said detecting element and said regulating member.

5,067,436

COATING APPARATUS

Eiji Matsushima, and Hidenori Takasaki, both of Hiroshima, Japan, assignors to Mazda Motor Corporation, Hiroshima, Japan

Filed Jul. 28, 1989, Ser. No. 386,435
Claims priority, application Japan, Jul. 29, 1988, 63-190778
Int. Cl.[5] B06C *11/00*
U.S. Cl. 118—676 9 Claims



2. A coating apparatus for coating paint on articles, comprising:

conveyor means for conveying the articles, in a first direction, successively through a coating station located along the conveyor means;

a spray gun for applying paint on each article as the article moves, in said first direction, through said coating station;

reciprocating means, carrying sad spray gun, provided in the coating station, said reciprocating means and said spray gun moving back and forth in the coating station along the conveyor means in said first direction and in a second direction, opposite to said first direction, the spray gun applying paint to each article substantially throughout movement of said spray gun in said first and second directions;

operating means for moving the reciprocating means and the spray gun in said first and second directions;

conveyor speed detecting means for detecting conveyor speed;

gun speed detecting means for detecting the moving speed of the spray gun in said first direction and the moving speed of the spray gun in said second direction; and

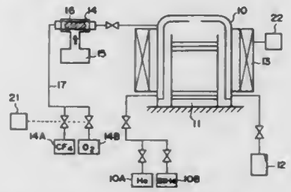
control means for processing input signals from the conveyor speed detecting means and gun speed detecting means and generating an operational signal for the operating means for controlling said moving speed of the spray gun in the first direction and said moving speed of the spray gun in the second direction such that a first relative speed between the article and the spray gun during movement of the spray gun in said first direction and a second relative speed between the article and the spray gun during movement of the spray gun in the second direction are substantially the same as the article moves in said first direction and the spray gun moves in said first and second directions so as to obtain an even coating of paint on each article.

5,067,437

APPARATUS FOR COATING OF SILICON SEMICONDUCTOR SURFACE

Tohru Watanabe, and Katsuya Okumura, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Mar. 28, 1989, Ser. No. 329,847
Claims priority, application Japan, Mar. 28, 1988, 63-73628
Int. Cl.[5] C23C *16/02*
U.S. Cl. 118—715 12 Claims



1. An apparatus for forming a covering film on the silicon surface of an intermediate semiconductor device, comprising:

first means for forming an active species, and

second means for removing an oxide film and forming a covering film;

said first means being a flow ratio regulating means for regulating a flow ratio of gaseous oxygen to a gaseous halogen compound, and discharge means for forming an active species from said gases;

said second means including a casing for housing an intermediate semiconductor device formed of silicon and for introducing said active species, a heating means for heating said intermediate semiconductor device to remove a silicon oxide film formed on said silicon surface of the intermediate semiconductor device by using said active species, temperature regulating means for regulating the temperature of said intermediate semiconductor device, and film forming means for forming a covering film on said silicon surface of said intermediate semiconductor device after said silicon oxide film has been removed therefrom;

said flow ratio regulating means and said temperature regulating means cooperatively regulating said flow ratio and said temperature, respectively, the ratio of the etching speeds of said silicon and said silicon oxide film being 5 or less.

5,067,438

FISH AQUARIUM

Gary Hoffa, 7545 University Ave., La Mesa, Calif. 91941

Filed Jan. 4, 1991, Ser. No. 637,541
Int. Cl.[5] A01K *63/00*
U.S. Cl. 119—5 5 Claims

1. A fish aquarium comprising:

an elongated bottom wall having a front edge, a rear edge, side edges, a depth X and a width Y;

an upright oriented rear wall having a width Y connected to the rear edge of said bottom wall;

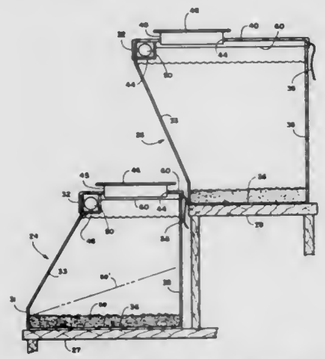
an upright oriented transparent front wall having a width Y connected to the front edge of said bottom wall, said front wall having a vertically oriented lower section and a vertically oriented upper section, said lower section being laterally offset a predetermined distance D from said upper section and an angularly oriented central section that connects said upper and lower sections;

a pair of end walls that are connected to the respective side edges of said bottom wall;

a top wall having a bottom surface that is secured to the top edges of said front wall, said rear wall, and said end walls. said top wall having a cutout portion that detachably receives a cover; and

VOL 1132 ISS 4 NO 26 1991 UMI

a hermetically sealed elongated light housing that is mounted inside said aquarium adjacent the intersection of said top wall and the upper section of said front wall, said light housing extends across the entire width W of said



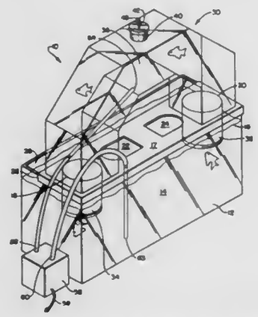
aquarium, an electrical cord in said light housing and waterproofing means for passing the electrical cord through said aquarium from said light housing to the rear wall of said aquarium.

5,067,439

AQUARIUM HYDRO HI-RISE AND CROSSOVER BRIDGE ASSEMBLY

William A. Hand, 3161 Sullivant Ave., Columbus, Ohio 43204

Filed Nov. 2, 1990, Ser. No. 608,361
Int. Cl.[5] A01K *63/00*
U.S. Cl. 119—5 **8 Claims**



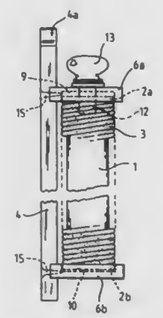
1. An aquarium construction and system including:
a. at least one open top aquarium tank to contain water and aquatic life, such as fish;
b. a cover over the at least one tank with a plurality of apertures in each cover;
c. a crossover bridge for providing a continuous volume of water between separated positions on the surface of the water of said at least one tank, comprising:
i) a walled continuous tube-like hollow structure having opposite ends with a formed intermediate portion therebetween,
ii) first and second water sealing capping means at the ends, operable to close the ends during a filling mode and to open the ends in an operating mode,
iii) said tube-like structure having an aperture in the walls in the intermediate portion, with a third water sealing capping means on the aperture operable to open the aperture during the filling mode and to close the aperture during the operating mode, and
d. means to provide water to the intermediate portion of the crossover bridge during the filling mode.

5,067,440

SCRATCHING POSTS

Allen R. G. Hatten, and Jean Hatten, both of 14 Lindisfarne Avenue, New Waltham, Grimsby, South Humberside, United Kingdom

Filed Dec. 24, 1990, Ser. No. 630,966
Claims priority, application United Kingdom, Dec. 23, 1989, 8929190; Jun. 21, 1990, 9013823
Int. Cl.[5] A01K *29/00*
U.S. Cl. 119—29 **7 Claims**



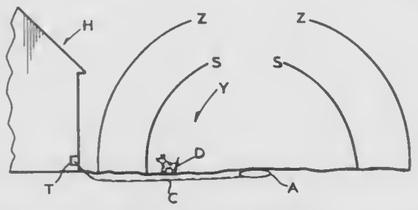
1. A scratching post comprising:
a backing plate;
a pair of spaced support walls projecting from said backing plate;
an elongate carrier member removably mounted between said support walls;
a cheek member secured to each end of said carrier member; and
a flexible element helically close-wound about said carrier member between said cheek members, said flexible element having opposite ends which are releasably secured to said cheek members.

5,067,441

ELECTRONIC ASSEMBLY FOR RESTRICTING ANIMALS TO DEFINED AREAS

Lee D. Weinstein, Houston, Tex., assignor to Torrington Product Ventures, Inc., New Hartford, Conn.

Filed Dec. 10, 1990, Ser. No. 625,313
Int. Cl.[5] A01K *15/02*
U.S. Cl. 119—29 **27 Claims**



1. An animal restraining system comprising:
(a) a radio frequency transmitter for generating radio signals and adapted to be located in or adjacent an area in which an animal is to be restrained;

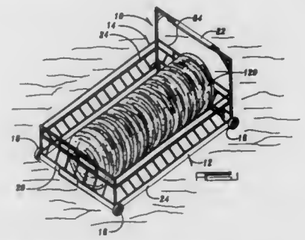
(b) a transmitting antenna operatively connected to said transmitter for radiating radio frequency signals generated by said transmitter; and
(c) a unit adapted to be worn by the animal, said unit comprising:
(i) a multiplicity of radio signal receivers each having a receiving antenna with said receiving antennae of said multiplicity of receivers having their axes of maximum sensitivity oriented in different directions;
(ii) means for deriving a composite field strength based upon the field strengths of the radio signals received by said receiving antennae;
(iii) means for detecting when the composite field strength detected by said receiving antennae falls below a predetermined value; and
(iv) means in said unit responsive when the composite field strength falls below said predetermined value for generating warning signals to the animal.

5,067,442

FORAGE FEEDING DEVICE

Harold D. Schilling, R.R. 1, Box 198, Colesburg, Iowa 52035

Filed Mar. 22, 1989, Ser. No. 327,100
Int. Cl.[5] A01K *1/10*
U.S. Cl. 119—60 **21 Claims**



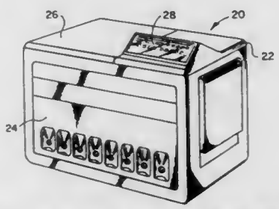
1. A forage feed device, comprising:
first and second frames, each frame including a side frame member with forward and rearward ends, a front frame member having one end connected to the forward end of the side frame member and a distal opposite end, and a rear frame member having one end connected to the rearward end of the side frame member and a distal opposite end, the side frame members having openings therein through which an animal's head is extended for eating feed;
a pair of spaced apart support wheels secured to each frame for rollably supporting the respective frame on a support surface;
a front guide track having opposite sides and having a pair of channels extending toward one another from the opposite sides, said channels having longitudinal axes residing in parallel planes, and said channels slidably receiving the respective distal ends of the front frame members so that the distal ends may slide past one another in the respective channel;
a rear guide track having opposite sides and having a pair of channels extending toward one another from the opposite sides, said channels having longitudinal axes residing in parallel planes, and said channels slidably receiving the respective distal ends of the rear frame members so that the distal ends may slide past one another in the respective channel; and
the first and second frames and the front and rear guide tracks defining an enclosure for containing animal feed, whereby, as the feed is consumed, the animals push against the side frame members so as to roll the first and second frames upon the support wheels towards one another, as guided by the front and rear guide tracks, so as to provide access to additional feed.

5,067,443

MECHANICAL NURSING DEVICE FOR NEONATAL PIGLETS

Frank Hurnik, Rockwood; Eric Jarmain, Komoka; Don Phillips; Michael Kirkland, both of London; Douglas Harkes, Thamesford, and Donald J. Gordon, Rockwood, all of Canada, assignors to Farmatic, Inc., Canada

Filed Sep. 28, 1990, Ser. No. 590,235
Claims priority, application Canada, Sep. 29, 1989, 614921
Int. Cl.[5] A01K *9/00*
U.S. Cl. 119—71 **12 Claims**



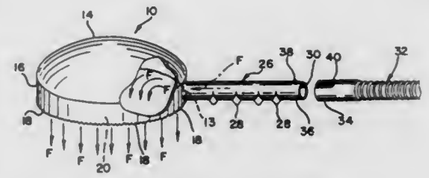
4. The mechanical nursing apparatus as in claim 1 wherein the nipple bar support for supporting said nipple bar, is pivotally mounted within said housing and pivoted by a reversible direct current electric motor connected thereto by a mechanical linkage which includes a plate affixed to the shaft of the motor and an arm interconnecting the plate and the nipple bar support.

5,067,444

APPARATUS FOR GROOMING ANIMALS

Susan Parker, 7240 Dixon, Forest Park, Ill. 60130

Division of Ser. No. 256,320, Oct. 11, 1988, Pat. No. 4,947,799.
This application May 17, 1990, Ser. No. 525,240
Int. Cl.[5] A01K *13/00;* **A45D** *20/00, 20/52*
U.S. Cl. 119—85 **8 Claims**



1. A tool for grooming animals comprising:
a housing configured as an open-face shell having peripheral wall means extending in a downward direction from a housing top portion to enclose an interior portion forming a forced-air receiving space, said wall means terminating in a plurality of downwardly extending grooming serrations defining the perimeter of housing aperture means, said space being devoid of animal-contacting means other than said serrations to provide an unobstructed space for outward flow of air; and
forced-air receiving connector means communicating with said housing interior space for connection to a source of air under pressure to deliver an air flow into said housing interior space and out of said aperture means.

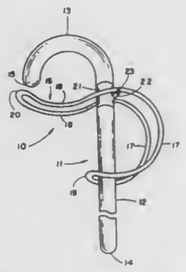
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,445

DEVICE FOR CAPTURING AND RESTRAINING ANIMALS

Donald H. Matthews, 20 Quaker Bottom Rd., Sparks, Md. 21152

Filed Oct. 29, 1990, Ser. No. 604,945
Int. Cl.[5] A01K *27/00*
U.S. Cl. 119—152 7 Claims



1. A device for capturing and restraining animals, comprised of:

a main body having a handle portion and a crook portion; and

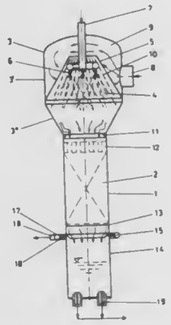
at least one S-shaped member having a restraining loop formed in the one end thereof and a contact loop formed in the other end thereof, the S-shaped member being pivotally secured to and carried by the main body substantially opposite the crook end, such that when an animal's neck is moved into the crook end, the animal's neck contacts the contact loop and pivots the restraining loop into contact with the crook end, thereby closing the crook portion for capturing and restraining the animal therein.

5,067,446

APPARATUS FOR DEGASSING AND HEATING WATER

Francisco Blangetti, Baden; Werner Muri, Baden-Rütihof, and Mustafa Youssef, Zürich, all of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland

Filed Oct. 17, 1990, Ser. No. 599,039
Claims priority, application Switzerland, Oct. 31, 1989, 3933/89
Int. Cl.[5] F22D *1/30, 1/29, 1/26;* B01D *47/00*
U.S. Cl. 122—441 4 Claims



1. An apparatus for degassing and heating water by means of steam, comprising:

an upper housing comprising,

a conical mixing chamber having a conical boundary wall, nozzles coupled to a water supply line by which the water to be degassed is injected within said conical boundary wall,

a steam distribution chamber surrounding said conical mixing chamber and coupled to a steam supply line,

said conical boundary wall of said conical mixing chamber having openings by which steam supplied into said distribution chamber communicates with water to be degassed supplied by said nozzles within said mixing chamber;

a column with packing bodies arranged therein downstream of said upper housing, said column having a distributor arranged at a head of said column; and

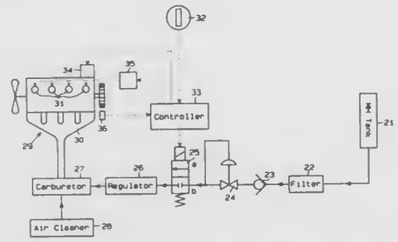
a lower housing communicating with and downstream of said column, including a venting link for exhausting gas/steam mixture and an output line for passing degassed and heated water.

5,067,447

METHOD FOR CONTROLLING HEAT OF A METAL HYDRIDE CONTAINER

Takashi Iwaki, Okazaki; Kazunori Itou, Ohbu; Hiroshi Matsumoto, Toyota; Kunitoshi Watanabe, Mizumaki; Hiroyuki Suzuki, Kitakyushu; Juzo Shibata, Aichi; Nobuyuki Uematsu, Hoya, and Mamoru Takeda, Chiba, all of Japan, assignors to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho, Kariya and Nippon Steel Corporation, Tokyo, both of, Japan

Division of Ser. No. 384,302, Jul. 24, 1989. This application Dec. 12, 1990, Ser. No. 628,840
Claims priority, application Japan, Jul. 26, 1988, 63-184535; Sep. 22, 1988, 63-237852; Sep. 22, 1988, 63-237857; Nov. 21, 1988, 63-294172; Nov. 21, 1988, 63-294173
Int. Cl.[5] F02B *43/00*
U.S. Cl. 123—3 1 Claim



1. A method for controlling heat of a metal hydride container comprising;

a first step wherein temperature of heat intermedium at a heat intermedium entrance side of the metal hydride container is controlled at a constant value,

a second step wherein an amount of inflow of said heat intermedium, which has been controlled to be at the constant temperature, into said metal hydride container is controlled.

5,067,448

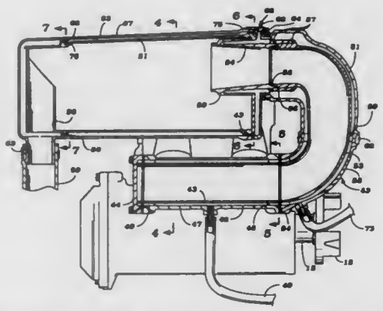
EXHAUST COOLING DEVICE FOR SMALL SIZED BOAT ENGINE

Ryoichi Nakase, and Shigeharu Mineo, both of Hamamatsu, Japan, assignors to Sanshin Industries Co., Ltd., Hamamatsu, Japan

Filed Sep. 26, 1989, Ser. No. 412,850
Claims priority, application Japan, Sep. 27, 1988, 63-241645
Int. Cl.[5] F01P *1/06*
U.S. Cl. 123—41.31 4 Claims

1. A cooling arrangement for exhaust pipe or the like of a marine propulsion engine cooled by water drawn by a coolant pump from the body of water in which a watercraft is operated and returned thereto, said exhaust pipe having a horizontally extending portion, a horizontally extending cooling jacket

formed around said horizontally extending portion of said exhaust pipe, a coolant inlet port means connected to said coolant jacket for delivery of water thereto from the body of water by said coolant pump and a coolant outlet port means from said coolant jacket for returning water to the body of water, said coolant outlet port means being sized and positioned relative to said coolant inlet port means to insure the



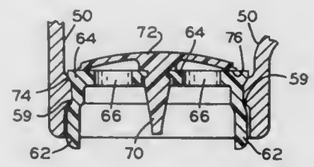
volume of said cooling jacket between said inlet port means and said outlet port means is filled with coolant under all conditions of operation of said coolant pump so as to insure adequate cooling of said exhaust pipe, said coolant outlet port means including a restricted opening at a lower portion of said cooling jacket to drain water from said cooling jacket when the engine is not running but small enough not to deplete the water level in said cooling jacket when said engine is running.

5,067,449

FITTED CRANKCASE BREATHER VALVE ASSEMBLY

Kevin G. Bonde, Kiel, Wis., assignor to Tecumseh Products Company, Tecumseh, Mich.

Filed Apr. 12, 1991, Ser. No. 684,222
Int. Cl.[5] F01M *13/02*
U.S. Cl. 123—41.86 12 Claims



1. In an internal combustion engine including a crankcase having a crankcase interior, a crankcase breather assembly for expulsion of combustion gases from the crankcase interior, comprising:

breather passage means in the crankcase for providing communication of gases out from the crankcase interior, said passage means including an annular recess defining a shoulder having a corner edge; and

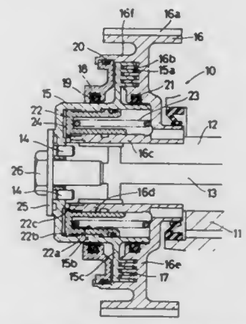
valve means for intermittently permitting the expulsion of gases from the crankcase interior, said valve means including a valve seat portion connected with a flexible breather valve, wherein said valve seat portion includes a locking portion disposed at least partially within said annular recess and forming an interference fit therein, whereby said corner edge positively locks said valve seat within said passage means.

5,067,450

VARIABLE VALVE TIMING SYSTEM HAVING ROTATIONAL VIBRATION DAMPING

Junichi Kano, Kariya; Kongoh Aoki, Toyota; Masahiro Mochizuki, Okazaki, and Hiroyuki Nakadozono, Toyota, all of Japan, assignors to Aisin Seiki Kabushiki Kaisha, Kariya, Japan

Filed Mar. 9, 1990, Ser. No. 491,208
Claims priority, application Japan, Mar. 14, 1989, 1-61820; Sep. 29, 1989, 1-255718
Int. Cl.[5] F01L *1/34*
U.S. Cl. 123—90.17 12 Claims



1. A variable valve timing system in an engine having a rotating cam-shaft, comprising:

a first timing member driven by the engine;

a second timing member rotatably fixed to the crankshaft;

helical means engaged between said first and second timing members and including a piston movable for adjusting an angular position between said first and second timing members;

hydraulic circuit means for selectively applying a hydraulic pressure to said piston for selectively moving said piston to adjust said angular position; and

damper means on said first and second timing members for hydraulically damping rotational vibrations between said second timing member and said first timing member,

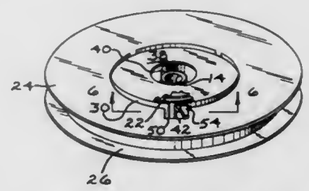
whereby torque variation applied to said second timing member relative so said first timing member do not cause a change in said angular position.

5,067,451

RECOIL SPRING END RETAINER

Rex A. Tyler, Charlotte, Mich., assignor to Eaton Indiana, Inc., Nappanee, Ind.

Filed Aug. 14, 1990, Ser. No. 567,100
Int. Cl.[5] F02N *3/02*
U.S. Cl. 123—185 BA 3 Claims



1. In a rope pulley for an engine recoil starter wherein the pulley comprises a circular body having an axis, a central hub, a periphery, first and second spaced flanges defining a peripheral rope receiving groove, and a recoil spring receiving recess substantially concentric to the hub radially located intermedi-

VOL 1132 ISS 4 NO 26 1991 UMI

ate the hub and the periphery having an axially extending outer wall and an open end adjacent the first flange, the improvement comprising, an elongated axially extending slot defined in the recoil spring receiving recess wall intersecting the recess open end for receiving the bent outer end of a spiral recoil spring located within the spring receiving recess, and a spring retainer abutment defined on the first flange adjacent said slot comprising a web extending from the first flange and a cap plate mounted on said web transversely disposed to the length of said slot, said cap plate adapted to be axially aligned with and overlying a bent spring outer end received within said slot to prevent axial movement of the spring end relative to said slot in the axial direction toward said cap plate and the recess open end.

5,067,452

CYLINDER HEAD AND CYLINDER HEAD COVER FOR INTERNAL COMBUSTION ENGINES

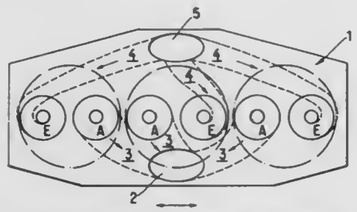
Ludwig Elsbett; Günter Elsbett, and Klaus Elsbett, all of Industriestrasse 14-16, D-8543 Hilpoltstein, Fed. Rep. of Germany

Filed Jul. 2, 1990, Ser. No. 547,767

Claims priority, application Fed. Rep. of Germany, Jun. 30, 1989, 3921662

Int. Cl.[5] F02M *35/00*

U.S. Cl. 123—193 H **10 Claims**



1. An internal combustion engine, particularly a compression-ignition engine, comprising a cylinder block with at least three cylinders; and a cylinder head adjacent said block and having a chamber for each cylinder, a single charge admitting opening, first channels connecting said single opening with said chambers, a single exhaust opening for exhaust gases and second channels connecting said exhaust opening with said chambers.

5,067,453

PISTON OF TWO-CYCLE ENGINE

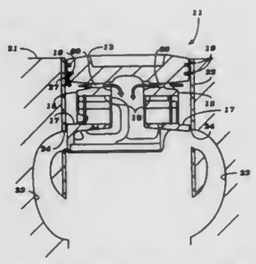
Kazutoshi Takashima, Hamamatsu, Japan, assignor to Sanshin Kogyo Kabushiki Kaisha, Hamamatsu, Japan

Filed Sep. 7, 1990, Ser. No. 578,934

Claims priority, application Japan, Sep. 7, 1989, 1-232453

Int. Cl.[5] F02F *3/00*

U.S. Cl. 123—193 P **20 Claims**



8. A piston for a two-cycle, crankcase compression engine having scavenge ports said piston having ahead formed with at least one ring groove receiving a piston ring therein, a skirt portion formed below said head and having arcuate portions adapted to face a cylinder bore, a pair of piston pin bosses for receiving a piston pin to connect said piston to a connecting rod, and a blow by passage formed in said piston extending from an area below said piston ring groove for directing blow by gases escaping past said piston ring to an area across said piston pin bosses between said skirt portions to avoid deterioration of lubricant on said skirt portions through the scavenge passage the piston pin bosses.

5,067,454

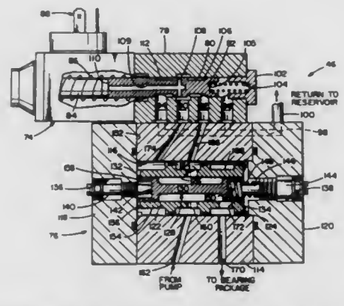
SELF COMPENSATING FLOW CONTROL LUBRICATION SYSTEM

Clive Waddington, Stratford; Normand L. Lagasse, Milford, and Roger Taupier, Orange, all of Conn., assignors to Avco Corporation, Providence, R.I.

Filed Jun. 14, 1989, Ser. No. 366,786

Int. Cl.[5] F01M *1/00*

U.S. Cl. 123—196 S **17 Claims**



1. An automatic self compensating flow control lubrication system for continuously supplying the requisite amount of lubricant to at least one moving component of a drive system comprising:

delivery means for supplying the lubricant from a reservoir to the moving component and for returning the lubricant to the reservoir;

sensor means for detecting an operating parameter being encountered by the drive system and operable to generate signals proportional to deviations from a predetermined value of such operating parameter;

valve means operatively associated with said delivery means for regulating the flow of lubricant to the moving component; and

computer means responsive to the signals from said sensor means for operating said valve means to obtain a predetermined flow of the lubricant to the moving component necessary to return the operating parameter to the predetermined value;

said valve means including:

a first stage solenoid valve responsive to said computer means for regulating the output pressure of lubricant therefrom to a second stage metering valve according to a condition being experienced by said drive system and movable between a first position at which the pressure of the lubricant output is at maximum and a second position at which the pressure of the lubricant output is at minimum; and

a second stage metering valve for receiving pressurized lubricant from said delivery means and for directing flow of the pressurized lubricant to said moving component, said second stage metering valve being movable in response to operation of said first stage solenoid valve, between a minimum flow position allowing minimum flow of the lubricant to the moving component when said first stage solenoid valve is in said second position and a maximum flow position allowing maximum flow of the lubricant to the moving component when said first stage solenoid valve is in said first position.

5,067,455

METHOD AND APPARATUS FOR ADDING ADDITIVES TO LUBRICATING OIL

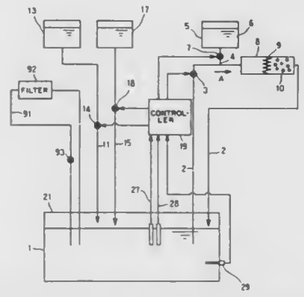
Atsushi Okajima, Kariya; Yasuou Yamazaki; Yasuhide Okamoto, both of Nagoya; Masaei Nozawa, Okazaki; Yukihisa Takeuchi, Chita, and Hajime Akado, Anjo, all of Japan, assignors to Nippondenso Co., Ltd., Kariya, Japan

Filed Oct. 31, 1990, Ser. No. 605,853

Claims priority, application Japan, Nov. 4, 1989, 1-287739; Oct. 4, 1990, 2-267787

Int. Cl.[5] F01M *9/02*

U.S. Cl. 123—196 R **14 Claims**



1. An apparatus for adding additives to lubricating oil comprising:

detecting means equipped in a circuit of flow of a lubricating oil, for impressing a high voltage between two points in said lubricating oil and measuring a current therebetween, to determine a TBN of said lubricating oil;

supplying means for selectively supplying additives to said lubricating oil; and

controlling means for controlling a supply of said additives by said supplying means when said TBN detected by said detecting means is outside a predetermined range.

5,067,456

HYPOCYCLOID ENGINE

Norman H. Beachley, 2332 Fitchburg Rd., Verona, Wis. 53593, and Frank J. Fronczak, 238 Carillon Dr., Madison, Wis. 53705

Filed Nov. 16, 1990, Ser. No. 614,208

Int. Cl.[5] F02B *75/32*

U.S. Cl. 123—197 AC **13 Claims**

1. A crankshaft assembly a hypocycloid engine, said assembly rotatably supported in an engine crankcase and comprising:

a main output shaft;

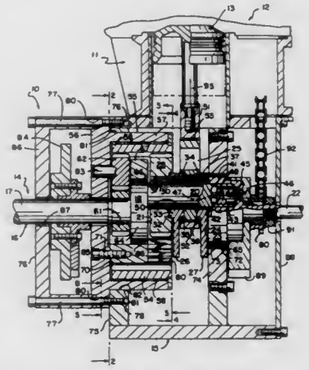
a first cylindrical crank support attached to an inner end of the output shaft coaxially therewith;

a second cylindrical crankpin support attached to an inner end of a stub shaft coaxially therewith;

a cylindrical crankpin extending between and attached by its opposite ends to the first and second crankpin supports, the axis of the crankpin disposed offset from and parallel to a common axis of the output and stub shafts;

a fixedly interconnected subassembly including an eccentric piston rod mounting disc, a pinion gear and counterweight means journalled for rotation on said crankpin, said subassembly including means for interconnecting said mounting disc, pinion gear and counterweight means;

crankpin bearing means rotatably supporting said subassembly on said crankpin, said bearing means positioned to distribute a radial load on said piston rod mounting disc to the ends of the crankpin closely adjacent said crankpin supports; and



first and second support bearings respectively rotatably mounting said first and second crankpin supports in the crankcase directly adjacent the ends of the crankpin.

5,067,457

SWIRL CHAMBER TYPE DIESEL ENGINE

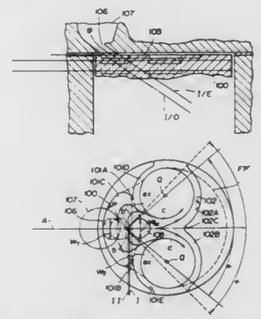
Motobiro Shinzawa, Yokosuka, Japan, assignor to Nissan Motor Company, Ltd., Yokohama, Japan

Filed Apr. 5, 1990, Ser. No. 505,072

Claims priority, application Japan, Apr. 7, 1989, 1-88585

Int. Cl.[5] F02B *19/08*

U.S. Cl. 123—269 **3 Claims**



1. In a swirl chamber type diesel engine, wherein a main combustion chamber is fluidly communicated with a swirl chamber by way of a transfer port, an arrangement comprising:

a piston, having an essentially flat crown portion and an imaginary line of symmetry which divides the circular crown into first and second semi-circular halves, said transfer port being arranged so that an extrapolation thereof falls on said line;

means defining first and second essentially circular dispersion recesses on either side of said line and in said first and second semi-circular halves, said essentially circular dispersion recesses having first and second centers respectively;

means defining an island-like projection, said island-like projection being located on said line;

a V-shaped portion defined on said island-line projection, said V-shaped portion being oriented toward the periph-

VOL 1132 ISS 4 NO 26 1991 UMI

ery of the piston, an apex of said V-shaped portion being disposed on said line and arranged so that it is located on the inboard extremum of the extrapolation of the transfer port when the piston assumes a first predetermined position wherein the crank angle is in the range of 17°–21° ATDC and so that it is located on the outboard extremum of the extrapolation when the piston has descended from the first predetermined position to a second predetermined position wherein the crank angle is in the range of 33°–35° ATDC, the inboard and outboard extremums intersecting the crown of the piston at a predetermined angle ϕ, said inboard extremum intersecting the crown of said piston at a point P when the piston assumes its TDC position, said point being located with respect to said first and second essentially circular recesses so that an angle defined between straight lines joining said point P to said first and second centers respectively, does not differ from a predetermined angle by more than ±2°.

5,067,458

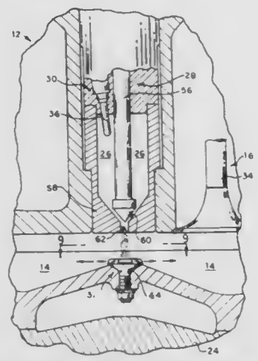
FUEL COMBUSTION SYSTEM AND METHOD OF OPERATION FOR AN OTTO-CYCLE INTERNAL COMBUSTION ENGINE

John M. Bailey, Dunlap, Ill., assignor to Caterpillar Inc., Peoria, Ill.

Continuation-in-part of Ser. No. 328,976, Mar. 27, 1989, abandoned. This application Nov. 20, 1989, Ser. No. 438,277

Int. Cl.[5] F02B *19/02*

U.S. Cl. 123—292 23 Claims



1. A method of combusting a predetermined combustible mixture of fuel and air in an Otto-cycle internal combustion engine including a main combustion chamber, first control valve means for admitting the combustible mixture into the main combustion chamber, an auxiliary combustion chamber, second control valve means for opening and blocking fluid communication between the main combustion chamber and the auxiliary combustion chamber comprising the steps of:

a) admitting the combustible mixture into the main combustion chamber during an intake phase of the cycle;

b) compressing and thereby pressurizing the combustible mixture in the main combustion chamber during a compression phase of the cycle;

c) opening the second control valve means at a predetermined time during a latter portion of the compression phase in order to admit a portion of pressurized combustible mixture into the auxiliary combustion chamber;

d) igniting the portion of combustible mixture admitted to the auxiliary combustion chamber and thereby forming expanding burning gases;

e) directing the expanding burning gases from the auxiliary combustion chamber into the main combustion chamber in order to penetrate and cause ignition and burning of the remaining pressurized combustible mixture in the main combustion chamber; and

f) closing the second control valve means at a predetermined time prior to about the beginning of the next compression phase.

5,067,459

FUEL TIMING CONTROL

Thomas T. Ma, South Woodham Ferrers, England, assignor to Ford Motor Company, Dearborn, Mich.

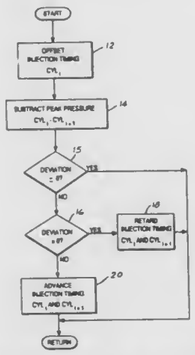
PCT No. PCT/GB89/00504, § 371 Date Oct. 28, 1990, § 102(e) Date Oct. 28, 1990, PCT Pub. No. WO89/11029, PCT Pub. Date Nov. 16, 1989

PCT Filed May 2, 1989, Ser. No. 576,521

Claims priority, application United Kingdom, May 3, 1988, 8810420

Int. Cl.[5] F02B *3/08;* F02D *41/04;* F02M *51/00*

U.S. Cl. 123—295 2 Claims



1. A spark ignited internal combustion engine, in which charge stratification occurs within the combustion chamber and in which the burn quality of the charge is dependent upon the timing of the instant of introduction of the fuel into the charge, comprising:

a sensor provided for each cylinder to produce a signal representative of burn quality in each cylinder;

timing means for controlling the fuel introduction timing in dependence upon the output signal of each sensor so as to optimize the charge stratification within the combustion chamber; and

means for indicating a sense of deviation of the fueling timing from its optimum setting by fueling two of the cylinders of the engine with a given phase difference between them and subtracting the signals from the individual sensors associated with the cylinders from one another to indicate the sense of deviation of the fueling timing from its optimum setting and adjusting the fueling timing in dependence upon the sense of deviation.

5,067,460

VARIABLE AIR/FUEL RATIO ENGINE CONTROL SYSTEM WITH CLOSED-LOOP CONTROL AROUND MAXIMUM EFFICIENCY AND COMBINATION OF OTTO-DIESEL THROTTLING

Edward Van Duyne, Framingham, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass.

Division of Ser. No. 542,445, Jun. 22, 1990, abandoned. This application May 22, 1991, Ser. No. 704,310

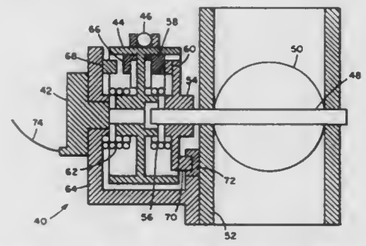
Int. Cl.[5] F02D *9/08*

U.S. Cl. 123—337 2 Claims

1. Throttle input device comprising:

a first disk connected to a throttle pedal cable, the first disk arranged to rotate a shaft of a potentiometer;

a second disk arranged to rotate a throttle plate from a closed to a wide open position; and



apparatus to constrain the first and second disks to rotate together until the throttle plate reaches the wide open position, and to allow the first disk alone to continue to rotate thereafter.

5,067,461

METHOD AND APPARATUS FOR METERING FUEL IN A DIESEL ENGINE

Ernst-Ulrich Joachim, Glücksburg, and Hermann Kull, Stuttgart, both of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

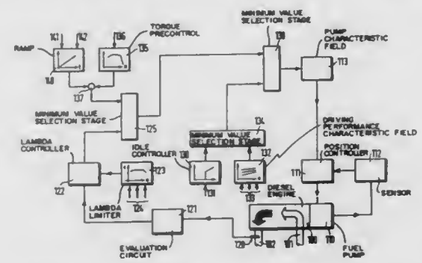
PCT No. PCT/DE88/00467, § 371 Date Mar. 5, 1990, § 102(e) Date Mar. 5, 1990, PCT Pub. No. WO89/02524, PCT Pub. Date Mar. 23, 1989

PCT Filed Jul. 28, 1988, Ser. No. 490,668

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1987, 3729771

Int. Cl.[5] F02D *31/00*

U.S. Cl. 123—357 10 Claims



1. A method of metering fuel to a diesel engine operable at part load and full load, the engine having a controller for supplying a quantity of fuel to the engine via a fuel pump, the method comprising the steps of:

utilizing a lambda probe arranged in the exhaust gas flow of the engine to measure the actual value of lambda which is indicative of the ratio of air and fuel supplied to the engine;

providing a desired value of lambda in dependence upon at least the engine speed;

open-loop controlling the fuel quantity metered to the engine during the part-load operation in dependence upon at least the engine speed and accelerator pedal position;

comparing the desired value of lambda with the actual value of lambda;

transferring from the open-loop control to closed-loop control when the engine passes from part-load operation to full-load operation by utilizing the controller to control the actual value of lambda to the desired value of lambda by controlling the quantity of fuel metered to the engine in dependence upon the comparison of said actual and desired lambda values;

detecting the full-load when the fuel quantity value taken from the characteristic field is greater than the precontrol value dependent upon torque; and,

at full-load, adding a time variable additional signal to the fuel quantity signal dependent upon torque.

5,067,462

CONTROL DEVICE AND METHOD FOR MULTICYLINDER ENGINE WITH A CYLINDER DISCRIMINATION FUNCTION

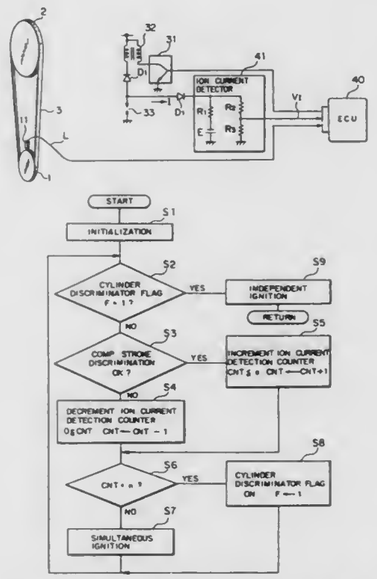
Toshio Iwata, and Toshio Ohsawa, both of Himeji, Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Oct. 17, 1990, Ser. No. 599,174

Claims priority, application Japan, Oct. 19, 1989, 1-270303

Int. Cl.[5] F02P *5/04*

U.S. Cl. 123—414 12 Claims



1. A control method for controlling operational timing of a multi-cylinder internal combustion engine, comprising the steps of:

discriminating a group of cylinders in a compression and an exhaust stroke;

controlling simultaneously operational timing of the group of cylinders discriminated to be in the compression and the exhaust stroke;

discriminating from the group of cylinders in the compression and the exhaust stroke an individual cylinder in the compression stroke by monitoring an internal condition in at least one cylinder in said group of cylinders; and

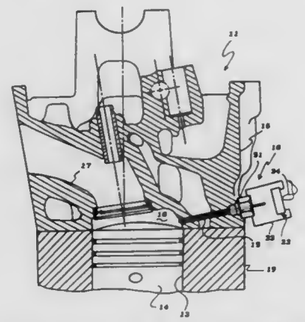
controlling operational timing of each cylinder of the engine independently after a discrimination of the cylinder in the compression stroke is established.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,463
METHOD AND APPARATUS FOR OPERATING AN ENGINE

Donald J. Remboski; Steven L. Plee, both of Northborough; Jialin Yang, Westboro; Robert W. Law, Acton, and Michael T. Vincent, Grafton, all of Mass., assignors to Barrack Technology Limited, West Perth, Australia

Filed Feb. 26, 1990, Ser. No. 485,150
Int. Cl.[5] F02D *41/14;* F02P *5/145;* G01L *23/16*
U.S. Cl. 123—425 27 Claims



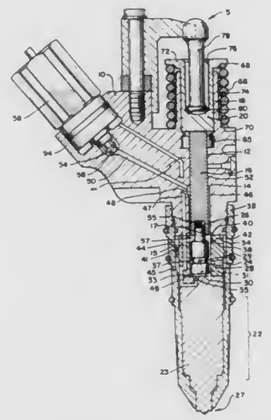
1. A method for operating an internal combustion engine having at least one combustion chamber, means for forming a combustible air/fuel mixture within the combustion chamber, means for detecting the luminosity within the combustion chamber during each cycle of operation of the engine from prior to initiation of combustion until after completion of combustion, generating a curve based on the detected luminosity, determining at least the location of minimum luminosity derivative of the luminosity curve in relation to output shaft angle and measuring at least one parameter of the engine based on at least the determined location of minimum luminosity derivative of the luminosity curve.

5,067,464
FUEL INJECTOR FOR AN INTERNAL COMBUSTION ENGINE

David M. Rix; Martin W. Long; Thomas R. Lee, and Douglas E. Dawes, all of Columbus, Ind., assignors to Cummins Engine Company, Inc., Columbus, Ind.

Filed Mar. 29, 1990, Ser. No. 501,030
Int. Cl.[5] F12M *59/02*
U.S. Cl. 123—446 7 Claims

1. A fuel injector for use in an internal combustion engine comprising:
a fuel injector body having a central axis, a receiving boss and a chamber for receiving a quantity of fuel, said chamber holding said fuel at high pressure during the injection process;
control means for controlling the quantity of said fuel received by said chamber, said control means having a central axis and being mounted to said injector body through said receiving boss;
said central axis of said control means intersecting said central axis of said injector body at an acute angle;
a passage formed in said injector body for providing continuous fuel communication between said control means and said chamber, said passage having a central axis;
means for pressurizing said fuel in said chamber;
said passage between said control means and said chamber being exposed to the pressure created in said fuel chamber by said pressurizing means;
said central axis of said passage being positioned substantially coaxially with the central axis of said control means; and,

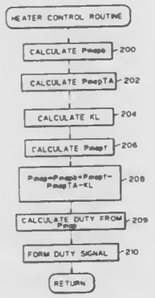


a nozzle in communication with said chamber for delivering said pressurized fuel into said engine.

5,067,465
LEAN BURN INTERNAL COMBUSTION ENGINE

Hirofumi Yamasaki, Kakogawa; Kiyoshi Yagi, Kobe; Keisuke Tsukamoto, Toyota; Toshio Takaoka, Toyota, and Takao Fukuma, Toyota, all of Japan, assignors to Fujitsu Ten Limited, Kobe and Toyota Jidosha Kabushiki Kaisha, Toyota, both of, Japan

Filed Feb. 14, 1991, Ser. No. 655,646
Claims priority, application Japan, Feb. 15, 1990, 2-34986; Feb. 15, 1990, 2-34988
Int. Cl.[5] F02D *41/14*
U.S. Cl. 123—489 6 Claims



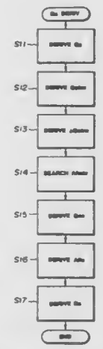
1. A lean burn internal combustion engine, comprising: an engine body;
an intake line for introducing intake air into the engine body;
a throttle valve in said intake line for controlling the amount of air to be introduced into the engine body;
fuel supply means for supplying an amount of fuel into the intake line for producing a lean air-fuel mixture;
an exhaust line for a removal of the resultant exhaust gas from the engine body;
means for detecting an intake pressure in the intake line of the engine;
means for calculating, based on the detected intake pressure, a basic amount of fuel to be supplied to the engine;

means for detecting a degree of opening of the throttle valve;
means for correcting, based on the detected degree of opening of the throttle valve, the basic fuel amount needed to obtain a lean air-fuel mixture;
means for operating the fuel supply means so that the corrected amount of fuel is supplied into the engine body;
sensor means arranged in the exhaust system for detecting an air-fuel ratio, said sensor means having a sensing element in contact with the exhaust gas and a heater means for obtaining an activated temperature of the sensing element;
feedback means for carrying out a feedback control of the air-fuel ratio when necessary, so that the detected air-fuel ratio corresponds to the desired air-fuel ratio;
means, based on the detected intake pressure, for controlling the electric power in the heater means, and;
means, based on the degree of opening of throttle valve, for reducing an electric power in the heater from that obtained in accordance with the intake pressure, to thereby prevent an overheating of the sensor element.

5,067,466
SYSTEM FOR MEASURING AIR FLOW RATE FOR INTERNAL COMBUSTION ENGINES

Hatsuo Nagaishi, Kanawaga, Japan, assignor to Nissan Motor Company, Limited, Japan

Filed Jan. 23, 1991, Ser. No. 644,373
Claims priority, application Japan, Jan. 25, 1990, 2-15784
Int. Cl.[5] F02M *51/00*
U.S. Cl. 123—494 4 Claims

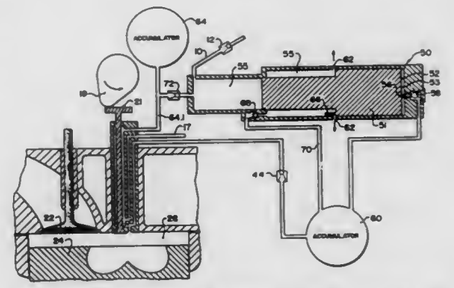


1. A system for measuring a flow rate of air passing through an air passage, said system comprising:
a hot-wire type air flow meter for monitoring a flow rate of air passing through an air passage to produce a sensor signal representative of the air flow rate, said air flow meter including a sensor portion which has a ceramic member and a heating element wound onto the ceramic member, and a control circuit for controlling current supplied to the heating element so as to hold temperature of the heating element constant;
first means for receiving said sensor signal of the air flow meter to derive a variation of said sensor signal value per a first predetermined period of time to produce a first signal representative of the variation of the sensor signal value;
second means for receiving said first signal to integrate said first signal value over a second predetermined period of time to attenuate the integrated value of the first signal value at a predetermined speed to produce a second signal representative of the attenuated value; and
third means for receiving said sensor signal and said second signal to correct said sensor signal value of the air flow meter on the basis of the attenuated value to derive a corrected flow rate of air.

5,067,467
INTENSIFIER-INJECTOR FOR GASEOUS FUEL FOR POSITIVE DISPLACEMENT ENGINES

Philip G. Hill; Ronald J. Pierik, both of Vancouver, and K. Bruce Hodgins, Delta, all of Canada, assignors to The University of British Columbia, Vancouver, Canada

Filed Nov. 27, 1989, Ser. No. 441,104
Claims priority, application Canada, Nov. 29, 1988, 584496
Int. Cl.[5] F02M *39/00*
U.S. Cl. 123—497 48 Claims

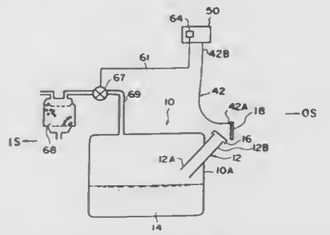


1. An intensifier-injector for gaseous fuels in internal combustion engines comprising means which utilizes the compressed gas from the chamber of the internal combustion engine or another source of high pressure gas or fluid to drive an intensifier means which raises the pressure of fuel gas to a constant pressure sufficient for rapid injection into the cylinder of the internal combustion engine regardless of the fuel gas storage pressure or engine demand for fuel.

5,067,468
APPARATUS FOR PREVENTING DISCHARGE OF FUEL VAPOR

Hidekazu Otowa; Kazuhiro Okada; Hidefumi Sonoda, and Tadao Kaneko, all of Aichi, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Apr. 2, 1990, Ser. No. 502,278
Claims priority, application Japan, Apr. 3, 1989, 1-39362[U]
Int. Cl.[5] F02M *37/04*
U.S. Cl. 123—516 13 Claims



1. An apparatus for preventing discharge of fuel vapor, comprising:
a fuel tank;
adsorbing means for adsorbing fuel vapor;
communicating means for communication between said adsorbing means and said fuel tank;
control means for opening a fuel lid through remote control, said control means including mounting means having a base plate for mounting said control means in a vehicle

VOL 1132 ISS 4 NO 26 1991 UMI

compartment remote from said fuel tank, said control means having a lever with a handle portion pivotably mounted on said mounting means;

switching means secured to said control means responsive to the operation of said control means for opening said fuel lid;

actuating means disposed on one of said lever and said mounting means for actuating said switching means upon operation of the handle portion of said lever; and

valve means for closing said communicating means upon the closing of said fuel lid and for opening said communicating means in interlocking relation with the operation of said switching means.

5,067,469

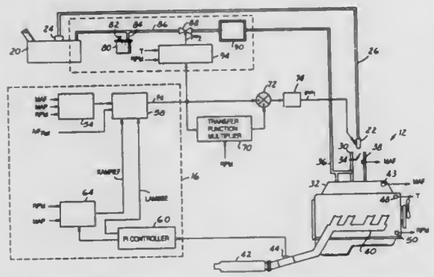
FUEL VAPOR RECOVERY SYSTEM AND METHOD

Douglas R. Hamburg, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 405,153, Sep. 11, 1989, abandoned. This application Jun. 27, 1991, Ser. No. 725,931

Int. Cl.[5] F02M *33/02*

U.S. Cl. 123—520 12 Claims



1. A control system for an internal combustion engine, comprising:

measurement means for providing a measurement of mass airflow inducted into an air/fuel intake of the engine;

an exhaust gas oxygen sensor coupled to an engine exhaust;

air/fuel control means for providing a desired fuel charge signal related to said measurement of airflow, said air/fuel control means also being responsive to said exhaust gas oxygen sensor and a desired air/fuel ratio reference;

a fuel system including at least one electronically actuated fuel injector coupled to a fuel tank through a fuel line and fuel pump, said fuel injector delivering fuel to said air/fuel intake in proportion to said desired fuel charge signals;

a vapor recovery system including a vapor storage canister and purge line for coupling fuel vapors from both said fuel tank and said canister to said air/fuel intake via a solenoid;

vapor flow means for regulating flow rate of said vapors into said air/fuel intake in proportion to said desired fuel charge signal by electronically modulating said solenoid valve with a modulation signal having a pulse width proportional to said desired fuel charge signal; and

correction means for adding a correction factor to said desired fuel charge signal, said correction factor approximating response time of a change in said vapor flow rate in relation to a change in said air flow measurement.

5,067,470

EXHAUST-GAS RECYCLING DEVICE FOR AN INTERNAL-COMBUSTION ENGINE

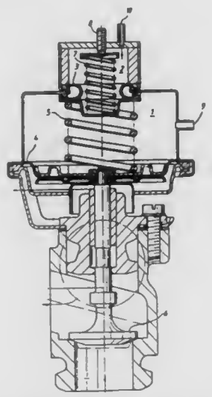
Detlef Panten, Korb; Dirk Naber, Stuttgart, and Franz Bender, Wendlingen, all of Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Oct. 18, 1990, Ser. No. 599,443

Claims priority, application Fed. Rep. of Germany, Oct. 21, 1989, 3935093

Int. Cl.[5] F02B *47/08;* F02D *21/08;* F02M *25/07*

U.S. Cl. 123—568 2 Claims



1. Device for controlling the exhaust-gas recycling quantity on an internal-combustion engine, with an exhaust-gas recycling line branched off from an exhaust-gas line to an inlet line and with an exhaust-gas recycling valve arranged in the exhaust-gas recycling line and comprising a valve controlling the connection between the inlet and outlet lines and a pneumatic control drive consisting of two diaphragms which are clamped in a housing and which are connected operatively to a closing part of the valve, at least one diaphragm being connected firmly to the closing part, and the two diaphragms each being loaded by a spring in the closing direction of the closing part, the diaphragms subdividing the housing into at least two control chambers, of which a first control chamber located between the diaphragms can be subjected to a control pressure determined as a function of the engine running and a second control chamber formed by the second diaphragm and the housing can be subjected to a further control pressure, wherein the second control chamber is subjected as a control pressure to the exhaust-gas pressure from the exhaust-gas line.

5,067,471

PORTABLE CATAPULT DEVICE FOR HURLING A SUCCESSION OF BALLS FOR BATTING PRACTICE

John Y. Kim, 144 S. Whisman Rd., Mt. View, Calif. 94041

Continuation-in-part of Ser. No. 247,713, Sep. 22, 1988, abandoned. This application Apr. 20, 1990, Ser. No. 511,632

Int. Cl.[5] F41B *3/02*

U.S. Cl. 124—21 18 Claims

1. A portable catapult device for automatically hurling along a central axis a succession of balls individually so that each ball after it leaves the catapult presents a moving target for batting practice, comprising:

a base member having a central axis along which a ball is adapted to be propelled;

a hopper associated with said base member for containing a multiplicity of balls to be automatically fed in succession onto said base member along said central axis to be hurled individually from the device;

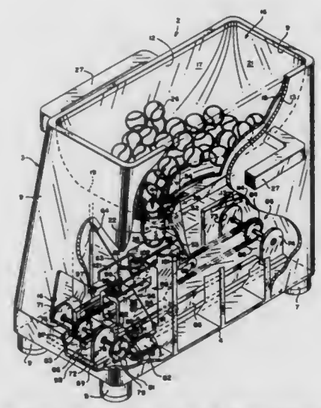
a carriage mounted on said base member for controlled uniform velocity reciprocal movement alternately between first and second positions and between said second and first positions along said central axis;

means on said base member operable to effect said controlled uniform velocity reciprocal movement of said carriage initially between said first and second positions and thereafter between said second and first positions;

a sling elastically mounted on the base member and a ball-propelling member elastically supported on said base member for movement along said central axis;

at least three elastic bands supporting said ball-propelling member, inner converging ends of each of said at least three elastic bands being connected to said ball-propelling member, and opposite ends of each of said at least three elastic bands being anchored to said base member at attachment points which are symmetrical with respect to said central axis and which lie in a common plane;

means for releasably engaging said ball-propelling member with said carriage when said carriage is in said first position and for releasing said ball-propelling member from



said carriage when said carriage is in said second position, said ball-propelling member when released from said carriage moving toward said first position apart from said carriage; and

means on said base member operable in concert with movement of said carriage toward said second position for transferring a ball from said hopper to a position coincident with said central axis to interact with said ball-propelling member apart from said carriage when said ball-propelling member is released from said carriage at said second position, the attachment of said opposite ends of said at least three elastic bands at said symmetrical attachment points causing said ball-propelling member to travel a straight path coincident with said central axis of said base member, said ball being hurled along said central axis and from the device through a predetermined trajectory by elastic return of said ball-propelling member from said second position toward and beyond said first position, said ball-propelling member being elastically returned to said first position after separation from said ball beyond said first position.

5,067,472

BOW STRING RELEASE

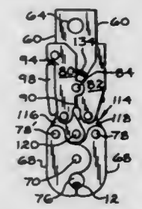
Michael A. Vogel, 7875 Hollywood Dr., and Martin D. Sears, 3901 Harwich, both of Jackson, Mich. 49203

Filed Jul. 26, 1990, Ser. No. 558,227

Int. Cl.[5] F41B *5/00*

U.S. Cl. 124—35.2 13 Claims

1. A bow string release comprising, in combination, an elongated body having a first end, a second end, a central region intermediate said ends, opposite lateral edges and opposite sides, a pair of bow string retainers movably mounted on said body between string retaining and string releasing positions, a pair of retainer operators movably mounted upon said body each having a manually engageable handle portion defined thereon and movable between first and second positions, said



handle portions each extending from a body lateral edge, and linkage means interposed between said retainers and said retainer operators whereby manually moving said retainer operators handle portions toward each other from said first position to said second position moves said bow string retainers from said string retaining position to said string releasing position.

5,067,473

HEATER WITH A HUMIDIFIER

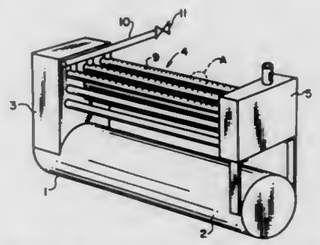
Tae S. Oh, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea

Filed Jul. 18, 1990, Ser. No. 553,803

Claims priority, application Rep. of Korea, Jul. 19, 1989, 10486/89[U]

Int. Cl.[5] F24F *3/14;* F24H *3/00*

U.S. Cl. 126—113 3 Claims



1. A combined forced convection-type heater and humidifier, comprising:

an elongated burner having two opposite ends;

a burner gas distribution chamber disposed at one end of said burner, in communication with said burner for receiving hot burner gas from said burner;

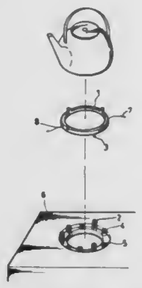
an exhaust gas collection tank disposed at an opposite end of said burner;

a plurality of double-walled pipes disposed parallel to one another and mounted so as to extend generally horizontally between said burner gas distribution chamber and said exhaust gas collection tank; each said double-walled pipe comprising an inner wall enclosing a first space, and an outer wall, spaced from, but coaxial with, the respective said inner wall and enclosing a second, annular space; each said first space communicating between said burner gas distribution chamber and said exhaust gas collection chamber, so that, in use, hot combustion gas may flow from said burner gas distribution chamber to said exhaust gas collection chamber through said first spaces of said double-walled pipes for thereby indirectly heating air forced externally across said double-walled pipes; said second spaces being closed off from communication with

VOL 1132 ISS 4 NO 26 1991 UMI

said burner gas distribution chamber and said exhaust gas collection chamber;
means defining a plurality of steam outlet openings through each said outer wall in an upper portion of each said outer wall; and
means for introducing a supply of water into said second spaces, so that as hot combustion gas flows through said first spaces, said inner walls become heated, causing the water to boil in said second spaces, and to spurt through said steam outlet openings into the air which is being indirectly heated while being forced to flow externally across said double-walled pipes.

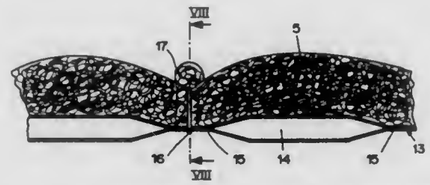
5,067,474
BOILING DETECTING DEVICES FOR A STOVE
Lei L. Chi, Fl. 2, No. 13, Lane 534, Wan Ta Road, Taipei, Taiwan
Filed Sep. 28, 1990, Ser. No. 589,266
Int. Cl.[5] A47J *27/62*
U.S. Cl. 126—374 2 Claims



1. A boiling detector for a stove comprising:
a vibration detecting support resiliently coupled to a stove for supporting a vessel containing a liquid to be heated, said resilient coupling being defined by a plurality of sets of spring members disposed between said vibration detecting support and said stove, each of said sets of spring members being defined by a different length dimension and elasticity coefficient, each with respect to the others;
a sensor coupled to said vibration detecting support for establishing an output pulse signal responsive to vibration produced by boiling of said liquid in said vessel;
a frequency to voltage converter coupled to said sensor for generating a voltage proportional to a frequency of said output pulse signal;
a voltage detector coupled to said frequency to voltage converter for generating an output voltage signal responsive to said proportional voltage having a magnitude above a predetermined value;
a driving stage coupled to said voltage detector for actuating a switching device responsive to said output voltage signal of said voltage detector; and
safety means coupled to said driving stage for interrupting energy supplied to said stove.

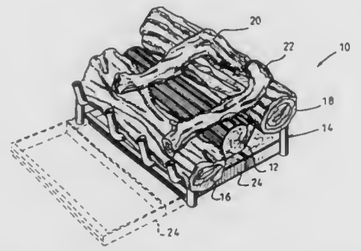
5,067,475
RADIATION SHIELD
Mario Posnansky, Bern, Switzerland, assignor to Atlantis Energie AG, Bern, Switzerland
Filed Aug. 1, 1990, Ser. No. 561,326
Claims priority, application Switzerland, Aug. 11, 1989, 2949/89
Int. Cl.[5] F24J *3/02*
U.S. Cl. 126—418 8 Claims

1. A device for protecting the surfaces of the objects from the effects of radiation, especially from the effects of concentrated solar radiation, which comprises:
means for covering the surface to be protected, wherein the means for covering the surface comprises a plurality of



quartz glass bodies for being exposed to the radiation and being disposed in series for stepwise reflection of the radiation wherein said quartz glass bodies comprise quartz glass fibers interlaced to form a batting.

5,067,476
ARTIFICIAL LOG ASSEMBLY INCLUDING COMBUSTABLE LOG MEMBERS
Robert T. Rhodes, Jr., Peru, Ind., assignor to Majco Building Specialties, L.P., Huntington, Ind.
Filed Aug. 2, 1990, Ser. No. 561,874
Int. Cl.[5] F23H *13/00*
U.S. Cl. 126—540 20 Claims

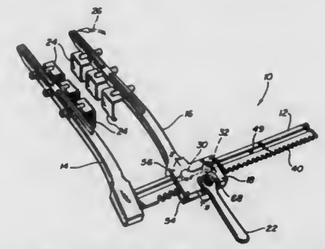


1. An assembly for providing a natural looking fire within a fireplace or the like, comprising:
a grate;
first and second non-combustible log members supported by said grate and extending transversely with respect to said grate, and
a combustible log member positioned between and adjoining said first and second non-combustible log members, said combustible log member extending transversely with respect to said grate.

5,067,477
LOW WEAR BEARING FOR A SURGICAL RETRACTOR
John Santangelo, East Freetown, Mass., assignor to Codman & Shurtleff, Inc., Randolph, Mass.
Filed Aug. 1, 1989, Ser. No. 388,109
Int. Cl.[5] A61B *17/02*
U.S. Cl. 128—20 7 Claims

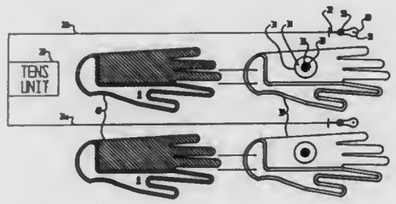
1. In a rack and pinion type retractor having:
a rack having teeth to accept and cooperate with a pinion;
a pinion;
a first arm attached to and extending to one side of said rack;
a second arm extending to the same side of said rack; housing means connected to said second arm for receiving said rack and supporting said pinion;
said rack and pinion operating to separate said arms and retract tissue:
the improvement comprising:

means operatively connected to said rack and said housing means to limit the rotation of said housing means with respect to said rack when said arms are moved apart to retract tissue to reduce the resulting contact stresses between the rack and the housing means including:
at least two force distributing means mounted on said housing means and including at least three bearings each having a generally cylindrical base and a generally rectangular portion projecting from said base;



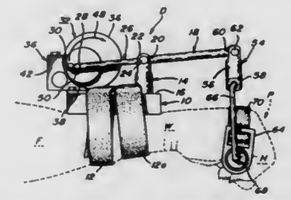
with two of said bearings disposed on one side of said rack with one of said bearings disposed on the opposite side of said rack;
said housing means having generally cylindrical recesses therein to receive, in loose fitting rotatable relationship, each of said bearings respectively with the bearings on the same side of said rack spaced longitudinally along said rack;
said rack having a slot on opposed sides thereof aligned with said recesses to receive said rectangular portions from the bearings.

5,067,478
STRUCTURE AND METHOD OF MANUFACTURING AN ELECTRODE GLOVE FOR APPLYING ELECTRO-MASSAGE AND ELECTRO-ACUPRESSURE TO PATIENTS
Stephen R. Berlant, 392 Marple Rd., Broomall, Pa. 19008
Continuation-in-part of Ser. No. 209,432, Jun. 21, 1988. This application Dec. 18, 1989, Ser. No. 451,764
Int. Cl.[5] A61H *1/00*
U.S. Cl. 128—24.5 14 Claims



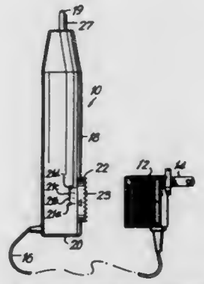
1. Apparatus for applying electro-massage and electro-acupressure for use with a sauce of pulsed electrical energy such as a TENS unit, said apparatus comprising:
a glove covering substantially al of the fingers, palm and dorsal surfaces of a hand, said glove being formed of a flexible, electrically-insulating layer of material capable of insulating the hand against pulsed, direct currents at voltages of up to 500 volts;
an electrode affixed to an covering substantially all of the exterior surface of said glove, said electrode being formed of a non-metallic, flexible, electrically-conductive layer of material deposited as a coating.

5,067,479
CONTINUOUS PASSIVE MOTION DEVICE
John Saringer, Markham, and Andrew Galbreath, Toronto, both of Canada, assignors to Toronto Medical Corp., Pickering, Canada
Filed Aug. 21, 1990, Ser. No. 570,550
Int. Cl.[5] A61H *1/02*
U.S. Cl. 128—26 20 Claims



12. A device for providing continuous passive motion therapy to a joint of a patient's body comprising a base, attachment means for removably attaching said base to a first member of the body located on one side of the joint for allowing a pivot thereof, an upstanding wheel means mounted on said base and adapted to be relatively oriented and secured thereon for rotation in various planes which at least include one plane which is oblique to a general longitudinal axis of the first member, motor means driving said wheel means, and an elongated motion transmission means joining said wheel means and a second member of the body located on the other side of the joint, said transmission means being mounted eccentrically to said wheel means, said wheel means and said transmission means being adapted to impart upon actuation of said motor means various pivoting motions to the joint which depend on the selected rotation plane of said wheel means relative to said base and which include, for said one plane, an ellipse-shaped motion.

5,067,480
STIMULATOR
Philippe-Guy E. Woog, and Michel A. Moret, both of Geneva, Switzerland, assignors to Les Produits Associes LPA-Broxo S.A., Geneve, Switzerland
Filed Mar. 8, 1989, Ser. No. 320,711
Int. Cl.[5] A61H *1/00, 7/00, 19/00*
U.S. Cl. 128—32 12 Claims



1. A stimulator for sexual therapy including:
means for inducing rotational oscillation through an angle of operation between ten degrees and eighty degrees at a frequency substantially within the range of 2000 to 8000 cycles per minute;
a brushless attachment adapted to external female stimulation free of substantial insertion; and
means for attaching said attachment to said inducing means.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,481

CONTROL DEVICE FOR AN AIR-BUBBLE MASSAGE APPLIANCE

Heinz Bucher, Rottweil, Fed. Rep. of Germany, assignor to Metronic Electronic, GmbH, Fed. Rep. of Germany

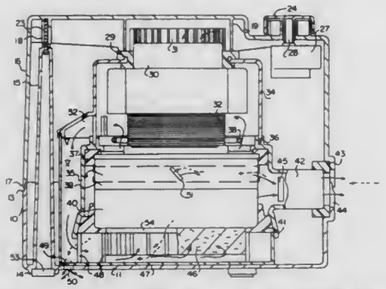
PCT No. PCT/DE89/00105, § 371 Date Sep. 4, 1990, § 102(e) Date Sep. 4, 1990, PCT Pub. No. WO89/07927, PCT Pub. Date Sep. 8, 1989

PCT Filed Feb. 23, 1989, Ser. No. 571,664

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1988, 3806858

Int. Cl.[5] A61H *9/00*

U.S. Cl. 128—66 26 Claims



1. A control device for an air-bubble massage appliance which comprises an external housing containing a blower which is drivable by means of an electric motor (32) and enclosed by a cover (39, 40), said external housing having a lower housing part (10) and an upper housing part (16) and containing an internal housing having a connecting piece (42) for an air hose, said connecting piece (42) extending toward said external housing and connecting to a hose connecting opening (44) of said external housing, said external housing and said internal housing having water discharge openings (49, 50), so that water returning into said internal housing through said connecting piece (42) is isolated from said electric motor (32) when said blower is shut off and can flow out of said internal and external housings, said lower housing part (10) and said upper housing part (16) connecting with each other in an airtight manner along a horizontal separation plane (17),

said internal housing having an aspirating hood (34) and a blower hood (35) connecting with each other in an airtight manner in a horizontal separating plane (36),

said electric motor (32) housed in said aspirating hood (34) above said blower hood (35) on its underside within said blower hood (35) driving at least a fan wheel on a vertical shaft surrounded by said cover (39, 40),

said electric motor (32) being held in an upper area of said aspirating hood (34) by means of a profile packing (29), creating an aspirating chamber (31) which is in contact with said external housing,

said cover (39, 40) having circumferentially positioned air outlet slits (51) and being sealed on both ends by means of profile packings (37, 41) against said blower hood (35),

said blower hood (35) having an open underside, at a distance from a floor (11) of said lower housing part (10), and further having an aspirating opening (54) which is connected to an aspirating conduit (52) which issues from an inner chamber of said aspirating hood (34),

said water discharge opening (50) being located in said floor (11) of said lower housing part (10), said floor (11) having at least one air aspirating opening (12),

said connecting piece (42) of said blower hood (35) being aligned horizontally and connected with said air exhaust slits (51) of said cover (39, 40) of said fan wheel,

said lower housing part (10) of said external housing having at least one air aspirating opening (12), and

said water discharge openings (49, 50) of said external housing and said internal housing overlapping each other in a lower area of said aspirating conduit (52) of said aspirating hood (34).

5,067,482

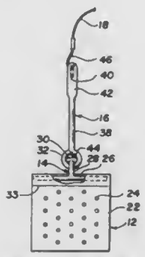
CONCEALED FACIAL SKIN UPLIFTING DEVICE

Helen B. Reid, The Summit, #2701, 999 Green St., San Francisco, Calif. 94133

1 iled Feb. 15, 1991, Ser. No. 657,171

Int. Cl.[5] A61F *5/08*

U.S. Cl. 128—76 B 6 Claims



1. A device for uplifting the facial skin of a wearer, the device comprising the combination of a pair of transparent pads having flat sides and a coating of adhesive on one side of each pad for releasably securing the pad to the underlying facial skin, a pair of flat, T-shaped connectors, each connector comprised of a crossbar integrally formed with a shank which extends orthogonally from the mid-portion of the crossbar, said connectors being formed of a compliant material which permits the crossbar and shank to yieldably change shape when stressed due to movement of the wearer's skin, said material of the connectors further being substantially transparent for concealing the connectors from view, means for securing the crossbar of each connector to an edge of each pad along substantially the entire lateral width of the pad whereby upward pulling forces applied to the connector are transferred uniformly to the pad across its width and thence to the facial skin over the entire area of the skin underlying the pad, an elongated flexible line of a length sufficient to extend over the wearer's head, said line having a pair of ends which hang down adjacent to the wearer's hairline on opposite sides of the face, a pair of elongated, flat tension strips having upper and lower ends, each strip being formed of a flexible elastomeric material which is light colored for reducing its visibility when in use, means for releasably attaching the upper end of the shank of each connector to the lower end of a respective one of the tension strips, means for releasably attaching the upper end of each tension strip to a respective one of the ends of said line, and clip means for gathering and adjustably securing a midportion of said line above the wearer's head concealed within the hair whereby the ends of the line apply upward pulling forces through the tension strips, connectors and adhesive pads to uplift the portions of the facial skin which underlie the pads.

5,067,483

CERVICAL TRACTION DEVICE

William L. Freed, 21 Fairway La., Trumbull, Conn. 06611

Filed Aug. 21, 1990, Ser. No. 570,322

Int. Cl.[5] A61S *5/00*

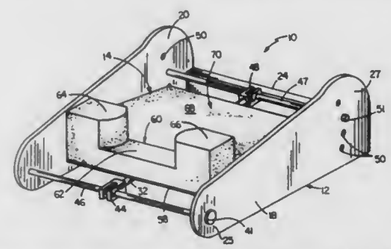
U.S. Cl. 128—76 R 8 Claims

1. A cervical traction apparatus comprising:

a base,

a head support means, said head support means comprising a neck receiving portion and an occipital pad having a top surface, said occipital pad being of decreasing thickness with the thickest portion of said pad being adjacent to said neck receiving means and being approximately the same height as said neck receiving portion and the thinnest portion of said pad being opposite said neck receiving portion so that said top surface is disposed at an acute angle from the plane of said neck receiving portion, said occipital pad being angled so that the back of the head of the patient and not the head and neck junction is in contact with the pad when in use, and

a drive means, said drive means being attached to said head support means and also being connected to said base, wherein when in use said drive means selectively moves



said head support means with respect to said base to apply cervical traction to a patient, the back of whose head is disposed on said occipital pad and whose neck is disposed in said neck receiving potion, said pad remaining in contact with the back of the patient's head as traction is applied, as the patient's head slips on said pad thereby avoiding pressure on the greater occipital nerve and artery and at the same time the angle of said pad tilting the patient's head forward providing cervical flexion for the patient.

5,067,484

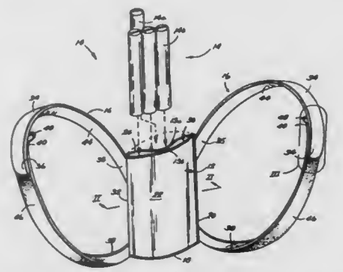
POSTURE TRAINING SUPPORT WITH WEIGHT POCKETS

Carol L. Hiemstra-Paez, Spring Arbor, Mich., assignor to Camp International, Inc., Jackson, Mich.

Filed Sep. 6, 1990, Ser. No. 578,739

Int. Cl.[5] A61F *5/02;* A63B *21/00*

U.S. Cl. 128—78 38 Claims



1. A posture training support comprising:

a pouch for holding weight on the back of a patient, said pouch having length, width and thickness, said length and width defining an area which is significantly smaller than the area of the back of a median adult patient, said thickness being sufficiently thin so that said pouch can be unobtrusively worn under the patient'clothing;

means dividing the interior of said pouch into at least two separate pockets, each for holding a weight against excessive movement within said pocket and within said pouch;

at least one weight smaller in dimension than the interior dimensions of said pouch and comparable in dimensions to at least one of said pockets whereby said weight is snugly located in one of said pockets in said pouch; and

clavicle straps secured to said pouch for strapping said pouch onto a patient's back.

5,067,485

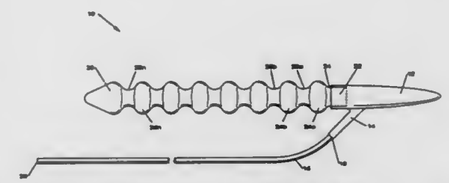
CORPUS CAVERNOSUM IMPLANT DEVICE

Timothy B. Cowen, Andover, Minn., assignor to Mentor Corporation, Minneapolis, Minn.

Filed May 14, 1990, Ser. No. 522,821

Int. Cl.[5] A61F *5/00, 2/04*

U.S. Cl. 128—79 5 Claims



1. An implantable penile prosthesis comprising:

a. a hollow inner cylinder of a flexible biocompatible material having an outer surface forming a plurality of smooth sinusoidal transitions from a minimum diameter to a maximum diameter in both a flaccid and a pressurized state, said plurality of sinusoidal transitions occupying a majority of the outer surface area of said inner cylinder;

b. a base mount sealingly attached to one end of said inner cylinder;

c. a source of pressurized fluid in fluid communication with said inner cylinder for pressurizing said inner cylinder; and

d. at least one ring member configured for attaching to said minimum diameter of at least one of said plurality of smooth sinusoidal transitions.

5,067,486

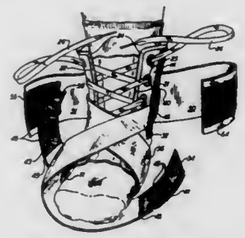
ANKLE STABILIZING APPLIANCE

John P. Hely, Charlotte, N.C., assignor to Medical Specialties, Inc., Charlotte, N.C.

Filed Mar. 28, 1990, Ser. No. 500,607

Int. Cl.[5] A61F *5/00*

U.S. Cl. 128—80 H 10 Claims



8. An ankle stabilizing appliance adapted to provide protection against lateral ankle sprain during participation in sports activities, and comprising

a boot-like body member of flexible material and adapted to receive the ankle and the rear foot portion of the wearer therein, said body member comprising an ankle portion adapted to overlie the sides and rear of the ankle of the wearer and having a length sufficient to extend above the malleoli of the wearer, a foot portion adapted to extend under the foot of the wearer, and with said ankle portion defining an inside panel on one side of the ankle, an out-

VOL
1132
ISS
4
NO
26
1991
UMI

side panel on the other side of the ankle, and a rear edge portion which extends vertically between the inside and outside panels and thus along the Achilles tendon of the wearer,

a pair of elongate non-elastic stabilizing straps, with said straps each having a first end fixed to said ankle portion at said rear edge portion thereof and at an elevation so as to be located above the malleoli of the wearer, and an opposite free end, and with said straps extending laterally in opposite directions and so as to define an inside strap extending from said rear edge portion toward said inside panel and an outside strap extending from said rear edge portion toward said outside panel,

first releasable closure means for releasably interconnecting said inside panel of said ankle portion and said free end of said inside strap, and second releasable closure means for releasably interconnecting said outside panel of said ankle portion and said free end of said outside strap,

a pair of binding straps, with said binding straps each having a first end fixed to said ankle portion at said rear edge portion thereof at an elevation corresponding to that of said stabilizing straps, and an opposite free end, and with said binding straps extending laterally in opposite directions and overlying said stabilizing straps, and pressure sensitive closure means attached to said free ends of said binding straps,

whereby said inside strap may be brought across said inside panel of said ankle portion, over the top of the wearer's foot, downwardly across the outside of the wearer's foot, under the wearer's foot, and then upwardly and so that said free end thereof may be releasably attached to said first closure means, and

whereby said outside strap may be brought across said outside panel of said ankle portion, over the top of the wearer's foot, downwardly across the inside of the wearer's foot, under the wearer's foot, and then upwardly so that said free end thereof may be releasably attached to said second closure means, and such that said binding straps are adapted to be looped about the ankle of the wearer and interconnected to each other and so as to overlie portions of said stabilizing straps.

5,067,487

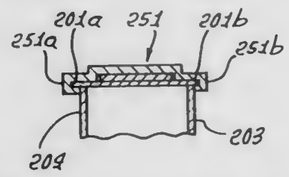
RESUSCITATOR

Jack Bauman, 2210 Wilshire Blvd. #705, Santa Monica, Calif. 90403

Continuation-in-part of Ser. No. 80,388, Jul. 31, 1987, Pat. No. 4,821,713, which is a continuation-in-part of Ser. No. 912,568, Sep. 29, 1986, abandoned, which is a continuation-in-part of Ser. No. 882,773, Jul. 7, 1986, abandoned. This application Feb. 21, 1989, Ser. No. 313,157

Int. Cl.[5] A62B 7/00

U.S. Cl. 128—205.13 **22 Claims**



1. A resuscitator for ventilating a patient comprising:

a ventilator mask means for sealingly surrounding the patient's mouth and nose;

a gas flow manifold having first, second, and third gas flow passage means for delivering ventilating gas from a source of ventilating gas to said mask means;

means for operatively coupling said third gas flow passage means to said mask means;

a manually collapsible gas receptacle;

means for operatively coupling said manually collapsible gas receptacle to said first gas flow passage means;

said second gas flow passage means being in flow communication with a source of ventilating gas;

said first gas flow passage means being operatively coupled to said third gas flow passage means and said second gas flow passage means being operatively coupled to said first gas flow passage means;

first one-way flow valve means mounted intermediate said second and first gas flow passage means for preventing flow from said first gas flow passage means to said second gas flow passage means and for allowing flow from said second gas flow passage means to said first gas flow passage means;

second one-way flow valve means mounted intermediate said first and third gas flow passage means for preventing flow from said third gas flow passage means to said first gas flow passage means and allowing flow from said first gas flow passage means to a said third gas flow passage means;

said first one-way flow valve means and said second one-way flow valve means being mounted so that when said manually collapsible gas receptacle is collapsed, said first one-way flow valve means prevents flow from said first gas flow passage means to said second gas flow passage means and said second one-way flow valve means allows flow fromsaid first gas flow passage means to said third gas flow passage means, and, when said manually collapsible gas receptacle expands, said first one-way flow valve means allows flow from said second gas flow passage means to said first gas flow passage means and said second one-way flow valve means prevents flow from said third gas flow passage means to said first gas flow passage means,

said third gas flow passage means including gas outlet means and means for closing said gas outlet means when said second one-way flow valve means allows flow from said first to said third gas flow passage means; and

air escape means mounted to a wall of said gas flow manifold and in flow communication with said gas outlet means, said air escape means including manually adjustable air vent means for controlling a minimum pressure at which air is allowed to pass from said third gas flow passage means through said gas outiet means and to atmosphere when said second one-way flow valve means prevents flow from said third gas flow passage means to said first gas flow passage means, thereby to provide positive end expiratory pressure (PEEP).

5,067,488

MASTICATION DETECTOR AND MEASUREMENT APPARATUS AND METHOD OF MEASURING MASTICATION

Eiichi Fukada, Kawasaki; Shigeru Saito, Zushi; Toshiharu Yagi, Toyonaka, and Yoshihide Higashihata, Settsu, all of Japan, assignora to Daikin Industries, Ltd., Osaka and Shigeru Saito, Kanagawa, both of, Japan

Continuation of Ser. No. 341,953, Apr. 24, 1989, abandoned. This application Nov. 13, 1990, Ser. No. 613,444

Claims priority, application Japan, Apr. 22, 1988, 63-100885

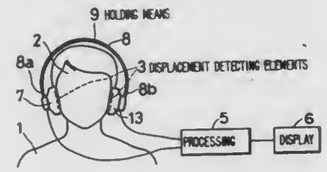
Int. Cl.[5] A61B 5/103

U.S. Cl. 128—777 **36 Claims**

1. An apparatus for detecting mastication, the apparatus comprising:

detecting means for detecting a displacement of a part of the side of a face, said detecting means comprising a flexible plate-like detecting element of a high-molecular weight polymer of piezoelectric material; and

holding means for securing said plate-like detecting element in a position in close contact with the part of the side of a face, said holding means including a housing, a body of resilient material disposed in said housing and over which



body said detecting element is disposed, and a cover covering said detecting element and secured to said housing.

5,067,489

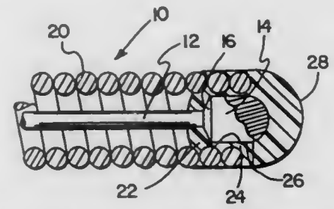
FLEXIBLE GUIDE WITH SAFETY TIP

Stuart J. Lind, Minneapolis, Minn., assignor to Flexmedics Corporation, Minneapolis, Minn.

Continuation of Ser. No. 232,721, Aug. 16, 1988, abandoned. This application Oct. 26, 1990, Ser. No. 604,360

Int. Cl.[5] A61B 5/00

U.S. Cl. 128—772 **7 Claims**



1. A guide wire comprising an elongated flexible metal core, an elongated, helically wound wire coil having a forward end and providing the guide wire with a flexible tip, the core having a forward portion of reduced diameter extending forwardly within the tip and terminating forwardly in an enlarged diameter portion integrally formed with the core and defining a plug carried adjacent the forward end of the coil, the plug having a diameter approximately equal to the inner diameter of the coil at its forward end and substantially filling the inner lumen of the coil adjacent its forward end, and a bonding agent bonding the plug to the coil.

5,067,490

SINGLE USE, SAFETY BLOOD COLLECTING DEVICE

Terry M. Haber, El Toro, Calif., assignor to Habley Medical Technology, Corp., Laguna Hills, Calif.

Continuation of Ser. No. 141,019, Jan. 5, 1988, Pat. No. 4,892,107. This application Jun. 14, 1989, Ser. No. 366,009

The portion of the term of this patent subsequent to Jan. 9, 2007, has been disclaimed.

Int. Cl.[5] A61B 5/00

U.S. Cl. 128—763 **2 Claims**

1. A blood collection device comprising:

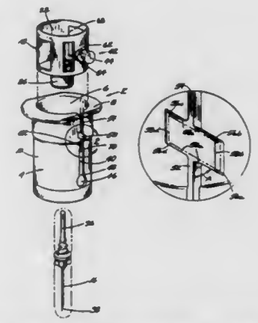
an outer sleeve and an inner needle carrier for receiving a double-pointed needle;

said outer sleeve including a longitudinally extending slot having first and second locations;

said inner needle carrier being mounted within said outer sleeve for axial movement between the first location, at which said needle is adapted to project from said outer sleeve in an exposed position for drawing blood, and the second location, at which said needle is adapted to be fully disposed within said outer sleeve in a retracted position after use;

said inner needle carrier including an actuator, movable radially and longitudinally relative to the outer sleeve, passing through the slot;

detent means, at the first location, cooperatively defined by the actuator and the slot in the outer sleeve, for releasably holding said inner needle carrier at the first location for use of the needle;



locking means, at the second location, cooperatively defined by the actuator and the outer sleeve, for non-releasably locking said inner needle carrier at said second location after the use of the needle; and

the actuator and the slot configured so the actuator is in first and second radial positions relative to the sleeve when the inner needle carrier is in the first and second locations.

5,067,491

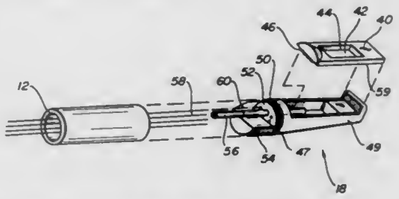
BARRIER COATING ON BLOOD CONTACTING DEVICES

Maylon S. Taylor, II, Raleigh, and Joel L. Williams, Cary, both of N.C., assignors to Becton, Dickinson and Company, Franklin Lakes, N.J.

Filed Dec. 8, 1989, Ser. No. 448,034

Int. Cl.[5] A61B 5/0215

U.S. Cl. 128—748 **16 Claims**



1. A blood pressure monitoring device comprising:

(a) A silicon pressure transducer including an integral micromachined diaphragm forming the bottom wall of said transducer, said diaphragm flexing in response to a change in blood pressure exerted on a first side of said diaphragm, said transducer converting said change in pressure to an electrical signal;

(b) a flexible polymeric tubing having said element mounted in a distal end thereof, said tubing enclosing conducting means for conducting said signal away from said transducer; and

(c) a parylene coating on said transducer and at least a portion of said tubing, said coating insulating said transducer and conducting means from water vapor and ions when said device is placed in a patient's blood stream for up to eight days and longer.

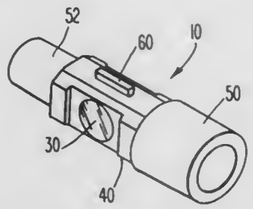
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,492

DISPOSABLE AIRWAY ADAPTER

Mark Yelderman, Plano, Tex.; Daniel S. Goldberger, San Francisco, and James R. Braig, Oakland, both of Calif., assignors to Critikon, Inc., Tampa, Fla.

Filed Aug. 7, 1990, Ser. No. 564,179
Int. Cl.[5] A61B 5/08
U.S. Cl. 128—719 6 Claims



1. An endotracheal airway adapter for single patient use in proximity of a patient's mouth during quantitative measurement of the concentration of respiratory gases of the patient by a respiratory gas analyzer having infrared transmission and detection means and means for housing said infrared transmission and detection means, said airway adapter comprising:

a substantially tubular plastic portion made of material which is slightly deformable and having oppositely disposed openings in a width-wise direction thereof;

at least two windows formed of a thin layer of plastic, said windows being disposed in said openings of said tubular plastic portion so as to be a predetermined distance from each other during measurement of said concentration of respiratory gases by said infrared transmission and detection means of said respiratory gas analyzer; and

means for positioning said tubular plastic portion in said housing means of said respiratory gas analyzer such that said tubular plastic portion is slightly deformed to thereby dispose and maintain said windows in a predetermined spaced configuration between said infrared transmission and detection means during measurement of said concentration of respiratory gases by said respiratory gas analyzer, whereby compensation for differential absorption effects of said windows prior to each use is not necessary.

5,067,493

LITHOTRIPSY SYSTEM USING ULTRASOUND TO LOCATE CALCULI

Dan Inbar, Haifa; Daniel I. Barnea, Tel Aviv, and Abraham Bruck, Haifa, all of Israel, assignors to Elscint Ltd., Haifa, Israel

Continuation of Ser. No. 293,768, Jan. 5, 1989, abandoned, which is a continuation-in-part of Ser. No. 79,927, Jul. 31, 1987, abandoned, which is a division of Ser. No. 737,532, May 24, 1985, abandoned. This application Jul. 11, 1990, Ser. No. 551,656
Int. Cl.[5] A61B 17/22
U.S. Cl. 128—660.03 5 Claims

1. A lithotripsy system having:

shock wave generator means for generating shock waves to destroy calculi,

a calculi locator in combination with said shock wave generator means for obtaining an image of the calculi and for locating said calculi in a patient,

said shock wave generator means comprising:

an ellipsoidal reflector having a longitudinal axis,

spark terminals located at a source focal point in said ellipsoidal reflector,

a target focal point spaced apart from said spark terminals,

said calculi locator comprising:

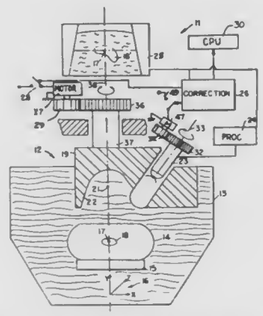
ultrasound transducer scanning means for transmitting ultrasound waves and receiving echo waves,

means for using said echo waves from said transducer means for acquiring an image of the location of said calculi in said patient,

means for assuring coincidence of the true location of the calculi and the shock wave generator means target focal point,

said means for assuring coincidence including:

means for mounting said transducer means on said ellipsoidal



reflector spaced apart from said longitudinal axis of said ellipsoidal reflector for obtaining different views of the calculi at different locations of said transducer means around the longitudinal axis of said ellipsoidal reflector, and

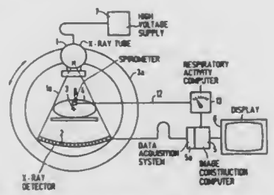
means for correcting for refraction of the waves by changing the patient position to maintain said calculi at the target focal point in said different views.

5,067,494

DEVICE FOR GENERATING TRIGGER SIGNALS FOR A MEDICAL APPARATUS DEPENDENT ON THE RESPIRATORY ACTIVITY OF A PATIENT

Rainer Rienmueller, Munich; Willi Kalender, Kleinseebach, and Wolfgang Seissler, Uttenreuth Weiher, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Dec. 4, 1989, Ser. No. 445,414
Claims priority, application European Pat. Off., Jan. 12, 1989, 89100472.3
Int. Cl.[5] A61B 6/03
U.S. Cl. 128—653.1 1 Claim



1. A medical diagnostic apparatus comprising:

a spirometer having a channel therein adapted to be traversed by the respiratory air of a patient, a turbine having a plurality of blades and being rotatably mounted in said channel so as to be rotated by respiratory air;

opto-electrical transducer means disposed in said spirometer and having a light path modulatable by rotation of said turbine blades for generating an electrical signal at a point in the respiratory cycle of the patient dependent on the rotation of said turbine and thus on the flow of respiratory air in said channel;

first computer means to which said electrical signal is supplied for generating a trigger signal at said point in the respiratory cycle and including means for setting a respiratory trigger threshold to select said point in said respiratory cycle;

a computer tomography imaging system connected to said first computer means, said computer tomography imaging system including means for conducting a scan of a patient consisting of a plurality of exposures of said patient respectively triggered by said trigger signal and for generating scan data during each exposure, and also including second computer means for constructing an image of the scanned region of said patient from said scan data, said first computer means including means for generating and supplying a signal to said second computer means in said computer tomography imaging system for marking respiratory activity at said point in said respiratory cycle within said scan data; and

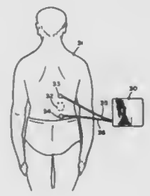
said spirometer also including means disposed in said channel connected to and operable by said first computer means for completely blocking inspiration and expiration in said channel when said respiratory trigger threshold is reached.

5,067,495

ELECTRO WAVE THERAPY

Richard L. Brehm, Rte. 9, Box 205B, Chippewa Falls, Wis. 54729

Continuation-in-part of Ser. No. 413,276, Sep. 27, 1989, abandoned. This application Apr. 30, 1990, Ser. No. 516,353
Int. Cl.[5] A61N 1/18
U.S. Cl. 128—421 19 Claims



1. A method of treatment of chronic pain to a user having an area of the body that is responsible for the pain comprising the steps of:

applying a first electrode to the body with said first electrode spaced from the area of the body that is responsible for the chronic pain;

applying a second electrode to the body with said second electrode spaced from the area of the body that is responsible for the chronic pain;

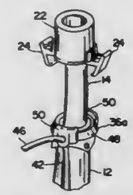
applying an electrical signal having a monophasic wave form comprising a series of sequential wave burst cycles, said wave burst cycles including a wave burst having individual waves each having a positive pulse followed by a negative pulse with each of the sequential wave bursts followed by a pause, said electrical signal applied across said electrodes to thereby direct the electrical signal having the monophasic wave form into the body for a period of time sufficient to relieve the chronic pain in the body after the treatment has been terminated.

5,067,496

TRACHEOSTOMY TUBE

Robert F. Eisele, Laguna Niguel, Calif., assignor to Shiley Incorporated, Irvine, Calif.

Filed Apr. 7, 1988, Ser. No. 178,661
Int. Cl.[5] A61M 16/00
U.S. Cl. 128—207.15 13 Claims



1. A tracheostomy tube for insertion into the trachea of a patient to support breathing, comprising:

An outer cannula having a distal end for placement within the trachea and a proximal end for placement outside of the trachea;

a neck flange connected to the proximal end of said outer cannula for securing the tracheostomy tube to the patient;

inflatable sealing means near the distal end of said outer cannula for forming a seal with the tracheal walls;

a flexible inflation tube extending from within said sealing means and having a portion fixedly secured along the wall of said outer cannula near the proximal end of said outer cannula and said inflation tube further extending unsecured; and

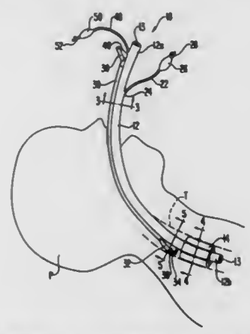
means retaining a portion of said unsecured inflation tube at the proximal end of said outer cannula in longitudinal alignment with said secured portion, whereby any pulling force on said inflation tube proximal of said retaining means results is substantially only tensile force on the secured portion of said inflation tube.

5,067,497

INTUBATION DEVICE WITH ADJUSTABLE SUCTION MEANS ABOVE THE CUFF

John Greear, Leeds, and Marc W. Fournier, Auburn, both of Me., assignors to Progressive Medical Design, Inc., Auburn, Me.

Filed Mar. 16, 1990, Ser. No. 494,464
Int. Cl.[5] A61M 16/00, 29/00, 25/00; A62B 9/06
U.S. Cl. 128—207.15 23 Claims



1. A tubular assembly for intubation within a body passageway comprising:

a main tube body defining a primary lumen through which fluid can pass;

a means for holding and sealing said main tube body to the

VOL 1132 ISS 4 NO 26 1991 UMI

body passageway during intubation so that fluid passing into or out of the body passageway passes through said primary lumen;

a suction tube secured to said main tube body defining between sidewalls thereof an unobstructed suction passageway, said suction tube having an adjustable free end portion not directly connected to said main tube body and movable relative thereto, said adjustable free end portion being provided with a suction opening; and

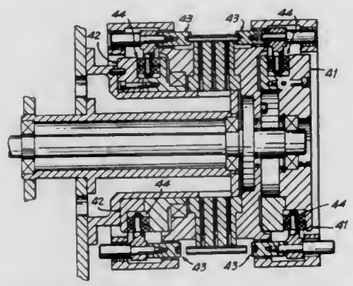
actuating means independent of the means for holding and sealing the main tube body and located adjacent said suction opening, for selectively radially adjusting said suction opening with respect to said main tube body, said actuating means being positioned between said adjustable free end portion of said suction tube and said main tube body to move said suction opening between an innermost position adjacent said main tube body and a radially outermost position, independently of the means for holding and sealing the main tube body.

5,067,498

TUBE CUTTING AND FORMING APPARATUS

Jack C. Wheless, Richmond; Billy J. Keen, Jr., Chesterfield, and Renzer R. Ritt, Sr., Richmond, all of Va., assignors to Philip Morris Incorporated, New York, N.Y.

Filed Jul. 25, 1989, Ser. No. 385,006
Int. Cl.[5] A24C *5/00*
U.S. Cl. 131—88 20 Claims



1. An apparatus for cutting and subsequently forming the ends of a tube, comprising:

transferring means for transferring said tubes to be cut and formed from a hopper means to a first cutting operation;

first cutting means adjacent to said transferring means for receiving said tubes from said transferring means and for cutting said tubes;

aligning means adjacent to said first cutting means for receiving portions of said cut tubes from said first cutting means and for aligning said portions of said cut tubes in a particular orientation;

forming means adjacent to said aligning means for receiving said portions of said cut tubes from said aligning means for forming the ends of said portions of said cut tubes; and

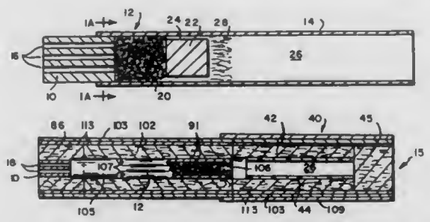
second cutting means adjacent to said forming means for receiving said portions of said cut tubes from said aligning means for again cutting said portions of said cut tubes.

5,067,499

SMOKING ARTICLE

Chandra K. Banerjee, Pfafftown; Ernest G. Farrier, Winston-Salem; James L. Harris, Westfield; Alan B. Norman, Clemmons; James L. Resce, Yadkinville; John H. Reynolds, IV, Winston-Salem; Henry T. Ridings, Lewisville; Andrew J. Sensabaugh, Jr.; Michael D. Shannon, both of Winston-Salem, and Gary R. Shelar, Greensboro, all of N.C., assignors to R. J. Reynolds Tobacco Company, Winston-Salem, N.C.

Continuation of Ser. No. 800,064, Nov. 20, 1985, Pat. No. 4,854,331, which is a continuation-in-part of Ser. No. 650,604, Sep. 14, 1984, Pat. No. 4,793,365, and Ser. No. 684,537, Dec. 21, 1984, abandoned, and Ser. No. 769,532, Aug. 26, 1985. This application Aug. 21, 1987, Ser. No. 88,381
Int. Cl.[5] A24D *1/00, 1/02, 1/04*
U.S. Cl. 131—194 88 Claims



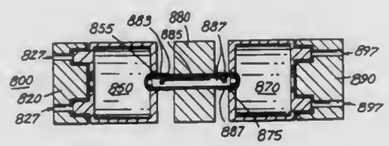
1. A carbonaceous fuel element for smoking articles, said fuel element having at least one longitudinal passageway, and a length of about 20 mm or less prior to smoking.

5,067,500

CONTAINER FOR ADDITIVE MATERIALS FOR SMOKING ARTICLES

Gus D. Keritsis, Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y.

Division of Ser. No. 342,239, Apr. 24, 1989, Pat. No. 4,991,605. This application Nov. 20, 1990, Ser. No. 616,197
Int. Cl.[5] A24D *3/04*
U.S. Cl. 131—335 1 Claim



1. A container for an additive material for modifying the characteristics of a smoking article comprising:

a first element having a first end, side walls, and a second end defining a chamber for containing said additive material, said first element having a first perforation extending through said first element proximate to said first end;

a second element having a closed end and side walls connected to said closed end, said second element having a second perforation extending through said second element proximate to said closed end; and

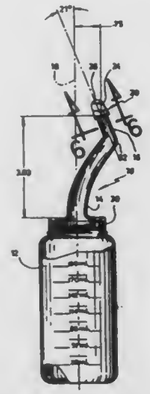
means for movably interconnecting said first and second elements in a close relation between one of a first and second positions, said first position having said second perforation exterior to said chamber and providing an hermetically sealed interface between said first and second elements, said second position having said second perforation interior to said chamber and providing an airflow pathway between said first and second elements so that said additive material can modify the characteristics of the smoking article.

5,067,501

FLUID APPLICATOR FOR HAIR CONDITIONING

Ronald Y. Anger, 8576 St. Denis, Montreal, Quebec H2P 2H2, Canada

Filed Feb. 19, 1991, Ser. No. 656,981
Claims priority, application United Kingdom, May 31, 1990, 9012150
Int. Cl.[5] A45D *24/22*
U.S. Cl. 132—116 8 Claims



1. An outlet nozzle adapted to be fixed to a substantially cylindrical and collapsible hair conditioning bottle for dispensing liquid on an outward surface of a lock of hair of a human scalp, said nozzle comprising a rigid hollow tubular member and a dispensing tip fluidly connected at one end of said tubular member opposite the bottle, said tubular member having two continuous longitudinal portions being angularly disposed relative to each other, one of said portions adapted to extend at an angle away from the longitudinal axis of said bottle and the other portion extending towards said axis at an angle therewith and up to a location adjacent said axis, said dispensing tip comprising a pair of flat tooh-like projections spacedly facing each other and extending from a free end of said other portion substantially in the same direction as said other portion to define an archway, said projections of said archway adapted to contact the scalp and to be slidable through the hair to define said lock of hair, said other portion being provided with an aperture between said projections and at the intersection of said other portion and the bottom of said archway for allowing the dispensing of the fluid from said bottle onto said outward surface of the lock adapted to face said other portion, said tooth-like projections adapted to hold a portion of said lock of hair therebetween while said liquid is dispensed on said outward surface of said portion of the lock.

5,067,502

HAIR TRIMMING GUIDE HAVING AN ADJUSTABLE COMB

Anthony D'Orsi, 2322 62 St., Brooklyn, N.Y. 11204, and George Spector, 233 Broadway RM 3815, New York, N.Y. 10007

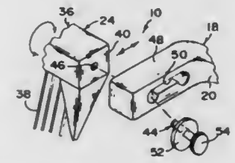
Filed Feb. 20, 1991, Ser. No. 658,332
Int. Cl.[5] A45D *24/34*
U.S. Cl. 132—213.1 3 Claims

1. A hair trimming guide implement which comprises:

a) a handle adapted to be grasped by a hand of a person;

b) a Y-shaped shank having a pair of spaced arms extending from one end of said handle; and

c) two combs one of each said combs extending from one of each of said arms of said Y-shaped shank on said handle in a spaced apart relationship so that one of said combs can bear against the scalp while excess hair extending through the other of said combs can be trimmed off the head of another person with a scissors, wherein each of said



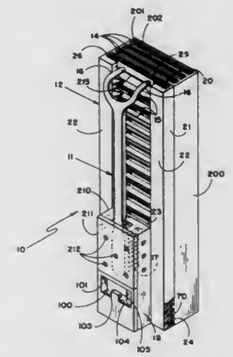
combs includes a spine having a set of teeth projecting therefrom, whereby one end of each said spine is connected to one of said arms said hair trimming guide implement, further including means for adjusting individually the angle between said sets of teeth and the transverse space between said spines so that said implement can accomodate various hair lengths and hair thickness when used as a guide in trimming hair.

5,067,503

DENTAL APPARATUS FOR FLOSSING TEETH

Thomas W. Stile, 4858 Bryce Ave. E., Inver Grove Hts., Minn. 55075

Filed Mar. 21, 1990, Ser. No. 497,115
Int. Cl.[5] A61C *15/00*
U.S. Cl. 132—324 22 Claims



1. A dental apparatus for manipulating dental floss comprising:

(a) a hand tool with a handle and two spaced apart extensions,

(b) a thread section for flossing teeth and having two end portions,

(c) tool connecting means affixed to each of the end portions of the thread section for connecting the thread section between the extensions of the tool, the tool connecting means being greater in width than the thread section,

(d) housing means for movably engaging a plurality of tool connecting means and accompanying thread sections such that the tool connecting mean are accessible for the tool extensions, and

(e) discarding means including storage means on the housing

VOL 1132 ISS 4 NOV 26 1991 UMI

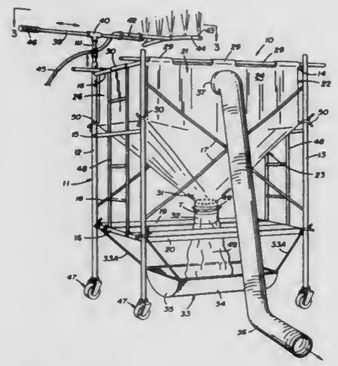
means for engaging a plurality of tool connecting means for discarding and storing the thread sections.

5,067,504

ASBESTOS COLLECTION AND CONTAINMENT DEVICE

Seab H. Coleman, III, P.O. Box 43001, Richman Heights, Ohio 44143

Filed Nov. 21, 1990, Ser. No. 616,906
Int. Cl.[5] B08B *3/02*
U.S. Cl. 134—172 6 Claims



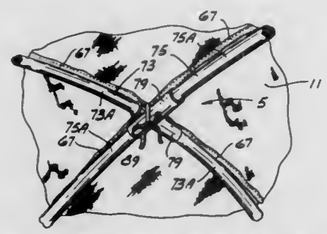
1. An asbestos collection and containment device for use in removing hazardous material, such as asbestos from overhead work areas comprising, an adjustable support scaffold, a flexible multi-walled containment enclosure within said support scaffold, said flexible containment enclosure having an opened upper portion and a funnel shape lower portion, said lower portion having an outlet means projecting outwardly beyond and from said lower portion within said support scaffold, ventilation means within said upper portion adjacent said open end thereof, wetting means extending from said support scaffold for indirect contact with said work area.

5,067,505

TENT

Robert R. Cantwell, and Deborah M. Zumsteg, both of New Haven, Mo., assignors to American Recreation Products, Inc., St. Louis, Mo.

Filed Dec. 1, 1989, Ser. No. 444,769
Int. Cl.[5] E04H *15/10*
U.S. Cl. 135—104 5 Claims



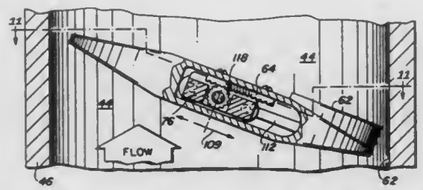
1. A tent comprising a shell of flexible tent material having an interior surface, an exterior surface, and a bottom, an internal frame comprising a plurality of poles for supporting the shell internally of the shell, and a plurality of exit openings, one for each pole, in the shell generally adjacent the bottom of the shell whereby a single person outside of the shell may erect the tent by inserting each pole, end first, into the interior of the tent through a respective exit opening in the shell and moving the pole across a floor of the tent to a position in which one end of the pole engages a bottom portion of said interior surface of the shell at a side of the tent generally opposite the exit opening and the other end of the pole projects out of the tent through said exit opening, said pole thereafter being adapted to be moved by said person to an erect position in which the pole is engageable with an overhead portion of said interior surface of the shell for holding the tent erect, means on the shell for holding said other end of each pole projecting out through the exit opening when the pole is erect, and means on said overhead portion of the interior surface of the shell engageable with the poles only after they have been erected for releasably holding the poles erect.

5,067,506

FLIGHT CRAFT WITH FLUID SYSTEMS WHICH INCORPORATE BUTTERFLY VALVES, AND BUTTERFLY VALVE METHODS AND APPARATUS

Larry K. Ball, Chandler; Marshall U. Hines, and John N. Tervo, both of Scottsdale, all of Ariz., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Continuation-in-part of Ser. No. 374,897, Jun. 30, 1989, and a continuation-in-part of Ser. No. 533,965, Jun. 6, 1990, and a continuation-in-part of Ser. No. 538,809, Jun. 15, 1990. This application Jun. 26, 1990, Ser. No. 543,991
The portion of the term of this patent subsequent to Oct. 23, 2007, has been disclaimed.
Int. Cl.[5] F16K *1/22*
U.S. Cl. 137—1 14 Claims



6. A method for facilitating control of a butterfly valve through which a fluid is being conveyed, wherein the valve comprises a valve plate which is rotationally positionable in a flow path to modulate flow of the fluid, and a pivot mechanism cooperating with the valve plate to define a pivot axis that geometrically divides a surface of the plate into two areas, the valve plate being pivotable about the axis so that the fluid exerts a net torque on the valve plate, the method comprising the step of:

a controllably altering the net torque when the valve plate is at a rotational position permitting fluid flow through the valve by effecting relative translational movement between the valve plate and the pivot mechanism in a direction which effects an increase in one of the two areas and a decrease in the other.

5,067,507

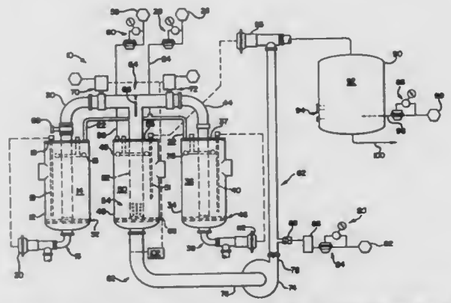
LIQUID PROPORTIONER APPARATUS AND METHOD

Gunnar Bjerklund, Rolling Meadows; William C. Ore, Elmhurst; Casimir Pulawski, Chicago, and Luigi Notardonato, Park Ridge, all of Ill., assignors to Universal Beverage Equipment, Inc., Willowbrook, Ill.

Filed Feb. 11, 1991, Ser. No. 653,719
Int. Cl.[5] G05D *11/035*
U.S. Cl. 137—3 16 Claims

13. A method of proportioning and admixing at least two liquids comprising the steps of:

providing a pressurizable reservoir for each liquid;
providing liquid in the liquid reservoirs;
providing a mix reservoir having means for discharging the admixture from the mix reservoir;
providing means for achieving fluid communication between the interior of the mix reservoir and the interior of each of the liquid reservoirs;



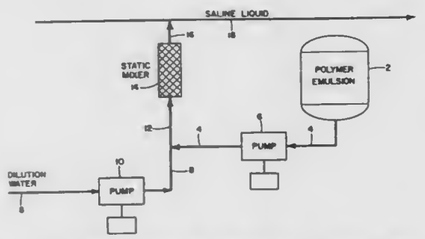
sensing a flow/no flow condition in the admixture discharging means to generate a condition signal indicating whether or not there is flow; and
providing means responsive to the condition signal for permitting or suspending the flow of liquids to the mix reservoir.

5,067,508

ACTIVATION OF WATER-IN-OIL EMULSIONS OF FRICTION REDUCING POLYMERS FOR USE IN SALINE FLUIDS

Yung N. Lee, and Fred R. Wiggins, both of Ponca City, Okla., assignors to Conoco Inc., Ponca City, Okla.

Filed Nov. 16, 1990, Ser. No. 614,408
Int. Cl.[5] F17D *1/16*
U.S. Cl. 137—13 19 Claims



1. A process for reducing the fluid flow friction loss of a fluid comprising a saline liquid which is being transported through a conduit which comprises:

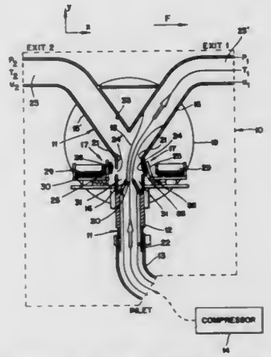
(a) combining a water-in-oil emulsion of a water soluble friction reducing polymer with water;
(b) subjecting the combination of water and emulsion to mixing to invert the emulsion; and
(c) introducing the inverted emulsion and water directly and continuously into the transported fluid.

5,067,509

GAS JET ACTUATOR USING COANDA EFFECT

Ian W. Hunter, Montreal, Canada, assignor to The Royal Institution for the Advancement of Learning (McGill University), Montreal, Canada

Filed Jul. 2, 1990, Ser. No. 546,742
Int. Cl.[5] F15C *1/08*
U.S. Cl. 137—14 15 Claims



1. A method of imparting a controllable vibration to a vibratable object, said method comprising:

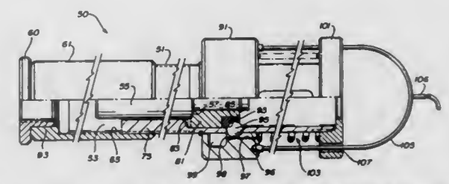
(i) attaching a gas jet actuator device to said object, said device having conduit means defining an inlet section and a fork section downstream of said inlet section to define diverging outlet sections disposed at predetermined angles, a nozzle in said conduit means upstream of said fork section, and switching means to cause a fluid jet stream from said nozzle to flow in an alternating sequence to said outlet sections by the Coanda effect;
ii) connecting a flexible conduit to said inlet section and to a remote pressure source;
(iii) applying a predetermined gas pressure to said inlet section; and
(iv) actuating said switching means to cause said jet stream to alternate between said outlet sections at frequencies within a predetermined frequency range of up to at least 100 Hz to impart controlled vibrations to said vibratable object.

5,067,510

ADJUSTABLE, FUSIBLE, MANUALLY OPERABLE VALVE LOCK-OPEN ASSEMBLY

Craig B. Breaux, Houma; Denny Cawyer, Metairie; Dwight Duplantis, Houma, and Don Hiller, Slidell, all of La., assignors to Axelson, Inc., Longview, Tex.

Filed Feb. 11, 1991, Ser. No. 654,066
Int. Cl.[5] F16K *17/40*
U.S. Cl. 137—77 19 Claims



1. An actuator shaft heat-sensitive locking apparatus comprising:

a cylindrical housing with an axial bore;

VOL 1132 ISS 4 NO 26 1991 UMI

a shaft link in the bore movable axially between first and second positions;

means movably extending through the housing partially blocking the bore;

fusible element means slidably mounted in the bore between the shaft link and the bore blocking means, the fusible element having a solid state for preventing movement of the shaft link by engaging the bore blocking means and a heat responsive state for allowing movement of the shaft; and

means surrounding the cylindrical housing and in operative association with the bore blocking means for axial movement between first and second positions such that, in its first position, the bore blocking means prevents movement of the shaft link and the fusible element and, in its second position, the bore blocking means moves out of the bore enabling the shaft to move with the fusible element to its second position.

5,067,511

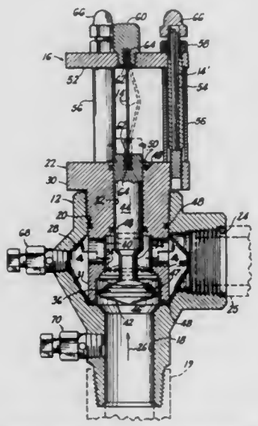
HIGH PRESSSURE FLUID EMERGENCY SHUTOFF VALVE

Julian S. Taylor, 8300 SW. 8th, Oklahoma City, Okla. 73128

Filed May 6, 1991, Ser. No. 695,830

Int. Cl.[5] F16K *17/00*

U.S. Cl. 137—67 **5 Claims**



1. A high pressure fluid flow line emergency shutoff valve, comprising:

a valve body having an inlet port and an outlet port forming a fluid passageway interposed in the flow line;

a valve seat intersecting the fluid passageway;

normally open valve means movably supported by said body for movement toward said valve seat and closing the fluid passageway; and,

axially collapsible pin means for normally biasing said valve means toward a fluid passageway open position and releasing said valve means for seating on said valve seat in response to a predetermined value of fluid pressure in the fluid passageway.

5,067,512

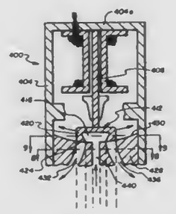
SERVOVALVE APPARATUS FOR USE IN FLUID SYSTEMS

Stephen C. Jacobsen; Edwin K. Iversen; David F. Knutti, and Clark C. Davis, all of Salt Lake City, Utah, assignors to Sarcos Group, Salt Lake City, Utah

Division of Ser. No. 473,301, Jan. 31, 1990, Pat. No. 5,012,836. This application Jan. 22, 1991, Ser. No. 644,271

Int. Cl.[5] G05D *16/20*

U.S. Cl. 137—83 **14 Claims**



1. A servovalve apparatus for use in fluid systems in controlling the flow of a fluid stream comprising

an elongate flexible valve element having a fixed end and a free end which is moveable back and forth along a generally arcuate path,

receiving plate means which defines a generally arcuate surface area adjacent to the arcuate path, said receiving plate means having a bore terminating at a location along the arcuate surface area for carrying the fluid stream to the arcuate path, and at least one fluid channel terminating at the arcuate surface area adjacent to the bore,

cup means mounted on the free end of the valve element for receiving the fluid stream from the bore and porting it into the fluid channel when the free end is deflected to a certain position, and

means for selectively deflecting the free end of the valve element to said certain position and out of said certain position.

5,067,513

THERMOSTATIC PRESSURE BALANCED VALVE ASSEMBLY

James R. Nicklas, Noblesville, Ind.; Gerald Bright, Birmingham, Mich.; Eric V. Pullen, deceased, late of Ormond Beach, Fla. by Antoinette D. Pullen, Legal Representative , and James R. Nicklas, Noblesville, Ind., assignors to Masco Corporation, Ind.

Division of Ser. No. 440,956, Nov. 22, 1989, Pat. No. 4,978,059, which is a division of Ser. No. 247,781, Sep. 20, 1988, Pat. No. 4,905,732, which is a continuation of Ser. No. 763,445, Aug. 7, 1985, Pat. No. 4,915,295. This application Sep. 28, 1990, Ser. No. 589,962

Int. Cl.[5] G05D *11/03*

U.S. Cl. 137—98 **12 Claims**

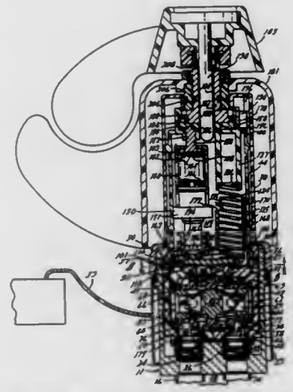
11. A proportioning valve comprising:

a housing defining a chamber;

a valve plate fixed to move with said housing, said valve plate having at least two inlets aligned with at least two fluid supply lines outside of said housing, and means to move said housing and said valve plate to vary the alignment of said inlets with the fluid supply lines and thus vary the amount of fluid passing from the fluid supply lines into said chamber; and

a spool valve disposed within said chamber, flow from the first and second supply lines being directed to opposed

sides of said spool valve such that the pressure on said spool valve from the first and second fluid supply lines



acts to move said spool valve to restrict the flow from the fluid supply lines into said chamber.

5,067,514

APPARATUS FOR TAPPING A FLUID THROUGH A WALL

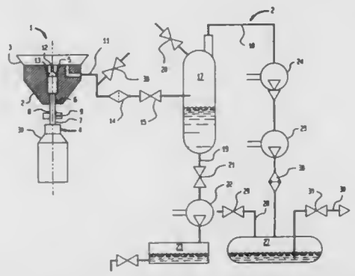
Geert H. Leemput, Dr. Bekenkampstraat 35, 9641 BR Veedam, and Herman Leemput, Torenstraat 60, 9643 CV Wildervank, both of Netherlands

Filed Aug. 24, 1990, Ser. No. 573,349

Claims priority, application Netherlands, Aug. 25, 1989, 8902158

Int. Cl.[5] F16L *41/04*; B23B *41/08*; F16K *43/00*

U.S. Cl. 137—318 **19 Claims**



1. An apparatus for tapping a refrigerant gas through a comprising: a vacuum source (24), a tapping head (1) provided at the front thereof with a circumferential seal (3) for bounding a contact area of the wall, perforating means (4) to be brought into a position extending through the contact area for forming an opening in the wall, at least one conduit (11, 111, 211) communicating with a space bounded by the seal (3) and the contact area for discharging air from the space and for discharging refrigerant gas flowing through the opening, and separating means connected to said conduit and operative in response to said vacuum source for separating contaminants from the air and refrigerant gas so that the contaminants can be directed to a collection means, said separating means further comprises means for transforming the refrigerant gas to a pre-defined state so that the refrigerant gas and the air can be separately withdrawn and to substantially prevent the refrigerant gas from escaping to a surrounding atmosphere.

5,067,515

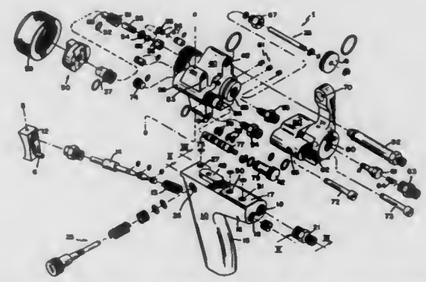
COMPACT SPRAY GUN

James E. Smith, St. Petersburg, Fla., assignor to Graves Spray Supply, Inc., Clearwater, Fla.

Division of Ser. No. 436,026, Nov. 14, 1989, Pat. No. 4,948,048, which is a division of Ser. No. 330,460, Mar. 30, 1989, Pat. No. 4,925,104, which is a division of Ser. No. 150,142, Jan. 29, 1988, Pat. No. 4,848,665. This application Jun. 15, 1990, Ser. No. 538,737

Int. Cl.[5] F16K *51/00*

U.S. Cl. 137—327 **2 Claims**



1. A packing cartridge assembly for use in a bore of a spray gun comprising:

a packing housing to be inserted through a first end of said bore,

a packing press and a packing substance within said packing housing,

adjustment means to be threadably received in said first end of said bore for adjustable compressing said packing press and said packing substance against said packing housing, and

tool means on said adjustment means for receiving a tool inserted at first end of said bore to provide rotation of said adjustment means causing the packing substance to be adjustably compressed.

5,067,516

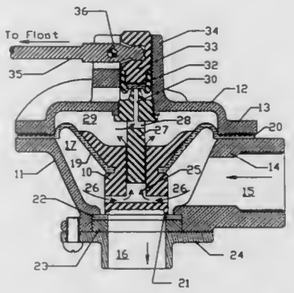
VALVE ASSEMBLY

Keith F. Gale, 33 Kennedy Street, Glen Waverley, Victoria, 3150, Australia

Filed Sep. 17, 1990, Ser. No. 583,200

Int. Cl.[5] F16K *31/34, 33/00*

U.S. Cl. 137—414 **9 Claims**



9. A pilot-operated, diaphragm-controlled, float valve assembly with a two-segment split casing comprising upper and lower segments with mating flanged edges joined to form a main valve cavity, a side fluid inlet and a bottom fluid outlet both formed in the lower segment, fluid entering the inlet flowing onto a main valve annular seat surrounding the bottom

VOL
1132
ISS
4
NO
26
1991
UMI

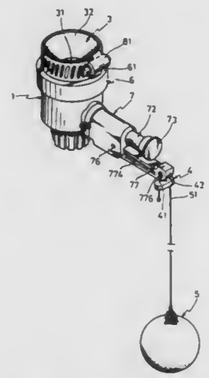
outlet, a flexible, self-supporting diaphragm with a flanged edge mounted between the casing segments and dividing the valve cavity into upper and lower chambers, the diaphragm being dish-shaped with an intermediate, upwardly directed and convexly curved rim portion causing it to be self-biased towards the main valve annular seat, the diaphragm also having a central aperture with a main valve disc mounted therein for vertical reciprocating movement between the valve chambers in association with movement of the diaphragm, the main valve disc having a concave, cup-shaped, frusto-conical upper portion and a cylindrical lower portion with an external circumferential, flat-walled channel into which there is adapted to be fitted a flanged inner edge forming a central circular aperture of the diaphragm for mounting the main valve disc onto the diaphragm, the lower portion of the main valve disc also having a continuous, sealed, bottom surface formed with a flat-topped peripheral annular wall forming a sealing surface for the main valve annular seat and being held in a normally full-closed position against the main valve seat by bias of the diaphragm to prevent fluid backflow from the outlet to the inlet under conditions of low fluid pressure, the main valve disc having an axial bore extending partly through the length thereof from the top of the disc to a first closed endwall above the continuous sealed bottom of the disc, said first endwall defining at least one radial port extending from the outer periphery of said valve disc and into the interior of said valve disc axial bore and said valve disc being adapted to reciprocate axially along a fixed, vertical guide post centrally mounted upon and subtending from inside the top of the upper casing segment, an annular restricted flow passage being formed between the bore of the valve disc and outer surface of the fixed guide post, an axial bore extending through an upper portion only of the fixed guide post and joining a transverse bore therein which extends completely therethrough, said guide post axial bore ending at a second closed endwall which defines at least one radial port extending from the outer periphery of said guide post and into the interior of said guide post axial bore, a lower portion of the main valve disc also having a transverse bore extending completely therethrough in fluid communication with the axial bore through said valve disc radial port whereby fluid is able to enter the main valve upper chamber through said valve disc radial port into said valve disc axial bore along the exterior of said guide post when the main valve disc axial bore endwall abuts said guide post and when the main valve and the pilot valve are each in a fully open position, opening and closing of the main valve disc resulting in part from fluid pressure differentials between the main valve lower chamber and the upper chamber, closing movement of the main valve disc being due to surface area under pressure of the main valve disc facing the upper chamber being greater than the surface area under pressure of said disc facing the lower chamber due to the bottom of the disc facing a low pressure bottom fluid outlet, the pilot valve is mounted within the upper casing segment and comprises a piston reciprocatable within a cylinder in association with movement of a float lever arm pivotally mounted on the upper casing segment, the top of the fixed guide post surrounding the axial bore forming a fixed valve-sealing seat for the pilot valve the piston of which has a bottom with a resilient sealing member thereon for sealing contact with the seat, the fixed guide post having a bore extending through the upper portion thereof for pressure relief discharge of liquid through the guide post and pilot valve and into a tank, reservoir or the like when the pilot valve is lifted by the float into the open position.

5,067,517

QUANTITATIVE LIQUID LEVEL CONTROLLING DEVICE

Liu Ting-Chih; Hsieh Sheng-Shun, and Huang Shih-Shiung, all of 9-2 Fl., No. 500, Lin Sen N. Road, Taipei, Taiwan

Filed Oct. 29, 1990, Ser. No. 605,661
Int. Cl.[5] F16K *31/24, 33/00*
U.S. Cl. 137—426 **6 Claims**



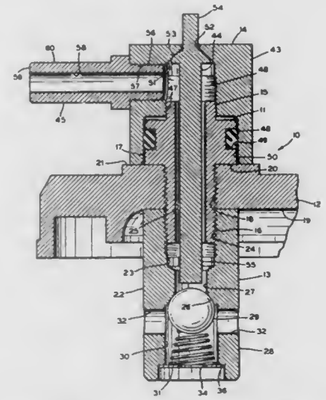
1. A quantitative liquid level controlling device, comprising:
a housing having a circular groove at the top, an outer thread on its outer wall, an outlet hole at the inside with an annular gasket fastened therein, and a through-hole transversely piercing through its outer wall at one side at a lower position with a rubber ring fastened therein;
a ball placed inside said housing and releasably stopped at said annular gasket to close said outlet hole;
a socket having a bottom flange mounted on the circular groove at the top of said housing, a concave surface portion disposed internally at the top with a center hole vertically piercing therethrough, a vertical retaining edge at the bottom of said concave surface portion for retaining a tap or pipe connector inserted therein, and at least a unitary reinforcing rib at a suitable location to reinforce its structure for holding said tap or pipe connector;
a ring connector having an inner thread screwed up with the outer thread of said housing with its ring-shaped topmost edge stopped at the top of the bottom flange of said socket to firmly secure said socket to said housing;
a holder plate fastened in the transverse through-hole of said housing and fixedly secured thereto having a driving rod transversely fastened therein, said driving rod having sleeved thereon a compression spring and a movable cap and longitudinally screwed up with a connecting rod at one end, and a control rod secured thereto by a locking pin disposed longitudinally in alignment therewith, said control rod having a raised portion at the top and a through-hole at the opposite end;
a locating element made of flexible resilient material, having two holes spaced from each other for fastening a cord through the through-hole of said control rod to secure said locating element to said control rod;
a gravity pendant secured to said cord at one end to pull said control rod downward by means of its gravity; and
wherein said gravity pendant pulls said control rod to move downward permitting the raised portion of said control rod to engage in the groove on said connecting rod so that said driving rod moves transversely through said through-hole into said housing at said outlet and pushes said ball away from said annular gasket permitting liquid from said tap to discharge through said outlet hole; said gravity pendant will float on the quantitative fluid, when the quantitative fluid level reaches a predetermined liquid level that is determined by the selectively positioning of said gravity pendant, thereby permitting said control rod to disengage from the groove allowing said driving rod to move back to its original position solely by said compression spring so that said ball is returned to close the hole on said annular gasket and to completely stop the flow of liquid.

5,067,518

PRESSURE FEED PAINT CUP VALVE

Michael J. Kosmyna, Toledo, Ohio, assignor to Ransburg Corporation, Indianapolis, Ind.

Filed May 1, 1991, Ser. No. 694,437
Int. Cl.[5] F16K *15/18*
U.S. Cl. 137—588 **6 Claims**



1. A valve for securing to the lid for a pressure feed paint cup comprising an adapter secured to the paint cup lid, said adapter having a first threaded end located within the paint cup, a second threaded end located outside of the paint cup and a passage extending between said ends, a check valve assembly including a first body threaded onto said first adapter end, said first body defining an interior passage communicating with said adapter passage, a ball and spring retained within said first body passage, said spring urging said ball against a conical seat in said first body passage, a vent valve assembly including a second body threaded onto said second adapter end, said second body defining an interior passage communicating with said adapter passage, a valve stem having a spherical surface seated against a conical seat in said second body passage, means for supplying pressurized air through said second valve body passage, said adapter passage and through said first valve body passage to pressurize the paint cup, such air deflecting said spring to flow between said ball and said conical seat in said first body passage, and means for separating said spherical valve stem surface from said second body seat and for simultaneously separating said ball from said first body seat to vent pressure from the paint cup.

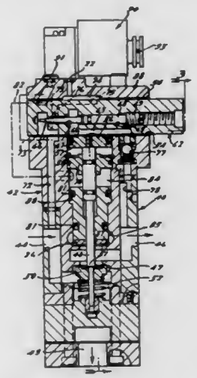
5,067,519

SAFETY VALVE FOR FLUID SYSTEMS

Neil E. Russell, Bloomfield Hills, Mich., and Owen H. Libby, Martin, Ga., assignors to Ross Operating Valve Company, Troy, Mich.

Filed Nov. 26, 1990, Ser. No. 617,579
Int. Cl.[5] F15B *13/04*
U.S. Cl. 137—596.14 **26 Claims**

1. In a fluid system having a fluid-operated device and a supply line for supplying pressurized fluid to said device at a predetermined line pressure, a safety valve interposed in said supply line, said safety valve comprising: a housing with supply, outlet, and exhaust ports in said housing; a movable poppet valve member carried by a valve stem for providing fluid communication between said supply and outlet ports when in an open position and for preventing said fluid communication when in a closed position, said line pressure tending to forcibly urge said poppet valve member to its closed position; a piston movable in a piston chamber in said housing and connected to said valve stem; first passage means in said housing leading from said supply port to said piston chamber; second passage means in said housing leading from said piston chamber to said outlet port; and restriction means for restricting fluid flow in said first passage means; the relative dimensions of said piston and said poppet valve member being such that said piston and said valve stem will shift said poppet valve member to its open position against the force of said line pressure when a predetermined proportion of said line pressure has been reached in said piston chamber; said safety valve also including an exhaust piston movable in an exhaust closure chamber within said housing; an exhaust valve member connected to said exhaust piston and movable therewith between an open position providing fluid communication between said outlet and exhaust ports and a closed position preventing fluid communication therebetween; third passage means in said housing leading from said supply port to said exhaust closure chamber so that said line pressure can forcibly act on said exhaust piston and tend to urge said exhaust valve member to its closed position, operator means selectively actuable between at least two positions respectively permitting and cutting off flow of said line pressure to said piston chamber and to said exhaust closure chamber; and the relative dimensions of said exhaust piston and said exhaust valve member being such that said exhaust valve member will shift to its closed position when said line pressure is present in said exhaust closure chamber and such that said exhaust valve member will shift to its open position in order to exhaust said outlet port through said exhaust port when said line pressure is cut off from said exhaust closure chamber.



5,067,520

TAP FOR COMPRESSED OR LIQUEFIED GAS

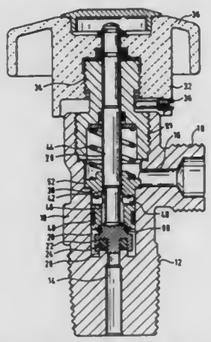
Paul Kremer, Walferdange, and Leon Kerger, Helmdange, both of Luxembourg, assignors to Ceodeux S.A., Lintgen, Luxembourg

Filed Jan. 31, 1991, Ser. No. 648,580
Claims priority, application Luxembourg, Jan. 31, 1990, 87671
Int. Cl.[5] F16K *11/18*
U.S. Cl. 137—614.2 **5 Claims**

1. Tap for compressed or liquefied gas, comprising a body (10) designed in order to be screwed onto a gas bottle and including a closure member (22) in a chamber (20) at the intersection of an axial inlet channel (14) and of a radial outlet

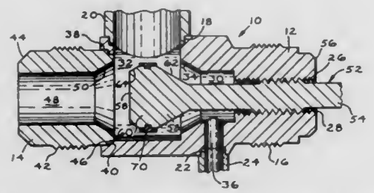
VOL 1132 ISS 4 NO 26 1991 UMI

channel (16), an external operating wheel (30) connected via an axial rod (28) through the body of the tap to the closure member (22) in order to displace the latter between an open position and a closure position, as well as a valve intended to contain a specific residual pressure in the bottle through the action of a spring (44), characterised in that the said valve consists of an annular cylindrical piston (38) mounted in a leaktight manner in the said chamber (20) downstream of the closure member (22) and defining, around the axial rod (28), an annular cylin-



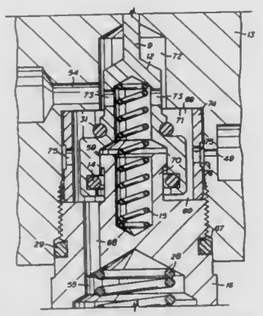
drical passage space (46) in communication, in an open position, with the outlet channel (16) via at least one radial orifice (48) in the said piston (38), in that a leaktight seal (50) is provided between the base of the said piston (38) and the head of the closure member (22), in that the said piston is stressed by a spring (44) in the direction of the closure member (22), and in that it comprises means for locking it in a position distant from the said closure member (22) against the action of its spring (44).

5,067,521
TWO-WAY REFRIGERATION VALVE WITH ELASTOMERIC SEAL
James K. Jenks, Clarklake, and Russell V. Lyke, Jackson, both of Mich., assignors to Refrigeration Sales, Inc., Jackson, Mich.
Filed Jan. 22, 1991, Ser. No. 644,254
Int. Cl.[5] F16K *11/044*
U.S. Cl. 137—625.5 **5 Claims**



1. A two-way refrigeration valve comprising, in combination, a metal body having an axis, first and second ends and a central region, a chamber defined within said body central region, a threaded bore coaxially defined in said body second end intersecting said chamber, a metal adapter coaxially brazed to said body part first end having an exterior surface, conventional fitting attachment means defined on said adapter exterior surface, said adapter directly communicating with said chamber and partially defining said chamber, a first port defined in said adapter in communication with said chamber at a first location, a second port defined in said body central region in communication with said chamber at a second location spaced from said first location, a third port defined in said body in communication with said chamber at a third location spaced from said first and second locations, said chamber having an axis coaxial with said body axis, a first conical metal chamber sealing surface defined on said body concentrically related to said chamber axis, a second conical metal chamber sealing surface define don said adapter concentrically related to said chamber axis in axially spaced opposed relation to said first sealing surface, said sealing surfaces partially defining said chamber and converging in a direction away from each other, said first and third locations intersecting said first and second sealing surfaces, respectively, said second location intersecting said chamber intermediate said first and second sealing surfaces, a valve member having a threaded stem received within said body threaded bore, said valve member including a head located within said chamber linearly movable substantially parallel to said chamber axis upon rotation of said stem, said valve head including a central portion having a central general plane substantially perpendicular to said chamber axis, first and second metal sealing surfaces defined on said head on opposite sides of said plane in opposed relation to said first and second chamber sealing surfaces, respectively, whereby said first head sealing surface is adapted to selectively engage with said first chamber sealing surface at one axial position of said valve head and said second head sealing surface is adapted to selectively engage with said second chamber sealing surface at a second axial position of said valve head, and an annular elastomeric seal band circumscribing said valve head central portion and radially extending beyond said first and second valve head sealing surfaces and axially extending beyond the adjacent projection of said sealing surfaces adapted to selectively sealingly engage with said first and second chamber seal surfaces prior to engagement of said first chamber and valve head sealing surfaces and said second chamber and valve head sealing surfaces, respectively.

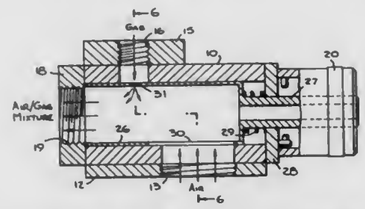
5,067,522
PRESSURE BALANCE VALVE SPINDLE
Jone Y. Ligh, P.O. Box 420509, Houston, Tex. 77242-0509
Continuation of Ser. No. 554,550, Jul. 19, 1990, Pat. No. 4,991,620, which is a continuation of Ser. No. 352,619, May 15, 1989, abandoned, which is a continuation of Ser. No. 213,928, Jun. 30, 1988, abandoned. This application Dec. 20, 1990, Ser. No. 630,570
Int. Cl.[5] F16K *1/44*
U.S. Cl. 137—625.33 **9 Claims**



1. A pressure balanced valve spindle comprising three axially aligned and connected cylindrical segments of decreasing diameter, the first and largest diameter segment defining a lower seating and guide chamber therein and having an internal annular groove to receive a first O-ring seal, the second segment defining a spring receptacle chamber therein and having a bore normal to and through said second segment and said spring receptacle chamber, the third and smallest diameter segment defining an actuator stem, and an external annular

groove between said first and second segments to receive a second O-ring seal.

5,067,523
AIR-GAS CONTROLLER UNIT
Joseph Fraioli, 8 Seymour Pl., White Plains, N.Y. 10605
Filed Nov. 7, 1990, Ser. No. 610,072
Int. Cl.[5] F16K *11/076*
U.S. Cl. 137—625.41 **8 Claims**



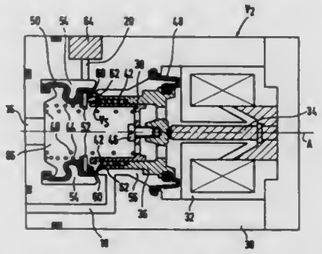
1. A controller unit adapted to supply a combustible air-gas mixture to a gas-fired burner, said unit comprising:

(a) A valve body having a cylindrical cavity therein aligned with an air-gas mixture outlet at one end of the body, an air inlet being formed at one side of the body and a gas inlet being formed at another side of the body, said air inlet and said gas inlet communicating with said cavity at axially displaced positions; and

(b) a hollow cylinder functioning as a mixing chamber received in said cavity and turnable therein from a maximum to a minimum setting, one end of said cylinder being open and being in alignment with said outlet to discharge an air and gas mixture from said chamber into said outlet, said cylinder having an air orifice therein which at said maximum setting lies in registration with said air inlet whereby as the cylinder is turned from the maximum to the minimum setting, the air orifice proceeds to fall out of registration, said cylinder having a gas orifice therein whose dimensions are small relative to those of the air orifice to established a desired air-to-gas ratio and which at said maximum setting lies in registration with said gas inlet whereby as the cylinder is turned from the maximum to the minimum setting, the gas orifice proceeds to fall out of registration to the same degree as the air orifice, whereby as the cylinder is turned it acts to adjust the volumetric flow rate of air and gas admitted into the mixing chamber while maintaining the ratio therebetween.

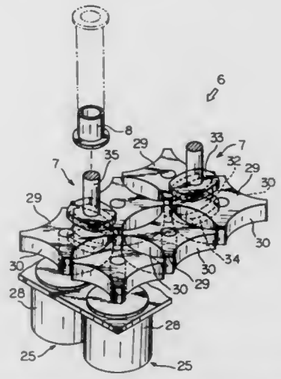
5,067,524
DIFFERENTIAL PRESSURE CONTROL VALVE
Josef Pickenhahn, Plaidt, Fed. Rep. of Germany, assignor to Lucas Industries public limited company, Birmingham, England
Filed Dec. 27, 1990, Ser. No. 634,559
Claims priority, application Fed. Rep. of Germany, Dec. 27, 1989, 3943003
Int. Cl.[5] F16K *31/10*
U.S. Cl. 137—627.5 **6 Claims**

1. A differential pressure control valve, comprising a valve housing (30) which has an inlet (20) for a fluid under relatively high pressure and at least one outlet (18) for the fluid and in which a plunger (36) is movable axially by an electromagnet (32) toward a valve seat (V_S) biased axially in the opposite direction by a first spring (44), characterized in that a second spring (42) causes the plunger (36) to enter into functional engagement with a stop (52) connected to the valve seat (V_S), while it is being moved toward the valve seat (V_S) but before



or as it touches the same, and in that the pressure of the first spring (44) is greater than of the second (42) one.

5,067,525
THREE-DIMENSIONAL FABRIC WOVEN BY INTERLACING THREADS WITH ROTOR DRIVEN CARRIERS
Makoto Tsuzuki; Masahiko Kimbara; Kenji Fukuta, and Akihiko Machii, all of Tsukuba, Japan, assignors to Three-D Composites Research Corporation, Tsukuba, Japan
Filed Dec. 28, 1989, Ser. No. 458,400
Claims priority, application Japan, Dec. 28, 1988, 63-335020; Dec. 28, 1988, 63-335022; Mar. 30, 1989, 1-79704; Apr. 4, 1989, 1-85111
Int. Cl.[5] D04C *1/00*
U.S. Cl. 139—11 **10 Claims**



6. In an apparatus for weaving a three-dimensional fabric by interlacing threads held by a large number of bobbin- or thread-carriers adapted to move about along predetermined paths within a traveling surface thereof, the improvement which comprises a carrier driver that moves the carriers, said carrier driver comprising:

a) a large number of drive units for driving in two directions and disposed in a carrier traveling surface;

b) the drive units carrying rotors that are turned by said drive units in ±90° increments about their central axis in the carrier traveling surface, the rotors being disposed contiguous to one another in the carrier traveling surface;

c) each rotor having a plurality of recesses adapted to hold a carrier between a pair of adjoining rotors;

d) the carrier, having a grip, said grip being formed by two arched surfaces centered on the rotating axes of adjoining rotors to fit between the recesses thereof; and

VOL 1132 ISS 4 NO 26 1991 UMI

e) the recesses on the rotor being shaped so that when one of the paired adjoining rotors turns while holding the carrier the recesses on the other rotor serve as a guide to help a transfer of the carrier;

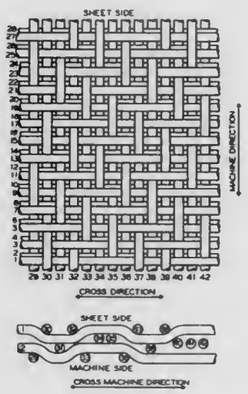
such that when one of the rotors holding the carrier turns to move the carrier, over the recesses on the other rotor serving as a transfer guide, the desired three-dimensional fabric is woven by way of a repetition of this cycle with many rotors.

5,067,526

14 HARNESS DUAL LAYER PAPERMAKING FABRIC

Samuel H. Herring, Tallahassee, Fla., assignor to Niagara Lockport Industries, Inc., Quincy, Fla.

Filed Aug. 6, 1990, Ser. No. 562,728
Int. Cl.[5] D03D *13/00*
U.S. Cl. 139—383 A 10 Claims



1. A fabric for use on a papermaking machine, comprising

a dual layer, fourteen harness woven fabric having an upper, or sheet, side and a lower, or machine, side and further comprising

a set of machine direction yarns;

a first set of cross machine direction yarns forming knuckles with said machine direction yarns and extending mainly on said sheet side and interlaced with said set of machine direction yarns such that each sheet side knuckle of said machine direction yarns floats over two of the sheet side cross machine direction yarns;

a second set of cross machine direction yarns extending mainly on said machine side and interlaced with said set of machine direction yarns;

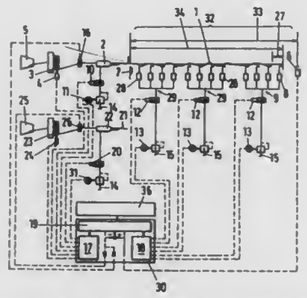
said interlacing of said machine direction yarns and said cross machine direction yarns including at least one said machine direction yarn interposed between each lowermost portion of each said sheet side cross machine direction yarn and any subjacent said machine side cross machine direction yarns, whereby overlap of adjacent cross machine direction yarns of said machine side set and said sheet side set is substantially avoided.

5,067,527

ADJUSTMENT OF WEFT YARN STRETCH IN A SHED OF AN AIR JET LOOM

Godert de Jager, Uster, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland

Filed Jul. 27, 1990, Ser. No. 559,171
Claims priority, application Switzerland, Sep. 1, 1989, 3183/89
Int. Cl.[5] D03D *47/30*
U.S. Cl. 139—435.2 20 Claims



1. A method of adjusting weft yarn stretching in a shed of an air jet loom having at least one main blowing nozzle and a plurality of groups of relay nozzles disposed across a shed, said method comprising the steps of

detecting the arrival of a picked weft yarn at a first weft stop motion at an end of the shed and emitting a first signal in response thereto;

detecting a stop shock in the picked weft in a second stop motion upstream of the shed or a similar signal that the accumulated predetermined length of weft has been drawn off the accumulator and emitting a second signal in response thereto; and

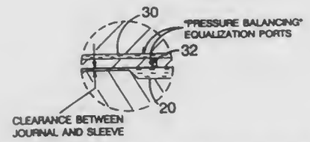
measuring the time difference between said signals and using said measured time difference as a parameter for the stretching of the weft yarn in the shed and as a parameter for controlling at least the relay nozzles in the picking of a weft yarn in the shed.

5,067,528

HYDRODYNAMIC BEARING

Forrest Titcomb; Jackie Cordova, both of Colorado Springs, Colo., and Max W. Schaule, Mindelheim, Fed. Rep. of Germany, assignors to Digital Equipment Corporation, Maynard, Mass.

Division of Ser. No. 382,251, Jul. 19, 1989. This application Nov. 21, 1989, Ser. No. 439,884
Int. Cl.[5] B65B *31/00*
U.S. Cl. 141—4 3 Claims



1. A method for introducing liquid lubricant into a hydrodynamic bearing having clearance spaces for filling with a liquid lubricant comprising:

placing the bearing in a vacuum chamber above a liquid lubricant;

evacuating the chamber to a pressure below atmospheric pressure;

submerging the bearing into the lubricant;

raising the pressure in the chamber to atmospheric pressure; and

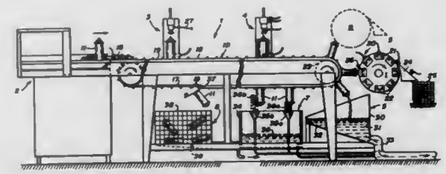
exposing the filled bearing to ultrasonic energy.

5,067,529

AEROSOL CAN RECYCLING APPARATUS AND METHODS

Walter E. Gonzalez-Miller, Campbell, and Jacques M. Dulin, Cupertino, both of Calif., assignors to Depressurized Technologies International, Inc., San Jose, Calif.

Filed Oct. 30, 1989, Ser. No. 429,852
Int. Cl.[5] B65B *31/00*; B67B *7/24*
U.S. Cl. 141—7 19 Claims



1. Aerosol can reclamation method for non-destructively disassembling spent, mis-filled or surplus propellant-pressurized aerosol cans having gas and chemical contents and collection of the can contents and can parts, which aerosol can is of the type having a can body with a can bottom, a top cap with a central actuator stem joined to a cap rim by a generally planar intermediate annular member at the base of said stem, which top cap rim is crimp-sealed to a rim of an opening at one end of the body of said can, comprising in any operative sequence the steps of:

a) isolating at least a portion of one end of said can to confine gases released therefrom in a first zone from unrestricted release to the atmosphere;

b) piercing said isolated can end to release can propellant gas into said confined zone;

c) decrimping said can top cap to at least partially break said seal between said can top cap and said rim;

d) removing said can top cap from said rim without substantial damage to said can body; and

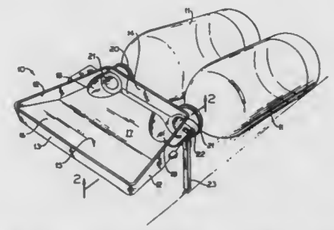
e) recovering said can body for recycle.

5,067,530

WASTE OIL COLLECTION AND DISPOSAL SYSTEM

Edward H. Short, III, Tulsa, Okla., assignor to Allied Plastics, Inc., Gastonia, N.C.

Filed Nov. 28, 1990, Ser. No. 619,138
Int. Cl.[5] B65B *1/04*
U.S. Cl. 141—98 4 Claims



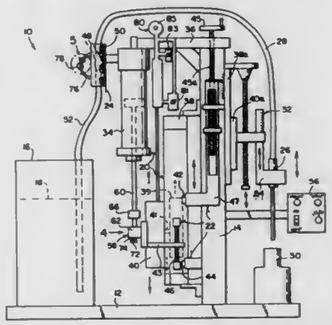
1. A waste oil collector adapted to be placed under the oil pan of a vehicle to catch used oil drained form the engine characterized in that the waste oil is directed into at least one bottle for collection and disposal, said collector comprising a catch pan that is generally rectangular in shape adapted to be placed under the oil pan of an engine for collecting oil that is drained form the engine, said catch pan comprising end, side and bottom walls defining an initial oil collection chamber therein, said bottom wall being inclined to the horizontal so that the oil flows to one end of the pan, said end wall at said one end of said pan having at least one aperture, at least one bottle for receiving and collecting waste oil for disposal extending outwardly at an incline to the horizontal from said aperture, releasable engagement means operatively associated with the aperture in the end wall for connecting the outwardly extending bottle to said end wall to receive waste oil exiting through said aperture, and leg means extending downwardly from said catch pan adjacent said end wall for supporting said catch pan in a cantilever manner and at a sufficient elevation that the oil can drain into the inclined bottle, said bottle in the inclined position thereof serving as a counterbalance for supporting said catch pan in said cantilever manner from said leg means.

5,067,531

BENCH TOP CONTAINER FILLER

Kenneth Herzog, 200 Mill Rd., Riverhead, N.Y. 11901

Filed Oct. 30, 1989, Ser. No. 429,047
Int. Cl.[5] B65B *3/32*
U.S. Cl. 141—116 8 Claims



1. A bench top volumetric container filler which comprises:

a) a reservoir of fluid;

b) pumping means mounted on a stanchion for pumping the fluid out of said reservoir; including a driving piston rod;

c) means for controlling volume of the fluid pumped, responsive to movement of said rod to control said rod movement;

d) means for preventing backflow of the fluid into said reservoir;

e) a filling nozzle fluidly connected to said backflow preventing means;

f) a container for receiving the fluid from said filling nozzle;

g) means for controlling height of said filling nozzle to compensate for varying heights of said container;

h) means for fine tuning volume of fluid dispensed by said pumping means wherein said piston rod movement is adjustable in addition to the first said means for controlling volume of fluid pumped;

i) a means of controlling aspirating and discharging speeds of said pumping means by a controller piston mounted in a chamber having fluid means for controlling pressures on said controller piston during aspirating and discharge movement; said controller piston being connected and parallel to said driving piston rod wherein said pumping means further includes:

j) a volumetric piston pump with a driven piston rod extending therefrom; and

k) a pump driving cylinder with a slide mount connecting to said driving piston rod and said driven piston rod by an adjustment block coacting with said fine tuning means.

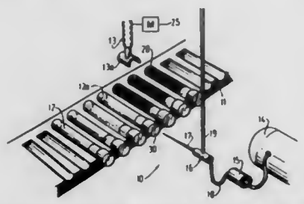
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,532

APPARATUS FOR FILLING SELF-SEALING TUBES

John Lang, Shannon, County Sligo, and Cormac Garvey, Boltown Hall, Kilskyre, Kells, County Meath, both of Ireland

Filed Feb. 20, 1990, Ser. No. 481,185
Claims priority, application Ireland, Feb. 20, 1989, 2548/88
Int. Cl.[5] G01N *1/14*
U.S. Cl. 141—329 24 Claims



1. An apparatus for introducing a fluid into a tube having a self-sealing closure means, said apparatus comprising:

a base;

clamping means having a substantially hemi-tubular construction for releasably clamping the tube against the base at a fluid injecting station and for releasably maintaining the tube in a substantially horizontal position;

injector means including a first hollow injector needle selectively engageable with said closure means;

means for enabling the needle to penetrate the closure means thereby introducing a charge of liquid into the tube and for enabling the needle to be withdrawn from the tube; and

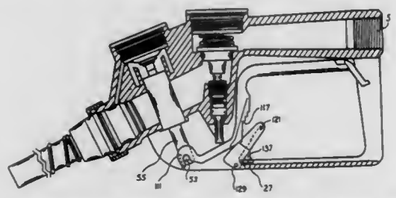
means for raising and lowering the clamping means relative to the tube so that in a first position of use, the clamping means is in engagement with the tube so as to bias the tube gently but firmly downwards against the base and in a second position of use the clamping means is out of engagement with the tube.

5,067,533

CAST NOZZLE HAVING IMPROVED LATCH AND SHUT-OFF MECHANISM

Mervin L. Carder, Sr., 78 May Valley La., and E. Leonard Poli, 1375 Greenbirch Ct., both of Fenton, Mo. 63026

Continuation of Ser. No. 391,137, Aug. 8, 1989, abandoned. This application Mar. 18, 1991, Ser. No. 673,154
Int. Cl.[5] B67D *5/371*
U.S. Cl. 141—392 12 Claims



1. In a liquid dispensing nozzle comprising a casing having an inlet, an outlet spout, a fluid passage therebetween, and a valve seat in the fluid passage; a poppet valve cooperative with the valve seat for closing the fluid passage; biasing means for biasing the poppet valve to a closed position; a valve stem depending from the poppet valve; a manually operable lever cooperative with the valve stem for opening the poppet valve against the bias of the biasing means, the lever being formed in an "S" shape; a hand guard extending below and around the manually operable lever; an automatic shut-off means forming a pivot for the lever, the shut-off means including a plunger moveable to an extended position for disabling the manually operable lever from opening the poppet valve when the outlet spout is immersed in liquid and spring means for returning the plunger to a retracted position; the lever including a forward arm pivoted to the plunger of the automatic shut-off means and also engaging the valve stem of the poppet valve, an intermediate portion, and a rearward hand-hold; and a clip for holding the lever in a raised position for holding the poppet valve open, the improvement wherein

the hand guard includes a central horizontal portion and a ledge spaced slightly above the horizontal portion,

the lever and the clip are formed in a mold by molding or casting,

the clip is rotatably mounted on the hand guard behind and below the intermediate portion of the lever, the clip and lever being rotatable in a common plane,

the nozzle further comprising

a spine on a lower surface of the intermediate portion of the lever, the spring having a width less than the width of the intermediate portion,

a plurality of serrations on the spine, the clip being rotatable into selective engagement with one of the serrations,

a return spring for biasing the clip out of engagement with the lever, one end of the return spring extending under the ledge on the hand guard,

the clip having a width substantially equal to the width of the intermediate portion,

the clip including a rear wall and two side walls surrounding the spine in said engaged position of the clip,

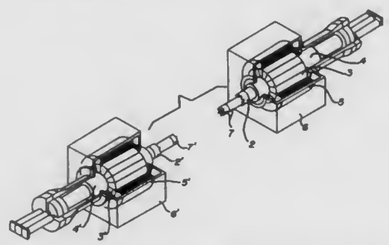
the clip further comprising stop means engaging the ledge when the clip is in its rest position for limiting rotation of the clip to a rest position closely adjacent the lever, with the rear wall of the clip substantially parallel to the intermediate portion of the lever and the rear wall and side walls of the clip surrounding the spine when the lever is released and the plunger returned to its retracted position, the rest position of the clip permitting the clip to be easily rotated to said engaged position by one hand of a user holding the lever.

5,067,534

SPINDLE DRIVE FOR A VENEER LATHE

Juha Tolvio, Lahti, Finland, assignor to Raute Oy, Lahti, Finland

PCT No. PCT/FI89/00065, § 371 Date Oct. 31, 1990, § 102(e) Date Oct. 31, 1990, PCT Pub. No. WO89/12535, PCT Pub. Date Dec. 28, 1989
PCT Filed Apr. 10, 1989, Ser. No. 601,699
Claims priority, application Finland, Jan. 20, 1988, 882937
Int. Cl.[5] B27L *5/02*
U.S. Cl. 144—209 R 5 Claims



1. A veneer lathe comprising:

first spindle means comprising a first spindle shaft and first grasping means for grasping one end of a log to be turned about a longitudinal axis of said lathe, said first spindle means being displaceable along said longitudinal axis to grasp said log;

second spindle means disposed opposite to said first spindle means along said longitudinal axis, said second spindle means comprising a second spindle shaft and second grasping means for grasping another end of said log opposite said one end, said second spindle means being displaceable along said longitudinal axis to grasp said log;

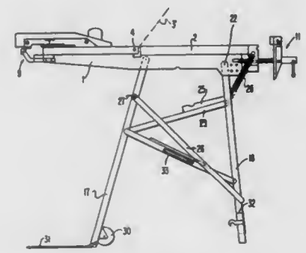
drive means for rotating at least one of said first or second spindle means about said longitudinal axis, said drive means comprising rotor means mounted on at least one of said first or second spindle shafts and stator means disposed in a frame around said rotor means.

5,067,535

WORKTABLE

Robert Wolff, Engeln, Fed. Rep. of Germany, assignor to Werkzeug-gesellschaft mit beschranter Haftung, Weilbern, Fed. Rep. of Germany

Filed Apr. 4, 1990, Ser. No. 503,982
Claims priority, application Fed. Rep. of Germany, Apr. 4, 1989, 3910826
Int. Cl.[5] B25H *1/00*
U.S. Cl. 144—286 R 15 Claims



1. A worktable comprising:

a table top frame;

a workbench panel mounted on the frame adjacent to a first end of the frame;

a tool mounting panel pivotably mounted on the frame adjacent to a second end of the frame such that the tool mounting panel is positionable in an inclined position above the workbench panel;

a first pair of legs attached to a first side of the frame and a second pair of legs attached to a second side of the frame;

a first connecting member connecting the legs of the first pair of legs to each other and a second connecting member connecting the legs of the second pair of legs to each other, said legs being pivotably attached to the frame and the first and second connecting members are pivotably attached to the legs such that the legs are foldable towards the second end of the frame;

a tool mounting area provided on the tool mounting panel, said legs being foldable beneath the tool mounting panel without obstructing the tool mounting area; and

spring means attached to the frame and to the legs for holding the legs in an unfolded position when the legs are unfolded from a folded position beneath the tool mounting panel past a dead center position to the unfolded position, and for holding the legs in the folded position when the legs are folded from the unfolded position past the dead center position to the folded position.

5,067,536

METHOD FOR MAKING STRUCTURAL PRODUCTS FROM LONG, THIN, NARROW, GREEN WOOD STRANDS

Frank T. Liska, and Frank F. Liska, both of 1403 - 1770 Davie Street, Vancouver, British Columbia V6G 1W4, Canada

Filed Feb. 7, 1990, Ser. No. 476,077
Int. Cl.[5] B27M *1/02*
U.S. Cl. 144—361 8 Claims

1. A process for producing a high quality agglomerated structural member from engineered long, thin, narrow, green wood strands having a longitudinal axis, said strands remaining parallel to each other throughout the process, the process comprising:

feeding the strands from a strand producing machine onto a transfer conveyor with an orientation whereby the longitudinal axes of the strands is transverse to the direction of motion of the strands;

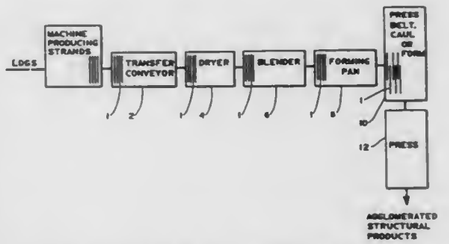
feeding said strands into a screen dryer while maintaining said orientation;

confining said strands in the said dryer between a bottom screen belt and a top screen belt while maintaining said orientation, said screen belts preventing intermingling and breaking of said strands while allowing said strands to shrink in all directions during the drying process;

subjecting the strands in the dryer to a drying medium that penetrates through said screen belts while maintaining said orientation and transporting said screen belts and said strands confined between them at identical speed through the dryer;

feeding said strands into a cooling section of said dryer while maintaining said orientation;

confining said strands in said cooling section between a bottom screen belt and a top screen belt while maintaining said orientation, said screen belts preventing intermingling and breaking of said strands;



subjecting said strands in the cooling section to cooling air that penetrates through said screen belts while transporting said screen belts, with said strands confined between them and maintained in said orientation, at identical speed through the cooling section;

feeding said strands into a blender while maintaining said orientation, said blender comprising a set of carrying screens cascading downwardly and vibrating in the direction of motion of said strands;

spraying said strands with resin in said blender;

discharging said strands onto a vibrating forming pan while maintaining said orientation, said pan vibrating in the direction of motion of the strands and declining slightly in the direction of said motion, said pan simultaneously moving slowly forward and backward in said direction of motion a predetermined distance;

transferring said strands onto a moving receiving member to spread said strands over a predetermined width to form a mat on said receiving member of a width equal to the predetermined distance formed by backward and forward movement of the forming pan, said receiving member moving back and forth in a direction parallel to the longitudinal axes of the strands to enable forming of a mat of strands that overlap longitudinally with each other; and

transferring said mat of strands into a heated press and compressing the mat, covered with resin, to produce the structural member.

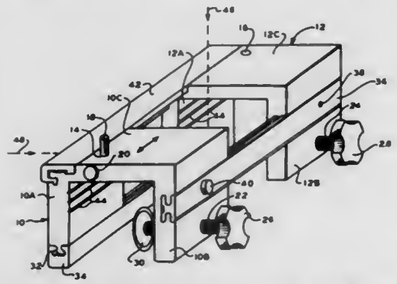
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,537

FIXTURE FOR HINGE MORTISE

Dennis Offner, Lake Iosco, Haskell, N.J. 07420

Filed Nov. 3, 1989, Ser. No. 431,074
Int. Cl.[5] B27M 3/00
U.S. Cl. 144—372 29 Claims



1. A fixture for cutting a mortise for a hinge or strike plate in a workpiece comprising:
a pair of spaced saddles;
at least one bar connected between said pair of saddles, at least one of said saddles being slideably mounted on said bar;
a pair of clamp means, each being mounted in a different corresponding one of said saddles to clamp said workpiece; and
a removeable guide detachably mounted between said saddles.

5,067,538

DIMENSIONALLY STABLE POLYESTER YARN FOR HIGHLY DIMENSIONALLY STABLE TREATED CORDS AND COMPOSITE MATERIALS SUCH AS TIRES MADE THEREFROM

Charles J. Nelson, Chesterfield; Jayendra H. Bheda; Peter B. Rim, both of Midlothian, all of Va., and James M. Turner, Cary, N.C., assignors to Allied-Signal, Morris Township, Morris County, N.J.

Filed Oct. 28, 1988, Ser. No. 263,756
Int. Cl.[5] D02G 3/48; B60C 9/00
U.S. Cl. 152—451 10 Claims

1. A drawn polyethylene terephthalate multifilament yarn having the following combination of properties:
(A) a terminal modulus of at least 20 g/d,
(B) a dimensional stability defined by the sum of elongation at 4.5 g/d load and free shrinkage after 1 minute in 177° C. dry air of less than 11.5%,
(C) a tenacity of at least 5 grams/denier,
(D) a melting point elevation of 14° to 22° C., and
(E) an amorphous orientation function of less than 0.75.

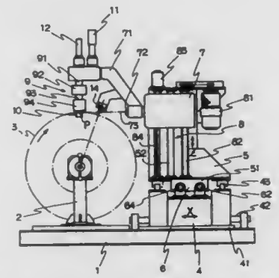
5,067,539

METHOD FOR CORRECTING TYPE DEFLECTION IN TIRE GROOVING AND APPARATUS THEREFOR

Satoru Kinuhata; Masao Takami, both of Kobe; Eiji Shibata, Nakama, and Tadahiko Tamura, Kitakyushu, all of Japan, assignors to Sumitomo Rubber Industries, Ltd., Kobe, Japan

Division of Ser. No. 432,405, Nov. 6, 1989, which is a continuation-in-part of Ser. No. 285,557, Dec. 16, 1988, abandoned. This application Aug. 24, 1990, Ser. No. 572,278
Claims priority, application Japan, Dec. 19, 1987, 62-322207; May 30, 1988, 63-134026; May 30, 1988, 63-134027
The portion of the term of this patent subsequent to Apr. 9, 2008, has been disclaimed.
Int. Cl.[5] B29D 30/68
U.S. Cl. 157—13 3 Claims

1. A method for compensating radial deflection and lateral deflection of a tyre in tyre tread grooving wherein a cutter movement is controlled by a plurality of operating shafts including a radially driving shaft, which moves a cutter in a direction along the diameter of the tyre, and a laterally driving shaft, which moves the cutter in a direction along the width of the tyre, and desired pattern grooves are formed in the tyre tread surface, characterized by the steps comprising supporting a tyre to be tread grooved on a supporting shaft, while rotating said supported tyre on said supporting shaft, detecting radial deflection of said supported tyre in a direction along the diameter of said supported tyre before or during tyre tread grooving and detecting lateral deflection in a direction along the width of said supported tyre before or during tyre tread



grooving, and grooving the tread of said rotating supported tyre with a cutter moved relative to said tyre tread in accordance with a main program based on a prespecified grooving pattern while concurrently adjusting radial movement and lateral movement of the cutter in accordance with a correction program based on detected radial and lateral deflections in order to follow the radial deflection and the lateral deflection, wherein the cutter movement is provided by mechanically superposing reference movement and correction movement, which are respectively calculated by the main program and the correction program and are separately generated as mechanical movements.

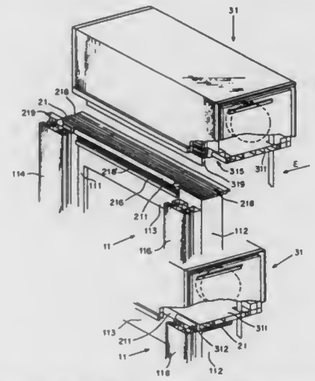
5,067,540

COMBINATION WINDOW FRAME WITH ROLL-UP SHUTTER CHANNELS MOUNTED ON IT AND ASSOCIATED SHUTTER HOUSING

Armin Besler, Kuhlehof 16, D-4630 Bochum, Fed. Rep. of Germany

Filed Oct. 5, 1987, Ser. No. 105,596
Int. Cl.[5] A47H 1/00
U.S. Cl. 160—31 11 Claims

1. A combination window frame with a top frame member and spaced parallel frame members, a pair of roll-up shutter channels which are mounted on respective said side frame members and an associated shutter housing, further comprising front connectors on said top frame member of said window frame and extending between the shutter channels; said front connectors being spaced from said shutter channels; said shutter housing having a shutter-housing base plate; first coupling means on said base plate; said top frame member having a flat adapter extending over the length thereof and projecting forward and backward beyond said member, said adapter being bent out in a vicinity of the shutter channels and having longitudinal edges in the form of matching connectors that match said front connectors so that at least said front connectors and said matching connectors engage with each other; second coupling means on said adapter for engaging said first coupling means on said base plate, whereby said adapter mounts said shutter housing to said window frame.

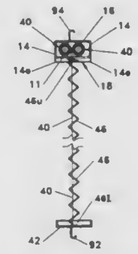


5,067,541

COLLAPSIBLE SUN SHADE AND METHOD FOR SHIELDING THE SUN

Fred L. Coslett, 4227 Boca Pointe Dr., Sarasota, Fla. 34238

Filed May 7, 1990, Ser. No. 519,960
Int. Cl.[5] E06B 9/06
U.S. Cl. 160—84.1 11 Claims



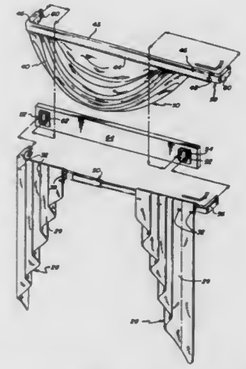
1. A collapsible sun shade comprising:
a generally hollow housing; at least one support means contained in and bound to said hollow housing for rotatably supporting a coiled spring plate; a plate member; a serrated shielding means for shielding the sun and including a plurality of pleated blades consecutively adjoined together to provide a serrated shape with a lower extreme blade defining a lower blade and an upper extreme blade defining an upper blade and with each of said plural blades having a structure defining an aperture, said upper blade contained in and coupled to said hollow housing and said lower blade secured to said plate member; at least one coiled spring plate having an upper end section and a lower end section and normally resiliently wound on a spindle member rotatably mounted to said support means and in said hollow housing, said upper end section of said coiled spring plate securing to said spindle member and said lower end section of said coiled spring plate comprising to said plate member and said coiled spring plate passing through all of said apertures of said blades; said hollow housing having a pair of opposed sides with a pair of lower side edges, a back bound to the opposed sides, and a generally open front wherethrough said serrated shielding means retractably passes, a partition member secured to the opposed sides and having a structure defining a guide aperture for guiding and receiving therethrough a structure of the coiled spring plate, a pair of ends connected to ends of the sides and the back such that the hollow housing essentially forms a rectangular box with the partition member forming a floor whereto the upper blade is coupled and the open front providing a longitudinal opening that is defined by the distance between the lower side edges and between the pair of ends; said at least one support means comprises a first pair of support members disposed between the partition and the back and secured to the back of the hollow housing; said at least one coiled spring plate comprising a first spindle member rotatably secured to said first pair of support members and a first coiled spring plate secured to the first spindle member; said at least one support means additionally comprises a second pair of support members disposed between the partition and the back and secured to the back of the hollow housing; and said at least one coiled spring plate additionally comprising a second spindle member rotatably secured to said second pair of support members and a second coiled spring plate secured to said second spindle members.

5,067,542

READY-MADE SWAG AND JABOT CURTAIN SYSTEM

Madlyn Easley, West Hartford, Conn., assignor to Intrascapes, Ltd., West Hartford, Conn.

Continuation of Ser. No. 3,547, Jan. 15, 1987, abandoned. This application Apr. 26, 1991, Ser. No. 692,829
Int. Cl.[5] A47H 1/00
U.S. Cl. 160—126 14 Claims



1. A curtain system comprising: a pair of parallel curtain rods, one mounted behind the other and in substantially the same horizontal plane; a pair of jabots mounted on the forward rod; and a swag mounted on the rearward rod, said swag including a panel which is draped over said forward rod to hang in front of the upper portions of said jabots, each of said jabots including a panel that is folded upon itself and secured in that condition to provide a multiplicity of permanent pleats extending lengthwise thereof, and a strip piece fastened against the back surface of said folded panel and joined along the top edge thereof and also at a level spaced downwardly therefrom to provide a laterally extending pocket through which said forward rod is received, said pleats extending at least substantially to the upper edge of said forward rod, and said swag further including a sleeve piece on said panel thereof providing an elongated laterally extending pocket through which said rearward rod is received.

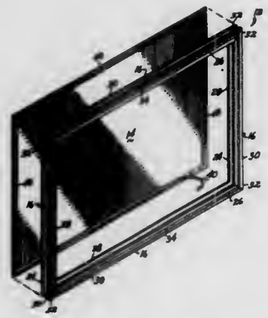
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,543

FOLDABLE DISPLAY SYSTEM WITH CONTINUOUS DISPLAY SURFACE

Thomas A. Bove, 1154 Herschel Ave., Cincinnati, Ohio 45208

Continuation of Ser. No. 406,369, Sep. 12, 1989, Pat. No. 4,958,671. This application Sep. 25, 1990, Ser. No. 587,991
The portion of the term of this patent subsequent to Sep. 25, 2007, has been disclaimed.
Int. Cl.[5] A47G 5/00
U.S. Cl. 160—135 3 Claims



1. A portable display system comprising:
a plurality of rectangular display panels having front and rear surfaces;
a plurality of rectangular panel support frames defining an array thereof, each frame having inner and outer edges and front and rear surfaces;
one of said display panel rear surface and said panel support frame front surface including means defining at least one channel, and the other of said display panel rear surface and said panel support frame front surface including locating means adapted to seat in said channel, said locating means and said channels cooperating such that the peripheral edges of each said panel and the outer edges of each said frame are in aligned registration with each other;
means hingedly joining adjacent panel support frames along their vertical abutting edges when said support frames are arranged in side-by-side relation to enable said array of frames to be selectively configured between a folded, portable position and an unfolded, display position;
means releasably securing each said display panel to a panel support frame with the peripheral edges of said panel and the outer edges of said frame being in aligned registration with each other so as to provide a substantially continuous and unbroken display surface when said array of support frames is in an unfolded, display position;
said securing means including a first member located on said support frame and a second member on said display panel rear surface, said first and second members cooperating to secure each said panel to a support frame.

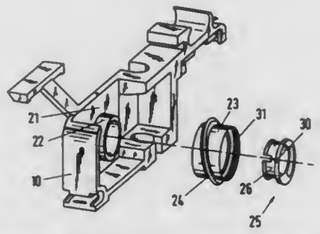
5,067,544

WORM DRIVE FOR SETTING THE ANGULAR POSITION OF VERTICAL LAMELLA BLINDS

Horst Spohr, Cuxhaven, and Walter Huegin, Efringen-Kirchen, both of Fed. Rep. of Germany, assignors to bautex Adolf Stoever Soehne KG, Fed. Rep. of Germany

Filed Jul. 28, 1989, Ser. No. 387,167
Claims priority, application Fed. Rep. of Germany, Jul. 29, 1988, 3825978
Int. Cl.[5] E06B 9/38
U.S. Cl. 160—177 15 Claims

1. A worm drive for setting the angular position of vertical slat blinds comprising means defining a vertical axis arranged inside a slat carrier housing, said means defining said vertical axis carrying a pinion torsionally connected thereto and having an end side joined to a slat, whereby a worm turnable by way of an inside profiling is in drive engagement with the pinion,



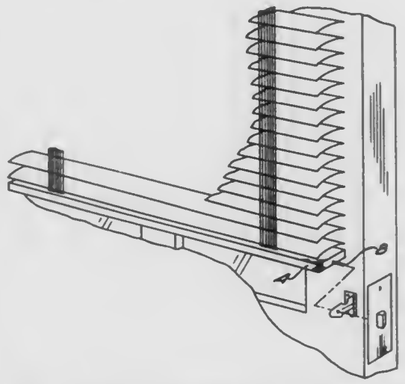
characterized in that the worm comprises an axial center opening and is held on a connection-piece-shaped projection of the slat carrier housing with a snap-on sleeve.

5,067,545

MINI BLIND HOLD DOWN BRACKET

Bruce G. Wilkins, 11702 Braewick, and Randolf E. Helm, 3308 Fountain View, #19, both of Houston, Tex. 77035

Filed Feb. 15, 1990, Ser. No. 480,651
Int. Cl.[5] E06B 9/30
U.S. Cl. 160—178.1 3 Claims



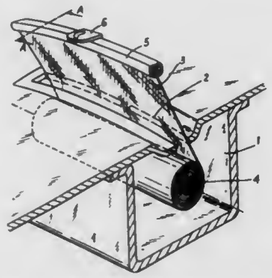
1. The combination of a miniblind and a bracket to secure said miniblind to a support structure comprising:
said miniblind having a bottom rail projecting laterally from each side of said miniblind and being disposed near the bottom thereof,
said bracket having a base bracket halve and a securing bracket halve, said halves being connected by a hinge,
said base halve having holes for mounting said base halve onto said support structure,
said securing halve having a circular shaped, outwardly raised flange capable of securing thereto said bottom rail,
said halves held in resilient relation to each other so that said securing halve folds flat against said base halve when not securing said bottom rail,
said securing halve having an outside surface and an inside surface, said inside surface being that surface which contacts said base bracket when said securing halve is not securing said bottom rail, said circular shaped flange being located on said inside surface,
and a resilient means secured to said inside surface of said securing halve and secured to said base halve for holding said halves in said resilient relation to each other.

5,067,546

ROLLER BLIND FOR A MOTOR VEHICLE AND PROCESS FOR THE PRODUCTION THEREOF

Jean-Marie Jeuffray, and Ouvrard Gaston, both of Bressuire, France, assignors to ETS Farnier & Penin, Bressuire, France

Filed Apr. 17, 1990, Ser. No. 509,815
Claims priority, application France, Apr. 19, 1989, 89 05204
Int. Cl.[5] E06B 9/08
U.S. Cl. 160—23.1 6 Claims



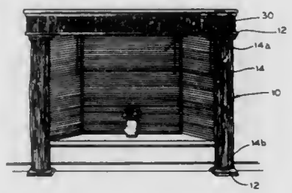
1. A roller blind suitable for substantially covering a curved motor vehicle window, comprising a housing have a guide slot, a straight roller member rotatably disposed within the housing, a single strip of flexible material of dimensions suitable for substantially covering a curved window of a motor vehicle and having a first end fixed to the roller member and a second end extending to the exterior of the housing through the slot, and a pull bar fixed to the second end of the strip, the guide slot and the pull bar being of curved configuration with substantially identical curvatures, and catch means attached to the pull bar at an angle with the strip end adjacent to the pull bar.

5,067,547

FABRIC COLUMN KIT AND SYSTEM

Wayne Movrich, LaGrange, Ill., assignor to Rich Ideas, Inc., LaGrange, Ill.

Filed Sep. 10, 1990, Ser. No. 579,736
Int. Cl.[5] E06B 9/00
U.S. Cl. 160—327 19 Claims



1. A fabric column system, comprising:
a pair of fabric supports each adapted for selected positioning in spaced apart relation;
means for fixedly mounting said fabric supports to a rigid surface in selected positions;
a fabric having opposite ends adapted for positioning adjacent respective ones of said fabric supports; and
means for releasably securing said opposite ends of said fabric to said respective ones of said fabric supports;
said releasable securing means including a rod pocket ring for said fabric, said fabric supports each including a base plate and a hold down plate and said rings being adapted to fit through rod pockets at said opposite ends of said fabric, and including means for securing said hold down plates to said base plates with said rings therebetween.

5,067,548

METHOD OF FORMING A CERAMIC MOLD FOR METAL CASTING

Stuart Z. Uram, Alpine, N.J., assignor to Certech Incorporated, Wood-Ridge, N.J.

Filed Mar. 19, 1991, Ser. No. 671,341
Int. Cl.[5] B22C 9/02, 9/12
U.S. Cl. 164—15 14 Claims



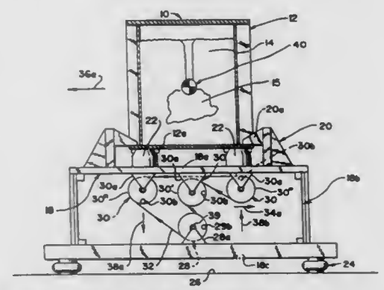
1. A method of forming a ceramic mold for metal casting, comprising the steps of:
(A) injection molding individual green mold sections from a slurry of ceramic particles and a binder;
(B) firing each of the individual green mold sections at a relatively low temperature for an extended period of time to remove therefrom a major portion of the binder while leaving therein a minor portion of the binder sufficient to afford structural strength thereto, and assembling the individual mold sections together to form a mold; and
(C) firing the mold at a high temperature to complete removal of the binder.

5,067,549

COMPACTION APPARATUS AND PROCESS FOR COMPACTING SAND

Albert Musschoot, Barrington, Ill., assignor to General Kinematics Corporation, Barrington, Ill.

Filed Dec. 4, 1989, Ser. No. 445,468
Int. Cl.[5] B22C 15/10
U.S. Cl. 164—39 27 Claims



1. A compaction apparatus, comprising:
a flask adapted to contain sand and a pattern;
means for resiliently supporting said flask in a controlled orientation; and
means for imparting vibrational forces to said flask, said vibrational forces having horizontal force components causing generally horizontal oscillating movement of said flask and alternating oppositely directed vertical force components maintaining said flask in said controlled orientation during said generally horizontal oscillating movement thereof, said vertical force components establishing an alternating vertical force couple adapted to counteract rotational inertia of said flask.

21. A process for compacting sand around a pattern in a flask, comprising the steps of:
resiliently supporting said flask in a controlled orientation; and
imparting vibrational forces to said flask having horizontal and vertical force components, said horizontal force components causing generally horizontal oscillating movement of said flask, said vertical force components compris-

VOL 1132 ISS 4 NO 26 1991 UMI

ing alternating oppositely directed vertical force components for maintaining said flask in said controlled orientation during said generally horizontal oscillating movement thereof, said vertical force components establishing an alternating vertical force couple adapted to counteract rotational inertia of said flask.

5,067,550

MANUFACTURING METHOD FOR DEFECT-FREE CASTING PRODUCT

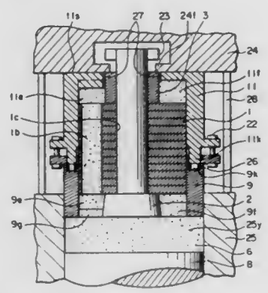
Shigeki Maekawa; Mikio Yamashita; Kenji Kawaguchi, and Yuji Kobayashi, all of Amagasaki, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 2, 1990, Ser. No. 487,291

Claims priority, application Japan, Mar. 6, 1989, 1-54405; Nov. 14, 1989, 1-296828; Nov. 14, 1989, 1-296829

Int. Cl.[5] B22D *27/11*

U.S. Cl. 164—120 **26 Claims**



1. A method of manufacturing a defect-free cast product comprising the steps of:

forming a cavity surrounded by a plurality of dies;

charging molten conductive material into said cavity;

applying pressure to said conductive material by pressure means;

discharging gas from said conductive material by a gas discharge means; and

selectively applying additional pressure to the portion of said conductive material which may suffer shrinkage cavities due to delay in solidification, by utilizing the pressure applied by said pressure means and by relatively moving a portion of said dies with respect to said conductive material during the entire time required for solidification when said conductive material solidifies and shrinks, whereby pressure is applied to the entire cast product to prevent occurrence of said shrinkage cavities, and absorbing movement during solidification between said plurality of dies with a movement absorbing member engaged with at least one of said plurality of dies.

5,067,551

METHOD FOR MANUFACTURING ALLOY ROD HAVING GIANT MAGNETOSTRICTION

Katsuhiko Murakami; Nobuo Yamagami, both of Tokyo; Toshiyuki Nakanishi, Yokosuka; Iwao Nakano, Yokosuka; Keiichi Kobayashi, and Takashi Yokhikawa, both of Tokyo, all of Japan, assignors to NKK Corporation, Tokyo; Japan Marine Science and Technology Center, Yokosuka and Oki Electric Industry Co., Ltd., Tokyo, all of, Japan

Application for reissue Jun. 18, 1990, Ser. No. 539,603

Claims priority, application Japan, Jun. 30, 1989, 1-168454

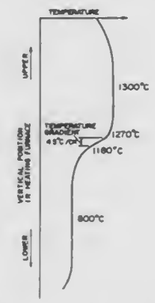
Int. Cl.[5] B22D *27/04*; C30B *11/14*

U.S. Cl. 164—122.2 **14 Claims**

1. A method for manufacturing an alloy rod having giant magnetostriction, which comprises the steps of:

supplying a granular or flaky alloy material, which material comprises at least two rare earth metals comprising terbium and dysprosium and at least one transition metal, into a tubular crucible in an inert gas atmosphere at a pressure of 0.2 to 10 atmospheres, said tubular crucible being arranged in a substantially vertical cylindrical heating furnace;

totally melting said alloy material in said crucible in said heating furnace, and then vertically moving any one of said crucible and said heating furnace at a speed of 0.1 to



5 mm/minute, said moving carried out at a temperature of 1,270 to 1,180° C. of said heating furnace, in which the temperature decreases at a temperature gradient of 10 to 100° C./cm to solidify and crystallize the resultant melt of said alloy material in said crucible in a lower portion of said heating furnace, thereby manufacturing an alloy rod having a large magnetostriction, which comprises a single-crystal structure or a unidirectional-solidification structure in the axial direction thereof

---

5,067,552

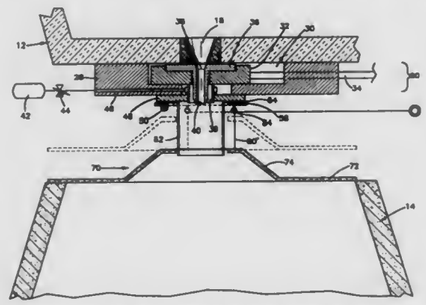
SHROUDING FOR TOP POURING OF INGOTS

Robert G. Petrushka, Brecksville, Ohio, assignor to LTV Steel Company, Inc., Cleveland, Ohio

Filed Jul. 26, 1989, Ser. No. 385,773

Int. Cl.[5] B22D *23/00*

U.S. Cl. 164—259 **16 Claims**



1. Apparatus for shrouding a molten metal stream during a teeming operation involving top pouring of molten metal through a tap hole of a ladle into a mold having a rim defining an upward facing opening, said apparatus comprising:

a) a generally tubular windscreen member affixed to and extending downwardly from the bottom of the ladle, the tubular windscreen member being generally aligned with the tap hole of the ladle;

b) a cover plate adapted for seating on the rim of the mold said cover plate being separable from the mold and defining a generally central aperture for forming a rough seal with the outer surface of the windscreen member and with the rim of said mold when the windscreen member extends through said aperture and said cover plate is seated upon the upper rim of said mold, and

c) flexible line means for supporting the cover plate in an aligned telescopic relation with the windscreen member, said flexible line means supporting said cover plate for compliant tilting movement about substantially all horizontal axes.

5,067,553

POWDER FEEDER IN CONTINUOUS CASTING

Hiromi Nakajima, Osaka, Japan, assignor to Liner Kabouki Co., Ltd., Osaka and Mitsui & Co., Ltd., Tokyo, both of, Japan

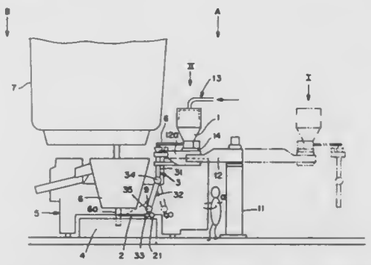
PCT No. PCT/JP89/00436, § 371 Date Feb. 20, 1990, § 102(e) Date Feb. 20, 1990, PCT Pub. No. WO89/10221, PCT Pub. Date Nov. 2, 1989

PCT Filed Apr. 25, 1989, Ser. No. 455,315

Claims priority, application Japan, Apr. 27, 1988, 63-105765

Int. Cl.[5] B22D *11/10*

U.S. Cl. 164—412 **4 Claims**



1. A powder feeder for use in continuous casting comprising:

a column;

a revolving tip arm supported by said column;

a powder container for storing final stage casting powder prior to spreading on a molten steel surface in a mold, said powder container being supported by said tip arm and having a discharge end;

a measuring apparatus positioned on said powder container to measure a quantity of powder to be spread on the molten steel surface in the mold;

a robot arm supported by said tip arm;

a spreading feeder for spreading the powder on the molten steel surface in the mold, said spreading feeder positioned lower than said powder container, and supported and manipulated by said robot arm; and

a flexible transfer path connecting said discharge end of the powder container to said spreading feeder for supplying powder from said powder container to said spreading feeder, said powder being fed by gravity through said flexible transfer path, and said flexible transfer path being capable of following movements of said robot arm;

said powder container and said measuring apparatus being positioned in an operator work area and higher than an operator's head.

5,067,554

MELT EXTRACTION OF CERAMICS

Peter Bosswell, Acacias; Dag Richter, Carouge; Tatjana Berce, Geneva, and Guy Negaty-Hindi, Onex, all of Switzerland, assignors to Battelle Development Corporation, Columbus, Ohio

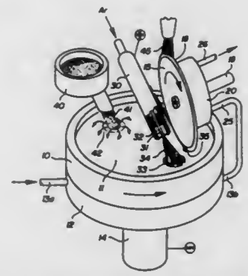
PCT No. PCT/US88/01249, § 371 Date Dec. 9, 1988, § 102(e) Date Dec. 9, 1988, PCT Pub. No. WO88/07979, PCT Pub. Date Oct. 20, 1988

PCT Filed Apr. 11, 1988, Ser. No. 359,674

Claims priority, application Switzerland, Apr. 10, 1987, 01385/87

Int. Cl.[5] B22D *11/06*

U.S. Cl. 164—463 **10 Claims**



1. A method of producing solidified filament, fibre or particle from a pool of a molten material by the melt extraction technique including rotating a heat extracting disk having a narrow peripheral surface, immersing the peripheral surface into an immersion area in the pool to form a film of the material on the peripheral surface and at least partially solidfying the film on the peripheral surface, and projecting the at least partially solidified film by centrifugal force from the disk as a filament, fibre or particle wherein the improvement comprises

additionally heating a portion of the melt pool surface remote from the disk immersion area sufficient to produce a lower-viscosity region of the melt, and

moving the lower-viscosity region into the disk immersion area.

6. Apparatus for producing solidified filament, fibre or particle from a pool of a molten material by the melt extraction technique comprising

means for maintaining a pool of molten material,

a rotatable, heat extracting disk having a narrow peripheral surface for immersing into an immersion area in the pool forming a film of the material on the peripheral surface, for at least partially solidifying the film on the peripheral surface, and for projecting the at least partially solidified film by centrifugal force from the disk as a filament, fibre or particle,

means for additionally heating a portion of the melt pool surface remote from the disk immersion area sufficient to produce a lower-viscosity region of the melt, and

means for moving the lower-viscosity region into the disk immersion area.

5,067,555

PROCESS AND APPARATUS FOR CONTINUOUS CASTING OF METAL STRIP

Takeshi Ban, Shinnanyo; Shigeru Matsunaga, Tokuyama; Hidemi Hirano, Tokuyama; Tuguo Isobe, Tokuyama, and Yoshio Takakura, Hitachi, all of Japan, assignors to Nisshin Steel Co., Ltd. and Hitachi Ltd., both of Tokyo, Japan

Filed Jul. 10, 1990, Ser. No. 550,770

Claims priority, application Japan, Jul. 11, 1989, 1-178765

Int. Cl.[5] B22D *11/06*

U.S. Cl. 164—480 **4 Claims**

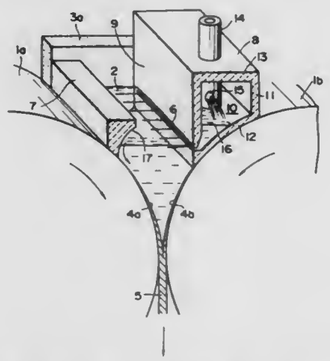
1. A process for continuously casting a metal strip by means

VOL 1132 ISS 4 NO 26 1991 UMI

of a twin roll continuous casting apparatus comprising a pair of internally cooled rolls rotating in the opposite direction of each other and disposed parallel to each other with their axes held horizontally and a pair of side dams for forming a pool of molten metal having a predetermined height on the circumferential surfaces of the pair of rolls, said pair of side dams disposed in the direction perpendicular to the roll axes with a space therebetween approximately corresponding to the width of a metal strip to be cast, said process comprising the steps of continuously pouring molten metal in said pool of molten metal so that the predetermined level of the molten metal may be maintained in the pool, and continuously casting the molten metal in the pool through a gap between the pair of rolls to form a metal strip while cooling the molten metal with the circumferential surfaces of the pair of rolls, said continuous pouring of molten metal further comprising substantially horizontally and unidirectionally flowing said molten metal from one roll towards the other roll and into said pool at a level below the surface of said pool to form a substantially horizontal and unidirectional film flow of molten metal.

3. A twin roll continuous casting apparatus comprising:

i) a pair of internally cooled rolls rotating in the opposite direction of each other and disposed parallel to each other with their axes held horizontal;



ii) a pair of side dams for forming a pool of molten metal having a predetermined height on the circumferential surfaces of the pair of rolls, said pair of side dams disposed in the direction perpendicular to the roll axes with a space therebetween approximately corresponding to the width of a metal strip to be cast; and

iii) a pair of longitudinal dams having respective inside walls along the roll axes to form the pool of molten metal together with the pair of side dams and having respective bottom surfaces, the circumferential surfaces of the pair of rolls being disposed in such a manner that the bottom surfaces of the longitudinal dams slidably contact the circumferential surfaces of the pair of rolls;

iv) one of the longitudinal dams having an inner hollow space within the body of said longitudinal dam and a slit-like opening on the inside wall thereof, said slit like opening horizontally extending in the direction of the roll axes and communicating with said inner hollow space whereby said longitudinal dam having the inner hollow space and the slit-like opening forms an intermediate tundish for pouring molten metal into said pool;

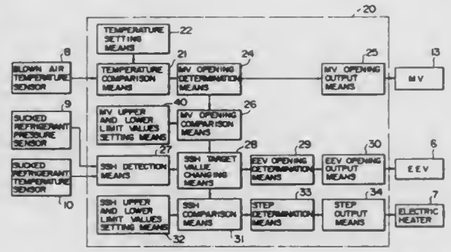
v) whereby continuously cast metal strip is formed by continuously pouring molten metal from the intermediate tundish into said pool and through said gap while cooling the molten metal with the circumferential surfaces of the pair of rolls.

5,067,556

CONTROLLER OF REFRIGERATING PLANT

Kanji Fudono; Toshimasa Takahashi, both of Nagoya; Hiroshi Ogawa, and Toshio Yamashita, both of Aichi, all of Japan, assignors to Mitsubishi Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 11, 1990, Ser. No. 596,030
Claims priority, application Japan, Oct. 13, 1989, 1-120256[U]
Int. Cl.[5] F25B *29/00*
U.S. Cl. 165—29 **2 Claims**



1. In a controller of a refrigerating plant equipped with each of

(a) a compressor;

(b) a condenser;

(c) an evaporator having an opening;

(d) a hot gas bypass circuit for leading a high temperature refrigerant gas discharged from said compressor to said evaporator;

(e) an electric heater for heating air emitted from said evaporator;

(f) a hot gas control valve inserted in said hot gas bypass circuit and having an opening adjustable in response to the difference between the temperature of an object to be cooled and a preset temperature;

(g) an electronic expansion valve for controlling the degree of superheat of the refrigerant at the outlet of said evaporator; and

(h) means for changing the control target value for the degree of superheat of said electronic expansion valve in response to the opening of said hot gas control valve, the improvement comprising:

control means for turning on said electric heater when said degree of superheat of the refrigerant exceeds its upper limit preset value, and for turning off said electric heater when said degree of superheat of the refrigerant falls below a lower limit preset value.

5,067,557

MACHINE UNIT CONSISTING OF A ROTARY PISTON INTERNAL COMBUSTION ENGINE AND A ROTARY PISTON COMPRESSOR

Roland Nuber; Werner Schubert, both of Lindau; Wolfgang Sohler, Wangen, and Franz Sutter, Lindau, all of Fed. Rep. of Germany, assignors to Wankel GmbH, Berlin, Fed. Rep. of Germany

Filed Feb. 23, 1990, Ser. No. 483,889
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1989, 3930901
Int. Cl.[5] F25B *27/00*
U.S. Cl. 165—51 **3 Claims**

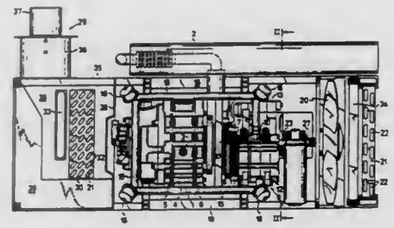
1. A machine installation, consisting of a rotary piston internal combustion engine with a housing, the housing being fluid cooled and including a shaft which passes axially through the housing, whereby said shaft is connected positively via a belt drive with a refrigeration compressor of the same type of construction as the internal combustion engine, comprising:

a) a housing frame clad with an external sheeting and connected with an inner tubular frame via oscillation dampers

of elastically deformable synthetic material, in which frame the internal combustion engine and the refrigeration compressor as well as the power supply generator axially parallel beside the refrigeration compressor are arranged and the internal combustion engine having an output shaft is connected positively with a belt drive;

b) at an end face of the housing frame there are arranged a condenser for the return flow of the refrigerating medium of the refrigeration compressor and there behind a shaft connection equalizing the vibrations between the tubular frame and the housing frame is arranged extending across to the drive shaft of the fan wheel driven by the internal combustion engine;

c) in a rear part of the housing frame located opposite to the fan wheel there is provided a climatization air conditioning system which behind the inlet opening for environmental air has an evaporator for refrigeration operation



capable of having cooling medium of the refrigeration compressor flowing therethrough vaporized in an expansion valve arranged therebefore and behind this having a heat exchanger for the cooling water of the internal combustion engine for heating operation as well as a blower for the climatized air/conditioned air and located in a discharge tube; and

d) in a cooling water circulation of the internal combustion engine there is provided a shift valve with which outcome thereof upon switching from heating operation to cooling operation causes circulation to be diverted from the heat exchanger in the climatization air condition system to a radiator, which is arranged between the fan wheel and the condenser and furthermore a magnetic coupling is provided between the drive pulley and the refrigeration compressor with which the refrigeration compressor can be brought to a standstill during heating operation.

5,067,558

MULTI-LANCE TUBE CLEANING SYSTEM

Thomas B. Boisture, Baytown, Tex., assignor to Ohmstede Mechanical Services, Inc., Baytown, Tex.

Continuation-in-part of Ser. No. 490,776, Mar. 8, 1990, Pat. No. 5,002,120. This application Oct. 19, 1990, Ser. No. 600,485
Int. Cl.[5] F22B *9/08*
U.S. Cl. 165—95 **20 Claims**



1. A multi-lance cleaning apparatus for cleaning the interior of heat exchanger tubes comprising:

an elongate hollow housing having first and second ends;

a hollow manifold slidably moveable within said housing, said manifold having a plurality of interconnected channels and outlets;

a conduit for connecting said manifold with a high pressure, high volume fluid source, said conduit having a first end and a second end, said first end of said conduit being adapted to be removably connected to said manifold and said second end of said conduit being adapted to removably connected to a high pressure, high volume fluid source;

a spool for storage of said conduit to permit said conduit to advance and retract, said spool storage being in close proximity to said first end of said housing;

means for securing and supporting said conduit within said spool;

means for moving said manifold within said housing from a first retracted position to a second extended position;

a plurality of hollow tubular lances, the outer diameter of each said lance being adapted to fit within a heat exchanger tube, said lance having a first end and a second end, said first end of each said lance being removably attached to said manifold and in communication with said fluid source, said second end of said lance being in proximity to said second end of said housing, said lances moving in response to the movement of said manifold;

means for supporting and guiding the movement of said lances; and

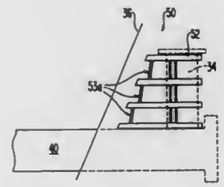
means for supporting and positioning said second end of housing and said second end of said lances with respect to a heat exchanger tube bundle to be cleaned.

5,067,559

DIFFUSER SCREEN FOR SPARGER NOZZLE

Seth Perkinson, Charlotte, N.C., assignor to CDP Product Development Corporation, Mount Airy, Md.

Filed Sep. 18, 1990, Ser. No. 584,270
Int. Cl.[5] F28B *3/04*
U.S. Cl. 165—112 **11 Claims**



1. An apparatus for diffusing a fluid stream, comprising:

a source of fluid for directing a stream of said fluid in a first direction;

a target for receiving said stream of said fluid upstream of said source in said first direction; and

means interposed between said source and said target for diffusing said stream, said diffusing means comprising a screen having a plurality of openings therein for dispersing said stream, said source of fluid being a sparger nozzle, said target being a component of a condenser in a steam generating unit.

5,067,560

CONDENSER COIL ARRANGEMENT FOR REFRIGERATION SYSTEM

Michael D. Carey, Holmen; William A. Smiley, III, Stoddard, and Gerald A. Jansky, La Crosse, all of Wis., assignors to American Standard Inc., New York, N.Y.

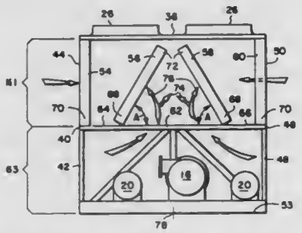
Filed Feb. 11, 1991, Ser. No. 653,836
Int. Cl.[5] F25B *39/04*
U.S. Cl. 165—124 **23 Claims**

1. A condenser for an air conditioning or refrigeration system having first, second, third and fourth condenser coils arranged in a substantially W-shaped arrangement wherein the first and fourth coils are substantially perpendicular to a con-

VOL 1132 ISS 4 NO 26 1991 UMI

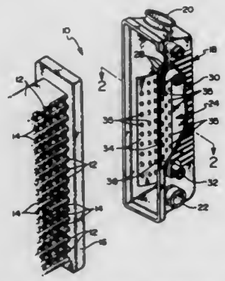
denser base and are respectively located on an exterior side of the second and third coils.

11. A condenser for a refrigeration system comprising:
a housing including first and second air inlets;
four condenser coils located in said housing; and



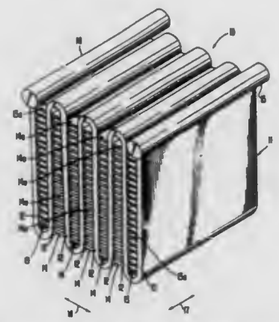
means for circulating air wherein three of the four coils are provided with air by either of said first or second air inlets wherein the air inlets are located on opposing sides of the housing.

5,067,561
RADIATOR TANK OIL COOLER
Shrikant M. Joshi, Getzville, and Frederick V. Oddi, Orchard Park, both of N.Y., assignors to General Motors Corporation, Detroit, Mich.
Filed Nov. 30, 1990, Ser. No. 620,169
Int. Cl.[5] F01P *11/08*; F28F *9/22, 9/26*
U.S. Cl. 165—140 6 Claims



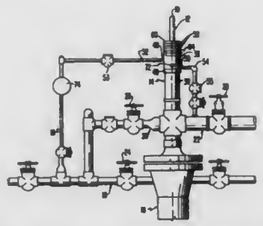
1. In combination, a motor vehicle radiator having a tank, a plurality of radiator tubes connected at one end thereof to said tank, a fitting on said tank for directing liquid into or out of said tank to or from respectively the one end of said radiator tubes, an oil cooler mounted in said tank between the one end of said radiator tubes and said fitting, said oil cooler having a row of tubes extending past and open to the one end of said radiator tubes, said tank having an interior side facing said oil cooler, and baffle means on opposite sides of the one end of said radiator tubes extending between said interior side of said tank and the oil cooler tubes so as to force liquid flowing between said fitting and the one end of said radiator tubes to pass transversely between said oil cooler tubes.

5,067,562
HEAT EXCHANGER HAVING FINS WHICH ARE DIFFERENT FROM ONE ANOTHER IN FIN THICKNESS
Yutaka Ishii, Isesaki, Japan, assignor to Sanden Corporation, Gunma, Japan
Filed Apr. 25, 1989, Ser. No. 343,816
Claims priority, application Japan, Apr. 25, 1988, 63-54562[U]
Int. Cl.[5] F28F *13/00*
U.S. Cl. 165—146 3 Claims



1. A heat exchanger for carrying out heat exchange between a first fluid and a second fluid, said heat exchanger comprising a tube for conducting said second fluid therethrough and a plurality of fins mounted on an outer surface in contact with said first fluid flowing through gaps between said fins, said first fluid having a flow energy distribution within a lateral section of the flow of said first fluid, wherein said plurality of fins have different fin thicknesses including a first set of fins having a comparatively large thickness and a second set of fins having a comparatively small thickness, said first and said second sets of fins being arranged within said lateral section of the flow of the first fluid so that a comparatively high flow energy portion of said first fluid flows into said first set of fins while another comparatively low flow energy portion of the first fluid flows into said second set of fins, said fins being arranged with a predetermined pitch in each of said first and second sets of fins.

5,067,563
SPILLPROOF OIL WELL SEAL
Walter H. Rode, Calle B, Q, Los Mangos, Urb. Los Marios, Caracas, Venezuela
Filed Mar. 6, 1991, Ser. No. 665,076
Int. Cl.[5] E21B *33/03*
U.S. Cl. 166—84 15 Claims



1. A sealing system for a hydrocarbon-producing well including a motor driven pump connected through a plurality of sucker rods to a polished rod driven by the motor to reciprocate axially within a well tubing to pump liquid and gas hydrocarbons from a hydrocarbon deposit through a production line to a storage facility, wherein said sealing system includes:

(a) dual function liquid sealing means for centering the polished rod and for preventing the passage of all but a controlled amount of liquid hydrocarbon;
(b) liquid/gas separation means located above said liquid sealing means for maintaining liquid hydrocarbon separate from gas hydrocarbon, said separation means including discharge means for directing excess gas and liquid hydrocarbons to the well production line;
(c) gas seal means located around said polished rod above said liquid/gas separation means for preventing the passage of hydrocarbon gases from the well to the atmosphere; and
(d) compressor means for directing a supply of pressurized hydrocarbon gas from the well to the gas seal means to seal the well.

5,067,564
SELECTIVE PLACEMENT OF A PERMEABILITY-REDUCING MATERIAL TO INHIBIT FLUID COMMUNICATION BETWEEN A NEAR WELL BORE INTERVAL AND AN UNDERLYING AQUIFER
Robert D. Sydansk, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio
Filed Oct. 12, 1990, Ser. No. 596,796
Int. Cl.[5] E21B *33/138, 43/22*
U.S. Cl. 166—270 18 Claims

13. A process for selectively placing a permeability-reducing gel in a near well bore hydrocarbon production interval to substantially reduce water coning resulting from fluid communication between said interval and an underlying aquifer comprising:
injecting an immature flowing crosslinked polymer gel into an upper portion and lower portion of said near well bore hydrocarbon production interval, wherein said immature flowing gel comprises an acrylamide-containing polymer and a metal cation-containing crosslinking agent;
injecting an overdisplacing gas having a density substantially less than said immature flowing gel and substantially immiscible with said immature flowing gel into said upper portion of said near well bore hydrocarbon production interval to displace said immature flowing gel from said upper portion of said interval;
shutting in said well bore for a time sufficient to enable said immature gel in said lower portion of said interval to mature into a nonflowing gel; and
producing hydrocarbons across said upper portion of said interval while substantially reducing water coning therein.

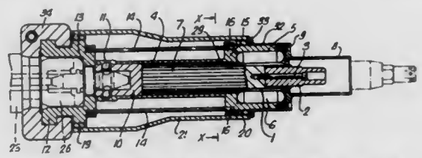
5,067,565
CROSSLINKABLE CELLULOSE DERIVATIVES
Marlin Holtmyer, and Charles V. Hunt, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla.
Continuation-in-part of Ser. No. 322,155, Mar. 10, 1989, Pat. No. 4,982,793. This application Oct. 4, 1990, Ser. No. 592,770
The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.
Int. Cl.[5] E21B *43/04, 43/25, 43/26*
U.S. Cl. 166—305.1 13 Claims

1. A method of treating a subterranean formation comprising:
preparing a treating fluid composition with or without a particulate agent by admixing: (i) an aqueous liquid, (ii) a cellulose ether derivative that is chemically modified by reacting said cellulose ether derivative with a vinyl phosphonic acid in the presence of the reaction product of hydrogen peroxide and a ferrous salt and (iii) a crosslinking agent; and injecting said treating fluid composition into said subterranean formation through a wellbore;
injecting said treating fluid composition into said subterranean formation through a wellbore.

5,067,566
LOW TEMPERATURE DEGRADATION OF GALACTOMANNANS
Jeffrey C. Dawson, Spring, Tex., assignor to BJ Services Company, Houston, Tex.
Filed Jan. 14, 1991, Ser. No. 640,957
Int. Cl.[5] E21B *43/26*
U.S. Cl. 166—308 9 Claims

1. A method of fracturing a subterranean formation comprising the steps of:
formulating a gellable fracturing fluid by blending together an aqueous fluid, a hydratable polymer, a suitable crosslinking agent for crosslinking the hydratable polymer to form a polymer gel, and an enzyme breaker;
raising the pH of the fracturing fluid above about 9.0 to 10.5 whereby the enzyme breaker is inert;
incorporating within the fracturing fluid a pH regulating substance which slowly hydrolyzes to produce a Bronsted acid, thereby dropping the pH of the fracturing fluid and activating the enzyme breaker with time to produce a controlled break of the polymer gel, the breaker being effective to degrade the polymer gel at temperatures below about 140–150 degrees F. within a time period less than about 24 hours.

5,067,567
REMOTE HANDLING APPARATUS
Duncan A. Webster, Warrington, United Kingdom, assignor to British Nuclear Fuels plc, Warrington, England
Filed May 14, 1990, Ser. No. 523,343
Claims priority, application United Kingdom, May 23, 1989, 8911826
Int. Cl.[5] B23Q *5/00*
U.S. Cl. 173—141 5 Claims



1. Remote handling apparatus comprising a tool carrier slidable axially along its longitudinal axis within a support member between extended and retracted positions, said tool carrier being connected for rotation with the support member, a housing for transmitting rotational drive to the tool carrier, and means for accommodating misalignment between a tool on the tool carrier and an object to be engaged by the tool to permit lateral adjustments of the tool carrier perpendicular to the longitudinal axis of the tool carrier while maintaining the longitudinal axis of the tool carrier parallel to the longitudinal axis before adjustment, said means for accommodating misalignment comprising elongated resilient members connected between an end of the support member, on the one hand, and said housing for transmitting rotational drive to the tool carrier, on the other hand.

5,067,568
WELL PERFORATING GUN
Donald N. Yates, Jr., Cape Carancahua, and William D. Myers, Jr., Houston, both of Tex., assignors to Baker Hughes Incorporated, Houston, Tex.
Filed Apr. 25, 1990, Ser. No. 514,168
Int. Cl.[5] E21B *43/117*
U.S. Cl. 175—4.52 7 Claims

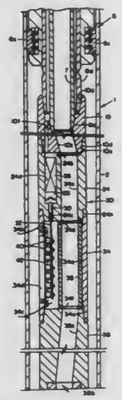
1. A perforating gun for insertion into a wellbore into a formation, comprising:
a tubular housing;
a tubular element, defining a flow passage, extending unin-

VOL 1132 ISS 4 NO 26 1991 UMI

terruptedly over the length of said housing in flow communication with both ends of said tubular housing and providing an opening at its extremities of similar cross-sectional open area as the cross-sectional area of said flow passage within said tubular housing;

a gun chamber defined between said flow passage and said tubular housing;

a plurality of perforating elements so arranged within said gun chamber so that their firing orientation does not



exceed a formation penetration of about 180 degrees measured from the longitudinal axis of said tubular housing;

detonating means mounted at least in part in said gun chamber and outside and independent of said tubular element for selective detonation of said perforating elements;

said tubular element remaining unobstructed before, during, and after activation of said detonating means; and

whereupon, subsequent to said actuation of said detonating means, said flow passage is broad enough to permit insertion of well tools therethrough.

5,067,569
AUGER AND SWEEPER ASSEMBLY
John T. Gilcrease, 7000 W. Gilcrease Ave., Las Vegas, Nev. 89131
Filed Aug. 31, 1990, Ser. No. 576,592
Int. Cl.[5] E21B *7/00, 21/00*
U.S. Cl. 175—209 **5 Claims**

1. An auger assembly comprising:

a) an auger support frame,

b) an auger blade mounted for vertical movement on the auger support frame,

c) a first motor operatively associated with the auger blade for rotating the auger blade to dig a hole,

d) a sweeper drive assembly mounted on the auger support frame, the sweeper drive assembly including

1) a guide drum mounted for rotary movement and having at least one sweeper arm mounted thereon,

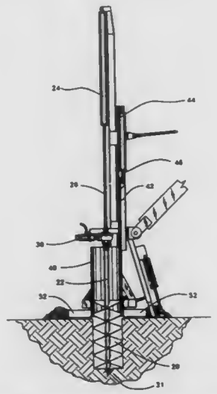
2) an L-shaped frame mounted around the guide drum,

3) at least one guide wheel mounted on the L-shaped frame for guiding the guide drum during rotation, and

4) a drive chain operatively associated with the drive guide for rotating the guide drum when the second motor is activated,

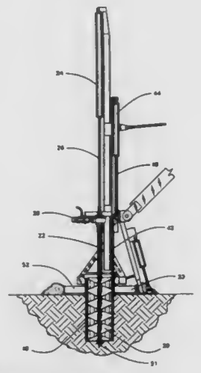
e) at least one sweeper arm mounted on the sweeper drive assembly, and

f) a second motor mounted on the sweeper drive assembly and connected to the sweeper arm for rotating the



sweeper arm to clean dirt away from the hole, the sweeper arm being operable independent from the auger blade.

5,067,570
AUGER AND RETAINING SHELL ASSEMBLY
John T. Gilcrease, 7000 W. Gilcrease Ave., Las Vegas, Nev. 89131
Filed Aug. 31, 1990, Ser. No. 576,275
Int. Cl.[5] E21B *7/00, 21/00*
U.S. Cl. 175—209 **7 Claims**



1. An auger assembly comprising:

a) an auger support frame;

b) an auger blade mounted for vertical movement on the auger support frame,

c) a first motor operatively associated with the auger blade for rotating the auger blade to dig a hole,

d) a sweeper drive assembly mounted on the auger support frame, the sweeper drive assembly comprising

1) a guide drum mounted for rotary movement and having at least one sweeper arm mounted thereon,

2) an L-shaped frame mounted around the guide drum,

3) at least one guide wheel mounted on the L-shaped frame for guiding the guide drum during rotation, and

4) a drive chain operatively associated with the drive guide for rotating the guide drum when the second motor is activated,

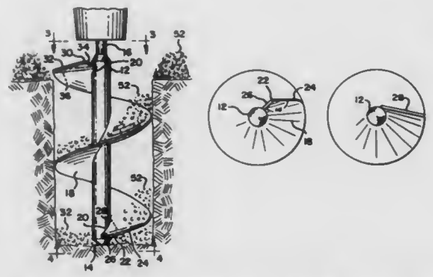
e) at least one sweeper arm mounted on the sweeper drive assembly,

f) a second motor mounted on the sweeper drive assembly and connected to the sweeper arm for rotating the sweeper arm to clean dirt away from the hole, the sweeper arm being operable independent from the auger blade,

g) a retaining shell support frame; and

h) a retaining shell mounted for vertical movement on the retaining shell support frame, the retaining shell being movable independently from the auger blade so that the retaining shell can be lowered into surrounding relationship with the auger blade to retain loose dirt on the auger blade as the auger blade is withdrawn from the hole.

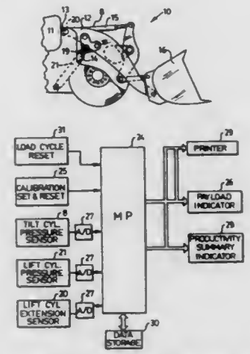
5,067,571
AUGER PLANTER
D. Wayne Niewold, Leda, and Richard A. Bradley, Urbana, both of Ill., assignors to Power Planter, Inc., Paxton, Ill.
Continuation of Ser. No. 178,531, Apr. 7, 1988, abandoned. This application Aug. 1, 1989, Ser. No. 388,744
Int. Cl.[5] E21B *10/44*
U.S. Cl. 175—394 **30 Claims**



1. An auger planter for the forming of small diameter holes in the soil of a depth suitable for the planting of flower bulbs and the like, comprising a helical flighting for advancing into the soil and a central shaft extending substantially axially through said helical flighting, said central shaft terminating at one end in a leading end of said shaft, said helical flighting terminating in a leading edge proximate to said leading end of said shaft, said helical flighting having an outer helically extending edge, said leading edge being defined by a chord portion extending chordally substantially across the flighting on one side of said shaft to a point of intersection with said helically extending edge and away from the direction of advance of said flighting into the soil, said helical flighting having a diameter and distance between adjacent flights which are approximately equal to each other, said helical flighting extending more than one revolution about said shaft and along said shaft for a distance greater than the depth of the hole to readily lift the soil from the hole as the flighting is advanced into the hole, and said leading edge further including a radial portion extending outwardly from said central shaft to a point of intersection with said chord portion.

11. An auger planter for the forming of small diameter holes in the soil of a depth suitable for the planting of flower bulbs and the like, comprising an auger having a central shaft and helical flighting for advancing into the soil, said central shaft terminating at one end in a tapered leading end, the other end of said central shaft terminating in a trailing end adapted to be mounted in a hand held power drill, said flighting terminating in a leading edge proximate to said shaft leading end, said leading edge being blunt and having a chord portion extending chordally substantially across said flighting, said chord portion being angularly disposed to said central shaft such that the line of sight along said chord portion does not intersect the center of said central shaft and away from the direction of advance of said flighting into the soil, said helical flighting having a diameter and distance between adjacent flights which are approximately equal to each other, said helical flighting extending more than one revolution about said shaft along said shaft for a distance greater than the depth of the hole to readily lift soil from the hole as the flighting is advanced into the hole.

5,067,572
DYNAMIC PAYLOAD MONITOR
Christos T. Kyrtsos, and Dean A. Worrell, both of Peoria, Ill., assignors to Caterpillar Inc., Peoria, Ill.
Filed Aug. 20, 1990, Ser. No. 569,899
Int. Cl.[5] G01G *19/08, 19/10, 19/40*
U.S. Cl. 177—139 **14 Claims**



1. An apparatus for dynamically measuring and indicating payload weight for a vehicle having at least one implement linkage including a linkage connection pivot pin, said vehicle including at least one lift cylinder and at least one tilt cylinder for modifying said implement linkage geometry, said apparatus comprising:

means for sensing the hydraulic pressure of said lift cylinder and responsively producing a first signal;

means for sensing the hydraulic pressure of said tilt cylinder and responsively producing a second signal;

means for sensing said implement linkage geometry and responsively producing a third signal; and

means for receiving said first, second, and third signals and responsively deriving a payload weight.

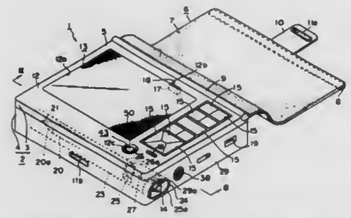
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,573

HAND-WRITING INPUT APPARATUS

Hiroshi Uchida, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Dec. 26, 1990, Ser. No. 633,666
Claims priority, application Japan, Dec. 27, 1989, 1-344626
Int. Cl.[5] G08C *21/00*
U.S. Cl. 178—18 16 Claims



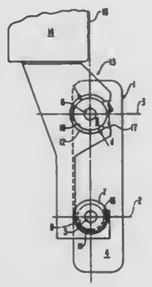
1. An electronic tablet which receives handwritten information via an input pen including a receptacle for the pen and a detector operative to detect the presence of the pen in the receptacle.

5,067,574

MOUNTING FOR A COOLER

Thomas Attinger, and Frank Plonus, both of Stuttgart, Fed. Rep. of Germany, assignors to Mercedes-Benz AG, Fed. Rep. of Germany

Filed Oct. 5, 1990, Ser. No. 593,069
Claims priority, application Fed. Rep. of Germany, Oct. 6, 1989, 3933410
Int. Cl.[5] B60K *11/04*
U.S. Cl. 180—68.4 7 Claims



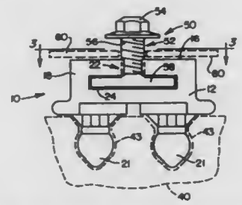
1. Mounting for a cooler on a motor vehicle, said cooler having first and second end surfaces at opposite narrow ends thereof, said mounting comprising:
- a first pair of journals arranged on said first end surface;
- a second pair of journals arranged on said second end surface;
- one journal of each of said first and second pairs of journals lying in a first plane, and the other journal of each of said first and second pairs of journals lying in a second plane substantially parallel to said first plane;
- a first support member fixed to said vehicle and having bearing bores corresponding to and adapted to receive and hold said first pair of journals;
- a second support member fixed to said vehicle and having bearing bores corresponding to and adapted to receive and hold said second pair of journals;
- each of said bearing bores having a receiving slot for receiving a corresponding journal, said receiving slots for receiving the journals lying in said first plane being spatially offset at an angle of about 90 degrees relative to receiving slots for receiving the journals lying in said second plane.

5,067,575

HEAT SHIELD RETAINER

James P. Hyde, Saline, and Thomas J. Bryans, Plymouth, both of Mich., assignors to Ford Motor Company, Dearborn, Mich.

Filed Apr. 16, 1990, Ser. No. 516,002
Int. Cl.[5] B60K *15/03*
U.S. Cl. 180—69.4 16 Claims



1. A fuel tank/heat shield assembly comprising:
- a fuel tank formed of polymeric material and having a wall with an inner surface and an outer surface;
- a heat shield for shielding said fuel tank; and
- retainer means for mounting said heat shield to said fuel tank, said retainer means including a retainer body having a first side and a second side, peg fastening means located on said first side of said retainer body for securing said retainer body to said fuel tank and attachment means located on said second side of said retainer body for attaching said heat shield to said retainer body, said fuel tank including socket means formed in said fuel tank, said socket means being shaped for receiving and lockingly engaging said peg fastening means therein to secure said retainer body to said fuel tank, said socket means forming an enclosed chamber extending from said outer surface to a location positioned between said inner surface and said outer surface and having an opening formed in said outer surface, said peg fastening means having a portion with a defined cross-sectional area, and said chamber having a constricted portion with a cross-sectional area which is less than said defined cross-sectional area of said portion of said peg fastening means.

5,067,576

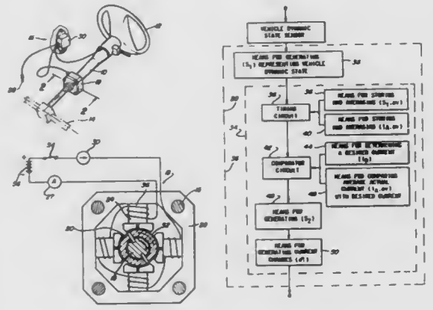
VARIABLE EFFORT STEERING SYSTEM

Gregory D. Bober, Grosse Pointe Woods, Mich., assignor to Ford Motor Company, Dearborn, Mich.

Filed Aug. 15, 1990, Ser. No. 567,578
Int. Cl.[5] B62D *5/04*
U.S. Cl. 180—79.1 17 Claims

1. In a vehicle having frame which supports a steering shaft for receiving torque applied manually by a driver through a steering wheel and for transmitting the manually applied torque through a steering gear to steerable wheels without power assist, a variable effort steering system comprising:
- a variable load actuator including
  - a rotary member mounted upon the steering shaft, said rotary member and the steering shaft turning together in response to the manually applied torque;
  - a stationary member at least partially surrounding said rotary member and including at least one core extending towards said rotary member; and
  - windings surrounding at least one of said at least one core, so that when a current (I_A) is delivered through said windings, a magnetic field is produced and a holding torque (T) is exerted on said rotary member, the holding torque (T) resisting the manually applied torque and turning motion of said rotary member and the steering shaft;

- means for measuring a current (I_A) in communication with said windings;
- a sensor mounted on the frame for sensing a dynamic state of the vehicle; and
- an electronic control module mounted on the frame, including
- means for generating a first electrical signal (S_1) representing the dynamic state of the vehicle, said means for generating being in communication with said sensor; and



means for varying the current (I_A) in response to said first electrical signal (S_1), said means for varying the current (I_A) being in communication with said windings of said variable load actuator and producing changes to the holding torque (T) exerted thereby upon the steering shaft in response to the dynamic state of the vehicle, thereby changing in accordance with the vehicle's dynamic state the manually applied torque required to maintain the vehicle along a desired path.

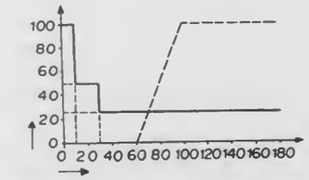
5,067,577

MOTOR-DRIVEN TYPE FRONT AND REAR WHEEL STEERING APPARATUS

Mitsuharu Morishita, Himeji, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed May 16, 1990, Ser. No. 523,790
Claims priority, application Japan, May 24, 1989, 1-131825
Int. Cl.[5] B62D *5/04*
U.S. Cl. 180—79.1 2 Claims

1. A motor-driven type front and rear wheel steering apparatus for steering the front and rear wheels of an automobile while preventing excessive current draw from a battery or a generator of the automobile, said apparatus comprising:
- a steering sensor to detect at least one of a steering torque and a steering angle,
- a motor-driven type power-assisted steering unit to assist in steering the front wheels in response to a signal based on at least one of said steering torque and said steering angle from the steering sensor,
- a motor-driven type rear wheel steering unit to drive the steering of the rear wheels in response to at least one of a signal indicating the steering torque and a signal indicating the steering angle which are generated from the steering sensor, and



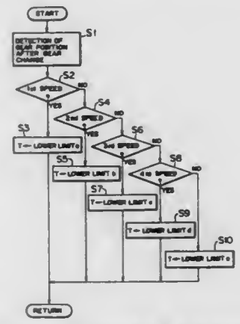
- a control unit which receives a plurality of signals from each of the steering sensor, a vehicle speed sensor, a motor turning angle speed sensor and a rear wheel steering angle sensor so as to control the motor-driven type power-assisted steering unit and the motor-driven type rear wheel steering unit, wherein the control unit actuates only the motor-driven type power-assisted steering unit when the automobile stops or runs at a low speed, and actuates a selected one of the motor-driven type power-assisted steering unit and the motor-driven type rear wheel steering unit when the automobile runs at an intermediate speed or at a high speed.

5,067,578

TRACTION CONTROL SYSTEM FOR MOTOR VEHICLES

Akihiro Shirata, Yokohama; Hideaki Watanabe, Chigasaki; Naoyuki Hagiya, Ageo; Satomi Ookubo, Kuki, and Shigeki Moride, Yokohama, all of Japan, assignors to Isuzu Motors Limited; Fujitsu Limited; Akebono Brake Industry Co., Ltd. and Akebono Research and Development Centre Ltd., Japan

Continuation of Ser. No. 286,989, Dec. 20, 1988, abandoned.
This application Oct. 3, 1990, Ser. No. 593,494
Claims priority, application Japan, Dec. 28, 1987, 62-329670
Int. Cl.[5] B60K *31/00*
U.S. Cl. 180—197 7 Claims



1. A traction control system for a motor vehicle having a throttle, and a transmission; said system comprising: means for detecting driving wheel slip, means for changing a command

VOL 1132 ISS 4 NO 26 1991 UMI

value for opening the throttle depending on said driving wheel slip, means for controlling the degree of opening of the throttle in accordance with the throttle opening degree command value to restrain said driving wheel slip; means for detecting each gear position of the transmission; means for setting a lower limit value for the throttle opening degree command value with respect to each gear position of the transmission as detected; said means for setting a lower limit value including means for setting a different value for each respective gear position so that each value is different from any other value and corresponds to a different degree of opening for the throttle then for any other value; and means, for causing said throttle opening degree command value to be decreased down to the lower limit value upon a gear change of the transmission up or down.

5,067,579

SLIP CONTROL SYSTEM FOR A VEHICLE PROVIDED WITH AN INTERNAL COMBUSTION ENGINE

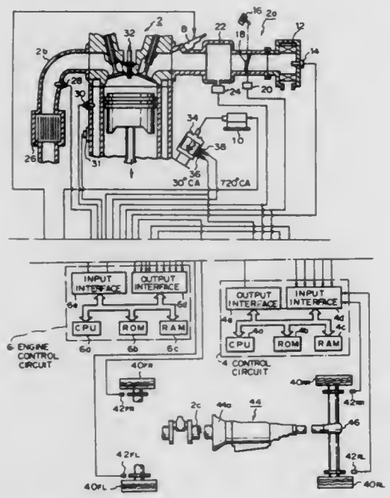
Naoto Kushi; Toshio Takaoka, and Motoyasu Muramatsu, all of Toyota, Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Feb. 26, 1990, Ser. No. 484,865

Claims priority, application Japan, Mar. 2, 1989, 1-50843; Aug. 8, 1989, 1-205398

Int. Cl.[5] B60K *28/16*

U.S. Cl. 180—197 **5 Claims**



1. A vehicle comprising:
a vehicle body;
drive wheels on the vehicle body;
non-drive wheels on the vehicle body:
an internal combustion engine in the vehicle body;
a gear train for kinematically connecting the internal combustion engine to the drive wheels;
said internal combustion engine comprising:
an engine body having a plurality of cylinders;
spark plugs arranged at each of the cylinders;
intake means for introducing air into the cylinders;
exhaust means for removing resultant exhaust gas from the cylinders;
fuel introducing means for introducing an amount of fuel into the intake means for defining a combustible air-fuel mixture to be introduced into the cylinders;
means for controlling the amount of fuel to be introduced into the intake means from the fuel introducing means for controlling the air-fuel ratio of the air-fuel mixture;
means for controlling timing of a spark signal to each spark plug to obtain a desired ignition time;
means, responsive to a knocking condition of the engine, for adjusting said desired setting of the ignition timing for suppressing knocking in the engine;
means for detecting the speed of the drive wheels of the vehicle;
means, based on the detected value of the drive wheel speed, for detecting slippage of the drive wheels when the vehicle is accelerated;
means, based on the detected slippage at the drive wheels, for allowing a setting of the torque applied to the drive wheels to be reduced, to suppress slippage during an acceleration of the vehicle; and
means for cancelling the operation of the knocking control means so that a control of the ignition timing based on the engine knocking condition is stopped during the operation of said torque control means.

5,067,580

ANTI-SHAFT EFFECT MOTORCYCLE SUSPENSION

James Parker, 102 So. Capitol, Santa Fe, N. Mex. 87501

Continuation of Ser. No. 196,348, May 20, 1988, abandoned. This application Aug. 21, 1990, Ser. No. 570,214

Int. Cl.[5] B62K *25/20;* **B62M** *17/00*

U.S. Cl. 180—219 **11 Claims**

1. Anti-shaft effect single side suspension for a motorcycle having a frame, a front wheel, a rear wheel axle, and a rear wheel driven by a shaft having a ring and pinion gear arrangement within a housing coaxial with said rear wheel axle, said suspension comprising a swing arm, a link arm, and a pair of substantially parallel bars in a four bar linkage to direct acceleration and deceleration induced reactive energy in said housing into said frame in shaft effect blocking relation, said swing arm being pivoted at said frame and pivoted at said housing and connecting said rear wheel to said frame, said swing arm pivot at said housing being in offset relation to the axle of said rear wheel, said link arm being pivoted at said frame and at said axle, and spaced above said swing arm.

5,067,581

ARTICULATED DRIVE WITH A BELT AND PULLEY ARRANGEMENT

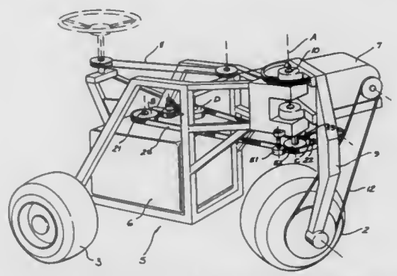
Alexander N. Nicol, 102-104 Dampier Street, Barellan Point, Queensland 4305, Australia

Filed Jul. 11, 1990, Ser. No. 551,018

Claims priority, application Australia, Jul. 11, 1989, PJ5189

Int. Cl.[5] B60K *17/30;* **B62D** *61/06;* **F16H** *7/12*

U.S. Cl. 180—254 **5 Claims**



1. An articulated system for an articulated drive motor vehicle, said system comprising:
a power source and steerable driving means located on opposite sides of a pivot axis of said articulated motor vehicle.
drive pulley means and load pulley means,
drive belt means for enabling said drive pulley means to turn said load pulley means, and
idler pulley means and belt tensioning means,
said idler pulley means and said belt tensioning means being positioned between said drive pulley means and said load pulley means and being in contact with said drive belt means for cooperation therewith,
said idler pulley means being adjacent to said pivot axis, and
said belt tensioning means providing tension to said drive belt means for centering said steerable driving means when said articulated vehicle is in a pivoted state.

5,067,582

DRIVE ASSEMBLY FOR MOTOR VEHICLES

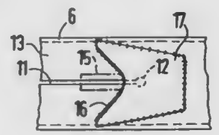
Robert Müller, Mönsheim, and Egon Eisenhauer, Heimsheim, both of Fed. Rep. of Germany, assignors to Dr. Ing. h.c.F. Porsche AG, Fed. Rep. of Germany

Filed Feb. 5, 1990, Ser. No. 475,322

Claims priority, application Fed. Rep. of Germany, Feb. 10, 1989, 3903941

Int. Cl.[5] B60K *17/22*

U.S. Cl. 180—380 **7 Claims**



1. A drive assembly for a motor vehicle having a vehicle body, a front power unit which is elastically supported on the vehicle body, and a rear drive unit, the drive assembly comprising:
a center tube rigidly connected between the front power unit and the rear drive unit of the vehicle, a drive shaft extending through the center tube; wherein
the center tube has at least one longitudinal slot which is adjacent to the front power unit, the slot having dimensions and configurations such that a torsional rigidity of the center tube is reduced, thereby reducing a torsional natural frequency of the drive assembly below a driving rotational speed range; wherein the longitudinal slot is axially limited in its length;
wherein the longitudinal slot has two ends which have shapes and configurations for counteracting crack formation at the ends of the longitudinal slot; wherein
these ends are partially covered by a tab which is fixedly connected with the center tube; and wherein
this tab has a curved edge facing the central portion of the longitudinal slot.

5,067,583

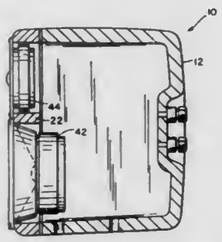
POLYMER-FILLED AUDIO LOUDSPEAKER CABINET

Dana B. Hathaway, 9 Swetts Hill, Amesbury, Mass. 01913

Filed Aug. 6, 1990, Ser. No. 563,262

Int. Cl.[5] H05K *5/00*

U.S. Cl. 181—151 **7 Claims**



1. A loudspeaker cabinet which consists of:
an enclosure having a front and a baffle each formed from a non-foamed molded filled polymer having between 20–90% inert filler and a density of between 1.0–6.0 gm/cm^3;
the polymer selected from the group which consists of polyester, polycarbonate, polysulfone, polyvinyl chloride, polyvinyl acetate and/or polyurethane; and
the molded baffle secured to the font of the enclosure and having first and second openings therein, the enclosure and baffle having mounting surfaces for directly securing loudspeaker components thereto.

5,067,584

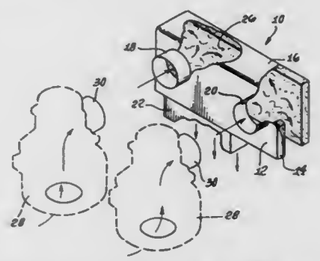
LOW COST REPLACEABLE TYPE SOUND DAMPENING UNIT FOR VACUUM CLEANING MACHINE

William H. Williams, 4938 Golden Arrow Dr., Rancho Palos Verdes, Calif. 90274, and Paul G. Jacobs, 9958 Amestoy Ave., Northridge, Calif. 91325

Filed Apr. 25, 1990, Ser. No. 514,521

Int. Cl.[5] F01N *3/02, 3/06*

U.S. Cl. 181—231 **7 Claims**



1. A physical shape-conformable, disposable, self-sustaining

VOL 1132 ISS 4 NO 26 1991 UMI

sound dampening unit for use on a noise-emitting vacuum motor having an air exhaust in the form of an airstream and adapted to attach to the air exhaust of said vacuum motor to dampen the noise produced by the vacuum motor, which comprises:

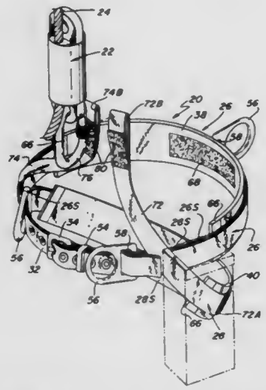
a body member formed of a thin imperforate film outer layer and a polymer acoustic foam inner layer lining interior surfaces of said body member, having an open inner cavity and at least one inlet port and at least one outlet port, the body having an unobstructed interior pathway between the inlet ports and the outlet port, said inlet and outlet ports being disposed so that an incoming airstream impinges on an interior acoustic foam covered wall of said body and is made to turn at a right angle to create an air flow scattering effect before reaching said outlet port, said body member being adapted to expand under pressure of said airstream to inflate and adapted to conform to external unyielding elements in contact with it.

5,067,585

MULTIPURPOSE SAFETY AND POSITIONING BELT

Michael Bell, 1705 Triumphe Way, Warrington, Pa. 18976

Filed Aug. 17, 1990, Ser. No. 569,357
Int. Cl.[5] A62B *1/06, 35/00*
U.S. Cl. 182—7 **29 Claims**



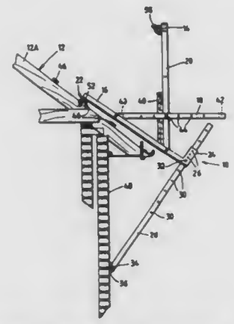
1. Safety apparatus to be worn by a person located at an elevated position for releasable securement to a fixed means located adjacent said position to protect the person from falling and/or suspend said person thereat, while enabling said person to move about relatively unencumbered by said apparatus and also enabling said person to connect said apparatus to a lowering device mounted on an adjacent safety line to repel down said line, said apparatus comprising first belt means, second belt means, and lowering device connection means, said first belt means being arranged to be releasably secured about the waist of the person and including first connection means for releasable securement to said lowering device, said second belt means comprising an elongated web-like member having a pair of ends, each of said ends being fixedly secured to said first belt means at respective spaced positions, said second belt means being disposed in a stowed position interposed between said first belt means and the lower portion of the back of said person, said second belt means being arranged to be pulled down and out from said first belt means to an extended position to form a seat for the buttocks of said person, said lowering device connecting means comprising a pair of extendable, elongated strap-like members being fixedly secured to one of said belt means at a respective positions thereon adjacent the person's hips, each of said strap-like members having a free end arranged to be readily connected to said lowering device for enabling said person to repel down on a safety line once said person has disconnected said first belt means from said holding device.

5,067,586

SAFETY GUARD APPARATUS

James H. Myers, 11 Downview Park, Greenisland, County Antrim BT38 8RY, Northern Ireland

Filed Apr. 17, 1990, Ser. No. 510,218
Int. Cl.[5] E04G *3/12*
U.S. Cl. 182—45 **15 Claims**



1. A safety guard apparatus comprising:

two or more units to be spaced apart on a pitched roof and secured together by a rail fastened to each unit, each unit having a first elongate member with a second and a third elongate member mounted in spaced relation thereon and pivotally connected thereto, said second and third members being interconnectible together, each first member having at one end fastening means by which the unit can be supported on a roof member with its second member serving as a tie for the third member which serves as an upright guard rail support;

said first members each having a tubular collar rigidly fixed thereto at an end opposite said fastening means with a tubular axis of said collar at a right angle to the first member; and

a fourth rigid elongate member engaged through and in sliding engagement with each said tubular collar, each said fourth member being positionally adjustable with respect to its collar such that a lower end thereof may abut a vertical wall below said pitched roof to support its respective unit above said roof.

5,067,587

SERVICE PLATFORM FOR MOBILE SCAFFOLDING UNIT

William F. Mims, Jr., 3805 Sandybrook Dr., Arlington, Tex. 76017; Richard T. Bramlett, Fort Worth, and Kenneth G. Oatman, Arlington, both of Tex., assignors to William F. Mims, Jr., Arlington, Tex.

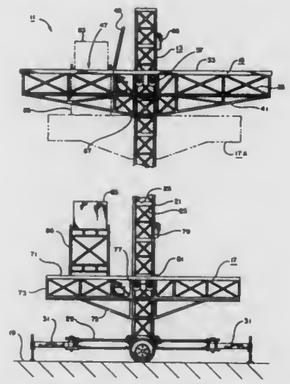
Filed Dec. 28, 1990, Ser. No. 635,852
Int. Cl.[5] E04G *1/20, 21/00*
U.S. Cl. 182—63 **6 Claims**

1. A mobile scaffolding unit, comprising:

(a) tower means adapted to be vertically oriented when on location at a worksite, said tower means having securing means for securing said tower means in place at said worksite;

b) a work platform mounted onto said tower means, said work platform having first motor means for moving said work platform along said tower means, said work platform having a deck that is adapted to support cargo and workers, said deck having hatch means therein for receiving cargo;

c) a service platform mounted onto said tower means at a location beneath said work platform, said service platform having second motor means for moving said service platform along said tower means, said service platform having



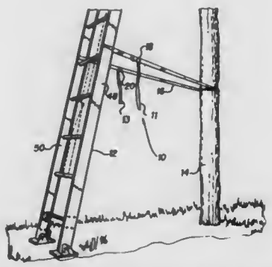
a deck adapted to support cargo, wherein said work platform can be resupplied by said service platform traversing said tower means and by loading cargo on said work platform through said hatch means from said service platform below.

5,067,588

LADDER LASH

Roy B. Bendickson, Greenville, Pa., assignor to R. D. Werner Co., Inc., Greenville, Pa.

Filed Apr. 9, 1990, Ser. No. 506,459
Int. Cl.[5] E06C *5/36*
U.S. Cl. 182—107 **6 Claims**



1. A system for holding a ladder in a secure position relative to an object against which the ladder rests comprising:

a strap that contacts the ladder and the object and secures the ladder to the object;

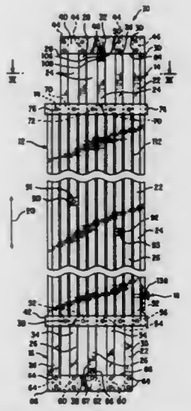
a first buckle and a second buckle with each buckle being able to be placed at a desired position on the strap, and each end of the strap passing through a respective buckle and positioned about a side rail of the ladder such that the strap can be tightened from the ladder by pulling each end of the strap that has passed through its respective buckle toward the ladder.

5,067,589

EXTENDABLE SUPPORT

Frederick J. Bartnicki, Greenville, Pa., assignor to R. D. Werner Co., Inc., Greenville, Pa.

Filed Jul. 31, 1990, Ser. No. 560,378
Int. Cl.[5] E04G *5/08*
U.S. Cl. 182—223 **7 Claims**



1. A support comprising:

a pair of support section movably engaged with each other;

a support surface defined by said support sections, movement of said support sections relative to each other causing adjustment to the size of said support surface;

a lock for releasably fixing the size of said support surface by releasably fixing the position of said support sections with respect to each other, said lock is movable to a locked position and an unlocked position such that in the locked position, the lock fixes the support sections relative to each other and in the unlocked position, the lock allows the support sections to move relative to each other to adjust the size of said support surface; and

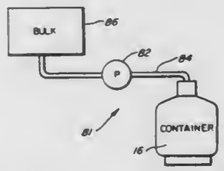
means to releasably secure the lock in an unlocked position.

5,067,590

METHOD FOR FILLING A PRESSURIZED LUBRICANT DISPENSING CHAMBER

James L. King, Sr.; James L. King, Jr., both of Rock Falls, and John Pope, Sterling, all of Ill., assignors to Sauk Valley Equipment Company, Rock Falls, Ill.

Division of Ser. No. 329,562, Mar. 28, 1989, Pat. No. 4,977,979.
This application Sep. 21, 1990, Ser. No. 586,191
Int. Cl.[5] F16N *13/22*; B65B *3/12*
U.S. Cl. 184—15.1 **4 Claims**



1. The method of dispensing lubricant from a refillable pressurized container, comprising:

(1) providing a container pressurized with gas;

(2) providing a pump having an inlet and a discharge outlet;

(3) providing a supply of lubricant;

VOL 1132 ISS 4 NO 26 1991 UMI

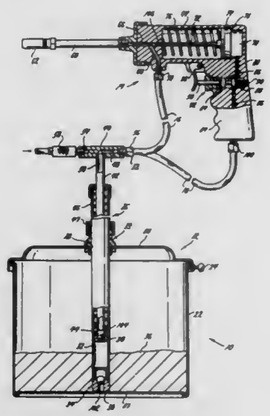
(4) connecting the pump inlet with said supply of lubricant;
(5) connecting said pump discharge outlet with said container;
(6) pumping lubricant from said supply into said container until the container is partially filled with lubricant and the back pressure in the container stalls the pump;
7) dispensing lubricant from the container under pressure of the gas therein; and
(8) repeating step (6) to refill said container before the lubricant in the container is exhausted.

5,067,591

COMBINATION AIR/MANUAL ECONOMY GREASE DISPENSER

Kenneth L. Fehlig, Chesterfield, Mo., assignor to Pentair, Incorporated, St. Paul, Minn.

Filed Nov. 9, 1989, Ser. No. 434,855
Int. Cl.[5] F16N *7/30*
U.S. Cl. 184—55.1 18 Claims



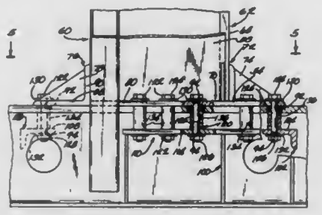
1. A fluid dispensing system comprising:
a self contained fluid pump adapted to be placed in fluid communication with a source of fluid, and adapted to both draw fluid from the source and deliver the fluid at a first pressure;
a first fluid communication means adapted to receive the fluid delivered by the fluid pump and to conduct flow of the fluid;
a second fluid communication means adapted to receive compressed air from a compressed air source and to conduct flow of the compressed air;
a fluid dispensing means adapted to receive fluid at the first pressure from the first fluid communication means and compressed air from the second fluid communication means and to selectively dispense a predetermined quantity of the fluid at a second pressure;
the fluid pump being a manually primed pump having a cylinder with a manually displaceable piston slidably received in the cylinder and a spring between the piston and cylinder, the piston being adapted to be manually displaced against the spring bias to a first position to draw fluid into the cylinder and prime the pump, and the piston being adapted to be displaced to a second position by the bias of the spring to force fluid drawn into the cylinder out of the cylinder and into the first fluid communication means.

5,067,592

MAST CONNECTING STRUCTURE

Stephen N. Miskin, Sandy, Utah, and Kurt M. Lloyd, Pewaukee, Wis., assignors to Harnischfeger Engineers, Inc., Brookfield, Wis.

Filed Sep. 22, 1989, Ser. No. 411,298
Int. Cl.[5] B66B *9/20*
U.S. Cl. 187—9 R 8 Claims



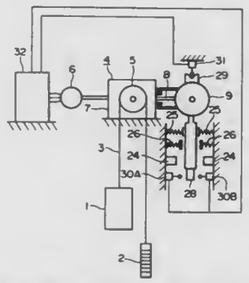
1. A mast connecting structure for mounting a mast on a base, the mast including a lower end and comprising:
upper plate means affixed to the mast lower end for holding the mast on the base;
lower plate means affixed to the base and spaced apart from the upper plate means for holding the mast on the base;
connecting means comprising a plurality of bolts each extending through and spanning the upper and lower plate means and the space between the upper and lower plate means for connecting the upper plate means and the lower plate means whereby the mast is mounted on the base, the connecting means having a tensioned condition tending to deflect the upper and lower plate means toward each other; and
support means positioned in the space between the upper plate means and the lower plate means and having a relatively rigid condition for preventing deflection of and holding said upper and lower plate means spaced apart against the tension of the connecting means whereby the tension applied to the connecting means is maintained.

5,067,593

BRAKING DEVICE FOR ELEVATOR WINDING MACHINE AND ELEVATOR USING THE BRAKING DEVICE

Masakatsu Tanaka; Masanobu Itoh; Noboru Arabori; Toshihiko Nara, all of Katsuta; Tastuhiko Takahashi, Ibaraki; Katutaro Masuda, and Mitsuo Saito, both of Katsuta, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 20, 1989, Ser. No. 438,014
Claims priority, application Japan, Dec. 7, 1988, 63-307843
Int. Cl.[5] B66B *5/08*
U.S. Cl. 187—73 23 Claims



1. An elevator including a braking device comprising a

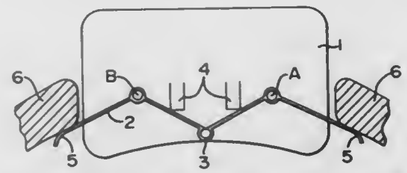
support member supporting a braking member of said brake device such that said braking member is displaceable to a limited extent in the rotating direction thereof, wherein said support member has means for resisting rotational displacement of said braking member with a nonlinear characteristic including a first range where the amount of resistance to displacement is small and a second range where the amount of resistance to displacement is large.

5,067,594

RESILIENT GUIDE FOR THE BRAKE HOUSING OF A FLOATING CALIPER SPOT-TYPE DISC BRAKE

Hans-Dieter Leidecker, Frankfurt am Main; Bodo Schmidt, Lanterbach; Helmut Krause, Kelkheim, and Karl-Heinz Dobener, Eschenburg, all of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Mar. 16, 1990, Ser. No. 495,249
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1989, 3908741
Int. Cl.[5] F16D *65/02*
U.S. Cl. 188—73.35 10 Claims



1. A method for mounting a brake housing to a brake carrier of an automotive vehicle, said brake housing circumferentially extending between brake carrier arms about a wheel axle having an axle axis, said method comprising the steps of:
providing a circumferentially extending spring;
providing a circumferentially spaced apart attachment points on said brake housing;
providing projections on said brake housing between said attachment points and which project axially away from said brake housing;
mounting said spring onto said brake housing between end portions of the carrier arms and in an unloaded spring condition;
attaching said spring to said housing at said attachment points so that the circumferentially outer ends of said spring extend under the radially inwardly facing sides of said end portions of said carrier arms; and,
moving the central portion of said spring radially inwardly toward said wheel axle until portions of said spring located between said attachment points engage the radially inwardly facing portions of said projections to retain said spring in a loaded condition wherein the circumferentially outer ends resiliently engage said arms.

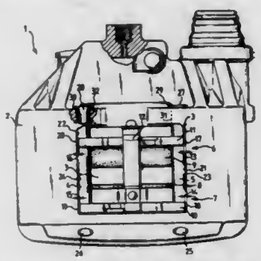
5,067,595

SPOT-TYPE DISC BRAKE

Rolf Weiler, Frankfurt am Main; Uwe Bach, Niedernhausen, and Ahmet D. Ceylan, Frankfurt am Main, all of Fed. Rep. of Germany, assignors to Alfred Teves GmbH, Frankfurt am Main, Fed. Rep. of Germany

Filed Apr. 21, 1988, Ser. No. 184,220
Claims priority, application Fed. Rep. of Germany, Apr. 25, 1987, 3713948
Int. Cl.[5] F16D *65/02*
U.S. Cl. 188—73.45 8 Claims

1. A spot-type disc brake comprising, in combination: a brake caliper housing, two brake pad carriers held and guided in said housing by means of pins, wherein the pins are arranged in a fringe area of the pad carriers and are supported on and abut against side walls of an aperture in the brake caliper housing wherein said brake pad carriers are received, and wherein a predetermined gap is maintained, between the respective ends of said brake pad carriers and the adjacent side wall apertures thereby to prevent corrosion therebetween.

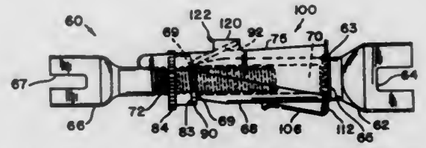


5,067,596

CLIP-ON AUTOMATIC ADJUSTER STRUT LEVER FOR A DRUM BRAKE

Donald D. Johannesen, South Bend, Ind., assignor to Allied Signal Inc., Morristown, N.J.

Filed Oct. 9, 1990, Ser. No. 594,584
Int. Cl.[5] F16D *51/00, 65/38*
U.S. Cl. 188—79.54 11 Claims



6. A drum brake having an automatically adjustable strut, the strut mounted adjacent brake application means disposed between two first ends of two brake shoes, the strut bearing against the brake shoes and having a device which automatically extends the length of the strut according to wear of the brake shoes, the device comprising a nut-and-bolt system operated by a strut lever mounted resiliently upon a body of the strut and having a pawl engaging teeth of the nut-and-bolt system, the pawl being moved, by means of a rocker lever mounted on the strut, in one direction relative to the strut when the brake returns toward an at-rest position after brake application, the rocker lever permiting the pawl to move in an opposite direction relative to the strut when the brake is applied, the strut lever further comprising a base member disposed at an angle to the pawl and having therein an opening receiving said body of the strut, the body of the strut including means for engaging a portion of said base member, a loading arm extending from said base member and engaging resiliently said body in order to provide a predetermined load upon said pawl, and a spring lever arm extending from said pawl and engaging said rocker lever, and means for positioning the strut lever circumferentially relative to the strut and disposed between the body and base member.

5,067,597

HUB AND EXCITER RING ASSEMBLY

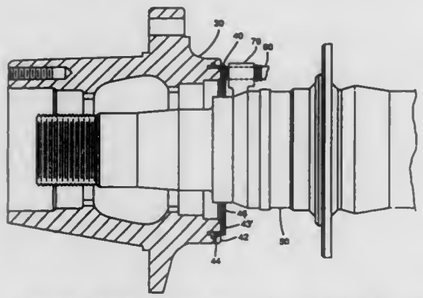
Warren J. Young, 9 Becket St., Lake Oswego, Oreg. 97034

Filed Aug. 25, 1989, Ser. No. 398,709
Int. Cl.[5] B60T *8/32*
U.S. Cl. 188—181 R 11 Claims

1. A wheel hub assembly for use in an anti-lock brake application comprising:
a cast hub;
a ferrous exciter ring having a projecting wall cast integral

VOL 1132 ISS 4 NO 26 1991 UMI

with the hub so as to embed the exciter ring projecting wall within the hub without precision machining to form



a strong integral cast hub assembly which virtually eliminates the possible loosening of the hub and exciter ring which can result in failure.

5,067,598

LOAD-SWITCHING OVERRUNNING CLUTCH

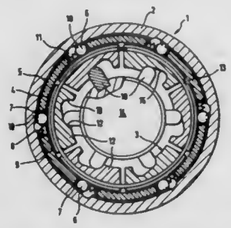
Joachim Ritter, Herzogenaurach, Fed. Rep. of Germany, and Harald Hochmuth, Emskirchen, Fed. Rep. of Germany, assignors to INA Walzlager Schaeffler KG, Fed. Rep. of Germany

Filed Mar. 29, 1990, Ser. No. 501,613

Claims priority, application Fed. Rep. of Germany, Apr. 6, 1989, 3911075

Int. Cl.[5] **F16D** *41/07*

U.S. Cl. 192—7 **18 Claims**



1. An overrunning clutch comprising clamping rings arranged concentrically one within the other and having mutually facing clamping paths between which clamping elements are arranged, one of said clamping rings comprising at least one axial slit to make it variable in diameter, said ring with variable diameter being acted upon by virtue of a wedge-surface effect by a switching member arranged equiaxially with it, so that a rotation of the switching member relative to the clamping ring with variable diameter causes a change in the distance between the clamping paths, said clamping ring with variable diameter being pre-tensioned by at least one spring to oppose the change in distance between the clamping paths which can be effected by the switching member, characterized in that the clamping elements and the clamping paths are so designed that a rotation of the clamping paths relative to each other in at least one direction of rotation effects a clamping of the clamping elements between the clamping paths by virtue of a wedge effect, the clamping elements being pre-tensioned in said direction of rotation, designated as clamping direction, by a spring, the clamping ring with variable diameter being formed of several segments radially moveable independently of each other, the segments being mounted at the switching member so as to be able to swivel through a certain angle and in each end region of the angle of swivel, a stop is provided which assures an interlocking entrainment of the segments by the switching member in the respective direction of rotation.

5,067,599

ARRANGEMENT FOR CONTROLLING A MOTOR FRICTION CLUTCH

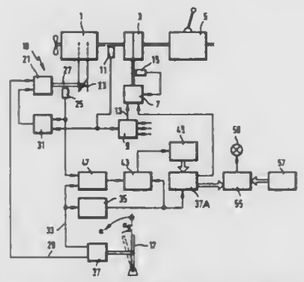
Manfred Röder, and Andreas Konrad, both of Untereuerheim, Fed. Rep. of Germany, assignors to Fichtel & Sachs AG, Schweinfurt, Fed. Rep. of Germany

Filed Jul. 2, 1990, Ser. No. 547,620

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1989, 3922315

Int. Cl.[5] **B60K** *41/02*

U.S. Cl. 192—0.32 **9 Claims**



1. An arrangement for controlling a friction clutch (3) being operated by an actuating drive (7) and being part of a motor vehicle in which an internal combustion engine (1) comprises an output setting device (19) which can be controlled by means of an accelerator pedal (17) but which cannot be influenced by the pedal (17) in a limited initial pedal travel (α_o) which follows on from an inoperative position of the pedal (17), and comprising a pedal position sensor (27) which generates a pedal position signal representing the actual position of the accelerator pedal (17) within the initial pedal travel (α_o), and comprising a control arrangement (35, 37) which as a function of the pedal position signal generates a clutch position signal for controlling the actuating drive (7) which adjusts the actuating drive (7) to a clutch position transmitting torque and associated with the actual position of the accelerator pedal (17) the clutch position falling between a completely disengaged position and a completely engaged position of the friction clutch (3), wherein first control means (35) of the control arrangement which establishes a predetermined first signal characteristic generate a desired torque signal dependent upon the pedal position signal and the first signal characteristic and wherein second control means (37) of the control arrangement which establishes a predetermined second signal characteristic generate the clutch position signal which controls the actuating drive (7) as a function of the desired torque signal and the second signal characteristic, and wherein a correction means (43, 45, 47) in the position of the friction clutch which is established by the clutch position signal generates an actual torque signal representing the torque of the internal combustion engine (1) at any given moment, comparing it with the desired torque signal and wherein correction means (43, 45, 47) determines at least one correction value for correction of the torque-dependent pattern of the values of the clutch position signal which are established by the second signal characteristic of the second control part (37), and wherein if there is a deviation of the actual torque signal from the desired torque signal, the correction means (43, 45, 47) alters the second signal characteristic established by the second control means (37) by an appropriately directed addition of the correction value to the torque-dependent pattern of the clutch position of the second signal characteristic for subsequent controlling of the actuating drive (7).

5,067,600

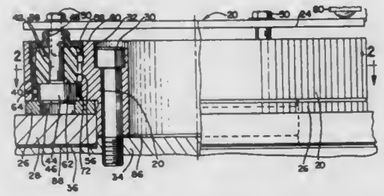
PRECISION OVERLOAD CLUTCH APPARATUS FOR AUTOMATED MACHINERY

Frank H. Koller, Norridge, Ill., assignor to Emerson Electric Co., St. Louis, Mo.

Filed Feb. 13, 1991, Ser. No. 654,600

Int. Cl.[5] **F16D** *7/02*

U.S. Cl. 192—56 R **17 Claims**



1. In an overload clutch of the type including a drive plate having a plurality of detent receiving openings, a clutch body portion, a plurality of plunger detent members slidably mounted in plunger openings formed in the clutch body portion, each detent member having a head portion, and springs elements respectively biasing the plunger detent member towards said drive plate so that the plunger detent head portions are normally respectively seated in the detent receiving openings, the improvement comprising:

bearing means journaled within each respective opening formed in the clutch body portion and mounted about the head portion of each plunger detent member to minimize unwanted backlash movement of said detent head portion relative to the drive plate when said head portion is normally seated in the associated plunger receiving opening thereof.

5,067,601

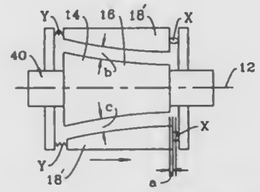
CLUTCHES

Rudolf R. Castens, Romostar Corporation N.V. Centro Comercial Antilia No. 18, P.O. Box 3429, Curacao, Spain

Continuation of Ser. No. 112,638, Oct. 22, 1987, abandoned, which is a continuation-in-part of Ser. No. 16,458, Feb. 18, 1987, abandoned, which is a continuation-in-part of Ser. No. 821,453, Jan. 22, 1986, abandoned. This application Oct. 3, 1989, Ser. No. 418,795

Int. Cl.[5] **F16D** *11/00*

U.S. Cl. 192—65 **14 Claims**



1. A positive axial clutch including a first member having a surface of revolution about the axis of rotation of the clutch, which surface is derived from a hyperboloid, a second member defining with the first member an annular space between confronting surfaces of the members, one of which is said surface of revolution, and a plurality of thrust transmitting rollers disposed in said annular space so as to engage with the surfaces to make thrust transmitting contact between confronting surfaces for driven rotation of said first or second member in at least one direction, said rollers each having a longitudinal rolling central axis, said hyperboloid from which said surfaces are derived being generated by using said central axis of said rollers as the straight line generators thereof, each roller contacting said surface of revolution of said first member along a generator of said surface or a line which approximates to such a generator, the rollers all being similarly inclined with respect to radial planes, means at an interface between at least one end portion of each of said rollers and at least one of said first and second members to permit slidable movement therebetween at least in a first direction while supporting the rollers axially thereof;

wherein the surfaces approximate generally conical hyperboloidal surfaces having a diameter at one end portion of each member greater than the diameter at the other end portion of the same member;

wherein said means at the interface between said rollers and at least one of said first and second members in an annular support member positioned on and supported by at least one of said members beneath said rollers at the portion of contact of said rollers with said surfaces corresponding to the larger diameter end of each member;

wherein said annular support member is capable of slidable rotation relative to at least one of said members so as to freely support said rollers rotatably relative to at least one of said members.

5,067,602

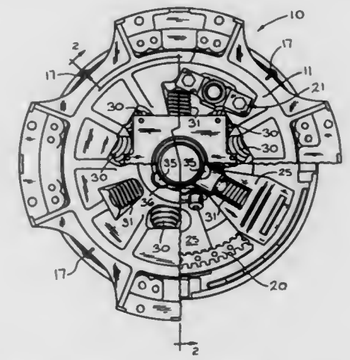
INTERNALLY ASSISTED CLUTCH

Richard A. Flotow, Butler, and Gordon W. Denton, Ft. Wayne, both of Ind., assignors to Dana Corporation, Toledo, Ohio

Filed May 14, 1990, Ser. No. 523,068

Int. Cl.[5] **F16D** *13/50, 13/54*

U.S. Cl. 192—70.27 **9 Claims**



1. A clutch cover assembly comprising:

a cover;

a pressure plate;

means for connecting said pressure plate to said cover for rotation therewith and for axial movement relative thereto between engaged and disengaged positions relative to said cover;

means for selectively moving said pressure plate between said engaged and disengaged positions;

first resilient means extending between said cover and said means for selectively moving said pressure plate for exerting a relatively large force to urge said pressure plate towards said engaged position;

second resilient means extending between said cover and said means for selectively moving said pressure plate for exerting a relatively small force to urge said pressure plate toward said disengaged position; and

means formed on said cover and said means for selectively moving said pressure plate for preventing excessive relative rotation therebetween, said means for preventing excessive relative rotation including a recess formed in

VOL 1132 ISS 4 NO 26 1991 UMI

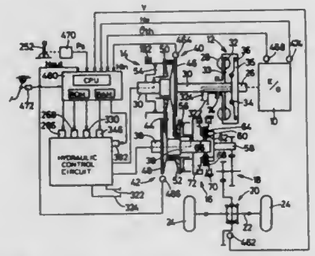
said cover and a protrusion formed on said means for selectively connecting, said protrusion extending into said recess and engaging said cover when a predetermined amount of relative rotation occurs therebetween.

5,067,603

APPARATUS FOR CONTROLLING HYDRAULICALLY OPERATED CLUTCH IN VEHICLE TRANSMISSION SYSTEM, INCLUDING TWO VALVES FOR ENGAGING AND DISENGAGING THE CLUTCH

Nobuyuki Kato, Toyota; Ryoji Habuchi, Aichi; Kunio Morisawa, and Hiroshi Itoh, both of Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Toyota, Japan

Filed Jul. 31, 1990, Ser. No. 560,829
Claims priority, application Japan, Aug. 9, 1989, 1-206085
Int. Cl.[5] B60K *41/02*
U.S. Cl. 192—0.076 **9 Claims**



1. A hydraulic control apparatus for controlling a hydraulically operated clutch in a power transmitting system for an automotive vehicle, wherein the clutch is placed in an engaged position by feeding a pressurized fluid supplied from a hydraulic power source into an engaging chamber of the clutch while discharging the fluid from a releasing chamber of the clutch into a drain, and the clutch is placed in a released position by feeding the fluid into the releasing chamber while discharging the fluid from the engaging chamber, said hydraulic control apparatus comprising:

a two-position clutch control valve having a first position and a second position;

a two-position rapid clutch release valve having a third position and a fourth position;

first fluid passage means formed when said clutch control valve and said rapid clutch release valve are placed in said first and third positions, respectively, for feeding said pressurized fluid from said hydraulic pressure source into said releasing chamber of said clutch while discharging the fluid from said engaging chamber of said clutch into said drain, for releasing said clutch at a normal speed;

second fluid passage means formed when said clutch control valve and said rapid clutch release valve are placed in said second and third positions, respectively, for feeding said pressurized fluid into said engaging chamber while discharging the fluid from said releasing chamber to said drain, for engaging the clutch; and

third fluid passage means formed when said clutch control valve and said rapid clutch release valve are placed in said second and fourth positions, respectively, for feeding said pressurized fluid into said releasing chamber while discharging the fluid from said engaging chamber to said drain, for releasing said clutch at said normal speed,

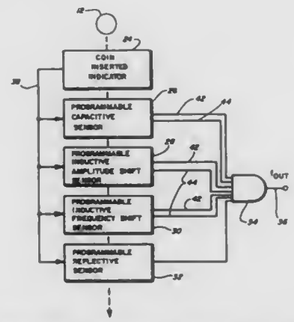
whereby said clutch may be released at normal speed when said clutch control valve and said rapid clutch release valve are in either of the first and third positions or the second and fourth positions, respectively.

5,067,604

SELF TEACHING COIN DISCRIMINATOR

Stanley M. Metcalf, Western Springs, Ill., assignor to Bally Manufacturing Corporation, Chicago, Ill.

Filed Nov. 14, 1988, Ser. No. 269,526
Int. Cl.[5] G07D *5/08*
U.S. Cl. 194—203 **11 Claims**



1. A programmable coin sensor apparatus comprising:

detector means for generating an analog detector signal representative of an inherent characteristic of a coin;

first storage means for storing a digital upper limit signal;

second storage means for storing a digital lower limit signal;

first digital to analog means operatively connected to said first storage means for converting said digital upper limit signal to an analog upper limit signal;

second digital to analog means operatively connected to said second storage means for converting said digital lower limit signal to an analog lower limit signal;

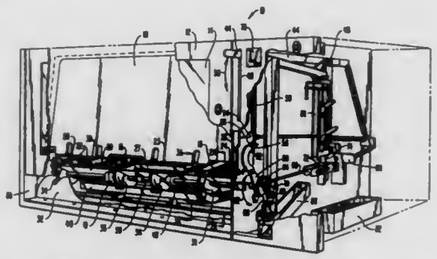
comparator means operatively connected to said detector means, and said first and second digital to analog means for generating an accept signal if said analog detector signal is between said upper analog limit signal and said lower analog limit signal.

5,067,605

SINGLE PAPER DISPENSER

Roger G. Gordon, Richmond, Calif., assignor to Unirac Corp., Richmond, Calif.

Continuation of Ser. No. 327,367, Mar. 22, 1989, abandoned, which is a continuation of Ser. No. 185,254, Apr. 19, 1988, abandoned, which is a continuation of Ser. No. 877,917, Jun. 24, 1986, abandoned, which is a continuation-in-part of Ser. No. 789,343, Oct. 16, 1985, Pat. No. 4,667,803, which is a continuation of Ser. No. 598,646, Apr. 10, 1984, abandoned. This application Jul. 19, 1990, Ser. No. 559,529
Int. Cl.[5] G07F *11/40*
U.S. Cl. 194—248 **16 Claims**



15. A single paper dispenser comprising:

an enclosure having a transverse aperture at one end and a discontinuous transverse member proximate the transverse aperture;

conveyor means for the stack of papers including a horizontal belt adapted to support the papers at their lower edges, a backplate fixed to and extending upwardly from the belt to support the papers in a generally vertical position, and means for biasing the belt toward said end of the enclosure to bias the stack of papers against said transverse member;

brake means operable to prevent movement of the belt;

cam means including a cam shaft rotatable about an axis parallel to the transverse aperture, a plurality of dispensing cam elements fixed to the cam shaft and having tongue means movable upwardly through the discontinuities in the transverse member and then forwardly relative to the transverse member upon rotation of the cam means, and brake cam means fixed to the cam shaft and engageable with the brake means to prevent movement of the belt upon rotation of the cam means;

means for rotating the cam shaft to engage the forwardmost paper in the stack with the tongue means while the remainder of the stack is immobilized to lift and separate the forwardmost paper from the remainder of the stack and drop the separated paper past the transverse member to the transverse aperture; and

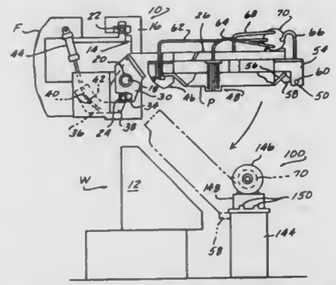
an antitheft plate secured to the cam shaft to inhibit access by hand to the papers through the transverse slot.

5,067,606

CLAMP ACTUATING SYSTEM FOR A CONVEYOR CARRIED CLAMPING FRAME

Howard M. Schlatter, Rochester Hills, and Lawrence A. Wisne, Farmington Hills, both of Mich., assignors to Progressive Tool & Industries Co., Southfield, Mich.

Filed Jan. 18, 1991, Ser. No. 643,533
Int. Cl.[5] B65G *29/00*
U.S. Cl. 198—465.1 **20 Claims**



1. In a workpiece handling system comprising a clamping frame, a plurality of releasable clamps mounted on said frame and operable to clamp a workpiece in a predetermined position upon said frame, power operable clamp actuating means for selectively locating said clamps in either of a workpiece clamping position or a workpiece release position accommodating movement of a workpiece to or from said predetermined position on said frame, and transfer means for transferring said frame along a transfer path extending from a workpiece loading station to a workpiece unloading station;

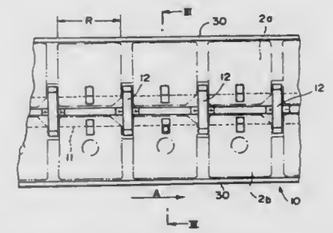
the improvement wherein said clamp actuating means comprises a plurality of elongate flexible push/pull cable means having first ends respectively coupled to said plurality of clamps for shifting said clamps from one of said clamping and release positions to the other of said clamping and release positions in response to pushing of said cable means and for shifting said clamps from said other of said positions to said one of said positions in response to pulling of said cable means, a common actuating means mounted on said frame and including an actuator member mounted for reciprocating movement along a fixed path relative to said frame and coupled to the respective other ends of said plurality of cable means to push said cable means in response to movement of said actuator member in one direction along said fixed path and to pull said cable means in response to movement of said actuator member in the other direction along said fixed path, screw means on said actuating means operable when rotated to drive said actuator member in movement along said fixed path, and reversible power drive means at each of said loading and unloading stations selectively engageable with said screw means to drive said screw means in rotation.

5,067,607

INTERMITTENT FEED SYSTEM

Akira Mizuta, and Kazumi Kitamura, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Oct. 17, 1990, Ser. No. 599,167
Claims priority, application Japan, Oct. 18, 1989, 1-270739
Int. Cl.[5] B65G *19/08*
U.S. Cl. 198—733 **2 Claims**



1. An intermittent feed system for intermittently feeding a plurality of works in two rows in a predetermined direction, comprising:

a pair of guide rails which extend in the predetermined direction in parallel to each other and spaced from each other in the direction of their widths,

a single endless belt which is disposed below the space between the guide rails and extends in the predetermined direction, and

a plurality of attachments fixed to the endless belt at regular intervals to move together with the endless belt in the predetermined direction, each attachment comprising a vertical base portion which projects upward through the space between the guide rails and a pair of arm portions which transversely project in opposite directions above the respective guide rails so that when the endless belt moves in the predetermined direction, each arm portion pushes the work placed on the corresponding guide rail in the predetermined direction along the guide rail wherein each of said attachments is fixed to the endless belt by way of a profile which is fixed to the endless belt and is provided with a horizontal through hole, and said base portion of the attachment has a pair of leg portions which are spaced from each other and are provided with through holes extending horizontally in alignment with each other, the base portion being positioned on the endless belt so that the leg portions are on opposite sides of the profile with the through holes of the leg portions and the profile in alignment with each other and fixed to the profile by means of a pin member which is inserted into the through holes, the distance between the through holes of the leg portions and the lower surface of the leg portions being slightly larger than the distance between the through hole of the profile and the upper surface of the endless belt so that the leg portions are pressed against the endless belt when the pin member is inserted into the through holes.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,608

IMPROVEMENTS IN OR RELATING TO LOADING AND UNLOADING APPARATUS

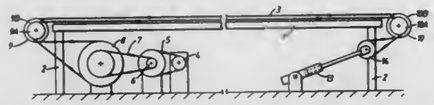
William McLellan, Stirling, Scotland, assignor to Automatic Truck Loading Systems (Europe) Ltd. and Bridon plc, Doncaster, England

Filed Apr. 9, 1990, Ser. No. 506,161

Claims priority, application United Kingdom, Apr. 14, 1989, 8908430

Int. Cl.[5] B65G *15/10*

U.S. Cl. 198—817 20 Claims



1. A load transfer apparatus comprising flexible elements forming a plurality of closed elongated loops, driving means for propelling each loop, each of the loops having a conveying portion and a return portion forming a conveying path, first and second idler pulley systems, both systems having first and second pulleys for the conveying portion and return portion of each loop, the first pulleys having a diameter different from a diameter of the second pulleys and the first and second pulleys being at each end of the conveying path and having a common axes of rotation, a load platform over which the conveying and return portions of each loop pass in opposite directions, and guide support means for separating the conveying portion of the loop from the return portion of the loop, both portions being positioned above the axes of the first and second pulleys and for supporting the conveying portion of at least one loop in contact with a load.

5,067,609

PACKAGING AND DISPLAY CASE FOR DISSIMILAR OBJECTS

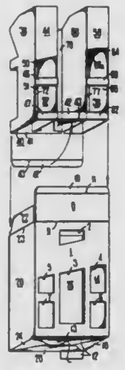
James T. Stout, Acworth, Ga., assignor to The Mead Corporation, Dayton, Ohio

Filed Oct. 1, 1990, Ser. No. 591,291

Int. Cl.[5] B65D *5/50*

U.S. Cl. 206—45.11 11 Claims

1. A case for packaging and displaying a plurality of dissimilar objects said case comprising an outer sleeve having front, back and side walls interconnected to form a tubular structure and including top and bottom closure elements, a first pair of object viewing windows formed in said front wall, an inner sleeve having back and side walls and arranged for telescopic insertion into said outer sleeve, a pair of spaced apart compartments formed within said inner sleeve and arranged respectively adjacent said side walls of said outer sleeve and defining a vertical medial cavity therebetween, the width of said compartments from side to side being somewhat less than the dimension of said compartments from front to rear, a spacer panel foldably joined along a first vertical fold line to each of said sidewalls, an anchoring panel secured in face contacting relation to the adjacent wall of said medial cavity and foldably joined to each of said spacer panels along a second vertical fold line which defines an edge of each of said spacer panels which is remote from each of said first vertical fold lines so as to afford a pair of compartments of desired quadrilateral horizontal cross section and of small horizontal dimensions than said medial cavity and a second pair of object viewing windows



formed respectively in said compartments and arranged in general coincidence with said first pair of viewing windows.

5,067,610

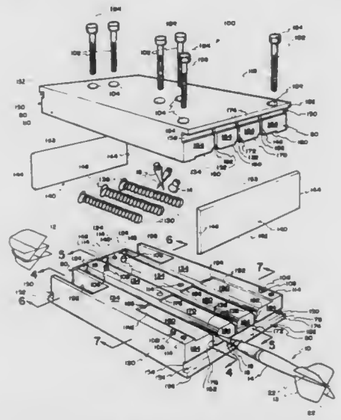
DART STORAGE AND TRANSPORT APPARATUS

Edward A. Jensen, 5936 S. Blue Iron Way, Kearns, Utah 84118

Filed Apr. 3, 1991, Ser. No. 679,878

Int. Cl.[5] B65D *85/20*

U.S. Cl. 206—315.1 20 Claims



1. A carrier is storage and transport of at least one dart and parts of darts comprising:

means for housing at least one dart and dart parts;

means within the housing for maintaining separation between each dart and dart parts when at least one dart and dart parts are stored therein;

means for retaining the at least one dart and dart parts within the housing during storage or transport;

means for compressibly receiving and storing dart insertion energy and for, thereby, providing energy for partial ejection of the dart upon release from retention by the dart retaining means.

5,067,611

BLISTER PACK FOR STORAGE OF NEEDLES AND THE LIKE

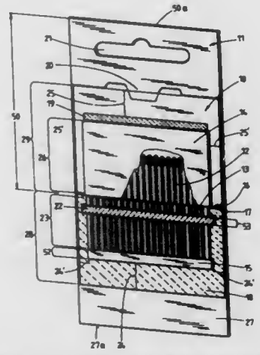
Paul Hagmann, and Hermann Greven, both of Stolberg, Fed. Rep. of Germany, assignors to William Prym-Werke GmbH & Co. KG, Stolberg, Fed. Rep. of Germany

Filed Jun. 7, 1990, Ser. No. 534,739

Claims priority, application Fed. Rep. of Germany, Jun. 21, 1989, 8907589[U]

Int. Cl.[5] B65D *85/24, 73/00*

U.S. Cl. 206—383 24 Claims



1. A pack for small articles, such as notions, particularly for arrays of parallel needles and analogous elongated articles, comprising a substantially plate-like carrier member having first and second sections and a substantially straight first weakened portion between said sections; and a substantially plate-like cover member having first and second sections respectively adjacent the first and second sections of said carrier member, at least one of said second sections having a plurality of article-receiving pockets with open first ends adjacent and second ends remote from said weakened portion, said second sections having coherent portions together forming a substantially U-shaped frame which surrounds said pockets and has free ends adjacent said weakened portion, said cover member having a second weakened portion between said first and second sections thereof and said first sections having portions separably connected to each other so that said first sections can be pivoted away from each other along the respective weakened portions to expose the open first ends of said pockets upon termination of separable connection between said portions thereof.

5,067,612

SHRINK FILM PACKAGE HAVING PERFORATED FOLDED STRIP

Mikio Tsuchiya, Chiba; Shoichi Kawase, and Hirofumi Watanabe, both of Tokyo, all of Japan, assignors to Honshu Sangyou Kabushiki Kaisha and Honshu Paper Co., Ltd., both of Tokyo, Japan

Division of Ser. No. 470,266, Jan. 25, 1990, abandoned. This application Jan. 2, 1991, Ser. No. 645,331

Claims priority, application Japan, Jan. 26, 1989, 1-15163; Jan. 5, 1990, 2-118

Int. Cl.[5] B65D *65/28, 71/08*

U.S. Cl. 206—497 8 Claims

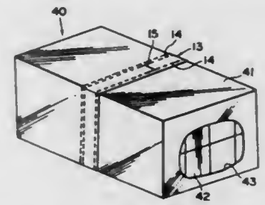
1. A shrinking film package having a tape-shaped tear-off portion comprising:

at least one article;

a heat-shrinkable film tightly wrapped around at least part of said at least one article;

a longitudinal pleat in said film forming a folded strip of three layers of overlapping film;

two substantially parallel lines of perforations extending along at least part of said strip of overlapping film; and



said three layers of overlapping film being at least partially welded together so that said perforations and three layers of overlapping film provide a tape-shaped tear-off strip between said lines of perforation.

5,067,613

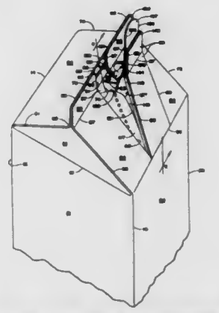
GABLE TOP CARTON WITH INTERIORLY STORED RECLOSABLE SPOUT

William T. Bryan, 927 Garnos Dr., Cincinnati, Ohio 45231

Filed May 13, 1991, Ser. No. 699,219

Int. Cl.[5] B65D *5/70, 5/74*

U.S. Cl. 229—214 19 Claims



1. A reclosable gable top carton comprising a bottom wall, an upstanding side wall connected to and extending from said bottom wall and a gable top connected to and extending from portions of the side wall opposite the bottom wall of the carton, said gable top comprising:

a pair of opposed converging rectangular roof panels connected to and extending from opposed top portions of the upstanding side wall, a pair of opposed triangular top panels articulated to opposed top portions of said side wall, opposed pairs of top fold panels respectively articulated to and extending between one of said rectangular roof panels and a corresponding one of said triangular top panels, respective top seal panels connected to each rectangular roof panel and top fold panel and extending to an edge remote from said respective panel, the top seal panels joined in a ridge seam extending upwardly from the roof panels, a selected one of said rectangular roof panels and respective top seal panel connected thereto being provided with lines of weakening defining a pouring spout flap extending from the upstanding side wall to the top edge of the top seal panel and swingable about the top of the upstanding side wall when the lines of weakening are severed, portions of the top fold panels articulated to said selected roof panel underlying the pouring spout flap adjacent the ridge seam,

a spout web member having a central portion attached to an inner face of the pouring spout flap, web accordian pleat panels articulated to the central panel along fold lines

VOL 1132 ISS 4 NO 26 1991 UMI

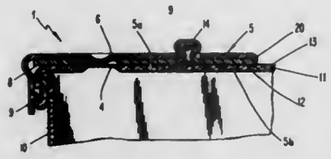
defining opposite respective sides of said central panel, a bottom glue panel articulated to said central panel and outer glue panels articulated to said web accordian pleat panels and attached to an inner face of the respective roof panel adjacent but spaced from the spout flap, the pouring spout flap swinging between closed position in which the pouring spout flap is aligned with said roof panel and top seal panel, an open position in which the accordian pleat panels are extended, a past closed position in engagement with said underlying portions of triangular top fold panels and to closed position aligned with the adjacent roof and top seal panel portions whereby a sealed gable top carton is provided having a pouring spout which may be opened, reclosed and resealed by finger pressure on the spout while the carton is shaken to mix the carton contents.

5,067,614

PACKING CONTAINER PROVIDED WITH OPENING ARRANGEMENT

Tommy Jönsson, Malmö Sweden, assignor to Tetra Pak Holdings S.A., Pully, Switzerland

Filed Feb. 22, 1990, Ser. No. 483,115
Claims priority, application Sweden, Mar. 7, 1989, 8900792
Int. Cl.[5] B65D *77/30*
U.S. Cl. 229—123.1 **10 Claims**



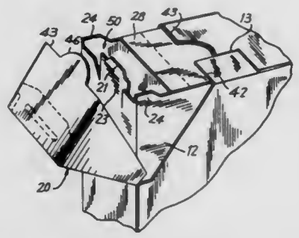
1. A packing container formed at least partly by a wall having an outside surface and an opening arrangement for removing the contents of the container through an opening in the wall, said opening arrangement comprising: upper and lower strips, said lower strip being secured to said outside surface adjacent said opening, said upper strip being arranged in overlapping relation with said lower strip and having a hole formed therein, and said lower strip having a protruding part arranged to protrude through said hole, said upper strip overlapping said lower strip and covering said opening when said protruding part protrudes through said hole whereby said opening arrangement allows reclosing of the container, said lower strip being hinged to said upper strip at a location spaced from said protruding part.

5,067,615

RECLOSABLE BOX AND BLANK THEREFOR

Edward Davitian, 420 E. 55th St., New York, N.Y. 10021

Filed May 11, 1990, Ser. No. 522,270
Int. Cl.[5] B65D *5/54*
U.S. Cl. 229—230 **20 Claims**



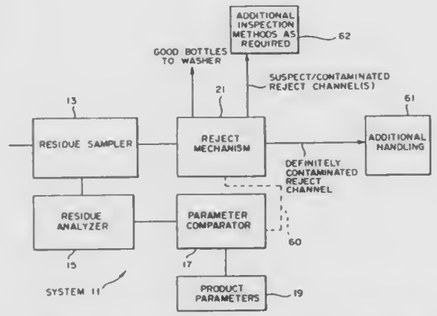
1. A reclosable box comprising:
four side panels, a bottom flap and a top flap; and
a reclosable closure formed of portions of three of the side panels and the top flap;
the reclosable closure comprising an orthogonal hinge line on a first one of the side panels and a cut line on each of a second and third ones of the side panels adjacent to the first one of the side panels, the cut lines on the second and third side panels terminating at an edge adjacent to the hinge line, and a cut line on the top flap, the cut line on the top flap terminating at edges adjacent to the cut lines on the second and third side panels, the cut lines being chosen from the group consisting of perforated cut lines and continuous cut lines; and
an additional section affixed to an inside portion of the first, second and third side panels;
the reclosable box having resilient biasing means for holding the reclosable closure in a open position until pulled to a closed position, the resilient biasing means comprising a tap portion formed in the hinge line and a spring portion cut in the additional section, the tab portion biasing the spring portion of the additional section when the reclosable closure is hingedly moved.

5,067,616

METHODS OF DISCRIMINATING BETWEEN CONTAMINATED AND UNCONTAMINATED CONTAINERS

George Plester, Essen, Fed. Rep. of Germany; Warren E. Leddon, Dunwoody, and David E. Dalsis, Marietta, both of Ga., assignors to The Coca-Cola Company, Atlanta, Ga.

Continuation-in-part of Ser. No. 76,735, Jul. 23, 1987, Pat. No. 4,830,192, which is a continuation-in-part of Ser. No. 892,983, Aug. 4, 1986, Pat. No. 4,858,768. This application May 15, 1989, Ser. No. 351,994
The portion of the term of this patent subsequent to Aug. 22, 2006, has been disclaimed.
Int. Cl.[5] B07C *5/02, 5/342*; G01N *21/90, 35/06*
U.S. Cl. 209—3.1 **32 Claims**



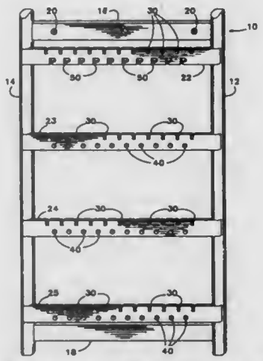
1. A method for discriminating between a contaminated and an uncontaminated container from a population of containers which were once filled with product to be consumed, each of said containers having a residue therein comprising the steps of:
generating a reference range representative of at least one physical response generated by samples of a product residue utilizing a first method of detection;
generating at least one physical response from a residue in each container utilizing the first method of detection;
comparing the physical response of the sample residue with the reference range representative of the physical response of product residue;
rejecting the container when the physical response of the sample residue does not correlate to the physical response of the product residue;
classifying the rejected containers into definitely rejected containers and suspect containers having an overlapping signal characteristic of product residue; and
reinspecting the suspect containers utilizing at least one additional method of detection to accept or reject the suspect containers by generating an additional physical response from residue in said suspect containers;
whereby complex analytical systems for detecting a large number of unknown contaminants is avoided by reducing the analytical problem to the detection of known and relatively few product residues whose presence is used to indicate that the container was not contaminated.

5,067,617

EARRING STORAGE AND DISPLAY RACK

Dean Caldwell, 4524 SE. Naef Rd., Milwaukie, Oreg. 97267, and Ginny Bass, 2707 SE. 35th Pl., Portland, Oreg. 97202

Filed Sep. 28, 1990, Ser. No. 590,154
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—13 **17 Claims**



1. An earring rack of the type adapted for mounting on a Vertical surface and having a framework of spaced apart vertical members with at least two borizontally disposed cross members attached to the vertical members and extending therebetween, and apertures in at least one of the cross members for storing earrings, the improvement comprising:
a downwardly extending slotted aperture through one of the cross members formed by a kerf opening at a lower edge of the one cross member and a hole through the one cross member; the hole having a peripheral edge intersected by the kerf at a point on the peripheral edge above a lowest point of the peripheral edge of the hole, whereby an arcuate saddle is defined along a lower edge of the hole with ingress to and egress from the hole provided through the kerf.

5,067,618

LAUNDRY ORGANIZER APPARATUS

Leinani Johnson, 627 Anela Pl., Wailuku, Hi. 96793

Filed Nov. 29, 1990, Ser. No. 619,603
Int. Cl.[5] A47F *7/00*
U.S. Cl. 211—13 **1 Claim**

1. A laundry organizer apparatus comprising,
a flexible support plate member, the plate member defined by a continuous arcuate perimeter edge, the perimeter edge including a bottom edge portion, and a bottom edge portion including a series of equally spaced apertures directed through the support plate member adjacent the bottom edge portion, and each of the apertures includes a securement fastener pivotally mounted thereon, and
wherein each securement fastener includes a "U" shaped clip, the "U" shaped clip including a first leg mounted to and arranged in a spaced relationship to a second leg, the second leg spring biased relative to the first leg, each securement fastener further including a clasp body, the clasp body mounted to the first leg, with the second leg selectively securable to the clasp body to define a continuous loop, wherein the first and second leg define a first plane, and the support plate defines a second plane, wherein the first plane is arranged generally orthogonally relative to the second plane, and
wherein the plate member includes a first plate side and a second plate side, the first plate side includes a first magnetic member mounted thereto, and the second plate side includes a second magnetic member mounted to the second plate side, wherein the first and second magnetic members are coaxially aligned relative to one another to permit securement of one of the magnetic members to an interior drum of an associated laundry device, and
wherein the first magnetic member is defined by a predetermined first width, the second magnetic member is defined by a predetermined second width, and the plate member is defined by a predetermined plate width, and including a threaded fastener defined by a predetermined length substantially equally to the first width, the second width, and the plate width, and wherein the first magnetic member includes a first bore, the second magnetic member includes a threaded second bore, wherein the threaded fastener is positioned through the first bore, the plate member and the second bore securement of the magnetic members to the plate member, and
wherein the magnetic members are of a cylindrical configuration to minimize engagement with laundry garments during a laundry procedure.



5,067,619

BUILT-UP CUP RACK

Chih-Cheng Wu, 3F., No. 568-2, Chingping Rd., Chung-Ho City, Taipei Hsien, Taiwan

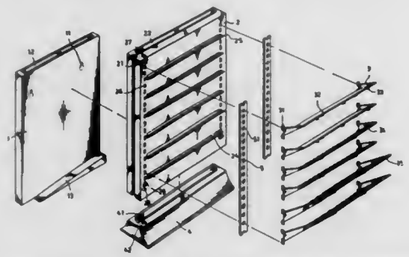
Filed Jan. 18, 1991, Ser. No. 643,242
Int. Cl.[5] A47G *29/00*
U.S. Cl. 211—71 **3 Claims**

1. A built-up cup rack, comprising:
a cover board in rectangular shape having a flat surface portion at the front, a recessed surface portion at the back and a four side edges around the periphery thereof, two elongated grooves made on two adjacent side edges thereof, two raised strips made on the other two adjacent side edges thereof, two projecting portions on said recessed surface portion at two opposite ends, a plurality of elongated slots transversely piercing through said flat surface portion and spaced from one another at equal

VOL 1132 ISS 4 NO 26 1991 UMI

interval, a plurality of retaining holes longitudinally disposed on said flat surface portion at two opposite sides, a plurality of guide plates respectively obliquely disposed at the bottom edge of said elongated slots, a drain hole at the bottom;

a wall mounting board fastened in said recessed back side, having nail mounting holes on the back side thereof for mounting said cover board on a wall surface, two elongated grooves respectively made on the top and bottom ends thereof for fastening said two projecting portions of



said cover board, and a bevel board projecting from the bottom end thereof at one side for guiding water coming from said elongated slots to said drain hole for drainage; and

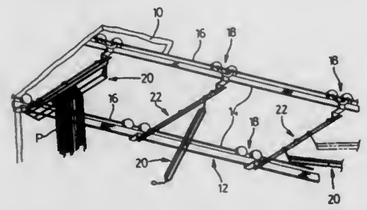
a plurality of hod-like cup holders mounted on said flat surface portion and respectively supported by said guide plates for holding cups, having each two retainers at two opposite ends and respectively fastened in said retaining holes, and a plurality of reinforcing stripes at the bottom to reinforce the strength of the structure.

5,067,620

PRODUCT SUPPORT APPARATUS

Lyle W. Norrie, 24 Stoneglen Drive, Etobicoke, Ontario, Canada

Filed Sep. 17, 1990, Ser. No. 583,206
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—113 **10 Claims**



1. A product support apparatus for supporting products on a conveyor system during processing, and comprising:

a hanger assembly upon which said products may be placed, said assembly defining two ends, and having arm portions, and abutment means, at each said end;

support bar means for said hanger assembly, said support bar means, in turn, comprising a pair of parallel rod members defining two ends and supported side-by-side and spaced apart a predetermined spacing and defining an elongated slot therebetween adapted to receive said arm portions;

junction means extending between said rod members clear of said slot;

connection means secured to said rod members for connecting same to a said conveyor system, and,

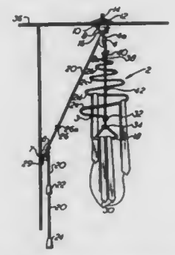
check means at each said end of said rod members engageable by said abutment means whereby to restrict sliding movement thereof along said rod members.

5,067,621

MULTI-LEVEL SUSPENDED GARMENT HOLDER

Elmore Alexander, 5024-D Strawberry Hill Dr., Charlotte, N.C. 28211

Continuation-in-part of Ser. No. 120,588, Nov. 13, 1987, abandoned. This application Jun. 16, 1989, Ser. No. 367,543
Int. Cl.[5] A47F *5/00*
U.S. Cl. 211—117 **13 Claims**



1. An improved garment holder for holding articles of clothing in a hanging position, comprising:

a coil member,

a vertically oriented torsion bar member attached to and extending through said coil,

a tail stabilizer article hanging bracket member attached to the bottom end of torsion bar,

a suspension eye member fixed to the top of said torsion bar,

ceiling hoist and suspension means for raising and lowering said garment holder, and

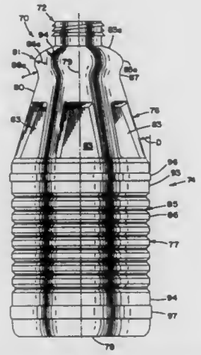
means for fixing said garment holder at variable elevations.

5,067,622

PET CONTAINER FOR HOT FILLED APPLICATIONS

Lawrence E. Garver, and Gregory L. Kimbrough, both of Columbia, S.C., assignors to Van Dorn Company, Cleveland, Ohio

Division of Ser. No. 435,688, Nov. 13, 1989, which is a continuation-in-part of Ser. No. 310,779, Feb. 14, 1989, abandoned, which is a continuation-in-part of Ser. No. 269,881, Nov. 10, 1988, abandoned, which is a continuation-in-part of Ser. No. 2,165, Jan. 12, 1987, abandoned. This application Oct. 1, 1990, Ser. No. 591,090
Int. Cl.[5] B65D *1/02, 1/42, 23/00*
U.S. Cl. 215—1 C **8 Claims**



1. A thermally stable, vacuum compensable PET container

suitable for hot fill applications comprising a generally amorphous threaded mouth portion and a highly crystallite cylindrical body portion extending from said mouth portion, said body portion having

i) a generally frusto-conical neck portion extending from said mouth portion;

ii) a generally cylindrical side wall portion extending from said neck portion;

iii) a generally circular end wall portion extending from the opposite end of said generally cylindrical side wall portion;

iv) vacuum distortion means in said neck portion and said end wall portion to permit container shrinkage when a vacuum is drawn into said container; and

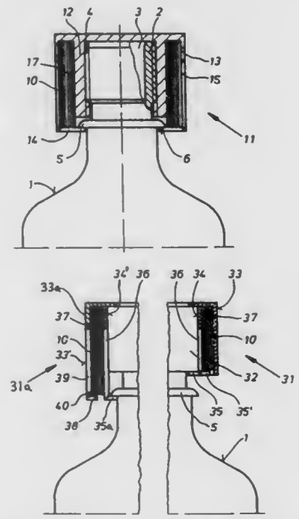
v) rigidizing means in said cylindrical side wall portion preventing radial and longitudinal movement of said side wall when said vacuum is drawn, said rigidizing means including a plurality of radially inwardly extending ring segments and a plurality of cylindrically shaped flat land segments, said radially inwardly extending ring segments longitudinally spaced from one another and contiguously interconnected by said cylindrically shaped flat land segments, said rigidizing means further including a leading land segment generally adjacent said frusto-conical neck portion and a trailing land segment generally adjacent said end wall portion whereby said trailing and leading land segments permit glued application of conventional thickness paper labels to said container while said land segments and said interconnecting ring segments rigidize said cylindrical side wall portion.

5,067,623

CLOSURE FOR A CONTAINER

Rudolf Lensing, Hinterdorfstrasse 28, D 7947 Mengen-Rulfingen, Fed. Rep. of Germany

Filed Jnl. 20, 1990, Ser. No. 556,162
Int. Cl.[5] B65D *51/28*
U.S. Cl. 215—227 **16 Claims**



1. In a combination of a container and a closure therefor, with said closure including a cap that can be placed onto a mouth of said container, the improvement wherein:

said closure, in order to accommodate an enclosure, is provided with a receiving chamber that is disposed concentric to and radially outwardly of said cap; and

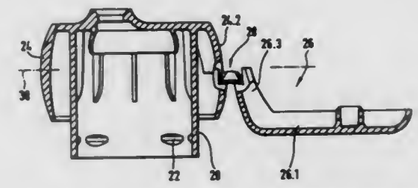
at least two radially resilient arms that are formed on said cap and are spaced from an outer surface thereof, with said receiving chamber being disposed between said arms and said cap, with each of said arms having a free end that is provided with an inwardly projecting attachment that cooperates with engagement means disposed on said container for detachably connecting said closure to said container.

5,067,624

PLASTIC CLOSURE FOR CONTAINERS

Klaus Thanisch, Bullay, Fed. Rep. of Germany, assignor to Zeller Plastik GmbH, Mosel, Fed. Rep. of Germany

Filed Oct. 1, 1990, Ser. No. 591,236
Claims priority, application Fed. Rep. of Germany, Sep. 29, 1989, 8911643
Int. Cl.[5] B65D *47/08*
U.S. Cl. 215—235 **4 Claims**



1. A closure of plastic for the necks of containers, the closure having an upper end and a bottom end and comprising:

a) the closure having a bottom part having an outer wall and a lid, wherein the outer wall of the closure flares in a longitudinal direction from the upper end of the closure outwardly and downwardly to a circumferential line of maximum size, and then flares inwardly toward the bottom end of the closure,

b) the bottom part and lid of the closure being joined together by a snap hinge (**28**) disposed in the outer wall and being made in one piece with the closure, said snap hinge (**28**) comprising a film hinge (**28.2**) and an intermediate element (**28.4**) on either side thereof,

c) the lid having a main part (**26.1**), the depth of the main part of the lid being substantially less than the difference in the height of the closure between its circumferential line of maximum size and its upper end,

d) the lid having an arm **26.3** forming a connection of the main part (**26.1**) of the lid to the snap hinge,

e) the snap hinge being disposed symmetrically with the circumferential line of maximum size.

5,067,625

DEVICE FOR OPENING AND CLOSING LID

Masanori Numata, Yokohama, Japan, assignor to Nifco Inc., Yokohama, Japan

Filed Jun. 1, 1990, Ser. No. 531,746
Claims priority, application Japan, Jun. 5, 1989, 1-141252
Int. Cl.[5] B65D *43/14, 51/04*
U.S. Cl. 220—343 **17 Claims**

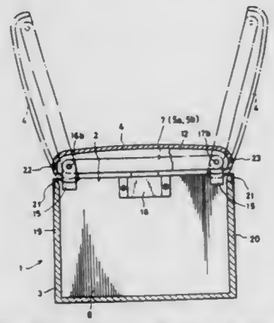
1. A device for opening and closing a lid for opening and closing an opening of a housing, comprising:

first link means having one end linked to a first end of one side edge of said housing and the other end linked to a second end of one side edge of said lid, said one side edge of said housing and said one side edge of said lid facing each other; and

second link means extending parallel to said first link means and having one end like said one end of said first link means linked to a first end of said one side edge of said lid

VOL 1132 ISS 4 NO 26 1991 UMI

and the other end like said other end of said first link means linked to a second end of said one side edge of said housing, said first end of said housing and said first end of said lid facing each other, said second end of said housing and said second end of said lid facing each other;



first locking means provided on said one side edge of said housing for locking said first ink means; and

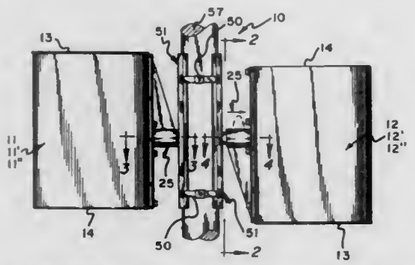
second locking means provided on said one side edge of said housing for locking said second link means.

5,067,626

TRASH RECEPTACLE ADAPTED FOR ROTATABLE MOUNTING HAVING INTEGRAL LOCKING AND SUPPORTING MEANS

Dov A. Leumi, 300 E. Lancaster Ave., Wynwood Apts. #708, Wynwood, Pa. 19160

Filed Jul. 13, 1990, Ser. No. 553,121
Int. Cl.[5] B65F *1/12*
U.S. Cl. 220—475 **4 Claims**



1. An apparatus for collecting and removal of trash comprising at least one basket, integral supporting and locking means for connecting said basket to a supporting structure, said means adapted to (A) support said basket, (B) lock said basket in a normal upright position for receiving and holding trash, (C) be unlocked so as to permit rotation of said basket for emptying said trash wherein said means to lock against rotation includes a stationary interlocking keyed cylinder, a rotating interlocking keyed cylinder, either of said stationary interlocking keyed cylinder or said rotating interlocking keyed cylinder having a key and the other having a keyway which interlock when said basket is in said normal upright position for receiving trash, and to allow said basket to be pulled to unlock said permit rotation so as to empty said trash

wherein said means to lock against rotation includes a spring which is adapted to normally apply force against one of said interlocking keyed cylinders so as to maintain said key and said keyway in an interlocking position and thereby prevent rotation;

wherein said means to lock against rotation further includes a threaded adjustment screw and a complimentary threaded slot, said screw positioned so as to permit adjusting said force exerted by said spring on said interlocking keyed cylinders so as to thereby adjust the pushing or pulling force required to be exerted on said basket to unlock it for rotation;

wherein said means to lock against rotation includes a retainer head on the end of said threaded adjustment screw and a female slot in the opposite end of said threaded adjustment screw, and wherein said basket and said means to lock against rotation have an opening adapted to permit rotation of said screw by a tool from a position within said basket in a direction toward said supporting structure so as to adjust said force exerted by said spring on said interlocking keyed cylinders; and

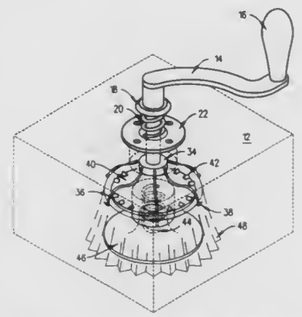
wherein means to lock against rotation further includes means to prevent access to said threaded adjustment screw.

5,067,627

COFFEE FILTER DISPENSER

Michael L. Anderson, 5223 Arizona St., Camp Lejeune, N.C. 28542

Continuation-in-part of Ser. No. 93,777, Sep. 8, 1987, abandoned. This application Jan. 23, 1991, Ser. No. 644,548
Int. Cl.[5] B65H *3/00*
U.S. Cl. 221—36 **13 Claims**



1. A new and improved coffee filter dispenser, comprising:

housing means;

door means in said housing means;

means for holding a stack of nested coffee filters in said housing;

plunger means mounted for axial and rotary motion, extending through said housing means; and

means for engaging a top filter of said stack of nested coffee filters, attached to said plunger means, whereby a single coffee filter may be dispensed through said door means.

5,067,628

DISPENSER FOR NOTE PAD SHEETS

Mel Evenson, c/o Eldon Industries, Inc., 9920 La Cienega Blvd., P.O. Box H-130, Inglewood, Calif. 90301

Filed Jun. 29, 1990, Ser. No. 546,416
Int. Cl.[5] B65H *1/00*
U.S. Cl. 221—52 **10 Claims**

1. A disperser comprising:

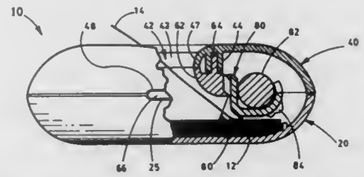
a base member for supporting fan-folded notes;

a lid member;

means for releasably connecting the base member and lid member to one another so that the base member and lid member are spaced from one another and form an enclosure to receive and enclose the fan-folded notes;

means for dispensing the fan-folded notes one at a time from the enclosure;

a weighted member located within the enclosure and positioned to contact the top of the fan-folded notes, the weighted member being movable relative to the base member and lid member as the fan-folded notes are individually removed, said weighted member being comprised of a pair of spaced weight elements that are connected to one another by a pair of connecting members so as to define an aperture therebetween, and



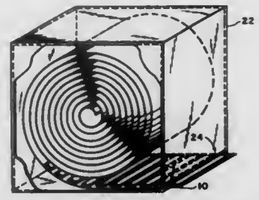
a guide member connected to said lid member and extending downward into said enclosure, said guide member including a central body and a second slot centrally located therein so as to be substantially aligned with said first slot, said central body being dimensioned such that the aperture of said weighted member may encompass said central body and move up and down relative to said guide member.

5,067,629

METHOD FOR DISPENSING DRINKING STRAWS AND A SUPPLY ARRANGEMENT THEREFOR

William K. Schwartz, 1160 Fifth Ave., Apt. 603, New York, N.Y. 10029-6928

Filed Sep. 21, 1990, Ser. No. 586,613
Int. Cl.[5] B65H *5/28*
U.S. Cl. 221—70 **15 Claims**



1. A supply arrangement for use in dispensing drinking straws, said arrangement comprising:

(a) A plurality of substantially flattened, flexible hollow tubes, each tube having a convenient length and cross-section for a drinking straw, said tubes being arranged substantially in parallel; and

(b) means for pressing said tubes to maintain their flattened configuration along substantially their entire length.

5,067,630

VENDING MACHINE

Thomas A. Nesser; Deborah L. Nesser; Edward P. Joslyn, all of Rochester; Bernard J. Rick, Fairport; Herbert Luckower, Harrison, and John P. Barczak, Rochester, all of N.Y., assignors to G. T. Norton, Inc., Rochester, N.Y.

Continuation of Ser. No. 87,487, Aug. 20, 1987, abandoned. This application Nov. 29, 1988, Ser. No. 277,483
Int. Cl.[5] G07F *11/54, 11/58*
U.S. Cl. 221—76 **29 Claims**

1. In a vending machine having a cabinet, apparatus whereby refilling of the cabinet with a fresh supply of articles to be dispensed can be accomplished by removal from the cabinet and replacement in the cabinet as an integrated assembly which is portable as a unitary body, which apparatus comprises:

a drive mechanism fixedly mounted in said cabinet and having at least one drive member at at least one position in said cabinet along a surface thereof facing the integrated assembly when said integrated assembly is in said cabinet;

said integrated assembly including:

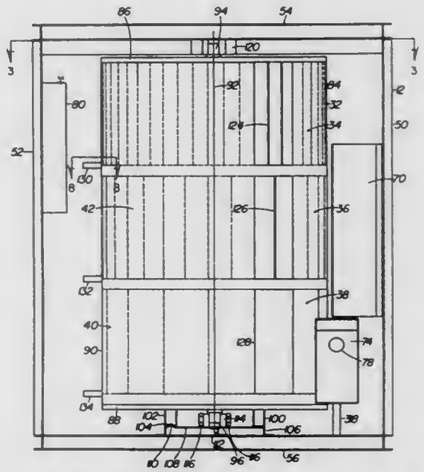
(a) a housing enclosing a unitary body providing at least one carrier for items or articles to be vended,

(b) means for providing a rotatable support for said carrier in said housing,

(c) a driven member connected to said at least one carrier for rotating said at least one carrier and having means coupling to said at least one drive member when said assembly is in said cabinet, and

(d) locating members on said housing which are disposed in a first predetermined spacial relationship with said driven member;

means including supporting and guiding members on at least one inside surface of said cabinet for removably receiving said integrated assembly in supported relationship in said cabinet with said driven member directly coupled to said



at least one drive member and in contact with each other, said supporting and guiding members on said at least one inside surface of said cabinet supporting and guiding said integrated assembly when being removed from and placed in said cabinet and when located in said cabinet, said supporting and guiding members being fixedly mounted in said cabinet in a second predetermined spacial relationship with said at least one drive member corresponding to said first spacial relationship of said locating members and said driven member which said first and said second predetermined spatial relationships bring said drive member and driven member into contact directly coupled in driving relationship, said supporting and guiding members having surfaces engageable with said locating members which locate and capture said integrated assembly in said cabinet, wherein said cabinet has a coin mechanism which accepts coins for articles or items vended and further comprising a coin receiving container attached to said housing and being part of said integrated assembly, and said container being disposed in coin receiving relationship with said coin mechanism when said integrated assembly is in said cabinet.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,631

PART ISOLATING APPARATUS

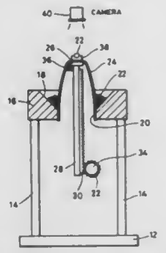
Tsuyoshi Baba, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Nov. 29, 1989, Ser. No. 442,858

Claims priority, application Japan, Dec. 5, 1988, 63-157621[U]; Oct. 6, 1989, 1-117156[U]

Int. Cl.[5] A24F *15/04*

U.S. Cl. 221—254 24 Claims



1. A part isolating apparatus comprising:

an isolation table having an upper surface and a lower surface, with said upper surface having an upper edge portion defining an opening and said lower surface having a lower edge portion defining an opening, and said table including a bore extending from said upper edge portion to said lower edge portion and being defined by a sloping surface sloping inwardly toward said lower edge portion;

bag means, mounted around said lower edge portion and disposed beneath said isolation table, for receiving therein a plurality of parts to be isolated when said bag means is lifted through the bore; and

thrusting means disposed beneath said bag means for lifting said bag means through the bore and isolating at least one of the parts from other parts, wherein when said bag means is lifted the other parts not isolated by said thrusting means are contained within a space defined by said sloping surface and a portion of said lifted bag means.

5,067,632

DEVICE FOR THE INDIVIDUAL FEEDING OF STUDS OR BOLTS

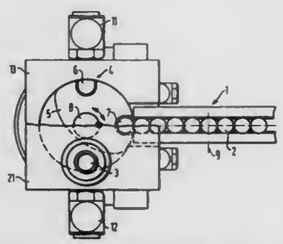
Friedhelm Aubry, Velbert, Fed. Rep. of Germany, assignor to TRW Nelson Bolzenschweiß-Technik GmbH & Co. KG, Gevelsburg, Fed. Rep. of Germany

Filed Jul. 6, 1990, Ser. No. 549,217

Claims priority, application Fed. Rep. of Germany, Jul. 7, 1989, 3922439

Int. Cl.[5] G07F *11/24*

U.S. Cl. 221—266 16 Claims



1. Device for the individual feeding of bolts, or the like, arranged one after another between guide rails, to at least two bolt outlets, blasted with air, leading to at least two bolt-welding devices, with a rotor arranged between said guide rails and the bolt outlets leading to said bolt-welding devices, with at least two receiving slots for receiving one bolt, said receiving slots being designed as blind holes.

5,067,633

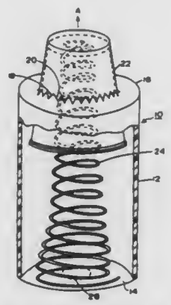
DISPOSABLE PLASTIC CUP DISPENSER WITH SPRING

Edward G. Grosz, Sodus Point; Fox J. Herrington, Holcomb, and Eric A. St. Phillips, Fairport, all of N.Y., assignors to Mobil Oil Corporation, Fairfax, Va.

Filed Dec. 9, 1988, Ser. No. 281,597

Int. Cl.[5] B65G *59/00*

U.S. Cl. 221—279 10 Claims



1. A disposable cub dispenser for the packaging and discrete individual dispensing of cups from a stack of inverted nested cuts each of which has a tapered sidewall, a bottom wall at the smaller end thereof and an open top encompassed by an outer beaded rim structure; said dispenser comprising a generally vertically oriented tubular member having a peripheral sidewall structure, a bottom wall and a top wall, said top wall being a radially inwardly crimped portion of said peripheral wall structure forming an aperture with a serrated resilient annular edge, a portion of the endmost cup of the stack of cups protruding upwardly through said aperture in engagement with said serrated edge, said serrated edge being radially resiliently widenable in response to an upward pull being exerted upon said endmost cup to facilitate passage therethrough and separation from the remainder of said stack of cups; and means in said tubular member for exerting an axial biasing force on said stack of cups to position the remaining cups of said stack in readiness for dispensing a successive cup from said aperture, wherein said biasing means comprises a helical compression spring axially extending between the lowermost cup of said stack of cups and the bottom wall of said tubular member, said helical compression spring having one end contacting the inner surface of the bottom wall of said tubular member and an opposite end contacting the bottom wall of the lowermost cup of said stack of cups.

5,067,634

SINGLE PRODUCT EXTRACTOR

Félix Guindulain Vidondo, Peralta, Spain, assignor to Jofemar, S.A., Peralta, Spain

Filed Feb. 22, 1990, Ser. No. 483,933

Claims priority, application Spain, Mar. 10, 1989, 8900887

Int. Cl.[5] B65G *59/00*

U.S. Cl. 221—298 4 Claims

1. An apparatus for dispensing articles in an automatic vending machine comprising:

an L-shaped strip for supporting said articles to be dispensed one above the other, one leg of said L-shaped strip extending in an upward direction and the horizontal leg having a hole therethrough;

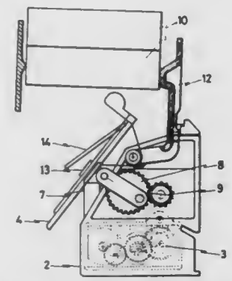
a movable plate positioned on the top surface of the horizontal leg of said L-shaped strip above said hole and contacting the bottom surface of the bottom one of said articles to be dispensed;

a motor having a rotatable shaft;

a pinion connected to said shaft, said pinion having a plurality of protrusions around the circumference of said pinion;

a toothed wheel interlocking with said plurality of protrusions;

a cam having one end coupled to said toothed wheel and the other end mounted to said L-shaped strip, said cam being rotated in response to said motor rotating said shaft so that the horizontal leg of said L-shaped strip is rotated in a downward direction;



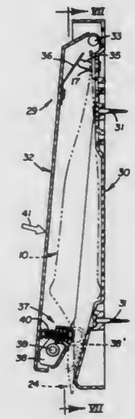
a pair of retaining plates positioned on either side of said articles, one of said retaining plates being actuated by said cam being rotated so that said one of said retaining plates being actuated bears against one of said articles above the bottom one of said articles whereby said one of said articles above the bottom one of said articles is held between said pair of retaining plates; and

a strip attached to said motor positioned below said movable plate and extending in an upward direction so that, when said horizontal leg of said L-shaped strip is rotated in said downward direction, said strip contacts said movable plate to lift said movable plate off of said L-shaped strip, thereby lifting the bottom one of said articles off of said L-shaped strip to dispense the bottom one of said articles.

with said liquid, for opening to entirely separate the superimposed flat portions of said panels to pump and solely dispense said pre-measured charge of liquid from said charging chamber in response to the application of a predetermined level of external and descending pumping pressure on said spout means, and for again closing to entirely compress said superimposed flat portions together to close said valve means when said pressure is removed from said spout means, said passage having a width throughout its entire length that is substantially less than the width of said charging chamber,

the inner sides defining said reservoir comprising laterally spaced and co-extensive upper inner sides and contiguous and co-extenstive lower inner sides extending downwardly to slope towards each other and towards said spout means to intersect with a respective inner side defining said charging chamber to define a bottom termination of said reservoir and an upper termination of said charging chamber, the inner sides defining said charging chamber having lengths substantially greater than the lengths of the lower inner sides defining said reservoir and the lengths of the inner sides defining said charging chamber being substantially greater than the length of said passage.

13. A dispenser pouch in combination with a combined holder and dispensing unit, said dispenser pouch comprising



a pair of panels defining a reservoir adapted to contain a liquid therein,

spout means defining a charging chamber between said panels on a lower end of said pouch communicating with said reservoir for retaining a pre-measured charge of said liquid therein, and

normally closed valve means at a lower end of said spout means, including a normally closed passage solely defined by and between said panels and communicating with said charging chamber, for opening to dispense said charge of liquid from said charging chamber in response to the application of a pre-determined level of external and descending pumping pressure on said spout means, said holder and dispensing unit comprising

a mounting bracket having said dispenser pouch mounted thereon, and

compression means mounted on said unit to overly said spout means for selectively applying said pre-determined level of external and descending pumping pressure by first applying pressure in a generally horizontal direction and then applying pressure in a generally vertically downward direction on said spout means to open said passage to dispense said charge of liquid therefrom.

5,067,635

DISPENSER POUCH AND HOLDER AND DISPENSING UNIT THEREFOR

Peter Thomsen, 20 William Street, Henley 2111 Sydney, Australia

Continuation of Ser. No. 807,293, Dec. 10, 1985, abandoned.

This application Dec. 6, 1990, Ser. No. 623,097

Int. Cl.[5] B65D *35/28*

U.S. Cl. 222—103 17 Claims

1. A dispenser pouch comprising

a pair of panels defining a reservoir, having laterally spaced and co-extensive inner sides, adapted to contain a liquid therein,

spout means defining a charging chamber, having laterally spaced and co-extensive inner sides, between opposed panel portions of said panels on a lower end of said pouch and communicating with said reservoir for retaining a pre-measured charge of said liquid therein, and

normally closed valve means communicating directly with said charging chamber and terminating at an inner end thereof solely at a lower end of said spout means, including a passage solely defined by and between superimposed flat portions of said panels extending throughout the entire length of said valve means and that are normally flattened and entirely compressed together automatically in direct response to the weight of the liquid in said reservoir and spout means and resulting outward pressure on said panel portions, when said pouch is suspended vertically, to close said valve means when said charging chamber is filled

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,636

CONTAINER ASSEMBLY FOR THE TRANSPORT, STORAGE AND DISPENSING OF FLOWABLE MATERIALS

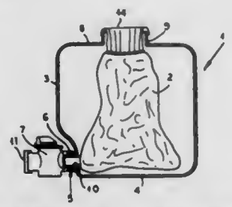
Pierre Pfeiffer, Drulingen; Benoit Cheval, Saverne, and Paul Sigwalt, Drulingen, all of France, assignors to Sotralentz S. A., Drulingen, France

Filed Sep. 7, 1989, Ser. No. 404,305

Claims priority, application Fed. Rep. of Germany, Sep. 8, 1988, 3830487

Int. Cl.[5] B65D *35/56*

U.S. Cl. 222—105 2 Claims



1. A container assembly for the transportation, storage and dispensing of a flowable material, comprising:

an outer load-bearing container composed of thermoplastic material and formed with an upper wall having a large-caliber closable aperture affording access into an interior of the outer container, lateral wall means around said interior, a base for said outer container and an outlet pipe spigot formed on said lateral wall means near said base, said outlet pipe spigot being formed with an external screwthread;

an inner container in the form of a collapsible flexible-wall sack composed of a plastic sheet material received in said interior of said outer container and formed with a hose spigot extending through said outlet pipe spigot and secured to an outer edge of said outlet pipe spigot, said sack being fillable with said material and, when filled, conforming to the configuration of said outer container, said sack having a top-filling aperture temporarily connectable to said large-caliber closable aperture in said upper wall of said outer container and including means for closing and detaching from said top-filling aperture, said container when at least partially filled being free from connection to said large-caliber closable aperture and said upper wall; and

a valve threaded onto said outlet pipe spigot for opening and closing flow through said hose spigot.

5,067,637

CANTEEN BOTTLE FOR DISPENSING RATIONED DRINKS

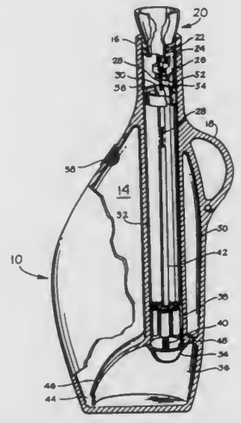
Harold O. Aurness, 5808 Knox Ave. N., Brooklyn Center, Minn. 55430, and Tony L. Jones, 1615 Russell Ave. N., Minneapolis, Minn. 55411

Filed Mar. 5, 1990, Ser. No. 487,857

Int. Cl.[5] B67D *5/64*

U.S. Cl. 222—175 5 Claims

1. In a canteen bottle attachable to a carrying device on a running or walking person which can dispense a premeasured ration of liquid comprising a bottle of general bottle shape with a round neck offset at the top of the bottle, a handle near the neck, a capped filling hole, a rotatable mouthpiece extending from the bottle neck and gasketed therein, a holding shelf on the bottom of the mouthpiece to firmly hold the top end of a stopper stem reaching to a pliable stopper covering a hole in the top of a holding chamber in the bottom of the bottle, and which holding shelf also provides a plug member to fit a passage hole in a stationary gate in the bottle neck which allows passage of liquid into the mouthpiece from a neck tube which is an extension of the bottle neck below the stationary gate going to the holding chamber, and with a recess in the top of the stationary gate to fit the plug member of the holding shelf to hold the stopper in a partially open position; a flexible tube spacer on the stopper stem to hold the stopper stem centered in the neck tube to keep the stopper aligned with the holding chamber hole, a rigid spacer tube extending on the stopper stem between the stationary gate and the flexible tube spacer to hold the flexible tube spacer from vertical slippage, with a spiral spring spacer between the stopper and the flexible tube spacer to keep the stopper in a normal open position until the bottle is used for a drink; a relief chamber alongside the neck tube with access through a bottom hole to the holding chamber; an access opening in the wall of the holding chamber to a reservoir for liquid in the interior of the bottle whereby the liquid may flow into the holding chamber and neck tube around the stopper in open position and be trapped by the stopper in closed, or drinking position; further comprising a carrying device attachable to the user with a variable tether means connecting the bottle and the carrying device.



5,067,638

DEVICE FOR DISPENSING MEASURES OF A GIVEN VOLUME OF A LIQUID CONTAINED IN A DEFORMABLE CONTAINER COMPRISING A SAFETY ELEMENT

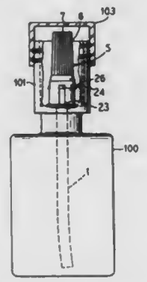
Tristan Bavaveas, Paris, France, assignor to Societe dite: Eparco S.A., France

Filed Jul. 28, 1989, Ser. No. 387,020

Claims priority, application France, Jul. 29, 1988, 8810285

Int. Cl.[5] G01F *11/26*

U.S. Cl. 222—205 15 Claims



1. A device for dispensing measures of a given volume of a liquid contained in a deformable container of the type comprising a cup fixed in a neck of the container and having a base of which there is a feed hole for the liquid and a tube accommodated in an integral manner in the cup being fixed to the base and communicating with the feed hole via its lower end and being provided at its upper end with an outlet hole, the dispensing device being protected by a removable cap, said device including a one-piece, axially hollow, displaceable safety element comprising an upper gripping part having a transverse closing face, a hollow central part forming a valve member, and a hollow lower part forming a slide and outlet orifice, said safety element being mounted so as to slide axially on the tube via its lower part between a limited lower position and a limited upper position, said lower position having the central part closing said outlet holes to prevent passage of liquid from the container through the tube to the cup, said upper position having the central part opening said outlet hole to allow flow between the container via the tube, and the upper gripping part of the safety element projecting partially from the cup so that once the cap is removed by the user, the user, in order to use the device for dispensing measures, must deliberately move the safety element from the lower position to the upper position to permit flow from the container through the outlet hole into the cup.

5,067,639

POURING SPOUT WHICH CAN BE SELECTIVELY OPENED AND CLOSED

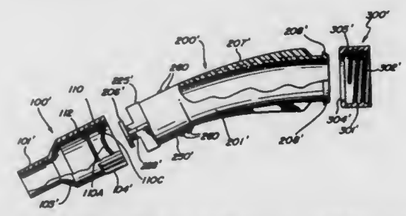
Paul R. Maguire, 4284 Sea View La., Los Angeles, Calif. 90065, and John M. Lown, 222 La Jolla La., Newport Beach, Calif. 92663

Continuation-in-part of Ser. No. 413,185, Sep. 27, 1989, Pat. No. 5,000,360. This application Dec. 4, 1990, Ser. No. 621,995

The portion of the term of this patent subsequent to Mar. 19, 2008, has been disclaimed.

Int. Cl.[5] B67D *5/72*

U.S. Cl. 222—521 14 Claims



1. A sealable pouring spout adapted to be releasably secured to an oil container or the like comprising:

a) a tubular body member having an attachment end and a pouring end, the attachment end defining an annular lip extending outwardly from the body member and the pouring end having a cylindrically shaped outer surface portion;

b) a connector member rotatably mounted on the attachment end of the tubular body member and extending over the lip thereof, the connector member defining threads adapted to engage complementary threads on the container; and

c) a funnel shaped member rotatably mounted on the tubular body member adjacent the pouring end thereof, the funnel shaped member including a rear cylindrical section having a cylindrically shaped inner surface which surrounds the tubular body member adjacent the pouring end thereof, a front cylindrical section of smaller diameter than the pouring end of the tubular body member and a tapered section joining the front and rear sections, the funnel shaped member further having an outlet end through which material to be dispensed from the container flows;

d) the cylindrically shaped inner surface of the funnel shaped member defining an inwardly projecting cam surface extending circumferentially about the tubular body member from at least one high point to at least one low point, the low point being positioned at a greater distance from the pouring end of the tubular body member than the high point, the tubular body member outer surface defining a cam lobe follower riding on said cam surface so that rotation of the funnel shaped member in either direction relative to the tubular body member causes the outlet end of the funnel shaped member to move toward and away from the pouring end of the tubular body member; and

e) the tubular body and funnel shaped members having cooperating closure means comprising a stopper member mounted on the pouring end of the tubular body member for sealingly engaging the tapered section of the funnel shaped member when the outlet end of the funnel shaped member is moved toward the pouring end of the tubular body member the maximum distance allowed by the cam surface and the cam lobe follower.

5,067,640

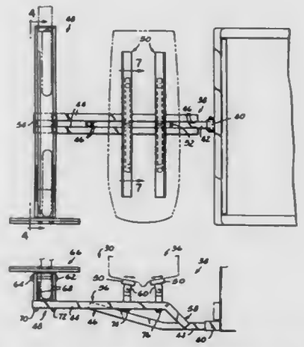
UNIVERSAL WHEELLESS CARRIER

Albert Gaskill, 22644 Point Dr., St. Clair Shores, Mich. 48081

Filed Dec. 18, 1989, Ser. No. 452,542

Int. Cl.[5] B60R *9/00*

U.S. Cl. 224—42.07 20 Claims



1. A universal wheelless carrier mounted to a transporting vehicle's trailer hitch for transporting a load, comprising:

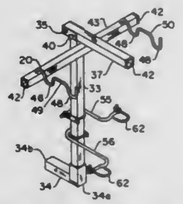
a main elongated support member cantilevered from said trailer hitch, said main elongated support member having a first and second end, said first end adapted to be received and retained by said trailer hitch, said second end having two elongated parallel support beams, said beams slightly spaced apart and longitudinally extending generally rearward from said transporting vehicle;

a first load-bearing member positioned above and transverse to said elongated parallel support beams, said first load-bearing member having two distal ends and a locating pad, said distal ends extending substantially beyond and cantilevered from said beams and said locating pad protruding from said first load-bearing member and located between said two ends, said locating pad adapted to be received between said slightly spaced apart beams; and

means for fastening said first load-bearing member to said spaced apart beams.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,641
VEHICLE BICYCLE CARRIER
Richard B. Johnson, Tecumseh, and Thomas P. Schneider, Ypsilanti, both of Mich., assignors to Valley Industries, Inc., Madison Heights, Mich.
Filed Jan. 30, 1990, Ser. No. 472,037
Int. Cl.[5] B60R 9/00
U.S. Cl. 224—042.03 B 14 Claims



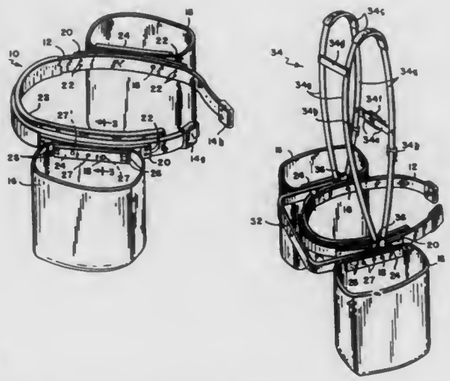
1. A universal carrier having a three point mounting arrangement for transporting bicycles, one behind the other, on a motor vehicle comprising, in combination: a slender upright member; a means for detachably securing a lower end portion of said upright member to a motor vehicle; a slender transverse horizontal member fixedly attached at the center thereof to said upright member; a pair of slender longitudinal horizontal brackets, each of said brackets having a base end portion fixedly attached to an end portion of said transverse member and adapted to support an upper portion of at least one bicycle; a third slender longitudinal horizontal bracket slideably attached below said first pair of brackets to said upright member, said third bracket being vertically adjustable on said upright member and adapted to support a third portion of said bicycle; and a means for adjusting the vertical position of said third bracket on said upright member.

5,067,642
SHOULDER HOLSTER WITH CONCEALED SUPPORTING CHEST STRAP
Gary L. Fodge, General Delivery, Globe, Ariz. 85501
Filed Dec. 7, 1990, Ser. No. 623,516
Int. Cl.[5] F41G 33/02
U.S. Cl. 224—192 18 Claims



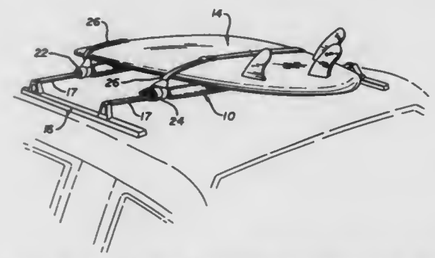
1. A shoulder holster to be worn outside a person's shirt with no visible supporting chest strap nor with a chest strap piercing the shirt, the shoulder holster comprising:
a holster for receiving a handgun;
a chest strap worn under the person's shirt; and
means operably securing said holster to said chest strap, said means defining a shirt lock hub attached to said chest strap under the person's shirt, said shirt lock hub having an interior opening therethrough, said interior opening having a diameter thereof, and an annularly shaped shirt lock attached to said holster, said shirt lock having a diameter thereof less than said shirt lock hub interior opening diameter, said shirt lock hub interior opening adapted to receive therein firstly the person's shirt and secondly said annularly shaped shirt lock, said shirt lock operably engaging said shirt lock hub interior opening to secure said holster to said chest strap whereby said said chest strap is worn inside the person's shirt and said holster is worn outside the person's shirt.

5,067,643
HIP-LEVEL PACK FRAME
John McKinney, P.O. Box 96, Coram, Mont. 59913
Filed Feb. 2, 1989, Ser. No. 305,781
Int. Cl.[5] A45F 5/00
U.S. Cl. 224—197 8 Claims



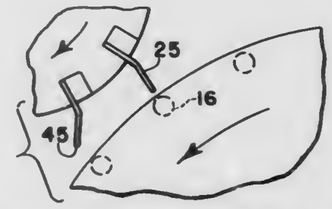
1. A hip-level pack comprising
a belt arranged to be releasably secured about a wearer's waist;
a plurality of relatively large bags positioned along the belt on both sides of the wearer so that loads carried in said bags may be balanced;
a generally U-shaped frame member for extending around the wearer's back outboard of said belt;
means for pivotally connecting an upper margin of each bag individually about pins aligned with and disposed from the wearer's hips and axially fixed to the belt so that when the belt is secured about the wearer's waist, each bag is supported for free swinging movement about each pin individually relative to the belt and the wearer's hips, and
means for securing the opposite edges of said frame member to said pair of connecting means.

5,067,644
RACK PROTECTIVE DEVICE
Robert A. Coleman, 19612 Grandview Dr., Topanga, Calif. 90290
Filed Sep. 21, 1990, Ser. No. 586,431
Int. Cl.[5] B60R 9/00
U.S. Cl. 224—324 7 Claims
1. A device for protecting items that are placed atop first and second horizontal members of any vehicle rack, comprising:
a first elongated member comprised of a dense protective material of a sufficient thickness to ensure that the item to be placed on the rack will be protected, said first elongated member having a first and a second end and an upper surface and a lower surface, said lower surface having a recessed substantially C-shaped concave aperture therein capable of receiving and fitting totally around and over the length of the first horizontal bar member;
a second elongated member comprised of a dense protective material of a sufficient thickness to ensure that the item to be placed on the rack will be protected, said second elongated member having a first and a second end and an upper surface and a lower surface, said lower surface having a recessed substantially C-shaped concave aperture therein capable of receiving and fitting totally around and over the length of the second horizontal bar member of the rack;
a first strap having a first and a second end, said first end of said first strap being permanently affixed to said first end of said first elongated member for rigidly affixing the first elongated member to the first horizontal bar, and having first means for connecting the attached to said second end of said first strap;
a second strap having a first and a second end, said first end of said second strap being permanently affixed to said



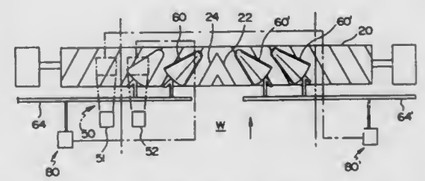
second end of said first elongated member for rigidly attaching the first elongated member to the first horizontal bar, and having second means for connecting attached to said second end of said second strap, said second connecting means capable of receiving said first connecting means, whereby the first end of an item to be protected will be rigidly affixed to the upper surface of the first elongated member;
a third strap having a first and a second end, said first end of said third strap being permanently affixed to said first end of said second elongated member for rigidly affixing the second elongated member to the second horizontal bar, and having third means for connecting attached to said second end of said third strap;
a fourth strap having a first and a second end, said first end of said fourth strap being permanently affixed to said second end of said second elongated member for rigidly attaching the second elongated member to the second horizontal bar, and having fourth means for connecting attached to said second end of said fourth strap, said fourth connecting means cable of receiving said third connecting means, whereby the second end of an item to be protected will be rigidly affixed to the upper surface of the second elongated member.

5,067,645
APPARATUS FOR SIZING ELONGATED FOOD PIECES
Roger D. Johnson, Canyon Country, Calif., assignor to Nestec S.A., Vevey, Switzerland
Continuation-in-part of Ser. No. 226,903, Aug. 1, 1988. This application Jul. 9, 1990, Ser. No. 550,263
Int. Cl.[5] B26F 3/02; B26D 1/62
U.S. Cl. 225—93 9 Claims
1. Apparatus for sizing a mix of randomly sized food pieces into pieces of a predetermined maximum length which comprises
a first cylindrical member and a second cylindrical member mounted for rotation on parallel axial shafts and interconnected for rotation in opposing directions,
said first cylindrical member having a pair of spaced circular support plates mounted on a first axial shaft and a plurality of axially parallel longitudinal bars mounted between the support plates equidistant around the periphery thereof substantially parallel to said first shaft and spaced apart a distance equal to the desired maximum length of the food pieces to be sized,
said second cylindrical member having a plurality of spaced circular support plates mounted on a second axial shaft and a plurality of axially parallel elongated cutting blades mounted on the support plates equidistant around the



periphery thereof substantially parallel to said second shaft and spaced apart a distance equal to the spacing between the longitudinal bars on said first cylindrical member, and
first conveyor means having an end adjacent said first cylindrical member for depositing a mix of randomly sized food pieces, including elongated pieces having a length exceeding a predetermined maximum length, onto said first cylindrical member with the longitudinal axes of said elongated pieces being substantially perpendicular to the axes of the longitudinal bars on said first cylindrical member,
said cylindrical members being operably mounted and driven so that said cutting blades pass in close proximity to said longitudinal bars without contacting said bars to thereby cut elongated pieces carried on the first cylindrical member between the rotating members.

5,067,646
APPARATUS FOR CONTROLLING A WEB
William O. Young, Jr., and George H. Lark, both of Spartanburg, S.C., assignors to Young Engineering, Inc., Spartanburg, S.C.
Filed Oct. 17, 1988, Ser. No. 258,746
Int. Cl.[5] B65H 23/02
U.S. Cl. 226—015 4 Claims



1. Apparatus for imparting force against a web moving across a roll for bringing about lateral movement of the web with respect to the path of travel of the web comprising:
a) a shaft mounted for oscillation adjacent said path of travel;
b) a plurality of web contacting means located along said shaft, said web contacting means comprising a first arm secured to said shaft for oscillation therewith, a second

VOL 1132 ISS 4 NO 26 1991 UMI

arm located atop said first arm and being pivotally secured thereto, said second arm extending beyond an outer free end of said first arm and having an element received thereon for contact with said web;

c) shaft movement means comprising a further arm connected to said shaft and means connected to said further arm for imparting to and fro motion thereto, whereby said shaft may be oscillated to move said elements into and out of contact with a side of said web opposite said roll; and

d) sensor means located along said path of travel of said web for actuating said shaft movement means when said web is sensed out of lateral alignment along said path of travel.

5,067,647

APPARATUS FOR FASTENING SEMICONDUCTOR COMPONENTS TO SUBSTRATES

Herbert Schwarzbauer, Munich, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

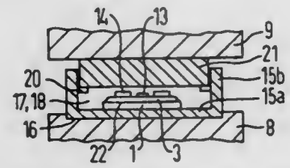
Division of Ser. No. 317,596, Mar. 1, 1989, Pat. No. 4,903,886. This application Dec. 5, 1989, Ser. No. 446,414

Claims priority, application Fed. Rep. of Germany, Mar. 3, 1988, 3806980

The portion of the term of this patent subsequent to Oct. 22, 2008, has been disclaimed.

Int. Cl.[5] B23K *20/02*

U.S. Cl. 228—5.5 **2 Claims**



1. An arrangement for fastening semiconductor components to substrates, comprising:

a receptacle means for receiving a component and a substrate, said receptacle means comprising a floor part and a lateral wall part;

a die movable in a direction of said floor part to augment said receptacle chamber;

a press into which said receptacle chamber is introduced, said floor part being supported against a first press ram of said press and said die being supported against a second press ram of said press to exert pressing power;

a deformable member in said receptacle chamber, said deformable member being of a volume that substantially completely fills an interior of said receptacle chamber when pressing power is applied;

an advanced edge of said die, said advanced edge embracing said lateral wall part of said receptacle means; and

a sealing ring pressing against an inside of said advanced edge, said sealing ring being supported against an edge of said lateral wall part.

5,067,648

APPARATUS FOR HOLDING PRINTED CIRCUIT BOARDS DURING WAVE SOLDERING AND PROCESSING

Michael R. Cascini, Hudson, N.H., assignor to Lockheed Sanders, Inc., Nashua, N.H.

Filed Jul. 27, 1990, Ser. No. 559,869

Int. Cl.[5] B23K *37/04;* **B25B** *1/20*

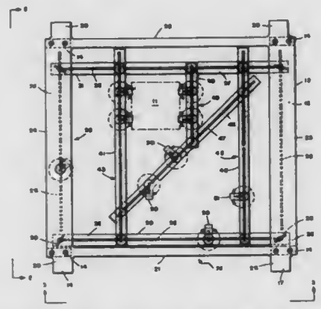
U.S. Cl. 228—47 **8 Claims**

1. An apparatus for supporting printed circuit boards during processing, comprising:

a peripheral frame;

a multiplicity of support members having interfacing flat surfaces defining an imaginary reference plane from both sides thereof;

means for affixing two or more support members to the peripheral frame; and



means for supporting printed circuit boards parallel to and in reference to the imaginary plane and including means for engaging the support members along either of the interfacing surfaces defining the reference plane.

5,067,649

BONDING METAL COMPONENTS

Roy Hardwick, Troon, Ayrshire, Wales, assignor to Imperial Chemical Industries PLC, London, England

Continuation of Ser. No. 395,154, Aug. 17, 1989, abandoned, which is a continuation of Ser. No. 240,496, Sep. 2, 1988, abandoned. This application Nov. 6, 1990, Ser. No. 608,638

Claims priority, application United Kingdom, Sep. 18, 1987, 8721984; Feb. 1, 1988, 8802169

Int. Cl.[5] B23K *20/08*

U.S. Cl. 228—107 **7 Claims**

1. A method of manufacturing a hollow metallic structure comprising explosively bonding metal components at selected areas only of adjacent surfaces, said surfaces having the same composition, to form a composite structure having at least one unbonded area between adjacent surfaces which is enclosed by bonded area;

heat treating the composite at appropriate elevated temperature to enhance and render more uniform the strength of bonding between the components of the composite structure;

and introducing pressurized gas between the adjacent components at the enclosed unbonded area to superplastically form the composite structure into the desired hollow structure.

5,067,650

MAILBOX PROTECTOR

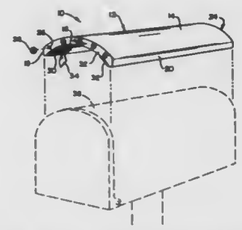
Mark G. Jones, Rte. 6, Box 49B, Paris, Tex. 75460, and Tommy T. Wright, Rte. 2, Box 306, Center, Tex. 75935

Filed Nov. 7, 1990, Ser. No. 610,407

Int. Cl.[5] B65D *91/00*

U.S. Cl. 232—17 **7 Claims**

1. A mailbox protector comprising a cover member adapted to be attached to a mailbox, a reservoir within the cover member, a non-toxic dye within the reservoir, and means for expelling the dye from the reservoir whenever a crushing blow is applied to the cover member.



5,067,651

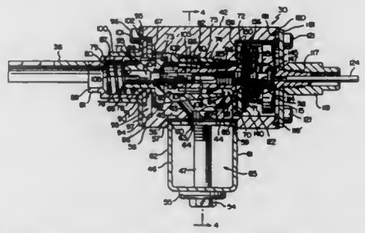
FUEL CONTROL DEVICE, FUEL CONTROL SYSTEM USING THE DEVICE AND METHOD OF MAKING THE DEVICE

Francis S. Genbauffe, Irwin, Pa., assignor to Robertshaw Controls Company, Richmond, Va.

Continuation of Ser. No. 482,181, Feb. 20, 1990, abandoned, which is a division of Ser. No. 288,761, Dec. 22, 1988, Pat. No. 4,921,161, which is a division of Ser. No. 192,337, May 10, 1988, Pat. No. 4,813,596. This application Apr. 8, 1991, Ser. No. 682,445

Int. Cl.[5] F23N *1/00*

U.S. Cl. 236—15 A **6 Claims**



1. In a method of making a fuel control device comprising the steps of providing a housing means having an inlet for being inteconnected with a fuel source and an outlet for being interconnected to a main burner means, forming said housing means with a main valve seat between said inlet and said outlet and with a thermostatically operated valve member for opening and closing said main valve seat, and forming said housing means to have an annular heater pilot valve seat surrounding said mean valve seat and being opened and closed by said thermostatically operated valve member at the same time that said thermostatically operated valve member is opening and closing said main valve seat, the improvement comprising the steps of forming said housing means to have an auxiliary fuel supply means for surrounding said heater pilot valve seat with an auxiliary flow of fuel at the same time that said thermostatically operated valve member is opening said main valve seat and said heater pilot valve seat, forming said housing means to have passage means for interconnecting said inlet to said auxiliary fuel supply means independently of said main valve seat, forming said housing means to have an axially movable selector shaft means for setting said thermostatically operated valve member, forming said shaft means to have a shoulder means, forming said valve member to have opening means passing therethrough and telescopically receiving said shaft means therethrough, disposing spring means to be carried by said shaft means and normally urege said valve member against said shoulder means, forming said shaft means to pass through said main valve seat and cooperate with said main valve seat and said opening means of said valve member to provide a by-pass flow of fuel from said inlet to said outlet when said valve member is closed against said valve seat, forming said shaft means to have an annular plate means carried thereby that cooperates with one side of said valve member to normally provide an annular space therebetween that provides part of said by-pass flow, forming said plate means to be adapted to close against said one side of said valve member when said valve member is seated against said valve seat so as to close said annular space, and formign said plate means to have an opening passing therethrough that cooperates with said main valve seat and said opening means of said valve member to provide a by-pass flow of fuel from said inlet to said outlet even when said annular space is closed, forming said spring means to comprise two separate compression springs, disposing one of said springs between said plate means and an abutment means on said control device, and disposing the other of said springs between said plate means and said valve member to normally hold said valve member against said shoulder means and spaced from said plate means to provide said annular space therebetween.

5,067,652

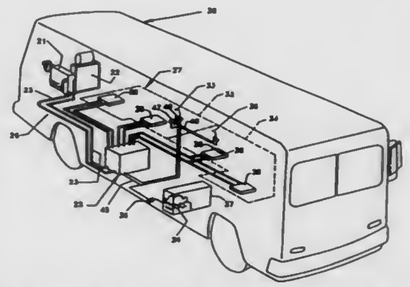
SUPPLEMENTAL VEHICLE HEATING METHOD AND APPARATUS WITH LONG HEATING CYCLE

Harold R. Enander, 23451 E. 156 Ave., Brighton, Colo. 80601

Division of Ser. No. 318,392, Mar. 2, 1989. This application Mar. 1, 1990, Ser. No. 486,686

Int. Cl.[5] B60H *1/02*

U.S. Cl. 237—81 **6 Claims**



1. A method of selecting heat transfer liquid for use in a burner of an auxiliary heating system, comprising the steps of:

determining the thermal output of said burner during a minimum operational cycle of said burner;

selecting heat transfer liquid having a thermal energy storage capacity equal to said thermal output of said burner; and

providing said heat transfer liquid in heat transfer relationship with said burner.

VOL 1132 ISS 4 NO 26

5,067,653

SCREEN FORMING APPARATUS AND METHOD

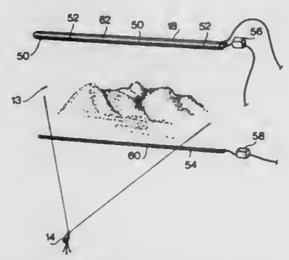
Toshimitsu Araki, Musashino; Fumihiko Kawamata, Chiba; Masayuki Ogino, Tokyo; Hitoshi Miyagawa, Kanagawa; Toshio Kamata, Tokyo; Mitsuo Watanabe, Funabashi, and Kunihiro Miyashita, Tokyo, all of Japan, assignors to Ishikawajima-Harima Heavy Industries Co., Ltd., Tokyo, Japan

Division of Ser. No. 337,009, Apr. 12, 1989, Pat. No. 4,974,779. This application Jun. 12, 1990, Ser. No. 536,812

Claims priority, application Japan, Apr. 14, 1988, 63-90410; Sep. 12, 1988, 63-226390; Jan. 31, 1989, 1-19809; Jan. 31, 1989, 1-19810; Feb. 3, 1989, 1-23816

Int. Cl.[5] B05B *1/04, 1/28, 15/04*

U.S. Cl. 239—18 **8 Claims**



8. Screen forming apparatus comprising:

a first pipe of a predetermined length;

a pump for conveying a working fluid under pressure to said first pipe;

a plurality of nozzles for ejecting working fluid so as to form a screen, said nozzles being placed along the longitudinal direction of said first pipe at predetermined intervals;

recovering means spaced from and facing said first pipe for recovering working fluid ejected from said nozzles; and

wherein said working fluid includes whitish, non-transparent gas.

5,067,654

PRESSURE WASHER

Clive R. Paige, Berkshire, England, assignor to Shop Vac Corporation, Williamsport, Pa.

Continuation of Ser. No. 297,620, Jan. 17, 1989, abandoned. This application Sep. 4, 1990, Ser. No. 577,801

Int. Cl.[5] F04B *49/00*

U.S. Cl. 239—124 **21 Claims**

1. A pressure washer for delivering liquid under pressure, the pressure washer comprising:

an outlet pressure spray nozzle for spraying liquid; an outlet conduit connected for delivering liquid eventually to the outlet pressure spray nozzle;

an inlet conduit for receiving liquid from a liquid supply;

at least one pumping means connected between the inlet conduit and the outlet conduit and operable for continuously pumping liquid from the inlet conduit to the outlet conduit;

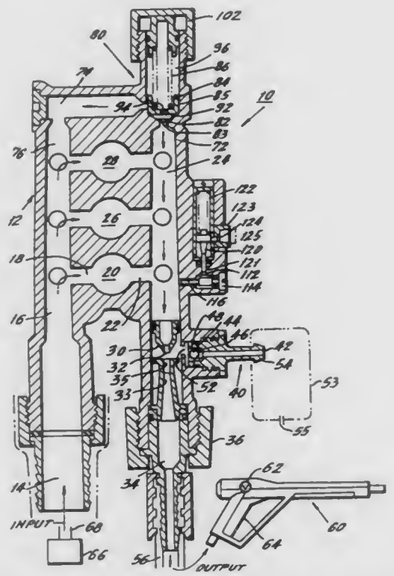
spray controlling means for selectively permitting exit of liquid pumped by the pumping means from the outlet conduit and through the pressure spray nozzle and for blocking exit of the continuously pumped liquid from the outlet conduit and through the pressure spray nozzle;

a flow recirculation bypass conduit connected between the inlet conduit and the outlet conduit in parallel to the connections to the inlet and the outlet conduits of each pumping means;

a bypass valve in the bypass conduit for selectively closing and opening the bypass conduit, the bypass valve including a bypass valve seat in the bypass conduit such that flow in the bypass conduit passes the bypass valve seat; a bypass valve element movable toward and liftable away from the bypass valve seat; the bypass valve element being so shaped and the outlet and bypass conduits being so positioned that the valve element may be raised up to a first distance off the bypass valve seat and still substantially block direct liquid flow between the outlet conduit and the bypass conduit;

the bypass valve element being shaped for defining a liquid leakage pathway past the bypass valve element and to an area outside the outlet and the bypass conduits, the liquid leakage pathway being of sufficient size that liquid flowing up to a first flow rate value can pass through the leakage pathway;

bypass biasing means for urging the bypass valve element toward the bypass valve seat at a force such that liquid flowing at a flow rate below the first flow rate value will not raise the bypass valve element more than the first distance to avoid opening communication between the outlet conduit and the bypass conduit;



the bypass valve element communicating through the bypass valve seat with the outlet conduit such that with the spray controlling means permitting exit of liquid through the pressure nozzle, the pressure in the outlet conduit is at most a first pressure and the flow pumped into the outlet conduit is divided between the pressure nozzle and flowing past the bypass valve element at a rate below the first flow rate value, and the bypass biasing means permitting the bypass valve element to lift away from the valve seat to permit flow below the first flow rate to pass along the leakage pathway, and such that with the spray controlling means blocking exit of liquid through the pressure nozzle, the pumped flow in the outlet conduit flows through the bypass valve seat at a rate greater than the first flow rate value and that flow sufficiently raises the bypass valve element off the bypass valve seat against the bias of the bypass biasing means to establish liquid flow communication from the outlet conduit into the bypass conduit and from there into the inlet conduit for recycling liquid back to the pumping means.

5,067,655

WHIRL NOZZLE FOR ATOMIZING A LIQUID

Zoltan Farago, Ravenstein-Merchingen, and Tom Schork, Adelsheim, both of Fed. Rep. of Germany, assignors to Deutsche Forschungsanstalt fuer Luft- und Raumfahrt, Fed. Rep. of Germany

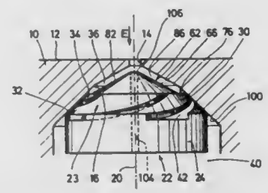
PCT No. PCT/EP88/01133, § 371 Date Sep. 20, 1989, § 102(e) Date Sep. 20, 1989, PCT Pub. No. WO89/05195, PCT Pub. Date Jun. 15, 1989

PCT Filed Dec. 9, 1988, Ser. No. 393,907

Claims priority, application Fed. Rep. of Germany, Dec. 11, 1987, 3742015

Int. Cl.[5] B05B *1/34*

U.S. Cl. 239—124 **15 Claims**



1. A whirl nozzle for atomizing a liquid comprising:

a whirl chamber rising above a whirl chamber bottom and tapering towards a nozzle outlet orifice opposite said whirl chamber bottom;

an external component comprising said nozzle outlet orifice and an adjoining recess extending along a central axis and exhibiting a larger cross-section as it progresses further,

said recess having wall surfaces forming the lateral area of a conical frustum which is coaxial with said central axis,

a frustoconical internal component insertable into said recess in a positively connected manner and having said whirl chamber bottom extending perpendicularly to said central axis so that said whirl chamber bottom and said wall surfaces of said recess lying between aid whirl chamber bottom and said nozzle outlet orifice form a whirl chamber wall delimiting said whirl chamber,

said wall surfaces of said recess forming a conical seating surface for said frustoconical internal component,

said conical seating surface having a smaller apex angle than a section of said whirl chamber wall adjoining said nozzle outlet orifice,

at least one whirl channel laterally offset in relation to said central axis of said whirl chamber and opening into said whirl chamber,

a whirl parameter of >1,

a displacement element rising above said whirl chamber bottom to prevent formation of an air core in a region of said whirl chamber near said bottom,

said displacement element being arranged concentrically with said central axis,

said displacement element comprising a section near said bottom having an external diameter corresponding to at least one diameter of said nozzle outlet orifice.

5,067,656

AIR VOLUME BOOSTER FOR SPRAYERS

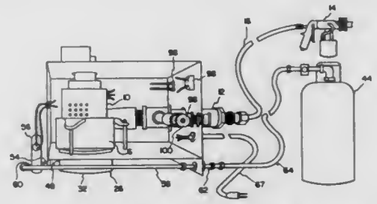
William H. Copp, Jr., 34-2 Sullivan Rd., North Billerica, Mass. 01862

Filed Mar. 15, 1990, Ser. No. 493,531

Int. Cl.[5] B05B *1/28;* **F04B** *23/00*

U.S. Cl. 239—290 **10 Claims**

1. An air supply system to provide a high volume of air at relatively low pressure having an air intake and an air outlet and a booster assembly to increase the volume of said relatively low pressure air at its said outlet, comprising first pressurized air supply means to provide a first supply of relatively low pressure air positioned between the said outlet and said intake of said air supply system, second pressurized air supply means comprising an air pressurizer and said booster assembly to provide a second supply of relatively low pressure air positioned between the said outlet and said intake of said air supply system, said booster assembly including volume-increasing-pressure-decreasing means to take in ambient air at atmospheric pressure while it takes in air at above atmospheric pressure from said air pressurizer to thereby increase the volume of air supplied by said booster assembly above that from said air pressurizer and lower the pressure of air supplied by said booster assembly below that from said air pressurizer, and coupling means to couple said first and second pressurizer air supply means together whereby the air discharged at said outlet is increased in volume to an extent greater than that provided by either said first pressurized air supply means or said second pressurized air supply means individually.



5,067,657

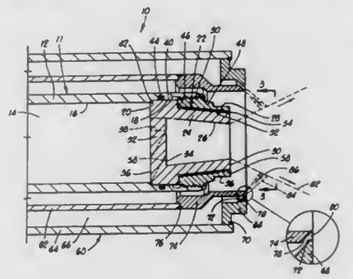
BURNER NOZZLE

Timothy M. Young, Copplee; Charles D. Coppedge, Enless; Charles S. McCasland, Westminster; and Joseph L. Pearce, Jr., Dallas, all of Tex., assignors to Halliburton Company, Duncan, Del.

Filed Nov. 1, 1989, Ser. No. 431,050

Int. Cl.[5] B05B *7/10*

U.S. Cl. 239—403 **5 Claims**



1. A petroleum burner nozzle comprising:

a tube portion defining a central opening therein and connectable to a fluid source;

a nozzle insert disposed in said central opening of said tube portion and comprising:

a substantially conical nozzle portion; and

a wall portion integrally formed with said nozzle portion and extending substantially perpendicular to a central axis of said tube portion, said wall portion defining a plurality of fluid inlet ports therethrough in communication with said nozzle portion;

fastening means for holding said insert in place, said fastening means being disposed radially outwardly of said insert and being characterized by a nut having a substantially conical inner surface; and

sealing means for sealing between said insert and said tube portion.

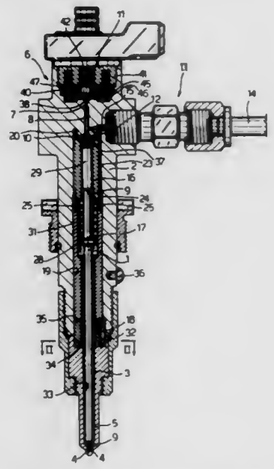
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,658

DIESEL ENGINE ELECTROMAGNETIC FUEL INJECTOR

Sisto L. De Matthaeis, Modugno, and Mario Sfarzetta, Palo Del Colle, both of Italy, assignors to Weber S.r.l., Turin, Italy

Filed Feb. 27, 1990, Ser. No. 485,574
Claims priority, application Italy, Feb. 28, 1989, 67134A/89
Int. Cl.[5] F02M *51/00*
U.S. Cl. 239—533.8 5 Claims



1. A diesel engine electromagnetic fuel injector comprising:

a plunger sliding inside an injector body, for controlling fuel passage between an injection chamber, supplied with the fuel under pressure, and at least one injection orifice formed in an injection nozzle secured to said body;

an electromagnetic fuel metering valve for controlling fuel passage, through a drain orifice, between a control chamber, supplied with the fuel under pressure, and a low-pressure chamber, also as to reduce the pressure of the fuel in said control chamber by draining the fuel through said drain orifice; and

a plurality of sleeves including a top sleeve, and intermediate sleeve, and a bottom sleeve, said intermediate sleeve housing a spring coaxial with said plunger and designed to secure said plunger in a position wherein said plunger closes said injection orifice;

surface portions of said plunger being exposed to the fuel inside said injection chamber and said control chamber, so that the pressures inside said chambers and acting on said surface portions displace said plunger when the pressure in said control chamber falls to a given valve;

said fuel under pressure being supplied to said injection chamber and said control chamber by means of a single fitting connected to a supply pipe a supply orifice said fitting communicating with form in said body, said supply orifice B, communicating with said control chamber and with a supply duct for feeding fuel into said injection chamber;

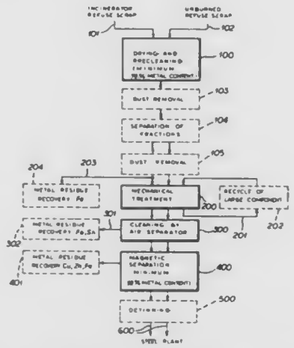
said duct for supplying fuel to said injection chamber comprising an annular cavity formed in said body, coaxial with an axial hole formed in said body and inside which said plunger slides axially, and said fuel supply orifice terminating inside said annular cavity; an axial groove formed in said top sleeve; a first annular chamber formed between said tap and intermediate sleeves and said body; and at least one radially hole formed in said intermediate sleeve.

5,067,659

METHOD OF TREATING REFUSE SCRAP

Evert Heeren, Weener, and Hans Gotthelf, Schwerte, both of Fed. Rep. of Germany, assignors to Hoesch Werke AG, Dortmund, Fed. Rep. of Germany

Continuation of Ser. No. 785,098, Oct. 4, 1985, abandoned, which is a continuation of Ser. No. 544,403, Oct. 21, 1983, abandoned. This application Aug. 13, 1990, Ser. No. 566,842
Claims priority, application Fed. Rep. of Germany, Oct. 22, 1982, 3239135
Int. Cl.[5] B02C *23/08*
U.S. Cl. 241—19 6 Claims



1. A method of converting municipal refuse into a product suitable for use as iron scrap in a blast furnace, said method comprising in the following order the steps of:

(a) processing the municipal refuse in a waste-treatment plant by classifying and comminuting the refuse, thereby producing treated refuse scrap;

(b) drying and precleaning said treated refuse scrap sufficiently such that a scrap product whose metal content is in excess of 70% by weight is produced;

(c) mechanically comminuting and abrading said scrap product with a shredder operating at about 60% to 70% maximum capacity, thereby reducing the scrap product to particles and also simultaneously removing material of metallic surfaces of the particles by rubbing the particles together;

(d) air separating said particles, thereby producing a heavy product and a light product;

(e) magnetically separating said heavy product thereby recovering a magnetically separable particle fraction having a metal content of at least 90% by weight and a bulk density of at least 1.0 ton/m^3; and

(f) introducing said magnetically separable particle fraction into the blast furnace as iron scrap.

5,067,660

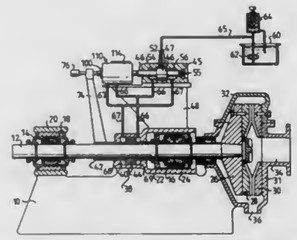
STRESS REGULATOR FOR PULP GRINDING APPARATUS AND METHOD

Rolf B. Reinhall, Bellevue, Wash., assignor to Sunds Defibrator AB, Sundsvall, Sweden

Continuation of Ser. No. 425,347, Sep. 27, 1989, abandoned, which is a continuation of Ser. No. 228,526, Aug. 4, 1988, abandoned. This application Oct. 15, 1990, Ser. No. 598,796
Int. Cl.[5] B02C *7/14*
U.S. Cl. 241—37 19 Claims

1. In a grinding apparatus having a pair of opposed relatively rotatable grinding surfaces defining a grinding space therebetween, a servo mechanism for adjusting said grinding space, and first means coupled to said servo mechanism for actuating said servo mechanism, said first means including a pilot element fixedly mounted relative to said servo mechanism and a set screw for adjusting a preset distance between said grinding surfaces, said set screw being movable with said servo mechanism, and said first means having a central axis, the improvement comprising:

second means for actuating said servo mechanism comprising a regulator including a resilient element and a regulator piston driven by said resilient element, said regulator piston having a central axis, and said regulator being disposed between said pilot element and said set screw of said first means,



said regulator piston being coupled to said first means and oriented therewith such that said central axis of said first means is aligned with said central axis of said regulator piston, for conjoint movement of said regulator piston and said first means in the same direction, said movement of said regulator piston corresponding to displacement of at least one of said grinding surfaces,

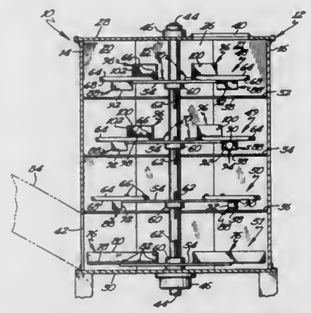
said regulator adapted to maintain said grinding space between said grinding surfaces at said preset distance.

5,067,661

MILL FOR GRINDING GARBAGE OR THE LIKE

Russel L. Eide, Mondovi, Wis., assignor to Light Work Inc., New Underwood, S. Dak.

Filed Jul. 10, 1989, Ser. No. 377,712
Int. Cl.[5] B02C *13/09*
U.S. Cl. 241—55 19 Claims



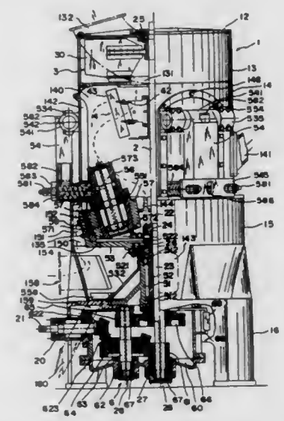
1. Mill for processing material such as garbage comprising, in combination: a housing defining a grinding chamber having an inlet opening and an outlet opening; a plurality of substantially planar shelves secured in the housing and dividing the grinding chamber into sections, with each of the planar shelves including a centrally located aperture having a size; a shaft rotatably mounted in the grinding chamber and concentrically within the centrally located apertures of the planar shelves; a plurality of grinding rotors rotatably fixed to the shaft and located complementary to and intermediate the inlet opening and the plurality of planar shelves, with each of the rotors comprising a planar disc of a size smaller than the centrally located aperture of the planar shelf and a plurality of planar arms rotationally fixed to and extending radially from the planar disc and circumferentially spaced from each other, with the radial extent of the planar arms extending past the centrally located apertures of the planar shelf and over the planar shelf so that the material passing beyond the radial extent of the planar arms passes between the radial extent of the planar arms and the housing and between the planar arms and the planar shelves before passing through the centrally located apertures of the planar shelves, with the planar disc and planar arms being parallel to the planar shelf; an impeller rotor rotatably fixed to the shaft and located intermediate the plurality of grinding rotors and the outlet opening, with the impeller rotor creating a windage for blowing the ground material from the grinding rotors out the outlet opening; and means on the grinding rotors for creating a downward movement of air towards the impeller rotor for enhancing the creation of a vacuum by the impeller rotor and the movement of light weight ground material around and between the arms of the grinder rotors and through the centrally located apertures of the shelves through the mill.

5,067,662

BOWL TYPE GRINDING MILL

Shien F. Chang, 150 West 51st, Suite 806, New York, N.Y. 10019

Continuation-in-part of Ser. No. 348,028, May 4, 1989, abandoned, which is a continuation-in-part of Ser. No. 316,160, Feb. 28, 1989, abandoned. This application Jun. 28, 1990, Ser. No. 545,032
Int. Cl.[5] B02C *23/30*
U.S. Cl. 241—56 8 Claims



1. A grinding mill comprising a mill cylinder, a vertically mounted main shaft coupled at the lower end to a motor mounted on the lower side of the mill cylinder to be driven thereby and extending along the axis of the mill cylinder, and means mounted in descending order on the main shaft including a finished product conveying means, a classifying means, a grinding roller means and a decelerating means, a fixed sleeve fixed on the bottom of the mill cylinder to support a rotary bushing by means of bearings, a circular seat portion and a support seat fixed to the upper end of the rotary bushing, wherein the support seat is fixed with a grinding ring, a plurality of grinding rollers are rotatably provided inward of the grinding ring, a clearance is formed between the grinding ring and the grinding rollers, wherein a plurality of radially extended sweeping sheets are provided outside of the circular seat portion for sweeping the material fallen upon it away from the mill, and wherein an air inlet duct is provided at the inner surface of the mill cylinder for directing air into a grinding chamber, wherein the grinding roller means is provided at a

VOL 1132 ISS 4 NO 26 1991 UMI

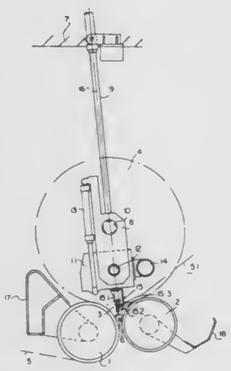
central section of the mill cylinder, characterized in that at least one inspection door is provided on the mill cylinder, the inspection door is hingedly secured with a grinding roller support plate which extends radially inwardly from outside of the inspection door for supporting the grinding roller, a pressurizing means is provided on the grinding roller support plate.

5,067,663

DRUM-TYPE WINDER FOR WINDING WEBS OF MATERIAL

Hartmut Dropczynski, Dormagen, Fed. Rep. of Germany, assignor to Jagenberg Aktiengesellschaft, Dusseldorf, Fed. Rep. of Germany

Filed Jan. 24, 1990, Ser. No. 469,621
Claims priority, application Fed. Rep. of Germany, Feb. 16, 1989, 3904598
Int. Cl.[5] B65H *19/20*
U.S. Cl. 242—56 R 6 Claims



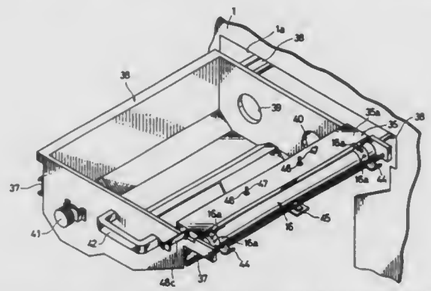
1. A drum-type winder comprising:
a stationary frame;
a pair of winding drums defining a space therebetween for accommodating a core onto which a web of material is wound into a roll;
a pair of vertically movable cheeks carried by the frame and positioned above said space, the pair of cheeks being spaced apart on opposite sides of the web and being rotatably connected together by a shaft;
a piston and cylinder unit connected to the pair of cheeks for raising and lowering the cheeks into and out of said space;
an arm having at least two sides pivotably connected between the pair of cheeks;
a pressure-application roller secured to one side of the arm;
a mechanism for separating the web from a wound roll and fastening the newly-created initial web section to a new core, the separating and fastening mechanism being secured to another side of the arm; and
means for alternately pivoting the pressure-application roller and the separating and fastening mechanism about a pivot axis parallel to the shaft whereby the pressure-application roller and the separating and fastening mechanism are alternatively introduced into said space by actuation of the pivoting means.

5,067,664

PHOTOSENSITIVE SHEET POSITIONING DEVICE

Kazuhiro Matsuyama, Ikoma, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 7, 1990, Ser. No. 489,490
Claims priority, application Japan, Mar. 7, 1989, 1-25637
Int. Cl.[5] B65H *16/00*
U.S. Cl. 242—67.2 6 Claims



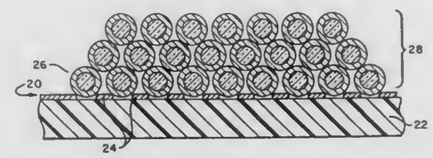
1. A photosensitive sheet positioning device used in an image forming apparatus provided with a removable photosensitive sheet unit having a front side wall and a rear side wall and capable of containing a photosensitive sheet wound in a roll, a leader sheet attached to a leading edge of the photosensitive sheet, forwarding holes formed in a line inward from each of the longitudinal sides of the leader sheet, and a forwarding roller having a portion near each end, each of the portions having an outer circumferential surface from which forwarding pins radially protrude, the forwarding pins being successively fitted into the forwarding holes to control the forwarding direction of the photosensitive sheet, comprising:
fastening holes formed on a forefront portion of the leader sheet spaced from said forwarding holes toward a center of said leader sheet; and a fastening pin assembly operatively mounted between said roll of said photosensitive sheet and said forwarding roller to restrict the motion of the leader sheet by selectively engaging said fastening holes.

5,067,665

BASE LAYER FOR AN OPTICAL FIBER WOUND PACK

Gregory LoStracco, and George W. LeCompte, both of Tucson, Ariz., assignors to Hnghes Aircraft Company, Los Angeles, Calif.

Filed Nov. 13, 1990, Ser. No. 611,811
Int. Cl.[5] B65H *75/18, 75/10*
U.S. Cl. 242—118.32 14 Claims



1. A winding form on which a filament pack is wound for properly positioning the individual turns in the innermost layer of said pack, comprising:
a mandrel having a smooth outwardly directed peripheral surface;
a flexible sheetlike support means having flat smooth opposite major surfaces one of which is disposed in intimate contacting relation with the mandrel smooth outwardly directed peripheral surface;
a plurality of parallel spaced apart guides on an outwardly direct major surface of said support means defining spaces

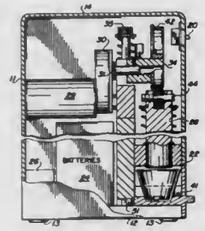
therebetween for receiving a first layer of the filament wound within said spaces.

5,067,666

PORTABLE PILL CRUSHER

David P. Sussman, 7356 E. Pheasant Run, Scottsdale, Ariz. 85258

Filed Jan. 3, 1991, Ser. No. 637,181
Int. Cl.[5] B02C *1/00*
U.S. Cl. 241—36 8 Claims



1. A portable pill crusher comprising in combination: a housing; a pill receptacle moveable into and out of said housing and adapted to secure a pill therewithin; a pill disposed in said container; motor means operatively mounted in said housing and selectively activatable to produce a power output; cam means mounted in said housing to enable the perimeter thereof to provide an eccentric path of rotation, ram means being operatively associated with said cam means and reactive to said perimetric path of eccentric rotation of said cam means to reciprocate within said housing into and out of said receptacle disposed axially therebeneath; and spring means circumscribing said ram means to constantly urge said ram means in an upward direction and, when said cam means disengages said ram means, force said ram means into its uppermost position.

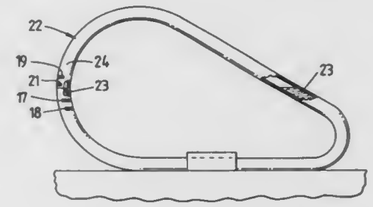
5,067,667

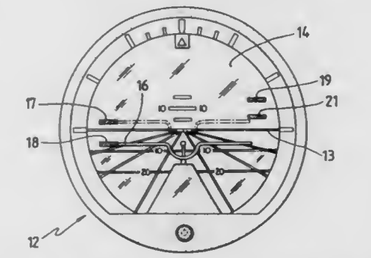
AIRCRAFT OPTIMIZATION INDICIA AND THE USE THEREOF

Charles B. Shivers, Jr., 816 S. 82nd St., Birmingham, Ala. 35203

Filed Jul. 23, 1990, Ser. No. 556,829
Int. Cl.[5] G01C *21/00;* G01D *13/24*
U.S. Cl. 244—1 R 12 Claims

1. Apparatus for providing visual cues to an aviator in an aircraft to indicate proper pitch values in descent and ascent comprising, in combination with an artificial horizon indicator:
(a) first indicating means detachably affixable proximal said artificial horizon indicia for indicating pitch at zero sink perceived by the aviator in a power off glide;
(b) second indicating means detachably affixable proximal said artificial horizon indicia for indicating pitch at stall in a power off glide; such that said aviator may adjust the power supplied to his aircraft to maintain level flight with said artificial horizon indicia aligned with said first means to achieve maximum range or with said artificial horizon





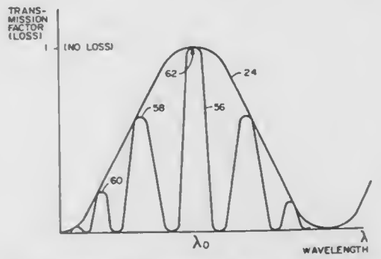
indicia centered between said first and second means to achieve maximum endurance.

5,067,668

COMPOUND HELICOPTER WITH NO TAIL ROTOR

Daniel R. Zuck, Sylmar, Calif., assignor to Y&B Investment Corporation, Sylmar, Calif.

Division of Ser. No. 161,714, Feb. 29, 1988, Pat. No. 4,928,907.
This application Jan. 17, 1990, Ser. No. 466,242
Int. Cl.[5] B64C *27/22*
U.S. Cl. 244—7 R 10 Claims



1. In combination a compound helicopter comprising a fuselage with left and right interconnected lifting wings on a horizontal axis for rotation by aerodynamic means and ailerons, and linkage means against differential wing rotation responsive to the direction of vertical airflow for yaw control and a lifting rotor, a fuselage body with a small diameter aft extending tail boom, the aft extended tail boom having an aerodynamically streamlined fairing vertically downward tilted at an angle vertically in a direction to produce aerodynamic anti-torque directional moments in the vertical downflow of the air from the rotor for transitioning to airplane mode.

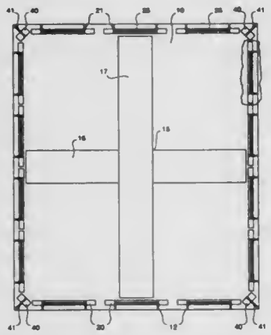
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,669

PORTABLE LANDING ZONE FOR HELICOPTERS

Jesse A. Van Horn, Alexandria, Ind., and Linda L. Van Horn, Yule Apts., D-30, Alexandria, Ind. 46001, assignors to Linda L. Van Horn, Alexandria, Ind.

Filed Jan. 2, 1991, Ser. No. 636,889
Int. Cl.[5] B64F *1/00*
U.S. Cl. 244—114 R 12 Claims



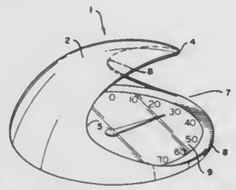
1. Portable helicopter landing zone, comprising:
a generally rectangular flexible sheet having an upper surface;
a flexible sheet target;
means for attaching said sheet target to said upper surface;
a plurality of bar masses;
four bag masses;
means for removably attaching said bar masses to said sheet so that said bar masses are disposed in contact with said upper surface and proximate to and generally parallel with the edges of said sheet; and
means for removably attaching said bag masses to said sheet so that said bag masses are disposed in contact with said upper surface and one of said bag masses is disposed proximate to each corner of said sheet.

5,067,670

FLIGHT TRAINING DEVICE FOR AIRCRAFT

Michael Radcliffe, 720 Ranas St., Elko, Nev. 89801

Filed Aug. 8, 1990, Ser. No. 564,066
Int. Cl.[5] B60K *37/06;* B62D *25/14*
U.S. Cl. 244—119 6 Claims



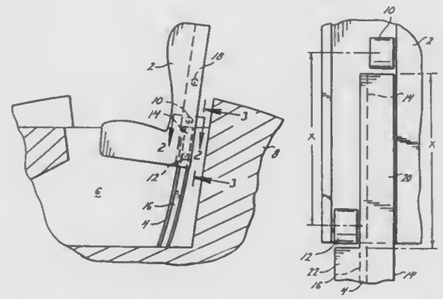
1. A controlled visibility device for mounting on an instrument panel of an aircraft to control the vision of a pilot operating the aircraft and to simulate failure of one or more instruments, comprising:
a substantially planar base having an open area and adapted to be mounted over an individual instrument on an aircraft instrument panel; and,
a dome having a planar lower rim affixed to said base, said dome having an opening on a lateral side, said opening having a sufficiently large projected area to permit viewing substantially the entire inner circumferential portion of the base from a position adjacent the opening.

5,067,671

ANTI TIP-OFF EJECTION RAILS

Robert G. McIntyre, Manhattan Beach, and Brad Mastrolia, Buena Park, both of Calif., assignors to McDonnell Douglas Corporation, Long Beach, Calif.

Filed Feb. 26, 1990, Ser. No. 498,394
Int. Cl.[5] B64D *11/06, 11/112*
U.S. Cl. 244—122 AH 16 Claims



1. A structure that guides an ejection seat out of a vehicle, comprising:
a) at least one first guide attached to said ejection seat at a predetermined point;
b) at least one second guide attached to said ejection seat at a point which is lower than said predetermined point by a predetermined distance; and
c) at least one rail attached to said vehicle, said rail having a first channel and a second channel, said first guide residing within said first channel and said second guide residing within said second channel, said first and second guides being adapted to travel along said first and second channels respectively, and to exit from said channels at the ends of said channels, the end of said first channel being at a distance from the end of said second channel approximately equal to the predetermined distance that separates said first and second guides, such that when said ejection seat travels along said rail, said first and second guides disengage from said first and second channels essentially simultaneously.

5,067,672

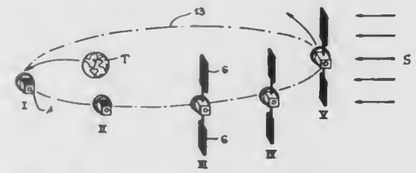
METHOD OF PLACING A GEOSTATIONARY TELECOMMUNICAITON SATELLITE IN ORBIT

Charles Bouzat, Ramonville, France, assignor to Alcatel Espace, Courbevoie, France

Filed Apr. 24, 1990, Ser. No. 514,063
Claims priority, application France, Apr. 24, 1989, 89 05403
Int. Cl.[5] B64G *1/20*
U.S. Cl. 244—158 R 8 Claims

1. In a method of placing a geostationary telecommunication satellite having a steerable payload mounted on a platform in a circular final orbit comprising the following successive steps:
injecting the satellite in a three-axis stabilized attitude substantially corresponding to an apogee maneuver attitude into an elliptical transfer orbit;
powering up an inertia momentum wheel;

eliminating aiming errors;
preparing for apogee maneuver into the circular orbit by powering up the inertia momentum wheel with the rotation of the axis of the momentum wheel aligned with the thrust axis of an apogee thruster to a speed sufficient to obtain gyroscopic stiffness;
pointing a configuration comprising said platform at all times towards the sun and steering said payload on said platform at all times pointed towards the earth;



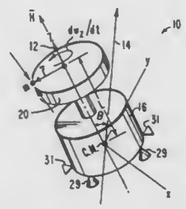
at least partially deploying the solar panels of a solar generator;
eliminating angular speeds by reducing the nutation;
carrying out at least one apogee burn near the apogee of the transfer orbit with the satellite orientation controlled during the apogee burn to obtain final circular orbit; and
when the final circular orbit is achieved, after one or more apogee burns, allowing the satellite to drift in the conventional way into its final orbital position.

5,067,673

ESSENTIALLY PASSIVE METHOD FOR INVERTING THE ORIENTATION OF A DUAL SPIN SPACECRAFT

Herbert S. Fong, Rancho Palos Verdes, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Feb. 7, 1990, Ser. No. 477,274
Int. Cl.[5] B64G *1/28, 1/24*
U.S. Cl. 244—165 13 Claims



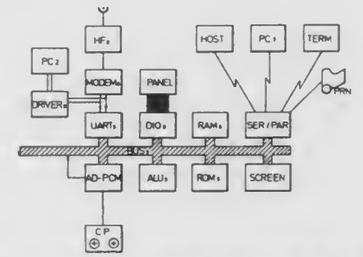
1. A method for at least substantially inverting the orientation of a dual spin spacecraft, the spacecraft including a gyroscopic spinning rotor rotatably coupled via a despin motor and bearing assembly to a despun platform, the spin axis of the spacecraft being its minimum moment of inertia axis, the method including the steps of:
determining whether or not said spacecraft is nutationally stable, and practicing the remaining steps only if it is determined that said spacecraft is nutationally stable;
controlling said despin motor in such a manner as to accelerate rotation of said despun platform and decelerate rotation of said rotor, to thereby generate, via product of inertia coupling, a transverse torque perpendicular to said spin axis;
wherein said transverse torque is of sufficient magnitude to temporarily destabilize said spacecraft and cause said spin axis to diverge and precess towards a flat spin orientation, whereby said spacecraft spin axis becomes the maximum moment of inertia axis of said spacecraft; and,
continuing to practice said controlling step, to thereby cause said spacecraft spin axis to precess through said flat spin orientation towards a final, inverted orientation.

5,067,674

CONTROL SYSTEM FOR REMOTE CONTROLLED AIRCRAFT

Albert Heyche; Alain Latteur, and Philippe Dekoninck, all of Brussels, Belgium, assignors to Vigilant, Ltd., St. Helier, United Kingdom

Filed Dec. 4, 1990, Ser. No. 621,994
Claims priority, application France, Dec. 4, 1989, 89 16088
Int. Cl.[5] B64C *13/20;* F41G *7/30*
U.S. Cl. 244—190 4 Claims



1. A system for controlling a remote controlled aircraft equipped with servomotors for carrying out different functions, said system comprising a substructure for piloting from a distance and an on-board apparatus mounted on the aircraft,
said piloting substructure comprising:
a piloting console (CP) adapted to deliver analog piloting signals,
an analog/digital conversion unit (A/D-PCM) for converting said piloting signals into digital data,
a volatile memory unit (RAM_s) for storing the digital data,
a central computing unit (ALU_s) for carrying out logical operations on the stored data according to predetermined operating programs,
a non-volatile memory unit (ROM_s) containing the operating programs for the central unit (ALU_s),
an asynchronous communication module ($UART_s$)adapted to transform the data issued from the computing unit into a serial signal, and for converting a serial signal received and loading the corresponding data into an internal register accessible by the central unit (ALU_s),
a modulation/demodulation unit ($MODEM_s$) adapted to modulate the serial signal issued from the module ($UART_s$) and demodulate the modulated signals and transmit them to said module ($UART_s$),
a radio transmitting/receiving module (HF_s) for amplifying and transmitting the modulated signals issued from the unit ($MODEM_s$) and receiving the modulated signals emitted by the on-board apparatus,
a binary input/output port (DIO_s) driven or controlled by the central unit (ALU_s),
a set of binary actuators and sensors (PANEL) states directed or controlled by the port (DIO_s),
a series/parallel communication module (SER/PAR) adapted to provide exchanges of data between the central unit (ALU_s) and the peripherals, in particular a personal computer (PC_1), a pocket terminal (TERM), a printer (PRN), a host computer (HOST),
said on-board apparatus comprising:
a radio transmitting/receiving module (HF_e), forming with the module (HF_s) a hertzian bundle, and adapted to transmit and receive modulated signals,
a modulation/demodulation unit ($MODEM_{em}$) adapted to modulate a serial signal and transmit it to the module (HF_e), and the demodulate the signals coming from this module (HF_e),
an asynchronous communication module ($UART_{em}$) adapted to transform data into a serial signal and trans-

VOL 1132 ISS 4 NO 26 1991 UMI

mit the same toward the unit ($MODEM_e$), and for converting the serial signal from the unit ($MODEM_e$) and loading the corresponding data into an internal register,

a volatile memory unit (RAM_{em}) for storing the digital data,

a central computing unit (ALU_{em}) for providing logical operations on the stored data, said unit having access to the internal register of the module ($UART_{em}$),

a non-volatile memory unit (ROM_{em}) containing the operating programs for the central unit (ALU_{em}),

a digital/analog conversion unit (D/A-PCM) adapted to generate a composite analog command signal from the data treated by the computing unit,

a demodulator (DEM) adapted to receive the aforementioned composite signal and deliver to each servo-motor of the aircraft a simple analog signal understandable thereby,

a binary input/output port (DIO_{me}) commanded or controlled by the central unit (ALU_{me}),

an assembly of binary actuators and sensors (DACT) having states ordered or controlled by the port (DIO_{me}),

an assembly of sensors (IMAG) comprising in particular inclinometers, a magnetometer, accelerometers, gyrometers, an altimeter, a speed indicator, tachometer, a fuel gauge, alternator load indicator, able to furnish analog signals representative of the position, operation and internal parameters of the aircraft,

a multichannel analog/digital convertor (A/D_e) for converting the analog signals from the sensors (IMAG) into digital data and placing the data into the memory unit (RAM_{em}),

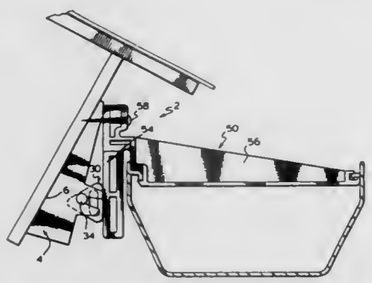
a universal interface (UPI) for providing exchanges of data between the central unit (ALU_{me}) and the peripherals (AUX), in particular an auxiliary processor.

5,067,675

FASCIA ANGLE ADAPTER FOR AN EAVESTROUGH SYSTEM

Anthony W. Brant, Minesing, Canada, assignor to GSW Inc., Canada

Filed Aug. 13, 1990, Ser. No. 565,970
Int. Cl.[5] E04D *13/06*
U.S. Cl. 248—48.2 **20 Claims**



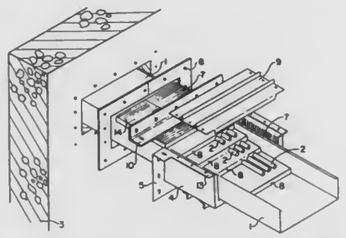
1. A fascia angle adapter for an eavestrough system comprising a base member having a fascia engaging surface and a second surface opposite said fascia engaging surface adapted to support a mounting base of an eavestrough hanger, said fascia engaging surface and said second surface being angled to define a shallow wedge, said component further including an eccentric cam rotatably supported by said base member and projecting forwardly of said second surface, said cam being rotatable within said base member to various positions to define a support surface for an eavestrough hanger.

5,067,676

SYSTEM FOR THE PREVENTION OF FIRE, WATER OR FLUE GAS AND THE LIKE FROM PROPAGATING ALONG CABLES

Johannes A. Beele, Ke Opmeer, Netherlands, assignor to CSD International B.V., Opmeer, Netherlands

Filed Apr. 10, 1990, Ser. No. 507,268
Int. Cl.[5] F16L *5/00*
U.S. Cl. 248—56 **12 Claims**



1. A safety chute system for the prevention of fire, water, or gas from propagating along cables contained in an open top channel shaped lead-through chute passing through a wall, said safety chute system comprising:

(a) an open top channel shaped housing positioned in spaced surrounding relation with said lead-through chute externally of said wall and with the open top of the lead-through chute facing outwardly of the open top of the safety chute;

(b) at least one sealing body of fire resisting material removably positioned in the space between the two chutes; and

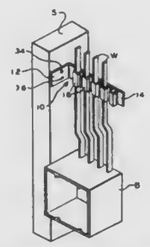
(c) cover means for covering the open top of the safety chute to fully enclose the lead-through chute therein.

5,067,677

WIRE HARNESS

Edward Miceli, 595 Lake Pochung Rd., Sussex, N.J. 07461

Filed Dec. 14, 1990, Ser. No. 627,248
Int. Cl.[5] F16L *3/22*
U.S. Cl. 248—68.1 **19 Claims**



1. A wire harness for supporting wires from a face of a stud between two external surfaces of a wall, comprising:

a plurality of wire clips having a plurality of barriers spaced for embracing therebetween one or more of said wires; and

an L-shaped bracket having two perpendicular arms, said plurality of wire clips being mounted on one of said arm, the other one of said arms having

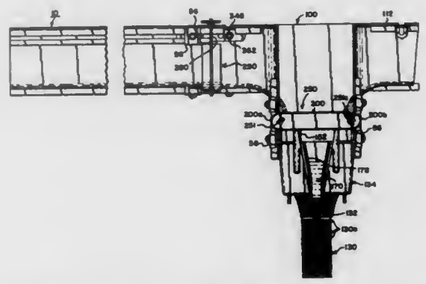
mounting means for securing said bracket to the face of said stud, said mounting means being arranged to align said clips in a row that lies in a plane perpendicular to the face of said stud at a central location between said external surfaces of said wall, said mounting means being arranged to set said row perpendicular to the face of said stud, said plurality of clips each having an opening axis aligned to support each of the wires in a direction that is mutually orthogonal to the length of said arms of said bracket.

5,067,678

OPTIC CABLE MANAGEMENT SYSTEM

Roy L. Henneberger, Eagan; Ronald M. Weitnauer, Excelsior, and Wayne A. Johnson, Rosemount, all of Minn., assignors to ADC Telecommunications, Inc., Minneapolis, Minn.

Filed Jul. 31, 1989, Ser. No. 387,978
Int. Cl.[5] H02G *3/04*
U.S. Cl. 248—68.1 **9 Claims**



1. A cable routing system comprising:

a plurality of troughs having a plurality of walls, cooperating to define a cable pathway;

said trough having at least one attachment member secured to at least one of said plurality of walls;

said attachment member having cooperating surfaces sized to receive a mounting bracket of predetermined dimensions;

said attachment member extending along the length of said wall, with said member selected to present said cooperating surfaces at any one of a plurality of locations along a longitudinal dimension of said wall;

a take-off union having a main body portion with first wall means defining a body cable pathway extending between first and second body ends;

attachment means for attaching said body ends to said trough, with said body cable pathway connecting a cable pathway of said trough,

said main body having second wall means defining an outlet in communication with said body cable pathway;

a flexible conduit having at least a first free end;

attaching means for attaching said first free end to said outlet, with said conduit disposed to receive a cable, said attaching means including inner wall means opposing said second wall means, said conduit disposed with said first free end between said inner and second wall means with an exterior of said conduit opposing said second wall means and with said inner wall means opposing an interior of said conduit, means for urging said inner wall means toward said second wall means whereby said conduit is captures between said inner and second wall means.

5,067,679

FLEXIBLE WASTE HOSE SUPPORT FOR RECREATIONAL VEHICLES

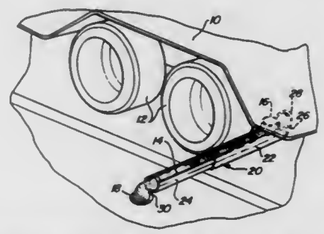
Charles H. Courtney, 2970 Gardner, Berkley, Mich. 48072

Filed Dec. 6, 1990, Ser. No. 623,198
Int. Cl.[5] A62C *13/76*
U.S. Cl. 248—75 **25 Claims**

1. A flexible waste hose support comprising:

a first trough-like member having a first end and a second end, said first trough-like member including integral tracks formed along substantially the entire length at its upper edges;

a second trough-like member having a first end and a second end, wherein said first trough-like member receives said second trough-like member at the second end of the first trough-like member and the first end of the second trough-like member in a telescoping fashion such that the upper edges of the second trough-like member engage within the integral tracks in a friction fit;



hoop means secured proximate to the first end of said first trough-like member for connecting said first end of said first trough-like member to a vehicle proximate a waste outlet of said vehicle; and

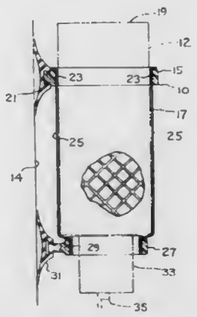
a wire hook rigidly connected to a bottom portion of the second trough-like member proximate the second end of the second trough-like member.

5,067,680

SHAMPOO BOTTLE SUPPORT DEVICE

Wayne C. Miller, 5745 Whitman Ter., Pennsauken, N.J. 08109

Filed Jan. 30, 1991, Ser. No. 648,029
Int. Cl.[5] A47K *1/08*
U.S. Cl. 248—311.3 **2 Claims**



1. A device for suspending a squeeze bottle of liquid hair shampoo upside down on a shower wall: said device comprising an upper annular circular ring adapted to encircle a squeeze bottle; a first single suction cup extending laterally from said upper ring for suction engagement with a shower wall; a lower annular circular ring adapted to encircle the neck area of a squeeze bottle, said lower ring having a smaller diameter than said upper ring so that the circumscribed bottle cannot slip downwardly through the rings; a second single suction cup extending laterally from said lower ring for suction engagement with a shower wall; and a flexible open-ended tubular sock extending between the two rings to encircle a squeeze bottle; the flexibility of the sock being such that a person can apply a squeeze pressure through the sock and onto the bottle, thereby causing liquid shampoo to be discharged downwardly out of the bottle; said flexible open-ended sock being formed of an open mesh fabric material such that the shampoo bottle is visible through the sock.

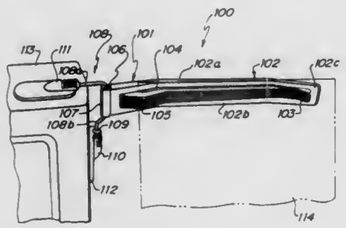
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,681

COPY HOLDER

Ali Huang; Philips Tsai, and Bonbo Chen, all of Taipei, Taiwan, assignors to Acer Incorporated, Hsin Chu, Taiwan

Filed Dec. 13, 1989, Ser. No. 450,000
Int. Cl.[5] A47F *37/14*
U.S. Cl. 248—442.2 5 Claims



1. A holder for holding at least one sheet of paper in an upright position for exhibiting the information contained thereon, said holder comprising:

an elongated clip adapted for clipping an end of the sheet of paper thereto, said elongated clip having, a first end and a second end, said first end forming a cylinder, said cylinder having an axis and being split along a substantially axial direction to form an opening; and

supporting means for supporting said elongated clip, said supporting means including a rod being removably inserted into said cylinder via said opening, said supporting means comprising:

a first attachment member connected to a first end of said rod and adhering to a first surface, and

a second attachment member connected to a second end of said rod and adhering to a second surface, said first end of said rod being substantially perpendicular to said second end of said rod.

5,067,682

BOOK HOLDER

Davy J. Figaro, 9304 Ferguson Ct., Sebastopol, Calif. 95472

Filed Jul. 10, 1989, Ser. No. 377,261
Int. Cl.[5] A47B *97/04*
U.S. Cl. 248—453 7 Claims

1. A reading stand for supporting reading material in a position for examination comprising:

(a) a swinging-assembly of sufficient rigidity and size to support up to almost any size of reading material, said swinging-assembly being substantially "L" shaped and having a horizontal book-support element and a vertical-swing element;

(b) clip means located on an end of said horizontal book-support away from said vertical-swing element to provide pressure on the pages of an open book;

(c) a stand having one front panel or face with upper and lower ends for receiving said swinging-assembly, said stand being at an angle with respect to a horizontal surface;

(d) pivotal attachment means attached on the end of said vertical-swing element away from the book-support element, and to the upper end of said front panel or face wherein the vertical-swing can swing closer and further to said face, and such that said book support lies below the lower end of the face, and protudes in front of said face at a substantially perpendicular angle during the entire swing;

(e) tension means between said clip means and said book support means for applying a closing force on said clip;

(f) wherein the reading material may be placed with its backside leaning against the front of said face, with the bottom of the reading material upon the book-support,

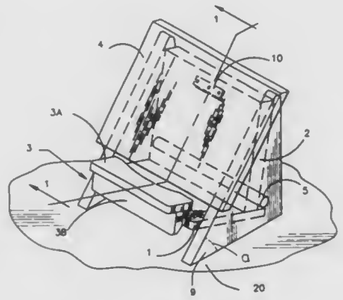
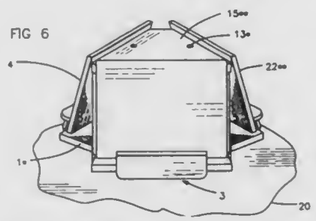


FIG 6



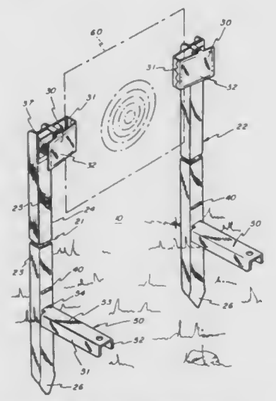
and said swinging-assembly adjusting to a different material thickness.

5,067,683

PORTABLE TARGET HOLDER

Alan M. Wager, Centerville, Ohio, assignor to Quickfire, Inc., Centerville, Ohio

Filed Jan. 8, 1991, Ser. No. 638,866
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—545 3 Claims



1. A portable target holder comprising:

an elongated stake having upper and lower ends and a channel shaped cross-section defined by a pair of side walls interconnected by a generally planar back wall; one of said walls being provided with a slot near the lower end thereof for releasibly receiving a tongue of a stepping bar; and said side walls being tapered at said lower end for facilitating insertion of said stake into the ground in response to a stepping action on said stepping bar, and

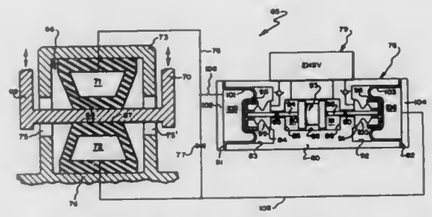
a spring jaw clamp pivotally mounted on said back wall near said upper end for selective sideward facing to clamp a first sideward edge of a target in cooperative supporting relationship with an oppositely facing spring jaw clamp mounted on another elongated stake and gripping a second sideward edge of said target.

5,067,684

VIBRATION-ISOLATING MACHINE MOUNT

Kenneth D. Garnjost, Buffalo, N.Y., assignor to Moog Inc., East Aurora, N.Y.

PCT No. PCT/US88/04628, § 371 Date Feb. 16, 1990, § 102(e) Date Feb. 16, 1990
PCT Filed Dec. 22, 1988, Ser. No. 555,530
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—550 16 Claims



1. In a suspension having one mass arranged to move relatively toward and away from another mass, and having a spring an damper arranged in parallel with one another to act between said masses, said damper having first and second opposed chambers communicating with one another through a restricted orifice, the improvement which comprises:

fluid displacement generating means operatively arranged to selectively create a desired net pressure differentail across said orifice, said fluid generating means including a fluid pump having opposide first and second chambers, said pump first chamber communicating with said damper first chamber and said pump second chamber communicating with said damper second chamber, each of said chambers being filled with fluid, and an actuator operatively arranged to controllable vary the volumes of said pump chambers to create said net pressure differential across said orifice.

5,067,685

MODULAR ELECTRICAL BOX MOUNTING SYSTEM

Robert G. Johnston, Jr., Pompano Beach, Fla., assignor to Fibrelon, Inc., Pompano Beach, Fla.

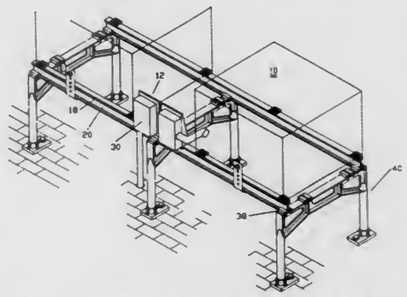
Continuation-in-part of Ser. No. 402,568, Sep. 5, 1985. This application Aug. 6, 1990, Ser. No. 564,284
The portion of the term of this patent subsequent to Feb. 5, 2008, has been disclaimed.
Int. Cl.[5] F16M *13/00*
U.S. Cl. 248—676 4 Claims

1. A support system for an electrical box, comprising:

(a) at least one I-beam, each beam having a top, a base parallel to said top, and a rib normally integrally connecting said top and said base of said I-beam, the bottom of said I-beam proportioned for complemental, securable slideable re-positionable engagement with a first female track means positioned upon a structure;

(b) a modular electrical box mounting means having a female track proportioned for complemental, securable, slideable engagement with said top of said I-beam, said electrical box mounting means further having, in an upright surface thereof, openings proportioned for securement with an electrical connector box; and

(c) at least two parallel space-apart trusses, each of said trusses having a pair of legs, which legs define lateral edges of each truss, each of said trusses having a linear top edge extending between those lines comprising longitudinal axes of said legs, said top edge having a transverse width, each of said edges having a plurality of second female track means, each of said track means having axes normal to said linear edge of each of said trusses, said second female track means proportioned for complemental slideable engagement with said base of said I-beam.

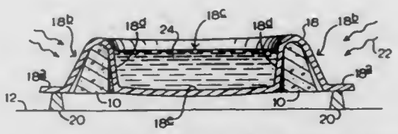


5,067,686

ANNULAR BASE MOLD

Daryl Peterson, 1002 Chenowith, N. Bonneville, Wash. 98639

Division of Ser. No. 128,813, Dec. 4, 1987, Pat. No. 4,905,945.
This application Mar. 2, 1990, Ser. No. 487,632
Int. Cl.[5] B28B *7/06*
U.S. Cl. 249—57 2 Claims



1. A unitary mold for producing from casting compound a generally circular annular base for use on a generally horizontal supporting surface, the mold comprising:

a flexible, shape-retentive base forming means including a generally circular planar region lying in a defined plane and a generally circular annular recess for receiving the casting compound, said recess circumscribing said circular planar region, said recess being dimensioned to extend from said defined plane to a predefined depth equal to the desired height of the base and said circular planar region having a diameter equal to the desired inside diameter of the base, said recess having a generally right-cylindrical inner wall roundly joined, at the greatest depth of said recess, at an acute angle of intersection with a frusto-conical outer wall, said base forming means being sufficiently flexible to enable said inner wall to flex inwardly with flexure of said circular planar region, said outer wall terminating in said defined plane and being joined thereat with a generally planar annular expanse lying generally in said defined plane, extending radially outwardly from said base forming means and at least semicircumferentially around said base forming means, said planar annular expanse at least semicircumferentially joining said outer wall at the greatest radial extent of said outer wall, said planar annular expanse extending radially a distance sufficient to provide manual purchase for gripping and inverting the mold thereby to release the base of its own weight.

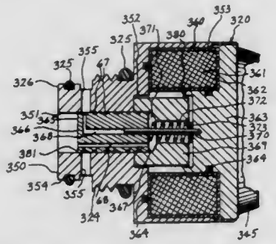
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,687

PROPORTIONAL PRESSURE CONTROL VALVE

Kishor J. Patel, Mukwonago, and Thomas J. Stobbs, West Allis, both of Wis., assignors to Applied Power Inc., Butler, Wis.

Filed Feb. 8, 1990, Ser. No. 477,026
Int. Cl.[5] F16K *31/06*; F16F *9/46*
U.S. Cl. 251—129.08 **8 Claims**



1. A proportional pressure control valve, comprising:
a housing having a driver cavity, a main bore and ports connecting said main bore to a pressure source and a low pressure tank;
an electromagnetic driver mounted within said driver cavity, said electromagnetic driver having:
an armature movable within said driver cavity; and
an electromagnetic force source associated with said armature, said electromagnetic force source being operable to receive a variable input current and to establish a magnetic flux path through said armature to move the same, the strength of said magnetic flux path being substantially proportional to said variable input current; and
a metering spool positioned within said main bore and movable in an infinitely variable manner between a sealing position, where communication between said pressure source and said tank is prevented, and an infinite number of open positions, where communication between said pressure source and said tank is permitted, the position of said metering spool in said open positions determining in part the magnitude of communication between said pressure source and said tank;
means for biasing said metering spool within said main bore;
means for applying a pressure feedback force on said metering spool; and
means for connecting said armature and said metering spool so that said armature and said metering spool move in concert;
wherein said metering spool has a first face, an opposite second face and an axial channel between said first and second faces; and
the surface area of said first face is greater than that of said second face.

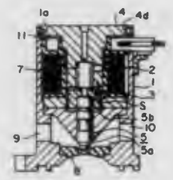
5,067,688

SOLENOID VALVE

Yoshimitsu Tanimoto, Himeji, and Akitoshi Kamada, Sanda, both of Japan, assignors to Mitsubishi Denki K.K., Tokyo, Japan

Filed Nov. 7, 1990, Ser. No. 609,856
Claims priority, application Japan, Nov. 9, 1989, 1-293211
Int. Cl.[5] F16K *31/06*
U.S. Cl. 251—129.18 **3 Claims**

1. A solenoid valve comprising:
a casing (1);
a coil (2) wound around a bobbin and housed within said casing;
an initially axially adjustable and thereafter stationary iron core (4) disposed within said casing, extending into said bobbin having a radially inward recess (4*d*);
a plunger (5) capable of being magnetically attracted toward said stationary iron core upon energization of said coil, and a spring (7) for biasing said plunger away from said iron core, a gap (S) being defined between confronting portions of said plunger and said iron core; and
means for fixing the axially adjusted position of said iron core to attendantly fix said gap at a predetermined dimension, said fixing means including a radially inwardly deformable member contiguous with said casing and extendable into said radially inward recess of said stationary iron core, for anchoring said core in an axial direction relative to said casing.

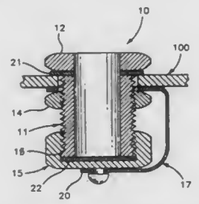


5,067,689

TRANSMISSION DRAIN PLUG

Harry C. Phipps, 504 Old State Rd., Pevely, Mo. 63070

Filed Feb. 8, 1991, Ser. No. 652,988
Int. Cl.[5] F16K *51/00*; B65D *41/04*
U.S. Cl. 251—144 **3 Claims**



3. A valve for draining fluids from a vehicle transmission fluid pan comprising:
a. an externally threaded tubular valve placed through a port in the transmission fluid pan;
b. a bolt head on one end of the tubular valve;
c. an internally threaded lock nut threadingly placed on the tubular valve to secure the tubular valve to the transmission fluid pan;
d. an internally threaded end cap threadingly placed on another end of the tubular valve distal the bolt head to seal and unseal the other end of the tubular valve;
e. a retaining spring strap having a loop on one end through which the tubular valve is placed;
f. another end of the strap being rotatively connected to the end cap to suspend the end cap away from the tubular valve;
g. a first seal on the tubular valve between the bolt head and the transmission fluid pan; and
h. a second seal in the end cap.

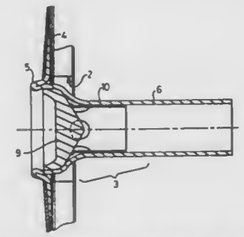
5,067,690

SELF-CLOSING DEVICE FOR CONNECTING CONTAINERS

Jean-Claude Bac, Le Petit Couronne, France, assignor to Aerazur, France

Filed Mar. 2, 1990, Ser. No. 487,475
Claims priority, application France, Mar. 3, 1989, 89 02947
Int. Cl.[5] F16L *37/28*
U.S. Cl. 251—149.8 **9 Claims**

1. Device for self-sealing connection between plural containers, at least a first of said containers having and a flexible wall with an internal wall surface bearing against a partition pierced with a bore, which comprises:
(a) a flexible connecting sleeve having an end fixed to said internal wall surface of said first of said containers and around said opening thereof, said connecting sleeve presenting a fold within said first container and having a cylindrical barrel at the opposite end thereof which passes through said bore of said partition and is connected to another of said plural containers;
(b) a tube section and a sealing element disposed within said first container comprising a jamming element contained by said tube section force fitted into said cylindrical barrel in the vicinity of said fold, said tube section having holes therethrough through which a container fluid can freely flow from one of said containers to another of said containers;
(c) said fold of said connecting sleeve turning back over said holes of said tube section responsive to a tractive force exerted on said cylindrical barrel of said connecting sleeve tending to move said containers apart to cause an irreversible sealing of the connection.

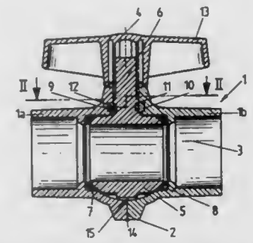


5,067,691

BALL COCK

Bruno Hunziker, Stetten, and Peter Kunz, Schaffhausen, both of Switzerland, assignors to Georg Fischer AG, Schaffhausen, Switzerland

Filed Nov. 30, 1990, Ser. No. 621,024
Claims priority, application Switzerland, Dec. 4, 1989, 04331/89
Int. Cl.[5] F16K *5/06*
U.S. Cl. 251—315 **9 Claims**



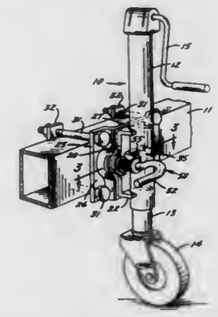
1. In a ball cock including a housing of a thermoplastic material, the housing being composed of two housing parts which are integrally connected to each other along a plane of separation in an inseparable and tight manner, a ball plug mounted in the housing, the ball plug being connected integrally with a pivot of plastics material, the housing defining a passage opening and a bore extending transversely of the passage opening, the pivot being mounted in the bore, the pivot having an axis of rotation, and a sealing means for sealing the pivot, the improvement comprising the plane of separation of the two housing parts extending transversely of the passage opening and through the axis of rotation of the pivot, the two housing parts each defining recesses at least in the region of the sealing means for the pivot, a component being mounted in the recesses, the component being integrally connected in a tight manner with the two housing parts.

5,067,692

SWIVEL JACK FOR A TRAILER TONGUE

Barry C. Nudd, and James W. Chambers, both of Rockford, Ill., assignors to Atwood Industries, Inc., Rockford, Ill.

Filed Jun. 4, 1990, Ser. No. 532,875
Int. Cl.[5] B60S *9/02*
U.S. Cl. 254—420 **10 Claims**



1. A jack adapted to be attached to a generally horizontal trailer tongue and adapted to be selectively located in an upright active position or in a generally horizontal stowed position, said jack comprising an elongated tubular housing, a housing bracket fixed to said housing and having inner and outer sides with a hole of predetermined diameter extending therebetween, a tongue bracket adapted to be anchored to said tongue and having inner and outer sides with a hole of larger diameter extending therebetween, the inner side of said housing bracket being disposed in opposing relation with the outer side of said tongue bracket, means connecting said housing bracket to said tongue bracket for pivoting of the housing bracket about a generally horizontal axis extending transversely of said tongue thereby to support said jack for movement between said positions, said means comprising a spacer disposed in said hole in said tongue bracket with close rotatable clearance and having an opening therethrough, a bolt having a head located adjacent the outer side of said housing bracket and having a shank extending through said hole in said housing bracket and through said opening in said spacer, said spacer and said housing bracket being connected to rotate in unison, a washer encircling said shank and located adjacent the inner side of said tongue bracket, said washer having a diameter greater than the diameter of the hole in said tongue bracket, and a nut threaded on said shank and coacting with said head to hold said washer, said spacer and said housing bracket in assembled relation, said spacer holding said housing bracket and said washer out of clamping engagement with said tongue bracket.

5,067,693

ELECTRIC ARC OVEN FOR TREATING MOLTEN METALS WITH A GAS AND A PROCESS THEREFOR

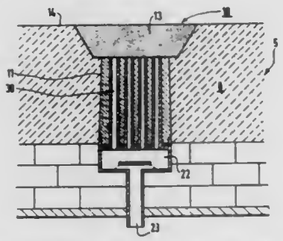
Etienne Lepoutre, Hinsdale, Ill.; Michel Devaux, Magny-les-Hameaux, France; Bruno Hirschberg, Vienna, Austria; Franz A. Petio, Kindberg, Austria, and Paul Weitzer, Vienna, Austria

Filed Mar. 13, 1990, Ser. No. 492,140
Claims priority, application France, Mar. 15, 1989, 89 03381
Int. Cl.[5] C21B *13/00*
U.S. Cl. 266—44 **19 Claims**

1. A process of melting scrap iron by injecting an inert gas in

VOL 1132 ISS 4 NO 26 1991 UMI

molten metal present in a sole of an electric arc oven, by means of at least one device for injecting an insert gas, said gas being fed into the molten metal by first passing through a low injector embedded in the refractory material of the sole, then through a layer of porous rammed earth of an initial thickness between 50 and 300 mm, consisting of an unshaped refractory



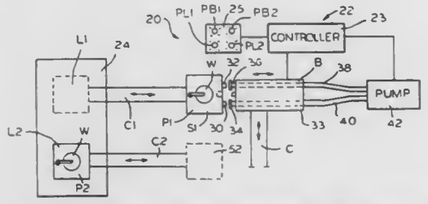
material made of granular particles having a particle size distribution of: 0 to 0.5 mm: about 30% by weight, 0.5 to 2 mm: about 30% by weight, 2 to 5 mm: about 40% by weight and allowing gas to pass therethrough under a feeding pressure of at most 10 bars and a flow rate of at least 20 Nm^3/h after fritting under heat.

5,067,694

AUTOMATIC COUPLING SYSTEM

Dann B. Rypka, Owatonna, Minn., assignor to Owatonna Tool Company, Owatonna, Minn.

Continuation of Ser. No. 194,329, May 16, 1988, abandoned.
This application Jun. 28, 1990, Ser. No. 545,751
Int. Cl.[5] B23Q *3/00*
U.S. Cl. 269—20 17 Claims



1. In a system including a base unit having a first connector and a satellite unit having a second connector connectable with said first connector, an apparatus for automatically connecting said first and second connectors comprising:

a cam ring having a central axial opening surrounded by a plurality of helical cam portions;

mounting means for mounting said cam ring to said satellite unit in spaced parallel relation with said second connector;

an elongated locking rod having a diameter smaller than the diameter of said central opening and a plurality of radially outwardly extending and axially spaced locking pins;

actuable means connected to said locking rod for providing axial and rotational movement thereof;

carriage means for axially slideably mounting said first connector and said actuable means to said base unit so that said locking rod and said first connector are in spaced parallel relation similar to the spacing provided by said mounting means; and

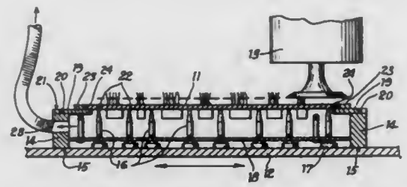
control means connected to said actuable means for sequentially reciprocally axially moving said locking rod whereby said reciprocal movement causes said rod to selectively pass inwardly and outwardly through said axial opening so that said pin selectively engage said cam portions to rotate said locking rod and to thereby controllably slideably move said carriage means toward or away from said satellite unit to connect or disconnect said first and second connectors.

5,067,695

CIRCUIT BOARD SUPPORT APPARATUS FOR USE WITH CIRCUIT BOARD LEAD TRIMMER

Brent D. Huddleston, Kuna, Id., assignor to Micron Technology, Inc., Boise, Id.

Filed May 8, 1989, Ser. No. 349,046
Int. Cl.[5] B25B *11/00*
U.S. Cl. 269—21 12 Claims



1. A support apparatus for a through-hole soldered circuit board having an unpopulated perimeter during the lead-trimming process, said apparatus designed for use in conjunction with a circuit board lead trimming machine of the type having a planarly-movable cutting head and a base plate below the cutting head parallel to its plane of movement, comprising:

(a) a perimeter frame of uniform height, the lower surface of which is rigidly and hermetically affixed to the base plate of the lead trimming machine;

a plurality of removable equal-height support posts, each having a board-support apex and a base. perpendicular to its associated post;

(c) a support post positioning plate having upper and lower surfaces and a plurality of supportpost-positioning apertures, the center of each aperture, when viewed from the positioning plate's lower surface, corresponding dimensionally to a safe, planar position on the populated side of a circuit board to be lead trimmed, into each of which apertures, one of said support posts can be slidably inserted from the positioning plate's lower surface with minimal play, said positioning plate accurately positionable within said frame such that each support post inserted in its respective aperture is accurately and

vertically positioned with its associated base in contact with the base plate of the lead trimming machine;

(d) means associated with the lead trimming machine baseplate for securely maintaining in position each accurately positioned support post;

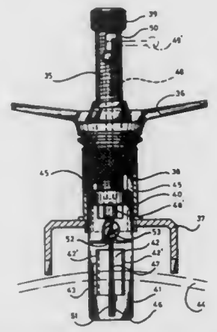
(e) a circuit board support plate having a cutout which is smaller, but proportionally similar to the profile of the circuit board to be lead trimmed, said support plate being accurately and hermetically affixed to the top of said perimeter frame such that the upper surface of said support plate is essentially equiplanar with a plane which passes through the apices of said support posts following the positioning said support posts on said base plate utilizing said positioning plate, and said support plate also having circuit board positioning means so that when the circuit board to be lead trimmed is resting on inner edges of the cut-out, the circuit board is positioned such that the apices of said support posts contact the safe, planar positions on the populated side of the circuit board to be lead trimmed.

5,067,696

DEVICE FOR CLAMPING TWO METAL OBJECTS WHICH ARE TO BE WELDED TOGETHER

Allen D. Morley, Merellaan 48, B-2080 Kapellen, Belgium

Continuation of Ser. No. 230,879, Aug. 11, 1988, abandoned.
This application Feb. 27, 1991, Ser. No. 661,663
Claims priority, application Netherlands, Sep. 18, 1987, 8702239
Int. Cl.[5] B23Q *1/00*
U.S. Cl. 269—49 19 Claims



1. A device for clamping two metal objects relative to each other at opposite end edges wherein the metal objects are to be welded to each other at said edges, in such a way that the end edges are held at a particular distance from each other, with a predetermined space between said edges said device comprising:

a draw bolt provided with an external screw thread and a central axis;

an element forming a tension nut screwed onto the draw bolt having a lower side with a contact face;

a bridge piece having an opening through which the draw bolt passes with a slight clearance and having a contact face which engages the tension nut contact face;

object engaging parts of said bridge piece being located at the bottom thereof a portion of said object engaging parts lying in one flat plane such that each of the object engaging parts engages one of said opposite end edges on a first surface thereof and said bridge piece spans said predetermined space;

a clamping plate at one end of the draw bolt having a top edge facing the tension nut and forming a radially extending shoulders which can be engaged with a second side of each of the objects to be welded together on either side of the space between the end edges thereof;

a relatively thin blade-shaped member being insertable into said predetermined space and being connected to said draw bolt, said blade-shaped member having a window wherein said clamping plate is pivotably movable from a position in which said clamping plate lies flat inside the window so that said clamping plate extends substantially in the same plane as the blade-shaped member, to a position substantially perpendicular to said plane and vice-versa:

at least one element connected to the draw bolt above the clamping plate which forms at least one protuberance projecting outwards at right angles to the central axis of the draw bolt; and

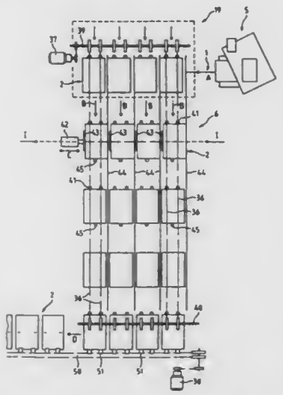
guide means of said bridge piece for guiding said protuberance in such a way that an up and down movement on the draw bolt relative to the bridge piece is permitted, but rotary movements of the draw bolt about its central axis are prevents.

5,067,697

METHOD AND MEANS FOR TABLOID FURTHER PROCESSING

Werner Honegger, Tann Rüi, Switzerland, assignor to Ferag AG, Hinwil, Switzerland

Filed Aug. 17, 1989, Ser. No. 394,879
Claims priority, application Switzerland, Sep. 9, 1988, 338288
Int. Cl.[5] B41L *43/12*
U.S. Cl. 270—37 19 Claims



1. A method of conveying and processing tabloids and other folded printed products in a processing system which includes a plurality of spaced conversion stations, the method comprising the steps of

delivering a serial sequence of folded printed products to a conversion station,

at the conversion stations, extracting a plurality of starting products from spaced stations along the sequence and combining the products to form clusters including the extracted products, each cluster including at least two printed products, the step of extracting further including removing the products from the sequence with a gripper for forming each cluster,

conveying the clusters away from the conversion stations,

repeating the step of extracting, forming and conveying the clusters to thereby create a plurality of streams of products being conveyed in parallel,

conveying the streams of clusters of products to a processing location, and

processing the products while they are in the clusters.

5,067,698

METHOD AND APPARATUS FOR MANUFACTURING INTERFOLDED TOWELING

Kurt Stemmler, Neuwied, Fed. Rep. of Germany, assignor to Winkler & Dunnebier Maschinenfabrik und Eisengiesserei KG, Neuwied, Fed. Rep. of Germany

Filed Sep. 8, 1989, Ser. No. 404,845
Claims priority, application Fed. Rep. of Germany, Sep. 26, 1988, 3832595
Int. Cl.[5] B41L *1/32*
U.S. Cl. 270—39 21 Claims

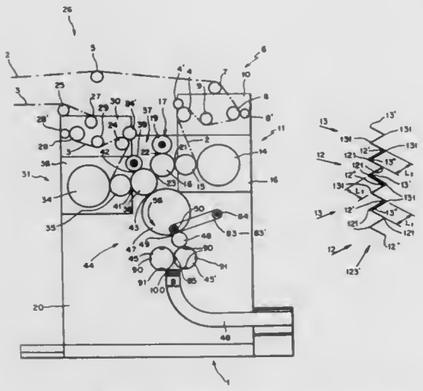
1. A method for manufacturing toweling interfolded in a zigzag manner particularly partially overlapping, interfolded toweling folded "n" times, wherein "n" is an even number or an odd number, by an interfolder having two counter rotating folding rollers, said method comprising:

choosing "n" either as an even number or as an odd number;

alternately cutting sections of toweling of equal length from a first continuously advancing web of material and from a second continuously advancing web of material;

VOL 1132 ISS 4 NO 26 1991 UMI

separating by accelerating each of said cut sections of toweling in the direction of advancement to a specified length; reconducting together each said cut sections of toweling in an ordered first sequence such that said cut sections of toweling having an overlap which is adjustable and equal;



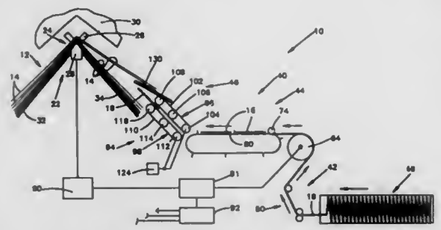
continuously folding said first sequence of cut sections of toweling in a zigzag manner into a second sequence; and forming said second sequence of cut toweling folded in a zigzag manner into a folded stack.

5,067,699

SHEET MATERIAL HANDLING APPARATUS WITH INSERTER ASSEMBLY

Jeffrey G. Gadway, Dayton, and Robert Bryson, Sr., Huber Heights, both of Ohio, assignors to AM International Incorporated, Chicago, Ill.

Filed Feb. 7, 1990, Ser. No. 477,603
Int. Cl.[5] B65H *5/32*
U.S. Cl. 270—55 **21 Claims**



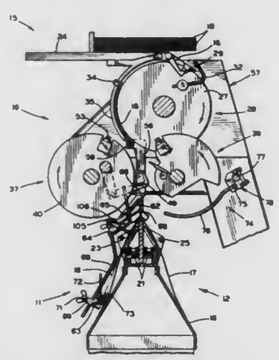
1. An apparatus for feeding inserts from interconnected inserts into collated assemblies of signatures disposed on a main conveyor, said apparatus comprising means for feeding a plurality of interconnected inserts toward the main conveyor, means for separating a leading insert from the plurality of interconnected inserts as the plurality of interconnected inserts is being fed toward the main conveyor, means for separating one of the signatures in a collated assembly of signatures on the main conveyor from an adjacent signature, and means for feeding the leading insert which was separated from the plurality of inserts into the collated assembly of signatures at a location between the one signature and the adjacent signature while they are separated, wherein said means for feeding a plurality of interconnected inserts toward the main conveyor includes means for moving the plurality of interconnected inserts at a first speed, said means for separating a leading insert from the plurality of interconnected inserts includes means for accelerating the leading insert from the first speed to a second speed which is greater than the first speed, said means for feeding the leading insert into the collated assembly of signatures including means for accelerating the leading insert from the second speed to a third speed which is greater than the second speed.

5,067,700

METHOD AND APPARATUS FOR ATTACHING INSERTS TO MOVING SHEETS

David L. Dick, Fostoria, Ohio, assignor to The Gray Printing Company, Fostoria, Ohio

Filed Aug. 10, 1990, Ser. No. 566,553
Int. Cl.[5] B65H *5/30*
U.S. Cl. 270—55 **25 Claims**



1. A portable insert handling apparatus for attachment to a signature feeding station, the signature feeding station including a support structure, feeding means for transferring signatures seriatim from a supply stack to a horizontally extending conveyor disposed therebelow, the feeding means including a roller assembly having a plurality of rotating disks axially mounted in spaced relationship on a shaft, the plurality of rotating disks having circumferential surfaces for supporting the signatures as the same are transferred from the supply stack to the horizontally extending conveyor, wherein the handling apparatus comprises:

a frame adapted for mounting on the support structure of the signature feeding station, said frame including a projecting member having one end affixed thereto and the other end disposed between an adjacent pair of the plurality of disks;

support means for supporting the insert in a generally horizontal disposition; and

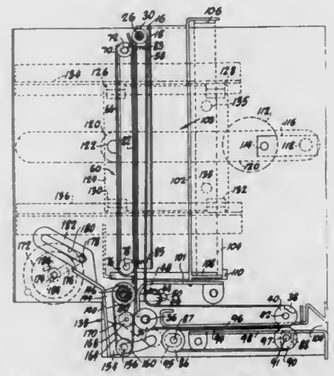
pressure means for engaging the insert supported on said support means.

5,067,701

MULTIPLE BILL ESCROW MECHANISM

Donald A. Dekker, Grand Rapids, Mich., assignor to Rowe International, Inc., Whippany, N.J.

Filed Apr. 16, 1990, Ser. No. 509,900
Int. Cl.[5] B65H *5/22*
U.S. Cl. 271—7 **16 Claims**



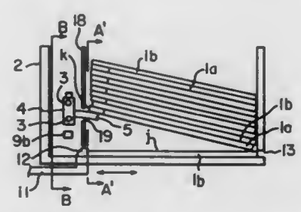
1. Apparatus for receiving and temporarily holding a plurality of successively received bills in an escrow position and for delivering said bills together from said escrow position including in combination interengageable first and second conveyor means adapted to receive bills therebetween, means mounting said first and second interengageable conveyor means for movement toward and away from each other, resilient means for biasing said first and second conveyor means toward each other, means for moving successively received bills into an escrow position between said first and second conveyor means against the action of said resilient biasing means to build up a plurality of bills in said escrow position at which said bills are clamped between said conveyor means by said biasing means and means for concomitantly driving both of said first and second conveyor means to move said plurality of bills out of said escrow position as a unit.

5,067,702

DISPENSER FOR DISPENSING SHEETS OF AN ALTERNATING FIRST AND SECOND KIND FROM A STACK

Katsuaki Murashi; Masahiro Onishi; Nobufumi Mori, all of Kanagawa; Hiromi Nunome, and Tetsuo Oikawa, both of Tokyo, all of Japan, assignors to Jeol Ltd., Tokyo and Fuji Photo Film Co., Ltd., Kanagawa, both of, Japan

Filed May 25, 1990, Ser. No. 529,219
Claims priority, application Japan, May 29, 1989, 1-136480
Int. Cl.[5] B65H *3/50*
U.S. Cl. 271—134 **6 Claims**



1. An apparatus for conveying sheets from a stack of sheets, comprising:

a housing accommodating a stack consisting of alternate sheets of first and second kinds stacked on top of each other, each sheet of the first kind having a first notch in a first position, each sheet of the second kind having a second notch in a second position;

a projection that supports one edge of the lowermost sheet of the stack to prevent the stack from falling to a takeout position at which the sheets of the stack are taken out, the projection being so mounted as to be movable along said edge;

a guide plate which is mounted in the housing and guides and aligns the edges of the sheets of the stack located upon the same side as the edge of the lowermost sheet which is supported upon the projection;

the guide plate defining a slot and through which slot the projection extends to support the edge of the lowermost sheet;

a driving means for moving the projection into a first stop position corresponding to the first notch and a second stop position corresponding to the second notch alternately, to permit only the lowermost one of the sheets of the stack to fall at a time; and

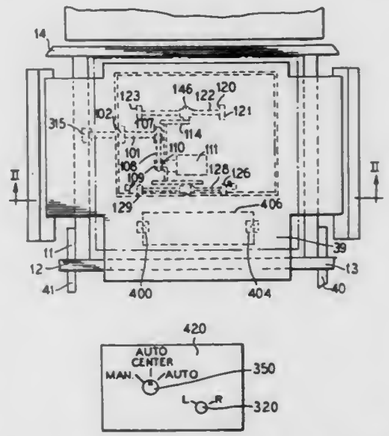
a means for taking the sheet placed in the takeout position out of the housing.

5,067,703

AUTOMATIC PALLET CENTERING DEVICE

Malcolm E. Keith, West Chicago, Ill., assignor to Midaco Corporation, Elk Grove Village, Ill.

Filed Aug. 20, 1990, Ser. No. 569,647
Int. Cl.[5] B65H *1/22*
U.S. Cl. 271—164 **2 Claims**



1. A composite table for supporting sheets for a machine comprising an outer table, an inner table moveably mounted to said outer table so as to be moveable relative thereto, a reversible motor coupled to said outer and inner table so as too move them relative to each other, a bar mounted on said inner table, first and second spaced auto-centering switches mounted on said outer table and each engageable with said bar when said inner table is centered relative to said outer table, an auto-center switch for said first and second auto-centering switches in circuit with different windings of said reversible motor such that if said first auto-centering switch does not engage said bar it is closed to supply power to said reversible motor to rotate in a first direction to center said inner table relative to said outer table and said auto-center switch having an auto-center

VOL 1132 ISS 4 NO 26 1991 UMI

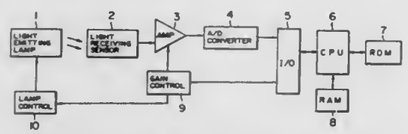
setting such that regardless of the vertical position of the composite table, the table will center itself.

5,067,704

DOUBLE-FEED SHEET DETECTION APPARATUS

Yutaka Tsuihiji, Tama, and Akio Sakayori, Zama, both of Japan, assignors to Tokyo Aircraft Instrument Co., Ltd., Tokyo, Japan

Filed Apr. 5, 1990, Ser. No. 504,604
Int. Cl.[5] B65H *7/14*
U.S. Cl. 271—262 **8 Claims**



1. A double-feed sheet detection apparatus comprising:
a light-transmission sensor wherein a paper transport path is constituted between a light emitting source and a light receiving sensor;
a light control circuit for controlling the intensity of said light emitting source;
a variable gain amplifier for amplifying sequential outputs of said light-transmission sensor; and
a central processing unit (CPU) for setting the intensity of said light emitting source and the gain of said variable gain amplifier, and for judging whether or not a double-feed has occurred based on the output of said variable gain amplifier, said central processing unit including:
means for initiating said detection apparatus when a sequential feeding operation is started;
means for temporarily setting the light intensity of said light emitting source and the gain of said variable gain amplifier;
means for adjusting the gain of said variable gain amplifier so that an output level of said variable gain amplifier may be a constant value, which is not in a saturation state, when no sheet of paper exists between said light emitting source and said light receiving sensor;
means for adjusting the output of said light emitting source so that, when a sheet of paper to be measured is supplied into said paper transport path, the output for the sheet of said variable gain amplifier may be on a medium level and lower than the level of the output of said variable gain amplifier during the period when no sheet is being fed;
means for transmitting a double-feed sheet detection output when an output lower than a fixed level, which is lower than the level during the period when the sheets are being fed, is detected in the sequential feeding operation; and
means for comparing sequential outputs of said variable gain amplifier while the sheets are being fed one by one and for increasing the output of said light emitting source when a reduction in the output is found.

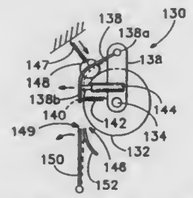
5,067,705

PRINTER SHEET FEED APPARATUS WITH SINGLE DRIVER

Arthur C. Van Horne, Lake Oswego; Eldon P. Hoffman, West Linn, both of Oreg., and Paul D. Bakke, Tucson, Ariz., assignors to Tektronix, Inc., Beaverton, Oreg.

Division of Ser. No. 232,419, Aug. 15, 1988, Pat. No. 4,943,045.
This application Jun. 1, 1990, Ser. No. 531,731
Int. Cl.[5] B65H *5/04*
U.S. Cl. 271—277 **5 Claims**

1. Apparatus for conveying a print medium sheet having a leading edge along a travel path through a printing zone where an image is printed on the sheet, said apparatus comprising:
means defining a support surface for supporting at least a portion of the sheet after it exits from the printing zone;
roller means disposed downstream on the sheet travel path from the printing zone adjacent to said support surface;
means for biasing said roller means toward said support surface for pressing a sheet passing between said roller means and said support surface against said support surface;
means defining an engaging surface facing said support surface;
means for moving said engaging surface between a non-grasping position spaced from said support surface for receiving and releasing a sheet therebetween, and a grasping position sufficiently near said support surface for grasping a sheet received therebetween; and
means for moving said support-surface and thereby for transporting said engaging surface between a load position



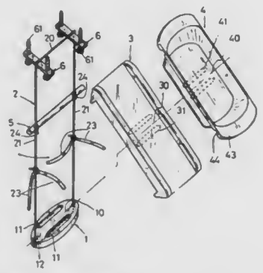
at the print zone and an unload position past said roller means while said engaging surface is in said grasping position, said engaging-surface moving means holding said engaging surface in said grasping position after receiving a sheet leading edge at said load position until the sheet leading edge is transported between said roller means and said support surface, said engaging-surface moving means then releasing the sheet leading edge by moving said engaging surface toward said unload position, whereby a grasped sheet is transported through the printing zone;
the engaging surface being movable back toward said load position after said engaging surface has been moved away from said support surface toward said non-grasping position by moving said engaging surface to said grasping position in contact with said support surface and said support-surface moving means moving said support surface.

5,067,706

MULTIPLE-PURPOSE ASSEMBLED PLAYING SET

Wen-Guo Tsai, P.O. Box 55-1670, Taipei, Taiwan

Filed Sep. 10, 1990, Ser. No. 580,219
Int. Cl.[5] A63G *9/00*
U.S. Cl. 272—85 **8 Claims**



1. A playing set comprising:

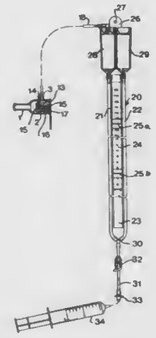
a basic seat hanged on a rope which is mounted on an upper frame, having at least a groove formed in said seat;
a longitudinal plate having at least a first extension formed on a central bottom portion of said plate, said first extension detachably engageable with said groove in said seat, said longitudinal plate operatively biased about a central portion of said seat secured with said rope;
a basin having at least a second extension formed on a central bottom portion of said basin, said second extension detachably engageable with said groove of said seat; and
at least a bar horizontally transversely tied on said rope.

5,067,707

APPARATUS FOR RESPIRATORY TRAINING

Ole B. Køhnke, Hjortekrogen, Denmark, assignor to Ambu International A/S, Glostrup, Denmark

PCT No. PCT/DK89/00064, § 371 Date Nov. 22, 1989, § 102(e) Date Nov. 22, 1989, PCT Pub. No. WO89/09023, PCT Pub. Date Oct. 5, 1989
PCT Filed Mar. 22, 1989, Ser. No. 435,445
Int. Cl.[5] A63B *23/00*
U.S. Cl. 272—99 **6 Claims**



1. A portable apparatus for respiratory training comprising:
(a) a mouthpiece,
(b) a respiration chamber communicating with said mouthpiece and comprising:
(i) a first opening comprising a one-way valve allowing inflow of inspiratory air and preventing outflow of expiratory air,
(ii) a second opening comprising a one-way valve allowing outflow of expiratory air and preventing inflow of inspiratory air,
(c) exchangeable obstruction means for varying the flow of air through he first and second openings,
(d) a manometer comprising a U-shaped flexible plastic tube for holding a liquid and a scale located between the two parallel tube sections of the manometer, said manometer having at its lowermost end a branch pipe for supplying liquid to and removing liquid from said manometer, said branch pipe comprising a valve, and
(e) a pipe stub extending from the mouthpiece and communicating with the upper end of one of the two tube sections, the upper end of the other tube section communicating with surrounding atmosphere.

5,067,708

MULTI-FUNCTION EXERCISE SYSTEM

Brad Oschansky, Baltimore; Scott Olschansky, Towson, and Raymond H. Lee, Jr., Lutherville, all of Md., assignors to Lifeing, Inc., Pikesville, Md.

Filed Jun. 8, 1990, Ser. No. 534,879
Int. Cl.[5] A63B *21/062*
U.S. Cl. 272—118 **12 Claims**

1. An improved multi-function exercise system for reversibly displacing a predetermined weight load selected from a plurality of weight elements responsive to a lifting force imparted to said weight load by a user, comprising:
a base frame; and
force translation means displaceably coupled to said base frame and said selected weight elements for converting a rotative displacement force in either of two opposite directions imparted by the user into said lifting force, said translation means including:
(a) actuating bar means for applying said rotative displacement force in either of said two opposite directions;
(b) means for transforming a reversible rotational displacement of said actuating bar means to a displacement of said selected weight elements, said transforming means including a rotatably displaceable member coupled to said actuating bar means for rotation about an axis responsive to rotation of said actuating bar means in (1) a clockwise direction, and (2) a counter-clockwise direction, said rotatably displaceable member having a predetermined positional location, said displacement of said selected weight elements being in an identical direction when said rotatably displaceable member is rotatively displaced from said predetermined positional location in either said clockwise or counter-clockwise directions, said rotatably displaceable member having a pair of opposing ends equidistantly spaced from said rotation axis, said transforming means further including a pair of flexible linkage members, each of said pair of flexible linkage members being coupled on a first end to a respective one of said opposing ends of said rotatably displaceable member, said flexible linkage members having a second end coupled to a linear displaceable member, said linear displaceable member

VOL 1132 ISS 4 NO 26 1991 UMI

being displaceable relative a positional location of said rotatably displaceable member from a first position to a second position responsive to rotation of said rotatably displaceable member from said predetermined positional location in either said clockwise or counter-clockwise directions;

(c) transmission means coupled to both said linear displaceable member and said selected weight elements for displacement thereof responsive to said rotative displacement of said rotatably displaceable member, said transmission means including flexible coupling means having a predetermined tension therein for coupling said selected weight elements to said linear displaceable member; and,

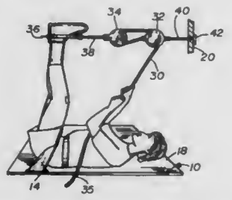
(d) vertical adjustment means releasably lockingly coupled to said base frame for adjusting the vertical positional location of said transforming means relative to said base frame.

5,067,709

UNASSISTED LOWER TORSO STRENGTHENING AND STRETCHING DEVICE

John Christianson, Milwaukee, Wis., assignor to Tarrenn Corporation, Brookfield, Wis.

Filed Nov. 29, 1989, Ser. No. 443,117
Int. Cl.[5] A63B *21/12*
U.S. Cl. 272—121 **4 Claims**



1. An unassisted lower torso strengthening and stretching device for a person comprising means for restraining the pelvis of the person while allowing upward tilting of the legs, and means operable by the user for raising and lowering the legs to a position where the legs are substantially perpendicular to the torso, said last mentioned means comprising a first pulley, means for supporting said first pulley above the person, a second pulley connected to the feet of the person, and a line having a free end operable by the user to raise and lower the legs, said line passing over the first pulley, around said second pulley, and the other end of said line being secured to said first pulley, said first pulley comprising means for allowing rotation thereof while pulling on said line, and means for preventing rotation thereof upon release of said line.

5,067,710

COMPUTERIZED EXERCISE MACHINE

Scott R. Watterson, Logan; George B. Bersonnet, River Heights; William T. Dalebout, and Michael Burk, both of Logan, all of Utah, assignors to Proform Fitness Products, Inc., Logan, Utah

Continuation-in-part of Ser. No. 306,872, Feb. 3, 1989, Pat. No. 4,998,725. This application Sep. 29, 1989, Ser. No. 415,160
The portion of the term of this patent subsequent to Mar. 12, 2008, has been disclaimed.
Int. Cl.[5] A63B *21/005*
U.S. Cl. 272—129 **18 Claims**

18. A computerized exercise machine comprising:

an exercise structure having a movable member for movement by a user to exercise on said exercise structure;

resistance means associated with said movable member to resist the movement of said movable member;

adjustment means mechanically associated with said resistance means for selectively varying the resistance of said resistance means;

resistance sensing means associated with said resistance means for sensing work performed by said user in moving said movable member against said resistance and including:

a resistance responsive element connected to said resistance means, said resistance responsive element undergoing deformation in response to changes in the resistance of said resistance means; and

a piezoelectric element adapted to said resistance responsive element, to generate a resistance signal reflective of said deformation;

a motion sensor mounted to said exercise structure to sense the rate of movement of said movable member and to provide a movement rate signal reflective thereof;

computer means associatively linked with said adjustment means for selectively controlling said adjustment means and communicatively linked to said resistance sensing means and said motion sensor to receive said resistance signal and said movement rate signal therefrom;

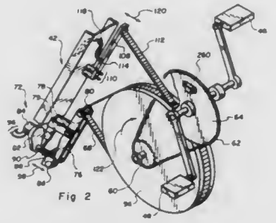
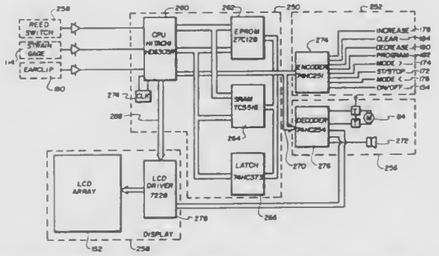


Fig 2



input means connected to said computer means for receiving background data from said user and for selecting an exercise program and at least one exercise parameter related to said selected program;

display means mounted on said exercise structure and associatively linked with said computer means for displaying data computed by said computer means;

wherein said computer means is operable to receive said selected exercise program and varying the resistance of said resistance means selected by said user from said input means, and

control said adjustment means in accordance with said selected exercise program and said varying resistance over a preselected program duration,

read said background data from said input means,

read the rate of movement of said movable member from said motion sensor,

read the resistance of said resistance means from said resistance sensing means, and

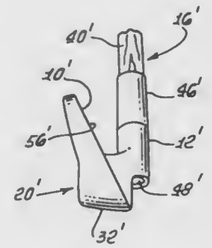
compute calorie use data from said background data, rate of movement, and resistances.

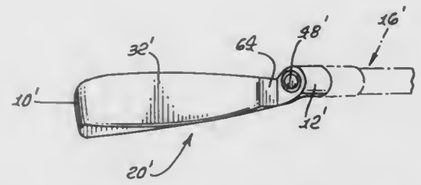
5,067,711

IRON GOLF CLUB HEADS

Richard E. Parente, Solana Beach; Richard De La Cruz, Pauma Valley, and Richard C. Helmstetter, Carlsbad, all of Calif., assignors to Callaway Golf Company, Carlsbad, Calif.

Continuation of Ser. No. 204,704, Apr. 10, 1989, Pat. No. 4,995,609. This application Aug. 31, 1990, Ser. No. 576,071
The portion of the term of this patent subsequent to Feb. 26, 2008, has been disclaimed.
Int. Cl.[5] A63B *53/02*
U.S. Cl. 273—77 A **16 Claims**





5. The improvement in an iron golf club, comprising:

a) an iron golf club head having a sole and having a blade with a top, a toe end and a heel end, the heel end having an upper edge,

b) said head having a hosel disposed at said heel end of said blade in a position juxtaposed to said blade and formed from the same continuous piece of metal as an integral part lapping said heel end from said upper edge of said heel end downwardly and there being no bridge between said blade and said hosel below said hosel, said hosel extending from a level above the top of said blade down to said sole, said hosel having a top edge, a lower portion and a through bore of substantially constant diameter extending from said top edge of said hosel down through said sole, said hosel being solid and inflexible and having substantially even wall thickness from its lower portion to its top edge,

c) said hosel having a dog-leg which in developmental view of said sole taken from below, extends at an obtuse angle forwardly from said heel end of said blade,

d) said hosel having a lowermost end portion forming an angular, substantially flattened surface extending substantially above the plane containing the bottom sole of the club head below the level of said lowermost end portion of said hosel thereby reducing the weight of the metal of said hosel which can be redistributed to said blade, and said club head having a necked area near the plane of merger of said hosel and said blade having no greater than about a $\frac{5}{8}$ inch vertical dimension in face view of said club head,

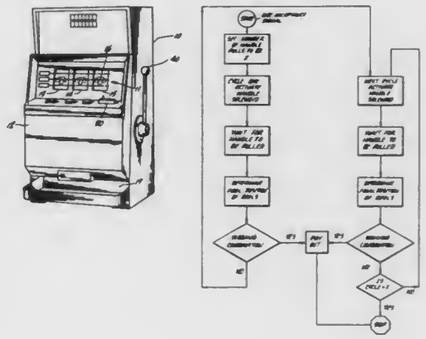
e) and a golf club shaft fixedly secured within said bore and inflexible relative to said hosel and extending substantially completely to the lowermost end of said hosel.

5,067,712

MULTIPLE-PULL SLOT MACHINE

Michael Georgilas, Reno, Nev., assignor to Hilton Nevada Corporation, Las Vegas, Nev.

Filed Feb. 2, 1989, Ser. No. 305,950
Int. Cl.[5] G07F *17/34*
U.S. Cl. 273—143 R **9 Claims**



1. An amusement apparatus having a plurality of rotating reels, arranged in a side-by-side relationship, each bearing a plurality of symbols on the peripheral surface thereof, certain combinations of which have different values which may entitle a player to a prize, and including:

means for accepting a playing disc to initiate a game by rotation of said reels;

means for analyzing and calculating the probability of obtaining certain combinations of said symbols during a first playing cycle;

means for arresting rotation of said reels at the end of said first cycle to display a first combination of symbols;

means for discriminating between a winning combination of symbols and a losing combination of symbols at the end of said first cycle;

means for discontinuing said first cycle and awarding a prize to said player upon the occurrence of a winning combination of symbols;

means for allowing activation of said reels for at least one other cycle at the end of each of said first cycle upon the occurrence of a losing combination of symbols;

means for automatically analyzing, calculating and altering the probability of obtaining certain combinations of symbols during said other cycle, said automatic altering being relative to said probability of obtaining certain combinations in said first playing cycle;

means for arresting rotation of said reels at the end of said

VOL 1132 ISS 4 NO 26 1991 UMI

other cycle to display a different combination of symbols; and

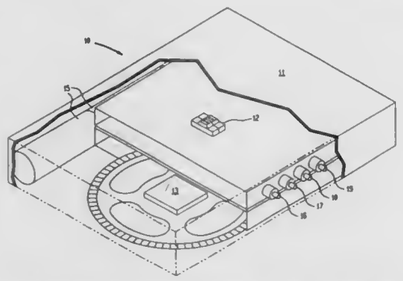
means for discontinuing said other cycle upon the occurrence of a losing combination of symbols or awarding a prize to said player upon the occurrence of a winning combination of symbols.

5,067,713

CODED PLAYING CARDS AND APPARATUS FOR DEALING A SET OF CARDS

Jack A. Soules, Shaker Heights, and Bryan D. Carpenter, Cleveland, both of Ohio, assignors to Technical Systems Corp., Cleveland, Ohio

Filed Mar. 29, 1990, Ser. No. 501,148
Int. Cl.[5] A63F *1/14*
U.S. Cl. 273—149 P **9 Claims**



1. An apparatus for manually dealing coded playing cards to each of plural locations so that a preselected set of cards will be dealt to each specific location, without contacting the sides of the cards, the apparatus comprising, a housing having a platform with a surface over which a plurality of coded cards are passed face down and read, one card at a time;

reading means for electro-optically reading each said one card as it is moved past the reading means without using a guide means to orient the card;

means for storing the number of predetermined "hands" or sets which are to be dealt as chosen;

code-processing means for processing the code read from each card in a predetermined manner to execute a program which identifies each location to which each card is to be dealt; and,

indicating means to indicate the location to which said each card read, is to be dealt.

5,067,714

VARIABLE ARRANGEMENT FLORAL DESIGN JIGSAW PUZZLE

Leslie Rasberry, 209 Croft St., Greenville, S.C. 29609

Continuation-in-part of Ser. No. 370,816, Jun. 23, 1989, abandoned. This application Nov. 1, 1990, Ser. No. 609,802
Int. Cl.[5] A63F *9/10*
U.S. Cl. 273—157 R **16 Claims**

1. A jigsaw puzzle capable of being assembled into a plurlaity of arrangements, comprising:

a plurality of differently shaped and sized inner pieces and a plurality of differently shaped outer pieces; and

each of said inner pieces having a plurality of sides each configured to have protrusions and recesses therealong, said configurations being such that each of said side of any



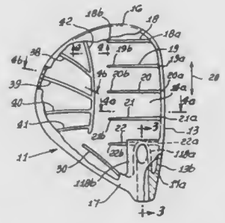
inner piece is fittingly engageable with each side of every other inner piece.

5,067,715

HOLLOW, METALLIC GOLF CLUB HEAD WITH DENDRITIC STRUCTURE

Glenn H. Schmidt, Malibu; John P. Sheehan, Covina, and Richard C. Helmstetter, Carlsbad, all of Calif., assignors to Callaway Golf Company, Carlsbad, Calif.

Filed Oct. 16, 1990, Ser. No. 595,963
Int. Cl.[5] A63B *53/08*
U.S. Cl. 273—167 F **23 Claims**



1. In a metal wood golf club head having an elongated, forwardly facing front wall to strike a golf ball, and a hollow body rearwardly of the face plate that includes a curved rear wall, the front wall elongated in a first transverse direction toward a connection to a club shaft, the body having a thin, metallic top wall merging with upper transverse extent of the front wall, the combination comprising:

a) a first group of narrow, metallic, shock wave distributing dendrites extending from said front wall generally rearwardly adjacent the underside of the body top wall and integral therewith,

b) the dendrites spaced apart in said transverse direction, by amounts greater than their widths, the maximum height dimensions of the dendrites below the underside of the top wall being between 0.050 inches and 0.100 inches and the dendrites being generally downwardly convex in cross-section,

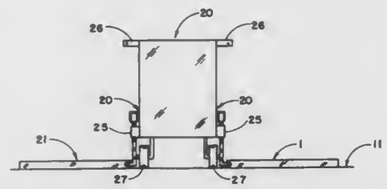
c) there being a second group of dendrites integral with said top wall and which are spaced apart in said transverse direction, and which extend generally rearwardly to merge rearwardly and downwardly with said curved rear wall to transfer rearward loading to that wall as the dendrites pick up rearward loading from said top wall in response to front wall impact with a golf ball.

5,067,716

PORTABLE MINIATURE GOLF SYSTEM AND METHOD OF USE

Kerry T. Namanny, and Keith E. Namanny, both of 183 N. Main, Cumberland, Iowa 50843

Filed Jul. 20, 1990, Ser. No. 556,356
Int. Cl.[5] A63B *67/02*
U.S. Cl. 273—176 R **4 Claims**



1. A combination system comprising a transport means with one or more miniature golf greens attached thereto by attachment means;

each of which miniature golf greens has a long and a short dimension and a playing and a lower surface;

each of which miniature golf greens is comprised of said playing and lower surfaces, as well as sides, shot barriers, a hole and mounting means, which sides and shot barriers project vertically above the level of the playing surface of a miniature golf green when it is viewed in side elevation from a distance perpendicularly removed from a side thereof when the lower surface of the miniature golf green is setting upon a level horizontal surface;

which sides essentially encompass the playing surface, and which shot barriers are placed at locations on the playing surface;

which hole is in the playing surface and projects downward from the playing surface when the miniature golf green is viewed in side elevation from a distance perpendicularly removed from a side, when the miniature golf green is oriented as described above;

which mounting means are located on the miniature golf green so as to allow attachment of the miniature golf green to the transport means by way of attachment means, which attachment means attach to said mounting means;

each of which miniature golf greens allows a player thereon to cause a golf ball to be rolled upon the playing surface thereof, within the confines of the sides, around short barriers and into the hole thereof when the lower surface of the miniature golf green is resting on a level horizontal surface;

which attachment means comprises:

a. a mounting bracket which has a hole vertically therethrough as the mounting means bracket is viewed in frontal elevation at a distance perpendicularly removed therefrom, which mounting bracket is permenantly affixed to the vertical surface of a side, the front and/or back of the transport means when said transport means is positioned on a level horizontal surface;

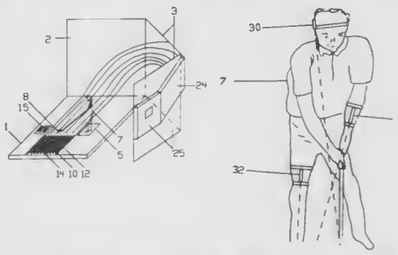
b. a sliding element which freely but securly slides vertically through the vertically oriented hole through the mounting bracket, which sliding element has a handle affixed to its upper aspect above the location of the mounting bracket, and which sliding element has a multiplicity of holes extending therethrough along its vertically oriented length, from one side to the other, as the sliding element is viewed in frontal elevation from a distance perpendicularly removed therefrom, and which sliding element has affixed thereto at its lower aspect below the location of the mounting bracket, a miniature golf green contacting bracket such that said miniature golf green contacting bracket is oriented so as to be simultaneously parallel to both the transport means to which the mounting bracket is attached at the point of its contact thereto and to the level horizontal surface surrounding the transport means, which miniature golf green contacting bracket also has projections therefrom which are oriented simultaneously both perpendicular to the transport means at the point the mounting bracket is attached thereto and parallel to the level horizontal surface surrounding the transport means, which projections from the miniature golf green contacting bracket have thereon means for attaching a miniature golf green, by way of the mountir.g means thereon, to said miniature golf green contacting bracket in a manner which allows the attached miniature golf green to be rotated between a parallel and a perpendicular orientation with respect to a level horizontal surface surrounding the transport means, and which sliding element can be caused to be raised and lowered as a result of force applied to the handle affixed to the upper aspect of the sliding element, and secured in a raised or lowered position by placing a pin or equivalent into one of the multiplicity of holes which extend from one side of the sliding element to the other side thereof, above the level of the upper aspect of the mounting bracket, so that the ends of the pin, or equivalent, project from the sides of the sliding element and rest on the upper surface of the mounting bracket, thereby, by functional interaction with the sliding element, retaining the sliding element in the intended position.

5,067,717

GOLFER'S SWING ANALYSIS DEVICE

Thomas A. Harlan, No. 16 Hightrail Way, Austin, Tex. 78738, and Joseph F. Long, 1335 Lost Creek Blvd., Austin, Tex. 78746

Filed Nov. 7, 1990, Ser. No. 611,683
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—183 B **4 Claims**



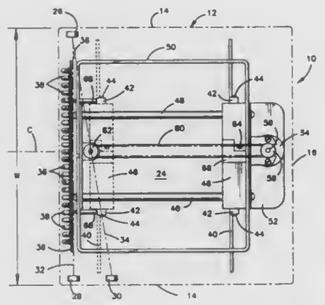
1. A repeatable golf swing teaching device comprising:

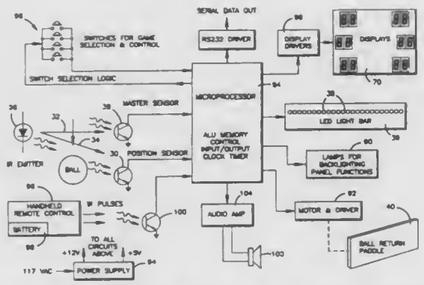
a) a base platform, a vertical side panel and vertical back panel;

VOL 1132 ISS 4 NO 26 1991 UMI

b) a pressure sensitive pad containing multiple pressure sensors on said base platform;
c) multiple sensor means and multiple green and multiple red display lights in a range of swing paths in said base platform, said vertical panel and said back panel;
d) a computer communicating with said multiple sensor means and said multiple display lights in said base platform, said vertical side panel and said vertical back panel;
e) a first form fitting battery powered light gun that may be snugly fitted to a golf student's head in a reproducible manner;
f) a second form fitting battery powered light gun that may be fitted on said golf student's left forearm in a reproducible manner;
g) a third form fitting light gun that may be reproducibly fitted around said golf students right upper leg;
h) a computer that communicates with said multiple sensor means, and said multiple pressure sensors and said multiple display lights and acts to:
1) light a red light in said pressure sensitive pad if signals received from said multiple pressure sensors differ from a previously chosen pattern;
2) light a portion of said multiple red display lights indicating light path of incident light from said first form fitting powered light gun, said second light gun and said third light gun as said golf student swings at a ball;
3) record swing path of each swing and to activate an alarm if said swing path differs markedly from a prechosen swing path;
4) activate a portion of said multiple green display lights to form said pre-chosen swing paths when a save and permanent display command is entered.

detecting the time interval between the interception of the first and second beams by the ball; and



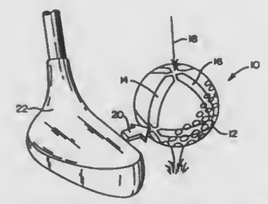


using said time interval and the ball speed to calculate the position of the ball transversely on the path when the ball rolls through the beams.

5,067,718
ROLLING BALL SPEED AND POSITION INDICATING DEVICE AND METHOD
J. Paul Knox; Robert B. Murray, III, both of Springfield, and Clinton L. Smith, Ozark, all of Mo., assignors to Golf Vegas International, Inc., Ozark, Mo.
Filed Jan. 2, 1991, Ser. No. 636,893
Int. Cl.[5] A63B *69/36*
U.S. Cl. 273—185 R **17 Claims**

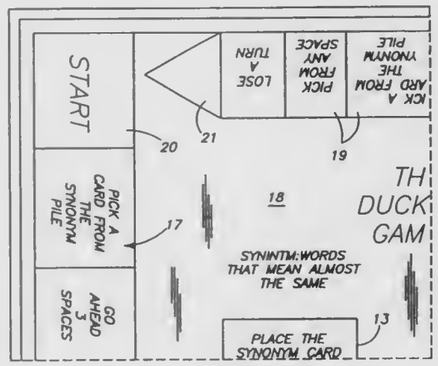
1. A method of determining the speed and position of a ball rolling along a path, said method comprising the steps of:
directing a first beam substantially transversely across the path;
directing a second beam across the path at an acute angle relative to said first beam;
detecting the length of time the ball intercepts one of said beams;
using said length of time and the ball size to calculate the speed of the ball;

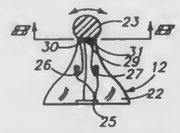
5,067,719
SPIN COMMUNICATING BALL
William H. Mook, 9124 Leith Dr., Dublin, Ohio 43017
Filed Jul. 31, 1990, Ser. No. 560,804
Int. Cl.[5] A63B *41/00, 43/00, 37/14*
U.S. Cl. 273—213 **6 Claims**



1. A spin communicating ball comprising a ball having on the surface thereof color markings comprising three stripes forming three great circles on said ball with each said stripe being at right angles to the other two stripes and each said stripe being of a different primary color, said different primary colors mixing in various proportions to form a range of colors depending on the direction of spin of said ball.

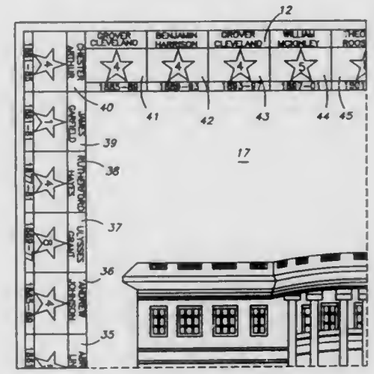
5,067,720
BOARD GAME APPARATUS
Wanda F. Bundy, 45 Susie Wilson Rd., Essex Jct., Vt. 05452
Filed Mar. 4, 1991, Ser. No. 663,686
Int. Cl.[5] A63F *3/00, 9/18*
U.S. Cl. 273—237 **2 Claims**





1. A board game apparatus comprising, in combination,
a game board, the game board including a top planar surface, the top planar surface including a discontinuous single path, the path defined by a series of directional spaces, and the game board including a central space positioned medially of the perimeter path, the central space including a respective first, second, and third space to receive a respective first, second, and third space to receive first, second, and third deck, each deck having cards posing predetermined questions for response by individual players, and
the directional spaces directing players to select a card from a respective deck from each of the respective first, second, or third deck space, and
a perimeter path including a start space and a finish space, and at least one dice member for directing movement about the perimeter path, and
at least one token means for each player for indicating position of each respective player about the perimeter path, and for indicating correctness of a response relative to questions posed by the cards of the respective decks positioned within each respective first, second, and third space, wherein each token includes a transparent base, and an opaque head, the opaque head rotatably mounted relative to the transparent base, the opaque head including an axle coaxially aligned with an axis defined by the opaque head and transparent base, and a battery mounted within the transparent base, and a first indicator light defined by a first coloration positioned within the transparent base, and a second indicator light defined by a second contrasting coloration relative to the first coloration positioned within the transparent base, and contact means for selectively effecting electrical communication between the battery and said first indicator light or said second indicator light selectively.

5,067,721
METHOD AND APPARATUS FOR PLAYING A PRESIDENTIAL BOARD GAME
Robert W. Hart, 105 S.W. 2nd St., Apt. 103, Corvallis, Oreg. 97333
Filed Jul. 9, 1990, Ser. No. 550,061
Int. Cl.[5] A63F *3/00*
U.S. Cl. 273—243 **3 Claims**



1. A method of a plurality of players playing a Presidential board game, wherein the method comprises the steps of,
providing a planar game board, including the step of providing a perimeter path of a predetermined number of spaces about a perimeter of an upper surface of the game board, with a central open space defined within the perimeter path, and
providing a single six-sided die, and
providing a score pad, and
providing a stack of playing cards, wherein the step of providing the playing cards includes forming a predetermined number of cards from said stack of said playing cards to correspond with each space of said predetermined number of spaces, and each card of said predetermined number of cards including at least one question associated with at least one space of said predetermined number of spaces, and
including the step of each player sequentially and initially directing the die onto the open surface of the game board to determine a starting player, and each player sequentially in turn directing the die onto the open surface to direct a player's playing piece onto one of said spaces corresponding to a predetermined die number indicated by said die, and
removing a card from said stack of playing cards and answering the at least one question associated with said card and said one of said spaces, and
wherein the predetermined number of spaces is formed as forty spaces to correspond with each of forty Presidents of the United States, and wherein the predetermined number of spaces are sequentially arranged from one through forty to correspond with the first through forty Presidents of the United States directly, and forming each of said spaces with an indication of each President and positioning a predetermined number medially of each of said spaces, wherein each predetermined number corresponds to a term of years each of said Presidents has occupied as a term of President in the United States, and
wherein a correct response to the question awards each player the predetermined number indicated upon each of said spaces of said perimeter path of the game board.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,722

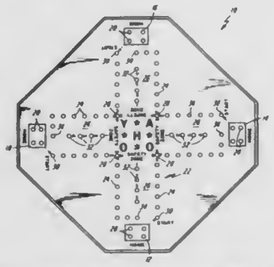
METHOD OF PLAYING A BOARD GAME

Francis P. Wesner, 151 Buck Ave., Johnstown, Pa. 15902

Continuation of Ser. No. 469,695, Jan. 24, 1990, abandoned, which is a continuation of Ser. No. 300,700, Jan. 19, 1989, abandoned, which is a continuation of Ser. No. 143,250, Dec. 29, 1987, abandoned, which is a continuation of Ser. No. 865,983, May 21, 1986, abandoned. This application Jul. 27, 1990, Ser. No. 560,455

Int. Cl.[5] A63F *3/00*

U.S. Cl. 273—248 **2 Claims**



1. A method of playing a board game playable by up to four players comprising the steps of:

providing four sets of movable markers, each set having a plurality of commonly colored markers, said sets being distinguishable from each other wherein the markers of one set being or a different color than the markers of the other sets, providing four individual die members, and providing a board having inscribed on the playing surface thereof a segmented pathway in the outline of a cruciform having arms of equal length radiating from a common center, each arm having a longitudinal axis with a plurality of end positions mutually spaced therealong one position for each marker in a set, said pathway formed by seven positions lying along axes on the right and left sides of the longitudinal axis, parallel to and equidistantly spaced from said axis with the seventh position being common to the next adjacent arm, each arm terminating in two positions contained in a plane normal to the longitudinal axis of the arm with one position on said axis and the other in alignment with the end position on the left hand outline or pathway axis, the four common seventh positions being designated safe and the distal end position on the right side of each arm being designated, start; four rectangular home positions, one located at the end of each arm and centered on the longitudinal axis thereof, each home position being the color of a different marker set and containing a plurality of marker home positions,

assigning each player set of markers and a die;

dividing the players into two teams wherein each player has a partner;

placing said markers on their respectively colored home positions;

each player rolling their die in turn, when a player rolls a predetermined number on said die said player moving one of his assigned markers to said respective start position;

each player, in turn, continuing the rolling of their dice and alternatively advancing along the pathway only their said assigned markers, which were previously placed on said start position, or moving only one of their said assigned markers from said respective home position to said respective start position according to the die roll;

said advancing markers only one circuit around said pathway and then moving said markers toward their respective end positions;

when a first player has successfully advanced his assigned set of markers into his respective end positions before his partner does, said first player maintaining his turn and assisting his partner by using his turn to roll his die and advance his partner's markers, the team advancing both their sets of markers into their respective end positions first, being the winner.

5,067,723

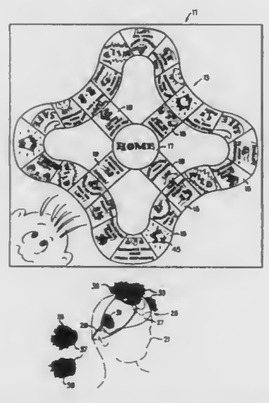
HEAD MASK TABLETOP ACTION GAME

Paula M. Yurkovic, Chicago, Ill., assignor to Irwin Toy Ltd., Toronto, Canada

Filed Feb. 8, 1991, Ser. No. 653,038

Int. Cl.[5] A63F *3/00*; A63H *33/00*

U.S. Cl. 273—249 **2 Claims**



1. A tabletop action game for three or more players, including:

a head mask to be worn by each player,

each head mask having easily releasable fastening means for attaching locks of hair to the helmet,

a plurality of locks of hair being attached to each head mask, with each lock being of a different specified color of a selected limited set of colors,

a playing board having a path indicated thereon,

said path having a series of spaces starting at a beginning and continuing to an end,

a distinctive marker for each player which marker will fit on a space of the series of spaces forming said path,

means to randomly indicate, within a range, the number of spaces a player must move his marker during his playing turn, and

indicia on at least some of said squares in said path to indicate the player whose marker lands on one of said squares is entitled to remove a lock of hair from the head mask of another player and attach it by means of the easily releasable fastening means to his own head mask.

5,067,724

METHOD OF PLAYING A POKER GAME

Raymond M. Rinkavage, 3E Queen Tr., Southington, Conn. 06489

Filed Dec. 5, 1990, Ser. No. 622,624

Int. Cl.[5] A63F *1/00*

U.S. Cl. 273—292 **4 Claims**

1. A method of playing a poker game, including a plurality of players, comprising the steps of,

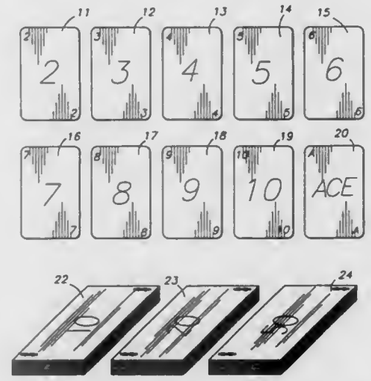
providing a deck of cards, including a plurality of identical sets of a predetermined number of cards, each card in each identical set having a distinguishable numerical value and each identical set of cards representing numerals in ascending order and

providing each player with a predetermined amount of currency, and

selecting a dealer from a plurality of players, and

the dealer distributing a finite number of cards to each of the plurality of players, wherein the finite number of cards is less than ten percent of the number of cards in the deck of cards, and

each player in turn announces a bid of a predetermined number of like numbered cards based on a first number of the like number of cards held by each player and a second number of the like number of cards based on speculation



to be held by remaining players of the plurality of players, and

opposing players selectively challenging the bid or selectively presenting a further bid defining a further number of cards greater than the group of like numbered cards, wherein said each player by correctly substantiating the bid subject to the challenge receives from each player a penalty number of currency or alternatively, upon not substantiating the bid, pays each remaining player of the plurality of players the predetermined number of currency dollars.

5,067,725

NUMBER-SENSE CARD GAME

Leonora M. Leach, 113-15 34th Ave., Corona, N.Y. 11368

Filed Dec. 3, 1990, Ser. No. 621,090

Int. Cl.[5] A63F *1/00*; G09B *19/02, 19/22*

U.S. Cl. 273—302 **1 Claim**

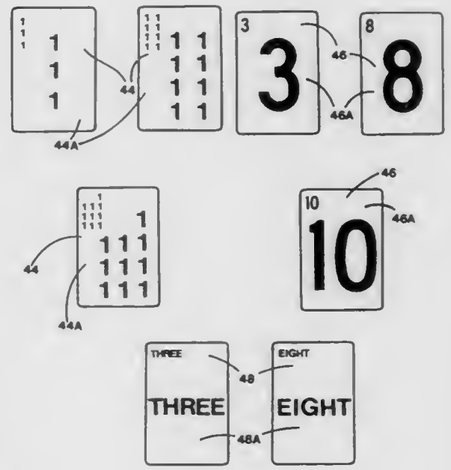
1. A number-sense card game for representing the numbers from one to ten in three different ways comprising in combination:

a first deck of cards representing numbers in a first way wherein each card of said first deck having a number of "1" digits printed thereon corresponding to a number from one to ten, wherein a card having a single "1" digit represents the number one, and a card having ten "1" digits represents the number ten, a small replica of which is printed on one of the upper corners of said cards;

a second deck of cards representing numbers in a second way wherein each card of said second deck having a single numerical character representing a number from one to ten, a small replica of which is printed on one of the upper corners of said cards;

a third deck of cards representing numbers in a third way wherein each card of said third deck having a word naming a number from one to ten, a small replica of which is on one of the upper corners of said cards;

a fourth deck of cards representing numbers in all said three ways wherein a first set of cards in said fourth deck having a number of "1" digits printed thereon, a second set of cards in said fourth deck having a single numerical charater printed thereon, and a third set of cards in said fourth



deck having a word naming a number from one to ten, wherein all three sets of cards represent the numbers from one th ten.

5,067,726

LACROSSE STICK HEAD WITH A THROAT WALL RIB AND BALL STOP MEMBER

William H. Brine, III, Mendon, Mass., and Peter J. Brine, Hanover, N.H., assignors to Sports Licensing, Inc., Hanover, N.H.

Filed Dec. 14, 1990, Ser. No. 628,419

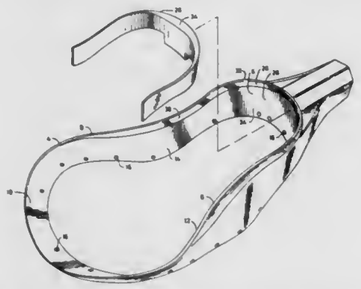
Int. Cl.[5] A63B *59/02*

U.S. Cl. 273—326 **8 Claims**

1. A lacrosse stick head comprising a frame and netting attached to said frame, said frame comprising a throat wall, side wall means extending from said throat wall, and a lip portion joined to an end of said side wall means remote from

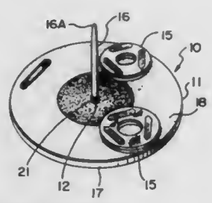
VOL 1132 ISS 4 NO 26 1991 UMI

said throat wall, said netting being configured to define a ball pocket, rib means on said throat wall extending inwardly



therefrom, and a ball stop member secured to said throat wall with an edge of said ball stop member adjacent said rib means.

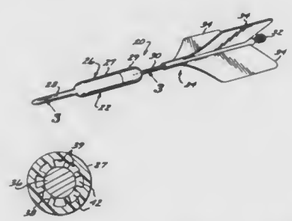
5,067,727
RING TOSS GAME
Perry D. Crompton, 15543 Sprig St., Chino Hills, Calif. 91709
Filed May 7, 1991, Ser. No. 697,029
Int. Cl.[5] A63B 67/06
U.S. Cl. 273—336 22 Claims



1. A game of skill comprising;
a. a first target board having on a surface thereof a fabric covering with a loose pile,
b. a second target board substantially identical to said first game board, and
c. at least one throwing object for tossing from a distance onto either of said first and second target boards, said throwing object having on two opposite sides thereof fabric having a plurality of hooks protruding therefrom of the proper size and shape to adhere to said loose pile of said target board, whereby said throwing object will adhere to said target board when thrown onto said target board, and whereby said first and second target boards may be adhered to opposite sides of said throwing object, thereby forming a self-contained package sandwiching said throwing object between said first and second target boards.

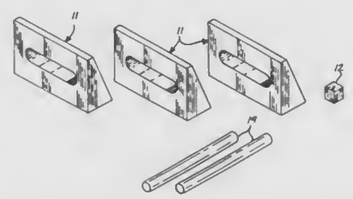
5,067,728
LAWN DART WITH SAFETY FEATURE
Bemanali H. Dadbeh, Seal Beach, Calif., assignor to Harvard Sports, Inc., Compton, Calif.
Continuation of Ser. No. 148,042, Jan. 25, 1988, abandoned. This application Aug. 29, 1988, Ser. No. 237,538
Int. Cl.[5] A63B 65/02
U.S. Cl. 273—420 4 Claims

1. A lawn dart comprising:
a first member having a flexible tip portion and a hollow portion; said hollow portion having a longitudinally extending axis;
a weight member fixedly positioned within said hollow portions;
a plurality of radially extending members formed on the inner surface of said hollow portion, the far ends thereof contacting said weight member within said hollow portion to form a plurality of air passages, the flexible tip and air passages acting to absorb and dissipate the energy of impact; and



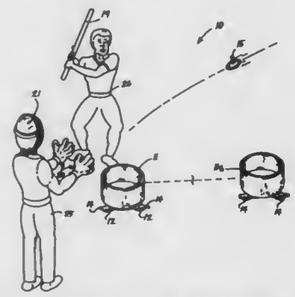
an elongated member coupled at one end to said first flexible member and having a plurality of fins extending radially from the other end.

5,067,729
BLOCK STACKING GAME APPARATUS
Gary W. Hunter, 1603 Landing Ct., Woodstock, Ga. 30188, and Robert L. Leeper, 2327 Dayron Cir., Marietta, Ga. 30062
Filed Oct. 15, 1990, Ser. No. 597,515
Int. Cl.[5] A63F 9/00
U.S. Cl. 273—450 2 Claims



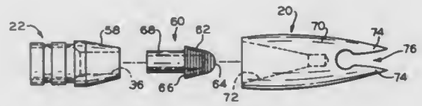
1. A block stacking game apparatus for stacking of blocks in a balanced relationship relative to one another to define a tower, wherein the apparatus comprises,
a plurality of block members, the block members each defined by an equal predetermined length and each defined by a respective identical trapezoidal prism and shape, and
a die member to sequentially direct players in stacking of the block members, and
wherein each block member includes a first side wall, a second side wall, a third side all, and a fourth wall, the second and fourth side walls arranged parallel relative to one another, and the first side wall defined by a first length, the second side wall defined by a second length, the third side wall defined by a third length, and the fourth side wall defined by a fourth length, wherein the third length is greater than the first length, the first length is greater than the second length, and the second length is greater than the fourth length, and
including an elongate enclosed slot directed through the first and third side walls, the enclosed slot of each block member positioned medially and arranged parallel between the second and fourth side walls.

5,067,730
SPORTS GAME ORGANIZATION
Charles Wanalista, 749 Main St., Avoca, Pa. 18641
Filed Mar. 12, 1991, Ser. No. 668,043
Int. Cl.[5] A63B 67/00, 65/00
U.S. Cl. 273—411 3 Claims



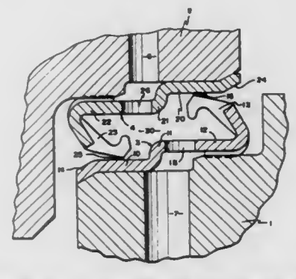
1. A method of playing a sports game comprising the steps of,
providing a first container and a second container, each container including a plurality of leg members, and each leg member of the plurality of leg members including a through-extending aperture therethrough, and
a plurality of securement pins, and
a securement pin of the plurality of securement pins directed through each aperture of each of the support legs, and
securing the first container and the second container at a predetermined spacing relative to one another, and
providing a tubular projectile, with the tubular projectile formed with a flexible covering skin and an interior granular material to effect gyratory flight of the projectile when impacted, and
a plurality of bat members, and
a plurality of teams, and each team formed with a plurality of players, and
providing each of the teams with a bat member, and designating a first team with a first player the first team positioned behind the second container member, and
the second player of the first team positioned adjacent the first container, and
providing the second player with the bat member, and
positioning the first player of the second team behind the first container member adjacent the second player of the first team.

5,067,731
NOCK ADAPTER
Wayne J. Bickel, Rte. 1, Box 241, Geneva, Ind. 46740
Filed May 25, 1990, Ser. No. 529,233
Int. Cl.[5] F42B 6/06
U.S. Cl. 273—416 4 Claims



1. An arrow assembly comprising:
a shaft;
a nock including an internal mounting surface;
a nock adapter for securing said nock to said shaft, said adapter having a body with a central through aperture therein, a first end of said nock adapter engaging one end of said shaft, and a second end of said nock adapter engaging said nock, said second end including a external tapered mounting surface engaging said nock internal mounting surface; and
an adapter extension attached to said second end and including an external tapered mounting surface, said nock internal mounting surface engaging both said external mounting surface of said nock adapter and of said adapter extension.

5,067,732
SEAL ASSEMBLY
Steve B. Szabo, Washington; Daniel G. Chien, Royal Oak; and Bruce V. Cobb, Livonia, all of Mich., assignors to Rockwell International Corporation, Pittsburgh, Pa.
Filed Apr. 16, 1990, Ser. No. 509,125
Int. Cl.[5] F16J 15/32, 15/46; F16C 33/78
U.S. Cl. 277—11 10 Claims



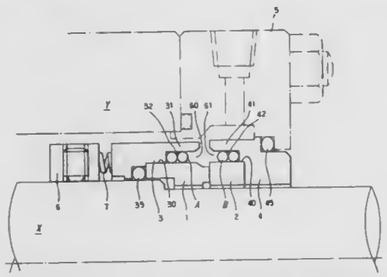
1. A seal assembly comprising first and second annular seal elements each having a generally axially extending base and an annular radial lip, each of said bases including a wear surface portion, a central portion and an end portion, each of said annular radial lips extending, from a respective base end portion, generally away from said base in a radial direction and generally inward toward said central portion in an axial direction, each of said central portions including at least one bore therethrough, said first and second seal elements being arranged such that the wear surface portion of each seal element provides a wearing surface for the radial lip portion of the other seal element whereby when assembled, the seal assembly forms a fluid tight annular cavity except for the bores between the seal elements and the bores permit the passage of a fluid medium into and out of the annular cavity.

5,067,733
MECHANICAL SEAL INCLUDING A SPLIT SEAL RING
Yataro Nagai; Mitsuyoshi Matsushita, and Yuji Yamanchi, all of Tokyo, Japan, assignors to Tanken Seiko Kabushiki Kaisha, Tokyo, Japan
Continuation of Ser. No. 216,155, Jul. 7, 1988, abandoned. This application May 18, 1990, Ser. No. 527,658
Claims priority, application Japan, Jul. 31, 1987, 62/116638; Jul. 31, 1987, 62/116639
Int. Cl.[5] B21D 39/04; B23P 19/04; B23Q 3/00; F16J 15/38
U.S. Cl. 277—11 6 Claims

1. A mechanical seal having two seal rings which forms a rotatably sliding sealing face comprising:
a first seal ring which is split in at least two circular-arc-segments,
a support ring which receives said first ring and covers over an outer face of said first seal ring with a predetermined gap which has an opening to receive a removable tool to force at least two O rings into abuttingly adjacent relationship therein so as to secure said first ring to said support ring even after said tool is removed,
said O rings being abuttingly adjacent each other and inserted into the gap between said first seal ring and the

VOL 1132 ISS 4 NOV 26 1991 UMI

support ring which fastens said first seal ring so as to form a circle, the cross-sectional diameter of each said O ring being enough larger than the size of the gap so that each said O ring fastens and integrates said two segments into a



circular shape, whereby substantial sliding of said first seal ring with respect to said support ring is prevented and whereby said O rings firmly seal said gap, and

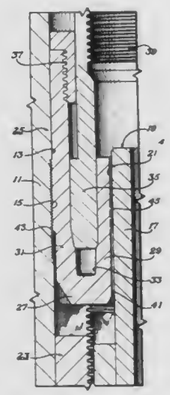
a second seal ring.

5,067,734

METAL SEAL WITH GROOVED INLAYS

Carl F. Boehm, Jr., Houston, Tex., assignor to ABB Vetco Gray Inc., Houston, Tex.

Filed Jun. 1, 1990, Ser. No. 531,886
Int. Cl.[5] F16J *15/08*
U.S. Cl. 277—236 **3 Claims**



1. In an apparatus having a cylindrical member, an improved means for sealing against the cylindrical member, comprising in combination:

a metal ring having a sealing side facing the cylindrical member;

means for moving the sealing side into sealing contact with the cylindrical member;

a plurality of circumferential axially spaced metal bands protruding radially from the sealing side, defining cavities between the bands, the bands being sufficiently softer than the cylindrical member to deform when forced into contact with the cylindrical member;

an inlay material of metal softer than the bands located in the cavities, the inlay material having a sealing side which is forced into contact with the cylindrical member; and

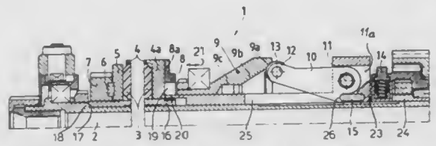
an annular groove formed in the sealing side of the inlay material, the bands causing the material of the inlay to flow toward the groove as the inlay is forced into contact with the cylindrical member, the movement of the material of the inlay as it is forced into contact with the cylindrical member causing a shearing action on the surface of the inlay to enhance sealing.

5,067,735

CLAMPING DEVICE FOR LOCKING THE WORKPIECE-CARRYING COLLET IN AUTOMATIC MACHINE TOOLS

Enrico Ronzoni, Bergamo, Italy, assignor to Gildemeister Italiana S.p.A., Brembate Sopra, Italy

Filed Jul. 23, 1990, Ser. No. 557,088
Claims priority, application Italy, Oct. 20, 1989, 22079 A/89
Int. Cl.[5] B23B *31/20*
U.S. Cl. 279—1 F **4 Claims**



1. In a clamping device for locking a workpiece-carrying collet in an automatic machine tool, the clamping device having a movable traction device (**21**) and linkage means (**1**) moving a traction rod (**2**) with the movement of the traction device for collet closing, clamping and opening operations, the improved linkage means (**1**) comprising:

a plastic prestressing string (**3**) having a relatively flat elasticity characteristic, the spring consisting of a sleeved-shaped component;

a dish-like component (**4**) having a bottom (**4***a*) that receives one end othe the spring (**3**);

a disc (**5**) abutting an opposite end of the spring (**3**);

a pressure sleeve (**16**) that extends through the spring (**3**), dish-like component (**4**) and disc (**5**) and about a traction rod (**2**), one end (**17**) of the pressure sleeve (**16**) engaging a stop (**18**) on the traction rod (**2**) for moving it;

an adjusting nut (**7**) on the one end of the pressure sleeve (**16**) and engaging the disc (**5**);

an indicator nut (**8**) on an opposite end of the pressure sleeve (**16**) and cooperative with the bottom (**4***a*) of the dish-like component (**4**);

an annular support (**11***a*) about the traction rod (**2**);

a profiled abutment and positioning sleeve (**9**) about the annular support (**11***a*), the sleeve (**9**) having successive segments (**9***a*, **9***b*, **9***c*) in the axial direction and engaging a traction device (**21**) for movement thereby; and

a plurality of closing levers (**10**) spaced circumferentially about the annular support (**11***a*), each closing lever being hinged at one end (**11**) on the annular support (**11***a*), the segments of the sleeve (**9**) forming an abutment for the opposite ends of the closing levers (**10**) in dependence on the position of a clamping collet and the actual diameter of a workpiece to be clamped thereby,

the annular support (**11***a*) cooperating at one end with the bottom (**4***a*) of the dish-like component (**4**) and at its opposite end with a ring (**23**) fixed on a spindle (**24**) via rollers (**15**) which eccentrically engage the closing levers (**10**).

5,067,736

SLOTTED BRAKE FOR IN-LINE ROLLER SKATE

Brennan J. Olson, and Thomas J. Brace, both of Minneapolis, Minn., assignors to Rollerblade, Inc.

Filed Aug. 22, 1989, Ser. No. 396,968
Int. Cl.[5] A63C *17/14*
U.S. Cl. 280—11.2 **5 Claims**

1. A roller skate and brake usable on a road surface by an operator to achieve improved braking efficiency comprising:

an in-line roller skate frame carrying a plurality of wheels mounted for rotation about a plurality of parallel axles, said axles including at least front and rear axles to permit rolling movement of said frame in forward and rearward directions;

means for attaching said skate frame to the operator;

a brake housing member formed of substantially rigid material and including:

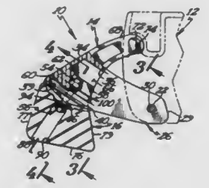
means attaching said housing member to said skate frame;

a pair of lateral side walls and a rear wall extending between said side walls; and

a rigid plate extending between said side walls and said rear wall and positioned to overlie the road surface;

an integral brake pad member formed of resilient material having a high coefficient of friction carried by said housing member and including first and second lateral side faces, a front face, a rear face, an upper face and a base, said base confronting the road surface so as to frictionally engage the road surface when said skate frame is pivoted about said rear axle to bring said base into contact with the road surface;

slot means on one of said members and tongue means on the other of said members with said tongue means being mateably received within said slot means to cause said pad member to be retained to said housing member with said



upper face of said pad member closely confronting said plate;

said slot and tongue means being constructed and arranged such that during braking operation said members are urged into locking engagement with one another as a result of frictional forces generated between said pad member and the road surface, said forces urging said pad member rearwardly against said housing member to drive said tongue means into said slot means so as to increase the locking engagement between said members during braking;

said pad member including a generally upright aperture extending between said upper face and said base;

said housing member including an aperture in said plate positioned to communicate with said pad member aperture when said tongue means and slot means are mateably engaged;

fastening means extending through said communicating apertures to retain said tongue means in said slot means;

said fastening means being a screw and a nut, said screw including a shaft for receiving said nut; and

wherein said plate aperture is an open ended, forwardly extending groove for slidably receiving and guiding said screw shaft when said screw shaft extends from said pad member aperture and while said tongue means slides into mating engagement with said slot means.

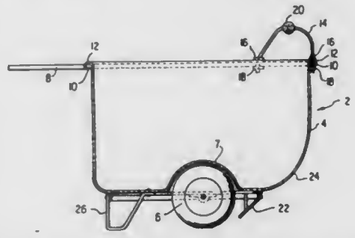
5,067,737

WHEELBARROW HAVING A PAIR OF AUXILIARY DUMPING RODS

Bryon C. Broeske, R.R. No. 1, Box 159, Dorchester, Wis. 54425

Filed Dec. 28, 1990, Ser. No. 635,700
Int. Cl.[5] B62B *1/22*
U.S. Cl. 280—47.31 **17 Claims**

1. A wheelbarrow comprising a load box, a supporting wheel rotatably engaged with said load box at least one handle engaged with a rearward end of said load box for guiding the wheelbarrow, wherein said wheelbarrow further comprises a pair of dumping rods each extending in a curve upward between and engaged with two spaced apart positions on an



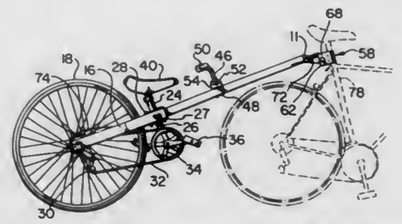
upper edge of a forward end of said load box wherein said dumping rods are in a ground engaging position on dumping of a load from said load box.

5,067,738

CHILD POWERED BICYCLE TRAILER

Richard J. O'Connor, 2035 Woodglen Crescent, Gloucester, Ontario, Canada K15666

Filed Oct. 22, 1990, Ser. No. 600,730
Claims priority, application Canada, Jun. 21, 1990, 2019471
Int. Cl.[5] B62K *27/00*
U.S. Cl. 280—204 **14 Claims**



1. A trailer for attachment to a bicycle having a frame, a seat for supporting a rider and a seat post coupling that seat to the frame, comprising:

(a) an elongated support member having a first and an other end;

(b) detachable attachment means for pivotally attaching the first end of the support member to a portion of the bicycle so that the support member extends rearwardly in a downwardly inclined fashion;

(c) driving means attached to the support member intermediate the first and other end;

(d) a driveable ground engaging wheel rotatably mounted to the other end; and

(e) seat means attached to the support member for supporting a rider.

5,067,739

STRUCTURE OF MOTORCYCLE STAND

Chung A. Kuan, No. 32, Village Mei Pu, Tai Pao Hsiang, Chia-I, Taiwan

Filed Dec. 21, 1990, Ser. No. 631,497
Int. Cl.[5] B62H *1/06*
U.S. Cl. 280—304 **1 Claim**

1. The motorcyle stand, comprising a substantially H-shaped tubular frame defining therein two cylindrical side chambers vertically disposed at two opposite sides with a cylindrical cross chamber transversely disposed therebetween, said cross chamber having set therein a transmission gear set to drive two driving bevel gears to respectively drive two extendible sup-

VOL 1132 ISS 4 NO 26 1991 UMI

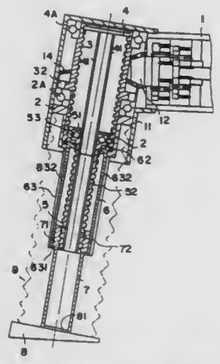
ports to respectively extend out of said two cylindrical side chambers for supporting a motorcycle in place or receive inside said two cylindrical side chambers permitting said motorcycle to be driven to move, wherein said two extendible supports are each comprised of:

a socket having an annular top flange projecting outwards at the top for mounting a ball bearing, and two opposite projecting strips respectively projecting inwards at the bottom;

a transmission tube fastened to the inner top of either one of said two cylindrical side chambers via a ball bearing, having a collar at the middle thereof and carried on the top edge of the ball bearing mounted on said annular top flange, and an inner thread on the inner wall surface thereof, said collar having a notch made thereon;

a ring-shaped bevel driven gear sleeved on said transmission tube and engaged with either one of said two driving bevel gears, having a vertical plate at the bottom thereof and fastened in said notch on said collar for driving said transmission tube to rotate;

a driven screw bolt having a butterfly boring bore through the central axis thereof, an extended head, and an elongated outer thread portion extending downward from said extended head at the center;



a T-shaped driving rod, having two unitary, columnar ribs at two opposite sides respectively engaged in said butterfly boring bore and driven by said transmission tube to carry said driven screw bolt to rotate;

a tube-shaped movable coupling having a raised outer thread portion on the smooth outer wall surface thereof at an upper end and engaged with the inner thread of said transmission tube, an annular projection projecting in the bore thereof to support the extended head of said driven screw bolt permitting said driven screw bolt to be driven by said T-shaped driving rod to rotate inside said tube-shaped movable coupling, two elongated inner grooves on the inner surface wall thereof at two opposite locations, and two elongated outer grooves on the outer wall surface thereof at two opposite locations and respectively engaged with the two opposite projecting strips of said socket;

a movable tube having two opposite projecting strips on the outer wall surface thereof at one end and respectively engaged in the two elongated inner grooves of said tube-shaped movable coupling, and an inner thread over the inner wall surface thereof and engaged with the outer thread portion of said driven screw bolt; and

a shoe made of resilient material in circular shape, having a stub rod at the top center thereof and fastened in said movable tube at the bottom.

5,067,740

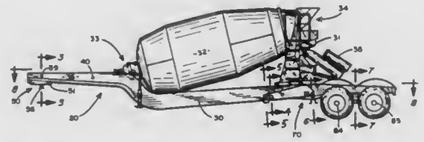
STRETCH TRAILER MIXER

Ronald E. Christenson, Kasson, Minn., assignor to McNeilus Truck and Manufacturing, Inc., Dodge Center, Minn.

Continuation of Ser. No. 441,253, Nov. 27, 1989, abandoned. This application Dec. 14, 1990, Ser. No. 629,050

Int. Cl.[5] B60D *1/44*

U.S. Cl. 280—407 **6 Claims**



1. A trailer for a tractor trailer combination comprising:

(a) a first frame member;

(b) a hitch pin assembly;

(c) means for securing said hitch pin assembly to said first frame member so that said hitch pin assembly can be slid longitudinally with respect to said first frame between first and second pre-selected positions;

(d) means for releasably locking said hitch pin assembly to said first frame member in either said first or said second pre-selected position;

(e) a rear slider assembly having at least one axle and an associated pair of wheels which help support the trailer;

(f) means for securing said rear slider assembly to said first frame member so that said rear slider assembly can be slid longitudinally with respect to said first frame member between a retracted roading position in which the first frame member has a first height, yielding a higher center of gravity and greater ground clearance over the entire length of the trailer bed, and an extended second roading position in which the first frame member has a second height, yielding a lower center of gravity and less ground clearance than in first roading position; and

(g) means for releasably locking said rear slider assembly to said first frame means in either said third or fourth pre-selected position.

5,067,741

DEVICES USING A DOLLY FOR REINFORCING THE LOADING CAPACITY OF TRACTOR VEHICLES

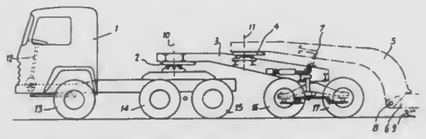
Jacques Ayme, Montelimar, France, assignor to A.C.T.M., France

Filed Dec. 8, 1988, Ser. No. 281,146

Claims priority, application France, Dec. 10, 1987, 87 17212

Int. Cl.[5] B62D *12/02*

U.S. Cl. 280—419 **8 Claims**



1. A device for reinforcing a loading capacity of a tractor vehicle for receiving a transport semi-trailer for transporting heavy loads, which comprises:

(a) an intermediate short semi-trailer called a dolly having a longitudinal axis and having a front part coupled to the tractor vehicle having tractor steering wheels and having a longitudinal axis, said dolly freely pivotable about a vertical axis and coupled to the transport semi-trailer in its turn for freely pivoting about a vertical axis,

(b) dolly steering wheels secured to said dolly,

(c) detecting means associated with said tractor steering wheels for detecting an amount of steering movement of said tractor steering wheels,

(d) control means associated with the dolly steering wheels to control a steering movement thereof, and

(e) means connecting said detecting means and said control means to automatically provide, for any variation of a steering position of the tractor steering wheels, a variation of a steering position of the dolly steering wheels such that the longitudinal axis of the dolly is subtantially in alignment with the longitudinal axis of the tractor vehicle in straight line travel as well as in curved travel and in forward travel as well as in rearward travel.

5,067,742

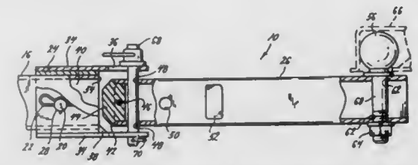
QUICK HITCH ASSEMBLY FOR COUPLING A VEHICLE AND TRAILER

Frank S. Relja, HCR 64, Box #46, French Village, Mo. 63036

Filed Aug. 9, 1990, Ser. No. 564,569

Int. Cl.[5] B60D *1/40*

U.S. Cl. 280—479.2 **11 Claims**



1. An apparatus for use in quick hitch coupling a trailer to a vehicle, where the trailer is provided with a hitch coupler and the vehicle is provided with a tow bar receiver channel having a hollow interior and a pair of holes extending laterally therethrough, the apparatus comprising:

a hitch sleeve having first and second ends, the first end being adapted to fit slidably over the receiver channel and to be releasably secured thereto, and the second end being adapted to extend rearward from the receiver channel; and

a tow bar having first and second ends, the first end being adapted to be releasably and pivotally connected to the second end of the sleeve, and being further adapted to be inserted into and slidably received in the receiver channel, and the second end being adapted to be releasably and pivotally connected to the hitch coupler of the trailer.

5,067,743

PRESSURE CONTROL SYSTEM FOR SUSPENSION

Kouichi Kokubo, Nagoya; Shinichi Tagawa; Masaki Kawanishi, both of Toyota; Kunihito Sato, Susono; Shuuichi Buma, Toyota; Takashi Yonekawa, Mishima, and Toshio Aburaya, Toyota, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Kariya and Aisin Seiki Kabushiki Kaisha, Toyota, both of, Japan

Filed Aug. 27, 1990, Ser. No. 572,621

Claims priority, application Japan, Aug. 28, 1989, 1-221243

Int. Cl.[5] B60G *11/26*

U.S. Cl. 280—707 **5 Claims**

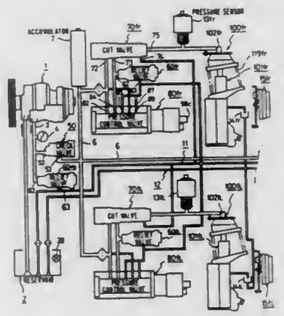
1. A pressure control system for suspension comprising:

a pressure control valve which is interposed between an actuator in a suspension mechanism and a pressure source;

a cut valve which cuts off a fluid path from the pressure control valve to the actuator when a pressure of the pressure source is below a predetermined value and communicates the fluid path when the pressure of the pressure source exceeds the predetermined value;

an acceleration detector which detects an acceleration of a vehicle body on the suspension mechanism; and

an electronic controller for initiating, before the cut valve opens the fluid path from the pressure source to the pressure control valve, an attitude control in which the controller calculate a pressure compensation value in accordance with an acceleration detected by the acceleration detector for suppressing a change of an attitude of the



vehicle body which might be caused by the acceleration of the vehicle body and indicates an adjustment of a pressure by the calculated compensation value to the pressure control valve.

5,067,744

AIR BAG SYSTEM

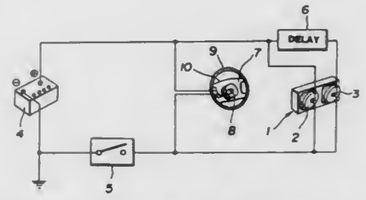
Hirokazu Hirabayashi, Kanagawa, Japan, assignor to Nissan Motor Company, Ltd., Yokohama, Japan

Filed May 23, 1990, Ser. No. 527,474

Claims priority, application Japan, May 23, 1989, 1-129890

Int. Cl.[5] B60R *21/32*

U.S. Cl. 280—734 **2 Claims**



1. A stepped pressurized air bag system for an automotive vehicle comprising:

means for detecting and outputting a signal in response to a collision of said vehicle;

an air bag located with said automotive vehicle so as to restrain a passenger when pressurized;

a first gas generator for expanding said air bag to a first pressure level in response to said signal;

means for delaying said collision detection signal for a predetermined time interval;

a second gas generator for further expanding said air bag to a second pressure higher than said first level, said first and second pressure levels and said time interval being so selected as to satisfy a required level of restricting the passenger's movement while keeping an impact force of said air bag against the passenger caused by its being pressurized by said first and second gas generators within a required limit.

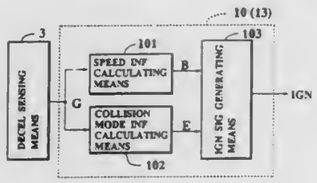
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,745

AIR BAG IGNITION CONTROL SYSTEM FOR AUTOMOTIVE VEHICLE AND THE METHOD

Hironori Yoshikawa, Zama, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed Sep. 21, 1990, Ser. No. 586,081
Claims priority, application Japan, Sep. 28, 1989, 1-253461
Int. Cl.[5] B60R *21/32*
U.S. Cl. 280—735 13 Claims



1. An air bag ignition control system for an automotive vehicle, comprising;

(a) single deceleration sensing means for sensing vehicle deceleration due to collision and generating deceleration detection signals;

(b) speed information calculating means responsive to said deceleration sensing means, for calculating a speed information value on the basis of accumulative low-frequency components of the deceleration detection signals;

(c) collision mode information calculating means responsive to said deceleration sensing means, for calculating as collision mode information value on the basis of accumulative differences in signal level between the maximum and minimum low frequency components of the deceleration detection signals within a predetermined sampling period; and

(d) ignition signal generating means responsive to said speed information calculating means and said collision mode information calculating means, for calculating an ignition decision information value on the basis of the calculated speed information value and collision mode information value and generating an air bag ignition signal when the calculated ignition decision information value exceeds a predetermined value.

5,067,746

ANTI-THEFT TRAILER JACK AND METHOD OF USING SAME

John E. Baker, 915 S. 13th St., St. Joseph, Mo. 64503

Filed Aug. 15, 1990, Ser. No. 567,780
Int. Cl.[5] B60S *9/04*
U.S. Cl. 280—763.1 8 Claims

1. A theft deterrent support assembly for use in combination with a land vehicle resting upon a surface, said supporat assembly comprising;

a generally horizontal mounting plate permanently affixed to an underside of said land vehicle,

a vertically depending member transversely attached thereto and having a passage therethrough,

said mounting plate and depending member defined by two generally parallel lateral edges,

two substantially parallel backing braces extending between and adjoining each said mounting plate lateral edge and corresponding depending member lateral edge and thereby defining an included space therebetween,

said mounting plate providing for the pivotal attachment of one end of a support strut,

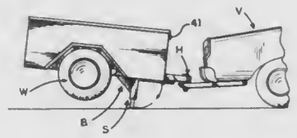
said support strut defined by one end providing said pivotal attachment and an opposite distal end,

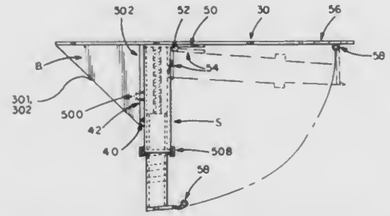
said support strut having a staple extending therefrom and cooperating with said depending member passage when said support strut is pivoted to an extended position adjacent said depending member,

said support strut distal end having a hasp attached thereto and cooperating with securing means on said mounting plate,

said distal end hasp and said mounting plate securing means providing security for said support strut when said support strut is in a stored position,

said support strut providing a length between said pivoted end and said distal end which is greater than the distance between said land vehicle underside and said surface,





said support strut pivotable from said stored postion to said extended position,

said extended position providing support for a portion of said land vehicle and capable of lifting at least one wheel of said land vehicle clear of said surface,

said support strut staple extending through said depending member passage and providing for securing by securing means when said support strut is in said extended position, whereby

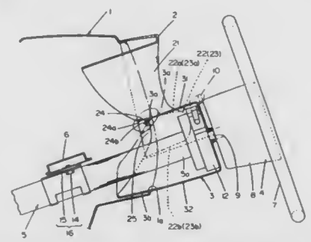
said securing means is protected from tampering and damage by said included space provided by said parallel backing braces.

5,067,747

INSTRUMENT PANEL STRUCTURE OF CAR BODY

Hideki Yokoyama, Higashihiroshima, Japan, assignor to Mazda Motor Corporation, Hiroshima, Japan

Filed Jul. 2, 1990, Ser. No. 546,319
Claims priority, application Japan, Jun. 30, 1989, 1-77854[U]
Int. Cl.[5] B62D *1/18*
U.S. Cl. 280—777 10 Claims



1. An instrument panel structure of an automotive vehicle, having a collapsible steering shaft extending towards a driver seat of the automotive vehicle and an instrument panel including an opening formed therein, said instrument panel having mounted thereon a cluster gauge and a visor bank surrounding said cluster gauge, and being disposed in front of said driver seat, said opening formed in said instrument panel and receiving said collapsible steering shaft, said instrument panel structure comprising:

a cover having a hollow shell which is generally cylindrically shaped so as to cover an end portion of said collapsible steering shaft projecting above said instrument panel; and

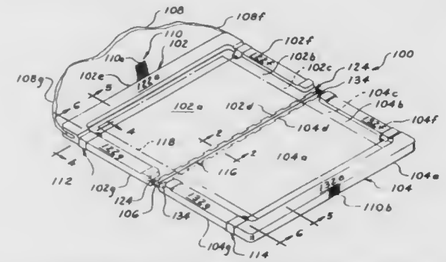
guide means provided between said visor bank and an end of said cover for guiding movement of said hollow shell during a collision, the guide means having an inwardly bent flap section forming a surface for engaging said end of said cover and sliding over said hollow shell as it sinks into said opening when said collapsible steering shaft axially collapses during said collision.

5,067,748

COMBINATION HOLDER/ENCLOSURE FOR MULTI-LEAF ARTICLES, ESPECIALLY NEWSPAPERS

Charles A. Wernquest, 99 Riverview Rd., Niantic, Conn. 06357

Filed Nov. 8, 1990, Ser. No. 610,811
Int. Cl.[5] B92D *3/00*
U.S. Cl. 281—48 9 Claims



1. Combination holder/enclosure for a multi-leaf folded article comprising:

a rigid, generally planar, generally rectangular front cover having a planar inside surface, an inner edge, an outer edge opposite the inner edge, a top edge, a bottom edge opposite the top edge, an inside surface and an outside surface;

a rigid, generally planar, generally rectangular back cover having a planar inside surface, an inner edge, an outer edge opposite the inner edge, a top edge, a bottom edge opposite the top edge, an inside surface and an outside surface;

a rigid elongated spline member forming a hinge with the inner edges of the front and back covers and having an inside surface contiguous with the inside surfaces of the front and back covers;

first leaf retaining means for retaining a portion of leaves on one side of an open multi-leaf article flat against the inside surface of the front cover;

second leaf retaining means for retaining the remaining leaves on another side of the open multi-leaf article flat against the inside surface of the back cover; and

third leaf retaining means for retaining the fold of the multi-leaf article against the inside surface of the spline member.

5,067,749

METHOD AND APPARATUS FOR OBTAINING AND RECORDING FINGERPRINT INDICIA

Larry D. Land, 1946 Edgerton, St. Paul, Minn. 55117

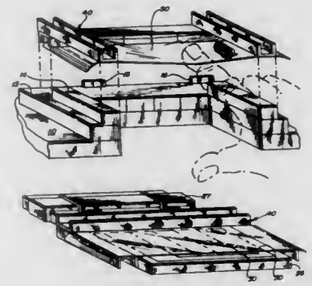
Filed Jan. 9, 1989, Ser. No. 294,219
Int. Cl.[5] B42D *15/00*
U.S. Cl. 283—117 14 Claims

1. Fingerprinting apparatus comprising:

(a) dispensing means for dispensing a transparent, flexible film media having at least one surface containing a layer of adhesive;

(b) coating means containing an opaque material for coating the distal digits of a plurality of fingers of a subject brought into contact with the material and wherein said material bonds to the adhesive;

(c) frame means mounted to a support surface adjacent the dispensing means and coating means and including first and second arm portions for supporting said film media in



suspension therebetween and above said support surface and including indicia means for individually aligning coated fingers to the adhesive layer of said film media as the fingers are brought into contact with the adhesive layer, whereby an opaque image of each finger is obtained at predetermined surface locations of said film media; and

(d) carrier support means mounted adjacent said frame means for supporting a print carrier to permit the alignment of an imaged adhesive layer to the print carrier prior to bonding the adhesive layer to said print carrier.

5,067,750

COAXIAL CABLE SCREW CONNECTOR ATTACHMENT

Timothy A. Minneman, 7325 E. Heather Way, Everett, Wash. 98203

Filed Dec. 5, 1989, Ser. No. 446,350
Int. Cl.[5] F16L *37/08*
U.S. Cl. 285—38 9 Claims



1. In a fitting assembly including a coaxial cable having an end and a female connector having a collar portion affixed to the end of the coaxial cable and an internally threaded portion rotatably mounted on and carried by such collar portions and opening away from such end of the coaxial cable for reception of an externally threaded male coaxial fitting component therein, such internally threaded rotatable portion of such female connector having outward projecting flattened sides forming a noncircular outer periphery, the improvement comprising an attachment fittable on the female connector and including a body having a central cavity of a shape complemental to the noncircular outer periphery of the female con-

VOL 1132 ISS 4 NO 26 1991 UMI

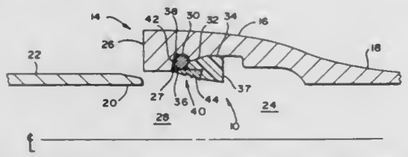
nector rotatable portion for reception of the female connector rotatable portion in said central cavity in nonrotative relationship relative thereto, said attachment body having an end opening of a size and positioned so as not to interfere with passage of the externally threaded male component therethrough for reception in the internally threaded rotatable female connector portion, said body further having stop means for limiting insertion of the female connector rotatable portion into said body central cavity and a lip projecting inward into said central cavity which lip is positioned to engage over the outward-projecting flattened sides of the rotatable portion of the female connector when fitted into said central cavity of said attachment body against said stop means for normally retaining the female connector rotatable portion in said central cavity, and grasping means projecting from said body for manual grasping and turning thereof to turn said body and thereby turn said female connector rotatable portion.

5,067,751

GASKET FOR FIELD ADAPTABLE PUSH-ON RESTRAINED JOINT AND JOINT THUS PRODUCED

Van T. Walworth, Warrior, and Steve L. DeBoalt, Birmingham, both of Ala., assignors to American Cast Iron Pipe Company, Birmingham, Ala.

Filed Jul. 27, 1990, Ser. No. 558,441
Int. Cl.[5] F16L *17/02*
U.S. Cl. 285—105 **39 Claims**



31. A self-actuating restraining gasket adapted to retain a spigot end of a first section of a piping element within a bell end of a second section of a piping element comprising:

an annular ring of elastomeric material, said annular ring being adapted to seat in an annular recess in an interior of said bell, a front end of said ring being adapted to be disposed nearest an opening at the bell end of said second piping element,

a plurality of associated pairs of retaining elements, said associated pairs of retaining elements being spaced apart around a circumference of said elastomeric ring, said associated pairs of retaining elements being captively retained in said elastomeric ring;

each of said plurality of pairs of associated elements comprising a backing member disposed in said front end of said annular ring adjacent a radial outer surface of said front end, and an associated wedge member disposed radially inwardly of said backing member, each of said wedge members having at least one tooth disposed on an inner surface thereof, at least a gripping portion of each of said at least one tooth on each wedge member being exposed to engage a spigot end of a first piping element to be inserted into a bell end of a second piping element in which said annular ring is adapted to be disposed.

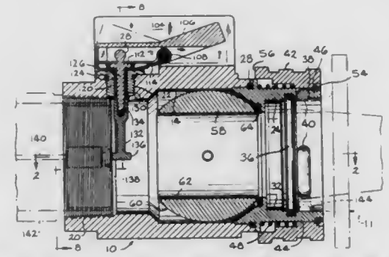
5,067,752

DRY BREAK COUPLING

Randolph L. Maiville, Onondaga, and Russell L. Rogers, Munith, both of Mich., assignors to Aeroquip Corporation, Jackson, Mich.

Filed Nov. 28, 1990, Ser. No. 619,374
Int. Cl.[5] F16L *55/00*
U.S. Cl. 285—119 **6 Claims**

1. A fluid coupling comprising, in combination, a body having an axis, a hose connection end, a coupling connection end, a passage connecting said ends and releasable coupling retaining means adjacent said coupling connection end, said body having an exterior surface, an electric switch handle pivotally mounted upon said body exterior surface selectively pivotal between open and closed positions, an electric terminal mounted upon said body adjacent said switch handle, said



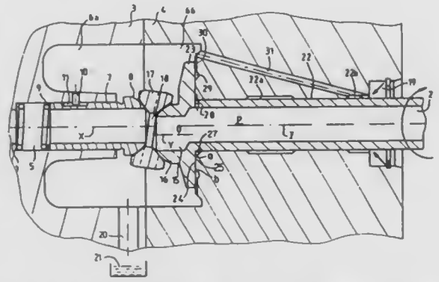
terminal including an enlarged conductive head, a spring contact mounted on said switch handle adapted to snap over said terminal head and remain in contact therewith at said closed position, a first conductor electrically connecting said contact to said body, and a second conductor connected to said terminal.

5,067,753

HYDROSTATICALLY BALANCED ROTARY HYDRAULIC CONNECTOR

Louis C. Porel, rue de Moulins, Jeanmenil 88700 Rambervillers, France

Filed May 18, 1990, Ser. No. 525,749
Claims priority, application France, May 31, 1989, 8907168
Int. Cl.[5] F16L *27/00*; F01B *9/00*; F04B *1/00*
U.S. Cl. 285—279 **11 Claims**



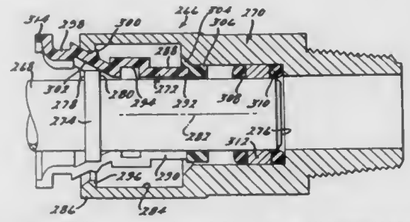
1. A fluid-tight connecting device for connecting a fixed hydraulic pipe with a rotary hydraulic pipe, wherein the fixed pipe (1) has a longitudinal axis X and a tubular piston (7) at its end which is axially movable in said fixed pipe (1) and prevented from rotating, said piston (7) being provided with a hemispherical head (8) and having a bore extending therethrough, while the rotary pipe (2) has a longitudinal axis Z and a terminal portion (15) provided with a hemispherical head (16), a rotary core piece (17) having a central aperture (18) being interposed between said hemispherical heads, said core piece (17) being formed with two opposed concave conical bearing surfaces for substantially fluid-tight engagement with said hemispherical heads (8, 16) respectively characterized in that the terminal portion (15) has a longitudinal axis (Y) that is parallel to and offset from the respective axes (X) and (Z) of the pipes (1) and (2), said hemispherical head of said terminal portion being laterally offset from said hemispherical head of said piston and the core piece (17) adjusts to compensate therefor.

5,067,754

SWIVELABLE QUICK CONNECTOR ASSEMBLY

Donald D. Bartholomew, Marine City, Mich., assignor to Propietary Technology, Inc., Southfield, Mich.

Continuation of Ser. No. 303,975, Jan. 27, 1989, abandoned, which is a continuation of Ser. No. 864,761, May 19, 1986, abandoned, which is a division of Ser. No. 360,201, Mar. 22, 1982, Pat. No. 4,601,497, which is a continuation-in-part of Ser. No. 201,711, Oct. 29, 1980, Pat. No. 4,423,892. This application Dec. 12, 1989, Ser. No. 453,378
The portion of the term of this patent subsequent to Jul. 22, 2003, has been disclaimed.
Int. Cl.[5] F16L *37/12*
U.S. Cl. 285—319 **6 Claims**



1. In combination in a coupling for use in communicating a fluid media and comprising male, female, retainer, sealing and bushing elements,

said male element being generally tubular shaped and including:

(a) a first axially extending portion having a relatively smooth cylindrical exterior surface and disposed adjacent the terminal end of said male element,

(b) a second axially extending portion of enlarged diameter disposed axially outwardly from said first portion and adapted for engagement with said retainer element,

(c) a third axially extending portion disposed axially outwardly from said second portion and having an outer diameter smaller than the outer diameter of said second portion,

said sealing element being of an annular configuration and disposed in axial registry with said first axially extending portion of said male element and having an inner diameter sealing engaged with said exterior surface thereof,

said female element having an internal chamber adapted for operative reception of at least a portion of said male element and comprising;

(a) a first annular portion communicable with a fluid passage and adapted to receive the terminal end of said male element;

(b) a second annular portion disposed axially outwardly from said first annular portion and having a diameter greater than said first annular portion and comprising a cylindrical wall adapted for sealing engagement with the outer diameter of said sealing element,

(c) a third annular portion disposed axially outwardly from said second annular portion and having a diameter at least as great as the outer diameter of said sealing element and adapted to operatively receive said retainer element, said third annular portion having means defining at least one radially extending surface cooperable with said retainer element for securing the same within said coupling and preventing disassembly of said male element from said female element,

said bushing element being interspaced between said sealing element and said retainer element and being retained at least partially within said second annular chamber portion of said chamber upon disassembly of said retainer and male element from said female element,

said retainer element comprising;

(a) at least one, relatively deformable portion extending substantially parallel to the axis of said male element and adapted to orient said bushing element in operative position within said second annular chamber portion,

(b) at least one relatively non axially deformable portion extending between the axially outer side of said enlarged diameter portion of said male element and said radially extending surface of said female element and thereby maintaining said retainer element within said chamber and preventing withdrawal of said male element from said female element,

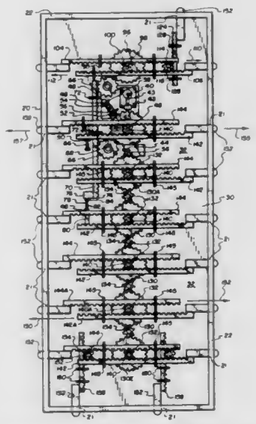
(c) said relatively deformable portion of said retainer being sufficiently long and deformable to allow sufficient radial movement of said relatively non-deformable retainer portion to permit said non-deformable portion to be biased radially outwardly by said enlarged diameter portion of said male element as said male element is inserted axially into said chamber, and to cause said relatively non-deformable portion to snap radially inwardly adjacent the axially outer side of said enlarged diameter portion when said male element is operatively positioned within said chamber.

5,067,755

LOCKING MECHANISM FOR A SAFE DOOR

C. Thomas James, 460 N. 880 East, Springville, Utah 84663

Continuation of Ser. No. 374,257, Jun. 30, 1989, abandoned. This application Jan. 7, 1991, Ser. No. 638,068
Int. Cl.[5] E05C *9/12*
U.S. Cl. 292—33 **10 Claims**



1. A locking mechanism for use with a safe door enclosed in a frame, said locking mechanism comprising:

a drive shaft journaled through said safe door, a first end of

VOL 1132 ISS 4 NO 26 1991 UMI

said drive shaft having handle means associated therewith adapted for a grasping and rotation of said drive shaft by a user;
a first drive gear mounted on a second end of said drive shaft;
a second drive gear rotatably mounted on said safe door spacedly positioned from said first drive gear;
a securement means mounted on said safe door, between said first and second drive gears, for intercooperating with said first drive gear and locking same in a fixed non-rotating orientation;
a pair of pinion gears, mounted spacedly apart and rotatably on said safe door, each pinion gear being mechanically engaged respectively with one of said drive gears;
a pair of first auxiliary drive gears, each auxiliary drive gear being mounted coaxially and respectively on one of said drive gears;
a first rack gear slidably mounted on said safe door, said first rack gear being engaged with said pinion gears to provide a mechanical linkage therebetween;
two second rack gears, each second rack gear being slidably mounted on said safe door, one said second rack gear being mechanically engaged with a respective said auxiliary drive gear;
a pair of first retaining studs, one first stud being mounted on each of said second rack gears, said first retaining studs being adapted to interact with a frame of said safe door upon a first sliding displacement of its said second rack gear to form a locking engagement therewith;
wherein a rotation of said drive shaft effects said first sliding displacement of said second rack gears through intermediation of said pinion gears, said first rack gears and said first and second drive gears and said pair of auxiliary drive gears.

5,067,756

Patent Not Issued For This Number

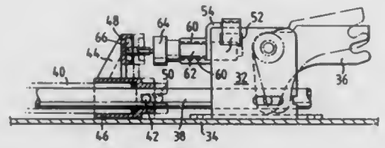
5,067,757

PANIC EXIT DEVICE HAVING NOISE SUPPRESSION

Richard B. Cohrs; Paul J. Haeck, and Gary R. Jacobs, all of Indianapolis, Ind., assignors to Von Duprin, Inc., Indianapolis, Ind.

Continuation of Ser. No. 390,449, Aug. 2, 1989, abandoned, which is a continuation of Ser. No. 188,737, Apr. 29, 1988, abandoned, which is a continuation of Ser. No. 944,744, Dec. 22, 1986, abandoned. This application Jul. 30, 1990, Ser. No. 562,417
Int. Cl.[5] E05B *65/10*
U.S. Cl. 292—336.3 **6 Claims**

1. A panic exit device means for operating a latch having noise suppression, comprising:
a base including means defining a bearing surface;
a push pad operating means journalled to said base including a linear translating action rod means whereby translation of said rod in opposite axial directions operates a latch bolt in an opening direction and a locking direction; and
shock absorber means having a viscous fluid damped spring



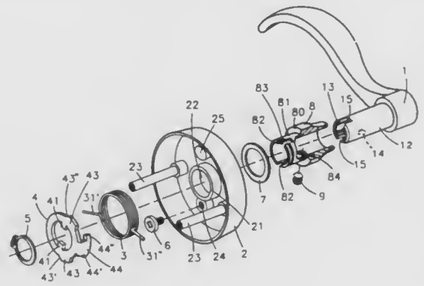
extended plunger coupled to one and bearing without attachment on the other of said rod and said bearing surface for damping and shock absorbing axial translation of said rod in said locking direction without impeding its operation in said opening direction and for limiting linkage slack in both said opposite axial directions of said rod.

5,067,758

LOCK HANDLE ASSEMBLY WITH LIMITED ANGULAR MOVEMENT

Yaw-Shin Fann; Ming-Shyang Chiou, and Ching-Chuan Kuo, all of Chia-Y, Taiwan, assignors to Tong-Lung Metal Industry Co., Ltd., Chia-Yi, Taiwan

Filed Dec. 21, 1990, Ser. No. 632,139
Int. Cl.[5] E05B *1/00*
U.S. Cl. 292—347 **3 Claims**



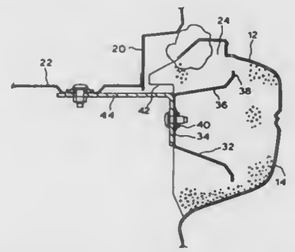
1. A lock handle assembly comprises:
a casing having a central hole;
a sleeve rotatably fitted in said central hole, and having an inner and outer end respectively extending inwardly and outwardly from said central hole;
a lever handle having a rotary shaft detachably fitted in said sleeve and rotatable together with said sleeve;
a rotary plate mounted on said sleeve inside said casing, said rotary plate having a radially extending forward engaging member and two radially extending backward engaging members angularly spaced from said forward engaging member at two sides of said forward engaging member;
a left and right female screw member extending axially inward from said casing at two diametrically opposite positions relative to said sleeve member;
a coiled torsion spring disposed inside said casing around said central hole and having a left radial leg to engage said left female screw member and a right radial leg to engage said right female screw member;
a first stop member extending axially inward from said casing between said female screw members;
a second releasable stop member extending axially inward from said casing between said female screw members and opposite to said first stop member;
said rotary plate being selectively set at one of a first operative position and a second operative position, said forward engaging member being adjacent to said left female screw member when in said first operative position, said forward engaging member being adjacent to said right female screw member when in said second operative position;
said forward engaging member moving toward said first stop member carrying said left radial leg of said torsion spring away from said left female screw member when said rotary plate is turned while it is in said first operative position,
one of said backward engaging members moving toward said second releasable stop member by the action of said left radial leg when said rotary plate is released, the angular movement of said handle being limited by said forward engaging member and said one backward engaging member,
said forward engaging member moving toward said first stop member carrying said right radial leg of said torsion spring away from said right female screw member when said rotary plate is turned while it is in said second operative position,
the other one of said backward engaging members moving toward said second releasable stop member by the action of said right radial leg when said rotary plate is released while it is in said second operative position,
the angular movement of said handle being limited by said forward engaging member and said other one of said backward engaging member when said rotary plate is in said second operative position,
said lever handle being detachable from said sleeve, thereby permitting said handle to be replaced by a new handle to match the used position of said rotary plate.

5,067,759

VEHICLE BUMPER ASSEMBLY WITH FOAMED CORE

Stephen D. Fleming, Rayleigh, United Kingdom, assignor to Ford Motor Company, Dearborn, Mich.

Continuation of Ser. No. 858,486, Apr. 30, 1986, Pat. No. 4,988,137. This application Oct. 15, 1990, Ser. No. 597,632
The portion of the term of this patent subsequent to Jan. 29, 2008, has been disclaimed.
Int. Cl.[5] B60R *19/18*
U.S. Cl. 293—109 **3 Claims**



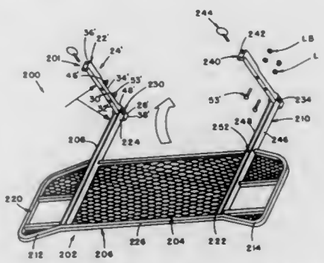
1. A vehicle bumper assembly comprising a channel-section outer shell of injected moulded plastics material for extending transversely across the front or rear of a motor vehicle and having integral end portions for extending along the sides of the motor vehicle, and spaced apart mounting brackets for mounting the bumper on the motor vehicle, wherein a transversely extending portion of the outer shell is substantially filled with an energy absorbing foam adhered to the inside of the outer shell; and the mounting brackets have apertured arm portions spaced apart from the outer shell and moulded into said foam, and the mounting brackets have support portions extending from the foam for directly attaching the bumper to the motor vehicle.

5,067,760

PLATFORM/GRILL COVER UNIT FOR USE ON A LAND VEHICLE

Daniel E. Moore, and Dolores Moore, both of 6444 Neibauer Rd., Rte. 1, Billings, Mont. 59106

Filed Mar. 6, 1991, Ser. No. 665,561
Int. Cl.[5] B60R *19/52*
U.S. Cl. 293—115 **1 Claim**



1. A device for use on a front bumper of a land vehicle comprising:
A) a base unit fixed to a front bumper of a land vehicle, said base unit including
(1) a body having a top end, a bottom end, a top section, a bottom section, a planar front surface which faces forwardly of the land vehicle front bumper, and a concave rear surface located adjacent to the front bumper, said rear surface having a top portion, a bottom portion, and a planar central portion connecting said top portion to said bottom portion, said top and bottom portions converging towards each other towards said front surface, said central portion extending parallel to said front surface, and
(2) fasteners releasably attaching said base unit body to the vehicle bumper;
B) a platform/grill cover unit which includes
(1) a body which includes
(a) a rectangular central section having two sides and two ends,
(b) said ends each extending beyond one of said sides and each having a bolt hole defined therethrough, said sides being hollow,
(c) two identical wing sections, each wing section including
(i) a parallelogram shaped frame having one side formed by one end of said rectangular central section and further including a second side and two ends, and
(ii) a square shaped frame having one end formed by said rectangular central section one end, a second end formed by said second side of said parallelogram shaped frame, and two other ends, with one of said other ends being a linear extension of one of said central section sides,
(d) a triangular mesh system formed between each

VOL 1132 ISS 4 NO 26 1991 UMI

square shaped frame and one end of said parallelogram shaped frame in each wing section,

(e) a trapezoidal mesh system formed between each square shaped frame and the other side of said parallelogram shaped frame in each wing section, and

(f) a rectangular mesh system in said central section and covering an inner area within said rectangular central section;

C) fastening means on each of said sides of the central section pivotally attaching said platform/grill cover unit to said base unit body section;

D) a lock element mounted on said base unit body adjacent to said body top end and including a projection element for engaging said platform/grill cover unit when said cover unit is in an upright position; and

E) a stop element fixed to said base unit body adjacent to said base unit body bottom end for abuttingly engaging said platform/grill cover unit when said unit is in a deployed condition.

5,067,761

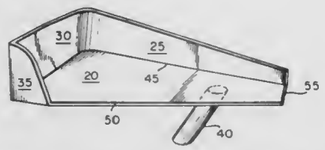
MASONRY HAWK

James I. Blowers, 10016 Washington Rd., Glen Allen, Va. 23060

Filed Aug. 1, 1990, Ser. No. 561,186

Int. Cl.[5] E04G *21/02*

U.S. Cl. 294—3.5 **3 Claims**



1. A masonry hawk device for holding a supply of mortar or the like comprising a platen on top of which mortar is to be held with handle means extending down from the bottom side thereof for holding the device with one hand while working with an applicator such as a trowel in the other; said platen having front and rear edges and right and left side edges, said rear edge and one of said side edges being substantially bounded by upwardly extending walls, said walls intersecting and being joined at a rear corner of the platen to form an unbroken retaining wall along said rear edge and one side edge, a short upwardly extending side wall extending from said rear wall along a minor portion only of the other side edge, a major portion of said other side edge being unbounded, and said front edge being unbounded, said handle means being positioned on said platen forward of the midpoint thereof whereby the loaded hawk may be simultaneously supported by the worker's hand holding the handle and the worker's arm contacting the rear portion of the device.

5,067,762

NON-CONTACT CONVEYING DEVICE

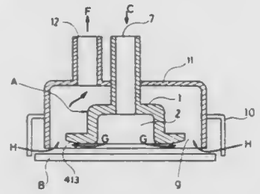
Hiroshi Akashi, 7-12, Kitasakurazuka 2-chome, Osaka-fu, Toyonaka, Japan

Continuation-in-part of Ser. No. 103,361, Oct. 1, 1987, abandoned, which is a continuation-in-part of Ser. No. 3,254, Jan. 14, 1987, abandoned, which is a continuation of Ser. No. 875,712, Jun. 18, 1986, abandoned. This application Apr. 26, 1989, Ser. No. 343,344

Claims priority, application Japan, Jun. 18, 1985, 60-132650; Jul. 27, 1985, 60-166145; Aug. 14, 1985, 60-178777; Sep. 7, 1985, 60-198730; Sep. 19, 1985, 60-208284; Dec. 30, 1985, 60-297489; Feb. 17, 1986, 61-34048; Apr. 21, 1986, 61-91652; May 12, 1986, 61-108197

Int. Cl.[5] B25J *15/06*

U.S. Cl. 294—64.3 **8 Claims**



1. A pick-up head for a non-contact conveying device, said pick-up head comprising:

an upper wall;

a side wall surrounding said upper wall;

an operating surface formed at a lower annular edge of said side wall, said operating surface being positionable adjacent an article to be lifted;

mans for providing a reduced pressure in an area formed within said upper wall and said side wall; and

means for introducing a positive pressure gas supply into said pick-up head, said means for introducing including an opening disposed approximately at the center of said upper wall and said means for providing a reduced pressure including a cushion-vacuum room fully opened at the bottom of said pick-up head and of a sufficient depth to achieve a reduced pressure therein when said pick-up head is positioned adjacent an article to be lifted and said opening being positioned transverse with respect to a plane in which said annular edge exists for introducing a positive pressure gas supply into said cushion-vacuum room and over said operating surface, the diameter of said opening being smaller than that of said cushion-vacuum room, such that positioning of said pick-up head adjacent an article to be lifted produces a combined effect including an increased rate of gas flow over said operating surface and a reduced pressure within said cushion-vacuum room, thereby enabling non-contact pick-up of an article whose diameter is greater than that of said operating surface.

5,067,763

PARTS SUPPLYING APPARATUS

Yoshitaka Aoyama, 20-11, Makitsukadai 2-chome, Sakai, Osaka 590-01, Japan

Division of Ser. No. 210,490, Jun. 23, 1988, Pat. No. 4,943,098. This application Feb. 16, 1990, Ser. No. 481,027

Claims priority, application Japan, Jun. 26, 1987, 62-160477; Sep. 5, 1987, 62-222839; Oct. 9, 1987, 62-255567; Oct. 16, 1987, 62-262488

Int. Cl.[5] H02N *15/00*

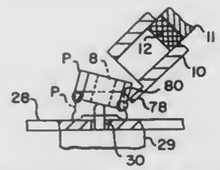
U.S. Cl. 294—65.5 **7 Claims**

1. A method for supplying a projection nut, comprising the steps of:

supporting a projection nut at an end portion of a supply rod with an end projection thereof, said end projection being U-shaped and fixed to an outer rod of said supply rod;

advancing a supply rod obliquely downward or substantially horizontal with a projection nut attracted at an end portion thereof by a magnetic force while supporting the projection nut from below at the end portion thereof;

stopping the advance movement of the supply rod immediately before a predetermined destination; and



eliminating the magnetic force on the projection nut at substantially the same time as the step of stopping the supply rod advance movement to thereby allow the projection nut to pivot about an end corner provided by the U-shaped end projection at the end portion of the supply rod so as to fit through a guide pin of a stationary electrode waiting thereunder.

5,067,764

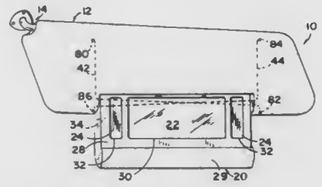
VISOR WITH EXTENDABLE PANEL

Michael L. Lanser; Steven E. VanderVeen, and David J. Becker, all of Holland, Mich., assignors to Prince Corporation, Holland, Mich.

Filed Oct. 26, 1990, Ser. No. 604,680

Int. Cl.[5] B60J *3/02*

U.S. Cl. 296—97.5 **21 Claims**



1. An vehicle visor comprising:

a visor body including slot means formed along a lower edge thereof and extending within said visor body for receiving a slide-out panel, said slot means defining opposing sides therein;

means for mounting said visor body to a vehicle for movement between a raised stored position and a lowered use position;

a panel shaped to fit within said slot means of said visor body;

means for slideably mounting said panel to said visor body for movement between a stored position within said visor body and a use position extended from said visor body; and

means for stabilizing said panel within said visor including a channel means mounted to said panel means and extending toward said opposing sides of said slot, and a first and a second cord; wherein said first cord is anchored at diagonally opposing points along said opposing sides of said slot and extending transversely between said opposite sides through said channel member; and wherein said second cord is anchored at corresponding diagonally opposite points along said opposing sides of said slot and extending transversely between said opposite sides through said channel member; whereby said first and second cords slide in opposite directions through said channel means as said panel is moved between said stored position and said extended use position to stabilize the sliding movement of said panel.

5,067,765

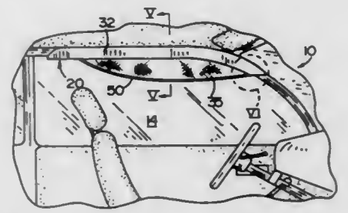
FLEXIBLE SUN VISOR WITH OVER-CENTER SPRING

Dale J. Frye, and Michael J. Suman, both of Holland, Mich., assignors to Prince Corporation, Holland, Mich.

Filed Jul. 24, 1989, Ser. No. 383,543

Int. Cl.[5] B60J *3/00*

U.S. Cl. 296—97.8 **22 Claims**



1. A visor for a vehicle comprising:

a membrane forming a visor and having a first end secured to the vehicle adjacent a window;

a frame associated with said vehicle window at least at one side thereof; and

a moveable member including over-center means, said moveable member attached to said membrane at an end of said membrane opposite said first end, said moveable member moveable between at least two stable positions with the first stable position in which said membrane is collapsed in a stored position adjacent said one side of the window and the second stable position spaced from said first stable position and in which said membrane is extended to a lowered use position for at least partially blocking sunlight entering the window.

5,067,766

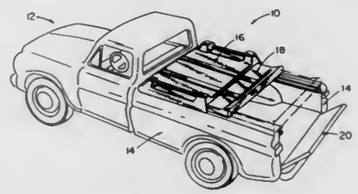
TELESCOPING COVER FOR A PICKUP TRUCK BED

Olaf K. Lovaas, 2008 Westley Ct., Safety Harbor, Fla. 34695

Continuation-in-part of Ser. No. 527,382, May 23, 1990, abandoned. This application Apr. 15, 1991, Ser. No. 685,187

Int. Cl.[5] B60P *7/02*

U.S. Cl. 296—100 **16 Claims**



1. A pickup truck bed cover, comprising:

a slideably mounted forward panel;

a slideably mounted rearward panel;

a pair of elongate track members fixedly secured to opposite inner side walls of said pickup truck bed;

a first transversely disposed "U"-shaped axle member positioned at a trailing end of said rearward panel in underlying relation thereto;

a transversely disposed, linear in configuration axle member positioned at a leading end of said rearward panel in underlying relation thereto;

a second transversely disposed "U"-shaped axle member positioned at a leading end of said forward panel in underlying relation thereto;

VOL 1132 ISS 4 NO 26 1991 UMI

a first pair of laterally moveable, rotatably mounted wheel members positioned at opposite ends of said first "U"-shaped axle member and rollingly engaging said track members;

a second pair of laterally moveable, rotatably mounted wheel members positioned at opposite ends of said linear axle member and rollingly engaging said track members;

a third pair of laterally moveable, rotatably mounted wheel members positioned at opposite ends of said second "U"-shaped axle member and rollingly engaging said track members;

said rearward panel being telescopically received by said forward panel when said rearward panel is unmoved and said forward panel is slid rearwardly and when said forward panel is unmoved and said rearward panel is slid forwardly;

whereby the lateral moveability of said first, second, and third pair of wheel members accommodates said truck bed cover to differing widths of truck beds.

5,067,767

TARPAULIN COVER

Vito Biancale, R.R. #2, Dundas, Ontario, Canada

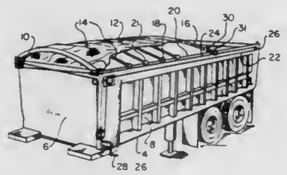
Filed Feb. 5, 1988, Ser. No. 152,623

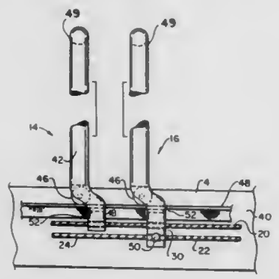
Claims priority, application Canada, Jul. 23, 1987, 542787

The portion of the term of this patent subsequent to Aug. 8, 2006, has been disclaimed.

Int. Cl.[5] B62D *25/06*

U.S. Cl. 296—100 **6 Claims**





1. A tarpaulin cover system for open-top flatbed truck or trailer bodies having a body front and a floor with floor sides, said system comprising:

a tarpaulin having a front end anchored to said body front, and a rear end;

a plurality of intermediate bows extending transversely across said body and secured at spaced locations to said tarpaulin for supporting said tarpaulin, said intermediate bows having intermediate bow ends;

a lead bow secured to said rear end and having lead bow ends;

longitudinally extending tracks mounted on said floor sides;

said lead bow and intermediated bows each having an inverted U-shape defined by a transverse bridging central portion and two similar arms extending downwardly from said central portion and terminating in free ends, and rollers mounted on said arms at similar distances from said free ends, said rollers being supported by said tracks; and

bow support means for supporting said intermediate bows and lead bow, said bow support means for reciprocating said lead bow thereby moving said tarpaulin and said intermediate bows between a covered position wherein said body is covered by said tarpaulin and an open position wherein said body is open, said bow support system including

a pair of linear, semi-rigid cable members secured immovably to said body and extending longitudinally along said body, with said intermediate bow ends being slidably mounted and supported on said cable members for longitudinal movement; and

separate, movable drive cable means for supporting said lead bow ends and having drive portions extending longitudinally along said body in parallel to said immovable cable means, said lead bow being fixedly secured to said movable drive cable means, whereby longitudinal movement of said movable drive cable means causes said lead bow to move for opening or closing said tarpaulin.

5,067,768

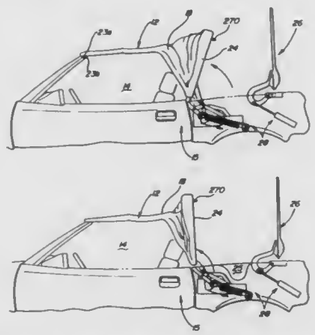
POWER CONVERTIBLE TOP WITH AUTOMATIC TOP AND TONNEAU SEQUENCING

Roderick C. Fischbach, Adrian, Mich., assignor to Wickes Manufacturing Company, Southfield, Mich.

Filed Oct. 23, 1989, Ser. No. 425,271

Int. Cl.[5] B60J *7/08*

U.S. Cl. 296—107 **11 Claims**



1. A power convertible assembly for a passenger vehicle having a body, a passenger compartment in the body, a windshield having a header, a convertible top movable between raised and lowered positions to cover and uncover the passenger compartment, a storage compartment within the body for receiving the top in its lowered position, a tonneau movable between closed and open positions with respect to the body to open and close a path for movement of the top between its raised and lowered positions, the tonneau being in its closed position in both the raised and lowered top positions; and wherein the top has a foldable cover and a collapsible framework for the cover including a front bow engageable with the header, and a rear bow movable between raised and lowered positions and engageable with the vehicle body in the top raised position, and latch means on the body and the rear bow for latching the rear bow to the body, characterized by; power actuating means for automatically moving the top and tonneau in a stepped sequence from a top lowered position, to a top raised position the sequence including moving the tonneau from its closed position to a raised open position, thereafter moving the top from its lowered position to a raised position wherein the rear bow of the top is partially raised, then moving the rear bow of the top to its fully raised position to provide clearance for return movement of the tonneau to its closed position, moving the tonneau to its closed position through the clearance provided by the fully raised rear bow and finally moving the rear bow to its lowered position in engagement with the vehicle body.

5,067,769

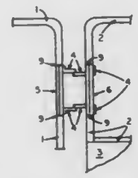
DUCT-WAY BETWEEN A PICKUP TRUCK CAB AND A BED CAP, BOTH WITH SLIDING GLASS WINDOWS

John R. Benchoff, P.O. Box 223, Blue Ridge Summit, Pa. 17214-0223, assignor to John Rex Benchoff, Blue Ridge Summit, Pa.

Filed Apr. 16, 1990, Ser. No. 509,606

Int. Cl.[5] B60P *3/32*

U.S. Cl. 296—166 **1 Claim**



1. A combination of ductway and sliding windows of a cap (camper)/truck cab, said ductway comprising a telescopically adjustable 2 piece, clear plastic enclosure units for an opening each connected directly to the sliding glass window frames, not depending on the parallel surfaces of the cab/cap, one of said units being screwed to the outside of the cab frame of the sliding glass window with a clear seal to make a weather seal, the other of said units extending through the open sliding glass window of the cap/camper and screwed to the inside of the window frame with sealer also making this side weather sealed, the ductway units interengaging with telescoping surfaces which have a seal, all being of clear see-through plastic or plexiglass.

5,067,770

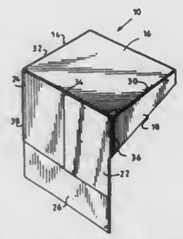
SUN SHIELD FOR A CHILDS CAR SEAT

Edwin Hassell, Jr., P.O. Box 850, Nesconset, N.Y. 11767

Filed Dec. 24, 1990, Ser. No. 633,462

Int. Cl.[5] A47C *7/62*

U.S. Cl. 297—184 **8 Claims**



1. A sun shield for a childs car seat comprising:

a) a single flat piece of pre-cut firm bendable material having a roof segment, a pair of side visor segments, a pair of support flap segments and a back segment, with a cut out gap area between each said support flap segment and said back segment;

b) a first machine-made fold line between said roof segment and said first side visor segment;

c) a second machine-made fold line between said roof segment and said second side visor segment;

d) a third machine-made fold line between said roof segment and said back segment;

e) a fourth machine-made fold line between said first side visor segment and said first support flap segment;

f) a fifth machine-made fold line between said second side visor segment and said second support flap segment; and

g) means for securing said support flap segments to the rear surface of said back segment when said bendable material is folded up along all said fold lines to form said sun shield so that said back segment can be adjustably placed between the backrest of the car seat and a seat back of a rear seat of an automobile with said roof segment extending over the head of the child to protect the head from rays of the sun entering through the windows of the automobile and not obstruct the rear view mirror for the driver of the automobile.

5,067,771

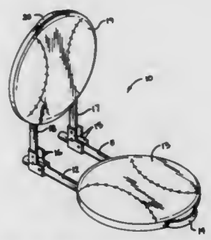
STADIUM SEAT APPARATUS

Christopher M. Ellis, 7475 Cedar Chase, Apt. 3, Stockton Blvd., Sacramento, Calif. 95823

Filed Dec. 31, 1990, Ser. No. 636,184

Int. Cl.[5] A47C *4/54*

U.S. Cl. 297—378 **1 Claim**



1. A stadium seat apparatus comprising, in combination,

a right seat frame leg and a left seat frame leg, wherein the right and left seat frame legs are coextensive and parallel relative to one another, and

a right backrest frame leg and a left backrest frame leg, wherein the right backrest frame leg is pivotally mounted to the right seat frame leg, and the left backrest frame leg is mounted to the left seat frame leg, and

a padded seat member of a predetermined cylindrical configuration mounted to the right and left seat frame legs, and

a padded backrest defined by a further configuration equal to the predetermined cylindrical configuration mounted to the right and left backrest frame legs, and

a first handle mounted to a side wall of the padded seat member, and a second handle mounted to a further side wall defined by the padded backrest wherein the padded seat member and the padded backrest are orthogonally aligned relative to one another in a first position, and wherein the padded seat member and the padded backrest are coaxially aligned and coextensively arranged relative to one another in a second collapsed position, and

the first handle and the second handle are coextensively aligned relative to one another in the second position and

wherein the padded backrest defines a pneumatic chamber and includes a first inflation valve mounted to the padded backrest to effect selective inflation of the pneumatic chamber, and a further pneumatic chamber defined by the padded seat member and the padded seat member includes a second inflation valve in communication with the further pneumatic chamber to effect selective inflation of the further pneumatic chamber, and

wherein the padded seat member includes a heating chamber diametrically aligned with the padded seat member and coextensive therewith underlying the further pneumatic chamber, wherein the further pneumatic chamber is of a

VOL 1132 ISS 4 NO 26 1991 UMI

generally "C" shaped cross-sectional configuration, and the heating chamber includes a heating means therewithin including a series of parallel heating coils cooperative with a battery member to effect heating of the heating member and the further pneumatic chamber, and

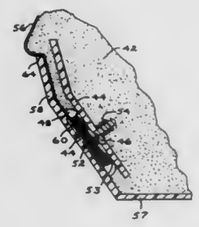
wherein the further pneumatic chamber includes a right and left flexible heating conduit extending above the padded seat member, wherein the right and left flexible heating conduit each include a respective right and left socket, each socket includes an entrance opening directed into a conically configured cavity to direct heated air from the further pneumatic chamber into each socket.

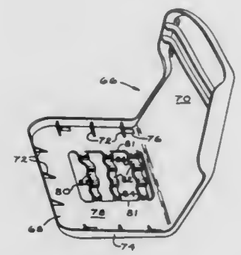
5,067,772

FOAM SEAT WITH INSERT

Chi H. Koa, Jackson, Mich., assignor to Michigan Seat Company, Jackson, Mich.

Filed Mar. 29, 1990, Ser. No. 501,003
Int. Cl.[5] A47C *7/02*
U.S. Cl. 297—452 **3 Claims**





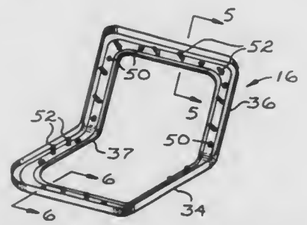
1. A molded seat comprising, in combination, a pan formed of a molded synthetic plastic material, having a bottom portion and an integral back portion, said portions each including an inner surface, resilient foam bottom and back cushion portions mounted upon said pan bottom and back portions, respectively, said cushion portions each including an inner surface in opposed relationship to the associated pan portion inner surface, a plurality of fasteners interposed between said associated pan and cushion portions, each of said fasteners including a first element integrally molded into a pan portion and the material thereof and extending from the associated pan portion inner surface and a second element affixed to a cushion portion and extending from the associated cushion portion inner surface, one of said fasteners' elements including a plurality of loops and the other associated element including a plurality of deformable hooks releasably interconnecting with said loops whereby said fasteners releasably secure said cushion portions upon the associated pan portions, a substantially rigid cushion insert within said cushion portions, said inserts having a plurality of holes defined therein, said second fastener elements each including an elongated mounting stud having retaining means defined thereon, each stud being received within an insert hole to affix said second elements to said insert, said studs being formed of a synthetic plastic material and said retaining means defined on said studs comprising deformable barbs.

5,067,773

FOAM SEAT CUSHION WITH CLAMPED EDGES

Chi H. Koa, Jackson, Mich., assignor to Michigan Seat Company, Jackson, Mich.

Filed Sep. 4, 1990, Ser. No. 577,039
Int. Cl.[5] A47C *7/02*
U.S. Cl. 297—457 **5 Claims**



1. A seat comprising, in combination, a synthetic foam cushion having top and bottom surfaces and a peripheral edge, a flexible cover attached to said cushion top surface and extending over said cushion peripheral edge and having a flexible peripheral flap extending beyond said cushion peripheral edge, said flap having a terminating edge, a substantially rigid pan having a configuration substantially similar to that of said cushion bottom surface and having a periphery and a peripheral region, spaced openings defined in said pan peripheral region inwardly of said pan periphery, a substantially closed periphery centrally open retainer separate from said pan and having a configuration similar to that of said pan peripheral region, a plurality of spaced elongated lances defined on said retainer corresponding in spacing to said pan peripheral region openings, and fastening means attaching said retainer to said pan peripheral region with said lances extending through said pan openings, said flap including a portion extending over said pan periphery and engaging said pan peripheral region, said retainer being superimposed over said flap portion whereby said flap portion is sandwiched between said retainer and said pan peripheral region and said lances penetrate said flap portion to maintain said flap portion in position prior to installation of said fastening means, said flap terminating edge being located between said retainer and said pan peripheral region wherein said retainer shields said flap terminating edge from view.

5,067,774

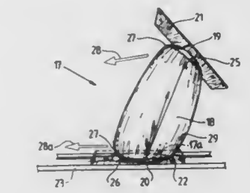
CONE SHAPED INFLATABLE BAG FOR LIFTING A LOAD

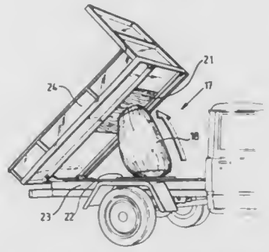
Mark G. Trowland, Buranda, Australia, assignor to Marketmont Pty, Ltd., Queensland, Australia

Filed Mar. 14, 1990, Ser. No. 493,550
Claims priority, application Australia, Mar. 17, 1989, PJ3265
Int. Cl.[5] B60P *1/16*; B66F *3/35*
U.S. Cl. 298—1 A **10 Claims**

1. A combination of a dump tray, an inflatable bag and a base suitable for a dump vehicle, comprising hinge means connecting the dump tray to the base to constrain the tray's movement, the inflatable bag being located between the tray and the base, such that on inflation of the bag, the base remains stationary relative to the tray and the tray is moved about the hinge means, the bag being constructed such that when fully inflated it assumes an oblique cone-like shape with a side wall defined between a rounded apical end wall and a rounded base end wall, said apical end wall and said base wall moving apart as

the bag inflates to define a direction of travel of said end walls, the bag having first coupling means connecting the apical end





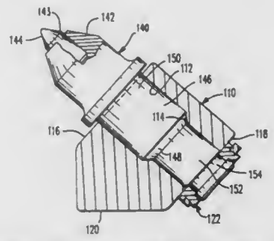
wall to the tray and second coupling means connecting the base end wall of the bag to the base.

5,067,775

RETAINER FOR ROTATABLE BITS

Mark D. D'Angelo, Bedford, Pa., assignor to Kennametal Inc., Latrobe, Pa.

Filed Apr. 21, 1988, Ser. No. 184,511
The portion of the term of this patent subsequent to Dec. 26, 2006, has been disclaimed.
Int. Cl.[5] E21C *35/18*
U.S. Cl. 299—86 **30 Claims**



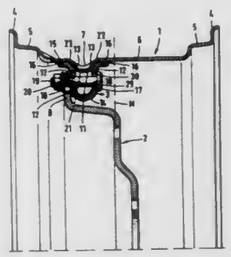
28. A mining tool retainer means for rotatably retaining a mining tool in a support block bore having forward and rearward ends, with at least said rearward end being of a first diameter, said retainer comprising removable collar means consisting of at least two semiannular members each having a forward face, a flange extending from its inside diameter and a groove disposed about its outside diameter, said forward face defining at least in part said semiannular members' outside diameter which is greater than said support block bore's rearward end's first diameter, said retainer means being circumferentially mountable about a rearward end of said mining tool which rearward end extends from said support block when said mining tool is mounted in said support block bore's rearward end, said extending rearward portion of said mining tool having a groove circumferentially disposed therein, such that each said collar means flange engages said groove in said extending rearward portion of said mining tool and each said collar means groove defines in combination a substantially continuous groove about said collar means; and snap ring means removably mounted about said removable collar means in said substantially continuous groove.

5,067,776

TRACK ADJUSTMENT WHEEL

Peter Aderer, Königswinter, Fed. Rep. of Germany, assignor to Lemmerz-Werke KGaA, Konigswinter, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 270,612, Nov. 14, 1988, Pat. No. 4,925,248. This application May 14, 1990, Ser. No. 522,915
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1989, 3921121
Int. Cl.[5] B60B *23/12*
U.S. Cl. 301—9 TV **14 Claims**



1. A track adjustment wheel comprising:

a central wheel disc;

a generally cylindrical peripheral rim, said rim having an axis and a base facing the wheel disc and concentric therewith;

a plurality of U-shaped holding supports circumferentially spaced around the rim base, said holding supports having legs and axially aligned bolt-holes, the legs being provided with outwardly directed flanges which lie against the rim base and at which the holding supports are welded to the rim base by welding seams extending circumferentially of the rim base;

bolts extending axially through the bolt-holes and engaging the central wheel disc to mount the central wheel disc detachably to the peripheral rim; and,

an inwardly projecting bead arranged on and extending around the rim base, said bead having a cross section substantially in the form of a flattened V;

boss-like projections being formed in the bead by locally pressed inward portions of the bead, said boss-like projections having flank portions and extending radially inwardly into the holding supports between the legs thereof with the legs axially engaged against said flank portions relieving said welding seams of stress.

5,067,777

AIR BRAKE SYSTEM FOR AN ARTICULATED RAILROAD CAR

Eugene W. Schmitt, Lockport, Ill., assignor to Sloan Valve Company, Franklin Park, Ill.

Filed May 14, 1990, Ser. No. 522,806
Int. Cl.[5] B60T *8/30*
U.S. Cl. 303—22.6 **5 Claims**

1. A railroad air brake system for use on an articulated railroad car having end platforms and an intermediate platform, trucks supporting the platforms and separate air brake subsystems for the trucks supporting the end platforms,

the improvement comprising an air brake subsystem for the trucks supporting the intermediate platform which includes:

a control valve connected to a train air supply,

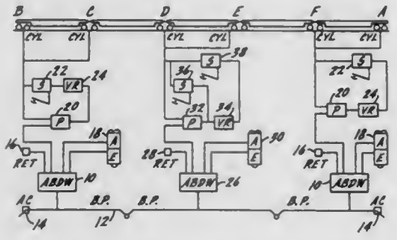
an air actuating means for each truck supporting the intermediate platform,

VOL 1132 ISS 4 NO 26 1991 UMI

each truck supporting the intermediate platform having a sensor valve with a load sensing arm, which sensor valves are commonly connected to said air actuating means,

a proportional valve having an input connected to said control valve and an output connected to said air actuating means and said sensor valves,

a volume reservoir connected to said sensor valves and to said proportional valve,



the application of brake operating pressure from the control valve to said proportional valve, with an empty load condition at any intermediate platform truck causing the sensor valve associated therewith to cause said proportional valve to reduce the air pressure supplied therefrom to said air actuating means.

5,067,778

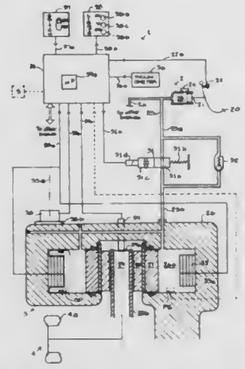
HIGH PERFORMANCE ANTI-LOCK BRAKE SYSTEM FOR ORIGINAL EQUIPMENT AND AFTER-MARKET APPLICATIONS

David A. Testardi, 7230 Pimmit Ct., Falls Church, Va. 22043

Filed Nov. 19, 1990, Ser. No. 615,260

Int. Cl.[5] B60T *8/00*

U.S. Cl. 303—113 R **20 Claims**



1. An anti-lock brake system for a vehicle comprising:

a master cylinder having a master cylinder piston mounted for reciprocal movement therein;

actuating means for moving the master cylinder piston when an operator of the vehicle operates a vehicle brake actuating device;

a wheel cylinder having a wheel cylinder piston which is mounted for reciprocal movement therein;

a rotatable brake element connected for rotation with a wheel of the vehicle;

a non-rotatable brake element interposed between the wheel cylinder piston and the rotatable brake element;

a hydraulic link comprising a volume of constrained working fluid interposed between the master cylinder piston and the wheel cylinder piston so as to hydraulically link movement of the master cylinder piston with movement of the wheel cylinder piston, whereby

when the vehicle operator operates the vehicle brake actuating device in order to slow down the vehicle, the movement of the master cylinder piston causes a corresponding movement of the wheel cylinder piston which urges the non-rotatable brake member to frictionally engage the rotatable brake member, thereby slowing down the vehicle;

valve means provided in the hydraulic link for controlling a condition of fluid communication between the master cylinder and the wheel cylinder, wherein

the valve means is controllable to selectively provide either one of a first condition which allows two way fluid communication between the master cylinder and the wheel cylinder and a second condition which allows exclusive one way fluid communication from the wheel cylinder to the master cylinder, wherein,

an upstream portion of the hydraulic link is defined between the master cylinder piston and the valve means and a downstream portion of the hydraulic link is defined between the wheel cylinder piston and the valve means, and wherein

the downstream portion of the hydraulic link defines an internal volume within which the working fluid is substantially constrained when the movement of the wheel cylinder piston has urged the non-rotatable brake member into frictional engagement with the rotatable brake member;

piezoelectric means, comprising at least one piezoelectric element to which a voltage potential is applied, for increasing and decreasing the internal volume of the downstream portion of the hydraulic link in response to changes in a magnitude of the voltage potential applied to the piezoelectric element;

wheel speed sensing means for producing a wheel speed signal indicative of a rotational speed of the wheel; and

a controller electrically connected to the valve means, the piezoelectric means, and the wheel speed sensing means;

wherein the controller comprises:

skid determining means for determining the existence of an incipient wheel skid condition at the vehicle wheel on the basis of at least the wheel speed signal;

normal braking mode control means, operative when the incipient wheel skid condition does not exist, for controlling the valve means to provide the first condition of fluid communication between the master cylinder and the wheel cylinder;

cut-off means, responsive to the determined existence of the incipient wheel skid condition, for controlling the valve means to provide the second condition of fluid communication between the master cylinder and the wheel cylinder;

piezoelectric element contracting means, operative after the second condition of fluid communication has been established, for controlling the magnitude of the voltage potential applied to the piezoelectric element so as to cause the piezoelectric element to contract, thereby increasing the internal volume of the downstream portion and reducing a hydraulic pressure in the wheel cylinder to alleviate the incipient wheel skid condition;

means for sensing an alleviation of the incipient wheel skid condition, on the basis of at least the wheel speed signal;

piezoelectric element expanding means, responsive to the sensed alleviation of the incipient wheel skid condition, for controlling the voltage potential applied to the piezoelectric element so as to cause the piezoelectric element to expand, thereby decreasing the internal volume of the downstream portion and increasing the hydraulic pressure in the wheel cylinder;

monitoring means for monitoring the voltage potential applied to the piezoelectric element by the piezoelectric element expanding means; and

normal braking resume means for controlling the valve means to provide the first condition of fluid communication between the upstream portion and the downstream portion of the hydraulic link when the voltage potential applied to the piezoelectric element by the piezoelectric element expanding means has reached a predetermined voltage potential,

wherein the valve means and the piezoelectric means are provided within a module attached to a portion of the vehicle in such a manner that the piezoelectric means is located within an auxiliary chamber of the module downstream of the valve means, wherein the upstream portion comprises a first brake line section, the downstream portion comprises a second brake line section, wherein the second brake line section comprises a flexible brake line, and wherein the module is interposed between the first brake line section and the second brake line section.

5,067,779

BRAKING PRESSURE GENERATOR FOR A VACUUM OPERATED BRAKE SYSTEM WITH ANIT-LOCK CONTROL

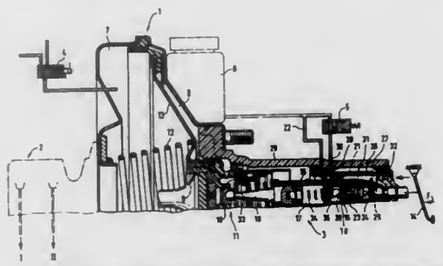
Juan Belart, Moerfelden-Walldorf, Fed. Rep. of Germany, assignor to Alfred Teves GmbH, Frankfurt Am Main, Fed. Rep. of Germany

Filed May 4, 1990, Ser. No. 519,057

Claims priority, application Fed. Rep. of Germany, May 6, 1989, 3914955

Int. Cl.[5] B60T *08/44*

U.S. Cl. 303—114 PN **4 Claims**



1. A pedal-actuated braking pressure generator for a brake system with anti-lock control, comprising a vacuum-operated servo unit providing both boosting of braking force and generating an auxiliary energy opposed to pedal force and a master brake cylinder connected downstream thereof, wherein the pedal force is transmitted to an inlet valve of the servo unit by way of a piston arrangement connected adjacent said unit and including a pedal-side piston applied by the pedal force, a pressure transmission chamber, a reversing valve and a push-rod piston actuating the inlet valve of the servo unit, with the reversing valve closing the pressure transmission chamber in the absence of anti-lock control and, upon the onset of anti-lock control, the pedal-side piston being arrested and the reversing valve opening a pressure medium path from the pressure transmission chamber to a pressure compensation reservoir, thereby releasing the push-rod piston in a direction opposite of the pedal force.

5,067,780

VERTICAL FILING DEVICE

Brent N. Rickard, 5415 Via Carrizo, Laguna Hills, Calif. 92653

Filed Jun. 29, 1989, Ser. No. 374,009

Int. Cl.[5] B42F *7/00*

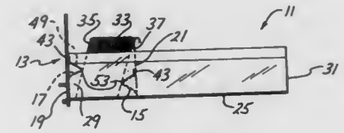
U.S. Cl. 312—193 **14 Claims**

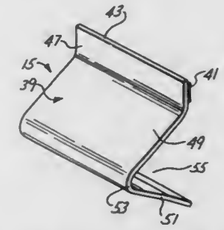
1. A file drawer system for containing and positioning a plurality of file folders comprising:

a file drawer having a forward wall, a rear wall, at least one side wall and a bottom wall, said walls defining a filing compartment which is adapted to receive the plurality of file folders with a forwardmost and a rearwardmost of the file folders facing the forward and rear walls, respectively;

forward and rear positioners for positioning the file folders so that they are in an inclined position in which they are inclined rearwardly as they extend upwardly when the file drawer is closed;

means for releasably coupling the rear positioner to any desired location on at least one of said side, rear and bottom walls without penetrating said one wall and with the rear positioner lying between the rear wall and the rearwardmost file folder and being engageable with the rearwardmost file folder;





means for releasably coupling the forward positioner to any desired location on at least one of said forward, side and bottom walls without penetrating the wall to which the forward positioner is coupled; and

said forward positioner being between the forwardmost file folder and the forward wall and being engageable with the forwardmost file folder.

5,067,781

OPTICAL ELEMENTS AND METHOD OF MANUFACTURE

Dennis G. Montanari, Townsend; Richard L. Gentilman, Acton, and Randal W. Tustison, Lexington, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Continuation of Ser. No. 439,743, Nov. 21, 1989, abandoned. This application Apr. 25, 1991, Ser. No. 691,665

Int. Cl.[5] G02B *1/10, 5/28*

U.S. Cl. 359—350 **11 Claims**



1. An optical element, comprising:

a base comprising a first material having a first predetermined optical transmittance over at least a portion of the optical range of about 2 microns to 30 microns; and

a coating layer disposed over said base comprising a refractory oxide, said coating layer having a first region comprising the material of said base layer and said refractory oxide, and a second region of said refractory oxide dis-

VOL 1132 ISS 4 NO 26 1991 UMI

posed over said first region with the first region of the coating layer having a graded composition, with the proportion of the material of the base declining as a function of increasing thickness of the first region, while the proportion of the refractory oxide in the first region increases as a function of increasing thickness of the first region.

5,067,782

APPARATUS FOR PRODUCING A DISTORTION-FREE TWO-DIMENSIONAL IMAGE OF A SCANNED OBJECT

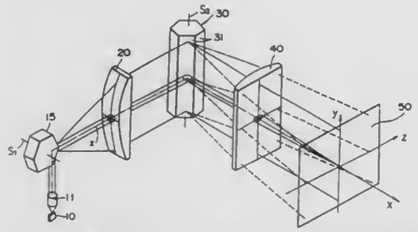
Akira Morimoto, Tokyo, and Takashi Iizuka, Shiki, both of Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 547,208, Jul. 3, 1990, abandoned, which is a division of Ser. No. 288,980, Dec. 23, 1988. This application Jan. 31, 1991, Ser. No. 649,313

Claims priority, application Japan, Dec. 23, 1987, 62-326274; Dec. 23, 1987, 62-326275; Jan. 12, 1988, 63-4423

Int. Cl.[5] G02B *26/08*

U.S. Cl. 359—202 **7 Claims**



1. An optical device for scanning a predetermined surface which is defined by first and second axes that are perpendicularly arranged with respect to each other, and for creating a two-dimensional image on said surface, said device comprising:

means for emitting a light beam in a predetermined direction;

first means for deflecting said light beam onto a first plane which is sectioned parallel to said first axis;

first means for refracting said light beam deflected by said first deflecting means in such a fashion that all deflected directions of said light beam passed through said first refracting means become parallel to one another;

second means for deflecting said light beam refracted by said first refracting means, on a second plane which is sectioned parallel to said second axis, the positional relationship of said second plane with respect to said second axis, along the direction of said first axis, being determined based upon a deflection angle of each of said deflected directions of said light beam at said first deflecting means; and

second means for refracting said light beam deflected by said second deflecting means on said predetermined surface.

5,067,783

OPTICAL FIBER CONNECTOR BUILDOUT SYSTEM

Norman R. Lampert, Norcross, Ga., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Oct. 16, 1990, Ser. No. 598,497

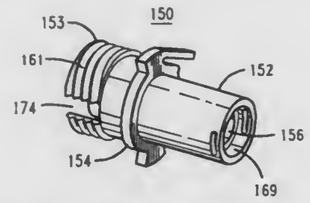
Int. Cl.[5] G02B *6/36*

U.S. Cl. 385—60 **34 Claims**

16. A buildout system for connecting optical fibers terminated by plugs of first and second optical fiber plug assemblies, said buildout system including:

a buildout block which is adapted to be mounted in an opening in a panel and adapted to have a plug assembly connected thereto, said buildout block including a tubular portion having a longitudinally extending keyway formed in a wall thereof and extending from a flanged end which includes track and latching means, said buildout block including first and second cavities which communicate with each other through an opening in an internally disposed wall with said first cavity opening to the flanged end of said buildout block and said second cavity opening to an opposite end of said buildout block;

a buildout which includes first and second coaxially aligned tubular portions which extend in opposite directions from a flanged portion which includes securing means adapted to cooperate with said track and latching means of said buildout block to secure said buildout to said buildout block upon suitable relative rotary motion which is caused to occur between said buildout and said buildout block, said first tubular portion adapted to be received in said first cavity of said buildout block and said second tubular



portion including securing means for causing a plug assembly which is assembled thereto to be secured against unintentional rotary motion; and

a sleeve which is disposed in said first tubular portion of said buildout and which is adapted to receive in one end thereof an end portion of a plug of a plug assembly which becomes disposed in said tubular portion of said buildout block and in an opposite end thereof another plug which becomes disposed in said second tubular portion of said buildout to cause an optical connection to be made between optical fibers terminated by the plugs, said sleeve including a longitudinally extending slot in a wall thereof and said longitudinal keyway of said buildout block and said securing means of said buildout cooperating with portions of said plug assemblies assembled thereto to prevent unintended rotary motion of said plug assemblies.

5,067,784

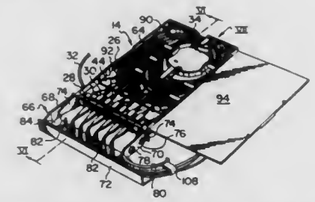
CONNECTOR HOLDERS

George Debortoli, 257 Marilyn Avenue, Ottawa, Ontario, Canada K1V 7E4 , and Helmut H. Lukas, 95 Lake Avenue West, Carleton Place, Ontario, Canada K7C 1L7

Filed Nov. 19, 1990, Ser. No. 610,894

Int. Cl.[5] G02B *6/36*

U.S. Cl. 385—53 **5 Claims**



1. A planar connector holder for connecting a plurality of incoming optical fibers to outgoing optical fibers, the holder having:

a front end region and a rear end region;

a storage facility for the storage of a plurality of coiled lengths of fiber with the coils in the planes of the holder;

a mounting region for a plurality of optical connectors, the

mounting region disposed at the front end region of the holder with the storage facility disposed between the mounting region and the rear end region of the holder with the mounting region comprising a plurality of connector mounting positions disposed in a series which extends from mounting position to mounting position along the front end region of the holder for location of connectors in the mounting positions with an end of each connector facing forwardly from the front end region of the holder;

a connector guard provided to shield the forward facing end of each connector while being disposed forwardly in front of the mounting region to provide a space between the guard and the mounting region for other optical fibers to extend to the forward facing ends of the connectors, an inlet at one side of the holder and forwardly of the mounting region for passage of said other optical fibers into said space;

and means for limiting the minimum bend radius of said other optical fibers as they extend in the space from the forward facing ends of the connectors and laterally of the holder through the inlet.

5,067,785

ELECTRONIC MODULES

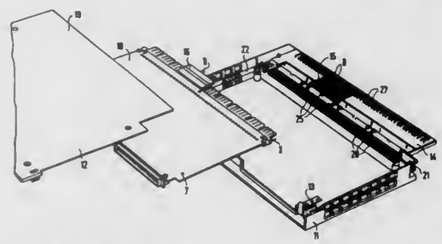
Reinhard Schirbl, Schwandorf; Günther Deinhardt, and Hermann Kasowski, both of Amberg, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Berlin & Munich, Fed. Rep. of Germany

Filed Sep. 21, 1990, Ser. No. 586,568

Claims priority, application European Pat. Off., Sep. 25, 1989, 89117654

Int. Cl.[5] G02B *6/00*

U.S. Cl. 385—38 **20 Claims**



1. A module comprising:

a front fin;

a printed circuit board having connecting terminals;

a status display disposed on a front side of a front-sided fin, said status display comprising:

a plurality of light emitting elements; and

a plurality of fiber optic guides which lead into the fin, said fiber optic guides serving as extension elements of said plurality of light-emitting elements to display status;

a front panel connector including a cable channel receiving cables which are able to electrically connected to leads on the printed circuit board via the connecting terminals; and

a front door attached to said front panel connector.

5,067,786

OPTICAL FIBRE MONITORING

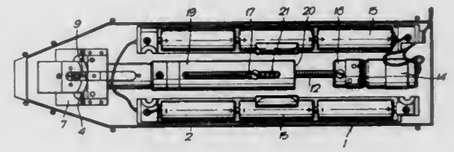
Ronald G. Hawkins, Harlow, and Richard Grigsby, Chester, both of England, assignors to BICC Public Limited Company, London, England

Filed Dec. 5, 1990, Ser. No. 623,201

Claims priority, application United Kingdom, Dec. 21, 1989, 8928825

Int. Cl.[5] G02B *6/26*

U.S. Cl. 385—13 **10 Claims**



1. A handtool for detecting whether or not an optical fibre is carrying a light signal, which handtool comprises a housing of such a shape and size that it can be held in the hand; first bending means for subjecting a first portion of an optical fibre to microbending of a gradually increasing extent, which first bending means comprises an anvil fixedly secured in the housing, a pressure member so mounted in the housing that the pressure member is constrained to move towards or away from a face of the anvil in a rectilinear direction substantially normal to said face, at least one of said face of the anvil and a pressure-imparting face of the pressure member including at least one undulation, and a motor-driven operating mechanism mounted in the housing for causing the pressure member to move towards or away from the anvil so that when said first portion of an optical fibre is positioned between the pressure member and the anvil and the pressure member is caused to move towards the anvil said first portion of the optical fibre will be constrained between the anvil and the pressure member and will be subjected to microbending of a gradually increasing extent; second bending means which is fixedly secured in the housing adjacent the anvil and which will cause a second portion of said optical fibre to be subjected to macrobending to a predetermined fixed extent; first detecting means for detecting light escaping from the fibre, the first detecting means being mounted in the housing in the vicinity of the second bending means second detecting means mounted in the housing for detecting when said first portion of the fibre has been subjected to a predetermined amount of microbending; and, operatively coupled to the first and second detecting means and to the motor driving the operating mechanism of the first bending means, a control unit which will give a first output indication on receipt of a signal from the first detecting means, the arrangement being such that, on receipt of a signal from the first detecting means, the control unit will stop the motor causing said movement of the pressure member towards the anvil to prevent further increase of the extent of microbending of said first portion of the fibre and that, if the second detecting means detects that said first portion of the fibre has been subjected to its predetermined maximum amount of microbending and no signal has been received from the first detecting means, a signal is sent to the control unit which will stop the motor causing said movement of the pressure member towards the anvil to prevent further increase in the extent of microbending of said first portion of the fibre and will give a second output indication.

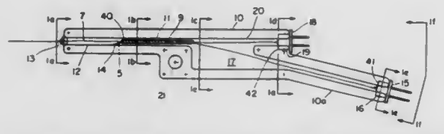
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,787

ELECTRO-OPTICAL CONVERTER

Frederick J. Gillham, Westborough, and David W. Stowe, Medford, both of Mass., assignors to Aster Corporation, Milford, Mass.

PCT No. PCT/US88/01705, § 371 Date Jan. 23, 1989, § 102(e) Date Jan. 23, 1989, PCT Pub. No. WO88/09517, PCT Pub. Date Dec. 1, 1988
PCT Filed May 23, 1988, Ser. No. 342,448
Int. Cl.[5] G02B *6/28*
U.S. Cl. 385—50 8 Claims



1. An electro-optical converter including a source of optical energy and an element for detecting optical energy, comprising a supporting body which includes:

a first section adapted to support the source of optical energy and to dissipate heat generated by the source of optical energy, and

a second section adapted to support the element for detecting optical energy and to insulate the element from the heat generated by the source of optical energy,

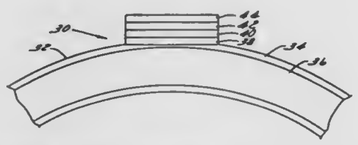
wherein said second section comprises a fiber optic coupler disposed in said second section, said fiber optic coupler comprising a pair of optical fibers juxtaposed along a length-wise continuous portion of their length in a manner to provide lateral transfer of optical energy therebetween, an end of one of the pair of optical fibers comprising a termination for said coupler, said terminating end having a length extending greater than ¼ inch from the juxtaposed portion of said coupler and being disposed along a bend, with respect to said juxtaposed portion of said coupler, selected to introduce substantial attenuation to optical energy propagating in said terminating end.

5,067,788

HIGH MODULATION RATE OPTICAL PLASMON WAVEGUIDE MODULATOR

Tomasz P. Jannson; Joanna L. Jannson, both of Torrance, and Behzad Moslehi, Redondo Beach, all of Calif., assignors to Physical Optics Corporation, Torrance, Calif.

Filed Mar. 21, 1990, Ser. No. 496,799
Int. Cl.[5] G02B *6/26*
U.S. Cl. 385—2 12 Claims



4. A light modulator comprising

an optical fiber for carrying a guided light wave, a portion of which is not clad;

a phase-matching layer disposed on the unclad portion of the fiber;

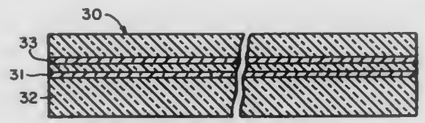
a material, the index of refraction of which can be varied by electromagnetic energy, sandwiched between two metal electrodes to which a varying electromagnetic field is applied, the sandwich disposed on the layer and within the evanescent field of the light wave.

5,067,789

FIBER OPTIC COUPLING FILTER AND AMPLIFIER

Douglas W. Hall, Corning, and Robert M. Hawk, Bath, both of N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Feb. 14, 1991, Ser. No. 655,726
Int. Cl.[5] G02B *6/26, 6/42*
U.S. Cl. 385—27 30 Claims



1. A fiber optic filter structure comprising an optical fiber having a single-mode core surrounded by cladding material, and at least one light-attenuating light path in said cladding material uniformly spaced from said single-mode core, the propagation constants of said single-mode core and said light-attenuating light path being different at wavelengths except for at least one wavelength λ_f, the spacing between said single-mode core and said at least one light-attenuating light path being sufficiently small that light within a first band of wavelengths centered around λ_f couples between said single-mode core and said light-attenuating light path, at least a portion of the light within said first band of wavelengths being absorbed in said light-attenuating light path.

5,067,790

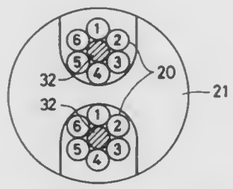
Patent Not Issued For This Number

5,067,791

FIBER IDENTIFICATION IN AN OPTICAL FIBER COMPOSITE OVERHEAD GROUND WIRE

Satoshi Nishiyama, Kanagawa, Japan, assignor to Sumitomo Electric Industries, Ltd., Osaka, Japan

Filed May 11, 1987, Ser. No. 48,113
Claims priority, application Japan, May 10, 1986, 61-70558[U]
Int. Cl.[5] G02B *6/44*
U.S. Cl. 385—101 5 Claims



1. An optical fiber composite overhead ground wire, comprising:

two or more optical fiber units bundled together; and

a plurality of ground wires provided externally to said units, each of said optical fiber units comprising:

a tension member; and

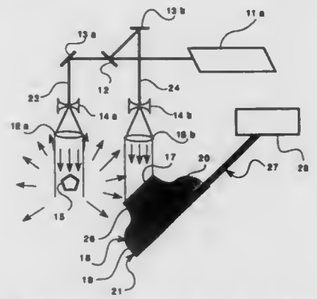
a plurality of optical fibers wound on said tension member; wherein each of said tension members is uniquely identifiable for identifying said each tension member from any other of said plurality of tension members, and each of said optical fibers within said optical fiber unit is uniquely identifiable for identifying said each optical fiber from any other of said plurality of optical fibers within said optical fiber unit.

5,067,792

METHOD AND APPARATUS FOR INTERFACING OF HOLOGRAPHIC AND ELECTRONIC DATA

O. H. Perry Lloyd, 310 B San Jose Ave., Capitola, Calif. 95010

Filed Sep. 18, 1990, Ser. No. 584,524
Int. Cl.[5] G02B *6/04;* G03H *1/22*
U.S. Cl. 359—32 19 Claims



1. An apparatus for interfacing electronic and holographic data, comprising:

holographic generating means for generating a wavefront interference fringe,

transmission means for light guiding to which said wavefront interference fringe is directed,

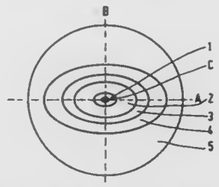
sensing means and switching means for sensing, translating, and controlling the condition of said transmission means.

5,067,793

POLARIZATION-MAINTAINING SINGLE-MODE OPTICAL FIBRE AND METHOD OF MAKING SAME

Peter K. Bachmann, Aachen, Fed. Rep. of Germany; Glok D. Khoe, Eindhoven, Netherlands; Cathal J. Mahon, Copenhagen, Denmark, and Hans-Jürgen Lydtin, Stolberg, Fed. Rep. of Germany, assignors to U.S. Philips Corp., New York, N.Y.

Filed Aug. 10, 1990, Ser. No. 565,824
Claims priority, application Netherlands, Aug. 16, 1989, 8902073
Int. Cl.[5] G02B *6/22;* C03C *25/02*
U.S. Cl. 385—127 4 Claims



1. A single-polarisation mode optical fibre comprising at least a core and at least one cladding having a smaller refractive index than the core, characterized in that the fibre comprises at least four claddings which surround the core and which, viewed from the core outwards, have alternately a smaller refractive index than the core and a larger refractive index than the adjoining claddings, yet smaller than that of the core, and in that the dimension of at least the light-transmitting part of the fibre in a first direction perpendicular to the axis of the fibre differs from the dimension of the light-transmitting part in a second direction perpendicular to the axis of the fibre and the first direction.

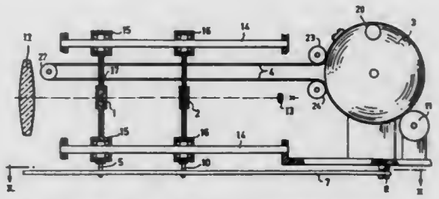
3. A method of manufacturing a single polarisation mode optical fibre characterized in that in a first step a solid preform for a fibre, comprising a core and at least four claddings is manufactured in a customary manner by successively depositing cladding material and core material on the inside of a tube of quartz glass having a circular internal cross-section, and subsequently collapsing the assembly into a solid preform, after which said preform is provided with two mutually parallel faces which extend parallel and symmetrically to the axis of the tube, after which in a next step the preform is drawn into a fibre.

5,067,794

IR-PANCRATIC OPTICAL DEVICE

Dieter Marx, Aalen-Waldhausen, and Axel Kampf, Königsbronn, both of Fed. Rep. of Germany, assignors to Carl-Zeiss-Stiftung, Heidenheim, Fed. Rep. of Germany

Filed Jul. 11, 1990, Ser. No. 550,900
Claims priority, application Fed. Rep. of Germany, Jul. 22, 1989, 3924269
Int. Cl.[5] G02B *7/02*
U.S. Cl. 359—824 6 Claims



1. An IR-pancratic optical device comprising:

a forward optical member;

a rearward optical member mounted rearward of said forward optical member and defining an optical axis therewith;

first and second intermediate optical members disposed along said axis between said forward and rearward optical members;

rotation means for providing a rotational movement;

conversion means for converting said rotational movement into a translatory movement and imparting said translatory movement to said first intermediate optical member for movement along said axis;

coupling means for position-dependently coupling said intermediate optical members to each other so as to cause said second intermediate optical member to undergo a predetermined movement in response to a linear movement of said first intermediate optical member along said axis;

a holding structure;

said rotation means including a drum rotatably mounted on said holding structure and defining an outer periphery;

said conversion means including: a band attached to said outer periphery so as to permit a first portion of said band to move in a rotational direction; redirecting means for directing a second portion of said band to move in a linear direction; and,

said first intermediate optical member being attached to said second portion of said band.

5,067,795

ADJUSTABLE TRANSPARENCY SPECTACLES

Daniele Senatore, Rome, Italy, assignor to Gianni Bulgari S.p.A., Rome, Italy

PCT No. PCT/IT87/00024, § 371 Date Sep. 14, 1988, § 102(e) Date Sep. 14, 1988, PCT Pub. No. WO87/06018, PCT Pub. Date Oct. 8, 1987
PCT Filed Mar. 23, 1987, Ser. No. 305,988
Claims priority, application Italy, Mar. 24, 1986, 47809 A/86
Int. Cl.[5] G02F *1/13;* G02C *00/00*
U.S. Cl. 359—84 17 Claims

1. Eyewear having adjustable transparency comprising:

at least one lens comprising means for varying the transpar-

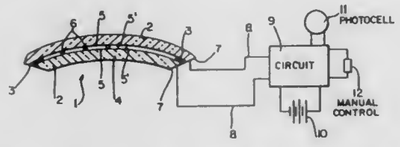
VOL 1132 ISS 4 NO 26 1991 UMI

ency thereof in response to a variation of voltage applied thereto,

means for supplying said variable voltage connected to said transparency varying means,

means for varying said variable voltage from said voltage supplying means applied to said transparency varying means,

said means for varying the transparency of said lens comprising a liquid crystal cell including a pair of spaced transparent supports each having a transparent electrode to which said variable voltage from said voltage supplying means is



applied to produce an electric field having a variable strength, a cholesteric-nematic phase change dichroic liquid crystal between said supports which transmits light in the absence of said electric field and which absorbs light in relation to the strength of said electric field, said liquid crystal having a double refraction lower than 0.12 and a negative dielectric anisotropy, at least one of said cell supports including means for imposing on the molecules of said liquid crystal a substantially vertical alignment, said liquid crystal having a spontaneous pitch value which is equal to 0.9–4 times the thickness of said cell.

5,067,796

LIQUID CRYSTAL DISPLAY DEVICE WITH CUT-OUT PORTIONS IN LEAD ELECTRODES FOR CONNECTION TO DRIVING CIRCUIT

Takumi Suzuki, Machida, and Kiyohiro Uehara, Tokyo, both of Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

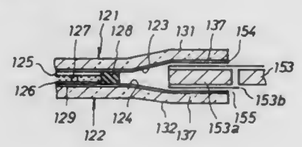
Division of Ser. No. 254,774, filed as PCT/JP88/00058 on Jan. 26, 1988, Pat. No. 5,011,266.

This application Jan. 15, 1991, Ser. No. 620,094

Claims priority, application Japan, Jan. 26, 1987, 62-9656; May 14, 1987, 62-72526; Jul. 28, 1987, 62-114663

Int. Cl.[5] G02F *1/133*

U.S. Cl. 359—88 **4 Claims**



1. A liquid crystal display device comprising:

two sheets of polymer film substrates being kept apart from each other;

two of transparent electrodes laminated respectively with inside surfaces of said respective polymer film substrates, said inside surfaces facing to each other;

a seal material inserted between said two transparent electrodes so as to form a display area in a space defined by said seal material and said two transparent electrodes, said display area being sealed with liquid crystal;

two of electrode lead-out portions extending respectively from edge portions of said respective polymer film substrates together with said transparent electrodes in one direction outwardly from said display area;

an external circuit substrate inserted between said two extended transparent electrodes at said two electrode lead-out portions; and

at least one cut-out portion formed on at least one of said two electrode lead-out portions so as to expose one portion of said external circuit substrate inserted between said two transparent electrodes, said exposed portion of said external circuit substrate being electrically connected to an external driving circuit.

5,067,797

LIQUID CRYSTAL DISPLAY CELL AND PROCESS FOR PRODUCING THE SAME

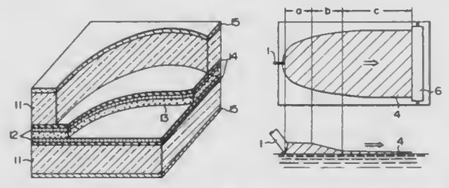
Hisao Yokokura, Hitachi; Tadao Nakada; Teruo Kitamura, both of Katsuta; Akio Mukoh, Mito; Yasuhiko Kando, Mobara; Isoji Sakai, Kobe; Yasuo Fujimura; Noboru Masutani, both of Ashiya; Tsunetaka Matsumoto, Kobe, and Yasuo Imanishi, Hitachi, all of Japan, assignors to Hitachi, Ltd., Tokyo and Nitto Denko Corporation, Osaka, both of, Japan

Filed Mar. 21, 1989, Ser. No. 326,557

Claims priority, application Japan, Mar. 25, 1988, 63-69276; Aug. 26, 1988, 63-210752; Oct. 6, 1988, 63-253394

Int. Cl.[5] G02F *1/133*

U.S. Cl. 359—76 **14 Claims**



1. A liquid crystal display cell comprising two spaced substrates having transparent electrodes arranged thereon in desired display patterns, a liquid crystal composition being sealed between the inner surfaces of said two substrates by a sealant, and two orientation films being arranged on individual transparent electrodes, at least one of said orientation films having an infrared dichroic ratio of 1.05 or more and a single layer film thickness of 0.003 μm or more and being obtained by spreading a solution of an organic polymer on a water surface and picking up a produced film.

5,067,798

LASER BEAM SCANNING SYSTEM

Masayuki Tomoyasu, Nirasaki, Japan, assignor to Tokyo Electron Limited, Tokyo, Japan

Filed Feb. 27, 1989, Ser. No. 316,140

Claims priority, application Japan, Feb. 29, 1988, 63-44612

Int. Cl.[5] G02F *1/11, 1/33;* G01R *1/00*

U.S. Cl. 359—286 **9 Claims**

1. A laser beam scanning system comprising:

a laser beam source for emitting a laser beam;

an optical means located along an optical path for a laser beam to be conducted to a surface of a sample;

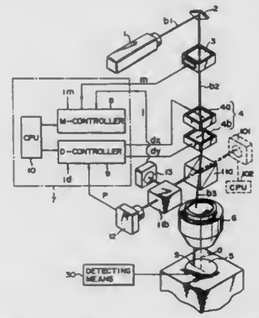
acousto-optic modulating means provided on the optical path to allow the laser beam to be continuously intensity-modulated in accordance with an input signal;

laser beam intensity control means for measuring an intensity distribution of the laser beam incident onto the sample

surface, for making uniform a laser beam illumination distribution on the surface of the sample;

laser beam deflecting means provided on the optical path to allow the laser beam to be deflected in accordance with an input signal;

position detecting means for detecting a position of the laser beam incident on the sample surface and for delivering a beam illumination position information signal;



deviation detecting means coupled to said position detecting means be detecting any deviation in the scan of said laser beam from a predetermined position and the actual beam illumination position and

laser beam deflecting control means coupled to said laser beam deflecting means for correcting, in response to said deviation detecting means, the signal provided to the laser beam deflecting means, such that the projected spot of said laser beam scans at a predetermined position.

5,067,799

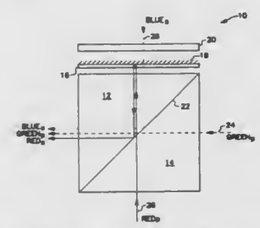
BEAM COMBINING/SPLITTER CUBE PRISM FOR COLOR POLARIZATION

Ronald S. Gold, Scottsdale, and Karen E. Jachimowicz, Goodyear, both of Ariz., assignors to Honeywell Inc., Minneapolis, Minn.

Filed Dec. 27, 1989, Ser. No. 457,665

Int. Cl.[5] G02B *27/10, 27/28*

U.S. Cl. 359—490 **9 Claims**



1. A color polarization cube prism for combining/splitting light, comprising:

a cube, composed of an essentially transparent material, having first, second, third, four, fifth and sixth sides, and having first and second halves of said cube juxtaposed at a plane, wherein the first and second halves have boundaries on the third and fourth sides;

a first optical coating situated between the first and second halves;

a first wave retarder proximate to the third side;

a second wave retarder proximate to said first wave retarder; and

a second optical coating situated between said first and second wave retarders; and

wherein:

said first optical coating transmits light having a first polarization and reflects light having a second polarization;

said second optical coating is a dichroic filter;

said first wave retarder is a quarter-wave plate;

said second wave retarder is a three-quarter-wave plate;

a first light, having a first polarization, enters the first side of said cube, passes through said first optical coating, and exits said cube at the second side;

a second light, having a second polarization, passes through said second wave retarder, said second optical coating and said first wave retarder, enters the fifth side of said cube, impinges the first optical coating and is reflected out of said cube through the second side; and

a third light, having a first polarization, enters the sixth side of said cube, passes through the first optical coating, exits said cube at the fifth side, passes through said first retarder, impinges said second optical coating and said third light is reflected by said second optical coating back through said first retarder and said third light, having its polarization changed to the second polarization, passes through the fifth side into said cube, impinges said first optical coating and said third light is reflected out of said cube through the second side.

5,067,800

COMPOSITE OPTICAL ARTICLE AND METHOD OF MANUFACTURE THEREOF

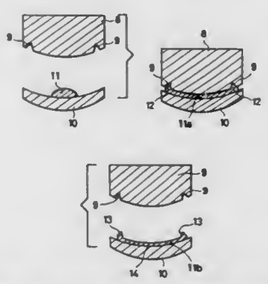
Masaki Shirakawa, Kokubunji, Japan, assignor to Olympus Optical Company Limited, Japan

Filed Jun. 11, 1990, Ser. No. 535,824

Claims priority, application Japan, Jun. 12, 1989, 1-148947

Int. Cl.[5] B29D *11/00*

U.S. Cl. 359—642 **18 Claims**



1. A composite optical article comprising; a lens base member formed of an optical glass or an optical plastic material and a plastic layer, wherein said plastic layer has an outer diameter smaller than that of said lens base member to expose an optical surface of said lens base member and said plastic layer has a projection extending from an outer peripheral edge thereof.

5,067,801

TRANSVERSE FLOW AERODYNAMIC LENS

Harold Mirels, Rolling Hills Estates; Donald J. Spencer, and Robert Hofland, Jr., both of Torrance, all of Calif., assignors to The Aerospace Corporation, El Segundo, Calif.

Filed Mar. 3, 1989, Ser. No. 318,582

Int. Cl.[5] G02B *3/14*

U.S. Cl. 359—666 **3 Claims**

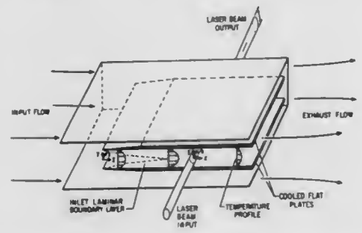
1. A method for producing a gas lens for a high intensity laser beam:

a. flowing a temperature controlled non-absorbing gas between two parallel plates;

VOL 1132 ISS 4 NO 26 1991 UMI

b. establishing the temperature of the plates so as to generate at a downstream location in the gas a uniform, parabolic gas-density and refractive index profile within a fully developed thermal boundary layer;

c. propagating a laser beam within the boundary layer of the plates in a direction transverse to the direction of the flow of the gas at said downstream location;



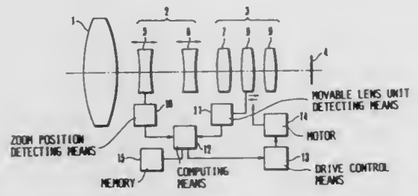
d. adjusting the temperature of the plates, wherein heating the plates to a temperature greater than the gas flow temperature focuses the laser beam and cooling the plates diverges the laser beam, thereby diverging, focusing or collimating the laser beam;

5,067,802

LENS MOVEMENT CONTROL DEVICE FOR ZOOM LENS

Kanjyo Orino, Kanagawa, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 16, 1990, Ser. No. 598,438
Claims priority, application Japan, Oct. 27, 1989, 1-281175
Int. Cl.[5] G02B *15/00*
U.S. Cl. 359—700 8 Claims



1. A lens movement control device for a zoom lens having variable focal lengths, comprising:

photographic lens means having first and second lens units axially movable for zooming, and a relay lens unit having a plurality of lens components to form an image with a light beam coming from said first and second lens units;

drive means for axially moving at least one lens component of said plurality of lens components;

first detecting means for detecting a focal length;

second detecting means for detecting the position of said at least one lens component;

memory means for memorizing information about the movement of said at least one lens component for each focal length; and

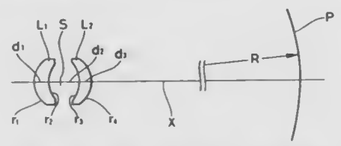
control means for controlling said drive means on the basis of information memorized by said memory means corresponding to the focal length detected by said first detecting means and information about the position detected by said second detecting means.

5,067,803

PHOTOGRAPHIC WIDE ANGLE LENS

Kazunori Ohno, Omiya, Japan, assignor to Fuji Photo Optical Co., Ltd., Omiya, Japan

Filed Mar. 26, 1991, Ser. No. 674,889
Int. Cl.[5] G02B *9/08, 13/18*
U.S. Cl. 359—708 11 Claims



1. A photographic wide angle lens comprising, from the object side thereof, a first lens of positive meniscus having a convex surface on the object side, and a second lens of positive meniscus having a concave surface on the object side, said first and second lenses having an aspheric surface at least on one of the four lens surfaces thereof and satisfying the condition of

$$0.85 < fF/fR < 1.15$$

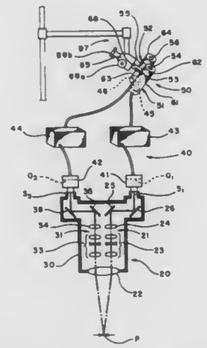
where fF and fR are focal lengths of said first and second lenses, respectively.

5,067,804

MICROSCOPE

Nobuaki Kitajima, and Kazutosbi Takagi, both of Tokyo, Japan, assignors to Kabushiki Kaisha Topcon, Tokyo, Japan

Filed Jul. 5, 1990, Ser. No. 549,181
Claims priority, application Japan, Jul. 6, 1989, 1-175299
Int. Cl.[5] G02B *21/00, 21/36*
U.S. Cl. 359—369 9 Claims



5. A microscope for observing an object, comprising:

an objective lens-barrel including:

a first objective optical system for forming a first image of said object,

a second objective optical system for forming a second image of the object,

a first means having a light-receiving surface, coupled to said first objective optical system, for monitoring said first image, and

a second means having a light-receiving surface, coupled to said second objective optical system, for monitoring said second image; and

one or more eyepiece-barrels, detached from said objective lens-barrel and movable independently thereof, said eyepiece-barrels including:

a first means, coupled to a respective one of said first and second monitoring means, for displaying an image representing a respective one of monitored first and second images of the object,

a second means, coupled to a respective on of said first and second monitoring means, for displaying an image representing a respective one of monitored first and second images of the object,

a first ocular optical system, coupled to said first displaying means, for projecting a displayed image for observation by the user of said microscope, and

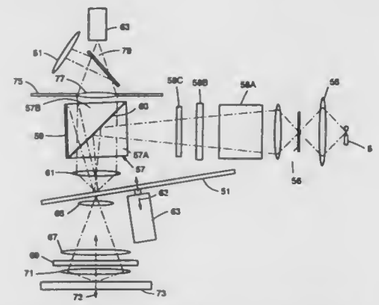
a second ocular optical system, coupled to said second displaying means, for projecting a displayed image for observation by the user of said microscope.

5,067,805

CONFOCAL SCANNING OPTICAL MICROSCOPE

Timothy R. Corle, Palo Alto; Chester L. Mallory, Campbell, and Philip D. Wasserman, Cupertino, all of Calif., assignors to Prometrix Corporation, Santa Clara, Calif.

Filed Feb. 27, 1990, Ser. No. 485,596
Int. Cl.[5] G02B *26/02, 5/04, 21/06*
U.S. Cl. 359—235 22 Claims



1. A microscope for imaging a sample, including:

a polarization rotating element positioned adjacent the sample;

a rotatably mounted disk, perforated with an array of holes;

a polarizing beamsplitting cube including a partially reflective film having a normal axis, wherein the cube is positioned to receive a beam of light from a source and divert a first portion of the beam having a first polarization through the disk to the polarization rotating element; and

an image receiving means positioned to receive a second portion of the first portion of the beam, wherein said second portion has propagated through the polarization rotating element and reflected from the sample to the image receiving means back through the polarization rotating element, the disk, and the cube, wherein the cube is mounted within the microscope in such an orientation about the normal axis that the beam is incident at the cube at a nonzero incidence angle, and wherein the nonzero incidence angle is sufficiently large that reflections of the beam from outer surfaces of the cube will not interfere with the second portion.

5,067,806

QUICK SCREENING FOR SCOTOPIC SENSITIVITY SYNDROME

Alan Kwasman, 2844 Taurus, Riverside, Calif. 92503, assignor to Alan Kwasman, Riverside, Calif.

Filed Jul. 7, 1989, Ser. No. 376,553
Int. Cl.[5] A61B *3/02*
U.S. Cl. 351—233 4 Claims

1. A device for determining scotopic sensitivity syndrome consisting of seven cards with a visual test pattern, six of the cards are covered with different colored filters corresponding to frequencies which excite one or two of the color receptors of the eye (cones) at the same time, and one of said cards



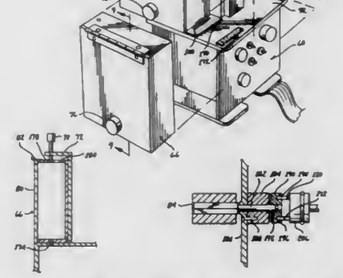
having no filter; wherein the examiner may determine if a patient has scotopic sensitivity syndrome.

5,067,807

REMOVABLE FILM BOXES FOR A CAMERA

Stanislav Maron, 7801 N. 54th St., Paradise Valley, Ariz. 85253

Division of Ser. No. 260,450, Oct. 20, 1988. This application May 18, 1990, Ser. No. 525,460
Int. Cl.[5] G03B *23/02*
U.S. Cl. 352—78 R 7 Claims



1. A removable film box usable with a camera for housing either a film feed reel or a film take up reel, said film box comprising in combination:

a) an armature for supporting a reel within said film box;

b) a hatch for opening said film box to insert and remove a film reel;

c) a light tight slit for accommodating transport of the film exterior of said film box;

d) position keying elements cooperating with complementary elements of the camera for repetitively accurately locating said film box relative to the camera, including means for retaining said position reying elements engaged with the complementary elements; and

e) drive means for rotating said armature, said drive means including a shaft extension extending from said armature externally of said film box, a source of power, an axially disengageable transmission disposed intermediate said shaft extension and said source of power for transmitting power to rotate said shaft extension.

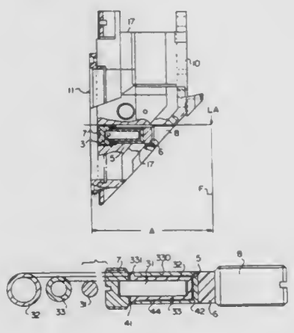
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,808

THERMAL EXPANSION COMPENSATION PENDULUM

Edbert Aischer, Julius Raabstr. 18/1. A-2345, Brunn/Geb., Austria

Filed Jun. 7, 1990, Ser. No. 534,734
Claims priority, application Fed. Rep. of Germany, Jun. 8, 1989, 3918698
Int. Cl.[5] G03B *3/00*; G02B *7/02*
U.S. Cl. 352—140 14 Claims



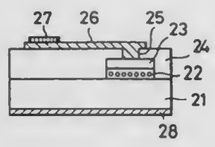
1. A compensating device for connecting two components of a motion picture camera comprising a mounting pin frictionally and/or positively connected with a first component of said camera, a mounting sleeve frictionally and/or positively connected with a second component of said camera, and an intermediate sleeve connected radially with said mounting pin and said mounting sleeve, with an axial gap provided between each end face of said intermediate sleeve and said first and second components.

5,067,809

OPTO-SEMICONDUCTOR DEVICE AND METHOD OF FABRICATION OF THE SAME

Takashi Tsubota, Tokyo, Japan, assignor to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jun. 4, 1990, Ser. No. 532,458
Claims priority, application Japan, Jun. 9, 1989, 1-145209; May 8, 1990, 2-116821
Int. Cl.[5] H01L *33/00*
U.S. Cl. 357—17 8 Claims



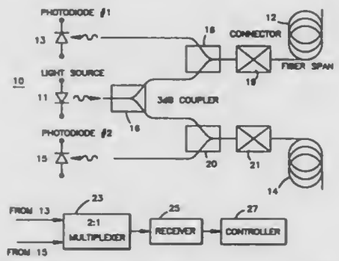
1. An opto-semiconductor device comprising:
(a) a substrate and a light-emitting part located thereon;
(b) a transparent insulating monocrystalline layer located over said substrate and said light-emitting part;
(c) a contact window opened through said transparent insulating monocrystalline layer, said window being located over a portion of said light-emitting part; and
(d) an electrode comprising a transparent conductive monocrystalline layer passing through said contact window and coupled to the portion of said light-emitting part, at least a section of said electrode being located on said transparent insulating monocrystalline layer.

5,067,810

SHARED LASER TANDEM OPTICAL TIME DOMAIN REFLECTOMETER

Bu-Abbud, Plano, Tex., assignor to Reliance Comm/Tec Corporation, Chicago, Ill.

Filed Jun. 21, 1990, Ser. No. 541,577
Int. Cl.[5] G01N *21/88*
U.S. Cl. 356—73.1 32 Claims



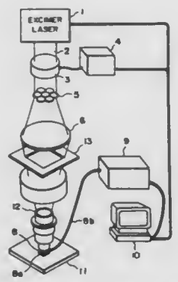
1. An instrument for sharing N ($N \geq 2$) optical fibers comprising:
a) a single means for generating a pulse of light:
b) means for splitting said pulse of light into N pulses of light each having essentially the same power and each associated with one of said N optical fibers; and
c) means responsive to light from each of said N optical fibers for monitoring each of said N optical fibers independently of any other of said N optical fibers when each of said N light pulses are input to said associated one of said N fibers.

5,067,811

ILLUMINANCE DISTRIBUTION MEASURING SYSTEM

Chidane Ouchi, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 186,067, Apr. 25, 1988, abandoned.
This application Jun. 25, 1990, Ser. No. 542,652
Claims priority, application Japan, Apr. 28, 1987, 62-103026
Int. Cl.[5] G01J *1/00*
U.S. Cl. 356—121 32 Claims



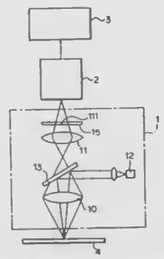
1. An illuminance distribution measuring system for measuring an illuminance distribution on a predetermined plane irradiated by a pulsed laser beam, said measuring system comprising:
a two dimensional sensor array unit for being irradiated by the pulsed laser beam; and
determining means for determining the illuminance distribution on the plane being irradiated, said determining means comprising means for detecting the illuminance distribution on the basis of a plurality of respective output signals from said sensor array unit in response to being irradiated by a plurality of pulses of the laser beam.

5,067,812

SYSTEMS FOR INSPECTING DEFECTS IN AN OPTICAL RECORDING MEDIUM

Koichi Sugimura; Fumio Kimura, both of Tokyo, and Shigeru Izawa, Kanagawa, all of Japan, assignors to Kabushiki Kaisha CSK, Tokyo, Japan

PCT No. PCT/JP89/00514, § 371 Date Jan. 23, 1990, § 102(e) Date Jan. 23, 1990, PCT Pub. No. WO89/11645, PCT Pub. Date Nov. 30, 1989
PCT Filed May 23, 1989, Ser. No. 460,091
Claims priority, application Japan, May 25, 1988, 63-128099
Int. Cl.[5] G01N *21/88*
U.S. Cl. 356—237 5 Claims



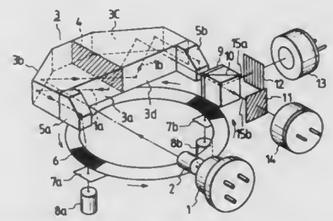
1. A defect inspecting apparatus comprising: an image forming optical system for enlarging an optical recording area of an optical recording medium having a regular pattern including a camera, an objective lens for forming an enlarged image of an optical recording area and a relay lens means for image forming an enlarged image in the camera means: an image processing portion for converting an enlarged image in said camera enlarged by said image forming optical system into an image signal and detecting a defect in said optical recording area from said image signal; and
a slotted space filter mounted on the optical axis between said camera and said relay lens in said image forming optical system for eliminating a space frequency component of said regular pattern.

5,067,813

OPTICAL APPARATUS FOR MEASURING DISPLACEMENT OF AN OBJECT

Kou Ishizuka, Urawa; Tetsuharu Nishimura, Kawasaki; Masaaki Tsukiji, and Satoshi Ishii, both of Tokyo, Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 6, 1989, Ser. No. 334,197
Claims priority, application Japan, Apr. 6, 1988, 63-84584; Apr. 6, 1988, 63-84585
Int. Cl.[5] G01B *9/02*
U.S. Cl. 356—351 18 Claims



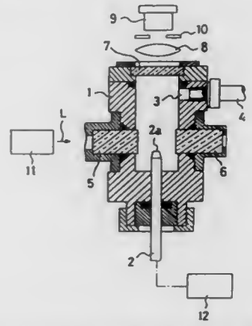
1. An optical apparatus comprising:
an optical system for generating a linearly polarized beam having a polarization direction which changes;
a nonpolarization reflecting surface for reflecting the linearly polarized beam and for directing the reflected beam in a predetermined direction;
photoelectric converting means for photoelectrically converting a beam reflected and directed in the predetermined direction by said nonpolarization reflecting surface; and
a polarizing element, arranged in an optical path of the reflected beam, for polarizing a predetermined component of the reflected beam and for directing only one of a P-polarized beam and an S-polarized beam of the reflected beam toward said photoelectric converting means.

5,067,814

APPARATUS FOR MEASURING FINE PARTICLE IN LIQUID

Riichiro Suzuki, Ikoma; Shigeyuki Akiyama, Ohtsu, and Yoshihiro Kubo, Takatsuki, all of Japan, assignors to Horiba, Ltd., Kyoto, Japan

Filed Apr. 28, 1988, Ser. No. 187,595
Claims priority, application Japan, Jun. 13, 1987, 62-147530
Int. Cl.[5] G01N *21/53*
U.S. Cl. 356—339 7 Claims



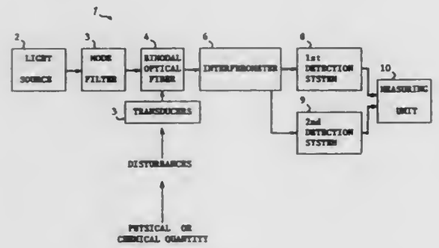
1. In an apparatus for measuring fine particles contained in liquid, said liquid being spouted inside a housing in a first direction towards a detection system exteriorly of said housing and also having an incident light emitted in a second direction generally transverse to that of the spouted liquid and capable of being scattered by the fine particles, an improved light detection subassembly comprising:
a nozzle for spouting the liquid in the housing;
a light incident window, adjacent the nozzle, on the housing;
a light transmission window, adjacent the nozzle, on the housing;
a light source for transmitting the incident light respectively through the light incident window, adjacent the nozzle and through the light transmission window;
a detection window on the housing axially aligned in the first direction with the spouted liquid from the nozzle, and
a stop means for stopping a portion of total scattered light that could otherwise be detected by said detection system, said scattered light being produced upon said incident light interacting with said fine particles in said spouted liquid, said stop means being disposed exteriorly of said housing and including variable means for varying said portion of total scattered light.

VOL 1132 ISS 4 NOV 26 1991 UMI

5,067,815
OPTICAL SENSOR WITH INTERMODAL INTERFEROMETRY

Georges Kotrotsios, Neuchatel, and Olivier Parriaux, Lausanne, both of Switzerland, assignors to Centre Suisse D'Electronique et de Microtechnique S.A., Neuchatel, Switzerland

Filed Sep. 13, 1990, Ser. No. 581,962
Claims priority, application Switzerland, Sep. 15, 1989, 03374/89
Int. Cl.[5] G01B *9/02*
U.S. Cl. 356—345 **7 Claims**



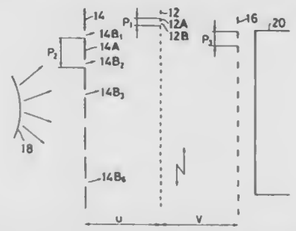
1. An optical sensor with intermodal interferometry, comprising:
optical means respectively permitting emission of a light wave, injection into a bimodal optical fiber of said light wave, and guidance of said light wave by means of said bimodal optical fiber;
means distributed along said bimodal optical fiber permitting coupling of a fundamental mode LP_{01} or of a polarization mode of said injected light wave to a first order mode LP_{11} or to an orthogonal polarization mode, respectively;
an interferometer permitting compensation of a difference in delay time between coupled modes at an input of the interferometer, by modification of conditions of interference of said interferometer; and
electrical means permitting measurement of said modification made to said interferometer, detection, in intensity, of a product of said interference, and determination of a position, along said bimodal optical fiber, of a disturbance which created the intermodal coupling.

5,067,816
OPTICAL ENCODER

Souji Ichikawa, Sahamihara, Japan, assignor to Mitutoyo Corporation, Tokyo, Japan

Continuation of Ser. No. 308,465, Feb. 10, 1989, Pat. No. 5,026,164. This application Dec. 27, 1990, Ser. No. 634,545
Claims priority, application Japan, Feb. 22, 1988, 63-22031[U]; Oct. 4, 1988, 63-130027[U]
Int. Cl.[5] G01B *11/14;* **H01J** *40/14*
U.S. Cl. 356—373 **9 Claims**

1. An optical encoder comprising:
a first scale fixed to one of two relatively movable members and formed with a first grating;
the other of the two relatively movable members including a light source for emitting an uncollimated illuminating light; a second scale formed with a second grating for partially shielding the illuminating light from the light source and illuminating the first grating; a third scale formed with a third grating for further restricting the illuminating light which has been restricted by the second and first gratings; and a light receiving element for detecting the illuminating light which has been restricted by the first and third gratings;
wherein a relative displacement between the relatively movable members is detected from a periodic variation of a detection signal from said light receiving element, and
a pitch P2 of the second grating is set at a value larger than

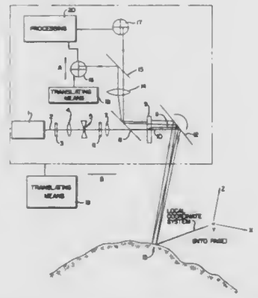


a pitch P1 of the first grating and a length of a light transmitting portion of the second grating is set at a value no greater than the length of the pitch P1 of the first grating and the ratio of the light shielding portion to the light transmitting portion of the second grating has an optimum range of 3:1 to 7:1 to improve a signal to noise ratio of the detection signal.

5,067,817
METHOD AND DEVICE FOR NONCONTACTING SELF-REFERENCING MEASUREMENT OF SURFACE CURVATURE AND PROFILE

Paul Glenn, Wellesley, Mass., assignor to Bauer Associates, Inc., Wellesley, Mass.

Filed Feb. 8, 1990, Ser. No. 476,701
Int. Cl.[5] G01B *11/24*
U.S. Cl. 356—376 **33 Claims**

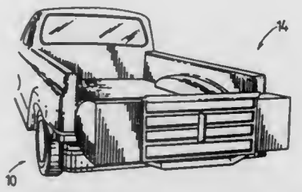


1. An apparatus for measuring the curvature and profile of a test surface comprising:
means for producing a pair of parallel light beams;
means for directing said parallel light beams onto said test surface;
means for separating reflections from said test surface of said parallel light beams into first and second separated reflected light beams;
first and second individual position sensitive detectors; and
means for focusing the first and the second separated reflected light beams on to the respective position sensitive detectors to produce output signals indicating curvature of said test surface, wherein a focal point of the means for focusing resides on each of said position sensitive detectors, such that the curvature of said test surface is determined irrespective of the alignment of said test surface.

5,067,818
CEMENT MIXER SYSTEM

Kenneth J. Howe, 808 Assineboine Crescent, Sarnia, Ontario, Canada N7T 7C4

Filed Jan. 23, 1989, Ser. No. 299,434
Int. Cl.[5] B28C *7/16, 5/42*
U.S. Cl. 366—46 **7 Claims**

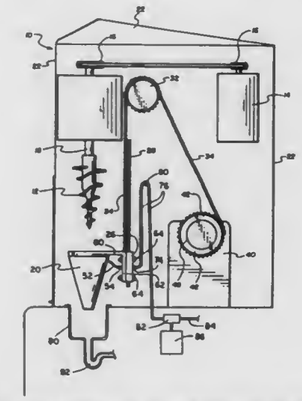


1. A mixer for installation in a pick-up truck, comprising:
a unitary elongate body having a longitudinal axis, an arcuate bottom surface, and an access to said body, said body divided into a mixer section and a power section;
mixing means mounted in said mixer section for rotation about said longitudinal axis;
motor means in said power section connected to said mixing means for rotation of said mixing means;
mounting means at each end of said body for pivotally mounting said body on tailgate pivots of a pick-up truck, said mounting means including pivotal supports extending from said body and positioned on a pivotal axis, said pivotal axis extending parallel to and spaced from said longitudinal axis and positioned external to said arcuate bottom surface below said longitudinal axis when said body is in an upright position; locating and retaining means on said body for releasably locating and locking said body in an upright position on said truck a release of said locating retaining means permitting pivoting of said body about said pivotal axis for discharge from said body.

5,067,819
CLEANING AND SANITIZING SYSTEM FOR FROZEN DESSERT MIXING MACHINE

Duane H. Heinhold, 412 W. 2300 South, Bountiful, Utah 84010, and Kenneth E. Heinhold, 3015 Chaucer Pl., Salt Lake City, Utah 84108

Filed May 11, 1990, Ser. No. 522,664
Int. Cl.[5] B01F *7/24;* **B08B** *3/02*
U.S. Cl. 366—138 **8 Claims**

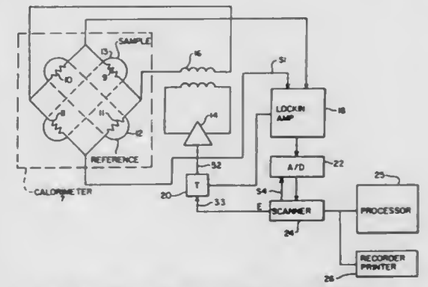


1. In a frozen dessert mixing machine including a mixing auger, a motor driven system for rotating the auger, a mixing cone in coaxial alignment with the mixing auger, and drive means for moving the mixing cone in linear movement toward and away from said auger, said improvement comprising
at least one orifice in a sidewall of the mixing cone; and
means for delivering a fluid through said orifice as the cone and the orifice are moved up and down adjacent to said auger to introduce said fluid into the interior of the mixing cone and to spray said fluid over the auger as the orifice moves along the axial dimension of the auger.

5,067,820
RADIONUCLIDE CALORIMETER SYSTEM

Thomas P. Donohoue, Denver; Christopher P. Oertel, Arvada; William H. Tyree, Boulder, and Joe L. Valdez, Denver, all of Colo., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 19, 1990, Ser. No. 540,240
Int. Cl.[5] G01K *17/08*
U.S. Cl. 374—31 **11 Claims**



1. A radionculide calorimeter system, comprising:
(a) an isothermal twin bridge calorimeter having a sample compartment and associated sample resistive elements, said sample compartment containing a radionuclide sample, and a refernce compartment and associated reference resistive elements, said resistive elements connected in a wheatstone bridge arramgenet such that the heat output from said radionuclide sample is detected by measuring the resitance changes of said sample reisstive elements, whereupon an equilibirum temperature differential represents the condition where said heat output of said radionuclide sample is equal to the heat output of the remaining thermal mass of said calorimeter;
(b) an alternating current source to provide current to said reistive elements;
(c) a lock-in amplifier connected to said resistive elements to phase lock a signal from said resistive elements with a signal from said ac current source, said lock-in amplifier providing a smooth voltage proportional to the magnetitude of said signal from said resistive elements;
(d) an analog to digital converter connected to receive said voltage and convert said voltage to a digitial signal;
(e) compurting means for storing said digital signals and for correlating said digital signasl to a decay function for prediction of said steady state temprature differential to provde data on said radionuclide sample.

5,067,821
DISPOSABLE BAG APPARATUS AND METHOD

J. Winslow Young, 803 E. Center St., Centerville, Utah 84014

Filed Apr. 27, 1990, Ser. No. 515,106
Int. Cl.[5] B65D *30/28, 33/20*
U.S. Cl. 383—36 **4 Claims**

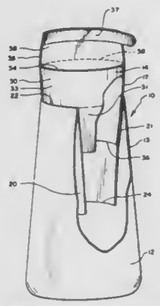
1. A disposable bag with an integral reflux valve and a funnel for directing liquid material through the reflux valve and into

VOL
1132
ISS
4
NO
26
1991
UMI

the bag, the reflux valve restricting reverse flow of liquids from the bag comprising:

a disposable bag configured with an upwardly tapered, frustoconical configuration with an open mouth at the apex of said frustoconical configuration;

a reflux valve inside said bag, said reflux valve being formed from an upper section of said frustoconical configuration being folded inwardly into said bag at a fold, said fold defining said upper section, said reflux valve depending downwardly into said bag at said fold; and



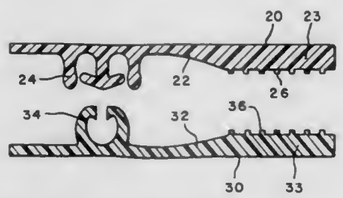
a funnel member adhesively sealed in said reflux valve at said fold, said funnel member having an open top and an open bottom and comprising a first, flexible sidewall and a second, flexible sidewall joined along adjacent side edges, said first and second sidewalls having corresponding trapezoidal profiles with a first, long length across a top of said funnel and a second, shorter length across a bottom of said funnel, said side edges converging incrementally and downwardly toward said open mouth at an acute angle corresponding to said frustoconical configuration, said funnel being openable upon squeezing said side edges together.

5,067,822

METHOD OF FORMING RECLOSEABLE PACKAGES, PROFILES USED THEREIN, AND PACKAGES PRODUCED THEREBY

Lawrence W. Wirth, Neenah; Wayne M. Wegner, Appleton; Mladomir Tomic, Appleton; Raymond Buchko, Appleton, all of Wis., and Johann Natterer, Bavaria, Fed. Rep. of Germany, assignors to Reynolds Consumer Products, Inc., Appleton, Wis.

Filed Apr. 24, 1989, Ser. No. 342,257
Int. Cl.[5] B65D *33/16*
U.S. Cl. 383—61 **23 Claims**



1. A recloseable package comprising:

a) film walls sealed to each other and to recloseable profile strips located along one side of said film walls to form the package,

b) the recloseable profile strips each comprising:

i) a flange element having a front and back side; and

ii) a recloseable means element on the front side of the flange element; and

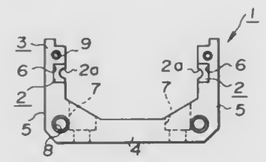
c) a heat barrier means forming a part of the recloseable profile strips and associated with the front side of at least one of the flange elements sufficient so that at least one of the film walls may be heat sealed to the respective back side of the pair of recloseable profile strips while the recloseable means elements of the profile strips are mated, without also fusing the flange elements of the recloseable profile strips in the area of the heat barrier, due to the presence of said heat barrier.

5,067,823

LINEAR GUIDE APPARATUS

Shinichi Kasuga, Maebashi, Japan, assignor to Nippon Seiko Kabushiki Kaisha, Tokyo, Japan

Filed May 23, 1990, Ser. No. 528,128
Claims priority, application Japan, May 24, 1989, 1-130575
Int. Cl.[5] F10C *29/06*
U.S. Cl. 384—45 **2 Claims**



1. In a linear guide apparatus comprising a guide rail having a pair of axially extending ball rolling grooves, and a moving member having ball rolling grooves respectively opposing the ball rolling grooves of the guide rail and movable axially along the guide rail through the rolling of a plurality of balls interposed between the mutually opposing ball rolling grooves of the guide rail and the moving member, the improvement in which:

the guide rail includes a pair of rail members respectively having the ball rolling grooves formed therein and a rail main body to which the pair of rail members are integrally coupled, the rail main body having a U-shaped cross section and formed of a lightweight metal;

the moving member being in the form of a nut block axially movable in the U-shaped cross section of the rail main body when driven by a ball screw shaft engaged therewith;

a pair of recessed grooves respectively formed in the inner surfaces of the side walls of the rail main body in opposing relation to each other, each of the recessed grooves having a width at a bottom surface equal to the width of a bottom surface of each of the rail members;

each of the rail members having tapered surfaces formed in upper and lower surfaces thereof so that the width of each rail member is reduced from the bottom surface to an inner surface having the ball rolling groove formed therein, each of the rail members being formed of a hardened steel to provide each of the rail members with a hardness greater than the hardness of the rail main body; and

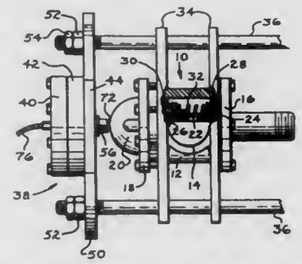
the rail main body having a pair of notches formed in each of the inner surfaces of the side walls thereof, the notches being formed by plastic deformation of the upper and lower portions of each recessed groove to bring the upper and lower inner surfaces of each recessed groove into close contact with the tapered surfaces of each of the rail members and to integrally couple each of the rail members to the rail main body.

5,067,824

AIR CONTROLLED ROTARY JOINT COMPENSATOR

John H. Peter, Three Rivers; Gerald L. Timm, Schoolcraft, and Roger D. Wiedenbeck, Three Rivers, all of Mich., assignors to The Johnson Corporation, Three Rivers, Mich.

Filed Jun. 29, 1990, Ser. No. 545,569
Int. Cl.[5] F16C *32/06*
U.S. Cl. 384—99 **4 Claims**



1. The method of compensating the axial loading on the bearings of a rotary joint supplying stem to a drum having an axis of rotation wherein the interior of the joint, the bearings and the drum are subjected to pressurized steam, steam being supplied to the rotary joint by a header, and the rotary joint including a bearing axial load compensating expansible chamber comprising the steps of:

(a) sensing the pressure of the steam within the header, to produce a control signal,

(b) providing a source of compressed air,

(c) controlling the pressure of said compressed air with said control signal, and

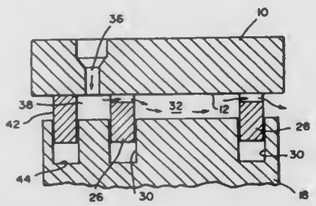
(d) introducing said controlled compressed air into the rotary joint expansible chamber to impose an axial force on the rotary joint proportional to said control signal to regulate the axial load on the rotary joint bearings as determined by the pressure of the steam within the header.

5,067,825

AIRCRAFT ENGINE ROTOR SQUEEZE FILM DAMPER

John M. Vance, 2908 Chaparral, and Luis A. San Andres, 3706A Plainsman Ln., both of, Bryan, Tex. 77802

Filed Jun. 18, 1990, Ser. No. 539,490
Int. Cl.[5] F16C *32/06*
U.S. Cl. 384—99 **12 Claims**



1. In an aircraft engine rotor system including

an enclosure having an inner encircling wall surface, and

a rolling-element bearing assembly disposed in said enclosure, said rolling-element bearing assembly receiving an aircraft rotor shaft therein, said rolling-element bearing assembly along with said rotor shaft orbitally translating within said enclosure when said rotor shaft is rotating, said enclosure having an oil inlet therein for admitting an oil flow interiorly of said enclosure for establishment of a squeeze film intervening said rolling-element bearing assembly and the enclosure inner surface, squeeze film damper feed and seal mechanism comprising

a pair of rings engaged with the inner wall surface of said enclosure and encircling said rolling-element bearing assembly, said rings being spaced one from the other a distance to define a squeeze film region therebetween at the outer peripheral surface of said rolling-element bearing assembly, one of said rings being located adjacent the enclosure oil inlet, and

an end seal engaged with said inner wall surface and encircling said rolling-element bearing assembly and spaced from said one ring such that the enclosure oil inlet is intermediate said one ring and said end seal, space between said one ring and said end seal defining an oil feed chamber,

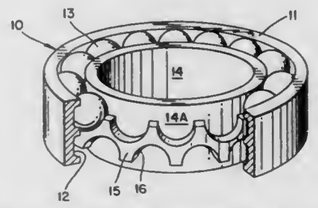
said one ring having a plurality of recesses formed at the periphery thereof for communicating an oil flow from the feed chamber into the squeeze film region, the other of said pair of rings having a plurality of recesses formed at the periphery thereof whereby oil in the squeeze film region can outflow therefrom to an oil outlet, said rolling-element bearing assembly having continuous slots extending around the periphery thereof and associated respectively with each of said rings and with said end seal for accommodating said rings and said end seal during orbiting translating movement of said rolling-element bearing assembly.

5,067,826

BALL AND ROLLER BEARINGS AND BEARING COMPONENTS

Jerome H. Lemelson, 48 Parkside Dr., Princeton, N.J. 08540

Continuation-in-part of Ser. No. 32,352, Mar. 31, 1987, Pat. No. 4,960,643. This application Mar. 7, 1990, Ser. No. 489,664
The portion of the term of this patent subsequent to Oct. 2, 2007, has been disclaimed.
Int. Cl.[5] F16C *33/32, 33/34*
U.S. Cl. 384—492 **7 Claims**



1. A roller for use in roller bearings, said roller comprising:

a) a shaped roller substrate formed of a hard material and having a longitudinal outer surface of revolution,

b) said surface of revolution of said roller being entirely coated with means defining a hard synthetic diamond-like material deposited in situ thereon in a thickness sufficient to protect said surface from frictional wear during the operation of said roller,

c) said synthetic diamond-like material is deposited on said substrate to a thickness sufficient to protect the surface stratum of said roller from developing surface occlusions such as surface cracks and from the spread of surface defects due to impact loads applied to said roller during the operation of the roller bearing in which said roller is used.

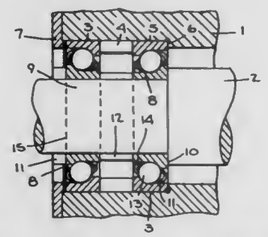
VOL 1132 ISS 4 NOV 26 1991 UMI

5,067,827

MACHINE BEARING ARRANGEMENT WITH FORM-MEMORY DEFORMABLE ELEMENT

Arnold Bokel, Schwebheim, Fed. Rep. of Germany, assignor to SKF GmbH, Schweinfurt, Fed. Rep. of Germany

Continuation of Ser. No. 232,292, Aug. 15, 1988, abandoned. This application Mar. 6, 1990, Ser. No. 492,423
Claims priority, application Fed. Rep. of Germany, Aug. 14, 1987, 3727151
Int. Cl.[5] F16C *35/06*
U.S. Cl. 384—537 11 Claims



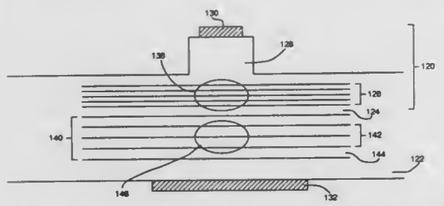
1. A machine bearing arrangement for supporting a rotating machine member having an axis in or on a stationary machine member, said machine bearing arrangement comprising at least one bearing ring forming a raceway for rolling elements, and means for axially locking said at least one bearing ring to one of the rotating and stationary machine members, said axially locking means comprising a deformable element constituted of a form-memory alloy having a one-way characteristic.

5,067,828

TRANSFERRED ELECTRON EFFECTIVE MASS MODULATOR

Gerard J. Sullivan, Thousand Oaks; Kenneth D. Pedrotti, Moorpark, and Herbert Kroemer, Santa Barbara, all of Calif., assignors to Rockwell International Corporation, El Segundo, Calif.

Filed Aug. 9, 1990, Ser. No. 565,292
Int. Cl.[5] G02B *6/10*
U.S. Cl. 385—3 18 Claims



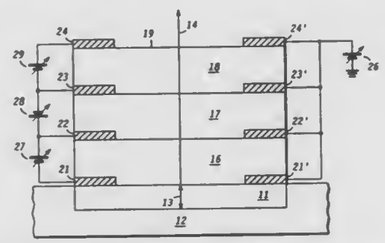
1. An optical radiation modulator having a waveguide region with an alterable index of refraction over a predefined range disposed adjacent to lower refractive index cladding, the waveguide region comprising:
- a first doped region of a semiconductor material having a first effective mass for free charge carriers at a predefined band edge energy, said first region being doped to provide at least one conduction band with a first minimum band edge energy;
- a second doped region of said semiconductor material positioned immediately adjacent to said first doped region and having a second effective mass for said free charge carriers at said predefined band edge energy, said second region being doped at a different concentration from said first doped region so as to have at least a second conduction band with a minimum band edge energy substantially the same as said first minimum band edge energy;
- third and fourth regions of barrier material disposed adjacent said first and second regions, respectively, so as to restrict transfer of free carriers outside of said first and second doped regions; and
- means for moving charge carriers between said first and second regions.

5,067,829

DYNAMIC OPTICAL BEAM STEERING

James E. Jaskie, Scottsdale; Michael S. Lebby, Chandler, and Fred V. Richard, Scottsdale, all of Ariz., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Sep. 10, 1990, Ser. No. 579,513
Int. Cl.[5] G02B *6/10*
U.S. Cl. 385—8 18 Claims



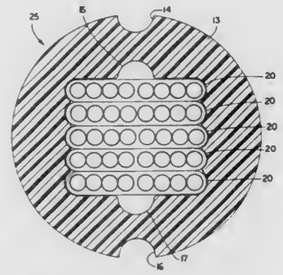
1. A dynamic optical beam steering means, comprising:
- a light source which emits a beam of light in a predetermined path;
- at least one optically transparent layer of elastic material, having a bottom surface and a top surface, the at least one optically transparent layer being placed in the path of the beam of light;
- at least one first electrode attached to at least a portion of the bottom surface of the at least one optically transparent layer; and
- at least one second electrode attached to at least a portion of the top surface of the at least one optically transparent layer, the at least one second electrode being substantially aligned with the at least one first electrode, such that when a voltage is applied to the at least one first and at least one second electrodes, the layer of elastic material will deform.

5,067,830

INDENTED TUBE FOR OPTICAL RIBBON

Warren W. McAlpine, and Dieter Kundis, both of Hickory, N.C., assignors to Siecor Corporation, Hickory, N.C.

Filed Dec. 21, 1990, Ser. No. 632,159
Int. Cl.[5] G02B *6/44*
U.S. Cl. 385—114 10 Claims



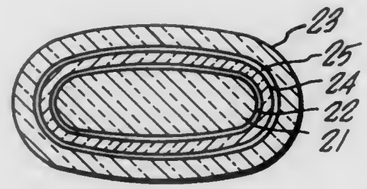
3. An optical cable element, comprising:
- (a) a tube having a first lengthwise indentation in its outer surface and a second lengthwise indentation in its inner surface adjacent to the first lengthwise indentation; and
- (b) an optical waveguide ribbon within the tube.

5,067,831

LINEAR OPTICAL CONDUITS

John A. Robbins, North Hollywood; Jamshid J. Zarian, Woodland Hills, and Sandford R. Willford, Newport Beach, all of Calif., assignors to Lumenyte International Corporation, Costa Mesa, Calif.

Filed Dec. 13, 1989, Ser. No. 446,011
Int. Cl.[5] G02B *6/20, 6/00*
U.S. Cl. 385—123 16 Claims



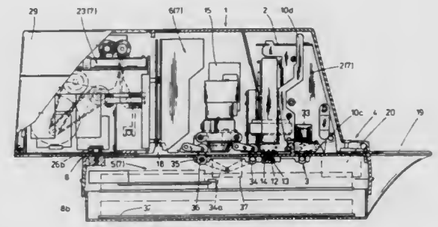
1. A linear light conduit comprising:
- a monofilament, light transmitting core selected from the group consisting essentially of thermoplastic and thermoset polymer surrounded by;
- a fluoropolymer clad surrounded by;
- a jacket made of a polymer which has been extruded over the fluoropolymer core;
- whereby said linear light conduit is capable of emitting light circumferentially, transverse to the conduit length.

5,067,832

EXPANDABLE MODULE FRAME FOR MOUNTING PRINTER AND ACCESSORY MODULES

Rupert Baur, Villingen; Egon Durler, Mönchweiler, and Hermann Kilb, Brigachtal, all of Fed. Rep. of Germany, assignors to Mannesmann Aktiengesellschaft, Düsseldorf, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 148,318, Jan. 27, 1988, abandoned. This application Apr. 26, 1990, Ser. No. 515,078
Claims priority, application Fed. Rep. of Germany, Jan. 27, 1987, 3702270
Int. Cl.[5] B41J *5/30*
U.S. Cl. 400—66 24 Claims



1. A printer for a plurality of different print substrate material processing functions comprising
- a base frame;
- a print apparatus forming a modular building block and demountably attached to the base frame;
- a print apparatus material transport device disposed on the base frame;
- a keyboard attached to the base frame for inputting process information;
- an electronic control device forming a modular building block and attached to the base frame and electrically connected to the print apparatus and to the keyboard;
- a power supply forming a modular building block and attached to the base frame and electrically connected to the electronic control device;
- attachment means for modular building blocks disposed at the base frame, wherein the modular building blocks can be mounted to and demounted from the attachment means for modular building blocks;
- attachment means for mounting and demounting of a function module selectable out of at least two functionally differing function modules wherein at least two functionally differing function modules are each interface-compatible relative to said attachment means for mounting and demounting;
- two function modules capable of performing at least two differing functions with each of the two function modules adapted for attachment to the attachment means;
- wherein the print apparatus is provide with a print head;
- the base frame is provided with sides;
- the print apparatus is provided at the distance of the sides of the base frame;
- side walls are provided in the distance of the sides of the base frame, which side walls are connected to each other with slide guide rods;
- the print apparatus is provided with a drive block comprising an electric drive motor, a drive gear, and a cycle clock station for sending signals for a print head control, said print head being movable back and forth on said slide guide rods with an automatic print substrate material thickness compensating device and a color-tape cassette insertable between the side walls, thereby altogether forming the print apparatus modular building block.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,833

RIBBON SHIFTING DEVICE FOR PRINTERS

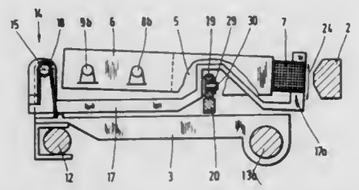
Guenter Gomoll, Nersingen/Leibi, and Wolfgang Hauslaib, Langenau, both of Fed. Rep. of Germany, assignors to Mannesmann A.G., Duesseldorf, Fed. Rep. of Germany

Filed Mar. 11, 1987, Ser. No. 24,419

Claims priority, application Fed. Rep. of Germany, Mar. 11, 1986, 3607999

Int. Cl.[5] B41J *35/14*

U.S. Cl. 400—213 6 Claims



1. A ribbon device for a printer which includes a print head mounted on a carriage, said carriage reciprocating on rail means along and parallel to a printing platen, the platen as well as the rail means being held in opposite side walls of a printer frame or the like, there being a ribbon cartridge defining and establishing a space within which said print head can move and paying the ribbon such that the ribbon is placeable between the print head and the platen during printing, the combination comprising:

said ribbon forming a closed Moebius loop;

a ribbon holder for holding the ribbon in front of the print head and being pivotally mounted on a pivot axis on the carriage, the pivot axis extending parallel to said platen and to said direction of reciprocating movement and being situated on the carriage at an area away from the print head;

particular rail means mounted between said printer frame side walls and extending generally parallel to said platen, said pivot axis and said carriage rail means, and being located between the pivot axis and the platen, said particular rail means being contoured to have a higher elevation in a central portion than in portions more adjacent to said side walls; and

said ribbon holder being provided with low friction means riding on said particular rail means so that upon reciprocating of said carriage and passage of the print head along a platen, the ribbon holder moves up and down in one full cycle when moving from end to end.

5,067,834

INPUT KEYBOARD APPARATUS FOR INFORMATION PROCESSING DEVICE AND OTHER KEYBOARD DEVICES

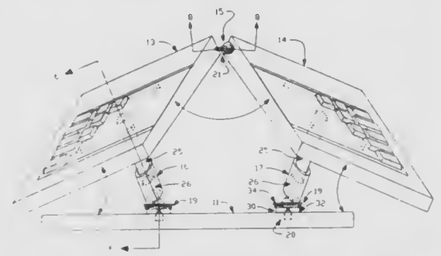
Jeffrey P. Szmanda, 728 W. St. Paul Ave., Waukesha, Wis. 53188, and William J. Szmanda, N61 W15150 Wigwam Dr., Menomonee Falls, Wis. 53051

Filed Jul. 7, 1989, Ser. No. 376,690

Int. Cl.[5] B41J *5/10*

U.S. Cl. 400—489 13 Claims

1. A keyboard apparatus having a plurality of keys arranged in an array extending over an extended front-to-back and side-to-side of a keyboard support for dual hand operation by an operator, comprising a key support structure for supporting of said keys, said support structure defining a left array section having a first individual support unit secured generally centrally of the section and a right array section having a second individual support unit secured generally centrally of the right array section, each of said array sections including a plurality of individual keys, each of said array sections being a substantially planar member having the keys located in a substantially common plane, each of said support units including a universal support unit for inclined location of the section and for substantially complete rotation of the section in the plane of the section, said left array section located in a laterally inclined plane and having at least portion of said keys arranged in said inclined plane and thereby extending upwardly at a preselected angle from an outer left portion of the keyboard upwardly and inwardly toward said right array section, said right array section located in a laterally inclined plane having a least a



portion of said keys located in said inclined plane extending from an outer right portion of said keyboard upwardly and inwardly toward the left array section whereby an operator operating said keyboard can operate the keys in said inclined planes with the hand located in essentially forward aligned projection from the operators arm portion to minimize bodily stress.

5,067,835

PRINTING APPARATUS

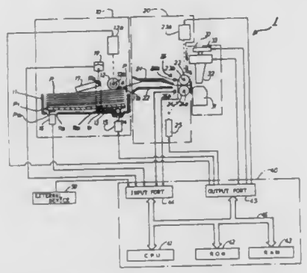
Takemi Yamamoto, Nagoya, and Shigeo Ishikawa, Aichi, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Oct. 30, 1990, Ser. No. 605,483

Claims priority, application Japan, Nov. 27, 1989, 1-306849

Int. Cl.[5] B41J *11/46;* G03G *21/00;* B65H *7/02*

U.S. Cl. 400—582 20 Claims



1. A printing apparatus comprising:

a main body;

a feed cassette detachably loaded in the main body for containing cut sheets to be printed;

at least one controllable means disposed along a feed path of a cut sheet from the feed cassette;

storing means for storing various sheet information about the cut sheets contained in the feed cassette, the storing means being detachably placed in the main body;

reading means for reading the various sheet information from the storing means when the feed cassette is loaded in the main body, the reading means being provided on the main body; and

controlling means for controlling the at least one controllable means based on the various sheet information read by the reading means, wherein said at least one controllable means includes a feeding means for feeding a cut sheet from the feed cassette, said storing means stores at least the friction coefficient of the cut sheets, said reading means reads the friction coefficient and said controlling means controls the feeding means based on the friction coefficient read by said reading means.

5,067,836

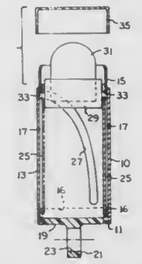
LIPSTICK KEY CHAIN ATTACHMENT

Shahid H. Khan, 8950 Goodrich Rd. #307, Bloomington, Minn. 55437

Filed Nov. 7, 1990, Ser. No. 610,060

Int. Cl.[5] A45D *40/00, 40/06, 40/18*

U.S. Cl. 401—52 1 Claim



1. A lipstick dispenser comprising an axially elongated cylindrical tube having a first end and a second end, said tube comprising a cylindrical sleeve and a cylindrical liner having a friction fit within the sleeve, said liner having an axial slot extending therealong, said liner having one end thereof spaced from the corresponding end of the sleeve to form an internal circumferential groove at said first end of the tube; a circular disk located within said first end of the tube with a peripheral edge thereof rotatably seated in said circumferential groove, an external flat wall extending axially from said disk along a diametrical midplane of the disk, a hole extending transversely through said flat wall for attachment of the dispenser to a key chain; a tubular actuator affixed to said disk, said actuator extending from said disk within said cylindrical tube; a helical slot in said tubular actuator; a lipstick holder floatably arranged within said actuator; and a pin extending from said holder through said helical slot into said axial slot, whereby manual rotation of the disk relative to the cylindrical tube causes the lipstick holder to move axially between the first and second ends of the tube.

5,067,837

VARIABLE POINT WRITING INSTRUMENT

Peter J. Panopoulos, 9220 S. 87th Ct., Hickory Hills, Ill. 60457

Continuation-in-part of Ser. No. 759,297, Jul. 26, 1985, abandoned. This application Nov. 22, 1989, Ser. No. 440,318

Int. Cl.[5] B43K *8/02, 9/00*

U.S. Cl. 401—107 3 Claims

1. A variable tip writing instrument for printing characters of the type having a storage end and a writing tip end positioned in opposed relation to the storage end, and a barrel adapted to contain a supply of ink formed as a part of the storage end, which is in communication with the writing tip end, the improvement comprising in combination,

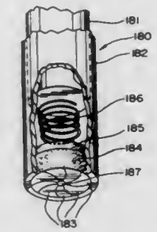
a writing tip positioned at the writing tip end of said instrument within the confines of the barrel,

said writing tip formed from an ink deliver material formed from a porous spongy membranous material,

control means associated with said porous spongy membranous material and adapted to control and vary the amount of porous spongy membranous material exposed at the writing tip end of said instrument,

said control means including a collar rotatably mounted on the barrel of said writing instrument adjacent the writing tip end thereof,

said collar provided with a plurality of shutter blades pivotly secured to said collar and adapted to open and close in response to the rotational movement of said rotatable collar.



said rotatable collar adapted for manipulation between a fully opened positioned exposing the greatest amount of porous spongy membranous material and rotatable to vary the diametric dimension of said shutter blades to a fully closed position,

whereby the writing instrument is provided with a single writing tip capable of varying the diametric dimension thereof by said control means between a large and a small diametric dimension thereby to vary the amount of porous spongy membranous material available for imprinting characters.

5,067,838

VALVE UNIT FOR WRITING INSTRUMENTS OR LIQUID APPLICATORS

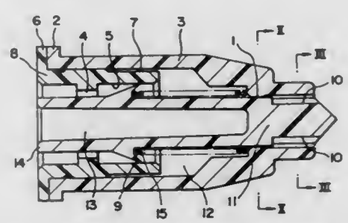
Yasuyuki Iwase, Fujioka, Japan, assignor to Mitsubishi Pencil Co., Ltd., Tokyo, Japan

Continuation-in-part of Ser. No. 492,380, Mar. 12, 1990, abandoned, which is a continuation of Ser. No. 190,746, May 5, 1988, abandoned. This application Dec. 28, 1990, Ser. No. 632,670

Claims priority, application Japan, May 8, 1987, 62-69462

Int. Cl.[5] B43K *5/00, 5/18;* A46B *11/04*

U.S. Cl. 401—206 2 Claims



1. A valve unit for liquid application instruments including writing pens which comprises:

(a) a spring support provided with front and rear axial openings and having an annular projection to cooperatively serve as a virtual sealing means;

(b) an annular valve seat member affixed to said spring support and having an annular valve seat and an adjacent cylindrical portion on its inner periphery;

(c) a valve stem slidably mounted in said spring support and valve seat member with a valve body having a rearwardly facing outwardly directed skirt portion formed by a frusto-conical external surface to serve as a valve body while

VOL
1132
ISS
4
NO
2 6
1991
UMI

in contact with said annular valve seat, the free edge of said skirt being in sealing contact with said cylindrical portion; and

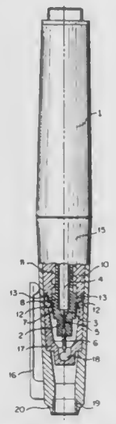
(d) a coil spring interposed between said spring support and said valve stem urging said valve stem towards said valve seat.

5,067,839

STYLO PEN TIP AND AUXILIARY REMOVING TOOL

Peter Felgentreu, Hamburg, Fed. Rep. of Germany, assignor to Koh-I-Noor Inc., Hamburg, Fed. Rep. of Germany

Filed Dec. 10, 1990, Ser. No. 625,016
Claims priority, application Fed. Rep. of Germany, Dec. 12, 1989, 3940968
Int. Cl.[5] B43K *8/16, 9/00, 13/00*
U.S. Cl. 401—258 6 Claims



1. A stylo pen tip which comprises a front part (2) supporting a writing tube (6),

(a) said front part (2) having a rear section that extends into a front section of a writing fluid catridge (10),

(b) said writing fluid cartridge (10) having a closure element which is to be released by said front part (2) when said front part (2) is inserted into an operating position in said writing fluid cartridge (10),

(c) said front section of said writing fluid cartridge (10) having an elastically stretchable opening cross section (12) on its front end which is narrowed with respect to the rest of the writing fluid cartridge and which, in the operating position, grips the front of a protrusion area (8) formed on said front part (2),

(d) wherein said front part (2), in said operating position, has an open area located ahead of said protrusion area (8) that is defined by an outer diameter smaller than the maximum inside diameter of said opening cross section (12),

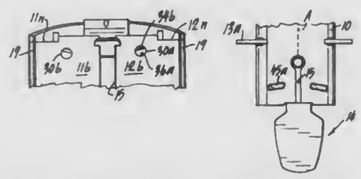
(e) so that an auxiliary tool (19,20) can be engaged within the open area of said front part (2) and brought into a stretching contact with said stretchable opening cross section (12) of said writing fluid cartridge (10).

5,067,840

BINDER LOCKING RING MECHANISM WITH CONFIGURED TRIGGER

Edward W. Cooper, Scarborough, and Orlando R. Guerrieri, Pickering, both of Canada, assignors to Acco World Corporation, Wheeling, Ill.

Continuation of Ser. No. 348,843, May 8, 1989, abandoned. This application Nov. 5, 1990, Ser. No. 609,287
Int. Cl.[5] B42F *13/26*
U.S. Cl. 402—38 1 Claim



1. In a loose-leaf sheet binder lock mechanism having a case member, a pair of elongated hinge plates engageable along a centerline, ring halves mounted on the plates operable to form loose-leaf retaining rings, a trigger lever having a body portion vertically-oriented when the lever is closed and the trigger being operable to move the plates between an open ring position to a closed ring position, the improvement comprising

a pair of spaced-apart blister means oriented at an angle to the plate centerline on said case member;

spaced-apart lugs on the body portion of the trigger lever oriented at an angle to the plate centerline for positioning in and engagement with such blister means;

trigger lower projections on the body portion; and

apertures in the hinge plates for receiving and engaging the lower trigger projections

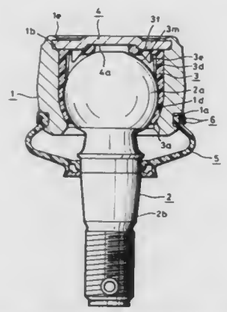
whereby the trigger lever is pivotal about such apertures in moving the trigger lever to a locked position where said lugs are positioned in said blister means.

5,067,841

BALL JOINT

Takao Fukukawa, Fukuroi, and Keiichiro Suzuki, Hamana, both of Japan, assignors to Kabusbiki Kaisha Somic Ishikawa, Tokyo, Japan

Filed Jan. 15, 1991, Ser. No. 641,484
Claims priority, application Japan, Jan. 16, 1990, 2-6667
Int. Cl.[5] F16C *11/00*
U.S. Cl. 403—140 6 Claims



6. A ball joint for supporting a ball comprising:

a socket;

said socket including a generally cylindrical upper portion and a bowed lower portion forming an inwardly bowed inner surface;

a ball seat;

said ball seat including a generally cylindrical lower portion fittable into said cylindrical upper portion of said socket;

a preload contact element;

means for resiliently fixing said preload contact element to an upper end of said cylindrical upper portion;

means for a lower portion of said generally cylindrical lower portion of said ball seat to be forced into conforming contact with said bowed inner surface to form a bowed lower seat portion;

an inner surface of said bowed lower seat portion having a radius curvature about equal to a radius of curvature of said ball;

means for permitting said preload contact element to be held in resiliently urged contact with an upper portion of said ball;

means for retaining said ball seat in said socket; said means for retaining including a plug fittable into an upper portion of said socket, and a swaged portion retaining said plug in place;

said plug including a plug bottom contacting said preload contact element and applying a predetermined amount of preload through said preload contact element to an upper surface of said ball;

said means for resiliently fixing including;

a generally cylindrical annular wall affixed at its upper end to an upper portion of said ball seat; and

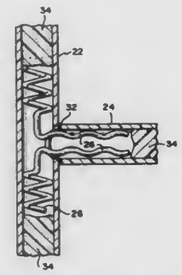
a generally annular space between said annular wall and said upper portion, whereby at least a portion of said preload contact element is free to move a limited amount into said annular space in changing its radius of curvature.

5,067,842

JOINT ASSEMBLY INCLUDING WIRE REINFORCING ELEMENT AND FOAM MATERIAL

Robert F. B. Ponting, Durban, South Africa, assignor to Kwalo (Proprietary) Limited, Jakobs, South Africa

Filed Dec. 13, 1989, Ser. No. 450,173
Int. Cl.[5] F16B *12/04;* F16L *13/11*
U.S. Cl. 403—265 5 Claims



1. A joint assembly comprising:

a first hollow member having a wall with an outer wall surface and an inner wall surface;

a first hole formed in said wall of said first hollow member and passing through said inner and outer wall surfaces intermediate spaced first and second ends of said first hollow member;

a second hollow member having a first end secured to said first hollow member and shaped to engage said first hole of said first hollow member;

adhesive means bonding said second hollow member to said first hollow member at a peripheral portion of said first hole;

at least a first wire reinforcing element having a first coil-shaped portion positioned in said first hollow member and contacting said inner wall surface thereof, and a second portion extending through said first hole and into said first end of said second hollow member; and

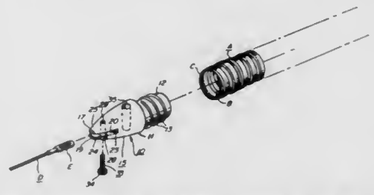
a settable expanded foam material within and filling said first and second hollow members at said joint to render said joint assembly impact resistant.

5,067,843

PULLING ATTACHMENT FOR FLEXIBLE CONDUIT

Wallace B. Nova, 25261 Turf Ave., Mission Viejo, Calif. 92691

Filed Sep. 25, 1989, Ser. No. 412,085
Int. Cl.[5] F16B *7/18*
U.S. Cl. 403—301 12 Claims



1. An attachment for releasably joining a flexible metal conduit, of the type having a convolute inner wall surface, in which said wall surface is formed with a helical groove extending rearward from a front annular wall surface, to an eye provided in one end of a flexible cable leader of the type attachable to a fish tape, said attachment comprising an elongated, rigid one-piece body having;

a. a generally circularly symmetric, rear cylindrical section having an outer cylindrical wall surface which has a raised helical rib of generally uniform cross-sectional shape, said rib being longitudinally disposed and of the proper size, shape and pitch to adapt said rear cylindrical section of said attachment to threadingly engage said helical groove of said convolute inner wall surface of said conduit, and

b. a tapered, generally frusto-conically shaped front section coaxial with and joined to said rear section, said front section having

i. a transversely disposed front face,

ii. a longitudinally disposed slot extending rearward from said front face, said slot forming in said front section first and second laterally spaced apart jaw sections adapted to insertably receive said eye of said cable leader, and

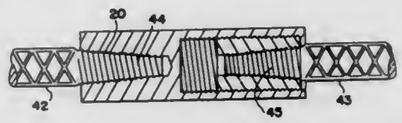
iii. at lease one transversely disposed hole through said first jaw section, said hole communicating with said slot and being adapted to lockingly receive a pin disposed through said eye of said cable leader.

5,067,844

REINFORCING BAR COUPLER

Geoffrey M. Bowmer, Oisterwijk, Netherlands, and John E. Groth, Cleveland Heights, Ohio, assignors to Erico International Corporation, Solon, Ohio

Filed Sep. 28, 1987, Ser. No. 101,633
Int. Cl.[5] F16B *7/18*
U.S. Cl. 403—305 18 Claims

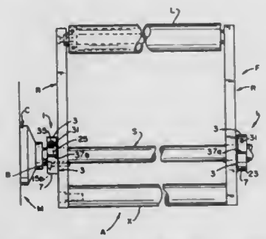


1. A coupler for concrete reinforcing bar and the like comprising a sleeve having internal cylindrical threads, a radially expansible axially slit collar insert in said sleeve in threaded

VOL
1132
ISS
4
NO
26
1991
UMI

engagement with the internal threads of said sleeve, and tapered internal threads on said insert adapted to be threaded onto tapered external threads on the opposite ends of such bar, the area of cylindrical threaded engagement between the insert and sleeve substantially enclosing the area of tapered threaded engagement between the insert and bar wherein the internal threads of the sleeve and the external threads of the insert, and the internal tapered threads of the insert and the external tapered threads of the bar match whereby the insert may be rotated in the sleeve while the insert simultaneously engages the taper thread of the bar.

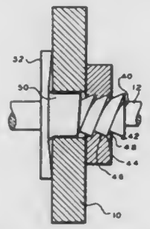
5,067,845
CLAMP-HUB
Charles Schlueter, 10132 Elba La., St. Louis, Mo. 63137
Filed Dec. 6, 1990, Ser. No. 623,211
Int. Cl.[5] B25G *3/00*
U.S. Cl. 403—344 **19 Claims**



1. A clamp-hub for use with a machine to attach a component to the machine to convert the machine from one type operation to another, comprising:
a clamp-hub body having a first section and a second section, said second section having a greater thickness than the first section and said second section being attachable to the component;
a bore extending through the body for attachment of the body to a portion of the machine; and,
clamping means on the first body section for tightening the clamp-hub about the machine shaft to attach the component to the machine, the clamp-hub having an inner face and an outer face, when the clamp-hub is attached to the machine, the outer face of the clamp-hub being uniform across the length and breadth of the clamp-hub, and the inner face having an inset at the intersection between the first and second sections whereby the inner face of the second section abuts the contacting surface of the component but the inner face of the first section is spaced apart therefrom.

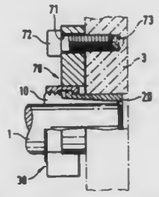
5,067,846
MOUNTING DEVICE
Tadeusz Staniszewski, Budd Lake, N.J., assignor to Shap Inc., Demarest, N.J.
Filed Sep. 4, 1990, Ser. No. 577,285
Int. Cl.[5] F16B *7/04*
U.S. Cl. 403—370 **12 Claims**

1. A mounting device for mounting a machine element having a bore coaxially on a shaft, comprising:
a first member having internal threads;
a split sleeve having a sleeve axis and external threads adapted to be mounted around said shaft and inside said bore, said theads of said split sleeve having apexes at a uniform diameter when unstressed, said first member being threaded on said external threads of said split sleeve, said sleeve including:
a second member spaced from said first member by an amount sufficient to allow said first and second members to embrace said machine element, the threads of said first member and said split sleeve being shaped with an asymmetrical profile to cause compression of said sleeve as said first and second members embrace said machine element,



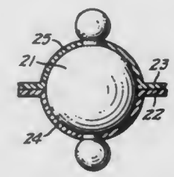
said first and said second members having opposing faces transverse to said sleeve axis and shaped to compress said machine element axially outside said bore.

5,067,847
CLAMPING SET FOR TRANSMITTING TORQUE AND/OR AXIAL FORCES
Ralph Muellenberg, Im Wiesengrund 6, D-4048 Grevenbroich 12, Fed. Rep. of Germany
Filed Oct. 23, 1989, Ser. No. 426,598
Claims priority, application Fed. Rep. of Germany, Oct. 21, 1988, 3835894
Int. Cl.[5] B25G *3/20*
U.S. Cl. 403—370 **17 Claims**



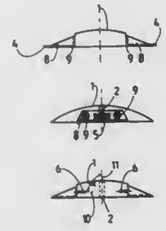
17. A clamping set for transmitting forces between an inner component, having a cylindrical outer peripheral surface, and at least one outer component arranged thereon, said outer component having a recess forming a cylindrical inner peripheral surface, said clamping set comprising:
an inner taper ring having a cylindrical inner peripheral surface adapted to bear on the outer peripheral surface of the inner component, and having a tapered outer peripheral surface;
an outer taper ring with an outer peripheral surface adapted to bear against the cylindrical inner peripheral surface of the recess, and having a tapered inner peripheral surface adapted to interact with the tapered outer peripheral surface of the inner taper ring;
said inner and outer taper rings tapering from respective thin-walled ends to thick-walled ends; and
a screw ring adapted to be screwed onto a threaded portion of the inner taper ring, said screw ring having a radially inwardly projecting peripheral collar which grips behind a radially outwardly projecting peripheral collar of the outer taper ring;
a device which is provided on said screw ring and which rotatably fixes the screw ring to the outer component;
wherein the peripheral projecting collar of the outer taper ring is disposed at the thin-walled end of the outer taper ring and projects radially outward beyond said outer peripheral surface of the outer taper ring, which outer peripheral surface is located toward the thick-walled end of the outer taper ring;
wherein the threaded portion of the inner taper ring is provided on the thick-walled end of the inner taper ring and projects radially outward beyond the outer peripheral surface of the outer taper ring and beyond the outer peripheral surface of the projecting peripheral collar; and
wherein the inner and the outer taper rings have a radially continuous longitudinal slot at least in the area of the tapered surfaces.

5,067,848
CONNECTOR AND METHOD FOR USE THEREOF
John A. Hiigli, 164 W. 83rd St., New York, N.Y. 10024
Filed Mar. 23, 1990, Ser. No. 498,202
Int. Cl.[5] B25G *3/00*
U.S. Cl. 403—406.1 **12 Claims**



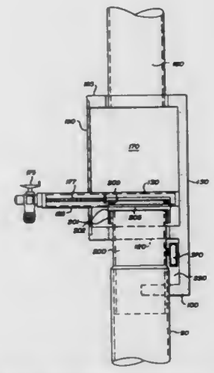
1. A device for connecting two walls, which comprises:
(a) two relatively lightweight, flat, and thin walls, each of said walls including a cavity, both cavities having essentially the same dimensions and each cavity having an opening at its base; and
(b) a separate connecting element for joining said two walls, said connecting element comprising a central element which is connected to two diametrically opposed necks of essentially equal dimensions, each of said necks being attached to a distal element, each said distal element being of essentially the same dimensions as the other distal element and each distal element being of lesser diameter than said central element and of greater diameter than the neck to which it is attached.

5,067,849
MARKING NAIL HAVING BODY SUITABLE FOR MAGAZINE FEEDING AND MECHANICAL INSTALLATION
Hermann Silbernagel, Friesenheimerstrasse 7a, D-6800 Mannheim 1, and Ulfried Wiegand, Bleckede, both of Fed. Rep. of Germany, assignors to Hermann Silbernagel, Mannheim and Beiersdorf AG, Hamburg, both of, Fed. Rep. of Germany
Filed Dec. 8, 1989, Ser. No. 446,102
Claims priority, application Fed. Rep. of Germany, Dec. 6, 1988, 8815134[U]
Int. Cl.[5] E01F *9/06, 9/10*
U.S. Cl. 404—9 **15 Claims**



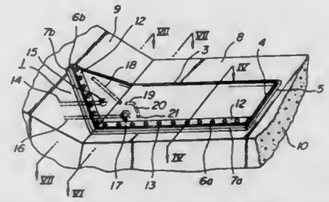
1. A road-marker comprising:
a body having a substantially hemispherical shape and a vertical axis;
means, formed in the body, for magazine feeding the body;
means, formed in the body, for mechanically grasping the body; and
cat's-eye reflectors disposed on the body.

5,067,850
APPARATUS FOR DETECTION AND CONTAINMENT OF POLLUTANTS IN A DRAINAGE SYSTEM
Robert L. Gray, Winchester, Va., assignor to Gray Engineering, Inc., Winchester, Va.
Filed Aug. 31, 1990, Ser. No. 575,864
Int. Cl.[5] E02B *7/20*
U.S. Cl. 405—92 **22 Claims**



1. A storm drainage system, comprising:
at least one conduit means for guiding liquid;
a gate disposed on said conduit means, said gate in an open position allowing said liquid to pass by said gate within said conduit means and in a closed position blocking passage of said liquid within said conduit means; and
means for remotely activating said gate to occupy said closed position in response to an operator's detection of the presence of a pollutant within said conduit means.

5,067,851
COLLAPSIBLE SHEET DAM
Masao Fujisawa, Chigasaki; Satoshi Tagomori, Yokohama; Mamoru Takasaki, Tokyo, and Yoshihiro Sato, Yokohama, all of Japan, assignors to Bridgestone Corporation, Tokyo, Japan
Filed Dec. 27, 1990, Ser. No. 634,904
Claims priority, application Japan, Dec. 28, 1989, 1-338332
Int. Cl.[5] E02B *7/04*
U.S. Cl. 405—115 **6 Claims**



1. A collapsible sheet dam comprising; a flexible rubber sheet bag fixed onto riverbed and riverbank portions of a river in a direction crossing with the river, a fluid supply and discharge port formed in the bag and opening to a surface of the riverbank portion for the inflation and deflation of the bag, means for fixing free end portions of folded parts of said sheet onto said riverbed and riverbank portions at an upstream side of the

VOL 1132 ISS 4 NO 26 1991 UMI

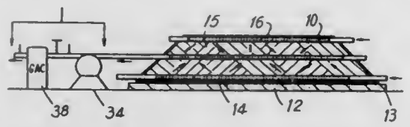
river for the formation of said bag, a portion of a lower folded part provided with said fluid supply and discharge port being fixed by said means for fixing onto the riverbank portion in a region ranging from the riverbank portion to the riverbed portion at a downstream side of said port so as to surround a portion of said fluid supply and discharge port.

5,067,852

METHOD AND APPARATUS FOR REMOVING VOLATILE CONTAMINENTS FROM CONTAMINATED SOIL

James B. Plunkett, Brunswick, Me., assignor to J. B. Plunkett Associates, Inc., Brunswick, Me.

Filed May 24, 1990, Ser. No. 528,581
Int. Cl.[5] B09B *1/00*
U.S. Cl. 405—128 15 Claims



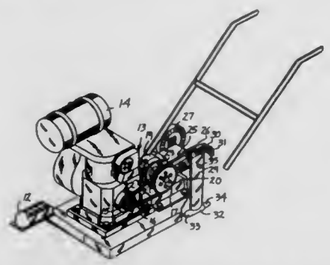
1. A method for removing volatile contaminants from contaminated soil comprising the steps of:
(a) excavating soil contaminated with volatile contaminants in liquid and absorbed phases and stockpiling the contaminated soil;
(b) covering and sealing the contaminated soil with a vapor-tight liner to create a vapor-tight enclosure having air supply and exhaust means; and
(c) inducing air flow via said air supply means, through the contaminated soil and out said exhaust means to thereby create sufficient negative pressure in the contaminated soil to encourage organic contaminants in the liquid and absorbed phases to achieve a vapor phase; and
(d) removing the organic contaminants in the vapor phase from said enclosure.

5,067,853

OSCILLATING PLOW APPARATUS

Bernard Radnis, 7533 Garden Ln. Ave., Justice, Ill. 60458

Filed Jul. 19, 1990, Ser. No. 554,563
Int. Cl.[5] F16L *1/00*; E02F *5/10*
U.S. Cl. 405—182 8 Claims



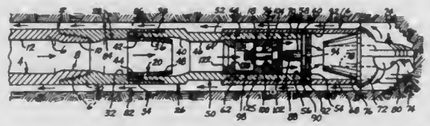
1. An oscillating plow apparatus comprising, in combination,
a platform, the platform including a yoke means mounted at a forward end of the platform for securement of the platform to an associated tow vehicle, and
a drive motor mounted on the platform rearwardly of the yoke means, and
the drive motor including an output shaft, the output shaft including a drive sprocket orthogonally mounted to the output shaft, and
a driven shaft rotatably mounted on the platform rearwardly of the drive motor in a parallel relationship to the output shaft, the driven shaft including a driven sprocket mounted on the driven shaft, wherein the driven sprocket is arranged in a common plane with the drive sprocket, and
a drive chain in operative communication with the driven sprocket and the drive sprocket, and
the driven sprocket including an eccentric crank pin, the crank pin including a connecting rod directed rearwardly of the crank pin, and the connecting rod including a rear connecting rod end, and
an oscillating beam mounted orthogonally through the platform rearwardly of the driven shaft, with the rear connecting rod end mounted at an upper terminal end of the oscillating beam, the oscillating beam pivotally mounted to the platform underlying the connecting rod, and
the oscillating beam including an oscillating foot orthogonally mounted to a lower terminal end of the oscillating beam.

5,067,854

APPARATUS AND TECHNIQUE FOR INSTALLING AN ELONGATED ROD IN AN EARTH FORMATION

Gerald T. Sweeney, Puyallup, Wash., assignor to Aardvark Corporation, Puyallup, Wash.

Filed Feb. 4, 1991, Ser. No. 650,307
Int. Cl.[5] E02F *5/10*
U.S. Cl. 405—184 65 Claims



1. In the process of installing an elongated rod in an earth formation, the steps of:
installing in a tunnel in the earth formation, an elongated tubular casing having a longitudinally extending bore therethrough,
relatively advancing the rod telescopically through the length of the casing in the bore thereof, and thence into the tunnel from the casing at the distal end of the bore, to the extent that a portion of the rod is projected into the tunnel relatively tandemly ahead of the casing,
anchoring the rod to the wall of the tunnel at the relatively tandemly projected portion of the rod, and
retracting the casing in the direction of the mouth of the tunnel to uncover the casing from around the remainder of the rod while the rod is anchored to the wall of the tunnel.

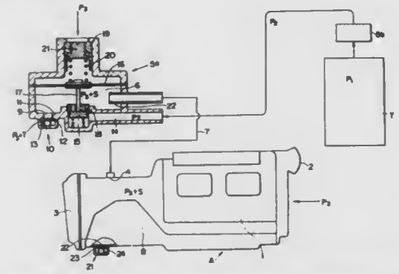
5,067,855

CASING FOR CONTAINING CAMERAS, VIDEOCAMERAS, FLASHLIGHTS PORTABLE RADIOS AND OTHER ARTICLES WHICH CAN BE USED IN SCUBA DIVING

Shigeki Kamitani, 8-1-933, Nakahara 1-chome, Isogo-ku, Yokohama-shi, Kanagawa-ken, 235, Japan

Filed Nov. 20, 1989, Ser. No. 438,207
Claims priority, application Japan, Nov. 21, 1988, 63-151498[U]
Int. Cl.[5] B63C *11/02*, *11/44*
U.S. Cl. 405—186 7 Claims

1. An apparatus for regulating the pressure within a submerged casing having a walled exterior and a hollow interior, comprising:
an air source for pressurizing the interior of the casing;
first pressure reduction means connected to the air source for reducing the pressure of the air exiting therefrom; and
second pressure reduction means for reducing the pressure of the air exiting from the first pressure reduction means, the second pressure reduction means including:
a primary air compartment connected to the first pressure reduction means;
a secondary air compartment connected to the interior of the casing by a tube passing through the exterior thereof, the secondary air compartment having exhaust valve means for releasing air to the water until the pressure in the interior of the casing is equivalent to a surrounding water pressure;
a diaphragm;



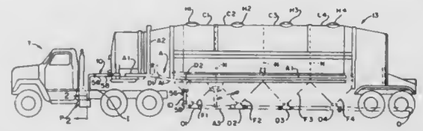
a valve connected to the diaphragm for regulating a flow of air between the primary and secondary air compartments;
means for varying the position of the diaphragm with respect to the second pressure reduction means in response to a change in the surrounding water pressure; and
means for manually controlling the position of the diaphragm to increase the pressure of the interior of the casing above the surrounding water pressure.

5,067,856

IN-LINE AIR FILTER FOR DRY BULK TANK TRAILERS

David E. Sisk, R.R. 1, Box 340, Bonne Terre, Mo. 63628

Filed Jun. 11, 1990, Ser. No. 535,572
Int. Cl.[5] B60P *1/60*
U.S. Cl. 406—41 6 Claims



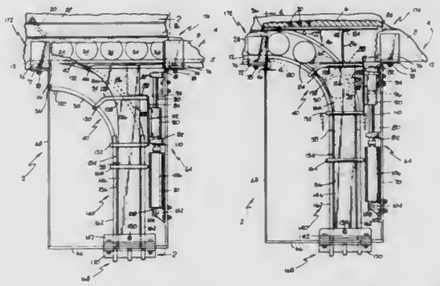
1. A filter assembly for use with a dry bulk type tank trailer for transporting commodities, the trailer having an air line by which air from an air pump is directed to outlet assemblies of compartments within the trailer to which commodities are stored to unload the commodities, the filter assembly comprising:
a cleanable air filter element capable of removing dirt, dust, and other deleterious particles entrained in the air stream flowing from the pump through the air line;
a housing in which the filter element is removably installed, the housing being installable in-line in the air line;
coupling means at each end of the housing for connecting the housing in the air line, the coupling means comprising a cam lock coupler on each end of the housing;
the filter element is of a frusto-conical shape, wherein the larger diameter end of the filter assembly has a circumferential flange formed thereabout;
the housing comprising two sections with the flange portion of the filter element being capturable between adjacent ends of the sections to install the element in the housing;
clamping means fitting over the outside of the housing, at the juncture between the housing sections, to clamp the sections together, said filter element functioning as a check valve to prevent the reverse flow of air through the air line due to developed pressure differentials within the trailer and its site of unloading, whereby said filter assembly being removably installed in-line of the air line and for removing any dirt, dust and rust particles entrained within the air stream flowing through the air line while removing commodities from the various outlet assemblies of the trailer compartments during their unloading.

5,067,857

APPARATUS FOR DIVERTING THE MOVEMENT OF CYLINDRICAL BODIES

Thomas J. Ward, Lakewood, Colo., assignor to Coors Brewing Company, Golden, Colo.

Filed Apr. 27, 1990, Ser. No. 515,245
Int. Cl.[5] B65G *51/18*
U.S. Cl. 406—181 14 Claims



1. A conveying apparatus for use in moving cylindrical bodies from one location to other locations comprising:
an air conveyor for moving cylindrical bodies in a generally horizontal path;
said air conveyor having a top wall portion through which air is directed onto said cylindrical bodies, a pair of opposite sidewall portions for guiding said cylindrical bodies and a generally horizontal open bottom wall portion

VOL 1132 ISS 4 NO 26 1991 UMI

formed by a pair of spaced apart track means for supporting said cylindrical containers during said movement thereof;

a portion of said pair of spaced apart track means forming said bottom wall portion being cut away to form an opening therein through which said cylindrical bodies can pass;

a diversion gate mounted for reciprocal movement in generally vertical directions between a first location and a second location;

said diversion gate, when in said first location, having a generally horizontal support section located in said cut away portion for cooperating with said spaced apart track means in supporting said cylindrical bodies during said movement in said generally horizontal path;

said diversion gate, when in said second location, having an arcuate guide section for contacting said cylindrical bodies and diverting said cylindrical bodies out of said generally horizontal path and into another path;

moving means for moving said diversion gate between said first and second locations; and wherein

said generally horizontal support section comprises a pair of generally horizontal, spaced apart rods; and

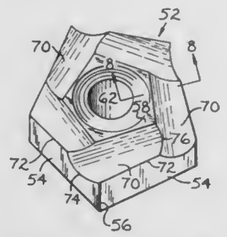
said arcuate guide section comprises a first pair of arcuate, spaced apart rods and a second pair of arcuate, spaced apart rods located a distance from said first pair of arcuate, spaced apart rods to form an arcuate passageway for said cylindrical bodies, said arcuate passageway having an entrance portion and an exit portion.

5,067,858

MULTIPLE FACED CUTTER INSERT

Warren R. Cook, 5611 Dogwood Dr., Jackson, Mich. 49201

Filed Apr. 10, 1991, Ser. No. 682,980
Int. Cl.[5] B23B *27/22*
U.S. Cl. 407—114 6 Claims



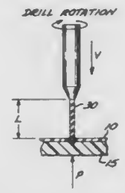
1. A cutter insert characterized by its ability to support cutting insert apexes to avoid fracture and control chip flow comprising, in combination, a body of hard material having a plurality of lateral sides, a top surface and a bottom surface, adjacent lateral sides intersecting at corner edges to define an included angle substantially between 108° and 120°, an elongated concave chip forming recess defined in said body top surface adjacent to and intersecting each lateral side and lateral side corner edge defining a cutting edge at the intersection with the associated lateral side, said corner edges defined by intersecting lateral sides defining sharp apexes free of radii and said concave recesses at said corner edges defining a chip flow surface at the associated cutting edge substantially perpendicular to the associated cutting edge at the associated corner edge.

5,067,859

METHOD FOR DRILLING SMALL HOLES IN PRINTED CIRCUIT BOARDS

John A. Korbonski, San Juan Capistrano, Calif., assignor to Systems Division Incorporated, San Juan Capistrano, Calif.

Filed Feb. 15, 1990, Ser. No. 480,748
Int. Cl.[5] B23B *35/00, 41/14*
U.S. Cl. 408—1 R 16 Claims



1. A method for drilling a printed circuit board, comprising the steps of:

placing an entry overlay sheet on top of said printed circuit board, wherein said entry overlay sheet is a homogenous layer comprising a polymer material having a thickness of about ten thousandths of an inch or smaller, said material selected to have a sufficiently high melting temperature to withstand the heat generated by the drill during the drilling process; and

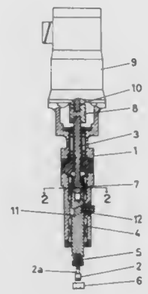
drilling through the entry overlay sheet and printed circuit board in succession.

5,067,860

APPARATUS FOR REMOVING BURRS FROM WORKPIECES

Hisamine Kobayashi, and Toshiharu Shimizu, both of Nagoya, Japan, assignors to Tipton Manufacturing Corporation, Aichi, Japan

Division of Ser. No. 374,919, Jul. 3, 1989, Pat. No. 4,993,196.
This application Aug. 13, 1990, Ser. No. 567,651
Claims priority, application Japan, Aug. 5, 1988, 63-196617
Int. Cl.[5] B23C *3/12;* B24B *33/02*
U.S. Cl. 409—185 2 Claims



1. An apparatus for removing burrs from a workpiece having a bore, comprising:

a housing having a projection mounted thereon;

a rotary shaft mounted to said housing;

power supply means for rotating said rotary shaft;

a tool shaft having a rotary tool at a tip end thereof;

means for connecting said tool shaft to said rotary shaft such that said tool shaft is rotatable with said rotary shaft and can slide axially relative to said rotary shaft;

means for imparting reciprocating motion to said tool shaft such that said tool shaft reciprocates one to three times during one complete rotation of said rotary shaft; and

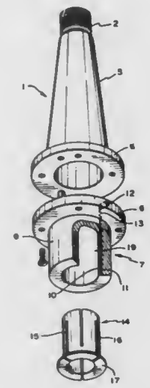
wherein said reciprocating motion imparting means comprises a slit or recess formed in said tool shaft to engage said projection.

5,067,861

TOOL HOLDER WITH INTERCHANGEABLE FLUID PRESSURE ACTUATED CHUCKS

Jan Danielsen, Romelisvagen 5, 703 56 Orebro, Sweden

Continuation of Ser. No. 342,246, Apr. 20, 1989. This application Oct. 16, 1990, Ser. No. 598,068
Int. Cl.[5] B23B *31/20*
U.S. Cl. 409—234 2 Claims



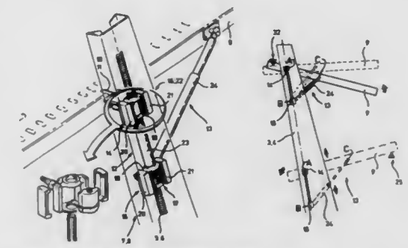
1. A tool holder adapted for use with a drive motor, said tool holder comprising a drive unit having a frustum-conical configuration with a first end mountable to said motor to be driven thereby, and a separate self-contained chuck unit for receiving a tool bit, said drive unit including a second end remote from said first end, said second end including a peripheral flange thereabout, said chuck unit including an inner end with a peripheral flange thereabout, and an outer end, a tool bit recess defined in said chuck unit inwardly through said outer end, said recess including a closed inner end and a continuous peripheral wall with a sealed cavity defined therebehind, fluid means filling said cavity, means for varying pressure on said fluid means, said peripheral recess wall being flexible in response to variations in the pressure on the fluid means for a selective expanding and contracting of said recess wall to selectively grip and release an inserted tool bit, the peripheral flanges of said drive unit and said chuck unit being directly engageable with each other, and releasable fastener means through said flanges for securing said flanges to each other to mount said chuck unit on said drive unit, said fastener means comprising screw means engaged through said flanges, said means for varying the pressure within said cavity, and flexing said recess wall in response thereto, comprising a channel within said chuck unit communicating with said cavity and extending therefrom, and an adjustment screw threaded in said chuck unit and into said channel for varying the volume therein and hence the pressure in said channel and the cavity communicating therewith to define a self-contained fluid pressure system within said chuck unit to enable the engagement and positioning of a tool bit in said chuck unit independent of said drive unit, said chuck unit, through the releasable fastener means, being interchangeable with similar self-contained chuck units having fluid pressure systems and peripheral flanges engageable with the drive unit flange.

5,067,862

UNITARY CARRYING ASSEMBLY OR UNIT FOR MOTOR-CAR TRAILER VEHICLES

Jean-Luc Andre, Dangolsheim, France, assignor to Lohr Industrie, S.A., Les Coteaux, France

Filed May 31, 1989, Ser. No. 359,308
Claims priority, application France, May 31, 1988, 88 07385
Int. Cl.[5] B60P *3/08;* B61D *3/18*
U.S. Cl. 410—26 16 Claims



1. A support assembly, comprising:

a pair of laterally spaced upstanding support posts (3,4);

a platform (9) interposed between said laterally spaced upstanding support posts (3,4);

first means (14) operatively connected to said platform (9) at a first location (A) upon said platform (9) and movable along said posts (3,4) so as to permit movement of said platform (9) with respect to said posts (3,4);

second means (13) having one end thereof movably mounted upon said posts (3,4) at a second location (B) which is spaced upon said posts (3,4) a first distance (AB) from said first location (A) of said first means (14) upon said platform (9), and a second end thereof operatively connected to said platform (9) at a third location (C) which is spaced a second distance (BC) from said second location (B) of said one end of said second means (13) movably mounted upon said posts (3,4);

drive means (5,6) operatively connected with said first means (14) and said one end of said second means (13) for moving said first means (14) and said one end of said second means (13) along said support posts (3,4); and

means for defining said first and second distances (AB,BC) between said first and second locations (A,B), and between said second and third locations (B,C), so as to satisfy one of the relationships wherein (1) said first distance (AB) is fixed while said second distance (BC) is variable, (2) said first distance (AB) is variable while said second distance (BC) is fixed, and (3) said first and second distances (AB, BC) are both fixed, while said drive means (5,6) is operatively driven so as to move said first means (14) and said one end of said second means (13) along said support posts (3,4) whereby the orientation and location of said platform (9) relative to said posts (3,4) may be predeterminedly defined.

5,067,863

CHANNEL NUT

Joseph W. Kowalski, Florissant, Mo., assignor to B-Line Systems, Inc., Highland, Ill.

Continuation of Ser. No. 479,347, Feb. 13, 1990, abandoned.
This application Dec. 5, 1990, Ser. No. 622,754
Int. Cl.[5] F16B *27/00*
U.S. Cl. 411—85 11 Claims

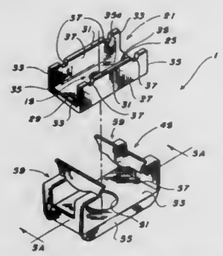
1. For securement to metal framing having a slot and inside and outside faces on opposite sides of the slot for attachment of parts to the framing through the slot from the outside of the slot, a fastening comprising:

an elongate body having a first face constituting an inside face and an opposite face constituting an outside face,

VOL 1132 ISS 4 NO 26 1991 UMI

opposite sides, and opposite ends, the width of said body between said sides being less than the width of the slot in the framing whereby the body may be generally aligned with the slot, entered into the slot and passed through the slot from the outside to the inside of the framing and then turned to extend in generally crosswise position relative to the slot for engagement of portions of the outside face of the body adjacent the ends of the body with the inside faces of the framing at opposite sides of the slot; and

means for clamping the body in its said crosswise position comprising a carrier including an elongate platform having a first face constituting an inside face and an opposite face constituting an outside face with means for rotatably mounting the body on the outside face of the platform, opposite sides, and opposite ends, the width of said platform between said sides being less than the width of the slot in the framing whereby the platform with the body generally aligned with the platform may be generally



aligned with the slot, entered into the slot and passed through the slot from the outside to the inside of the framing, the length of said platform between said ends being sufficient to permit the body to rotate on the platform, said platform being suspended o a pair of resilient non-linear arms which are adapted to bridge the slot and engage the outside faces of the framing, said non-linear arms, when unstressed, being adapted to support the body on the platform such that the outside face of the body is at a level outward of the inside faces of the framing and, when stressed by an effective inward force applied to the outside face of the body, being adapted to increase in effective length and support the body on the platform at a level with respect to the inside faces of the framing such that the opposite ends of the body can be rotated into generally crosswise position relative to the slot, said stressed non-linear arms providing a spring action tending to draw the body into clamping engagement with the inside faces of the framing on opposite sides of the slot.

5,067,864

SELF-DRILLING FASTENER FOR PLASTERBOARD WALL

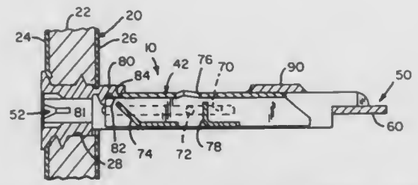
George G. Dewey, Prospect Heights, and Ralph D. Tenuta, Mount Prospect, both of Ill., assignors to Illinois Tool Works Inc., Glenview, Ill.

Filed Jul. 27, 1990, Ser. No. 560,068
Int. Cl.[5] F16B *21/00*
U.S. Cl. 411—344 20 Claims

2. A fastener capable of being drilled into a wall, said fastener being used with a screw having a head and an elongate shank with a threaded portion, and comprising:

a fastener body defining a longitudinal axis and having a head, a shank integral with and extending axially from said head of said fastener body, and a pair of elongate arms integral with and extending axially from said shank of said fastener body, said fastener body having an axial bore which extends through said head and said shank of said fastener body, and which is arranged so as to toe permit said shank of said screw to be axially moved within said bore; and

a toggle clamp mounted upon said fastener body so as to permit pivotal movement of said toggle clamp relative to said fastener body between an insertion position wherein said toggle clamp is substantially aligned with said axis of said fastener body, and a toggle position wherein said toggle clamp is disposed at a substantially right angle with respect to said axis of said fastener body, and so as to permit axial movement of said toggle clamp relative to said fastener body, said toggle clamp having a thread-accepting aperture which is adapted to form a threaded connection with said threaded portion of said shank of said screw and to effect said axial movement of said toggle clamp relative to said fastener body as said screw is threadedly engaged with said thread-accepting aperture of said toggle clamp after said toggle clamp has been pivoted to said toggle position;



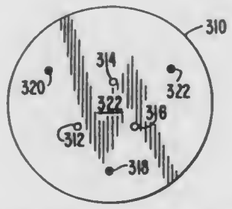
wherein said fastener has a drilling tip for drilling a hole of suitable diameter within said wall so as to accommodate said fastener, except for said head of said fastener body, when said toggle clamp is disposed at said insertion position, a threaded portion defined upon an exterior peripheral portion of said shank of said fastener body for threadedly engaging said wall, and socket means defined within said shank of said fastener body within the vicinity of said head of said fastener body for receiving a tool for imparting rotation to said fastener whereby said drilling tip can drill said hole within said wall in a self-drilling manner and said threaded portion of said shank of said fastener body can threadedly engage said wall in a self-drilling manner in order to respectively insert said toggle clamp through said wall and to fixedly mount said fastener within said wall.

5,067,865

METHOD AND APPARATUS FOR FEEDING TABS OR DISCS TO AN AUTOMATIC STAPLE OR NAIL GUN

Karl H. Zylka, Ft. Lauderdale, and Augustus M. Buckley, Jr., West Palm Beach, both of Fla., assignors to Quick-Tab Fasteners, Inc., Pompano Beach, Fla.

Filed Oct. 30, 1989, Ser. No. 429,148
Int. Cl.[5] F16B *43/00*; B27F *7/02*; B42B *4/00*
U.S. Cl. 411—531 13 Claims



1. A disc for use in an automated disc feeding, powdered staple or nail gun, said disc having two opposing, substantially flat, solid planar surfaces and a plurality of raised surfaces protruding from at least one of said planar surfaces such that

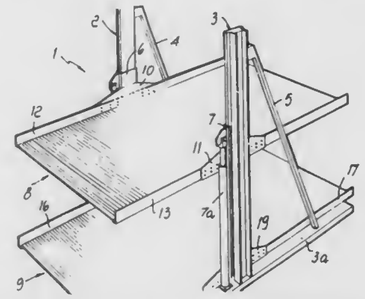
when a plurality of said discs are stacked on top of each other, no planar surfaces contact, said disc being penetrable by nails and staples.

5,067,866

DEVICE FOR GARAGING MOTOR VEHICLES

Angelo Fusaro, and Giancarlo Galeazzi, both of Volta Mantovana, Italy, assignors to A.F.G. S.r.l., Volta Mantovana, Italy

Filed Jun. 14, 1990, Ser. No. 537,732
Int. Cl.[5] E01F *9/00*
U.S. Cl. 414—228 22 Claims



1. Device for garaging motor vehicles comprising;

at least one base element;

at least two substantially vertical guides extending upwardly from said base element,

at least one first slider and at least one second slider, each slider being slideably associated with at least one of said guides,

actuation means for simultaneously sliding said first slider and said second sliders along said guides,

at least two vertically spaced-apart platforms rigidly connected to said first slider and said second slider, wherein each of said platforms comprises;

panel means for bearing wheels of motor vehicles, and

gutter means connected to said panel means for conveying liquids away from said motor vehicle wheels supported on said panel means,

whereby to prevent any liquids from dripping onto vehicles accommodated on an underlying platform, and whereby to prevent said panel means from retaining liquids which would remain in contact with said motor vehicle wheels supported on said panel means, wherein each of said platforms further comprises;

at least one bracket connected to said first slider,

at least another bracket connected to said second slider,

at least one first profiled element connected to said one bracket, and

at least one second profiled element connected to said other bracket,

wherein said gutter means comprise;

at least one gutter formed on said first profiled element and

at least one gutter formed on said second profiled element, and

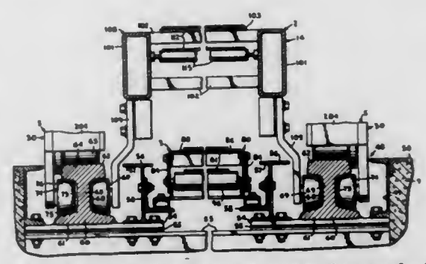
wherein said panel means of each of said platforms comprise a plurality of panels, each panel among said plurality of panels being connected to said one profiled element and to said other profiled element.

5,067,867

CONVEYOR FOR MIXED FREIGHT HANDLING SYSTEM

Carl J. Ruder; Ronald J. Haney, both of Overland Park, Kans.; Richard J. Chutorash, Portland; Wayne W. Bostad, Forest Grove, both of Oreg.; Arnold A. Zweig, Olympia, Wash., and Lyle B. Payne, Stilwell, Kans., assignors to Yellow Freight System, Inc., Overland Park, Kans.

Division of Ser. No. 280,720, Dec. 6, 1988, Pat. No. 5,009,560.
This application Jan. 14, 1991, Ser. No. 641,070
Int. Cl.[5] B65G *67/08*
U.S. Cl. 414—391 14 Claims



1. An article handling conveyor system for transferring articles between spaced apart first and second locations, said second location being within an elongated article transferring vehicle and said first location being external to said vehicle, said system comprising:

(a) an elongated fixed conveyor positioned at said first location;

(b) an elongated movable conveyor positioned at said first location in a straddled vertically spaced parallel relation to said fixed conveyor to communicate articles therewith and movable between a retracted condition at said first location and an extended condition invading said second location while maintaining a portion of said movable conveyor in said straddled vertically spaced parallel relation to said fixed conveyor;

(c) each of said conveyors including means forming respective support surfaces capable of supporting respective moving successions of articles;

(d) said movable conveyor including a substantially horizontal base section; and

(e) said movable conveyor including a lift section pivotally connected to said base section at an end thereof toward said second location, said lift section being selectively inclined upwardly in said extended condition of said movable conveyor.

5,067,868

SWING EJECTOR FOR REAR LOADING COMPACTOR

Robert A. Boda, Rochester, Minn., assignor to McNeilus Truck and Manufacturing, Inc., Dodge Center, Minn.

Filed Jun. 8, 1990, Ser. No. 535,368
Int. Cl.[5] B65F *3/28*
U.S. Cl. 414—510 7 Claims

1. A pivoting ejector system for use in a rear-loading, compacting refuse truck having a refuse holding volume, a forward and aft reciprocally slidable ejector in the refuse holding volume and a mechanical means for reciprocally displacing the ejector forward to accommodate loading and aft to unload the refuse, the ejector comprising:

a frame including a bottom frame portion connected to and spacing two parallel, substantially vertical A-shaped sidewall frames;

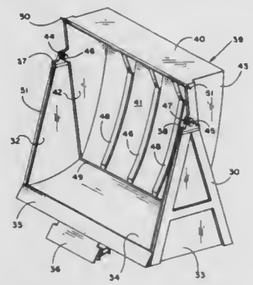
a pair of spaced pivot support means, one carried by each of the sidewall frames;

a pair of sidewall sheet members, one covering each of the sidewall frames;

VOL 1132 ISS 4 NO 26 1991 UMI

the bottom frame portion further including load bearing means adapted to slidably support the ejector and allow it to operate in conjunction with the mechanical means for reciprocally displacing the ejector associated with the refuse truck; and

a scoop-shaped pivoting structure having a top and modestly curved bottom mounted between the pair of sidewall members, the pivoting structure being carried by mounting means journalled in the pair of pivot support means carried by the sidewall frame members such that the pivoting structure is free to pivot forward and aft and having a bottom shape which cooperates with the sidewalls to provide a front for the refuse hauling volume with a modestly curved, substantially vertically disposed front wall when the top of the pivoting structure is pivoted to a rearward position.

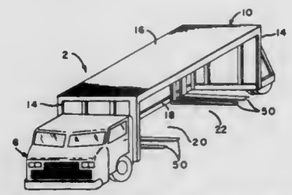


5,067,869

AUTOMOBILE TRANSPORTATION APPARATUS

George F. Reuss, and George D. Reuss, both of 18 Shady La., Irwin, Pa. 15642

Filed Apr. 17, 1990, Ser. No. 510,091
Int. Cl.[5] B60P *3/07*
U.S. Cl. 414—544 17 Claims



1. A handling and transportation apparatus for lifting an automobile comprising:

a frame enclosure having an open side and an open bottom;

motor means provided on the frame enclosure;

a first movable means, the first movable means being movable by said motor means relative to the frame enclosure between a first position and a second laterally located position, the first movable means positioned in the open bottom when the first movable means is in the first position,

the first movable means having a first support member and a second support member, the second support member being movable relative to the first support member between an open position and a closed position;

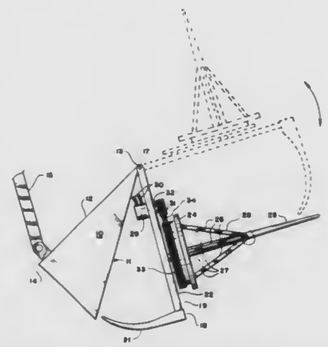
whereby the first member and the second member are positioned on opposed sides of a tire of an automobile when the second member is in the open position, the second member is then moved to the closed position thereby insuring that the first and second members are positioned in engagement with the tire.

5,067,870

HAY BALE UNROLLER

Leroy Staffanson, Rte. 1 Box 3076, Sidney, Mont. 59270

Filed Jul. 2, 1990, Ser. No. 548,275
Int. Cl.[5] B66C *23/18*
U.S. Cl. 414—724 3 Claims



1. A bale handling device adapted for use in operable joinder with a front-end bucket loader equipped with a bucket having an interior region bounded in part by a rear panel having upper and lower edges, said lower edge being pivotally supported by paired lifting arms, said device comprised of:

a) a rectangular grapple framework pivotably associated with said upper edge and comprised of upper and lower horizontal crossmembers spaced apart by parallel side members, said lower crossmember having a row of tooth-like pointed appendages directed toward said interior region,

b) support structure held within said framework,

c) a rigid plate rotatably held by said support structure,

d) a spear post perpendicularly emergent from said plate,

e) a multiplicity of elongated braces having proximal extremities fixedly associated with said plate in a circular locus, and distal extremities attached to said spear post in a manner disposing said braces in a conical array, and

f) a drive motor and associated power transmission means to controllably rotate said plate.

5,067,871

PROCEDURE FOR HORIZONTAL STORAGE OF PAPER ROLLS

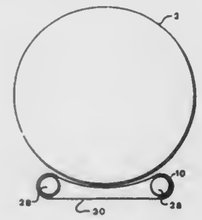
Walter Hilber, Ausburg, Fed. Rep. of Germany, assignor to Kone Oy, Helsinki, Finland

Filed Jul. 18, 1989, Ser. No. 381,349
Claims priority, application Fed. Rep. of Germany, Jul. 18, 1988, 3824328
Int. Cl.[5] B65G *1/04*
U.S. Cl. 414—786 4 Claims

1. A procedure for the horizontal storage of paper rolls in a storage shelving assembly, comprising the steps of:

individually placing and then horizontally storing each of said paper rolls on a first bearing surface (30) which deforms to accommodate the arcuate outer layer of the roll and which supports each said paper roll throughout the length thereof by a segment of the outer layer of each roll;

rotating each said paper roll through one or more predetermined angles about a horizontal winding axis thereof at one or more predetermined intervals of time, by moving said first bearing surface; and



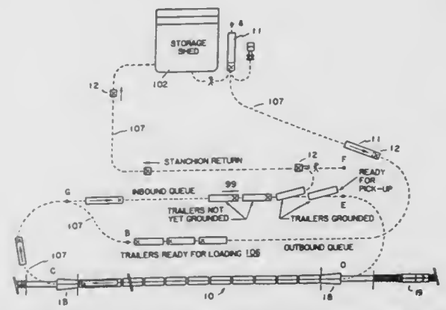
further storing each of said paper rolls in its newly rotated position.

5,067,872

METHOD FOR SEMITRAILER TRANSFER

Thomas H. Engle, Cape Vincent, N.Y., assignor to Knorr Brake Holding Corporation, Rockville, Md.

Division of Ser. No. 195,453, May 24, 1988, Pat. No. 4,973,206, which is a continuation of Ser. No. 64,142, Jun. 18, 1987, abandoned. This application Aug. 10, 1990, Ser. No. 565,397
Int. Cl.[5] B65G *67/00*
U.S. Cl. 414—786 8 Claims



1. The method of loading and unloading a train of flat cars having decks with a plurality of semitrailers having fifth wheel couplings by operation of power stanchions comprising the steps of:

(a) coupling the stanchions to individual ones of the semitrailers,

(b) moving the stanchion coupled semitrailers along a guideway disposed partly in a terminal yard and partly in a path extending along the decks of the flat cars longitudinally of the train by an onboard stanchion guidance means that coacts with the guideway such that inbound semitrailers aboard the train are unloaded and that outbound trailers are loaded from the yard onto the train along such longitudinal path over a plurality of such cars; and

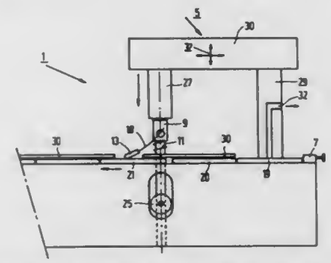
(c) sensing the close proximity of a stanchion to a semitrailer ahead along the guideway, and bringing the stanchion and associated semitrailer to a halt upon a sense of close proximity to such semitrailer ahead.

5,067,873

METHOD OF SEPARATING A COMPONENT FROM A ROW OF COMPONENTS AND APPARATUS FOR CARRYING OUT THE METHOD

Herman C. Lalesse, Heerlen, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jan. 4, 1990, Ser. No. 460,797
Claims priority, application Netherlands, Jul. 7, 1989, 8901742
Int. Cl.[5] B65G *59/00*
U.S. Cl. 414—789.9 13 Claims



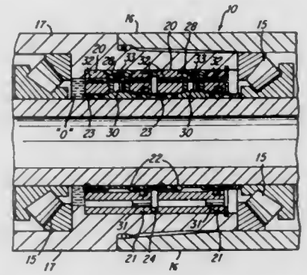
1. A method of separating a component from a horizontally extending row of components comprising: displacing the row of components in a continuous form over an elongate track in a supply direction into a separation device; separating a component, after the row has come to a standstill, in the separation device from the horizontally extending row and then discharging the separated component from a presentation position; said separating the component in the separation device including linearly displacing the row of components in a continuous form over a predetermined distance from the component to be separated in a direction opposite to the supply direction and maintaining the row of components at a fixed predetermined distance from the separated component.

5,067,874

COMPRESSIVE SEAL AND PRESSURE CONTROL ARRANGEMENTS FOR DOWNHOLE TOOLS

Dean Foote, Edmonton, Canada, assignor to Compntalog Ltd., Edmonton, Canada

Filed Apr. 13, 1990, Ser. No. 508,974
Claims priority, application Canada, Apr. 14, 1989, 596698
Int. Cl.[5] F16J *15/40*
U.S. Cl. 415—230 3 Claims



1. A seal and pressure control arrangement for a downhole drilling motor, comprising:

a seal arrangement that includes a first and second seal assembly, at least one of which has a compressible element, wherein an oil-chamber is defined between said first and second seal assemblies and between an outer stationary member and an inner rotating member that is a hollow

VOL 1132 ISS 4 NO 26 1991 UMI

shaft through which drilling medium is passed under pressure to drill elements; and

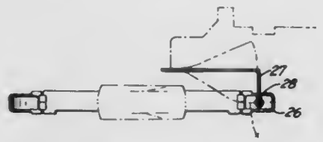
at least one pressure control assembly, including: at least one pressure relief valve for staging the pressure between said first and second seal assemblies, and a rotary element for displacing a piston that controls at least two check valves.

5,067,875

COMPOSITE SCISSORS FOR A SWASHPLATE

Dave H. Hunter, Cheshire; Kenneth L. Lauck, Beacon Falls; Kevin A. White, Shelton; Robert J. Milne, Oxford; Leonard J. Doolin, Southbury, and Stephen V. Poulin, Stratford, all of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Apr. 11, 1990, Ser. No. 508,204
Int. Cl.[5] B64C *27/605*
U.S. Cl. 416—114 19 Claims



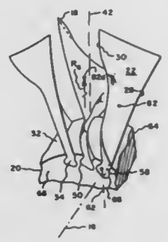
1. A rotor assembly for a helicopter, having a swashplate including a stationery ring and a rotating ring, disposed about a rotor shaft, the rotor assembly further comprising flexible composite scissor means for attaching the rotating ring to the rotor shaft, the composite scissor means having portions of varying flexibility and being sufficiently thin to accommodate vertical and tilting swashplate movement and sufficiently wide to transmit tangential forces and resist twist buckling for rotating the rotating ring.

5,067,876

GAS TURBINE BLADED DISK

Otis S. Moreman, III, Cincinnati, Ohio, assignor to General Electric Company, Cincinnati, Ohio

Filed Mar. 29, 1990, Ser. No. 500,974
Int. Cl.[5] F01D *5/30*
U.S. Cl. 416—219 R 40 Claims



1. A gas turbine engine rotor blade comprising:

an airfoil having a tip and a root, and a leading edge and a trailing edge extending from said root to said tip;

a dovetail extending from said airfoil root, said dovetail having:

a forward profile disposed adjacent to said airfoil leading edge;

an aft profile generally similar to said forward profile disposed adjacent to said airfoil trailing edge;

a longitudinal axis extending from said forward profile to said aft profile;

a radial axis extending perpendicularly from said longitudinal axis radially outwardly into said airfoil in a plane of said aft profile; and

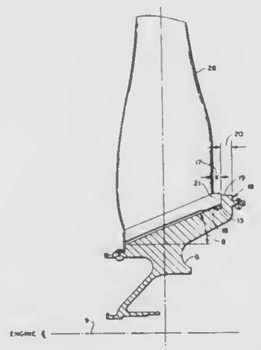
said forward profile being disposed at an angular position rotated about said dovetail longitudinal axis relative to said dovetail radial axis and said aft profile.

5,067,877

FAN BLADE AXIAL RETENTION DEVICE

Nashed A. Youssef, Mississauga, Canada, assignor to United Technologies Corporation, Hartford, Conn.

Filed Sep. 11, 1990, Ser. No. 580,709
Int. Cl.[5] F01D *5/32*
U.S. Cl. 416—220 R 3 Claims



1. A device for retaining a blade for an axial fan having a dovetail root and received within a corresponding dovetail channel in an annular hub, wherein the dovetail channel further slopes radially outward with respect to the fan axis, comprising:

a retaining flange extending radially outward relative to the centerline of the hub, located aft of the dovetail channel and integrally formed of the hub, wherein said flange has an outer diameter large enough to check the blade root from traveling aftward nd a sufficient thickness to sustain axial loads transmitted through the blades;

wherein the fan blade includes an extension of the root end extending out in the aftward direction, contacting said flange, and

wherein the hub includes a circumferential groove in the exterior surface of the hub, located between both said flange and the dovetail channel, wherein said groove width is sufficient to permit removal of a channel cutting machine tool, and wherein said groove depth is at least as great of the depth of the adjacent end of the dovetail channel.

5,067,878

DISCHARGE FLOW BLOCKING VALVE FOR A HERMETIC ROTARY COMPRESSOR

Caio M. F. N. Da Costa, Joinville, Brazil, assignor to Empresa Brasileira de Compressores S/A - Embraco, Joinville, Brazil

Filed Sep. 1, 1989, Ser. No. 402,039
Claims priority, application Brazil, Sep. 6, 1988, 8804678[U]
Int. Cl.[5] F04B *39/00*
U.S. Cl. 417—312 17 Claims

1. A discharge flow blocking valve for a compressor comprising:

a sealed housing,

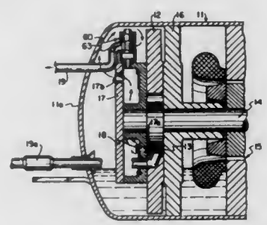
a cylinder and a piston for copressing refrigerant gas within said housing,

a discharge muffler within the housing having an inlet opening communicating with the cylinder discharge volume, a first outlet communicating with the interior of the sealed housing, and a second outlet,

a blocking valve in said housing having an outer casing with

first driving opening for receiving gas in communication with said second outlet of said discharge muffler, and a second driving opening for receiving gas in communication with the housing interior,

said valve casing also having an inlet in communication with the interior of the housing to receive the discharge gas conveyed from the discharge muffler first outlet into the interior of the sealed housing and an outlet in communication with a discharge means extending through and external to said housing,



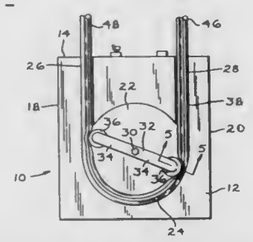
a piston movable within said valve casing having surfaces communicating with and responsive to the gas pressure at said first and second driving inlets, said piston responsive to a pressure differntial between the gases at said first and second driving inlets when the compressor starts and the pressue at the second outlet of the muffler is greate than the pressure in the compressor having interior for moving the piston to a position to provide fluid communication between said casing inlet and outlet openigns to convey the discharge gas from the sealed housing through the valve casing to the discharge means and out of the housing.

5,067,879

PERISTALTIC PUMP SYSTEM

Walter L. Carpenter, 1833 Mt. Hope Rd., Grass Lake, Mich. 49240

Filed Sep. 18, 1990, Ser. No. 584,144
Int. Cl.[5] F04B *43/12*
U.S. Cl. 417—472 15 Claims



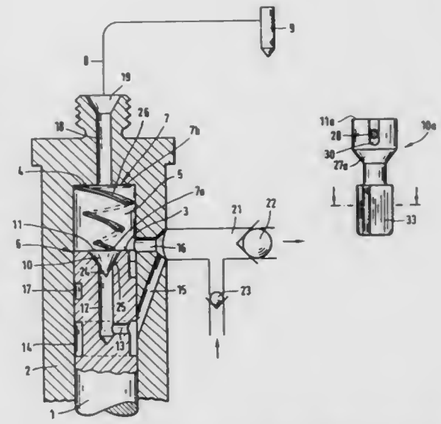
1. A flexible resilient tube for peristaltic pumps wherein fluid or gas is propelled through the tube by rotating members transversely progressively compressing the tube at spaced intervals against a raceway, comprising an inlet end, an outlet end, a passage extending therethrough having a surface, an exterior surface, and a pair of longitudinally extending and oppositely disposed notches defined in said exterior surface for enhancing and regulating the flexing characteristics of said tube, said notches having a base, an outer circumferential opening, a radial depth, and inwardly converging side walls.

5,067,880

FUEL INJECTION DEVICE

Gerhard Finsterwalder, Bergisch Gladbach; Reda Rizk, Cologne, and Hans G. Michels, Erftstadt, all of Fed. Rep. of Germany, assignors to Kloeckner-Humboldt-Duetz AG, Cologne, Fed. Rep. of Germany

Division of Ser. No. 518,141, May 3, 1990. This application Apr. 22, 1991, Ser. No. 688,976
Int. Cl.[5] F04B *7/04*
U.S. Cl. 417—495 11 Claims



1. In a fuel injection system for a diesel engine including a source of fuel including a low pressure space, an injection valve (9), an injection pump having a plunger bushing (2) with a bore extending to an end wall and a pump plunger (1) sealingly quided in said bore and having an end (3) which together with said bore and said end wall define a high pressure space (5) and an injection line (8) interconnecting said high pressure space (5) and said injection valve (9), the combination comprising:

a conically shaped valve seat (25) formed in said end (3) of said pump plunger (1),

a low pressure passageway interconnecting said valve seat (25) with said low pressure space,

a suction valve (6) in said pump plunger (1) including a suction valve body (10) having a conically shaped portion (27) shiftable axially through a predetermined stroke between a closed position in which it is seated in said conically shaped valve seat (25) thereby preventing fuel flow from said high pressure space (5) to said passageway and an open position in which it is spaced from said seat and said high pressure space (5) is connected in fluid communication with said low pressure space via said passageway, said conically shaped portion having a generally flat end in generally parallel and closely adjacent relation to said end of said pump plunger and

a stroke limiting abutment on said pump plunger in axially abutable relation to said suction valve body operable to limit axial movement of said suction valve body from said closed position a predetermined distance corresponding to said predetermined stroke.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,881

PLUNGER-OPERATED HYDRAULIC PUMP

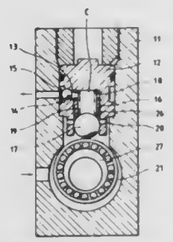
Toshifumi Maehara, Saitama, Japan, assignor to Akebono Brake Industry Co., Ltd., Tokyo and Akebono Research and Development Center Ltd., Hanyu, both of, Japan

Filed May 16, 1990, Ser. No. 524,021

Claims priority, application Japan, May 17, 1989, 1-123645; May 25, 1989, 1-130263

Int. Cl.[5] F04B *7/04*

U.S. Cl. 417—498 **7 Claims**



1. A plunger operated hydraulic pump comprising:
a pump housing;
a cylinder block in the form of a cylinder which is coaxial with a pump shaft, said cylinder block being fitted in a pump housing using elastic seal rings, and having at least two cylinders which are formed therein in such a manner that said cylinders extend radially through said cylinder block;
a piston in the form of a hollow cylinder fitted in each said cylinder;
a plunger fitted in each cylinder in such a manner that each plunger is located below each piston;
a first return spring provided in said cylinder to urge each piston towards an eccentric cam;
a second return spring provided in each cylinder to urge said plunger towards said eccentric cam, each second return spring having a larger elastic force than each first return spring; and
an annular oil pressure chamber formed between the outer cylindrical wall of said cylinder block and the inner cylindrical wall of said pump housing, said annular oil pressure chamber being sealed with said elastic seal rings,
said annular oil pressure chamber communicating with said cylinders through ejection valves and communicating with an ejection port at all times,
said pump shaft being supported by said cylinder block.

5,067,882

DUAL-ACTING, RECIPROCATING PISTON PUMP

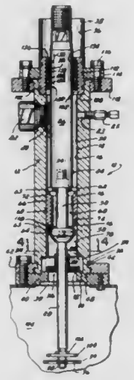
James E. DeVries, North Olmsted, Ohio; Samuel R. Rosen, Scottsdale, Ariz., and Robert D. Schneider, Lorain, Ohio, assignors to Nordson Corporation, Westlake, Ohio

Filed Jun. 20, 1990, Ser. No. 540,934

Int. Cl.[5] F04B *7/00*

U.S. Cl. 417—511 **5 Claims**

1. A double-acting, reciprocating piston pump, comprising:
a pump body formed with a passageway defining an internal wall, said passageway having an inlet adapted to communicate with a source of material to be pumped, and a discharge outlet at which material exits said pump body;
a piston assembly movable in first and second directions relative to said pump body, said piston assembly including a first portion located within said passageway in said pump body and a second portion adapted to be inserted within a source of material to be pumped, said first portion carrying a valve seat, said second portion carrying shovel means for scooping material from the source and through said inlet in said passageway of said pump body;
a first check valve carried by said first portion of said piston assembly, said first check valve dividing said passageway into a first pumping chamber connected to said inlet of said passageway and a second pumping chamber connected to said discharge outlet of said passageway, said first check valve being formed with a throughbore and an outer surface slidably engageable with said internal wall of said pump body formed by said passageway, said first check valve being mounted within said passageway by said piston assembly so that said outer surface of said first check valve scrapes away material from said internal wall of said pump body along at least a portion of said first pumping chamber and along said second pumping chamber to said discharge outlet of said passageway, said first check valve and said valve seat being mounted for relative movement between an open position in which said first check valve is spaced from said valve seat and a closed position in which said first check valve contacts said valve seat;



a second check valve located within said passageway and movable between an open position and a closed position relative to said inlet to said passageway, whereby said first check valve is moved to said open position and said second check valve is moved to said closed position in response to movement of said piston assembly in said first direction to force material located in said first pumping chamber into said space between said first check valve and said valve seat, through said throughbore in said first check valve and into said second pumping chamber for emission through said discharge outlet, said first check valve being moved to said closed position and said second check valve being moved to said open position in response to movement of said piston assembly in said second direction to force material located within said second pumping chamber through said discharge outlet and to simultaneously scoop material with said shovel means through said inlet and into said first pumping chamber.

5,067,883

ROTARY INTERNAL COMBUSTION ENGINE

Sofyan Adiwinata, Jalan Kebalen VII/3,, Jakarta, Indonesia

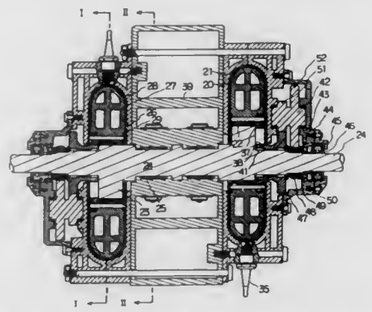
Continuation of Ser. No. 239,688, Sep. 2, 1988, abandoned, which is a continuation-in-part of Ser. No. 98,189, Sep. 17, 1987, abandoned. This application Jul. 2, 1990, Ser. No. 746,688

Int. Cl.[5] F01C *1/22;* **F04C** *2/22*

U.S. Cl. 418—61.2 **1 Claim**

1. A rotary engine comprising a housing cavity having an inner wall shape, as seen in a cross section perpendicular to a longitudinal axis of the cavity, in the form of a two lobed epitrochoidal shape and a three apex rotor installed within the said cavity and movable therearound in a planetary fashion,

and a main crankshaft provided with an eccentric hubshaft supporting said rotor, said rotor and said housing cavity both being radially curved as seen in a cross section taken along the longitudinal axis of the cavity, and wherein the engine further comprises a transmission installed inbetween the rotor and the main crankshaft, said transmission having gears which comprise:
a. an internal ring gear which is fixed or secured to one side of the rotor;
b. a first cluster gears assembly having a hollow shaft for free wheeling with respect to said main crankshaft by means of roller bearings, a smaller gear which functions as a first pinion gear to the said internal ring gear, and a larger gear which is intermeshed to a second cluster gears assembly;



c. the second cluster gears assembly having a separate shaft and comprising a smaller gear which is intermeshed to the said larger gear of the first cluster gears assembly, and a larger gear which is intermeshed to a second pinion gear which is fixed to the main crankshaft; and wherein
d. for the three apex rotor the internal ring gear and first pinion gear the gearing ratio is 4:3; and
e. the gearing ratio of the larger gear of the first cluster gears assembly to the smaller gear of the second cluster gears assembly is 3:1, and the gearing ratio of the larger gear of the second cluster gears assembly to the second pinion gear is 3:1, whereby there is a minimum of gears for space efficiency.

5,067,884

UNITIZED STRUCTURE OF MAIN BEARING AND CYLINDER OF ROTARY COMPRESSOR

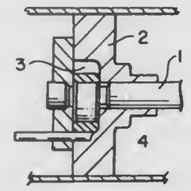
Byung C. Lee, Seoul, Rep. of Korea, assignor to Goldstar Co., Ltd., Seoul, Rep. of Korea

Filed Jul. 23, 1990, Ser. No. 557,539

Claims priority, application Rep. of Korea, Jul. 28, 1989, 11013/1989

Int. Cl.[5] F04C *29/06*

U.S. Cl. 418—63 **1 Claim**



1. A rotary compressor comprising: a revolution shaft; a main bearing having a planar base wall fitted around said revolution shaft and aligned orthogonal thereto; a cylinder formed integrally with and directly in said main bearing, said cylinder defining an inner circumferential wall aligned substantially orthogonally to the planar base wall of the main bearing; a curved corner wall extending between the inner circumferential wall and the planar base wall of the main bearing; and a roller eccentrically fitted to said revolution shaft and revolving within said cylinder, said roller comprising an outer cylindrical surface in contact with the inner circumferential wall of said cylinder, a planar wall in contact with the planar base wall of the main bearing and a curved corner wall extending between the planar wall and the outer cylindrical wall and conforming to the shape of the curved corner wall of the main bearing, whereby the curved corner wall of the main bearing and the curved corner wall of the roller enable low friction between the roller and the bearing.

5,067,885

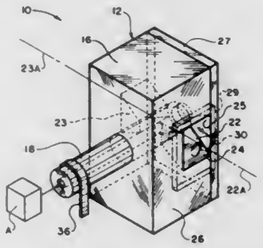
RAPID CHANGE DIE ASSEMBLY

James F. Stevenson, Hudson, and William H. Miller, Wadsworth, both of Ohio, assignors to GenCorp Inc., Fairlawn, Ohio

Continuation-in-part of Ser. No. 207,838, Jun. 17, 1988, Pat. No. 4,906,711. This application Feb. 12, 1990, Ser. No. 478,373

Int. Cl.[5] B29C *47/24, 47/22*

U.S. Cl. 425—131.1 **15 Claims**



1. A die assembly for configuring extrudate flow, said assembly comprising,
a die head having a feed member passage, first and second die head passages, and first and second die surfaces, each located in a separate plane, and associated with said first and second die head passages, said die head passages located intermediate said corresponding die surfaces and said feed member passage,
a feed member supported in said feed member passage of said die head for rotation therein for communication with either said first die head passage or said second die head passage and having a longitudinal feed passage and a feed opening, wherein said feed opening is transverse with respect to said feed passage to provide extrudate flow from an extruder to said die head,
said feed opening having a first central axis, said first die head passage having a second central axis and said second die head passage having a third central axis,
said first central axis and said second central axis being movable with respect to one another upon movement of the feed opening or first die head passage with respect to the other of the feed opening or first die head passage, respectively, to correspondingly configure extrudate exiting the first die had passage when said feed opening is in communication with said first die head passage by varying the length of pathways along which extrudate flows through said second die head passage to said second die surface to bend the extrudate as its exits said die head, and
said first central axis and said third central axis also being movable with respect to one another upon movement of the feed opening or second die head passage with respect to the other of the feed opening or second die head passage, respectively, to correspondingly configure extrudate

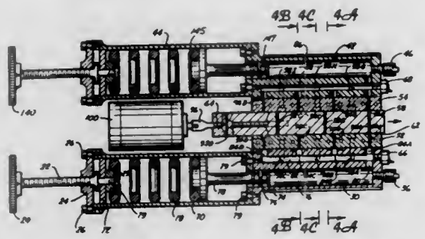
VOL 1132 ISS 4 NO 26 1991 UMI

exiting the second die head passage when said feed opening is in communication with said second die head passage by varying the length of pathways along which extrudate flows through said second die head passage to said second die surface to bend the extrudate as it exits said die head.

5,067,886
REACTION INJECTION MOLDING MACHINE

Timothy A. Salaba, Burnsville, and Debra L. Wilfong, Lake Elmo, both of Minn., assignors to Minnesota Mining and Manufacturing Company, Saint Paul, Minn.

Division of Ser. No. 182,910, Apr. 18, 1988, Pat. No. 5,004,351. This application Feb. 1, 1991, Ser. No. 649,666
Int. Cl.[5] B29C *45/18*
U.S. Cl. 425—145 **5 Claims**

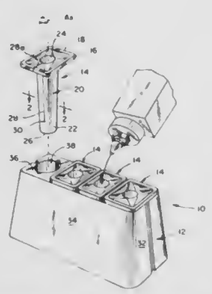


4. A reaction injection molding machine comprising:
two metering cylinders with reciprocating pistons disposed therein for pressurizing fluids contained therein;
a pushrod for supporting each piston in its respective cylinder;
a replaceable compression spring positioned to actuate each pushrod;
means for independently compressing each compression spring; and
simultaneously acting valve actuating means for developing impinging streams of fluids expelled from selected cylinders and delivering the resultant mixture to a selected collection vessel.

5,067,887
HOT-MELT ADHESIVE RECYCLING SYSTEM

Howard D. Speer, Marriottsville, and Robert A. Shortt, Baltimore, both of Md., assignors to Black & Decker Inc., Newark, Del.

Continuation of Ser. No. 82,474, Aug. 7, 1987, abandoned. This application Mar. 4, 1991, Ser. No. 664,268
Int. Cl.[5] B29C *33/40, 33/50, 39/36*
U.S. Cl. 425—256 **8 Claims**



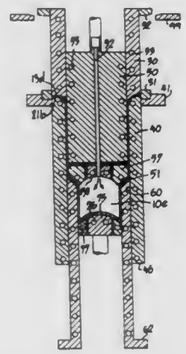
1. A hot-melt material recycling system for the recovery of hot-melt material and the forming of the recovered material into solid preforms, the system comprising:
a hot-melt dispensing apparatus for receiving a solid hot-melt material preform formed as a cylinder about a longitudinal axis and having a diameter dimension equal to D and a length dimension equal to L, heating the preform to a flowable state, and dispensing the heated material therefrom;
a flexible mold form for receiving dispensed hot-melt material and defining a cylindrical cavity therein having a diameter dimension equal to D and a length dimension equal to L for molding the material into a hot-melt material preform having a diameter dimension equal to D and a length dimension equal to L for re-use in said hot-melt dispensing apparatus;
a mold carrier for holding said flexible mold form;
said flexible mold form comprising a wall portion having an interior surface and an exterior surface, the interior surface defining the cylindrical cavity, the cavity having an open end for receiving the dispensed hot-melt material and having a closed end, a peripheral flange extending around the open end;
said wall portion having a longitudinally slit along a side thereof, a lower end of said slit terminating in a bore adjacent said cylindrical cavity closed end, an upper end of said slit being open and extending through said flange;
said mold carrier comprising a base member including a conically shaped cavity having a top opening for receiving said flexible mold form, the base member cavity being shaped to receive the exterior surface of said flexible mold form and constrict said longitudinal slit so as to seal said flexible mold form, the base member cavity having another opening at the opposite end thereof from said top opening;
said exterior surface of said flexible mold wall portion defining a conical surface of revolution about said longitudinal axis, the conical surface having an included angle of 16 degrees; and
said flexible mold form when received in said base member cavity extending partially through said another opening of said base member cavity with the closed end of the mold form cylindrical cavity being spaced below said another opening of said base member cavity.

5,067,888
APPARATUS FOR SHAPING A TUBULAR PREFORM INTO A HOLLOW BODY

Nilsson Torsten, Löddeköpinge, Sweden, assignor to Petainer S.A., Neuchatel, Switzerland

Continuation of Ser. No. 334,159, Apr. 6, 1989, abandoned, which is a division of Ser. No. 902,456, Aug. 14, 1986, Pat. No. 4,927,591. This application Jul. 3, 1990, Ser. No. 547,375
Claims priority, application Sweden, Dec. 14, 1984, 8406373
Int. Cl.[5] B29C *53/08, 55/22, 57/00*
U.S. Cl. 425—387.1 **27 Claims**

19. Apparatus for shaping a substantially tubular preform of deformable plastic material into a hollow body, the tubular preform having a closed bottom, an open mouth and a tubular wall between the bottom and the mouth, said apparatus comprising: a mandrel positioned at the open mouth of the tubular preform, the mandrel having an outer diameter which is greater than the inner diameter of the tubular preform, means for clamping said preform at said open mouth including mechanical clamping devices, means for relatively displacing said mandrel and said mechanical clamping devices for causing said mandrel to move into said tubular preform and progressively expand the wall of the preform circumferentially while said open mouth remains clamped by said mechanical clamping devices, and a sleeve surrounding and supporting the preform therewithin, said sleeve being substantially immovable relative to the mandrel, said sleeve and mandrel forming a gap through which the preform passes as the mandrel moves into the preform, said gap being dimensioned so that as the wall of the preform passes through said gap, said wall is stretched on and

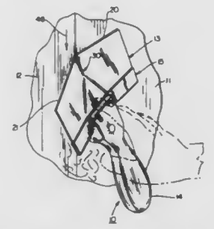


expanded by said mandrel and is out of contact with said sleeve.

5,067,889
SEAM KNIFE FOR DRY WALL

Robert R. Humiston, 134 Woodside La., Liverpool, N.Y. 13090

Filed Aug. 27, 1990, Ser. No. 573,252
Int. Cl.[5] B05C *17/10*
U.S. Cl. 425—458 **5 Claims**

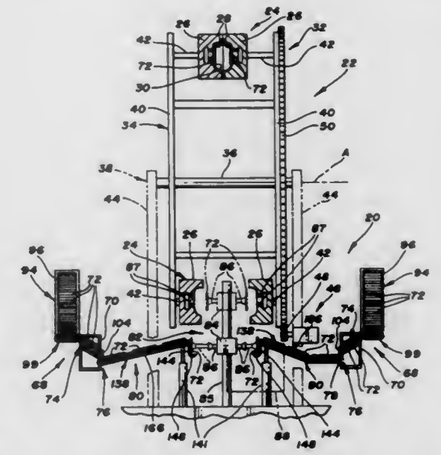


1. A dry wall tool for closing wide angle shallow corners at a joint between two abutting sheets of dry wall that includes,
a thin flexible blade having a front face and a back face,
said blade further having a linear top edge, two opposed side edges, and a pair of angularly disposed bottom edges that meet at the central axis of the blade to form a point which has an included angle of between 140° and 160°,
said blade being bent from the back face toward the front face along a Y-shaped bend line to form a pair of angularly offset wings,
said bend line having a center leg lying upon the central axis of the blade and extending upwardly from said point to about the mid-region of the blade and a pair of outwardly diverging arms that extend upwardly toward the top edge of the blade, said wings having an interior angle of between 140° and 160°, and
a handle secured to the blade in the region between the upraised arms of said bend lines, said handle extending outwardly beyond the top edge of the blade to provide a hand grip for the tool.

5,067,890
IN-MOLD LABEL SUPPLY SYSTEM FOR PLASTIC BLOW MOLDING MACHINE

Richard L. Dunlap, Cairo, and Edward L. Sanford, Lima, both of Ohio, assignors to Plastipak Packaging, Inc., Plymouth, Mich.

Filed Nov. 8, 1990, Ser. No. 611,959
Int. Cl.[5] B29C *49/24*
U.S. Cl. 425—504 **16 Claims**



1. An in-mold label supply system for a plastic blow molding machine including at least one mold having a pair of mold portions which have associated cavity sections and are movable toward and away from each other between an open position where the mold portions are spaced from each other and a closed position where the cavity sections define an enclosed cavity in which the blow molding is performed, the supply system comprising:
a hopper assembly including a feed hopper for positioning discrete sheet-like labels in a vertical feed stack, the hopper assembly also including a storage hopper for storing a supply of the discrete sheet-like labels in a vertical storage stack, and the hopper assembly including a transfer device that transfers labels from the bottom of the vertical storage stack to the top of the feed stack;
a feeder including a feed roller that selectively grips the lowermost label of the feed stack to provide delivery thereof from the feed stack with the next higher label remaining in the feed stack, and the feeder also including a gate that is spaced from the feed roller a distance just greater than the label thickness so as to permit only the lowermost label to be moved from the feed stack by the feed roller;
a source of vacuum and valve means for selectively drawing a vacuum at the feed roller to provide gripping of the lowermost label of the feed stack by the feed roller for movement of the gripped label under the gate and for thereafter terminating the vacuum at the feed roller;
a conveyor for conveying the label from the feed roller to the blow molding machine; and
a label dispenser that transfers the label from the conveyor to the mold for placement within the cavity section of one mold portion with the mold portions in the open position to provide in-mold labeling prior to closing of the mold portions for blow molding that secures the label to the blow molded product.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,891

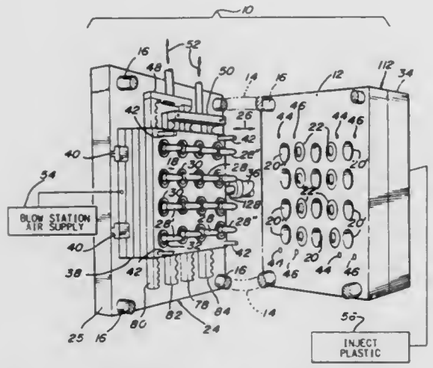
INJECTION BLOW MOLDING APPARATUS

Randall K. Julian, and Edward Luker, both of Evansville, Ind., assignors to Sunbeam Plastics Corporation, Evansville, Ind.

Continuation of Ser. No. 468,683, Jan. 23, 1990, abandoned, which is a continuation-in-part of Ser. No. 439,259, Nov. 20, 1989. This application Apr. 19, 1991, Ser. No. 687,220

Int. Cl.[5] B29C *49/06*

U.S. Cl. 425—533 14 Claims



1. Injection-blow molding apparatus for forming containers with restricted necks comprising, in combination:

a one-piece circumferentially continuous injection mold open at one end and having a longitudinally extending axis;

an axially opening blow mold associated with an adjacent to said injection mold, said blow mold including a circumferentially continuous body portion open at one end and having a longitudinally extending axis and a circumferentially continuous shoulder forming portion having a longitudinally extending axis aligned with the longitudinally extending axis of said body portion;

a core having a longitudinally extending axis mounted for relative movement between and into and out of said injection mold and blow mold portions along their respective longitudinally extending axes between an open and a closed position;

a neck forming sleeve concentrically located around said core, said neck forming sleeve having a longitudinally extending axis;

positioning means for moving said core and sleeve between said open and closed positions relative to said injection mold to form a parison and for moving said core and sleeve with a parison and said shoulder forming portion between said open and closed positions relative to and for registry with said body forming portion to blow a container in said blow mold;

transfer means for moving said core and neck forming sleeve in a direction transverse to said axes of said core and neck forming sleeve for alternate alignment of said axes of said core and neck forming sleeve with the longitudinally extending axes of said injection mold and said blow mold portions; and

separating means for releasing said neck forming sleeve and ejecting a finished container from said core in a direction parallel to said core.

5,067,892

EJECTION DEVICE FOR EJECTING A WORKPIECE FROM A DIE IN A FORMING PRESS

Oskar Rahn, Göppingen, and Günter Riedisser, Eislingen, both of Fed. Rep. of Germany, assignors to L. Schuler GmbH, Fed. Rep. of Germany

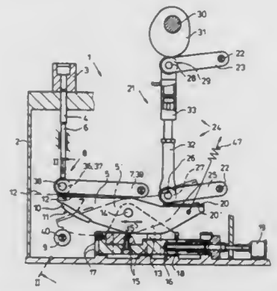
PCT No. PCT/DE89/00107, § 371 Date Jul. 13, 1990, § 102(e) Date Jul. 13, 1990

PCT Filed Feb. 24, 1989, Ser. No. 432,723

Claims priority, application Fed. Rep. of Germany, Feb. 24, 1988, 3806352

Int. Cl.[5] B29C *45/40*

U.S. Cl. 425—556 11 Claims



1. An ejection device for ejecting a workpiece from a die in a forming press, said ejection device comprising:

an ejector slide;

a double armed ejector lever having a drive side arm which is driven by driving rods moved in time with the formation of the workpiece, said drive side arm forming a drive side working plane, and an ejector side arm which acts upon said ejector slide, said ejector side arm forming an ejector side take off plane;

a shiftable bearing moveable in a shifting plane and about which the double arm ejector pivots;

adjusting means for changing an ejector lift of the ejection lever, a transmission ratio of the ejector lever being changeable by adjusting a position of the shiftable bearing in the shifting plane; and

a support bearing for supporting the ejector side arm;

wherein the drive side working plane and the ejector side take off plane extend in parallel with respect to the shifting plane when the ejector lever is moved into an ejector position; and

wherein, for compensating different ejector lifts, the ejector lever, for each transmission ratio, in an area between the take off plane and the support bearing, has a different width, the width being determined as a function of a distance of the take off plane to the bearing minus a length of the ejector lift when the ejector lever is in the ejector position.

5,067,893

INJECTION MOLDING APPARATUS WITH SHUT OFF VALVE PIN ACTUATION SYSTEM

Jesus M. Osuna-Diaz, 2365 Avon Industrial Dr., Rochester Hills, Mich. 48309

Filed Jun. 15, 1990, Ser. No. 538,523

Int. Cl.[5] B29C *45/23*

U.S. Cl. 425—564 7 Claims

1. An injecting molding apparatus including an injection nozzle having a gate through which melt is injected into a mold cavity, an actuation system for a shut off valve pin, said valve pin having a tapered tip disposed within the gate of said injection nozzle, said actuation system comprising:

a first gear rack connected to said valve pin to extend upwardly therefrom;

a rotatably mounted first pinion gear meshing with said first gear rack;

a power cylinder including a cylinder housing, and a piston movably disposed in a bore formed in said cylinder housing;

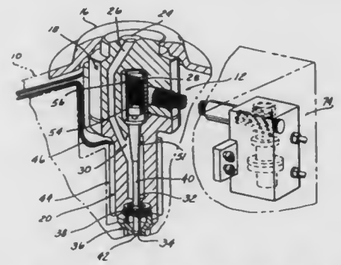
a second gear rack connected to said piston to be reciprocated by movement of said piston in said bore;

a rotatably mounted second pinion gear in mesh with said second gear rack connected to said piston;

a cross shaft mounted or rotation about an axis extending through the length of said cross shaft, said cross shaft drivingly connecting said first and second pinion gears to rotate together about said axis of said cross shaft;

means for supplying fluid pressure to said bore to cause said piston to move so as to drive said connected first gear rack, said first and second pinion gears, and said second gear rack connected to said valve pin to move said valve pin to a closed position in said gate; and,

means for selectively allowing adjustment of the angular position of said cylinder housing about an axis aligned with the axis of rotation of said cross shaft to thereby enable adjustment of said closed position of said valve pin in said gate.



5,067,894

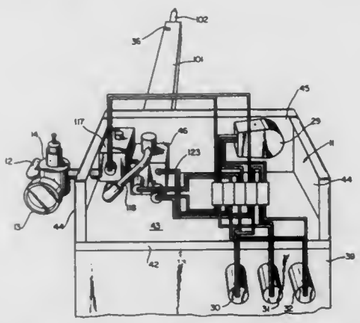
OIL BURNER ASSEMBLY

Glenn Bender, Princeton, Mo., assignor to Shenandoah Manufacturing Co., Inc., Harrisonburg, Va.

Filed Nov. 8, 1989, Ser. No. 433,230

Int. Cl.[5] F23D *11/44*

U.S. Cl. 431—208 6 Claims



1. An oil burner assembly for burning waste oil fuel, comprising a waste oil burner subassembly including an elongated preheating block portion and a generally box-shaped control housing portion secured thereto, means for removably mounting said burner subassembly on a combustion chamber wall with the preheating block portion protruding through said wall and the control housing portion disposed outwardly adjacent the wall, the preheating block being an elongated metal block of rectangular cross-section having a rearward end portion and a front end portion, an air/waste oil burner nozzle carried by said front end portion, said elongated block having first and second longitudinally elongated bores extending in transversely spaced parallelism throughout their length substantially coextensively along their entire length, first conduit means in said rearward end portion for conducting waste oil fuel to the first bore, a transverse connecting bore interconnecting the first and second bores at said front end portion whereby waste oil fuel supplied to said first bore passes forwardly through the length thereof and returns along the length of said second bore to said rearward end portion, second conduit means including an exit bore portion communicating said second bore at said rearward end portion to a solenoid valve in said control housing for conducting the waste oil fuel from the rearward end portion of the second bore to said solenoid valve and including a return conduit portion for returning the waste oil fuel to said block adjacent said rearward end, third, fourth and fifth longitudinal bores in said block paralleling said first and second bores and spanning the length of the block in transversely spaced parallelism with each other throughout their length, connecting bore means communicating said return conduit portion to said third bore, the third bore terminating in a first opening in said front end portion, an elongated electric heater in said fourth bore for heating said block, air conduit means coupled to said fifth bore at the rearward end portion of said block, said fifth bore terminating in a second opening in said front end portion, and said nozzle having means for providing fluid communication with both said first and second openings.

5,067,895

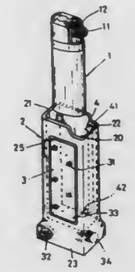
LIGHTER-ACTUATED BINGO MEANS

Jack Chuang, and Tsung-Ping Lin, both of P.O. Box 55-1670, Taipei, Taiwan

Filed Sep. 4, 1990, Ser. No. 577,215

Int. Cl.[5] F23Q *1/00*; F23D *14/00*

U.S. Cl. 431—253 1 Claim



1. A lighter-actuated bingo means comprising:

a gas lighter having a gas lever formed in the gas lighter embedded in a socket of a holder casing;

a lotto flash driver including an integrated circuit formed on an integrated circuit board embedded on a side wall of said holder casing, a plurality of indicator lamps connected to said integrated circuit, a buzzer connected to said integrated circuit, a trigger switch formed on a base plate formed in a bottom portion of said holder casing for triggering the integrated circuit for flashing said lamps and sounding said buzzer, and a power source of batteries for powering said integrated circuit, said lamps and said buzzer; and

a trigger means formed on a side wall of said holder casing operatively depressed by said gas lever of said gas lighter

VOL 1132 ISS 4 NO 26 1991 UMI

to close said trigger switch of said flash driver for flashing the lamps and sounding the buzzer,

the improvement which comprises:

said trigger means including a slide plate slidably mounted in a longitudinal groove formed in a side wall of said holder casing, an upper bending portion formed on an upper portion of said slide plate normally protruding upwardly above an opening edge formed on an upper portion of said casing and bent inwardly under said gas lever to be operatively depressed by said lever, and a lower bending portion formed on a lower portion of said slide plate and bent inwardly to be normally resiliently urged upwardly by a spring contactor of said trigger switch, said spring contactor of said trigger switch upwardly urged by a tensioning spring to urge said slide plate upwardly to be operatively depressed by said gas lever.

5,067,896

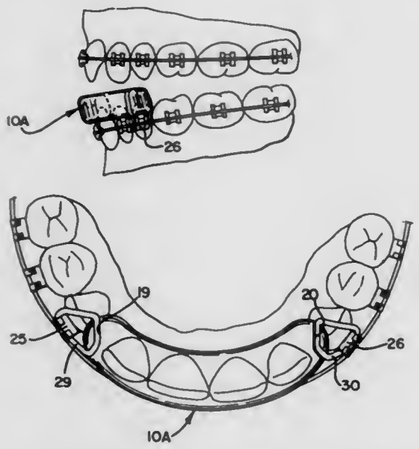
ORTHODONTIC APPLIANCE

Marcel Korn, 328 Newberry St., Boston, Mass. 02115

Filed Apr. 24, 1991, Ser. No. 690,594

Int. Cl.[5] A61C *3/00*

U.S. Cl. 433—6 **14 Claims**



1. A method of making a custom-fitted resilient orthodontic appliance for attachment to the anterior of the mandibular arch or the maxillary arch anteriors and coacting with the opposed anteriors when the jaws are in closed position to positively position the opposing dental arches relative to each other, said method comprising the steps of providing an arcuately shaped plastic blank having a generally rectangular cross section and means at the ends for assisting the attachment to one of the arches, said blank having upper and lower substantially flat surfaces and being of a thermoplastic material that is formable when softened by heat and resilient when at normal room and mouth temperatures, heating the blank to soften it to facilitate the impression of tooth sockets in the upper and lower surfaces of the blank, placing the softened blank in the mouth of a patient so that the upper and lower teeth can engage the upper and lower surfaces of the blank, closing the jaws of the patient into the desired jaw relationship to form an impression of the teeth and define tooth sockets for the upper and lower anterior teeth in the upper and lower sides of the blank, allowing the blank to remain in the mouth under pressure of the teeth until the impression of the teeth is set in the blank, removing the formed blank from the patient's mouth, and further cooling the blank so that the impression of the teeth is completely set and the blank is transformed into an appliance for positively positioning the jaws completely relative to each other when the appliance is worn by the patient.

5,067,897

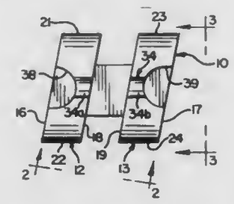
TWIN TIE WING BRACKET

Lee H. Tuneberg, Sheboygan, Wis., assignor to American Orthodontics Corporation, Sheboygan, Wis.

Filed Apr. 24, 1990, Ser. No. 513,607

Int. Cl.[5] A61C *3/00*

U.S. Cl. 433—8 **18 Claims**



1. A twin tie-wing orthodontic bracket comprising a base having an attachment face for mounting on a tooth, said bracket having a front profile and a side profile, a pair of tie wings extending from the base, said tie wings being in substantially parallel relation, and a rectangular in form archwire slot extending through both tie wings and adapted to receive an archwire to control precise tooth position, said tie wings having upper and lower tie-wing tips of substantially the same size, and cutouts in the tie wings and the archwire slot at the opposite ends of the archwire slot at the buccolabial face of the bracket to increase the interbracket distance with a like bracket on an adjacent tooth such as to increase the range of an archwire in the archwire slots of the brackets and decrease the forces produced by the archwire.

5,067,898

EXTERNAL FIXING DEVICE FOR BONE SURGERY

Georges E. Dury, Avenue Franklin Roosevelt 141, 1050 Brussels, Belgium

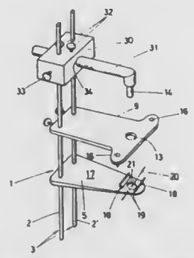
PCT No. PCT/BE88/00012, § 371 Date Nov. 13, 1989, § 102(e) Date Nov. 13, 1989, PCT Pub. No. WO88/08691, PCT Pub. Date Nov. 17, 1988

PCT Filed Apr. 28, 1988, Ser. No. 439,367

Claims priority, application Belgium, May 14, 1987, 08700535

Int. Cl.[5] A61C *3/00*

U.S. Cl. 433—75 **6 Claims**



1. An external fixing device for carrying out trepanations allowing implants to be positioned during dento-maxillo-facial bone surgery,

said device comprising:

at least one rigid rod having an extremity serving as a handle for said device; each said at least one rod having a respective longitudinally extensive portion having a constant transverse cross-sectional size and shape and a longitudinal axis;

a spacer element fixed to each said at least one rod at a given distance from the respective said extremity, extending substantially perpendicularly to said longitudinal axis and arranged to bear upon a first face of a bone which is to be trepanned;

at least one movable element axially slidably mounted on said portion of each said at least one rod so as to be positionable to bear upon an opposite, second face of said bone;

means defining an opening through said at least one movable element, along an axis that is substantially parallel to said longitudinal axis, said opening being arranged to allow passage therethrough of a portion of a trepanation tool for accessing said bone; and

means for selectively immobilizing said at least one movable element to said portion of each said at least one rod at a selected position relative to said spacer element;

a movable support for a trepanation tool, said movable support being axially slidably mounted on said portion of each said at least one rod on an axially opposite side of said at least one movable element from said spacer element;

means for securing to said movable support a trepanation tool having a head coaxially aligned with said axis of said opening through said at least one movable element; and

means for selectively immobilizing said movable support to said portion of each said at least one rod at a selected position relative to said at least one movable element.

5,067,899

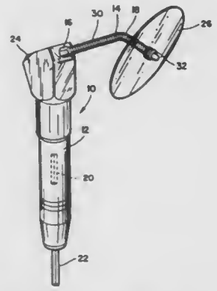
AIR-WATER DENTAL SYRINGE WITH PROTECTIVE BARRIER

Richard C. Paschal, 6608 Jocelyn Hollow Rd., Nashville, Tenn. 37205

Filed Jan. 7, 1991, Ser. No. 638,196

Int. Cl.[5] A61G *17/02*

U.S. Cl. 433—80 **9 Claims**



1. In an air-water syringe having a body portion adapted to be hand-held, a nozzle portion connected to and extending away from said body portion, at least one passageway extending through such body portion and such nozzle portion to permit the flow of water or air therethrough, and control means for regulating the flow of water or air through said passageway, the improvement comprising:

a) a protective barrier plate dimensioned to cover the open mouth of a dental patient; and

b) means for mounting said protective barrier plate on said nozzle portion of said syringe said mounting means permitting selective relative linear movement of said protective barrier plate along the extending length of said nozzle portion and permitting selective relative angular movement of said protective barrier plate with respect to said nozzle portion, whereby said syringe can be manipulated through a wide range of positions within the mouth of a dental patient while said protective barrier plate is in place covering the mouth of said dental patient.

5,067,900

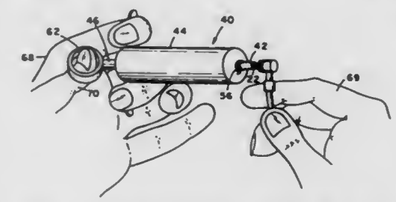
APPARATUS AND METHOD FOR APPLYING GUTTA-PERCHA TO A CARRIER

John T. McSpadden, 6918 Shallowford Rd., Chattanooga, Tenn. 37421

Filed Jan. 8, 1991, Ser. No. 638,685

Int. Cl.[5] A61G *5/02*

U.S. Cl. 433—81 **15 Claims**



1. A method of applying gutta-percha to a shank-like carrier with which the gutta-percha is introduced into an extirpated root canal for obturating the root canal, said method comprising the steps of:

providing a syringe-like apparatus having a hollow barrel containing an amount of gutta-percha and a plunger fitted within the barrel for sliding movement relative to and along the length of the barrel, one end of the barrel having a discharge opening toward which the gutta-percha is urged when the plunger is moved through the barrel and toward the discharge opening;

heating the apparatus to soften the gutta-percha contained therein;

positioning one end of the shank-like carrier through the discharge opening; and

moving the plunger through the barrel to dispense the softened gutta-percha through the discharge opening and withdrawing the carrier from the discharge opening so that gutta-percha dispensed through the discharge opening coats the surface of the carrier.

5,067,901

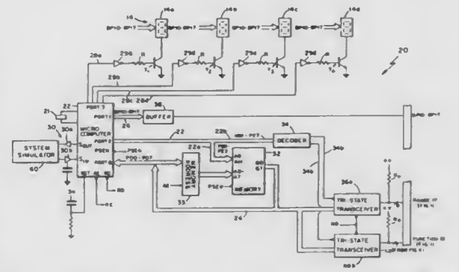
SIMULATED MULTIMETER

Donald S. Fordham, 6888 Granero, El Paso, Tex. 79912; Richard A. Petersen, 5436 Van Horn, El Paso, Tex. 79924, and Charles E. Gorbet, 3356 Menard La., El Paso, Tex. 79936

Filed Nov. 14, 1989, Ser. No. 436,527

Int. Cl.[5] G09B *19/00*

U.S. Cl. 434—224 **7 Claims**



1. A simulated multimeter having a function switch and a range switch, said simulated multimeter comprising:

means fed by digital display data signals for providing a numeric display corresponding to a number represented by said digital display data signals; and

controller means, fed by a plurality of switch signals which correspond to the selected settings of said function switch

VOL 1132 ISS 4 NO 26 1991 UMI

and said range switch and fed by an input data stream corresponding to a value of a simulated electrical parameter which represents a value of an actual electrical parameter without said actual electrical parameter being present, wherein said value of the simulated electrical parameter is related to said plurality of switch signals, for converting said input data stream into digital display data signals.

7. A simulated multimeter comprising:

a function switch for selecting one of a plurality of electrical parameter settings;

a range switch for selecting one of a plurality of scale factor settings associated with a corresponding one of the electrical parameter settings;

a digital display fed by digital display data signals corresponding to a number represented by said digital display data signals;

controller means, fed by a first data stream corresponding to said electrical parameter settings and said electrical scale factor settings from said function switch and said range switch and fed by a second data stream corresponding to simulated electrical parameter values related to said plurality of electrical parameter and scale factor settings, for converting said second data stream into the digital display data signals, said controller means comprising:

(a) a microcomputer comprising:

(i) a full duplex serial channel means for providing an output serial signal path fed by said first data stream related to said plurality of electrical parameter and scale factor settings and for providing an input serial signal path fed by said second data stream provided by a system simulator and related to said input data stream;

(ii) a first parallel interface means for providing a control signal; and

(iii) a second parallel interface means for providing a second parallel signal path fed by said electrical parameter and scale factor settings;

(b) a pair of buffer devices coupled to said second parallel interface means for transferring one of said electrical parameter and scaler factor settings to said microcomputer; and

(c) a decoder fed by said control signal from said first parallel interface means to provide signals to select one of said buffer devices along a third signal path;

an external network coupled to said system simulator, wherein said network has a plurality of selectable circuit paths; and

a pair of test leads for selecting one of said plurality of selectable circuit paths, wherein said system simulator includes means for providing said first data stream related to a circuit path selected by said pair of test leads.

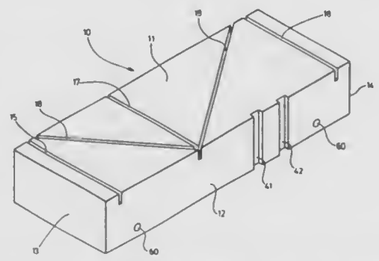
5,067,902

MULTIFUNCTIONAL BLOCK AND KIT FOR SCIENCE INSTRUCTION

Thomas G. Phillips, R. R. #3, P. O. Box 577, Arthur, Ontario, Canada N0G 1AO

Filed Jan. 12, 1990, Ser. No. 464,227
Int. Cl.[5] G09B *23/00*
U.S. Cl. 434—276 2 Claims

1. A science kit comprising a multifunctional support means consisting of a block having a plurality of slots and holes in its top, bottom, front, back and side walls, a plurality of ancillary components selected from the group consisting of gears, mirrors, ramps, dowelling, magnets, metal rods, weights, washers, balloons, paper clips, string, tape, tacks, rubber bands, straws, pins, moulds and cloth particles and activity cards containing instructions for setting up and conducting experiments utilizing the multifunctional support means and the ancillary components wherein the sots and holes in the block are of various



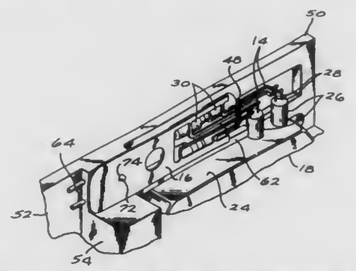
sizes and shapes for retaining and supporting one or more of the ancillary components.

5,067,903

RIBBON CONDUCTOR SET AND METHOD

Andrew J. Szyszkowski, Canyon Country, Calif., assignor to Siemens-Pacesetter, Inc., Sylmar, Calif.

Filed Nov. 20, 1989, Ser. No. 439,070
Int. Cl.[5] H01R *9/09*
U.S. Cl. 439—55 6 Claims



1. A ribbon conductor set for interconnecting electrical components in an implantable medical device, said ribbon conductor set comprising:

a plurality of conductor ribbons formed as a set in a predetermined number, shape, and spacing;

a support frame including means for removably supporting said conductor ribbons as a group,

said conductor ribbons and said support frame being integrally formed from common sheet stock of a selected conductive material; and

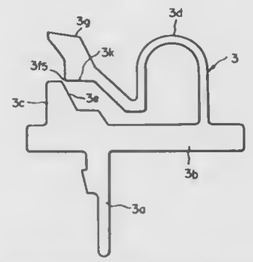
spacer means for connection to said conductor ribbons to maintain a selected spacing therebetween, wherein said spacer means comprises an epoxy bead.

5,067,904

IC SOCKET

Shigeru Takeuchi, Takasaki; Takayuki Murayama; Motokuni Horiguchi, both of Kodaira, and Masami Hukunaga, Kawaguchi, all of Japan, assignors to Kabushiki Kaisha Hitachi Seisakusbo, Tokyo; Hitachi Micro Computor Engineering Kabushiki Kaisha, Kodaira and Enplas Corporation, Namiki Kawa Guchi, all of, Japan

Continuation of Ser. No. 139,347, Dec. 29, 1987, abandoned.
This application Oct. 3, 1990, Ser. No. 593,305
Claims priority, application Japan, Dec. 29, 1986, 61-20011; May 1, 1987, 62-109294
Int. Cl.[5] H05K *1/00*
U.S. Cl. 439—73 6 Claims



1. An IC socket having a socket body, a cover and contact for testing an IC package having lead terminals, that make point to point contact when pressed down on contact pins by closing said cover, said contact pins comprising:

a base;

a connecting terminal extending beneath said base;

a first contacting piece extending upward from said base;

a single semi-circular spring extending upward from said base;

a second contacting piece constructed to rpovide an end to be pressed down by the end of a terminal fo said IC package, said second contacting piece extending outward from said semi-circular spring toward said first contacting piece; said first and second contacting pieces having first and second contacting faces in close proximity but spaced from each other when said semi-circular spring is in a relaxed condition; said first and secone contacting pieces constructed and arranged to provide a short linear connecting path between said connecting terminal and said second contacting piece when said contacting faces are in contact; at least one of said contacting faces being at oblique angle to the base; whereby when the end of a lead terminal of said IC package presses down on an outer end of said second contacting piece; said first and second faces come into sliding contact.

5,067,905

ELECTRIC CONNECTION BOX

Etsuji Matsumoto; Mamoru Araki, and Keiichi Ozaki, all of Shizuoka, Japan, assignors to Yazaki Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 534,564, Jun. 7, 1990, Pat. No. 5,011,417. This application Feb. 4, 1991, Ser. No. 650,261
Claims priority, application Japan, Jun. 9, 1989, 1-145302; Feb. 20, 1990, 2-37440
Int. Cl.[5] H01R *9/09*
U.S. Cl. 439—76 1 Claim

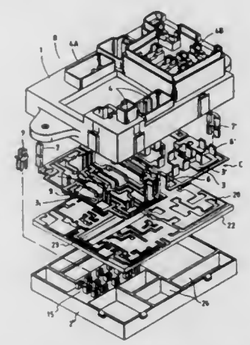
1. In an electric connection box comprising a housing, a box-shaped body, a plurality of bus bars having integral upstanding tabs accommodated within said body, said tabs passing through a tab insertion hole in a wall of said body and extending into said housing outside of said body so as to form an insertion portion for an electrical connector, the improvement comprising:

bridge-like press-connecting pieces, formed respectively on a portion of said plurality of bus bars, and disposed in planes perpendicular to a circuit surface of said bus bars;

a plurality of press-connecting terminals, each having a base plate portion, tabs formed on one side of said base plate portion, and a bus bar-pressing connecting portion formed on the other side of said base plate portion and having a U-shaped slot;

terminal holders for said press-connecting terminals, said terminal holders being formed on an inner surface of said body and comprising a pair of bus bar guide walls each having a bus bar guide groove; and

an insulative board having bus bar-mounting grooves arranged in a pattern corresponding to a pattern of arrangement of said plurality of bus bars, and having through holes for said terminal holders;



said base plate portion being fixed by passing each of said tabs of said press-connecting terminal into said housing through a tab insertion hole of said terminal holder;

said electric connection box further including a bus bar circuit board, said plurality of bus bars being mounted fixedly in said bus bar-mounting grooves of said insulative board, said bus bar circuit board being placed on the inner surface of said body, so that said terminal holder is projected through said through hole; and

wherein said press-connecting piece is inserted into said guide grooves in said bus bar guide walls, and is press-fitted in and connected to said U-shaped slots of said press-connecting terminal.

5,067,906

ELECTRIC CURRENT DISTRIBUTION APPARATUS

Terence A. Woodgate, London, England, assignor to GTE Rotaflex Limited, London, England

PCT No. PCT/GB89/00665, § 371 Date Dec. 7, 1990, § 102(e) Date Dec. 7, 1990, PCT Pub. No. WO89/12918, PCT Pub. Date Dec. 28, 1989
PCT Filed Jun. 15, 1989, Ser. No. 623,413
Int. Cl.[5] H01R *17/04*
U.S. Cl. 439—115 25 Claims



1. An electrical cable consisting of an elongate rigid rod and comprising inner and outer coaxial conductors and complementary coupling means comprising male and female screw-threaded couplings at the opposite ends thereof, thereby to-enable the connector to be connected releasably but securely end-to-end with another connector of substantially identical

VOL 1132 ISS 4 NO 26 1991 UMI

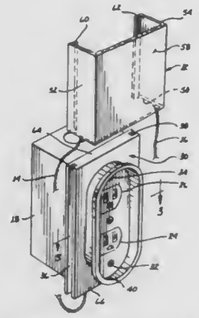
form to construct a rigid coaxial connector assembly with electrical continuity of the inner and outer conductors being maintained over the length of the assembly, the inner conductor including at one end of the connector a contact portion retractable axially relative to the outer conductor against a spring force exerted thereon, whereby to ensure firm axial abutment of said contact portion with the inner conductor of another connector coupled to said one end of the connector.

5,067,907

COVER AND SHEATH FOR ELECTRICAL OUTLETS

Michael J. Sbotey, 7733 E. Cypress, Scottsdale, Ariz. 85257

Division of Ser. No. 596,777, Oct. 12, 1990. This application Feb. 19, 1991, Ser. No. 657,494
Int. Cl.[5] H01R *13/44*
U.S. Cl. 439—135 17 Claims



1. Apparatus for protecting an electrical socket and an electrical plug plugged thereinto, said apparatus comprising in combination:

a) a face plate surrounding the electrical socket, said face plate including a pair of opposed grooves disposed on opposed sides of the electrical socket;

b) a box having an open bottom side, a pair of opposed sidewalls, a top wall and a front wall for covering the electrical socket, each of said side walls including a tongue for slidably engaging one of said grooves to permit downward sliding of said box with respect to said face plate to cover the electrical socket and upward sliding of said box with respect to said face plate to uncover the electrical socket;

c) a continuous wall extending from said face plate and about the electrical outlet, said wall including an outwardly facing channel; and

d) a sheath for enclosing the electrical plug plugged into the electrical socket, said sheath including means for securing one end of said sheath about said wall and further means for securing the other end of said sheath about an electrical conductor extending from the electrical plug.

5,067,908

SELF-ALIGNING CONNECTOR

Lloyd A. Guth, San Diego, Calif., assignor to General Dynamics Corporation, Convair Division, San Diego, Calif.

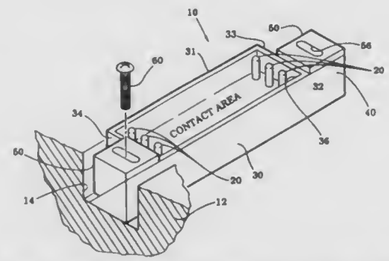
Filed Nov. 19, 1990, Ser. No. 615,521
Int. Cl.[5] H01R *13/629*
U.S. Cl. 439—248 5 Claims

1. A self-aligning connector comprising:

an elongated connector body having a predetermined length, a top surface, a horizontally oriented bottom surface, a front wall, a vertically orientated rear wall and laterally spaced end walls;

a cutout portion of said connector body enclosing electrical contacts, said cutout portion extending between said top and bottom surfaces;

a foot portion extending longitudinally from each of the end walls of said connector body each of said foot portions having an end wall surface, a horizontally orientated bottom surface, a vertically orientated rear wall, and an inclined front wall having an acute angle, a vertically oriented elongated horizontally bore hole extends from said inclined front wall to said bottom surface; and



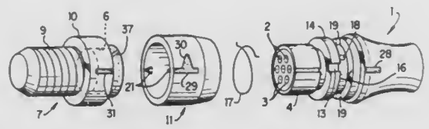
a wedge block detachably connected to each of said foot portions, each of said wedge blocks having a top surface and an inclined bottom wedge surface that mates with the inclined front wall of a respective said foot portion, an elongated slot extending through each of said wedge blocks from their top surface to their inclined bottom wedge surface.

5,067,909

LOCKING MULTIPLE CONDUCTOR ELECTRICAL CONNECTOR

Christian D. Behning, Plymouth, Mass., assignor to Alden Products Company, Brockton, Mass.

Filed Feb. 25, 1991, Ser. No. 659,898
Int. Cl.[5] H01R *4/54*
U.S. Cl. 439—315 15 Claims



1. An electrical connector comprising:

first and second tubular connector bodies having telescopingly engaged body portions and axially mating electrical contacts;

an annular collar encircling the telescoping body portions and rotatively held on the first body;

a spring inside the collar, the ends of the spring being confined between the first body and the collar so as to yieldingly resist rotation of the collar relatively to the first body;

axially opposed tabs on the collar and second body with opposed flaring cam surfaces cooperatively producing rotation of the collar relative to the second body as the bodies are telescoped to a mated contact position, the cam surfaces guiding the collar tab around the body tab; and

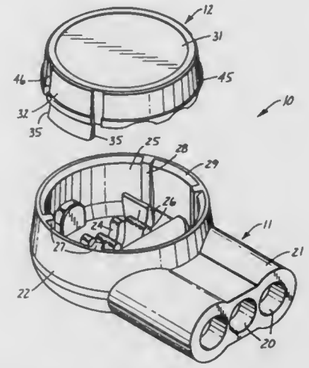
the spring yielding as the collar is rotated by the cam tabs during contact mating, and the spring then rotating the collar tab to a latching position axially behind the body tab locking the connector bodies in mated contact position.

5,067,910

SOLDERLESS ELECTRICAL CONNECTOR

George J. Knox; Daniel F. Cronch, and Martin G. Afflerbaugh, all of Austin, Tex., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Jan. 17, 1991, Ser. No. 642,534
Int. Cl.[5] H01R *4/24*
U.S. Cl. 439—402 16 Claims



1. A wire connector for connecting multiple wires comprising;

a base member having a plurality of side-by-side elongate wire-receiving channels having extended surfaces to support a corresponding plurality of wires, said base member and said extended surfaces being formed with at least one groove which extends across said extended surfaces and generally perpendicular to said channels, wall members defining a cavity about said extended surfaces which cavity has an opening spaced from said extended surfaces, said wall members having inner and outer surfaces, said wall members having at least two pair of spaced wall portions, said wall portions extending from said inner surface of said wall members into said cavity and being positioned in relationship to each other to diverge from said opening toward said extended surfaces,

a resilient conductive connecting member comprising a plate which is deeply grooved and adapted to fit within the groove in said base member with a groove in the plate in line with each of said channels, and

a cap supporting said connecting member and shaped to fit in said cavity, said cap comprising an end wall and depending side walls having two legs extending beyond the free edges of said side walls at opposed locations, said connecting member being positioned within said side walls against the interior surface of said end wall, each of said legs being disposed inside said cavity with one leg disposed between each pair of said wall portions, said legs each having side edges which diverge toward the free edge of the legs to fit between and engage opposed sides of said wall portions,

whereby when a force is applied tending to separate the cap from the base the force of said legs against said wall portions tend to compress said legs and separate said wall portions to resist said separation and

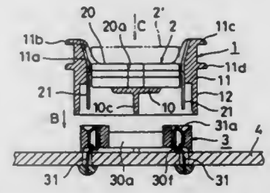
whereby and when sufficient force is applied against said end wall of the cap forcing it in a direction toward said base, said opening in the base member will be forced to expand allowing entry of said cap and connecting member into said cavity such that said connector affords fully effective spring reserve contact with wires disposed in said channels.

5,067,911

IC HOLDER

Toshiro Saeki, Tokyo, Japan, assignor to Seikosha Co., Ltd., Tokyo, Japan

Filed Oct. 19, 1990, Ser. No. 600,338
Claims priority, application Japan, Oct. 19, 1989, 1-272121
Int. Cl.[5] H01R *23/72*; B65D *73/02*
U.S. Cl. 439—526 11 Claims



1. An IC holding device for an IC element to be detachably attached to an IC socket, comprising an IC holder for holding an IC element having two rows of terminal pins to be detachably attached to an IC socket, said IC element having an unassembled state in which the terminal pins in one row are spaced from the terminal pins in the other row a first distance, said IC holder having an upper frame portion having two spaced and opposed side walls joined to two spaced and opposed end walls, said side walls having upper edges and inner surfaces extending from said upper edges, tapered guide grooves on said inner surfaces extending from said upper edges, retaining grooves opening up onto said inner surfaces, said retaining grooves being aligned with and forming continuation of said guide grooves, said guide grooves being tapered to converge inwardly of the IC holder as said retaining grooves are approached, said guide grooves guiding said terminal pins of said IC element into said retaining grooves, said retaining grooves in the inner surface of one side wall being spaced from the retaining grooves in the inner surface of the other side wall a second distance which is less than said first distance such that said terminal pins are frictionally and resiliently retained in said retaining grooves after having been guided into said retaining grooves by said tapered guide grooves, said IC holder having a lower frame portion integral with said upper frame portion, said lower frame portion being fitted to the periphery of an IC socket to which the IC element is detachably attached, said IC holder having an integral lateral plate disposed to restrict the depth of insertion of said IC element into said IC holder, indicating means on said upper frame portion for indicating the correctly oriented direction of insertion of said IC element into said IC holder, and restricting means on said IC holder for restricting the fitting of said IC holder to said IC socket to a correctly oriented fitting such that said IC holder can only be fitted to said IC socket when said IC holder is correctly oriented relative to said IC socket.

5,067,912

SUBASSEMBLY FOR A MICROWAVE CONNECTOR AND METHOD FOR MAKING IT

Wayne F. Bickford, East Hampstead, N.H., and Kenneth L. Smith, East Machias, Me., assignors to M/A-Com Adams-Russell, Inc., Burlington, Mass.

Filed Nov. 3, 1987, Ser. No. 116,473
Int. Cl.[5] H01R *17/18*
U.S. Cl. 439—578 11 Claims

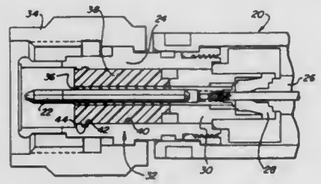
1. A method for making a conductor subassembly comprising the steps of:

forming a preassembly of a metal conductor placed adjacent a first layer of a first fluoroplastic material and with the first layer placed adjacent a second layer formed of a second fluoroplastic material; said first fluoroplastic material being more readily bondable to said conductor than

VOL 1132 ISS 4 NO 26 1991 UMI

the second fluoroplastic material and being bondable to said second fluoroplastic material; and

applying heat and pressure to the preassembled conductor,



and the first and second layer in a sufficient amount and for a sufficient time to bond the conductor to the first layer and the first layer to the second layer to form an integral subassembly.

5,067,913

ELECTRICAL CONNECTOR

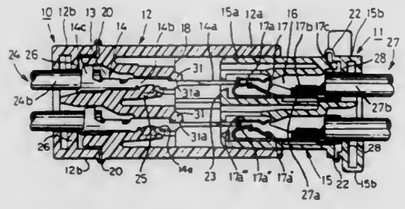
Tetsuya Sagawa, Yamato, Japan, assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 18, 1990, Ser. No. 525,524

Claims priority, application Japan, Sep. 20, 1988, 63-235347

Int. Cl.[5] H01R *13/40*

U.S. Cl. 439—595 3 Claims



1. An electrical connector, comprising:

a dielectric housing having a first section including contact-receiving passageways and a second section defining a mating section for matable engagement with a complementary electrical connector having receptacle contacts secured therein, said second section extending forwardly from a front surface at which front ends of the contact-receiving passageways are located;

tab contacts disposed in said contact-receiving passageways;

securing means provided by said housing and said tab contacts whereby said tab contacts are secured in said contact-receiving passageways;

tab sections of said tab contacts extending beyond said front surface and along said mating section; and

restraining sections on said front surface adjacent the front ends of the contact-receiving passageways and extending in a radial direction of said contact-receiving passageways for engaging along top surfaces of said tab sections adjacent the base portions thereof thereby aligning the tab sections for matable engagement with the receptacle contacts when said mating section matably engages the complementary electrical connector.

5,067,914

MULTI-POLE CONNECTOR HAVING A CENTERING STRIP WITH A SHIELD

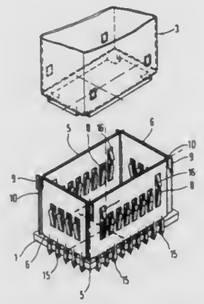
Peter Seidel, Groebenzell, and Karl Zell, Niederpoecking, both of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 521,457, May 10, 1990, abandoned. This application Apr. 12, 1991, Ser. No. 684,479

Claims priority, application Fed. Rep. of Germany, Jun. 29, 1989, 3921430

Int. Cl.[5] H01R *13/648*

U.S. Cl. 439—609 2 Claims



1. A multi-pole plug apparatus for plugging to a circuitboard which includes a plurality of spaced contact blades extending therefrom and a plurality of spaced aligned openings therethrough, comprising:

a rectangular plug section including a housing comprising a plurality of exterior housing walls, a rectangular centering plate connected to said housing walls and terminating said plug section, said centering plate including a plurality of openings therein each including a tapered entrance and defining a respective contact passage, a plurality of spacers carried by said centering plate and each aligned with a respective opening and including wall sections defining a spacer passage at an end wall terminating the spacer passage at an end opposite the respective opening, said passages receiving respective ones of said contact blades upon plugging, said contact blades contacting said end walls to limit plugging of said plug section and spacing said plug section a predetermined distance from the circuitboard;

a shield directly connected to, carried by and extending from the circuitboard, said shield including first and second longitudinal metallic spring strips and first and second transverse metallic spring strips each connected to said first and second longitudinal metallic spring strips to define a rectangular cavity for receiving and holding aid plug section.

said longitudinal metallic spring strips each comprising recesses adjacent their ends,

said transverse metallic spring strips each comprising hook structures including complimental recesses and hooks at their ends, said recesses of said longitudinal and transverse metallic spring strips mating and said hooks of said transverse metallic spring strips overlapping said longitudinal metallic spring strips to connect said metallic spring strips together, and

each of said metallic spring strips comprising two layers of sheet metal including a plurality of spring tongues punched out and extending at an angle therefrom to engage the respective exterior walls of said housing of said rectangular plug section, and each of said metallic spring strips comprising a plurality of projections each in the form of a cone, and each of said projections force fit into a respective one of said aligned openings.

5,067,915

PLUG-IN COMPONENT

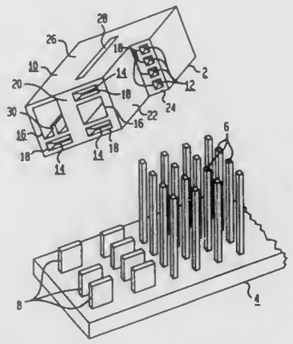
Fritz Kienast, Erlangen, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 783,499, Oct. 3, 1985, abandoned. This application Aug. 28, 1987, Ser. No. 91,356

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1984, 3438824

Int. Cl.[5] H01R *13/66*

U.S. Cl. 439—620 3 Claims



1. A diode plug-in component for a contact strip, said contact strip having a planar surface defined with two adjacent end portions, one end portion being fitted with at least one flat plug having a flat shape with a lateral width and a height projecting in a vertical direction from said planar surface primarily for forming a stable mechanical connection, and the adjacent other end portion having a plurality of plug contacts arranged in a matrix thereon, said plug contacts having a different shape from said at least one flat plug and projecting in the vertical direction primarily for forming respective electrical connections, said diode plug-in component comprising:

a housing of said diode plug-in component having side walls forming an insulated enclosure and a contact surface adapted for being placed in contact with the contact strip, contact elements in said housing for forming desired connections with the plug contacts of said contact strip, at least one locking flat plug receptacle arranged at one end portion of said contact surface adapted for receiving and locking said at least one flat plug of said contact strip therein, and a plurality of slotted holes arranged at another end portion of said contact surface having openings facing the contact strip adapted for receiving respective ones of said plugs contacts of said contact strip therein; and

a plurality of diodes arranged in said housing and being connected in an electrically conductive fashion with the contact elements to be connected with the plug contacts, and wherein the arrangement of the at least one flat plug receptacle and the slotted holes of said diode plug-in component corresponds with the arrangement of the at least one flat plug and the plug contacts of said contact strip,

whereby the connection of the at least one flat plug in the locking flat plug receptacle is used primarily to form a stable mechanical connection for said diode plug-in component in conjunction with the connection of the plug contacts in the slotted holes used to form electrical connections, and the diodes are arranged to be self-contained with the contact elements in the housing.

5,067,916

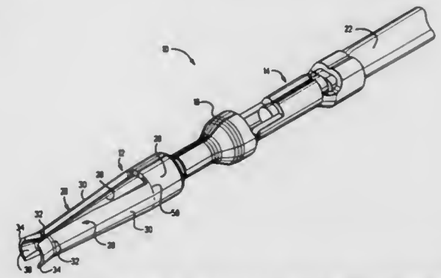
METHOD FOR MAKING AN ELECTRICAL CONTACT

Keith R. Denlinger, Lancaster; Richard W. Gryzbowski, Lebanon, and John M. Myer, Millersville, all of Pa., assignors to AMP Incorporated, Harrisburg, Pa.

Filed Oct. 12, 1990, Ser. No. 596,274

Int. Cl.[5] H01R *13/00*

U.S. Cl. 439—857 2 Claims



1. A method of making an electrical socket contact for either gold plating or tin plating without changing the length of the socket contact, said method comprising the steps of:

blanking out of contact outline comprising a wire barrel at one end and a pair of parallel beams at another end and varying the width of said beams to produce either a high spring rate for tin plating or a low spring rate for gold plating without a change in the length of said beams; and

rolling said contact outline into a cylindrical form with said beams defining a socket for receiving a pin.

5,067,917

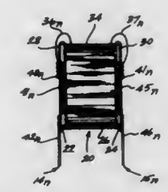
COMPONENT MOUNTING FRAME

Jerry L. Howard, Marysville, Wash., assignor to Eldec Corporation, Lynnwood, Wash.

Filed Sep. 6, 1989, Ser. No. 404,330

Int. Cl.[5] H01R *13/02*

U.S. Cl. 439—890 27 Claims



1. A frame for holding an electrical component that is to be mounted on a printed circuit board, said frame comprising:

(a) a flat member having at least two hole pairs and folded to form a pocket for holding an electrical component therein, said flat member being further folded to form a first flap adjacent said pocket and having one of said hole pairs located therein and a second flap adjacent said pocket and having another one of said hole pairs located therein; and,

(b) a first frame lead and a second frame lead attached to said flat member, said first frame lead being inserted through said hole pair in said first flap so as to securely attach said first frame lead to said first flap and said second frame lead being inserted through said hole pair in said second flap so as to securely attach said second frame lead to said second flap, said first and second frame leads having first ends that may be connected to lead wires from the electrical component in said pocket and second ends that may be

VOL 1132 ISS 4 NO 26 1991 UMI

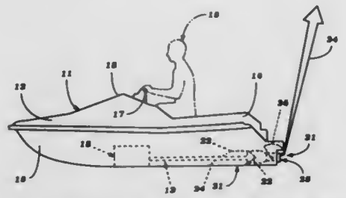
connected to a printed circuit board, such that said first and second frame leads support said frame and the electrical component held in said pocket of said frame.

5,067,918

REVERSE THRUSTER FOR WATER JET PROPULSION

Noboru Kobayashi, Iwata, Japan, assignor to Yamaha Hatsudoki Kabushiki Kaisha, Iwata, Japan

Filed Dec. 18, 1989, Ser. No. 452,699
Claims priority, application Japan, Dec. 19, 1988, 63-321594
Int. Cl.[5] B63H *11/10*
U.S. Cl. 440—39 9 Claims



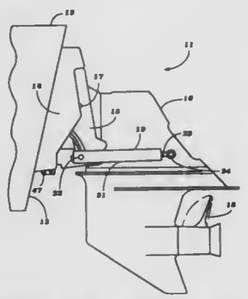
1. A jet propulsion unit for a small watercraft having a discharge nozzle, a flow deflecting device positioned in said discharge nozzle and extending beyond the periphery of said discharge nozzle for deflecting a portion of the water flowing through said discharge nozzle in a generally upward spray to form a rooster tail effect, and a reverse bracket supported for movement from a retracted forward position to an obstructed reverse position wherein said jet propulsion unit effects a reverse thrust, said reverse thrust bucket being formed with a cut away portion to clear said flow directing device when said reverse thrust bucket is in at least one of its positions to permit the generation of said spray when in said one position.

5,067,919

TILTING/TRIMMING SYSTEM FOR MARINE PROPULSION UNIT

Ryozo Okita, Hamamatsu, Japan, assignor to Sanshin Industries Co., Ltd., Hamamatsu, Japan

Filed Oct. 12, 1989, Ser. No. 420,588
Claims priority, application Japan, Oct. 12, 1988, 63-256745
Int. Cl.[5] B63H *21/26*
U.S. Cl. 440—61 11 Claims



1. In a hydraulic tilt and trim system for an outboard drive unit mounted on the transom of a marine vessel for tilting movement of the drive unit and movement between a plurality of trim positions, comprising at least one fluid motor connected to said drive unit and said transom, said fluid motor having a cylinder housing and a moveable member defining a pair of fluid chambers, a pump for delivering hydraulic fluid to said fluid motor, and an electric motor for driving said pump, the improvement comprising means for controlling the voltage applied to said motor for selectively effecting quick tilting up movement of the drive unit and slow trimming movement of the drive unit between a plurality of trim positions.

5,067,920

DIVE FLAG LINE DISPENSER APPARATUS

Michael J. Brisky, 9707 S. Gessner, Apt. #701, Houston, Tex. 77071

Filed Mar. 12, 1991, Ser. No. 668,232
Int. Cl.[5] B63B *21/52*
U.S. Cl. 441—25 6 Claims



1. A dive flag line dispenser apparatus comprising, in combination,
- a flotation buoy arranged for flotation upon a top surface of a body of water, wherein the flotation buoy is formed of a buoyant material, and
- a flexible tether line, the flexible tether line including a forward terminal end mounted to the flotation buoy, and the flexible tether line including a rear terminal end, the rear terminal end rotatably secured within a dispenser unit, and the dispenser unit including a rigid, elongate handle, the handle fixedly mounting a caged head at an upper terminal of the handle, with the caged head coaxially aligned with the handle, and
- the caged head including a spool rotatably mounted within the caged head, wherein the spool is coaxially aligned relative to the handle, and
- motor means mounted within the handle to effect selective rotation and counter-rotation of the spool.

5,067,921

INFLATABLE IMMERSION SUIT

Eric Bramham, Morpeth, United Kingdom, assignor to Shell Internationale Research Maatschappij B.V., The Hague, Netherlands

Filed Sep. 27, 1989, Ser. No. 413,525
Claims priority, application United Kingdom, Sep. 30, 1988, 8822943
Int. Cl.[5] B63C *9/08*
U.S. Cl. 441—102 6 Claims



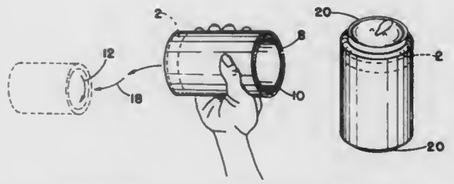
1. An inflatable immersion suit comprising:
an inner and an outer layer of an impermeable material, the inner layer being made of an inherently more elastic material than the outer layer,
- a spacing between said inner and outer layers, said spacing forming a sealed compartment that can be inflated in an emergency situation,
- an intermediate layer which interconnects the inner and outer layers so that the three layers are fastened together in such a pattern that the intermediate layer divides the spacing into a plurality of separated compartments and that the inner and outer layers are substantially parallel to each other and are not in direct contact with each other, wherein the intermediate layer divides the spacing into two separated compartments which are individually inflatable with a gas, and wherein the intermediate layer is connected to the inner and outer layers by matrices of welding points which are spread in alternating patterns over the surface of the suit such that a welding point between the intermediate layer and one of said inner and outer layers is located in the centre of a square formed by four adjacent welding points between the intermediate layer and the other of said inner and outer layers.

5,067,922

COMBINATION DRINK COOLER AND THROWING TOY

Michael E. McMahon, 1175 Glen Cyn. Rd., Scotts Valley, Calif. 95066

Filed Apr. 19, 1990, Ser. No. 510,967
Int. Cl.[5] A63H *27/00;* B65D *23/08*
U.S. Cl. 446—71 7 Claims



1. A combination drink cooler and throwing toy for use as a device for insulating a container of liquid, as well as, a device for use as a throwing toy, comprising:
- an open-ended inner cylinder means of an insulating material for insulating a container of liquid from it's surrounding environment, and
- an open-ended outer cylinder means for stability in flight, wherein
- said inner cylinder being joined about it's outer surface to inside of said outer cylinder, and
- a weighted ring means for providing forward mass necessary for aerodynamic flight encircling the forward end of the device sandwiched between said inner cylinder and said outer cylinder.

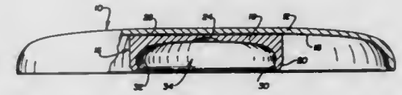
5,067,923

TRAINING SYSTEM FOR SPINNING OBJECTS BY HAND

Lou de Bourbon, 428 Anacapa St., Santa Barbara, Calif. 93101

Filed Mar. 26, 1990, Ser. No. 499,002
Int. Cl.[5] A63H *1/00, 27/00;* G09B *19/00;* A63B *65/10*
U.S. Cl. 446—236 15 Claims

1. A training system for balancing and spinning an essentially planar object, wherein said system comprises a plurality of interchangeable finger disk members, each removably attachable to said essentially planar object so as to receive a user's finger therein, said system comprising:
each of said plurality of interchangeable finger disk members having a cavity formed therein to receive a finger; wherein
each cavity of said plurality of interchangeable disk members is formed having a different cross-sectional configuration that requires a related skill level in order to use; and wherein
said finger disk members are formed having a mating base surface a wall surface and a rim, wherein said cross-sectional configuration is defined by said wall surface and said rim, whereby a user selectively changes one finger disk member for another so as to choose one member related to his skill level for balancing and spinning an object to which one of said finger disk members is removably attached; and
adhesive means for removably securing one of said finger disk members mating surface to at least one side of a chosen essentially planar object.



5,067,924

DOLL FOR SUMULATING WEIGHT LOSS/GAIN

Beverly L. Munter, 51 Fountain La., Jericho, N.Y. 11753

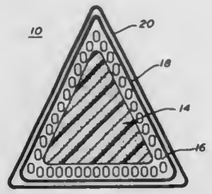
Filed Oct. 10, 1990, Ser. No. 595,179
Int. Cl.[5] A63H *3/36, 3/12, 13/02*
U.S. Cl. 446—320 6 Claims



1. A method for encouraging weight loss in an individual comprising the steps of:
- providing a doll's body of the same gender as said individual;
- providing said doll with a plurality of layers of simulated skin, each representing a predetermined weight increment, said simulated skins being fittable one over the other for simulating weight gain and loss as said simulated skins are added and removed, respectively;
- increasing said doll's torso size as said individual gains an increment of weight by adding a predetermined number of said simulated skins onto said torso one over the other, said added skins corresponding to said weight gain; and
- decreasing said doll's torso size as said individual loses an increment of weight by removing a predetermined number of said simulated skins from said torso, said removed simulated skins corresponding to said weight loss.

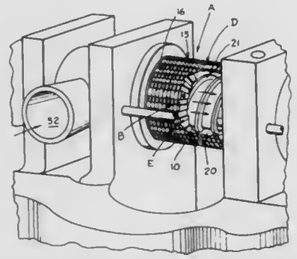
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,925
INFANTS'S TOY
Atwell G. West, 5521 Jester Dr., Garland, Tex. 75044
Filed Nov. 2, 1990, Ser. No. 608,480
Int. Cl.[5] A63H *33/28*
U.S. Cl. 446—397 12 Claims



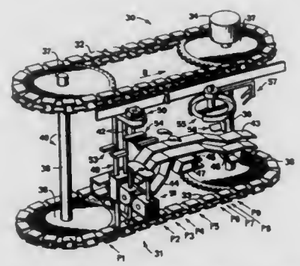
1. An amusement device for an infant comprising:
a soft inner layer that is squeezable and retains its shape after being released;
a pliable layer including sound-generating means covering a major portion of said soft inner layer for causing a noise to attract an infant when handled by the infant; and
a cloth outer layer entirely covering said soft inner layer and said pliable layer including said sound-generating means to form a unitary infant's toy.

5,067,926
CYLINDRICAL SIEVE FOR MEAT DEBONING APPARATUS AND METHOD
James B. Richburg, 101 Pumpkin La., Sumter, S.C. 29150
Filed Apr. 5, 1990, Ser. No. 504,856
Int. Cl.[5] A22C *5/00*
U.S. Cl. 452—135 27 Claims



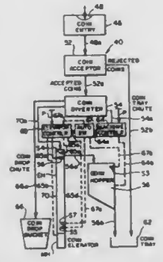
1. A unitary meat deboning sieve which provides a high meat output with low bone content comprising:
a plurality of stacked sieve rings having an inside diameter and an outside diameter;
each said sieve ring consisting of a plurality of radially aligned grooves defined by a plurality of lands circumferentially spaced around said sieve rings;
said grooves being defined by lands having generally divergent side edges extending parallel to a radial of said sieve rings, and said generally divergent side edges of said sieve rings defined radially aligned grooves having opposing sidewalls which are generally parallel to each other;
alignment means for stacking said sieve rings together in a juxtaposed manner to form a sieve assembly with an entrance end and an exit end;
a pressure chamber defined within an interior of said sieve assembly;
a plurality of radially aligned slots defined by said radial aligned grooves between said stacked sieve rings, said radial slots being generally unobstructed and extending through said sieve from said pressure chamber to an exterior of said sieve; and
means for clamping said stacked rings together in a unitized sealed construction.

5,067,927
REVOLVING POULTRY THIGH DEBONER
Jacobus E. Hazenbroek, Burg de Zeeuwstraat 52, Numansdorp, and Bastiaan Verrijp, Burg de Zeeuwstraat 143, Numansdorp, both of Netherlands
Continuation of Ser. No. 331,968 Apr. 3, 1989, now abandoned.
Filed Jan. 11, 1990, Ser. No. 536,081
Int. Cl.[5] A22C *25/16*
U.S. Cl. 452—136 14 Claims



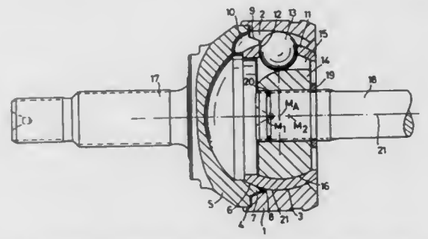
1. A method of deboning poultry thighs or the like comprising the steps of grasping a thigh bone at a first knuckle with a bone holder; cutting the skin, meat or tissue near the one end of the bone adjacent the first knuckle after grasping the thigh bone; moving the skin meat or tissue away from the first knuckle after cutting the skin, meat or tissue; engaging the thigh bone adjacent the first knuckle with meat stripper means; moving the thigh bone and the meat stripper means with respect to each other along the length of the thigh bone until the meat stripper means passes over the other knuckle of the thigh bone; cutting the meat adjacent the other knuckle to separate the meat from the bone; wherein the bone holder and the thigh are moved along a processing path through a series of processing stations, and the thigh bone is rotated about its length with respect to the meat and the meat stripper means as the thigh bone and the meat stripper means move with respect to each other along the length of the thigh bone.

5,067,928
COIN AND/OR TOKEN OPERATED AND HANDLING APPARATUS
Gary L. Harris, 323 Cuzco Ct., Henderson, Nev. 89014
Filed Nov. 2, 1990, Ser. No. 608,527
Int. Cl.[5] G07D *1/00*
U.S. Cl. 453—17 8 Claims



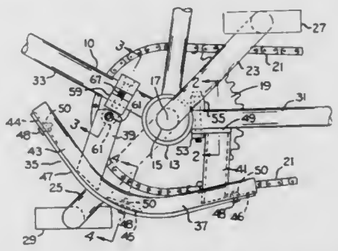
5. In a coin operated and handling apparatus having a coin acceptor device, a coin diverter mechanism, a hopper payout assembly including a coin hopper having a coin level sensor, a coin storage chamber, a coin return and delivery tray, a first coin chute for transferring rejected coins from the coin acceptor device to the coin return and delivery tray, a second coin chute for transferring accepted coins from the coin acceptor device to the coin diverter mechanism, first coin directing means in coin flow communication with the coin diverter mechanism for directing accepted coins from the coin diverter mechanism to the hopper payout assembly, second coin directing means in coin flow communication with the coin diverter mechanism for directing accepted coins from the coin diverter mechanism to the coin storage chamber, and machine controller means in electrical communication with the coin level sensor within the coin hopper and with the coin diverter mechanism and responsive to the coin level sensor for directing the coin diverter mechanism to pass accepted coins to the first coin directing means and the payout hopper assembly or to pass accepted coins to the second coin directing means and the coin storage chamber, the machine controller means being in electrical communication with the hopper payout assembly for directing the payout of coins from the coin hopper to the coin return and delivery tray, the improvement comprising:
a) a supplemental coin storage, transport and dispensing mechanism interposed within the first coin directing means and comprising a coin supply elevator including an elevator housing, an upwardly and downwardly moveable coin platform within said housing, a coin input chute for delivering accepted coins to said elevator housing for deposit as a column of coins on said coin platform, a coin discharge port in said elevator housing for delivering accepted coins to said payout hopper assembly, and coin level and platform level sensors for detecting when said elevator is filled with coins and when the elevator platform is at its highest and lowest permissible levels of travel within said housing, said coin input chute being in coin flow communication with the coin diverter mechanism; and
b) an elevator controller mechanism in electrical communication with the machine controller mechanism, said elevator controller mechanism being in electrical communication with and responsive to the coin level and platform level sensors within the elevator housing for directing the coin diverter mechanism to pass accepted coins to the coin input chute and coin supply elevator.

5,067,929
CONSTANT VELOCITY RATIO UNIVERSAL JOINT
Werner Krude, Neunkirchen-Wolperath, Fed. Rep. of Germany, assignor to GKN Automotive AG, Siegburg, Fed. Rep. of Germany
Filed Aug. 2, 1990, Ser. No. 561,972
Claims priority, application Fed. Rep. of Germany, Aug. 4, 1989, 3925857
Int. Cl.[5] F16D *3/30*
U.S. Cl. 464—145 3 Claims



1. A constant velocity ratio universal joint, comprising:
an outer joint member having a rotational axis;
a plurality of ball-receiving tracks in the interior of the outer joint member, spaced circumferentially from one another about said rotational axis and having center lines which lie in meridian planes;
an inner joint member having a rotational axis;
a plurality of ball-receiving tracks provided on the inner joint member, with center lines which lie in meridian planes about said rotational axis of the inner joint member and facing the tracks of the outer joint member in pairs;
a plurality of balls disposed one in each facing pair of tracks in the joint members;
the tracks in the joint members being undercut-free considered from one end of the outer joint member;
a joint base member attached to the outer joint member at said one end;
a control element holding the balls with their centers a common plane, and having an external guide surface; and
a part-spherical guide surface engaged by said external guide surface of the control element, said part-spherical guide surface comprising a first portion in said outer joint member between the tracks thereof and a second portion in said joint base member, said first portion being undercut-free considered from said one end of the outer joint member, and said second portion being undercut-free in the opposite axial direction, the outer joint member, at said one end thereof where it is attached to the joint base member, having a surface expanding frusto-conically from the largest diameter of its first part-spherical guide surface portion and the joint base member having a projection with an external surface of frusto-conical configuration and having its undercut-free second portion of the part-spherical guide surface formed with said projection.

5,067,930
BICYCLE SPROCKET PROTECTOR
Robert Morales, 15561 Product La. D-8, Huntington Beach, Calif. 92649
Filed Dec. 20, 1990, Ser. No. 631,333
Int. Cl.[5] F16H *7/18*
U.S. Cl. 474—144 12 Claims



1. A protector for the sprocket of a bicycle, wherein the bicycle comprises a frame that includes a hub sleeve having an axis transverse to the plane of the frame, an axle extending through said sleeve on said axis, a horizontal axis sprocket carried on said axle outboard from said sleeve, a rear fork extending generally horizontally from said hub sleeve in a rearward direction, and a front frame element extending forwardly and upwardly from said sleeve directly away from the rear fork:
said protector comprising a curved protector body positionable directly below said hub sleeve said curved body having a concave face presented upwardly toward the hub sleeve and a convex face presented downwardly toward the ground surface; said curved body having a leading portion located below the front frame element of the bicycle and a trailing portion located below the rear fork of the bicycle; a first strut extending upwardly from the leading portion of the curved body; a first clamp having a swivel connection with said first strut, said first clamp having means thereon for tightening the clamp around the front frame element; a second strut extending upwardly from the trailing portion of the curved body;

VOL 1132 ISS 4 NO 26 1991 UMI

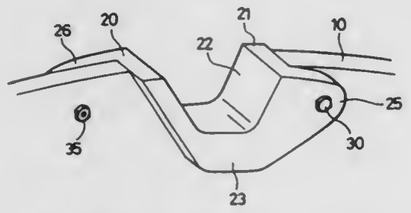
and a second clamp carried on said second strut for clamping engagement with the rear fork of the bicycle; said clamps being individually disengageable from the bicycle frame to enable the protector to be removed from the bicycle or installed on the bicycle without altering the bicycle structure.

5,067,931

SPROCKET WHEEL HAVING REPLACEABLE TEETH

Hiromitsu Nagamatsu, and Seitaro Ueda, both of Kumagaya, Japan, assignors to Hitachi Metals, Ltd., Tokyo, Japan

Filed Sep. 26, 1990, Ser. No. 588,626
Claims priority, application Japan, Nov. 30, 1989, 1-312460
Int. Cl.[5] F16H *9/00*
U.S. Cl. 474—162 6 Claims



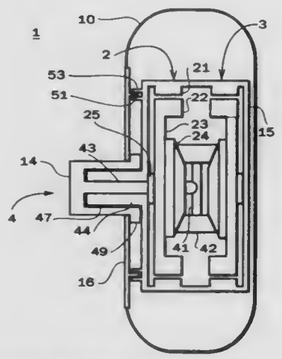
1. A sprocket wheel comprising:
a wheel body having an outer periphery and a plurality of notches formed in the outer periphery of the wheel body, the notches being regularly spaced from each other;
a plurality of replaceable teeth, each tooth consisting of a central portion having an upper surface which forms a tooth groove, said central portion being fitted into said notch of the wheel body, and right and left flanges which are formed respectively ahead of and behind the central portion, or vice versa; and
fixing means by which each flange of each tooth is detachably fixed to each side of each notch of the wheel body.

5,067,932

DUAL-INPUT INFINITE-SPEED INTEGRAL MOTOR AND TRANSMISSION DEVICE

Jonathan R. Edwards, 39 E. Patuxent Beach Rd., California, Md. 20619

Filed Nov. 28, 1990, Ser. No. 618,934
Int. Cl.[5] F16H *3/72*
U.S. Cl. 475—5 24 Claims



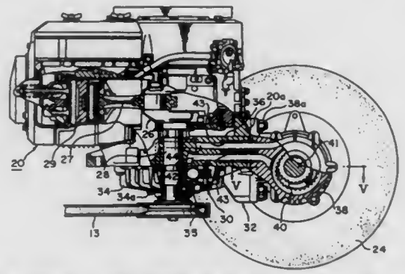
1. A combination motor and transmission device comprising first power input means for receiving a first input of electrical power,
second power input means for receiving a second input of electrical power, and
power conversion means for converting said electrical power of said first and second inputs for output, said power conversion means including a mechanical power transmission unit, said power transmission unit having two inputs for respectively receiving mechanical power corresponding to said first and second power inputs provided to said first and second power input means and an output for outputting the converted power as rotational mechanical power,
wherein the rotational speed of said output is continuously variable, and said power conversion means includes, for each of said first and second power inputs, a respective integral combination of a respective electric motor element and an element of said mechanical transmission unit, each said integral combination involving said two respective elements thereof being directly associated mechanically and geometrically with each other without substantial spacing or other elements including bearings and shafts therebetween.

5,067,933

UNITIZED POWER SYSTEM AND VEHICLES EMPLOYING SAME

Lee R. Hardesty, Horicon, Wis., and Izumi Takagi, Akashi, Japan, assignors to Kawasaki Jukogyo Kabushiki Kaisha, Japan and Deere & Company, Moline, Ill.

Continuation of Ser. No. 161,026, Feb. 26, 1988, abandoned, which is a continuation-in-part of Ser. No. 89,146, Aug. 25, 1987, abandoned. This application Nov. 2, 1990, Ser. No. 608,027
Claims priority, application Japan, Aug. 28, 1986, 61-202535
Int. Cl.[5] F16H *47/04*
U.S. Cl. 475—32 46 Claims



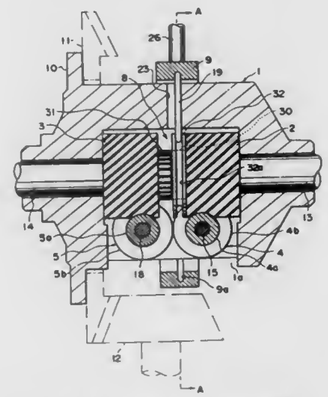
1. A unitized power system for a small vehicle comprising:
(a) an engine having a crankshaft;
(b) a drive train operatively connected to said engine, said drive train including
a variable speed transmission including a variable hydraulic pump operatively connected to output means associated with the crankshaft of the engine and to an hydraulic motor, and
a driving axle arrangement; and
(c) a housing enclosing said drive train and at least a portion of said engine, said housing comprising a lower casing portion fixedly connected to a crankcase of the engine, a pump cover portion for encasing said variable hydraulic pump, and an axle housing portion for encasing said driving axle arrangement, said portions being fixedly connected to each other to form a unitary body.

5,067,934

DIFFERENTIAL GEAR MECHANISM

Kazubiko Sato, Konan, Japan, assignor to Diesel Kili Co., Ltd., Tokyo, Japan

Filed Mar. 23, 1990, Ser. No. 497,713
Claims priority, application Japan, Mar. 27, 1989, 1-34418[U]
Int. Cl.[5] F16H *1/445, 1/36*
U.S. Cl. 475—227 6 Claims



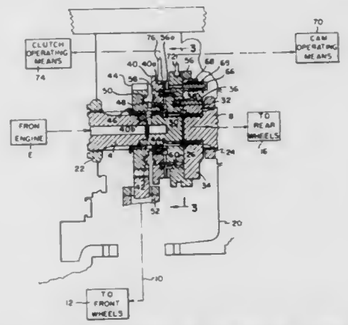
1. A differential gear mechanism comprising:
a differential case rotatably driven from outside thereof;
a pair of worm gears provided in said differential case, each of the worm gears being connected to different axle shafts, said worm gears being arranged coaxially and being rotatable independently;
a plurality of element gears, each of said element gears comprising a worm wheel and at least oen spur gear, the at least one spur gear being non-rotatably mounted on each respective end of the worm wheel, said element gears being arranged in at least one pair such that the worm wheel of one element gear of the at least one pair meshes with one worm gear, while the worm wheel of the other element gear of said at least one pair meshes with the other worm gear, the at least one spur gear of one element gear of the at least one pair meshes with the at least one spur gear of the other element gear of the at least one pair, each of the said at least one pair of element gears being arranged tangentially to the periphery of its respective worm gear and being rotatably mounted on the differential case; and
clutch means provided between said worm gears for connecting and disconnecting said worm gears with one another, the clutch means comprises:
first and second gear wheels provided between said worm gears coaxially therewith, said first gear wheel being provided at one of said worm gears and being rotatable therewith, said second gear wheel being provided at the other of said worm gears and being rotatable therewith, and
a movable clutch ring provided between said worm gears, said clutch ring being movable in an axial direction of the worm gears and being engaged with at least one of the gear wheels, said clutch ring being movable between a connected state and a disconnected state, the clutch ring in the connected state operatively connects both the first and second gear wheels and the clutch ring in the disconnected state engages only one of the first and second gear wheels whereby the gear wheels are selectively connected and disconnected with one another.

5,067,935

INTERAXLE DIFFERENTIAL

Anthony K. Brown, Exeter, England; Alvin A. Choma, Grosse Pointe Farms, and Timothy R. Edwards, Warren, both of Mich., assignors to Dyneer Corporation, Scottsdale, Ariz.

Filed May 17, 1990, Ser. No. 524,739
Int. Cl.[5] F16H *37/08*
U.S. Cl. 475—248 10 Claims



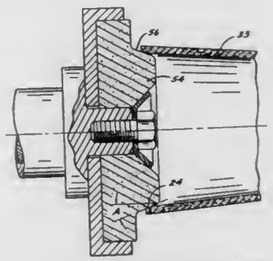
1. An interaxle differential for selectively connecting an input shaft with a pair of output shafts one of which is longitudinally aligned with said input shaft, comprising:
(a) means connecting said input shaft with said one output shaft;
(b) clutch means normally connecting the other of said output shafts with said input shaft;
(c) velocity responsive means operable from a deactivated condition to an activated condition for disengaging said clutch means when the rotational velocity of said other output shaft exceeds that of the input shaft by a given value;
(d) fail safe means normally biasing said velocity responsive means toward its deactivated condition; and
(e) means for operating said velocity responsive means from the deactivated condition to the activated condition.

5,067,936

METHOD FOR MANUFACTURING A YARN CARRIER

Carroll E. Gandy, and Roland S. Watford, Jr., both of Darlington, S.C., assignors to Sonoco Products Company, Hartsville, S.C.

Division of Ser. No. 498,987, Mar. 26, 1990, Pat. No. 5,014,928.
This application Feb. 20, 1991, Ser. No. 658,191
Int. Cl.[5] B31C *7/02, 11/02*
U.S. Cl. 493—287 2 Claims



1. A method of manufacturing a yarn carrier of the type which is adapted to be mounted on a winding machine and have a yarn wound thereon to form a yarn package, and comprising the steps of
winding a fibrous sheet of paper so as to form a tubular

VOL 1132 ISS 4 NO 26 1991 UMI

member which defines a central axis, and parallel inner and outer wall surfaces,

severing the tubular member adjacent at least one end thereof and including moving a knife blade radially inwardly with respect to the resulting tubular member, and so as to produce a cut end surface which lies in a plane which is substantially perpendicular to said central axis and a relatively sharp annular burr at the intersection of said cut end surface and said inner wall surface,

providing an abrasive grinding wheel having an annular grinding surface,

aligning said one cut end of said tubular member with said annular grinding surface of said grinding wheel and such that said annular burr is in contact with said annular grinding surface, and

relatively rotating said grinding wheel and said tubular member about said central axis while grinding and removing the annular burr to form a beveled end of relatively soft loosened fibers of noncompressed paper, and with the beveled end being at a predetermined angle relative to the central axis of the tubular body so that substantially all of the loosened fibers lie in a plane radially outside a projection of the inner wall surface.

5,067,937

SYSTEM FOR ERECTING CARTONS

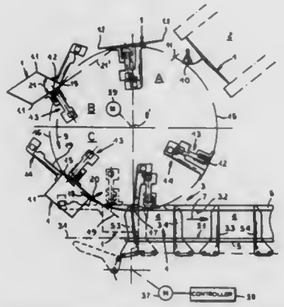
Hans Aschaber; Rudolf Bailer, both of Lauphelm; Fritz Fochler, Senden; Bernd Kleinstäuber, Burgrieden, and Reinhold Ruf, Lauphelm, all of Fed. Rep. of Germany, assignors to Uhlmann Pac-Systeme GmbH & Co. KG, Lauphelm, Fed. Rep. of Germany

Filed Sep. 14, 1990, Ser. No. 583,374

Claims priority, application Fed. Rep. of Germany, Sep. 14, 1989, 3930720

Int. Cl.[5] B31B *5/78, 5/80*

U.S. Cl. 493—310 **12 Claims**



1. A method of operating a system for erecting boxes, the system comprising:

a supply of flattened boxes having panels separated at respective fold lines;

a support wheel generally continuously rotating about an axis adjacent the supply;

a grab on the support wheel;

an unfolder on the wheel adjacent the grab, the grab and the unfolder being pivotal on the wheel about a grab axis parallel to the wheel axis and defining thereabout an orbit; and

a conveyor adjacent the wheel having upper and lower elements defining parallel and vertically spaced upper and lower conveyor planes, and front and rear elements displaceable parallel to the planes therebetween and defining respective conveyor cells, the upper plane being generally tangent to the orbit of the grab axis, the method comprising the steps of sequentially:

a) engaging a box with the grab and with the unfolder;

b) pivoting the grab and unfolder about the grab axis until the box is erected and an upper panel of the erected box engaged by the grab extends parallel to the upper conveyor plane but is spaced above the upper conveyor plane;

c) synchronously pivoting the grab and unfolder about the grab axis after erecting the box and while rotating the wheel to maintain the upper panel of the box parallel to the upper conveyor plane until the upper panel lies generally on the upper conveyor plane; and

d) releasing the box from the grab into a respective cell of the conveyor.

5,067,938

CENTRIFUGAL SEPARATOR

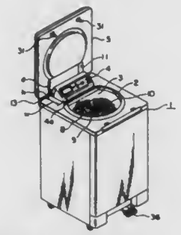
Tadahiro Uchida, Sayama; Kuniyuki Shimamura, Niiza; Hayabu Nogawa, Tokyo; Keikichi Saito, Kawagoe, and Minoru Hara, Sakado, all of Japan, assignors to Kabushiki Kaisha Kubota Seisakusho, Tokyo, Japan

Filed Mar. 18, 1988, Ser. No. 170,962

Claims priority, application Japan, Mar. 20, 1987, 62-41330[U]; Mar. 23, 1987, 62-43357[U]; Mar. 25, 1987, 62-44831[U]

Int. Cl.[5] B04B *7/06*

U.S. Cl. 494—12 **12 Claims**



7. A centrifugal separator comprising:

a case which has a top panel that includes an opening to a rotor chamber within said case;

a lid pivotally mounted on said case for closing said opening;

a lid lock mechanism disposed in said case for engaging and disengaging lock means with and from a hook on said lid in response to a lateral motion of an operating plate in said case;

a pedal disposed adjacent the bottom of said case;

a transmission mechanism coupled to said pedal for transmitting a vertical motion of said pedal to said operating plate;

a motion changing mechanism disposed between said transmission mechanism and said operating plate, for changing the vertical motion of said pedal to the lateral motion of said operating plate; and

biasing means between said case and said lid for biasing said lid toward its open position to open the lid when said lock means are disengaged from said hook;

said lid lock mechanism comprising:

a base plate disposed in said case in opposing relation to a front panel of said case;

a pair of lock plates mounted on said base plate, said lock plates being rotatable about a common shaft in a plane parallel to said front panel of the case, each of said lock plates having said lock means protruding thereof in a direction perpendicular to said plane for engagement with said hook;

a spring coupled between said pair of lock plates for biasing said lock means toward one another to hold said hook between said lock means;

said operating plate being mounted on said base plate for lateral movement relative thereto, and said operating plate being coupled to said pair of lock plates to cause rotational movements of said pair of lock plates about said common shaft in opposite directions relative to one another so that said lock means are disengaged from said hook by a lateral motion of said operating plate in one direction against the biasing force of said spring.

5,067,939

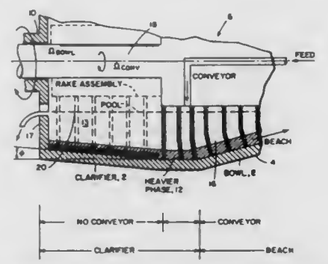
CONVEYORLESS CLARIFIER

Ascher H. Shapiro, Jamaica Plain, Mass., assignor to Bird Machine Company, South Walpole, Mass.

Filed Mar. 21, 1990, Ser. No. 496,906

Int. Cl.[5] B04B *1/20*

U.S. Cl. 494—53 **23 Claims**



1. A rotating bowl decanter centrifuge for continuous operation for separating a lighter phase from a heavier phase, said centrifuge comprising

a clarifier section in which the heavier phase is separated from the lighter phase,

said clarifier section having an effluent discharge end at which said lighter phase is discharged and an outer wall on which said heavier phase is deposited,

a beach section downstream of said clarifier section, said beach section receiving the heavier phase from said clarifier and having an inwardly inclined outer wall as well as a conveyor for conveying the heavier phase toward the heavier phase discharge end of the centrifuge,

said clarifier section having a first portion without the conveyor from said effluent discharge end part way to said beach section, and having a second portion with the conveyor in the remaining portion of the clarifier adjacent to the beach section, and

said outer wall of said clarifier having in the part without the conveyor an outward incline angle, Φ, sufficient to cause the heavier phase to be moved by centrifugal force along said wall to said beach section.

5,067,940

METHOD AND APPARATUS FOR CONTROLLING THE GROWTH OF CARTILAGE

Abraham R. Liboff, Birmingham, Mich.; Bruce R. McLeod, Bozeman, Mont., and Stephen D. Smith, Lexington, Ky., assignors to Life Resonances, Inc., Bozeman, Mont.

Continuation-in-part of Ser. No. 172,268, Mar. 23, 1988. This application Oct. 31, 1988, Ser. No. 265,265

The portion of the term of this patent subsequent to Jun. 12, 2007, has been disclaimed.

Int. Cl.[5] A61N *2/04*

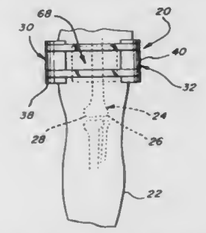
U.S. Cl. 600—13 **6 Claims**

1. A method for regulating the growth characteristics of cartilage, said cartilage being subject to an ambient magnetic field, comprising the steps of:

positioning magnetic field generating means adjacent a living subject such that a region of cartilage of said subject occupies a predetermined space, said region of cartilage being subject to an ambient magnetic field;

generating an applied magnetic flux with said magnetic field generating means, said applied magnetic flux extending through said region of cartilage parallel to a predetermined axis projecting through said predetermined spaced and combining with said ambient magnetic field to form a composite magnetic flux; and

fluctuating said applied magnetic flux and controlling the average value of the magnetic flux density of said combined magnetic flux to create and maintain a predetermined relationship between the frequency of said fluctuations and the magnitude of said magnetic flux density, wherein said average value of said magnetic flux density is a non-zero average value, and wherein said predetermined relationship regulates development of said cartilage, said predetermined relationship being a function of the cyclotron resonance frequency of a predetermined ion present in said cartilage.



5,067,941

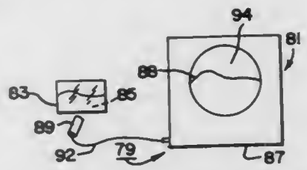
ANTI-MOTION SICKNESS APPARATUS

Katherine A. Hendricks, Chicago, Ill., assignor to Boris Tabakoff and John Newton, both of New Orleans, La., part interest to each

Division of Ser. No. 98,507, Sep. 17, 1981, Pat. No. 4,929,228, which is a continuation of Ser. No. 86, Jan. 2, 1987, abandoned, which is a continuation of Ser. No. 430,172, Sep. 30, 1982, abandoned. This application May 22, 1990, Ser. No. 527,139

Int. Cl.[5] A61M *21/00*

U.S. Cl. 600—27 **5 Claims**



1. An anti-motion sickness apparatus for use in a moving vehicle and comprising

a vehicular motion sensing means adapted to be mounted to said vehicle and providing an electrical signal output indicative of the sensed vehicular motion; and

a vehicular motion simulating display means responsive to said electrical signal output and positioned within the field of vision of a user of said vehicle;

said vehicular motion simulating display means providing a wave motion image visible to the user and corresponding substantially to the vehicular motion sensed by said sensing means.

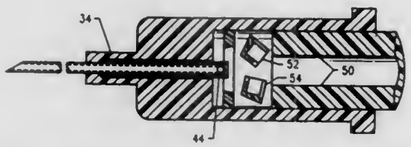
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,942

SINGLE USE HYPODERMIC NEEDLE

Richard A. Jaffe, Palo Alto, and A. Christopher Allison, Pacifica, both of Calif., assignors to The Board of Trustees of the Leland Stanford Junior University, Palo Alto, Calif.

Filed Dec. 20, 1990, Ser. No. 632,088
Int. Cl.[5] A61M 5/00
U.S. Cl. 604—110 8 Claims



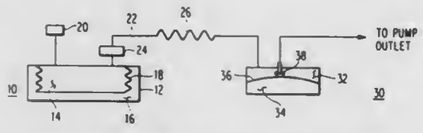
1. In combination, a needle and syringe assembly comprising
a syringe having a cylindrical housing with a first open end, a plunger extending into said housing through said open end, and a second end having a Luer tip including a passage communicating with said housing;
a needle including a needle having a sharpened first end and a second end with at least one port through said needle near said second end, a base through which said needle extends, a hub extending from said base for engaging said syringe, and a sheath retractably covering said at least one port, and
means in said syringe for retracting said sheath when said syringe and needle are assembled, said means being effectively destroyed upon disassembly of said syringe and needle, and said sheath again covering said port upon disassembly of said syringe and needle thereby preventing re-use of said needle.

5,067,943

PRESSURE REGULATOR FOR IMPLANTABLE PUMP

Paul Burke, Woonsocket, R.I., assignor to Infusaid, Inc., Norwood, Mass.

Filed Sep. 26, 1989, Ser. No. 412,376
Int. Cl.[5] A61M 37/00
U.S. Cl. 604—141 12 Claims



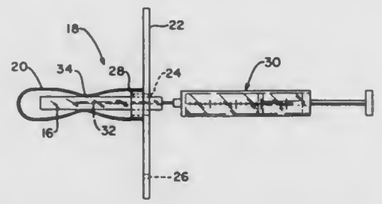
1. An implantable drug delivery system comprising:
a pressure actuated drug dispensing device having a sealed body, said sealed body having a flexible drug reservoir containing a fluid, an outlet from said flexible drug reservoir and a propellant chamber in said sealed body pressurized to a pressure to urge said fluid from said flexible drug reservoir into said outlet, and
a flow regulating device having a regulator chamber and a sensing chamber, said regulator chamber and said sensing chamber separated and maintained in isolation from each other by a flexible diaphragm, said outlet supplying said fluid into said regulator chamber, an outlet catheter coupling said regulator chamber to a drug delivery site, a regulator seal in said regulating chamber of said flow regulating device, said regulator seal positioned relative to said diaphragm to vary the flow of fluid to said outlet catheter and, means not using said fluid to establish a reference pressure in said sensing chamber that is substantially equal to said pressure in said propellant chamber.

5,067,944

HYPODERMIC NEEDLE GUARD

Robert N. Nichols, Lakewood, Ohio, assignor to Jerry Robles, Oracle, Ariz.

Continuation of Ser. No. 215,298, Jul. 5, 1988, abandoned. This application Feb. 16, 1990, Ser. No. 481,782
Int. Cl.[5] A61M 5/32; B65D 83/10
U.S. Cl. 604—192 9 Claims



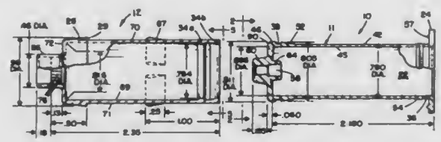
1. A medical protection device comprising a hand shield with a hypodermic needle cap holder tube connected thereto, said hand shield comprising a flat plate with a hole suitable for the insertion of a needle cap substantially in the center thereof, and said needle cap holder tube comprising a transparent flexible, cylindrical tube having a wall thickness of between 0.04 to 0.06 inches and an open end therein connected about said hole at right angles to said plate, and having a closed end therein opposite to said open end, said tube being compressible about its transverse axis through the application of pinching finger pressure by a user.

5,067,945

SAFETY NEEDLED MEDICAL DEVICES CAPABLE OF ONE-HANDED MANIPULATION

Dana W. Ryan, Franklin; James M. Kaiser, and Robert M. Hinsch, both of Brentwood, all of Tenn., assignors to Ryan Medical, Inc., Brentwood, Tenn.

Continuation-in-part of Ser. No. 162,569, Mar. 1, 1988, and a continuation-in-part of Ser. No. 224,920, Jul. 27, 1988, Pat. No. 4,923,445. This application Jan. 27, 1989, Ser. No. 303,588
The portion of the term of this patent subsequent to May 8, 2007, has been disclaimed.
Int. Cl.[5] A61M 5/32
U.S. Cl. 604—198 38 Claims



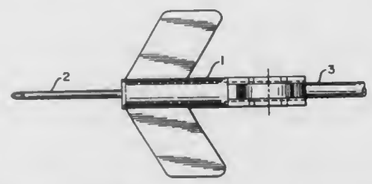
1. A medical device for assembly with a hollow needle, comprising:
a) an inner tube member having a substantially cylindrical inner surface, a front end having means for securing the hollow needle thereto, an open rear end, an outwardly extending first gripping flange substantially at said open rear end, and an outer surface having first and second substantially circumferential grooves, said first groove being forward of said second groove, said outer surface having a shoulder adjacently forward of said first groove with said shoulder being slightly larger in diameter than the outer surface of said inner tube member adjacently rearward of said first groove; and
b) a plastic hollow outer shield member having a substantially cylindrical outer surface having at least one second gripping flange extending outwardly therefrom, and an inner surface with an inner diameter slightly larger than the outer diameter of at least most of said outer surface of said inner tube member, a front end having an opening therein, a substantially open rear end, and at least one inwardly extending protrusion located along the inner surface of said plastic hollow outer shield member, said at least one inwardly extending protrusion for engaging at least one of said first groove and said second groove such that when said at least one inwardly extending portusion engages said second groove, said shield member is maintained in a first retracted position, and when said at least one inwardly extending protrusion engages said first groove, said shield member is locked in a second extended position in which the needle is protected by said shield member,
wherein said at least one inwardly extending protrusion, engaging said second groove is disengageable from said second circumferential groove by application of reverse axial forces on said first and second gripping flanges, and said shield member is slidable between said first position and said second position, and
the inner diameter of said at least one inwardly extending protrusion when engaging said first groove is smaller than the outer diameter of said shoulder and smaller than the outer diameter of said outer surface of said inner tube member directly rearwardly adjacent said first groove, and
in an assembly mode, said at least one inwardly extending protrusion of said outer shield member engages said shoulder of said outer surface of said inner tube member and flexes outwardly as a result of the engagement, and engages said outer surface of said inner tube member rearward of said first groove without fixedly engaging said first groove.

5,067,946

INJURY RESISTANT NEEDLE DEVICE

Semen Zhadanov, 101 Prospect Park, Metuchin, N.J. 08840

Filed Apr. 10, 1990, Ser. No. 507,247
Int. Cl.[5] A61M 5/32
U.S. Cl. 604—198 5 Claims



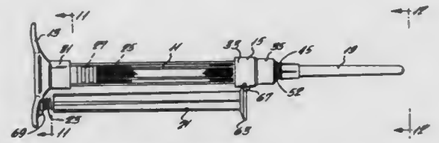
1. An injury resistant needle device, comprising an outer protective tube; a needle unit having a needle which is movable relative to said outer protective tube between an extended position in which said needle is exposed outside of said outer protective tube and a retracted position in which said needle is completely confined inside the outer protective tube; and means for moving said needle unit relative to said outer protective tube between said extended and retracted positions, said moving means including a plurality of first engaging formations provided on said needle unit, and a rotary member provided with second engaging formations interengageable with the first engaging formations and turnable by a user, so that upon turning of said rotary member by a user's finger said needle unit is displaced between said extended and retracted positions.

5,067,947

SYRINGE PLUNGER ROD MOUNT

John F. Volk, Chester Springs, Pa., and Thomas Michaels, Upper Saddle River, N.J., assignors to Tri/West Systems, Inc., Upper Saddle River, N.J.

Filed Jul. 18, 1989, Ser. No. 381,383
Int. Cl.[5] A61M 5/24
U.S. Cl. 604—201 9 Claims



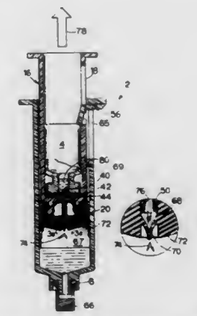
1. A syringe device, comprising;
a vial for medicaments having a first open end and a penetratable seal at its opposite second end;
finger grip means mounted adjacent said first end;
needle hub means for mounting a needle on said second end in axial alignment with said seal actuatable axially between an unarmed position spaced from said seal and an armed position penetrating said seal to access contents of said vial;
an elongated plunger rod;
mounting means for mounting said plunger rod between said finger grip and needle including a fracturable detachable connection of said plunger rod to said hub means operable to normally prevent axial displacement of said hub means to said armed position and upon fracturing of said connection permitting arming and providing visual indicia of breaking of said connection;
said hub means including a double ended needle assembly axially movable from a first position for detachably mounting said plunger with said mounting means and the second position when said plunger is removed to thereby provide access by said needle to said vial.

5,067,948

SAFETY, PACKAGING, INJECTION AND DISPOSAL SYSTEM FOR PRE-FILLED PHARMACEUTICAL VIALS

Terry M. Haber, Lake Forest, and Clark B. Foster, Laguna Niguel, both of Calif., assignors to Habley Medical Technology Corporation, Laguna Hills, Calif.

Filed Sep. 27, 1990, Ser. No. 589,133
Int. Cl.[5] A61M 5/178
U.S. Cl. 604—213 13 Claims



1. A vial holding syringe structure, the vial of the type having a pierceable membrane at one end, the syringe structure comprising:

VOL 1132 ISS 4 NO 26 1991 UMI

a barrel having a bore, a sealable needle end and a plunger end;

a plunger including a stem, having inner and outer ends, and a piston sized to sealingly engage the bore, the plunger slidably mounted within the barrel at the plunger end for reciprocal movement between a depressed position, with the inner end towards the needle end, and a retracted position, with the inner end spaced apart from the needle end, the barrel and plunger defining a variable volume region at the needle end, a partial vacuum being created in the variable volume region when the plunger moves towards the retracted position;

the stem having an interior sized to house the vial; and

means for transferring the contents of the vial along a path to the variable volume region when the variable volume region is at the partial vacuum, the transferring means including a one-way valve along said path to permit the contents of the vial to flow into the variable volume region but not the reverse without any manipulation by the user, the one-way valve being formed as part of the piston;

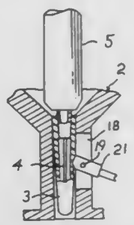
whereby the transferred contents of the vial in the variable volume region can be injected through a hollow needle, mounted to the needle end, by the manipulation of the plunger.

5,067,949

INSTRUMENT FOR UNSHEATHING, RESHEATHING AND DISPOSING OF A MEDICAL SYRINGE NEEDLE

Lawrence F. Freundlich, 923 First St., New Hyde Park, N.Y. 11040, and Arthur Karmen, 110 Colonial Pkwy., Manhasset, N.Y. 11030

Filed Apr. 23, 1990, Ser. No. 512,466
Int. Cl.[5] A61M *5/32*
U.S. Cl. 604—263 **5 Claims**



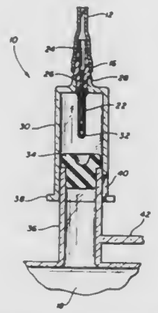
1. An instrument for removing sheathed needles comprising: a container lower member having a broad base and a coned body with a threaded truncated open top end; and an upper member having an annular shoulder at its bottom end defining a threaded cap threadedly engaged onto the top end of the container member, the upper member having a neck portion extending axially upward from the shoulder and terminating in a head provided with a coned cavity, the coned cavity merging at its bottom with a narrow passage extending axially down through the neck portion and communicating with the open top end of the container member, the neck portion having a vertically extending slot through its side wall opening into the narrow passage, a cam element pivotably mounted between opposed walls of the slot, the cam element having a handle portion extending externally of the slot and having at its opposite end a cam surface which cam surface is movable into the narrow passage as the cam element is pivoted by its handle in one direction and is movable out of the narrow passage as the cam element is pivoted by its handle in an opposite direction, the coned cavity serving as a guide to manual entry of a sheathed end of a medical syringe down into the narrow passage, and the cam element being adapted upon being pivoted in the one direction to press its cam surface against the sheathed end of the syringe to allow the syringe to be manually drawn free of its sheathed end, and the cam element being adapted upon being pivoted by its handle in the opposite direction to free the cam surface from the sheathed end to allow the separated sheathed end to drop down the narrow passage into the container below.

5,067,950

WOUND DRAINAGE TUBE/RESERVOIR CONNECTOR

Cecil H. Broadnax, Jr., Somerset, N.J., assignor to Johnson & Johnson Medical, Inc., Arlington, Tex.

Filed Jul. 30, 1990, Ser. No. 559,753
Int. Cl.[5] A61M *1/00, 25/00;* A61B *19/00*
U.S. Cl. 604—317 **6 Claims**



1. A connector for joining a wound drainage tube to a fluid reservoir that has an inlet tube sealed with an initially imperforate penetrable plug, the connector comprising

a) a hollow penetrator, having a first end for removable attachment to the drainage tube and a second, sharpened end for penetrating the plug;

b) an initially imperforate, rupturable stocking for preventing fluid flow out of the sharpened end of the penetrator;

c) an elongated skirt for confining the sharpened end of the penetrator, having a longitudinal axis, means at a first end for removable attachment to the penetrator, and an open second end that permits the skirt to surround the inlet tube and be moved along the inlet tube in a direction parallel to the skirt axis,

whereby moving the skirt along the inlet tube permits the sharpened end of the penetrator to rupture the stocking and penetrate the plug to provide a path for fluid to flow from the wound drainage tube to the fluid reservoir.

5,067,951

OPHTHALMOLOGIC APPARATUS

Peter Greve, Essingen, Fed. Rep. of Germany, assignor to Carl-Zeiss-Stiftung, Heidenheim, Fed. Rep. of Germany

Filed Sep. 7, 1989, Ser. No. 404,099
Claims priority, application Fed. Rep. of Germany, Sep. 7, 1988, 3830378
Int. Cl.[5] A61N *5/06*
U.S. Cl. 606—004 **2 Claims**

1. An ophthalmologic apparatus for conducting a coagulation treatment and for performing microsurgery on an eye of a patient, the apparatus comprising:

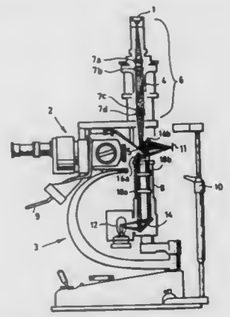
a frame defining first and second mounting structures in substantial alignment with each other;

a slit lamp mounted on said first mounting structure and including: a light source means for supplying light; a lens assembly defining a first optical axis; and, mirror means straddling said first optical axis so as to define a clear opening therethrough along said axis;

said lens assembly and said mirror means conjointly defining a beam path along which the light of said light source means is directed toward the eye of the patient;

a laser module having at least one semiconductor laser diode

means for selectively generating continuous-wave laser radiation for performing the coagulation treatment and pulsed laser radiation for performing the microsurgery, the laser module having a lens unit means for defining a second optical axis along which the laser radiation travels; said lens unit means being mounted on said second mounting structure to cause said second optical axis to be coincident



with said first optical axis to conjointly define a common axis therewith and to permit said laser radiation to pass through said opening; and,

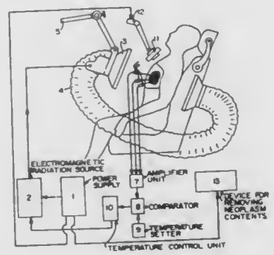
a manipulator mirror pivotally mounted on said frame and at a predetermined location on said common axis for deflecting the laser radiation out of said common axis and toward the eye of the patient requiring treatment or surgery.

5,067,952

METHOD AND APPARATUS FOR TREATING MALIGNANT TUMORS BY LOCAL HYPERPYREXIA

Vasily F. Gudov, ulitsa Kachalova, 16, kv. 1, Moscow; Nikolai E. Yakhontov, Ulitsa Osharskaya, 52a, kv. 2, Gorky; Vladimir P. Kharchenko, ulitsa akademika Piljugina, 8, kv. 484, Moscow; Boris K. Dolotov, Ulitsa Proletarskaya, 5, kv. 301, Gorky; Evgeny L. Belousov, ulitsa Semashko, 2, kv. 49, Gorky; Valery B. Vinitsky, Leningradskoe shosse, 78, kv. 20, Moscow; Alexandr M. Kozlov, ulitsa Lesnaya, 10, kv. 162, Moskovskaya oblast, Reutov; Mikail G. Akhalaya, ulitsa Lenina, 24, kv. 7, Sukhumi; Alexandr D. Koveshnikov, ulitsa Kirovogradskaya, 44, korpus 8, kv. 160, Moscow, and Valery F. Pugachev, prospekt Tsiolkovskogo, 30, kv. 43, Gorkovskaya oblast, Dzerzhinsk, all of U.S.S.R.

Filed Apr. 2, 1990, Ser. No. 503,529
Int. Cl.[5] A61B *17/36;* A61N *2/10*
U.S. Cl. 606—28 **8 Claims**



1. A method for treating a malignant tumor in a patient which comprises the steps of:

(a) determining the location and dimensions of said tumor in said patient's body;

(b) determining the activity of neutrophils and macrophages, and if said activity is below 100 bacteria per 100 neutrophils, administering tuftsin intravenously to said patient in a dose of 0.01 to 20 mg per 1 kg of patient's body weight;

(c) introducing into said patient's body a suspension containing ferromagnetic particles having a size of from 5×10^{-3} to 30×10^{3} μm, and in an amount of from 0.01 to 0.05 g per each cu. cm of said tumor;

(d) monitoring the movement of said ferromagnetic particles through said patient's body by x-ray, and determining the time that said particles penetrate and approach the boundaries of said tumor;

(e) at that time exposing said patient's body to an electromagnetic field at an intensity and for a period of time sufficient to cause hyperpyrexia within said tumor and at a temperature of from 43° to 43.5° C. to ensure destruction of cancer cells in said tumor;

(f) simultaneously with the exposure to said electromagnetic field, exposing said tumor to a magnetic field of an intensity sufficient to retain ferromagnetic particles in said tumor;

(g) determining the activity of neutrophils and macrophages and if said activity is below 100 bacteria per 100 neutrophils repeating steps (b)–(f);

(h) when said activity is greater than 100 bacteria per 100 neutrophils, exposing said tumor to ultrasonic oscillations with said subsequent removal of the contents of the tumor; and

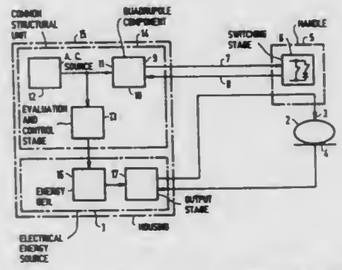
(i) again determining the activity of neutrophils and macrophages and if said activity is below 100 bacteria per 100 neutrophils repeating steps (b)–(f).

5,067,953

CIRCUIT FOR CONTROLLING AN ELECTRO-THERAPY DEVICE

Peter Feucht, Berlin, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Berlin and Munich, Fed. Rep. of Germany

Filed May 11, 1990, Ser. No. 522,108
Claims priority, application European Pat. Off., May 19, 1989, 89109074.8
Int. Cl.[5] A61B *17/39*
U.S. Cl. 606—34 **21 Claims**



1. An apparatus for administering treatment to a patient in the form of electrical energy, said apparatus comprising:

a source of electro-surgery energy;

electrode means connected to said source of electro-surgery energy and adapted for delivering said electro-surgery energy to a patient;

an a.c. source;

quadrupole means, connected to said a.c. source, for transmitting alternating current and blocking direct current, said quadrupole means having a primary side connected to said a.c. source and a secondary side voltaically separated from said primary side;

switch means, including a series connected rectifier and user-actuatable switch forming a series branch bridging said secondary side of said quadrupole means, for causing a directionally-dependent change in an electrical parame-

VOL 1132 ISS 4 NOV 26 1991 UMI

ter at said primary side of said quadrupole means upon actuation of said switch means; and

evaluation and control means connected to said primary side of said quadrupole means and to said a.c. source for detecting said directionally dependent change and for altering delivery of said electro-surgery energy to said patient via said electrode means in response to said directionally-dependent change.

5,067,954

DISTRACTION APPARATUS FOR PLASTIC RECONSTRUCTION OF HAND

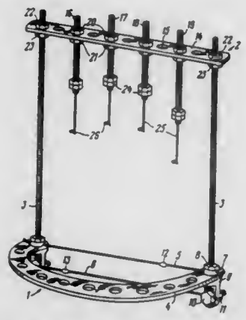
Gavrill A. Ilizarov, ulitsa Klimova, 41, kv. 38., Kurgan, U.S.S.R.

PCT No. PCT/SU88/00140, § 371 Date Mar. 20, 1990, § 102(e) Date Mar. 20, 1990, PCT Pub. No. WO90/00882, PCT Pub. Date Feb. 8, 1990

PCT Filed Jul. 25, 1988, Ser. No. 490,629

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—58 4 Claims



1. A distraction apparatus for plastic reconstruction of a hand, comprising: at least two supports, a proximal support of said supports being made as a cramp-shaped plate carrying two parallel fixing pins secured at ends of said plate, and a distal support of said supports carrying distraction pins secured within the distal support with a possibility of longitudinal motion, as well as two distraction threaded rods on which the proximal support and the distal support are fitted so as to perform relative longitudinal motion, the fixing pins of the proximal support being arranged in a plane perpendicular with a plane of the cramp-shaped plate, the distal support being shaped as a bar having perforations spread along a longitudinal axis of the bar, said longitudinal axis of the bar being parallel to the plane of the cramp-shaped plate, additional distraction threaded rods being fitted in the perforations of the bar of the distal support with a possibility of individual longitudinal motion, said additional distraction threaded rods being directed towards the proximal support, distal ends of the distraction pins being fastened on proximal ends of the additional distraction threaded rods.

5,067,955

VERTEBRAL IMPLANT FOR OSTEOSYNTHESIS DEVICE

Yves P. C. Cotrel, Paris, France, assignor to Societe de Fabrication de Material Orthopedique, Berck sur Mer, France

Filed Apr. 13, 1990, Ser. No. 508,416

Claims priority, application France, Apr. 13, 1989, 89 04926

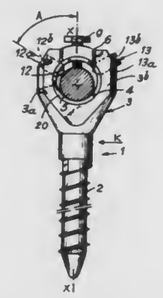
Int. Cl.[5] A61F *5/01*

U.S. Cl. 606—61 15 Claims

1. A vertebral implant for an osteosynthesis device, comprising:

an osseous anchoring element; and

a rod securing portion connected to said osseous anchoring element for securing a rod relative to said osseous anchoring element, said rod securing portion including a body member having a channel extending therethrough for receiving a rod therein, a first screw means including a first screw for securing the rod in said channel, said first screw extending radially relative to said channel, and at



least one second screw for further securing the rod in said channel, said body member having a tapped hole inclined relative to said first screw threadedly receiving said second screw therein, and both said first screw and said at least one second screw being substantially disposed in a plane perpendicular to the axis of said channel.

5,067,956

APPARATUS FOR FASTENING A MEDICAL IMPLANT

Thomas B. Buford, III; Robert Brosnahan, both of Germantown; Scott Robinett, and James Clark, both of Memphis, all of Tenn., assignors to Smith & Nephew Richards Inc., Memphis, Tenn.

Filed Apr. 24, 1990, Ser. No. 513,640

Int. Cl.[5] A61B *17/58*

U.S. Cl. 606—73 9 Claims



1. A non-backing fixation device for a prosthetic implant comprising:

a fastener of a unitary construction having a head member and a shank, said head member having an underside and an upperside;

and said shank having threads along its length, said threads having an outside diameter greater than the width of said head member and said shank having an uppermost thread adjacent to said head member; and

a fixation member having an upperside and underside and a bore therethrough for receiving said fastener, said bore having a diameter intermediate the width of said head member and said outside diameter of said threads of said shank such that, when said fastener is inserted into said bore, to a position wherein said head member is received into said bore and a compressive force is applied to said fixation member, and when said fixation member moves relative to said fastener, said uppermost thread contacts said underside of said fixation member, to prevent said fastener from backing out.

5,067,957

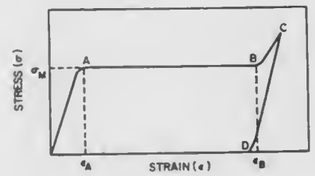
METHOD OF INSERTING MEDICAL DEVICES INCORPORATING SIM ALLOY ELEMENTS

James E. Jervis, Atherton, Calif., assignor to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 177,817, Mar. 30, 1988, abandoned, which is a continuation of Ser. No. 47,824, May 8, 1987, abandoned, which is a continuation of Ser. No. 865,703, May 21, 1986, Pat. No. 4,665,906, which is a continuation of Ser. No. 541,852, Oct. 14, 1983, abandoned. This application Sep. 27, 1988, Ser. No. 252,019

Int. Cl.[5] A61M *25/01*

U.S. Cl. 606—108 41 Claims



1. A method of medical treatment of a mammal which comprises the steps of:

(a) providing a device comprising an element which comprises a shape memory alloy which displays stress induced martensite behavior at body temperature of the mammal, the element being restrained in a deformed configuration, the restraining means stressing the element thereby inducing stress induced martensite in the alloy;

(b) positioning the device so that the shape memory alloy element is within a mammalian body or in such proximity to a mammalian body that the element and the restraining means are substantially at body temperature; and

(c) at least partially removing the restraining means from the element thereby transforming the element from the deformed configuration, the transformation occurring with the element and the restraining means being substantially at body temperature.

5,067,958

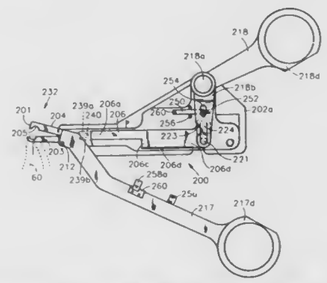
APPARATUS FOR EFFECTING OCCLUSION OF TARGET VESSELS OR TISSUE

Jeffrey J. Sandhaus, Snedens Landing, N.Y., assignor to The Population Counsil, Inc., New York, N.Y.

Continuation-in-part of Ser. No. 326,299, Mar. 21, 1989, Pat. No. 4,967,949, which is a continuation-in-part of Ser. No. 884,417, Jul. 11, 1986, abandoned. This application Nov. 2, 1990, Ser. No. 608,297

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—142 12 Claims



1. Apparatus for implanting a closable clip to effect the occlusion of a target vessel or tissue, comprising first and second jaw members relatively movable between opened and closed positions, said first and second jaw members defining a clip-retaining cavity therebetween, said clip-retaining cavity having sufficient size to accommodate said clip therein, and clip closure means for moving said clip from a retractable position displaced from said clip-retaining cavity to an actuating position within said clip-retaining cavity, and for causing at least partial closure of said clip.

5,067,959

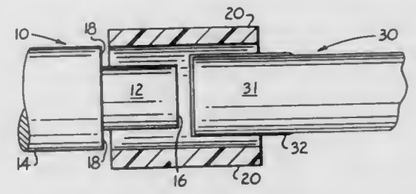
SURGICAL NEEDLE-SUTURE ATTACHEMENT FOR CONTROLLED SUTURE RELEASE

Herbert W. Korthoff, Westport, Conn., assignor to United States Surgical Corporation, Norwalk, Conn.

Continuation-in-part of Ser. No. 413,240, Sep. 27, 1989. This application Jun. 4, 1990, Ser. No. 532,961

Int. Cl.[5] A61B *17/00*

U.S. Cl. 606—224 27 Claims



12. A combined surgical needle-suture device exhibiting a predetermined average range or needle separation force for a suture of given size which comprises:

a) a surgical needle possessing shank end of reduced cross-section;

b) a suture possessing a tip region for attachment to the shank end of the needle;

c) a constricted tubing around the reduced diameter shank end of the needle and the tip region of the suture, the constricted tubing exerting an attachment force against the surfaces of the reduced diameter shank end of the needle and the tip region of the suture with which the inner surface of the constricted tubing is in contact without swaging or crimping; and,

d) a bonding agent upon at least some portion of the inner surface of the constricted tubing which is in contact with the tip region of the suture and/or upon at least some portion of the tip region of the suture, the bonding force of the bonding agent in combination with the attachment force of the constricted tubing providing a predetermined average range of needle separation force.

5,067,960

MUSCLE FITNESS DETECTION BY COLORIMETRY

Pierre-Andre Grandjean, Bassenge, Belgium, assignor to Medtronic, Inc., Minneapolis, Minn.

Filed Dec. 6, 1989, Ser. No. 446,593

Int. Cl.[5] A61M *1/10*

U.S. Cl. 623—3 7 Claims

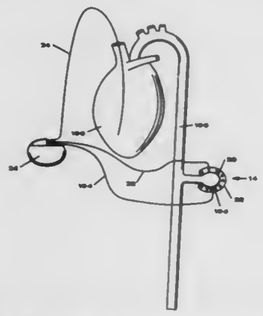
1. A cardiac assist system for assisting a natural human heart having ventricles which contract at a ventricular rate comprising:

a. a surgically prepared skeletal muscle adapted to be responsively coupled to the circulatory system;

b. control means adapted to be coupled to said natural human heart and coupled to said surgically prepared skeletal muscle for stimulating said surgically prepared skeletal muscle to contract in synchrony with said ventricles of said natural human heart; and

VOL
1132
ISS
4
NO
26
1991
UMI

c. means responsively coupled to said surgically prepared skeletal muscle for monitoring a parameter indicative of



changes in the oxygen level in said surgically prepared skeletal muscle.

5,067,961
NON-BIODEGRADABLE TWO PHASE CORNEAL IMPLANT AND METHOD FOR PREPARING SAME
Charles D. Kelman, New York, N.Y., and Dale P. DeVore, Chelmsford, Mass., assignors to Autogenesis Technologies, Inc., Acton, Mass.
Continuation-in-part of Ser. No. 157,638, Feb. 18, 1999, Pat. No. 4,969,912. This application Feb. 15, 1990, Ser. No. 481,503
Int. Cl.[5] A61F *2/14*
U.S. Cl. 623—5 **27 Claims**

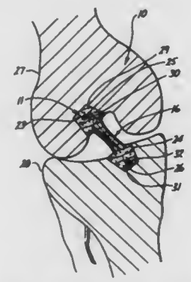


1. A non-biodegradable corneal implant comprising:
(1) a polymerized transparent, solubilized, non-fibrous collagenous core having acylated amine or esterified carboxyl groups, and
(2) a polymerized periphery surrounding said core, said periphery comprising fibrous collagen in the form of fibrils under suitable physiological conditions.

5,067,962
BIOPROSTHETIC LIGAMENT
Todd D. Campbell, Corona, and Michael A. Zozaya, Laguna Hills, both of Calif., assignors to Baxter International Inc., Deerfield, Ill.
Continuation of Ser. No. 339,804, Apr. 18, 1989, abandoned. This application Sep. 28, 1990, Ser. No. 590,312
Int. Cl.[5] A61F *2/08*
U.S. Cl. 623—13 **5 Claims**

1. A method of replacing a damaged or diseased ligament with a replacement preserved animal ligament having first and second end portions connected to a piece of that ligament natural bone, which bone piece is shaped into a plug comprising;

securing the first ligament end bone piece into a recess formed in that bone of the patient to which an end of the damaged or diseased ligament is attached; and



securing the second ligament end bone piece into a recess formed in that bone of the patient to which a second end of the damaged or diseased ligament is attached.

5,067,963
METHOD OF MAKING LIVE AUTOGENOUS SKELETAL REPLACEMENT PARTS
Roger K. Khouri, St. Louis, Mo., and A. Harri Reddi, Bethesda, Md., assignors to Washington University, St. Louis, Mo.
Filed Aug. 21, 1990, Ser. No. 570,442
Int. Cl.[5] A61F *2/28, 2/36*
U.S. Cl. 623—16 **7 Claims**

[redacted]

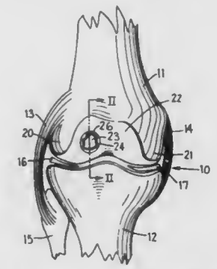
1. A method for the manufacture of live autogenous skeletal replacement parts through muscle flap molding and osteoinduction comprising the steps of:
a) forming a mold of physiologically inert support material into the shape of a replacement part for a defective skeletal site,
b) placing a muscle flap into the cavity of the mold,
c) thoroughly incorporating osteoinductive factor in the muscle flap,
d) closing the mold,
e) allowing osteogenesis to take place, and
f) implanting the resulting newly formed bone into said defective skeletal site.

5,067,964
ARTICULAR SURFACE REPAIR
James W. Richmond, Kalamazoo, Mich., and John J. Block, Rumson, N.J., assignors to Stryker Corporation, Kalamazoo, Mich.
Filed Dec. 13, 1989, Ser. No. 450,903
Int. Cl.[5] A61F *2/30*
U.S. Cl. 623—18 **18 Claims**

1. An articular cartilage repair piece to be substituted for damaged articular cartilage on a bone in an articulated joint in a mammal, comprising:

a repair piece including a backing layer of nonwoven, felted

fibrous material, the material being selected from the group consisting of PTFE and polyester, the backing layer being limp and readily conformable to flat and curved surfaces, the backing layer having a back face for application to the site of the damaged articular cartilage for eventual anchoring to the bone, the repair piece having a front face for opposing and coacting interface with adjacent material of the joint, said front face being defined by a coating of tough pliable material having a front surface which is smooth and is slippery in the presence of the natural synovial fluid in the joint, in which said coating is of polyurethane.



5,067,965
BIO-OSMOTIC GEL FOR IMPLANT PROSTHESES
Robert A. Ersek, Austin, Tex.; Arthur A. Beisang, Arden Hills, and Arthur A. Beisang, III, Shoreview, both of Minn., assignors to Bioplasty, Inc., St. Paul, Minn.
Filed Mar. 20, 1990, Ser. No. 496,234
Int. Cl.[5] A61F *2/54;* A61M *36/00;* A61N *5/00*
U.S. Cl. 623—66 **15 Claims**

1. A radiolucent bio-osmotic gel medium for filling an implant lumen comprising:
a bio-compatible organic polymer in a solution of bio-compatible salt of relatively low Z number;
wherein the organic polymer material of the gel medium is one excretable by the body;
wherein the gel medium is further characterized by having an osmolarity of from about 250 milliosmoles to about 350 milliosmoles; and
wherein the gel medium has an x-ray absorption under standard exposure approximately equal to that of breast tissue, such that processed mammographic x-ray film will result in an optical density on the x-ray film or 1.2–1.3 and a range of average penetrance from a value greater than 9.2 milliroentgens, to a value of 30 milliroentgens.

VOL
1132
ISS
4
NO
2 6
1991
UMI

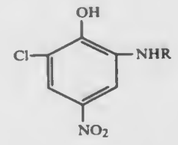
5,067,966

2-AMINO-6-CHLORO-4-NITRO-PHENOL DERIVATIVES, PROCESS TO THEIR PRODUCTION AND HAIR DYES CONTAINING THOSE COMPOUNDS

Herbert Mager, Marly, and Braun, Hans-Jürgen, Ueberstorf, both of Fed. Rep. of Germany, assignors to Wella Aktiengesellschaft, Darmstadt, Fed. Rep. of Germany

PCT No. PCT/EP89/01523, § 371 Date Aug. 17, 1990, § 102(e) Date Aug. 17, 1990, PCT Pub. No. WO90/07557, PCT Pub. Date Jul. 12, 1990
PCT Filed Dec. 12, 1989, Ser. No. 573,177
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1988, 3843578
Int. Cl.[5] A61K *7/13;* C07C *321/00, 211/00*
U.S. Cl. 8—405 16 Claims

1. 2-amino-6-chloro-4-nitrophenol derivative of the general formula (I)



wherein the radical R is selected from the group consisting of straight-chain alkyl groups with 1 to 5 carbon atoms and branched alkyl groups with 1 to 5 carbon atoms.

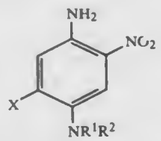
5,067,967

NITRO-P-PHENYLENEDIAMINE DERIVATIVES, PROCESSES FOR THEIR PREPARATION AND COLOURING AGENTS CONTAINING THESE FOR USE ON KERATIN FIBRES

Mustafa Akram, Offenbach, and Winfried Seidel, Ellerbek, both of Fed. Rep. of Germany, assignors to 501 Hans Schwarzkopf GmbH, Hamburg, Fed. Rep. of Germany

Filed Apr. 25, 1990, Ser. No. 513,996
Claims priority, application Fed. Rep. of Germany, May 26, 1989, 3917114
Int. Cl.[5] A61K *7/13;* C07C *211/51*
U.S. Cl. 8—415 8 Claims

1. Compounds of the general formula I



I

wherein R^1 and R^2 independently of one another each represent a hydrogen atom, a (C_1–C_2) alkyl group, a hydroxy (C_2–C_3) alkyl group or a 2,3-dihydroxylpropyl group and X represents a trifluoromethyl group.

5,067,968

BRIQUETTE PRODUCT, AND PROCESS FOR ITS PRODUCTION

Joseph W. Davidson, 2645 Dutch Ridge Rd., Guysville, Ohio 45735; Geoffrey Blackmore, 3418 Laredo Dr., Lexington, Ky. 40502; Gerald Blackmore, 3784 Jamaica Ct., Lexington, Ky. 40509; Karl R. Komerek, deceased, late of Elk Grove, Ill., and by Richard Komerek, executor, 1825 Estes Ave., Elk Grove, both of Ill. 60007

Continuation of Ser. No. 316,779, Feb. 28, 1989, abandoned. This application Nov. 1, 1990, Ser. No. 607,214
Int. Cl.[5] C10L *5/00, 5/08;* B30B *11/00*
U.S. Cl. 44—550 29 Claims

1. A process for restructuring particulate coal fines without the introduction of extraneous binder material, comprising the steps of:

drying coal particle feed material substantially comprising particles in the size range up to 1/16 inch square, and predominantly in the range 28 mesh to zero, to remove interfacial water, and heating the material to a temperature in the range of about 75 to 250 degrees Celsius, within a reducing gaseous environment;

compressing the material into a constrained briquette form at a pressure in the range 30,000 to 50,000 psi, within said environment, to cause plastic flow in bridging relation with granular interfaces of the body, to at least form a coherent body having a dense cohesive case of relatively low porosity; and, cooling the formed body to a temperature below the auto-ignition temperature of said form, whereby there is imparted to the briquette sufficient strength when cool to withstand bulk handling without substantial damage.

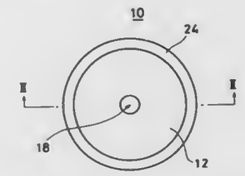
15. An apparatus for reconstituting coal from naturally occurring coal fines wet feed material of variable water content, generally in the size range up to 1/16 inch mesh and predominantly particulate 28 mesh to zero into a compacted form possessing adequate crushing strength to withstand bulk handling without substantial damage, comprising a high pressure cavity die roll press operable in a pressure range above about 30,000 psi to about 50,000 psi; gas heating means for producing hot reducing gas at a pressure above atmospheric; dryer means to receive said hot reducing gas and said wet feed material in mutual heat exchange relation therein to evaporate a portion of said water content and to raise the temperature of said feed material to the plasticity point; first feed means for feeding said feed material to said press including feed bypass means to bypass feed material past said press; and second feed means including first cooling means to cool said compacted form in heat exchange relation with said wet feed material; and second cooling means to cool said compacted form to a cooled, non-auto combusting condition.

5,067,969

CUTTER AND MANUFACTURING METHOD THEREFOR

Yusaku Matsuda, Yamatokoriyama, Japan, assignor to Sanwa Diamond Industrial Co., Ltd., Japan

Filed Mar. 9, 1990, Ser. No. 491,341
Int. Cl.[5] B24D *3/00*
U.S. Cl. 51—293 9 Claims



1. A cutter comprising:

a base plate formed by joining two thin annular members with each other;

a groove formed in the outer periphery of said base plate; and

an annular metal supporting plate, to be positioned in said groove of said base plate, having a plurality of openings formed therethrough;

a cutting member formed around the outer periphery of said base plate with said supporting plate surrounded thereby;

wherein said cutting member is formed by sintering a mixture of abrasive grains and powders formed by alloying copper, cobalt and tin with each other.

VOL 1132 ISS 4 NO 26 1991 UMI

5,067,970

ASYMMETRIC POLYIMIDE MEMBRANES

I-Fan Wang, Olney, and Bhupender S. Minhas, Columbia, both of Md., assignors to W. R. Grace & Co.-Conn., New York, N.Y.

Filed May 11, 1990, Ser. No. 522,003
Int. Cl.[5] B01D *53/22, 71/64*
U.S. Cl. 55—16 10 Claims

1. An asymmetric polyimide membrane comprising a unitary membrane having a thin dense skin supported on a porous substructure, characterized in that

(a) said skin and substructure are composed of a fully imidized polymer based on 5(6)-amino-1-(4'-aminophenyl)-1,3-trimethylindane;

(b) it has a pre diameter of less than 20 Å;

(c) it has a CO_2/CH_4 selectivity of at least 20; and

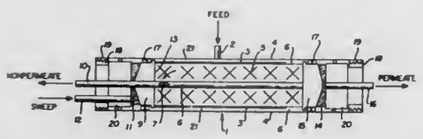
(d) it has CO_2 permeability of at least 1 SCFH/ft^2 at 100 psi.

5,067,971

PROCESS FOR DEHYDRATION OF GASES AND COMPOSITE PERMEABLE MEMBRANES THEREFOR

Benjamin Bikson, Brookline; Salvatore Giglia, Norwood, and Joyce K. Nelson, Lexington, all of Mass., assignors to Union Carbide Industrial Gases Technology Corporation, Danbury, Conn.

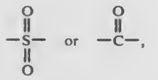
Continuation of Ser. No. 478,681, Feb. 12, 1990, abandoned.
This application Nov. 6, 1990, Ser. No. 609,625
Int. Cl.[5] B01D *53/22, 71/68*
U.S. Cl. 55—16 56 Claims



1. A gas dehydration process comprising contacting a water vapor-containing feed gas with one side of a composite membrane comprising a porous support and an ultrathin layer of a separation barrier of a sulfonated aromatic polymer having an average molecular weight above about 10,000 and a degree of sulfonation -S_m of from about 0.2 to about 2 selected from the group of sulfonated polysulfone or sulfonated polyether ketone having units:

Ar—y

wherein Ar is divalent phenylene or divalent biphenylene and y is:



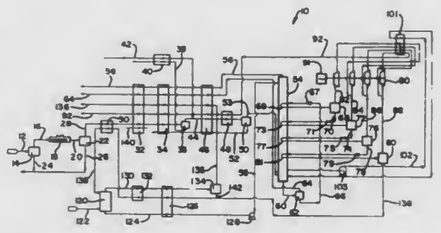
permeating water vapor contained in said feed gas through said composite membrane and recovering a nonpermeate water vapor-diminished gas stream and a water enriched permeate stream.

5,067,972

PURIFICATION OF GASES

John W. Hemmings, Randburg; Peter Allan, and Gerald M. O'Shaughnessy, both of Johannesburg, all of South Africa, assignors to Aeci Limited, South Africa

Filed Jan. 26, 1990, Ser. No. 470,649
Claims priority, application South Africa, Jan. 26, 1989, 89/0637; Dec. 18, 1989, 89/9705
Int. Cl.[5] B01D *53/14*
U.S. Cl. 55—40 8 Claims



1. A process for removing acid gas components from a gas stream, which comprises

feeding the gas stream into an absorption zone;

passing a suitable physical solvent at elevated pressure and reduced temperature countercurrently through the zone, thereby to absorb acid gas components from the gas stream into the solvent to form a spent or acid gas laden solvent;

removing heat from the absorption zone, thereby to maintain the absorption zone at substantially isothermal condition;

regenerating the spent or acid gas laden solvent by subjecting it to flashing at reduced pressure; and

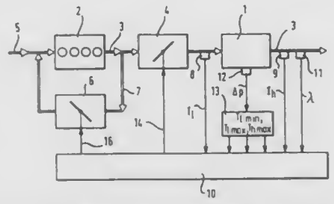
effecting the flashing substantially isothermally by utilizing heat removed from the absorption zone.

5,067,973

METHOD OF AND AN APPARATUS FOR REGENERATING A DIESEL PARTICULATE EXHAUST FILTER

Konstatin N. Pattas, Abelonon 73, 55535 Thessaloniki, Greece

Filed Mar. 23, 1990, Ser. No. 497,651
Int. Cl.[5] B01D *46/04*
U.S. Cl. 55—96 9 Claims



1. A method of regenerating a diesel particulate exhaust soot filter mounted in the exhaust pipe of a diesel engine, the exhaust being throttled upstream of the diesel filter, as viewed in flow direction, so that at least the regenerating temperature is reached, comprising the steps of:

(a) measuring the actual temperature (T_l and T_h) upstream and downstream of the diesel filter;

(b) automatically initiating regeneration when a first setpoint exhaust temperature (T_{lmin}) is reached upstream of the diesel filter;

(c) automatically turning off the regeneration when a second setpoint exhaust temperature (T_{lmax}) upstream of the diesel filter is exceeded;

(d) preventing regeneration of the diesel filter by controlling the throttling when a predetermined third exhaust temperature (T_{hmax}) downsteram of the diesel filter is exceeded; and

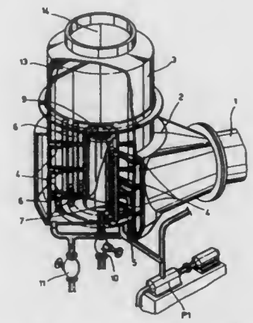
(e) varying said first, second and third setpoint exhaust temperatures (T_{lmin}, T_{lmax}, T_{hmax}) in response to the pressure drop (Δp) across the diesel filter.

5,067,974

APPARATUS FOR PURIFYING POLLUTANT GASES

Ha Y. Chang, Seoul, Rep. of Korea, assignor to Hydundae Enviroment Energy Mgmt. Corp., Ltd., Rep. of Korea

Division of Ser. No. 431,331, Nov. 3, 1989, Pat. No. 5,022,896.
This application Mar. 29, 1991, Ser. No. 677,791
Claims priority, application Rep. of Korea, Nov. 9, 1988, 14678/1988
Int. Cl.[5] B01D *47/00*
U.S. Cl. 55—223 1 Claim



1. A pollutant gas purifying apparatus comprising a suction fan for delivering a pollutant gas to an annular gas feed tube, a cylindrical water tank longitudinally installed along an inner circumferential surface of said annular gas feed tube, a plurality of connecting tubes arranged radially within said cylindrical water tank, said connecting tubes comprising a plurality of nozzles arranged along said connecting tubes, said nozzles having outlets being arranged in one direction substantially perpendicular to the axes of said connecting tubes, said connecting tubes and said annular gas feed tube being interconnected to thereby feed said pollutant gas to said nozzles arranged along said connecting tubes, a pump connected to a plurality of water tubes being longitudinally installed inside said cylindrical water tank, a plurality of nozzles being arranged vertically along said water tubes and opening in said one direction, and an auxiliary water tank installed at the center of said cylindrical water tank, said auxiliary tank comprising a level probe operatively connected to a solenoid valve to actuate said valve, said valve being connected to a lower part of said auxiliary water tank.

5,067,975

METHOD OF MANUFACTURING OPTICAL WAVEGUIDE FIBER WITH TITANIA-SILICA OUTER CLADDING

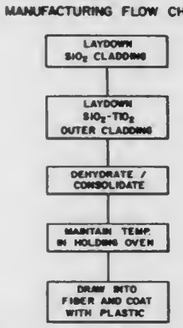
Marcella R. Backer; Ralston Cavender, both of Wilmington, N.C.; Melanie L. Elder, Dublin, Calif.; Peter C. Jones, Wilmington, N.C., and James A. Murphy, Painted Post, N.Y., assignors to Corning Incorporated, Corning, N.Y.

Filed Dec. 22, 1989, Ser. No. 456,141
Int. Cl.[5] C03C *25/02*
U.S. Cl. 65—3.12 14 Claims

1. A method of making a glass blank with a TiO_2—SiO_2 outer cladding layer for drawing into an optical waveguide fiber with a TiO_2—SiO_2 outer cladding having a predetermined TiO_2 concentration profile, comprising,

depositing glass soot in the form of a preform including an outer cladding of TiO_2—SiO_2, said outer cladding including an outermost layer having an initial TiO_2 concentration greater than 10.5 wt. %,

exposing said preform to an atmosphere containing chlorine and at a temperature in the range of from 900° to 1400° C., the chlorine being supplied in a sufficient concentration, for a sufficient time and at a sufficient temperature to increase the size of TiO_2 crystals in said outer cladding of



TiO_2—SiO_2 such that the concentration of resulting TiO_2 crystals with diameters in the range of 0.3 to 5 μm is greater than or equal to 0.1 vol. %, and

consolidating said preform into said glass blank with a TiO_2—SiO_2 outer cladding layer,

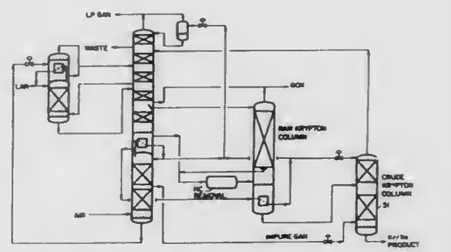
wherein the resulting TiO_2 concentration in at least said outermost layer of the TiO_2—SiO_2 outer cladding layer of the glass blank is greater than 10.5 wt. % and less than said initial TiO_2 concentration.

5,067,976

CRYOGENIC PROCESS FOR THE PRODUCTION OF AN OXYGEN-FREE AND METHANE-FREE, KRYPTON/XENON PRODUCT

Rakesh Agrawal, Allentown; Brian E. Farrell, Fogelsville, and Keith B. Wilson, Allentown, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Feb. 5, 1991, Ser. No. 650,522
Int. Cl.[5] F25J *3/04*
U.S. Cl. 62—22 2 Claims



1. In a process for separating a feed gas containing krypton, xenon, oxygen and methane in a cryogenic distillation column wherein the feed gas is fed to an intermediate location of the distillation column for fractionation into a methane-free, krypton and xenon bottoms liquid and a methane-rich waste overhead, wherein liquid reflux for the column is provided by introducing a liquid feed to an upper location in the column above the intermediate feed location, and wherein vapor reflux is provided to the column by introducing a gaseous bottom feed to an lower location in the column below the intermediate

VOL 1132 ISS 4 NOV 26 1991 UMI

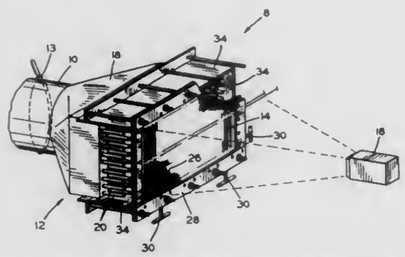
feed location, the improvement for increasing recovery of krypton and xenon and producing a krypton and xenon product containing less than 1 ppm oxygen and 1 ppm methane comprises using a gaseous stream containing less than 1 ppm oxygen and 1 ppm methane as the gaseous bottom feed and operating the column so that the vapor to liquid flow ratio in the column is less than 0.15.

5,067,977

METHOD AND APPARATUS FOR MEASURING THE EFFICIENCY OF COOLING DEVICES

Sugato Deb, Perrysburg, Ohio, assignor to Libbey-Owens-Ford Co., Toledo, Obio

Filed Feb. 5, 1991, Ser. No. 650,697
Int. Cl.[5] C03B *27/00*
U.S. Cl. 65—29 18 Claims



11. A method for defining the pattern of heat removal from a sheet-like member by an adjacent heat exchanger comprising the steps of:

heating a sheet-like element adapted to represent said sheet-like member according to a predetermined pattern;

directing cooling air against one of the major surfaces of said sheet-like element to remove heat from said one major surface;

simultaneously measuring the temperature over the other major surface of said sheet-like element; and

determining the pattern of heat removal by the heat exchanger from the sheet-like element from the temperature of said other surface.

5,067,978

METHOD FOR THE REMOVAL OF LEAD FROM WASTE PRODUCTS

Benjamin P. Fowler, 805 S. Country Club, LaPorte, Tex. 77057

Continuation-in-part of Ser. No. 539,992, Jun. 18, 1990, which is a continuation-in-part of Ser. No. 398,246, Aug. 24, 1989, Pat. No. 4,934,286. This application Aug. 17, 1990, Ser. No. 568,861
Int. Cl.[5] C03B *5/08*
U.S. Cl. 65—134 10 Claims

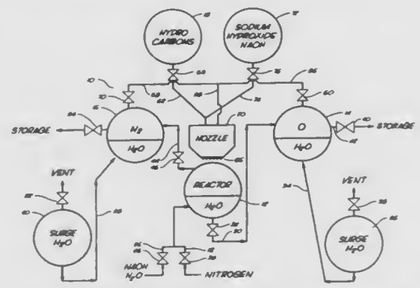
1. A process for the removal of lead from a waste product comprising the steps of:

delivering silica to a chamber;

removing oxygen from said chamber;

heating said silica in said chamber to a temperature of greater than 1500° F.;

combusting a lead-containing waste within said chamber;



mixing the combusted lead-containing waste with the heated silica so as to form a leaded glass; and

removing said leaded glass from said chamber.

5,067,979

SINTERED BODIES AND PRODUCTION PROCESS THEREOF

Yoshisato Kiyota; Junichi Ohta; Hiroshi Ohtsubo, and Shigeaki Takajo, all of Chiba, Japan, assignors to Kawasaki Steel Corporation, Japan

Division of Ser. No. 393,765, Aug. 14, 1989, Pat. No. 4,964,907. This application Jul. 6, 1990, Ser. No. 549,491
The portion of the term of this patent subsequent to Oct. 23, 2007, has been disclaimed.
Int. Cl.[5] C22C *29/00*
U.S. Cl. 75—243 5 Claims

1. A sintered magnetic body of the Fe-Si type consisting essentially of 1.5–6.5 wt. % of Si, up to 0.5 wt./T of O, up to 0.03 wt. % of C, and the balance of Fe and imperative impurities and having a density ratio of at least 95%.

5,067,980

RECORDING PROCESS AND LIQUID USING WATER-SOLUBLE ORGANIC SOLVENT

Shoji Koike, Yokohama, and Yasuko Tomida, Atsugi, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 137,339, Dec. 23, 1987, abandoned. This application Jul. 17, 1990, Ser. No. 553,363
Claims priority, application Japan, Dec. 26, 1986, 61-310825
Int. Cl.[5] C09D *11/02*
U.S. Cl. 106—22 14 Claims

1. An aqueous recording liquid, comprising: a colorant selected from the group consisting of acidic dyestuffs, direct dyestuffs, vat dyestuffs, oil-soluble dye-stuffs, sulfide dyestuffs and dispersion dyestuffs, a water-soluble organic solvent, from 0.5–10 wt. % of a nonionic surfactant selected from the group consisting of polyoxyethylene alkylether, polyoxyethylene alkyl phenylether, polyoxyethylene fatty acid ester, sorbitan fatty acid ester, polyoxyethylene sorbitan fatty acid ester, polyoxyethylene alkylamine, glycerine fatty acid ester, and oxyethylene oxypropylene block polymer, and from 20–95 wt. % water, said organic solvent having a surface tension of at most 45 dyne/cm, wherein said colorant is at most 0.1 wt. % soluble in water at 20° C. and at least 3 wt. % soluble in said solvent.

5,067,981

METHOD FOR RENDERING TOXIC WASTE HARMLESS

Carel W. J. Hooykaas, Rotterdam, Netherlands, assignor to Pelt & Hooykaas B.V., Rotterdam, Netherlands

Filed Sep. 27, 1989, Ser. No. 413,335
Claims priority, application Netherlands, Sep. 29, 1988, 8802398
Int. Cl.[5] C04B *7/14*
U.S. Cl. 106—790 11 Claims

1. In a method for treating toxic waste in which the waste is mixed with water and a pulverent inorganic reagent based on calcium compounds to form a transportable fluid slurry which may be hardened, the improvement comprising the steps of: employing ground granulated blast furnace slag as the reagent; and adding a hardening activator to the slurry to accelerate hardening without the inclusion of any additional acid or basic means to obtain a material having a strength of more than 50 psi.

5,067,982

CORN STEEPING PROCESS AND APPARATUS

Abraham Caransa, Uithoorn, and Jan van den Dorpel, Bussum, both of Netherlands, assignors to Dorr-Oliver Incorporated, Milford, Conn.

Filed Nov. 3, 1989, Ser. No. 431,124
Int. Cl.[5] C08B *30/04;* A23L *1/10*
U.S. Cl. 127—67 13 Claims

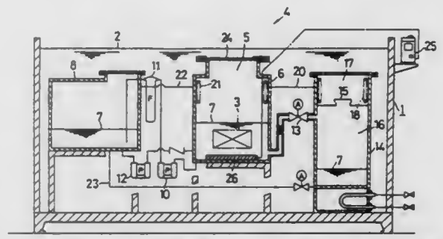
1. A corn steeping process wherein corn grains in one or more vessels are contacted with sulphur dioxide containing steeping liquid at a temperature of from 40° to 55° C., characterized in that the steeping is performed in a fluidized bed formed from corn grains and the steeping liquid.

5,067,983

METHOD AND APPARATUS FOR CLEANING OBJECT

Masahide Uchino, Tokyo, Japan, assignor to Japan Field Company Ltd., Tokyo, Japan

Filed May 29, 1990, Ser. No. 529,416
Claims priority, application Japan, May 29, 1989, 1-135461
Int. Cl.[5] B08B *3/04, 3/10, 3/12, 7/02*
U.S. Cl. 134—1 24 Claims



1. A method of cleaning an object by using an inflammable cleaning liquid, comprising the steps of:

inserting a cleaning means, comprising a container, having an openable and closable cover, and for containing said inflammable cleaning liquid, within a holding tank;

inserting said object to be cleaned within said container so as to be immersed within said inflammable cleaning liquid;

filling said holding tank with an incombustible liquid such that said container is entirely immersed within said incombustible liquid; and

operating said cleaning means so as to clean said object to be cleaned disposed within said container.

5,067,984

OIL ABSORBENT

Tina F. Starr, General Delivery, Salmo, British Columbia, V0G 1Z0, Canada

Filed Dec. 19, 1989, Ser. No. 458,562
Int. Cl.[5] B08B *7/00;* B01J *20/24*
U.S. Cl. 134—7 4 Claims

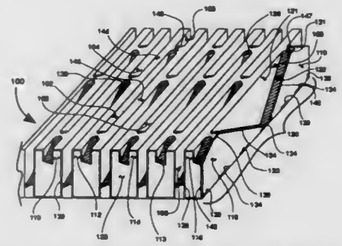
1. A petroleum or petroleum by-product degradation compound, consisting exclusively of a mixture limited to flour, dry powdered ground mustard, and a wetting agent, said wetting agent being in a small amount just sufficient to produce a paste when admixed with said ground mustard and flour; wherein said mustard is an oil-active surfactant agent; wherein said paste is destined to be spread onto an oil spill on a land surface, and wherein the oil is to be absorbed by the paste and broken down into a crumbly powder, which can then be easily collected.

5,067,985

BACK-CONTACT VERTICAL-JUNCTION SOLAR CELL AND METHOD

Michael W. Carver, Niceville, Fla., and Edward S. Kolesar, Jr., Beavercreek, Ohio, assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 8, 1990, Ser. No. 534,981
Int. Cl.[5] H01L *31/068, 31/18*
U.S. Cl. 136—255 32 Claims



1. Vertical-junction back contact solar cell apparatus comprising the combination of:

a wafer of semiconductor material having upward and downward facing surfaces and predetermined thickness, first conductivity type dopant, crystal orientation, and concentration;

an array of radiant energy capturing vertical walled and tilted flat bottomed cavity members disposed in rows across said semiconductor wafer upward facing surface with each of said cavities including an internal surface area received layer of pn-junction forming second conductivity type dopant containing semiconductor;

a first grid of electrically interconnected electrodes dispersed across said downward facing wafer surface in surface contact with first electrical polarity current collection regions of each said pn-junction inclusive cavity member;

a second grid of electrically interconnected electrodes electrically segregated from said first grid and dispersed across said downward facing wafer surface in surface contact with second electrical polarity current collection regions of each said pn-junction inclusive cavity member.

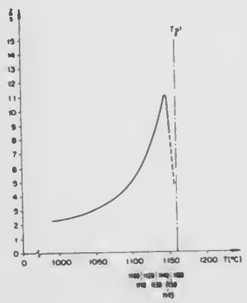
VOL 1132 ISS 4 NO 26 1991 UMI

5,067,986

PROCESS FOR PRODUCING COARSE, LONGITUDINALLY ORIENTED COLUMN CRYSTALS IN AN OXIDE-DISPERSION-STRENGTHENED NICKEL-BASE SUPERALLOY

Reinhard Fried, Nussbaumen, and Peter Jongenburger, Baden-Rütihof, both of Switzerland, assignors to Asea Brown Boveri Ltd., Baden, Switzerland

Filed May 15, 1990, Ser. No. 524,273
Claims priority, application Switzerland, May 16, 1989, 1819/89
Int. Cl.[5] C22F *1/10*
U.S. Cl. 148—11.5 N 6 Claims



1. A process for producing coarse, longitudinally oriented column crystals with improved temperature change resistance and increased ductility in a transverse direction in a workpiece of any cross-sectional size and cross-sectional shape from an oxide-dispersion-strengthened nickel-base superalloy, which exists in the initial condition in fine-grained hot-worked form, by a coarse-grain annealing which initiates the secondary recrystallization, which process comprises first annealing the workpiece by heating in a first temperature range between 1000° C. and 1200° C. for ¼ h to 10 h, cooling and isothermally annealing for coarse grain for ¼ h to 5 h in a second temperature range between 1230° C. and 1280° C. and cooling.

5,067,987

METHOD OF MANUFACTURING A SILVER ALLOY WHICH IS BLACKENED THROUGHOUT ITS BULK

Lucien Vachey, 45 avenue des Ternes, 75017 Paris, France

PCT No. PCT/FR89/00057, § 371 Date Nov. 3, 1989, § 102(e) Date Nov. 3, 1989, PCT Pub. No. WO89/08612, PCT Pub. Date Sep. 21, 1989
PCT Filed Feb. 16, 1989, Ser. No. 455,431
Claims priority, application France, Mar. 7, 1988, 88 02879
Int. Cl.[5] C22F *1/02*
U.S. Cl. 148—20.3 10 Claims

1. A method of manufacturing a blackened silver alloy which is blackened throughout its bulk, the method including the steps of:

heating the silver alloy to a temperature lying between about 450° C. and about 700° C.; and,

subsequently exposing the heated silver alloy to sulfur vapor.

5,067,988

LOW TEMPERATURE HYDROGENATION OF GAMMA TITANIUM ALUMINIDE

Francis H. Froes, Moscow, Id.; D. Simon Shong, Kaohsiung, Taiwan; Young-Won Kim, Dayton, Ohio, and Frederick C. Yolton, Coraopolis, Pa., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Feb. 2, 1990, Ser. No. 474,197
Int. Cl.[5] C22F *1/18*
U.S. Cl. 148—20.3 12 Claims

5. A method for producing a molded article from gamma titanium-aluminum alloys which comprises the steps of:

(a) rapidly solidifying said alloy to provide a rapidly solidified material having at least one dimension not greater than about 100 micrometers;

(b) diffusing hydrogen into the resulting rapidly solidified material at a temperature in the approximate range of 400° to 780° C.;

(c) diffusing hydrogen out of the hydrogenated solid material, and;

(d) consolidating said solid material in a suitable mold at a temperature of about 0° to 250° C. below the beta transus temperature of said alloy at a pressure of about 5 to 45 ksi to produce said article.

5,067,989

SINGLE CRYSTAL SILICON

Shuji Yokota, and Hirotoshi Yamagishi, both of Annaka, Japan, assignors to Shin Etsu Handotai Co., Ltd., Tokyo, Japan

Filed Aug. 22, 1990, Ser. No. 570,680
Claims priority, application Japan, Aug. 23, 1989, 1-216569
Int. Cl.[5] H01L *29/36*
U.S. Cl. 148—33 4 Claims

1. Single crystal silicon for use as a substrate of semiconductor integrated circuits, comprising as impurities Cu, Fe, Ni and Cr in individual concentrations, respectively, of not more than 0.1 ppta and in a total content of not more than 0.4 ppta, whereby the silicon reduced oxygen-induced stacking faults.

5,067,990

METHOD OF APPLYING PHOSPHATE CONVERSION COATINGS TO FE-R-B SUBSTRATES, AND FE-R-B ARTICLES HAVING A PHOSPHATE CONVERSION COATING THEREON

Raymond Ribitch, Mt. Pleasant, Mich., assignor to Hitachi Metals International, Ltd., Purchase, N.Y.

Filed Dec. 22, 1988, Ser. No. 288,490
Int. Cl.[5] C23C *22/14*
U.S. Cl. 148—262 6 Claims

1. A method of providing a phosphate conversion corrosion resistant coating over an iron-rare earth-boron alloy substrate, said substrate being itself not directly susceptible to phosphatizing, comprising the steps of:

activating said substrate in a sulphuric acid or nitric acid;

layering said substrate with a nickel by an electrolytic or electroless process from an acid solution, said nickel being susceptible to application of a phosphate conversion coating; and

applying a phosphate conversion coating to said layered nickel.

5,067,991

FE-BASED SOFT MAGNETIC ALLOY

Takao Sawa, and Masami Okamura, both of Yokohama, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 6, 1989, Ser. No. 362,134
Claims priority, application Japan, Jun. 13, 1988, 63-143756
Int. Cl.[5] H01F *1/04*
U.S. Cl. 148—305 4 Claims

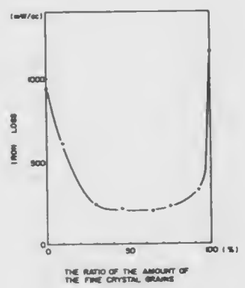
1. An Fe-based soft magnetic alloy having high saturation magnetic flux density and excellent soft magnetic characteristics, said alloy consisting of a composition represented by the general formula:

$$Fe_aCu_bV_cSi_dB_e$$

(wherein a, b, c, d, and e are number respectively satisfying the following equations:

$$a+b+c/d+e=100 \text{(atomic percentage)}$$

$$0.01 \leqq b \leqq 3.0$$



$$5 \leqq c \leqq 15$$

$$10 \leqq d \leqq 25$$

$$3 \leqq e \leqq 12$$

$$17 \leqq d+e \leqq 30),$$

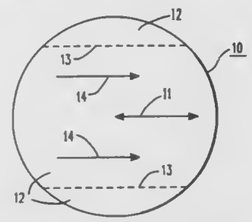
and having fine crystal grains.

5,067,992

DRILLING OF STEEL SHEET

Norman M. Pavlik, Wilkinsburg; John Sefko, Monroeville, and Richard A. Miller, N. Huntingdon, all of Pa., assignors to ABB Power T & D Company, Inc., Blue Bell, Pa.

Division of Ser. No. 257,915, Oct. 14, 1988, Pat. No. 4,963,199.
This application Sep. 14, 1990, Ser. No. 582,250
The portion of the term of this patent subsequent to Oct. 16, 2007, has been disclaimed.
Int. Cl.[5] H01F *1/12*
U.S. Cl. 148—307 8 Claims



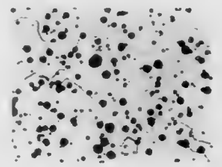
1. An oriented electromagnetic steel sheet having a stress-relief annealed, oriented structure with a plurality of magnetic domains, the improvement wherein said steel sheet has a plurality of closely spaced, small holes through the entire thickness of the steel sheet, said holes being effective to propagate additional domain walls and subdivide the magnetic domains.

5,067,993

MAGNETIC CORE MATERIAL MADE OF FE-CO BASE ALLOY FOR HIGH FREQUENCIES

Saburo Wakita, Noda; Kiyoshi Yamaguchi, Minamisaitama, and Norio Yanagisawa, Kitamoto, all of Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

PCT No. PCT/JP88/00817, § 371 Date Apr. 14, 1989, § 102(e) Date Apr. 14, 1989, PCT Pub. No. WO89/01533, PCT Pub. Date Feb. 23, 1989
PCT Filed Aug. 18, 1988, Ser. No. 345,549
Claims priority, application Japan, Aug. 19, 1987, 62-205940
Int. Cl.[5] H01F *1/04*
U.S. Cl. 148—311 27 Claims



1. A Fe-Co alloy magnetic core material for use with high frequency signals comprising 45 to 53% by weight of Co, 0.3 to 3% by weight of C, a total of 0.1 to 2% by weight of at least one selected from the group consisting of Mn and Si, and the balance Fe and unavoidable impurities, the structure of said alloy comprising a ferrite matrix containing graphite in an amount of from 1 to 20% by volume dispersed therein.

5,067,994

ALUMINIUM ALLOY, A METHOD OF MAKING IT AND AN APPLICATION OF THE ALLOY

Jens P. Brubak; Bard Eftestol, and Ferenc Ladiszlaidesz, all of Raufoss, Norway, assignors to Raufoss AS, Oslo, Norway

Continuation of Ser. No. 62,620, Jun. 16, 1987, abandoned. This application Apr. 5, 1989, Ser. No. 334,123
Claims priority, application Norway, Jun. 20, 1986, 862466
Int. Cl.[5] C22C *21/00*; B22D *25/00*
U.S. Cl. 148—415 16 Claims

6. A method of making an aluminum alloy consisting essentially of aluminum, from 0.5 to 2.0% by weight of Zr and from 0 to 1% of at least one of the elements Mg, Si, Ag, Ni, or Cu, which comprises forming an aluminum melt consisting essentially of Al, 0.5 to 2.0% by weight of Zr and from 0 to 1% by weight of at least one element which is Mg, Si, Ag, Ni or Cu, casting said melt into needle-shaped particles at a cooling velocity of 100°–1,000° C./sec so that the Zr mainly occurs in supersaturated solution in the particles, consolidating said particles whereupon the Zr is precipitated as finely distributed Al-Zr dispersoids by heat treatment in the temperature range of 300° to 400° C., said alloy having an electrical conductivity of at least 58% IACS and a 10% softening temperature of at least 400° C.

5,067,995

METHOD FOR ENHANCING STABILITY OF HIGH EXPLOSIVES, FOR PURPOSES OF TRANSPORT OR STORAGE, AND THE STABILIZED HIGH EXPLOSIVES

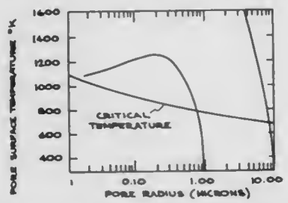
Gerald L. Nutt, Menlo Park, Calif., assignor to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Jun. 15, 1989, Ser. No. 366,715
Int. Cl.[5] C06B *45/00*
U.S. Cl. 149—2 13 Claims

1. A method for suppressing the tendency of a porous solid high explosive to ignite and detonate, comprising:

VOL 1132 ISS 4 NO 26 1991 UMI

filling substantially all the pres of the solid high explosive material with a predetermined pore radius of at least 10 μm with a relatively inert, stable, pore filling material in liquid form, the pore filling material being selected from



gallium, rubidium-potassium eutectic, and Wood's metal; and

solidifying the pore filling material in the pores of the explosive material.

5,067,996

PLASTIC BONDED EXPLOSIVES WHICH EXHIBIT MILD COOK-OFF AND BULLET IMPACT INSENSITIVE PROPERTIES

Norman H. Lundstrom, Ogden, Utah, and Russell Reed, Jr., Ridgecrest, Calif., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Oct. 17, 1977, Ser. No. 844,548
Int. Cl.[5] C06G *45/10*
U.S. Cl. 149—19.4 **6 Claims**

1. An explosive composition comprising:

82 to 85 weight percent particles of cyclic nitramine explosive of which at least 20 weight percent of said particles are 3–5μ in diameter; and

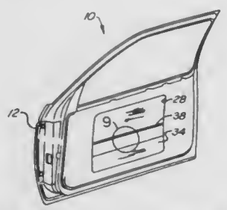
15 to 18 weight percent polyurethane elastomer formed from ethylene oxide capped polypropylene glycol.

5,067,997

METHOD FOR DETERMINING ADHERENCE TO A VEHICLE PANEL SURFACE

David L. LeClerc, Lake Orien, and Wayne A. Conti, Troy, both of Mich., assignors to Chrysler Corporation, Highland Park, Mich.

Filed Sep. 7, 1990, Ser. No. 578,376
Int. Cl.[5] G01M *19/00*
U.S. Cl. 156—64 **2 Claims**



1. A method for determining the degree of adherence to a non-flat, opaque vehicle panel surface of a component adhered thereto comprising the steps of:

a. marking a surface area of interest on the vehicle panel exterior surface;

b. applying flowable plastic material to the vehicle panel exterior surface over the area of interest and surrounding areas adjacent thereto;

c. curing the plastic material to a hardened sheet to form a splash and removing the splash from the vehicle panel;

d. cutting the vehicle panel along the periphery of the marked area and removing that portion from the vehicle panel leaving an opening in the shape of the marked area;

e. fastening the splash back onto the exterior surface of the vehicle panel in its original position thereby covering the opening;

f. casting a layer of flowable clear plastic material into the opening from the interior side of the vehicle panel and curing the clear plastic material to a hardened state;

g. removing the splash from the vehicle panel;

h. adhesively securing the component to the exterior surface of the vehicle panel over the layer of clear plastic material; and

i. visually inspecting the adhered component through the layer of clear plastic material from the interior side of the vehicle panel to determine the degree of adhesion.

5,067,998

FIBROUS MATERIAL-CONTAINING COMPOSITE

Raj N. Singh, Schenectady, and Achuta R. Gaddipati, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Continuation-in-part of Ser. No. 359,609, Jun. 1, 1989, abandoned, which is a division of Ser. No. 135,858, Dec. 21, 1987, Pat. No. 4,931,311. This application Dec. 11, 1989, Ser. No. 448,643

The portion of the term of this patent subsequent to Jun. 5, 2007, has been disclaimed.

Int. Cl.[5] C04B *35/80, 35/84;* B32B *18/00, 31/20*
U.S. Cl. 156—89 **19 Claims**



1. A process for making a composite containing boron nitride coated fibrous material embedded in a ceramic matrix which comprises the following steps:

(a) forming a laminated structure comprising at least one layer of boron nitride coated fibrous material disposed between two layers of tape comprising a ceramic matrix material said matrix having a thermal expansion coefficient which is less than about 15% higher than that of the coated fibrous material, and an organic binder material;

(b) heating the laminated structure to remove the organic binding material; and

(c) hot pressing the resulting laminated structure at a temperature and pressure to consolidate said structure to produce a composite having a porosity of less than about 5% by volume, at least about 10% by volume of said composite being said boron nitride coated fibrous material.

5,067,999

METHOD FOR PROVIDING A SILICON CARBIDE MATRIX IN CARBON-FIBER REINFORCED COMPOSITES

Holger H. Streckert, San Diego; James E. Sheehan, Solana Beach, and Khodabakhsh Mazdiyasni, Alpine, all of Calif., assignors to General Atomics, San Diego, Calif.

Filed Aug. 10, 1990, Ser. No. 565,953
Int. Cl.[5] C04B *35/56, 35/76*
U.S. Cl. 156—89 **20 Claims**

1. A method for making a composite of a silicon carbide

matrix with carbon-based fiber cloth embedded therein comprising:

(a) providing a preform of carbon-based fiber,

(b) applying a soluble boron compound to the surface of the fibers which form said preform, said boron being in a form suitable for disposing a bonding amount of said boron compound onto said fiber surfaces of said preform,

(c) impregnating said preform with a polysilane,

(d) heating said preform in a first heating step to a temperature sufficient to cure and/or crosslink said polysilane, and

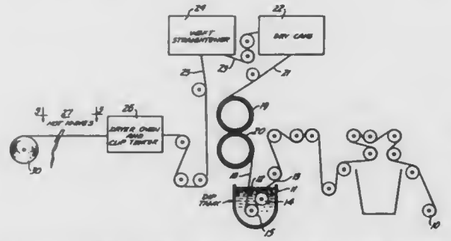
(e) heating said preform in a second heating step to a temperature sufficient to form a silicon carbide matrix with fibers from said carbon-based fiber cloth embedded therein.

5,068,000

METHOD OF MAKING A REINFORCING FABRIC FOR POWER TRANSMISSION BELTS, HOSES AND THE LIKE

Harold L. Lauderdale, Lanett, Ala., assignor to West Point Pepperell, Inc., West Point, Ga.

Filed Feb. 27, 1990, Ser. No. 485,998
Int. Cl.[5] D06C *27/00, 13/12, 3/04*
U.S. Cl. 156—148 **7 Claims**



1. The process of constructing and processing a bias oriented reinforcing fabric for subsequent coating with a rubber compound, which comprises

(a) forming a web of woven fabric including sizing agents by a suitable flat weaving procedure,

(b) said web having warp and weft yarns, opposite sides, selvedge edges, and a longitudinal axis,

(c) treating the web with heated liquid to soften the sizing agents in said fabric and wet said fabric,

(d) differentially guiding and directing the opposite sides of the softened wet fabric to cause the weft yarns to be re-oriented to lie at an angle to the warp yarns substantially greater than 90°,

(e) drying the re-oriented fabric to cause it to become geometrically stabilized while retaining said yarns substantially in their angularly re-oriented condition by engagement of the fabric by its selvedge edges, and

(f) thereafter, but prior to coating said fabric with rubber compound, removing the selvedge edges from the stabilized dry fabric.

5,068,001

METHOD OF MAKING A SOUND ABSORBING LAMINATE

Reinhold Haussling, Postfach 1269, 6734 Lambrecht/Pfalz, Fed. Rep. of Germany

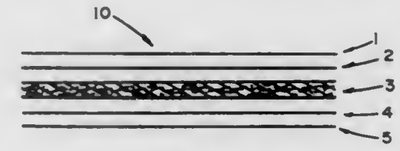
Division of Ser. No. 133,570, Dec. 16, 1987, Pat. No. 4,828,910. This application Jan. 13, 1989, Ser. No. 297,605
Int. Cl.[5] B32B *31/00*
U.S. Cl. 156—222 **21 Claims**

1. A method of forming a three-dimensional sound-absorbing structure comprising:

providing a first reinforcing porous, fibrous mat;

providing a core defined by a resilient thermoformable porous fibrous batt having a thickness of at least about one quarter of an inch;

laminating said mat to one surface of said batt by impregnating said mat and its interface with said batt with sufficient



binder resin to effect adherence therebetween, but insufficient resin binder to form a porosity-blocking film; and

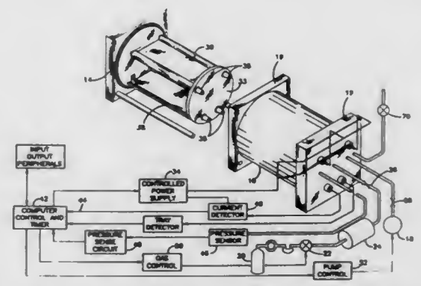
thermoforming said laminate into a porous three-dimensional configuration.

5,068,002

ULTRASONIC GLOW DISCHARGE SURFACE CLEANING

Marvin E. Monroe, Sunbury, Ohio, assignor to Quantron, Inc., Galena, Ohio

Filed Aug. 3, 1989, Ser. No. 389,308
Int. Cl.[5] B44C *1/22;* B08B *3/12*
U.S. Cl. 156—345 **9 Claims**



1. An apparatus for abrading contaminants from the surface of a workpiece and comprising:

(a) a low pressure chamber having a sealable closure;

(b) pumping means connected to the chamber for removing gas;

(c) a source of ionizable gas connected to the chamber;

(d) a set of spaced conductors forming electrodes mounted within the chamber and having a length and width extent to define a three-dimensional cleaning space in the volume defined between them;

(e) a power supply having its output connected to the electrodes for supplying alternating current to the electrodes at an ultrasonic frequency and at a sufficient voltage and current to ionize gas within the chamber to form a plasma; and

(f) a workpiece support means mounted in the cleaning space.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,003

WEAR-RESISTANT TITANIUM ALLOY AND ARTICLES MADE THEREOF

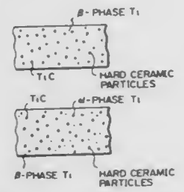
Wataru Takahashi, Nishinomiya; Yoshihito Sugimoto, Takarazuka; Mutsuo Nakanishi, Kobe; Yoshiaki Shida, Ikoma, and Minoru Okada, Nara, all of Japan, assignors to Sumitomo Metal Industries, Ltd., Osaka, Japan

Filed Nov. 9, 1989, Ser. No. 433,963

Claims priority, application Japan, Nov. 10, 1988, 63-282435; Dec. 16, 1988, 63-318783

Int. Cl.[5] C22C *14/00*

U.S. Cl. 148—421 31 Claims



1. A wear-resistant titanium alloy containing crystallized and/or precipitated titanium carbides dispersed in a β-phase matrix of the titanium alloy, the titanium alloy having a single β-phase microstructure.

5,068,004

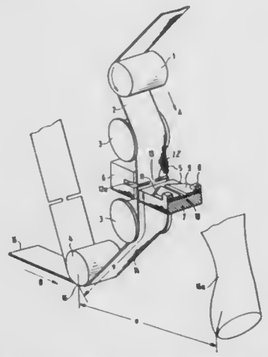
METHOD FOR THE APPLICATION OF LENGTHS OF A TAPE TO A SURFACE AND APPARATUS

Karl-Andreas Moll, Kaarst, Fed. Rep. of Germany, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed May 1, 1989, Ser. No. 345,634

Int. Cl.[5] B32B *31/18*

U.S. Cl. 156—494 6 Claims



1. A tape dispensing and applying apparatus for applying a length of tape to a surface, comprising:

(a) a casing;

(b) a tape supply and feed roll rotatively mounted on said casing;

(c) two spaced tape guiding elements mounted on said casing along a tape path for said tape supply and feed roll;

(d) a tape dispensing element mounted on said casing in said tape path with said guiding elements intermediate said tape dispensing element and said tape supply and feed roll, for placing a trailing edge of the tape onto the surface;

(e) brake means mounted on said casing for interrupting the dispensing of the tape;

(f) cutting means mounted on said casing for intermediate said tape dispensing element and said tape supply and feed roll for forming a tear line in the tape; and

(g) metering means for indicating the location on the tape where said cutting means should be activated to form a tear line in the tape to defined the leading edge in the tape at a predetermined distance from trailing edge;

(h) whereby, said braking means may be activated after said tear line passes said tape dispensing element to separate a length of tape at said tear line between said trailing edge and said leading edge for application to the surface.

5,068,005

PACKAGING CONTAINER OPENING FORMATION DEVICE FOR A PACKING MACHINE

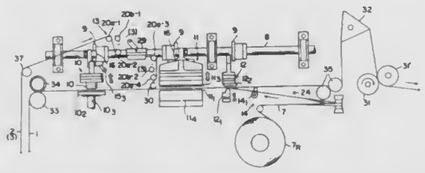
Carl G. Lindskog, Malmoe; Rolf Anderson, Hoor, and Christer Loovv, Lund, all of Sweden, assignors to AB Tetra Pak, Lund, Sweden

Filed Nov. 29, 1989, Ser. No. 443,467

Claims priority, application Japan, Nov. 30, 1988, 63-304563

Int. Cl.[5] B32B *31/18*

U.S. Cl. 156—514 8 Claims



1. A packaging container opening formation device for a packing machine provided along the conveyance path of a packaging web which is intermittently conveyed, comprising:

a punch hole opening section with a punch which opens on said web a punch hole used for a liquid-outlet, said opening section being arranged so that it can withdraw from a punch hole opening position to a punch hole non-opening position;

a strip tape pasting section comprising a heating element and a pressing plate facing each other across said conveyance path of said web, said heating element and pressing plate being switchable respectively with another heating element and pressing plate depending on the width of a strip tape to be used, and said strip tape pasting section closing punch holes opened on said web with a wide strip tape or pasting a narrow strip tape on said web which has no punch holes;

a pull-tab pasting section provided in the downstream of said strip tape pasting section so that a cutting and heating member provided on the side opposite to said strip tape on said web across said conveyance path cuts a pull-tab from a pull-tab tape and heat-deposits it on said web, said pull-tab pasting section being switchable into a non-active position;

a strip tape supply means which supplies wide and narrow strip tapes selectively to said strip tape pasting section; and

a pull-tab supply means which supplies said pull-tab tape to said pull-tab pasting section.

5,068,006

THERMAL INK JET PRINTHEAD WITH PRE-DICED NOZZLE FACE AND METHOD OF FABRICATION THEREFOR

Almon P. Fisher, Rochester, N.Y., assignor to Xerox Corporation, Stamford, Conn.

Filed Sep. 4, 1990, Ser. No. 577,245

Int. Cl.[5] H01L *21/306;* B44C *1/22;* B29C *37/00*

U.S. Cl. 156—633 18 Claims

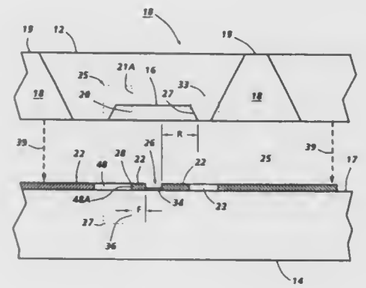
1. A method of fabricating a thermal ink jet printhead having nozzles for ejecting droplets therefrom comprising the steps of:

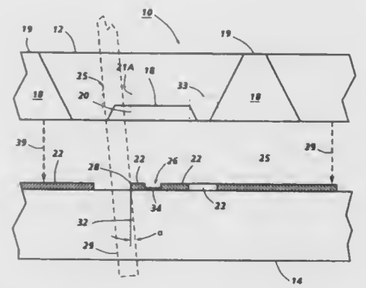
(a) forming a plurality of sets of equally spaced linear arrays of heating elements and addressing electrodes on a surface of an electrically insulative planar substrate, the heating elements being individually addressable with electrical pulses through said electrodes;

(b) depositing a thick film layer of photopatternable polymeric material over the heating elements and electrodes;

(c) patterning the thick film layer to form a plurality of pits therein, each of which exposes one of the heating elements, and to form an associated slot having at least one sidewall for each set of pits, the distance between each set of pits and the associated slot defining the distance to the heating elements from the nozzles, so that the slot sidewall forms a part of the printhead nozzles;

(d) etching a plurality of sets of equally spaced, parallel channel grooves having closed ends and an associated through recess for each set of channel grooves in the surface of a silicon wafer, the through recesses being located adjacent one end of said grooves;





(e) providing means for communication between each set of grooves and their associated through recess;

(f) dicing a first trench in the silicon wafer having a predetermined depth perpendicular to and across each of the groove ends opposite the ones adjacent the through recesses to form a nozzle face containing the groove open ends that will subsequently become part of the printheads nozzles;

(g) aligning and bonding the etched wafer with the planar substrate so that each channel groove contains a heating element therein a determined distance from the open end thereof; and

(h) separating the bonded wafer and substrate into individual printheads by a plurality of dicing cuts, one of which includes colinear dicing of the wafer and substrate along and through the wafer trenches, but spaced from the nozzle face.

5,068,007

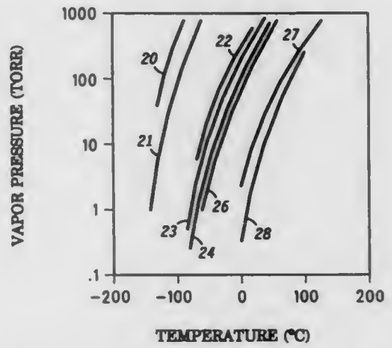
ETCHING OF MATERIALS IN A NONCORROSIVE ENVIRONMENT

Stephen P. Rogers, Mesa, and Michael S. Lebby, Chandler, both of Ariz., assignors to Motorola Inc., Schaumburg, Ill.

Filed Sep. 24, 1990, Ser. No. 587,143

Int. Cl.[5] H01L *21/306;* B44C *1/22;* C23F *1/00*

U.S. Cl. 156—643 16 Claims



1. A method for plasma etching semiconductor substrates comprising the steps of:

mounting the semiconductor substrate in a plasma reactor; and

exposing the semiconductor substrate to a gas plasma comprising methane, hydrogen, and trialkylboron.

5,068,008

FORMING SECURITY THREAD FOR CURRENCY AND BANK NOTES

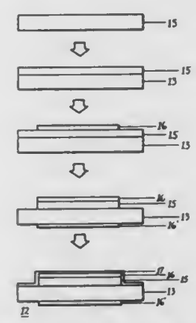
Timothy T. Crane, Dalton, Mass., assignor to Crane & Co., Dalton, Mass.

Division of Ser. No. 433,916, Nov. 9, 1989, Pat. No. 4,941,687.

This application Oct. 29, 1990, Ser. No. 604,456

Int. Cl.[5] B44C *1/22;* C23F *1/02;* B29C *37/00*

U.S. Cl. 156—659.1 3 Claims



1. A method of providing a security thread comprising the steps of:

providing a plastic strip having a metallized surface;

applying solvent-resistant pigmented indicia over said metallized surface;

applying a second pigmented coating on a second surface of said plastic strip opposite said metallized surface; and

VOL 1132 ISS 4 NO 26 1991 UMI

selectively removing a part of said metallized surface except under said first pigmented indicia to provide said pigmented indicia to said plastic strip.

5,068,009

METHOD OF PRODUCING FLUFF PULP WITH IMPROVED DEFIBRATION PROPERTIES

Olli Jokinen, Kantvik; Jukka Kettunen; Jarkko Lepo, both of Rauma; Tapio Neimi, Monnanummi, and Jaakko E. Laine, Kantvik, all of Finland, assignors to Cultor Ltd., Finland

Filed Mar. 22, 1990, Ser. No. 497,406

Claims priority, application Finland, Mar. 30, 1989, 891530

Int. Cl.[5] **D21C** *3/20;* **D21B** *1/02*

U.S. Cl. 162—9 **13 Claims**

1. A method of producing fluff pulp with improved shredding properties comprising adding an enzyme having cellulolytic and/or hemicellulolytic activity to wood pump at some point prior to shredding to form said fluff pulp, the enzyme being added in an amount sufficient to improve the shredding properties of the pulp.

5,068,010

APPARATUS FOR SECURING OIL, GAS AND BY-PRODUCTS FROM PYROBITUMINOUS SHALE AND OTHER MATTER IMPREGNATED WITH HYDROCARBONS

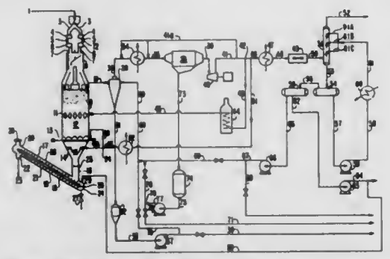
Renê Mundstock; Kuniyuki Terabe; Antonio R. Lamprecht; Joao C. Teixeira, all of Sao Mateus do Sul; Altair R. D. Batista, Rio de Janeiro; Edson d. Dias, Sao José dos Campos; Luiz D. Santos, Macaé ; Osvaldo Amorim, Campinas; Joel Rezende, Curitiba; Jorge H. Filho, Sao Mateus do Sul; Joao C. Gobbo, and Romeu Machado, both of Curitiba, all of Brazil, assignors to Petroleo Brasileiro S.A. - Petrobras, Rio de Janeiro, Brazil

Division of Ser. No. 136,573, Dec. 22, 1987, Pat. No. 4,944,867. This application May 9, 1990, Ser. No. 520,950

Claims priority, application Brazil, Dec. 22, 1986, PI860636-9[U]

Int. Cl.[5] **C10B** *1/04*

U.S. Cl. 202—99 **2 Claims**



1. In an apparatus for obtaining oil, gas and other products from pyrobituminous shales and other matter impregnated with hydrocarbons, wherein the apparatus comprises:

a retort having an upper portion, an intermediate portion and a bottom portion,

hopper means for introducing crushed shale downwardly into said upper portion of said retort through a rotating charging device having gas operated sealing means,

first injection means for injecting hot gasses into said intermediate portion of said retort at a temperature of about 500° C. to about 600° C.,

second injection means for injecting cold gasses into said bottom portion of said report at a temperature ranging between 110° C. and 180° C.,

bottom discharge means having water sealing means for discharging crushed shale from said retort,

cyclone means,

duct means connecting said cyclone means to said upper portion of said retort for removing gaseous retorted matter to said cyclone means for separation of heavy liquid components from a gaseous stream containing very fine solids in a mist,

precipitator means connected to said cyclone means for precipitating the very fine solids from said gaseous stream,

compressor means connected to said precipitator means for compressing said gaseous stream,

heater means connected between said compressor means and said first injection means for raising the temperature of a first portion of said gaseous stream to about 500° C.–600° C. for injection into said intermediate portion of said retort to start pyrolysis of the shale,

heat regenerator means connected between said compressor means and said second injector means for reducing the temperature of a second portion of said gaseous stream to about 110° C.–130° C. prior to injection of the second portion of the gaseous stream into said bottom portion of said retort,

spray scrubbing tower means connected to said compressor means for receiving a third portion of said compressed gaseous stream for separation of a gaseous component and a liquid component consisting primarily of water and heavy oil and

decanting means connected to said spray scrubbing tower means for receiving said liquid component;

the improvement comprising:

said first injector means being comprised of a plurality of parallel elongated hollow prismatic elements each having a hexagonal cross-section and including two elongated top plates connected to each other at an angle to form an elongated top vertex,

a pair of elongated parallel vertical side walls connected to lower edges of said two top plates respectively, with each side wall having a horizontal row of holes extending therethrough along the length of the side walls adjacent said top plates, said top plates extending downwardly and outwardly beyond said side walls to provide an overhang on each side to protect said holes from being directly struck by any descending solid particles, said holes having diameters related to each other such that upon passage of a gaseous stream under pressure through the prismatic elements the difference in discharge between a first and second of said holes is from 1% to 5% and lower walls connected to said side walls and connected to each other at an elongated bottom vertex;

said second gas injection means being comprised of a plurality of horizontally disposed circumferentially spaced apart pipes extending through a side wall of said retort and having downwardly and outwardly chamfered inner ends to prevent blockage of said pipes;

water cooled heat regenerator means connected between said cyclone means and said precipitator means for reducing the temperature of gasses issuing from said cyclone means by about 20° C. to 60° C. prior to entering said precipitator means;

heat regenerator means and air-worked cooler means connected in series between said compressor means and said spray scrubbing tower means; and

said decanting means being comprised of a first separating decanter having bottom liquid discharge means connected to pump means and conduit means for returning said liquid to said spray scrubbing tower means and upper discharge means connected to a second separating decanter to conduit means wherein said second separating decanter is provided with first outlet means connected to pump means for removing a watery portion and a second discharge means connected to a pump and conduit means for removing an oily portion.

5,068,011

SEPARATION OF MONOOLEFINS FROM PARAFFINS

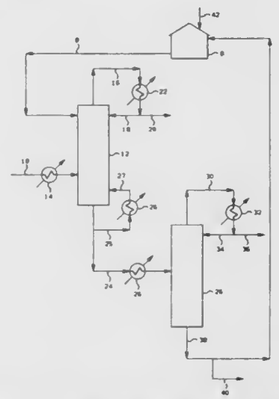
Fu-Ming Lee, and Ronald E. Brown, both of Bartlesville, Okla., assignors to Phillips Petroleum Company, Bartlesville, Okla.

Filed Oct. 26, 1990, Ser. No. 604,719

The portion of the term of this patent subsequent to Sep. 4, 2007, has been disclaimed.

Int. Cl.[5] **B01D** *3/40*

U.S. Cl. 203—58 **10 Claims**



1. A process for separating at least one alkene containing 4–10 carbon atoms per molecule from at least one close-boiling alkane by extractive distillation of a feed consisting essentially of said at least one alkene and said at least one alkane in the presence of a solvent consisting essentially of at least one N-mercaptoalkyl-2-pyrrolidone, wherein the mercaptoalkyl group contains about 1–5 carbon atoms, optionally in admixture with at least one N-alkyl-2-pyrrolidone, wherein the alkyl group contains 1–3 carbon atoms;

wherein said extractive distillation process produces (i) an overhead distillate product which contains a smaller volume percentage of said at least one alkene and a larger volume percentage of said at least one alkane than said feed, and (ii) a bottoms product which contains said solvent and a larger volume percentage of said at least one alkene and a smaller volume percentage of said at least one alkane than said feed; and wherein said at least one alkene is separated from said solvent and recovered from said bottoms product.

5,068,012

THREE DIMENSIONAL MULTI-COATING PROCESS

Shih C. Hsu, No. 6, Alley 3, Lane 181, Min Tsu Rd., Ta Wan Tsun, Yung Kang Hsiang, Tainan Hsien, Taiwan

Filed Jul. 24, 1990, Ser. No. 556,394

Int. Cl.[5] **C25D** *1/20*

U.S. Cl. 204—8 **1 Claim**

1. A three dimensional multi-coating process including the steps of:

(a) electroplating a predetermined design coating on a plastic plate member, said design coating having a predetermined thickness contour;

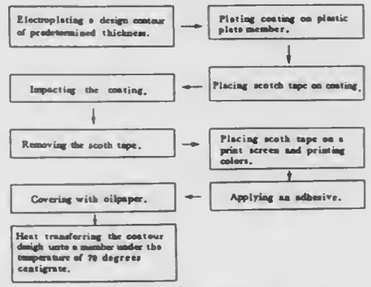
(b) placing said plastic plate design coating in adhesive contact with an adhesive tape layer;

(c) impacting an upper surface of said adhesive tape for transferring said design coating to said adhesive tape;

(d) removing said adhesive tape from said plastic plate member;

(e) print screening predetermined colors into said design coating;

(f) applying adhesive to said design coating;



(g) covering said design coating with oilpaper; and,

(h) thermally transferring said design coating to a plastic member.

5,068,013

ELECTROPLATING COMPOSITION AND PROCESS

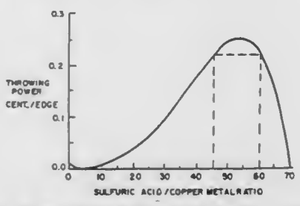
Roger F. Bernards, Wellesley; Gordon Fischer, Sudbury, and Wade Sonnenberg, Foxboro, all of Mass., assignors to Shipley Company Inc., Newton, Mass.

Continuation of Ser. No. 235,051, Aug. 23, 1988, Pat. No. 4,897,165. This application Jan. 29, 1990, Ser. No. 471,639

The portion of the term of this patent subsequent to Jan. 30, 2007, has been disclaimed.

Int. Cl.[5] **C25D** *3/38, 7/00*

U.S. Cl. 204—24 **5 Claims**



1. A process for electrolytically depositing copper on the conductive walls of through holes in a printed circuit board where said holes have an aspect ratio equal to or greater than 10 to 1 and a length of at least 0.100 inches, said process comprising the steps of electrolytically depositing copper onto the walls of said through holes from a copper plating solution comprising one or more bath soluble copper salts in a concentration sufficient to provide a total copper ion content in an amount sufficient to support plating and not exceeding eight grams per liter of solution and acid in an amount where the acid, expressed as sulfuric acid, to copper weight ratio has an upper limit in accordance with the equation:

$$R = 67 - 2.7(X)$$

and a lower limit in accordance with the equation:

$$R = 35 - 1.3(X)$$

where in each equation, R is the weight ratio of hydrogen ion expressed as sulfuric acid to copper metal and X is the weight of dissolved copper metal in solution.

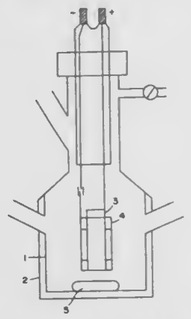
VOL 1132 ISS 4 NOV 26 1991 UMI

5,068,014

CATALYTIC COMPOSITION FOR THE POLYMERIZATION OF OLEFINS AND ITS PROCESS OF PREPARATION

Jean M. Brusson, Lambersart; Karel Bujadoux, Lens; Francis Petit, Villeneuve D'Ascq; Jean M. Fuchs, Bouvigny Boyeffles, and André Mortreux, Hem, all of France, assignors to Norsolor, Cedex, France

Filed Jun. 22, 1989, Ser. No. 369,229
Claims priority, application France, Jun. 23, 1988, 88 08447
Int. Cl.[5] C25C *1/00*; C25F *5/00*
U.S. Cl. 204—59 M 14 Claims



1. A process for the preparation of a catalytic composition for the polymerization of olefins comprising:
at least partial electrochemical oxidation of aluminum in a solvent of at least one α,ω-dihalogenalkane, and
simultaneously the electrochemical reduction of a compound of titanium (IV).

5,068,015

ELECTROCHEMICAL PROCESS FOR THE PRODUCTION OF CHROMIC ACID

Hans-Dieter Block; Norbert Lönhoff, both of Leverkusen; Bernd Makowka; Helmut Klotz, both of Bergisch Gladbach; Rainer Weber, and Bernhard Spreckelmeyer, both of Leverkusen, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Aug. 15, 1989, Ser. No. 393,733
Claims priority, application Fed. Rep. of Germany, Aug. 27, 1988, 3829121
Int. Cl.[5] C25B *1/22*
U.S. Cl. 204—89 10 Claims

1. In a process for the production of chromic acid by multistage electrolysis of dichromate solutions, monochromate solutions, or mixture of dichromate and monochromate solutions in two-compartment electrolysis cells, comprising an anode compartment and a cathode compartment, of which the anode and cathode compartments are separated by cation exchanger membranes, at temperatures in range from 50° to 90° C., wherein the dichromate solutions, or monochromate solutions, or mixture of dichromate and monochromate solutions are obtained by the digestion of chrome ores and leaching, wherein the improvement comprises (a) adjusting the pH of the monochromate solution obtained after leaching at 20° to 110° C. to a pH value of from 8 to 12 by the addition or in situ formation of carbonate in a quantity of from 0.1 to 0.18 mol/l for 300 to 500 g/l Na_2CrO_4, (b) separating the precipitated carbonates or hydroxides, (c) concentrating the solution to a content of 750 to 1000 g/l Na_2CrO_4, (d) converting with CO_2 under pressure into a dichromate-containing solution, (e) introducing the dichromate-containing solution into the anode compartment of the first stage electrolysis cell, (f) withdrawing an anolyte containing chromic acid in the last stage electrolysis cell, in which the molar ratio of Na^+-ions to chromic acid is from 0.41:0.59 to 0.35:0.65, and evaporating water from the said anolyte in vacuo in the temperature range of 55° to 80° C., crystallizing chromic acid, and separating chromic acid crystals from the said anolyte.

5,068,016

Patent Not Issued For This Number

5,068,017

METHOD TO DISSOLVE SOLID IRON OXIDES

Robert S. Boiko, 4200 W. Lake Ave., Apt. 306-C, Glenview, Ill. 60025

Continuation-in-part of Ser. No. 402,869, Sep. 5, 1989. This application May 17, 1991, Ser. No. 702,250
Int. Cl.[5] C25F *1/06*
U.S. Cl. 204—145 R 20 Claims

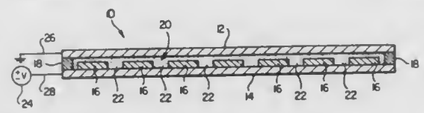
1. A method of dissolving solid iron oxide comprising providing an electrolyte of water and not less than about 14% by volume phosphoric acid or not less than 12% by weight citric acid or a combination thereof, the balance water in contact with an anode and a cathode of the solid iron oxide to be dissolved, and applying a direct negative current of not less than about 12 milliamps between the solid iron oxide cathode and an anode for a time sufficient to dissolve a portion of the solid iron oxide.

5,068,018

ELECTROPHORETIC FLUID COMPOSITE STRUCTURE

J. David Carlson, Cary, N.C., assignor to Lord Corporation, Erie, Pa.

Filed Jan. 10, 1990, Ser. No. 463,276
The portion of the term of this patent subsequent to May 28, 2008, has been disclaimed.
Int. Cl.[5] C25B *7/00*
U.S. Cl. 204—180.1 19 Claims



18. A method for controlling the stiffness of a composite structure having spaced, parallel conductive layers, said method comprising the steps of placing an insulating material having spaced raised surfaces on at least one of said layers, confining an electrophoretic fluid in a space between said layers, said fluid being separatable into particle-rich and particle-deficient phases in the presence of an electric field, and applying an electric field to said fluid a first direction for causing said particle-rich phase to collect on one of said layers and engage the spaced raised surfaces of another of said layers, thereby coupling said layers and increasing the stiffness of said structure.

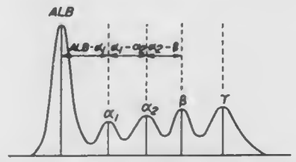
5,068,019

ELECTROPHORESIS FILM SUPPORT

Takashi Yosbida; Tsueno Kawase, and Nobuo Hiratsuka, all of Saitama, Japan, assignors to Fuji Photo Film Co., Ltd., Minami, Japan

Filed May 18, 1990, Ser. No. 525,963
Claims priority, application Japan, May 19, 1989, 1-126286; May 19, 1989, 1-126287
Int. Cl.[5] C25B *1/00, 7/00*; B01D *61/42*
U.S. Cl. 204—182.8 9 Claims

1. An electrophoresis film support for analysis of serum protein comprising a microporous polymer membrane sheet containing therein an additive which is selected from the group consisting of hydroxypropyl cellulose, triphenyl phosphate, tricresyl phosphate and mixtures thereof, and having the property that when used for serum protein analysis with a homogenous electrolyte buffer system which does not form a pH



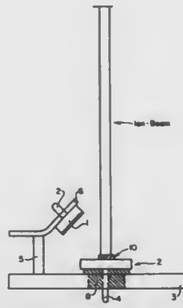
gradient on the film, the sixth peak of β-lipoprotein does not appear to give a frction pattern having clear five fractions.

5,068,020

COATED SUBSTRATES AND PROCESS

Wei-kan Chu, and Charles B. Childs, both of Chapel Hill, N.C., assignors to The University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Filed Jul. 10, 1989, Ser. No. 377,444
Int. Cl.[5] C23C *14/46*
U.S. Cl. 204—192.11 6 Claims



1. A method for forming a gold film bonded to a diamond substrate which comprises:
(a) subjecting a surface of a diamond substrate to sputtering with a stream of ions of an inert gas at about room temperature and under vacuum, said ions having sufficient force and energy to substantially change the surface characteristics of said substrate, and
(b) subsequently exposing a film-forming material which is gold to a stream of ions of an inert gas at about room temperature and under vacuum, said ions having sufficient energy to sputter the atoms of said filmforming material and to transmit the sputtered atoms to the substrate surface with sufficient force to form a gold film bonded to the diamond substrate.

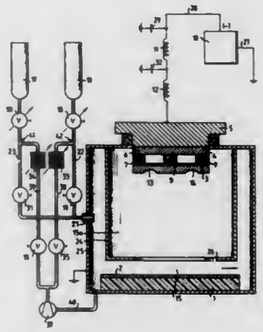
5,068,021

DEVICE FOR COATING A POLYMETHYLMETHACRYLATE SUBSTRATE WITH ALUMINUM

Eggo Sichmann, Gelnhausen; Wolf-Eckart Fritsche, Kleinostheim, and Jim Schlüssler, Gruendau, all of Fed. Rep. of Germany, assignors to Leybold Aktiengesellschaft, Hanau, Fed. Rep. of Germany

Filed Apr. 17, 1990, Ser. No. 510,043
Claims priority, application Fed. Rep. of Germany, Feb. 10, 1990, 4004116
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—192.14 9 Claims

1. Sputtering process for coating a plastic substrate with metal by means of a direct current source connected to an electrode connected to a target of said metal in an evacuable coating chamber, said process comprising the following steps during the sputtering of said target to coat said substrate:
a first coating step in which argon is introduced into said chamber and an argon plasma is ignited and maintained until the process passes from the oxidic phase to the metallic phase, whereupon said chamber is evacuated,



a second coating step in which helium is introduced into said chamber and a helium plasma is ignited and maintained until said substrate has a coating of sufficient thickness to protect said substrate against the ultraviolet radiation emitted during sputtering in an argon plasma, whereupon said chamber is evacuated, and
a third coating step in which argon is introduced into the coating chamber and an argon plasma is ignited and maintained until a desired coating thickness is attained.

5,068,022

PROCESS FOR SPUTTERING MULTILAYERS FOR MAGNETO-OPTICAL RECORDING

Peter F. Carcia, Wilmington, Del., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Nov. 27, 1989, Ser. No. 441,499
Int. Cl.[5] C23C *14/34*
U.S. Cl. 204—192.15 12 Claims

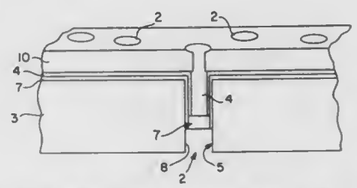
1. An improved sputtering process for making a platinum/-cobalt multilayer film comprised of alternating layers of platinum and cobalt, the improvement comprising using krypton, xenon or a mixture thereof as the sputter gas.

5,068,023

ELECTRODE ARRANGEMENT

Tapio Toivanen, Kouhialankatu 50, SF-50100 Mikkeli, Finland

Continuation of Ser. No. 326,547, Feb. 21, 1989, abandoned. This application Jan. 17, 1991, Ser. No. 641,636
Claims priority, application Finland, Jun. 24, 1987, 872811
Int. Cl.[5] C23F *13/00*
U.S. Cl. 204—196 3 Claims



1. A cathodically protected rotatable suction roll, comprising a metal suction roll having a cylindrical shell formed with

VOL 1132 ISS 4 NO 26 1991 UMI

a plurality of holes extending through the shell, an annular layer of insulation disposed on the outer surface of said roll, a layer of anodic metal disposed on the layer of insulation, said holes being exposed through said layers, an electrically insulating sleeve disposed in each hole in contact with the portion of the shell bordering the hole, each sleeve extending only a portion of the length of the hole, and an anode disposed in each sleeve and disposed out of direct electrical contact with said cylindrical shell, said anodes being connected to said layer of anodic metal, and means for connecting said layer of anodic metal in an electrical circuit with said cylindrical shell, electrolyte passing through said holes acting to complete an electrochemical circuit to thereby protect the portions of the shell bordering said holes from corrosion.

5,068,024

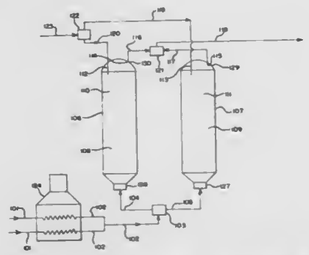
SLUDGE ADDITION TO A COKING PROCESS

Jon C. Moretta, Webster, Tex., and Robert D. Gombas, Jr., South Holland, Ill., assignors to Amoco Corporation, Chicago, Ill.

Continuation-in-part of Ser. No. 285,111, Dec. 15, 1988. This application Aug. 3, 1990, Ser. No. 562,620

Int. Cl.[5] C10G *9/14*

U.S. Cl. 208—13 32 Claims



1. A process for upgrading sludge comprising the steps of:

A. passing a feedstock comprising residual oil into a coking zone containing a low velocity vapor phase having a superficial vapor velocity of not more than about 10 feet per second, at coking conditions during a coke production cycle, to produce solid coke and vapor products; and

B. injecting a separate sludge stream into said low velocity vapor phase in the substantial absence of solid coke and coking foam produced from said feedstock, and contacting said sludge with vapor products at thermal treatment conditions to effect vaporization of at least a portion of the sludge.

5,068,025

AROMATICS SATURATION PROCESS FOR DIESEL BOILING-RANGE HYDROCARBONS

Opindar K. Bhan, Katy, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jun. 27, 1990, Ser. No. 544,445

Int. Cl.[5] C10G *45/00*

U.S. Cl. 208—57 15 Claims

1. A process for the concomitant hydrogenation of aromatics and sulfur-bearing hydrocarbons in an aromatics- and sulfur-bearing hydrocarbon feedstock having substantially all of its components boiling in the range of about 200° F. to about 900° F. which process comprises:

(a) contacting at a temperature between about 600° F. and about 750° F. and a pressure between about 650 psi and about 2500 psi in the presence of added hydrogen said feedstock with a first catalyst bed containing a hydrotreating catalyst comprising nickel, tungsten and phosphorus on an alumina support, in which the nickel content ranges from 1 to 5 percent by weight of the total catalyst, measured as the metal, the tungsten content ranges from 10 to 35 percent by weight of the total catalyst measured as the metal and the phosphorus content ranges from 1 to 5 percent by weight of the total catalyst;

(b) passing the hydrogen and feedstock without modification, from the first catalyst bed to a second catalyst bed where it is contacted at a temperature between about 600° F. and about 750° F. and a pressure between about 600 psi and about 2500 psi with a hydrotreating catalyst comprising a hydrogenating metal component selected from cobalt, nickel and mixtures thereof, molybdenum and phosphorus on an alumina support, in which the hydrogenating metal component content ranges from 1 to 5 percent by weight of the total catalyst, measured as the metal, the molybdenum content ranges from 8 to 20 percent by weight of the total catalyst, measured as the metal and the phosphorus content ranges from 1 to 5 percent by weight of the total catalyst.

5,068,026

PROCESS FOR THE PRODUCTION OF NON-PUFFING SHAPED CARBON BODIES

Hubert Jäger, Biberbach-Eisenbrechtshofen, and Alfred Lorenz, Langweid, both of Fed. Rep. of Germany, assignors to SIGRI GmbH, Meitingen, Fed. Rep. of Germany

Filed Mar. 6, 1990, Ser. No. 489,192

Claims priority, application Fed. Rep. of Germany, Mar. 6, 1989, 3907158

The portion of the term of this patent subsequent to Jul. 16, 2008, has been disclaimed.

Int. Cl.[5] C10G *9/06*

U.S. Cl. 208—125 11 Claims

1. In a process for the production of graphitized carbon bodies from components consisting essentially of coal tar pitch coke and at least one cokable binder, by mixing to form a green mixture, shaping, coking and graphitization, the improvement which consists essentially of the step of adding at least one compound of metals selected from the group of alkaline earth metals consisting of magnesium, calcium, strontium and barium, said compound being at least partially soluble in the binder to at least one of the components of the green mixture before shaping, said added compound reducing the irreversible thermal expansion of the shaped bodies upon heating to temperatures about 1400° C.

5,068,027

PROCESS FOR UPGRADING HIGH-BOILING HYDROCARONACEOUS MATERIALS

Stephen C. Paspek, North Royalton; Jeffrey B. Hauser, Middleburgh Hgts.; Christopher P. Eppig, Cleveland Hts., and Harry A. Adams, Bedford, all of Ohio, assignors to The Standard Oil Company, Cleveland, Ohio

Filed Feb. 20, 1990, Ser. No. 482,255

Int. Cl.[5] C10G *9/26, 9/42*

U.S. Cl. 208—125 43 Claims

1. A process for upgrading a hydrocarbonaceous material having an initial boiling point at atmospheric pressure of at least about 625° F. to a product having a lower boiling point than the initial boiling point of said hydrocarbonaceous material and/or a higher boiling point than the final boiling point of said hydrocarbonaceous material, the process comprising heating a mixture comprising said hydrocarbonaceous material and at least one organic solvent in an enclosed space in the absence of externally supplied water or hydrogen at a temperature in the range of about 750° F. to about 1300° F. and a pressure in excess of about 1500 psig for an effective period of time to yield said product, said pressure being sufficient to maintain the specific gravity of the contents of said enclosed space in the range of about 0.05 to about 1.5,said organic solvent being capable of dissolving at least about 10 parts of said hydrocarbonaceous material per million parts of said organic solvent at the temperature wherein at least about 50% by weight of said organic solvent boils at atmospheric pressure.

5,068,028

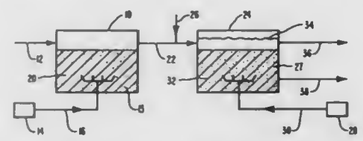
MOLYBDENITE FLOTATION FROM COPPER SULFIDE/MOLYBDENITE CONTAINING MATERIALS BY OZONE CONDITIONING

Jan D. Miller; Yi Ye, both of Salt Lake City, Utah, and Woo-Hyuk Jang, Seoul, Rep. of Korea, assignors to University of Utah, Salt Lake City, Utah

Filed Jan. 21, 1990, Ser. No. 485,959

Int. Cl.[5] B03D *1/002, 1/02*

U.S. Cl. 209—167 19 Claims



1. A process for the recovery of molybdenite from a finely divided feed material containing one or more copper sulfides and molybdenite comprising;

(a) contacting the feed material with ozone,

(b) aerating an aqueous suspension of the ozone-treated feed material in the presence of a frother to float molybdenite and create a froth containing molybdenite on the surface of the suspension, and

(c) recovering the froth from the surface of the suspension to form a molybdenite concentrate product, wherein the amount of ozone in step (a) is sufficient to inhibit the flotation of copper sulfides in the feed material upon aeration in step (b).

5,068,029

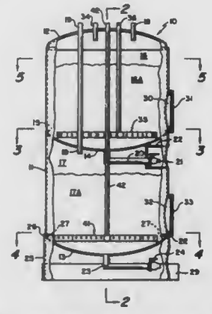
TWO-CHAMBER FLUID/SOLIDS TREATMENT VESSEL

Donald D. Tiggelbeck, Pittsburgh, Pa., and Samuel K. Patton, Heber Springs, Ak., assignors to Tigg Corporation, Pittsburgh, Pa.

Filed Feb. 20, 1990, Ser. No. 481,320

Int. Cl.[5] B01D *24/14*

U.S. Cl. 210—284 16 Claims



1. A vessel for contacting a fluid with particulate solids comprising a side wall, a top wall, a bottom wall and an intermediate wall which divides the interior of said vessel into an upper chamber and a lower chamber;

first solids loading conduit means to introduce particulate solids into said upper chamber to establish a first static bed of solids in said upper chamber; second solids loading conduit means to introduce particulate solids into said lower chamber to establish a second static bed of solids in said lower chamber;

first solids withdrawal conduit means for withdrawing particulate solids from said upper chamber; second solids withdrawal conduit means for withdrawing particulate solids from said lower chamber;

first fluid inlet conduit means for introducing fluid to be treated into the top portion of said upper chamber above the first static bed; second fluid inlet conduit means for introducing fluid to be treated into the top portion of said lower chamber above the second static bed;

first fluid withdrawal conduit means including a first fluid collector adjacent to the intermediate wall for withdrawing fluid from the bottom of said first static bed in said upper chamber; second fluid withdrawal conduit means including a second fluid collector adjacent to said bottom wall for withdrawing fluid from the bottom of said second static bed in said lower chamber.

5,068,030

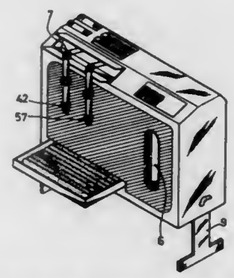
WATER FILTERING STERILIZING AND HEATING APPARATUS

Chi-Min Chen, Taipei Hsien, Taiwan, assignor to Oxford Science Industrial Co., Ltd., Taipei Hsien, Taiwan

Filed Nov. 9, 1990, Ser. No. 611,049

Int. Cl.[5] B01D *35/143, 35/06*; C02F *9/00*

U.S. Cl. 210—95 5 Claims



1. A water filtering, sterilizing and heating apparatus for coupling to a source of tap water, comprising:

a housing;

a filter tank disposed within said housing coupled to said source of water, said filter tank including activated carbon for removing odors and impurities from water passing therethrough;

a microwave oscillator disposed within said housing having an inlet coupled to an outlet of said filter tank for vibrating and churning water passing therethrough;

a vertically directed sterilizing tank disposed within said housing having a cylindrically shaped outer wall and an inlet disposed at a lower portion of said sterilizing tank, said sterilizing tank inlet being coupled to an outlet of said microwave oscillator, said sterilizing tank including (1) an ultra-violet lamp positionally located centrally therein and extending in said vertical direction, (2) a ridge member helically formed on in inner surface of said outer wall for directing the flow of water through said sterilizing tank to an outlet disposed at an upper portion of said sterilizing tank, and (3) a deflection member disposed adjacent said inlet of said sterilizing tank for directing water entering said sterilizing tank to said helical ridge member, whereby water flowing through said sterilizing tank spirals about said ultra-violet lamp;

cold water discharge means coupled to said outlet of said sterilizing tank for supplying substantially unheated water from said sterilizing tank, said cold water discharge means including a first faucet coupled to said outlet of said sterilizing tank; and,

hot water discharge means coupled in parallel comunication with said cold water discharge means for supplying heated water from said sterilizing tank, said hot water discharge means including (1) a storage tank disposed

VOL 1132 ISS 4 NO 26 1991 UMI

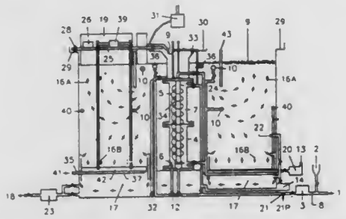
within said housing being fluidly coupled to said outlet of said sterilizing tank, (2) valve means for controlling the flow of water into said storage tank responsive to a fluid level therein, (3) means for heating water within said storage tank to a predetermined temperature, and (4) a second faucet coupled to an outlet of said storage tank.

5,068,031

SLUDGE TREATMENT APPARATUS

Lawrence K. Wang; Mu H. S. Wang, both of Latham; Chong S. Hwang, Flushing, and Harold Rhow, Hartsdale, all of N.Y., assignors to Int'l Enviroomental Systems, Inc., Pittsfield, Mass. and Globe Environmental Protection, Inc., Flushing, N.Y.

Filed Jul. 6, 1990, Ser. No. 549,413
Int. Cl.[5] C02F *11/14*
U.S. Cl. 210—96.1 **3 Claims**



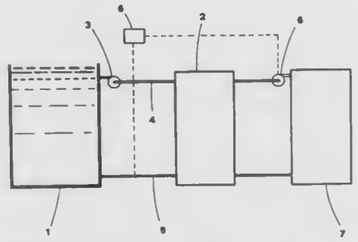
1. An apparatus for treating liquid sludge, comprising in combination:
- an inlet pipe with an in-line static mixing member for introducing said liquid sludge into said apparatus,
- means for feeding chemical to said inlet pipe carrying said liquid sludge,
- a built-in flotation monitor monitoring pH, streaming current, suspended solids, turbidity, and optical density for and adjusting the feeding of said chemical,
- a cylindrical outer tank having the bottom thereof as an outside wall of said apparatus,
- means for connecting said flotation monitor to said inlet pipe,
- means for feeding pH buffer chemical to said inlet pipe in response to said flotation monitor,
- a cylindrical inner pressure vessel disposed within said outer tank for flocculation, grit settling and gas dissolving,
- means for introducing said liquid sludge tangentially into the top of the cylindrical inner pressure vessel to form a pressurized liquid sludge containing compressed gas for releasing by releasing means into said outer tank,
- means for removing settled heavy silts, and sludges from the bottom of said pressure vessel,
- a cylindrical inner porous tube positioned within said pressure vessel for gas dissolution under the pressure,
- means for introducing gas to be pressurized through said inner porous tube into said pressure vessel for dissolving gas,
- means for measuring the flow rates of said liquid sludge and various gases in said inlet pipe, pressure vessel, and other inlets or outlets,
- releasing means for introducing the pressurized liquid sludge containing compressed gas to be depressurized and clarified from said pressure vessel into said outer tank for bubble generation and flotation-gravity clarification,
- an influent distribution means for introducing non-pressurized liquid sludge into said outer tank for flotation-gravity clarification,
- means for operating the flotation-gravity clarification under full flow pressurization mode, partial flow pressurization mode, recycle flow pressurization mode, or combinations thereof,
- traveling sludge scooping means for removing floated sludge from the liquid surface of said outer tank,
- sludge hopper and traveling scraper blade means for removing settled, heavy sludges from the bottom of said outer tank,
- sludge discharge means for transporting said floated sludge and settled sludge through a sludge collection member to a dewatering device,
- a recycle tank over the bottom of said outer tank for collection of flotation-gravity clarified effluent and for partial recirculation of clarified effluent,
- an outlet for discharging said flotation-gravity clarified water from said recycle tank to an in-line water treater and then to discharge as a treated effluent,
- a moving carriage having a platform supported between the upper portion of the wall of said outer tank and the upper portion of the wall of said pressure vessel so as to hold said releasing means, sludge scooping and scraping means, and driving motors,
- means for circular moving said moving carriage together with said releasing means, sludge scooping, and scraping means, and driving motors along outer and inner rails on said apparatus and around the vertical axis of said apparatus,
- means for recycling a portion of water from said recycle tank or said flotation clarification effluent into said pressure vessel to form the liquid sludge to be pressurized, then depressurized and clarified, and
- means for generating an electronic or magnetic field in the in-line water treater for control of biological fouling, scaling and corrosion.

5,068,032

SYSTEM FOR FIXING ANODIZED ALUMINUM

Giuseppe Garuti, No. 131 via Mantegna, 41100 Modena, Italy

Filed Jan. 22, 1990, Ser. No. 467,925
Claims priority, application Italy, Feb. 17, 1989, 40027 A/89
Int. Cl.[5] B05C *11/00*
U.S. Cl. 210—96.1 **4 Claims**



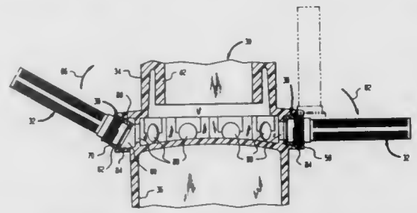
1. A system for fixing anodized aluminum, comprising:
- a bath (1) of nickel fluoride solution in which items of anodized aluminum are immersed;
- a tank (2), connected with the bath (1) by a flow pipeline (4) and a return pipeline (5) and said tank containing a negative ion exchange resin bed charged initially with fluorine ions;
- pump means (3) connected to said bath and said tank to recycle the solution contained in the bath by the flow line, the tank and the return line; and recharging means (7) connected to said tank to recharge the resin bed with fluorine ions when required.

5,068,033

UNDERDRAIN ASSEMBLY WITH PIVOTALLY-MOUNTED AND LOCKABLE LATERALS

Samuel Tobias, Edison, and Fred T. Hazleburst, Union, both of N.J., assignors to Hayward Industries, Inc., Elizabeth, N.J.

Filed May 10, 1990, Ser. No. 521,610
Int. Cl.[5] B01D *35/31*
U.S. Cl. 210—169 **16 Claims**



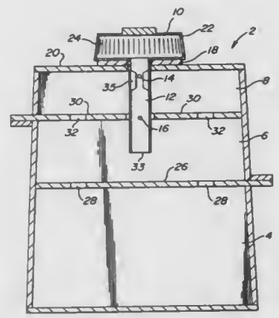
6. In combination, a swimming pool filter and an underdrain assembly contained within said filter, said underdrain assembly including a housing having a plurality of openings therein; a plurality of collecting means for collecting filtered water; a plurality of pivoting means for pivotally mounted said plurality of collecting means to said housing such that each of said collecting means is pivotable between a non-operating position, n which it is out of alignment with a corresponding one of said openings in said housing, and an operating position, in which it is in alignment with said corresponding one of said openings in said housing; and connecting means for releasably and threadedly connecting each of said collecting means to a corresponding one of said pivoting means, whereby each of said collecting means can be individually replaced without requiring removal of said underdrain assembly from said filter.

5,068,034

PURIFICATION UNDERDRAIN WITH MEANS TO COMPENSATE FOR FLOW AND PRESSURE DIFFERENCES BETWEEN LATERALS

Thomas P. Walter, Dallas, Pa., assignor to Unilift Corporation, Wilkes Barre, Pa.

Filed May 3, 1990, Ser. No. 518,687
Int. Cl.[5] B01D *24/46*
U.S. Cl. 210—232 **65 Claims**



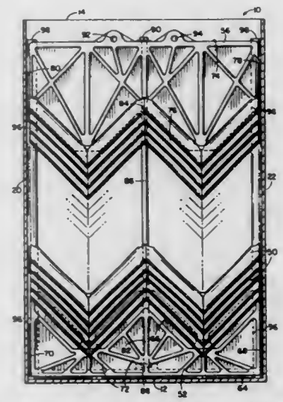
1. A liquid purification system comprising:
- (a) a bed into which a liquid to be purified flows;
- (b) a liquid purification media located in said bed;
- (c) an underdrain placed in said bed beneath said purification media, said underdrain comprising a plurality of underdrain laterals laid laterally in said bed, each of said plurality of laterals being parallel and each of said laterals comprising:
  - (1) a gas chamber defined by surrounding walls;
  - (2) a means to cleanse said purification media during cleansing period using gas and backwash liquid introduced into said underdrain;
  - (3) a means to isolate said gas by from said backwash liquid and provide that only said gas occupies each of said gas chambers during said cleansing periods, said isolating means comprising each of said gas chambers and a means for injecting gas into each of said gas chambers;
  - (4) a means to compensate for differences in liquid pressures and flow during purification periods and said cleansing periods between said laterals and to equalize liquid distribution between said laterals.

5,068,035

COALESCING PLATE PACKING SYSTEM

Kirby S. Mohr, Jenks, Okla., assignor to Facet Quantek, Inc., Tulsa, Okla.

Filed Jan. 28, 1991, Ser. No. 647,501
Int. Cl.[5] C02F *1/40*
U.S. Cl. 210—236 **22 Claims**



1. A coalescing system for separating immiscible components of different densities mixed in a fluid comprising:
- a vessel having a fluid inlet, a lighter component outlet and a heavier component outlet, the vessel having a bottom, opposed end walls, opposed paralleled sidewalls and an open top;
- a coalescing stack formed of a plurality of vertically spaced apart coalescing plates positioned within said vessel, each coalescing plate having bi-directional corrugations running both laterally and longitudinally along the single plane of the plate forming crests and valleys, the crests and valleys including bleed holes for passage of the immiscible components;
- a pair of bottom supports each having a flat bottom edge, an undulating upper edge conforming to said lateral corrugations of said coalescing plates, and having opposed paralleled sides, the spacing therebetween being slightly less than the spacing between said vessel sidewalls, the bottom supports being spaced apart from each other within said vessel and supporting said coalescing stack;
- a pair of top supports each having an upper edge and an undulating bottom edge conforming to said lateral corrugations of said coalescing plates, and having opposed paralleled sides, the spacing between the sides being slightly less than the spacing between said vessel sidewalls, the top supports being spaced apart and positioned directly over said bottom supports in spaced apart planes; and

VOL 1132 ISS 4 NO 26 1991 UMI

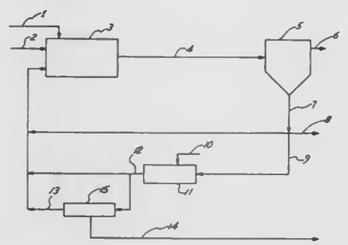
means of retaining said bottom supports, said coalescing stack and said top supports in an assembled package for insertion into and removal from said vessel.

5,068,036

ACTIVATED SLUDGE PROCESS WITH IN SITU RECOVERY OF POWDERED ADSORBENT

Alan Y. Li, Burr Ridge, Ill.; James F. Grutsch, Hammond, Ind., and Kevin P. O'Leary, Orland Hills, Ill., assignors to Chemical Waste Management, Inc., Oak Brook, Ill.

Continuation-in-part of Ser. No. 291,061, Dec. 28, 1988, abandoned. This application Mar. 30, 1990, Ser. No. 502,290
Int. Cl.[5] C02F *3/00, 3/08*
U.S. Cl. 210—606 24 Claims



1. An activated sludge process for the biological treatment of contaminated waste streams comprising, in combination, the steps of:

(a) contacting a contaminated waste stream with unregenerated recovered powdered adsorbent having adsorbed/absorbed thereon a substantial quantity of organic material from a previous contact with a contaminated waste stream and activated sludge comprising cellular microorganisms for a time sufficient to biologically degrade contaminates in the waste stream, thereby producing a decontaminated waste stream and a mixture of activated sludge and microorganism encapsulated powdered adsorbent;

(b) separating by gravity the activated sludge and the microorganism encapsulated powdered adsorbent from the decontaminated waste stream;

(c) lysing substantially all of the encapsulated powdered adsorbent to remove the microorganisms encapsulating the powdered adsorbent without desorption or destruction of the adsorbed/absorbed organic material to yield unregenerated recovered powdered adsorbent and cell lysate; and

(d) recycling the unregenerated recovered powdered adsorbent, activated sludge and the cell lysate for recontact with a contaminated waste stream, the unregenerated recovered powdered adsorbent not being subjected to a thermal regeneration process prior to recontact with the contaminated waste stream.

5,068,037

REMOVAL OF FE(II) FROM HYDROXYLAMINE SULFATE SOLUTION

Chin-Hsiung Chang, Palatine, Ill., assignor to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Nov. 29, 1990, Ser. No. 619,854
Int. Cl.[5] B01D *11/04, 15/04;* C02F *1/64*
U.S. Cl. 210—638 9 Claims

1. A process comprising purifying an aqueous solution of hydroxylamine sulfate containing about 5 to 100 wt. ppm (Fe(II) to provide an iron concentration suitable for preparing oxime compounds by contacting said solution with an effective amount of a non-polar solvent containing about 0.005 to 0.005 M of HPMTFP and about 0.0025 to 0.025M of TOPO at a pH above about 2.0 for a period of time sufficient to remove said Fe(II) to below 3 wt. ppm and thereafter separating said non-polar solvent.

5,068,038

METHOD OF LOWERING THE AOX CONTENT IN WATER

Joachim Fischer, Rodenbach, and Hubert Wolf, Hammersbach, both of Fed. Rep. of Germany, assignors to Degussa Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Sep. 18, 1990, Ser. No. 584,081
Claims priority, application Fed. Rep. of Germany, Sep. 27, 1989, 3932174
Int. Cl.[5] C02F *1/28*
U.S. Cl. 210—662 13 Claims

1. A method of lowering the content of halo-organic pollutants in water, to residual AOX values below 1 mg organically bound halogen per liter, said method comprising adsorbing the halo-organic pollutants on iron (III) hydroxy complexes formed in situ by the hydrolysis of iron (III) salts in the presence of a further adsorption agent and separating the adsorption agents in flocculent form at pH 7 to 10, said method including determining the Fe^{2+} content; of the water, if necessary adjusting the Fe^{2+} content of the water to 20 to 1000 mg Fe^{2+} per liter water by addition of an iron (II) salt, adding an oxidation agent for converting Fe^{2+} into Fe^{3+}, after any adjustment of the Fe2+ content, in an amount at least sufficient for the oxidation of at least 20 mg Fe^{2+}/l and at most sufficient for the oxidation of all the Fe^{2+}/l present in the presence of any other components which can be oxidized practically instantaneously, in a manner similar to Fe^{2+} under the conditions of the reaction, the second adsorption means being a precipitated or pyrogenic silica having a specific surface of above 50 m^2/g and the amount of said second absorption means being 50 to 1000 mg/l during the flocculation of the iron (III) hydroxy complexes.

5,068,039

METHOD AND DEVICE FOR DISPERSING IONS BY REMOTE ACTION

Jorge Cure, 8201 NW. 191 La., Miami, Fla. 33015; Panagiotis T. Pappas, Marcopuliotis 26, G-11744, Athens, Greece, and Harry Eichler, 5323 Hayes St., Hollywood, Fla. 33021

Filed Dec. 6, 1989, Ser. No. 446,984
Claims priority, application Greece, Sep. 20, 1989, 890100595
Int. Cl.[5] B01D *35/06*
U.S. Cl. 210—695 4 Claims



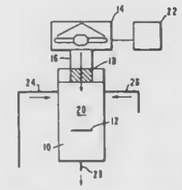
4. Method for dispersing or transporting ions and/or electrical charges inside materials by remote action, which comprises producing magnetic flux with a first electrically powered coil spaced from a material from which ions and/or electrical charges are to be dispersed or transported, surrounding the material with a second coil separated from said first coil by a plane perpendicular to a longitudinal axis of said first coil and connecting a short circuit across said second coil consisting of a diode for eliminating and/or smoothing the negative phase of the magnetic flux with the second coil.

5,068,040

DENSE PHASE GAS PHOTOCHEMICAL PROCESS FOR SUBSTRATE TREATMENT

David P. Jackson, Saugus, Calif., assignor to Hughes Aircraft Company, Los Angeles, Calif.

Filed Apr. 3, 1989, Ser. No. 332,124
Int. Cl.[5] C02F *1/32, 1/78;* B08B *3/12*
U.S. Cl. 210—748 15 Claims



1. A process for removing undesired material from a chosen substrate comprising the steps of:

(a) placing said substrate containing said undesired material in a cleaning vessel;

(b) contacting said substrate containing said undesired material with a chosen dense phase gas

above the critical pressure and critical temperature of said gas, said gas being capable of producing a cleaning effect to assist in the removal of said undesired material from said substrate;

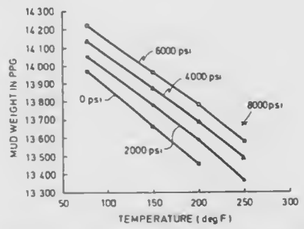
(c) exposing said substrate and said dense phase gas to radiation of a predetermined wavelength to produce a photochemical reaction that removes said undesired material from said substrate wherein said dense phase gas enhances the removal of said undesired material from said substrate.

5,068,041

OIL BASED SYNTHETIC HYDROCARBON DRILLING FLUID

Arvind D. Patel; Raymond E. McGlothlin; Roger D. Bleier, and H. N. Brinkley, all of Houston, Tex., assignors to M-1 Drilling Fluids Company, Houston, Tex.

Continuation-in-part of Ser. No. 503,304, Mar. 30, 1990, abandoned. This application Jun. 8, 1990, Ser. No. 535,110
Int. Cl.[5] C09K *7/06*
U.S. Cl. 507—103 26 Claims



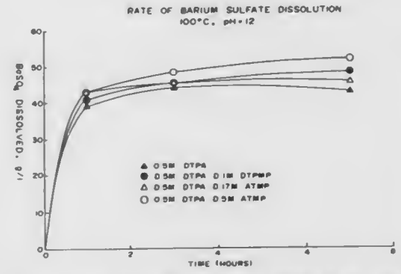
1. An improved continuous phase for an oil based drilling fluid, said continuous phase being characterized by minimal toxicity to plant and aquatic life and environmental compatibility, said continuous phase comprising a synthetic hydrocarbon oil, said synthetic hydrocarbon oil having an average molecular weight of from about 120 to about 1000, said synthetic hydrocarbon oil being synthesized from one or more olefinic monomers having a chain length of C_2 to C_{14}.

5,068,042

DISSOLUTION OF SULFATE SCALES

John Hen, Skillman, N.J., assignor to Mobil Oil Corporation, Fairfax, Va.

Filed Jul. 26, 1990, Ser. No. 558,957
Int. Cl.[5] E21B *43/12, 41/02*
U.S. Cl. 252—8.552 30 Claims



1. A composition for the removal of sulfate scale from surfaces comprising an aqueous solution of about 0.1 to 1.0 molar concentration of an aminopolycarboxylic acid (APCA) containing 1 to 4 amino groups or a salt thereof, and about 0.1 to 1.0 molar concentration of a second component which is diethylenetriaminepenta(methylenephosphonic acid) (DTPMP) or a salt thereof, or aminotri(methylenephosphonic acid) (ATMP) or a salt thereof as an internal phase enveloped by a hydrocarbon membrane phase which is itself emulsified in an external aqueous phase, said hydrocarbon membrane phase containing a complexing agent weaker for the cations of said sulfate scale than said APCA and DTPMP or ATMP, any complexing agent for said cations in said external aqueous phase being weaker than that in said hydrocarbon membrane phase.

5,068,043

PREFORMED SURFACTANT-OPTIMIZED AQUEOUS ALKALINE FLOOD

David R. Thigpen; Jimmie B. Lawson, and Richard C. Nelson, all of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Continuation-in-part of Ser. No. 797,340, Nov. 12, 1985, abandoned, which is a continuation-in-part of Ser. No. 585,468, Mar. 2, 1984, abandoned, which is a continuation-in-part of Ser. No. 411,779, Aug. 26, 1982, abandoned. This application Aug. 9, 1989, Ser. No. 391,004
Int. Cl.[5] E21B *43/22*
U.S. Cl. 252—855.4 32 Claims

1. In a process for recovering oil from an acidic oil reservoir by injecting an aqueous alkaline solution comprising water, sodium chloride, and alkaline material for reacting with the reservoir oil forming a petroleum acid soap to form an in-situ surfactant system, the improvement comprising:

1) selecting a preformed cosurfactant which is soluble in both the aqueous solution and the reservoir oil and has a solubility ratio which is greater than the solubility ratio of the petroleum acid soap where the solubility ratio is the ratio of solubility in the aqueous alkaline solution to the solubility in the reservoir oil;

2) combining with the alkaline solution an amount of the preformed cosurfactant which will result in the in-situ surfacant system havng a salinity about equal to a salinity which results in minimal interfacial tension between the oil in the reservoir and the in-situ surfactant system at reservoir temperature, wherein the amount of the preformed cosurfactant is about 0.3 percent by weight in the aqueous alkaline solution; and

3) injecting the cosurfactant-aqueous alkaline solution mix-

VOL 1132 ISS 4 NO 26 1991 UMI

ture into the reservoir to displace oil toward a fluid production location.

5,068,044

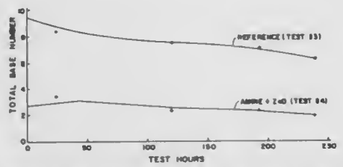
METHOD FOR REDUCING PISTON DEPOSITS

Darrell W. Brownawell, Scotch Plains; Warren A. Thaler, Flemington; Eric Bannister, Colts Neck, and Paul K. Ladwig, Randolph, all of N.J., assignors to Exxon Research & Engineering Company, Florham Park, N.J.

Continuation of Ser. No. 269,274, Nov. 9, 1988, Pat. No. 4,906,389. This application Mar. 5, 1990, Ser. No. 488,194

Int. Cl.[5] C10M *129/28*

U.S. Cl. 252—25 **35 Claims**



1. A method for reducing piston deposits in an internal combustion engine lubricated with a lubricating oil containing a soluble weak base and circulating within the lubircation system of the engine which comprises

(a) circulating the lubricating oil to the piston ring zone of the engine where fuel combustion acids are introduced into the oil,

(b) contacting, at the piston ring zone, the combustion acids with from about 0.01 to about 3.0 wt.% of the weak base such that at least a portion of the acids are neturalized to form a soluble neutral salt containing the weak base and the combustion acids, wherein the weak base has a PKa ranging from about 4 to about 12,

(c) circulating the lubricating oil containing the soluble neutral salt to a heterogenous strong base immobilized within the lubrication system of the engine downstream of the piston ring zone, and

(d) contacting the soluble neutral salt with the heterogenous strong base, thereby causing at least a portion of the weak base in the salt to be displaced into the lubricating oil and resulting in the formation of a strong base/combustion acid salt which is immobilized with the heterogenous strong base,

wherein the heterogenous strong base is part of the oil filter system of the engine.

5,068,045

GREASE COMPOSITION CONTAINING ALKOXYLATED AMIDE BORATES

John P. Doner, Sewell; Andrew G. Horodysky, Cherry Hill, and John A. Keller, Jr., Pitman, all of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 511,803, Apr. 17, 1990, abandoned, which is a continuation of Ser. No. 57,155, May 4, 1987, abandoned, which is a continuation of Ser. No. 769,912, Aug. 27, 1985, abandoned. This application Oct. 10, 1990, Ser. No. 596,624

Int. Cl.[5] C10M *169/06*

U.S. Cl. 252—32.007 E **19 Claims**

1. An improved grease composition comprising a major portion of a lubricating component and:

(a) a means for elevating the dropping point of a grease comprising a compound prepared by reacting a boron compound with a hydroxyl-containing amide and

(b) a hydroxy-containing soap thickener.

5,068,046

LUBRICANT COMPOSITION COMPRISING AN OCTADECYLENE OXIDE POLYAMINE REACTION PRODUCT

David A. Blain, Mt. Laurel, and Angeline B. Cardis, Florence, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation of Ser. No. 460,691, Jan. 4, 1990, abandoned, which is a continuation-in-part of Ser. No. 276,010, Nov. 25, 1988, abandoned. This application Feb. 19, 1991, Ser. No. 657,287

Int. Cl.[5] C10M *133/08*

U.S. Cl. 252—51.5 A **16 Claims**

1. A lubricant composition consisting essentially of a major proportion of a lubricant and an antioxidant and dispersant amount of a reaction product obtained by reacting a linear, long chain octadecylene oxide with a polyamine which has the structural formula:

$$H_2N\text{-}(R^5\text{-}N)_x\text{-}R^6\text{-}NH_2$$
$$\quad\quad\quad

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,051

CLEANING SOLVENT

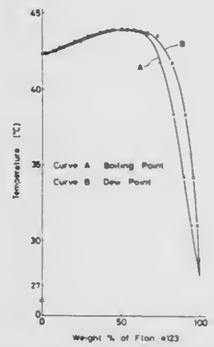
Hideaki Kikuchi; Motosuke Ogawa, both of Shimizu, and Akira Niiyama, Mitaka, all of Japan, assignors to Dupont-Mitsuj Fluorochemicals Co., Ltd. and Mitsui Petrochemical Industries, Ltd., both of Tokyo, Japan

Filed Dec. 21, 1989, Ser. No. 454,265

Claims priority, application Japan, Dec. 29, 1988, 63-335030; Mar. 2, 1989, 1-50748

Int. Cl.[5] C11D *7/50, 7/32;* B01F *1/00*

U.S. Cl. 252—162 16 Claims



1. An azeotropic cleaning solvent composition, consisting essentially of a dichlorotrifluoroethane, selected from the group consisting of 1,1-dichloro-2,2,2-trifluoroethane, 1,1-dichloro-1,2,2-trifluoroethane and 1,2-dichloro-1,1,2-trifluoroethane, and dimethoxymethane in a weight proportion of said dimethoxymethane to said dichlorotrifluoroethane in the range from 5:95 to 70:30, wherein said dichlorotrifluoroethane is present in an amount of from 5 percent to 70 percent by weight of the entire composition, wherein said composition has a boiling point of about 49.3° C. at 1 atmosphere of pressure.

5,068,052

RESIN COMPOSITION CONTAINING SMECTIC LIQUID CRYSTAL

Junji Watanabe, Yokohama; Michiro Naka, Fuji, and Kenji Hijikata, Mishima, all of Japan, assignors to Polyplastics Co., Ltd., Osaka, Japan

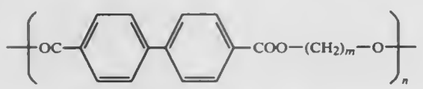
Filed Dec. 16, 1988, Ser. No. 285,424

Claims priority, application Japan, Dec. 25, 1987, 62-329237

Int. Cl.[5] C09K *19/52*

U.S. Cl. 252—299.01 10 Claims

1. A resin composition capable of undergoing melt processing to form improved shaped articles comprising 100 parts by weight of a thermoplastic polymer which is incapable of assuming a smectic liquid crystal state selected from the group consisting of polyoxymethylene and a liquid crystal polyester containing recurring oxybenzoyl units and 0.01 to 50 parts by weight of a polyalkylene biphenyldicarboxylate smectic liquid crystal compound having repeating units, each repeating unit comprising a mesogen and a soft spacer of the formula:



where m is 2 to 10 and n is at least 2, said polyalkylene biphenyldicarboxylate smectic liquid crystal compound being incorporated in intimate admixture throughout said thermoplastic polymer.

5,068,053

ETHYNE DERIVATIVES AS A COMPONENT OF LIQUID CRYSTAL PHASES

Volker Reiffenrath, Rossdorf; Eike Poetsch, Mühltal; Joachim Krause, Dieburg, and Georg Weber, Erzhausen, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft mit Beschränkter Haftung, Darmstadt, Fed. Rep. of Germany

PCT No. PCT/DE88/00136, § 371 Date Nov. 25, 1988, § 102(e) Date Nov. 25, 1988, PCT Pub. No. WO88/07523, PCT Pub. Date Oct. 6, 1988

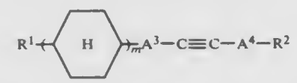
PCT Filed Mar. 10, 1988, Ser. No. 279,594

Claims priority, application Fed. Rep. of Germany, Mar. 27, 1987, 3710069

Int. Cl.[5] C09K *19/34;* C07D *239/02*

U.S. Cl. 252—299.61 6 Claims

1. An ethyne derivative of Formula I



I

wherein

R^1 and R^2 in each case independently of one another are straight-chain alkyl, alkoxy, or oxaalkyl having 1 to 15 C atoms;

m is 1 or 1; and

A^3 and A^4 are each independently 1,4-phenylene, pyridine-2,5-diyl, or pyrimidine-2,5-diyl,

with the proviso that only one of the groups A^3 and A^4 is pyridine2,5-diyl or pyrimidine-2,5-diyl.

5,068,054

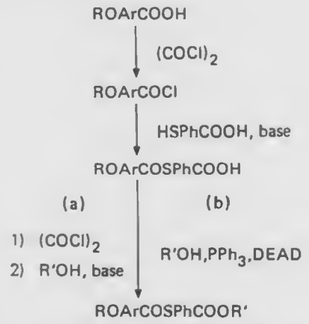
FERROELECTRIC LIQUID CRYSTALS

Kathleen M. Betterton, San Jose; William D. Hinsberg, Fremont, both of Calif.; Huu T. Nguyen, Pessac, France; Wing T. Tang, and Robert J. Twieg, both of San Jose, Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Mar. 13, 1989, Ser. No. 322,589

Int. Cl.[5] C09K *19/32;* C07C *67/02*

U.S. Cl. 252—299.62 5 Claims



1. A ferroelectric liquid crystal of the formula: $H(CH_2)_nOArCOSPhCOOC^*H(CH_3)(CH_2)_{m-2}H$ where n is in the range 8–16, m is in the range 4–8, is selected from the group consisting of 2,6-naphthyl, 4,4′-biphenyl, and 4,4′-diphenylethane, and Ph is 1,4-phenylene.

5,068,055

EUROPIUM ACTIVATED STRONTIUM TETRABORATE UV PHOSPHORS

Charles F. Chenot, Towanda, Pa., and Michael A. Krebs, Waverly, N.Y., assignors to GTE Products Corporation, Stamford, Conn.

Continuation of Ser. No. 232,031, Aug. 15, 1988, abandoned, which is a continuation of Ser. No. 194,245, May 16, 1988, abandoned, which is a continuation of Ser. No. 74,830, Jul. 17, 1987, abandoned, which is a continuation of Ser. No. 903,181, Aug. 28, 1986, Pat. No. 4,719,033. This application Feb. 25, 1991, Ser. No. 659,489

The portion of the term of this patent subsequent to Jan. 12, 2005, has been disclaimed.

Int. Cl.[5] C09K *11/63*

U.S. Cl. 252—301.4 R 2 Claims

1. A europium activated strontium tetraborate UV emitting phosphor having a composition in percent by weight of from about 34.72 to about 35.80 strontium, from about 17.66 to about 17.78 boron, from about 0.37 to about 1.86 europium, and the balance oxygen, and having particles in the shape of essentially elongated prism-like particles with the europium relatively uniformly distributed throughout the balance of said phosphor and with the particle size distribution being characterized by the 50% size being in the range of from about 7 micrometers to about 12 micrometers as determined by Coulter Counter measurement and with less than about 12% by weight of the particles having a particle size of greater than about 16 micrometers as determined by Coulter Counter measurement, said phosphor being produced by, a process comprising the steps of forming a suspension of strontium carbonate and europium oxide in an aqueous solution of boric acid wherein said boric acid causes slow etching of said strontium carbonate and said europium oxide, digesting said suspension to form a strontium borate hydrate intermediate, said intermediate having a relatively homogeneous particle size, said relatively homogeneous particle size resulting from said slow etching, removing the liquor from said intermediate, drying said intermediate, and firing said intermediate to form said phosphor wherein said homogeneous particle size of said intermediate results in said particle size distribution in said phosphor and wherein said process steps result in said shape of said phosphor particles.

5,068,056

AQUEOUS DISPERSIONS OF ACICULAR TITANIUM DIOXIDE

Jenifer L. Robb, Stockton on Tees, England, assignor to Tioxide Group PLC, England

Filed Dec. 1, 1989, Ser. No. 444,811

Claims priority, application United Kingdom, Dec. 16, 1988, 8829402

Int. Cl.[5] B01J *13/00*

U.S. Cl. 252—313.1 34 Claims

1. An aqueous dispersion of titanium dioxide comprising water, particles of titanium dioxide having an acicular shape and a dispersing agent selected from the group consisting of polymers or copolymers of an acrylic acid or substituted acrylic acid and salts of said polymers or copolymers and said titanium dioxide being present in an amount to produce a solids content for the dispersion of from 20 to 60 percent by weight and having a size such that the dispersion is substantially transparent to visible light and has a maximum extinction coefficient (E(max)) in the ultra violet range of wavelengths of at least 30 liters per gm per cm.

5,068,057

CONVERSION OF CARBON DIOXIDE TO CARBON MONOXIDE

Bruce L. Gustafson, and James V. Walden, both of Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 364,755, Jun. 12, 1989, abandoned. This application Aug. 13, 1990, Ser. No. 565,838

Int. Cl.[5] C01B *3/40, 3/38*

U.S. Cl. 252—373 14 Claims

1. Process for the continuous preparation of a mixture of hydrogen and carbon monoxide in a mole ratio of about 1:1.5 to 2:1 which comprises continuously contacting a substantially anhydrous feed mixture consisting essentially of carbon dioxide and at least one hydrocarbon with a fixed bed of a supported catalyst consisting essentially of 0.1 to 2 weight percent, based on the weight of the catalyst, of a metal selected from platinum or palladium on an alumina or silica-alumina support at a temperature of about 650° to 1000° C. at a gas hourly space velocity of about 100 to 50,000; wherein

(1) the hydrocarbon has the empirical formula C_nH_{2n} or $C_{n'}H_{2n'+2}$ wherein n is 2 to 6 and n' is 1 to 6;

(2) wherein the mole ratio of carbon dioxide to

$$\frac{\text{moles hydrocarbon}}{n} \text{ or } \frac{\text{moles hydrocarbon}}{n'}$$

mixture is about 1:2 to 2:1.

5,068,058

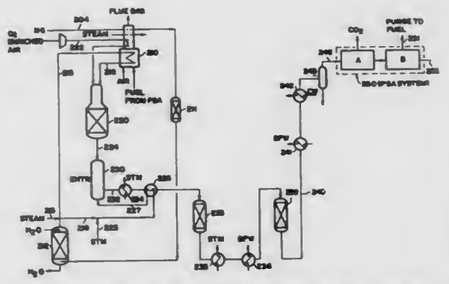
PRODUCTION OF AMMONIA SYNTHESIS GAS

Joseph P. Bushinsky, Allentown; David M. Nicholas, New Tripoli; Shoou-I Wang, and Nitin M. Patel, both of Allentown, all of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed May 4, 1989, Ser. No. 347,609

Int. Cl.[5] C01C *1/04*

U.S. Cl. 252—376 13 Claims



1. In the production of ammonia synthesis gas, the method which comprises:

(a) introducing a first portion of a preheated hydrocarbon vapor charge rich in methane into an autothermal reactor together with steam and oxygen-enriched air, thereby inducing combustion of part of the introduced hydrocarbon charge and elevating the temperature to effect oxidation of said first hydrocarbon charge with resulting formation of hydrogen and oxides of carbon;

(b) introducing a second portion of the preheated hydrocarbon vapor charge together with added steam into one end of a heat exchange reactor;

(c) discharging the reaction product from said autothermal reactor directly into the other end of said heat exchange reactor, to flow therethrough countercurrently to said second portion of hydrocarbon vapor charge and in indirect heat exchange therewith, whereby said second portion of the hydrocarbon charge is brought to an elevated

VOL 1132 ISS 4 NO 26 1991 UMI

temperature effective for reaction of said second hydrocarbon portion with steam;

(d) mixing the product of the steam-reacted second portion of hydrocarbon charge with the reaction product from said autothermal reactor within said heat exchange reactor to effect direct heat exchange therebetween and discharging the obtained reformate mixture from said heat exchange reactor;

(e) cooling the discharged mixture and subjecting the same to shift reaction in the presence of steam to effect conversion of contained carbon monoxide to carbon dioxide with accompanying release of additional hydrogen; and

(f) cooling the shift reaction product to a temperature level effective for condensation of contained water and separating the resulting condensed water from said shift reaction product to yield a cooled gas stream comprising hydrogen, nitrogen, and carbon dioxide.

5,068,059

CORROSION INHIBITOR

Winston S. Go, Randolph; Joseph S. Roti, West Milford; Mark G. Lang, Wayne, and Charles O. Weiss, Plainsboro, all of N.J., assignors to Drew Chemical Corporation, Boonton, N.J.

Filed Jan. 16, 1990, Ser. No. 465,279
Int. Cl.[5] C23F *11/10*
U.S. Cl. 252—389.53 **3 Claims**

1. A composition for use in inhibiting the corrosion of mild steel surfaces in an alkaline cooling water system in which the active components are (a) hydroxyphosphonoacetic acid, or a water soluble salt thereof, and (b) an aminoalkylenephosphonic acid derivative, or a water soluble salt thereof, the latter in combination with a manganese compound, said components (a) and (b) being in a weight ratio of about 1:10-10:1.

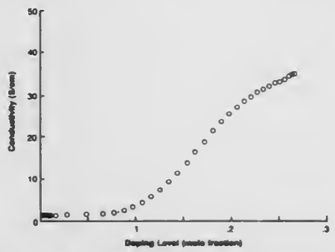
3. A method of inhibiting the corrosion of mild steel surfaces in an alkaline cooling water system which comprises incorporating in the system an effective amount of a composition according to claim 1.

5,068,060

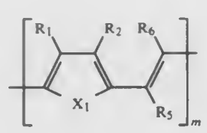
NEUTRAL AND ELECTRICALLY CONDUCTIVE POLY(HETEROCYCLIC VINYLENES) AND PROCESSES FOR PREPARING SAME

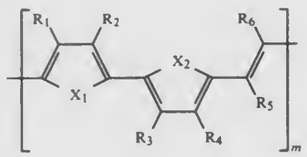
Kwan-Yue A. Jen, Flanders; Ronald L. Elsenbaumer, Morristown, and Lawrence W. Shacklette, Maplewood, all of N.J., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

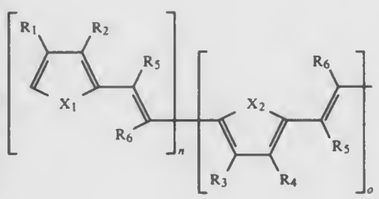
Division of Ser. No. 894,172, Aug. 7, 1986. This application May 7, 1990, Ser. No. 520,499
Int. Cl.[5] **H01B** *1/00, 1/06*
U.S. Cl. 252—500 **32 Claims**

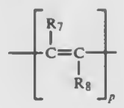


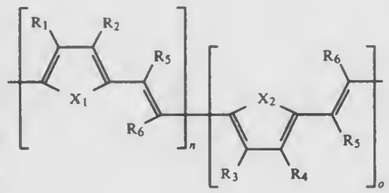
1. An electrically conductive polymer comprising a polymer which comprises recurring units selected from the group consisting of those of the following formulae VIII–XIV:

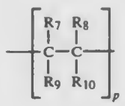

VIII

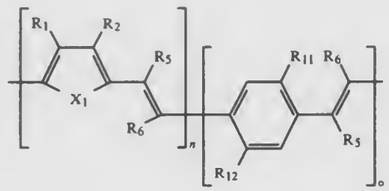

IX

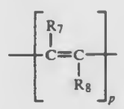

X


XI


XII


XIII


XIV



wherein:

m, and the sum of n, o, and p, are the same or different and are natural numbers greater than about 100;

q is a natural number from 0 and 4;

R_1 to R_{14} are the same or different at each occurrence and are hydrogen, alkyl, alkenyl, alkoxy, alkanoyl, alkylthio, aryloxy, alkylthioalkyl, alkylsulfinylalkyl, alkylsulfonylalkyl, alkylaryl, arylalkyl, cycloalkyl, alkylsulfinyl, alkylsulfonyl, arylalkylamino, aryl arylthio, alkylamino, dialkylamino, arylamino, diarylamino, cycloalkenyl, arylsulfinyl, arylsulfonyl, or alkyl substituted with a sulfonic acid, halo, nitro, amino, cyano, carboxylic acid, phosphoric acid or epoxy moiety or any of

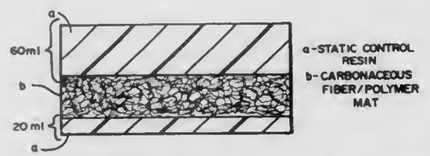
X_1 and X_2 are the same or different and are divalent S, O, Se, NR_{15} or PR_{15}, wherein R_{15} is hydrogen, alkyl, alkyaryl, arylalkyl, or aryl, doped with a dopant.

5,068,061

ELECTROCONDUCTIVE POLYMERS CONTAINING CARBONACEOUS FIBERS

Thomas M. Knobel, Hackensack, N.J.; Francis P. McCullough, Jr., Lake Jackson, and Lance L. Black, Richwood, both of Tex., assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 8, 1989, Ser. No. 447,990
Int. Cl.[5] **H01B** *1/06;* **D02G** *3/00*
U.S. Cl. 252—511 **22 Claims**



1. In a composition comprising a thermoplastic electroconductive resin matrix containing a multiplicity of reinforcing carbonaceous fibers, the improvement which comprises said reinforcing fibers comprising resilient shaped reforming elongatable non-linear non-flammable conductive carbonaceous fibers, the fibers having a reversible deflection ratio of greater than 1.2:1 and an aspect ratio (1/d) of greater than 10:1 and said resin matrix containing from about 0.5 to about 40 percent by weight, based on the composition, of the carbonaceous fibers.

5,068,062

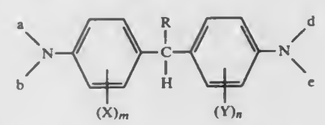
REVERSIBLY COLOR-CHANGEABLE MATERIALS

Hiroo Inata; Shunichi Matsumura; Seiji Itoh, and Masuhiro Okada, all of Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

Filed Apr. 5, 1989, Ser. No. 333,257
Claims priority, application Japan, Apr. 7, 1988, 63-84173; Jun. 13, 1988, 63-143538; Sep. 9, 1988, 63-224752; Oct. 19, 1988, 63-261631; Nov. 7, 1988, 63-279477
Int. Cl.[5] **H01B** *1/06*
U.S. Cl. 252—518 **20 Claims**

1. An electrochromic resin composition comprising

(a) 100 parts by weight of a network comprising a crosslinked polymer containing bonded units represented by the following formula (I)


(I)

wherein R represents a hydrogen atom or a monovalent hydrocarbon group selected from the group consisting of alkyl, aralkyl, cycloalkyl and aryl groups, X and Y, independently from each other, represent a halogen atom, a nitro group, a monovalent hydrocarbon group selected from the group consisting of alkyl, aralkyl, cycloalkyl and aryl groups or a monovalent hydrocarbon-O-group wherein the monovalent hydrocarbon is selected from the group consisting of an alkyl, aralkyl, cycloalkyl and aryl groups, m and n, independently from each other, represent 0, 1, 2, 3 or 4, a, b, d and e are bonds which, independently from each other, are bonded to a hydrogen atom or to an aliphatic or alicyclic carbon, provided that at least one of these bonds is bonded to the aliphatic or alicyclic carbon,

in a form in which the amino groups in the formula are quaternized, and

(B) 5 to 150 parts by weight of an electrolytic material uniformly dispersed in the network (A) wherein the electrolyte is an alkali metal salt or an ammonium salt of an organic or inorganic acid.

5,068,063

NON-CARBON BLACK CONTAINING CONDUCTIVE COATING COMPOSITION

Henry S. Tremper, III, Clayton, N.J., assignor to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 28, 1989, Ser. No. 461,471
Int. Cl.[5] **H01B** *1/06*
U.S. Cl. 252—518 **7 Claims**

1. A conductive coating composition comprising solvent and 40–75% by weight of film forming binder and pigment in a pigment to binder weight ratio of about 1:100 to 100:100; wherein the binder consists essentially of about

(A) 40–70% by weight, of a hydroxy containing polyester resin having a linear polyester segment with hydroxyl groups and branched polyester segments attached to the linear segment having hydroxyl groups and the polyester resin has a number average molecular weight of about 800–3,500 and a hydroxyl number of about 50–170 and

(B) 30–60% by weight of an aminoplast crosslinking agent;

VOL 1132 ISS 4 NO 26 1991 UMI

wherein the pigment comprises an electrically conductive pigment that comprises silica selected from the group consisting of amorphous silica or a silica containing material selected from the group consisting of metal silicates, silica containing glass and material having an extensive co-valent network of SiO_4 units; said silica being in association with a two-dimensional network of antimony-containing tin oxide crystallites in which the antimony content ranges from about 1-30% by weight of the tin oxide and the composition forms a coating having a surface conductivity of at least 100 Ransburg units.

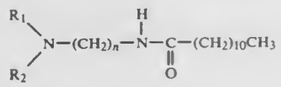
5,068,064

N-SUBSTITUTED LAURAMIDES, THEIR PREPARATION AND COMPOSITIONS IN WHICH THEY ARE PRESENT

Vincenzo Proietto, Saint Georges D'Orques, and Ali Salhi, Saint Gely du Fesc, both of France, assignors to Sanofi, Paris, France

Filed Jun. 7, 1990, Ser. No. 534,497
Claims priority, application France, Jun. 8, 1989, 89 07619
Int. Cl.[5] C09F *7/00*
U.S. Cl. 260—404.5 10 Claims

1. An aminoalkylauramide of the formula



(I)

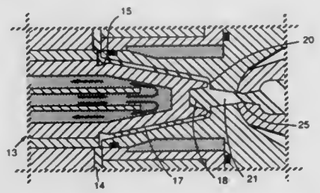
in which R_1 is a benzyl group and R_2 is an alkyl having from 1 to 4 carbon atoms, or R_1 and R_2 form a 4-benzylpiperidino group with the nitrogen atom to which they are bonded, and n=2 to 6, or one of its salts with organic or mineral acids.

5,068,065

FASTER CYCLING SPRUE METHOD AND APPARATUS FOR INJECTION MOLDING PLASTIC OPTICAL DISKS

Steven M. Maus, Osseo, and George J. Galic, Columbia Heights, both of Minn., assignors to Galic Maus Ventures, Columbia Heights, Minn.

Filed Jul. 31, 1990, Ser. No. 563,659
Int. Cl.[5] B29C *45/27, 45/38;* B29D *17/00*
U.S. Cl. 264—1.3 31 Claims



1. A method of injection molding plastic optical disks in a moldset maintained in fluid communication through a nozzle tip with an injection molding machine at least while plastic melt flow into the moldset is desired,

the moldset containing a sprue bushing assembly having a female member and a male member co-axially aligned with the nozzle tip so as to form a melt passageway from the nozzle tip on an upstream end to an annular gate to a disk mold cavity on a downstream end such that the melt passageway between its ends defines a length and a shape of a sprue to be formed between the nozzle tip on the upstream end to the annular gate to a disk mold cavity on the downstream end,

the male member having a spreader die contour of a generally conically-tipped torpedo-shape, the male member protruding substantially into the female member cavity's length and the male member being separated from the female member cavity in a first position to form at least substantially upstream from the gate an annular open aperture between the male and female members wherein a hollow sprue may be molded, the hollow sprue having both inside and outside surfaces,

the male and female members being capable of axial motion therebetween to a second position of the moldset wherein the male and female members are less separated than in the first position,

and at least the male member being maintained at a temperature below the solidification temperature of the plastic by a mass transport cooling mechanism,

comprising the steps of:

(a) injecting plastic melt into the moldset in the first position to form the molten hollow sprue and disk therein;

(b) urging together axially the male and female members while the hollow sprue is still molten until the second position of the moldset is reached, wherein the male and female members are less separated than in the first position,

(c) cooling the molten hollow sprue by concurrent contact on the inside surface with the male member and contact on the outside surface with the female member, while concurrently the molten disk is also being cooled to below its solidification temperature;

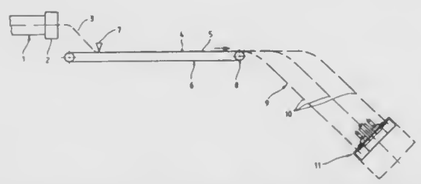
(d) ejecting the molded hollow sprue and solidified disk out of the moldset.

5,068,066

PROCESS AND APPARATUS FOR PRODUCING PROPELLANT CHARGE GRANULAR MATERIAL

Dietmar Müller, Karlsruhe, and Helmut Bauer, Malgersdorf, both of Fed. Rep. of Germany, assignors to Fraunhofer-Gesellschaft zur Forderung der angewandten Forschung e.V., Munich, Fed. Rep. of Germany

Filed Feb. 16, 1989, Ser. No. 310,919
Claims priority, application Fed. Rep. of Germany, Feb. 20, 1988, 3805317
Int. Cl.[5] C06B *21/00*
U.S. Cl. 264—3.3 8 Claims



1. Process for producing propellant charge granular material from small diameter propellant charge strands, whereof a plurality is continuously extruded, separately placed on a support behind an extruder and are supplied by means of the latter to a cutting plate with revolving cutting blades positioned behind it and by which they are cut to length, characterized in that the support forms a setting zone for the propellant strands and that the latter are transferred by the support to a sloping zone and on the latter are supplied to the cutting plate with a number of guide holes corresponding to the number of stands and on passing out of the guide holes are simultaneously cut to the desired short length the cutting blades rotating behind the cutting plate.

5,068,067

EMULSIFIER FOR MICROCAPSULES, MICROCAPSULES USING SAID EMULSIFIER AND PROCESS FOR PRODUCING SUCH MICROCAPSULES, AND NON-CARBON PRESSURE-SENSITIVE COPYING PAPER USING SAID MICROCAPSULES

Akira Kawai, and Yoshihide Murakami, both of Takasago, Japan, assignors to Mitsubishi Paper Mills Limited, Tokyo, Japan

Filed Oct. 18, 1989, Ser. No. 423,188
Claims priority, application Japan, Oct. 17, 1988, 63-262148; Oct. 18, 1988, 63-263745; May 15, 1989, 1-121314; May 15, 1989, 1-121315; May 15, 1989, 1-121316
Int. Cl.[5] B01J *13/18*
U.S. Cl. 264—4.7 6 Claims

1. A process for producing microcapsules which comprises the steps of

(1) combining in an aqueous medium an aminoaldehyde polycondensate as wall film material and a water-soluble high polymeric substance which is a copolymer selected from the group consisting of:

(a) benzyl (meth) acrylate (A), styrene (C), maleic anhydride (D);

(b) diisobutylene (B), styrene (C), maleic anhydride (D); and

(c) benzyl (meth)acrylate (A), diisobutylene (B), styrene (C), maleic anhydride (D) to obtain an emulsion of desired average particle size;

(2) adding an amino-aldehyde pre-condensate to the emulsion to form a mixture; and

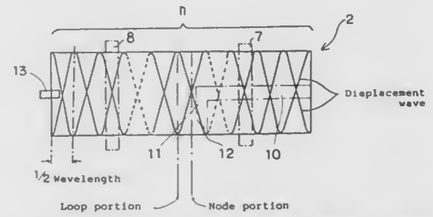
(3) heating the mixture to form microcapsules.

5,068,068

METHOD AND APPARATUS FOR EXTRUSION

Toshihiro Furusawa; Atsushi Satoh, both of Chiba; Takashi Nakajima, and Noriaki Matsugishi, both of Tokyo, all of Japan, assignors to Idemitsu Kosan Co., Ltd. and Seidensha Electronics Co., Ltd., both of Tokyo, Japan

Filed Nov. 22, 1989, Ser. No. 440,509
Claims priority, application Japan, Nov. 24, 1988, 63-294624
Int. Cl.[5] B06B *3/00;* B29C *47/12, 47/92*
U.S. Cl. 264—23 3 Claims



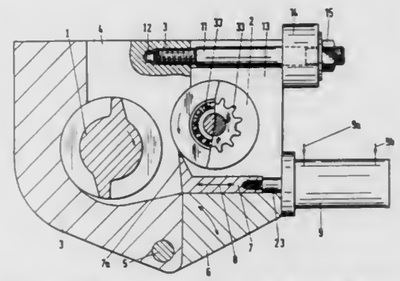
1. An improved method of carrying out an extrusion in which an extrusion material in a flowable state is passed through a die under a pressure to impart a desired shape thereto, the improvement comprising a step of resonating the die by an ultrasonic wave at a resonance frequency of 10 kHz to 100 kHz so that the ultrasonic wave has n wavelengths, wherein n is m/2 and m is a positive integer.

5,068,069

METHOD OF MAINTAINING THE FORCE OF A STRIPPER BLADE ON AN EXTRUDER FEED ROLLER CONSTANT AND AN APPARATUS THEREFOR

Gerd Capelle, Langenbagen, Fed. Rep. of Germany, assignor to Hermann Berstorff Maschinenbau GmbH, Hanover, Fed. Rep. of Germany

Filed Oct. 18, 1990, Ser. No. 599,513
Claims priority, application Fed. Rep. of Germany, Oct. 18, 1989, 3934734
Int. Cl.[5] B29C *47/92*
U.S. Cl. 264—40.5 10 Claims



1. A method of maintaining constant the force applied by a stripper blade against an adjacently disposed feed roller of an extrusion device comprising a barrel and an extrusion screw mounted for rotation within said barrel, said barrel defining a feed section into which material to be extruded is fed, and said feed section comprising receiver means pivotally connected to said barrel and communicating therewith; a feed roller mounted for rotation within said receiver means, a stripper blade directed towards but spaced from said feed roller for removing said material from said feed roller and for directing said material into said barrel for extrusion by said screw, said feed roller cooperating with said extruder screw, and means for measuring the pressure exerted in said barrel by said feed material, said method comprising the steps of:

a) measuring the force generated by said fed material tending to force said screw away from said feed roller means, and

b) applying a force to said stripper blade responsive to and in dependence upon said measured force such that the net force directing said stripper blade towards said feed roller means remains constant.

4. An extrusion device comprising:

a) a housing defining a feed section into which material to be extruded is fed;

b) screw means mounted for rotation within said housing;

c) receiver means in said feed section pivotally connected to said housing and communicating therewith;

d) a feed roller mounted for rotation within said receiver means and cooperating with said screw means;

e) a stripper blade directed towards said feed roller but spaced therefrom for removing said material from said feed roller and for directing said material into said housing;

f) means for measuring the force exerted by said fed material within said housing, said force measuring means comprising at least one tension rod connecting said receiver means to said housing; and at least one pressure gauge mounted on said at least one tension rod for measuring the force between said screw means and said feed roller;

g) control means connected to said at least one pressure gauge, and

h) means connected to and controlled by said control means for applying a force to said stripper blade, the force applied to said stripper blade though said control means being dependent upon said measured force so that the net

VOL 1132 ISS 4 NO 26 1991 UMI

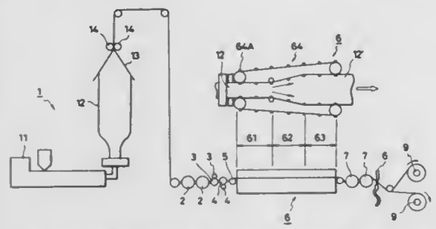
force directing said stripper blade towards said feed roller remains constant.

5,068,070

PROCESS FOR MAKING FILM

Akihiko Gunji; Tetsuya Masuki, both of Ichigai, and Hidenori Shirai, Utsunomiya, all of Japan, assignors to Kao Corporation, Tokyo, Japan

Filed Oct. 2, 1989, Ser. No. 415,661
Claims priority, application Japan, Oct. 12, 1988, 63-256455
Int. Cl.[5] B29C *55/20*
U.S. Cl. 264—41 **5 Claims**



1. A process for making a crack resistant film having a uniform thickness, improved flexibility and balanced strengths comprising the steps of:

forming a film of non-uniform thickness having an annularly shaped configuration from a composite material of a thermoplastic resin composition according to an inflation process such that said annular film has at least two thick portions opposite from each other within said annular shaped film, said thick portions being distinguishable from a remaining thin portion of said annular shaped film;

converting said non-uniform thick annular film into a flat shaped configuration by folding or collapsing said annular film such that said at least two thick portions are located substantially at opposite ends of said flat shaped configuration of said film;

clamping said flat-shaped film by said thick portions by a clamping portion of a stretching apparatus;

stretching said clamped flat-shaped non-uniform thick film so as to produce a uniformly thick film of said thin portion; and

removing said thick portions to produce said uniform thick film from said non-uniform thick film.

5,068,071

HOLLOW SPHERICAL SHELL MANUFACTURE

Thomas P. O'Holleran, Belleville, Mich., assignor to KMS Fusion, Inc., Ann Arbor, Mich.

Filed Apr. 25, 1990, Ser. No. 514,233
Int. Cl.[5] B29C *67/00*
U.S. Cl. 264—56 **11 Claims**

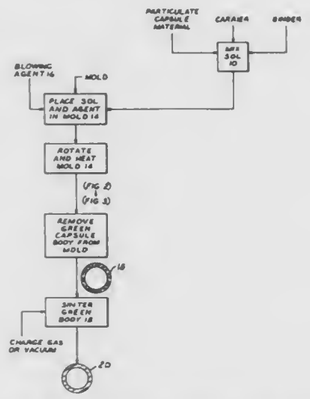
1. A process for making a hollow spherical shell of substantially uniform composition and geometry comprising the steps of:

(a) providing a mold having a hollow spherical cavity surrounded by a porous mold body,

(b) placing within said mold cavity a colloidal suspension of particles of selected material composition in a carrier liquid, said particles being of size greater than pore size of said mold body,

(c) placing a quantity of a volatile liquid that is immiscible in said carrier liquid in said cavity with said suspension,

(d) drawing said carrier liquid out of said cavity by capillary flow of said liquid into said mold body, and thereby depositing a green shell compact of said particles around said cavity, while heating said mold cavity so as to boil said volatile liquid such that vapor pressure of said boiled liquid assists migration of said carrier liquid into said mold body, and



(e) removing said green shell compact from said mold cavity.

5,068,072

ELECTRICALLY CONDUCTIVE ZIRCONIA-BASED SINTERED BODY AND PROCESS FOR THE PRODUCTION THEREOF

Kazuo Horinouchi, Niihama; Masahide Mouri, and Isao Kameda, both of Tsukuba, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 11, 1989, Ser. No. 448,284
Claims priority, application Japan, Dec. 13, 1988, 63-315752; Nov. 13, 1989, 1-295242
Int. Cl.[5] C04B *35/48*
U.S. Cl. 264—66 **3 Claims**

1. A process for the production of an electrically conductive zirconia-based sintered body, which consists essentially of mixing a ZrO_2 powder, a TiN powder and a TiO_2 powder or mixing a TiO_2-containing ZrO_2 powder and a TiN powder such that the amount of TiN is 50 to 10 vol. %, that of TiO_2+-ZrO_2 is 50 to 90 vol. %, and that of Ti of TiO_2 is in the range of $0.3 < Ti \leqq 10$ in percentage by weight, shaping the mixture, then sintering the shaped body in an inert atmosphere from 1350° to 1650° C., and subjecting the resultant shaped body to heat treatment at a temperature from 1000° to 1300° C.

5,068,073

METHOD OF MANUFACTURING POLYETHYLENE FIBERS BY HIGH SPEED SPINNING OF ULTRA-HIGH-MOLECULAR-WEIGHT POLYETHYLENE

Albert J. Pennings, Norg, and Mees Roukema, Groningen, both of Netherlands, assignors to Akzo N.V., Netherlands

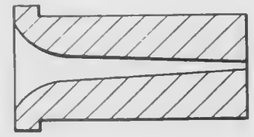
Filed Jul. 13, 1990, Ser. No. 552,135
Claims priority, application Fed. Rep. of Germany, Jul. 13, 1989, 3923139
Int. Cl.[5] D01F *6/04*
U.S. Cl. 264—205 **12 Claims**

1. A process for manufacturing polyethylene fibers by high-speed spinning of a solution of ultra-high-molecular-weight polyethylene, comprising the steps of:

extruding into a heating zone of a spinning duct a 1 to 6 wt. % solution of polyethylene with a molecular weight $M_w \geqq 1 \times 10^6$ and a solvent at an extrusion temperature $T_E = 180°-250°$ C. and at an extrusion rate $V_E = 5-150$ m/min through spinnerets with jet openings, the cross

section of the spinnerets decreasing towards the jet openings;

maintaining the heating zone of said spinning duct at a temperature of 100° to 250° C.;



blowing a gas on the extruded fibers below the heating zone;

pulling the fibers off at a speed $V_w \geqq 500$ min;

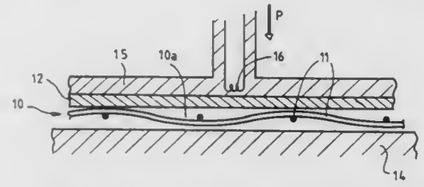
wherein the fibers are freed from substantially all of the solvent without further stretching.

5,068,074

METHOD FOR MAKING SYNTHETIC MEMBRANES FOR A GAS METER

André De Régo, Antony, France, assignor to Schlumberger Industries, S.A., Montrouge, France

Division of Ser. No. 828,414, Feb. 11, 1986, Pat. No. 4,779,459.
This application Oct. 20, 1988, Ser. No. 260,419
Claims priority, application France, Feb. 12, 1985, 85 01931
Int. Cl.[5] B29C *43/18*
U.S. Cl. 264—257 **10 Claims**



1. A method of making a gas meter membrane, comprising the following steps:

a film of non-vulcanizable thermoplastic elastomer material is disposed opposite to one face of a synthetic fiber structure of substantially constant thickness;

said elastomer material is raised to its softening temperature;

simultaneously, pressure is exerted on the assembly constituted by said structure and said film in order to cause said elastomer material to adhere to said structure, and to completely cover said face of the structure by deformation of said film;

said pressure is then removed and the resulting complex is allowed to cool; and

said complex is shaped in order to obtain a membrane of the desired shape.

5,068,075

METHOD OF BLOW MOLDING ASEPTIC BOTTLES

Dennis L. Dundas, Dover, and Eugene L. Moore, York, both of Pa., assignors to Graham Engineering Corporation, York, Pa.

Division of Ser. No. 382,546, Jul. 18, 1989. This application Sep. 26, 1990, Ser. No. 588,356
Int. Cl.[5] B29C *49/62, 49/64*
U.S. Cl. 264—505 **11 Claims**

1. The method of blow molding a hollow sealed bottle from a prison formed of a plastic material, the material having a set temperature, including the steps of:

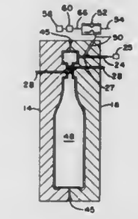
a. locating a parison having a temperature above the set temperature between a pair of open mold halves;

b. closing the mold halves to capture the parison in a mold cavity having the shape of a bottle;

c. increasing the pressure exerted by gas in the interior of the captured parison to above atmospheric pressure to expand the parison against the mold cavity and form an expanded body conforming in shape to the shape of the mold cavity and the expanded body having a hollow interior;

d. holding the expanded body against the mold cavity while cooling the exterior of the expanded body to form a skin on the body which is at a temperature below the set temperature;

e. reducing the pressure exerted by gas in the interior of the body to a subatmospheric pressure;



f. then sealing closed the body with the gas confined in the interior of the body at the subatmospheric pressure;

g. opening the mold halves and ejecting the molded and sealed body;

h. maintaining a first portion of the body at a temperature above the set temperature during steps d, e, f, and g; and

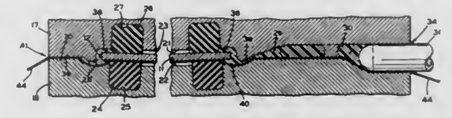
i. lastly, cooling the body to ambient temperature thereby releasing residual heat which warms the gas sealed in the body thereby increasing the pressure exerted by the gas in the interior of the sealed body to approximately atmospheric pressure without ballooning to form a stable sealed bottle conforming to the shape of the mold cavity.

5,068,076

METHOD OF FORMING AN ENCAPSULATED GLAZING UNIT

William R. Weaver, and James E. Matzinger, both of Toledo, Ohio, assignors to Libbey-Owens-Ford Co., Toledo, Ohio

Filed Jul. 28, 1988, Ser. No. 225,729
The portion of the term of this patent subsequent to May 16, 2006, has been disclaimed.
Int. Cl.[5] B29C *45/14*
U.S. Cl. 264—511 **7 Claims**



1. A method of forming an encapsulated glazing unit including a polymeric gasket formed in situ around at least a portion of the periphery of a transparent sheet and a protective coating material chemically bonded to a surface of the gasket, comprising providing a mold including a cavity for forming the gasket on said transparent sheet and which defines the surface of the gasket to which the coating material is to be chemically bonded, disposing a sheet of the coating material across the mold and cavity by withdrawing said sheet of coating material across said mold from a continuous supply at one side of said mold and winding the used sheet of coating material upon a reel at the opposite side following each molding cycle to dispose the sheet of coating material across said mold and cavity, said sheet of coating material being disposed wrinkle-free

VOL 1132 ISS 4 NO 26 1991 UMI

across said cavity placing the transparent sheet in the mold with one of its major surfaces on said sheet of coating material, injecting a flowable polymeric gasket forming material into said cavity behind said sheet of coating material to fill said cavity and deform said sheet of coating material to conform to the cavity defining said surface of the gasket and polymerizing and curing said gasket forming material in situ to form said gasket on said transparent sheet and simultaneously chemically bond said coating material to the surface of said gasket opening said mold and removing said glazing unit from said sheet of coating material by severing said coating material around the outside of said gasket, and then severing said coating material around the inside of said gasket and removing said coating material covering said transparent sheet.

5,068,077

PROCESS OF VACUUM-AIR PRESSURE DRAWING OF A LAMINATE CONTAINING AN EVOH/POLYAMIDE COPOLYMER

Taichi Negi; Satoshi Hirofuji, both of Kurashiki; Nobuo Tanaka, Nishinomiya, and Syuji Kawai, Kurashiki, all of Japan, assignors to Kuraray Co., Ltd., Kurashiki, Japan

Continuation of Ser. No. 239,056, Sep. 1, 1988, abandoned, which is a continuation of Ser. No. 30,039, Mar. 24, 1987, abandoned. This application Dec. 18, 1990, Ser. No. 630,386
Claims priority, application Japan, Mar. 26, 1986, 61-69586
Int. Cl.[5] B29C *51/10, 51/14*
U.S. Cl. 264—512 **8 Claims**

1. A method of preparing a container comprising the step of forming said container by vacuum air-pressure at a drawing speed of at least 5×10^5%/min from a multilayered laminate comprising a layer of an ethylene-vinyl alcohol copolymer composition comprising 70 to 95 wt% of an ethylene-vinyl alcohol copolymer having an ethylene content of 25 to 60 mol% and a saponification degree of at least 90%; 5 to 30 wt% of an aliphatic copolymer polyamide containing capramide as a main structural unit, said copolymer polyamide having a ratio of the number of methylene to the number of amide groups satisfying the condition:

$$7.0 \leqq CH_2/NHCO \leqq 10.0$$

having a melting point of 110° to 180° C. and exhibiting a melt index of 0.1 to 10 g/10 mins.; and having a thermoplastic resin layer on at least one surface of said layer, said thermoplastic resin layer drawable in a hot drawing temperature range satisfying the equation:

$$X - 10° C. \geqq Y \geqq X - 110° C.$$

wherein X represents the melting pint (°C.) of EVOH and Y represents the hot drawing temperature.

5,068,078

PARISON LUBRICATION METHOD

Gary Hill, Kansas City, Mo.; Walter K. Schoch, Peachtree City, Ga., and Michael Warkentien, Independence, Mo., assignors to Sewell Plastics, Inc., Atlanta, Ga.

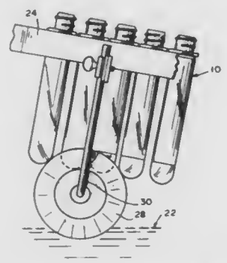
Division of Ser. No. 284,171, Dec. 14, 1988, abandoned. This application Jun. 11, 1990, Ser. No. 535,702
Int. Cl.[5] B29C *49/00, 49/20*
U.S. Cl. 264—512 **8 Claims**

1. A method for enhancing the uniformity of wall thickness of an article having a high aspect ratio horizontal cross section of greater than about 1.7 and produced from a parison having a closed bottom in a blow molding process comprising the steps of:

providing a blow molding apparatus which forms a finished article having a high aspect ratio horizontal cross section of greater than about 1.7;

providing a supply of parisons of a given vertical extent for forming articles in a blow molding apparatus;

applying a barrier layer to the closed bottom and a selected vertical extent of the outer surface of each parison which is substantially less than the entire given vertical extent of each parison, prior to its introduction into the blow molding apparatus; and



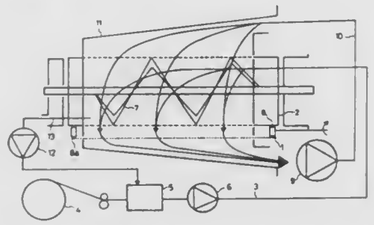
inserting the parison having the barrier layer in the blow molding apparatus and blow molding, the barrier layer being effective to prevent premature freezing of the blown parison upon contact with a wall of the blow molding apparatus during blow molding.

5,068,079

METHOD FOR FORMING A DRY WEB ON THE WIRE

Helmer Gustafsson, Valkeakoski, Finland, assignor to Yhtyneet Paperitehtaat Oy Walkisoft Engineering, Valkeakoski, Finland

Continuation of Ser. No. 209,376, Jun. 21, 1988, abandoned. This application Sep. 26, 1990, Ser. No. 590,459
Claims priority, application Finland, May 20, 1988, 882401
Int. Cl.[5] B27N *3/04*
U.S. Cl. 264—518 **5 Claims**



1. In a process for forming a dry web on a wire, where wood fibers are fed to at least one perforated drumlike forming element from a defibrator stage of said process, which forming element covers essentially the whole width of the web to be formed, and in which said wood fibres are conveyed along the width of the web and screened through a mantle of said drumlike forming element onto said wire, wherein the improvement comprises the steps of;

feeding said wood fibers into the drumlike forming element;

screening the bulk of said fibres onto said wire as said fibres advance in the feeding direction towards the other end of said drumlike forming element;

removing the fiber bundles or lumps which do not get screened from said forming element; and

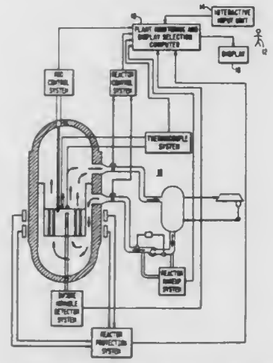
returning said unscreened fiber bundles or lumps to an earlier process stage for defibration.

5,068,080

OPERATION STATE RESPONSIVE AUTOMATIC DISPLAY SELECTION SYSTEM

Albert J. Impink, Jr., Murrysville, and Melvin H. Lipner, Monroeville, both of Pa., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Feb. 7, 1989, Ser. No. 307,831
Int. Cl.[5] G21C *7/36*
U.S. Cl. 376—215 **9 Claims**
MICROFICHE APPENDIX INCLUDED
(1 Microfiche, 19 Pages)



1. A method of monitoring preplanned state changes carried out in accordance with a procedure including a preplanned sequence of operations performed by an operator, comprising the steps of:

(a) monitoring actual size changes;

(b) comparing the actual state changes with the preplanned state changes of the operations; and

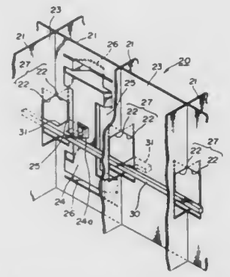
(c) alerting the operator only when the actual state changes indicate a deviation from the preplanned operations of the procedure.

5,068,081

METHOD OF INSERTING FUEL RODS INTO A NUCLEAR FUEL ASSEMBLY GRID

Junichi Oyama; Kazuichi Suzuki; Akihiro Kato, all of Ibaraki; Hitoshi Inada, Kobe; Masaji Mori, Kobe; Hiromasa Miyai, Kobe, and Toshiyuki Kawagoe, Minato, all of Japan, assignors to Mitsubishi Nuclear Fuel Co., Tokyo, Japan

Filed Jan. 3, 1990, Ser. No. 460,626
Claims priority, application Japan, Jan. 6, 1989, 1-957
Int. Cl.[5] G21C *21/00*
U.S. Cl. 376—261 **6 Claims**



1. A method of assembling a nuclear fuel assembly, comprising the steps of:

preparing a plurality of grids each of which comprises a plurality of elongated straps intersected with each other to define a plurality of grid cells therein, and a plurality of pairs of dimples and springs formed on said straps for supporting a plurality of fuel rods, each pair of dimple and spring being disposed in facing relation to each other, on wall sections of the straps, which cooperate with each other to define one of the grid cells, the pair of dimples and spring projecting into the grid cell;

subsequently inserting a deflecting jig into one of the grid cells defined in each of said grids, said deflecting jig being in the form of a rod having a diameter capable of being enlarged;

subsequently enlarging the diameter of said deflecting jig to urge the spring associated therewith against resilient force of the spring to deflect the spring away from the dimple associated therewith;

subsequently inserting a plurality of elongated key members, respectively along a longitudinal direction of the straps forming the grid, into the grid cells through a plurality of openings which are defined at intersections between the straps, each of said key members being formed with a plurality of hooks which are spaced a predetermined spacing from each other along the longitudinal direction of the key member;

subsequently rotating each of said key members about its axis to cause the hooks of the key member to project from a wall surface of the strap associated with the key member, through the openings, in a direction opposite to the projecting direction of the springs formed on the strap;

subsequently moving the key member forwardly in the longitudinal direction of the strap to engage the hooks of the key member with the wall surface of the strap, thereby fixedly mounting the key member to the strap to maintain the springs deflected;

subsequently releasing the urging of the spring due to said deflecting jig to withdraw the same from the grid cell and, subsequently, inserting said fuel rods respectively into the grid cells;

subsequently moving the key member rearwardly to release retention of the springs due to the hooks of the key member thereby bringing the springs into pressure contact with the fuel rods, respectively; and

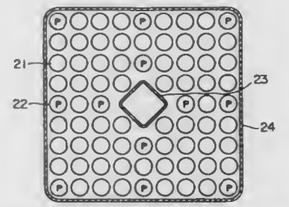
withdrawing said key members from the grid cells.

5,068,082

FUEL ASSEMBLY FOR NUCLEAR REACTOR

Makoto Ueda, Yokohama; Kolchi Sakurada, Narashino; Shungo Sakurai, Yokohama; Ritsuo Yoshioka, Yokohama; Shunsuke Ogiya, Yokohama, and Mamoru Nagano, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 15, 1988, Ser. No. 219,346
Claims priority, application Japan, Jul. 18, 1987, 62-178190; Jul. 20, 1987, 62-179213; Sep. 30, 1987, 62-244082; Oct. 12, 1987, 62-254593; Nov. 7, 1987, 62-280312; Nov. 26, 1987, 62-296058
Int. Cl.[5] G21C *3/30*
U.S. Cl. 376—428 **59 Claims**



1. A fuel assembly for a nuclear reactor of the type in which

VOL 1132 ISS 4 NO 26 1991 UMI

a number of fuel rods, each constructed by filling a clad with a fuel material, are arranged in a bundle, comprising:

a plurality of first fuel rods having a partial effective fuel area filled with a fuel material and having a portion in which enrichment of a fissile nuclide in the clad of the fuel rod is significantly reduced, or the fissile nuclide does not exist at all, positioned on an axial level including a portion at which subcriticality becomes small at a period in which maintenance of reactor shut-down margin is small during a reactor operation period; and

a plurality of second fuel rods having a total effective fuel area filled with a fuel material throughout an entire axial length of the clad of the fuel rod, wherein said first fuel rods are disposed in straight lines inside the bundle so as to horizontally separate said second fuel rods into a plurality of sub-bundles.

5,068,083

DASHPOT CONSTRUCTION FOR A NUCLEAR REACTOR ROD GUIDE THIMBLE

Clarence D. John, Jr., Penn Hills, Pa., and James A. Sparrow, Columbia, S.C., assignors to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed May 29, 1990, Ser. No. 529,845
Int. Cl.[5] G21C *3/32*
U.S. Cl. 376—449 **19 Claims**



1. In a control rod guide thimble having a main hollow tube defining a substantial portion of the length of said guide thimble, a dashpot comprising:

(a) a lower tubular portion of said main hollow tube; and

(b) an auxiliary hollow tube having concentric exterior and interior surfaces, said auxiliary tube being inserted in said lower portion of said main hollow tube and having an outside diameter slightly less than an inside diameter of said main tube to permit a close fitting relationship between said exterior surface of said auxiliary tube and an interior surface of said main tube lower portion, said auxiliary tube having an upper end portion with an inside surface portion in axial cross-section flaring in inclined relation upwardly and outwardly to provide a tapered transition extending between and connecting said interior surface of the auxiliary tube with said exterior surface thereof; and

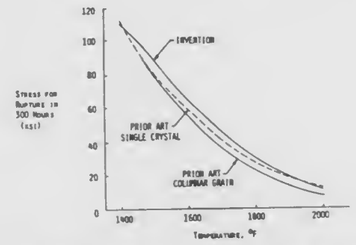
(c) an end plug attached to a lower end of said auxiliary tube.

5,068,084

COLUMNAR GRAIN SUPERALLOY ARTICLES

Alan D. Cetel, West Hartford, and David N. Duhl, Newington, both of Conn., assignors to United Technologies Corporation, Hartford, Conn.

Filed Jan. 2, 1986, Ser. No. 815,608
Int. Cl.[5] C22C *19/05*
U.S. Cl. 420—443 **8 Claims**



1. A superalloy composition suited for the fabrication of columnar grain articles which consists essentially of:

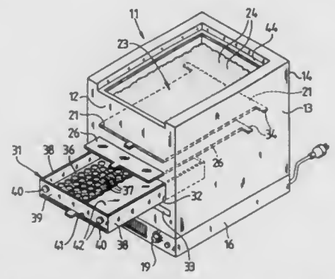
3–10% Cr
2.1–16.0% Co
1.0–1.9% Mo
3–10% W
0–5% Re
4–7% Al
0–1.5% Ti
0–8% Ta
0.5–3.0% Hf
0–2% Cb
0–1% V
0.02–0.12% Zr
0.03–0.20% C
0.005–0.25% B
0–10% reactive element
Balance Ni.

5,068,085

INSTRUMENT STERILIZER

Joseph A. Hastings, 2124 Dorchester Dr., Mobile, Ala. 36695

Filed Oct. 17, 1988, Ser. No. 258,888
Int. Cl.[5] F28C *3/10*
U.S. Cl. 422—1 **17 Claims**



1. Apparatus for sterilizing dental instruments and the like comprising:

(a) a container having an internal cavity and a set of upstanding walls having at least an inner portion of heat transferring material;

(b) means for providing heat to said walls in a controllable manner;

(c) a plurality of heat transfer beads;

(d) an instrument tray including means for selectively retaining or releasing said beads within said tray, said tray adapted for cooperative insertion into said container through an opening in one wall of said container;

(e) means for retaining a quantity of beads within said container above an instrument tray inserted in said opening; and

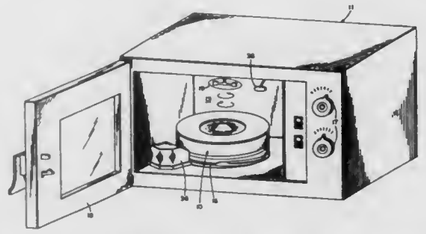
(f) means for releasing a predetermined quantity of beads into said instrument tray from said means for retaining.

5,068,086

METHOD AND APPARATUS FOR BATCH FIXATING TISSUE SPECIMENS

John S. Sklenak, Sudbury; Robert F. Bowen, Burlington, and Kenneth W. Dudley, Sudbury, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Jun. 12, 1990, Ser. No. 536,848
Int. Cl.[5] A61L *2/00;* A01N *1/00;* H05B *6/64*
U.S. Cl. 422—21 **13 Claims**



1. Apparatus adapted for chemically fixating in a multimode microwave oven cavity a plurality of tissue specimens in a batch operation, said apparatus comprising:

a tray having a circular bottom and an outer wall, said tray containing a fixating solution;

a plurality of cassettes submerged in said solution in said tray, each of said cassettes containing a respective tissue specimen, each of said cassettes having an elongated side radially aligned in said tray;

means for rotating said tray within said microwave oven cavity; and

means for selectively shielding said tray from microwave energy in said cavity to provide a substantially uniform microwave field within said tray thereby providing substantially uniform fixating results of said specimens after a predetermined interval of activation of said microwave oven.

5,068,087

HIGH CAPACITY MULTICOMPONENT LIQUID VAPORIZER

Robert W. Childers, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa.

Filed Dec. 30, 1988, Ser. No. 292,271
Int. Cl.[5] A61L *2/20;* F22B *3/00*
U.S. Cl. 422—26 **16 Claims**

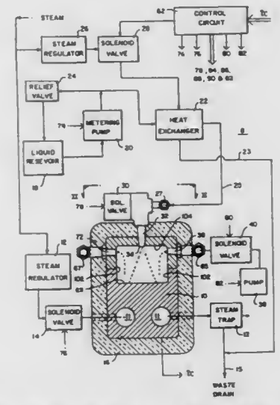
1. An apparatus for vaporizing a multicomponent liquid, comprising:

a vaporization chamber having a plurality of surfaces, a first inlet and a second inlet for passage of the liquid into said chamber, and an outlet for passage of vapor from said chamber;

means for heating said surfaces of said chamber to a temperature sufficient to vaporize the liquid;

means for injecting the liquid in metered increments into said chamber with sufficient velocity to ensure multiple impingements with said surfaces such that the liquid is substantially completely vaporized after said multiple impingements, said means for injecting comprising a first solenoid valve for supplying said metered increments to a first nozzle positioned in said first inlet and a second solenoid valve for supplying said metered increment to a second nozzle positioned in said second inlet and wherein said means for injecting includes a control circuit for sequentially opening and closing said first and said second valves such that said apparatus is capable of vaporizing a substantially steady stream of the liquid.

10. A method of vaporizing a multicomponent liquid, comprising the steps of:



heating the interior surfaces of a vaporization chamber to a temperature sufficient to vaporize the liquid, said chamber having at least two inlets for inputting the liquid into said chamber and an outlet for outputting of vapor from said chamber;

injecting the liquid into said chamber through said inlets in alternating fashion between different areas of said chambers with sufficient velocity to ensure multiple impingements with said different areas of said surfaces such that the liquid is substantially completely vaporized after said multiple impingements; and

outputting the vapor from said chamber through said outlet.

5,068,088

METHOD AND APPARATUS FOR CONDUCTING ELECTROCHEMILUMINESCENT MEASUREMENTS

Lee O. Hall, Gaithersburg; Glenn Zoski, Rockville, and Surendera K. Tyagi, Gaithersburg, all of Md., assignors to Igen, Inc., Rockville, Md.

Continuation-in-part of Ser. No. 267,234, Nov. 3, 1988. This application Mar. 17, 1989, Ser. No. 325,459
Int. Cl.[5] G01N *21/76;* H01J *1/62;* H03K *4/00*
U.S. Cl. 422—52 **14 Claims**

7. A method for measuring electrochemiluminescent phenomena of a sample, said method comprising the steps of:

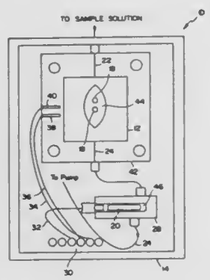
(a) introducing said sample into a cell having a working electrode located within said cell so as to be exposable to said sample;

(b) applying a controlled voltage waveform to said working electrode to trigger electrochemiluminescence in said sample;

(c) generating said controlled voltage waveform substan-

VOL
1132
ISS
4
NO
26
1991
UMI

tially as a function of the current induced in said sample during the triggering of electrochemiluminescence; and



(d) detecting electrochemiluminescent radiation from said sample.

5,068,089

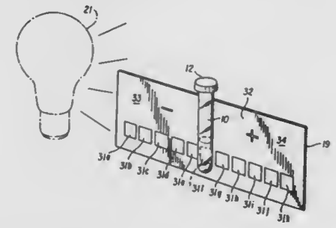
KIT FOR TESTING HUMAN MALES FOR FERTILITY

Ronald J. Ericsson, and Scott A. Ericsson, both of Alzada, Mont., assignors to Androscore Corporation, Alzada, Mont.

Division of Ser. No. 404,467, Sep. 8, 1989, which is a continuation-in-part of Ser. No. 242,104, Sep. 9, 1988, abandoned. This application Feb. 25, 1991, Ser. No. 660,081

Int. Cl.[5] G01N *33/50, 21/78*

U.S. Cl. 422—61 **8 Claims**



1. A test kit for determining the potential fertility of a semen sample of a human male, the test kit comprising:

a container with collection means for receiving the semen sample, comprising a gradation thereon for determining the volume of the semen sample;

a reagent dye which is capable of being reduced in the presence of metabolizing sperm from one colored state to another colored state;

a dispensing device for dispensing a measured amount of the reagent dye;

means for maintaining a mixture of the dye and semen sample at an elevated temperature; and

a color chart comprising a plurality of color samples corresponding to the color change affected in corresponding mixtures of the dye and sperm samples of known varying number of motile sperm cells per ml, including an infertile sperm sample.

5,068,090

AQUEOUS CARBON DIOXIDE MONITOR

Dennis J. Connolly, Alliance, Ohio, assignor to The Babcock & Wilcox Company, New Orleans, La.

Filed Mar. 26, 1990, Ser. No. 499,142

Int. Cl.[5] G01N *27/06*

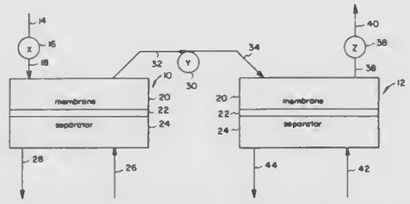
U.S. Cl. 422—82.02 **4 Claims**

1. An apparatus for measuring low levels of carbon dioxide in a water sample, comprising:

means for exchanging cations for hydrogen connected to a sample stream;

a first membrane separator connected to said cation exchanging means, said first membrane separator having a first and second compartment with said first and second compartments being separated by a membrane, said first compartment constructed so as to receive said sample stream, said second compartment constructed so as to supply a weak base to neutralize strong acids contained in said sample stream, and to leave carbonic acid in said sample stream unreacted, said membrane constructed so as to separate said weak base from said sample stream and to allow for an exchange of ions;

first means for measuring conductivity connected to said first compartment of said first membrane separator, said first conductivity measuring means receiving the sample stream therefrom and measuring the conductivity thereof;



a second membrane separator connected to said first conductivity measuring means for receiving the sample stream, said second membrane separator having a first and second compartment separated by a membrane, said first compartment constructed so as to receive said sample stream from said first conductivity measuring means, said second compartment constructed so as to supply a strong base to convert the carbonic acid in said sample stream to a carbonate salt, said membrane constructed so as to separate said strong base from said sample stream and to allow for an exchange of ions;

second means for measuring conductivity connected to said first compartment of said second membrane separator for receiving the reacted sample stream and measuring the conductivity thereof; and

means for determining carbon dioxide concentration in communication with said first and second conductivity measuring means for calculating carbon dioxide concentration from changes in conductivity.

5,068,091

DEVICE FOR DYEING TISSUES FOR IMMUNE RESPONSE OBSERVATION

Matsumi Toya, Koushoku, Japan, assignor to Kabushiki Kaisha Tiyoda Seisakusho, Koushoku and Sakura Finetechnical Co., Ltd., Tokyo, both of, Japan

Filed Feb. 22, 1989, Ser. No. 314,374

Claims priority, application Japan, Feb. 22, 1988, 63-21239

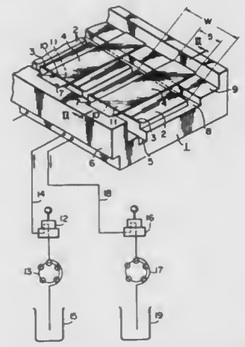
Int. Cl.[5] B01L *3/00*

U.S. Cl. 422—99 **12 Claims**

1. A device for dyeing tissues for immune response observation comprising:

flat base means with a substantially horizontal upper surface having first and second sides;

means for supporting on said upper surface a slide glass having an undersurface for facing said upper surface, the undersurface having a tissue attached thereto, said means for supporting the slide glass comprising a ridge-shaped protrusion constructed so as to extend along said first side and a supporting surface constructed so as to extend along the second side, said protrusion and said supporting surface constructed so as to support thereon two end portions of the slide glass, respectively, said protrusion and said supporting surface being disposed and sized such that the protrusion is higher than said upper surface of the flat base means and the supporting surface is higher than said protrusion so as to define thin wedge-shaped capillary gap between said upper surface and said undersurface increasing in width from said first side to said second side; and



means for supplying a dyeing liquid into said gap so as to cause the dyeing liquid to spread into the gap by capillary action thereby bringing the liquid into intimate contact with the tissue on the slide glass.

5,068,092

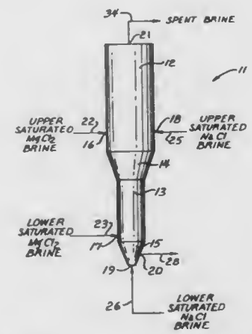
CRYSTALLIZER, PROCESS AND APPARATUS FOR PRODUCING SODIUM CHLORIDE CRYSTALS

Martin N. Aschauer, Port Huron, Mich., assignor to Akzo N.V., Netherlands

Filed May 21, 1990, Ser. No. 526,209

Int. Cl.[5] C01D *3/06*

U.S. Cl. 422—253 **5 Claims**



1. A flow-through sodium chloride crystallizer comprised of a vertically oriented crystallizer body having at least two segments of different cross-sectional area, at least two inlets for the introduction of saturated $MgCl_2$ brine at a minimum of two distinct vertical locations having different cross-sectional areas along the crystallizer body, at least two inlets for the introduction of a saturated NaCl brine at a minimum of two distinct vertical locations having different cross-sectional areas along the crystallizer body, at least one lower outlet for removal of NaCl crystals and at least one upper outlet for removal of spent brine.

5,068,093

METHOD FOR PRODUCING TITANIUM DIOXIDE

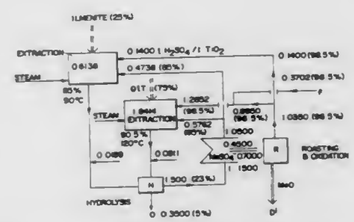
Josef Mauer, Leverkusen, Fed. Rep. of Germany, assignor to Sulzer-Escher Wyss AG, Zurich, Switzerland

Filed Nov. 17, 1988, Ser. No. 273,439

Claims priority, application Switzerland, Nov. 23, 1987, 04548/87

Int. Cl.[5] C01G *23/04*

U.S. Cl. 423—82 **8 Claims**



1. A method of producing titanium dioxide, comprising the steps of:

(1) selecting titanium slag and ilmenite as titanium-containing starting materials in a defined ratio;

(2) during a parallel treatment, reacting said titanium slag with sulphuric acid and separately reacting said ilmenite with sulphuric acid;

(3) said step of reacting said titanium slag during said parallel treatment with the sulphuric acid entailing the steps of:

(i) mixing said titanium slag with highly concentrated sulphuric acid having a concentration of at least 95% by weight;

(ii) adding to the thus obtained mixture, less concentrated sulphuric acid having a concentration in a range of 76% by weight to 87% by weight;

(iii) reacting said mixture containing said added less concentrated sulphuric acid and thereby obtaining a titanium-containing solution;

(iv) separating said titanium-containing solution from a titanium slag treatment residue;

(4) said step of reacting said ilmenite with sulphuric acid during said parallel treatment entailing the steps of:

(i) mixing said ilmenite with highly concentrated sulphuric acid having a concentration of at least 95% by weight;

(ii) adding to the thus obtained mixture, less concentrated sulphuric acid having a concentration in a range of 76% by weight to 98% by weight;

(iii) reacting said mixture containing said added less concentrated sulphuric acid and thereby obtaining a titanium-containing solution;

(iv) separating said titanium-containing solution from an ilmenite treatment residue;

(5) combining the titanium-containing solutions separated from said titanium slag treatment residue and said ilmenite treatment residue;

(6) hydrolysing the thus obtained combined titanium-containing solutions and thereby obtaining a titanium-containing hydrolysis product and a other liquor constituting a metal sulphate containing dilute sulphuric acid;

(7) separating said titanium-containing hydrolysis product from said mother liquor;

(8) recovering titanium dioxide from said titanium-containing hydrolysis product;

(9) concentrating said mother liquor and thereby recovering sulphuric acid having a concentration in the range of 76% by weight to 87% by weight;

(10) during said step of concentrating said mother liquor, separating metal sulphates from said mother liquor;

(11) recycling said recovered sulphuric acid having said

VOL 1132 ISS 4 NO 26 1991 UMI

concentration in the range of 76% by weight to 87% by weight into said parallel treatment and

(i) utilizing part of said recovered sulphuric acid during said step of adding said sulphuric acid having said concentration in the range of 76% by weight to 87% by weight to said mixture of titanium slag and highly concentrated sulphuric acid having a concentration of at least 95% by weight;

(ii) utilizing a further part of said recovered sulphuric acid during said step of adding said sulphuric acid having said concentration in the range of 76% by weight to 87% by weight to said mixture of ilmenite and highly concentrated sulphuric acid having a concentration of at least 95% by weight;

(12) during said parallel treatment, utilizing as a starting condition for reacting said titanium slag (i) a temperature of about 120° C. and (ii) a ratio of said highly concentrated sulphuric acid having a concentration of at least 95% by weight and said recovered and recycled sulphuric acid having a concentration in the range of 76% by weight to 87% by weight which results in a total sulphuric acid concentration of about 90% by weight; and

(13) during said parallel treatment, utilizing as a starting condition for reacting said ilmenite (i) a temperature of about 90° C. and (ii) a ratio of said highly concentrated sulphuric acid having a concentration of at least 95% by weight and said recovered and recycled sulphuric acid having a concentration in the range of 76% by weight to 87% by weight which results in a total sulphuric acid concentration of about 85% by weight.

5,068,094

PROCESS FOR THE REMOVAL OF CADMIUM IONS FROM PHOSPHORIC ACID RESULTING FROM A WET PROCESS

Klaus Frankenfeld, Hünfelden; Klaus Beltz, Budenheim; Gerhard Eich, Ingelheim, and Klaus Endrich, Mainz-Finthen, all of Fed. Rep. of Germany, assignors to Chemische Fabrik Budenheim Rudolf A. Oetker, Budenheim, Fed. Rep. of Germany

Filed May 25, 1990, Ser. No. 529,193

Claims priority, application Fed. Rep. of Germany, May 26, 1989, 3917189

Int. Cl.[5] C01G *55/00*

U.S. Cl. 423—109 **62 Claims**

1. A process for the removal of cadmium ions from wet process phosphoric acid by liquid-liquid extraction, comprising

contacting the wet process phosphoric acid with at least one salt present in an organic solvent, where the organic solvent is immiscible with water, aqueous salt solutions, and aqueous acids, and wherein the salt is selected from salts of organic primary, secondary, and tertiary amines and quaternary ammonium salts; and

separating the organic solvent phase, containing the extracted cadmium ions, from the wet process phosphoric acid;

said amine and ammonium salts, respectively, being salts which, as anions, contain chlorocomplexes of one or several polyvalent metals different from cadmium.

5,068,095

METHOD FOR REDUCING THE AMOUNT OF COLORANTS IN A CAUSTIC LIQUOR

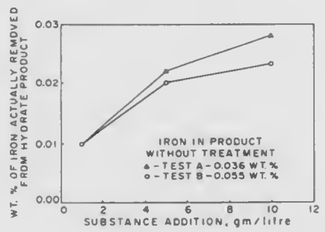
William A. Nigro, Benton, Ark., and Gary A. O'Neill, Tyngsborough, Mass., assignors to Aluminum Company of America, Pittsburgh, Pa.

Continuation-in-part of Ser. No. 275,683, Nov. 23, 1988, Pat. No. 4,915,930, which is a continuation of Ser. No. 891,751, Jul. 31, 1986, abandoned. This application Apr. 10, 1990, Ser. No. 507,386

The portion of the term of this patent subsequent to Apr. 10, 2007, has been disclaimed.

Int. Cl.[5] C01D *1/32;* **C01F** *7/04*

U.S. Cl. 423—122 **20 Claims**



1. A method for treating a caustic solution to remove a colorant therefrom, said method comprising:

contacting the solution with a substance comprising a calcined product of a compound having the formula $A_wB_x(OH)_yC_z{\cdot}nH_2O$, wherein: A represents a divalent metal cation; B a trivalent metal cation; C a mono- to tetravalent anion; and w, x, y, z and n satisfy the following: $0<z\leqq x\leqq 4\leqq w\leqq \frac{1}{2}y$ and $12\geqq n\geqq \frac{1}{2}(w-x)$.

5,068,096

SYNTHESIS OF CRYSTALLINE SILICATE MCM-47

Ernest W. Valyocsik, Yardley, Pa., assignor to Mobil Oil Corp., Fairfax, Va.

Filed Apr. 8, 1991, Ser. No. 682,045

Int. Cl.[5] C01B *35/12*

U.S. Cl. 423—277 **17 Claims**

1. A method for synthesizing crystalline material exhibiting a characteristic X-ray diffraction pattern including d-spacing maxima values, in Angstroms, as follows:

10.9±0.15
6.91±0.08
6.23±0.08
5.18±0.05
4.90±0.05
4.35±0.05
4.17±0.03
3.86±0.03
3.81±0.03
3.78±0.03
3.67±0.03
3.57±0.03
3.48±0.03

which comprises (i) preparing a mixture capable of forming said material, said mixture comprising sources of alkali or alkaline earth metal (M), an oxide of trivalent element (X), an oxide of tetravalent element (Y), water and bis(methylpyrrolidinium)-DIQUAT-4 directing agent (R), and having a composition, in terms of mole ratios, within the following ranges:

YO_2/X_2O_3	200 to ∞
H_2O/YO_2	5 to 400
OH^-/YO_2	0 to 1.0
M/YO_2	0 to 2.0
R/YO_2	0.005 to 2.0

(ii) maintaining said mixture under sufficient conditions until crystals of said material are formed; and (iii) recovering said crystalline material from step (ii), said recovered crystalline material containing said R.

5,068,097

HIGHLY PURE TANTALUM PENTOXIDE AND A PROCESS FOR ITS PREPARATION

Joachim Eckert, Bad Harzburg, and Walter Bludssus, Vienenburg, both of Fed. Rep. of Germany, assignors to Herman C. Starck Berlin GmbH & Co. KG, Berlin, Fed. Rep. of Germany

Filed Feb. 2, 1990, Ser. No. 473,731

Claims priority, application Fed. Rep. of Germany, Feb. 14, 1989, 3904292

Int. Cl.[5] C01G *35/00*

U.S. Cl. 423—592 **7 Claims**

1. Tantalum pentoxide consisting essentially of particles with an average particle size less than 0.5 μm with a purity greater than 99.99% and having a flowability of less than 50 seconds with a flowmeter orifice of 5.08 mm.

5,068,098

PERFLUORO-CROWN ETHERS IN FLUORINE MAGNETIC RESONANCE SPECTROSCOPY

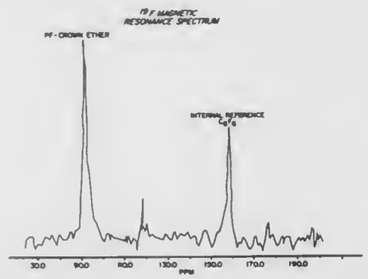
Frank K. Schweighardt, Allentown, and Joseph A. Rubertone, Coatesville, both of Pa., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Filed Jun. 11, 1990, Ser. No. 535,818

The portion of the term of this patent subsequent to Jun. 13, 2006, has been disclaimed.

Int. Cl.[5] G01N *31/00, 24/00;* **A61K** *31/335*

U.S. Cl. 424—9 **4 Claims**



1. In a method for obtaining a ^{19}F-fluorine magnetic resonance spectrum from body cavities, organs or tissue by administering to a mammal a fluorine-containing agent in a diagnostically effective amount to provide a fluorine magnetic resonance spectrum from such cavities, organs or tissues, the improvement comprising using as said fluorine-containing agent an aqueous isotonic emulsion of perfluoro 15-crown-5 ether.

5,068,099

HAIR SPRAY PACKAGE WITH LOW VOLATILE ORGANIC COMPOUND EMISSION

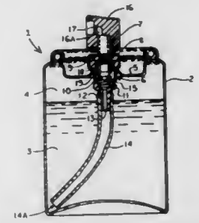
John A. Sramek, Wind Point, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Jan. 16, 1990, Ser. No. 464,796

Int. Cl.[5] A61K *7/11, 9/12;* **B65D** *83/14;* **B05B** *1/00*

U.S. Cl. 424—47 **18 Claims**

1. An improved self-propelled aerosol hair spray package comprising, in combination, a pressurized aerosol container sealed with an aerosol valve containing an actuator button having an exit orifice in flow communication with said valve and an alcoholic hair spray composition sealed within the container, the improvement comprising the valve being a low delivery rate valve capable of discharging the hair spray composition through the exit orifice at a rate of 0.20 to 0.38 grams per second and the hair spray composition comprises from about 1% to about 10% by weight of the total composition of at least two compatible hair fixative polymers in a weight ratio of at least 99:1 to 1:99, wherein one polymer present differs in weight average molecular weight from at least one other by a factor of at least 1.5 and at least one polymer present has a weight average molecular weight of at least 100,000 wherein



the polymers and their total weight present in combination with the aerosol valve and actuator button on the package results in a discharged atomized aerosol spray having a volume means particle size in the range of from about 60±12 microns, the remainder of the composition comprising both a solvent selected from the group consisting of C_2–C_4 alcohols, water and mixtures thereof, there being no more than about 10% by weight water present based upon the total weight of the hair spray composition, and a propellant, wherein the package gives relatively the same number of uses, but has from about one-third to one-half of the volume of hair spray composition, as does a second package having (a) at least twice the discharge rate, (b) a volume mean average particle size in the same range, and (c) about one-half by weight of the hair fixative polymer content.

5,068,100

ANTICALCULUS COMPOSITIONS

Stephen F. McClanahan, Loveland, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio

Continuation of Ser. No. 321,249, Mar. 9, 1989, Pat. No. 4,990,328. This application Nov. 14, 1990, Ser. No. 613,332

The portion of the term of this patent subsequent to Feb. 5, 2008, has been disclaimed.

Int. Cl.[5] A61K *7/16, 7/18, 7/24*

U.S. Cl. 424—52 **11 Claims**

1. An anticalculus composition comprising:

(a) a safe and effective amount of a phosphocitrate material; and

(b) an acceptable toothpaste carrier.

5,068,101

HAIR RELAXER CREAM

Muhammad Akhtar, Bolingbrook, and Florine Newell, Chicago, both of Ill., assignors to Johnson Products Co., Inc., Chicago, Ill.

Division of Ser. No. 399,385, Aug. 25, 1989, Pat. No. 4,950,485, which is a continuation of Ser. No. 173,318, Mar. 25, 1988, abandoned. This application Feb. 28, 1990, Ser. No. 486,538

Int. Cl.[5] A61K *7/09*

U.S. Cl. 424—71 **7 Claims**

1. A method of preparing a highly alkaline oil-in-water emulsion cream which is stable to phase separation on storage aging, contains non-volatile inorganic alkaline material having

VOL
1132
ISS
4
NO
26
1991
UMI

an alkali earth or alkaline earth cation and is directly usable as a no-base hair relaxer or is convertible to use as a no-base, no-lye hair relaxer when it is mixed with an aqueous activator solution, said emulsion having a pH above about 12, and a total of not more than about 50 weight percent non-water components, calculated as dry solids basis of the total weight of the composition, the method comprising the steps of:

(a) preparing an oil phase by heating and agitating a substantially anhydrous mixture comprising:
  (i) about 15 to about 35 weight percent of a lipophilic oleaginous material;
  (ii) zero to about 2 weight percent of a lipophilic modified hectorite clay gellant;
  (iii) about 3 to about 15 weight percent of a primary nonionic emulsifier, said emulsifier comprising a mixture of lipophilic fatty alcohols having from about 12 to about 24 carbon atoms in their fatty carbon chain per molecule; and
  (iv) about 0.01 to about 1 weight percent auxiliary anionic emulsifier, all weight percents being based on the total weight of the composition, dry solids basis, at about 80 degrees C until said mixture is substantially homogeneous;

(b) preparing a water phase by heating and agitating, in a separate container, an aqueous mixture comprising:
  (i) water;
  (ii) about 0.1 to about 10 weight percent of said alkaline material selected from the group consisting of water-soluble alkali metal hydroxide and alkaline earth hydroxide, wherein when the alkaline material is alkali metal hydroxide it is separately dissolved in a portion of the water and that portion is initially withheld;
  (iii) about 0.05 to about 10 weight percent of auxiliary water-soluble emulsifying agents less the amount of the anionic emulsifier in the oil phase, said emulsifying agents comprising a hydrophilic nonionic emulsifier and an amphoteric or zwitterionic emulsifier;
  (iv) about 0.1 to about 10 weight percent of a water-soluble polyhydroxy compound having about 3 to about 6 carbon atoms per molecule; and
  (v) zero to about 5 weight percent of a polymeric quaternary nitrogen conditioning agent, all weight percents being based on the total weight of the composition, dry solids basis, at a temperature of about 80 degrees C until said mixture is substantially homogeneous;

(c) slowly admixing the heated water phase obtained in step (b) into the heated oil phase obtained in step (a);

(d) thereafter mixing the resulting heated composition until a substantially homogeneous and uniform emulsion is formed;

(e) thereafter sequentially cooling the emulsion to a temperature below about 55 degrees C, admixing therein any portion of water containing alkali metal hydroxide previously withheld in step (b) (ii), and agitating the emulsion until a relatively viscous emulsion cream composition forms; and

(f) thereafter cooling the resulting composition relatively rapidly to ambient room temperature;

whereby when the alkaline material in step (b) is an alkaline earth hydroxide, the emulsion cream is convertible to a no-base, no-lye relaxer when it is admixed with an aqueous liquid activator and when the alkaline material withheld in step (b) (ii) and added in step (e) is alkali metal hydroxide, the emulsion cream is directly usable as a hair relaxer.

5,068,102

AGENT FOR THE LONG-LASTING SHAPING OF HAIR

Jürgen Tennigkeit, Seeheim, and Burkhard Rose, Darmstadt, both of Fed. Rep. of Germany, assignors to Goldwell AG, Darmstadt, Fed. Rep. of Germany

Filed Jun. 27, 1990, Ser. No. 544,743

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1989, 3920984

Int. Cl.[5] A61K *7/09*

U.S. Cl. 424—72 **12 Claims**

1. Agent for the permanent shaping of hair, said agent comprising a mixture of: (a) a thioglycolic acid ester; (b) from 10 to 60% of said thioglycolic acid ester of 2-mercaptopropionic acid monoglycerol ester; and (c) at least one solubilizer.

5,068,103

SALBUTAMOL-CONTAINING PLASTER AND METHOD OF PRODUCING SAME

Toshikuni Kawazi; Masahiro Ono, and Nobuko Inoue, all of Kagawa, Japan, assignors to Teikoku Seiyaku Kabushiki Kaisha, Kagawa, Japan and Chiesi Farmaceutici S.p.A., Parma, Italy

Filed Sep. 8, 1988, Ser. No. 241,458

Claims priority, application Japan, Sep. 8, 1987, 62-224487

Int. Cl.[5] A61K *31/74, 31/78, 9/70, 31/135*

U.S. Cl. 424—81 **9 Claims**

1. A salbutamol-containing plaster which comprises an adhesive preparation containing a macromolecular substance selected from the group consisting of natural rubber, polyisoprene, polybutadiene, styrene-isoprene-styrene block copolymers, polyacrylic esters, polymethacrylic esters, acrylic ester-methacrylic ester copolymers, acrylic acid-acrylic ester-vinyl acetate copolymers and petroleum resins in an amount of 20–70%, and a metal ion sequestering agent selected from the group consisting of ethylene diamine tetraacetic acid, potassium polyphosphate, sodium polyphosphate, potassium metaphosphate, sodium metaphosphate, dimethylglyoxime, 8-hydroxyquinoline, nitrilotriacetic acid, dihydroxyethylglycine, gluconic acid, citric acid and tartaric acid in an amount of 0.01–2%, and an effective amount of salbutamol or a pharmaceutically acceptable salt thereof in an amount of 1–6% incorporated in said adhesive preparation, the salbutamol-containing adhesive preparation being spread on a support to form a salbutamol-bearing layer.

5,068,104

LIVE VACCINE FOR COCCIDIOSIS UTILIZING COCCIDIAL SPOROZOITES

Balbir S. Bhogal; Michael G. Williams, both of Midlothian, and Glenn A. Miller, Richmond, all of Va., assignors to A. H. Robins Company Incorporated, Richmond, Va.

Filed Aug. 1, 1988, Ser. No. 226,894

The portion of the term of this patent subsequent to Feb. 28, 2006, has been disclaimed.

Int. Cl.[5] A61K *39/00, 9/48*

U.S. Cl. 424—88 **5 Claims**

1. A method of vaccinating chickens against coccidiosis disease, which method comprises:

(a) treating with a chelating agent a microcapsule containing internally, inside of a microcapsule wall, a suspension of live excysted *Eimeria tenella* sporozoites, physiologically balanced with respect to isotonicity and pH further comprising at least one water-soluble viscosity enhancing polymeric substance selected from the group consisting of hydrosols, gels, gelatins, cellulose, cellulose derivatives and polysaccharide gums in amount sufficient to significantly prolong viability of said sporozoites and said microcapsule wall comprised of hardened polymeric substance; and

(b) administering to said chickens said treated microcapsule.

5,068,105

FUNGAL FORMULATION FOR BIOCONTROL OF SOILBORNE PLANT PATHOGENS

Jack A. Lewis, Columbia; Douglas Lumsden, Bowie; George Papavizas, Beltsville; Martha D. Hollenbeck, Hyattsville, and James F. Walter, Ashton, all of Md., assignors to W. R. Grace & Co.-Conn., New York, N.Y. and The United States of America as represented by the Secretary of Agriculture, Washington, D.C.

Filed Mar. 13, 1989, Ser. No. 322,445

Int. Cl.[5] A61K *35/70;* **C12N** *1/14;* **A01N** *63/04*

U.S. Cl. 424—93 **25 Claims**

1. A biocontrol preparation for control or prevention of plant fungal diseases which is a mixture of a porous carrier and sporulated biomass of one or more species of fungus effective for control of soilborne plant diseases, said biomass having been grown under liquid fermentation conditions, separated from the fermentation medium, treated with a dilute acid to reduce bacterial contamination, and dried to temporarily inactivate and stabilize the mixture, said biomass/carrier mixture subsequently having been moistened and activated by incubation with dilute acid and a nutrient base for a sufficient time to allow for visible fungal growth prior to applying to soil or growth medium.

5,068,106

T-PA SOLUTION OF HIGH CONCENTRATION AND USE OF THE SOLUTION IN HUMAN AND VETERINARY MEDICINE

Eric P. Pâques, Marburg, and Hans-Arnold Stöhr, Wetter, both of Fed. Rep. of Germany, assignors to Behringwerke Aktiengesellschaft, Marburg, Fed. Rep. of Germany

Filed Juo. 3, 1988, Ser. No. 201,880

Claims priority, application Fed. Rep. of Germany, Jun. 5, 1987, 371889

Int. Cl.[5] A61K *37/547, 37/54;* **C12N** *9/64, 9/72*

U.S. Cl. 424—94.3 **13 Claims**

1. A process for the preparation of a protein solution having tissue plasminogen activator (t-PA) activity, comprising

preparing a solution containing t-PA in the one- or two-chain form, or a solution containing a derivative of said t-PA which occurs naturally or which has been prepared by synthesis or genetic manipulation; and

adding to said solution 0.001 to 1 mol/l of arginine and 0.001 to 1 mol/l of lysine.

5,068,107

POLYMERIC ORTHODONTIC MEMBERS AND ORTHODONTIC TREATMENT METHOD

Daniel J. Hollibush, Kansasville, Wis.; Jeffery Fasnacht, Columbus, Ind., and Edward G. Eeg, Racine, Wis., assignors to Ortho-Vacon, Inc., Kansasville, Wis.

Continuation-in-part of Ser. No. 143,748, Jan. 14, 1988, abandoned. This application Dec. 16, 1988, Ser. No. 286,316

Int. Cl.[5] A61F *13/00*

U.S. Cl. 424—435 **9 Claims**

1. A method for prevention and treatment of dental disease during a course of orthodontic treatment comprising:

mounting under tension in orthodontic force-applying positions, at treatment locations within the mouth, at least one force-applying polymeric elastic orthodontic member, the elastic member being an orally-acceptable substantially water-insoluble elastic polymeric material selected from the group consisting of natural rubbers, natural-synthetic rubbers, synthetic rubbers, and thermoplastic polymeric materials, and blends thereof, having suitable physical properties, with a dentally-active pharmacological agent uniform throughout the elastic polymeric material as an in situ constituent of polymeric-member formation from a homogeneous mixture of said polymeric material and said pharmacological agent, the elastic polymeric material having dispersed therein a composition which includes the pharmacological agent, such dispersed composition being present in an amount no more than about 30 parts by weight per 100 parts of the elastic polymeric material;

releasing the dentally-active pharmacological agent throughout the useful force-applying life of the polymeric elastic member, such release being where most needed and in therapeutically-acceptable concentrations, by maintaining said force-applying polymeric elastic member(s) at said orthodontic treatment location(s); and

at a time after the mounting step, removing and discarding the elastic orthodontic member and replacing it with an unused similar elastic orthodontic member, thereby to enhance continuous application of the dentally-active agent;

whereby protection against or treatment of dental disease is provided without compromising orthodontic force-applying elasticity of the orthodontic member, the protection provided by each such orthodontic member being provided over an extended period which is substantially commensurate with the useful life of force-applying elasticity of said orthodontic member.

5,068,108

CONTROLLED RELEASE PROTECTIVE MATRICES FOR ZOOTECHNICAL AND VETERINARY USE

Luigi Fezzi, and Giacomo Grassigli, both of Modena, Italy, assignors to Industria Italiana Integratori Trei S.P.A., Modena, Italy

Filed Feb. 27, 1990, Ser. No. 485,997

Claims priority, application Italy, Mar. 3, 1989, 19639 A/89

Int. Cl.[5] A01N *25/08;* **A23K** *1/18;* **A61K** *9/62, 47/36*

U.S. Cl. 424—438 **2 Claims**

1. A rumen by-pass product for oral administration to a ruminant comprising a biologically active component supported by a protective matrix formed by lipogelling a saturated long chain fatty acid triglyceride with a polymeric material selected from methyl- and ethyl cellulose, cellulose acetophthalate, polyvinyl and polyoxyethylene alcohol and polyacrylates, and transforming the matrix into a paste by the addition thereto of a colloidal material selected from starch, kaolin, bentonite and silica.

5,068,109

ANTACID COMPOSITION

Jorgen Foldager, Snekkersten; Helle Toftkj r, N rum, and Kim Kjorn s, V rlose, all of Denmark, assignors to Farma Food A/S, Glostrup, Denmark

PCT No. PCT/DK88/00062, § 371 Date Dec. 5, 1989, § 102(e) Date Dec. 5, 1989, PCT Pub. No. WO88/07862, PCT Pub. Date Oct. 20, 1988

PCT Filed Apr. 6, 1988, Ser. No. 424,222

Claims priority, application Denmark, Apr. 8, 1987, 1796/87

Int. Cl.[5] A61K *9/28*

U.S. Cl. 424—441 **23 Claims**

1. An antacid composition which comprises

i) a low-methoxylated pectin having a degree of methoxylation of not more than 15%, or an alkali salt metal or amidated derivative thereof, which is capable of forming a gel structure at an acid pH;

ii) one or more acid neutralizing agents capable of being trapped in said gel structure formed by said low-methoxylated pectin at an acid pH, at least one of said acid neutralizing agents which cause said gel to foam when contacted with an acid and which is selected from the group consisting of alkali metal and alkaline earth metal salt, an aluminum salt, an ammonium or a bismuth salt, said salt being a carbonate, bicarbonate, subcarbonate or a mixture thereof; and

iii) optionally, a substance which is capable of acting as a buffer and capable of being captured in said gel structure formed by said low-methoxylated pectin at an acid pH, said substance iii) being selected from the group consisting of proteinaceous substances, sodium, calcium, magnesium,

VOL 1132 ISS 4 NO 26 1991 UMI

ammonium, aluminum and potassium phosphates; casein or caseinates; milk powder; gelatin and amino acids, or a salt thereof;

said composition having raft-forming properties in a gastric environment.

5,068,110

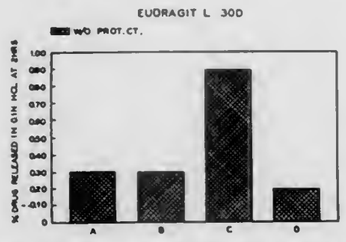
STABILIZATION OF ENTERIC COATED DOSAGE FORM

Mahdi B. Fawzi, Flanders; Daniel A. Kubert, Lafayette, and Kuchi S. Murthy, Morris Plains, all of N.J., assignors to Warner-Lambert Co., Morris Plains, N.J.

Continuation of Ser. No. 102,179, Sep. 29, 1987, abandoned. This application Jul. 14, 1989, Ser. No. 379,727

Int. Cl.[5] A61K *9/62*

U.S. Cl. 424—461 **8 Claims**



1. An enteric coated pharmaceutical capsule having acetates or derivatives thereof comprising cellulose acetate phthalate or polyvinyl acetate phthalate as the enteric coatign where in the improvement is an enteric coating level consisting of from 14 mg/cm_2 to 24.0 mg/cm_2 and a protective coating comprising a hydrophilic coating comprising hydroxypropyl cellulose, hydroxymethyl cellulose or hydroxypropylmethyl cellulose.

5,068,111

PHARMACEUTICAL TABLETS AND CAPSULE GRANULATES OF SCLEROGLUCAN AND ACTIVE SUBSTANCE

Mara L. Lovrecich, Trieste, and Giovanna Riccioni, Rome, both of Italy, assignors to Vectorpharma International S.p.A., Trieste, Italy

Filed Mar. 17, 1989, Ser. No. 324,736

Claims priority, application Italy, Mar. 17, 1988, 19816 A/88

Int. Cl.[5] A61K *9/16, 9/26, 9/52*

U.S. Cl. 424—469 **2 Claims**

1. Pharmaceutical formulation for oral administration with controlled release of the active substance and with improved bioadhesion characteristics, comprising scleroglucan and an active substance selected from the group consisting of benzamide and theophylline in an amount of between 5 and 60% by weight and pharmaceutical acceptable excipients selected from the group consisting of polyethylene glycol, gum arabic, calcium chloride, aerosil, sodium borate and stearic acid and being present in an amount of between 5 and 40% by weight, said formulation being prepared by mechanically mixing said scleroglucan, said active substance and said pharmaceutical acceptable excipients in solid state and directly compressing to form a controlled release formulation in tablet form.

5,068,112

CONTROLLED RELEASE PHARMACEUTICAL PREPARATION AND METHOD FOR PRODUCING THE SAME

Masayoshi Samejima, Mino; Kazuo Noda, Takarazuka; Yoshiyuki Hirakawa, Toyonaka, and Hiroyuki Yoshino, Suita, all of Japan, assignors to Tanabe Seiyaku Co., Ltd., Osaka, Japan

Filed Mar. 24, 1989, Ser. No. 329,408

Claims priority, application Japan, Mar. 31, 1988, 63-80604

Int. Cl.[5] A61K *9/16*

U.S. Cl. 424—495 **6 Claims**

1. A controlled release pharmaceutical preparation comprising:

(A) a core containing a pharmaceutically active ingredient and succinic acid; and

(B) a porous cellulose film formed on the surface of said core by spraying a water-organic solvent mixture containing ethyl cellulose or a mixture of ethyl cellulose and hydroxypropyl cellulose, said porous cellulose film having a porosity of about 0.4 to 0.9 calculated according to the formula:

$$1 - \frac{\text{(total weight of film)/(total volume of film)}}{\text{(true specific gravity of film)}}$$

5,068,113

CHLOROFIBERS WITH PERMANENT ANTISEPTIC CHARACTER AND PROCESS FOR THEIR PRODUCTION

Michel Bourgeois, Lyons; Roger Chatelin; Daniel Wattiez, both of Lissieu Par Lozanne; Michel Sotton, St Cyr Au Mont d'Or; François Belet, Tronville en Barrois, and Georges Achard, Decines, all of France, assignors to Institut Textile de France and Rhovyl, both of, France

Filed Sep. 20, 1989, Ser. No. 409,809

Claims priority, application France, Sep. 27, 1988, 88 13059

Int. Cl.[5] A01N *25/34;* A61K *9/14, 33/28;* C07F *3/12*

U.S. Cl. 424—496 **9 Claims**

1. A fibrous polymeric material based on polyvinyl chloride which contains at least one antiseptic mercury derivative distributed in its polymeric structure in the form of a substantially molecular and practically non-releasable dispersion, said derivative being present in a concentration of at least 0.25 mg of mercury/g of chlorofiber and containing at least one benzene ring and comprising on the one hand at least one radical HgX, in which X is selected from F, Cl, Br, I, OH, CH_3COO, CN, SCN, NO_3 and $OB(OH)_2$, and on the other hand, bonded to a benzene ring, at least one group —OR or —COOR, in which R is a functional group which is capable of partaking in a polymerization or polyaddition reaction, said derivative being not fixed on the polymeric structure of the material by a reaction of polymerization or of polyaddition, but being distributed on its polymeric structure in the form of a molecular and practically non-releasable dispersion.

5,068,114

ANIMAL FEED BLOCK COMPOSITION

Michael J. Chanen, St. Louis Park, and Robert W. Roskowiak, St. Paul, both of Minn., assignors to Cargill, Incorporated, Minneapolis, Minn.

Filed Dec. 6, 1989, Ser. No. 446,997

Int. Cl.[5] A23K *1/22*

U.S. Cl. 426—69 **24 Claims**

1. A two part composition for forming a weather resistant, stackable animal feed block upon mixing of the parts, the composition comprising a first flowable premix including from about 65% to about 80% of cane molasses, from about 3.0% to about 4.5% of dissolved calcium chloride, from about 3.3% to about 7.0% fat, from about 5.75% to about 8% water, and from about 4.9% to about 8.5% urea prills, said first premix having a pH from about 4.4 to about 5.5, the first premix substantially free of divalent cations other than Ca^{2+} ions and not increasing in viscosity more than about 3½ times with the mixture of $CaCl_2$ therein; and a second liquid premix containing water soluble salts of orthophosphoric acid, said second premix having a pH from about 5.0 to about 6.2, the first and second premixes when combined having a pH between about 4.0 and about 6.0, wherein the ratio of the first premix to the second premix is in the range of from about 1.84:1 to about 6.82:1, the ratio of dissolved calcium in the first premix to dissolved phosphorous in the second premix is in the range of between about 0.26:1 and about 0.32:1 and forming the weather resistant, stackable animal feed block upon mixing, which block has a hardness of more than about 4 in about 6 hours.

5,068,115

METHOD FOR CLEANING EDIBLE OILS USING AN IMMERSIBLE PACKET CONTAINING CITRUS PEELS AND A PACKET FOR CLEANING EDIBLE OILS

Benno E. Liebermann, Louisville, Ky., assignor to Beltec International, Louisville, Ky.

Filed Jan. 3, 1991, Ser. No. 638,479

Int. Cl.[5] A23D *9/00*

U.S. Cl. 426—77 **26 Claims**

1. An immersible packet for cleansing of a heated cooking oil, said packet comprising:

a sealed enclosure formed from an oil porous material, said material when immersed in the heated cooking oil for at least thirty minutes being stable against heated oil to temperatures of at least 350° Fahrenheit;

an antioxidant carried with the ground rind of a fruit, said fruit containing citric acid and ascorbic acid, said rind containing a volatile essential oil, said ground rind substantially filling said enclosure; and

said porous material having pores large enough to permit release of water vapor from within said enclosure, but small enough to prevent escape of rind pieces through said material;

such that when immersed in said heated cooking oil said packet inhibits accelerated generation of free fatty acids and other organic contaminants while volatilizing said essential oil to produce a pleasing aroma.

5,068,116

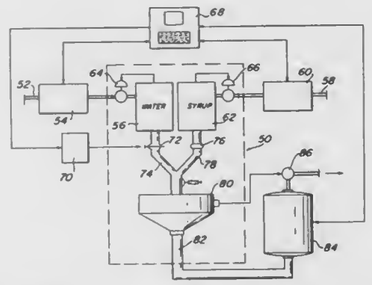
METHOD FOR BEVERAGE BLENDING AND PROPORTIONING

Michael W. Gibney, Ingleside; Lawrence M. Lucas, Corpus Christi, and Roy Culver, Jr., Ingleside, all of Tex., assignors to Micro-Blend, Inc., Ingleside, Tex.

Continuation-in-part of Ser. No. 416,813, Oct. 3, 1989, abandoned. This application Feb. 20, 1990, Ser. No. 482,363

Int. Cl.[5] A23L *2/00*

U.S. Cl. 426—23.1 **18 Claims**



1. A method of proportioning and blending a beverage comprising the steps of: providing a flow of water into a proportioner, providing a flow of beveraged syrup into a proportioner, determining the mass flow rate of the water and the syrup, calculating a volumetric flow rate for the water and the syrup as a function of the mass flow determination, blending the water and syrup in exact proportions, and adjusting the proportion of the water to the syrup in the blend as a function of the calculated values and a previously set value for the blend.

5,068,117

METHOD OF PRODUCING SIMULATED MEAT PRODUCT FROM WHOLE SOYBEANS

Edward M. McCabe, Marysville, Ohio, assignor to Nestec S.A., Vevey, Switzerland

Continuation-in-part of Ser. No. 318,793, Mar. 3, 1989, Pat. No. 4,943,441. This application Jul. 23, 1990, Ser. No. 556,139

The portion of the term of this patent subsequent to Jul. 24, 2007, has been disclaimed.

Int. Cl.[5] A23J *3/22*

U.S. Cl. 426—511 **12 Claims**

1. A method of processing whole soybeans to produce a textured soy protein product in the form of discrete chunks free from off-flavors and odors, which consists essentially of

hydrating and acidifying whole soybeans to a pH in the range of between about 4.5 to 6.5

comminuting the hydrated and acidified whole soybeans with water and sufficient vegetable protein isolate to provide an aqueous dispersion of soybean particles containing from about 40% to 60% by weight protein on a moisture free basis, with the aqueous dispersion having a pH in the range of between about 4.5 to 6.5 and a solids content of about 10% to 45% by weight,

introducing the aqueous dispersion into a confined treatment zone,

injecting pressurized steam into a confined stream of the aqueous dispersion in said treatment zone under conditions sufficient to rapidly denature protein in said dispersion and texturize the protein into discrete chunks of texturized protein, and

discharging the texturized protein from said treatment zone in the form of discrete, chunks which are free of off-flavors and odors.

5,068,118

METHOD OF MAKING SIMULATED CHEESE CONTAINING CASEIN MATERIALS

John J. Strandholm, Morton Grove, Ill., assignor to Kraft General Foods, Inc., Glenview, Ill.

Filed Jul. 25, 1990, Ser. No. 557,698

Int. Cl.[5] A23C *20/00*

U.S. Cl. 426—582 **16 Claims**

1. A method for controlling the texture, firmness and melting properties of a simulated cheese product comprising providing a protein material wherein at least a portion of said protein material is a modified casein material selected from the group consisting of alpha-S-1 casein, alpha-S-2 casein, beta casein, kappa casein, gamma casein, dephosphorylated native casein, dephosphorylated alpha-S-1-casein, dephosphorylated alpha-S-2-casein, dephosphorylated beta casein, dephosphorylated gamma casein, dephosphorylated kappa casein and mixtures thereof, admixing said protein material continuing modified casein material with water and heating said admixture with agitation to provide said simulated cheese.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,119

ACID-HYDROLYZABLE ESTER DERIVATIVES AS LOW CALORIE FAT MIMETICS

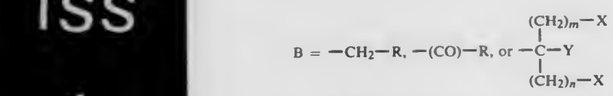
Lawrence P. Klemann, Somerville, and John W. Finley, Whippany, both of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Sep. 28, 1990, Ser. No. 590,298
Int. Cl.[5] A23D *9/00*
U.S. Cl. 426—601 **22 Claims**

1. A food composition comprising fat ingredients and nonfat ingredients, wherein said fat ingredients are partially or fully replaced by a fat mimetic compound of the formula



where



X=H, an alkyl having 1 to 4 carbons, —O—(CO)—R, or —(CO)—O—R, or mixtures thereof,
Y=H, an alkyl having 1 to 4 carbons, or —(CO)—O—R,
R=an aliphatic group having 1 to 29 carbons,
m=0, 1, or 2,
n=0, 1, or 2, and
p=0 , 1 or 2.

5,068,120

AMINE ESTER DERIVATIVES AS LOW CALORIE FAT MIMETICS

Ronald G. Yarger, Covent Station; Lawrence P. Klemann, Somerville, and John W. Finley, Whippany, all of N.J., assignors to Nabisco Brands, Inc., Parsippany, N.J.

Filed Aug. 1, 1990, Ser. No. 561,099
Int. Cl.[5] A23D *9/00*
U.S. Cl. 426—611 **23 Claims**

1. An edible composition comprising, in addition to other edible ingredients, a fat mimetic compound of the following formula:



where
B is an aliphatic group having from 2 to 12 carbons, each R is, independently, an aliphatic group having 1 to 30 carbons,
X=H or R, independently, m=1 to 2, and n=1 to 7.

5,068,121

PRODUCT AND PROCESS FOR PREPARING A PLANT FIBER PRODUCT

Sven K. Hansen, Pjedsted, and Anders H. Balle, Strib, both of Denmark, assignors to Fredericia Cellulose A/S, Fredericia, Denmark

Filed Nov. 21, 1989, Ser. No. 439,665
Claims priority, application Netherlands, Oct. 19, 1989, 5188/89
Int. Cl.[5] A23K *1/00*; A23L *1/277*
U.S. Cl. 426—636 **14 Claims**

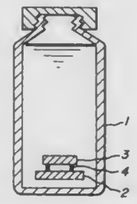
1. A process for preparing a fiber-containing food additive from a cereal straw containing lignin, said process consisting essentially of subjected a product obtained from cutting and purifying said cereal straw to the following successive treatment steps:
(i) cooking the product in a liquor containing sodium hydroxide at a positive pressure and without the addition of a sulphate or a sulphite;
(ii) treating the product with ClO_2 in an acid medium;
(iii) treating the product with H_2O_2 in a basic medium;
(iv) treating the product with ClO_2 in an acid medium; and
(v) drying and grinding the product to obtain said food additive,
whereby substantially all lignin is removed from said product, and said food additive has a whiteness greater than 80 according to the Iso-standard.

5,068,122

PROCESS FOR FORMING A BIOACTIVE HYDROXYAPATITE FILM

Tadashi Kokubo, Nagaokakyo City; Takao Yamamuro, Muko City, and Yoshio Abe, Kyoto City, all of Japan, assignors to Kyoto University, Kyoto City, Japan

Filed Nov. 8, 1989, Ser. No. 435,206
Claims priority, application Japan, Mar. 29, 1989, 1-74829
Int. Cl.[5] B05D *7/24*
U.S. Cl. 427—2 **1 Claim**



1. A process for forming a bioactive hydroxyapatite film on a surface of a substrate, comprising the steps of:
arranging the substrate and a glass comprising 20–60 mol % CaO and 40–80 mol % SiO_2, wherein the total amount of CaO and SiO_2 in the glass is at least 70 mol %, in a face-to-face relation at a distance of at most 2 mm apart; and
soaking the thus arranged substrate and glass in an aqueous solution comprising hydroxyapatite constituents Ca and P as a solute in amounts of 0.1–10 mM as Ca^{+2} ion and 0.1–50 mM as HPO^{-2} ion, at a pH in the range of 5–9 and a temperature in the range from 5–70° C. to form a bone-like hydroxyapatite film on the surface of the substrate, wherein the positioning of the substrate surface near the glass surface provides a concentration of hydroxyapatite constituents at the substrate surface which is higher than the concentration in the bulk of the solution.

5,068,123

PROCESS FOR PRODUCING RECORDING MEDIUM AND APPARATUS THEREFOR

Hiroshi Goto, Yokohama; Toshiaki Harada, Kawasaki, and Noriyoshi Ishikawa, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 29, 1989, Ser. No. 399,240
Claims priority, application Japan, Aug. 30, 1988, 63-213686; Nov. 11, 1988, 63-283834; Dec. 6, 1988, 63-306838
Int. Cl.[5] B05D *1/40, 3/02, 3/12*
U.S. Cl. 427—32 **12 Claims**

1. A process for producing a recording medium comprising a substrate and a plurality of image forming elements disposed thereon, which comprises the steps of:
applying a binder onto the substrate to form thereon a binder layer;
disposing the image forming elements on the binder layer; and
simultaneously applying a vibration and a pressure in a direction toward the substrate to the image forming elements disposed on the binder layer sufficient to bond the

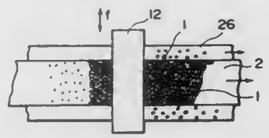


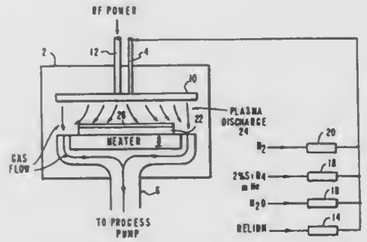
image forming elements to the substrate as a substantially monoparticle layer.

5,068,124

METHOD FOR DEPOSITING HIGH QUALITY SILICON DIOXIDE BY PECVD

John Batey, and Elaine Tierney, both of Danbury, Conn., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 17, 1989, Ser. No. 438,920
Int. Cl.[5] C23C *16/40, 16/50*
U.S. Cl. 427—39 **20 Claims**



1. A method for depositing high quality silicon dioxide on a substrate in a plasma-enhanced chemical vapor deposition tool, comprising the steps of:
(a) introducing an oxygen containing reactant gas and a silicon containing reactant gas into said tool, said silicon containing reactant gas being diluted in an inert carrier gas, the flow rate of said diluted silicon containing carrier gas being 200 sccm or greater;
(b) introducing a flow of said inert carrier gas at a flow rate of 1000 sccm or greater into said tool; and
(c) establishing a plasma discharge in said tool by applying RF power density of about 1 W/cm^2 or greater, thereby depositing a layer of high quality silicon dioxide on said substrate.

5,068,125

PROCESS FOR THE PRODUCTION OF COATINGS BASED ON UNSATURATED POLYESTER RESINS BY HARDENING UNDER INFRA-RED RADIATION

Jürgen Meixner; Horst Clemens, and Armin Sickert, all of Krefeld, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Division of Ser. No. 427,776, Oct. 27, 1989, abandoned. This application Aug. 27, 1990, Ser. No. 572,348
Claims priority, application Fed. Rep. of Germany, Nov. 8, 1988, 3837783
Int. Cl.[5] B05D *3/06*; C08G *63/66*
U.S. Cl. 427—55 **2 Claims**

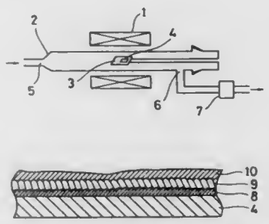
1. In the process for the production of coatings on a substrate by applying to the substrate a composition containing an unsaturated polyester resin as the binder and subsequently hardening the coating thus obtained by infra-red radiation,
the improvement comprises having the composition contain, as the binder, a monomer-free olefinically unsaturated polyester resin having a viscosity of 2,000 to 5,000 mPa.s at 23° C. and consisting essentially of the reaction product of:
A) 1.0 mol of an unsatured dicarboxylic acid component selected from the group consisting of maleic acid, maleic anhydride, fumaric acid and mixtures thereof,
B) 0.5 to 1.2 mol of a diol component which is a dihydric alcohol with 2 to 8 carbon atoms,
C) 0.5 to 1.1 mol of at least one unsaturated ether component which is a monofunctional hydroxy compound containing one or more β,γ-ethylenically unsaturated alkenyl ether moieties in the molecule, and
D) 0 to 0.55 mol of an alcohol component which is a saturated monohydric alcohol with 4 to 10 carbon atoms.

5,068,126

PROCESS FOR PRODUCING GRAPHITE ELECTRODES

Tomonari Suzuki, Kashihara; Hiroshi Wada, Nara; Yoshikazu Yoshimoto, Tenri, and Masaru Yoshida, Nara, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 3, 1989, Ser. No. 318,339
Claims priority, application Japan, Mar. 4, 1988, 63-51821
Int. Cl.[5] C23C *16/00*
U.S. Cl. 427—122 **17 Claims**



1. A process for producing a graphite electrode which comprises the steps of:
forming a deposition layer of fine globular graphite particles on a substrate, wherein the fine globular graphite particles have a size of 1 to 10 μm; and
conducting one or more times a laminating step of forming a metal film on the deposition layer and subsequently forming a graphite layer on the metal film, to obtain an electrode having one or more of the graphite layers supported on the substrate wherein the metal film is a nickel or iron film which has a thickness of 1 to 10 μm.

5,068,127

PROCESS AND APPARATUS FOR THE SIMULTANEOUS DEPOSITION OF A PROTECTIVE COATING ON INTERNAL AND EXTERNAL SURFACES OF HEAT-RESISTANT ALLOY PARTS

Jean-Paul Fournes, Milly la Foret, and René J. Morbioli, Corbeil, both of France, assignors to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "S.N.E.C.M.A.", Paris, France

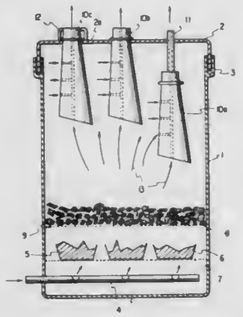
Filed Jun. 29, 1989, Ser. No. 372,889
Claims priority, application France, Jun. 30, 1988, 88 08801
Int. Cl.[5] C23C *16/22, 16/46, 10/48, 10/34*
U.S. Cl. 427—237 **9 Claims**

1. A process for the simultaneous deposition of a protective coating on both external and internal surfaces of at least one heat-resistance object comprising the steps of:
providing a box comprising a donor of a metal to be deposited on said at least one object to be coated and, separately from said donor, an activator constituting a source of fluorine, said activator comprising a source of fluorine

VOL 1132 ISS 4 NO 26 1991 UMI

exhibiting a slow kinetic decomposition process in a range of temperatures of the deposition process;

locating said at least one object to be coated in said box, wherein a portion of said object not to be coated is placed outside of said box, wherein said internal surfaces of said at least one object to be coated define at least one passage through said object to be coated, wherein said at least one object to be coated is located in said box so that gases can escape from said box through said at least one passage through said at least one object to be coated, and wherein said at least one passage has an intake turned toward a direction of circulation of said fluorinated vapors;



heating said box to a temperature above 1000° C. to generate fluorinated vapours by thermal decomposition of said fluorine source from said activator; and

introducing a controlled flow of a carrier gas into said box so as to cause circulation of gases within said box whereby said fluorinated vapours contact said donor to form a volatile fluoride vapour of said metal to be deposited and said volatile metal fluoride vapour is carried into contact with said external and internal surfaces of said at least one object to be coated to deposit said metal on said object to be coated and thereby form said protective coating thereon.

5,068,128

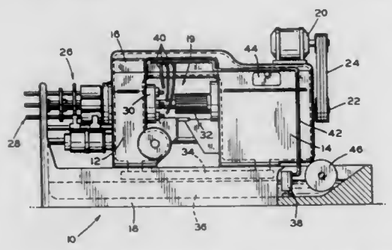
Patent Not Issued For This Number

5,068,129

PROCESS FOR CONVERTING A FLUID SYSTEM OF A MACHINE FROM AN OIL BASED FLUID SYSTEM TO A WATER BASED FLUID SYSTEM

Morton R. Smith, Napoleon, and James L. Maassel, New Bavaria, both of Ohio

Filed Jul. 12, 1990, Ser. No. 552,245
Int. Cl.[5] B08B *3/08;* B05D *7/22*
U.S. Cl. 427—239 11 Claims



1. A process for converting a fluid system of a machine from an oil based fluid system to a water based fluid system, comprising the steps of:

(A) adding sufficient amounts of a solvent and a perfluoroethylene resin to the oil based fluid in the fluid system of the machine to remove oil residue or varnish from the surfaces within the fluid system, and to coat the surfaces with perfluoroethylene resin;

(B) circulating the oil based fluid, solvent and perfluoroethylene resin throughout the fluid system for a time sufficient to remove oil residue or varnish from the surfaces within the fluid system of the machine, and to coat the surfaces with perfluoroethylene resin;

(C) evacuating the oil based fluid, solvent and residual perfluoroethylene resin from the fluid system of the machine; and

(D) adding a water based fluid to the fluid system of the machine.

5,068,130

INHIBITION OF POLYMER FORMATION ON SURFACES INCLUDING VENTS BY USING AN INHIBITOR PAINT

Raymond L. Decolibus, Circleville, Ohio, assignor to E. I. DuPont de Nemours and Company, Wilmington, Del.

Filed Oct. 23, 1990, Ser. No. 601,971
Int. Cl.[5] B05D *7/22;* C08F *2/00*
U.S. Cl. 427—230 5 Claims

1. A process for inhibiting polymerization of methacrylate or acrylate monomer on interior surfaces of vents, conduits or non-polymerizing process vessels, which comprises coating such surfaces with paint consisting essentially of a water-base film former and phenothiazine, curing the paint, and exposing the surfaces to such monomer.

5,068,131

METHOD FOR PRODUCTION OF ELECTRONIC COATINGS

Allan A. Eisenbraun, and Wesley C. Blocker, both of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Division of Ser. No. 255,747, Oct. 11, 1988, Pat. No. 4,997,869.
This application Sep. 13, 1990, Ser. No. 581,911
Int. Cl.[5] B05D *3/12*
U.S. Cl. 427—240 8 Claims

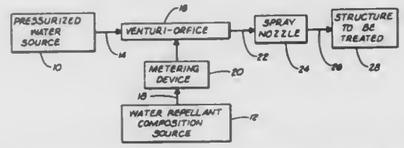
1. A method of forming a coating upon a planar substrate which comprises (a) applying to the central region of the planar surface a partially fluorinated polyimide composition, hereinafter specified, (b) rotating the substrate at a speed sufficient through centrifugal effect to cause the composition to flow outwardly toward the perimeter of the surface and form a substantially uniform liquid coating thereon, and (c) drying the coating by heating the same to an elevated temperature; said composition comprising a solution of (i) a 2,2-bis(3,4-dicarboxyphenyl)hexafluoropropane dianhydride/2,2-bis[4-(aminophenoxy)phenyl]hexafluoropropane polyimide polymer having an inherent viscosity in the range of about 0.05 to about 1.5 dL/g (as measured in N-methylpyrrolidone at room temperature at a concentration of 0.5 g/dL) in (ii) a solvent containing at least 40% by weight of one or more liquid aromatic hydrocarbons having a boiling point of at least about 110° C. and at least 5% by weight of one or more dipolar aprotic solvents having a boiling point of at least about 150° C., such that said solution (a) contains on a weight basis from about 5% to about 50% of such polyimide, and (b) does not undergo precipitate formation during spin coating in an atmosphere of up to about 55% relative humidity; said method being further characterized in that it is conducted in an atmosphere having a relative humidity that does not result in such precipitate formation during the rotation in (b).

5,068,132

METHOD FOR APPLYING A WATER REPELLANT COMPOSITION WITH A WATER CARRIER USING A DISPERSING MEANS

Dean E. Brunken, Edmond, and Arnulf P. Hagen, Noble, both of Okla., assignors to Advanced Chemical Technologies Company, Oklahoma City, Okla.

Continuation-in-part of Ser. No. 214,174, Jul. 1, 1988, Pat. No. 4,931,319. This application May 2, 1990, Ser. No. 518,062
The portion of the term of this patent subsequent to Jun. 5, 2007, has been disclaimed.
Int. Cl.[5] B05D *1/02*
U.S. Cl. 427—421 15 Claims



1. A method for treating siliceous and/or carbon central structures at a site with a water repellant composition comprising the steps of:

mixing an effective amount of water repellant composition with water to obtain a dispersion of water and water repellant composition;

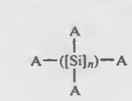
sufficiently further dispersing the water repellant composition in order to enhance the area of the structure treated with the water repellant composition;

applying the dispersion of water repellant composition and water to the structure in a continuous process at the site immediately within about 5 seconds after the water repellant composition and the water are mixed; and

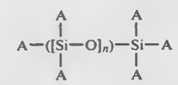
wherein the water repellant composition comprises a silane or siloxane or combinations thereof and, wherein the silane has the general formula:

a silane or a siloxane or combination thereof; and

wherein the silane has the general formula:



wherein the siloxane has the general formula:



wherein Si is silicon; O is oxygen; n is a positive integer; and A is selected from the group consisting of H, R,or X,

H is a hydrogen atom;

R is selected from the group consisting of an alkyl containing from about 1 to about 30 carbon atoms, an alkenyl group, an aryl group, a cycloalkyl group, a cycloalkenyl group, an arylalkyl group, an arylalkenyl group, or any substituted group thereof wherein the cyclo substituent contains from about 4 to about 8 carbon atoms, the alkyl substituent contains up to about 8 carbon atoms and the alkenyl substituent contains up to about 8 carbon atoms;

X is selected from a group consisting of a halogen, hydroxyl group, OR group wherein 0 is oxygen, a carboxylic group, or RNR or RNH wherein N is nitrogen; and

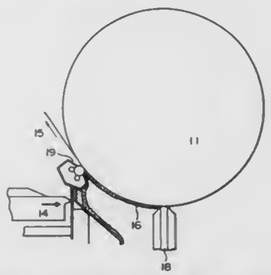
with the proviso that at least one A is X, and at least one A is R in the composition.

5,068,133

PROCESS FOR PRODUCING HEAT-SENSITIVE RECORDING MATERIAL USING ROLL BLADE COATING

Hisashi Matsumoto, Kobe, and Masaaki Takami, deceased, late of Kakogawa, Japan by Harumi Takami, successor , assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Oct. 25, 1988, Ser. No. 261,894
Claims priority, application Japan, Oct. 27, 1987, 62-272524
Int. Cl.[5] B05D *3/12*
U.S. Cl. 427—358 12 Claims



1. A process for producing a heat-sensitive recording material comprising a support and formed thereon a color developing layer having a surface roughness Ra of 1.1 μm or less and a printing smoothness Rp of 7.8 μm or less under a pressure of 5 kg/cm^2, which comprises

coating a color developing composition solution comprising a color former and a color developer on a support using an applicator,

removing an excess color developing composition solution by a roll blade coating method, and

drying the resulting support.

5,068,134

METHOD OF PROTECTING GALVANIZED STEEL FROM CORROSION

James A. Cole; William O. Roberts, both of Wilmington, Del., and Joseph T. Turgeon, Parma, Ohio, assignors to Zaclon Corporation, Cleveland, Ohio

Continuation of Ser. No. 208,689, Jun. 20, 1988, abandoned. This application Dec. 19, 1989, Ser. No. 453,334
Int. Cl.[5] B05D *1/18, 1/36;* C23C *2/06*
U.S. Cl. 427—376.2 18 Claims

1. A process of protecting metal from white rust which comprises coating the metal with molten zinc or zinc alloy and subsequently directly contacting the zinc-coated metal at a metal temperature of at least 125° C. with a protective amount of a silica compound to form a chemically reacted coating with the zinc-coated metal, said silica compound being selected from the group consisting of sodium silicate, potassium silicate, an organic silicate, and silica.

5,068,135

AQUEOUS DISPERSIONS OF FLUORINATED POLYURETHANES AND THEIR USE FOR TEXTILE COATINGS

Ignazio Zavatteri, Cardano Al Campo, and Tiziana Gambini, Castellanza, both of Italy, assignors to Ausimont S.p.A., Milan and Larac S.p.A., Castellanza, both of, Italy

Division of Ser. No. 467,342, Jan. 22, 1990, Pat. No. 4,983,666, which is a continuation of Ser. No. 137,358, Dec. 22, 1987, abandoned. This application Oct. 12, 1990, Ser. No. 596,824
Claims priority, application Italy, Dec. 30, 1986, 22883 A/86
Int. Cl.[5] B04J *3/05*
U.S. Cl. 427—439 12 Claims

1. Process for preparing woven and non-woven textile arti-

VOL 1132 ISS 4 NO 26 1991 UMI

cles comprising treating said textile articles by means of aqueous dispersions of fluorinated polyurethanes containing in their macromolecules hydrophilic ionic groups, both of anionic and cationic character, obtained by the process comprising the steps:

(a) preparing a fluorinated polyisocyanate, by reaction between an organic diisocyanate and a mixture comprising diols containing ionizable groups and macroglycols comprising polyols and at least 1% by weight of one or more hydroxy- and/or carboxy-capped fluoropolyoxyalkylene ethers;

(b) salifying the so-obtained fluorinated polyisocyanate, to convert the ionizable groups into hydrophilic cations or anions; and

(c) dispersing and chain extending the salified fluorinated polyisocyanate in water.

5,068,136

FIVE-LAYERED CONTAINER

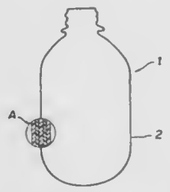
Yozo Yoshida; Tetuji Saitou, both of Hiratsuka, and Yoshiaki Momose, Hatano, all of Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Continuation-in-part of Ser. No. 284,119, Dec. 14, 1988, abandoned. This application Nov. 15, 1989, Ser. No. 436,787

Claims priority, application Japan, Dec. 22, 1987, 62-322697

Int. Cl.[5] B65D *23/00;* B32B *27/28*

U.S. Cl. 428—35.7 9 Claims



1. A five-layered container formed by biaxial orientation blow molding of an injection-molded, five layer-structure parison, wherein:

the central, innermost and outermost layers comprise resin A,

the intermediate layer between the innermost layer and the central layer comprises resin B,

the intermediate layer between the outermost layer and the central layer comprises resin B,

the resin A comprises a polyester resin containing ethylene terephthalate as the main recurring unit, and

the resin B comprises a mixture of a polyester resin containing ethylene terephthalate as the main recurring unit with polyarylate and a m-xylylene group-containing polyamide resin, or comprises a resin produced by an ester-exchange reaction of a polyester resin containing ethylene terephthalate as the main recurring unit with polyarylate and a m-xylylene group-containing polyamide resin.

5,068,137

RUBBERY LAMINATE AND COMPOSITE HOSE

Osamu Ozawa, Hiratsuka; Shuji Takahashi, Chigasaki, and Shigeru Igarashi, Hiratsuka, all of Japan, assignors to The Yokohama Rubber Company, Japan

Filed Nov. 13, 1989, Ser. No. 434,243

Claims priority, application Japan, Nov. 14, 1988, 63-287424

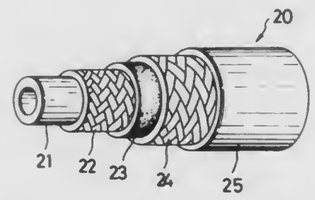
Int. Cl.[5] F16L *11/04;* B32B *1/08*

U.S. Cl. 428—36.2 15 Claims

1. A composite laminate comprising:

(a) a first rubbery layer formed from a rubber composition comprising 100 parts by weight of a copolymeric rubber having in the molecular chain an unsaturated nitrile unit in an amount of 10 to 45 percent by weight, a conjugated diene unit in an amount up to 5 percent by weight and either one or both of an ethylenically unsaturated unit other than said unsaturated nitrile unit and a hydrogenated conjugated diene unit in an amount of 50 to 90 percent by weight, 0.2 to 15 parts by weight of an organic peroxide curing agent and 1 to 20 parts by weight of magnesium oxide; and

(b) a second rubbery layer formed from a rubber composition comprising a rubber other than chlorosulfonated polyethylene rubber; and



(c) a fibrous layer formed from an organic fiber and interposed between said first and second rubbery layers, said fiber having been treated with a dip coating consisting essentially of 100 parts by weight of a vinyl pyridine-styrene-butadiene rubber latex, 0 to 100 parts by weight of a styrene-butadiene rubber latex and a resorcinol-formalin precondensate.

5,068,138

ELASTOMERIC FILM

Neil F. Mitchell, Santa Barbara, Calif., and Lie K. Djiauw, Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Division of Ser. No. 394,611, Aug. 16, 1989, Pat. No. 4,970,259. This application Jul. 23, 1990, Ser. No. 556,675

Int. Cl.[5] B29C *47/20*

U.S. Cl. 428—36.8 16 Claims

1. A process for making a blown film comprising the steps of:

a) providing a polymeric composition comprising:

i) from about 15 to about 85 parts by weight of a hydrogenated block copolymer comprising:

1) at least two blocks which are primarily polymerized alkenyl arene, and

2) at least one block which is primarily polymerized conjugated diene wherein the first hydrogenated block copolymer is from about 1 to about 60 percent by weight polymerized alkenyl arene, and the number average molecular weight of the first hydrogenated block copolymer is between about 55,000 and about 200,000 and the ethylenic unsaturation of the conjugated diene block has been reduced by hydrogenation to 20% or less of the original ethylenic unsaturation;

ii) an amount of a second hydrogenated block copolymer such that the amount of the first hydrogenated block copolymer plus the amount of the second hydrogenated block copolymer is 100 parts by weight, the second hydrogenated block copolymer comprising:

1) at least two blocks A, which are primarily polymerized alkenyl arene, and

2) at least one block B, which is primarily polymerized conjugated diene wherein the second hydrogenated block copolymer is from about 1 to about 60 percent by weight polymerized alkenyl arene and the number average molecular weight of the second hydrogenated block copolymer is between about 15,000 and about 85,000 and the ethylenic unsaturation of the conjugated diene block has been reduced by hydrogenation to 20% or less than that of the original ethylenic unsaturation;

iii) from about 5 to about 200 parts by weight per 100 parts by weight of the first plus the second block copolymer of a non-aromatic processing oil; and

iv) from about 5 to about 100 parts by weight per 100 parts by weight of the first plus the second block copolymer of a polymer which is compatible with each A block of the hydrogenated block copolymers.

b) extruding the polymeric composition through a heated die, the die having a gap between about 5 to about 120 mils;

c) expanding polymeric composition to a film having an average thickness of from 0.5 to 10 mils by application of differential pressure by a gas; and

d) rapidly cooling the extruded and expanded film.

2. The product of the process of claim **1** wherein the thickness of the film is between about 1.0 and about 5 mils, the number average molecular weight of the first hydrogenated block copolymer is between about 60,000 and about 110,000, the number average molecular weight of the second hydrogenated block copolymer is within the range of about 30,000 to about 60,000 and the ratio of the molecular weight of the first hydrogenated block copolymer to the ratio of the molecular weight of the second hydrogenated block copolymer is greater than 1.1:1.

5,068,139

COMPOSITE PAPER REINFORCED THERMOPLASTIC ARTICLE

Kent B. McReynolds, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 273,546, Nov. 21, 1988, Pat. No. 4,937,145. This application Nov. 14, 1989, Ser. No. 436,525

Int. Cl.[5] B32B *27/36, 18/00;* D21H *5/18*

U.S. Cl. 428—215 20 Claims

1. A multilayer structural article comprising (1) a composite paper core layer which has a thickness of from 0.4 to about 4 millimeters and which has two major surfaces and (2) a thermoplastic polymer layer adhered to each major surface of said core layer, said thermoplastic polymer layers each comprising one or more thermoplastic polymers and from 0 to about 25 weight percent, based on the weight of said thermoplastic polymer, of inorganic fibrous or particulate reinforcing or filler material; provided further that the ratio of the coefficient of linear thermal expansion (CLTE) of one of the thermoplastic polymer layers divided by the coefficient of linear thermal expansion of the other thermoplastic polymer layer is in the range of 0.85 to 1.15; and the composite paper core layer of said article has a resistance to delamination of 0.2 lbs/in (35 N/m) or greater.

5,068,140

TRANSPARENCIES

Shadi L. Malhotra; Maria L. Martins, both of Mississauga; Maya D. Stevanovic, Weston, and Arthur Y. Jones, Mississauga, all of Canada, assignors to Xerox Corporation, Stamford, Conn.

Filed Aug. 2, 1989, Ser. No. 388,449

Int. Cl.[5] B41M *5/00*

U.S. Cl. 428—216 17 Claims

1. A transparent substrate material for receiving or containing an inked image comprised of a supporting substrate; an anticurl coating thereunder comprised of a first and second layer wherein the first layer in contact with the substrate is comprised of polymers containing hydrophilic and hydrophobic segments, and the second layer in contact with and present on the first layer is comprised of hydrophilic cellulosic polymers or acrylamide polymers; and an ink receiving layer wherein the supporting substrate is situated between the anticurl coating and the ink receiving layer.

5,068,141

POLYOLEFIN-TYPE NONWOVEN FABRIC AND METHOD OF PRODUCING THE SAME

Eiichi Kubo; Yoshihiro Kammuri; Koichi Nagaoka; Takeshi Kitahara; Yoshiki Miyahara, all of Uji; Syunichi Kiriyama, Gose, and Yasunobu Mishima, Uji, all of Japan, assignors to Unitika Ltd., Hyogo, Japan

Division of Ser. No. 56,544, Jun. 1, 1987, abandoned. This application Sep. 15, 1989, Ser. No. 408,184

Claims priority, application Japan, May 31, 1986, 61-126745; Feb. 3, 1987, 62-24332; Feb. 6, 1987, 62-26977

Int. Cl.[5] D02G *3/00;* D04H *1/04*

U.S. Cl. 428—219 5 Claims

1. A nonwoven fabric comprising filaments formed of linear low density copolymer of ethylene and octene-1, which is linear low density polyethylene, containing substantially 1–10 weight percent octene-1 and having a density of 0.900–0.940 g/cm^3, a melt index value of 5–45 g/10 minutes as measured by the D-1238(E) of ASTM, and a heat of fusion of not less than 25 cal/g as measured by DSC, said filaments being heat bonded together so that said nonwoven fabric has a number of defects not more than 0.01/kg of the fabric, a weight of 10–100 g/m^2, a percentage bond area of 7–20% and a total hand value of 4–300 g.

5,068,142

FIBER-REINFORCED POLYMERIC RESIN COMPOSITE MATERIAL AND PROCESS FOR PRODUCING SAME

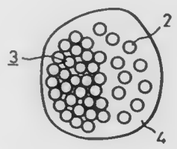
Kenkichi Nose, Ibaraki; Tadahiko Takata, Osaka, and Masuo Tsuge, Ibaraki, all of Japan, assignors to Teijin Limited, Osaka, Japan

Filed Apr. 12, 1990, Ser. No. 508,849

Claims priority, application Japan, Jan. 31, 1989, 1-19591; Apr. 17, 1989, 1-95387; Jan. 31, 1990, 2-19075

Int. Cl.[5] D03D *17/00;* B32B *7/00;* D02G *3/00;* B29C *47/00*

U.S. Cl. 428—232 8 Claims



1. A fiber-reinforced polymeric resin composite material comprising:

(A) a matrix consisting essentially of a thermoplastic polymeric resin; and

(B) a number of reinforcing individual fibers extending substantially in parallel to each other and embedded within the polymeric resin matrix in a manner such that 10 to 70% of the number of individual fibers are separated from each other through portions of the polymeric resin matrix, while the remaining individual fibers come into direct contact with each other to form at least one fiber bundle.

5,068,143

SHEET MATERIALS

Reginald T. Agger, Queniborough; John R. Taylor, Cosby, and Alan Hardy, Wigston Fields, all of England, assignors to Bostik, Inc., Middletown, Mass.

Filed Nov. 30, 1988, Ser. No. 278,293

Claims priority, application United Kingdom, Dec. 4, 1987, 8728358

Int. Cl.[5] B32B *5/16, 27/40*

U.S. Cl. 428—241 8 Claims

1. A heat formable sheet material comprising a woven or non-woven substrate with a polyesterurethane material as a

VOL 1132 ISS 4 NOV 26 1991 UMI

stiffening component, which polyesterurethane material comprises:

a) a polyester selected from the group consisting of polyethylene adipate, polyhexylene adipate and polytetramethylene adipate; and

b) an isocyanate, the mole ratio of the isocyanate groups to the hydroxyl groups of the isocyanate and the polyester being from about 0.75 to 1.1.

5,068,144

PERPENDICULAR MAGNETIC RECORDING MEDIUM AND METHOD FOR PRODUCING THE SAME

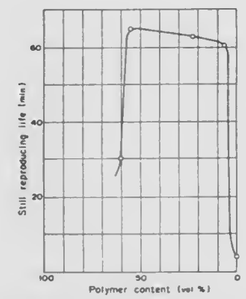
Osamu Kitakami, Toride; Hideo Fujiwara, Ibaraki; Kiyotaka Ojima, Ibaraki; Youichi Ogawa, Ibaraki, and Kunio Wakai, Ibaraki, all of Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Continuation of Ser. No. 344,556, Apr. 25, 1989, abandoned, which is a continuation of Ser. No. 878,339, Jun. 25, 1986, abandoned. This application Oct. 1, 1990, Ser. No. 596,760

Claims priority, application Japan, Jun. 25, 1985, 60-136790

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—323 **21 Claims**



1. A perpendicular magnetic recording medium comprising a non-magnetic substrate and a magnetic layer which is formed on at least one surface of the substrate and comprises acicular particles of ferromagnetic metal oriented perpendicularly to a plane of the layer and an organic polymer filled in spaced between the acicular particles so as to surround the acicular particles, wherein a volume content of the organic polymer is about 5 to 55% by volume of the whole volume of the magnetic layer.

5,068,145

MAGNETIC RECORDING MEDIUM IN WHICH THE MAGNETIC LAYER CONTAINS A VINYL COMPOUND HAVING AN INNER SALT OF AN ALKYL AMINO ALKYL GROUP

Hideomi Watanabe, and Tsutomu Okita, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed May 10, 1988, Ser. No. 192,792

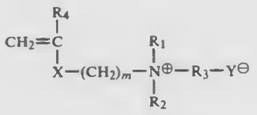
Claims priority, application Japan, May 11, 1987, 62-114048

The portion of the term of this patent subsequent to Nov. 14, 2006, has been disclaimed.

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—323 **12 Claims**

1. A magnetic recording medium comprising a non-magnetic support having provided thereon a magnetic layer comprising a binder and ferromagnetic particles dispersed therein, wherein said magnetic layer further contains a vinyl compound having an inner salt of a dialkylaminoalkyl group and said magnetic layer has been irradiated with radiation, and wherein said vinyl compound having an inner salt of a dialkylaminoalkyl group is represented by formula (I):



(I)

wherein

m represents an integer of from 1 to 4;

R_1 and R_2 each represents an alkyl group having from 1 to 6 carbon atoms;

R_3 represents an alkylene group having from 1 to 6 carbon atoms;

R_4 represents a hydrogen atom, a methyl group, or an ethyl group;

Y represents $-COO^{\ominus}$, $OPO_3^{\ominus}$, $-OPO_2^{\ominus}$, $-OSO_3^{\ominus}$, or $-OSO_2^{\ominus}$, $-NO_3^{\ominus}$, or $-NO_2^{\ominus}$; and

X represents —COO—, —CONH—, —NHCOO—, or —NHCONH—.

5,068,146

POLYMERIZED FILMS, MEDIUM RELATED MEMBERS, AND PROCESS FOR MAKING

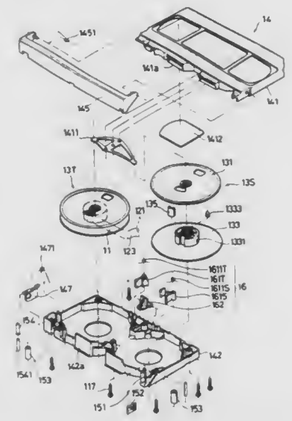
Masatoshi Nakayama; Kunihiro Ueda, and Masatoshi Okamura, all of Saku, Japan, assignors to TDK Corporation, Tokyo, Japan

Filed Mar. 3, 1989, Ser. No. 318,260

Claims priority, application Japan, Mar. 3, 1988, 63-50428

Int. Cl.[5] B32B *15/08;* **B05D** *3/06, 3/14*

U.S. Cl. 428—336 **8 Claims**



1. A coated article, wherein a plasma-polymerized, metal element-containing film is formed on said article by a process comprising:

(i) passing a gaseous polymerizable reactant containing carbon C between electrodes formed of a material containing a metal element Mt; and

(ii) depositing and polymerizing the metal from said material and said polymerizable reactant in a plasma atmosphere, on said article,

wherein said process is carried out under a condition such that W/(F·M) is at least 10^8 joule/kg wherein W is the power applied for plasma generation in joule/sec, F is the flow rate of the gaseous reactant, and M is the molecular weight of the gaseous reactant, F·M being expressed in kg/sec, and

wherein said plasma-polymerized film contains the metal element Mt and carbon c in an atomic ratio Mt/(C+Mt) of at least 1/100.

2. The coated article according to claim 1, wherein said plasma-polymerized film has a thickness of 10 to 1,000 Å.

5,068,147

SOFT MAGNETIC THIN FILM COMPRISING ALTERNATE LAYERS OF IRON CARBIDE WITH EITHER IRON, IRON NITRIDE OR IRON CARBON-NITRIDE

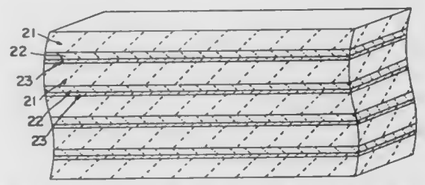
Tobru Hori, Ikoma; Masaki Aoki, Minou, and Kenichi Fujii, Kobe, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Apr. 27, 1989, Ser. No. 345,722

Claims priority, application Japan, Apr. 28, 1988, 63-106372

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—336 **15 Claims**



8. A soft-magnetic thin film in which layers of iron carbide and layers of at least one of iron, iron nitride and iron carbon-nitride are alternately laminated, and a non-magnetic material layer is interposed between at least one pair of adjacent layers of the alternately laminated layers.

5,068,148

DIAMOND-COATED TOOL MEMBER, SUBSTRATE THEREOF AND METHOD FOR PRODUCING SAME

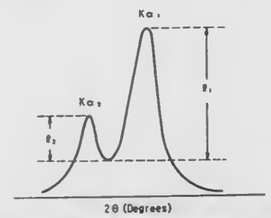
Kei Nakahara; Keiichi Sakurai; Toshihiko Okamura; Hironori Yoshimura, all of Tokyo; Hiroyuki Eto, and Noribumi Kikuchi, both of Omiya, all of Japan, assignors to Mitsubishi Metal Corporation, Tokyo, Japan

Filed Dec. 21, 1989, Ser. No. 454,513

Claims priority, application Japan, Dec. 21, 1988, 63-322764; Mar. 2, 1989, 1-50534

Int. Cl.[5] B32B *15/04, 33/00*

U.S. Cl. 428—335 **3 Claims**



1. A tool member having a tungsten carbide based cemented carbide substrate and a diamond coating deposited on said substrate, said substrate having two diffraction peaks $K\alpha_1$ and $K\alpha_2$ indexed by index of plane (211) for tungsten carbide in X-ray diffraction, said two diffraction peaks $K\alpha_1$ and $K\alpha_2$ satisfying the relationship of $L_1/L_2 \leqq 35$, where L_1 and L_2 are heights of said peaks $K\alpha_1$ and $K\alpha_2$ measured from a base of a trough between said two diffraction peaks, whereby a bonding strength between said substrate and said diamond coating is increased wherein said diamond coating has an average layer thickness of 0.5 μm to 20 μm, said tungsten carbide based cemented carbide containing, apart from unavoidable impurities, 1% by weight to 25% by weight of cobalt as a binder phase forming component and the balance tungsten carbide as a dispersed phase forming component.

5,068,149

WIRE MEMBER OF CEMENTED CARBIDE

Fumio Shimada, Yokohama, and Tadashi Kainuma, Tokorozawa, both of Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

Continuation-in-part of Ser. No. 30,173, Mar. 25, 1987. This application Sep. 27, 1988, Ser. No. 249,909

Claims priority, application Japan, Mar. 28, 1986, 61-68432; Mar. 28, 1986, 61-68433

Int. Cl.[5] B32B *9/00;* **B21C** *1/00*

U.S. Cl. 428—367 **3 Claims**

1. A wire member of cemented carbide consisting of a binder phase of 4 to 35% by weight of at least one metal selected from the group consisting of cobalt and nickel; 1 to 50 ppm by weight of impurities; and a hard dispersed phase composed of 0.1 to 40% by weight of at least one compound and balance tungsten carbide; said at least one compound being selected from the group consisting of carbides of metals in Groups IV_A, V_A and VI_A of the Periodic Table, nitrides of metals in Groups IV_A and V_A of the Periodic Table and solid solution of at least two of said carbides and nitrides, said hard dispersed phase having an average crystal grain size of 0.2 to 1.0 μm, the impurities having a crystal grain size of no larger than 10 μm, said binder phase having an average crystal grain size of 5 to 400 μm.

5,068,150

COPPER POWDER FOR ELECTROCONDUCTIVE PAINTS AND ELECTROCONDUCTIVE PAINT COMPOSITIONS

Yoshinobu Nakamura; Kanetaro Sannobe; Yoshio Sohama; Toru Iwasaki, and Sumiko Yamano, all of Takehara, Japan, assignors to Mitsui Kinzoku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Aug. 16, 1988, Ser. No. 232,669

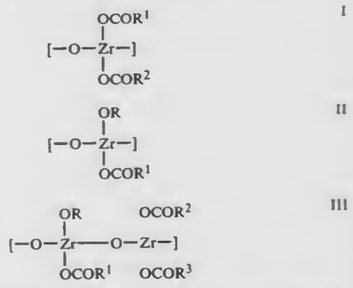
Claims priority, application Japan, Feb. 1, 1988, 63-21630; Feb. 8, 1988, 63-27235

Int. Cl.[5] B32B *5/16;* **H01B** *1/06*

U.S. Cl. 428—407 **4 Claims**

1. A copper powder for electroconductive paints wherein the surfaces of the particles of copper powder are coated with a mixture of a zirconium acylate polymer and a higher carboxylic acid ester,

said zirconium acylate polymer comprising at least one of the following repeating units I, II and III:



wherein R, R^1, R^2 and R^3 are the same or different and represent respectively a hydrocarbon group having 1 to 25 carbon atoms,

said higher carboxylic acid ester having the following formula

VOL 1132 ISS 4 NO 26 1991 UMI



wherein R^4CO represents an acylate group of a saturated or unsaturated fatty acid having 8 to 24 carbon atoms and R^5O represents an easily hydrolyzable alkoxy group having 1 to 15 carbon atoms,

the mixing ratio of the zirconium acylate polymer and the higher carboxylic acid ester being 10 to 90% by weight of said zirconium acylate polymer to 90 to 10% by weight of said higher carboxylic acid ester, and

the amount of the mixture of the zirconium acylate polymer and the higher carboxylic acid ester to be applied on the surfaces of the particles of copper powder ranging from 0.05 to 10% by weight.

5,068,151

GOLF BALL

Yoshinobu Nakamura, Nishinomiya City, Japan, assignor to Sumitomo Rubber Industries, Ltd., Hyogo, Japan

Filed Feb. 2, 1990, Ser. No. 474,330

Claims priority, application Japan, Feb. 6, 1989, 1-26866

Int. Cl.[5] B32B *27/28;* **A63B** *37/12;* **C08L** *33/02;* **C08F** *220/06*

U.S. Cl. 428—407 **9 Claims**

1. A golf ball comprising a core and a cover covering said core, wherein said cover is a lithium neutralized ionomer resin which is a copolymer of 10 to 20% by weight of an alpha, beta-unsaturated carboxylic acid and the rest of ethylene, of which 20 to 70 mol % of carboxyl groups are neutralized with lithium ion, and said ionomer resin has a melt index of 0.8 to 3.0 and a shore D hardness of 60 to 80.

5,068,152

MAGNETIC RECORDING MEDIUM

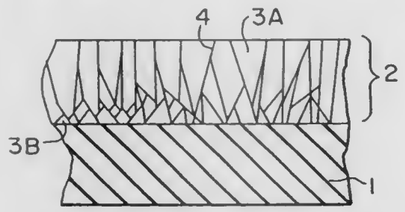
Tsuyoshi Maro; Osamu Kitakami, and Hideo Fujiwara, all of Ibaraki, Japan, assignors to Hitachi Maxell, Ltd., Osaka, Japan

Filed Nov. 22, 1988, Ser. No. 274,844

Claims priority, application Japan, Nov. 26, 1987, 62-298371; Apr. 28, 1988, 63-107302; Oct. 28, 1988, 63-272310

Int. Cl.[5] B32B *9/00*

U.S. Cl. 428—408 **19 Claims**



1. A magnetic recording medium, which comprises a non-magnetic substrate and a magnetic layer comprised of a ferromagnetic material grown substantially perpendicular on said substrate having a face-centered cubic structure and at least one of carbon, silicon, a hydrocarbon compound and an organosilicon compound, provided on said non-magnetic substrate.

5,068,153

MULTI-COMPONENT COATING COMPOSITION COMPRISING AN ANHYDRIDE CONTAINING POLYMER, A GLYCIDYL COMPONENT AND A PHOSPHONIUM CATALYST

Robert Barsotti, Franklinville, N.J., and Lester S. Cohen, Broomall, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Division of Ser. No. 212,298, Jun. 27, 1988, Pat. No. 4,906,677.

This application Oct. 11, 1989, Ser. No. 419,846

Int. Cl.[5] C08K *5/01, 5/10;* **C08L** *63/02*

U.S. Cl. 428—413 **15 Claims**

1. A substrate coated with a layer of a waterborne basecoat and a clearcoat, which basecoat and clearcoat are cured at elevated temperatures, the clearcoat comprising 20–10% by weight of a reactive binder component and 80–20% by weight of an organic liquid carrier; wherein the binder consists essentially of about

(a) 25–90% by weight, based on the weight of the binder, of an anhydride acrylic polymer having at least two reactive anhydride groups that consists of polymerized monomers of an ethylenically unstaturated anhydride or an ethylenically unsaturated dicarboxylic acid and polymerized monomers selected from the group consisting of alkyl methacrylate, alkyl acrylate and any mixtures thereof, wherein the alkyl groups have 1–8 carbon atoms and the polymer has a weight average molecular weight of about 2,000–50,000;

(b) 5–50% by weight, base don the weight of the binder, of a glycidyl component having at least two reactive glycidyl groups; and

(c) about 0.1–7% by weight, based on the weight of the binder, of a catalyst which is a phosphonium catalyst or a blend of phosphonium catalyst and tertiary amine which may or may not contain hydroxyl groups.

5,068,154

BORON NITRIDE/SILICON-CONTAINING CERAMIC MATERIALS

Gerard Mignani, Lyons, and Jean-Jacques Lebrun, Caluire, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France

Filed Sep. 12, 1988, Ser. No. 243,827

Claims priority, application France, Sep. 11, 1987, 87 12588

Int. Cl.[5] B32B *33/00*

U.S. Cl. 428—446 **12 Claims**

1. A ceramic material which comprises a compatible with silicon ceramic compounds which comprises a boron nitride matrix and a silicon atoms, the majority of said silicon atoms being distributed throughout an external layer of said ceramic material and said ceramic material containing amounts of B_2O_3 and carbon which are not detrimental to the quality of said ceramic material.

5,068,155

OPAQUE, LAMINATED AND STRETCHED PRODUCTS, AND METHOD FOR MAKING THEM

Kazuhiro Yamada, and Tadao Ishibashi, both of Ichihara, Japan, assignors to Chisso Corporation, Osaka, Japan

Filed Aug. 15, 1990, Ser. No. 567,730

Claims priority, application Japan, Aug. 29, 1989, 1-222456

Int. Cl.[5] B32B *27/08*

U.S. Cl. 428—515 **6 Claims**

1. An opaque laminated and stretched heat-sealable product comprising a stretched first layer of crystalline polypropylene resin blended with a cyclopentadiene-derived petroleum resin having a softening point of 160° C. or higher, as measured by the ring-and-ball method, in an amount of 3 to 30% by weight based on the total weight of both resins; said first layer is laminated on at least one side with a second layer obtained from a crystalline propylene copolymer having a crystalline melting point at least 10° C. lower than that of said crystalline polypropylene resin, wherein said laminated and stretched product has a total light transmittance of 50% or less.

5,068,156

SEMICONDUCTOR PACKAGE

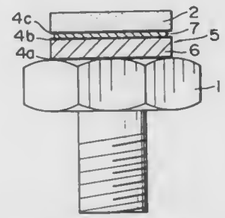
Toshikazu Ogata, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 18, 1990, Ser. No. 584,092

Claims priority, application Japan, Feb. 19, 1990, 2-36189

Int. Cl.[5] B32B *15/04*

U.S. Cl. 428—620 **10 Claims**



1. A semiconductor package comprising:

a ceramic substrate having a first coefficient of thermal expansion for supporting thereon a semiconductor element;

a heat dissipating member having a second coefficient of thermal expansion;

a first member having a third coefficient of thermal expansion intermediate the first and second coefficients of thermal expansion brazed to said heat dissipating member and disposed intermediate of said ceramic substrate and said heat dissipating member for reducing the thermal stress generated in said ceramic substrate during brazing of said ceramic substrate and said heat dissipating member; and

a flexible metal foil brazed to said first member and to said ceramic substrate for preventing said ceramic substrate from being deformed by thermal stress.

5,068,157

ELECTROLUMINESCENT ELEMENT

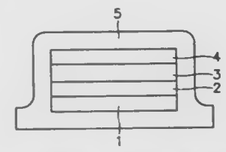
Song Won, Susung-Ku, Rep. of Korea, assignor to Samsung Electron Devices Co., Ltd., Rep. of Korea

Filed Oct. 26, 1989, Ser. No. 427,193

Claims priority, application Rep. of Korea, Oct. 26, 1988, 88-13985[U]

Int. Cl.[5] H01J *1/62;* **B05D** *5/06*

U.S. Cl. 428—690 **7 Claims**



1. An electroluminescent element capable of high luminescence under low voltage comprising first and second electrodes with insulating and phosphor layers therebetween; said element comprising a first electrode, an insulating layer comprising cyanoethyl resin, a phosphor layer deposited upon the insulating layer, a second electrode on the phosphor layer and an enclosing film sealing said layers, said phosphor layer comprising ZnS phosphor to which has been added a solution of an organic insulating material, barium titanate and indium oxide.

5,068,158

MAGNETIC RECORDING MEDIUM AND PROCESS FOR PREPARING THE SAME

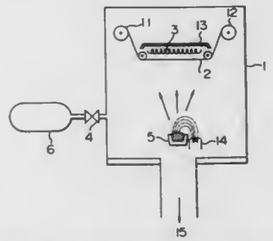
Masaaki Futamoto, Kanagawa; Yukio Honda, Fuchu, and Kazuetsu Yoshida, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 12,996, Feb. 10, 1987, abandoned. This application Nov. 30, 1988, Ser. No. 281,965

Claims priority, application Japan, Mar. 7, 1986, 61-48257

Int. Cl.[5] G11B *23/00*

U.S. Cl. 428—694 **12 Claims**



1. A magnetic recording medium which comprises a non-magnetic substrate and a film of a Co-based alloy having predominate magnetic anisotropy aligned perpendicular to a surface of said film and being formed on said substrate by vacuum evaporation in a nitriding atmosphere while adjusting the pressure of the nitriding gas to a range of 3×10^{-7} t 4×10^{-5} Torr, said film of Co-based alloy containing 0.01 to 1 atomic percent of nitrogen, wherein said film of Co-based alloy comprises columnar crystal grains of said Co-based alloy.

5,068,159

ELECTRIC POWER PRODUCING SYSTEM USING MOLTEN CARBONATE TYPE FUEL CELL

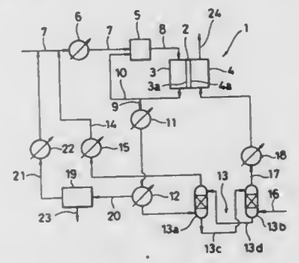
Noboru Kinoshita, Chiba, Japan, assignor to Ishikawajima-Harima Heavy Industries Co., Ltd., Tokyo, Japan

Filed Oct. 19, 1989, Ser. No. 424,134

Claims priority, application Japan, Dec. 24, 1988, 63-324797

Int. Cl.[5] H01M *8/06, 8/14*

U.S. Cl. 429—16 **25 Claims**



1. A method of producing electric power using a molten carbonate type fuel cell wherein an anode gas is fed into an anode chamber of the fuel cell and a cathode gas is fed into a cathode chamber thereof, which comprises the steps of:

(A) separating carbon dioxide gas from an anode exhaust gas expelled from the anode chamber;

(B) recirculating the anode exhaust gas from which carbon dioxide gas has been separated in step (A), into the anode chamber as the anode gas; and

(C) feeding the carbon dioxide gas separated from the anode exhaust gas in step (A), into the cathode chamber as the cathode gas;

VOL 1132 ISS 4 NO 26 1991 UMI

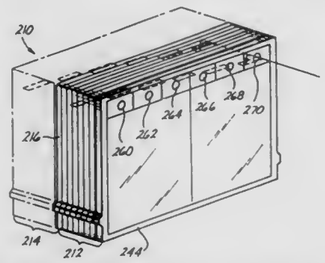
wherein a fuel gas such as methane is reformed with steam in a reformer so as to obtain the anode gas and the anode gas is supplied into the anode of the fuel cell, and the anode exhaust gas from which carbon dioxide has been separated in step (A) is fed into the reformer together with the fuel gas and steam and then recirculated to the anode chamber.

5,068,160

BIPOLAR PLATE BATTERY

Thomas J. Clough, Santa Monica, and Richard J. Moulton, Lafayette, both of Calif., assignors to Ensci, Inc., Santa Monica, Calif.

Filed Apr. 17, 1990, Ser. No. 510,452
Int. Cl.[5] H01M *10/18*
U.S. Cl. 429—72 **29 Claims**



1. In an assembled battery including a plurality of bipolar cells, the improvement which comprises a plurality of conduit means for introducing electrolyte into said bipolar cells, each of said conduit means positioned to be in fluid communication with a different single bipolar cell of said plurality of bipolar cells and to cross over at least one other bipolar cell adjacent said single bipolar cell and acting to introduce electrolyte into said single bipolar cell.

5,068,161

CATALYST MATERIAL

Lindsey Keck, Boyertown, Pa.; Jeffrey Buchanan, Eastleigh, and Graham A. Hards, Wallingford, both of England, assignors to Johnson Matthey Public Limited Company, London, England

Filed Mar. 30, 1990, Ser. No. 501,947
Int. Cl.[5] H01M *4/88*
U.S. Cl. 429—44 **22 Claims**

1. An electrocatalytic material comprising an alloy of platinum supported on a conductive carbon support, the platinum loading being in the range of 20 to 60 wt %, and the ECA of the alloy being greater than 35 m^2/g Pt.

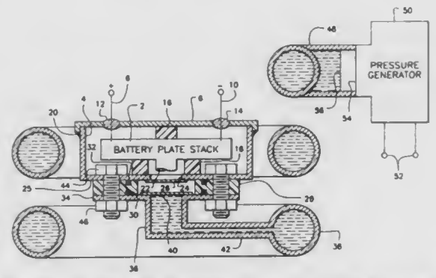
5,068,162

RESERVE ACTIVATED ELECTROCHEMICAL CELL

Milind V. Kulkarni, Melrose Park, Pa., assignor to Honeywell Inc., Minneapolis, Minn.

Filed Apr. 17, 1989, Ser. No. 339,444
Int. Cl.[5] H01M *6/30*
U.S. Cl. 429—116 **10 Claims**

1. A reserve activated electrochemical cell comprising
a cell reactive fluid storage tubular spiral,
an electrochemical cell plate container means for storing cell plates and located within the turns of said tubular spiral and adjacent to a first end of said tubular spiral,
a rupturable means for providing a fluid-tight separation of said spiral and said container means and



an intermediate spacer means for selectively attaching said first end to said container means while providing a fluid channel including said rupturable means.

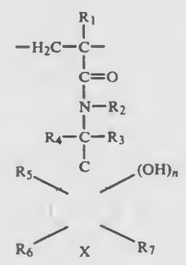
5,068,163

RADIATION-SENSITIVE POSITIVE WORKING COMPOSITION AND COPYING MATERIAL

Andreas Elsaesser, Idstein; Werner Frass, Wiesbaden, and Dieter Mohr, Budenheim, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 7, 1989, Ser. No. 362,688
Claims priority, application Fed. Rep. of Germany, Jun. 18, 1988, 3820699
Int. Cl.[5] G03C *1/52, 1/492*
U.S. Cl. 430—192 **17 Claims**

1. A positive-working radiation-sensitive mixture which comprises
a) a water-insoluble polymeric binder which is soluble in aqueous alkaline solution, in an amount sufficient to form a solid layer, and
b) a radiation-sensitive compound or combination of compounds selected from the group consisting of a 1,2-quinone diazide and a combination of
1) a compound forming strong acid when exposed to actinic radiation and
2) a compound containing at least one cleavable C—O—C bond, in an amount sufficient to increase the solubility of said solid layer on exposure to actinic radiation, wherein said binder is a polymer comprising units of the general formula I



I

where
R_1 denotes a hydrogen or halogen atom, or a cyanide or an alkyl group,
R_2, R_3, R_4 are identical or different and denote hydrogen, or alkyl or aryl groups,
R_5, R_6 and optionally R_7 are identical or different and enote hydrogen or halogen atoms, or alkyl, aryl or alkoxy groups,
X denotes the atoms necessary to complete a mononuclear or polynuclear carbocyclic aromatic ring system, and
n is 1, 2 or 3.

5,068,164

DEVELOPER WITH HYDROXYARYL FATTY ACID FOR MAKING LITHOGRAPHIC PRINTING PLATE

Toshiro Kondo, and Hidetoshi Miura, both of Nagaokakyo, Japan, assignors to Mitsubishi Paper Mills, Ltd., Tokyo, Japan

Filed Mar. 27, 1990, Ser. No. 499,660
Claims priority, application Japan, Mar. 29, 1989, 1-77851
Int. Cl.[5] G03C *5/54*
U.S. Cl. 430—204 **7 Claims**

1. A method for making a lithographic printing plate which comprises exposing imagewise a light sensitive material comprising a support, a silver halide emulsion layer and a physical development nuclei layer and then developing the light sensitive material with an aqueous alkaline developing composition containing a hydroxyaryl fatty acid in the presence of a silver halide solvent to transfer silver complexes formed from unexposed silver halide to the physical development nuclei layer to form a silver transfer image.

5,068,165

LITHOGRAPHIC ALUMINUM OFFSET PRINTING PLATE MADE ACCORDING TO THE DTR-PROCESS

Paul J. Coppens, Turnhout; Ludovicus H. Vervloet, Kessel; Luc H. Leenders, Herentals, and Ronald Schuerwegen, Schelle, all of Belgium, assignors to AGFA-Gevaert, N.V., Mortsel, Belgium

Filed Jul. 16, 1990, Ser. No. 552,945
Claims priority, application European Pat. Off., Jul. 25, 1989, 89201960.5
Int. Cl.[5] G03C *5/54*
U.S. Cl. 430—204 **29 Claims**

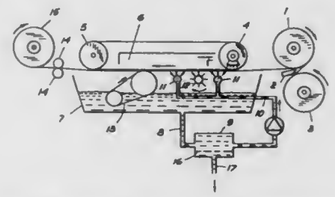
1. Method for making lithographic aluminium offset printing plates according to the DTR-process comprising the steps of:
(a) photo-exposing a photosensitive monosheet layer assemblage comprising a hydrophilic grained and anodized aluminium foil, a water-swellable intermediate layer coated at a ratio of 0.01 to 2.0 g/m2 and comprising for at least 70% of its total weight at least one non-proteinic hydrophilic film-forming polymer, and at least one silver halide emulsion layer,
(b) applying an aqueous alkaline solution to the photo-exposed silver halide emulsion layer in the presence of at least one developing agent and at least one silver halide solvent, thus reducing the photo-exposed silver halide and allowing the unreduced silver halide or complexes formed thereof to diffuse from the unexposed areas of the silver halide emulsion layer to said hydrophilic grained and anodized aluminium foil to produce from the unreduced silver halide or complexes formed thereof a silver image on said hydrophilic grained and anodized aluminium foil, and
(c) separating said at least one emulsion layer and said water-swellable intermediate layer from the imaged hydrophilic grained and anodized aluminium foil.

5,068,166

METHOD OF DISPLAYING A PHOTOGRAG312P1HIC EMULSION

Henriette S. Boogaards-Könecker, Hageland 22, 4640 RZ Ossendrecht, Netherlands

Division of Ser. No. 347,250, May 3, 1989, Pat. No. 4,931,371, which is a continuation of Ser. No. 129,968, Dec. 4, 1987, abandoned, which is a continuation of Ser. No. 828,180, Feb. 11, 1986, abandoned. This application Nov. 16, 1989, Ser. No. 437,541
Claims priority, application European Pat. Off., Aug. 14, 1985, 85201310
Int. Cl.[5] G03C *11/12*
U.S. Cl. 430—256 **1 Claim**



1. Method of using a photographic emulsion of a photographic print comprising:
(a) providing a photographic emulsion separated from a positive photographic print having a paper backing, said emulsion bearing an image and having a thickness of less than 50 microns and having no paper residues adhering thereto;
(b) displaying said photographic emulsion as a self-supporting sheet.

5,068,167

HIGH CONTRAST PHOTOGRAPHIC MATERIALS

Kevin P. Hall, High Wych, Great Britain, assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn.

Filed Mar. 29, 1988, Ser. No. 174,725
Claims priority, application United Kingdom, Apr. 2, 1987, 8707841
Int. Cl.[5] G03C *1/34*
U.S. Cl. 430—264 **11 Claims**

1. A photographic element free of latent image and capable of producing a high contrast silver image comprising a washed high contrast silver halide photographic emulsion on a clear photographic base, said emulsion containing a hydrazine, said emulsion also comprising at least 0.001 mole per mole of silver halide of a water-soluble bromide and/or water-soluble chloride.

5,068,168

STYRENE/MALEATES TERPOLYMERS

Kang I. Lee, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo.

Filed Dec. 20, 1990, Ser. No. 630,657
Int. Cl.[5] G03C *1/76*; C08F *218/16*
U.S. Cl. 430—270 **6 Claims**

1. A terpolymer of styrene, mono-isobutyl maleate and mono-2-(n-butoxy)ethyl maleate wherein the ratio of styrene units to maleate units is in the range of about 1:1 to about 1.6:1 and wherein the ratio of mono-isobutyl maleate units to mono-2-(n-butoxy)ethyl maleate units is in the range of about 3:2 to about 1:3 and wherein the weight average molecular weight is greater than about 100,000 daltons.

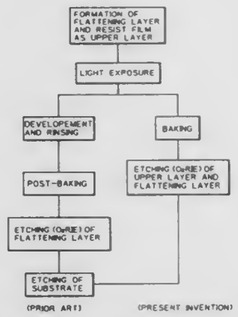
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,169

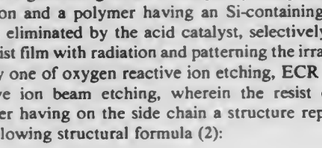
PROCESS FOR PRODUCTION OF SEMICONDUCTOR DEVICE

Satoshi Takechi, Machida; Yuko Nakamura, Kawasaki, and Yukari Mihara, Yokohami, all of Japan, assignors to Fujitsu Limited, Kawqasaki, Japan

Filed Oct. 26, 1989, Ser. No. 426,755
Claims priority, applicatioo Japan, Oct. 26, 1988, 63-268298
Int. Cl.[5] G03F *7/36*
U.S. Cl. 430—313 **4 Claims**



1. A process for the production of a semiconductor device, which comprises forming a film of a resist composed of a substance generating an acid catalyst by being irradiated with radiation and a polymer having an Si-containing group that can be eliminated by the acid catalyst, selectively irradiating the resist film with radiation and patterning the irradiated resist film by one of oxygen reactive ion etching, ECR etching and reactive ion beam etching, wherein the resist comprises a polymer having on the side chain a structure represented by the following structural formula (2):



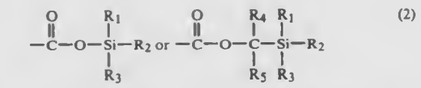
(2)

wherein R_1, R_2 and R_3 each represent an alkyl group or a phenyl group, and R_4 and R_5 each represent a hydrogen atom, an alkyl group, a phenyl group or



and a substance capable of generating a protonic acid under irradiation with radiations.

3. A process for the production of a semiconductor device according to the two-layer resist method, which comprises forming a planarizing layer composed of an organic material on a substrate, forming a film of a polymer on the planarizing layer and forming a pattern, wherein light exposure is carried out by using a resist composed of a substance generating an acid catalyst by being irradiated with radiation and a polymer having an Si-containing group that can be eliminated by the acid catalyst, as said polymer, and the top layer and the bottom layer are simultaneously patterned by one of oxygen reactive ion etching, ECR etching and reactive ion beam etching, wherein the resist comprises a polymer having on the side chain a structure represented by the following structural formula (2):



(2)

wherein R_1, R_2 and R_3 each represent an alkyl group or a phenyl group, and R_4 and R_5 each represent a hydrogen atom, an alkyl group, a phenyl group or



and a substance capable of generating a protonic acid under irradiation with radiations.

5,068,170

METHOD FOR PROCESSING SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Akira Abe, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Aug. 9, 1990, Ser. No. 564,518
Claims priority, application Japan, Aug. 11, 1989, 1-206990
Int. Cl.[5] G03C *7/31, 7/42*
U.S. Cl. 430—393 **13 Claims**

1. A method for processing an imagewise exposed silver halide color photographic material for photography which comprises the steps of:

color-developing a silver halide color photographic material which comprises a photographic emulsion layer containing a silver bromoiodide, a silver chloroiodide or silver bromochloroiodide having an iodide content of from 0.1 to 30 mol%, with a color developing solution,

processing said developed silver halide color photographic material with a bleaching solution, and then

processing said bleached silver halide color photographic material with a processing solution having a fixing ability, wherein the replenishment rate of said color developing solution is 600 ml or less per m^2 of the photographic material; said bleaching solution contains a bleaching agent having an oxidation reduction potential of 150 mV or more and further an organic acid having a pKa of from 2 to 5.0, provided that an aminopolycarboxylic acid or a salt thereof and an iron complex salt of the aminopolycarboxylic acid are excluded, in an amount of 1.2 mol or more per liter of the bleaching solution; said bleaching solution has a pH value of 3.0 to 5.0; and the total time for processing said photographic material with the processing solution having a fixing ability is in the range of 30 seconds to 2 minutes.

5,068,171

SILVER HALIDE COLOR PHOTOGRAPHIC LIGHT-SENSITIVE MATERIAL CONTAINING A TWO EQUIVALENT 5-PYRAZOLONE MAGENTA COUPLER AND COLOR PHOTOGRAPH CONTAINING THE SAME

Masakazu Morigaki, and Nobuo Seto, both of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

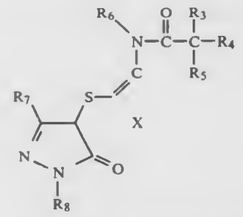
Filed Jul. 13, 1989, Ser. No. 379,253
Claims priority, applicatioo Japan, Jul. 16, 1988, 63-177896
Int. Cl.[5] G03C *7/384, 1/34*
U.S. Cl. 430—9 **9 Claims**

I. A silver halide color photographic light-sensitive material comprising a support and at least one silver halide emulsion layer on the support, wherein said material contains

(i) at least one 5-pyrazolone coupler is selected from the group consisting of couplers represented by formulas (II) or (III):

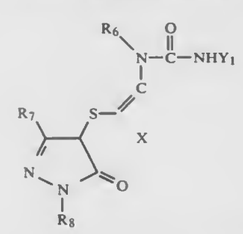
wherein L_1 and L_2 are the same or different groups and

each represents independently a substituted or an unsubstituted methylene or ethylene group; m and n are each 0 or 1; Y represents R_1 or ZR_2; R_1 represents a substituted or an unsubstituted aryl or heterocyclic group or a secondary or a tertiary alkyl group represented by



(II)

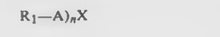
R_3 and R_4 each represents independently a halogen atom, R_2 or Z_1R_b; Z_1 represents an oxygen atom, a sulfur atom or $—NR_c$; R_2 represents a substituted or an unsubstituted alkyl, aryl or heterocyclic group; R_5 represents a hydrogen atom, a halogen atom, a substituted or an unsubstituted alkyl, aryl or heterocyclic group or Z_1R_b; R_6 and R_c each represents independently a hydrogen atom or these groups set forth in the definition of R_2 above; R_b is a substituted or an unsubstituted alkyl, aryl or hetercyclic group; R_3 may be combined together with R_4 and/or R_5 to form one or two carbon atom rings or heterocyclic rings and these rings may be optionally substituted; and X is an atomic group composed of atoms selected from the group consisting of carbon, oxygen and sulfur atoms to form an unsaturated five-membered to seven-membered ring which may be optionally substituted or condensed with another ring; R_7 represents an aniline group, an acylamino group, an ureido group, a carbamoyl group, an alkoxy group, an aryloxycarbonyl group, an alkoxycarbonyl group or a N-hetercyclic group, and R_8 represents a substituted or an unsubstituted aryl group;



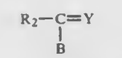
(III)

wherein Y_1 represents a substituted or an unsubstituted alkyl, aryl or heterocyclic group, and R_6, R_7, R_8 and X are as defined above; and

(ii) at least one compound selected from the group consisting of compounds represented by formulas (AI), (AII) and (AIII):

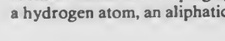


(AI)



(AII)

wherein R_1 and R_2 each represents an aliphatic group, an aromatic group or a heterocyclic ring; X represents a group which is eliminated by the reaction with an aromatic amine developing agent; A represents a group which forms a chemical bond by the reaction with the aromatic amine developing agent; n is 0 or 1; B represents a hydrogen atom, an aliphatic group, an aromatic group, a heterocyclic group, an acyl group or a sulfonyl group; Y represents a group which accelerates the addition of the aromatic amine developing agent to the compound having the formula (AII); and R_1 and X, or Y and R_2 or B may be combined together to form a ring structure,



(AIII)

wherein R represents an aliphatic group, an aromatic group or a heterocyclic group; and Z represents a nucleophilic group or a group which is decomposed in the photographic material to release a nucleophilic group.

9. A color photograph obtained from a silver halide color photographic light sensitive material comprising a support having thereon at least one 5-pyrazolone coupler as defined in claim 1 and at least one silver halide emulsion layer, wherein the photograph comprises (i) a magenta dye formed by an oxidation reaction of said coupler with a color developing agent, and (ii) at least one compound selected from the group consisting of compounds represented by formula (AI), (AII) and (AIII) defined in claim 1.

5,068,172

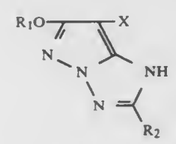
SILVER HALIDE COLOR PHOTOGRAPHIC MATERIALS

Nobuo Seto; Masakazu Morigaki, and Hideaki Naruse, all of Kanagawa, Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 20, 1990, Ser. No. 482,070
Claims priority, application Japan, Feb. 20, 1989, 1-38304
Int. Cl.[5] G03C *7/32*
U.S. Cl. 430—551 **11 Claims**

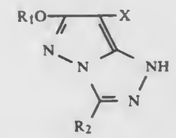
1. A silver halide color photographic material wherein at least one coupler selected from the group consisting of the compounds represented by the following general formulae (I) and (II), at least one compound represented by the following general formula (III) and at least one compound represented by the following general formula (IV) are included in the same layer,

Formula (I)



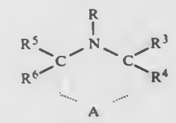
and

Formula (II)



wherein R_1 represents an 2-alkoxyphenyl group and R_2 represents a hydrogen atom or a substituent group, and X represents a hydrogen atom or a group eliminated by a coupling reaction,

Formula (III)

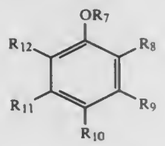


wherein R represents an acyl group, an alkyloxycarbonyl group, aryloxycarbonyl group, alkylsulfinyl group, arylsulfi-

VOL 1132 ISS 4 NO 26 1991 UMI

nyl group, alkylsulfonyl group, carbamoyl group, sulfamoyl group or arylsulfonyl group; R^3, R^4, R^5 and R^6 may be identical or different and respectively represent alkyl groups, A represents a group of non-metallic atoms necessary to form a 5-membered, 6-membered or 7-membered ring, R^3 and R^4, R^5 and R^6, R and R^3, and R^3 and A may respectively link together to form a 5-membered or 6-membered ring, and A, R, or A and R may represent a divalent group to form a dimer or a trimer of the compound represented by formula (III),

Formula (IV)



wherein R_7 represents an alkyl group, alkenyl group, aryl group, heterocyclic group or



wherein R_{13}, R_{14} and R_{15} may be identical or different and respectively represent an alkyl group, alkenyl group, aryl group, alkoxy group, alkenoxy group or aryloxy group, R_8, R_9, R_{10}, R_{11} and R_{12} may be identical or different and respectively represent a hydrogen atom, alkyl group, alkenyl group, aryl group, acylamino group, alkylamino group, alkylthio group, arylthio group, halogen atom or —O—R_7', wherein R_7' has the same meaning as R_7, R_7 and R_8 may link together to form a 5-membered ring, 6-membered ring or spiro ring and R_8 and R_9 or R_9 and R_{10} may link together to form a 5-membered ring, 6-membered ring or spiro ring.

5,068,173

PHOTOSENSITIVE SILVER HALIDE EMULSIONS CONTAINING PARALLEL MULTIPLE TWIN SILVER HALIDE GRAINS AND PHOTOGRAPHIC MATERIALS CONTAINING THE SAME

Hiroshi Takehara, and Hideo Ikeda, both of Kanagawa, Japan, assignors to Fumi Photo Film Co., Ltd., Kanagawa, Japan

Filed Feb. 8, 1989, Ser. No. 307,711

Claims priority, application Japan, Feb. 8, 1988, 63-26977

Int. Cl.[5] G03C *1/035*

U.S. Cl. 430—567 **12 Claims**

1. A photosensitive silver halide emulsion comprising photosensitive silver halide grains dispersed in a binder, wherein at least 70% of the total projected area of silver halide grains comprises tabular grains having a diameter of at least 0.15 μm and wherein said grains comprise a core, an internal high iodide phase non-uniformly deposited on said core, and a phase which has a lower iodide content than the high iodide phase as a surface layer, wherein the iodide content of the core is lower than that of the high iodide pohase and is from 0 to 12 mol %, the internal high iodide phase is deposited in localized areas, is a silver halide solid solution and contains from 10 to 40 mol % iodide, and the high iodide phase surface layer has an iodide content of from 0 to 12 mol %, wherein the mean aspect ratio of said tabular grains is not more than 8.0, wherein grains, in which the value of the ratio (b/a) of the longest distance (a) between two or more parallel twinning planes in the tabular grain and the grain thickness (b) is at least 5, comprise at least 50% (in erms of numbers of grains) of all of said tabular grains, and wherein at least 50% (in erms of teh numbers of grains) of said tabular grains are grains in which the number of dislocations per grain is at least 10.

5,068,174

T-CELL LYMPHOTROPHIC VIRUS PROTEIN AND ASSAY

Myron E. Essex, Sharon; Jonathan S. Allan, Westwood, and Tun-Hou Lee, Newton, all of Mass., assignors to President and Fellows of Harvard College, Cambridge, Mass.

Division of Ser. No. 795,997, Nov. 7, 1985. This application Oct. 25, 1988, Ser. No. 250,309

Int. Cl.[5] G01N *33/569*

U.S. Cl. 435—5 **8 Claims**

1. A method of assaying a biological specimen for the presence of HIV antibodies indicative of HIV infection, comprising the steps of:

(a) incubating a biological specimen in which the presence of HIV antibodies is to be detected with a composition comprising a marker consisting essentially of i) p27 (a protein encoded by the open reading frame 3' to the env gene of HIV), or ii) a fragment of p27 having an antigenic determinant that reacts with anti-p27 antibody, said incubating being for a sufficient time and under conditions to allow said p27 polypeptide or fragment to form an immunocomplex with antibody present in said specimen; and

(b) then determining whether an immunocomplex is formed between said marker and antibody in said specimen, the formation of an immunocomplex being indicative of the presence of HIV infection.

5,068,175

METHOD OF DETECTING RAS ONCOGENE RELATED MALIGNANCIES

Nagindra Prashad, Houston, Tex., assignor to Board of Regents, The University of Texas Sysem, Austin, Tex.

Filed May 26, 1989, Ser. No. 358,449

Int. Cl.[5] C12Q *1/68*; C07H *15/12*; C12N *15/00*; G01N *33/48*

U.S. Cl. 435—6 **16 Claims**

1. A method for detecting ras oncogene related malignancy in a human subject, comprising the steps of:

a) collecting a test serum or plasma sample from a human subject;

b) providing a control serum or plasma sample from a tumor free donor;

c) incubating each of the control and test samples with a DNA having a sequence consisting essentially of a human ras oncogene promoter under conditions effective to promote specific binding interactions between protein factors in the samples and the DNA sequence;

d) separating in each of the control and test samples a protein factor-DNA complex from free DNA; and

e) comparing the amounts of protein factor-DNA complex of both the test and control samples, wherein if the test sample features an amount of about 10-fold or higher of a protein factor-DNA complex than the control sample, there is an indication of a ras oncogene related malignancy.

5,068,176

METHOD FOR THE SIMULTANEOUS DETERMINATION OF DNA SEQUENCE VARIATIONS AT A LARGE NUMBER OF SITES, AND A KIT SUITABLE THEREFOR

Jan Vijg, and Andreas G. Uitterlinden, both of Rotterdam, Netherlands, assignors to Nederlandse Organisatie voor toegepastnatuurwetenschappelijk onderzoek TNO, Gravenhage, Netherlands

Filed May 1, 1989, Ser. No. 345,887

Claims priority, application Netherlands, May 2, 1988, 8801147

Int. Cl.[5] C12Q *1/68*; C07H *15/12*; G01N *33/566*; C12N *15/00*

U.S. Cl. 435—6 **9 Claims**

1. A method of detecting genetic variation by fragmenting double-stranded DNA by means of one or more restriction enzymes, separating the resulting fragments by electrophoresis, transferring the resulting separation pattern to a membrane filter, hybridizing thereon under DNA-denaturing conditions with a labelled DNA or RNA probe, and visualizing the label, characterized in that the electrophoretic separation of the DNA fragments generated is carried out in two dimensions on the basis of two independent criteria, the fragments being separated in one dimension on the basis of their length and being separated in the other dimension on the basis of their base pair sequence, and in that the probe used in the hybridization analysis is a labelled DNA or RNA molecule containing one or more cores of minisatellite sequences or other GC-rich repeats.

5,068,177

ANTI-IDIOTYPE ANTIBODIES INDUCED BY SYNTHETIC POLYPEPTIDES

Dennis A. Carson, Del Mar; Sherman Fong, and Pojen P. Chen, both of San Diego, all of Calif., assignors to Scripps Clinic and Research Foundation, La Jolla, Calif.

Continuation-in-part of Ser. No. 566,172, Dec. 28, 1983, abandoned. This application Aug. 5, 1985, Ser. No. 762,698

Int. Cl.[5] G01N *33/53*, *33/543*; C07K *15/14*, *7/00*

U.S. Cl. 435—7.92 **35 Claims**

1. A synthetic polypeptide having an amino acid residue sequence containing about 6 to about 40 amino acid residues immunologically corresponding substantially to a primary amino acid residue sequence of an idiotypic determinant of an immunoglobulin said idiotype determinant including an amino acid residue sequence, taken from left to right and in the direction from amino-terminus to carboxy-terminus, represented by a formula that is a member of the group consisting of

YGASSRATGIPDR,
KYSGGTFSGYTISC,
EWKGOVNVNPFDY, and
EYGFDTSDYYYYY.

5,068,178

METHOD OF ENHANCING DIRECT IMMUNOFLUORESCENCE STAINING OF CELLS

Robert C. Nowinski, Bothell, Wash., assignor to Genetic Systems Corporation, Redmond, Wash.

Continuation of Ser. No. 282,911, Dec. 6, 1988, abandoned, which is a continuation of Ser. No. 934,165, Nov. 21, 1986, abandoned, which is a continuation of Ser. No. 629,094, Jul. 9, 1984, abandoned. This application Apr. 27, 1990, Ser. No. 517,953

Int. Cl.[5] G01N *33/577*

U.S. Cl. 435—7.2 **16 Claims**

1. A method of identifying and enumerating a specific cell type in a heterogenous population of cells which enhances the specific staining of desired cells, comprising:

(a) contacting a sample from said heterogeneous population of cells with a primary labeled antibody which recognizes and binds to a desired cell surface antigen, the presence of said antigen being characteristic of said specific cell type;

(b) washing said sample to remove unbound labeled primary antibody;

(c) contacting said sample with an unlabeled cross-linking agent which recognizes and binds to said primary antibody within the plane of the cellular membrane;

(d) detecting the cells which have been lebeled by binding to said primary antibody; and

(e) relating the detection of step (d) to the identification and enumeration of the specific cell type;

wherein steps (a), (b) and (c) are carried out at the temperature of an ice bath and there is no incubation at 37° C. between steps (c) and (d).

5,068,179

PROCESS FOR THE DETERMINATION OF A COMPONENT OF AN IMMUNE REACTION IN A PLASMA SAMPLE

Rolf Deeg, Bernried; Rainer Wehner, Gauting; Johann Mattersberger, Munich, and Udo Becker, Marburg, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Continuation of Ser. No. 900,827, Aug. 27, 1986, abandoned. This application Oct. 18, 1988, Ser. No. 262,166

Claims priority, application Fed. Rep. of Germany, Aug. 29, 1985, 3530942

Int. Cl.[5] G01N *33/53*, *33/543*

U.S. Cl. 435—7.92 **10 Claims**

1. In a method for carrying out a heterogeneous immunoassay for a component of a plasma sample at a temperature of from 15°–40° C. in an incubation medium, the improvement comprising adding an amount of a plasminogen activator to said sample sufficient to eliminate interference by fibrinogen with said component to be determined.

5,068,180

SUBSTRATES FOR BETA-GALACTOSIDASE

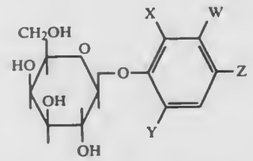
Deng R. Hwang, Tarrytown, N.Y., and Mary Ellen A. Scott, Ringwood, N.J., assignors to Technicon Instruments Corporation, Tarrytown, N.Y.

Continuation of Ser. No. 52,328, May 21, 1987, abandoned. This application Nov. 8, 1989, Ser. No. 433,426

Int. Cl.[5] G01N *33/53*; G07G *3/00*; C07H *15/00*; C12Q *1/54*

U.S. Cl. 435—7.92 **18 Claims**

1. A substrate for β-galactosidase comprising a compound of the formula



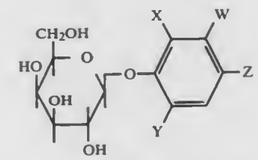
wherein X is halogen; Y is halogen, lower alkyl or hydrogen; W is hydrogen or lower alkyl; and z is nitro.

18. A method for determining the presence of an analyte in a test sample by enzyme immunoassay when said enzyme reagent is β-galactosidase comprising the steps of

(a) providing a test sample suspected of containing the analyte to be determined;

(b) reacting said test sample with a first reagent comprising an antibody to said analyte, a substrate, and a second reagent comprising an enzyme conjugate reactive either with the antibody or the analyte and capable of generating a detectable response in the presence of said substrate; and

(c) determining the presence of said analyte as a result of the detectable response generated by the interaction of said enzyme and said substrate; wherein the improvement comprises using as said substrate of step (b) a compound of the formula



wherein X is halogen; Y is halogen, lower alkyl or hydrogen; W is hydrogen or lower alkyl; and Z is nitro.

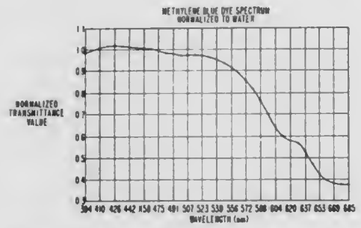
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,181

METHOD OF MONITORING REAGENT DELIVERY IN A SCANNING SPECTROPHOTOMETER

Richard C. Driscoll, Raleigh, N.C., assignor to Akzo N.V., Arnhem, Netherlands

Filed Dec. 1, 1989, Ser. No. 443,953
Int. Cl.[5] G01N *21/77*; N01N *21/78*
U.S. Cl. 435—13 **17 Claims**



17. A method for measuring the concentration of a reagent in a reaction mixture comprising the steps of:

adding rhodamine B to a reagent until the rhodamine B is at given concentration in the reagent;

mixing the reagent with a reaction mixture comprising a biological sample which reacts with the reagent to form a reaction product;

measuring the formation of the reaction product at a first spectral region;

measuring the concentration of rhodamine B in the reaction mixture at a second spectral region in which the rhodamine B fluoresces, the second spectral region being different from the first spectral region; and

determining the concentration of the reagent in the reaction mixture based on the concentration of rhodamine B measured.

5,068,182

SUBSTRATES AND REAGENTS USEFUL IN DETERMINING α-AMYLASE AND A METHOD FOR DETERMINING α-AMYLASE

Axel Schmidt, Munich; Herbert Von Der Eltz, Weilheim, and Elli Rauscher, Munich, all of Fed. Rep. of Germany, assignors to Boehringer Mannheim GmbH, Mannheim, Fed. Rep. of Germany

Filed Dec. 22, 1988, Ser. No. 288,471
Claims priority, application Fed. Rep. of Germany, Dec. 23, 1987, 3743908
Int. Cl.[5] C12Q *1/40*; C07H *5/04*
U.S. Cl. 435—22 **12 Claims**

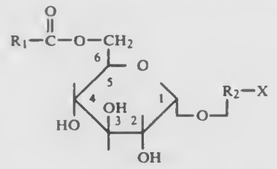
1. Compound useful in determining alphaamylase and of the formula

(I)

wherein R_1 is a hydrogen atom, straight chained or branched alkyl of from 1 to 4 carbons or 1-alkoxyalkyl radical, a cycloalkyl or hydrophilically substituted cycloalkyl radical of from 3 to 6 carbons, tetrahydropyranyl, an piperidinyl, N-methyl substituted piperidinyl or N-ethyl substituted piperidinyl, thiophenyl or 1,1-dioxo-tetrahydrothiopyranyl radical, an amino group or an amino group substituted at least once by methyl, ethyl, propyl or isopropyl, R_2 is an oligoglucoside residue with 2,3 or 4 glucose units and X is a hydrogen atom or an optically determinable residue.

10. Reagent useful for the determination of alpha amylase in a sample, comprising:

0.5–2 mmole/liter of a compound of the formula


(I)

wherein R_1 is a hydrogen atom, straight chained alkyl of from 1 to 4 carbons or 1-alkoxyalkyl radical, a cycloalkyl or hydrophilically substituted cycloalkyl, radical of from 3 to 6 carbons, tetrahydropyranyl, piperidinyl, N-methyl substituted piperidinyl or N-ethyl substituted piperidinyl, thiophenyl or 1,1-dioxo-tetrahydrothiopyranyl radical an amino group or an amino group substituted at least once by methyl, ethyl, propyl or isopropyl, R_2 is an oligoglucoside residue with 2,3 or 4 glucose units and X is a hydrogen atom or an optically determinable residue,

30–100 mmole/liter Nacl;

at least one of 20–50 U/liter alpha glucosidase and 0.5–2 U/liter beta glucosidase, and

20–200 mmole/liter of a buffer at a pH of 6–8.

5,068,183

METHOD FOR MEASUREMENT OF α-AMYLASE ACTIVITY

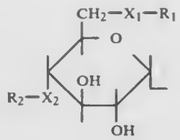
Zensuke Ogawa, 4459-3 Fujisawa, Fujisawa-shi, Kanagawa, Japan, assignor to Kurita Water Industries, Ltd., Tokyo and Zensuke Ogawa, Fujisawa, both of, Japan

Division of Ser. No. 116,617, Nov. 3, 1987. This application Jan. 3, 1991, Ser. No. 637,135
Claims priority, application Japan, Nov. 20, 1986, 61-277702; Feb. 10, 1987, 62-28943
Int. Cl.[5] C12Q *1/40*; C13K *1/00*
U.S. Cl. 435—22 **8 Claims**

1. A method for measurement of α-amylase activity in a sample, comprising contacting a substrate containing a maltooligo saccharide represented by general formula (I) described below with the sample in the presence of glucosidase and measuring a liberated monosaccharide or a derivative represented by B of the general formula (I) and liberated through activity of α-amylase thereby to measure α-amylase activity in the sample:

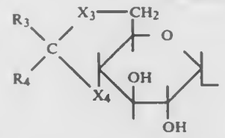
A - Gn - B (I)

wherein A represents:


(II)

or

-continued

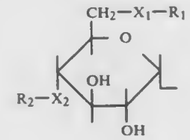

(III)

B represents a monosaccharide or a derivative thereof other than glucose; G represents glucose; and n represents an integer of 3 to 15; in formula (II) or (III), R_1 to R_4 each represents a hydrogen atom, a lower alkyl group or $(CH_2)yCOOM$ (wherein y is 0, 1 or 2 and M represents a hydrogen atom or an alkali metal); and X_1 to X_4 each represents an oxygen atom or a sulfur atom.

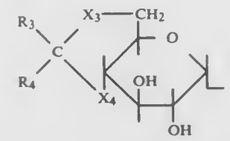
5. A method for measurement of α-amylase activity in a sample, comprising contacting a substrate containing a maltooligo saccharide represented by general formula (V) described below with the sample and measuring a liberated inositol or a derivative represented by I of the general formula (V) and liberated by α-amylase activity to determine α-amylase activity in the sample:

A - Gn - I (V)

wherein A represents:


(II)

or


(III)

I represents inositol or a derivative thereof; G represents glucose; and n represents an integer of 3 to 15; in formula (II) or (III), R_1 to R_4 each represents a hydrogen atom, a lower alkyl group or $(CH_2)yCOOM$ (wherein Y is 0, 1 or 2 and M represents a hydrogen atom or an alkali metal); and X_1 to X_4 each represents an oxygen atom or a sulfur atom.

5,068,184

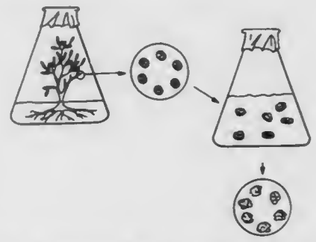
FLAVOR COMPOSITION AND METHOD

Mark E. Knuth, San Carlos, and Om P. Sahai, San Mateo, both of Calif., assignors to Escagenetics, Inc., San Mateo, Calif.

Continuation-in-part of Ser. No. 78,745, Jul. 28, 1987, abandoned. This application Jul. 22, 1988, Ser. No. 221,951
Int. Cl.[5] C12P *1/00*; C12N *5/04*
U.S. Cl. 435—41 **7 Claims**

1. A method of producing vanillin and related vanilla flavor components comprising

culturing in a culture medium callus cells which are independent of and unattached to differentiated plant tissue, and which (a) are derived from vanilla plant tissue, (b) are capable of growth in cell culture without forming identifiable differentiated cell structures, and (c) secrete vanillin and related vanilla flavor components into culture medium in which the cells are cultured, and



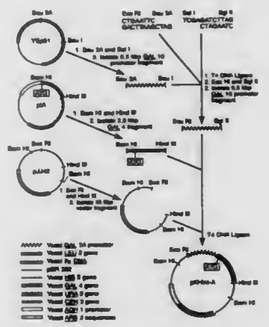
separating the secreted flavor components from the culture medium.

5,068,185

TRAINS OF YEAST FOR THE EXPRESSION OF HETEROLOGOUS GENES

James E. Hopper, Lebanon; Loren D. Schultz, Harleysville; Kathryn J. Hofmann, King of Prussia, and Ronald W. Ellis, Overbrook Hills, all of Pa., assignors to Merck & Co., Inc., N.J.

Filed Jul. 10, 1986, Ser. No. 884,114
Int. Cl.[5] C12P *21/02*; C12N *15/00, 1/14, 1/16, 1/18, 15/81, 1/19*
U.S. Cl. 435—69.1 **12 Claims**



7. A method of expressing a desired heterologous protein comprising growing in a nutrient medium a strain of species of the families Saccharomycetaceae or Cryptococcaceae wherein the chromosome is modified by integration of a hybrid gene comprised of a galactose inducible promoter linked to the gene for a positive regulatory protein which serves as the transcriptional activator of galactose-inducible promoters, said strain being the host for a plasmid comprising a yeast galactose-inducible promoter linked to a heterologous gene whose expression is driven by the galactose-inducible promoter.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,186

PROCESS FOR THE ENZYMATIC PREPARATION OF DISACCHARIDE FLUORIDES USING ALPHA-GLYCOSYL FLUORIDES AS SUBSTRATES

Merten Schlingmann, Königstein; Reinhold Keller, Bad Soden am Taunus; Matthias Wiesner, Mainz; Wolfgang Treder, and Joachim Thiem, both of Münster, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Continuation of Ser. No. 216,276, Jul. 8, 1988, abandoned. This application Jun. 14, 1990, Ser. No. 545,143

Claims priority, application Fed. Rep. of Germany, Jul. 10, 1987, 3722812

Int. Cl.[5] C12P *19/12, 19/14, 19/18, 19/20*

U.S. Cl. 435—96 5 Claims

1. A process for the preparation of disaccharide fluorides, which comprises incubation of reaction solutions containing 30% to 60% by weight of substrate of α-glycosyl fluorides in solution with αglycosidases selected from the group consisting of α-glucosidase and α-galactosidase in an amount sufficient to synthesize the disaccharide fluorides, the reaction being carried out at a pH of 6 to 7.

5,068,187

PROCESS FOR PRODUCING D-α-AMINO ACIDS

Mamoru Takeichi; Naoshi Hagihara; Hitoshi Tarukawa; Shinichirou Tawaki, all of Chiba, and Nobuyoshi Makiguchi, Kanagawa, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

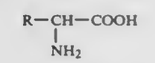
Continuation of Ser. No. 840,133, Mar. 17, 1986, abandoned. This application Mar. 28, 1989, Ser. No. 332,426

Claims priority, application Japan, Mar. 19, 1985, 60-053396

Int. Cl.[5] C12P *13/04, 13/12, 13/06;* C12N *13/16*

U.S. Cl. 435—106 4 Claims

1. A process for producing D-alpha-amino acid represented by formula (I):

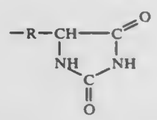


(I)

where R represents a phenyl group; a hydroxyphenyl group; an unsubstituted C_1-C_4 alkyl group or a substituted C_1-C_2 alkyl group wherein the substituent is methylthio, hydroxy, phenyl or indolyl;

comprising the steps of:

subjecting a 5-substituted hydantoin represented by formula (II):



(II)

where R represents the same meaning as in the formula (I), to the action of a cultured broth or cells of a microorganism having the ability to microbially transform said hydantoin of formula (II) into a D-α-amino acid of formula (I), said microorganism being selected from the group consisting of *Hansenula ciferrii, Hansenula henricii, Hansenula nonfermentans* and *Hansenula polymorpha*; and

purifying the thus obtained D-α-amino acid.

5,068,188

PROCESS FOR MANUFACTURE OF ALKALINE EARTH ACETATES

Donald L. Wise, Belmont, Mass.; Don C. Augenstein, Palo Alto, Calif., and Joseph D. Gresser, Brookline, Mass., assignors to Northeastern University, Boston, Mass.

Filed Jun. 20, 1989, Ser. No. 369,183

Int. Cl.[5] C12P *7/54, 39/00, 7/40;* C12N *1/20*

U.S. Cl. 435—140 10 Claims

1. A process for producing calcium and/or magnesium salts of acetic acid comprising the following steps:

fermenting biomass anaerobically in a continuous manner to form acetic acid in a fermentation broth;

extracting the acetic acid continuously from the fermentation broth with an oil phase which may optionally contain a liquid ion exchanger, resulting in the production of an organic phase consisting essentially of oil, acetic acid and optionally, a liquid ion exchanger material;

treating the acetic acid-containing organic phase directly and continuously with solid basic material containing calcium and/or magnesium metal ions, resulting in the formation of calcium and/or magnesium salt of acetic acid and water, the water forming an aqueous phase, the acetic acid salt being located substantially in the aqueous phase; and

recovering the calcium and/or magnesium salt of acetic acid from the aqueous phase.

5,068,189

RECOMBINANT DNA VECTORS ENCODING A 4''-O-ISOVALERYL ACYLASE DERIVED FROM A CARBOMYCIN BIOSYNTHETIC GENE, DESIGNATED CARE, FOR USE IN STREPTOMYCES AND OTHER ORGANISMS

Janet K. Epp, Indianapolis, and Brigitte E. Schoner, Monrovia, both of Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed May 13, 1988, Ser. No. 194,672

Int. Cl.[5] C12N *15/52, 15/76, 9/00*

U.S. Cl. 435—183 27 Claims

1. A method for increasing the amount of 4''-O-isovalerylacylase enzyme in an organism that comprises (1) transforming said organism with a recombinant DNA vector that codes for expression of the Streptomyces carE gene product; and (2) culturing said organism transformed in step (1) under conditions that allow for gene expression.

5,068,190

N-ACETYLHEXOSAMINE-DEHYDROGENASE, PROCESS FOR PRODUCING SAME, METHOD FOR THE QUANTITATIVE ANALYSIS OF N-ACETYLGLUCOSAMINE OR N-ACETYLGALACTOSAMINE USING SAME AND KIT FOR USE IN THE QUANTITATIVE ANALYSIS

Tatsuo Horiuchi, Nagareyama, and Toshiko Kurokawa, Noda, all of Japan, assignors to Noda Institute for Scientific Research, Noda, Japan

Filed Sep. 14, 1989, Ser. No. 407,150

Claims priority, application Japan, Sep. 21, 1988, 63-234746

Int. Cl.[5] C12N *9/04;* C12Q *1/32*

U.S. Cl. 435—190 5 Claims

1. Purified N-acetylhexaosamine-dehydrogenase which takes off hydrogen from N-acetylglucosamine or N-acetylgalactosamine to convert them to N-acetylglucosaminolactone or N-acetylgalactosaminolactone, respectively, and at the same time reduce co-enzyme NAD^+ to NADH, of which optimum pH is 8.0 to 10.5, and of which stable pH is 8.0 to 11.0.

5,068,191

PURIFIED HISTO-BLOOD GROUP A GLYCOSYLTRANSFERASE AND ANTIBODIES THERETO

Henrik Clausen; Fumi-ichiro Yamamoto; Thayer White, and Sen-itiroh Hakomori, all of King County, Wash., assignors to The Biomembrane Institute, Seattle, Wash.

Filed Aug. 31, 1989, Ser. No. 402,695

Int. Cl.[5] C12N *9/12, 5/02;* A61K *35/14;* C12P *21/08*

U.S. Cl. 435—193 8 Claims



1. A purified histo-blood group A glycosyltransferase having the following characteristics:

a) molecular weight of approximately 40,000 as measured by sodium dodecyl sulfate-polyacrylamide gel electrophoresis; and

b) specific activity of at least approximately 5 international units per mg of protein.

5,068,192

ATTENUATED PSEUDORABIES VIRUS WHICH INCLUDES FOREIGN DNA ENCODING AN AMINO ACID SEQUENCE

Mark D. Cochran, La Jolla, Calif., assignor to Prutech Research and Development Partnership, San Jose, Calif.

Filed Jan. 27, 1986, Ser. No. 823,102

Int. Cl.[5] C12N *15/86*

U.S. Cl. 435—235.1 1 Claim

1. A non-naturally occurring, attenuated pseudorabies virus designated S-PRV-014 (ATCC Accession No. VR 2120).

5,068,193

NOVEL METHOD AND COMPOSITIONS FOR INTRODUCING ALIEN DNA IN VIVO

Luca Comai, Davis, Calif., assignor to Calgene, Inc., Davis, Calif.

Division of Ser. No. 796,484, Nov. 6, 1985, Pat. No. 4,762,785, which is a continuation of Ser. No. 407,525, Aug. 12, 1982, abandoned. This application May 11, 1988, Ser. No. 192,484

Int. Cl.[5] C12N *15/00, 15/70*

U.S. Cl. 435—252.3 9 Claims

1. An extrachromosomal element comprising: a narrow range replication system capable of replication in *E. coli* and incapable of replication in *A. tumefaciens;*

a DNA sequence of at least 800 bp homologous with a DNA sequence present in the genome of *A. tumefaciens;* alien DNA to *E. coli* and *A. tumefaciens;* a mobilization locus either being self transmissible or using a second element; and

a marker for selection in *A. tumefaciens.*

5,068,194

BACILLUS STEAROTHERMOPHILUS STRAIN HAVING A HIGH PROTOPLAST FORMING RATIO

Tadayuki Imanaka, Suita, and Shoji Sakurai, Shizuoka, both of Japan, assignors to Nikko Bio Technica Co., Ltd., Shizuoka, Japan

Filed Oct. 12, 1988, Ser. No. 256,584

Claims priority, application Japan, Oct. 12, 1987, 62-256965

Int. Cl.[5] C12N *1/20*

U.S. Cl. 435—252.5 3 Claims

1. A substantially pure culture of *Bacillus stearothermophilis* FERM BP-3102.

5,068,195

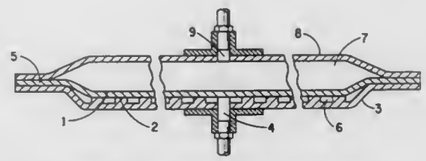
DOT MATRIX MEMBRANE CELL EXPANSION AND MAINTENANCE VESSEL

Gary W. Howell, Elkton, Md.; Joseph D. Irr, Newark, and Ara T. Nahapetian, Wilmington, both of Del., assignors to Du Pont Merck Pharmaceutical Company, Wilmington, Del.

Filed Nov. 2, 1988, Ser. No. 266,876

Int. Cl.[5] C12M *3/06, 3/00*

U.S. Cl. 435—284 10 Claims



1. A perfusable cell culture device comprising:

(1) two liquid impermeable polymeric film sheets constructed so as to deliver oxygen and carbon dioxide at rates sufficient to maintain cells in culture joined together at their peripheral edges in a sealing manner, one of the sheets defined as an upper polymeric layer and the other of the sheets defined as a lower polymeric layer;

(2) a gas and liquid permeable flow divider membrane affixed between said upper polymeric layer and said lower polymeric layer and affixed to said lower polymeric layer in such a way so as to provide channels for fluid distribution with the pressure drop across the flow divider membrane being significantly greater than pressure drop through the channels thereby providing substantially even pressure across the flow divider area and allowing the culture medium to flow uniformly over a large surface area;

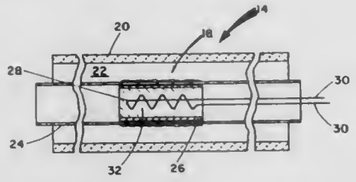
(3) an inlet port in said lower polymeric layer through which culture medium can be introduced between said lower polymeric layer and said flow divider membrane;

(4) said upper polymeric layer and said flow divider membrane being arranged with respect to each other so as to form a chamber between said upper polymeric layer and said flow divider membrane through which growth medium can be perfused at a controlled rate uniformly across the surface of the flow divider membrane and in which cells are cultured; and

(5) a port in said upper polymeric layer through which cells may be placed into the cell culture device, cultured cells may be removed from said cell culture device, and perfused nutrients may be collected from said cell culture device.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,196
METHOD FOR DETERMINING FLUID CORROSIVENESS
George F. Hays, Morristown, and James A. Coyle, Booton, both of N.J., assignors to Ashland Oil Inc., Russell, Ky.
Division of Ser. No. 813,727, Dec. 27, 1985, abandoned. This application Feb. 27, 1990, Ser. No. 485,588
Int. Cl.[5] G01N *17/00*
U.S. Cl. 436—6 **1 Claim**



1. A method for determining corrosiveness of a fluid, which comprises:
weighing a metallic test conduit member of a predetermined length and having a channel therethrough;
positioning a cylindrically-shaped heating cartridge of a predetermined length in close fitting relationship within said channel of said metallic test conduit member, said predetermined length of said cylindrically-shaped cartridge being less than said predetermined length of said metallic test conduit member thereby defining a heat transfer surface and a non-heat transfer surface about said metallic test conduit member;
positioning said metallic test conduit member within a conduit member thereby defining a fluid flow passageway therebetween;
passing said fluid through said fluid flow passageway for a preselect time period;
energizing said heating carriage during said preselect time period;
recording rate of fluid flow and power to said heating cartridge;
removing said metallic test conduit member form within said conduit member;
removing said hating cartridge from said metallic test conduit member;
dissecting said metallic test conduit member into a portion of said heat transfer surface and a portion of said non-heat transfer surface; and
weighing said potions to provide data for evaluating with said fluid flow rate and power input of corrosion so did fluid to said heat transfer surface and said non-heat transfer surface of said metallic test conduit.

5,068,197
FECAL OCCULT BLOOD TEST METHODS
Paul J. Lawrence, Campbell, Calif., assignor to Litmus Concepts, Inc., Santa Clara, Calif.
Continuation of Ser. No. 138,496, Dec. 24, 1987, Pat. No. 4,939,097, Continuation-in-part of Ser. No. 869,573, Jun. 2, 1986, abandoned, which is a continuation-in-part of Ser. No. 680,357, Dec. 11, 1984, Pat. No. 4,615,982. This application May 17, 1990, Ser. No. 525,140
Int. Cl.[5] G01N *21/78, 33/72*
U.S. Cl. 436—66 **36 Claims**

1. A method to inhibit and thereby increase the specificity of a test for detecting the presence of iron protoporphyrins in a fecal specimen, comprising:
contacting the specimen with a solution containing a chromogen, a hydroperoxide, and an inhibitor compound, wherein the solution contains at least 50% by volume of a solvent for iron protoporphyrins and wherein the inhibitor compound is selected from the group consisting of quinine, primaquine, quinidine and mixtures thereof.

13. A colorimetric method for detecting the presence of iron protoporphyrins in a fecal specimen, comprising:
(a) pretreating the fecal specimen with an inhibitor compound selected from the group consisting of quinine, primaquine, quinidine and mixtures thereof; and then
(b) treating the fecal specimen with a hydroperoxide and a chromogen, wherein the chromogen is selected such that it will oxidize to a colored state if iron protoporphyrins are present in the specimen.

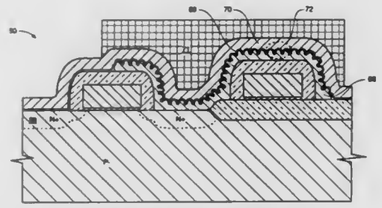
26. In an improved method for detecting the presence of a peroxidatively active substance in a sample by contacting the sample with a chromogen and a hydroperoxide, the improvement comprising applying to the sample, along with the chromogen and the hydroperoxide, an accelerator compound selected from the group consisting of chloroquine, quinacrine, and mixtures thereof, and an inhibitor compound selected from the group consisting of quinine, primaquine, quinidine and mixtures thereof.

5,068,198
LIQUID SINGLE REAGENT FOR ASSAYS INVOLVING CONFINING GELS
Ian Gibbons, Sunnyvale; Edwin F. Ullman, Atherton, and Philip L. Feigner, Los Altos, all of Calif., assignors to Syntex (U.S.A.) Inc., Palo Alto, Calif.
Continuation of Ser. No. 844,910, Mar. 26, 1986, abandoned. This application Jan. 13, 1989, Ser. No. 298,192
Int. Cl.[5] G01N *33/549*
U.S. Cl. 436—535 **71 Claims**

1. An assay method for determining an analyte in a sample suspected of containing the analyte wherein the analyte is a member of a specific binding pair (sbp) consisting of ligand and its complementary receptor and wherein a signal producing system is employed which provides a detectable signal in relation to the amount of analyte in said sample, said assay method comprising the steps of
a) combining a sample suspected of containing an analyte with a composition comprising in a single liquid medium (1) at least one sbp member reversibly confined in a gel rendering said sbp member incapable of binding with its complementary sbp member until such confinement is reversed wherein said outer surface of said gel is essentially free of said sbp members, and (2) said complementary sbp member wherein at least one of said sbp members is bound to a member of a signal producing system; and
b) providing means for reversing the confinement of said sbp member from said gel; and
c) measuring a signal produced in relation to the amount of analyte in said sample.

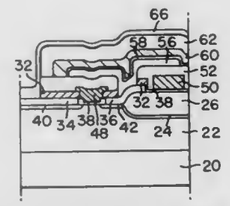
5,068,199
METHOD FOR ANODIZING A POLYSILICON LAYER LOWER CAPACITOR PLATE OF A DRAM TO INCREASE CAPACITANCE
Gurtej S. Sandhu, Boise, Id., assignor to Micron Technology, Inc., Boise, Id.
Filed May 6, 1991, Ser. No. 696,438
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—52 **44 Claims**

1. A method of fabricating a storage capacitor having an intrinsic silicon layer doped with an impurity to produce an extrinsic first doped silicon conductive layer forming a storage node capacitor plate comprising the following steps:
a) anodizing said first doped silicon layer, said anodizing producing a porous upper surface by consuming portions of said first doped silicon layer to produce micro structures resembling elongated pores, a porosity of said porous upper surface measured by a porous film density, said porous film density equal to the percent of weight loss for a given volume of said first doped silicon layer experience during said anodizing, said anodizing increasing a surface area of said storage node capacitor plate;
b) depositing a dielectric layer to overlie said first doped silicon layer, said dielectric layer having lower and upper surfaces, the porous upper surface of said first doped silicon layer being in contact at all points with the lower surface of said dielectric layer, said dielectric layer being substantially conformal with the porous upper surface of said first doped silicon layer; and



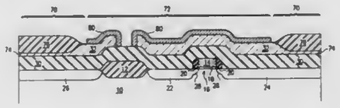
c) depositing of an intrinsic silicon layer doped with an impurity to produce an extrinsic second doped silicon conductive layer to overlie said dielectric layer, said second doped silicon layer having lower and upper surfaces, said lower surface being in contact with the upper surface of said dielectric layer and being substantially conformal thereto.

5,068,200
METHOD OF MANUFACTURING DRAM CELL
Laegu Kang, and Kyungtae Kim, both of Seoul, Rep. of Korea, assignors to Samsung Electronics Co., Ltd., Rep. of Korea
Filed Mar. 8, 1990, Ser. No. 490,326
Claims priority, application Rep. of Korea, Jun. 13, 1989, 89-8100
Int. Cl.[5] H01L *21/70*
U.S. Cl. 437—52 **1 Claim**



1. A method of manufacturing a DRAM cell having a stacked capacitor, comprising the steps of:
forming first and second field oxide films on a semiconductor substrate of a first conductive type, forming a channel stopper of said first conductive type on the low portion of the first field oxide film, and forming a polycrystalline silicon doped with impurities of a second conductive type and a nitride film in order;
dividing said polycrystalline silicon into drain and source polycrystalline silicon regions, and simultaneously forming a gate oxide film on the surface of said substrate between said drain and source polycrystalline silicon regions, and drain and source diffusion regions of the second conductive type and forming a gate electrode on a top portion of the gate oxide film;
forming a first insulating film on an upper surface of said nitride film and the gate electrode, and forming a window at a predetermined portion of the top portion of said source polycrystalline silicon and a storage poly contacting with the source polycrystalline silicon exposed through said window;
forming a dielectric layer which becomes a dielectric substance of the stacked capacitor and a plate poly on the top portion of said storage poly; and
forming a second insulating film on the top portion of said first insulating film and the plate poly and forming a window at a predetermined portion of the top portion of said drain polycrystalline silicon region, and a bit line contacting with the drain polycrystalline silicon region exposed through said window, wherein said polycrystalline silicon doped with impurities of the second conductive type and said nitride film are deposited over an entire area of the semiconductor substrate and the first and second field oxide films, said storage poly is contacted with the source polycrystalline silicon superposed on the first field oxide film, and said bit line is contacted with the drain polycrystalline silicon superposed on the second field oxide film.

5,068,201
METHOD FOR FORMING A HIGH VALUED RESISTIVE LOAD ELEMENT AND LOW RESISTANCE INTERCONNECT FOR INTEGRATED CIRCUITS
Charles R. Spinner, III, Dallas, and Fu-Tai Liou, Carrollton, both of Tex., assignors to SGS-Thomson Microelectronics, Inc., Carrollton, Tex.
Filed May 31, 1990, Ser. No. 531,022
Int. Cl.[5] H01L *21/283*
U.S. Cl. 437—60 **5 Claims**



1. A method for forming a high valued resistive load element and low resistance interconnect in a single polycrystalline silicon layer on an integrated circuit device, comprising the steps of:
forming a polycrystalline silicon layer over an insulating layer;
patterning the polycrystaline silicon layer to define the resistive load elements and the interconnect;
forming a masking layer over the device;
patterning the masking layer to expose the resistive load elements;
oxidizing the exposed polycrystalline silicon to convert a portion thereof the oxide;
removing the masking layer, thereby exposing the polycrystalline silicon interconnect;
forming a layer of refractory metal over the device; and
heating the device to cause the refractory metal to react with polycrystalline silicon in contact therewith, whereby a refractory metal silicide is formed over the interconnect.

5,068,202
PROCESS FOR EXCAVATING TRENCHES WITH A ROUNDED BOTTOM IN A SILICON SUBSTRATE FOR MAKING TRENCH ISOLATION STRUCTURES
Pier L. Crotti, Landriano, and Nadia Iazzi, Cremona, both of Italy, assignors to SGS-Thomson Microelectronics s.r.l., Brianza, Italy
Filed Dec. 12, 1989, Ser. No. 448,883
Claims priority, application Italy, Dec. 15, 1988, 83689 A/88
Int. Cl.[5] H01L *21/76*
U.S. Cl. 437—67 **1 Claim**

1. A process for making an encased isolation structure for an integrated semiconductor device having the configuration of a trench, excavated on the surface of a semiconducting substrate of a first conductivity type around active areas of the front of the device and filled with a dielectric material, said semiconducting substrate having been previously covered by a multi-

VOL
1132
ISS
4
NO
26
1991
UMI

layer composed of a first oxide layer, a second layer of a diffusion resistant material superimposed thereto, and a third or top layer of oxide which is thicker than the first oxide layer;

characterized by comprising the following steps:

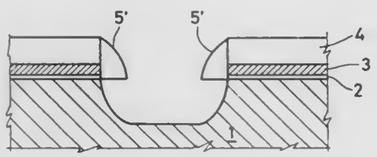
a) masking with a photoresist by a photolithographic process active areas on the front of the device;

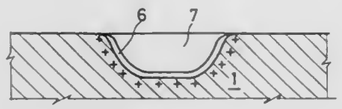
b) anisotropically etching by means of a RIE process said three layers until exposing the surface of the underlying semiconducting substrate in the unmasked area and removing the residual masking photoresist;

c) conformably depositing a fourth oxide layer;

d) anisotropically etching by means of a RIE process said conformably deposited fourth layer of oxide until exposing the surface of the underlying semiconducting substrate in a central, self-aligned area of said unmasked area, and leaving a tapered residue of said conformably deposited fourth layer of oxide on vertical etch walls of said three layers etched during the preceding step b);

e) isotropically plasma etching said semiconducting substrate through said exposed central, self-aligned area until forming a trench having a desired depth and causing a lateral under-cut roundly extending below the base of said tapered residue of said conformably deposited fourth oxide layer;





f) removing the residual exposed oxide belonging to said third layer and to said fourth layer;

g) implanting on the etched trench surface a dopant of the same conductivity type as the semiconducting substrate for increasing the doping level of the semiconductor material adjacent to the etched trench surface by utilizing said second layer of diffusion impervious materials as a mask;

h) thermally growing a thin layer of oxide over the etched and implanted surface of the trench formed in the semiconducting substrate, by utilizing said second layer of diffusion impervious material as a mask;

i) removing said second layer of diffusion impervious material;

j) depositing a layer of dielectric material until completely filling the trench formed in the semiconducting substrate.

5,068,203

METHOD FOR FORMING THIN SILICON MEMBRANE OR BEAM

James H. Logsdon; Steven E. Staller, both of Kokomo; David W. De Roo, Carmel, and Gerold W. Neudeck, West Lafayette, all of Ind., assignors to Delco Electronics Corporation, Kokomo and Purdue Research Foundation, West Lafayette, both of, Ind.

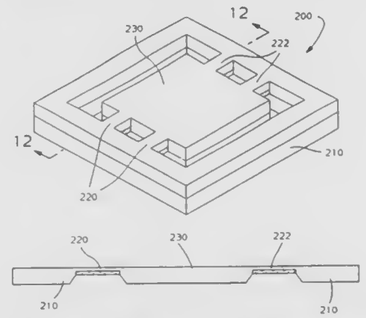
Filed Sep. 4, 1990, Ser. No. 577,656
Int. Cl.[5] H01L *21/62*
U.S. Cl. 437—89 **8 Claims**

1. A method for forming thin suspended membranes or layers of single crystal silicon suitable for use as microbridges and diaphragms in microaccelerometers and pressure sensors comprising the following steps:

providing a silicon substrate oriented essentially along a single crystallographic plane having a front and back surface which are substantially parallel to each other;

forming a blanket layer of silicon oxide overlaying said front surface of said silicon substrate;

patterning said blanket layer of silicon oxide so as to form a plurality of silicon oxide strips in spaced relationship with each other, said silicon oxide strips are spaced so that the underlying silicon substrate is exposed a gaps disposed between adjacent pairs of said strips;



selectively epitaxially depositing monocrystalline silicon onto said silicon substrate exposed at said gaps and then laterally from said gap over said silicon oxide strips so as to form a substantially continuous layer of epitaxial silicon over said plurality of silicon oxide strips;

masking said back surface of said silicon substrate so as to expose a desired pattern of said back surface of said silicon substrate; and

removing said exposed silicon from said back surface of said silicon substrate in said desired pattern;

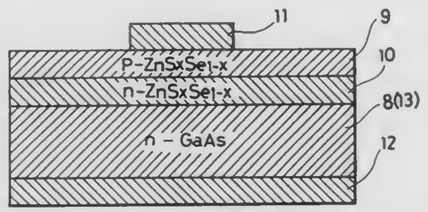
whereas said removing step is substantially terminated at said silicon oxide strips so as to form suspended regions containing said epitaxial silicon overlaying said silicon oxide strips.

5,068,204

METHOD OF MANUFACTURING A LIGHT EMITTING ELEMENT

Hiroshi Kukimoto, Kanagawa; Iwao Mitsuishi, and Takashi Yasuda, both of Tokyo, all of Japan, assignors to Misawa Co. Ltd., Tokyo, Japan

Filed Mar. 25, 1988, Ser. No. 173,067
Claims priority, application Japan, Mar. 27, 1987, 62-71567; Sep. 25, 1987, 62-238655; Dec. 29, 1987, 62-335866
Int. Cl.[5] H01L *21/20*
U.S. Cl. 437—127 **20 Claims**



1. A method of manufacturing a light emitting element, comprising the steps of:

vapor phase growing of a II-VI compound with semiconductor crystal layers having (p) type conduction of low resistivity on a semiconductor substrate;

introducing impurities of group Ia elements and their compounds, during the growth step, under the condition that the flux ratio of a group VIa element to a group IIb element ranges from 1 to 100 for constructing a basic body of said II-VI compound semiconductor crystal layers; and

the introduction of the impurities of the group Ia elements includes a simultaneous doping of the Va elements with said group Ia elements so that the mobility thereof is suppressed, and vacancies of the VI host atoms produced by the group Ia elements acting as dopants are compensated by the doped Va elements, whereby to reduce point defects and improve the quality of the crystal layers for forming a crystal suitable for a light emitting diode.

5,068,205

HEADER MOUNTED CHEMICALLY SENSITIVE ISFET AND METHOD OF MANUFACTURE

Ronald D. Baxter, Furlong, and Paul M. Kroninger, Jr., North Wales, both of Pa., assignors to General Signal Corporation, Stamford, Conn.

Filed May 26, 1989, Ser. No. 357,505
Int. Cl.[5] H01L *21/58*
U.S. Cl. 437—205 **8 Claims**

1. A method for producing a header mounted solid state sensor structure for an immersible probe assembly so that it will environmentally interface the material to be tested by protecting the contacts and the sidewalls of the sensor from that material, comprising the steps of:

providing a plurality of sensor sites on a semiconductor substrate, said sites each having a chemically sensitive region on the front of said substrate and electrical contact pads on the back of the substrate, said contact pads being connected to the sensor structure;

providing a carrier for said substrate;

bonding the back of said substrate to said carrier at the periphery of said contact pads;

V-groove etching the substrate at the boundaries of the individual sensor sites to form isolated substrate mesas each representing an individual sensor structure;

deposition of a passivation coating over the sidewalls of the substrate mesas in a manner which will not obviate the sensitivity of the chemically sensitive region;

providing electrical lead-outs from said contact pads of the sensor to corresponding contact areas on the carrier arranged for connection to outside circuits; and

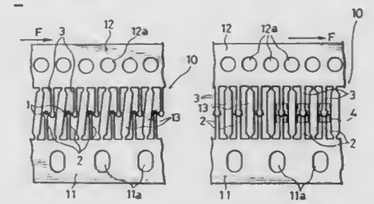
dicing the wafer at the site boundaries to produce individual header mounted solid state sensor structures.

5,068,206

METHOD OF MANUFACTURING SEMICONDUCTOR DEVICES, AND LEADFRAME AND DIFFERENTIAL OVERLAPPING APPARATUS THEREFOR

Yoshio Kurita, Kyoto, and Akira Akamatsu, Okayama, both of Japan, assignors to Rohm Co., Ltd., Kyoto, Japan

Division of Ser. No. 377,969, Jul. 11, 1989. This application Dec. 11, 1990, Ser. No. 625,536
Claims priority, application Japan, Jul. 22, 1988, 63-184283; Apr. 25, 1989, 1-106471
Int. Cl.[5] H01L *23/48*
U.S. Cl. 437—220 **4 Claims**



1. A method of manufacturing semiconductor devices from an elongated leadframe which comprises at least two transversely spaced longitudinal bands connected together by connecting segments spaced longitudinally of said leadframe, one longitudinal band being formed with a first group of leads spaced longitudinally of said leadframe and extending toward the other longitudinal band, said other longitudinal band being formed with a second group of leads spaced longitudinally of said leadframe and extending toward said one longitudinal band in staggered relation to said first group of leads, the method comprising the steps of:

transferring said leadframe longitudinally thereof;

bonding semiconductor chips to said first group of leads during transfer of said leadframe;

causing said two bands to displace away from each other perpendicularly to a plane containing said leadframe;

causing said two bands to move relative to each other longitudinally of said leadframe so that each lead of said first group assumes substantially the same longitudinal position as a corresponding lead of said second group; and

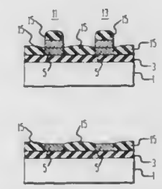
causing said two bands to displace toward each other perpendicularly to said plane so that a semiconductor chip on said each lead of said first group comes into contact with said corresponding lead of said second group for bonding.

5,068,207

METHOD FOR PRODUCING A PLANAR SURFACE IN INTEGRATED CIRCUIT MANUFACTURING

Ajit S. Manocha, and Chen-Hua D. Yu, both of Allentown, Pa., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Apr. 30, 1990, Ser. No. 516,860
Int. Cl.[5] H01L *21/469*
U.S. Cl. 437—231 **6 Claims**



1. A method of integrated circuit manufacturing comprising the steps of patterning a bilevel structure on a substrate to expose selected portions of said substrate, said bilevel structure comprising a conductor layer adjacent to said substrate and a

VOL 1132 ISS 4 NO 26 1991 UMI

sacrificial layer on said conductor layer, said sacrificial layer material comprises a glass;

depositing a first dielectric in a direction substantially perpendicular to the substrate surface, said first dielectric covering no more than a portion of the sidewalls of said sacrificial layer; and,

lifting off said sacrificial layer by wet etching to leave said first dielectric on said substrate.

5,068,208

SOL-GEL METHOD FOR MAKING GRADIENT INDEX OPTICAL ELEMENTS

Niels Haun, Rochester, and Duncan T. Moore, Fairport, both of N.Y., assignors to The University of Rochester, Rochester, N.Y.

Filed Apr. 5, 1991, Ser. No. 682,200
Int. Cl.[5] C03C *3/04*
U.S. Cl. 501—12 **20 Claims**

20. A method for making a gradient-index glass comprising:

forming a mixture of a silicon alkoxide and an alcohol in a solution sufficiently acidic to partially hydrolyze the silicon alkoxide;

adding to the mixture an index modifying metal alkoxide selected from the group consisting of alkoxides of titanium and zirconium and at least one additional metal alkoxide element selected from the group consisting of alkoxides of aluminum, boron, and germanium;

adding water to the mixture containing the index modifying metal alkoxide and the at least one additional metal alkoxide element, while agitating, to convert the metal alkoxides to a network of corresponding metal oxides suitable for gelation;

molding the mixture containing the network of metal oxides for sufficient time to form a gel;

washing the molded gel with water;

acid leaching the washed gel for sufficient time to remove some of the index modifying metal oxide, wherein said acid leaching is carried out in a bath comprising water and one or more acids selected from the group consisting of hydrochloric acid, sulfuric acid, and nitric acid;

fixing the gel in an aqueous solution of 20–40 volume % of an alcohol having 1 to 4 carbon atoms;

drying the fixed gel; and

sintering the dried gel into a transparent gradient-index glass containing 60 to 98 mole % silicon oxide, 0.1 to 25 mole % of corresponding index modifying oxide, and less 25 mole % of corresponding additional metal oxide element.

5,068,209

OPTICAL FLUOROPHOSPHATE GLASS WITH ANOMALOUS POSITIVE INCREMENTAL DISPERSION AND PROCESS FOR MAKING IT

Norbert Meinert, Solms-Albshausen; Dieter Gelzenleuchter, Wetzlar, and Henning Franek, Braunfels-Tiefenbach, all of Fed. Rep. of Germany, assignors to Wild Leitz GmbH, Wetzlar, Fed. Rep. of Germany

PCT No. PCT/DE89/00422, § 371 Date Apr. 10, 1990, § 102(e) Date Apr. 10, 1990, PCT Pub. No. WO90/00159, PCT Pub. Date Jan. 11, 1990
PCT Filed Jun. 24, 1989, Ser. No. 466,287
Claims priority, application Fed. Rep. of Germany, Jun. 29, 1988, 3821859
Int. Cl.[5] C03C *6/06, 3/247*
U.S. Cl. 501—30 **5 Claims**

1. Optical fluorophosphate glass produced by melting a mixture having the following composition (in % by weight):

$Ca(PO_3)_2$	1.0–2.5
$Ba(PO_3)_2$	23.0–25.5
$Al(PO_3)_3$	12.0–14.5
MgF_2	6.5–8.5
CaF_2	5.5–8.0
SrF_2	16.0–19.0
AlF_3	10.0–12.5
SrO	2.0–3.0
BaO	12.5–14.5
K_2TiF_6	0.2–0.7

wherein the alkaline earth metal fluoride content is between 28 and 35.5% by weight; the total content of all fluorides is between 38.2 and 48.7% by weight, and the F/P ratio is between 1.8 and 2.4; said glass having a refractive index n_e between 1.53 and 1.55, an Abbe number ν_e between 72.8 and 73.5, and an anomalous positive partial dispersion $\Delta\nu_e$ between +11.8 and +12.5.

5,068,210

LOW DIELECTRIC CONSTANT CERAMIC MATERIALS

John F. DiLazzaro, Lake Oswego, Oreg.; James L. McAlpin, Somers Point, N.J., and Joanne R. Mark, Aloha, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Continuatioo-in-part of Ser. No. 853,515, Apr. 18, 1986, abandoned. This application May 17, 1988, Ser. No. 195,569
Int. Cl.[5] C03C *14/00, 3/108*
U.S. Cl. 501—32 **6 Claims**

4. A method of forming a dense, nonporous ceramic object having a low dielectric constant, comprising the steps of

providing a compressed mixture of finely-divided solids consisting essentially of

a) 0–30 wt % alumina

b) 30–60 wt % fused silica

c) 30–70 wt % lead borosilicate glass composed of about 25 wt % PbO, about 35 wt % B_2O_3, and about 40 wt % SiO_2,

the proportions of components a), b) and c) being chosen to provide a mixture having a sintering temperature not greater than 1000° C., and

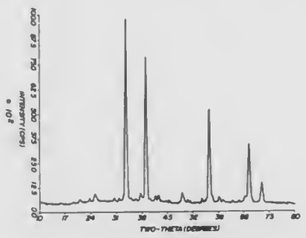
sintering the compressed mixture at a temperature not greater than 1000° C.

5,068,211

REFRACTORY AND ELECTROCONDUCTIVE CERAMIC COMPOSITIONS AND PROCESS FOR THE PREPARATION THEREOF

Giovanni Giunchi, Novara, Italy; Ender Savrun, Tucson, Ariz.; Alberto Grenni, Segrate Milan, Italy, and Ching-Fong Chen, Tucson, Ariz., assignors to Kerag3Im3o4nt Italia S.p.A., Milan, Italy

Filed Feb. 15, 1991, Ser. No. 656,770
Claims priority, application Italy, Feb. 19, 1990, 19409 A/90
Int. Cl.[5] C04B *35/58*
U.S. Cl. 501—98 **21 Claims**



1. Refractory electroconductive ceramic compositions obtained by reactive sintering of aluminum nitride with at least one oxide of a transition metal, selected from the elements belonging to groups IVB, VB, and VIB of the Periodic Chart of the Elements, at a temperature higher than 1450° C. and a pressure higher than or equal to 10 MPa, wherein a portion of the aluminum nitride is converted to alumina and a portion of the at least one oxide is converted into a nitride.

5,068,212

OLEFIN POLYMERIZATION CATALYST AND METHOD FOR PRODUCTION AND USE

Clifford C. Lee, Houston, Tex., and M. Bruce Welch, Bartlesville, Okla., assignors to Phillips Ptroleum Company, Hartlesville, Okla.

Filed Aug. 20, 1990, Ser. No. 569,805
Int. Cl.[5] C08F *4/64*
U.S. Cl. 502—105 **15 Claims**

1. A process for preparing an olefin polymerization catalyst comprising contacting a magnesium dihalide with a halogenated titanium alkoxide to obtain a first solid, washing said first solid until said first solid is substantially free of soluble halogenated titanium alkoxide, then contacting said first solid with titanium tetrachloride to yield a second solid.

5,068,213

COMPONENTS AND CATALYSTS FOR THE POLYMERIZATION OF OLEFINS

Enrico Albizzati, Novara; Giampiero Morini, Pavia; Umberto Giannini, Milan; Luisa Barino, Novara; Raimondo Scordamaglia, Milan; Barbé Pier C., and Luciano Noristi, both of Ferrara, all of Italy, assignors to Hinmont Incorporated, Wilmington, Del.

Filed Mar. 26, 1991, Ser. No. 675,234
Claims priority, application Italy, Mar. 30, 1990, 19891 A/90
Int. Cl.[5] C08F *4/646*
U.S. Cl. 502—126 **6 Claims**

1. A catalyst for the polymerization of olefins comprising the reaction product of:

a) an Al-alkyl compound,

b) an ether containing two or more ether groups and at least one heteroatom selected from the group consisting of N, P, S, Si, non-ether O and halogen atoms, or at least one double bond, or both at least a heteroatom and at least one double bond, and

c) a solid catalyst component comprising a magnesium dihalide in active form having supported thereon a titanium halide or alkoxyhalide and an electron-donor compound, at least 70% in moles of which can be extracted from the solid with Al-triethyl, and wherein the solid catalyst component, after extraction, has a surface area greater than 20 m^2/g.

5,068,214

PROCESS FOR THE PREPARATION OF A CATALYST

Georges Cordier, Francheville; Pierre Fouilloux, Caluire et Cuire, and Jean-Michel Grosselin, Lyon, all of France, assignors to Rhone-Poulenc Sante, Antony, France

Division of Ser. No. 319,189, Mar. 6, 1989, Pat. No. 4,973,768. This application Aug. 28, 1990, Ser. No. 573,866
Claims priority, application France, Mar. 8, 1988, 88 02919
Int. Cl.[5] B01J *23/42, 23/89, 27/20*
U.S. Cl. 502—185 **1 Claim**

1. Process for preparing a catalyst, comprising impregnating a support with a solution of a platinum derivative and an inorganic cobalt salt in quantities such that the Pt/Co ratio expressed in gram-atom/gram-atom is between 1/9 and 9/1 and the sum of the weights of the two metals is between 1 and 10% of the weight of the support, evaporating the solvent, and heating the impregnated support to a temperature between 400° and 500° C. for 4 to 8 hours in a stream of hydrogen; the support is iron-free charcoal having a specific surface area greater than 1000 m^2/g, the platinum derivative is chloroplatinic acid, the cobalt derivative is hydrated cobalt nitrate, and the solvent is an aromatic hydrocarbon containing 1 to 5% of an aliphatic alcohol.

5,068,215

CATALYST FOR UPGRADING LOW MOLECULAR WEIGHT HYDROCARBONS

Joseph P. Bartek, Highland Heights; James F. Brazdil, Jr., Mayfield Heights; John M. Hupp, University Heights, and Robert K. Grasselli, Aurora, all of Ohio, assignors to Standard Oil Company, Cleveland, Ohio

Division of Ser. No. 58,016, Jun. 4, 1987, Pat. No. 4,886,931. This application Dec. 11, 1989, Ser. No. 448,705
Int. Cl.[5] B01J *23/06*
U.S. Cl. 502—208 **12 Claims**

1. A catalyst for the conversion of low molecular weight alkanes to higher molecular weight hydrocarbons, and having the formula

$$Zn_aA_bM_cM'_dO_x$$

wherein

A is Li, Na, K, or mixtures thereof;

M is Al, Ga, Cr, La, Y, Sc, V, Nb, Ta, Cu or mixtures thereof;

M' is Cs, Rb, Mg, Ca, Sr, Ba, Sm, Pb, Mn, Sb, P, Sn, Bi, Ti, Zr, Hf, or mixtures thereof;

a is from about 1 to about 20;

b is from about 0.1 to about 20;

c is from about 0 to about 5;

d is from about 0 to about 20; and

x is a number needed to fulfill the valence requirements of the other elements; provided that

(i) at least one of c and d is at least 0.1;

(ii) when d is 0, M is Al, Ga, Cr, La, Y, Sc, V, Nb, Ta, or mixtures thereof;

(iii) when M is Cu, M' is Mg, Ca, Sr, Ba, Sm, Pb, Sb, P, Sn, Bi, Ti, Zr, Hf, or mixtures thereof; and

(iv) when M' is Sn, Pb, or Bi, c must be at least 0.1.

5,068,216

PILLARING LAYERED SILICATES WITH A MIXTURE OF SWELLING AGENT AND PILLAR PRECURSOR

Ivy D. Johnson, Medford, and Kenneth G. Simmons, Williamstown, both of N.J., assignors to Mobil Oil Corp., Fairfax, Va.

Continuation of Ser. No. 459,213, Dec. 29, 1989, abandoned. This application Apr. 17, 1991, Ser. No. 686,844
Int. Cl.[5] B01J *21/06*
U.S. Cl. 502—241 **6 Claims**

1. A method for preparing a layered silicate material containing interspathic polymeric oxide of at least one element selected from Groups IB, IIB, IIIA, IIIB, IVA, IVB, VA, VB, VIA, VIIA, and VIIIA of the Periodic Table, said method comprising the steps of:

(i) forming an aqueous solution of a sweiling agent and a pillar precursor, said swelling agent being an organic compound which is a cationic species or capable of forming a cationic species, and said pillar precursor being capable of conversion by hydrolysis to form said interspathic polymeric oxide;

(ii) contacting a layered silicate, which contains ion exchange sites having interspathic cations associated therewith, with said mixture of step (i), whereby said organic compound is exchanged with said interspathic cations, and whereby said pillar precursor is provided between the layers of said layered silicate; and

(iii) converting said pillar precursor to interspathic polymeric oxide.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,217

CARRIER CATALYSTS FOR OXIDIZING CARBON MONOXIDE AND PROCESS FOR THEIR PRODUCTION

Holger Falke, Hemmingen, and Guenther Strauss, Hanover, both of Fed. Rep. of Germany, assignors to Gutec, Hanover, Fed. Rep. of Germany

Filed Apr. 9, 1990, Ser. No. 506,345

Claims priority, application Fed. Rep. of Germany, Apr. 29, 1989, 3914294

Int. Cl.[5] **B01J** *23/52, 23/76*

U.S. Cl. 502—330 **22 Claims**

1. A process for producing a carrier catalyst for oxidizing carbon monoxide (CO) at temperatures below about 50° C., comprising the steps of:

a) providing a porous ceramic carrier material containing Fe_2O_3;

b) impregnating said carrier material with a solution of a gold compound and a solution of an iron compound; and

c) calcining the impregnated carrier material containing said gold compound and iron compound at a temperature of at least 200° C.,

wherein said gold compound is applied to the carrier material in such an amount that the gold content is between about 0.01% by weight and about 15% by weight relative to the total weight of the calcined carrier catalyst.

5,068,218

HONEYCOMB METAL CATALYST APPARATUS

Kimiyoshi Nishizawa, Kanagawa, Japan, assignor to Nissan Motor Co., Ltd., Yokohama, Japan

Filed May 23, 1990, Ser. No. 527,441

Claims priority, application Japan, Jun. 1, 1989, 1-140020

Int. Cl.[5] **B01J** *32/00, 35/04*

U.S. Cl. 502—439 **8 Claims**

1. A honeycomb metal catalyst apparatus having a metal catalyst carrier body formed by spirally and alternately winding a first corrugated sheet-metal layer with a relatively large wave pitch P_1 and a second corrugated sheet-metal layer with a relatively small wave pitch P_2 in stacked fashion so as to form a great number of honeycomb gas flow conduits, wherein a ratio of the wave pitch of said first corrugated sheet-metal layer to the wave pitch of said second corrugated sheet-metal layer lies within a range of

$$0.75 < P_2/P_1 < 1.0$$

5,068,219

HIGH STRENGTH SUPERCONDUCTING WIRES AND CABLES EACH HAVING HIGH CURRENT DENSITY, AND A PROCESS FOR FABRICATING THEM

Sadaaki Hagino, Urawa; Motokazu Suzuki, Omiya; Hideyuki Kondo, Omiya; Shigeru Nishikawa, Omiya, and Kenichi Hayashi, Omiya, all of Japan, assignors to Mitsubishi Materials Corporation, Tokyo, Japan

PCT No. PCT/JP89/00198, § 371 Date Dec. 18, 1989, § 102(e) Date Dec. 18, 1989, PCT Pub. No. WO89/08317, PCT Pub. Date Sep. 8, 1989

PCT Filed Feb. 27, 1989, Ser. No. 445,639

Claims priority, application Japan, Feb. 26, 1988, 63-43530; Jun. 26, 1988, 63-43531

Int. Cl.[5] **H01B** *12/00, 12/02;* **H01L** *39/24*

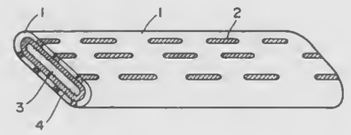
U.S. Cl. 505—1 **6 Claims**

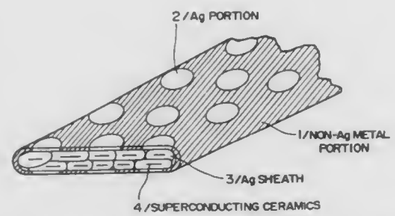
1. A superconducting structural body comprising:

an oxide based superconducting ceramics powder having a perovskite structure, and

a metal sheath surrounding the oxide based superconducting ceramics powder, the metal sheath including an Ag portion and a non-Ag metal portion, the Ag portion extending from an inner to an outer surface of the metal sheath,

the non-Ag metal portion used as a structural material of an outermost layer of the metal sheath, the superconducting ceramics powder portion and the non-Ag metal portion being separated from each other with Ag material therebetween, and the superconducting ceramics powder having a compressed oriented layer in which a C-axis of the





crystal in the superconducting ceramics powder is oriented in a direction of the superconducting structural body, and in which a thickness thereof is not smaller than 5 μm.

5,068,220

BIODEGRADABLE POLYAMIDES FOR PROVIDING A CONTROLLED RELEASE THERAPEUTIC DRUG

David P. Vanderbilt; Donald R. Cowsar, both of Birmingham, Ala.; Richard L. Dunn, Collins, Colo., and James P. English, Birmingham, Ala., assignors to Sharpoint L.P., Reading, Pa.

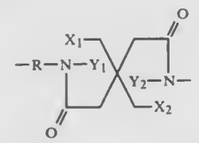
Division of Ser. No. 224,316, Jul. 26, 1988, Pat. No. 4,950,735. This application Jun. 8, 1990, Ser. No. 534,974

Int. Cl.[5] **A61K** *37/26, 31/765*

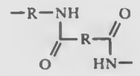
U.S. Cl. 514—3 **5 Claims**

1. A controlled release formulation comprising an organic polymer and an effective amount of a therapeutic drug, wherein the structural formula of said polymer includes

a backbone containing n biradical units of the formula



joined randomly with m biradical units of the formula



wherein

n is a positive integer;

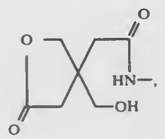
m is either zero or a positive integer;

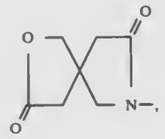
each R independently is a hydrocarbon radical;

X_1 is —OH and Y_1 is —H, or X_1 and Y_1 together constitute a chemical bond in a lactam ring;

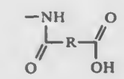
X_2 is —OH and Y_2 is —H, or X_2 and Y_2 together constitute a chemical bond in a lactam ring;

said backbone being capped with a radical selected from





—NH_2, or



when m is a positive integer;

with the proviso that the polymer contains lactam units when m is zero.

5,068,221

TREATMENT OF MOTILITY DISORDERS WITH A GNRH ANALOG

John R. Mathias, 1215 Spring Creek La., Seabrook, Tex. 77586

Filed May 9, 1989, Ser. No. 349,717

Int. Cl.[5] **C07K** *7/00;* **A61K** *37/43, 37/38, 37/00*

U.S. Cl. 514—15 **12 Claims**

1. The process for treating a subject exhibiting the symptoms of Motility Disorders, comprising:

administering to the subject a therapeutically effective dosage of a compound comprising an analog of Gonadotropin Releasing Hormone.

5,068,222

BOMBESIN ANTAGONISTS WITH DELETION OF NET-RESIDUE AT THE C-TERMINUS

Roger Camble, Macclesfield; Ronald Cotton, Congleton; Anand S. Dutta, Stockport, and Christopher F. Hayward, Macclesfield, all of England, assignors to Imperial Chemical Industries PLC, London, England

Filed Nov. 1, 1988, Ser. No. 265,566

Claims priority, application United Kingdom, Nov. 2, 1987, 8725598; Feb. 15, 1988, 8803478; Jun. 6, 1988, 8813355

Int. Cl.[5] **A61K** *37/02;* **C07K** *7/06*

U.S. Cl. 514—15 **9 Claims**

1. A polypeptide of formula I:

$$R^1\text{-}A^1\text{-}A^2\text{-}A^3\text{-}A^4\text{-}A^5\text{-}A^6\text{-}A^7\text{-}A^8\text{-}A^9\text{-}Q \qquad I$$

wherein

R^1 is hydrogen or (1-6C)alkyl which may optionally bear a phenyl substituent, and wherein said phenyl substituent may optionally bear a substituent selected from halogeno, (1-4C)alkyl, (1-4C)alkoxy, hydroxy, cyano and nitro, or R^1 is (2-6C)alkanoyl which may optionally bear one or more substituents selected from carboxy, (1-4C)alkoxycarbonyl, amino, (1-4C)alkylamino, di[(1-4C)alkyl]amino, phenyl, phenoxy, naphthyl, imidazolyl, napthyloxy, pyridyl, indolyl and thienyl, and wherein any one or more of said aryl, phenoxy, naphthyloxy or heteroaryl groups may optionally bear one or more substituents selected from halogeno, (1-4C)alkyl, (1-4C)alkoxy, hydroxy, cyano and nitro; or

R^1 is (4-6C)cycloalkoxycarbonyl; or R^1 is (1-4C)alkoxycarbonyl which may optionally bear one or two phenyl substituents and wherein either one or both of said phenyl substituents may optionally bear a halogeno, nitro or (1-4C)alkoxy substituent;

wherein A^1 is a direct link to A^2, or is Gly, Arg, D-Arg, Lys, Lys(Z), Phe, D-Phe, Asp, L-Nal, D-Nal, D-pcF, D-pfF, D-dcF, Pro, D-Deh, βAla or Glp;

wherein A^2 is a direct link to A^3, or is Gly, Pro or Asn;

wherein A^3 is a direct link to A^4, or is Lys, Lys(Z), D-Nal or D-pcF;

wherein A^4 is His, D-His, MeHis, EtHis, PrHis, His(τ-Me), His(π-Me), D-Gln, D-Glu(OMe), D-Glp, Leu, D-Leu, MeLeu, Lys, Pal, D-Pal, Phe, D-Phe, Pro, Arg, Glu, His(COPh), Trp or Thr;

wherein A^5 is Trp, MeTrp, Trp(Me), Trp(For), Val, DL-Flg, L-Nal, pcF, Leu, Lys, Pal, Cha, Lys(Z(2Cl)) or Lys($COCH_3$);

wherein A^6 is Ala, MeAla, Aib, Gly, Pro, Leu, Phe, D-Phe, Ser, Val, L-Nal, Thr, Arg or Glu;

wherein A^7 is Val, MeVal, Aib, Leu, Ile, Thr(CH_2Ph), Thr, Phe, D-Phe, Lys(Z(2Cl)), Ser or DL-Flg;

wherein A^8 is Gly, Sar, Ala, D-Ala, D-Ser, D-Ser(CH_2Ph), D-pcF, D-Ala(NH_2), D-Ala(NHZ(Cl)), Aib, D-Pro, D-Lys, Asp, D-Arg, D-Lys(Z(2Cl)), Val, Ac^3c, Ac^5c or Ac^6c;

wherein A^9 is His, MeHis, His(τ-Me), His(π-Me), D-pcF, Aib, Val, Leu, MeLeu, Ala, Ile, Ahx, Ape, Met, Pro, Phe, D-Phe, Gln, Lys, Lys(Z), Pal, Ser, Ser(CH_2Ph), Thr, Thr(CH_2Ph), Glu, Asp, Asp(OBu^t), Trp or L-Nal; and

wherein Q is a group of the formula $-A^{10}.R^2$ in which A^{10} is Leu, D-Leu, MeLeu, Ile, MeIle, Ahx, MeAhx, Aib, Pro, Val, MeVal, Phe, Ape, MeApe, Met, Ser, Gln, Glu or Trp and R^2 is hydroxy or amino; or R^2 is (1-3C)alkylamino, dialkylamino of up to 4 carbon atoms, or (1-3C)alkoxy, each optionally bearing a hydroxy, (1-3C)alkoxy, amino, (1-6C)alkylamino, dialkylamino of up to 8 carbon atoms, or phenyl-(1-3C)alkylamino substituent, other than in a position alpha to an oxygen or nitrogen atom, or a fluoro-(1-3C)alkyl or phenyl substituent; or

R^2 is (3-6C)cycloalkylamino, N-alkyl-N-cycloalkylamino of up to 8 carbon atoms, or dicycloalkylamino of up to 12 carbon atoms; or R^2 is 1-pyrrolidinyl, piperidino, morpholino, 1-piperazinyl or 4-methylpiperazin-1-yl; or

Q is (1-6C)alkoxy, (1-10C)alkylamino or dialkylamino of up to 10 carbon atoms each optionally bearing a hydroxy, amino, (1-3C)alkoxy, (1-6C)alkylamino, dialkylamino of up to 8 carbon atoms, phenyl-(1-3C)alkylamino substituent, other than in a position alpha to an oxygen or nitrogen atom, or a phenyl substituent; or Q is phenyl-(1-3C)alkylamino; or

Q is (3-6C)cycloalkylamino, N-alkyl-N-cycloalkylamino of up to 8 carbon atoms or dicycloalkylamino of up to 12 carbon atoms; or Q is 1-azetidinyl, 1-pyrrolidinyl, piperidino, morpholino, 1-piperazinyl or 1-homopiperidinyl each optionally bearing on any available position, including on any available nitrogen atom, a substituent selected from (1-6C)alkyl, phenyl and phenyl-(1-3C)alkyl; and wherein within R^2 or Q a phenyl group may optionally bear a substituent selected from halogeno, (1-4C)alkyl, (1-4C)alkoxy, hydroxy and cyano;

or a pharmaceutically-acceptable salt of said polypeptide; provided that when $-A^4\text{-}A^5\text{-}A^6\text{-}A^7\text{-}A^8\text{-}A^9\text{-}A^{10}$- is -His-Trp-Ala-Val-Gly-His-Leu-, and $-A^1\text{-}A^2\text{-}A^3$- is a direct link, then R^1 is not hydrogen or acetyl.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,223

HYDROPHOBIC PEPTIDE ESTERS AND AMIDES

Peter E. Lipsky, and Dwain L. Thiele, both of Dallas, Tex., assignors to Board of Regents, University of Texas System

Continuation-in-part of Ser. No. 168,177, Mar. 15, 1988, which is a continuation of Ser. No. 774,051, Sep. 9, 1985, Pat. No. 4,752,603. This application Mar. 15, 1989, Ser. No. 324,151
The portion of the term of this patent subsequent to Jun. 21, 2005, has been disclaimed.
Int. Cl.[5] A61K *37/02*
U.S. Cl. 514—019 28 Claims

1. A method for deactivating natural killer cells or cytotoxic T-lymphocytes comprising the step of treating said cells with an aqueous solution comprising a biologically effective level of a dipeptide in ester of N-substituted amide form, said dipeptide containing at least one of L-leucine, L-phenylalanine, L-valine, L-isoleucine, L-alanine, L-proline, glycine, and L-aspartic acid beta methyl ester, said ester form being an alkyl, aryl, alkaryl or aralkyl ester and said N-substituted amide form being an aryl, aralkyl or alkaryl N-substituted amide.

5,068,224

METHOD OF IMPROVING REGENERATION OF TRANSFECTED PERIPHERAL NERVES USING IGF-1

Linda Fryklund, Sollentuna; Hans A. Hansson, Hovas; Martin Kanje, Sodra Sandby, and Anna Skottner, Ekero, all of Sweden, assignors to KabiVitrum AB, Sweden

Filed Sep. 16, 1988, Ser. No. 245,146
Claims priority, application Sweden, Sep. 18, 1987, 8703625
Int. Cl.[5] A61K *37/24*
U.S. Cl. 514—21 6 Claims

1. A method for improving the regeneration of transected peripheral nerves in mammals, by administering a therapeutically effective amount of insulin-like growth factor I (IGF-1) to ganglia in the affected nerves of a mammalian host in need of such treatment.

5,068,225

VISCOELASTIC FLUID FOR USE IN SURGERY AND OTHER THERAPIES AND METHOD OF USING SAME

Phillip E. Pennell, Denver, Colo.; John M. Blackmore, Redwood, Calif., and Mark D. Allen, Lakewood, Calif., assignors to MDR Group, Inc., Denver, Colo.

Continuation of Ser. No. 266,648, Nov. 3, 1988, Pat. No. 4,983,585, which is a continuation-in-part of Ser. No. 45,326, May 4, 1987, abandoned. This application Aug. 10, 1990, Ser. No. 565,491
The portion of the term of this patent subsequent to Jan. 8, 2008, has been disclaimed.
Int. Cl.[5] A61K *31/715, 47/00*
U.S. Cl. 514—57 9 Claims

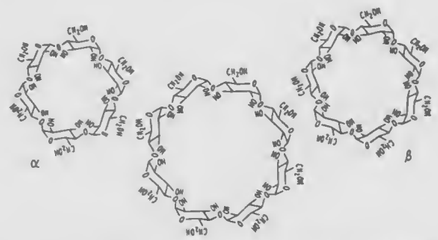
1. A method of protecting the intraocular surfaces of an eye of a mammal during ophthalmic surgery including the steps of:
introducing into the eye as an aqueous/vitreous substitute, in order to protect internal eye tissues, a viscoelastic composition which comprises a solution of a cellulose derivative and polyethylene oxide (PEO in a physiologically compatible liquid, the composition being physiologically compatible with the intraocular surfaces of eye of the mammal; and
performing the ophthalmic surgery.

5,068,226

PHARMACEUTICAL PREPARATIONS CONTAINING CYCLODEXTRINS AND THEIR USE IN IONTOPHORETIC THERAPIES

Ned M. Weinshenker, Palo Alto, and William P. O'Neill, Los Altos, both of Calif., assignors to Cyclex, Inc., New Brunswick, N.J.

Continuation of Ser. No. 129,187, Dec. 7, 1987, abandoned. This application Apr. 30, 1990, Ser. No. 516,295
Int. Cl.[5] A01N *43/04;* A61F *13/60*
U.S. Cl. 514—58 17 Claims



1. A method for the iontophoretic administration of a pharmacologically active agent to a mammalian patient comprising:
(a) contacting an epithelial surface of the patient with a pharmaceutical preparation comprising:
(i) a cyclodextrin;
(ii) an effective concentration of the pharmacologically active agent that forms with the cyclodextrin an inclusion complex having a net ionic charge;
(iii) a water-based fluid carrier medium in which the active agent is dispersed and in admixture with the cyclodextrin; and thereafter
(b) applying to the preparation on the surface an electrical current effective to bring about iontophoretic transport to the pharmacologically active agent across the surface into the patient's body.

5,068,227

CYCLODEXTRINS AS CARRIERS

Ned M. Weinshenker, Palo Alto, Calif., assignor to Cyclex, Inc., New Brunswick, N.J.

Filed Jan. 18, 1989, Ser. No. 298,634
Int. Cl.[5] A61K *31/70;* C08B *37/16;* G01N *33/533*
U.S. Cl. 514—58 28 Claims

1. An active agent-tagged biorecognition molecule comprising said biorecognition molecule covalently bonded to a cyclodextrin with said active agent noncovalently included within the cavity of the cyclodextrin.

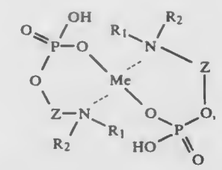
5,068,228

USE OF A METAL CHELATE OF AN ALKYLAMINOESTER OF PHOSPHORIC ACID FOR PROPHYTLAXIS OR THERAPY OF A NEUROPATHY

Gernot Köhler, Neue Bergstrasse 3 - 7, 6146 Alsbach-Hähnlein, Fed. Rep. of Germany

Filed Aug. 11, 1988, Ser. No. 231,015
Claims priority, application Fed. Rep. of Germany, Aug. 11, 1987, 3726721
Int. Cl.[5] A01N *57/10;* A61K *31/66*
U.S. Cl. 514—114 25 Claims

1. A pharmaceutically effective composition for the therapeutic treatment of a patient having neuropathies of the peripheral nervous system whose pathogenesis is attributable to changes in the nerve cells and which reduces the conduction velocity thereof, comprising a pharmaceutically effective amount of a compound which is selected from a group of compounds having the structural formula:



wherein Me is calcium R_1 and R_2 each means hydrogen or a lower alkyl radical (n=1, 2) or a combination of both, Z means a lower alkyl radical of straight or branched chain (n=1, 2, 3, 4) or a monocarboxylic acid (n=2, 3, 4) or a combination of alkyl radical and monocarboxylic acid, and wherein n identifies the number of carbon atoms.

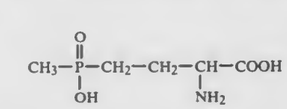
5,068,229

INSECTICIDAL METHOD

Marc Benoit, Roquevaire, and Jean-Pierre Demoute, Auriol, both of France, assignors to Roussel Uclaf, Paris, France

Filed Jul. 23, 1990, Ser. No. 557,186
Int. Cl.[5] A01N *57/00*
U.S. Cl. 514—114 9 Claims

1. A method of combatting insects comprising contacting the insects with an insecticidally effective amount of at least one member of the group consisting of glufosinate of the formula



I

and its salts.

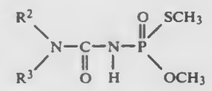
5,068,230

N-(((ALKOXY(ALKYLTHIO)PHOSPHINYL)AMINO)-CARBONYL)-AMINOALKANOATE ESTER INSECTICIDES

Walter Reifschneider, Walnut Creek; Barat Bisabri-Ershadi, Davis; James E. Dripps, Concord, and J. Brian Barron, Benicia, all of Calif., assignors to The Dow Chemical Company, Midland, Mich.

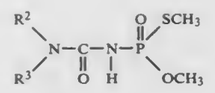
Filed Oct. 10, 1989, Ser. No. 419,056
Int. Cl.[5] A01N *57/28, 57/30*
U.S. Cl. 514—115 18 Claims

1. A compound of the formula



wherein
R represents C_1–C_4 alkyl;
R^2 represents —$CH(R^4)$—$(CH_2)_n$—A and R^3 represents H or C_1–C_4 alkyl;
A represents CO_2R or $CONR^5{}_2$;
R^4 represents H, C_1–C_4 alkyl, —$(CH_2)_m$—A, —$(CH_2)_m$—SCH_3, or —C_6H_5;
each R^5 independently represents H or C_1–C_4 alkyl;
m represents 1 or 2; and
n represents 0, 1, or 2.

11. A method of controlling insects which comprises contacting the insects or the locus thereof or the plants on which the insects feed or the locus thereof with an insecticidally effective amount of a compound of the formula



wherein
R represents C_1–C_4 alkyl;
R^2 represents —$CH(R^4)$—$(CH_2)_n$—A and R^3 represents H or C_1–C_4 alkyl;
A represents CO_2R or $CONR^5{}_2$;
R^4 represents H, C_1–C_4 alkyl, —$(CH_2)_m$—A, —$(CH_2)_m$—SCH_3, or —C_6H_5;
each R^5 independently represents H or C_1–C_4 alkyl;
m represents 1 or 2; and
n represents 0, 1, or 2.

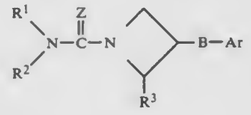
5,068,231

METHOD OF TREATING MUSCULAR TENSION, MUSCLE SPASTICITY AND ANXIETY WITH 3-ARYLOXY AND 3-ARYLTHIOAZETIDINECARBOXAMIDES

Chandler R. Taylor, Jr.; Albert D. Cale. Jr., both of Mechanicsville; David N. Johnson, Richmond, and Harold F. Stauffer. Jr., Midlothian, all of Va., assignors to A. H. Robins Company Incorported, Richmond, Va.

Continuation-in-part of Ser. No. 706,632, Feb. 28, 1985, abandoned. This application Oct. 22, 1986, Ser. No. 921,521
Int. Cl.[5] A61K *31/55, 31/495, 31/40, 31/395*
U.S. Cl. 514—210 112 Claims

1. A method of treating muscle tension and muscle spasticity in mammals in need thereof by administering an effective amount of about 4–40 mg/kg body weight per day of a compound selected from the group having the formula:



wherein:
Ar is selected from pyridyl in any of its positions optionally substituted by halo, from phenyl or phenyl substituted by 1 or 2 groups selected from chloro, bromo, iodo, fluoro, loweralkyl, loweralkoxy, nitro, aminocarbonyl, or trifluoromethyl;
B is oxygen or sulfur;
Z is oxygen or sulfur;
R^1 and R^2 may be the same or different and are selected from hydrogen, loweralkyl, aryl, allyl, substituted allyl, propargyl, cycloalkyl (3–9C), loweralkylcycloalkyl, cycloalkylloweralkyl, arylloweralkyl, and diloweralkylaminoloweralkyl, and R^1 and R^2 when taken together with the adjacent nitrogen atom may form a heterocyclic amino group selected from azetidinyl, pyrrolidinyl, piperidinyl, homopiperidinyl, imidazolyl, piperazinyl, (halophenyl)-piperidine-yl, phenyl-1,2,3,6-tetrahydropyridin-1-yl, phenylpiperidin-1-yl, hydroxypiperidin-1-yl, 4-morpholino, 4-(3,5-diloweralkyl)morpholino, 1,2,3,6-tetrahydropyridin-1-yl, (halophenyl) (hydroxy)piperidin-1-yl, 4-(2,6-diloweralkyl)morpholino pyrrolo[1,2-a]pyrazin-2-yl, homopiperazinyl, 4-substituted piperazinyl, and 4-substituted homopiperazinyl.
R^3 is selected from hydrogen, loweralkyl, aryl or arylloweralkyl; the geometrical isomers thereof, and the pharmaceutically acceptable acid addition salts thereof when R^1 and R^2 have one or more salt-forming basic amino components or Ar is pyridyl, and the hydrates thereof, with the proviso that when R^3 is hydrogen, Z is oxygen, B is oxy-

VOL 1132 ISS 4 NO 26 1991 UMI

gen, and Ar is phenyl or phenyl substituted by trifluoromethyl or aminocarbonyl, if R^1 is hydrogen, R^2 is other than loweralkyl, and if R^2 is loweralkyl, R^1 is other than hydrogen.

5,068,232

NOVEL 2-SUBSTITUTED ALKYL-3-CARBOXY CARBAPENEMS AS ANTIBIOTICS AND A METHOD OF PRODUCING THEM

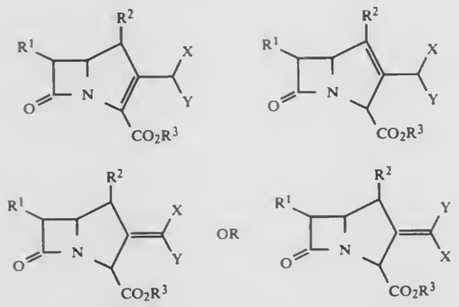
Carl B. Ziegler, Jr.; William V. Curran, both of Pearl River, and Gregg Feigelson, Spring Valley, all of N.Y., assignors to American Cyanamid Company, Stamford, Conn.

Filed Apr. 10, 1990, Ser. No. 507,271

Int. Cl.[5] **C07D** *477/00;* **A01K** *31/40*

U.S. Cl. 514—210 **8 Claims**

I. A 2-substituted alkyl-3-carboxy carbapenem compound having the formula:



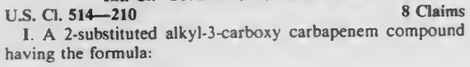
wherein R^1 is hydrogen; a straight-chain or branched lower alkyl group selected from ethyl, n-propyl, n-butyl, isobutyl, sec-butyl, tert-butyl, n-pentyl, or isopentyl; a straight-chained or branched lower alkoxy group selected from methoxy, ethocy, n-propoxy; isopropoxy, n-butoxy, isobutoxy, sec-butoxy, or tert-butoxy; or an R^4 B group (wherein R^4 is a hydroxyl group; a lower alkoxy group selected from methoxy, ethoxy, n-propoxy, or isopropoxy; fluoride; an acyloxy group selected from acetoxy, propionyloxy, n-butyryloxy, or isobutyryloxy; or an aralkyloxycarbonyloxy group selected from benxyloxycarbonyloxy or p-nitrobenzyloxycarbonyloxy; a lower alkylsulfonyloxy group selected from methanesulfonyloxy, ethanesulfonyloxy, or propanesulfonyloxy; an arylsulfonyloxy group selected from benzenesulfonyloxy or p-toluenesulfonyloxy; a lower trialkylsilyloxy group selected from trimethylsilyloxy or tert-butyldimethylsilyloxy; a mercapto group; a lower alkylthio group selected from methylthio, ethylthio, n-propylthio, or isopropylthio; an amino group; or a lower aliphatic acylamino group selected from acetylamino, propionylamino, n-butyrylamino, or isobutyrylamino; and B is an alkylene group that may have trifluoromethyl or phenyl substituents, selected from methylene, ethylene, ethylidene, trimethylene, propylidene, isopropylidene, tetramethylene, butylidene, pentamethylene, pentylidene, 2,2,2-trifluoroethylidene, 3,3,3-trifluoropropylidene, or benzylidene);

R^2=hydrogen, C_1–C_6 alkyl, phenyl and C_1–C_6 alkyl substituted phenyl;

R^3 is a hydrogen atom; a straight-chain or branched lower alkyl group selected from methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl, or tert-butyl; a lower haloalkyl group selected from 2-iodoethyl, 2,2-dibromoethyl, or 2,2,2-trichloroethyl; a lower alkoxymethyl group selected from methoxymethyl, ethoxymethyl, n-propoxymethyl, isopropoxymethyl, n-butoxymethyl, or isobutoxymethyl; a lower aliphatic acyloxymethyl group selected from acetoxymethyl, propionyloxymethyl, n-butyryloxymethyl, isobutyryloxymethyl, or pivaloyloxymethyl; a 1-(lower alkoxy)carbonyloxyethyl group selected from 1-methoxycarbonyloxyethyl, 1-ethoxycarbonyloxyethyl, 1-n-propoxycarbonyloxyethyl, 1-isopropoxycarbonyloxyethyl, 1-n-butoxycarbonyloxyethyl, or 1-isobutoxycarbonyloxyethyl; an aralkyl group selected from benzyl, p-methoxybenzyl, o-nitrobenzyl, or p-nitrobenzyl; a benzhydryl group; a phthalidyl group, a silyl selected from trimethylsilyl or t-butyldimethylsilyl or 2-trimethylsilylethyl; an allylic group selected from allyl, 2-chloro-2-propenyl, 2-butenyl, 3-methyl-2-butenyl or 2-cinnamyl or water soluble cation selected from lithium, sodium, potassium, ammonium or tetraalkyl ammonium (alkyl of C_1–C_4);

X=F, Cl, Br, I;

Y=CO_2H, CO_2R^{16},



SO_2R^{17}, SOR^{17}, SR^{17}, F, Cl, Br,I;

R^{16}=a straight-chain or branched lower alkyl group selected from methyl, ethyl, n-propyl, isopropyl, n-butyl, isobutyl; a lower haloalkyl group selected from 2-chloroethyl, 3-chloropropyl, 2-iodoethyl, 2,2-dibromoethyl or 2,2,2-trichloroethyl; a lower trimethylsilylalkyl group selected from 2-trimethylsilylethyl; substituted allyl selected from 2-chloro-2-propenyl, 3-methyl-2-propenyl, 3-methyl-2-butenyl, 3-phenyl-2-propenyl; a lower alkyl-t-butyldimethylsiloxy group of 2–4 carbon atoms selected from 2-[t-butyldimethylsiloxy]ethyl or 2-[t-butyldimethylsiloxy]propyl; a lower alkyl-hydroxy group of 2–4 carbon atoms selected from 2-hydroxyethyl, 3-hydroxylpropyl or 3-hydroxy-n-butyl; phenyl; an alkylheteroaryl group with 1–3 carbon atoms in the alkyl chain attached to a 5- or 6-membered heteroaryl ring that contains 1–4 o, N or S atoms attached through a ring carbon or nitrogen; a alkylheterocycle group with 1–3 carbon atoms in the alkyl chain attached to a 5- or 6-membered ring that contains 1–4 O, N or S atoms attached through a ring carbon or ring nitrogen;

R^{17}=1) a phenyl ring, optionally substituted by 1–3 substituents independently selected from 1a) halogens (F, Cl, Br, I) and/or trifluoromethyl; 1b) C_1–C_4 branched or linear alkyl; 1c) hydroxy or protected hydroxy group, amino or protected amino group, thiol or protected thiol group; 1d) alkenyl and alkynyl groups having 1–4 carbon atoms selected from ethenyl, 1-propenyl, 2-propenyl, 3-propenyl, ethylnyl, 1-proynyl; 1e) a carboxy or carboxamido group; 1f) a 5- or 6-membered heteroaryl ring that contains 1–4 O, N or S atoms attached through a ring carbon or nitrogen; 1g) a heterocycle group that contains 1–4 O, N or S atoms attached through a ring carbon or nitrogen;

2) a fused phenyl ring, optionally one that is fused to a 5- or 6-membered heteroaryl ring containing 1–3 O, N or S atoms and optionally substituted by 1–3 substituents independently selected from 1a) through 1e) above;

3) a 5- or 6-membered heteroaryl ring that contains 1–4 O, N or S atoms attached through a ring carbon and optionally substituted by 1–3 substituents independently selected from 1a) through 1e) above; or fused to another unsaturated ring selected from a phenyl ring or a 5- to 6-membered saturated or unsaturated heterocyclic ring containing 1–3 O, N or S atoms;

R^{18} and R^{19} are independently selected from hydrogen; substituted or unsubstituted alkyl having from 1–10 carbon atoms; substituted or unsubstituted cycloalkyl having from 1–10 carbon atoms; aralkyl, selected from phenyl alkyl and heterocycloalkyl wherein the alkyl has 1–6 carbon atoms and the heteroatom or atoms are selected from O, N and S; and cyclic group wherein R^{18} and R^{19} together form a ring which optionally may be substituted by amino, mono, di- and trialkylamino (each alkyl having 1–6 C atoms), hydroxyl, carboxyl, alkoxyl having from 1–6 carbon atoms, halo such as chloro, bromo, fluoro, nitro, sulfonamido, phenyl, benzyl and alkoxylcarbonyl having 1–3 carbon atoms in the alkoxy moiety.

5,068,233

SYNERGISTIC COMBINATION OF AZELASTINE AND THEOPHYLLINE OR AZELASTINE AND α-MIMETICS

Ute Achterrath-Tuckerman, Maintal; Rudolf Aurich, Karben; Jürgen Engel, Alzenau; Helmut Hettche, Dietzenbach, and Axel Kleeman, Mühlheim/M, all of Fed. Rep. of Germany, assignors to Asta Pharma Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Continuation of Ser. No. 144,176, Jan. 15, 1988, abandoned. This application Dec. 11, 1989, Ser. No. 449,318

Claims priority, application Fed. Rep. of Germany, Jan. 17, 1987, 3701287

Int. Cl.[5] **A61K** *31/55*

U.S. Cl. 514—212 **9 Claims**

1. A pharmaceutical composition useful for the treatment of asthmatic, antiallergic and antihistaminic symptoms and also with asthma prophylactic activity containing as active substances a member of the group consisting of (a) a synergistic combination of azelastine and theophylline in an amount of 3 to 5000 parts by weight for each part by weight of azelastine, or (b) a synergistic combination of azelastine and at least one β-mimetic or salts of these compounds with physiologically acceptable acids in an amount of 0.0003 to 1000 parts by weight for each part of weight of azelastine.

5,068,234

3-ARYLCARBONYL-1-(C-ATTACHED-N-HETERYL)-1H-INDOLES

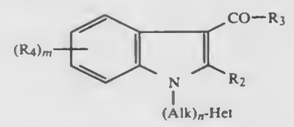
Thomas E. D'Ambra, North Greenbush; Edward R. Bacon; Malcolm R. Bell, both of East Greenbush; Philip M. Carabateas, Schodack; Michael A. Eissenstat, West Sand Lake; Virendra Kumar, Colonie; John P. Mallamo, Kinderhook Township, Columbia County, and Susan J. Ward, East Greenbush, all of N.Y., assignors to Sterling Drug Inc., New York, N.Y.

Filed Feb. 26, 1990, Ser. No. 484,759

Int. Cl.[5] **C07D** *417/06, 413/06;* **A61K** *31/54, 31/535*

U.S. Cl. 514—235.2 **18 Claims**

I. A member of the group consisting of (A) compounds having the formula:



where:

R_2 is hydrogen or lower-alkyl;

R_3 is phenyl (or phenyl substituted by from one to two substituents selected from halogen, lower-alkoxy, hydroxy, lower-alkyl, nitro, amino, lower-alkylamino, dilower-alkylamino, lower-alkylmercapto, lower-alkylsulfinyl, lower-alkylsulfonyl and methylenedioxy), 2- or 4-biphenyl of 1- or 2-naphthyl (or 1- or 2-naphthyl substituted by from one to two substituents selected from lower-alkyl, lower-alkoxy, halogen, lower-alkylmercapto, lower-alkylsulfinyl, lower-alkylsulfonyl and trifluoromethyl);

R_4 is hydrogen, lower-alkyl, hydroxy, lower-alkoxy or halogen at the 4-, 5-, 6- or 7-positions;

m is 1 or 2

Alk is lower-alkylene containing from one to four carbon atoms which may contain a lower-alkyl group;

Het is an aliphatic heterocycle selected from the group consisting of 2- or 3-morpholinyl (or 2- or 3-morpholinyl substituted on any available carbon atom thereof by lower-alkyl and 2- or 3-thiomorpholinyl (or the S-oxides thereof, or 1,1-dioxide 2- or 3-thiomorpholinyl, or the S-oxides thereof, substituted on any available ring carbon atom thereof by lower-alkyl), where each of said Het groups may be either unsubstituted on the nitrogen atom thereof or substituted thereon by a lower-alkyl, benzyl, lower-alkoxybenzyl or benzhydryl group; and

n is 0 or 1, except that n is not 0 when the Alk moiety is attached to a ring carbon atom adjacent to a ring N, O or S atom of a Het group; and (B) pharmaceutically-acceptable acid-addition and lower-alkyl quaternary ammonium salts thereof.

5,068,235

DIAZABICYCLOALKANE DERIVATIVE

Etsuo Hasegawa, Omiya; Akibiro Kawaguchi, Honjo; Makoto Kajitani, Saitama; Mitsugi Yasumoto, Honjo; Nobuo Kasahara, and Junji Yamamoto, both of Tokushima, all of Japan, assignors to Taiho Pharmaceutical Company, Limited, Tokyo, Japan

PCT No. PCT/JP89/01316, § 371 Date Aug. 16, 1990, § 102(e) Date Aug. 16, 1990, PCT Pub. No. WO90/07509, PCT Pub. Date Jul. 12, 1990

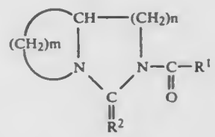
PCT Filed Dec. 27, 1989, Ser. No. 566,456

Claims priority, application Japan, Dec. 28, 1988, 63-335159

Int. Cl.[5] **A61K** *31/505, 31/44, 31/415;* **C07D** *515/02*

U.S. Cl. 514—258 **9 Claims**

1. A diazabicycloalkane derivative represented by the formula



(I)

wherein R^1 is a phenyl group, thienyl group or furyl group, the phenyl group may have a lower alkoxyl, a lower alkyl or a halogen atom as a substituent, R^2 is an oxygen atom or a sulfur atom, m is 3 or 4, and n is 1 or 2, provided that when m is 4 and n is 1, R^1 is not a phenyl group.

5,068,236

XANTHINE DERIVATIVES

Fumio Suzuki, Mishima; Junichi Shimada, Shizuoka; Kazuhiro Kubo; Tetsuji Ohno, both of Shizuoka, all of Japan; Akira Karasawa, Huntingdon Valley, Pa.; Akio Ishii, and Hiromi Nonaka, both of Shizuoka, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

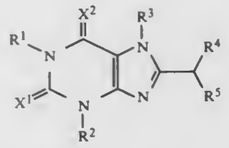
Filed Mar. 1, 1990, Ser. No. 486,831

Claims priority, application Japan, Mar. 6, 1989, 1-53376; Sep. 1, 1989, 1-226643

Int. Cl.[5] **A61K** *31/52;* **C07D** *473/00*

U.S. Cl. 514—263 **5 Claims**

1. A xanthine compound represented by the following formula:



wherein each of R^1, R^2 and R^3 independently represents hydrogen or lower alkyl; each of R^4 and R^5 independently represents substituted or unsubstituted alicyclic alkyl, and each of

VOL 1132 ISS 4 NO 26 1991 UMI

X^1 and X^2 independently represents oxygen or sulfur, or its pharmaceutically acceptable salt.

5. A diuretic, renal-protecting and vasodilative composition comprising a pharmaceutical carrier and, as an active ingredient, an amount of a xanthine compound as defined by claim 1, effective to have diuretic, renal protective and vasodilative activity, or a pharmaceutically acceptable salt thereof.

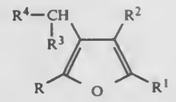
5,068,237

SUBSTITUTED FURANS AND DERIVATIVES THEREOF ACTING AT MUSCARINIC RECEPTORS

Sheila H. Hobbs, Dexter, Mich., assignor to Warner-Lambert Company, Morris Plains, N.J.

Filed May 21, 1990, Ser. No. 526,406
Int. Cl.[5] A61K *31/415;* C07D *405/06*
U.S. Cl. 514—365 6 Claims

1. A compound of Formula I



I

wherein R, R^1, and R^2 are each independently hydrogen, alkyl of from one to ten carbon atoms, alkynyl of from two to ten carbon atoms, phenyl or phenyl substituted by one to four substituents selected from the group consisting of alkyl, alkoxy, thioalkoxy, halogen, and trifluoromethyl; R^3 is hydrogen, hydroxy or alkoxy of from one to ten carbon atoms; and R^4 is selected from the group consisting of

a pharmaceutically acceptable acid addition salt thereof.

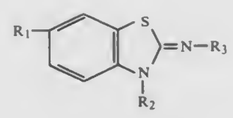
5,068,238

2-ALKYLIMINOBENZOTHIAZOLINE DERIVATIVES, PROCESSES FOR PREPARING THEM AND MEDICINAL PRODUCTS CONTAINING THEM

Patrick Jimonet, Villepreux, and Conception Nemecek, Choisy le Roi, both of France, assignors to Rhone-Poulenc Sante, Antony Cedex, France

Filed Jun. 29, 1990, Ser. No. 545,822
Claims priority, application France, Jul. 13, 1989, 89 09481
Int. Cl.[5] C07D *277/82;* A61K *31/425*
U.S. Cl. 514—367 4 Claims

1. A compound of formula:



(I)

in which

R_1 represents a polyfluoroalkoxy radical,

R_2 represents an alkylthioalkyl, alkylsulphinylalkyl or alkylsulphonylalkyl radical, and

R_3 represents an alkyl radical,

on the understanding that the alkyl radicals and alkyl and alkoxy portions contain 1 to 4 carbon atoms in a straight or branched chain, as well as its addition salts with an inorganic or organic acid.

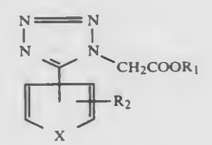
5,068,239

TETRAZOLEACETIC ACID DERIVATIVES AND USE FOR ALDOSE REDUCTASE INHIBITORY ACTIVITY

Sinji Inukai, Hatano; Mitsuzi Agata, Kanagawa; Manami Umezawa, Morinosato; Yoshihiro Horio, Hatano; Yasuhiro Ootake, Minami-ashigara; Shohei Sawaki, Kanagawa, and Masayoshi Goto, Isehara, all of Japan, assignors to Wakamoto Pharmaceutical Co., Ltd., Tokyo, Japan

Filed Sep. 24, 1990, Ser. No. 588,057
Claims priority, application Japan, Oct. 3, 1989, 1-257086
Int. Cl.[5] C07D *257/04;* A61K *31/41*
U.S. Cl. 514—381 20 Claims

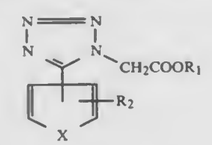
1. A tetrazoleacetic acid derivative represented by the following general formula (I):



(I)

[in Formula (I), R_1 represents a hydrogen atom or an alkyl group; R_2 represents a hydrogen atom, an alkyl group, an aralkyl group, a halogen atom, a haloalkyl group, a hydroxyl group, an alkoxy group, an alkoxyalkyl group, an amino group, an aryl group, an alkyl or aryl thio group, an alkyl or aryl carbonylamino group, an alkyl or aryl sulfonylamino group, an alkyl or aryl aminosulfonyl group, an alkyl or aryl sulfonyl group or an alkyl or aryl sulfinyl group; and X represents —O— or —S—] except for [5-(2-thienyl)tetrazol-1-yl] acetic acid, [5-(2-furyl)tetrazol-1-yl] acetic acid and ethyl esters thereof, or a salt thereof.

13. A method for alleviating or reducing diabetic complications wherein a tetrazoleacetic acid derivative represented by the following general formula (II):



(II)

[in Formula (II), R_1 represents a hydrogen atom or an alkyl group; R_2 represents a hydrogen atom, an alkyl group, an aralkyl group, a halogen atom, a haloalkyl group, a hydroxyl group, an alkoxy group, an alkoxyalkyl group, an amino group, an aryl group, an alkyl or aryl thio group, an alkyl or aryl carbonylamino group, an alkyl or aryl sulfonylamino group, an alkyl or aryl aminosulfonyl group, an alkyl or aryl sulfonyl

group or an alkyl or aryl sulfinyl group; and X represents —O— or —S—] or a salt thereof is used.

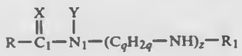
5,068,240

ANTITUMOR PHARMACEUTICAL COMPOSITIONS AND PROCESS FOR PREPARING THE SAME

Ádám Kovacs, Buza u 2, H-2097 Pilisborosjenö, Hungary

PCT No. PCT/HU84/00062, § 371 Date Aug. 20, 1985, § 102(e) Date Aug. 20, 1985, PCT Pub. No. WO85/02769, PCT Pub. Date Jul. 4, 1985
Continuation-in-part of Ser. No. 346,369, Apr. 28, 1989, abandoned, which is a continuation of Ser. No. 770,349, Aug. 20, 1985, abandoned. This PCT application Dec. 18, 1984, Ser. No. 533,943
Claims priority, application Hungary, Dec. 20, 1983, 4348/83
Int. Cl.[5] A61K *31/21, 31/26, 31/415*
U.S. Cl. 514—401 13 Claims

1. A method for the treatment of a patient affected by malignant cells which are sensitive to a compound of formula I, said method comprising administering to the patient a composition comprising a physiologically acceptable carrier and at least one compound of formula I in an amount which is effective for the control of said sensitive malignant cells, said at least one compound having the general formula:



I

wherein

R is a saturated or unsaturated aliphatic hydrocarbon group having twelve to twenty carbon atoms;

R_1 is hydrogen or a saturated or unsaturated acyl radical having twelve to twenty carbon atoms;

X is oxygen;

Y is hydrogen, or

X and Y, when taken together, form a bridging radical of formula $=N—CH_2—CH_2—$ wherein the nitrogen of the bridging radical is bonded to C_1 and the other end of the bridging radical is bonded to N_1;

z is 1 to 5; and

q is 1 to 4.

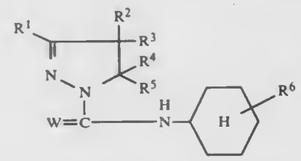
5,068,241

PESTICIDAL SUBSTITUTED PYRAZOLINE DERIVATIVES, COMPOSITIONS AND USE

Rainer Fuchs, Wuppertal; Christoph Erdelen, Leichlingen, both of Fed. Rep. of Germany; Benedikt Becker, Appiano, Italy, and Wilhelm Stendel, Wuppertal, Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Feb. 7, 1991, Ser. No. 652,169
Claims priority, application Fed. Rep. of Germany, Feb. 17, 1990, 4005114
Int. Cl.[5] A01N *43/56;* C07D *231/06*
U.S. Cl. 514—403 13 Claims

1. A substituted pyrazoline derivative of the formula



(I)

in which

R^1 represents optionally substituted phenyl or optionally substituted alkyl,

R^2 represents hydrogen, optionally substituted phenyl, optionally substituted alkyl or alkoxycarbonyl,

or R^1 and R^2 together represent an optionally benzo-fused alkylene radical,

R^3 represents hydrogen or alkyl,

R^4 represents hydrogen, optionally substituted phenyl or optionally substituted alkyl,

R^5 represents hydrogen or optionally substituted alkyl,

R^6 represents halogenoalkyl or halogenoalkoxy, and

W represents oxygen or sulphur.

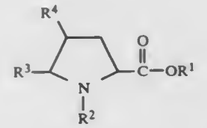
5,068,242

PYRROLIDINE-2-CARBOXYLIC ACID DERIVATIVES AND THEIR USE FOR PSYCHOTROPIC ACTION

Wolf-Ulrich Nickel, Bad Soden am Taunus; Wolfgang Rüger, Kelkheim; Hansjörg Urbach, Kronberg/Taunus, and Franz Hock, Dieburg, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Nov. 17, 1989, Ser. No. 437,890
Claims priority, application Fed. Rep. of Germany, Nov. 19, 1988, 3839127
Int. Cl.[5] C07D *209/52;* A61K *31/40*
U.S. Cl. 514—412 4 Claims

1. A compound of the formula I



(I)

in which

R^1 is hydrogen, C_1-C_8-alkyl, C_2-C_6-alkenyl, C_3-C_9-cycloalkyl, amino-C_1-C_4-alkyl, C_2-C_5-acylamino-C_1-C_4-alkyl, C_7-C_{13}-aroylamino-C_1-C_4-alkyl, C_6-C_{12}-aryl-C_1-C_6-alkyl or C_6-C_{12}-aryl;

R^2 is C_1-C_8-alkanoyl, C_6-C_{12}-aryl-C_1-C_6-alkanoyl, C_1-C_4-alkoxycarbonyl-C_1-C_7-alkanoyl C_6-C_{12}-aryloxycarbonyl-C_1-C_7-alkanoyl, C_1-C_4-acyl-C_2-C_6-alkanoyl, C_1-C_4-acylamino-C_1-C_6-alkanoyl or C_7-C_{13}-aroyl-C_1-C_6-alkanoyl;

R^3 and R^4 together with the atoms carrying them form a monocyclic alicyclic or aromatic ring system selected from the group consisting of cyclopentane, cyclopentene, cyclohexane and benzene, and their physiologically acceptable salts, with the exception of compounds in which at the same time R^1 is hydrogen, benzyl or n-octyl, R^2 is tert.-butoxycarbonyl and R^3 and R^4 together with the atoms carrying them form a cyclopentane or cyclopentene ring and compounds in which R^2 is α-acylamino-C_1-C_6-alkanoyl.

4. A process for the treatment and prophylaxis of cognitive dysfunctions, which comprises administering an active amount of a compound of the formula I as claimed in claim 1, or a physiologically acceptable salt thereof.

5,068,243

BICYCLIC TETRAHYDROXYPYRROLIZIDINE

George W. J. Fleet, Oxford, United Kingdom, assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 404,800, Sep. 8, 1989, Pat. No. 4,992,460, and a continuation-in-part of Ser. No. 524,514, May 17, 1990, Pat. No. 5,021,562. This application Aug. 7, 1990, Ser. No. 564,009
The portion of the term of this patent subsequent to Jun. 18, 2008, has been disclaimed.
Int. Cl.[5] A61K *31/40;* C07D *487/04, 491/22, 493/04*
U.S. Cl. 514—413 5 Claims

1. (1S,2R,6R,7S)-1,2,6,7-tetrahydroxypyrrolizidine.

VOL 1132 ISS 4 NO 26 1991 UMI

2. The method of inhibiting a glycosidase enzyme in a biological fluid containing said enzyme comprising subjecting said fluid to an effective amount of the compound of claim 1 suitable to inhibit said glycosidase.

4. 7-O-tert-Butylidiphenylsilyl-2,3:5,6-di-O-isopropylidene-D-glycero-D-talo-heptono-1,4-lactone.

5. (1S,2R,6R,7S)-1,2:6,7-di-O-isopropylidene-1,2,6,7-tetrahydroxypyrrolizidine.

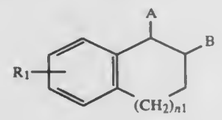
5,068,244

BENZOCYCLOHEXANES AND ANALGESIC COMPOSITIONS THEREOF

Anne-Marie Moura; Francois Clemence; Daniel Frechet, and Michel Fortin, all of Paris, France, assignors to Roussel Uclaf, Paris, France

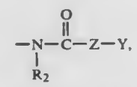
Filed Feb. 17, 1989, Ser. No. 312,885
Claims priority, application France, Feb. 18, 1988, 88 01928
Int. Cl.[5] A61K *31/40;* C07D *207/08*
U.S. Cl. 514—428 9 Claims

1. A compound selected from the group consisting of all possible enantiomeric and diastereoisomeric forms of compounds of the formula

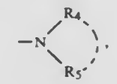


I

wherein R_1 is $—NO_2$, n' is 1, A and B have the trans configuration, one of A and B being



R_2 is hydrogen or alkyl of 1 to 5 carbon atoms, Z is $(CH_2)_{n2}$—, n_2 being an integer from 0 to 5 or branched alkyl of 2 to 8 carbon atoms or $—CH_2—O—$, Y is selected from the group consisting of phenyl, naphthyl and indenyl, all optionally having at least one substituent selected from the group consisting of alkyl and alkoxy of 1 to 5 carbon atoms, halogens, $—CF_3$, $—NO_2$, $—NH_2$ and mono- and dialkylamino and the other of A and B is



R_4 and R_5 together with the nitrogen to which they are attached form a 5 to 6 ring heterocycle selected from the group consisting of pyrrolidinyl, piperazinyl, piperidinyl and morpholinyl and their non-toxic, pharmaceutically acceptable acid addition salts.

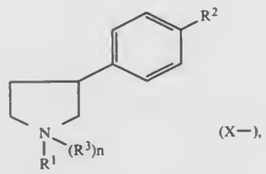
5,068,245

FUNGICIDAL N-SUBSTITUTED 3-ARYLPYRROLIDINE DERIVATIVES

Matthias Zipplies, Hirschberg; Hubert Sauter, Mannheim; Franz Roehl, Ludwigshafen; Walter Himmele, Walldorf; Eberhard Ammermann, Ludwigshafen, and Ernst-Heinrich Pommer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Sep. 30, 1988, Ser. No. 251,243
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1987, 3732930
The portion of the term of this patent subsequent to Nov. 26, 2008, has been disclaimed.
Int. Cl.[5] A01N *43/36, 43/08, 43/28;* C07D *207/06*
U.S. Cl. 514—429 11 Claims

1. N-Substituted 3-arylpyrrolidine derivatives of the formula



(I)

where

R^1 is 2,2-dimethylpropyl, 3,3-dimethylbutyl, 4,4-dimethylpentyl, 2,4,4-trimethylpentyl, 6-methylhept-2-yl, 3,5,5-trimethylhexyl, 6,10-dimethylundec-2-yl, 3-methylcyclohexyl, 3,3-dimethylcyclohexyl, 3,3,5-trimethylcyclohexyl, 3,3,5,5-tetramethylcyclohexyl, 4-methylcyclohexyl, 4-ethylcyclohexyl, 4-propylcyclohexyl, 4-isopropylcyclohexyl, 4-tert.-butylcyclohexyl, 4-(2-methylbut-2-yl)cyclohexyl, 4-(2,4,4-trimethylpent-2-yl)-cyclohexyl, cyclododecanyl, C_3–C_9-trialkylsilyl-substituted C_4–C_{12}-cycloalkyl, 4-hydroxy-cyclohexyl, 4-hydroxy-3-methylcyclohexyl, 4-hydroxy-3,5-dimethylcyclohexyl, 4-hydroxy-3,3-dimethylcyclohexyl, 4-hydroxy-3,3,5-trimethylcyclohexyl, unsubstituted or hydroxy-, C_1–C_9-alkyl-, C_1–C_5-alkoxy- or C_3–C_9-trialkylsilyl-substituted C_5–C_{12}-cycloalkenyl,

R^1 is further C_9–C_{11}-bicycloalkyl which is unsubstituted or substituted by hydroxy, C_1–C_6-alkyl, C_1–C_5-alkoxy, C_3–C_9-trialkylsilyl, acetoxy, benzoyloxy or benzyloxy,

R^1 is further 4-tert.-butyl-benzyl, 4-chlorobenzyl, 4-tert.-butoxybenzyl, 1,4-dioxaspiro[4,5]decan-8-yl,

5 to 7-membered heterocycloalkyl having 1 or 2 heteroatoms selected from the group consisting of oxygen and sulfur,

5 to 7-membered heterocycloalkylmethyl having 1 or 2 heteroatoms selected from the group consisting of oxygen and sulfur, C_1–C_8-alkyl-substituted 5 to 7-membered heterocycloalkyl or heterocycloalkylmethyl having 1 or 2 heteroatoms selected from the group consisting of oxygen and sulfur,

R^2 is C_3–C_8-alkoxy or C_3–C_9-trialkylsilyl,

R^3 is C_1–C_5-alkyl, C_3–C_6-alkenyl, C_3–C_6-alkynyl or C_7–C_{10}-arylalkyl,

X- is a plant-tolerated anion, and

n is 0 or 1,

or plant-tolerated salts thereof.

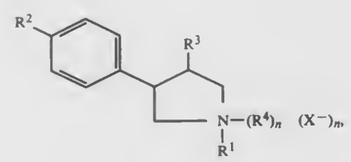
5,068,246

FUNGICIDAL N-SUBSTITUTED 3-ALKYL-4-ARYLPYRROLIDINE DERIVATIVES

Matthias Zipplies, Hirschberg; Hubert Sauter, Mannheim; Walter Himmele, Walldorf; Eberhard Ammermann, Ludwigshafen, and Ernst-Heinrich Pommer, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Sep. 30, 1988, Ser. No. 251,252
Claims priority, application Fed. Rep. of Germany, Sep. 30, 1987, 3732910
The portion of the term of this patent subsequent to Nov. 26, 2008, has been disclaimed.
Int. Cl.[5] A01N *43/36, 43/08, 43/28;* C07D *207/06*
U.S. Cl. 514—429 6 Claims

1. N-substituted 3-alkyl-4-aryl-pyrrolidine derivatives of the formula



(I)

where

R^1 is C_2–C_{20}-alkyl which is unsubstituted or substituted by hydroxy, halogen, C_1–C_5-alkoxy or C_3–C_9-trialkylsilyl, C_3–C_{20}-alkenyl, C_3–C_{20}-alkynyl, C_4–C_{12}-cycloalkyl which is unsubstituted or substituted by hydroxy, C_1–C_5-alkoxy or C_3–C_9-trialkylsilyl, C_4–C_{12}-cycloalkenyl, C_4–C_{20}-alkylcycloalkyl which is unsubstituted or substituted by hydroxy, C_4–C_{20}-cycloalkyl-alkyl, C_4–C_{20}-alkyl-cycloalkylalkyl, C_4–C_{20}-cycloalkenyl-alkyl, C_4–C_{20}-alkyl-cycloalkenyl, hydroxy-substituted or unsubstituted C_9–C_{11}-bicycloalkyl, C_{10}–C_{15}-bicycloalkylalkyl, hydroxy-substituted or unsubstituted C_{10}–C_{15}-alkylbicycloalkyl,

5 to 7-membered heterocycloalkyl having 1 to 2 heteroatoms selected from the group consisting of oxygen and sulfur, 5 to 7-membered heterocycloalkylmethyl having 1 or 2 heteroatoms selected from the group consisting of oxygen and sulfur, C_1–C_8-alkyl-substituted 5 to 7-membered heterocycloalkyl or heterocycloalkylmethyl having 1 or 2 heteroatoms selected from the group consisting of oxygen and sulfur, substituted or unsubstituted aryl, substituted or unsubstituted C_7–C_{20}-arylalkyl, C_7–C_{20}-alkylaryl, C_8–C_{20}-alkyl-aryl-alkyl, wherein the aryl substituents are selected from the group consisting of hydroxy, halo, C_1–C_5-alkoxy and C_3–C_9-trialkylsilyl,

R^2 is C_3–C_8-alkoxy,

R^3 is C_1–C_4-alkyl,

R^4 is C_1–C_5-alkyl, C_3–C_5-alkenyl, C_3–C_5-alkynyl or C_7–C_8-phenylalkyl,

X^- is a plant-tolerated anion,

n is 0 or 1,

or a plant-tolerated salt thereof.

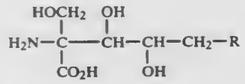
5,068,247

2-AMINOPENTANOIC ACID COMPOUNDS AND THEIR USE AS IMMUNOSUPPRESSANTS

Tetsuro Fujita, Muko; Takeshi Ikumoto; Shigeo Sasaki, both of Kobe; Chiba Kenji, and Yukio Hoshino, both of Tokyo, all of Japan, assignors to Yoshitomi Pharmaceutical Industries, Ltd., Osaka and Taito Co., Ltd., Tokyo, both of, Japan

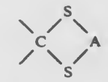
Filed Jul. 5, 1990, Ser. No. 549,137
Claims priority, application Japan, Jul. 7, 1989, 1-176914
Int. Cl.[5] A61K *31/385*
U.S. Cl. 514—440 4 Claims

1. A 2-aminopentanoic acid compound represented by the formula

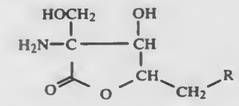


(I)

wherein R is a straight or branched chain alkyl of 1 to 30 carbon atoms, a hydroxyalkyl wherein the alkyl moiety has 1 to 6 carbon atoms or a group represented by the formula: $—CH=CH(CH_2)_nCH=CH—CH(OH)—(CH_2)_mCH_3$ wherein n and m stand for an integer of 1 to 10, respectively; $—CH=CH(CH_2)_p—C(=X)—(CH_2)_qCH_3$ wherein $>C=X$ stands for



wherein A is an alkylene of 1 to 4 carbon atoms, $>C=N—OB$ wherein B is a hydrogen or a straight or branched alkyl of 1 to 4 carbon atoms, or $>CHNH_2$ wherein p and q are respectively an integer of 1 to 10; or $—CH=CH—Y$ wherein Y is a straight or branched alkyl of 1 to 30 carbon atoms, a salt thereof, a γ-lactone compound thereof having the formula



wherein R is as defined above and a compound protected by an amino or hydroxy-protecting group.

3. An immunosuppressant comprising a compound as claimed in claim 1.

5,068,248

N-ALKENYL-3-HYDROXYBENZO[B]THIOPHENE-2-CARBOXAMIDE DERIVATIVES AS DUAL CYCLOOXYGENASE AND LIPOXYGENASE INHIBITORS

Allan N. Tischler, Oakland, Calif.; Philippe L. Durette, New Providence, N.J.; Bruce E. Witzel, Westfield, N.J.; Kathleen M. Rupprecht, Cranford, N.J.; Timothy F. Gallagher, Harleysville, Pa.; Marvin M. Goldenberg, Westfield, and Debra L. Allison, Basking Ridge, both of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

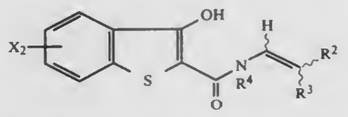
Continuation-in-part of Ser. No. 172,538, Mar. 24, 1988, abandoned, which is a continuation-in-part of Ser. No. 705,115, Feb. 27, 1985, Pat. No. 4,760,086, which is a continuation-in-part of Ser. No. 596,134, Apr. 2, 1984, abandoned. This application Jun. 22, 1989, Ser. No. 369,982
Int. Cl.[5] A61K *31/38*
U.S. Cl. 514—443 4 Claims

1. A method treatment of pain, fever, and inflammation comprising:

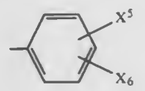
administration to a subject in need of such treatment, a

VOL 1132 ISS 4 NO 26 1991 UMI

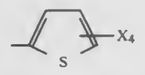
non-toxic, therapeutically effective amount of compound of formula:



or a pharmaceutically acceptable salt thereof wherein: R^2 and R^3 independently are
(a) phenyl of formula



wherein X_5 and X_6 independently are
(1) Q where Q is H, loweralkyl or haloloweralkyl;
(2) halo;
(3) SQ;
(4) OQ; or
(5) SOQ;
(b) thienyl of formula



wherein X_4 represents Q or halo
R^4 is H or loweralkyl; and
X_2 is
(a) Q;
(b) halo;
(c) OQ;
(d) phenyl;
(e) 5-(2,4-difluorophenyl);
(f) SO; or
(g) CF_3CONH—.

5,068,249

AQUEOUS RANITIDINE COMPOSITIONS STABILIZED WITH ETHANOL

David R. Long, Royston, England, assignor to Glaxo Group Limited, London, England

Continuation of Ser. No. 344,620, Apr. 28, 1989, abandoned, which is a continuation of Ser. No. 131,442, Dec. 11, 1987, abandoned. This application Mar. 14, 1990, Ser. No. 494,804
Claims priority, application United Kingdom, Dec. 12, 1986, 86 29781
Int. Cl.[5] A61K *31/34*
U.S. Cl. 514—471 **12 Claims**

1. A pharmaceutical composition which is an aqueous formulation for oral administration of an effective amount of ranitidine and/or one or more physiologically acceptable salts thereof, said formulation comprising a stabilizing effective amount of ethanol and said composition having a pH in the range of 6.5–7.5.

5,068,250

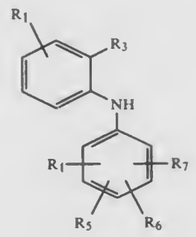
IRREVERSIBLE LIGANDS FOR NONSTEROIDAL ANTIINFLAMMATORY DRUG AND PROSTAGLANDIN BINDING SITES

Trevor M. Penning, Springfield, Pa., and Leslie J. Askonas, Haddonfield, N.J., assignors to Trustees of University of Pennsylvania, Philadelphia, Pa.

Filed Sep. 29, 1988, Ser. No. 251,550
Int. Cl.[5] A01N *37/00, 37/12, 37/07;* **A61K** *31/22;* **C07C** *303/00, 261/00*
U.S. Cl. 514—506 **11 Claims**

1. A compound selected from those of the formulae

(ii)



where
R_1 is independently selected from the groups consisting of H, $NHCOCH_2Z$, $OCOCH_2Z$, $COCH_2Z$, CH_2N_3, and CH_2OSO_2Me;
R_3 is selected from the groups consisting of Y, CH_2Y, $CH(CH_3)Y$ and Y is selected independently from the groups consisting of COOH, COOMe, COOEt, CH_2OCOCH_2Z, $CH_2NHCOCH_2Z$, CH_2N_3, CH_2OSO_2Me, and $COCH_2Z$;
$S(O)CH_3$, NO_2,NH_2, OH, CH_3, CH_2Z, CHZ_2, and CZ_3;
R_5, R_6, and R_7 are selected independently from the groups consisting of H, Z, CH_3, CH_2Z, CHZ_2, CZ_3, NO_2, and OH;
where Z is a halogen atom;
provided that for compounds of formulae (ii), if R_1=H in both rings, Y is other than COOH, COOMe or COOEt; and if Y=COOH, COOMe, or COOEt, R_1 is other than H in both rings.

6. The compound of claim 1 where said compound is N-(4-bromoacetamidophenyl) anthranilic acid.

10. A pharmaceutical composition comprising a compound of claim 6 or its pharmaceutically acceptable salt.

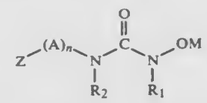
5,068,251

LIPOXYGENASE INHIBITING COMPOUNDS

Dee W. Brooks, Libertyville, and Karen E. Rodriques, Grayslake, both of Ill., assignors to Abbott Laboratories, Abbott Park, Ill.

Filed Dec. 16, 1988, Ser. No. 285,439
Int. Cl.[5] C07C *275/68;* **A61K** *31/17*
U.S. Cl. 514—506 **5 Claims**

1. A compound of the formula



wherein A is $—CH_2—$; n is 0 or 1; R_1 and R_2 are independently selected from the group consisting of hydrogen, alkyl alkenyl, aralkyl and cycloalkyl; Z is the residue from a non-steroidal anti-inflammatory carboxylic acid compound selected from ibuprofen and naproxen; and M is a pharmaceutically acceptable cation or a metabolically cleavable group; or a pharmaceutically acceptable salt thereof.

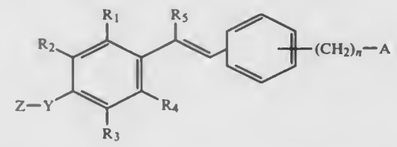
5,068,252

METHODS OF USING PHENYLETHENYL COMPOUNDS HAVING RETINOID-LIKE ACTIVITY

Roshantha A. S. Chandraratna, El Toro, Calif., assignor to Allergan, Inc., Irvine, Calif.

Division of Ser. No. 385,626, Jul. 26, 1989, Pat. No. 4,992,468.
This application Feb. 8, 1991, Ser. No. 653,540
Int. Cl.[5] A61K *31/235*
U.S. Cl. 514—543 **23 Claims**

1. A method for treating dermatoses including psoriasis, in a mammal which method comprises administering a therapeutically effective amount of a compound of the formula



in which:
R_1, R_2, R_3 and R_4 are hydrogen, lower alkyl, halogen or lower alkoxy;
R_5 is hydrogen or lower alkyl;
Y is oxygen or sulfur;
Z is 1–10 carbon straight or branched alkyl, or 2–10 carbon straight or branched chain alkenyl or alkynyl;
n is 0–5; and
A is COOH, $COOR_7$, $CONHR_7$, $CON(R_7)_2$, $—CH_2OH$, $—CH_2OR_7$, CH_2OCOR_7, —CHO, $CH(OR_8)_2$, $CHOR_9O$, $—COR_6$, $CR_6(OR_8)_2$, or CR_6OR_9O where R_6 is $—(CH_2)_mCH_3$ where m is 0–4, R_7 is alkyl of 1 to 10 carbons or aryl or alkyl-aryl group, R_8 is lower alkyl, and R_9 is divalent alkyl radical of 2 to 5 carbons, or administering a pharmaceutically acceptable salt of said compound.

5,068,253

TREATMENT OF A MICROBIAL INFECTION WITH DRUGS CONTAINING PARA-ACETAMIDOBENZOIC ACID

Joseph Kovacs, Potomac; Henry Masur, Bethesda, and Carmen Allegra, Gaithersburg, all of Md., assignors to The United States of America as represented by the Department of Health and Human Services, Washington, D.C.

Filed Jul. 11, 1990, Ser. No. 551,521
Int. Cl.[5] A61K *31/185*
U.S. Cl. 514—553 **8 Claims**

1. A method of treating or prventing a microbial infection in a patient comprising administering to said patient an antimicrobially effective amount of p-acetamidobenzoic acid or a pharmaceutically acceptable salt thereof so that said microbial infection is inhibited or prevented.

5,068,254

PROCESS FOR THE PREPARATION OF HYDROCARBONS

Sytze A. Posthuma, The Hague; Johannes D. de Graaf, and Jan Boelen, both of Rotterdam/Pernism, all of Netherlands, assignors to Shell Oil Company, Houston, Tex.

Filed May 7, 1990, Ser. No. 520,333
Claims priority, application United Kingdom, May 15, 1989, 8911076
Int. Cl.[5] C07C *1/04*
U.S. Cl. 518—705 **5 Claims**

1. Process for the preparation of hydrocarbons by a catalytic reaction of a mixture of carbon monoxide and hydrogen, comprising the steps of:
(i) providing a gas mixture comprising carbon monoxide and hydrogen and at least one impurity selected from hydrogen cyanide and ammonia;
(ii) washing in a wash zone said gas mixture in a first washing step using reaction water and a second washing step with an aqueous solution comprising chemicals promoting the absorption of the impurities; to obtain a washed gas mixture having a reduced level of impurities and a fat aqueous solution containing impurities from said gas mixture;
(iii) separating said fat aqueous solution from the mixture;
(iv) contacting said washed gas mixture at an elevated temperature and pressure with a catalyst whereby a hydrocarbon-containing reaction product and reaction water are obtained;
(v) separating said reaction water from said hydrocarbon product; and
(vi) recycling at least part of said reaction water solution to said wash zone of step (ii).

5,068,255

ION EXCHANGE RESINS PREPARED BY SEQUENTIAL MONOMER ADDITION

William I. Harris, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 797,716, Nov. 13, 1985, abandoned, which is a continuation of Ser. No. 506,911, Jun. 22, 1983, Pat. No. 4,564,644, which is a continuation of Ser. No. 404,028, Aug. 2, 1982, abandoned. This application May 1, 1987, Ser. No. 44,543
The portion of the term of this patent subsequent to Jan. 14, 2003, has been disclaimed.
Int. Cl.[5] C08J *5/20;* **C08F** *2/00*
U.S. Cl. 521—28 **16 Claims**

1. A process for preparing crosslinked copolymer beads comprising:
(a) forming a suspension of a first monomer mix comprising from about 80 to about 99.95 parts by weight of a monoethylenically unsaturated monomer, about 0.05 to about 20 parts by weight of a polyethylenically unsaturated monomer and a sufficient amount of a substantially water-insoluble free radical initiator to catalyze the polymerization of said first monomer mix and a second monomer mix, then
(b) polymerizing said first monomer mix until about 10 to about 80 weight percent of said monomers are converted to crosslinked polymer particles, the
(c) adding to said suspension a second monomer mix, which second monomer mix comprises at least one ethylenically unsaturated monomer but contains essentially no free radical initiator, said addition of said second monomer mix being made under conditions including a temperature sufficient to initiate the free radical polymerization of the monomer in said second monomer mix such that said monomer mix is imbibed by said crosslinked polymer particles and the polymerization of said second monomer mix within said crosslinked polymer particles is catalyzed by the free radical initiator contained in said first monomer mix and wherein the monomers of the second monomer mix, when polymerized, comprise from about 5 to about 90 weight percent of the product copolymer beads.

5,068,256

BUBBLE-CONTAINING ETHYLENE/α-OLEFIN RUBBER

Takashi Nakahara; Toshiaki Kimura, and Takashi Mishima, all of Ichihara, Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Filed Oct. 13, 1989, Ser. No. 420,883
Claims priority, application Japan, Oct. 14, 1988, 63-258922; Sep. 22, 1989, 1-247687
Int. Cl.[5] C08C *4/00*
U.S. Cl. 521—150 **7 Claims**

1. A storage-stable, non-vulcanized, easily-kneadable bubble-containing ethylene/α-olefin rubber composition consisting essentially of:
(A) a base rubber comprising a copolymer of

VOL 1132 ISS 4 NO 26 1991 UMI

(1) from about 50 to 95 mol % of ethylene;
(2) about 5 to 50 mol % of α-olefin having at least 3 carbon atoms; and
(3) about 0 to 10 mol % of nonconjugated polyene; and
(B) containing 5–1000 parts by volume, based on 100 parts by volume of said base rubber, of bubbles and providing a water absorption volume as measured in accordance with ASTM D 1506 of less than 20% by volume of the total volume of bubbles.

5,068,257

RESIN COMPOSITION CURABLE WITH AN ACTIVE ENERGY RAY CONTAINING HALF-ESTERIFICATED EPOXY RESIN AND MONOMER HAVING ETHYLENICALLY UNSATURATED BOND

Hiromichi Noguchi, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1988, Ser. No. 244,347

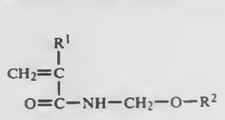
Claims priority, application Japan, Sep. 16, 1987, 62-229492; Jun. 29, 1988, 63-159078

Int. Cl.[5] **C08L** *51/00, 47/00, 33/04;* **C08G** *63/48*

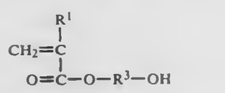
U.S. Cl. 522—31 **7 Claims**

1. A resin composition curable with an active energy ray comprising:

(i) a graft copolymerized polymer having a number average molecular weight of 5,000 or more and a weight average molecular weight of 50,000 or less which comprises a trunk chain composed mainly of structural units derived from at least one monomer selected from the group consisting of alkyl methacrylates, acrylonitrile and styrene and has graft chains having structural units derived from at least one monomer selected from the group consisting of the monomers represented by the following formula I and other monomers presented by the formula II:



(I)

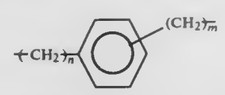


(II)

(wherein R^1 is hydrogen or an alkyl or hydroxyalkyl group having 1 to 3 carbon atoms, R^2 is hydrogen or an alkyl or acyl group having 1 to 4 carbon atoms which may have hydroxy group, R^3 is an alkyl group having 2 to 6 carbon atoms, a halogen-substituted alkyl group having 2 to 6 carbon atoms, an alkylether group represented by the formula:



(wherein $2 \leqq m+n \leqq 6$, $n \neq 0$ and $m \neq 0$), or a phenylalkyl group represented by the formula:



(wherein $2 \leqq m+n \leqq 4$, or the case where $n=0$ or $m=0$ is contained), added to said trunk chain;

(ii) a linear polymer having a number average molecular weight of 50,000 or more and a weight average molecular weight of 350,000 or less and having a glass transition temperature of 60° C. or more which comprises structural units derived from at least one monomer selected from the group consisting of methyl methacrylate, ethyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, benzyl methacrylate, acrylonitile, isobornyl methacrylate, isobornyl acrylate, tricyclodecaneacrylate, tricyclodecane methacrylate, tricyclodecaneoxyethyl methacrylate, styrene, dimethylaminoethyl methacrylate and cyclohexyl methacrylate and other structural units derived from at least one monomer in amounts from 5 to 30 mole percent selected from the group consisting of the monomers represented by said formula (I) and the monomers represented by said formula (II);

(iii) an epoxy resin comprising at least one compound having two or more epoxy groups in one molecule in which part of the epoxy groups being esterificated with an unsaturated carboxylic acid; and

(iv) a monomer having an ethylenically unsaturated bond; and (v) a polymerization initiator capable of generating a Lewis acid by irradiation of an active energy ray.

5,068,258

RESIN COMPOSITION CURABLE WITH AN ACTIVE ENERGY RAY CONTAINING HALF-ESTERIFICATED EPOXY RESIN AS A CONSTITUENT

Hiromichi Noguchi, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1988, Ser. No. 244,868

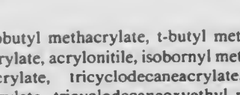
Claims priority, application Japan, Sep. 16, 1987, 62-229492; Jun. 29, 1988, 63-159075

Int. Cl.[5] **C08L** *51/00, 33/04, 47/00;* **C08G** *63/48*

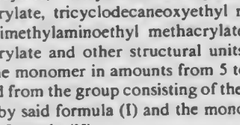
U.S. Cl. 522—31 **5 Claims**

1. A resin composition curable with an active energy ray comprising:

(i) a graft copolymerized polymer having a number average molecular weight of 5,000 or more and a weight average molecular weight of 50,000 or less which comprises a trunk chain composed mainly of structural units derived from at least one monomer selected from the group consisting of alkyl methacrylates, acrylonitrile and styrene and has graft chains having structural units derived from at least one monomer selected from the group consisting of the monomers represented by the following formula I and other monomers presented by the formula II:

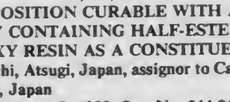


(I)



(II)

(wherein R^1 is hydrogen or an alkyl or hydroxyalkyl group having 1 to 3 carbon atoms, R^2 is hydrogen or an alkyl or acyl group having 1 to 4 carbon atoms which may have hydroxy group, R^3 is an alkyl group having 2 to 6 carbon atoms, a halogen-substituted alkyl group having 2 to 6 carbon atoms, an alkylether group represented by the formula: $-(CH_2)_n O-(CH_2)_m$ ($2 \leqq m+n \leqq 6$, $n \neq 0$ and $m \neq 0$), or a phenylalkyl group represented by the formula:



(wherein $2 \leqq m+n \leqq 4$, or the case where $n=0$ or $m=0$ is contained), added to said trunk chain;

(ii) a linear polymer having a number average molecular weight of 50,000 or more and a weight average molecular weight of 350,000 or less and having a glass transition temperature of 60° C. or more which comprises structural units derived from at least one monomer selected from the group consisting of methyl methacrylate, ethyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, benzyl methacrylate, acrylonitile, isobonnyl methacrylate, isobonnyl acrylate, tricyclodecaneacrylate, tricyclodecane methacrylate, tricyclodecaneoxyethyl methacrylate, styrene, dimethylaminoethyl methacrylate and cyclohexyl methacrylate and other structural units derived from at least one monomer in amounts from 5 to 30 mole percent selected from the group consisting of the monomers represented by said formula (I) and the monomers represented by said formula (II);

(iii) an epoxy resin comprising at least one compound having two or more epoxy groups in one molecule in which part of the epoxy groups being esterificated with an unsaturated carboxylic acid; and

(iv) a polymerization initiator capable of generating a Lewis acid by irradiation of an active energy ray.

5,068,259

RESIN COMPOSITION CURBABLE WITH AN ACTIVE ENERGY RAY CONTAINING EPOXY RESIN AND MONOMER WITH ETHYLENICALLY UNSATURATED BOND

Hiromichi Noguchi, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1988, Ser. No. 244,303

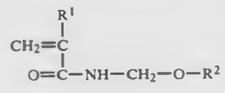
Claims priority, application Japan, Sep. 16, 1987, 62-229492; Jun. 29, 1988, 63-159077

Int. Cl.[5] **C08L** *51/00, 33/04, 47/00;* **C08G** *63/48*

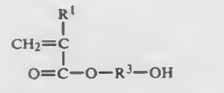
U.S. Cl. 522—31 **6 Claims**

1. A resin composition curable with an active energy ray comprising:

(i) a graft copolymerized polymer having a number molecular weight of 5,000 or more and a weight average molecular weight of 50,000 or less which comprises a trunk chain composed mainly of structural units derived from at least one monomer selected from the group consisting of alkyl methacrylates, acrylonitrile and styrene and has graft chains having structural units derived from at least one monomer selected from the group consisting of the monomers represented by the following formula I and other monomers presented by the formula II:



(I)

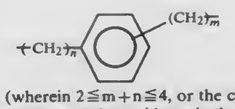


(II)

(wherein R^1 is hydrogen or an alkyl or hydroxyalkyl group having 1 to 3 carbon atoms, R^2 is hydrogen or an alkyl or acyl group having 1 to 4 carbon atoms which may have hydroxy group, R^3 is an alkyl group having 2 to 6 carbon atoms, a halogen-substituted alkyl group having 2 to 6 carbon atoms, an alkylether group represented by the formula:



(wherein $2 \leqq m+n \leqq 6$, $n \neq 0$ and $m \neq 0$), or a phenylalkyl group represented by the formula:



(wherein $2 \leqq m+n \leqq 4$, or the case where $n=0$ or $m=0$ is contained), added to said trunk chain;

(ii) a linear polymer having a number average molecular weight of 50,000 or more and a weight average molecular weight of 350,000 or less and having a glass transition temperature of 60° C. or more which comprises structural units derived from at least one monomer selected from the group consisting of methyl methacrylate, ethyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, benzyl methacrylate, acrylonitile, isobornyl methacrylate, isobornyl acrylate, tricyclodecaneacrylate, tricyclodecane methacrylate, tricyclodecaneoxyethyl methacrylate, styrene, dimethylaminoethyl methacrylate and cyclohexyl methacrylate and other structural units derived from at least one monomer in amounts from 5 to 30 mole percent selected from the group consisting of the monomers represented by said formula (I) and the monomers represented by said formula (II);

(iii) an epoxy resin containing at least one compound having one or more epoxy groups in one molecule;

(iv) a monomer having

(v) a polymerization initiator capable of generating a Lewis acid by irradiation of an active energy ray.

5,068,260

RESIN COMPOSITION CURABLE WITH AN ACTIVE ENERGY RAY CONTAINING EPOXY RESIN CONTAINING AT LEAST A COMPOUND HAVING ONE OR MORE OF EPOXY GROUP IN THE MOLECULE

Hiromichi Noguchi, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1988, Ser. No. 244,339

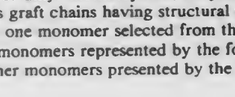
Claims priority, application Japan, Sep. 16, 1987, 62-229492; Jun. 29, 1988, 63-159074

Int. Cl.[5] **C08L** *51/00, 33/04, 47/00;* **C08G** *63/48*

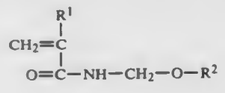
U.S. Cl. 522—31 **5 Claims**

1. A resin composition curable with an active energy ray comprising:

(i) a graft copolymerized polymer having a number average molecular weight of 5,000 or more and a weight average molecular weight of 50,000 or less which comprises a trunk chain composed mainly of structural units derived from at least one monomer selected from the group consisting of alkyl methacrylates, acrylonitrile and styrene and has graft chains having structural units derived from at least one monomer selected from the group consisting of the monomers represented by the following formula I and other monomers presented by the formula II:



(I)

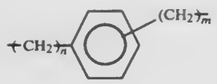


(II)

(wherein R^1 is hydrogen or an alkyl or hydroxyalkyl group having 1 to 3 carbon atoms, R^2 is hydrogen or an alkyl or acyl group having 1 to 4 carbon atoms which may have hydroxy group, R^3 is an alkyl group having 2 to 6 carbon atoms, a halogen-substituted alkyl group having 2 to 6 carbon atoms, an alkylether group represented by the formula: $-(CH_2)_n O-(CH_2)_m$ (wherein $2 \leqq m+n \leqq 6$, $n \neq 0$

VOL 1132 ISS 4 NO 26 1991 UMI

and m≠0), or a phenylalkyl group represented by the formula:



(wherein 2≦m+n≦4, or the case where n=0 or m=0 is contained), added to said trunk chain; (ii) a linear polymer having a number average molecular weight of 50,000 or more and a weight average molecular weight of 350,000 or less and having a glass transition temperature of 60° C. or more which comprises structural units derived from at least one monomer selected from the group consisting of methyl methacrylate, ethyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, benzyl methacrylate, acrylonitile, isobornyl methacrylate, isobornyl acrylate, tricyclodecaneacrylate, tricyclodecane methacrylate, tricyclodecaneoxyethyl methacrylate, styrene, dimethylaminoethyl methacrylate and cyclohexyl methacrylate and other structural units derived from at least one monomer in amounts from 5 to 30 mole percent selected from the group consisting of the monomers represented by said formula (I) and the monomers represented by said formula (II);

(iii) an epoxy resin containing at least one compound having one or more epoxy groups in one molecule: and

(iv) a polymerization initiator capable of generating a Lewis acid by irradiation of an active energy ray.

5,068,261

FLUORINE-CONTAINING EPOXY (METH) ACRYLATE RESIN WITH PHOTOINITIATOR

Tohru Maruno; Shigeki Ishibashi, both of Tokorozawa, and Kouzaburou Nakamura, Tokyo, all of Japan, assignors to Nippon Telegraph and Telephone Corporation, Tokyo, Japan

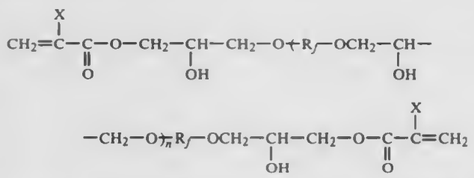
Continuation of Ser. No. 29,644, Aug. 24, 1987, abandoned. This application Apr. 3, 1989, Ser. No. 332,381

Claims priority, application Japan, Mar. 24, 1986, 61-64000; May 13, 1986, 61-107675; Oct. 7, 1986, 61-237004; Oct. 17, 1986, 61-246849

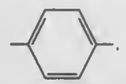
Int. Cl.[5] **C08F** *2/50;* **C08G** *20/06*

U.S. Cl. 522—39 **2 Claims**

1. An adhesive composition comprising a fluorine-containing epoxy(meth)acrylate resin of the formula:



wherein R_f is a member selected from the group consisting of —ϕ—$C(CF_3)_2$—ϕ—, in which ϕ represents



and $—CH_2(CF_2)_6CH_2—$; $O<n<0.2$; and X is hydrogen or methyl, and from 2 to 10% by weight, based on the amount of said fluorine-containing epoxy(meth)acrylate resin, of a photopolymerization initiator which is a member selected from the group consisting of benzoin butyl ether, benzil dimethyl ketal, benzoin ethyl ether, benzophenone and Michler's ketone, the composition, when cured, having a refractive index n_D^{20} ranging from 1.434 to 1.532.

5,068,262

RESIN COMPOSITION CURABLE WITH AN ACTIVE ENERGY RAY CONTAINING PHOTOPOLYMERIZABLE POLYURETHANE

Hiromichi Noguchi, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1988, Ser. No. 244,302

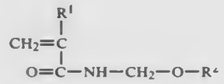
Claims priority, application Japan, Sep. 16, 1987, 62-229492; Jun. 29, 1988, 63-159079

Int. Cl.[5] **C08L** *51/00, 47/00, 33/04;* **C08G** *63/48*

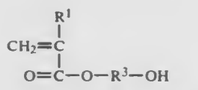
U.S. Cl. 522—95 **4 Claims**

1. A resin composition curable with an active energy ray comprising:

(i) a graft copolymerized polymer having a number average molecular weight of 5,000 or more and a weight average molecular weight of 50,000 or less which comprises a trunk chain composed mainly of structural units derived from at least one monomer selected from the group consisting of alkyl methacrylates, acrylonitrile and styrene and has graft chains having- structural units derived from at least one monomer selected from the group consisting of the monomers represented by the following formula I and other monomers presented by the formula II:



(I)

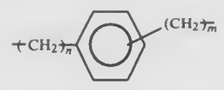


(II)

(wherein R^1 is hydrogen or an alkyl or hydroxyalkyl group having 1 to 3 carbon atoms, R^2 is hydrogen or an alkyl or acyl group having 1 to 4 carbon atoms which may have hydroxy group, R^3 is an alkyl group having 2 to 6 carbon atoms, a halogen-substituted alkyl group having 2 to 6 carbon atoms, an alkylether group represented by the formula:



(wherein 2≦m+n≦6, n≠0 and m≠0), or a phenylalkyl group represented by the formula:



(wherein 2≦m+n≦4, or the case where n=0 or m=0 is contained), added to said trunk chain;

(ii) a linear polymer having a number average molecular weight of 50,000 or more and a weight average molecular weight of 350,000 or less and having a glass transition temperature of 60° C. or more which comprises structural units derived from at least one monomer selected from the group consisting of methyl methacrylate, ethyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, benzyl methacrylate, acrylonitrile, isobornyl methacrylate, isobornyl acrylate, tricyclodecaneacrylate, tricyclodecane methacrylate, tricyclodecaneoxyethyl methacrylate, styrene, dimethylaminoethyl methacrylate and cyclohexyl methacrylate and other structural units derived from at least one monomer in amounts from 5 to 30 mole percent

selected from the group consisting of the monomers represented by said formula (I) and the monomers represented by said formula (II);

(iii) an esterified polyurethane obtained from oligoesterdiol or from oligoesterdiol and dihydric isocyanate which has a molecular chain terminal end being esterified with acrylic acid: and

(iv) a photopolymerization initiator.

5,068,263

RESIN COMPOSITION CURABLE WITH AN ACTIVE ENERGY RAY CONTAINING GRAFT COPOLYMERIZED POLYMER WITH TRUNK CHAIN CONTAINING DICYCLOPENTENYL GROUP

Hiromichi Noguchi, Atsugi, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 15, 1988, Ser. No. 244,301

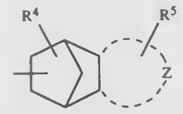
Claims priority, application Japan, Sep. 16, 1987, 62-229492; Jun. 29, 1988, 62-159076

Int. Cl.[5] **C08L** *51/00, 47/00, 33/04;* **C08G** *63/48*

U.S. Cl. 522—109 **4 Claims**

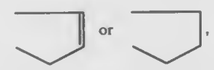
1. A resin composition curable with active energy ray, comprising:

(i) a graft copolymerized polymer having a number average molecular weight of 5,000 or more and a weight average molecular weight of 50,000 or less, which comprises a trunk chain composed mainly of structural units derived from at least one monomer selected from the group consisting of a monomer containing, in the molecule, a (meth-)acryloyl group and a dicyclopentenyl derivative group represented by the general formula (I):

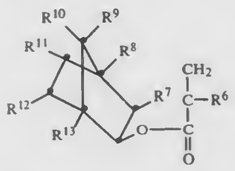


(I)

wherein Z represents a 5-membered ring shown by

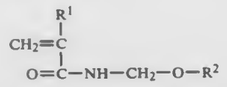


R^4 and R^5 each represents a hydrogen atom or an alkyl group with 1 to 3 carbon atoms, a monomer represented by the following general formula (II):

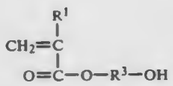


(II)

wherein R^6–R^{13} each represents a hydrogen atom or a methyl group, alkyl methacrylates, acrylonitrile and styrene and, added thereto, graft chains having structural units derived from at least one monomer selected from the group consisting of monomers represented by the following general formulae (x) and (y):



(x)

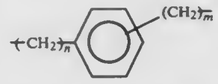


(y)

wherein R^1 is a hydrogen atom or an alkyl or hydroxyalkyl group having 1 to 3 carbon atoms, R^2 is a hydrogen atom or an alkyl or acrylic group having 1 to 4 carbon atoms which may have hydroxy groups, R^3 is an alkyl group having 2 to 6 carbon atoms, a halogen-substituted alkyl group having 2 to 6 carbon atoms, an alkylether group represented by the formula:

$—CH_2)_nO—CH_2)_m$

wherein 2≦m+n≦6, n≠0, m≠0, or a phenylalkyl group represented by the formula:



wherein 2≦m+n≦4, or the case wherein n=0 or m=0 is contained);

(ii) a linear polymer having a number average molecular weight of 50,000 or more and a weight average molecular weight of 350,000 or less and having a glass transition temperature of 60° C. or higher, which comprises structural units derived from at least one monomer selected from the group consisting of methyl methacrylate, ethyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, benzyl methacrylate, acrylonitrile, isobornyl methacrylate, isobornyl acrylate, tricyclodecane methacrylate, tricyclodecaneoxyethyl methacrylate, styrene, dimethylaminoethyl methacrylate and cyclohexyl methacrylate, and structural units derived from at least one monomer in amounts from 5 to 30 mole percent selected from the group consisting of said monomers represented by the formula (x) and the the formula (y) described above;

(iii) a monomer having ethylenically unsaturated bond, and

(iv) a photopolymerization initiator capable of generating free radicals by irradiation of an active energy ray.

5,068,264

FORMYLPIPERAZINYL-(METH)ACRYLIC ACID DERIVATIVES FOR TREATMENT OF COLLAGEN

Michael Müller, Bergisch-Gladbach, and Wolfgang Podszun, Cologne, both of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

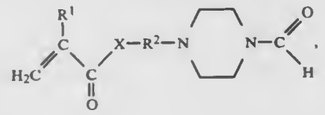
Filed Apr. 12, 1990, Ser. No. 509,000

Claims priority, application Fed. Rep. of Germany, Apr. 27, 1989, 3913940

Int. Cl.[5] **A61K** *6/00;* **A61L** *15/58;* **C07D** *241/04*

U.S. Cl. 522—167 **9 Claims**

1. An adhesive composition for the treatment of a collagen-containing material comprising a formylpiperazine group-containing (meth)acrylic acid derivative of the formula



(I)

in which

R^1 is hydrogen or methyl,

VOL 1132 ISS 4 NO 26 1991 UMI

R^2 is a divalent aliphatic or cycloaliphatic radical, and
X is —O— or —NH—.
and an initiator, coactivator, carbonyl compound, filler, stabilizer, inhibitor, light screen, colorant, pigment or fluorescent substance.

5,068,265
SEALANT COMPOSITION
Tadhg E. Casey, and David P. Melody, both of Dublin, Ireland, assignors to Loctite (Ireland) Ltd., Dublin, Ireland
Filed Jul. 21, 1989, Ser. No. 384,230
Claims priority, application Ireland, Jul. 21, 1988, 2227/88
Int. Cl.[5] C09J *4/02*
U.S. Cl. 523—176 **18 Claims**

1. An improved anaerobically curable liquid (meth)acrylate ester sealant composition wherein the improvement comprises employing therein from about 0.1 to about 5% by weight of a fibrillated fibrous filler having a bulk density of less than about 25 lb. per cubic foot.

5,068,266
EMULSION WATER PAINT AND PROCESS FOR ITS PRODUCTION USING PHASE INVERSION OF EPOXY-ACRYLIC CURING AGENT RESIN COMPOSITION
Shunji Kojima, Yokosuka; Yoshiki Watanabe, Yokohama; Hiroaki Goto, Tokyo, and Toshinori Moriga, Yokohama, all of Japan, assignors to Toyo Seikan Kaisha Ltd., Tokyo, Japan
Continuation-in-part of Ser. No. 272,838, Sep. 27, 1988. This application Oct. 25, 1989, Ser. No. 426,351
Claims priority, application Japan, Jan. 27, 1987, 62-15146; Jan. 27, 1987, 62-15147; Mar. 25, 1987, 62-69176; May 7, 1987, 62-109727
Int. Cl.[5] C08G *59/40;* **C09D** *3/58, 3/81, 5/00*
U.S. Cl. 523—336 **9 Claims**

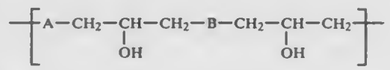
1. A process for the continuous production of an emulsion water paint, which comprises (1) in a first stage feeding (A) an organic solvent solution comprising a carboxyl group-containing acrylic resin component, an epoxy resin component and a component of a curing agent resin for the epoxy resin independently or in combination, together with (B) an aqueous solution of ammonia or an amine, to an in-line mixer, at an (A)/(B) weight mixing ratio of from 10/10 to 10/1, mixing the solution at a temperature of 10° to 90° C. under a pressure of 0.2 to 10 kg/cm^2 (gauge) to form a w/o emulsion, (2) in a second stage feeding the resulting w/o emulsion together with water in an amount of 30 to 100 parts by weight per 100 parts by weight of the w/o emulsion to an in-line mixer, mixing the w/o emulsion and water in the second mixer to effect a phase inversion to an o/w emulsion, and (3) withdrawing the formed o/w emulsion quantitatively.

5,068,267
SEMICONDUCTOR DEVICE ENCAPSULANT CONSISTING OF EPOXY RESIN COMPOSITION
Ken Uchida, Tokyo; Michiya Higashi, Kawasaki; Naoko Kihara, Matsudo; Hiroshi Shimozawa, and Akira Yoshizumo, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 12, 1989, Ser. No. 405,533
Claims priority, application Japan, Sep. 13, 1988, 63-229012
Int. Cl.[5] C08K *3/36;* **C08G** *63/91*
U.S. Cl. 523—435 **10 Claims**

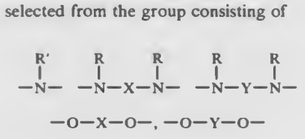
1. A semiconductor device encapsulant consisting of an epoxy resin composition, comprising:
(a) an epoxy resin;
(b) a rubber-modified phenolic resin comprising a phenolic resin, and 0.1 to 7 wt. % of a graft copolymer of methacrylate and styrene onto a styrene-butadiene copolymer or butadiene polymer, and 0.1 to 5 wt. % of a thermosetting silicone rubber dispersed in said phenolic resin, where the total content of these modifiers is 0.2 to 10 wt. % with respect to the entire encapsulant,
(c) a curing accelerator; and
(d) 50 to 90 wt % of a silica powder with respect to the entire encapsulant,
where said rubber-modified phenolic resin and epoxy resin are mixed such that the equivalent weight ratio between a phenolic hydroxyl group and an epoxy group falls within the range of 0.5 to 1.5.
7. A rubber-modified phenolic resin comprising:
a phenolic resin; and
a graft copolymer of methylmethacrylate and styrene onto a butadiene polymer or styrene-butadiene copolymer and a thermosetting silicone rubber dispersed in the phenolic resin.

5,068,268
EPOXY POLYMER MATERIALS
Kenneth C. Dewhirst, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.
Filed Sep. 12, 1989, Ser. No. 405,915
Int. Cl.[5] C08G *59/50*
U.S. Cl. 523—445 **19 Claims**

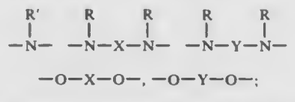
1. A polymer composition comprising lightly crosslinked linear molecules having the repeating structures prior to crosslinking of the formula



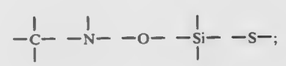
wherein
(a) A is selected from the group consisting of



and mixtures thereof, and
B is selected from the group consisting of



(b) each R is independently selected from the group consisting of unsubstituted or inertly substituted C_1–C_{20} aliphatic, cycloaliphatic or aralkyl groups; and each R′ is independently selected from the group of substituents used to define R plus unsubstituted and inertly substituted aryl groups;
(c) said repeating structures are lightly crosslinked such that between 2 and 25 of said repeating structures per 100 total repeating structures are crosslinked to repeating structures of other molecules;
(d) X and Y each independently is a segment comprising stiff units (SU and SU′, respectively) and optional flexible units (FU and FU′, respectively), which stiff units and flexible units are interconnected;
(e) said stiff units, SU and SU′, are independently selected from the groups consisting of unsubstituted and substituted monocyclic or fused two to four ring polycyclic aromatic groups consisting of benzene or fused benzene rings and non-interfering five or six number heterocyclic rings;
(f) said flexible units, FU and FU′, are independently selected from the group consisting of



and
(g) the ratio of the number of stiff units to flexible units in said X segment (SU/FU) is equal to or greater than the ratio of the number of stiff units to flexible units in said Y segment (SU′/FU′); and
(h) with the provision that about 50% or more of the total A and B groups in the polymer are internally non-rotating, planar segments derived from at least one of a dihydroxynaphthalene or a diglycidyl ether of a dihydroxynaphthalene.

5,068,269
CELLULOSIC MEMBRANES
Michael Diamantoglou, Erlenbach, Fed. Rep. of Germany, assignor to Akzo N.V., Arnhem, Netherlands
Filed Aug. 31, 1990, Ser. No. 575,690
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1989, 3929150
Int. Cl.[5] C08L *1/02;* **B01D** *39/04*
U.S. Cl. 524—35 **18 Claims**

1. A cellulose membrane comprising a mixture of cellulose and at least one compound of the formula

$[A—B]_n$

wherein A is at least one acidic or basic group;
B is a straight-chain or branched, substituted or unsubstituted group, and is selected from the group consisting of alkyl groups having at least 10 carbon atoms and arylalkyl groups having at least 10 carbon atoms, or a polymerizable substituted or unsubstituted monomeric group selected from the group consisting of alkene, alkyne, cycloolefin, arene, arylalkene, arylalkyne, allyl, and vinyl group, wherein the chain can be in errupted by heteroatoms selected from the group consisting of O, S, N, P, B, and Si;
n = 1 or, in the case of polymerizable monomers, at least 10, and the percentage of cellulose in the mixture is at least 65%.

5,068,270
COMPOSITION FOR WATER PROOF SHEETS
Kazuyuki Isobe, Tokyo; Takao Aizawa, Yokohama; Noboru Yamaguchi, Yokohama, and Yutaka Ueda, Yokohama, all of Japan, assignors to Nippon Unicar Company Limited and Bridgestone Corporation, both of Danbury, Conn.
Continuation-in-part of Ser. No. 379,519, Jul. 13, 1989, abandoned. This application Dec. 27, 1989, Ser. No. 457,924
Int. Cl.[5] C08J *77/00*
U.S. Cl. 524—68 **6 Claims**

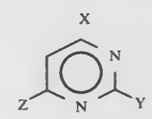
1. A composition for producing a water-proof sheet comprising 100 weight parts of a silicone-grafted linear ethylene-alpha-olefin copolymer prepared by adding an unsaturated alkoxysilane of the formula:

$RR'SiY_2$

wherein:
R is an aliphatically unsaturated hydrocarbon group or a hydrocarbonoxy group which is reactive with said free radicals generated in said copolymer;
Y is an alkoxy group and
R′ is a monovalent hydrocarbon group having no olefin unsaturation;
and an organic peroxide to a linear ethylene-alpha-olefin copolymer containing at least 50% ethylene and said alpha olefin having 3–12 carbon atoms, said copolymer having a density equal to or less than 0.910 g/ml; 20–200 weight parts of asphalt and 0.01 to 10 weight parts of a silanol-condensation catalyst.

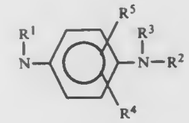
5,068,271
ARYLENEDIAMINE SUBSTITUTED PYRIMIDINES COMPOSITIONS
Edward L. Wheeler, Watertown; Franklin H. Barrows, Naugatuck, and Robert J. Franko, Beacon Falls, all of Conn., assignors to Uniroyal Chemical Company, Inc., Middlebury, Conn.
Division of Ser. No. 247,143, Sep. 21, 1988, Pat. No. 4,946,956. This application Jul. 30, 1990, Ser. No. 559,768
Int. Cl.[5] C08K *5/3492*
U.S. Cl. 524—100 **2 Claims**

1. A degradation resistant composition comprising an unsaturated polymer and an antidegradant amount of a compound of Structure (I):

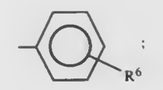


(I)

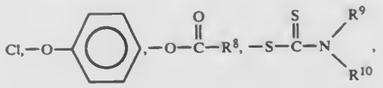
in which
X is



R^1 is hydrogen,
C_1–C_{11} alkyl,
C_3–C_6 cycloalkyl,
phenyl or
phenyl substituted with C_1–C_4 alkyl or phenyl;
R^2 is
C_1–C_{11} alkyl,
C_3–C_6 cycloalkyl or

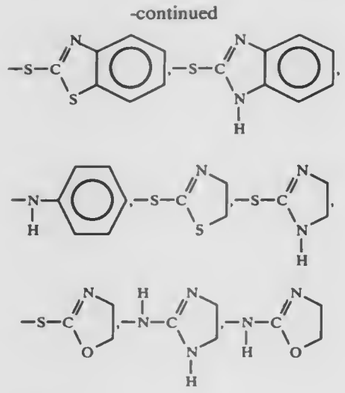


R^3 is hydrogen,
phenyl or
C_1–C_{11} alkyl when R^1 is hydrogen;
R^4 is hydrogen or
C_1–C_8 alkyl;
R^5 is hydrogen or
C_1–C_8 alkyl;
R^6 is hydrogen,
C_1–C_{11} alkyl or
C_1–C_4 alkoxy
Y is X, hydrogen, C_1–C_4 alkyl, —SH, SR^7, —OH, OR^7,

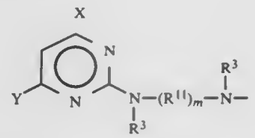


VOL 1132 ISS 4 NO 26 1991 UMI

-continued



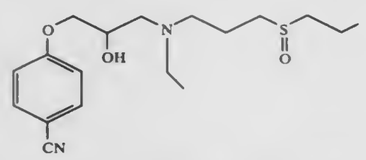
R^7 is C_1–C_{12};
R^8 is C_1–C_{11};
R^9 and R^{10} are C_1–C_4 alkyl
Z=X or Y or



R^{11} is
C_2–C_{10} linear alkyl;
C_5–C_{10} cycloalkyl or C_7–C_9 phenylalkyl;
m is 2–6
If Y≠X then R_6 can be hydrogen.

5,068,272
NOVEL POLYSTYRENESULFONATE, USEFUL AGAINST CARDIAC ARRHYTHMIAS
Kjell H. Andersson, Fjärås, Sweden, assignor to Aktiebolaget Hassle, Molndal, Sweden
Filed Jun. 18, 1990, Ser. No. 539,863
Claims priority, application Sweden, Jun. 29, 1989, 8902236
Int. Cl.[5] C08K *5/41;* **C08J** *3/00;* **C07C** *255/50*
U.S. Cl. 524—155 **11 Claims**

1. The salt of the compound 4-[3-[ethyl[3-(propylsulfinyl)-propyl]amino]-2-hydroxypropoxy]-benzonitrile having the formula I



(I)

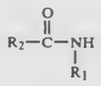
with polystyrenesulfonic acid, said compound being in the form of the stereoisomeric mixture or in the form of a pure stereoisomer thereof.

5,068,273
THERMOSETTING COMPOSITION
Narendra M. Patel, Mount Pocono, Pa., and Leonard Di Leo, Belleville, N.J., assignors to Sun Chemical Corporation, Fort Lee, N.J.
Filed Jun. 27, 1990, Ser. No. 545,440
Int. Cl.[5] C08L *61/28;* **C08K** *5/42*
U.S. Cl. 524—166 **10 Claims**

1. A thermosetting composition comprising:
(a) a mixture of at least one thermosettable polyester and an aminoplast resin; and
(b) at least one alkali metal organosulfonate as a catalyst for curing said mixture.

5,068,274
SECONDARY AMIDES IN POLYETHYLENE TEREPHTHALATE MOLDING COMPOSITIONS
Howard F. Efner, Bartlesville, Okla., assignor to Phillips Petroleum Company, Bartlesville, Okla.
Filed Jul. 19, 1990, Ser. No. 544,498
Int. Cl.[5] C08K *5/20*
U.S. Cl. 524—230 **70 Claims**

1. A composition comprising:
(a) about 30 to about 90 weight percent, based on the total weight of the composition polyethylene terephthalate;
(b) about 5 to about 65 weight percent based on the total weight of the composition filler;
(c) about 0.5 to 15 parts per hundred parts of (a) a normally liquid aliphatic polyester having a number average molecular weight in the range from about 7,500 to about 20,000 and which is a condensation product of an alkanedioic acid containing from 8 to about 12 carbon atoms per molecule and an alkanediol containing from 2 to about 5 carbon atoms per molecule;
(d) about 0.1 to about 3 parts per hundred parts of (a) a metal salt of an ionic hydrocarbon copolymer of an alpha-olefin containing from 2 to about 5 carbon atoms per molecule and an alpha,beta-ethylenically unsaturated carboxylic acid containing from 3 to about 5 carbon atoms per molecule in which copolymer the neutralized anionic carboxyl groups are associated with cations of said metal, said copolymer having a number average molecular weight in excess of about 3,000 prior to neutralization, said metal being selected from the group consisting of sodium and potassium;
(e) about 0.01 to 2 parts per hundred parts of (a) an antioxidant;
(f) about 0.1 to about 5 parts per hundred parts of (a) a secondary amide described by the formula:



wherein R_1 and R_2 may be the same or different and represent alkyl groups or unsaturated aliphatic groups containing from 8 to 36 carbon atoms, and wherein each said unsaturated group can have up to three double bonds.

5,068,275
PLASTICIZED HYDROGENATED NITRILE RUBBER
William A. Wiseman, Sarnia, Canada, assignor to Polysar Rubber Corporation, Sarnia, Canada
Continuation-in-part of Ser. No. 473,437, Feb. 1, 1990, abandoned. This application Oct. 5, 1990, Ser. No. 593,743
Int. Cl.[5] C08K *5/11*
U.S. Cl. 524—314 **4 Claims**

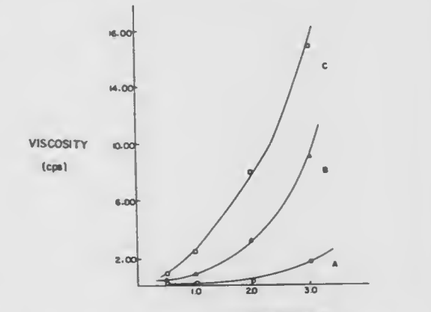
1. A vulcanized rubber composition having improved low temperature characteristics and improved resistance to hot air ageing, said composition containing as the only rubbery polymer hydrogenated nitrile rubber and further comprising a peroxide vulcanization system containing from 2 to 14 parts by weight of organic peroxide per 100 parts by weight of said hydrogenated nitrile rubber and from 10 to 30 parts by weight per 100 parts by weight of said hydrogenated nitrile rubber of a polymeric plasticizer having a weight average molecular weight of from about 600 to about 1500 and being a mixed dibasic acid polyester polymeric plasticizer obtained by the reaction of a dicarboxylic acid with a C_1 to C_{12} alcohol.

5,068,276
CHEMICALLY AGGREGATED MINERAL PIGMENTS
Paul R. Suitch, Milledgeville; A. Taylor Coppage, Macon, and Alan J. Brown, Milledgeville, all of Ga., assignors to E.C.C. America Inc., Atlanta, Ga.
Filed Dec. 29, 1989, Ser. No. 459,093
Int. Cl.[5] C08J *3/14*
U.S. Cl. 524—413 **16 Claims**

1. A process for forming chemically aggregated bulking pigments for use in paper filling and coating formulations, which comprises forming an aqueous slurry of a feed material comprising negatively charged mineral particles which have acid to neutral pH characteristics; adding a source of a polyvalent cation to said slurry to floc the said particles; adding polyacrylic acid to an acidic pH and neutralizing with a base to an alkaline pH to cross-link the polyacrylic acid with the polyvalent cation to cause the polyacrylate salt of said cation to precipitate in situ on the mineral particle flocs to thereby form aggregates having a bulked, porous, floc structure; and recovering and drying the aggregates as product.

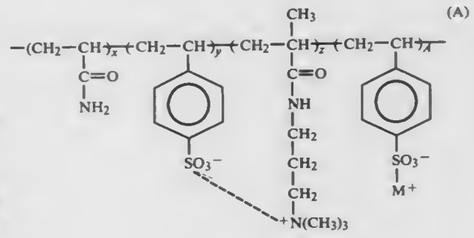
5,068,277
HYDROLYZABLE SILICONE POLYMERS
Rastko Vukov, Toronto, and Basil A. Behnam, Oakville, both of Canada, assignors to Rhone-Poulenc Inc., Princeton, N.J.
Filed May 3, 1989, Ser. No. 346,869
Int. Cl.[5] C08K *3/08*
U.S. Cl. 524—441 **27 Claims**

1. A hydrolyzable silicon containing polymer having the formula
wherein R_2 and R_3 are each independently alkyl or aryl optionally substituted with lower alkyl;
Z_1 is $—CH_2CHA—(CH_2)_rSi(R_1)_3$;
Z and Z_2 are each independently $(R_9)_nSi(H)_{3-n}$;
n has a value of from 0 to 3;
R_9 is slkyl, alkoxy, phenoxy, or aryl optionally substituted with lower alkyl;
R_7 is R_2;
x has a value of from 2 to 1000;
y has a value of from 1 to 200;
A is hydrogen, alkyl or phenyl;
r has a value of from 0 to 12; and
R_1 is hydroxy, acyloxy, halogen, amino, alkoxy, aryloxy or aryloxy substituted with lower alkyl, halogen or acyloxy.



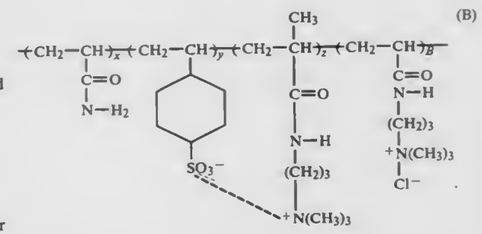
5,068,278
NOVEL POLYAMPHOLYTE COMPOSITIONS POSSESSING HIGH DEGREES OF ACID, BASE, OR SALT TOLERANCE IN SOLUTION
Dennis G. Peiffer, East Brunswick, and Robert D. Lundberg, Bridgewater, both of N.J., assignors to Exxon Research and Engineering Company, Florham Park, N.J.
Continuation of Ser. No. 288,888, Dec. 23, 1988, Pat. No. 4,946,916, which is a division of Ser. No. 81,682, Aug. 5, 1987, Pat. No. 4,837,288, which is a division of Ser. No. 826,229, Feb. 5, 1986, Pat. No. 4,710,555, which is a continuation-in-part of Ser. No. 688,238, Jan. 2, 1985, abandoned, which is a continuation-in-part of Ser. No. 560,543, Dec. 12, 1983, abandoned. This application Jun. 6, 1990, Ser. No. 533,750
The portion of the term of this patent subsequent to Jul. 24, 2001, has been disclaimed.
Int. Cl.[5] C08K *3/16*
U.S. Cl. 524—547 **9 Claims**

1. A composition containing from about 0.001 to about 20 grams of a terpolymer per 100 grams of water dissolved in a medium selected from the group consisting of water, a salt solution, an acid solution, or a basic solution, said terpolymer having a minor amount of a non-polymerizable free charge and having the formula:



(A)

or



(B)

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,279

LOW FREE FORMALDEHYDE MELAMINE-FORMALDEHYDE DETACKIFIER AND METHOD OF USING

Lewis D. Morse, Pittsburgh, Pa., assignor to Calgon Corporation, Pittsburgh, Pa.

Division of Ser. No. 296,258, Jan. 12, 1989, Pat. No. 4,935,149. This application Mar. 30, 1990, Ser. No. 501,466

Int. Cl.[5] C01L *61/24*

U.S. Cl. 524—593 **4 Claims**

1. A melamine-formaldehyde detackifier composition comprising a melamine-formaldehyde polymer and a formaldehyde scavenging agent comprising urea and at least one enhancer selected from the group consisting of glyoxal and acetylacetone, the formaldehyde scavenging agent being included in an amount sufficient to reduce the free formaldehyde in the detackifier composition to less than 0.15%.

5,068,280

POLYURETHANE AND/OR POLYUREA DISPERSIONS IN ACTIVE HYDROGEN-CONTAINING COMPOSITIONS

Jack M. Pal; James P. Cosman, both of Sarnia, and Karen Tan, Kingston, all of Canada, assignors to The Dow Chemical Company, Midland, Mich.

Filed Sep. 12, 1989, Ser. No. 406,000

Int. Cl.[5] C08L *75/04*

U.S. Cl. 524—728 **23 Claims**

1. A dispersion of polyurethane and/or polyurea particles in an isocyanate-reactive material having an equivalent weight greater than 400, wherein said particles have a bimodal particle size distribution wherein at least about 60 volume percent of the particles fall into two discrete size ranges, about 5 to about 75 volume percent of said particles in said discrete size ranges, being larger particles having an average particle size, as measured by hydrodynamic chromatography (HDC), of at least about 2000, and about 25 to about 95 volume percent of the particles in said discrete size ranges being smaller particles having an average particle size, as measured by HDC, of about 100 to about 7000 Angstroms.

5,068,281

PROCESS FOR THE PRODUCTION OF MOLDED ARTICLE OF FIBER-REINFORCED THERMOSETTING RESIN, AND MATERIALS THEREFOR

Hiroyuki Okumura, Hiratsuka; Masashi Kurokawa, Hatano; Akira Namikawa, Fujisawa, and Hiroka Tanisake, Hiratsuka, all of Japan, assignors to Toyota Jidosha Kabushiki Kaisha, Aichi and A.G. International Chemical Company, Inc., Tokyo, both of, Japan

Filed Apr. 3, 1990, Ser. No. 504,137

Claims priority, application Japan, Apr. 3, 1989, 1-81400

Int. Cl.[5] C08L *75/04*

U.S. Cl. 524—753 **20 Claims**

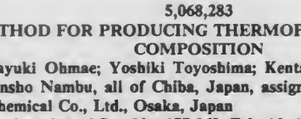
1. A process for the production of a molded article of a thermosetting resin composition by injection of a raw material component mixture containing an active hydrogen compound (A) with a polymerizable vinyl monomer (B) and a raw material component containing a polyisocyanate compound (C) into a mold charged with a fiber (D), wherein:

(1) the active hydrogen compound (A) is formed by mixing an unsaturated polyester (a_1) produced from a dicarboxylic acid containing 40 to 100 mole % of an unsaturated dicarboxylic acid or an anhydride thereof and a polyhydric alcohol containing a primary hydroxyl group and having a hydroxyl value of 110 to 280 mgKOH/g and an acid value of not more than 5 mgKOH/g with at least one member selected from the group consisting of an unsaturated epoxy ester (a_2) produced from an epoxy compound having at least one epoxy group in the molecule and an epoxy equivalent of 70 to 200 and a polymerizable unsaturated monobasic acid and an acrylic compound (a_3) having an acryloyl group and an hydroxyl group in the molecule, and (a_1), (a_2) and (a_3) have a mixing ratio satisfying the equation of

$$(a_2+a_3) / (a_1+a_2+a_3)\times 100 = 1 \text{ to } 15 \text{ wt \%},$$

(2) the polymerizable vinyl monomer (B) is a monomer containing 5 to 40% by weight of methyl methacrylate, and

(3) the polyisocyanate compound (C) is a liquid compound having a terminal group of



and a viscosity, at 25° C., of 10 to 2,000 cps,

the process being carried out under the following conditions (i), (ii) and (iii);

(i) (B) is 20 to 50% by weight in amount based on the total amount of (A) and (B),

(ii) (C) has an isocyanate group which is 0.75 to 1.2 times, preferably 0.85 to 1.1 times, by mole, the amount of the hydroxyl group of (A), and

(iii) (D) is 30 to 75% by weight based on the total amount of (A), (B), (C) and (D).

5,068,282

PROCESS FOR PRODUCING A POLYVINYL ACETACETAL RESIN FOR USE IN A HEAT TRANSFER SHEET

Jumpei Kanto, Komae; Masanori Akada; Katsuhiro Kamakari, both of Tokyo; Kenichi Asahina; Katsuaki Sakashita, both of Shiga, and Yoshihisa Watanabe, Uji, all of Japan, assignors to Dai Nippon Insatsu Kabushiki Kaisha, Japan and Sekisui Kagaku Kogyo Kabushiki Kaisha, Japan

Division of Ser. No. 132,001, Dec. 11, 1987, Pat. No. 4,902,670. This application Oct. 30, 1989, Ser. No. 428,619

Claims priority, application Japan, Dec. 15, 1986, 61-298505; Feb. 27, 1987, 62-45463

Int. Cl.[5] C08F *8/00*

U.S. Cl. 525—61 **6 Claims**

1. A process for producing a polyvinyl acetacetal resin, sequentially comprising the steps of:

initiating precipitation of an acetalated product by maintaining an emulsifier-free reaction system comprising a polyvinyl alcohol and acetaldehyde in an aqueous phase in the presence of 4–10% by weight of an acid catalyst in a first temperature range of 8°–17° C. for at least 30 minutes; and

maintaining the reaction system in a second temperature range of 25°–40° C. to obtain the polyvinyl acetacetal resin.

5,068,283

METHOD FOR PRODUCING THERMOPLASTIC RESIN COMPOSITION

Tadayuki Ohmae; Yoshiki Toyoshima; Kentaro Mashita, and Jinsho Nambu, all of Chiba, Japan, assignors to Sumitomo Chemical Co., Ltd., Osaka, Japan

Continuation of Ser. No. 157,262, Feb. 18, 1988, abandoned. This application Mar. 12, 1990, Ser. No. 492,471

Claims priority, application Japan, Mar. 31, 1987, 62-80786

Int. Cl.[5] C08L *67/02*

U.S. Cl. 525—64 **1 Claim**

1. A method for producing a thermoplastic resin composition which comprises:

melt-kneading (A) 60–97 parts by weight of a saturated polyester resin and (B) 40–3 parts by weight of an epoxy group-containing ethylene copolymer which comprises:

(i) 30–99% by weight of an ethylene unit,

(ii) 20–1% by weight of an α,β-unsaturated carboxylic acid glycidyl ester unit, and

(iii) 70–0% by weight of an ester unit selected from the group consisting of carboxylic acid vinyl ester and α,β-unsaturated carboxylic acid alkyl ester, and then

melt-kneading the resulting composition with (C) 0.01–20 parts by weight of an ethylene copolymer comprising an ethylene unit and an α,β-unsaturated carboxylic acid N,N-dimethylaminoalkyl ester unit, or an ethylene unit and a N,N-dimethylaminoalkyl α,β-unsaturated carboxylic acid amide unit to carry out a partial crosslinking reaction.

5,068,284

BLOCKED AMINE TERMINATED POLYCARBONATES AND PRODUCTS OBTAINED THEREFROM

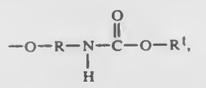
Timothy J. Ullman, Voorheesville, and Ronald J. Gambale, Croton-On-Hudson, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 3, 1990, Ser. No. 562,354

Int. Cl.[5] C08G *64/14, 64/18;* **C08L** *69/00*

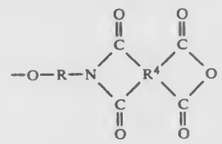
U.S. Cl. 525—67 **13 Claims**

1. A polycarbonate having terminal groups of the formula,



where R is a $C_{(2-13)}$ divalent organo radical, and R^1 is $C_{(3-8)}$ branched alkyl radical.

4. A polycarbonate having terminal groups of the formula,



where R is a $C_{(2-13)}$ divalent organo radical and R^4 is a tetravalent $C_{(2-30)}$ aromatic organic radical.

5,068,285

MOLDING COMPOSITIONS WITH ACRYLONITRILE-STYRENE-ACRYLATE RUBBER COPOLYMERS

Michael K. Laughner, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich.

Continuation-in-part of Ser. No. 320,667, Mar. 8, 1989, abandoned. This application Sep. 22, 1989, Ser. No. 411,278

Int. Cl.[5] C08L *69/00;* **B29C** *49/00, 51/00*

U.S. Cl. 525—67 **15 Claims**

1. A moldable composition consisting essentially of

A) about 20 to about 95% by weight of a carbonate polymer selected from the group consisting of

(i) randomly branched carbonate polymers,

(ii) linear carbonate polymers, and

(iii) blends of randomly branched carbonate polymers with linear carbonate polymers,

B) about 5 to about 75% by weight of a vinyl cyanide-vinyl aromatic hydrocarbon-acrylate rubber copolymer, and

C) about 0.5 to about 20% by weight of a core-shell graft copolymer having a butadiene polymer core and having an outer shell of a polymer selected from the group consisting of polymerized alkyl methacrylate and polymerized alkyl acrylate

wherein at least part of the core-shell graft copolymer is located in the carbonate polymer phase or in the interface between the carbonate phase and the vinyl cyanide-vinyl aromatic hydrocarbon-acrylate rubber copolymer.

5,068,286

COPOLYMERS FROM NUCLEOPHILIC OLEFIN POLYMERS AND EPOXYTRIAZINE-CAPPED POLYPHENYLENE ETHERS

John R. Campbell, Clifton Park; Timothy J. Shea, Schenectady; Stanley Y. Hobbs, Scotia, and Sterling B. Brown, Schenectady, all of N.Y., assignors to GE Plastics Japan Ltd., Japan

Filed Feb. 27, 1989, Ser. No. 316,059

Int. Cl.[5] C05L *53/02, 71/12*

U.S. Cl. 525—92 **23 Claims**

1. A composition comprising copolymers prepared by the reaction of a polyphenylene ether containing epoxytriazine groups with at least one aliphatic olefin polymer containing highly nucleophilic substituents.

5,068,287

PRIMER COMPOSITIONS

Shosaku Yamamoto, and Kazuo Kakinuma, both of Yokohama, Japan, assignors to Nippon Oil and Fats Co., Ltd., Japan

Division of Ser. No. 197,149, May 23, 1988, Pat. No. 4,985,500, which is a continuation of Ser. No. 3,238, Jan. 14, 1987, Pat. No. 4,830,778. This application Nov. 9, 1990, Ser. No. 611,775

Claims priority, application Japan, Jan. 23, 1986, 61-11152

Int. Cl.[5] C08F *8/30*

U.S. Cl. 525—124 **5 Claims**

1. A primer composition consisting essentially of

(A) at least one resin having a glass transition temperature of not higher than −20° C. and an elongation at break of not less than 400% at 20° C., and being an ethylene-vinyl acetate copolymer or a chlorinated ethylene-vinyl acetate copolymer resin or a modified resin thereof comprising high molecular weight elastomers and

(B) at least one cross-linking resin selected from the group consisting of melamine resin, urea resin, polyisocyanate resin, blocked isocyanate resin and polyurethane resin,

wherein the weight ratio as a solid resin content of component (A) to component (B) is 70-99:30-1.

5,068,288

ACID ETCH RESISTANT CLEAR COATS

Dennis N. Taljan, North Ridgeville, and R. Douglas Price, North Royalton, both of Ohio, assignors to PPG Industries, Inc., Pittsburgh, Pa.

Filed May 31, 1990, Ser. No. 531,380

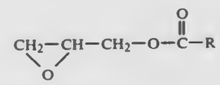
Int. Cl.[5] C08L *63/00*

U.S. Cl. 525—155 **12 Claims**

1. A curable composition comprising blends of active hydrogen-containing polymers and a curing agent therefor comprising:

(A) 5 to 60 percent by weight of a free radical initiated addition polymer prepared from a mixture of monomers comprising:

(1) an epoxy monomer represented by the formula:



where R stands for a tertiary aliphatic hydrocarbon group having 4 to 26 carbon atoms,

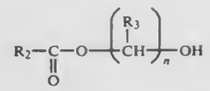
(2) a polymerizable alpha, beta-ethylenically unsaturated carboxylic acid, and

(3) optionally at least one other polymerizable alpha, beta-ethylenically unsaturated monomer;

(B) 10 to 50 percent by weight based on weight of resin solids of an acrylic copolymer different than (A) prepared from a mixture of monomers comprising:

VOL 1132 ISS 4 NO 26 1991 UMI

(1) a monomer of the formula:



wherein R_2 is a polymerizable unsaturated hydrocarbon group, R_3 is hydrogen or C_1 to C_4 alkyl, n=2 to 4 and

(2) at least one other unsaturated monomer copolymerizable therewith;

(C) 30 to 50 percent by weight based on weight of resin solids of a curing agent reactive with (A) and (B);

the percentages by weight being based on total weight of (A), (B) and (C).

5,068,289

REINFORCED POLYMER COMPOSITIONS

Eric R. George, and William P. Gergen, both of Houston, Tex., assignors to Shell Oil Company, Houston, Tex.

Filed Nov. 6, 1989, Ser. No. 432,010

The portion of the term of this patent subsequent to Aug. 27, 2008, has been disclaimed.

Int. Cl.[5] C08L *77/06*

U.S. Cl. 525—179 **18 Claims**

1. A glass fiber reinforced blend which comprises (a) a major proportion of a linear alternating polymer of carbon monoxide and at least one ethylenically unsaturated hydrocarbon, (b) a polymeric polyamide having recurring amide groups in the polymeric chain and (c) an acidic polymer containing moieties of an α-olefin, an α,β-ethylenically unsaturated carboxylic acid and as an optional monomer a non-acidic low molecular weight polymerizable monomer, a portion of the acid groups of the acidic polymer optionally neutralized with non-alkali metal, the glass being present in an amount of from about 1% by weight to about 45% by weight based on total blend.

5,068,290

PROCESS FOR THE CHLORINATION OF POLYOLEFINS

Hee-Dong Kang, Building 308-906, Shinbanpo 8th Apt., 112, Jamwon-dong, Sucho-ku, Seoul, Rep. of Korea

Filed Apr. 30, 1990, Ser. No. 516,730

Claims priority, application Rep. of Korea, May 6, 1989, 6080/89[U]

Int. Cl.[5] C08F *8/22*

U.S. Cl. 525—192 **16 Claims**

1. A process for the chlorination of polyolefins which comprises mixing a finely divided polyolefin with an anti-coagulant selected from the group consisting of titania, talc, silica, and polystryene sulfide, and then subjecting the mixture to a multistep chlorination in bulk in the presence of a free radical generation accelerant.

5,068,291

METHOD OF PREPARING PRESSURE SENSITIVE ADHESIVES WITH ACCELERATED CURE RATE

George L. Gallaway, Asbury, and Paul B. Foreman, Somerville, both of N.J., assignors to National Starch and Chemical Investment Holding Corporation, Wilmington, Del.

Filed Mar. 22, 1990, Ser. No. 498,199

Int. Cl.[5] C08F *8/42*

U.S. Cl. 525—366 **12 Claims**

1. In a method of preparing a pressure sensitive adhesive by reacting:

(A) a normally tacky interpolymer of:

(1) at least about 40 percent by weight of one or more alkyl acrylates having about 1 to 18 carbon atoms in the alkyl group,

(2) from about 0.2 to 20 percent by weight of an ethylenically unsaturated monomer containing one or more carboxylic acid groups, and

(3) from about 5 to 59.8 percent by weight of vinyl acetate, and

(B) a chelated metal alkoxide having the formula $R_nT(OR_1)_z$ wherein T is a metal selected from the group consisting of Groups II, III, IV and V and the transition metals of the Periodic Table, R is selected from the group consisting of alkyl radicals of from 1 to 8 carbon atoms and aryl radicals of from 6 to 16 carbon atoms, R_1 is selected from the group consisting of aliphatic and substituted aliphatic radicals containing from 1 to 18 carbon atoms, n is an integer whose value is 0 or greater and z is an integer whose value is at least 2 wherein the sum of n+z is greater than 1 and is equal to the valence of the metal represented by T,

the improvement comprising providing a pressure sensitive adhesive having a fast curing rate by first forming the interpolymer by the slow addition of a uniform mixture of all the (A) components including the slower reacting vinyl acetate and the faster reacting alkyl acrylate and ethylenically unsaturated carboxylic acid containing monomer to the reaction kettle.

5,068,292

IN-SITU COMPOSITES

Gerd M. Lenke, Canton, and Donald R. Wiff, Akron, both of Ohio, assignors to GenCorp Inc., Fairlawn, Ohio

Filed Jul. 11, 1989, Ser. No. 377,987

Int. Cl.[5] C08L *61/20*

U.S. Cl. 525—509 **15 Claims**

1. A method of preparing an in situ composite material comprising:

a. dissolving precursors to a rigid rod polymer in precursors to a matrix polymer; and

b. reacting said precursors to the rigid rod polymer to form the rigid rod polymer in situ; and

c. reacting said precursors to the matrix polymer to form the matrix polymer in situ.

5,068,293

NAPHTHOL-BASED EPOXY RESINS, INTERMEDIATES FOR THE SAME, PROCESS FOR PREPARING THE SAME, AND EPOXY RESIN COMPOSITIONS CONTAINING THE SAME

Masashi Kaji, Kitakyushu; Takanori Aramaki, Fukuoka; Norito Nakahara, and Yasuharu Yamada, both of Kitakyushu, all of Japan, assignors to Nippon Steel Chemical Co., Ltd., Tokyo, Japan

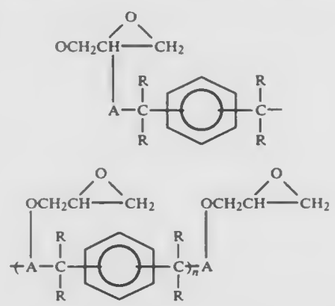
Filed Aug. 30, 1990, Ser. No. 575,022

Claims priority, application Japan, Sep. 1, 1989, 1-224520

Int. Cl.[5] C08G *59/00, 65/08, 65/14*

U.S. Cl. 525—534 **2 Claims**

1. Naphthol-based epoxy resins of the general formula (I)



(I)

in which A is a naphthalene nucleus, R is hydrogen or methyl, and n is an integer from 0 to 15.

5,068,294

PROCESS TO PRODUCE POLYMERS OF STYRENE DERIVATIVES

Donn A. DuBois, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Sep. 28, 1990, Ser. No. 589,363

Int. Cl.[5] C08F *2/06, 4/16, 12/08*

U.S. Cl. 526—194 **26 Claims**

1. A process for producing a polymer comprising the step of contacting a monomer selected from the group of styrene and styrene derivatives with a zeolite and an iodine containing electrophile under conditions which result in polymerizing the monomers.

5,068,295

WATER AND OIL REPELLANTS

Iwao Misaizu, Urawa; Kazuyuki Hanada, Washinomiya; Akihiko Shibuya, Tokyo, and Katsumi Kuriyama, Koshigaya, all of Japan, assignors to Dainichiseika Color & Chemicals Mfg. Co., Ltd. and Ukima Colour & Chemicals Mfg. Co., Ltd., both of Tokyo, Japan

Filed Feb. 9, 1990, Ser. No. 477,485

Claims priority, application Japan, Feb. 15, 1989, 1-33748; Feb. 15, 1989, 1-33749

Int. Cl.[5] C08F *18/20*

U.S. Cl. 526—245 **11 Claims**

1. A water and oil repellant, comprising a copolymer of a first vinyl monomer having a perfluoroalkyl group, a second vinyl monomer having a polyorganosiloxane chain and a third vinyl monomer having an isocyanate group or a block isocyanate group as essential components, said vinyl monomer having an isocyanate group being selected from the group consisting of methacryl isocyanate, m-isopropenyl-α,α-dimethyl isocyanate and a compound formed by reacting any of 2-hydroxyethyl (meth)acrylates, 2-hydroxypropyl (meth)acrylates, glycerol mono(meth)acrylates, 1,6-hexanediol mono(meth)acrylates, neopentyl glycol mono(meth)acrylates, trimethylolpropane mono(meth)acrylates, pentaerythritol mono(meth)acrylates, diethyleneglycol mono(meth)acrylates, polyethyleneglycol mono(meth)acrylates, polypropyleneglycol mono(meth)acrylates, t-butylaminoethyl (meth)acrylates and polyethyleneglycol polypropyleneglycol (meth)acrylates with any one of 4,4'-diphenylmethane diisocyanate, 4,4'-dicyclohexylmethane diisocyanate, isophorone, diisocyanate, xylylene diisocyanate, tolylene diisocyanate, phenylene diisocyanate, hexamethylene diisocyanate, and 1,5-naphthylene diisocyanate; said block isocyanate group being any one of the above isocyanate groups blocked with a blocking agent.

5,068,296

METATHESIS POLYMERIZED CROSS-LINKED COPOLYMER

Shigeyoshi Hara; Zen-ichiro Endo, and Hiroshi Mera, all of Iwakuni, Japan, assignors to Hercules Incorporated, Wilmington, Del.

Division of Ser. No. 155,798, Feb. 16, 1988, Pat. No. 5,006,616.

This application Feb. 25, 1991, Ser. No. 644,664

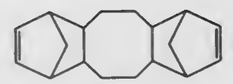
Claims priority, application Japan, Feb. 16, 1987, 62-31495

Int. Cl.[5] C08F *232/08*

U.S. Cl. 526—282 **38 Claims**

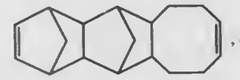
1. A metathesis polymerized cross-linked copolymer comprising:

(a) 3–100 mole % of repeating units derived from a mixture comprising the following monomers:



(I-a)

and



(I-b)

, and

(b) 97–0 mole % of repeating units derived from at least one of metathesis polymerizable cyclic compounds.

5,068,297

HYDROPHOBIC CATIONIC TERPOLYMERS FROM ACRYLAMIDE, UNSATURATED QUATERNARY SALT AND VINYL ACETATE

Bhupati R. Bhattacharyya, Downers Grove, and Michael R. St. John, Chicago, both of Ill., assignors to Nalco Chemical Company, Naperville, Ill.

Filed Oct. 26, 1989, Ser. No. 427,454

Int. Cl.[5] C08F *220/56*

U.S. Cl. 526—287 **10 Claims**

1. A hydrophobic cationic terpolymer of (a) at least one monomer selected from the group consisting of acrylamide and methacrylamide, (b) at least one monomer selected from the group consisting of dimethylaminoethymethacrylate methyl chloride and dimethylaminoethylmethacrylate methyl sulfate, and (c) a vinyl acetate monomer, the mole % of said (a), (b), and (c) monomers being in the range of from 30 to about 85 for the (a) monomer, from about 5 to about 26 for the (c) monomer, and the balance for the (b) monomer.

5,068,298

ALKENYL-PHOSPHONIC AND -PHOSPHINIC ESTERS, PROCESS FOR THEIR PREPARATION, THEIR USE AND HYDROGELS PREPARED USING THEM

Friedrich Engelhardt; Ulrich Riegel, both of Frankfurt am Main; Joachim Gersdorf, Wiesbaden, and Hans-Jerg Kleiner, Kronberg, all of Fed. Rep. of Germany, assignors to Cassella Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Jun. 25, 1990, Ser. No. 542,763

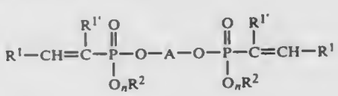
Claims priority, application Fed. Rep. of Germany, Jul. 7, 1989, 3922327

The portion of the term of this patent subsequent to Nov. 19, 2008, has been disclaimed.

Int. Cl.[5] C08F *230/04, 230/02*

U.S. Cl. 526—240 **4 Claims**

1. Water-swellable hydrogel prepared by copolymerization of ethylenically unsaturated hydrophilic monomers, characterized in that the compounds of the formula I



(I)

in which

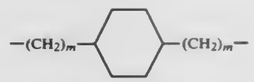
R^1 and $R^{1'}$, independently of one another, are hydrogen or (C_1–C_4)-alkyl,

R^2 is (C_1–C_4)-alkyl,

n is 0 or 1 and

A is straight-chain or branched (C_2–C_{12})-alkylene or a group of the formula II

VOL 1132 ISS 4 NO 26 1991 UMI



(II)

in which m is 0 or 1, or a group of the formula III



(III)

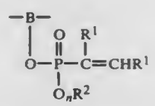
in which R^3 and R^4, independently of one another, are (C_1-C_4)alkyl and p is 0 or 1, or a group of the formula IV

$$—CH_2CH_2(OCH_2CH_2)_x—$$ (IV)

in which x is 1 to 12 or a group of the formula V

$$—C_3H_6(OC_3H_6)_x$$ (V)

in which x is 1 to 12 or a group of the formula VI



(VI)

in which B represents straight-chain or branched (C_3-C_{12})-alkylene and R^1, $R^{1'}$, R^2 and n are as defined above,

are employed as cross-linking agents during the copolymerization.

5,068,299

CARBODOHYDRATE-MODIFED POLYPHENOL COMPOUNDS AND COMPOSITIONS CONTAINING THEM

Andreas Lindert, Troy; John R. Pierce, Huntington Woods; David R. McCormick, Madison Heights, and William D. Zimmermann, Farmington Hills, all of Mich., assignors to Henkel Corporation, Ambler, Pa.

Division of Ser. No. 128,673, Dec. 4, 1981, Pat. No. 4,863,596. This application Aug. 24, 1990, Ser. No. 573,412

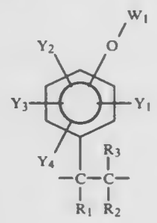
The portion of the term of this patent subsequent to Oct. 16, 2007, has been disclaimed.

Int. Cl.[5] C08F *12/24*

U.S. Cl. 526—313 **18 Claims**

I. A homo- or co-polymer compound comprising at least one polymer selected from the group consisting of (a), (b), (c), or (d), wherein:

(a) comprises a polymer material having at least one unit having the formula:

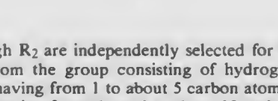


wherein:

R_1 through R_3 are independently selected for each of said units from the group consisting of hydrogen, an alkyl group having from 1 to about 5 carbon atoms, or an aryl group having about 6 to about 18 carbon atoms;

Y_1 through Y_4 are independently selected for each of said units from the group consisting of hydrogen, $—CR_{11}R_5OR_6$, $—CH_2Cl$, or an alkyl or aryl group having from 1 to 18 carbon atoms or Z;

Z is



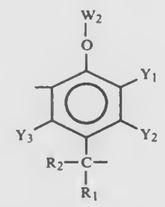
however, at least a fraction of the Y_1, Y_2, Y_3 or Y_4 of the homo- or copolymer compound or material must be Z and at least a fraction of said Z must contain a polyhydroxy alkyl-amine functionality resulting from the condensation of an amine or NH_3 and a ketose, aldose or other alkylaminopolyhydroxy compound having from about 3 to about 8 carbon atoms;

R_5 through R_{12} are independently selected for each of said units from the group consisting of hydrogen, an alkyl, aryl, hydroxy-alkyl, amino-alkyl, mercapto-alkyl, or phospho-alkyl moiety; R_{12} may also be $—O^{(-1)}$ or —OH;

W_1 is independently selected for each of said units from the group consisting of hydrogen; an acyl moiety; an acetyl; a benzoyl moiety; 3-allyloxy-2-hydroxy-propyl-; 3-benzyloxy-2-hydroxy-propyl-; 3-alkylbenzyloxy-2-hydroxy-propyl-; 3-phenoxy-2-hydroxy-propyl-; 3-alkylphenoxy-2-hydroxy-propyl-; 3-butoxy-2-hydroxy-propyl; 3-alkyloxy-2-hydroxy-propyl; 2-hydroxyoctyl-; 2-hydroxy-alkyl-; 2-hydroxy-2-phenyl ethyl-; 2-hydroxy-2-alkyl phenyl ethyl-; benzyl-; methyl-; ethyl-; propyl-; alkyl; allyl; alkyl benzyl-; haloalkyl-; haloalkenyl; 2-chloro-propenyl-; sodium, potassium; tetra aryl ammonium; tetra alkyl ammonium; tetra alkyl phosphonium; tetra aryl phosphonium; or a condensation product of ethylene oxide, propylene oxide, or a mixture or copolymer thereof;

(b) comprises:

a polymer material having at least one unit having the formula:

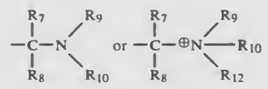


wherein:

R_1 through R_2 are independently selected for each of said units from the group consisting of hydrogen, an alkyl group having from 1 to about 5 carbon atoms, or an aryl group having from about 6 to about 18 carbon atoms;

Y_1 through Y_3 are independently selected for each of said units from the group consisting of hydrogen, $—CR_4R_5OR_6$, $—CH_2Cl$, an alkyl or aryl group having from 1 to 18 carbon atoms, or Z,

Z is



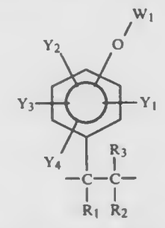
but at least a fraction of the Y_1, Y_2, or Y_3 of the final compound must be Z, and at least a fraction of said Z must contain a polyhydroxy alkyl-amine functionality resulting from the condensation of an amine or NH_3 and a ketose, aldose or other alkylaminopolyhydroxy compound having from about 3 to about 8 carbon atoms then reduced to the amine;

R_4 through R_{12} are independently selected for each of said units from the group consisting of hydrogen, or an alkyl, aryl, hydroxy-alkyl, amino-alkyl, mercapto-alkyl or phospho-alkyl moiety; R_{12} may also be $—O^{(-1)}$ or —OH;

W_2 is independently selected for each of said units from the group consisting of hydrogen; an acyl moiety; acetyl; benzoyl; 3-allyloxy-2-hydroxy-propyl-; 3-benzyloxy-2-hydroxy-propyl-; 3-alklbenzyloxy-2-hydroxy-propyl-; 3-phenoxy-2-hydroxy-propyl-; 3-alkylphenoxy-2-hydroxy-propyl-; 3-butoxy-2-hydroxy-propyl-; 3-alkyloxy-2-hydroxy-propyl-; 2-hydroxyoctyl-; 2-hydroxy-alkyl-; 2-hydroxy-2-phenyl-ethyl-; 2-hydroxy-2-alkyl-phenylethyl-; benzyl-; methyl-; ethyl-; propyl-; alkyl; allyl-; alkylbenzyl-; haloalkyl-; haloalkenyl; 2-chloro-propenyl-; or a condensation product of ethylene oxide, propylene oxide, or a mixture thereof;

(c) comprises:

a co-polymer material wherein at least one portion of said co-polymer has the structure:



and at least a fraction of said portion is polymerized with one or more monomers independently selected for each of said units from the group consisting of methacrylonitrile, methyl acrylate, methyl methacrylate, vinyl acetate, vinyl methyl ketone, isopropenyl methyl ketone, acrylic acid, methacrylic acid, acrylamide, methacrylamide, n-amyl methacrylate, styrene, m-bromostyrene, p-bromostyrene, pyridine, diallyldimethylammonium salts, 1,3-butadiene, n-butyl acrylate, tert-butylamino-ethyl methacrylate, n-butyl methacrylate, tert-butyl methacrylate, n-butyl vinyl ether, tert-butyl vinyl ether, m-chlorostyrene, o-chlorostyrene, p-chlorostyrene, n-decyl methacrylate, N,N-diallylmelamine, N,N-di-n-butylacrylamide, di-n-butyl itaconate, di-n-butyl maleate, diethylaminoethyl methacrylate, diethyleneglycol monovinyl ether, diethyl fumarate, diethyl itaconate, diethyl vinylphosphonate, vinylphosphonic acid, diisobutyl maleate, diisopropyl itaconate, diisopropyl maleate, dimethyl fumarate, dimethyl itaconate, dimethyl maleate, di-n-nonyl fumarate, di-n-nonyl maleate, dioctyl fumarate, di-n-octyl itaconate, di-n-propyl itaconate, n-dodecyl vinyl ether, ethyl acid fumarate, ethyl acid maleate, ethyl acrylate, ethyl cinnamate, N-ethylmethacrylamide, ethyl methacrylate, ethyl vinyl ether, 5-ethyl-2-vinylpyridine, 5-ethyl-2-vinylpyridine 1-oxide, glycidyl acrylate, glycidyl methacrylate, n-hexyl methacrylate, 2-hydroxyethyl methacrylate, 2-hydroxypropyl methacrylate, isobutyl methacrylate, isobutyl vinyl ether, isoprene, isopropyl methacrylate, isopropyl vinyl ether, itaconic acid, lauryl methacrylate, methacrylamide, methacrylic acid, methacrylonitrile, N-methylolacrylamide, N-methylolmethacrylamide, N-isobutoxymethylacrylamide, N-isobutoxymethylmethacrylamide, N-alkyloxymethylacrylamide, N-alkyloxymethylmethacrylamide, N-vinyl-caprolactam, methyl acrylate, N-methylmethacrylamide, αmethylstyrene, m-methylstyrene, o-methylstyrene, p-methylstyrene, 2-methyl-5-vinylpyridine, n-propyl methacrylate, sodium p-styrenesulfonate, stearyl methacrylate, styrene, p-styrenesulfonic acid, p-styrenesulfonamide, vinyl bromide, 9-vinylcarbazole, vinyl chloride, vinylidene chloride, 1-vinylnaphthalene, 2-vinylnaphthalene, 2-vinylpyridine, 4-vinylpyridine, 2-vinylpyridine N-oxide, 4-vinylpyrimidine, N-vinylpyrrolidone; and W_1, Y_1–Y_4 and R_1–R_3 are as in (a), above;

(d) comprises:

a condensation polymer of polymer materials (a), (b), or (c), wherein a condensable form of (a), (b), (c), or a mixture thereof, is condensed with a second compound selected from the group consisting of phenols, tannins, novolak resins, lignin compounds, together with aldehydes, ketones or mixtures thereof, to produce a condensation resin product, said condensation resin product then being further reacted by the addition of "Z" to at least a portion of it by reacting said resin product with (1) an aldehyde or ketone and (2) a secondary amine producing a final adduct which can react with an acid.

5,068,300

BIFUNCTIONAL STILBENE COMPOUNDS CONTAINING AT LEAST ONE Z-CONFIGURATED STILBENE GROUP, PROCESS FOR THEIR PREPARATION AND THEIR USE FOR THE PREPARATION OF POLYMERS

Dieter Arlt, Cologne; Axel Bader, Bergisch Gladbach, and Volker Eckhardt, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

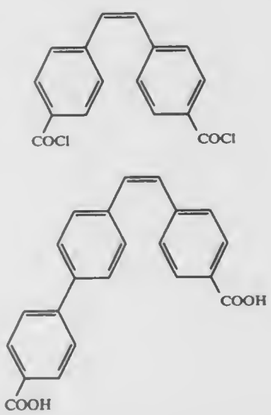
Division of Ser. No. 498,408, Mar. 26, 1990, abandoned. This application Oct. 19, 1990, Ser. No. 599,258

Claims priority, application Fed. Rep. of Germany, Apr. 7, 1989, 3911221

Int. Cl.[5] C08F *22/02*

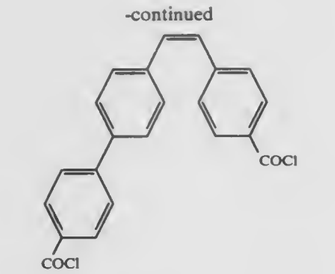
U.S. Cl. 526—318.2 **1 Claim**

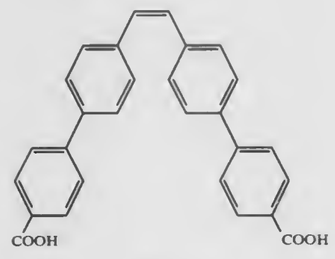
1. New Z-stilbene compounds corresponding to the following formulae

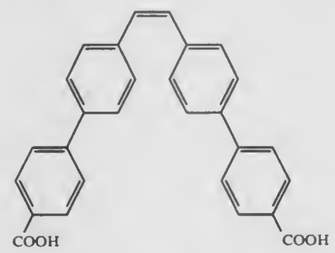


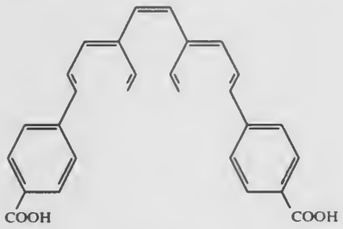
VOL 1132 ISS 4 NOV 26 1991 UMI

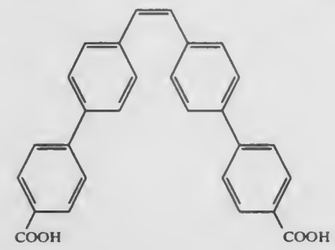
-continued



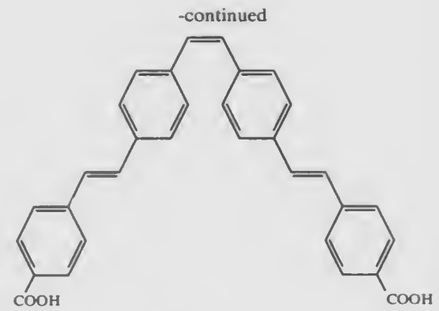


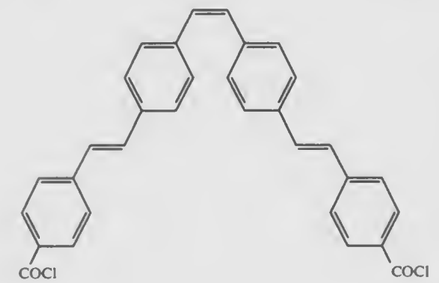


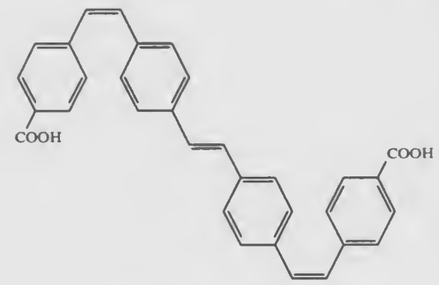


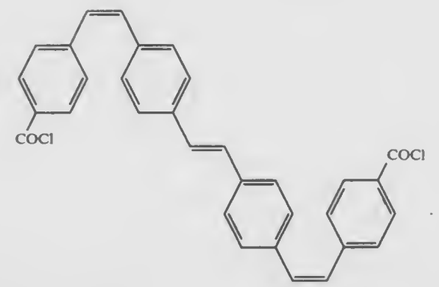


-continued









5,068,301

COATING COMPOSITION FOR ELECTROPHOTOGRAPHIC CARRIER

Yoshio Okamura; Mitsuhiro Takarada; Yoshiteru Kobayashi, and Tadashi Takahashi, all of Annaka, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Sep. 8, 1989, Ser. No. 404,544

Claims priority, application Japan, Sep. 9, 1988, 63-226270

Int. Cl.[5] C08G *77/06*

U.S. Cl. 528—15 **9 Claims**

1. A coating composition for an electrophotographic carrier, which comprises:

(A) 100 parts by weight of a compound represented by the general formula (1):

$$R_aX_bSiO_{(4-(a+b))/2} \quad (1)$$

wherein R represents a substituted or unsubstituted hydrocarbon residue; X represents a hydroxyl group or a hydrolyzable group; "a" is a number in the range of $0.8<a<1.8$; and "b" is a number in the range of $0.01<b\leqq 3$;

(B) 0.05 to 50 parts by weight of an organohydrogenpolysiloxane having at least two hydrogen atoms bonded directly to a silicon atom; and

(C) a curing catalyst for (A) and (B).

5,068,302

POLYSILOXANE-POLYCARBONATE BLOCK COPOLYMERS BASED ON CERTAIN DIHYDROXYDIPHENYLCYCLOALKANES

Peter Horlacher, Senden; Volker Serini; Dieter Freitag, both of Krefeld; Ulrich Grigo, Kempen; Karsten-Josef Idel, Krefeld, and Uwe Westeppe, Mettmann, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Bayerwerk, Fed. Rep. of Germany

Filed Aug. 8, 1990, Ser. No. 564,473

Claims priority, application Fed. Rep. of Germany, Aug. 15, 1989, 3926850

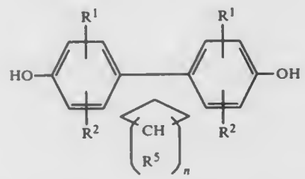
Int. Cl.[5] C08G *77/06*

U.S. Cl. 528—21 **4 Claims**

1. A thermoplastic molding composition comprising a polydiorganosiloxane-polycarbonate block copolymer having a weight average molecular weight of about 10,000 to 300,000 as measured by ultracentrifugation or scattered light based on

(i) a α,ω-bishydroxyaryloxy polysiloxane having a degree of polymerization of 5 to 300 and

(ii) at least one dihydroxydiphenylcycloalkane corresponding to



(I)

in which

R^1 and R^2 independently of one another represent at least one member selected from the group consisting of hydrogen atom, a halogen atom C_{1-8} alkyl, C_{5-6} cycloalkyl, C_{6-10} aryl and C_{7-12} aralkyl radicals,

n=2 or 3

and the substituents R^5 independently of one another are hydrogen or C_{1-12} alkyl, characterized in that at least one of the substituents R^5 is not hydrogen, and in that the content of its polydiorganosiloxane is about 1 to 25 percent relative to the weight of said copolymer.

5,068,303

ORGANOSILICON MATERIALS

John K. Bard, and Julia S. Burnier, both of Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del.

Continuation-in-part of Ser. No. 422,214, Oct. 16, 1989, Pat. No. 5,008,360. This application Sep. 28, 1990, Ser. No. 588,627

The portion of the term of this patent subsequent to Apr. 16, 2008, has been disclaimed.

Int. Cl.[5] C08G *77/04*

U.S. Cl. 528—25 **19 Claims**

1. A crosslinkable organosilicon prepolymer or crosslinked organosilicon polymer comprising alternating hydrocarbon and cyclic polysiloxane residues, which is the hydrosilation reaction product of:

(a) at least one polyene having at least two non-aromatic, non-conjugated carbon-carbon double bonds highly reactive in hydrosilation, the carbon-carbon double bonds being either in an alpha, beta or gamma position on a linear carbon moiety, next to two bridgehead positions in a strained polycyclic aliphatic ring structure, or in a cyclobutene ring, other than polycyclic polyenes having two reactive double bonds in a fused ring system;

(b) at least one polycyclic polyene having at least two chemically distinguishable non-aromatic, non-conjugated carbon-carbon double bonds in its rings wherein the at least two carbon-carbon double bonds have highly different rates of reaction in hydrosilation and one of the carbon-carbon double bonds will react prior to substantial reaction of the other carbon-carbon double bond(s);

(c) at least one cyclic polysiloxane containing three or more ≡SiH groups.

5,068,304

MOISTURE-CURABLE RESIN COMPOSITION

Toshihiko Higuchi, Yokohama; Yasuhiko Nakano, Zushi; Nobuaki Kunii, Yokohama; Yoshiyuki Yamaguchi, Yokohama, and Shigeyuki Kozawa, Yokohama, all of Japan, assignors to Asahi Glass Company Ltd., Tokyo, Japan

Filed Dec. 6, 1989, Ser. No. 446,661

Claims priority, application Japan, Dec. 9, 1988, 63-310149; Apr. 11, 1989, 1-89827

Int. Cl.[5] C08G *77/04*

U.S. Cl. 528—28 **14 Claims**

1. A moisture-curable resin composition containing a hydrolyzable silyl group-containing polyether compound as a curable component, said polyether compound comprising polyoxyalkylene chains derived from a polyoxyalkylene polyol having a hydroxyl value, x mgKOH/G, wherein x ranges from to 5 to 35, a total degree of unsaturation, y meq/g, wherein y is not higher than 0.07 meq/g and $h\leqq 0.9/(x-10)$, from 2 to 8 hydroxyl groups, and a content of oxyalkylene groups having at least 3 carbon atoms, of at least 60% by weight, and a hydrolyzable silyl group-containing terminal group present at least 1.3 terminals on the average of said polyoxyalkylene chains, said terminal group having a urethane bond linked to the polyoxyalkylene chain.

5,068,305

POWDER COATING COMPOSITIONS CONTAINING POLYURETHANES HAVING (METH)ACRYLOYL GROUPS AS BINDERS

Jürgen Meixner, Krefeld; Josef Pedain, Cologne; Peter Höhlein, Kempen, and Hans-Joachim Krender, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jul. 20, 1990, Ser. No. 556,223

Claims priority, application Fed. Rep. of Germany, Jul. 26, 1989, 3924679

Int. Cl.[5] C08G *18/30*

U.S. Cl. 528—49 **3 Claims**

1. A powder coating composition which may be cured in the presence of heat and/or high energy radiation and comprises a

VOL 1132 ISS 4 NO 26 1991 UMI

polyurethane which melts at a temperature of 50° to 180° C., contains 3 to 10% by weight of olefinic double bonds in the form of (meth)acryloyl groups (calculated as =C=C=, molecular weight =24) and comprises the reaction product of

A) 40–80 parts by weight of one or more organic polyisocyanates with

B) 15–50 parts by weight of one or more monohydric alcohols containing (meth)acryloyl groups and

C) 2–20 parts by weight of one or more compounds which are free from (meth)acryloyl groups and have molecular weights of from 62–200 and contain at least two isocyanate reactive groups.

5,068,306

PROCESS FOR THE PREPARATION OF O-AMINOPHENYL DERIVATIVES OF AMINATED POLY(ALKYLENE GLYCOLS) AND BACKBONE-MODIFIED DERIVATIVES THEREOF

Robert F. Harris, and Michael D. Joseph, both of Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich.

Filed Oct. 30, 1990, Ser. No. 605,591

Int. Cl.[5] C08G *18/32*

U.S. Cl. 528—68 **34 Claims**

1. A process for the preparation of an o-aminophenyl derivative of a polyalkyleneoxy polyamine which comprises adding a polyalkyleneoxy polyamine to a dispersion or solution of an isatoic anhydride under reaction conditions sufficient to form the corresponding o-aminophenyl derivative.

5,068,307

POLYAMIDEIMIDES CONTAINING 3,4'-DIAMINO-DIPHENYLETHER AS DIAMINE COMPONENT AND PROCESS FOR PREPARING THE SAME

Shigeyoshi Hara; Hiroo Inata, and Shunichi Matsumura, all of Iwakuni, Japan, assignors to Teijin Limited, Osaka, Japan

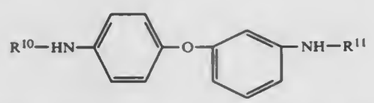
Division of Ser. No. 268,479, Nov. 8, 1988, Pat. No. 4,902,740, which is a continuation-in-part of Ser. No. 888,524, Jul. 23, 1986, abandoned. This application Nov. 8, 1989, Ser. No. 433,194

Claims priority, application Japan, Jul. 26, 1985, 60-163864; Sep. 18, 1985, 60-204321; Jul. 6, 1988, 63-166859

Int. Cl.[5] C08G *73/14*

U.S. Cl. 528—125 **5 Claims**

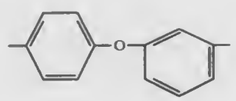
1. A process for preparing a polyamideimide which comprises thermally condensing in a molten state and acid component mainly comprising a member selected from the group consisting of trimellitic acid, trimellitic anhydride and a mixture of these, and a diamine component of the following formula (IX)



(IX)

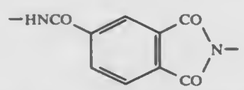
wherein R^{10} and R^{11} are identical or different and each represents a hydrogen atom or a lower acyl group having 1 to 3 carbon atoms in the alkyl moiety, provided that 5 to 60 mole % of the sum of R^{10} and R^{11} consists of hydrogen atoms,

to form a polyamideimide comprising a unit of the following formula (II)



(II)

and a unit of the following formula (IV)



(IV)

as main units forming the molecular chains of the polyamideimide, said polyamideimide having an inherent viscosity, measured at 30° C. in N-methylpyrrolidone, of above 0.48.

5,068,308

CONTINUOUS PREPARATION OF AROMATIC POLYCONDENSATES

Gunter Pipper, Bad Durkheim; Gerhard Heinz, Weisenheim, and Bernd Hisgen, Limburgerhof, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Jun. 12, 1989, Ser. No. 365,130

Claims priority, application Fed. Rep. of Germany, Jun. 15, 1988, 3820361

Int. Cl.[5] C08G *69/28, 63/668, 63/688*

U.S. Cl. 528—171 **8 Claims**

1. A process for preparing an aromatic polycondensate formed from

a) an aromatic hydroxy-, thio- or amino-carboxylic acid where the hydroxyl, thio or amino group is not vicinal to the carboxyl group,

b) an aromatic dihydroxy-, dithio-, diamino- or hydroxy-amino compound in which the hydroxyl, thio and amino groups are not vicinal to one another and which may have been replaced to an extent of up to 30 mol % by an alkanediamine of from 4 to 10 carbon atoms or a cycloalkanediamine of from 5 to 8 carbon atoms,

c) urea as an optional component and

d) a molar amount equivaient to the sum of components b) and c) of an aromatic dicarboxylic acid in which the carboxyl groups are not in a vicinal arrangement and which may have been replaced to an extent of up to 30 mol % by an alkanedicarboxylic acid of from 6 to 12 carbon atoms or a cycloalkanedicarboxylic acid of from 7 to 10 carbon atoms, comprising the following steps:

1) reacting components a), b), d) and optionally c) with a lower fatty acid anhydride in a molar excess, based on the hydroxyl, thio and amino groups, at from 140° to 280° C. with distillative removal of fatty acid formed and excess fatty acid anhydride to form an oligomer mixture,

2) passing the oligomer mixture from stage 1 downward through an essentially perpendicular tubular precondensation zone having a free surface area of from 0.3 to 1.5 m^2/l with a residence time of from 3 to 30 minutes under a pressure of from 0.5 to 100 mbar at from 250° to 370° C. to form a two-phase mixture of prepolymer and vaporous fatty acid,

3) separating the prepolymer from the vaporous fatty acid and

4) condensing the prepolymer in a condensation zone in the course of a residence time of from 10 to 60 minutes at from 250° to 360° C. under a pressure of from 0.5 to 100 mbar to give a granulable polycondensate.

5,068,309

LOW TEMPERATURE CURABLE DICYANATE ESTER OF DIHYDRIC PHENOL COMPOSITION

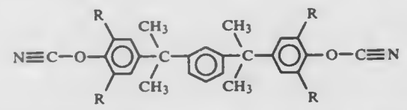
David A. Shimp, Prospect, and Jeffrey T. Vanderlip, Louisville, both of Ky., assignors to Hi-Tek Polymers, Inc., Jeffersontown, Ky.

Filed Mar. 29, 1990, Ser. No. 501,231

Int. Cl.[5] C08G *83/00*

U.S. Cl. 528—211 **22 Claims**

1. A heat curable composition comprising the cyanate ester, 4,4'-[1,3-phenylenebis(1-methylethylidene)]-2,2',6,6'-R-bisphenyl cyanate,



wherein R is independently H or C_1 to C_4 alkyl, in admixture with about 20 to about 500 weight parts per million based on the weight of metal and of the cyanate ester of a coordination metal chelate or carboxylate and about 1 to about 10 weight percent based on the weight of the cyanate ester of a compound containing an active hydrogen and having a boiling point of at least 160° C.

5,068,310

POLYPHENYLENE ETHER PROCESS, CATALYST AND RESIN COMPOSITION

Timothy D. Shaffer, Voorheesville, N.Y., assignor to General Electric Co., Selkirk, N.Y.

Filed Aug. 23, 1990, Ser. No. 571,943

Int. Cl.[5] C08L *67/06, 71/12;* **C08G** *65/38;* **B01J** *31/00*

U.S. Cl. 528—215 **20 Claims**

1. A process for producing a polyphenylene ether resin with low odor properties which comprises the oxidative coupling of a 2,6-di-substituted phenolic compound in the presence of a catalytically effective proportion of a catalyst composition which comprises:

(a) a copper compound;

(b) a diamine wherein the two amino groups are separated by at least two and no more than three carbon atoms and wherein the carbon atom to which the amino nitrogens are attached is aliphatic;

(c) a tertiary amine;

(d) a quaternary ammonium compound; and

(e) an unsaturated compound selected from the group consisting of an olefin, an acetylene, an imine and a nitrile, having non-interfering substituents; and

said process being carried out in the substantial absence of a monoamine other than said tertiary amine.

5,068,311

HIGH MOLECULAR WEIGHT (CO)POLYAMIDE FROM DIAMINO-ALCOHOL

Klaus Horn; Hans-Detlef Heinz, both of Krefeld; Peter-Rolf Müller, Leverkusen, and Ralf Dujardin, Krefeld, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Jun. 15, 1990, Ser. No. 538,780

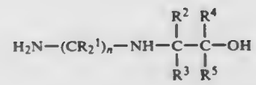
Claims priority, application Fed. Rep. of Germany, Jun. 28, 1989, 3921164

Int. Cl.[5] C08G *69/26*

U.S. Cl. 528—324 **13 Claims**

1. Process for the preparation of high molecular weight, m-cresol-soluble (co)polyamides comprising melt condensing 1) at least one lactam or 2) a polyamide-forming diamine/dicarboxylic acid reaction mixture or a mixture of 1) and 2) with

a) 0.005 to 0.99 wt. % of one or more diamino-alcohols of the general formula (I)



(I)

wherein

R^1, R^2, R^3, R^4 and R^5 independently of one another denote hydrogen, or C_1–C_{12}-alkyl, or two radicals, R^1, R^3 or R^5 on the same or adjacent carbon atoms are members of a ring containing 5 to 12 carbon atoms, and

b) amounts of at least one polycarboxylic acid which are approximately equivalent to the amino groups of (I).

5,068,312

POLYARYLENE SULFIDES TERMINATED BY SULFONIC ACID AND/OR SULFONIC ACID DERIVATIVE GROUPS, THEIR PRODUCTION AND USE

Ernst-Ulrich Dorf; Wolfgang Rüsseler; Burkhard Köhler; Wolfgang Ebert, all of Krefeld, and Walter Schmitt, Neuss, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen-Bayerwerk, Fed. Rep. of Germany

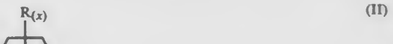
Filed Apr. 2, 1990, Ser. No. 502,630

Claims priority, application Fed. Rep. of Germany, Apr. 11, 1989, 3911766

Int. Cl.[5] C08G *75/16, 75/14*

U.S. Cl. 528—388 **3 Claims**

1. Oligo- and polyarylene sulfides corresponding to formula (I)



(I)

in which

Y represents —OR, —OM or $—NR_2$, where R is as defined for formulae (II), (III) and (IV) below,

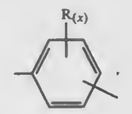
n is an integer of ≧2

m is the number 0, 1 or 2,

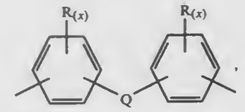
M represents H, an alkali metal, an alkaline earth metal ·½, a metal or group III ·⅓,

X represents halogen, mercapto, mercaptide or $—S(O)_3M—Y—$ group,

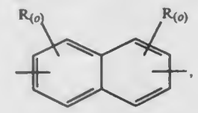
the Ar's are the same or different and represent groups corresponding to formulae (II), (III) and/or (IV)



(II)



(III)



(IV)

in which

the R's are the same or different and represent hydrogen, C_{1-20} alkyl, C_{4-20} cycloalkyl, C_{6-24} aryl, C_{7-24} arylalkyl, two substituents R in the ortho position to one another are attached to form an aromatic or heterocyclic ring containing N, O or S as heteroatoms, and

Q is a single bond or Q represents groups with two bonds,

VOL 1132 ISS 4 NO 26 1991 UMI

Ar^1 is an aromatic C_{6-24} radical with two bonds and p is an integer of 1 to 24,
x is the number 1, 2, 3 or 4,
o is the number 1, 2 or 3.

5,068,313

PROCESS FOR MINIMIZING RESIDUAL FREE HYDRAZINE IN POLYMER LATICES

Henry W. Schiessl, Northford, Conn., assignor to Olin Corporation, Cheshire, Conn.

Filed May 16, 1989, Ser. No. 352,782

The portion of the term of this patent subsequent to Sep. 4, 2007, has been disclaimed.

Int. Cl.[5] C08F *6/10, 6/16, 6/24*

U.S. Cl. 528—483 **11 Claims**

1. A two-step process for reducing or eliminating hydrazine from a mixture of hydrazine and polymer, said polymer being in latex form, which comprises:

(a) contacting said hydrazine in said mixture with an oxygen-containing gas which is air or oxygen at an elevated pressure and a temperature of between about 20° C. and about 100° C. in the presence of a quinone or hydroquinone catalyst in order to effect a reaction of said hydrazine with said oxygen-containing gas in order to produce a purified mixture containing a reduced amount of free hydrazine, and

(b) contacting said free hydrazine in said purified mixture with a hydrazine scavenger in order to bind at least a portion of said free hydrazine, thereby providing a desired mixture containing a reduced amount of free hydrazine therein.

5,068,314

LIPOPOLYSACCHARIDE-BINDING POLYPEPTIDE

Takanori Nakamura, Asaka; Sadaaki Iwanaga; Motonori Ohno, both of Fukuoka, and Kyosuke Miyazaki, Tokyo, all of Japan, assignors to Seikagaku Kogyo Co. Ltd., Tokyo, Japan

PCT No. PCT/JP88/00823, § 371 Date Aug. 19, 1989, § 102(e) Date Aug. 19, 1989, PCT Pub. No. WO89/01492, PCT Pub. Date Feb. 23, 1989

PCT Filed Aug. 19, 1988, Ser. No. 348,487

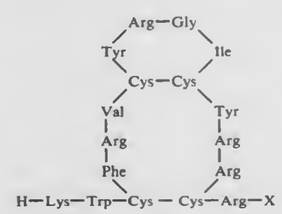
Claims priority, application Japan, Aug. 21, 1987, 206258

Int. Cl.[5] A61K *37/02;* **C07K** *7/08*

U.S. Cl. 530—317 **2 Claims**

1. A polypeptide represented by the formula:

(1)



wherein Lys represents lysine, Trp tryptophan, Cys cystine, Phe phenylalanine, Arg arginine, Val valine, Tyr tyrosine, Gly glycine, Ile isoleucine and X a hydroxyl group or an amino group.

5,068,315

COMPOSITION FOR THE REGULATION OF HAIR GROWTH

Travis E. J. Buultjens, Dundee; Colin A. B. Jahoda, and Roy F. Oliver, both of Fife, all of United Kingdom, assignors to University of Dundee, Scotland

Filed Apr. 12, 1990, Ser. No. 508,339

Int. Cl.[5] C07K *15/00;* **A61R** *37/02*

U.S. Cl. 530—324 **1 Claim**

1. Polypeptides isolated from dermal papilla cells with characteristics of apparent isoelectric pH and molecular weight selected from the group consisting of pI 5.1 and 45 kD; pI 5.2 and 43 kD; pI 5.2 and 40 kD; pI 7.3 and 25 kD; and pI 7.4 and 25 kD.

5,068,316

Patent Not Issued For This Number

5,068,317

NOVEL DERIVATIVE OF HUMAN GROWTH HORMONE

Gerald W. Becker, and Ralph M. Riggin, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind.

Filed Mar. 15, 1988, Ser. No. 168,208

Int. Cl.[5] A61K *37/36;* **C07K** *13/00, 15/00, 17/00*

U.S. Cl. 530—399 **1 Claim**

1. Met(O)[14]-human growth hormone.

5,068,318

DIAMENODINITROAZO DYES

Gero Decher, Walluf, Fed. Rep. of Germany, and Bernd Tieke, Marly, Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Division of Ser. No. 215,672, Jul. 6, 1988, Pat. No. 4,941,997. This application May 15, 1990, Ser. No. 523,775

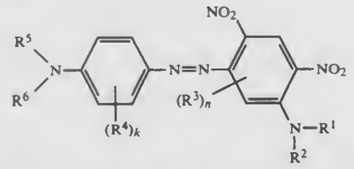
Claims priority, application Switzerland, Jul. 13, 1987, 2656/87

Int. Cl.[5] C09B *29/01, 29/085;* **C07C** *245/08*

U.S. Cl. 534—573 **4 Claims**

1. A compound of formula I

(I)



wherein R^1 is C_{12}–C_{30}alkyl, R^2 is hydrogen or C_1–C_{30}alkyl, R^3 is C_1–C_3alkyl or C_1–C_3alkoxy, R^4 has one of the meanings of R^3 or is halogen, k and n are each independently of the other 0, 1 or 2, and R^5 and R^6 are each independently of the other C_1–C_4alkyl, each of the aforementioned alkyl groups being unsubstituted, partially substituted by fluorine or completely substituted by fluorine, with the proviso that R^1 is alkyl of not less than 18 carbon atoms if R^2 is hydrogen or alkyl of less than 12 carbon atoms.

5,068,319

BIZ-DIAZOTIZED DIARYL DIAMINE COUPLED DYES HAVING IMPROVED SOLUBILITY IN ORGANIC SOLVENT

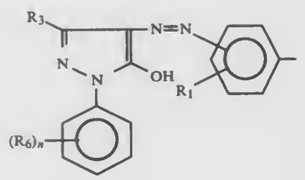
David M. Brown, Charlotte, N.C., and Robert E. Potvin, Kent, R.I., assignors to Hoechst Celanese Corporation, Somerville, N.J.

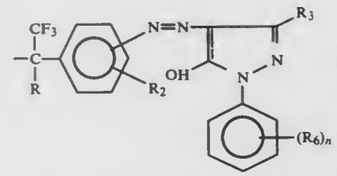
Filed Mar. 29, 1990, Ser. No. 502,075

Int. Cl.[5] C09B *35/08, 35/205*

U.S. Cl. 534—759 **13 Claims**

1. A dyestuff soluble in organic solvent having the structure:





wherein R is CF_3 or phenyl, R_1 and R_2 are the same or different substituent groups selected from the group consisting of hydrogen, hydroxy, halogen, C_1 to C_3 alkyl and C_1 to C_4 alkoxy, R_3 is selected from the group consisting of hydrogen, C_1 to C_3 alkyl, C_1 to C_3 alkoxy, COOH, and $COOR_5$ wherein R_5 is C_1 to C_4 alkyl, R_6 is selected from the group consisting of hydrogen, sulfo, C_1 to C_3 alkyl, C_1 to C_3 alkoxy and halogen, and n is zero or a whole number ranging from 1 to 3.

5,068,320

2-AMINO-6-(CYCLOPROPYLAMINO)PURINE-9-β-D-2',3'-DIDEOXYRIBOFURANOSIDE AND ITS PHARMACEUTICALLY ACCEPTABLE SALTS

George W. Koszalka, Chapel Hill; Charlene L. Burns, Durham; Thomas A. Krenitsky, Chapel Hill, and Janet L. Rideout, Raleigh, all of N.C., assignors to Burroughs Wellcome Co., Research Triangle Park, N.C.

Continuation-in-part of Ser. No. 179,435, Apr. 8, 1988, abandoned. This application Oct. 6, 1989, Ser. No. 417,989

Claims priority, application United Kingdom, Apr. 9, 1987, 8708512; May 29, 1987, 8712691; Sep. 30, 1987, 8723013

Int. Cl.[5] C07H *19/173*

U.S. Cl. 536—24 **2 Claims**

1. The compound 2-amino-6-cyclopropylaminopurine-9-β-D-2',3'-dideoxyribofuranoside.

5,068,321

CARBONIC ACID ESTERS OF POLYSACCHARIDES AND A PROCESS FOR THEIR PRODUCTION

Hans-Josef Buysch; Alexander Klausener, both of Krefeld; Klaus Szablikowski; Klaus Balser, both of Walsrode, and Michaela Wilke, Schneverdingen, all of Fed. Rep. of Germany, assignors to Wolff Walsrode Aktiengesellschaft, Walsrode, Fed. Rep. of Germany

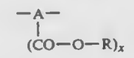
Filed Oct. 13, 1989, Ser. No. 420,841

Claims priority, application Fed. Rep. of Germany, Oct. 27, 1988, 3836600

Int. Cl.[5] C08B *3/00, 31/04, 37/00*

U.S. Cl. 536—32 **11 Claims**

1. Polysaccharide carbonates containing recurring units corresponding to the following general formula



in which
A is a monosaccharide unit,
R is an aliphatic or cycloaliphatic radical containing 1 to 18 carbon atoms, an araliphatic radical containing 7 to 12 carbon atoms, an aromatic radical containing 6 to 12 carbon atoms optionally substituted by halogen, NO_2, phenyl, $COOR^1$, OR^1 or an aromatic radical containing 6 to 12 carbon atoms substituted by a C_{1-6} aliphatic group,
R^1 is a C_{1-4} alkyl radical and
x is a number of 0.5 to 3.0, at most 20% by weight of the polysaccharide carbonates being soluble in chloroform at 20° C. and at most 30% of the carbonate groups being cyclic carbonate groups.

5,068,322

CRYSTALLINE CEPHALOSPORIN COMPOUNDS

Susumu Nakagawa; Ryosuke Ushijima; Fumio Nakano; Koji Yamada, all of Okazaki, and Eiichi Mano, Kariya, all of Japan, assignors to Banyu Pharmaceutical Co., Ltd., Tokyo, Japan

Division of Ser. No. 315,917, Feb. 27, 1989, Pat. No. 4,959,469, which is a continuation-in-part of Ser. No. 813,614, Dec. 26, 1985, Pat. No. 4,677,100. This application May 14, 1990, Ser. No. 522,817

Claims priority, application Japan, Dec. 27, 1984, 59-273591; Aug. 6, 1985, 60-171839; Dec. 9, 1986, 61-291431

The portion of the term of this patent subsequent to Jun. 30, 2004, has been disclaimed.

Int. Cl.[5] C07D *501/46;* **A61K** *31/545*

U.S. Cl. 540—222 **1 Claim**

1. (6R,7R)-7-[(Z)-2-(2-aminothiazol-4-yl)-2-(1-carboxy-1-methylethoxyimino)acetamido]-3-(5,6-dihydroxy-2-methyl-2-isoindolinium)methyl-3-cephem-4-carboxylate hydrochloride or its hydrate.

5,068,323

THERMALLY RE-ARRANGED FK-506 DERIVATIVES HAVING IMMUNOSUPPRESSANT ACTIVITY

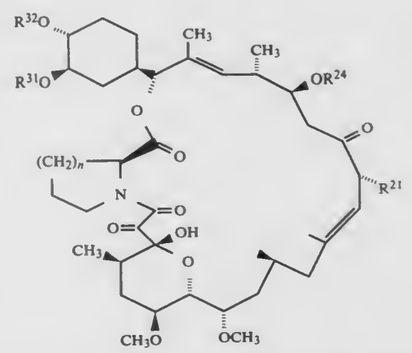
Matthew J. Wyvratt, Jr., Mountainside; Thomas R. Beattie, Scotch Plains; Hyun Ok, Edison; Byron H. Arison, Watchung, and Michael H. Fisher, Ringoes, all of N.J., assignors to Merck & Co., Inc., Rahway, N.J.

Continuation of Ser. No. 341,981, Apr. 21, 1989, abandoned. This application Apr. 10, 1990, Ser. No. 508,520

Int. Cl.[5] C07D *498/16;* **A61K** *31/395*

U.S. Cl. 540—456 **15 Claims**

1. Compounds having immuno suppressive activity of the formula:



wherein R_{21} is methyl, ethyl, propyl or allyl; R^{24} and R^{32} are, independently, hydrogen or a protecting group for hydroxyl; R^{31} is hydrogen, methyl, or a protecting group for hydroxyl; and n is 1 or 2.

VOL 1132 ISS 4 NO 26 1991 UMI

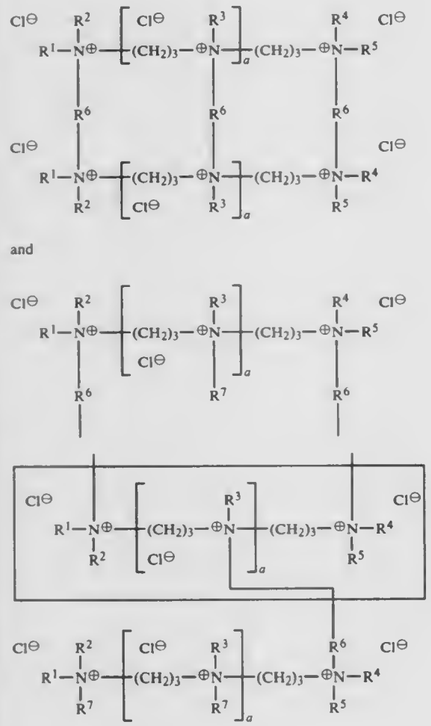
5,068,324

NOVEL AMPHOTERIC POLYMERS

Anthony J. O'Lenick, Jr., Lilburn, Ga., assignor to LCE Partnership, Lake Geneva, Wis.

Filed Sep. 5, 1989, Ser. No. 402,649
Int. Cl.[5] C07D *521/00;* A61K *7/50*
U.S. Cl. 540—471 10 Claims

1. A polymeric amphoteric composition conforming to the following formula:



and

wherein;

R^1 is alkyl having from 6 to 40 carbon atoms;
a is an integer from 0 to 10;
b is an integer from 0 to 100;
R^2, R^3 and R^4 and R^5 are independently selected from

—CH_2CH_2COOM,

—$CH(CH_3)CH_2COOM$

and

—$CH_2C(CH_3)HCOOM$;

M is a cation needed for charge balance and is selected from Na, K, NH_4, Li, and Ca.

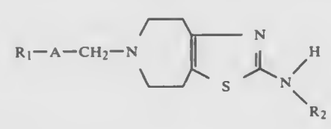
5,068,325

4,5,7,8-TETRAHYDRO-6H-THIAZOLO[5,4-D]AZEPINES, THEIR PREPARATION AND THEIR USE AS PHARMACEUTICAL COMPOSITIONS

Wolfgang Grell; Rudolf Hurnaus; Manfred Reiffen, all of Biberach; Robert Sauter, Laupheim, all of Fed. Rep. of Germany; Ludwig Pichler; Walter Kobinger, both of Vienna, Austria; Michael Entzeroth, Warthausen, Fed. Rep. of Germany; Joachim Mierau, Mainz, Fed. Rep. of Germany, and Gunter Schiegnitz, Bad Kreuznach, Fed. Rep. of Germany, assignors to Karl Thomae GmbH, Biberach an der Riss, Fed. Rep. of Germany

Filed Jun. 20, 1989, Ser. No. 368,753
Claims priority, application Fed. Rep. of Germany, Jun. 20, 1988, 3820775
Int. Cl.[5] G07D *513/04;* A01K *31/55*
U.S. Cl. 514—215 12 Claims

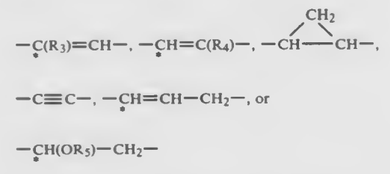
1. 4,5,7,8-tetrahydro-6-thiazoloazepines of general formula II



(II)

wherein

A represents a group of the formulae



—$C(R_3)=CH$—, —$CH=C(R_4)$—, —$CH(CH_2)CH$—,

—$C\equiv C$—, —$CH=CH-CH_2$—, or

—$CH(OR_5)-CH_2$—

wherein

R_3 represents a hydrogen atom or a methyl group,
R_4 represents a C_{1-3} alkyl group or a phenyl group and
R_5 represents a hydrogen atom, a methyl or ethyl group and the carbon atom designated • is linked to the group R_1, and
R_1 represents a phenyl group optionally monosubstituted by a halogen atom or by a C_{1-4}-alkoxy group, a methyl, trifluoromethyl, phenyl, nitro, amino, dimethylamino, piperidino, acetylamino, methylthio, methylsulphinyl, methylsulphonyl, cyano, aminocarbonyl, carboxy, methoxycarbonyl, ethoxycarbonyl, benzyloxy, pyridylmethoxy or hydroxy group; a phenyl group disubstituted by methoxy, benzyloxy, hydroxy or methyl groups, whilst the substituents may be identical or different, or a phenyl group trisubstituted by three methoxy groups, by three hydroxy groups or by one hydroxy or amino group and by two chlorine or bromine atoms,
a pyridyl group optionally substituted by a chlorine atom or by a methyl, methoxy, benzyloxy or hydroxy group, a naphthyl, quinolyl, isoquinolyl, indolyl, furyl, thienyl, (2-indolinon)yl, carbostyril or 3,4-dihydrocarbostyril group,
a thiazolyl group optionally substituted in the 2-position by a methyl or amino group,
a benzothiophenyl or benzofuranyl group,
a benzothiazolyl, benzoxazolyl or benzimidazolyl group optionally substituted in the 2-position by a methyl, phenyl or amino group, or
A represents a carbon-carbon bond and
R_1 represents a 1H-inden-2-yl or 1,2-dihydronaphthalen-3-yl group or a 2H-1-benzopyran-3-yl or 2H-1-benzothiopyran-3-yl group optionally substituted by one or two methyl groups and
R_2 represents a hydrogen atom or an acetyl or propionyl group optionally substituted in the omega-position by a phenyl or 4-methoxyphenyl group, and the acid addition salts thereof.

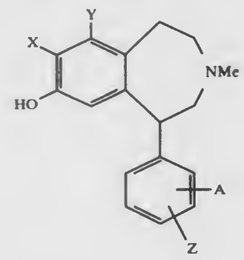
5,068,326

DOPAMINE RECEPTOR LIGANDS AND IMAGING AGENTS

Hank F. Kung, 525 Foxglove La., Wynnewood, Pa. 19096

Filed Apr. 3, 1989, Ser. No. 332,625
Int. Cl.[5] C07D *281/10*
U.S. Cl. 540—594 26 Claims

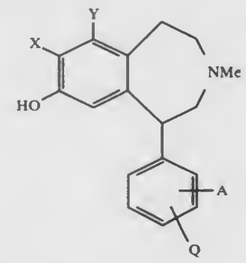
1. A compound of the formula



where

X=OH, Cl or CH_3;
Y=H, Cl, or CH_3, provided that, when X=Cl, then Y=H or CH_3 and when Y=H or CH_3, then X=Cl;
Z=Hal; C=CH—Hal; C_1–C_{10} alkylene-Hal; C_1C_{10} alkylene—C=CH-Hal or C_1–C_{10} alkylene-phenyl-Hal; or C_1–C_{10} alkylene; and
Hal is a radioactive or nonradioactive halogen atom, and
A=H, C_1–C_5 alkyl or C_1–C_5 alkylene-phenyl; or C_1–C_5.

16. A compound of the formula



where

X=OH, Cl or CH_3;
Y=H, Cl, or CH_3, provided that, when X=Cl, then Y=H or CH_3 and when Y=H or CH_3, then X=Cl;
A=H, C_1–C_5 alkyl, C_1–C_5 alkylene-phenyl; or C_1–C_5 alkylene-heteroaryl;
Q =$SnBu_3$, $Si(R)_3$ or HgR; and
R=C_1–C_5 alkyl.

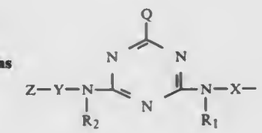
5,068,327

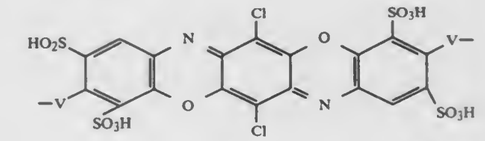
SYMMETRICAL DIOXAZINE COMPOUNDS AND THEIR USE AS FIBER-REACTIVE DYES

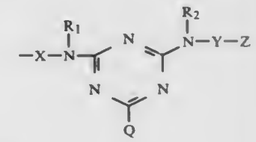
Tetsuya Miyamoto, Takatsuki; Miyao Takahashi, Minoo; Takahiko Fujisaki, Takarazuka; Shinei Ikeou, Hirakata, and Takashi Omura, Kobe, all of Japan, assignors to Sumitomo Chemical Company, Limited, Osaka, Japan

Filed Dec. 11, 1989, Ser. No. 448,644
Claims priority, application Japan, Dec. 10, 1988, 63-312656
Int. Cl.[5] C07D *498/00*
U.S. Cl. 544—76 12 Claims

1. A process of dyeing or printing comprising the application of a dioxazine compound represented by the following formula in the free acid form







wherein V is a direct linkage or



in which R_3 is hydrogen or unsubstituted or substituted alkyl, and X is a direct linkage or an aliphatic, araliphatic or aromatic bridging group, provided that X stands for the bridging group as defined hereinabove when V is



Y is unsubstituted or substituted phenylene, or unsubstituted or substituted naphthylene, Z is —$SO_2CH=CH_2$ or —$SO_2CH_2CH_2Z_1$ in which Z_1 is a group capable of being split by the action of an alkali, Q is sulfo, hydroxy, halo, alkoxy, unsubstituted or substituted phenoxy or unsubstituted or substituted amino, and R_1 and R_2 independently of one another are each hydrogen or unsubstituted or substituted alkyl. in which the material being dyed or printed contains hydroxy or amide groups.

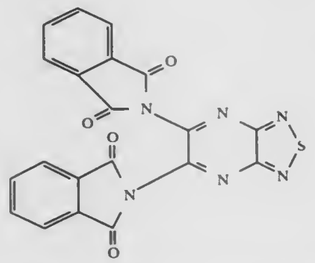
VOL 1132 ISS 4 NOV 26 1991 UMI

5,068,328
BIS[1,2,5]THIADIAZOLO[3,4-B:3', 4'-E]PYRAZINE, A PROCESS FOR THE PREPARATION THEREOF AND A METHOD OF USING SAME

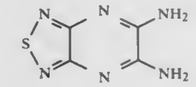
Toshio Mukai, and Yoshiro Yamashita, both of Miyagi, Japan, assignors to Fuji Xerox Co., Ltd., Tokyo and Toshio Mukai, Miyagi, both of, Japan

Division of Ser. No. 241,278, Sep. 7, 1988, Pat. No. 4,929,730.
This application Mar. 13, 1990, Ser. No. 492,592
Claims priority, application Japan, Sep. 8, 1987, 62-223142
Int. Cl.[5] C07D *513/04, 241/20*
U.S. Cl. 544—350 2 Claims

1. 5,6-di-phthalimido-(1,2,5)thiadiazolo[3,4-b]pyrazine having the formula:



2. 5,6-diamino-(1,2,5)thiadiazolo[3,4-b]pyrazine having the formula:



5,068,329
AMINOETHYLETHANOLAMINE PRODUCERS COMPOSITION AND METHOD FOR PRODUCING SAME

Lloyd M. Burgess, South Charleston, W. Va., and Charles A. Gibson, Centreville, Va., assignors to Union Carbide Chemicals and Plastics Technology Corporation, Danbury, Conn.

Division of Ser. No. 102,931, Sep. 30, 1987, Pat. No. 4,973,692.
This application Sep. 4, 1990, Ser. No. 576,988
Int. Cl.[5] C07D *245/08, 295/12, 211/00*
U.S. Cl. 544—402 5 Claims

1. A continuously generated alkyleneamines producers composition comprising, based on 100% of the moles of the composition and exclusive of any MEA and water present,
a) about 50 to about 90 mole % AEEA,
b) less than about 3 mole % EDA but more than 0.01 mole % EDA,
c) less than about 2 mole % DETA but more than 0.01 mole % DETA,
d) about 5 to about 18 mole % of the combination of PIP, AEP and HEP,
e) about 5 to about 20 mole % of one or more of TETAs and TEPAs,
f) less than about 1 mole % of other polyalkylene polyamines,
g) a mole ratio of AEEA to the combination of PIP, AEP, HEP, DETA and EDA is greater than about 2.5,
h) an AEEA to EDA mole ratio greater than about 22 and
i) an AEEA to PIP mole ratio greater than about 7.

5,068,330
AMINOETHYETHANOLAMINE AND ETHYLENEDIAMINE PRODUCERS COMPOSITION AND METHOD FOR PRODUCING SAME

Lloyd M. Burgess, South Charleston, W. Va., and Charles A. Gibson, Centreville, Va., assignors to Union Carbide Chemicals and Plastics Technology Corporation, Danbury, Conn.

Division of Ser. No. 102,928, Sep. 30, 1987, Pat. No. 4,973,692.
This application Sep. 4, 1990, Ser. No. 576,987
Int. Cl.[5] C07D *295/08, 295/12;* C07C *211/00*
U.S. Cl. 544—402 3 Claims

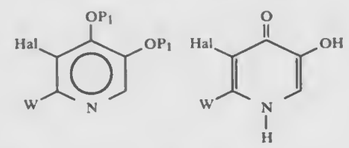
1. A continuously generated alkyleneamines producers composition comprising, based on 100% of the moles of the composition and exclusive of any MEA and water present,
a) about 15 to about 50 mole % AEEA,
b) about 15 to about 55 mole % EDA,
c) about 10 to about 20 mole % DETA,
d) about 5 to about 20 mole % of the combination of PIP, AEP and HEP,
e) about 3 to about 10 mole % of one or more of TETAs and TEPAs,
f) less than about 1 mole % of other polyalkylene polyamines,
g) an DETA to AEEA mole ratio less than 0.77, and
h) an EDA to AEEA mole ratio less than 8.

5,068,331
CERTAIN (2-CARBOXY OR 2-PROPENOIC OR 2-CARBONYL)-3-HALO-4,5-DIOXY PYRIDINE INTERMEDIATES AND THE CORRESPONDING 1,4-DIHYDRO-4-PYRIDONES)

Uwe D. Treuner, Etterzhausen, Fed. Rep. of Germany, assignor to E. R. Squibb & Sons, Inc., Princeton, N.J.

Division of Ser. No. 232,972, Aug. 17, 1988, Pat. No. 4,959,470.
This application Jul. 13, 1990, Ser. No. 552,038
Int. Cl.[5] C07F *7/10;* C07D *213/69*
U.S. Cl. 546—14 1 Claim

1. Compounds represented by the formula



wherein W is COOH, —HC=CH—COOH or



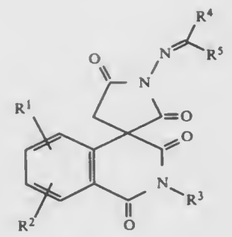
and P_1 is a protecting group.

5,068,332
ALKYLIDENE ANALOGS OF 1'-AMINOSPIRO[ISOQUINOLINE-4(1H),3'-PYRROLIDINE]-1,2',3,5'(2H)-TETRONES USEFUL AS ALDOSE REDUCTASE INHIBITORS

Michael S. Malamas, Jamison, Pa., assignor to American Home Products Corporation, New York, N.Y.

Filed Oct. 11, 1990, Ser. No. 596,889
Int. Cl.[5] C07D *471/10*
U.S. Cl. 546—18 7 Claims

1. The compound of structural formula (I)



(I)

wherein:
R^1 and R^2 are independently hydrogen, alkyl containing 1 to 6 carbon atoms, halogen, lower alkoxy containing 1 to 6 carbon atoms, trifluoromethyl, nitro,;
R^3 is lower alkyl containing 1 to 6 carbon atoms or dihalogen substituted benzyl;
R^4 and R^5 are independently hydrogen, alkyl containing 1 to 12 carbon atoms, or R^4 and R^5 are joined to form alicyclic or heterocyclic rings selected from the group consisting of



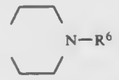
wherein n=1-10;



wherein X=O,S,SO,SO_2;



wherein X=O,S; and



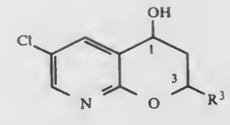
wherein R^6=H, lower alkyl containing 1 to 6 carbon atoms.

5,068,333
6-CHLORO-3,4-DIHYDRO-PYRANO [2,3-B]PYRIDINES HAVING THE R CONFIGURATION

Charles W. Murtiashaw, and George J. Quallich, both of North Stonington, Conn., assignors to Pfizer Inc., New York, N.Y.

Filed Mar. 7, 1990, Ser. No. 490,906
Int. Cl.[5] C07F *7/02;* C07D *491/048, 213/61*
U.S. Cl. 546—116 3 Claims

1. A compound of the formula having the R configuration



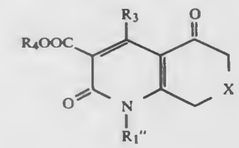
wherein R^3 is (C_1-C_4) alkyl.

5,068,334
PHARMACEUTICAL COMPOSITIONS CONTAINING QUINOLIN-2,5-DIONES, NEW QUINOLIN-2,5-DIONES AND PROCESSES FOR THE PREPARATION THEREOF

Erich Muller, Biberach; Josef Nickl, deceased, late of Biberach by Erma Nickl, executor ; Armin Heckel, Biberach, and Gunther Engelhardt, Biberach, all of Fed. Rep. of Germany, assignors to Karl Thomae GmbH, Biberach an Der Riss, Fed. Rep. of Germany

Continuation-in-part of Ser. No. 322,602, Mar. 13, 1989, abandoned. This application Sep. 27, 1989, Ser. No. 413,369
Claims priority, application Fed. Rep. of Germany, Mar. 11, 1988, 3808136
Int. Cl.[5] C07D *215/227*
U.S. Cl. 546—157 1 Claim

1. New quinolinediones of formula



(X)

R^3 is hydrogen, trifluoromethyl, phenyl or C_1-C_3 alkyl,
X is methylene optionally substituted by one or two C_1-C_3 alkyl and
R_1''' is hydrogen, C_1-C_3 alkyl optionally substituted by phenyl, fluorophenyl, chlorophenyl or bromophenyl, by carboxy or by C_2-C_4 alkoxycarboxyl, C_4-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_5 alkenyl or C_3-C_5 alkynyl, a C_2-C_3 alkyl substituted in the 2- or 3- position by hydroxy, alkoxy or alkylmercapto, in which the alkoxy or alkymercapto substituent may in each case contain 1 to 3 carbon atoms, or tetrahydrofurfuryl and R_4 is C_1-C_5 alkyl or R_1''' is C_1-C_3 alkyl optionally substituted by phenyl, fluorophenyl, chlorophenyl or bromophenyl, by carboxy or by C_2-C_4 alkoxycarboxyl, C_4-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_5 alkenyl or C_3-C_5 alkynyl, a C_2-C_3 alkyl substituted in the 2- or 3-position by hydroxy, alkoxy or alkylmercapto, in which the alkoxy or alkylmercapto substituent may in each case contain 1 to 3 carbon atoms, or tetrahydrofurfuryl and R_4 is hydrogen.

5,068,335
PROCESS FOR THE PREPARATION OF 4-HYDROXY-2,2,6,6-TETRAMETHYLPIPERIDINE

Ulrich Kress, Bensheim/Bergstrasse; Rudolf Maul, Lorsch/-Hessen, and Siegfried Kintopf, Bensheim/Bergstrasse, all of Fed. Rep. of Germany, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Continuation of Ser. No. 434,539, Nov. 8, 1989, abandoned, which is a continuation of Ser. No. 186,837, Apr. 27, 1988, abandoned. This application Jun. 18, 1990, Ser. No. 539,298
Claims priority, application Switzerland, May 5, 1987, 1707/87
Int. Cl.[5] C07D *211/46*
U.S. Cl. 546—242 9 Claims

1. A process for the preparation of 4-hydroxy-2,2,6,6-tetramethylpiperidine by catalytic hydrogenation of 4-oxo-

VOL 1132 ISS 4 NO 26 1991 UMI

2,2,6,6-tetramethylpiperidine in the presence of a metal catalyst from the group consisting of Ni, Co, Ru, Rh, Os and Ir catalysts or mixtures thereof, which comprises carrying out the hydrogenation in the melt without using a solvent.

5,068,336

PROCESS FOR PRODUCING 2-(4'-HYDROXPHENOXY)-3-CHLORO-5-TRIFLUOROMETHYLPYRIDINE

Takumi Kagawa; Takashi Morooka, and Kenji Tsuzuki, all of Shinnanyo, Japan, assignors to Tosoh Corporation, Uchi, Japan

Filed Feb. 26, 1990, Ser. No. 484,513
Int. Cl.[5] C07D *213/643, 213/64, 213/26*
U.S. Cl. 546—302 **7 Claims**

1. A process for producing 2-(4'-hydroxyphenoxy)-3chloro-5-trifluoromethylpyridine comprising the steps of:
mixing hydroquinone, a dehydrohalogenating agent in the amount of 0.10–0.70 equivalent to the hydroquinone, and a mixed solvent of a polar aprotic solvent and an aromatic hydrocarbon solvent;
heating to reflux the resulting mixture at atmospheric pressure to dehydrate the mixture;
adding to the resulting mixture 2,3-dichloro-5-trifluoromethylpyridine in the amount of 0.20–0.95 equivalent to the dehydrohalogenating agent; and
reacting the resulting mixture at 100°–170° C.

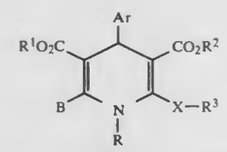
5,068,337

1,4-DIHYDROPYRIDINES AND THEIR ABILITY TO INHIBIT BLOOD PLATELET AGGREGATION, INHIBIT THROMBOXANE SYNTHETASE AND PHOSPHOLIPASE

John L. Archibald, Farnham Royal; Terence J. Ward, and Albert Opalko, both of Maidenhead, all of England, assignors to John Wyeth & Brother Limited, Maidenhead, Great Britain

Continuation of Ser. No. 760,707, Jul. 30, 1985, abandoned. This application Nov. 13, 1986, Ser. No. 930,972
Claims priority, application United Kingdom, Aug. 17, 1984, 8421039; Jun. 21, 1985, 8515751
Int. Cl.[5] A61K *31/505;* **C07D** *401/04, 471/04*
U.S. Cl. 514—256 **25 Claims**

1. A compound of the formula



or a pharmaceutically acceptable salt thereof, wherein
Ar is an aryl or heteroaryl radical of 5 to 10 ring atoms, the heteroaryl radical having 1 or 2 heteroatoms selected from N, O and S, which is optionally substituted by one or more substituents selected from halogen, alkyl, alkoxy, haloalkyl, haloalkoxy, NO_2, NH_2, CN, alkylamino, dialkyl-amino, aminoalkyl, carboxyl, alkoxycarbonyl, loweralkanoyl, loweralkanoylamino, and aryl of 5 to 10 ring atoms;
R represents hydrogen or an alkyl group or an arylkyl group wherein aryl of aralkyl is an aryl or an heteroaryl radical of 5 to 10 ring atoms, the heteroaryl radical having 1 or 2 heteroatoms selected from N, O and S, which is optionally substituted as above for aryl or heteroaryl of Ar;
R^1 and R^2 are the same or different and are selected from hydrogen and saturated C_5–C_7 cyclic aliphatic hydrocarbon residues, unsaturated acyclic aliphatic hydrocarbon residues of up to 6 carbon atoms and saturated C_1–C_6 acyclic hydrocarbon residues, said residues being optionally substituted by one or more groups selected from halogen, OH, carboxy, CN, alkoxy, alkylthio, aryloxy, alkoxycarbonyl, amino, mono- or diloweralkylamino, and an aryl or heteroaryl radical of 5 to 10 ring atoms the heteroaryl radical having 1 or 2 heteroatoms selected from N, O and S;
X is Z^1, $—Z^1(CH_2)_n—$, $—(CH_2)_n—$, $—(CH_2)_nZ^1—$, $—(CH_{2n}—$, $—CHR^6CH_2—$, $—CH_2CHR^7—$, or $—CHR^6CHR^7—$, wherein n is 1 or 2, Z^1 is NR^8, O or S, R^6 and R^7 each represent a lower alkyl group, and R^8 represents hydrogen or a lower alkyl group;
R^3 is mono- or bicyclic nitrogen ring heteroaryl radical containing 5 to 10 ring atoms of which 1 or 2 are optionally further heteroatoms selected from O, N and S, said radical optionally substituted by 1 to 3 substituents selected from halogen, alkyl, alkoxy, haloalkyl, haloalkoxy, NO_2, NH_2, CN, alkylamino, dialkylamino, aminoalkyl, carboxy, alkyloxycarbonyl, loweralkanoyl, loweralkanoylamino, phenyl, and heteroaryl of 5 to 10 ring atoms and 1 or 2 heteroatoms selected from N, O, and S; and
B represents hydrogen, carboxyl, lower alkoxycarbonyl, lower alkyl, aminoloweralkyl, lower alkoxyloweralkyl, lower alkoxycarbonyllloweralkyl, carboxyloweralkyl, amino, mono-loweralkylamino or di-loweralkylamino, wherein alkyl, alone or in combination, refers to C_1–C_6 alkyl.

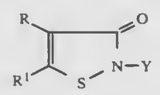
5,068,338

PROCESS FOR NITROSAMINE-FREE SABILIZED ISOTHIAZOLONES

Horst O. Bayer; Barry C. Lange, both of Levittown, and Ramesh B. Petigara, Hatfield, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Division of Ser. No. 376,199, Jul. 3, 1989, Pat. No. 4,939,266, which is a continuation of Ser. No. 383,858, Jun. 1, 1982, abandoned. This application Mar. 27, 1990, Ser. No. 500,158
Int. Cl.[5] C07D *275/03*
U.S. Cl. 548—101 **3 Claims**

1. A process for preparing a biologically active, metal nitrate salt-stabilized, 3-isothiazolone compositions substantially free of nitrosamine impurities and precursors thereof which comprises:
preparing a biologically active 3-isothiazolone substantially free of a by-product compound containing an amine moiety capable of being nitrosated to a nitrosamine, or a nitrosamine compound derived therefrom, which 3-isothiazolone may be represented by the formula:



(I)

wherein R is hydrogen and R^1 is selected from hydrogen and chlorine; and Y is methyl, where said 3-isothiazolone is prepared by a process in which formation of said undesirable by product compound is avoided comprising the steps of
(A) reacting methyl-3-mercaptopropionate with CH_3NH_2 to form N-methyl-3-mercaptopropionamide;
(B) cyclizing said N-methyl-3-mercaptopropionamide with a chlorinating agent to form said 3-isothiazolone; and
(C) adding to said 3-isothiazolone a ring-stabilizing metal nitrate salt in an amount sufficient to stabilize the ring of the 3-isothiazolone.

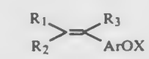
5,068,339

ENHANCED CHEMILUMINESCENCE FROM 1,2-DIOXETANES THROUGH ENERGY TRANSFER TO TETHERED FLUORESCERS

Arthur P. Schaap, and Hashem Akhavan-Jaffi, both of Detroit, Mich., assignors to Board of Governors of Wayne State University, Detroit, Mich.

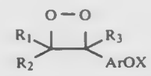
Division of Ser. No. 289,837, Dec. 27, 1988, which is a continuation-in-part of Ser. No. 887,139, Jul. 17, 1986. This application Nov. 13, 1989, Ser. No. 434,444
Int. Cl.[5] C07F *7/18, 9/6541, 9/655;* **C07D** *277/82*
U.S. Cl. 548—110 **18 Claims**

1. An alkene of the formula:



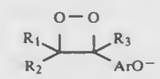
(I)

which can be oxidized to a dioxetane compound of the formula:



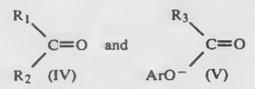
(II)

wherein R_1 and R_2 are joined together and are carbon atom containing groups containing between 6 to 30 carbon atoms together and optionally containing an atom selected from the group consisting of oxygen, nitrogen and sulfur atoms in place of carbon which allow the production of the light,
wherein R_3 is a tethered fluorescent molecule containing group wherein the fluorescent molecules exhibit fluorescence between approximately 400 and 900 nanometers,
wherein R_1 and R_2 can be joined together,
wherein X is a leaving group,
wherein compound (II) decomposes to form an aryl oxide (III) of the formula



(III)

when reacted with an activating agent which removes X, wherein the aryl oxide (III) spontaneously decomposes to form compounds (IV) and (V) of the formulae:



and wherein the fluorescent molecule in the fluorescent molecule containing group is activated to produce light upon the decomposition of the aryl oxide.

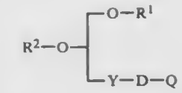
5,068,340

ISOTHIAZOLYL SUBSTITUTED GLYCEROL DERIVATIVES CONTAINING PHOSPHATE GROUPS

Norio Nakamura; Hiroyuki Koike, and Takeshi Oshima, all of Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

Continuation of Ser. No. 14,936, Feb. 13, 1987, abandoned. This application Jun. 16, 1989, Ser. No. 368,132
Claims priority, application Japan, Feb. 13, 1986, 61-29624
Int. Cl.[5] C07F *9/09, 9/6561*
U.S. Cl. 548—119 **13 Claims**

1. A compound of formula (I):



(I)

in which:
R^1 represents an alkylcarbamoyl group in which the alkyl part is C_8–C_{22};
R^2 represents unsubstituted 3-isoxazolyl or 3-isoxazolyl substituted by C_1–C_6-alkyl, C_1–C_6-aliphatic acyl, aromatic acyl, aryl or C_7–C_{14}-aralkyl;
Y represents a group of formula —X—P(O)(OH)—O—,
where:
X represents an oxygen atom;
D represents a C_1–C_{14} alkylene group;
Q represents unsubstituted thiazolyl, unsubstituted pyridyl or thiazolyl or pyridyl substituted with C_1–C_6 alkyl groups, C_1–C_6 alkoxy groups, carbamoyl groups, halogen atoms or C_1–C_6 hydroxyalkyl groups;
and pharmaceutically acceptable salts, esters and amides thereof.

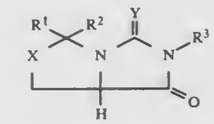
5,068,341

OPTICALLY ACTIVE HYDANTOINS

Eike Poetsch, Mühltal, and Michael Casutt, Pfungstadt, both of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft Mit Beschrankter Haftung, Darmstadt, Fed. Rep. of Germany

Continuation of Ser. No. 39,341, Apr. 17, 1987, abandoned. This application Sep. 5, 1989, Ser. No. 402,289
Claims priority, application Fed. Rep. of Germany, Apr. 19, 1986, 3613246; Feb. 7, 1987, 3703871
Int. Cl.[5] C07D *498/04, 513/04*
U.S. Cl. 548—154 **8 Claims**

1. An optically active hydantoin of the formula



wherein
X and Y are each independently O or S;
R^1 and R^2 are each independently are H; C_{1-8}-alkyl, C_{1-8}-alkyl wherein one or two non-adjacent CH_2 groups can also be substituted by O or S; C_{3-8} cycloalkyl; C_{6-14} aryl; C_{7-12}-arylalkyl; C_{6-14} aryl or C_{1-12}-arylalkyl each substituted by C_{1-4} alkyl, C_{1-4} alkoxy, halogen, or C_{1-4}-alkoxycarbonyl; C_{2-6} alk-l-enyl; C_{2-6} alk-2-enyl; or R^1 and R^2 together are C_{2-8} alkylene, or C_{2-8}-alkylene wherein one or two non-adjacent CH_2 groups is replaced by O or S, is benzyl; benzyl substituted by one or more of C_{1-4}-alkyl, C_{1-4}-alkoxy, halogen, C_{1-4}-alkoxycarbonyl, nitro or cyano; C_{2-6} alk-1-enyl; C_{2-6} alk-2-enyl; C_{2-6} alkoxyalkyl; C_{3-16} tri(alkyl and/or aryl)silyl.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,342

5-[(1- AND 2-NAPHTHALENYL)THIO AND SULFONYL]-2,4-THIAZOLIDINEDIONES AND DERIVATIVES THEREOF

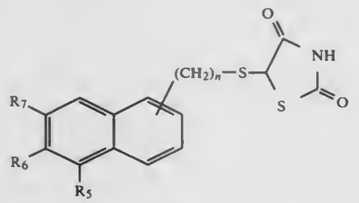
Arie Zask, Manhatten, N.Y., and Ivo Jirkovsky, Plainsboro, N.J., assignors to American Home Products Corporation, New York, N.Y.

Division of Ser. No. 428,817, Oct. 27, 1989, Pat. No. 4,997,948. This application Oct. 12, 1990, Ser. No. 596,818

Int. Cl.[5] C07D *277/36*

U.S. Cl. 548—183 **8 Claims**

1. A 1- or 2-thio- or thiomethylenenaphthalene derivative of the formula II



II

or a pharmaceutically acceptable catonic salt thereof, wherein

n is 0 or 1

R_5 is hydrogen, bromo, chloro, trifluoromethyl or difluoroethyl;

R_6 is hydrogen, hydroxy, methoxy or ethoxy; and

R_7 is hydrogen or R_7 and R_6 are both methyl or ethyl carbonate.

5,068,343

4-SUBSTITUTED 5-CHLORO-2-HYDRAZINOTHIAZOLES

Gunter Beck, Leverkusen; Ernst Kysela, Bergisch Gladbach, and Rudolf Braden, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

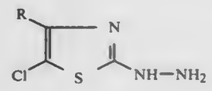
Filed Oct. 31, 1990, Ser. No. 606,375

Claims priority, application Fed. Rep. of Germany, Dec. 9, 1989, 3940794

Int. Cl.[5] C07D *277/50*

U.S. Cl. 548—194 **5 Claims**

1. A 4-substituted 5-chloro-2-hydrazinothiazole of the formula



(I)

in which

R represents CHF_2, CF_3, CN or $COOR^1$, where

R^1 represents C_1-C_4-alkyl.

5,068,344

PROCESS FOR THE PREPARATION OF SALT FREE, WATER FREE 3-ISOTHIAZOLONE COMPOUNDS

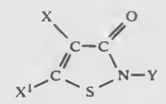
Ramesh B. Petigara, Hatfield; Norman A. Leister, Huntingdon Valley; Barry J. Pendell, Lansdale, and Robert A. Woodruff, Buckingham, all of Pa., assignors to Rohm and Haas Company, Philadelphia, Pa.

Filed Jan. 12, 1990, Ser. No. 464,472

Int. Cl.[5] C07D *275/02*

U.S. Cl. 548—213 **13 Claims**

1. A process for preparing a substantially water free 3-isothiazolone of the formula



wherein

Y is selected from the group consisting of alkyl or hydroxy- or halogen-substituted alkyl of 1 to 10 carbon atoms; unsubstituted or halogen-substituted alkenyl or alkynyl of 2 to 10 carbon atoms; benzyl; 4-methoxybenzyl; 4-chlorobenzyl; phenethyl; 2-(4-chlorophenyl)ethyl; and 4-phenylbutyl;

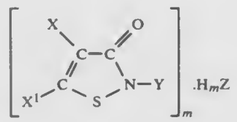
X is hydrogen or a (C_1-C_2) alkyl; and

X^1 is hydrogen, chlorine, or a (C_1-C_2) alkyl; comprising

(a) reacting in the presence of an organic solvent selected from the group consisting of alcohol, glycol, glycol ether, acetate ester, aliphatic hydrocarbon, chlorinated aliphatic hydrocarbon, aromatic hydrocarbon, and chlorinated aromatic hydrocarbon solvents

(i) anhydrous ammonia with

(ii) an isothiazolone salt of the formula



wherein

Z is chlorine, bromine, sulfate or fluorosulfonate;

m is 1 when Z is chlorine, bromine or fluorosulfonate, and m is 2 when Z is sulfate;

using the stochiometric amount or less than the stochiometric amount of anhydrous ammonia necessary to neutralize said salt; and

(b) separating the resultant $(NH_4)_mZ$ from the resultant free base isothiazolone;

(c) said resultant free base isothiazolone containing less than about 0.5% $(NH_4)_mZ$ based on weight of isothiazolone.

5,068,345

OXAZOLIDINONE ALDOL ADDUCT

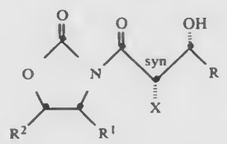
Carl R. Illig, and Alexander L. Weis, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Oct. 30, 1989, Ser. No. 428,800

Int. Cl.[5] C07D *263/04*

U.S. Cl. 548—230 **7 Claims**

1. A compound having the following formula:



wherein R is alkyl having 6–12 carbon atoms, alkenyl having from 2 to 22 carbon atoms or aryl having 6–25 carbon atoms, R^1 is benzyl, R^2 is hydrogen or alkyl having from 1–10 carbon atoms, and X is a halogen atom.

5,068,346

TETRAZOLE COMPOUNDS

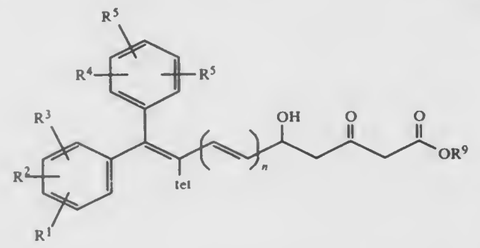
Sing-Yuen Sit, Meriden, and John J. Wright, Middletown, both of Conn., assignors to Bristol-Myers Company, New York, N.Y.

Divisiion of Ser. No. 151,513, Feb. 18, 1988, Pat. No. 4,897,490, which is a continuation-in-part of Ser. No. 18,542, Feb. 25, 1987, abandoned. This application Nov. 17, 1989, Ser. No. 437,942

Int. Cl.[5] C07D *257/04*

U.S. Cl. 548—253 **16 Claims**

1. A compound of the formula



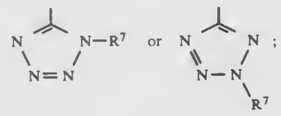
wherein

R^1 and R^4 each are independently hydrogen, halogen, C_{1-4} alkyl, C_{1-4} alkoxy, or trifluoromethyl;

R^2,R^3,R^5 and R^6 each are independently hydrogen, halogen, C_{1-4} alkyl or C_{1-4} alkoxy;

n is an integer of from 0 to 2, inclusive;

tet is



R^7 is C_{1-4} alkyl, C_{1-4} alkoxy(lower)alkyl, (2-methoxyethoxy)methyl or triphenylmethyl; and

R^9 is a hydrolyzable ester group.

5,068,347

PROCESS FOR THE PREPARATION OF 3-MERCAPTO-5-AMINO-(1H)-1,2,4-TRIAZOLE

Wallace E. Puckett, Memphis, Tenn., and R. Garth Pews, Midland, Mich., assignors to DowElanco, Indianapolis, Ind.

Filed Nov. 23, 1987, Ser. No. 124,132

Int. Cl.[5] C07D *249/14*

U.S. Cl. 548—263.8 **3 Claims**

1. A process for the preparation of 3-mercapto-5-amino-(1H)-1,2,4-triazole which comprises contacting 2,5-diamino-1,3,4-thiadiazole or a salt thereof with a base in a suitable solvent.

5,068,348

TRIAZOLE METHINE COMPOUNDS

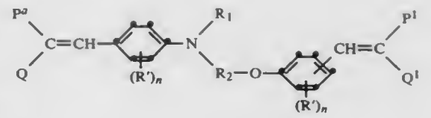
Max A. Weaver; Wayne P. Pruett, Kingsport, and Samuel D. Hilbert, Jonesborough, all of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Division of Ser. No. 182,633, Apr. 18, 1988, Pat. No. 4,958,043. This application Dec. 20, 1989, Ser. No. 454,087

Int. Cl.[5] C07D *249/12*

U.S. Cl. 548—264.4 **6 Claims**

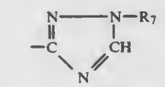
1. A compound having the structural formula:



wherein:

n is 0, 1, or 2;

R_1 is straight or branched alkyl substituted with —O—R_6, —S—R_6 or —$SO_2CH_2CH_2SR_6$, wherein R_6 is a group of the formula:



wherein each R_7 is independently selected from:

H,

alkyl,

phenoxyalkyl,

alkylsulfonylalkyl,

alkylthioalkyl,

alkanoyloxyalkyl,

aryl,

—OXR_8, —$NHXR_8$ or —XR_8, wherein X is —CO—, —COO—, or —SO_2—; and each R_8 is selected from:

alkyl,

cycloalkyl,

phenoxyalkyl,

alkylsulfonylalkyl,

alkythioalkyl,

alkanoyloxyalkyl; and, when X is —CO—, R_8 can further be selected from:

H,

alkenyl,

amino,

alkylamino,

dialkylamino,

arylamino,

aryl,

alkoxy,

alkanoyloxyalkoxy,

phenoxy,

alkylphenoxy,

carboxyphenoxy,

alkoxyphenoxy,

carbalkoxyphenoxy, or

halogenophenoxy;

R_2 is selected from:

alkylene,

alkylene substituted with —Z—B′—CH=C(P^a)Q,

wherein Z and B′ are as defined above and P^a and Q are as defined below,

arylene,

aralkylene,

alkylene-O-alkylene,

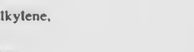
alkylene-O-arylene-O-alkylene,

alkylene-arylene-alkylene,

alkylene-cyclohexylene-alkylene,

alkylene-S-alkylene,

alkylene-SO_2-alkylene,



wherein R_9 is selected from:

alkyl,

aryl,

alkanoyl,

VOL 1132 ISS 4 NO 26 1991 UMI

alkylsulfonyl,
aroyl, or
arylsulfonyl;

P^a, Q, P^1 and Q^1 are each independently selected from:
cyano,
carbalkoxy,
carbocycloalkoxy,
carbaryloxy,
carbaralkyloxy,
carbalkenyloxy,
carbamyl,
carboxy,
alkanoyl,
aroyl,
N-alkylcarbamyl,
N-alkyl-N-arylcarbamyl,
N,N-dialkylcarbamyl,
N-arylcarbamyl,
N-cyclohexylcarbamyl,
—SO_2-alkyl,
—SO_2-aryl,
aryl;

with the proviso that at least one of R_1, R_2, P^a, Q, P^1 and Q^1 is a group reactive under condensation polymerization conditions, or bears a group reactive under condensation polymerization conditions, so as to incorporate said compound into the resulting polymer, said group selected from:
carboxy,
carbalkoxy,
carbaryloxy,
N-alkylcarbamyloxy,
alkanoyloxy,
chlorocarbonyl,
carbamyloxy,
amino,
alkylamino,
hydroxyl,
N-phenylcarbamyloxy,
cyclohexanoyloxy, or
carbocyclohexyloxy;

wherein in each of the above definitions the alkyl or alkylene moieties or portions of the various groups contain up to 8 carbon atoms, straight or branched chain, aryl or heteroaryl moieties or portions of the various groups contain in the range of 2 up to 10 carbon atoms; wherein said compound contains at least one heterocyclic moiety; and wherein each alkyl, alkylene, alkoxy, aryl, or cycloalkyl moiety or portion of a group or radical can be further substituted with hydroxy, acyloxy, alkyl, cyano, alkoxycarbonyl, halogen, carbonylhalide, alkoxy, aryl, aryloxy, cycloalkyl, amino, alkylamino, alkanoylamino, or carboxy groups.

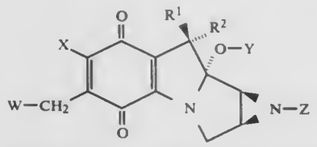
5,068,349

MITOMYCIN DERIVATIVES

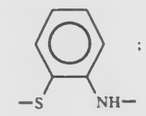
Yutaka Kanda, Houston, Tex.; Masaji Kasai, Fujisawa, Japan; Hitoshi Arai; Makoto Morimoto, both of Shizuoka, Japan, and Tadashi Ashizawa, Numazu, Japan, assignors to Kyowa Hakko Kogyo Co., Ltd., Tokyo, Japan

Filed Sep. 7, 1989, Ser. No. 404,353
Claims priority, application Japan, Sep. 9, 1988, 63-224484
Int. Cl.[5] C07D *487/14*; A61K *31/40*
U.S. Cl. 548—418 **3 Claims**

1. A mitomycin derivative represented by the formula:



wherein W represents RO or RS (wherein R represents hydrogen; alkyl having 1 to 12 carbon atoms which may be substituted with 1 or 2 substituents independently selected from the group consisting of hydroxy, lower alkoxy having 1 to 4 carbon atoms, lower alkoxycarbonyl having 2 to 5 carbon atoms and alicyclic alkyl having 3 to 6 carbon atoms; alkenyl having 2 to 12 carbon atoms; a substituted or non-substituted aralkyl selected from the group consisting of benzyl, phenethyl and benzhydryl; or a substituted or non-substituted aryl selected from the group consisting of phenyl and naphthyl; substituents for said substituted aralkyl and for said substituted aryl being 1 to 3 substituents independently selected from the group consisting of hydroxy, lower alkoxy having 1 to 4 carbon atoms, halogen, nitro and lower alkyl having 1 to 4 carbon atoms; X represents methoxy or amino; or W and X are combined together to form —$S(CH_2)_2NH$— or



;

Y represents hydrogen or methyl; Z represents hydrogen, methyl or lower alkanoyl having 1 to 4 carbon atoms; and one of R^1 and R^2 represents carbamoyloxymethyl and the other represents hydrogen.

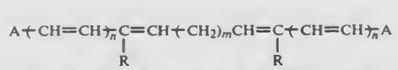
5,068,350

POLYOLEFIN DERIVATIVES

Mitsuru Hashimoto; Tomoyuki Shimada, both of Numazu; Nobuo Suzuki, Kouriyama; Takayuki Sakai, Tokyo; Susumu Suzuka, Yono, and Masaomi Sasaki, Susono, all of Japan, assignors to Ricoh Company, Ltd. and Hodogaya Chemical Co., Ltd., both of Tokyo, Japan

Division of Ser. No. 245,288, Sep. 16, 1988, Pat. No. 4,965,157.
This application Aug. 3, 1990, Ser. No. 562,623
Claims priority, application Japan, Sep. 17, 1987, 62-232894; Sep. 17, 1987, 62-232895; May 27, 1988, 63-131247; May 27, 1988, 63-131248
Int. Cl.[5] C07D *209/86*
U.S. Cl. 548—444 **6 Claims**

1. Polyolefin derivatives having the following formula (I):



(I)

wherein A represents a substituted or unsubstituted N-substituted carbazolyl group, R represents hydrogen, an alkyl group, an aralkyl group or a substituted or unsubstituted aryl group; m is an integer of 2 to 8; an n is an integer of 0 or 1.

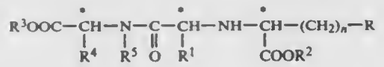
5,068,351

PROCESS FOR THE PREPARATION OF N OCTAHYDROPENTA (6) PYRROLE CARBOXYLATES

Volker Teetz, Hofheim am Taunus; Hans Wissmann, Bad Soden am Taunus, and Hansjörg Urbach, Kronberg/Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

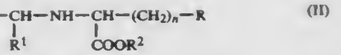
Continuation of Ser. No. 403,919, Sep. 7, 1989, abandoned, which is a continuation of Ser. No. 178,767, Mar. 30, 1988, abandoned, which is a continuation of Ser. No. 943,882, Dec. 19, 1986, abandoned, which is a continuation of Ser. No. 650,715, Sep. 14, 1984, abandoned. This applicatioo Jul. 27, 1990, Ser. No. 560,004
Claims priority, application Fed. Rep. of Germany, Sep. 16, 1983, 3333454
Int. Cl.[5] C07D *207/00, 209/52*
U.S. Cl. 548—452 **18 Claims**

1. A process for the preparation of a compound of the formula I



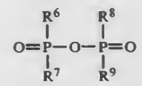
(I)

in which
n is 1 or 2;
R denotes hydrogen,
an optionally substituted aliphatic radical having 1 to 8 carbon atoms,
an optionally substituted alicyclic radical having 3–9 carbon atoms,
an optionally substituted aromatic radical having 6–12 carbon atoms,
an optionally substituted araliphatic radical having 7–14 carbon atoms,
an optionally substituted alicyclic-aliphatic radical having 7–14 carbon atoms, or
a radical OR^a or SR^a, in which R^a represents an optionally substituted aliphatic radical having 1–4 carbon atoms, an optionally substituted aromatic radical having 6–12 carbon atoms or an optionally substituted heteroaromatic radical having 5–12 ring atoms;
R^1 denotes hydrogen,
an optionally substituted aliphatic radical having 1–6 carbon atoms,
an optionally substituted alicyclic radical having 3–9 carbon atoms,
an optionally substituted alicyclic-aliphatic radical having 4–13 carbon atoms,
an optionally substituted aromatic radical having 6–12 carbon atoms,
an optionally substituted araliphatic radical having 7–16 carbon atoms,
an optionally substituted heteroaromatic radical having 5–12 ring atoms, or
if not already included above, the side chain, protected when appropriate, of a naturally occurring alpha-amino acid;
R^2 and R^3 are identical or different and denote hydrogen,
an optionally substituted aliphatic radical having 1–6 carbon atoms,
an optionally substituted alicyclic radical having 3–9 carbon atoms,
an optionally substituted aromatic radical having 6–12 carbon atoms, or
an optionally substituted araliphatic radical having 7–16 carbon atoms; and
R^4 and R^5, together with the atoms bearing them, form an optionally substituted octahydrocyclopenta[b]pyrrole ring system;
which process comprises reacting a compound of the formula II



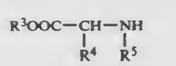
(II)

in which n, R, R^1 and R^2 have the meanings defined above, and where the amine group —NH— shown in the structure of the compound of formula II is unprotected, in the presence of at least one phosphinic anhydride of the formula III



(III)

in which R^6, R^7, R^8 and R^9 are identical or different and represent alkyl and/or aralkyl, with a compound of the formula IV



(IV)

in which R^3, R^4 and R^5 have the meanings defined above.

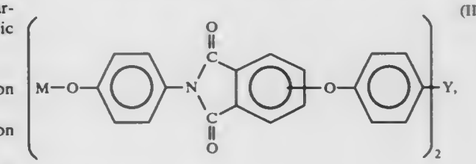
5,068,352

BISIMIDODIPHENOL DERIVATIVES

David N. Schissel, Scotia, and Deborah A. Haitko, Schenectady, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

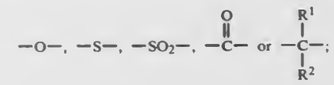
Division of Ser. No. 7,467,453, Jan. 9, 1990, Pat. No. 4,988,792.
This application Oct. 31, 1990, Ser. No. 606,417
Int. Cl.[5] C07D *403/10*
U.S. Cl. 548—461 **3 Claims**

1. A bisimidodiphenol derivative having the formula



(III)

wherein M is acyl; Y is



and each of R^1 and R^2 is independently hydrogen, methyl or ethyl.

5,068,353

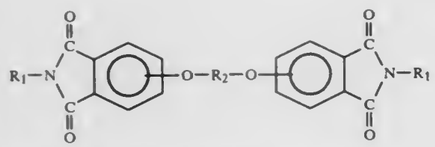
SYNTHESIS OF AROMATIC BIS(ETHER PHTHALIMIDE) COMPOUNDS

Brent A. Dellacoletta, Evansville, Ind., assignor to General Electric Company, Pittsfield, Mass.

Filed Dec. 31, 1986, Ser. No. 947,909
Int. Cl.[5] C07D *209/48*
U.S. Cl. 548—461 **31 Claims**

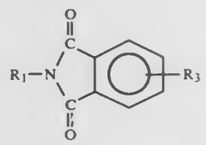
1. A method of synthesizing an aromatic bis(ether phthalimide of the formula (I):

VOL 1132 ISS 4 NO 26 1991 UMI



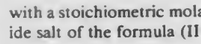
(I)

comprising reacting a phthalimide of the formula (II):

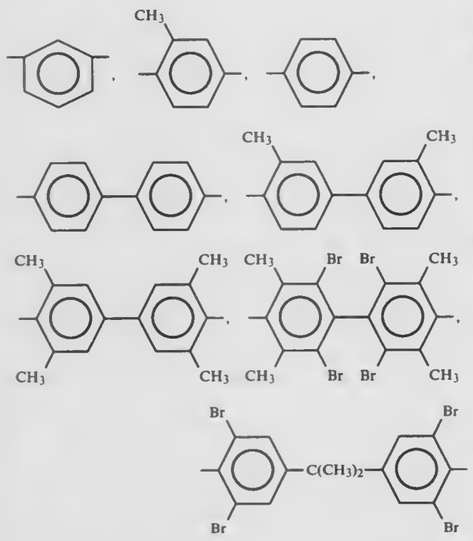


(II)

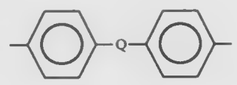
with a stoichiometric molar excess of an alkali metal diphenoxide salt of the formula (III):



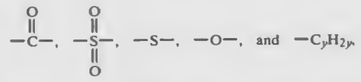
in the presence of a catalytic amount of a phase transfer catalyst, in an anhydrous nonpolar organic solvent under etherforming conditions, then performing a solid-liquid separation technique on the reaction mixture at a temperature at which the compound of formula (I) is substantially completely soluble while alkali metal salts of impurities are substantially insoluble in said organic solvent, and recovering the compound of formula (I) from the liquid phase, wherein R_1 is selected from the group consisting of hydrogen; a lower alkyl group having from 1 to about 10 carbon atoms; and an aromatic hydrocarbon radical or chloro- or bromo-substituted aromatic hydrocarbon radical thereof, having from about 6 to about 20 carbon atoms; R_2 is a divalent organic radical selected from the group consisting of:



and divalent organic radicals of the general formula:



where Q represents a member selected from the class consisting of:



where y is a whole number from 1 to about 5; M is an alkali metal-ion; and R_3 is a leaving group.

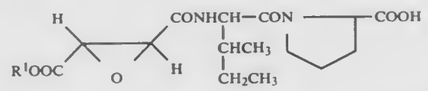
5,068,354

EPOXYSUCCINIC ACID DERIVATIVES

Mitsuo Murata, Konosu; Chihiro Yokoo, Gyoda, and Kazunori Hanada, Ageo, all of Japan, assignors to Taisho Pharmaceutical Co., Ltd., Japan

Filed May 2, 1990, Ser. No. 517,687
Claims priority, application Japan, May 18, 1989, 1-124753
Int. Cl.[5] C07D *405/12*
U.S. Cl. 548—517 **5 Claims**

1. An epoxysuccinic acid derivative represented by the formula



wherein R^1 is a hydrogen atom or an alkyl group containing 1 to 4 carbon atoms, and a pharmaceutically acceptable salt.

5,068,355

SEMI-CONDUCTING OLIGOMERS AND METHOD RELATING THERETO

James P. Albarella, and Nan-Horng Lin, both of Elkhart, Ind., assignors to Miles Inc., Elkhart, Ind.

Division of Ser. No. 331,345, Mar. 31, 1989, Pat. No. 5,021,586.
This application Oct. 4, 1990, Ser. No. 592,814
Int. Cl.[5] C07D *207/30, 409/04*
U.S. Cl. 548—527 **2 Claims**

1. Methyl 4-{2'-thienyl-5'-[2''-pyrrolyl-3''-(4-carbomethyoxy-1-oxypropyl)-5''-(2''-thienyl)]}-4-oxobutyrate.

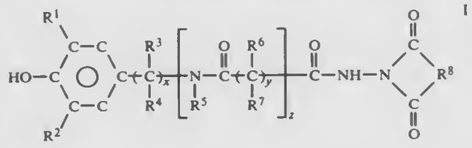
5,068,356

HINDERED PHENOLIC N-(AMIDO)IMIDES

Jerome Wicher, West Seneca, N.Y., assignor to Atochem North America, Inc., Philadelphia, Pa.

Filed Feb. 20, 1990, Ser. No. 481,940
Int. Cl.[5] C07D *209/56, 209/46, 207/408, 207/448*
U.S. Cl. 548—546 **4 Claims**

1. A compound having the following Formula I:



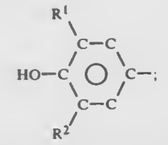
I

wherein

R^1 is t-alkyl of 4 to 8 carbons or cycloalkyl of 3 to 6 carbons;

R^2 is hydrogen, alkyl of 1 to 8 carbons, t-alkyl of 4 to 8 carbons or cycloalkyl of 3 to 6 carbons;

R^3 is hydrogen, lower alkyl of 1 to 6 carbons, phenyl or a phenol having the formula



R^4, R^5, R^6 and R7 are independently hydrogen, lower alkyl of 1 to 6 carbons or phenyl;

R^8 is a substituted or unsubstituted aliphatic diradical of 2 to 64 carbons, a substituted or unsubstituted alicyclic diradical of 3 to 12 carbons or a substituted or unsubstituted alibicyclic diradical of 5 to 18 carbons, with the proviso that the R^8 diradical has valence locants on adjacent carbons; wherein substituents for R^8 are alkyl of 1 to 24 carbons, alkoxy of 1 to 24 carbons, alkylthio of 1 to 24 carbons, alkenyl of 2 to 24 carbons, oxydialkyl of 2 to 24 carbons, thiodialkyl of 2 to 24 carbons, acyloxy of 2 to 24 carbons, alkoxycarbonyl of 2 to 24 carbons, cycloaliphatic of 3 to 12 carbons, dialkylaminocarbonyl of 3 to 41 carbons or phenyl;

x is an integer from 0 to 6;

y is an integer from 0 to 10; and

z is 0 or 1.

4. The compound according to claim 1 wherein the compound is selected from the group consisting of:

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-2-octadecylsuccinimide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-2-hexadecylsuccinimide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-2-dodecylsuccinimide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-2-octylsuccinimide,

N-[3,3-bis(3'-t-butyl-4'-hydroxyphenyl)butanamido]-2-octadecylsuccinimide,

N-[2-(3,5-di-t-butyl-4-hydroxyphenylamino)-2-oxoacetamido]-2-octadecylsuccinimide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-2-isododecenylsuccinimide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanimido]-5-norbornene-2,3-dicarboximide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-methyl-5-norbornene-2,3-dicarboximide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-4-methylhexahydrophthalimide,

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanamido]-2-tetradecylsuccinimide and

N-[3-(3,5-di-t-butyl-4-hydroxyphenyl)propanmido]maleimide.

5,068,357

PREPARATION OF N-SUBSTITUTED MALEIMIDES BY USE OF TIN CATALYSTS

Ryuichiro Tsumura; Teruo Muraishi, both of Yokohama; Keiichi Ideda, Chigasaki, and Jin-Kai Wang, Yokohama, all of Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Jun. 11, 1990, Ser. No. 536,366
Claims priority, application Japan, Jun. 16, 1989, 1-152432; Apr. 26, 1990, 2-108769
Int. Cl.[5] C07D *207/42, 403/06, 403/10, 403/12*
U.S. Cl. 548—548 **20 Claims**

1. In a process for the preparation of an N-substituted maleimide by heat-dehydrating an N-substituted maleamic acid in a solvent mixture containing an organic solvent capable of forming water azeotrope and an organic aprotic polar solvent and simultaneously conducting a dehydrating imidization reaction under azeotropic distillation of the reaction generated water, the improvement which comprises conducting the dehydrating imidization in the absence of an acid catalyst and in the presence of one or more catalyst selected from the group consisting of metallic tin, tin oxide, a tin salt of the maleamic acid and a tin compound which forms a tin salt of the maleamic acid in the reaction system.

5,068,358

PROCESS FOR EXTRACTING N-METHYL-2-PYRROLIDONE

Georg-Emerich Miess, Königstein/Taunus; Karl-Heinz Schwarz, Liederbach; Heribert Tetzlaff, Frankfurt am Main, and Bernhard Wojtech, Bad Soden am Taunus, all of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt, Fed. Rep. of Germany

Filed Oct. 11, 1989, Ser. No. 419,687
Claims priority, application Fed. Rep. of Germany, Oct. 13, 1988, 3834904
Int. Cl.[5] C07D *207/267*
U.S. Cl. 548—555 **17 Claims**

1. A process for extracting N-methyl-2-pyrrolidone from an aqueous solution which comprises:

using, as the extractant, a substituted phenol which is insoluble or sparingly soluble in water at room temperature and is monosubstituted or polysubstituted on the aromatic nucleus by one or more straight-chain or branched aliphatic radicals, said substituted phenol being optionally mixed with an inert diluent, the aliphatic substituent or substituents being selected so as to provide a substituted phenol with a boiling point which is above the boiling point of N-methyl-2-pyrrolidone, provided that the aliphatic substituent, or all the aliphatic substituents in total, has or have not more than 16 carbon atoms.

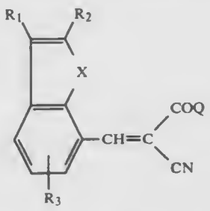
5,068,359

MICROBICIDAL COMPOSITIONS

Alica Huxley, Binningen; Walter Kunz, Oberwil; Peter Ackermann, Pfeffingen, and Marius Sutter, Basel, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Jun. 12, 1990, Ser. No. 537,196
Claims priority, application Switzerland, Jun. 20, 1989, 2299/89
Int. Cl.[5] C17D *333/72, 307/78*
U.S. Cl. 549—58 **2 Claims**

1. A compound of formula IIa



(IIa)

wherein X is oxygen or sulfur, R_1 is hydrogen, halogen, C_1–C_4alkyl or C_1–C_4haloalkyl, R_2 is hydrogen, halogen, C_1–C_4alkyl or C_1–C_4haloalkyl, R_3 is hydrogen, C_1–C_4alkyl or halogen and Q is OR_{16} or NH_2 where R_{16} is hydrogen or C_1–C_4-alkyl.

VOL 1132 ISS 4 NO 26 1991 UMI

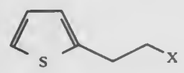
5,068,360

PREPARATION OF 2-(2'-THIENYL)ETHYLAMINE DERIVATIVES AND SYNTHESIS OF THIENO(3,2-C)PYRIDINE DERIVATIVES THEREFROM

Bradley S. DeHoff, Boulder, Colo., assignor to Syntex (U.S.A.) Inc., Palo Alto, Calif.

Filed Jan. 25, 1990, Ser. No. 470,299
Int. Cl.[5] C07D *333/26, 495/04*
U.S. Cl. 549—74 15 Claims

1. A process for making 2-(2'-thienyl)ethylamine comprising contacting a compound of the formula



where X is a leaving group; with gaseous ammonia in the presence of a compound of the formula M—Y, where:

M is Li, K, Mg, Zn, Na; and

Y is halo or CO_3.

5,068,361

PREPARATION OF CAPROLACTONE

Wolfgang Richter, Wachenheim; Rolf Fischer, Heidelberg, and Uwe Vagt, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Continuation of Ser. No. 365,126, Jun. 12, 1989, abandoned.
This application Sep. 20, 1990, Ser. No. 587,155
Claims priority, application Fed. Rep. of Germany, Jul. 8, 1988, 3823213
Int. Cl.[5] C07D *309/10*
U.S. Cl. 549—273 5 Claims

1. A process for the preparation of caprolactone which comprises: passing a C_1–C_4 alkyl 6-hydroxycaproic ester in vapor form, together with an inert carrier gas, at from 150° to 450° C., over a fixed-bed or fluidized-bed oxidic catalyst, wherein the catalyst used is silica, titanium dioxide or a mixture thereof.

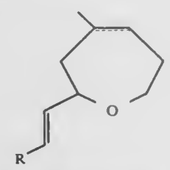
5,068,362

CYCLIC ETHERS AND THEIR UTILIZATION AS PERFUMING OR FLAVORING INGREDIENTS

Anthony F. Morris, Gingins; Regula Naef, Carouge; Sina Escher, Confignon, all of Switzerland, and Alain Velluz, La Roche/Foron, France, assignors to Firmenich SA, Geneva, Switzerland

Division of Ser. No. 439,406, Nov. 21, 1989, Pat. No. 5,021,402.
This application Dec. 5, 1990, Ser. No. 623,146
Claims priority, application Switzerland, Nov. 28, 1988, 4414/88
Int. Cl.[5] C07D *325/00*
U.S. Cl. 549—346 5 Claims

1. A compound of formula



(I)

wherein the dotted line indicates the location of a single or double bond and the symbol R stands for an isopropenyl radical or a 1-ethoxy-1-methylethyl radical.

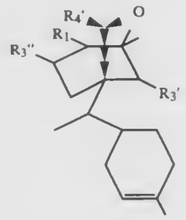
5,068,363

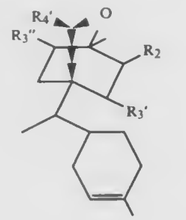
CYCLOHEXENYLMETHLOXABICYCLOOCTANES, PROCESSES FOR PREPARING SAME, INTERMEDIATES USED IN SAID PROCESSES AND ORGANOLEPTIC USES OF SAID CYCLOHEXENYLMETHLOXABICYCLOOCTANES AND INTERMEDIATES THEREFOR

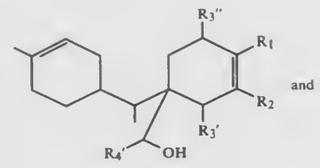
Anubhav P. S. Narula, Hazlet, and John J. De Virgilio, Freehold, both of N.J., assignors to International Flavors & Fragrances Inc., New York, N.Y.

Filed Sep. 27, 1990, Ser. No. 588,733
Int. Cl.[5] C07D *313/06*
U.S. Cl. 549—355 4 Claims

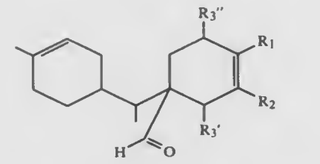
1. A cyclohexenylmethyloxabicyclooctane or intermediate therefor defined according to the structures selected from the group consisting of:







and



wherein R_1, R_2, R_3' and R_3'' each represents hydrogen or methyl with the provisos:

(i) one or both of R_1 and R_2 is methyl;

(ii) when R_1 and R_2 are both methyl, then R_3' and R_3'' are each hydrogen;

(iii) one of R_3' and R_3'' is methyl and the other is hydrogen or R_3' and R_3'' are both hydrogen; and

(iv) when R_3' or R_3'' is methyl then R_1 is methyl and R_2 is hydrogen;

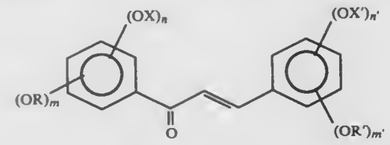
5,068,364

CHALCONE DERIVATIVES AND PROCESS FOR PRODUCING THE SAME

Hidetsugu Takagaki; Shigenori Nakanishi, both of Sakura; Masayoshi Abe, Chiba; Hiromi Ohki, and Yoshiyuki Sano, both of Sakura, all of Japan, assignors to Dainippon Ink and Chemicals, Inc., Tokyo, Japan

Filed Nov. 21, 1989, Ser. No. 439,435
Claims priority, application Japan, Nov. 21, 1988, 63-292436
Int. Cl.[5] C07D *309/12*
U.S. Cl. 549—415 18 Claims

1. A hydroxychalcone derivative represented by general formula (I)



(I)

wherein X and X' each represent 2-tetrahydropyranyl, R and R', which are the same or different, each represent and alkyl group or a hydrogen atom, n and n' each is an integer of from 0 to 3, m and m' are each integers of from 0 to 3, provided that n+n' is 1 or more, and than n+m is an integer of from 1 to 3 and n'+m is an integer of from 1 to 3.

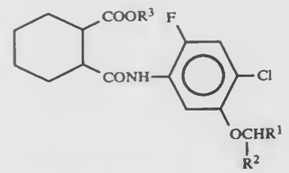
5,068,365

HEXAHYDROPHTHALIC ANILIDE DERIVATIVES

Takumi Tokunaga; Hiroyuki Watanabe; Kenji Tsuzuki, all of Yamaguchi; Sinzo Someya, Saitama; Seigo Koura, Tokyo, and Mikio Ito, Yamaguchi, all of Japan, assignors to Tosoh Corporation, Yamaguchi and Agro-Kanesho Co., Ltd., Tokyo, both of, Japan

Filed Dec. 30, 1988, Ser. No. 292,077
Claims priority, application Japan, Dec. 31, 1987, 62-336452; Sep. 7, 1988, 62-222256; Sep. 8, 1988, 63-225462; Sep. 19, 1988, 63-234259
Int. Cl.[5] C07C *69/75;* C07D *307/16*
U.S. Cl. 549—496 8 Claims

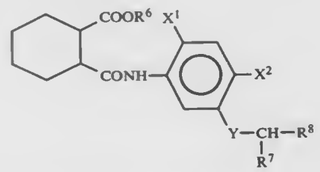
1. A hexahydrophthalic anilide derivative of the formula [I]:



[I]

wherein R^1 represents non-substituted or substituted phenyl, R^2 represents hydrogen or C_1–C_4 alkyl, R^3 represents C_1–C_4 alkyl or C_1–C_4 alkenyl.

4. A hexahydrophthalic anilide derivative of the formula:



[III]

wherein X^1 and X^2, the same or different, represent halogen Y, represents oxygen or sulfur, R^6 represents C_1–C_6 straight alkyl group which is substituted with a C_1–C_3 alkoxy group, tetrahydrofurfuryl or 2-perhydropyranylmethyl, R^7 represents hydrogen or methyl, R^8 represents cyano, C_1–C_3 alkyl, C_2 or C_3 alkenyl, C_2–C_4 alkynyl, C_3–C_6 alkynyl which is substituted with methoxy, $CONHR^9$, wherein R^9 represents aromatic sulfonyl, or an azole heterocyclic ring.

5,068,366

SIMULTANEOUS EPOXIDE AND CARBOXYLIC ACID MANUFACTURE BY CO-OXIDATION IN THE PRESENCE OF A COBALT CATALYST

John R. Sanderson, Leander, and Edward T. Marquis, Austin, both of Tex., assignors to Texaco Chemical Company, White Plains, N.Y.

Filed Aug. 6, 1990, Ser. No. 563,237
Int. Cl.[5] C07D *301/06;* C07C *51/21*
U.S. Cl. 549—533 8 Claims

1. A co-oxidation process for simultaneously producing isobutylene oxide and isobutyric acid comprising:

contacting a mixture of isobutylene and isobutyraldehyde in the liquid phase with oxygen in the presence of a soluble cobalt salt catalyst and in the presence of an organic, inert solvent.

5,068,367

TETRACYANO-1,4-HYDROQUINONE AND TETRACYANO-1, 4-BENZOQUINONE

Carlos Vazquez, Newark, Del., and Joel S. Miller, West Chester, Pa., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Jan. 31, 1990, Ser. No. 472,920
Int. Cl.[5] C07C *50/02, 50/38*
U.S. Cl. 552—310 22 Claims

1. A process for the preparation of tetracyano-1,4-benzoquinone comprising:

(a) reacting tetracyano-1,4-hydroquinone with an excess of a silver salt to yield the disilver salt of tetracyano-1,4-hydroquinone; and

(b) reacting said disilver salt with an oxidizing agent to yield tetracyano-1,4-benzoquinone.

10. A process for the preparation of tetracyano-1,4-benzoquinone comprising:

(a) reacting tetracyano-1,4-hydroquinone with a tetra-alkyl or tetra-aryl ammonium salt to yield the corresponding ammonium salt of tetracyano-1,4-hydroquinone.

(b) reacting said ammonium salt with an excess of a silver salt to yield the disilver salt of tetracyano-1,4-hydroquinone; and

(c) reacting said disilver salt with an oxidizing agent to yield tetracyano-1,4-benzoquinone.

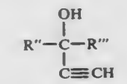
5,068,368

STABILIZED LITHIUM ACETYLIDE AND REACTIONS THEREWITH

W. Novis Smith, and Christopher Loser, both of Philadephia, Pa., assignors to Cyprus Foote Mineral Company, Malvern, Pa.

Filed May 10, 1990, Ser. No. 521,743
Int. Cl.[5] C07J *7/00, 75/00;* C07C *29/143;* C07F *1/02*
U.S. Cl. 552—556 12 Claims

1. In a process for the preparation of ethynyl carbinols of the formula:

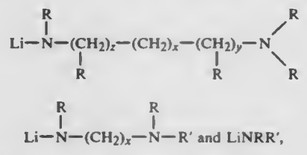


wherein R'' is hydrogen or lower alkyl, R''' is hydrogen, alkyl, a substituted or unsubstituted aliphatic, alicyclic or monocyclic

VOL 1132 ISS 4 NO 26 1991 UMI

or bicyclic aromatic hydrocarbon or R'' and R''' together to the carbon atom to which they are joined represent a steroid, which comprises the steps of

A. reacting in a solvent system at least one lithium alkylamide selected from the group consisting of:



wherein R is a hydrogen or lower alkyl, R' is hydrogen, lower alkyl, a substituted or unsubstituted aliphatic, alicyclic or monocyclic or bicyclic aromatic hydrocarbon, x is an integer of 2 to 8, y and z are each 0 to 1, with acetylene to form a monolithium acetylide

B. reacting in a solvent system the monolithium acetylene from Part A with a ketone of the formula R''R''' C=O, wherein R'' and R''' are as hereinbefore defined, and then

C. hydrolysing the reaction product of Part B to form the corresponding ethynyl carbinol compound, the improvement comprising the solvent system in Parts B comprises a moncyclic aromatic solvent in an amount sufficient to solubilize said lithium alkylamide and to effect a stable solution.

5,068,369

PROCESS FOR PREPARING CHIRAL SULPHOXIDES

Stephen G. Davies, Oxford, England, assignor to The British Petroleum Company p.l.c., London, England

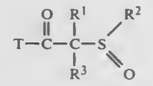
Division of Ser. No. 311,819, Feb. 17, 1989. This application Sep. 28, 1990, Ser. No. 589,502

Claims priority, application United Kingdom, Feb. 24, 1988, 8804339; Nov. 8, 1988, 8826144

Int. Cl.[5] C07F *15/02*

U.S. Cl. 556—16 **8 Claims**

1. A chiral sulphoxide having the formula:



wherein

T is the moiety (Cp)Fe(CO) (Z)-where Cp is (eta^5-C_5H_5) or a C_1 to C_3 alkyl substituted derivative thereof, and Z is a ligand having the formula $(R^4)_2X\ R^5$ in which X is either phosphorus or arsenic, the R^4 groups are either phenyl or phenoxy groups and R^5 is selected from the group consisting of phenyl groups, phenoxy groups, and functionalized or unfunctionalized C_1 to C_{12} alkyl or alkoxy groups;

R^1 and R^2 are independently selected from the group consisting of C_1 to C_{12} alkyl, C_6–C_{10} aryl and vinyl groups; and

R^3 is selected from the group consisting of hydrogen, C_1 to C_{12} alkyl, C_6 to C_{10} aryl and vinyl groups.

5,068,370

MONOMERIC ORGANOMETALLIC COMPOUNDS AND METHOD OF PREPARING SAME

Kelvin T. Higa, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Jun. 8, 1990, Ser. No. 534,997

Int. Cl.[5] C07F *9/00, 5/00*

U.S. Cl. 556—19 **13 Claims**

1. Compounds having the formula $(t\text{-}Bu)_2ME(t\text{-}Bu)_2$, where, M is selected from the group consisting of Ga, Al, and In, and where,

E is selected from the group consisting of As, P, Sb, and N.

5,068,371

NITROGEN-CONTAINING TITANOCENES, AND THE USE THEREOF

Eginhard Steiner, Füllinsdorf; Harry Beyeler, Basel, and Rinaldo Hüsler, Wünnewil, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

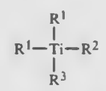
Filed May 23, 1990, Ser. No. 527,989

Claims priority, application Switzerland, Jun. 1, 1989, 2075/89

Int. Cl.[5] C07F *7/28; G03C 1/68*

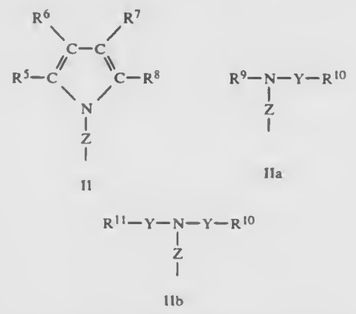
U.S. Cl. 556—53 **16 Claims**

1. A titanocene of the formula I



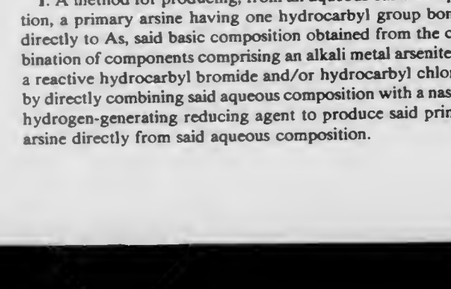
I

in which both the R^1 radicals, independently of one another, are cyclopentadienyl$^{\ominus}$, indenyl$^{\ominus}$or 4,5,6,7-tetrahydroindenyl$^{\ominus}$, each of which is unsubstituted, monosubstituted or polysubstituted by C_1–C_{18}alkyl, C_1–C_{18}alkoxy, C_2–C_{18}alkenyl, C_5–C_8cycloalkyl, C_6–C_{16}aryl, C_7–C_{16}aralkyl, —Si$(R^4)_3$, —Ge$(R^4)_3$, cyano or halogen, and R^4 is C_1–C_{12}alkyl, C_5–C_{12}cycloalkyl, C_6–C_{10}aryl or C_7–C_{16}aralkyl, R^2 is a 6-membered carbocyclic or 5- or 6-membered heterocyclic aromatic ring which is substituted by fluorine atoms at least in the two ortho-positions to the titanium-carbon bond, and in which the aromatic ring may contain further substituents, and R^3, independently, is as defined for R^2, R^2 and R^3 in the titanocenes being substituted by a radical of the formula II, IIa or IIb



II IIa IIb

in which R^5, R^6, R^7 and R^8, independently of one another, are hydrogen or linear or branched C_1–C_{18}alkyl, C_2–C_5alkenyl, C_7–C_9aralkyl, C_7–C_9alkaryl, C_8–C_{10}alkaralkyl, C_6–C_{10}aryl, 2-furyl, C_5–C_8cycloalkyl, C_5–C_8cycloalkenyl, C_2–C_{12}alkanoyl, C_2–C_{12}alkoxycarbonyl, —CHO, —Si$(R^4)_3$ or —Ge$(R^4)_3$, these radicals being unsubstituted or substituted by C_2–C_8-dialkylamino, bis[2-(C_1–C_4alkoxy)ethyl]amino, morpholino, piperidino, N-methylpiperazino, pyrrolidino, quaternary C_3–C_{10}trialkylammonium, C_1–C_{12}alkoxy, $-(OCH_2CH_2)_p$ OC-$_1$–C_{16}alkyl, in which p is a number from 1 to 20, 1,3-dioxolan-2-yl, 4-methyl-1,3-dioxolan-2-yl, —OCH_2CH_2O—, C_2–C_{12}alkoxycarbonyl, C_2–C_{12}alkanoyloxy, C_2–C_{12}alkanoyl, C_1–C_{12}alkylthio, halogen, cyano or —Si$(R^4)_3$, or R^5 and R^6 and/or R^7 and R^8 or R^6 and R^7 are each together —$(CH_2)_3$—, —$(CH_2)_4$—, —CH=CH—CH=CH—, —CH=CH—C(R^{12})=CH—, —CH_2OCH_2— or —$CH_2N(C_1$–C_4alkyl)CH_2—, in which R^{12} is hydroxyl, C_1–C_4alkoxy or C_2–C_4alkanoyloxy, Y is a —CO—, —CS—, —COO—, —SO_2— or —Si$(R^4)_2$— group, R_9 is hydrogen, linear or branched C_1–C_{20}alkyl, C_2–C_{20}alkenyl, C_3–C_8cycloalkyl, C_4–C_{20}cycloalkylalkyl, C_4–C_{20}alkylcycloalkyl, C_5–C_{20}alkylcycloalkylalkyl, C_6–C_{20}cycloalkenylalkyl, C_6–C_{14}aryl, C_7–C_{20}aralkyl, C_7–C_{20}alkaryl, C_8–C_{20}alkaralkyl or C_3–C_{12}trialkylsilyl, these radicals being unsubstituted or substituted by C_1–C_{18}alkoxy, C_1–C_{18}alkylthio, C_1–C_{18}alkylsulfonyl, C_6–C_{10}arylsulfonyl, C_7–C_{20}alkarylsulfonyl, 2-tetrahydrofuranyl or cyano, R^{10} has one of the meanings given for R^9 or is C_1–C_{20}haloalkyl, C_2–C_{20}alkyl which is interrupted by —CO—, or is C_1–C_{12}alkyl which is substituted by —COOH or —$COOR^4$, and in the case where Y is —CO—, —CS— or —SO_2—, may alternatively be —$NR^{13}R^{14}$ in which R^{13} and R^{14}, independently of one another, have one of the meanings given for R^9, or R^{13} and R^{14} together are C_3–C_7alkylene which may be interrupted by —O—, —S— or —$N(R^{15})$—, in which R^{15} is hydrogen, C_1–C_{12}alkyl, C_3–C_{12}alkenyl, C_7–C_{12}aralkyl or C_2–C_{20}alkanoyl, or R^9 and R^{10} together are linear or branched C_2–C_8alkylene or C_2–C_8alkylene which is substituted by halogen, C_1–C_4alkoxy, allyloxy or —$NR^{13}R^{14}$, or are a divalent radical of the formula



R^{11} has one of the meanings given for R^{10}, or R^{11} and R^{10} together are C_1–C_8alkanediyl, C_2–C_8alkenediyl, C_6–C_{14}arenediyl, C_4–C_{12}cycloalkanediyl, C_5–C_{12}cycloalkenediyl, C_6–C_{14}cycloalkadienediyl, C_7–C_{20}bicycloalkanediyl, C_7–C_{20}bicycloalkenediyl, or C_2–C_4alkanediyl which is interrupted by —O—, —S— or —$N(R^{15})$—, these radicals being unsubstituted or substituted by one or more of the substituents halogen, C_1–C_{10}alkoxy, C_1–C_{20}alkyl, C_3–C_{20}alkenyl or C_6–C_{14}aryl, and Z is C_1–C_{20}alkanediyl which is unsubstituted or substituted by —$COOR^4$, —CN or halogen.

5,068,372

METHOD FOR THE SYNTHESIS OF PRIMARY ARSINES

Ravindra K. Kanjolia, North Andover, and Benjamin C. Hui, Peabody, both of Mass., assignors to CVD Incorporated, Woburn, Mass.

Filed Jul. 16, 1990, Ser. No. 556,787

Int. Cl.[5] C07F *9/66*

U.S. Cl. 556—70 **23 Claims**

1. A method for producing, from an aqueous basic composition, a primary arsine having one hydrocarbyl group bonded directly to As, said basic composition obtained from the combination of components comprising an alkali metal arsenite and a reactive hydrocarbyl bromide and/or hydrocarbyl chloride, by directly combining said aqueous composition with a nascent hydrogen-generating reducing agent to produce said primary arsine directly from said aqueous composition.

5,068,373

METHOD FOR THE PREPARATION OF ANHYDROUS TIN-(IV)-CARBOXYLATES

Erich Rnf, Essen-Haarzopf, Fed. Rep. of Germany, assignor to Th. Goldschmidt AG, Essen, Fed. Rep. of Germany

Filed Jan. 29, 1991, Ser. No. 647,403

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1990, 4003488

Int. Cl.[5] C07F *7/22*

U.S. Cl. 556—105 **6 Claims**

1. A method for the production of anhydrous tin-(IV)-acetate which comprises reacting metallic tin in powder form or Sn-(II)-acetate with an excess amount of acetic acid anhydride while stirring and at temperatures of about between 50° to 150° C. and while passing oxygen through the reaction mixture or adding an oxygen yielding agent to the reaction mixture, whereby tin-(IV)-acetate is formed, and separating the tin-(IV)-acetate from the reaction mixture.

2. A method for the preparation of anhydrous tin-(IV)-carboxylate which comprises:

(a) preparing a reaction mixture of metallic tin or Sn-(II)-acetate and an excess amount of acetic acid anhydride, stirring the reaction mixture at a temperature ranging from about between 50° to 150° C. while passing oxygen through the reaction mixture or adding an oxygen yielding agent to the reaction mixture to form tin-(IV)-acetate;

(b) separating the tin-(IV)-acetate thus obtained from the reaction mixture;

(c) reacting the tin-(IV)-acetate with a carboxylic acid having more than four carbon atoms or the corresponding acid anhydride at a temperature ranging from about between 80° to 150° C. to form anhydrous tin-(IV)-carboxylate; and

(d) removing from the reaction mixture liberated acetic acid or acetic acid anhydride by distillation under vacuum conditions.

5,068,374

METHOD FOR THE PREPARATION OF ANHYDROUS TIN-DICARBOXYLATE-DIHALIDES

Erich Ruf, Essen-Haarzopf, Fed. Rep. of Germany, assignor to T. Goldschmidt AG, Essen, Fed. Rep. of Germany

Filed Jan. 29, 1991, Ser. No. 647,402

Claims priority, application Fed. Rep. of Germany, Feb. 17, 1990, 4005135

Int. Cl.[5] C07F *7/22*

U.S. Cl. 556—105 **7 Claims**

1. A method of preparing anhydrous tin-diacetate-dihalide which comprises reacting anhydrous tin-(II)-halide with an excess amount of acetic acid anhydride at a temperature of about between 20° to 100° C. while passing oxygen through the reaction mixture or adding an oxygen yielding agent to the reaction mixture and separating the tin-diacetate-dihalide thus formed.

3. A method for the preparation of anhydrous tin-dicarboxylate-dihalide which comprises:

(a) preparing a reaction mixture of anhydrous tin-(II)-halide and an excess amount of acetic acid anhydride, passing oxygen or an oxygen yielding agent through the reaction mixture and heating the reaction mixture to a temperature of about between 20° to 100° C. to form tin-diacetate-dihalide;

(b) separating the tin-diacetate-dihalide and reacting it with aliphatic carboxylic acid having more than four carbon atoms or its corresponding acid anhydride at a temperature of about between 80° and 150° C.; and

(c) removing liberated acetic acid anhydride or acetic acid under vacuum conditions.

VOL 1132 ISS 4 NO 26 1991 UMI

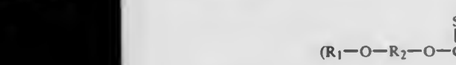
5,068,375

SUBSTITUTED NOBLE METAL XANTHATES

Gophal H. Singhal, Baton Rouge, La., assignor to Exxon Research & Engineering Company, Florham Park, N.J.

Filed Oct. 1, 1990, Ser. No. 590,889
Int. Cl.[5] C07F *15/00*
U.S. Cl. 556—136 16 Claims

1. A substituted noble metal xanthate composition having the formula:



where

R_1 is an alkyl group, an alkoxy substituted alkyl group, an aryl group, or a substituted aryl group;

R_2 is a straight or branched alkylene group;

M is a noble metal selected from Pt, Rh, and Ir;

n is 2 when M is Pt; and

n is 3 when M is Rh.

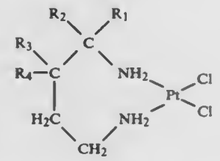
5,068,376

NOVEL PLATINUM COMPLEXES

Hiroyoshi Nowatari; Hiroshi Hayami, both of Takasaki; Yasuo Kuroda, Gunma; Sumio Yoda, Takasaki, and Katsutoshi Takahashi, Tokyo, all of Japan, assignors to Nippon Kayaku Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 372,248, Jun. 27, 1989, Pat. No. 4,921,984, which is a division of Ser. No. 87,045, Aug. 19, 1987, Pat. No. 4,864,043, which is a continuation of Ser. No. 893,108, Aug. 4, 1986, Pat. No. 4,737,589. This application Jan. 10, 1990, Ser. No. 464,671
Claims priority, application Japan, Aug. 27, 1985, 60-187710; Feb. 12, 1986, 61-26799; Feb. 12, 1986, 61-26800; Apr. 25, 1986, 61-94626; Jul. 1, 1986, 61-152635
Int. Cl.[5] C07F *15/00*
U.S. Cl. 556—137 9 Claims

1. A diamine platinum (II) complex represented by the general formula



wherein R_1, R_2, R_3 and R_4 are each a hydrogen atom or a lower alkyl group.

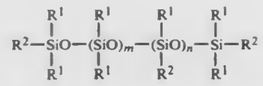
5,068,377

BETAINE-CONTAINING SILOXANE COMPOUNDS AND METHOD FOR MAKING

Hideyuki Kawamoto; Shoji Ichinohe, both of Annaka, and Kazuyuki Tsuboae, Hiratsuka, all of Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Oct. 16, 1990, Ser. No. 598,434
Claims priority, application Japan, Oct. 16, 1989, 1-269897
Int. Cl.[5] C07F *7/10*
U.S. Cl. 556—418 18 Claims

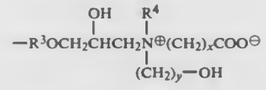
1. A betaine radical-containing siloxane compound having the following formula:



(1)

wherein R^1 is independently selected from substituted or unsubstituted monovalent hydrocarbon radicals having 1 to 18 carbon atoms,

R^2 is independently selected from the group consisting of a substituted or unsubstituted monovalent hydrocarbon radical having 1 to 18 carbon atoms and a monovalent organic radical of the formula:



(2)

wherein R^3 is a divalent hydrocarbon radical having 1 to 10 carbon atoms, R^4 is an alkyl radical having 1 to 3 carbon atoms or $-(CH_2)_y-OH$, letters x and y are integers of from 1 to 3, with the proviso that at least one of R^2 substituents is of formula (2), and

letters m and n are integers of from 0 to 1000.

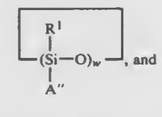
5,068,378

THIOGLYCOLAMIDE-FUNCTIONAL SILOXANES

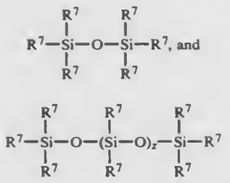
Daniel J. Halloran, and Padmakumari J. Varaprath, both of Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich.

Filed Jan. 9, 1990, Ser. No. 462,185
Int. Cl.[5] C07F *7/10*
U.S. Cl. 556—420 3 Claims

1. Salts of thioglycolamide functional siloxanes selected from the groups comprising cyclic siloxanes of the general formulas



and linear siloxanes of the general formulas



and mixtures thereof; wherein

each R^1 is independently selected from an alkyl group containing 1 to 6 carbon atoms, and an aryl group containing 6 to 10 carbon atoms;

each A'' is independently selected from R^1 and a salt of a thioglycolamide functional group with the provision that

at least one A'' group be a salt of a thioglycolamide functional group;

each R^7 is independently selected from A'' and R^1 with the provision that at least one R^2 group be a salt of a thioglycolamide functional group;

w has the value of 3 to 6; x has the value of 1 to 6; y has the value of 1 to 6; and z has the value of 1 to 10; with the provision that the sum of x+y equals at least 3.

5,068,379

METHOD FOR PREPARING SULFONIMIDOYL HALIDES

Aroop K. Roy, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich.

Filed Jan. 23, 1991, Ser. No. 644,764
Int. Cl.[5] C07F *7/10*
U.S. Cl. 556—422 11 Claims

1. A method for preparing a N-triorganosilylsulfonimidoyl halide represented by the formula $R^2_3SiN{=}S(O)(R^1)X$, said method comprising reacting a N-triorganosilyl sulfonamide corresponding to the formula $R^1SO_2N(H)_n(SiR^2_3)_{(2-n)}$ with a dihalophosphorane corresponding to the formula $R^3_3PX_2$, where R^1 is selected from the group consisting of monovalent hydrocarbon and monovalent substituted hydrocarbon radicals and heterocyclic radicals where the hetero atom is oxygen, sulfur or tertiary nitrogen, R^2 is selected from the group consisting of monovalent hydrocarbon and monovalent substituted hydrocarbon radicals, and n is 0 or 1, where R^3 represents an aryl or substituted aryl radical and X is chlorine or bromine, and isolating said N-triorganosilyl-sulfonimidoyl halide.

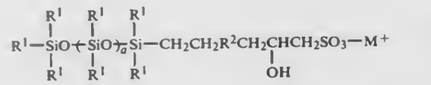
5,068,380

ANIONIC SILICONE SURFACTANT AND METHOD OF ITS MANUFACTURE

Noriyuki Meguriya; Syuuichi Azechi, and Masaki Tanaka, all of Gunma, Japan, assignors to Shin-Etsu Chemical Co., Ltd., Tokyo, Japan

Filed Dec. 14, 1989, Ser. No. 450,492
Claims priority, application Japan, Dec. 15, 1988, 63-316656
Int. Cl.[5] C07F *7/08, 7/10*
U.S. Cl. 556—428 9 Claims

1. An anionic silicone surfactant represented by the formula



wherein each R^1 is an unsubstituted or halogen-substituted monovalent hydrocarbon group of 1–20 carbon atoms or a trialkylsiloxy group of 1–20 carbon atoms; R^2 is an unsubstituted, halogen-substituted or hydroxyl-substituted bivalent hydrocarbon group of 1–10 carbon atoms, or a corresponding hydrocarbon group wherein no more than ½ of the carbon atoms are replaced by an oxygen atom; M is a Group A alkali metal or $NR^3R^4R^5$, wherein R^3, R^4 and R^5 are a hydrogen atom or a monovalent hydrocarbon group of 1–20 carbon atoms; and a is a number which lies in the range $0 \leqq a \leqq 20$.

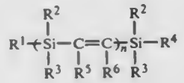
5,068,381

POLY(SILVINYLENE)S AND A PROCESS FOR THEIR PREPARATION

Yoshihiko Ito, and Masahiro Murakami, both of Kyoto, Japan, assignors to Shin-Etsu Chemical Co. Ltd., Tokyo, Japan

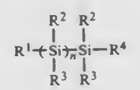
Filed Mar. 11, 1991, Ser. No. 667,266
Claims priority, application Japan, Mar. 13, 1990, 1-62067
Int. Cl.[5] C07F *7/08*
U.S. Cl. 556—431 3 Claims

1. A process for preparing a poly(silvinylene) represented by the following general formula [III]:



[III]

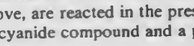
wherein R^1, R^2, R^3, and R^4, which may be the same or different, each represent a member selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 10 carbon atoms, an aryl group having 6 to 20 carbon atoms and an alkoxy group having 1 to 6 carbon atoms, R^5 and R^6, which may be the same, each represent a member selected from the group consisting of a hydrogen atom, an alkyl group having 1 to 10 carbon atoms, an aryl group having 6 to 20 carbon atoms, an alkoxycarbonyl group having 2 to 7 carbon atoms, and a trialkylsilyl group the alkyl groups of which have 1 to 10 carbon atoms, and n is an integer characterized in that (A) a polysilane represented by the following general formula [I]:



[I]

wherein R^1, R^2, R^3, R^4, and n each have the same meaning as defined above,

and (B) an acetylene represented by the following general formula [II]:



[II]

wherein R^5 and R^6 each have the same meaning as defined above, are reacted in the presence of a catalyst comprising an isocyanide compound and a palladium compound.

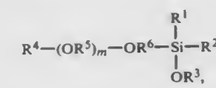
5,068,382

PROCESS FOR THE PRODUCTION OF ORGANOSILICON COMPOUNDS

Hartwig Rauleder, and Hans-Joachim Kötzch, both of Rheinfelden, Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Mar. 12, 1990, Ser. No. 491,775
Claims priority, application Fed. Rep. of Germany, Mar. 17, 1989, 3908791
Int. Cl.[5] C07F *7/08, 7/18*
U.S. Cl. 556—495 8 Claims

1. The method of preparing an organosilicon compound of the formula



wherein

R^1 and R^2 are each independently straight or branched alkyl of 1 to 4 carbon atoms or $-OR^3$,

R^3 is $R^4-(OR^5)_m-$,

R^4 is straight or branched alkyl of 1 to 4 carbon atoms,

VOL 1132 ISS 4 NO 26 1991 UMI

m is an integer from 0 to 6, inclusive,
R^5 is straight or branched alkylene of 2 to 4 carbon atoms, which may be identical or different when m is an integer from 2 to 6, and
R^6 is straight or branched alkylene of 2 to 6 carbon atoms,
which comprises subjecting a hydrogensilane of the formula



wherein
R^7 are identical or different groups R^4 or the group OR^4,
and R^4 has the previously indicated meaning, to an addition reaction with a terminally unsaturated ether of the formula

$$R^4—(OR^5)_m—OR^8$$

wherein
m, R^4 and R^5 have the previously indiated meanings, and
R^8 is terminally unsaturated straight or branched alkenyl of 2 to 6 carbon atoms,
in the presence of a catalyst at a controlled temperature to form an addition product of the formula



wherein
m and R^4, R^5, R^6 and R^7 have the previously indicated meanings, and the R^4's are identical or different,
and converting said addition product by thermal or catalytic transesterification with a monofunctional hydroxy compound of the formula

$$R^4—(OR^5)_m—OH$$

wherein
m, R^4 and R^5 have the previously indicated meanings, into said organosilicon compound.

5,068,383
CATALYZED REDISTRIBUTION OF POLYORGANOSILOXANES
Jodi A. Bourgoin, Florence; Steven K. Freeburne, Edgewood, both of Ky.; Roland L. Halm, Madison, Ind.; Brian M. Naasz, LaGrange, Ky.; David S. Niswonger, Prospect, Ky., and Dennis G. VanKoevering, Florence, Ky., assignors to Dow Corning Corporation, Midland, Mich.
Filed Nov. 9, 1990, Ser. No. 611,216
Int. Cl.[5] C07F *7/08*
U.S. Cl. 556—452 **44 Claims**

1. A process for the redistribution of chlorosiloxanes, the process comprising:
(A) contacting a monodispersed mixture comprising chlorosiloxanes of formula

$$Cl(SiR_2O)_mSiR_2Cl$$

where each R is independently selected from a group consisting of hydrogen, and alkyl and substituted alkyl radicals of one to six carbon atoms, and m is an integer from one to 100; with a catalyst which facilitates redistribution of the chlorosiloxane, the catalyst selected from a group consisting of alumina, silica-alumina, activated carbon, zeolite, and acid clay; and
(B) forming a polydispersed redistributed mixture comprising chlorosiloxanes of formula

$$Cl(SiR_2O)_{m'}SiR_2Cl,$$

where R is as previously described and m' is a mean value equivalent to m.

5,068,384
PHOSPHATE SALTS OF AB-POLYBENZOXAZOLE MONOMER
William J. Harris; Zenon Lysenko, both of Midland, and Carl W. Hurtig, Saginaw, all of Mich., assignors to The Dow Chemical, Midland, Mich.
Division of Ser. No. 380,567, Jul. 14, 1989, Pat. No. 4,959,492.
This application Jun. 29, 1990, Ser. No. 546,596
Int. Cl.[5] C07C *227/04*
U.S. Cl. 562—453 **10 Claims**

1. A salt comprising AB-PBO monomer ions and phosphate ions wherein at least 99 percent of the organic content of the salt is AB-PBO monomer ions.

5,068,385
PROCESS FOR THE PREPARATION OF ALKYL HALOGENOSILANES
Bruno Degen, Much; Kurt Feldner; Elke Licht, both of Leverkusen, and Gebhard Wagner, Odenthal, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany
Filed Aug. 20, 1990, Ser. No. 570,089
Claims priority, application Fed. Rep. of Germany, Sep. 8, 1989, 3929865
Int. Cl.[5] C07F *7/16*
U.S. Cl. 556—472 **4 Claims**

1. A process for the preparation of alkyl halogenosilanes comprising reacting silicon with an alkyl halide in the presence of a copper catalyst and promoter substances and phosphorus and phosphorus compounds in combination with indium or indium compounds or aluminum or aluminum compounds or a mixture of aluminum or aluminum compounds and indium or indium compounds.

5,068,386
PREPARATION OF TERTIARY-HYDROCARBYLSILYL COMPOUNDS
Akihiko Shirahata, Yotsukaido, Japan, assignor to Dow Corning Toray Silicone Company, Ltd., Tokyo, Japan
Filed Jun. 1, 1990, Ser. No. 531,617
Claims priority, application Japan, Jun. 28, 1989, 1-165760
Int. Cl.[5] C07F *7/08*
U.S. Cl. 556—480 **12 Claims**

1. A method for preparation of tertiary-hydrocarbylsilyl compounds comprising reacting a Grignard reagent of formula

$$R\ Mg\ X;$$

wherein R is a tertiary-hydrocarbyl group and X is a halogen atom;
with a silicon compound of formula

$$R^1_aSiX_{4-a};$$

wherein R^1 is a substituted or unsubstituted monovalent hydrocarbon group, X is a halogen atom, and a is an integer with a value of zero to three;
in the presence of a cyano compound or thiocyanate compound.

5,068,387
PRODUCTION OF ORGANOFUNCTIONAL ALKOXYSILANES
Don L. Kleyer, Hemlock, and John L. Speier, Midland, both of Mich., assignors to Dow Corning Corporation, Midland, Mich.
Filed Dec. 1, 1989, Ser. No. 444,345
Int. Cl.[5] C07F *7/08, 7/10, 7/18*
U.S. Cl. 556—485 **7 Claims**

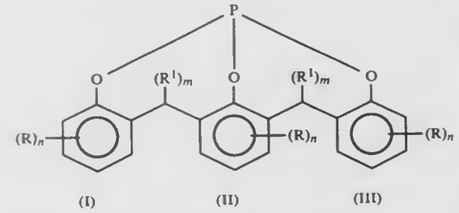
1. An organofunctional alkoxysilane of formula

$$R^1_aR^2_b(AR)_nSi(OR^3)_{4-a-b-n};$$

where R^1 and R^2 are independently selected from the group consisting of alkyl, aryl, and AR radicals; R^3 is an alkyl of 1 to 7 carbon atoms; A is a substituent on an organic group, R, said A selected from the group consisting of R^4O—, C_zF_{2z+1}—, and alkenyl radicals; R^4 and R^5 are independently selected from the group consisting of alkyl, aryl, and triorganosilyl radicals; z is 1 to 4; R is a divalent radical of the structure $—R^6(CH_2)_m—$, R^6 is selected from a group consisting of aliphatic and aromatic divalent radicals; m=0 to 6; n=2 or 3; a+b+n=2 or 3; and a+b=0 or 1.

5,068,388
BICYCLICTRIARYLPHOSPHITE ANTIOXIDANT
Vincent J. Gatto, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.
Filed Jun. 4, 1990, Ser. No. 532,882
Int. Cl.[5] C07F *9/6574*
U.S. Cl. 558—74 **7 Claims**

1. A bicyclictriarylphosphite corresponding to the formula:

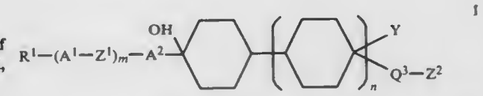


(I) (II) (III)

wherein R^1 is methyl, each R is independently selected from methyl and tert-butyl, m is 0 or 1, and n is an integer of 1–3.

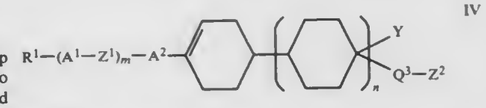
5,068,389
TERTIARY ALCOHOLS
Andreas Wächtler, Griesheim; Rudolf Eidenschink, Mühltal; Joachim Krause, Dieburg, and Hans-Adolf Kurmeier, Seeheim-Jugenheim, all of Fed. Rep. of Germany, assignors to Merck Patent Gesellschaft Mit Beschrankter Haftung, Darmstadt, Fed. Rep. of Germany
PCT No. PCT/EP87/00132, § 371 Date Nov. 13, 1987, § 102(e) Date Nov. 13, 1987, PCT Pub. No. WO87/05599, PCT Pub. Date Sep. 24, 1987
Continuation of Ser. No. 133,109, filed as PCT/EP87/00132 on Mar. 7, 1987, published as WO 87/05599 Sep. 24, 1987, abandoned.
This PCT application Mar. 7, 1987, Ser. No. 518,254
Claims priority, application Fed. Rep. of Germany, Mar. 14, 1986, 3608502; Feb. 3, 1987, 3703145
Int. Cl.[5] C07C *255/00;* C09K *19/52*
U.S. Cl. 558—411 **9 Claims**

1. A tertiary alcohol of the Formula I



I

and the corresponding dehydrated compounds of the Formula IV

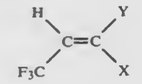


IV

wherein
R^1 is halogen, or if n−1, m=1 or both n and m=1, R^1 can also be alkyl having 1–15 C atoms in which one CH_2 group can be replaced by O, —CO—, —CO—O—, or —CH=CH—;
A^1 is 1,4-phenylene or 1,4-cyclohexylene which is unsubstituted or monosubstituted or polysubstituted by halogen, CH_3, or combinations thereof;
Z^1 is $—CH_2CH_2—$, $—CH_2O—$, $—OCH_2—$, or a single bond;
m is 0, 1, or 2;
n is 0 or 1;
A^2 is 1,4-phenylene which is unsubstituted, substituted or monosubstituted or polysubstituted by halogen, CH_3, or combinations thereof;
Z^2 is —COOR or —CN;
Q^3 is alkylene having 1–15 C atoms, alkylidene having 2–14 C atoms, or a single bond;
Y is H, CN, or R; and
R is alkyl having 1–15 C atoms
and metal alcoholates of the compounds of Formula I.

5,068,390
1,1,1-TRIFLUORO-2-PROPENE COMPOUNDS
David G. Kuhn, Newtown, Pa., and Kenneth A. M. Kremer, Lawrenceville, N.J., assignors to American Cyanamid Company, Stamford, Conn.
Filed Jul. 31, 1990, Ser. No. 560,403
Int. Cl.[5] C07C *225/10, 69/63, 53/21, 49/04*
U.S. Cl. 558—461 **4 Claims**

1. A compound having the structure:



wherein
X is Cl, Br or I;
Y is CN or C(O)R_1;
R_1 is hydrogen or C_1–C_4 alkyl; and the cis and trans isomers thereof.

5,068,391
PREPARATION OF METHYLENEDI (PHENYLURETHANE)
Michel Gubelmann; Christophe Rochin, both of Lyons, and Christian Allandrieu, Villeurbanne, all of France, assignors to Rhone-Poulenc Chimie, Courbevoie, France
Filed Jun. 29, 1990, Ser. No. 545,547
Claims priority, application France, Jun. 29, 1989, 89 09002
Int. Cl.[5] C07C *125/073*
U.S. Cl. 560—25 **14 Claims**

1. A process for the preparation of methylenedi(phenylurethane), comprising rearranging at least one bis-(N-carboalkox-

VOL 1132 ISS 4 NO 26 1991 UMI

yanilino)methane in the presence of an effective amount of hydrofluoric acid.

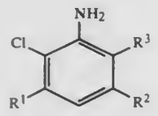
5,068,392

PROCESS FOR THE PREPARATION OF 2-CHLORO AND 2,6-DICHLOROANILINES

Lennon H. McKendry, and Mark W. Zettler, both of Midland, Mich., assignors to DowElanco, Indianapolis, Ind.

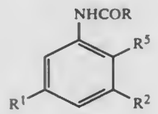
Filed Jan. 24, 1991, Ser. No. 645,176
Int. Cl.[5] C07C *229/00*
U.S. Cl. 560—46 11 Claims

1. A process for preparing 2-chloro and 2,6-dichloroanilines of the formula (I):



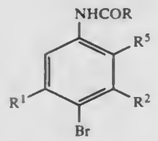
(I)

wherein
R^1 and R^2 are independently H, C_1–C_4 alkyl, C_1–C_4 alkoxy or Cl, and
R^3 is Cl, CO_2R^4, CN or $CONH_2$, where
R^4 is H, C_1–C_4 alkyl or phenyl,
which comprises the following steps:
(a) brominating an anilide of the formula (II):



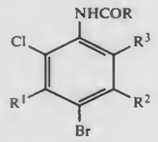
(II)

wherein
R is CH_3, CH_2CH_3 or CF_3,
R^5 is H, CO_2R^4, CN or $CONH_2$, and
R^1, R^2 and R^4 are as previously defined, to give a 4-bromoanilide of the formula (III):



(III)

wherein
R, R^1, R^2 and R^5 are as previously defined:
(b) chlorinating the 4-bromoanilide (III) of step (a) to give a 2-chloro or 2,6-dichloro-4-bromoanilide of the formula (IV):



(IV)

wherein
R, R^1, R^2 and R^3 are as previously defined; and
(c) and (d) reducing and hydrolyzing the 2-chloro or 2,6-dichloro-4-bromoanilide (IV) of step (b) to give the 2-chloro or 2,6-dichloroaniline (I).

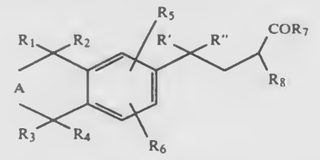
5,068,393

AROMATIC DERIVATIVES OF BUTYRIC ACID, A PROCESS FOR THEIR PREPARATION AND THEIR USE IN COSMETICS AND IN HUMAN AND VETERINARY MEDICINE

Jean Maignan, Tremblay les Gonesse; Gérard Malle, Viliers sur Morin, and Gérard Lang, Saint Gratien, all of France, assignors to Societe Anonyme Dite: L'Oreal, Paris, France

Filed Apr. 4, 1988, Ser. No. 181,017
Claims priority, application France, Apr. 3, 1987, 87 04711
Int. Cl.[5] C07C *69/76*
U.S. Cl. 560—51 21 Claims

1. Aromatic derivative of butyric acid having the formula



(I)

wherein
R_1, R_2, R_3 and R_4, each independently, represent hydrogen or lower alkyl, with at least two of R_1–R_4 being other than hydrogen,
A represents methylene or dimethylene, substituted or not by lower alkyl;
R_5 and R_6 represent hydrogen, halogen, lower alkyl, lower alkoxy and hydroxy,
R′ and R″ taken together form oxo,
R_8 represents hydrogen or lower alkyl,
R_7 represents —OR_9 or



R_9 represents hydrogen, alkyl having 1–20 carbon atoms, monohydroxyalkyl, polyhydroxyalkyl, aryl or aralkyl, optionally substituted, carboxyalkyl or alkoxycarbonylalkyl,
r′ and r″ represent hydrogen, lower alkyl, monohydroxyalkyl optionally interrupted by a heteroatom, polyhydroxyalkyl, or aryl or benzyl optionally substituted, or
r′ and r″ taken together form a heterocycle optionally substituted by C_1–C_3 hydroxyalkyl, or
the salts of the aromatic derivative of formula I and its optical isomers as well as the tautomer forms of the aromatic derivative of formula I.

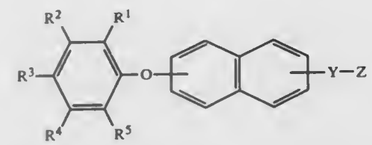
5,068,394

HERBICIDAL (HETERO)ARYLOXYNAPHTHALENE DERIVATIVES AND INTERMEDIATES THEREFOR

Roland Andree, Langenfeld; Michael Haug, Bergisch-Gladbach; Hans-Joachim Santel, Leverkusen; Robert R. Schmidt, Bergisch-Gladbach, and Harry Strang, Duesseldorf, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Filed Oct. 19, 1989, Ser. No. 424,035
Claims priority, application Fed. Rep. of Germany, Nov. 4, 1988, 3837464
Int. Cl.[5] C07C *69/76*
U.S. Cl. 560—56 14 Claims

1. An aryloxynaphthalene derivative of the formula



in which
R^1 represents hydrogen, halogen, or trifluoromethyl,
R^2 represents hydrogen or halogen,
R^3 represents halogen, trifluoromethyl or trifluoromethoxy, or
R^4 represents hydrogen or halogen,
R^5 represents hydrogen or halogen,
Y represents in each case optionally branched and/or optionally halogen-substituted alkanediyl or alkenediyl, in each case having at least 2 carbon atoms, and
Z represents —CO—Z^1 group, where
Z^1 represents halogen, hydroxyl, or represents the —O—R^6 group, where
R^5 represents an optionally halogen-substituted radical from the group consisting of alkyl, alkenyl and alkinyl.

5,068,395

PROCESS FOR PRODUCING POLYMERIC PLASTICIZERS FROM POLYETHYLENE TEREPHTHALATE

Oscar M. Bathe, Woodridge, Ill., assignor to Amoco Corporation, Chicago, Ill.

Filed Apr. 25, 1990, Ser. No. 514,429
Int. Cl.[5] C07C *67/10, 69/82*
U.S. Cl. 560—90 12 Claims

1. A process for the preparation of plasticizer compositions which comprise the reaction product of recovered polyethylene terephthalate and a trimellitic acid polyester ether to form a copolymer, the said polyester ether being prepared from trimellitic anhydride or trimellitic acid, a polyol of a molecular weight ranging from about 60 to about 650, and a linear alcohol of 8 to 10 carbon atoms, the said copolymer being reacted with a fatty acid of 12 to 18 carbon atoms, which process comprises:
(a) preparing a trimellitic acid polyester ether of at least 500 molecular weight and less than about 2500 molecular weight with at least 3 side chains and at least one hydroxyl group by reacting trimellitic anhydride or trimellitic acid with a polyol of 2 to 16 carbon atoms and molecular weight of from about 60 to about 650 in a mole ratio of about 1:1 to about 1:3, trimellitic anhydride or trimellitic acid to said polyol, and an alcohol of from 8 to 12 carbon atoms in a mole ratio of about 1:1 to about 1:3, trimellitic anhydride or trimellitic acid to said alcohol of 8 to 10 carbon atoms, in the presence of an esterification catalyst at a temperature within the range of from about 380° F. to about 460° F. at a pressure ranging from about 1 to about 30 atmospheres;
(b) reacting in situ said trimellitic acid polyester ether with recovered polyethylene terephthalate at a temperature within the range of from about 380° F. to about 500° F., a pressure from about 1 to about 30 atmospheres, wherein mole ratio of said trimellitic acid polyester ether to said recovered polyethylene terephthalate is in the range of from about 1:1 to about 1:2, to prepare a copolymer of trimellitic acid polyester ether and recovered polyethylene terephthalate of a molecular weight within the range of from about 1000 to about 3000 with at least 3 side chains, and an acid number of from about 5 to about 10; and
(c) reacting said copolymer of said trimellitic acid polyester ether and recovered polyethylene terephthalate with a fatty acid of from about 12 to about 18 carbon atoms in a mole ratio of from about 1:1 to about 1:2, said copolymer to said fatty acid, at a temperature within the range of from about 380° F. to about 500° F. at a pressure ranging from about 1 to about 30 atmospheres.

5,068,396

ARYLCYCLOBUTENE CARBOXYLATE ESTERS

Pen-Chung Wang, Houston, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed Jun. 23, 1989, Ser. No. 370,507
Int. Cl.[5] C07C *69/76*
U.S. Cl. 560—102 8 Claims

1. A 1-arylcyclobutenecarboxylate ester of a N-glycidyl compound wherein the arylcyclobutene moiety is benzocyclobutene and the N-glycidyl compound has up to 4 rings and up to 30 carbon atoms, inclusive, has from 1 to 4 amino nitrogens and from 2 to 6 glycidyl groups attached to amino nitrogen atoms.

5,068,397

TRIS-PERFLUOROALKYL TERMINATED NEOPENTYL ALCOHOLS AND DERIVATIVES THEREFROM

Robert A. Falk, New City, N.Y.; Kirkland P. Clark, Bethel, Conn.; Michael Jacobson, Haworth, N.J.; Athanasios Karydas, New York, and Juliana Rodgers, Staten Island, both of N.Y., assignors to Ciba-Geigy Corporation, Ardsley, N.Y.

Filed Aug. 15, 1990, Ser. No. 567,852
Int. Cl.[5] C07C *309/04*
U.S. Cl. 560—150 12 Claims

1. A compound of formula I,

$$(R_f\text{—}E_n\text{—}X\text{—}CH_2)_3CCH_2\text{—}T \quad (I)$$

where
T is —OH, and
wherein R_f is independently a straight or branched chain perfluoroalkyl of 1 to 12 carbon atoms, perfluoroalkyl of 2 to 6 carbon atoms substituted by perfluoroalkoxy of 2 to 6 carbon atoms, or an oligo(hexafluoropropene oxide) terminal group, and n=1 or 0, and
when n=1,
E is independently a branched or straight chain alkylene of 1 to 10 carbon atoms or said alkylene interrupted by one to three groups selected from the group consisting of —NR—, —O—, —S—, SO_2—, —COO—, —OOC—, —CONR—, —NRCO—, —SO_2NR—, and —NRSO_2—, or terminated at the R_f end with —CONR— or —SO_2NR—, where R_f is attached to the carbon or sulfur atom, and X is —S—, or —SO_2—, and

when n=0,
X is a direct bond, —CONR— or —SO_2NR—, where R_f is attached to the carbon or sulfur atom, and where R is independently hydrogen, alkyl of 1 to 6 carbon atoms or hydroxyalkyl of 2 to 6 carbon atoms.

5,068,398

PREPARATION OF 6-AMINOCAPROIC ESTERS

Franz Merger, Frankenthal; Rolf Fischer, Heidelberg; Wolfgang Harder, Weinheim; Claus-Ulrich Priester, Ludwigshafen, and Uwe Vagt, Speyer, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Dec. 12, 1989, Ser. No. 448,900
Claims priority, application Fed. Rep. of Germany, Dec. 24, 1988, 3843792
Int. Cl.[5] C07C *205/02*
U.S. Cl. 560—156 11 Claims

1. A process for preparing a 6-aminocaproic ester which comprises:
reacting a C_1–C_4-alkyl 5-formylvalerate with excess ammo-

VOL 1132 ISS 4 NO 26 1991 UMI

nia and hydrogen in the presence of a ruthenium catalyst at a temperature of from 80° to 140° C. under superatmospheric pressure in liquid ammonia as the reaction medium.

5,068,399

PROCESS FOR PREPARING UNSATURATED CARBOXYLIC ACID ESTER

Susumu Naito; Takao Kouzai, and Ritoko Ikeda, all of Niigata, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Sep. 17, 1990, Ser. No. 583,802

Claims priority, application Japan, Nov. 28, 1989, 1-306647

Int. Cl.[5] C07C *67/317*

U.S. Cl. 560—212 **26 Claims**

1. A process for preparing α, β-unsaturated carboxylic acid ester which comprises catalytically reacting at least one acid ester compound selected from the group consisting of an α-hydroxycarboxylic acid ester selected from the group consisting of methyl α-hydroxyisobutyrate and methyl lactate, an α-alkoxycarboxylic acid ester selected from the group consisting of methyl α-methoxyisobutyrate and methyl α-methoxypropionate and aβ-alkoxycarboxylic acid ester selected from the group consisting of methyl β-methoxyisobutyrate and methyl β-methoxypropionate, in a vapor phase in the presence of a catalyst consisting essentially of crystalline aluminosilicate modified with an alkali metal and a platinum group element.

5,068,400

FLUORINE-CONTAINING MONO- OR POLY-ALKYLENE GLYCOL AND METHOD FOR PRODUCING SAME

Masahide Tanaka, Iwakuni; Tokinori Agou, Saeki; Masahiro Kuwahara, Kuga; Takeshi Sakashita, Iwakuni; Tomoaki Shimoda, Kuga, and Masaru Sudou, Otake, all of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

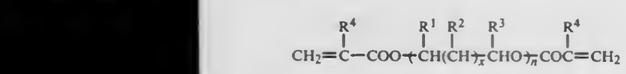
Filed Jun. 29, 1988, Ser. No. 214,188

Claims priority, application Japan, Jun. 29, 1987, 62-161495; Jul. 15, 1987, 62-177419

Int. Cl.[5] C07C *69/52*

U.S. Cl. 560—223 **1 Claim**

1. A mono- or poly-oxyalkylene glycol acrylate of the formula (V)



(V)

wherein

R^4 represents hydrogen or methyl;

R^1, R^2 and R^3 independently represent hydrogen or an alkyl group having 1 to 30 carbon atoms;

x represents an integer of 0 to 100; and

n represents an integer of 1 to 1000;

the mono- or poly-oxyalkylene group in the main chain of said mono- or poly-alkylene glycol having at least one fluorine-substituted hydrocarbon group with 2 to 30 carbon atoms having at least 3 fluorine atoms bonded thereto graft-bonded onto the mono- or poly-oxyalkylene group in the main chain of the mono- or poly-oxyalkylene group in the main chain of the mono- or poly-alkylene glycol per one molecule of the mono- or poly-alkylene glycol.

5,068,401

METHOD FOR PREPARING ORGANIC ESTERS FROM HALOCARBONS AND ALKALI METAL CARBOXYLATES

Garnet E. McConchie; Frank E. Mark, both of Stade, and Hans-Günter Hollmann, Dollern, all of Fed. Rep. of Germany, assignors to The Dow Chemical Company, Midland, Mich.

Filed Dec. 18, 1986, Ser. No. 943,977

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1985, 3545583

Int. Cl.[5] C07C *67/035*

U.S. Cl. 560—236 **1 Claim**

1. A method for preparing an organic ester from its corresponding halocarbon which method comprises contacting an aliphatic halocarbon selected from the group consisting of 1,2-dichloropropane or 1,2,3-trichloropropane with a sodium salt of acetic or propionic acid within a single phase reaction medium containing acetic acid or propionic acid in proportions and at a temperature in the range from about 160° C. to about 300° C. under conditions sufficient to form the organic ester and an inorganic salt which is insoluble within the acetic acid or propionic acid.

5,068,402

STABILIZED POLYISOCYANATES

Josef Pedain, Cologne; Lothar Kahl, Bergisch Gladbach, and Karl-Arnold Weber, Betzweiler, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

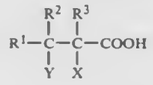
Continuation-in-part of Ser. No. 348,979, May 9, 1989, abandoned. This application Jul. 20, 1990, Ser. No. 555,872

Claims priority, application Fed. Rep. of Germany, May 11, 1988, 3816118

Int. Cl.[5] C07C *249/00*; C07D *251/00*

U.S. Cl. 560—331 **6 Claims**

1. A modified polyisocyanate which is free from carbodiimide or acylated urea groups and contains free isocyanate groups and a member selected from the group consisting of urethane groups, allophanate groups, urea groups biuret groups, isocyanurate groups, uretdione groups and mixtures thereof and a stabilizing amount of a carboxylic acid corresponding to the formula



wherein

R^1, R^2 and R^3 represent hydrogen or C_1–C_5-alkyl and

X and Y represent hydrogen, chlorine or methyl, with the proviso that when Y=H or CH_3, X=Cl, and when X=H or CH_3, Y=Cl.

5,068,403

INTERMEDIATES USEFUL IN THE PRODUCTION OF PESTICIDES

Michael Elliott, Berkeley, Calif.; Norman F. Janes, Luton, and Bhupinder P. S. Khambay, Harrow Weald, both of England, assignors to National Research Development Corporation, England

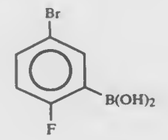
Continuation of Ser. No. 25,230, Mar. 12, 1987. This application Oct. 27, 1989, Ser. No. 428,193

Claims priority, application United Kingdom, Mar. 13, 1986, 8606292; Apr. 18, 1986, 8609590

Int. Cl.[5] C07F *5/02*

U.S. Cl. 562—7 **1 Claim**

1. A compound of the formula



(III)

5,068,404

THERMAL DEALKYLATION OF N-ALKYL N-PHOSPHONOMETHYLGLYCINE

William H. Miller, Glendale, and Terry M. Balthazor, University City, both of Mo., assignors to Monsanto Company, St. Louis, Mo.

Continuation of Ser. No. 329,053, Mar. 27, 1989, abandoned, which is a continuation of Ser. No. 874,752, Jun. 16, 1986, abandoned, which is a continuation of Ser. No. 687,404, Dec. 28, 1984, abandoned. This application Mar. 26, 1990, Ser. No. 501,390

Int. Cl.[5] C07F *9/38*

U.S. Cl. 502—17 **9 Claims**

1. A process for producing the alkali metal salts of N-phosphonomethylglycine in high yields in the absence of a catalyst, which comprises heating to above about 200° C., a basic aqueous solution of a di- or tri-alkali metal salt of N-alkyl-N-phosphonomethylglycine, wherein the N-alkyl group is selected from the group consisting of ethyl, isopropyl and secondary-butyl.

5,068,405

FAMOTIDINE INTERMEDIATES AND THEIR PREPARATION

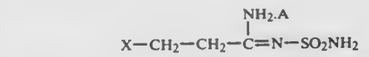
Michel Bekhazi, and Josef Oren, both of Quebec, Canada, assignors to Delmar Chemicals Inc., Quebec, Canada

Filed Jul. 6, 1990, Ser. No. 549,222

Int. Cl.[5] C07C *307/00, 53/10, 309/04, 309/30*

U.S. Cl. 562—83 **7 Claims**

1. Halogenated N-sulfamyl propionamidine addition salts of the formula:



in which X represents halogen and A represents an acid selected from sufuric acid; nitric acid; benzenesulfonic acid; toluenesulfonic acid; 2,4,5-trichlorobenzenesulfonic acid; trichloroacetic acid; trifluoroacetic acid; and methanesulfonic acid.

5,068,406

COMPARTMENTED OXIDATION METHOD

Juergen K. Holzhauer, Naperville; Albert P. Brown, Downers Grove, and Aubrey C. Reeve, Warrenville, all of Ill., assignors to Amoco Corporation, Chicago, Ill.

Division of Ser. No. 403,769, Sep. 6, 1989. This application Aug. 1, 1990, Ser. No. 561,063

Int. Cl.[5] C07C *51/265*

U.S. Cl. 562—413 **16 Claims**

1. A method for continuously oxidizing an alkylaromatic in the liquid phase and under oxidation-reaction conditions to produce an aromatic carboxylic acid, comprising the steps of:

sequentially passing at least a portion of a reaction mixture including the alkylaromatic through a plurality of series-arranged walled but communicating compartments of a reactor means maintained under predetermined oxidation-reaction conditions, from an initial one of the series-arranged walled plural compartments downstream to a terminal one thereof, introducing the remainder portion of the reaction mixture into another one of the series-arranged walled plural compartments downstream from the initial compartment, and passing said remainder portion to the terminal compartment while agitating the contents of each of the walled plural compartments and producing in each of the walled plural compartments an aromatic carboxylic acid-containing liquid phase and a gaseous phase; at least a portion of the walls of said series-arranged compartments being apertured to enable passage of the reaction mixture through the reactor means from the initial one of the series-arranged plural compartments to the terminal one thereof;

withdrawing from the terminal compartment a portion of the gaseous phase contained therein;

condensing at least a portion of the thus-withdrawn gaseous phase to produce a liquid stream; and

returning at least a portion of the thus-condensed liquid stream to preselected ones of the walled plural compartments to maintain a preselected liquid-phase temperature differential between the terminal and initial compartments of the reactor.

5,068,407

OXIDATION OF TERTIARY-ALKYL SUBSTITUTED AROMATICS

Roy A. Periana, San Jose, Calif., and George F. Schaefer, Olivette, Mo., assignors to Monsanto Company, St. Louis, Mo.

Filed Jan. 31, 1990, Ser. No. 473,031

Int. Cl.[5] C07C *41/265*

U.S. Cl. 562—416 **9 Claims**

1. A process for the production of an aromatic acid or acids from tertiary-alkyl substituted aromatic compounds, said process comprising oxidizing with oxygen a tertiary-alkyl group of a tertiary-alkyl substituted aromatic compound in a solvent in the presence of a catalytic amount of a catalyst composition comprising a cobalt salt, a manganese salt, and a halide selected from the group consisting of chlorides and fluorides, said manganese salt being present in a molar ratio of manganese to cobalt of from about 0.001:1 to about 0.5:1 and said halide being present in a molar ratio of halide to cobalt of from about 1:1 to about 2:1, said solvent comprising an organic aliphatic carboxylic acid having from 2 to about 5 carbon atoms.

5,068,408

HYPOCHLOROUS ACID AS A REAGENT FOR THE OXIDATION OF ORGANIC COMPOUNDS IN TWO PHASE SYSTEMS

Robert J. Raynor, North Branford, Conn., and Budd L. Duncan, Athens, Tenn., assignors to Olin Corporation, Cheshire, Conn.

Filed Jan. 31, 1990, Ser. No. 473,084

Int. Cl.[5] C07C *51/29, 29/48, 37/60, 45/27, 253/00*

U.S. Cl. 562—419 **21 Claims**

1. A process for oxidizing an organic compound selected from an aliphatic, aromatic, aliphatic/aromatic, cycloaliphatic, and heterocyclic alcohol, thiol, sulfide, aldehyde, amine, amide, ketone, acid, ether, ester, and organic compounds containing an activated carbon-carbon. double bond, which process comprises contacting said organic compound dissolved in an inert organic solvent with a hypochlorous acid solution.

5,068,409

BIS(4-HALO-PHTHALIC ACID) QUARTER SALT, PROCESS FOR THEIR PREPARATION AND THEIR USE

Olga Vainberg, and Leonard M. Shorr, both of Haifa, Israel, assignors to Bromine Compounds Ltd., Beer Sheva, Israel

Filed Sep. 7, 1990, Ser. No. 579,360

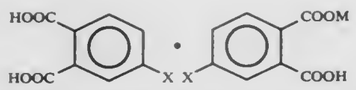
Claims priority, application Israel, Sep. 8, 1989, 91563

Int. Cl.[5] C07C *63/20, 51/41, 51/487*

U.S. Cl. 562—480 **8 Claims**

1. The bis(4-halo-phthalic acid) quarter salt of the formula

VOL 1132 ISS 4 NO 26 1991 UMI



(I)

wherein M is an alkali metal or ammonium ion, and X is a halogen atom.

5,068,410

PROCESS FOR PRODUCING HIGHLY PURE 2,6-NAPHTHALENE DICARBOXYLIC ACID

Toru Tanaka, and Masato Inari, both of Okayama, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Nov. 15, 1990, Ser. No. 613,005
Claims priority, application Japan, Nov. 15, 1989, 1-294909
Int. Cl.[5] C07C *57/06*
U.S. Cl. 562—483 5 Claims

1. A process for producing highly pure 2,6-naphthalene dicarboxylic acid, characterized by hydrolyzing 2,6-dimethyl naphthalene dicarboxylate more than 99% pure in an aqueous solution by using an aromatic poly-carboxylic acid or an anhydride thereof as a catalyst.

5,068,411

TRIFLUOROBENZENE COMPOUNDS AND PROCESS FOR PRODUCING THE SAME

Hiroshi Kobayashi, Fukuoka, and Masaaki Shimizu, Kanagawa, both of Japan, assignors to SDS Biotech K.K., Tokyo, Japan

Division of Ser. No. 327,495, Mar. 24, 1989, abandoned, which is a division of Ser. No. 243,753, Sep. 14, 1988, Pat. No. 4,925,966. This application Feb. 7, 1990, Ser. No. 476,214
Claims priority, application Japan, Sep. 14, 1987, 62-228286
Int. Cl.[5] C07C *51/08*
U.S. Cl. 562—484 1 Claim

1. A process for producing 2,4,5-trifluoroisophthalic acid which comprises hydrolyzing 2,4,5-trifluoroisophthalonitrile under conditions rendered acidic by using sulfuric acid in an amount of 3 to 20 parts by weight per part by weight of 2,4,5-trifluoroisophthalonitrile and at a concentration of 50 to 70 wt %.

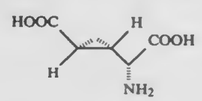
5,068,412

(2R,3S,4S)-α-(CARBOXYCYCLOPROPYL)GLYCINE

Yasufumi Ohfune; Keiko Shimamoto, both of Osaka; Haruhiko Shinozaki, and Michiko Ishida, both of Saitama, all of Japan, assignors to Suntory Limited, Osaka, Japan

Filed Oct. 17, 1989, Ser. No. 422,796
Claims priority, application Japan, Oct. 17, 1988, 63-261155
Int. Cl.[5] C07C *101/20*
U.S. Cl. 562—506 1 Claim

1. (2R,3S,4S)-α-(carboxycyclopropyl)glycine of the formula (1) or salts thereof selected from the group consisting of ammonium, sodium, potassium and calcium salts.



(1)

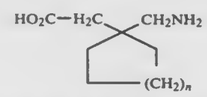
5,068,413

PROCESS FOR THE PREPARATION OF CYCLIC AMINO ACIDS AND INTERMEDIATES USEFUL IN THE PROCESS

Klaus Steiner, Tannenweg; Wolfgang Herrmann, Zum Baumgarten; Günter Crone, Freiburg, all of Fed. Rep. of Germany, and Charles S. Combs, Chester, N.J., assignors to Godecke Aktiengesellschaft, Berlin, Fed. Rep. of Germany

Filed Aug. 21, 1990, Ser. No. 570,493
Claims priority, application Fed. Rep. of Germany, Aug. 25, 1989, 3928184
Int. Cl.[5] C07C *229/28*
U.S. Cl. 562—507 15 Claims

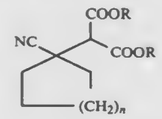
1. A process for the preparation of a compound formula



(I)

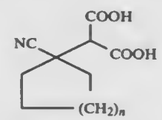
or a pharmaceutically acceptable salt thereof, wherein n is an integer of from 1 to 3 comprising:

(a) converting a malonic ester of formula



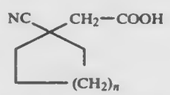
(II)

wherein R is an alkyl of from 1 to 5 carbon atoms and n is as described above by alkaline hydrolysis into a cyanocycloalkylmalonic acid derivative of formula



(II)

(b) diacarboxylating gently the cyanocycloalkylmalonic acid of step (a) to produce a 1-cyanocycloalkylacetic acid of formula



(IV)

(c) hydrogenating the acetic acid from step (b) in an alkanol solvent using a catalyst to produce a compound of formula I above.

9. A process according to claim 1, wherein the product formed is gabapentin.

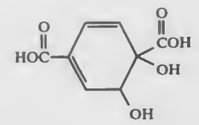
5,068,414

HYDROXYTEREPHTHALIC ACID

Mark E. Ruppen, Martinsville, and Scott Hagedorn, West Trenton, both of N.J., assignors to Celgene Corporation, Warren, N.J.

Filed Jan. 26, 1990, Ser. No. 470,685
Int. Cl.[5] C07C *62/00*
U.S. Cl. 562—508 2 Claims

1. A compound selected from the group consisting of 1,2-dihydroxycyclohexa-3,5-diene-1,4-dicarboxylic acid of the formula:



and the salts thereof with non-toxic metals, ammonium, and mono-, di- and trisubstituted amines.

5,068,415

PROCESS FOR THE PREPARATION OF HALOGENOTETRAFLUOROPROPIONIC ACID

Konrad von Werner, Halsbach, and Anton Probst, Burgkirchen, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Division of Ser. No. 939,544, Dec. 9, 1986, abandoned. This application Sep. 4, 1987, Ser. No. 93,309
Claims priority, application Fed. Rep. of Germany, Dec. 11, 1985, 3543710
Int. Cl.[5] C07C *51/285, 53/21*
U.S. Cl. 562—541 1 Claim

1. A process for the preparation of 3-iodotetrafluoropropionic acid, which comprises:

reacting iodine, tetrafluoroethylene and ethylene in a molar ratio of 1:(1.2-2):(1-1.2) at a temperature of 170° to 200° C. in a one-pot reaction, and isolating from the resulting reaction product the compound 1,4-diiodo-1,1,2,2-tetrafluorobutane,

the 1,4-diiodo-1,1,2,2-tetrafluorobutane reacting with at least a stoichiometric amount of potassium hydroxide or sodium hydroxide in the form of an approximately 10 to 60% strength by weight aqueous solution at a temperature of 20° to 100° C. and in the presence of a phase transfer catalyst in an amount of 0.1 to 5 mol %, relative to the amount of 1,4-diiodo-1,1,2,2-tetrafluorobutane, to eliminate hydrogen iodide, and isolating 1-iodo-1,1,2,2-tetrafluoro-3-butene from this reaction product,

oxidizing the 1-iodo-1,1,2,2,-tetrafluoro-3-butene with at least a stoichiometric amount of potassium permanganate in the form of an approximately 10 to 40% strength by weight aqueous solution or suspension at a temperature of 5° to 50° C. and in the presence of a phase transfer catalyst in an amount of 0.5 to 5 mol %, relative to the amount of 1-iodo-1,1,2,2,-tetrafluoro-3-butene in order to convert the 1-iodo-1,1,2,2,-tetrafluoro-3-butene to the corresponding propionic acid, and

isolating 3-iodo,2,2,3,3-tetrafluoropropionic acid from the reaction product.

5,068,416

PREPARATION OF β-ALANINEDIACETIC ACID OR ITS ALKALI METAL OR AMMONIUM SALTS

Richard Baur, Mutterstadt; Charalampos Gousetis, Ludwigshafen; Wolfgang Trieselt, Ludwigshafen; Werner Bochnitschek, Ludwigshafen, and Alfred Oftring, Bad Durkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Aug. 17, 1989, Ser. No. 394,816
Claims priority, application Fed. Rep. of Germany, Sep. 2, 1988, 3829859
Int. Cl.[5] C07C *229/00*
U.S. Cl. 562—571 3 Claims

1. A process for the preparation of β-alaninediacetic acid comprising:

reacting iminodiacetic acid and acrylic acid in a nonbasic aqueous medium to form said β-alaninediacetic acid.

5,068,417

PROCESS FOR THE CONTINUOUS PREPARATION OF GLYOXYLIC ACID

Alexander Sajtos, Linz; Engelbert Kloimstein, Eferding; Karl Höllinger, and Lorenz Farnlettner, both of Linz, all of Austria, assignors to Chemie Linz Gesellschaft m.b.H., Linz, Austria

Filed May 25, 1990, Ser. No. 530,966
Claims priority, application Austria, Jun. 5, 1989, 1357/89
Int. Cl.[5] C07C *59/147*
U.S. Cl. 562—577 9 Claims

1. Process for the continuous preparation of a pure concentrated aqueous solution of glyoxylic acid having a low color number by hydrolysis of glyoxylic acid ester hemiacetals, comprising treating the glyoxylic acid ester hemiacetals with steam in countercurrent in a reactor cascade.

5,068,418

SEPARATION OF LACTIC ACID FROM FERMENTATION BROTH WITH AN ANIONIC POLYMERIC ABSORBENT

Santi Kulprathipanja, Inverness, and Anil R. Oroskar, Downers Grove, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed May 8, 1989, Ser. No. 349,272
Int. Cl.[5] C07C *51/42*
U.S. Cl. 562—580 13 Claims

1. A process for separating lactic acid from a fermentation broth mixture containing lactic acid produced by a fermentation process comprising contacting said feed mixture with an anionic polymeric adsorbent comprising a weakly basic anionic exchange resin possessing pyridine functional groups at adsorption conditions selected to selectively adsorb said lactic acid and thereafter recovering said lactic acid from said adsorbent with a desorbent consisting essentially of water or a dilute inorganic acid at desorption conditions, said adsorption conditions including a pH below the ionization constant (pKa) of lactic acid.

7. A process for separating lactic acid from a fermentation broth mixture containing lactic acid produced by a fermentation process comprising contacting said feed mixture with an anionic polymeric adsorbent selected from the group consisting of a weakly basic anionic exchange resin processing tertiary amine functional groups and a strongly basic anionic exchange resin possessing quaternary amine functional groups and mixtures thereof at adsorption conditions selected to selectively adsorb said lactic acid and thereafter recovering said lactic acid from said adsorbent with a desorbent comprising water or a dilute inorganic acid at desorption conditions, said adsorption conditions including a pH below the ionization constant (pKa) of lactic acid.

5,068,419

SEPARATION OF AN ORGANIC ACID FROM A FERMENTATION BROTH WITH AN ANIONIC POLYMERIC ADSORBENT

Santi Kulprathipanja, Inverness, and Anil R. Oroskar, Downers Grove, both of Ill., assignors to UOP, Des Plaines, Ill.

Continuation-in-part of Ser. No. 121,830, Nov. 16, 1987, Pat. No. 4,851,573, and a continuation-in-part of Ser. No. 122,161, Nov. 16, 1987, Pat. No. 4,851,574, each is a continuation-in-part of Ser. No. 943,219, Dec. 18, 1986, Pat. No. 4,720,579. This application May 8, 1989, Ser. No. 349,273
Int. Cl.[5] C07C *51/42*
U.S. Cl. 562—580 13 Claims

1. A process for separating a mono-, di- or polycarboxylic acid from a fermentation broth feed mixture containing said carboxylic acid produced by a fermentation process comprising contacting said feed mixture with an anionic polymeric adsorbent selected from the group consisting of a weakly basic anionic exchange resin possessing tertiary amine or pyridine functional groups and a strongly basic anionic exchange resin possessing quaternary amine functional groups and mixtures

VOL
1132
ISS
4
NO
26
1991
UMI

thereof at adsorption conditions selected to selectively adsorb said carboxylic acid and thereafter recovering said carboxylic acid from said adsorbent with a desorbent at desorption conditions, said adsorption conditions being characterized as a pH below the first ionization constant (pKa_1) of said carboxylic acid.

5,068,420
PROCESS FOR PREPARING ETHER CARBOXYLATE BUILDERS

Martin A. Kreczmer, St. Peters, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 458,008, Dec. 28, 1989. This application Nov. 9, 1990, Ser. No. 608,613
Int. Cl.[5] C07C *59/245*
U.S. Cl. 562—583 **15 Claims**

1. In a process for the purification of ether carboxylate salts produced by the calcium catalyzed reaction, in alkaline reaction medium, of salts of maleic acid and a hydroxy acid, the improvement which comprises:
   a. adjusting the pH of the mixture to a range of from about 9 to about 10.5;
   b. providing a water concentration in the mixture of from about 20% to about 35% by weight of the mixture;
   c. extracting impurities from the mixture by intimately contacting the mixture with a lower alkyl alcohol in a single stage, whereby the water content during extraction is in the range of from about 20% to about 35%, by weight; and
   d. separating the alcohol from the mixture.

5,068,421
CHEMICAL PROCESS

Lion-Liang Horng, Creve Coeur, Mo., assignor to Monsanto Company, St. Louis, Mo.

Continuation-in-part of Ser. No. 235,854, Aug. 24, 1988, Pat. No. 4,959,496. This application Sep. 20, 1990, Ser. No. 585,541
Int. Cl.[5] C07C *59/125*
U.S. Cl. 562—583 **14 Claims**

1. An improved process for preparing the alkali metal salts of oxydisuccinic acid which comprises reacting in an alkaline reaction medium the salts of maleic acid and malic acid in the presence of calcium ion catalyst, reducing the pH of the reaction product to a range of from about 7 to about 8.5 whereby unreacted starting acids salts are precipitated and removed from the reaction product and then lowering the pH of the reaction product to a range of from about 4 to about 6 whereby additional starting acid salts precipitate and are removed from the reaction product.

5,068,422
CARBOXY ETHERS

Dieter Balzer, Haltern; Heinz Reimer, Bottrop, and Werner Friedrich, Herten, all of Fed. Rep. of Germany, assignors to Huels Aktiengesellschaft, Marl, Fed. Rep. of Germany

Filed Dec. 13, 1989, Ser. No. 450,090
Claims priority, application Fed. Rep. of Germany, Feb. 8, 1989, 3903663
Int. Cl.[5] C07C *59/10*
U.S. Cl. 562—587 **10 Claims**

1. A carboxy ether of formula (II):

ti $[R—O(C_3H_6O)_x(C_2H_4O)_y(C_3H_6O)_z]_2CHCOOM$ (II)

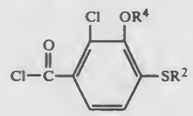
wherein:
R is (i) a saturated or unsaturated, linear or branched C_{6-20}-alkyl group; (ii) a phenyl group substituted with a C_{4-16}-alkyl group or a cycloaliphatic group substituted with a C_{4-16}-alkyl group; (iii) a dialkylphenyl group, wherein the total number of carbon atoms int he alkyl groups is 5 to 24, a dialkylcycloaliphatic group, wherein the total number of carbon atoms in the alkyl groups is 5 to 24, or a trialkylcycloaliphatic group, wherein the total number of carbon atoms in the alkyl groups is 5 to 24; or (iv) a trialkylphenyl group, wherein the total number of carbon atoms in the alkyl groups is 7 to 28;
x is 0 to 15, y is 1 to 40, z is 0 to 15; and
M is an alkali metal cation, an alkaline earth metal cation, an ammonium cation, a C_{1-4}-alkylammonium cation, or a proton.

5,068,423
TRISUBSTITUTED BENZOIC ACID INTERMEDIATES

William J. Michaely, El Cerrito, and Jeff K. Curtis, Berkeley, both of Calif., assignors to ICI Americas Inc., Wilmington, Del.

Division of Ser. No. 386,648, Jul. 31, 1989, Pat. No. 5,001,256, which is a division of Ser. No. 273,391, Nov. 18, 1988, abandoned. This application Dec. 10, 1990, Ser. No. 624,934
Int. Cl.[5] C07C *63/10*
U.S. Cl. 562—840 **2 Claims**

1. The compound of the structural formula



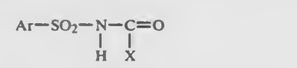
wherein R^4 is $—CH_2CH_2OCH_3$, $—CH_2CH_2OC_2H_5$, $—CH_2CH_2SCH_3$ or $—CH_2CH_2SC_2H_5$ and R^2 is C_1–C_4 alkyl.

5,068,424
PROCESS FOR PREPARING ARYLSULPHONYL-ISOCYANATES AND ADDITION DERIVATIVES THEREOF

Gábor Besenyei; Sándor Németh; László Simándi; Mária Belák, all of Budapest; József Dukai, Veszprém; Lajos Nagy, Füfö gyártelep; Elemér Tömördi, Veszprém; Csaba Söptel, Veszprém, and Erzsébet E. Diószeginé, Veszprém, all of Hungary, assignors to Nitrokémia Ipartelepek and Magyar Tudományos Akadémia Központi Kémiai Kutató Intézete, both of Budapest, Hungary

Filed Jun. 14, 1989, Ser. No. 365,790
Claims priority, application Hungary, Jun. 17, 1988, 3115/88; Jul. 22, 1988, 3887/88; Jul. 22, 1988, 3888/88
Int. Cl.[5] C07C *263/00*
U.S. Cl. 562—870 **8 Claims**

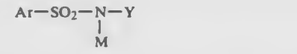
1. A process for preparing an arylsulfonyl isocyanate of formula I



(I)

and addition derivatives thereof, wherein Ar is an unsubstituted or a C_{1-4} alkyl substituted phenyl, and H and X together are a chemical bond, which comprises

(a) carbonylating an N-haloarylsulfonamide of formula II



(II)

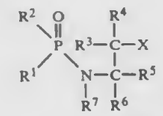
wherein
Ar is as defined above, Y is a chlorine or bromine atom, M is a sodium, potassium, quaternary ammonium, or a quaternary phosphonium ion, in the presence of a carbonylating catalyst, carbon monoxide, and from 0% to a catalytically effective amount of a phase transfer catalyst.

5,068,425
PROCESS OF PREPARATION OF PHOSPHINAMIDES, APPLICATIONS AND NEW PRODUCTS

Sylvain Juge, Puteaux, France, assignor to Societe Nationale Elf Aquitaine, France

Division of Ser. No. 754,956, Jul. 15, 1985, Pat. No. 4,983,768, Continuation-in-part of Ser. No. 448,370, Dec. 9, 1982, abandoned. This application Oct. 17, 1990, Ser. No. 598,927
Claims priority, application France, Dec. 11, 1981, 8123153; Dec. 3, 1982, 8220264
Int. Cl.[5] C07F *9/36*
U.S. Cl. 564—12 **11 Claims**

1. A phosphinamide of the structure:



where X is halogen; R^1, R^2 and R^4 are individually selected from C_1 to C_4 alkyl, phenyl, substituted phenyl and benzyl; R^3 and R^5 are hydrogen; and R^6 and R^7 are individually C_1 to C_4 alkyl.

5,068,426
PURIFICATION OF N,N-DIALKYLCARBAMOYLMETHYLPHOSPHINE OXIDE

Jeffrey E. Telschow, Tarrytown, N.Y., assignor to Akzo NV, Arnhem, Netherlands

Continuation-in-part of Ser. No. 370,227, Jun. 22, 1989, abandoned. This application Jan. 19, 1990, Ser. No. 467,712
Int. Cl.[5] C07F *9/28*
U.S. Cl. 564—15 **16 Claims**

1. A process for the purification of an N,N-dialkylcarbamoylmethylphosphine oxide compound (CMPO) dissolved in organic solvent which comprises treatment with a first row transition metal salt to form an insoluble complex therefrom which is then reacted with aqueous base to regenerate purified CMPO.

5,068,427
PROCESS FOR THE PREPARATION OF ALKANE- AND ARENESULFONAMIDES

Stanley R. Sandler, Springfield; Steven G. Schon, Strafford, and David M. Gardner, King of Prussia, all of Pa., assignors to Atochem North America, Inc., Philadelphia, Pa.

Filed Nov. 16, 1989, Ser. No. 438,389
Int. Cl.[5] C07C *303/38*
U.S. Cl. 564—84 **10 Claims**

1. A process for the preparation of alkane- and arenesulfonamides having the formula RSO_2NH_2, wherein R is selected from C_1 to C_{20} alkyl, C_6 to C_{20} aryl, substituted C_1 to C_{20} alkyl, and substituted C_6 to C_{20} aryl, wherein the substituent groups are inert to the reaction,
which proces comprises treating with ammonia, in the absence of an additional solvent, an alkane- or arenesulfonyl halide having the formula:

RSO_2X

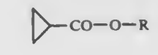
wherein R is as defined above and X is fluorine, chlorine, bromine or iodine, the reaction being carried out at a selected pressure which controls the reaction at a preselected temperature in the range of from about −20° C. to about 132° C., said ammonia being brought to boil by the heat of reaction generated by its reaction with RSO_2X, and said heat of reaction being removed by condensing the boiled-up ammonia vapors and returning the condensate to the reaction liquid.

5,068,428
PROCESS FOR THE PREPARATION OF CYCLOPROPANECARBOXAMIDE

Herbert Diehl, Leverkusen; Heinz U. Blank, Odenthal-Globusch, and Edwin Ritzer, Gladbeck, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

Continuation of Ser. No. 423,068, Oct. 18, 1989, abandoned. This application Sep. 26, 1990, Ser. No. 588,251
Claims priority, application Fed. Rep. of Germany, Oct. 28, 1988, 3836782
Int. Cl.[5] C07C *231/00*
U.S. Cl. 564—134 **6 Claims**

1. A process for the preparation of cyclopropanecarboxamide comprising reacting a cyclopropanecarboxylic acid ester of the formula



in which
R is C_4-alkyl,
with ammonia in the presence of an alkali metal alcoholate of a monohydric C_4-alcohol in the absence of a hydrocarbon solvent at 60°–200° C., wherein (a) 2–20 mol % of alcoholate, relative to the number of moles of the ester to be reacted, are used, (b) the alcoholate is in the form of a 25–50% by weight alcoholic solution, and (c) alcohol is either not added at the beginning of the reaction or the amount of alcohol present at the beginning of the reaction is only such as is necessary for the handling of the alcoholate.

5,068,429
METHOD OF PURIFICATION OF THE OXALIC ACID DIAMIDE

Loreno Lorenzoni, Porto Torres; Nino Dessantis, Sassari, and Angelo Virdis, Usini, all of Italy, assignors to Enichem Anic S.p.A., Palermo, Italy

Continuation of Ser. No. 32,552, Apr. 1, 1987, abandoned. This application Oct. 24, 1989, Ser. No. 426,531
Claims priority, application Italy, Apr. 17, 1986, 20122 A86
The portion of the term of this patent subsequent to Sep. 10, 2008, has been disclaimed.
Int. Cl.[5] C07B *63/00*; C07C *103/14*
U.S. Cl. 564—160 **11 Claims**

1. A process for removing copper from a copper-containing oxamide, which comprises:
   a) contacting the oxamide with an effective amount of an aqueous solution of a complexing agent which is capable of forming copper-containing water-soluble complexes and which imparts to the aqueous solution a pH in the range of 2 to 8, and
   b) removing purified oxamide from the solution of the copper-containing complex, and wherein the complexing agent comprises a secondary or tertiary nitrogen-containing organic compound having two or more carboxy groups, which are either free or partially salified.

5,068,430
BLEACHING OF COLORED AMINE OXIDES

James E. Borland; Y.-D. Mark Chen; Joe D. Sauer; Kim R. Smith, and Rebecca F. Smith, all of Baton Rouge, La., assignors to Ethyl Corporation, Richmond, Va.

Filed Jul. 26, 1990, Ser. No. 558,094
Int. Cl.[5] C07C *291/00*
U.S. Cl. 564—298 **9 Claims**

1. A process which comprises exposing a carbon dioxide-discolored amine oxide to visible light until the amine oxide is bleached.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,431

METHODS OF MAKING NEW SURFACE ACTIVE COMPOUNDS

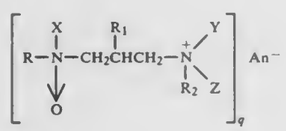
Anastasios Karalis, Downers Grove; Thomas Morong, Justice, and Charles Juszkiewicz, Woodridge, all of Ill., assignors to Witco Corporation, New York, N.Y.

Division of Ser. No. 91,058, Aug. 31, 1987, Pat. No. 4,864,060. This application May 15, 1989, Ser. No. 351,887

Int. Cl.[5] C07C *213/00*

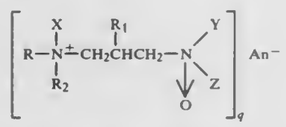
U.S. Cl. 564—301 11 Claims

1. A method of preparing a compound selected from those of the following formulae:



I.

and



II.

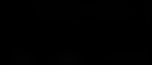
and mixtures of I and II, wherein

1) R is a C_6 to C_{30} aliphatic radical, preferably alkyl or alkenyl;
2) X, Y and Z are independently selected from the group consisting of C_1 to C_6 alkyl, C_2 to C_6 alkenyl and $(—CH_2CHR_3O—)_nH$ groups wherein R_3 is independently selected from hydrogen and C_1 to C_4 alkyl, and n is independently an integer from 1 to 20;
3) R_2 is C_1 to C_{18} alkyl, C_2 to C_{18} alkenyl, benzyl or phenylethyl;
4) R_1 is hydrogen, C_1 to C_4 alkyl or C_2 to C_6 alkenyl;
5) An is a water-solubilizing anion;
6) q is an integer of 1 to 4 equivalent to the valence of the anion (An); and at least one of X, Y and Z is a $(—CH_2CHR_3O—)_nH$ group comprising:

A. reacting a compound of the formula

$$RNHCH_2CHR_1CH_2NH_2$$

with at least 3 moles per mole of said latter compound of an alkylating agent which comprises at least one mole per mole of said compound of an alkylene oxide of the formula



and then reacting the resulting di-tertiary amine, in either order with

B. one mole per mole of said amine of an alkylating agent of the formula R_2 An to quaternize one tertiary atom and with

C. an oxidizing agent to oxidize the other tertiary nitrogen atom to an amine oxide.

5,068,432

PROCESS FOR PRODUCING OPTICALLY PURE 2-PHENOXYPHENYLALKYLAMINES

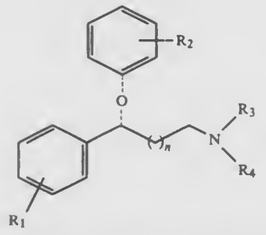
Herbert C. Brown, West Lafayette, Ind., assignor to Aldrich Chemical Company, Inc., Milwaukee, Wis.

Continuation of Ser. No. 364,831, Jun. 12, 1989, abandoned, which is a division of Ser. No. 175,178, Mar. 30, 1988, Pat. No. 4,868,344. This application Feb. 1, 1991, Ser. No. 649,160

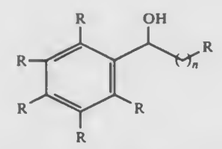
Int. Cl.[5] C07C *209/08*

U.S. Cl. 564—347 8 Claims

1. A process for producing a substituted phenoxyphenylalkylamine represented by the formula:



wherein R_1 is hydrogen, loweralkyl, lower alkoxy or halolower-eralkyl, R_2 is selected from hydrogen, lower alkyl, lower alkoxy or haloloweralkyl, n is an integer from 0–10, and R_3 and R_4 each are the same or different members of the group consisting of hydrogen or lower alkyl: comprising the steps of reducing a halosubstituted phenyl- or substituted phenylalkylketone with an optically pure (+)- or (−)-diisopinocampheylhaloborane to obtain a haloalcohol represented by the formula:



wherein each R is the same or different member of the group consisting of fluoro, chloro, bromo and iodo with the limitation that at least one R must be other than hydrogen, and n is an integer of 0–10, treating said haloalcohol with an amine of the fomrula NR_3R_4 and isolating the resulting maine.

5,068,433

PROCESS FOR PREPARATION OF 3-SUBSTITUTED DERIVATIVES OF 1-AMINO-2-HYDROXY PROPANE

Piero Melloni, Bresso; Arturo D. Torre, Gallarate; Ettore Lazzari, and Giuseppe Mazzini, both of Milan, all of Italy, assignors to Farmitalia Carlo Erba, S.r.l., Milan, Italy

Continuation of Ser. No. 349,965, May 8, 1989, abandoned, which is a continuation of Ser. No. 227,414, Jul. 29, 1988, abandoned, which is a continuation of Ser. No. 16,505, Jan. 27, 1987, abandoned, which is a continuation of Ser. No. 751,858, Jul. 5, 1985, abandoned. This application Jun. 11, 1990, Ser. No. 536,039

Claims priority, application United Kingdom, Aug. 2, 1984, 8419683

Int. Cl.[5] C07G *217/44, 217/64*

U.S. Cl. 564—349 1 Claim

1. (RS,RS)- or (RS,SR)-1-amino-2-hydroxy-3-(2-ethoxyphenoxy)-3-phenyl-propane.

5,068,434

PROCESS FOR THE PREPARATION OF N-ALKYLATED ANILINES

Günter Klug, Monheim; Hans-Josef Buysch, Krefeld, and Lothar Puppe, Burscheid, all of Fed. Rep. of Germany, assignors to Bayer Aktiengesellschaft, Leverkusen, Fed. Rep. of Germany

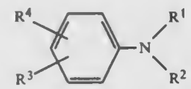
Filed Jan. 25, 1989, Ser. No. 301,929

Claims priority, application Fed. Rep. of Germany, Feb. 6, 1988, 3803661

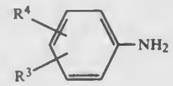
Int. Cl.[5] C07C *209/18*

U.S. Cl. 564—399 12 Claims

1. A process for the preparation of an N-alkylated aniline of the formula



comprising reacting an aniline of the formula



in which formulae

R^1 denotes C_1–C_4-alkyl

R^2 denotes hydrogen or C_1–C_4-alkyl, and

R^3 and R^4 independently of one another stand for hydrogen C_1–C_4-alkyl,

C_4-alkyl C_1–C_4-alkoxy, fluorine, chlorine or bromine, with a C_1–C_4-alcohol or the corresponding dialkyl ethers in the presence of a zeolite at elevated temperature, the improvement wherein the zeolite is of the pentasil type and is selected from the group consisting of ZSM 5, ZSM 8, ZSM 11, or ZSM 5/ZSM 11-intermediates containing protons, having 0 to 25 equivalent % of the protons exchanged for sodium, potassium, magnesium, zinc, cobalt, copper, calcium, iron, rare earths, tin, manganese, chromium, titanium, zirconium and/or tantalum, and having an SiO_2/Al_2O_3 of 80 to 1000 and wherein the pentasil zeolite is compacted with a binder and granulated and wherein the reaction is carried out at a temperature from 220° to 370° C.

5,068,435

ORTHO-ALKYLATED AROMATIC AMINES VIA GAMMA ALUMINA CATALYST

William F. Burgoyne, Jr., Emmaus, Pa., and Dale D. Dixon, Venice, Fla., assignors to Air Products and Chemicals, Inc., Allentown, Pa.

Continuation-in-part of Ser. No. 796,465, Nov. 8, 1985, Pat. No. 4,740,620. This application Mar. 25, 1988, Ser. No. 173,221

Int. Cl.[5] C07C *201/68*

U.S. Cl. 564—409 9 Claims

1. In a process for alkylating aromatic amines by contacting said aromatic amine with an olefin in the presence of a catalyst system, the improvement for producing alkylated aniline and toluidine which comprises:

contacting aniline, toluidine or the N-alkylated derivatives thereof with an olefin selected from the group consisting of ethylene, propylene and isobutylene in the presence of a non-acid-activated gamma alumina wherein the reaction is carried out in a fixed bed catalytic rector and the liquid hourly space velocity is 0.05 to 6 $hrs.^{-1}$.

4. In a process for alkylating ortho alkylaniline by contacting said aniline with an olefin in the presence of a catalyst system, the improvement for obtaining high conversion of alkyl-substituted anilines to alkylanilines having dissimilar alkyl groups, the improvement which comprises effecting said reaction of alkyl substituted alkylaniline with a C_{2-6} olefin in the presence of gamma-alumina.

5,068,436

HYDROGENATION OF HALONITROBENZENES WITHOUT DEHALOGENATION

Donald D. May, Chadds Ford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del.

Filed Mar. 10, 1989, Ser. No. 321,389

Int. Cl.[5] C07C *209/00*

U.S. Cl. 564—417 8 Claims

1. In a process for the catalyzed hydrogenation of fluorinated and chlorinated benzenoid nitro compounds having acidic substituents to produce the corresponding substituted anilines, the improvement comprising introducing an amount of acid equivalent to the catalyst employed on a molar basis into a hydrogenation mass, said acid having a dissociation constant pKa value of 5 or less.

5,068,437

PROCESS FOR PRODUCING 2-(P-CHLOROPHENOXY) ANILINE

John Kazan, and James J. Kelly, both of Somerset County, N.J., assignors to American Cyanamid Company, Stamford, Conn.

Filed Jun. 24, 1987, Ser. No. 65,744

Int. Cl.[5] C07C *209/36*

U.S. Cl. 564—417 1 Claim

1. A process for producing 2-(p-chlorophenoxy)aniline which comprises the steps of:

a) preparing a solution comprising 0.1 to 3.0 parts platinum catalyst, 2,000 to 2,200 parts of 2-(p-chlorophenoxy)nitrobenzene and 6,000 to 6,500 parts of o-dichlorobenzene;
b) adjusting and maintaining the temperature at 80° C. to 110° C. while adding 700 to 1,000 parts hydrazine hydrate in water with temperature maintainance at 80° C. to 110° C. for 8–24 hours;
c) cooling to 20° C. to 40° C.;
d) adding 0–150 parts filter aid;
e) stirring the mixture for 5 to 30 minutes;
f) filtering the mixture to clarify the mixture;
g) washing the filter cake with 100 to 200 parts of o-dichlorobenzene;
h) combining the filtrate from step f) and the wash from step g);
i) collecting the lower organic layer, distilling at 60° C. to 110° C.; and then
j) cooling the 2-(p-chlorophenoxy)aniline product to 20°–40° C.

5,068,438

PROCESS FOR SURFACE TREATMENT OF N-ALKYL-N'PHENYL-P-PHENYLENEDIAMINE

Katsumi Kobayashi, Yokkaichi, Japan, assignor to Mitsubishi Monsanto Chemical Company, Tokyo, Japan

Continuation of Ser. No. 244,649, Sep. 13, 1988, abandoned, which is a continuation of Ser. No. 796,627, Nov. 8, 1985, abandoned. This application Dec. 7, 1989, Ser. No. 449,103

Int. Cl.[5] C07C *209/82, 211/55*

U.S. Cl. 564—434 10 Claims

1. A process for the surface treatment of N-alkyl-N'-phenyl-p-phenylenediamine particles, which comprises charging granulated N-alkyl-N'-phenyl-p-phenylenediamine particles in a rotatable vessel, and rotating the vessel at a temperature lower than the melting point of the N-alkyl-N'-phenyl-p-phenylenediamine to cause the N-alkyl-N'-phenyl-p-phenylenediamine particles to freely flow.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,439

N-SUBSTITUTED PHENYLENEDIAMINE COMPOUNDS

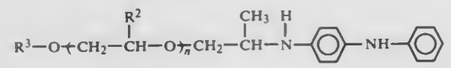
Kirkwood S. Cottman, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio

Division of Ser. No. 490,211, Mar. 8, 1990, Pat. No. 4,968,843. This application Oct. 12, 1990, Ser. No. 596,455

Int. Cl.[5] C07C *211/27*

U.S. Cl. 564—434 2 Claims

1. An N-substituted phenylenediamine of the formula:



wherein R^2 may be the same or different and is selected from the group of radicals consisting of hydrogen and an alkyl having 1 carbon atom, R^3 is selected from the group of radicals consisting of an alkyl having 1 to 12 carbon atoms and n is an integer of from 0 to 6.

5,068,440

PROCESS FOR THE MANUFACTURE OF N,N-DIMETHYL-1-[1-(4-CHLOROPHENYL)CYCLOBUTYL]-3-METHYLBUTYLAMINE HYDROCHLORIDE MONOHYDRATE

James E. Jeffery, and Derek Whybrow, both of Nottingham, England, assignors to The Boots Company, PLC, Nottingham, England

Division of Ser. No. 342,638, Apr. 19, 1989, Pat. No. 4,929,629, which is a continuation of Ser. No. 938,395, Dec. 5, 1986, abandoned. This application Jan. 19, 1990, Ser. No. 467,471

Claims priority, application United Kingdom, Dec. 17, 1985, 8531071

Int. Cl.[5] C07C *211/00*

U.S. Cl. 564—442 5 Claims

1. A process for the preparation of N,N-dimethyl-1-[1-(4-chlorophenyl)cyclobutyl]-3-methylbutylamine hydrochloride monohydrate comprising recrystallising N,N-dimethyl-1-[1-(4-chlorophenyl)cyclobutyl]-3-methylbutylamine hydrochloride from a medium consisting of or containing water.

5,068,441

N-BENZOYL-N'TRIHALO-HALOALKOXY-PHENYLUREAS AND PESTICIDAL COMPOSITIONS CONTAINING THEM

Josef Drabek, Oberwil, Switzerland, assignor to Ciba-Geigy Corporation, Ardsley, N.Y.

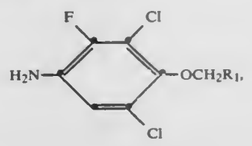
Division of Ser. No. 187,173, Apr. 28, 1988, Pat. No. 4,925,876. This application Feb. 23, 1990, Ser. No. 485,119

Claims priority, application Switzerland, May 8, 1987, 1753/87

Int. Cl.[5] C07C *211/52, 275/54;* A01N *47/34*

U.S. Cl. 564—442 4 Claims

1. A compound of formula II



(II)

wherein R_1 is CF_3, CF_2CF_3 or $CF_2CF_2CF_3$.

5,068,442

METHOD FOR MAINTAINING THE ACTIVITY OF ZEOLITE CATALYSTS

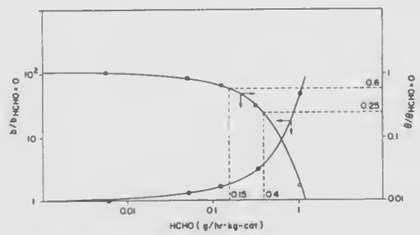
Yoshiro Ashina; Takeyuki Fujita; Kiyonobu Niwa; Takeshi Inagaki, and Yuko Nikaido, all of Yokohama, Japan, assignors to Nitto Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed May 17, 1989, Ser. No. 353,446

Claims priority, application Japan, May 20, 1988, 63-121966

Int. Cl.[5] C07C *45/00*

U.S. Cl. 564—479 6 Claims



1. A method for maintaining the activity of a zeolite catalyst in the catalytic production of methylamines methanol and ammonia using a zeolite catalyst as at least one of catalysts applied, which comprises controlling the amount of formaldehyde as impurities flowing into a zeolite catalyst layer to about 0.15 g/hr.kg-cat. or lower.

5,068,443

PROCESS FOR THE MANUFACTURE OF 2,6-DICHLORO-4-NITROANILINE

Stephen R. Smythe, North Muskegon; Martin G. Cole, Spring Lake, and James S. Grier, Whitehall, all of Mich., assignors to NorAm Chemical Company, Wilmington, Del.

Filed Jun. 1, 1990, Ser. No. 532,035

Int. Cl.[5] C07C *209/74*

U.S. Cl. 564—496 14 Claims

1. A process for the chlorination of a substituted or unsubstituted nitroaniline by reaction with Cl_2 in a reaction medium consisting essentially of acetic acid.

5,068,444

TETRAMINES BY AMINATION OF DIALDEHYDE GLYCOL ADDUCTS

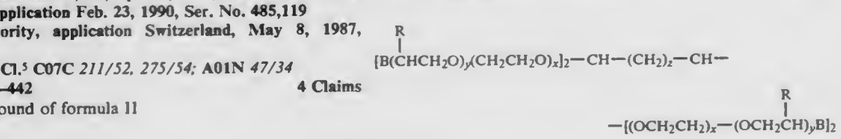
Michael Cuscurida; David R. McCoy, both of Austin, and Jiang-Jen Lin, Houston, all of Tex., assignors to Texaco Chemical Company, White Plains, N.Y.

Filed Oct. 31, 1989, Ser. No. 429,671

Int. Cl.[5] C07C *215/08, 217/08*

U.S. Cl. 564—505 10 Claims

1. A compound of the formula:



wherein

R is selected from the group consisting of the methyl or ethyl radical,

x ranges from 2 to about 50,

y ranges from 2 to almost 24,

z is 0 to 3, and

B is $—NH_2$ or —OH, and wherein at least one of the B substituents is $—NH_2$.

5,068,445

PROCESS FOR THE PREPARATION OF ORGANIC DISULPHIDES AND POLYSULPHIDES

Emmanuel Arretz, Pau, France, assignor to Societe Nationale Elf Aquitaine (Production), Courbevoie, France

Filed Apr. 3, 1989, Ser. No. 331,878

Claims priority, application France, Apr. 14, 1988, 88 04962; Sep. 14, 1988, 88 11968

Int. Cl.[5] C07C *319/22*

U.S. Cl. 568—21 17 Claims

1. A process for the preparation of organic disulphides and polysulphides comprising reacting sulphur with a mercaptan or a polysulphide which is lower in sulphur, in a liquid medium in the presence of a basic catalyst, said catalyst being an anion exchange resin consisting essentially of an organic polymer or copolymer having a basic function.

5,068,446

PROCESS FOR PREPARATION OF DIBROMOPROPYL ETHER COMPOUND HAVING HIGH MELTING POINT

Yoshikatsu Ogawa, Takatsuki; Haruhiko Hisada, Yao; Takeshi Kasahara, Sakai; Fumihiko Kizaki, Osaka, and Masahide Yoshiya, Fujiidera, all of Japan, assignors to Marubishi Yuka Kogyo Kabushiki Kaisha, Osaka, Japan

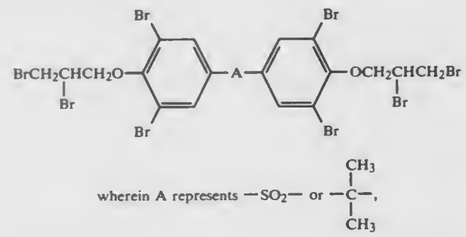
Filed Mar. 30, 1990, Ser. No. 503,386

Claims priority, application Japan, Apr. 28, 1989, 1-107807

Int. Cl.[5] C07C *315/06, 41/40*

U.S. Cl. 568—33 5 Claims

1. A process for the preparation of a dibromopropyl ether compound having a high melting point, which comprises mixing a bis-dibromopropyl ether of tetrabromobisphenol-sulfone or tetrabromobisphenolpropane represented by the following general formula:



wherein A represents $—SO_2—$ or —C(CH₃)₂—,

in the melted state with a crystallized product of said compound at a temperature lower than the melting point of the crystallized product, and holding the mixture at a temperature of 50° to 100° C.

5,068,447

FRIEDEL-CRAFTS PREPARATION OF AROMATIC KETONES WITH AN INOGANIC SALT CONTROLLING AGENT

Heinrich C. Gors, Mountain View; Patrick J. Horner, Menlo Park, and Viktors Jansons, Los Gatos, all of Calif., assignors to Raychem Corporation, Menlo Park, Calif.

Continuation of Ser. No. 293,726, Jan. 5, 1989, abandoned, which is a division of Ser. No. 175,646, Mar. 21, 1988, Pat. No. 4,814,508, which is a continuation of Ser. No. 874,268, Jun. 13, 1986, abandoned, which is a continuation-in-part of Ser. No. 789,546, Oct. 22, 1985, abandoned, which is a continuation-in-part of Ser. No. 659,598, Oct. 11, 1984, abandoned. This application Jul. 6, 1990, Ser. No. 550,246

Int. Cl.[5] C07C *107/06, 49/813*

U.S. Cl. 568—309 7 Claims

1. A process for the preparation of an aromatic carbonyl compound having the formula

$(R)_sArDCOBD(R')_t$, $(R)_sArDCOBDCOArD(R)_s$, $(R)_sArDCODAr(R)_s$, or $(R')_tDBCOArDCOBD(R')_t$

wherein each s and t is independently 1, 2 or 3 and each R, Ar, B, D and R' is independently as defined below,

which comprises reacting a first reactant, consisting of a substituted or unsubstituted aromatic compound containing at least one activated hydrogen atom of the formula

$(R)_sArDH$

wherein Ar is a homo or hetero-aromatic mono-, di- or tricyclic moiety or a fused homo-aromatic condensed system containing less than 20 aromatic carbon atoms, or a heteroaromatic system containing less than 8 nitrogen atoms, each R is as defined below and D is

$—(ZAR)_n—(ZAr)_m—(ZAr)_p—$

wherein n, m, and p are each independently 0, 1, 2 or 3, provided that n+m+p is less than 4, and Z is

—CO—, $—SO_2—$, [—CO—C_6H_4—CO— —CO—C_6H_4CO—, or $—O(CF_2)_qO—$

or V, provided that when n+m+p>0, any Ar group which contains an activated hydrogen atom is also linked to a V group, where V is a divalent radical of the formula

—O—, —S—, —N=N—, $—(CF_2)_q—$, $—(CH_2)_q—$, or $—C(CH_3)_2—$

wherein q is 1 to 20;

with a second reactant, consisting of phosgene, or a monofunctional acyl compound of the general formula

$YCOBD(R')_t$ or $O(COBD(R')_t)_2$

or a di-functional acy compound of the general formula

YCOBDCOY

wherein each B is independently a divalent substituted or unsubstituted aliphatic or cycloaliphatic group or Ar, and R and R' which may be the same or different are a H, Br, Cl or F atom or a hydroxy, alkoxy, alkyl, aralkyl, unsubstituted or mono- or disubstituted amino, nitro, ester, acid, amide or imide group, and each Y represents a Br, Cl or F atom or a hydroxy or alkoxy group, subject to the proviso that any aromatic ring which contains an activated hydrogen atom also contains no alkoxy groups and to the further proviso that the aromatic carbonyl compound contains less than 2 identical directly linked sequences containing at least one $—SO_2—$ or —CO—

in a reaction medium comprising:

(A) an inorganic salt controlling agent in an amount from 0.1 to 4 equivalents per equivalent of acid, ester or acid halide group in the reactants;

(B) a Lewis acid selected from the group consisting of aluminum trichloride, aluminum tribromide, antimony pentachloride, antimony pentafluoride, indium trichloride, gallium trichloride, boron trichloride, boron trifluoride, ferric chloride, stannic chloride, titanium tetrachloride, and molybdenum pentachloride, in an amount of about one equivalent per equivalent of carbonyl, or other basic species in the reactants plus one equivalent per equivalent of Lewis base plus an amount effective to act as a catalyst for the reaction; and

(C) a non-protic diluent in an amount from about 20 to about 93% by weight, based on the weight of the total reaction mixture.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,448

PROCESS FOR THE PRODUCTION OF 4'-ISOBUTYLACETOPHENONE

Daniel D. Lindley, Portland, Tex.; Thomas A. Curtis, Tega Cay, S.C.; Timothy R. Ryan, Corpus Christi, Tex.; Edward M. de la Garza, Corpus Christi, Tex.; Charles B. Hilton, Corpus Christi, Tex., and Thomas M. Kenesson, Corpus Christi, Tex., assignors to Hoechst Celanese Corporation, Somerville, N.J.

Continuation-in-part of Ser. No. 445,055, Dec. 4, 1989, Pat. No. 4,990,681. This application Oct. 5, 1990, Ser. No. 593,143

Int. Cl.[5] C07C *45/45*

U.S. Cl. 568—319 24 Claims

1. A continuous process for the production of 4 -isobutylacetophenone (4-IBAP) comprising feeding liquid hydrogen fluoride (HF) and an acetylating agent into an extractor-reactor to form a first, HF-rich phase containing said acetylating agent, feeding isobutylbenzene (IBB) to the extractor-reactor to form a second, IBB-rich phase which is contacted with said first, HF-rich phase in a manner such that the acetylating agent reacts with IBB to form 4-IBAP which is extracted into said first, HF-rich phase, and a light IBB-rich second phase containing the bulk of unreacted IBB; externally recycling said second, IBB-rich phase to said IBB feed point in combination with fresh IBB to make up for IBB consumed in the reaction and that dissolved in said HF-rich phase, and withdrawing an HF-rich stream containing 4-IBAP from the extractor-reactor.

5,068,449

FLUORINATED BENZOYL COMPOUNDS

Seisaku Kumai, Fujisawa; Osamu Yokokoji, Yokohama, and Akihiro Tamaoki, Ichihara, all of Japan, assignors to Asahi Glass Company, Ltd., Tokyo, Japan

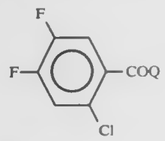
Division of Ser. No. 446,110, Dec. 5, 1989, Pat. No. 4,994,610. This application Feb. 7, 1990, Ser. No. 476,578

Claims priority, application Japan, Aug. 14, 1987, 62-201862; Apr. 15, 1988, 63-91609

Int. Cl.[5] C07C *45/00*

U.S. Cl. 568—335 9 Claims

1. A fluorinated benzoyl compound of the formula:



(1)

wherein Q is a lower alkyl group.

5,068,450

PROCESS FOR THE PREPARATION OF AROMATIC ALDEHYDES

Michel Crochemore, Chaponost, and Christophe Rochin, Lyons, both of France, assignors to Rhone-Poulenc Chimie, Courbevoie Cedex, France

Continuation of Ser. No. 217,699, Jul. 11, 1988, abandoned. This application Feb. 28, 1990, Ser. No. 490,495

Claims priority, application France, Jul. 10, 1987, 87 10180

Int. Cl.[5] C07C *45/00*

U.S. Cl. 568—435 10 Claims

1. A process for the preparation of an aromatic aldehyde comprising the step of contacting an aromatic compound substituted by at least one substituent selected from hydrogen, halogen, alkyl, alkoxy, hydroxyl, perhaloalkoxy, thioalkyl, phenoxy and phenyl with an alkyl formate in liquid hydrofluoric acid and in the presence of boron trifluoride for a time sufficient to form said aromatic aldehyde.

5,068,451

PRODUCTION OF 3-PHENOXY PROPANAL DERIVATIVES

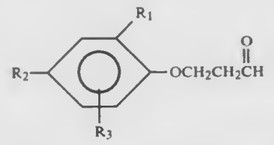
Ivan J. B. Lin, and S. J. Jong, both of Taipei Shien, Taiwan, assignors to National Science Council, Taipei, Taiwan

Filed May 4, 1990, Ser. No. 519,177

Int. Cl.[5] C07C *47/02, 45/34*

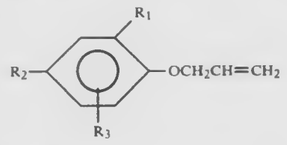
U.S. Cl. 568—442 11 Claims

1. A method of 3-phenoxy propanal derivatives of the formula



(I)

wherein R_1, R_2 and R_3 are —H, —CH_3 or a halogen radical, which method comprises oxidizing allyl phenoxy ether derivatives of the formula



(II)

wherein R_1, R_2 and R_3 are as defined above, in an alcohol as a solvent in the presence of a palladium salt, a copper salt complex oxidant, an alkali metal salt of an organic acid, and an acid at a temperature of 5° C.–100° C. and at a pressure from atmospheric pressure to 10 atm.

5,068,452

AROMATIC ALDEHYDES AND THEIR DERIVATIVES

Ferdinand Naef; François Delay, both of Carouge, Switzerland, and Arnoldus Uijttewaal, St-Genis/Pouilly, France, assignors to Firmenich S.A., Geneva, Switzerland

Filed Apr. 2, 1990, Ser. No. 503,339

Claims priority, application Switzerland, Apr. 12, 1989, 1379/89

Int. Cl.[5] C07C *47/27*

U.S. Cl. 568—442 1 Claim

1. One of the aromatic aldehydes or derivatives thereof selected from the group consisting of:
3-[4-(1-methoxy-1-methylethyl)-1-phenyl]-2-methylpropanal,
3-[4-(1-methoxy-1-methylethyl)-1-phenyl]-2-methylpropionaldehyde dimethylacetal,
3-[4-(1-methoxy-1-methylethyl)-1-phenyl]-2-methylpropionaldehyde diethylacetal,
3-[4-(1-methoxy-1-methylethyl)-1-phenyl]-2-methyl-2-propenal,
3-(4-isopropenyl-1-phenyl)-2-methylpropionaldehyde dimethylacetal, and
3-(4-isopropenyl-1-phenyl)-2-methylpropionaldehyde diethylacetal.

5,068,453

NOVEL MONOTERPENES

Yasumasa Kuwahara, and Walter S. Leal, both of Ibaraki, Japan, assignors to Daikin Industries, Ltd., Osaka, Japan

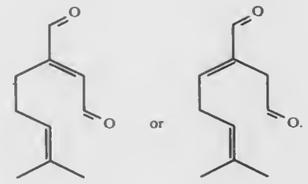
Filed Mar. 9, 1990, Ser. No. 491,459

Claims priority, application Japan, Mar. 13, 1989, 1-60324; Apr. 28, 1989, 1-109938

Int. Cl.[5] C07C *47/21*

U.S. Cl. 568—494 3 Claims

1. A monoterpene of the formula:



5,068,454

POLYFLUOROALKANOYL PEROXIDE

Hideo Sawada, Tsukuba, and Masaharu Nakayama, Tsuchiura, both of Japan, assignors to Nippon Oil & Fats Co. Ltd., Tokyo, Japan

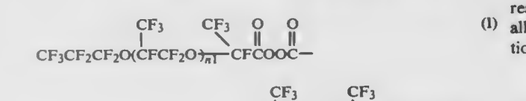
Filed Jun. 15, 1990, Ser. No. 538,996

Claims priority, application Japan, Jun. 27, 1989, 1-162609

Int. Cl.[5] C07C *409/00*

U.S. Cl. 568—566 2 Claims

1. A polyfluoroalkanoyl peroxide having the formula



(I)

wherein n_1 and n_2 each represent an integer of 0 to 8 and n_1 plus n_2 is 1 or larger.

5,068,455

3-(2-HYDROPEROXY-2-PROPYL)PHENOL AND METHOD OF PRODUCING RESORCINOL USING THE SAME

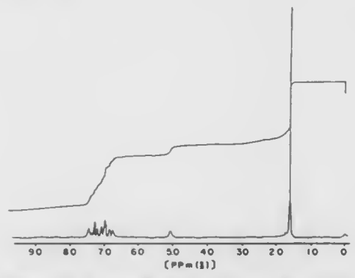
Kiyotaka Yorozu, Wakicho, and Hiroyasu Ohno, Hiroshima, both of Japan, assignors to Mitsui Petrochemical Industries, Ltd., Tokyo, Japan

Division of Ser. No. 305,185, Feb. 2, 1989. This application Sep. 6, 1990, Ser. No. 578,206

Claims priority, application Japan, Feb. 4, 1988, 63-025441; Nov. 15, 1988, 63-288287

Int. Cl.[5] C07C *407/00, 409/08*

U.S. Cl. 568—567 4 Claims



1. A method of producing 3-(2-hydroperoxy-2-propyl)-phenol which comprises: oxidizing m-isopropenylphenol with hydrogen peroxide at a temperature of from about 0°–100° C. in at least one solvent selected from the group consisting of aliphatic nitriles, aromatic nitriles, aromatic hydrocarbons, acetone and 1,4-dioxane in the presence of an acid catalyst selected from the group consisting of phosphoric acid, polyphosphoric acid, sulfuric acid, heteropolyacids, cation exchange resins, hydrogen boride and boron trifluoride-ether complexes.

5,068,456

PREPARATION OF NONIONIC SURFACTANTS BY OXYALKYLATION WITH A PHENOLIC ACTIVATED MAGNESIUM CATALYST

Edward C. Y. Nieh, Austin, Tex., assignor to Texaco Chemical Company, White Plains, N.Y.

Continuation-in-part of Ser. No. 466,098, Jan. 16, 1990, abandoned, which is a continuation of Ser. No. 205,753, Jun. 13, 1988, abandoned. This application Nov. 19, 1990, Ser. No. 615,114

Int. Cl.[5] C07L *41/03*

U.S. Cl. 568—618 4 Claims

1. A method for the alkoxylation of a reactive hydrogen compound selected from the group consisting of monohydric alcohol(s) having between about 6 and about 30 carbon atoms, both branched and linear, with an alkylene oxide having two to four carbon atoms comprising reacting said monohydric alcohol(s) with said alkylene oxide at a temperature at which the reaction proceeds in the presence of at least a catalytic amount of a material consisting of a catalyst that is produced by the reaction of magnesium and a phenolic compound wherein the alkoxylation product has a narrow molecular weight distribution.

5,068,457

METHOD FOR MAKING HYDROXY-TERMINATED ARYLENE ETHERS

Gary W. Yeager, Schenectady, and David N. Schissel, Scotia, both of N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Aug. 1, 1990, Ser. No. 561,403

The portion of the term of this patent subsequent to Oct. 10, 2006, has been disclaimed.

Int. Cl.[5] C07C *41/01*

U.S. Cl. 568—633 8 Claims

1. A method for making an hydroxy-terminated arylene ether of the formula,

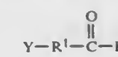
$$HO—R^1—O—R—O—R^1—OH,$$

comprising,

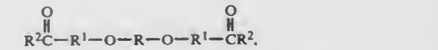
(1) effecting reaction between a dihydroxyaromatic compound of the formula,

$$HO—R—OH,$$

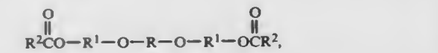
and an aryl alkyl ketone of the formula,



to form an arylene ether dicarbonyl adduct of the formula,



(2) oxidizing the resulting arylene ether dicarbonyl adduct of step (1) to form the corresponding arylene ether diester, of the formula,



(3) saponifying the arylene ether diester of step (2) to form

VOL 1132 ISS 4 NO 26 1991 UMI

the corresponding hydroxy-terminated arylene ether of the formula,

$$HO—R^1—O—R—O—R^1—OH,$$

where R is a member selected from the class consisting of $C_{(6-30)}$ arylene groups and $C_{(6-30)}$ arylene groups substituted with monovalent radicals inert during hydroxy-terminated arylene-forming reactions, R^1 is a member selected from the class consisting of $C_{(6-20)}$ arylene radicals and $C_{(6-20)}$ arylene radicals substituted with monovalent radicals inert during hydroxy-terminated arylene ether-forming reactions, R^2 is a $C_{(1-8)}$ alkyl radical and Y is a leaving group selected from fluoro, bromo and nitro.

5,068,458

CHEMICAL PROCESS FOR HALOGENATING 2-METHYL-6-METHOXYNAPHTHALENE

John R. M. Dales, and Sidney E. Callander, both of Worthing, England, assignors to Beecham Group p.l.c., Brentford, England

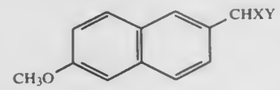
Filed Jun. 28, 1990, Ser. No. 545,298

Claims priority, application United Kingdom, Jun. 30, 1989, 891510417

Int. Cl.[5] C07C *41/22*

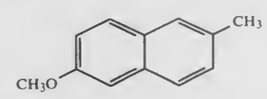
U.S. Cl. 568—634 **5 Claims**

1. A process for the preparation of a compound of formula (I):



(I)

in which X and Y are identical and represent bromine or chlorine or X is bromine or chlorine and Y is hydrogen, which comprises brominating or chlorinating 2-methyl-6-methoxynaphthalene, of formula (II):



(II)

in the presence of a free radical initiator.

5,068,459

PROCESS FOR PRODUCING M-PHENOXYBENZYL ALCOHOL

Ryu Oi; Shinji Takenaka, and Chitoshi Shimakawa, all of Omuta, Japan, assignors to Mitsui Toatsu Chemicals, Inc., Tokyo, Japan

Filed Apr. 17, 1990, Ser. No. 509,843

Claims priority, application Japan, Apr. 19, 1989, 1-97630

Int. Cl.[5] C07C *41/01*

U.S. Cl. 568—638 **4 Claims**

1. In a process for producing m-phenoxybenzyl alcohol by reacting chlorobenzene with m-hydroxybenzyl alcohol in a reaction solvent and in the presence of a copper catalyst and a base, the improvement which comprises using an alkylene glycol of the formula



(I)

wherein R and R' are independently a hydrogen atom, a methyl group, an ethyl group, a propyl group or a butyl group, X_1 and X_2 are independently a hydrogen atom or a methyl group, and n is an integer of 1–10 as the reaction solvent.

5,068,460

PROCESS FOR PREPARATION OF RESORCINOL

Charles E. Sumner, Jr.; Brenda J. Hitch, both of Kingsport, and Bobby L. Bernard, Rogersville, all of Tenn., assignors to Eastman Kodak Company, Rochester, N.Y.

Continuation-in-part of Ser. No. 509,122, Apr. 16, 1990, abandoned. This application Dec. 6, 1990, Ser. No. 623,003

Int. Cl.[5] C07C *41/01*

U.S. Cl. 568—648 **2 Claims**

1. A process for preparation of resorcinol bis(hydroxyethyl)ether comprising

(A) contacting at a temperature in the range of 130 degrees to 150 degrees C. resorcinol and ethylene carbonate and an alkali metal carbonate,

(B) adding a solution of water and an alkali metal hydroxide which is at least 0.6 molar, and

(C) recovering the resorcinol bis(hydroxyethyl)ether by crystallization.

5,068,461

INSECTICIDAL ETHERS

Michael J. Bushell, Wokingham, and Robin A. E. Carr, Camberley, both of England, assignors to Imperial Chemical Industries PLC, London, United Kingdom

Division of Ser. No. 114,038, Oct. 29, 1987, Pat. No. 4,937,388, which is a continuation-in-part of Ser. No. 891,350, Jul. 31, 1986. This application Mar. 29, 1990, Ser. No. 500,883

Claims priority, application United Kingdom, Aug. 9, 1985, 8520027; Oct. 19, 1986, 8625897

Int. Cl.[5] C07C *43/20, 43/215, 43/225*

U.S. Cl. 568—655 **2 Claims**

1. 1,1,1-Trifluoro-2-(4-ethoxyphenyl)prop-2-ene.

5,068,462

FLUORINE-SUBSTITUTED COMPOUND CONTAINING ETHER BOND AND INTERMEDIATE THEREOF

Makoto Sasaki, Saitama; Haruyoshi Takatsu, and Kiyofumi Takeuchi, both of Tokyo, all of Japan, assignors to Dainippon Ink and Chemicals Inc.,, Tokyo, Japan

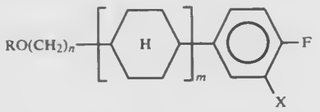
Filed Jul. 26, 1990, Ser. No. 557,336

Claims priority, application Japan, Jul. 28, 1989, 1-196074; Oct. 9, 1989, 1-262225; Dec. 18, 1989, 1-326165; Jan. 25, 1990, 2-15481; Apr. 16, 1990, 2-97648; May 8, 1990, 2-116924

Int. Cl.[5] C07C *43/02*

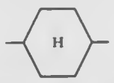
U.S. Cl. 568—661 **5 Claims**

1. A compound represented by formula (I):



(I)

wherein R represents a straight-chain alkyl group having 1 to 8 carbon atoms; n represents an integer of 2 to 7; m represents 1 or 2, X represents a hydrogen atom or a fluorine atom, and



represents a trans(equatorial-equatorial)cyclohexane ring.

5,068,463

PROCESS FOR THE PREPARATION OF TETRABROMO-4,4'-ALKYLIDENEDIPHENOLS

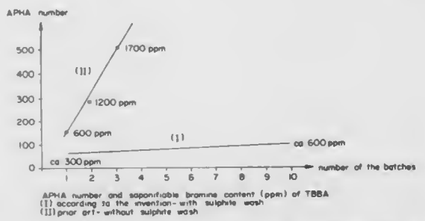
Eberhard Walter, Schifferstrasse 88, D-6000 Frankfurt/Main 70, Fed. Rep. of Germany

Filed Oct. 5, 1990, Ser. No. 592,473

Claims priority, application Fed. Rep. of Germany, Oct. 23, 1989, 3935224

Int. Cl.[5] C07C *37/62, 39/16*

U.S. Cl. 568—726 **7 Claims**



APHA number and saponifiable bromine content (ppm) of TBBA
(I) according to the invention - with sulphite wash
(II) prior art - without sulphite wash

1. In a process for the production of tetrabromo-4,4'-alkylidenediphenols of high purity which comprises brominating the corresponding 4,4'-alkylidenediphenols with bromine or an aqueous HBr_3 or HBr solution in the presence of a water-immiscible organic solvent or solvent mixture, while HBr is oxidized to bromine by aqueous hydrogen peroxide, dissolving the tetrabromo-4,4'-alkylidenediphenol formed in the reaction in the organic phase, after completion of the reaction, by raising the temperature of the reaction mixture, separating the aqueous phase from the organic phase, cooling the organic phase and thereby crystallizing the tetrabromo-4,4'-alkylidenediphenol and separating the crystals from the mother liquor;

the improvement which comprises washing the organic phase before the crystallization at least once with an aqueous alkali sulphite solution and at least once with water and removing the aqueous phase after each wash.

5,068,464

PROCESS FOR THE OXIDATION OF HYDROCARBONS UTILIZING PARTITIONING OF OXIDIZING GAS

David C. Hendrix, Lake Jackson, Tex., assignor to BASF Corporation, Wyandotte, Mich.

Filed May 26, 1988, Ser. No. 199,844

Int. Cl.[5] C07C *45/33*

U.S. Cl. 568—357 **19 Claims**

1. In a process for the partial oxidation of hydrocarbons into an oxidate containing oxygenated hydrocarbon products, wherein molecular oxygen is used as the oxidizing agent, the improvement comprising the steps of:

(a) preparing, in a separate vessel, an aqueous solution of oxygen;

(b) contacting said aqueous oxygen solution with a liquid hydrocarbon to be oxidized in such a manner that a substantial quantity of oxygen is transferred from the aqueous phase to the hydrocarbon phase; and

(c) thereafter oxidizing said oxygen-containing hydrocarbon at an elevated temperature.

5,068,465

PHARMACEUTICALLY ACTIVE 3-ARYL-2-FLUORO-1-OLEFINS

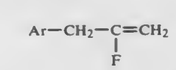
James R. McCarthy, West Chester; Charlotte L. Barney, Cincinnati, and Donald P. Matthews, West Chester, all of Ohio, assignors to Merrell Dow Pharmaceuticals Inc., Cincinnati, Ohio

Division of Ser. No. 384,944, Jul. 25, 1989, Pat. No. 4,981,868. This application Jun. 15, 1990, Ser. No. 539,106

Int. Cl.[5] C07C *39/10, 39/24*

U.S. Cl. 568—765 **10 Claims**

1. A compound of the formula



(I)

wherein Ar is 3,4-dihydroxyphenyl, 4-hydroxyphenyl, 4-(C_1–C_4) alkoxyphenyl or substituted phenyl, wherein the substituents on the phenyl group are selected from the group consisting of fluoro, chloro, bromo and (C_1–C_4) alkyl.

5,068,466

CYMENOL PREPARATION BY TRANSFER DEHYDROGENATION

Keith R. Motion, Hythe, and Christopher P. Newman, Canterbury, both of Great Britain, assignors to Unilever Patent Holdings B.V., Rotterdam, Netherlands

Filed Sep. 6, 1990, Ser. No. 578,495

Claims priority, application United Kingdom, Sep. 6, 1989, 8920109

Int. Cl.[5] C07C *39/06*

U.S. Cl. 568—781 **9 Claims**

1. A process for the conversion of an 8-hydroxymenthene to an 8-hydroxycymene in which the 8-hydroxymenthene is reacted in the liquid phase in the presence of a dehydrogenation catalyst and an added hydrogen acceptor, wherein the conversion is carried out at a temperature of from 80° to 150° C. and in the absence of acid.

5,068,467

PROCESS FOR PRODUCTION OF SOLID SORBITOL

Yuji Kunimi; Akihiko Tabata, both of Ushiku, and Yatsuka Fujita, Nishinomiya, all of Japan, assignors to K.K. Ueno Seiyaku Oyo Kenkyujo, Osaka, Japan

Continuation of Ser. No. 312,998, Feb. 21, 1989, abandoned. This application Jul. 12, 1990, Ser. No. 552,361

Claims priority, application Japan, Feb. 20, 1988, 63-38349

Int. Cl.[5] C07C *29/78, 31/26*

U.S. Cl. 568—852 **10 Claims**

1. A method of production of non-caking crystalline sorbitol which comprises stirring sorbitol seed crystals into melted sorbitol in the presence of 0.5 to 30% by weight based on the melted sorbitol of an addition agent selected from the group consisting of vegetable oils, animal oils, hardened oils, mineral oils, esters of higher fatty acids and higher fatty alcohols, glycerol fatty acid esters, sugar fatty acid esters, sorbitan fatty acid esters, propyleneglycol fatty acid esters, pentaerythritol fatty acid esters, polyglycerol fatty acid esters, polyoxyethylene sorbitan fatty acid esters, polyoxyethylene alkyl ethers, lecithin, soap of higher fatty acid, saponin, casein, polyoxyalkylene alkyl ethers, polyoxyalkylene alkylaryl ethers, polyoxyalkylene alkylamides, polyoxyethylene/polyoxypropylene random or block copolymer, sulfates of polyoxyalkylene ether type nonionic surface active agents, fatty acid esters of polyoxyalkyleneglycols, and alkylalkanolamides, and at a temperature at which the melted sorbitol does not solidify and at which the seed crystals do not melt, cooling the melted sorbitol-seed crystals mixture to about 50° C. to about 85° C. to provide solid sorbitol, aging the solid sorbitol at said temperature of about 50° C. to about 85° C., then cooling the aged solid sorbitol to

VOL 1132 ISS 4 NO 26 1991 UMI

room temperature, and then powdering or granulating the solid sorbitol to form the non-caking crystalline sorbitol.

5,068,468

HYDROGENATION OF ACETYLENIC ALCOHOLS

Juergen Schossig, Fussgoenheim; Gerhard Koppenhoffer, Roemerberg; Matthias Irgang, Heidelberg, all of Fed. Rep. of Germany; Rudi Schnur, and George Roley, both of Baton Rouge, La., assignors to BASF Atktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed Oct. 19, 1990, Ser. No. 599,877

Int. Cl.[5] C07C *29/17, 31/20*

U.S. Cl. 568—861 **3 Claims**

1. A process for the preparation of saturated alcohols by catalytic hydrogenation of acetylenic alcohols at a temperature of from 50° to 200° C. and under a pressure of from 30 to 320 bar, wherein use is made of a catalyst containing from 20 to 85% of nickel oxide, from 0 to 30% w/w of copper oxide, from 1 to 30% w/w of zirconium dioxide, from 1 to 30% w/w of silicon dioxide and from 1 to 30% w/w of aluminum oxide, by weight of the oxidic, unreduced catalyst.

5,068,469

PROCESS FOR PREPARATION OF CONDENSED ALCOHOLS BY ALKOXIDE CATALYSTS

David A. Young; John A. Jung, and Mark L. McLaughlin, all of Baton Rouge, La., assignors to Exxon Chemical Patents Inc., Linden, N.J.

Filed Feb. 7, 1990, Ser. No. 476,163

Int. Cl.[5] C07C *29/34, 31/125*

U.S. Cl. 568—878 **5 Claims**

1. A process for preparing a condensed, saturated dimer alcohol having alkyl branching in the 2- position and being represented by the formula $RCH(R)CH_2OH$ which comprises contacting a primary alcohol reactant of the formula RCH_2CH_2OH with a saturated aldehyde of the formula RCHO in the presence of a metal alkoxide at a temperature of about 100° to 220° C., wherein the metal may be potassium, lithium, sodium, rubidium, cesium, magnesium, calcium, strontium, aluminum or gallium and removing water as it is formed during the course of the reaction and recovering therefrom said dimer alcohol, wherein R is alkyl, the alkoxide has 1 to 20 carbon atoms, the primary alcohol and aldehyde having 6 to 17 carbon atoms, the aldehyde being incrementally added to the mixture of alkoxide and primary alcohol so that there is continuously maintained in the reaction mixture about 5–15 mole % of aldehyde based on the total moles of primary alcohol and aldehyde.

5,068,470

PERFLUOROALKENES AND FLUORINATION PRODUCTS THEREOF

Claudio Tonelli, and Vito Tortelli, both of Milan, Italy assignors to Ausimont, S.r.l, Milan, Italy

Division of Ser. No. 348,003, Apr. 14, 1989, Pat. No. 5,026,928. This application Oct. 31, 1990, Ser. No. 606,622

Claims priority, application Italy, Aug. 27, 1987, 21726 A/87

Int. Cl.[5] C07C *19/08, 21/18*

U.S. Cl. 570—134 **1 Claim**

1. A ramified perfluoroalkane of formula (VI):

$$(CF_3)_3C-\underset{\displaystyle CF_3}{\underset{|}{CF}}-CF-(CF_3)_2 \qquad \text{(VI)}$$

said perfluoroalkane being capable of generating perfluoroalkyl radicals at temperatures higher than 100° C.

5,068,471

CONTINUOUS TELOMERIZATION PROCESS

Norbert Paul, Altötting; Rudolf Huber, Garching, and Ingolf Mielke, Burgkirchen, both of Fed. Rep. of Germany, assignors to Hoechst Aktiengesellschaft, Frankfurt am Main, Fed. Rep. of Germany

Filed Dec. 19, 1990, Ser. No. 630,178

Claims priority, application Fed. Rep. of Germany, Dec. 21, 1989, 3942316

Int. Cl.[5] C07C *17/24, 17/26, 17/28, 19/07*

U.S. Cl. 570—139 **5 Claims**

1. A process for continuous telomerization of at least one telogenic compound, which is liquid under the reaction conditions, with at least one taxogenic compound having an ethylenic double bond and 2 to 4 carbon atoms, at a temperature of from 40° to 150° C. and under a pressure of from 0.1 to 3 MPa in the presence of at least one catalyst in an elongate cylindrical reaction space, separation of the reaction mixture after the telomerization reaction has ended and the mixture has left the reaction space, and discharge of the desired higher-molecular telomerization products as well as recycle of the undesired lower-molecular telomerization products and of the unconverted starting substances and reintroduction thereof to the telomerization reaction in a first circulation, the consumed starting substances being made up, which comprises discharging a part of the essentially liquid reaction mixture from that half of the reaction space which is the second in the direction of flow and reintroducing it, without separating off constituents, in a second circulation into that half of the reaction space which is the first in the direction of flow, 20 to 90% of the total length of the reaction space being located between the discharge and the introduction.

5,068,472

MULTISTEP SYNTHESIS OF HEXAFLUOROPROPYLENE

James L. Webster, Parkersburg, W. Va.; Swiatoslaw Trofimenko; Paul R. Resnick, both of Wilmington, Del.; Douglas W. Bruhnke, Landenberg; Jan J. Leron, Chadds Ford, both of Pa.; William H. Manogue, Newark; Leo E. Manzer, Wilmington, both of Del.; Elrey L. McCann, Mendenhall, Pa.; Steven H. Swearingen, Wilmington; James A. Trainham, Newark, both of Del., and Cristobal Bonifaz, Conway, Mass., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 19, 1989, Ser. No. 452,404

The portion of the term of this patent subsequent to Aug. 27, 2008, has been disclaimed.

Int. Cl.[5] C07C *17/00, 17/08*

U.S. Cl. 570—157 **6 Claims**

1. A process for the preparation of hexafluoropropylene comprising, under effective reaction conditions:

(a) fluorinating or chlorofluorinating $CCl_3CCl{=}CCl_2$, in the presence of a catalyst and by contacting the $CCl_3CCl{=}CCl_2$ with chlorine and hydrogen fluoride to produce perhalogenated C-3 chlorofluorocarbons;

(b) hydrofluorinating any unsaturated chlorofluorocarbons of step (a) by contacting with excess HF in the presence of metal-containing catalyst to saturated perhalogenated chlorofluorocarbons;

(c) fluorinating the saturated perhalogenated chlorofluorocarbons resulting from steps (a) and (b) by contacting with HF in the presence of metal-containing catalyst to produce $CF_3CFClCF_3$; and

(d) hydrodehalogenating said $CF_3CFClCF_3$ to hexafluoropropylene by contacting with hydrogen in the presence of a potassium-containing catalyst.

5,068,473

HYDROGENOLYSIS/DEHYDROHALOGENATION PROCESS

Carl S. Kellner; V. N. Mallikarjuna Rao, and Frank J. Weigert, all of Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del.

Continuation of Ser. No. 305,698, Feb. 3, 1989, abandoned. This application Oct. 17, 1990, Ser. No. 596,551

Int. Cl.[5] C07C *17/24, 17/34, 19/08, 21/13*

U.S. Cl. 570—176 **30 Claims**

1. In a process for the hydrogenolysis of fluorohalocarbons and/or fluorohalohydrocarbons which contain at least one halo group selected from chloro and bromo by reacting the fluoro-halocarbons and/or fluorohalohydrocarbons with a source of hydrogen in the presence of a catalyst, the improvement comprising utilizing a rhenium-containing catalyst selected from the group consisting of (i) catalysts consisting essentially of rhenium, (ii) unsupported catalysts containing at least about 50 percent by weight rhenium with the balance being one or more Group VIII metals, (iii) catalysts consisting essentially of rhenium supported on carbon, alumina, fluorided alumina, aluminum fluoride, or calcium fluoride, and (iv) supported catalysts consisting essentially of one or more Group VIII metals and from 0.1 to 20 percent by weight of rhenium supported on carbon, alumina, fluorided alumina, aluminum fluoride or calcium fluoride, wherein said one or more Group VIII metals total up to 10 percent by weight and rhenium is the major component on said support.

5,068,474

PROCESS FOR THE PURIFICATION OF VINYL CHLORIDE

Michel Strebelle, Brussels, Belgium, assignor to Solvay & Cie, Brussels, Belgium

Filed May 31, 1990, Ser. No. 531,458

Claims priority, application France, Jun. 2, 1989, 89 07503

Int. Cl.[5] C07L *17/38*

U.S. Cl. 570—238 **5 Claims**

1. A process for the removal of an unsaturated ester compound exhibiting an enol ester structure from vinyl chloride comprising treating impure vinyl chloride with an alkaline wash followed or accompanied by an aqueous treatment with sodium borohydride.

5,068,475

PROCESS FOR PURIFYING UNREACTED 1,2-DICHLOROETHANE FROM A 1,2-DICHLOROETHANE PYROLYSIS PROCESS

Ludwig Schmidhammer, Haiming; Klaus Haselwarter, Emmerting; Hermann Klaus, Markti, and Klaus-Peter Mohr, Burghausen, all of Fed. Rep. of Germany, assignors to Wacker-Chemie GmbH, Munich, Fed. Rep. of Germany

Filed Apr. 5, 1991, Ser. No. 681,186

Claims priority, application Fed. Rep. of Germany, Apr. 19, 1990, 4012538

Int. Cl.[5] C07C *17/38*

U.S. Cl. 570—262 **3 Claims**

1. A process for purifying unreacted 1,2-dichloroethane, containing impurities such as benzene produced at the bottom of the vinyl chloride column in the preparation of vinyl chloride due to incomplete pyrolysis of 1,2-dichloroethane, which comprises

a) bringing said unreacted 1,2-dichloroethane recovered from the pyrolysis of 1,2-dichloroethane into contact with liquid and/or gaseous chlorine in a chlorination reactor in the liquid phase at a residence time of 20 to 150 minutes, at temperatures of from 20 to 80° C., in the presence of an iron catalyst having a bulk density of from 0.1 to 0.5 g/cm^3 and filling the entire reaction space, in such amounts that the unreacted 1,2-dichloroethane leaving the reactor contains excess, free chlorine in dissolved form in concentrations of from 20 to 200 ppm by weight, based on unreacted 1,2-dichloroethane, and

b) purifying the 1,2-dichloroethane treated with chlorine in accordance with a) by acid and alkali washing and by distillative removal of the low- and high-boiling components, including chlorinated benzenes.

2. A process for purifying unreacted 1,2-dichloroethane, produced at the bottom of the vinyl chloride column in the preparation of vinyl chloride due to incomplete pyrolysis of 1,2-dichloroethane, which comprises first treating said unreacted 1,2-dichloroethane with from 0.0001 to 0.01% by weight, based on unreacted 1,2-dichloroethane, of hydroxyl-containing aromatic compounds and subjecting it to a chlorination step and subsequent dechlorination step at temperatures between 0 and 80° C. and pressures of from 0.5 to 6 bar, and then dividing the stream of 1,2-dichloroethane into two parts and only treating a first part of the stream with chlorine as claimed in claim 1*a* and then purifying this first part stream by acid and alkaline washing, then freeing this first part stream, from low-boiling components and passing it to the high-boiling component column, and passing the second part stream directly to the high-boiling component column, avoiding the chlorination step, the washer and the low-boiling component removal step.

5,068,476

LUBRICANT OLIGOMERS OF C_2–C_5 OLEFINS

Margaret M. Wu, Belle Mead, and Suzzy C. Ho, Plainsboro, both of N.J., assignors to Mobil Oil Corporation, Fairfax, Va.

Continuation-in-part of Ser. No. 345,061, Apr. 28, 1989, Pat. No. 4,990,709. This application Jan. 29, 1991, Ser. No. 647,102

The portion of the term of this patent subsequent to Feb. 5, 2008, has been disclaimed.

Int. Cl.[5] C10L *1/16*

U.S. Cl. 585—12 **20 Claims**

1. A liquid composition comprising the product of the oligomerization of a C_3 to C_5 alpha-olefin, mixtures of C_3 to C_5 1-olefins or mixtures of C_3 to C_5 1-olefins with ethylene, under oligomerization conditions in contact with an oligmerization catalyst comprising a reduced valence state Group VIB metal catalyst on a porous support, the product having a regio-irregularity of at least 20 percent.

5,068,477

PROCESS FOR REDUCING A REFINING CATALYST AND USE OF THE CATALYST IN HYDROGENATION

Georges Berrebi, Bourg Les Valence, France, assignor to Europeenne de Retraitement de Catalyseurs Eurecat, La Voulte Sur Rhone, France

Division of Ser. No. 479,680, Feb. 14, 1990, Pat. No. 5,032,565, which is a continuation-in-part of Ser. No. 356,723, May 25, 1989, abandoned, which is a continuation of Ser. No. 169,260, Mar. 17, 1988, abandoned. This application Apr. 29, 1991, Ser. No. 692,756

Claims priority, application France, Aug. 14, 1987, 87 11633

Int. Cl.[5] C07C *5/03, 5/08*

U.S. Cl. 585—274 **22 Claims**

1. A process for selective hydrogenation of a feed, comprising subjecting said feed to hydrogenation conditions in the presence of a catalyst, wherein said catalyst contains a support and an active phase based on at least one metal of group VIII of the periodic classification elements, and wherein before the catalyst is used, a treatment of said catalyst is carried out comprising in the absence of hydrogen and carbon monoxide:

(a) impregnating the catalyst at between 0° and 50° C. with an aqueous or organic solution of a compound that is a reducing agent selected from the group consisting of aldehydes having 2 to 14 carbon atoms, ketones having 3–18 carbon atoms, polyketones having 3 to 18 carbon atoms, ethers having 2 to 14 carbon atoms, alcohols having 1 to 14 carbon atoms, polyalcohols having 1 to 14 carbon atoms, organic acids having 1 to 14 carbon atoms,

VOL 1132 ISS 4 NO 26 1991 UMI

polyacids having 1 to 14 carbon atoms and mixtures thereof, in a manner so as to introduce from 10 ppm to 100% (by weight) of said compound onto the catalyst;

(b) raising the temperature of the thus impregnated catalyst to a temperature between 100° and 150° C. and under a pressure of 1 to 10 bars, thereby reducing the catalyst; and

(c) drying the catalyst to eliminate aqueous or organic solution.

5,068,478

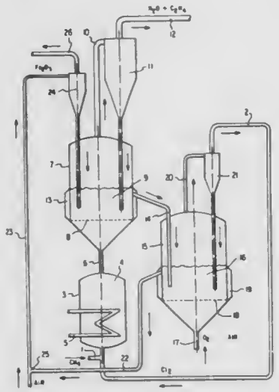
PRODUCING ALKENES AND ALKYNES FROM ALKANES AND ALKENES

Jorge Miller, and Miguel Kling, both of Bogota, Colombia, assignors to Energia Andina, Ltd., Bogota, Colombia

Filed May 25, 1990, Ser. No. 528,603

Int. Cl.[5] C07C *1/00*

U.S. Cl. 585—324 **20 Claims**



1. A process for converting an alkane to a higher molecular weight alkene, which comprises:

a) chlorinating the alkane to produce the corresponding alkane chloride and hydrochloric acid, and

b) reacting the obtained alkane chloride and hydrochloric acid with a metal oxide to form a metal chloride, water vapor and an alkene of higher molecular weight than said alkane.

5,068,479

PREPARATION OF 1,1,3,4,4,6-HEXAMETHYL-1,2,3,4-TETRA-HYDRONAPHTHALENE

Michael Huellmann, Heppenheim; Herbert Mayr, Gross Groenau, and Rainer Becker, Bad Duerkheim, all of Fed. Rep. of Germany, assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

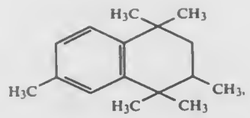
Filed Mar. 13, 1991, Ser. No. 668,484

Claims priority, application Fed. Rep. of Germany, Mar. 17, 1990, 4008694

Int. Cl.[5] C07C *5/00*

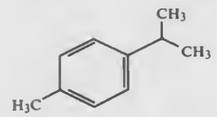
U.S. Cl. 585—411 **6 Claims**

1. A process for preparing 1,1,3,4,4,6-hexamethyl-1,2,3,4-tetrahydronaphthalene of the formula I



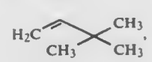
(I)

which comprises reacting p-cymene of the formula II

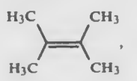


(II)

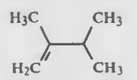
with a hexene of the formula IIIa, IIIb and/or IIIc



(IIIa)

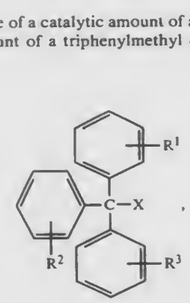


(IIIb)



(IIIc)

in the presence of a catalytic amount of aluminum halide and a catalytic amount of a triphenylmethyl compound of the formula IV



(IV)

where R^1, R^2 and R^3 are each, independently of one another, hydrogen, C_1–C_4-alkyl, nitro or halogen and X is hydrogen or halogen.

5,068,480

PROCESS FOR PRODUCING 2,6-DIMETHYLNAPHTHALENE

Makoto Takagawa; Ken Yamagishi; Jyun Yoshihara; Kenji Inamasa, and Kumiko Watabe, all of Niigata, Japan, assignors to Mitsubishi Gas Chemical Company, Inc., Tokyo, Japan

Filed Dec. 3, 1990, Ser. No. 621,260

Claims priority, application Japan, Dec. 2, 1989, 1-310571; Feb. 27, 1990, 2-46857

Int. Cl.[5] C07C *5/00*

U.S. Cl. 585—411 **9 Claims**

1. A process for producing 2,6-dimethylnaphthalene, which comprises subjecting 2-methyl-1-(p-tolyl)-butene, 2-methyl-1-(p-tolyl)-butane or a mixture of these to cyclization and dehydrogenation in the presence of a catalyst comprising lead oxide and/or indium oxide and aluminum oxide.

5,068,481

METHOD FOR PRODUCING DIARYLMETHANES

Masahiro Akatsu; Hajime Takayama, and Takeshi Matsuoka, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo K.K., Japan

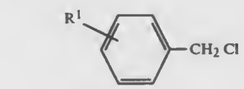
Filed Nov. 13, 1990, Ser. No. 611,589

Claims priority, application Japan, Nov. 16, 1989, 1-296142

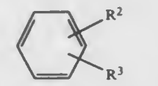
Int. Cl.[5] C07C *2/02*

U.S. Cl. 585—426 **5 Claims**

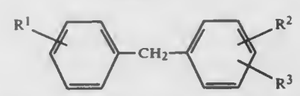
1. In a method for producing diarylmethanes represented by the following general formula (III) by the reaction of a benzyl chloride represented by the following general formula (I) with benzene or an alkylbenzene represented by the following general formula (II):



(I)



(II)



(III)

wherein R^1 to R^3 each stand for a hydrogen atom or an alkyl group having 1 to 3 carbon atoms, the improvement comprising that the catalyst used is an HY or HL type zeolite having a SiO_2/Al_2O_3 molar ratio of 4 to 10 and an alkali metal content of 5% by weight or less, calculated as an alkali metal oxide, or a zeolite obtained by exchanging said HY or HL type zeolite with cations of a di- or tri-valent metal.

5,068,482

METHOD FOR PRODUCING 1,1-DIARYLETHANES

Masahiro Akatsu; Hajime Takayama, and Takeshi Matsuoka, all of Iwaki, Japan, assignors to Kureha Kagaku Kogyo K.K., Japan

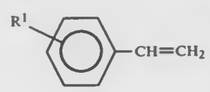
Filed Oct. 1, 1990, Ser. No. 591,172

Claims priority, application Japan, Oct. 2, 1989, 1-255202

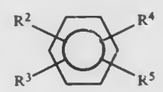
Int. Cl.[5] C07C *2/72, 2/02*

U.S. Cl. 585—429 **5 Claims**

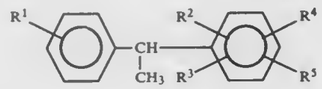
1. In a method for producing 1,1-diarylethanes expressed by the following general formula (III) by the reaction of styrenes expressed by the following general formula (I) with alkylbenzenes expressed by the following general formula (II):



(I)



(II)



(III)

wherein R^1–R^5 each stand for a hydrogen atom or an alkyl group having 1–3 carbon atoms, the improvement comprising using a catalyst which is zeolite L in H form with a SiO_2/Al_2O_3 molar ratio of at least 4, or a zeolite modified by exchanging said zeolite L in H form with a bi- or tri-valent metal ion.

5,068,483

CATALYSTS BASED ON ZEOLITES MODIFIED BY ALKALI METAL ELEMENTS IN THE METALLIC FORM, THEIR PREPARATION, AND THEIR APPLICATION TO ALKYLATION OF ALKYLAROMATIC DERIVATIVES

Denise Barthomeuf, and Viviane Q. de Quivillic, both of Paris, France, assignors to Centre National de la Recherche Scientifique and Societe Nationale Elf Aquitaine, both of Paris, France

PCT No. PCT/FR88/00572, § 371 Date Jul. 12, 1990, § 102(e) Date Jul. 12, 1990, PCT Pub. No. WO89/04716, PCT Pub. Date Jun. 1, 1989

PCT Filed Nov. 23, 1988, Ser. No. 460,124

Claims priority, application France, Nov. 23, 1987, 87 16191

Int. Cl.[5] C07C *2/68;* B01J *29/04*

U.S. Cl. 585—467 **14 Claims**

1. Catalysts comprising alkali metal cations and aluminosilicates or gallosilicates having a faujasite structure, which contains a Si/Al or Si/Ga molar ratio of less than 1.5 on an elemental basis, wherein at least 10% of the alkali metal cations are selected from at least one of potassium, rubidium, and cesium cations, further comprising inclusions of at least one alkali metal element in the metallic form.

5,068,484

PROCESS FOR THE HYDROCONVERSION OF A FEEDSTOCK COMPRISING ORGANIC COMPOUNDS HAVING A TENDENCY TO READILY FORM POLYMER COMPOUNDS

Robert B. James, Jr., Northbrook, and Tom N. Kalnes, La Grange, both of Ill., assignors to UOP, Des Plaines, Ill.

Filed Nov. 2, 1989, Ser. No. 430,394

Int. Cl.[5] C07C *1/20, 1/00*

U.S. Cl. 585—469 **33 Claims**

1. A process for the hydroconversion of a feedstock comprising organic compounds which are polymer precursors and which process comprises:

(a) contacting said feedstock with a hydrogenated recycle liquid containing dissolved hydrogen in a first hydrogenation reaction zone operated at hydrogenation conditions selected to minimize a hydrogen-rich gaseous phase and to selectively hydrogenate said feedstock comprising organic compounds and to produce a first hydrogenated stream comprising hydrocarbonaceous compounds and having a reduced tendency to produce polymers;

(b) contacting at least a portion of said first hydrogenated stream with a hydrogen-rich gaseous stream in a saturation zone to produce a second hydrogenated stream containing dissolved hydrogen;

(c) introducing at least a portion of said second hydrogenated stream containing dissolved hydrogen into said first hydrogenation reaction zone in step (a) as at least a portion of said hydrogenation recycle liquid;

(d) contacting at least another portion of said second hydrogenated stream containing dissolved hydrogen with added hydrogen in a second hydrogenation reaction zone operated at hydrogenation conditions selected to produce a third hydrogenated stream comprising hydrogenated hydrocarbonaceous compounds and hydrogen; and

(e) recovering said third hydrogenated stream.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,485

ACTIVATION OF METHANE BY TRANSITION METAL-SUBSTITUTED ALUMINOPHOSPHATE MOLECULAR SIEVES

Lennox E. Iton, Downers Grove, and Victor A. Maroni, Naperville, both of Ill., assignors to The United States of America as represented by the United States Department of Energy, Washington, D.C.

Filed Mar. 16, 1990, Ser. No. 494,380
Int. Cl.[5] C07C *2/00*; B01J *37/34*
U.S. Cl. 585—500 **14 Claims**

1. A process for converting methane (CH_4) to C_{2+} hydrocarbons using a molecular sieve having a template, said process comprising the steps of:

calcining a transition metal-substituted aluminophosphate molecular sieve at 500–550° C. in flowing air to remove the template or any coke that is present and to oxidize the transition metal to the trivalent state, wherein the transition metal is selected from the group consisting of cobalt, manganese or iron and the aluminophosphate molecular sieve is either $AlPO_4$-34 or $AlPO_4$-5 or equivalent $AlPO_4$ structure;

passing CH_4 over the aluminophosphate molecular sieve at 400 to 500° C., whereby the transition metal is reduced to a divalent state and the CH_4 is converted to C_{2+} hydrocarbons.

5,068,486

PROCESS FOR DIRECT OXIDATIVE CONVERSION OF METHANE TO HIGHER HYDROCARBONS AT HIGH PRESSURE AND MODERATE TEMPERATURE

Scott Han, Lawrenceville; Daniel J. Martenak, Trenton; Robert E. Palermo, Bloomfield, all of N.J., and Dennis E. Walsh, Richboro, Pa., assignors to Mobil Oil Corp., Fairfax, Va.

Filed Oct. 15, 1990, Ser. No. 597,221
Int. Cl.[5] C07C *2/00*
U.S. Cl. 585—500 **8 Claims**

1. A process which takes place in the absence of a catalyst for converting methane to hydrocarbons having at least two carbon atoms, said process comprising contacting said methane with an oxidizing agent in the absence of a catalyst under conditions sufficient to produce said hydrocarbons, said conditions including a temperature of from about 500° to about 700° C. and a pressure of from about 20 to about 150 atmospheres.

5,068,487

OLEFIN OLIGOMERIZATION WITH BF_3 ALCOHOL ALKOXYLATE CO-CATALYSTS

Kevin J. Theriot, Baton Rouge, La., assignor to Ethyl Corporation, Richmond, Va.

Filed Jul. 19, 1990, Ser. No. 554,727
Int. Cl.[5] C07C *2/04*
U.S. Cl. 585—510 **21 Claims**

1. A process for making an α-oligomer comprising contacting a straight-chain α-olefin monomer containing from about 6 to 20 carbon atoms with a catalyst comprising boron trifluoride and alcohol alkoxylate so as to form an oligomer product which is predominantly dimer and trimer of said α-olefin monomer wherein the dimer to trimer ratio is greater than about 1.

5,068,488

OLEFIN ETHYLATION PROCESS

Lynn H. Slaugh, Cypress, Tex., assignor to Shell Oil Company, Houston, Tex.

Filed May 2, 1990, Ser. No. 517,772
Int. Cl.[5] C07C *2/24*
U.S. Cl. 585—516 **13 Claims**

1. A process for ethylating detergent range olefins which comprises contacting a detergent-range olefin with ethylene in the presence of a catalyst prepared by impregnating a porous alumina support with a metal compound decomposable to an oxide upon calcination wherein said metal is selected from the group consisting of potassium, rubidium, cesium and mixtures thereof, and subsequently calcining the resulting material at a temperature of from about 450° C to about 750° C.

5,068,489

PREPARATION OF VERY LOW MOLECULAR WEIGHT POLYETHYLENE IN A FLUIDIZED BED

David N. Edwards, Charleston, W. Va.; Robert J. Jorgensen, Belle Mead, N.J.; Kiu H. Lee, South Charleston, and Arthur E. Marcinkowsky, Charleston, both of W. Va., assignors to Union Carbide Chemicals and Plastics Technology Corporation, Danbury, Conn.

Filed Dec. 28, 1989, Ser. No. 458,390
Int. Cl.[5] C07C *2/02*
U.S. Cl. 585—524 **61 Claims**

1. A continuous process for producing ethylene copolymers having a melt index of from g/10 minutes to 2500 g/10 minutes which comprises copolymerizing ethylene and at least one higher alpha-olefin, by continuously contacting, in a fluidized bed, at a temperature of from 10° C. up to 110° C. and a pressure no greater than 7,000 kPa, a gaseous mixture containing

(a) ethylene and at least one higher alpha-olefin containing from 3 to 8 carbon atoms in a molar ratio of such higher alpha-olefin to ethylene of from 0.01:1 to 2 1, and

(b) from 30 mol percent to 90 mol percent hydrogen,

with

(I) particles of a catalyst system comprising a precursor composition having the formula

$$Mg_mTi(OR'')_nX_p[ED]_q$$

wherein R'' is an aliphatic or aromatic hydrocarbon radical containing from 1 to 14 carbon atoms, or COR''' wherein R''' is an aliphatic or aromatic hydrocarbon radical containing from 1 to 14 carbon atoms,

X is selected from the group consisting of Cl, Br, I, and mixtures thereof,

ED is an organic electron donor compound selected from the group consisting of alkyl esters of aliphatic and aromatic carboxylic acids, aliphatic ethers, cycloaliphatic ethers and aliphatic ketones,

m is 0.5 to 56,

n is 0, 1 or 2,

p is 2 to 116, and

q is 2 to 85,

said precursor composition being diluted with an inert carrier material and completely activated with an organoaluminum compound having the formula

$$Al(R'''')_dX'_eH_f$$

wherein X' is Cl or OR'''',

R'''' and R'''' are saturated hydrocarbon radicals containing from 1 to 14 carbon atoms,

e is 0 to 1.5,

f is 0 or 1, and

d+e+f=3,

said activator compound being employed in an amount such as to provide a total aluminum:titanium atomic ratio in the fluidized bed of from 10:1 to 400:1; and

(II) a dialkylzinc compound having the formula

$$ZnRR'$$

wherein R and R' are alkyl radicals containing from 1 to 12 carbon atoms, said dialkylzinc compound being employed in an amount such as to provide an atomic ratio of zinc:titanium of from 3:1 to 40:1.

5,068,490

BF3-TERTIARY ETHERATE COMPLEXES FOR ISOBUTYLENE POLYMERIZATION

Bruce E. Eaton, Naperville, Ill., assignor to Amoco Corporation, Chicago, Ill.

Continuation of Ser. No. 396,380, Aug. 18, 1989, abandoned, which is a continuation of Ser. No. 162,046, Feb. 29, 1988, abandoned. This application Jun. 6, 1990, Ser. No. 534,696
Int. Cl.[5] C07C *2/08*
U.S. Cl. 585—525 **10 Claims**

1. A process to form a product which is essentially polyisobutylene containing at least about 80 percent vinylidine, which process comprises polymerizing isobutylene or a mixed C_4 hydrocarbon feedstock containing at least about 5 weight % isobutylene and up to 20 parts per million water with a boron trifluoride etherate complex wherein the ether of said complex has at least one tertiary carbon bonded to the ether oxygen.

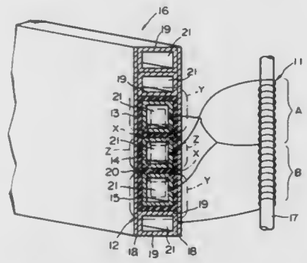
VOL
1132
ISS
4
NO
26
1991
UMI

5,068,491

BUS BAR FOR POWER SUPPLY WITH COOLANT FLOW PASSAGES

Yoshinori Ogata, Matsudo; Yutaka Kikuchi, Mito; Tsutomu Makino, Katsuta; Teruo Kobayashi, and Hirotaka Yoshida, both of Yokohama, all of Japan, assignors to Doryokuro Kakuneryo Kaihatsu Jigyodan; Ishikawajima-Harima Heavy Industries Co., Ltd. and Dai-Ichi High Frequency Co., Ltd., all of Tokyo, Japan

Filed Jul. 5, 1990, Ser. No. 548,550
Claims priority, application Japan, Jul. 5, 1989, 1-79283[U]
Int. Cl.[5] H02G *5/10*
U.S. Cl. 174—16.2 13 Claims



6. A bus bar for power supply comprising an outer conductor, a plurality of inner conductors inserted in said outer conductor, and an insulation layer filling every space between opposite surfaces of adjacent conductors for electrically isolating said conductors from each other;

said inner conductor and outer conductor being formed in a rectangular cross-sectional pipe shape, and conductor surfaces being arranged parallel to each other;

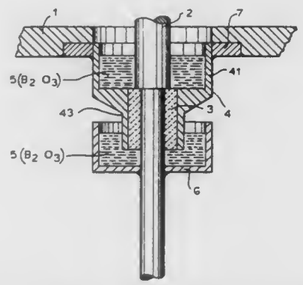
said inner conductor serving as a coolant flow passage.

5,068,492

CONTAINER HAVING A HOT WALL WITH A HIGH-TEMPERATURE-TOLERANT CURRENT PASS-THROUGH

Lothar Britz, Hauset, Belgium; Wolfgang Krug, and Johann Seferiadis, both of Jülich, Fed. Rep. of Germany, assignors to Forschungzentrum Jülich GmbH, Jülich, Fed. Rep. of Germany

Filed Feb. 12, 1990, Ser. No. 479,085
Claims priority, application Fed. Rep. of Germany, Feb. 13, 1989, 3904195
Int. Cl.[5] H01B *17/30*
U.S. Cl. 174—31.5 6 Claims



1. High-temperature-tolerant current pass-through in combination with a container with a hot wall (1) through which a rodlike electrode (2) passes substantially perpendicularly to said wall, wherein

a generally cylindrical bushing (3) of electrically insulating material is tightly fitted around said electrode (2);

said electrode (2) projects out of said bushing (3) at least at a container-adjacent end of said bushing;

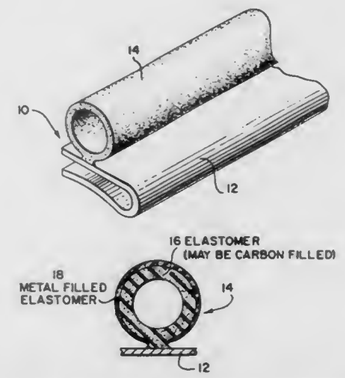
said bushing (3) is tightly fitted into a concentrically surrounding wall element (4) having a pair of ends of differing diameters, a larger-diameter end of said element being sealed to said hot wall (1), said larger-diameter end defining between itself and said electrode a generally annular cavity which is at least partly filled with sealing material (5) which will tolerate a temperature of at least 500° C.

5,068,493

DUAL ELASTOMER GASKET SHIELD FOR ELECTRONIC EQUIPMENT

Robert C. Benn, Sr., and Robert C. Benn, Jr., both of Danbury, Conn., assignors to Vanguard Products Corporation, Danbury, Conn.

Continuation-in-part of Ser. No. 269,350, Nov. 10, 1988, Pat. No. 4,968,854. This application Oct. 17, 1990, Ser. No. 599,195
Int. Cl.[5] H05K *9/00*
U.S. Cl. 174—35 GC 19 Claims



1. In a gasket shield for counteracting electromagnetic interference comprising a flexible gasket element, the improvement wherein said gasket element comprises a relatively thick elastomeric inner layer of good elasticity and strength, and a very thin outer layer integral therewith, said outer layer comprising a synthetic polymeric material filled with metallic flakes oriented parallel to said outer layer and providing a high degree of attenuation of electrical energy.

5,068,494

CONDUIT CONNECTOR FOR ECCENTRICALLY DIMENSIONED CONDUIT

Jay J. Bolante, Chicago, Ill., assignor to Appleton Electric Company, Chicago, Ill.

Filed Jun. 27, 1990, Ser. No. 545,358
Int. Cl.[5] H02G *15/13*
U.S. Cl. 174—65 SS 12 Claims

1. A connector assembly for connecting eccentrically dimensioned, liquid-tight flexible electrical conduit to an electrical fixture, comprising:

(a) a metal connector body including: a first portion formed with a means for connecting said connector body to the electrical fixture; a central portion, the first and central portions having a centrally located, axially extending bore; and a second portion having a ring member formed with a first set of screw threads, the ring member having a deflection ramp formed thereon, and defining a recess inside the second portion of said connector body;

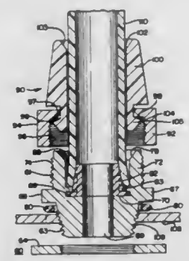
VOL 1132 ISS 4 NO 26 1991 UMI

(b) a plastic sleeve support, having a corner edge on the top outer end thereof and inserted inside the recess of said connector body, and forming an extension of the axially extending bore such that a first annular cavity is formed between the ring member and the sleeve support;

(c) a connector cap comprising:

(i) a metal collar formed with a second set of screw threads engagable with the first set of screw threads on the connector body second portion, and a flanged lip extending inwardly along the top surface of said metal collar;

(ii) a plastic floating sleeve including: an upper tapered portion; a lower portion having a wedging ring having a leading edge at substantially the distal end thereof; and a recess defined along the exterior surface of said floating sleeve between the upper and lower portions, the upper and lower portions having an axially extending, centrally located bore, the wedging ring being coextensive with the bore;



(iii) the recess of said floating sleeve engaging the flanged lip of the collar to form said connector cap, wherein said floating sleeve can move laterally and pivotably with respect to said collar, and the wedging ring and said collar form a second annular cavity therebetween;

(d) the bore of said connector cap and the recess of said connector body being adapted to receive a conduit; the second set of screw threads being engagable with the first set of screw threads to join said connector cap to said connector body; the wedging ring being deformed inwardly by the deflection ramp as said connector cap is screwed into engagement with said connector body such that the leading edge of the wedging ring deflects the conduit wall, forming a locking engagement and liquid-tight seal with the exterior surface of the conduit thereat, forcing the conduit into the first annular cavity to form a liquid-tight seal therein, and forming a locking engagement and liquid-tight seal between the corner edge of said sleeve support and the interior surface of the deflected conduit.

5,068,495

JUNCTION BUS FOR CABLE CONNECTIONS, IN PARTICULAR FOR CABLE CONDUITS

Ursula Dahl-Bettermann-Winand, Wiesenweg 39, D-5064 Rösrath, Fed. Rep. of Germany

PCT No. PCT/DE87/00590, § 371 Date Jun. 16, 1989, § 102(e) Date Jun. 16, 1989, PCT Pub. No. WO88/04853, PCT Pub. Date Jun. 30, 1988

PCT Filed Dec. 12, 1987, Ser. No. 372,356

Claims priority, application Fed. Rep. of Germany, Dec. 16, 1986, 3642895

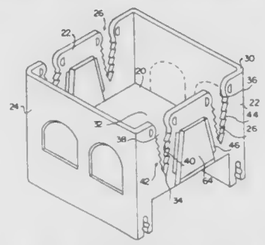
Int. Cl.[5] H02G *3/08*

U.S. Cl. 174—65 R **9 Claims**

1. A junction box for cable connections, comprising;

a base; and

at least one side wall attached to the base, said at least one side wall defining a V-shaped recess for receiving a cable, said recess being open to an upper edge of the at least one side wall and becoming narrower toward the base, said recess having an entry region at the upper edge and a retention region toward the base, sides of the recess at the retention region defining retention projections for resisting movement of the cable toward the entry region, said at



least one side wall further defining at least one slit adjacent one of the sides of the recess, whereby insertion of the cable into the recess causes deformation of the at least one slit and thereby imparts elasticity to said one of the sides of the recess.

5,068,496

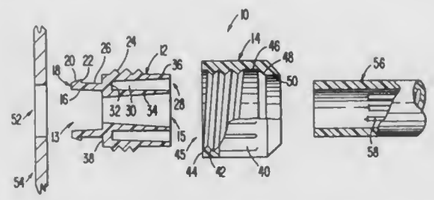
SNAP-IN CONNECTOR

Mark L. Favalora, Niantic, Conn., assignor to Hubbell Incorporated, Orange, Conn.

Filed Oct. 31, 1990, Ser. No. 607,280

Int. Cl.[5] H02G *3/22*

U.S. Cl. 174—65 R **31 Claims**



1. A connector for coupling an electrical conduit to a support having an aperture, the combination comprising:

a one-piece, tubular body member with a longitudinal axis and first and second ends having

a plurality of resilient legs with radially extending locking tongues thereon, said legs being located at said first end and being adapted to extend through the aperture,

external threads disposed between said first and second ends, and

receiving means, disposed on said second end, for receiving the conduit therein; and

a one-piece, tubular take-up nut with first and second ends having

an abutment surface disposed on said first end of said nut, and

internal threads disposed between said first and second ends of said nut and threadedly engaging said external threads on said body member,

whereby said locking tongues and said abutment surface can clamp opposing sides of the support adjacent the aperture.

5,068,497

ELECTROSTATIC FILTER CABLE

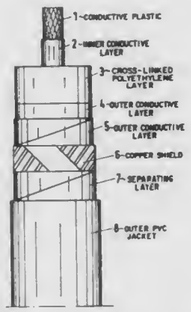
Wolfgang Krieger, Obrigheim, Fed. Rep. of Germany, assignor to Abb Kabel und Draht GmbH, Mannheim, Fed. Rep. of Germany

Filed Sep. 5, 1990, Ser. No. 577,940

Claims priority, application Fed. Rep. of Germany, Sep. 5, 1989, 3929450

Int. Cl.[5] H01B *1/06, 7/18*

U.S. Cl. 174—106 R **11 Claims**



1. Electrostatic filter cable for an electrostatic filter system, comprising an internal electrical conductor formed of an electrically conductive plastic with a specific resistance in a range of substantially from 2 to 200 Ω mm^2/m, an insulation of cross-linked polyethylene disposed on said internal electrical conductor, an outer conductive layer disposed on said insulation, a copper shield disposed on said outer conductive layer, and an outer PVC jacket disposed on said copper shield.

11. Electrostatic filter cable for an electrostatic filter system, comprising an internal electrical resistor formed of an electrically conductive plastic with a specific resistivity in a range of substantially from 2 to 200 Ω mm^2/m, an insulation of cross-linked polyethylene disposed on said internal electrical resistor, an outer conductive layer disposed on said insulation, a copper shield disposed on said outer conductive layer, and an outer PVC jacket disposed on said copper shield.

5,068,498

JOYSTICK FOR MOUNTING ON DUAL-WIDTH PANELS

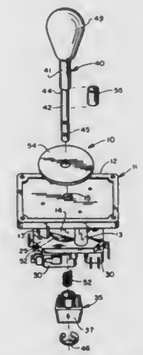
Raul R. Engel, Skokie, Ill., assignor to Wico Distribution Corp., Niles, Ill.

Filed Aug. 14, 1990, Ser. No. 566,774

Int. Cl.[5] H01H *25/04*

U.S. Cl. 200—6 A **14 Claims**

1. A joystick adapted to be mounted on a first panel of a given thickness or a second panel of greater thickness, said joystick comprising a frame for mounting beneath and to a selected panel, a shaft extending through said frame and having a larger-diameter first shaft portion and a smaller-diameter second shaft portion, each of said shaft portions having a free end, means pivotally mounting said second shaft portion to said frame, a handle on the free end of said first shaft portion, actuating means on said second shaft portion, switch means mounted on said frame and being positioned and arranged to be selectively engaged by said actuating means as said shaft is pivoted, a bushing having an inside diameter slightly greater than the diameter of said second shaft portion, said bushing being located on said second shaft portion adjacent to the free end thereof when said joystick is mounted on a first panel, said



bushing being located on said second shaft portion at the other end thereof when said joystick is mounted on a second panel.

5,068,499

CONTROL LEVER TYPE INPUT DEVICE

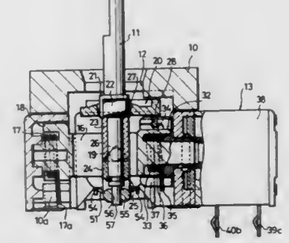
Junichi Kuratani, Miyagi, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Mar. 21, 1990, Ser. No. 497,058

Claims priority, application Japan, Apr. 14, 1989, 1-43100[U]; Apr. 14, 1989, 1-43101[U]

Int. Cl.[5] H01C *10/00;* **H01H** *25/00*

U.S. Cl. 200—6 A **7 Claims**



1. A control lever type input device comprising:

a case;

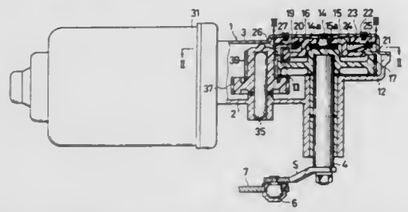
a driving shaft rotatably mounted in said case, said driving shaft operably coupled to a first output means for producing a first output related to the rotation of said driving shaft;

an outer shaft rotatably mounted over said driving shaft, said outer shaft operably coupled to a second output means for producing a second output related to the rotation of said outer shaft; and

a control lever pivotably and rotatably mounted in said case, said control lever having a portion extending outside of said case, said control lever being operably coupled to said driving shaft such that when said control lever is pivoted in a predetermined direction, said driving shaft is rotated, thereby producing said first output, said control lever also being operably coupled to said outer shaft such that when said control lever is rotated, said outer shaft is rotated about said driving shaft, thereby producing said second output.

VOL
1132
ISS
4
NO
26
1991
UMI

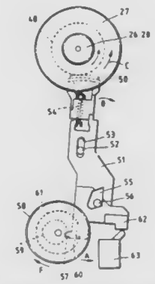
5,068,500
WIPER DRIVING APPARATUS
Katsuyoshi Kitada, Kiryu, Japan, assignor to Mitsuba Electric Manufacturing Co., Ltd., Gunma, Japan
Filed Sep. 12, 1989, Ser. No. 405,962
Claims priority, application Japan, Sep. 16, 1988, 63-121492[U]
Int. Cl.[5] H01H *19/00*; B60S *1/00*
U.S. Cl. 200—19 R **8 Claims**



1. A wiper driving apparatus driven by an electric motor comprising,
a driving gear driven by said electric motor, said driving gear providing a driving force and being fixed to a rotatable shaft, said shaft having a rotational axis and being drivingly connected to a wiper,
a clutch member rotatably supported on an axle, said axle being in axial alignment with said shaft,
means for engaging said driving gear with said clutch member such that the driving force of said driving gear is transmitted to said clutch member to rotate said clutch member together with said driving gear in only one predetermined direction of rotation of said driving gear,
an insulation substrate spaced from said clutch member, electrically conductive plates supported on said substrate and being of a form that is coaxial with respect to said support axle,
a moving-contact segment joined to said clutch member for rotation with said clutch member relative to said conductive plates, said moving-contact segment having a contact portion in electrically conductive slidable contact with said conductive plates at a contact position such that said moving-contact segment and said conductive plates constitute part of a switch for opening and closing an electric circuit for operating said motor,
said means for engaging said driving gear with said clutch member including a driver engaging projection provided on said driving gear and a driven engaging projection provided on the clutch for engagement with said driver engaging projection at an engagement position differing in phase from the contact position between said moving-contact segment and said conductive plates by an angle of at least 90°.

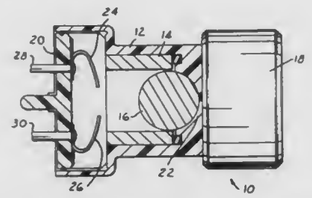
5,068,501
TAPE END SWITCH DETECTING DEVICE FOR TAPE PLAYER
Susumu Yoshida; Sei Onishi, and Kenji Uchiyama, all of Saitama, Japan, assignors to Pioneer Electronic Corporation, Tokyo, Japan
Filed Jul. 10, 1989, Ser. No. 377,872
Claims priority, application Japan, Jul. 28, 1988, 63-99078[U]
Int. Cl.[5] H01H *3/16*
U.S. Cl. 200—61.58 R **2 Claims**

1. A tape end detecting device for operating a switch when a tape in a tape player reaches the end of its travel, said tape end detecting device comprising:
a wheel rotating in one direction irrespective of the direction of travel of the tape;
a pivotable arm pivotable about a pivot point thereof and having a first surface engageable with said wheel, whereby said wheel provides a biasing force to pivot said pivotable arm in a first angular direction about said pivot point when said wheel is rotating and in engagement with said first surface;
means biasing said pivotable arm to urge said first surface to engage said wheel;



cam follower means attached to said pivotable arm at a point thereon on the opposite end of said pivot point from said surface;
cam means engageable with said cam follower for causing said pivotable arm to actuate said switch when said wheel stops rotating.

5,068,502
MAGNETICALLY BIASED VELOCITY CHANGE SENSOR
Thomas A. Davenport, Chatham, Canada, assignor to Siemens-Bendix Automotive Electronics Limited, Ontario, Canada
Filed Nov. 13, 1989, Ser. No. 435,102
Int. Cl.[5] H01H *35/14*
U.S. Cl. 200—61.45 M **4 Claims**

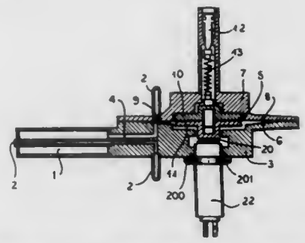


1. In a velocity change sensor of the type comprising a tube having a circular cylindrical inside diameter containing a magnetically permeable sphere whose diameter is just slightly less than the tube's inside diameter so that travel of said sphere within said tube is damped by gaseous fluid present within said tube, a magnet for biasing said sphere axially within said tube against a stop proximate one axial end of said tube, a switch disposed proximate the opposite axial end of said tube for actuation by said sphere in response to said sensor experiencing a velocity change of sufficient magnitude and duration to cause said sphere to overcome the bias of said magnet and travel within said tube from the position against said stop to a position causing said switch to give a signal indicative of the occurrence of such velocity change, the improvement comprising said sphere consisting of iron having a density of essentially 5.7 grams per cubic centimeter.

3. In a velocity change sensor of the type comprising a tube having a circular cylindrical inside diameter containing a magnetically permeable sphere whose diameter is just slightly less than the tube's inside diameter so that travel of said sphere within said tube is damped by gaseous fluid present within said tube, a magnet for biasing said sphere axially within said tube against a stop proximate one axial end of said tube, a switch disposed proximate the opposite axial end of said tube for actuation by said sphere in response to said sensor experiencing a velocity change of sufficient magnitude and duration to cause said sphere to overcome the bias of said magnet and travel within said tube from the position against said stop to a position causing said switch to give a signal indicative of the occurrence of such velocity change, the improvement comprising said gaseous fluid consisting of a carbon dioxide-neon mixture that is essentially free of other gases and can range from essentially all carbon dioxide to essentially all neon.

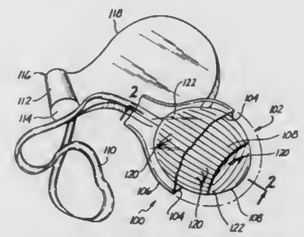
4. In the method of making different models of velocity change sensors of the type comprising a tube having a circular cylindrical inside diameter containing a magnetically permeable sphere whose diameter is just slightly less than the tube's inside diameter so that travel of said sphere within said tube is damped by gaseous fluid present within said tube, a magnet for biasing said sphere axially within said tube against a stop proximate one axial end of said tube, a switch disposed proximate the opposite axial end of said tube for actuation by said sphere in response to said sensor experiencing a velocity change of sufficient magnitude and duration to cause said sphere to overcome the bias of said magnet and travel within said tube from the position against said stop to a position causing said switch to give a signal indicative of the occurrence of such velocity change, wherein the different models are characterized by different velocity response characteristics, the improvement which comprises making all such models from spheres of identical mass and diameter and from tubes of identical inside diameter and length, and filling each model with a gaseous fluid of a viscosity that is unique to the particular model, wherein the gaseous fluid filling each model comprises a mixture consisting essentially of two gases of different viscosity whose relative proportions are varied for different models, said mixture is a carbon dioxide-neon mixture that is essentially free of other gases and can range from essentially all carbon dioxide to essentially all neon.

5,068,503
HIGH-PRESSURE SENSOR FOR FLUID CONDITIONS AND METHOD AND APPARATUS USING SAME
Hans Sladky, Wischhofstieg 7, 2000-Hamburg 65, Fed. Rep. of Germany
Filed Jul. 17, 1989, Ser. No. 381,113
Claims priority, application Fed. Rep. of Germany, Apr. 11, 1989, 3911795
Int. Cl.[5] G01L *9/10*; H01H *35/40*
U.S. Cl. 200—83 L **18 Claims**



1. A pressure sensor comprising an upper housing having an upper membrane contact surface, a lower housing having a lower membrane contact surface, said upper and lower housings joined to provide a chamber therebetween, a flexible membrane within said chamber having a circumferential portion clamped between the joined upper and lower housings, an upper membrane holding plate and a lower membrane holding plate centrally attached to opposite sides of said membrane, said upper housing including a recess for receiving said upper membrane holding plates upon upward deflection of said membrane, said upper membrane contact surface limiting the maximum upward movement of said membrane by contact therewith and said lower membrane contact surface limiting the maximum downward movement of said membrane by contact therewith, means for applying respective pressures to opposite sides of said membrane whereby said membrane is displaced between said upper and lower membrane contact surfaces by a pressure differential thereacross, a member connected to said membrane for movement thereby in response to the pressure differential across said membrane, and a proximity switch mounted on one of said housings spaced juxtaposed said member, said switch responsive to the movement of said member by said membrane to provide an output indicative of the pressure differential across said membrane.

5,068,504
SEAT CUSHIONS AND BODY SUPPORTS, AND FITTING INSTRUMENTS FOR THE SAME
John E. Rogers, P.O. Box 1437, Blue Jay, Calif. 92317
Continuation of Ser. No. 323,672, Mar. 15, 1989, abandoned. This application Mar. 1, 1990, Ser. No. 486,690
Int. Cl.[5] H01H *3/02*
U.S. Cl. 200—85 R **4 Claims**



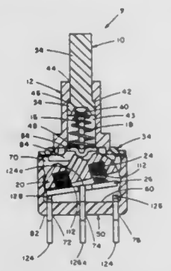
1. An improved peak pressure sensor for use with body support devices, comprising:
an inflatable envelope comprised of two pliant impermeable sheets sealed along common edges;
substantially pliable electrically conductive sheets affixed to opposing inner surfaces of said envelope in mutually facing relationship;
conductor means for electrically connecting said conductive sheets to an alarm circuit;
a fluid permanently sealed in said envelope and pressurizing said envelope to a predetermined internal pressure so as to normally hold apart said conductive sheets;
wherein said conductive sheets are thin metallic sheets slit within a central area thereof into thin strips held together by a common continuous periphery of the sheet;
whereby said metallic sheet provides a relatively large and substantially continuous contact area compliant to three dimensional cupping and responsive to peak pressure levels acting on any arbitrarily small portion of said central area by actuating an electrical alarm circuit connected between said sheets;
characterized in that said metallic sheets are slit in mutually transverse directions so that electrical contact can be achieved at a intersection between any two strips on the opposite sheets when said impermeable sheets are pressed together to thereby respond to localized peak pressures on said central area rather than average pressure distributed over said central area.

5,068,505
ALTERNATE ACTION PUSHBUTTON SWITCH
Ralph Ipcinski, Hollis, N.H., assignor to C & K Components Inc., Newton, Mass.
Filed Nov. 16, 1990, Ser. No. 614,241
Int. Cl.[5] H01H *13/56*
U.S. Cl. 200—525 **3 Claims**

1. An alternate action push-button switch comprising a

VOL
1132
ISS
4
NO
26
1991
UMI

plunger, a bushing, a housing, a pawl pin, a return spring, a cam, first and second contact springs, a movable contact, first and second contact terminals, a center contact terminal and a bracket, the bushing includes a passage and an open, second terminal end, a portion of the plunger is positioned within the passage, the pawl pin being positioned within the passage, having a terminal end, bearing against the plunger and being circumscribed by the return spring, the bracket has an aperture formed therethrough, the terminal end of the pawl pin coaxially aligned with the aperture, the bracket being engaged to the bushing and covering its second terminal end, the return spring abutting the bracket, the housing including a base which is engaged to the first, second and center contact terminals, the center contact terminal having a prime free terminal and, the



first contact terminal having a first terminal end and the second contact terminal having a second terminal end, the first and second terminal ends being positioned on the same horizontal plane and the prime free terminal end positioned on a horizontal plane above the first and second terminal ends, the movable contact being positioned on the prime free terminal end, the cam having an upper face and a lower surface, the lower surface having a pair of spaced blind apertures formed therein, a contact spring being mounted in each blind aperture and being against the movable contact, the upper face provides cam surfaces whereby activation of the plunger will cause the pawl pin to engage the cam surfaces shifting the movable contact from its engagement with one contact terminal end to the other contact terminal.

5,068,506

SWITCH HAVING A LOCKING MECHANISM

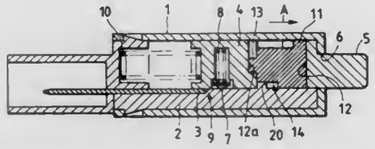
Akira Suzuki, Aichi, Japan, assignor to Kabushiki Kaisha Tokai Rika Denki Seisakusho, Aichi, Japan

Continuation of Ser. No. 381,250, Jul. 18, 1989, abandoned. This application Jan. 18, 1991, Ser. No. 642,549

Claims priority, application Japan, Jul. 28, 1988, 63-100804

Int. Cl.[5] H01H *13/58, 19/62*

U.S. Cl. 200—526 **16 Claims**



1. A locking assembly suitable for use in a switch mechanism having a first contact and a second contact, comprising:

a casing including means for coupling to the second contact;

means for holding the first contact, the holding means and the casing together defining a chamber in the casing, and being unrotatably disposed in the casing to be slidable in a longitudinal axis of the casing allowing selective contact between the first and second contacts;

means for biasing the holding means toward a first position;

a rotor, rotatably provided in the chamber in the casing on an axis parallel with the longitudinal axis of the casing, and having a groove on an outer periphery, the groove having a plurality of oblique portions and a locking part; and

a locking means extending into the groove of the rotor in a direction orthogonal to the axis of the rotor, the locking means being disposed to slide relative to the rotor along the oblique portions in accordance with movement of the holding means, thereby rotating the rotor, wherein when the holding means is pressed from a first position, the rotor rotates such that upon release from pressing the holding means is moved by the biasing means and the locking means engages with the locking part of the rotor to maintain the holding means in a second position, and when the holding means is pressed from the second position, the locking means disengages from the locking part of the rotor while rotating the rotor such that upon release from pressing the holding means is moved to the first position by the biasing means.

5,068,507

ELECTROSLAG SURFACING

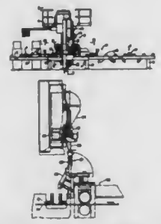
Ian R. Dick, Linden Park; Ian D. Henderson, Glen Osmond; Gordon L. Kimpton, Glenalta, and David S. Wyatt, Woronora, all of Australia, assignors to Commonwealth Sceentific and Industrial Research Organisation, Campbell and Vida-Weld Pty. Limited, Caringbah, both of, Australia

Continuation of Ser. No. 478,008, filed as PCT/AU88/00465 Dec. 3, 1987, abandoned. This application Jan. 31, 1991, Ser. No. 649,371

Claims priority, application Australia, Dec. 3, 1987, PI5724

Int. Cl.[5] B23K *25/00*

U.S. Cl. 219—73.11 **60 Claims**



1. Apparatus for electroslag surfacing of metal plate, the apparatus comprising a plate feeder assembly along which metal plate to be surfaced is conveyed during an electroslag cladding operation, the plate feeder assembly including an elongate, horizontally disposed feeder table having an approach-end section and a runout-end section; and an electroslag surfacing installation operable to clad an upper surface of the metal plate as it is conveyed along the plate feeder table, the surfacing installation being located intermediate said sections; the plate feeder assembly having conveying means, spaced along the feeder table, on which the metal plate is conveyed in a feeding direction from the approach-end section to, and beyond, the surfacing installation so as to discharge from the surfacing installation along the run-out section; the surfacing installation including a flux mould arrangement positioned to contain molten flux during a cladding operation so that a sufficient depth of flux is maintained on said upper surface for efficient electroslag cladding; the surfacing installation further including an electrode holder and feeder assembly which is spaced over the plate feeder assembly, above the mould arrangement, and which extends laterally of the plate feeder assembly relative to said feeding direction; the electrode holder and feeder assembly being adapted to hold electrode means and being connectable to a power source for the supply of electric power to said electrode means for an electroslag operation, the electrode holder and feeder assembly being operable to adjust said electrode means vertically; the apparatus being such that, as metal plate to be surfaced by a cladding operation is conveyed along the plate feeder assembly in said feeding direction, the electrode holder and feeder assembly is operable:

to lower the electrode means into the mold arrangement to bring a lower end of the electrode means into contact with said upper surface of the metal plate and establish current flow therebetween,

then to raise the electrode means to an operating height to initiate conditions providing an arc between said lower end and upper surface, and

with establishment of a molten slag pool in said mould arrangement which submerges said arc, to retain said lower end of the electrode means at a spacing from the upper surface sufficient to maintain said arc and efficient electroslag operation.

5,068,508

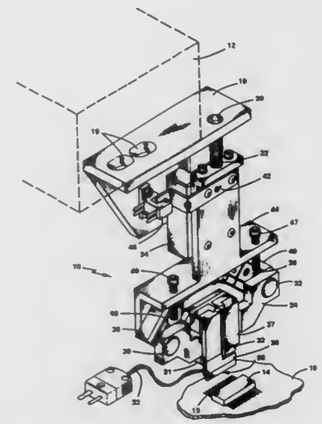
COMPLAINT HOT BAR APPARATUS

Philip A. Phalon, Jr., Sudbury; Marius A. Caramiciu, Dracut, and Robert C. DiGiovanni, Stow, all of Mass., assignors to Raytheon Company, Lexington, Mass.

Filed Oct. 1, 1990, Ser. No. 590,734

Int. Cl.[5] B23K *3/03*

U.S. Cl. 219—85.16 **14 Claims**



1. A soldering assembly comprising:

a main member;

means for coupling a support member to said main member, said support member coupling means comprises a sliding means for coupling said support member to said main member, the motion of said sliding means being in a vertical direction; and

soldering means including a hot bar, coupled to said support member, for providing said hot bar to a workpiece, said hot bar having a pivot point about the center of the base of said hot bar when contacting said workpiece.

5,068,509

HIGH FREQUENCY THERMODE DRIVEN DEVICE EMPLOYING ONE-TURN-SECONDARY TRANSFORMERS

Eldred H. Paufve, Windsor, and Richard Porterfield, Binghamton, both of N.Y., assignors to Universal Instruments Corporation, Binghamton, N.Y.

Filed Jan. 11, 1990, Ser. No. 463,456

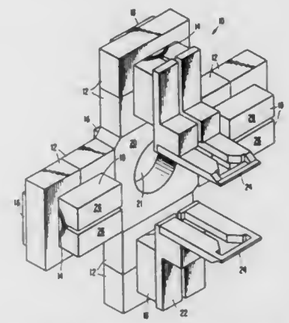
Int. Cl.[5] B23K *3/00*

U.S. Cl. 219—85.16 **6 Claims**

1. A high-frequency device having a plurality of transformers, each transformer having a primary winding driven by a high-voltage source, said device comprising:

a support member, said support member having a plurality of projections extending radially outwardly from a central portion, each of said projections having at least one pair of ears extending therefrom;

a plurality of transformer cores corresponding in number to



the number of said projections, each of said ears protruding through an aperture of said corresponding transformer core outside of the primary winding; and

a plurality of thermodes corresponding in number to the number of said projections, each of said thermodes being electrically coupled to said corresponding projection;

wherein each of said projections acts as a one-turn-secondary winding for a corresponding primary winding.

5,068,510

SOLDERING MEANS WHICH HAS AT LEAST ONE STIRRUP ELECTRODE WHICH CAN BE HEATED BY ELECTRICAL RESISTANCE

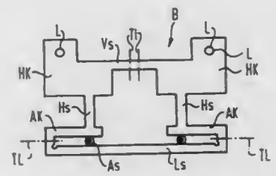
Rudolf Schuster, Heimstetten, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Apr. 10, 1990, Ser. No. 506,922

Claims priority, application Fed. Rep. of Germany, May 9, 1989, 3916353

Int. Cl.[5] B23K *3/03, 35/02*

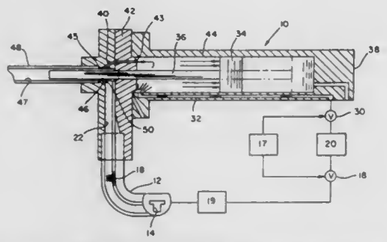
U.S. Cl. 219—85.16 **10 Claims**



1. A soldering means comprising at least one stirrup electrode which is subject to electrical resistance heating for soldering high-pole electronic components on PC boards, comprising, a soldering strip (Ls) with outer ends of which faces the joint to be soldered, a pair of expansion-compensation guards (AK) attached to the outer ends of said soldering strip (Ls) and extending toward each other, a pair of retaining elements (Hs) attached to the inner ends of said pair of expansion-compensation guards (AK) and extending in a direction normal to the soldering strip (Ls) and spaced relative to each other a distance (A).

VOL 1132 ISS 4 NO 26 1991 UMI

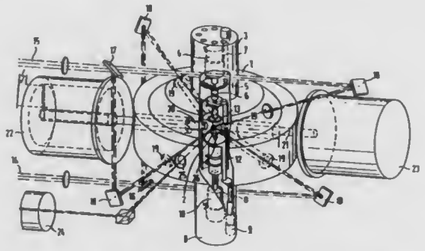
5,068,511
STUD WELDING TOOL
Kenneth R. Meyer, Sr., Lake Orion, Mich., assignor to Emhart Industries, Inc., Towson, Md.
Filed Jul. 13, 1990, Ser. No. 553,095
Int. Cl.[5] B23K *9/20*
U.S. Cl. 219—98 **4 Claims**



1. A stud welding tool comprising
a stud receiver having a horizontal through passageway and a vertical passageway extending vertically upwardly from the bottom of said stud receiver and communicating with said horizontal passageway,
a collet secured within one end of said horizontal passageway,
a load tube secured to said receiver to define a cylinder therewith,
an actuator including a piston and a rod displaceable within said cylinder with said rod displaceable from a retracted position at one side of said vertical passageway to an advanced position locating a stud in the end of said collet,
feed tube means for guiding a stud to said vertical passageway,
means for blowing a stud through said feed tube means and said vertical passageway toward said rod when said rod is at said advanced position,
means for terminating said blowing means when said piston is retracted and
exteriorly directed air jet means located downstream of the juncture of said vertical and horizontal passageways for creating a vacuum upstream thereof for drawing a stud located in said vertical passageway or in said feed tube means downstream toward said collet,
said air jet means further comprising means for blowing the stud to the end of said collet when said stud is displaced downstream of said air jet means.

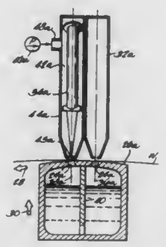
5,068,512
DEVICE FOR PRODUCING AMORPHOUS CERAMIC PRODUCTS OR METAL ALLOYS
Jacobus Van Geel; Joseph Magill, both of Karlsruhe; Paul Werner, Dettenheim, and Jean-Pol Hiernaut, Linkenheim, all of Fed. Rep. of Germany, assignors to European Atomic Energy Community, Luxembourg
PCT No. PCT/EP89/00360, § 371 Date Sep. 26, 1990, § 102(e) Date Sep. 26, 1990, PCT Pub. No. WO89/09674, PCT Pub. Date Oct. 19, 1989
PCT Filed Apr. 3, 1989, Ser. No. 573,229
Claims priority, application Luxembourg, Apr. 7, 1988, 87192
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.6 **6 Claims**

1. A device for producing amorphous ceramic products or metal alloys by means of a high pressure autoclave in which firstly a preform of the sample is heated by means of laser beams up to melting temperature and then rapidly cooled down,
below a process position (2), in which the sample is heated up and cooled down, an acousting levitation installation (12) is disposed, which is constituted by a piezoelectrically excited sound source and which levitates the sample in the process position (2) without contacting it, characterized in that
the process position (2) is disposed in the intersection point of at least two laser beams (14, 15), which penetrate into the autoclave via windows (19) in view of heating up the sample,



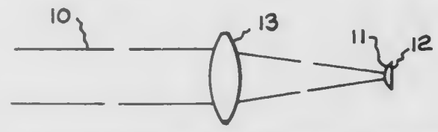
two stamps (20, 21) are disposed facing each other on either side of the process position (2) in the autoclave (1), which are susceptible to be electromagnetically pushed towards each other, in order to crush the sample therebetween and thus rapidly cool it down.

5,068,513
WATER JET SLITTER WITH LASER FINISH AND METHOD
Donald Gangemi, Great Barrington, Mass., assignor to Beloit Corporation, Beloit, Wis.
Filed Sep. 28, 1990, Ser. No. 589,369
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.67 **10 Claims**



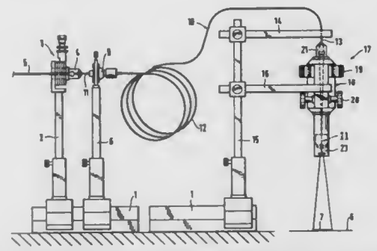
1. Apparatus for producing a smooth cut in a traveling fibrous web comprising, in combination:
means for supporting the traveling fibrous web in a relatively taut span;
trough means disposed proximate the web on one side thereof;
water jet means disposed proximate the web on the other side of the web and arranged to direct a web severing water jet against the web over the trough means to thereby produce a pair of spaced, severed edges in the web, each of the edges having fibers protruding therefrom;
laser means disposed proximate the traveling web on the same side thereof as the water jet means to direct a fiber cutting laser beam against the edges of the traveling web severed by the water jet to cut at least the ends of the fibers protruding from the severed edges;
wherein a smooth cut is efficiently produced in the traveling web.

5,068,514
LASER POLISHING OF LENS SURFACE
James G. Lunney, Dublin, Ireland, assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Oct. 23, 1989, Ser. No. 424,759
Claims priority, application Ireland, Oct. 25, 1988, 3228/88
Int. Cl.[5] B23K *26/00*
U.S. Cl. 219—121.69 **4 Claims**



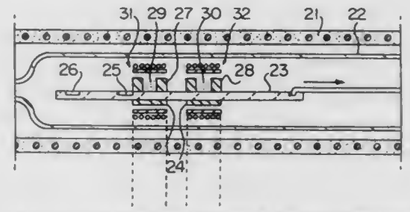
1. A process for smoothing of a lens surface, comprising the step of irradiating the surface of a lens with a laser beam, to cause a controlled level of melting of the lens surfaces, but without substantial ablative photo decomposition, whereby the surface of the lens is smoothed, and, wherein the fluence of the laser beam is less than 0.3 $3JCM^{-2}$ and the number of laser shots is greater than 200.

5,068,515
APPARATUS FOR HOMOGENIZING THE NON-HOMOGENEOUS LIGHT DISTRIBUTION OF A LASER BEAM
Hubert van den Bergh, Goumoens-la-Ville; Peter F. Cornaz, deceased, late of Vevey; Max M. Cornaz, heir, Chesalles; Jean-Pierre Cornaz, heir, Pratteln; Maria I. Cornaz, heir, Berne, and Georges Wagnières, Lutry, all of Switzerland, assignors to Ciba-Geigy Corporation, Ardsley, N.Y.
Filed Dec. 19, 1990, Ser. No. 630,120
Claims priority, application Switzerland, Dec. 27, 1989, 4652/89
Int. Cl.[5] B23K *26/06*
U.S. Cl. 219—121.73 **9 Claims**



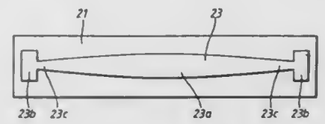
1. Apparatus for homogenising the non-homogeneous light distribution of a laser beam for the sharp-edged irradiation of an area, having a laser beam source, focusing optics for focussing the laser beam, an optical arrangement positioned after said focussing optics having a multimode fibre (10) with an inlet end face and an outlet end face, and magnifying projection optics positioned after said outlet end face, the inlet end face (11) being struck by the laser beam (5) focussed by means of the focussing optics (4) and the outlet end face (13) being imaged onto the area (6, 7) to be irradiated by means of the magnifying projection optics (17).

5,068,516
DEVICE FOR LIQUID-PHASE THIN FILM EPITAXY
Kim Ki-Joon, Seoul, Rep. of Korea, assignor to SamSung Electronics Co., Ltd., Kyung Ki-Do, Rep. of Korea
Division of Ser. No. 157,981, Feb. 19, 1988, Pat. No. 4,918,029.
This application Apr. 16, 1990, Ser. No. 509,300
Claims priority, application Rep. of Korea, Feb. 21, 1987, 1489/1987
Int. Cl.[5] H05B *3/64, 6/10*
U.S. Cl. 219—388 **2 Claims**



1. A device for liquid-phase epitaxial growth comprising:
a quartz tube;
a plurality of boats in a movable substrate holder for supporting corresponding semiconductor substrates,
a plurality of liquid holders and supporting plates for said liquid holders positioned within said quartz tube,
an electric furnace positioned outside of said quartz tube, and
a plurality of auxiliary heating devices disposed between said tube and said liquid holders and positioned around said liquid holders and boats, said auxiliary heating devices being connectable to power source independently from said electric furnace, whereby each liquid is enabled to be selectively heated or cooled by corresponding ones of said auxiliary heating devices independently of any other liquid within any corresponding other one of said plurality of liquid holders.

5,068,517
PRINTED STRIP HEATER
Takao Tsuyuki; Shigehiro Sato, both of Yokohama, and Tetsuo Ootani, Yokosuka, all of Japan, assignors to Toshiba Lighting & Technology Corporation, Tokyo, Japan
Filed Aug. 22, 1989, Ser. No. 396,700
Claims priority, application Japan, Aug. 25, 1988, 63-211401; Aug. 30, 1988, 63-215734; Nov. 9, 1988, 63-282777; Nov. 22, 1988, 63-295671
Int. Cl.[5] H05B *3/26*
U.S. Cl. 219—543 **35 Claims**



1. A printed strip heater for heating an object comprising:
a heat resistive substrate;
a strip of electrically conductive material mounted on the substrate having a first end and a second end; and
means for providing electrical energy to the strip electrically connected to the first and second ends, wherein a width of the strip is reduced near the means for providing electrical energy.

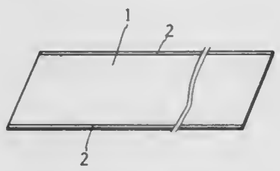
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,518

SELF-TEMPERATURE CONTROL FLEXIBLE PLANE HEATER

Shigeyuki Yasuda, 2-27, Imaike-minami, Chigusaku, Nagoya City, Japan

Filed Dec. 22, 1989, Ser. No. 455,613
Claims priority, application Japan, Dec. 24, 1988, 63-326485
Int. Cl.[5] H05B *3/34*
U.S. Cl. 219—549 2 Claims



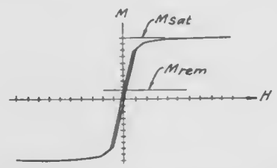
1. A self-temperature control flexible plane heater wherein a mixture of super high polymeric polyethylene glycol whose molecular weight is about 100,000 to 1,000,000 and polyethylene glycol whose molecular weight is about 600–10,000 is dissolvedly mixed with carbon powder, to form a heat-sensitive electrically resistant compound which contains electrodes therein, and such a heat-sensitive electrically resistant compound is enveloped with softened insulator means.

5,068,519

MAGNETIC DOCUMENT VALIDATOR EMPLOYING REMANENCE AND SATURATION MEASUREMENTS

David R. Bryce, Morrisville, Pa., assignor to Brandt, Inc., Bensalem, Pa.

Filed Jan. 10, 1990, Ser. No. 463,316
Int. Cl.[5] G06K *7/08;* G01N *27/72;* G01R *33/12*
U.S. Cl. 235—449 23 Claims



1. Apparatus for determining the genuineness of a document printed at least in part with magnetic ink including in combination

means for applying to a portion of a document printed with magnetic ink a magnetizing force sufficient to saturate the magnetic ink in said portion,

means for measuring the saturation magnetization of said portion while applying said saturating magnetic force to produce a first signal representing the saturation magnetization of said portion,

means for measuring the magnetization of said portion after the removal of a magnetizing force from said portion to produce a second signal representing the remanent magnetization of said portion,

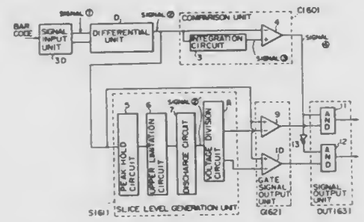
and means for comparing said first and second signals with each other to provide an indication of the genuineness of said document.

5,068,520

SIGNAL PROCESSING CIRCUIT OF A BAR CODE READER

Shinichi Sato, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Sep. 20, 1990, Ser. No. 585,624
Claims priority, application Japan, Sep. 22, 1989, 1-247784
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—462 5 Claims



1. A signal processing circuit of a bar code reader, comprising:

signal input means for optically detecting a bar code provided on a surface of goods and outputting a first signal after optical-to-electrical conversion;

differential means, connected to said signal input means, for amplifying the first signal, differentiating the first signal, filtering the first signal after differentiation to eliminate a high frequency noise, and outputting a second signal after filtering;

comparison means, connected to said differential means, for integrating the second signal and outputting a third signal after integration, and comparing the second signal with the third signal and outputting a fourth signal when the third signal is larger than the second signal;

slice level generation means, connected to said differential means, for holding a peak voltage of the second signal, suppressing the peak voltage to a predetermined upper limitation voltage, discharging the suppressed peak voltage in accordance with a predetermined time constant, and dividing the suppressed peak voltage into a predetermined voltage rate to obtain a positive slice voltage and a negative slice voltage;

gate signal output means, connected to said differential means and said slice level generation means, for comparing the second signal with the positive slice voltage and the negative slice voltage; and

signal output means, connected to said comparison means and said gate signal output means, for inputting the fourth signal and the positive slice voltage, inputting the inverted fourth signal and the negative slice voltage, and outputting a gate signal to obtain a binary-coded signal.

5,068,521

NON-CONTACT IC CARD

Atsuo Yamaguchi, Itami, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Japan

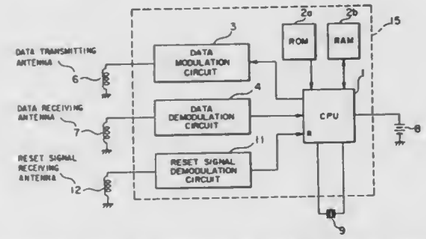
Filed Aug. 16, 1989, Ser. No. 394,479
Claims priority, application Japan, May 18, 1989, 1-122787
Int. Cl.[5] G06K *7/10*
U.S. Cl. 235—492 9 Claims

1. A non-contact IC card comprising:

data transmission/reception means for data transmission and data reception between an IC card and an external device via an electromagnetic carrier wave having a first frequency, without direct contact between the IC card and external device;

data processing means connected to said data transmission/reception means for processing data received from the external device;

reset signal detecting means for detecting an electromagnetic wave having a second frrequency diffeent fromthe first frequency trasmited as a reset signal from the external device o the IC card without direct contct between the IC card and external device; and



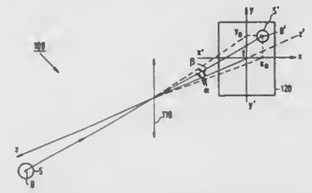
initializing means for initializin said data processing means in responset o the detection of a reset dignal by said reset signal detecting means.

5,068,522

ARRANGEMENT FOR DETERMINING THE DIRECTION OF THE ENERGY CENTER OF A LUMINOUS OBJECT

Benoit Falp, Versailles, and Christian Pezant, Villecresnes, both of France, assignors to U.S. Philips Corp., New York, N.Y.

Filed Feb. 26, 1990, Ser. No. 485,208
Claims priority, application France, Feb. 24, 1989, 89 02400
Int. Cl.[5] H01J *40/14*
U.S. Cl. 250—206.1 2 Claims



1. Apparatus for determining the direction of the energy center of a luminous object, comprising:

a photo-sensitive charge transfer matrix detector without a memory including N_l lines and N_c columns and an output register having N_c elements;

lens means for forming an image of the luminous object on the detector;

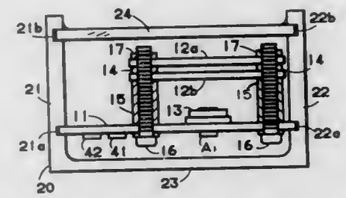
locating means coupled to the detector for determining the position of the energy center of the object by barycentric calculation within a window surrounding the image and covering $p_l \times P_c$ elements of the matrix, the locating means having a search mode for reading the matrix into the output register in groups of m lines wherein $m < P_l$ and reading the output register in groups of l consecutive elements where $l < P_c$ to determine the brightest $m \times l$ area of the matrix for determining the approximate position of the image, and a measuring mode for reading the matrix into the output register in groups of n lines where $n > P_l$ outside the approximate position of the image and reading k lines of the matrix containing the window where $k > P_l$ into the output register line by line around the approximate position of the image.

5,068,523

SCANNER DETECTOR ARRAY AND LIGHT DIFFUSER

Alexander Adelson, Peekskill, N.Y., assignor to Intec Corp., Trumbull, Conn.

Filed Mar. 2, 1990, Ser. No. 487,571
Int. Cl.[5] H01J *40/14;* G01N *21/88*
U.S. Cl. 250—208.1 7 Claims



1. A detector comprising: an array of detector elements disposed in at least one row and in a plurality of columns, wherein each detector element comprises a lens receptive of light on one face thereof along a light path from a target and outputting light at the other face, a photodetector for generating an electrical signal in response to light received thereon, for receiving the signal generated by the photodetector, wherein the array of detector elements comprises at least one detector module having means mounting a plurality of lenses side-by-side, a common substrate on which the photodetectors and preamplifiers for all of the lenses in the module are mounted with each preamplifier adjacent to a corresponding photodetector, means mounting the common substrate in the at least one detector module comprising a U-shaped frame having a light transparent window at an open side thereof and slots for slidably receiving the common substrate parallel to the window and means connecting the plurality of side-by-side mounted lenses to the common substrate to dispose each photodetector at a fixed distance form the other face of a corresponding lens and facing the other face to receive light passing through the lens.

5,068,524

MULTIPLE HETEROSTRUCTURE PHOTODETECTOR

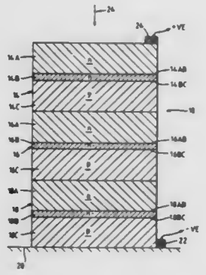
Charles T. Elliott, and Anthony M. White, both of Malvern, England, assignors to The Secretary of State for Defence in Her Britannic Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

PCT No. PCT/GB89/01406, § 371 Date Aug. 23, 1990, § 102(e) Date Aug. 23, 1990, PCT Pub. No. WO90/06597, PCT Pub. Date Jun. 14, 1990
PCT Filed Nov. 24, 1989, Ser. No. 571,587
Claims priority, application United Kingdom, Dec. 5, 1988, 8828348
Int. Cl.[5] H01J *40/14, 27/14;* G01J *5/20*
U.S. Cl. 250—211 J 5 Claims

1. A photodetector comprising a semiconductor multilayer structure (10) characterized in that the structure (10) has a plurality of successively disposed sections (14, 16, 18) each having three respective layers (e.g. 14A, 14B, 14C), the three layers consisting of a relatively narrow bandgap residual n-type central layer (14B) sandwiched between relatively wide bandgap outer layers (14A, 14C) doped n-type and p-type respectively, the central layer (14B) being sufficiently thin to exhibit minority carrier extraction throughout its thickness when biased and having sufficiently low doping to exhibit intrinsic conductivity at an operating temperature when unbi-

VOL 1132 ISS 4 NOV 26 1991 UMI

ased, and the outer regions (14A, 14C) being sufficiently thick to inhibit minority carrier injection into the central region



(14B) and having sufficiently high doping to provide extrinsic conductivity at the operating temperature.

5,068,525

APPARATUS FOR MEASURING THE DURATION OF SINGLE OPTICAL RADIATION PULSES

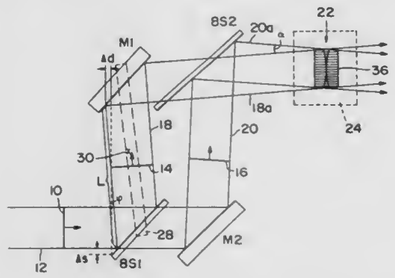
Fritz P. Schaefer; Sandor Szatmari, and Jaydev Jethwa, all of Goettingen, Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Foerderung der Wissenschaften, e.V., Fed. Rep. of Germany

Filed Aug. 13, 1990, Ser. No. 566,678

Claims priority, application Fed. Rep. of Germany, Aug. 14, 1989, 3926945

Int. Cl.[5] H01J *31/50*

U.S. Cl. 250—213 VT **15 Claims**



1. An apparatus for measuring the duration of single, short optical radiation pulses, particularly laser radiation pulses by means of an autocorrelator based on multiphoton ionization comprising:

beam splitter means (BS1, BS2, M1, M2) for generating from an input light radiation pulse two coherent component pulses (**14**, **16**) which propogate along two component beam paths (**18**,**20**) each containing a section (**18***a*, **20***a*) passing through a measuring zone (**22**),

a photoionization detector (**36**) containing said measuring zone comprising collector electrode means (**36**) and counter-electrode means (**38**) at which an electric output signal is available, depending on the number of charge carriers generated in the measuring zone, and

a measuring system (**42**, **50**, **52**, **62**) connected to said electrode means (**36**, **38**)

characterized in that said collector electrode means (**36**) contains a number of strip-type collector electrodes in parallel, electrically separated from each other, located in a plane which is essentially parallel to the two component beam path sections (**18***a*,**20***a*) in said measuring zone (**22**) and oriented in the longitudinal direction essentially in the direction of the component beam cavity sections (**18***a*, **22***a*) passing through said measuring zone (**22**).

5,068,526

PHOTOELECTRIC CONVERSION DEVICE WITH VOLTAGE SOURCE MEANS

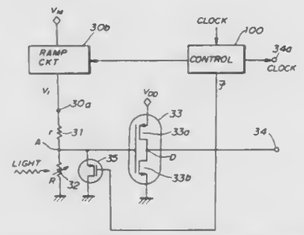
Akibiko Hiroe, Fujisawa, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Sep. 12, 1990, Ser. No. 580,966

Claims priority, application Japan, Sep. 13, 1989, 1-238870

Int. Cl.[5] H01J *40/14*

U.S. Cl. 250—214 R **9 Claims**



1. A photoelectric conversion device supplied with an optical radiation for producing an electric signal corresponding to the optical radiation, comprising:

first voltage source means for providing a first predetermined voltage;

a photoconductive cell having a first end connected to the first voltage source and a second end, said photoconductive cell being provided so as to receive an optical radiation and having a resistance that is changed in response to the optical radiation supplied thereto;

a load resistance having a first end connected to the second end of the photoconductive cell and a second end;

second voltage source means connected to the second end of the load resistance for providing thereto a second predetermined voltage that is different from the first predetermined voltage; and

threshold detection means having an input terminal connected to the second end of the photoconductive cell, said threshold detection means having a threshold level and producing a first output signal having a first level when an input signal supplied to the input terminal has a level below the threshold level while producing a second output signal having a second level when the input signal has a level above the threshold level.

5,068,527

WIDE RANGE FIBER OPTICAL DISPLACEMENT SENSOR

Katsuharu Iwamoto; Osamu Kawakami, and Hideo Miyagawa, all of Kanagawa, Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation-in-part of Ser. No. 399,113, Aug. 28, 1989, Pat. No. 4,996,418, which is a continuation-in-part of Ser. No. 127,983, Dec. 3, 1987, abandoned. This application Aug. 28, 1990, Ser. No. 573,561

Claims priority, application Japan, Jan. 7, 1987, 62-000501; Aug. 23, 1988, 63-207423; Dec. 27, 1988, 63-327901

Int. Cl.[5] H01J *5/16*

U.S. Cl. 250—227.21 **13 Claims**

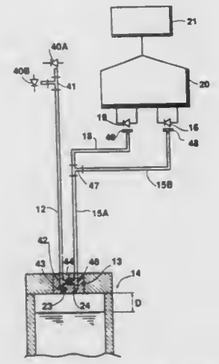
1. A fiber optical displacement sensor for measuring displacement of a surface to be measured, comprising:

light source means for continuously providing a projection beam to be projected onto the surface to be measured having a certain wavelength and a reference beam which carries no information related to the displacement to be measured having another wavelength different from that of the projection beam;

projecting optical fiber for transmitting the projection beam to a vicinity of the surface to be measured and the reference beam;

first photo coupler means between the light source means and the projecting optical fiber for combining the projection beam and the reference beam;

receiving optical fiber for transmitting a reflected beam resulting from reflection of the projection beam by the surface to be measured which carries information related to the displacement to be measured and the reference beam;



first filter means for separating out the reference beam transmitting through the projecting optical fibers from the projection beam;

second photo coupler means between the first filter means and receiving optical fiber for combining the the reference beam separated by the first filter means and the reflected beam;

second filter means for separating out the reference beam transmitting through the receiving optical fiber from the reflected beam;

beam conversion means for converting the reflected beam and the reference beam into corresponding electrical signals; and

means for deriving the displacement to be measured in accordance with the corresponding electrical signals.

5,068,528

ENCODED SURFACE POSITION SENSOR WITH MULTIPLE WAVELENGTHS AND REFERENCE BEAM

Glen E. Miller, Redondo, and Rudy L. Prater, Bellevue, both of Wash., assignors to The Boeing Company, Seattle, Wash.

Filed Aug. 28, 1990, Ser. No. 574,203

Int. Cl.[5] G01D *5/34*

U.S. Cl. 250—231.13 **23 Claims**

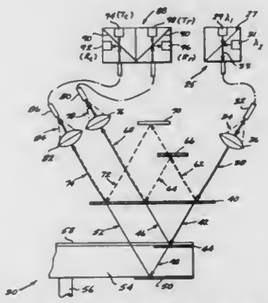
1. A position sensor, which derives position data in respect to an encoded surface having a characteristic light transmissivity that varies as a function of the position of the encoded surface, said position sensor comprising:

a. light source means for producing light at two substantially different wavelengths of predefined relative intensity to each other, including a reference beam having a reference wavelength and a test beam having a test wavelength, said reference and test beams initially traveling along a common optical path within the position sensor toward the encoded surface;

b. means for separating the reference beam from the test beam so that the reference beam is deflected away from the encoded surface along a reference optical path;

c. splitting means for splitting the reference beam traveling along the reference optical path between a first and a second optical path; and

d. a first mirror disposed adjacent an opposite side of the encoded surface from the side on which the test beam is incident, said first mirror reflecting a portion of the test beam that is transmitted through the encoded surface along the first optical path, another portion of the test beam being reflected from the encoded surface and traveling along the second optical path, whereby variations in the transmissivity of the encoded surface modulate the relative intensities of the transmitted and reflected portions of the test beam respectively propagating along the first and the second optical paths, thus defining the position of the encoded surface when compensated for light losses in the optical paths as a function of the intensities of light at the reference wavelength propagating along the first and the second optical paths.



5,068,529

ABSOLUTE POSITION DETECTION ENCODER

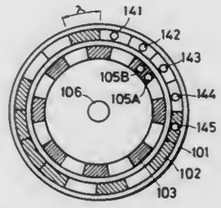
Kon Ohno; Tetsuo Hattori, both of Kanagawa, and Tsuyoshi Matsumoto, Tokyo, all of Japan, assignors to Nikon Corporation, Tokyo, Japan

Filed Dec. 20, 1989, Ser. No. 453,986

Claims priority, application Japan, Dec. 22, 1988, 63-322189; Dec. 28, 1988, 63-328873; Jan. 30, 1989, 1-17489

Int. Cl.[5] G01D *5/34*

U.S. Cl. 250—231.18 **13 Claims**



1. An absolute position detection encoder comprising:

coder means provided with track means in which an absolute pattern having code contents of a plurality of bits is realized by series type first graduations;

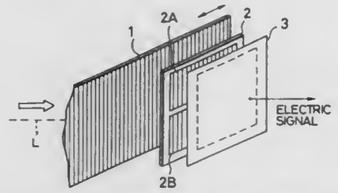
detector means relatively movable with respect to said coder means and adapted to read out said first graduations to produce a plurality of detection pulse trains having a phase difference corresponding to a length which is an integer multiple of a minimum reading unit of said first graduations; and

signal processing means for processing said detection pulse trains obtained upon reading said first graduations by said detector means with clock signals synchronized at time points corresponding substantially to an intermediate

VOL 1132 ISS 4 NO 26 1991 UMI

position of the minimum reading unit of said first graduations to produce parallel output signals of signal code contents corresponding to the absolute position of said detector means relative to said coder means.

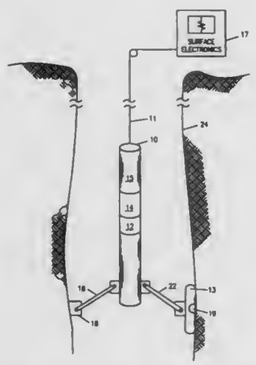
5,068,530
OPTICAL ENCODER
Atsushi Ieki, and Keiji Matsui, both of Aichi, Japan, assignors to Kabushiki Kaisha Okuma Tekkosho, Aichi, Japan
Filed Jul. 13, 1990, Ser. No. 552,929
Claims priority, application Japan, Jul. 17, 1989, 1-183871
Int. Cl.[5] H01J *3/14, 5/16, 40/14*
U.S. Cl. 250—237 G **7 Claims**



1. An optical encoder including a first diffraction grating and a second diffraction grating which is displaceable relative to said first diffraction grating, said encoder being capable of detecting said relative displacement.

the improvement being characterized in that said second diffraction grating has a grating pattern which removes a component having a period which is a factor of 1/n (n: a positive odd number) of the period of a displacement signal representing said relative displacement.

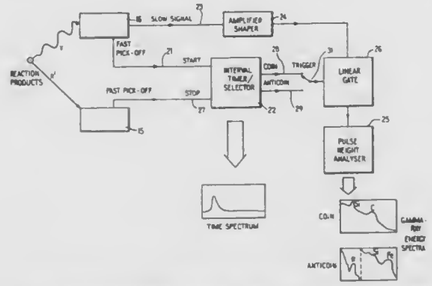
5,068,531
METHOD AND APPARATUS FOR PRODUCING A POROSITY LOG OF A SUBSURFACE FORMATION CORRECTED FOR DETECTOR STANDOFF
L. Scott Allen, Dallas; William R. Mills, Plano, and Daivd C. Stromswold, Addison, all of Tex., assignors to Mobil Oil Corporation, Fairfax, Va.
Filed Apr. 4, 1991, Ser. No. 680,711
Int. Cl.[5] G01V *5/10*
U.S. Cl. 250—269 **10 Claims**



1. A method for converting signals representing the die-away of nuclear radiation in a subsurface formation surrounding a borehole into a log representing porosity versus depth within said subsurface formation corrected for the effect of detector standoff from the borehole wall,

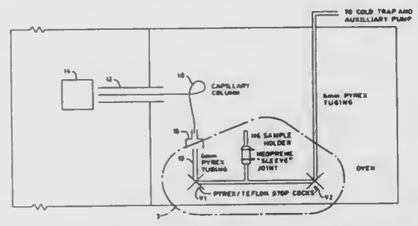
a) lowering a logging tool having a neutron source and a neutron detector into said borehole,
b) irradiating said subsurface formation with neutrons from said neutron source as said logging tool is traversed along said subsurface formation,
c) recording die-away signals representing the die-away of nuclear radiation in said subsurface formation as detected by said neutron detector,
d) producing intensity signals representing the variations in intensity of said die-away signals,
e) producing a model of the die-away of nuclear radiation in said subsurface formation having terms varying exponentially in response to borehole, formation and background effects on the die-away of nuclear radiation as detected by said detector,
f) producing weighted moments of said model and of said intensity signals,
g) producing a ratio of the borehole amplitude to formation amplitude components of said intensity signals derived from said weighted moments,
h) producing an initial formation decay constant signal from formation and thermal neutron background terms of said model and said intensity signals,
i) producing a standoff corrected formation decay constant signal in accordance with a function of said ratio and said initial formation decay constant signal derived from die-away signals recorded in borehole models at known porosities and conditions of detector standoff from the borehole wall, and
j) producing a log of porosity versus depth within said subsurface formation corrected for detector standoff from the borehole wall as a function of said standoff corrected formation decay constant signal derived from calibrated measurements in borehole models at known porosities and conditions of detector standoff from the borehole wall.

5,068,532
ANALYSIS USING NEUTRONS
Malcolm R. Wormald, Abingdon, and Bruce W. Thomas, Wantage, both of United Kingdom, assignors to United Kingdom Atomic Energy Authority, Loodon, England
Continuation of Ser. No. 268,285, Nov. 7, 1988, abandoned. This application Mar. 19, 1990, Ser. No. 496,139
Claims priority, application United Kingdom, Nov. 12, 1987, 8726477
Int. Cl.[5] G01V *5/00*
U.S. Cl. 250—270 **14 Claims**



1. A method for analysis of material comprising irradiating the material with neutrons, detecting resultant gamma rays, detecting fast neutrons scattered from the material, and registering the number of gamma detection events at at least one selected energy which occur in coincidence or anticoincidence with detection of a scattered neutron.

5,068,533
MANIFOLD AND METHOD OF BATCH MEASUREMENT OF HG-196 CONCENTRATION USING A MASS SPECTROMETER
Mark W. Grossman, Belmont, Mass., and Roger Evans, N. Hampton, N.H., assignors to GTE Products Corporation, Danvers, Mass.
Filed Mar. 15, 1989, Ser. No. 323,737
Int. Cl.[5] H01J *49/04*
U.S. Cl. 250—288 **3 Claims**

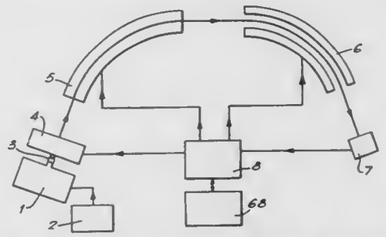


1. The method of analyzing mercury vapor in a mass spectrometer using a sample manifold for use in introducing small samples of mercury vapor into a mass spectrometer for analysis thereof, said manifold comprising in combination:

(a) a capillary member in communication at one end thereof with the ion source of a mass spectrometer and a gas/-vacuum inlet/outlet member at the other end thereof;
(b) said gas/vacuum inlet-outlet member comprising valve means for the vacuum purging of both the member and gaseous pressurization thereof, said member further being connected to a vacuum means and said pressurization means; and
(c) a removable mercury sample holder connected to the inlet/outlet member, said method comprising the sequential steps of:
(a) measuring the effluent content by conducting the following sequence of steps:
i. performing a feedstock scan;
ii. purge;
iii. performing an effluent scan; and
iv. purge;
v. performing a feedstock scan; and
(b) measuring the mercury content in the gaseous system by conducting the following sequence of steps:
i. performing a feedstock scan;
ii. purge;
iii. performing a mercury scan; and
iv. purge.

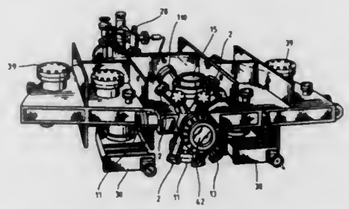
5,068,534
HIGH RESOLUTION PLASMA MASS SPECTROMETER
Neil Bradshaw, Stockport, and Neil E. Sanderson, Sandiway, both of United Kingdom, assignors to VG Instruments Group Limited, Haywards Heath, United Kingdom
PCT No. PCT/GB89/00622, § 371 Date Dec. 3, 1990, § 102(e) Date Dec. 3, 1990, PCT Pub. No. WO89/12313, PCT Pub. Date Dec. 14, 1989
PCT Filed Jun. 5, 1989, Ser. No. 623,401
Claims priority, application United Kingdom, Jun. 3, 1988, 8813149
Int. Cl.[5] B01D *59/44;* **H01J** *49/00*
U.S. Cl. 250—288 **17 Claims**

1. A mass spectrometer for the analysis of a sample comprising means for establishing a plasma discharge in an inert gas by means of an electrical field energized by a radio-frequency or microwave generator; means for introducing said sample into said plasma discharge; a sampling cone disposed adjacent to said plasma and having an aperture in its apex; a mass analyzer disposed to receive at least some of the ions generated in said plasma which pass through said aperture; and means for maintaining the pressure on the side of said sampling cone remote from said plasma substantially below atmospheric pressure, characterized in that said mass analyzer comprises at least a magnetic sector analyzer having an entrance slit, and including



means for maintaining a potential difference between said sampling cone and said entrance slit of such a magnitude that the energy of the ions after they have passed through said entrance slit permits their mass analysis by said magnetic sector analyzer.

5,068,535
TIME-OF-FLIGHT ION-SCATTERING SPECTROMETER FOR SCATTERING AND RECOILING FOR ELECTRON DENSITY AND STRUCTURE
J. Wayne Rabalais, Houston, Tex., assignor to University of Houston - University Park, Houston, Tex.
Continuation of Ser. No. 164,530, Mar. 7, 1988, abandoned. This application Mar. 3, 1989, Ser. No. 320,213
Int. Cl.[5] H01J *37/252, 49/44*
U.S. Cl. 250—309 **41 Claims**



1. A time-of-flight ion-scattering spectrometer comprising:
an ultra-high vacuum chamber; and
at least one tube having a first end portion and a second end portion, said first end portion being coupled to said vacuum chamber and said second end portion extending outwardly from said vacuum chamber, said second end portion being adapted to house a time-of-flight detector.

5,068,536
METHOD FOR PROVIDING CUSTOM CALIBRATION FOR NEAR INFRARED INSTRUMENTS FOR MEASUREMENT OF BLOOD GLUCOSE
Robert D. Rosenthal, Gaithersburg, Md., assignor to Futrex, Inc., Gaithersburg, Md.
Continuation-in-part of Ser. No. 565,302, Aug. 10, 1990, which is a continuation-in-part of Ser. No. 544,580, Jun. 27, 1990, which is a continuation-in-part of Ser. No. 298,904, Jan. 19, 1989, Pat. No. 5,028,787. This application Apr. 9, 1991, Ser. No. 682,249
Int. Cl.[5] G01N *21/59*
U.S. Cl. 250—341 **11 Claims**

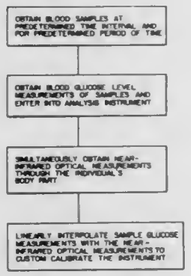
1. A method for calibrating a near-infrared analysis instrument for the measurement of blood glucose, said method comprising:

(a) obtaining a plurality of blood samples from an individual

VOL 1132 ISS 4 NOV 26 1991 UMI

each at a first predetermined time interval during a predetermined period of time and obtaining a blood glucose level measurement for each said blood sample;

(b) obtaining near-infrared optical absorption measurements through a body part of said individual at a second predetermined time interval and during said predetermined period of time, and recording said measurements; and



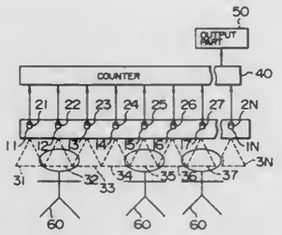
(c) performing calibration regression analysis utilizing means for linearly interpolating said blood sample glucose level measurements with said near-infrared optical absorption measurements to calibrate said near-infrared analysis instrument for said individual.

5,068,537

PASSENGER NUMBER SENSOR SYSTEM

Haruo Ishikawa, Kawasaki; Kiyoshi Kawana, Tokyo; Ko Honma, Yokohama, and Takashi Yoshikawa, Kawasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Mar. 14, 1991, Ser. No. 669,374
Claims priority, application Japan, Mar. 19, 1990, 2-068811
Int. Cl.[5] G01V *9/04;* **G08B** *13/18*
U.S. Cl. 250—342 **1 Claim**



1. A passenger-number sensor system comprising:

a plurality of infrared ray sensors disposed on a straight line for detecting temperature changes in their light reception zones;

a plurality of optical lenses disposed one for each of said plurality of infrared ray sensors for determining said light reception zones of the infrared ray sensors; and

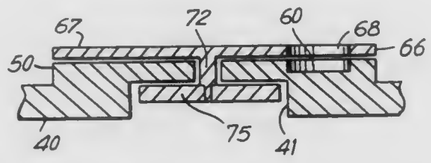
means for selecting one of the addition values 1 to n according to a sense pattern based on the temperature changes of the infrared ray sensors.

5,068,538

RADON MONITOR WITH SEALABLE DETECTING CHAMBER

Naomi H. Harley, Hoboken, N.J., assignor to New York University, New York, N.Y.

Continuation-in-part of Ser. No. 521,178, May 9, 1990. This application Mar. 6, 1991, Ser. No. 666,889
Int. Cl.[5] G01T *1/02, 1/11*
U.S. Cl. 250—472.1 **18 Claims**



1. A radiation monitor comprising:

an electrically conductive housing having walls defining an internal volume of space;

at least one hole through a wall of the housing for permitting entry of ambient air into the thermal volume of space;

at least one solid state nuclear track detector disposed within the housing;

a barrier within the housing; and means for moving the barrier from outside the housing between a first position in which the at least one solid state nuclear track detector is substantially isolated from alpha radiation in the internal volume of space and a second position in which the at least one solid state nuclear track detector is exposed to alpha radiation in the internal volume of space,

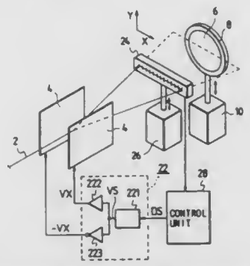
wherein there is substantially no electrical charge present on any portion of the personal radiation monitor.

5,068,539

ION IMPLANTATION APPARATUS

Mamoru Nogami, and Kazuhiro Nishikawa, both of Kyoto, Japan, assignors to Nissin Electric Company, Limited, Kyoto, Japan

Filed May 14, 1990, Ser. No. 522,788
Claims priority, application Japan, May 15, 1989, 1-122450; Jun. 1, 1989, 1-140912
Int. Cl.[5] H01J *37/317*
U.S. Cl. 250—492.2 **3 Claims**



1. An ion implantation apparatus, comprising:

a pair of scanning electrodes for electrostatically scanning an ion beam in an X direction;

a drive unit for mechanically scanning a target in a Y direction substantially perpendicular to the X direction;

a scanning power supply including a signal generator for generating a signal with a waveform according to waveform input data, and an amplifier for amplifying the signal and for outputting said amplified signal to said pair of scanning electrodes;

a multiple point monitor containing a large number of Faraday cups with the same area disposed in the X direction for receiving the ion beam and for measuring beam current;

a monitor drive unit for moving said multiple point monitor to and from a radiation area of the scanned ion beam; and

a control unit for obtaining the distribution of a beam current sum being entered into each of said Faraday cups according to the beam current measured by each of said Faraday cups of said multiple point monitor, for generating said waveform data so that the distribution of the beam current sum becomes flat, and for inputting the resultant data to the signal generator of said scanning power supply;

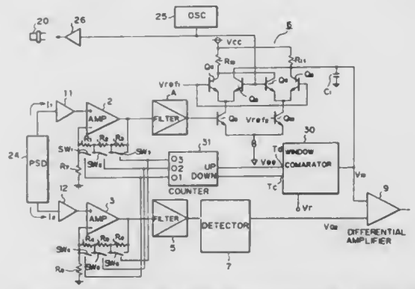
wherein said drive unit comprises an arm for supporting a holder for holding said target, and a reversibly rotatable motor for rotating said arm so that said target is scanned in an arc form while said target faces to said ion beam.

5,068,540

DISTANCE MEASURING APPARATUS HAVING AUTOMATIC GAIN CONTROL

Takahiro Tsuji, Osaka, Japan, assignor to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 1, 1990, Ser. No. 561,327
Claims priority, application Japan, Aug. 4, 1989, 1-203437
Int. Cl.[5] G01N *21/86*
U.S. Cl. 250—561 **8 Claims**



1. A distance measuring apparatus comprising a light emitting device for emitting infrared light blinking at a constant frequency toward an object, a light receiving device for receiving infrared light reflected from the object, the light receiving device being adapted to generated two output signals which correspond respectively to positive and negative amounts of deviation of a position of light received therein with respect to a center thereof, a pair of amplifiers for amplifying the output signals of the light receiving device, respectively, means for picking up signal components, each having a frequency corresponding of the blink frequency of the infrared light, from the output signals of the amplifiers, respectively, means for determining a distance to the object of the basis of the signal components picked up by the picking up means, and means or controlling a gain of each of the amplifiers, the controlling means including:

a pair of resistor circuits each having a changeable resistance for determining the gain of corresponding one of the amplifiers;

a comparator which compares in magnitude one of the signal components with a reference voltage and generates control signal having modes which change with the difference in magnitude between one of the signal components and the reference voltage; and

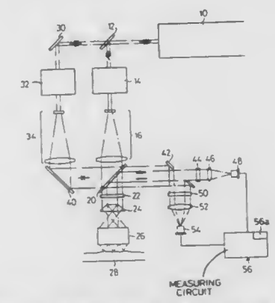
means or changing the resistance of each of the resistor circuits in accordance with the modes of the control signals of the comparator.

5,068,541

SURFACE ROUGHNESS MEASURING METHOD AND APPARATUS UTILIZING TRUNCATED CONICAL LENS AND OBJECTIVE LENS

Michio Kondo, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Aug. 15, 1990, Ser. No. 567,741
Claims priority, application Japan, Aug. 23, 1989, 1-216273
Int. Cl.[5] G01N *21/86*
U.S. Cl. 250—571 **11 Claims**



1. A method of measuring a roughness of a surface of a subject, comprising the steps of:

disposing a truncated conical lens and an objective lens in series with each other along an optical path, said truncated conical lens having a central circular flat surface and a conical surface which extends from a periphery of said central circular flat surface;

generating and directing parallel rays of light such that the parallel rays of light are transmitted through said truncated conical lens and said objective lens and are thereby converted into a first measuring beam which irradiates a minute spot on said surface of the subject, and a second measuring beam which irradiates an annular spot which surrounds said minute spot;

generating a reference beam having a frequency different from that of said first and second measuring beams, and directing said reference beam such that said reference beam interferes with each of said first and second measuring beams reflected by said surface of the subject, so as to produce two beat beams;

converting said two beat beams into respective two electrical beat signals; and

determining a height variation of said surface of said subject, based on a phase difference between said two electrical beat signals.

5,068,542

METHOD AND APPARATUS FOR CONCENTRATION MEASUREMENT BY THE QUANTITY, DIAMETER AND CONVERGENT OF A TRANSMITTED LIGHT BEAM

Minato Ando; Takashi Kato; Hideyasu Aoki; Yasuyuki Mizushima; Tsunetoshi Okura, and Akemi Kurokawa, all of Nagoya, Japan, assignors to NGK Spark Plug Company, Ltd., Aichi, Japan

Filed Jun. 19, 1990, Ser. No. 540,606
Claims priority, application Japan, Jun. 22, 1989, 1-160104
Int. Cl.[5] G01N *15/06*
U.S. Cl. 250—573 **21 Claims**

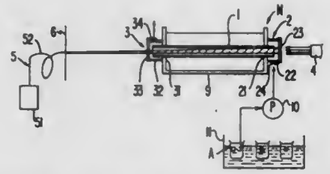
1. A method for measuring the concentration of an objective solvent in a mixed solution, comprising the steps of:

flowing a mixed solution through a tube having a first end and second a end;

transmitting a light beam through the first end of the tube, through the mixed solution therein, and out of the second end of said tube;

VOL 1132 ISS 4 NO 26 1991 UMI

detecting the quantity of light received at the second end of the tube; and



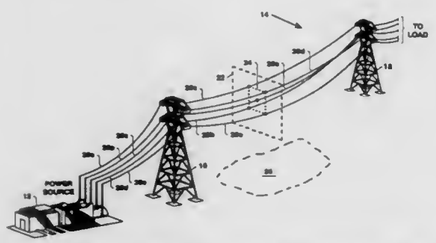
determining the concentration of the objective solvent in the mixed solution on a basis that the quantity of light received is dependent on the concentration of the objective solvent in the mixed solution.

5,068,543

LOW HAZARD EXTREMELY LOW FREQUENCY POWER TRANSMISSION LINE

Tihiro Ohkawa, La Jolla, Calif., assignor to General Atomics, San Diego, Calif.

Filed Nov. 14, 1990, Ser. No. 613,152
Int. Cl.[5] H02G *7/20*
U.S. Cl. 307—91 **11 Claims**



1. A power line distribution system for continuously distributing high voltage electrical power over long distances from a power source to a desired load comprising:

(a) at least three power line conductors, said conductors being connected to appropriate terminals of said power source and said load such that each of said power line conductors carries an electrical current to or from said load as the high voltage electrical power is delivered to said load;

(b) spatial positioning means for maintaining a prescribed spatial relationship between said at least three power line conductors, said spatial positioning means including a plurality of spaced-apart towers at regular intervals for supporting said power line conductors above the ground in said prescribed spatial relationship;

(c) said prescribed spatial relationship causing electromagnetic fields generated around a first group of said at least three power line conductors as sensed in a region of interest below said power line conductors to oppose electromagnetic fields generated around a second group of said at least three power line conductors as sensed in said region of interest, the magnitude of a net electromagnetic field as sensed in said region of interest thereby being reduced;

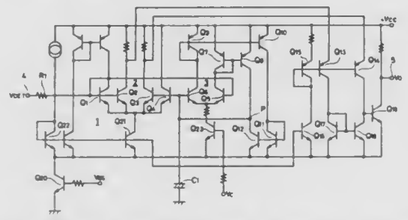
(d) whereby the effects associated with electromagnetic radiation generated around said power line conductors in the region of interest are minimized.

5,068,544

FSK DATA WAVEFORM SHAPING CIRCUIT

Kazuhisa Ishiguro, and Yutaka Sekiguchi, both of Gunma, Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Jul. 16, 1990, Ser. No. 552,732
Claims priority, application Japan, Jul. 18, 1989, 1-185587
Int. Cl.[5] H04L *27/14*
U.S. Cl. 307—268 **2 Claims**



1. A FSK data waveform shaping circuit for waveform-shaping FM detected FSK data and outputting the waveform-shaped FSK data, comprising:

a first differential amplifier circuit including first and second transistors, said first transistor having a base and a collector short-circuited to each other,

a second differential amplifier circuit including third and fourth transistors, said third transistor having a base and an emitter respectively connected to the base and an emitter of said first transistor and said fourth transistor having a base and an emitter respectively connected to a base and an emitter of said second transistor,

a third differential amplifier circuit including fifth and sixth transistors, said fifth transistor having a base connected to the base of said first transistor and said sixth transistor having a base connected to the base of said second transistor, and

capacitance means connected to the base of said second transistor and charged/discharged in accordance with an output signal of said third differential amplifier circuit,

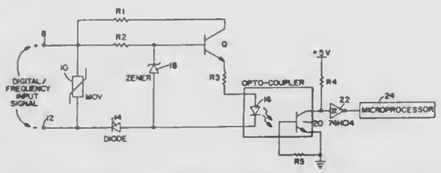
base of said first transistor receiving the FSK data to be waveform-shaped and a waveform-shaped output signal being generated at least at one of collectors of said third and fourth transistors.

5,068,545

DIGITAL/FREQUENCY INPUT FOR INDUSTRIAL CONTROL APPLICATIONS

Richard J. Molnar, Willoughby, Ohio, assignor to Elsag International B.V., Amsterdam, Netherlands

Filed Apr. 20, 1989, Ser. No. 340,984
Int. Cl.[5] H03K *3/42, 5/00, 5/08;* H01S *3/00*
U.S. Cl. 307—311 **7 Claims**



1. A circuit for conditioning a control signal having a variety of waveforms and voltage levels, comprising:

a pair of input terminals for receiving the control signal;

a varistor connected across said terminals for limiting a high transient voltage across said terminals;

a diode connected to one of said terminals for preventing a flow of reverse current to said one terminal;

a transistor having a base connected thru a first resistor to the other one of said terminals, said transistor having an emitter and a collector; and

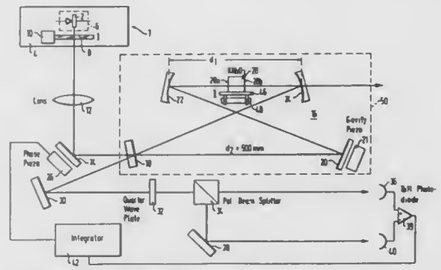
opto-coupler means connected to the transistor emitter thru a second resistor for receiving current therefrom, said opto-coupler means having an isolated output for outputting the conditioned control signal, and a third resistor connected at one end thereof to the input terminal connected to said first resistor and at the other end thereof to said collector.

5,068,546

SOLID STATE LASER OPERATING WITH FREQUENCY DOUBLING AND STABILIZED BY AN EXTERNAL RESONATOR

Andreas Hemmerich, Munich, Fed. Rep. of Germany; David McIntyre, Corvallis, Oreg.; Claus Zimmermann, and Theodor Haensch, both of Munich, Fed. Rep. of Germany, assignors to Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V., Fed. Rep. of Germany

Filed Aug. 27, 1990, Ser. No. 573,536
Claims priority, application Fed. Rep. of Germany, Mar. 15, 1990, 4008349
Int. Cl.[5] H01S *3/10*
U.S. Cl. 359—328 **16 Claims**



1. A solid state laser comprising

a solid state laser diode for generating fundamental wave laser radiation,

an external ring resonator which is arranged in the beam path of the fundamental wave laser radiation and through which the fundamental wave laser radiation passes in a predetermined forward direction,

an optical nonlinear medium arranged in the ring resonator for generating the 2nd harmonic of the fundamental wave laser radiation and

means for feeding fundamental wave laser radiation back to the solid state laser diode,

said means comprising optical means causing a small part of the fundamental wave laser radiation to propagate in a direction opposite to the forward direction through at least a part of the beam path of said ring resonator back to the solid state laser diode.

5,068,547

PROCESS MONITOR CIRCUIT

William H. Gascoyne, San Jose, Calif., assignor to LSI Logic Corporation, Milpitas, Calif.

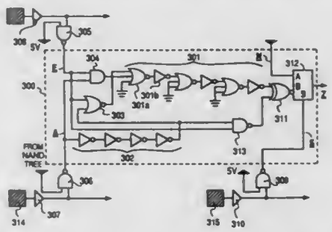
Filed Sep. 5, 1990, Ser. No. 577,945
Int. Cl.[5] H03K *5/13, 5/159*
U.S. Cl. 307—443 **14 Claims**

1. A process monitor circuit, comprising:

a first delay path comprising a plurality of logic gates having an input terminal and a first output terminal, said first delay path providing after a first delay a first logic state transition at said first output terminal, when a first input logic state transition is received at said input terminal, and providing after a second delay a second logic state transition at said first output terminal, when a second input logic state transition opposite said first input logic state transition is received at said input terminal, said first and second delays being distinguishably different;

a second delay path having a second output terminal and connected to said input terminal, said second delay path providing after a third delay a third logic state transition at said second output terminal, when said first input logic state transition is received at said input terminal, and providing after a fourth delay a fourth logic state transition at said second output terminal, when said second input logic state transition is received at said input terminal, said third and fourth delays being substantially equal; and

means, having a third output terminal and connected to said first and second output terminals, for providing a logic state transition on said third output terminal upon receiving each of said first, second, third and fourth logic state transitions.

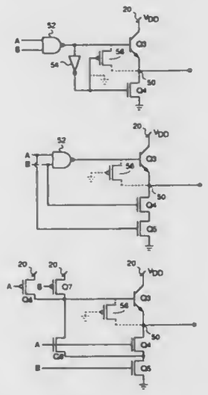


5,068,548

BICMOS LOGIC CIRCUIT FOR ASIC APPLICATIONS

Abbas El Gamel, Palo Alto, Calif., assignor to SiArc, Palo Alto, Calif.

Filed May 15, 1990, Ser. No. 524,207
Int. Cl.[5] H03K *19/01, 19/003, 19/082, 19/094*
U.S. Cl. 307—446 **26 Claims**



1. A BiCMOS binary logic circuit for performing logical operations comprising:

a pull-up bipolar transistor having a collector coupled to a first power supply terminal, having an emitter for providing a logic circuit output signal, and having a base coupled to receive a first input signal;

one or more pull-down N-channel transistors, each of said N-channel transistors having its drain coupled to said emitter of said bipolar transistor and its source coupled to

VOL 1132 ISS 4 NOV 26 1991 UMI

a second power supply terminal, a gate of each of said N-channel transistors being coupled to receive a second input signal; and

a CMOS binary logic circuit having one or more input terminals and coupled to said base of said bipolar transistor and to said gate of each of said N-channel transistors, said CMOS binary logic circuit operating to cause said first input signal to be of a logic state opposite that of said second input signal,

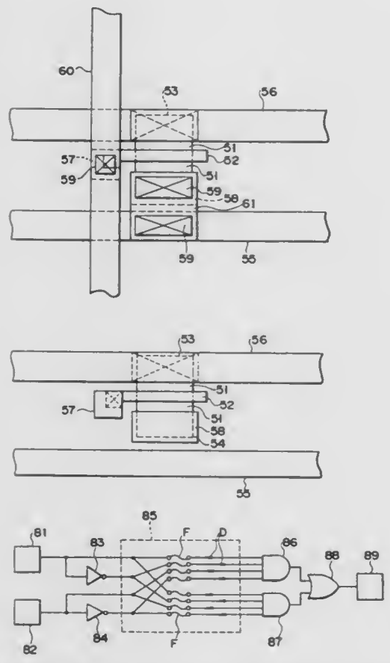
said BiCMOS binary logic circuit being connected within an integrated circuit so as not to buffer input signals applied to terminals of said integrated circuit or buffer output signals applied to terminals of said integrated circuit.

5,068,549

SEMICONDUCTOR INTEGRATED CIRCUIT APPARATUS HAVING PROGRAMMABLE LOGIC DEVICE

Hiroshi Iwasaki, Yokohama, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 16, 1990, Ser. No. 614,261
Claims priority, application Japan, Nov. 20, 1989, 1-299856
Int. Cl.[5] H03K *19/177, 5/08, 19/092, 3/01*
U.S. Cl. 307—465.1 **10 Claims**



1. A semiconductor integrated circuit apparatus comprising:

a programming region having an AND region and an OR region, wherein

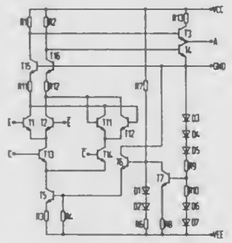
said AND region and said OR region are programmed, whether an opening for connecting a metal wire in said programming region is present or absent is determined in a manufacturing step in accordance with a content of a program performed in said programming region, and the program is performed by determining whether a programming element is connected to said metal wire through said opening or not.

5,068,550

ECL-TTL SIGNAL LEVEL CONVERTER

Claude Barre, München, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, München, Fed. Rep. of Germany

Filed Oct. 9, 1990, Ser. No. 594,732
Claims priority, application European Pat. Off., Oct. 6, 1989, 89118610.8
Int. Cl.[5] H03K *19/092, 19/086, 17/60*
U.S. Cl. 307—475 **4 Claims**



1. ECL-TTL signal level converter, comprising:

a first transistor pair having transistors with bases controlled by ECL signals, collectors and coupled emitters;

a second transistor pair having coupled bases connected to a ground potential, emitters each being connected to a respective one of the collectors of said transistors of said first transistor pair, and collectors;

collector resistors each being connected between a respective one of the collectors of said transistors of said second transistor pair and a first supply potential;

a third transistor pair having transistors with coupled emitters, bases and collectors, the base of one of said transistors and the collector of the other of said transistors of said third transistor pair being connected to the collector of one of said transistors of said first transistor pair, and the collector of said one transistor and the base of said other transistor of said third transistor pair being connected to the collector of the other of said transistors of said first transistor pair;

a fourth transistor pair having transistors with bases controlled by control signals, coupled emitters and collectors, the collector of one of said transistors of said fourth transistor pair being connected to the coupled emitters of said transistors of said first transistor pair, and the collector of the other of said transistors of said fourth transistor pair being connected to the coupled emitters of said transistors of said third transistor pair;

current impressing means connected in common between the coupled emitters of said transistors of said fourth transistor pair and a second supply potential; and

a push-pull output stage connected to the collectors of said transistors of said second transistor pair for the emission of a TTL signal.

5,068,551

APPARATUS AND METHOD FOR TRANSLATING ECL SIGNALS TO CMOS SIGNALS

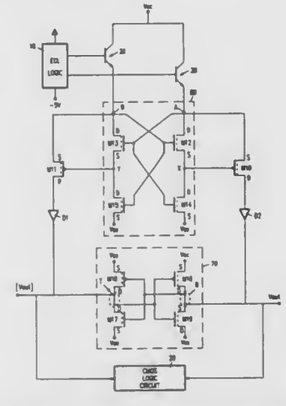
Robert J. Bosnyak, Tacoma, Wash., assignor to National Semiconductor Corporation, Santa Clara, Calif.

Filed Sep. 21, 1990, Ser. No. 586,068
Int. Cl.[5] H03K *19/0175*
U.S. Cl. 307—475 **10 Claims**

1. A translator for translating signals operating within a first predetermined logic level range to a second predetermined logic level range, the translator comprising:

receiving means for receiving signals operating within the first predetermined logic level range, the receiving means including a first bipolar transistor arranged in a first emitter-follower configuration for receiving a first input signal and a second bipolar transistor, complementary to said first bipolar transistor, arranged in a second emitter-follower configuration for receiving a second input signal complementary to said first input signal;

generation means internal to said translator for generating a dynamic reference signal;



translation means, coupled to said receiving means and said generation means, for translating said signals within the first predetermined logic level range to the second predetermined logic level range, said translation means operating on said internal reference signal, said translation means including first and third MOS transistors having their respective gates coupled to the emitter of said first bipolar transistor, and second and fourth MOS transistors having their respective gates coupled to the emitter of said second bipolar transistor; and

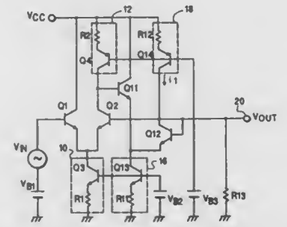
output means, coupled to said translation means, for outputting said translated signals.

5,068,552

VOLTAGE FOLLOWER CIRCUIT HAVING IMPROVED DYNAMIC RANGE

Yuuzi Itou, and Syuniti Tutida, both of Saitama, Japan, assignors to Kabushiki Kaisha Toshiba, Kanagawa, Japan

Filed Sep. 10, 1990, Ser. No. 579,628
Int. Cl.[5] H03K *5/22*
U.S. Cl. 307—494 **6 Claims**



1. A voltage follower circuit comprising:

a differential amplifier including a first and a second transistor whose emitters are connected to each other, a first constant current source connected to said emitters and a second constant current source connected to the collector of said second transistor,

a third transistor, having a base connected to the collector of said second transistor, the first and third transistors having collectors connected to a reference voltage,

a diode connected between the emitter of said third transistor and the base of said second transistor,

a third constant current source connected to the emitter of said third transistor, and

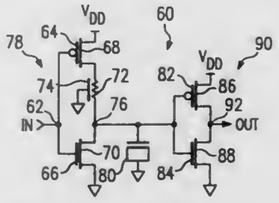
a fourth constant current source connected to the base of said second transistor wherein the base of said first transistor receives an input signal and wherein the base of said second transistor is an output terminal.

5,068,553

DELAY STAGE WITH REDUCED V_{dd} DEPENDENCE

Andrew M. Love, Stafford, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 265,106, Oct. 31, 1988, abandoned.
This application Jul. 24, 1990, Ser. No. 559,433
Int. Cl.[5] H03K *5/13*
U.S. Cl. 307—605 **11 Claims**



1. A delay stage circuit comprising:

a p-channel input transistor having a first electrode for receiving an input signal, said transistor providing a current path between a voltage supply and an internal node;

an inverter having an input node for receiving a signal from the current path and an output node for providing an output signal a predetermined time after the input signal is received at the first electrode, said inverter including a first p-channel transistor having a current path connected in series with a current path of a second transistor, said first transistor having a conductivity different from said second transistor, control electrodes of said first and second transistors coupled in common, forming said input node, and coupled to said internal node, and said output node coupled between current paths of said first and second transistors, the channels of said first and second transistors having predetermined width to length ratios, the width to length ratio of said first transistor being about ten times the width to length ratio of said second transistor;

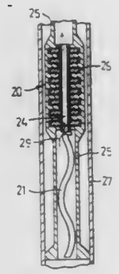
a fixed resistor coupled in series in the current path between the input transistor and the internal node, said resistor providing greater resistance along the current path than said input transistor;

a capacitor having a first terminal connected to the internal node and a second terminal connected to a reference potential; and

a trigger point for inverting a rising voltage at said internal node is approximately equal to the difference between the level of the voltage supply and the threshold voltage of said first transistor.

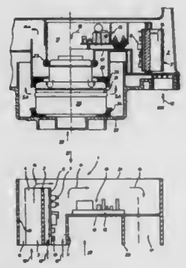
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,554
ELECTRIC MOTOR
Frank Mohn, London, England, assignor to Framo Developments (UK) Limited, London, England
Filed Aug. 30, 1989, Ser. No. 400,773
Claims priority, application United Kingdom, Aug. 30, 1988, 8820444
Int. Cl.[5] H02K *41/00*
U.S. Cl. 310—12 **22 Claims**



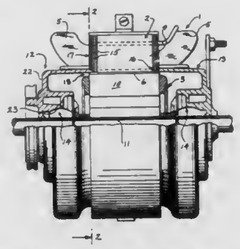
1. An electric motor comprising:
a housing,
an output shaft having a longitudinal axis,
means mounting said shaft in said housing for relative rotation around said axis and relative translation along said axis,
electrical drive means carried by one of said shaft and said housing, said drive means comprising a plurality of axially spaced linear motor type annular windings oriented around said axis,
driven means comprising a plurality of axially spaced discs of magnetic material carried by the other of said shaft and said housing, said drive and driven means having co-operating faces extending laterally of said shaft axis, and said drive means being energizable to act on said driven means, and
energizing means selectively operable to energize said drive means so as to cause at least one of said relative rotation and said relative translation.

5,068,555
DUST EXHAUSTER FOR A VACUUM CLEANER HAVING IMPROVED COOLING
Rainer Oberdorfer-Bögel, Mozartstrasse 9, Kirchberg/Iller, Fed. Rep. of Germany 7959
Filed Aug. 13, 1990, Ser. No. 566,735
Claims priority, application Fed. Rep. of Germany, Aug. 26, 1989, 3928313
Int. Cl.[5] A47L *9/00*
U.S. Cl. 310—52 **3 Claims**



1. A dust exhauster, providing electric component cooling comprising: an electric motor connected to a lower plate and connected to an upper anchoring plate; electric components vertically and horizontally mounted on boards inside a U-shaped motor cooling intake channel providing cooling air for the electric motor, wherein the electric motor is a commutatorless D.C. motor and at least one of the vertically and horizontally mounted boards are positioned within the U-shaped motor cooling air intake channel, the motor cooling intake channel having a first vertical channel positioned in the direction of cooling air flow, a horizontal section connected to one end of the first channel, and a second vertical channel connected to the opposing end of the horizontal section, the second vertical channel of the U-shaped motor cooling channel being hermetically connected to an upper part of the electric motor.

5,068,556
BEARING BRACKET FOR A DYNAMOELECTRIC MACHINE
Robert E. Lykes, and James L. King, both of Troy, Ohio, assignors to A. O. Smith Corporation, Milwaukee, Wis.
Filed Sep. 7, 1989, Ser. No. 404,095
Int. Cl.[5] H02K *5/16, 7/08, 15/14*
U.S. Cl. 310—90 **17 Claims**

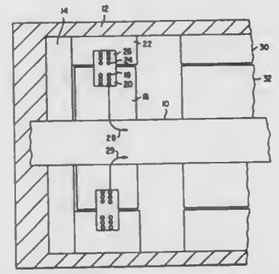


1. In a motor structure including a rotor core mounted within the bore of an annular stator core having a constant diameter bore opening and with an operative air gap between the stator core and rotor core, said rotor core mounted on a shaft projecting coaxially from opposite ends thereof with an axis to establish said air gap and having an outer cylindrical surface, the improvement comprising said stator core including a stack of laminations including end laminations having an enlarged bore defining a recess at each end of the stator core, the outer circumference of said enlarged bore being precisely formed with an axis coincident with the axis of said shaft, cup-shaped bearing support members secured one each to the opposite ends of said stator core and having outer end plates, a bearing unit in each of said end plates located on the axis of said stator core and supporting said shaft to define a self-contained rotor unit, said support members having precisely formed outer ends complementing said stator core recesses, and securement means connected to said support members and said core at sad recesses to secure said support members within said stator core recesses and thereby support said bearings and rotor unit.

5,068,557
GENERATOR WITH BEARING-RETAINING STATOR
Muthu K. Murugan, Howell, N.J., assignor to Allied-Signal Inc., Morris Township, Morris County, N.J.
Filed Oct. 24, 1990, Ser. No. 603,964
Int. Cl.[5] H02K *5/16*
U.S. Cl. 310—90 **3 Claims**

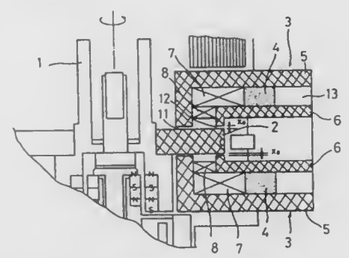
1. A generator, comprising:
a generator housing;
a shaft;
a rotor connected to said shaft;
a stator inductively coupled to said rotor; and,
a bearing adjacent to said shaft for supporting said shaft for

rotation which is retained in place on a first side by said generator housing and on a second side by said stator,



wherein said rotor and said bearing are adjacent to each other but spaced apart from each other.

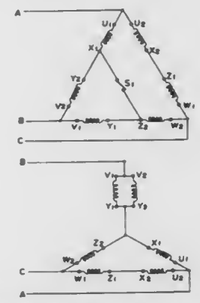
5,068,558
MAGNETIC BEARING DEVICE
Akira Yamamura, Tokyo, Japan, assignor to Nippon Ferrofluidics Corporation, Tokyo, Japan
Continuation of Ser. No. 418,303, Oct. 6, 1989, abandoned. This application Jul. 27, 1990, Ser. No. 560,456
Claims priority, application Japan, Oct. 7, 1988, 63-254620
Int. Cl.[5] H02K *7/09*
U.S. Cl. 310—90.5 **1 Claim**



1. A magnetic bearing device comprising: a rotary main shaft; an armature disk mounted on said rotary main shaft; and a pair of bearing elements disposed on opposite sides of an axial direction of said armature disk, each of said bearing elements including a permanent magnet provided with a pair of pole pieces, a top end of each of the pole pieces being disposed near said armature disk, and a control coil being disposed between the pole pieces at a position nearer to a front end side of said bearing elements than the permanent magnet.

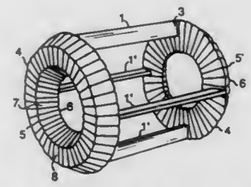
5,068,559
INDUCTION MOTOR SWITCHABLE BETWEEN SERIES DELTA AND PARALLEL WYE
Toshihiko Satake, Higashihiroshima, and Yukio Onogi, Hiroshima, both of Japan, assignors to Satake Engineering Co., Ltd., Tokyo, Japan
Filed Sep. 27, 1990, Ser. No. 588,921
Claims priority, application Japan, Oct. 5, 1989, 1-261446
Int. Cl.[5] H02P *1/32, 5/28, 8/00, 13/06*
U.S. Cl. 310—112 **10 Claims**

1. An induction motor comprising:
a single rotor formed in one-piece having a first and a second rotor core axially mounted on a common axis with an airspace or a non-magnetic portion being provided between said two rotor cores and having on said two rotor cores a plurality of rotor conductive members extending therethrough;
a first and a second stator disposed side by side and surroundingly facing said respective rotor cores, said first and second stators having a first and a second stator core on which a plurality of polyphase windings are being wound, said plurality of polyphase windings of said first and second stators being interconnected so as to form a series Δ-connection; and



a phase changing means having short-circuiting switches disposed respectively between series-junction nodes of said respective stator windings of different phases of said first and second stators, for varying the phase difference between the rotational magnetic fields around said first rotor core generated by said first stator and the rotational magnetic fields around said second rotor core generated by said second stator by the operation of said short-circuiting switches.

5,068,560
REDUCED CURRENT STARTING MECHANISM FOR THREE PHASE SQUIRREL CAGE MOTORS
Lynn Lundquist, 10833 NE. Russell, Portland, Oreg. 97220
Filed Dec. 26, 1990, Ser. No. 634,056
Int. Cl.[5] H02K *17/18, 17/16*
U.S. Cl. 310—125 **22 Claims**



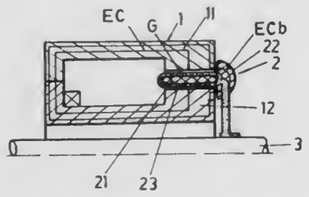
1. A rotor cage assembly for an alternating current motor including a rotor steel, comprising:
a segmented shorting ring having plural segmented areas therein;
plural, elongate rotor bars, each electrically connected to a segmented area of said shorting ring, with the segmented areas located on each end of said rotor bar;
shunting means selectively electrically connectable to said segmented shorting ring;
whereby said shunting means is constructed and arranged to selectively alter the current path within said shorting ring.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,561
HOMOPOLAR ROTARY MACHINE WITH FLUX BYPASS

Woo S. Lee, 287, You Pyoung Li, Chung Cheong Puk Do, Rep. of Korea 367-850

Filed Jan. 17, 1990, Ser. No. 466,650
Claims priority, application Rep. of Korea, Jan. 23, 1989, 89690[U]
Int. Cl.[5] H02K *1/06, 21/36, 31/00*
U.S. Cl. 310—178 4 Claims

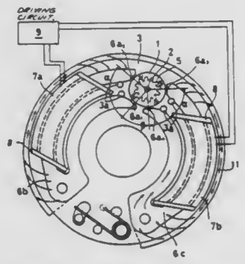


1. A homopolar rotary dynamoelectric machine comprising:
a hollow, annular cylindrically shaped magnetic field yoke of ferromagnetic material for conducting magnetic flux therethrough in a toroidal loop circuit around the hollow annulus in the annular yoke;
an annular slot through one end portion of the cylinder extending substantially parallel to the central axis of the cylinder to form an annular air gap through said flux loop at said one end portion and two opposed pole faces forming opposite sides of said gap;
an annular conductive member in said gap in substantially equally spaced relation to said opposed pole faces and supported for relative rotation with respect to said magnetic field yoke so that said conductive member passes transversely through magnetic flux in said gap; and
a plurality of substantially equally circumferentially spaced magnetic flux by-pass yokes of ferromagnetic material in adjacent closely spaced relation to at least one end of said gap for conducting at least a part of said magnetic flux so that said part of said flux by-passes around said gap reducing said flux passing through said gap thereby forming a plurality of alternating dense flux areas in said gap adjacent the spaces between said by-pass yokes and low density flux areas in said gap adjacent said by-pass yokes.

5,068,562
SMALL STEPPING MOTOR

Shigeru Tagami; Yoshio Umedu, and Katsuhito Niwa, all of Chiba, Japan, assignors to Seikosha Co., Ltd., Tokyo, Japan

Filed Nov. 17, 1989, Ser. No. 438,557
Claims priority, application Japan, Jan. 26, 1989, 63-17044
Int. Cl.[5] H02K *1/12, 37/00*
U.S. Cl. 310—256 5 Claims

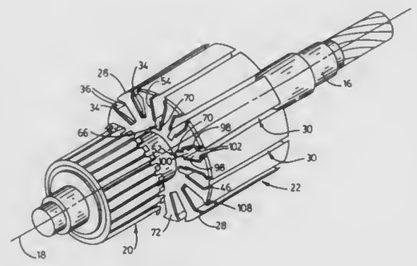


3. A stepping motor having a rotor comprised of a radially magnetized permanent magnet, a mounting plate, said rotor being rotatably mounted to said plate, a stator having a pair of arcuate poles joined at one end, said stator being mounted to said plate with the unjoined poles thereof facing said rotor, a winding on said stator, and a leakage flux converging member mounted adjacent said stator to converge leakage magnetic flux from said stator or coil to pass through said stator.

5,068,563
TAB INSULATORS FOR INSULATING ARMATURE CORE SLOTS

David H. Cummings, Waukesha, Wis., assignor to Milwaukee Electric Tool Corporation, Brookfield, Wis.

Filed Oct. 9, 1990, Ser. No. 594,727
Int. Cl.[5] H02K *1/22*
U.S. Cl. 310—261 9 Claims



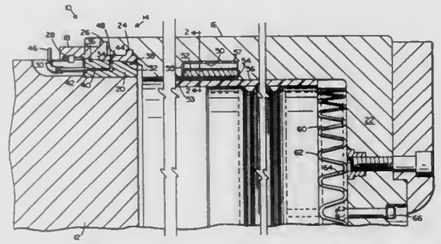
1. An armature comprising:
a shaft supportable for rotation in a motor body and defining an axis;
a commutator on said shaft and rotatable with said shaft;
an armature core on said shaft, rotatable with said shaft and spaced from said commutator, said core having an end facing said commutator, an opposite end, and an outer generally cylindrical surface including a plurality of spaced apart slots adapted to have wire wound therein, each of the slots extending in a direction generally parallel to the axis;
a core end insulator on said opposite end of said core, said core end insulator having a side facing said core and having a side facing away from said core; and
insulator means, slidably mounted in one of said slots, for preventing an electrical connection between said core and wire wound in the slots, said insulator means comprising a main body portion having a first end generally aligned with said commutator facing end of said core, and having a second end generally aligned with said opposite end of said core, and said insulator means further comprising tab means extending from said second end of said main body portion and for preventing movement of said insulator means in said one of said slots in a direction parallel to the axis, said tab means extending out of said one of said slots and being bendable against the side of said core end insulator facing away from said core.

5,068,564
END RETAINER RING ASSEMBLY FOR ROTARY ELECTRICAL DEVICES

Joseph J. Frank, Esperance, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 29, 1990, Ser. No. 604,210
Int. Cl.[5] H02K *3/46*
U.S. Cl. 310—270 21 Claims

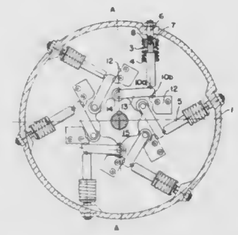
1. A system for supporting end windings of a rotatable electrical device having a rotor body rotatable about an axis and a rotor body end, comprising:
a primary retaining ring having an open end mountable to the rotor body end and an opposite end, said primary retaining ring being extendable beyond the rotor body end to support the end windings, said primary retaining ring being formed of a composite material;
an auxiliary ring carried by said primary retaining ring adjacent its open end and being integrally secured thereto, said auxiliary ring having a radially inwardly directed surface tapering radially inwardly in a direction from said open end of said primary retaining ring toward said opposite end thereof; and
an inner retaining ring for overlying the rotor body end and having a radially outwardly directed surface tapering radially inwardly toward the axis in a direction toward said opposite end of said primary retaining ring, the tapered surface of said inner retaining ring being generally complementary to and for mating engagement with the tapered surface of said auxiliary ring.



5,068,565
MOTOR CONVERSION MECHANISM UTILIZING ELASTIC ACTION

DaXu Huang, 186 An Yuan Lu, Shanghai, China

Filed Jan. 4, 1990, Ser. No. 461,034
Claims priority, application China, Jan. 30, 1989, 89100596
Int. Cl.[5] H01L *41/08;* H02N *2/00*
U.S. Cl. 310—328 27 Claims

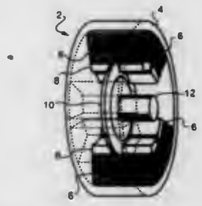


13. A motion conversion mechanism for converting micro amplitude oscillatory motion into continuous motion related to the oscillatory motion comprising:
a moving mechanism including a moving member;
elastic force field means encompassing and being operatively connected to said moving member for providing a continuous elastic bias on said moving member, said elastic bias providing a substantially balanced force on said working member in the absence of an additive force; and
actuator means for presenting an additive force to said elastic force field means, said actuator means effecting a perturbation of the elastic force means by upsetting balance of forces acting on the moving member at rest to cause an unbalance of force resulting in an output motion of the moving member.

5,068,566
ELECTRIC TRACTION MOTOR

Gordon W. Culp, Van Nuys, Calif., assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Jun. 4, 1990, Ser. No. 532,837
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—328 16 Claims

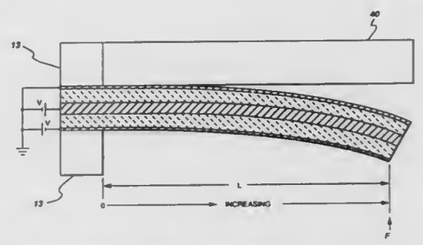


1. An electric traction motor, comprising:
a motor housing;
at least one pair of actuators disposed inside said housing;
activatable to provide cyclical walking traction wherein each of said actuators comprises a tangentially acting segment attached to said housing and a pair of opposing axially acting segments attached to said tangentially acting segment;
a motor shaft extending inside said housing having a flange attached thereto, wherein said flange comprises a disk-shaped rotor and said shaft extends from an axis of rotation of said rotor, said rotor engagable by said actuators for rotation of said rotor and shaft.

5,068,567
APPARATUS FOR INCREASING THE RECOVERABLE ENERGY OF A PIEZOELECTRIC BENDER

Donald W. Jones, Burnt Hills, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Oct. 26, 1990, Ser. No. 603,647
Int. Cl.[5] H01L *41/08*
U.S. Cl. 310—332 5 Claims



2. A piezoelectric bender, comprising:
a cantilever-mounted piezoelectric core portion having two oppositely polarized strips of piezoelectric material, said piezoelectric core portion having a free end and a fixed end;
at least two electrodes, one of said electrodes disposed on either outer surface of said core portion, said piezoelectric core portion bending in a predetermined direction when a voltage signal is applied between said electrodes; and
a flat back-up plate disposed adjacent, but unattached, to the outer surface of said piezoelectric core portion which is opposite to the direction of displacement of said bender, said back-up plate being positioned so as to minimize the

VOL 1132 ISS 4 NO 26 1991 UMI

curvature of said piezoelectric bender when said bender is energized to apply a force at the free end thereof in said predetermined direction away from said back-up plate, thereby maximizing the potential energy recoverable therefrom, the length of said back-up plate extending from a point adjacent to said fixed end of said piezoelectric core portion to a point a predetermined distance from said fixed end.

5,068,568

CATHODE RAY TUBE HAVING MULTILAYER INTERFERENCE FILTER

Henricus M. de Vrieze; Johannes H. J. Roosen, and Leendert Vriens, all of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

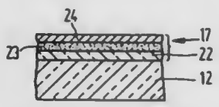
Continuation of Ser. No. 14,566, Feb. 13, 1987, abandoned, which is a continuation-in-part of Ser. No. 742,834, Jun. 10, 1985, Pat. No. 4,647,812, which is a continuation-in-part of Ser. No. 662,311, Oct. 18, 1984, Pat. No. 4,634,926. This application May 15, 1990, Ser. No. 524,718

Claims priority, application United Kingdom, May 21, 1986, 8612358

The portion of the term of this patent subsequent to Jan. 6, 2004, has been disclaimed.

Int. Cl.[5] H01J *29/10*

U.S. Cl. 313—474 **27 Claims**



1. A method of making a multilayer interference filter provided on an internally facing surface of a faceplate of a cathode ray tube, the method comprising depositing alternate layers of a material having a relatively high refractive index and a material having a relatively low refractive index on the faceplate, the material having a relatively high refractive index comprising niobium pentoxide.

5,068,569

WAVE GUIDE DEVICE HAVING A PERIODIC STRUCTURE AND IMPROVED HEAT DISSIPATION

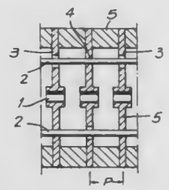
Guido Busacca, and Antonio Muratore, both of Palermo, Italy, assignors to Selenia Industrie Elettroniche Associate S.p.A., Rome, Italy

Filed Jun. 8, 1990, Ser. No. 535,388

Claims priority, application Italy, Jun. 9, 1989, 48070 A/89

Int. Cl.[5] H01J *25/34*

U.S. Cl. 315—3.5 **6 Claims**



1. An apparatus having a projected ion beam and a periodic structure for guiding electromagnetic waves propagating along a longitudinal axis of the structure at a speed below the velocity of light and for providing dissipation of heat provided in the structure, said structure comprising:

a series of metal polar expansions aligned with said axis and forming a plurality of resonant metal cavities;

said polar expansions having respective freeway apertures aligned with each other so as to form a freeway for electron flow of said ion beam;

first and second conductors traveling at least the length of at least two of said expansions in said series and having an electrically conductive wire having a core and a surface portion having a greater resistance than the core, for cooperating with the polar expansions;

said polar expansions each further respectively having first and second conductive apertures for receiving said first and second conductors; and

said first conductors being short circuited only to alternate ones of said polar expansions, and said second conductors being short circuited only to respective alternate ones of said polar expansions such that each polar expansion is short circuited only to one of said first and second conductors while providing an aperture of sufficient diameter for said nonshort circuited conductor to pass therethrough and for heat to be dissipated from said non-short circuited conductor.

5,068,570

LAMP LIGHTING CIRCUIT WITH AN OVERLOAD PROTECTION CAPABILITY

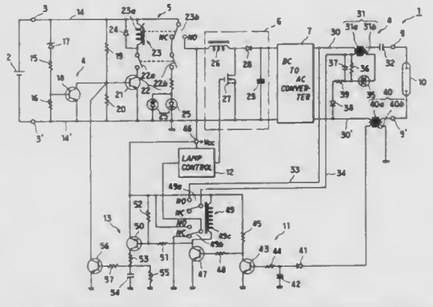
Goichi Oda; Masaya Shidoh; Atsushi Toda; Akiyoshi Ozaki; Akihiro Matsumoto; Soichi Yagi, and Atsuhiko Murata, all of Shimizu, Japan, assignors to Koito Manufacturing Co., Ltd., Shizuoka, Japan

Filed Jan. 24, 1990, Ser. No. 469,876

Claims priority, application Japan, Jan. 26, 1989, 1-16574; Dec. 7, 1989, 1-318481

Int. Cl.[5] H05B *41/00*

U.S. Cl. 315—128 **17 Claims**



7. A lamp lighting circuit for connection between a power supply and an electric lamp, comprising:

(a) a pair of input terminals between which the power supply is to be connected;

(b) a pair of output terminals between which the lamp is to be connected;

(c) an operator actuated lamp switch connected between the input and output terminals;

(d) a protection switch connected in series with the lamp switch;

(e) a relay coil connected in series with the lamp switch and the protection switch whereby the relay coil is energized only when both lamp switch and protection switch are closed;

(f) a relay switch connected between the input and output terminals and actuated by the relay coil for closing the lighting circuit when the relay coil is energized;

(g) overvoltage detector means connected to the protection switch for opening the same when the output voltage of the power supply exceeds a predetermined value; and

(h) lamp failure detector means connected to the protection switch for opening the same when the lamp remains unlit for a predetermined time following the closure of the lamp switch.

5,068,571

SWITCHED BRIDGE CIRCUIT

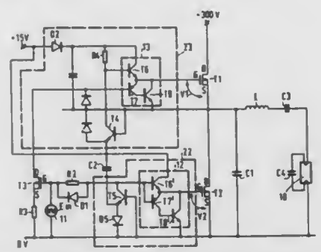
Franciscus A. C. M. Schoofs, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jul. 13, 1990, Ser. No. 553,476

Claims priority, application United Kingdom, Jul. 19, 1989, 8916451

Int. Cl.[5] H05B *41/14*

U.S. Cl. 315—205 **24 Claims**



1. A switched bridge circuit in which semiconductor bridge elements (T1,T2) are arranged to provide a commutated output voltage from a d.c. supply source in response to a switching signal, characterised in that a control circuit for switching the bridge elements has its output connected to a capacitor (C2) such that switching of the bridge elements (T1,T2) is prevented whilst there is a flow of current through the capacitor (C2), which is indicative of changing output voltage.

5,068,572

SWITCH MODE POWER SUPPLY

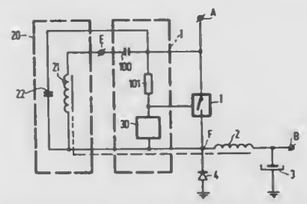
Hendrik J. Blankers, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed May 15, 1990, Ser. No. 524,251

Claims priority, application Netherlands, Jun. 8, 1989, 8901459

Int. Cl.[5] H05B *41/36*

U.S. Cl. 315—209 R **14 Claims**



1. A switch mode power supply for ignition and operation of a high-pressure discharge lamp comprising:

switching means, induction means, capacitive buffer means and rectifying means coupled together to form a switch mode power supply coupled between an input voltage terminal and the lamp so as to supply a current to the lamp from an input voltage at the input terminal by switching the switching means alternately to a conducting state and to a non-conducting state,

a control circuit for supplying to a control terminal of the switching means a switching signal comprising a switching-on signal for switching the switching means to the conducting state and a switching-off signal for switching the switching means to the non-conducting state, and

circuit means, which include said induction means, coupled to the control circuit, said circuit means providing current detection of a current in the induction means and at the same time producing the switching signal, where the circuit means further comprise a first winding part of the induction means operative as a source for producing the switching on signal.

5,068,573

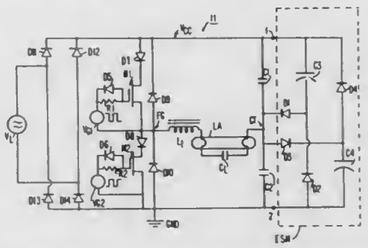
POWER SUPPLY WITH ENERGY STORAGE FOR IMPROVED VOLTAGE REGULATION

Gert W. Bruning, Tuckahoe, and Paul R. Veldman, Mt. Kisco, both of N.Y., assignors to North American Philips Corporation, New York, N.Y.

Filed Sep. 20, 1990, Ser. No. 585,574

Int. Cl.[5] H05B *41/36*

U.S. Cl. 315—209 R **6 Claims**



1. A voltage regulated power supply including two circuit lines and a source of full wave rectified pulsating positive voltage connected across said two circuit lines, a bridge inverter connected between said two circuit lines, said bridge inverter supplying high frequency current to said circuit lines in response to said pulsating positive voltage across said two circuit lines, a load circuit connected between said two circuit lines and conducting a load current in accordance with said high frequency current, one of said circuit lines operating as a positive voltage line for said load circuit and the other circuit line operating as a return line between said load circuit and said bridge inverter and an energy storage means connected in series circuit with said load circuit, said energy storage means receiving said load current and storing energy in accordance therewith, said energy storage means providing energy to said positive voltage line whenever the pulsating positive voltage decreases below a predetermined minimum whereby the voltage on the positive voltage line is regulated by the energy stored in the energy storage means as a result of the load current received thereby and also including a first capacitor connected between said positive voltage line and one end of said load circuit, said first capacitor and said load circuit forming a node at the connection between them, and wherein said energy storage means includes a second capacitor and a first diode being connected in series with each other and forming a connection therebetween and being connected in parallel across said first capacitor, said first diode being poled to prevent current flow from said node directly to said second capacitor and a second diode connected from the connection between said second capacitor and said first diode to said return line and being poled to prevent current flow through said second capacitor directly to said return line.

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,574

LIGHTING DEVICE FOR FLUORESCENT DISCHARGE TUBE

Yoshiharu Koda, and Tadashi Takashima, both of Tokyo, Japan, assignors to Kabushiki Kaisha Denkosha, Tokyo, Japan

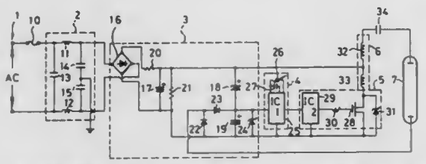
Continuation-in-part of Ser. No. 346,651, May 3, 1989, Pat. No. 4,999,546. This application Mar. 20, 1990, Ser. No. 496,543

Claims priority, application Japan, Jan. 30, 1989, 1-17591; Mar. 10, 1989, 1-56068

The portion of the term of this patent subsequent to Mar. 12, 2008, has been disclaimed.

Int. Cl.[5] H05B *37/02*

U.S. Cl. 315—225 **2 Claims**



1. A discharge tube lighting device comprising rectifying means connected to an AC power source and adapted to transform an AC voltage from said AC power source into a stable DC voltage, pulse generating means driven by the DC voltage issued from said rectifying means and consequently caused to emit high-frequency pulse signals of a fixed duty ratio, adjusting means for varying the frequency of the pulse issued from said pulse generating means, high-voltage applying means for applying high voltage to a discharge tube, and switching means for driving said high-voltage applying means synchronously with the high-frequency pulse signals issued from said pulse generating means, wherein electrodes disposed one each at the opposite terminals of said discharge tube are severally connected with one connecting wire to said high-voltage applying means so that said discharge tube may be lighted without requiring said electrodes to be preheated.

5,068,575

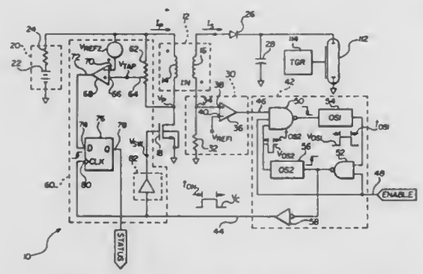
INDIRECT STORAGE CAPACITOR VOLTAGE SENSING MEANS FOR A FLYBACK TYPE DC-TO-DC CONVERTER

Clay A. Dunsmore, Batavia, and Frederick T. Lucas, Rochester, both of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 21, 1991, Ser. No. 659,193

Int. Cl.[5] G03B *15/05*; H05B *41/32*; H02M *3/28*

U.S. Cl. 315—241 P **16 Claims**



1. In a flyback type self-oscillating DC-to-DC converter having a high voltage storage capacitor, a coupled inductor having primary and secondary windings, a switching means coupled to the primary winding, and a control means, wherein the control means alternately activates and deactivates the switching means so that current induced in the secondary winding in response to current action in the primary winding charges the storage capacitor; a voltage sensing means for indirectly sensing the storage capacitor voltage and indicating when the voltage across the storage capacitor has been charged to a predetermined charged voltage, comprising:

a voltage dividing resistor connected across the primary winding, the resistor having a tap intermediate the ends thereof, the voltage across the primary winding corresponding to a voltage on the storage capacitor according to the turns ratio of the primary winding to the secondary winding measured during a measurement period, the measurement period having first and second portions and being a period of time when the control means deactivates the switching means whereby current flows in the secondary winding;

a predetermined reference voltage;

means for comparing a voltage at the tap of said voltage dividing resistor with the predetermined reference voltage, the tap on said voltage dividing resistor being set to correspond to the predetermined reference voltage when the voltage on the storage capacitor is at the predetermined charged voltage, said comparing means providing an output signal having (a) a first condition when the tap voltage is below said predetermined reference voltage corresponding to the storage capacitor voltage being below the desired charged voltage and (b) having a second condition when the tap voltage is above said predetermined reference voltage corresponding to the storage capacitor voltage being above the desired charges voltage, said output signal being susceptible to fluctuations between said first and second conditions during the first portion of the measurement period; and

means for latching said comparing means output signal during the second portion of the measurement period, the second portion being subsequent to the first portion, said latching means being coupled to said comparing means and the control means.

5,068,576

REMOTE CONTROL OF FLUORESCENT LAMP BALLAST USING POWER FLOW INTERRUPTION CODING WITH MEANS TO MAINTAIN FILAMENT VOLTAGE SUBSTANTIALLY CONSTANT AS THE LAMP VOLTAGE DECREASES

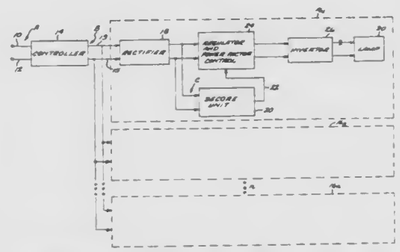
Feng-Kang Hu; Chung M. Lau; Kevin Yang; Joshau S. Zhu, all of Torrance; Peter S. Shen, Rancho Palos Verdes, all of Calif., and Thomas C. Jednacz, Gastonia, N.C., assignors to Electronic Ballast Technology, Inc., Torrance, Calif.

Filed Aug. 13, 1990, Ser. No. 565,711

The portion of the term of this patent subsequent to Oct. 8, 2008, has been disclaimed.

Int. Cl.[5] G05F *1/00*; H05B *41/36*

U.S. Cl. 315—291 **7 Claims**



1. A dimmable fluorescent lamp ballast system comprising:

means for providing a first AC voltage signal;

encoder means connected to said AC voltage for providing a cyclical signal, each cycle containing a missing pulse;

decoder means responsive to said signal for providing a DC voltage signal having a magnitude predetermined by the time period between missing pulses in successive cycles of said pulse train;

a fluorescent lamp having filament means associated therewith;

first circuit means responsive to said DC voltage signal for generating a first AC signal having a magnitude proportional to the magnitude of said DC voltage signal, said first AC signal being coupled to said fluorescent lamp; and

second circuit means responsive to said DC voltage signal for generating a second AC voltage signal having a magnitude proportional to the resonant frequency of said second circuit means, said second AC voltage signal being applied to said lamp filament means, a decrease in the magnitude of said first AC voltage signal from a first level to a second level causing said second circuit means to maintain the magnitude of said second AC voltage signal at a value at least equal to the value when said first AC signal was at said first level.

5,068,577

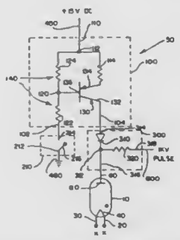
CONSTANT CURRENT DRIVE SYSTEM FOR FLUORESCENT TUBES

Brent W. Brown, Logan, Utah, assignor to Integrated Systems Engineering, Inc., Logan, Utah

Filed Nov. 19, 1990, Ser. No. 615,690

Int. Cl.[5] H05B *41/36, 41/44*

U.S. Cl. 315—307 **31 Claims**



1. A system for selectively igniting and maintaining constant conduction and illumination and extinguishing illumination in a gas discharge tube having at least two electrodes and ignition and illumination maintaining voltage levels which are greater than a maximum safe logic voltage level, said system comprising:

first means for selectively communicating the gas discharge tube igniting voltage to a first electrode of the gas discharge tube;

a substantially constant DC illumination maintaining voltage power supply comprising means for providing an illumination maintaining voltage reference level and means for providing a low voltage reference level;

a well regulated logic voltage level power supply, the electrical current flow through which is substantially independent of changes in electrical current flowing through the gas discharge tube;

second means, comprising an on/off semiconductor gate in series with the gas discharge tube, for communicating a substantially constant current to the first electrode of the gas discharge tube during the period of illumination;

third means for communicating the low voltage reference level to a second electrode of the gas discharge tube whereby the voltage drop across the tube is sufficient to maintain tube illumination;

fourth means, comprising logic voltage level gating circuits electrically connected to the on/off semiconductor gate, for selectively terminating conduction in the on/off semiconductor gate thereby extinguishing illumination in the gas discharge tube.

5,068,578

CIRCUIT ARRANGEMENT FOR SUPPLYING A LOAD

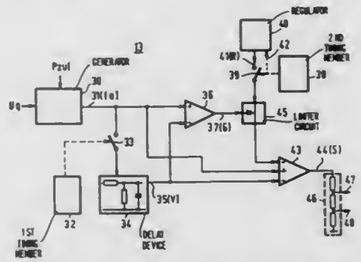
Armin Wegener, Aachen, Fed. Rep. of Germany, assignor to U. S. Philips Corporation, New York, N.Y.

Filed Aug. 23, 1990, Ser. No. 574,418

Claims priority, application Fed. Rep. of Germany, Aug. 31, 1989, 39288810

Int. Cl.[5] H05B *41/36*

U.S. Cl. 315—307 **13 Claims**



1. A circuit arrangement for supplying a load (1) from a direct voltage source (2,3) through a circuit part (4), comprising a control circuit (13) for controlling the current through the load (1) in a starting time interval after it has been put into operation, characterized in that the control circuit (13) includes

determining means for determining a starting value (Ia) for the current through the load (1) from a given power (Pzul) to be at most consumed by the load (1) and the voltage (Uq) delivered by the direct voltage source,

deriving means for deriving—beginning after termination of a first delay time (t1) after start of the operation a reduction value (V) gradually increasing from zero to a final value from the starting value (Ia),

first forming means for forming a limiting current value (G) as a linear combination of the starting value (Ia) and the reduction value (V),

supplying means for supplying—beginning after termination of a second delay time (t2) after start of the operation on a regulation signal (R) of a regulator (4) whilst simultaneously limiting the value of the regulation signal (R) to the limiting current value (G), and

second forming means for forming a control signal (S) for controlling the current through the load as a linear combination of the starting value (Ia), of the reduction value (V) and of the regulation signal (R).

5,068,579

FLAT CONFIGURATION COLOR CRT DISPLAY APPARATUS WITH SCANNING CORRECTION FOR COMPONENT POSITIONING ERROR

Kaoru Tomii, Ischara; Hiroshi Miyama, Yokohama, and Yoshikazu Kawauchi, Kawasaki, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed May 18, 1990, Ser. No. 524,953

Claims priority, application Japan, May 19, 1989, 1-126951

Int. Cl.[5] H01J *29/70, 29/72*

U.S. Cl. 315—366 **12 Claims**

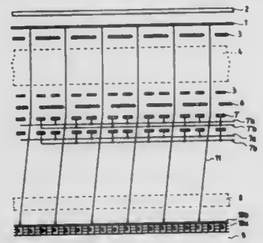
1. In a flat configuration image display apparatus including means for generating a plurality of electron beams within an evacuated containing envelope, modulation electrode means for modulating said electron beams, means for applying electron beam modulation signals to said modulation electrode means, a display surface formed with a pattern of fluorescent layer portions, and scanning means for deflecting said electron beams as an array of horizontal scan lines traversing said fluorescent layer portions, said scanning means including main horizontal deflection electrodes for horizontally deflecting said electron beams and main horizontal deflection voltage

VOL 1132 ISS 4 NO 26 1991 UMI

generating means for applying between said main horizontal deflection electrodes a main horizontal deflection voltage having a sawtooth waveform with a period equal to a horizontal scanning period, the improvement comprising:

correction deflection electrodes positioned to horizontally deflect said electron beams; and

correction deflection voltage generating means for applying



between said correction deflection electrodes a correction deflection voltage having a sawtooth waveform with a period that is substantially equal to 1/n times said horizontal scanning period, where n is a fixed integer of value 2 or more, said sawtooth waveform of the correction deflection voltage and said sawtooth waveform of the main horizontal deflection voltage having mutually opposite directions of slope.

5,068,580

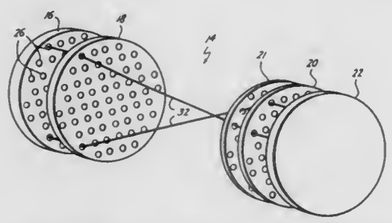
ELECTRICAL BEAM SWITCH

Lawrence N. Smith, Austin; Ollie C. Woodard, Sr., Buda, and Dennis J. Herrell, Austin, all of Tex., assignors to Microelectronics and Computer Technology Corporation, Austin, Tex.

Filed May 30, 1989, Ser. No. 359,019

Int. Cl.[5] G09G *1/04;* **H01J** *29/70;* **H04Q** *1/28*

U.S. Cl. 315—366 **12 Claims**



1. An electron beam crossbar switch for interconnection between processors or memory units comprising,

a two dimensional array of electron emitter source device,

a separate data input connected to each of the electron emitters,

a two dimensional array of independent and unrelated data output detectors positioned relative to the array of electron emitter devices for receiving electrons from any of the emitter devices,

x and y deflection means positioned adjacent each of the electron emitters for individually directing the electrons from each of the emitters to a selected one of any of the detectors, and

separate address means connected to each of the deflection means for individually directing the data input to each emitter to a different selected detector.

5,068,581

HORIZONTAL DEFLECTION CIRCUIT FOR HIGH-FREQUENCY SCANNING

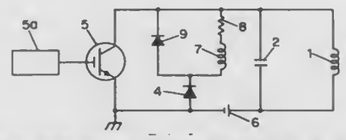
Akira Nishiura, Matumoto; Naoki Kumagai, Yokosuka, and Yasukazu Seki, Kanagawa, all of Japan, assignors to Fuji Electric Co., Ltd., Japan

Filed Aug. 27, 1990, Ser. No. 573,635

Claims priority, application Japan, Aug. 30, 1989, 1-223503

Int. Cl.[5] G09G *1/04;* **H01J** *29/70*

U.S. Cl. 315—370 **12 Claims**



1. A horizontal deflection circuit, suitable for use with high frequency scanning rates up to 60 KHz, comprising:

a horizontal deflection coil;

a capacitor coupled across said horiziontal deflection coil;

switching means, for coupling a source of power to said horizontal deflection coil and capacitor combination, including a semiconductor device capable of high frequency switching but subject to an inherent delay effect in current switching; and

a circuit coupled across said switching means including a series combination of diode means for enabling a flow of reverse recovery current during a portion of a deflection cycle and compensation means for delaying an increase in magnitude of current flow through said diode means during said reverse recovery current flow in compensation for said inherent delay effect;

whereby, distortion of horizontal deflection coil voltage due to said inherent delay effect is avoided by said current increase delay produced by said compensation means.

5,068,582

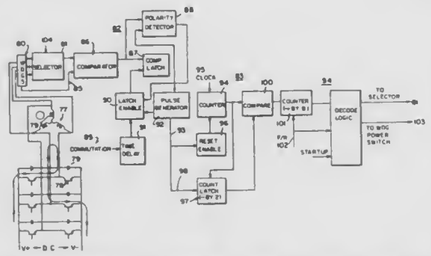
BRUSHLESS PULSED D.C. MOTOR

Kenneth C. Scott, San Diego, Calif., assignor to A. O. Smith Corporation, Milwaukee, Wis.

Filed May 29, 1990, Ser. No. 529,920

Int. Cl.[5] H02P *6/02*

U.S. Cl. 318—254 **16 Claims**



1. A commutated brushless dc motor comprising a stator with a plurality of circumferentially spaced stator windings, a rotor coupled to said stator and rotatably mounted to rotate relative to said stator winding as the result of energization of said windings, a dc power supply to establish pulsed energization of said windings in sequence with at least one winding de-energized, an alternating current induced signal being induced in said de-energized winding and having periodic zero crossings, a timing device coupled to the stator to monitor the time between the zero crossings of said induced signal and generating an electrical zero crossing signal proportional to such time, a signal latch unit coupled to said timing device and storing the zero crossing signal as a latched signal, a reset unit connected to said timing device to initiate a new timing cycle to generate a next zero crossing signal, and a comparator connected to said timing device and said latch unit and responsive to a proportion of the latched signal to generate said pulsed energization of said windings in a continuous repetitive sequence.

5,068,583

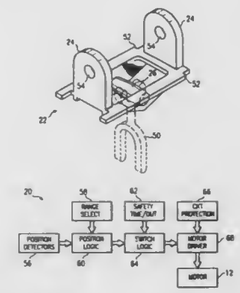
ELECTRONIC SHIFTER

Gary E. Gresham, Fort Worth, and Burnis H. Tucker, Joshua, both of Tex., assignors to Transportation Technologies, Inc., Forth Worth, Tex.

Filed Aug. 15, 1990, Ser. No. 567,913

Int. Cl.[5] B60K *20/00*

U.S. Cl. 318—266 **18 Claims**



1. Apparatus for shifting between gear ratios comprising:

a rigid housing;

a carriage assembly slideably engaged between first and second positions within said housing;

spring means operable to provide an impetus to said carriage assembly to move said carriage assembly between said first and second positions;

first control means for indicating a desired gear ratio selected by an operator;

electronic sensing circuitry for generating an output indicative of the position of the carriage assembly within the housing; and

second control means for compressing said spring means responsive to said sensing circuitry and said first control means.

5,068,584

AUXILIARY DEVICE FOR HANDLING FAILURES OF AN ACTUATING SYSTEM OF A LINEAR ELECTRIC ACTUATOR

Gérard Herent, Meudon; Michel Mahe, Chaville, and Alex Romagny, La Celle Saint-Cloud, all of France, assignors to Regie Nationale Des Usines Renault, Boulogne-Billancourt, France

Filed Nov. 29, 1989, Ser. No. 442,586

Claims priority, application France, Nov. 29, 1988, 88 15555

Int. Cl.[5] B62D *5/04*

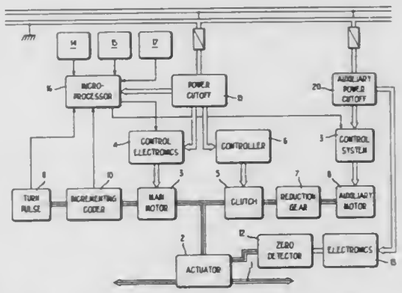
U.S. Cl. 318—549 **17 Claims**

1. An auxiliary device for handling failures of an actuating system of a linear electric actuator, comprising:

auxiliary drive means for returning said actuator to a zero position in case of failure of said actuating system; and

braking means for maintaining said actuator in said zero position in opposition to any mechanical action;

wherein said actuating system comprises a main motor, said auxiliary drive means comprises a small auxiliary motor



and said braking means comprises an irreversible reduction gear joined to a clutch.

5,068,585

NUMERICAL CONTROL DEVICE

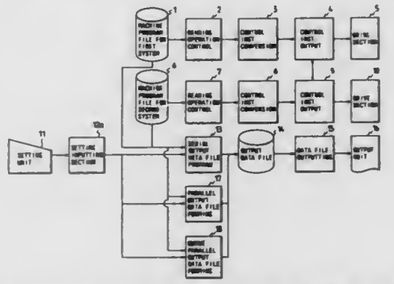
Kiyoshi Kuchiki, Aichi, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed May 2, 1990, Ser. No. 518,631

Claims priority, application Japan, May 8, 1989, 1-114639

Int. Cl.[5] G06F *15/46;* **G05B** *19/405*

U.S. Cl. 318—569 **4 Claims**



1. A numerical control device which is capable of controlling at least two external units in parallel mode according to a plurality of machining programs, respectively, comprising:

memory means for storing the plurality of machining programs each of which is assigned to one of said units;

a first data file forming means for reading the plurality of machining programs to form a first data file in which a first series of steps of execution for one of said plurality of machining program sis arranged in parallel with at least a second series of steps of execution for the another of said plurality of machining programs;

a second data file forming means for reading the plurality of machining programs to form a second data file in which said first series of steps of execution for said one of said plurality of machining programs is arranged in parallel with at least said second series of steps of execution for another of said plurality of machining programs, said second data file forming means being responsive to queuing instructions contained in said first series of steps and said second series of steps for synchronizing the parallel arrangement;

setting means for selecting and starting either said first or second data file forming means; and

output means for selectively displaying outputs of one of said first and second data forming means.

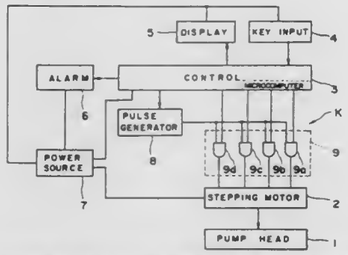
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,586

STEEPING MOTOR DRIVING APPARATUS

Masafumi Kawahara, Nara, Japan; George A. Bowman, Vernon Hills, and Joseph B. Matthews, Grayslake, both of Ill., assignors to Sharp Kabushiki Kaisha, Osaka, Japan and Baxter Int'l. Inc., Deerfield, Ill.

Filed Jun. 22, 1990, Ser. No. 541,953
Claims priority, application Japan, Jun. 28, 1989, 1-165640
Int. Cl.[5] H02P *8/00*
U.S. Cl. 318—696 **17 Claims**



1. A stepping motor driving apparatus for driving a stepping motor having a plurality of excitation coils and subject to varying load at a desired speed comprising:

a pulse output circuit for outputting drive pulses at a drive pulse frequency for driving said stepping motor;

a pulse generator for generating further pulses having a frequency higher than the drive pulse frequency;

gating means receiving the drive pulses from said pulse output circuit and the further pulses from said pulse generator, for selectively modulating said drive pulses with said further pulses to produce modulated drive pulses and supplying said modulated drive pulses to said excitation coils only when said modulated drive pulses produce a toreque sufficient to drive the load at a desired speed, said modulation of sai drive pulses by said gating means reducing the power consumed by said stepping motor;

said gating means directly supplying only said drive pulses without modulation by said further pulses to said excitation coils when said modulated drive pulses do not produce a torque sufficient to drive the load at the desired speed.

5,068,587

SPINDLE DRIVE CONTROL APPARATUS FOR A MACHINE TOOL

Kosei Nakamura; Shinichi Kono; Kazuhisa Numai; all of Yamanashi, Japan, assignors to Fanuc Ltd., Yamanashi, Japan

PCT No. PCT/JP88/01276, § 371 Date Aug. 1, 1989, § 102(e) Date Aug. 1, 1989, PCT Pub. No. WO89/06067, PCT Pub. Date Jun. 29, 1989
PCT Filed Dec. 16, 1988, Ser. No. 393,905
Claims priority, application Japan, Dec. 19, 1987, 62-320151
Int. Cl.[5] H02P *1/26*
U.S. Cl. 318—771 **2 Claims**

1. A spindle drive control apparatus for a machine tool, comprising:

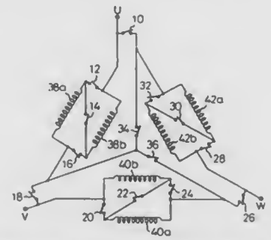
a rotational position detector which detects a rotational position of a spindle of the machine tool; and

a three-phase spindle motor which rotatingly drives said spindle of the machine tool, having

a pair of windings for each phase,

a terminal for said each phase for supplying power, and

a group of switch means including a first switch means for connecting each winding of said pair of windings for each phase in series, second switch means for connecting each winding of said pair of windings for each phase in parallel, third switch means for connecting said each pair of windings for each phase in a Δ connection when said second switch means is connecting each winding of said pair of windings in parallel, and fourth switch means for connecting said each pair of windings for



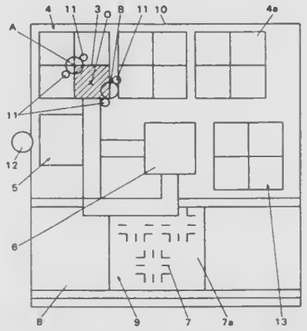
each phase in a Y connection when one of said first and second switch means is connecting each winding of said pair of windings in one of series and parallel.

5,068,588

APPARATUS FOR MOUNTING A FLAT PACKAGE TYPE IC

Hitoshi Kubota, Moriguchi; Manabu Yamane, Neyagawa, and Takashi Anezaki, Hirakata, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Dec. 19, 1989, Ser. No. 452,909
Claims priority, application Japan, Dec. 20, 1988, 63-321189
Int. Cl.[5] G05B *1/06*
U.S. Cl. 318—640 **4 Claims**



1. An apparatus for mounting a flat package type IC having leads on a printed circuit board having lands, comprising:

a holding means for holding the IC, said holding means being capable of moving at least in a horizontal plane and rotating about an axis;

a plurality of cameras each for taking an image of a part of the IC which are held by said holding means, and each for taking an image of a part of the board, said cameras being fixed to said holding means and arranged symmetrically with respect to said axis;

a first process means for obtaining linear deviation and rotational deviation for leads from said images of the IC, and for obtaining linear deviations and rotational deviation of lands from said images of the board;

a second process means for obtaining a linear difference between said linear deviations of the IC and board, and for obtaining a rotational difference between said rotational deviations of the IC and board; and

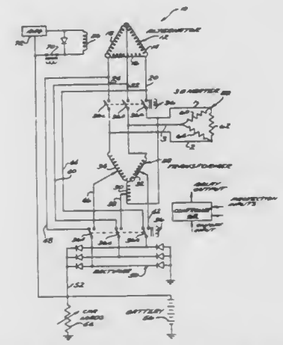
an adjusting means for adjusting the position of the IC held by said holding means, by linearly moving said holding means by said linear difference, and by rotating said holding means by said rotational difference, thereby correctly positioning the leads on the corresponding lands.

5,068,589

SUPPLEMENTAL AUTOMOTIVE VEHICULAR HEATER SYSTEM AND METHOD OF PROVIDING SAME

Stephen B. Offiler, Attleboro; Peter G. Berg, and Keith W. Kawate, both of Attleboro Falls, all of Mass., assignors to Texas Instruments Incorporated, Dallas, Tex.

Division of Ser. No. 181,457, Apr. 14, 1988, which is a continuation of Ser. No. 69,665, Jul. 6, 1987, abandoned, which is a continuation of Ser. No. 852,484, Apr. 16, 1986, Pat. No. 4,678,982. This application Apr. 24, 1989, Ser. No. 342,054
Int. Cl.[5] B60L *1/02;* H02J *7/14*
U.S. Cl. 322—7 **2 Claims**



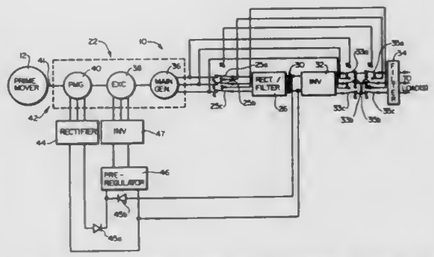
1. An electrical system for an automobile having an engine and a plurality of electrical loads comprising an alternator, the alternator having an alternator output means and having a field winding driven by the engine to provide electrical power to such loads, a voltage regulator for controlling the field winding energization, a battery for supplementing the electrical power provided by the alternator when needed and for turning over the engine upon start up, the alternator having a stator with three windings, the windings coupled together to provide a three phase voltage output on the alternator output means, a rectifier, the rectifier having input and output means, the rectifier output means connected to a circuit including the plurality of electrical loads, the battery and the voltage regulator, a three phase electrical resistance heater means, step-down transformer means having input and output means, switch means to selectively couple the alternator output means to the transformer input means and the heater means along with coupling the transformer output means to the rectifier input means and to couple the alternator output means to the rectifier input means bypassing the transformer means whereby the alternator is caused to produce a higher voltage when the transformer output means are coupled to the voltage regulator than when the transformer means is bypassed.

5,068,590

BRUSHLESS GENERATOR HAVING AC EXCITATION IN GENERATING AND STARTING MODES

Timothy F. Glennon, Rockford; Byron R. Mehl, Belvidere; Pierre Thollot, and Alexander Krinickas, both of Rockford, all of Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Dec. 20, 1989, Ser. No. 453,576
Int. Cl.[5] F02N *11/04;* H02P *9/06*
U.S. Cl. 322—10 **9 Claims**



1. An excitation system for a brushless generator having a main generator portion including a field winding disposed on a rotor and which receives field current and an armature winding disposed in a stator wherein the rotor is movable with respect to the stator and a permanent magnet generator (PMG) having an armature winding in which control power is developed wherein the generator is operable in a generating mode to convert motive power into electrical power and in a starting mode to convert electrical power provided to the main generator armature winding into motive power, comprising:

an exciter portion having a set of polyphase exciter field windings disposed in the stator and an armature winding disposed on the rotor and coupled to the main generator portion field winding;

a source of electrical power;

a first power converter coupled to the main generator armature winding;

a second power converter coupled between the PMG armature winding and the set of polyphase exciter field windings;

means operable in the starting mode for coupling the source of electrical power to the first and second power converters and operable in the generating mode for disconnecting the source of electrical power from the first and second power converters; and

means coupled to the first and second power converters for controlling same such that the power converters provide AC power to the main generator armature winding and to the set of polyphase exciter field windings during operation in the starting mode so that the rotor is accelerated and such that the second power converter develops AC power from the control power and provides same to the set of polyphase exciter field windings and the first power converter develops constant frequency AC power during operation in the generating mode.

8. A brushless generator operable in a generating mode to convert motive power into electrical power, comprising:

a rotor;

a main field winding on the rotor;

an exciter armature winding on the rotor, the exciter armature winding being electrically coupled to the main field winding;

a stator;

a main armature winding in the stator, the main armature winding being magnetically coupled to the main field winding on the rotor;

a set of exciter field windings magnetically coupled to the exciter armature winding; and

means for providing relatively low-frequency AC power to said exciter field windings when the generator is operating in the generating mode, said relatively low frequency being on the order of three Hz.

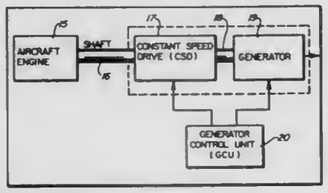
VOL 1132 ISS 4 NOV 26 1991 UMI

5,068,591

SPEED CONTROL FOR ELECTRICAL GENERATING SYSTEM

Lon Hoegberg, Loves Park, and Vijay Maddali, Rockford, both of Ill., assignors to Sundstrand Corporation, Rockford, Ill.

Filed Nov. 15, 1989, Ser. No. 436,612
Int. Cl.[5] H02P 9/42
U.S. Cl. 322—29 19 Claims



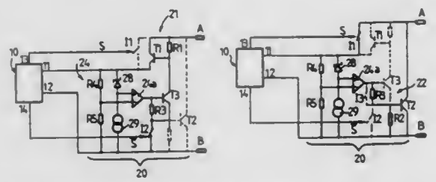
1. In an electrical generating system having
a variable speed prime mover,
a constant speed drive (CSD) with
a variable speed input connected to the prime mover,
a control input and
a constant speed output,
an AC generator connected with the CSD constant speed output and
a speed control including
a source of reference frequency,
means comparing the generator output frequency with the reference frequency to establish an error signal, and
means responsive to the error signal performing a proportional integration function to establish a CSD control signal,
the improvement comprising:
a lead/lag filter connected between the output of the proportional integration means and the CSD control input.

5,068,592

DETECTOR OF THE REGULATED VOLTAGE TWO WIRE TYPE

Didier Leonard, Hiersac, and Stephane Even, Angouleme, both of France, assignors to Telemecanique, France

Filed Dec. 26, 1990, Ser. No. 633,920
Claims priority, application France, Dec. 28, 1989, 89 17321
Int. Cl.[5] G05F 1/613, 3/16
U.S. Cl. 323—224 5 Claims



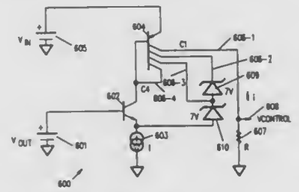
1. A two-wire detector device comprising:
i) a user circuit comprising a load in series with a DC or AC voltage source, said user circuit having first and second DC voltage terminals;
ii) controllable impedance switch means connected across said DC voltage terminals, said controllable impedance switch means having a closed state in which said load is in an ON state, and an open state in which said load is in an OFF state, said controllable impedance switch means having, in the closed state, an impedance variable as a function of a first control signal;
iii) a sensor having first and second supply terminals and first and second supply leads respectively connecting said first and second supply terminals to said first and second DC voltage terminals, said sensor further having an output terminal and delivering on said output terminal an output signal having first and second states;
iv) feedback regulator means for comparing the voltage across said supply terminals of the sensor to a reference voltage and generating on an output a regulation signal as a function of the difference between said voltages;
v) first control means for generating said first control signal from said regulation signal;
vi) a ballast component connected in series in said first supply lead, said ballast component having an impedance variable as a function of a second control signal and second control means for generating said second control signal from said regulation signal;
vii) switch means, controlled form said output signal of the sensor, for short-circuiting said ballast component and for closing said controllable impedance switch means when said output signal is in the first state and for enabling said ballast component and opening said controllable impedance switch means when said output signal is in the second state.

5,068,593

PIECE-WISE CURRENT SOURCE WHOSE OUTPUT FALLS AS CONTROL VOLTAGE RISES

Michael E. Wright, Berkeley, Calif., assignor to National Semiconductor Corp., Santa Clara, Calif.

Filed Oct. 15, 1990, Ser. No. 597,830
Int. Cl.[5] G05F 3/26
U.S. Cl. 323—315 20 Claims



1. A current source comprising:
an input lead for receiving an input voltage;
an output lead for providing an output current;
a current mirror having an input lead coupled to receive an input signal in response to said input voltage, a plurality of control leads, and an output lead;
a plurality of output current control means, each coupled to a respective one of said control leads of said current mirror, each of said output current control means conducting current from said current mirror when said input voltage reaches a predetermined level associated with said output current control means, thereby affecting the current available on said output lead of said current mirror; and
a buffer having an input lead for receiving said input voltage and an output lead coupled to said input lead of said current mirror.

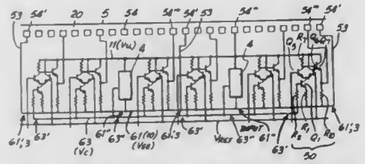
5,068,594

CONSTANT VOLTAGE POWER SUPPLY FOR A PLURALITY OF CONSTANT-CURRENT SOURCES

Yasumi Kurashima, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Mar. 4, 1991, Ser. No. 664,371
Claims priority, application Japan, Mar. 2, 1990, 1-49218
Int. Cl.[5] G05F 3/16
U.S. Cl. 323—314 9 Claims

I. A semiconductor integrated circuit comprising:
a bus line having single or plural first nodes for supplying a power source voltage to said bus line, and having single or plural second nodes;
single or plural constant-voltage circuits electrically connected to said single or plural second nodes of said bus line;
a plurality of constant-current sources arranged along said bus line and electrically connected to said bus line at their respective positions; and
a wiring electrically connecting said single or plural constant voltage circuits and said constant-current sources to supplying a constant voltage from said single or plural constant voltage circuits to said constant-current sources to control the level of the constant current in said constant-current sources,
wherein, the positions of said first and second nodes of said bus line is determined such that the deviation of the level of said constant current among said constant-current sources becomes small, which deviation is caused by a voltage variation of said power source voltage at every portion of said bus line due to current flowing said bus line and by a voltage variation of said control voltage at every portion of said wiring due to current flowing said wiring.

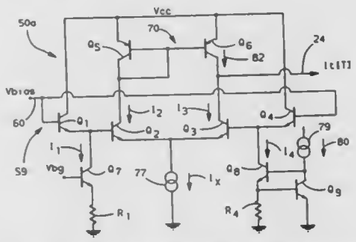


5,068,595

ADJUSTABLE TEMPERATURE DEPENDENT CURRENT GENERATOR

Mark B. Kearney, Kokomo; Dennis M. Koglin, Indianapolis, and Jeffrey A. Michael, Bloomington, all of Ind., assignors to Delco Electronics Corporation, Kokomo, Ind.

Filed Sep. 20, 1990, Ser. No. 585,587
Int. Cl.[5] G05F 3/16
U.S. Cl. 323—316 10 Claims



1. A current generator for supplying an output current with adjustable temperature dependence, comprising:
a first circuit including (1) a transconductance current multiplier comprising four transistors, Q_1, Q_2, Q_3, and Q_4, the four transistors in part defining four primary current paths through with four primary currents, I_1, I_2, I_3, and I_4, flow (2) a current mirror comprising transistors Q_5 and Q_6 coupled to the transconductance current multiplier, transistor Q_5 connected to transistor Q_2 and transistor Q_6 connector to transistor Q_3, and (3) an output current path, coupled to the connection of transistor Q_3 to transistor Q_6, through which the output current, I_t, flows, the output current substantially bearing a relation to the two primary currents I_1 and I_4 such that:

$$I_t = G_c(I_4 - I_1)/(I_1 + I_4),$$

where G_c is a constant;
first means for generating current I_1 as a function of temperature;
second means for generating current I_4 as a function of temperature, wherein the first and second current generating means produce equal and opposite changes in I_1 and I_4 such that currents I_1 and I_4 bear a relationship to temperature of:

$$(I_4 - I_1)/(I_1 + I_4) = K(T - T_o),$$

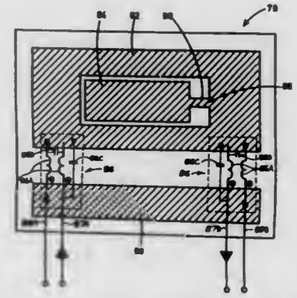
where, K is a constant, T_o is an arbitrary temperature and T is a measure of the current generator temperature; and
means for controlling currents I_2 and I_3 independent of temperature such that G_c is adjusted independent of temperature whereby the current generator has an adjustable gain, G_c.

5,068,596

INTERNAL GROUNDING ARRANGEMENT IN A SWITCHING POWER CONVERTER

George A. Banura, Ridgecrest, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Division of Ser. No. 518,621, May 3, 1990, Pat. No. 5,023,542, which is a division of Ser. No. 389,245, Aug. 3, 1989, Pat. No. 4,961,048. This application Nov. 19, 1990, Ser. No. 618,323
Int. Cl.[5] H02M 3/155
U.S. Cl. 323—351 1 Claim



1. An internal grounding arrangement for a switching DC/DC converter section of a power converter unit having at least one input/output component, at least one high current switching component, and at least one low current switching component, said internal grounding arrangement comprising:
a first ground plane for connection to an input-output component;
a second ground plane separate from said first ground plane for connection to a high current switching component;
a third plane separate from said first and second ground planes for connection to a low current switching component;
first means including a plurality of RF chokes interconnecting said first and second ground planes to permit transmission of DC energy but prevent transmission of RF energy therebetween; and
second means including a single conductor wire interconnecting said second and third ground planes at a single point of contact therebetween to permit operation of a low current switching component, upon connection to said second ground plane, with minimum interaction with a high current switching component, upon connection to said third ground plane.

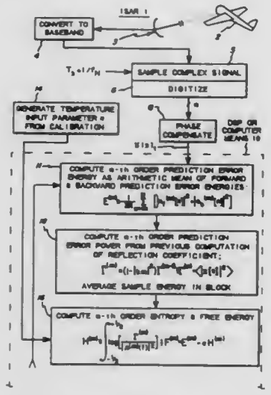
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,597

SPECTRAL ESTIMATION UTILIZING A MINIMUM FREE ENERGY METHOD WITH RECURSIVE REFLECTION COEFFICIENTS

Seth D. Silverstein, and Joseph M. Pimbley, both of Schenectady, N.Y., assignors to General Electric Company, Schenectady, N.Y.

Filed Oct. 30, 1989, Ser. No. 428,809
Int. Cl.[5] G01R *23/16*
U.S. Cl. 324—77 B 1 Claim



1. A method for rapidly estimating power spectral density components $\rho(f)$ in the spectrum of an input signal $x(t)$, where said spectral components identify an object comprising the steps of:

(a) digitizing the input signal, with a selected sample rate, to provide a sampled input signal $X[n]_i$;

(b) computing an m-th order prediction error power as an arithmetic mean of forward and backward prediction error powers of the sampled input signal;

(c) computing a reflection coefficient $\Gamma^{(m)}$;

(d) computing, using $\Gamma^{(m)}$, an m-th order pediction error power;

(e) generating a control parameter α;

(f) using the parameters α and Γ, computing an m-th order entropy H and free power F of the sampled input signal;

(g) computing m-th order reflection coefficients as extremum of the m-th order free power.

(h) testing the computed extremum for proper order;

(i) if proper order is not found, generating a new (m+1)-st order solution for feedback to step (b);

(j) if proper order is found, generating power spectral density components $\rho(f)$; and

(k) recording the spectral components $\rho(f)$ thus generated as estimates of the input signal, where said object is identified by said spectral components.

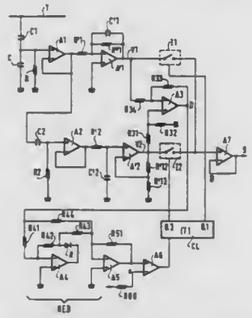
5,068,598

TENSION POTENTIAL MEASURING CIRCUIT WITH SELECTED TIME CONSTANT

Jean-Paul Moncorge, Vaux en Velin, France, assignor to GEC Alsthom SA, Paris, France

Filed Dec. 3, 1990, Ser. No. 620,798
Claims priority, application France, Dec. 7, 1989, 89 16189
Int. Cl.[5] G01R *19/00*
U.S. Cl. 324—107 5 Claims

1. A circuit for measuring the tension of an electricity line, the circuit comprising, for each phase of the line: a capacitive tension divider comprising a first capacitor connected to the line and in series with a second capacitor connected to ground; and first and second amplification lines for amplifying the tension across the terminal of the second capacitor, said first amplification line having a time constant of the order of 100 ms and being associated with a phase correcting circuit, said second amplification line having a time constant of 2.5 ms to 15 ms; wherein the first and second amplification lines are connected to a common output via respective first and second switches controllable by a logic circuit, the tension measuring circuit further including a circuit for generating a signal representative of the absolute value of the algebraic difference



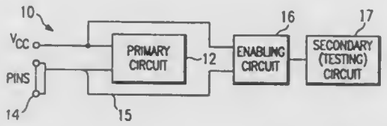
between the respective signals provided by the first and second amplification lines, a comparator circuit receiving said signal and providing at its output a control signal for said logic circuit causing it to operate when said absolute value exceeds a given threshold, said logic circuit being connected to keep the first switch closed and the second switch open so long as said absolute value is less than said threshold, and to open the first switch and to close the second switch when said absolute value exceeds the threshold.

5,068,599

INTEGRATED CIRCUIT HAVING AN ENABLING CIRCUIT FOR CONTROLLING PRIMARY AND SECONDARY SUBCIRCUITS

Jeffrey A. Niehaus, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Filed Oct. 23, 1989, Ser. No. 425,787
Int. Cl.[5] G01R *31/02*
U.S. Cl. 324—158 R 27 Claims



1. An integrated circuit including a primary circuit and a secondary circuit, said integrated circuit further comprising:

(a) a first pin coupled to said integrated circuit; and

(b) enabling circuitry coupled to said first pin, said enabling circuitry, coupling said first pin to said primary circuit responsive to a predetermined first signal on said first pin and coupling said first pin to said secondary circuit responsive to a second predetermined signal different from said predetermined first signal on said first pin.

5,068,600

TESTING DEVICE FOR BOTH-SIDED TWO-STAGE CONTACTING OF EQUIPPED PRINTED CIRCUIT BOARDS

Wolfgang Hilz, Munich; Rudolf Schuster, Heimstetten, and Hans Schauflinger, Munich, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Continuation of Ser. No. 82,584, Aug. 7, 1987, abandoned. This application May 23, 1990, Ser. No. 528,340
Claims priority, application Fed. Rep. of Germany, Aug. 7, 1986, 3626758
The portion of the term of this patent subsequent to Jun. 20, 2006, has been disclaimed.
Int. Cl.[5] G01R *1/04*
U.S. Cl. 324—158 F 11 Claims



9. A testing device for a two-sided component equipped printed circuit board, comprising:

means for holding a twosided component equipped printed circuit board kin a predetermined centered position; and

means for selectively contacting the printed circuit board with a plurality of electrical contacts in at least three contact stages for electrical testing of the circuit board;

said means for selectively contacting including,

a lower needle adaptor having first and second resiliently mounted contact needles arranged test-specimen-associated, said first contact needles being mounted to extend a different distance than said second contact needles when in a relaxed condition,

an upper needle adaptor having third and fourth resiliently mounted contact needles arranged test-specimen-associated, said third contact needles being mounted to extend a different distance than said fourth contact needles when in a relaxed condition,

lower pressure rams associated with said lower needle adaptor and arranged test-specimen-associated, said lower pressure rams having at least a first and second position wherein said first position holds the printed circuit board pressed there against in contact with said first contact needles and out of contact with said second contact needles, and said second position holds the printed circuit board pressed there against in contact with both said first and second contact needles, and

upper pressure rams associated with said upper needle adaptor and arranged test-specimen-associated, said upper pressure rams having at least two positions.

5,068,601

DUAL FUNCTION CAM-RING SYSTEM FOR DUT BOARD PARALLEL ELECTRICAL INTER-CONNECTION AND PROBER/HANDLER DOCKING

Ronald D. Parmenter, Aloha, Oreg., assignor to Credence Systems Corporation, Fremont, Calif.

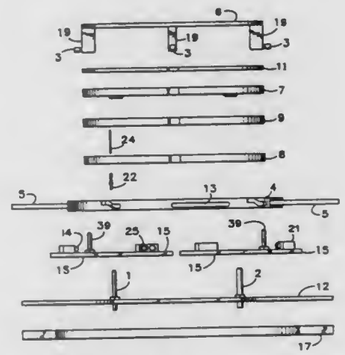
Filed Feb. 11, 1991, Ser. No. 654,264
Int. Cl.[5] G01R *31/02*
U.S. Cl. 324—158 F 10 Claims

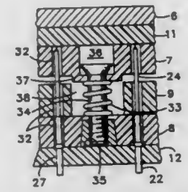
1. A DUT board mounting system for a semiconductor tester comprising:

a load board having a parallel electrical connection interface and at least two guide pins;

a cam-ring rotatably mounted on the load board, the cam-ring having a handle and a plurality of primary cams disposed around the cam-ring; and

a DUT board holddown ring having a plurality of cam followers, so that after a DUT board and the DUT board holddown ring have been aligned by the guide pins in





position atop the load board, rotation of the handle on the cam-ring causes rotation of the cam-ring producing an interaction of the plurality of cam followers with the plurality of primary cams on the cam-ring to draw the DUT board toward the load board and thereby bring a parallel electrical connection surface on the DUT board into electrical contact with the parallel electrical connection interface on the load board.

5,068,602

DUT BOARD FOR A SEMICONDUCTOR DEVICE TESTER HAVING A RECONFIGURABLE COAXIAL INTERCONNECT GRID AND METHOD OF USING SAME

Joseph A. Mielke, Hillsboro, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg.

Filed Sep. 7, 1990, Ser. No. 579,423
Int. Cl.[5] G01R *1/06, 19/00*
U.S. Cl. 324—158 F 22 Claims

1. A device-under-test board for a semiconductor device tester comprising:

a circuit board containing a plurality of conductive paths comprising signal paths and a ground path;

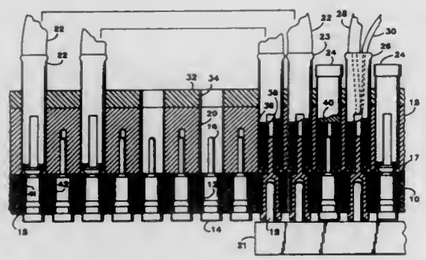
an inner array of conductive members disposed within the circuit board, with a first end of the conductive members oriented toward a first surface of the circuit board and arranged to engage the contacts of a semiconductor device, and with a second end of the conductive members oriented toward a second surface of the circuit board;

an outer array of conductive members disposed within the circuit board around the outside of the inner array of conductive members, with a first end of the conductive members oriented toward the first surface of the circuit board, and with the second end of the conductive members oriented toward the second surface of the circuit

VOL 1132 ISS 4 NO 26 1991 UMI

board, and with each of the conductive members of the outer array being in electrical contact with one of the plurality of conductive paths;

a grounding block of conductive material defining inner and outer arrays of holes corresponding in location to the



inner and outer arrays of conductive members, the grounding block being adjacent to the second surface of the circuit board such that the holes each align with one of the conductive members; and

means for electrically connecting the grounding block to the ground path.

5,068,603

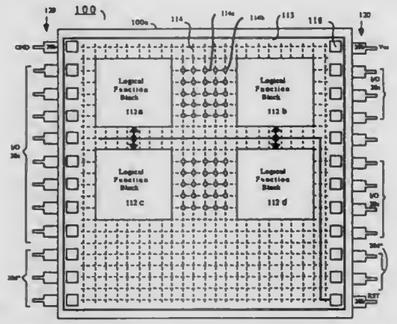
STRUCTURE AND METHOD FOR PRODUCING MASK-PROGRAMMED INTEGRATED CIRCUITS WHICH ARE PIN COMPATIBLE SUBSTITUTES FOR MEMORY-CONFIGURED LOGIC ARRAYS

John E. Mahoney, San Jose, Calif., assignor to Xilinx, Inc., San Jose, Calif.

Continuation-in-part of Ser. No. 106,750, Oct. 7, 1987, Pat. No. 4,855,669. This application May 15, 1989, Ser. No. 351,888

Int. Cl.[5] **G01R** *1/00*

U.S. Cl. 324—158 R **14 Claims**



1. A mask-configured integrated circuit chip to be substituted for a user configured integrated circuit chip, the user configured integrated circuit chip having plural pass transistors each characterized by a first signal transmission delay, the mask-configured integrated circuit chip being pin compatible with the user configured integrated circuit chip and comprising:

plural mask-configured routing lines for routing signals previously routed by the pass transistors of the user configured integrated circuit chip, each of the mask-configured routing lines being characterized by one or more segments having second signal transmission delays approximately equal, within an order of magnitude, to the first signal transmission delay.

5,068,604

METHOD OF AND DEVICE FOR TESTING MULTIPLE POWER SUPPLY CONNECTIONS OF AN INTEGRATED CIRCUIT ON A PRINTED CIRCUIT BOARD

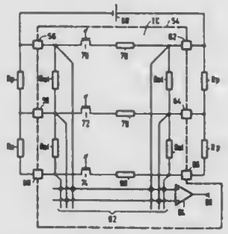
Dirk Van de Lagemaat, Hilversum, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Jun. 20, 1989, Ser. No. 368,748

Claims priority, application Netherlands, Jul. 20, 1988, 8801835

Int. Cl.[5] **G01R** *31/00, 31/02*

U.S. Cl. 324—158 R **22 Claims**



1. An integrated circuit chip comprising: multiple power supply connections for at least two different supply voltages with at least two separate ones of said power supply connections carrying the same rated supply voltage, an on-chip test comparison circuit having input terminals coupled to respective test leads, a selection mechanism coupled between the supply connections and the test comparison circuit via said respective test leads in order to selectively and sequentially connect only power supply connections associated with the same supply voltage to respective input terminals of the test comparison circuit thereby to produce, in a test state of the integrated circuit an error signal on a signal output of the test comparison circuit when a voltage deviation from a standard voltage difference across said power supply connections exceeds a critical value.

5,068,605

SEMICONDUCTOR INTEGRATED CIRCUIT DEVICE AND METHOD OF TESTING THE SAME

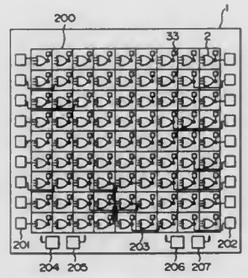
Moritoshi Yasunaga, Kawaguchi; Noboru Masuda, Kokubunji; Hideo Todokoro, Tokyo; Yasunari Umemoto, Tokorozawa; Hirotoshi Tanaka, Yamanashi, and Hiroyuki Itoh, Kodaira, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 7, 1989, Ser. No. 404,355

Claims priority, application Japan, Sep. 7, 1988, 63-222315

Int. Cl.[5] **G01R** *31/28;* **G06F** *11/00*

U.S. Cl. 324—158 R **31 Claims**



1. A semiconductor integrated circuit device comprising:

input terminals;

output terminals;

a group of gates which receives an input signal applied to said input terminals and which outputs an output signal from said output terminals, said output signal corresponding to the state of said input signal; and

means for simultaneously setting outputs of at least a plurality of gates of said group either at a "1" level or at a "0" level by forcibly setting a transistor included in each gate in either an "on" state or an "off" state irrespective of the state of said input signal applied to said input terminals and the state of an input signal applied to each gate to indicate whether any faulty gates are present in said group of gates.

5,068,606

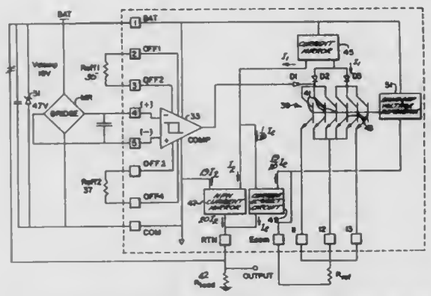
TWO WIRE MODULATED OUTPUT CURRENT CIRCUIT FOR USE WITH A MAGNETORESISTIVE BRIDGE SPEED/POSITION SENSOR

Keith W. Kawate, 12 Virginia Ave., Attleboro Falls, Mass. 02763; James P. Berthold, 32 State St., B12, Attleboro, Mass. 02703, and Robert M. Margolis, 265 Upland Ave., Newton, Mass. 02161

Filed Sep. 19, 1989, Ser. No. 409,220

Int. Cl.[5] **G01P** *3/488;* **G01B** *7/30;* **G05F** *3/26;* **H03K** *17/90*

U.S. Cl. 324—174 **5 Claims**



1. A two wire circuit to provide a modulated output current dependent upon the level of output voltage of a magnetoresistive transducer bridge comprising a magnetoresistive transducer bridge having an output voltage level dependent upon a condition, a voltage source coupled to the bridge, a voltage comparator coupled to the output of the bridge, the comparator having a high or low voltage output depending upon the output voltage level of the bridge, bandgap current source means comprising first and second pluralities of transistors, PNP current mirror means having a first output leg coupled to the first and second pluralities of transistors through first and second diodes respectively, the current mirror means having a second output leg coupled to a first input of an NPN current mirror, the NPN current mirror having a second input coupled to the comparator to draw current from the comparator, the NPN current mirror having an output connected to a load resistor in turn connected to ground, the comparator output connected through a third diode to a point intermediate the first plurality of transistors and the first diode so that when the comparator has a high voltage output the third diode is forward biased and the first diode is reversed biased and when the comparator has a low voltage output the third diode is reverse biased and the first diode is forward biased.

5,068,607

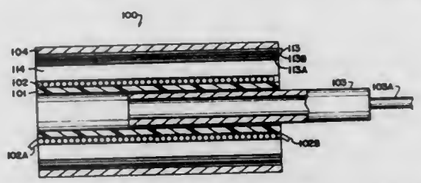
ELECTRICAL LINEAR POSITION TRANSDUCER WITH SILICON STEEL FOIL SHIELD SURROUNDING TRANSDUCER COIL

Robert W. Redlich, Athens, Ohio, and Douglas Bliss, Leominster, Mass., assignors to Data Instruments, Inc., Acton, Mass.

Filed Jun. 22, 1990, Ser. No. 542,152

Int. Cl.[5] **G01B** *7/14;* **G08C** *19/08*

U.S. Cl. 324—207.16 **26 Claims**



1. A linear position transducer for use in an electrical linear position measurement circuit comprising:

(a) a tube of electrically insulating material having a length at least substantially four times its outside diameter;

(b) a helical, electrically conductive coil wound around said tube and being at least substantially four of said outside diameters long, the ends of said coil being adapted for connection to said circuit so as to be energizable by said circuit;

(c) an elongated core of electrically conducting, non-ferromagnetic material having a first position adjacent one of its ends matingly received within, and slidable in axial reciprocation within, said tube, and a second portion adjacent its other end extending axially outwardly from said tube, said other end adapted to engage a workpiece;

(d) at least one layer of a selected material having a high magnetic permeability surrounding said coil and being at least substantially four of said diameters long; and,

(e) an electrically insulating material covering at least the outer side of said at least one layer of said selected material;

whereby axial movement of said core in said tube in response to changes in the linear position of said workpiece creates changes in the inductance of said coil which may be detected by said circuit.

5,068,608

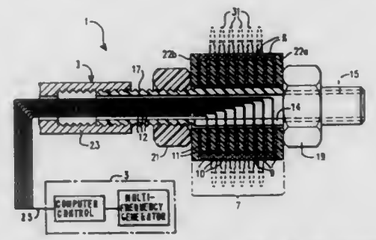
MULTIPLE COIL EDDY CURRENT PROBE SYSTEM AND METHOD FOR DETERMINING THE LENGTH OF A DISCONTINUITY

William G. Clark, Jr., Murrysville Boro, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Filed Oct. 30, 1989, Ser. No. 429,106

Int. Cl.[5] **G01N** *27/90*

U.S. Cl. 324—220 **19 Claims**



19. A system for determining the length of a discontinuity in a tube, comprising an elongated probe assembly including a stacked, linear array of eddy current coils separated by known distances along the longitudinal axis of said probe assembly,

VOL 1132 ISS 4 NO 26 1991 UMI

wherein the axes of rotation of the coils are mutually colinear, and magnetic shield insulators between adjacent coils to prevent cross-talk therebetween, and an eddy current coil actuating means for separately, independently and sequentially conducting alternating current through said coils in said array to incrementally adjust the length of the electromagnetic sensing field along the longitudinal axis of said probe such that the length of discontinuity located between coils is determined by the known distances between the coils without the need for moving the probe assembly with respect to the discontinuity.

5,068,609

METHOD FOR GENERATING AN IMAGE USING NUCLEAR MAGNETIC RESONANCE SIGNALS

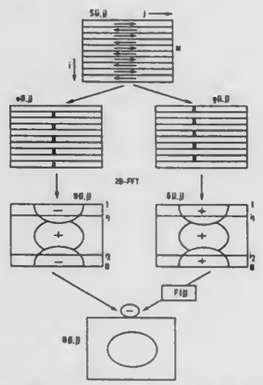
Herbert Bruder, Hemhofen; Hubertus Fischer, Erlangen; Franz Schmitt, Baiersdorf, and Hans-Erich Reinfelder, Erlangen, all of Fed. Rep. of Germany, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed May 16, 1990, Ser. No. 524,344

Claims priority, application European Pat. Off., May 16, 1989, 89108772

Int. Cl.[5] G01R *33/20*

U.S. Cl. 324—309 **4 Claims**



1. A method for generating an image of an examination subject using nuclear magnetic resonance signals, said method comprising the steps of:

disposing said examination subject in a fundamental magnetic field;

subjecting the examination subject to RF pulses to induce nuclear magnetic resonance signals in said examination subject;

generating first and second gradient magnetic fields, at least one of which is substantially periodic and a selected portion of said substantially periodic gradient magnetic field defining a scan;

reading out said nuclear magnetic resonance signals in said patient in the presence of said first and second gradient magnetic fields;

entering the samples obtained during a scan in one row of a measurement matrix, said measurement matrix having a number of columns corresponding to the number of scans;

dividing said measurement matrix into a first sub-matrix and a second sub-matrix, said first sub-matrix containing only even-numbered rows of the measurement matrix with intervening rows set to zero and the second sub-matrix containing only the odd-numbered rows of the measurement matrix with intervening rows set to zero;

subjecting said first and second sub-matrices to a Fourier transformation at least in the column direction to obtain a first intermediate image matrix U having entries U(i,j) and a second intermediate image matrix G having entries G(i,j), wherein i is a row number between 1 and N and j is a column number;

multiplying one of said intermediate image matrices by a factor F(j) calculated from edge rows $i=1$ through i_1 and $i=i_2$ through N of the intermediate image matrices according to the following equation:

$$F(j) = -\left[\frac{\sum_{i=1}^{i_1} U(i,j) \times G(i,j)^*}{\sum_{i=1}^{i_1} G(i,j) \times G(i,j)^*} + \frac{\sum_{i=N}^{i_2} U(i,j) \times G(i,J)^*}{\sum_{i=N.}^{i_2} G(i,J) \times G(i,J)^*}\right]$$

wherein $G(i,j)^*$ is the complex conjugate of the intermediate image matrix entries G(i,j); and

adding the intermediate image matrix multiplied by the factor F(j) with the other intermediate image matrix.

5,068,610

MRI METHOD AND DEVICE FOR FAST DETERMINATION OF THE TRANSVERSE RELAXATION TIME CONSTANT T2

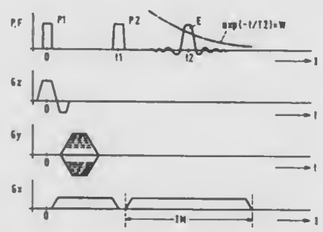
Antoon F. Mehlkopf, and Willem M. Prins, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 26, 1989, Ser. No. 358,327

Claims priority, application Netherlands, Jul. 8, 1988, 8801731

Int. Cl.[5] G01R *33/54*

U.S. Cl. 324—312 **21 Claims**



1. A method of obtaining images of a nuclear magnetization distribution in a part of a body, in which nuclear spins are excited in the body by rf excitation pulses in respective measurement cycles in the presence of a steady magnetic field in order to generate each cycle a spin resonance echo signal centered at an echo time TE after a said rf excitation pulse, after which in each cycle the spin resonance signal is sampled in the presence of a magnetic field gradient which is superimposed on the steady magnetic field, after which measurement cycles the resonance signals thus sampled are converted into an image of said distribution by signal transformation, characterized in that the distribution of the transverse relaxation time constant is determined from the relative asymmetry of only the sampled spin resonance echo signals centered about echo time TE.

5,068,611

MEASURING PROCEDURE FOR THE ELIMINATION OF FAULTS FROM AN NMR SIGNAL BY COMPARING RF FIELD COMPONENTS SPINNING IN OPPOSITE DIRECTIONS

Matti Savelainen, Espoo, Finland, assignor to Instrumentarium Corp., Finland

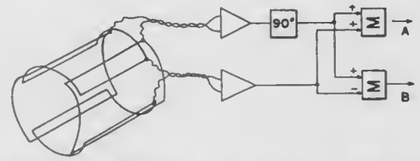
Filed Oct. 31, 1989, Ser. No. 429,281

Int. Cl.[5] G01R *33/20*

U.S. Cl. 324—314 **23 Claims**

1. A method for eliminating faults in an NMR signal of an object, said NMR signal being derived from RF signals developed in at least a pair of RF coils, said RF signals including an RF signal component rotating in a given direction and developed as a result of the precession of the net magnetism of the sample about an axis of a polarizing magnetic field applied to the sample, and said RF signals including a component arising from faults, said method comprising the steps of:

simultaneously detecting components of the RF signals developed in the RF coils and rotating in opposite directions;



measuring the amplitude of the detected RF signal components;

utilizing the signal data so obtained to identify faults existing in the RF signal component produced by the net magnetism precession; and

eliminating the identified faults from the NMR signal derived from the RF signal component produced by the net magnetism precession.

5,068,612

ELECTROMAGNETIC SHIELD FOR AN INDUCTIVE SEARCH COIL ASSEMBLY

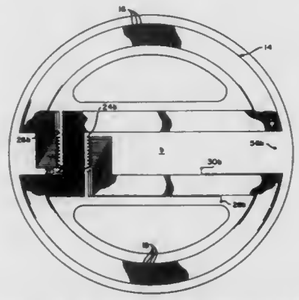
Klaus Auslander, Reutlingen; Hans-Jurgen Fabris, Pfulligen; Karl-Heinz Mock; Wolfgang Patwald, both of Reutlingen, and Helmut Seichter, Pfullingen, all of Fed. Rep. of Germany, assignors to Institut Dr. Friedrich Forster Prufgeratebau GmbH & Co. KG, Reutlingen, Fed. Rep. of Germany

Filed May 29, 1990, Ser. No. 530,020

Claims priority, application Fed. Rep. of Germany, Jun. 20, 1989, 3920081

Int. Cl.[5] G01V *3/11;* **H01F** *15/04, 15/14;* **H05K** *9/00*

U.S. Cl. 324—327 **1 Claim**



1. A search coil assembly for an inductive search device having at least one search coil for producing a varying magnetic field in a search area and for having electrical signals induced in the search coil when an electrically conductive object is located in the search area, and a shield of electrically conductive material connected to a reference potential, comprising:

the shield includes an insulative carrier layer and a thin metal coating arranged thereupon, said metal coating being composed of a plurality of substantially parallel circuit tracks arranged on two opposite sides of the carrier layer extending partly in straight lines and partly in circular paths electrically connected to one another by connecting tracks to the reference potential, the distances between adjacent circuit tracks being substantially identical to the width of a circuit track;

the circuit tracks on the two sides of the carrier layer being staggered relative to one another such that a gap between each two adjacent circuit tracks on one side is opposed to a circuit track on the other carrier side.

5,068,613

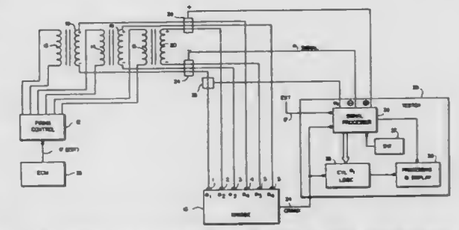
METHOD AND APPARATUS FOR GENERATING DISPLAY WAVEFORMS IM WASTED SPARK IGNITION SYSTEMS

Keith A. Kreft, Arlington Heights; Michael Dikopf, Palatine, and Thomas D. Loewe, Wonder Lake, all of Ill., assignors to Sun Electric Corporation, Crystal Lake, Ill.

Continuation of Ser. No. 26,837, Mar. 17, 1987, abandoned. This application Oct. 11, 1988, Ser. No. 256,168

Int. Cl.[5] F02P *17/00*

U.S. Cl. 324—379 **9 Claims**



1. A method of developing a stabilized firing event signal in a cylinder for a wasted spark ignition system wherein the spark plugs of a pair of complementary cylinders are fired simultaneously from opposite ends of an ignition coil secondary winding, comprising the steps of:

obtaining separate firing event signals from the spark plug ignition wires associated with the pair of cylinders;

sorting the firing event signals into first, power spark signals and second, wasted spark signals of like polarity;

combining the power spark signals and wasted spark signals together to eliminate common mode signal components therefrom; and

developing visual displays of power spark signals, wasted spark signals and combined power spark signals and wasted spark signals.

5,068,614

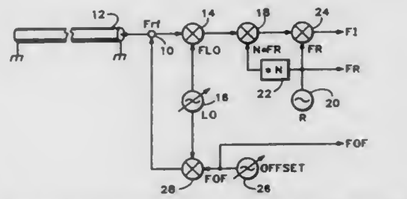
SWEPT FREQUENCY DOMAIN RELECTOMETRY ENHANCEMENT

Walter D. Fields, and Linley F. Gumm, both of Beaverton, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg.

Filed Nov. 5, 1990, Ser. No. 608,880

Int. Cl.[5] G01R *31/02*

U.S. Cl. 324—534 **5 Claims**



1. A method of locating a discontinuity in a cable under test

VOL 1132 ISS 4 NO 26 1991 UMI

using a spectrum analyzer, the spectrum analyzer having an input/output terminal coupled to one end of the cable, comprising the steps of:

inserting a test signal into the cable;

receiving a return signal from the cable resulting from the test signal;

detecting a first maximum amplitude of an intermediate frequency obtained by mixing the return signal with a local oscillator and a reference signal;

varying the frequency of the test signal as a function of an offset frequency;

detecting a second maximum amplitude of the intermediate frequency resulting from the variation of the frequency of the test signal;

measuring the intermediate frequency at the first maximum value;

measuring the offset frequency at the second maximum value;

determining from the measured intermediate frequency and the measured offset frequency a distance to the discontinuity; and

displaying the distance to the discontinuity.

5,068,615

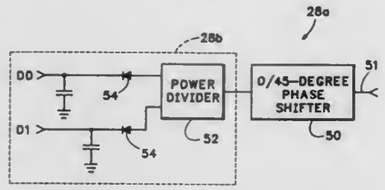
NOISE PARAMETER TEST APPARATUS

Eric W. Strid, Portland, and Bernard W. Leake, Beaverton, both of Oreg., assignors to Cascade Microtech, Inc., Beaverton, Oreg.

Division of Ser. No. 262,463, Oct. 25, 1988, Pat. No. 4,998,071. This application Jun. 18, 1990, Ser. No. 539,732

Int. Cl.[5] G01R *27/28*

U.S. Cl. 324—613 **10 Claims**



1. In combination with a noise meter adapted to connect to a device under test to form a noise parameter system for testing the noise performance of said device under test, a one-port tuner comprising:

(a) a source port adapted to connect to said device under test;

(b) two termination admittance means for providing a plurality of predetermined admittances;

(c) two switching means for selecting one of said plurality of predetermined admittances, each of said switching means operatively associated with a respective one of said termination admittance means;

(d) a power divider having one input terminal and two output terminals, each of said output terminals connected to a respective one of said switching means; and

(e) a phase shifter means having two ports for selectively shifting the phase of signals passing therethrough by a predetermined amount, a first of said ports of said phase shifter connected to said input terminal of said power divider and a second of said ports of said phase shifter connected to said source port, said phase shifter selectable whether to shift phases by said predetermined amount.

5,068,616

MONITORING PROCESS AND DEVICE OF A QUASI-CLOSED ELECTROMAGNETIC SHIELD

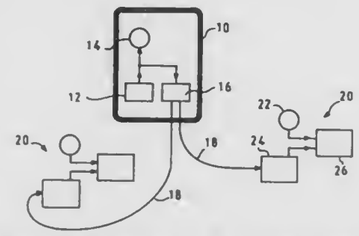
Frédéric Broyde, Rueil Malmaison, and Michel Barrault, Saint Ismier, both of France, assignors to Merlin Gerin, Grenoble, France

Filed Aug. 1, 1989, Ser. No. 387,820

Claims priority, application France, Aug. 5, 1988, 88 10718

Int. Cl.[5] G01R *31/02*

U.S. Cl. 324—627 **8 Claims**



1. A method for measuring an effectiveness of quasi electromagnetic shield defining a volume enclosing electronic equipment, comprising the steps of:

generating from inside said shield a random or pseudo-random first signal of lower radio frequency electromagnetic radiation assimilated to a noise level and having a radio frequency between 1 and 100 KHz;

generating a second signal representative of said first signal;

providing a receiving means located outside said shield to receive said first and second signals;

propagating said first signal through said shield to said receiving means;

propagating said second signal through said shield, in a manner insensitive to said shield, to said receiving means;

synchronously receiving said first signal at said receiving means, in response to synchronicity information contained in said second signal; wherein said synchronous reception permits said propagated first signal to be distinguished from surrounding noise signals and said first signal is indicative of the effectiveness of said shield.

5,068,617

CAPACITY PROBE FOR LIQUID MEASUREMENTS

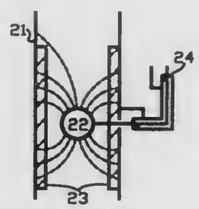
Stefan J. Reich, Ulrichstr. 68, D-8021 Icking, Fed. Rep. of Germany

Filed Jun. 30, 1989, Ser. No. 373,922

Claims priority, application Fed. Rep. of Germany, Jul. 1, 1988, 3822344

Int. Cl.[5] G01R *27/26*

U.S. Cl. 324—663 **2 Claims**



1. A system for measuring the dielectric of a liquid comprising:

a pair of capacitive electrodes for creating an alternating electric field in the liquid;

means responsive to the electrodes for detecting the electric field; and

isolating means in contact with the liquid for causing a narrowing or extension of the electric field between the electrodes, wherein the isolating means is positioned between the electrodes to cause a narrowing of the electric field by reducing the cross-sectional area of the electric field therebetween.

5,068,618

APPARATUS FOR MEASURING DIFFERENTIAL IMPEDANCES

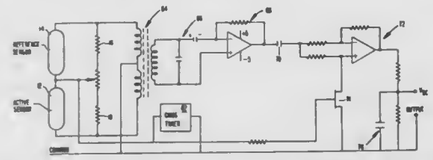
John J. Fry, Wickliffe, and Robert A. Smith, Mentor, both of Ohio, assignors to Elsag International B.V.

Continuation of Ser. No. 307,014, Feb. 6, 1989, abandoned, which is a continuation of Ser. No. 93,432, Sep. 4, 1987, Pat. No. 4,837,501. This application Aug. 15, 1990, Ser. No. 568,660

The portion of the term of this patent subsequent to Jun. 6, 2006, has been disclaimed.

Int. Cl.[5] G01R *27/08*

U.S. Cl. 324—706 **4 Claims**



1. An improved system for measuring differential impedances comprising:

means for measuring a parameter representative of a specific operating condition; reference measuring means electrically connected to said parameter measuring means;

a CMOS timer for producing a square wave and being electrically connected to said parameter measuring means and said reference measuring means;

transformer means electrically connected to said parameter measuring means and said reference measuring means;

amplifier means electrically connected to said transformer means and signal converter means electrically connected to said amplifier means;

said signal converter means producing an output signal representative of the difference in current passing through said parameter measuring means and said reference measuring means said CMOS timer being electrically connected to said transformer means;

filter means electrically connected to the output of said transformer means and to the input of said amplifier means and

switch means electrically connected to said parameter measuring means and said reference measuring means.

5,068,619

CONDUCTIVITY MEASURING DEVICE

Shohkichi Nakano, Kawasaki, and Akira Matsushita, 12-5, Miyazaki 1-Chome, Miyamae-Ku, Kawasaki-Shi, Kanagawa-Ken, both of Japan, assignors to Nihon System Research Institute Inc. and Akira Matsushita, both of Kawasaki, Japan

Filed Oct. 25, 1988, Ser. No. 261,871

Claims priority, application Japan, Oct. 27, 1987, 62-271351

Int. Cl.[5] G01R *27/02*

U.S. Cl. 324—715 **8 Claims**

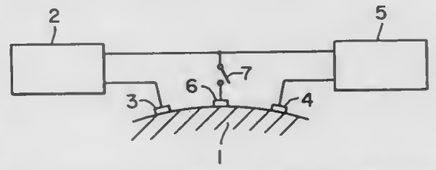
1. A conductivity measuring device for measuring the conductivity at the surface and at an inner portion of a body to be tested, comprising:

two measuring electrodes, including one transmitting electrode and one receiving electrode;

an intermediate electrode disposed between said measuring electrodes;

a circuit including a switch which connects the intermediate electrode to the receiving electrode, wherein the switch is changeable between two states,

said switch in its first state connecting the intermediate electrode to a low-potential, so that current in the inner portion of the body between the transmitting electrode and the receiving electrode is measured,



said switch in its second state being open to disconnect the intermediate electrode from the circuit so that a composite current in the body between the transmitting electrode and the receiving electrode in the body is measured.

5,068,620

CIRCUIT FOR SECURING OUTPUT DISTORTION, IN PARTICULAR OF FINAL STAGES OF AUDIO DEVICES

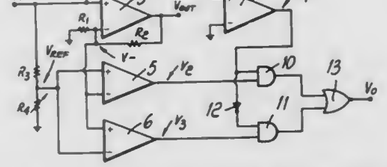
Edoardo Botti, Vigevano; Fabrizio Stefani, Cardano Al Campo, and Daniela Nebuloni, Bareggio, all of Italy, assignors to SGS-Thomson Mocroelectronics S.r.l., Agrate Brianza, Italy

Filed Nov. 1, 1990, Ser. No. 607,949

Claims priority, application Italy, Nov. 8, 1989, 22306 A/89

Int. Cl.[5] G01R *19/00*

U.S. Cl. 330—2 **4 Claims**



1. Circuit for sensing output distortion of amplifier stages, in particular of final stages of audio devices, said amplifier stage having a first input which receives a voltage signal to be amplified, a second input which is connected to a feedback network and an output which generates an amplified output signal, said circuit further comprising a voltage divider arranged between said first input and a reference voltage line, said voltage divider comprising at least one variable resistor and having an intermediate terminal which generates a first signal which is correlated to said voltage signal, and comparator means which receive in input said first signal and a second signal which is correlated to said output signal, said comparator means being suitable for generating a distortion signal when said second signal exceeds said first signal in terms of absolute value, said comparator means comprising at least one first comparator which is connected in input to said first input of said amplifier stage and to said reference voltage line and is suitable for generating an enable signal which is in step with said voltage signal, and a second comparator which is connected in input to said intermediate terminal of said divider and to the feedback network of said amplifier stage and is suitable for generating said distortion signal in output, said second comparator being enabled by said enable signal.

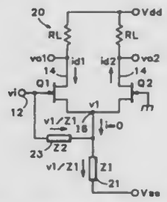
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,621

COMPENSATION METHOD AND APPARATUS FOR ENHANCING SINGLE ENDED TO DIFFERENTIAL CONVERSION

Wesley H. Hayward, and Stewart S. Taylor, both of Beaverton, Oreg., assignors to TriQuint Semiconductor, Inc., Beaverton, Oreg.

Filed Aug. 13, 1990, Ser. No. 566,904
Int. Cl.[5] H03F 3/45
U.S. Cl. 330—253 35 Claims



32. A method for converting an unbalanced differential current into a balanced differential current, the method comprising:

providing a differential stage having a single-ended voltage input, a differential current output, and a bias terminal;

coupling a first impedance to the bias terminal to supply bias current and an associated undesirable signal tail current to the differential stage; and

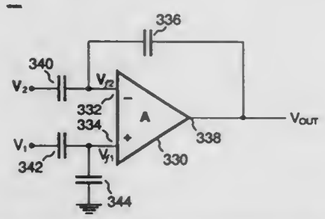
providing a compensating signal current to the bias terminal that is substantially equal to the signal tail current, thereby cancelling the signal tail current flowing through the differential stage and providing a balanced differential output current.

5,068,622

CMOS AMPLIFIER WITH OFFSET ADAPTATION

Carver A. Mead, Pasadena, and Timothy P. Allen, Los Gatos, both of Calif., assignors to Synaptics, Incorporated, San Jose, Calif.

Continuation-in-part of Ser. No. 282,176, Dec. 9, 1988, Pat. No. 4,935,702. This application Feb. 28, 1990, Ser. No. 486,336
The portion of the term of this patent subsequent to Jun. 19, 2007, has been disclaimed.
Int. Cl.[5] H03F 3/45
U.S. Cl. 330—253 4 Claims



4. An adaptive analog MOS inverting amplifier fabricated as a part of an integrated circuit, said amplifier having a gain of magnitude much larger than 1, including:

an non-inverting input node,

an inverting input node,

an output node,

an amplifying element having a gain larger than 1, including an inverting input, a non-inverting input, and an output, said output connected to said output node,

a first floating node, connected to the inverting input of said amplifying element,

a first MOS capacitor having a first electrode connected to said inverting input node and a second electrode connected to said first floating node,

a second floating node, connected to the non-inverting input of said amplifying element,

a second MOS capacitor having a first electrode connected to said non-inverting input node and a second electrode connected to said second floating node,

a third MOS capacitor having a first electrode connected to said output node and a second electrode connected to said first floating node,

a fourth MOS capacitor having a first electrode connected to said second floating node and a second electrode connected to a source of fixed voltage,

the ratio of said third MOS capacitor to said first MOS capacitor being substantially equal to the ratio of said fourth MOS capacitor to said second MOS capacitor, and

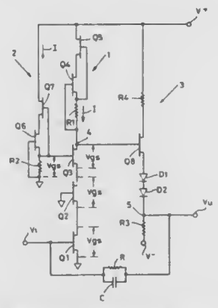
an opaque layer covering portions of the surface of said integrated circuit containing active circuits, said opaque layer having an aperture therein above said third capacitor for allowing ultraviolet light to fall onto said first and second electrodes of said third capacitor whereby the offset voltage of said adaptive amplifier can be adapted while a source of ultraviolet light is present.

5,068,623

HIGH-GAIN AMPLIFIER WITH LOW NOISE AND LOW POWER DISSIPATION, USING FIELD EFFECT TRANSISTORS

Daniel V. Camin, Milano; Gianluigi Pessina, Lainate, and Ezio Previtali, Curno, all of Italy, assignors to Istituto Nazionale Di Fisica Nucleare, Roma, Italy

Filed May 11, 1990, Ser. No. 521,998
Claims priority, application Italy, May 23, 1989, 20610 A/89
Int. Cl.[5] H03F 3/16
U.S. Cl. 330—277 3 Claims



1. A high-gain amplifier comprising:

a first field effect transistor controlled by an input signal of the amplifier;

at least one second field effect transistor connected in cascade with said first transistor;

a first current generator for power supply of said first and second transistors;

a second current generator for biasing said first and second transistors so as to cause them to operate in respective linear regions of their characteristics;

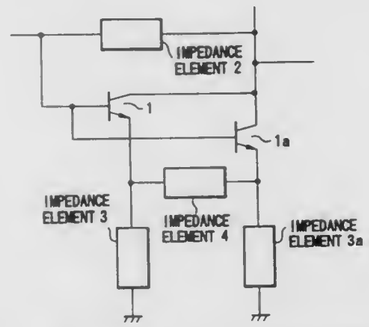
said first and second current generators being substantially equal to each other and including each a resistance and two serially connected field effect transistors having gate terminals respectively connected to opposite ends of said resistance so as to cause said two transistors to operate in respective linear regions of their characteristics.

5,068,624

AMPLIFIER

Yoshio Taneichi, and Yukinari Fujiwara, both of Tokyo, Japan, assignors to Hitachi Denshi Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 10, 1990, Ser. No. 579,377
Claims priority, application Japan, Sep. 11, 1989, 1-105360
Int. Cl.[5] H03F 1/34
U.S. Cl. 330—293 3 Claims



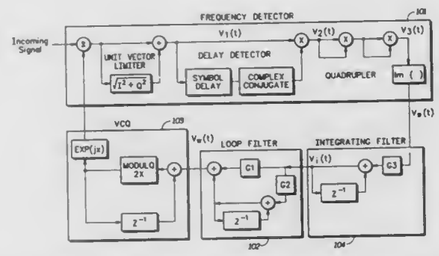
1. An amplifier using at least two transistors as amplifying elements, wherein first input electrodes and first output electrodes of said transistors are commonly connected, a first impedance element is connected between said first input electrodes and said first output electrodes, a second impedance element is connected between a second output electrode of each transistor and ground, and a third impedance element is connected between said second output electrodes.

5,068,625

METHOD FOR FAST FREQUENCY ACQUISITION IN A PHASE LOCKED LOOP

James C. Baker, Hanover Park, and Michael J. Carney, Schaumburg, both of Ill., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 14, 1990, Ser. No. 627,171
Int. Cl.[5] H03L 7/085
U.S. Cl. 331—1 A 6 Claims



1. A method for frequency acquisition in a phase locked loop having a phase error signal and a voltage controlled oscillator that outputs a variable frequency signal in response to a control voltage, the method comprising the steps of:

a) detecting a peak voltage, at a time t_p, for the phase error signal;

b) sampling the control voltage at the time t_p; and

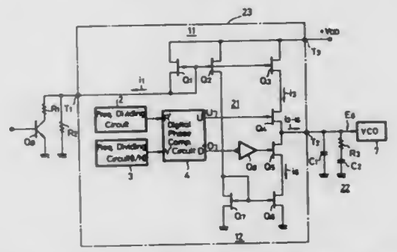
c) resetting the control voltage substantially equal to the sampled control voltage at the time t_p.

5,068,626

CHARGE PUMP CIRCUIT

Kotaro Takagi, Tokyo, and Satoshi Yokoya, Kanagawa, both of Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Jun. 13, 1990, Ser. No. 538,187
Claims priority, application Japan, Jun. 27, 1989, 1-165113
Int. Cl.[5] H03L 7/00
U.S. Cl. 331—17 11 Claims



1. A charge pump circuit for charging capacitive means in response to a phase difference between first and second input signals, comprising:

constant current source means for providing a first constant current;

constant current sinking means for absorbing a second constant current;

an output terminal adapted to be connected to a capacitive means;

switching means for providing said first constant current and said second constant current flowing in opposed directions through said output terminal to the capacitive means in response to said phase difference between said first and second input signals for selectively charging and discharging the capacitive means to produce a voltage level thereof corresponding to said phase difference; and

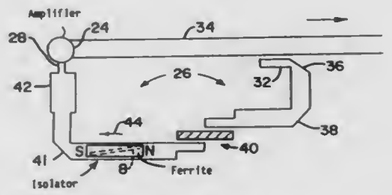
means for substantially equalizing the magnitudes of the first constant current provided by said constant current source means and the second constant current absorbed by said constant current sinking means so that a linear relationship exists between said phase difference between said first and second input signals and the resulting charging and discharging periods of the capacitive means.

5,068,627

NARROW BAND MICROSTRIP ISOLATOR

Richard W. Babbitt, Fair Haven; Adam Rachlin, Eatontown, and Thomas E. Koscica, Clark, all of N.J., assignors to The United States of America as represented by the Secretary of the Army, Washington, D.C.

Filed Nov. 19, 1990, Ser. No. 617,130
Int. Cl.[5] H03B 5/18; H01P 1/365
U.S. Cl. 331—99 14 Claims



8. An oscillator comprising:

an amplifier having an input port and an output port; and

a feedback path coupled between said output port and said input port including a resonant microstrip isolator ar-

VOL 1132 ISS 4 NO 26 1991 UMI

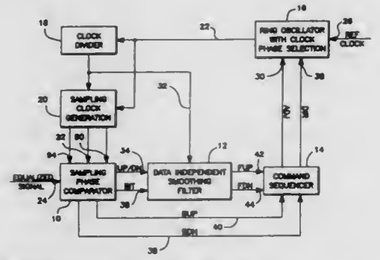
ranged to pass microwaves from said output port to said input port, wherein the resonant microstrip isolator comprises a dielectric substrate, a conductive surface on one side of said dielectric substrate so as to form a ground plane, a top conductor on the opposite side of said substrate, the top conductor being narrower in width than said conductive surface so as to form a microstrip line, means forming an elongated slot in said top conductor that is at an angle with respect thereto, a strip of ferromagnetic material mounted in registration with said slot so as to cover at least a portion thereof, and means for producing magnetic flux in said strip of ferromagnetic material that is extends across said slot.

5,068,628

DIGITALLY CONTROLLED TIMING RECOVERY LOOP

Sajol C. Ghoshal, Orangeville, Calif., assignor to Level One Communications, Inc., Folsom, Calif.

Filed Nov. 13, 1990, Ser. No. 612,569
Int. Cl.[5] H03K *5/26;* **H03L** *7/087, 7/091, 7/093*
U.S. Cl. 331—1 A **23 Claims**



1. A timing recovery loop, comprising:
(a) oscillator means for generating an output clock;
(b) multi-point sampling phase comparator means, connected to the oscillator means, for sampling and comparing an amplitude of a pulse in an input signal at a plurality of points along the pulse and for generating at least one control signal indicating an amount and a direction of adjustment required to lock the output clock to the input signal; and
(c) data independent smoothing filter means, connected to both the phase comparator means and the oscillator means, for averaging the control signals indicating the amount and the direction of adjustment required to lock the output clock to the input signal, and for adjusting a frequency of the output clock by controlling the oscillator means in response to the averaged control signals so that the oscillator means, pull range is relatively independent of pulse density in the input signal.

13. A phase comparator for eliminating jitter on an input signal due to pulse position distortion, comprising:
(a) means for sampling an amplitude of a pulse in the input signal at a plurality of points along the pulse;
(b) means, connected to the means for sampling, for comparing the sampled amplitudes; and
(c) means, connected to the means for comparing, for adjusting a frequency of an output clock in accordance with the compared amplitudes so that the output clock is locked to the input signal.

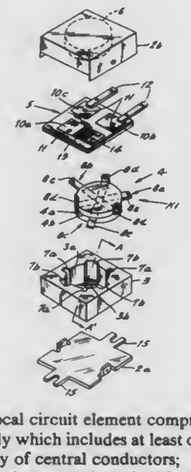
20. A data independent digital filter, comprising:
(a) means for calculating a frequency adjustment for an output clock that is relatively independent of mark density in an input signal; and
(b) means for adjusting a frequency of the output clock by the calculated frequency adjustment so that the output clock is locked to the input signal.

5,068,629

NONRECIPROCAL CIRCUIT ELEMENT

Toshio Nishikawa, Nagaokakyo; Takekazu Okada, Kyoto; Hiroki Dejima, Uji, and Hiromu Tokudera, Kyoto, all of Japan, assignors to Murata Manufacturing Co., Ltd., Japan

Continuation of Ser. No. 445,913, Dec. 4, 1989, abandoned, which is a continuation of Ser. No. 254,459, Oct. 6, 1988, abandoned. This application May 2, 1990, Ser. No. 519,266
Claims priority, application Japan, Oct. 7, 1987, 62-253956; Aug. 25, 1988, 63-211200
Int. Cl.[5] H01P *1/36, 1/387*
U.S. Cl. 333—1.1 **22 Claims**



1. A nonreciprocal circuit element comprising:
a ferrite assembly which includes at least one ferrite member and a plurality of central conductors;
said central conductors being electrically insulated from each other while intersecting with one another in an axial direction of said ferrite assembly;
said central conductors each having a lead-out portion and an earthing portion; and
a dielectric substrate which has an earthing electrode formed on one face thereof and conductively connected to said at least one ferrite member, and has a plurality of impedance matching electrodes formed on the other face thereof;
said ferrite assembly and said dielectric substrate being stacked in said axial direction and substantially coextensive, in a radial direction, within an imaginary cylinder closely surrounding said ferrite assembly and said dielectric substrate, with said lead-out portions of said central conductors being, respectively, connected to said impedance matching electrodes and extending from said ferrite assembly to said impedance matching electrodes, said lead-out portions defining said imaginary cylinder;
said earthing portions of said central conductors and said earthing electrode of said dielectric substrate being grounded; and
magnetic means applying a direct current magnetic field to said ferrite assembly.

5,068,630

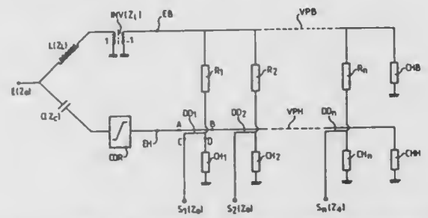
MULTIPLE COUPLER DEVICE WITH RETURN PATH

Joël Gris, Louviers, France, assignor to U.S. Philips Corporation, New York, N.Y.

Filed Dec. 14, 1989, Ser. No. 450,759
Claims priority, application France, Dec. 27, 1988, 88 17226; Dec. 27, 1988, 88 17228
Int. Cl.[5] H03H *7/48*
U.S. Cl. 333—100 **23 Claims**

1. A wideband multiple coupler device for use with signals

within a particular frequency range having an input and a plurality of outputs of the same characteristic impedance Z_0, constituted by a low-pass path comprising an impedance star distrubutor, and a high-pass path comprising a series arrangement of directional couplers, the outputs of these two paths being pair-wise dc connected to constitute said plurality of outputs, characterized in that the input of the impedance star distributor is connected to said input of the multiple coupler



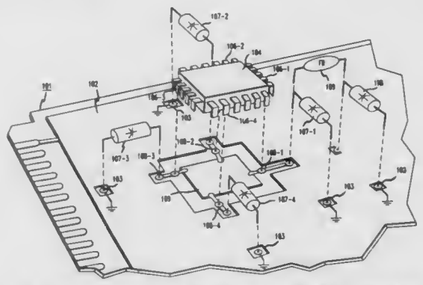
device by means of a first input connection comprising an inductive impedance Z_1, in that the input of the cascade arrangement of directional couplers is connected to the input of the multiple coupler device by means of a second input connection comprising a capacitive impedance Z_c, in that one of the two input connections is also provided with a phase inverter element connected in series for restoring the phase of signals transmitted over the high-pass path and the low-pass path, throughout the frequency range, and in that $Z_1 \cdot Z_c = Z_0^2$.

5,068,631

SUB POWER PLANE TO PROVIDE EMC FILTERING FOR VLSI DEVICES

Richard A. Vince, Newburyport, Mass., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Aug. 9, 1990, Ser. No. 564,998
Int. Cl.[5] H03H *7/00;* **H05K** *1/18*
U.S. Cl. 333—181 **11 Claims**



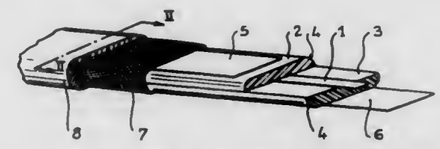
1. A circuit board having a prescribed surface comprising:
a ground system;
a main power distribution system being disposed in a prescribed planar relationship to the prescribed surface of the circuit board; and
at least one sub-power plane disposed in prescribed spatial relationship with a physically separate from said main power distribution system, said subpower plane being in the same planar relationship as said main power distribution system to the prescribed surface of the circuit board and being adapted to be connected to at least one VLSI device having multiple power input leads.

5,068,632

SEMI-RIGID CABLE DESIGNED FOR THE TRANSMISSION OF MICROWAVES

André Champeau, Orsay, France, assignor to Thomson-CSF, Puteaux, France

Filed Dec. 15, 1989, Ser. No. 451,821
Claims priority, application France, Dec. 20, 1988, 88 16811
Int. Cl.[5] H01P *3/08*
U.S. Cl. 333—238 **7 Claims**



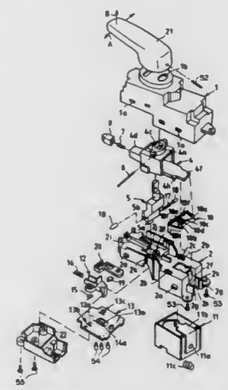
1. A semi-rigid cable for transmission of microwave signals up to a pre-determined frequency comprising:
(a) a semi-rigid flat stripline having length, width, and thickness, and having
a central conductor (1)
two parallel metal strips (5, 6),
a dielectric (4) disposed between said conductor (1) and strips (5, 6),
said strips having a width (L_1), where
L_1 is approximately equal to one of either value NA and N, whichever value is greater, where
L_1=width of said strips,
A=width of said central conductor,
e=distance between said two parallel metal strip,
N≃; and
(b) a conductive shielding sheath (7) completely surrounding and enclosing said stripline.

5,068,633

AUTOMATIC CANCELING DEVICE FOR A WINKER

Takuya Maeda, Furukawa, Japan, assignor to Alps Electric Co., Ltd., Tokyo, Japan

Filed Jun. 6, 1990, Ser. No. 534,400
Claims priority, application Japan, Sep. 9, 1989, 1-105715[U]
Int. Cl.[5] H01H *3/00*
U.S. Cl. 335—190 **1 Claim**



1. An automatic canceling device for a winker comprising:
a case;
a holder mounted pivotably on said case;
a locking mechanism engaged with said holder for holding said holder at neutral, right, or left positions;

VOL 1132 ISS 4 NO 26 1991 UMI

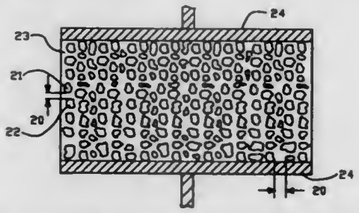
a solenoid disposed in said case and energized by an unlock signal, said solenoid having a working member;
a locking removing member disposed between said working member of said solenoid and said holder, and acting to return said holder towards said neutral position;
wherein said locking removing member includes an aperture having an engaging portion coupled to said working member, a first fulcrum portion disposed on one surface of said locking removing member and positioned for contacting said holder, and a second fulcrum portion disposed on another surface of said locking removing member;
said device comprising further a supporting portion which rotatably supports said second fulcrum portion, and positioned for contacting said second fulcrum portion.

5,068,634

OVERVOLTAGE PROTECTION DEVICE AND MATERIAL

Karen P. Shrier, Half Moon Bay, Calif., assignor to Electromer Corporation, Belmont, Calif.

Continuation-in-part of Ser. No. 143,615, Jan. 11, 1988, Pat. No. 4,977,357. This application Aug. 8, 1989, Ser. No. 390,732
The portion of the term of this patent subsequent to Jan. 8, 2008 has been disclaimed.
Int. Cl.[5] H01C *7/10*
U.S. Cl. 338—21 **21 Claims**



1. An overvoltage protection material for placement between and in contact with spaced conductors, said material comprising a matrix formed of a binder and only closely spaced conductive particles:
a) said only closely spaced conductive particles homogeneously distributed in said binder, said particles being in the size range 10 microns to two hundred microns and spaced in the range 25 angstroms to 350 angstroms to provide electrical conduction by quantum-mechanical tunneling therebetween; and
b) said binder selected to provide the quantum-mechanical tunneling media between said particles and predetermined resistance between said conductive particles in the absence of quantum-mechanical tunneling.

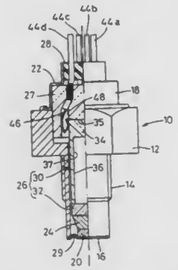
5,068,635

STRESS SENSOR HAVING DEFORMABLE CERAMIC HOLLOW MEMBER

Yasuhito Yajima, Nagoya, Japan, assignor to NGK Insulators, LTD., Japan

Filed Jul. 20, 1989, Ser. No. 382,588
Claims priority, application Japan, Jul. 27, 1988, 63-187173
Int. Cl.[5] H01C *10/10*
U.S. Cl. 338—42 **21 Claims**

9. A stress sensor comprising:
a ceramic member having an inner and an outer surface and a hollow portion defined by said inner surface, said ceramic member being deformable according to a stress applied thereto in a direction in which said hollow portion extends;
a pair of support members disposed at opposite ends of said ceramic member so as to support said ceramic member in said direction such that said stress is imparted to said ceramic member in said direction through one of said pair of support members;
at least one resistor provided on at least one of said inner surface and said outer surface, an electrical resistance value of said at least one resistor varying with an amount of deformation of said ceramic member, said stress being detected based on a change in said electrical resistance value of said at least one resistor; and



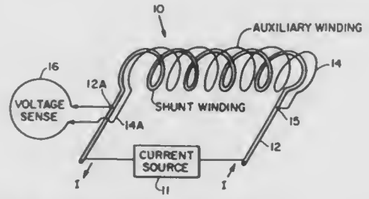
a temperature compensating member disposed at one end of said ceramic member, said stress being transferred from said temperature compensating member to said ceramic member such that a coefficient of thermal expansion of said temperature compensating member reduces an influence of a temperature variation of the sensor on an output of the sensor.

5,068,636

CURRENT SHUNTING

George A. Cavigelli, Lexington, Mass., assignor to Doble Engineering Company, Watertown, Mass.

Filed Oct. 26, 1989, Ser. No. 427,447
Int. Cl.[5] H01C *7/00*
U.S. Cl. 338—49 **16 Claims**



1. A current shunt device comprising,
a main winding having first and second ends for carrying current to be sensed,
an auxiliary winding having first and second ends and being coextensive with said main winding,
said second ends being connected together,
whereby the potential between said first ends is representative of said current to be sensed substantially independent of voltages induced in said windings by stray magnetic fields.

5,068,637

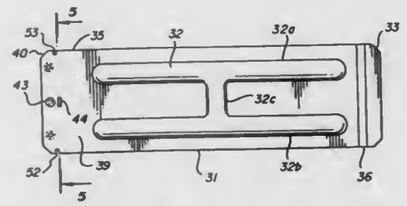
PLATE-LIKE METAL ELEMENT FOR ELECTRICAL RESISTOR GRID ASSEMBLY

Eric W. Bayer, North East, Pa., assignor to General Electric Company, Erie, Pa.

Filed Feb. 8, 1990, Ser. No. 476,856
Int. Cl.[5] H01C *1/08, 3/00, 7/22, 1/01*
U.S. Cl. 338—57 **33 Claims**

1. A resistor grid assembly comprising:
a plurality of generally parallel, plate-like, electrically conductive elements, each element having only one off-set

end, and being disposed between first and second spaced-apart support members of electrically non-conductive material and aligned, respectively, with a plurality of slotted openings in the opposing sidewalls of the support members, adjacent elements in the assembly being oppositely oriented and the first segment of each element being welded to the second segment of the next element; the plurality of electrically conductive elements each comprising:
a. a relatively thin, substantially rectangular, plate-like metal body having a predetermined width;
b. first and second metal segments at opposite ends of the body, each of the segments being integral with and having substantially the same width as said body, the second segment being coplanar with the body;
c. each element being bent at the juncture of the first segment and the body, to form a first portion generally coplanar with the body and a second portion connecting the first portion with the body, the first segment of each element being adapted to be welded to the surface of the second segment of another element after two such elements are placed side by side with opposite



orientation so that the first segment of one adjoins the second segment of the other;
d. a metal border segment, contiguous and generally coplanar with the second segment and having substantially the same width and gauge as the second segment, for entering a slotted opening in the sidewall of one of the first and second support members of the resistor grid assembly, the border segments of alternate elements in the assembly being respectively receivable by the slotted openings in the first support member, and the border segments of the oppositely oriented elements between said alternate elements being respectively receivable by the slotted openings in the second support member such that adjacent elements are supported by their respective border segments when installed in the assembly; and
e. at least one protuberance formed in the border segment, forming a physical stop for locating the distal end of the first segment of the adjacent element in a desired lengthwise position when two such elements are placed side-by-side with opposite orientation such that the second segment of one element can be operatively connected to the adjoining first segment of the other element.

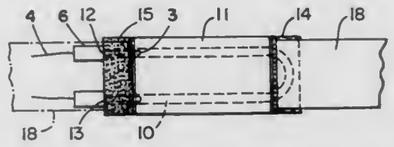
5,068,638

ELECTRICAL SENSING ELEMENT

Alan C. Bickely, Sawtry Huntingdon, England, and Travis Moore, Dumfries, Scotland, assignors to The Gates Rubber Company, Denver, Colo.

Filed Sep. 11, 1989, Ser. No. 405,484
Claims priority, application United Kingdom, Sep. 14, 1988, 8821539
Int. Cl.[5] H01C *10/10*
U.S. Cl. 338—114 **12 Claims**

1. A sensing element comprising a continuous, extruded tubular body of pressure sensitive electrically conductive material formed by a non-conductive matrix of flexible elastomeric material, the matrix containing electrically conductive particles and said tubular body having opposite open ends; and holding means holding said tubular body at two spaced locations thereof so that said tubular body is capable of axial elongation and contraction between said spaced locations, each of



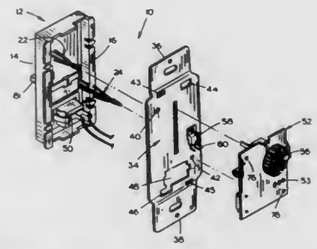
said open ends being exposed and forming a connection region into which an electrical connector may be inserted as a push fit.

5,068,639

WALL BOX DIMMER

Dail L. Swanson, Danville, Ill.; Raymond M. Green, Richardson, Tex., and Gregory S. Bennorth, Champaign, Ill., assignors to Valmont Industries, Inc., Valley, Nebr.

Filed Jun. 25, 1990, Ser. No. 543,448
Int. Cl.[5] H01C *10/38*
U.S. Cl. 338—179 **6 Claims**



1. A wall box dimmer comprising,
a face plate having front and rear surfaces, upper and lower ends, and opposite side edges,
said face plate having at least a pair of stand-offs extending rearwardly from the rear surface thereof,
a substantially flat mounting strap positioned rearwardly of said rear surface of said face plate and having upper and lower ends positioned above the upper and lower ends of said face plate, respectively,
said mounting strap having a pair of openings formed therein which receive said stand-offs,
said stand-offs including resilient arms diverging outwardly and forwardly, and having forward free ends, which are deflected towards one another as the standoffs are inserted through the respective openings in the mounting strap, and which move outwardly when inserted past their forward ends through said mounting strap openings for maintaining said mounting strap closely adjacent the reaf surface of said face plate,
a circuit board means mounted on said stand-offs rearwardly of said mounting strap and in a fixed and spaced relationship with respect thereto,
a rheostat means on said circuit board means includes a slide means,
said mounting strap having a slot formed therein through which said rheostat slide means projects for slidable movement;
a dimmer knob movably mounted on said face plate and having a slide arm extending rearwardly therefrom which is operatively connected to the rheostat slide means for selective movement of the same,

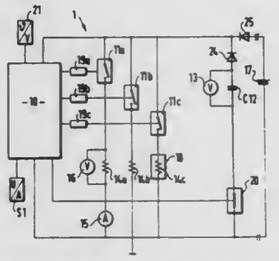
VOL 1132 ISS 4 NO 26 1991 UMI

and an on-off switch means mounted on said face plate.

5,068,640
METHOD OF OPERATING A SAFETY DEVICE FOR VEHICLE OCCUPANTS

Wilfried Burger, Hemmingen; Werner Nitschke, Ditzingen; Peter Tanfer, Reutlingen, and Hugo Weller, Oberriexingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE88/00372, § 371 Date Apr. 4, 1990, § 102(e) Date Apr. 4, 1990, PCT Pub. No. WO89/04779, PCT Pub. Date Jun. 1, 1989
PCT Filed Jun. 23, 1988, Ser. No. 466,301
Claims priority, application Fed. Rep. of Germany, Nov. 16, 1987, 3738862.2
Int. Cl.[5] B60R *21/32, 16/02*
U.S. Cl. 340—438 19 Claims



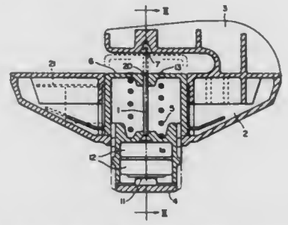
1. A method of actuating a safety device for a motor vehicle, the safety device including an electric storage device coupled to a voltage source, both the electric storage device and the voltage source being coupled to tripping devices for actuating restraining devices on the motor vehicle, comprising the following steps:
monitoring the electric storage device to determine if it is defective;
if the storage device is defective, interrupting the flow of electric current from the storage device to the tripping devices; and
directing electric current from the voltage source to at least one tripping device for a predetermined period of time to actuate the respective tripping device.

5,068,641
DETECTION LABEL FOR AN ANTI-SHOP-LIFTING SYSTEM

Johannes H. L. Hogen Esch, Aalten, Netherlands, assignor to N.V. Nederlandsche Apparatenfabriek Nedap, De Groenlo, Netherlands

Filed Feb. 23, 1990, Ser. No. 483,226
Claims priority, application Netherlands, Feb. 24, 1989, 8900461
Int. Cl.[5] G08B *13/24*
U.S. Cl. 340—551 20 Claims

1. A detection label for an anti-shoplifting system attachable to an article to be safeguarded comprising:
a housing;
a fixed clip on said housing having a part thereof spaced from a part of said housing forming a slot in said housing for insertion of a part of the article to be safeguarded;
a needle in said housing having a shank, an article piercing tip on one end thereof and a head on the other end thereof for attaching the detection label to the article in a secured position;
operating means movably mounted in said housing and engaging said needle for moving said needle and said tip thereof toward said clip into said secured position;
guiding means in said housing for guiding said needle during said movement of said needle;
a cavity in said clip for receiving said tip of said needle in said secured position;
locking means for locking said needle in said secured position; and

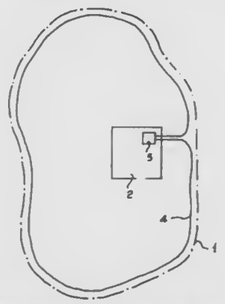


electrical circuit means in said housing detectable by an electromagnetic interrogation field;
said operating means comprising a push button engageable with said head of said needle; and
said guiding means comprising a fabric clamping device resiliently coupled to said push button and having a bore therein through which said shank of said needle extends.

5,068,642
ALARM OR WARNING DEVICE WITH SENSING MEANS IN THE FORM OF A D.C. BIASED SHIELDED COAXIAL CABLE

Vincenzo Hruby, Milan, and Raffaele Vizzotto, Casalserugo, both of Italy, assignors to Hesa S.p.A., Milano, Italy

Filed Mar. 29, 1990, Ser. No. 501,125
Claims priority, application Italy, Apr. 7, 1989, 20058 A/89
Int. Cl.[5] G08B *13/26*
U.S. Cl. 340—562 13 Claims

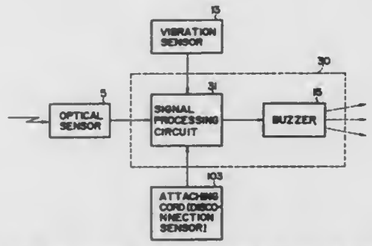


1. Alarm or warning device, comprising sensing means in the form of an electrically charged capacitor and an electronic circuit adapted to detect variations in the electric characteristics of said capacitor and to accordingly energize alarm and warning means, wherein said sensing means consist essentially of at least one shielded coaxial cable having shielding and an inner conductor, one or both ends of which cable are connected to said electronic circuit and wherein a D.C. constant biasing potential difference is applied between the shielding and the inner conductor of said cable.

5,068,643
BURGLARPROOF DEVICE

Kazuo Yashina, Tokyo, Japan, assignor to Teio Tsushin Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Mar. 5, 1990, Ser. No. 489,084
Claims priority, application Japan, Mar. 27, 1989, 1-074397; Nov. 10, 1989, 1-293197; Nov. 10, 1989, 1-293198; Jan. 31, 1990, 2-20620; Jan. 31, 1990, 2-20621
Int. Cl.[5] G08B *13/24*
U.S. Cl. 340—571 26 Claims

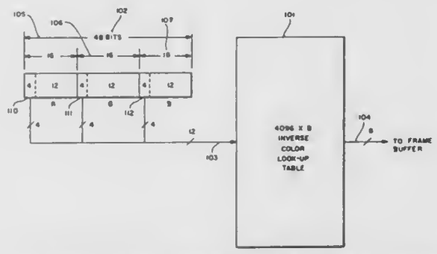


1. A theft prevention device comprising an optical sensor for detecting a level of ambient light, a vibration sensor for detecting vibration of a protected article, and an alarm circuit operatively coupled to the optical sensor and the vibration sensor for providing an alarm when the optical sensor detects a change in the level of ambient light from relative brightness to relative darkness and the vibration sensor detects a vibration of the protected article.

5,068,644
COLOR GRAPHICS SYSTEM

James Batson, Sunnyvale; Ernie Beernink, Mountain View; David Fung, Cupertino; Michael Potel, Los Altos Hills; Art Cabral, Mountain View, and Cary Clark, San Jose, all of Calif., assignors to Apple Computer, Inc., Cupertino, Calif.

Filed May 17, 1988, Ser. No. 195,083
Int. Cl.[5] G09G *1/28*
U.S. Cl. 340—701 23 Claims

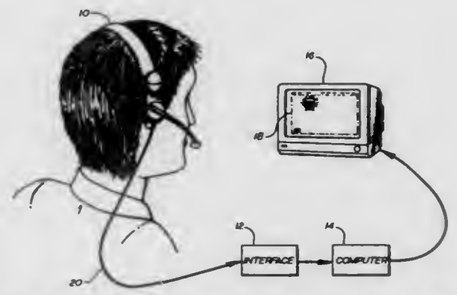


1. A method for providing a color graphics in a computer system, said method comprising the steps of:
providing said graphics system with a first RGB color information said first RGB color information comprising X bits;
addressing a first table with said first RGB color information said table comprising 2^Y entries, wherein Y is less than X, said first table providing an index value in response to said addressing; and
storing said index value.

5,068,645
COMPUTER INPUT DEVICE USING AN ORIENTATION SENSOR

Donald E. Drumm, Billerica, Mass., assignor to Wang Laboratories, Inc., Lowell, Mass.

Continuation of Ser. No. 267,413, Nov. 4, 1988, abandoned, which is a continuation-in-part of Ser. No. 108,176, Oct. 14, 1987, abandoned. This application Sep. 25, 1990, Ser. No. 588,499
Int. Cl.[5] G09G *1/00*
U.S. Cl. 340—710 17 Claims



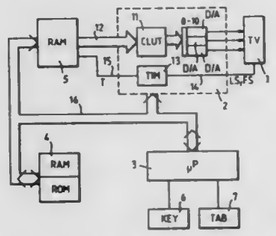
1. A computer display system for displaying a cursor and providing controlled movement of the cursor, comprising:
a display screen;
a computer programmed to control the position of a cursor on the display screen in response to cursor control signals;
a computer input device coupled to said computer, the computer input device generating signals representative of the magnitude and direction of angular displacement of the device for a continuous range of angles with respect to a vertical axis passing therethrough for a continuous range of directions;
said input device including
a housing having a circular cross section and center point,
a first light source and a first photodetector mounted opposingly in the plane of the circular cross section of the housing on a first axis extending through the center point of the circular cross section;
a second light source and a second photodetector mounted opposingly in the plane of the circular cross section of the housing on a second axis extending through the center point of the circular cross section, the second axis being displaced from the first axis;
a liquid medium and a gaseous medium, contained within the housing and having a boundary surface therebetween which intersects the center point of the circular cross section; and
differential amplifier means, coupled to said photodetectors;
whereby the output of the differential amplifier is representative of the magnitude and direction of angular displacement of the circular housing within the plane of the circular cross section; and
interface means, coupled to said computer, for generating digital control signals adapted for controlling the position of a cursor in response to the signals representative of the magnitude and direction of angular displacement of the input device so that there is a correspondence between a cursor position on the display screen and said magnitude and direction of angular displacement of said computer input device;
wherein the cursor may be moved from any starting position on the display screen along a continuous path and stopped at a second position on the screen.

VOL 1132 ISS 4 NOV 26 1991 UMI

5,068,646
DATA DISPLAY

Stephen J. Baker, Horley, England, assignor to U.S. Philips Corp., New York, N.Y.

Continuation of Ser. No. 11,075, Feb. 5, 1987, abandoned. This application Feb. 2, 1989, Ser. No. 306,283
Claims priority, application United Kingdom, Feb. 17, 1986, 8603851
Int. Cl.[5] G09G *1/06*
U.S. Cl. 340—725 20 Claims



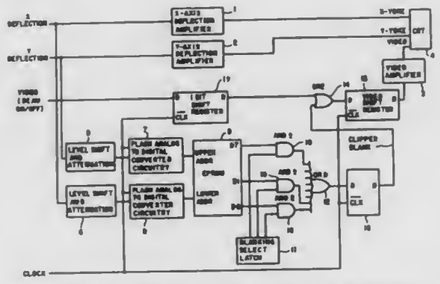
1. A method of displaying a moving object against a fixed background on data display apparatus for displaying as an entity on a screen of a display device a quantity of data which is represented by digital codes stored in a display memory, said displayed data being in the form of discrete pixels or dots each of which has at least one of its color and luminance defined by a respective digital code in said display memory at a location corresponding to the position of the pixel in the display, said data display apparatus including a processor for controlling digitally the storage, selection and display of data including background data, said method comprising:
a) generating the object as a display;
b) converting the shape of the object, as initially displayed, into a machine code program capable of generating digital data display code;
c) during a recurrent display scan cycle, running the machine code program to write into appropriate locations of the display memory at machine code operating speed of said processor the digital data display codes which represent the object, said digital data display codes being generated by said machine code program; and
d) displaying on the screen of the display device the data represented by the digital data display codes in the display memory.

5,068,647
DIGITAL BLANKER FOR SCANNED DISPLAYS

Mark L. Hinton, Bellevue, Wash., and John C. Belka, Jr., Shawnee, Kans., assignors to Allied-Signal Inc., Morris Township, Morris County, N.J.

Filed Apr. 3, 1989, Ser. No. 331,912
Int. Cl.[5] G09G *1/00*
U.S. Cl. 340—734 17 Claims

1. A digital blanker for scanned displays comprising:
electronic circuitry means for digitizing a position of a scanned CRT beam;
storage means for recording a predefined area of the scanned display where blanking is required;
comparison means connected to said storage means for comparing the digitized position of the scanned CRT beam with the predefined area where blanking is required; and

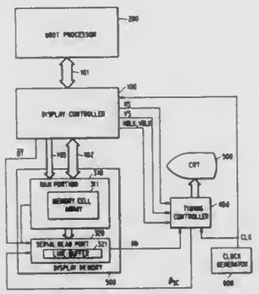


means for applying an output of said comparison means to blank said predefined area of a CRT.

5,068,648
DISPLAY CONTROLLER HAVING A FUNCTION OF CONTROLLING VARIOUS DISPLAY MEMORIES

Toshikazu Chiba, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jan. 30, 1989, Ser. No. 302,893
Claims priority, application Japan, Jan. 29, 1988, 63-20282
Int. Cl.[5] G09G *1/14, 1/02, 3/00*
U.S. Cl. 340—750 3 Claims

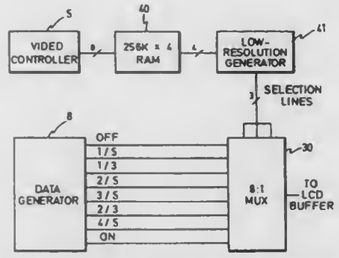


1. A display controller comprising a first register temporarily storing a memory address designating a location of display data in a display memory, said memory address being changed in a predetermined cycle during a data displaying period, first means coupled to said first register for producing a first signal each time a predetermined number of less significant bits of said memory address become a predetermined value second means for generating a second signal each time a horizontal scan line to be displayed is changed, a second register storing first information or second information, third means coupled to said second means and said second register for transferring said second signal when said second register stores said first information and for inhibiting said second signal from being transferred when said second register stores said second information, and fourth means coupled to said first means and said third means for producing an access request signal when said first signal is produced or when said second signal is transferred thereto from said third means.

5,068,649
METHOD AND APPARATUS FOR DISPLAYING DIFFERENT SHADES OF GRAY ON A LIQUID CRYSTAL DISPLAY

James H. Garrett, Spring, Tex., assignor to Compaq Computer Corporation, Houston, Tex.

Filed Oct. 14, 1988, Ser. No. 258,269
Int. Cl.[5] G09G *3/18*
U.S. Cl. 340—793 13 Claims



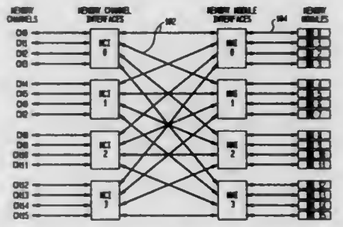
1. A display control system for producing an optical gray-scale image on a display device having an array of display elements each providing a first or a second optical state in response to a first or a second signal level, respectively, th array of display elements having a plurality of rows and a plurality of columns, the system comprising:
means for generating respective display signals for the display elements for producing a gray-scale image of a specified color, the display signals comprising digital signals each having a pattern of bits respectively corresponding to the first or the second signal level, a predefined pattern cycle and a duty cycle related to the optical gray-scale of the image at the position of the respective display element, the pattern of bits of each one of the digital signals being repetitively generated, the means for generating display signals providing successive bits of the display signals for respective diaplay elements in successive timeframes, in each timeframe one bit of each of the display signals being provided in sequence for consecutive display elements in each row from a first to a last display element of the row and for consecutive rows beginning at a first row and ending at a last row of the array, and causing a predetermined skewing of each subsequently generated display signal having a pattern cycle for which the total number of display elements in a row is integrally divisible each time a bit of a respective display signal is provided for the last display element of a row, and causing a predetermined skewing of each subsequently generated display signal having a pattern cycle for which the total number of display elements in the array is integrally divisible each time a bit f a respective display signal is provided for the last display element of the last row of the array.

5,068,650
MEMORY SYSTEM FOR HIGH DEFINITION TELEVISION DISPLAY

Antonio Fernandez, Brooklyn, N.Y.; Hugo Pinerio Gaggioni, Randolph, N.J.; Martin J. Jaquez, San Diego, Calif.; John D. Robbins, Mountain Lakes; and E. Scott Soper, Morristown, both of N.J., assignors to Bell Communications Research, Inc., Livingston, N.J.

Division of Ser. No. 253,269, Oct. 4, 1988, Pat. No. 4,947,251.
This application Jun. 11, 1990, Ser. No. 536,028
Int. Cl.[5] G09G *1/02;* H04N *5/262*
U.S. Cl. 340—799 5 Claims

1. A memory system for composing a plurality of video and still image signals into a single high definition television display, said memory system comprising:
a plurality of memory modules, said memory modules being simultaneously accessible to service memory access requests and each containing a portion of a raster of pixel locations so that together the memory modules form a complete raster array of pixel locations,
a plurality of memory channel interface units for receiving asynchronous memory access requests via a plurality of memory access channels and for synchronizing and storing said memory access requests, and

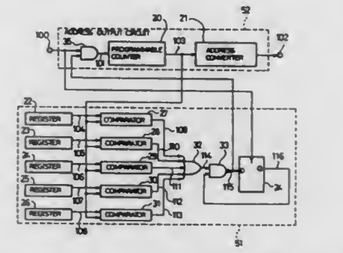


a plurality of memory module interface units for enabling said memory channel interface modules to communicate synchronously with said memory modules to service said memory access requests stored in said memory channel interface units.

5,068,651
IMAGE DISPLAY APPARATUS

Hideharu Takebe, Itami, and Makoto Okura, Kamakura, both of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 11, 1989, Ser. No. 336,949
Claims priority, application Japan, Oct. 19, 1988, 63-264646
Int. Cl.[5] G09G *3/00*
U.S. Cl. 340—814 4 Claims



1. In an image display apparatus comprising sync signal generation means for generating sync signal pulses, display timing signal generation means, image memory means for storing image element data constituting a pattern, having a predetermined raster line number of raster scan lines, of a letter or a character or a drawing, a video circuit for converting said image element data into a video signal according to signals from said sync and display timing signal generation means and display means for displaying the pattern of a letter or a character or a drawing according to the output of said video circuit, an improved programmable memory address generation unit for generating raster addresses that designates selected raster lines in a selected pattern stored in the image memory means to be repeated a predetermined repeat number of times, said unit comprising:
logic means, coupled to receive the sync signal pulses and a raster line designating signal, for transmitting selected sync pulses only when said raster line designating signal is set;
a counter, coupled to receive said transmitted selected sync

VOL 1132 ISS 4 NO 26 1991 UMI

pulses, for generating a count signal having a value incremented upon receipt of each selected sync signal pulse and reset when said value is equal to a selected number, said count signal specifying a raster line in the selected pattern;

a plurality of programmable registers for storing a set of integers designating raster scan lines in the selected pattern to be repeated for the predetermined repeat number of selected sync signal pulses; and

raster redesignating means, coupled to receive said count signal and said sync signal pulses, and coupled to said registers, for resetting said raster line designating signal for said predetermined repeat number of sync signal pulses to prevent the incrementing of said count signal for said predetermined repeat number of sync signal pulses when the value of the count signal is equal to the value of one the integers in said set so that the raster scan line designated by the count signal is redesignated said predetermined repeat number of times.

5,068,652

PERSONAL COMPUTER HAVING CONDITION INDICATOR

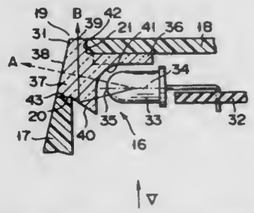
Takaichi Kobayashi, Itsukaichi, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jun. 22, 1990, Ser. No. 542,248

Claims priority, application Japan, Jun. 23, 1989, 1-162218

Int. Cl.[5] G08B *5/22*; G06F *1/00*

U.S. Cl. 340—815.03 **10 Claims**



1. A personal computer provided with both a condition indicator and a keyboard, comprising:

a top cover;

an angular section including first and second walls, said first wall being upright on the top cover and having a first indication hole, and said second wall being horizontal and continuous with an upper edge of the first wall and having a second indication hole;

an indication element formed of a light-transmission material of a non light-diffusion type and arranged inside of the angular section, said indication element including a light-transmission portion partly fitted in both the first and second indication holes, and an attachment portion integral with the light-transmission portion and attached to the second wall;

a printed circuit board arranged inside the angular section in the vicinity of the indication element and being substantially parallel to the second wall; and

a light-emitting element attached to the printed circuit board and adapted to emit light toward the first indication hole, said light-transmission portion including:

a first indication surface which is fitted in the first indication hole and is located on an outer surface of the first wall in an exposed state;

a second indication surface which is fitted in the second indication hole and is located on the outer surface of the second wall in an exposed state;

a slanted reflecting surface located at a lower level than that of the first surface and adapted to reflect part of the light emitted from the light-emitting element toward the second indication surface; and

a light-incident surface extending between a lower edge of the reflecting surface and a lower face of the attachment portion.

5,068,653

CAPACITIVE DISPLACEMENT MEASURING DEVICE WITH T-SHAPED SCALE COATINGS

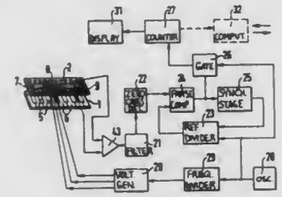
Otto Klingler, Oberndorf-Bochingen; Siegfried Gruhler, Vohringen, and Helmut Rivinius, Bonningheim, all of Fed. Rep. of Germany, assignors to Mauser-Werke Oberndorf GmbH, Fed. Rep. of Germany

Filed Nov. 9, 1984, Ser. No. 670,349

Claims priority, application Fed. Rep. of Germany, Nov. 11, 1983, 3340782

Int. Cl.[5] G08C *19/10*

U.S. Cl. 340—870.37 **11 Claims**



1. A capacitive displacement measuring device, comprising:

A stationary scale member (1) having a surface (3);

two rows of interengaged T-shaped electrically independent capacitor scale coatings (5,6) defined on said scale member surface, each capacitor scale coating having a leg and a cross with a cross of a scale coating in one row engaged at least partly over a leg of a scale coating of the other row;

a movable sensor member (2) having a surface (4) overlying, facing and spaced from said surface (3) of said stationary scale member, said movable sensor member being movable in a selected direction over said stationary scale member and having an axis extending in said selected direction;

a plurality of transmitting electrode capacitor coatings (7.1, 7.2, 7.3), disposed on said surface (4) of said movable sensor member and overlying at least part of at least some of said capacitor scale coatings;

a plurality of receiving electrode capacitor coatings (8, 9) on said surface (4) of said sensor member, spaced with respect to and electrically isolated from said transmitting electrode coatings;

a grounded shield on said surface (4) of said sensor member disposed in a space between said transmitting and receiving electrode coatings to isolate said transmitting electrode coatings from said receiving electrode coatings; and

A.C. voltage means connected to said transmitting electrode coatings for applying an electrically rotating field to said plurality of transmitting electrode coatings;

said receiving electrode coatings being disposed with respect to said transmitting electrode coatings to receive a signal transmitted from said transmitting electrode coatings having a phase position which is proportional to a displacement between said stationary scale member and said movable sensor member.

5,068,654

COLLISION AVOIDANCE SYSTEM

Fredrick K. Husher, Albuquerque, N. Mex., assignor to Hazard Detection Systems, Colorado Springs, Colo.

Filed Jul. 3, 1989, Ser. No. 374,841

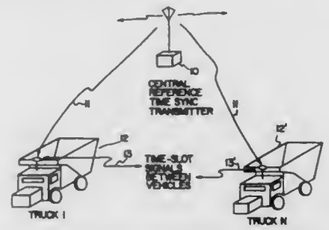
Int. Cl.[5] G08G *1/16*; G01S *3/02*

U.S. Cl. 340—903 **12 Claims**

1. A system which comprises:

transmitting means for continually transmitting a reference signal at a predetermined time interval;

a plurality of ground based transponder means for transmitting, in response to receipt of said reference signal, respective data signals at a common predetermined signal strength with horizontal polarization during different unique time periods following reception of said reference signal, each said transponder means being operative for receiving data signals transmitted by other transponder means in said system;



processor means coupled to each said transponder means for processing position status information including range information derived from signal strengths of said received data signals relative to said predetermined signal strength to provide about 10 feet of resolution at a range of 500 feet; and

indicating means coupled to each said processor means for indicating a collision threat to an operator based on said range information.

5,068,655

DEVICE FOR DETECTING THE PASSAGE OF AT LEAST ONE MOBILE BODY IN AT LEAST ONE LOCATION FIXED BY ITS TRAVEL

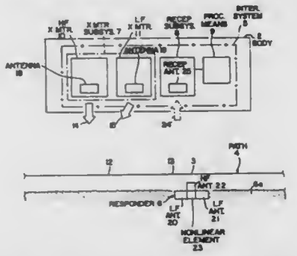
Robert Gabillard, Lille; Yann Nguyen, Dunkerque, and Christian Semet, Neuville en Ferrain, all of France, assignors to Universite des Sciences et Techniques de Lille (U.S.T.L.) Flandres Artois, Villeneuve D'ASCQ, France

Filed Apr. 4, 1990, Ser. No. 504,181

Claims priority, application France, Apr. 4, 1989, 89 04773

Int. Cl.[5] G08G *1/123*; G08B *13/14*

U.S. Cl. 340—988 **9 Claims**



1. A device for detecting the passage of at least one mobile body (2) through a defined location (3) along a path (4) within a space in which displacements of the mobile body are evaluated, comprising:

an interrogation system (5) having a transmission subsystem (7), reception subsystem (8), and a processing means (9) connected to said reception subsystem (8) for processing data received therefrom, said transmission subsystem having a high frequency transmitter (10) for transmitting a high frequency signal in the form of an electromagnetic wave and a low frequency transmitter for establishing a relatively low frequency signal in the form of a magnetic field, each of said transmitters having a source (16, 17) and a transmitting antenna (18, 19), said reception subsystem having a reception antenna (25); and a passive responder (6), one of said responder and interrogation system mounted to the mobile body and the other of said responder and interrogation system being fixed to a support (6a) located on the path, said responder having first and second low frequency antennas (20, 21) tuned to receive the low frequency signal and offset from each other in a direction parallel to said path, high frequency antenna (22) tuned to receive the high frequency signal, and a non-linear element (23) connected to said first and second low frequency antennas and said high frequency antenna for mixing the low frequency signal received by said first and second low frequency antennas and said high frequency antenna to supply a resultant (R) in the form of a modulated carrier wave transmitted over said high frequency antenna (22) to said reception antenna (25); and

wherein said first and second low frequency antennas are spaced apart from each other in a direction generally parallel to the path, said first and second low frequency antennas are two secondary windings to which said transmitting antenna (19) of said high frequency transmitter (10) serves as a primary winding, said secondary windings arranged such that during passage of the mobile body adjacent to the defined location said secondary windings receive said low frequency signal successively and over a time interval (T_o) both secondary windings receive said low frequency signals at about the same amplitude and opposite polarity such that said reception subsystem receives said resultant (R) in a pattern having as components: two distinct portions (R_a, R_b) of lengths (T_1, T_2), each distinct portion corresponding to a different one of said secondary windings receiving a dominant portion of said low frequency signal, and a top (30) separating said distinct portions corresponding to said time interval (T_o).

5,068,656

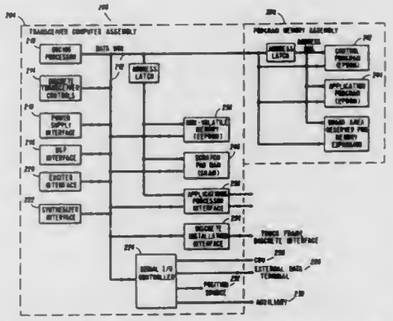
SYSTEM AND METHOD FOR MONITORING AND REPORTING OUT-OF-ROUTE MILEAGE FOR LONG HAUL TRUCKS

Dennis W. Sutherland, Marion, Iowa, assignor to Rockwell International Corporation, El Segundo, Calif.

Filed Dec. 21, 1990, Ser. No. 633,639

Int. Cl.[5] G08G *1/123*

U.S. Cl. 340—989 **3 Claims**



1. A system for monitoring and reporting out-of-route mileage trucks comprising:

means for transmitting signals corresponding to geographic coordinates from a central dispatch station to a truck at some distant point;

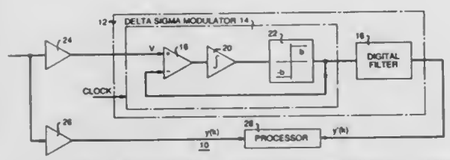
means for receiving the signals corresponding to the geographic coordinates from the central dispatch;

means for generating route rectangles indicative of areas surrounding road segments to be travelled on board a truck and without driver action having the geographic

VOL 1132 ISS 4 NOV 26 1991 UMI

coordinates at either a first end of a second end of a route rectangle;
means for providing a position signal corresponding to the current position of the truck;
means for comparing the position signal on board a truck and without driver action with a set of predetermined acceptable positions within a route rectangle;
means for generating an exception report without driver intervention if the position signal is not included in the set of acceptable positions;
means for transmitting the exception report to the central dispatcher; and
means for receiving an exception report on a real-time basis and alerting a central dispatcher of an out-of-route status in a timely manner.

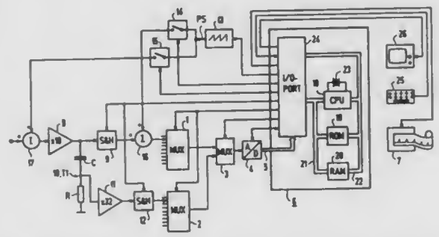
5,068,657
METHOD AND APPARATUS FOR TESTING DELTA-SIGMA MODULATORS
Sheng-Jen Tsai, Newtown, Pa., assignor to AT&T Bell Laboratories, Murray Hill, N.J.
Filed May 25, 1990, Ser. No. 528,514
Int. Cl.[5] H03M *1/10*
U.S. Cl. 341—120 **9 Claims**



1. A method for testing a delta-sigma modulator which serves to convert an analog input signal to a digital output signal, comprising the steps of:
sampling an input test signal at a first rate and supplying each successive sample to the delta-sigma modulator which, in turn, produces an output signal in accordance with the sample;
sampling the input test signal at a second rate;
generating an error signal in accordance with the difference between the value of the output signal generated by the delta-sigma modulator in response to each sample obtained at the first sampling rate, and the value of each sample obtained at the second sampling rate; and
comparing the error signal to a preselected value, representing the value of the error signal when the delta-sigma modulator is operating properly.

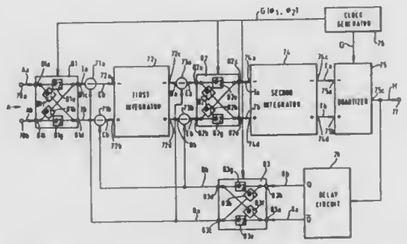
5,068,658
METHOD AND APPARATUS FOR ANALOG-TO-DIGITAL CONVERSION
Thomas Ohlsson, Vaellingby, and Bo Hjorth, Sollentuna, both of Sweden, assignors to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany
Filed Feb. 28, 1991, Ser. No. 662,445
Claims priority, application European Pat. Off., Mar. 2, 1990, 90104106.1
Int. Cl.[5] H03M *1/20*
U.S. Cl. 341—131 **25 Claims**

1. A method for analog-to-digital conversion of a chronologically changing, analog electrical signal comprising the steps of:
forming an edited signal by subjecting said input signal to a first transfer function to obtain a resulting signal, and amplifying the resulting signal by a defined gain factor;
chronologically successively sampling said input signal and said edited signal to obtain a sampled input signal and a sampled edited signal;
analog-to-digital converting the sampled input signal to obtain first digital data having a defined number of bits, said defined number of bits defining the dynamic range of the analog-to-digital conversion;



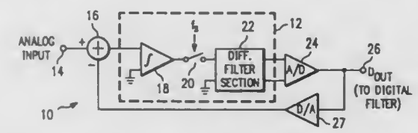
analog-to-digital converting the sampled edited signal to obtain second digital data having said defined number of bits;
multiplying said first digital data by a defined multiplication factor, equal to said defined gain factor to obtain a product;
detecting transgressions of said dynamic range in the analog-to-digital conversion of said edited signal; and
in the event of no transgression of said dynamic range, calculating a final analog-to-digital conversion result based on said product and said second digital data.

5,068,659
DELTA-SIGMA MODULATION ANALOG TO DIGITAL CONVERTER
Takashi Sakaguchi, Kanagawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan
Continuation of Ser. No. 322,867, Mar. 14, 1989, Pat. No. 4,994,804. This application Aug. 16, 1990, Ser. No. 568,189
Claims priority, application Japan, Mar. 15, 1988, 63-61595
Int. Cl.[5] H03M *3/02*
U.S. Cl. 341—143 **16 Claims**



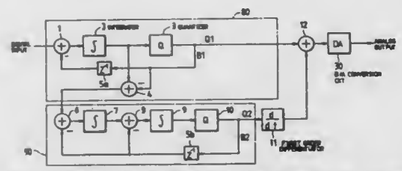
1. A delta-sigma modulation analog to digital converter for converting an analog input signal to a digital output signal, comprising:
input means for receiving the analog input signal;
clock generator means for generating a very high frequency clock signal with first and second phases;
first switching circuit means, coupled to the input means, for modulating the analog input signal with the very high frequency clock signal;
integration means, coupled to the first switching circuit means, for integrating the modulated input signal, the integration means also generating a noise signal;
second switching circuit means, coupled to the integration means, both for demodulating the integrated modulated input signal and modulating the noise signal with the very high frequency clock signal;
quantizer means, coupled to the second switching circuit means and responsive to the demodulated integrated modulated input signal and the modulated noise signal, for generating the digital output signal, the digital output signal including a separable portion corresponding to the modulated noise signal; and
feedback circuit means, coupled between the quantizer means and the integration means, for both generating a feedback signal corresponding to the digital output signal and feeding the feedback signal to the integration means.

5,068,660
COMBINING FULLY-DIFFERENTIAL AND SINGLE-ENDED SIGNAL PROCESSING IN A DELTA-SIGMA MODULATOR
Eric J. Swanson, Buda, and Bruce P. Del Signore, Austin, both of Tex., assignors to Crystal Semiconductor Corporation, Austin, Tex.
Filed Oct. 27, 1989, Ser. No. 428,397
Int. Cl.[5] H03M *3/02*
U.S. Cl. 341—143 **9 Claims**



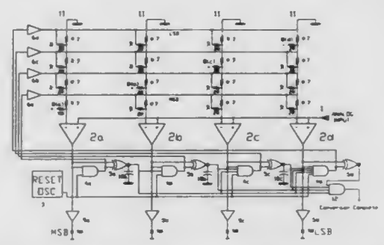
1. A plurality of serially coupled integrators in an analog-to-digital modulator characterized in that at least one of said integrators is a single-ended integrator and at least another of said integrators is a fully-differential integrator.

5,068,661
MULTI-STAGE NOISE SHAPING OVER-SAMPLING D/A CONVERTER
Tetsuhiko Kaneaki, Ashiya; Kozo Nuriya, and Yasunori Tani, both of Osaka, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Japan
Filed Sep. 13, 1988, Ser. No. 244,047
Claims priority, application Japan, Sep. 14, 1987, 62-230114
Int. Cl.[5] H03M *1/66*
U.S. Cl. 341—143 **6 Claims**



1. An over-sampling digital-to-analog converter, comprising:
a noise shaping quantization circuit coupled to receive a digital signal as input, for producing a quantized output signal;
a digital-to-analog conversion circuit for converting said quantized output signal to an analog signal;
wherein said noise shaping quantization circuit has final quantization levels of $-L, -(L-1), \ldots, -1, 0, +1, \ldots, +(L-1), +L$, where L is a positive integer, and in which said noise shaping quantization circuit comprises:
a single-integration sigma delta modulation circuit coupled to receive said input digital signal;
a double-integration sigma delta modulation circuit coupled to receive a quantization error signal produced from said single-integration sigma delta modulation circuit;
differentiator means for differentiation an output signal produced from said double-integration sigma delta modulation circuit; and,
adder means for summing an output signal produced from said differentiator means and an output signal produced from said single-integration sigma delta modulation circuit;
wherein said digital-to-analog conversion circuit converts a sum output signal produced from said adder means to an analog signal, and wherein said single-integration sigma delta modulation circuit has quantization levels of $-N, -(N-1), \ldots, -1, 0, +(N-1), +N$, where N is a positive integer, and said double-integration sigma delta modulation circuit has quantization levels of $-M, -(M-1), \ldots, -1, 0, +M$, where M is a positive integer which is less than N.

5,068,662
NEURAL NETWORK ANALOG-TO-DIGITAL CONVERTER
Suresh Guddanti, and William P. Mounfield, Jr., both of Baton Rouge, La., assignors to Board of Supervisors of Louisiana State University and Agricultural and Mechanical College, Baton Rouge, La.
Filed Sep. 27, 1990, Ser. No. 589,172
Int. Cl.[5] H03M *1/38, 1/36*
U.S. Cl. 341—161 **10 Claims**



1. A circuit comprising:
(a) an analog input for receiving an analog input voltage;
(b) a plurality of n logic elements connected to said analog input, wherein n is an integer greater than 1, and wherein for each integer k greater than or equal to 1 and less than or equal to n, the kth logic element comprises:
(i) a comparison voltage input for receiving a kth comparison voltage; and
(ii) means for comparing whether the analog input voltage is greater than the kth comparison voltage; and
(iii) if k is less than n, means responsive to said comparing means for the (k+1)st logic element, for inhibiting said kth logic element when the result of said comparing means for the (k+1)st logic element changes, until a selected time interval after the completion of said change; and
(c) a plurality of n comparison voltage generators, one said comparison voltage generator connected to each of said comparing means, wherein for each integer j greater than or equal to 1 and less than or equal to n, the jth comparison voltage generator comprises means for generating the jth comparison voltage, wherein the jth comparison voltage is substantially proportional to

VOL 1132 ISS 4 NO 26 1991 UMI

$$\sum_{i=j}^{n} s_i 2^i,$$

wherein

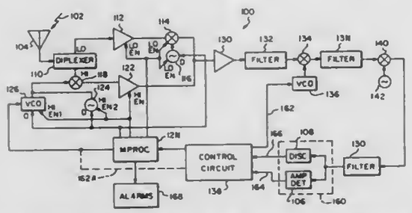
$$s_i = \begin{cases} 1 & \text{if } i = j; \\ 1 & \text{if } i > j, \text{ and if the } i\text{th comparing means determined that the analog input voltage was greater than the } i\text{th comparison voltage;} \\ 0 & \text{if } i > j, \text{ and if the } i\text{th comparing means determined that the analog input voltage was less than the } i\text{th comparison voltage.} \end{cases}$$

5,068,663

MOTOR VEHICLE RADAR DETECTOR INCLUDING AMPLITUDE DETECTION

Michael D. Valentine; Stephen R. Scholl, and Marwan E. Nusair, all of Cincinnati, Ohio, assignors to Valentine Research, Inc., Cincinnati, Ohio

Filed Jan. 24, 1991, Ser. No. 645,587
Int. Cl.[5] G01S 7/42
U.S. Cl. 342—20 36 Claims



1. A motor vehicle radar signal detector for alerting an operator of a motor vehicle receiving incoming radar signals, said detector comprising:

receiver means for receiving incoming radar signals at frequencies within at least one frequency band;

radar signal processing means responsive to said incoming radar signals for generating a final intermediate frequency signal within a final intermediate frequency range, said radar signal processing means comprising variable frequency mixer means including a local oscillator for generating a local oscillator signal which is swept across a frequency range corresponding to said at least one frequency band;

amplitude detection means receiving said final intermediate frequency signal for generating a signal strength signal representative of the amplitude of said final intermediate frequency signal;

signal verification means responsive to said signal strength signal for identifying valid incoming radar signals; and

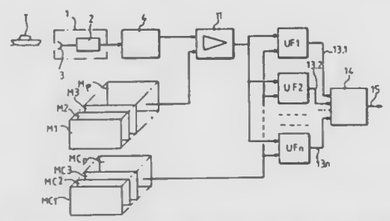
alarm means for alerting an operator of a motor vehicle upon identification of valid incoming radar signals.

5,068,664

METHOD AND DEVICE FOR RECOGNIZING A TARGET

Alain Appriou, Saclay; Régis Barthelemy, Les Ulis, and Colette Coulombeix, Chatenay Malabry, all of France, assignors to Societe Nationale Industrielle et Aerospatiale, Paris, France

Filed Oct. 24, 1990, Ser. No. 602,488
Claims priority, application France, Oct. 24, 1989, 89 13928
Int. Cl.[5] G01S 7/295; G06K 9/64
U.S. Cl. 342—90 9 Claims



1. Method for recognizing a target (T) among a plurality of n known targets Ti (with i=1,3,4, . . . , n), wherein:

in a first preparatory step, for each of said known targets (Ti) first values (CKi) are determined representative of a plurality of p recognition criteria Ck (with k=1,2,3, . . . , p);

in a second preparatory step, from direct examination of said n known targets (Ti), using said first values (CKi) and for each recognition criterion (Ck), nxp second values (PCk(Ti)) are established each representative of the probability for a target (Ti) to be recognized when it is examined whereas it is the target (Tj) which is examined (j=1,2,3, . . . , n); and

in a step for recognizing said target:

by direct examination of said target (T) to be recognized and from said first values (CKi) determined by said first preparatory step, at least p third values (pCk(Ti)) are established representative of the probabilities, for each recognition criterion (Ck), that the target (T) to be recognized is each of said n known target (Ti) insofar as each of said p criteria is concerned;

said nxp third values associated with the same known target (Ti) are merged together by taking into account said nxp second values, so as to obatin n fourth values (p(Ti)), each of which is representative of the probability that the target to be recognized is one of the known targets (Ti); and

the identity of the target to be recognized (T) is determined from the largest of said fourth values.

5,068,665

ARCHITECTURE FOR THE IMPLEMENTATION OF RADAR DISPLAYS

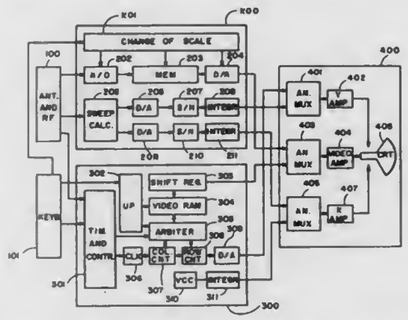
Francesco Piazza, Via Loik, 7, Jesi (AN), and Antonio Pierfederici, Via XXIV Maggio, 32, San Michele Al Fiume (PS), both of Italy

Continuation of Ser. No. 413,223, Sep. 27, 1989, abandoned. This application Apr. 4, 1991, Ser. No. 681,403
Claims priority, application Italy, Sep. 29, 1988, 630 A/88
Int. Cl.[5] G01S 7/04
U.S. Cl. 342—177 14 Claims

1. In an echo receiving system which receives an echo signal and generates a corresponding first video signal defining a polar plan image of said echo signal, and which generates a second signal defining a cartesian plan image of auxiliary information about said polar plan image, a display apparatus, comprising:

a video display monitor;

control means connected to said echo receiving system and said video display monitor for operating said video display with said second signal in a raster format, thereby displaying said cartesian plan image, and for periodically interrupting said raster operation to intersperse said first video signal, thereby interleaving said polar plan image,


CHANGE OF SCALE
A/D
MEM
D/A
SWEEP CALC.
D/A
S/H
INTERP
SHIFT REG.
VIDEO RAM
ARBITER
TIM AND CONTR.
CLK
VCC
A/D
A/D
A/D

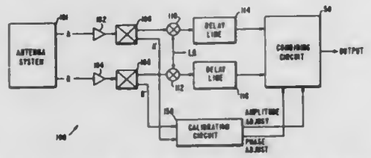
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,668

ADAPTIVE POLARIZATION COMBINING SYSTEM

George I. Tsuda, Fullerton, and Dan E. Snyder, La Mirada, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Sep. 6, 1989, Ser. No. 403,427
Int. Cl.[5] H01Q *21/06;* H03H *5/00*
U.S. Cl. 342—362 10 Claims



1. An adaptive polarization combining system, comprising:

a receive antenna responsive to an incoming RF signal from a single source and having a first port for providing received first component signals of a first polarization sense of said incoming signal and a second port for providing received second component signals of a second polarization sense of said incoming signal;

means for providing time delayed versions of said first and second component signals;

a calibration circuit responsive to said undelayed first and second component signals and comprising amplitude detecting means for detecting the relative amplitudes of said first and second component signals and providing amplitude detector signals indicative of said relative amplitudes, and phase detecting means for detecting the relative phase differential between said first and second component signals and providing a phase detector signal indicative of said phase differential; and

an adjustable combiner circuit responsive to said delayed versions of first and second component signals and comprising means for electronically adjusting the phase and amplitude of the respective delayed first and second component signals and for combining the phase and amplitude adjusted signals at a single combiner output port to thereby polarization match the system to the polarization of the received signal and maximize the signal-to-noise ratio of the combiner output port signals, said combiner circuit comprising means responsive to said amplitude detector signals and said phase detector signals for adjusting the phase and amplitude of said delayed versions of said first and second signals without loss of information or distortion of the received signal waveform.

5,068,669

POWER BEAMING SYSTEM

Peter Koert, Washington, D.C., and James T. Cha, Fairfax, Va., assignors to APTI, Inc., Washington, D.C.

Filed Sep. 1, 1988, Ser. No. 239,284
Int. Cl.[5] H01Q *1/380, 13/080, 1/280*
U.S. Cl. 343—700 MS 15 Claims

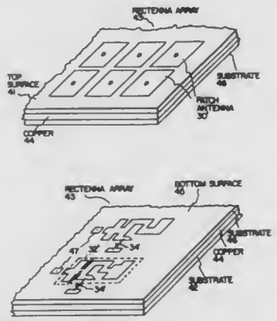
14. A multi-layer rectenna structure comprising:

a. a first substrate having at least one receiving antenna provided thereon;

b. a second substrate having circuit elements provided thereon; and

c. a ground plane located between said first and second substrate; and

d. wherein said circuit elements comprise an impedance matching filter coupled to said receiving antenna via a coupling capacitance, a diode electrically coupled to said



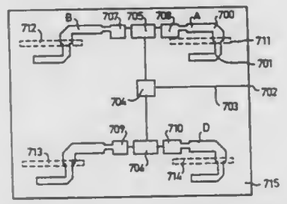
matching filter, and an output filter electrically coupled to said diode.

5,068,670

BROADBAND MICROWAVE SLOT ANTENNAS, AND ANTENNA ARRAYS INCLUDING SAME

Joseph Maoz, 23 Emek Habracha, Tel Aviv 67456, Israel

Continuation-in-part of Ser. No. 186,261, Apr. 26, 1988, abandoned. This application Jan. 25, 1990, Ser. No. 470,203
Claims priority, application Israel, Apr. 16, 1987, 82331
Int. Cl.[5] H01Q *13/10*
U.S. Cl. 343—767 17 Claims



1. A broadband microwave antenna exhibiting high radiation efficiency over a broad frequency band in which the VSWR is less than 2.5:1 over at least 15% of the frequency band, comprising:

a dielectric substrate having two sides;

an electrically conductive layer serving as a ground plane on at least one side of the dielectric substrate;

a feed line in the form of a feed strip of electrically conductive material at the other side of the dielectric substrate;

said ground plane being formed with at least one radiating slot having a feed end at one side of the slot, and a load end at the opposite side of the slot, said feed end being electromagnetically coupled to said feed strip for feeding thereto the energy to be radiated or received;

said feed strip being of uniform width for substantially its complete length, but including a change in width at the feed end of the slot to produce a first impedance matching network at the feed end of the slot effective to bring the slot impedance to the level of the feed line over said broad frequency band;

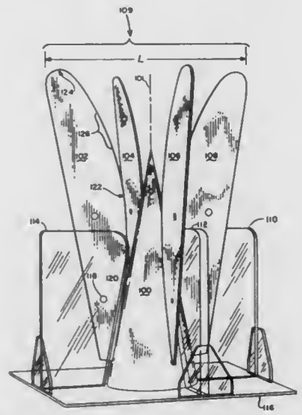
said feed strip including another change in width at the load end of the slot to produce a second impedance matching network which reduces the slot reactance to match the reactive impedance of the load to the reactive part of the slot impedance over said broad frequency band.

5,068,671

ORTHOGONALLY POLARIZED QUADRAPHASE ELECTROMAGNETIC RADIATOR

Michael C. Wicks, Utica, and Paul V. Etten, Clinton, both of N.Y., assignors to The United States of America as represented by the Secretary of the Air Force, Washington, D.C.

Filed Jun. 24, 1988, Ser. No. 218,198
Int. Cl.[5] H01Q *21/20, 1/48*
U.S. Cl. 343—799 23 Claims



1. Antenna apparatus comprising the combination of:

a plurality of radiating elements each resident in one plane of a family of intersecting radiating element planes that are of equal angle spacing about a common plane intersection axis;

each of said radiating elements having an airfoil like cross-section shape in its radiating element plane of residence with the airfoil under surface line in said cross-section shape facing outward and away from said common axis and the airfoil curving most surface line in said cross-section shape facing toward said common axis and lying in predetermined separation therefrom and with the airfoil leading edge portion in said cross-section shape facing a first distal end of said axis and the airfoil trailing edge portion in said cross-section shape facing an opposite second distal end of said axis;

a conically shaped ground plane element disposed centrally of said radiating elements along said axis with an apex portion thereof facing said axis first distal end and a planar base portion thereof facing said axis second distal end;

means for coupling electrical energy signals of predetermined relative phase relationship with each of said radiating elements.

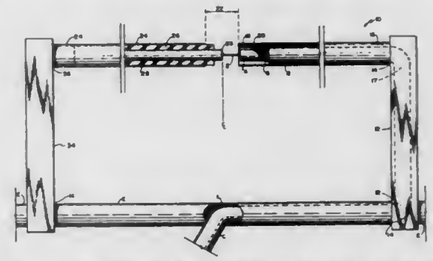
5,068,672

BALANCED ANTENNA FEED SYSTEM

Peter K. Onnigian, 1236 40th Ave., Sacramento, Calif. 95827, and Philip M. Onnigian, 7449 Fox Hills Dr., Citrus Heights, Calif. 95610

Filed Mar. 6, 1989, Ser. No. 318,858
Int. Cl.[5] H01Q *1/50*
U.S. Cl. 343—859 15 Claims

1. A dipole antenna having an integral balun and impedance matching structure comprising two axially spaced conductors defining a gap therebetween, an antenna conductor, means joining said spaced conductors to said antenna conductor, said axially spaced conductors, said joining means and said antenna conductor forming a folded loop having an overall electrical length which is a small fraction of the operating wavelength, a coaxial cable secured to a portion of said antenna conductor and extending to an end location of one of said spaced conductors at said gap, a dielectrically insulated conductor secured to the other of said spaced conductors to form a capacitor therewith, the center conductor of said coaxial cable being con-



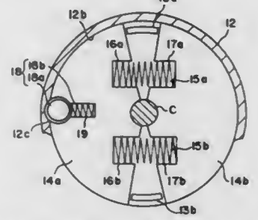
nected to said dielectrically insulated conductor across said gap; and an extended antenna radiator extending outwardly from end portions of said antenna conductor to form said dipole antenna.

5,068,673

CLUTCH DEVICE FOR ELECTRICALLY EXTENSIBLE ANTENNAS

Misao Kimura, Tokyo, Japan, assignor to Harada Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Jun. 26, 1990, Ser. No. 543,651
Int. Cl.[5] H01Q *1/80, 00/100;* B60R *11/20;* F16D *7/20*
U.S. Cl. 343—901 1 Claim



1. A clutch device for electrically driven telescopic antennas characterized in that said clutch device comprises: a first rotary element which is in a circular plate form; a second rotary element which is in a cylindrical shape with a closed end has a circumferential wall and is positioned concentrically with said first rotary element so that an open end of said second rotary element faces one side of said first rotary element, said second rotary element having an engaging recess formed in an inner surface of the circumferential wall; a plurality of sector-shape sliding contacts mounted on one side of said first rotary element which faces the open end of said second rotary element so that said sector-shape sliding contacts can rotate together with said first rotary element, circumferential surfaces of said sliding contacts being in ann arc shape so as to slide in contact with said inner surface of the circumferential wall of said second rotary element; elastic bodies mounted inn an elastically compressed state between said sliding contacts so that respective arc-shaped surfaces of said sliding contacts are pressed against said inner surface of the circumferential wall of said second rotary element; and an engagement assembly provided in at least one of said sector-shape sliding contacts which are pressed against said inner surface of the circumferential wall of said second rotary element by said elastic bodies, a portion of said engagement assembly projecting beyond said arc-shaped surface of said sector-shape sliding contact so as to be capable of engaging via pressing contact with the engaging

VOL 1132 ISS 4 NO 26 1991 UMI

recess of said second rotary element, wherein one of said first rotary element and second rotary element is used as a main driving clutch plate connected to a motor, while the other of said rotary elements is used as a driven clutch plate connected to an antenna.

5,068,674

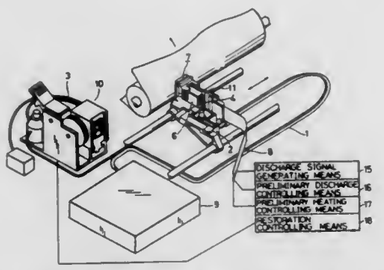
LIQUID JET RECORDING HEAD STABILIZATION

Koichi Sato, Yokohama, and Masami Ikeda, Tokyo, both of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 363,524, Jun. 7, 1989, Pat. No. 4,929,964. This application Mar. 1, 1990, Ser. No. 486,910

Int. Cl.[5] B41J *2/05*

U.S. Cl. 346—1.1 **38 Claims**



1. A method for preparing an ink jet recording head which records using a plurality of electrical signals applied in a course of recording, having an electro-thermal energy convertor comprising a heat-generating resistor for generating heat energy for discharging an ink by an application of said electrical signals and a pair of electrodes for applying said electrical signals each having a voltage to said heat-generating resistor, said method comprising;

performing an aging step, said aging step being performed by;

applying sufficient aging electrical signals each having a voltage V to said heat-generating resistor so as to that said heat-generating resistor and stabilize a resistance value of said heat-generating resistor through heat treatment of said heat-generating resistor;

selecting said aging electrical signals applied in the course of said aging step to each have a different voltage from said electrical signals applied in the course of recording;

selecting the voltage V applied in the course of said aging step in relation with a foaming initiating voltage V_0 so that a K-value representing a ratio V/V_0 is within a range of 1.15 to 1.25; and

limiting said aging step to between about two and about fifteen minutes in duration.

5,068,675

FACSIMILE APPARATUS HAVING HEAT FIXATION DEVICE

Masanori Momose, Yokohama, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 13, 1989, Ser. No. 449,758

Claims priority, application Japan, Dec. 15, 1988, 63-317244; Dec. 21, 1988, 63-324507

Int. Cl.[5] G01D *15/10*

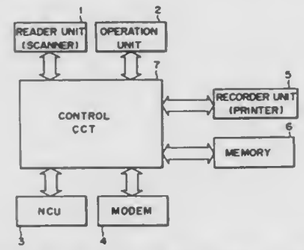
U.S. Cl. 346—76 PH **15 Claims**

1. A facsimile apparatus comprising:

communication means for receiving through a communication line transmitted image data from a remote communication apparatus;

recording means for forming a visible image on a recording material according to the image data which is transmitted from the remote communication apparatus and received by said communication means;

fixing means for heat-fixing the visible image formed on the recording material by said recording means, said fixing means comprising a heating member, a heat resistant sheet



travelling with the recording material and pressing means opposed to and in pressure contact with said heating member; and

control means for controlling said fixing means to start heating and stop said heating after completion of image data recording of at least one sheet.

5,068,676

IMAGE DATA STORING DEVICE FOR AN IMAGE FORMING APPARATUS

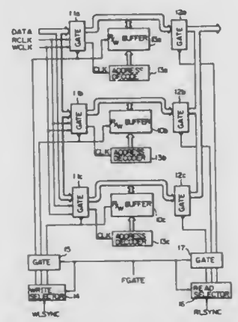
Yoshiki Yoshida, Yokohama, and Kenichirou Asada, Tokyo, Japan, assignors to Ricoh Company, Ltd., Tokyo, Japan

Filed Aug. 10, 1990, Ser. No. 565,337

Claims priority, application Japan, Aug. 21, 1989, 1-213081

Int. Cl.[5] G01D *9/42;* **H04H** *1/21*

U.S. Cl. 346—108 **1 Claim**



1. An image data storing device for an image forming apparatus, comprising:

a plurality of line buffers for storing one line of data each;

writing means for writing image data transferred from external equipment to said plurality of line buffers in response to an external line synchronizing (sync) signal fed from said external equipment;

internal line sync signal generating means for generating an internal line sync signal which is not synchronous to said external line sync signal;

image forming signal generating means for generating an image forming signal in association with an image forming period for forming one frame of image;

selecting means for causing each of said plurality of line buffers into particular one of a read state, a write state, and an inoperative state; and

control means for causing, during a non-image forming period, said selecting means to selectively cause said plurality of line buffers into said read state, write state and inoperative state in response to said image forming signal while, during a non-image forming period, causing said selecting means to maintain said plurality of buffers in said read state, write state, and inoperative state.

5,068,677

LASER SCANNER WITH SELECTED PLURAL BEAM SOURCES

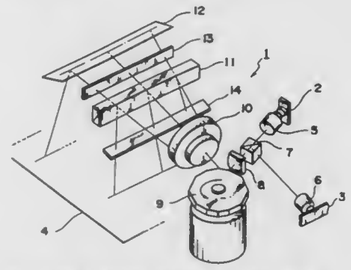
Kazuo Matsuura; Hitoshi Sekino; Keizo Nishiguchi, and Narutaka Yoshida, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 409,102, Sep. 19, 1982, abandoned. This application Oct. 5, 1990, Ser. No. 595,688

Claims priority, application Japan, Sep. 20, 1988, 63-235860; Sep. 20, 1988, 63-235861; Sep. 20, 1988, 63-235862

Int. Cl.[5] G01D *15/16;* **G02B** *26/08*

U.S. Cl. 346—108 **15 Claims**



1. A laser beam scanning apparatus comprising:

plural laser beam sources for emitting laser beams modulated by a picture signal and having different characteristics from each other;

a beam composition means for composing the beams emitted from said laser beam sources to form one laser beam;

a deflecting means for deflecting the composite laser beam in a main scanning direction thereof;

a beam splitter for splitting the deflected laser beam on the basis of the characteristic of the laser beam; and

a beam-selecting means for selecting the laser beam in correspondence with the characteristic of the laser beam split by said splitter, said beam-selecting means arranged between said splitter and the substance to be illuminated on an optical path of the beam,

wherein each split laser beam illuminates on a different part of a substance to be illuminated.

5,068,678

DEVICE FOR DRIVING PHOTOGRAPHING LENS AND FINDER DEVICE OF CAMERA HAVING ZOOM LENS

Makoto Mogamiya, and Tahei Morisawa, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo Kabushiki Kaisha, Tokyo, Japan

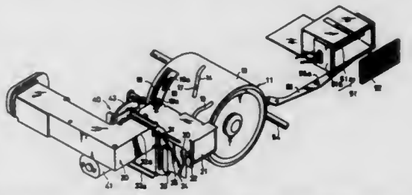
Filed Sep. 27, 1989, Ser. No. 414,123

Claims priority, application Japan, Sep. 29, 1988, 63-127923[U]

Int. Cl.[5] G03B *3/00, 13/10*

U.S. Cl. 354—199 **11 Claims**

1. A zoom lens camera having a zoom photographing lens and zoom finder device which are driven in association with each other so that the image plane and the finder field of view correspond to each other, and a pair of pinions for the zoom photographing lens and the zoom finder device, respectively, said pinions provided in a gear train driven by a reversible motor so that the zoom photographing lens and the zoom finder device are driven by the respective pinions, wherein said zoom photographing lens has a cam ring which effects zooming by rotation, said cam ring having a gear secured thereto



which is in mesh with said pinion for the zoom photographing lens.

5,068,679

IMAGING SYSTEM FOR MACROPHOTOGRAPHY

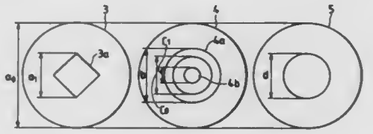
Juro Kikuchi, Kitatsuru, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan

Filed Apr. 27, 1990, Ser. No. 515,592

Claims priority, application Japan, Apr. 28, 1989, 1-111290; May 12, 1989, 1-119554

Int. Cl.[5] G03B *9/02*

U.S. Cl. 354—271.1 **10 Claims**



1. An imaging optical system comprising:

a photographic lens,

a mechanical stop having a variable size aperture, and

a variable focal length lens disposed adjacent to said mechanical stop and having a diameter smaller than a minimum diameter aperture of said mechanical stop,

wherein said imaging optical system allows only a portion of a beam of light traversing the aperture of said mechanical stop to pass through the variable focal length lens when the aperture of said mechanical stop is maximized, and

wherein said imaging optical system allows an entire beam of light traversing the aperture of said mechanical stop to pass through said variable focal length lens when the aperture of said mechanical stop is minimized.

5,068,680

REAR CONVERTER FOR INTERCHANGEABLE LENS CAMERA

Masahiro Kawasaki, and Osamu Sato, both of Tokyo, Japan, assignors to Asahi Kogaku Kogyo K.K., Tokyo, Japan

Continuation of Ser. No. 192,560, May 11, 1988, abandoned, which is a division of Ser. No. 116,820, Nov. 5, 1987, abandoned. This application Dec. 28, 1989, Ser. No. 455,876

Claims priority, application Japan, Nov. 6, 1986, 61-262676; Nov. 6, 1986, 61-262677

Int. Cl.[5] G03B *17/00*

U.S. Cl. 354—286 **9 Claims**

1. A rear converter comprising:

a body mount (613) matable with a camera body mount of a camera body;

a lens mount (615) matable with a photographing lens mount of a photographing lens;

a fixed lens system (317) for changing the focal length of said photographing lens;

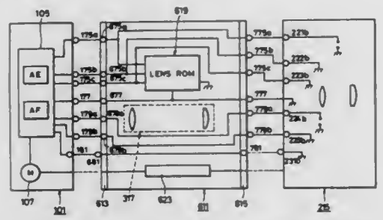
storing means (619) for storing at least characteristic data of

VOL 1132 ISS 4 NO 26 1991 UMI

said fixed lens system and having a plurality of signal terminals;

a first group of electrical contacts (675) provided on said body mount and respectively connected to different ones of said signal terminals of said storing means, said first group of electrical contacts being capable of electrically contacting with electrical contacts provided on said camera body mount;

a first electrical contact (677) provided on said body mount and connected to another one of said signal terminals of said storing means (619) for supplying electrical power thereto, said first electrical contact being capable of projecting from a surface of said body mount, said first electrical contact being grounded when said camera body is not of an auto-focus type;



a second group of electrical contacts (775) provided on said lens mount and connected to said first group of electrical contacts and to others of said signal terminals of said storing means, said second group of electrical contacts being capable of electrically contacting with a corresponding group of electrical contacts provided on said photographing lens mount;

a second electrical contact (777) provided on said lens mount and connected to said first electrical contact, said second electrical contact being capable of projecting from a surface of said lens mount, said second electrical contact being grounded when said photographing lens is not of the auto-focus type; and

driving force transmitting means (623) for transmitting driving force from said camera body to said photographing lens.

5,068,681

DRYING AIR CONTROL METHOD IN AN AUTOMATIC DEVELOPING MACHINE AND AN AUTOMATIC DEVELOPING MACHINE EMPLOYING THE METHOD

Hiromitsu Kosugi; Shinichi Otani; Teruo Kashino; Masakazu Andoh; Takeo Arai, and Toshiharu Nagashima, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Continuation of Ser. No. 329,419, Mar. 27, 1989, Pat. No. 4,952,960. This application Jun. 20, 1990, Ser. No. 540,909

Claims priority, application Japan, Mar. 30, 1988, 63-77662; May 23, 1988, 63-126592; Jun. 6, 1988, 63-140254; Feb. 17, 1989, 1-37875

Int. Cl.[5] G03D *3/08;* **F26B** *21/08, 21/10*

U.S. Cl. 354—299 **24 Claims**

1. An apparatus for developing a photographic film having a size variation characteristic, comprising:

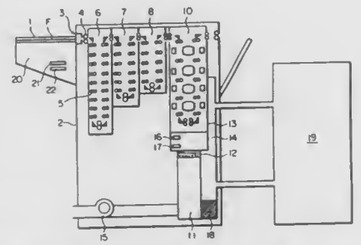
means for processing the film with processing solutions to develop an image on the film;

means for drying the processed film;

first means for detecting the outside atmospheric condition;

second means for detecting a drying condition of said drying means;

computation means for obtaining a film size variation on the basis of the outside atmospheric condition, the drying condition, and the size variation characteristic of the film, and for obtaining an optimum drying condition so as to change the film size variation to a desired film size variation; and



control means for controlling said drying means so as to provide said optimum drying condition.

5,068,682

FOCUS ADJUSTER

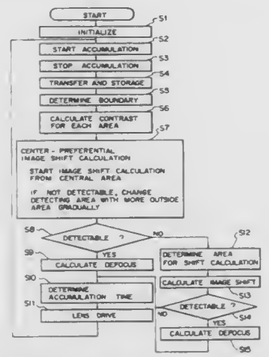
Ken Utagawa, Yokohama, Japan, assignor to Nikon Corporation, Tokyo, Japan

Continuation of Ser. No. 435,939, Nov. 14, 1989, abandoned. This application Sep. 24, 1990, Ser. No. 587,601

Claims priority, application Japan, Nov. 16, 1988, 63-287731

Int. Cl.[5] G03B *13/00*

U.S. Cl. 354—402 **17 Claims**



1. A focus adjuster comprising:

first and second light-receiving means each including a plurality of photoelectric converting elements in a unidimensional arrangement, said first and second light-receiving means providing respective light intensity distribution signals representing the intensity of light incident on said plurality of photoelectric converting elements;

an optical system for leading light to said first and second light-receiving means from a field to be photographed;

selecting means for selecting a group of adjacent photoelectric converting elements of said first light-receiving means and for determining at least one borderline between said group and the remainder of said first light-receiving means on the basis of changes in the light intensity distribution signal of said first light-receiving means in the direction of arrangement of said plurality of photoelectric converting elements of said first light-receiving means; and

calculating means for producing, according to the light intensity distribution signal of said group and also to a light intensity distribution signal of at least part of the plurality of photoelectric converting elements of said second light-receiving means, a signal representing a relation between the light intensity distribution over said group and the light intensity distribution over said at least part of the plurality of photoelectric converting elements of said second light-receiving means.

5,068,683

ACCESSORY SHOE ADAPTER FOR VIDEO CAMERA ATTACHED ON BATTERY MOUNT PORTION

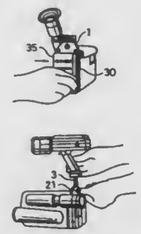
Kiyoshi Miyazaki, Tokyo, Japan, assignor to Kabushiki Kaisha LPL, Higasimurayama, Japan

Filed Aug. 29, 1990, Ser. No. 575,185

Claims priority, application Japan, Mar. 16, 1990, 2-27336[U]

Int. Cl.[5] G03B *7/26*

U.S. Cl. 354—484 **2 Claims**



1. Accessory shoe adapter for video camera comprising:

a shoe mount for accessories;

an adapter body supporting said shoe mount, said adapter body having front and rear sides, a camera mount adapted to be attached to a battery pack mount of the video camera and a battery pack mount adapted to have a battery pack mounted thereon;

said camera mount and said battery pack mount of the adapter body being formed on the front and rear sides of the adapter body, respectively, so as to present mutually complementary geometries; and

said complementary geometries comprising a pair of electric contacts provided with the camera mount corresponding to electric contacts provided on the battery pack mount of the video camera and said battery pack mount of the adapter body being also provided with a pair of electric contacts at locations corresponding to, and electrically connected to, said pair of electric contacts on the camera mount so that, with said battery pack mounted on said adapter and said adapter attached to said video camera battery pack mount, said shoe mount is secured to said camera, and said camera is electrically powered by said battery pack through said adapter.

5,068,684

IMAGE FORMING DEVICE

Nobumasa Abe; Atsushi Kobayashi; Koji Watanabe; Norio Morishita, and Yuji Tanaka, all of Suwa, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan

Filed Aug. 8, 1989, Ser. No. 391,902

Claims priority, application Japan, Aug. 9, 1988, 63-198502; Nov. 22, 1988, 63-295062; Apr. 17, 1989, 1-97182; Apr. 21, 1989, 1-102282

Int. Cl.[5] G03B *27/32*

U.S. Cl. 355—27 **59 Claims**

1. An image forming device including a photosensitive member including a plurality of microcapsules in its surface, each of the microcapsules containing at least a color former and a photosensitive material, the photosensitive member being superimposed on a sheet on which a visible image is to be created before or after the member is exposed to an optical image, the photosensitive member being subjected to pressure after exposure and while the sheet is developed, and the image is fixed, said device comprising:

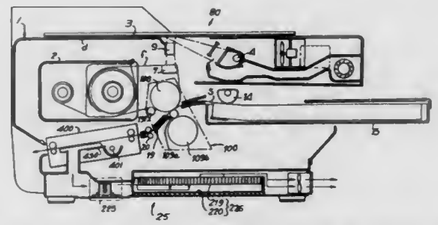
a container for holding the photosensitive member;

an exposure means which exposes the photosensitive member to the optical image;

means for holding the sheet;

development means for superimposing the photosensitive member on the sheet and developing the sheet under pressure and including at least one pressure roller, the development means including pressure-adjusting means for adjusting the pressure applied by the at least one roller;

said pressure-adjusting means including a pressure spring positioned to apply pressure to the at least one roller and spring adjusting means for selectively adjusting the amount of pressure applied by said pressure spring when said roller is in said pressure application position;



said spring adjusting means including means for selectively adjusting the amount of compression of the pressure spring;

said pressure roller displacing means includes pivotable first lever means supporting at one side of the pivot thereof said at least one pressure roller and having at the other side thereof a spring seat; displaceable cam means and cam follower means engaging said cam means and supporting said pressure spring for displacement of the pressure spring into and out of cooperative relation with the spring seat to displace the pressure roller in response to the displacement of the cam means.

5,068,685

IMAGE RECORDING APPARATUS USING MASK MEMBERS AND HAVING MONOCHROMATIC PRINTER PORTION AND MANUAL MASK MEMBER INSERTION TRAY

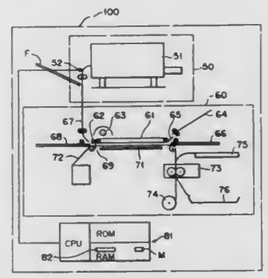
Hidenori Hisada, Tokoname, and Makoto Suzuki, Nagoya, both of Japan, assignors to Brother Kogyo Kabushiki Kaisha, Nagoya, Japan

Filed Dec. 27, 1990, Ser. No. 634,460

Claims priority, application Japan, Jan. 29, 1990, 2-18172; Feb. 22, 1990, 2-41603

Int. Cl.[5] G03B *27/32, 27/52*

U.S. Cl. 355—32 **7 Claims**



1. An image recording apparatus for recording a color image with using mask members, each of the mask members being formed with a light shieldable mask image and each of the

VOL 1132 ISS 4 NOV 26 1991 UMI

mask members being successively fed toward a photosensitive recording medium at an exposure position for superposedly forming latent images thereon upon exposures, the apparatus comprising;

a printer portion for producing the mask members, the printer portion providing an automatic mask member feed mode and also providing means for indicating copying numbers for the automatic feed mode with respect to the mask members;

a color image forming portion for forming an output color image with using the mask members, each of the mask members being introducible from the printer portion to the color image forming portion along a first path, the photosensitive recording medium and the exposure position being positioned within the color image forming portion;

sheet feed means for manually setting another set of mask members and for introducing the another set into the color image forming portion along a second path, the sheet feed means providing a manual mask member feed mode;

means for inputting another copying numbers in case of the manual mask member feed mode; and

means for invalidating the copying numbers indicated by the indication means and for predominating the another copying numbers if the manual mask member feed mode is selected.

5,068,686

COLOR IMAGE RECORDING APPARATUS HAVING TRIAL PRINTING WITH VARIABLE EXPOSURE

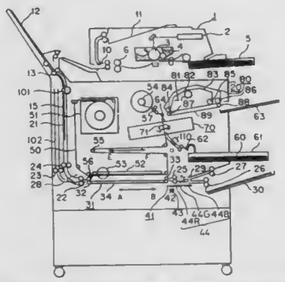
Hiroshi Taira, Ichinomiya, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Japan

Filed Dec. 19, 1990, Ser. No. 630,220

Claims priority, application Japan, Feb. 7, 1990, 2-11859

Int. Cl.[5] G03B *27/32, 27/52*

U.S. Cl. 355—32 **12 Claims**



1. A color image recording apparatus for recording a color image on a photosensitive recording medium through mask members for red (R), green (G) and blue (B) images, comprising:

a scanning exposure light source relatively movable along an image area of said photosensitive recording medium;

a driving source for moving said scanning exposure light source at variable scanning speeds;

scanning speed setting means for setting a scanning speed of said scanning exposure light source;

a memory having a first conversion table indicating the scanning speed to be set by said scanning speed setting means and a second conversion table indicating at least one of a different scanning speed correlative with the scanning speed indicated by said first conversion table;

trial print mode inputting means for designating a trial print mode; and

control means for variably driving said driving source in plural stages per image area on the basis of the scanning speeds in said first conversion table and said second conversion table designated by said scanning speed setting means when the trial print mode is set by said trial print mode inputting means, a number of plural stages per image area to be scanned corresponding to a number of scanning speeds designated by said first and second conversion tables.

5,068,687

READER-PRINTER

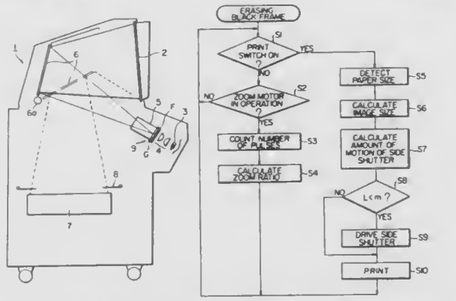
Kuniaki Kamimura; Kenji Sawada, and Yasushi Yamade, all of Osaka, Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 360,393, Jun. 2, 1989, abandoned. This application Nov. 1, 1999, Ser. No. 607,833

Claims priority, application Japan, Jun. 7, 1988, 63-138545

Int. Cl.[5] G03B *27/58, 13/28*

U.S. Cl. 355—45 **17 Claims**



1. An apparatus for projecting an original image of a microfilm onto a photosensitive member through a projection lens and forming a corresponding copied image on a recording paper, said apparatus comprising;

positioning means for positioning the original image of the microfilm at a prescribed position,

detecting means for detecting the magnification ratio of the projection lens,

memory means for memorizing the size of the original image,

arithmetic means for calculating a size of the copied image to be formed on the recording paper based on the magnification ratio of the projection lens and the size of said original image,

means for providing a size of the recording paper, and

control means for controlling a copying operation so that only the copied image of the calculated size is formed on the recording paper when the calculated size of the copied image is smaller than the size of the recording paper.

5,068,688

DEVICE FOR AUTOMATICALLY LOADING AN IMAGE RECORDING APPARATUS WITH A RECORDING MEDIUM

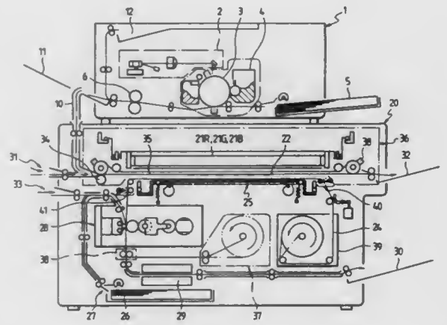
Kazunori Tanabe, Nagoya, Japan, assignor to Brother Kogyo Kabushiki Kaishi, Nagoya, Japan

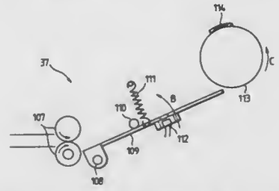
Filed Mar. 3, 1989, Ser. No. 318,346

Claims priority, application Japan, Mar. 3, 1988, 63-28963[U]

Int. Cl.[5] G03B *27/04;* B65H *16/02*

U.S. Cl. 355—99 **6 Claims**





1. A device for automatically loading an image recording apparatus with a web of a photosensitive recording medium, said web having a leading end, the image recording apparatus including a take-up roller for taking up the web on a peripheral surface thereof, said device comprising:

a frame;

a pair of conveyor rollers rotatably provided on said frame for holding said web therebetween and conveying said web toward said take-up roller;

a web guide member extending between one of said pair of conveyor rollers and said take-up roller for guiding said web to said take-up roller, said web guide member including a base having two ends, one end thereof being rotatably supported on said frame at a position adjacent to said one of said pair of conveyor rollers and the other end thereof being urged toward said peripheral surface, said guide member further including a detector provided in said base for detecting said leading end of said web, wherein conveyance of said web is stopped when a predetermined period of time has elapsed after said leading end has been detected by said detector; and

wherein said take-up roller carries an adhesive layer on said peripheral surface and said leading edge of said web is adhered to said adhesive layer.

5,068,689

METHOD FOR TRANSFERRING IMAGES AND AN APPARATUS USED THEREFOR

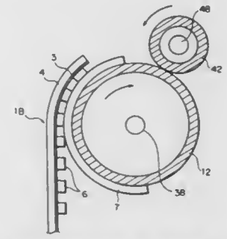
Nobumasa Sasa; Kunio Shimizu, and Manabu Watanabe, all of Hino, Japan, assignors to Konica Corporation, Tokyo, Japan

Filed Oct. 2, 1990, Ser. No. 591,751

Claims priority, application Japan, Oct. 4, 1989, 1-259320

Int. Cl.[5] G03B *27/30, 27/02*

U.S. Cl. 355—107 **7 Claims**



1. A method for transferring an image from a transfer medium onto a recording sheet without gloss being transferred with the image, comprising the steps of:

providing on said transfer medium a support layer with a colored light sensitive layer formed thereover;

positioning an intermediate removable layer between said support layer and said light sensitive layer;

exposing said light sensitive layer to a predetermined image, to form a latent image thereon;

developing only said latent image, other portions of said light sensitive layer remaining undeveloped;

removing said undeveloped portions of said light sensitive layer;

placing said recording sheet on a rotatable sheet carrying member;

superposing said transfer medium over said recording sheet with said developed latent image facing said recording sheet;

pressing said transfer medium and said recording sheet onto said rotatable sheet carrying member while rotating said rotatable sheet carrying member to transfer only said developed latent image to said recording sheet; and

removing said intermediate removable layer and said support layer from said recording sheet whereby only said developed latent image is transferred to said recording sheet.

5,068,690

COPYING APPARATUS WITH IMAGE EDITING DEVICE

Keiji Nakatani, and Hirokazu Yamada, both of Osaka, Japan, assignors to Minolta Camera Kubushiki Kaisha, Japan

Continuation of Ser. No. 154,011, Feb. 9, 1988, abandoned. This application Feb. 28, 1991, Ser. No. 662,991

Claims priority, application Japan, Feb. 10, 1987, 62-29021; Feb. 12, 1987, 62-30251; Feb. 16, 1987, 62-32824; Feb. 16, 1987, 62-32825

Int. Cl.[5] G03G *15/00*

U.S. Cl. 355—218 **12 Claims**

4. Image forming apparatus comprising:

means for inputting data which designates a desired area of an original;

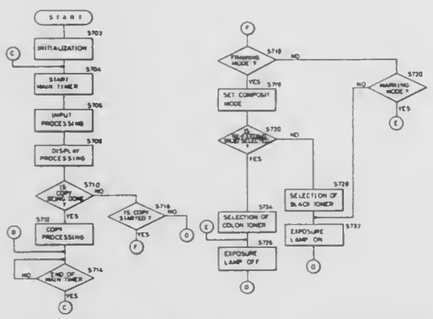
a photoreceptor;

first image forming means for forming an original image in said designated area on said photoreceptor;

second image forming means for forming a frame image, having a width which is constant irrespective of a range of the designated area, for framing said designated area on said photoreceptor;

VOL 1132 ISS 4 NO 26 1991 UMI

control means for selectively operating said first image forming means and said second image forming means; and



transfer means for transferring the image formed on said photoreceptor to a copy paper.

5,068,691

DEVELOPING DEVICE WITH A CONTROLLABLE PRESSURE RELEASE FOR THE DEVELOPING ROLLER

Yukio Nishio, Tama, and Kazunori Hirose, Hiratsuka, both of Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 30, 1990, Ser. No. 530,518

Claims priority, application Japan, Jun. 1, 1989, 1-139445; Jun. 5, 1989, 1-141217; Jun. 21, 1989, 1-159320; Jun. 26, 1989, 1-163120

Int. Cl.[5] **G03G** *15/08*

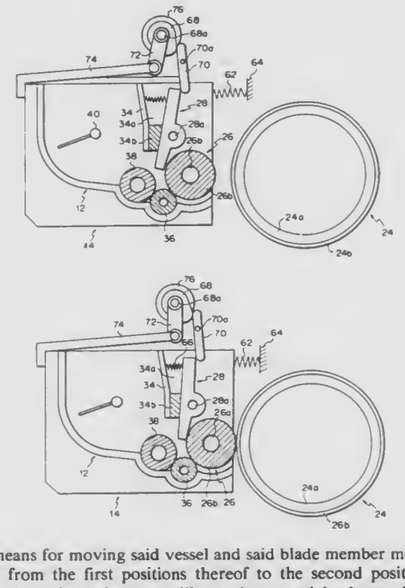
U.S. Cl. 355—259 **29 Claims**

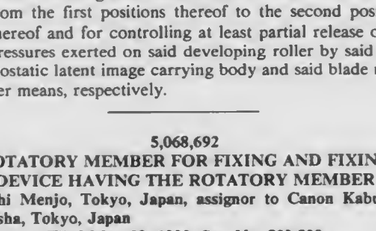
1. A developing device using a one-component developer composed of toner particles, comprising:

a vessel for holding the developer, said vessel being movable between first and second positions;

a developing roller rotatably provided within and supported by said vessel so that a portion of said developing roller is exposed therefrom, the exposed portion of said developing roller being pressed against a surface of an electrostatic latent image carrying body when positioning said vessel at the first position thereof, said developing roller being formed of a conductive elastic material by which the toner particles are entrained to form a developer layer around said developing roller and are carried to the surface of said electrostatic latent image carrying body for development of an electrostatic latent image formed thereon;

a blade member means provided within and movably supported by said vessel, said blade member means being movable between first and second positions, said blade member for regulating a thickness of the developer layer formed around said developing roller when positioning said blade member means at the first position thereof pressed against said developing roller; and





means for moving said vessel and said blade member means from the first positions thereof to the second positions thereof and for controlling at least partial release of the pressures exerted on said developing roller by said electrostatic latent image carrying body and said blade member means, respectively.

5,068,692

ROTATORY MEMBER FOR FIXING AND FIXING DEVICE HAVING THE ROTATORY MEMBER

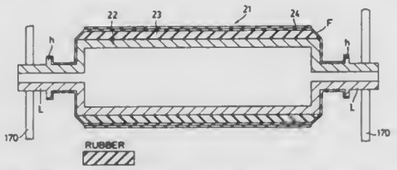
Takeshi Menjo, Tokyo, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Filed May 29, 1990, Ser. No. 529,508

Claims priority, application Japan, May 31, 1989, 1-135740

Int. Cl.[5] **G03G** *15/20*

U.S. Cl. 355—284 **20 Claims**



1. A rotatory member for fixing toner image onto a support member supporting toner image, having:

a core member having a projected portion around the journal portion;

an elastic layer provided on said core member;

an intermediate layer provided on said elastic layer; and

a surface layer provided on said intermediate layer, wherein said intermediate layer is provided so as to cover over from said elastic layer to the projected portion of said core member.

5,068,693

SHEET PATH SENSOR PROVIDED IN AN ELECTROPHOTOGRAPHIC IMAGE FORMING APPARATUS

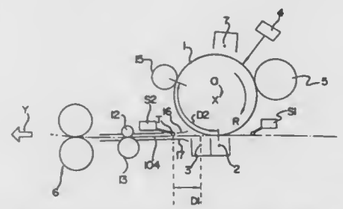
Masanao Nagakura, and Masato Kawashima, both of Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan

Filed May 30, 1990, Ser. No. 530,533

Claims priority, application Japan, Jun. 5, 1989, 1-142750

Int. Cl.[5] **G03G** *21/00*

U.S. Cl. 355—315 **4 Claims**



1. An electrophotographic image forming apparatus for transcribing an image on a cut sheet comprising:

a rotating photosensitive drum for forming a toner image on a cylindrical surface thereof;

a sheet transfer route for passing a cut sheet against said drum surface;

image transcribing means on said sheet transfer route adjacent said drum for transcribing a toner image formed on the cylindrical surface onto a cut sheet passed through said sheet transfer route;

peel-off means on said sheet transfer route for peeling the cut sheet from said cylindrical surface after image transcription;

cleaning means arranged at a point of said cylindrical surface at a rotation point after said peel-off means for cleaning said drum surface of toner;

fixing means arranged on said sheet transfer route for fixing the toner image transcribed on the cut sheet peeled off by said peel-off means;

a guide piece along said sheet transfer route between said peel-off means and said fixing means for supporting the cut sheet at a back surface of said sheet; and

mechanical sheet path sensing means positioned adjacent said guide piece for sensing a cut sheet passing through said sheet transfer route, said sensing means including lever means protruding downwardly into said sheet transfer route in the absence of a cut sheet passing therethrough, said lever means being pushed upwardly by a peeled off cut sheet passing to said guide piece so as to activate said sensing means, such that force of said lever means on an upper surface of said cut sheet acts to press down said sheet and maintain said back surface of said sheet against said guide piece.

5,068,694

JOSEPHSON INTEGRATED CIRCUIT HAVING A RESISTANCE ELEMENT

Shiro Ohara, Sagamihara, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Dec. 28, 1990, Ser. No. 635,446

Claims priority, application Japan, Dec. 29, 1989, 1-340410; Sep. 25, 1990, 2-254543

Int. Cl.[5] **H01L** *39/22, 29/12, 1/012;* **B05D** *5/12*

U.S. Cl. 357—5 **3 Claims**

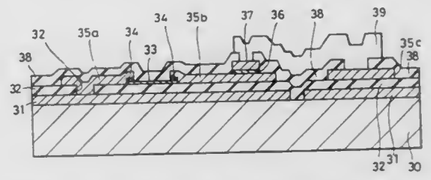
1. A Josephson integrated circuit including therein a Josephson device, said Josephson integrated circuit comprising:

a substrate having an upper major surface and a lower major surface and formed with a Josephson device on the upper major surface;

a resistance strip of zirconium having a lower major surface and an upper major surface and provided on the upper major surface of the substrate;

a first refractory metal layer having a lower major surface and an upper major surface and provided on a first region of the upper major surface of the resistance strip;

a second refractory metal layer having a lower major surface and an upper major surface and provided on a second region of the upper major surface of the resistance strip that is separated from said first region;



a first superconductor interconnection pattern provided on the upper major surface of the substrate so as to cover the upper major surface of the first refractory metal layer; and

a second superconductor interconnection pattern separated from the first superconductor interconnection pattern and provided on the upper major surface of the substrate so as to cover the upper major surface of the second refractory metal layer.

5,068,695

LOW DISLOCATION DENSITY SEMICONDUCTOR DEVICE

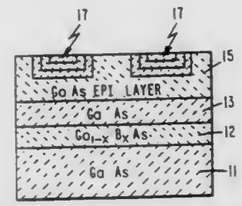
John B. Mooney, San Jose, and Arden Sher, San Carlos, both of Calif., assignors to SRI International, Menlo Park, Calif.

Division of Ser. No. 187,939, Apr. 29, 1988, Pat. No. 4,916,088.

This application Apr. 9, 1990, Ser. No. 506,046

Int. Cl.[5] **H01L** *29/161, 29/205*

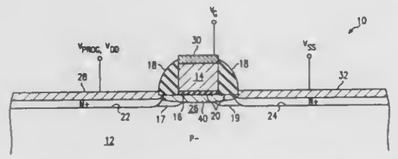
U.S. Cl. 357—16 **29 Claims**



1. A low dislocation density semiconductor structure comprising a non-metallic substrate having the usual dislocation density for the material of the substrate, a first epitaxial layer of a III-V or II-VI semiconductor compound carried by the substrate, the compound being alloyed with atoms of a type and quantity to cause the first epitaxial layer to be formed with a low dislocation density relative to the dislocation density the first epitaxial layer would have if it were not alloyed with the alloying atoms, the number of alloying atoms being such that the alloying atoms are supersaturated in the III-V or II-VI semiconductor compound of the first epitaxial layer, a second epitaxial layer overlaying the first epitaxial layer and consisting of the III-V or II-VI compound of the first layer without the alloying atoms, the second layer having approximately the same lattice constant and dislocation density as the formed low dislocation density first layer.

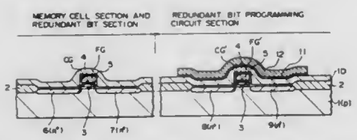
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,696
PROGRAMMABLE INTERCONNECT OR CELL USING SILICIDED MOS TRANSISTORS
Ping Yang, Richardson; Amitava Chatterjee, Dallas; Shian Aur, Plano, and Thomas L. Polgreen, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.
Division of Ser. No. 332,652, Mar. 31, 1989, Pat. No. 5,019,878.
This application Aug. 29, 1990, Ser. No. 574,981
Int. Cl.[5] H01L *27/01*
U.S. Cl. 357—23.1 **9 Claims**



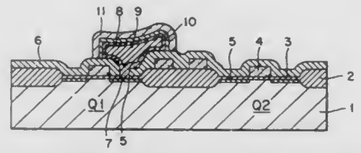
1. An electrically programmed device with undegraded drain/substrate and source/substrate pn junctions formed at a face of a semiconductor layer having a first conductivity type, comprising:
- a source region of a second conductivity type formed at said face;
- a drain region of said second conductivity type formed at said face;
- a channel region spacing said source region from said drain region;
- a conductive layer formed at least on said drain region; and
- a conductive filament in said channel region that couples said drain region to said source region, whereby the filament is reliably formed from source to drain.

5,068,697
SEMICONDUCTOR MEMORY WHICH IS PROTECTED FROM ERASURE BY LIGHT SHIELDS
Masanori Noda, and Akihiro Nakamura, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Jul. 17, 1990, Ser. No. 553,374
Claims priority, application Japan, Jul. 18, 1989, 1-186385; Jul. 19, 1989, 1-186299; Jul. 29, 1989, 1-197829
Int. Cl.[5] H01L *29/68, 29/34, 25/04*
U.S. Cl. 357—23.5 **5 Claims**



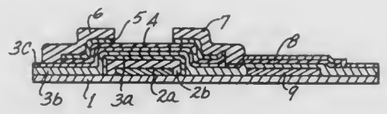
1. A nonvolatile semiconductor memory device having memory cells in which a control gate is stacked on a floating gate through an insulating film, comprising: p1 a plurality of redundant memory cells for compensating defective memory cells; and
- a transistor for selecting said redundant memory cells,
- said redundant memory cells and said transistor for selecting said redundant memory cells formed by a nonvolatile memory transistor, and said transistor for selecting sad redundant memory cells having a structure in which a floating gate and a control gate are covered by an anti-reflection film which extends substantially beyond said floating and said control gates and a light shielding film formed over said light shielding film.

5,068,698
MOS SEMICONDUCTOR DEVICE HAVING HIGH-CAPACITY STACKED CAPACITOR
Kuniaki Koyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan
Filed Sep. 24, 1990, Ser. No. 586,816
Claims priority, application Japan, Sep. 25, 1989, 1-248533
Int. Cl.[5] H01L *29/68, 27/02, 21/70*
U.S. Cl. 357—23.6 **3 Claims**



1. A semiconductor memory device having a semiconductor substrate and a plurality of memory cells each including a stacked capacitor having a lower electrode and an oppositely disposed upper electrode, and a MOS transistor electrically connected to said lower electrode, wherein said lower electrode of said stacked capacitor has an island-shaped insulating film formed on said semiconductor substrate and a conductive layer enveloping said insulating film.

5,068,699
THIN FILM TRANSISTOR FOR A PLATE DISPLAY
Kyujeong Chang, Suwon, Rep. of Korea, assignor to Samsung Electronics Co., Ltd., Suwon, Rep. of Korea
Filed Dec. 15, 1989, Ser. No. 451,259
Int. Cl.[5] H01L *27/12, 27/01, 23/48*
U.S. Cl. 357—23.7 **2 Claims**

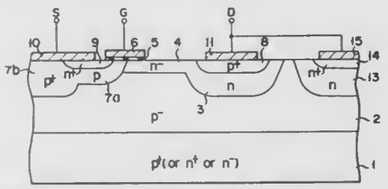


1. A thin film transistor for a plate display comprising first and second gates (2*a* and 2*b*) of different materials stacked one on top of the other, and a storage capacitor (9) on a glass substrate (1), the first gate (2*a*) comprising indium tin oxide and the second gate (2*b*) comprising tantalum, the capacitor (9) having an electrode of indium tin oxide, first, second and third insulating layers (3*a*, 3*b* and 3*c*) formed one on top of another on said second gate, the first insulating layer comprising Ta_2O_5 and a semiconductor layer (4) deposited on said third insulating layer.

5,068,700
LATERAL CONDUCTIVITY MODULATED MOSFET
Yoshihiro Yamaguchi, Urawa; Kiminori Watanabe, Kawasaki, and Akio Nakagawa, Hiratsuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Continuation of Ser. No. 440,191, Nov. 22, 1989, abandoned.
This application Nov. 29, 1990, Ser. No. 622,351
Claims priority, application Japan, Nov. 29, 1988, 63-301718; May 17, 1989, 1-123601
Int. Cl.[5] H01L *29/68, 29/78, 29/10, 29/74*
U.S. Cl. 357—23.8 **21 Claims**

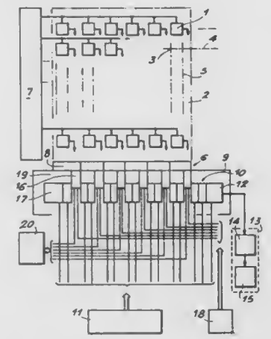
1. A lateral conductivity modulated MOSFET, comprising:
- a semiconductor layer of a first conductivity type;
- a first-conductivity type base layer selectively formed in a surface region of said semiconductor layer;
- a second-conductivity type source layer selectively formed in a surface region of said first-conductivity type base layer;

- a second-conductivity type base layer selectively formed in said semiconductor layer;
- a first-conductivity type drain layer formed in a surface region of said second-conductivity type base layer;
- a gate insulation film formed on that surface portion of the first-conductivity type base layer which is sandwiched between said source layer and said second-conductivity type base layer;
- a gate electrode formed on said gate insulation film;
- a source electrode in contact with both said source layer and said first-conductivity type base layer;



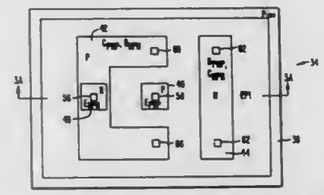
- a drain electrode in contact with said drain layer;
- a second-conductivity type cathode layer formed in a surface region of said semiconductor layer in such a manner that said second-conductivity type cathode layer is located adjacent to said second-conductivity type base layer and separated from said second-conductivity type base layer; and
- a cathode electrode in contact with said cathode layer, said cathode electrode being kept at the same potential level as that of said drain electrode.

5,068,701
DEVICE FOR READING OUT QUANTITIES OF ELECTRICAL CHARGE SUPPLIED BY PHOTODIODES HAVING A SEMICONDUCTOR SUBSTRATE
Pascal Prieur-Drevon, Gieres, France, assignor to Thomson-CSF, Puteaux, France
Filed Mar. 21, 1989, Ser. No. 326,516
Claims priority, application France, Mar. 23, 1988, 88 03792
Int. Cl.[5] H01L *29/78*
U.S. Cl. 357—24 **5 Claims**



1. A device for reading out quantities of electrical charge supplied by photodiodes (1) having a semiconductor substrate and located at the intersections of rows and columns (4,5) in a matrix array, comprising an assembly (6), storage means (8) for creating storage potential wells in the substrate (2), each said storage potential well corresponding to a respective row or column and serving to store successively, row by row or column by column, charges coming from the respective photodiodes of each row or each column, a charge-coupled device shift register (10) having a semiconductor substrate (9) as well as control means for creating potential wells and transfer potentials in said shift register's substrate to convey electrical charges inside said register up to an output end (12) of said shift register, said end being coupled to means (13) for reading out quantities of charge, and, for each storage means (8), charge transfer means (16) having a semiconductor substrate (9), said charge transfer means having control means (18) for creating, in said substrate, transfer potentials and a receiving potential well for receiving charges contained in the corresponding storage potential well, said receiving potential wells of said transfer means (16) corresponding to the different storage potential wells that are also the potential wells of said shift register (10), and means (20) for injecting bias charges into said receiving potential wells, said control means of each transfer means (16) causing the transfer of bias charges contained in the receiving potential well of said transfer means to the corresponding storage potential well, and then the transfer of said bias charges and at least a part of said stored charges into the receiving potential well, characterized in that said shift register (10) has n successive stages for each photodiode (1), n-1 of these stages forming n-1 intermediate potential wells between, on the one hand, said receiving potential well corresponding to said photodiode and its neighboring photodiode in the same row or column, and on the other, a stage common to both the shift register (10) and said transfer means (16) corresponding to said photodiode and creating the said receiving potential well, the quantity of charge contained in each storage potential well being accounted for by said shift register (10) after n transfers of stored charges and bias charges towards said shift register, and n-1 shift operations, said charge injection means injecting bias charges into all of said shift register's receiving potential wells before each transfer of charge into said receiving potential wells, the quantity of charge to be read out for each photodiode being read after n transfers of stored charge.

5,068,702
PROGRAMMABLE TRANSISTOR
Giovanni P. Giannella, Sunnyvale, Calif., assignor to Exar Corporation, San Jose, Calif.
Continuation of Ser. No. 846,380, Mar. 31, 1986, abandoned.
This application Jan. 19, 1989, Ser. No. 300,246
Int. Cl.[5] H01L *29/72, 27/02*
U.S. Cl. 357—35 **35 Claims**



1. A semi-custom semiconductor chip having a plurality of cells adaptable for forming either a bipolar, lateral PNP or an NPN transistor, each cell comprising:
- a first N-doped region;
- a first P-doped region;
- at least one second P-doped region, larger than said first P-doped region, and positioned to partially surround said first P-doped region on opposite sides of said first P-doped region, said first N-doped region being located immediately adjacent said first P-doped region at a position where said at least one second P-doped region is not between said first P-doped region and said first N-doped region;
- a second N-doped region located within one of said first and second P-doped regions;
- at least one of said cells being connected to form an NPN transistor and not a PNP transistor; and
- at least one of said cells being connected to form a lateral

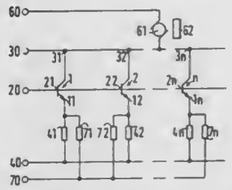
VOL 1132 ISS 4 NOV 26 1991 UMI

PNP transistor, and not an NPN transistor, with said second P-doped region as a collector, said first N-doped region as a base and said first P-doped region as an emitter.

5,068,703
ELECTRONIC CIRCUIT DEVICE

Gerhard Conzelmann, Leinfelden-Oberaichen; Dietmar Hasck, Reutlingen, and Gerhard Fiedler, Neckartailfingen, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

PCT No. PCT/DE88/00034, § 371 Date Apr. 12, 1990, § 102(e) Date Apr. 12, 1990, PCT Pub. No. WO89/07341, PCT Pub. Date Aug. 10, 1989
PCT Filed Jan. 21, 1989, Ser. No. 477,881
Claims priority, application Fed. Rep. of Germany, Jan. 30, 1988, 3802767
Int. Cl.[5] H01L *29/83;* **H03F** *1/52;* **H03K** *17/08*
U.S. Cl. 357—36 **32 Claims**



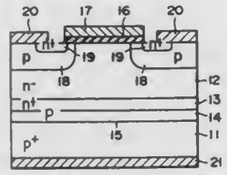
1. An integrated electronic circuit device including a monolithic integrated bipolar power transistor, said device comprising:
a plurality of individual, parallel-connected partial transistors (**1, 2, 3, . . . , *n***), each partial transistor having an emitter, a base, and a collector, having resistors (**41, 42, 43, . . . , 4*n***) connected between their respective emitters and a common emitter line providing the emitter connection for said parallel-connected partial transistors, said resistors stabilizing the distribution of a sum current to the individual parallel-connected partial transistors (**1, 2, 3, . . . , *n***) in the power transistor; and
circuit means connected to a node formed by the connection of at least one of said resistors and the corresponding emitter, said circuit means providing a voltage signal proportional to a current flowing through said at least one of said resistors, said voltage signal being provided to means for providing current regulation or current limiting of a power transistor output.

5,068,704
METHOD OF MANUFACTURING SEMICONDUCTOR DEVICE

Akio Nakagawa, Hiratsuka; Kaoru Imamura, Kawasaki; Ryo Sato, and Tadahide Hoshi, both of Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 161,097, Feb. 26, 1988, Pat. No. 4,935,386. This application May 8, 1990, Ser. No. 520,446
Claims priority, application Japan, Feb. 26, 1987, 62-43562; Dec. 28, 1987, 62-330063
Int. Cl.[5] H01L *29/74*
U.S. Cl. 357—38 **7 Claims**

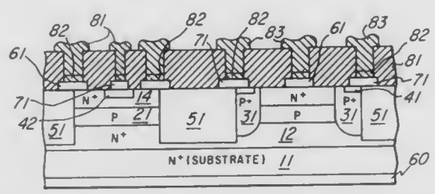
1. In a semiconductor device, the improvement comprising a first semiconductor substrate of a first conductivity type and a second semiconductor substrate of a second conductivity type, which is bonded to said first semiconductor substrate, wherein an emitter region of the first conductivity type is formed in the bonding surface of said second substrate and a total amount per unit area of impurity of said emitter region is $1 \times 10^{13}/cm^2$ to $2 \times 10^{15}/cm^2$, the thickness of said emitter region is 7 μm or less, and a number of crystal defects exist on the bonding interface, so that an emitter injection efficiency is lowered.



5,068,705
JUNCTION FIELD EFFECT TRANSISTOR WITH BIPOLAR DEVICE AND METHOD

Liem T. Tran, Garland, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 560,255, Jul. 31, 1990, abandoned, which is a continuation of Ser. No. 442,407, Nov. 28, 1989, abandoned, which is a continuation of Ser. No. 312,414, Feb. 21, 1989, abandoned, which is a continuation of Ser. No. 63,554, Jun. 18, 1987, abandoned. This application Feb. 13, 1991, Ser. No. 655,185
Int. Cl.[5] H01L *27/02, 29/161, 29/167*
U.S. Cl. 357—43 **16 Claims**



1. A semiconductor integrated circuit comprising:
(a) a first layer of a first semiconductor material doped to a first conductivity type and including a bipolar transistor emitter region;
(b) a second layer of a second semiconductor material doped to a second conductivity type on said first layer and including a bipolar transistor base region;
(c) a third layer of said first semiconductor material doped to said first conductivity type on said second layer and including a bipolar transistor collector and a field effect transistor region;
(d) a first doped region in said second and third layers of said second conductivity type for making contact to said second layer at a selected location;
(e) a second doped region within said first doped region of said second conductivity type for making contact to said first doped region;
(f) a third doped region in said field effect transistor region of said second conductivity type providing the gate region of said junction field effect transistor and defining source and drain regions adjacent to said gate region;
(g) an isolation region extending through said second and third layers at a selected location thereof and at least partially surrounding said field effect transistor region to electrically isolate said field effect transistor region from other portions of said second and third layers; and
(h) a plurality of electrical conductors selectively disposed on said second and third doped regions, said collector and emitter regions, and said source and drain regions to provide electrical contact terminals for said bipolar transistor and said junction field effect transistor.

5,068,706
SEMICONDUCTOR DEVICE WITH FUSE FUNCTION

Naomasa Sugita, Yokohama; Yoshiharu Yotumoto, Kimitsu; Kouji Meriguchi, Kimitsu, and Toshinobu Sekiba, Kimitsu, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Continuation of Ser. No. 166,002, Mar. 9, 1988, Pat. No. 4,943,842. This application Feb. 12, 1990, Ser. No. 478,536
Claims priority, application Japan, Mar. 11, 1987, 62-54098
The portion of the term of this patent subsequent to Jul. 24, 2007, has been disclaimed.
Int. Cl.[5] H01L *27/02, 23/48, 23/16*
U.S. Cl. 357—51 **6 Claims**

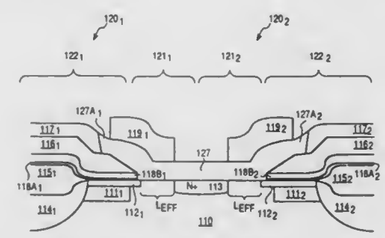


1. A semiconductor device comprising:
a semiconductor element;
a hollow fuse member soldered by a soldering material to the semiconductor element;
means for enclosing the semiconductor element and the fuse member, said enclosing means being filled with a resin so that the semiconductor element and the fuse member are fixed in place; and
a thin coating formed on the fuse member, said coating having a melting point higher than that of the soldering material.

5,068,707
DRAM MEMORY CELL WITH TAPERED CAPACITOR ELECTRODES

Gary A. Pors, Sacramento, and Gernia Tang, Folsom, both of Calif., assignors to NEC Electronics Inc., Mountain View, Calif.

Filed May 2, 1990, Ser. No. 518,607
Int. Cl.[5] H01L *29/04, 23/48, 29/68*
U.S. Cl. 357—59 **15 Claims**

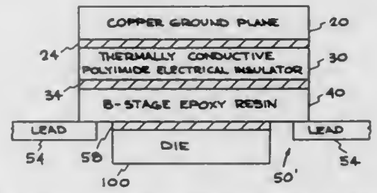


3. A transistor memory cell comprising:
a semiconductor substrate containing a source region and a capacitance region, the source region being separated from the capacitance region by a channel region wherein a first edge of the channel region is adjacent to the capacitance region and a second edge of the channel region is adjacent to the source region;
a first insulating layer formed on the substrate over said capacitance region;
a tapered capacitance electrode formed on said first insulating layer, said tapered capacitance electrode having (i) a first planar surface contacting said first insulating layer, (ii) a second planar surface substantially parallel to said first planar surface, and (iii) an edge surface joining an edge of said first planar surface and an edge of said second planar surface wherein said edge surface intersects said first planar surface at an angle of less than 60°;
a second insulating layer formed on the substrate over the source and channel regions and extending over a portion of said tapered capacitance electrode; and
a transfer gate formed on said second insulating layer.

5,068,708
GROUND PLANE FOR PLASTIC ENCAPSULATED INTEGRATED CIRCUIT DIE PACKAGES

Robert A. Newman, Santa Clara, Calif., assignor to Advanced Micro Devices, Inc., Sunnyvale, Calif.

Filed Oct. 2, 1989, Ser. No. 415,844
Int. Cl.[5] H01L *23/495*
U.S. Cl. 357—68 **10 Claims**



1. A plastic encapsulated integrated circuit package comprising:
(a) a multilayer rectangular ground plane assembly consisting essentially of:
(i) a rectangular copper metal ground plane member having a thickness ranging from about 1.5 to about 20 mils to provide both heat dissipation and an electrical ground plane for said package;
(ii) a thermally conductive polyimide insulating layer of the same length and width as said ground plane member and having a first surface bonded to said copper ground plane member; and
(iii) a b-stage epoxy layer having the same length and width as said ground plane member and having a first surface bonded to a second surface of said polyimide insulating layer;
(b) a rectangular lead frame having inner lead ends on all four sides which terminate to define an area smaller than said rectangular ground plane assembly and having no central die paddle, said inner lead ends bonded to a second surface of said b-stage epoxy layer of said ground plane assembly to form a composite assembly, whereby said ground plane assembly imparts mechanical strength to said lead frame assembly; and
(c) an integrated circuit die bonded directly to a central portion of said second surface of said b-stage epoxy layer of said composite assembly and electrically connected to leads on said lead frame.

5,068,709
SEMICONDUCTOR DEVICE HAVING A BACKPLATE ELECTRODE

Hidemitsu Egawa, Tokyo; Riichirou Aoki, Ichikawa, and Katsuya Okumura, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Division of Ser. No. 028,386, Mar. 20, 1987, Pat. No. 4,875,088. This application Jul. 14, 1989, Ser. No. 380,024
Claims priority, application Japan, Mar. 29, 1986, 61-72116
Int. Cl.[5] H01L *23/48, 29/46*
U.S. Cl. 357—71 **10 Claims**

1. A semiconductor device comprising:
a semiconductor pellet having a top surface on which an integrated circuit is formed an a back surface formed by a semiconductor material, wherein said semiconductor pellet is formed of silicon; and

VOL 1132 ISS 4 NO 26 1991 UMI

backplate electrode means, including a metal silicide film having conductivity and an anti-oxidation property and wherein the metal silicide film forms the outermost surface of the backplate electrode means, said backplate electrode means being formed on the entire back surface of said pellet, for obtaining at said back surface of said pellet a substantially uniform backplate potential;

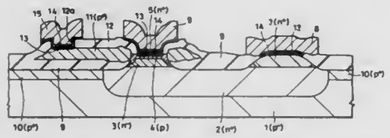


wherein said metal silicide film essentially consists of a silicide of any of the following backplate metals;
Ti, Mo, Cu, Cr, Ni, Fe, Co, W, Mn, and Pd; and
wherein said backplate electrode means includes a metal layer which is formed on said silicon back surface and which contains any of said backplate metals, and said metal silicide film is formed on said metal layer.

5,068,710
SEMICONDUCTOR DEVICE WITH MULTILAYER BASE CONTACT

Nobuo Owada, Ohme; Mitsuaki Horiuchi, Fuchu; Masatoshi Tsuneoka, Ohme, and Tadayuki Taneoka, Akishima, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 63,023, Jun. 17, 1987, abandoned. This application Aug. 22, 1989, Ser. No. 396,687
Claims priority, application Japan, Jun. 18, 1986, 61-140064
Int. Cl.[5] H01L *23/48, 29/46, 29/04, 29/06*
U.S. Cl. 357—71 **43 Claims**

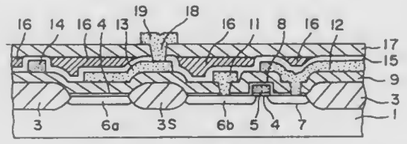


1. A semiconductor integrated circuit device comprising:
a semiconductor substrate having a main surface;
a thick oxide film selectively formed on said main surface so as to surround an active region in which a base, an emitter and collector regions of a bipolar transistor become formed;
a base lead-out electrode made of a polycrystalline silicon film which is doped with boron being electrically connected to the base region of said bipolar transistor;
an insulating film being formed on an upper surface of at least said base lead-out electrode so as to cover at least said base lead-out electrode;
a contact hole being formed through said insulating film at lest at above the location wherein the upper surface of said base lead-out electrode is formed;
a metal silicide film being formed on the upper surface of said base lead-out electrode at the location where said contact hole is formed;
a titanium nitride film being formed on said metal silicide film; and
a wiring layer made of a material whose principal component is aluminum being formed on said titaniun nitride film and being electrically connected to said base lead-out electrode via said titanium nitride and metal silicide films.

5,068,711
SEMICONDUCTOR DEVICE HAVING A PLANARIZED SURFACE

Tatsuya Mise, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 19, 1990, Ser. No. 495,514
Claims priority, application Japan, Mar. 20, 1989, 1-68656
Int. Cl.[5] H01L *21/94, 21/95*
U.S. Cl. 357—71 **7 Claims**

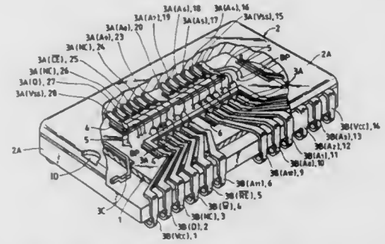


1. A semiconductor device having a multi-level interconnection structure, comprising:
one or more active devices;
a substrate for supporting the active devices thereon;
an isolated region provided on the substrate, said isolated region projected from the substrate;
a first insulator layer provided on the substrate and isolated region to cover the active devices and the isolated region, said isolated region causing a projection of the first insulator layer at a part covering the isolated region;
a first conductor pattern provided on the first insulator layer;
a cover layer having a top surface and formed on the first insulator layer and the first conductor pattern to bury the first insulator layer and the first conductor pattern underneath, said cover layer having a projected part in correspondence to the isolated region;
a planarizing layer having a planarized top surface provided on the cover layer to bury the cover layer underneath, said planarizing layer formed such that a part of the top surface of the cover layer, corresponding to the projected part, is exposed by projecting to a level flush to or above the planarized top surface of the planarizing layer;
a second insulator layer provided on the planarizing layer to cover the planarized top surface of the planarizing layer and the exposed part of the top surface of the cover layer;
a contact hole provided on the second insulator layer in correspondence to said isolated region to penetrate through the second insulation layer and the cover layer to expose a desired part of the first conductor pattern while not exposing the planarizing layer; and
a second conductor pattern provided on the second insulator layer in correspondence to the contact hole to fill the contact hole and to make a contact to the exposed part of the first conductor pattern.

5,068,712
SEMICONDUCTOR DEVICE

Gen Murakami, Machida; Kunihiro Tsubosaki, Hino; Masahiro Ichitani, Kodaira; Kunihiko Nishi, Kokubunji; Ichiro Anjo, Koganei; Asao Nishimura, Ushiku; Makoto Kitano; Akihiro Yaguchi, both of Shimoinayoshi; Sueo Kawai, Iwama; Masatsugu Ogata, Hitachi; Syuuji Eguchi, Hitachi; Hiroyoshi Kokaku, Hitachi; Masanori Segawa, Hitachi; Hiroshi Hozoji, Hitachi; Takashi Yokoyama, Hitachi; Noriyuki Kinjo, Hitachi; Aizo Kaneda, Yokohama; Junichi Saeki, Yokohama; Shozo Nakamura, Yokohama; Akio Hasebe, Yokohama; Hiroshi Kikuchi, Zushi; Isamu Yoshida, Yokohama; Takashi Yamazaki; Kazuyoshi Oshima, both of Ohme, and Tetsuro Matsumoto, Higashiyamato, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Filed Sep. 19, 1989, Ser. No. 409,332
Claims priority, application Japan, Sep. 20, 1988, 63-236156; Mar. 20, 1989, 1-65844
Int. Cl.[5] H01L *23/48*
U.S. Cl. 357—72 **36 Claims**



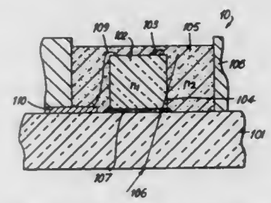
1. A semiconductor device comprising:
a rectangular semiconductor chip having a principal surface with a circuit and a plurality of external terminals;
a plurality of leads each including an inner lead portion having a first region and a second region and an outer lead portion connected with said second region and extending away from said first region;
at least one insulator interposed between said semiconductor chip and said inner lead portions for electrically insulating said inner lead portions from said semiconductor chip;
a plurality of wires for connecting said external terminals and said first regions electrically; and
a sealing member for sealing up said semiconductor chip, said inner lead portions, said insulator and said wires;
wherein the distance from the second regions of said inner lead portions to the principal surface of said semiconductor chip is larger than the distance from the first regions of said inner lead portions to the principal surface of said semiconductor chip.

5,068,713
SOLID STATE IMAGE SENSING DEVICE

Shigeo Toda, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan

Filed Aug. 15, 1989, Ser. No. 393,729
Claims priority, application Japan, Aug. 18, 1988, 63-205542; Aug. 29, 1988, 63-214443; Aug. 29, 1988, 63-214452
Int. Cl.[5] H01L *23/28*
U.S. Cl. 357—72 **33 Claims**

1. A solid state image sensing device, comprising:
a transparent substrate for allowing incident light to pass therethrough;
at least one transparent substrate chip mounted on the substrate and having exposed surfaces for receiving light passing through at least the substrate;
at least one photoelectric converting element disposed on the transparent substrate chip for receiving light passing through at least the substrate and substrate chip; and
anti-reflection mold material disposed on a portion of the transparent substrate and on at least the exposed surfaces of the transparent substrate chip, the refractive index of

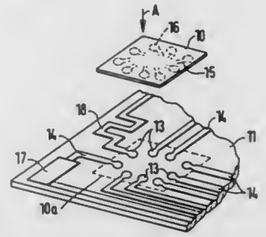


the anti-reflection mold material being equal to or higher than the refractive index of the transparent substrate chip.

5,068,714
METHOD OF ELECTRICALLY AND MECHANICALLY CONNECTING A SEMICONDUCTOR TO A SUBSTRATE USING AN ELECTRICALLY CONDUCTIVE TACKY ADHESIVE AND THE DEVICE SO MADE

Dieter Seipler, Reutlingen, Fed. Rep. of Germany, assignor to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

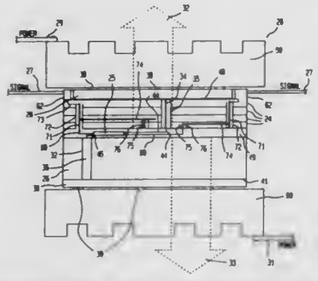
Filed Dec. 14, 1989, Ser. No. 452,110
Claims priority, application Fed. Rep. of Germany, Apr. 5, 1989, 3910910
Int. Cl.[5] H01L *23/485*
U.S. Cl. 357—80 **27 Claims**



20. A composite hybrid semiconductor structure having
a carrier plate substrate (**11**);
a plurality of carrier connection pads (**13**) on a first carrier surface of said carrier plate substrate (**11**);
a semiconductor chip or wafer substrate (**10**);
a plurality of chip connecting pads (**16**) on a first chip surface and within the outline of said semiconductor chip or wafer substrate (**10**), comprising, in accordance with the invention,
a layer of electrically conductive tacky material positioned over the pads (**13, 16**) on at least one of said substrates;
a layer of electrically insulating material on at least one of said substrates, and covering the surface thereof except in the region of said pads,
said substrates being engaged in first carrier surface-to-first chip surface, face-to-face contact against each other, with said pads facing each other, in electrically conductive connection by said electrically conductive tacky material and in adhesive connection by said tack material.

VOL 1132 ISS 4 NO 26 1991 UMI

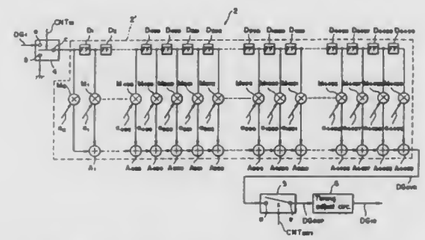
5,068,715
HIGH-POWER, HIGH-PERFORMANCE INTEGRATED CIRCUIT CHIP PACKAGE
Paul C. Wade, Shirley, and JJ Grady, III, Acton, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.
Filed Jun. 29, 1990, Ser. No. 546,569
Int. Cl.[5] H01L *23/02*
U.S. Cl. 357—81 **27 Claims**



1. An integrated circuit chip package which comprises:
a chip comprising a dielectric material, having top and bottom surfaces;
a plurality of transistors and associated circuitry fabricated in an epitaxial layer within said chip;
a plurality of signal connectors coupled to said transistors and associated circuitry;
a top metallization plane fixedly mounted to said top surface;
a top heat sink fixedly mounted to said top metallization plane to provide a thermal and electrical coupling between said top heat sink and said top metallization plane;
said top metallization plane electrically coupled to said plurality of transistors and associated circuitry and further coupled through said top heat sink to a first electrical power source having a first polarity;
a bottom metallization plane fixedly mounted to said bottom surface;
a bottom heat sink fixedly mounted to said bottom metallization plane to provide a thermal and electrical coupling between the bottom heat sink and the bottom metallization plane;
said bottom metallization plane electrically coupled to said plurality of transistors and associated circuitry and further coupled through said bottom heat sink to a second electrical power source having a second polarity;
a first thermal path for dissipation of heat said first thermal path originating at said plurality of transistors and associated circuitry and passing through said dielectric material, said top metallization plane and said top heat sink; and
a second thermal path for dissipation of heat, said second thermal path originating at said plurality of transistors and associated circuitry and passing through said bottom layer of said dielectric material, said bottom metallization plane and said bottom heat sink.

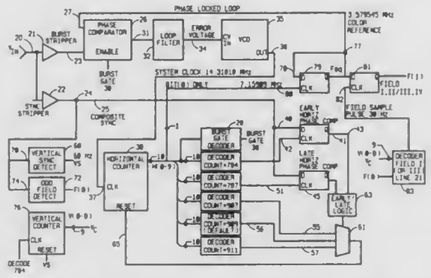
5,068,716
SAMPLING RATE CONVERTER
Juo Takayama, Tokyo; Tadao Fujita, and Takeshi Ninomiya, both of Kanagawa, all of Japan, assignors to Sony Corporation, Tokyo, Japan
Filed Mar. 27, 1990, Ser. No. 499,679
Claims priority, application Japan, Mar. 30, 1989, 1-79532
Int. Cl.[5] H04N *11/04*
U.S. Cl. 358—13 **10 Claims**

1. A sampling rate converting apparatus for converting a sampling rate of an input digital video signal having a first sampling frequency to a second sampling rate having a second sampling frequency different from said first sampling frequency, comprising:
oversampling means receiving said input digital video signal for oversampling the latter at a rate which is an integral multiple of said first sampling frequency so as to generate zero values between data of said input digital video signal;
means connected to said oversampling means for interpolating an output signal therefrom;
decimating means acting on the interpolated output signal for generating therefrom a digital video signal having said second sampling frequency; and



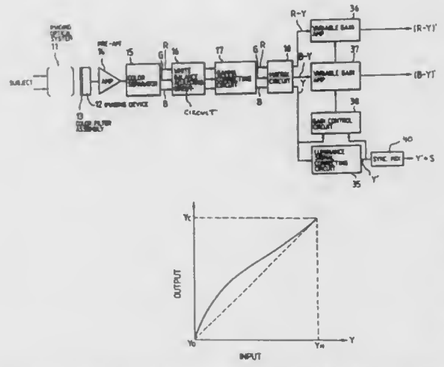
low pass filter means acting on said digital video signal having the second sampling frequency from said decimating means, said low pass filter means eliminating from said digital video signal having the second sampling frequency an undesired signal component due to the converting of the sampling rate and which appears between frequency bands of one-half of said first and second sampling frequencies, respectively.

5,068,717
METHOD AND APPARATUS FOR SYNCHRONIZATION IN A DIGITAL COMPOSITE VIDEO SYSTEM
Timothy P. Jenison, 6237 SW. 23rd St., Topeka, Kans. 66614
Filed Apr. 27, 1990, Ser. No. 515,195
Int. Cl.[5] H04N *9/44*
U.S. Cl. 358—17 **6 Claims**



1. In a digital composite video system for digitally processing a composite video signal where said video signal has a color subcarrier and burst frequency F_{sc}, horizontal sync and vertical sync signals, and horizontal scan frequency F_{hs}, and produces four color fields I, II, II, and IV, and where the system has a system clock of frequency nF_{sc} for system purposes including digitizing the video signal, and a horizontal counter counting to L incremented by the system clock at nF_{sc} where N and L are integers, a method for synchronizing the system clock to the color burst signal such that active transitions of the system clock are in a known phase relationship to 0° and 90° points of the color burst signal and synchronizing the horizontal counter to the horizontal sync signal, comprised of the steps of:
first, locking the horizontal counter and the associated nF_{sc} system clock generator to the color burst signal such that the positive going transitions of the bit of the counter cycling at $2F_{sc}$ are in a known phase relationship with zero crossings of the color burst signal;
second, incrementing the horizontal counter using the system clock to a pre-selected number L where L is an integer;
third, selecting a window based on a predetermined state of the horizontal counter that is $(n/2)+1$ system clock cycles wide during which the horizontal sync is desired to occur and then determining whether the horizontal sync occurs before, during, or after the window;
fourth, directing the counter to reset at count $L-(n/2)$, L or $L+(n/2)$ depending on when the horizontal sync pulse occurs in relation to the window;
fifth, sampling the color burst signal at regular intervals in order to determine which of the four color fields is being processed.

5,068,718
IMAGE QUALITY CORRECTING SYSTEM FOR USE WITH AN IMAGING APPARATUS
Kazuki Iwabe, Tokyo; Naoki Kubo, Kanagawa; Hiroshi Tamayama, Kanagawa; Takashi Yano, Kanagawa; Takashi Soga, and Hitoshi Koike, both of Tokyo, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan
Continuation-in-part of Ser. No. 431,076, Nov. 3, 1989, abandoned. This application Mar. 20, 1990, Ser. No. 496,331
Claims priority, application Japan, Nov. 4, 1988, 1-277507; Nov. 21, 1988, 1-292285; Nov. 21, 1988, 1-292286
Int. Cl.[5] H04N *9/69*
U.S. Cl. 358—27 **18 Claims**



1. An imaging apparatus which develops a corrected luminance signal and color difference signals of an image subject comprising:
optical lens means for receiving image light emitted from said image subject in order to provide received image light;
color filter means, coupled to said optical lens means, for filtering said received image light;
photo-electric conversion means, coupled to said color filter means, for converting the filtered image light into electrical image signals;
pre-amplifier means, coupled to said photo-electric conversion means, for amplifying said electrical image signals;
color separator means, coupled to said pre-amplifier means, for separating said amplified electrical image signals into red, green and blue color signals;
white balance adjustment means, coupled to said color separator means, for adjusting the amplitude levels of said red, green and blue color signals;
matrix circuit means, coupled to said white balance adjustment means, for converting said amplitude adjusted red, green and blue color signals into a luminance signal and color difference signals;
luminance signal correction means, coupled to said matrix circuit means, for outputting a corrected luminance signal in accordance with an input-output non-linear amplification factor in response to an input luminance signal intermediate a minimum and maximum luminance level, corresponding to a darkest and lightest luminance state, respectively, and for outputting said minimum and maximum luminance levels in response to an input luminance signal corresponding to said darkest and lightest state, respectively, in order to extend and emphasize an intermediate input luminance signal; and
color difference correcting means, having fixed amplification factors, coupled to said matrix circuit means, for outputting corrected color difference signals that are subject to signal extension.

12. An image quality correcting system for use with an imaging apparatus which includes a matrix circuit for forming a luminance signal and color difference signals from color signals generated in an imaging device, comprising:
luminance signal correcting means for producing with the same linear input-output characteristic an output in response to a luminance signal input for a preset minimum luminance and another output in response to a luminance signal input for a preset maximum luminance and for producing an output in response to a luminance signal input within limits of said preset minimum and maximum luminance levels in accordance with an appropriate non-linear input-output characteristic having a greater amplification factor than said linear input-output characteristic; and
color difference correcting means for amplifying said color difference signals by an appropriate amplification factor,
at least a new luminance signal being generated for the luminance signal formed in the matrix circuit, said new luminance signal being nonlinearly extended with the limits of said preset minimum and maximum luminance levels, and new color difference signals being generated by amplification with said appropriate amplification factor.

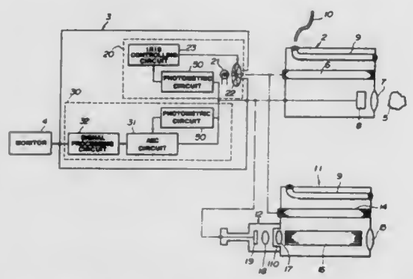
5,068,719
ENDOSCOPE PHOTOMETRIC APPARATUS
Kiyoshi Tsuji, Musashino, Japan, assignor to Olympus Optical Co., Ltd., Tokyo, Japan
Filed Feb. 1, 1990, Ser. No. 476,062
Claims priority, application Japan, Jun. 7, 1989, 1-144834; Sep. 22, 1989, 1-247493
The portion of the term of this patent subsequent to Sep. 17, 2008, has been disclaimed.
Int. Cl.[5] H04N *7/18*
U.S. Cl. 358—98 **15 Claims**

1. An endoscope photometric apparatus comprising:
an endoscope imaging apparatus;
a photometric means, connected to said endoscope imaging apparatus, for detecting brightness of an image based on an input image signal from said endoscope imaging apparatus;
an extracting means, connected to said endoscope imaging apparatus, for extracting, from the input image signal from said endoscope imaging apparatus, a bright part of the image signal in which a difference in brightness level at a

VOL 1132 ISS 4 NO 26 1991 UMI

periphery of the image is above a predetermined value and a spatial size of said bright part is below a predetermined value; and

a limiting means, connected to said endoscope imaging apparatus, said extracting means and said photometric means,



for limiting input into said photometric means of a part, corresponding to said bright part, in said image signal by using an output of said extracting means in order to reduce the influence of said bright part on the brightness of the entire image.

5,068,720

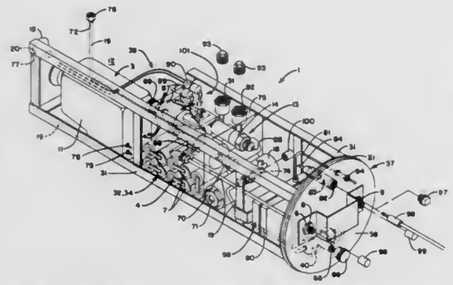
VIDEO INSPECTION SYSTEM FOR HAZARDOUS ENVIRONMENTS

Nils G. Herlitz; Karl I. Iglehart, and John S. Sentell, all of Baton Rouge, La., assignors to Safe T.V., Inc., Baton Rouge, La.

Continuation-in-part of Ser. No. 383,182, Jul. 21, 1989, Pat. No. 4,961,111. This application Oct. 2, 1990, Ser. No. 591,839

Int. Cl.[5] H04N *7/18*

U.S. Cl. 358—100 **4 Claims**



1. A Video inspection system for hazardous environments, comprising:

a. a housing, sealable so as to contain a pressurized gas therein, having a view opening therein and further including:

i. a means for introducing pressurized gas into said housing, connected to said housing; and

ii. a transparent lens, sealingly affixed across said view opening;

b. a camera means for recording visual images through said view opening, mounted within said housing and having a video output;

c. a power supply, for powering said camera means, mounted within said housing and operatively connected to said camera means; and

d. a means for converting a video signal to a light signal and transmitting said light signal, operatively connected to said video output of said camera means.

5,068,721

PROCESS AND APPARATUS FOR THE REMOTE-CONTROLLED POSITIONING OF AN INSPECTION DEVICE WITH THE AID OF A TELEVISION CAMERA ASSOCIATED WITH THE INSPECTION DEVICE

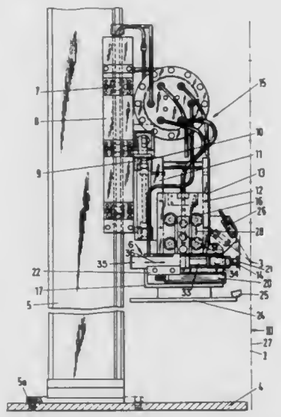
Alban Dietrich, Hassloch, Fed. Rep. of Germany, assignor to ABB Reaktor GmbH, Mannheim, Fed. Rep. of Germany

Filed Sep. 18, 1990, Ser. No. 584,757

Claims priority, application Fed. Rep. of Germany, Sep. 18, 1989, 3931080

Int. Cl.[5] H04N *7/18*

U.S. Cl. 358—100 **11 Claims**



1. Process for the remote-controlled positioning of an inspection device with a television camera associated with the inspection device, which comprises positioning the television camera and the inspection device parallel to each other at a given spacing and one above the other along an axis of symmetry on a carriage, moving the carriage until a marking on the television camera is aligned with a marking of an object under inspection, and moving the carriage until the television camera and the inspection device are displaced together by the given spacing along the axis of symmetry.

5,068,722

MOTION VECTOR ESTIMATING APPARATUS

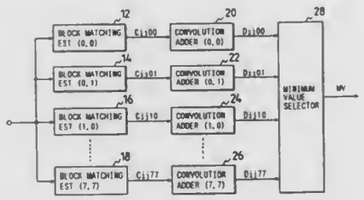
Kenji Sugiyama, Noda, Japan, assignor to Victor Company of Japan, Ltd., Yokohama, Japan

Filed Nov. 16, 1990, Ser. No. 614,478

Claims priority, application Japan, Jan. 23, 1990, 2-13199

Int. Cl.[5] H04N *7/10, 7/12, 7/01*

U.S. Cl. 358—105 **9 Claims**



1. A motion vector estimating apparatus comprising:

a plurality of block matching estimators generating block matching values from an input video signal respectively,

wherein the block matching values represent likelihoods of motion vectors with respect to an actual motion respectively;

a plurality of convolution adders receiving the block matching values respectively, wherein each of the convolution adders provides predetermined weights to the block matching values and adds the weighted block matching values to obtain an output value; and

means for selecting a smallest value of output values from the convolution adders, and outputting a vector related to the smallest value as a final motion vector.

5,068,723

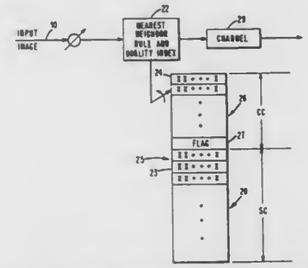
FRAME OR SUB-FRAME RATE ADAPTIVE VECTOR QUANTIZER FOR MOVING IMAGES

Sudhir S. Dixit, Norwood, and Yushu Feng, Worcester, both of Mass., assignors to GTE Laboratories Incorporated, Waltham, Mass.

Continuation-in-part of Ser. No. 354,007, May 19, 1989, abandoned. This application Jul. 24, 1990, Ser. No. 557,268

Int. Cl.[5] H04N *7/12, 7/18*

U.S. Cl. 358—133 **9 Claims**



1. A method of compressing and reconstructing a sequence of image signals by adaptive vector quantization comprising the steps of:

constructing a code book having a plurality of addressable entries representing combinations of elements which have appeared frequently in previously coded images;

dividing said code book into two sections, wherein a first of said sections contains addressable entries for common characteristics of a large plurality of images, has a higher priority than a second section;

a second of said sections contains addressable entries for specific characteristics of a sequence of images, having less frequently occurring vectors and having a lower priority;

said first section containing vectors having the highest probability of occurrence;

storing said code book such that it may be used for both compression and reconstruction of the same image signals;

each of said sections being initialized to predefined sizes and states at the beginning of each coding process;

selecting a quality index which is a function of squared error distortion;

dividing each newly arriving image into blocks having N×N picture elements;

comparing each block of each newly arriving image in said sequence with entries in said first section of said code book to find a best match vector based on a distance measure;

computing a first quality measure for said block;

if said first quality measure is smaller or equal to said quality index, sending the address of said best matching vector to a receiver;

if said first quality measure is larger than said quality index, searching for a best matching vector in said second section of said code book;

computing a second quality measure for said matching vector in said second section;

if said second quality measure is larger than said first quality measure, then sending the address of said best matched vector of said first section; else

sending a special flag followed by the address of said best matched vector in said second section;

maintaining a record of frequency of usage of each vector in each section of said code book;

incrementing usage records for matched vectors in said first and second sections; and

periodically reordering said code book by swapping code vectors between said sections so that the most frequently used vectors appear in said first section.

5,068,724

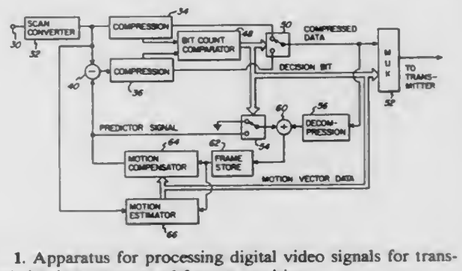
ADAPTIVE MOTION COMPENSATION FOR DIGITAL TELEVISION

Edward A. Krause, San Diego; Woo H. Paik, Encinitas; Vincent Liu, and Jim Essserman, both of San Diego, all of Calif., assignors to General Instrument Corporation, Hatboro, Pa.

Filed Jun. 15, 1990, Ser. No. 538,823

Int. Cl.[5] H04N *7/137*

U.S. Cl. 358—133 **25 Claims**



1. Apparatus for processing digital video signals for transmission in a compressed form comprising:

first means for compressing a set of pixel data to provide a first compressed video signal suitable for transmission;

second means for compressing said set of pixel data to provide a second compressed video signal suitable for transmission;

bit counter means coupled to said first means for quantifying the data in the first compressed video signal and coupled to said second means for quantifying the data in the second compressed video signal; and

comparator means coupled to said bit counter means for selecting the compressed video signal containing the least data by comparing the number of bits in said first compressed video signal to the number of bits in said second compressed video signal.

5,068,725

BAND COMPRESSING/RESTORING APPARATUS

Yoshihiko Ogawa; Seijiro Yasuki, both of Yokohama, and Kiyoyuki Kawai, Yokosuka, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jan. 25, 1990, Ser. No. 470,219

Claims priority, application Japan, Feb. 28, 1989, 1-45249

Int. Cl.[5] H04N *7/12, 7/18*

U.S. Cl. 358—135 **9 Claims**

1. A band compressing and restoring apparatus for compressing an input television signal, having first and second fields, to generate a band compressed signal, and for restoring the band compressed signal, the apparatus comprising:

first signal output means for receiving the input television signal, having a 2:1 interlace format, and for outputting a first television signal, every second field, comprising an average of high frequency components of the first and second fields of the input television signal;

second signal output means for receiving the input television

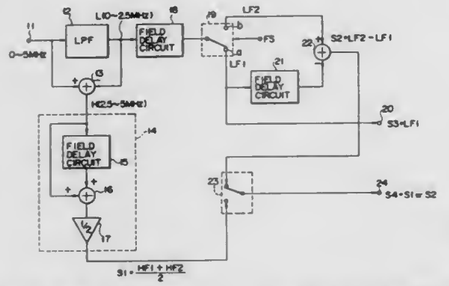
VOL 1132 ISS 4 NO 26 1991 UMI

signal and for outputting a second television signal, every first field, obtained by subtracting a low-frequency component of the first field of the input television signal from a low-frequency component of the second field of the input television signal;

third signal output means for receiving the input television signal and for outputting a third television signal, every second field, comprising only the low-frequency components of the first field of the input television signal;

fourth signal output means for receiving the first and second television signals and for outputting a fourth television signal comprising the second television, every first field, and the first television signal, every second field;

fifth signal output means for receiving the third and fourth television signals and for outputting, every second field, a fifth television signal comprising the sum of the third television signal and the second field of the fourth signal;



sixth signal output means for receiving the fourth and fifth television signals, for delaying the fifth television signal by one field, for adding the first field of the fourth television signal to the fifth television signal, and for outputting, every first field, a sixth television signal comprising the sum of the low frequency component of the second field of the input television signal and the first television signal; and

seventh signal output means for alternately selecting, every field, the fifth and sixth television signals, respectively, and for outputting a seventh television signal comprising, in a first field thereof, the sum of the low frequency component of the first field of the input television signal and the average of the high frequency components of the first and second field of the input television signal and, in a second field thereof, the sum of the low frequency component of the second field of the input television signal and the average of the high frequency components of the first and second fields of the input television signal.

5,068,726

CODING APPARATUS THAT TEMPORALLY INTERPOLATES BLOCK DATA AND SELECTS TRANSMISSION MODE

Tetsujiro Kondo, and Kenji Takahashi, both of Kanagawa, Japan, assignors to Sony Corporation, Tokyo, Japan

Filed Nov. 26, 1990, Ser. No. 617,806
Claims priority, application Japan, Nov. 28, 1989, 1-308225
Int. Cl.[5] H04N *7/12*
U.S. Cl. 358—135 **4 Claims**

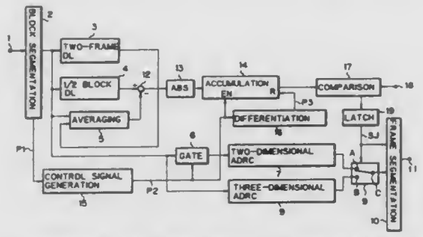
1. A highly efficient coding apparatus for coding digital video data in a format composed of blocks of digital video data representing a three-dimensional group of picture elements belonging to a plurality of fields and allowing compression of the video data,

interpolating means for interpolating digital video data in one of said plurality of fields of one block from digital video data in another of said plurality of fields of said block and for generating interpolated digital video data,

detecting means for detecting a difference between said interpolated digital video data and real digital video data,

control signal generating means for generating a control signal for said block in response to the output of said detecting means,

encoding means for encoding digital video data in said block



belonging to all of said plurality of fields in a first mode and for encoding digital video data in said block belonging to the other of said plurality of fields in a second mode,

selecting means for selecting one of said first and second modes in response to said control signal, and

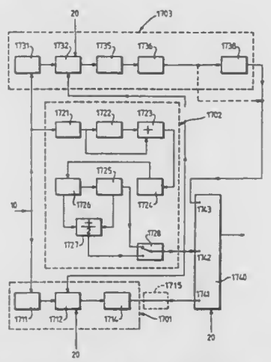
transmitting means for transmitting the output of said encoding means and said control signal for each said block.

5,068,727

DEVICE FOR DECODING SIGNALS REPRESENTATIVE OF A SEQUENCE OF IMAGES AND HIGH DEFINITION TELEVISION IMAGE TRANSMISSION SYSTEM INCLUDING SUCH A DEVICE

Mohammed R. Haghiri, Sceaux; Philippe Guntzburger, Epinay-sous-Senart; Frédéric Fonsalas, Grigny, and Marcel Le Queau, Ozoir-la-Ferriere, all of France, assignors to U. S. Philips Corporation, New York, N.Y.

PCT No. PCT/NL89/00023, § 371 Date Jan. 16, 1990, § 102(e) Date Jan. 16, 1990, PCT Pub. No. WO89/10039, PCT Pub. Date Oct. 19, 1989
PCT Filed Apr. 17, 1989, Ser. No. 458,745
Claims priority, application France, Apr. 15, 1988, 88 05010; Jun. 28, 1988, 88 08652; Jul. 8, 1988, 88 09294
Int. Cl.[5] H04N *7/12, 7/00*
U.S. Cl. 358—138 **8 Claims**



1. A decoder for use in a high definition television system wherein a plurality of images are encoded and transmitted as image data by means of a first channel having a limited passband and at a transmission rate selected from three separate transmission rates, said selected transmission rate being determined by a decision signal from a decision circuit, and wherein motion data representative of motion in said original images is

derived and transmitted together with said decision signal by means of a second channel, said decoder comprising:

a) a plurality of processing branches coupled in parallel and each receiving said image data from said first channel and providing respective processed data outputs, each of said branches comprising in series, a dynamic interpolation circuit and a spatial filtering circuit, a first said processing branch further comprising means coupled to said second channel, for reconstructing said images from said image data or said motion data, and second and third processing branches each further comprising a multiplexer having a first input coupled to the dynamic interpolation circuit of its respective branch, a second input coupled to said second channel and a third input coupled to said reconstructing means; and

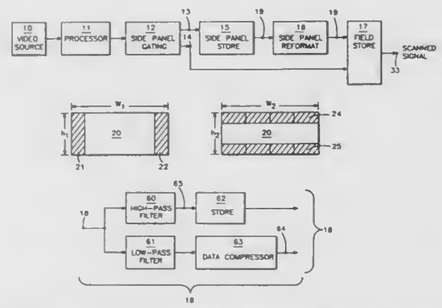
b) selection means having a first input coupled to said second channel and a plurality of data inputs each coupled respectively to said processed data outputs, for selecting as a selected output one of said processed data outputs in response to said decision signal.

5,068,728

COMPATIBLE INCREASED ASPECT RATIO TELEVISION SYSTEM

Albert Macovski, 2505 Alpine Rd., Menlo Park, Calif. 94025

Filed Jun. 22, 1990, Ser. No. 542,108
Int. Cl.[5] H04N *7/04*
U.S. Cl. 358—141 **11 Claims**



1. In a method for providing an increased aspect ratio television image using a modified signal which is compatible with standard television receivers receiving standard television signals where the increased width of the increased aspect ratio image is obtained by adding side panels on each side of a standard television image comprising the steps of:

reducing the number of active scanning lines in the standard television signal by inactivating lines which are within the viewing area of the standard television receiver; and

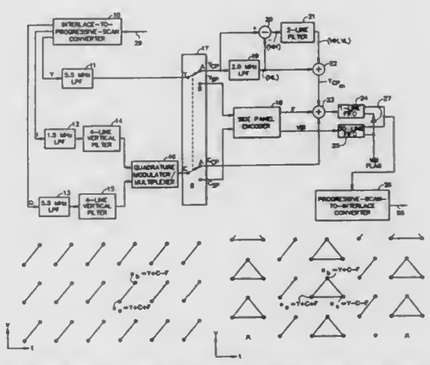
inserting information in the inactive scanning lines representing solely information from the side panels in a manner which substantially minimizes the visibility of these lines when viewed on a standard television receiver.

5,068,729

COMPATIBLE EXTENDED-DEFINITION TELEVISION

Ron D. Katznelson, and Edward A. Krause, both of San Diego, Calif., assignors to General Instrument Corporation, New York, N.Y.

Continuation-in-part of Ser. No. 258,143, Oct. 14, 1988, abandoned. This application Oct. 2, 1989, Ser. No. 413,881
Int. Cl.[5] H04N *7/00, 11/00*
U.S. Cl. 358—141 **15 Claims**



1. An encoder for encoding a wide-aspect-ratio television signal for transmission within a standard-television-signal-compatible format, comprising

means for dividing the television signal into center-panel segments from which the horizontally central portion of a television picture produced from said wide-aspect-ratio television signal is displayed in accordance with a standard-television-signal aspect ratio, and side panel segments from which the left and right side portions of the television picture produced from wide-aspect-ratio television signal are displayed in accordance with the wide aspect ratio;

means for arranging the center panel segments for transmission in the standard-television-signal-compatible format;

means for reducing the spatial frequency extent of at least a portion of said side-panel segments by vertically expanding said portion; and

means for inserting said vertically expanded portion of the side-panel segments for transmission during transmission of said center-panel segments in a manner that enables said inserted portion of the side panel segments to be separated from the center panel segments.

10. An encoder for encoding a video signal derived from 24-frames-per-second film for transmission, comprising

means for processing said video signal to provide luminance information Y, chrominance information C and Fukinuki-hole signals F;

means for processing the luminance information Y, chromi-

VOL 1132 ISS 4 NO 26 1991 UMI

nance information C and Fukinuki-hole signals F to provide an encoded signal having composite pixels ($S=Y\pm C\pm F$), wherein the respective values of Y above a given frequency, C and F are the same in each of only three consecutive fields m of every five fields so that within two adjacent lines of each set of said three consecutive fields, $S_a=Y_m\pm C_m\pm F_m$, $S_b=Y_m\pm C_m\mp F_m$ and $S_c=Y_m\mp C_m\mp F_m$, with pixels S_a and S_c being the same pixel in every other field, with S_a and S_b being adjacent pixels in adjacent fields, and with S_c and S_b being adjacent pixels in adjacent fields, and wherein the respective values of Y above a given frequency, C and F are the same in each of two other consecutive fields n of every five fields so that within two adjacent lines of the two other consecutive fields, $S_d=Y_n\pm C_n\pm F_n$ and $S_e=Y_n\pm C_n\pm F_n$, with S_d and S_e being adjacent pixels in adjacent fields.

5,068,730

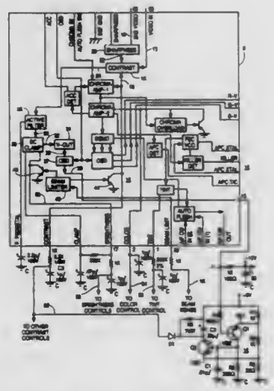
VIDEO CONTROL CIRCUIT

Gene K. Sendelweck, Indianapolis, Ind., assignor to Thomson Consumer Electronics, Inc., Indianapolis, Ind.

Continuation of Ser. No. 340,652, Apr. 20, 1989, abandoned. This application Jun. 26, 1990, Ser. No. 543,900

Int. Cl.[5] H04N *5/57, 5/59*

U.S. Cl. 358—169 **40 Claims**



1. An anti-blister circuit for protecting a shadow mask on a cathode ray tube, the circuit comprising:

first means for detecting amplitude excursions of a signal related to luminance beyond a white level threshold during each horizontal scan;

second means, responsive to the first means, for developing a first control signal related to a minimum duration of each said amplitude excursion of the signal beyond the threshold; and,

third means responsive to the first control signal for developing a second control signal to reduce beam current during each said minimum duration amplitude excursion and to permit the beam current to increase after termination of each said minimum duration amplitude excursion.

5,068,731

VIDEO IMAGE ENLARGEMENT AND REDUCTION SYSTEM AND METHOD

Kesatoshi Takeuchi, Suwa, Japan, assignor to Seiko Epson Corporation, Japan

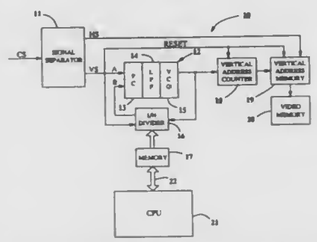
PCT No. PCT/JP89/00665, § 371 Date Apr. 30, 1990, § 102(e) Date Apr. 30, 1990, PCT Pub. No. WO90/00789, PCT Pub. Date Jan. 25, 1990

PCT Filed Jul. 3, 1989, Ser. No. 465,247

Claims priority, application Japan, Jul. 14, 1988, 63-176037

Int. Cl.[5] H04N *3/223, 7/01, 5/04*

U.S. Cl. 358—180 **10 Claims**



1. A video sweep synchronizing and address system having inputs to receive horizontal and vertical sweep synchronizing signals associated with a video signal, the system comprising:

a phase locked loop having a two-input phase comparator that controls a voltage controlled oscillator, a first input to the phase comparator connected to the vertical sweep input of the system;

a digital divider receiving at its input a first signal from the output of voltage controlled oscillator, the output of the digital divider connected to a second input to the phase comparator, the digital divider able to divide by an integer quantity "n";

a vertical address counter receiving at its input a second signal from the output of voltage controlled oscillator;

a vertical sweep circuit such that the vertical dimension of an image can be controlled by adjusting the integer quantity "n";

a vertical address memory that receives a count value from the vertical address counter and is connected to the horizontal sweep input of the system such that count values are stored in synchronism with the horizontal sweep input the vertical address memory having means to output a vertical address value for use by the vertical sweep circuit; and

a video memory connected to receive data from the vertical address memory.

5,068,732

VIDEO DISPLAY APPARATUS

Yutaka Satoh, Nagoya, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Nov. 20, 1990, Ser. No. 616,195

Claims priority, application Japan, Nov. 24, 1989, 1-303107

Int. Cl.[5] H04N *3/223, 6/262*

U.S. Cl. 358—180 **10 Claims**

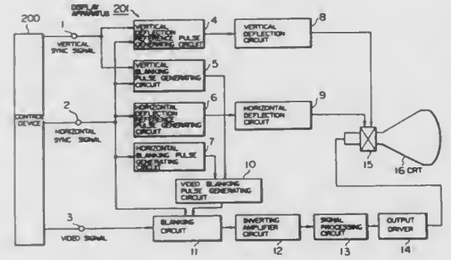
1. A display apparatus comprising:

display means;

means for receiving a vertical synchronization (sync) signal, a horizontal sync signal, a video signal, in synchronism with the vertical sync signal and the horizontal sync signal, having a prescribed display area;

deflection signal generating means for generating a deflection signal on the basis of the received vertical sync signal and horizontal sync signal and supplying the deflection signal thus generated to said display means;

video signal adding means for adding an additional video signal outside of said display area of said received video signal on the basis of said vertical sync signal and said horizontal sync signal so that the display area is expanded,



and supplying the video signal thus formed to said display means.

5,068,733

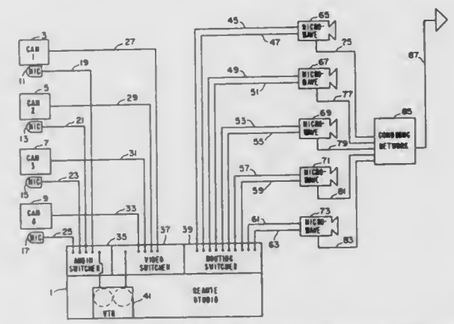
MULTIPLE ACCESS TELEVISION

Richard H. Bennett, Rte. 3, Rutledge Lake Rd., Greenville, S.C. 29611

Continuation of Ser. No. 497,754, Mar. 20, 1990, abandoned, which is a continuation of Ser. No. 394,312, Aug. 11, 1989, abandoned, which is a continuation of Ser. No. 243,901, Sep. 13, 1988, abandoned, which is a continuation-in-part of Ser. No. 84,339, Aug. 10, 1987, abandoned, which is a continuation-in-part of Ser. No. 923,344, Oct. 27, 1986, abandoned. This application Feb. 19, 1991, Ser. No. 658,416

Int. Cl.[5] H04N *5/262, 5/268, 7/12*

U.S. Cl. 358—181 **1 Claim**



1. A process for broadcasting live televised programs comprising:

obtaining video signals from a plurality of video cameras, each of said cameras relaying a different selected and predetermined view of a single event or production;

producing an audio signal associated with said event or production;

receiving said video signals and said audio signal in a remote studio;

transmitting for broadcast through a single combining network said audio signal and all said video signals simultaneously to a radiating antenna;

broadcasting the combined signals from said radiating antenna;

receiving said combined and broadcasted signals by a receiving antenna in communication with a cable television distribution system; and

re-transmitting said audio signal and all said video signals on a cable television distribution system where by each of a plurality of subscribers to the cable television distribution system may select any one of the video options made available by a broadcasting network.

5,068,734

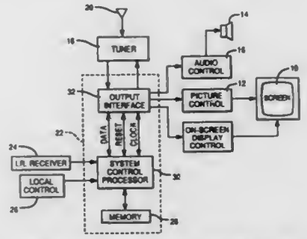
APPARATUS FOR CONTROLLING A TELEVISION RECEIVER

Jack Beery, 907 6th St. SW., Apt. 815 C, Washington, D.C. 20024

Filed May 31, 1989, Ser. No. 359,155

Int. Cl.[5] H04N *5/50*

U.S. Cl. 358—191.1 **28 Claims**



1. In a television control system apparatus for selecting a television channel corresponding to a preassigned channel tuning designation, the system apparatus comprising:

tuner means for receiving a processor signal and a multi-channel input signal, and in response to said processor signal, tuning out all but one channel corresponding to a selected one of said preassigned channel tuning designations;

memory means for storing at least one operator-assigned channel select designation for at least one of said channel tuning designations;

operator-actuated control means for generating a control output signal comprising one of (a) a first data set representative of a desired channel select designation for one of said channel tuning designations, and (b) a second data set representative of a desired viewing channel identified by an operator selected one of said channel select designations;

processor means for receiving said control output signal from said operator-actuated control means, and upon receipt of said first data set, causing said memory means to store said desired channel select designation as corresponding to said one channel tuning designation, and upon receipt of said second data set, retrieving from said memory means the one of said channel tuning designations corresponding to said operator selected channel select designation, and generating said processor signal to correspond to said one channel tuning designation.

5,068,735

SYSTEM FOR CONTROLLING THE AIMING DIRECTION, FOCUS, ZOOMING, AND/OR POSITION OF A TELEVISION CAMERA

Kazumichi Tuchiya; Nobuhara Nagashima; Masayoshi Wasada, and Akihiro Suzuki, all of Saitama, Japan, assignors to Fuji Photo Optical Co., Ltd., Oomiya, Japan

Filed Aug. 13, 1990, Ser. No. 566,736

Claims priority, application Japan, Aug. 22, 1989, 1-215358

Int. Cl.[5] H04N *5/30*

U.S. Cl. 358—209 **2 Claims**

1. A system for controlling the aiming direction, focus, zooming and/or position of a television camera, comprising:

a control box having a plurality of control switches and a microcomputer;

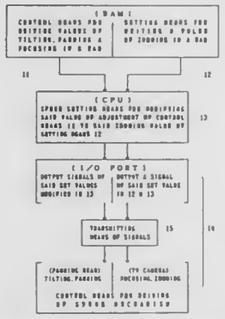
a first means for changing the vertical and horizontal direction of a panning head on which a television camera is mounted and the focal distance of said television camera

VOL 1132 ISS 4 NOV 26 1991 UMI

in response to operation of predetermined control switches provided in said control box and for writing values of adjustment resulting from these changes into said microcomputer;

a second means for setting a value of zooming of said television camera by operation of a predetermined control switch provided on said control box and writing a value of adjustment resulted from this setting into said microcomputer;

a speed setting means for modifying said values of adjustment at which the vertical and horizontal orientations of the panning head and the focal distance of said television camera are to be adjusted by said first means, depending



upon the value of adjustment obtained by setting said value of zooming;

a means for controlling a zooming servo-mechanism of said television camera by delivering from said microcomputer a control signal corresponding to the value of zooming set with said second means and for controlling a tilting servo-mechanism and panning servo-mechanism of said panning head as well as a focusing servo-mechanism of said television camera with a control signal from said speed setting means; and

a means for transmitting control signals between the driving mechanisms provided for said panning head and television camera, respectively, and the control box.

5,068,736

SOLID STATE IMAGING DEVICE WHICH HAS A SHORT TIME CONSTANT WHICH IS SHORTER THAN THE APPLICATION OF A PULSE VOLTAGE UNTIL THE END OF THE BLANKING PERIOD

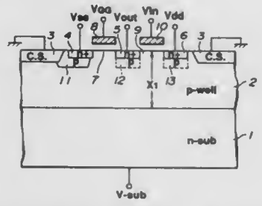
Masaharu Hamasaki, Kanagawa, Japan, assignor to Sony Corporation, Tokyo, Japan

Filed Sep. 15, 1989, Ser. No. 407,740

Claims priority, application Japan, Sep. 20, 1988, 63-235445

Int. Cl.[5] H04N *5/335*

U.S. Cl. 358—213.13 **5 Claims**



1. A solid state imaging device for carrying out electronic shuttering in a blanking period, comprising:

a first conductivity type semiconductor substrate being applied a pulse voltage for electronic shuttering,

a second conductivity type semiconductor region formed on said first conductivity type semiconductor substrate said second semiconductor region having an impurity concentration of $10^{15}cm^{-2}$ or lower and depth of junction in the order of $5\mu m$ such that the time constant defined by the resistance and the parasitic capacitance of said second conductivity semiconductor region is shorter than a period which elapses between the application of said pulse voltage until the expiration of the blanking period,

an output circuit having a field effect transistor, and a channel of said field effect transistor formed in said second conductivity type semiconductor region.

5,068,737

IMAGE SENSOR HAVING MULTIPLE PAIRS OF ARRAY SENSORS

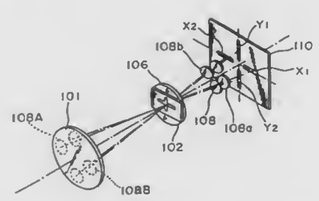
Nobuyuki Taniguchi, Nishinomiya; Toshihiko Karasaki, Sakai; Tokuji Ishida, Daito; Masataka Hamada, Minamikawachi, and Toshio Norita, Sakai, all of Japan, assignors to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 578,081, Sep. 5, 1990, abandoned, which is a division of Ser. No. 353,813, May 18, 1989, Pat. No. 4,979,045, which is a division of Ser. No. 5,413, Jan. 20, 1987, Pat. No. 4,835,615. This application Feb. 13, 1991, Ser. No. 656,107

Claims priority, application Japan, Jan. 21, 1986, 61-11537; Mar. 14, 1986, 61-57855

Int. Cl.[5] H04N *3/14*

U.S. Cl. 358—227 **37 Claims**



1. A focus condition detecting device for detecting the focus condition of an image of an object, comprising:

a plurality of pairs of arrays of sensor elements for receiving images of a plurality of separate portions of an object, said arrays in each pair aligned along an axis corresponding to a separate portion of the object, and the respective axes of each pair of arrays being offset from an axis of another pair of arrays, and

a detecting means for detecting a focus condition for each separate portion of the object based on a mutual positional relationship between images of the same separate portion of the object formed on each pair of arrays.

5,068,738

PHASE-DIFFERENCE DETECTOR USING AN ANALOG ARITHMETIC CORRELATION DEVICE

Takashi Miida, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 10, 1989, Ser. No. 321,851

Claims priority, application Japan, Mar. 10, 1988, 63-54786

Int. Cl.[5] G01J *1/20*

U.S. Cl. 358—227 **2 Claims**

1. A phase-difference detector for discriminating a focusing state of an objective lens by detecting relative positions of a pair of optical images from an optical axis comprising:

sensor means for sensing the pair of optical images and sequentially outputting a first analog signal corresponding to one of the pair of optical images and a second analog

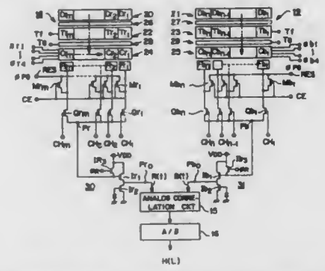
signal corresponding to another of the pair of optical images at predetermined intervals in a non-destructive manner and for shifting phases of said first and second analog signals with respect to each other, said first and second analog signals being generated by photoelectric conversion of said pair of optical images;

analog correlation arithmetic means, operatively connected to said sensor means, for performing an analog correlation arithmetic operation to obtain analog correlative values from said first and second analog signals outputted from said sensor means; and

an A/D converter, operatively connected to said analog correlation arithmetic means, for converting said analog correlative values outputted from said analog correlation arithmetic means into digital correlative values;

said sensor means including,

a first light receiving unit essentially consisting of a group of photoelectric conversion elements arrayed to optically receive one of the pair of optical images and outputting first charge signals corresponding to charges induced in said first light receiving unit,



a first signal readout unit, operatively connected to said first light receiving unit, for transferring said first charge signals in a predetermined array-direction and for outputting said first analog signals corresponding to said first charge signals in parallel through floating gates,

a second light receiving unit essentially consisting of a group of photoelectric conversion elements arrayed to optically receive another of the pair of optical images and outputting second charge signals corresponding to charges induced in said second light receiving unit,

a second signal readout unit, operatively connected to said second light receiving unit, for transferring said second charge signals in a predetermined array-direction and for outputting said second analog signals corresponding to said second charge signals in parallel through floating gates, and

control means, operatively connected to said first and second signal readout units, for outputting at predetermined intervals both said first and second analog signals out of phase with each other.

5,068,739

METHOD TO IMAGE TRANSPARENT MEDIA UTILIZING INTEGRATED SCANNING

Andrew Filo, Cupertino, Calif., assignor to Optum Corporation, Cupertino, Calif.

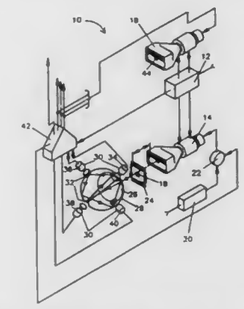
Filed Feb. 10, 1989, Ser. No. 309,099

Int. Cl.[5] H04N *5/74, 7/18;* **G03F** *3/10*

U.S. Cl. 358—237 **21 Claims**

1. A device to scan and display images contained in transparent media (transparencies) comprising:

integrated scanning means including a feedback loop whereby scanning of an image and regulation of the displayed image can be performed simultaneously without



the need for lensatic optics; and NTSC video circuit; and display means.

5,068,740

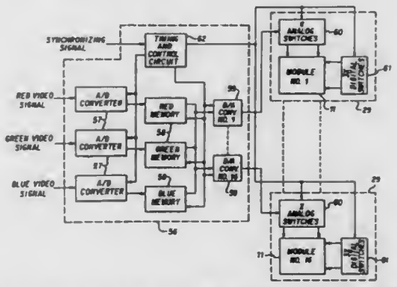
MODULAR FLAT-SCREEN TELEVISION DISPLAYS AND MODULES AND CIRCUIT DRIVES THEREFOR

Thomas P. Brody, Pittsburgh, Pa., assignor to Magnascreen Corporation, Pittsburgh, Pa.

Division of Ser. No. 222,523, Jul. 21, 1988. This application Feb. 23, 1990, Ser. No. 484,577

Int. Cl.[5] H04N *9/30;* **H05B** *37/00*

U.S. Cl. 358—241 **14 Claims**



1. A module for a flat-screen television display comprising:

A. a substrate with first and second major surfaces and edge surfaces and being capable of transmitting light;

B. a matrix of conductive pads capable of defining picture elements and extending over the first major surface of the substrate in a regular pattern with boundary conductive pads adjacent the edge surfaces of the substrate to distances such that the regular pattern is capable of continuing substantially uninterrupted when a similar module is positioned adjacent to said module;

C. a matrix of electrical switching elements extending over the first major surface of the substrate with each said switching element capable of activating one of said conductive pads upon receiving electrical signals through both row and column conductive strips;

D. said row and column conductive strips each extending over the first major surface from adjacent an edge surface to adjacent an opposite edge surface of the substrate such that each said switching element can be electrically activated by a row conductive strip and a column conductive strip;

E. a frame positioned adjacent an extension of said edge surfaces of the substrate and capable of allowing light to be transmitted through the substrate;

VOL 1132 ISS 4 NO 26 1991 UMI

F. an electrical drive circuit positioned adjacent the second major surface of the substrate and being capable of electrically activating the switching elements in correspondence to desired visual images to be formed by the picture elements over the first major surface; and

G. interconnecting conductors adjacent the edge surfaces of the substrate and the frame electrically connecting the drive circuit with the row and column conductive strips on the first major surface of said substrate and electrically insulated from similar interconnecting conductors of adjacent modules.

5,068,741

IMAGE OUTPUT APPARATUS FOR REPRODUCING, ADJACENT EACH OTHER, LEADING IMAGE DATA PORTIONS OF PLURAL IMAGE UNITS

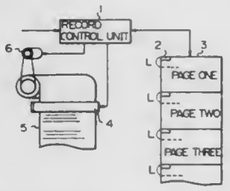
Masatomo Takahashi, Kawasaki, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 117,415, Nov. 2, 1987, abandoned, which is a continuation-in-part of Ser. No. 704,934, Feb. 25, 1985, abandoned. This application Sep. 26, 1989, Ser. No. 412,605

Claims priority, application Japan, Feb. 29, 1984, 59-36301; Feb. 29, 1984, 59-36302

Int. Cl.[5] H04N *1/21, 1/23;* **G06F** *3/12*

U.S. Cl. 358—296 **12 Claims**



I. An image output apparatus comprising:

an image memory for storing image data corresponding to a plurality of unit images, the image data of each unit image including a leading portion;

readout means for reading out the image data stored in said image memory;

control means for controlling said readout means such that said readout means sequentially reads out a part of the image data of each unit image from said image memory; and

reproduction means for reproducing, adjacent each other, parts of respective unit images of the image data read out by said control means through said readout means such that these parts can be displayed simultaneously,

wherein said control means controls said readout means so as to read out the leading portion of the image data of each unit image.

5,068,742

APPARATUS FOR MAKING BOOKLETS WITH PHOTOGRAPHS

Yuji Oshikoshi; Yoshimi Suganuma, both of Tokyo; Hiroshi Hara, Kanagawa; Kazuo Shiota, Kanagawa; Nobumitsu Takehara, Kanagawa, and Kiichiro Sakamoto, Kanagawa, all of Japan, assignors to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Division of Ser. No. 261,299, Oct. 24, 1988. This application Jan. 30, 1990, Ser. No. 472,140

Claims priority, application Japan, Oct. 23, 1987, 62-267847; Oct. 23, 1987, 62-267848; Oct. 26, 1987, 62-269935

Int. Cl.[5] B42D *15/10;* **G03B** *27/465, 27/58;* **G03D** *3/13*

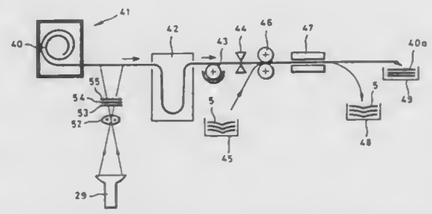
U.S. Cl. 358—296 **9 Claims**

1. An apparatus for making a personal booklet having a picture and personal data of the booklet holder for providing the booklet holder's identity, the apparatus comprising:

a cassette containing therein a photosensitive paper;

composite image forming means for receiving a first input comprising said picture and a second input comprising said personal data of said booklet holder, and for forming a composite image of said picture and said personal data of said booklet holder;

exposure means for exposing said photosensitive paper to said composite image of said picture and said personal data of the booklet holder, said composite image being exposed in its entirety to said photosensitive paper in a single operation;



a container containing therein booklets, each booklet having a page formed with an image receiving layer;

superimposing means for superimposing said image receiving layer of each of said booklets picked up from said container and said exposed photosensitive paper to thereby force out air of said superimposed image receiving layer and exposed photosensitive paper; and

a thermal printing head for heating said superimposed image receiving layer and exposed photosensitive paper to transfer said composite image from said photosensitive paper to said image receiving layer.

5,068,743

FACSIMILE RECORDING APPARATUS WITH PAGE CUTTING OR CONTINUOUS FEED MODE DEPENDING ON MODE SETTING OR ON NUMBER OF PAGES TO BE RECEIVED

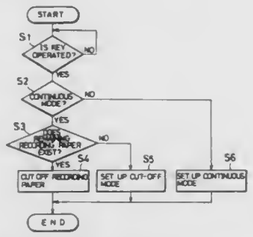
Shigeharu Araki, Ikoma, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 15, 1990, Ser. No. 494,223

Claims priority, application Japan, Mar. 17, 1989, 1-66739; Mar. 17, 1989, 1-66740; Mar. 17, 1989, 1-66741

Int. Cl.[5] H04N *1/23;* **B41J** *11/66*

U.S. Cl. 358—304 **4 Claims**



1. A facsimile apparatus, comprising:

network control means for controlling a transmission and reception of image data through a signal line in communication with another facsimile apparatus;

mode setting means for setting a mode of operation of said facsimile apparatus either in a cut-off mode, in which a recording paper on which received image data is being recording is to be cut off page by page and discharged, or in a continuous mode, in which the recording paper is to be continuously discharged without being cut off at each page;

cut-off control means for generating a cut-off signal on receipt by said network control means of a signal indicating that the reception of image data from said another facsimile apparatus has been completed for each page of said image data, when said cut-off mode has been set, and for generating a cut-off signal on receipt by said network control means of a signal indicating that the reception of all image data from said another facsimile apparatus has been completed when said continuous mode has been set; and

cut-off means for cutting off the recording paper in response to said cut-off signal.

5,068,744

PICTURE DATA COMPRESSING AND RECORDING APPARATUS FOR RECORDING COMPONENTS OF THE PICTURE INDEPENDENTLY

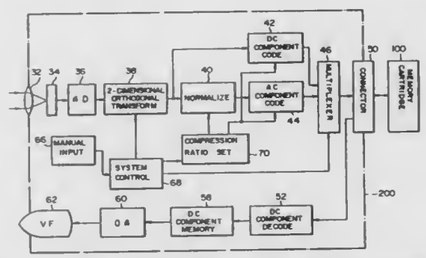
Kenji Ito, Tokyo, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 14, 1989, Ser. No. 407,293

Claims priority, application Japan, Oct. 14, 1988, 63-257076; Mar. 6, 1989, 1-51869

Int. Cl.[5] H04N *5/76*

U.S. Cl. 358—310 **13 Claims**



1. A data compressing and recording apparatus for dividing digital picture data which constitute a single picture into a plurality of blocks, applying a two-dimensional orthogonal transform coding to the picture data of individual blocks, and recording the coded picture data in a recording medium, said apparatus comprising:

orthogonal transforming means for applying a two-dimensional orthogonal transformation to a plurality of blocks of digital picture data;

said orthogonal transforming means individually transforming DC components and AC components of said digital picture data to produce transformed DC component data and transformed AC component data;

normalizing means for normalizing at least said transformed AC component data of the data transformed by said orthogonal transforming means;

coding means for coding, from among the data transformed by said orthogonal transforming means and the data normalized by said normalizing means, at least the normalized data; and

control means for controlling said normalizing means and said coding means;

said control means controlling an order of normalizing and coding of said transformed DC component data and said transformed AC component data of said digital picture data;

said control means controlling a recording of the DC component data and the AC component data in the recording medium such that the DC component data is recorded prior to the AC component data.

5,068,745

IMAGE FILING METHOD

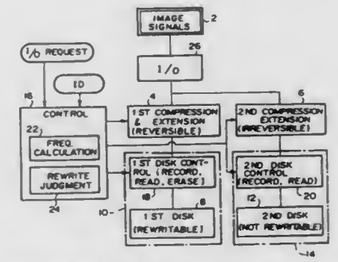
Kazuo Shimura, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Mar. 29, 1990, Ser. No. 501,221

Claims priority, application Japan, Apr. 3, 1989, 1-84308

Int. Cl.[5] H04N *1/00*

U.S. Cl. 358—403 **11 Claims**



I. An image filing method comprising the steps of:

i) subjecting original image signals to a first signal compression processing which is carried out with a small factor of compression,

ii) recording the compressed image signals, which are obtained from said first signal compression processing, on a first recording medium,

iii) when a predetermined period has elapsed after a compressed image signal obtained from said first signal compression processing was recorded on said first recording medium, or when the frequency with which said compressed image signal is read from said first recording medium has become lower than a predetermined value, reading out said compressed image signal from said first recording medium,

iv) subjecting the image signal, which has been read out from said first recording medium, to a second signal compression processing which is carried out with a large factor of compression,

v) recording the compressed image signal, which is obtained from said second signal compression processing, on a second recording medium, and

vi) thereafter erasing said compressed image signal, for which said predetermined period has elapsed after it was recorded on said first recording medium or for which said frequency has become lower than said predetermined value, from said first recording medium.

5,068,746

IMAGE PROCESSING APPARATUS

Hidefumi Ohsawa, Kawaguchi; Akihiro Katayama, Kawasaki; Hiroshi Hosokawa, Yokohama; Izuru Sunohara, Ichikawa, and Masahiko Yoshimoto, Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Division of Ser. No. 137,439, Dec. 23, 1987, Pat. No. 4,876,610. This application Aug. 17, 1989, Ser. No. 394,865

Claims priority, application Japan, Dec. 25, 1986, 61-313168; May 21, 1987, 62-122611

Int. Cl.[5] H04N *1/40*

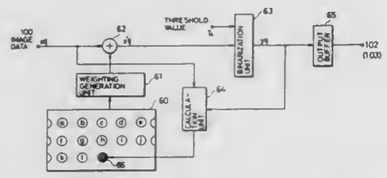
U.S. Cl. 358—443 **4 Claims**

1. An image processing apparatus comprising:

Input means for inputting first and second color image signals; binarizing means for binarization-processing each of the first and second color image signals respectively input by said input means and producing first and second color binary signals; and output means for outputting a color

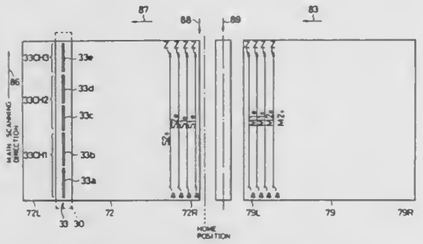
VOL 1132 ISS 4 NO 26 1991 UMI

image on the basis of the first and second color binary signals produced in response to the binarization-processing of said binarizing means, and of the first and second binary signals corresponding to each of the first and second color image signals, wherein said binarizing means further comprises correction means for correcting an error generated in the binarization-processing of the input first and second color image signals, and wherein said



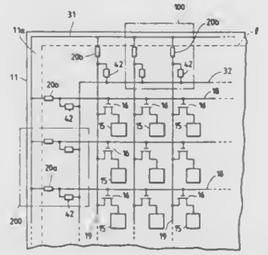
correction means calculates a difference between a value of the first color image signal and a value of the binarization-processed first color binary signal and wherein said correction means calculates a difference between a value of the second color image signal and a value of the binarization-processed second color binary signal, and performs predetermined weighting for the respective differences and adds weighted data to succeeding first and second color image signals to be input.

5,068,747
IMAGE READING APPARATUS
Makoto Nonoyama, Kanagawa, Japan, assignor to Kabushiki Kaisha Toshiba, Kanagawa, Japan
Continuatioo of Ser. No. 151,489, Feb. 2, 1988, abandoned. This application Jan. 10, 1990, Ser. No. 462,980
Claims priority, application Japan, Feb. 3, 1987, 62-022943
Int. Cl.[5] H04N *1/40*
U.S. Cl. 358—448 **6 Claims**



I. An image reading apparatus comprising:
a moved manuscript mounting member for mounting a moved manuscript;
a first moved manuscript transporting means for transporting the moved manuscript from the moved manuscript mounting member, the first moved manuscript transporting means being positioned at a leading end of the moved manuscript mounting member along a transportation direction of the moved manuscript;
a second moved manuscript transporting means for transporting the moved manuscript from the first moved manuscript means to a first reading position;
optical reading means for optically reading the moved manuscript in the first reading position, the optical reading means optically reading first subdivided image lines of the moved manuscript, and producing first image data of the moved manuscript and also optically reading second subdivided image lines of the moved manuscript that are alternately arranged with respect to the first subdivided image lines and producing second image data of the moved manuscript;
a fixed manuscript mounting member with a manuscript cover for mounting a fixed manuscript in conjunction with a first surface of the manuscript cover, the manuscript cover being positioned at a delivery side of the moved manuscript in the transportation direction of the moved manuscript;
a second reading position wherein the optical reading means optically reads the fixed manuscript mounted on the fixed manuscript mounting member, the second reading position being located within the delivery side and adjacent the first reading position;
a third moved manuscript transporting means for delivering the moved manuscript from the second moved manuscript transporting means to a second surface of the manuscript cover, the third moved manuscript transporting means being located between the second moved manuscript transporting means and the fixed manuscript mounting member;
memory means for storing, in a predetermined writing address sequence, the first image data and the second image data of the moved manuscript; and
data reading means for electronically reading the first image data and the second image data from the memory means, the data reading means electronically reading in a predetermined reading address sequence that is the reverse of the predetermining writing address sequence.

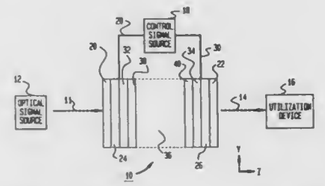
5,068,748
ACTIVE MATRIX LIQUID CRYSTAL DISPLAY DEVICE HAVING IMPROVED ELECTROSTATIC DISCHARGE PROTECTION
Yasuhiro Ukai, Kobe; Tomihisa Sunata, Miki; Teizou Yukawa, and Toshiya Inada, both of Kobe, all of Japan, assignors to Hosiden Corporation, Osaka, Japan
Filed Oct. 16, 1990, Ser. No. 598,199
Claims priority, application Japan, Oct. 20, 1989, 1-273420
Int. Cl.[5] G02F *1/133*
U.S. Cl. 359—59 **7 Claims**



1. In an active matrix liquid crystal display device which has, on a transparent base plate, a plurality of equally-spaced-apart source and gate buses formed at right angles to each other, thin film transistors each connected to said source and gate buses at their intersecting point and formed at a corner in a pixel region defined by said intersecting source and gate buses, pixel electrodes each connected to one of said thin film transistors and formed over a wide area in said pixel region, and source and gate bus terminals connected to said source and gate buses at one end thereof, respectively, and formed along marginal edges of said transparent base plate, the improvement comprising:
an internal short circuiting bus formed on said transparent base pate across said source and gate buses outside of a display region containing said thin film transistors and said pixel electrodes both arranged in a matrix form but inside of arrays of said source bus terminals and said gate bus terminals;

an external short circuiting bus formed on said transparent base plate outside of and along said arrays of said source and gate bus terminals, said source and gate bus terminals being connected to said external short circuiting bus; and
coupling elements each formed of a high resistance material on said transparent base plate in the vicinity of each said intersecting point of said source and gate buses, for electrically interconnecting said source and gate buses;
each of said coupling elements including a semiconductor layer region formed simultaneously with a semiconductor layer of each of said thin film transistors, said semiconductor layer region being formed across each of said source and gate buses widthwise thereof, a gate insulating film formed on said semiconductor layer region common to all of said thin film transistors, and a hole formed in said gate insulating film overlying said semiconductor layer region, said internal short circuiting bus being connected to said semiconductor layer region through said hole and extending on said gate insulating film.

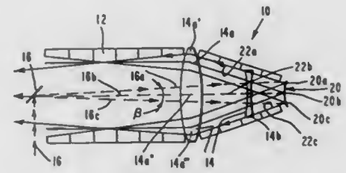
5,068,749
ELECTRONICALLY TUNABLE POLARIZATION-INDEPENDENT LIQUID CRYSTAL OPTICAL FILTER
Jayantilal S. Patel, Red Bank, N.J., assignor to Bell Communications Research, Inc., Livingston, N.J.
Filed Aug. 31, 1990, Ser. No. 577,220
Int. Cl.[5] G02F *1/133*
U.S. Cl. 359—93 **8 Claims**



8. An optical communication system comprising
an optical filter including
spaced-apart planar mirrors,
and a layer of a liquid crystal material in the space between said mirrors, said material comprising molecules each having a principal axis, said material having a twist of $n\pi/2$ of the principal axes of said material across said space, where n is a positive odd integer,
an input source for applying randomly polarized multiple-wavelength optical signals to said filter,
a source for applying electrical control signals to said filter to establish an electric field across said space to untwist the molecules in a central portion of said layer, the values of said signals being selected to control the electro-optic properties of said filter to pass corresponding respective ones of said input wavelengths,
and a utilization device positioned to recieve optical signals passed by said filter.

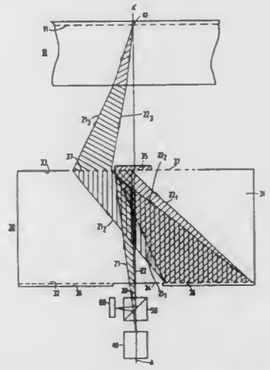
5,068,750
CONTAMINANT REMOVAL FROM TELESCOPE OPTICAL ELEMENTS
Lacy G. Cook, El Segundo, and Bryce A. Wheeler, Mammoth Lakes, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.
Filed Oct. 22, 1990, Ser. No. 600,956
Int. Cl.[5] G02B *23/00*; B08B *7/00*
U.S. Cl. 359—399 **20 Claims**

1. In a telescope having baffles and telescope structures, an entrance aperture, a shutter and optical means positioned between the entrance aperture and the shutter, an apparatus for removing contaminants from the optical means without illumination or heating of, or damage to the baffles and telescope structures, comprising:
a reflector positioned on or adjacent to the shutter; and
means for directing a laser beam through the entrance aperture from outside the telescope to said reflector,



said reflector and said directing means having a cooperative opto-mechanical arrangement which enables both cleaning of the optical means and reflection of the beam on a return path back from said reflector through the entrance aperture and to the outside of the telescope without illumination or heating of, or damage to the baffles and telescope structures.

5,068,751
THREE ELEMENT GRATING OBJECTIVE AND GRATING-BEAM SHAPER, AND OPTICAL SCANNING DEVICE
Josephus J. M. Braat, and Willem G. Opheij, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.
Filed Aug. 7, 1990, Ser. No. 570,242
Claims priority, application Netherlands, Nov. 2, 1989, 8902706; Dec. 7, 1989, 8903013
Int. Cl.[5] G02B *5/18*
U.S. Cl. 359—566 **21 Claims**



16. A beam shaper for reshaping a beam having an elliptic cross-section to a beam having a circular-symmetrical cross-section, characterized by a system of at least three gratings which are arranged one behind the other in a path of a beam, the gratings being adapted in such a way that an axial ray and a border ray of the beam are interchanged or switched two at least times, while the gratings are one-dimensional gratings.

VOL 1132 ISS 4 NOV 26 1991 UMI

5,068,752

APPARATUS FOR RECORDING/REPRODUCING A DIGITAL AUDIO SIGNAL WITH A VIDEO SIGNAL

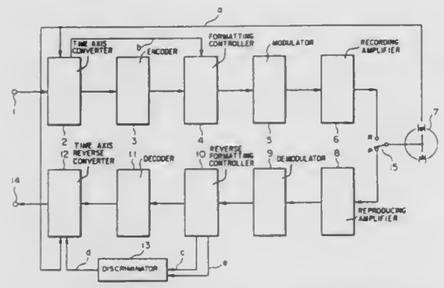
Hiroshi Tanaka, Moriguchi; Tetsuo Ishiwata, Suita; Shuzo Hitotsumachi, Yawata; Hitoshi Komae, Osaka; Susumu Yamaguchi, Moriguchi; Tadashi Yoshino, and Eiji Yamauchi, both of Neyagawa, all of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 26, 1988, Ser. No. 248,799

Claims priority, application Japan, Sep. 29, 1987, 62-245107; Oct. 7, 1987, 62-252892; Nov. 24, 1987, 62-296933

Int. Cl.[5] H04N *5/782*

U.S. Cl. 360—32 11 Claims



1. A digital signal recording/reproducing apparatus, comprising:

a time axis converter for receiving a digital information signal having a specific sampling frequency, sectioning the digital information signal by a predetermined period related to a vertical synchronization signal of a video signal to form the digital information signal of each predetermined period into a data frame having one of more than two different numbers of samples, adding a plurality of dummy data to a data frame having a smaller number of samples so that the number of samples matches the number of samples of a data frame having a maximum number of samples and producing a rate discrimination signal to represent the number of samples of the digital information signal in one data frame;

an encoder for receiving the data output of the time axis converter and encoding the data output with a predetermined error correction;

a formation controller for adding a header word including a synchronization signal and the rate discrimination signal to each of m data blocks in one data frame of the data output of said encoder;

a recorder including a modulator for modulating the output of said formatting controller with a predetermined modulation rule; and

a reproducer including a demodulator for reversely processing to the functions of said recorder, a reverse formatting controller, a decoder and a time axis reverse converter;

the output of said recorder being recorded by a tape recorder rotating in synchronizing with the vertical synchronization signal of the video signal, and reproduced by said reproducer.

5,068,753

DATA REPRODUCING CIRCUIT FOR MEMORY SYSTEM HAVING AN EQUALIZER GENERATING TWO DIFFERENT EQUALIZING SIGNALS USED FOR DATA REPRODUCTION

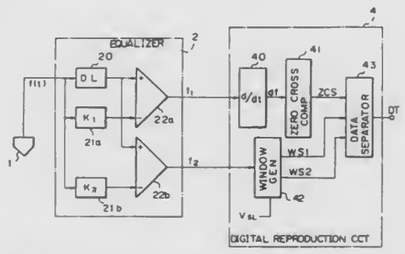
Masahide Kanegae, Kawasaki, Japan, assignor to Fujitsu Limited, Kawasaki, Japan

Filed Mar. 15, 1989, Ser. No. 323,943

Claims priority, application Japan, Mar. 16, 1988, 63-62769; Mar. 16, 1988, 63-62770

Int. Cl.[5] G11B *5/09*

U.S. Cl. 360—46 11 Claims



1. A data reproducing circuit for a memory system having a data sensing head, comprising:

an equalizer, operatively connected to receive an analog signal from the data sensing head, varying an amplitude of said analog signal in accordance with a predetermined time, and generating first and second equalized signals from said analog signal, said equalizer including a delay circuit, first and second gain circuits and first and second differential amplifier circuits, said delay circuit and said first gain circuit being connected to a separate input terminal of said first differential amplifier, and said delay circuit and said second gain circuit being connected to a separate input terminal of said second differential amplifier circuit; and

a digital data reproducing circuit, operatively connected to said equalizer, for receiving said first and second equalized signals, for differentiating said first equalized signal, for generating a window signal when and during a time said second equalized signal is greater than a predetermined threshold level, and for outputting a pulsed reproduction signal when said differentiated signal is greater than a predetermined level and said window signal exists.

5,068,754

METHOD AND APPARATUS FOR MEASURING BIT SHIFT

Lawrence Garde, Bloomington, Minn., assignor to Seagate Technology, Inc., Scotts Valley, Calif.

Filed Nov. 22, 1989, Ser. No. 440,662

Int. Cl.[5] G11B *5/09*

U.S. Cl. 360—45 22 Claims

1. An apparatus for testing peak shift in a magnetic storage system comprising:

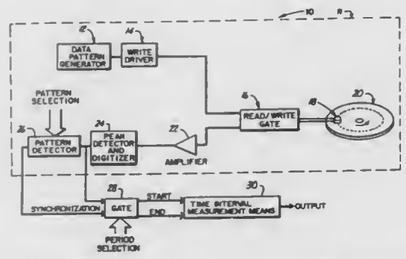
means for writing a data pattern on a magnetic medium;

means for reading data from the magnetic medium and providing a read signal;

means for detecting points of maximum differential in the read signal and providing digital pulses related to the detected points of maximum signal differential on a detector output line;

pattern detection means connected to the output line of the means for detecting points of maximum differential in the read signal for recognizing one pattern in the digital pulses on the detector output line and producing a synchronizing pulse at a fixed interval with respect to a particular pulse in the data pattern each time the pattern is detected;

gate means connected to the means for detecting points of maximum differential for providing a representation of a



beginning and end of a period between a pair of the digital pulses on the detector output line.

5,068,755

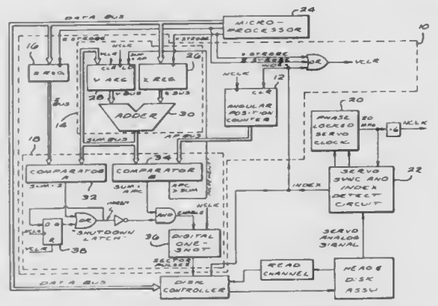
SECTOR PULSE GENERATOR FOR HARD DISK DRIVE ASSEMBLY

Robert G. Hamilton, Canoga Park, and Robert J. Coombes, Moorpark, both of Calif., assignors to Micropolis Corporation, Chatsworth, Calif.

Filed Jun. 1, 1990, Ser. No. 532,280

Int. Cl.[5] G11B *15/18, 5/012, 5/55*

U.S. Cl. 360—72.1 19 Claims



1. For use in a hard disk drive assembly having a microprocessor, a plurality of hard disks for storing digital information, each of said hard disks configured to store information in a plurality of circular tracks with said tracks being divided into sectors, a circuit for generating high frequency pulses synchronized to the rotation of said disks, and a circuit for generating an index signal at a predetermined angular orientation of said disks, a sector pulse generator comprising:

an angular position counter having an angular position register, said angular position counter coupled to receive said high frequency pulses and said index signal, said index signal causing said register to reset to zero and each high frequency pulse causing said register to increment, whereby said register stores the current position of said disks;

a sector counter having a length register, said sector counter coupled to receive a sector length in terms of angular position counts from said microprocessor and incrementing said length register by said sector length in response to an increment signal;

a sector limit register coupled to receive the number of full sectors in a track multiplied by the sector length from said microprocessor and to store said number;

a pulse generator coupled to receive the first count of said angular position counter, the second count of said sector counter, and the number of full sectors in a track multiplied by the sector length stored in said sector limit register, said pulse generator being constructed to compare the first count of said angular position counter with the second count of said sector counter and to generate a sector pulse when said angular position count equals said sector count and said sector count is less than said sector limit.

5,068,756

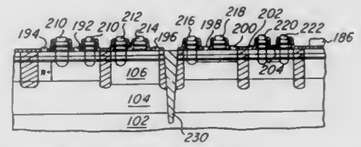
INTEGRATED CIRCUIT COMPOSED OF GROUP III-V COMPOUND FIELD EFFECT AND BIPOLAR SEMICONDUCTORS

Francis J. Morris, Plano; Donald L. Plumton, Dallas; Jau-Yuann Yang, Richardson, and Han-Tzong Yuan, Dallas, all of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Continuation of Ser. No. 312,101, Feb. 16, 1989, abandoned. This application Jul. 18, 1990, Ser. No. 554,116

Int. Cl.[5] H01L *29/161, 29/80, 29/72, 27/02*

U.S. Cl. 357—16 11 Claims



1. An integrated circuit, comprising:

(a) a semiconductor layer;

(b) at least one NPN heterojunction bipolar transistor having an emitter in said semiconductor layer;

(c) at least one PNP heterojunction bipolar transistor having a base in said semiconductor layer; and

(d) electrical coupling between said transistors.

5,068,757

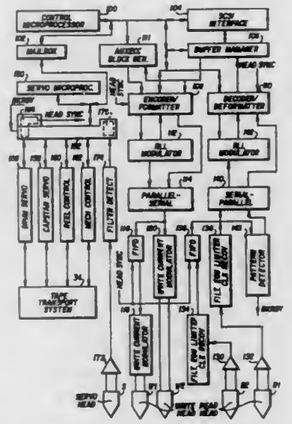
SERVO TRACKING FOR HELICAL SCAN RECORDER

Timothy C. Hughes, Lafayette, and Steven P. Georgis, Boulder, both of Colo., assignors to Exabyte Corporation, Boulder, Colo.

Filed Nov. 9, 1989, Ser. No. 433,977

Int. Cl.[5] G11B *5/588*

U.S. Cl. 360—77.130 24 Claims



1. A servo tracking method for a helical scan recorder, said helical scan recorder being of the type having a rotating drum past which magnetic tape is transported, and wherein said

VOL 1132 ISS 4 NO 26 1991 UMI

rotating drum has a head mounted thereon, said method comprising:

(a) determining a reference-crossing time at which said head begins to cross a reference line drawn with respect to the beginning of a stripe recorded on said tape;

(b) sampling the amplitude of a servo signal provided on said tape at a first predetermined time after said reference-crossing time; and,

(c) using said amplitude of said servo signal at said first predetermined time to determine how to adjust the position of said head relative to the pitch of said stripe.

5,068,758

CASSETTE LOADING DEVICE FOR A TAPE RECORDER

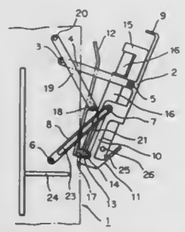
Kwang-Moon Choi, Suweon, Rep. of Korea, assignor to Sam-Sung Electronics Co., Ltd., Kyung-Ki, Rep. of Korea

Filed Dec. 27, 1989, Ser. No. 456,858

Claims priority, application Rep. of Korea, May 23, 1989, 89-6757[U]

Int. Cl.[5] G11B *15/66*

U.S. Cl. 360—96.6 **22 Claims**



1. A cassette loading device, in which a middle portion of a door is respectively connected with each of first and second pairs of lever members supported by each of two pairs of pins on both a first and a second portion of a deck, comprising:

a door including a pair of sidewalls, an inward jaw and an outward jaw formed at a first end and a second end of the door, respectively, and a pair of guide grooves formed in a longitudinal direction of said pair of sidewalls, wherein said door is connected with each of said first and second pairs of lever members supported on the deck by each of said pairs of pins formed in first ends of each of said guide grooves;

receiving means connected with the deck via a third pair of levers for receiving a cassette, said receiving means being positioned inside of said door and having a pair of pins connected with a pair of hinge members at both of first ends of said receiving means, said pair of pins to be fitted with said guide grooves;

a pair of operating elements formed respectively at both of the first ends of said receiving means, for operating a sliding cover of the cassette; and

horizontal supporting means formed in the deck for opening a lid mounted on a first end of the cassette as said door approaches the deck.

5,068,759

THIN FILM MAGNETIC HEAD OF SMALL SIZE CAPABLE OF CERTAINLY AND STABLY CONNECTING LEAD WIRES

Mikio Matsuzaki, Koshigaya, Japan, assignor to TDK Corporation, Tokyo, Japan

Filed Mar. 29, 1990, Ser. No. 501,041

Claims priority, application Japan, Mar. 30, 1989, 1-79457

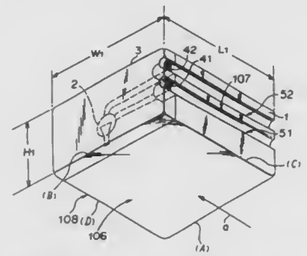
Int. Cl.[5] G11B *5/60*

U.S. Cl. 360—103 **6 Claims**

1. A thin film magnetic head comprising:

a slider having an air bearing surface, an end surface, and first and second side surfaces;

a reading/writing element formed in said end surface;



a first bonding pad for the reading/writing element formed in said first side surface;

a first groove formed in said first side surface so as to extend through said first bonding pad.

5,068,760

THIN FILM MAGNETIC HEAD FOR A BIDIRECTIONALLY MOVEABLE RECORDING MEDIUM

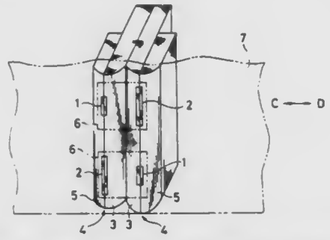
Tohru Kira, Tenri, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Jun. 19, 1989, Ser. No. 368,265

Claims priority, application Japan, Jun. 23, 1988, 63-157268

Int. Cl.[5] G11B *5/28*

U.S. Cl. 360—121 **8 Claims**



1. A thin film magnetic head operable for recording and reproducing information on an elongated magnetic recording medium that is longitudinally movable bidirectionally past the magnetic head in forward and reverse directions, said magnetic head comprising:

a first head chip; and

a second head chip;

each of said first and second head chips comprising a substrate, a plurality of layers deposited in stacked relation on said substrate to form both a recording head portion and a reproducing head portion at a side edge portion of the substrate, and a protective plate covering said recording head portion and said reproducing head portion, said plural stacked layers comprising a lower magnetic layer, a first insulating layer, an electroconductive coil layer, a second insulating layer, and an upper magnetic layer, and said recording head portion of each said head chip being aligned with said reproducing head portion of said each head chip along a direction normal to said direction of longitudinal movement of the recording medium;

said first and second head chips being disposed in relatively inverted and side-by-side relation such that the recording head portion of said first head chip is located in longitudinally aligned proximity to the reproducing head portion of said second head chip for defining a first recording/reproducing head portion for use in read-after-write recording of information to the magnetic recording medium in the forward direction of longitudinal movement of the medium, and such that the recording head portion of said second head chip is located in longitudinally aligned proximity to the reproducing head portion of said first head chip for defining a second recording/reproducing head portion for use in read-after-write recording of information to the magnetic recording medium in the reverse direction of longitudinal movement of the medium.

5,068,761

DISK CARTRIDGE WITH NOTCH FOR LOCKING A SHUTTER

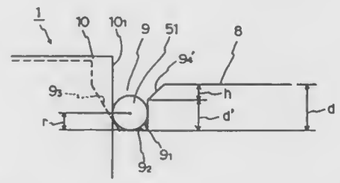
Yoshihisa Inoue, Saitama, Japan, assignor to Nakamichi Corporation, Kodaira, Japan

Filed Apr. 10, 1990, Ser. No. 507,621

Claims priority, application Japan, Apr. 25, 1989, 1-105300

Int. Cl.[5] G11B *23/03*

U.S. Cl. 360—133.0 **4 Claims**



1. A disk cartridge comprising:

a hard jacket for rotatably accommodating a disc-shaped recording medium;

a head insert hole in said jacket;

a shutter attached to said hard jacket movable generally linearly between an open position where the head insert hole is open and a closed position where it is closed;

a spring for urging the said shutter toward said closed position;

a notch at a front edge of said hard jacket;

said notch including at least a bottom wall and a side wall contiguous to said bottom wall and extending orthogonally to said front edge, which faces one side edge of said shutter when said shutter is in said open position;

said side wall of the notch is connected to said front edge of said hard jacket by a corner wall whose distance from the one side edge of the shutter standing at the open position progressively increases as it approaches said front edge of the hard jacket;

said notch being effective for accepting an engaging means for locking said shutter at said open position;

said engaging means, in its engaging position, contacting said side wall at a distance r above said bottom wall; and

said corner wall beginning at least said distance r above said bottom wall, whereby said engaging means contacts said side wall, when in its engaging position.

5,068,762

ELECTROPHOTOGRAPHIC CHARGING DEVICE

Toshiyuki Yoshihara, Mitaka, Japan, assignor to Canon Kabushiki Kaisha, Tokyo, Japan

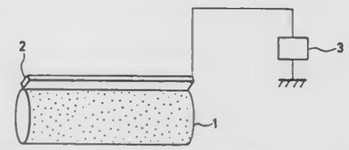
Filed Nov. 20, 1989, Ser. No. 438,045

Claims priority, application Japan, Nov. 22, 1988, 63-296739

Int. Cl.[5] G03G *15/02*

U.S. Cl. 361—225 **14 Claims**

1. An electrophotographic device having an electrophotographic photosensitive member and a blade for charging arranged in contact with said photosensitive member, said photosensitive member being charged by application of a voltage on the blade for charging, wherein the ten point surface average



roughness Rz of said photosensitive member is 0.3 μm to 5.0 μm.

5,068,763

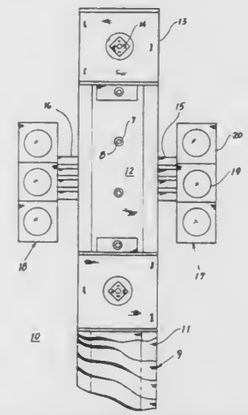
ELECTRIC BUSWAY-METER MODULE ARRANGEMENT

Stephen E. Brown, Selmer; Donnie F. Meeks, Savannah; Ralph W. Souders, Ramer, and Richard A. Thompson, Selmer, all of Tenn., assignors to General Electric Company, New York, N.Y.

Filed Oct. 29, 1990, Ser. No. 605,728

Int. Cl.[5] H02G *5/06*

U.S. Cl. 361—364 **9 Claims**



1. A power busway-meter module connector comprising:

a plurality of rectangular electrical bus conductors electrically-insulated from each other and bolted together;

a corresponding plurality of electrically-conductive straps, each of said straps being welded at one of their ends to opposing edges of said bus conductors and each of said straps terminating at opposite ends, said opposite ends being adapted for connection with said straps and said electrical bus conductors; and

electrical insulation arranged over aid one ends and said straps except for said opposite ends.

5,068,764

ELECTRONIC DEVICE PACKAGE MOUNTING ASSEMBLY

Donald L. Bland, Fort Worth, and Matthew C. Smithers, Lewisville, both of Tex., assignors to Thermalloy Incorporated, Dallas, Tex.

Filed Mar. 5, 1990, Ser. No. 488,117

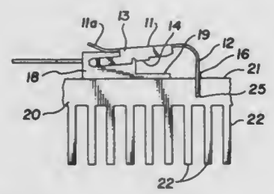
Int. Cl.[5] H05K *7/20*

U.S. Cl. 361—386 **15 Claims**

10. The combination comprising:

VOL 1132 ISS 4 NO 26 1991 1 UMI

(a) a heat sink having a substantially flat face with an opening therein;
(b) an electronic device package having a first major face and a second oppositely disposed major face; and
(c) unitary mounting means securing said electronic device package in intimate contact with said heat sink comprising



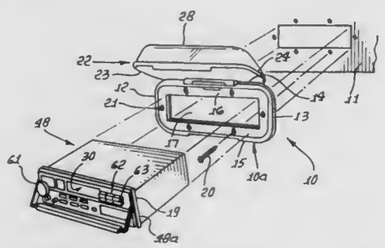
an elongated base portion having one free end and a support portion interconnected by a curved spring portion to the opposite end, said support portion secured within said opening in said heat sink and said base portion positioned against said second major face of said electronic device package and urging said first major face of said electronic device package into intimate contact with said heat sink.

5,068,765

MARINE STEREO COVER WITH DETENTING HINGE

Roy Nimpoeno, Northridge, Calif., assignor to Scosche Industries, Inc., Moorpark, Calif.

Filed Feb. 6, 1990, Ser. No. 476,338
Int. Cl.[5] H05K 7/00
U.S. Cl. 361—422 **9 Claims**



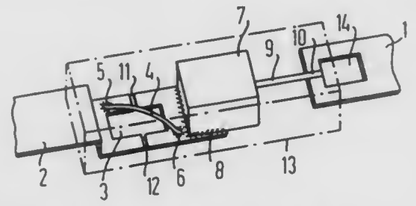
1. In a radio installation kit, for installing a radio to a marine vessel dash, the improvement comprising:
(a) a first plastic frame having first end and side walls and a main front panel interconnecting the end and side walls,
(b) forwardly facing break-away wall structure integral with the frame and associated with the main front panel, said break-away wall structure forming forward through openings to pass shaft tuning means of a first radio having a chassis, the break-away wall structure adapted to be broken away from the frame to provide a relatively large opening for alternate reception of a second chassis,
c means associated with the frame for attaching the frame to the vessel dash,
d a second frame having second end and side walls, and a transparent window carried by the second frame, the second frame sized to be registrable with the first frame,
e a hinge connection between said first and second frames, and
f detent means integral with said frames for retaining the second frame and window in a positino opened away from the first frame to allow access to said tuning means,
(g) there being a second detent connection between said frames for holding the frames in relatively closed together condition.

5,068,766

SOLID ELECTROLYTE CAPACITOR IN A CHIP STRUCTURE

Ferdinand Hilbert, Heidenheim-Schnaith, Fed. Rep. of Germany, assignor to Siemens Aktiengesellschaft, Munich, Fed. Rep. of Germany

Filed Aug. 27, 1990, Ser. No. 572,258
Claims priority, application Fed. Rep. of Germany, Sep. 19, 1989, 3931265
Int. Cl.[5] H01G 9/00
U.S. Cl. 361—534 **4 Claims**



1. A solid electrolyte capacitor comprising:
a capacitor body including a sintered anode member comprising a valve metal, an
oxide layer on said anode member serving as a dielectric, a cathode on said oxide layer comprising a semiconducting solid electrolyte, and a cathode contact on said cathode;
an anode terminal;
an anode wire connecting said sintered anode member to said anode terminal;
a cathode terminal connected to said cathode contact;
a fuse integrated in series in a selected terminal of said cathode and anode terminals; and
a plastic envelope covering said capacitor body and said fuse with said anode and cathode terminals extending through said envelope,
said selected terminal including an opening therein in a portion thereof within said envelope;
said fuse bridging and connected to said selected terminal on opposite sides of said opening, and
cuts through said selected terminal at said opening to separate said selected terminal and place said fuse in a series connection therewith.

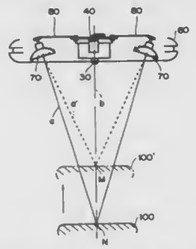
5,068,767

AUTOMATIC FOCUS POSITION ADJUSTING UNIT FOR USE IN SHADOWLESS LIGHTING DEVICE

Mitsuhiro Koyama, Tokyo, Japan, assignor to Yamada Iryo Shomei Kabushiki Kaisha, Tokyo, Japan

Filed Dec. 21, 1990, Ser. No. 640,626
Claims priority, application Japan, Oct. 1, 1990, 2-102236[U]
Int. Cl.[5] A61G 13/00
U.S. Cl. 362—33 **1 Claim**

1. An automatic focus position adjusting unit for use in a shadowless lighting device for illuminating an object, said shadowless lighting device having a housing, a plurality of illuminating bulbs arranged in said housing, and a drive system for inclining said illuminating bulbs so that the optical axes of said illuminating bulbs may converge, and form a focus, on a predetermined position along a focus moving axis, said shadowless lighting device being arranged such that said focus moves in a first direction along said focus moving axis when said drive system is moved in the first direction and said focus moves in a second direction along said focus moving axis when said drive system is moved in the second direction, said automatic focus position adjusting unit comprising:
a sensor for outputting a value corresponding to the amount of light reflected form a predetermined region at the center of a range of the light, said range being formed on said object illuminated by said illuminating bulbs;
a start switch for actuating a focus position adjustment;
a start process means for retaining, when said start switch is actuated, a value which said sensor outputs, and for performing a start process in which said drive system is driven is said first direction;
a direction adjusting means for comparing a value which said sensor outputs, after said start process means has performed the start process, with a value retained by said start process means, wherein said direction adjusting means determines that said first direction is a proper adjustment direction, when the outputted value, after said start process means has performed the start process, is higher than the value retained by said start process means, and wherein said direction adjusting means determines that said second direction is the proper adjustment direction, when the outputted value, after said start process means has performed the start process, is lower than the value retained by said start process means;
a focus moving means for driving said drive system in the proper adjustment direction, after said direction adjusting means has made its determination;
a peak detection means for monitoring a value which said sensor outputs while said focus moving means is driving said drive system, wherein when the value reaches a peak value, said peak detection means retains this peak value; and
an adjustment completion means for driving said drive system in a direction opposite to the proper adjustment direction when said peak detection means detects the peak value, and when the value which said sensor outputs again reaches said peak value, said adjustment completion means stops said drive system, thereby completing a focus adjustment.



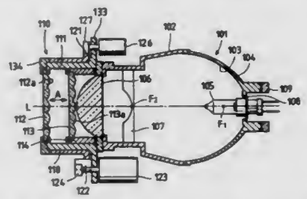
5,068,768

VARIABLE LIGHT DISTRIBUTION TYPE AUTOMOBILE LAMP

Syoji Kobayashi, Shizuoka, Japan, assignor to Koito Manufacturing Co., Ltd., Tokyo, Japan

Filed Mar. 26, 1991, Ser. No. 674,996
Claims priority, application Japan, Mar. 28, 1990, 2-31135[U]; Mar. 28, 1990, 2-31136[U]
Int. Cl.[5] B60Q 1/04
U.S. Cl. 362—61 **21 Claims**

1. A variable light distribution type automobile lamp comprising: a source of a substantially parallel flux of light; first and second lenses disposed in said flux of light, each of said first and second lenses each having formed therein a plurality of parallel cylindrical lens steps of equal pitch and a flat area, said flat areas being aligned with each other in said flux of light; and



means for varying a spacing between said first and second lenses.

5,068,769

HORIZONTAL SIGHTING APPARATUS FOR HEAD-LAMPS

Toru Umeda, Funabashi; Hidetaka Kondo, Tokyo, and Koniehi Kato, Yokohama, all of Japan, assignors to Stanley Electric Co., Ltd., Tokyo, Japan

Filed Jul. 12, 1990, Ser. No. 551,939
Claims priority, application Japan, Jul. 20, 1989, 1-85275
Int. Cl.[5] B60Q 1/00
U.S. Cl. 362—61 **6 Claims**

1. A horizontal sighting apparatus for head lamps, wherein the head lamps having a housing and an adjusting screw means for adjusting a horizontal sighting thereof, the apparatus comprising:
an index portion coupled to the adjusting screw means, and having an index which is moved by adjusting an adjusting screw of the adjusting screw means;
a mating-index portion coupled to the head lamp housing, and having a mating-index means provided at a position confronting said index portion for cooperating with said index portion; and
means for moving at least one of said index portion and said mating-index portion for coinciding them with each other irrespective of an adjustment amount of said adjusting screw means;
said index portion comprising a nut coupled to said adjusting screw and movable only in an axial direction of said adjusting screw, and said index being engaged with and cooperating with said nut; and
said mating-index portion comprising a mating-index mounted so as to be movable substantially in parallel with the moving direction of said nut and index, and locking means for locking said mating-index portion in a position to which it is moved.

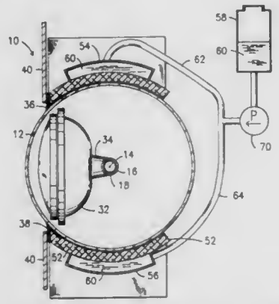
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,770

SELF-CLEANING LENS SHIELD FOR HEADLIGHTS

Maurice W. Baziuk, RR16 Trowbridge Road, Thunderbay, Ontario, Canada P7B6B3

Filed Sep. 5, 1990, Ser. No. 577,998
Int. Cl.[5] B60Q *1/00*; F21V *33/00*
U.S. Cl. 362—61 8 Claims



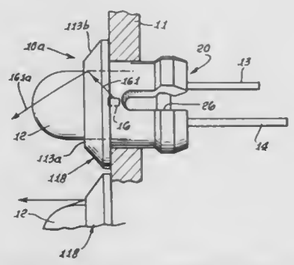
1. A device for protecting a light source, comprising:
a transparent, spherical in configuration shield member;
a hollow axle member disposed in diametrically extending relation to said shield member, said axle member having opposite ends fixedly secured to said shield member so that rotation of said axle member effects simultaneous and corresponding rotation of said shield member, and said axle member being discontinuous along its middle part;
motor means for selectively activating rotation of said axle member;
a hollow, non-rotatable tube that is received within said hollow axle member;
said light source being mounted to said non-rotatable tube;
said non-rotatable tube having opposite ends that penetrate and extend outwardly of said shield member;
said light source being conductively coupled to a source of power by electrical conductors that extend from said source of power to said light source through said hollow, non-rotatable tube;
whereby said light source is completely surrounded by said spherical shield member and protected thereby.

5,068,771

REFLECTOR LENS CAP AND/OR CLIP FOR LED

John M. Savage, Jr., 538-B Via Del La Valle, Solana Beach, Calif. 92075

Filed Apr. 29, 1991, Ser. No. 692,617
Int. Cl.[5] F21M *3/14*
U.S. Cl. 362—255 18 Claims



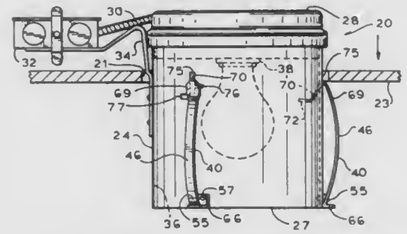
1. In a light-emitting diode assembly attachable to a display panel, said assembly comprising:
a) a light-emitting diode having locking structure thereon, said structure defining a boss,
b) a lens cap receiving the diode forwardly therein, and clip means integral with the cap and projecting sidewardly proximate the diode locking structure,
c) said clip means defining spring fingers projecting rearwardly at the side of the diode, the fingers defining first grooves to receive the boss on the diode, and second grooves to receive portions of the display panel adjacent an opening formed therein,
d) said lens cap being annular, and including a light-reflecting surface on said lens cap extending about forward extent of the diode, forwardly of said spring fingers, and oriented to reflect light rays from the diode in a generally forward direction.

5,068,772

RECESSED LIGHTING FIXTURE

James Shapiro, Placentia, and Bogdan Zakrzewski, Fontana, both of Calif., assignors to Troy Lighting, Inc., City of Industry, Calif.

Filed Aug. 30, 1990, Ser. No. 575,322
Int. Cl.[5] F21S *1/06*
U.S. Cl. 362—365 8 Claims



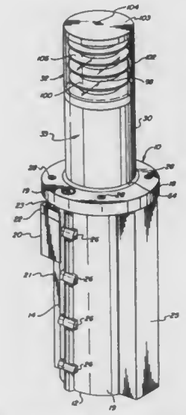
1. A recessed lighting fixture adapted for mounting in a hole having a predetermined diameter in a ceiling, and fixture comprising:
housing means having spaced apart generally vertical wall means defining an interior and having an open bottom end, said wall means having generally vertical slots therethrough;
lip means for maintaining the bottom end of said housing means against a lower surface of said ceiling;
a plurality of mounting members disposed on an exterior surface of said wall means, each of said mounting members having a first end, an outwardly curved elongated body portion made of resilient material and a second end, said first end being attached to said housing means near said bottom end, said second end extending at least partially through said slot into said interior so that at least a portion of said second end is accessible from said interior through said open bottom end, said elongated body portions having a sufficient degree of outward curvature in their unstressed condition such that the outwardmost portion of the curve extends farther than said predetermined diameter of the hole and a sufficient degree of resiliency to create an initial spring force upon insertion of said fixture into said hole, said initial spring force being of sufficient magnitude to retain said fixture in position upon said insertion, said second end further being vertically slidably retained within said slot so that, when said lighting fixture is inserted into said hold in said ceiling, sliding said second end to a lower position along said slot increases the degree of curvature of said curved elongated body portion above an upper surface of said ceiling to urge said elongated body portion against said ceiling to more securely hold said fixture; and
means for selectively locking said second end at said lower position along said slot.

5,068,773

RETRACTABLE LOW VOLTAGE LIGHTING FIXTURE

Louis Toth, Fairfield, Conn., assignor to Aqua-Lawn, Inc., Fairfield, Conn.

Filed Mar. 13, 1991, Ser. No. 668,976
Int. Cl.[5] F21V *21/22*
U.S. Cl. 362—386 25 Claims



1. A low voltage lighting fixture for in-ground installation comprising:
A. an elongated exterior housing adapted to be at least partially buried in the ground, said exterior housing having an opening at one end thereof;
B. a watertight interior housing mounted for reciprocation from a retracted position within said elongated housing to a protracted position through said opening and at least partially extended from said elongated housing, said interior housing having an upper lamp portion and a lower motor portion;
C. motorized drive means in said lower motor portion for operationally engaging said exterior housing for moving said interior housing between said retracted and protracted positions;
D. a lamp carried in said upper lamp portion of said interior housing; and
E. primary electrical power means extending through said exterior housing and into said interior housing, said electrical power means being operatively connected to said lamp and said motorized drive means whereby activation of said primary electrical power means illuminates said lamp and causes said motorized drive means to move said interior housing from its retracted position to its protracted position while deactivation of said primary electrical power means deenergizes said lamp and causes said motorized drive means to move said interior housing from its protracted position to its retracted position.

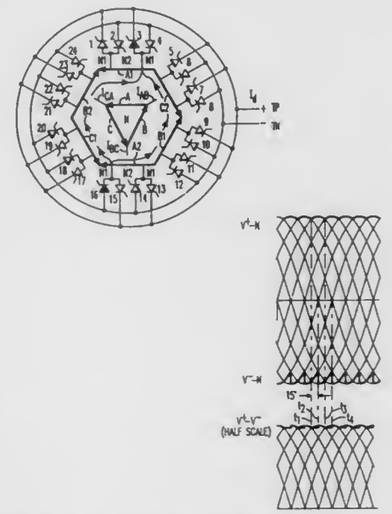
5,068,774

24-PULSE HEXAGON-TYPE AC/DC STATIC CONVERTER

John Rosa, Penn Hills, Pa., assignor to Westinghouse Electric Corp., Pittsburgh, Pa.

Continuation-in-part of Ser. No. 589,243, Sep. 28, 1990, abandoned. This application Dec. 3, 1990, Ser. No. 620,809
Int. Cl.[5] H02M *7/155*, *7/162*
U.S. Cl. 363—3 4 Claims

1. A static-controlled converter including a single hexagon transformer comprising: a three-phase AC current winding and six serially connected windings defining the six sides of the hexagon, each side being connected to opposite polarity DC terminals via controlled static switches, twelve pairs of said controlled static switches being symmetrically associated with the six sides of the hexagon, two of said pairs being symmetrically disposed relative to a common side of the hexagon and each pair forming a closed-loop with the opposite polarity terminals while having a common connection with the corresponding one of said windings; and means for sequentially controlling for conduction the switches of even number in said pairs in relation to one terminal and the switches of odd number in said pairs in relation to the other terminal by rotation about opposite sides of the hexagon, the sequence of said switches being synchronous with the frequency of said three-phase current, gating of a switch in a pair lagging gating of the next switch for the adjoining pair in the sequence by a predetermined firing angle, thereby create a 24-pulse output voltage and 24-pulse AC line currents with a minimum in the AC line harmonic contents.



5,068,775

HIGH DYNAMIC PERFORMANCE DC-DC CONVERTER SYSTEM WITH TIME SHARE CONTROL

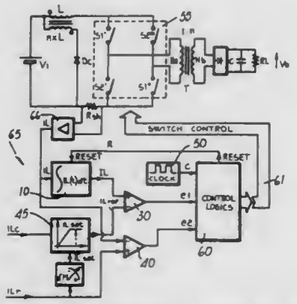
Riccardo Borgatti, Bollate, and Paolo Tenti, Padova, both of Italy, assignors to Fiar Fabbricia Italiana Apparecchiature Radioelettriche S.p.A., Milan, Italy

Filed Feb. 26, 1990, Ser. No. 485,018
Claims priority, application Italy, Mar. 3, 1989, 19656 A/89
Int. Cl.[5] H02M *3/335*
U.S. Cl. 363—15 7 Claims

1. A high dynamic performance, single stage DC/DC converter system, with time share control means, comprising DC current input means supplying said system with an input current and DC voltage output means providing a DC output voltage, at least one main circuit control loop defining one autonomous circuit system for said DC output voltage and at least one further circuit control loop defining another autonomous circuit system, for a DC output current, said further circuit control loop being internal to said main circuit control loop, said main and said further circuit control loops acting onto said two autonomous circuit systems having a first order transfer function, said time share control means simultaneously and independently controlling a peak value of said input current and said DC output voltage, said converter system further comprising rectifier mean, load impedance means and filter

VOL 1132 ISS 4 NO 26 1991 UMI

inductance means arranged electrically in series with said rectifier means and said load impedance means, logic control means for simultaneously controlling an actual average current flowing through said inductance means and an instantaneous current flowing through said inductance means, said logic



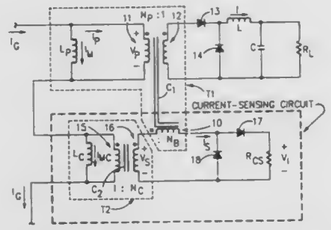
current means having a plurality of inputs and at least one output, and performing respective control operations in two separate time periods, a first one during a conduction phase of some of said rectifier means, when energy is supplied to said filter inductance means, and a second one during a turning off phase of said some of said rectifier means.

5,068,776

SWITCHED-MODE DC-DC POWER CONVERTER FOR REDUCING EFFECTS OF MAGNETIZATION CURRENT

William M. Polivka, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y.

Filed Nov. 29, 1990, Ser. No. 619,608
Int. Cl.[5] H02M *3/335*
U.S. Cl. 363—17 **15 Claims**



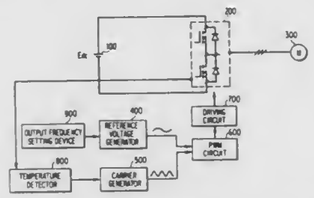
1. A switched-mode DC-DC power converter having:
input means, output means and power transformer means with a primary winding and a secondary winding connected for the separation of said input means and said output means; and
current-sensing transformer means with a primary winding and a secondary winding, and
said power converter being characterized by:
an additional winding coupled magnetically with said power transformer means for sensing a load current in said secondary winding of said power transformer, said additional winding being connected electrically with said current-sensing transformer means; and
current-sensing circuit means connected to limit the effect of the magnetization current of both said power transformer means and said current-sensing transformer means;
whereby said magnetization current is prevented from degrading said sensed load current.

5,068,777

PULSE WIDTH MODULATION TYPE INVERTER HAVING TEMPERATURE COMPENSATION

Tomotaka Ito, Aichi, Japan, assignor to Mitsubishi Denki K.K., Tokyo, Japan

Filed Jul. 30, 1990, Ser. No. 559,796
Claims priority, application Japan, Aug. 23, 1989, 1-216479
Int. Cl.[5] H02M *7/5395*
U.S. Cl. 363—97 **5 Claims**



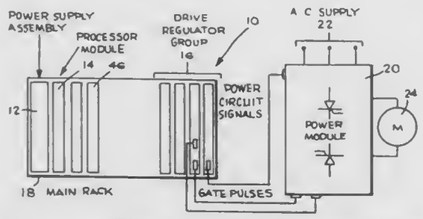
1. A pulse-width modulation-type inverter, comprising:
an inversion converter comprising a controllable element for converting a D.C. current into an A.C. current of variable output voltage and output frequency;
a reference voltage generating means operative to output a reference voltage waveform for use as a reference for said output frequency and output voltage;
carrier generating means for forming and outputting a carrier waveform at a carrier frequency;
a pulse width modulation circuit for comparing said reference voltage and said carrier and for generating a signal to control said controllable element of said inversion converter;
driving means for driving said controllable element in response to a signal from said pulse width modulation circuit; and
control means responsive to a detected operational parameter for controlling said carrier frequency within a predetermined range, said operational parameter comprising the load current of said inverter and said control means operating to increase said carrier frequency in accordance with a decrease in said load current and decrease said carrier frequency in accordance with an increase in said load current.

5,068,778

INDUSTRIAL CONTROL SYSTEM DEVICE

Marion Kosem, Willoughby Hills; Anthony J. Cachat, Hudson, and Thomas D. Toth, Lyndhurst, all of Ohio, assignors to Reliance Electric Industrial Company, Cleveland, Ohio

Filed Nov. 28, 1988, Ser. No. 276,964
Int. Cl.[5] G05B *15/00*
U.S. Cl. 364—138 **7 Claims**



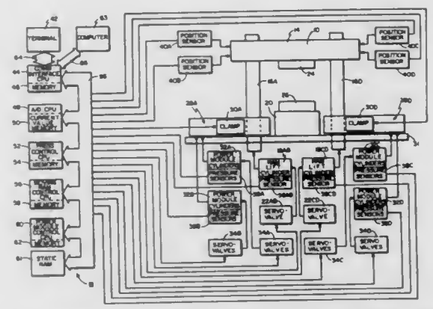
1. An industrial control system device comprising a central processing unit, a system operating program contained within said central processing unit, and an application program comprising a plurality of tasks contained within said central processing unit, each of said tasks being implemented by one of a plurality of programming languages, said programming languages utilizing a symbolic name for each system variable permitting the variables to be accessible by each of said tasks, said application program being executed by said central processing unit and said operating program directing the concurrent execution of a plurality of said tasks by said central processing unit on a priority basis.

5,068,779

DEGREE OF FREEDOM DIGITAL CONTROL SYSTEM FOR A HYDRAULIC PRESS

Michael T. Sullivan, Bloomington, and Gary S. Tock, St. Louis Park, both of Minn., assignors to MTS Systems Corporation, Minneapolis, Minn.

Filed Mar. 28, 1989, Ser. No. 329,572
Int. Cl.[5] G06F *15/46;* **B29C** *3/06*
U.S. Cl. 364—167.01 **27 Claims**



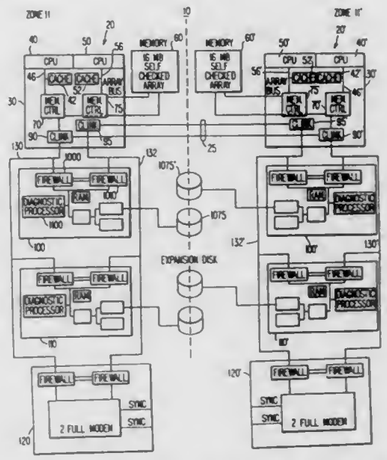
13. A degree of freedom (DOF) control system for control of the movement of a body in a plurality of degrees of freedom, the control system comprising:
motion actuators responsive to actuator commands for applying force to the body at a plurality of mutually spaced locations;
feedback means for providing feedback information relating to changes in position of selected points on the body; and
signal processing means for generating the actuation commands, the signal processing means including:
memory for storage of contemporaneous servoloop output commands, feedback information and DOF feedback sums;
feedback summing means responsive to the feedback information accessed from memory for generating DOF feedback sums and storing DOF feedback sums to memory;
command means operating on a motion control procedure for generating servoloop input commands;
DOF servoloop means for generating the servoloop output commands as a selectable function of the DOF feedback sums and the servoloop input commands; and
DOF summing means responsive to the servoloop output commands for generating actuator commands.

5,068,780

METHOD AND APPARATUS FOR CONTROLLING INITIATION OF BOOTSTRAP LOADING OF AN OPERATING SYSTEM IN A COMPUTER SYSTEM HAVING FIRST AND SECOND DISCRETE COMPUTING ZONES

William Bruckert, Northboro; David Kovalcin, Grafton, both of Mass.; Thomas D. Bissett, Derry, N.H.; John Munzer, Brookline, Mass.; Dennis Mazur; Peter R. Mott, Jr., both of Worcester, Mass.; Glenn A. Dearth, Hudson, Mass.; Carlos Alonso, Marlboro, Mass., and Ann Katan, Newton Highlands, Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Aug. 1, 1989, Ser. No. 388,090
Int. Cl.[5] G06F *9/445, 9/24*
U.S. Cl. 395—700 **12 Claims**



1. In a computer system having first and second discrete computing zones, a method for initiating bootstrap loading of an operating system, the first zone including a first CPU and the second zone including a second CPU, said first and second CPUs for independently executing said method for initiating bootstrap loading, each of said zones having a status register accessible by the other zone, said method comprising the steps of:
determining either that a selected one of the first and second zones is allowed to bootstrap load or that a non-selected one of said first and second zones is incapable of running the operating system;
determining whether the non-selected zone has initiated bootstrap loading of the operating system by accessing, from the selected zone, the status register in the non-selected zone; and
initiating bootstrap loading in the selected zone at times when said selected zone is allowed to bootstrap load;
initiating bootstrap loading in the selected zone at times when said non-selected zone is incapable of running the operating system; and
initiating bootstrap loading in the selected zone at times when said non-selected zone has not initiated bootstrap loading of the operating system;
wherein the step of determining whether the selected zone is allowed to bootstrap load includes the substep of determining that bootstrap loading of the selected zone cannot be initiated at times when the non-selected zone has initiated bootstrap loading.

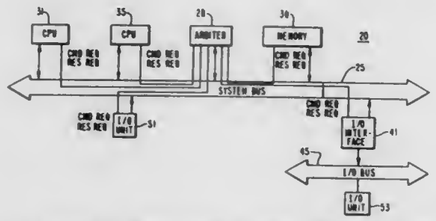
VOL 1132 ISS 4 NOV 26 1991 UMI

5,068,781

METHOD AND APPARATUS FOR MANAGING MULTIPLE LOCK INDICATORS IN A MULTIPROCESSOR COMPUTER SYSTEM

Richard B. Gillett, Jr., Westford, and Douglas D. Williams, Pepperell, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Continuation of Ser. No. 44,954, May 1, 1987, Pat. No. 4,858,116. This application Jun. 28, 1989, Ser. No. 372,565
The portion of the term of this patent subsequent to Aug. 15, 2006, has been disclaimed.
Int. Cl.[5] G06F *13/38, 13/42*
U.S. Cl. 395—325 **14 Claims**



1. A system for implementing exclusive read-modify-write operations, said operations having a set of distinct transactions including an interlock read transaction to retrieve information stored at a specified location and restrict access to said stored information by subsequent interlock read transactions, and an unlock write transaction to store information in said specified location and restore access to said stored information, said interlock read transaction including a command transfer comprising an interlock read command arbitration, an interlock read command message including an interlock read command, and an interlock read command confirmation; said interlock read transaction further including a response transfer, said response transfer comprising a response arbitration, a response message, and a response confirmation; said unlock write transaction including a command transfer comprising an unlock write command arbitration, an unlock write command message, and an unlock write command confirmation; said system comprising:

a synchronous pended bus;

a plurality of first nodes coupled to said synchronous pended bus, each functioning as a commander node to initiate said interlock read and unlock write command messages, at least one of said first nodes comprising means for receiving, at a predetermined time subsequent to initiation of said interlock read command message by said one first node during bus cycles reserved by said interlock read command arbitration, said interlock read command confirmation indicating receipt of said interlock read command message initiated by said one first node and for receiving, at an unspecified time subsequent to initiation of said interlock read command message during bus cycles reserved by said response arbitration, a lock response message indicating whether said interlock read command was executed; and

a second node coupled to said synchronous pended bus, functioning as a responder node, said second node comprising: means for receiving said interlock read command message from said one first node;

storage means, including said specified location, for storing information;

lock means, associated with said storage means and operable between an unlocked condition and a locked condition, for permitting access to said storage means when in an unlocked condition and for denying access to said storage means when in a locked condition;

acknowledge means for acknowledging receipt of said interlock read command message by transmitting to said one first node, at a predetermined time subsequent to transmission of said interlock read command message during bus cycles reserved by said interlock read command arbitration, said interlock read command confirmation indicating successful receipt of said interlock read command message;

command means responsive to an interlock read command message from said one of said first nodes for generating a lock status indication indicating the condition of said lock means and for switching said lock means from an unlocked condition to a locked condition, and responsive to an unlock write command message for storing modified information in said specified location and for switching said lock means from the locked condition to the unlocked condition; and

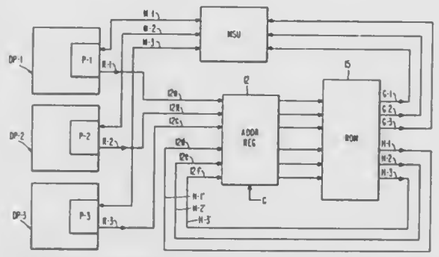
status response means for transmitting to said one first node, at an unspecified time subsequent to initiation of said interlock read command message during bus cycles reserved by said response arbitration, said lock response message including said lock status indication.

5,068,782

ACCESSING CONTROL WITH PREDETERMINED PRIORITY BASED ON A FEEDBACK ARRANGEMENT

James H. Scheuneman, St. Paul, and Lawrence R. Fontaine, Minneapolis, both of Minn., assignors to Unisys Corp., Detroit, Mich.

Continuation of Ser. No. 9,985, Feb. 2, 1987, abandoned. This application Oct. 5, 1989, Ser. No. 418,911
Int. Cl.[5] G06F *13/18, 12/02*
U.S. Cl. 395—425 **18 Claims**



1. Accessing control means for use in selecting the manner in which a plurality of requestors are to be granted access to a commonly shared means, said accessing control means comprising;

means providing respective request signals for said requestors, each request signal indicating whether access is currently being requested by its respective requestor;

an addressable programmed memory for producing a memory output dependent upon an applied address and the programming of said memory, said memory output comprising first and second memory output portions, said first memory output portion being indicative of a future access granting selection for said requestors and said second memory output portion being indicative of the recency of previous granting selections provided for said requestors;

means responsive to said first memory output portion for granting access to the requestor indicated thereby; and

addressing means for sequentially applying addresses to said memory, each address being comprised of first and second address portions, said first address portion being derived from said request signals so as to be indicative of which one or more of said requestors is requesing access and said second address portion being indicative of previous granting selections provided for said requestors, said second address portion being derived by feeding ack to said addressing means a previously produced second memory output portion;

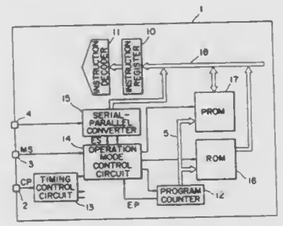
and means responsive to said first memory output portion for granting access to the requestor indicated thereby.

5,068,783

MICROCOMPUTER HAVING A BUILT-IN PROM FOR STORING AN OPTIONAL PROGRAM

Kouji Tanagawa, and Tomoaki Yoshida, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Oct. 6, 1986, Ser. No. 915,804
Claims priority, application Japan, Oct. 24, 1985, 60-238268
Int. Cl.[5] G06F *11/00*
U.S. Cl. 395—575 **16 Claims**



1. A single-chip microcomputer having a mode selection terminal for receiving a mode selection signal, the mode selection signal having a first state when the microcomputer is to be operable in an application mode and having a second state when the microcomputer is to be operable in a test mode, the microcomputer further having a data terminal to receive serial bits forming instructions for a test program, said microcomputer comprising:

logic circuits;

a read-only memory for storing an application program, said read-only memory having a plurality of memory locations each identified by an address;

a programmable read-only memory for storing the test program for testing said logic circuits to verify operability thereof, said programmable read-only memory having a plurality of memory locations each identified by an address;

a data bus coupled to each of said read-only and programmable read-only memories;

program counter means coupled to each of said read-only and programmable read-only memories for designating addresses corresponding to memory locations therein storing application and test programs to be fetched;

means for converting the serial bits forming the instructions for the test program from the data terminal into sets of parallel bits, each of the sets of parallel bits being outputted to said programmable read-only memory when the mode selection signal is in the second state;

mode control means for enabling execution of the application program stored in the memory locations of said read-only memory when the mode selection signal is in the first state, said mode control means sequentially producing first and second signals when the mode selection signal is in the second state;

said programmable read-only memory in response to said first signal storing one of the sets of parallel bits from said converting means;

said program counter means in response to said second signal incrementing the value of the address thereof;

said mode control means successively generating an execution signal after the address designated by said program counter means reaches a predetermined value; and

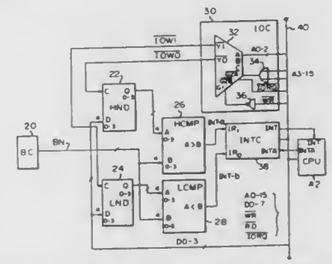
means, in response to said execution signal, for executing the test program stored in memory locations of said programmable read-only memory so that the sets of parallel bits are read out onto the data bus whereby the operability of said logic circuits can be verified.

5,068,784

METHOD AND SYSTEM FOR MONITORING THE NUMBER OF AVAILABLE BUFFERS

Kuniaki Kishino, and Tamiya Nakamura, both of Tokyo, Japan, assignors to Oki Electric Industry Co., Ltd., Tokyo, Japan

Filed Jul. 20, 1989, Ser. No. 382,316
Claims priority, application Japan, Jul. 28, 1988, 186791
Int. Cl.[5] G06F *7/00, 7/02*
U.S. Cl. 395—275 **13 Claims**



9. In a system for monitoring buffers coupled to a central processing unit having at least one interrupt input port, the system comprising:

(a) means for storing a predetermined limit value on a range of numbers of available buffers and outputting a first signal representing a magnitude of the limit value;

(b) means for monitoring availability of the buffers and outputting a second signal indicative of a number of the buffers which are available;

(c) means, coupled to said monitoring means and said storing means, for comparing the first signal with the second signal to produce a third signal indicative of whether the number of available buffers is beyond the limit value relative to the range;

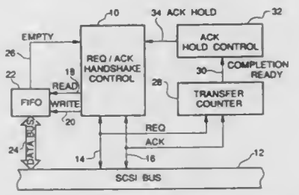
(d) means, coupled to said comparing means, for producing an interrupt signal when the third signal is indicative that the number of available buffers is beyond the limit value relative to the range, and providing the interrupt signal to said interrupt port of the central processing unit.

5,068,785

BUS CONTROL FOR SMALL COMPUTER SYSTEM INTERFACE WITH TRANSFER INDICATION PRECEDING FINAL WORD TRANSFER AND BUFFER EMPTY INDICATION PRECEDING RECEIPT ACKNOWLEDGEMENT

Yukinori Sugiyama, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Jun. 19, 1989, Ser. No. 367,635
Claims priority, application Japan, Jun. 17, 1988, 63-149703
Int. Cl.[5] G06F *13/42*
U.S. Cl. 395—325 **9 Claims**



1. A bus control system including a handshake control circuit connected to receive an information transfer request signal from a data bus and to generate an information receipt acknowledge signal, the handshake control circuit operating to

VOL 1132 ISS 4 NO 26 1991 UMI

control a handshake between the information transfer request signal and the information receipt acknowledge signal, a first in-first out type memory coupled to the data bus and controlled by the handshake control circuit so as to receive information from the data bus and to output information to the data bus, the memory outputting an empty signal when the memory is empty, the empty signal being supplied to the handshake control circuit, a counter configured to be preset with an information transfer number and coupled to receive the information receipt acknowledge signal generated by the handshake control circuit so as to count the number of the information transfers executed and to generate a transfer completion ready signal when the information transfers of the number less than the preset number of the information transfers by one have been executed, and an information receipt acknowledge hold control circuit coupled to receive the transfer completion ready signal, the information receipt acknowledge hold control circuit operating to control the handshake control circuit, after the transfer completion ready signal is activated, so as to cause the handshake control circuit to hold the information receipt acknowledge signal in an active condition after the information receipt acknowledge signal in correspondence to a last information transfer is activated and until the empty signal is activated to indicate the emptiness of the memory.

5,068,786

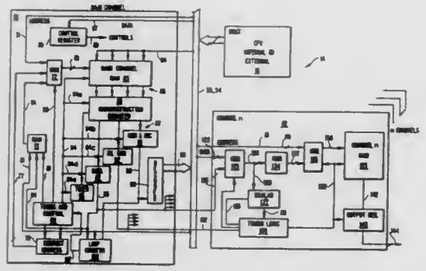
METHOD FOR CONTROLLING RADIO FREQUENCY EXCITATION AND GRADIENT PULSE CHARACTERISTICS IN A MAGNETIC RESONANCE IMAGING SYSTEM

Zvi Netter, Haifa, and Menachem Bar-Lev, Herzelia, both of Israel, assignors to Elscint Ltd., Haifa, Israel

Division of Ser. No. 183,299, Apr. 11, 1988, Pat. No. 4,845,613, which is a continuation of Ser. No. 669,369, Nov. 8, 1984, abandoned. This application Mar. 23, 1989, Ser. No. 327,696

Int. Cl.[5] G06F *11/28, 7/182*

U.S. Cl. 395—800 **6 Claims**



1. A method for controlling radial frequency pulse excitation and gradient pulses applied during a scan cycle in a magnetic resonance imaging (MRI) system, said system including a magnet (magnets), excitation and detection units, a controller comprising a main channel and a plurality of output channels, said MRI system operated responsive to operating data including: instructions, timing information and RF pulse pattern data provided by a central processing unit (CPU), said method comprising the steps of:

transmitting said operating data from the CPU to the controller;

storing said operating data received from said CPU in said main channel and said output channels,

controlling the scan cycle with the controller using said operating data received from said CPU;

commencing the scan cycle when said instructions and timing information included in the operating data are received from the CPU by said main channel and when the RF pulse data is received by at least some of said plurality of output channel;

said controlling step, including the steps of:

transmitting instructions and timing information for controlling the output of the received RF pulse pattern data from the at least some of said output channels responsive to the instructions and timing information stored in said main channel after receipt from said CPU; and

controlling said excitation units of the MRI system with said RF pulse pattern data;

wherein the step of transmitting data from said CPU to said main channel and to said output channels further includes the steps of:

transferring scan sequence cycle control from said CPU to said main channel after receipt by said controller of said operating data from the CPU; energizing the excitation units of the MRI system responsive to said operating data to perform a scan sequence cycle while control of the scan sequence cycle is in said main channel after transfer of control from said CPU to said main channel;

returning scan sequence cycle control to said CPU from said main channel at the end of said scan sequence cycle whereby the scan sequence cycle is accomplished under control of said controller instead of said CPU, and

defining said scan sequence cycle using the timing information transferred from said CPU to said main channel;

and further including the step of transferring said instructions and timing information from said main channel to said output channels, said last named transferring step including:

selecting the at least some of said output channels,

providing said instructions to a data field in said main channel, and timing information to a timing field in said main channel for selecting starting addresses in said selected output channels to output pattern data,

providing said instructions to a data run field in said main channel for selecting either a "run" or a "standby" condition for said selected output channels, and

providing an address and control field in said main channel for instructions for activating the selected output channels to control desired ones of said MRI system units.

5,068,787

MEANS AND METHODS OF TABULATING TIME AND TASK PERFORMANCES

Lawrence S. Pipella, Scottsdale; Logan M. Fanjoy, Mesa; Rodger L. Lawless, and James E. Davies, both of Chandler, all of Ariz., assignors to Analysist Development Group, Inc., Scottsdale, Ariz.

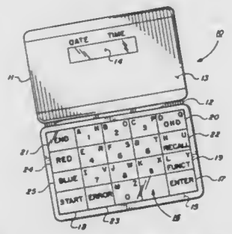
Filed Mar. 13, 1990, Ser. No. 492,544

Int. Cl.[5] G06F *15/21*

U.S. Cl. 364—406 **7 Claims**

MICROFICHE APPENDIX INCLUDED

(2 Microfiche, 195 Pages)



1. A system for recording in real-time units-of-work, said units-of-work representing the increment of time an employee spends at a job related function and a job related device or overhead activity, said time being associated with a unique operator identification and department-identification, and making a permanent record thereof, comprising:

a portable data collection card, said card including keyboard means having a plurality of field key means and numerical key means; said field key means including a "START" key means to indicate the start of the unit-of-work collection process, "OHD" key means to indicate non-specific work, and "END" key means to indicate the end of the unit-of-work collection process, a first and second toggle key means to activate respective first and second keyboard mappings; control means, activatable by said "START", "OHD" and "END" key means, to start the collection of units-of-work, to suspend the collection of units-of-work, and to end the collection of units-of-work, respectively; memory means for storing said collected units-of-work; display means for displaying time data and instructional prompts; a first power source for transmitting data to a collection station; a second power source for energizing said control means; a bi-directional optical interface for downloading real-time units-of-work to said collection station;

said collection station having keyboard means having a plurality of collector field key means and numerical key means; collection station control means for controlling the operation of the collection station; said collector field key means including a "STATUS" key means for actuating the collection station control means to determine the identity and magnitude of information currently residing in said collection station; memory means for storing data; display means for displaying data; a power source for energizing the collection station control means; bi-directional optical interface means for receiving data from the portable data collection card; and means for communicating said receiving data from said collection station interface to a main computer.

5,068,788

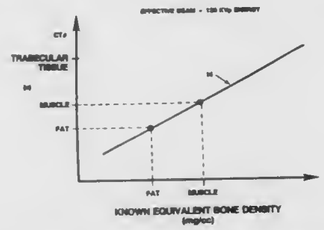
QUANTITATIVE COMPUTED TOMOGRAPHY SYSTEM

David J. Goodenough, Myersville, and Charles Stockham, Columbia, both of Md., assignors to Columbia Scientific Inc., Columbia, Md.

Filed Nov. 29, 1988, Ser. No. 277,269

Int. Cl.[5] G06G *7/60*

U.S. Cl. 364—413.14 **20 Claims**



1. A method for non-invasively determining the density of a selected tissue without using an external reference, comprising the steps of:

selecting a tissue;

selecting a scan region which includes said tissue;

entering spatial parameters of the three-dimensional scan region into a computer;

performing a computed tomography scan of said scan region;

quantitatively determining the effects of said selected tissue on data obtained by performing said computed tomography scan, said step of quantitatively determining effects comprising the steps of:

calculating a histogram of computed tomography numbers obtained from said computed tomography scan of said scan region which includes said tissue;

identifying a peak within said histogram by locating its leading edge;

determining whether a first moment of said peak is within predetermined limits;

adjusting the peak to obtain an adjusted peak by varying said first moment to fit within said predetermined limits; and

calculating a second moment of the peak, said second moment being indicative of the computed tomography number of said selected tissue.

5,068,789

METHOD AND MEANS FOR GRAMMATICALLY PROCESSING A NATURAL LANGUAGE SENTENCE

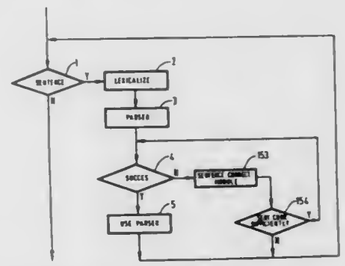
Eduardus J. W. van Vliembergen, Venlo, Netherlands, assignor to OCE-Nederland B.V., Netherlands

Filed Sep. 15, 1989, Ser. No. 407,564

Claims priority, application Netherlands, Sep. 15, 1988, 8802271; Apr. 26, 1989, 8901050

Int. Cl.[5] G06F *15/38, 1/00*

U.S. Cl. 364—419 **18 Claims**



1. A computer method for grammatically processing a natural language sentence made up of word units using processing means comprising the steps of:

a. Lexicalizing each of said word units in accordance with verbal categories and application directed categories registered in a lexical memory, for storing the lexicalized word units in a word memory;

b. Parsing said lexicalized word units read out from said word memory to provide at least one sentence representation for storing in a sentence representation memory for storing in a sentence representation memory, and including the steps of generating at least one constituent structure having functional indications from said word units, each of said sentence representations having associated therewith a probability factor and

a) determining successively for each word unit supplied by the word memory and for each constituent supplied by the sentence representation memory and allocated with a constituted category the functional word category belonging to that word unit within the structure of said constituent by reference to grammar data list in a grammar data memory and concerning said verbal category of said word unit and the category of said constituent for updating or supplementing the respective sentence representations,

b) describing for each constituent supplied by sentence representation memory and allocated with a category of a parent constituent, said parent constituent dominating said constituent, a closure process for said constituent based upon grammar data entered in the grammar data memory and concerning the category of said constituent and said parent constituent and (ii) allocating a functional label that can be provisional to said constituent to be closed by said closure process; and

c) testing the interrelation between the words and constitu-

VOL 1132 ISS 4 NO 26 1991 UMI

ents of said parent constituent as to functional categories of said words and said constituents during at least step b) (i) or b) (ii) against rules stored in said grammar data memory and based upon syntax and changing said probability factor if an error is detected and selecting each sentence representation having a probability factor above a preselected threshold value.

5,068,790

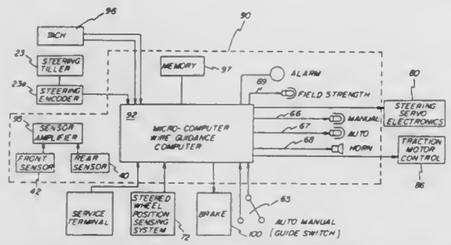
WIRE GUIDANCE CONTROL SYSTEM

Tim A. Wellman, Coldwater, Ohio, assignor to Crown Equipment Corporation, New Bremen, Ohio

Filed Dec. 6, 1989, Ser. No. 446,847

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—424.02 **4 Claims**



3. Apparatus for controlling an operation of an operator controlled materials handling vehicle that includes wire guidance for guiding the vehicle in response to a signal carried by a guide wire including

wire guidance control means for supplying information regarding an angle of approach of the vehicle to a buried wire,

means for selecting either a manual mode of vehicle operation or a wire guidance mode of vehicle operation,

means for comparing the speed and the angle of approach of the vehicle to predetermined limits and for generating an out-of-limit condition if either one of said predetermined limits is exceeded,

means for applying the vehicle's brakes to stop the vehicle and to disable the vehicle from further travel in response to said comparing means detecting said out-of-limit condition when the vehicle is in the wire guidance mode of operation and the guide wire signal is being detected.

5,068,791

DISTANCE AND ANGLE MEASUREMENTS IN A WIRE GUIDED VEHICLE

Kim A. Klopfleisch, St. Marys; Tim A. Wellman, Coldwater; Willard D. Kaiser, Grove City; Mark J. Koenig, Worthington; Richard W. Ridgway, Westerville; Bobby L. Walters, Columbus, and Mattbew S. Zelinski, Worthington, all of Ohio, assignors to Crown Equipment Corporation, New Bremen, Ohio

Filed Dec. 6, 1989, Ser. No. 446,896

Int. Cl.[5] G05D *1/03*

U.S. Cl. 364—424.02 **9 Claims**

1. A method for determining the distance of a guided vehicle from a wire carrying an alternating current signal, said method comprising the steps of

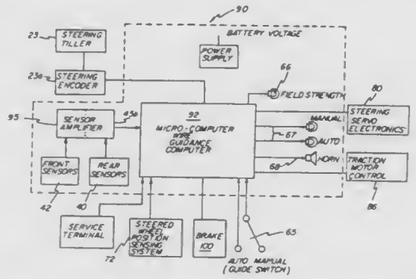
providing the vehicle with a set of sensor coils for detecting the signal carried by the wire where the space between the sensor coils is divided into regions,

normalizing the output from each coil,

converting the normalized output from each coil into a distance value by reference to a look up table,

determining which coil has the highest normalized output,

determining which region the wire is in by determining which adjacent coil has a normalized output greater than a predetermined minimum value,



combining the distance measurements from the selected coils defining the region to derive a sensor bar-to-wire distance measurement.

5,068,792

METHOD AND AN ARRANGEMENT FOR ADJUSTING A HEIGHT CONTROL SYSTEM OF A VEHICLE

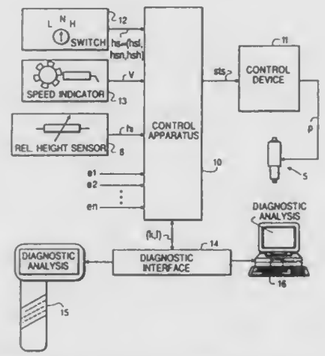
Hans-Thomas Lehr, Weissach, and Peter Schäfer, Mönsheim, both of Fed. Rep. of Germany, assignors to Dr. Ing.h.c.F. Porsche Aktiengesellschaft, Fed. Rep. of Germany

Filed Jun. 11, 1990, Ser. No. 535,530

Claims priority, application Fed. Rep. of Germany, Jun. 10, 1989, 3919040

Int. Cl.[5] B60G *17/00*; G01C *5/00*

U.S. Cl. 364—424.05 **7 Claims**



5. A height control system for a vehicle having a chassis and a body comprising: at least one height adjusting means for raising or lowering said body relative to a first reference point, height sensing means for measuring the height of said body relative to a second reference point, control means for causing said height adjusting means to raise or lower said body; said control means including means for presetting a desired height for said body, for detecting differences between said desired height and the height measured by said height sensing means and for causing said control means to raise or lower said body in response thereto, diagnostic interface means for communicating error signals from said height control system, diagnostic means for adjusting said height control system in response to signals communicated from said height control system and in response to manually inputted commands, said diagnostic means being operatively connected to said diagnostic interface means and having input means for receiving manually inputted commands, and further having means responsive to said manually inputted commands for causing said control means to initiate a level-adjusting function, an incremental-controlling-of-the-adjusting-means function and a set function.

5,068,793

APPARATUS FOR TRIGGERING PASSENGER PROTECTION SYSTEMS

Claus Condne, Wadgassen; Bernhard Mattes, Sachsenheim, and Dieter Schmalz, Pleidelsheim, all of Fed. Rep. of Germany, assignors to Robert Bosch GmbH, Stuttgart, Fed. Rep. of Germany

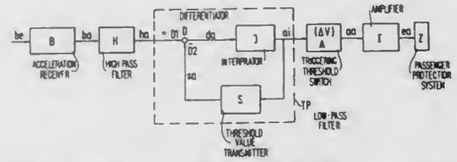
PCT No. PCT/DE87/00078, § 371 Date Oct. 6, 1988, § 102(e) Date Oct. 6, 1988, PCT Pub. No. WO88/00146, PCT Pub. Date Jan. 14, 1988

PCT Filed Feb. 28, 1987, Ser. No. 276,319

Claims priority, application Fed. Rep. of Germany, Jun. 27, 1986, 3621580

Int. Cl.[5] B60R *21/32*

U.S. Cl. 364—424.05 **7 Claims**



1. An apparatus for triggering passenger protection system, in particular restraining system of motor vehicle upon impact, said apparatus comprising an acceleration receiver for outputting an acceleration signal in response to a vehicle acceleration; differential means having a first input for receiving the acceleration signal, a second input for receiving an integration threshold value signal, and an output for outputting a differential signal; an integrator having an input for receiving the differential signal and an output for outputting a control signal upon receiving the differential signal; a threshold value transmitter for communicating a variable integration threshold value signal to said second input of said differentiation means in response to the control signal, the control signal causing triggering of said protection system when the control signal exceeds a predetermined triggering value.

5,068,794

SYSTEM AND METHOD FOR COMPUTING ASYNCHRONOUS INTERRUPTED FUEL INJECTION QUANTITY FOR AUTOMOBILE ENGINES

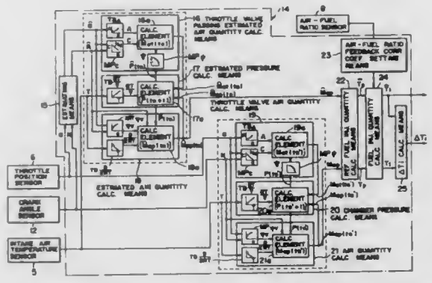
Hiroshi Hosaka, Tokyo, Japan, assignor to Fuji Jukogyo Kabushiki Kaisha, Tokyo, Japan

Filed Apr. 24, 1990, Ser. No. 513,841

Claims priority, application Japan, Apr. 28, 1989, 1-110566

Int. Cl.[5] F02M *51/00*

U.S. Cl. 364—431.05 **14 Claims**



1. A system for controlling fuel injection of an engine having a plurality of cylinders, an intake passage for inducing air and fuel mixture into at least one of said cylinders, a throttle valve provided in said intake passage for controlling an amount of air, and a fuel injector provided in said intake passage for injecting fuel, comprising:

engine speed sensing means for detecting a first engine speed at a first reference crank angle before an intake stroke cycle of the engine and a second engine speed at a second reference crank angle in said intake stroke cycle;

throttle position sensing means for sensing a first throttle opening degree at said first reference crank angle and a second throttle opening degree at said second reference crank angle;

estimating means for estimating what an estimated throttle opening degree and an estimated engine speed will be for said engine after a predetermined time period in said intake stroke cycle has lapsed, based on said first throttle opening degree and said first engine speed, respectively;

first air quantity calculating means responsive to said estimated throttle opening degree and said estimated engine speed for calculating a first air quantity which will be induced in said cylinder during said intake stroke cycle;

second air quantity calculating means responsive to said second engine speed and said second throttle opening degree for calculating a second air quantity induced in said cylinder during said intake stroke cycle;

fuel injection quantity calculating means for calculating a first fuel injection quantity in accordance with said first air quantity, which first fuel injection quantity is injected from the point of said first crank reference angle, and for calculating a second fuel injection quantity in accordance with said second air quantity; and

synchronous interrupted fuel injection quantity calculating means for calculating an synchronous interrupted fuel injection quantity in accordance with a difference value between said first and second fuel injection quantity, which synchronous interrupted fuel injection quantity is injected from the point of said second crank reference angle.

5,068,795

SYSTEM FOR DETECTING POSITION OF MOVING VEHICLE

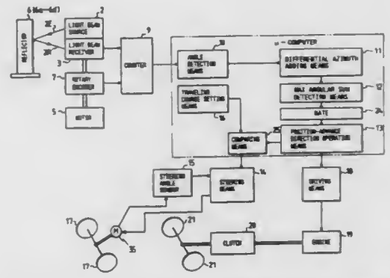
Kenji Kamimura, and Sadachika Tsuzuki, both of Saitama, Japan, assignors to Hooda Giken Kogyo Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 28, 1989, Ser. No. 413,934

Claims priority, application Japan, Oct. 18, 1988, 63-262191

Int. Cl.[5] G06F *15/50*

U.S. Cl. 364—449 **4 Claims**



1. In a system for detecting a position of a moving vehicle wherein light signals radiated from light emitting means provided at at least four reference points apart from the moving vehicle are received, and the position and an advance direction of the moving vehicle are detected on the basis of received

VOL 1132 ISS 4 NO 26 1991 UMI

signals of the light emitted from three particular reference points of the at least four reference points, said system comprising:

light-receiving means mounted on the moving vehicle and rotating in a horizontal plane for receiving the light signals,

means for detecting azimuths of the reference points in respect of the advance direction of the moving vehicle on the basis of the light signals at the light-receiving means,

means for determining the differential azimuths between the adjoining two reference points of all said four reference points viewed from the moving vehicle,

means for calculating the sum for each pair of said differential azimuths adjoining each other,

means for selecting a combination of a particular two of said adjoining differential azimuths with which the calculated sum of said two selected adjoining differential azimuths becomes largest among the sums of said other pairs, and

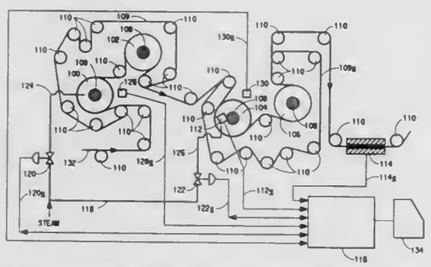
means for determining the position and the advance direction of the moving vehicle on the basis of the selected two differential azimuths and the coordinate values of the three reference points forming the selected two differential azimuths.

5,068,796

CONTROL OF SHEET OPACITY

Hanh P. Hellenguard, Richmond; Lawrence J. Koth, Midlothian, and Donald T. Vaughan, Richmond, all of Va., assignors to E. I. Du Pont de Nemours and Company, Wilmington, Del.

Filed Dec. 18, 1989, Ser. No. 449,408
Int. Cl.[5] G06F *15/46*
U.S. Cl. 364—469 4 Claims



1. A computer-aided method for on-line control of opacity of a moving non-woven sheet of film-fibril strand material wherein the opacity is a function of a thermal bonding finishing process applied to each side of the sheet bypassing one side of the sheet around and in contact with a first rotatable driven drum heated to a first bonding temperature by steam supplied under pressure from a first variable position steam valve, then passing the other side of the sheet around and in contact with a second rotatably driven drum heated to a second bonding temperature by steam supplied under pressure from a second variable position steam valve, the method comprising:

providing the computer with an aim opacity level;

providing the computer with a data base including the following parameters by sensing at sensor locations;

first drum temperature

first drum steam pressure

second drum temperature

second drum pressure

speed of the sheet

opacity measurements at n locations across the width of the sheet after passing the second drum;

repetitively determining the values of said parameters as the sheet passes around the first and second drums;

repetitively providing the computer with the values of said parameters;

comparing opacity aim with the average opacity of n locations across the sheet to produce an opacity error signal; and

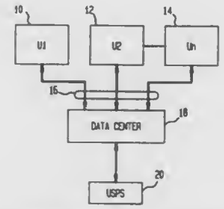
adjusting first and second steam drum pressures which determine the degree of thermal bonding which in turn affects opacity of said moving nonwoven sheet to minimize the opacity error signal.

5,068,797

OPTIMIZING MAIL DELIVERY SYSTEMS BY ROUTING

Ronald P. Sansone, Weston, and Karl H. Schumacher, Westport, both of Conn., assignors to Pitney Bowes Inc., Stamford, Conn.

Filed Oct. 3, 1989, Ser. No. 416,745
Int. Cl.[5] G06F *15/21*
U.S. Cl. 364—478 26 Claims



1. A system for handling mail for delivery between first and second stations, wherein a plurality of delivery routes exist between said first and second stations, and wherein carriers of determinable capacity are available for transporting mail via said routes, said system including a data processing station, a user station for assembling batch mail to be transported to said first station and thence to said second station, and communication paths interconnecting said data processing station with said user station and said first station, the improvement wherein:

said user station comprises means for transmitting to said data processing station data concerning quantities of mail to be transported therefrom to said first station and thence to said second station,

said data processing station comprises a source of data concerning available capacity of said carriers via each of said routes, and

said data processing station comprises means responsive to said data received from said user station for transmitting to said first station data identifying a carrier that has adequate mail carrying capacity to transport mail of said user station along at least a portion of its respective route.

5,068,798

PROCESS ENVIRONMENT MONITORING SYSTEM

Warren J. Heath, Marlboro; Rene J. Langner, Plainville, and Charles A. Bell, Weston, all of Mass., assignors to Precision Systems, Inc., Natick, Mass.

Filed Mar. 3, 1989, Ser. No. 319,139
Int. Cl.[5] G01N *31/00*
U.S. Cl. 364—497 3 Claims

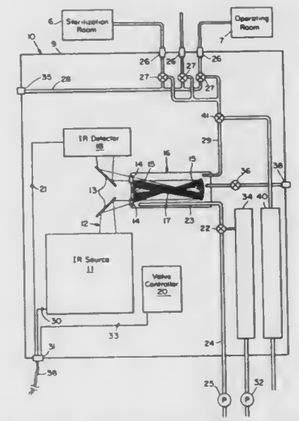
1. In a process environment monitoring system, a method of testing gas from a process environment comprising:

drawing a sample of gas from the process environment into a test cell;

identifying gas in the test cell with a gas analyzer;

evacuating a volume which is larger in size than the test cell;

after identifying said gas, opening fluid communication between the test cell and the evacuated volume such that said gas is rapidly drawn from the test cell to the evacuated volume to clear the test cell; and



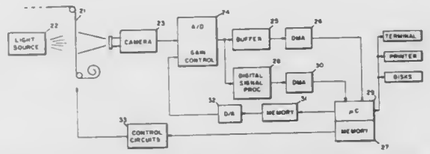
drawing purge gas through the test cell to substantially replace gas in the cell with purge gas.

5,068,799

SYSTEM AND METHOD FOR DETECTING FLAWS IN CONTINUOUS WEB MATERIALS

Harold M. Jarrett, Jr., 450 Barkshire La., Roswell, Ga. 30075

Filed Apr. 24, 1985, Ser. No. 726,529
Int. Cl.[5] G01N *21/88*
U.S. Cl. 364—507 15 Claims



1. A method of detecting flaws in continuous web material which is illuminated and which is scanned by an optical scanning system to produce digitized output signals representative of said material, said method comprising the steps of:

processing said digitized output signals utilizing digital matched filters corresponding to flaw patterns known to be present in said material to identify signals present therein which are representative of flaws in said material; and

generating first output signals indicative of the locations of said flaws in said material.

5,068,800

CRACK DETECTION METHOD FOR SHAFT AT REST

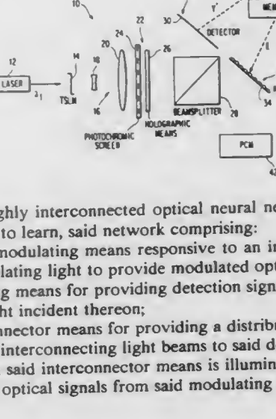
Warren R. Brook, Medford, N.J., and William H. Miller, Loudonville, N.Y., assignors to REM Technologies, Inc., Albany, N.Y.

Continuation-in-part of Ser. No. 323,313, Mar. 14, 1989, Pat. No. 4,975,855. This application Sep. 19, 1990, Ser. No. 584,893
The portion of the term of this patent subsequent to Dec. 4, 2007, has been disclaimed.
Int. Cl.[5] G01N *27/82*; G01R *33/12*
U.S. Cl. 364—507 46 Claims

28. A method for detecting a crack in a shaft system under test, comprising the steps of:

employing a multi-station analytical model of the shaft system to determine a natural frequency of interest for a crack at a designated location and to predict a shift of said natural frequency of interest as a function of crack depth;

measuring an actual natural frequency of the shaft system under test at rest in response to a vibration inducing force excitation, said actual natural frequency being in the region of the natural frequency of interest; and



comparing said actual natural frequency to the predicted shift of the natural frequency of interest to determine a correlation therebetween, whereby such a correlation indicates the existence of a crack in the shaft system and the severity thereof.

5,068,801

OPTICAL INTERCONNECTOR AND HIGHLY INTERCONNECTED, LEARNING NEURAL NETWORK INCORPORATING OPTICAL INTERCONNECTOR THEREIN

Rodney L. Clark, and Charles F. Hester, both of Huntsville, Ala., assignors to Teledyne Industries, Inc., Los Angeles, Calif.

Filed Nov. 6, 1989, Ser. No. 431,899
Int. Cl.[5] G06E *3/00*
U.S. Cl. 395—25 23 Claims

1. A highly interconnected optical neural network having capability to learn, said network comprising:

spatial modulating means responsive to an input signal for modulating light to provide modulated optical signals;

detecting means for providing detection signals in response to light incident thereon;

interconnector means for providing a distribution of modulated interconnecting light beams to said detecting means when said interconnector means is illuminated by modulated optical signals from said modulating means so as to

VOL 1132 ISS 4 NO 26 1991 UMI

interconnect said modulating means and said detecting means according to a predetermined interconnection pattern, said interconnector means including

projections means adapted to project a distribution of interconnecting beams along paths without changing a parameter of each of said beams relative to the other interconnecting beams projected thereby, and

interconnection weighting means, provided in said paths so as to be illuminated by said interconnecting beams before said parameter of any of said beams has changed, of controlling said parameter of each interconnecting beam relative to the other interconnecting beams to assign an interconnection weight to each said beam and thereby provide weighted, modulated interconnecting beams; and

means responsive to said detection signals for changing a condition of said interconnection weighting means to thereby modify said interconnection weights assigned by said weighting means.

5,068,802

GRAPHIC DRAWING METHOD AND SYSTEM WITH INPUT COORDINATES AUTOMATICALLY ADJUSTABLE

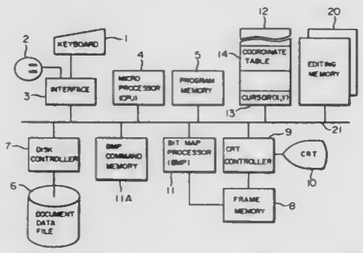
Koujirou Miyashita, Kawasaki, and Tetsuo Machida, Tokyo, both of Japan, assignors to Hitachi, Ltd. and Hitachi Microcomputer Engineering, Ltd., both of Tokyo, Japan

Continuation of Ser. No. 488,413, Mar. 1, 1990, abandoned, which is a continuation of Ser. No. 226,369, Jul. 29, 1988, abandoned. This application Aug. 3, 1990, Ser. No. 518,249

Claims priority, application Japan, Jul. 30, 1987, 62-191192

Int. Cl.[5] G06F *15/62, 15/60, 3/037*

U.S. Cl. 395—133 **8 Claims**



5. A graphic drawing system for displaying a composite graphic comprised of a plurality of fundamental graphics comprising:

a display screen;

a pointing device for designating a plurality of end points necessary for calculation of drawing line data of each fundamental graphic to be displayed on the display screen;

first means for designating the type of a fundamental graphic to be drawn;

second means for reading input coordinates designated by said pointing device;

third means for comparing said input coordinates with the end point coordinates of each fundamental graphic already displayed on said display screen by referring to a table means for storing said end point coordinates;

fourth means for, if end point coordinates are found near said input coordinates, determining said found end point coordinates as one of the end points of said fundamental graphic to be drawn, and if not, determining said input coordinates as one of the end points of said fundamental graphic to be drawn; and,

fifth means for calculating drawing line data of said fundamental graphic based on the coordinates of each end point after a predetermined number of end points have been designated by said pointing device and for drawing said fundamental graphic on said display screen according to said line data.

5,068,803

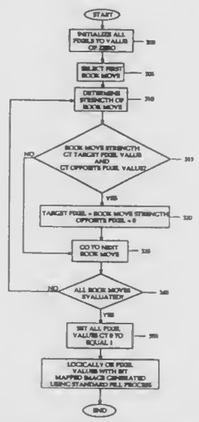
METHOD AND APPARATUS FOR FILLING CONTOURS IN DIGITAL TYPEFACES

Jacobo Valdes, and Eduardo Martinez, both of Palo Alto, Calif., assignors to Sun Microsystems, Inc., Mountain View, Calif.

Filed Sep. 15, 1989, Ser. No. 407,911

Int. Cl.[5] G06F *3/14*

U.S. Cl. 395—150 **18 Claims**



1. A computer-implemented method for filling in outlines of characters in digital typefaces, each character outline having one or more contours, each contour having a direction, said method comprising the steps of:

breaking down the contours of the characters into a series of rook moves according to the direction of the contour, each rook move having a target and opposite pixel associated with it which are adjacent to the rook move;

generating a first bit map of the character by setting those pixels between rook moves to equal a value of one;

generating a second bit map of the character comprising the steps of:

initializing the pixels of the bit map to zero;

determining the strength of each rook move, the strength of a rook move corresponding to the total number of rook moves in a colinear sequence;

if the strength of the rook move is greater than the target pixel value and the strength of the rook move is greater than the opposite pixel value;

setting the target pixel value to equal the strength of the rook move;

setting the opposite pixel value to equal zero; and

translating the pixel values having a value greater than zero to a value of one thereby providing a second bit map of the character; and

performing a logical OR of the first and second bit maps of the character whereby the resulting bit map is the filled character.

5,068,804

DOCUMENT INPUT METHOD AND APPARATUS

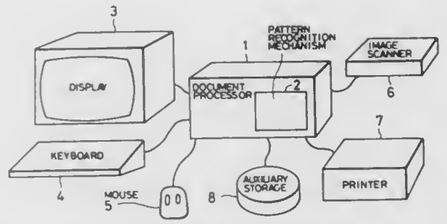
Tan Watanabe, Yokohama; Hideki Nishino, Tsukui; Hidefumi Iwami, Yokohama, and Kuniaki Tabata, Nishitama, all of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 212,433, Jun. 28, 1988, abandoned. This application May 7, 1990, Ser. No. 520,133

Claims priority, application Japan, Jul. 3, 1987, 62-165319

Int. Cl.[5] G06F *15/62*

U.S. Cl. 395—147 **7 Claims**



1. A document input method, comprising the steps of:

(a) inputting from an inputting device a sketch comprised of component figures;

(b) displaying said sketch on a display;

(c) selecting one component figure of said sketch;

(d) selecting one figure of fair copy from a plurality of figures of fair copy stored in a memory, the selection of one figure of fair copy being dependent on a correspondence in configuration between said one figure or fair copy and the selected one component figure;

(e) displaying the selected one figure of fair copy in a superposed manner, such that differences between the selected fair copy figure and the selected component figure can be detected by an observer, wherein the plurality of figures of fair copy includes a plurality of different shapes all having a predetermined drawing quality;

(f) inputting from said inputting device a modifying command for modifying at least one of said one component figure and said one figure of fair copy which are displayed on said display in the superposed arrangement;

(g) modifying at least one of said one component figure and said one figure of fair copy in response to said modifying command, wherein said modifying includes,

scaling up or down at least one of said one component figure and said one figure of fair copy on said display, responsive to information included in said modifying command,

selecting for movement at least one of said one component figure and said one figure of fair copy from a present position thereof displayed to a new position on said display, responsive to information included in said modifying command,

selecting for deletion at least one of said one component figure and said one figure of fair copy displayed on said display;

(h) repeating steps (c) to (g) until all component figures comprising the sketch have been selected; and

(i) generating a new document of a predetermined quality based on the inputted sketch, wherein said document includes a plurality of at least one of the component figures and the fair copy figures.

5,068,805

DATA PROCESSOR FOR PROCESSING ORIGINAL IMAGE INFORMATION INTO BIT MAP DATA, HAVING MEANS FOR PERMITTING THE BIT MAP DATA TO BE ALWAYS STORED IN VARYING-CAPACITY MEMORY

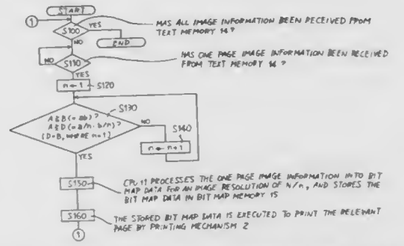
Toru Tsuzuki, Okazaki, Japan, assignor to Brother Kogyo Kabushiki Kaisha, Aichi, Japan

Filed Aug. 24, 1989, Ser. No. 397,841

Claims priority, application Japan, Sep. 17, 1988, 63-233063

Int. Cl.[5] G06F *15/62*

U.S. Cl. 395—164 **12 Claims**



1. An image data processor for processing image information representative of images, into bit map data to be used by an output device to output said images with a predetermined output resolution, and storing the bit map data into a bit map memory of memory means, for subsequent use by said output device, said memory means being used to also store data other than said bit map data, and said bit map memory consisting of an empty area of said memory means which varies with a volume of said data other than said bit map data, so that a memory capacity of said bit map memory varies from time to time, said processor comprising:

calculating means for calculating said memory capacity of said bit map memory;

comparator means responsive to said calculating means, for determining whether a memory capacity required for storing first bit map data for outputting said images with a nominal output resolution is larger than said memory capacity of said bit map memory which is calculated by said calculating means;

modifying means responsive to said comparator means, for modifying said first bit map data into second bit map data if said memory capacity required for storing said first bit map data is larger than the calculated memory capacity of said bit map memory, said second bit map data being prepared to output said images with a reduced output resolution lower than said nominal output resolution, such that a memory capacity required for storing said second bit map data does not exceed the memory capacity of said bit map memory.

5,068,806

METHOD OF DETERMINING USEFUL LIFE OF CARTRIDGE FOR AN INK JET PRINTER

Ronald A. Gatten, Pleasanton, Calif., assignor to Spectra-Physics, Inc., San Jose, Calif.

Filed Dec. 2, 1988, Ser. No. 280,781

Int. Cl.[5] G06F *15/20*

U.S. Cl. 395—113 **33 Claims**

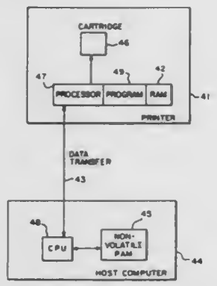
1. A method to determine a status of an ink supply and to replace the ink supply in an ink jet printer comprising the steps of:

installing the ink supply in the ink jet printer;

digitally counting a number of ink dots fired from the ink supply;

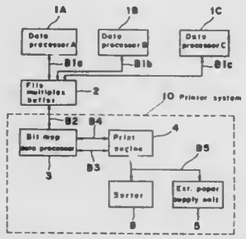
VOL 1132 ISS 4 NO 26 1991 UMI

providing an indication of the status of the ink supply based upon the count; and



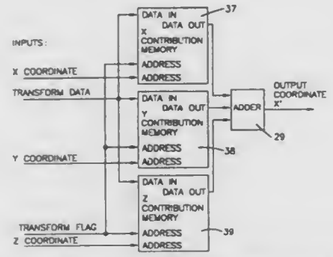
installing another ink supply in response to a particular status indication.

5,068,807
PRINTER CONTROLLER
Yoshikazu Ikenoue, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan
Continuation of Ser. No. 580,794, Sep. 11, 1990, abandoned, which is a division of Ser. No. 424,526, Oct. 19, 1989, abandoned. This application Mar. 15, 1991, Ser. No. 670,392
Claims priority, application Japan, Oct. 21, 1988, 63-266758; Oct. 21, 1988, 63-266759; Oct. 21, 1988, 63-266760; Oct. 21, 1988, 63-266761; Nov. 12, 1988, 63-286358; Nov. 12, 1988, 63-286359
Int. Cl.[5] G06K *15/00*
U.S. Cl. 395—115 **12 Claims**



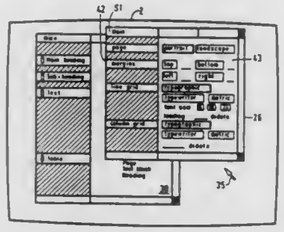
1. Printer controller for controlling a printer being connectable to plural host machines responsive to control data sent from either one of them comprising:
- a receiving means for receiving control data sent from individual host machines;
- a first memory means for memorizing received control data;
- a record control means for controlling recording action of images responsive to the control data stored in said first memory means;
- a second memory means for memorizing the control data stored in said first memory means in one of plural memory areas assigned to respective host machines; and
- a memory control means for saving the control data having been stored in said first memory means into the memory area of said second memory means corresponding to the host machine after the completion of the recording action responsive to said control data when another control data is received by said receiving means from another host machine and for moving the control data having been stored in the memory area of said second memory means corresponding to said another host machine to said first memory means.

5,068,808
IMAGER AND PROCESS
Robert H. Wake, Solon, Ohio, assignor to Reality Imaging Corporation, Solon, Ohio
Filed Nov. 22, 1988, Ser. No. 274,912
Int. Cl.[5] G06F *3/14*
U.S. Cl. 395—119 **11 Claims**



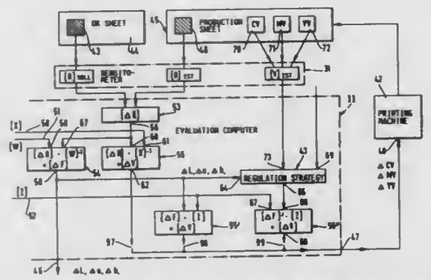
1. A coordinate transform engine for transforming an image made up of a set of points, each point represented by at least an initial coordinate n-tuple, said transform engine comprising:
- a plurality of parallel transform memories addressable by a respective coordinate of the n-tuple and a transform flag of at least one bit, said memories each providing as an output an intermediate value in response to said coordinate and said transform flag, said transform flag corresponding to different portions of said image and selecting one of a plurality of transformations for said portions; and
- at least one adder receiving the output intermediate values from a subset of said memories, the sum from said adder being a single coordinate of a transformed coordinate n-tuple, whereby said portions can be separately manipulated.

5,068,809
FORMATTING SYSTEM
Paulus W. E. Verhelst, Venlo, Netherlands; Werner J. Winiger, Richterswil, Switzerland, and René F. A. Collard, Gennep, Netherlands, assignors to Oce-Nederland B.V., Netherlands
Filed Mar. 1, 1990, Ser. No. 486,800
Claims priority, application Netherlands, Mar. 2, 1989, 8900519
Int. Cl.[5] G06F *3/14*
U.S. Cl. 395—145 **3 Claims**



1. Desktop publishing system to prepare and manage documents to a model distinguished by graphic properties, comprising:
- a. inputting means for inputting commands and document information relating to graphic elements; and
- b. a processing unit operable, by reference to said document information and commands, to use a model having a number of sets of grid lines, equidistant oriented per set to define a grid line spacing, for positioning the input document information, at least some of these sets being allocated different orientation directions, and comprising means for registering input data to adjust said grid line spacing and orientation direction applicable per set, and means for positioning graphic elements, said positioning means using a last grid line used as a reference line, said positioning means further taking into account format data of graphic elements positioned with respect to said reference line, format data of graphic elements still to be positioned with respect to a following grid line, and a certain spacing between graphic elements positioned with respect to said reference line and graphic elements still to be positioned with respect to said following grid line, for selection from the grid lines following the first mentioned reference line the next grid line which is to be considered as a subsequent reference line for the graphic elements still requiring to be positioned.

5,068,810
PROCESS FOR THE DETERMINATION OF COLORIMETRIC DIFFERENCES BETWEEN TWO SCREEN PATTERN FIELDS PRINTED BY A PRINTING MACHINE AND PROCESS FOR THE COLOR CONTROL OR INK REGULATION OF THE PRINT OF A PRINTING MACHINE
Hans Ott, Regensdorf, Switzerland, assignor to Gretag Aktiengesellschaft, Regensdorf, Switzerland
Filed Jul. 9, 1990, Ser. No. 550,092
Claims priority, application Switzerland, Jul. 14, 1989, 2646/89
Int. Cl.[5] G01N *21/25*
U.S. Cl. 364—526 **7 Claims**

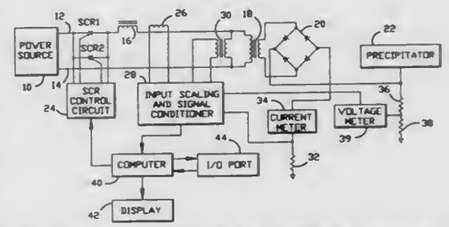


2. Process for the color control of ink regulation of the print of a printing machine, wherein measuring fields on production sheets printed by the printing machine are optically detected to determine a color deviation of each measuring field detected from a given set color position and to produce an adjusting value for setting the ink control elements of the printing machine, so that undesirable color variations in production sheets subsequently printed are minimized, comprising the steps of:
- printing under nominal conditions, by means of a printing machine, a reference calibration print and several addition calibrating prints, said prints each comprising a plurality of full tone fields and a coprinted half tone field similar in color to desired half tone fields of the production sheets, with each of said addition calibration prints for at least one full tone field having a full tone density differing from that of a corresponding full tone field of similar color of the reference calibration print;
- determining, by means of a densitometer, half tone density differences between half tone densities of the half tone field of the reference calibration print and half tone densities of the half tone fields of the addition calibration prints;
- determining, by means of a spectrophotometer, colorimetric measure differences between colorimetric measures of the half tone field of the reference calibration print and colorimetric measures of the half tone fields of the addition calibration prints;
- substituting values obtained for the half tone density differences and colorimetric measure differences into a matrix equation:

$$[\Delta R]_i = [W] \cdot [\Delta F]_i$$

to determine elements of a colorimetric measure-half tone density transform matrix [W], in which $[\Delta R]_i$ is a half tone difference vector correlated with an addition calibrating print indexed by a value i and having components formed from the half tone density differences for each printing ink, and $[\Delta F]_i$ is a colorimetric measure difference vector with components formed from the colorimetric measure differences;
- inverting said colorimetric measure-half tone density transform matrix;
- providing a measuring field on an OK sheet and on each production sheet as a half tone field composed of several printing inks;
- scanning the half tone field of a production sheet and the OK sheet with a densitometer and determining a difference between associated half tone densities for each half-tone field printing ink involved;
- forming a half tone density difference vector having the half tone density differences of said half-tone printing inks as components;
- multiplying said half tone density difference vector by said inverted colorimetric measure-half tone density transform matrix, to obtain a color variation vector containing as its components the colorimetric measure differences in a color space uniformly stepped relative to perception;
- producing a layer thickness variation control vector from the color variation vector for adjusting ink control elements of the printing machine.

5,068,811
ELECTRICAL CONTROL SYSTEM FOR ELECTROSTATIC PRECIPITATOR
David F. Johnston, Tabb, Va., and Terry L. Farmer, Pleasant Valley, Mo., assignors to BHA Group, Inc., Kansas City, Mo.
Filed Jul. 27, 1990, Ser. No. 558,827
Int. Cl.[5] B03C *3/66*
U.S. Cl. 364—551.01 **73 Claims**



69. The method of detecting and curing fault conditions of an electrostatic precipitator control system, said method comprising:
- sensing the waveform electrical characteristics of said control system;
- comparing said sensed waveform electrical characteristics with theoretical characteristics to determine system operating efficiency; and
- adjusting said system based on said comparisons to maintain said system operation at a desired efficiency by altering the waveform that is being sensed to substantially a desired waveform.

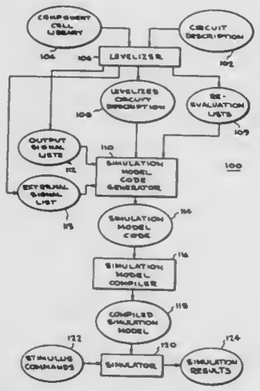
VOL
1132
ISS
4
NO
26
1991
UMI

5,068,812

EVENT-CONTROLLED LCC STIMULATION

Thomas J. Schaefer, Cupertino, and Robert D. Shur, Los Altos, both of Calif., assignors to VLSI Technology, Inc., San Jose, Calif.

Filed Jul. 18, 1989, Ser. No. 381,548
Int. Cl.[5] G06F *15/18*
U.S. Cl. 364—578 7 Claims



1. A method of simulating operation of a levelized logic circuit, said method comprising the steps of:

storing in a computer memory data representing a specified logic circuit, said logic circuit having a number of nodes between which are connected circuit components, each of said nodes having a signal present thereat with the value of said signal indicating the state of said node; said stored logic circuit data including an assigned logic level for each circuit component;

computing a storing in said computer memory a set of evaluation lists, each said evaluation list corresponding to a signal and denoting those components that are to be evaluated when said signal changes value;

computing and storing in said computer memory an output signal list denoting output signals corresponding to each component of said logic circuit;

computing and storing in said computer memory a list of external input signals to the logic circuit;

whenever an external input signal changes value, storing an evaluation mark for each component in said external input signal's evaluation list; and

for each component, in levelized order, for which an evaluation mark has been stored;

evaluating the component;

clearing the evaluation mark for the component; and

for each signal in the output signal list corresponding to said evaluated component which has a nonempty evaluation list, (A) determining whether the value of the signal was changed by said evaluating step; and (B) if the value of the signal has changed, storing evaluation marks for all of the components in that signal's evaluation list.

5,068,813

PHASED DIGITAL FILTERING IN MULTICHANNEL ENVIRONMENT

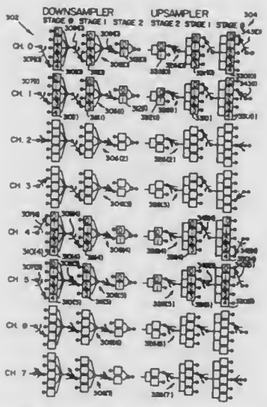
Bradford K. Thoen, Eden Prairie, Minn., assignor to MTS Systems Corporation, Minneapolis, Minn.

Filed Nov. 7, 1989, Ser. No. 432,545
Int. Cl.[5] H04J *15/00*
U.S. Cl. 364—572 12 Claims

1. A method for converting signals on a plurality of parallel channels from a first sampling frequency to a second sampling frequency by a digital signal processor, the method comprising:

providing a substantially identical multistage, multirate digital filter for each channel, the filters being in parallel and each stage of each multistage, multirate digital filter including a plurality of subfilters and a commutator indicating a subfilter for execution;

staggering initial commutator positions between the multistage, multirate digital filters at a highest rate stage to avoid coincidence of execution of subfilters between the plurality of multistage, multirate digital filers;



thereafter applying the signal on each channel to the respective multistage, multirate digital filter for the channel;

indexing the commutators at the same stage of each multistage, multirate digital filters at the same frequency; and

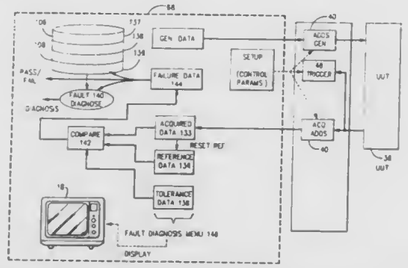
executing the indicated subfilter with each indexation of its respective commutator.

5,068,814

INTERACTIVE ADAPTIVE INFERENCE SYSTEM

William D. Stark, Ithaca, and Gregory C. Prestas, Candor, both of N.Y., assignors to Array Analysis, Inc., Ithaca, N.Y.

Filed Nov. 7, 1989, Ser. No. 433,612
Int. Cl.[5] G05B *19/02*; G01K *31/28*
U.S. Cl. 364—580 4 Claims



1. A human interactive adaptive inference system having an operative program for predicting causes of a previously unobserved fault appearing in an electric or electronic device or assembly from relationships with other known and previously stored fault data and information gathered for said electric or electronic device or assembly in prior tests, said adaptive inference system comprising:

a) testing means for performing position dependent, time-ordered tests upon electrical or electronic devices or assemblies to provide a test data array containing a pattern of faults;

b) storage means defining a reference array containing stored data and information representing patterns of faults of said electric or electronic device or assembly, and data and information patterns of said electrical or electronic device or assembly that conforms to operating requirements, said reference array having means for receiving and incorporating information representative of human judgment, which incorporated information is added to the fault patterns;

c) display means operatively connected to said data array of said testing means and said reference array of said storage means for displaying fault data and information;

d) means operatively connected to said data array of said testing means and said reference array of said storage means for entering human judgment information to said fault patterns to assist in obtaining a diagnostic analysis of said fault patterns; and

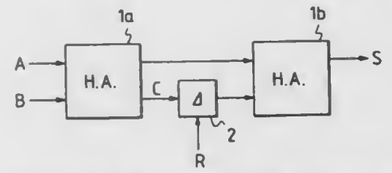
e) comparison means operatively connected to said data array of said testing means and said reference array of said storage means for providing a diagnostic analysis of said electrical or electronic device or assembly in accordance with said entered human judgment information, said comparison means being able to discern variances in fault data patterns from data patterns obtained from previously tested conforming electrical and electronic devices or assemblies, whereby said human interactive adaptive inference system is able to learn and predict causes of faults that were not previously experienced or stored within said human interactive adaptive inference system.

5,068,815

OPTICAL FULL ADDER

Yoshihiko Mizushima; Kazutoshi Nakajima; Toru Hirohata; Takashi Iida; Yoshihisa Warashina; Kenichi Sugimoto; Tomoko Suzuki, and Hirofumi Kan, all of Shizuoka, Japan, assignors to Hamamatsu Photonics K.K., Shizuoka, Japan

Filed Jun. 21, 1990, Ser. No. 541,309
Claims priority, application Japan, Jun. 23, 1989, 1-161913
Int. Cl.[5] G06F *1/04, 7/50*
U.S. Cl. 364—713 8 Claims



1. An optical full adder for performing full addition of signals representing first and second binary numbers, comprising:

a first optical half adder and a second optical half adder, each of the first and second optical half adders having at least first and second input terminals and producing at least two output signals, wherein said first input terminal of said first optical half adder receives the signal representing the first binary number and said second input terminal of said first half adder receives the signal representing the second binary number, and wherein a first output signal produced by the first optical half adder is applied to said first input terminal of the second optical half adder; and

an optical latch memory, the optical latch memory receiving a second output signal produced by the first optical half adder and producing an output signal to be applied to said second input terminal of the second optical half adder; wherein

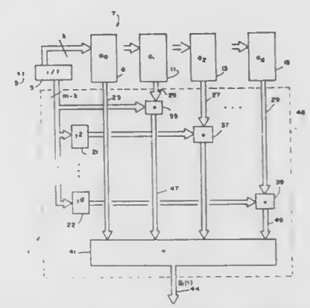
the signals representing the first and second binary numbers, and the output signals of the first optical half adder, the second optical half adder and the optical latch memory are optical signals.

5,068,816

INTERPLATING MEMORY FUNCTION EVALUATION

Andrew S. Noetzel, 59 Sunnyside Dr., Yonkers, N.Y. 10705

Filed Feb. 16, 1990, Ser. No. 480,970
Int. Cl.[5] G02F *7/38*
U.S. Cl. 364—718 5 Claims



1. An interpolating memory function evaluation apparatus, comprising: a memory address means for accessing a memory unit by using first bits of a function argument for the memory unit address, an approximating means for obtaining parameters of an approximating function from the memory unit, and an evaluating means for evaluating the approximating function, using other bits of the function argument, the specific approximating function whose parameters were obtained from the memory unit, wherein the accessing comprises using k bits of the function argument to address the memory unit wherein the memory unit contains polynomial coefficients, wherein the evaluating comprises evaluating with fixed combinational logic a degree d-polynomial whose coefficients are obtained from the memory unit, using as the polynomial argument the bits of the function argument of lower order than the k bits used to address the memory unit, wherein the evaluation of the polynomial is performed using as an input to a polynomial evaluator a value t comprised of bits of the function argument of lower order than the k bits used to address the memory unit, computing the quantities $t^2, t^3, \ldots, t^d$ in fixed combinational logic, computing terms of the polynomial in a set of multipliers operating in parallel, whose inputs are the coefficients obtained from the memory unit and the powers of t, and adding terms of the polynomial.

5,068,817

NON-RECURSIVE HALF-BAND FILTER WITH COMPLEX VALUED COEFFICIENTS FOR COMPLEX INPUT AND OUTPUT SIGNALS

Heinz Göckler, Backnang, Fed. Rep. of Germany, assignor to ANT Nachrichtentechnik GmbH, Backnang, Fed. Rep. of Germany

PCT No. PCT/DE88/00020, § 371 Date Aug. 18, 1989, § 102(e) Date Aug. 18, 1989, PCT Pub. No. WO88/06381, PCT Pub. Date Aug. 25, 1988
PCT Filed Jan. 16, 1988, Ser. No. 408,516
Claims priority, application Fed. Rep. of Germany, Feb. 19, 1987, 3705206
Int. Cl.[5] G06F *15/31*
U.S. Cl. 364—724.16 7 Claims

1. A non-recursive half-band filter having a filter length N, comprising:

at least one input and an output, said input for receiving a complex input signal $s_I(kT)$ having a real component s_{rI}

VOL 1132 ISS 4 NO 26 1991 UMI

and an imaginary component s_{il} at a sampling frequency fA, where $fA = 1/T$; and

means for processing and converting the received complex



input signal $s_l(kT) = s_{rl} = js_{il}$ into a complex output signal s(kT), where K is a running index, without changing the sampling frequency, said processing and converting means operates according to the equation:

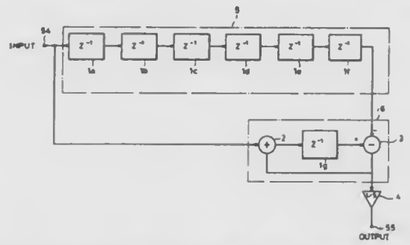
$$\begin{aligned} s(kT) &= s_l(kT) * h(l) \\ &= s_{rl}(k) * h_r(l) - s_{il}(k) * h_r(l) + \\ &\quad j[s_{rl}(k) * h_r(l) + s_{il}(k) * h_r(l)] \end{aligned}$$

and includes means for modulating a pulse response h(l), where $l = -(n-1)/2$ to $(N-1)/2$ and N is an odd filter length, onto a complex carrier at a frequency of $\pm\frac{1}{4}$ of the sampling frequency to yield:

$$h(l) = h(l) \cdot e^{(\pm 2\pi l f A/4 fA + \phi 0)} = j^{\pm l} \cdot e^{j\phi 0} \cdot h(l)$$

where the null phase $\phi 0$ of this frequency is an integer multiple m of $\pi/2$ ($\phi 0 = m \cdot \pi/2$ where $m = 0,1,2,3\ldots$) wherein said modulating means includes, for real component inputs and imaginary component inputs; a respective chain of $(N-1)/2$ delay members having a center delay member where each sample of the real component and the imaginary component of the input signal s(kT) is routed into the respective chain of $(N-1)/2$ delay members having delay times of 2T, with the center delay member being divided into two members having a delay time of T; respective difference signal forming means for subtracting from the output signal of the last delay member of the respective chain the input signal of the first delay member of the respective chain to form a first respective difference signal, subtracting from the output signal of the penultimate delay member of the respective chain the input signal of the second delay member of the respective chain to form a second respective difference signal, subtracting from the output signal of the third to last delay member of the respective chain the input signal of the third delay member of the respective chain to form a third respective difference signal, and so on until the output signal of each delay member is processed; respective weighting means for weighting said respective difference signals by a value equal to a function of the pulse response h(l); respective means for summing the respective weighted difference signals via an adder to yield either a term of the real or the imaginary component of the filter output signal s(kT); and respective means for outputting an output signal from the center delay member of the respective chain, after a delay of $T \cdot (N-1)/2$, said output signal being weighted with a value equal to a function of h(0), which results in a term of the imaginary component or the real component of the filter output signal s(kT).

5,068,818
HARDWARE IMPLEMENTED MOVING AVERAGE PROCESSOR
Shinichi Uramoto, and Hideyuki Terane, both of Hyogo, Japan, assignors to Mitbushi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Jan. 8, 1990, Ser. No. 461,966
Claims priority, application Japan, Jun. 6, 1989, 1-144784
Int. Cl.[5] G06F *7/38*
U.S. Cl. 364—734 **11 Claims**



1. A device for finding a moving average of a series of data sampled at a predetermined sampling period, comprising:

first delay means for sequentially receiving said series of data and for delaying each of the data by a time period corresponding to N sampling periods to output a result of the delay, N being an integer;

adding means having one input receive sequentially each data of said series of data;

second delay means for delaying an output of said adding means by a time period corresponding to one sampling period to output a result of the delay;

subtracting means for carrying out subtraction between an output of said second delay means and that of said first delay means; and

means for dividing an output of said subtracting means by a coefficient $(N-1)$ to produce a moving average output of said device,

said adding means having the other input receive the output of said subtracting means for adding the data supplied to said one input and said subtracting means output to output a result of the addition.

5,068,819
FLOATING POINT APPARATUS WITH CONCURRENT INPUT/OUTPUT OPERATIONS
Mamata Misra; Robert J. Urquhart; Michael T. Vanover, and John A. Voltin, all of Austin, Tex., assignors to International Business Machines Corporation, Armonk, N.Y.
Continuation of Ser. No. 211,387, Jun. 23, 1988, abandoned.
This application Jan. 24, 1991, Ser. No. 647,183
Int. Cl.[5] G06F *7/38*
U.S. Cl. 364—736 **28 Claims**

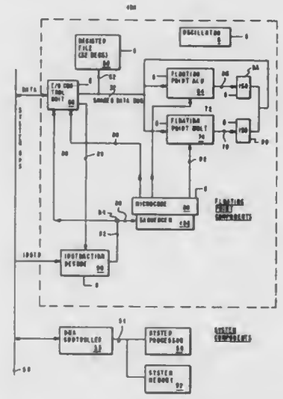
1. In a data processing system, a method for performing a series of operation sequences in a plurality of contiguous general purpose registers and an arithmetic logic unit and providing a final result to an information bus for each operation sequence, said method comprising the steps of:

assigning each of said plurality of contiguous general purpose registers to uniquely store parameters, intermediate results of operations in the sequence and a final operation sequence result;

computing results in said arithmetic logic unit for each of said sequence operations in the series consecutively;

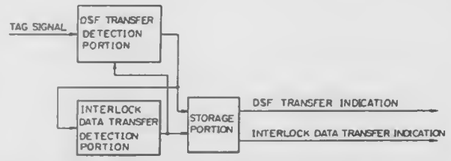
storing results from each sequence operation in its assigned register after each sequence operation computation; and

outputting to said information bus the final operation sequence result from its assigned register of a preceding



sequence simultaneously with the computation of a next sequence operation result in its assigned register.

5,068,820
DATA TRANSFER SYSTEM HAVING TRANSFER DISCRIMINATION CIRCUIT
Satoshi Nojima; Kazuo Sakagawa, both of Kawasaki, and Hideo Suzuki, Yokohama, all of Japan, assignors to Fujitsu Limited, Kawasaki, Japan
PCT No. PCT/JP87/00787, § 371 Date Jun. 10, 1988, § 102(e) Date Jun. 10, 1988, PCT Pub. No. WO88/02888, PCT Pub. Date Apr. 21, 1988
PCT Filed Oct. 16, 1987, Ser. No. 221,908
Claims priority, application Japan, Oct. 17, 1986, 61-248007; Oct. 24, 1986, 61-252883; May 2, 1987, 62-107949
Int. Cl.[5] G06F *13/42*
U.S. Cl. 395—275 **14 Claims**

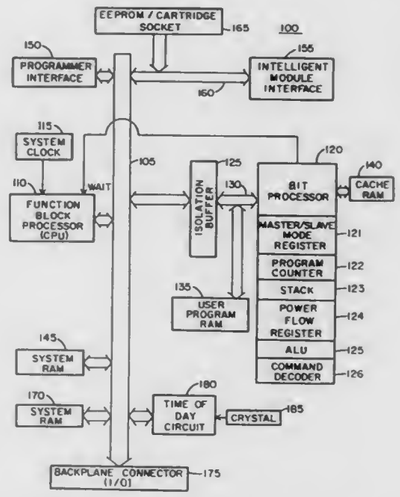


12. A data transfer system for a computer, with an input/output device at a distance therefrom, said system comprising:

a communication path coupled between said computer and said input/output device; and

transfer type discrimination means, coupled to said path, for determining a type of data transfer, responsive to a single tag signal, between the computer and the input/output device as a data streaming feature data transfer or an interlock data transfer by determining whether a first or second predetermined time periods exist where said first predetermined time period is shorter than said second predetermined time period, the first and second predetermined time periods are determined from the leading edge of the single tag signal and existence of said first predetermined time period determines that the type is a data streaming feature data transfer.

5,068,821
BIT PROCESSOR WITH POWERS FLOW REGISTER SWITCHES CONTROL A FUNCTION BLOCK PROCESSOR FOR EXECUTION OF THE CURRENT COMMAND
Daniel W. Sexton, Charlottesville, Va., and William F. Bentley, Ft. Collins, Colo., assignors to GE Fanuc Automation North America, Inc., Charlottesville, Va.
Filed Mar. 27, 1989, Ser. No. 329,151
Int. Cl.[5] G06F *9/46, 15/16*
U.S. Cl. 395—800 **8 Claims**



1. A programmable logic controller comprising:

a function block processor for processing high level commands;

a bit processor, coupled to said function block processor, for processing low level commands, said bit processor being coupled to a user program memory containing a user program having a sequence of commands having OP-CODES and OPERANDS associated therewith, said bit processor including a power flow register, said bit processor including a program counter containing an instruction pointer which points to a command OPCODE in user program memory to be processed;

said bit processor including decoding means for decoding the OPCODE of a command in said program memory, said command being referred to as the current command;

said bit processor including means for relinquishing control to said function block processor to processor said current command if for said current command at least one of the following conditions is true:

1. power flow is indicated in said power flow register;
2. said current command is a function block which must be executed by said function block processor;

said bit processor including instruction pointer adjusting means for waiting until said function block processor has retrieved the instruction pointer from the bit processor and then adjusting said instruction pointer to point to the next OPCODE in said program memory,

said bit processor including means for causing said bit processor itself to process said current command if neither of said conditions 1 and 2 is true, said bit processor advancing said instruction pointer in such instance to point to the next OPCODE in said program memory.

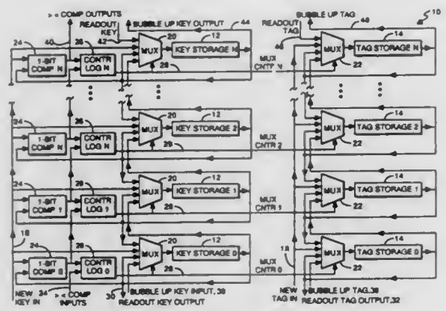
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,822

SINGLE-STAGE EXTENSIBLE SORTER FOR SORTING DATA AND EFFICIENTLY READING OUT SORTED DATA, INCORPORATING SINGLE-BIT DEVICES

Richard H. Lawrence, Hudson, Mass., assignor to Digital Equipment Corporation, Maynard, Mass.

Filed Mar. 16, 1988, Ser. No. 168,974
Int. Cl.[5] G06F 7/02, 7/04, 7/22, 7/24
U.S. Cl. 395—775 9 Claims



1. A hard-wired circuit for sorting data comprising

input means to input a new multibit word of a series of multibit words to be sorted,

a plurality of storage devices, each of said plurality of storage devices comprising means for storing a multibit word of said series of multibit words to be sorted,

a plurality of comparators, each one of said plurality of comparators being connected to receive a multibit word stored in one of said plurality of storage devices and said new multibit word from said input means and to compare said multibit word stored in said one of said plurality of storage devices and said new multibit word simultaneously with comparisons of other ones of said plurality of comparators and provide a comparison output, wherein each one of said plurality of comparators is a single-bit comparator connected to serially receive and compare bits of said new multibit word and said multibit word stored in said one of said plurality of storage devices, and

control means for identifying, based on information contained in said comparison output of each of said plurality of comparators, an identified one of said plurality of storage devices into which said new multibit word is to be stored in proper position with respect to sorted multibit words stored in other storage devices, and for storing said new multibit word in said identified one of said plurality of storage devices,

wherein said control means includes means for simultaneously shifting sorted multibit words stored in said plurality of storage devices to adjacent storage devices to make room for said new multibit word,

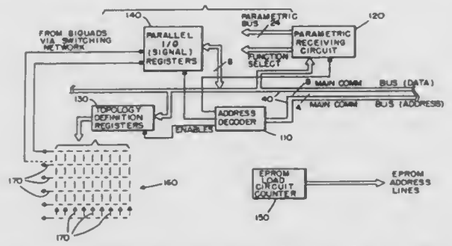
wherein said control means comprises a plurality of multiplexers, each one of said plurality of multiplexers being connected to selectively cause to be stored in a first of said plurality of storage devices either said new multibit word from said input means or a sorted multibit word stored at a second of said plurality of storage devices adjacent to said first of said plurality of storage devices, depending upon a comparison output of one of said plurality of comparators.

5,068,823

PROGRAMMABLE INTEGRATED CIRCUIT USING TOPOLOGICAL AND PARAMETRIC DATA TO SELECTIVELY CONNECT AND CONFIGURE DIFFERENT HIGH LEVEL FUNCTIONAL BLOCKS THEREOF

Jeffrey I. Robinson, New Fairfield, Conn., assignor to Star Semiconductor Corporation, Warren, N.J.

Filed Jul. 11, 1988, Ser. No. 217,616
Int. Cl.[5] G06F 15/20, 9/00
U.S. Cl. 395—500 20 Claims



1. A programmable integrated circuit real time signal processor apparatus which interfaces with a communications bus, said signal processor apparatus comprising:

(a) a plurality of high level functional block means including at least two of filter means, digital to analog converter means, rectifier means, modulator means, microprocessor means, and other high level processing means, each of said plurality of functional block means for performing in real time a different operation on signal data received by said functional block means, said plurality of functional block means having different basic configurations and structures and resultingly different high level functions and capabilities, wherein the operation of each high level functional block means is affected by internal parameters provided to the functional block means;

(b) a core means comprising interface means for interfacing with said communications bus, processing means for distinguishing between at least topological and parametric data received by said core means over said communications bus, and matrix switching means for interconnecting said plurality of functional block means in a desired manner in response to said topological data received over said communications bus and thereby controlling the specific interconnection between the high level functional block means and hence the functionality of said signal processor apparatus, wherein parametric data received by said processing means is sent by said processing means via a parametric bus to a plurality of said functional block means to control respective of said internal parameters and resultingly the operational characteristics of said plurality of functional block means;

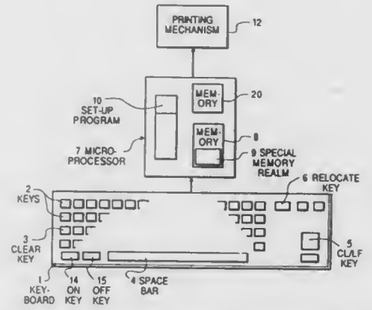
(c) timing function means for receiving timing signals from a timing generator and for controlling the sequential flow of at least said signal data in response thereto in order to maintain real time signal processing.

5,068,824

METHOD OF SETTING THE OPERATING PARAMETERS IN A MICROPROCESSOR-CONTROLLED TYPEWRITER OR OTHER MICROPROCESSOR-CONTROLLED OFFICE MACHINE

Franz Kreutzburg, Zetel, and Kurt-G. Galleck, Wilhelmshaven, both of Fed. Rep. of Germany, assignors to AEG Olympia Aktiengesellschaft, Wilhelmshaven, Fed. Rep. of Germany

Filed Sep. 1, 1988, Ser. No. 239,497
Claims priority, application Fed. Rep. of Germany, Sep. 1, 1987, 3729097
Int. Cl.[5] G06F 3/02, 3/06, 3/12
U.S. Cl. 395—800 15 Claims



1. A method of setting operating parameters in a microprocessor-controlled typewriter or like office machine having a microprocessor, a data input keyboard which includes (i) a printer-advance actuator, (ii) a first command actuator, (iii) a second command actuator, and (iv) a set-up initiating actuator, a memory for storing operating parameters for the typewriter, a record carrier, and a printing apparatus for selecting and printing the operating parameters and selectable values available therefor on the record carrier, including the steps of:

(a) recalling from the memory a set-up plane which lists a plurality of sub-planes containing the operating parameters and selectable values for the operating parameters in response to actuating the set-up initiating actuator;

(b) printing the set-up plane on the record carrier with the printing apparatus;

(c) moving the printing apparatus to a position adjacent to an indicia corresponding to a selected sub-plane by actuating the printer-advance actuator;

(d) recalling from memory the selected sub-plane, printing the operating parameters and values available for the operating parameters of the selected sub-plane upon the record carrier and positioning the printing apparatus at a location corresponding to one of the parameters printed on the record carrier in response to actuating the first command actuator;

(e) moving the printing apparatus to a position corresponding to a selected one of the available values of the one parameter by actuating the printer-advance actuator; and

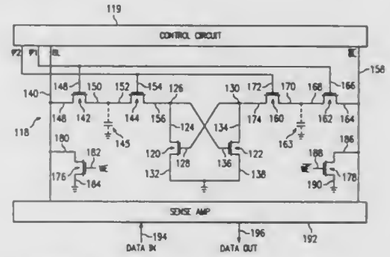
(f) selectively: (i) storing the selected one of the available values of the one parameter in the memory and moving the printer apparatus to a location corresponding to another parameter printed on the record carrier and repeating steps (e) and (f) with respect to that parameter in response to actuating the first command actuator; and (ii) storing the selected one of the available values of the one parameter, recalling from the memory the set-up plane, and causing the printing apparatus to print the set-up plane on the record carrier in response to actuating the second command actuator.

5,068,825

MEMORY CELL CIRCUIT AND OPERATION THEREOF

Shivaling S. Mahant-Shetti, Richardson, and Mark G. Harward, Dallas, both of Tex., assignors to Texas Instruments Incorporated, Dallas, Tex.

Filed Jun. 29, 1990, Ser. No. 546,497
Int. Cl.[5] G11C 13/00
U.S. Cl. 365—154 27 Claims



11. A memory cell, comprising:

a cross-coupled transistor pair for storing a data value;

a first transistor series pair coupled to a first node of said storage device, and operable in a first mode pull up a voltage at said first node by transferring a predetermined voltage level to said first node and in a second mode to provide electrical access to said first node for read/writing said storage device;

a second transistor series pair coupled to a second node of said storage device, and operable in the first mode to pull up a voltage at said second node by transferring a predetermined voltage to said second node and in the second mode to provide electrical access to said second node for read/writing said storage device; and

a clocking circuit for alternatively clocking the transistors of said first and second transistor pairs in a non-overlapping fashion during said first mode;

a supply circuit for providing the predetermined voltage to both of said first and second transistor pairs during said first mode; and

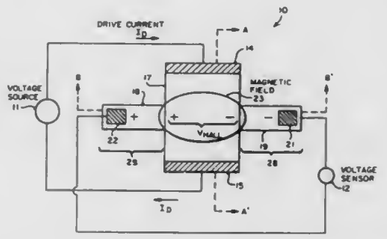
a conduct circuit for causing each of said transistor pairs to conduct during said second mode.

5,068,826

HALL EFFECT SEMICONDUCTOR MEMORY CELL

James A. Matthews, Milpitas, Calif., assignor to MicroUnity Systems Engineering, Palo Alto, Calif.

Division of Ser. No. 466,787, Jan. 18, 1990. This application Jan. 11, 1991, Ser. No. 640,075
Int. Cl.[5] G11C 11/18
U.S. Cl. 365—170 13 Claims



1. A non-volatile, static magnetic semiconductor memory device comprising:

a substrate of one condutivity type;

VOL 1132 ISS 4 NO 26 1991 UMI

a pair of spaced-apart regions of opposite conductivity type formed in said substrate, said spaced-apart regions defining a channel therebetween;

a gate member for producing an inversion layer across said channel whenever a predetermined voltage is applied to said gate member;

current sourcing means for flowing a current across said inversion layer from one of said spaced-apart regions to the other;

a pair of base regions of said opposite conductivity type forming a junction in said substrate on opposite sides of said channel such that each of said base regions make ohmic connection to said inversion layer;

a pair of emitter regions of said one conductivity type each of which forms a junction with one of said base regions; and

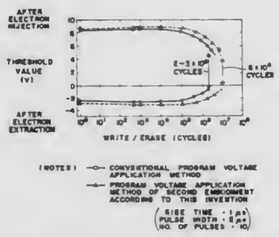
a magnetic patch formed above said gate member for storing information in a magnetic field whose flux lines are substantially transverse to said current, said magnetic field producing a Hall voltage in said inversion layer which is sensed by said base regions.

5,068,827

METHOD OF APPLYING A PROGRAM VOLTAGE FOR A NON-VOLATILE SEMICONDUCTOR MEMORY AND APPARATUS FOR IMPLEMENTING THE SAME

Seiji Yamada, Tokyo, and Kiyomi Naruke, Yokohama, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Dec. 11, 1989, Ser. No. 448,358
Claims priority, application Japan, Jan. 20, 1989, 1-11186
Int. Cl.[5] G11C *11/40, 13/00*
U.S. Cl. 365—189.01 **5 Claims**



3. A method of applying a voltage pulse for carrying out the injection/extraction of electrons into/from a non-volatile semiconductor memory in which high and low levels of a threshold voltage corresponding to the presence and absence of the storage of electrons are caused to correspond to binary information,

the method comprising the steps of:

generating a plurality of rectangular voltage pulses, each pulse having a predetermined voltage level and a predetermined width,

chopping each rectangular pulse generated by the generating means to form narrow pulses, the narrow pulses each having the ability of interjecting or extracting only a portion of all electrons to be stored; and

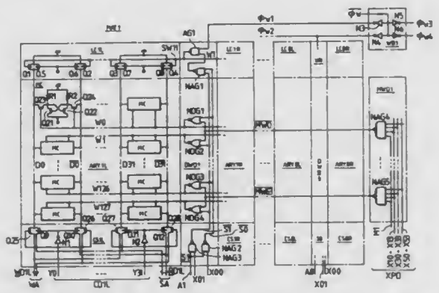
applying the plurality of voltage pulses to the non-volatile semiconductor memory, thereby to inject or extract all of the electrons.

5,068,828

SEMICONDUCTOR MEMORY DEVICE

Shuuichi Miyaoka, Ohme; Masanori Odaka, Kodair; Toshikazu Arai, Maebashi, and Hiroshi Higuchi, Takasaki, all of Japan, assignors to Hitachi, Ltd.; Hitachi Microcomputer Engineering, Ltd. and Akita Electronics Co., Ltd., all of Tokyo, Japan

Continuation of Ser. No. 228,021, Aug. 4, 1988, Pat. No. 4,935,898. This application Jun. 19, 1990, Ser. No. 540,480
Claims priority, application Japan, Oct. 2, 1987, 62-249578
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—189.01 **45 Claims**



1. A semiconductor integrated circuit device comprising: a first node for receiving a first voltage;

a second node for receiving a second voltage smaller than the first voltage;

word lines;

a pair of data lines;

memory cells of static type coupled to the word lines and the pair of data lines so that each memory cell is coupled to one word line and the pair of data lines;

a variable impedance circuit coupled between the first node and the pair of data lines and controlled such that its impedance becomes relatively high when the device is in a data write-in mode in comparison with its impedance in a data read-out mode, the variable impedance circuit including:

a first pair of P-channel MOSFETs in which the source-drain paths thereof are coupled between the first node and the pair of data lines, respectively, and the gates thereof are coupled to the second node, whereby the first pair of P-channel MOSFETs are turned on in response to the application of the first and second voltages to the first and second nodes, respectively, and

a second pair of P-channel MOSFETs in which the source-drain paths thereof are coupled between the first node and the pair of data lines, respectively, and the gates thereof are coupled to receive a control signal, whereby the second pair of P-channel MOSFETs are turned on in the data read-out mode and turned off in the data write-in mode;

a data input circuit which is activated in the data write-in mode and which includes means for changing a level of either one of the pair of data lines to a level substantially equal to the second voltage;

a data output circuit which is activated in the data read-out mode;

a pair of write data lines coupled to outputs of the data input circuit;

a pair of read data lines coupled to inputs of the data output circuit;

a first pair of N-channel MOSFETs for coupling the data input circuit to the pair of data lines via the pair of write data lines in the data write-in mode; and

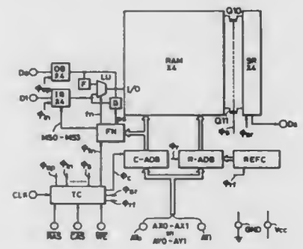
a third pair of P-channel MOSFETs for coupling the data output circuit to the pair of data lines via the pair of read data lines in the data read-out mode.

5,068,829

SEMICONDUCTOR MEMORY DEVICE

Yasunori Yamaguchi, Tachikawa, and Jun Miyake, Musashino, both of Japan, assignors to Hitachi, Ltd., Tokyo, Japan

Continuation of Ser. No. 224,375, Jul. 26, 1988, Pat. No. 4,951,251, which is a division of Ser. No. 874,106, Jun. 13, 1986, Pat. No. 4,766,570. This application Aug. 21, 1990, Ser. No. 570,525
Claims priority, application Japan, Jun. 17, 1985, 60-129826
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—189.07 **11 Claims**



1. A microprocessor system comprising:

a microprocessor for processing image data; and

a semiconductor memory coupled to said microprocessor,

wherein said semiconductor memory comprises:

a memory portion for storing image data,

a logic circuit coupled to said memory portion and having a plurality of operation modes which are respectively selected on the basis of a mode selecting signal,

control means coupled to said logic circuit for controlling said logic circuit,

a first external terminal coupled to said control means for receiving a row address strobe signal,

a second external terminal coupled to said control means for receiving a column address strobe signal,

a third external terminal coupled to said control means for receiving a write enable signal, and

a fourth external terminal coupled to said control means for receiving said mode selecting signal,

wherein a predetermined one of said operation modes is selected by said control means in response to said column address strobe signal being at a logic "low" level and said write enable signal being at a logic "low" level when said row address strobe signal is at a transitional logic level corresponding to a falling edge.

5,068,830

HIGH SPEED STATIC RAM SENSING SYSTEM

William C. Plants, Santa Clara, and Scott N. Fritz, Penn Valley, both of Calif., assignors to Advanced Micro Devices, Sunnyvale, Calif.

Filed May 9, 1989, Ser. No. 349,564
Int. Cl.[5] G11C *11/41, 7/02;* **G01R** *19/00;* **H03F** *3/45*
U.S. Cl. 365—190 **20 Claims**

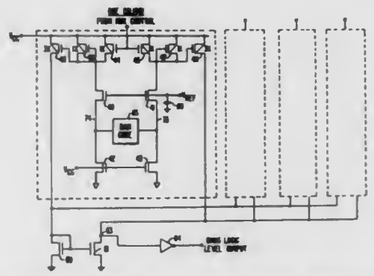
1. A static RAM sensing system comprising

a column of static RAM cells coupled together by a pair of complementary bit lines, each memory cell when accessed coupling only one of said pair of complementary bit lines to a current source, each state of said memory cell determining which bit line is coupled;

a pair of cascode transistors, each having first and second source/drain electrodes and a gate electrode, said first source/drain electrode connected to one of said pair of complementary bit lines;

a pair of current mirrors, each having an input and output terminal, said input terminal of each current mirror connected to a respective second source/drain electrode of said air of cascode transistors, said output terminal carrying a current proportional to a current through said input terminal;

an active load connected to both output terminals of said pair of current mirrors, said active load having an output node responsive to differences in currents through said output terminals; and



an inverter having an inverter input terminal and an inverter output terminal, said inverter input terminal connected to said output node;

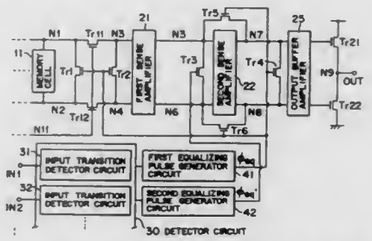
whereby the state of said inverter output terminal is determined by the state of an accessed memory cell.

5,068,831

DATA READ CIRCUIT FOR SEMICONDUCTOR STORAGE DEVICE

Satoru Hoshi; Masami Masuda, both of Kawasaki, and Takayuki Kawaguchi, Yokohama, all of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Jul. 9, 1990, Ser. No. 550,025
Claims priority, application Japan, Jul. 12, 1989, 1-179816
Int. Cl.[5] G11C *7/00*
U.S. Cl. 365—203 **12 Claims**



1. A data read circuit for a semiconductor storage device comprising:

a sense amplifier (22) to which is inputted data of a memory cell (11) selected according to an address via a pair of complementary first data lines (N1 to N6) and outputs the inputted and amplified data to a pair of complementary second data lines (N7, N8);

first switching means (Tr3) for equalizing said pair of complementary first data lines (N5, N6) at the input side of said sense amplifier (22) by making said first data lines conductive with respect to each other;

second switching means (Tr4) for equalizing said pair of complementary second data lines (N7, N8) by making said second data lines conductive with respect to each other;

third switching means (Tr5, Tr6) for equalizing by making said pair of first data lines (N5, N6) at the input side of said sense amplifier (22) and corresponding ones of said pair of second data lines (N7, N8) conductive with respect to each other;

second equalizing pulse generator means (42) for generating

VOL 1132 ISS 4 NO 26 1991 UMI

a second equalizing pulse (Φ_{eq}') when said address is changed and for turning on said first switch means (Tr3) by applying said second equalizing pulse to a control terminal of said first switch means; and

first equalizing pulse generator means (**41**) for generating a first equalizing pulse (Φ_{eq}) when said address is changed and for turning on said second and third switching means (Tr4; Tr5, Tr6) by applying said second equalizing pulse to gate terminals of said second and third switching means;

wherein the load capacitance connected to an output terminal of said second equalizing pulse generator means (**42**) is set smaller than the load capacitance connected to an output terminal of said first equalizing pulse generating means (**41**), and

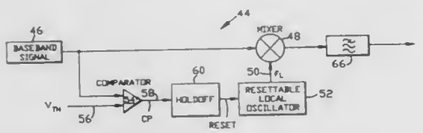
wherein the number of stages of logical circuits constituting said second equalizing pulse generator means (**42**) is smaller than the number of stages of logical circuits constituting said first equalizing pulse generator means (**41**), and whereby said second equalizing pulse (Φ_{eq}') from said second equalizing pulse generator means (**42**) is established earlier than said first equalizing pulse (Φ_{eq}) from said first equalizing pulse generator means (**41**).

5,068,832

BINAURAL ULTRASOUND DETECTOR AND IMAGER

Thomas I. Kirkpatrick, La Jolla, Calif., assignor to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Feb. 15, 1990, Ser. No. 481,421
Int. Cl.[5] G01S *15/00*
U.S. Cl. 367—97 **21 Claims**



1. An apparatus comprising:

generating means for generating a fixed frequency reference signal;

mixing means for mixing said fixed frequency reference signal with a receive signal to translate said receive signal into a translated signal different from said receive signal; and

phase shifting means for shifting the phase of said fixed frequency reference signal to correspond to the phase of said receive signal so that said translated signal is in phase with said receive signal when said fixed frequency reference signal is shifted.

5,068,833

DYNAMIC CONTROL CIRCUIT FOR MULTICHANNEL SYSTEM

David Lipschutz, Lexington, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif.

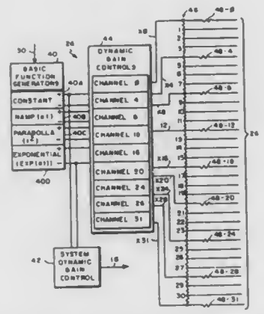
Filed Apr. 11, 1990, Ser. No. 508,219
Int. Cl.[5] G01S *15/00*
U.S. Cl. 367—98 **19 Claims**

1. A circuit for dynamically controlling the gain of each input channel of a system having a plurality of input channels to maintain a selected apodization profile with predetermined time-variances in channel aperture size, the circuit comprising:

means for controlling the gain for each channel;

means for generating a plurality of basis time-varying functions;

means for combining at least selected ones of said basis functions by appropriately weighting each selected function and adding the weighted functions to obtain a signal having the dynamic gain characteristic for a given channel required for the selected apodization profile; and



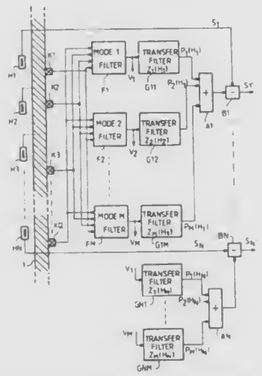
means for applying the appropriate signal to control the gain control means for each channel.

5,068,834

METHOD AND DEVICE FOR CORRECTING THE SIGNALS GIVEN BY THE HYDROPHONES OF AN ANTENNA

Bernard Fromont, Contes, France, assignor to Thomson-CSF, Puteaux, France

Filed May 24, 1990, Ser. No. 527,939
Claims priority, application France, Jun. 2, 1989, 89 07303
Int. Cl.[5] H04B *1/06*
U.S. Cl. 367—135 **4 Claims**



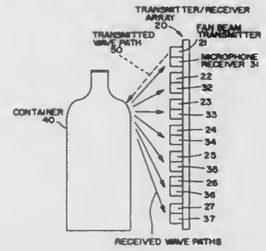
1. A device for the correction of signals output by hydrophones of an antenna mounted on a wall, comprising a plurality of vibration sensors mounted on the wall at the antenna and, for each hydrophone, a processing means followed by an adder to give a correction signal as a function of output signals delivered by the sensors and a subtractor to subtract a correction signal from the signal output by each hydrophone, wherein each processing circuit comprises, in series, a mode filter which carries out a weighted addition of signals output by the sensors and a transfer filter.

5,068,835

ACOUSTIC HOLOGRAPHIC ARRAY MEASUREMENT DEVICE AND RELATED MATERIAL

Michael A. Reed, Portsmouth, N.H., assignor to Environmental Products Corporation, Fairfax, Va.

Continuation of Ser. No. 413,941, Sep. 28, 1989, abandoned. This application Sep. 17, 1990, Ser. No. 584,507
Int. Cl.[5] B07C *5/00*
U.S. Cl. 367—135 **16 Claims**



1. An acoustic device for measuring the shaped of an object comprising:

transmitter means including a series of transmitters disposed in a spaced sequence, for transmitting an acoustic signal from each of the spaced transmitters in sequence toward an object to be measured;

receiver means for receiving a signal reflected by the object while said transmitter means is not transmitting between the signal transmissions during said sequence of acoustic signals;

measurement means for measuring phase data of said reflected signal received by said receiver means;

calculator means for calculating values representing the shape of the object as a function of said phase data; and

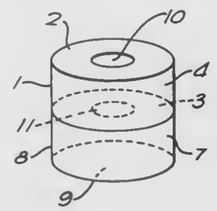
means for comparing said values with predetermined reference values to identify the shape of the object.

5,068,836

SOUND GENERATING TRANSDUCER

Geoffrey Steel, Bristol, England, assignor to British Aerospace Public Limited Company, London, England

Filed Sep. 19, 1990, Ser. No. 584,932
Claims priority, application United Kingdom, Oct. 6, 1989, 8922581
Int. Cl.[5] H04R *17/00*
U.S. Cl. 367—174 **7 Claims**



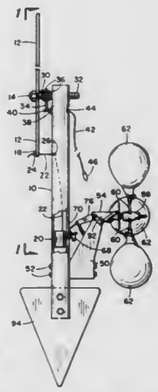
1. A Flextensional sonar transducer comprising a first cavity defined by an elliptical shell and end plates covering the two ends of the shell, vibration drive means inside the cavity and coupled between portions of the shell wall at opposite ends of the major axis of the shell, a second cavity connected to the first cavity and an opening between the two cavities for coupling the two cavities for the second cavity to affect the resonant frequency of the first cavity.

5,068,837

COMBINED RACING KITE GATE AND QUICK DRAW DEVICE

Arlen J. Lowrance, 2121 S. Yorktown, #802, Tulsa, Okla. 74114

Continuation-in-part of Ser. No. 603,443, Oct. 26, 1990, Pat. No. 5,018,117. This application Feb. 11, 1991, Ser. No. 653,051
Int. Cl.[5] G04B *47/00*; A63H *27/08*
U.S. Cl. 368—10 **13 Claims**



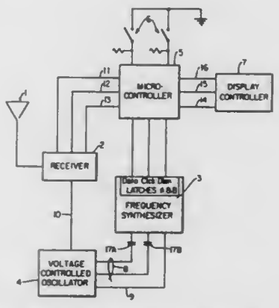
1. A racing gate for kites comprising a vertical pipe having an upper end and a lower end, the lower end supporting the pipe from the ground, an elongated wand having an upper end and a lower end, means for pivotally attaching the wand above its lower end to the pipe adjacent its upper end, a weight slidably mounted within said pipe, and a cord connected from the lower end of said wand to said weight for maintaining said wand in a normally vertical condition.

5,068,838

LOCATION ACQUISITION AND TIME ADJUSTING SYSTEM

Judah Klausner, Sagaponack, N.Y., and Robert Hotto, La Jolla, Calif., assignors to Klausner Patent Technologies, Sagaponack, N.Y.

Filed Jul. 18, 1990, Ser. No. 555,268
Int. Cl.[5] G04C *11/02*; H04B *7/185*
U.S. Cl. 368—47 **42 Claims**



1. A portable timekeeping system, comprising:

receiving means for receiving broadcast radiowave frequencies;

storing means for storing information indicative of sets of radiowave frequencies which are transmitted from prede-

VOL 1132 ISS 4 NO 26 1991 UMI

termined locations so that each set corresponds to a respective one of said predetermined locations;

matching means for matching said received broadcast radiowave frequencies from said receiving means with a matching one of said sets of radiowave frequencies; and

timekeeping means for updating time indicative of a local time where said received broadcast radiowave frequencies were transmitted based on matching from said matching means.

5,068,839

RESETTABLE SANDGLASS-TYPE TIMING DEVICE WHICH PROVIDES SELECTIVE TIMING PERIODS

Gary Rolfe, Basingstoke, Great Britain, assignor to Neil Lawrence, Australia

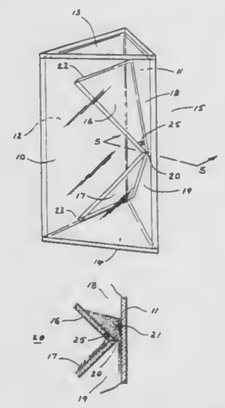
PCT No. PCT/AU88/00226, § 371 Date Jan. 16, 1990, § 102(e) Date Jan. 16, 1990, PCT Pub. No. WO89/00721, PCT Pub. Date Jan. 26, 1989

PCT Filed Jun. 30, 1988, Ser. No. 459,765

Claims priority, application United Kingdom, Jul. 16, 1987, 8716838; Dec. 31, 1987, 8730361; May 5, 1988, 8810548

Int. Cl.[5] G04F *1/04*

U.S. Cl. 368—93 **4 Claims**



1. A timing device which comprises a casing in the form of a hollow prism which is formed at least in part from a transparent material, two partitions located within the casing and co-operating with wall portions of the casing to form first and second chambers which converge in a direction toward one another, a passageway interconnecting divergent ends of the chambers, a narrow neck interconnecting convergent ends of the two chambers, and a flowable material located within the device and moveable under the influence of gravity from one chamber or the other by way of the neck or, as an alternative to passing through the neck, in an unimpeded manner by way of the passageway, one of the partitions having a port therein located adjacent the neck, the port interconnecting the first chamber and the passageway such that a portion of the flowable material will transfer from the first chamber to the passageway at the same time that the material is flowing from the first to the second chamber.

5,068,840

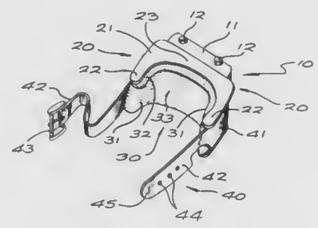
PILOT'S WRIST MOUNT FOR CARRYING A TIMPEPIECE OR THE LIKE VERTICALLY ON THE RADIAL ASPECT OF THE WRIST

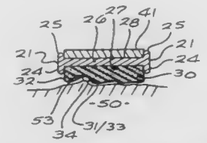
John H. Buckner, 3590 E. Imperial Hwy., Lynwood, Calif. 90262

Filed Oct. 10, 1989, Ser. No. 419,118

Int. Cl.[5] A44C *5/00*; **G04B** *37/00*

U.S. Cl. 368—281 **28 Claims**





1. A wrist mount, for a timepiece or the like, and particularly useful in a specialized activity in which a user's forearm is held with the radial aspect of the wrist oriented toward the user's eyes; said mount comprising:

a casing that fits loosely upon the radial aspect of a human wrist, generally out of contact with the wrist, and has inward-directed retaining flanges extending from the casing, along two opposed edges thereof, toward the wrist;

a wristband for securing the casing to the wrist; and

an insert pad, disposed and retained within the casing and between the retaining flanges, and having a portion extending beyond the flanges toward the wrist so that the pad directly contacts the wrist; said pad defining at least one marked recess or protuberance, or both, that substantially conform to detailed structure of the radial aspect of the wrist such as bony projections therefrom; and said pad spacing the casing away from and generally out of contact with the wrist.

5,068,841

MAGNETO-OPTICAL RECORDING/REPRODUCING DEVICE

Junichiro Nakayama; Hiroyuki Katayama, and Kenji Ohta, all of Nara, Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 21, 1990, Ser. No. 633,406

Claims priority, application Japan, Dec. 28, 1989, 1-342982

Int. Cl.[5] G11B *21/00, 21/02*

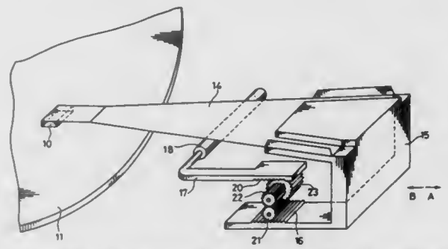
U.S. Cl. 369—13 **8 Claims**

1. A magneto-optical recording/reproducing device comprising:

a slider, having a magnetic head, that floats above a surface of a magneto-optical recording medium when the magneto-optical recording medium is in rotation;

a suspension that supports the slider, a depressing force being exerted on the slider by the suspension in a vertical direction with respect to the magneto-optical recording medium; and

adjustment means for adjusting the depressing force exerted on the slider by the suspension so that the depressing force



increases as the slider shifts to an outer part of the magneto-optical recording medium from an inner part.

5,068,842

CONTROL METHOD OF DISK DRIVE FOR RECORDABLE OPTICAL DISK

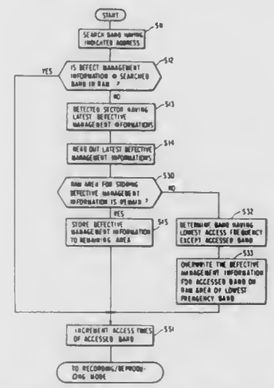
Ryuuich Naito, Saitama, Japan, assignor to Pioneer Electronic Corporation, Tokyo, Japan

Filed Nov. 7, 1988, Ser. No. 268,301

Claims priority, application Japan, Nov. 13, 1987, 286765

Int. Cl.[5] G11B *7/00, 27/10*

U.S. Cl. 369—32 **3 Claims**



1. A method for controlling a disk drive for a recordable optical disk whose information storage area is divided into plurality of bands, each band comprising multiple user sectors for recording user data, multiple alternative sectors for recording said user data when said user sectors are defective, and multiple mapping sectors for recording mapping data, said control method comprising the steps of:

receiving a command to access a chosen sector of said multiple user sectors,

determining whether a memory location in a memory of said disk drive has stored therein mapping data read from a mapping sector for the band that includes said chosen sector,

reading mapping data from the most recently recorded mapping sector for said corresponding band, if said mapping data from said mapping sector has not been previously stored in said memory location, thereby accessing each band's most recently recorded mapping data only as user sectors within said band are chosen,

storing the mapping data read from said most recently recorded mapping sector within said disk drive at said memory location, and accessing said chosen sector or an alternate sector defined by said mapping data, depending on whether said mapping data identifies said chosen sector as having no defect or a defect, respectively.

5,068,843

OPTICAL READ-WRITE APPARATUS

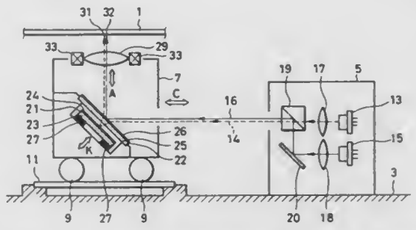
Nobuo Takeshita, and Teruo Fujita, both of Nagaokakyo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 2, 1990, Ser. No. 546,875

Claims priority, applicatiou Japan, Jul. 5, 1989, 1-173297

Int. Cl.[5] G11B *7/095*

U.S. Cl. 369—44.13 **17 Claims**



1. An optical read-write apparatus for reading and writing information in tracks on an optical medium, comprising:

at least two beam sources for producing light beams with different wavelengths;

at least two dichroic mirrors disposed one above another in paths of said beams, each of said dichroic mirrors reflecting light of the wavelength of one of said light beams and transmitting light of other wavelengths;

piezoelectric means for tilting at least one of said dichroic mirrors; and

an objective lens for receiving said light beams after reflection from said dichroic mirrors and focusing them onto said optical medium.

5,068,844

OBJECTIVE LENS MOUNT UTILIZING LEAF SPRINGS

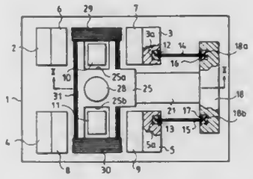
Akihiro Tanaka, Tokyo, Japan, assignor to Asahi Kogaku Kogyo K.K., Tokyo, Japan

Filed Mar. 13, 1989, Ser. No. 322,033

Claims priority, application Japan, Mar. 14, 1988, 63-59819

Int. Cl.[5] G11B *7/12*

U.S. Cl. 369—44.16 **7 Claims**



1. A device for supporting an objective lens of an optical pickup, comprising:

a base;

at least one first leaf spring having a first end secured to a spring mounting portion of said base through an elastic member;

a connective member secured to a second end of said first leaf spring through an elastic member;

at least one second leaf spring having a first end secured to said connective member through an elastic member; and

a holder member for holding an objective lens and being

VOL 1132 ISS 4 NO 26 1991 UMI

connected to a second end of said second leaf spring through an elastic member;

wherein movement of said objective lens in a tracking direction is controlled by one of said first and second leaf springs, and movement of said objective lens in a focusing direction is controlled by the other of said first and second leaf springs, and

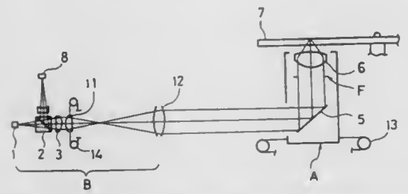
wherein each of said elastic members is made of an elastic material having an elastic force different from that of said first leaf spring and said second leaf spring.

5,068,845

OPTICAL PICKUP DEVICE FOR READING INFORMATION ON AN OPTICAL DISK

Katsuya Yagi, Hachioji, Japan, assignor to Konica Corporation, Tokyo, Japan

Filed Dec. 11, 1990, Ser. No. 625,852
Claims priority, application Japan, Dec. 14, 1989, 1-322619
Int. Cl.[5] G11B 7/085
U.S. Cl. 369—112 3 Claims



1. An optical pickup device for reading information stored on a disk-shaped information storage medium, which has a periphery, a center, and a radius R extending from said center to said periphery, comprising:

a fixed optical system secured to said optical pickup device, said fixed optical system including:

a light source;

a beam splitter for splitting light from said light source;

a beam deflecting lens having an optical axis and a principal point, said beam deflecting lens being positioned to receive light from said beam splitter and being movable only in a direction substantially orthogonal to said optical axis of said deflecting lens; and

a relay lens for relaying light to and from said beam deflecting lens; and

a movable optical system movable linearly in a plane parallel to said disk-shaped information storage medium along said radius R of said disk-shaped information storage medium, said movable optical system having:

a focussing object lens positioned to read said information stored on said disk-shaped storage medium; and reflecting mirror for reflecting light from said relay lens substantially perpendicularly to said focussing object lens and for reflecting light from said focussing object lens substantially perpendicularly back to said relay lens;

said focussing object lens having a focal point located at a position between said focussing object lens and said reflecting mirror;

said relay lens conjugating the position of said principal point of said beam deflecting lens with said focal point of said focussing object lens when said moving optical system is present at an intermediate position within the moving range of said movable optical system; and

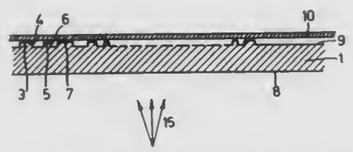
an optical detector positioned to receive light from said focussing object lens after reflection by said reflecting mirror and passage through said beam splitter.

5,068,846

REFLECTIVE, OPTICAL RECORD CARRIER

Pieter Kramer, Eindhoven, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.

Continuation of Ser. No. 146,554, May 5, 1980, abandoned, which is a continuation of Ser. No. 949,919, Oct. 10, 1978, abandoned, which is a continuation of Ser. No. 772,914, Feb. 28, 1977, abandoned, which is a continuation of Ser. No. 344,867, Mar. 26, 1973, abandoned. This application Apr. 23, 1988, Ser. No. 858,550
Claims priority, application Netherlands, Sep. 2, 1972, 7211999
Int. Cl.[5] G11B 7/24; H04N 5/85
U.S. Cl. 369—275.1 7 Claims



1. A record carrier containing information which is readable by a beam of radiation, said record carrier comprising a disc-shaped, radiation-transmitting substrate having a pair of planar surfaces on opposite sides thereof, a non-transmissive, radiation reflecting optical structure on one of said planar surfaces of said substrate, said optical structure comprising a plurality of adjacent, circular tracks extending about the center of said substrate and defining turns of a spiral or concentric circles spaced from each other in the radial direction, each circular track having a plurality of depressions in said one surface of said substrate, said depressions being spaced apart in the track direction by intermediate areas, and a reflective layer extending over said intermediate areas and said depressions so that upon illumination by a convergent beam of radiation which is projected on and enters through the other of said planar surfaces and which passes through said substrate and is focussed on said optical structure to a spot of a size of the order of the smallest detail of said optical structure, the radiation is modulated by said depressions and intermediate areas in accordance with the sequence thereof and the modulated radiation is reflected by said reflective layer towards and exists through said other planar surface, said substrate defining a substantially rigid support for said optical structure and having a thickness such that in the plane of said other surface, which forms the entrance and exit faces for the radiation, the diameter of the beam is sufficiently larger than the diameter of said spot so that dust particles, scratches and the like on said other surface, do not interfere with readout of information by the convergent beam focussed to said spot on said optical structure, and an additional layer secured to the side of said substrate remote from said other surface, said optical structure being disposed between said substrate and said additional layer so that it is protected from damage during handling.

5,068,847

FIBER OPTIC NETWORK ARCHITECTURE HAVING DATA FEEDBACK FOR MONITORING COMMUNICATIONS THEREON

James C. Stout, Phoenix, Ariz., assignor to Honeywell, Inc., Minneapolis, Minn.

Filed Oct. 19, 1989, Ser. No. 423,906
Int. Cl.[5] H04J 14/00
U.S. Cl. 359—118 2 Claims

1. A fiber optic network having the capability of monitoring data communications of said fiber optic network, said fiber optic network comprising:

a) optical bus means for providing an optical medium to communicate optical signals;

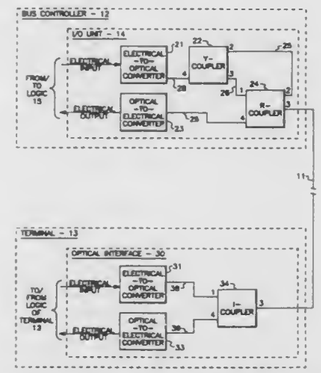
b) bus controller means, operatively connected to said optical bus means, for controlling communications of optical information on said optical bus means, to monitor said optical information outputted on the optical bus means, thereby verifying the integrity of said optical information, and wherein said bus controller means includes,

1) controller logic means for performing the controller function in accordance with predetermined protocol requirements; and

2) optical interface means, for interfacing electrical signals of said controller logic means and optical signals of said optical bus means to provide a conversion therebetween thereby providing compatible communications between said bus controller means and said optical bus means, and further wherein said optical interface means monitors the optical information launched onto the optical bus means by said bus controller means thereby verifying the integrity of said optical information, and wherein said optical interface means includes,

i) first converter means for converting said electrical signals from said controller logic means to a first optical output signal, the first optical output signals having a power associated therewith;

ii) second converter means for converting an optical input signal to an electrical output signal, said electrical output signal being coupled to said controller logic means;



iii) first coupler means having a first and second output terminal, said first coupler means operatively connected to said first converter means, for coupling the first optical output signal to the first and second output terminals of said first coupler means, the power of the signal being delivered to the first and second output terminals of said first coupler means having a predetermined split ratio power output, such that the first output terminal outputs a second optical output signal and the second output terminal outputs a third optical output signal, the second and third optical output signals having power associated therewith corresponding to the split ratio of the first coupler means; and

iv) second coupler means having a first, second, third, and fourth terminal, the first and second output terminal of said first coupler means operatively connected to said second and first terminal of said second coupler means, respectively, the third terminal of said second coupler means operatively connected to said optical bus means, and the fourth terminal of said second coupler means operatively connected to said second converter means, for coupling said third and second optical output signals to the third and fourth terminal of said second coupler means, respectively, to output the first predetermined portion of the first optical output signal onto the optical bus means and to couple a second predetermined portion of the first optical output signal back to the controller logic means, thereby permitting the bus controller means to communicate with the terminal means coupled to the optical bus means, and providing the information communicated onto the optical bus means to the controller logical means for monitoring; and

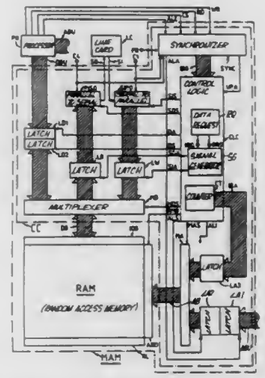
c) at least one terminal means, operatively connected to said optical bus means, for communicating with said bus controller means.

5,068,848

MULTI-ACCESS DEVICE

Dirk H. L. C. Rabaey, Wijnegem, and Didier R. Haspeslagh, Harelbeke, both of Belgium, assignors to Alcatel N.V., Amsterdam, Netherlands

Filed Dec. 6, 1988, Ser. No. 280,701
Claims priority, application Belgium, Dec. 7, 1987, 8701402
Int. Cl.[5] H04J 3/02
U.S. Cl. 370—85.6 11 Claims



1. Multi-access device including a common data resource to which a plurality of stations are coupled for the transmission of data, comprising:

at least one data buffer circuit;

a first data transmission circuit coupling said common data resource and a first of said stations;

at least one second data transmission circuit coupling said common data resource and said data buffer circuit;

at least one third data transmission circuit coupling said data buffer circuit and a second of said stations and used for the transmission of data thereon at predetermined moments;

first requesting means for requesting the use of said first data transmission circuit for the transmission of data thereon;

second requesting means for requesting the use of said second data transmission circuit for the transmission of data thereon; and

a priority circuit to which said first and second requesting means are coupled and which grants priority to requests of said first requesting means over requests of said second requesting means;

wherein said second requesting means performs a request a time interval before the next occurrence of one of said predetermined moments, said time interval having such a duration that said priority circuit is able to grant priority to said request performed by said second requesting means during said time interval.

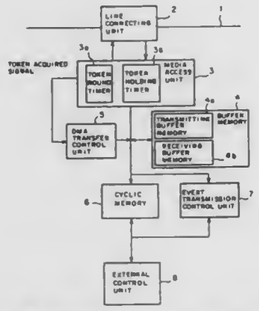
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,849

CYCLIC DATA TRANSMISSION METHOD

Yasuhiro Tanaka, Hyogo, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 6, 1989, Ser. No. 418,321
Claims priority, application Japan, Mar. 9, 1989, 1-56709
Int. Cl.[5] H04J 3/02
U.S. Cl. 370—85.5 3 Claims



1. A cyclic data transfer method for controlling transmission and reception of control data in a loop shaped transfer line forming a network by means of a plurality of stations which are connected to the loop shaped transfer line and to each of the stations are connected outer control devices respectively, updating a synchronous data frame queued in a transmission buffer memory with data stored in a transmission area of a cyclic memory in each of said stations, and transmitting the synchronous data frame from said buffer memory to all of said plurality of stations, said cyclic data transfer method comprising the steps of:

producing a synchronous data frame of a fixed length in each of the stations from high speed cyclic data and a prescribed portion of low speed cyclic data so as to be transmitted by acquiring a token;

sequentially loading said prescribed portion of said low speed cyclic data into the synchronous data frame so as to complete transmission of all said low speed cyclic data over several synchronous data frame transmissions; and

transmitting the synchronous frame of said fixed length into which said high speed cyclic data and said low speed cyclic data are integrated, upon the acquisition of said token.

5,068,850

PARAMETER VALUE COMMUNICATION SYSTEM

Leonard W. Moore, Northridge, Calif., assignor to Moore Industries-International, Inc., Sepulveda, Calif.

Filed Jun. 12, 1989, Ser. No. 365,168
Int. Cl.[5] H04L 5/22
U.S. Cl. 370—85.8 16 Claims

1. A method of communicating analog input signal values from multiple input points over a communications link to corresponding multiple output points to become analog output signal values, said method comprising the steps of:

forming said multiple input points into input groups;

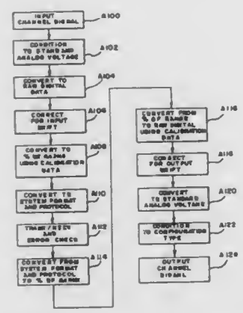
forming said multiple output points into corresponding output groups;

converting said analog input signal values to input digital values;

storing said input digital values;

generating a polling sequence in which each input group is interrogated as to its presence or operational status by generating a wake-up message comprising at least one unique digital character recognizable by an input group as a wake-up message and at least one unique digital character recognizable as the address of the selected group, and by receiving a ready message from the addressed group comprising at least one unique digital character recognizable as a ready message and at least one unique digital character recognizable as the address of the selected group;

enabling an input group to communicate with its corresponding output group during a predetermined time slot associated with the position of the input group in the polling sequence;



transmitting said stored input digital values over the communications link from an input group to its corresponding output group;

receiving said transmitted digital values over the communications link;

storing said received digital values; and

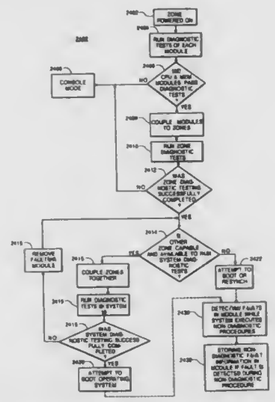
converting said stored received digital values to represent the analog output signal values.

5,068,851

APPARATUS AND METHOD FOR DOCUMENTING FAULTS IN COMPUTING MODULES

William Bruckert, Northboro, Mass.; Thomas D. Bissett, Derry, N.H.; David Kovalcin, Grafton, and Ravi Nene, Chelmsford, both of Mass., assignors to Digital Equipment Corporation, Maynard, Mass.

Filed Aug. 1, 1989, Ser. No. 388,093
Int. Cl.[5] G06F 11/00
U.S. Cl. 371—16.1 16 Claims



1. A method for testing the operation of a module for use in a data processing system, said data processing system being capable of operating in both a diagnostic mode, when only diagnostic procedures are run to determine the presence of faults in the modules of said data processing system, and in a fully operational mode when non-diagnostic procedures are run, the method comprising the steps of:

running automated diagnostic procedures on the module when the data processing system is in the diagnostic mode to determine the presence of faults in the module;

storing diagnostic information automatically in the module if a fault is detected during the diagnostic procedures, the diagnostic information indicating that the fault detected may be field-correctable;

executing non-diagnostic procedures in the data processing system when the data processing system is in the operational mode;

detecting the presence of faults in the module automatically while the data processing system is executing non-diagnostic procedures; and

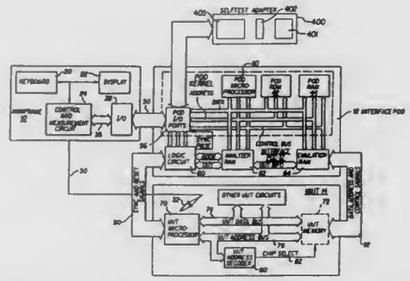
storing non-diagnostic fault information automatically in the module if a fault is detected during the non-diagnostic procedure, the non-diagnostic fault information indicating that the fault detected is not field-correctable.

5,068,852

HARDWARE ENHANCEMENTS FOR IMPROVED PERFORMANCE OF MEMORY EMULATION METHOD

Thomas P. Locke, Woodinville, Wash., assignor to John Fluke Mfg. Co., Inc., Everett, Wash.

Continuation-in-part of Ser. No. 275,184, Nov. 23, 1989. This application Nov. 24, 1989, Ser. No. 441,094
Int. Cl.[5] G06F 11/00
U.S. Cl. 371—16.2 12 Claims



1. An apparatus for testing, by memory emulation, a microprocessor-based unit under test (UUT) having a kernel formed by at least a microprocessor, a memory, an address bus and a data bus, said apparatus comprising:

an emulation memory connectable to said UUT in substitution for said UUT memory during testing of said UUT;

means for reading data from said emulation memory under control of said UUT microprocessor; and

a buffer circuit, comprising (a) gated data buffer means coupled to at least one data bus line at a data input of said microprocessor,

(b) gated status buffer means coupled to at least one external connection of said microprocessor for carrying a signal indicative of an operational status of said microprocessor and

(c) synchronization signal generation means responsive to said signal on said at least one external connection of said microprocessor for generating a synchronization signal for controlling acceptance of signals by both said gated data buffer means and said gated status buffer means; and

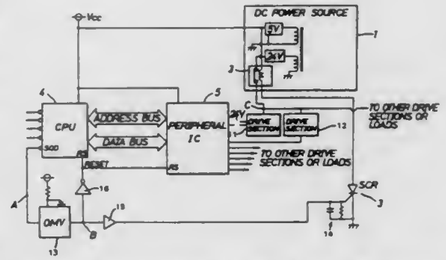
output means for reading out data stored in said buffer circuit.

5,068,853

FAIL-SAFE APPARATUS FOR IMAGE FORMING APPARATUS

Utami Soma; Yasufumi Koseki, and Minoru Asakawa, all of Hachioji, Japan, assignors to Konica Corporations, Tokyo, Japan

Filed Aug. 28, 1989, Ser. No. 399,317
Claims priority, application Japan, Aug. 30, 1988, 63-217143
Int. Cl.[5] G06F 11/00
U.S. Cl. 371—16.3 5 Claims



1. Image forming apparatus having a fail-safe protection means, comprising:

a central processing unit for controlling an image forming operation in said image forming apparatus, said central processing unit having a normal operating state and an abnormal operating state;

an input/output controller connected to said central processing unit;

a plurality of utilization means in said image forming apparatus connected to said input/output controller for performing said image forming operation as commanded by said central processing unit;

power supply means coupled to said central processing unit, to said input/output controller, and to said plurality of utilization means;

monitoring means coupled to said central processing unit for detecting said states of operation of said central processing unit for generating a first monitor output signal when said central processing unit is operating in said normal state and a second monitor output signal when said central processing unit is operating in said abnormal state, said first and second monitor output signals being supplied to said input/output controller and to said central processing unit;

said first monitor output signal enabling said central processing unit and said input/output controller to continue to perform said image forming operation, and said second monitor output signal actuating said input/output controller to stop said image forming operation and to reset said central processing unit; and

fail-safe disconnecting means independent of said central processing unit and said input/output controller coupled between said power supply means and said monitoring means for disconnecting said power supply means from said utilization means when said monitoring means generates said second monitor output signal, whereby said fail-safe disconnecting means assures that said image forming operations are stopped even if said input/output controller malfunctions to permit said image forming process to proceed after said monitoring means generates said second monitor output signal indicating a malfunction in said central processing unit.

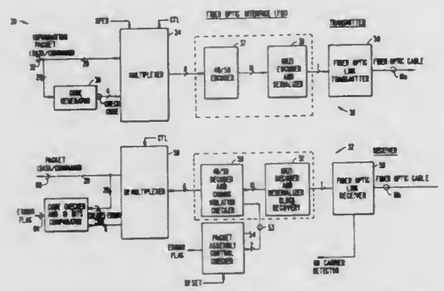
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,854

ERROR DETECTION FOR FIBER DISTRIBUTED INTERFACED OPTIC LINK

Srikumar R. Chandran; Franco E. Mau, both of San Jose, and Steveo A. Jan, Santa Clara, all of Calif., assignors to Cupertino, California U.S.A., Calif.

Filed Sep. 12, 1989, Ser. No. 406,012
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—37.1 9 Claims



1. A method for checking for the occurrence of errors in digital data packet containing N serially transmitted bits, the N bits including two adjacent bits indicative of one of a plurality of forms of the N bits, comprising the steps of:

swapping one of the two bits with one of the remaining N bits;

creating a check code having at least one bit derived from N/M bits occupying corresponding bit positions of N/M equal-bit groups of the N bits;

serially transmitting the N bits together with the check code;

receiving the N bits and check code, and creating from the received N bits an error code in the same manner as the check code was created;

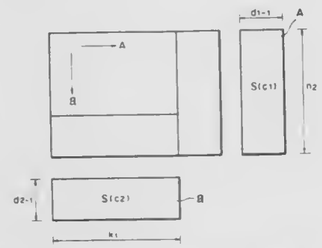
comparing the error and check codes to provide a indication of error when the error and check codes do not match.

5,068,855

ERROR CORRECTING METHOD AND APPARATUS

Motokazu Kashida, Musashino; Akihiro Shikakura, Atsugi; Shinichi Yamashita, and Tetsuya Shimizu, both of Yokohama, all of Japan, assignors to Canon Kabushiki Kaisha, Tokyo, Japan

Filed Jul. 14, 1989, Ser. No. 379,878
Claims priority, application Japan, Jul. 18, 1988, 63-180023; Jul. 29, 1988, 63-189803
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—37.4 14 Claims



1. A method of decoding digital data including error correction check codes in both of first and second directions when data is two-dimensionally arranged, comprising the steps of:

obtaining values in which the result of an arithmetic operation for error correction in at least one of said first and second directions is added to syndromes in the other direction; and

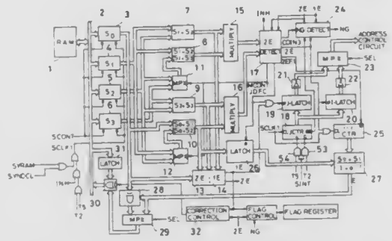
detecting and correcting an error position within said digital data again on the basis of said values.

5,068,856

METHOD AND CIRCUIT FOR DETECTING DATA ERROR

Naobumi Nagasawa, and Hiroyuki Arai, both of Gunma, Japan, assignors to Sanyo Electric Co., Ltd., Moriguchi, Japan

Filed Apr. 18, 1989, Ser. No. 339,758
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—37.5 7 Claims



7. A circuit for detecting a data error, comprising:

a syndrome calculating means which receives a plurality of data including parity data and calculates syndromes S_0, S_1, S_2 and S_3 and divides the syndromes S_0, S_1, S_2 and S_3 by 1, α, α^2 and α^3 (α is a root of a polynomial of degree eight) to produce outputs S_0', S_1', S_2' and S_3';

a first adding means which receives the outputs S_1' and S_2' and provides $S_1'+S_2'$;

a first selecting means which receives the outputs S_2' and S_3' and selects any one of the output S_2' and S_3';

a second adding means which receives the output S_1' and an output of the first selecting means and provides $S_1'+S_2'$ or $S_1'+S_3'$;

a third adding means which receives the outputs S_2' and S_3' and forms outputs $S_2'+S_3'$;

a second selecting means which receives the outputs S_1' and S_2' and selects any one of the outputs S_1', and S_2';

a fourth adding means which receives the output S_0' and an output of the second selecting means and forms outputs $S_0'+S_1'$ or $S_0'+S_2$;

a first multiplying means which receives outputs of the third and fourth adding means and outputs $(S_1'+S_2')^2$ or $(S_0'+S_1')(S_2'+S_3')$;

a second multiplying means which receives outputs of the third and fourth adding means and outputs $(S_0'+S_1')(S_2'+S_3')$ or $(S_0'+S_2')(S_2'+S_3')$; and

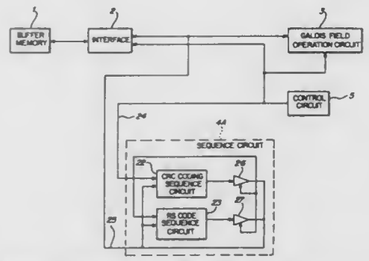
a double error detecting means which receives outputs of the first and second multiplying means and detects that one of two equations $(S_0'+S_1')(S_2'+S_3')=(S_1'+S_2')^2$ and $(S_0'+S_2')(S_2'+S_3')=(S_1'+S_2')(S_1'+S_3')$ is formed by controlling the first and second means in response to a detection output at a timing when the other of the two equations is formed.

5,068,857

ERROR CORRECTION CIRCUIT

Hideo Yoshida, Kamakura, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Sep. 1, 1989, Ser. No. 401,968
Claims priority, application Japan, Sep. 2, 1988, 63-218262
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—37.7 22 Claims



1. An error correction circuit comprising:

a buffer memory for storing a plurality of interleaved data streams, each having as an external code an RS code for correcting an error in data and as an internal code a CRC for detecting an error in data;

an interface for untying said interleaved data streams;

a Galois field operation circuit for carrying out Galois field arithmetic operations on a syndrome of said RS code and determining an error value based on an error location for effecting correction;

an RS code sequence circuit for computing said syndrome to find an error location from results of said Galois field arithmetic operations by a Chien search;

a CRC coding sequence circuit for coding and computing said CRC, said RS code sequence circuit and said CRC coding sequence circuit being connected in parallel to together form a sequence circuit; and

a control circuit for controlling said interface, said Galois field operation circuit, said RS code sequence circuit, and said CRC coding sequence circuit and outputting a control signal for selecting either said RS code sequence circuit or said CRC coding sequence circuit for operation.

5,068,858

ERROR CORRECTION CAPABILITY VARIED WITH TRACK LOCATION ON A MAGNETIC OR OPTICAL DISK

Miguel M. Blaum, San Jose, and Hsieh T. Hao, Los Altos, both of Calif., assignors to International Business Machines Corporation, Armonk, N.Y.

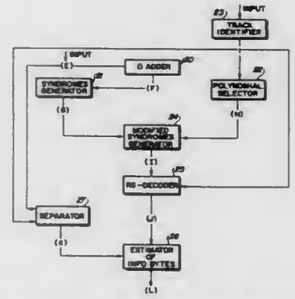
Filed Dec. 21, 1989, Ser. No. 455,197
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—41 13 Claims

10. A method of implementing an error-correcting code for a disk having a plurality of concentric recording areas, comprising the steps of:

selecting a Reed-Solomon code having a fixed number of data bytes and a polynomial having a full length with a number of redundant bytes that provides a preselected degree of error correction capability for the data bytes in a particular one of said concentric areas having a preselected maximum acceptable statistical error rate;

encoding a binary input string using said polynomial for progressively reducing the number of redundant bytes in each concentric area to provide a respective degree of error correction capability corresponding to a respective statistical error rate for such concentric area; and

during decoding, adding a number of 0's to each encoded string that will bring said encoded string to a length corresponding to the full length of the polynomial, said added number being considered as erasures, whereby error correction capability for the respective concentric areas decreases as the number of 0's increases.

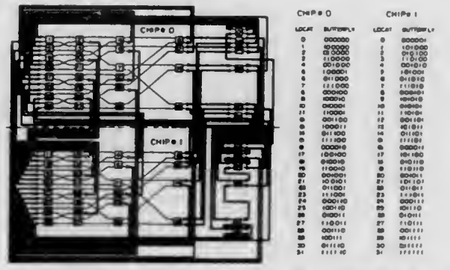


5,068,859

LARGE CONTRAINT LENGTH HIGH SPEED VITERBI DECODER BASED ON A MODULAR HIERARCHICAL DECOMPOSITION OF THE DEBRUIJN GRAPH

Oliver Collins, Key West, Fla.; Samuel J. Dolinar, Jr., Tujunga, Calif.; In-Shek Hus, Pasadena, Calif.; Fabrizio P. Bozzola, North Hollywood, Calif.; Erlend M. Olson, Azusa, Calif.; Joseph I. Statman, N. Hollywood, Calif., and George A. Zimmerman, San Pedro, Calif., assignors to California Institute of Technology, Pasadena, Calif.

Filed Jun. 19, 1989, Ser. No. 368,264
Int. Cl.[5] G06F *11/10*
U.S. Cl. 371—43 47 Claims



1. A method of partitioning a well-known deBruijn graph of arbitrary size (i.e., containing an arbitrary number of nodes 2G, where G is any positive whole integer, with such nodes being connected according to the prescribed connectivity of the deBruijn graph), wherein such method is characterized by the steps comprising:

dividing the deBruijn graph into identical internally wired modules, with provisions for additional external wires between modules as necessary to complete said connectivity of said deBruijn graph; and

formulating a Viterbi decoder, or any other suitable device having deBruijn graph connectivity, from said modules formed by said dividing step.

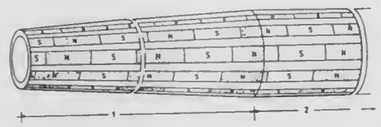
VOL 1132 ISS 4 NO 26 1991 UMI

5,068,860

HELICAL WIGGLER DEVICE WITH PERMANENT MAGNETS FOR APPLICATION TO FREE ELECTRON LASERS

Frederic Hartemann, Cambridge, Mass.; Michel Bres, Versailles, and Roger Teillard, Beynes, both of France, assignors to Thomson Tubes Electroniques, Boulogne Billancourt, France

Continuation of Ser. No. 528,053, May 23, 1990. This application Apr. 10, 1991, Ser. No. 683,070
Claims priority, application France, May 30, 1989, 89 07082
Int. Cl.[5] H01S *3/00*
U.S. Cl. 372—2 11 Claims



1. A magnetic assembly for a free electron laser comprising a non-magnetic mechanical support having a longitudinal axis of symmetry,

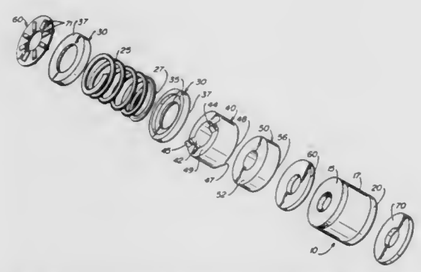
a plurality of permanent magnets arranged on the outer surface of said mechanical support in a manner to generate a helical magnetic field centered about said longitudinal axis, the thicknesses of said permanent magnets varying in thickness along a first position of said longitudinal axis in a continuous manner and being constant in thickness along a second portion of said longitudinal axis whereby the magnetic field along said longitudinal axis varies in a adiabatic manner from zero at the start of said first portion to a maximum at the end of said first portion and remains at said maximum for the length of said second portion for fast and sharp focusing of electrons flowing along said longitudinal axis, said variation in magnetic field being a consequence only of said variation in the thicknesses of said permanent magnets without the addition of any screening material for disturbing the magnetic field produced by the permanent magnets along that might degrade the performance of the free laser under high beam current conditions of operation.

5,068,861

ETALON APPARATUS

Rexford J. Abbott, San Jose, and David L. Wright, Redwood City, both of Calif., assignors to Spectra-Physics Lasers, Inc., Mountain View, Calif.

Filed Jul. 19, 1990, Ser. No. 555,717
Int. Cl.[5] H01S *3/10*
U.S. Cl. 372—20 16 Claims



1. An improved etalon apparatus comprising:

first and second optical windows having surfaces disposed highly parallel with respect to each other;

elastic longitudinal spacer member for maintaining a distance between said first and second optical surfaces;

biasing means for applying a longitudinal load having a first transverse distribution; and

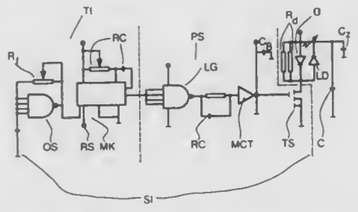
longitudinal load distribution means for receiving and redistributing the first transverse distribution of the longitudinal load applied by said biasing means and applying the longitudinal load to said elastic longitudinal spacer member in a second transverse distribution.

5,068,862

PULSED LASER

Clifton Zimmermann, Karlsruhe, Fed. Rep. of Germany, and Glen Mumford, Milford, Del., assignors to BASF Aktiengesellschaft, Ludwigshafen, Fed. Rep. of Germany

Filed May 9, 1990, Ser. No. 520,812
Claims priority, application Fed. Rep. of Germany, May 17, 1989, 3915982
Int. Cl.[5] H01S *3/03*
U.S. Cl. 372—25 3 Claims



1. A pulsed laser comprising a laser diode fed by a current pulse generator including a power MOS field effect transistor, wherein said current pulse generator also includes a power stage containing a single-pole MOS clock driver driving said field effect transistor and a timing generator driving said power stage,

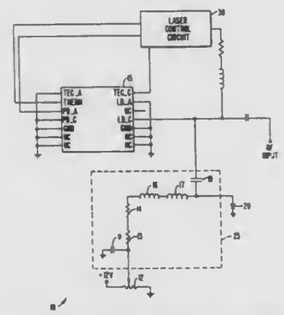
said field effect transistor being of the high current type and having a rise time of a few nanoseconds and said laser diode being in the circuit of a battery of capacitors.

5,068,863

COMPENSATING CIRCUIT FOR HIGH POWER LASERS

Forrest F. Fulton, Los Altos Hills, Calif., assignor to Wavelengths Lasers, Inc., Palo Alto, Calif.

Filed Apr. 17, 1990, Ser. No. 512,296
Int. Cl.[5] H01S *3/133*
U.S. Cl. 372—31 11 Claims



1. In a system wherein a high frequency electrical signal is converted into a high frequency amplitude modulated optical signal, a circuit for reducing distortion which occurs during conversion, the circuit comprising:

laser means coupled to receive the electrical signal, for converting the electrical signal into an optical signal;

diode means coupled in parallel with the laser means and also being coupled to a ground potential source; and

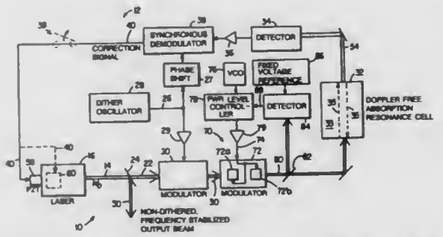
biasing means coupled to a power supply and ground, the biasing means also being coupled to the diode means, the biasing means forward-biasing the diode means so that a portion of the electrical signal flows to the ground potential source through the diode means, the diode means and the biasing means reducing the amplitude of the electrical signal going to the laser means during one polarity of the electrical signal and increasing the amplitude of the electrical signal to the laser means during the opposite polarity.

5,068,864

LASER FREQUENCY STABILIZATION

Ali Javan, Cambridge, Mass., assignor to Laser Science, Inc., Cambridge, Mass.

Filed May 4, 1990, Ser. No. 518,796
Int. Cl.[5] H01S *3/13*
U.S. Cl. 372—32 17 Claims



1. A system for stabilizing frequency fluctuations in a laser beam produced by a laser, comprising a frequency stabilization stage that includes:

A. a dither modulator external to the laser for dithering the frequency of said laser beam,

B. an absorption resonance cell having a resonance at a predetermined linewidth to which said frequency dithered beam is applied.

C. a synchronous demodulator synchronized to the dithering for producing a correction signal that represents said frequency fluctuations with respect to a reference frequency within said linewidth by demodulating an output of said cell, and

D. means for using said correction signal to correct for said frequency fluctuations and produce as an output of said stage a non-dithered beam stabilized from said frequency fluctuations, said means for using said correction signal comprising:

a modulator for generating a sideband of said laser beam, said sideband serving as said output of said stabilization stage,

a voltage controlled oscillator for applying a modulation signal to said sideband modulator, said modulation signal selected to cause said modulator to produce said sideband at a frequency shifted from a nominal frequency of said laser beam, and

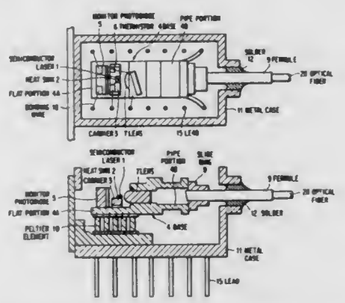
means for using said correction signal to tune said voltage controlled oscillator to cause said frequency fluctuations to be stabilized in said sideband.

5,068,865

SEMICONDUCTOR LASER MODULE

Yasunobu Ohshima, and Naoki Shibanuma, both of Tokyo, Japan, assignors to NEC Corporation, Tokyo, Japan

Filed Jun. 9, 1989, Ser. No. 363,737
Claims priority, application Japan, Jun. 9, 1988, 63-142961; Jun. 20, 1988, 63-152763
Int. Cl.[5] H01S *3/043;* G02B *6/42*
U.S. Cl. 372—36 4 Claims



1. A semiconductor laser module: comprising,

a semiconductor laser device from which light of a predetermined wavelength radiates, said semiconductor laser device being mounted on a chip carrier;

an optical fiber for supplying said light to a following stage, one end of said optical fiber being protected by a ferrule;

a lens for coupling said light of said semiconductor laser device to an input end of said optical fiber;

a metal base having a flat portion on which said chip carrier is mounted, and a pipe portion in the inside of which said lens is fixed on one side of said pipe portion and to which said ferrule is fixed on the other side of said pipe portion, said semiconductor laser device, said lens, and said input end of said optical fiber being aligned on an axis of said light to provide an optical system;

a metal case in which said optical system is fixed and through a side wall of which said terrule protecting said optical fiber is passed;

a first means for detecting light; and

a second means for detecting a temperature of said semiconductor laser device;

wherein said first means is mounted on said flat portion of said metal base, and said second means is mounted on said chip carrier.

5,068,866

SEMICONDUCTOR LASER APPARATUS

Masaru Wada, Akaiwa, and Kunio Itoh, Uji, both of Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Oct. 30, 1989, Ser. No. 428,517
Claims priority, application Japan, Oct. 28, 1988, 63-274148; Oct. 28, 1988, 63-274149
Int. Cl.[5] H01S *3/025;* H01L *23/28*
U.S. Cl. 372—36 6 Claims

1. A semiconductor laser apparatus comprising:

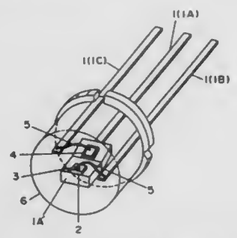
a laser chip having a high reflectivity film formed on at least one end surface of a cavity thereof;

a photodiode chip;

a support member for supporting said laser chip through a mount member and for supporting said diode chip so as to receive a laser beam radiated from said laser chip in a

VOL 1132 ISS 4 NO 26 1991 UMI

backward direction, said support member being an end portion of a metal lead;



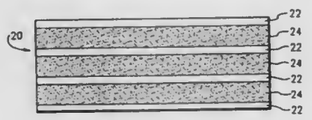
a transparent plastic resin for encapsulating said laser chip, said support member, said mount member and said photodiode chip.

5,068,867

COUPLED QUANTUM WELL STRAINED SUPERLATTICE STRUCTURE AND OPTICALLY BISTABLE SEMICONDUCTOR LASER INCORPORATING THE SAME

Thomas C. Hasenberg, Agoura Hills, and William J. Gignac, Ventura, both of Calif., assignors to Hughes Aircraft Company, Los Angeles, Calif.

Filed Nov. 20, 1989, Ser. No. 439,728
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—45 **29 Claims**



2. A strained superlattice structure comprising:
a plurality of coupled quantum well layers; and
a barrier layer formed between each two adjacent quantum well layers respectively;
the quantum well layers having a bandgap energy which is lower than the bandgap energy of the barrier layer;
the quantum well layers having a lattice parameter which is selected to be different from the lattice parameter of the barrier layer such that a permanent strain is created in the quantum well layers and the barrier layer;
wherein the lattice parameter of the quantum well layers is higher than the lattice parameter of the barrier layer.

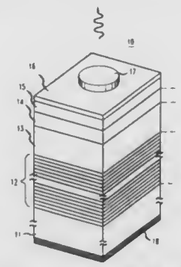
5,068,868

VERTICAL CAVITY SURFACE EMITTING LASERS WITH ELECTRICALLY CONDUCTING MIRRORS

Dennis G. Deppe, Austin, Tex.; Leonard C. Feldman, Berkeley Heights, N.J.; Rose F. Kopf, Bound Brook; Erdmann F. Schubert, New Providence, N.J.; Li Wei Tu, Westfield, N.J., and George J. Zydzik, Warren County, N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed May 21, 1990, Ser. No. 526,204
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—45 **20 Claims**

1. In a semiconductor vertical cavity surface emitting laser comprising at least one semiconductor selected from GaAs, GaAlAs, GaInAs, InP, InGaPAs and other related Group III–V and Group II–VI compound semiconductor, a plurality of layers including an active region which generates optical radiation and a rear mirror which reflects said radiation,
said laser further comprises
a front mirror of a metal which forms a non-alloyed ohmic contact to the semiconductor body and serves simultaneously as a front electrode of the laser, and
a rear electrode for applying, in unity with the front mirror, excitation current in direction substantially perpendicular to the active region and substantially parallel to the direction of propagation of optical radiation,



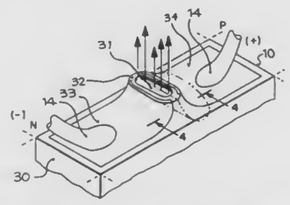
wherein said front mirror comprises a layer of highly reflective metal deposited in a thickness permitting transmission of optical radiation through the front mirror in direction perpendicular to the active region, said metal layer consisting essentially of a metal selected from the group consisting of silver and aluminum and being from 5 to 50 nm thick.

5,068,869

SURFACE-EMITTING LASER DIODE

Shing C. Wang, Mountain View, Calif.; Mutsuo Ogura, Tsukuba, Japan; Shyh Wang, El Cerrito, and Wei Hsin, Albany, both of Calif., assignors to Lockheed Missiles & Space Company, Inc., Sunnyvale, Calif.

Filed Jul. 14, 1988, Ser. No. 206,386
Claims priority, application Japan, Jun. 19, 1987, 62-154213
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—45 **12 Claims**



1. A surface-emitting laser diode comprising:
a) a semiconductor substrate made of a binary compound substantially consisting of a first element from Group III and a second element from Group V of the Periodic Table of Elements;
b) an active region formed on a surface of said substrate, said active region being generally vertical with respect to said surface of said substrate, said active region consisting of a plurality of pairs of first and second layers formed consecutively one upon the other, each first layer being made of a multinary compound substantially consisting of at least three elements all of said elements of said multinary compound being from Groups III and V of the Periodic Table of Elements, at least one of said elements of said multinary compound being from Group III and at least another one of said elements of said multinary compound being from Group V, each second layer substantially consisting of said binary compound of which said substrate is made, said active region thereby functioning as a resonant cavity;

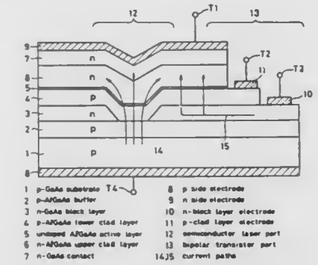
c) a cladding structure formed on said substrate circumjacent said active region, said cladding structure consisting of a semiconductor material having a wider energy gap than said multinary compound of which said first layers of said active region are made, said cladding structure having a p-type region and an n-type region, said p-type and n-type regions being separated from each other within said cladding structure, said p-type and n-type regions being in contact with said active region to form a lateral buried heterojunction with said active region, said cladding structure thereby functioning to inject an electrical current so as to generate said laser beam and to confine said laser beam within said active region for emission in a direction substantially perpendicular to said surface of said substrate;
d) a first electrode formed on said p-type region of said cladding structure; and
e) a second electrode formed on said n-type region of said cladding structure.

5,068,870

SEMICONDUCTOR LIGHT EMISSION SYSTEM

Tetsuya Yagi, and Misao Hironaka, both of Hyogo, Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Continuation of Ser. No. 97,457, Sep. 16, 1987. This application Nov. 13, 1990, Ser. No. 612,943
Claims priority, application Japan, Sep. 17, 1986, 61-220244
Int. Cl.[5] H01S *3/19*
U.S. Cl. 372—50 **5 Claims**



1. In a semiconductor light emission system having a semiconductor laser part including a current block layer, a first conductive clad layer, a conductive active layer, a second conductive clad layer on a conductive substrate, and a bi-polar transistor part having a collector, an emitter and a base in a position other than said semiconductor laser part, wherein the intensity of said laser part is controlled by controlling the current injected into the base.

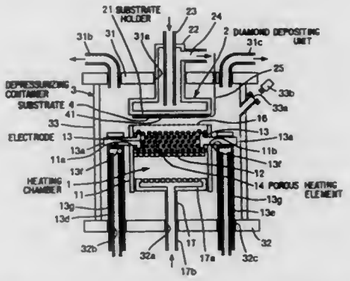
5,068,871

PROCESS FOR SYNTHESIZING DIAMOND AND APPARATUS THEREFOR

Kiyoshi Uchida, Toyota; Shoji Noda, Aichi, and Kazuo Higuchi, Seto, all of Japan, assignors to Kabushiki Kaisha Toyota Chuo Kenkyusho and Toyota Jidosha Kabushiki Kaisha, both of Toyota, Japan

Filed Aug. 6, 1990, Ser. No. 563,187
Claims priority, application Japan, Aug. 4, 1989, 1-203582
Int. Cl.[5] H01J *37/305*
U.S. Cl. 373—17 **11 Claims**

1. An apparatus for synthesizing diamond comprising:
a heating means comprising a porous heating element having a melting point or a decomposition temperature equal to or greater than 2000° C. and comprising at least one selected from the group consisting of metals and electrically conductive ceramics, at least a pair of electrodes for applying electricity to said porous heating element, an inlet port for introducing a reactant gas comprising at least a carbonaceous source gas into said porous heating element and an outlet port for delivering out an activated gas generated by heating said reactant gas with said porous heating element;



a substrate on which diamond is to be deposited disposed on the outlet port side of said heating means; and
a means for holding the substrate and for controlling a temperature of the substrate.

5,068,872

APPARATUS AND METHOD FOR SHORT CYCLING SEQUENCES OF A P-CODE GENERATOR

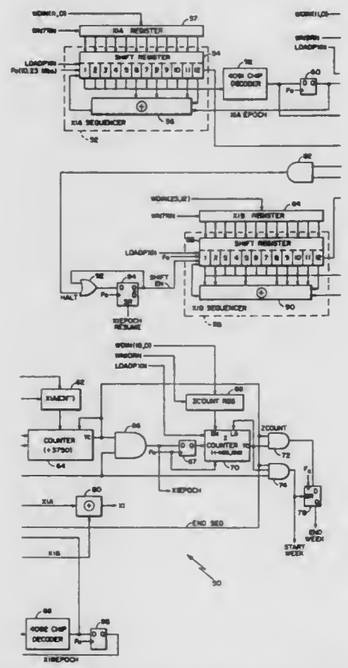
John C. Schroter, Waltham, Mass., assignor to Raytheon Company, Lexington, Mass.

Filed Nov. 27, 1989, Ser. No. 441,855
Int. Cl.[5] G06F *1/02;* H03B *29/00;* H04L *27/30*
U.S. Cl. 375—1 **13 Claims**

1. A P-code generator of a Global Positioning System comprising:
a plurality of pseudo-random number generators for generating a ranging P-code, each of said generators having a sequencer means for determining said ranging P-code;
shift register means included in each of said sequencer means comprising a plurality of stages, said shift register means having a serial input port, a serial output port, and shifting in accordance with an input signal;
decoder means coupled to each stage of said shift register means for generating a decode signal when the contents of said shift register means equals one predetermined vector word; and
means coupled to an output port of said decoder means and

VOL 1132 ISS 4 NO 26 1991 UMI

to a plurality of predetermined stages of said shift register means for generating a feedback signal fed to said serial



input port of said shift register means to short cycle said sequencer means.

5,068,873

EQUALIZER

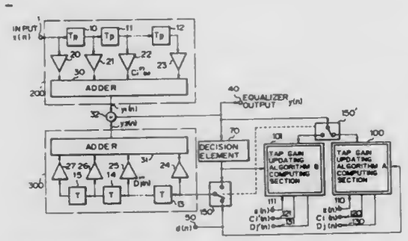
Keishi Murakami, Kanagawa, Japan, assignor to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan

Filed Oct. 29, 1990, Ser. No. 604,940

Claims priority, application Japan, Oct. 31, 1989, 1-285226; Dec. 4, 1989, 1-315862

Int. Cl.[5] H03H *21/00*; H03K *5/159*

U.S. Cl. 375—13 **3 Claims**



1. An equalizer comprising:

first and second equalizing sections each comprising a plurality of delay elements, a plurality of weight circuits and an adder to subject an input data signal to a product-sum operation a plurality of times in accordance with set tap coefficients;

a decision element which adds together output signals from said first and second equalizing sections, and makes a decision about a signal resulting from the addition;

a switch which selects either an output signal from said decision element or a reference signal which is a known signal sequence for estimation of transmission channel characteristics and inputs the selected signal to said second equalizing section;

a first computing section which receives said reference signal, an input signal to said decision element and said input data signal and makes an estimation of transmission channel characteristics in accordance with a first algorithm that has fast convergence property to set tap coefficients; and

a second computing section which receives said input data signal and signals which are inputted to and outputted from said decision element when the final reference signal in said known signal sequence and said input data signal are inputted to said first and second equalizing sections that have the tap coefficients set by said first computing section, and sets tap coefficients in accordance with a second algorithm that involves a relatively low computational complexity to update said tap coefficients.

5,068,874

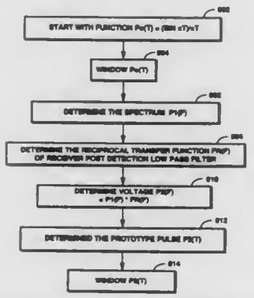
SPECTRALLY EFFICIENT DIGITAL FM MODULATION SYSTEM

Clifford D. Leitch, Coral Springs, Fla., assignor to Motorola, Inc., Schaumburg, Ill.

Filed Aug. 7, 1989, Ser. No. 390,317

Int. Cl.[5] H03C *1/06*

U.S. Cl. 375—51 **8 Claims**



4. A method for transmitting digital information to a communication receiver employing a post detection low pass filter having predetermined filter transfer function, said method comprising the steps of:

storing an optimized electric pulse which is derived from the processing of an electric pulse exhibiting minimum intersymbol interference characteristics with the reciprocal transfer function of the post detection low pass filter of the communication receiver, the optimized electric pulse when received and processed by the post detection low pass filter of the communication receiver providing a pulse shape exhibiting minimal intersymbol interference;

recovering the stored, optimized electric pulse in response to the digital information to be transmitted, for generating a sequence of the optimized prototype pulses corresponding thereto; and

transmitting the sequence or optimized electric pulses.

5,068,875

ADAPTIVE LOOP GAIN PHASE FILTER

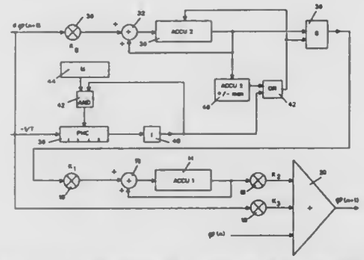
Michel Quintin, La Gaude, France, assignor to International Business Machines Corp., Armonk, N.Y.

Filed Sep. 1, 1989, Ser. No. 401,679

Claims priority, application European Pat. Off., Aug. 16, 1989, 89480127.3

Int. Cl.[5] H04L *25/03*; H04B *3/14*

U.S. Cl. 375—78 **6 Claims**



6. Method of compensating a phase hit in a combined amplitude-and-phase-modulation modem comprising a phase filter providing a very accurate value of the frequency shift, said method comprising the steps of:

saving the value of frequency shift last computed just prior to the occurrence of a phase hit;

detecting a phase hit;

phase rotating the received signal by a slowly incremented angle to determine the value of the phase correction for which the mean-square error presents a minimum;

computing the phase correction during the phase rotating by using the value of the frequency shift being saved, so that said phase correction is continually determined as if no phase hit has occurred; and

adding to said continually determined value of the phase correction, the value of said slowly incremented angle for which the mean-square error presented a minimum.

5,068,876

PHASE SHIFT ANGLE DETECTOR

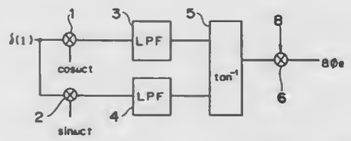
Shuuichi Yoshikawa, Nara; Masahiko Watanabe, Yamatokoriyama; Michio Ikeuchi, Nara; Yasumoto Murata, Tenri, and Takahiko Nakano, Ikoma, all of Japan, assignors to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Mar. 30, 1989, Ser. No. 330,444

Claims priority, application Japan, Apr. 1, 1988, 63-81720

Int. Cl.[5] H03D *3/22*

U.S. Cl. 375—80 **3 Claims**



1. A phase shift angle detector for detecting a phase shift angle of a multiphase modulated signal having N-phases, N being an integer, comprising:

first multiplier means for receiving and multiplying the multiphase modulated signal by a cosine wave signal and for, upon outputting a multiplied signal to first low pass filter, producing from said first low pass filter a cosine wave signal having a phase which is representative of a sum of a phase shift ϕe and the multiphase modulated signal g(t);

second multiplier means for receiving and multiplying the multiphase modulated signal by a sine wave signal and for, upon outputting a multiplied signal to a second low pass filter, producing from said second low pass filter a sine wave signal having a phase which is representative of a sum of a phase shift ϕe and the multiphase modulated signal g(t); and

calculation means for receiving said sine wave and cosine wave signals produced from said first and second low pass filters and for calculating an inverse tangent using the cosine wave signal and the sine wave signal and for multiplying said inverse tangent by said N to produce a signal representing the phase shift angle ϕe.

5,068,877

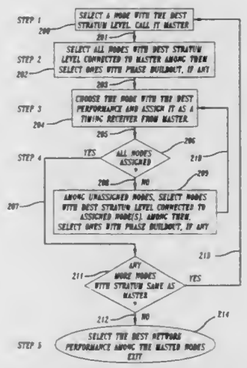
METHOD FOR SYNCHRONIZING INTERCONNECTED DIGITAL EQUIPMENT

Christopher D. Near, Howell, and M. Ümit Uyar, Sea Bright, both of N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Apr. 2, 1990, Ser. No. 503,205

Int. Cl.[5] H04L *7/00*

U.S. Cl. 375—107 **5 Claims**



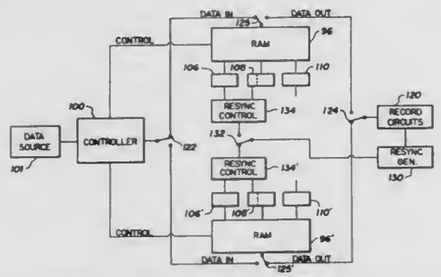
1. A method for planning synchronization clock distribution for a network of interconnected digital equipment wherein each digital equipment is represented as a node interconnected to other nodes by links, the digital equipment characterized by a set of equipment performance parameters and each link characterized by at least one link performance parameter, the method comprising assigning one node at the highest stratum level as the master clock node, forming a group of all unassigned nodes connected to the assigned node or nodes, selecting a subgroup of all nodes from the group wherein the subgroup includes all nodes having stratum levels which are equal or highest within the group, limiting the subgroup to nodes which have a desired characteristic when such nodes are included in the subgroup, determining synchronization performance of each node in the subgroup according to a predetermined criterion, assigning one node from the subgroup as a clock timing receiver wherein the one node exhibits synchronization performance better than synchronization performance for all other nodes in the subgroup, and iterating the method at the forming step until all nodes are assigned as timing receivers.

VOL
1132
ISS
4
NO
26
1991
UMI

5,068,878
METHOD AND APPARATUS FOR DATA INTERLEAVE WITH PSEUDO-RANDOMIZED RESYNCHRONIZATION

Shaw-Yuch Lin, Carlsbad, and Russell D. Shon, San Diego, both of Calif., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Feb. 6, 1990, Ser. No. 475,554
Int. Cl.[5] **H04L** *7/06;* **H04N** *5/78;* **G11B** *5/09*
U.S. Cl. 375—111 **4 Claims**



1. Apparatus for pseudo-randomly positioning resynchronization signals with respect to individual bytes of multi-byte code words initially arranged in a predetermined sequence, said apparatus comprising:

(a) means, responsive to the predetermined sequence of multi-byte code words, for temporarily storing the code words in a rearranged pattern the essence of which is the interleaving of individual bytes of different code words according to their respective positions in the initial sequence;

(b) means, coupled to said storing means, for reading out the interleaved bytes in contiguous blocks comprising a predetermined number B_1 of interleaved code word bytes; and

(c) means, responsive to said reading out means, for periodically injecting one resynchronization signal into the interleaved bytes for every B_2 bytes read out where $B_1 > B_2$, wherein at least one resynchronization signal is positioned at a variable location within each block of B_1 interleaved bytes read out, the effect of which is that each resynchronization signal is pseudo-randomly positioned to resynchronize an adjacent trailing cluster of B_2 individual bytes regardless of their respective positions within their own block of interleaved bytes and regardless of their respective positioned with the initial predetermined sequence.

5,068,879
MONITORING OF DIGITAL TRANSMISSION SYSTEMS

Brian W. Woodroffe, Edinburgh, Scotland, assignor to Hewlett Packard Company, Palo Alto, Calif.

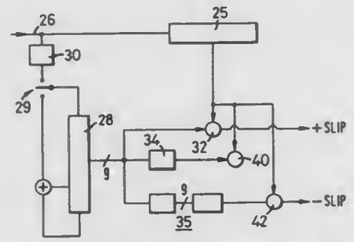
Filed Mar. 20, 1989, Ser. No. 325,628
Claims priority, application European Pat. Off., Mar. 22, 1988, 88302479.6
Int. Cl.[5] **H01L** *7/04*
U.S. Cl. 375—115 **5 Claims**

1. Apparatus for monitoring slip in a digital transmission system or the like that receives digital data, stores it in a memory and outputs it in synchronism with a local clock signal, the apparatus comprising:

memory means for storing receiving digital data;

first means, coupled to the memory means and responsive to the received digital data stored therein, for accumulating and storing a first group of N successive bits of a first PRBS sequence that is part of the received digital data stored in the memory means, N being an integer that is sufficiently large that N successive bits characterize the PRBS sequence, and also for producing at a first output signals indicative of the first group of N successive bits;

second means, coupled to the memory means and responsive to the received digital data stored therein, for generating a second PRBS sequence at least at one time identical to the first PRBS sequence and also for producing from the second PRBS sequence at second, third and fourth outputs, signals indicative of second, third and fourth groups of N successive bits, the second, third and fourth groups respectively indicative of a negative slip, no slip and a positive slip; and

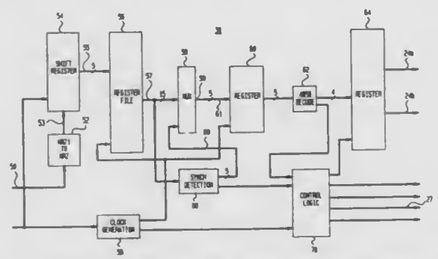


comparison means coupled to the first, second, third and fourth outputs, for comparing the first group N successive bits with each of the second, third and fourth groups of N successive bits.

5,068,880
OPTICAL INTERCONNECTS IN THE COMPUTER ENVIRONMENT

Todd A. Kline, Warminster; Warren A. Rosen, Hartsville; William J. Bermingham, Holland, and Eric A. Alfonsi, Newtown Square, all of Pa., assignors to The United States of America as represented by the Secretary of the Navy, Washington, D.C.

Filed Sep. 6, 1990, Ser. No. 580,043
Int. Cl.[5] **H04L** *7/08*
U.S. Cl. 375—116 **13 Claims**



1. A method for decoding an input data stream formed of a plurality of received data words having a transmitted word boundary between adjacent data words and at least one synchronization word in a network interface unit of a high speed computer network, comprising the steps of:

(a) applying said input data stream to serial-two-parallel shift means to provide a plurality of parallel boundary determination words;

(b) applying said plurality of parallel boundary determination words to a plurality of synchronization word detectors wherein said synchronization word detectors provide respective synchronization word detection windows for receiving differing portions of said plurality of parallel boundary determination words to test said different portions for the presence of said synchronization word;

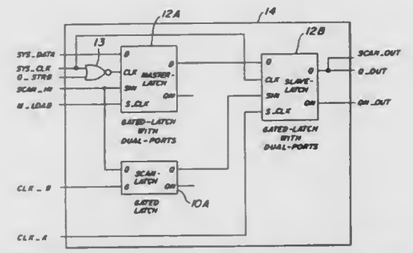
(c) detecting said synchronization word with the determined one of said synchronization word detection windows;

(d) determining said transmitted word boundary between said adjacent words of said input data streams in accordance with said determined synchronization word detection window.

5,068,881
SCANNABLE REGISTER WITH DELAY TEST CAPABILITY

Bulent I. Dervisoglu, Framingham, Mass., and Gayvin E. Stong, Fort Collins, Colo., assignors to Hewlett-Packard Company, Palo Alto, Calif.

Filed Aug. 10, 1990, Ser. No. 565,345
Int. Cl.[5] **G11C** *5/06;* **G06F** *13/00*
U.S. Cl. 377—70 **26 Claims**



1. A scan-register having at least first and second data input ports, at least one data output port, and inputs for at least first, second, third, and fourth control signals, comprising:

(a) first means having inputs coupled to the first and second data input ports for selectively storing data appearing on one of the said data input ports in accordance with the occurrence of a predefined combination of states of at least the first and second control signals;

(b) second means having at least one input coupled to the second data input port for selectively storing data appearing on the second data input port in accordance with the occurrence of a predefined state of at least the third control signal; and,

(c) third means having at least one input port coupled to an output of at least one of the first and second means, and further having an output coupled to the data output port, for selectively storing data stored in one of the first and second means in accordance with the occurrence of a predefined state of at least the fourth control signal and providing the data stored therein to the data output port;

the data appearing on one of the first and second data input ports being sequentially shiftable through selected ones of the first, second and third means, to the output port in accordance with the occurrence of predefined sequences of the predefined states of at least selected ones of the control signals.

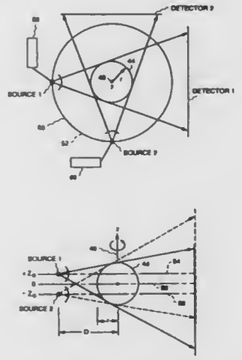
5,068,882
DUAL PARALLEL CONE BEAM CIRCULAR SCANNING TRAJECTORIES FOR REDUCED DATA INCOMPLETENESS IN THREE-DIMENSIONAL COMPUTERIZED TOMOGRAPHY

Jeffrey W. Eberhard, Schenectady, N.Y., assignor to General Electric Company, Schenectady, N.Y.

Filed Aug. 27, 1990, Ser. No. 572,590
Int. Cl.[5] **G01B** *15/06*
U.S. Cl. 378—4 **16 Claims**

1. A scanning and data acquisition method for three-dimensional computerized tomography (CT) imaging of an object within a field of view, said method comprising;

defining a pair of circular source scanning trajectories centered on the rotation axis passing through the field of view and lying in spaced parallel planes perpendicular to the rotation axis, the source scanning trajectories being spaced a distance selected to minimize the amount of missing data; and

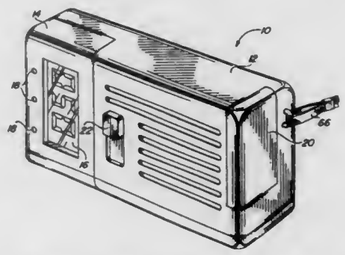


employing at least one cone beam x-ray source and at least one corresponding two-dimensional array detector positioned with reference to the at least one source and with reference to the field of view to scan the object at a plurality of relative angular positions along the source scanning trajectories to acquire cone beam projection data.

5,068,883
HAND-HELD CONTRABAND DETECTOR

Daniel DeHaan, San Diego, and David L. deLesdernier, Encinitas, both of Calif., assignors to Science Applications International Corporation, San Diego, Calif.

Filed May 11, 1990, Ser. No. 522,274
Int. Cl.[5] **G01N** *23/203;* **G21F** *5/012*
U.S. Cl. 378—86 **10 Claims**



1. A portable contraband detection system for detecting contraband concealed within an object, said detection system comprising:

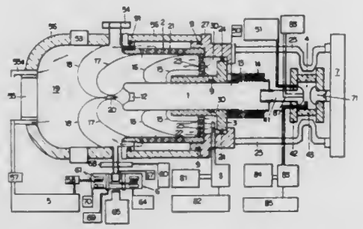
gamma ray generating means for generating low energy gamma rays, said gamma ray generating means being located within a shielded housing having a collimator opening, said gamma ray generating means including means for generating gamma rays having a plurality of prescribed energies;

shutter means for selectively directing said low energy gamma rays through said collimator opening or into said shielded housing, said shutter means including a shutter assembly having a closed position wherein said gamma rays are absorbed into said shielded housing, and an open position wherein said gamma rays are directed through said collimator opening, said shutter assembly comprising:

VOL 1132 ISS 4 NO 26 1991 UMI

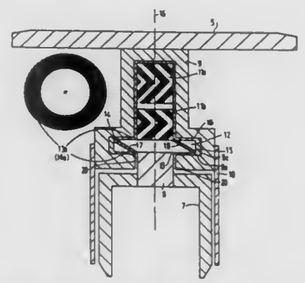
a shaft passing through said shielded housing,
a drum mounted for rotation about its longitudinal axis on said shaft,
means for receiving a plurality of radioactive sources within said drum, each of said radioactive sources having a prescribed energy, each radioactive source being contained in a housing having an open end and a closed end, said closed end being held in said drum so as to be near the longitudinal axis of said drum, said open end being near a circumferencial surface of said drum,
means for selectively rotating said drum 180°, said open position corresponding to positioning said drum such that the open end of each of said radioactive source housings is the closest possible distance to said collimator opening, and said closed position corresponding to rotating said drum 180° from said open position such that the open end of each of said radioactive source housings in the farthest possible distance from said collimator opening;
gamma ray detection means for detecting backscattered gamma rays from a source external to said shielded housing;
processing means for monitoring the number of backscattered gamma rays detected by said detecting means and displaying a count signal detecting means and displaying a count signal representative thereof;
means for detecting any significant change in said count signal as said low energy gamma rays are selectively directed towards adjacent prescribed volumes of said object, the number of backscattered gamma rays noticeably changing if one of said adjacent prescribed volumes contains contraband;
whereby contraband within one of said prescribed volumes may be detected by monitoring changes in said count signal.

5,068,884
X-RAY GENERATION SYSTEM FOR AN ULTRA FINE LITHOGRAPHY AND A METHOD THEREFOR
Young K. Choe; Jeon W. Yang; Jin H. Lee; Jae S. Lee, all of Daejeon-Si; Kyu H. Shim, Cheongju-Si, and Jin Y. Kang, Daejeon-Si, all of Rep. of Korea, assignors to Electronics and Telecommunications Research Institute, Chungnam, Rep. of Korea
Filed Dec. 29, 1989, Ser. No. 459,244
Claims priority, application Rep. of Korea, Dec. 30, 1988, 88-17987
Int. Cl.[5] H01J *35/00*
U.S. Cl. 378—119 **11 Claims**



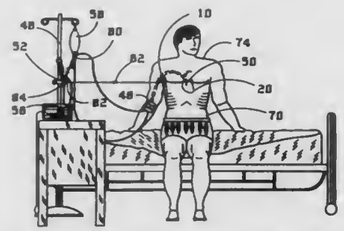
1. A soft X-ray generator system for an ultra fine lithography comprising:
a length adjustable center electrode having an adjusting screw and a tightening screw for adjusting the length of said center electrode;
a cylindrical peripheral electrode surrounding said ceer electrode and having a plurality of gas flow apertures or electrode bars for generating a soft X-ray from an ionized gas at a high temperature;
a transparent observation cylinder attached to said peripheral electrode of observing the X-ray generator system from the outside of said cylindrical peripheral electrode;
a discharging member or exposure connected to said cylindrical peripheral electrode for perpendicularly discharging said center electrode;
a plurality of vacuum sealing rubber rings disposed between said center and said cylindrical peripheral electrodes having Be discharge and observation windows for maintaining vacuum of a vacuum chamber, wherein said observation windows observe and measure three dimensionally;
a cylindrical insulator surrounding said center electrode having a base;
a metal container connected to said peripheral electrode having a tip of said center electrode extending to exhaust holes of a semi-circular, a circular, or an oval observation cylinder, wherein said exhaust holes are provided symmetrically and axially in a circular arrangement at opposite sides of insulators and an exhaust pump;
a pair of spatial gap switching metal electrodes having a large electric power and a capacitor connected to said center electrode respectively,
circular current returning wires having a diameter of a circular connecting each of said returning wires at a minimum when said current returning wires pass between two electrodes of a switch discharge chamber;
a separate electric power source connected to said discharge member for removing contamination between a center cylinder and said peripheral electrode;
a metal disc having a plurality of apertures disposed between a discharge chamber and said cylindrical insulator; and
gas feeding members connected to said discharge chamber for feeding the ionized gas to said discharge chamber.

5,068,885
ROTARY-ANODE X-RAY TUBE COMPRISING A HELICAL-GROOVE SLEEVE BEARING AND LUBRICANT RESERVOIR WITH CONNECTING DUCT SYSTEM
Axel Vetter, Hamburg, Fed. Rep. of Germany, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Jan. 2, 1990, Ser. No. 459,914
Claims priority, application Fed. Rep. of Germany, Jan. 12, 1989, 3900729
Int. Cl.[5] H01J *35/10*
U.S. Cl. 378—133 **13 Claims**



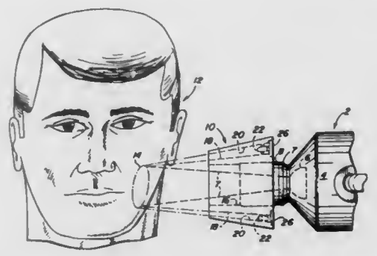
9. A rotary anode x-ray tube having
an x-ray tube housing in which a vacuum is maintained,
a rotary anode within said housing and rotatable about an axis of rotation, and
axial bearing means for axially supporting said anode in an axial direction during anode rotation, said axial bearing means comprising two bearing surfaces rotatable with respect to each other about said axis of rotation, and a lubricant between said bearing surfaces communicating with the vacuum within said housing, the improvement comprising:
a lubricant reservoir containing lubricant and communicating with said lubricant between said bearing surfaces for replenishing lubricant lost from between said bearing surfaces, and pressure equalization means for connecting said reservoir to the vacuum of said housing and equalizing the reservoir lubricant pressure with said vacuum.

5,068,886
CATHETER OR CANNULA POSITION INDICATOR FOR USE IN HEMODYNAMIC MONITORING AND THE LIKE
Monica Lavia, 3524 Hickory, Omaha, Nebr. 68105
Filed Jun. 28, 1990, Ser. No. 544,968
Int. Cl.[5] H05G *1/28*
U.S. Cl. 378—164 **11 Claims**



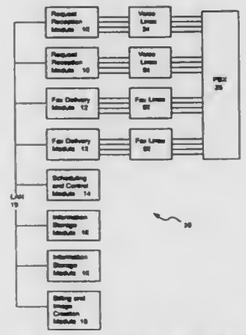
11. A method of determining the relative location of a radio opaque catheter inserted into an area to e catheterized, said locating method comprising the steps of:
placing a radio transparent sheet material containing a plurality of spaced apart radio opaque material fastener portions over the area to be catheterized;
producing an X-ray film of said area to be catheterized; and
determining he relative location of said catheter in relation to any of said spaced apart radio opaque fastener portions of said radio transparent sheet material from said X-ray film.

5,068,887
DENTAL X-RAY ALIGNMENT DEVICE
John R. Hughes, 4140 E. La Paloma Dr., Tucson, Ariz. 85718
Filed Nov. 26, 1990, Ser. No. 618,080
Int. Cl.[5] G03B *42/02*
U.S. Cl. 378—170 **22 Claims**



1. An alignment device for attachment to the extension tube of a dental x-ray unit to align the extension tube through which a pattern of x-rays is emitted to a patient's jaw, the device comprising:
a cylinder adapted to operably attach to the extension tube, said cylinder having a front face and a rear face; and
means operably attached to said cylinder to project a circle of light to the patient's jaw in alignment with the x-ray pattern emitted from the extension tube, said means including a first cylindrical surface formed in said cylinder, a second cylindrical surface also formed in said cylinder, said first cylindrical surface concentric to said second cylindrical surface, and a first radially directed annularly shaped base joining said first and second cylindrical surface, said first and second cylindrical surface and said first base defining a first annularly shaped cavity with an open circular front situated at the front face of said cylinder.

5,068,888
INTERACTIVE FACSIMILE INFORMATION RETRIEVAL SYSTEM AND METHOD
Randall P. Scherk, and Daniel J. Steneker, both of Richmond, Canada, assignors to AFD Systems, Inc., Richmond, Canada
Filed Aug. 11, 1989, Ser. No. 393,482
Int. Cl.[5] H04M *11/00;* **H04N** *1/32*
U.S. Cl. 379—100 **24 Claims**



1. A document delivery system for delivering recorded documents from an information storage location to specified user facsimile machines positioned at remote locations, the information delivery system comprising:
memory means for storing a multiplicity of documents;
request processing means for receiving requests for specific documents stored within said memory means, said request processing means including prompting means for providing signals to a user to prompt the user to specify order information denoting one or more selected documents and a designated telephone number for the user's facsimile machine; said prompting means including,
a plurality of voice lines each capable of connecting the request processing means to a user on an incoming telephone line, each said voice line having an associated speech generator for generating voice messages prompting a user to provide order information, and
a request controller coupled to said voice generator means and said voice lines for directing the generation and delivery of voice messages to said voice lines to prompt the users to provide order information, to echo back to said users said order information, and to prompt users to correct said order information when said order information is erroneous; said request processing means including means for assigning each document request a priority value;
facsimile delivery means for automatically delivering selected documents to a facsimile machine at said designated telephone number, said facsimile delivery means including at least one facsimile delivery module having:
a plurality of independent facsimile lines each capable of transmitting selected documents to a remote facsimile machine, said facsimile lines being capable of simultaneously delivering independent documents to different remote facsimile machines; and
facsimile control means for receiving the order information and for directing a particular facsimile line to deliver the selected documents to the designated tele-

VOL
1132
ISS
4
NO
26
1991
UMI

phone number, wherein said facsimile control means includes means for receiving order information for a plurality of independent orders and for coordinating the simultaneous delivery of selected documents to different designated numbers; and

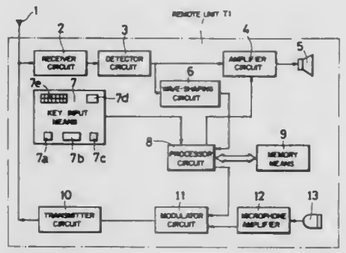
control means, coupled to said request processing means and said plurality of facsimile delivery means, for restricting and restraining access by said users to said documents stored in said memory means in accordance with specified criteria, and for scheduling and controlling delivery of requested documents via said facsimile delivery means in accordance with priority values assigned to said document requests.

5,068,889

CORDLESS TELEPHONE CAPABLE OF PROGRAMMING AN ID CODE INTO BOTH A BASE AND CORDLESS REMOTE UNIT VIA THE CORDLESS REMOTE UNIT

Kouji Yamashita, Hiroshima, Japan, assignor to Sharp Kabushiki Kaisha, Osaka, Japan

Filed Dec. 12, 1989, Ser. No. 448,838
Claims priority, application Japan, Dec. 12, 1988, 63-314476
Int. Cl.[5] H04M *1/56, 11/00*
U.S. Cl. 379—62 **7 Claims**



1. A cordless telephone for transmitting and receiving telephone calls including a base unit and a remote unit capable of communicating with each other through radio transmission, where both the base unit and the remote unit include a programmable ID code which is transmitted when the remote unit desires radio transmission of an outgoing telephone call via the base unit or the base unit desires radio transmission of an incoming telephone call to the remote unit whereupon communication of incoming and outgoing telephone calls through radio transmission, between both units, is established only when the ID code of a remote unit is identical to the ID code of the base unit, the remote unit further including,

storage means for storing said programmable ID code, and

input means, operatively connected to said storage means and including a programming key, numerical keys and an ID key, for inputting said ID code into said storage means upon activating said programming key and said ID key and numerical keys corresponding to the ID code, and for subsequently outputting a radio transmission to the base unit, including the ID code;

the base unit including,

detecting means for receiving said output radio transmission, including said ID code, and for detecting activation of said programming key and ID key,

control means, operatively connected to said detecting means, for outputting a first write signal, followed by said ID code, in response to said detecting means detecting activation of said programming key and said ID key, and

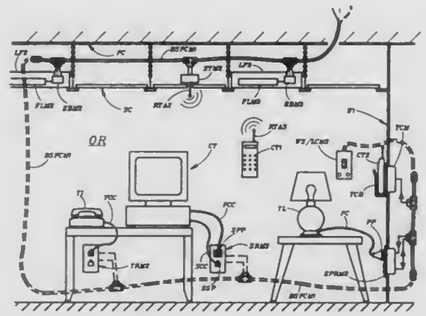
non-volatile memory means, operatively connected to said control means and capable of accessing and storing data, for, upon receiving said output first write signal, storing said ID code in a first memory area.

5,068,890

COMBINED SIGNAL AND ELECTRICAL POWER DISTRIBUTION SYSTEM

Ole K. Nilssen, Caesar Dr., Barrington, Ill. 60010

Continuation-in-part of Ser. No. 397,266, Aug. 23, 1989, which is a continuation-in-part of Ser. No. 136,505, Dec. 23, 1987, Pat. No. 4,866,757, which is a continuation of Ser. No. 921,381, Oct. 22, 1986, abandoned. This application Aug. 6, 1990, Ser. No. 562,897
Int. Cl.[5] H04M *11/00;* **H01B** *7/00;* **H04Q** *7/04*
U.S. Cl. 379—90 **60 Claims**



1. A combined signal and electric power distribution system comprising:

a signal and power distribution center connected with the signal transmission lines of a telephone utility company as well as with the electric power lines of an electric utility company;

a combined signal and power conducting means connected with the signal and power distribution center, and thereby also with said signal transmission lines and electric power lines; the combined signal and power conducting means including a set of signal conductor means as well as a set of main power conductor means; the combined signal and power conducting means being operative to permit, at each of plural connection-points disposed at spaced-apart locations therealong, access operative via a connect means to provide for connection with said signal transmission lines and/or said electric power lines; and

plural signal and/or power utilization means, each having a connect means by which it is connected with said combined signal and power conducting means at one of said connection-points.

5,068,891

CREDIT CONTROL SYSTEM FOR LONG DISTANCE TELEPHONE SERVICES

Marvin Marshall, 13014 N. Dale Mabry, Tampa, Fla. 33618

Filed May 31, 1989, Ser. No. 359,200
Int. Cl.[5] H04M *17/02*
U.S. Cl. 379—91 **15 Claims**

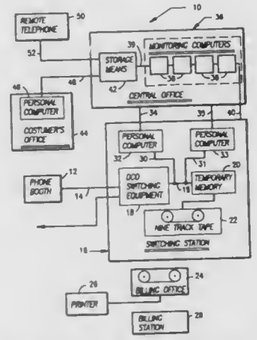
1. A method for preventing telephone travel card abuse, comprising the steps of:

capturing data transmitted by a conventional, pre-existing switching equipment means, including information concerning the temporal length of a long distance telephone call, immediately upon completion of the call;

said step of capturing data including the step of capturing said data as it is transmitted between a switching equipment means and an internal buffer means;

immediately transmitting the captured data to a monitoring means;

immediately subtracting the temporal length of the call from the amount of time available to the caller as determined by the caller's line of credit; and



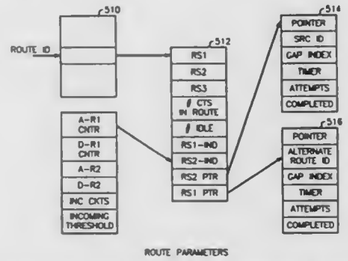
immediately invalidating the caller's travel card account number if no amount of time is available to the caller after said subtraction.

5,068,892

ROUTE BASED NETWORK MANAGEMENT

Konstantin Livanos, Naperville, Ill., assignor to AT&T Bell Laboratories, Murray Hill, N.J.

Filed Oct. 31, 1989, Ser. No. 429,662
Int. Cl.[5] H04M *7/00*
U.S. Cl. 379—221 **16 Claims**



1. In a telecommunications system comprising a plurality of interconnected exchanges the method of controlling traffic on a route, which includes all interconnecting circuits between a first exchange and any one other exchange, comprising the steps of:

collecting separate traffic activity data for each of a plurality of types of traffic, said plurality comprising direct routed outgoing traffic, alternate routed outgoing traffic, and incoming traffic, for a route;

comparing said traffic activity data with predetermined control criteria distinctive to each of said traffic types; and

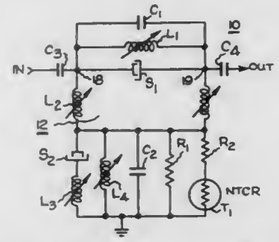
selectively applying traffic controls to limit the traffic on said route only in a selected one or selected ones of said type or types of traffic which meet said predetermined control criteria.

5,068,893

TELEVISION SIGNAL PROCESSING NETWORK FOR SUBSCRIPTION TELEVISION JAMMING SIGNALS

Lamar E. West, Maysville; William P. Lafay, Snellville; Majid Ghanouni, Marietta, and Alex M. Cook, Jr., Lawrenceville, all of Ga., assignors to Scientific Atlanta, Inc., Atlanta, Ga.

Continuation-in-part of Ser. No. 926,749, Nov. 4, 1986, Pat. No. 4,748,667. This application May 9, 1988, Ser. No. 192,062
The portion of the term of this patent subsequent to May 31, 2005, has been disclaimed.
Int. Cl.[5] H04N *7/167;* **H04K** *3/00;* **H03H** *9/00*
U.S. Cl. 380—7 **18 Claims**



1. A network for removing from a television signal, such as is distributed to CATV subscribers, a jamming signal combined with the television signal, the television signal having a picture carrier which can be located over a broad band television signal transmission range, which network comprises means including a surface acoustic wave (SAW) device having a frequency response which shifts with temperature and including a temperature compensation means, said device and said compensating means cooperatively providing a substantially constant frequency response with variations in temperature of said network with an insertion loss over a narrowband, much narrower than the broad band of said television signal, said narrow band insertion loss being within a range about 40 KHz, which, at the frequency of the jamming signal, is at least about 100 times greater than the insertion loss at the frequency of said picture carrier and is approximately at least 36 dB below the insertion loss at the picture carrier, and which insertion loss is greater than about 36 dB over a frequency range extending above and below the frequency of said jamming signal a sufficient range to accommodate said shifts in the frequency response of said device with respect to the frequency of said jamming signal, and said network further comprised means connected to said device for providing a total insertion loss over said broad band range of said network including said device of less than about 1 dB except over a frequency range of about ±24 MHz with respect to the frequency of said jamming signal where said loss is less than about 3 dB.

5,068,894

METHOD OF GENERATING A UNIQUE NUMBER FOR A SMART CARD AND ITS USE FOR THE COOPERATION OF THE CARD WITH A HOST SYSTEM

Joseph Hoppe, Les Molieres, France, assignor to U.S. Philips Corp., New York, N.Y.

Filed Aug. 22, 1990, Ser. No. 571,051
Claims priority, application France, Aug. 22, 1989, 89-11113
Int. Cl.[5] H04L *9/32;* **G07F** *7/08;* **H03B** *29/00;* **G06F** *1/02*
U.S. Cl. 380—23 **14 Claims**

12. A system for validating access to a smart card via a reader, comprising within said card:

storage means for storing a production key PK, a distributor key MK, a serial number NS, and a bearer code CP, for comparison with a bearer code CP presented by a bearer;

a counter for containing a count CTRAM;

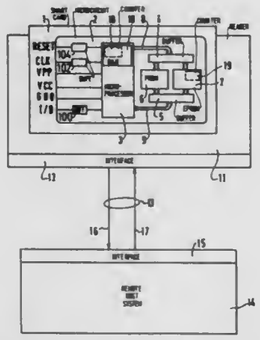
input message generating means responsive to said storage means and said counter for therefrom juxtaposing said

VOL 1132 ISS 4 NO 26 1991 UMI

serial number NS and said count CTRAM to generate an input message ME;

key generating means fed by said storage means for modulo-2 adding said production key PK and said distributor key MK to form a key KAC;

encryption means responsive to said input message generating means and said key generating means for forming a pseudo-random unique number NU by encrypting said input message ME utilizing said key KAC; and



incrementing means for, upon each formation of the number NU, incrementing the count CTRAM of said counter;

means for enabling said reader to read the unique number NU formed; and

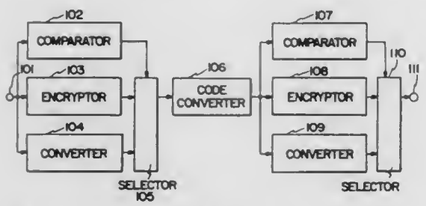
means for determining whether a response applied to the card by the reader has been correctly calculated in accordance with a predetermined function of the unique number NU.

5,068,895

ENCRYPTION AND DECRYPTION METHODS USING BIT-LENGTH PRESERVATION DECRYPTOR

Michio Shimada, Tokyo, Japan, assignor to NEC Corporation, Tokyo, Japan

Filed Apr. 26, 1989, Ser. No. 343,338
Claims priority, application Japan, Apr. 28, 1988, 63-108643
Int. Cl.[5] H04L *9/28*
U.S. Cl. 380—28 **10 Claims**



1. An encrypting method for producing a code associated with input information, comprising the steps of:

(a) if a numerical representation of said input information is smaller than a predetermined numerical value, applying a first predetermined operation to said input information to produce a first result of said predetermined operation and after said first result of said first predetermined operation is divided by said predetermined numerical value, producing a first residual as an interim result;

(b) if said numerical representation of said input information is not smaller than said predetermined numerical value, applying a first predetermined conversion to said input information and producing a result of said first predetermined conversion as said interim result;

(c) applying a predetermined code conversion to said interim result and producing a result of said predetermined code conversion as a new interim result;

(d) if said new interim result is smaller than said predetermined numerical value, applying a second predetermined operation to said new interim result to produce a second result of said second predetermined operation and, after said second result of said second predetermined operation is divided by said numerical value, producing a second residual as said code; and

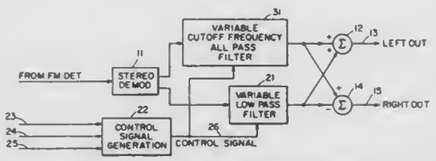
(e) if said new interim result is not smaller than said predetermined numerical value, applying a second predetermined conversion to said new interim result and producing a result of said second predetermined conversion as said code.

5,068,896

AUDIBLE NOISE REDUCING

William R. Short, Ashland, Mass., assignor to Bose Corporation, Framingham, Mass.

Continuation of Ser. No. 405,359, Sep. 11, 1989. This application Sep. 18, 1990, Ser. No. 584,521
Int. Cl.[5] H04H *5/00*
U.S. Cl. 381—13 **31 Claims**



1. Apparatus for reducing audible noise in a stereo receiver comprising,

a stereo demodulator having a monophonic signal output and a difference signal output,

a left signal combiner and a right signal combiner,

a variable cutoff frequency filter with a control signal input and having a controllable variable cutoff frequency intercoupling said difference signal output with the left and right combiners,

a control signal generator having a control signal output coupled to the control signal input of the variable cutoff frequency filter

said control signal generator having at least one of an rf level input and a multipath level input and producing a bandwidth-reducing control signal on said control signal output when a signal on said at least one input indicates the rf signal then being received by said stereo receiver produces high frequency noise at said difference signal output to then reduce the bandwidth of said variable cutoff frequency filter and reduce the high frequency noise signal therefrom.

5,068,897

MOBILE ACOUSTIC REPRODUCING APPARATUS

Toshitaka Yamato; Tatsuo Ito; Atsuyuki Takashima, all of Kobe, and Akira Motojima, Akashi, all of Japan, assignors to Fujitsu Ten Limited, Hyogo, Japan

Filed Apr. 26, 1990, Ser. No. 514,833
Claims priority, application Japan, Apr. 26, 1989, 1-108211
Int. Cl.[5] H04R *5/02*
U.S. Cl. 381—24 **4 Claims**

1. A mobile acoustic reproducing apparatus comprising:

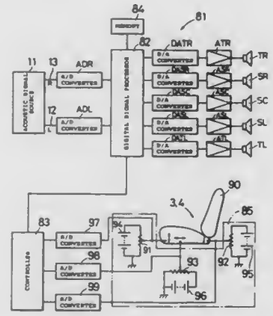
right and left loudspeakers disposed at positions at mutually different directional angles at the front right and front left positions of the listener,

a center loudspeaker positioned near the middle between the right and left loudspeakers, and disposed at a position of a directional angle larger than one of the right and left loudspeakers and smaller than the other one of the right and left loudspeakers,

an acoustic signal source for delivering an acoustic signal of a left channel to the left loudspeaker and an acoustic signal of a right channel to the right loudspeaker,

means for correcting the right channel and left channel acoustic signals by phase and level, and providing corresponding right and left correction signals,

means for adding the acoustic signals of the right and left channels, correcting the level thereof, and providing corresponding center correction signals,



means for adding the right and left correction signals and the center correction signal, and correcting the phase to feed to the center loudspeaker,

right and left tweeters disposed at the front right and front left sides of the listener and at a position of a larger directional angle than the directional angles of the right and left loudspeakers,

right and left high pass filters for filtering signals over a predetermined frequency of the acoustic signals of the right and left channels, and feeding corresponding filtered signals to the right and left tweeters, and

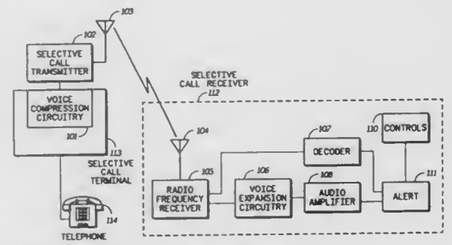
right and left level adjusting means for adjusting the level ratio of acoustic signal levels supplied to the right and left tweeters and acoustic signal levels supplied to the right, left and center loudspeakers.

5,068,898

VOICE MESSAGING METHOD FOR SELECTIVE CALL RECEIVERS

James W. Dejmek, Lombard, Ill., and Ronald A. Craig, Boynton Beach, Fla., assignors to Motorola, Inc., Schaumburg, Ill.

Filed Dec. 26, 1989, Ser. No. 456,430
Int. Cl.[5] G10L *5/00*
U.S. Cl. 381—29 **22 Claims**



1. A method comprising the steps of:

(a) time-compressing a voice message; and

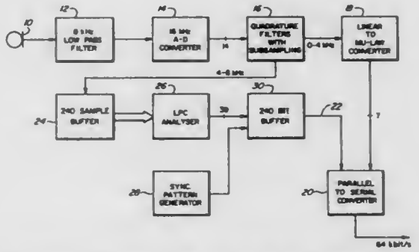
(b) translating the frequency spectrum of said voice message.

5,068,899

TRANSMISSION OF WIDEBAND SPEECH SIGNALS

John G. Ellis, and Bruce L. Townsend, both of Nepean, Canada, assignors to Northern Telecom Limited, Montreal, Canada

Filed Apr. 8, 1985, Ser. No. 721,091
Int. Cl.[5] G10L *3/02*; H04J *3/12*; H04B *1/66*
U.S. Cl. 381—31 **17 Claims**



1. A method of transmitting components of a signal in a high band of frequencies, above a predetermined frequency, on a digital transmission channel which carries components of the signal in a low band of frequencies, below the predetermined frequency, in the form of signal samples sampled at a rate of twice the predetermined frequency, comprising the steps of:

deriving from the signal bits of information relating to the high band signal components; and

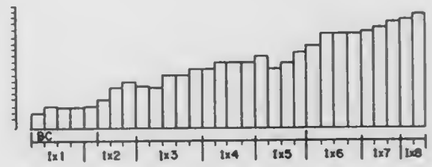
transmitting said bits of information in place of the least significant bit of the samples.

5,068,900

VOICE RECOGNITION SYSTEM

Gus Searcy, 17059 El Cajon Ave., Yorba Linda, Calif. 92686, and Franz Kavan, 211 S. Western Ave. No. 25, Anaheim, Calif. 92804

Continuation of Ser. No. 642,299, Aug. 20, 1984, Pat. No. 5,063,603. This application Jul. 16, 1990, Ser. No. 552,561
The portion of the term of this patent subsequent to Mar. 26, 2008, has been disclaimed.
Int. Cl.[5] G10L *5/00*
U.S. Cl. 381—43 **1 Claim**



1. A speech recognition system comprising:

an audio sensing circuit conformed to provide a sequence of pulses each of a length corresponding to the length of an audio wave;

buffer memory means conformed to receive and store a sequence of count codes each corresponding to the length of a respective one of said pulses;

segmenting means conformed to receive the count codes in said buffer memory means for accumulating the count codes therein and dividing said accumulation by a predetermined integer divisor and for producing a segment period indicative of said division;

sorting means operatively connected to receive said count codes from said buffer memory means and conformed to

VOL 1132 ISS 4 NO 26 1991 UMI

sort said count codes into preselected class intervals of count groups; and

said sorting means further including distributing means for distributing said count codes in accordance with said segment periods.

5,068,901

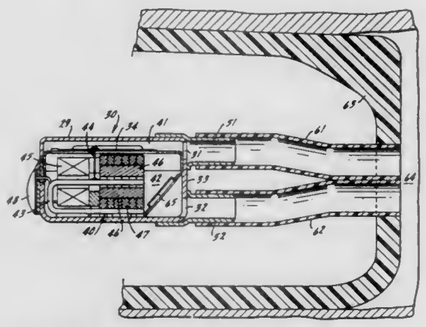
DUAL OUTLET PASSAGE HEARING AID TRANSDUCER

Elmer V. Carlson, Prospect Heights, Ill., assignor to Knowles Electronics, Inc., Itasca, Ill.

Filed May 1, 1990, Ser. No. 517,569

Int. Cl.[5] H04R *25/00*

U.S. Cl. 381—68.6 **14 Claims**



1. A hearing aid comprising:

a main housing, insertable into the ear of a hearing aid user, the housing including a sound outlet wall that faces into the ear canal of the hearing aid user;

a receiver housing mounted within the main housing in spaced relation to the sound outlet wall;

diaphragm means, mounted within the receiver housing, defining first and second acoustic chambers in the receiver housing;

an electromagnetic motor, mounted in the receiver housing, mechanically connected to the diaphragm to move the diaphragm, at frequencies within a given audio range, in accordance with an electrical signal applied to the motor;

first and second outlet ports, through the receiver housing, one connected each chamber;

and first and second elongated sound transmission tubes, one for each outlet port, each tube connecting its outlet port through the sound outlet wall of the main housing into the user's ear canal independently of the other tube.

5,068,902

METHOD AND APPARATUS FOR REDUCING ACOUSTICAL DISTORTION

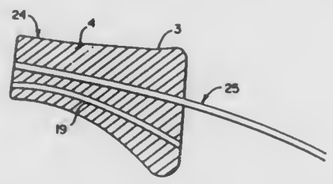
Gary L. Ward, Roanoke, Va., assignor to Epic Corporation, Hardy, Va.

Division of Ser. No. 932,812, Nov. 19, 1986, Pat. No. 4,811,402, which is a continuation-in-part of Ser. No. 930,778, Nov. 13, 1986, abandoned. This application Mar. 6, 1989, Ser. No. 318,832

The portion of the term of this patent subsequent to Mar. 7, 2006, has been disclaimed.

Int. Cl.[5] H04R *25/00, 25/02;* **A61B** *7/02*

U.S. Cl. 381—68.6 **36 Claims**



20. A method for reducing distortion of an acoustical waveform conveyed in a conduit, said method comprising forming said conduit from a composite comprising a plurality of microspheres and a polymeric matrix.

5,068,903

METHOD OF AND ARRANGEMENT FOR LINEARIZING THE FREQUENCY RESPONSE OF A LOUDSPEAKER SYSTEM

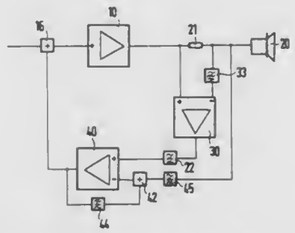
Michael Walker, Baltmannsweiler, Fed. Rep. of Germany, assignor to Alcatel N.V., Amsterdam, Netherlands

Filed Oct. 27, 1989, Ser. No. 427,828

Claims priority, application Fed. Rep. of Germany, Oct. 28, 1988, 3836745

Int. Cl.[5] H04R *3/00*

U.S. Cl. 381—96 **3 Claims**



1. Arrangement for improving the frequency response of a loudspeaker system comprising:

a power amplifier driving the loudspeaker system,

a current-sensing resistor for inter-connecting the power amplifier and the loudspeaker system,

a first operational amplifier responsive to a first voltage developed across the current-sensing resistor to produce a second voltage derived therefrom,

a second operational amplifier responsive to a difference between a third voltage applied to the loudspeaker system and the second voltage, and

a high-press filter between the output of the first operational amplifier and the noninverting input of the second operational amplifier.

5,068,904

IMAGE MEMORY CIRCUIT FOR USE IN A ROTATION OF IMAGE DATA

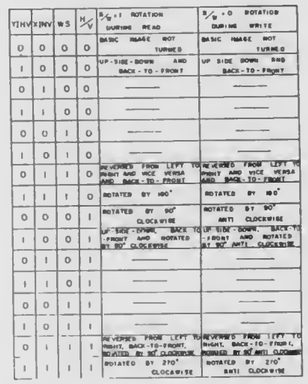
Hitoshi Yamazaki, Oume, Japan, assignor to Casio Electronics Manufacturing and Casio Computer Co. Ltd., both of Tokyo, Japan

Continuation of Ser. No. 348,136, May 5, 1989, abandoned, which is a continuation of Ser. No. 41,871, Apr. 21, 1987, abandoned. This application Sep. 28, 1990, Ser. No. 590,532

Claims priority, application Japan, Apr. 23, 1986, 61-93588; Apr. 23, 1986, 61-93589; Apr. 23, 1986, 61-93590

Int. Cl.[5] G06K *9/32*

U.S. Cl. 382—46 **6 Claims**



1. A memory control circuit of an image memory, which is a two dimensional memory addressed by one-word unit in an X direction and by one-bit unit in a Y direction, for reading/writing one word data comprising m bits from/to a memory region designated by a single address at a time, said circuit comprising:

a) x address designating means (XA4–XA11) for designating said X direction address;

b) y address designating means (YA0–YA11) for designating said Y direction address;

c) conversion designating means (H/V) for designating an existence or nonexistence of a rotating conversion of the data read to or written from said image memory;

d) word address converting means (SL1, SL2, EORG2) being inputted by both one-word unit addresses designated by said X address designating means and Y address designating means, for outputting them "as is" or by exchanging their addresses, as one-word unit internal address of said memory;

e) m memory sections (M_0–M_{15}), each being an aggregate of the memory cells at the same bit position in the word section of said image memory, and respectfully having a one-bit data input/output line;

f) bit address converting means (EORG1, ADRR) for applying Y direction addresses (YK0–YK3) in one-bit units designated by said Y address designating means to said M memory sections (M_0–M_{15}) commonly "as is", or by converting them to different values for each memory section, as the internal addresses in one-bit units of said memory;

g) barrel-shift means (BSC, DRR), including means for connecting m data input/output lines of said memory sections with the data buses for transmitting data in one-word units, for circularly shifting the connecting points between said data input/output lines and data buses by the number corresponding to one-bit unit addresses designated by said Y address designating means.

5,068,905

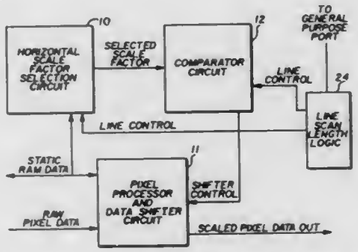
SCALER GATE ARRAY FOR SCALING IMAGE DATA

James I. Hackett, Victor; David W. Dellert, and Mark R. Knudson, both of Rochester, all of N.Y., assignors to Eastman Kodak Company, Rochester, N.Y.

Filed Dec. 28, 1989, Ser. No. 458,059

Int. Cl.[5] G06K *9/42, 9/40;* **G09G** *1/06*

U.S. Cl. 382—47 **11 Claims**



1. A scaler gate array for scaling digital image data algorithmically according to subsampling, logical reduction and pixel replication comprising:

a. horizontal scale factor selection means for outputting in a sequence integer scale factors that approximate user selectable horizontal scale factors;

b. data shifter means comprised of:

i. an input data register for receiving digital image data and for processing feedback data to provide shiftable digital image data; and

ii. shifter means coupled to said input data register for selectively shifting said shiftable digital image data in response to control signals;

c. pixel processor means coupled to said data shifter means for receiving the selectively shifted digital image data and for performing scaling operations in response to control signals to provide at an output scaled digital image data; and

d. a comparator means for receiving a horizontal scale factor selection sequence from said horizontal scale factor selection means, and for comparing the number of bits of feedback data in said input data register with a current horizontal scale factor of the scale factor selection sequence, and for utilizing the compared result to generate said control signals for scaling said digital image data.

5,068,906

PROCESSOR FOR EXTRACTING AND MEMORIZING CELL IMAGES

Tokihiro Kosaka, Hyogo, Japan, assignor to Toa Medical Electronics Co., Ltd., Kobe, Japan

Filed Mar. 27, 1989, Ser. No. 329,005

Claims priority, application Japan, Apr. 22, 1988, 63-99490

Int. Cl.[5] G06K *9/20*

U.S. Cl. 382—48 **2 Claims**

1. A cell image extracting and memorizing processing apparatus for extracting individual cell images by window means, from an original cell image field formed by image capture means, classifying cell image into a plurality of types according to cell image size in advance, and storing the individual cell images of the windows of predetermined types on predetermined pages of an editing memory having a plurality of pages, comprising:

(a) first control means for detecting the sizes of the windows of the individual cell images in the original cell image field as well as the pages storing said individual cell images;

(b) first memory means for storing data from said first control means as predetermined data;

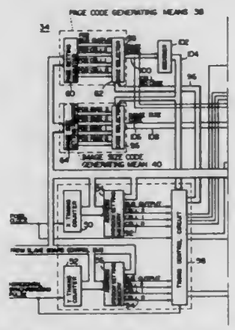
(c) a window setting memory for storing, on the basis of position information indicative of positions of pixels form-

VOL 1132 ISS 4 NO 26 1991 UMI

ing the original cell image field, positions of the windows in the original cell image field on a window-by-window basis;

(d) a window extraction timing control circuit for detecting, in synchronization with a scanning signal for scanning the image field, extraction timings of each window based on data in said window setting memory;

(e) page code generating means for detecting, based on the predetermined data, said pages storing said windows the extraction timings of which have been detected;



(f) addressing means for designating storage addresses of said windows on said pages of said editing memory; and

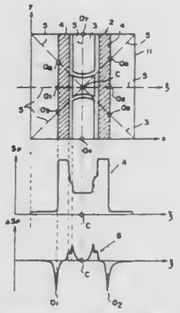
(g) second control means for performing control based on an output from said window extraction timing control circuit and an address designation from said addressing circuit in such a manner that individual cell images in respective ones of the windows are stored in the form of pixel data in the pages of said editing memory.

5,068,907

METHOD OF RECOGNIZING IRRADIATION FIELD

Hideya Takeo, Kanagawa, Japan, assignor to Fuji Photo Film Co., Ltd., Kanagawa, Japan

Filed Sep. 29, 1989, Ser. No. 414,351
Claims priority, application Japan, Oct. 4, 1988, 63-250335
Int. Cl.[5] G06K 9/00
U.S. Cl. 382—48 **1 Claim**



1. A method for determining the shape and location of an irradiation field, which comprises the steps of:

i) after an image signal which comprises a plurality of image signal components representing a radiation image is obtained from a recording medium on which said radiation image has been recorded in a region inside of an irradiation field, detecting a contour point of said irradiation field at the intersection of each of a plurality of radial lines, which extend from a predetermined point located in the region inside of said irradiation field on said recording medium to edges of said recording medium, and the contour of said irradiation field on the basis of the image signal components corresponding to picture elements arrayed along each said line,

ii) in cases where, among the thus detected contour points, a predetermined number of the contour points consecutively arrayed along the direction of said contour, which number is not smaller than three, are present on a single straight line, shifting each of the extreme contour points, which are present at both ends of the array of the contour points present on said single straight line, to the intersection of said single straight line and a straight line on which a contour point, which is adjacent to each said extreme contour point and is not present on said single straight line, lies and which straight line intersects normal to said single straight line, and

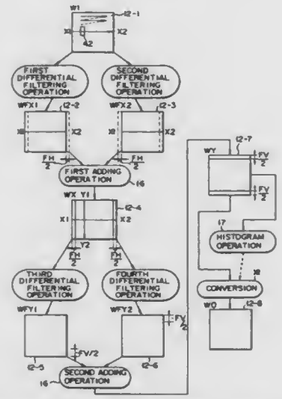
iii) determining that the region surrounded by lines connecting the thus found contour points is the irradiation field.

5,068,908

METHOD AND APPARATUS FOR DETECTING MARK FROM IMAGE DATA

Yoichi Inoue, Tokyo, and Akira Kasano, Kokubunji, both of Japan, assignors to Kabushiki Kaisha Toshiba, Kawasaki, Japan

Filed Nov. 28, 1989, Ser. No. 442,538
Claims priority, application Japan, Nov. 30, 1988, 63-300902
Int. Cl.[5] G06K 9/52
U.S. Cl. 382—48 **13 Claims**



1. An apparatus for detecting, from original image data, mark image data corresponding to a mark and having a first length in a first direction and a second length in a second direction perpendicular to the first direction in unit of pixels, comprising:

differentiating means responsive to an input differential operation command, for executing a differential operation for density data of the original image data to obtain differential image data;

adding means responsive to an input addition command, for adding two differential image data with respect to density data of the two differential image data such that one differential image data is shifted by a designated length in a designated direction and the other differential image data is shifted by the designated length in an opposite direction to the designated direction; and

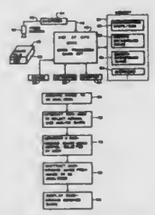
control means responsive to an input mark detecting command, for designating the original image data to sequentially output first and second input differential operation commands to said differentiating means to obtain two first differential image data, respectively, designating the two first differential image data, a half of the first length as the designated length and the first direction as the designated direction to output a first input addition command to said adding means to obtain first added image data, designating the first added image data to sequentially output third and fourth input differential operation commands to said differentiating means to obtain two second differential image data, respectively, designating the two second differential image data, a half of the second length as the designated length and the second direction as the designated direction to output a second input addition command to said adding means to obtain second added image data, and calculating the center of gravity of pixels of the second added image data, each of which has density data larger than a predetermined value, to detect a central position of the mark.

5,068,909

METHOD AND APPARATUS FOR GENERATING QUANTIFIABLE VIDEO DISPLAYS

Hal Rutherford, San Jose, Calif., and Floyd Taub, Silver Spring, Md., assignors to Applied Imaging Corporation, Santa Clara, Calif.

Filed May 18, 1989, Ser. No. 354,255
Int. Cl.[5] G06K 9/40, 9/54, 9/47
U.S. Cl. 382—49 **21 Claims**



1. An operator-interactive automated background noise removal system for processing an image of biological data acquired from an autoradiograph, electrophoresis gel, fluorescence gel, photographic film or other media, said system comprising:

a means for displaying a raw image containing a data image comprised of spatial patterns of pixels of varying intensity superimposed over a background image comprised of spatial patterns of pixels of varying intensity;

image conversion means for generating a video output signal from said raw image and converting said video output signal to digital data representing said raw image;

neighborhood selection means for selecting the size and shape of a background removal neighborhood which will be used to process said digital data representing said raw image, said size and shape selected according to the type of biological data being processed;

background detector means for receiving and processing said raw image digital data using said background removal neighborhood to generate digital data representing said background image;

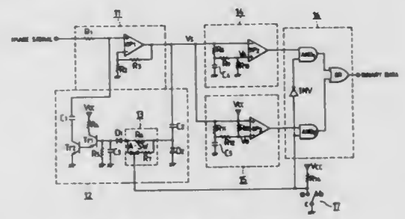
means for subtracting said digital data representing said background image from said digital data representing said raw image to generate digital data representing said data image.

5,068,910

IMAGE SIGNAL PROCESSOR FOR READING DARK AND LIGHT CHARACTERS FROM LIGHT AND DARK BACKGROUNDS RESPECTIVELY

Wataru Ogura, Nagano, Japan, assignor to Chinon Kabushiki Kaisha, Nagano, Japan

Filed Apr. 14, 1989, Ser. No. 338,045
Claims priority, application Japan, Jul. 14, 1988, 63-175548
Int. Cl.[5] G06K 9/38
U.S. Cl. 382—50 **11 Claims**



1. An image signal processor comprising:

image pickup means for generating an image signal corresponding to an image to be processed;

automatic gain control means, operatively connected to said image pickup means. for performing an automatic gain control operation in response to a frequency component of said image signal according to whether said image comprises a light background or a dark background;

selection means, operatively connected to said automatic gain control means, for manually setting a cutoff frequency to be used in said automatic gain control operation of said automatic gain control means; and

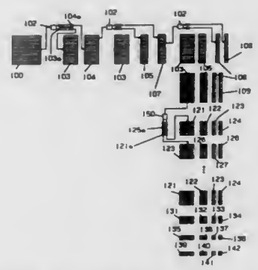
binary encoding means, operatively connected to said automatic gain control means and said selection means, for producing binary data of said image signal according to said cutoff frequency set by said selection means.

5,068,911

METHOD AND APPARATUS FOR REPRESENTING AN IMAGE

Howard L. Resnikoff, Winchester, and William Zettler, Jr., Brookline, both of Mass., assignors to Aware, Inc., Cambridge, Mass.

Filed Feb. 9, 1990, Ser. No. 477,564
Int. Cl.[5] G06K 9/40
U.S. Cl. 382—56 **5 Claims**



1. An apparatus for generating representation of an input array comprising a two-dimensional array of numbers, said input array being organized as a plurality of linear arrays corresponding to the roes and colums of sa dinput array, said aparatus comprising:

means for storing at least one row of said input array;

linear filtering means for filtering a lnear sequence of num-

VOL 1132 ISS 4 NO 26 1991 UMI

bers to generate high and low frequency linear arrays of numbers, said high and low frequency linear arrays representing the high and low frequency components of said linear sequence;

row processing means for causing said linear filtering means to process each said row in said input array to generate a low frequency row array representing said input array, said low frequency row array comprising a two-dmensional array of numbers orgaized as a plurality of rows and columns, said row processing means comprising means for iteratively processing a row of said input array for a predetermined number of iterations, wherein said first iteration comprises causing said linear filtering means to filter said row of said input array and, in successive said iterations, said filtering means is caused to filter the low frequency array generated in the previsou iteration; said row processing means further comprising means for storing the low frequency array generated in the last said iteration in said low frequency row array at a row location corresponding to the location of the row in said input array from which said low frquency array was generated; and

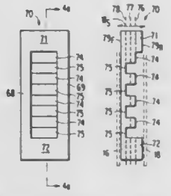
column processing means for cuasing said linear filtering means to process each said column in said low frequency row array to generate a low frequency column array representing said input array said low frequency column array comprising a two-dimensional array of numbers organized as a plurality of rows and columns, said colum processing means comprising means for iteratively processing a column of said low frequency row array for a predetermined number of iterations, wherein said first iteration, said linear filtering means is caused to filter said column of said input array and, in said successive iterations, said filtering means is cuaed to fitler the low frequency column array generated in the previous iteration, said column processing means further comprising means for storing the low frequency array generated in the last said iteration in said low frequency column array at a column location corresponding to the location of the column in said low frequency row array from which said low frequency array was generated.

5,068,912

TRACK GAUGES FOR ALIGNING AND FOCUSSING THE IMAGING SYSTEM IN A HIGH SPEED DOCUMENT HANDLING SYSTEM

David J. Concannon, Farmington Hills; Gary B. Copenhaver, Canton, and Clive E. Catchpole, Birmingham, all of Mich., assignors to Unisys Corp., Detroit, Mich.

Filed Jun. 4, 1990, Ser. No. 532,691
Int. Cl.[5] G06K *7/015*
U.S. Cl. 382—61 **27 Claims**



1. A depth gauge used for aligning an imaging system in a high speed document processor, comprising:

a gauge having height and width dimensions larger than a rectangular window in a track of said high speed document processor, said rectangular window allowing said imaging system to image items within said track;

a means for holding said gauge said track; and

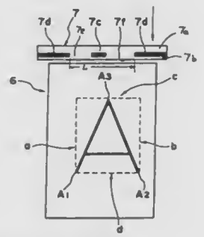
at least two plateaus formed in a front portion of said gauge, a first plateau being positioned a first distance from a back portion of said gauge which is a fixed amount less than a second distance between said back portion of said gauge and a plane running through a vertical axis of said gauge, a second plateau being positioned a third distance from said back portion of said gauge which is said fixed amount more than said second distance.

5,068,913

IMAGE READER WITH PLATEN CRITERIAL MARK FOR DETERMINING DOCUMENT SCAN START

Masamichi Sugiura, Osaka, Japan, assignor to Minolta Camera Kabushiki Kaisha, Osaka, Japan

Continuation of Ser. No. 216,194, Jul. 7, 1988, abandoned. This application Oct. 17, 1990, Ser. No. 598,784
Claims priority, application Japan, Jul. 8, 1987, 62-171767
Int. Cl.[5] G06K *9/20, 7/10, 7/20*
U.S. Cl. 382—61 **17 Claims**



6. An image reader comprising:

a platen on which a document is placed at a predetermined position;

a standard member provided on a side of the platen, the document being placed along a side of the member;

a criterial mark arranged near the platen and arranged on the same side as the side on which the standard member is provided;

a line image sensor for detecting the criterial mark and for reading a linear optical image of the document;

means for moving said sensor along the platen from said side of the platen in a direction perpendicular to the linear optical image, whereby said sensor detects the criterial mark and scans the image of the document during a one scan operation;

means for controlling the sensor to start the reading of the image once the sensor has moved a predetermined distance after the detection of the criterial mark, said predetermined distance being substantially equal to the distance between an edge of the criterial mark and said side of the standard member along which the document is to be placed;

determining means for determining boundaries of an actual image area on the document by distinguishing, according to image information obtained by the scanning operation of the document image, the portion of the document where actual images are present from the portion of the document where no actual images are present;

means for sending out linear image information located within said boundaries and determined by said determining means which corresponds to the portion of the document where actual images are present; and

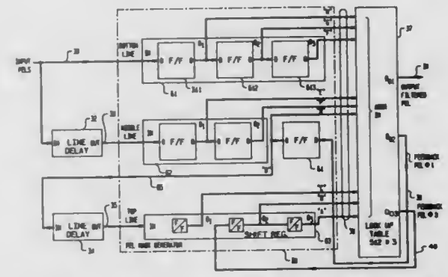
means for forbidding said sending means to send linear image information if the linear image information has no actual image information.

5,068,914

APPARATUS FOR REDUCING ARTIFACTS IN ERROR DIFFUSED IMAGES

Kevin J. Klees, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.

Filed Aug. 29, 1988, Ser. No. 237,487
Int. Cl.[5] H04N *5/21, 1/40*
U.S. Cl. 382—54 **8 Claims**



6. Apparatus for a recursive spatial filter which provides at least two feedback pel values when a predetermined pattern is recognized in an incoming video image, said apparatus comprising:

means, responsive to the pel values that form the incoming image, for producing a pel mask associated with said input pel, said pel mask defining an array of pels including said input pel wherein each of said pels in said mask has a corresponding pel value and wherein the pels that together form said pel mask include respective values of a plurality of the incoming pels and at least one previously produced feedback pel value;

means for storing predetermined patterns of pel values;

means for applying the values of said pels that form said pel mask as an address to the storing means to produce at least two pre-defined feedback values and one of said filtered pel value;

means for applying said produced pre-defined filtered pel value as the output filtered pel value; and

means for applying said produced pre-defined feedback pel value from said storing means as said feedback pel values to said pel mask producing means such that said produced feedback pel value becomes at least two of the pel values for the pels that form the pel mask.

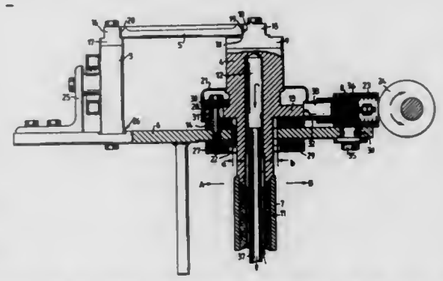
5,068,915

SERIES EVAPORATOR FOR VACUUM VAPOR-DEPOSITION APPARATUS

Jochen Heinz, Linden; Thomas Krug, Hanau; Klemens Ruebsam, Jossgrund, and Hans Kessler, Hanau, all of Fed. Rep. of Germany, assignors to Leybold Aktiengesellschaft, Hanau, Fed. Rep. of Germany

Filed Aug. 29, 1990, Ser. No. 574,596
Claims priority, application Fed. Rep. of Germany, May 14, 1990, 4015385
Int. Cl.[5] C23C *14/00*
U.S. Cl. 392—389 **7 Claims**

1. Series evaporator for vacuum vapor-deposition apparatus, in particular vapor-deposition apparatus for belts, comprising several evaporators 5 with individual power control, heated by passing through a current, supported on column-like, electrical supply lines 3, 4 wherein the column-like supply lines 3, 4 are held by an electrically conductive support body 6 extending over the entire length of the series evaporator, and the supply lines 3 of the one polarity are connected to the support body 6 in an electrically conductive manner whereas the supply lines 4 of the other polarity are passed through the support body 6 in an insulated manner and connected to conducting wires 7 disposed in an insulated manner, characterized in that spring elements 8 apply pressure to the supply lines 4 traversing the support body 6 with play a, b, the action of these spring elements being exerted approximately parallel to the longitudinal extension of the evaporator and pressing the top portions 9 of the supply lines 4 against the front surfaces 10 of the evaporator 5 which they face, wherein the spring elements themselves



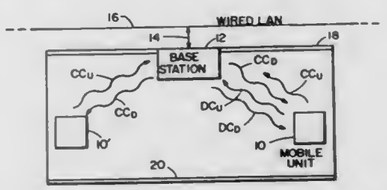
are held and guided in an insulating manner with respect to the support bodies 6 or are made of an insulating material, and the conducting wires 7 connected to these supply lines 4 are conductors passed through by a coolant or are configured as cooling tubes 11 or cooling pipes running parallel to the conducting wires and discharging into chambers or channels 12 provided in the supply lines 4.

5,068,916

COORDINATION OF WIRELESS MEDIUM AMONG A PLURALITY OF BASE STATIONS

Colin G. Harrison, Brookfield, Conn., and Peter D. Hortensius, Goldens Bridge, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y.

Filed Oct. 29, 1990, Ser. No. 605,628
Int. Cl.[5] H04B *7/00*
U.S. Cl. 455—39 **20 Claims**



13. A method of synchronizing a usage of a wireless transmission medium amongst a plurality of transmission means having a transmission coverage area associated therewith, at least two of the coverage areas having an overlap region therebetween, the transmission medium being utilized in accordance with a transmission period that is comprised of a plurality of consecutively occurring transmission sub-periods, comprising the steps of:

(a) transmitting a message over the wireless transmission medium with only one of the transmission means, the message being repetitively transmitted during each of the transmission sub-periods of at least one of the transmission periods;

(b) receiving the repetitively transmitted messages with one or more transmitter/receiver means disposed within the coverage area associated with the transmitting transmission means;

(c) re-transmitting the received messages with each of the transmitter/receiver means receiving the repetitively

VOL
1132
ISS
4
NO
26
1991
UMI

transmitted messages, including a transmitter/receiver means, if any, that is disposed within the overlap region;

(d) receiving the re-transmitted messages from the transmitter/receiver within the overlap region with another transmission means; and responsive to the reception of the re-transmitted messages

(e) synchronizing a timekeeping function of the second transmission means thereto so as to subsequently determine with the timekeeping function a required starting time of a predetermined one of the sub-periods for transmitting or receiving another message therein.

5,068,917

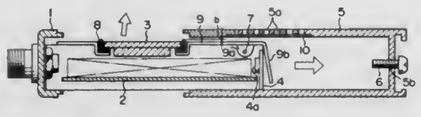
PORTABLE RADIO TRANSCEIVER

Shouji Sugiyama; Daisuke Ohtani, and Tadao Tajima, all of Yokohama, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan

Filed Sep. 29, 1989, Ser. No. 414,298

Int. Cl.[5] H04B *1/08*

U.S. Cl. 455—90 **6 Claims**



1. A portable transceiver comprising:

a chassis having end sides;

a manipulating section on an electronic circuit carried by said chassis;

an attaching plate pivotally attached on one of said end sides of said chassis;

a speaker attached on said attaching plate;

a housing having side walls and an aperture means formed in a first one of said side walls; and

means for swinging said attaching plate and holding said attaching plate against said aperture means when said chassis is bottomed in said housing, wherein said attaching plate has a bent end part substantially perpendicular to said attaching plate which abuts against a second one of said side walls of said housing when said chassis is bottomed in said housing, said bent end part has a screw hole formed therein, and said housing has a screw hole formed in said second one of said side walls associated with said bent end part, said screw hole formed in said bent end part and said screw hole formed in said second one of said side walls associated with said bent end part being aligned with each other when said chassis is bottomed in said housing, and a securing screw is fitted in both said screw hole formed in said bent end part and said screw hole formed in said second one of said side walls associated with said bent end part so as to fasten together said bent end part and said second one of said side walls associated with said bent end part.

5,068,918

RECEIVER FOR TERRESTRIAL AM AND SATELLITE FM-TV BROADCASTING SIGNALS

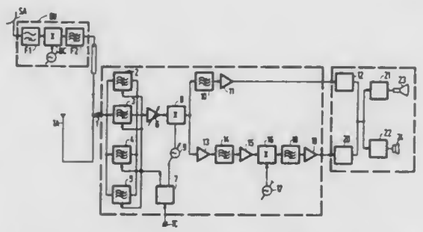
Paulus A. M. Verheijen, and Ronald P. A. Schiltmans, both of Eindhoven, Netherlands, assignors to U.S. Philips Corporation, New York, N.Y.

Filed May 30, 1990, Ser. No. 530,687

Claims priority, application Netherlands, Jun. 8, 1989, 8901460

Int. Cl.[5] H04B *1/16*

U.S. Cl. 455—142 **4 Claims**



1. A receiver for terrestrial AM-HF-TV signals and satellite FM-HF-TV signals in a first frequency range and a second frequency range, respectively, which succeed each other in frequency, said first and second frequency ranges having substantially the same frequency width, said receiver comprising a HF-AM/FM section having an input for receiving said AM-HF-TV signals and said FM-HF-TV signals and an output for providing selected portions thereof; a mixing circuit common for the AM-HF-TV and FM-HF-TV signals coupled to the output of said HF-AM/FM section; and an IF device coupled to an output of said mixing circuit, said receiver further comprising a tunning oscillator for applying oscillator mixing signals to the mixing circuit for a frequency conversion of the AM-HF-TV signals into a first AM intermediate frequency signal and a frequency conversion of the FM-HF-TV signals into an FM intermediate frequency signal, said first AM intermediate frequency signal and said FM intermediate frequency signal having, respectively, a first AM intermediate frequency and an FM intermediate frequency, of which at least the first AM intermediate frequency is located above the first frequency range; characterized in that said IF device comprises an AM-IF section and an FM-IF section, inputs of which are coupled to an output of the mixing circuit for a separate selection and processing of the first AM and the FM intermediate frequency signals, respectively, and wherein the first AM intermediate frequency is of the order of magnitude of twice the highest frequency of the first frequency range band and the FM intermediate frequency is of the order of magnitude of one-half the lowest frequency of the second frequency range, whereby the tuning oscillator has a tuning range of less than one octave.

DESIGN PATENTS

GRANTED NOV. 26, 1991

ERRATA

For CLASS	See PATENT NO.
D9-314	321,823

VOL
1132
ISS
4
NO
26
1991
UMI

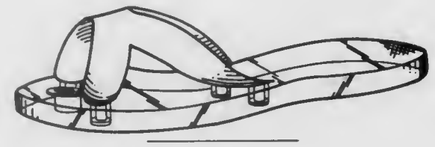
DESIGNS

NOVEMBER 26, 1991

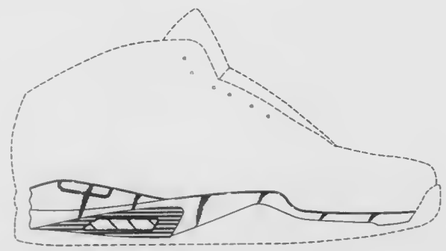
321,774
COMBINED CAPE AND COSTUME
James A. Smith, Jr., Rte. 1, Box 513, Weems, Va. 22576
Filed Oct. 21, 1987, Ser. No. 110,962
Term of patent 14 years
U.S. Cl. D2—79



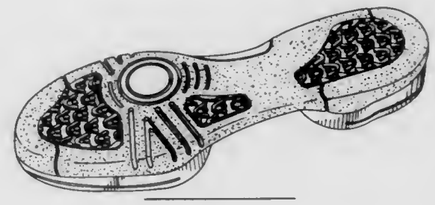
321,775
SANDAL
Timothy J. Barcanic, 5403 Cheshire Meadows Way, Fairfax, Va. 22032
Filed Nov. 3, 1988, Ser. No. 266,806
Term of patent 14 years
U.S. Cl. D2—293



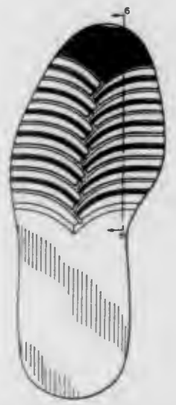
321,776
SHOE MIDSOLE LATERAL SURFACE
Tinker L. Hatfield, Portland, Oreg., assignor to Nike, Inc. and Nike International Ltd., both of Beaverton, Oreg.
Filed Jun. 13, 1990, Ser. No. 537,260
Term of patent 14 years
U.S. Cl. D2—314



321,777
SHOE SOLE
Toshiaki Kawasaki, Kobe, Japan, assignor to Asics Corporation, Hyogo, Japan
Filed Nov. 6, 1989, Ser. No. 432,211
Claims priority, application Japan, May 12, 1989, 1-17506
Term of patent 14 years
U.S. Cl. D2—320

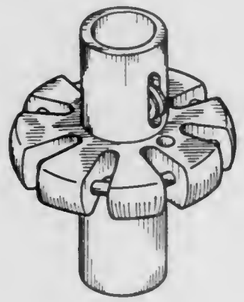


321,778
BOTTOM AND PERIPHERY OF A FOOTWEAR UNIT SOLE
Arnold S. Austin, East Brookfield, Mass., assignor to Quabaug Corporation, North Brookfield, Mass.
Filed Nov. 15, 1989, Ser. No. 436,816
Term of patent 14 years
U.S. Cl. D2—320

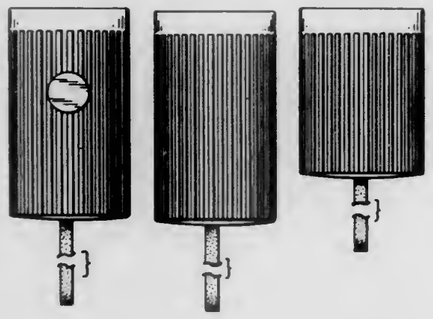


VOL 1132 ISS 4 NO 26 1991 UMI

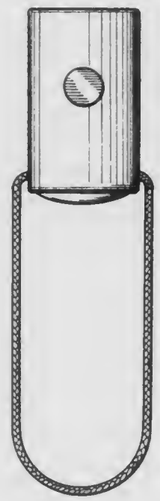
321,779
NOTCH FOR UMBRELLA
Mark J. S. Ma, 12th Floor, 578 Kwang Fu South Road, Taipei, Taiwan
Filed May 15, 1989, Ser. No. 351,039
Term of patent 14 years
U.S. Cl. D3—10



321,780
UMBRELLA HANDLE
Ann S. Cain, Cincinnati, Ohio, assignor to 'totes', incorporation, Loveland, Ohio
Filed Nov. 14, 1988, Ser. No. 270,291
Term of patent 14 years
U.S. Cl. D3—12



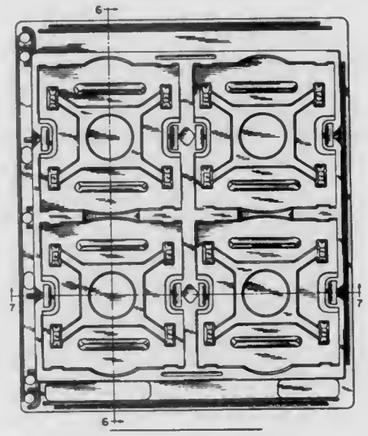
321,781
UMBRELLA HANDLE
Ann S. Cain, Cincinnati, Ohio, assignor to 'totes', incorporated, Loveland, Ohio
Continuation-in-part of Ser. No. 485,732, Feb. 27, 1990, Pat. No. Des. 316,480. This application Sep. 5, 1990, Ser. No. 578,132
The portion of the term of this patent subsequent to Jan. 30, 2004, has been disclaimed.
Term of patent 14 years
U.S. Cl. D3—12



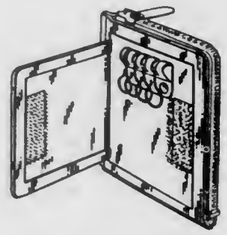
321,782
UMBRELLA HANDLE
Ann S. Cain, 9144 Dominion Cir., Cincinnati, Ohio 45249, assignor to 'totes', incorporated, Loveland, Ohio
Continuation-in-part of Ser. No. 578,132, Sep. 5, 1990, which is a continuation-in-part of Ser. No. 485,732, Feb. 27, 1990, Pat. No. D. 316,480. This application Jan. 2, 1991, Ser. No. 637,605
The portion of the term of this patent subsequent to Jan. 30, 2004, has been disclaimed.
Term of patent 14 years
U.S. Cl. D3—12



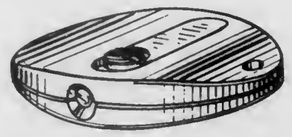
321,783
FILE SHEET FOR MAGNETIC RECORDING MEDIA
Jiro Ozeki, Tokyo, Japan, assignor to Slidex Corporation, Tokyo, Japan
Filed Feb. 21, 1989, Ser. No. 312,967
Claims priority, application Japan, Sep. 26, 1988, 63-37418
Term of patent 14 years
U.S. Cl. D3—35



321,784
WALLET
Henry C. White, 5030 Champion Blvd., Suite 6-293, Boca Raton, Fla. 33496
Filed May 19, 1989, Ser. No. 354,081
Term of patent 14 years
U.S. Cl. D3—56



321,785
COMBINED KEY HOLDER AND FLASHLIGHT
Kevin S. Garrity, Madison, Conn., assignor to Garrity Industries, Inc., Madison, Conn.
Filed Aug. 7, 1989, Ser. No. 390,342
Term of patent 14 years
U.S. Cl. D3—63



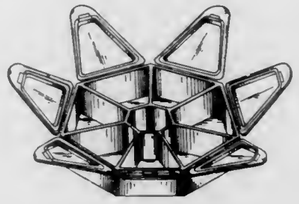
321,786
KEY HOLDER
Arthur M. Kraus, Weston, Canada, assignor to A.M.K. Investments Ltd., Ontario, Canada
Filed Oct. 24, 1989, Ser. No. 425,996
Claims priority, application Canada, Jul. 21, 1989, 21-07-89-5
Term of patent 14 years
U.S. Cl. D3—65



321,787
KEY HOLDER
Arthur M. Kraus, Weston, Canada, assignor to A.M.K. Investments Ltd., Ontario, Canada
Filed Oct. 24, 1989, Ser. No. 425,997
Claims priority, application Canada, Jul. 21, 1989, 21-07-89-3
Term of patent 14 years
U.S. Cl. D3—65



321,788
TOOL BOX
Pi-Chi Chen, No. 1-1, East Lane, Lai Tsuo, Taichung, Taiwan
Filed Jun. 6, 1989, Ser. No. 362,302
Term of patent 14 years
U.S. Cl. D3—74

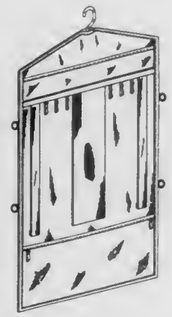


VOL 1132 ISS 4 NO 26 1991 UMI

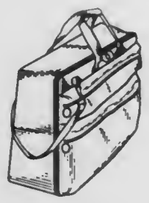
321,789
ACCESSORY ORGANIZER
Ellen Martorella, 11643 Sunshine Pond Rd., Tampa, Fla. 33635
Filed Oct. 16, 1989, Ser. No. 422,297
Term of patent 14 years
U.S. Cl. D3—75



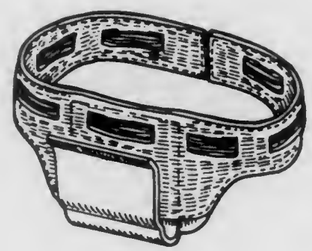
321,790
ACCESSORY ORGANIZER
Ellen Martorella, 11643 Sunshine Pond Rd., Tampa, Fla. 33635
Filed Oct. 16, 1989, Ser. No. 422,298
Term of patent 14 years
U.S. Cl. D3—75



321,791
LUGGAGE CASE
William L. King, Denver, Colo., assignor to Samsonite Corporation, Denver, Colo.
Filed Mar. 8, 1989, Ser. No. 322,826
Term of patent 14 years
U.S. Cl. D3—77



321,792
SKATEBOARD CARRIER
John P. MacNeary, 345 Vine Hill Rd., Santa Cruz, Calif. 95065
Filed Sep. 14, 1989, Ser. No. 407,035
Term of patent 14 years
U.S. Cl. D3—104



321,793
PUSH BROOM
William C. Bryant, Bell Arthur, N.C., assignor to Empire Brushes, Inc., Greenville, N.C.
Filed Nov. 7, 1989, Ser. No. 432,974
Term of patent 14 years
U.S. Cl. D4—135



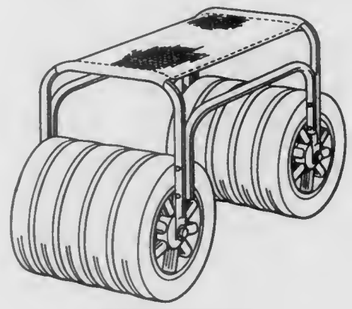
321,794
HOOK
John P. Chap, Lemont, and Dorothy Greenberg, Oak Park, both of Ill., assignors to Selfix, Inc., Chicago, Ill.
Filed Aug. 12, 1988, Ser. No. 231,238
Term of patent 14 years
U.S. Cl. D6—323



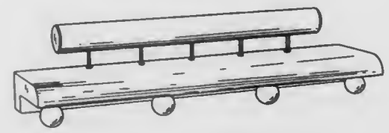
321,795
SUPPORT HOOK FOR MULTIPLE GARMENT HANGERS
George A. Winston, 29512 Thomas Cir., Inkster, Mich. 48141
Filed Apr. 20, 1990, Ser. No. 511,522
Term of patent 14 years
U.S. Cl. D6—328



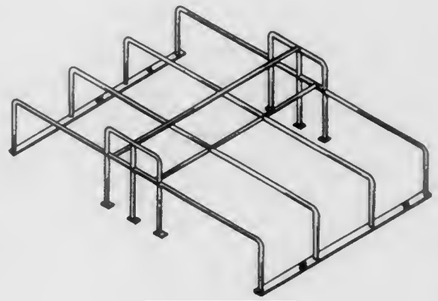
321,796
MOBILE SEAT FOR GARDEN WEEDING
George W. Forrand, P.O. Box 7773-2018 N. Sherman Ave. #19, Madison, Wis. 53704
Filed Jun. 17, 1988, Ser. No. 208,021
Term of patent 14 years
U.S. Cl. D6—330



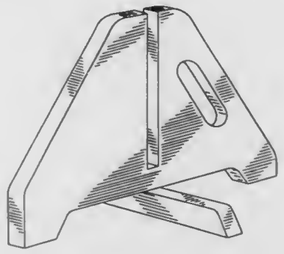
321,797
BENCH
Emilio F. Paris, Barcelona, Spain, assignor to Hijo De E.F. Escofet S.A., Barcelona, Spain
Filed Nov. 30, 1988, Ser. No. 278,162
Claims priority, application Spain, May 31, 1988, 116.103
Term of patent 14 years
U.S. Cl. D6—381



321,798
SHOPPING CART HOLDER
Robert S. Buckley, P.O. Box 246, Keene, N.H. 03431
Filed Jun. 1, 1988, Ser. No. 200,792
Term of patent 14 years
U.S. Cl. D6—462

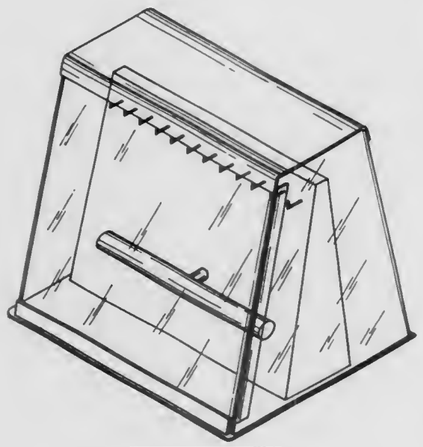


321,799
DISPLAY STAND OR SIMILAR ARTICLE
James Marvy, 5810 Salisbury Ave., Minnetonka, Minn. 55345, and Robert W. Heili, 434 Newton Ave., South, Minneapolis, Minn. 55405
Filed Jan. 9, 1989, Ser. No. 295,026
Term of patent 14 years
U.S. Cl. D6—457

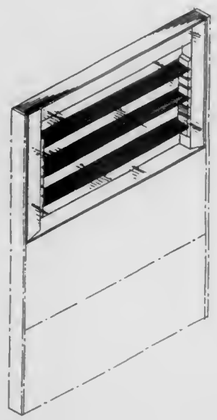


VOL 1132 ISS 4 NO 26 1991 UMI

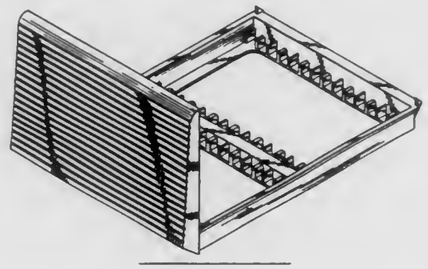
321,800
DISPLAY CASE
Marvin D. Blum, St. Louis, Mo., assignor to American Design Group, Inc., St. Louis, Mo.
Continuation-in-part of Ser. No. 879,615, Jun. 27, 1986, Pat. No. Des. 300,394. This application Feb. 9, 1989, Ser. No. 307,980
Term of patent 14 years
U.S. Cl. D6—472



321,801
MODULES SHELF UNIT
Frank A. Friedman, San Francisco, Calif., assignor to Herman Miller, Inc., Zeeland, Mich.
Filed May 25, 1988, Ser. No. 198,386
Term of patent 14 years
U.S. Cl. D6—492



321,802
DRAWER FOR A CASSETTE CABINET OR SIMILAR ARTICLE
Richard D. Smith, 1942 W. Artesia Blvd., Torrance, Calif. 90504
Division of Ser. No. 511,016, Apr. 19, 1990, Pat. No. Des. 320,514. This application May 8, 1991, Ser. No. 697,952
Term of patent 14 years
U.S. Cl. D6—510



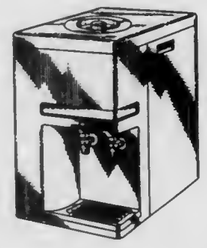
321,803
TISSUE OR TOWEL DISPENSER
Chris R. Dawson, Hassocks, England, assignor to Kimberly-Clark Corporation, Neenah, Wis.
Division of Ser. No. 326,843, Mar. 22, 1989, Pat. No. Des. 316,200. This application Jan. 15, 1991, Ser. No. 642,284
Claims priority, application United Kingdom, Sep. 29, 1988, 1053896
Term of patent 14 years
U.S. Cl. D6—518

321,804
COMBINED COOLING RACK AND COOKBOOK HOLDER
Robert A. Wolff, Middleburg, and John F. Troxell, Jr., Northumberland, both of Pa., assignors to Wood-Mode, Incorporated, Kreamer, Pa.
Filed Nov. 8, 1989, Ser. No. 434,053
Term of patent 14 years
U.S. Cl. D6—566

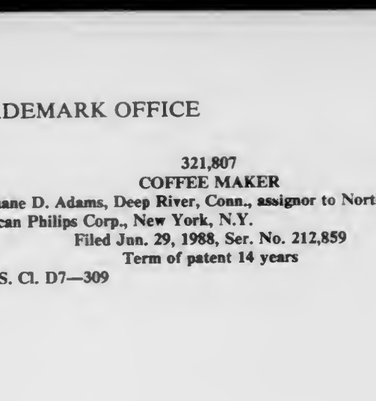


321,805
DISPOSABLE CAR SEAT COVER
Angelo M. Piciullo, 3783-D Olive Rd., Pensacola, Fla. 32514
Filed Dec. 5, 1988, Ser. No. 280,283
Term of patent 14 years
U.S. Cl. D6—611

321,806
DRINKING WATER DISPENSER OR SIMILAR ARTICLE
David B. Chaney, Powell, Ohio, assignor to EBCO Manufacturing Company, Columbus, Ohio
Filed Apr. 6, 1987, Ser. No. 35,153
Term of patent 14 years
U.S. Cl. D7—308



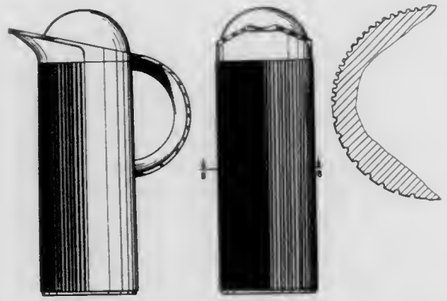
321,807
COFFEE MAKER
Duane D. Adams, Deep River, Conn., assignor to North American Philips Corp., New York, N.Y.
Filed Jun. 29, 1988, Ser. No. 212,859
Term of patent 14 years
U.S. Cl. D7—309





VOL 1132 ISS 4 NO 26 1991 UMI

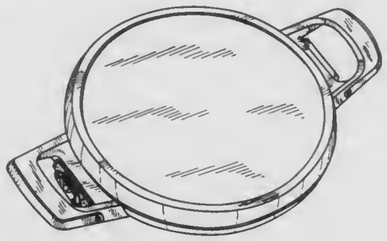
321,808
VACUUM BOTTLE
Edgar Rixen, Solingen, Fed. Rep. of Germany, assignor to Robert Krups Stiftung & Co. KG, Solingen, Fed. Rep. of Germany
Filed Sep. 20, 1988, Ser. No. 247,098
Claims priority, application Fed. Rep. of Germany, Mar. 23, 1988, 5MR9845
Term of patent 14 years
U.S. Cl. D7—317



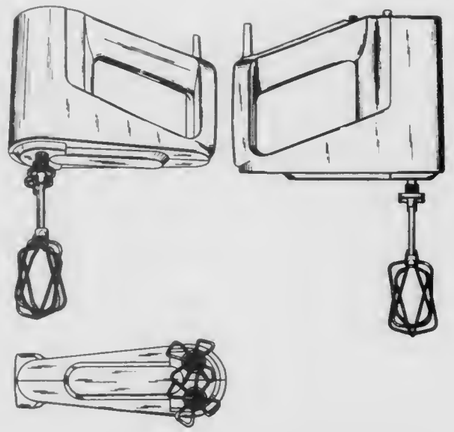
321,809
ROASTING PAN
Peter Zobrist, Bolton, Canada, assignor to Alcan Aluminum Limited, Ontario, Canada
Filed Mar. 13, 1989, Ser. No. 322,243
Claims priority, application Canada, Sep. 13, 1988, 13-09-88-17
Term of patent 14 years
U.S. Cl. D7—359



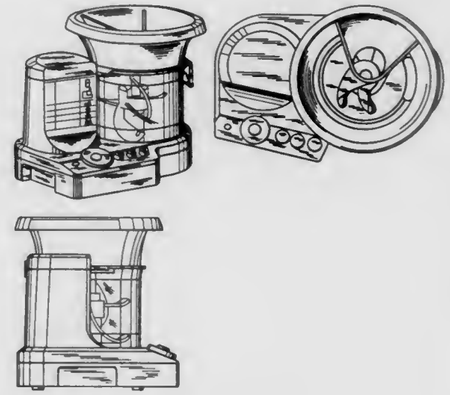
321,810
GRIDDLE
Horst Schultz, Am Dornbusch, Fed. Rep. of Germany, assignor to AMC International Alfa Metalcraft Corporation AG, Switzerland
Filed Apr. 14, 1989, Ser. No. 338,635
Claims priority, application Switzerland, Oct. 19, 1988, 116953
Term of patent 14 years
U.S. Cl. D7—363



321,811
HEAD-HELD MIXER
Ludwig Littmann, Königstein, Fed. Rep. of Germany, assignor to Braun Aktiengesellschaft, Kronberg, Fed. Rep. of Germany
Filed Oct. 26, 1988, Ser. No. 263,122
Claims priority, application Fed. Rep. of Germany, May 4, 1988, 73MR9680
The portion of the term of this patent subsequent to Dec. 3, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D7—379



321,812
FOOD PROCESSOR
Rudolf Maass, Solingen, Fed. Rep. of Germany, assignor to Robert Krups Stiftung & Co. KG, Solingen, Fed. Rep. of Germany
Filed Jan. 11, 1989, Ser. No. 295,939
Term of patent 14 years
U.S. Cl. D7—384

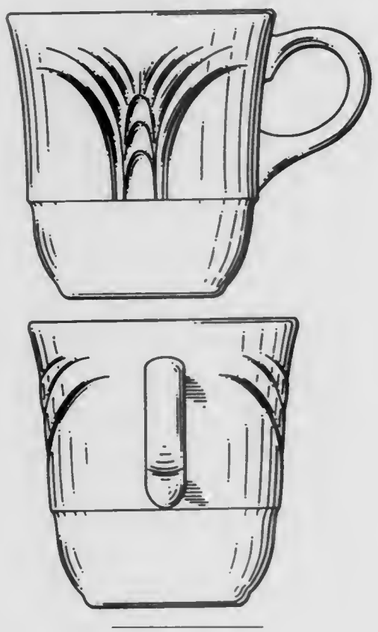


321,813
BOUILLON CUP OR SIMILAR ARTICLE
Steve A. Unger, Manilus, N.Y., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Mar. 10, 1989, Ser. No. 321,330
The portion of the term of this patent subsequent to Oct. 1, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D7—509

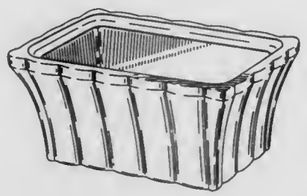


VOL 1132 ISS 4 NO 26 1991 UMI

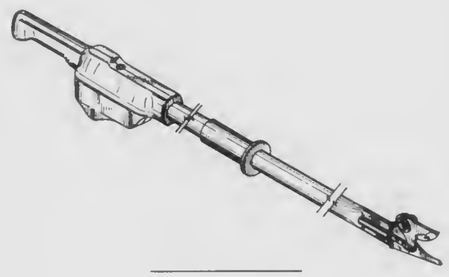
321,814
BEVERAGE CUP OR SIMILAR ARTICLE
Steve A. Unger, Manilus, N.Y., assignor to Syracuse China Corporation, Syracuse, N.Y.
Filed Mar. 10, 1989, Ser. No. 321,346
The portion of the term of this patent subsequent to Oct. 1, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D7—536



321,815
SUGAR PACKET HOLDER
Michael A. Bowdler, East Liverpool, Ohio, assignor to The Hall China Company, East Liverpool, Ohio
Filed Jul. 19, 1989, Ser. No. 381,849
Term of patent 14 years
U.S. Cl. D7—560



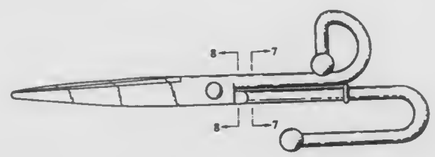
321,816
TREE PRUNER
Fusao Fushiya, and Koji Haneda, both of Anjo, Japan, assignors to Makita Electric Works, Ltd., Anjo, Japan
Filed Apr. 9, 1990, Ser. No. 505,529
Term of patent 14 years
U.S. Cl. D8—7



321,817
ADJUSTMENT TOOL FOR AN ORTHOPEDIC BRACE
Andrew W. Hughes, 6108 Webb Bridge Crossing, Alpharetta, Ga. 30201
Filed Jun. 16, 1989, Ser. No. 367,116
Term of patent 14 years
U.S. Cl. D8—14

321,818
SCISSORS
Katsumi Hasegawa, Sagamihara, Japan, assignor to Kai R&D Center Co., Ltd., Seki, Japan
Filed Mar. 6, 1989, Ser. No. 319,643
Claims priority, application Japan, Jul. 15, 1987, 62-28867
Term of patent 14 years
U.S. Cl. D8—57

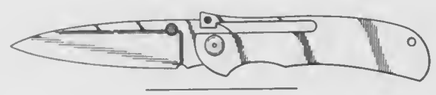




321,819
GUIDE BAR FOR CHAIN SAW
Mitsukazu Takishita, Gifu, Japan, assignor to Sugihara Rinki Co., Ltd., Gifu, Japan
Filed Mar. 1, 1988, Ser. No. 162,460
Claims priority, application Japan, Sep. 2, 1987, 62-36050; Sep. 2, 1987, 62-36051; Sep. 2, 1987, 62-36053; Sep. 2, 1987, 62-36054
Term of patent 14 years
U.S. Cl. D8—70



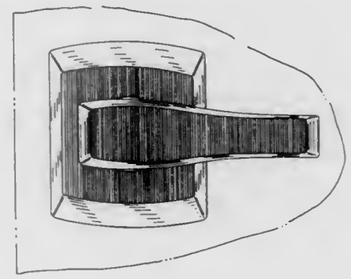
321,820
KNIFE
A. G. Russell, 103 Terry, Springdale, Ark. 72764
Filed Jul. 27, 1988, Ser. No. 224,781
Term of patent 14 years
U.S. Cl. D8—99

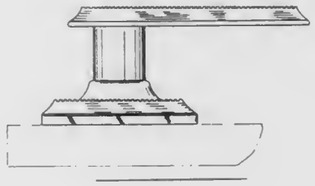


321,821
COMBINED KNIFE AND DRESSING TOOL FOR USE PRIMARILY BY A HUNTER
Robert M. Luchak, 15705 Woodforest, Channelview, Tex. 77530
Filed Nov. 14, 1988, Ser. No. 270,119
Term of patent 14 years
U.S. Cl. D8—99

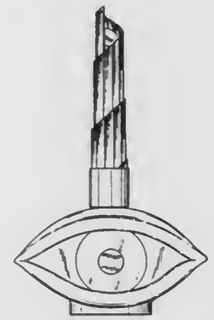


321,822
LEVER HANDLE AND ROSETTE UNIT
Stanley Pechar, Diamond Bar, Calif., assignor to Kwikset Corporation, Anaheim, Calif.
Filed Oct. 20, 1989, Ser. No. 424,834
Term of patent 14 years
U.S. Cl. D8—301





321,823
BOTTLE
Jean P. Guignard, Nesle Normandeuse, France, assignor to Parfums Jean Jacques Vivier, société à responsabilité limitée, Saint-Maur-des Fossés, France
Filed Nov. 30, 1989, Ser. No. 443,649
Claims priority, application World Int. Prop. O., Jun. 1, 1989, DM/013 704
Term of patent 14 years
U.S. Cl. D9—314



VOL 1132 ISS 4 NO 26 1991 UMI

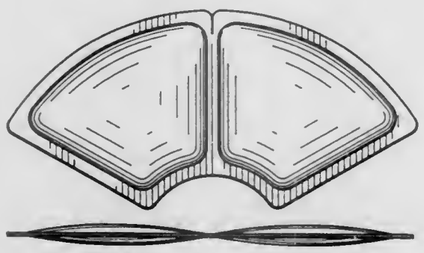
321,824
SHACKLELESS PADLOCK
Paul Appelbaum, 2125 S. Ammons St., Lakewood, Colo. 80227
Filed Feb. 13, 1990, Ser. No. 479,721
Term of patent 14 years
U.S. Cl. D8—334



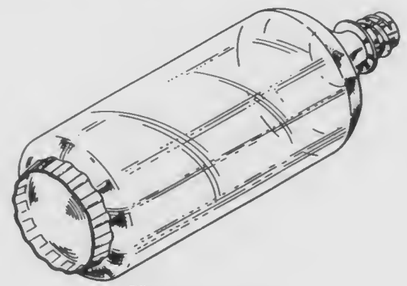
321,825
CONTAINER
Kurt Schlesselman, Marion, Ind., assignor to Kraft General Foods, Inc., Glenview, Ill.
Filed Jul. 21, 1989, Ser. No. 383,314
Term of patent 14 years
U.S. Cl. D9—310



321,826
TOWELETTE PACKAGE
Patricia Page, 503 S. Warminster Rd. Apt. K-3, Hatboro, Pa. 19040
Filed May 23, 1989, Ser. No. 355,361
Term of patent 14 years
U.S. Cl. D9—345

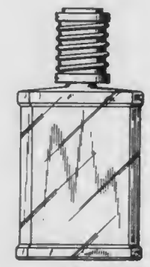


321,827
BOTTLE
Harold D. Bartley, Springfield, and William R. Gaiser, Dayton, both of Ohio, assignors to Broadway Companies, Inc., Dayton, Ohio
Filed Oct. 27, 1988, Ser. No. 263,485
Term of patent 14 years
U.S. Cl. D9—370

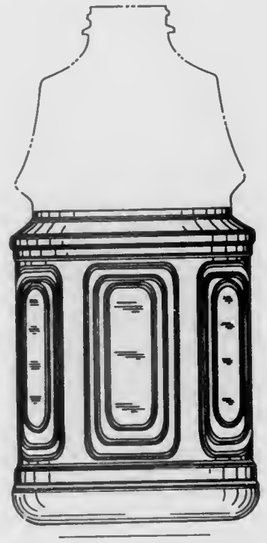


321,828
COMBINED FOLDABLE BOTTLE AND CAP
Walter Düring, Dällikon, Switzerland, assignor to Düring AG, Dällikon, Switzerland
Filed Dec. 20, 1989, Ser. No. 453,471
Term of patent 14 years
U.S. Cl. D9—370

321,829
COMBINED BOTTLE AND CAP
Luigi Iazzetta, Lugano, Switzerland, assignor to Harley-Davidson, Inc., Milwaukee, Wis.
Filed Sep. 29, 1989, Ser. No. 414,926
Term of patent 14 years
U.S. Cl. D9—403



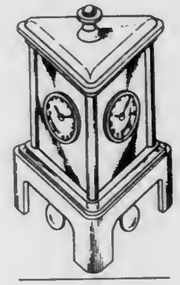
321,830
CONTAINER BOTTOM
Stuart A. York, Tariffville, and Dan Weissman, Simsbury, both of Conn., assignors to Hoover Universal, Inc., Plymouth, Mich.
Filed Jun. 1, 1989, Ser. No. 359,943
Term of patent 14 years
U.S. Cl. D9—434



321,831
ALARM CLOCK
Frank Piarulli, and Vinny Piarulli, both of 1928 Hunt Ave., Bronx, N.Y. 10462
Filed Aug. 3, 1987, Ser. No. 81,106
Term of patent 14 years
U.S. Cl. D10—7



321,832
THREE-SIDE CLOCK
Ching-Ti Chen, Chang-Hua Hsien, Taiwan, assignor to Information Clock Industry Co., Ltd., Taiwan
Filed Jul. 20, 1989, Ser. No. 382,520
Term of patent 14 years
U.S. Cl. D10—14



321,833
WATCH CASE WITH STRAP ADAPTOR
Edwin H. Polansky, Parsippany, and Pobert Arndt, Mahwah, both of N.J., assignors to Duchess Industries, Inc., Lodi, N.J.
Filed Jun. 21, 1989, Ser. No. 369,285
Term of patent 14 years
U.S. Cl. D10—30



321,834
WRISTWATCH
Gerald A. G. Saint-Dizier, Gaillard, France, assignor to Rolex Watch U.S.A., Inc., New York, N.Y.
Filed Oct. 6, 1988, Ser. No. 254,484
Claims priority, application World Int. Prop. O., Apr. 6, 1988, DM/010679
Term of patent 14 years
U.S. Cl. D10—39

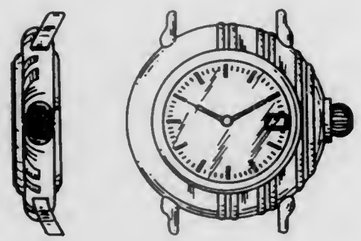


VOL 1132 ISS 4 NO 26 1991 UMI

321,835
WRISTWATCH
Yoshio Hirabayashi, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Filed Mar. 6, 1989, Ser. No. 319,444
Claims priority, application Japan, Sep. 6, 1988, 63-35189
Term of patent 14 years
U.S. Cl. D10—39



321,836
WATCH
Jorg Hysek, St. Pre, Switzerland, assignor to Interdica S.A., Villars-sur-Glane, Switzerland
Filed May 1, 1989, Ser. No. 346,016
Claims priority, application Switzerland, Nov. 1, 1988, DM/012101
Term of patent 14 years
U.S. Cl. D10—39



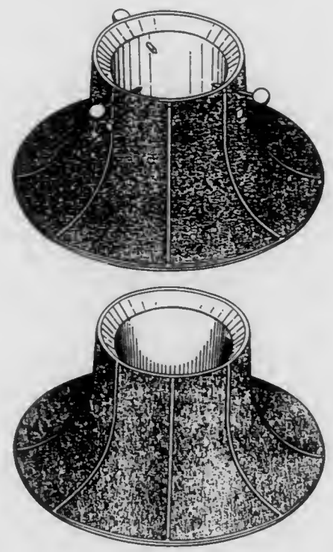
321,837
WATCH DIAL
Jean Robert, Zurich, Switzerland, assignor to Swatch AG (Swatch SA), Bienne, Switzerland
Division of Ser. No. 361,106, Jun. 5, 1989, Pat. No. D. 311,150, which is a division of Ser. No. 876,339, Jun. 19, 1986, Pat. No. D. 302,531. This application Apr. 16, 1990, Ser. No. 509,078
Claims priority, application World Int. Prop. O., Dec. 20, 1985, DM/006257
Term of patent 14 years
U.S. Cl. D10—126



321,838
WATCH DIAL
Jean Robert, Zurich, Switzerland, assignor to Swatch AG, Bienne, Switzerland
Division of Ser. No. 351,553, May 15, 1989, Pat. No. D. 311,149, which is a division of Ser. No. 904,301, Sep. 5, 1986, Pat. No. D. 302,399. This application Apr. 16, 1990, Ser. No. 509,138
Claims priority, application World Int. Prop. O., Mar. 25, 1986, DM/006689
Term of patent 14 years
U.S. Cl. D10—126



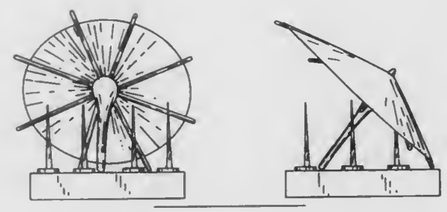
321,839
TREE STAND OR SIMILAR ARTICLE
Leo Rosato, 64 Fairmile Road, R.R. #4, Kemptville, Ontario K0G 1S0, Canada
Filed Jul. 20, 1989, Ser. No. 382,873
Claims priority, application Canada, Feb. 3, 1989, 0302894
Term of patent 14 years
U.S. Cl. D11—130.1



321,840
FINGER RING
J. T. Waugh, and Parke Davis, both of Austin, Tex., assignors to CJC Holdings, Inc., Austin, Tex.
Filed Jul. 25, 1989, Ser. No. 384,462
Term of patent 14 years
U.S. Cl. D11—33



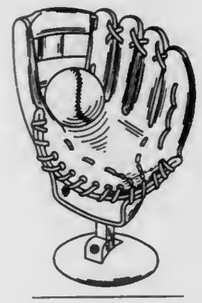
321,841
TABLE TOP NOVELTY
W. Edward Bean, 416 Powder Mill Rd., Nashville, Tenn. 37205
Filed Jul. 5, 1989, Ser. No. 377,006
Term of patent 14 years
U.S. Cl. D11—131



321,842
SAILBOARD SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,743
Term of patent 14 years
U.S. Cl. D11—163



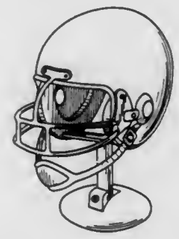
321,843
BASEBALL GLOVE AND BASEBALL SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,746
Term of patent 14 years
U.S. Cl. D11—157



321,844
GOLF BAG SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,742
Term of patent 14 years
U.S. Cl. D11—157



321,845
FOOTBALL HELMET SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,745
Term of patent 14 years
U.S. Cl. D11—157

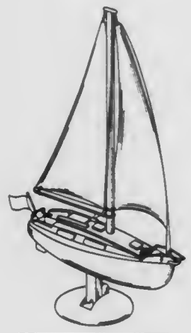


VOL 1132 ISS 4 NO 26 1991 UMI

321,846
BASKETBALL HOOP AND BASKETBALL SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,750
Term of patent 14 years
U.S. Cl. D11—157



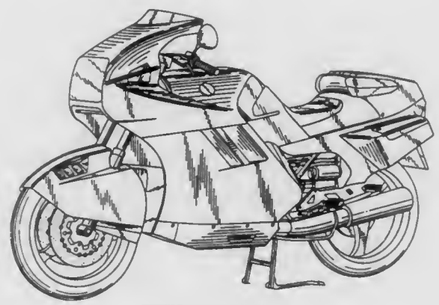
321,847
SAILBOAT SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,748
Term of patent 14 years
U.S. Cl. D11—163



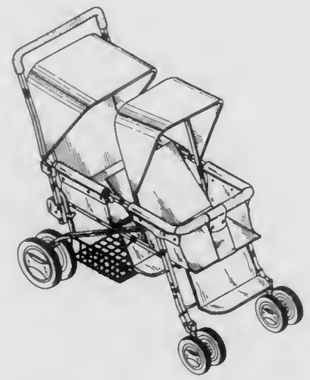
321,848
JET SKI SPORTS FIGURE
Peter Nys, Watermolenstraat 20, 2958 Zemst, Belgium
Filed May 26, 1989, Ser. No. 357,749
Term of patent 14 years
U.S. Cl. D11—163



321,849
MOTORCYCLE
Karl-Heinz Abe, Steinebach, and Klaus V. Gevert, Munich, both of Fed. Rep. of Germany, assignors to Bayerische Motoren Werke AG, Fed. Rep. of Germany
Filed Feb. 28, 1989, Ser. No. 316,686
Claims priority, application Fed. Rep. of Germany, Aug. 31, 1988, 8801346
Term of patent 14 years
U.S. Cl. D12—110



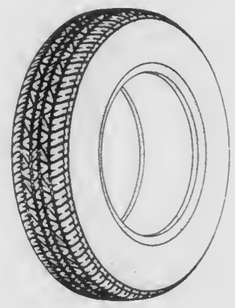
321,850
TANDEM SEAT BABY STROLLER
Chai Moog-Hsing, Walnut, Calif., assignor to Baby Trend, Inc., Pomona, Calif.
Filed Mar. 31, 1989, Ser. No. 330,883
Term of patent 14 years
U.S. Cl. D12—129



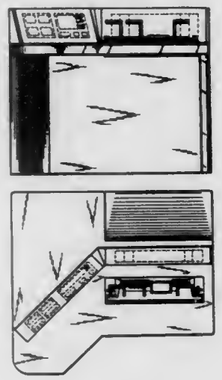
321,851
MOTORIZED STROLLER
Arthur C. Louszko, Jr., 28-A Abingdon Ave., Staten Island, N.Y. 10308
Filed Jul. 17, 1989, Ser. No. 380,255
Term of patent 14 years
U.S. Cl. D12—129



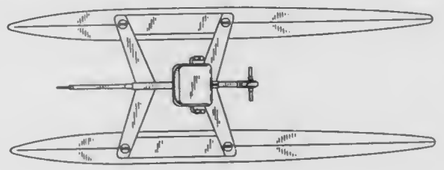
321,852
TIRE
James G. Guspodin, Akron, Ohio, assignor to Bridgestone/Firestone, Inc., Akron, Ohio
Filed Nov. 6, 1989, Ser. No. 432,445
Term of patent 14 years
U.S. Cl. D12—147



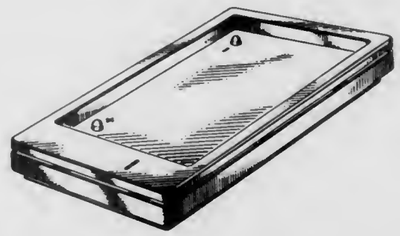
321,853
COMBINED LOCOMOTIVE CONSOLE AND MASTER CONTROLLER COVER
David O. Chase; Peter F. Lynch; Martin V. Maloney, and Scott W. Oslecki, all of Skaneateles, N.Y., assignors to General Signal Corporation, Watertown, N.Y.
Filed Sep. 18, 1989, Ser. No. 408,596
Term of patent 14 years
U.S. Cl. D12—192



321,854
PEDAL OPERATED WATER CYCLE
John J. Foley; Ralph M. Eide, and Ranald I. MacDonell, all of P.O. Box 68386, Oak Grove, Oreg. 97268
Filed Mar. 2, 1990, Ser. No. 487,244
Term of patent 14 years
U.S. Cl. D12—306

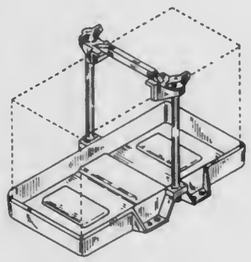


321,855
BATTERY RECHARGER
Grant D. Ross, Jr., Morgan Hill, Calif., assignor to Apple Computer, Inc., Cupertino, Calif.
Filed Mar. 20, 1989, Ser. No. 326,205
Term of patent 14 years
U.S. Cl. D13—107



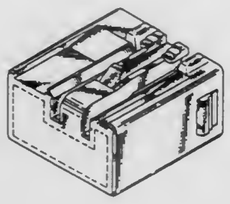
VOL 1132 ISS 4 NO 26 1991 UMI

321,856
BATTERY STORAGE TRAY
Warwick M. Whitley, II, Lynn Haven, Fla., and James L. Kusiak, Grand Rapids, Mich., assignors to Attwood Corporation, Lowell, Mich.
Filed Sep. 28, 1989, Ser. No. 414,078
Term of patent 14 years
U.S. Cl. D13—119

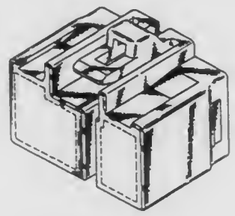


321,857
FLUORESCENT LAMP HOLDER OR THE LIKE
Ronald G. Blaisdell, Saugus, and Robert Y. Pai, Hamilton, both of Mass., assignors to GTE Products Corporation, Danvers, Mass.
Filed Dec. 1, 1989, Ser. No. 444,333
Term of patent 14 years
U.S. Cl. D13—136

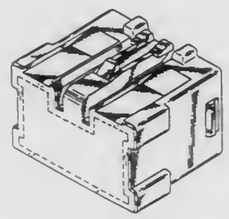
321,858
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota; Shigekazu Wakata, Yokkaichi; Shinichi Yamada, Yokkaichi, and Nobuyuki Asakawa, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 339,625
Claims priority, application Japan, Oct. 20, 1988, 63-41156
Term of patent 14 years
U.S. Cl. D13—147



321,859
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota; Shigekazu Wakata, Yokkaichi; Shinichi Yamada, Yokkaichi, and Toshikazu Nohara, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 339,635
Claims priority, application Japan, Oct. 20, 1988, 63-41166
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—146



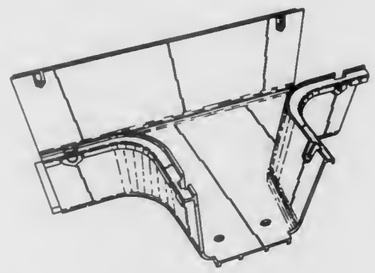
321,860
HOUSING FOR AN ELECTRICAL CONNECTOR
Yasuhiro Nagasaka; Yasuo Hirayama, both of Toyota; Shigekazu Wakata, Yokkaichi; Shinichi Yamada, Yokkaichi, and Nobuyuki Asakawa, Yokkaichi, all of Japan, assignors to Sumitomo Wiring Systems, Ltd., Yokkaichi, Japan
Filed Apr. 18, 1989, Ser. No. 340,015
Claims priority, application Japan, Oct. 20, 1988, 63-41158
The portion of the term of this patent subsequent to Nov. 12, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D13—147



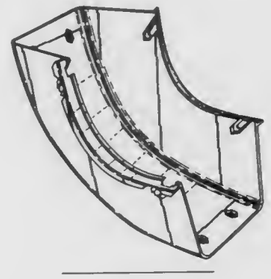
321,861
SCREW-ON ELECTRICAL CONNECTOR
James A. Wennemar, Sycamore, and Scott M. Golden, DeKalb, both of Ill., assignors to Ideal Industries, Inc., Sycamore, Ill.
Filed Mar. 24, 1989, Ser. No. 328,553
Term of patent 14 years
U.S. Cl. D13—150



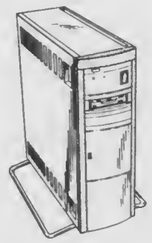
321,862
GUIDING TROUGH, HORIZONTAL T FOR OPTICAL FIBERS
Roy Henneberger, 1596 Clemson Dr., Eagan, Minn. 55122
Filed Jul. 31, 1989, Ser. No. 387,647
Term of patent 14 years
U.S. Cl. D13—155



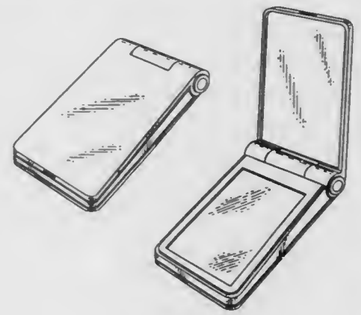
321,863
GUIDING TROUGH, 90 DEGREE UP ELBOW FOR OPTICAL FIBERS
Roy Henneberger, 1596 Clemson Dr., Eagan, Minn. 55122
Filed Jul. 31, 1989, Ser. No. 387,649
Term of patent 14 years
U.S. Cl. D13—155



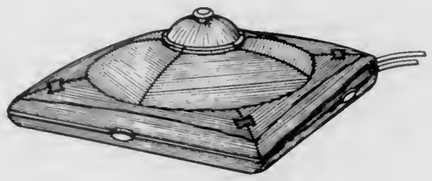
321,864
COMPUTER
Thomas A. Tedham, Salem, Mass., assignor to Wang Laboratories, Inc., Lowell, Mass.
Filed Dec. 29, 1988, Ser. No. 291,820
The portion of the term of this patent subsequent to Dec. 4, 2004, has been disclaimed.
Term of patent 14 years
U.S. Cl. D14—100



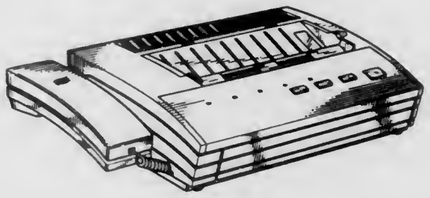
321,865
ELECTRONIC NOTEPAD FOR DATA ENTRY
Michael D. Derocher, Corvallis, Oreg., assignor to Hewlett-Packard Company, Palo Alto, Calif.
Filed Oct. 27, 1989, Ser. No. 428,074
Term of patent 14 years
U.S. Cl. D14—100



321,866
COMBINATION LAP-TOP COMPUTER CONSOLE AND MOUSE
Thomas J. Newhouse, 0-10923 2nd Ave., NW., Grand Rapids, Mich. 49504
Filed Feb. 4, 1987, Ser. No. 10,833
Term of patent 14 years
U.S. Cl. D14—106

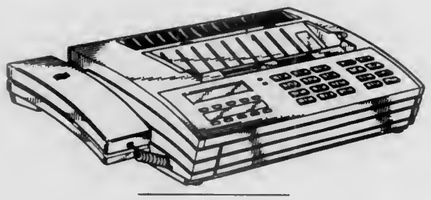


321,867
FACSIMILE
Curt Anderson, Pleasanton, Calif., assignor to Gold Star Co., Ltd., Seoul, Rep. of Korea
Filed May 22, 1990, Ser. No. 526,620
Term of patent 14 years
U.S. Cl. D14—118

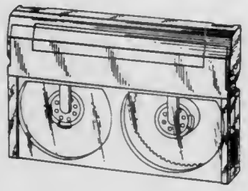


VOL 1132 ISS 4 NO 26 1991 UMI

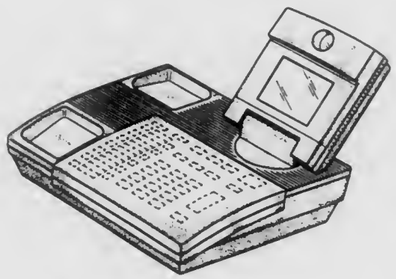
321,868
FACSIMILE
Curt Anderson, Pleasanton, Calif., assignor to Gold Star Co., Ltd., Seoul, Rep. of Korea
Filed May 22, 1990, Ser. No. 526,621
Term of patent 14 years
U.S. Cl. D14—118



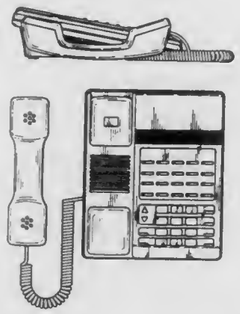
321,869
VIDEO CASSETTE TAPE
Yuko Nakamura, Yokohama, Japan, assignor to Sony Corporation, Tokyo, Japan
Filed May 17, 1988, Ser. No. 195,014
Claims priority, application Japan, Nov. 17, 1987, 62-47044
Term of patent 14 years
U.S. Cl. D14—121



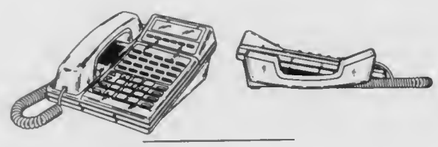
321,870
VIDEO TELEPHONE SET
Robert L. Beecher, II; Anthony J. Grewe, both of Fishers, Ind.; Jonathan A. Marks, New York, N.Y.; John N. McGarvey, Drexel Hill, Pa.; Louis D. Vining, Indianapolis, Ind., and Michael P. Zambelli, Livingston, N.J., assignors to AT&T Bell Laboratories, Murray Hill, N.J.
Filed Nov. 23, 1990, Ser. No. 618,327
Term of patent 14 years
U.S. Cl. D14—130



321,871
TELEPHONE
Takaharu Ando, Ryugasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 11, 1990, Ser. No. 536,226
Claims priority, application Japan, Dec. 12, 1989, 1-44933
Term of patent 14 years
U.S. Cl. D14—151



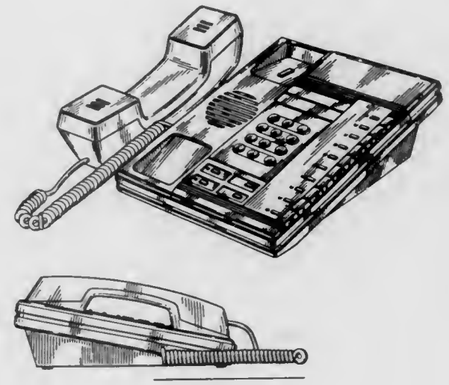
321,872
TELEPHONE
Takaharu Ando, Ryugasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Jun. 11, 1990, Ser. No. 536,412
Claims priority, application Japan, Dec. 12, 1989, 1-44932
Term of patent 14 years
U.S. Cl. D14—151



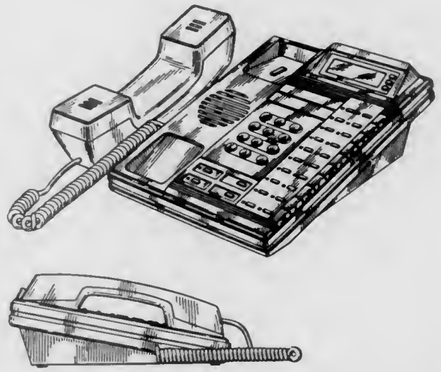
321,873
TELEPHONE
Takaharu Ando, Ryugasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 20, 1990, Ser. No. 585,365
Claims priority, application Japan, Mar. 20, 1990, 2-9082
Term of patent 14 years
U.S. Cl. D14—151



321,874
TELEPHONE
Takaharu Ando, Ryugasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 20, 1990, Ser. No. 585,366
Claims priority, application Japan, Mar. 20, 1990, 2-9081
Term of patent 14 years
U.S. Cl. D14—151

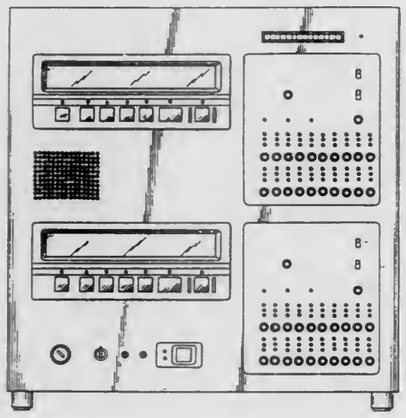


321,875
TELEPHONE
Takaharu Ando, Ryugasaki, Japan, assignor to Kabushiki Kaisha Toshiba, Kawasaki, Japan
Filed Sep. 20, 1990, Ser. No. 585,372
Claims priority, application Japan, Mar. 22, 1990, 2-9302
Term of patent 14 years
U.S. Cl. D14—151

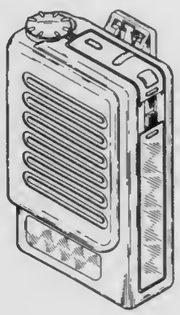


VOL
1132
ISS
4
NO
2 6
1991
UMI

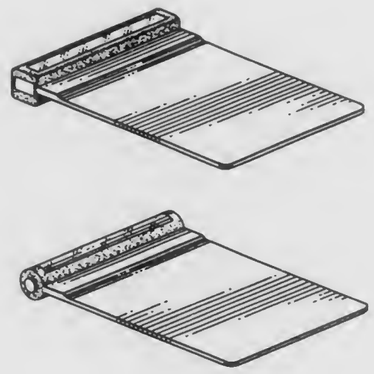
321,876
DATA RECORDER/REPRODUCER
Masafumi Ito, Tokyo; Shigeru Hasegawa, Kodaira; Minoru Sube, Hachioji, and Katsuhiro Takashima, Yokohama, all of Japan, assignors to TEAC Corporation, Japan
Filed Jun. 26, 1989, Ser. No. 371,403
Claims priority, application Japan, Jan. 9, 1989, 1-275
Term of patent 14 years
U.S. Cl. D14—164



321,877
DISPLAY PAGER OR SIMILAR ARTICLE
William J. Scheid, Coral Springs, and Richard J. Gordecki, Ocean Ridge, both of Fla., assignors to Motorola, Inc., Schaumburg, Ill.
Filed Sep. 15, 1989, Ser. No. 408,177
Term of patent 14 years
U.S. Cl. D14—191



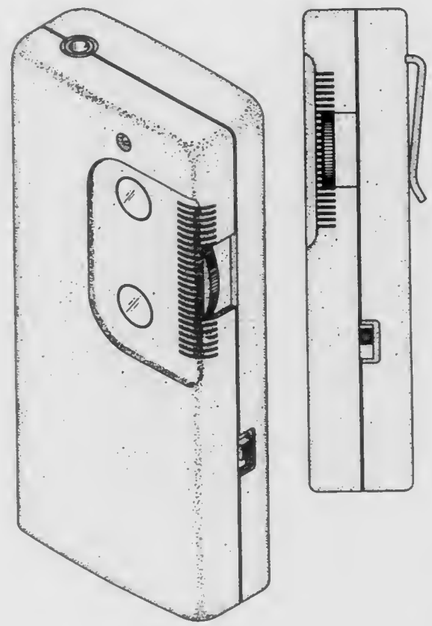
321,878
COMBINED PAGER AND MAGNETIC KEY
Beverly J. Brenda, 25021 Acacia La., Laguna Hills, Calif. 92653; Hassin A. Abiney, 18233 Muirwoods Ct., Fountain Valley, Calif. 92708, and Roger McDiarmid, 8531 Meadow Brook Ave., #204, Garden Grove, Calif. 92704
Filed Mar. 1, 1990, Ser. No. 487,174
Term of patent 14 years
U.S. Cl. D14—191



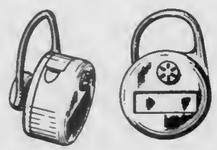
321,879
STEREO RADIO
Ronald Emmerling, Bay Head, N.J., assignor to Gemini Industries Inc., Clifton, N.J.
Filed May 15, 1989, Ser. No. 351,911
Term of patent 14 years
U.S. Cl. D14—192



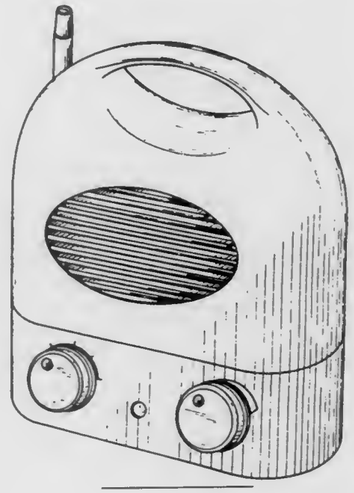
321,880
STEREO RADIO
Ronald Emmerling, Bay Head, N.J., assignor to Gemini Industries Inc., Clifton, N.J.
Filed May 15, 1989, Ser. No. 352,176
Term of patent 14 years
U.S. Cl. D14—192



321,881
RADIO
Donald C. Hopewell, 5123 Pony Soldier Dr., Colorado Springs, Colo. 80917
Filed Jun. 5, 1989, Ser. No. 361,108
Term of patent 14 years
U.S. Cl. D14—192



321,882
RADIO RECEIVER
Liu M. Huei, 8F-2, No. 6, Min Sheng W. Rd., Taipei, Taiwan
Filed Dec. 13, 1989, Ser. No. 450,725
Term of patent 14 years
U.S. Cl. D14—196

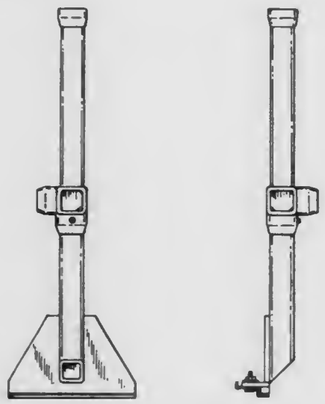


321,883
ANTENNA
Robert L. Borchardt, New York, N.Y., assignor to Recoton Corporation, Long Island City, N.Y.
Filed Jul. 20, 1989, Ser. No. 383,349
Term of patent 14 years
U.S. Cl. D14—230

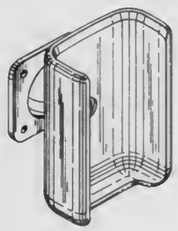


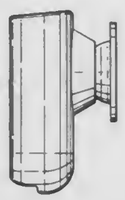
VOL 1132 ISS 4 NO 26 1991 UMI

321,884
ANTENNA
David Barrett, P.O. Box 9516, Pompano Beach, Fla. 33060
Filed May 16, 1989, Ser. No. 353,520
Term of patent 14 years
U.S. Cl. D14—234

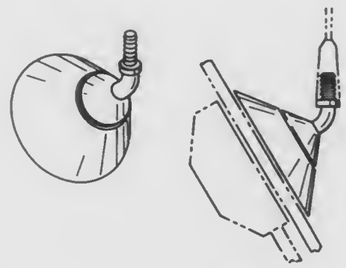


321,885
HOLDER FOR A PORTABLE TELEPHONE HANDSET
Christopher Sheldrake, Basingstoke, England, assignor to Technophone Limited, Surrey, England
Filed Oct. 4, 1990, Ser. No. 592,835
Claims priority, application United Kingdom, Apr. 12, 1990, 2006137
Term of patent 14 years
U.S. Cl. D14—253

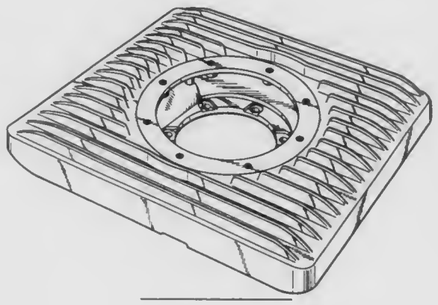




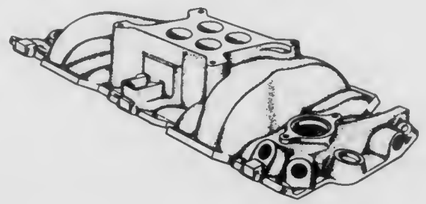
321,886
ANTENNA MOUNT
Donald E. Metivier, Denton, Tex., assignor to Alliance Telecommunications Corp., Dallas, Tex.
Filed Mar. 21, 1989, Ser. No. 326,261
Term of patent 14 years
U.S. Cl. D14—238



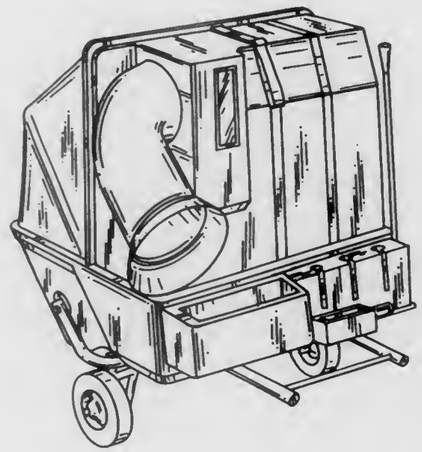
321,887
COMBINED OIL SUMP AND COOLER
Robert A. Tomlinson, 28813 Farmersville Blvd., Farmersville, Calif. 93223
Filed Apr. 12, 1989, Ser. No. 337,128
Term of patent 14 years
U.S. Cl. D15—5



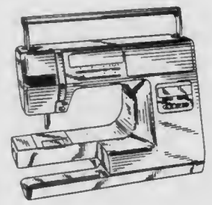
321,888
INTAKE MANIFOLD
J. V. Brotherton, Mena, Ark., assignor to Brodix, Inc., Mena, Ark.
Filed Oct. 6, 1989, Ser. No. 417,851
Term of patent 14 years
U.S. Cl. D15—5



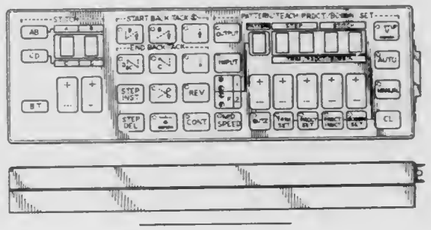
321,889
GRASS COLLECTING CART FOR A RIDING LAWN MOWER
Stephen R. Burns, Duluth; Timothy J. Boesch, Roswell; Matthew D. Rao, Alpharetta; Stuart A. Cook, Norcross, all of Ga.; Jack M. Curtis, Santa Fe, and Jack M. Boone, Brentwood, both of Tenn., assignors to The Murray Ohio Manufacturing Company, Brentwood, Tenn.
Filed Feb. 8, 1989, Ser. No. 307,595
Term of patent 14 years
U.S. Cl. D15—17



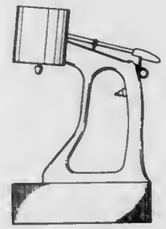
321,890
SEWING MACHINE
Nobufusa Kuroki, Tokyo, Japan, assignor to Janome Sewing Machine Co. Ltd., Tokyo, Japan
Filed Mar. 17, 1989, Ser. No. 325,352
Claims priority, application Japan, Feb. 17, 1989, 1-5598
Term of patent 14 years
U.S. Cl. D15—70



321,891
CONTROLLER FOR A SEWING MACHINE
Hiroshi Kumatani; Satomi Yamauchi, both of Nagoya, and Takanobu Fujimoto, Kamakura, all of Japan, assignors to Mitsubishi Denki Kabushiki Kaisha, Tokyo, Japan
Filed Nov. 14, 1989, Ser. No. 436,536
Claims priority, application Japan, May 15, 1989, 1-17591
Term of patent 14 years
U.S. Cl. D15—72

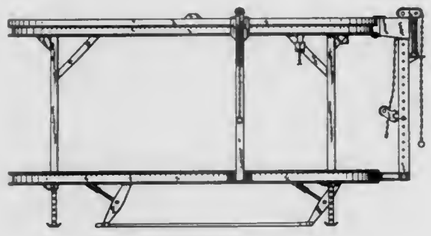


321,892
BOXING TOP ACTUATOR
Roger L. Watford, 2126 Wilderness Point, Kingwood, Tex. 77339
Filed Aug. 23, 1988, Ser. No. 235,192
Term of patent 14 years
U.S. Cl. D15—122

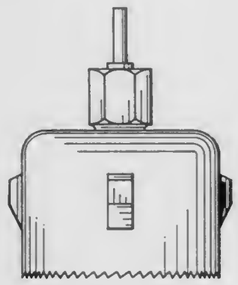


VOL 1132 ISS 4 NO 26 1991 UMI

321,893
DEVICE FOR REPAIRING AND STRENGTHENING VEHICLES
Carl R. Field, Ankeny, Iowa, assignor to Duz-Mor, Inc., Des Moines, Iowa
Filed Nov. 2, 1988, Ser. No. 265,925
Term of patent 14 years
U.S. Cl. D15—122



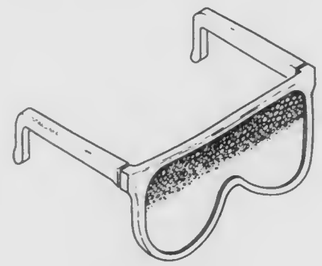
321,894
PIPE FITTING REAMER
Raymond L. Harris, 4971 Date Ave., Sacramento, Calif. 95841
Filed Feb. 6, 1989, Ser. No. 306,578
Term of patent 14 years
U.S. Cl. D15—139



321,895
PAIR OF SUNGLASSES OR THE LIKE
Robert H. Ramp, Pittsford, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y.
Filed Nov. 23, 1988, Ser. No. 275,479
Term of patent 14 years
U.S. Cl. D16—102

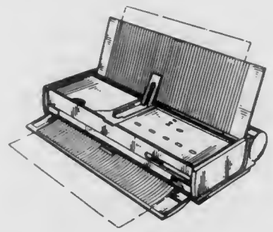


321,896
EYEGLASSES
Theodore P. Croll, 4242 Mechanicsville Rd., Mechanicsville, Pa. 18934
Filed Jan. 30, 1990, Ser. No. 472,486
Term of patent 14 years
U.S. Cl. D16—102

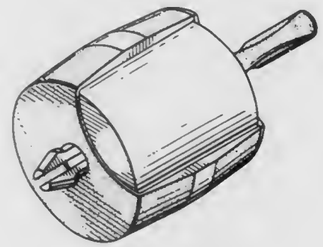


321,897
STILL CAMERA
Alan G. Reddig, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y.
Filed Sep. 19, 1989, Ser. No. 409,201
Term of patent 14 years
U.S. Cl. D16—209

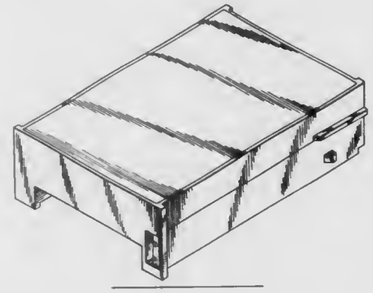
321,898
PORTABLE PRINTER
Kimberly W. Kasee, Spring; Gary W. Pankonien, Houston, and Donald S. Goodrich, The Woodlands, all of Tex., assignors to Compaq Computer Corporation, Houston, Tex.
Filed Jun. 8, 1989, Ser. No. 363,114
Term of patent 14 years
U.S. Cl. D18—55



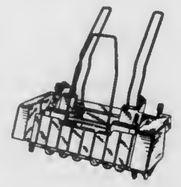
321,899
REINKER CARTRIDGE
Edward Knox, Newbury Park, and Philip N. Smith, Valencia, both of Calif., assignors to Dataproducts Corporation, Woodland Hills, Calif.
Filed Mar. 27, 1989, Ser. No. 328,566
Term of patent 14 years
U.S. Cl. D18—58



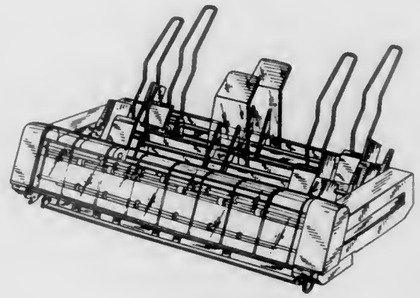
321,900
INK CARTRIDGE
Toshio Kumagai, Nagano, Japan, assignor to Seiko Epson Corporation, Tokyo, Japan
Filed Apr. 10, 1989, Ser. No. 335,261
Term of patent 14 years
U.S. Cl. D18—56



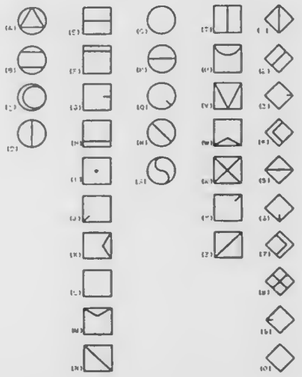
321,901
AUTOMATIC PAPER FEEDER FOR PRINTER
Noritaka Uchibori, and Toshimitsu Ohara, both of Nagano, Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Jul. 28, 1989, Ser. No. 386,473
Claims priority, application Japan, Feb. 8, 1989, 1-004390
Term of patent 14 years
U.S. Cl. D18—49



321,902
AUTOMATIC PAPER FEEDER FOR PRINTER
Masayuki Ono; Akira Suzuki; Noritaka Uchibori, all of Nagano, and Friedrich F. Frenkler, Tokyo, all of Japan, assignors to Seiko Epson Corporation, Tokyo, Japan
Filed Oct. 12, 1989, Ser. No. 421,460
Claims priority, application Japan, Apr. 12, 1989, 1-13511
Term of patent 14 years
U.S. Cl. D18—49

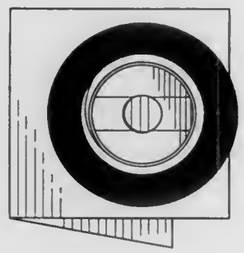


321,903
ALPHANUMERIC FONT
Elia V. Chepaitis, 370 McKinley Ave., New Haven, Conn. 06515
Filed Apr. 22, 1987, Ser. No. 41,324
Term of patent 14 years
U.S. Cl. D18—26



VOL 1132 ISS 4 NO 26 1991 UMI

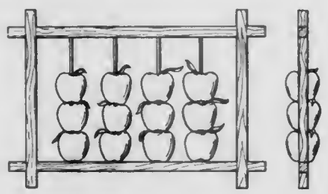
321,904
GREETING CARD
Kevin Thomas, 16301 SW 294th St., Homestead, Fla. 33033
Filed Jan. 3, 1990, Ser. No. 460,607
Term of patent 14 years
U.S. Cl. D19—6



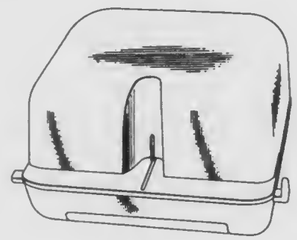
321,905
TWIN-NIBBED WRITING INSTRUMENT
Charlie Tu, 1F, No. 20, Lane 247, An Ho Rd., Taipei, Taiwan
Filed May 18, 1989, Ser. No. 353,507
Term of patent 14 years
U.S. Cl. D19—36



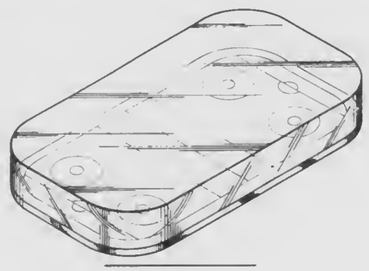
321,906
CALCULATING DEVICE
Marilyn J. Neeley, 7791 Northpointe, Pensacola, Fla. 32514
Filed Nov. 20, 1989, Ser. No. 438,891
Term of patent 14 years
U.S. Cl. D19—64



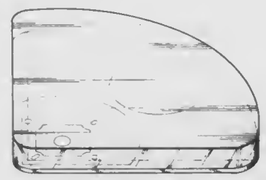
321,907
ELECTRIC PUNCH
Moritoshi Matsuno, Narashino, Japan, assignor to Maruzen Kabushiki Kaisha, Tokyo, Japan
Filed Jun. 20, 1989, Ser. No. 368,526
Claims priority, application Japan, Jan. 6, 1989, 64-102
Term of patent 14 years
U.S. Cl. D19—72



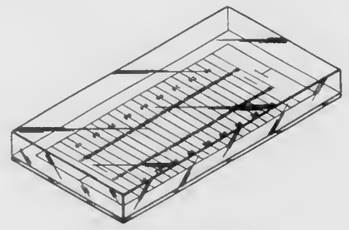
321,908
SUPPORT BASE FOR A DESK SET OR SIMILAR ARTICLE
Mark D. Brady, 154 N. McCadden Pl., Los Angeles, Calif. 90004
Filed Mar. 6, 1989, Ser. No. 319,228
Term of patent 14 years
U.S. Cl. D19—97



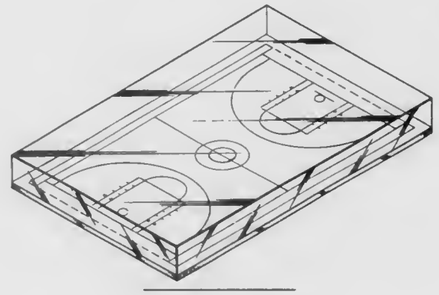
321,909
SUPPORT BASE FOR A DESK SET OR SIMILAR ARTICLE
Mark D. Brady, 154 N. McCadden Pl., Los Angeles, Calif. 90004
Filed Mar. 6, 1989, Ser. No. 319,229
Term of patent 14 years
U.S. Cl. D19—97



321,910
SUPPORT BASE FOR A DESK SET OR SIMILAR ARTICLE
Mark D. Brady, 154 N. McCadden Pl., Los Angeles, Calif. 90004
Filed May 12, 1989, Ser. No. 351,144
Term of patent 14 years
U.S. Cl. D19—97



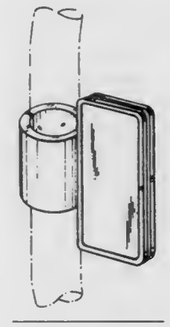
321,911
SUPPORT BASE FOR A DESK SET OR SIMILAR ARTICLE
Mark D. Brady, 154 N. McCadden Pl., Los Angeles, Calif. 90004
Filed May 12, 1989, Ser. No. 351,157
Term of patent 14 years
U.S. Cl. D19—97



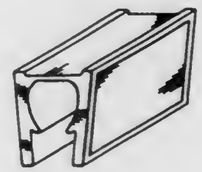
321,912
PAPER TRAY COVER
Mel Evenson, San Pedro, Calif., assignor to Eldon Industries, Inc., Inglewood, Calif.
Division of Ser. No. 101,770, Sep. 28, 1987, Pat. No. Des. 317,628. This application Mar. 11, 1991, Ser. No. 667,087
Term of patent 14 years
U.S. Cl. D19—99



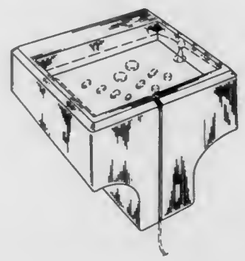
321,913
IDENTIFICATION TAG HOLDER
Stephen H. Wolff, 222 E. 35th St., New York, N.Y. 10016
Filed Sep. 12, 1989, Ser. No. 406,085
Term of patent 14 years
U.S. Cl. D20—27



321,914
PRICE TAG HOLDER OR SIMILAR ARTICLE
Sai Y. Tam, G.P.O. Box 11071, Hong Kong, Hong Kong
Filed Dec. 20, 1989, Ser. No. 453,504
Term of patent 14 years
U.S. Cl. D20—43

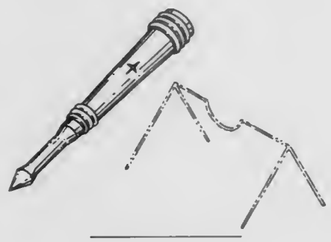


321,915
GAME CONTROLLER HOLDER
David C. Urbanski, 1794 Covington La., Eagan, Minn. 55126
Filed May 5, 1989, Ser. No. 347,786
Term of patent 14 years
U.S. Cl. D21—48



VOL 1132 ISS 4 NOV 26 1991 UMI

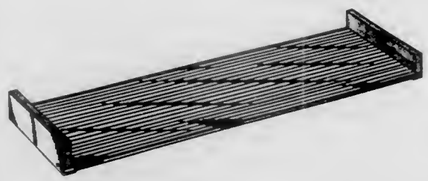
321,916
GAME PIECE OR SIMILAR
Treva Bond, 4 S. Fairview Cir., Portsmouth, Va. 23702
Filed Jun. 14, 1989, Ser. No. 366,038
Term of patent 14 years
U.S. Cl. D21—51



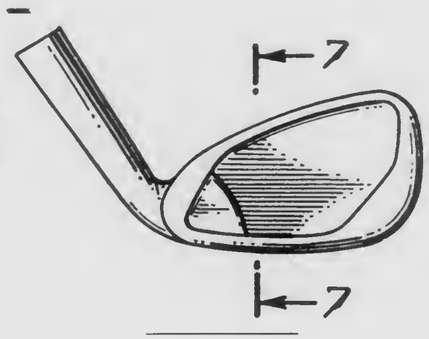
321,917
PATCH QUILT DOLL
Nancy L. Evans, 34273 Iris La., Eastlake, Ohio 44094; Kathleen Dipko, 21331 Morris Ave., Euclid, Ohio 44123; Daisy L. Hudson, 135 Chestnut La., Ste. 315, Richmond Heights, Ohio 44143, and Virginia Brunelle, 25520 Farringdon Ave., Euclid, Ohio 44131
Filed Jul. 31, 1989, Ser. No. 387,715
Term of patent 14 years
U.S. Cl. D21—171



321,918
PHYSICAL EXERCISE PLATFORM
Robert G. Blanchard, 12503 Chateau Forest, San Antonio, Tex. 78230
Filed Sep. 14, 1989, Ser. No. 407,024
Term of patent 14 years
U.S. Cl. D21—191



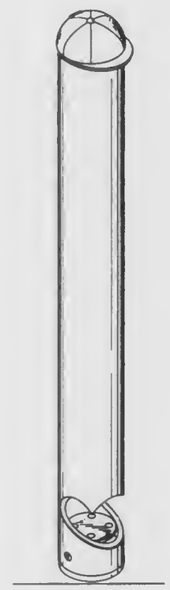
321,919
GOLF CLUB HEAD
Michael H. L. Cheng, 3151 Geronimo Ave., Simi Valley, Calif. 93063
Filed May 31, 1989, Ser. No. 360,205
Term of patent 14 years
U.S. Cl. D21—220



321,920
GOLF CLUB HEAD
Richard E. Parente, Solana Beach; Richard De La Cruz, Pauma Valley, and Richard C. Helmstetter, Carlsbad, all of Calif., assignors to Callaway Golf Company, Carlsbad, Calif.
Continuation-in-part of Ser. No. 231,070, Aug. 11, 1988. This application Dec. 12, 1989, Ser. No. 450,300
Term of patent 14 years
U.S. Cl. D21—220



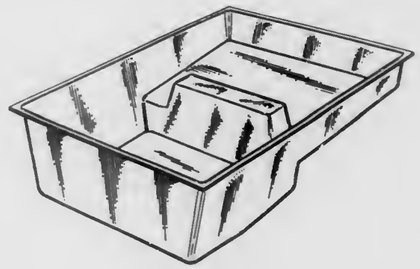
321,921
GOLF BALL DISPENSER
Larry K. Johnson, Rte. 1, Box 1300, Palestine, Tex. 75801
Filed Apr. 20, 1989, Ser. No. 341,806
Term of patent 14 years
U.S. Cl. D21—234



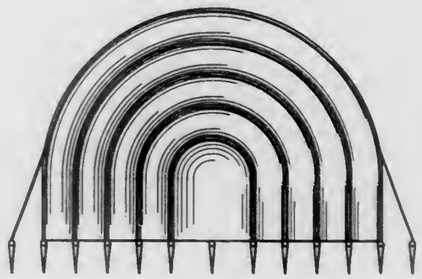
321,922
CHILDREN'S PLAYGROUND SLIDE
Charles W. Basore, 148 S. Walnut Bend, Cordova, Tenn. 38018, and Robert W. Gilbert, 7032 Huntcliff Cove, Germantown, Tenn. 38138
Filed Sep. 10, 1987, Ser. No. 94,933
Term of patent 14 years
U.S. Cl. D21—244



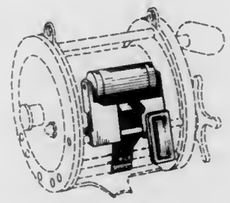
321,923
SAND AND WATER PLAYBOX
Peter W. Ross, R.R. No. 1, Frazerville,Ontario, Canada K0L 1V0
Filed Nov. 10, 1988, Ser. No. 269,948
Claims priority, application Canada, May 11, 1988, 11-05-88-6
Term of patent 14 years
U.S. Cl. D21—252



321,924
PORTABLE SUN PROTECTOR
Yong S. Bonner, 621 Manchester Ter. #3, Inglewood, Calif. 90301
Filed May 18, 1988, Ser. No. 195,527
Term of patent 14 years
U.S. Cl. D21—253

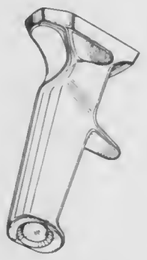


321,925
ANTI-BACKLASH ATTACHMENT FOR FISHING REEL
Lyle I. Shiman, and Naomi Shiman, both of 172 Rock River Dr., Vallejo, Calif. 94589
Filed Apr. 17, 1989, Ser. No. 340,153
Term of patent 14 years
U.S. Cl. D22—140

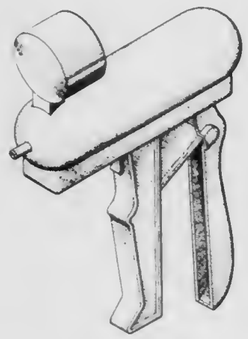


VOL 1132 ISS 4 NO 26 1991 UMI

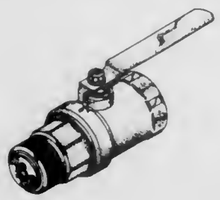
321,926
PAINT SPRAYER HANDLE
Timothy D. Steinberg, Coon Rapids, Minn., assignor to Wagner Spray Tech Corporation, Minneapolis, Minn.
Filed Jul. 20, 1990, Ser. No. 553,433
Term of patent 14 years
U.S. Cl. D23—223



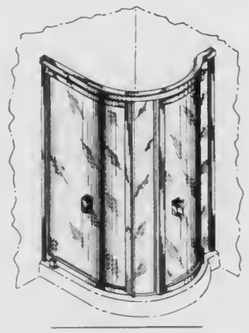
321,927
HAND HELD VACUUM PUMP FOR USE IN DELIVERY ROOMS
Lawrence M. Smith, P.O. Box 5877, Bend, Oreg. 97708, and Richard N. Cooper, Lake Oswego, Oreg., assignors to Lawrence Smith and Emily Smith, both of Bend, Oreg.
Filed Mar. 27, 1989, Ser. No. 328,959
Term of patent 14 years
U.S. Cl. D23—231



321,928
COMBINATION BALL VALVE AND CHECK VALVE
Joseph V. Milo, Rockaway, N.J., assignor to Universal Valve Company, Inc., Elizabeth, N.J.
Filed Feb. 28, 1989, Ser. No. 318,191
Term of patent 14 years
U.S. Cl. D23—245



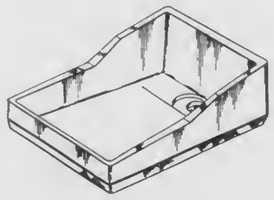
321,929
SHOWER ENCLOSURE
Todd D. Dannenberg, Sheboygan, Wis., and Keith L. Poulson, Canyon Country, Calif., assignors to Kohler Co., Kohler, Wis.
Filed Jan. 11, 1988, Ser. No. 142,871
The portion of the term of this patent subsequent to Nov. 19, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D23—305



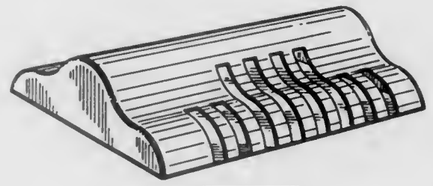
321,930
VAPORIZER
Pierre Dinand, Levallois Perret, France, assignor to International Flavors & Fragrances I.F.F. (France) S.a.r.l., New York, N.Y.
Filed Mar. 15, 1989, Ser. No. 323,863
Claims priority, application France, Oct. 28, 1988, 886627
Term of patent 14 years
U.S. Cl. D23—360



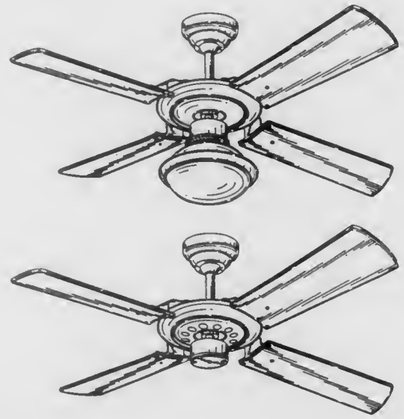
321,931
DENTAL MODEL TRIMMER BASIN OR THE LIKE
J. Michael Dierkes, 672 Corbin Lake Ct., Atlanta, Ga. 30350
Filed Jan. 23, 1989, Ser. No. 299,738
Term of patent 14 years
U.S. Cl. D23—294



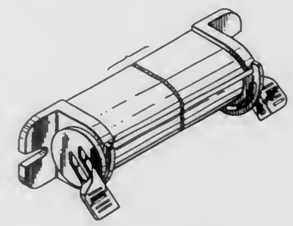
321,932
AIR FRESHENER HOUSING
Ralph E. Duszynski, 7962 Hidden Harbour Dr., East, Holland, Ohio 43528
Filed Apr. 19, 1990, Ser. No. 511,386
Term of patent 14 years
U.S. Cl. D23—366



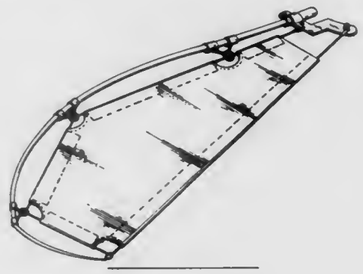
321,933
COMBINED ELECTRIC CEILING FAN AND LIGHT OR THE LIKE
Herbert W. Markwardt, and Michael A. Markwardt, both of Forth Worth, Tex., assignors to Encon Industries, Inc., Forth Worth, Tex.
Filed Oct. 22, 1990, Ser. No. 600,674
Term of patent 14 years
U.S. Cl. D23—377



321,934
VENT FOR MOUNTING ON WINDOW SILL OR FRAME
Alan V. Logue, and William Divers, both of Dunmurry Belfast, Northern Ireland, assignors to Brook Design Products Limited, Dunmurry, Northern Ireland
Filed Jun. 14, 1989, Ser. No. 365,561
Claims priority, application United Kingdom, Dec. 14, 1988, 1055687
Term of patent 14 years
U.S. Cl. D23—388



321,935
CEILING FAN BLADE
Alexander B. Ignon, Malibu, Calif., assignor to Casablanca Fan Company, Inc., City of Industry, Calif.
Filed Feb. 17, 1989, Ser. No. 312,563
Term of patent 14 years
U.S. Cl. D23—413

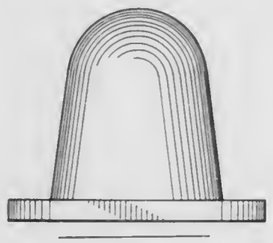


321,936
BABY BOTTLE
William P. Donovan, 28 Quailcrest Rd., East Lyme, Conn. 06333
Filed Feb. 10, 1989, Ser. No. 308,754
Term of patent 14 years
U.S. Cl. D24—197

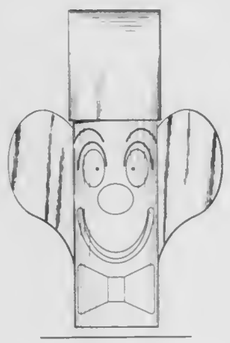


VOL 1132 ISS 4 NO 26 1991 UMI

321,937
FOOD DISLODGING AID FOR CHOKING VICTIMS
Jeffrey E. Young, 2180 E. Regency Pl., Springfield, Mo. 65804
Filed Sep. 2, 1988, Ser. No. 240,223
Term of patent 14 years
U.S. Cl. D24—133



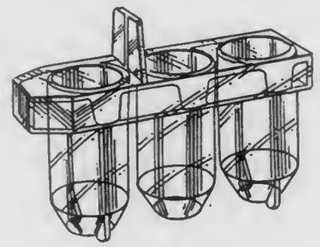
321,938
BABY BOTTLE HOLDER
Cheryl L. Burt, 749 Eimonte Rd., El Cajon, Calif. 92424
Filed Jan. 17, 1989, Ser. No. 297,995
Term of patent 14 years
U.S. Cl. D24—199



321,939
BABY BOTTLE COVER
Sheila Tom, 1474 Mattagami Street, Gloucester, Ont., Canada K1T 2T7
Filed Apr. 11, 1989, Ser. No. 336,291
Claims priority, application Canada, Oct. 14, 1988, 14-10-88-10
Term of patent 14 years
U.S. Cl. D24—199



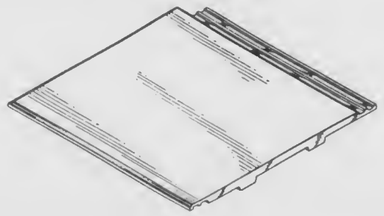
321,940
SAMPLE CUP FOR ANALYZER
Michael D'Aquino; Manjeshwar S. Rao, both of Miami, and Howard J. Kirchick, Cooper City, all of Fla., assignors to Baxter Diagnostics Inc., Deerfield, Ill.
Filed Jul. 20, 1989, Ser. No. 383,136
Term of patent 14 years
U.S. Cl. D24—226



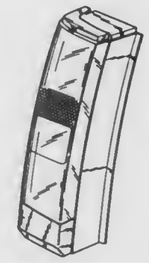
321,941
LIFEGUARD TOWER
David J. Stollery, 3203 Bern Ct., Laguna Beach, Calif. 92651
Filed Jun. 26, 1989, Ser. No. 371,407
Term of patent 14 years
U.S. Cl. D25—16



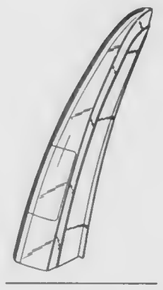
321,942
TILE
Michael E. Lynn, Leigh, England, assignor to Marley Tile A.G., Zurich, Switzerland
Filed Jan. 27, 1988, Ser. No. 150,314
Claims priority, application United Kingdom, Jul. 27, 1987, 1043681
Term of patent 14 years
U.S. Cl. D25—140



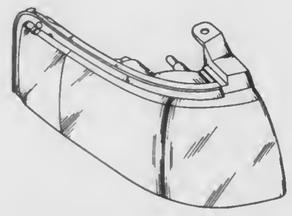
321,943
REAR LIGHT FOR AN AUTOMOBILE
Rolf A. Malmgren, Västra Frölunda, and Frans G. Falck, Torslanda, both of Sweden, assignors to Aktiebolaget Volvo, Gothenburg, Sweden
Filed Jun. 20, 1989, Ser. No. 368,533
Term of patent 14 years
U.S. Cl. D26—28



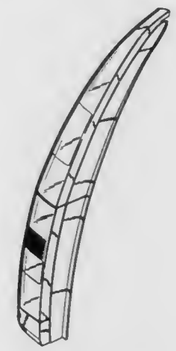
321,944
REAR LIGHT FOR AN AUTOMOBILE
Rolf A. Malmgren, Västra Frölunda, and Frans G. Falck, Torslanda, both of Sweden, assignors to Aktiebolaget Volvo, Gothenburg, Sweden
Filed Jun. 20, 1989, Ser. No. 368,534
Term of patent 14 years
U.S. Cl. D26—28



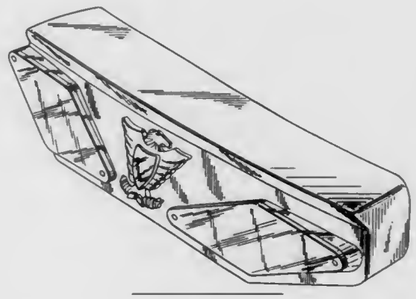
321,945
AUTOMOBILE FRONT COMBINATION LAMP
Hiroshi Yamamoto, Yokohama, Japan, assignor to Mazda Motor Corporation, Hiroshima, Japan
Filed Apr. 28, 1988, Ser. No. 187,401
Term of patent 14 years
U.S. Cl. D26—35



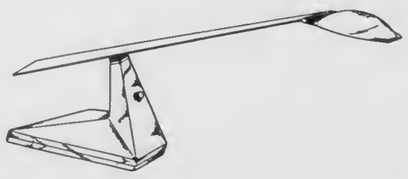
321,946
REAR LIGHT FOR AN AUTOMOBILE
Stig F. O. Falck, Bohus Björkö0, and Frans G. Falck, Torslanda, both of Sweden, assignors to Aktiebolaget Volvo, Gothenburg, Sweden
Filed Jun. 20, 1989, Ser. No. 368,538
Term of patent 14 years
U.S. Cl. D26—35



321,947
MOTORCYCLE TAILLIGHT ASSEMBLY
Tom Rudd, Rte. 2, Box 80, North Hudson, Wis. 54016, and Alwin J. Stahel, 1244 Imperial, St. Paul, Minn. 55112
Filed Dec. 22, 1989, Ser. No. 454,849
Term of patent 14 years
U.S. Cl. D26—35

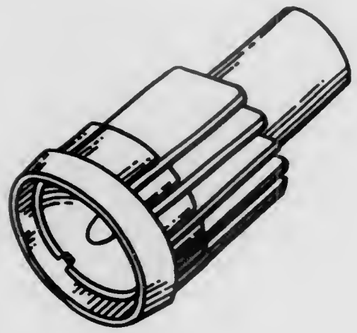


321,948
TABLE LAMP
James C. S. Huang, No. 19, Lane 111, Ho Pont Road, Luchou, Taipei Hsien, Taiwan
Filed Jul. 12, 1990, Ser. No. 551,721
Term of patent 14 years
U.S. Cl. D26—65

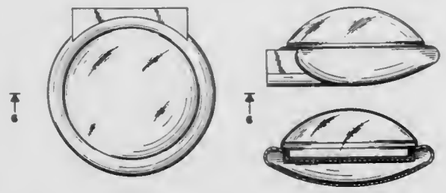


VOL 1132 ISS 4 NO 26 1991 UMI

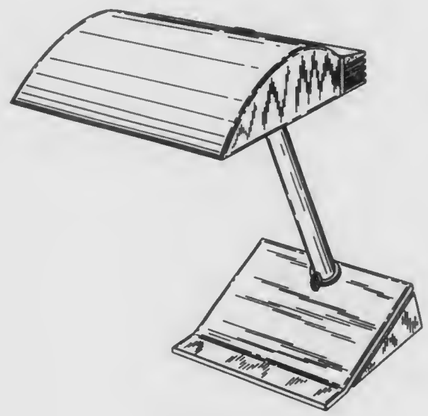
321,949
RECESSED LIGHTING FIXTURE FOR CEILING OR THE LIKE
Jack V. Miller, 700 N. Auburn Ave., Sierra Madre, Calif. 91024
Filed Jul. 10, 1989, Ser. No. 377,914
Term of patent 14 years
U.S. Cl. D26—74



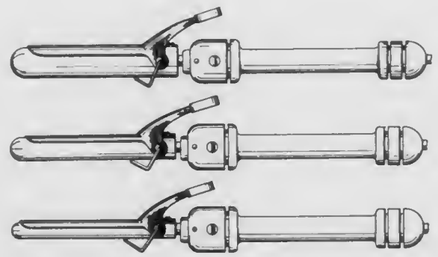
321,950
WALL-MOUNTED LIGHT FIXTURE OR THE LIKE
Axel Enthoven, Wijnegem, Belgium, assignor to American Standard Inc., New York, N.Y.
Division of Ser. No. 111,521, Oct. 19, 1987, Pat. No. D. 315,844. This application Feb. 20, 1991, Ser. No. 658,378
Term of patent 14 years
U.S. Cl. D26—92



321,951
DESK LAMP
Menno Dieperink, Amsterdam, Netherlands, assignor to U.S. Philips Corporation, New York, N.Y.
Filed Apr. 13, 1990, Ser. No. 509,547
Claims priority, application World Int. Prop. O., Oct. 30, 1989, DM/014.914
Term of patent 14 years
U.S. Cl. D26—107



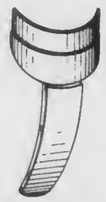
321,952
CURLING IRON
James G. Montagnino; Betty Butzko; Daniel Santhouse; Tim Hanlon, and Steve Power, all of El Paso, Tex., assignors to Helen of Troy Corporation, El Paso, Tex.
Filed Jan. 17, 1990, Ser. No. 466,699
Term of patent 14 years
U.S. Cl. D28—35



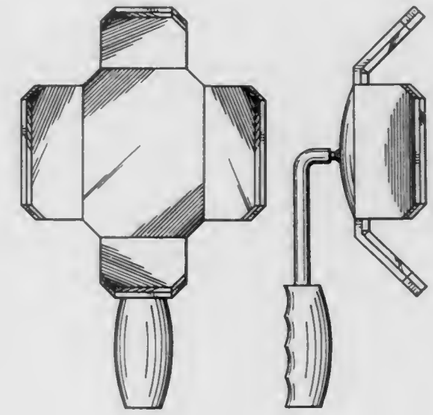
321,953
RAZOR HANDLE
Michael J. Gray, Duxbury, Mass., assignor to The Gillette Company, Boston, Mass.
Continuation of Ser. No. 32,882, Mar. 31, 1987, abandoned. This application May 30, 1990, Ser. No. 501,505
Term of patent 14 years
U.S. Cl. D28—48



321,954
FINGERNAIL REPAIR DEVICE
David H. Aylott, Tomarton, United Kingdom, assignor to Eylure Limited, Wales, United Kingdom
Filed May 15, 1989, Ser. No. 352,213
Claims priority, application United Kingdom, Nov. 15, 1988, 1054968
Term of patent 14 years
U.S. Cl. D28—57



321,955
ADJUSTABLE FOUR WAY MIRROR
Eric R. Mallory, 2637 N. 28th St., Philadelphia, Pa. 19132
Filed Feb. 6, 1989, Ser. No. 306,590
Term of patent 14 years
U.S. Cl. D28—64.1

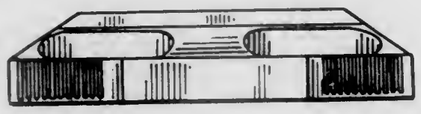


321,956
COMBINED PORTABLE BREATHING UNIT AND HOLSTER THEREFOR
Larry H. Williamson, Huntington Beach, Calif., assignor to Submersible Systems, Inc., Huntington Beach, Calif.
Filed Apr. 25, 1989, Ser. No. 343,515
Term of patent 14 years
U.S. Cl. D29—7

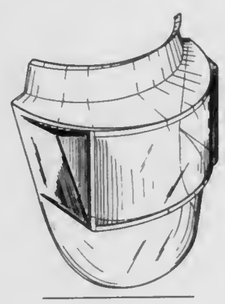


VOL
1132
ISS
4
NO
26
1991
UMI

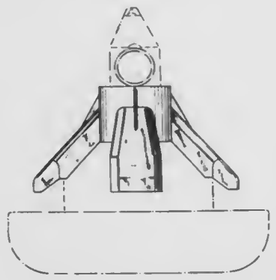
321,957
FACE SHIELD
Tobias Brown, Oak Park, and Burton L. Siegal, Skokie, both of Ill., assignors to Sellstrom Manufacturing Company, Palatine, Ill.
Filed Dec. 14, 1989, Ser. No. 450,841
Term of patent 14 years
U.S. Cl. D29—9



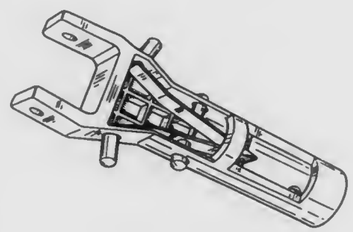
321,958
DISPOSABLE FACESHIELD
Arthur J. Salce, and Richard T. Metcalfe, both of Southbridge, Mass., assignors to Cabot Safety Corporation, Southbridge, Mass.
Continuation-in-part of Ser. No. 152,920, Feb. 5, 1988, Pat. No. D. 308,582. This application Jun. 14, 1988, Ser. No. 206,711 The portion of the term of this patent subsequent to Dec. 29, 2003, has been disclaimed.
Term of patent 14 years
U.S. Cl. D29—16

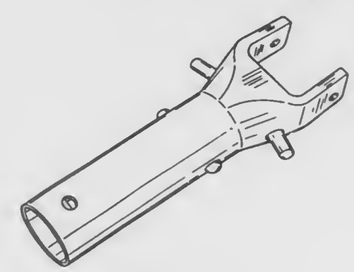


321,959
FEEDER FOR POULTRY
Theodore J. Cole, and Ray E. Swartzendruber, both of Syracuse, Ind., assignors to CTB, Inc., Milford, Ind.
Filed May 15, 1989, Ser. No. 352,039
Term of patent 14 years
U.S. Cl. D30—121

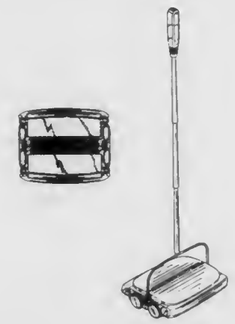


321,960
HANDLE INTERCONNECT BRACKET FOR SCOOPS USED TO CLEAN SWIMMING POOLS
Stephen B. Nicholas, Magill, Australia, assignor to Magnor Pty. Limited, Norwood, Australia
Filed Jan. 25, 1989, Ser. No. 301,998
Claims priority, application Australia, Nov. 22, 1988, 3908/88
Term of patent 14 years
U.S. Cl. D32—35

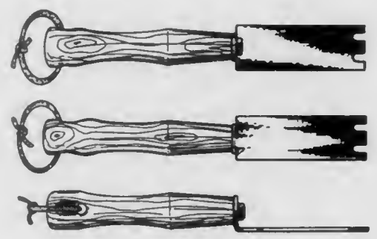




321,961
FLOOR CLEANER
Tsuyoshi Ishii, and Koichi Yoshimura, both of Osaka, Japan, assignors to Yamazaki Corporation, Osaka, Japan
Filed Oct. 4, 1988, Ser. No. 253,211
Claims priority, application Japan, May 27, 1988, 63-21104
Term of patent 14 years
U.S. Cl. D32—38



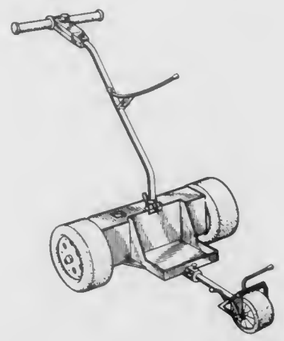
321,962
BARBECUE GRILL CLEANER
Samuel G. Roma, 3065 Clayton St., and Charles J. Guiffre, 2505 Selp Ave., both of Easton, Pa. 18042
Filed Aug. 14, 1990, Ser. No. 567,544
Term of patent 14 years
U.S. Cl. D32—49



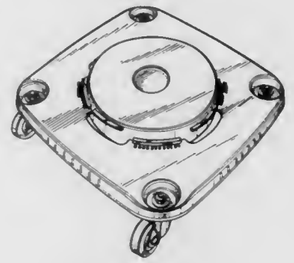
321,963
BOTTLE DRAINING STAND
Anton P. Welder, 209 W. Brandon Dr., Bismarck, N. Dak. 58501
Filed Feb. 25, 1991, Ser. No. 661,316
Term of patent 14 years
U.S. Cl. D32—58



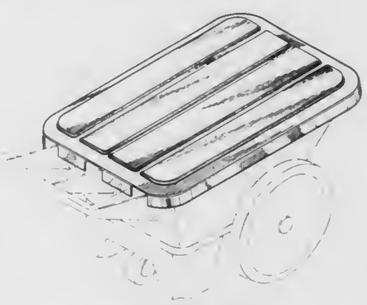
321,964
MOTOR-DRIVEN GOLF-BAG CADDY
Reinold Alterbaum, Rotdornallee 47, 4840 Rheda-Wiedenbruck, Fed. Rep. of Germany
Filed Dec. 2, 1988, Ser. No. 279,189
Term of patent 14 years
U.S. Cl. D34—15



321,965
CONTAINER DOLLY
Paul E. Delmerico, and Greg P. Terek, both of Winchester, Va., assignors to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Mar. 14, 1990, Ser. No. 493,239
Term of patent 14 years
U.S. Cl. D34—23



321,966
STABLE CART LID
John M. Fuller, Winchester, Va., assignor to Rubbermaid Commercial Products Inc., Winchester, Va.
Filed Apr. 6, 1989, Ser. No. 334,127
Term of patent 14 years
U.S. Cl. D34—27



321,967
WICKER BASKET
Nimfa O. Lumaban, Calamba, Philippines, assignor to Decra Stone, Inc., Prior Lake, Minn.
Filed Feb. 23, 1989, Ser. No. 314,584
The portion of the term of this patent subsequent to Oct. 22, 2005, has been disclaimed.
Term of patent 14 years
U.S. Cl. D34—44



VOL
1132
ISS
4
NO
26
1991
UMI

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF NOVEMBER, 1991

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A.C.T.M.: *See—*
Ayme, Jacques, 5,067,741, Cl. 280-419.000.

A.F.G. S.r.l.: *See—*
Fusaro, Angelo; and Galeazzi, Giancarlo, 5,067,866, Cl. 414-228.000.

A. H. Robins Company Incorporated: *See—*
Bhogal, Balbir S.; Williams, Michael G.; and Miller, Glenn A., 5,068,104, Cl. 424-88.000.
Taylor, Chandler R., Jr.; Cale. Jr., Albert D.; Johnson, David N.; and Stauffer. Jr., Harold F., 5,068,231, Cl. 514-210.000.

A. O. Smith Corporation: *See—*
Lykes, Robert E.; and King, James L., 5,068,556, Cl. 310-90.000.
Scott, Kenneth C., 5,068,582, Cl. 318-254.000.

Aardvark Corporation: *See—*
Sweeney, Gerald T., 5,067,854, Cl. 405-184.000.

AAW Producktions Aktiengesellschaft: *See—*
Pirchl, Gerhard, 5,067,339, Cl. 72-329.000.

AB Tetra Pak: *See—*
Lindskog, Carl G.; Anderson, Rolf; and Loovv, Christer, 5,068,005, Cl. 156-514.000.

AB Volvo: *See—*
Janiszewski, Grzegorz, 5,067,364, Cl. 74-440.000.

Abb Kabel und Draht GmbH: *See—*
Krieger, Wolfgang, 5,068,497, Cl. 174-106.00R.

ABB Power T & D Company, Inc.: *See—*
Pavlik, Norman M.; Sefko, John; and Miller, Richard A., 5,067,992, Cl. 148-307.000.

ABB Reaktor GmbH: *See—*
Dietrich, Alban, 5,068,721, Cl. 358-100.000.

ABB Vetco Gray Inc.: *See—*
Boehm, Carl F., Jr., 5,067,734, Cl. 277-236.000.

Abbott Laboratories: *See—*
Brooks, Dee W.; and Rodriques, Karen E., 5,068,251, Cl. 514-506.000.

Abbott, Rexford J.; and Wright, David L., to Spectra-Physics Lasers, Inc. Etalon apparatus. 5,068,861, Cl. 372-20.000.

Abe, Akira, to Fuji Photo Film Co., Ltd. Method for processing silver halide color photographic materials. 5,068,170, Cl. 430-393.000.

Abe, Masayoshi: *See—*
Takagaki, Hidetsugu; Nakanishi, Shigenori; Abe, Masayoshi; Ohki, Hiromi; and Sano, Yoshiyuki, 5,068,364, Cl. 549-415.000.

Abe, Nobumasa; Kobayashi, Atsushi; Watanabe, Koji; Morishita, Norio; and Tanaka, Yuji, to Seiko Epson Corporation. Image forming device. 5,068,684, Cl. 355-27.000.

Abe, Yoshio: *See—*
Kokubo, Tadashi; Yamamuro, Takao; and Abe, Yoshio, 5,068,122, Cl. 427-2.000.

Aburaya, Toshio: *See—*
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Acco World Corporation: *See—*
Cooper, Edward W.; and Guerrieri, Orlando R., 5,067,840, Cl. 402-38.000.

Acer Incorporated: *See—*
Huang, Ali; Tsai, Philips; and Chen, Bonbo, 5,067,681, Cl. 248-442.200.

Achard, Georges: *See—*
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.

Achterrath-Tuckerman, Ute; Aurich, Rudolf; Engel, Jurgen; Hettche, Helmut; and Kleeman, Axel, to Asta Pharma Aktiengesellschaft. Synergistic combination of azelastine and theophylline or azelastine and α-mimetics. 5,068,233, Cl. 514-212.000.

Ackermann, Peter: *See—*
Huxley, Alica; Kunz, Walter; Ackermann, Peter; and Sutter, Marius, 5,068,359, Cl. 549-58.000.

Acorn Engineering Company: *See—*
Hafner, V. Walter; and Marshall, Keith D., 5,067,181, Cl. 4-425.000.

Adams, Harry A.: *See—*
Paspek, Stephen C.; Hauser, Jeffrey B.; Eppig, Christopher P.; and Adams, Harry A., 5,068,027, Cl. 208-125.000.

ADC Telecommunications, Inc.: *See—*
Henneberger, Roy L.; Weitnauer, Ronald M.; and Johnson, Wayne A., 5,067,678, Cl. 248-68.100.

Adelson, Alexander, to Intec Corp. Scanner detector array and light diffuser. 5,068,523, Cl. 250-208.100.

Aderer, Peter, to Lemmerz-Werke KGaA. Track adjustment wheel. 5,067,776, Cl. 301-9.0TV.

Adiwinata, Sofyan. Rotary internal combustion engine. 5,067,883, Cl. 418-61.200.

Adnrae, Franz: *See—*
Hesske, Benno; Adnrae, Franz; and Weber, Peter, 5,067,246, Cl. 33-555.400.

Advanced Chemical Technologies Company: *See—*
Brunken, Dean E.; and Hagen, Arnulf P., 5,068,132, Cl. 427-421.000.

Advanced Micro Devices: *See—*
Plants, William C.; and Fritz, Scott N., 5,068,830, Cl. 365-190.000.

Advanced Micro Devices, Inc.: *See—*
Newman, Robert A., 5,068,708, Cl. 357-68.000.

Aeci Limited: *See—*
Hemmings, John W.; Allan, Peter; and O'Shaughnessy, Gerald M., 5,067,972, Cl. 55-40.000.

AEG Olympia Aktiengesellschaft: *See—*
Kreutzburg, Franz; and Galleck, Kurt-G., 5,068,824, Cl. 395-800.000.

Aerazur: *See—*
Bac, Jean-Claude, 5,067,690, Cl. 251-149.800.

Aeroquip Corporation: *See—*
Maiville, Randolph L.; and Rogers, Russell L., 5,067,752, Cl. 285-119.000.

Aerospace Corporation, The: *See—*
Mirels, Harold; Spencer, Donald J; and Hofland, Robert, Jr., 5,067,801, Cl. 359-666.000.

AFD Systems, Inc.: *See—*
Scherk, Randall P.; and Steneker, Daniel J., 5,068,888, Cl. 379-100.000.

Afflerbaugh, Martin G.: *See—*
Knox, George J.; Cronch, Daniel F.; and Afflerbaugh, Martin G., 5,067,910, Cl. 439-402.000.

Agata, Mitsuzi: *See—*
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.

AGFA-Gevaert, N.V.: *See—*
Coppens, Paul J.; Vervloet, Ludovicus H.; Leenders, Luc H.; and Schuerwegen, Ronald, 5,068,165, Cl. 430-204.000.

Agger, Reginald T.; Taylor, John R.; and Hardy, Alan, to Bostik, Inc. Sheet materials. 5,068,143, Cl. 428-241.000.

Agou, Tokinori: *See—*
Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, 5,068,400, Cl. 560-223.000.

Agrawal, Rakesh; Farrell, Brian E.; and Wilson, Keith B., to Air Products and Chemicals, Inc. Cryogenic process for the production of an oxygen-free and methane-free, krypton/xenon product. 5,067,976, Cl. 62-22.000.

Agro-Kanesho Co., Ltd.: *See—*
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.

Ahman, Jan-Olov L., to Olsson, Clas Ove. Method and arrangement for pumping refrigerants. 5,067,325, Cl. 62-77.000.

Air Products and Chemicals, Inc.: *See—*
Agrawal, Rakesh; Farrell, Brian E.; and Wilson, Keith B., 5,067,976, Cl. 62-22.000.
Burgoyne, William F., Jr.; and Dixon, Dale D., 5,068,435, Cl. 564-409.000.
Bushinsky, Joseph P.; Nicholas, David M.; Wang, Shoou-I; and Patel, Nitin M., 5,068,058, Cl. 252-376.000.
Schweighardt, Frank K.; and Rubertone, Joseph A., 5,068,098, Cl. 424-9.000.

Aisin Seiki Kabushiki Kaisha: *See—*
Kano, Junichi; Aoki, Kongoh; Mochizuki, Masahiro; and Nakadozono, Hiroyuki, 5,067,450, Cl. 123-90.170.
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Aizawa, Takao: *See—*
Isobe, Kazuyuki; Aizawa, Takao; Yamaguchi, Noboru; and Ueda, Yutaka, 5,068,270, Cl. 524-68.000.

Akada, Masanori: *See—*
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.

Akado, Hajime: *See—*
Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, 5,067,455, Cl. 123-196.00R.

Akamatsu, Akira: *See—*
Kurita, Yoshio; and Akamatsu, Akira, 5,068,206, Cl. 437-220.000.

Akashi, Hiroshi. Non-contact conveying device. 5,067,762, Cl. 294-64.300.

VOL 1132 ISS 4 NOV 26 1991 UMI

Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, to Kureha Kagaku Kogyo K.K. Method for producing diarylmethanes. 5,068,481, Cl. 585-426.000.

Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, to Kureha Kagaku Kogyo K.K. Method for producing 1,1-diarylethanes. 5,068,482, Cl. 585-429.000.

Akebono Brake Industry Co., Ltd.: *See*—
Maehara, Toshifumi, 5,067,881, Cl. 417-498.000.
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Akebono Research and Development Center Ltd.: *See*—
Maehara, Toshifumi, 5,067,881, Cl. 417-498.000.

Akebono Research and Development Centre Ltd.: *See*—
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Akhalaya, Mikail G.: *See*—
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshnikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Akhavan-Jaffi, Hashem: *See*—
Schaap, Arthur P.; and Akhavan-Jaffi, Hashem, 5,068,339, Cl. 548-110.000.

Akhtar, Muhammad; and Newell, Florine, to Johnson Products Co., Inc. Hair relaxer cream. 5,068,101, Cl. 424-71.000.

Akita Electronics Co., Ltd.: *See*—
Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, 5,068,828, Cl. 365-189.010.

Akiyama, Shigeyuki: *See*—
Suzuki, Riichiro; Akiyama, Shigeyuki; and Kubo, Yoshihiro, 5,067,814, Cl. 356-339.000.

Akram, Mustafa; and Seidel, Winfried, to 501 Hans Schwarzkopf GmbH. Nitro-p-phenylenediamine derivatives, processes for their preparation and coloring agents containing these for use on keratin fibres. 5,067,967, Cl. 8-415.000.

Aktiebolaget Hassle: *See*—
Andersson, Kjell H., 5,068,272, Cl. 524-155.000.

A.G. International Chemical Company, Inc.: *See*—
Okumura, Hiroyuki; Kurokawa, Masashi; Namikawa, Akira; and Tanisake, Hiroka, 5,068,281, Cl. 524-753.000.

Akzo N.V.: *See*—
Aschauer, Martin N., 5,068,092, Cl 422-253.000.
Diamantoglou, Michael, 5,068,269, Cl. 524-35.000.
Driscoll, Richard C., 5,068,181, Cl. 435-13.000.
Pennings, Albert J.; and Roukema, Mees, 5,068,073, Cl. 264-205.000.
Telschow, Jeffrey E., 5,068,426, Cl. 564-15.000.

Alazet, Jean. Suction device with a squeegee for eliminating dirty water while cleaning certain surfaces. 5,067,199, Cl. 15-320.000.

Albarella, James P.; and Lin, Nan-Horng, to Miles Inc. Semi-conducting oligomers and method relating thereto. 5,068,355, Cl. 548-527.000.

Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, to Himmont Incorporated. Components and catalysts for the polymerization of olefins. 5,068,213, Cl. 502-126.000.

Alcatel Espace: *See*—
Bouzat, Charles, 5,067,672, Cl. 244-158.00R.

Alcatel N.V.: *See*—
Rabaey, Dirk H. L. C.; and Haspeslagh, Didier R., 5,068,848, Cl. 370-85.600.
Walker, Michael, 5,068,903, Cl. 381-96.000.

Alden Products Company: *See*—
Behning, Christian D., 5,067,909, Cl. 439-315.000.

Aldrich Chemical Company, Inc.: *See*—
Brown, Herbert C., 5,068,432, Cl. 564-347.000.

Alexander, Elmore. Multi-level suspended garment holder. 5,067,621, Cl. 211-117.000.

Alfonsi, Eric A.: *See*—
Kline, Todd A.; Rosen, Warren A.; Bermingham, William J.; and Alfonsi, Eric A., 5,068,880, Cl. 375-116.000.

Alfred Teves GmbH: *See*—
Belart, Juan, 5,067,779, Cl. 303-114.0PN
Lauer, Peter, 5,067,365, Cl. 74-501.50R.
Leidecker, Hans-Dieter; Schmidt, Bodo; Krause, Helmut; and Dobener, Karl-Heinz, 5,067,594, Cl. 188-73.350.
Weiler, Rolf; Bach, Uwe; and Ceylan, Ahmet D., 5,067,595, Cl. 188-73.450.

Allan, Jonathan S.: *See*—
Essex, Myron E.; Allan, Jonathan S.; and Lee, Tun-Hou, 5,068,174, Cl. 435-5.000.

Allan, Peter: *See*—
Hemmings, John W.; Allan, Peter; and O'Shaughnessy, Gerald M., 5,067,972, Cl. 55-40.000.

Allandrieu, Christian: *See*—
Gubelmann, Michel; Rochin, Christophe; and Allandrieu, Christian, 5,068,391, Cl. 560-25.000.

Allegra, Carmen: *See*—
Kovacs, Joseph; Masur, Henry; and Allegra, Carmen, 5,068,253, Cl. 514-553.000.

Allen, L. Scott; Mills, William R.; and Stromswold, Daivd C., to Mobil Oil Corporation. Method and apparatus for producing a porosity log of a subsurface formation corrected for detector standoff. 5,068,531, Cl. 250-269.000.

Allen, Mark D.: *See*—
Pennell, Phillip E.; Blackmore, John M.; and Allen, Mark D., 5,068,225, Cl. 514-57.000.

Allen, Timothy P.: *See*—
Mead, Carver A.; and Allen, Timothy P., 5,068,622, Cl. 330-253.000.

Allergan, Inc.: *See*—
Chandraratna, Roshantha A. S., 5,068,252, Cl. 514-543.000.

Allied Plastics, Inc.: *See*—
Short, Edward H., III, 5,067,530, Cl. 141-98.000.

Allied-Signal Inc.: *See*—
Ball, Larry K.; Hines, Marshall U.; and Tervo, John N., 5,067,506, Cl. 137-1.000.
Chang, Chin-Hsiung, 5,068,037, Cl. 210-638.000.
Hinton, Mark L.; and Belka, John C., Jr., 5,068,647, Cl. 340-734.000.
Hirchert, Richard A., 5,067,349, Cl. 73-472.000.
Jen, Kwan-Yue A.; Elsenbaumer, Ronald L.; and Shacklette, Lawrence W., 5,068,060, Cl. 252-500.000.
Johannesen, Donald D., 5,067,596, Cl. 188-79.540.
Murugan, Muthu K., 5,068,557, Cl. 310-90.000.
Nelson, Charles J.; Bheda, Jayendra H.; Rim, Peter B.; and Turner, James M., 5,067,538, Cl. 152-451.000.

Allison, A. Christopher: *See*—
Jaffe, Richard A.; and Allison, A. Christopher, 5,067,942, Cl. 604-110.000.

Allison, Debra L.: *See*—
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Rupprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.

Alonso, Carlos: *See*—
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.

Alps Electric Co., Ltd.: *See*—
Kuratani, Junichi, 5,068,499, Cl. 200-6.00A.
Maeda, Takuya, 5,068,633, Cl. 335-190.000.

Alscher, Edbert. Thermal expansion compensation pendulum. 5,067,808, Cl. 352-140.000.

Alsenz, Richard H. Method and apparatus for controlling capacity of a multiple-stage cooling system. 5,067,326, Cl. 62-193.000.

Aluminum Company of America: *See*—
Nigro, William A.; and O'Neill, Gary A., 5,068,095, Cl. 423-122.000.

AM International Incorporated: *See*—
Gadway, Jeffrey G.; and Bryson, Robert, Sr., 5,067,699, Cl. 270-55.000.

Amada Company, Limited: *See*—
Ohnishi, Kenji; Washio, Isomi; and Nakano, Koji, 5,067,381, Cl. 83-820.000.

Ambu International A/S: *See*—
Kohnke, Ole B., 5,067,707, Cl. 272-99.000.

American Cast Iron Pipe Company: *See*—
Walworth, Van T.; and DeBoalt, Steve L., 5,067,751, Cl. 285-105.000.

American Cyanamid Company: *See*—
Kazan, John; and Kelly, James J., 5,068,437, Cl. 564-417.000.
Kuhn, David G.; and Kremer, Kenneth A. M., 5,068,390, Cl. 558-461.000.
Ziegler, Carl B., Jr.; Curran, William V.; and Feigelson, Gregg, 5,068,232, Cl. 514-210.000.

American Home Products Corporation: *See*—
Malamas, Michael S., 5,068,332, Cl. 546-18.000.
Zask, Arie; and Jirkovsky, Ivo, 5,068,342, Cl. 548-183.000.

American Orthodontics Corporation: *See*—
Tuneberg, Lee H., 5,067,897, Cl. 433-8.000.

American Recreation Products, Inc.: *See*—
Cantwell, Robert R.; and Zumsteg, Deborah M., 5,067,505, Cl. 135-104.000.

American Standard Inc.: *See*—
Carey, Michael D.; Smiley, William A., III; and Jansky, Gerald A., 5,067,560, Cl. 165-124.000.

American Sterilizer Company: *See*—
Childers, Robert W., 5,068,087, Cl. 422-26.000.

Ammermann, Eberhard: *See*—
Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,245, Cl. 514-429.000.
Zipplies, Matthias; Sauter, Hubert; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,246, Cl. 514-429.000.

Amoco Corporation: *See*—
Bathe, Oscar M., 5,068,395, Cl. 560-90.000.
Eaton, Bruce E., 5,068,490, Cl. 585-525.000.
Holzhauer, Juergen K.; Brown, Albert P.; and Reeve, Aubrey C., 5,068,406, Cl. 562-413.000.
Moretta, Jon C.; and Gombas, Robert D., Jr., 5,068,024, Cl. 208-13.000.

Amorim, Osvaldo: *See*—
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

AMP Incorporated: *See*—
Denlinger, Keith R.; Gryzbowski, Richard W.; and Myer, John M., 5,067,916, Cl. 439-857.000.
Egner, Walter A.; Schaffer, Ronald R.; Stauffer, Larry R.; and Warner, Gary N., 5,067,226, Cl. 29-452.000.
Sagawa, Tetsuya, 5,067,913, Cl. 439-595.000.

Analysist Development Group, Inc.: *See*—
Pipella, Lawrence S.; Fanjoy, Logan M.; Lawless, Rodger L.; and Davies, James E., 5,068,787, Cl. 364-406.000.

Ancrenaz, Daniel M., to Etablissements Balbinot S.A. Vibrating table installation for the manufacture of concrete products. 5,067,358, Cl. 74-61.000.

Anderson, Michael L. Coffee filter dispenser. 5,067,627, Cl. 221-36.000.

Anderson, Rolf: *See*—
Lindskog, Carl G.; Anderson, Rolf; and Loovy, Christer, 5,068,005, Cl. 156-514.000.

Andersson, Helge, to Tetra Pak Holdings S.A. Apparatus for forming packaging material into a tube. 5,067,311, Cl. 53-551.000.

Andersson, Kjell H., to Aktiebolaget Hassle. Novel polystyrenesulfonate, useful against cardiac arrhythmias. 5,068,272, Cl. 524-155.000.

Andersson, Morgan, to Robur Maskin AB. Seed-dispensing apparatus. 5,067,421, Cl. 111-36.000.

Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, to NGK Spark Plug Company, Ltd. Method and apparatus for concentration measurement by the quantity, diameter and convergent of a transmitted light beam. 5,068,542, Cl. 250-573.000.

Andoh, Masakazu: *See*—
Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, 5,068,681, Cl. 354-299.000.

Andre, Jean-Luc, to Lohr Industrie, S.A. Unitary carrying assembly or unit for motor-car trailer vehicles. 5,067,862, Cl. 410-26.000.

Andree, Roland; Haug, Michael; Santel, Hans-Joachim; Schmidt, Robert R.; and Strang, Harry, to Bayer Aktiengesellschaft. Herbicidal (hetero)aryloxynaphthalene derivatives and intermediates therefor. 5,068,394, Cl. 560-56.000.

Andrews, Herbert L.: *See*—
Popovitch, Dragolyoub; and Andrews, Herbert L., 5,067,405, Cl. 102-232.000.

Androscore Corporation: *See*—
Ericsson, Ronald J.; and Ericsson, Scott A., 5,068,089, Cl. 422-61.000.

Anezaki, Takashi: *See*—
Kubota, Hitoshi; Yamane, Manabu; and Anezaki, Takashi, 5,068,588, Cl. 318-640.000.

Anjo, Ichiro: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

ANT Nachrichtentechnik GmbH: *See*—
Gockler, Heinz, 5,068,817, Cl. 364-724.160.

Aoki, Hideyasu: *See*—
Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, 5,068,542, Cl. 250-573.000.

Aoki, Kongoh: *See*—
Kano, Junichi; Aoki, Kongoh; Mochizuki, Masahiro; and Nakadozono, Hiroyuki, 5,067,450, Cl. 123-90.170.

Aoki, Masaki: *See*—
Hori, Tohru; Aoki, Masaki; and Fujii, Kenichi, 5,068,147, Cl. 428-336.000.

Aoki, Riichirou: *See*—
Egawa, Hidemitsu; Aoki, Riichirou; and Okumura, Katsuya, 5,068,709, Cl. 357-71.000.

Aoyama, Yoshitaka. Parts supplying apparatus. 5,067,763, Cl. 294-65.500.

Apollo B.V.: *See*—
Van Dijk, Dick, 5,067,312, Cl. 53-556.000.

Apple Computer, Inc.: *See*—
Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, 5,068,644, Cl. 340-701.000.

Appleton Electric Company: *See*—
Bolante, Jay J., 5,068,494, Cl. 174-65.0SS.

Applied Imaging Corporation: *See*—
Rutherford, Hal; and Taub, Floyd, 5,068,909, Cl. 382-49.000.

Applied Power Inc.: *See*—
Patel, Kishor J.; and Stobbs, Thomas J., 5,067,687, Cl. 251-129.080.

Applied Technology Associates, Inc.: *See*—
Laughlin, Darren R., 5,067,351, Cl. 73-516.0LM.

Appriou, Alain; Barthelemy, Regis; and Coulombeix, Colette, to Societe Nationale Industrielle et Aerospatiale. Method and device for recognizing a target. 5,068,664, Cl. 342-90.000.

APTI, Inc.: *See*—
Koert, Peter; and Cha, James T., 5,068,669, Cl. 343-700.0MS.

Aqua-Lawn, Inc.: *See*—
Toth, Louis, 5,068,773, Cl. 362-386.000.

Arabori, Noboru: *See*—
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Arai, Hiroyuki: *See*—
Nagasawa, Naobumi; and Arai, Hiroyuki, 5,068,856, Cl. 371-37.500.

Arai, Hitoshi: *See*—
Kanda, Yutaka; Kasai, Masaji; Arai, Hitoshi; Morimoto, Makoto; and Ashizawa, Tadashi, 5,068,349, Cl. 548-418.000.

Arai, Minoru, to Isuzu Motors Limited. Regeneration system for particulate trap. 5,067,318, Cl. 60-286.000.

Arai, Takeo: *See*—
Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, 5,068,681, Cl. 354-299.000.

Arai, Toshikazu: *See*—
Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, 5,068,828, Cl. 365-189.010.

Arai, Yasuhisa: *See*—
Sakai, Ichiro; Arai, Yasuhisa; Yamamoto, Masataka; and Matsui, Hiroki, 5,067,374, Cl. 74-866.000.

Araki, Mamoru: *See*—
Matsumoto, Etsuji; Araki, Mamoru; and Ozaki, Keiichi, 5,067,905, Cl. 439-76.000.

Araki, Shigeharu, to Sharp Kabushiki Kaisha. Facsimile recording apparatus with page cutting or continuous feed mode depending on mode setting or on number of pages to be received. 5,068,743, Cl. 358-304.000.

Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, to Ishikawajima-Harima Heavy Industries Co., Ltd. Screen forming apparatus and method. 5,067,653, Cl. 239-18.000.

Aramaki, Takanori: *See*—
Kaji, Masashi; Aramaki, Takanori; Nakahara, Norito; and Yamada, Yasuharu, 5,068,293, Cl. 525-534.000.

Arashi, Norio: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Archibald, John L.; Ward, Terence J.; and Opalko, Albert, to John Wyeth & Brother LImited. 1,4-dihydropyridines and their ability to inhibit blood platelet aggregation, inhibit thromboxane synthetase and phospholipase. 5,068,337, Cl. 514-256.000.

Arima, Hidetoshi, to Tokai Kogyo Kabushiki Kaisha. Weather strip and apparatus and process for manufacturing the same. 5,067,280, Cl. 49-498.000.

Arison, Byron H.: *See*—
Wyvratt, Matthew J., Jr.; Beattie, Thomas R.; Ok, Hyun; Arison, Byron H.; and Fisher, Michael H., 5,068,323, Cl. 540-456.000.

Arlt, Dieter; Bader, Axel; and Eckhardt, Volker, to Bayer Aktiengesellschaft. Bifunctional stilbene compounds containing at least one Z-configurated stilbene group, process for their preparation and their use for the preparation of polymers. 5,068,300, Cl. 526-318.200.

Array Analysis, Inc.: *See*—
Stark, William D.; and Prestas, Gregory C., 5,068,814, Cl. 364-580.000.

Arretz, Emmanuel, to Societe Nationale Elf Aquitaine (Production). Process for the preparation of organic disulphides and polysulphides. 5,068,445, Cl. 568-21.000.

Asada, Kenichirou: *See*—
Yoshida, Yoshiki; and Asada, Kenichirou, 5,068,676, Cl. 346-108.000.

Asahi Chemical Polyflex Co., Ltd.: *See*—
Umezawa, Kazumi, 5,067,306, Cl. 53-412.000.

Asahi Glass Company, Ltd.: *See*—
Higuchi, Toshihiko; Nakano, Yasuhiko; Kunii, Nobuaki; Yamaguchi, Yoshiyuki; and Kozawa, Shigeyuki, 5,068,304, Cl. 528-28.000.
Kumai, Seisaku; Yokokoji, Osamu; and Tamaoki, Akihiro, 5,068,449, Cl. 568-335.000.

Asahi Kogaku Kogyo Kabushiki Kaisha: *See*—
Kawasaki, Masahiro; and Sato, Osamu, 5,068,680, Cl. 354-286.000.
Mogamiya, Makoto; and Morisawa, Tahei, 5,068,678, Cl. 354-199.000.
Morimoto, Akira; and Iizuka, Takashi, 5,067,782, Cl. 359-202.000.
Tanaka, Akihiro, 5,068,844, Cl. 369-44.160.

Asahina, Kenichi: *See*—
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.

Asakawa, Minoru: *See*—
Soma, Utami; Koseki, Yasufumi; and Asakawa, Minoru, 5,068,853, Cl. 371-16.300.

Aschaber, Hans; Bailer, Rudolf; Fochler, Fritz; Kleinstauber, Bernd; and Ruf, Reinhold, to Uhlmann Pac-Systeme GmbH & Co. KG. System for erecting cartons. 5,067,937, Cl. 493-310.000.

Aschauer, Martin N., to Akzo N.V. Crystallizer, process and apparatus for producing sodium chloride crystals. 5,068,092, Cl. 422-253.000.

Asea Brown Boveri Ltd.: *See*—
Blangetti, Francisco; Muri, Werner; and Youssef, Mustafa, 5,067,446, Cl. 122-441.000.
Fried, Reinhard; and Jongenburger, Peter, 5,067,986, Cl. 148-11.50N.

Ashina, Yoshiro; Fujita, Takeyuki; Niwa, Kiyonobu; Inagaki, Takeshi; and Nikaido, Yuko, to Nitto Kagaku Kogyo Kabushiki Kaisha. Method for maintaining the activity of zeolite catalysts. 5,068,442, Cl. 564-479.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Ashizawa, Tadashi: *See—*
Kanda, Yutaka; Kasai, Masaji; Arai, Hitoshi; Morimoto, Makoto; and Ashizawa, Tadashi, 5,068,349, Cl. 548-418.000.

Ashland Oil Inc.: *See—*
Hays, George F.; and Coyle, James A., 5,068,196, Cl. 436-6.000.

Askonas, Leslie J.: *See—*
Penning, Trevor M.; and Askonas, Leslie J., 5,068,250, Cl. 514-506.000.

Asta Pharma Aktiengesellschaft: *See—*
Achterrath-Tuckerman, Ute; Aurich, Rudolf; Engel, Jurgen; Hettche, Helmut; and Kleeman, Axel, 5,068,233, Cl. 514-212.000.

Aster Corporation: *See—*
Gillham, Frederick J.; and Stowe, David W., 5,067,787, Cl. 385-50.000.

AT&T Bell Laboratories: *See—*
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., 5,068,868, Cl. 372-45.000.
Lampert, Norman R., 5,067,783, Cl. 385-60.000.
Livanos, Konstantin, 5,068,892, Cl. 379-221.000.
Manocha, Ajit S.; and Yu, Chen-Hua D., 5,068,207, Cl. 437-231.000.
Near, Christopher D.; and Uyar, M. Umit, 5,068,877, Cl. 375-107.000.
Tsai, Sheng-Jen, 5,068,657, Cl. 341-120.000.
Vince, Richard A., 5,068,631, Cl. 333-181.000.

Atlantic Richfield Company: *See—*
Baillie, Lloyd A., 5,067,252, Cl. 34-57.00A.

Atlantis Energie AG: *See—*
Posnansky, Mario, 5,067,475, Cl. 126-418.000.

Atochem North America, Inc.: *See—*
Sandler, Stanley R.; Schon, Steven G.; and Gardner, David M., 5,068,427, Cl. 564-84.000.
Wicher, Jerome, 5,068,356, Cl. 548-546.000.

Atsugi Motor Parts Company Limited: *See—*
Kawasaki, Isamu; and Hirata, Kazunari, 5,067,393, Cl. 92-186.000

Attinger, Thomas; and Plonus, Frank, to Mercedes-Benz AG. Mounting for a cooler. 5,067,574, Cl. 180-68.400.

Atwood Industries, Inc.: *See—*
Marchione, Joseph H., 5,067,201, Cl. 16-270.000.
Nudd, Barry C.; and Chambers, James W., 5,067,692, Cl. 254-420.000.

Aubry, Friedhelm, to TRW Nelson BolzenschweiB-Technik GmbH & Co. KG. Device for the individual feeding of studs or bolts. 5,067,632, Cl. 221-266.000.

Augenstein, Don C.: *See—*
Wise, Donald L.; Augenstein, Don C.; and Gresser, Joseph D., 5,068,188, Cl. 435-140.000.

Auger, Ronald Y. Fluid applicator for hair conditioning. 5,067,501, Cl. 132-116.000.

Aur, Shian: *See—*
Yang, Ping; Chatterjee, Amitava; Aur, Shian; and Polgreen, Thomas L., 5,068,696, Cl. 357-23.100.

Aurich, Rudolf: *See—*
Achterrath-Tuckerman, Ute; Aurich, Rudolf; Engel, Jurgen; Hettche, Helmut; and Kleeman, Axel, 5,068,233, Cl. 514-212.000.

Aurness, Harold O.; and Jones, Tony L. Canteen bottle for dispensing rationed drinks. 5,067,637, Cl. 222-175.000.

Ausimont, S.r.l: *See—*
Tonelli, Claudio; and Torelli, Vito, 5,068,470, Cl. 570-134.000.

Ausimont S.p.A.: *See—*
Zavatteri, Ignazio; and Gambini, Tiziana, 5,068,135, Cl. 427-439.000.

Auslander, Klaus; Fabris, Hans-Jurgen; Mock, Karl-Heinz; Patwald, Wolfgang; and Seichter, Helmut, to Institut Dr. Friedrich Forster Prufgeratebau GmbH & Co. KG. Electromagnetic shield for an inductive search coil assembly. 5,068,612, Cl. 324-327.000.

Autogenesis Technologies, Inc.: *See—*
Kelman, Charles D.; and DeVore, Dale P., 5,067,961, Cl. 623-5.000.

Automatic Truck Loading Systems (Europe) Ltd. and Bridon plc: *See—*
McLellan, William, 5,067,608, Cl. 198-817.000.

Auweiler, Willi; Solbach, Bernd; and Luetzeler, Robert, to Ford Motor Company. Device for measurement of gap and flush. 5,067,250, Cl. 33-783.000.

Avco Corporation: *See—*
Waddington, Clive; Lagasse, Normand L.; and Taupier, Roger, 5,067,454, Cl. 123-196.00S.

Aware, Inc.: *See—*
Resnikoff, Howard L.; and Zettler, William, Jr., 5,068,911, Cl. 382-56.000.

Axelson, Inc.: *See—*
Breaux, Craig B.; Cawyer, Denny; Duplantis, Dwight; and Hiller, Don, 5,067,510, Cl. 137-77.000.

Ayers, Glenn. Baby bidet apparatus with retraction and height adjustment means. 5,067,186, Cl. 4-665.000.

Ayme, Jacques, to A.C.T.M. Devices using a dolly for reinforcing the loading capacity of tractor vehicles. 5,067,741, Cl. 280-419.000.

Azechi, Syuuichi: *See—*
Meguriya, Noriyuki; Azechi, Syuuichi; and Tanaka, Masaki, 5,068,380, Cl. 556-428.000.

Azuhata, Shigeru: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Azukizawa, Teruo: *See—*
Morishita, Mimpei; and Azukizawa, Teruo, 5,067,415, Cl. 104-281.000.

B-Line Systems, Inc.: *See—*
Kowalski, Joseph W., 5,067,863, Cl. 411-85.000.

Baba, Tsuyoshi, to Canon Kabushiki Kaisha. Part isolating apparatus. 5,067,631, Cl. 221-254.000.

Babbitt, Richard W.; Rachlin, Adam; and Koscica, Thomas E., to United States of America, Army. Narrow band microstrip isolator. 5,068,627, Cl. 331-99.000.

Babcock & Wilcox Company, The: *See—*
Connolly, Dennis J., 5,068,090, Cl. 422-82.020.

Bac, Jean-Claude, to Aerazur. Self-closing device for connecting containers. 5,067,690, Cl. 251-149.800.

Bach, Uwe: *See—*
Weiler, Rolf; Bach, Uwe; and Ceylan, Ahmet D., 5,067,595, Cl. 188-73.450.

Bachmann, Peter K.; Khoe, Giok D.; Mahon, Cathal J.; and Lydtin, Hans-Jurgen, to U.S. Philips Corporation. Polarization-maintaining single-mode optical fibre and method of making same. 5,067,793, Cl. 385-127.000.

Backer, Marcella R.; Cavender, Ralston; Elder, Melanie L.; Jones, Peter C.; and Murphy, James A., to Corning Incorporated. Method of manufacturing optical waveguide fiber with titania-silica outer cladding. 5,067,975, Cl. 65-3.120.

Bacon, Edward R.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.

Bader, Axel: *See—*
Arlt, Dieter; Bader, Axel; and Eckhardt, Volker, 5,068,300, Cl. 526-318.200.

Bailer, Rudolf: *See—*
Aschaber, Hans; Bailer, Rudolf; Fochler, Fritz; Kleinstauber, Bernd; and Ruf, Reinhold, 5,067,937, Cl. 493-310.000.

Bailey, John M., to Caterpillar Inc. Fuel combustion system and method of operation for an Otto-cycle internal combustion engine. 5,067,458, Cl. 123-292.000.

Baillie, Lloyd A., to Atlantic Richfield Company. Method and apparatus to conduct fluidization of cohesive solids by pulsating vapor flow. 5,067,252, Cl. 34-57.00A.

Baker Hughes Incorporated: *See—*
Yates, Donald N., Jr.; and Myers, William D., Jr., 5,067,568, Cl. 175-4.520.

Baker, James C.; and Carney, Michael J., to Motorola, Inc. Method for fast frequency acquisition in a phase locked loop. 5,068,625, Cl. 331-1.00A.

Baker, John E. Anti-theft trailer jack and method of using same. 5,067,746, Cl. 280-763.100.

Baker, Stephen J., to U.S. Philips Corporation. Data display. 5,068,646, Cl. 340-725.000.

Baker, Walter J.; and Riello, Christopher S. System and method for controlling an apparatus to produce mail pieces in non-standard configurations. 5,067,305, Cl. 53-411.000.

Bakke, Paul D.: *See—*
Van Horne, Arthur C.; Hoffman, Eldon P.; and Bakke, Paul D., 5,067,705, Cl. 271-277.000.

Ball, Larry K.; Hines, Marshall U.; and Tervo, John N., to Allied-Signal Inc. Flight craft with fluid systems which incorporate butterfly valves, and butterfly valve methods and apparatus. 5,067,506, Cl. 137-1.000.

Ball, Richard F., to British Aerospace Public Limited Company. Weapon systems. 5,067,411, Cl. 102-489.000.

Balle, Anders H.: *See—*
Hansen, Sven K.; and Balle, Anders H., 5,068,121, Cl. 426-636.000.

Bally Manufacturing Corporation: *See—*
Metcalf, Stanley M., 5,067,604, Cl. 194-203.000.

Balser, Klaus: *See—*
Buysch, Hans-Josef; Klausener, Alexander; Szablikowski, Klaus; Balser, Klaus; and Wilke, Michaela, 5,068,321, Cl. 536-32.000.

Balthazor, Terry M.: *See—*
Miller, William H.; and Balthazor, Terry M., 5,068,404, Cl. 502-17.000.

Balzer, Dieter; Reimer, Heinz; and Friedrich, Werner, to Huels Aktiengesellschaft. Carboxy ethers. 5,068,422, Cl. 562-587.000.

Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, to Nisshin Steel Co., Ltd.; and Hitachi, Ltd. Process and apparatus for continuous casting of metal strip. 5,067,555, Cl. 164-480.000.

Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., to R. J. Reynolds Tobacco Company. Smoking article. 5,067,499, Cl. 131-194.000.

Bannister, Eric: *See—*
Brownawell, Darrell W.; Thaler, Warren A.; Bannister, Eric; and Ladwig, Paul K., 5,068,044, Cl. 252-25.000.

Banura, George A., to United States of America, Navy. Internal grounding arrangement in a switching power converter. 5,068,596, Cl. 323-351.000.

Banyu Pharmaceutical Co., Ltd.: *See—*
Nakagawa, Susumu; Ushijima, Ryosuke; Nakano, Fumio; Yamada, Koji; and Mano, Eiichi, 5,068,322, Cl. 540-222.000.

Bar-Lev, Menachem: *See—*
Netter, Zvi; and Bar-Lev, Menachem, 5,068,786, Cl. 395-800.000.

Barbe, Pier C.: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.

Barczak, John P.: *See—*
Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P.; Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., 5,067,630, Cl. 221-76.000.

Bard, John K.; and Burnier, Julia S., to Hercules Incorporated. Organosilicon materials. 5,068,303, Cl. 528-25.000.

Barino, Luisa: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.

Barkman, Frank: *See—*
Rosenfeld, Anne; and Barkman, Frank, 5,067,194, Cl. 15-144.00A.

Barnea, Daniel I.: *See—*
Inbar, Dan; Barnea, Daniel I.; and Bruck, Abraham, 5,067,493, Cl. 128-660.030.

Barney, Charlotte L.: *See—*
McCarthy, James R.; Barney, Charlotte L.; and Matthews, Donald P., 5,068,465, Cl. 568-765.000.

Barrack Technology Limited: *See—*
Remboski, Donald J.; Plee, Steven L.; Yang, Jialin; Law, Robert W.; and Vincent, Michael T., 5,067,463, Cl. 123-425.000.

Barrault, Michel: *See—*
Broyde, Frederic; and Barrault, Michel, 5,068,616, Cl. 324-627.000.

Barre, Claude, to Siemens Aktiengesellschaft. ECL-TTL signal level converter. 5,068,550, Cl. 307-475.000.

Barron, J. Brian: *See—*
Reifschneider, Walter; Bisabri-Ershadi, Barat; Dripps, James E.; and Barron, J. Brian, 5,068,230, Cl. 514-115.000.

Barrows, Franklin H.: *See—*
Wheeler, Edward L.; Barrows, Franklin H.; and Franko, Robert J., 5,068,271, Cl. 524-100.000.

Barsotti, Robert; and Cohen, Lester S., to Du Pont de Nemours, E. I., and Company. Multi-component coating composition comprising an anhydride containing polymer, a glycidyl component and a phosphonium catalyst. 5,068,153, Cl. 428-413.000.

Bartek, Joseph P.; Brazdil, James F., Jr.; Hupp, John M.; and Grasselli, Robert K., to Standard Oil Company. Catalyst for upgrading low molecular weight hydrocarbons. 5,068,215, Cl. 502-208.000.

Barthelemy, Regis: *See—*
Appriou, Alain; Barthelemy, Regis; and Coulombeix, Colette, 5,068,664, Cl. 342-90.000.

Bartholomew, Donald D., to Propietary Technology, Inc. Swivelable quick connector assembly. 5,067,754, Cl. 285-319.000.

Barthomeuf, Denise; and de Quivillic, Viviane Q., to Centre National de la Recherche Scientifique; and Societe Nationale Elf Aquitaine. Catalysts based on zeolites modified by alkali metal elements in the metallic form, their preparation, and their application to alkylation of alkylaromatic derivatives. 5,068,483, Cl. 585-467.000.

Bartnicki, Frederick J., to R. D. Werner Co., Inc. Extendable support. 5,067,589, Cl. 182-223.000.

BASF Aktiengesellschaft: *See—*
Baur, Richard; Gousetis, Charalampos; Trieselt, Wolfgang; Bochnitschek, Werner; and Oftring, Alfred, 5,068,416, Cl. 562-571.000.
Huellmann, Michael; Mayr, Herbert; and Becker, Rainer, 5,068,479, Cl. 585-411.000.
Merger, Franz; Fischer, Rolf; Harder, Wolfgang; Priester, Claus-Ulrich; and Vagt, Uwe, 5,068,398, Cl. 560-156.000.
Pipper, Gunter; Heinz, Gerhard; and Hisgen, Bernd, 5,068,308, Cl. 528-171.000.
Richter, Wolfgang; Fischer, Rolf; and Vagt, Uwe, 5,068,361, Cl. 549-273.000.
Schossig, Juergen; Koppenhoffer, Gerhard; Irgang, Matthias; Schnur, Rudi; and Roley, George, 5,068,468, Cl. 568-861.000.
Zimmermann, Clifton; and Mumford, Glen, 5,068,862, Cl. 372-25.000.
Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,245, Cl. 514-429.000.
Zipplies, Matthias; Sauter, Hubert; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,246, Cl. 514-429.000.

BASF Corporation: *See—*
Hendrix, David C., 5,068,464, Cl. 568-357.000.

Bass, Ginny: *See—*
Caldwell, Dean; and Bass, Ginny, 5,067,617, Cl. 211-13.000.

Batey, John; and Tierney, Elaine, to International Business Machines Corporation. Method for depositing high quality silicon dioxide by PECVD. 5,068,124, Cl. 427-39.000.

Bathe, Oscar M., to Amoco Corporation. Process for producing polymeric plasticizers from polyethylene terephthalate. 5,068,395, Cl. 560-90.000.

Batista, Altair R. D.: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, to Apple Computer, Inc. Color graphics system. 5,068,644, Cl. 340-701.000.

Battelle Development Corporation: *See—*
Bosswell, Peter; Richter, Dag; Berce, Tatjana; and Negaty-Hindi, Guy, 5,067,554, Cl. 164-463.000.

Battelle Institut e.V.: *See—*
Schildknecht, Manfred; and Honcia, Gunter, 5,067,409, Cl. 102-476.000.

Bauer Associates, Inc.: *See—*
Glenn, Paul, 5,067,817, Cl. 356-376.000.

Bauer, Helmut: *See—*
Muller, Dietmar; and Bauer, Helmut, 5,068,066, Cl. 264-3.300.

Bauman, Jack. Resuscitator. 5,067,487, Cl. 128-205.130.

Baur, Richard; Gousetis, Charalampos; Trieselt, Wolfgang; Bochnitschek, Werner; and Oftring, Alfred, to BASF Aktiengesellschaft. Preparation of β-alaninediacetic acid or its alkali metal or ammonium salts. 5,068,416, Cl. 562-571.000.

Baur, Rupert; Durler, Egon; and Kilb, Hermann, to Mannesmann A.G. Expandable module frame for mounting printer and accessory modules. 5,067,832, Cl. 400-66.000.

Bausch & Lomb Incorporated: *See—*
Lunney, James G., 5,068,514, Cl. 219-121.690.

bautex Adolf Stoever Soehne KG: *See—*
Spohr, Horst; and Huegin, Walter, 5,067,544, Cl. 160-177.000.

Bavaveas, Tristan, to Societe dite: Eparco S.A. Device for dispensing measures of a given volume of a liquid contained in a deformable container comprising a safety element. 5,067,638, Cl. 222-205.000.

Baxter International Inc.: *See—*
Campbell, Todd D.; and Zozaya, Michael A., 5,067,962, Cl. 623-13.000.
Kawahara, Masafumi; Bowman, George A.; and Matthews, Joseph B., 5,068,586, Cl. 318-696.000.

Baxter, Ronald D.; and Kroninger, Paul M., Jr., to General Signal Corporation. Header mounted chemically sensitive ISFET and method of manufacture. 5,068,205, Cl. 437-205.000.

Bayer Aktiengesellschaft: *See—*
Andree, Roland; Haug, Michael; Santel, Hans-Joachim; Schmidt, Robert R.; and Strang, Harry, 5,068,394, Cl. 560-56.000.
Arlt, Dieter; Bader, Axel; and Eckhardt, Volker, 5,068,300, Cl. 526-318.200.
Beck, Gunter; Kysela, Ernst; and Braden, Rudolf, 5,068,343, Cl. 548-194.000.
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, 5,068,015, Cl. 204-89.000.
Degen, Bruno; Feldner, Kurt; Licht, Elke; and Wagner, Gebhard, 5,068,385, Cl. 556-472.000.
Diehl, Herbert; Blank, Heinz U.; and Ritzer, Edwin, 5,068,428, Cl. 564-134.000.
Dorf, Ernst-Ulrich; Russeler, Wolfgang; Kohler, Burkhard; Ebert, Wolfgang; and Schmitt, Walter, 5,068,312, Cl. 528-388.000.
Fuchs, Rainer; Erdelen, Christoph; Becker, Benedikt; and Stendel, Wilhelm, 5,068,241, Cl. 514-403.000.
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, 5,068,302, Cl. 528-21.000.
Horn, Klaus; Heinz, Hans-Detlef; Muller, Peter-Rolf; and Dujardin, Ralf, 5,068,311, Cl. 528-324.000.
Klug, Gunter; Buysch, Hans-Josef; and Puppe, Lothar, 5,068,434, Cl. 564-399.000.
Meixner, Jurgen; Clemens, Horst; and Sickert, Armin, 5,068,125, Cl. 427-55.000.
Meixner, Jurgen; Pedain, Josef; Hohlein, Peter; and Kreuder, Hans-Joachim, 5,068,305, Cl. 528-49.000.
Muller, Michael; and Podszun, Wolfgang, 5,068,264, Cl. 522-167.000.
Pedain, Josef; Kahl, Lothar; and Weber, Karl-Arnold, 5,068,402, Cl. 560-331.000.

Bayer, Eric W., to General Electric Company. Plate-like metal element for electrical resistor grid assembly. 5,068,637, Cl. 338-57.000.

Bayer, Horst O.; Lange, Barry C.; and Petigara, Ramesh B., to Rohm and Haas Company. Process for nitrosamine-free sabilized isothiazolones. 5,068,338, Cl. 548-101.000.

Baziuk, Maurice W. Self-cleaning lens shield for headlights. 5,068,770, Cl. 362-61.000.

Beach, Wayne H.: *See—*
Stiffler, Stephen P.; Beach, Wayne H.; and Frost, Robert L., 5,067,262, Cl. 37-142.00R.

Beachley, Norman H.; and Fronczak, Frank J. Hypocycloid engine. 5,067,456, Cl. 123-197.0AC.

Beattie, Thomas R.: *See—*
Wyvratt, Matthew J., Jr.; Beattie, Thomas R.; Ok, Hyun; Arison, Byron H.; and Fisher, Michael H., 5,068,323, Cl. 540-456.000.

Beck, Gunter; Kysela, Ernst; and Braden, Rudolf, to Bayer Aktiengesellschaft. 4-substituted 5-chloro-2-hydrazinothiazoles. 5,068,343, Cl. 548-194.000.

Becker, Benedikt: *See—*
Fuchs, Rainer; Erdelen, Christoph; Becker, Benedikt; and Stendel, Wilhelm, 5,068,241, Cl. 514-403.000.

Becker, David J.: *See—*
Lanser, Michael L.; VanderVeen, Steven E.; and Becker, David J., 5,067,764, Cl. 296-97.500.

Becker, Gerald W.; and Riggin, Ralph M., to Eli Lilly and Company. Novel derivative of human growth hormone. 5,068,317, Cl. 530-399.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Becker, Rainer: *See—*
Huellmann, Michael; Mayr, Herbert; and Becker, Rainer, 5,068,479, Cl. 585-411.000.
Becker, Udo: *See—*
Deeg, Rolf; Wehner, Rainer; Mattersberger, Johann; and Becker, Udo, 5,068,179, Cl. 435-7.920.
Becton, Dickinson and Company: *See—*
Taylor, Maylon S., II; and Williams, Joel L., 5,067,491, Cl. 128-748.000.
Beecham Group p.l.c.: *See—*
Dales, John R. M.; and Callander, Sidney E., 5,068,458, Cl. 568-634.000.
Beele, Johannes A., to CSD International B.V. System for the prevention of fire, water or flue gas and the like from propagating along cables. 5,067,676, Cl. 248-56.000.
Beeley, Michael G., to Logan Manufacturing Company. Flexible rotary snow tiller. 5,067,264, Cl. 37-222.000.
Beernink, Ernie: *See—*
Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, 5,068,644, Cl. 340-701.000.
Beers, David G., to General Electric Company. Refrigerator with spine fin evaporator. 5,067,322, Cl. 62-515.000.
Beery, Jack. Apparatus for controlling a television receiver. 5,068,734, Cl. 358-191.100.
Behl, Klaus; Erren, Karl-Heinz; and Mantz, Ekkehard, to Norddeutsche Faserwerke GmbH. Automatic adjusting selvedge control device for a textile web using multiple sensors. 5,067,215, Cl. 28-190.000.
Behnam, Basil A.: *See—*
Vukov, Rastko; and Behnam, Basil A., 5,068,277, Cl. 524-441.000.
Behning, Christian D., to Alden Products Company. Locking multiple conductor electrical connector. 5,067,909, Cl. 439-315.000.
Behringwerke Aktiengesellschaft: *See—*
Paques, Eric P.; and Stohr, Hans-Arnold, 5,068,106, Cl. 424-94.300.
Beiersdorf AG: *See—*
Silbernagel, Hermann; and Wiegand, Ulfried, 5,067,849, Cl. 404-9.000.
Beisang, Arthur A.: *See—*
Ersek, Robert A.; Beisang, Arthur A.; and Beisang, Arthur A., III, 5,067,965, Cl. 623-66.000.
Beisang, Arthur A., III: *See—*
Ersek, Robert A.; Beisang, Arthur A.; and Beisang, Arthur A., III, 5,067,965, Cl. 623-66.000.
Bekhazi, Michel; and Oren, Josef, to Delmar Chemicals Inc. Famotidine intermediates and their preparation. 5,068,405, Cl. 562-83.000.
Belak, Maria: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.
Belart, Juan, to Alfred Teves GmbH. Braking pressure generator for a vacuum operated brake system with anit-lock control. 5,067,779, Cl. 303-114.0PN.
Belet, Francois: *See—*
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.
Belka, John C., Jr.: *See—*
Hinton, Mark L.; and Belka, John C., Jr., 5,068,647, Cl. 340-734.000.
Bell, Charles A.: *See—*
Heath, Warren J.; Langner, Rene J.; and Bell, Charles A., 5,068,798, Cl. 364-497.000.
Bell Communications Research, Inc.: *See—*
Fernandez, Antonio; Gaggioni, Hugo P.; Jaquez, Martin J.; Robbins, John D.; and Soper, E. Scott, 5,068,650, Cl. 340-799.000.
Patel, Jayantilal S., 5,068,749, Cl. 359-93.000.
Bell, Malcolm R.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.
Bell, Michael. Multipurpose safety and positioning belt. 5,067,585, Cl. 182-7.000.
Beloit Corporation: *See—*
Gangemi, Donald, 5,068,513, Cl. 219-121.670.
Belousov, Evgeny L.: *See—*
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.
Beltec International: *See—*
Liebermann, Benno E., 5,068,115, Cl. 426-77.000.
Beltz, Klaus: *See—*
Frankenfeld, Klaus; Beltz, Klaus; Eich, Gerhard; and Endrich, Klaus, 5,068,094, Cl. 423-109.000.
Benchoff, John R., to Benchoff, John Rex. Duct-way between a pickup truck cab and a bed cap, both with sliding glass windows. 5,067,769, Cl. 296-166.000.
Benchoff, John Rex: *See—*
Benchoff, John R., 5,067,769, Cl. 296-166.000.
Bender, Franz: *See—*
Panten, Detlef; Naber, Dirk; and Bender, Franz, 5,067,470, Cl. 123-568.000.
Bender, Glenn, to Shenandoah Manufacturing Co., Inc. Oil burner assembly. 5,067,894, Cl. 431-208.000.
Bendickson, Roy B., to R. D. Werner Co., Inc. Ladder lash. 5,067,588, Cl. 182-107.000.
Bendix Europe Services Techniques: *See—*
Gautier, Jean-Pierre, 5,067,392, Cl. 92-98.00D.
Benn, Robert C., Jr.: *See—*
Benn, Robert C., Sr.; and Benn, Robert C., Jr., 5,068,493, Cl. 174-35.0GC.
Benn, Robert C., Sr.; and Benn, Robert C., Jr., to Vanguard Products Corporation. Dual elastomer gasket shield for electronic equipment. 5,068,493, Cl. 174-35.0GC.
Bennett, Keith N.; and Pangretic, Richard H., Jr., to United Technologies Corporation. Three position actuator arrangement. 5,067,323, Cl. 60-734.000.
Bennett, Richard H. Multiple access television. 5,068,733, Cl. 358-181.000.
Bennorth, Gregory S.: *See—*
Swanson, Dail L.; Green, Raymond M.; and Bennorth, Gregory S., 5,068,639, Cl. 338-179.000.
Bentley, William F.: *See—*
Sexton, Daniel W.; and Bentley, William F., 5,068,821, Cl. 395-800.000.
Berce, Tatjana: *See—*
Bosswell, Peter; Richter, Dag; Berce, Tatjana; and Negaty-Hindi, Guy, 5,067,554, Cl. 164-463.000.
Berg, Peter G.: *See—*
Offiler, Stephen B.; Berg, Peter G.; and Kawate, Keith W., 5,068,589, Cl. 322-7.000.
Bergeron, Marcel J. Sliding and locking system for a force applying structure on a vehicle straightening bench. 5,067,342, Cl. 72-447.000.
Berlant, Stephen R. Structure and method of manufacturing an electrode glove for applying electro-massage and electro-acupressure to patients. 5,067,478, Cl. 128-24.500.
Bermingham, William J.: *See—*
Kline, Todd A.; Rosen, Warren A.; Bermingham, William J.; and Alfonsi, Eric A., 5,068,880, Cl. 375-116.000.
Bernard, Bobby L.: *See—*
Sumner, Charles E., Jr.; Hitch, Brenda J.; and Bernard, Bobby L., 5,068,460, Cl. 568-648.000.
Bernards, Roger F.; Fischer, Gordon; and Sonnenberg, Wade, to Shipley Company Inc. Electroplating composition and process. 5,068,013, Cl. 204-24.000.
Berrebi, Georges, to Europeenne de Retraitement de Catalyseurs Eurecat. Process for reducing a refining catalyst and use of the catalyst hydrogenation. 5,068,477, Cl. 585-274.000.
Berry, Stephen R., to Molex Incorporated. Wire marking apparatus for marking selected codes onto any of a plurality of wires. 5,067,399, Cl. 101-11.000.
Bersonnet, George B.: *See—*
Watterson, Scott R.; Bersonnet, George B.; Dalebout, William T.; and Burk, Michael, 5,067,710, Cl. 272-129.000.
Berthold, James P.: *See—*
Kawate, Keith W.; Berthold, James P.; and Margolis, Robert M., 5,068,606, Cl. 324-174.000.
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., to Nitrokemia Ipartelepek; and Magyar Tudomanyos Akademia Kozponti Kemiai Kutato Intezete. Process for preparing arylsulphonyl-isocyanates and addition derivatives thereof. 5,068,424, Cl. 562-870.000.
Besler, Armin. Combination window frame with roll-up shutter channels mounted on it and associated shutter housing. 5,067,540, Cl. 160-31.000.
Betterton, Kathleen M.; Hinsberg, William D.; Nguyen, Huu T.; Tang, Wing T.; and Twieg, Robert J., to International Business Machines Corporation. Ferroelectric liquid crystals. 5,068,054, Cl. 252-299.620.
Betts, James G. Brush gopher. 5,067,261, Cl. 37-2.00P.
Beyeler, Harry: *See—*
Steiner, Eginhard; Beyeler, Harry; and Husler, Rinaldo, 5,068,371, Cl. 556-53.000.
Beytes, Deane; and Lindstrom, Erik A., to United Technologies Corporation. Engine nozzle liner retainer. 5,067,324, Cl. 60-752.000.
Bezella, Gary L.; and Bezella, Steven T. Screen printing with an abrasive ink. 5,067,400, Cl. 101-129.000.
Bezella, Steven T.: *See—*
Bezella, Gary L.; and Bezella, Steven T., 5,067,400, Cl. 101-129.000.
BHA Group, Inc.: *See—*
Johnston, David F.; and Farmer, Terry L., 5,068,811, Cl. 364-551.010.
Bhan, Opindar K., to Shell Oil Company. Aromatics saturation process for diesel boiling-range hydrocarbons. 5,068,025, Cl. 208-57.000.
Bhattacharyya, Bhupati R.; and St. John, Michael R., to Nalco Chemical Company. Hydrophobic cationic terpolymers from acrylamide, unsaturated quaternary salt and vinyl acetate. 5,068,297, Cl. 526-287.000.
Bheda, Jayendra H.: *See—*
Nelson, Charles J.; Bheda, Jayendra H.; Rim, Peter B.; and Turner, James M., 5,067,538, Cl. 152-451.000.
Bhogal, Balbir S.; Williams, Michael G.; and Miller, Glenn A., to A. H. Robins Company Incorporated. Live vaccine for coccidiosis utilizing coccidial sporozoites. 5,068,104, Cl. 424-88.000.
Biancale, Vito. Tarpaulin cover. 5,067,767, Cl. 296-100.000.
BICC Public Limited Company: *See—*
Hawkins, Ronald G.; and Grigsby, Richard, 5,067,786, Cl. 385-13.000.
Bickel, Wayne J. Nock adapter. 5,067,731, Cl. 273-416.000.

Bickely, Alan C.; and Moore, Travis, to Gates Rubber Company, The. Electrical sensing element. 5,068,638, Cl. 338-114.000.
Bickford, Wayne F.; and Smith, Kenneth L., to M/A-Com Adams-Russell, Inc. Subassembly for a microwave connector and method for making it. 5,067,912, Cl. 439-578.000.
bielomatik Leuze GmbH & Co.: *See—*
Seefeldt, Joachim, 5,067,380, Cl. 83-481.000.
Bikson, Benjamin; Giglia, Salvatore; and Nelson, Joyce K., to Union Carbide Industrial Gases Technology Corporation. Process for dehydration of gases and composite permeable membranes therefor. 5,067,971, Cl. 55-16.000.
Binder, Margaret L. Cuff-like tubular extensions for wearing apparel. 5,067,177, Cl. 2-239.000.
Biomembrane Institute, The: *See—*
Clausen, Henrik; Yamamoto, Fumi-ichiro; White, Thayer; and Hakomori, Sen-itiroh, 5,068,191, Cl. 435-193.000.
Bioplasty, Inc.: *See—*
Ersek, Robert A.; Beisang, Arthur A.; and Beisang, Arthur A., III, 5,067,965, Cl. 623-66.000.
Bird Machine Company: *See—*
Shapiro, Ascher H., 5,067,939, Cl. 494-53.000.
Bisabri-Ershadi, Barat: *See—*
Reifschneider, Walter; Bisabri-Ershadi, Barat; Dripps, James E.; and Barron, J. Brian, 5,068,230, Cl. 514-115.000.
Bissett, Thomas D.: *See—*
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.
Bruckert, William; Bissett, Thomas D.; Kovalcin, David; and Nene, Ravi, 5,068,851, Cl. 371-16.100.
BJ Services Company: *See—*
Dawson, Jeffrey C., 5,067,566, Cl. 166-308.000.
Bjerklund, Gunnar; Ore, William C.; Pulawski, Casimir; and Notardonato, Luigi, to Universal Beverage Equipment, Inc. Liquid proportioner apparatus and method. 5,067,507, Cl. 137-3.000.
Black & Decker Inc.: *See—*
Speer, Howard D.; and Shortt, Robert A., 5,067,887, Cl. 425-256.000.
Black, Lance L.: *See—*
Knobel, Thomas M.; McCullough, Francis P., Jr.; and Black, Lance L., 5,068,061, Cl. 252-511.000.
Blackmore, Geoffrey: *See—*
Davidson, Joseph W.; Blackmore, Geoffrey; Blackmore, Gerald; Komerek, Karl R., deceased; and Komerek, Richard, executor, 5,067,968, Cl. 44-550.000.
Blackmore, Gerald: *See—*
Davidson, Joseph W.; Blackmore, Geoffrey; Blackmore, Gerald; Komerek, Karl R., deceased; and Komerek, Richard, executor, 5,067,968, Cl. 44-550.000.
Blackmore, John M.: *See—*
Pennell, Phillip E.; Blackmore, John M.; and Allen, Mark D., 5,068,225, Cl. 514-57.000.
Blain, David A.; and Cardis, Angeline B., to Mobil Oil Corporation. Lubricant composition comprising an octadecylene oxide polyamine reaction product. 5,068,046, Cl. 252-51.50A.
Bland, Donald L.; and Smithers, Matthew C., to Thermalloy Incorporated. Electronic device package mounting assembly. 5,068,764, Cl. 361-386.000.
Blangetti, Francisco; Muri, Werner; and Youssef, Mustafa, to Asea Brown Boveri Ltd. Apparatus for degassing and heating water. 5,067,446, Cl. 122-441.000.
Blank, Heinz U.: *See—*
Diehl, Herbert; Blank, Heinz U.; and Ritzer, Edwin, 5,068,428, Cl. 564-134.000.
Blankers, Hendrik J., to U.S. Philips Corporation. Switch mode power supply. 5,068,572, Cl. 315-209.00R.
Blaum, Miguel M.; and Hao, Hsieh T., to International Business Machines Corporation. Error correction capability varied with track location on a magnetic or optical disk. 5,068,858, Cl. 371-41.000.
Bleier, Roger D.: *See—*
Patel, Arvind D.; McGlothlin, Raymond E.; Bleier, Roger D.; and Brinkley, H. N., 5,068,041, Cl. 507-103.000.
Bliss, Douglas: *See—*
Redlich, Robert W.; and Bliss, Douglas, 5,068,607, Cl. 324-207.160.
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, to Bayer Aktiengesellschaft. Electrochemical process for the production of chromic acid. 5,068,015, Cl. 204-89.000.
Block, John J.: *See—*
Richmond, James W.; and Block, John J., 5,067,964, Cl. 623-18.000.
Blocker, Wesley C.: *See—*
Eisenbraun, Allan A.; and Blocker, Wesley C., 5,068,131, Cl. 427-240.000.
Blount, Inc.: *See—*
O'Neel, Timothy H., 5,067,243, Cl. 30-387.000.
Blowers, James I. Masonry hawk. 5,067,761, Cl. 294-3.500.
Bludssus, Walter: *See—*
Eckert, Joachim; and Bludssus, Walter, 5,068,097, Cl. 423-592.000.
Board of Governors of Wayne State University: *See—*
Schaap, Arthur P.; and Akhavan-Jaffi, Hashem, 5,068,339, Cl. 548-110.000.
Board of Regents, The University of Texas Sysem: *See—*
Prashad, Nagindra, 5,068,175, Cl. 435-6.000.
Board of Regents, University of Texas System: *See—*
Lipsky, Peter E.; and Thiele, Dwain L., 5,068,223, Cl. 514-019.000.
Board of Supervisors of Louisiana State University and Agricultural and Mechanical College: *See—*
Guddanti, Suresh; and Mounfield, William P., Jr., 5,068,662, Cl. 341-161.000.
Bober, Gregory D., to Ford Motor Company. Variable effort steering system. 5,067,576, Cl. 180-79.100.
Bochnitschek, Werner: *See—*
Baur, Richard; Gousetis, Charalampos; Trieselt, Wolfgang; Bochnitschek, Werner; and Oftring, Alfred, 5,068,416, Cl. 562-571.000.
Boda, Robert A., to McNeilus Truck and Manufacturing, Inc. Swing ejector for rear loading compactor. 5,067,868, Cl. 414-510.000.
Boeckmann, Hugo, to Zip-Pak Incorporated. Sealing jaws for zippered foil or film in form, fill and seal machines. 5,067,302, Cl. 53-374.800.
Boehm, Carl F., Jr., to ABB Vetco Gray Inc. Metal seal with grooved inlays. 5,067,734, Cl. 277-236.000.
Boehringer Mannheim GmbH: *See—*
Deeg, Rolf; Wehner, Rainer; Mattersberger, Johann; and Becker, Udo, 5,068,179, Cl. 435-7.920.
Schmidt, Axel; Von Der Eltz, Herbert; and Rauscher, Elli, 5,068,182, Cl. 435-22.000.
Boeing Company, The: *See—*
Miller, Glen E.; and Prater, Rudy L., 5,068,528, Cl. 250-231.130.
Boelen, Jan: *See—*
Posthuma, Sytze A.; de Graaf, Johannes D.; and Boelen, Jan, 5,068,254, Cl. 518-705.000.
Boiko, Robert S. Method to dissolve solid iron oxides. 5,068,017, Cl. 204-145.00R.
Boisture, Thomas B., to Ohmstede Mechanical Services, Inc. Multilance tube cleaning system. 5,067,558, Cl. 165-95.000.
Bokel, Arnold, to SKF GmbH. Machine bearing arrangement with form-memory deformable element. 5,067,827, Cl. 384-537.000.
Bolante, Jay J., to Appleton Electric Company. Conduit connector for eccentrically dimensioned conduit. 5,068,494, Cl. 174-65.0SS.
Bombardier Inc.: *See—*
Pelletier, Michel, 5,067,263, Cl. 37-220.000.
Bonde, Kevin G., to Tecumseh Products Company. Fitted crankcase breather valve assembly. 5,067,449, Cl. 123-41.860.
Bonifaz, Cristobal: *See—*
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.
Bonit, Marc; and Demoute, Jean-Pierre, to Roussel Uclaf. Insecticidal method. 5,068,229, Cl. 514-114.000.
Bonniot, Claude E., to Societe Europeene De Propulsion. Rocket engine expansion nozzle with complementary annular nozzle. 5,067,316, Cl. 60-263.000.
Boogaards-Konnecker, Henriette S. Method of displaying a photographic emulsion. 5,068,166, Cl. 430-256.000.
Boots Company, PLC: *See—*
Jeffery, James E.; and Whybrow, Derek, 5,068,440, Cl. 564-442.000.
Borden, Frederick R.: *See—*
Miller, Gary R.; Borden, Frederick R.; and Trotta, Robert A., 5,067,238, Cl. 30-34.002.
Borgatti, Riccardo; and Tenti, Paolo, to Fiar Fabbricia Italiana Apparecchiature Radioelettriche S.p.A. High dynamic performance DC-DC converter system with time share control. 5,068,775, Cl. 363-15.000.
Borland, James E.; Chen, Y.-D. Mark; Sauer, Joe D.; Smith, Kim R.; and Smith, Rebecca F., to Ethyl Corporation. Bleaching of colored amine oxides. 5,068,430, Cl. 564-298.000.
Bose Corporation: *See—*
Short, William R., 5,068,896, Cl. 381-13.000.
Bosnyak, Robert J., to National Semiconductor Corporation. Apparatus and method for translating ECL signals to CMOS signals. 5,068,551, Cl. 307-475.000.
Bosswell, Peter; Richter, Dag; Berce, Tatjana; and Negaty-Hindi, Guy, to Battelle Development Corporation. Melt extraction of ceramics. 5,067,554, Cl. 164-463.000.
Bostad, Wayne W.: *See—*
Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., 5,067,867, Cl. 414-391.000.
Bostik, Inc.: *See—*
Agger, Reginald T.; Taylor, John R.; and Hardy, Alan, 5,068,143, Cl. 428-241.000.
Botti, Edoardo; Stefani, Fabrizio; and Nebuloni, Daniela, to SGS-Thomson Mocroelectronics S.r.l. Circuit for securing output distortion, in particular of final stages of audio devices. 5,068,620, Cl. 330-2.000.
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, to Institut Textile de France; and Rhovyl. Chlorofibers with permanent antiseptic character and process for their production. 5,068,113, Cl. 424-496.000.
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., to Dow Corning Corporation. Catalyzed redistribution of polyorganosiloxanes. 5,068,383, Cl. 556-452.000.
Bouzat, Charles, to Alcatel Espace. Method of placing a geostationary telecommunicaiton satellite in orbit. 5,067,672, Cl. 244-158.00R.
Bove, Thomas A. Foldable display system with continuous display surface. 5,067,543, Cl. 160-135.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Bowen, Robert F.: *See—*
Sklenak, John S.; Bowen, Robert F.; and Dudley, Kenneth W., 5,068,086, Cl. 422-21.000.

Bowman, George A.: *See—*
Kawahara, Masafumi; Bowman, George A.; and Matthews, Joseph B., 5,068,586, Cl. 318-696.000.

Bowmer, Geoffrey M.; and Groth, John E., to Erico International Corporation. Reinforcing bar coupler. 5,067,844, Cl. 403-305.000.

Bozzola, Fabrizio P.: *See—*
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.

Braat, Josephus J. M.; and Opheij, Willem G., to U.S. Philips Corporation. Three element grating objective and grating-beam shaper, and optical scanning device. 5,068,751, Cl. 359-566.000.

Brace, Thomas J.: *See—*
Olson, Brennan J.; and Brace, Thomas J., 5,067,736, Cl. 280-11.200.

Braden, Rudolf: *See—*
Beck, Gunter; Kysela, Ernst; and Braden, Rudolf, 5,068,343, Cl. 548-194.000.

Bradley, Richard A.: *See—*
Niewold, D. Wayne; and Bradley, Richard A., 5,067,571, Cl. 175-394.000.

Bradshaw, Neil; and Sanderson, Neil E., to VG Instruments Group Limited. High resolution plasma mass spectrometer. 5,068,534, Cl. 250-288.000.

Brady, Cory: *See—*
Ragsdale, Kelly J.; and Brady, Cory, 5,067,213, Cl. 24-704.100.

Braig, James R.: *See—*
Yelderman, Mark; Goldberger, Daniel S.; and Braig, James R., 5,067,492, Cl. 128-719.000.

Bramham, Eric, to Shell Internationale Research Maatschappij B.V. Inflatable immersion suit. 5,067,921, Cl. 441-102.000.

Bramlett, Richard T.: *See—*
Mims, William F., Jr.; Bramlett, Richard T.; and Oatman, Kenneth G., 5,067,587, Cl. 182-63.000.

Brandt, Inc.: *See—*
Bryce, David R., 5,068,519, Cl. 235-449.000.

Brandt, Kenneth R., Sr. Semi-automatic gate. 5,067,276, Cl. 49-331.000.

Brant, Anthony W., to GSW Inc. Fascia angle adapter for an eavestrough system. 5,067,675, Cl. 248-48.200.

Brantman, Robert F. Sliding transfer device. 5,067,188, Cl. 5-81.00R.

Braun, Hans-Jurgen: *See—*
Mager, Herbert; and Braun, Hans-Jurgen, 5,067,966, Cl. 8-405.000.

Brazdil, James F., Jr.: *See—*
Bartek, Joseph P.; Brazdil, James F., Jr.; Hupp, John M.; and Grasselli, Robert K., 5,068,215, Cl. 502-208.000.

Breaux, Craig B.; Cawyer, Denny; Duplantis, Dwight; and Hiller, Don, to Axelson, Inc. Adjustable, fusible, manually operable valve lock-open assembly. 5,067,510, Cl. 137-77.000.

Brehm, Richard L. Electro wave therapy. 5,067,495, Cl. 128-421.000.

Bres, Michel: *See—*
Hartemann, Frederic; Bres, Michel; and Teillard, Roger, 5,068,860, Cl. 372-2.000.

Bridgestone Corporation: *See—*
Fujisawa, Masao; Tagomori, Satoshi; Takasaki, Mamoru; and Sato, Yoshihiro, 5,067,851, Cl. 405-115.000.
Isobe, Kazuyuki; Aizawa, Takao; Yamaguchi, Noboru; and Ueda, Yutaka, 5,068,270, Cl. 524-68.000.
Negishi, Koichi, 5,067,390, Cl. 92-48.000.

Bright, Gerald: *See—*
Nicklas, James R.; Bright, Gerald; Pullen, Eric V., deceased; and Nicklas, James R., 5,067,513, Cl. 137-98.000.

Brine, Peter J.: *See—*
Brine, William H., III; and Brine, Peter J., 5,067,726, Cl. 273-326.000.

Brine, William H., III; and Brine, Peter J., to Sports Licensing, Inc. Lacrosse stick head with a throat wall rib and ball stop member. 5,067,726, Cl. 273-326.000.

Brinkley, H. N.: *See—*
Patel, Arvind D.; McGlothlin, Raymond E.; Bleier, Roger D.; and Brinkley, H. N., 5,068,041, Cl. 507-103.000.

Brisky, Michael J. Dive flag line dispenser apparatus. 5,067,920, Cl. 441-25.000.

Bristol-Myers Company: *See—*
Sit, Sing-Yuen; and Wright, John J., 5,068,346, Cl. 548-253.000.

British Aerospace Public Limited Company: *See—*
Ball, Richard F., 5,067,411, Cl. 102-489.000.
Steel, Geoffrey, 5,068,836, Cl. 367-174.000.

British Nuclear Fuels plc: *See—*
Webster, Duncan A., 5,067,567, Cl. 173-141.000.

British Petroleum Company p.l.c., The: *See—*
Davies, Stephen G., 5,068,369, Cl. 556-16.000.

Britz, Lothar; Krug, Wolfgang; and Seferiadis, Johann, to Forschungzentrum Julich GmbH. Container having a hot wall with a high-temperature-tolerant current pass-through. 5,068,492, Cl. 174-31.500.

Broadnax, Cecil H., Jr., to Johnson & Johnson Medical, Inc. Wound drainage tube/reservoir connector. 5,067,950, Cl. 604-317.000.

Brody, Thomas P., to Magnascreen Corporation. Modular flat-screen television displays and modules and circuit drives therefor. 5,068,740, Cl. 358-241.000.

Broeske, Bryon C. Wheelbarrow having a pair of auxiliary dumping rods. 5,067,737, Cl. 280-47.310.

Bromine Compounds Ltd.: *See—*
Vainberg, Olga; and Shorr, Leonard M., 5,068,409, Cl. 562-480.000.

Brook, Warren R.; and Miller, William H., to REM Technologies, Inc. Crack detection method for shaft at rest. 5,068,800, Cl. 364-507.000.

Brookman, Donald L.; Grollimund, Everett C.; Grollimund, Gary E.; and Spiers, Steven F., to Philip Morris Incorporated. Automated box blank handling system. 5,067,303, Cl. 53-381.200.

Brooks, David W.: *See—*
Choinski, Graydon J.; Gummer, Allen L.; and Brooks, David W., 5,067,391, Cl. 92-48.000.

Brooks, Dee W.; and Rodriques, Karen E., to Abbott Laboratories. Lipoxygenase inhibiting compounds. 5,068,251, Cl. 514-506.000.

Brosnahan, Robert: *See—*
Buford, Thomas B., III; Brosnahan, Robert; Robinett, Scott; and Clark, James, 5,067,956, Cl. 606-73.000.

Brother Kogyo Kabushiki Kaisha: *See—*
Hisada, Hidenori; and Suzuki, Makoto, 5,068,685, Cl. 355-32.000.
Kondo, Michio, 5,068,541, Cl. 250-571.000.
Taira, Hiroshi, 5,068,686, Cl. 355-32.000.
Tanabe, Kazunori, 5,068,688, Cl. 355-99.000.
Tsuzuki, Toru, 5,068,805, Cl. 395-164.000.
Yamamoto, Takemi; and Ishikawa, Shigeo, 5,067,835, Cl. 400-582.000.

Brown, Alan J.: *See—*
Suitch, Paul R.; Coppage, A. Taylor; and Brown, Alan J., 5,068,276, Cl. 524-413.000.

Brown, Albert P.: *See—*
Holzhauer, Juergen K.; Brown, Albert P.; and Reeve, Aubrey C., 5,068,406, Cl. 562-413.000.

Brown, Anthony K.; Choma, Alvin A.; and Edwards, Timothy R., to Dyneer Corporation. Interaxle differential. 5,067,935, Cl. 475-248.000.

Brown, Brent W., to Integrated Systems Engineering, Inc. Constant current drive system for fluorescent tubes. 5,068,577, Cl. 315-307.000.

Brown, David M.; and Potvin, Robert E., to Hoechst Celanese Corporation. Biz-diazotized diaryl diamine coupled dyes having improved solubility in organic solvent. 5,068,319, Cl. 534-759.000.

Brown, Herbert C., to Aldrich Chemical Company, Inc. Process for producing optically pure 2-phenoxyphenylalkylamines. 5,068,432, Cl. 564-347.000.

Brown, Omar L.: *See—*
Wynn, David K.; and Brown, Omar L., 5,067,341, Cl. 72-426.000.

Brown, Robert T. K.; and Smith, Ronald W., to Brown, Robert T. K.; Smith, Ronald W.; and Olive, Patrick W. Modular insulated wall panel system. 5,067,296, Cl. 52-309.700.

Brown, Ronald E.: *See—*
Lee, Fu-Ming; and Brown, Ronald E., 5,068,011, Cl. 203-58.000.

Brown, Stephen E.; Meeks, Donnie F.; Souders, Ralph W.; and Thompson, Richard A., to General Electric Company. Electric buswaymeter module arrangement. 5,068,763, Cl. 361-364.000.

Brown, Sterling B.: *See—*
Campbell, John R.; Shea, Timothy J.; Hobbs, Stanley Y.; and Brown, Sterling B., 5,068,286, Cl. 525-92.000.

Brownawell, Darrell W.; Thaler, Warren A.; Bannister, Eric; and Ladwig, Paul K., to Exxon Research & Engineering Company. Method for reducing piston deposits. 5,068,044, Cl. 252-25.000.

Broyde, Frederic; and Barrault, Michel, to Gerin, Merlin. Monitoring process and device of a quasi-closed electromagnetic shield. 5,068,616, Cl. 324-627.000.

Brubak, Jens P.; Eftestol, Bard; and Ladiszlaidesz, Ferenc, to Raufoss AS. Aluminium alloy, a method of making it and an application of the alloy. 5,067,994, Cl. 148-415.000.

Bruck, Abraham: *See—*
Inbar, Dan; Barnea, Daniel I.; and Bruck, Abraham, 5,067,493, Cl. 128-660.030.

Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, to Digital Equipment Corporation. Method and apparatus for controlling initiation of bootstrap loading of an operating system in a computer system having first and second discrete computing zones. 5,068,780, Cl. 395-700.000.

Bruckert, William; Bissett, Thomas D.; Kovalcin, David; and Nene, Ravi, to Digital Equipment Corporation. Apparatus and method for documenting faults in computing modules. 5,068,851, Cl. 371-16.100.

Bruder, Herbert; Fischer, Hubertus; Schmitt, Franz; and Reinfelder, Hans-Erich, to Siemens Aktiengesellschaft. Method for generating an image using nuclear magnetic resonance signals. 5,068,609, Cl. 324-309.000.

Bruhnke, Douglas W.: *See—*
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Bruning, Gert W.; and Veldman, Paul R., to North American Philips Corporation. Power supply with energy storage for improved voltage regulation. 5,068,573, Cl. 315-209.00R.

Brunken, Dean E.; and Hagen, Arnulf P., to Advanced Chemical Technologies Company. Method for applying a water repellant composition with a water carrier using a dispersing means. 5,068,132, Cl. 427-421.000.

Bruno, John. Method for detaching a hypodermic needle threadably engaged to a syringe. 5,067,223, Cl. 29-426.500.

Brunswick Corporation: *See—*
Shiovitz, Nathan N.; Maloney, John G.; and Steele, Michael F., 5,067,386, Cl. 89-1.808.
Steele, Michael F., 5,067,385, Cl. 89-1.808.

Brusson, Jean M.; Bujadoux, Karel; Petit, Francis; Fuchs, Jean M.; and Mortreux, Andre , to Norsolor. Catalytic composition for the polymerization of olefins and its process of preparation. 5,068,014, Cl. 204-59.00M.

Bryan, William T. Gable top carton with interiorly stored reclosable spout. 5,067,613, Cl. 229-214.000.

Bryans, Thomas J.: *See—*
Hyde, James P.; and Bryans, Thomas J., 5,067,575, Cl. 180-69.400.

Bryce, David R., to Brandt, Inc. Magnetic document validator employing remanence and saturation measurements. 5,068,519, Cl. 235-449.000.

Bryson, Robert, Sr.: *See—*
Gadway, Jeffrey G.; and Bryson, Robert, Sr., 5,067,699, Cl. 270-55.000.

Bu-Abbud, to Reliance Comm/Tec Corporation. Shared laser tandem optical time domain reflectometer. 5,067,810, Cl. 356-73.100.

Buchanan, Jeffrey: *See—*
Keck, Lindsey; Buchanan, Jeffrey; and Hards, Graham A., 5,068,161, Cl. 429-44.000.

Bucher, Heinz, to Metronic Electronic, GmbH. Control device for an air-bubble massage appliance. 5,067,481, Cl. 128-66.000.

Buchko, Raymond: *See—*
Wirth, Lawrence W.; Wegner, Wayne M.; Tomic, Mladomir; Buchko, Raymond; and Natterer, Johann, 5,067,822, Cl. 383-61.000.

Buckley, Augustus M., Jr.: *See—*
Zylka, Karl H.; and Buckley, Augustus M., Jr., 5,067,865, Cl. 411-531.000.

Buckner, John H. Pilot's wrist mount for carrying a timpepiece or the like vertically on the radial aspect of the wrist. 5,068,840, Cl. 368-281.000.

Buford, Thomas B., III; Brosnahan, Robert; Robinett, Scott; and Clark, James, to Smith & Nephew Richards Inc. Apparatus for fastening a medical implant. 5,067,956, Cl. 606-73.000.

Bujadoux, Karel: *See—*
Brusson, Jean M.; Bujadoux, Karel; Petit, Francis; Fuchs, Jean M.; and Mortreux, Andre , 5,068,014, Cl. 204-59.00M.

Buma, Shuuichi: *See—*
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Bundy, Wanda F. Board game apparatus. 5,067,720, Cl. 273-237.000.

Burger, Wilfried; Nitschke, Werner; Taufer, Peter; and Weller, Hugo, to Robert Bosch GmbH. Method of operating a safety device for vehicle occupants. 5,068,640, Cl. 340-438.000.

Burgess, Lloyd M.; and Gibson, Charles A., to Union Carbide Chemicals and Plastics Technology Corporation. Aminoethylethanolamine producers composition and method for producing same. 5,068,329, Cl. 544-402.000.

Burgess, Lloyd M.; and Gibson, Charles A., to Union Carbide Chemicals and Plastics Technology Corporation. Aminoethyethanolamine and ethylenediamine producers composition and method for producing same. 5,068,330, Cl. 544-402.000.

Burgoyne, William F., Jr.; and Dixon, Dale D., to Air Products and Chemicals, Inc. Ortho-alkylated aromatic amines via gamma alumina catalyst. 5,068,435, Cl. 564-409.000.

Burk, Michael: *See—*
Watterson, Scott R.; Bersonnet, George B.; Dalebout, William T.; and Burk, Michael, 5,067,710, Cl. 272-129.000.

Burke, Desmond C., to U.R. Engineering Pty., Ltd. Harvester for grapes. 5,067,314, Cl. 56-330.000.

Burke, Paul, to Infusaid, Inc. Pressure regulator for implantable pump. 5,067,943, Cl. 604-141.000.

Burnier, Julia S.: *See—*
Bard, John K.; and Burnier, Julia S., 5,068,303, Cl. 528-25.000.

Burns, Charlene L.: *See—*
Koszalka, George W.; Burns, Charlene L.; Krenitsky, Thomas A.; and Rideout, Janet L., 5,068,320, Cl. 536-24.000.

Burroughs Wellcome Co.: *See—*
Koszalka, George W.; Burns, Charlene L.; Krenitsky, Thomas A.; and Rideout, Janet L., 5,068,320, Cl. 536-24.000.

Busacca, Guido; and Muratore, Antonio, to Selenia Industrie Elettroniche Associate S.p.A. Wave guide device having a periodic structure and improved heat dissipation. 5,068,569, Cl. 315-3.500.

Bushell, Michael J.; and Carr, Robin A. E., to Imperial Chemical Industries PLC. Insecticidal ethers. 5,068,461, Cl. 568-655.000.

Bushinsky, Joseph P.; Nicholas, David M.; Wang, Shoou-I; and Patel, Nitin M., to Air Products and Chemicals, Inc. Production of ammonia synthesis gas. 5,068,058, Cl. 252-376.000.

Businger, Joost A., to University Corporation for Atmospheric Research. Conditional sampling technique for flux measurement. 5,067,356, Cl. 73-863.020.

Butler, John D.; and Chopra, Vinod K., to Mechtrix Corporation. Electronic display system for wire stripping machine. 5,067,379, Cl. 83-13.000.

Buultjens, Travis E. J.; Jahoda, Colin A. B.; and Oliver, Roy F., to University of Dundee. Composition for the regulation of hair growth. 5,068,315, Cl. 530-324.000.

Buysch, Hans-Josef; Klausener, Alexander; Szablikowski, Klaus; Balser, Klaus; and Wilke, Michaela, to Wolff Walsrode Aktiengesellschaft. Carbonic acid esters of polysaccharides and a process for their production. 5,068,321, Cl. 536-32.000.

Buysch, Hans-Josef: *See—*
Klug, Gunter; Buysch, Hans-Josef; and Puppe, Lothar, 5,068,434, Cl. 564-399.000.

C & K Components Inc.: *See—*
Ipcinski, Ralph, 5,068,505, Cl. 200-525.000.

Cabral, Art: *See—*
Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, 5,068,644, Cl. 340-701.000.

Cachat, Anthony J.: *See—*
Kosem, Marion; Cachat, Anthony J.; and Toth, Thomas D., 5,068,778, Cl. 364-138.000.

Caldwell, Dean; and Bass, Ginny. Earring storage and display rack. 5,067,617, Cl. 211-13.000.

Cale, Jr., Albert D.: *See—*
Taylor, Chandler R., Jr.; Cale. Jr., Albert D.; Johnson, David N.; and Stauffer. Jr., Harold F., 5,068,231, Cl. 514-210.000.

Calgene, Inc.: *See—*
Comai, Luca, 5,068,193, Cl. 435-252.300.

Calgon Corporation: *See—*
Morse, Lewis D., 5,068,279, Cl. 524-593.000.

California Institute of Technology: *See—*
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.

Callander, Sidney E.: *See—*
Dales, John R. M.; and Callander, Sidney E., 5,068,458, Cl. 568-634.000.

Callaway Golf Company: *See—*
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., 5,067,711, Cl. 273-77.00A.
Schmidt, Glenn H.; Sheehan, John P.; and Helmstetter, Richard C., 5,067,715, Cl. 273-167.00F.

Camble, Roger; Cotton, Ronald; Dutta, Anand S.; and Hayward, Christopher F., to Imperial Chemical Industries PLC. Bombesin antagonists with deletion of net-residue at the C-terminus. 5,068,222, Cl. 514-15.000.

Camin, Daniel V.; Pessina, Gianluigi; and Previtali, Ezio, to Istituto Nazionale di Fisica Nucleare. High-gain amplifier with low noise and low power dissipation, using field effect transistors. 5,068,623, Cl. 330-277.000.

Camp International, Inc.: *See—*
Hiemstra-Paez, Carol L., 5,067,484, Cl. 128-78.000.

Campbell, John R.; Shea, Timothy J.; Hobbs, Stanley Y.; and Brown, Sterling B., to GE Plastics Japan Ltd. Copolymers from nucleophilic olefin polymers and epoxytriazine-capped polyphenylene ethers. 5,068,286, Cl. 525-92.000.

Campbell, Todd D.; and Zozaya, Michael A., to Baxter International Inc. Bioprosthetic ligament. 5,067,962, Cl. 623-13.000.

Canon Kabushiki Kaisha: *See—*
Baba, Tsuyoshi, 5,067,631, Cl. 221-254.000.
Goto, Hiroshi; Harada, Toshiaki; and Ishikawa, Noriyoshi, 5,068,123, Cl. 427-32.000.
Hosaka, Akihito, 5,067,435, Cl. 118-653.000.
Ishizuka, Kou; Nishimura, Tetsuharu; Tsukiji, Masaaki; and Ishii, Satoshi, 5,067,813, Cl. 356-351.000.
Kashida, Motokazu; Shikakura, Akihiro; Yamashita, Shinichi; and Shimizu, Tetsuya, 5,068,855, Cl. 371-37.400.
Koike, Shoji; and Tomida, Yasuko, 5,067,980, Cl. 106-22.000.
Menjo, Takeshi, 5,068,692, Cl. 355-284.000.
Momose, Masanori, 5,068,675, Cl. 346-76.0PH.
Noguchi, Hiromichi, 5,068,257, Cl. 522-31.000.
Noguchi, Hiromichi, 5,068,258, Cl. 522-31.000.
Noguchi, Hiromichi, 5,068,259, Cl. 522-31.000.
Noguchi, Hiromichi, 5,068,260, Cl. 522-31.000.
Noguchi, Hiromichi, 5,068,262, Cl. 522-95.000.
Noguchi, Hiromichi, 5,068,263, Cl. 522-109.000.
Ohsawa, Hidefumi; Katayama, Akihiro; Hosokawa, Hiroshi; Sunohara, Izuru; and Yoshimoto, Masahiko, 5,068,746, Cl. 358-443.000.
Orino, Kanjyo, 5,067,802, Cl. 359-700.000.
Ouchi, Chidane, 5,067,811, Cl. 356-121.000.
Sato, Koichi; and Ikeda, Masami, 5,068,674, Cl. 346-1.100.
Takahashi, Masatomo, 5,068,741, Cl. 358-296.000.
Yoshihara, Toshiyuki, 5,068,762, Cl. 361-225.000.

Cantwell, Robert R.; and Zumsteg, Deborah M., to American Recreation Products, Inc. Tent. 5,067,505, Cl. 135-104.000.

Capelle, Gerd, to Hermann Berstorff Maschinenbau GmbH. Method of maintaining the force of a stripper blade on an extruder feed roller constant and an apparatus therefor. 5,068,069, Cl. 264-40.500.

Carabateas, Philip M.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.

Carabillo, Vincent. Self-adjusting trouser waistband system. 5,067,176, Cl. 2-237.000.

Caramiciu, Marius A.: *See—*
Phalon, Philip A., Jr.; Caramiciu, Marius A.; and DiGiovanni, Robert C., 5,068,508, Cl. 219-85.160.

Caransa, Abraham; and van den Dorpel, Jan, to Dorr-Oliver Incorporated. Corn steeping process and apparatus. 5,067,982, Cl. 127-67.000.

Carcia, Peter F., to Du Pont de Nemours, E. I., and Company. Process for sputtering multilayers for magneto-optical recording. 5,068,022, Cl. 204-192.150.

Carder, Mervin L., Sr.; and Poli, E. Leonard. Cast nozzle having improved latch and shut-off mechanism. 5,067,533, Cl. 141-392.000.

Cardis, Angeline B.: *See—*
Blain, David A.; and Cardis, Angeline B., 5,068,046, Cl. 252-51.50A.

VOL 1132 ISS 4 NO 26 1991 UMI

Carey, Michael D.; Smiley, William A., III; and Jansky, Gerald A., to American Standard Inc. Condenser coil arrangement for refrigeration system. 5,067,560, Cl. 165-124.000.

Cargill, Incorporated: *See—*
Chanen, Michael J.; and Roskowiak, Robert W., 5,068,114, Cl. 426-69.000.

Carl-Zeiss-Stiftung: *See—*
Greve, Peter, 5,067,951, Cl. 606-004.000.
Marx, Dieter; and Kampf, Axel, 5,067,794, Cl. 359-824.000.

Carlberg, David L.; Meigs, Theodore V., Jr.; and May, Dennis L., to Kinematic Corporation. Apparatus for cutting and assembling batches of diagnostic strips for transfer to containers. 5,067,309, Cl. 53-520.000.

Carlson, Elmer V., to Knowles Electronics, Inc. Dual outlet passage hearing aid transducer. 5,068,901, Cl. 381-68.600.

Carlson, J. David, to Lord Corporation. Electrophoretic fluid composite structure. 5,068,018, Cl. 204-180.100.

Carney, Michael J.: *See—*
Baker, James C.; and Carney, Michael J., 5,068,625, Cl. 331-1.00A.

Carpenter, Bryan D.: *See—*
Soules, Jack A.; and Carpenter, Bryan D., 5,067,713, Cl. 273-149.00P.

Carpenter, Walter L. Peristaltic pump system. 5,067,879, Cl. 417-472.000.

Carr, Robin A. E.: *See—*
Bushell, Michael J.; and Carr, Robin A. E., 5,068,461, Cl. 568-655.000.

Carrier Vibrating Equipment, Inc.: *See—*
Heitmiller, Charles E., 5,067,431, Cl. 118-57.000.

Carson, Dennis A.; Fong, Sherman; and Chen, Pojen P., to Scripps Clinic and Research Foundation. Anti-idiotype antibodies induced by synthetic polypeptides. 5,068,177, Cl. 435-7.920.

Carter, Leewood C., to Reusable Rolls, Inc. Recyclable paperboard pallet. 5,067,418, Cl. 108-56.300.

Carver, George C.: *See—*
St. Angelo, Stephen, Jr.; Lucci, John J.; Carver, George C.; Heads, Alan; and Mitchell, James F., 5,067,225, Cl. 29-451.000.

Carver, Michael W.; and Kolesar, Edward S., Jr., to United States of America, Air Force. Back-contact vertical-junction solar cell and method. 5,067,985, Cl. 136-255.000.

Cascade Microtech, Inc.: *See—*
Strid, Eric W.; and Leake, Bernard W., 5,068,615, Cl. 324-613.000.

Cascini, Michael R., to Lockheed Sanders, Inc. Apparatus for holding printed circuit boards during wave soldering and processing. 5,067,648, Cl. 228-47.000.

Casey, Tadhg E.; and Melody, David P., to Loctite (Ireland) Ltd. Sealant composition. 5,068,265, Cl. 523-176.000.

Casio Computer Co. Ltd.: *See—*
Yamazaki, Hitoshi, 5,068,904, Cl. 382-46.000.

Casio Electronics Manufacturing: *See—*
Yamazaki, Hitoshi, 5,068,904, Cl. 382-46.000.

Cassella Aktiengesellschaft: *See—*
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,068,298, Cl. 526-240.000.

Castel, Yvon, to Institut Francais du Petrole. Method for mooring and connecting an end of a flexible line with a conduit of a floating offshore edifice. 5,067,429, Cl. 114-230.000.

Castens, Rudolf R. Clutches. 5,067,601, Cl. 192-65.000.

Casutt, Michael: *See—*
Poetsch, Eike; and Casutt, Michael, 5,068,341, Cl. 548-154.000.

Catchpole, Clive E.: *See—*
Concannon, David J.; Copenhaver, Gary B.; and Catchpole, Clive E., 5,068,912, Cl. 382-61.000.

Caterpillar Inc.: *See—*
Bailey, John M., 5,067,458, Cl. 123-292.000.
Kyrtsos, Christos T.; and Worrell, Dean A., 5,067,572, Cl. 177-139.000.
St. Germain, Gene R., 5,067,389, Cl. 91-446.000.

Cavanna S.p.A.: *See—*
Francioni, Renzo; and Pavese, Duilio, 5,067,307, Cl. 53-450.000.

Cavender, Ralston: *See—*
Backer, Marcella R.; Cavender, Ralston; Elder, Melanie L.; Jones, Peter C.; and Murphy, James A., 5,067,975, Cl. 65-3.120.

Cavigelli, George A., to Doble Engineering Company. Current shunting. 5,068,636, Cl. 338-49.000.

Cawyer, Denny: *See—*
Breaux, Craig B.; Cawyer, Denny; Duplantis, Dwight; and Hiller, Don, 5,067,510, Cl. 137-77.000.

Cayallero, Thomas. Airborne particle exhaust system. 5,067,394, Cl. 98-42.030.

CDP Product Development Corporation: *See—*
Perkinson, Seth, 5,067,559, Cl. 165-112.000.

Cedarapids, Inc.: *See—*
Linkletter, Don R.; and Musil, Joseph E., 5,067,254, Cl. 34-137.000.

Celgene Corporation: *See—*
Ruppen, Mark E.; and Hagedorn, Scott, 5,068,414, Cl. 562-508.000.

Centre National de la Recherche Scientifique: *See—*
Barthomeuf, Denise; and de Quivillic, Viviane Q., 5,068,483, Cl. 585-467.000.

Centre Suisse d'Electronique et de Microtechnique S.A.: *See—*
Kotrotsios, Georges; and Parriaux, Olivier, 5,067,815, Cl. 356-345.000.

Ceodeux S.A.: *See—*
Kremer, Paul; and Kerger, Leon, 5,067,520, Cl. 137-614.200.

Certech Incorporated: *See—*
Uram, Stuart Z., 5,067,548, Cl. 164-15.000.

Cetel, Alan D.; and Duhl, David N., to United Technologies Corporation. Columnar grain superalloy articles. 5,068,084, Cl. 420-443.000.

Ceylan, Ahmet D.: *See—*
Weiler, Rolf; Bach, Uwe; and Ceylan, Ahmet D., 5,067,595, Cl. 188-73.450.

Cha, James T.: *See—*
Koert, Peter; and Cha, James T., 5,068,669, Cl. 343-700.0MS.

Chambers, James W.: *See—*
Nudd, Barry C.; and Chambers, James W., 5,067,692, Cl. 254-420.000.

Champeau, Andre , to Thomson-CSF. Semi-rigid cable designed for the transmission of microwaves. 5,068,632, Cl. 333-238.000.

Chandran, Srikumar R.; Mau, Franco E.; and Jan, Steven A., to Cupertino, California U.S.A. Error detection for fiber distributed interfaced optic link. 5,068,854, Cl. 371-37.100.

Chandraratna, Roshantha A. S., to Allergan, Inc. Methods of using phenylethenyl compounds having retinoid-like activity. 5,068,252, Cl. 514-543.000.

Chanen, Michael J.; and Roskowiak, Robert W., to Cargill, Incorporated. Animal feed block composition. 5,068,114, Cl. 426-69.000.

Chang, Chin-Hsiung, to Allied-Signal Inc. Removal of $Fe^{(II)}$ from hydroxylamine sulfate solution. 5,068,037, Cl. 210-638.000.

Chang, Ha Y., to Hydundae Enviroment Energy Mgmt. Corp., Ltd. Apparatus for purifying pollutant gases. 5,067,974, Cl. 55-223.000.

Chang, Kyujeong, to Samsung Electronics Co., Ltd. Thin film transistor for a plate display. 5,068,699, Cl. 357-23.700.

Chang, Shien F. Bowl type grinding mill. 5,067,662, Cl. 241-56.000.

Charles Henry Ford Trust, The: *See—*
Ford, Charles H., 5,067,430, Cl. 114-294.000.

Charpentier, Robert L.: *See—*
Eppley, David M.; and Charpentier, Robert L., 5,067,269, Cl. 43-17.000.

Chatelin, Roger: *See—*
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.

Chatterjee, Amitava: *See—*
Yang, Ping; Chatterjee, Amitava; Aur, Shian; and Polgreen, Thomas L., 5,068,696, Cl. 357-23.100.

Chemical Waste Management, Inc.: *See—*
Li, Alan Y.; Grutsch, James F.; and O'Leary, Kevin P., 5,068,036, Cl. 210-606.000.

Chemie Linz Gesellschaft m.b.H.: *See—*
Sajtos, Alexander; Kloimstein, Engelbert; Hollinger, Karl; and Farnlettner, Lorenz, 5,068,417, Cl. 562-577.000.

Chemische Fabrik Budenheim Rudolf A. Oetker: *See—*
Frankenfeld, Klaus; Beltz, Klaus; Eich, Gerhard; and Endrich, Klaus, 5,068,094, Cl. 423-109.000.

Chen, Bonbo: *See—*
Huang, Ali; Tsai, Philips; and Chen, Bonbo, 5,067,681, Cl. 248-442.200.

Chen, Catherine S. H.; and Rodewald, Paul G., to Mobil Oil Corporation. Lubricants and lube additives from epoxidation of lower olefin oligomers. 5,068,048, Cl. 252-52.00A.

Chen, Chi-Min, to Oxford Science Industrial Co., Ltd. Water filtering sterilizing and heating apparatus. 5,068,030, Cl. 210-95.000.

Chen, Ching-Fong: *See—*
Giunchi, Giovanni; Savrun, Ender; Grenni, Alberto; and Chen, Ching-Fong, 5,068,211, Cl. 501-98.000.

Chen, Chun-Hui; and Lin, Guu-Trang. Structure of paper clip. 5,067,205, Cl. 24-67.900.

Chen, Lung-Hsien. Mud absorbent mat. 5,067,196, Cl. 15-238.000.

Chen, Pojen P.: *See—*
Carson, Dennis A.; Fong, Sherman; and Chen, Pojen P., 5,068,177, Cl. 435-7.920.

Chen, Y.-D. Mark: *See—*
Borland, James E.; Chen, Y.-D. Mark; Sauer, Joe D.; Smith, Kim R.; and Smith, Rebecca F., 5,068,430, Cl. 564-298.000.

Chenot, Charles F.; and Krebs, Michael A., to GTE Products Corporation. Europium activated strontium tetraborate UV phosphors. 5,068,055, Cl. 252-301.40R.

Cheval, Benoit: *See—*
Pfeiffer, Pierre; Cheval, Benoit; and Sigwalt, Paul, 5,067,636, Cl. 222-105.000.

Chi, Lei L. Boiling detecting devices for a stove. 5,067,474, Cl. 126-374.000.

Chiba, Toshikazu, to NEC Corporation. Display controller having a function of controlling various display memories. 5,068,648, Cl. 340-750.000.

Chien, Daniel G.: *See—*
Szabo, Steve B.; and Chien, Daniel G., 5,067,732, Cl. 277-11.000.

Chiesi Farmaceutici S.p.A.: *See—*
Kawazi, Toshikuni; Ono, Masahiro; and Inoue, Nobuko, 5,068,103, Cl. 424-81.000.

Childers, Robert W., to American Sterilizer Company. High capacity multicomponent liquid vaporizer. 5,068,087, Cl. 422-26.000.

Childs, Charles B.: *See—*
Chu, Wei-kan; and Childs, Charles B., 5,068,020, Cl. 204-192.110.

Chinon Kabushiki Kaisha: *See—*
Ogura, Wataru, 5,068,910, Cl. 382-50.000.

Chiou, Ming-Shyang: *See—*
Fann, Yaw-Shin; Chiou, Ming-Shyang; and Kuo, Ching-Chuan, 5,067,758, Cl. 292-347.000.

Chisso Corporation: *See—*
Yamada, Kazuhiro; and Ishibashi, Tadao, 5,068,155, Cl. 428-515.000.

Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., to Electronics and Telecommunications Research Institute. X-ray generation system for an ultra fine lithography and a method therefor. 5,068,884, Cl. 378-119.000.

Choi, Kwang-Moon, to SamSung Electronics Co., Ltd. Cassette loading device for a tape recorder. 5,068,758, Cl. 360-96.600.

Choinski, Graydon J.; Gummer, Allen L.; and Brooks, David W., to Indian Head Industries, Inc. Tamper-resistant brake actuator. 5,067,391, Cl. 92-48.000.

Choma, Alvin A.: *See—*
Brown, Anthony K.; Choma, Alvin A.; and Edwards, Timothy R., 5,067,935, Cl. 475-248.000.

Chopra, Vinod K.: *See—*
Butler, John D.; and Chopra, Vinod K., 5,067,379, Cl. 83-13.000.

Christensen, Richard N.: *See—*
Cook, F. Bert; Petty, Stephen E.; Meacham, Howard C., Jr.; Christensen, Richard N.; and McGahey, Kevin R., 5,067,330, Cl. 62-485.000.

Christenson, Ronald E., to McNeilus Truck and Manufacturing, Inc. Stretch trailer mixer. 5,067,740, Cl. 280-407.000.

Christianson, John, to Tarrenn Corporation. Unassisted lower torso strengthening and stretching device. 5,067,709, Cl. 272-121.000.

Chrysler Corporation: *See—*
LeClerc, David L.; and Conti, Wayne A., 5,067,997, Cl. 156-64.000.

Chu, Wei-kan; and Childs, Charles B., to University of North Carolina at Chapel Hill, The. Coated substrates and process. 5,068,020, Cl. 204-192.110.

Chuang, Jack; and Lin, Tsung-Ping. Lighter-actuated bingo means. 5,067,895, Cl. 431-253.000.

Chung, David Y.; and Struglinski, Mark J., to Exxon Chemical Patents, Inc. Visosity index improver. 5,068,047, Cl. 252-051.50A.

Chuo Packaging Machinery Co., Ltd.: *See—*
Yamanaka, Mitsuaki, 5,067,310, Cl. 53-551.000.

Chutorash, Richard J.: *See—*
Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., 5,067,867, Cl. 414-391.000.

Ciba-Geigy Corporation: *See—*
Decher, Gero; and Tieka, Bernd, 5,068,318, Cl. 534-573.000.
Drabek, Josef, 5,068,441, Cl. 564-442.000.
Falk, Robert A.; Clark, Kirkland P.; Jacobson, Michael; Karydas, Athanasios; and Rodgers, Juliana, 5,068,397, Cl. 560-150.000.
Huxley, Alica; Kunz, Walter; Ackermann, Peter; and Sutter, Martius, 5,068,359, Cl. 549-58.000.
Kress, Ulrich; Maul, Rudolf; and Kintopf, Siegfried, 5,068,335, Cl. 546-242.000.
Steiner, Eginhard; Beyeler, Harry; and Husler, Rinaldo, 5,068,371, Cl. 556-53.000.
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, 5,068,515, Cl. 219-121.730.

Clark, Cary: *See—*
Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, 5,068,644, Cl. 340-701.000.

Clark, James: *See—*
Buford, Thomas B., III; Brosnahan, Robert; Robinett, Scott; and Clark, James, 5,067,956, Cl. 606-73.000.

Clark, Kirkland P.: *See—*
Falk, Robert A.; Clark, Kirkland P.; Jacobson, Michael; Karydas, Athanasios; and Rodgers, Juliana, 5,068,397, Cl. 560-150.000.

Clark, Rodney L.; and Hester, Charles F., to Teledyne Industries, Inc. Optical interconnector and highly interconnected, learning neural network incorporating optical interconnector therein. 5,068,801, Cl. 395-25.000.

Clark, William G., Jr., to Westinghouse Electric Corp. Multiple coil eddy current probe system and method for determining the length of a discontinuity. 5,068,608, Cl. 324-220.000.

Clausen, Henrik; Yamamoto, Fumi-ichiro; White, Thayer; and Hakomori, Sen-itiroh, to Biomembrane Institute, The. Purified histo-blood group A glycosyltransferase and antibodies thereto. 5,068,191, Cl. 435-193.000.

Clemence, Francois: *See—*
Moura, Anne-Marie; Clemence, Francois; Frechet, Daniel; and Fortin, Michel, 5,068,244, Cl. 514-428.000.

Clemens, Horst: *See—*
Meixner, Jurgen; Clemens, Horst; and Sickert, Armin, 5,068,125, Cl. 427-55.000.

Clough, Thomas J.; and Moulton, Richard J., to Ensci, Inc. Bipolar plate battery. 5,068,160, Cl. 429-72.000.

Coca-Cola Company, The: *See—*
Plester, George; Leddon, Warren E.; and Dalsis, David E., 5,067,616, Cl. 209-3.100.

Cochran, Mark D.; Shih, Meng-Fu; and MacConnell, William P., to Prutech Research and Development Partnership. Attenuated pseudorabies virus which includes foreign DNA encoding an amino acid sequence. 5,068,192, Cl. 435-235.100.

Codman & Shurtleff, Inc.: *See—*
Santangelo, John, 5,067,477, Cl. 128-20.000.

Cohen, Lester S.: *See—*
Barsotti, Robert; and Cohen, Lester S., 5,068,153, Cl. 428-413.000.

Cohrs, Richard B.; Haeck, Paul J.; and Jacobs, Gary R., to Von Duprin, Inc. Panic exit device having noise suppression. 5,067,757, Cl. 292-336.300.

Cole, James A.; Roberts, William O.; and Turgeon, Joseph T., to Zaclon Corporation. Method of protecting galvanized steel from corrosion. 5,068,134, Cl. 427-376.200.

Cole, Martin G.: *See—*
Smythe, Stephen R.; Cole, Martin G.; and Grier, James S., 5,068,443, Cl. 564-496.000.

Coleman, Robert A. Rack protective device. 5,067,644, Cl. 224-324.000.

Coleman, Seab H., III. Asbestos collection and containment device. 5,067,504, Cl. 134-172.000.

Colged S.p.A.: *See—*
Guelfi, Ferdinando; and Lippi, Elio, 5,067,192, Cl. 15-302.000.

Collard, Rene F. A.: *See—*
Verhelst, Paulus W. E.; Winiger, Werner J.; and Collard, Rene F. A., 5,068,809, Cl. 395-145.000.

Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., to California Institute of Technology. Large constraint length high speed viterbi decoder based on a modular hierarchial decomposition of the deBruijn graph. 5,068,859, Cl. 371-43.000.

Collins, Walter W., to Wenoka Seastyle - A Div. of Schur, Inc. Lock for knife/sheath combination. 5,067,239, Cl. 30-151.000.

Columbia Gas System Service Corporation: *See—*
Cook, F. Bert; Petty, Stephen E.; Meacham, Howard C., Jr.; Christensen, Richard N.; and McGahey, Kevin R., 5,067,330, Cl. 62-485.000.

Columbia Scientific Inc.: *See—*
Goodenough, David J.; and Stockham, Charles, 5,068,788, Cl. 364-413.140.

Comai, Luca, to Calgene, Inc. Novel method and compositions for introducing alien DNA in vivo. 5,068,193, Cl. 435-252.300.

Combs, Charles S.: *See—*
Steiner, Klaus; Herrmann, Wolfgang; Crone, Gunter; and Combs, Charles S., 5,068,413, Cl. 562-507.000.

Combs, Todd M.; Deraedt, Gary K.; and Goodrich, Duane A., to Dowley Manufacturing, Inc. Front wheel drive hub puller. 5,067,220, Cl. 29-259.000.

Commonwealth Industrial Gases Ltd., The: *See—*
Shore, William P., 5,067,301, Cl. 53-79.000.

Commonwealth Scientific and Industrial Research Organisation: *See—*
Dick, Ian R.; Henderson, Ian D.; Kimpton, Gordon L.; and Wyatt, David S., 5,068,507, Cl. 219-73.110.

Commonwealth Scientific and Industrial Research Organization: *See—*
Field, John S., 5,067,346, Cl. 73-81.000.

Compaq Computer Corporation: *See—*
Garrett, James H., 5,068,649, Cl. 340-793.000.

Computalog Ltd.: *See—*
Foote, Dean, 5,067,874, Cl. 415-230.000.

Concannon, David J.; Copenhaver, Gary B.; and Catchpole, Clive E., to Unisys Corp. Track gauges for aligning and focussing the imaging system in a high speed document handling system. 5,068,912, Cl. 382-61.000.

Condne, Claus; Mattes, Bernhard; and Schmalz, Dieter, to Robert Bosch GmbH. Apparatus for triggering passenger protection systems. 5,068,793, Cl. 364-424.050.

Connolly, Dennis J., to Babcock & Wilcox Company, The. Aqueous carbon dioxide monitor. 5,068,090, Cl. 422-82.020.

Conoco Inc.: *See—*
Lee, Yung N.; and Wiggins, Fred R., 5,067,508, Cl. 137-13.000.

Constance, Gerald D. Hydroponic garden. 5,067,275, Cl. 47-62.000.

Constantz, James E., to United States of America, Interior. Apparatus for water desalination and drip irrigation of row crops. 5,067,272, Cl. 47-27.000.

Container Graphics Corporation: *See—*
Thomas, Daniel J., 5,067,193, Cl. 15-88.300.

Conti, Wayne A.: *See—*
LeClerc, David L.; and Conti, Wayne A., 5,067,997, Cl. 156-64.000.

Conzelmann, Gerhard; Haack, Dietmar; and Fiedler, Gerhard, to Robert Bosch GmbH. Electronic circuit device. 5,068,703, Cl. 357-36.000.

Cook, Alex M., Jr.: *See—*
West, Lamar E.; Lafay, William P.; Ghanouni, Majid; and Cook, Alex M., Jr., 5,068,893, Cl. 380-7.000.

Cook, F. Bert; Petty, Stephen E.; Meacham, Howard C., Jr.; Christensen, Richard N.; and McGahey, Kevin R., to Columbia Gas System Service Corporation. Heat transfer apparatus for heat pumps. 5,067,330, Cl. 62-485.000.

Cook, Lacy G.; and Wheeler, Bryce A., to Hughes Aircraft Company. Contaminant removal from telescope optical elements. 5,068,750, Cl. 359-399.000.

Cook, Warren R. Multiple faced cutter insert. 5,067,858, Cl. 407-114.000.

Coombes, Robert J.: *See—*
Hamilton, Robert G.; and Coombes, Robert J., 5,068,755, Cl. 360-72.100.

Coomer, Sven. Injection fitted boot liner. 5,067,257, Cl. 36-93.000.

Cooper, Edward W.; and Guerrieri, Orlando R., to Acco World Corporation. Binder locking ring mechanism with configured trigger. 5,067,840, Cl. 402-38.000.

Coors Brewing Company: *See—*
Ward, Thomas J., 5,067,857, Cl. 406-181.000.

Copenhaver, Gary B.: *See—*
Concannon, David J.; Copenhaver, Gary B.; and Catchpole, Clive E., 5,068,912, Cl. 382-61.000.

Copp, William H., Jr. Air volume booster for sprayers. 5,067,656, Cl. 239-290.000.

Coppage, A. Taylor: *See—*
Suitch, Paul R.; Coppage, A. Taylor; and Brown, Alan J., 5,068,276, Cl. 524-413.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Coppedge, Charles D.: *See—*
Young, Timothy M.; Coppedge, Charles D.; and McCasland, Charles S., 5,067,657, Cl. 239-403.000.
Coppens, Paul J.; Vervloet, Ludovicus H.; Leenders, Luc H.; and Schuerwegen, Ronald, to AGFA-Gevaert, N.V. Lithographic aluminum offset printing plate made according to the DTR-process. 5,068,165, Cl. 430-204.000.
Cordier, Georges; Fouilloux, Pierre; and Grosselin, Jean-Michel, to Rhone-Poulenc Sante. Process for the preparation of a catalyst. 5,068,214, Cl. 502-185.000.
Cordova, Jackie: *See—*
Titcomb, Forrest; Cordova, Jackie; and Schaule, Max W., 5,067,528, Cl. 141-4.000.
Corle, Timothy R.; Mallory, Chester L.; and Wasserman, Philip D., to Prometrix Corporation. Confocal scanning optical microscope. 5,067,805, Cl. 359-235.000.
Cormier, Frederick P. Snow rake. 5,067,197, Cl. 15-244.100.
Cornaz, Jean-Pierre, heir: *See—*
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, 5,068,515, Cl. 219-121.730.
Cornaz, Maria I., heir: *See—*
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, 5,068,515, Cl. 219-121.730.
Cornaz, Max M., heir: *See—*
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, 5,068,515, Cl. 219-121.730.
Cornaz, Peter F., deceased: *See—*
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, 5,068,515, Cl. 219-121.730.
Corning Incorporated: *See—*
Backer, Marcella R.; Cavender, Ralston; Elder, Melanie L.; Jones, Peter C.; and Murphy, James A., 5,067,975, Cl. 65-3.120.
Hall, Douglas W.; and Hawk, Robert M., 5,067,789, Cl. 385-27.000.
Cortland Cable Company, Inc.: *See—*
Scala, Eraldus, 5,067,384, Cl. 87-6.000.
Coslett, Fred L. Collapsible sun shade and method for shielding the sun. 5,067,541, Cl. 160-84.100.
Cosman, James P.: *See—*
Pal, Jack M.; Cosman, James P.; and Tan, Karen, 5,068,280, Cl. 524-728.000.
Cotrel, Yves P. C., to Societe de Fabrication de Material Orthopedique. Vertebral implant for osteosynthesis device. 5,067,955, Cl. 606-61.000.
Cottman, Kirkwood S., to Goodyear Tire & Rubber Company, The. N-substituted phenylenediamine compounds. 5,068,439, Cl. 564-434.000.
Cotton, Ronald: *See—*
Camble, Roger; Cotton, Ronald; Dutta, Anand S.; and Hayward, Christopher F., 5,068,222, Cl. 514-15.000.
Coulombeix, Colette: *See—*
Appriou, Alain; Barthelemy, Regis; and Coulombeix, Colette, 5,068,664, Cl. 342-90.000.
Cour-Palais, Burton G.: *See—*
Crews, Jeanne L.; and Cour-Palais, Burton G., 5,067,388, Cl. 89-36.020.
Courtney, Charles H. Flexible waste hose support for recreational vehicles. 5,067,679, Cl. 248-75.000.
Coutellier, Jean-Marc: *See—*
Meunier, Paul-Louis; Coutellier, Jean-Marc; and Lehureau, Jean-Claude, 5,067,230, Cl. 29-603.000.
Cover-Pools, Inc.: *See—*
Ragsdale, Kelly J.; and Brady, Cory, 5,067,213, Cl. 24-704.100.
Cowen, Timothy B., to Mentor Corporation. Corpus cavernosum implant device. 5,067,485, Cl. 128-79.000.
Cowsar, Donald R.: *See—*
Vanderbilt, David P.; Cowsar, Donald R.; Dunn, Richard L.; and English, James P., 5,068,220, Cl. 514-3.000.
Coyle, James A.: *See—*
Hays, George F.; and Coyle, James A., 5,068,196, Cl. 436-6.000.
Craig, Ronald A.: *See—*
Dejmek, James W.; and Craig, Ronald A., 5,068,898, Cl. 381-29.000.
Crane & Co.: *See—*
Crane, Timothy T., 5,068,008, Cl. 156-659.100.
Crane, Timothy T., to Crane & Co. Forming security thread for currency and bank notes. 5,068,008, Cl. 156-659.100.
Cray Computer Corporation: *See—*
Zimmerman, Eckehart; and Thorson, Thomas A., 5,067,382, Cl. 83-879.000.
Credence Systems Corporation: *See—*
Parmenter, Ronald D., 5,068,601, Cl. 324-158.00F.
Crews, Jeanne L.; and Cour-Palais, Burton G., to United States of America, National Aeronautics and Space Administration. Hypervelocity impact shield. 5,067,388, Cl. 89-36.020.
Critikon, Inc.: *See—*
Yelderman, Mark; Goldberger, Daniel S.; and Braig, James R., 5,067,492, Cl. 128-719.000.
Crochemore, Michel; and Rochin, Christophe, to Rhone-Poulenc Chimie. Process for the preparation of aromatic aldehydes. 5,068,450, Cl. 568-435.000.
Crompton, Perry D. Ring toss game. 5,067,727, Cl. 273-336.000.
Cronch, Daniel F.: *See—*
Knox, George J.; Cronch, Daniel F.; and Afflerbaugh, Martin G., 5,067,910, Cl. 439-402.000.
Crone, Gunter: *See—*
Steiner, Klaus; Herrmann, Wolfgang; Crone, Gunter; and Combs, Charles S., 5,068,413, Cl. 562-507.000.
Crotti, Pier L.; and Iazzi, Nadia, to SGS-Thomson Microelectronics S.r.l. Process for excavating trenches with a rounded bottom in a silicon substrate for making trench isolation structures. 5,068,202, Cl. 437-67.000.
Crown Equipment Corporation: *See—*
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.
Wellman, Tim A., 5,068,790, Cl. 364-424.020.
Crystal Semiconductor Corporation: *See—*
Swanson, Eric J.; and Del Signore, Bruce P., 5,068,660, Cl. 341-143.000.
CSD International B.V.: *See—*
Beele, Johannes A., 5,067,676, Cl. 248-56.000.
Culp, Gordon W., to Rockwell International Corporation. Electric traction motor. 5,068,566, Cl. 310-328.000.
Cultor Ltd.: *See—*
Jokinen, Olli; Kettunen, Jukka; Lepo, Jarkko; Niemi, Tapio; and Laine, Jaakko E, 5,068,009, Cl. 162-9.000.
Culver, Roy, Jr.: *See—*
Gibney, Michael W.; Lucas, Lawrence M.; and Culver, Roy, Jr., 5,068,116, Cl. 426-23.100.
Cummings, David H., to Milwaukee Electric Tool Corporation. Tab insulators for insulating armature core slots. 5,068,563, Cl. 310-261.000.
Cummins Engine Company, Inc.: *See—*
Rix, David M.; Long, Martin W.; Lee, Thomas R.; and Dawes, Douglas E., 5,067,464, Cl. 123-446.000.
Cupertino, California U.S.A.: *See—*
Chandran, Srikumar R.; Mau, Franco E.; and Jan, Steven A., 5,068,854, Cl. 371-37.100.
Cure, Jorge; Pappas, Panagiotis T.; and Eichler, Harry. Method and device for dispersing ions by remote action. 5,068,039, Cl. 210-695.000.
Curran, William V.: *See—*
Ziegler, Carl B., Jr.; Curran, William V.; and Feigelson, Gregg, 5,068,232, Cl. 514-210.000.
Curtis, Jeff K.: *See—*
Michaely, William J.; and Curtis, Jeff K., 5,068,423, Cl. 562-840.000.
Curtis, Thomas A.: *See—*
Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., 5,068,448, Cl. 568-319.000.
Cuscurida, Michael; McCoy, David R.; and Lin, Jiang-Jen, to Texaco Chemical Company. Tetramines by amination of dialdehyde glycol adducts. 5,068,444, Cl. 564-505.000.
CVD Incorporated: *See—*
Kanjolia, Ravindra K.; and Hui, Benjamin C., 5,068,372, Cl. 556-70.000.
Cyclex, Inc.: *See—*
Weinshenker, Ned M.; and O'Neill, William P., 5,068,226, Cl. 514-58.000.
Weinshenker, Ned M., 5,068,227, Cl. 514-58.000.
Cyprus Foote Mineral Company: *See—*
Smith, W. Novis; and Louer, Christopher, 5,068,368, Cl. 552-556.000.
Da Costa, Caio M. F. N., to Empresa Brasileira de Compressores S/A - Embraco. Discharge flow blocking valve for a hermetic rotary compressor. 5,067,878, Cl. 417-312.000.
Dadbeh, Bemanali H., to Harvard Sports, Inc. Lawn dart with safety feature. 5,067,728, Cl. 273-420.000.
Dahl-Bettermann-Winand, Ursula. Junction bus for cable connections, in particular for cable conduits. 5,068,495, Cl. 174-65.00R.
Dai-Ichi High Frequency Co., Ltd.: *See—*
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.
Dai Nippon Insatsu Kabushiki Kaisha: *See—*
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.
Daifuku Co., Ltd.: *See—*
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.
Daikin Industries, Ltd.: *See—*
Fukada, Eiichi; Saito, Shigeru; Yagi, Toshiharu; and Higashihata, Yoshihide, 5,067,488, Cl. 128-777.000.
Kuwahara, Yasumasa; and Leal, Walter S., 5,068,453, Cl. 568-494.000.
Dainichiseika Color & Chemicals Mfg. Co., Ltd.: *See—*
Misaizu, Iwao; Hanada, Kazuyuki; Shibuya, Akihiko; and Kuriyama, Katsumi, 5,068,295, Cl. 526-245.000.
Dainippon Ink and Chemicals, Inc.: *See—*
Sasaki, Makoto; Takatsu, Haruyoshi; and Takeuchi, Kiyofumi, 5,068,462, Cl. 568-661.000.
Takagaki, Hidetsugu; Nakanishi, Shigenori; Abe, Masayoshi; Ohki, Hiromi; and Sano, Yoshiyuki, 5,068,364, Cl. 549-415.000.

Dalebout, William T.: *See—*
Watterson, Scott R.; Bersonnet, George B.; Dalebout, William T.; and Burk, Michael, 5,067,710, Cl. 272-129.000.
Dales, John R. M.; and Callander, Sidney E., to Beecham Group p.l.c. Chemical process for halogenating 2-methyl-6-methoxynaphthalene. 5,068,458, Cl. 568-634.000.
Dalsis, David E.: *See—*
Plester, George; Leddon, Warren E.; and Dalsis, David E., 5,067,616, Cl. 209-3.100.
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., to Sterling Drug Inc. 3-arylcarbonyl-1-(C-attached-N-heteryl)-1H-indoles. 5,068,234, Cl. 514-235.200.
Dana Corporation: *See—*
Flotow, Richard A.; and Denton, Gordon W., 5,067,602, Cl. 192-70.270.
D'Angelo, Mark D., to Kennametal Inc. Retainer for rotatable bits. 5,067,775, Cl. 299-86.000.
Danielsen, Jan. Tool holder with interchangeable fluid pressure actuated chucks. 5,067,861, Cl. 409-234.000.
Darby, H. Darrel, to Darco International Inc. Acupressure heel cup. 5,067,256, Cl. 36-69.000.
Darco International Inc.: *See—*
Darby, H. Darrel, 5,067,256, Cl. 36-69.000.
Data Instruments, Inc.: *See—*
Redlich, Robert W.; and Bliss, Douglas, 5,068,607, Cl. 324-207.160.
Davenport, Thomas A., to Siemens-Bendix Automotive Electronics Limited. Magnetically biased velocity change sensor. 5,068,502, Cl. 200-61.45M.
Davidson, Joseph W.; Blackmore, Geoffrey; Blackmore, Gerald; Komerek, Karl R., deceased; and by Komerek, Richard, executor. Briquette product, and process for its production. 5,067,968, Cl. 44-550.000.
Davies, James E.: *See—*
Pipella, Lawrence S.; Fanjoy, Logan M.; Lawless, Rodger L.; and Davies, James E., 5,068,787, Cl. 364-406.000.
Davies, Stephen G., to British Petroleum Company p.l.c., The. Process for preparing chiral sulphoxides. 5,068,369, Cl. 556-16.000.
Davis, Clark C.: *See—*
Jacobsen, Stephen C.; Iversen, Edwin K.; Knutti, David F.; and Davis, Clark C., 5,067,512, Cl. 137-83.000.
Davis, David T.: *See—*
Weedling, Robert E.; Swallen, William R.; Johnson, Raynor; Wegener, Jack; and Davis, David T., 5,067,189, Cl. 5-81.00R.
Davitian, Edward. Reclosable box and blank therefor. 5,067,615, Cl. 229-230.000.
Dawes, Douglas E.: *See—*
Rix, David M.; Long, Martin W.; Lee, Thomas R.; and Dawes, Douglas E., 5,067,464, Cl. 123-446.000.
Dawson, Jeffrey C., to BJ Services Company. Low temperature degradation of galactomannans. 5,067,566, Cl. 166-308.000.
Dayton Reliable Tool & Mfg. Co.: *See—*
Wynn, David K.; and Brown, Omar L., 5,067,341, Cl. 72-426.000.
De La Cruz, Richard: *See—*
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., 5,067,711, Cl. 273-77.00A.
de la Garza, Edward M.: *See—*
Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., 5,068,448, Cl. 568-319.000.
Dearth, Glenn A.: *See—*
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.
Deb, Sugato, to Libbey-Owens-Ford Co. Method and apparatus for measuring the efficiency of cooling devices. 5,067,977, Cl. 65-29.000.
DeBoalt, Steve L.: *See—*
Walworth, Van T.; and DeBoalt, Steve L., 5,067,751, Cl. 285-105.000.
Debortoli, George; and Lukas, Helmut H. Connector holders. 5,067,784, Cl. 385-53.000.
de Bourbon, Lou. Training system for spinning objects by hand. 5,067,923, Cl. 446-236.000.
Decher, Gero; and Tieka, Bernd, to Ciba-Geigy Corporation. Diamenodinitroazo dyes. 5,068,318, Cl. 534-573.000.
Decolibus, Raymond L., to Du Pont de Nemours, E. I., and Company. Inhibition of polymer formation on surfaces including vents by using an inhibitor paint. 5,068,130, Cl. 427-230.000.
Deeg, Rolf; Wehner, Rainer; Mattersberger, Johann; and Becker, Udo, to Boehringer Mannheim GmbH. Process for the determination of a component of an immune reaction in a plasma sample. 5,068,179, Cl. 435-7.920.
Deere & Company: *See—*
Hardesty, Lee R.; and Takagi, Izumi, 5,067,933, Cl. 475-32.000.
Degen, Bruno; Feldner, Kurt; Licht, Elke; and Wagner, Gebhard, to Bayer Aktiengesellschaft. Process for the preparation of alkyl halogenosilanes. 5,068,385, Cl. 556-472.000.
de Graaf, Johannes D.: *See—*
Posthuma, Sytze A.; de Graaf, Johannes D.; and Boelen, Jan, 5,068,254, Cl. 518-705.000.
Degussa Aktiengesellschaft: *See—*
Fischer, Joachim; and Wolf, Hubert, 5,068,038, Cl. 210-662.000.
DeHaan, Daniel; and deLesdernier, David L., to Science Applications International Corporation. Hand-held contraband detector. 5,068,883, Cl. 378-86.000.
DeHoff, Bradley S., to Syntex (U.S.A.) Inc. Preparation of 2-(2'-thienyl)ethylamine derivatives and synthesis of thieno(3,2-C)pyridine derivatives therefrom. 5,068,360, Cl. 549-74.000.
Deinhardt, Gunther: *See—*
Schirbl, Reinhard; Deinhardt, Gunther; and Kasowski, Hermann, 5,067,785, Cl. 385-38.000.
de Jager, Godert, to Sulzer Brothers Limited. Adjustment of weft yarn stretch in a shed of an air jet loom. 5,067,527, Cl. 139-435.200.
Dejima, Hiroki: *See—*
Nishikawa, Toshio; Okada, Takekazu; Dejima, Hiroki; and Tokudera, Hiromu, 5,068,629, Cl. 333-1.100.
Dejmek, James W.; and Craig, Ronald A., to Motorola, Inc. Voice messaging method for selective call receivers. 5,068,898, Cl. 381-29.000.
Dekker, Donald A., to Rowe International, Inc. Multiple bill escrow mechanism. 5,067,701, Cl. 271-7.000.
Dekoninck, Philippe: *See—*
Heyche, Albert; Latteur, Alain; and Dekoninck, Philippe, 5,067,674, Cl. 244-190.000.
Delaware Capital Formation, Inc.: *See—*
Evans, Alfred J., 5,067,313, Cl. 53-576.000.
Delay, Francois: *See—*
Naef, Ferdinand; Delay, Francois; and Uijttewaal, Arnoldus, 5,068,452, Cl. 568-442.000.
Delco Electronics Corporation: *See—*
Kearney, Mark B.; Koglin, Dennis M.; and Michael, Jeffrey A., 5,068,595, Cl. 323-316.000.
Logsdon, James H.; Staller, Steven E.; De Roo, David W.; and Neudeck, Gerold W., 5,068,203, Cl. 437-89.000.
deLesdernier, David L.: *See—*
DeHaan, Daniel; and deLesdernier, David L., 5,068,883, Cl. 378-86.000.
Del Fabro, Giorgio, to M.E.P. Macchine Elettroniche Piegatrici, SpA. Device for the controlled and independent rocking of straightening and bending platforms. 5,067,337, Cl. 72-161.000.
Dellacoletta, Brent A., to General Electric Company. Synthesis of aromatic bis(ether phthalimide) compounds. 5,068,353, Cl. 548-461.000.
Dellert, David W.: *See—*
Hackett, James I.; Dellert, David W.; and Knudson, Mark R., 5,068,905, Cl. 382-47.000.
Delmar Chemicals Inc.: *See—*
Bekhazi, Michel; and Oren, Josef, 5,068,405, Cl. 562-83.000.
Delmas, Francis M. L.; and Gandais, Michel A. G., to Sondages Injections Furages "S.I.F." Enterprise Bachy. Process for producing an acid-resistant barrier seal in soil, and concrete usable for this purpose. 5,067,416, Cl. 106-632.000.
Del Signore, Bruce P.: *See—*
Swanson, Eric J.; and Del Signore, Bruce P., 5,068,660, Cl. 341-143.000.
De Matthaeis, Sisto L.; and Sfarzetta, Mario, to Weber S.r.l. Diesel engine electromagnetic fuel injector. 5,067,658, Cl. 239-533.800.
Demoute, Jean-Pierre: *See—*
Bonit, Marc; and Demoute, Jean-Pierre, 5,068,229, Cl. 514-114.000.
Demuth, Robert, to Maschinenfabrik Rieter AG. Method of maintaining a predetermined quantity of sliver in a card and/or drawframe. 5,067,202, Cl. 19-65.00A.
Denlinger, Keith R.; Gryzbowski, Richard W.; and Myer, John M., to AMP Incorporated. Method for making an electrical contact. 5,067,916, Cl. 439-857.000.
Denton, Gordon W.: *See—*
Flotow, Richard A.; and Denton, Gordon W., 5,067,602, Cl. 192-70.270.
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., to AT&T Bell Laboratories. Vertical cavity surface emitting lasers with electrically conducting mirrors. 5,068,868, Cl. 372-45.000.
Depressurized Technologies International, Inc.: *See—*
Gonzalez-Miller, Walter E.; and Dulin, Jacques M., 5,067,529, Cl. 141-7.000.
de Quivillic, Viviane Q.: *See—*
Barthomeuf, Denise; and de Quivillic, Viviane Q., 5,068,483, Cl. 585-467.000.
Deraedt, Gary K.: *See—*
Combs, Todd M.; Deraedt, Gary K.; and Goodrich, Duane A., 5,067,220, Cl. 29-259.000.
De Rego, Andre , to Schlumberger Industries, S.A. Method for making synthetic membranes for a gas meter. 5,068,074, Cl. 264-257.000.
De Roo, David W.: *See—*
Logsdon, James H.; Staller, Steven E.; De Roo, David W.; and Neudeck, Gerold W., 5,068,203, Cl. 437-89.000.
Dervisoglu, Bulent I.; and Stong, Gayvin E., to Hewlett-Packard Company. Scannable register with delay test capability. 5,068,881, Cl. 377-70.000.
de Smet, Gabriel, to Isoform. Device for pressing sheet material. 5,067,336, Cl. 72-57.000.
Dessantis, Nino: *See—*
Lorenzoni, Loreno; Dessantis, Nino; and Virdis, Angelo, 5,068,429, Cl. 564-160.000.
Deutsche Forschungsanstalt fuer Luft- und Raumfahrt: *See—*
Farago, Zoltan; and Schork, Tom, 5,067,655, Cl. 239-124.000.
Devaux, Michel: *See—*
Lepoutre, Etienne; Devaux, Michel; Hirschberg, Bruno; Petio, Franz A.; and Weitzer, Paul, 5,067,693, Cl. 266-44.000.

VOL 1132 ISS 4 NO 26 1991 UMI

De Virgilio, John J.: *See—*
Narula, Anubhav P. S.; and De Virgilio, John J., 5,068,363, Cl. 549-355.000.

DeVore, Dale P.: *See—*
Kelman, Charles D.; and DeVore, Dale P., 5,067,961, Cl. 623-5.000.

DeVries, James E.; Rosen, Samuel R.; and Schneider, Robert D., to Nordson Corporation. Dual-acting, reciprocating piston pump. 5,067,882, Cl. 417-511.000.

de Vrieze, Henricus M.; Roosen, Johannes H. J.; and Vriens, Leendert, to U.S. Philips Corporation. Cathode ray tube having multilayer interference filter. 5,068,568, Cl. 313-474.000.

Dewey, George G.; and Tenuta, Ralph D., to Illinois Tool Works Inc. Self-drilling fastener for plasterboard wall. 5,067,864, Cl. 411-344.000.

Dewhirst, Kenneth C., to Shell Oil Company. Epoxy polymer materials. 5,068,268, Cl. 523-445.000.

Diamantoglou, Michael, to Akzo N.V. Cellulosic membranes. 5,068,269, Cl. 524-35.000.

Dias, Edson d.: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Dick, David L., to Gray Printing Company, The. Method and apparatus for attaching inserts to moving sheets. 5,067,700, Cl. 270-55.000.

Dick, Ian R.; Henderson, Ian D.; Kimpton, Gordon L.; and Wyatt, David S., to Commonwealth Scientific and Industrial Research Organisation; and Vida-Weld Pty. Limited. Electroslag surfacing. 5,068,507, Cl. 219-73.110.

Dickerson, Mack F.; Hendricks, Curt J.; and Hendricks, Gregory A. Portable boat dock. 5,067,428, Cl. 114-230.000.

Diehl, Herbert; Blank, Heinz U.; and Ritzer, Edwin, to Bayer Aktiengesellschaft. Process for the preparation of cyclopropanecarboxamide. 5,068,428, Cl. 564-134.000.

Diesel Kiki Co., Ltd.: *See—*
Sato, Kazuhiko, 5,067,934, Cl. 475-227.000.

Dietrich, Alban, to ABB Reaktor GmbH. Process and apparatus for the remote-controlled positioning of an inspection device with the aid of a television camera associated with the inspection device. 5,068,721, Cl. 358-100.000.

DiGiovanni, Robert C.: *See—*
Phalon, Philip A., Jr.; Caramiciu, Marius A.; and DiGiovanni, Robert C., 5,068,508, Cl. 219-85.160.

Digital Equipment Corporation: *See—*
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.
Bruckert, William; Bissett, Thomas D.; Kovalcin, David; and Nene, Ravi, 5,068,851, Cl. 371-16.100.
Gillett, Richard B., Jr.; and Williams, Douglas D., 5,068,781, Cl. 395-325.000.
Lawrence, Richard H., 5,068,822, Cl. 395-775.000.
Titcomb, Forrest; Cordova, Jackie; and Schaule, Max W., 5,067,528, Cl. 141-4.000.
Wade, Paul C.; and Grady, JJ, III, 5,068,715, Cl. 357-81.000.

Dikopf, Michael: *See—*
Kreft, Keith A.; Dikopf, Michael; and Loewe, Thomas D., 5,068,613, Cl. 324-379.000.

DiLazzaro, John F.; McAlpin, James L.; and Mark, Joanne R., to Tektronix, Inc. Low dielectric constant ceramic materials. 5,068,210, Cl. 501-32.000.

Di Leo, Leonard: *See—*
Patel, Narendra M.; and Di Leo, Leonard, 5,068,273, Cl. 524-166.000.

Dioszegine, Erzsebet E.: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

Dixit, Sudhir S.; and Feng, Yushu, to GTE Laboratories Incorporated. Frame or sub-frame rate adaptive vector quantizer for moving images. 5,068,723, Cl. 358-133.000.

Dixon, Dale D.: *See—*
Burgoyne, William F., Jr.; and Dixon, Dale D., 5,068,435, Cl. 564-409.000.

Djiauw, Lie K.: *See—*
Mitchell, Neil F.; and Djiauw, Lie K., 5,068,138, Cl. 428-36.800.

Dobener, Karl-Heinz: *See—*
Leidecker, Hans-Dieter; Schmidt, Bodo; Krause, Helmut; and Dobener, Karl-Heinz, 5,067,594, Cl. 188-73.350.

Doble Engineering Company: *See—*
Cavigelli, George A., 5,068,636, Cl. 338-49.000.

Dr. Ing. h.c.F. Porsche AG: *See—*
Muller, Robert; and Eisenhauer, Egon, 5,067,582, Cl. 180-380.000.

Dr. Ing.h.c.F. Porsche Aktiengesellschaft: *See—*
Lehr, Hans-Thomas; and Schafer, Peter, 5,068,792, Cl. 364-424.050.

Dolinar, Samuel J., Jr.: *See—*
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.

Doll, Wilfred A., Jr; and Ison, Gregory W., to ITT Corporation. Apparatus and method for applying solder to an electrical component. 5,067,433, Cl. 118-500.000.

Dolotov, Boris K.: *See—*
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Don Reynolds International Limited: *See—*
Reynolds, Donald A., 5,067,293, Cl. 52-235.000.

Dona, Marinus J. J.; and Swinkels, Johannes M. M., to U.S. Philips Corporation. Method of manufacturing a master for the fabrication of projection screens and tool for carrying out the method. 5,067,377, Cl. 82-138.000.

Doner, John P.; Horodysky, Andrew G.; and Keller, John A., Jr., to Mobil Oil Corporation. Grease composition containing alkoxylated amide borates. 5,068,045, Cl. 252-32.007.

Donohoue, Thomas P.; Oertel, Christopher P.; Tyree, William H.; and Valdez, Joe L., to United States of America, Energy. Radionuclide calorimeter system. 5,067,820, Cl. 374-31.000.

Doolin, Leonard J.: *See—*
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., 5,067,875, Cl. 416-114.000.

Dorf, Ernst-Ulrich; Russeler, Wolfgang; Kohler, Burkhard; Ebert, Wolfgang; and Schmitt, Walter, to Bayer Aktiengesellschaft. Polyarylene sulfides terminated by sulfonic acid and/or sulfonic acid derivative groups, their production and use. 5,068,312, Cl. 528-388.000.

Dorr-Oliver Incorporated: *See—*
Caransa, Abraham; and van den Dorpel, Jan, 5,067,982, Cl. 127-67.000.

D'Orsi, Anthony; and Spector, George. Hair trimming guide having an adjustable comb. 5,067,502, Cl. 132-213.100.

Doryokuro Kakunenryo Kaihatsu Jigyodan: *See—*
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.

Dow Chemical Company, The: *See—*
Harris, Robert F.; and Joseph, Michael D., 5,068,306, Cl. 528-68.000.
Harris, William J., 5,068,255, Cl. 521-28.000.
Harris, William J.; Lysenko, Zenon; and Hurtig, Carl W., 5,068,384, Cl. 562-453.000.
Knobel, Thomas M.; McCullough, Francis P., Jr.; and Black, Lance L., 5,068,061, Cl. 252-511.000.
Laughner, Michael K., 5,068,285, Cl. 525-67.000.
McConchie, Garnet E.; Mark, Frank E.; and Hollmann, Hans-Gunter, 5,068,401, Cl. 560-236.000.
McReynolds, Kent B., 5,068,139, Cl. 428-215.000.
Pal, Jack M.; Cosman, James P.; and Tan, Karen, 5,068,280, Cl. 524-728.000.
Petersen, Wayne E., 5,067,298, Cl. 52-741.000.
Reifschneider, Walter; Bisabri-Ershadi, Barat; Dripps, James E.; and Barron, J. Brian, 5,068,230, Cl. 514-115.000.

Dow Corning Corporation: *See—*
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., 5,068,383, Cl. 556-452.000.
Halloran, Daniel J.; and Varaprath, Padmakumari J., 5,068,378, Cl. 556-420.000.
Kleyer, Don L.; and Speier, John L., 5,068,387, Cl. 556-485.000.
Roy, Aroop K., 5,068,379, Cl. 556-422.000.

Dow Corning Toray Silicone Company, Ltd.: *See—*
Shirahata, Akihiko, 5,068,386, Cl. 556-480.000.

DowElanco: *See—*
McKendry, Lennon H.; and Zettler, Mark W., 5,068,392, Cl. 560-46.000.
Puckett, Wallace E.; and Pews, R. Garth, 5,068,347, Cl. 548-263.800.

Dowley Manufacturing, Inc.: *See—*
Combs, Todd M.; Deraedt, Gary K.; and Goodrich, Duane A., 5,067,220, Cl. 29-259.000.

Drabek, Josef, to Ciba-Geigy Corporation. N-benzoyl-N'trihalohaloalkoxyphenylureas and pesticidal compositions containing them. 5,068,441, Cl. 564-442.000.

Drew Chemical Corporation: *See—*
Go, Winston S.; Roti, Joseph S.; Lang, Mark G.; and Weiss, Charles O., 5,068,059, Cl. 252-389.530.

Dripps, James E.: *See—*
Reifschneider, Walter; Bisabri-Ershadi, Barat; Dripps, James E.; and Barron, J. Brian, 5,068,230, Cl. 514-115.000.

Driscoll, Richard C., to Akzo N.V. Method of monitoring reagent delivery in a scanning spectrophotometer. 5,068,181, Cl. 435-13.000.

Dropczynski, Hartmut, to Jagenberg Aktiengesellschaft. Drum-type winder for winding webs of material. 5,067,663, Cl. 242-56.00R.

Drumm, Donald E., to Wang Laboratories, Inc. Computer input device using an orientation sensor. 5,068,645, Cl. 340-710.000.

Du Pont Merck Pharmaceutical Company: *See—*
Howell, Gary W.; Irr, Joseph D.; and Nahapetian, Ara T., 5,068,195, Cl. 435-284.000.

DuBois, Donn A., to Shell Oil Company. Process to produce polymers of styrene derivatives. 5,068,294, Cl. 526-194.000.

Dudek, Chet: *See—*
Ishikawa, Kiichirou; Dudek, Chet; and Hutcherson, James, 5,067,424, Cl. 112-307.000.

Dudley, Kenneth W.: *See—*
Sklenak, John S.; Bowen, Robert F.; and Dudley, Kenneth W., 5,068,086, Cl. 422-21.000.

Duhl, David N.: *See—*
Cetel, Alan D.; and Duhl, David N., 5,068,084, Cl. 420-443.000.

Dujardin, Ralf: *See—*
Horn, Klaus; Heinz, Hans-Detlef; Muller, Peter-Rolf; and Dujardin, Ralf, 5,068,311, Cl. 528-324.000.

Dukai, Jozsef: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

Dulin, Jacques M.: *See—*
Gonzalez-Miller, Walter E.; and Dulin, Jacques M., 5,067,529, Cl. 141-7.000.

Duncan, Budd L.: *See—*
Raynor, Robert J.; and Duncan, Budd L., 5,068,408, Cl. 562-419.000.

Duncan, Gerald; Shacklock, Frank W.; and Greenman, Murray, to Fisher & Paykel Limited. Flow control systems and/or laundry machines including such flow control systems. 5,067,333, Cl. 68-23.700.

Dundas, Dennis L.; and Moore, Eugene L., to Graham Engineering Corporation. Method of blow molding aseptic bottles. 5,068,075, Cl. 264-505.000.

Dunlap, Richard L.; and Sanford, Edward L., to Plastipak Packaging, Inc. In-mold label supply system for plastic blow molding machine. 5,067,890, Cl. 425-504.000.

Dunn, Richard L.: *See—*
Vanderbilt, David P.; Cowsar, Donald R.; Dunn, Richard L.; and English, James P., 5,068,220, Cl. 514-3.000.

Dunsmore, Clay A.; and Lucas, Frederick T., to Eastman Kodak Company. Indirect storage capacitor voltage sensing means for a flyback type DC-to-DC converter. 5,068,575, Cl. 315-241.00P.

Duplantis, Dwight: *See—*
Breaux, Craig B.; Cawyer, Denny; Duplantis, Dwight; and Hiller, Don, 5,067,510, Cl. 137-77.000.

Du Pont de Nemours, E. I., and Company: *See—*
Barsotti, Robert; and Cohen, Lester S., 5,068,153, Cl. 428-413.000.
Carcia, Peter F., 5,068,022, Cl. 204-192.150.
Decolibus, Raymond L., 5,068,130, Cl. 427-230.000.
Hellenguard, Hanh P.; Koth, Lawrence J.; and Vaughan, Donald T., 5,068,796, Cl. 364-469.000.
Kellner, Carl S.; Rao, V. N. Mallikarjuna; and Weigert, Frank J., 5,068,473, Cl. 570-176.000.
May, Donald D., 5,068,436, Cl. 564-417.000.
Tremper, Henry S., III, 5,068,063, Cl. 252-518.000.
Vazquez, Carlos; and Miller, Joel S., 5,068,367, Cl. 552-310.000.
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Dupont-Mitsuj Fluorochemicals Co., Ltd.: *See—*
Kikuchi, Hideaki; Ogawa, Motosuke; and Niiyama, Akira, 5,068,051, Cl. 252-162.000.

Dupuy, Ronald E., to Gen Corp Inc. Door glass cassette for vehicles. 5,067,281, Cl. 49-502.000.

Durcan, Michael P.: *See—*
Putnam, Peter H.; and Durcan, Michael P., 5,067,284, Cl. 51-281.00R.

Durette, Philippe L.: *See—*
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Rupprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.

Durler, Egon: *See—*
Baur, Rupert; Durler, Egon; and Kilb, Hermann, 5,067,832, Cl. 400-66.000.

Duro Dyne Corporation: *See—*
Lyons, John, 5,067,278, Cl. 49-463.000.

Dury, Georges E. External fixing device for bone surgery. 5,067,898, Cl. 433-75.000.

Dutta, Anand S.: *See—*
Camble, Roger; Cotton, Ronald; Dutta, Anand S.; and Hayward, Christopher F., 5,068,222, Cl. 514-15.000.

Dyneer Corporation: *See—*
Brown, Anthony K.; Choma, Alvin A.; and Edwards, Timothy R., 5,067,935, Cl. 475-248.000.

E.C.C. America Inc.: *See—*
Suitch, Paul R.; Coppage, A. Taylor; and Brown, Alan J., 5,068,276, Cl. 524-413.000.

E. R. Squibb & Sons, Inc.: *See—*
Treuner, Uwe D., 5,068,331, Cl. 546-14.000.

Easley, Madlyn, to Intrascapes, Ltd. Ready-made swag and jabot curtain system. 5,067,542, Cl. 160-126.000.

Eastman Kodak Company: *See—*
Dunsmore, Clay A.; and Lucas, Frederick T., 5,068,575, Cl. 315-241.00P.
Gustafson, Bruce L.; and Walden, James V., 5,068,057, Cl. 252-373.000.
Hackett, James I.; Dellert, David W.; and Knudson, Mark R., 5,068,905, Cl. 382-47.000.
Hlig, Carl R.; and Weis, Alexander L., 5,068,345, Cl. 548-230.000.
Klees, Kevin J., 5,068,914, Cl. 382-54.000.
Lin, Shaw-Yueh; and Shon, Russell D., 5,068,878, Cl. 375-111.000.
Sumner, Charles E., Jr.; Hitch, Brenda J.; and Bernard, Bobby L., 5,068,460, Cl. 568-648.000.
Weaver, Max A.; Pruett, Wayner P.; and Hilbert, Samuel D., 5,068,348, Cl. 548-264.400.

Eaton, Bruce E., to Amoco Corporation. BF3-tertiary etherate complexes for isobutylene polymerization. 5,068,490, Cl. 585-525.000.

Eaton Indiana, Inc.: *See—*
Tyler, Rex A., 5,067,451, Cl. 123-185.0BA.

Eberhard, Jeffrey W., to General Electric Company. Dual parallel cone beam circular scanning trajectories for reduced data incompleteness in three-dimensional computerized tomography. 5,068,882, Cl. 378-4.000.

Ebert, Wolfgang: *See—*
Dorf, Ernst-Ulrich; Russeler, Wolfgang; Kohler, Burkhard; Ebert, Wolfgang; and Schmitt, Walter, 5,068,312, Cl. 528-388.000.

Eckert, Joachim; and Bludssus, Walter, to Herman C. Starck Berlin GmbH & Co. KG. Highly pure tantalum pentoxide and a process for its preparation. 5,068,097, Cl. 423-592.000.

Eckhardt, Volker: *See—*
Arlt, Dieter; Bader, Axel; and Eckhardt, Volker, 5,068,300, Cl. 526-318.200.

Edwards, David N.; Jorgensen, Robert J.; Lee, Kiu H.; and Marcinkowsky, Arthur E., to Union Carbide Chemicals and Plastics Technology Corporation. Preparation of very low molecular weight polyethylene in a fluidized bed. 5,068,489, Cl. 585-524.000.

Edwards, Jonathan R. Dual-input infinite-speed integral motor and transmission device. 5,067,932, Cl. 475-5.000.

Edwards, Timothy R.: *See—*
Brown, Anthony K.; Choma, Alvin A.; and Edwards, Timothy R., 5,067,935, Cl. 475-248.000.

Eeg, Edward G.: *See—*
Hollibush, Daniel J.; Fasnacht, Jeffery; and Eeg, Edward G., 5,068,107, Cl. 424-435.000.

Efner, Howard F., to Phillips Petroleum Company. Secondary amides in polyethylene terephthalate molding compositions. 5,068,274, Cl. 524-230.000.

Eftestol, Bard: *See—*
Brubak, Jens P.; Eftestol, Bard; and Ladiszlaidesz, Ferenc, 5,067,994, Cl. 148-415.000.

Egawa, Hidemitsu; Aoki, Riichirou; and Okumura, Katsuya, to Kabushiki Kaisha Toshiba. Semiconductor device having a backplate electrode. 5,068,709, Cl. 357-71.000.

Egner, Walter A.; Schaffer, Ronald R.; Stauffer, Larry R.; and Warner, Gary N., to AMP Incorporated. Method of assembling an optical fiber by applying pressure to abutting optical faces. 5,067,226, Cl. 29-452.000.

Eguchi, Syuuji: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Eich, Gerhard: *See—*
Frankenfeld, Klaus; Beltz, Klaus; Eich, Gerhard; and Endrich, Klaus, 5,068,094, Cl. 423-109.000.

Eichler, Harry: *See—*
Cure, Jorge; Pappas, Panagiotis T.; and Eichler, Harry, 5,068,039, Cl. 210-695.000.

Eide, Russel L., to Light Work Inc. Mill for grinding garbage or the like. 5,067,661, Cl. 241-55.000.

Eidenschink, Rudolf: *See—*
Wachtler, Andreas; Eidenschink, Rudolf; Krause, Joachim; and Kurmeier, Hans-Adolf, 5,068,389, Cl. 558-411.000.

Eisele, Robert F., to Shiley Incorporated. Tracheostomy tube. 5,067,496, Cl. 128-207.150.

Eisenbraun, Allan A.; and Blocker, Wesley C., to Ethyl Corporation. Method for production of electronic coatings. 5,068,131, Cl. 427-240.000.

Eisenhauer, Egon: *See—*
Muller, Robert; and Eisenhauer, Egon, 5,067,582, Cl. 180-380.000.

Eissenstat, Michael A.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.

Eldec Corporation: *See—*
Howard, Jerry L., 5,067,917, Cl. 439-890.000.

Elder, Melanie L.: *See—*
Backer, Marcella R.; Cavender, Ralston; Elder, Melanie L.; Jones, Peter C.; and Murphy, James A., 5,067,975, Cl. 65-3.120.

Electromer Corporation: *See—*
Shrier, Karen P., 5,068,634, Cl. 338-21.000.

Electronic Ballast Technology, Inc.: *See—*
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., 5,068,576, Cl. 315-291.000.

Electronics and Telecommunications Research Institute: *See—*
Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., 5,068,884, Cl. 378-119.000.

El Gamel, Abbas, to SiArc. BiCMOS logic circuit for basic applications. 5,068,548, Cl. 307-446.000.

Eli Lilly and Company: *See—*
Becker, Gerald W.; and Riggin, Ralph M., 5,068,317, Cl. 530-399.000.
Epp, Janet K.; and Schoner, Brigitte E., 5,068,189, Cl. 435-183.000.

Elliott, Charles T.; and White, Anthony M., to United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the. Multiple heterostructure photodetector. 5,068,524, Cl. 250-211.00J.

VOL 1132 ISS 4 NO 26 1991 UMI

Elliott, Michael; Janes, Norman F.; and Khambay, Bhupinder P. S., to National Research Development Corporation. Intermediates useful in the production of pesticides. 5,068,403, Cl. 562-7.000.

Ellis, Christopher M. Stadium seat apparatus. 5,067,771, Cl. 297-378.000.

Ellis, John G.; and Townsend, Bruce L., to Northern Telecom Limited. Transmission of wideband speech signals. 5,068,899, Cl. 381-31.000.

Ellis, Robert P., to TRW Vehicle Safety Systems Inc. Seat belt buckle. 5,067,212, Cl. 24-642.000.

Ellis, Ronald W.: *See*—
Hopper, James E.; Schultz, Loren D.; Hofmann, Kathryn J.; and Ellis, Ronald W., 5,068,185, Cl. 435-69.100.

Elsaesser, Andreas; Frass, Werner; and Mohr, Dieter, to Hoechst Aktiengesellschaft. Radiation-sensitive positive working composition and copying material. 5,068,163, Cl. 430-192.000.

Elsag International B.V.: *See*—
Fry, John J.; and Smith, Robert A., 5,068,618, Cl. 324-706.000.
Molnar, Richard J., 5,068,545, Cl. 307-311.000.

Elsbett, Gunter: *See*—
Elsbett, Ludwig; Elsbett, Gunter; and Elsbett, Klaus, 5,067,452, Cl. 123-193.00H.

Elsbett, Klaus: *See*—
Elsbett, Ludwig; Elsbett, Gunter; and Elsbett, Klaus, 5,067,452, Cl. 123-193.00H.

Elsbett, Ludwig; Elsbett, Gunter; and Elsbett, Klaus. Cylinder head and cylinder head cover for internal combustion engines. 5,067,452, Cl. 123-193.00H.

Elscint Ltd.: *See*—
Inbar, Dan; Barnea, Daniel I.; and Bruck, Abraham, 5,067,493, Cl. 128-660.030.
Netter, Zvi; and Bar-Lev, Menachem, 5,068,786, Cl. 395-800.000.

Elsenbaumer, Ronald L.: *See*—
Jen, Kwan-Yue A.; Elsenbaumer, Ronald L.; and Shacklette, Lawrence W., 5,068,060, Cl. 252-500.000.

Emerson Electric Co.: *See*—
Koller, Frank H., 5,067,600, Cl. 192-56.00R.

Emhart Industries, Inc.: *See*—
Meyer, Kenneth R., Sr., 5,068,511, Cl. 219-98.000.

Empresa Brasileira de Compressores S/A - Embraco: *See*—
Da Costa, Caio M. F. N., 5,067,878, Cl. 417-312.000.

Enander, Harold R. Supplemental vehicle heating method and apparatus with long heating cycle. 5,067,652, Cl. 237-81.000.

Endo, Takamitsu: *See*—
Hatano, Tsutomu; Kawasaki, Sohei; Hoshino, Tetsuro; and Endo, Takamitsu, 5,068,049, Cl. 252-57.000.

Endo, Zen-ichiro: *See*—
Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, 5,068,296, Cl. 526-282.000.

Endrich, Klaus: *See*—
Frankenfeld, Klaus; Beltz, Klaus; Eich, Gerhard; and Endrich, Klaus, 5,068,094, Cl. 423-109.000.

Energia Andina, Ltd.: *See*—
Miller, Jorge; and Kling, Miguel, 5,068,478, Cl. 585-324.000.

Engel, Jurgen: *See*—
Achterrath-Tuckerman, Ute; Aurich, Rudolf; Engel, Jurgen; Hettche, Helmut; and Kleeman, Axel, 5,068,233, Cl. 514-212.000.

Engel, Raul R., to Wico Distribution Corp. Joystick for mounting on dual-width panels. 5,068,498, Cl. 200-6.00A.

Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, to Cassella Aktiengesellschaft. Alkenyl-phosphonic and -phosphinic esters, process for their preparation, their use and hydrogels prepared using them. 5,068,298, Cl. 526-240.000.

Engelhardt, Gunther: *See*—
Muller, Erich; Nickl, Josef, deceased; Heckel, Armin; and Engelhardt, Gunther, 5,068,334, Cl. 546-157.000.

Engle, Thomas H., to Knorr Brake Holding Corporation. Method for semitrailer transfer. 5,067,872, Cl. 414-786.000.

English, James P.: *See*—
Vanderbilt, David P.; Cowsar, Donald R.; Dunn, Richard L.; and English, James P., 5,068,220, Cl. 514-3.000.

Enichem Anic S.p.A.: *See*—
Lorenzoni, Loreno; Dessantis, Nino; and Virdis, Angelo, 5,068,429, Cl. 564-160.000.

Enomoto, Tatsuzou: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Enplas Corporation: *See*—
Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, 5,067,904, Cl. 439-73.000.

Ensci, Inc.: *See*—
Clough, Thomas J.; and Moulton, Richard J., 5,068,160, Cl. 429-72.000.

Enspeco Inc.: *See*—
Leblanc, Charles B., 5,067,327, Cl. 62-292.000.

Entzeroth, Michael: *See*—
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.

Environmental Products Corporation: *See*—
Reed, Michael A., 5,068,835, Cl. 367-135.000.

Epic Corporation: *See*—
Ward, Gary L., 5,068,902, Cl. 381-68.600.

Epp, Janet K.; and Schoner, Brigitte E., to Eli Lilly and Company. Recombinant DNA vectors encoding a 4"-O-isovaleryl acylase derived from a carbomycin biosynthetic gene, designated carE, for use in streptomyces and other organisms. 5,068,189, Cl. 435-183.000.

Eppig, Christopher P.: *See*—
Paspek, Stephen C.; Hauser, Jeffrey B.; Eppig, Christopher P.; and Adams, Harry A., 5,068,027, Cl. 208-125.000.

Eppley, David M.; and Charpentier, Robert L. Ice fishing tip-up with indicator light and flag. 5,067,269, Cl. 43-17.000.

Erdelen, Christoph: *See*—
Fuchs, Rainer; Erdelen, Christoph; Becker, Benedikt; and Stendel, Wilhelm, 5,068,241, Cl. 514-403.000.

Erico International Corporation: *See*—
Bowmer, Geoffrey M.; and Groth, John E., 5,067,844, Cl. 403-305.000.

Ericsson, Ronald J.; and Ericsson, Scott A., to Androscore Corporation. Kit for testing human males for fertility. 5,068,089, Cl. 422-61.000.

Ericsson, Scott A.: *See*—
Ericsson, Ronald J.; and Ericsson, Scott A., 5,068,089, Cl. 422-61.000.

Erren, Karl-Heinz: *See*—
Behl, Klaus; Erren, Karl-Heinz; and Mantz, Ekkehard, 5,067,215, Cl. 28-190.000.

Ersek, Robert A.; Beisang, Arthur A.; and Beisang, Arthur A., III, to Bioplasty, Inc. Bio-osmotic gel for implant prostheses. 5,067,965, Cl. 623-66.000.

Escagenetics, Inc.: *See*—
Knuth, Mark E.; and Sahai, Om P., 5,068,184, Cl. 435-41.000.

Escher, Sina: *See*—
Morris, Anthony F.; Naef, Regula; Escher, Sina; and Velluz, Alain, 5,068,362, Cl. 549-346.000.

Essex, Myron E.; Allan, Jonathan S.; and Lee, Tun-Hou, to President and Fellows of Harvard College. T-cell lymphotrophic virus protein and assay. 5,068,174, Cl. 435-5.000.

Essserman, Jim: *See*—
Krause, Edward A.; Paik, Woo H.; Liu, Vincent; and Essserman, Jim, 5,068,724, Cl. 358-133.000.

Etablissements Balbinot S.A.: *See*—
Ancrenaz, Daniel M., 5,067,358, Cl. 74-61.000.

Ethyl Corporation: *See*—
Borland, James E.; Chen, Y.-D. Mark; Sauer, Joe D.; Smith, Kim R.; and Smith, Rebecca F., 5,068,430, Cl. 564-298.000.
Eisenbraun, Allan A.; and Blocker, Wesley C., 5,068,131, Cl. 427-240.000.
Gatto, Vincent J., 5,068,388, Cl. 558-74.000.
Theriot, Kevin J., 5,068,487, Cl. 585-510.000.

Eto, Hiroyuki: *See*—
Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, 5,068,148, Cl. 428-335.000.

ETS Farnier & Penin: *See*—
Jeuffray, Jean-Marie; and Gaston, Ouvrard, 5,067,546, Cl. 160-23.100.

Etten, Paul V.: *See*—
Wicks, Michael C.; and Etten, Paul V., 5,068,671, Cl. 343-799.000.

European Atomic Energy Community: *See*—
Van Geel, Jacobus; Magill, Joseph; Werner, Paul; and Hiernaut, Jean-Pol, 5,068,512, Cl. 219-121.600.

Europeenne de Retraitement de Catalyseurs Eurecat: *See*—
Berrebi, Georges, 5,068,477, Cl. 585-274.000.

Evans, Alfred J., to Delaware Capital Formation, Inc. Packaging device with loop attachment mechanism and skin brake. 5,067,313, Cl. 53-576.000.

Evans, Roger: *See*—
Grossman, Mark W.; and Evans, Roger, 5,068,533, Cl. 250-288.000.

Even, Stephane: *See*—
Leonard, Didier; and Even, Stephane, 5,068,592, Cl. 323-224.000.

Evensen, Laurence P. Pass-through roof seal system. 5,067,291, Cl. 52-219.000.

Evenson, Mel. Dispenser for note pad sheets. 5,067,628, Cl. 221-52.000.

Ex-Cell-O GmbH: *See*—
Putnam, Peter H.; and Durcan, Michael P., 5,067,284, Cl. 51-281.00R.

Exabyte Corporation: *See*—
Hughes, Timothy C.; and Georgis, Steven P., 5,068,757, Cl. 360-77.130.

Exar Corporation: *See*—
Giannella, Giovanni P., 5,068,702, Cl. 357-35.000.

Extrusion Dies, Inc.: *See*—
Lippert, Harry G., 5,067,432, Cl. 118-413.000.

Exxon Chemical Patents, Inc.: *See*—
Chung, David Y.; and Struglinski, Mark J., 5,068,047, Cl. 252-051.50A.
Young, David A.; Jung, John A.; and McLaughlin, Mark L., 5,068,469, Cl. 568-878.000.

Exxon Research & Engineering Company: *See*—
Brownawell, Darrell W.; Thaler, Warren A.; Bannister, Eric; and Ladwig, Paul K., 5,068,044, Cl. 252-25.000.
Hatano, Tsutomu; Kawasaki, Sohei; Hoshino, Tetsuro; and Endo, Takamitsu, 5,068,049, Cl. 252-57.000.
Peiffer, Dennis G.; and Lundberg, Robert D., 5,068,278, Cl. 524-547.000.
Singhal, Gophal H., 5,068,375, Cl. 556-136.000.

Fabris, Hans-Jurgen: *See*—
Auslander, Klaus; Fabris, Hans-Jurgen; Mock, Karl-Heinz; Patwald, Wolfgang; and Seichter, Helmut, 5,068,612, Cl. 324-327.000.

Facet Quantek, Inc.: *See*—
Mohr, Kirby S., 5,068,035, Cl. 210-236.000.

Falk, Robert A.; Clark, Kirkland P.; Jacobson, Michael; Karydas, Athanasios; and Rodgers, Juliana, to Ciba-Geigy Corporation. Trisperfluoroalkyl terminated neopentyl alcohols and derivatives therefrom. 5,068,397, Cl. 560-150.000.

Falke, Holger; and Strauss, Guenther, to Gutec. Carrier catalysts for oxidizing carbon monoxide and process for their production. 5,068,217, Cl. 502-330.000.

Falp, Benoit; and Pezant, Christian, to U.S. Philips Corp. Arrangement for determining the direction of the energy center of a luminous object. 5,068,522, Cl. 250-206.100.

Fanjoy, Logan M.: *See*—
Pipella, Lawrence S.; Fanjoy, Logan M.; Lawless, Rodger L.; and Davies, James E., 5,068,787, Cl. 364-406.000.

Fann, Yaw-Shin; Chiou, Ming-Shyang; and Kuo, Ching-Chuan, to Tong-Lung Metal Industry Co., Ltd. Lock handle assembly with limited angular movement. 5,067,758, Cl. 292-347.000.

Fanuc Ltd.: *See*—
Nakamura, Kosei, 5,068,587, Cl. 318-771.000.

Farago, Zoltan; and Schork, Tom, to Deutsche Forschungsanstalt fuer Luft- und Raumfahrt. Whirl nozzle for atomizing a liquid. 5,067,655, Cl. 239-124.000.

Farma Food A/S: *See*—
Foldager, Jorgen; Toftkjor, Helle; and Kjornos, Kim, 5,068,109, Cl. 424-441.000.

Farmatic, Inc.: *See*—
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., 5,067,443, Cl. 119-71.000.

Farmer, Terry L.: *See*—
Johnston, David F.; and Farmer, Terry L., 5,068,811, Cl. 364-551.010.

Farmitalia Carlo Erba, S.r.l.: *See*—
Melloni, Piero; Torre, Arturo D.; Lazzari, Ettore; and Mazzini, Giuseppe, 5,068,433, Cl. 564-349.000.

Farnlettner, Lorenz: *See*—
Sajtos, Alexander; Kloimstein, Engelbert; Hollinger, Karl; and Farnlettner, Lorenz, 5,068,417, Cl. 562-577.000.

Farrell, Brian E.: *See*—
Agrawal, Rakesh; Farrell, Brian E.; and Wilson, Keith B., 5,067,976, Cl. 62-22.000.

Farrier, Ernest G.: *See*—
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Fasnacht, Jeffery: *See*—
Hollibush, Daniel J.; Fasnacht, Jeffery; and Eeg, Edward G., 5,068,107, Cl. 424-435.000.

Favalora, Mark L., to Hubbell Incorporated. Snap-in connector. 5,068,496, Cl. 174-65.00R.

Fawzi, Mahdi B.; Kubert, Daniel A.; and Murthy, Kuchi S., to Warner-Lambert Company. Stabilization of enteric coated dosage form. 5,068,110, Cl. 424-461.000.

Fehlig, Kenneth L., to Pentair, Incorporated. Combination air/manual economy grease dispenser. 5,067,591, Cl. 184-55.100.

Feigelson, Gregg: *See*—
Ziegler, Carl B., Jr.; Curran, William V.; and Feigelson, Gregg, 5,068,232, Cl. 514-210.000.

Feinmechanische Optische Betriebsgesellschaft m.b.H.: *See*—
Hesske, Benno; Adnrae, Franz; and Weber, Peter, 5,067,246, Cl. 33-555.400.

Feldman, Leonard C.: *See*—
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., 5,068,868, Cl. 372-45.000.

Feldner, Kurt: *See*—
Degen, Bruno; Feldner, Kurt; Licht, Elke; and Wagner, Gebhard, 5,068,385, Cl. 556-472.000.

Felgentreu, Peter, to Koh-I-Noor Inc. Stylo pen tip and auxiliary removing tool. 5,067,839, Cl. 401-258.000.

Felgner, Philip L.: *See*—
Gibbons, Ian; Ullman, Edwin F.; and Felgner, Philip L., 5,068,198, Cl. 436-535.000.

Feng, Yushu: *See*—
Dixit, Sudhir S.; and Feng, Yushu, 5,068,723, Cl. 358-133.000.

Ferag AG: *See*—
Honegger, Werner, 5,067,697, Cl. 270-37.000.

Fernandez, Antonio; Gaggioni, Hugo P.; Jaquez, Martin J.; Robbins, John D.; and Soper, E. Scott, to Bell Communications Research, Inc. Memory system for high definition television display. 5,068,650, Cl. 340-799.000.

Feucht, Peter, to Siemens Aktiengesellschaft. Circuit for controlling an electro-therapy device. 5,067,953, Cl. 606-34.000.

Fezzi, Luigi; and Grassigli, Giacomo, to Industria Italiana Integratori Trei S.p.A. Controlled release protective matrices for zootechnical and veterinary use. 5,068,108, Cl. 424-438.000.

Fiar Fabbricia Italiana Apparecchiature Radioelettriche S.p.A.: *See*—
Borgatti, Riccardo; and Tenti, Paolo, 5,068,775, Cl. 363-15.000.

Fiat Auto S.p.A.: *See*—
Gandiglio, Romolo, 5,067,366, Cl. 74-535.000.

Fibrelon, Inc.: *See*—
Johnston, Robert G., Jr., 5,067,685, Cl. 248-676.000.

Fichtel & Sachs AG: *See*—
Roder, Manfred; and Konrad, Andreas, 5,067,599, Cl. 192-0.320.

Fiedler, Gerhard: *See*—
Conzelmann, Gerhard; Haack, Dietmar; and Fiedler, Gerhard, 5,068,703, Cl. 357-36.000.

Field, John S., to Commonwealth Scientific and Industrial Research Organization. Penetrating measuring instrument. 5,067,346, Cl. 73-81.000.

Fields, Walter D.; and Gumm, Linley F., to Tektronix, Inc. Swept frequency domain relectometry enhancement. 5,068,614, Cl. 324-534.000.

Figaro, Davy J. Book holder. 5,067,682, Cl. 248-453.000.

Figeroid, Kenneth J. Method and apparatus for conserving water used in the disposal of human body waste. 5,067,180, Cl. 4-326.000.

Filho, Jorge H.: *See*—
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Filo, Andrew, to Optum Corporation. Method to image transparent media utilizing integrated scanning. 5,068,739, Cl. 358-237.000.

Findlay, David, to Guilford Engineering Associates, Inc. Hammer safety mechanism. 5,067,266, Cl. 42-70.080.

Finean, Andrew M. Bracket system. 5,067,292, Cl. 52-235.000.

Finley, John W.: *See*—
Klemann, Lawrence P.; and Finley, John W., 5,068,119, Cl. 426-601.000.
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., 5,068,120, Cl. 426-611.000.

Finsterwalder, Gerhard; Rizk, Reda; and Michels, Hans G., to Kloeckner-Humboldt-Duetz AG. Fuel injection device. 5,067,880, Cl. 417-495.000.

Firmenich SA: *See*—
Morris, Anthony F.; Naef, Regula; Escher, Sina; and Velluz, Alain, 5,068,362, Cl. 549-346.000.
Naef, Ferdinand; Delay, Francois; and Uijttewaal, Arnoldus, 5,068,452, Cl. 568-442.000.

Fischbach, Roderick C., to Wickes Manufacturing Company. Power convertible top with automatic top and tonneau sequencing. 5,067,768, Cl. 296-107.000.

Fischer, Gordon: *See*—
Bernards, Roger F.; Fischer, Gordon; and Sonnenberg, Wade, 5,068,013, Cl. 204-24.000.

Fischer, Hubertus: *See*—
Bruder, Herbert; Fischer, Hubertus; Schmitt, Franz; and Reinfelder, Hans-Erich, 5,068,609, Cl. 324-309.000.

Fischer, Joachim; and Wolf, Hubert, to Degussa Aktiengesellschaft. Method of lowering the AOX content in water. 5,068,038, Cl. 210-662.000.

Fischer, Rolf: *See*—
Merger, Franz; Fischer, Rolf; Harder, Wolfgang; Priester, Claus-Ulrich; and Vagt, Uwe, 5,068,398, Cl. 560-156.000.
Richter, Wolfgang; Fischer, Rolf; and Vagt, Uwe, 5,068,361, Cl. 549-273.000.

Fisher, Almon P., to Xerox Corporation. Thermal ink jet printhead with pre-diced nozzle face and method of fabrication therefor. 5,068,006, Cl. 156-633.000.

Fisher, Michael H.: *See*—
Wyvratt, Matthew J., Jr.; Beattie, Thomas R.; Ok, Hyun; Arison, Byron H.; and Fisher, Michael H., 5,068,323, Cl. 540-456.000.

Fisher & Paykel Limited: *See*—
Duncan, Gerald; Shacklock, Frank W.; and Greenman, Murray, 5,067,333, Cl. 68-23.700.

Fitzgerald, John V.; and Walsh, Teresa M., to Natonal Metal and Refining Company, Inc. Vibratory viscometer transducer with isolation support for inline viscosity sensor. 5,067,344, Cl. 73-54.000.

Flaig, Hans-Jurgen; and Jahn, Paul, to Fresenius AG. Apparatus for clamping flexible tubes. 5,067,359, Cl. 74-107.000.

Fleet, George W. J., to Monsanto Company. Bicyclic tetrahydroxypyrrolizidine. 5,068,243, Cl. 514-413.000.

Fleming, Harry A., Jr.: *See*—
Francik, Charles A.; Fleming, Harry A., Jr.; and Hock, Donald E., 5,067,295, Cl. 52-306.000.

Fleming, Stephen D., to Ford Motor Company. Vehicle bumper assembly with foamed core. 5,067,759, Cl. 293-109.000.

Flexmedics Corporation: *See*—
Lind, Stuart J., 5,067,489, Cl. 128-772.000.

Floret, Michel, to Societe Nationale Industrielle et Aerospatiale. Ultrasonic control head for parts whose shape evolves during production. 5,067,352, Cl. 73-583.000.

Flotow, Richard A.; and Denton, Gordon W., to Dana Corporation. Internally assisted clutch. 5,067,602, Cl. 192-70.270.

Flou S.p.A.: *See*—
Messina, Rosario, 5,067,187, Cl. 5-12.100.

Fochler, Fritz: *See*—
Aschaber, Hans; Bailer, Rudolf; Fochler, Fritz; Kleinstauber, Bernd; and Ruf, Reinhold, 5,067,937, Cl. 493-310.000.

Fodge, Gary L. Shoulder holster with concealed supporting chest strap. 5,067,642, Cl. 224-192.000.

Foldager, Jorgen; Toftkjor, Helle; and Kjornos, Kim, to Farma Food A/S. Antacid composition. 5,068,109, Cl. 424-441.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Fong, Herbert S., to Hughes Aircraft Company. Essentially passive method for inverting the orientation of a dual spin spacecraft. 5,067,673, Cl. 244-165.000.

Fong, Sherman: *See—*
Carson, Dennis A.; Fong, Sherman; and Chen, Pojen P., 5,068,177, Cl. 435-7.920.

Fonsalas, Frederic: *See—*
Haghiri, Mohammed R.; Guntzburger, Philippe; Fonsalas, Frederic; and Le Queau, Marcel, 5,068,727, Cl. 358-138.000.

Fontaine, Lawrence R.: *See—*
Scheuneman, James H.; and Fontaine, Lawrence R., 5,068,782, Cl. 395-425.000.

Fontenot, Albert M. Door security lock. 5,067,756, Cl. 292-292.000.

Foote, Dean, to Computalog Ltd. Compressive seal and pressure control arrangements for downhole tools. 5,067,874, Cl. 415-230.000.

Ford, Charles H., to Charles Henry Ford Trust, The. Anchor with axis control bar. 5,067,430, Cl. 114-294.000.

Ford Motor Company: *See—*
Auweiler, Willi; Solbach, Bernd; and Luetzeler, Robert, 5,067,250, Cl. 33-783.000.
Bober, Gregory D., 5,067,576, Cl. 180-79.100.
Fleming, Stephen D., 5,067,759, Cl. 293-109.000.
Hamburg, Douglas R., 5,067,469, Cl. 123-520.000.
Hyde, James P.; and Bryans, Thomas J., 5,067,575, Cl. 180-69.400.
Ma, Thomas T., 5,067,459, Cl. 123-295.000.

Fordham, Donald S.; Petersen, Richard A.; and Gorbet, Charles E. Simulated multimeter. 5,067,901, Cl. 434-224.000.

Foreman, Paul B.: *See—*
Gallaway, George L.; and Foreman, Paul B., 5,068,291, Cl. 525-366.000.

Forschungzentrum Julich GmbH: *See—*
Britz, Lothar; Krug, Wolfgang; and Seferiadis, Johann, 5,068,492, Cl. 174-31.500.

Fortin, Michel: *See—*
Moura, Anne-Marie; Clemence, Francois; Frechet, Daniel; and Fortin, Michel, 5,068,244, Cl. 514-428.000.

Fosella, Gregory. Adjustable extension wrench for ratchet drive. 5,067,376, Cl. 81-115.000.

Foster, Clark B.: *See—*
Haber, Terry M.; and Foster, Clark B., 5,067,948, Cl. 604-213.000.

Fouilloux, Pierre: *See—*
Cordier, Georges; Fouilloux, Pierre; and Grosselin, Jean-Michel, 5,068,214, Cl. 502-185.000.

Fournes, Jean-Paul; and Morbioli, Rene J., to Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "S.N.E.C.M.A.". Process and apparatus for the simultaneous deposition of a protective coating on internal and external surfaces of heat-resistant alloy parts. 5,068,127, Cl. 427-237.000.

Fournier, Marc W.: *See—*
Greear, John; and Fournier, Marc W., 5,067,497, Cl. 128-207.150.

Fowler, Benjamin P. Method for the removal of lead from waste products. 5,067,978, Cl. 65-134.000.

Fraioli, Joseph. Air-gas controller unit. 5,067,523, Cl. 137-625.410.

Framo Developments (UK) Limited: *See—*
Mohn, Frank, 5,068,554, Cl. 310-12.000.

Francik, Charles A.; Fleming, Harry A., Jr.; and Hock, Donald E., to Pittsburgh Corning Corporation. 45 degree block. 5,067,295, Cl. 52-306.000.

Francioni, Renzo; and Pavese, Duilio, to Cavanna S.p.A. Method and apparatus for controlling the advance of a wrapping film. 5,067,307, Cl. 53-450.000.

Franek, Henning: *See—*
Meinert, Norbert; Gelzenleuchter, Dieter; and Franek, Henning, 5,068,209, Cl. 501-30.000.

Frank, Armin C.; and Sulzer, Harry E., to Mef Co., Inc. Method of manufacturing a guarded cutting edge for a wrapping material dispenser. 5,067,222, Cl. 29-411.000.

Frank, Joseph J., to General Electric Company. End retainer ring assembly for rotary electrical devices. 5,068,564, Cl. 310-270.000.

Frankenfeld, Klaus; Beltz, Klaus; Eich, Gerhard; and Endrich, Klaus, to Chemische Fabrik Budenheim Rudolf A. Oetker. Process for the removal of cadmium ions from phosphoric acid resulting from a wet process. 5,068,094, Cl. 423-109.000.

Franko, Robert J.: *See—*
Wheeler, Edward L.; Barrows, Franklin H.; and Franko, Robert J., 5,068,271, Cl. 524-100.000.

Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H.: *See—*
Theurer, Josef; and Worgotter, Herbert, 5,067,412, Cl. 104-16.000.

Fraser, Michael J., to Refurbished Turbine Components Limited. Turbine blade repair. 5,067,234, Cl. 29-889.100.

Frass, Werner: *See—*
Elsaesser, Andreas; Frass, Werner; and Mohr, Dieter, 5,068,163, Cl. 430-192.000.

Fraunhofer-Gesellschaft zur Forderung der angewandten Forschung e.V.: *See—*
Muller, Dietmar; and Bauer, Helmut, 5,068,066, Cl. 264-3.300.

Frechet, Daniel: *See—*
Moura, Anne-Marie; Clemence, Francois; Frechet, Daniel; and Fortin, Michel, 5,068,244, Cl. 514-428.000.

Fredericia Cellulose A/S: *See—*
Hansen, Sven K.; and Balle, Anders H., 5,068,121, Cl. 426-636.000.

Freeburne, Steven K.: *See—*
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., 5,068,383, Cl. 556-452.000.

Freed, William L. Cervical traction device. 5,067,483, Cl. 128-76.00R.

Freitag, Dieter: *See—*
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, 5,068,302, Cl. 528-21.000.

French, Christopher W. Method of stacking and installing unitized roofing schemes. 5,067,299, Cl. 52-745.000.

Fresenius AG: *See—*
Flaig, Hans-Jurgen; and Jahn, Paul, 5,067,359, Cl. 74-107.000.

Freundlich, Lawrence F.; and Karmen, Arthur. Instrument for unsheathing, resheathing and disposing of a medical syringe needle. 5,067,949, Cl. 604-263.000.

Fried, Reinhard; and Jongenburger, Peter, to Asea Brown Boveri Ltd. Process for producing coarse, longitudinally oriented column crystals in an oxide-dispersion-strengthened nickel-base superalloy. 5,067,986, Cl. 148-11.50N.

Friedrich, Werner: *See—*
Balzer, Dieter; Reimer, Heinz; and Friedrich, Werner, 5,068,422, Cl. 562-587.000.

Fritsche, Wolf-Eckart: *See—*
Sichmann, Eggo; Fritsche, Wolf-Eckart; and Schlussler, Jim, 5,068,021, Cl. 204-192.140.

Fritz, Scott N.: *See—*
Plants, William C.; and Fritz, Scott N., 5,068,830, Cl. 365-190.000.

Froes, Francis H.; Shong, D. Simon; Kim, Young-Won; and Yolton, Frederick C., to United States of America, Air Force. Low temperature hydrogenation of gamma titanium aluminide. 5,067,988, Cl. 148-20.300.

Fromont, Bernard, to Thomson-CSF. Method and Device for correcting the signals given by the hydrophones of an antenna. 5,068,834, Cl. 367-135.000.

Fronczak, Frank J.: *See—*
Beachley, Norman H.; and Fronczak, Frank J., 5,067,456, Cl. 123-197.0AC.

Frost, Robert L.: *See—*
Stiffler, Stephen P.; Beach, Wayne H.; and Frost, Robert L., 5,067,262, Cl. 37-142.00R.

Fruge, Paul. Punting and soccer-style kicking shoe. 5,067,259, Cl. 36-133.000.

Frunder, Henning; and Wiedemer, Manfred, to Siemens Aktiengesellschaft. Method and apparatus for printing by inking a latent thermal image. 5,067,404, Cl. 101-488.000.

Fry, John J.; and Smith, Robert A., to Elsag International B.V. Apparatus for measuring differential impedances. 5,068,618, Cl. 324-706.000.

Frye, Dale J.; and Suman, Michael J., to Prince Corporation. Flexible sun visor with over-center spring. 5,067,765, Cl. 296-97.800.

Fryklund, Linda; Hansson, Hans A.; Kanje, Martin; and Skottner, Anna, to KabiVitrum AB. Method of improving regeneration of transfected peripheral nerves using IGF-1. 5,068,224, Cl. 514-21.000.

Fuchs, Jean M.: *See—*
Brusson, Jean M.; Bujadoux, Karel; Petit, Francis; Fuchs, Jean M.; and Mortreux, Andre , 5,068,014, Cl. 204-59.00M.

Fuchs, Paul: *See—*
Vespoli, Michael; Nelson, Bruce D.; Scragg, Carl; and Fuchs, Paul, 5,067,426, Cl. 114-56.000.

Fuchs, Rainer; Erdelen, Christoph; Becker, Benedikt; and Stendel, Wilhelm, to Bayer Aktiengesellschaft. Pesticidal substituted pyrazoline derivatives, compositions and use. 5,068,241, Cl. 514-403.000.

Fudono, Kanji; Takahashi, Toshimasa; Ogawa, Hiroshi; and Yamashita, Toshio, to Mitsubishi Jukogyo Kabushiki Kaisha. Controller of refrigerating plant. 5,067,556, Cl. 165-29.000.

Fuji Electric Co., Ltd.: *See—*
Nishiura, Akira; Kumagai, Naoki; and Seki, Yasukazu, 5,068,581, Cl. 315-370.000.

Fuji Jukogyo Kabushiki Kaisha: *See—*
Hosaka, Hiroshi, 5,068,794, Cl. 364-431.050.

Fuji Photo Film Co., Ltd.: *See—*
Abe, Akira, 5,068,170, Cl. 430-393.000.
Ito, Kenji, 5,068,744, Cl. 358-310.000.
Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, 5,068,718, Cl. 358-27.000.
Miida, Takashi, 5,068,738, Cl. 358-227.000.
Mizuta, Akira; and Kitamura, Kazumi, 5,067,607, Cl. 198-733.000.
Morigaki, Masakazu; and Seto, Nobuo, 5,068,171, Cl. 430-9.000.
Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, 5,067,702, Cl. 271-134.000.
Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, 5,068,742, Cl. 358-296.000.
Seto, Nobuo; Morigaki, Masakazu; and Naruse, Hideaki, 5,068,172, Cl. 430-551.000.
Shimura, Kazuo, 5,068,745, Cl. 358-403.000.
Takeo, Hideya, 5,068,907, Cl. 382-48.000.
Watanabe, Hideomi; and Okita, Tsutomu, 5,068,145, Cl. 428-323.000.
Yoshida, Takashi; Kawase, Tsueno; and Hiratsuka, Nobuo, 5,068,019, Cl. 204-182.800.

Fuji Photo Optical Co., Ltd.: *See—*
Ohno, Kazunori, 5,067,803, Cl. 359-708.000.
Tuchiya, Kazumichi; Nagashima, Nobuhara; Wasada, Masayoshi; and Suzuki, Akihiro, 5,068,735, Cl. 358-209.000.

Fuji Xerox Co., Ltd.: *See—*
Mukai, Toshio; and Yamashita, Yoshiro, 5,068,328, Cl. 544-350.000.

Fujii, Kenichi: *See—*
Hori, Tohru; Aoki, Masaki; and Fujii, Kenichi, 5,068,147, Cl. 428-336.000.

Fujimaru, Masanori: *See—*
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Fujimura, Yasuo: *See—*
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Fujisaki, Takahiko: *See—*
Miyamoto, Tetsuya; Takahashi, Miyao; Fujisaki, Takahiko; Ikeou, Shinei; and Omura, Takashi, 5,068,327, Cl. 544-76.000.

Fujisawa, Masao; Tagomori, Satoshi; Takasaki, Mamoru; and Sato, Yoshihiro, to Bridgestone Corporation. Collapsible sheet dam. 5,067,851, Cl. 405-115.000.

Fujita, Tadao: *See—*
Takayama, Jun; Fujita, Tadao; and Ninomiya, Takeshi, 5,068,716, Cl. 358-13.000.

Fujita, Takeyuki: *See—*
Ashina, Yoshiro; Fujita, Takeyuki; Niwa, Kiyonobu; Inagaki, Takeshi; and Nikaido, Yuko, 5,068,442, Cl. 564-479.000.

Fujita, Teruo: *See—*
Takeshita, Nobuo; and Fujita, Teruo, 5,068,843, Cl. 369-44.130.

Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, to Yoshitomi Pharmaceutical Industries, Ltd.; and Taito Co., Ltd. 2-aminopentanoic acid compounds and their use as immunosuppressants. 5,068,247, Cl. 514-440.000.

Fujita, Yatsuka: *See—*
Kunimi, Yuji; Tabata, Akihiko; and Fujita, Yatsuka, 5,068,467, Cl. 568-852.000.

Fujitsu Limited: *See—*
Kanegae, Masahide, 5,068,753, Cl. 360-46.000.
Mise, Tatsuya, 5,068,711, Cl. 357-71.000.
Nagakura, Masanao; and Kawashima, Masato, 5,068,693, Cl. 355-315.000.
Nishio, Yukio; and Hirose, Kazunori, 5,068,691, Cl. 355-259.000.
Nojima, Satoshi; Sakagawa, Kazuo; and Suzuki, Hideo, 5,068,820, Cl. 395-275.000.
Ohara, Shiro, 5,068,694, Cl. 357-5.000.
Sato, Shinichi, 5,068,520, Cl. 235-462.000.
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.
Takechi, Satoshi; Nakamura, Yuko; and Mihara, Yukari, 5,068,169, Cl. 430-313.000.

Fujitsu Ten Limited: *See—*
Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, 5,067,465, Cl. 123-489.000.
Yamato, Toshitaka; Ito, Tatsuo; Takashima, Atsuyuki; and Motojima, Akira, 5,068,897, Cl. 381-24.000.

Fujiwara, Hideo: *See—*
Kitakami, Osamu; Fujiwara, Hideo; Ojima, Kiyotaka; Ogawa, Youichi; and Wakai, Kunio, 5,068,144, Cl. 428-323.000.
Maro, Tsuyoshi; Kitakami, Osamu; and Fujiwara, Hideo, 5,068,152, Cl. 428-408.000.

Fujiwara, Yukinari: *See—*
Taneichi, Yoshio; and Fujiwara, Yukinari, 5,068,624, Cl. 330-293.000.

Fukada, Eiichi; Saito, Shigeru; Yagi, Toshiharu; and Higashihata, Yoshihide, to Daikin Industries, Ltd.; and Shigeru Saito. Mastication detector and measurement apparatus and method of measuring mastication. 5,067,488, Cl. 128-777.000.

Fukukawa, Takao; and Suzuki, Keiichiro, to Kabushiki Kaisha Somic Ishikawa. Ball joint. 5,067,841, Cl. 403-140.000.

Fukuma, Takao: *See—*
Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, 5,067,465, Cl. 123-489.000.

Fukuta, Kenji: *See—*
Tsuzuki, Makoto; Kimbara, Masahiko; Fukuta, Kenji; and Machii, Akihiko, 5,067,525, Cl. 139-11.000.

Fulton, Forrest F., to Wavelengths Lasers, Inc. Compensating circuit for high power lasers. 5,068,863, Cl. 372-31.000.

Fumi Photo Film Co., Ltd.: *See—*
Takehara, Hiroshi; and Ikeda, Hideo, 5,068,173, Cl. 430-567.000.

Fung, David: *See—*
Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, 5,068,644, Cl. 340-701.000.

Furusawa, Toshihiro; Satoh, Atsushi; Nakajima, Takashi; and Matsugishi, Noriaki, to Idemitsu Kosan Co., Ltd.; and Seidensha Electronics Co., Ltd. Method and apparatus for extrusion. 5,068,068, Cl. 264-23.000.

Fusaro, Angelo; and Galeazzi, Giancarlo, to A.F.G. S.r.l. Device for garaging motor vehicles. 5,067,866, Cl. 414-228.000.

Futamoto, Masaaki; Honda, Yukio; and Yoshida, Kazuetsu, to Hitachi, Ltd. Magnetic recording medium and process for preparing the same. 5,068,158, Cl. 428-694.000.

Futrex, Inc.: *See—*
Rosenthal, Robert D., 5,068,536, Cl. 250-341.000.

G. T. Norton, Inc.: *See—*
Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P.; Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., 5,067,630, Cl. 221-76.000.

Gabillard, Robert; Nguyen, Yann; and Semet, Christian, to Universite des Sciences et Techniques de Lille (U.S.T.L.) Flandres Artois. Device for detecting the passage of at least one mobile body in at least one location fixed by its travel. 5,068,655, Cl. 340-988.000.

Gaddipati, Achuta R.: *See—*
Singh, Raj N.; and Gaddipati, Achuta R., 5,067,998, Cl. 156-89.000.

Gadway, Jeffrey G.; and Bryson, Robert, Sr., to AM International Incorporated. Sheet material handling apparatus with inserter assembly. 5,067,699, Cl. 270-55.000.

Gaggioni, Hugo P.: *See—*
Fernandez, Antonio; Gaggioni, Hugo P.; Jaquez, Martin J.; Robbins, John D.; and Soper, E. Scott, 5,068,650, Cl. 340-799.000.

Gagnon, Yvon. Combination tool assembly. 5,067,190, Cl. 7-149.000.

Galbreath, Andrew: *See—*
Saringer, John; and Galbreath, Andrew, 5,067,479, Cl. 128-26.000.

Gale, Keith F. Valve assembly. 5,067,516, Cl. 137-414.000.

Galeazzi, Giancarlo: *See—*
Fusaro, Angelo; and Galeazzi, Giancarlo, 5,067,866, Cl. 414-228.000.

Galic, George J.: *See—*
Maus, Steven M.; and Galic, George J., 5,068,065, Cl. 264-1.300.

Galic Maus Ventures: *See—*
Maus, Steven M.; and Galic, George J., 5,068,065, Cl. 264-1.300.

Gallagher, Timothy F.: *See—*
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Rupprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.

Gallaway, George L.; and Foreman, Paul B., to National Starch and Chemical Investment Holding Corporation. Method of preparing pressure sensitive adhesives with accelerated cure rate. 5,068,291, Cl. 525-366.000.

Galleck, Kurt-G.: *See—*
Kreutzburg, Franz; and Galleck, Kurt-G., 5,068,824, Cl. 395-800.000.

Gambale, Ronald J.: *See—*
Ullman, Timothy J.; and Gambale, Ronald J., 5,068,284, Cl. 525-67.000.

Gambini, Tiziana: *See—*
Zavatteri, Ignazio; and Gambini, Tiziana, 5,068,135, Cl. 427-439.000.

Gandais, Michel A. G.: *See—*
Delmas, Francis M. L.; and Gandais, Michel A. G., 5,067,416, Cl. 106-632.000.

Gandiglio, Romolo, to Fiat Auto S.p.A. Servo-assisted device for operating a vehicle parking brake. 5,067,366, Cl. 74-535.000.

Gandy, Carroll E.; and Watford, Roland S., Jr., to Sonoco Products Company. Method for manufacturing a yarn carrier. 5,067,936, Cl. 493-287.000.

Gangemi, Donald, to Beloit Corporation. Water jet slitter with laser finish and method. 5,068,513, Cl. 219-121.670.

Garde, Lawrence, to Seagate Technology, Inc. Method and apparatus for measuring bit shift. 5,068,754, Cl. 360-45.000.

Gardenier, John, to Saratoga Spa & Bath Co. Apparatus and method for blind attachment of a liner to a pool support structure. 5,067,228, Cl. 29-525.100.

Gardner, David M.: *See—*
Sandler, Stanley R.; Schon, Steven G.; and Gardner, David M., 5,068,427, Cl. 564-84.000.

Garnjost, Kenneth D., to Moog Inc. Vibration-isolating machine mount. 5,067,684, Cl. 248-550.000.

Garrett, James H., to Compaq Computer Corporation. Method and apparatus for displaying different shades of gray on a liquid crystal display. 5,068,649, Cl. 340-793.000.

Garrick, James C., to Judges Cricket Kisser, Inc. Method and apparatus for dispensing live fishing bait. 5,067,270, Cl. 43-55.000.

Garuti, Giuseppe. System for fixing anodized aluminum. 5,068,032, Cl. 210-96.100.

Garver, Lawrence E.; and Kimbrough, Gregory L., to Van Dorn Company. Pet container for hot filled applications. 5,067,622, Cl. 215-1.00C.

Garvey, Cormac: *See—*
Lang, John; and Garvey, Cormac, 5,067,532, Cl. 141-329.000.

Gascoyne, William H., to LSI Logic Corporation. Process monitor circuit. 5,068,547, Cl. 307-443.000.

Gaskill, Albert. Universal wheelless carrier. 5,067,640, Cl. 224-42.070.

Gaston, Ouvrard: *See—*
Jeuffray, Jean-Marie; and Gaston, Ouvrard, 5,067,546, Cl. 160-23.100.

Gates Rubber Company, The: *See—*
Bickely, Alan C.; and Moore, Travis, 5,068,638, Cl. 338-114.000.

Gatten, Ronald A., to Spectra-Physics, Inc. Method of determining useful life of cartridge for an ink jet printer. 5,068,806, Cl. 395-113.000.

Gatto, Vincent J., to Ethyl Corporation. Bicyclictriarylphosphite antioxidant. 5,068,388, Cl. 558-74.000.

Gautier, Jean-Pierre, to Bendix Europe Services Techniques. Pneumatic booster. 5,067,392, Cl. 92-98.00D.

GE Fanuc Automation North America, Inc.: *See—*
Sexton, Daniel W.; and Bentley, William F., 5,068,821, Cl. 395-800.000.

GE Plastics Japan Ltd.: *See—*
Campbell, John R.; Shea, Timothy J.; Hobbs, Stanley Y.; and Brown, Sterling B., 5,068,286, Cl. 525-92.000.

Gebr. Hofmann GmbH & Co. KG Maschinenfabrik: *See—*
Himmler, Gunther; and Moench, Uwe, 5,067,348, Cl. 73-460.000.
Monch, Uwe, 5,067,347, Cl. 73-146.000.

GEC Alsthom SA: *See—*
Moncorge, Jean-Paul, 5,068,598, Cl. 324-107.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Gelzenleuchter, Dieter: *See—*
Meinert, Norbert; Gelzenleuchter, Dieter; and Franek, Henning, 5,068,209, Cl. 501-30.000.
Gen Corp Inc.: *See—*
Dupuy, Ronald E., 5,067,281, Cl. 49-502.000.
Genbauffe, Francis S., to Robertshaw Controls Company. Fuel control device, fuel control system using the device and method of making the device. 5,067,651, Cl. 236-15.00A.
GenCorp Inc.: *See—*
Lenke, Gerd M.; and Wiff, Donald R., 5,068,292, Cl. 525-509.000.
Stevenson, James F.; and Miller, William H., 5,067,885, Cl. 425-131.100.
General Atomics: *See—*
Ohkawa, Tihiro, 5,068,543, Cl. 307-91.000.
Streckert, Holger H.; Sheehan, James E.; and Mazdiyasni, Khodabakhsh, 5,067,999, Cl. 156-89.000.
General Dynamics Corporation, Convair Division: *See—*
Guth, Lloyd A., 5,067,908, Cl. 439-248.000.
General Electric Company: *See—*
Bayer, Eric W., 5,068,637, Cl. 338-57.000.
Beers, David G., 5,067,322, Cl. 62-515.000.
Brown, Stephen E.; Meeks, Donnie F.; Souders, Ralph W.; and Thompson, Richard A., 5,068,763, Cl. 361-364.000.
Dellacoletta, Brent A., 5,068,353, Cl. 548-461.000.
Eberhard, Jeffrey W., 5,068,882, Cl. 378-4.000.
Frank, Joseph J., 5,068,564, Cl. 310-270.000.
Jones, Donald W., 5,068,567, Cl. 310-332.000.
Moreman, Otis S., III, 5,067,876, Cl. 416-219.00R.
Schissel, David N.; and Haitko, Deborah A., 5,068,352, Cl. 548-461.000.
Shaffer, Timothy D., 5,068,310, Cl. 528-215.000.
Silverstein, Seth D.; and Pimbley, Joseph M., 5,068,597, Cl. 324-77.00B.
Singh, Raj N.; and Gaddipati, Achuta R., 5,067,998, Cl. 156-89.000.
Ullman, Timothy J.; and Gambale, Ronald J., 5,068,284, Cl. 525-67.000.
Witte, James R., 5,067,355, Cl. 73-862.340.
Yeager, Gary W.; and Schissel, David N., 5,068,457, Cl. 568-633.000.
General Instrument Corporation: *See—*
Katznelson, Ron D.; and Krause, Edward A., 5,068,729, Cl. 358-141.000.
Krause, Edward A.; Paik, Woo H.; Liu, Vincent; and Essserman, Jim, 5,068,724, Cl. 358-133.000.
General Kinematics Corporation: *See—*
Musschoot, Albert, 5,067,549, Cl. 164-39.000.
General Motors Corporation: *See—*
Joshi, Shrikant M.; and Oddi, Frederick V., 5,067,561, Cl. 165-140.000.
St. Angelo, Stephen, Jr.; Lucci, John J.; Carver, George C.; Heads, Alan; and Mitchell, James F., 5,067,225, Cl. 29-451.000.
General Signal Corporation: *See—*
Baxter, Ronald D.; and Kroninger, Paul M., Jr., 5,068,205, Cl. 437-205.000.
Genetic Systems Corporation: *See—*
Nowinski, Robert C., 5,068,178, Cl. 435-7.200.
Gentilman, Richard L.: *See—*
Montanari, Dennis G.; Gentilman, Richard L.; and Tustison, Randal W., 5,067,781, Cl. 359-350.000.
Georg Fischer AG: *See—*
Hunziker, Bruno; and Kunz, Peter, 5,067,691, Cl. 251-315.000.
George, Eric R.; and Gergen, William P., to Shell Oil Company. Reinforced polymer compositions. 5,068,289, Cl. 525-179.000.
Georgilas, Michael, to Hilton Nevada Corporation. Multiple-pull slot machine. 5,067,712, Cl. 273-143.00R.
Georgis, Steven P.: *See—*
Hughes, Timothy C.; and Georgis, Steven P., 5,068,757, Cl. 360-77.130.
Gerber Garment Technology, Inc.: *See—*
Gerber, Heinz J., 5,067,378, Cl. 83-13.000.
Gerber, Heinz J., to Gerber Garment Technology, Inc. Blade for cutting sheet material and related cutting method. 5,067,378, Cl. 83-13.000.
Gergen, William P.: *See—*
George, Eric R.; and Gergen, William P., 5,068,289, Cl. 525-179.000.
Gerin, Merlin: *See—*
Broyde, Frederic; and Barrault, Michel, 5,068,616, Cl. 324-627.000.
Gersdorf, Joachim: *See—*
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,068,298, Cl. 526-240.000.
Ghanouni, Majid: *See—*
West, Lamar E.; Lafay, William P.; Ghanouni, Majid; and Cook, Alex M., Jr., 5,068,893, Cl. 380-7.000.
Ghoshal, Sajol C., to Level One Communications, Inc. Digitally controlled timing recovery loop. 5,068,628, Cl. 331-1.00A.
Giannella, Giovanni P., to Exar Corporation. Programmable transistor. 5,068,702, Cl. 357-35.000.
Gianni Bulgari S.p.A.: *See—*
Senatore, Daniele, 5,067,795, Cl. 359-84.000.
Giannini, Umberto: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.
Gibbons, Ian; Ullman, Edwin F.; and Felgner, Philip L., to Syntex (U.S.A.) Inc. Liquid single reagent for assays involving confining gels. 5,068,198, Cl. 436-535.000.
Gibney, Michael W.; Lucas, Lawrence M.; and Culver, Roy, Jr., to Micro-Blend, Inc. Method for beverage blending and proportioning. 5,068,116, Cl. 426-23.100.
Gibson, Charles A.: *See—*
Burgess, Lloyd M.; and Gibson, Charles A., 5,068,329, Cl. 544-402.000.
Burgess, Lloyd M.; and Gibson, Charles A., 5,068,330, Cl. 544-402.000.
Giglia, Salvatore: *See—*
Bikson, Benjamin; Giglia, Salvatore; and Nelson, Joyce K., 5,067,971, Cl. 55-16.000.
Gignac, William J.: *See—*
Hasenberg, Thomas C.; and Gignac, William J., 5,068,867, Cl. 372-45.000.
Gilcrease, John T. Auger and sweeper assembly. 5,067,569, Cl. 175-209.000.
Gilcrease, John T. Auger and retaining shell assembly. 5,067,570, Cl. 175-209.000.
Gildemeister Italiana S.p.A.: *See—*
Ronzoni, Enrico, 5,067,735, Cl. 279-1.00F.
Gill Studios, Inc.: *See—*
Harms, Jeffrey W., 5,067,265, Cl. 40-1.500.
Gillett, Richard B., Jr.; and Williams, Douglas D., to Digital Equipment Corporation. Method and apparatus for managing multiple lock indicators in a multiprocessor computer system. 5,068,781, Cl. 395-325.000.
Gillette Company, The: *See—*
Miller, Gary R.; Borden, Frederick R.; and Trotta, Robert A., 5,067,238, Cl. 30-34.002.
Gillham, Frederick J.; and Stowe, David W., to Aster Corporation. Electro-optical converter. 5,067,787, Cl. 385-50.000.
Giunchi, Giovanni; Savrun, Ender; Grenni, Alberto; and Chen, Ching-Fong, to Keramont Italia S.p.A. Refractory and electroconductive ceramic compositions and process for the preparation thereof. 5,068,211, Cl. 501-98.000.
GKN Automotive AG: *See—*
Krude, Werner, 5,067,929, Cl. 464-145.000.
Glaxo Group Limited: *See—*
Long, David R., 5,068,249, Cl. 514-471.000.
Glenn, Paul, to Bauer Associates, Inc. Method and device for noncontacting self-referencing measurement of surface curvature and profile. 5,067,817, Cl. 356-376.000.
Glennon, Timothy F.; Mehl, Byron R.; Thollot, Pierre; and Krinickas, Alexander, to Sundstrand Corporation. Brushless generator having AC excitation in generating and starting modes. 5,068,590, Cl. 322-10.000.
Globe Environmental Protection, Inc.: *See—*
Wang, Lawrence K.; Wang, Mu H. S.; Hwang, Chong S.; and Rhow, Harold, 5,068,031, Cl. 210-96.100.
Go, Winston S.; Roti, Joseph S.; Lang, Mark G.; and Weiss, Charles O., to Drew Chemical Corporation. Corrosion inhibitor. 5,068,059, Cl. 252-389.530.
Gobbo, Joao C.: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.
Gockler, Heinz, to ANT Nachrichtentechnik GmbH. Non-recursive half-band filter with complex valued coefficients for complex input and output signals. 5,068,817, Cl. 364-724.160.
Godecke Aktiengesellschaft: *See—*
Steiner, Klaus; Herrmann, Wolfgang; Crone, Gunter; and Combs, Charles S., 5,068,413, Cl. 562-507.000.
Gold, Danny. Padded garment. 5,067,175, Cl. 2-16.000.
Gold, Ronald S.; and Jachimowicz, Karen E., to Honeywell Inc. Beam combining/splitter cube prism for color polarization. 5,067,799, Cl. 359-490.000.
Goldberger, Daniel S.: *See—*
Yelderman, Mark; Goldberger, Daniel S.; and Braig, James R., 5,067,492, Cl. 128-719.000.
Goldenberg, Marvin M.: *See—*
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Ruprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.
Goldstar Co., Ltd.: *See—*
Lee, Byung C., 5,067,884, Cl. 418-63.000.
Goldwell AG: *See—*
Tennigkeit, Jurgen; and Rose, Burkhard, 5,068,102, Cl. 424-72.000.
Golf Vegas International, Inc.: *See—*
Knox, J. Paul; Murray, Robert B., III; and Smith, Clinton L., 5,067,718, Cl. 273-185.00R.
Gombas, Robert D., Jr.: *See—*
Moretta, Jon C.; and Gombas, Robert D., Jr., 5,068,024, Cl. 208-13.000.
Gomoll, Guenter; and Hauslaib, Wolfgang, to Mannesmann A.G. Ribbon shifting device for printers. 5,067,833, Cl. 400-213.000.
Gonzalez-Miller, Walter E.; and Dulin, Jacques M., to Depressurized Technologies International, Inc. Aerosol can recycling apparatus and methods. 5,067,529, Cl. 141-7.000.
Goodenough, David J.; and Stockham, Charles, to Columbia Scientific Inc. Quantitative computed tomography system. 5,068,788, Cl. 364-413.140.

Goodman, Morris G. Adjustable spiral slitter for hot dogs. 5,067,241, Cl. 30-289.000.
Goodrich, Duane A.: *See—*
Combs, Todd M.; Deraedt, Gary K.; and Goodrich, Duane A., 5,067,220, Cl. 29-259.000.
Goodyear Tire & Rubber Company, The: *See—*
Cottman, Kirkwood S., 5,068,439, Cl. 564-434.000.
Gorbet, Charles E.: *See—*
Fordham, Donald S.; Petersen, Richard A.; and Gorbet, Charles E., 5,067,901, Cl. 434-224.000.
Gordon, Donald J.: *See—*
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., 5,067,443, Cl. 119-71.000.
Gordon, Roger G., to Unirac Corp. Single paper dispenser. 5,067,605, Cl. 194-248.000.
Gors, Heinrich C.; Horner, Patrick J.; and Jansons, Viktors, to Raychem Corporation. Friedel-crafts preparation of aromatic ketones with an inoganic salt controlling agent. 5,068,447, Cl. 568-309.000.
Goto, Hiroaki: *See—*
Kojima, Shunji; Watanabe, Yoshiki; Goto, Hiroaki; and Moriga, Toshinori, 5,068,266, Cl. 523-336.000.
Goto, Hiroshi; Harada, Toshiaki; and Ishikawa, Noriyoshi, to Canon Kabushiki Kaisha. Process for producing recording medium and apparatus therefor. 5,068,123, Cl. 427-32.000.
Goto, Masayoshi: *See—*
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.
Gotthelf, Hans: *See—*
Heeren, Evert; and Gotthelf, Hans, 5,067,659, Cl. 241-19.000.
Gousetis, Charalampos: *See—*
Baur, Richard; Gousetis, Charalampos; Trieselt, Wolfgang; Bochnitschek, Werner; and Oftring, Alfred, 5,068,416, Cl. 562-571.000.
Grady, JJ, III: *See—*
Wade, Paul C.; and Grady, JJ, III, 5,068,715, Cl. 357-81.000.
Graham Engineering Corporation: *See—*
Dundas, Dennis L.; and Moore, Eugene L., 5,068,075, Cl. 264-505.000.
Grandjean, Pierre-Andre, to Medtronic, Inc. Muscle fitness detection by colorimetry. 5,067,960, Cl. 623-3.000.
Grasselli, Robert K.: *See—*
Bartek, Joseph P.; Brazdil, James F., Jr.; Hupp, John M.; and Grasselli, Robert K., 5,068,215, Cl. 502-208.000.
Grassigli, Giacomo: *See—*
Fezzi, Luigi; and Grassigli, Giacomo, 5,068,108, Cl. 424-438.000.
Graves Spray Supply, Inc.: *See—*
Smith, James E., 5,067,515, Cl. 137-327.000.
Gray Engineering, Inc.: *See—*
Gray, Robert L., 5,067,850, Cl. 405-92.000.
Gray Printing Company, The: *See—*
Dick, David L., 5,067,700, Cl. 270-55.000.
Gray, Robert L., to Gray Engineering, Inc. Apparatus for detection and containment of pollutants in a drainage system. 5,067,850, Cl. 405-92.000.
Grecar, John; and Fournier, Marc W., to Progressive Medical Design, Inc. Intubation device with adjustable suction means above the cuff. 5,067,497, Cl. 128-207.150.
Green, Raymond M.: *See—*
Swanson, Dail L.; Green, Raymond M.; and Bennorth, Gregory S., 5,068,639, Cl. 338-179.000.
Greenman, Murray: *See—*
Duncan, Gerald; Shacklock, Frank W.; and Greenman, Murray, 5,067,333, Cl. 68-23.700.
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, to Karl Thomae GmbH. 4,5,7,8-tetrahydro-6H-thiazolo[5,4-d]azepines, their preparation and their use as pharmaceutical compositions. 5,068,325, Cl. 514-215.000.
Grenni, Alberto: *See—*
Giunchi, Giovanni; Savrun, Ender; Grenni, Alberto; and Chen, Ching-Fong, 5,068,211, Cl. 501-98.000.
Gresham, Gary E.; and Tucker, Burnis H., to Transportation Technologies, Inc. Electronic shifter. 5,068,583, Cl. 318-266.000.
Gresser, Joseph D.: *See—*
Wise, Donald L.; Augenstein, Don C.; and Gresser, Joseph D., 5,068,188, Cl. 435-140.000.
Gretag Aktiengesellschaft: *See—*
Ott, Hans, 5,068,810, Cl. 364-526.000.
Greve, Peter, to Carl-Zeiss-Stiftung. Ophthalmologic apparatus. 5,067,951, Cl. 606-004.000.
Greven, Hermann: *See—*
Hagmann, Paul; and Greven, Hermann, 5,067,611, Cl. 206-383.000.
Grier, James S.: *See—*
Smythe, Stephen R.; Cole, Martin G.; and Grier, James S., 5,068,443, Cl. 564-496.000.
Grigo, Ulrich: *See—*
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, 5,068,302, Cl. 528-21.000.
Grigsby, Richard: *See—*
Hawkins, Ronald G.; and Grigsby, Richard, 5,067,786, Cl. 385-13.000.
Gallo, John M.; Hilby, James A.; La Croix, Mark E.; Polinsky, Mark A.; and Steltzer, Gordon L., to Torrington Company, The. Sensor to determine rotational parameters. 5,067,350, Cl. 73-494.000.
Grip, Nils-Erik G.: *See—*
Nortenius, Bengt-Arne; Olsson, Per-Erik B.; and Grip, Nils-Erik G., 5,067,248, Cl. 33-744.000.
Gris, Joel, to U.S. Philips Corporation. Multiple coupler device with return path. 5,068,630, Cl. 333-100.000.
Grollimund, Everett C.: *See—*
Brookman, Donald L.; Grollimund, Everett C.; Grollimund, Gary E.; and Spiers, Steven F., 5,067,303, Cl. 53-381.200.
Grollimund, Gary E.: *See—*
Brookman, Donald L.; Grollimund, Everett C.; Grollimund, Gary E.; and Spiers, Steven F., 5,067,303, Cl. 53-381.200.
Grosselin, Jean-Michel: *See—*
Cordier, Georges; Fouilloux, Pierre; and Grosselin, Jean-Michel, 5,068,214, Cl. 502-185.000.
Grossman, Mark W.; and Evans, Roger, to GTE Products Corporation. Manifold and method of batch measurement of Hg-196 concentration using a mass spectrometer. 5,068,533, Cl. 250-288.000.
Grosz, Edward G.; Herrington, Fox J.; and St. Phillips, Eric A., to Mobil Oil Corporation. Disposable plastic cup dispenser with spring. 5,067,633, Cl. 221-279.000.
Groth, John E.: *See—*
Bowmer, Geoffrey M.; and Groth, John E., 5,067,844, Cl. 403-305.000.
Gruhler, Siegfried: *See—*
Klingler, Otto; Gruhler, Siegfried; and Rivinius, Helmut, 5,068,653, Cl. 340-870.370.
Grumman Aerospace Corporation: *See—*
Solomon, Allen L., 5,067,233, Cl. 29-852.000.
Grutsch, James F.: *See—*
Li, Alan Y.; Grutsch, James F.; and O'Leary, Kevin P., 5,068,036, Cl. 210-606.000.
Gryzbowski, Richard W.: *See—*
Denlinger, Keith R.; Gryzbowski, Richard W.; and Myer, John M., 5,067,916, Cl. 439-857.000.
GSW Inc.: *See—*
Brant, Anthony W., 5,067,675, Cl. 248-48.200.
GTE Laboratories Incorporated: *See—*
Dixit, Sudhir S.; and Feng, Yushu, 5,068,723, Cl. 358-133.000.
GTE Products Corporation: *See—*
Chenot, Charles F.; and Krebs, Michael A., 5,068,055, Cl. 252-301.40R.
Grossman, Mark W.; and Evans, Roger, 5,068,533, Cl. 250-288.000.
GTE Rotaflex Limited: *See—*
Woodgate, Terence A., 5,067,906, Cl. 439-115.000.
Gubelmann, Michel; Rochin, Christophe; and Allandrieu, Christian, to Rhone-Poulenc Chimie. Preparation of methylenedi (phenylurethane). 5,068,391, Cl. 560-25.000.
Guddanti, Suresh; and Mounfield, William P., Jr., to Board of Supervisors of Louisiana State University and Agricultural and Mechanical College. Neural network analog-to-digital converter. 5,068,662, Cl. 341-161.000.
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F. Method and apparatus for treating malignant tumors by local hyperpyrexia. 5,067,952, Cl. 606-28.000.
Guelfi, Ferdinando; and Lippi, Elio, to Comged S.p.A. Automatic machine for washing self-service trays and similar items. 5,067,192, Cl. 15-302.000.
Guerrieri, Orlando R.: *See—*
Cooper, Edward W.; and Guerrieri, Orlando R., 5,067,840, Cl. 402-38.000.
Guilford Engineering Associates, Inc.: *See—*
Findlay, David, 5,067,266, Cl. 42-70.080.
Guindulain Vidondo, Felix, to Jofemar, S.A. Single product extractor. 5,067,634, Cl. 221-298.000.
Gumm, Linley F.: *See—*
Fields, Walter D.; and Gumm, Linley F., 5,068,614, Cl. 324-534.000.
Gummer, Allen L.: *See—*
Choinski, Graydon J.; Gummer, Allen L.; and Brooks, David W., 5,067,391, Cl. 92-48.000.
Gunji, Akihiko; Masuki, Tetsuya; and Shirai, Hidenori, to Kao Corporation. Process for making film. 5,068,070, Cl. 264-41.000.
Guntzburger, Philippe: *See—*
Haghiri, Mohammed R.; Guntzburger, Philippe; Fonsalas, Frederic; and Le Queau, Marcel, 5,068,727, Cl. 358-138.000.
Gustafson, Bruce L.; and Walden, James V., to Eastman Kodak Company. Conversion of carbon dioxide to carbon monoxide. 5,068,057, Cl. 252-373.000.
Gustafsson, Helmer, to Yhtyneet Paperitehtaat Oy Walkisoft Engineering. Method for forming a dry web on the wire. 5,068,079, Cl. 264-518.000.
Gutec: *See—*
Falke, Holger; and Strauss, Guenther, 5,068,217, Cl. 502-330.000.
Guth, Lloyd A., to General Dynamics Corporation, Convair Division. Self-aligning connector. 5,067,908, Cl. 439-248.000.
Haack, Dietmar: *See—*
Conzelmann, Gerhard; Haack, Dietmar; and Fiedler, Gerhard, 5,068,703, Cl. 357-36.000.
Haber, Terry M., to Habley Medical Technology Corporation. Single use, safety blood collecting device. 5,067,490, Cl. 128-763.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Haber, Terry M.; and Foster, Clark B., to Habley Medical Technology Corporation. Safety, packaging, injection and disposal system for pre-filled pharmaceutical vials. 5,067,948, Cl. 604-213.000.

Habley Medical Technology Corporation: *See—*
Haber, Terry M., 5,067,490, Cl. 128-763.000.
Haber, Terry M.; and Foster, Clark B., 5,067,948, Cl. 604-213.000.

Habuchi, Ryoji: *See—*
Kato, Nobuyuki; Habuchi, Ryoji; Morisawa, Kunio; and Itoh, Hiroshi, 5,067,603, Cl. 192-0.076.

Hackett, James I.; Dellert, David W.; and Knudson, Mark R., to Eastman Kodak Company. Scaler gate array for scaling image data. 5,068,905, Cl. 382-47.000.

Haeck, Paul J.: *See—*
Cohrs, Richard B.; Haeck, Paul J.; and Jacobs, Gary R., 5,067,757, Cl. 292-336.300.

Haensch, Theodor: *See—*
Hemmerich, Andreas; McIntyre, David; Zimmermann, Claus; and Haensch, Theodor, 5,068,546, Cl. 359-328.000.

Hafla, Dietmar F., to Index-Werke GmbH & Co. KG Hahn & Tessky. Clearance-free spindle drive. 5,067,363, Cl. 74-392.000.

Hafner, V. Walter; and Marshall, Keith D., to Acorn Engineering Company. Blow out toilet with low water volume usage. 5,067,181, Cl. 4-425.000.

Hagedorn, Scott: *See—*
Ruppen, Mark E.; and Hagedorn, Scott, 5,068,414, Cl. 562-508.000.

Hagemeyer, Bruce A., to Rolscreen Company. Self draining door threshold. 5,067,279, Cl. 49-471.000.

Hagen, Arnulf P.: *See—*
Brunken, Dean E.; and Hagen, Arnulf P., 5,068,132, Cl. 427-421.000.

Haghiri, Mohammed R.; Guntzburger, Philippe; Fonsalas, Frederic; and Le Queau, Marcel, to U. S. Philips Corporation. Device for decoding signals representative of a sequence of images and high definition television image transmission system including such a device. 5,068,727, Cl. 358-138.000.

Hagino, Sadaaki; Suzuki, Motokazu; Kondo, Hideyuki; Nishikawa, Shigeru; and Hayashi, Kenichi, to Mitsubishi Materials Corporation. High strength superconducting wires and cables each having high current density, and a process for fabricating them. 5,068,219, Cl. 505-1.000.

Hagiya, Naoyuki: *See—*
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Hagmann, Paul; and Greven, Hermann, to William Prym-Werke GmbH & Co. KG. Blister pack for storage of needles and the like. 5,067,611, Cl. 206-383.000.

Haitko, Deborah A.: *See—*
Schissel, David N.; and Haitko, Deborah A., 5,068,352, Cl. 548-461.000.

Hakomori, Sen-itiroh: *See—*
Clausen, Henrik; Yamamoto, Fumi-ichiro; White, Thayer; and Hakomori, Sen-itiroh, 5,068,191, Cl. 435-193.000.

Hall, Douglas W.; and Hawk, Robert M., to Corning Incorporated. Fiber optic coupling filter and amplifier. 5,067,789, Cl. 385-27.000.

Hall, Kevin P., to Minnesota Mining and Manufacturing Company. High contrast photographic materials. 5,068,167, Cl. 430-264.000.

Hall, Lee O.; Zoski, Glenn; and Tyagi, Surendera K., to Igen, Inc. Method and apparatus for conducting electrochemiluminescent measurements. 5,068,088, Cl. 422-52.000.

Halliburton Company: *See—*
Holtmyer, Marlin; and Hunt, Charles V., 5,067,565, Cl. 166-305.100.
Young, Timothy M.; Coppedge, Charles D.; and McCasland, Charles S., 5,067,657, Cl. 239-403.000.

Halloran, Daniel J.; and Varaprath, Padmakumari J., to Dow Corning Corporation. Thioglycolamide-functional siloxanes. 5,068,378, Cl. 556-420.000.

Halm, Roland L.: *See—*
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., 5,068,383, Cl. 556-452.000.

Hamada, Masataka: *See—*
Taniguchi, Nobuyuki; Karasaki, Toshihiko; Ishida, Tokuji; Hamada, Masataka; and Norita, Toshio, 5,068,737, Cl. 358-227.000.

Hamamatsu Photonics K.K.: *See—*
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.

Hamasaki, Masaharu, to Sony Corporation. Solid state imaging device which has a short time constant which is shorter than the application of a pulse voltage until the end of the blanking period. 5,068,736, Cl. 358-213.130.

Hamburg, Douglas R., to Ford Motor Company. Fuel vapor recovery system and method. 5,067,469, Cl. 123-520.000.

Hamilton, Robert G.; and Coombes, Robert J., to Micropolis Corporation. Sector pulse generator for hard disk drive assembly. 5,068,755, Cl. 360-72.100.

Han, Scott; Martenak, Daniel J.; Palermo, Robert E.; and Walsh, Dennis E., to Mobil Oil Corporation. Process for direct oxidative conversion of methane to higher hydrocarbons at high pressure and moderate temperature. 5,068,486, Cl. 585-500.000.

Hanada, Kazunori: *See—*
Murata, Mitsuo; Yokoo, Chihiro; and Hanada, Kazunori, 5,068,354, Cl. 548-517.000.

Hanada, Kazuyuki: *See—*
Misaizu, Iwao; Hanada, Kazuyuki; Shibuya, Akihiko; and Kuriyama, Katsumi, 5,068,295, Cl. 526-245.000.

Hand, William A. Aquarium hydro hi-rise and crossover bridge assembly. 5,067,439, Cl. 119-5.000.

Haney, Ronald J.: *See—*
Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., 5,067,867, Cl. 414-391.000.

Hansen, Sven K.; and Balle, Anders H., to Fredericia Cellulose A/S. Product and process for preparing a plant fiber product. 5,068,121, Cl. 426-636.000.

Hansson, Hans A.: *See—*
Fryklund, Linda; Hansson, Hans A.; Kanje, Martin; and Skottner, Anna, 5,068,224, Cl. 514-21.000.

Hao, Hsieh T.: *See—*
Blaum, Miguel M.; and Hao, Hsieh T., 5,068,858, Cl. 371-41.000.

Hara, Hiroshi: *See—*
Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, 5,068,742, Cl. 358-296.000.

Hara, Minoru: *See—*
Uchida, Tadahiro; Shimamura, Kuniyuki; Nogawa, Hayabu; Saito, Keikichi; and Hara, Minoru, 5,067,938, Cl. 494-12.000.

Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, to Hercules Incorporated. Metathesis polymerized cross-linked copolymer. 5,068,296, Cl. 526-282.000.

Hara, Shigeyoshi; Inata, Hiroo; and Matsumura, Shunichi, to Teijin Limited. Polyamideimides containing 3,4'-diamino-diphenylether as diamine component and process for preparing the same. 5,068,307, Cl. 528-125.000.

Harada Kogyo Kabushiki Kaisha: *See—*
Kimura, Misao, 5,068,673, Cl. 343-901.000.

Harada, Toshiaki: *See—*
Goto, Hiroshi; Harada, Toshiaki; and Ishikawa, Noriyoshi, 5,068,123, Cl. 427-32.000.

Harder, Wolfgang: *See—*
Merger, Franz; Fischer, Rolf; Harder, Wolfgang; Priester, Claus-Ulrich; and Vagt, Uwe, 5,068,398, Cl. 560-156.000.

Hardesty, Lee R.; and Takagi, Izumi, to Kawasaki Jukogyo Kabushiki Kaisha; and Deere & Company. Unitized power system and vehicles employing same. 5,067,933, Cl. 475-32.000.

Hards, Graham A.: *See—*
Keck, Lindsey; Buchanan, Jeffrey; and Hards, Graham A., 5,068,161, Cl. 429-44.000.

Hardwick, Roy, to Imperial Chemical Industries PLC. Bonding metal components. 5,067,649, Cl. 228-107.000.

Hardy, Alan: *See—*
Agger, Reginald T.; Taylor, John R.; and Hardy, Alan, 5,068,143, Cl. 428-241.000.

Hargraves, Kevin D. Adjustable line block for autobodies. 5,067,216, Cl. 29-79.000.

Harkes, Douglas: *See—*
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., 5,067,443, Cl. 119-71.000.

Harlan, Thomas A.; and Long, Joseph F. Golfer's swing analysis device. 5,067,717, Cl. 273-183.00B.

Harley, Naomi H., to New York University. Radon monitor with sealable detecting chamber. 5,068,538, Cl. 250-472.100.

Harms, Jeffrey W., to Gill Studios, Inc. Badge and mounting assembly. 5,067,265, Cl. 40-1.500.

Harnischfeger Engineers, Inc.: *See—*
Miskin, Stephen N.; and Lloyd, Kurt M., 5,067,592, Cl. 187-9.00R.

Harris, Gary L. Coin and/or token operated and handling apparatus. 5,067,928, Cl. 453-17.000.

Harris, James L.: *See—*
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Harris, Robert F.; and Joseph, Michael D., to Dow Chemical Company, The. Process for the preparation of o-aminophenyl derivatives of aminated poly(alkylene glycols) and backbone-modified derivatives thereof. 5,068,306, Cl. 528-68.000.

Harris, William I., to Dow Chemical Company, The. Ion exchange resins prepared by sequential monomer addition. 5,068,255, Cl. 521-28.000.

Harris, William J.; Lysenko, Zenon; and Hurtig, Carl W., to Dow Chemical Company, The. Phosphate salts of AB-polybenzoxazole monomer. 5,068,384, Cl. 562-453.000.

Harrison, Colin G.; and Hortensius, Peter D., to International Business Machines Corporation. Coordination of wireless medium among a plurality of base stations. 5,068,916, Cl. 455-39.000.

Hart, Robert W. Method and apparatus for playing a presidential board game. 5,067,721, Cl. 273-243.000.

Hartemann, Frederic; Bres, Michel; and Teillard, Roger, to Thomson Tubes Electroniques. Helical wiggler device with permanent magnets for application to free electron lasers. 5,068,860, Cl. 372-2.000.

Harvard Sports, Inc.: *See—*
Dadbeh, Bemanali H., 5,067,728, Cl. 273-420.000.

Harward, Mark G.: *See—*
Mahant-Shetti, Shivaling S.; and Harward, Mark G., 5,068,825, Cl. 365-154.000.

Hasebe, Akio: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, to Taiho Pharmaceutical Company, Limited. Diazabicycloalkane derivative. 5,068,235, Cl. 514-258.000.

Haselwarter, Klaus: *See—*
Schmidhammer, Ludwig; Haselwarter, Klaus; Klaus, Hermann; and Mohr, Klaus-Peter, 5,068,475, Cl. 570-262.000.

Hasenberg, Thomas C.; and Gignac, William J., to Hughes Aircraft Company. Coupled quantum well strained superlattice structure and optically bistable semiconductor laser incorporating the same. 5,068,867, Cl. 372-45.000.

Hashiba, Takahiro; and Kaga, Kouichi, to Toyoda Gosei Co., Ltd. Steering wheel. 5,067,367, Cl. 74-552.000.

Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, to Ricoh Company, Ltd.; and Hodogaya Chemical Co., Ltd. Polyolefin derivatives. 5,068,350, Cl. 548-444.000.

Hashimoto, Susumu: *See—*
Inomata, Koichiro; and Hashimoto, Susumu, 5,068,050, Cl. 252-62.510.

Haspeslagh, Didier R.: *See—*
Rabaey, Dirk H. L. C.; and Haspeslagh, Didier R., 5,068,848, Cl. 370-85.600.

Hassell, Edwin, Jr. Sun shield for a childs car seat. 5,067,770, Cl. 297-184.000.

Hastings, Joseph A. Instrument sterilizer. 5,068,085, Cl. 422-1.000.

Hatano, Tsutomu; Kawasaki, Sohei; Hoshino, Tetsuro; and Endo, Takamitsu, to Exxon Research & Engineering Company. Method of cold rolling a metal. 5,068,049, Cl. 252-57.000.

Hatch, Newell J.: *See—*
Sorensen, Dent G.; and Hatch, Newell J., 5,067,396, Cl. 99-340.000.

Hathaway, Dana B. Polymer-filled audio loudspeaker cabinet. 5,067,583, Cl. 181-151.000.

Hatten, Allen R. G.; and Hatten, Jean. Scratching posts. 5,067,440, Cl. 119-29.000.

Hatten, Jean: *See—*
Hatten, Allen R. G.; and Hatten, Jean, 5,067,440, Cl. 119-29.000.

Hattori, Tetsuo: *See—*
Ohno, Kou; Hattori, Tetsuo; and Matsumoto, Tsuyoshi, 5,068,529, Cl. 250-231.180.

Hauch, Dennis W.; and Werner, Kurt, to Whirlpool Corporation. Lint collecting device. 5,067,253, Cl. 34-82.000.

Haug, Michael: *See—*
Andree, Roland; Haug, Michael; Santel, Hans-Joachim; Schmidt, Robert R.; and Strang, Harry, 5,068,394, Cl. 560-56.000.

Haun, Niels; and Moore, Duncan T., to University of Rochester, The. Sol-gel method for making gradient index optical elements. 5,068,208, Cl. 501-12.000.

Hauser, Jeffrey B.: *See—*
Paspek, Stephen C.; Hauser, Jeffrey B.; Eppig, Christopher P.; and Adams, Harry A., 5,068,027, Cl. 208-125.000.

Hauslaib, Wolfgang: *See—*
Gomoll, Guenter; and Hauslaib, Wolfgang, 5,067,833, Cl. 400-213.000.

Haussling, Reinhold. Method of making a sound absorbing laminate. 5,068,001, Cl. 156-222.000.

Hawk, Robert M.: *See—*
Hall, Douglas W.; and Hawk, Robert M., 5,067,789, Cl. 385-27.000.

Hawkins, Ronald G.; and Grigsby, Richard, to BICC Public Limited Company. Optical fibre monitoring. 5,067,786, Cl. 385-13.000.

Hayami, Hiroshi: *See—*
Nowatari, Hiroyoshi; Hayami, Hiroshi; Kuroda, Yasuo; Yoda, Sumio; and Takahashi, Katsutoshi, 5,068,376, Cl. 556-137.000.

Hayashi, Kenichi: *See—*
Hagino, Sadaaki; Suzuki, Motokazu; Kondo, Hideyuki; Nishikawa, Shigeru; and Hayashi, Kenichi, 5,068,219, Cl. 505-1.000.

Hays, George F.; and Coyle, James A., to Ashland Oil Inc. Method for determining fluid corrosiveness. 5,068,196, Cl. 436-6.000.

Hayward, Christopher F.: *See—*
Camble, Roger; Cotton, Ronald; Dutta, Anand S.; and Hayward, Christopher F., 5,068,222, Cl. 514-15.000.

Hayward Industries, Inc.: *See—*
Tobias, Samuel; and Hazlehurst, Fred T., 5,068,033, Cl. 210-169.000.

Hayward, Wesley H.; and Taylor, Stewart S., to TriQuint Semiconductor, Inc. Compensation method and apparatus for enhancing single-ended to differential conversion. 5,068,621, Cl. 330-253.000.

Hazard Detection Systems: *See—*
Husher, Fredrick K., 5,068,654, Cl. 340-903.000.

Hazenbroek, Jacobus E.; and Verrijp, Bastiaan. Revolving poultry thigh deboner. 5,067,927, Cl. 452-136.000.

Hazlehurst, Fred T.: *See—*
Tobias, Samuel; and Hazlehurst, Fred T., 5,068,033, Cl. 210-169.000.

Heads, Alan: *See—*
St. Angelo, Stephen, Jr.; Lucci, John J.; Carver, George C.; Heads, Alan; and Mitchell, James F., 5,067,225, Cl. 29-451.000.

Healy, Daniel P. Pineapple cutting and coring device. 5,067,397, Cl. 99-542.000.

Heath, Warren J.; Langner, Rene J.; and Bell, Charles A., to Precision Systems, Inc. Process environment monitoring system. 5,068,798, Cl. 364-497.000.

Heckel, Armin: *See—*
Muller, Erich; Nickl, Josef, deceased; Heckel, Armin; and Engelhardt, Gunther, 5,068,334, Cl. 546-157.000.

Heeren, Evert; and Gotthelf, Hans, to Hoesch Werke AG. Method of treating refuse scrap. 5,067,659, Cl. 241-19.000.

Heinhold, Duane H.; and Heinhold, Kenneth E. Cleaning and sanitizing system for frozen dessert mixing machine. 5,067,819, Cl. 366-138.000.

Heinhold, Kenneth E.: *See—*
Heinhold, Duane H.; and Heinhold, Kenneth E., 5,067,819, Cl. 366-138.000.

Heinz, Gerhard: *See—*
Pipper, Gunter; Heinz, Gerhard; and Hisgen, Bernd, 5,068,308, Cl. 528-171.000.

Heinz, Hans-Detlef: *See—*
Horn, Klaus; Heinz, Hans-Detlef; Muller, Peter-Rolf; and Dujardin, Ralf, 5,068,311, Cl. 528-324.000.

Heinz, Jochen; Krug, Thomas; Ruebsam, Klemens; and Kessler, Hans, to Leybold Aktiengesellschaft. Series evaporator for vacuum vapor-deposition apparatus. 5,068,915, Cl. 392-389.000.

Heitmiller, Charles E., to Carrier Vibrating Equipment, Inc. Vibrating article coating and conveying apparatus. 5,067,431, Cl. 118-57.000.

Hellenguard, Hanh P.; Koth, Lawrence J.; and Vaughan, Donald T., to Du Pont de Nemours, E. I., and Company. Control of sheet opacity. 5,068,796, Cl. 364-469.000.

Helm, Randolf E.: *See—*
Wilkins, Bruce G.; and Helm, Randolf E., 5,067,545, Cl. 160-178.100.

Helmstetter, Richard C.: *See—*
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., 5,067,711, Cl. 273-77.00A.
Schmidt, Glenn H.; Sheehan, John P.; and Helmstetter, Richard C., 5,067,715, Cl. 273-167.00F.

Hely, John P., to Medical Specialties, Inc. Ankle stabilizing appliance. 5,067,486, Cl. 128-80.00H.

Hemmerich, Andreas; McIntyre, David; Zimmermann, Claus; and Haensch, Theodor, to Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V. Solid state laser operating with frequency doubling and stabilized by an external resonator. 5,068,546, Cl. 359-328.000.

Hemmings, John W.; Allan, Peter; and O'Shaughnessy, Gerald M., to Aeci Limited. Purification of gases. 5,067,972, Cl. 55-40.000.

Hen, John, to Mobil Oil Corporation. Dissolution of sulfate scales. 5,068,042, Cl. 252-8.552.

Henderson, Ian D.: *See—*
Dick, Ian R.; Henderson, Ian D.; Kimpton, Gordon L.; and Wyatt, David S., 5,068,507, Cl. 219-73.110.

Hendricks, Curt J.: *See—*
Dickerson, Mack F.; Hendricks, Curt J.; and Hendricks, Gregory A., 5,067,428, Cl. 114-230.000.

Hendricks, Gregory A.: *See—*
Dickerson, Mack F.; Hendricks, Curt J.; and Hendricks, Gregory A., 5,067,428, Cl. 114-230.000.

Hendricks, Katherine A., to Tabakoff, Boris; and Newton, John, part interest to each. Anti-motion sickness apparatus. 5,067,941, Cl. 600-27.000.

Hendrix, David C., to BASF Corporation. Process for the oxidation of hydrocarbons utilizing partitioning of oxidizing gas. 5,068,464, Cl. 568-357.000.

Henkel Corporation: *See—*
Lindert, Andreas; Pierce, John R.; McCormick, David R.; and Zimmermann, William D., 5,068,299, Cl. 526-313.000.

Henneberger, Roy L.; Weitnauer, Ronald M.; and Johnson, Wayne A., to ADC Telecommunications, Inc. Optic cable management system. 5,067,678, Cl. 248-68.100.

Henning, Joergensen. Imprisoning trap. 5,067,271, Cl. 43-60.000.

Hercules Incorporated: *See—*
Bard, John K.; and Burnier, Julia S., 5,068,303, Cl. 528-25.000.
Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, 5,068,296, Cl. 526-282.000.

Herent, Gerard; Mahe, Michel; and Romagny, Alex, to Regie Nationale Des Usines Renault. Auxiliary device for handling failures of an actuating system of a linear electric actuator. 5,068,584, Cl. 318-549.000.

Herlitz, Nils G.; Iglehart, Karl I.; and Sentell, John S., to Safe T.V., Inc. Video inspection system for hazardous environments. 5,068,720, Cl. 358-100.000.

Herman C. Starck Berlin GmbH & Co. KG: *See—*
Eckert, Joachim; and Bludssus, Walter, 5,068,097, Cl. 423-592.000.

Hermann Berstorff Maschinenbau GmbH: *See—*
Capelle, Gerd, 5,068,069, Cl. 264-40.500.

Herrell, Dennis J.: *See—*
Smith, Lawrence N.; Woodard, Ollie C., Sr.; and Herrell, Dennis J., 5,068,580, Cl. 315-366.000.

Herring, Samuel H., to Niagara Lockport Industries, Inc. 14 harness dual layer papermaking fabric. 5,067,526, Cl. 139-383.00A.

Herrington, F. John, Jr.; and St. Phillips, Eric A., to Mobil Oil Corporation. Plastic reclosable fastener with self-locking slider. 5,067,208, Cl. 24-400.000.

Herrington, Fox J.: *See—*
Grosz, Edward G.; Herrington, Fox J.; and St. Phillips, Eric A., 5,067,633, Cl. 221-279.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Herrmann, Wolfgang: *See—*
Steiner, Klaus; Herrmann, Wolfgang; Crone, Gunter; and Combs, Charles S., 5,068,413, Cl. 562-507.000.
Herzog, Kenneth. Bench top container filler. 5,067,531, Cl. 141-116.000.
Hesa S.p.A.: *See—*
Hruby, Vincenzo; and Vizzotto, Raffaele, 5,068,642, Cl. 340-562.000.
Hesske, Benno; Adnrae, Pranz; and Weber, Peter, to Feinmechanische Optische Betriebsgesellschaft m.b.H. Gauge for measuring tree-trunk growth and the like. 5,067,246, Cl. 33-555.400.
Hester, Charles F.: *See—*
Clark, Rodney L.; and Hester, Charles F., 5,068,801, Cl. 395-25.000.
Hettche, Helmut: *See—*
Achterrath-Tuckerman, Ute; Aurich, Rudolf, Engel, Jurgen; Hettche, Helmut; and Kleeman, Axel, 5,068,233, Cl. 514-212.000.
Hewlett-Packard Company: *See—*
Dervisoglu, Bulent I.; and Stong, Gayvin E., 5,068,881, Cl. 377-70.000.
Lipschutz, David, 5,068,833, Cl. 367-98.000.
Woodroffe, Brian W., 5,068,879, Cl. 375-115.000.
Heyche, Albert; Latteur, Alain; and Dekoninck, Philippe, to Vigilant, Ltd. Control system for remote controlled aircraft. 5,067,674, Cl. 244-190.000.
Hi-Tek Polymers, Inc.: *See—*
Shimp, David A.; and Vanderlip, Jeffrey T., 5,068,309, Cl. 528-211.000.
Hiemstra-Paez, Carol L., to Camp International, Inc. Posture training support with weight pockets. 5,067,484, Cl. 128-78.000.
Hiernaut, Jean-Pol: *See—*
Van Geel, Jacobus; Magill, Joseph; Werner, Paul; and Hiernaut, Jean-Pol, 5,068,512, Cl. 219-121.600.
Higa, Kelvin T., to United States of America, Navy. Monomeric organometallic compounds and method of preparing same. 5,068,370, Cl. 556-19.000.
Higashi, Michiya: *See—*
Uchida, Ken; Higashi, Michiya; Kihara, Naoko; Shimozawa, Hiroshi; and Yoshizumo, Akira, 5,068,267, Cl. 523-435.000.
Higashihata, Yoshihide: *See—*
Fukada, Eiichi; Saito, Shigeru; Yagi, Toshiharu; and Higashihata, Yoshihide, 5,067,488, Cl. 128-777.000.
Higuchi, Hiroshi: *See—*
Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, 5,068,828, Cl. 365-189.010.
Higuchi, Kazuo: *See—*
Uchida, Kiyoshi; Noda, Shoji; and Higuchi, Kazuo, 5,068,871, Cl. 373-17.000.
Higuchi, Toshihiko; Nakano, Yasuhiko; Kunii, Nobuaki; Yamaguchi, Yoshiyuki; and Kozawa, Shigeyuki, to Asahi Glass Company, Ltd. Moisture-curable resin composition. 5,068,304, Cl. 528-28.000.
Hiiji, John A. Connector and method for use thereof. 5,067,848, Cl. 403-406.100.
Hijikata, Kenji: *See—*
Watanabe, Junji; Naka, Michiro; and Hijikata, Kenji, 5,068,052, Cl. 252-299.010.
Hilber, Walter, to Kone Oy. Procedure for horizontal storage of paper rolls. 5,067,871, Cl. 414-786.000.
Hilbert, Ferdinand, to Siemens Aktiengesellschaft. Solid electrolyte capacitor in a chip structure. 5,068,766, Cl. 361-534.000.
Hilbert, Samuel D.: *See—*
Weaver, Max A.; Pruett, Wayner P.; and Hilbert, Samuel D., 5,068,348, Cl. 548-264.400.
Hilbrands, Martin J., to Progressive Blasting Systems, Inc. Seal belt assembly for compartments in which blasting, spraying and the like operations are performed. 5,067,285, Cl. 51-426.000.
Hilby, James A.: *See—*
Grillo, John M.; Hilby, James A.; La Croix, Mark E.; Polinsky, Mark A.; and Steltzer, Gordon L., 5,067,350, Cl. 73-494.000.
Hill, Gary; Schoch, Walter K.; and Warkentien, Michael, to Sewell Plastics, Inc. Parison lubrication method. 5,068,078, Cl. 264-512.000.
Hill, Philip G.; Pierik, Ronald J.; and Hodgins, K. Bruce, to University of British Columbia, The. Intensifier-injector for gaseous fuel for positive displacement engines. 5,067,467, Cl. 123-497.000.
Hiller, Don: *See—*
Breaux, Craig B.; Cawyer, Denny; Duplantis, Dwight; and Hiller, Don, 5,067,510, Cl. 137-77.000.
Hilton, Charles B.: *See—*
Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., 5,068,448, Cl. 568-319.000.
Hilton Nevada Corporation: *See—*
Georgilas, Michael, 5,067,712, Cl. 273-143.00R.
Hilz, Wolfgang; Schuster, Rudolf; and Schauflinger, Hans, to Siemens Aktiengesellschaft. Testing device for both-sided two-stage contacting of equipped printed circuit boards. 5,068,600, Cl. 324-158.00F.
Himmele, Walter: *See—*
Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,245, Cl. 514-429.000.
Zipplies, Matthias; Sauter, Hubert; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,246, Cl. 514-429.000.
Himmler, Gunther; and Moench, Uwe, to Gebr. Hofmann GmbH & Co. KG Maschinenfabrik. Rotary member measuring apparatus with improved support bed. 5,067,348, Cl. 73-460.000.
Hines, Marshall U.: *See—*
Ball, Larry K.; Hines, Marshall U.; and Tervo, John N., 5,067,506, Cl. 137-1.000.
Hinmont Incorporated: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.
Hinsberg, William D.: *See—*
Betterton, Kathleen M.; Hinsberg, William D.; Nguyen, Huu T.; Tang, Wing T.; and Twieg, Robert J., 5,068,054, Cl. 252-299.620.
Hinsch, Robert M.: *See—*
Ryan, Dana W.; Kaiser, James M.; and Hinsch, Robert M., 5,067,945, Cl. 604-198.000.
Hinton, Mark L.; and Belka, John C., Jr., to Allied-Signal Inc. Digital blanker for scanned displays. 5,068,647, Cl. 340-734.000.
Hirabayashi, Hirokazu, to Nissan Motor Company, Ltd. Air bag system. 5,067,744, Cl. 280-734.000.
Hirakawa, Yoshiyuki: *See—*
Samejima, Masayoshi; Noda, Kazuo; Hirakawa, Yoshiyuki; and Yoshino, Hiroyuki, 5,068,112, Cl. 424-495.000.
Hirano, Hidemi: *See—*
Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, 5,067,555, Cl. 164-480.000.
Hirata, Kazunari: *See—*
Kawasaki, Isamu; and Hirata, Kazunari, 5,067,393, Cl. 92-186.000.
Hiratsuka, Nobuo: *See—*
Yoshida, Takashi; Kawase, Tsueno; and Hiratsuka, Nobuo, 5,068,019, Cl. 204-182.800.
Hirchert, Richard A., to Allied-Signal Inc. Method and apparatus for balancing rotating components. 5,067,349, Cl. 73-472.000.
Hiroe, Akihiko, to Ricoh Company, Ltd. Photoelectric conversion device with voltage source means. 5,068,526, Cl. 250-214.00R.
Hirofuji, Satoshi: *See—*
Negi, Taichi; Hirofuji, Satoshi; Tanaka, Nobuo; and Kawai, Syuji, 5,068,077, Cl. 264-512.000.
Hirohata, Toru: *See—*
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.
Hironaka, Misao: *See—*
Yagi, Tetsuya; and Hironaka, Misao, 5,068,870, Cl. 372-50.000.
Hirose, Kazunori: *See—*
Nishio, Yukio; and Hirose, Kazunori, 5,068,691, Cl. 355-259.000.
Hirschberg, Bruno: *See—*
Lepoutre, Etienne; Devaux, Michel; Hirschberg, Bruno; Petio, Franz A.; and Weitzer, Paul, 5,067,693, Cl. 266-44.000.
Hisada, Haruhiko: *See—*
Ogawa, Yoshikatsu; Hisada, Haruhiko; Kasahara, Takeshi; Kizaki, Fumihiko; and Yoshiya, Masahide, 5,068,446, Cl. 568-33.000.
Hisada, Hidenori; and Suzuki, Makoto, to Brother Kogyo Kabushiki Kaisha. Image recording apparatus using mask members and having monochromatic printer portion and manual mask member insertion tray. 5,068,685, Cl. 355-32.000.
Hisgen, Bernd: *See—*
Pipper, Gunter; Heinz, Gerhard; and Hisgen, Bernd, 5,068,308, Cl. 528-171.000.
Hitachi Babcock Kabushiki-kaisha: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.
Hitachi Denshi Kabushiki Kaisha: *See—*
Taneichi, Yoshio; and Fujiwara, Yukinari, 5,068,624, Cl. 330-293.000.
Hitachi, Ltd.: *See—*
Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, 5,067,555, Cl. 164-480.000.
Futamoto, Masaaki; Honda, Yukio; and Yoshida, Kazuetsu, 5,068,158, Cl. 428-694.000.
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.
Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, 5,068,828, Cl. 365-189.010.
Miyashita, Koujirou; and Machida, Tetsuo, 5,068,802, Cl. 395-133.000.
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.
Owada, Nobuo; Horiuchi, Mitsuaki; Tsuneoka, Masatoshi; and Taneoka, Tadayuki, 5,068,710, Cl. 357-71.000.
Satoh, Yutaka, 5,068,732, Cl. 358-180.000.
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Watanabe, Tan; Nishino, Hideki; Iwami, Hidefumi; and Tabata, Kuniaki, 5,068,804, Cl. 395-147.000.
Yamaguchi, Yasunori; and Miyake, Jun, 5,068,829, Cl. 365-189.070.
Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, 5,068,605, Cl. 324-158.00R.
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.
Hitachi Maxell, Ltd.: *See—*
Kitakami, Osamu; Fujiwara, Hideo; Ojima, Kiyotaka; Ogawa, Youichi; and Wakai, Kunio, 5,068,144, Cl. 428-323.000.
Maro, Tsuyoshi; Kitakami, Osamu; and Fujiwara, Hideo, 5,068,152, Cl. 428-408.000.
Hitachi Metals International, Ltd.: *See—*
Ribitch, Raymond, 5,067,990, Cl. 148-262.000.
Hitachi Metals, Ltd.: *See—*
Nagamatsu, Hiromitsu; and Ueda, Seitaro, 5,067,931, Cl. 474-162.000.
Hitachi Micro Computor Engineering Kabushiki Kaisha: *See—*
Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, 5,067,904, Cl. 439-73.000.
Hitachi Microcomputer Engineering, Ltd.: *See—*
Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, 5,068,828, Cl. 365-189.010.
Miyashita, Koujirou; and Machida, Tetsuo, 5,068,802, Cl. 395-133.000.
Hitch, Brenda J.: *See—*
Sumner, Charles E., Jr.; Hitch, Brenda J.; and Bernard, Bobby L., 5,068,460, Cl. 568-648.000.
Hitoshi, Tarukawa: *See—*
Mamoru, Takeichi; Naoshi, Hagihara; Hitoshi, Tarukawa; Tawaki, Shinichirou; and Makiguchi, Nobuyoshi, 5,068,187, Cl. 435-106.000.
Hitotsumachi, Shuzo: *See—*
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.
Hjorth, Bo: *See—*
Ohlsson, Thomas; and Hjorth, Bo, 5,068,658, Cl. 341-131.000.
Ho, Suzzy C.: *See—*
Wu, Margaret M.; and Ho, Suzzy C., 5,068,476, Cl. 585-12.000.
Hobbs, Sheila H., to Warner-Lambert Company. Substituted furans and derivatives thereof acting at muscarinic receptors. 5,068,237, Cl. 514-365.000.
Hobbs, Stanley Y.: *See—*
Campbell, John R.; Shea, Timothy J.; Hobbs, Stanley Y.; and Brown, Sterling B., 5,068,286, Cl. 525-92.000.
Hochmuth, Harald: *See—*
Ritter, Joachim; and Hochmuth, Harald, 5,067,598, Cl. 192-7.000.
Hock, Donald E.: *See—*
Francik, Charles A.; Fleming, Harry A., Jr.; and Hock, Donald E., 5,067,295, Cl. 52-306.000.
Hock, Franz: *See—*
Nickel, Wolf-Ulrich; Ruger, Wolfgang; Urbach, Hansjorg; and Hock, Franz, 5,068,242, Cl. 514-412.000.
Hodgins, K. Bruce: *See—*
Hill, Philip G.; Pierik, Ronald J.; and Hodgins, K. Bruce, 5,067,467, Cl. 123-497.000.
Hodogaya Chemical Co., Ltd.: *See—*
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.
Hoechst Aktiengesellschaft: *See—*
Elsaesser, Andreas; Frass, Werner; and Mohr, Dieter, 5,068,163, Cl. 430-192.000.
Miess, Georg-Emerich; Schwarz, Karl-Heinz; Tetzlaff, Heribert; and Wojtech, Bernhard, 5,068,358, Cl. 548-555.000.
Nickel, Wolf-Ulrich; Ruger, Wolfgang; Urbach, Hansjorg; and Hock, Franz, 5,068,242, Cl. 514-412.000.
Paul, Norbert; Huber, Rudolf; and Mielke, Ingolf, 5,068,471, Cl. 570-139.000.
Schlingmann, Merten; Keller, Reinhold; Wiesner, Matthias; Treder, Wolfgang; and Thiem, Joachim, 5,068,186, Cl. 435-96.000.
Teetz, Volker; Wissmann, Hans; and Urbach, Hansjorg, 5,068,351, Cl. 548-452.000.
von Werner, Konrad; and Probst, Anton, 5,068,415, Cl. 562-541.000.
Hoechst Celanese Corporation: *See—*
Brown, David M.; and Potvin, Robert E., 5,068,319, Cl. 534-759.000.
Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., 5,068,448, Cl. 568-319.000.
Hoegberg, Lon; and Maddali, Vijay, to Sundstrand Corporation. Speed control for electrical generating system. 5,068,591, Cl. 322-29.000.
Hoesch Werke AG: *See—*
Heeren, Evert; and Gotthelf, Hans, 5,067,659, Cl. 241-19.000.
Hoffa, Gary. Fish aquarium. 5,067,438, Cl. 119-5.000.
Hoffman, Eldon P.: *See—*
Van Horne, Arthur C.; Hoffman, Eldon P.; and Bakke, Paul D., 5,067,705, Cl. 271-277.000.
Hofland, Robert, Jr.: *See—*
Mirels, Harold; Spencer, Donald J.; and Hofland, Robert, Jr., 5,067,801, Cl. 359-666.000.
Hofmann, Kathryn J.: *See—*
Hopper, James E.; Schultz, Loren D.; Hofmann, Kathryn J.; and Ellis, Ronald W., 5,068,185, Cl. 435-69.100.
Hogen Esch, Johannes H. L., to N.V. Nederlandsche Apparatenfabriek Nedap. Detection label for an anti-shop-lifting system. 5,068,641, Cl. 340-551.000.
Hohlein, Peter: *See—*
Meixner, Jurgen; Pedain, Josef; Hohlein, Peter; and Kreuder, Hans-Joachim, 5,068,305, Cl. 528-49.000.
Holdenried, Willy, to Zahnradfabrik Friedrichshafen AG. Control device. 5,067,362, Cl. 74-335.000.
Holder, Michael D. Battering ram. 5,067,237, Cl. 30-1.000.
Hollenbeck, Martha D.: *See—*
Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., 5,068,105, Cl. 424-93.000.
Hollibush, Daniel J.; Fasnacht, Jeffery; and Eeg, Edward G., to Ortho-Vacon, Inc. Polymeric orthodontic members and orthodontic treatment method. 5,068,107, Cl. 424-435.000.
Hollinger, Karl: *See—*
Sajtos, Alexander; Kloimstein, Engelbert; Hollinger, Karl; and Farnlettner, Lorenz, 5,068,417, Cl. 562-577.000.
Hollmann, Frank P., to Peter Wolters AG. Card clothing. 5,067,203, Cl. 19-114.000.
Hollmann, Hans-Gunter: *See—*
McConchie, Garnet E.; Mark, Frank E.; and Hollmann, Hans-Gunter, 5,068,401, Cl. 560-236.000.
Holtmyer, Marlin; and Hunt, Charles V., to Halliburton Company. Crosslinkable cellulose derivatives. 5,067,565, Cl. 166-305.100.
Holzhauer, Juergen K.; Brown, Albert P.; and Reeve, Aubrey C., to Amoco Corporation. Compartmented oxidation method. 5,068,406, Cl. 562-413.000.
Honcia, Gunter: *See—*
Schildknecht, Manfred; and Honcia, Gunter, 5,067,409, Cl. 102-476.000.
Honda Giken Kogyo Kabushiki Kaisha: *See—*
Kamimura, Kenji; and Tsuzuki, Sadachika, 5,068,795, Cl. 364-449.000.
Sakai, Ichiro; Arai, Yasuhisa; Yamamoto, Masataka; and Matsui, Hiroki, 5,067,374, Cl. 74-866.000.
Ueno, Tsugio; Sato, Masato; and Mori, Yoshiaki, 5,067,231, Cl. 29-809.000.
Honda, Yukio: *See—*
Futamoto, Masaaki; Honda, Yukio; and Yoshida, Kazuetsu, 5,068,158, Cl. 428-694.000.
Honegger, Werner, to Ferag AG. Method and means for tabloid further processing. 5,067,697, Cl. 270-37.000.
Honeywell Inc.: *See—*
Gold, Ronald S.; and Jachimowicz, Karen E., 5,067,799, Cl. 359-490.000.
Kulkarni, Milind V., 5,068,162, Cl. 429-116.000.
Martwick, Wilford E., 5,067,407, Cl. 102-434.000.
Martwick, Wilford E., 5,067,408, Cl. 102-434.000.
Stout, James C., 5,068,847, Cl. 359-118.000.
Honma, Ko: *See—*
Ishikawa, Haruo; Kawana, Kiyoshi; Honma, Ko; and Yoshikawa, Takashi, 5,068,537, Cl. 250-342.000.
Honshu Paper Co., Ltd.: *See—*
Tsuchiya, Mikio; Kawase, Shoichi; and Watanabe, Hirofumi, 5,067,612, Cl. 206-497.000.
Honshu Sangyou Kabushiki Kaisha: *See—*
Tsuchiya, Mikio; Kawase, Shoichi; and Watanabe, Hirofumi, 5,067,612, Cl. 206-497.000.
Hooykaas, Carel W. J., to Pelt & Hooykaas B.V. Method for rendering toxic waste harmless. 5,067,981, Cl. 106-790.000.
Hoppe, Joseph, to U.S. Philips Corp. Method of generating a unique number for a smart card and its use for the cooperation of the card with a host system. 5,068,894, Cl. 380-23.000.
Hopper, James E.; Schultz, Loren D.; Hofmann, Kathryn J.; and Ellis, Ronald W., to Merck & Co., Inc. Trains of yeast for the expression of heterologous genes. 5,068,185, Cl. 435-69.100.
Hori, Tohru; Aoki, Masaki; and Fujii, Kenichi, to Matsushita Electric Industrial Co., Ltd. Soft magnetic thin film comprising alternate layers of iron carbide with either iron, iron nitride or iron carbonnitride. 5,068,147, Cl. 428-336.000.
Horiba, Ltd.: *See—*
Suzuki, Riichiro; Akiyama, Shigeyuki; and Kubo, Yoshihiro, 5,067,814, Cl. 356-339.000.
Horiguchi, Motokuni: *See—*
Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, 5,067,904, Cl. 439-73.000.
Horinouchi, Kazuo; Mouri, Masahide; and Kameda, Isao, to Sumitomo Chemical Company, Limited. Electrically conductive zirconia-based sintered body and process for the production thereof. 5,068,072, Cl. 264-66.000.
Horio, Yoshihiro: *See—*
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.
Horiuchi, Mitsuaki: *See—*
Owada, Nobuo; Horiuchi, Mitsuaki; Tsuneoka, Masatoshi; and Taneoka, Tadayuki, 5,068,710, Cl. 357-71.000.
Horiuchi, Tatsuo; and Kurokawa, Toshiko, to Noda Institute for Scientific Research. N-acetylhexosamine-dehydrogenase, process for pro-

VOL 1132 ISS 4 NO 26 1991 UMI

ducing same, method for the quantitative analysis of N-acetylglucosamine or N-acetylgalactosamine using same and kit for use in the quantitative analysis. 5,068,190, Cl. 435-190.000.
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, to Bayer Aktiengesellschaft. Polysiloxane-polycarbonate block copolymers based on certain dihydroxydiphenylcycloalkanes. 5,068,302, Cl. 528-21.000.
Horn, Klaus; Heinz, Hans-Detlef; Muller, Peter-Rolf; and Dujardin, Ralf, to Bayer Aktiengesellschaft. High molecular weight (co)polyamide from diamino-alcohol. 5,068,311, Cl. 528-324.000.
Horner, Patrick J.: *See*—
Gors, Heinrich C.; Horner, Patrick J.; and Jansons, Viktors, 5,068,447, Cl. 568-309.000.
Horng, Liou-Liang, to Monsanto Company. Chemical process. 5,068,421, Cl. 562-583.000.
Horodysky, Andrew G.: *See*—
Doner, John P.; Horodysky, Andrew G.; and Keller, John A., Jr., 5,068,045, Cl. 252-32.007.
Hortensius, Peter D.: *See*—
Harrison, Colin G.; and Hortensius, Peter D., 5,068,916, Cl. 455-39.000.
Hosaka, Akihito, to Canon Kabushiki Kaisha. Toner density sensor in close proximity to the regulating blade. 5,067,435, Cl. 118-653.000.
Hosaka, Hiroshi, to Fuji Jukogyo Kabushiki Kaisha. System and method for computing asynchronous interrupted fuel injection quantity for automobile engines. 5,068,794, Cl. 364-431.050.
Hoshi, Satoru; Masuda, Masami; and Kawaguchi, Takayuki, to Kabushiki Kaisha Toshiba. Data read circuit for semiconductor storage device. 5,068,831, Cl. 365-203.000.
Hoshi, Tadahide: *See*—
Nakagawa, Akio; Imamura, Kaoru; Sato, Ryo; and Hoshi, Tadahide, 5,068,704, Cl. 357-38.000.
Hoshino, Tetsuro: *See*—
Hatano, Tsutomu; Kawasaki, Sohei; Hoshino, Tetsuro; and Endo, Takamitsu, 5,068,049, Cl. 252-57.000.
Hoshino, Yukio: *See*—
Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, 5,068,247, Cl. 514-440.000.
Hosiden Corporation: *See*—
Ukai, Yasuhiro; Sunata, Tomihisa; Yukawa, Teizou; and Inada, Toshiya, 5,068,748, Cl. 359-59.000.
Hosmer, Christopher E.; and Whaley, John F., to Marshall and Williams Company. Tenter frame apparatus and method. 5,067,214, Cl. 26-89.000.
Hosokawa, Hiroshi: *See*—
Ohsawa, Hidefumi; Katayama, Akihiro; Hosokawa, Hiroshi; Sunohara, Izuru; and Yoshimoto, Masahiko, 5,068,746, Cl. 358-443.000.
Hotto, Robert: *See*—
Klausner, Judah; and Hotto, Robert, 5,068,838, Cl. 368-47.000.
Howa Machinery Ltd.: *See*—
Shinkai, Kunio; Suzuki, Toyoo; Nomura, Yukitaka; Kurachi, Yoshio; and Kureishi, Hiroyuki, 5,067,204, Cl. 19-159.00A.
Howard, Jerry L., to Eldec Corporation. Component mounting frame. 5,067,917, Cl. 439-890.000.
Howe, Kenneth J. Cement mixer system. 5,067,818, Cl. 366-46.000.
Howell, Gary W.; Irr, Joseph D.; and Nahapetian, Ara T., to Du Pont Merck Pharmaceutical Company. Dot matrix membrane cell expansion and maintenance vessel. 5,068,195, Cl. 435-284.000.
Hozoji, Hiroshi: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.
HPO Hanseatische Prazisions-und Orbittechnik GmbH: *See*—
Netzel, Karl-Hermann, 5,067,282, Cl. 51-165.770.
Hruby, Vincenzo; and Vizzotto, Raffaele, to Hesa S.p.A. Alarm or warning device with sensing means in the form of a D.C. biased shielded coaxial cable. 5,068,642, Cl. 340-562.000.
Hsin, Wei: *See*—
Wang, Shing C.; Ogura, Mutsuo; Wang, Shyh; and Hsin, Wei, 5,068,869, Cl. 372-45.000.
Hsu, Shih C. Three dimensional multi-coating process. 5,068,012, Cl. 204-8.000.
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., to Electronic Ballast Technology, Inc. Remote control of fluorescent lamp ballast using power flow interruption coding with means to maintain filament voltage substantially constant as the lamp voltage decreases. 5,068,576, Cl. 315-291.000.
Huang, Ali; Tsai, Philips; and Chen, Bonbo, to Acer Incorporated. Copy holder. 5,067,681, Cl. 248-442.200.
Huang, DaXu. Motor conversion mechanism utilizing elastic action. 5,068,565, Cl. 310-328.000.
Hubbell Incorporated: *See*—
Favalora, Mark L., 5,068,496, Cl. 174-65.00R.
Huber, Rudolf: *See*—
Paul, Norbert; Huber, Rudolf; and Mielke, Ingolf, 5,068,471, Cl. 570-139.000.
Huddleston, Brent D., to Micron Technology, Inc. Circuit board support apparatus for use with circuit board lead trimmer. 5,067,695, Cl. 269-21.000.
Huegin, Walter: *See*—
Spohr, Horst; and Huegin, Walter, 5,067,544, Cl. 160-177.000.
Huellmann, Michael; Mayr, Herbert; and Becker, Rainer, to BASF Aktiengesellschaft. Preparation of 1,1,3,4,4,6-hexamethyl-1,2,3,4-tetra-hydronaphthalene. 5,068,479, Cl. 585-411.000.
Huels Aktiengesellschaft: *See*—
Balzer, Dieter; Reimer, Heinz; and Friedrich, Werner, 5,068,422, Cl. 562-587.000.
Rauleder, Hartwig; and Kotzch, Hans-Joachim, 5,068,382, Cl. 556-495.000.
Huerta, Joseph: *See*—
Olson, Donald N.; and Huerta, Joseph, 5,067,406, Cl. 102-374.000.
Hughes Aircraft Company: *See*—
Cook, Lacy G.; and Wheeler, Bryce A., 5,068,750, Cl. 359-399.000.
Fong, Herbert S., 5,067,673, Cl. 244-165.000.
Hasenberg, Thomas C.; and Gignac, William J., 5,068,867, Cl. 372-45.000.
Jackson, David P., 5,068,040, Cl. 210-748.000.
LoStracco, Gregory; and LeCompte, George W., 5,067,665, Cl. 242-118.320.
Tsuda, George I.; and Snyder, Dan E., 5,068,668, Cl. 342-362.000.
Hughes, John R. Dental x-ray alignment device. 5,068,887, Cl. 378-170.000.
Hughes, Timothy C.; and Georgis, Steven P., to Exabyte Corporation. Servo tracking for helical scan recorder. 5,068,757, Cl. 360-77.130.
Hui, Benjamin C.: *See*—
Kanjolia, Ravindra K.; and Hui, Benjamin C., 5,068,372, Cl. 556-70.000.
Hukunaga, Masami: *See*—
Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, 5,067,904, Cl. 439-73.000.
Humiston, Robert R. Seam knife for dry wall. 5,067,889, Cl. 425-458.000.
Hunt, Charles V.: *See*—
Holtmyer, Marlin; and Hunt, Charles V., 5,067,565, Cl. 166-305.100.
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., to United Technologies Corporation. Composite scissors for a swashplate. 5,067,875, Cl. 416-114.000.
Hunter, Gary W.; and Leeper, Robert L. Block stacking game apparatus. 5,067,729, Cl. 273-450.000.
Hunter, Ian W., to Royal Institution for the Advancement of Learning (McGill University), The. Gas jet actuator using coanda effect. 5,067,509, Cl. 137-14.000.
Hunziker, Bruno; and Kunz, Peter, to Georg Fischer AG. Ball cock. 5,067,691, Cl. 251-315.000.
Hupp, John M.: *See*—
Bartek, Joseph P.; Brazdil, James F., Jr.; Hupp, John M.; and Grasselli, Robert K., 5,068,215, Cl. 502-208.000.
Hurnaus, Rudolf: *See*—
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., to Farmatic, Inc. Mechanical nursing device for neonatal piglets. 5,067,443, Cl. 119-71.000.
Hurtig, Carl W.: *See*—
Harris, William J.; Lysenko, Zenon; and Hurtig, Carl W., 5,068,384, Cl. 562-453.000.
Hus, In-Shek: *See*—
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.
Husher, Fredrick K., to Hazard Detection Systems. Collision avoidance system. 5,068,654, Cl. 340-903.000.
Husler, Rinaldo: *See*—
Steiner, Eginhard; Beyeler, Harry; and Husler, Rinaldo, 5,068,371, Cl. 556-53.000.
Hutcherson, James: *See*—
Ishikawa, Kiichirou; Dudek, Chet; and Hutcherson, James, 5,067,424, Cl. 112-307.000.
Hutcheson, Robert E. Cushioning impact structure for footwear. 5,067,255, Cl. 36-43.000.
Huxley, Alica; Kunz, Walter; Ackermann, Peter; and Sutter, Marius, to Ciba-Geigy Corporation. Microbicidal compositions. 5,068,359, Cl. 549-58.000.
Hwang, Chong S.: *See*—
Wang, Lawrence K.; Wang, Mu H. S.; Hwang, Chong S.; and Rhow, Harold, 5,068,031, Cl. 210-96.100.
Hwang, Deng R.; and Scott, Mary Ellen A., to Technicon Instruments Corporation. Substrates for β-galactosidase. 5,068,180, Cl. 435-7.920.
Hyde, James P.; and Bryans, Thomas J., to Ford Motor Company. Heat shield retainer. 5,067,575, Cl. 180-69.400.
Hydundae Enviroment Energy Mgmt. Corp., Ltd.: *See*—
Chang, Ha Y., 5,067,974, Cl. 55-223.000.
Iazzi, Nadia: *See*—
Crotti, Pier L.; and Iazzi, Nadia, 5,068,202, Cl. 437-67.000.
Ichikawa, Souji, to Mitutoyo Corporation. Optical encoder. 5,067,816, Cl. 356-373.000.
Ichinohe, Shoji: *See*—
Kawamoto, Hideyuki; Ichinohe, Shoji; and Tsubone, Kazuyuki, 5,068,377, Cl. 556-418.000.

Ichitani, Masahiro: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.
ICI Americas Inc.: *See*—
Michaely, William J.; and Curtis, Jeff K., 5,068,423, Cl. 562-840.000.
Ideal Industries, Inc.: *See*—
Wolter, Eric H.; and Wennemar, James A., 5,067,375, Cl. 81-9.420.
Ideda, Keiichi: *See*—
Tsumura, Ryuichiro; Muraishi, Teruo; Ideda, Keiichi; and Wang, Jin-Kai, 5,068,357, Cl. 548-548.000.
Idel, Karsten-Josef: *See*—
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, 5,068,302, Cl. 528-21.000.
Idemitsu Kosan Co., Ltd.: *See*—
Furusawa, Toshihiro; Satoh, Atsushi; Nakajima, Takashi; and Matsugishi, Noriaki, 5,068,068, Cl. 264-23.000.
Ieki, Atsushi; and Matsui, Keiji, to Kabushiki Kaisha Okuma Tekkosho. Optical encoder. 5,068,530, Cl. 250-237.00G.
Igarashi, Shigeru: *See*—
Ozawa, Osamu; Takahashi, Shuji; and Igarashi, Shigeru, 5,068,137, Cl. 428-36.200.
Igen, Inc.: *See*—
Hall, Lee O.; Zoski, Glenn; and Tyagi, Surendera K., 5,068,088, Cl. 422-52.000.
Iglehart, Karl I.: *See*—
Herlitz, Nils G.; Iglehart, Karl I.; and Sentell, John S., 5,068,720, Cl. 358-100.000.
Iida, Takashi: *See*—
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.
Iizuka, Takashi: *See*—
Morimoto, Akira; and Iizuka, Takashi, 5,067,782, Cl. 359-202.000.
Ikeda, Hideo: *See*—
Takehara, Hiroshi; and Ikeda, Hideo, 5,068,173, Cl. 430-567.000.
Ikeda, Masami: *See*—
Sato, Koichi; and Ikeda, Masami, 5,068,674, Cl. 346-1.100.
Ikeda, Ritoko: *See*—
Naito, Susumu; Kouzai, Takao; and Ikeda, Ritoko, 5,068,399, Cl. 560-212.000.
Ikenoue, Yoshikazu, to Minolta Camera Kabushiki Kaisha. Printer controller. 5,068,807, Cl. 395-115.000.
Ikeou, Shinei: *See*—
Miyamoto, Tetsuya; Takahashi, Miyao; Fujisaki, Takahiko; Ikeou, Shinei; and Omura, Takashi, 5,068,327, Cl. 544-76.000.
Ikeuchi, Michio: *See*—
Yoshikawa, Shuuichi; Watanabe, Masahiko; Ikeuchi, Michio; Murata, Yasumoto; and Nakano, Takahiko, 5,068,876, Cl. 375-80.000.
Ikumoto, Takeshi: *See*—
Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, 5,068,247, Cl. 514-440.000.
Ilizarov, Gavriil A. Distraction apparatus for plastic reconstruction of hand. 5,067,954, Cl. 606-58.000.
Illgner, Eberhard: *See*—
Kinzel, Walter; and Illgner, Eberhard, 5,067,191, Cl. 14-2.400.
Illig, Carl R.; and Weis, Alexander L., to Eastman Kodak Company. Oxazolidinone aldol adduct. 5,068,345, Cl. 548-230.000.
Illinois Tool Works Inc.: *See*—
Dewey, George G.; and Tenuta, Ralph D., 5,067,864, Cl. 411-344.000.
Imamura, Kaoru: *See*—
Nakagawa, Akio; Imamura, Kaoru; Sato, Ryo; and Hoshi, Tadahide, 5,068,704, Cl. 357-38.000.
Imanaka, Tadayuki; and Sakurai, Shoji, to Nikko Bio Technica Co., Ltd. *Bacillus stearothermophilus* strain having a high protoplast forming ratio. 5,068,194, Cl. 435-252.500.
Imanishi, Yasuo: *See*—
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.
Imperial Chemical Industries PLC: *See*—
Bushell, Michael J.; and Carr, Robin A. E., 5,068,461, Cl. 568-655.000.
Camble, Roger; Cotton, Ronald; Dutta, Anand S.; and Hayward, Christopher F., 5,068,222, Cl. 514-15.000.
Hardwick, Roy, 5,067,649, Cl. 228-107.000.
Impink, Albert J., Jr.; and Lipner, Melvin H., to Westinghouse Electric Corp. Operation state responsive automatic display selection system. 5,068,080, Cl. 376-215.000.
INA Walzlager Schaeffler KG: *See*—
Ritter, Joachim; and Hochmuth, Harald, 5,067,598, Cl. 192-7.000.
Inada, Hitoshi: *See*—
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.
Inada, Toshiya: *See*—
Ukai, Yasuhiro; Sunata, Tomihisa; Yukawa, Teizou; and Inada, Toshiya, 5,068,748, Cl. 359-59.000.
Inagaki, Takeshi: *See*—
Ashina, Yoshiro; Fujita, Takeyuki; Niwa, Kiyonobu; Inagaki, Takeshi; and Nikaido, Yuko, 5,068,442, Cl. 564-479.000.
Inamasa, Kenji: *See*—
Takagawa, Makoto; Yamagishi, Ken; Yoshihara, Jyun; Inamasa, Kenji; and Watabe, Kumiko, 5,068,480, Cl. 585-411.000.
Inari, Masato: *See*—
Tanaka, Toru; and Inari, Masato, 5,068,410, Cl. 562-483.000.
Inata, Hiroo; Matsumura, Shunichi; Itoh, Seiji; and Okada, Masuhiro, to Teijin Limited. Reversibly color-changeable materials. 5,068,062, Cl. 252-518.000.
Inata, Hiroo: *See*—
Hara, Shigeyoshi; Inata, Hiroo; and Matsumura, Shunichi, 5,068,307, Cl. 528-125.000.
Inata, Tooru: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.
Inbar, Dan; Barnea, Daniel I.; and Bruck, Abraham, to Elscint Ltd. Lithotripsy system using ultrasound to locate calculi. 5,067,493, Cl. 128-660.030.
Index-Werke GmbH & Co. KG Hahn & Tessky: *See*—
Hafla, Dietmar F., 5,067,363, Cl. 74-392.000.
Indian Head Industries, Inc.: *See*—
Choinski, Graydon J.; Gummer, Allen L.; and Brooks, David W., 5,067,391, Cl. 92-48.000.
Industria Italiana Integratori Trei S.p.A.: *See*—
Fezzi, Luigi; and Grassigli, Giacomo, 5,068,108, Cl. 424-438.000.
Infusaid, Inc.: *See*—
Burke, Paul, 5,067,943, Cl. 604-141.000.
Inomata, Koichiro; and Hashimoto, Susumu, to Kabushiki Kaisha Toshiba. Amorphous oxide magnetic material. 5,068,050, Cl. 252-62.510.
Inoue, Nobuko: *See*—
Kawazi, Toshikuni; Ono, Masahiro; and Inoue, Nobuko, 5,068,103, Cl. 424-81.000.
Inoue, Yoichi; and Kasano, Akira, to Kabushiki Kaisha Toshiba. Method and apparatus for detecting mark from image data. 5,068,908, Cl. 382-48.000.
Inoue, Yoshihisa, to Nakamichi Corporation. Disk cartridge with notch for locking a shutter. 5,068,761, Cl. 360-133.000.
Institut Dr. Friedrich Forster Prufgeratebau GmbH & Co. KG: *See*—
Auslander, Klaus; Fabris, Hans-Jurgen; Mock, Karl-Heinz; Patwald, Wolfgang; and Seichter, Helmut, 5,068,612, Cl. 324-327.000.
Institut Francais du Petrole: *See*—
Castel, Yvon, 5,067,429, Cl. 114-230.000.
Institut Textile de France: *See*—
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.
Instrumentarium Corp.: *See*—
Savelainen, Matti, 5,068,611, Cl. 324-314.000.
Intec Corp.: *See*—
Adelson, Alexander, 5,068,523, Cl. 250-208.100.
Integrated Systems Engineering, Inc.: *See*—
Brown, Brent W., 5,068,577, Cl. 315-307.000.
International Business Machines Corporation: *See*—
Batey, John; and Tierney, Elaine, 5,068,124, Cl. 427-39.000.
Betterton, Kathleen M.; Hinsberg, William D.; Nguyen, Huu T.; Tang, Wing T.; and Twieg, Robert J., 5,068,054, Cl. 252-299.620.
Blaum, Miguel M.; and Hao, Hsieh T., 5,068,858, Cl. 371-41.000.
Harrison, Colin G.; and Hortensius, Peter D., 5,068,916, Cl. 455-39.000.
Misra, Mamata; Urquhart, Robert J.; Vanover, Miachel T.; and Voltin, John A., 5,068,819, Cl. 364-736.000.
Polivka, William M., 5,068,776, Cl. 363-17.000.
Quintin, Michel, 5,068,875, Cl. 375-78.000.
International Flavors & Fragrances Inc.: *See*—
Narula, Anubhav P. S.; and De Virgilio, John J., 5,068,363, Cl. 549-355.000.
Int'l Environmental Systems, Inc.: *See*—
Wang, Lawrence K.; Wang, Mu H. S.; Hwang, Chong S.; and Rhow, Harold, 5,068,031, Cl. 210-96.100.
Intrascapes, Ltd.: *See*—
Easley, Madlyn, 5,067,542, Cl. 160-126.000.
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, to Wakamoto Pharmaceutical Co., Ltd. Tetrazoleacetic acid derivatives and use for aldose reductase inhibitory activity. 5,068,239, Cl. 514-381.000.
Ipcinski, Ralph, to C & K Components Inc. Alternate action pushbutton switch. 5,068,505, Cl. 200-525.000.
Irgang, Matthias: *See*—
Schossig, Juergen; Koppenhoffer, Gerhard; Irgang, Matthias; Schnur, Rudi; and Roley, George, 5,068,468, Cl. 568-861.000.
Irr, Joseph D.: *See*—
Howell, Gary W.; Irr, Joseph D.; and Nahapetian, Ara T., 5,068,195, Cl. 435-284.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Irwin Toy Ltd.: *See*—
Yurkovic, Paula M., 5,067,723, Cl. 273-249.000.

Ishibashi, Shigeki: *See*—
Maruno, Tohru; Ishibashi, Shigeki; and Nakamura, Kouzaburou, 5,068,261, Cl. 522-39.000.

Ishibashi, Tadao: *See*—
Yamada, Kazuhiro; and Ishibashi, Tadao, 5,068,155, Cl. 428-515.000.

Ishida, Michiko: *See*—
Ohfune, Yasufumi; Shimamoto, Keiko; Shinozaki, Haruhiko; and Ishida, Michiko, 5,068,412, Cl. 562-506.000.

Ishida, Tokuji: *See*—
Taniguchi, Nobuyuki; Karasaki, Toshihiko; Ishida, Tokuji; Hamada, Masataka; and Norita, Toshio, 5,068,737, Cl. 358-227.000.

Ishiguro, Kazuhisa; and Sekiguchi, Yutaka, to Sanyo Electric Co., Ltd. FSK data waveform shaping circuit. 5,068,544, Cl. 307-268.000.

Ishii, Akio: *See*—
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

Ishii, Satoshi: *See*—
Ishizuka, Kou; Nishimura, Tetsuharu; Tsukiji, Masaaki; and Ishii, Satoshi, 5,067,813, Cl. 356-351.000.

Ishii, Susumu: *See*—
Terada, Yasuharu; Ishii, Susumu; and Mizuno, Hiroshi, 5,067,209, Cl. 24-429.000.

Ishii, Yutaka, to Sanden Corporation. Heat exchanger having fins which are different from one another in fin thickness. 5,067,562, Cl. 165-146.000.

Ishikawa, Haruo; Kawana, Kiyoshi; Honma, Ko; and Yoshikawa, Takashi, to Matsushita Electric Industrial Co., Ltd. Passenger number sensor system. 5,068,537, Cl. 250-342.000.

Ishikawa, Kiichirou; Dudek, Chet; and Hutcherson, James, to Yoshida Kogyo K.K. Apparatus for sewing fabric pieces to slide fastener chain. 5,067,424, Cl. 112-307.000.

Ishikawa, Masaru; and Ito, Yuichi, to Jidosha Denki Kogyo K.K. Wiper pivot. 5,067,198, Cl. 15-250.340.

Ishikawa, Noriyoshi: *See*—
Goto, Hiroshi; Harada, Toshiaki; and Ishikawa, Noriyoshi, 5,068,123, Cl. 427-32.000.

Ishikawa, Shigeo: *See*—
Yamamoto, Takemi; and Ishikawa, Shigeo, 5,067,835, Cl. 400-582.000.

Ishikawajima-Harima Heavy Industries Co., Ltd.: *See*—
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.
Kinoshita, Noboru, 5,068,159, Cl. 429-16.000.
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.

Ishiwata, Tetsuo: *See*—
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.

Ishizuka, Kou; Nishimura, Tetsuharu; Tsukiji, Masaaki; and Ishii, Satoshi, to Canon Kabushiki Kaisha. Optical apparatus for measuring displacement of an object. 5,067,813, Cl. 356-351.000.

Isobe, Kazuyuki; Aizawa, Takao; Yamaguchi, Noboru; and Ueda, Yutaka, to Nippon Unicar Company Limited; and Bridgestone Corporation. Composition for water proof sheets. 5,068,270, Cl. 524-68.000.

Isobe, Tuguo: *See*—
Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, 5,067,555, Cl. 164-480.000.

Isoform: *See*—
de Smet, Gabriel, 5,067,336, Cl. 72-57.000.

Ison, Gregory W.: *See*—
Doll, Wilfred A., Jr; and Ison, Gregory W., 5,067,433, Cl. 118-500.000.

Isozumi, Shuzou, to Mitsubishi Denki Kabushiki Kaisha. Coaxial type starter device. 5,067,357, Cl. 74-7.00E.

Istituto Nazionale di Fisica Nucleare: *See*—
Camin, Daniel V.; Pessina, Gianluigi; and Previtali, Ezio, 5,068,623, Cl. 330-277.000.

Isuzu Motors Limited: *See*—
Arai, Minoru, 5,067,318, Cl. 60-286.000.
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Itakura, Tadakatsu; and Sawato, Tatsuya, to Mitsubishi Denki Kabushiki Kaisha. Pedal mechanism for sewing machine drive device. 5,067,368, Cl. 74-560.000.

Ito, Kenji, to Fuji Photo Film Co., Ltd. Picture data compressing and recording apparatus for recording components of the picture independently. 5,068,744, Cl. 358-310.000.

Ito, Mikio: *See*—
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.

Ito, Tatsuo: *See*—
Yamato, Toshitaka; Ito, Tatsuo; Takashima, Atsuyuki; and Motojima, Akira, 5,068,897, Cl. 381-24.000.

Ito, Tomotaka, to Mitsubishi Denki Kabushiki Kaisha. Pulse width modulation type inverter having temperature compensation. 5,068,777, Cl. 363-97.000.

Ito, Yoshihiko; and Murakami, Masahiro, to Shin-Etsu Chemical Co., Ltd. Poly(silvinylene)s and a process for their preparation. 5,068,381, Cl. 556-431.000.

Ito, Yuichi: *See*—
Ishikawa, Masaru; and Ito, Yuichi, 5,067,198, Cl. 15-250.340.

Itoh, Hiroshi: *See*—
Kato, Nobuyuki; Habuchi, Ryoji; Morisawa, Kunio; and Itoh, Hiroshi, 5,067,603, Cl. 192-0.076.

Itoh, Hiroyuki: *See*—
Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, 5,068,605, Cl. 324-158.00R.

Itoh, Kunio: *See*—
Wada, Masaru; and Itoh, Kunio, 5,068,866, Cl. 372-36.000.

Itoh, Masanobu: *See*—
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Itoh, Seiji: *See*—
Inata, Hiroo; Matsumura, Shunichi; Itoh, Seiji; and Okada, Masuhiro, 5,068,062, Cl. 252-518.000.

Iton, Lennox E.; and Maroni, Victor A., to United States of America, Energy. Activation of methane by transition metal-substituted aluminophosphate molecular sieves. 5,068,485, Cl. 585-500.000.

Itou, Kazunori: *See*—
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Itou, Yuuzi; and Tutida, Syuniti, to Kabushiki Kaisha Toshiba. Voltage follower circuit having improved dynamic range. 5,068,552, Cl. 307-494.000.

ITT Corporation: *See*—
Doll, Wilfred A., Jr; and Ison, Gregory W., 5,067,433, Cl. 118-500.000.

Iversen, Edwin K.: *See*—
Jacobsen, Stephen C.; Iversen, Edwin K.; Knutti, David F.; and Davis, Clark C., 5,067,512, Cl. 137-83.000.

Ives, Robert K., to Michaels of Oregon Co. Quick-detachable security-type sling swivel. 5,067,267, Cl. 42-85.000.

Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, to Fuji Photo Film Co., Ltd. Image quality correcting system for use with an imaging apparatus. 5,068,718, Cl. 358-27.000.

Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, to Kabushiki Kaisha Toyoda Jidoshokki Seisakusho; and Nippon Steel Corporation. Method for controlling heat of a metal hydride container. 5,067,447, Cl. 123-3.000.

Iwami, Hidefumi: *See*—
Watanabe, Tan; Nishino, Hideki; Iwami, Hidefumi; and Tabata, Kuniaki, 5,068,804, Cl. 395-147.000.

Iwamoto, Katsuharu; Kawakami, Osamu; and Miyagawa, Hideo, to Kabushiki Kaisha Toshiba. Wide range fiber optical displacement sensor. 5,068,527, Cl. 250-227.210.

Iwanaga, Sadaaki: *See*—
Nakamura, Takanori; Iwanaga, Sadaaki; Ohno, Motonori; and Miyazaki, Kyosuke, 5,068,314, Cl. 530-317.000.

Iwasaki, Hiroshi, to Kabushiki Kaisha Toshiba. Semiconductor integrated circuit apparatus having programmable logic device. 5,068,549, Cl. 307-465.100.

Iwasaki, Toru: *See*—
Nakamura, Yoshinobu; Sannohe, Kanetaro; Sohama, Yoshio; Iwasaki, Toru; and Yamano, Sumiko, 5,068,150, Cl. 428-407.000.

Iwase, Yasuyuki, to Mitsubishi Pencil Co., Ltd. Valve unit for writing instruments or liquid applicators. 5,067,838, Cl. 401-206.000.

Iwata, Toshio; and Ohsawa, Toshio, to Mitsubishi Denki Kabushiki Kaisha. Control device and method for multicylinder engine with a cylinder discrimination function. 5,067,462, Cl. 123-414.000.

Izawa, Shigeru: *See*—
Sugimura, Koichi; Kimura, Fumio; and Izawa, Shigeru, 5,067,812, Cl. 356-237.000.

J. B. Plunkett Associates, Inc.: *See*—
Plunkett, James B., 5,067,852, Cl. 405-128.000.

Jachimowicz, Karen E.: *See*—
Gold, Ronald S.; and Jachimowicz, Karen E., 5,067,799, Cl. 359-490.000.

Jackson, David P., to Hughes Aircraft Company. Dense phase gas photochemical process for substrate treatment. 5,068,040, Cl. 210-748.000.

Jacobs, Gary R.: *See*—
Cohrs, Richard B.; Haeck, Paul J.; and Jacobs, Gary R., 5,067,757, Cl. 292-336.300.

Jacobs, Paul G.: *See*—
Williams, William H.; and Jacobs, Paul G., 5,067,584, Cl. 181-231.000.

Jacobsen, Stephen C.; Iversen, Edwin K.; Knutti, David F.; and Davis, Clark C., to Sarcos Group. Servovalve apparatus for use in fluid systems. 5,067,512, Cl. 137-83.000.

Jacobson, Michael: *See*—
Falk, Robert A.; Clark, Kirkland P.; Jacobson, Michael; Karydas, Athanasios; and Rodgers, Juliana, 5,068,397, Cl. 560-150.000.

Jaffe, Richard A.; and Allison, A. Christopher, to Leland Stanford Junior University, The Board of Trustees of the. Single use hypodermic needle. 5,067,942, Cl. 604-110.000.

Jagenberg Aktiengesellschaft: *See*—
Dropczynski, Hartmut, 5,067,663, Cl. 242-56.00R.

Jager, Hubert; and Lorenz, Alfred, to SIGRI GmbH. Process for the production of non-puffing shaped carbon bodies. 5,068,026, Cl. 208-125.000.

Jahn, Paul: *See*—
Flaig, Hans-Jurgen; and Jahn, Paul, 5,067,359, Cl. 74-107.000.

Jahoda, Colin A. B.: *See*—
Buultjens, Travis E. J.; Jahoda, Colin A. B.; and Oliver, Roy F., 5,068,315, Cl. 530-324.000.

James, C. Thomas. Locking mechanism for a safe door. 5,067,755, Cl. 292-33.000.

James, Robert B., Jr.; and Kalnes, Tom N., to UOP. Process for the hydroconversion of a feedstock comprising organic compounds having a tendency to readily form polymer compounds. 5,068,484, Cl. 585-469.000.

Jan, Steven A.: *See*—
Chandran, Srikumar R.; Mau, Franco E.; and Jan, Steven A., 5,068,854, Cl. 371-37.100.

Janes, Norman F.: *See*—
Elliott, Michael; Janes, Norman F.; and Khambay, Bhupinder P. S., 5,068,403, Cl. 562-7.000.

Jang, Woo-Hyuk: *See*—
Miller, Jan D.; Ye, Yi; and Jang, Woo-Hyuk, 5,068,028, Cl. 209-167.000.

Janiszewski, Grzegorz, to AB Volvo. Device for eliminating rattle in a gear box. 5,067,364, Cl. 74-440.000.

Jannson, Joanna L.: *See*—
Jannson, Tomasz P.; Jannson, Joanna L.; and Moslehi, Behzad, 5,067,788, Cl. 385-2.000.

Jannson, Tomasz P.; Jannson, Joanna L.; and Moslehi, Behzad, to Physical Optics Corporation. High modulation rate optical plasmon waveguide modulator. 5,067,788, Cl. 385-2.000.

Jansky, Gerald A.: *See*—
Carey, Michael D.; Smiley, William A., III; and Jansky, Gerald A., 5,067,560, Cl. 165-124.000.

Jansons, Viktors: *See*—
Gors, Heinrich C.; Horner, Patrick J.; and Jansons, Viktors, 5,068,447, Cl. 568-309.000.

Japan Field Company Ltd.: *See*—
Uchino, Masahide, 5,067,983, Cl. 134-1.000.

Japan Marine Science and Technology Center: *See*—
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Jaquez, Martin J.: *See*—
Fernandez, Antonio; Gaggioni, Hugo P.; Jaquez, Martin J.; Robbins, John D.; and Soper, E. Scott, 5,068,650, Cl. 340-799.000.

Jarmain, Eric: *See*—
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., 5,067,443, Cl. 119-71.000.

Jarrett, Harold M., Jr. System and method for detecting flaws in continuous web materials. 5,068,799, Cl. 364-507.000.

Jaskie, James E.; Lebby, Michael S.; and Richard, Fred V., to Motorola, Inc. Dynamic optical beam steering. 5,067,829, Cl. 385-8.000.

Javan, Ali, to Laser Science, Inc. Laser frequency stabilization. 5,068,864, Cl. 372-32.000.

Jednacz, Thomas C.: *See*—
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., 5,068,576, Cl. 315-291.000.

Jeffery, James E.; and Whybrow, Derek, to Boots Company, PLC. Process for the manufacture of N,N-dimethyl-1-[1-(4-chlorophenyl)-cyclobutyl]-3-methylbutylamine hydrochloride monohydrate. 5,068,440, Cl. 564-442.000.

Jen, Kwan-Yue A.; Elsenbaumer, Ronald L.; and Shacklette, Lawrence W., to Allied-Signal Inc. Neutral and electrically conductive poly(-heterocyclic vinylenes) and processes for preparing same. 5,068,060, Cl. 252-500.000.

Jenison, Timothy P. Method and apparatus for synchronization in a digital composite video system. 5,068,717, Cl. 358-17.000.

Jenkins, Robert B., Jr. Overboot waders. 5,067,260, Cl. 36-7.10R.

Jenks, James K.; and Lyke, Russell V., to Refrigeration Sales, Inc. Two-way refrigeration valve with elastomeric seal. 5,067,521, Cl. 137-625.500.

Jensen, Edward A. Dart storage and transport apparatus. 5,067,610, Cl. 206-315.100.

Jeol Ltd.: *See*—
Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, 5,067,702, Cl. 271-134.000.

Jervis, James E., to Raychem Corporation. Method of inserting medical devices incorporating SIM alloy elements. 5,067,957, Cl. 606-108.000.

Jethwa, Jaydev: *See*—
Schaefer, Fritz P.; Szatmari, Sandor; and Jethwa, Jaydev, 5,068,525, Cl. 250-213.0VT.

Jeuffray, Jean-Marie; and Gaston, Ouvrard, to ETS Farnier & Penin. Roller blind for a motor vehicle and process for the production thereof. 5,067,546, Cl. 160-23.100.

Jidosha Denki Kogyo K.K.: *See*—
Ishikawa, Masaru; and Ito, Yuichi, 5,067,198, Cl. 15-250.340.

Jimonet, Patrick; and Nemecek, Conception, to Rhone-Poulenc Sante. 2-alkyliminobenzothiazoline derivatives, processes for preparing them and medicinal products containing them. 5,068,238, Cl. 514-367.000.

Jirkovsky, Ivo: *See*—
Zask, Arie; and Jirkovsky, Ivo, 5,068,342, Cl. 548-183.000.

Joachim, Ernst-Ulrich; and Kull, Hermann, to Robert Bosch GmbH. Method and apparatus for metering fuel in a diesel engine. 5,067,461, Cl. 123-357.000.

Jofemar, S.A.: *See*—
Guindulain Vidondo, Felix, 5,067,634, Cl. 221-298.000.

Johannesen, Donald D., to Allied Signal Inc. Clip-on automatic adjuster strut lever for a drum brake. 5,067,596, Cl. 188-79.540.

John, Clarence D., Jr.; and Sparrow, James A., to Westinghouse Electric Corp. Dashpot construction for a nuclear reactor rod guide thimble. 5,068,083, Cl. 376-449.000.

John Fluke Mfg. Co., Inc.: *See*—
Locke, Thomas P., 5,068,852, Cl. 371-16.200.

John Wyeth & Brother Limited: *See*—
Archibald, John L.; Ward, Terence J.; and Opalko, Albert, 5,068,337, Cl. 514-256.000.

Johnson Corporation, The: *See*—
Peter, John H.; Timm, Gerald L.; and Wiedenbeck, Roger D., 5,067,824, Cl. 384-99.000.

Johnson, David N.: *See*—
Taylor, Chandler R., Jr.; Cale. Jr., Albert D.; Johnson, David N.; and Stauffer. Jr., Harold F., 5,068,231, Cl. 514-210.000.

Johnson, Ivy D.; and Simmons, Kenneth G., to Mobil Oil Corporation. Pillaring layered silicates with a mixture of swelling agent and pillar precursor. 5,068,216, Cl. 502-241.000.

Johnson & Johnson Medical, Inc.: *See*—
Broadnax, Cecil H., Jr., 5,067,950, Cl. 604-317.000.

Johnson, Leinani. Laundry organizer apparatus. 5,067,618, Cl. 211-13.000.

Johnson Matthey Public Limited Company: *See*—
Keck, Lindsey; Buchanan, Jeffrey; and Hards, Graham A., 5,068,161, Cl. 429-44.000.

Johnson Products Co., Inc.: *See*—
Akhtar, Muhammad; and Newell, Florire, 5,068,101, Cl. 424-71.000.

Johnson, Raynor: *See*—
Weedling, Robert E.; Swallen, William R.; Johnson, Raynor; Wegener, Jack; and Davis, David T., 5,067,189, Cl. 5-81.00R.

Johnson, Richard B.; and Schneider, Thomas P., to Valley Industries, Inc. Vehicle bicycle carrier. 5,067,641, Cl. 224-042.03B.

Johnson, Roger D., to Nestec S.A. Apparatus for sizing elongated food pieces. 5,067,645, Cl. 225-93.000.

Johnson, Wayne A.: *See*—
Henneberger, Roy L.; Weitnauer, Ronald M.; and Johnson, Wayne A., 5,067,678, Cl. 248-68.100.

Johnston, David F.; and Farmer, Terry L., to BHA Group, Inc. Electrical control system for electrostatic precipitator. 5,068,811, Cl. 364-551.010.

Johnston, Robert G., Jr., to Fibrelon, Inc. Modular electrical box mounting system. 5,067,685, Cl. 248-676.000.

Jokinen, Olli; Kettunen, Jukka; Lepo, Jarkko; Niemi, Tapio; and Laine, Jaakko E, to Cultor Ltd. Method of producing fluff pulp with improved defibration properties. 5,068,009, Cl. 162-9.000.

Jones, Arthur Y.: *See*—
Malhotra, Shadi L.; Martins, Maria L.; Stevanovic, Maya D.; and Jones, Arthur Y., 5,068,140, Cl. 428-216.000.

Jones, Donald W., to General Electric Company. Apparatus for increasing the recoverable energy of a piezoelectric bender. 5,068,567, Cl. 310-332.000.

Jones, Mark G.; and Wright, Tommy T. Mailbox protector. 5,067,650, Cl. 232-17.000.

Jones, Peter C.: *See*—
Backer, Marcella R.; Cavender, Ralston; Elder, Melanie L.; Jones, Peter C.; and Murphy, James A., 5,067,975, Cl. 65-3.120.

Jones, Tony L.: *See*—
Aurness, Harold O.; and Jones, Tony L., 5,067,637, Cl. 222-175.000.

Jong, S. J.: *See*—
Lin, Ivan J. B.; and Jong, S. J., 5,068,451, Cl. 568-442.000.

Jongenburger, Peter: *See*—
Fried, Reinhard; and Jongenburger, Peter, 5,067,986, Cl. 148-11.50N.

Jonsson, Tommy, to Tetra Pak Holdings S.A. Packing container provided with opening arrangement. 5,067,614, Cl. 229-123.100.

Jorgensen, Robert J.: *See*—
Edwards, David N.; Jorgensen, Robert J.; Lee, Kiu H.; and Marcinkowsky, Arthur E., 5,068,489, Cl. 585-524.000.

Joseph, Michael D.: *See*—
Harris, Robert F.; and Joseph, Michael D., 5,068,306, Cl. 528-68.000.

Joshi, Shrikant M.; and Oddi, Frederick V., to General Motors Corporation. Radiator tank oil cooler. 5,067,561, Cl. 165-140.000.

Joslyn, Edward P.: *See*—
Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P.; Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., 5,067,630, Cl. 221-76.000.

Judges Kricket Kisser, Inc.: *See*—
Garrick, James C., 5,067,270, Cl. 43-55.000.

Juge, Sylvain, to Societe Nationale Elf Aquitaine. Process of preparation of phosphinamides, applications and new products. 5,068,425, Cl. 564-12.000.

Julian, Randall K.; and Luker, Edward, to Sunbeam Plastics Corporation. Injection blow molding apparatus. 5,067,891, Cl. 425-533.000.

Jung, John A.: *See*—
Young, David A.; Jung, John A.; and McLaughlin, Mark L., 5,068,469, Cl. 568-878.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Juszkiewicz, Charles: *See*—
Karalis, Anastasios; Morong, Thomas; and Juszkiewicz, Charles, 5,068,431, Cl. 564-301.000.

K&R Manufacturing, Inc.: *See*—
Rowe, Ransom, 5,067,383, Cl. 86-23.000.

KabiVitrum AB: *See*—
Fryklund, Linda; Hansson, Hans A.; Kanje, Martin; and Skottner, Anna, 5,068,224, Cl. 514-21.000.

Kabushiki Kaisha CSK: *See*—
Sugimura, Koichi; Kimura, Fumio; and Izawa, Shigeru, 5,067,812, Cl. 356-237.000.

Kabushiki Kaisha Daikin Seisakusho: *See*—
Tanaka, Teruhiko, 5,067,227, Cl. 29-469.000.

Kabushiki Kaisha Denkosha: *See*—
Koda, Yoshiharu; and Takashima, Tadashi, 5,068,574, Cl. 315-225.000.

Kabushiki Kaisha Hitachi Seisakusho: *See*—
Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, 5,067,904, Cl. 439-73.000.

Kabushiki Kaisha Kobe Seiko Sho: *See*—
Miyaoka, Satoshi, 5,067,321, Cl. 60-426.000.

Kabushiki Kaisha Kubota Seisakusho: *See*—
Uchida, Tadahiro; Shimamura, Kuniyuki; Nogawa, Hayabu; Saito, Keikichi; and Hara, Minoru, 5,067,938, Cl. 494-12.000.

Kabushiki Kaisha LPL: *See*—
Miyazaki, Kiyoshi, 5,068,683, Cl. 354-484.000.

Kabushiki Kaisha Okuma Tekkosho: *See*—
Ieki, Atsushi; and Matsui, Keiji, 5,068,530, Cl. 250-237.00G.

Kabushiki Kaisha Somic Ishikawa: *See*—
Fukukawa, Takao; and Suzuki, Keiichiro, 5,067,841, Cl. 403-140.000.

Kabushiki Kaisha Tiyoda Seisakusho: *See*—
Toya, Matsumi, 5,068,091, Cl. 422-99.000.

Kabushiki Kaisha Tokai Rika Denki Seisakusho: *See*—
Suzuki, Akira, 5,068,506, Cl. 200-526.000.

Kabushiki Kaisha Topcon: *See*—
Kitajima, Nobuaki; and Takagi, Kazutoshi, 5,067,804, Cl. 359-369.000.

Kabushiki Kaisha Toshiba: *See*—
Egawa, Hidemitsu; Aoki, Riichirou; and Okumura, Katsuya, 5,068,709, Cl. 357-71.000.
Hoshi, Satoru; Masuda, Masami; and Kawaguchi, Takayuki, 5,068,831, Cl. 365-203.000.
Inomata, Koichiro; and Hashimoto, Susumu, 5,068,050, Cl. 252-62.510.
Inoue, Yoichi; and Kasano, Akira, 5,068,908, Cl. 382-48.000.
Itou, Yuuzi; and Tutida, Syuniti, 5,068,552, Cl. 307-494.000.
Iwamoto, Katsuharu; Kawakami, Osamu; and Miyagawa, Hideo, 5,068,527, Cl. 250-227.210.
Iwasaki, Hiroshi, 5,068,549, Cl. 307-465.100.
Kobayashi, Takaichi, 5,068,652, Cl. 340-815.030.
Morishita, Mimpei; and Azukizawa, Teruo, 5,067,415, Cl. 104-281.000.
Nakagawa, Akio; Imamura, Kaoru; Sato, Ryo; and Hoshi, Tadahide, 5,068,704, Cl. 357-38.000.
Nonoyama, Makoto, 5,068,747, Cl. 358-448.000.
Ogawa, Yoshihiko; Yasuki, Seijiro; and Kawai, Kiyoyuki, 5,068,725, Cl. 358-135.000.
Sakaguchi, Takashi, 5,068,659, Cl. 341-143.000.
Sawa, Takao; and Okamura, Masami, 5,067,991, Cl. 148-305.000.
Sugita, Naomasa; Yotumoto, Yoshiharu; Moriguchi, Kouji; and Sekiba, Toshinobu, 5,068,706, Cl. 357-51.000.
Uchida, Ken; Higashi, Michiya; Kihara, Naoko; Shimozawa, Hiroshi; and Yoshizumo, Akira, 5,068,267, Cl. 523-435.000.
Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, 5,068,082, Cl. 376-428.000.
Watanabe, Tohru; and Okumura, Katsuya, 5,067,437, Cl. 118-715.000.
Yamada, Seiji; and Naruke, Kiyomi, 5,068,827, Cl. 365-189.010.
Yamaguchi, Yoshihiro; Watanabe, Kiminori; and Nakagawa, Akio, 5,068,700, Cl. 357-23.800.

Kabushiki Kaisha Toyoda Jidoshokki Seisakusho: *See*—
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Kabushiki Kaisha Toyota Chuo Kenkyusho: *See*—
Uchida, Kiyoshi; Noda, Shoji; and Higuchi, Kazuo, 5,068,871, Cl. 373-17.000.

K.K. Ueno Seiyaku Oyo Kenkyujo: *See*—
Kunimi, Yuji; Tabata, Akihiko; and Fujita, Yatsuka, 5,068,467, Cl. 568-852.000.

Kaga, Kouichi: *See*—
Hashiba, Takahiro; and Kaga, Kouichi, 5,067,367, Cl. 74-552.000.

Kagawa, Takumi; Morooka, Takashi; and Tsuzuki, Kenji, to Tosoh Corporation. Process for producing 2-(4'-hydroxphenoxy)-3-chloro-5-trifluoromethylpyridine. 5,068,336, Cl. 546-302.000.

Kahl, Lothar: *See*—
Pedain, Josef; Kahl, Lothar; and Weber, Karl-Arnold, 5,068,402, Cl. 560-331.000.

Kainuma, Tadashi: *See*—
Shimada, Fumio; and Kainuma, Tadashi, 5,068,149, Cl. 428-367.000.

Kaiser, James M.: *See*—
Ryan, Dana W.; Kaiser, James M.; and Hinsch, Robert M., 5,067,945, Cl. 604-198.000.

Kaiser, Willard D.: *See*—
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.

Kaji, Masashi; Aramaki, Takanori; Nakahara, Norito; and Yamada, Yasuharu, to Nippon Steel Chemical Co., Ltd. Naphthol-based epoxy resins, intermediates for the same, process for preparing the same, and epoxy resin compositions containing the same. 5,068,293, Cl. 525-534.000.

Kajitani, Makoto: *See*—
Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, 5,068,235, Cl. 514-258.000.

Kakinuma, Kazuo: *See*—
Yamamoto, Shosaku; and Kakinuma, Kazuo, 5,068,287, Cl. 525-124.000.

Kalender, Willi: *See*—
Rienmueller, Rainer; Kalender, Willi; and Seissler, Wolfgang, 5,067,494, Cl. 128-653.100.

Kalnes, Tom N.: *See*—
James, Robert B., Jr.; and Kalnes, Tom N., 5,068,484, Cl. 585-469.000.

Kamada, Akitoshi: *See*—
Tanimoto, Yoshimitsu; and Kamada, Akitoshi, 5,067,688, Cl. 251-129.180.

Kamakari, Katsuhiro: *See*—
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.

Kamata, Toshio: *See*—
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.

Kameda, Isao: *See*—
Horinouchi, Kazuo; Mouri, Masahide; and Kameda, Isao, 5,068,072, Cl. 264-66.000.

Kamimura, Kenji; and Tsuzuki, Sadachika, to Honda Giken Kogyo Kabushiki Kaisha. System for detecting position of moving vehicle. 5,068,795, Cl. 364-449.000.

Kamimura, Kuniaki; Sawada, Kenji; and Yamade, Yasushi, to Minolta Camera Kabushiki Kaisha. Reader-printer. 5,068,687, Cl. 355-45.000.

Kamitani, Shigeki. Casing for containing cameras, videocameras, flashlights portable radios and other articles which can be used in scuba diving. 5,067,855, Cl. 405-186.000.

Kammuri, Yoshihiro: *See*—
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.

Kampf, Axel: *See*—
Marx, Dieter; and Kampf, Axel, 5,067,794, Cl. 359-824.000.

Kan, Hirofumi: *See*—
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.

Kanda, Yutaka; Kasai, Masaji; Arai, Hitoshi; Morimoto, Makoto; and Ashizawa, Tadashi, to Kyowa Hakko Kogyo Co., Ltd. Mitomycin derivatives. 5,068,349, Cl. 548-418.000.

Kando, Yasuhiko: *See*—
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Kaneaki, Tetsuhiko; Nuriya, Kozo; and Tani, Yasunori, to Matsushita Electric Industrial Co., Ltd. Multi-stage noise shaping over-sampling D/A converter. 5,068,661, Cl. 341-143.000.

Kaneda, Aizo: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Kanegae, Masahide, to Fujitsu Limited. Data reproducing circuit for memory system having an equalizer generating two different equalizing signals used for data reproduction. 5,068,753, Cl. 360-46.000.

Kaneko, Tadao: *See*—
Otowa, Hidekazu; Okada, Kazuhiro; Sonoda, Hidefumi; and Kaneko, Tadao, 5,067,468, Cl. 123-516.000.

Kanesaki, Nobukazu, to Nissan Motor Company, Limited. Exhaust particle removing system for internal combustion engine. 5,067,320, Cl. 60-297.000.

Kang, Hee-Dong. Process for the chlorination of polyolefins. 5,068,290, Cl. 525-192.000.

Kang, Jin Y.: *See*—
Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., 5,068,884, Cl. 378-119.000.

Kang, Laegu; and Kim, Kyungtae, to Samsung Electronics Co., Ltd. Method of manufacturing DRAM cell. 5,068,200, Cl. 437-52.000.

Kanje, Martin: *See*—
Fryklund, Linda; Hansson, Hans A.; Kanje, Martin; and Skottner, Anna, 5,068,224, Cl. 514-21.000.

Kanjolia, Ravindra K.; and Hui, Benjamin C., to CVD Incorporated. Method for the synthesis of primary arsines. 5,068,372, Cl. 556-70.000.

Kano, Junichi; Aoki, Kongoh; Mochizuki, Masahiro; and Nakadozono, Hiroyuki, to Aisin Seiki Kabushiki Kaisha. Variable valve timing system having rotational vibration damping. 5,067,450, Cl. 123-90.170.

Kanto Jidosha Kogyo Kabushiki Kaisha: *See*—
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, to Dai Nippon Insatsu Kabushiki Kaisha; and Sekisui Kagaku Kogyo Kabushiki Kaisha. Process for producing a polyvinyl acetacetal resin for use in a heat transfer sheet. 5,068,282, Cl. 525-61.000.

Kao Corporation: *See*—
Gunji, Akihiko; Masuki, Tetsuya; and Shirai, Hidenori, 5,068,070, Cl. 264-41.000.

Karalis, Anastasios; Morong, Thomas; and Juszkiewicz, Charles, to Witco Corporation. Methods of making new surface active compounds. 5,068,431, Cl. 564-301.000.

Karasaki, Toshihiko: *See*—
Taniguchi, Nobuyuki; Karasaki, Toshihiko; Ishida, Tokuji; Hamada, Masataka; and Norita, Toshio, 5,068,737, Cl. 358-227.000.

Karasawa, Akira: *See*—
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

Karl Mayer Textilmaschinenfabrik GmbH: *See*—
Roth, Josef, 5,067,332, Cl. 66-207.000.

Karl Thomae GmbH: *See*—
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.
Muller, Erich; Nickl, Josef, deceased; Heckel, Armin; and Engelhardt, Gunther, 5,068,334, Cl. 546-157.000.

Karmen, Arthur: *See*—
Freundlich, Lawrence F.; and Karmen, Arthur, 5,067,949, Cl. 604-263.000.

Karydas, Athanasios: *See*—
Falk, Robert A.; Clark, Kirkland P.; Jacobson, Michael; Karydas, Athanasios; and Rodgers, Juliana, 5,068,397, Cl. 560-150.000.

Kasagi, Masao: *See*—
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Kasahara, Nobuo: *See*—
Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, 5,068,235, Cl. 514-258.000.

Kasahara, Takeshi: *See*—
Ogawa, Yoshikatsu; Hisada, Haruhiko; Kasahara, Takeshi; Kizaki, Fumihiko; and Yoshiya, Masahide, 5,068,446, Cl. 568-33.000.

Kasai, Masaji: *See*—
Kanda, Yutaka; Kasai, Masaji; Arai, Hitoshi; Morimoto, Makoto; and Ashizawa, Tadashi, 5,068,349, Cl. 548-418.000.

Kasano, Akira: *See*—
Inoue, Yoichi; and Kasano, Akira, 5,068,908, Cl. 382-48.000.

Kashida, Motokazu; Shikakura, Akihiro; Yamashita, Shinichi; and Shimizu, Tetsuya, to Canon Kabushiki Kaisha. Error correcting method and apparatus. 5,068,855, Cl. 371-37.400.

Kashino, Teruo: *See*—
Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, 5,068,681, Cl. 354-299.000.

Kasowski, Hermann: *See*—
Schirbl, Reinhard; Deinhardt, Gunther; and Kasowski, Hermann, 5,067,785, Cl. 385-38.000.

Kasper, Stanley, to United States of America, Energy. Process for generating electricity in a pressurized fluidized-bed combustor system. 5,067,317, Cl. 60-39.050.

Kasuga, Shinichi, to Nippon Seiko Kabushiki Kaisha. Linear guide apparatus. 5,067,823, Cl. 384-45.000.

Katan, Ann: *See*—
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.

Katayama, Akihiro: *See*—
Ohsawa, Hidefumi; Katayama, Akihiro; Hosokawa, Hiroshi; Sunohara, Izuru; and Yoshimoto, Masahiko, 5,068,746, Cl. 358-443.000.

Katayama, Hiroyuki: *See*—
Nakayama, Junichiro; Katayama, Hiroyuki; and Ohta, Kenji, 5,068,841, Cl. 369-13.000.

Katchka, Michael P. Undergarment. 5,067,178, Cl. 2-250.000.

Kato, Akihiro: *See*—
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.

Kato, Hisataka; and Takahashi, Satoshi, to Toyo Radiator Co., Ltd. Method for joining heat exchanger tubes with headers. 5,067,235, Cl. 29-890.043.

Kato, Kouichi: *See*—
Umeda, Toru; Kondo, Hidetaka; and Kato, Kouichi, 5,068,769, Cl. 362-61.000.

Kato, Nobuyuki; Habuchi, Ryoji; Morisawa, Kunio; and Itoh, Hiroshi, to Toyota Jidosha Kabushiki Kaisha. Apparatus for controlling hydraulically operated clutch in vehicle transmission system, including two valves for engaging and disengaging the clutch. 5,067,603, Cl. 192-0.076.

Kato, Takashi: *See*—
Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, 5,068,542, Cl. 250-573.000.

Katznelson, Ron D.; and Krause, Edward A., to General Instrument Corporation. Compatible extended-definition television. 5,068,729, Cl. 358-141.000.

Kavan, Franz: *See*—
Searcy, Gus; and Kavan, Franz, 5,068,900, Cl. 381-43.000.

Kawabe, Shinji: *See*—
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Kawagoe, Toshiyuki: *See*—
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.

Kawaguchi, Akihiro: *See*—
Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, 5,068,235, Cl. 514-258.000.

Kawaguchi, Kenji: *See*—
Maekawa, Shigeki; Yamashita, Mikio; Kawaguchi, Kenji; and Kobayashi, Yuji, 5,067,550, Cl. 164-120.000.

Kawaguchi, Takayuki: *See*—
Hoshi, Satoru; Masuda, Masami; and Kawaguchi, Takayuki, 5,068,831, Cl. 365-203.000.

Kawahara, Masafumi; Bowman, George A.; and Matthews, Joseph B., to Sharp Kabushiki Kaisha; and Baxter International Inc. Steeping motor driving apparatus. 5,068,586, Cl. 318-696.000.

Kawai, Akira; and Murakami, Yoshihide, to Mitsubishi Paper Mills Limited. Emulsifier for microcapsules, microcapsules using said emulsifier and process for producing such microcapsules, and non-carbon pressure-sensitive copying paper using said microcapsules. 5,068,067, Cl. 264-4.700.

Kawai, Kiyoyuki: *See*—
Ogawa, Yoshihiko; Yasuki, Seijiro; and Kawai, Kiyoyuki, 5,068,725, Cl. 358-135.000.

Kawai, Masayasu, to Kyowa Electronic Instruments Co., Ltd. Torque transducer and torque measuring device. 5,067,354, Cl. 73-862.340.

Kawai, Sueo: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Kawai, Syuji: *See*—
Negi, Taichi; Hirofuji, Satoshi; Tanaka, Nobuo; and Kawai, Syuji, 5,068,077, Cl. 264-512.000.

Kawakami, Osamu: *See*—
Iwamoto, Katsuharu; Kawakami, Osamu; and Miyagawa, Hideo, 5,068,527, Cl. 250-227.210.

Kawakami, Takashi: *See*—
Nakamura, Nobuyuki; Sakamoto, Yuji; Kawakami, Takashi; and Ohkubo, Shinya, 5,067,229, Cl. 29-566.100.

Kawamata, Fumihiko: *See*—
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.

Kawamoto, Hideyuki; Ichinohe, Shoji; and Tsubone, Kazuyuki, to Shin-Etsu Chemical Co., Ltd. Betaine-containing siloxane compounds and method for making. 5,068,377, Cl. 556-418.000.

Kawana, Kiyoshi: *See*—
Ishikawa, Haruo; Kawana, Kiyoshi; Honma, Ko; and Yoshikawa, Takashi, 5,068,537, Cl. 250-342.000.

Kawanishi, Masaki: *See*—
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Kawasaki, Isamu; and Hirata, Kazunari, to Atsugi Motor Parts Company Limited. Piston head block for internal combustion engine. 5,067,393, Cl. 92-186.000.

Kawasaki Jukogyo Kabushiki Kaisha: *See*—
Hardesty, Lee R.; and Takagi, Izumi, 5,067,933, Cl. 475-32.000.

Kawasaki, Masahiro; and Sato, Osamu, to Asahi Kogaku Kogyo Kabushiki Kaisha. Rear converter for interchangeable lens camera. 5,068,680, Cl. 354-286.000.

Kawasaki, Sohei: *See*—
Hatano, Tsutomu; Kawasaki, Sohei; Hoshino, Tetsuro; and Endo, Takamitsu, 5,068,049, Cl. 252-57.000.

Kawasaki Steel Corporation: *See*—
Kiyota, Yoshisato; Ohta, Junichi; Ohtsubo, Hiroshi; and Takajo, Shigeaki, 5,067,979, Cl. 75-243.000.

Kawase, Shoichi: *See*—
Tsuchiya, Mikio; Kawase, Shoichi; and Watanabe, Hirofumi, 5,067,612, Cl. 206-497.000.

Kawase, Tsueno: *See*—
Yoshida, Takashi; Kawase, Tsueno; and Hiratsuka, Nobuo, 5,068,019, Cl. 204-182.800.

VOL 1132 ISS 4 NO 26 1991 UMI

Kawashima, Masato: *See*—
Nagakura, Masanao; and Kawashima, Masato, 5,068,693, Cl. 355-315.000.

Kawate, Keith W.; Berthold, James P.; and Margolis, Robert M. Two wire modulated output current circuit for use with a magnetoresistive bridge speed/position sensor. 5,068,606, Cl. 324-174.000.

Kawate, Keith W.: *See*—
Offiler, Stephen B.; Berg, Peter G.; and Kawate, Keith W., 5,068,589, Cl. 322-7.000.

Kawauchi, Yoshikazu: *See*—
Tomii, Kaoru; Miyama, Hiroshi; and Kawauchi, Yoshikazu, 5,068,579, Cl. 315-366.000.

Kawazi, Toshikuni; Ono, Masahiro; and Inoue, Nobuko, to Teikoku Seiyaku Kabushiki Kaisha; and Chiesi Farmaceutici S.p.A. Salbutamol-containing plaster and method of producing same. 5,068,103, Cl. 424-81.000.

Kayaki, Keiichi, to Yoshida Kogyo K.K. Surface-type fastener. 5,067,210, Cl. 24-452.000.

Kazan, John; and Kelly, James J., to American Cyanamid Company. Process for producing 2-(p-chlorophenoxy) aniline. 5,068,437, Cl. 564-417.000.

Kearney, Mark B.; Koglin, Dennis M.; and Michael, Jeffrey A., to Delco Electronics Corporation. Adjustable temperature dependent current generator. 5,068,595, Cl. 323-316.000.

Keck, Lindsey; Buchanan, Jeffrey; and Hards, Graham A., to Johnson Matthey Public Limited Company. Catalyst material. 5,068,161, Cl. 429-44.000.

Keen, Billy J., Jr.: *See*—
Wheless, Jack C.; Keen, Billy J., Jr.; and Ritt, Renzer R., Sr., 5,067,498, Cl. 131-88.000.

Keith, Malcolm E., to Midaco Corporation. Automatic pallet centering device. 5,067,703, Cl. 271-164.000.

Keller, John A., Jr.: *See*—
Doner, John P.; Horodysky, Andrew G.; and Keller, John A., Jr., 5,068,045, Cl. 252-32.007.

Keller, Reinhold: *See*—
Schlingmann, Merten; Keller, Reinhold; Wiesner, Matthias; Treder, Wolfgang; and Thiem, Joachim, 5,068,186, Cl. 435-96.000.

Kellner, Carl S.; Rao, V. N. Mallikarjuna; and Weigert, Frank J., to Du Pont de Nemours, E. I., and Company. Hydrogenolysis/dehydrohalogenation process. 5,068,473, Cl. 570-176.000.

Kelly, James J.: *See*—
Kazan, John; and Kelly, James J., 5,068,437, Cl. 564-417.000.

Kelman, Charles D.; and DeVore, Dale P., to Autogenesis Technologies, Inc. Non-biodegradable two phase corneal implant and method for preparing same. 5,067,961, Cl. 623-5.000.

Kenesson, Thomas M.: *See*—
Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., 5,068,448, Cl. 568-319.000.

Kenji, Chiba: *See*—
Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, 5,068,247, Cl. 514-440.000.

Kennametal Inc.: *See*—
D'Angelo, Mark D., 5,067,775, Cl. 299-86.000.
Stiffler, Stephen P.; Beach, Wayne H.; and Frost, Robert L., 5,067,262, Cl. 37-142.00R.

Keramont Italia S.p.A.: *See*—
Giunchi, Giovanni; Savrun, Ender; Grenni, Alberto; and Chen, Ching-Fong, 5,068,211, Cl. 501-98.000.

Kerger, Leon: *See*—
Kremer, Paul; and Kerger, Leon, 5,067,520, Cl. 137-614.200.

Keritsis, Gus D., to Philip Morris Incorporated. Container for additive materials for smoking articles. 5,067,500, Cl. 131-335.000.

Kessler, Hans: *See*—
Heinz, Jochen; Krug, Thomas; Ruebsam, Klemens; and Kessler, Hans, 5,068,915, Cl. 392-389.000.

Kettunen, Jukka: *See*—
Jokinen, Olli; Kettunen, Jukka; Lepo, Jarkko; Niemi, Tapio; and Laine, Jaakko E, 5,068,009, Cl. 162-9.000.

Khambay, Bhupinder P. S.: *See*—
Elliott, Michael; Janes, Norman F.; and Khambay, Bhupinder P. S., 5,068,403, Cl. 562-7.000.

Khan, Shahid H. Lipstick key chain attachment. 5,067,836, Cl. 401-52.000.

Kharchenko, Vladimir P.: *See*—
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshnikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Khoe, Giok D.: *See*—
Bachmann, Peter K.; Khoe, Giok D.; Mahon, Cathal J.; and Lydtin, Hans-Jurgen, 5,067,793, Cl. 385-127.000.

Khouri, Roger K.; and Reddi, A. Harri, to Washington University. Method of making live autogenous skeletal replacement parts. 5,067,963, Cl. 623-16.000.

Ki-Joon, Kim, to SamSung Electronics Co., Ltd. Device for liquid-phase thin film epitaxy. 5,068,516, Cl. 219-388.000.

Kienast, Fritz, to Siemens Aktiengesellschaft. Plug-in component. 5,067,915, Cl. 439-620.000.

Kihara, Naoko: *See*—
Uchida, Ken; Higashi, Michiya; Kihara, Naoko; Shimozawa, Hiroshi; and Yoshizumo, Akira, 5,068,267, Cl. 523-435.000.

Kikuchi, Hideaki; Ogawa, Motosuke; and Niiyama, Akira, to Dupont-Mitsuj Fluorochemicals Co., Ltd.; and Mitsui Petrochemical Industries, Ltd. Cleaning solvent. 5,068,051, Cl. 252-162.000.

Kikuchi, Hideo: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Kikuchi, Hiroshi: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Kikuchi, Juro, to Olympus Optical Co., Ltd. Imaging system for macrophotography. 5,068,679, Cl. 354-271.100.

Kikuchi, Noribumi: *See*—
Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, 5,068,148, Cl. 428-335.000.

Kikuchi, Toshiyuki: *See*—
Kyohzuka, Takahiro; and Kikuchi, Toshiyuki, 5,067,373, Cl. 74-866.000.

Kikuchi, Yutaka: *See*—
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.

Kilb, Hermann: *See*—
Baur, Rupert; Durler, Egon; and Kilb, Hermann, 5,067,832, Cl. 400-66.000.

Kim, John Y. Portable catapult device for hurling a succession of balls for batting practice. 5,067,471, Cl. 124-21.000.

Kim, Kyungtae: *See*—
Kang, Laegu; and Kim, Kyungtae, 5,068,200, Cl. 437-52.000.

Kim, Young-Won: *See*—
Froes, Francis H.; Shong, D. Simon; Kim, Young-Won; and Yolton, Frederick C., 5,067,988, Cl. 148-20.300.

Kimbara, Masahiko: *See*—
Tsuzuki, Makoto; Kimbara, Masahiko; Fukuta, Kenji; and Machii, Akihiko, 5,067,525, Cl. 139-11.000.

Kimbrough, Gregory L.: *See*—
Garver, Lawrence E.; and Kimbrough, Gregory L., 5,067,622, Cl. 215-1.00C.

Kimpton, Gordon L.: *See*—
Dick, Ian R.; Henderson, Ian D.; Kimpton, Gordon L.; and Wyatt, David S., 5,068,507, Cl. 219-73.110.

Kimura, Akio: *See*—
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Kimura, Fumio: *See*—
Sugimura, Koichi; Kimura, Fumio; and Izawa, Shigeru, 5,067,812, Cl. 356-237.000.

Kimura, Misao, to Harada Kogyo Kabushiki Kaisha. Clutch device for electrically extensible antennas. 5,068,673, Cl. 343-901.000.

Kimura, Toshiaki: *See*—
Nakahara, Takashi; Kimura, Toshiaki; and Mishima, Takashi, 5,068,256, Cl. 521-150.000.

Kinematic Corporation: *See*—
Carlberg, David L.; Meigs, Theodore V., Jr.; and May, Dennis L., 5,067,309, Cl. 53-520.000.

King, James L.: *See*—
Lykes, Robert E.; and King, James L., 5,068,556, Cl. 310-90.000.

King, James L., Jr.: *See*—
King, James L., Sr.; King, James L., Jr.; and Pope, John, 5,067,590, Cl. 184-15.100.

King, James L., Sr.; King, James L., Jr.; and Pope, John, to Sauk Valley Equipment Company. Method for filling a pressurized lubricant dispensing chamber. 5,067,590, Cl. 184-15.100.

Kinjo, Noriyuki: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Kinoshita, Noboru, to Ishikawajima-Harima Heavy Industries Co., Ltd. Electric power producing system using molten carbonate type fuel cell. 5,068,159, Cl. 429-16.000.

Kintopf, Siegfried: *See*—
Kress, Ulrich; Maul, Rudolf; and Kintopf, Siegfried, 5,068,335, Cl. 546-242.000.

Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, to Sumitomo Rubber Industries, Ltd. Method for correcting type deflection in tire grooving and apparatus therefor. 5,067,539, Cl. 157-13.000.

Kinzel, Walter; and Illgner, Eberhard, to MAN Gutehoffnungshutte AG. Bridge layer. 5,067,191, Cl. 14-2.400.

Kiou, Fu-Tai: *See*—
Spinner, Charles R., III; and Kiou, Fu-Tai, 5,068,201, Cl. 437-60.000.

Kira, Tohru, to Sharp Kabushiki Kaisha. Thin film magnetic head for a bidirectionally moveable recording medium. 5,068,760, Cl. 360-121.000.

Kiriyama, Syunichi: *See*—
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.

Kirkland, Michael: *See*—
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., 5,067,443, Cl. 119-71.000.

Kirkpatrick, Thomas I., to United States of America, Navy. Binaural ultrasound detector and imager. 5,068,832, Cl. 367-97.000.

Kishino, Kuniaki; and Nakamura, Tamiya, to Oki Electric Industry Co., Ltd. Method and system for monitoring the number of available buffers. 5,068,784, Cl. 395-275.000.

Kitada, Katsuyoshi, to Mitsuba Electric Manufacturing Co., Ltd. Wiper driving apparatus. 5,068,500, Cl. 200-19.00R.

Kitahara, Takeshi: *See*—
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.

Kitajima, Nobuaki; and Takagi, Kazutoshi, to Kabushiki Kaisha Topcon. Microscope. 5,067,804, Cl. 359-369.000.

Kitakami, Osamu; Fujiwara, Hideo; Ojima, Kiyotaka; Ogawa, Youichi; and Wakai, Kunio, to Hitachi Maxell, Ltd. Perpendicular magnetic recording medium and method for producing the same. 5,068,144, Cl. 428-323.000.

Kitakami, Osamu: *See*—
Maro, Tsuyoshi; Kitakami, Osamu; and Fujiwara, Hideo, 5,068,152, Cl. 428-408.000.

Kitamura, Kazumi: *See*—
Mizuta, Akira; and Kitamura, Kazumi, 5,067,607, Cl. 198-733.000.

Kitamura, Teruo: *See*—
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Kitano, Makoto: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, to Daifuku Co., Ltd.; and Kanto Jidosha Kogyo Kabushiki Kaisha. Apparatus for conveying travelable body. 5,067,413, Cl. 104-168.000.

Kiyota, Yoshisato; Ohta, Junichi; Ohtsubo, Hiroshi; and Takajo, Shigeaki, to Kawasaki Steel Corporation. Sintered bodies and production process thereof. 5,067,979, Cl. 75-243.000.

Kizaki, Fumihiko: *See*—
Ogawa, Yoshikatsu; Hisada, Haruhiko; Kasahara, Takeshi; Kizaki, Fumihiko; and Yoshiya, Masahide, 5,068,446, Cl. 568-33.000.

Kjornos, Kim: *See*—
Foldager, Jorgen; Toftkjor, Helle; and Kjornos, Kim, 5,068,109, Cl. 424-441.000.

Klaus, Hermann: *See*—
Schmidhammer, Ludwig; Haselwarter, Klaus; Klaus, Hermann; and Mohr, Klaus-Peter, 5,068,475, Cl. 570-262.000.

Klausener, Alexander: *See*—
Buysch, Hans-Josef; Klausener, Alexander; Szablikowski, Klaus; Balser, Klaus; and Wilke, Michaela, 5,068,321, Cl. 536-32.000.

Klausner, Judah; and Hotto, Robert, to Klausner Patent Technologies. Location acquisition and time adjusting system. 5,068,838, Cl. 368-47.000.

Klausner Patent Technologies: *See*—
Klausner, Judah; and Hotto, Robert, 5,068,838, Cl. 368-47.000.

Kleeman, Axel: *See*—
Achterrath-Tuckerman, Ute; Aurich, Rudolf; Engel, Jurgen; Hettche, Helmut; and Kleeman, Axel, 5,068,233, Cl. 514-212.000.

Klees, Kevin J., to Eastman Kodak Company. Apparatus for reducing artifacts in error diffused images. 5,068,914, Cl. 382-54.000.

Kleiner, Hans-Jerg: *See*—
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,068,298, Cl. 526-240.000.

Kleinstauber, Bernd: *See*—
Aschaber, Hans; Bailer, Rudolf; Fochler, Fritz; Kleinstauber, Bernd; and Ruf, Reinhold, 5,067,937, Cl. 493-310.000.

Klemann, Lawrence P.; and Finley, John W., to Nabisco Brands, Inc. Acid-hydrolyzable ester derivatives as low calorie fat mimetics. 5,068,119, Cl. 426-601.000.

Klemann, Lawrence P.: *See*—
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., 5,068,120, Cl. 426-611.000.

Kleyer, Don L.; and Speier, John L., to Dow Corning Corporation. Production of organofunctional alkoxysilanes. 5,068,387, Cl. 556-485.000.

Kline, Todd A.; Rosen, Warren A.; Bermingham, William J.; and Alfonsi, Eric A., to United States of America, Navy. Optical interconnects in the computer environment. 5,068,880, Cl. 375-116.000.

Kling, Miguel: *See*—
Miller, Jorge; and Kling, Miguel, 5,068,478, Cl. 585-324.000.

Klingler, Otto; Gruhler, Siegfried; and Rivinius, Helmut, to Mauser-Werke Oberndorf GmbH. Capacitive displacement measuring device with T-shaped scale coatings. 5,068,653, Cl. 340-870.370.

Kloeckner-Humboldt-Duetz AG: *See*—
Finsterwalder, Gerhard; Rizk, Reda; and Michels, Hans G., 5,067,880, Cl. 417-495.000.

Kloimstein, Engelbert: *See*—
Sajtos, Alexander; Kloimstein, Engelbert; Hollinger, Karl; and Farnlettner, Lorenz, 5,068,417, Cl. 562-577.000.

Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., to Crown Equipment Corporation. Distance and angle measurements in a wire guided vehicle. 5,068,791, Cl. 364-424.020.

Klotz, Helmut: *See*—
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, 5,068,015, Cl. 204-89.000.

Klug, Gunter; Buysch, Hans-Josef; and Puppe, Lothar, to Bayer Aktiengesellschaft. Process for the preparation of N-alkylated anilines. 5,068,434, Cl. 564-399.000.

KMS Fusion, Inc.: *See*—
O'Holleran, Thomas P., 5,068,071, Cl. 264-56.000.

Knobel, Thomas M.; McCullough, Francis P., Jr.; and Black, Lance L., to Dow Chemical Company, The. Electroconductive polymers containing carbonaceous fibers. 5,068,061, Cl. 252-511.000.

Knorr Brake Holding Corporation: *See*—
Engle, Thomas H., 5,067,872, Cl. 414-786.000.

Knowles Electronics, Inc.: *See*—
Carlson, Elmer V., 5,068,901, Cl. 381-68.600.

Knox, George J.; Cronch, Daniel F.; and Afflerbaugh, Martin G., to Minnesota Mining and Manufacturing Company. Solderless electrical connector. 5,067,910, Cl. 439-402.000.

Knox, J. Paul; Murray, Robert B., III; and Smith, Clinton L., to Golf Vegas International, Inc. Rolling ball speed and position indicating device and method. 5,067,718, Cl. 273-185.00R.

Knudson, Mark R.: *See*—
Hackett, James I.; Dellert, David W.; and Knudson, Mark R., 5,068,905, Cl. 382-47.000.

Knuth, Mark E.; and Sahai, Om P., to Escagenetics, Inc. Flavor composition and method. 5,068,184, Cl. 435-41.000.

Knutti, David F.: *See*—
Jacobsen, Stephen C.; Iversen, Edwin K.; Knutti, David F.; and Davis, Clark C., 5,067,512, Cl. 137-83.000.

Koa, Chi H., to Michigan Seat Company. Foam seat with insert. 5,067,772, Cl. 297-452.000.

Koa, Chi H., to Michigan Seat Company. Foam seat cushion with clamped edges. 5,067,773, Cl. 297-457.000.

Kobayashi, Atsushi: *See*—
Abe, Nobumasa; Kobayashi, Atsushi; Watanabe, Koji; Morishita, Norio; and Tanaka, Yuji, 5,068,684, Cl. 355-27.000.

Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, to Hitachi, Ltd.; and Hitachi Babcock Kabushiki-kaisha. Low NOx boiler. 5,067,419, Cl. 110-234.000.

Kobayashi, Hiroshi; and Shimizu, Masaaki, to SDS Biotech K.K. Trifluorobenzene compounds and process for producing the same. 5,068,411, Cl. 562-484.000.

Kobayashi, Hisamine; and Shimizu, Toshiharu, to Tipton Manufacturing Corporation. Apparatus for removing burrs from workpieces. 5,067,860, Cl. 409-185.000.

Kobayashi, Katsumi, to Mitsubishi Monsanto Chemical Company. Process for surface treatment of N-alkyl-N'phenyl-p-phenylenediamine. 5,068,438, Cl. 564-434.000.

Kobayashi, Keiichi: *See*—
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Kobayashi, Kenshi: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Kobayashi, Noboru, to Yamaha Hatsudoki Kabushiki Kaisha. Semi-submerged water vehicle. 5,067,427, Cl. 114-56.000.

Kobayashi, Noboru, to Yamaha Hatsudoki Kabushiki Kaisha. Reverse thruster for water jet propulsion. 5,067,918, Cl. 440-39.000.

Kobayashi, Syoji, to Koito Manufacturing Co., Ltd. Variable light distribution type automobile lamp. 5,068,768, Cl. 362-61.000.

Kobayashi, Takaichi, to Kabushiki Kaisha Toshiba. Personal computer having condition indicator. 5,068,652, Cl. 340-815.030.

Kobayashi, Teruo: *See*—
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.

Kobayashi, Yoshiteru: *See*—
Okamura, Yoshio; Takarada, Mitsuhiro; Kobayashi, Yoshiteru; and Takahashi, Tadashi, 5,068,301, Cl. 528-15.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Kobayashi, Yuji: *See—*
Maekawa, Shigeki; Yamashita, Mikio; Kawaguchi, Kenji; and Kobayashi, Yuji, 5,067,550, Cl. 164-120.000.

Kobinger, Walter: *See—*
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.

Koda, Fumio: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Koda, Yoshiharu; and Takashima, Tadashi, to Kabushiki Kaisha Denkosha. Lighting device for fluorescent discharge tube. 5,068,574, Cl. 315-225.000.

Koelsch, Lester M. Swimming pool cover. 5,067,182, Cl. 4-498.000.

Koenig & Bauer Aktiengesellschaft: *See—*
Marx, Helmut H., 5,067,402, Cl. 101-226.000.

Koenig, Mark J.: *See—*
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.

Koert, Peter; and Cha, James T., to APTI, Inc. Power beaming system. 5,068,669, Cl. 343-700.0MS.

Koglin, Dennis M.: *See—*
Kearney, Mark B.; Koglin, Dennis M.; and Michael, Jeffrey A., 5,068,595, Cl. 323-316.000.

Koh-I-Noor Inc.: *See—*
Felgentreu, Peter, 5,067,839, Cl. 401-258.000.

Kohler, Burkhard: *See—*
Dorf, Ernst-Ulrich; Russeler, Wolfgang; Kohler, Burkhard; Ebert, Wolfgang; and Schmitt, Walter, 5,068,312, Cl. 528-388.000.

Kohler, Frederick H. Toilet bowl protector. 5,067,185, Cl. 4-661.000.

Kohler, Gernot. Use of a metal chelate of an alkylaminoester of phosphoric acid for prophytlaxis or therapy of a neuropathy. 5,068,228, Cl. 514-114.000.

Kohnke, Ole B., to Ambu International A/S. Apparatus for respiratory training. 5,067,707, Cl. 272-99.000.

Koike, Hiroyuki: *See—*
Nakamura, Norio; Koike, Hiroyuki; and Oshima, Takeshi, 5,068,340, Cl. 548-119.000.

Koike, Hitoshi: *See—*
Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, 5,068,718, Cl. 358-27.000.

Koike, Shoji; and Tomida, Yasuko, to Canon Kabushiki Kaisha. Recording process and liquid using water-soluble organic solvent. 5,067,980, Cl. 106-22.000.

Koito Manufacturing Co., Ltd.: *See—*
Kobayashi, Syoji, 5,068,768, Cl. 362-61.000.
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Kojima, Shunji; Watanabe, Yoshiki; Goto, Hiroaki; and Moriga, Toshinori, to Toyo Seikan Kaisha Ltd. Emulsion water paint and process for its production using phase inversion of epoxy-acrylic curing agent resin composition. 5,068,266, Cl. 523-336.000.

Kokaku, Hiroyoshi: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, to Toyota Jidosha Kabushiki Kaisha; and Aisin Seiki Kabushiki Kaisha. Pressure control system for suspension. 5,067,743, Cl. 280-707.000.

Kokubo, Tadashi; Yamamuro, Takao; and Abe, Yoshio, to Kyoto University. Process for forming a bioactive hydroxyapatite film. 5,068,122, Cl. 427-2.000.

Kolesar, Edward S., Jr.: *See—*
Carver, Michael W.; and Kolesar, Edward S., Jr., 5,067,985, Cl. 136-255.000.

Koller, Frank H., to Emerson Electric Co. Precision overload clutch apparatus for automated machinery. 5,067,600, Cl. 192-56.00R.

Komae, Hitoshi: *See—*
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.

Komerek, Karl R., deceased: *See—*
Davidson, Joseph W.; Blackmore, Geoffrey; Blackmore, Gerald; Komerek, Karl R., deceased; and Komerek, Richard, executor, 5,067,968, Cl. 44-550.000.

Komerek, Richard, executor: *See—*
Davidson, Joseph W.; Blackmore, Geoffrey; Blackmore, Gerald; Komerek, Karl R., deceased; and Komerek, Richard, executor, 5,067,968, Cl. 44-550.000.

Kondo, Hidetaka: *See—*
Umeda, Toru; Kondo, Hidetaka; and Kato, Kouichi, 5,068,769, Cl. 362-61.000.

Kondo, Hideyuki: *See—*
Hagino, Sadaaki; Suzuki, Motokazu; Kondo, Hideyuki; Nishikawa, Shigeru; and Hayashi, Kenichi, 5,068,219, Cl. 505-1.000.

Kondo, Michio, to Brother Kogyo Kabushiki Kaisha. Surface roughness measuring method and apparatus utilizing truncated conical lens and objective lens. 5,068,541, Cl. 250-571.000.

Kondo, Tetsujiro; and Takahashi, Kenji, to Sony Corporation. Coding apparatus that temporally interpolates block data and selects transmission mode. 5,068,726, Cl. 358-135.000.

Kondo, Toshiro; and Miura, Hidetoshi, to Mitsubishi Paper Mills, Limited. Developer with hydroxyaryl fatty acid for making lithographic printing plate. 5,068,164, Cl. 430-204.000.

Kone Oy: *See—*
Hilber, Walter, 5,067,871, Cl. 414-786.000.

Konica Corporation: *See—*
Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, 5,068,681, Cl. 354-299.000.
Sasa, Nobumasa; Shimizu, Kunio; and Watanabe, Manabu, 5,068,689, Cl. 355-107.000.
Yagi, Katsuya, 5,068,845, Cl. 369-112.000.

Konica Corporations: *See—*
Soma, Utami; Koseki, Yasufumi; and Asakawa, Minoru, 5,068,853, Cl. 371-16.300.

Konrad, Andreas: *See—*
Roder, Manfred; and Konrad, Andreas, 5,067,599, Cl. 192-0.320.

Kopf, Rose F.: *See—*
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., 5,068,868, Cl. 372-45.000.

Koppenhoffer, Gerhard: *See—*
Schossig, Juergen; Koppenhoffer, Gerhard; Irgang, Matthias; Schnur, Rudi; and Roley, George, 5,068,468, Cl. 568-861.000.

Korbonski, John A., to Systems Division Incorporated. Method for drilling small holes in printed circuit boards. 5,067,859, Cl. 408-1.00R.

Korn, Marcel. Orthodontic appliance. 5,067,896, Cl. 433-6.000.

Korthoff, Herbert W., to United States Surgical Corporation. Surgical needle-suture attachement for controlled suture release. 5,067,959, Cl. 606-224.000.

Kosaka, Tokihiro, to Toa Medical Electronics Co., Ltd. Processor for extracting and memorizing cell images. 5,068,906, Cl. 382-48.000.

Koscica, Thomas E.: *See—*
Babbitt, Richard W.; Rachlin, Adam; and Koscica, Thomas E., 5,068,627, Cl. 331-99.000.

Koseki, Yasufumi: *See—*
Soma, Utami; Koseki, Yasufumi; and Asakawa, Minoru, 5,068,853, Cl. 371-16.300.

Kosem, Marion; Cachat, Anthony J.; and Toth, Thomas D., to Reliance Electric Industrial Company. Industrial control system device. 5,068,778, Cl. 364-138.000.

Kosmyna, Michael J., to Ransburg Corporation. Pressure feed paint cup valve. 5,067,518, Cl. 137-588.000.

Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, to Konica Corporation. Drying air control method in an automatic developing machine and an automatic developing machine employing the method. 5,068,681, Cl. 354-299.000.

Koszalka, George W.; Burns, Charlene L.; Krenitsky, Thomas A.; and Rideout, Janet L., to Burroughs Wellcome Co. 2-amino-6-(cyclopropylamino)purine-9-β-D-2',3'-dideoxyribofuranoside and its pharmaceutically acceptable salts. 5,068,320, Cl. 536-24.000.

Koth, Lawrence J.: *See—*
Hellenguard, Hanh P.; Koth, Lawrence J.; and Vaughan, Donald T., 5,068,796, Cl. 364-469.000.

Kotrotsios, Georges; and Parriaux, Olivier, to Centre Suisse d'Electronique et de Microtechnique S.A. Optical sensor with intermodal interferometry. 5,067,815, Cl. 356-345.000.

Kotzch, Hans-Joachim: *See—*
Rauleder, Hartwig; and Kotzch, Hans-Joachim, 5,068,382, Cl. 556-495.000.

Koura, Seigo: *See—*
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.

Kouzai, Takao: *See—*
Naito, Susumu; Kouzai, Takao; and Ikeda, Ritoko, 5,068,399, Cl. 560-212.000.

Kovacs, Adam. Antitumor pharmaceutical compositions and process for preparing the same. 5,068,240, Cl. 514-401.000.

Kovacs, Joseph; Masur, Henry; and Allegra, Carmen, to United States of America, Health and Human Services. Treatment of a microbial infection with drugs containing para-acetamidobenzoic acid. 5,068,253, Cl. 514-553.000.

Kovalcin, David: *See—*
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.
Bruckert, William; Bissett, Thomas D.; Kovalcin, David; and Nene, Ravi, 5,068,851, Cl. 371-16.100.

Koveshinikov, Alexandr D.: *See—*
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Kowalski, Joseph W., to B-Line Systems, Inc. Channel nut. 5,067,863, Cl. 411-85.000.

Koyama, Isao: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Koyama, Kuniaki, to NEC Corporation. MOS semiconductor device having high-capacity stacked capacitor. 5,068,698, Cl. 357-23.600.

Koyama, Mitsuhiro, to Yamada Iryo Shomei Kabushiki Kaisha. Automatic focus position adjusting unit for use in shadowless lighting device. 5,068,767, Cl. 362-33.000.

Kozawa, Shigeyuki: *See—*
Higuchi, Toshihiko; Nakano, Yasuhiko; Kunii, Nobuaki; Yamaguchi, Yoshiyuki; and Kozawa, Shigeyuki, 5,068,304, Cl. 528-28.000.

Kozlov, Alexandr M.: *See—*
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Kraft General Foods, Inc.: *See—*
Strandholm, John J., 5,068,118, Cl. 426-582.000.

Kramer, Pieter, to U.S. Philips Corporation. Reflective, optical record carrier. 5,068,846, Cl. 369-275.100.

Krause, Edward A.; Paik, Woo H.; Liu, Vincent; and Essserman, Jim, to General Instrument Corporation. Adaptive motion compensation for digital television. 5,068,724, Cl. 358-133.000.

Krause, Edward A.: *See—*
Katznelson, Ron D.; and Krause, Edward A., 5,068,729, Cl. 358-141.000.

Krause, Helmut: *See—*
Leidecker, Hans-Dieter; Schmidt, Bodo; Krause, Helmut; and Dobener, Karl-Heinz, 5,067,594, Cl. 188-73.350.

Krause, Joachim: *See—*
Reiffenrath, Volker; Poetsch, Eike; Krause, Joachim; and Weber, Georg, 5,068,053, Cl. 252-299.610.
Wachtler, Andreas; Eidenschink, Rudolf; Krause, Joachim; and Kurmeier, Hans-Adolf, 5,068,389, Cl. 558-411.000.

Krebs, Michael A.: *See—*
Chenot, Charles F.; and Krebs, Michael A., 5,068,055, Cl. 252-301.40R.

Kreczmer, Martin A., to Monsanto Company. Process for preparing ether carboxylate builders. 5,068,420, Cl. 562-583.000.

Kreft, Keith A.; Dikopf, Michael; and Loewe, Thomas D., to Sun Electric Corporation. Method and apparatus for generating display waveforms im wasted spark ignition systems. 5,068,613, Cl. 324-379.000.

Kremer, Kenneth A. M.: *See—*
Kuhn, David G.; and Kremer, Kenneth A. M., 5,068,390, Cl. 558-461.000.

Kremer, Paul; and Kerger, Leon, to Ceodeux S.A. Tap for compressed or liquefied gas. 5,067,520, Cl. 137-614.200.

Krenitsky, Thomas A.: *See—*
Koszalka, George W.; Burns, Charlene L.; Krenitsky, Thomas A.; and Rideout, Janet L., 5,068,320, Cl. 536-24.000.

Kress, Ulrich; Maul, Rudolf; and Kintopf, Siegfried, to Ciba-Geigy Corporation. Process for the preparation of 4-hydroxy-2,2,6,6-tetramethylpiperidine. 5,068,335, Cl. 546-242.000.

Kreuder, Hans-Joachim: *See—*
Meixner, Jurgen; Pedain, Josef; Hohlein, Peter; and Kreuder, Hans-Joachim, 5,068,305, Cl. 528-49.000.

Kreutzburg, Franz; and Galleck, Kurt-G., to AEG Olympia Aktiengesellschaft. Method of setting the operating parameters in a microprocessor-controlled typewriter or other microprocessor-controlled office machine. 5,068,824, Cl. 395-800.000.

Krieger, Wolfgang, to Abb Kabel und Draht GmbH. Electrostatic filter cable. 5,068,497, Cl. 174-106.00R.

Krinickas, Alexander: *See—*
Glennon, Timothy F.; Mehl, Byron R.; Thollot, Pierre; and Krinickas, Alexander, 5,068,590, Cl. 322-10.000.

Kroemer, Herbert: *See—*
Sullivan, Gerard J.; Pedrotti, Kenneth D.; and Kroemer, Herbert, 5,067,828, Cl. 385-3.000.

Kroninger, Paul M., Jr.: *See—*
Baxter, Ronald D.; and Kroninger, Paul M., Jr., 5,068,205, Cl. 437-205.000.

Krude, Werner, to GKN Automotive AG. Constant velocity ratio universal joint. 5,067,929, Cl. 464-145.000.

Krug, Thomas: *See—*
Heinz, Jochen; Krug, Thomas; Ruebsam, Klemens; and Kessler, Hans, 5,068,915, Cl. 392-389.000.

Krug, Wolfgang: *See—*
Britz, Lothar; Krug, Wolfgang; and Seferiadis, Johann, 5,068,492, Cl. 174-31.500.

Kuan, Chung A. Structure of motorcycle stand. 5,067,739, Cl. 280-304.000.

Kubert, Daniel A.: *See—*
Fawzi, Mahdi B.; Kubert, Daniel A.; and Murthy, Kuchi S., 5,068,110, Cl. 424-461.000.

Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, to Unitika Ltd. Polyolefin-type nonwoven fabric and method of producing the same. 5,068,141, Cl. 428-219.000.

Kubo, Kazuhiro: *See—*
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

Kubo, Naoki: *See—*
Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, 5,068,718, Cl. 358-27.000.

Kubo, Yoshihiro: *See—*
Suzuki, Riichiro; Akiyama, Shigeyuki; and Kubo, Yoshihiro, 5,067,814, Cl. 356-339.000.

Kubota, Hitoshi; Yamane, Manabu; and Anezaki, Takashi, to Matsushita Electric Industrial Co., Ltd. Apparatus for mounting a flat package type IC. 5,068,588, Cl. 318-640.000.

Kuchiki, Kiyoshi, to Mitsubishi Denki Kabushiki Kaisha. Numerical control device. 5,068,585, Cl. 318-569.000.

Kuethe, David F., to Oscar Mayer Foods Corporation. Packaging with utensil. 5,067,304, Cl. 53-410.000.

Kuhn, David G.; and Kremer, Kenneth A. M., to American Cyanamid Company. 1,1,1-trifluoro-2-propene compounds. 5,068,390, Cl. 558-461.000.

Kuhnle, William G.: *See—*
Murnane, James F., III; and Kuhnle, William G., 5,067,410, Cl. 102-489.000.

Kukimoto, Hiroshi; Mitsuishi, Iwao; and Yasuda, Takashi, to Misawa Co. Ltd. Method of manufacturing a light emitting element. 5,068,204, Cl. 437-127.000.

Kulkarni, Milind V., to Honeywell Inc. Reserve activated electrochemical cell. 5,068,162, Cl. 429-116.000.

Kull, Hermann: *See—*
Joachim, Ernst-Ulrich; and Kull, Hermann, 5,067,461, Cl. 123-357.000.

Kulprathipanja, Santi; and Oroskar, Anil R., to UOP. Separation of lactic acid from fermentation broth with an anionic polymeric absorbent. 5,068,418, Cl. 562-580.000.

Kulprathipanja, Santi; and Oroskar, Anil R., to UOP. Separation of an organic acid from a fermentation broth with an anionic polymeric adsorbent. 5,068,419, Cl. 562-580.000.

Kumagai, Naoki: *See—*
Nishiura, Akira; Kumagai, Naoki; and Seki, Yasukazu, 5,068,581, Cl. 315-370.000.

Kumai, Seisaku; Yokokoji, Osamu; and Tamaoki, Akihiro, to Asahi Glass Company, Ltd. Fluorinated benzoyl compounds. 5,068,449, Cl. 568-335.000.

Kumar, Virendra: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.

Kundis, Dieter: *See—*
McAlpine, Warren W.; and Kundis, Dieter, 5,067,830, Cl. 385-114.000.

Kung, Hank F. Dopamine receptor ligands and imaging agents. 5,068,326, Cl. 540-594.000.

Kunii, Nobuaki: *See—*
Higuchi, Toshihiko; Nakano, Yasuhiko; Kunii, Nobuaki; Yamaguchi, Yoshiyuki; and Kozawa, Shigeyuki, 5,068,304, Cl. 528-28.000.

Kunimi, Yuji; Tabata, Akihiko; and Fujita, Yatsuka, to K.K. Ueno Seiyaku Oyo Kenkyujo. Process for production of solid sorbitol. 5,068,467, Cl. 568-852.000.

Kunz, Peter: *See—*
Hunziker, Bruno; and Kunz, Peter, 5,067,691, Cl. 251-315.000.

Kunz, Walter: *See—*
Huxley, Alica; Kunz, Walter; Ackermann, Peter; and Sutter, Marius, 5,068,359, Cl. 549-58.000.

Kuo, Ching-Chuan: *See—*
Fann, Yaw-Shin; Chiou, Ming-Shyang; and Kuo, Ching-Chuan, 5,067,758, Cl. 292-347.000.

Kurachi, Yoshio: *See—*
Shinkai, Kunio; Suzuki, Toyoo; Nomura, Yukitaka; Kurachi, Yoshio; and Kureishi, Hiroyuki, 5,067,204, Cl. 19-159.00A.

Kuraray Co., Ltd.: *See—*
Negi, Taichi; Hirofuji, Satoshi; Tanaka, Nobuo; and Kawai, Syuji, 5,068,077, Cl. 264-512.000.

Kurashima, Yasumi, to NEC Corporation. Constant voltage power supply for a plurality of constant-current sources. 5,068,594, Cl. 323-314.000.

Kuratani, Junichi, to Alps Electric Co., Ltd. Control lever type input device. 5,068,499, Cl. 200-6.00A.

Kureha Kagaku Kogyo K.K.: *See—*
Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, 5,068,481, Cl. 585-426.000.
Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, 5,068,482, Cl. 585-429.000.

Kureishi, Hiroyuki: *See—*
Shinkai, Kunio; Suzuki, Toyoo; Nomura, Yukitaka; Kurachi, Yoshio; and Kureishi, Hiroyuki, 5,067,204, Cl. 19-159.00A.

Kurihara, Kazushige: *See—*
Takahama, Yoshihiro; Kurihara, Kazushige; and Nishiya, Takayuki, 5,067,288, Cl. 52-80.000.

Kurita Water Industries, Ltd.: *See—*
Ogawa, Zensuke, 5,068,183, Cl. 435-22.000.

Kurita, Yoshio; and Akamatsu, Akira, to Rohm Co., Ltd. Method of manufacturing semiconductor devices, and leadframe and differential overlapping apparatus therefor. 5,068,206, Cl. 437-220.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Kuriyama, Katsumi: *See—*
Misaizu, Iwao; Hanada, Kazuyuki; Shibuya, Akihiko; and Kuriyama, Katsumi, 5,068,295, Cl. 526-245.000.

Kurmeier, Hans-Adolf: *See—*
Wachtler, Andreas; Eidenschink, Rudolf; Krause, Joachim; and Kurmeier, Hans-Adolf, 5,068,389, Cl. 558-411.000.

Kuroda, Yasuhiro; and Suzuki, Hideo, to Nitto Denko Corporation. Dam rubber for car window and adhered window structure. 5,067,290, Cl. 52-208.000.

Kuroda, Yasuo: *See—*
Nowatari, Hiroyoshi; Hayami, Hiroshi; Kuroda, Yasuo; Yoda, Sumio; and Takahashi, Katsutoshi, 5,068,376, Cl. 556-137.000.

Kurokawa, Akemi: *See—*
Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, 5,068,542, Cl. 250-573.000.

Kurokawa, Masashi: *See—*
Okumura, Hiroyuki; Kurokawa, Masashi; Namikawa, Akira; and Tanisake, Hiroka, 5,068,281, Cl. 524-753.000.

Kurokawa, Toshiko: *See—*
Horiuchi, Tatsuo; and Kurokawa, Toshiko, 5,068,190, Cl. 435-190.000.

Kusanagi, Hiroaki, to Toshiba Kikai Kabushiki Kaisha. Moistening water supply apparatus for printing press. 5,067,401, Cl. 101-148.000.

Kushi, Naoto; Takaoka, Toshio; and Muramatsu, Motoyasu, to Toyota Jidosha Kabushiki Kaisha. Slip control system for a vehicle provided with an internal combustion engine. 5,067,579, Cl. 180-197.000.

Kuwahara, Masahiro: *See—*
Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, 5,068,400, Cl. 560-223.000.

Kuwahara, Yasumasa; and Leal, Walter S., to Daikin Industries, Ltd. Novel monoterpenes. 5,068,453, Cl. 568-494.000.

Kwalu (Proprietary) Limited: *See—*
Ponting, Robert F. B., 5,067,842, Cl. 403-265.000.

Kwasman, Alan, to Kwasman, Alan. Quick screening for scotopic sensitivity syndrome. 5,067,806, Cl. 351-233.000.

Kyohzuka, Takahiro; and Kikuchi, Toshiyuki, to Mazda Motor Corporation. Automatic-transmission control system. 5,067,373, Cl. 74-866.000.

Kyoto University: *See—*
Kokubo, Tadashi; Yamamuro, Takao; and Abe, Yoshio, 5,068,122, Cl. 427-2.000.

Kyowa Electronic Instruments Co., Ltd.: *See—*
Kawai, Masayasu, 5,067,354, Cl. 73-862.340.

Kyowa Hakko Kogyo Co., Ltd.: *See—*
Kanda, Yutaka; Kasai, Masaji; Arai, Hitoshi; Morimoto, Makoto; and Ashizawa, Tadashi, 5,068,349, Cl. 548-418.000.
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

Kyrtsos, Christos T.; and Worrell, Dean A., to Caterpillar Inc. Dynamic payload monitor. 5,067,572, Cl. 177-139.000.

Kysela, Ernst: *See—*
Beck, Gunter; Kysela, Ernst; and Braden, Rudolf, 5,068,343, Cl. 548-194.000.

L. Schuler GmbH: *See—*
Rahn, Oskar; and Riedisser, Gunter, 5,067,892, Cl. 425-556.000.

Lachenmaier, Sepp. Transmission series. 5,067,361, Cl. 74-325.000.

La Croix, Mark E.: *See—*
Grillo, John M.; Hilby, James A.; La Croix, Mark E.; Polinsky, Mark A.; and Steltzer, Gordon L., 5,067,350, Cl. 73-494.000.

Ladiszlaidesz, Ferenc: *See—*
Brubak, Jens P.; Eftestol, Bard; and Ladiszlaidesz, Ferenc, 5,067,994, Cl. 148-415.000.

Ladwig, Paul K.: *See—*
Brownawell, Darrell W.; Thaler, Warren A.; Bannister, Eric; and Ladwig, Paul K., 5,068,044, Cl. 252-25.000.

Lafay, William P.: *See—*
West, Lamar E.; Lafay, William P.; Ghanouni, Majid; and Cook, Alex M., Jr., 5,068,893, Cl. 380-7.000.

Lagasse, Normand L.: *See—*
Waddington, Clive; Lagasse, Normand L.; and Taupier, Roger, 5,067,454, Cl. 123-196.00S.

Laine, Jaakko E: *See—*
Jokinen, Olli; Kettunen, Jukka; Lepo, Jarkko; Niemi, Tapio; and Laine, Jaakko E, 5,068,009, Cl. 162-9.000.

Lalesse, Herman C., to U.S. Philips Corporation. Method of separating a component from a row of components and apparatus for carrying out the method. 5,067,873, Cl. 414-789.900.

Lampert, Norman R., to AT&T Bell Laboratories. Optical fiber connector buildout system. 5,067,783, Cl. 385-60.000.

Lamprecht, Antonio R.: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Land, Larry D. Method and apparatus for obtaining and recording fingerprint indicia. 5,067,749, Cl. 283-117.000.

Lang, Gerard: *See—*
Maignan, Jean; Malle, Gerard; and Lang, Gerard, 5,068,393, Cl. 560-51.000.

Lang, John; and Garvey, Cormac. Apparatus for filling self-sealing tubes. 5,067,532, Cl. 141-329.000.

Lang, Mark G.: *See—*
Go, Winston S.; Roti, Joseph S.; Lang, Mark G.; and Weiss, Charles O., 5,068,059, Cl. 252-389.530.

Lange, Barry C.: *See—*
Bayer, Horst O.; Lange, Barry C.; and Petigara, Ramesh B., 5,068,338, Cl. 548-101.000.

Langner, Rene J.: *See—*
Heath, Warren J.; Langner, Rene J.; and Bell, Charles A., 5,068,798, Cl. 364-497.000.

Lanser, Michael L.; VanderVeen, Steven E.; and Becker, David J., to Prince Corporation. Visor with extendable panel. 5,067,764, Cl. 296-97.500.

Larac S.p.A.: *See—*
Zavatteri, Ignazio; and Gambini, Tiziana, 5,068,135, Cl. 427-439.000.

Lark, George H.: *See—*
Young, William O., Jr.; and Lark, George H., 5,067,646, Cl. 226-015.000.

Laser Science, Inc.: *See—*
Javan, Ali, 5,068,864, Cl. 372-32.000.

Last, Harry J. Cover drum having tapered ends and automatic swimming pool cover. 5,067,184, Cl. 4-502.000.

Latteur, Alain: *See—*
Heyche, Albert; Latteur, Alain; and Dekoninck, Philippe, 5,067,674, Cl. 244-190.000.

Lau, Chung M.: *See—*
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., 5,068,576, Cl. 315-291.000.

Lauck, Kenneth L.: *See—*
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., 5,067,875, Cl. 416-114.000.

Lauderdale, Harold L., to West Point Pepperell, Inc. Method of making a reinforcing fabric for power transmission belts, hoses and the like. 5,068,000, Cl. 156-148.000.

Lauer, Peter, to Alfred Teves GmbH. Adjusting mechanism for a control member. 5,067,365, Cl. 74-501.50R.

Laughlin, Darren R., to Applied Technology Associates, Inc. Magnetohydrodynamic angular rate sensor for measuring large angular rates. 5,067,351, Cl. 73-516.0LM.

Laughner, Michael K., to Dow Chemical Company, The. Molding compositions with acrylonitrile-styrene-acrylate rubber copolymers. 5,068,285, Cl. 525-67.000.

Lavia, Monica. Catheter or cannula position indicator for use in hemodynamic monitoring and the like. 5,068,886, Cl. 378-164.000.

Law, Robert W.: *See—*
Remboski, Donald J.; Plee, Steven L.; Yang, Jialin; Law, Robert W.; and Vincent, Michael T., 5,067,463, Cl. 123-425.000.

Lawless, Rodger L.: *See—*
Pipella, Lawrence S.; Fanjoy, Logan M.; Lawless, Rodger L.; and Davies, James E., 5,068,787, Cl. 364-406.000.

Lawrence, Neil: *See—*
Rolfe, Gary, 5,068,839, Cl. 368-93.000.

Lawrence, Paul J., to Litmus Concepts, Inc. Fecal occult blood test methods. 5,068,197, Cl. 436-66.000.

Lawrence, Richard H., to Digital Equipment Corporation. Single-stage extensible sorter for sorting data and efficiently reading out sorted data, incorporating single-bit devices. 5,068,822, Cl. 395-775.000.

Lawson, Jimmie B.: *See—*
Thigpen, David R.; Lawson, Jimmie B.; and Nelson, Richard C., 5,068,043, Cl. 252-855.400.

Lazzari, Ettore: *See—*
Melloni, Piero; Torre, Arturo D.; Lazzari, Ettore; and Mazzini, Giuseppe, 5,068,433, Cl. 564-349.000.

LCE Partnership: *See—*
O'Lenick, Anthony J., Jr., 5,068,324, Cl. 540-471.000.

Leach, Leonora M. Number-sense card game. 5,067,725, Cl. 273-302.000.

Leake, Bernard W.: *See—*
Strid, Eric W.; and Leake, Bernard W., 5,068,615, Cl. 324-613.000.

Leal, Walter S.: *See—*
Kuwahara, Yasumasa; and Leal, Walter S., 5,068,453, Cl. 568-494.000.

Lebby, Michael S.: *See—*
Jaskie, James E.; Lebby, Michael S.; and Richard, Fred V., 5,067,829, Cl. 385-8.000.
Rogers, Stephen P.; and Lebby, Michael S., 5,068,007, Cl. 156-643.000.

Leblanc, Charles B., to Enspeco Inc. Refrigerant recovery and recharging device. 5,067,327, Cl. 62-292.000.

Lebrun, Jean-Jacques: *See—*
Mignani, Gerard; and Lebrun, Jean-Jacques, 5,068,154, Cl. 428-446.000.

LeClerc, David L.; and Conti, Wayne A., to Chrysler Corporation. Method for determining adherence to a vehicle panel surface. 5,067,997, Cl. 156-64.000.

LeCompte, George W.: *See—*
LoStracco, Gregory; and LeCompte, George W., 5,067,665, Cl. 242-118.320.

Leddon, Warren E.: *See—*
Plester, George; Leddon, Warren E.; and Dalsis, David E., 5,067,616, Cl. 209-3.100.

Lee, Byung C., to Goldstar Co., Ltd. Unitized structure of main bearing and cylinder of rotary compressor. 5,067,884, Cl. 418-63.000.

Lee, Clifford C.; and Welch, M. Bruce, to Phillips Ptroleum Company. Olefin polymerization catalyst and method for production and use. 5,068,212, Cl. 502-105.000.

Lee, Fu-Ming; and Brown, Ronald E., to Phillips Petroleum Company. Separation of monoolefins from paraffins. 5,068,011, Cl. 203-58.000.

Lee, Jae S.: *See—*
Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., 5,068,884, Cl. 378-119.000.

Lee, Jin H.: *See—*
Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., 5,068,884, Cl. 378-119.000.

Lee, Kang I., to Monsanto Company. Styrene/maleates terpolymers. 5,068,168, Cl. 430-270.000.

Lee, Kiu H.: *See—*
Edwards, David N.; Jorgensen, Robert J.; Lee, Kiu H.; and Marcinkowsky, Arthur E., 5,068,489, Cl. 585-524.000.

Lee, Raymond H., Jr.: *See—*
Oschansky, Brad; Olschansky, Scott; and Lee, Raymond H., Jr., 5,067,708, Cl. 272-118.000.

Lee, Thomas R.: *See—*
Rix, David M.; Long, Martin W.; Lee, Thomas R.; and Dawes, Douglas E., 5,067,464, Cl. 123-446.000.

Lee, Tun-Hou: *See—*
Essex, Myron E.; Allan, Jonathan S.; and Lee, Tun-Hou, 5,068,174, Cl. 435-5.000.

Lee, Woo S. Homopolar rotary machine with flux bypass. 5,068,561, Cl. 310-178.000.

Lee, Yung N.; and Wiggins, Fred R., to Conoco Inc. Activation of water-in-oil emulsions of friction reducing polymers for use in saline fluids. 5,067,508, Cl. 137-13.000.

Leemput, Geert H.; and Leemput, Herman. Apparatus for tapping a fluid through a wall. 5,067,514, Cl. 137-318.000.

Leemput, Herman: *See—*
Leemput, Geert H.; and Leemput, Herman, 5,067,514, Cl. 137-318.000.

Leenders, Luc H.: *See—*
Coppens, Paul J.; Vervloet, Ludovicus H.; Leenders, Luc H.; and Schuerwegen, Ronald, 5,068,165, Cl. 430-204.000.

Leeper, Robert L.: *See—*
Hunter, Gary W.; and Leeper, Robert L., 5,067,729, Cl. 273-450.000.

Lehr, Hans-Thomas; and Schafer, Peter, to Dr. Ing.h.c.F. Porsche Aktiengesellschaft. Method and an arrangement for adjusting a height control system of a vehicle. 5,068,792, Cl. 364-424.050.

Lehureau, Jean-Claude: *See—*
Meunier, Paul-Louis; Coutellier, Jean-Marc; and Lehureau, Jean-Claude, 5,067,230, Cl. 29-603.000.

Leidecker, Hans-Dieter; Schmidt, Bodo; Krause, Helmut; and Dobener, Karl-Heinz, to Alfred Teves GmbH. Resilient guide for the brake housing of a floating caliper spot-type disc brake. 5,067,594, Cl. 188-73.350.

Leister, Norman A.: *See—*
Petigara, Ramesh B.; Leister, Norman A.; Pendell, Barry J.; and Woodruff, Robert A., 5,068,344, Cl. 548-213.000.

Leitch, Clifford D., to Motorola, Inc. Spectrally efficient digital FM modulation system. 5,068,874, Cl. 375-51.000.

Leland Stanford Junior University, The Board of Trustees of the: *See—*
Jaffe, Richard A.; and Allison, A. Christopher, 5,067,942, Cl. 604-110.000.

Lemelson, Jerome H. Ball and roller bearings and bearing components. 5,067,826, Cl. 384-492.000.

Lemmens, Joseph R. Variable crank pedal drive for bicycles and the like. 5,067,370, Cl. 74-594.200.

Lemmerz-Werke KGaA: *See—*
Aderer, Peter, 5,067,776, Cl. 301-9.0TV.

Lenke, Gerd M.; and Wiff, Donald R., to GenCorp Inc. In-situ composites. 5,068,292, Cl. 525-509.000.

Lensing, Rudolf. Closure for a container. 5,067,623, Cl. 215-227.000.

Leonard, Didier; and Even, Stephane, to Telemecanique. Detector of the regulated voltage two wire type. 5,068,592, Cl. 323-224.000.

Lepo, Jarkko: *See—*
Jokinen, Olli; Kettunen, Jukka; Lepo, Jarkko; Niemi, Tapio; and Laine, Jaakko E, 5,068,009, Cl. 162-9.000.

Lepoutre, Etienne; Devaux, Michel; Hirschberg, Bruno; Petio, Franz A.; and Weitzer, Paul. Electric arc oven for treating molten metals with a gas and a process therefor. 5,067,693, Cl. 266-44.000.

Le Queau, Marcel: *See—*
Haghiri, Mohammed R.; Guntzburger, Philippe; Fonsalas, Frederic; and Le Queau, Marcel, 5,068,727, Cl. 358-138.000.

Lerou, Jan J.: *See—*
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Les Produits Associes LPA-Broxo S.A.: *See—*
Woog, Philippe-Guy E.; and Moret, Michel A., 5,067,480, Cl. 128-32.000.

Leumi, Dov A. Trash receptacle adapted for rotatable mounting having integral locking and supporting means. 5,067,626, Cl. 220-475.000.

Level One Communications, Inc.: *See—*
Ghoshal, Sajol C., 5,068,628, Cl. 331-1.00A.

Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., to W. R. Grace & Co.-Conn.; and United States of America, Agriculture. Fungal formulation for biocontrol of soilborne plant pathogens. 5,068,105, Cl. 424-93.000.

Lewis, Kenneth T. Display wall assembly. 5,067,287, Cl. 52-29.000.

Lewis, Richard L. Tomato irrigation and support pole. 5,067,274, Cl. 47-47.000.

Leybold Aktiengesellschaft: *See—*
Heinz, Jochen; Krug, Thomas; Ruebsam, Klemens; and Kessler, Hans, 5,068,915, Cl. 392-389.000.
Sichmann, Eggo; Fritsche, Wolf-Eckart; and Schlussler, Jim, 5,068,021, Cl. 204-192.140.

Li, Alan Y.; Grutsch, James F.; and O'Leary, Kevin P., to Chemical Waste Management, Inc. Activated sludge process with in situ recovery of powdered adsorbent. 5,068,036, Cl. 210-606.000.

Libbey-Owens-Ford Co.: *See—*
Deb, Sugato, 5,067,977, Cl. 65-29.000.
Weaver, William R.; and Matzinger, James E., 5,068,076, Cl. 264-511.000.

Libby, Owen H.: *See—*
Russell, Neil E.; and Libby, Owen H., 5,067,519, Cl. 137-596.140.

Liboff, Abraham R.; McLeod, Bruce R.; and Smith, Stephen D., to Life Resonances, Inc. Method and apparatus for controlling the growth of cartilage. 5,067,940, Cl. 600-13.000.

Licht, Elke: *See—*
Degen, Bruno; Feldner, Kurt; Licht, Elke; and Wagner, Gebhard, 5,068,385, Cl. 556-472.000.

Liebermann, Benno E., to Beltec International. Method for cleaning edible oils using an immersible packet containing citrus peels and a packet for cleaning edible oils. 5,068,115, Cl. 426-77.000.

Life Resonances, Inc.: *See—*
Liboff, Abraham R.; McLeod, Bruce R.; and Smith, Stephen D., 5,067,940, Cl. 600-13.000.

Lifeing, Inc.: *See—*
Oschansky, Brad; Olschansky, Scott; and Lee, Raymond H., Jr., 5,067,708, Cl. 272-118.000.

Ligh, Jone Y. Pressure balance valve spindle. 5,067,522, Cl. 137-625.330.

Light Work Inc.: *See—*
Eide, Russel L., 5,067,661, Cl. 241-55.000.

Lin, Guu-Trang: *See—*
Chen, Chun-Hui; and Lin, Guu-Trang, 5,067,205, Cl. 24-67.900.

Lin, Ivan J. B.; and Jong, S. J., to National Science Council. Production of 3-phenoxy propanal derivatives. 5,068,451, Cl. 568-442.000.

Lin, Jiang-Jen: *See—*
Cuscurida, Michael; McCoy, David R.; and Lin, Jiang-Jen, 5,068,444, Cl. 564-505.000.

Lin, Nan-Horng: *See—*
Albarella, James P.; and Lin, Nan-Horng, 5,068,355, Cl. 548-527.000.

Lin, Shaw-Yueh; and Shon, Russell D., to Eastman Kodak Company. Method and apparatus for data interleave with pseudo-randomized resynchronization. 5,068,878, Cl. 375-111.000.

Lin, Tsung-Ping: *See—*
Chuang, Jack; and Lin, Tsung-Ping, 5,067,895, Cl. 431-253.000.

Lind, Stuart J., to Flexmedics Corporation. Flexible guide with safety tip. 5,067,489, Cl. 128-772.000.

Lindert, Andreas; Pierce, John R.; McCormick, David R.; and Zimmermann, William D., to Henkel Corporation. Carbodohydrate-modifed polyphenol compounds and compositions containing them. 5,068,299, Cl. 526-313.000.

Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., to Hoechst Celanese Corporation. Process for the production of 4'-isobutylacetophenone. 5,068,448, Cl. 568-319.000.

Lindskog, Carl G.; Anderson, Rolf; and Loovv, Christer, to AB Tetra Pak. Packaging container opening formation device for a packing machine. 5,068,005, Cl. 156-514.000.

Lindstrom, Erik A.: *See—*
Beytes, Deane; and Lindstrom, Erik A., 5,067,324, Cl. 60-752.000.

Liner Kabouki Co., Ltd.: *See—*
Nakajima, Hiromi, 5,067,553, Cl. 164-412.000.

Linkletter, Don R.; and Musil, Joseph E., to Cedarapids, Inc. Method and apparatus for modifying a veil of materials in a drum of a drying apparatus. 5,067,254, Cl. 34-137.000.

Linsinger Maschinenbau GmbH, Firma: *See—*
Pomikacsek, Josef, 5,067,283, Cl. 51-178.000.

Lipner, Melvin H.: *See—*
Impink, Albert J., Jr.; and Lipner, Melvin H., 5,068,080, Cl. 376-215.000.

Lippert, Harry G., to Extrusion Dies, Inc. Replaceable wiping insert for slot die head. 5,067,432, Cl. 118-413.000.

Lippi, Elio: *See—*
Guelfi, Ferdinando; and Lippi, Elio, 5,067,192, Cl. 15-302.000.

Lipschutz, David, to Hewlett-Packard Company. Dynamic control circuit for multichannel system. 5,068,833, Cl. 367-98.000.

Lipsky, Peter E.; and Thiele, Dwain L., to Board of Regents, University of Texas System. Hydrophobic peptide esters and amides. 5,068,223, Cl. 514-019.000.

Liska, Frank F.: *See—*
Liska, Frank T.; and Liska, Frank F., 5,067,536, Cl. 144-361.000.

Liska, Frank T.; and Liska, Frank F. Method for making structural products from long, thin, narrow, green wood strands. 5,067,536, Cl. 144-361.000.

Litmus Concepts, Inc.: *See—*
Lawrence, Paul J., 5,068,197, Cl. 436-66.000.

Liu, Vincent: *See—*
Krause, Edward A.; Paik, Woo H.; Liu, Vincent; and Essserman, Jim, 5,068,724, Cl. 358-133.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Livanos, Konstantin, to AT&T Bell Laboratories. Route based network management. 5,068,892, Cl. 379-221.000.

Lloyd, Kurt M.: *See—*
Miskin, Stephen N.; and Lloyd, Kurt M., 5,067,592, Cl. 187-9.00R.

Lloyd, O. H. Perry. Method and apparatus for interfacing of holographic and electronic data. 5,067,792, Cl. 359-32.000.

Locke, Thomas P., to John Fluke Mfg. Co., Inc. Hardware enhancements for improved performance of memory emulation method. 5,068,852, Cl. 371-16.200.

Lockheed Missiles & Space Company, Inc.: *See—*
Wang, Shing C.; Ogura, Mutsuo; Wang, Shyh; and Hsin, Wei, 5,068,869, Cl. 372-45.000.

Lockheed Sanders, Inc.: *See—*
Cascini, Michael R., 5,067,648, Cl. 228-47.000.

Loctite (Ireland) Ltd.: *See—*
Casey, Tadhg E.; and Melody, David P., 5,068,265, Cl. 523-176.000.

Loewe, Thomas D.: *See—*
Kreft, Keith A.; Dikopf, Michael; and Loewe, Thomas D., 5,068,613, Cl. 324-379.000.

Logan Manufacturing Company: *See—*
Beeley, Michael G., 5,067,264, Cl. 37-222.000.

Logsdon, James H.; Staller, Steven E.; De Roo, David W.; and Neudeck, Gerold W., to Delco Electronics Corporation; and Purdue Research Foundation. Method for forming thin silicon membrane or beam. 5,068,203, Cl. 437-89.000.

Lohr Industrie, S.A.: *See—*
Andre, Jean-Luc, 5,067,862, Cl. 410-26.000.

Long, David R., to Glaxo Group Limited. Aqueous ranitidine compositions stabilized with ethanol. 5,068,249, Cl. 514-471.000.

Long, Joseph F.: *See—*
Harlan, Thomas A.; and Long, Joseph F., 5,067,717, Cl. 273-183.00B.

Long, Martin W.: *See—*
Rix, David M.; Long, Martin W.; Lee, Thomas R.; and Dawes, Douglas E., 5,067,464, Cl. 123-446.000.

Lonhoff, Norbert: *See—*
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, 5,068,015, Cl. 204-89.000.

Loovv, Christer: *See—*
Lindskog, Carl G.; Anderson, Rolf; and Loovv, Christer, 5,068,005, Cl. 156-514.000.

Lord Corporation: *See—*
Carlson, J. David, 5,068,018, Cl. 204-180.100.

Lorenz, Alfred: *See—*
Jager, Hubert; and Lorenz, Alfred, 5,068,026, Cl. 208-125.000.

Lorenzoni, Loreno; Dessantis, Nino; and Virdis, Angelo, to Enichem Anic S.p.A. Method of purification of the oxalic acid diamide. 5,068,429, Cl. 564-160.000.

LoStracco, Gregory; and LeCompte, George W., to Hughes Aircraft Company. Base layer for an optical fiber wound pack. 5,067,665, Cl. 242-118.320.

Louer, Christopher: *See—*
Smith, W. Novis; and Louer, Christopher, 5,068,368, Cl. 552-556.000.

Lovaas, Olaf K. Telescoping cover for a pickup truck bed. 5,067,766, Cl. 296-100.000.

Love, Andrew M., to Texas Instruments Incorporated. Delay stage with reduced V_{dd} dependence. 5,068,553, Cl. 307-605.000.

Lovrecich, Mara L.; and Riccioni, Giovanna, to Vectorpharma International S.p.A. Pharmaceutical tablets and capsule granulates of scleroglucan and active substance. 5,068,111, Cl. 424-469.000.

Lown, John M.: *See—*
Maguire, Paul R.; and Lown, John M., 5,067,639, Cl. 222-521.000.

Lowrance, Arlen J. Combined racing kite gate and quick draw device. 5,068,837, Cl. 368-10.000.

LSI Logic Corporation: *See—*
Gascoyne, William H., 5,068,547, Cl. 307-443.000.

LTV Steel Company, Inc.: *See—*
Petrushka, Robert G., 5,067,552, Cl. 164-259.000.

Lucas, Frederick T.: *See—*
Dunsmore, Clay A.; and Lucas, Frederick T., 5,068,575, Cl. 315-241.00P.

Lucas Industries Public Limited Company: *See—*
Pickenhahn, Josef, 5,067,524, Cl. 137-627.500.

Lucas, Lawrence M.: *See—*
Gibney, Michael W.; Lucas, Lawrence M.; and Culver, Roy, Jr., 5,068,116, Cl. 426-23.100.

Lucci, John J.: *See—*
St. Angelo, Stephen, Jr.; Lucci, John J.; Carver, George C.; Heads, Alan; and Mitchell, James F., 5,067,225, Cl. 29-451.000.

Luckower, Herbert: *See—*
Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P.; Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., 5,067,630, Cl. 221-76.000.

Luetzeler, Robert: *See—*
Auweiler, Willi; Solbach, Bernd; and Luetzeler, Robert, 5,067,250, Cl. 33-783.000.

Lukas, Helmut H.: *See—*
Debortoli, George; and Lukas, Helmut H., 5,067,784, Cl. 385-53.000.

Luker, Edward: *See—*
Julian, Randall K.; and Luker, Edward, 5,067,891, Cl. 425-533.000.

Lumenyte International Corporation: *See—*
Robbins, John A.; Zarian, Jamshid J.; and Willford, Sandford R., 5,067,831, Cl. 385-123.000.

Lumsden, Douglas: *See—*
Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., 5,068,105, Cl. 424-93.000.

Lundberg, Robert D.: *See—*
Peiffer, Dennis G.; and Lundberg, Robert D., 5,068,278, Cl. 524-547.000.

Lundquist, Lynn. Reduced current starting mechanism for three phase squirrel cage motors. 5,068,560, Cl. 310-125.000.

Lundstrom, Norman H.; and Reed, Russell, Jr., to United States of America, Navy. Plastic bonded explosives which exhibit mild cook-off and bullet impact insensitive properties. 5,067,996, Cl. 149-19.400.

Lunney, James G., to Bausch & Lomb Incorporated. Laser polishing of lens surface. 5,068,514, Cl. 219-121.690.

Lydtin, Hans-Jurgen: *See—*
Bachmann, Peter K.; Khoe, Giok D.; Mahon, Cathal J.; and Lydtin, Hans-Jurgen, 5,067,793, Cl. 385-127.000.

Lyke, Russell V.: *See—*
Jenks, James K.; and Lyke, Russell V., 5,067,521, Cl. 137-625.500.

Lykes, Robert E.; and King, James L., to A. O. Smith Corporation. Bearing bracket for a dynamoelectric machine. 5,068,556, Cl. 310-90.000.

Lyons, John, to Duro Dyne Corporation. Access door for air flow conduits. 5,067,278, Cl. 49-463.000.

Lysenko, Zenon: *See—*
Harris, William J.; Lysenko, Zenon; and Hurtig, Carl W., 5,068,384, Cl. 562-453.000.

M/A-Com Adams-Russell, Inc.: *See—*
Bickford, Wayne F.; and Smith, Kenneth L., 5,067,912, Cl. 439-578.000.

M.E.P. Macchine Elettroniche Piegatrici, SpA: *See—*
Del Fabro, Giorgio, 5,067,337, Cl. 72-161.000.

M-I Drilling Fluids Company: *See—*
Patel, Arvind D.; McGlothlin, Raymond E.; Bleier, Roger D.; and Brinkley, H. N., 5,068,041, Cl. 507-103.000.

Ma, Thomas T., to Ford Motor Company. Fuel timing control. 5,067,459, Cl. 123-295.000.

Maassel, James L.: *See—*
Smith, Morton R.; and Maassel, James L., 5,068,129, Cl. 427-239.000.

MacConnell, William P.: *See—*
Cochran, Mark D.; Shih, Meng-Fu; and MacConnell, William P., 5,068,192, Cl. 435-235.100.

MacGregor, Donald C. Precision press brake. 5,067,340, Cl. 72-389.000.

Machado, Romeu: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Machida, Tetsuo: *See—*
Miyashita, Koujirou; and Machida, Tetsuo, 5,068,802, Cl. 395-133.000.

Machii, Akihiko: *See—*
Tsuzuki, Makoto; Kimbara, Masahiko; Fukuta, Kenji; and Machii, Akihiko, 5,067,525, Cl. 139-11.000.

Macovski, Albert. Compatible increased aspect ratio television system. 5,068,728, Cl. 358-141.000.

Maddali, Vijay: *See—*
Hoegberg, Lon; and Maddali, Vijay, 5,068,591, Cl. 322-29.000.

Maeda, Takuya, to Alps Electric Co., Ltd. Automatic canceling device for a winker. 5,068,633, Cl. 335-190.000.

Maehara, Toshifumi, to Akebono Brake Industry Co., Ltd.; and Akebono Research and Development Center Ltd. Plunger-operated hydraulic pump. 5,067,881, Cl. 417-498.000.

Maekawa, Shigeki; Yamashita, Mikio; Kawaguchi, Kenji; and Kobayashi, Yuji, to Mitsubishi Denki Kabushiki Kaisha. Manufacturing method for defect-free casting product. 5,067,550, Cl. 164-120.000.

Magalotti, Gianfranco, to NEMO S.p.A. Shutter opening device particularly for pleasure craft hatchways. 5,067,277, Cl. 49-386.000.

Mager, Herbert; and Braun, Hans-Jurgen, to Wella Aktiengesellschaft. 2-amino-6-chloro-4-nitro-phenol derivatives, process to their production and hair dyes containing those compounds. 5,067,966, Cl. 8-405.000.

Magill, Joseph: *See—*
Van Geel, Jacobus; Magill, Joseph; Werner, Paul; and Hiernaut, Jean-Pol, 5,068,512, Cl. 219-121.600.

Magnascreen Corporation: *See—*
Brody, Thomas P., 5,068,740, Cl. 358-241.000.

Maguire, Michael, to Scapa, Inc. Spiral shrink belt and a perforated roll. 5,067,217, Cl. 29-121.300.

Maguire, Paul R.; and Lown, John M. Pouring spout which can be selectively opened and closed. 5,067,639, Cl. 222-521.000.

Magyar Tudomanyos Akademia Kozponti Kemiai Kutato Intezete: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

Mahant-Shetti, Shivaling S.; and Harward, Mark G., to Texas Instruments Incorporated. Memory cell circuit and operation thereof. 5,068,825, Cl. 365-154.000.

Mahe, Michel: *See—*
Herent, Gerard; Mahe, Michel; and Romagny, Alex, 5,068,584, Cl. 318-549.000.

Mahon, Cathal J.: *See—*
Bachmann, Peter K.; Khoe, Giok D.; Mahon, Cathal J.; and Lydtin, Hans-Jurgen, 5,067,793, Cl. 385-127.000.

Mahoney, John E., to Xilinx, Inc. Structure and method for producing mask-programmed integrated circuits which are pin compatible substitutes for memory-configured logic arrays. 5,068,603, Cl. 324-158.00R.

Maignan, Jean; Malle, Gerard; and Lang, Gerard, to Societe Anonyme Dite: L'Oreal. Aromatic derivatives of butyric acid, a process for their preparation and their use in cosmetics and in human and veterinary medicine. 5,068,393, Cl. 560-51.000.

Maiville, Randolph L.; and Rogers, Russell L., to Aeroquip Corporation. Dry break coupling. 5,067,752, Cl. 285-119.000.

Majco Building Specialties, L.P.: *See—*
Rhodes, Robert T., Jr., 5,067,476, Cl. 126-540.000.

Makiguchi, Nobuyoshi: *See—*
Mamoru, Takeichi; Naoshi, Hagihara; Hitoshi, Tarukawa; Tawaki, Shinichirou; and Makiguchi, Nobuyoshi, 5,068,187, Cl. 435-106.000.

Makino, Tsutomu: *See—*
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.

Makowka, Bernd: *See—*
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, 5,068,015, Cl. 204-89.000.

Malamas, Michael S., to American Home Products Corporation. Alkylidene analogs of 1'-aminospiro[isoquinoline-4(1H),3'-pyrrolidine]-1,2',3,5'(2H)-tetrones useful as aldose reductase inhibitors. 5,068,332, Cl. 546-18.000.

Malhotra, Shadi L.; Martins, Maria L.; Stevanovic, Maya D.; and Jones, Arthur Y., to Xerox Corporation. Transparencies. 5,068,140, Cl. 428-216.000.

Mallamo, John P.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.

Malle, Gerard: *See—*
Maignan, Jean; Malle, Gerard; and Lang, Gerard, 5,068,393, Cl. 560-51.000.

Mallory, Chester L.: *See—*
Corle, Timothy R.; Mallory, Chester L.; and Wasserman, Philip D., 5,067,805, Cl. 359-235.000.

Maloney, John G.: *See—*
Shiovitz, Nathan N.; Maloney, John G.; and Steele, Michael F., 5,067,386, Cl. 89-1.808.

Mamoru, Takeichi; Naoshi, Hagihara; Hitoshi, Tarukawa; Tawaki, Shinichirou; and Makiguchi, Nobuyoshi, to Mitsui Toatsu Chemicals, Inc. Process for producing D-α-amino acids. 5,068,187, Cl. 435-106.000.

MAN Gutehoffnungshutte AG: *See—*
Kinzel, Walter; and Illgner, Eberhard, 5,067,191, Cl. 14-2.400.

Man Roland Druckmaschinen AG: *See—*
Massierer, Hartmut, 5,067,403, Cl. 101-248.000.

Mannesmann A.G.: *See—*
Baur, Rupert; Durler, Egon; and Kilb, Hermann, 5,067,832, Cl. 400-66.000.
Gomoll, Guenter; and Hauslaib, Wolfgang, 5,067,833, Cl. 400-213.000.

Mano, Eiichi: *See—*
Nakagawa, Susumu; Ushijima, Ryosuke; Nakano, Fumio; Yamada, Koji; and Mano, Eiichi, 5,068,322, Cl. 540-222.000.

Manocha, Ajit S.; and Yu, Chen-Hua D., to AT&T Bell Laboratories. Method for producing a planar surface in integrated circuit manufacturing. 5,068,207, Cl. 437-231.000.

Manogue, William H.: *See—*
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Mantz, Ekkehard: *See—*
Behl, Klaus; Erren, Karl-Heinz; and Mantz, Ekkehard, 5,067,215, Cl. 28-190.000.

Manzer, Leo E.: *See—*
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Maoz, Joseph. Broadband microwave slot antennas, and antenna arrays including same. 5,068,670, Cl. 343-767.000.

Marathon Oil Company: *See—*
Sydansk, Robert D., 5,067,564, Cl. 166-270.000.

Marchione, Joseph H., to Atwood Industries, Inc. Door on-door off vehicle hinge with anti-slap hold-open mechanism. 5,067,201, Cl. 16-270.000.

Marcinkowsky, Arthur E.: *See—*
Edwards, David N.; Jorgensen, Robert J.; Lee, Kiu H.; and Marcinkowsky, Arthur E., 5,068,489, Cl. 585-524.000.

Margolis, Robert M.: *See—*
Kawate, Keith W.; Berthold, James P.; and Margolis, Robert M., 5,068,606, Cl. 324-174.000.

Mark, Frank E.: *See—*
McConchie, Garnet E.; Mark, Frank E.; and Hollmann, Hans-Gunter, 5,068,401, Cl. 560-236.000.

Mark, Joanne R.: *See—*
DiLazzaro, John F.; McAlpin, James L.; and Mark, Joanne R., 5,068,210, Cl. 501-32.000.

Marketmont Pty, Ltd.: *See—*
Trowland, Mark G., 5,067,774, Cl. 298-1.00A.

Marmentini, Enzo; and Marmentini, Joyce. Foldable light weight table. 5,067,417, Cl. 108-36.000.

Marmentini, Joyce: *See—*
Marmentini, Enzo; and Marmentini, Joyce, 5,067,417, Cl. 108-36.000.

Maro, Tsuyoshi; Kitakami, Osamu; and Fujiwara, Hideo, to Hitachi Maxell, Ltd. Magnetic recording medium. 5,068,152, Cl. 428-408.000.

Maron, Stanislav. Removable film boxes for a camera. 5,067,807, Cl. 352-78.00R.

Maroni, Victor A.: *See—*
Iton, Lennox E.; and Maroni, Victor A., 5,068,485, Cl. 585-500.000.

Marquis, Edward T.: *See—*
Sanderson, John R.; and Marquis, Edward T., 5,068,366, Cl. 549-533.000.

Marshall, Keith D.: *See—*
Hafner, V. Walter; and Marshall, Keith D., 5,067,181, Cl. 4-425.000.

Marshall, Marvin. Credit control system for long distance telephone services. 5,068,891, Cl. 379-91.000.

Marshall and Williams Company: *See—*
Hosmer, Christopher E.; and Whaley, John F., 5,067,214, Cl. 26-89.000.

Martenak, Daniel J.: *See—*
Han, Scott; Martenak, Daniel J.; Palermo, Robert E.; and Walsh, Dennis E., 5,068,486, Cl. 585-500.000.

Martignago, Pietro, to Nordica S.p.A. Flexibility adjuster device, particularly for ski boots. 5,067,258, Cl. 36-117.000.

Martinez, Eduardo: *See—*
Valdes, Jacobo; and Martinez, Eduardo, 5,068,803, Cl. 395-150.000.

Martins, Maria L.: *See—*
Malhotra, Shadi L.; Martins, Maria L.; Stevanovic, Maya D.; and Jones, Arthur Y., 5,068,140, Cl. 428-216.000.

Martwick, Wilford E., to Honeywell Inc. Cased telescoped ammunition round. 5,067,407, Cl. 102-434.000.

Martwick, Wilford E., to Honeywell Inc. Cased telescoped ammunition round. 5,067,408, Cl. 102-434.000.

Marubishi Yuka Kogyo Kabushiki Kaisha: *See—*
Ogawa, Yoshikatsu; Hisada, Haruhiko; Kasahara, Takeshi; Kizaki, Fumihiko; and Yoshiya, Masahide, 5,068,446, Cl. 568-33.000.

Maruno, Tohru; Ishibashi, Shigeki; and Nakamura, Kouzaburou, to Nippon Telegraph and Telephone Corporation. Fluorine-containing epoxy (meth) acrylate resin with photoinitiator. 5,068,261, Cl. 522-39.000.

Marx, Dieter; and Kampf, Axel, to Carl-Zeiss-Stiftung. IR-pancratic optical device. 5,067,794, Cl. 359-824.000.

Marx, Helmut H., to Koenig & Bauer Aktiengesellschaft. Apparatus for the prevention of printing machine damage. 5,067,402, Cl. 101-226.000.

Maschinenfabrik Rieter AG: *See—*
Demuth, Robert, 5,067,202, Cl. 19-65.00A.

Masco Corporation: *See—*
Nicklas, James R.; Bright, Gerald; Pullen, Eric V., deceased; and Nicklas, James R., 5,067,513, Cl. 137-98.000.

Mashita, Kentaro: *See—*
Ohmae, Tadayuki; Toyoshima, Yoshiki; Mashita, Kentaro; and Nambu, Jinsho, 5,068,283, Cl. 525-64.000.

Massachusetts Institute of Technology: *See—*
Van Duyne, Edward, 5,067,460, Cl. 123-337.000.

Massierer, Hartmut, to Man Roland Druckmaschinen AG. Circumferential register adjustment system for a printing machine cylinder. 5,067,403, Cl. 101-248.000.

Mastrolia, Brad: *See—*
McIntyre, Robert G.; and Mastrolia, Brad, 5,067,671, Cl. 244-122.0AH.

Masuda, Katutaro: *See—*
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Masuda, Masami: *See—*
Hoshi, Satoru; Masuda, Masami; and Kawaguchi, Takayuki, 5,068,831, Cl. 365-203.000.

Masuda, Noboru: *See—*
Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, 5,068,605, Cl. 324-158.00R.

Masuki, Tetsuya: *See—*
Gunji, Akihiko; Masuki, Tetsuya; and Shirai, Hidenori, 5,068,070, Cl. 264-41.000.

Masur, Henry: *See—*
Kovacs, Joseph; Masur, Henry; and Allegra, Carmen, 5,068,253, Cl. 514-553.000.

Masutani, Noboru: *See—*
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Mathias, John R. Treatment of motility disorders with a GnRH analog. 5,068,221, Cl. 514-15.000.

Matsuda, Yusaku, to Sanwa Diamond Industrial Co., Ltd. Cutter and manufacturing method therefor. 5,067,969, Cl. 51-293.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Matsugishi, Noriaki: *See*—
Furusawa, Toshihiro; Satoh, Atsushi; Nakajima, Takashi; and Matsugishi, Noriaki, 5,068,068, Cl. 264-23.000.

Matsui, Hiroki: *See*—
Sakai, Ichiro; Arai, Yasuhisa; Yamamoto, Masataka; and Matsui, Hiroki, 5,067,374, Cl. 74-866.000.

Matsui, Keiji: *See*—
Ieki, Atsushi; and Matsui, Keiji, 5,068,530, Cl. 250-237.00G.

Matsumoto, Akihiro: *See*—
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Matsumoto, Etsuji; Araki, Mamoru; and Ozaki, Keiichi, to Yazaki Corporation. Electric connection box. 5,067,905, Cl. 439-76.000.

Matsumoto, Hiroshi: *See*—
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Matsumoto, Hisashi; and Takami, Masaaki, deceased (by Takami, Harumi, successor), to Mitsubishi Paper Mills, Limited. Process for producing heat-sensitive recording material using roll blade coating. 5,068,133, Cl. 427-358.000.

Matsumoto, Tetsuro: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Matsumoto, Tsunetaka: *See*—
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Matsumoto, Tsuyoshi: *See*—
Ohno, Kou; Hattori, Tetsuo; and Matsumoto, Tsuyoshi, 5,068,529, Cl. 250-231.180.

Matsumura, Shunichi: *See*—
Hara, Shigeyoshi; Inata, Hiroo; and Matsumura, Shunichi, 5,068,307, Cl. 528-125.000.
Inata, Hiroo; Matsumura, Shunichi; Itoh, Seiji; and Okada, Masuhiro, 5,068,062, Cl. 252-518.000.

Matsunaga, Shigeru: *See*—
Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, 5,067,555, Cl. 164-480.000.

Matsuoka, Takeshi: *See*—
Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, 5,068,481, Cl. 585-426.000.
Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, 5,068,482, Cl. 585-429.000.

Matsushima, Eiji; and Takasaki, Hidenori, to Mazda Motor Corporation. Coating apparatus. 5,067,436, Cl. 118-676.000.

Matsushita, Akira: *See*—
Nakano, Shohkichi; and Matsushita, Akira, 5,068,619, Cl. 324-715.000.

Matsushita Electric Industrial Co., Ltd.: *See*—
Hori, Tohru; Aoki, Masaki; and Fujii, Kenichi, 5,068,147, Cl. 428-336.000.
Ishikawa, Haruo; Kawana, Kiyoshi; Honma, Ko; and Yoshikawa, Takashi, 5,068,537, Cl. 250-342.000.
Kaneaki, Tetsuhiko; Nuriya, Kozo; and Tani, Yasunori, 5,068,661, Cl. 341-143.000.
Kubota, Hitoshi; Yamane, Manabu; and Anezaki, Takashi, 5,068,588, Cl. 318-640.000.
Sugiyama, Shouji; Ohtani, Daisuke; and Tajima, Tadao, 5,068,917, Cl. 455-90.000.
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.
Tomii, Kaoru; Miyama, Hiroshi; and Kawauchi, Yoshikazu, 5,068,579, Cl. 315-366.000.
Wada, Masaru; and Itoh, Kunio, 5,068,866, Cl. 372-36.000.

Matsushita, Mitsuyoshi: *See*—
Nagai, Yataro; Matsushita, Mitsuyoshi; and Yamauchi, Yuji, 5,067,733, Cl. 277-11.000.

Matsuura, Kazuo; Sekino, Hitoshi; Nishiguchi, Keizo; and Yoshida, Narutaka, to Minolta Camera Kabushiki Kaisha. Laser scanner with selected plural beam sources. 5,068,677, Cl. 346-108.000.

Matsuyama, Kazuhiro, to Sharp Kabushiki Kaisha. Photosensitive sheet positioning device. 5,067,664, Cl. 242-67.200.

Matsuzaki, Mikio, to TDK Corporation. Thin film magnetic head of small size capable of certainly and stably connecting lead wires. 5,068,759, Cl. 360-103.000.

Mattersberger, Johann: *See*—
Deeg, Rolf; Wehner, Rainer; Mattersberger, Johann; and Becker, Udo, 5,068,179, Cl. 435-7.920.

Mattes, Bernhard: *See*—
Condne, Claus; Mattes, Bernhard; and Schmalz, Dieter, 5,068,793, Cl. 364-424.050.

Mattes, Donald A.: *See*—
Zlobinsky, Yury; and Mattes, Donald A., 5,067,251, Cl. 34-5.000.

Matthews, Donald H. Device for capturing and restraining animals. 5,067,445, Cl. 119-152.000.

Matthews, Donald P.: *See*—
McCarthy, James R.; Barney, Charlotte L.; and Matthews, Donald P., 5,068,465, Cl. 568-765.000.

Matthews, James A., to MicroUnity Systems Engineering. Hall effect semiconductor memory cell. 5,068,826, Cl. 365-170.000.

Matthews, Joseph B.: *See*—
Kawahara, Masafumi; Bowman, George A.; and Matthews, Joseph B., 5,068,586, Cl. 318-696.000.

Matzinger, James E.: *See*—
Weaver, William R.; and Matzinger, James E., 5,068,076, Cl. 264-511.000.

Mau, Franco E.: *See*—
Chandran, Srikumar R.; Mau, Franco E.; and Jan, Steven A., 5,068,854, Cl. 371-37.100.

Mauer, Josef, to Sulzer-Escher Wyss AG. Method for producing titanium dioxide. 5,068,093, Cl. 423-82.000.

Maul, Rudolf: *See*—
Kress, Ulrich; Maul, Rudolf; and Kintopf, Siegfried, 5,068,335, Cl. 546-242.000.

Maus, Steven M.; and Galic, George J., to Galic Maus Ventures. Faster cycling sprue method and apparatus for injection molding plastic optical disks. 5,068,065, Cl. 264-1.300.

Mauser-Werke Oberndorf GmbH: *See*—
Klingler, Otto; Gruhler, Siegfried; and Rivinius, Helmut, 5,068,653, Cl. 340-870.370.

Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V.: *See*—
Hemmerich, Andreas; McIntyre, David; Zimmermann, Claus; and Haensch, Theodor, 5,068,546, Cl. 359-328.000.
Schaefer, Fritz P.; Szatmari, Sandor; and Jethwa, Jaydev, 5,068,525, Cl. 250-213.0VT.

May, Dennis L.: *See*—
Carlberg, David L.; Meigs, Theodore V., Jr.; and May, Dennis L., 5,067,309, Cl. 53-520.000.

May, Donald D., to Du Pont de Nemours, E. I., and Company. Hydrogenation of halonitrobenzenes without dehalogenation. 5,068,436, Cl. 564-417.000.

Mayr, Herbert: *See*—
Huellmann, Michael; Mayr, Herbert; and Becker, Rainer, 5,068,479, Cl. 585-411.000.

Mazda Motor Corporation: *See*—
Kyohzuka, Takahiro; and Kikuchi, Toshiyuki, 5,067,373, Cl. 74-866.000.
Matsushima, Eiji; and Takasaki, Hidenori, 5,067,436, Cl. 118-676.000.
Yokoyama, Hideki, 5,067,747, Cl. 280-777.000.

Mazdiyasni, Khodabakhsh: *See*—
Streckert, Holger H.; Sheehan, James E.; and Mazdiyasni, Khodabakhsh, 5,067,999, Cl. 156-89.000.

Mazur, Dennis: *See*—
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.

Mazzini, Giuseppe: *See*—
Melloni, Piero; Torre, Arturo D.; Lazzari, Ettore; and Mazzini, Giuseppe, 5,068,433, Cl. 564-349.000.

McAlpin, James L.: *See*—
DiLazzaro, John F.; McAlpin, James L.; and Mark, Joanne R., 5,068,210, Cl. 501-32.000.

McAlpine, Warren W.; and Kundis, Dieter, to Siecor Corporation. Indented tube for optical ribbon. 5,067,830, Cl. 385-114.000.

McCabe, Edward M., to Nestec S.A. Method of producing simulated meat product from whole soybeans. 5,068,117, Cl. 426-511.000.

McCann, Elrey L.: *See*—
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

McCarthy, James R.; Barney, Charlotte L.; and Matthews, Donald P., to Merrell Dow Pharmaceuticals Inc. Pharmaceutically active 3-aryl-2-fluoro-1-olefins. 5,068,465, Cl. 568-765.000.

McCasland, Charles S.: *See*—
Young, Timothy M.; Coppedge, Charles D.; and McCasland, Charles S., 5,067,657, Cl. 239-403.000.

McClanahan, Stephen F., to Procter & Gamble Company, The. Anticalculus compositions. 5,068,100, Cl. 424-52.000.

McConchie, Garnet E.; Mark, Frank E.; and Hollmann, Hans-Gunter, to Dow Chemical Company, The. Method for preparing organic esters from halocarbons and alkali metal carboxylates. 5,068,401, Cl. 560-236.000.

McCormick, David R.: *See*—
Lindert, Andreas; Pierce, John R.; McCormick, David R.; and Zimmermann, William D., 5,068,299, Cl. 526-313.000.

McCoy, David R.: *See*—
Cuscurida, Michael; McCoy, David R.; and Lin, Jiang-Jen, 5,068,444, Cl. 564-505.000.

McCullough, Francis P., Jr.: *See*—
Knobel, Thomas M.; McCullough, Francis P., Jr.; and Black, Lance L., 5,068,061, Cl. 252-511.000.

McDonnell Douglas Corporation: *See*—
McIntyre, Robert G.; and Mastrolia, Brad, 5,067,671, Cl. 244-122.0AH.

McGahey, Kevin R.: *See*—
Cook, F. Bert; Petty, Stephen E.; Meacham, Howard C., Jr.; Christensen, Richard N.; and McGahey, Kevin R., 5,067,330, Cl. 62-485.000.

McGlothlin, Raymond E.: *See*—
Patel, Arvind D.; McGlothlin, Raymond E.; Bleier, Roger D.; and Brinkley, H. N., 5,068,041, Cl. 507-103.000.

McGowan, Bruce. Partition assembly. 5,067,294, Cl. 52-241.000.

McIntyre, David: *See*—
Hemmerich, Andreas; McIntyre, David; Zimmermann, Claus; and Haensch, Theodor, 5,068,546, Cl. 359-328.000.

McIntyre, Robert G.; and Mastrolia, Brad, to McDonnell Douglas Corporation. Anti tip-off ejection rails. 5,067,671, Cl. 244-122.0AH.

McKendry, Lennon H.; and Zettler, Mark W., to DowElanco. Process for the preparation of 2-chloro and 2,6-dichloroanilines. 5,068,392, Cl. 560-46.000.

McKinney, John. Hip-level pack frame. 5,067,643, Cl. 224-197.000.

McLaughlin, Mark L.: *See*—
Young, David A.; Jung, John A.; and McLaughlin, Mark L., 5,068,469, Cl. 568-878.000.

McLellan, William, to Automatic Truck Loading Systems (Europe) Ltd. and Bridon plc. Improvements in or relating to loading and unloading apparatus. 5,067,608, Cl. 198-817.000.

McLeod, Bruce R.: *See*—
Liboff, Abraham R.; McLeod, Bruce R.; and Smith, Stephen D., 5,067,940, Cl. 600-13.000.

McMahon, Michael E. Combination drink cooler and throwing toy. 5,067,922, Cl. 446-71.000.

McNeilus Truck and Manufacturing, Inc.: *See*—
Boda, Robert A., 5,067,868, Cl. 414-510.000.
Christenson, Ronald E., 5,067,740, Cl. 280-407.000.

McReynolds, Kent B., to Dow Chemical Company, The. Composite paper reinforced thermoplastic article. 5,068,139, Cl. 428-215.000.

McSpadden, John T. Apparatus and method for applying gutta-percha to a carrier. 5,067,900, Cl. 433-81.000.

MDR Group, Inc.: *See*—
Pennell, Phillip E.; Blackmore, John M.; and Allen, Mark D., 5,068,225, Cl. 514-57.000.

Meacham, Howard C., Jr.: *See*—
Cook, F. Bert; Petty, Stephen E.; Meacham, Howard C., Jr.; Christensen, Richard N.; and McGahey, Kevin R., 5,067,330, Cl. 62-485.000.

Mead, Carver A.; and Allen, Timothy P., to Synaptics, Incorporated. CMOS amplifier with offset adaptation. 5,068,622, Cl. 330-253.000.

Mead Corporation, The: *See*—
Stout, James T., 5,067,609, Cl. 206-45.110.

Mechtrix Corporation: *See*—
Butler, John D.; and Chopra, Vinod K., 5,067,379, Cl. 83-13.000.

Medical Specialties, Inc.: *See*—
Hely, John P., 5,067,486, Cl. 128-80.00H.

Medina, Rebecca: *See*—
Medina, Victor; and Medina, Rebecca, 5,067,328, Cl. 62-457.200.

Medina, Victor; and Medina, Rebecca. Cooling vessel for beverages. 5,067,328, Cl. 62-457.200.

Medtronic, Inc.: *See*—
Grandjean, Pierre-Andre, 5,067,960, Cl. 623-3.000.

Meeks, Donnie F.: *See*—
Brown, Stephen E.; Meeks, Donnie F.; Souders, Ralph W.; and Thompson, Richard A., 5,068,763, Cl. 361-364.000.

Mef Co., Inc.: *See*—
Frank, Armin C.; and Sulzer, Harry E., 5,067,222, Cl. 29-411.000.

Meguriya, Noriyuki; Azechi, Syuuichi; and Tanaka, Masaki, to Shin-Etsu Chemical Co., Ltd. Anionic silicone surfactant and method of its manufacture. 5,068,380, Cl. 556-428.000.

Mehl, Byron R.: *See*—
Glennon, Timothy F.; Mehl, Byron R.; Thollot, Pierre; and Krinickas, Alexander, 5,068,590, Cl. 322-10.000.

Mehlkopf, Antoon F.; and Prins, Willem M., to U.S. Philips Corporation. MRI method and device for fast determination of the transverse relaxation time constant T2. 5,068,610, Cl. 324-312.000.

Meigs, Theodore V., Jr.: *See*—
Carlberg, David L.; Meigs, Theodore V., Jr.; and May, Dennis L., 5,067,309, Cl. 53-520.000.

Meinert, Norbert; Gelzenleuchter, Dieter; and Franek, Henning, to Wild Leitz GmbH. Optical fluorophosphate glass with anomalous positive incremental dispersion and process for making it. 5,068,209, Cl. 501-30.000.

Meixner, Jurgen; Clemens, Horst; and Sickert, Armin, to Bayer Aktiengesellschaft. Process for the production of coatings based on unsaturated polyester resins by hardening under infra-red radiation. 5,068,125, Cl. 427-55.000.

Meixner, Jurgen; Pedain, Josef; Hohlein, Peter; and Kreuder, Hans-Joachim, to Bayer Aktiengesellschaft. Powder coating compositions containing polyurethanes having (meth)acryloyl groups as binders. 5,068,305, Cl. 528-49.000.

Melloni, Piero; Torre, Arturo D.; Lazzari, Ettore; and Mazzini, Giuseppe, to Farmitalia Carlo Erba, S.r.l. Process for preparation of 3-substituted derivatives of 1-amino-2-hydroxy propane. 5,068,433, Cl. 564-349.000.

Melody, David P.: *See*—
Casey, Tadhg E.; and Melody, David P., 5,068,265, Cl. 523-176.000.

Menjo, Takeshi, to Canon Kabushiki Kaisha. Rotatory member for fixing and fixing device having the rotatory member. 5,068,692, Cl. 355-284.000.

Mentor Corporation: *See*—
Cowen, Timothy B., 5,067,485, Cl. 128-79.000.

Mera, Hiroshi: *See*—
Hara, Shigeyoshi; Endo, Zen-ichiro; and Mera, Hiroshi, 5,068,296, Cl. 526-282.000.

Mercedes-Benz AG: *See*—
Attinger, Thomas; and Plonus, Frank, 5,067,574, Cl. 180-68.400.
Panten, Detlef; Naber, Dirk; and Bender, Franz, 5,067,470, Cl. 123-568.000.

Merck & Co., Inc.: *See*—
Hopper, James E.; Schultz, Loren D.; Hofmann, Kathryn J.; and Ellis, Ronald W., 5,068,185, Cl. 435-69.100.
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Rupprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.
Wyvratt, Matthew J., Jr.; Beattie, Thomas R.; Ok, Hyun; Arison, Byron H.; and Fisher, Michael H., 5,068,323, Cl. 540-456.000.

Merck Patent Gesellschaft mit Beschrankter Haftung: *See*—
Poetsch, Eike; and Casutt, Michael, 5,068,341, Cl. 548-154.000.
Reiffenrath, Volker; Poetsch, Eike; Krause, Joachim; and Weber, Georg, 5,068,053, Cl. 252-299.610.
Wachtler, Andreas; Eidenschink, Rudolf; Krause, Joachim; and Kurmeier, Hans-Adolf, 5,068,389, Cl. 558-411.000.

Merger, Franz; Fischer, Rolf; Harder, Wolfgang; Priester, Claus-Ulrich; and Vagt, Uwe, to BASF Aktiengesellschaft. Preparation of 6-aminocaproic esters. 5,068,398, Cl. 560-156.000.

Merrell Dow Pharmaceuticals Inc.: *See*—
McCarthy, James R.; Barney, Charlotte L.; and Matthews, Donald P., 5,068,465, Cl. 568-765.000.

Messina, Rosario, to Flou S.p.A. Sofa bed with pivotable and slidably adjustable back rest. 5,067,187, Cl. 5-12.100.

Metcalf, Stanley M., to Bally Manufacturing Corporation. Self teaching coin discriminator. 5,067,604, Cl. 194-203.000.

Metcalfe, William M. Fastener for vehicles. 5,067,206, Cl. 24-290.000.

Metronic Electronic, GmbH: *See*—
Bucher, Heinz, 5,067,481, Cl. 128-66.000.

Meunier, Paul-Louis; Coutellier, Jean-Marc; and Lehureau, Jean-Claude, to Thomson-CSF. Method for the manufacture of planar magnetic heads by making cavities in a non-magnetic wafer. 5,067,230, Cl. 29-603.000.

Meyer, Kenneth R., Sr., to Emhart Industries, Inc. Stud welding tool. 5,068,511, Cl. 219-98.000.

Miceli, Edward. Wire harness. 5,067,677, Cl. 248-68.100.

Michael, Jeffrey A.: *See*—
Kearney, Mark B.; Koglin, Dennis M.; and Michael, Jeffrey A., 5,068,595, Cl. 323-316.000.

Michaels of Oregon Co.: *See*—
Ives, Robert K., 5,067,267, Cl. 42-85.000.

Michaels, Thomas: *See*—
Volk, John F.; and Michaels, Thomas, 5,067,947, Cl. 604-201.000.

Michaely, William J.; and Curtis, Jeff K., to ICI Americas Inc. Trisubstituted benzoic acid intermediates. 5,068,423, Cl. 562-840.000.

Michels, Hans G.: *See*—
Finsterwalder, Gerhard; Rizk, Reda; and Michels, Hans G., 5,067,880, Cl. 417-495.000.

Michigan Seat Company: *See*—
Koa, Chi H., 5,067,772, Cl. 297-452.000.
Koa, Chi H., 5,067,773, Cl. 297-457.000.

Micro-Blend, Inc.: *See*—
Gibney, Michael W.; Lucas, Lawrence M.; and Culver, Roy, Jr., 5,068,116, Cl. 426-23.100.

Microelectronics and Computer Technology Corporation: *See*—
Smith, Lawrence N.; Woodard, Ollie C., Sr.; and Herrell, Dennis J., 5,068,580, Cl. 315-366.000.

Micron Technology, Inc.: *See*—
Huddleston, Brent D., 5,067,695, Cl. 269-21.000.
Sandnu, Gurtej S., 5,068,199, Cl. 437-52.000.

Micropolis Corporation: *See*—
Hamilton, Robert G.; and Coombes, Robert J., 5,068,755, Cl. 360-72.100.

MicroUnity Systems Engineering: *See*—
Matthews, James A., 5,068,826, Cl. 365-170.000.

Mid-West Conveyor Company, Inc.: *See*—
Moore, Archie S., deceased; Teske, Robert J.; and Summa, Gareth D., 5,067,414, Cl. 104-172.200.

Midaco Corporation: *See*—
Keith, Malcolm E., 5,067,703, Cl. 271-164.000.

Mielke, Ingolf: *See*—
Paul, Norbert; Huber, Rudolf; and Mielke, Ingolf, 5,068,471, Cl. 570-139.000.

Mielke, Joseph A., to Tektronix, Inc. DUT board for a semiconductor device tester having a reconfigurable coaxial interconnect grid and method of using same. 5,068,602, Cl. 324-158.00F.

Mierau, Joachim: *See*—
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.

Miess, Georg-Emerich; Schwarz, Karl-Heinz; Tetzlaff, Heribert; and Wojtech, Bernhard, to Hoechst Aktiengesellschaft. Process for extracting N-methyl-2-pyrrolidone. 5,068,358, Cl. 548-555.000.

Mignani, Gerard; and Lebrun, Jean-Jacques, to Rhone-Poulenc Chimie. Boron nitride/silicon-containing ceramic materials. 5,068,154, Cl. 428-446.000.

Mihara, Yukari: *See*—
Takechi, Satoshi; Nakamura, Yuko; and Mihara, Yukari, 5,068,169, Cl. 430-313.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Miida, Takashi, to Fuji Photo Film Co., Ltd. Phase-difference detector using an analog arithmetic correlation device. 5,068,738, Cl. 358-227.000.

Miles Inc.: *See*—
Albarella, James P.; and Lin, Nan-Horng, 5,068,355, Cl. 548-527.000.

Milichichi, Gilbert; and Milichichi, Richard G. Apparatus for installing a box into a wall. 5,067,247, Cl. 33-613.000.

Milichichi, Richard G.: *See*—
Milichichi, Gilbert; and Milichichi, Richard G., 5,067,247, Cl. 33-613.000.

Millard, David W. Instant placement down rod. 5,067,245, Cl. 33-289.000.

Miller, Gary R.; Borden, Frederick R.; and Trotta, Robert A., to Gillette Company, The. Shaving system. 5,067,238, Cl. 30-34.002.

Miller, Glen E.; and Prater, Rudy L., to Boeing Company, The. Encoded surface position sensor with multiple wavelengths and reference beam. 5,068,528, Cl. 250-231.130.

Miller, Glenn A.: *See*—
Bhogal, Balbir S.; Williams, Michael G.; and Miller, Glenn A., 5,068,104, Cl. 424-88.000.

Miller, Jan D.; Ye, Yi; and Jang, Woo-Hyuk, to University of Utah. Molybdenite flotation from copper sulfide/molybdenite containing materials by ozone conditioning. 5,068,028, Cl. 209-167.000.

Miller, Joel S.: *See*—
Vazquez, Carlos; and Miller, Joel S., 5,068,367, Cl. 552-310.000.

Miller, Jorge; and Kling, Miguel, to Energia Andina, Ltd. Producing alkenes and alkynes from alkanes and alkenes. 5,068,478, Cl. 585-324.000.

Miller, Richard A.: *See*—
Pavlik, Norman M.; Sefko, John; and Miller, Richard A., 5,067,992, Cl. 148-307.000.

Miller, Wayne C. Shampoo bottle support device. 5,067,680, Cl. 248-311.300.

Miller, William H.; and Balthazor, Terry M., to Monsanto Company. Thermal dealkylation of N-alkyl N-phosphonomethylglycine. 5,068,404, Cl. 502-17.000.

Miller, William H.: *See*—
Brook, Warren R.; and Miller, William H., 5,068,800, Cl. 364-507.000.
Stevenson, James F.; and Miller, William H., 5,067,885, Cl. 425-131.100.

Mills, William R.: *See*—
Allen, L. Scott; Mills, William R.; and Stromswold, Daivd C., 5,068,531, Cl. 250-269.000.

Milne, Robert J.: *See*—
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., 5,067,875, Cl. 416-114.000.

Milwaukee Electric Tool Corporation: *See*—
Cummings, David H., 5,068,563, Cl. 310-261.000.

Mims, William F., Jr.; Bramlett, Richard T.; and Oatman, Kenneth G., to Mims, William F., Jr. Service platform for mobile scaffolding unit. 5,067,587, Cl. 182-63.000.

Mineo, Shigeharu: *See*—
Nakase, Ryoichi; and Mineo, Shigeharu, 5,067,448, Cl. 123-41.310.

Minhas, Bhupender S.: *See*—
Wang, I-Fan; and Minhas, Bhupender S., 5,067,970, Cl. 55-16.000.

Minneman, Timothy A. Coaxial cable screw connector attachment. 5,067,750, Cl. 285-38.000.

Minnesota Mining and Manufacturing Company: *See*—
Hall, Kevin P., 5,068,167, Cl. 430-264.000.
Knox, George J.; Cronch, Daniel F.; and Afflerbaugh, Martin G., 5,067,910, Cl. 439-402.000.
Moll, Karl-Andreas, 5,068,004, Cl. 156-494.000.
Salaba, Timothy A.; and Wilfong, Debra L., 5,067,886, Cl. 425-145.000.

Minolta Camera Kabushiki Kaisha: *See*—
Ikenoue, Yoshikazu, 5,068,807, Cl. 395-115.000.
Kamimura, Kuniaki; Sawada, Kenji; and Yamade, Yasushi, 5,068,687, Cl. 355-45.000.
Matsuura, Kazuo; Sekino, Hitoshi; Nishiguchi, Keizo; and Yoshida, Narutaka, 5,068,677, Cl. 346-108.000.
Nakatani, Keiji; and Yamada, Hirokazu, 5,068,690, Cl. 355-218.000.
Sugiura, Masamichi, 5,068,913, Cl. 382-61.000.
Taniguchi, Nobuyuki; Karasaki, Toshihiko; Ishida, Tokuji; Hamada, Masataka; and Norita, Toshio, 5,068,737, Cl. 358-227.000.

Mirels, Harold; Spencer, Donald J.; and Hofland, Robert, Jr., to Aerospace Corporation, The. Transverse flow aerodynamic lens. 5,067,801, Cl. 359-666.000.

Misaizu, Iwao; Hanada, Kazuyuki; Shibuya, Akihiko; and Kuriyama, Katsumi, to Dainichiseika Color & Chemicals Mfg. Co., Ltd.; and Ukima Colour & Chemicals Mfg. Co., Ltd. Water and oil repellants. 5,068,295, Cl. 526-245.000.

Misawa Co. Ltd.: *See*—
Kukimoto, Hiroshi; Mitsuishi, Iwao; and Yasuda, Takashi, 5,068,204, Cl. 437-127.000.

Mise, Tatsuya, to Fujitsu Limited. Semiconductor device having a planarized surface. 5,068,711, Cl. 357-71.000.

Mishima, Takashi: *See*—
Nakahara, Takashi; Kimura, Toshiaki; and Mishima, Takashi, 5,068,256, Cl. 521-150.000.

Mishima, Yasunobu: *See*—
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.

Miskin, Stephen N.; and Lloyd, Kurt M., to Harnischfeger Engineers, Inc. Mast connecting structure. 5,067,592, Cl. 187-9.00R.

Misra, Mamata; Urquhart, Robert J.; Vanover, Miachel T.; and Voltin, John A., to International Business Machines Corporation. Floating point apparatus with concurrent input/output operations. 5,068,819, Cl. 364-736.000.

Mitbushi Denki Kabushiki Kaisha: *See*—
Uramoto, Shinichi; and Terane, Hideyuki, 5,068,818, Cl. 364-734.000.

Mitchell, James F.: *See*—
St. Angelo, Stephen, Jr.; Lucci, John J.; Carver, George C.; Heads, Alan; and Mitchell, James F., 5,067,225, Cl. 29-451.000.

Mitchell, Neil F.; and Djiauw, Lie K., to Shell Oil Company. Elastomeric film. 5,068,138, Cl. 428-36.800.

Mitsuba Electric Manufacturing Co., Ltd.: *See*—
Kitada, Katsuyoshi, 5,068,500, Cl. 200-19.00R.

Mitsubishi Denki Kabushiki Kaisha: *See*—
Isozumi, Shuzou, 5,067,357, Cl. 74-7.00E.
Itakura, Tadakatsu; and Sawato, Tatsuya, 5,067,368, Cl. 74-560.000.
Ito, Tomotaka, 5,068,777, Cl. 363-97.000.
Iwata, Toshio; and Ohsawa, Toshio, 5,067,462, Cl. 123-414.000.
Kuchiki, Kiyoshi, 5,068,585, Cl. 318-569.000.
Maekawa, Shigeki; Yamashita, Mikio; Kawaguchi, Kenji; and Kobayashi, Yuji, 5,067,550, Cl. 164-120.000.
Morishita, Mitsuharu, 5,067,577, Cl. 180-79.100.
Murakami, Keishi, 5,068,873, Cl. 375-13.000.
Ogata, Toshikazu, 5,068,156, Cl. 428-620.000.
Takebe, Hideharu; and Okura, Makoto, 5,068,651, Cl. 340-814.000.
Takeshita, Nobuo; and Fujita, Teruo, 5,068,843, Cl. 369-44.130.
Tanaka, Yasuhiro, 5,068,849, Cl. 370-85.500.
Tanimoto, Yoshimitsu; and Kamada, Akitoshi, 5,067,688, Cl. 251-129.180.
Yagi, Tetsuya; and Hironaka, Misao, 5,068,870, Cl. 372-50.000.
Yamaguchi, Atsuo, 5,068,521, Cl. 235-492.000.
Yoshida, Hideo, 5,068,857, Cl. 371-37.700.

Mitsubishi Gas Chemical Company, Inc.: *See*—
Naito, Susumu; Kouzai, Takao; and Ikeda, Ritoko, 5,068,399, Cl. 560-212.000.
Takagawa, Makoto; Yamagishi, Ken; Yoshihara, Jyun; Inamasa, Kenji; and Watabe, Kumiko, 5,068,480, Cl. 585-411.000.
Tanaka, Toru; and Inari, Masato, 5,068,410, Cl. 562-483.000.
Yoshida, Yzo; Saitou, Tetuji; and Momose, Yoshiaki, 5,068,136, Cl. 428-35.700.

Mitsubishi Jukogyo Kabushiki Kaisha: *See*—
Fudono, Kanji; Takahashi, Toshimasa; Ogawa, Hiroshi; and Yamashita, Toshio, 5,067,556, Cl. 165-29.000.

Mitsubishi Materials Corporation: *See*—
Hagino, Sadaaki; Suzuki, Motokazu; Kondo, Hideyuki; Nishikawa, Shigeru; and Hayashi, Kenichi, 5,068,219, Cl. 505-1.000.
Shimada, Fumio; and Kainuma, Tadashi, 5,068,149, Cl. 428-367.000.
Wakita, Saburo; Yamaguchi, Kiyoshi; and Yanagisawa, Norio, 5,067,993, Cl. 148-311.000.

Mitsubishi Metal Corporation: *See*—
Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, 5,068,148, Cl. 428-335.000.

Mitsubishi Monsanto Chemical Company: *See*—
Kobayashi, Katsumi, 5,068,438, Cl. 564-434.000.

Mitsubishi Nuclear Fuel Co.: *See*—
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.

Mitsubishi Paper Mills Limited: *See*—
Kawai, Akira; and Murakami, Yoshihide, 5,068,067, Cl. 264-4.700.
Kondo, Toshiro; and Miura, Hidetoshi, 5,068,164, Cl. 430-204.000.
Matsumoto, Hisashi; and Takami, Masaaki, deceased, 5,068,133, Cl. 427-358.000.

Mitsubishi Pencil Co., Ltd.: *See*—
Iwase, Yasuyuki, 5,067,838, Cl. 401-206.000.

Mitsui & Co., Ltd.: *See*—
Nakajima, Hiromi, 5,067,553, Cl. 164-412.000.

Mitsui Kinzoku Kogyo Kabushiki Kaisha: *See*—
Nakamura, Yoshinobu; Sannohe, Kanetaro; Sohama, Yoshio; Iwasaki, Toru; and Yamano, Sumiko, 5,068,150, Cl. 428-407.000.

Mitsui Petrochemical Industries, Ltd.: *See*—
Kikuchi, Hideaki; Ogawa, Motosuke; and Niiyama, Akira, 5,068,051, Cl. 252-162.000.
Nakahara, Takashi; Kimura, Toshiaki; and Mishima, Takashi, 5,068,256, Cl. 521-150.000.
Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, 5,068,400, Cl. 560-223.000.
Yorozu, Kiyotaka; and Ohno, Hiroyasu, 5,068,455, Cl. 568-567.000.

Mitsui Toatsu Chemicals, Inc.: *See*—
Mamoru, Takeichi; Naoshi, Hagihara; Hitoshi, Tarukawa; Tawaki, Shinichirou; and Makiguchi, Nobuyoshi, 5,068,187, Cl. 435-106.000.
Oi, Ryu; Takenaka, Shinji; and Shimakawa, Chitoshi, 5,068,459, Cl. 568-638.000.
Tsumura, Ryuichiro; Muraishi, Teruo; Ideda, Keiichi; and Wang, Jin-Kai, 5,068,357, Cl. 548-548.000.

Mitsuishi, Iwao: *See*—
Kukimoto, Hiroshi; Mitsuishi, Iwao; and Yasuda, Takashi, 5,068,204, Cl. 437-127.000.

Mitutoyo Corporation: *See*—
Ichikawa, Souji, 5,067,816, Cl. 356-373.000.

Miura, Hidetoshi: *See*—
Kondo, Toshiro; and Miura, Hidetoshi, 5,068,164, Cl. 430-204.000.

Miyadera, Hiroshi: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Miyagawa, Hideo: *See*—
Iwamoto, Katsuharu; Kawakami, Osamu; and Miyagawa, Hideo, 5,068,527, Cl. 250-227.210.

Miyagawa, Hitoshi: *See*—
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.

Miyahara, Yoshiki: *See*—
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.

Miyai, Hiromasa: *See*—
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.

Miyake, Jun: *See*—
Yamaguchi, Yasunori; and Miyake, Jun, 5,068,829, Cl. 365-189.070.

Miyama, Hiroshi: *See*—
Tomii, Kaoru; Miyama, Hiroshi; and Kawauchi, Yoshikazu, 5,068,579, Cl. 315-366.000.

Miyamoto, Tetsuya; Takahashi, Miyao; Fujisaki, Takahiko; Ikeou, Shinei; and Omura, Takashi, to Sumitomo Chemical Company, Limited. Symmetrical dioxazine compounds and their use as fiber-reactive dyes. 5,068,327, Cl. 544-76.000.

Miyaoka, Satoshi, to Kabushiki Kaisha Kobe Seiko Sho. Hydraulic hoisting circuit with electrical control for relief valve adjustment pilot and pilot disable valve. 5,067,321, Cl. 60-426.000.

Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, to Hitachi, Ltd.; Hitachi Microcomputer Engineering, Ltd.; and Akita Electronics Co., Ltd. Semiconductor memory device. 5,068,828, Cl. 365-189.010.

Miyashita, Koujirou; and Machida, Tetsuo, to Hitachi, Ltd.; and Hitachi Microcomputer Engineering, Ltd. Graphic drawing method and system with input coordinates automatically adjustable. 5,068,802, Cl. 395-133.000.

Miyashita, Kunihiro: *See*—
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.

Miyazaki, Kiyoshi, to Kabushiki Kaisha LPL. Accessory shoe adapter for video camera attached on battery mount portion. 5,068,683, Cl. 354-484.000.

Miyazaki, Kyosuke: *See*—
Nakamura, Takanori; Iwanaga, Sadaaki; Ohno, Motonori; and Miyazaki, Kyosuke, 5,068,314, Cl. 530-317.000.

Mizoguchi, Shoichi, to NEC Corporation. Cross-polarization interference canceller. 5,068,667, Cl. 342-362.000.

Mizuno, Hiroshi: *See*—
Terada, Yasuharu; Ishii, Susumu; and Mizuno, Hiroshi, 5,067,209, Cl. 24-429.000.

Mizushima, Yasuyuki: *See*—
Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, 5,068,542, Cl. 250-573.000.

Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, to Hamamatsu Photonics K.K. Optical full adder. 5,068,815, Cl. 364-713.000.

Mizuta, Akira; and Kitamura, Kazumi, to Fuji Photo Film Co., Ltd. Intermittent feed system. 5,067,607, Cl. 198-733.000.

Mobil Oil Corporation: *See*—
Allen, L. Scott; Mills, William R.; and Stromswold, Daivd C., 5,068,531, Cl. 250-269.000.
Blain, David A.; and Cardis, Angeline B., 5,068,046, Cl. 252-51.50A.
Chen, Catherine S. H.; and Rodewald, Paul G., 5,068,048, Cl. 252-52.00A.
Doner, John P.; Horodysky, Andrew G.; and Keller, John A., Jr., 5,068,045, Cl. 252-32.007.
Grosz, Edward G.; Herrington, Fox J.; and St. Phillips, Eric A., 5,067,633, Cl. 221-279.000.
Han, Scott; Martenak, Daniel J.; Palermo, Robert E.; and Walsh, Dennis E., 5,068,486, Cl. 585-500.000.
Hen, John, 5,068,042, Cl. 252-8.552.
Herrington, F. John, Jr.; and St. Phillips, Eric A., 5,067,208, Cl. 24-400.000.
Johnson, Ivy D.; and Simmons, Kenneth G., 5,068,216, Cl. 502-241.000.
Valyocsik, Ernest W., 5,068,096, Cl. 423-277.000.
Wu, Margaret M.; and Ho, Suzzy C., 5,068,476, Cl. 585-12.000.

Mochizuki, Masahiro: *See*—
Kano, Junichi; Aoki, Kongoh; Mochizuki, Masahiro; and Nakadozono, Hiroyuki, 5,067,450, Cl. 123-90.170.

Mock, Karl-Heinz: *See*—
Auslander, Klaus; Fabris, Hans-Jurgen; Mock, Karl-Heinz; Patwald, Wolfgang; and Seichter, Helmut, 5,068,612, Cl. 324-327.000.

Moench, Uwe: *See*—
Himmler, Gunther; and Moench, Uwe, 5,067,348, Cl. 73-460.000.

Mogamiya, Makoto; and Morisawa, Tahei, to Asahi Kogaku Kogyo Kabushiki Kaisha. Device for driving photographing lens and finder device of camera having zoom lens. 5,068,678, Cl. 354-199.000.

Mohn, Frank, to Framo Developments (UK) Limited. Electric motor. 5,068,554, Cl. 310-12.000.

Mohr, Dieter: *See*—
Elsaesser, Andreas; Frass, Werner; and Mohr, Dieter, 5,068,163, Cl. 430-192.000.

Mohr, Kirby S., to Facet Quantek, Inc. Coalescing plate packing system. 5,068,035, Cl. 210-236.000.

Mohr, Klaus-Peter: *See*—
Schmidhammer, Ludwig; Haselwarter, Klaus; Klaus, Hermann; and Mohr, Klaus-Peter, 5,068,475, Cl. 570-262.000.

Molex Incorporated: *See*—
Berry, Stephen R., 5,067,399, Cl. 101-11.000.

Moll, Karl-Andreas, to Minnesota Mining and Manufacturing Company. Method for the application of lengths of a tape to a surface and apparatus. 5,068,004, Cl. 156-494.000.

Molnar, Richard J., to Elsag International B.V. Digital/frequency input for industrial control applications. 5,068,545, Cl. 307-311.000.

Momose, Masanori, to Canon Kabushiki Kaisha. Facsimile apparatus having heat fixation device. 5,068,675, Cl. 346-76.0PH.

Momose, Yoshiaki: *See*—
Yoshida, Yzo; Saitou, Tetuji; and Momose, Yoshiaki, 5,068,136, Cl. 428-35.700.

Monch, Uwe, to Gebr. Hofmann GmbH & Co. KG Maschinenfabrik. Method and apparatus for testing a pneumatic tire. 5,067,347, Cl. 73-146.000.

Moncorge, Jean-Paul, to GEC Alsthom SA. Tension potential measuring circuit with selected time constant. 5,068,598, Cl. 324-107.000.

Monroe, Marvin E., to Quintron, Inc. Ultrasonic glow discharge surface cleaning. 5,068,002, Cl. 156-345.000.

Monsanto Company: *See*—
Fleet, George W. J., 5,068,243, Cl. 514-413.000.
Horng, Liou-Liang, 5,068,421, Cl. 562-583.000.
Kreczmer, Martin A., 5,068,420, Cl. 562-583.000.
Lee, Kang I., 5,068,168, Cl. 430-270.000.
Miller, William H.; and Balthazor, Terry M., 5,068,404, Cl. 502-17.000.
Periana, Roy A.; and Schaefer, George F., 5,068,407, Cl. 562-416.000.

Montalvo, Fredrick N. Gun sight for shooting moving target. 5,067,244, Cl. 33-261.000.

Montanari, Dennis G.; Gentilman, Richard L.; and Tustison, Randal W., to Raytheon Company. Optical elements and method of manufacture. 5,067,781, Cl. 359-350.000.

Moog Inc.: *See*—
Garnjost, Kenneth D., 5,067,684, Cl. 248-550.000.

Mook, William H. Spin communicating ball. 5,067,719, Cl. 273-213.000.

Mooney, John B.; and Sher, Arden, to SRI International. Low dislocation density semiconductor device. 5,068,695, Cl. 357-16.000.

Moore, Archie S., deceased (by Moore, Rosalie I., personal representative); Teske, Robert J.; and Summa, Gareth D., to Mid-West Conveyor Company, Inc. Self-adjusting shock absorbing carrier. 5,067,414, Cl. 104-172.200.

Moore, Daniel E.; and Moore, Dolores. Platform/grill cover unit for use on a land vehicle. 5,067,760, Cl. 293-115.000.

Moore, Dolores: *See*—
Moore, Daniel E.; and Moore, Dolores, 5,067,760, Cl. 293-115.000.

Moore, Duncan T.: *See*—
Haun, Niels; and Moore, Duncan T., 5,068,208, Cl. 501-12.000.

Moore, Eugene L.: *See*—
Dundas, Dennis L.; and Moore, Eugene L., 5,068,075, Cl. 264-505.000.

Moore Industries-International, Inc.: *See*—
Moore, Leonard W., 5,068,850, Cl. 370-85.800.

Moore, Leonard W., to Moore Industries-International, Inc. Parameter value communication system. 5,068,850, Cl. 370-85.800.

Moore, Rosalie I., personal representative: *See*—
Moore, Archie S., deceased; Teske, Robert J.; and Summa, Gareth D., 5,067,414, Cl. 104-172.200.

Moore, Travis: *See*—
Bickely, Alan C.; and Moore, Travis, 5,068,638, Cl. 338-114.000.

Morales, Robert. Bicycle sprocket protector. 5,067,930, Cl. 474-144.000.

Morbioli, Rene J.: *See*—
Fournes, Jean-Paul; and Morbioli, Rene J., 5,068,127, Cl. 427-237.000.

Moreman, Otis S., III, to General Electric Company. Gas turbine bladed disk. 5,067,876, Cl. 416-219.00R.

Moret, Michel A.: *See*—
Woog, Philippe-Guy E.; and Moret, Michel A., 5,067,480, Cl. 128-32.000.

Moretta, Jon C.; and Gombas, Robert D., Jr., to Amoco Corporation. Sludge addition to a coking process. 5,068,024, Cl. 208-13.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Mori, Masaji: *See—*
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.

Mori, Nobufumi: *See—*
Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, 5,067,702, Cl. 271-134.000.

Mori, Yoshiaki: *See—*
Ueno, Tsugio; Sato, Masato; and Mori, Yoshiaki, 5,067,231, Cl. 29-809.000.

Moride, Shigeki: *See—*
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Moriga, Toshinori: *See—*
Kojima, Shunji; Watanabe, Yoshiki; Goto, Hiroaki; and Moriga, Toshinori, 5,068,266, Cl. 523-33o.000.

Morigaki, Masakazu; and Seto, Nobuo, to Fuji Photo Film Co., Ltd. Silver halide color photographic light-sensitive material containing a two equivalent 5-pyrazolone magenta coupler and color photograph containing the same. 5,068,171, Cl. 430-9.000.

Morigaki, Masakazu: *See—*
Seto, Nobuo; Morigaki, Masakazu; and Naruse, Hideaki, 5,068,172, Cl. 430-551.000.

Moriguchi, Kouji: *See—*
Sugita, Naomasa; Yotumoto, Yoshiharu; Moriguchi, Kouji; and Sekiba, Toshinobu, 5,068,706, Cl. 357-51.000.

Morimoto, Akira; and Iizuka, Takashi, to Asahi Kogaku Kogyo Kabushiki Kaisha. Apparatus for producing a distortion-free two-dimensional image of a scanned object. 5,067,782, Cl. 359-202.000.

Morimoto, Makoto: *See—*
Kanda, Yutaka; Kasai, Masaji; Arai, Hitoshi; Morimoto, Makoto; and Ashizawa, Tadashi, 5,068,349, Cl. 548-418.000.

Morini, Giampiero: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.

Morisawa, Kunio: *See—*
Kato, Nobuyuki; Habuchi, Ryoji; Morisawa, Kunio; and Itoh, Hiroshi, 5,067,603, Cl. 192-0.076.

Morisawa, Tahei: *See—*
Mogamiya, Makoto; and Morisawa, Tahei, 5,068,678, Cl. 354-199.000.

Morishita, Mimpei; and Azukizawa, Teruo, to Kabushiki Kaisha Toshiba. Transporting system of floated carrier type with zero power control at varying load weights. 5,067,415, Cl. 104-281.000.

Morishita, Mitsuharu, to Mitsubishi Denki Kabushiki Kaisha. Motor-driven type front and rear wheel steering apparatus. 5,067,577, Cl. 180-79.100.

Morishita, Norio: *See—*
Abe, Nobumasa; Kobayashi, Atsushi; Watanabe, Koji; Morishita, Norio; and Tanaka, Yuji, 5,068,684, Cl. 355-27.000.

Morley, Allen D. Device for clamping two metal objects which are to be welded together. 5,067,696, Cl. 269-49.000.

Morong, Thomas: *See—*
Karalis, Anastasios; Morong, Thomas; and Juszkiewicz, Charles, 5,068,431, Cl. 564-301.000.

Morooka, Takashi: *See—*
Kagawa, Takumi; Morooka, Takashi; and Tsuzuki, Kenji, 5,068,336, Cl. 546-302.000.

Morris, Anthony F.; Naef, Regula; Escher, Sina; and Velluz, Alain, to Firmenich SA. Cyclic ethers and their utilization as perfuming or flavoring ingredients. 5,068,362, Cl. 549-346.000.

Morris, Francis J.; Plumton, Donald L.; Yang, Jau-Yuann; and Yuan, Han-Tzong, to Texas Instruments Incorporated. Integrated circuit composed of group III–V compound field effect and bipolar semiconductors. 5,068,756, Cl. 357-16.000.

Morse, Lewis D., to Calgon Corporation. Low free formaldehyde melamine-formaldehyde detackifier and method of using. 5,068,279, Cl. 524-593.000.

Mortreux, Andre : *See—*
Brusson, Jean M.; Bujadoux, Karel; Petit, Francis; Fuchs, Jean M.; and Mortreux, Andre , 5,068,014, Cl. 204-59.00M.

Moser, Franz, to Steyr-Daimler-Puch AG. System for purifying the exhaust gases of diesel engines. 5,067,319, Cl. 60-288.000.

Moslehi, Behzad: *See—*
Jannson, Tomasz P.; Jannson, Joanna L.; and Moslehi, Behzad, 5,067,788, Cl. 385-2.000.

Motion, Keith R.; and Newman, Christopher P., to Unilever Patent Holdings B.V. Cymenol preparation by transfer dehydrogenation. 5,068,466, Cl. 568-781.000.

Motojima, Akira: *See—*
Yamato, Toshitaka; Ito, Tatsuo; Takashima, Atsuyuki; and Motojima, Akira, 5,068,897, Cl. 381-24.000.

Motorola, Inc.: *See—*
Baker, James C.; and Carney, Michael J., 5,068,625, Cl. 331-1.00A.
Dejmek, James W.; and Craig, Ronald A., 5,068,898, Cl. 381-29.000.
Jaskie, James E.; Lebby, Michael S.; and Richard, Fred V., 5,067,829, Cl. 385-8.000.
Leitch, Clifford D., 5,068,874, Cl. 375-51.000.
Rogers, Stephen P.; and Lebby, Michael S., 5,068,007, Cl. 156-643.000.
Williams, Owen P., 5,067,218, Cl. 29-25.010.

Mott, Peter R., Jr.: *See—*
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.

Mougne, Marcel L. Method and apparatus for measuring and calculating bulk water in crude oil or bulk water in steam. 5,067,345, Cl. 73-61.10R.

Moulton, Richard J.: *See—*
Clough, Thomas J.; and Moulton, Richard J., 5,068,160, Cl. 429-72.000.

Mounfield, William P., Jr.: *See—*
Guddanti, Suresh; and Mounfield, William P., Jr., 5,068,662, Cl. 341-161.000.

Moura, Anne-Marie; Clemence, Francois; Frechet, Daniel; and Fortin, Michel, to Roussel Uclaf. Benzocyclohexanes and analgesic compositions thereof. 5,068,244, Cl. 514-428.000.

Mouri, Masahide: *See—*
Horinouchi, Kazuo; Mouri, Masahide; and Kameda, Isao, 5,068,072, Cl. 264-66.000.

Movrich, Wayne, to Rich Ideas, Inc. Fabric column kit and system. 5,067,547, Cl. 160-327.000.

MTS Systems Corporation: *See—*
Sullivan, Michael T.; and Tock, Gary S., 5,068,779, Cl. 364-167.010.
Thoen, Bradford K., 5,068,813, Cl. 364-572.000.

Muellenberg, Ralph. Clamping set for transmitting torque and/or axial forces. 5,067,847, Cl. 403-370.000.

Mukai, Toshio; and Yamashita, Yoshiro, to Fuji Xerox Co., Ltd.; and Mukai, Toshio. Bis[1,2,5]thiadiazolo[3,4-b:3', 4'-e]pyrazine, a process for the preparation thereof and a method of using same. 5,068,328, Cl. 544-350.000.

Mukoh, Akio: *See—*
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Muller, Dietmar; and Bauer, Helmut, to Fraunhofer-Gesellschaft zur Forderung der angewandten Forschung e.V. Process and apparatus for producing propellant charge granular material. 5,068,066, Cl. 264-3.300.

Muller, Erich; Nickl, Josef, deceased (by Nickl, Erma, executor); Heckel, Armin; and Engelhardt, Gunther, to Karl Thomae GmbH. Pharmaceutical compositions containing quinolin-2,5-diones, new quinolin-2,5-diones and processes for the preparation thereof. 5,068,334, Cl. 546-157.000.

Muller, Michael; and Podszun, Wolfgang, to Bayer Aktiengesellschaft. Formylpiperazinyl-(meth)acrylic acid derivatives for treatment of collagen. 5,068,264, Cl. 522-167.000.

Muller, Peter-Rolf: *See—*
Horn, Klaus; Heinz, Hans-Detlef; Muller, Peter-Rolf; and Dujardin, Ralf, 5,068,311, Cl. 528-324.000.

Muller, R. M., to Multifastener Corporation. Method of installing self-attaching fastener and apparatus. 5,067,224, Cl. 29-432.200.

Muller, Robert; and Eisenhauer, Egon, to Dr. Ing. h.c.F. Porsche AG. Drive assembly for motor vehicles. 5,067,582, Cl. 180-380.000.

Multifastener Corporation: *See—*
Muller, R. M., 5,067,224, Cl. 29-432.200.

Mumford, Glen: *See—*
Zimmermann, Clifton; and Mumford, Glen, 5,068,862, Cl. 372-25.000.

Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, to Petroleo Brasileiro S.A. - Petrobras. Apparatus for securing oil, gas and by-products from pyrobituminous shale and other matter impregnated with hydrocarbons. 5,068,010, Cl. 202-99.000.

Munter, Beverly L. Doll for simulating weight loss/gain. 5,067,924, Cl 446-320.000.

Munzer, John: *See—*
Bruckert, William; Kovalcin, David; Bissett, Thomas D.; Munzer, John; Mazur, Dennis; Mott, Peter R., Jr.; Dearth, Glenn A.; Alonso, Carlos; and Katan, Ann, 5,068,780, Cl. 395-700.000.

Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, to Jeol Ltd.; and Fuji Photo Film Co., Ltd. Dispenser for dispensing sheets of an alternating first and second kind from a stack. 5,067,702, Cl. 271-134.000.

Muraishi, Teruo: *See—*
Tsumura, Ryuichiro; Muraishi, Teruo; Ideda, Keiichi; and Wang, Jin-Kai, 5,068,357, Cl. 548-548.000.

Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, to Hitachi, Ltd. Semiconductor device. 5,068,712, Cl. 357-72.000.

Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, to NKK Corporation; Japan Marine Science and Technology Center; and Oki Electric Industry Co., Ltd. Method for manufacturing alloy rod having giant magnetostriction. 5,067,551, Cl. 164-122.200.

Murakami, Keishi, to Mitsubishi Denki Kabushiki Kaisha. Equalizer. 5,068,873, Cl. 375-13.000.

Murakami, Masahiro: *See—*
Ito, Yoshihiko; and Murakami, Masahiro, 5,068,381, Cl. 556-431.000.

Murakami, Tadayoshi: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Murakami, Yoshihide: *See—*
Kawai, Akira; and Murakami, Yoshihide, 5,068,067, Cl. 264-4.700.

Muramatsu, Motoyasu: *See—*
Kushi, Naoto; Takaoka, Toshio; and Muramatsu, Motoyasu, 5,067,579, Cl. 180-197.000.

Murata, Atsuhiko: *See—*
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Murata Manufacturing Co., Ltd.: *See—*
Nishikawa, Toshio; Okada, Takekazu; Dejima, Hiroki; and Tokudera, Hiromu, 5,068,629, Cl. 333-1.100.

Murata, Mitsuo; Yokoo, Chihiro; and Hanada, Kazunori, to Taisho Pharmaceutical Co., Ltd. Epoxysuccinic acid derivatives. 5,068,354, Cl. 548-517.000.

Murata, Yasumoto: *See—*
Yoshikawa, Shuuichi; Watanabe, Masahiko; Ikeuchi, Michio; Murata, Yasumoto; and Nakano, Takahiko, 5,068,876, Cl. 375-80.000.

Muratore, Antonio: *See—*
Busacca, Guido; and Muratore, Antonio, 5,068,569, Cl. 315-3.500.

Murayama, Takayuki: *See—*
Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, 5,067,904, Cl. 439-73.000.

Muri, Werner: *See—*
Blangetti, Francisco; Muri, Werner; and Youssef, Mustafa, 5,067,446, Cl. 122-441.000.

Murnane, James F., III; and Kuhnle, William G., to United States of America, Army. Flexible wing. 5,067,410, Cl. 102-489.000.

Murphy, James A.: *See—*
Backer, Marcella R.; Cavender, Ralston; Elder, Melanie L.; Jones, Peter C.; and Murphy, James A., 5,067,975, Cl. 65-3.120.

Murray, Robert B., III: *See—*
Knox, J. Paul; Murray, Robert B., III; and Smith, Clinton L., 5,067,718, Cl. 273-185.00R.

Murthy, Kuchi S.: *See—*
Fawzi, Mahdi B.; Kubert, Daniel A.; and Murthy, Kuchi S., 5,068,110, Cl. 424-461.000.

Murtiashaw, Charles W.; and Quallich, George J., to Pfizer Inc. 6-chloro-3,4-dihydro-pyrano [2,3-b]pyridines having the R configuration. 5,068,333, Cl. 546-116.000.

Murugan, Muthu K., to Allied-Signal Inc. Generator with bearing-retaining stator. 5,068,557, Cl. 310-90.000.

Musil, Joseph E.: *See—*
Linkletter, Don R.; and Musil, Joseph E., 5,067,254, Cl. 34-137.000.

Musschoot, Albert, to General Kinematics Corporation. Compaction apparatus and process for compacting sand. 5,067,549, Cl. 164-39.000.

Myer, John M.: *See—*
Denlinger, Keith R.; Gryzbowski, Richard W.; and Myer, John M., 5,067,916, Cl. 439-857.000.

Myers, James H. Safety guard apparatus. 5,067,586, Cl. 182-45.000.

Myers, William D., Jr.: *See—*
Yates, Donald N., Jr.; and Myers, William D., Jr., 5,067,568, Cl. 175-4.520.

Naasz, Brian M.: *See—*
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., 5,068,383, Cl. 556-452.000.

Naber, Dirk: *See—*
Panten, Detlef; Naber, Dirk; and Bender, Franz, 5,067,470, Cl. 123-568.000.

Nabisco Brands, Inc.: *See—*
Klemann, Lawrence P.; and Finley, John W., 5,068,119, Cl. 426-601.000.
Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., 5,068,120, Cl. 426-611.000.

Naef, Ferdinand; Delay, Francois; and Uijttewaal, Arnoldus, to Firmenich SA. Aromatic aldehydes and their derivatives. 5,068,452, Cl. 568-442.000.

Naef, Regula: *See—*
Morris, Anthony F.; Naef, Regula; Escher, Sina; and Velluz, Alain, 5,068,362, Cl. 549-346.000.

Nagai, Yataro; Matsushita, Mitsuyoshi; and Yamauchi, Yuji, to Tanken Seiko Kabushiki Kaisha. Mechanical seal including a split seal ring. 5,067,733, Cl. 277-11.000.

Nagaishi, Hatsuo, to Nissan Motor Company, Limited. System for measuring air flow rate for internal combustion engines. 5,067,466, Cl. 123-494.000.

Nagakura, Masanao; and Kawashima, Masato, to Fujitsu Limited. Sheet path sensor provided in an electrophotographic image forming apparatus. 5,068,693, Cl. 355-315.000.

Nagamatsu, Hiromitsu; and Ueda, Seitaro, to Hitachi Metals, Ltd. Sprocket wheel having replaceable teeth. 5,067,931, Cl. 474-162.000.

Nagano, Mamoru: *See—*
Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, 5,068,082, Cl. 376-428.000.

Nagaoka, Koichi: *See—*
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.

Nagasawa, Naobumi; and Arai, Hiroyuki, to Sanyo Electric Co., Ltd. Method and circuit for detecting data error. 5,068,856, Cl. 371-37.500.

Nagashima, Nobuhara: *See—*
Tuchiya, Kazumichi; Nagashima, Nobuhara; Wasada, Masayoshi; and Suzuki, Akihiro, 5,068,735, Cl. 358-209.000.

Nagashima, Toshiharu: *See—*
Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, 5,068,681, Cl. 354-299.000.

Nagy, Lajos: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

Nahapetian, Ara T.: *See—*
Howell, Gary W.; Irr, Joseph D.; and Nahapetian, Ara T., 5,068,195, Cl. 435-284.000.

Naito, Ryuuich, to Pioneer Electronic Corporation. Control method of disk drive for recordable optical disk. 5,068,842, Cl. 369-32.000.

Naito, Susumu; Kouzai, Takao; and Ikeda, Ritoko, to Mitsubishi Gas Chemical Company, Inc. Process for preparing unsaturated carboxylic acid ester. 5,068,399, Cl. 560-212.000.

Naka, Michiro: *See—*
Watanabe, Junji; Naka, Michiro; and Hijikata, Kenji, 5,068,052, Cl. 252-299.010.

Nakada, Tadao: *See—*
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Nakadozono, Hiroyuki: *See—*
Kano, Junichi; Aoki, Kongoh; Mochizuki, Masahiro; and Nakadozono, Hiroyuki, 5,067,450, Cl. 123-90.170.

Nakagawa, Akio; Imamura, Kaoru; Sato, Ryo; and Hoshi, Tadahide, to Kabushiki Kaisha Toshiba. Method of manufacturing semiconductor device. 5,068,704, Cl. 357-38.000.

Nakagawa, Akio: *See—*
Yamaguchi, Yoshihiro; Watanabe, Kiminori; and Nakagawa, Akio, 5,068,700, Cl. 357-23.800.

Nakagawa, Susumu; Ushijima, Ryosuke; Nakano, Fumio; Yamada, Koji; and Mano, Eiichi, to Banyu Pharmaceutical Co., Ltd. Crystalline cephalosporin compounds. 5,068,322, Cl. 540-222.000.

Nakagawa, Susumu: *See—*
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, to Mitsubishi Metal Corporation. Diamond-coated tool member, substrate thereof and method for producing same. 5,068,148, Cl. 428-335.000.

Nakahara, Norito: *See—*
Kaji, Masashi; Aramaki, Takanori; Nakahara, Norito; and Yamada, Yasuharu, 5,068,293, Cl. 525-534.000.

Nakahara, Takashi; Kimura, Toshiaki; and Mishima, Takashi, to Mitsui Petrochemical Industries, Ltd. Bubble-containing ethylene/α-olefin rubber. 5,068,256, Cl. 521-150.000.

Nakajima, Hiromi, to Liner Kabouki Co., Ltd.; and Mitsui & Co., Ltd. Powder feeder in continuous casting. 5,067,553, Cl. 164-412.000.

Nakajima, Kazutoshi: *See—*
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.

Nakajima, Takashi: *See—*
Furusawa, Toshihiro; Satoh, Atsushi; Nakajima, Takashi; and Matsugishi, Noriaki, 5,068,068, Cl. 264-23.000.

Nakamichi Corporation: *See—*
Inoue, Yoshihisa, 5,068,761, Cl. 360-133.000.

Nakamura, Akihiro: *See—*
Noda, Masanori; and Nakamura, Akihiro, 5,068,697, Cl. 357-23.500.

Nakamura, Kosei, to Fanuc Ltd. Spindle drive control apparatus for a machine tool. 5,068,587, Cl. 318-771.000.

Nakamura, Kouzaburou: *See—*
Maruno, Tohru; Ishibashi, Shigeki; and Nakamura, Kouzaburou, 5,068,261, Cl. 522-39.000.

Nakamura, Nobuyuki; Sakamoto, Yuji; Kawakami, Takashi; and Ohkubo, Shinya, to Rohm Co., Ltd. Cutting device for use in manufacturing electronic components. 5,067,229, Cl. 29-566.100.

Nakamura, Norio; Koike, Hiroyuki; and Oshima, Takeshi, to Sankyo Company, Limited. Isothiazolyl substituted glycerol derivatives containing phosphate groups. 5,068,340, Cl. 548-119.000.

Nakamura, Shozo: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Nakamura, Takanori; Iwanaga, Sadaaki; Ohno, Motonori; and Miyazaki, Kyosuke, to Seikagaku Kogyo Co. Ltd. Lipopolysaccharide-binding polypeptide. 5,068,314, Cl. 530-317.000.

Nakamura, Tamiya: *See—*
Kishino, Kuniaki; and Nakamura, Tamiya, 5,068,784, Cl. 395-275.000.

Nakamura, Yoshinobu; Sannohe, Kanetaro; Sohama, Yoshio; Iwasaki, Toru; and Yamano, Sumiko, to Mitsui Kinzoku Kogyo Kabushiki Kaisha. Copper powder for electroconductive paints and electroconductive paint compositions. 5,068,150, Cl. 428-407.000.

Nakamura, Yoshinobu, to Sumitomo Rubber Industries, Ltd. Golf ball. 5,068,151, Cl. 428-407.000.

Nakamura, Yuko: *See—*
Takechi, Satoshi; Nakamura, Yuko; and Mihara, Yukari, 5,068,169, Cl. 430-313.000.

Nakanishi, Mutsuo: *See—*
Takahashi, Wataru; Sugimoto, Yoshihito; Nakanishi, Mutsuo; Shida, Yoshiaki; and Okada, Minoru, 5,068,003, Cl. 148-421.000.

Nakanishi, Shigenori: *See—*
Takagaki, Hidetsugu; Nakanishi, Shigenori; Abe, Masayoshi; Ohki, Hiromi; and Sano, Yoshiyuki, 5,068,364, Cl. 549-415.000.

Nakanishi, Toshiyuki: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Nakano, Fumio: *See—*
Nakagawa, Susumu; Ushijima, Ryosuke; Nakano, Fumio; Yamada, Koji; and Mano, Eiichi, 5,068,322, Cl. 340-222.000.

Nakano, Iwao: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Nakano, Koji: *See—*
Ohnishi, Kenji; Washio, Isomi; and Nakano, Koji, 5,067,381, Cl. 83-820.000.

Nakano, Masaki, to Nissan Motor Co., Ltd. Toroidal continuously variable transmission. 5,067,360, Cl. 74-200.000.

Nakano, Shohkichi; and Matsushita, Akira, to Nihon System Research Institute Inc.; and Matsushita, Akira. Conductivity measuring device. 5,068,619, Cl. 324-715.000.

Nakano, Takahiko: *See—*
Yoshikawa, Shuuichi; Watanabe, Masahiko; Ikeuchi, Michio; Murata, Yasumoto; and Nakano, Takahiko, 5,068,876, Cl. 375-80.000.

Nakano, Yasuhiko: *See—*
Higuchi, Toshihiko; Nakano, Yasuhiko; Kunii, Nobuaki; Yamaguchi, Yoshiyuki; and Kozawa, Shigeyuki, 5,068,304, Cl. 528-28.000.

Nakase, Ryoichi; and Mineo, Shigeharu, to Sanshin Industries Co., Ltd. Exhaust cooling device for small sized boat engine. 5,067,448, Cl. 123-41.310.

Nakatani, Keiji; and Yamada, Hirokazu, to Minolta Camera Kabushiki Kaisha. Copying apparatus with image editing device. 5,068,690, Cl. 355-218.000.

Nakayama, Junichiro; Katayama, Hiroyuki; and Ohta, Kenji, to Sharp Kabushiki Kaisha. Magneto-optical recording/reproducing device. 5,068,841, Cl. 369-13.000.

Nakayama, Masaharu: *See—*
Sawada, Hideo; and Nakayama, Masaharu, 5,068,454, Cl. 568-566.000.

Nakayama, Masatoshi; Ueda, Kunihiro; and Okamura, Masatoshi, to TDK Corporation. Polymerized films, medium related members, and process for making. 5,068,146, Cl. 428-336.000.

Nalco Chemical Company: *See—*
Bhattacharyya, Bhupati R.; and St. John, Michael R., 5,068,297, Cl. 526-287.000.

Namanny, Keith E.: *See—*
Namanny, Kerry T.; and Namanny, Keith E., 5,067,716, Cl. 273-176.00R.

Namanny, Kerry T.; and Namanny, Keith E. Portable miniature golf system and method of use. 5,067,716, Cl. 273-176.00R.

Nambu, Jinsho: *See—*
Ohmae, Tadayuki; Toyoshima, Yoshiki; Mashita, Kentaro; and Nambu, Jinsho, 5,068,283, Cl. 525-64.000.

Namikawa, Akira: *See—*
Okumura, Hiroyuki; Kurokawa, Masashi; Namikawa, Akira; and Tanisake, Hiroka, 5,068,281, Cl. 524-753.000.

Naoshi, Hagihara: *See—*
Mamoru, Takeichi; Naoshi, Hagihara; Hitoshi, Tarukawa; Tawaki, Shinichirou; and Makiguchi, Nobuyoshi, 5,068,187, Cl. 435-106.000.

Nara, Toshihiko: *See—*
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Narato, Kiyoshi: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Naruke, Kiyomi: *See—*
Yamada, Seiji; and Naruke, Kiyomi, 5,068,827, Cl. 365-189.010.

Narula, Anubhav P. S.; and De Virgilio, John J., to International Flavors & Fragrances Inc. Cyclohexenylmethloxabicycloоctanes, processes for preparing same, intermediates used in said processes and organoleptic uses of said cyclohexenylmethloxabicyclooctanes and intermediates therefor. 5,068,363, Cl. 549-355.000.

Naruse, Hideaki: *See—*
Seto, Nobuo; Morigaki, Masakazu; and Naruse, Hideaki, 5,068,172, Cl. 430-551.000.

National Research Development Corporation: *See—*
Elliott, Michael; Janes, Norman F.; and Khambay, Bhupinder P. S., 5,068,403, Cl. 562-7.000.

National Science Council: *See—*
Lin, Ivan J. B.; and Jong, S. J., 5,068,451, Cl. 568-442.000.

National Semiconductor Corporation: *See—*
Bosnyak, Robert J., 5,068,551, Cl. 307-475.000.
Wright, Michael E., 5,068,593, Cl. 323-315.000.

National Starch and Chemical Investment Holding Corporation: *See—*
Gallaway, George L.; and Foreman, Paul B., 5,068,291, Cl. 525-366.000.

Natonal Metal and Refining Company, Inc.: *See—*
Fitzgerald, John V.; and Walsh, Teresa M., 5,067,344, Cl. 73-54.000.

Natterer, Johann: *See—*
Wirth, Lawrence W.; Wegner, Wayne M.; Tomic, Mladomir; Buchko, Raymond; and Natterer, Johann, 5,067,822, Cl. 383-61.000.

Near, Christopher D.; and Uyar, M. Umit, to AT&T Bell Laboratories. Method for synchronizing interconnected digital equipment. 5,068,877, Cl. 375-107.000.

Nebuloni, Daniela: *See—*
Botti, Edoardo; Stefani, Fabrizio; and Nebuloni, Daniela, 5,068,620, Cl. 330-2.000.

NEC Corporation: *See—*
Chiba, Toshikazu, 5,068,648, Cl. 340-750.000.
Koyama, Kuniaki, 5,068,698, Cl. 357-23.600.
Kurashima, Yasumi, 5,068,594, Cl. 323-314.000.
Mizoguchi, Shoichi, 5,068,667, Cl. 342-362.000.
Ohshima, Yasunobu; and Shibanuma, Naoki, 5,068,865, Cl. 372-36.000.
Shimada, Michio, 5,068,895, Cl. 380-28.000.
Sugiyama, Yukinori, 5,068,785, Cl. 395-325.000.

NEC Electronics Inc.: *See—*
Pors, Gary A.; and Tang, Gernia, 5,068,707, Cl. 357-59.000.

Nederlandse Organisatie voor toegepastnatuurwetenschappelijk onderzoek TNO: *See—*
Vijg, Jan; and Uitterlinden, Andreas G., 5,068,176, Cl. 435-6.000.

Negaty-Hindi, Guy: *See—*
Bosswell, Peter; Richter, Dag; Berce, Tatjana; and Negaty-Hindi, Guy, 5,067,554, Cl. 164-463.000.

Negi, Taichi; Hirofuji, Satoshi; Tanaka, Nobuo; and Kawai, Syuji, to Kuraray Co., Ltd. Process of vacuum-air pressure drawing of a laminate containing an EVOH/polyamide copolymer. 5,068,077, Cl. 264-512.000.

Negishi, Koichi, to Bridgestone Corporation. Double-acting flexible wall actuator. 5,067,390, Cl. 92-48.000.

Nelson, Bruce D.: *See—*
Vespoli, Michael; Nelson, Bruce D.; Scragg, Carl; and Fuchs, Paul, 5,067,426, Cl. 114-56.000.

Nelson, Charles J.; Bheda, Jayendra H.; Rim, Peter B.; and Turner, James M., to Allied-Signal Inc. Dimensionally stable polyester yarn for highly dimensionally stable treated cords and composite materials such as tires made therefrom. 5,067,538, Cl. 152-451.000.

Nelson, Joyce K.: *See—*
Bikson, Benjamin; Giglia, Salvatore; and Nelson, Joyce K., 5,067,971, Cl. 55-16.000.

Nelson, Richard C.: *See—*
Thigpen, David R.; Lawson, Jimmie B.; and Nelson, Richard C., 5,068,043, Cl. 252-855.400.

Nemecek, Conception: *See—*
Jimonet, Patrick; and Nemecek, Conception, 5,068,238, Cl. 514-367.000.

Nemeth, Sandor: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

NEMO S.p.A.: *See—*
Magalotti, Gianfranco, 5,067,277, Cl. 49-386.000.

Nene, Ravi: *See—*
Bruckert, William; Bissett, Thomas D.; Kovalcin, David; and Nene, Ravi, 5,068,851, Cl. 371-16.100.

Nesser, Deborah L.: *See—*
Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P., Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., 5,067,630, Cl. 221-76.000.

Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P.; Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., to G. T. Norton, Inc. Vending machine. 5,067,630, Cl. 221-76.000.

Nestec S.A.: *See—*
Johnson, Roger D., 5,067,645, Cl. 225-93.000.
McCabe, Edward M., 5,068,117, Cl. 426-511.000.

Netter, Zvi; and Bar-Lev, Menachem, to Elscint Ltd. Method for controlling radio frequency excitation and gradient pulse characteristics in a magnetic resonance imaging system. 5,068,786, Cl. 395-800.000.

Netzel, Karl-Hermann, to HPO Hanseatische Prazisions-und Orbittechnik GmbH. Method and apparatus for non-contact measuring and, in case, abrasive working of surfaces. 5,067,282, Cl. 51-165.770.

Neudeck, Gerold W.: *See—*
Logsdon, James H.; Staller, Steven E.; De Roo, David W.; and Neudeck, Gerold W., 5,068,203, Cl. 437-89.000.

New York University: *See—*
Harley, Naomi H., 5,068,538, Cl. 250-472.100.

Newell, Florine: *See—*
Akhtar, Muhammad; and Newell, Florine, 5,068,101, Cl. 424-71.000.

Newman, Christopher P.: *See—*
Motion, Keith R.; and Newman, Christopher P., 5,068,466, Cl. 568-781.000.

Newman, Robert A., to Advanced Micro Devices, Inc. Ground plane for plastic encapsulated integrated circuit die packages. 5,068,708, Cl. 357-68.000.

Newton, John: *See—*
Hendricks, Katherine A., 5,067,941, Cl. 600-27.000.

NGK Insulators, LTD.: *See—*
Yajima, Yasuhito, 5,068,635, Cl. 338-42.000.

NGK Spark Plug: *See—*
Taniguchi, Masato, 5,067,369, Cl. 74-567.000.

NGK Spark Plug Company, Ltd.: *See—*
Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, 5,068,542, Cl. 250-573.000.

Nguyen, Huu T.: *See—*
Betterton, Kathleen M.; Hinsberg, William D.; Nguyen, Huu T.; Tang, Wing T.; and Twieg, Robert J., 5,068,054, Cl. 252-299.620.

Nguyen, Yann: *See—*
Gabillard, Robert; Nguyen, Yann; and Semet, Christian, 5,068,655, Cl. 340-988.000.

Niagara Lockport Industries, Inc.: *See—*
Herring, Samuel H., 5,067,526, Cl. 139-383.00A.

Nicholas, David M.: *See—*
Bushinsky, Joseph P.; Nicholas, David M.; Wang, Shoou-I; and Patel, Nitin M., 5,068,058, Cl. 252-376.000.

Nichols, Robert N., to Robles, Jerry. Hypodermic needle guard. 5,067,944, Cl. 604-192.000.

Nickel, Wolf-Ulrich; Ruger, Wolfgang; Urbach, Hansjorg; and Hock, Franz, to Hoechst Aktiengesellschaft. Pyrrolidine-2-carboxylic acid derivatives and their use for psychotropic action. 5,068,242, Cl. 514-412.000.

Nickl, Erma, executor: *See—*
Muller, Erich; Nickl, Josef, deceased; Heckel, Armin; and Engelhardt, Gunther, 5,068,334, Cl. 546-157.000.

Nickl, Josef, deceased: *See—*
Muller, Erich; Nickl, Josef, deceased; Heckel, Armin; and Engelhardt, Gunther, 5,068,334, Cl. 546-157.000.

Nicklas, James R.; Bright, Gerald; Pullen, Eric V., deceased (by Pullen, Antoinette D., Legal Representative); and Nicklas, James R., to Masco Corporation. Thermostatic pressure balanced valve assembly. 5,067,513, Cl. 137-98.000.

Nicklas, James R.: *See—*
Nicklas, James R.; Bright, Gerald; Pullen, Eric V., deceased; and Nicklas, James R., 5,067,513, Cl. 137-98.000.

Nicol, Alexander N. Articulated drive with a belt and pulley arrangement. 5,067,581, Cl. 180-254.000.

Nieh, Edward C. Y., to Texaco Chemical Company. Preparation of nonionic surfactants by oxyalkylation with a phenolic activated magnesium catalyst. 5,068,456, Cl. 568-618.000.

Niehaus, Jeffrey A., to Texas Instruments Incorporated. Integrated circuit having an enabling circuit for controlling primary and secondary subcircuits. 5,068,599, Cl. 324-158.00R.

Niemi, Tapio: *See—*
Jokinen, Olli; Kettunen, Jukka; Lepo, Jarkko; Niemi, Tapio; and Laine, Jaakko E, 5,068,009, Cl. 162-9.000.

Niewold, D. Wayne; and Bradley, Richard A., to Power Planter, Inc. Auger planter. 5,067,571, Cl. 175-394.000.

Nifco Inc.: *See—*
Numata, Masanori, 5,067,625, Cl. 220-343.000.

Nigro, William A.; and O'Neill, Gary A., to Aluminum Company of America. Method for reducing the amount of colorants in a caustic liquor. 5,068,095, Cl. 423-122.000.

Nihon System Research Institute Inc.: *See—*
Nakano, Shohkichi; and Matsushita, Akira, 5,068,619, Cl. 324-715.000.

Niiyama, Akira: *See—*
Kikuchi, Hideaki; Ogawa, Motosuke; and Niiyama, Akira, 5,068,051, Cl. 252-162.000.

Nikaido, Yuko: *See—*
Ashina, Yoshiro; Fujita, Takeyuki; Niwa, Kiyonobu; Inagaki, Takeshi; and Nikaido, Yuko, 5,068,442, Cl. 564-479.000.

Nikko Bio Technica Co., Ltd.: *See—*
Imanaka, Tadayuki; and Sakurai, Shoji, 5,068,194, Cl. 435-252.500.

Nikon Corporation: *See—*
Ohno, Kou; Hattori, Tetsuo; and Matsumoto, Tsuyoshi, 5,068,529, Cl. 250-231.180.
Utagawa, Ken, 5,068,682, Cl. 354-402.000.

Nilssen, Ole K. Combined signal and electrical power distribution system. 5,068,890, Cl. 379-90.000.

Nimpoeno, Roy, to Scosche Industries, Inc. Marine stereo cover with detenting hinge. 5,068,765, Cl. 361-422.000.

Ninomiya, Takeshi: *See—*
Takayama, Jun; Fujita, Tadao; and Ninomiya, Takeshi, 5,068,716, Cl. 358-13.000.

Nippon Ferrofluidics Corporation: *See—*
Yamamura, Akira, 5,068,558, Cl. 310-90.500.

Nippon Kayaku Kabushiki Kaisha: *See—*
Nowatari, Hiroyoshi; Hayami, Hiroshi; Kuroda, Yasuo; Yoda, Sumio; and Takahashi, Katsutoshi, 5,068,376, Cl. 556-137.000.

Nippon Oil & Fats Co., Ltd.: *See—*
Sawada, Hideo; and Nakayama, Masaharu, 5,068,454, Cl. 568-566.000.
Yamamoto, Shosaku; and Kakinuma, Kazuo, 5,068,287, Cl. 525-124.000.

Nippon Seiko Kabushiki Kaisha: *See—*
Kasuga, Shinichi, 5,067,823, Cl. 384-45.000.

Nippon Steel Chemical Co., Ltd.: *See—*
Kaji, Masashi; Aramaki, Takanori; Nakahara, Norito; and Yamada, Yasuharu, 5,068,293, Cl. 525-534.000.

Nippon Steel Corporation: *See—*
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Nippon Telegraph and Telephone Corporation: *See—*
Maruno, Tohru; Ishibashi, Shigeki; and Nakamura, Kouzaburou, 5,068,261, Cl. 522-39.000.

Nippon Unicar Company Limited: *See—*
Isobe, Kazuyuki; Aizawa, Takao; Yamaguchi, Noboru; and Ueda, Yutaka, 5,068,270, Cl. 524-68.000.

Nippondenso Co., Ltd.: *See—*
Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, 5,067,455, Cl. 123-196.00R.

Nishi, Kunihiko: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi, Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Nishiguchi, Keizo: *See—*
Matsuura, Kazuo; Sekino, Hitoshi; Nishiguchi, Keizo; and Yoshida, Narutaka, 5,068,677, Cl. 346-108.000.

Nishikawa, Kazuhiro: *See—*
Nogami, Mamoru; and Nishikawa, Kazuhiro, 5,068,539, Cl. 250-492.200.

Nishikawa, Shigeru: *See—*
Hagino, Sadaaki; Suzuki, Motokazu; Kondo, Hideyuki; Nishikawa, Shigeru; and Hayashi, Kenichi, 5,068,219, Cl. 505-1.000.

Nishikawa, Toshio; Okada, Takekazu; Dejima, Hiroki; and Tokudera, Hiromu, to Murata Manufacturing Co., Ltd. Nonreciprocal circuit element. 5,068,629, Cl. 333-1.100.

Nishimoto, Shigekazu: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Nishimura, Asao: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Nishimura, Tetsuharu: *See—*
Ishizuka, Kou; Nishimura, Tetsuharu; Tsukiji, Masaaki; and Ishii, Satoshi, 5,067,813, Cl. 356-351.000.

Nishino, Hideki: *See—*
Watanabe, Tan; Nishino, Hideki; Iwami, Hidefumi; and Tabata, Kuniaki, 5,068,804, Cl. 395-147.000.

Nishio, Yukio; and Hirose, Kazunori, to Fujitsu Limited. Developing device with a controllable pressure release for the developing roller. 5,068,691, Cl. 355-259.000.

Nishiura, Akira; Kumagai, Naoki; and Seki, Yasukazu, to Fuji Electric Co., Ltd. Horizontal deflection circuit for high-frequency scanning. 5,068,581, Cl. 315-370.000.

Nishiya, Takayuki: *See—*
Takahama, Yoshihiro; Kurihara, Kazushige; and Nishiya, Takayuki, 5,067,288, Cl. 52-80.000.

Nishiyama, Satoshi, to Sumitomo Electric Industries, Ltd. Fiber identification in an optical fiber composite overhead ground wire. 5,067,791, Cl. 385-101.000.

Nishizawa, Kimiyoshi, to Nissan Motor Co., Ltd. Honeycomb metal catalyst apparatus. 5,068,218, Cl. 502-439.000.

Nissan Motor Company, Ltd.: *See—*
Hirabayashi, Hirokazu, 5,067,744, Cl. 280-734.000.
Kanesaki, Nobukazu, 5,067,320, Cl. 60-297.000.
Nagaishi, Hatsuo, 5,067,466, Cl. 123-494.000.
Nakano, Masaki, 5,067,360, Cl. 74-200.000.
Nishizawa, Kimiyoshi, 5,068,218, Cl. 502-439.000.
Shinzawa, Motohiro, 5,067,457, Cl. 123-269.000.
Suzuki, Yutaka, 5,067,372, Cl. 74-866.000.
Yoshikawa, Hironori, 5,067,745, Cl. 280-735.000.

Nisshin Steel Co., Ltd.: *See—*
Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, 5,067,555, Cl. 164-480.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Nissin Electric Company, Limited: *See—*
Nogami, Mamoru; and Nishikawa, Kazuhiro, 5,068,539, Cl. 250-492.200.

Niswonger, David S.: *See—*
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., 5,068,383, Cl. 556-452.000.

Nitrokemia Ipartelepek: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

Nitschke, Werner: *See—*
Burger, Wilfried; Nitschke, Werner; Taufer, Peter; and Weller, Hugo, 5,068,640, Cl. 340-438.000.

Nitto Denko Corporation: *See—*
Kuroda, Yasuhiro; and Suzuki, Hideo, 5,067,290, Cl. 52-208.000.
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Nitto Kagaku Kogyo Kabushiki Kaisha: *See—*
Ashina, Yoshiro; Fujita, Takeyuki; Niwa, Kiyonobu; Inagaki, Takeshi; and Nikaido, Yuko, 5,068,442, Cl. 564-479.000.

Niwa, Katsuhito: *See—*
Tagami, Shigeru; Umedu, Yoshio; and Niwa, Katsuhito, 5,068,562, Cl. 310-256.000.

Niwa, Kiyonobu: *See—*
Ashina, Yoshiro; Fujita, Takeyuki; Niwa, Kiyonobu; Inagaki, Takeshi; and Nikaido, Yuko, 5,068,442, Cl. 564-479.000.

NKK Corporation: *See—*
Murakami, Katsuhiko; Yamagami, Nobuo, Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Noda Institute for Scientific Research: *See—*
Horiuchi, Tatsuo; and Kurokawa, Toshiko, 5,068,190, Cl. 435-190.000.

Noda, Kazuo: *See—*
Samejima, Masayoshi; Noda, Kazuo; Hirakawa, Yoshiyuki; and Yoshino, Hiroyuki, 5,068,112, Cl. 424-495.000.

Noda, Masanori; and Nakamura, Akihiro, to Sony Corporation. Semiconductor memory which is protected from erasure by light shields. 5,068,697, Cl. 357-23.500.

Noda, Shoji: *See—*
Uchida, Kiyoshi; Noda, Shoji; and Higuchi, Kazuo, 5,068,871, Cl. 373-17.000.

Noetzel, Andrew S. Interplating memory function evaluation. 5,068,816, Cl. 364-718.000.

Nogami, Mamoru; and Nishikawa, Kazuhiro, to Nissin Electric Company, Limited. Ion implantation apparatus. 5,068,539, Cl. 250-492.200.

Nogawa, Hayabu: *See—*
Uchida, Tadahiro; Shimamura, Kuniyuki; Nogawa, Hayabu; Saito, Keikichi; and Hara, Minoru, 5,067,938, Cl. 494-12.000.

Noguchi, Hiromichi, to Canon Kabushiki Kaisha. Resin composition curable with an active energy ray containing half-esterificated epoxy resin and monomer having ethylenically unsaturated bond. 5,068,257, Cl. 522-31.000.

Noguchi, Hiromichi, to Canon Kabushiki Kaisha. Resin composition curable with an active energy ray containing half-esterificated epoxy resin as a constituent. 5,068,258, Cl. 522-31.000.

Noguchi, Hiromichi, to Canon Kabushiki Kaisha. Resin composition curbable with an active energy ray containing epoxy resin and monomer with ethylenically unsaturated bond. 5,068,259, Cl. 522-31.000.

Noguchi, Hiromichi, to Canon Kabushiki Kaisha. Resin composition curable with an active energy ray containing epoxy resin containing at least a compound having one or more of epoxy group in the molecule. 5,068,260, Cl. 522-31.000.

Noguchi, Hiromichi, to Canon Kabushiki Kaisha. Resin composition curable with an active energy ray containing photopolymerizable polyurethane. 5,068,262, Cl. 522-95.000.

Noguchi, Hiromichi, to Canon Kabushiki Kaisha. Resin composition curable with an active energy ray containing graft copolymerized polymer with trunk chain containing dicyclopentenyl group. 5,068,263, Cl. 522-109.000.

Nojima, Satoshi; Sakagawa, Kazuo; and Suzuki, Hideo, to Fujitsu Limited. Data transfer system having transfer discrimination circuit. 5,068,820, Cl. 395-275.000.

Nomura, Yukitaka: *See—*
Shinkai, Kunio; Suzuki, Toyoo; Nomura, Yukitaka; Kurachi, Yoshio; and Kureishi, Hiroyuki, 5,067,204, Cl. 19-159.00A.

Nonaka, Hiromi: *See—*
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

Nonoyama, Makoto, to Kabushiki Kaisha Toshiba. Image reading apparatus. 5,068,747, Cl. 358-448.000.

NorAm Chemical Company: *See—*
Smythe, Stephen R.; Cole, Martin G.; and Grier, James S., 5,068,443, Cl. 564-496.000.

Norddeutsche Faserwerke GmbH: *See—*
Behl, Klaus; Erren, Karl-Heinz; and Mantz, Ekkehard, 5,067,215, Cl. 28-190.000.

Nordica S.p.A.: *See—*
Martignago, Pietro, 5,067,258, Cl. 36-117.000.

Nordson Corporation: *See—*
DeVries, James E.; Rosen, Samuel R.; and Schneider, Robert D., 5,067,882, Cl. 417-511.000.

Noristi, Luciano: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.

Norita, Toshio: *See—*
Taniguchi, Nobuyuki; Karasaki, Toshihiko; Ishida, Tokuji; Hamada, Masataka; and Norita, Toshio, 5,068,737, Cl. 358-227.000.

Norman, Alan B.: *See—*
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Norrie, Lyle W. Product support apparatus. 5,067,620, Cl. 211-113.000.

Norsolor: *See—*
Brusson, Jean M.; Bujadoux, Karel; Petit, Francis; Fuchs, Jean M.; and Mortreux, Andre , 5,068,014, Cl. 204-59.00M.

Nortenius, Bengt-Arne; Olsson, Per-Erik B.; and Grip, Nils-Erik G., to Telefonaktiebolaget L M Ericsson. Linear measuring apparatus. 5,067,248, Cl. 33-744.000.

North American Philips Corporation: *See—*
Bruning, Gert W.; and Veldman, Paul R., 5,068,573, Cl. 315-209.00R.

Northeastern University: *See—*
Wise, Donald L.; Augenstein, Don C.; and Gresser, Joseph D., 5,068,188, Cl. 435-140.000.

Northern Telecom Limited: *See—*
Ellis, John G.; and Townsend, Bruce L., 5,068,899, Cl. 381-31.000.

Nose, Kenkichi; Takata, Tadahiko; and Tsuge, Masuo, to Teijin Limited. Fiber-reinforced polymeric resin composite material and process for producing same. 5,068,142, Cl. 428-232.000.

Notardonato, Luigi: *See—*
Bjerklund, Gunnar; Ore, William C.; Pulawski, Casimir; and Notardonato, Luigi, 5,067,507, Cl. 137-3.000.

Nova, Wallace B. Pulling attachment for flexible conduit. 5,067,843, Cl. 403-301.000.

Nowatari, Hiroyoshi; Hayami, Hiroshi; Kuroda, Yasuo; Yoda, Sumio; and Takahashi, Katsutoshi, to Nippon Kayaku Kabushiki Kaisha. Novel platinum complexes. 5,068,376, Cl. 556-137.000.

Nowinski, Robert C., to Genetic Systems Corporation. Method of enhancing direct immunofluorescence staining of cells. 5,068,178, Cl. 435-7.200.

Nozawa, Masaei: *See—*
Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, 5,067,455, Cl. 123-196.00R.

Nuber, Roland; Schubert, Werner; Sohler, Wolfgang; and Sutter, Franz, to Wankel GmbH. Machine unit consisting of a rotary piston internal combustion engine and a rotary piston compressor. 5,067,557, Cl. 165-51.000.

Nudd, Barry C.; and Chambers, James W., to Atwood Industries, Inc. Swivel jack for a trailer tongue. 5,067,692, Cl. 254-420.000.

Numata, Masanori, to Nifco Inc. Device for opening and closing lid. 5,067,625, Cl. 220-343.000.

Nunome, Hiromi: *See—*
Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, 5,067,702, Cl. 271-134.000.

Nuriya, Kozo: *See—*
Kaneaki, Tetsuhiko; Nuriya, Kozo; and Tani, Yasunori, 5,068,661, Cl. 341-143.000.

Nusair, Marwan E.: *See—*
Valentine, Michael D.; Scholl, Stephen R.; and Nusair, Marwan E., 5,068,663, Cl. 342-20.000.

Nutt, Gerald L., to United States of America, Energy. Method for enhancing stability of high explosives, for purposes of transport or storage, and the stabilized high explosives. 5,067,995, Cl. 149-2.000.

N.V. Nederlandsche Apparatenfabriek Nedap: *See—*
Hogen Esch, Johannes H. L., 5,068,641, Cl. 340-551.000.

Oatman, Kenneth G.: *See—*
Mims, William F., Jr.; Bramlett, Richard T.; and Oatman, Kenneth G., 5,067,587, Cl. 182-63.000.

Oberdorfer-Bogel, Rainer. Dust exhauster for a vacuum cleaner having improved cooling. 5,068,555, Cl. 310-52.000.

OCE-Nederland B.V.: *See—*
van Vliembergen, Eduardus J. W., 5,068,789, Cl. 364-419.000.
Verhelst, Paulus W. E.; Winiger, Werner J.; and Collard, Rene F. A., 5,068,809, Cl. 395-145.000.

O'Connor, Richard J. Child powered bicycle trailer. 5,067,738, Cl. 280-204.000.

Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, to Koito Manufacturing Co., Ltd. Lamp lighting circuit with an overload protection capability. 5,068,570, Cl. 315-128.000.

Odaka, Masanori: *See—*
Miyaoka, Shuuichi; Odaka, Masanori; Arai, Toshikazu; and Higuchi, Hiroshi, 5,068,828, Cl. 365-189.010.

Oddi, Frederick V.: *See—*
Joshi, Shrikant M.; and Oddi, Frederick V., 5,067,561, Cl. 165-140.000.

Oertel, Christopher P.: *See—*
Donohoue, Thomas P.; Oertel, Christopher P.; Tyree, William H.; and Valdez, Joe L., 5,067,820, Cl. 374-31.000.

Offiler, Stephen B.; Berg, Peter G.; and Kawate, Keith W., to Texas Instruments Incorporated. Supplemental automotive vehicular heater system and method of providing same. 5,068,589, Cl. 322-7.000.

Offner, Dennis. Fixture for hinge mortise. 5,067,537, Cl. 144-372.000.

Oftring, Alfred: *See—*
Baur, Richard; Gousetis, Charalampos; Trieselt, Wolfgang; Bochnitschek, Werner; and Oftring, Alfred, 5,068,416, Cl. 562-571.000.

Ogata, Masatsugu: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Ogata, Toshikazu, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor package. 5,068,156, Cl. 428-620.000.

Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, to Doryokuro Kakunenryo Kaihatsu Jigyodan; Ishikawajima-Harima Heavy Industries Co., Ltd.; and Dai-Ichi High Frequency Co., Ltd. Bus bar for power supply with coolant flow passages. 5,068,491, Cl. 174-16.200.

Ogawa, Hiroshi: *See—*
Fudono, Kanji; Takahashi, Toshimasa; Ogawa, Hiroshi; and Yamashita, Toshio, 5,067,556, Cl. 165-29.000.

Ogawa, Motosuke: *See—*
Kikuchi, Hideaki; Ogawa, Motosuke; and Niiyama, Akira, 5,068,051, Cl. 252-162.000.

Ogawa, Yoshihiko; Yasuki, Seijiro; and Kawai, Kiyoyuki, to Kabushiki Kaisha Toshiba. Band compressing/restoring apparatus. 5,068,725, Cl. 358-135.000.

Ogawa, Yoshikatsu; Hisada, Haruhiko; Kasahara, Takeshi; Kizaki, Fumihiko; and Yoshiya, Masahide, to Marubishi Yuka Kogyo Kabushiki Kaisha. Process for preparation of dibromopropyl ether compound having high melting point. 5,068,446, Cl. 568-33.000.

Ogawa, Youichi: *See—*
Kitakami, Osamu; Fujiwara, Hideo; Ojima, Kiyotaka; Ogawa, Youichi; and Wakai, Kunio, 5,068,144, Cl. 428-323.000.

Ogawa, Zensuke, to Kurita Water Industries, Ltd.; and Ogawa, Zensuke. Method for measurement of α-amylase activity. 5,068,183, Cl. 435-22.000.

Ogino, Masayuki: *See—*
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.

Ogiya, Shunsuke: *See—*
Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, 5,068,082, Cl. 376-428.000.

Ogura, Mutsuo: *See—*
Wang, Shing C.; Ogura, Mutsuo; Wang, Shyh; and Hsin, Wei, 5,068,869, Cl. 372-45.000.

Ogura, Wataru, to Chinon Kabushiki Kaisha. Image signal processor for reading dark and light characters from light and dark backgrounds respectively. 5,068,910, Cl. 382-50.000.

Oh, Tae S., to Samsung Electronics Co., Ltd. Heater with a humidifier. 5,067,473, Cl. 126-113.000.

Ohara, Shiro, to Fujitsu Limited. Josephson integrated circuit having a resistance element. 5,068,694, Cl. 357-5.000.

Ohfune, Yasufumi; Shimamoto, Keiko; Shinozaki, Haruhiko; and Ishida, Michiko, to Suntory Limited. (2R,3S,4S)-α-(carboxycyclopropyl)glycine. 5,068,412, Cl. 562-506.000.

Ohkawa, Tihiro, to General Atomics. Low hazard extremely low frequency power transmission line. 5,068,543, Cl. 307-91.000.

Ohki, Hiromi: *See—*
Takagaki, Hidetsugu; Nakanishi, Shigenori; Abe, Masayoshi; Ohki, Hiromi; and Sano, Yoshiyuki, 5,068,364, Cl. 549-415.000.

Ohkubo, Shinya: *See—*
Nakamura, Nobuyuki; Sakamoto, Yuji; Kawakami, Takashi; and Ohkubo, Shinya, 5,067,229, Cl. 29-566.100.

Ohlsson, Thomas; and Hjorth, Bo, to Siemens Aktiengesellschaft. Method and apparatus for analog-to-digital conversion. 5,068,658, Cl. 341-131.000.

Ohmae, Tadayuki; Toyoshima, Yoshiki; Mashita, Kentaro; and Nambu, Jinsho, to Sumitomo Chemical Co., Ltd. Method for producing thermoplastic resin composition. 5,068,283, Cl. 525-64.000.

Ohmstede Mechanical Services, Inc.: *See—*
Boisture, Thomas B., 5,067,558, Cl. 165-95.000.

Ohnishi, Kenji; Washio, Isomi; and Nakano, Koji, to Amada Company, Limited. Vibration prevention device for bandsaw machines. 5,067,381, Cl. 83-820.000.

Ohno, Hiroyasu: *See—*
Yorozu, Kiyotaka; and Ohno, Hiroyasu, 5,068,455, Cl. 568-567.000.

Ohno, Kazunori, to Fuji Photo Optical Co., Ltd. Photographic wide angle lens. 5,067,803, Cl. 359-708.000.

Ohno, Kou; Hattori, Tetsuo; and Matsumoto, Tsuyoshi, to Nikon Corporation. Absolute position detection encoder. 5,068,529, Cl. 250-231.180.

Ohno, Motonori: *See—*
Nakamura, Takanori; Iwanaga, Sadaaki; Ohno, Motonori; and Miyazaki, Kyosuke, 5,068,314, Cl. 530-317.000.

Ohno, Tetsuji: *See—*
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji, Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

O'Holleran, Thomas P., to KMS Fusion, Inc. Hollow spherical shell manufacture. 5,068,071, Cl. 264-56.000.

Ohsawa, Hidefumi; Katayama, Akihiro; Hosokawa, Hiroshi; Sunohara, Izuru; and Yoshimoto, Masahiko, to Canon Kabushiki Kaisha. Image processing apparatus. 5,068,746, Cl. 358-443.000.

Ohsawa, Toshio: *See—*
Iwata, Toshio; and Ohsawa, Toshio, 5,067,462, Cl. 123-414.000.

Ohshima, Yasunobu; and Shibanuma, Naoki, to NEC Corporation. Semiconductor laser module. 5,068,865, Cl. 372-36.000.

Ohta, Junichi: *See—*
Kiyota, Yoshisato; Ohta, Junichi; Ohtsubo, Hiroshi; and Takajo, Shigeaki, 5,067,979, Cl. 75-243.000.

Ohta, Kenji: *See—*
Nakayama, Junichiro; Katayama, Hiroyuki; and Ohta, Kenji, 5,068,841, Cl. 369-13.000.

Ohtani, Daisuke: *See—*
Sugiyama, Shouji; Ohtani, Daisuke; and Tajima, Tadao, 5,068,917, Cl. 455-90.000.

Ohtsubo, Hiroshi: *See—*
Kiyota, Yoshisato; Ohta, Junichi; Ohtsubo, Hiroshi; and Takajo, Shigeaki, 5,067,979, Cl. 75-243.000.

Oi, Ryu; Takenaka, Shinji; and Shimakawa, Chitoshi, to Mitsui Toatsu Chemicals, Inc. Process for producing m-phenoxybenzyl alcohol. 5,068,459, Cl. 568-638.000.

Oikawa, Tetsuo: *See—*
Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, 5,067,702, Cl. 271-134.000.

Ojima, Kiyotaka: *See—*
Kitakami, Osamu; Fujiwara, Hideo; Ojima, Kiyotaka; Ogawa, Youichi; and Wakai, Kunio, 5,068,144, Cl. 428-323.000.

Ok, Hyun: *See—*
Wyvratt, Matthew J., Jr.; Beattie, Thomas R.; Ok, Hyun; Arison, Byron H.; and Fisher, Michael H., 5,068,323, Cl. 540-456.000.

Okada, Kazuhiro: *See—*
Otowa, Hidekazu; Okada, Kazuhiro; Sonoda, Hidefumi; and Kaneko, Tadao, 5,067,468, Cl. 123-516.000.

Okada, Masuhiro: *See—*
Inata, Hiroo; Matsumura, Shunichi; Itoh, Seiji; and Okada, Masuhiro, 5,068,062, Cl. 252-518.000.

Okada, Minoru: *See—*
Takahashi, Wataru; Sugimoto, Yoshihito; Nakanishi, Mutsuo; Shida, Yoshiaki; and Okada, Minoru, 5,068,003, Cl. 148-421.000.

Okada, Takekazu: *See—*
Nishikawa, Toshio; Okada, Takekazu; Dejima, Hiroki; and Tokudera, Hiromu, 5,068,629, Cl. 333-1.100.

Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, to Nippondenso Co., Ltd. Method and apparatus for adding additives to lubricating oil. 5,067,455, Cl. 123-196.00R.

Okamoto, Yasuhide: *See—*
Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, 5,067,455, Cl. 123-196.00R.

Okamura, Masami: *See—*
Sawa, Takao; and Okamura, Masami, 5,067,991, Cl. 148-305.000.

Okamura, Masatoshi: *See—*
Nakayama, Masatoshi; Ueda, Kunihiro; and Okamura, Masatoshi, 5,068,146, Cl. 428-336.000.

Okamura, Toshihiko: *See—*
Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, 5,068,148, Cl. 428-335.000.

Okamura, Yoshio; Takarada, Mitsuhiro; Kobayashi, Yoshiteru; and Takahashi, Tadashi, to Shin-Etsu Chemical Co., Ltd. Coating composition for electrophotographic carrier. 5,068,301, Cl. 528-15.000.

Oki Electric Industry Co., Ltd.: *See—*
Kishino, Kuniaki; and Nakamura, Tamiya, 5,068,784, Cl. 395-275.000.
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.
Tanagawa, Kouji; and Yoshida, Tomoaki, 5,068,783, Cl. 395-575.000.
Tsubota, Takashi, 5,067,809, Cl. 357-17.000.

Okita, Ryozo, to Sanshin Industries Co., Ltd. Tilting/trimming system for marine propulsion unit. 5,067,919, Cl. 440-61.000.

Okita, Tsutomu: *See—*
Watanabe, Hideomi; and Okita, Tsutomu, 5,068,145, Cl. 428-323.000.

Okumura, Hiroyuki; Kurokawa, Masashi; Namikawa, Akira; and Tanisake, Hiroka, to Toyota Jidosha Kabushiki Kaisha; and A.G. International Chemical Company, Inc. Process for the production of molded article of fiber-reinforced thermosetting resin, and materials therefor. 5,068,281, Cl. 524-753.000.

Okumura, Katsuya: *See—*
Egawa, Hidemitsu; Aoki, Riichirou; and Okumura, Katsuya, 5,068,709, Cl. 357-71.000.
Watanabe, Tohru; and Okumura, Katsuya, 5,067,437, Cl. 118-715.000.

Okura, Makoto: *See—*
Takebe, Hideharu; and Okura, Makoto, 5,068,651, Cl. 340-814.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Okura, Tsunetoshi: *See—*
Ando, Minato; Kato, Takashi; Aoki, Hideyasu; Mizushima, Yasuyuki; Okura, Tsunetoshi; and Kurokawa, Akemi, 5,068,542, Cl. 250-573.000.

O'Leary, Kevin P.: *See—*
Li, Alan Y.; Grutsch, James F.; and O'Leary, Kevin P., 5,068,036, Cl. 210-606.000.

O'Lenick, Anthony J., Jr., to LCE Partnership. Novel amphoteric polymers. 5,068,324, Cl. 540-471.000.

Olin Corporation: *See—*
—Raynor, Robert J.; and Duncan, Budd L., 5,068,408, Cl. 562-419.000.
—Schiessl, Henry W., 5,068,313, Cl. 528-483.000.

Olive, Patrick W.: *See—*
Brown, Robert T. K.; and Smith, Ronald W., 5,067,296, Cl. 52-309.700.

Oliver, Roy F.: *See—*
Buultjens, Travis E. J.; Jahoda, Colin A. B.; and Oliver, Roy F., 5,068,315, Cl. 530-324.000.

Olschansky, Scott: *See—*
Oschansky, Brad; Olschansky, Scott; and Lee, Raymond H., Jr., 5,067,708, Cl. 272-118.000.

Olson, Brennan J.; and Brace, Thomas J., to Rollerblade, Inc. Slotted brake for in-line roller skate. 5,067,736, Cl. 280-11.200.

Olson, Donald N.; and Huerta, Joseph, to United States of America, Army. Supersonic, low-drag, solid fuel ramjet tubular projectile. 5,067,406, Cl. 102-374.000.

Olson, Erlend M.: *See—*
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.

Olsson, Clas Ove: *See—*
Ahman, Jan-Olov L., 5,067,325, Cl. 62-77.000.

Olsson, Per-Erik B.: *See—*
Nortenius, Bengt-Arne; Olsson, Per-Erik B.; and Grip, Nils-Erik G., 5,067,248, Cl. 33-744.000.

Olympus Optical Co., Ltd.: *See—*
Kikuchi, Juro, 5,068,679, Cl. 354-271.100.
Shirakawa, Masaki, 5,067,800, Cl. 359-642.000.
Tsuji, Kiyoshi, 5,068,719, Cl. 358-98.000.

Omura, Takashi: *See—*
Miyamoto, Tetsuya; Takahashi, Miyao; Fujisaki, Takahiko; Ikeou, Shinei; and Omura, Takashi, 5,068,327, Cl. 544-76.000.

O'Neel, Timothy H., to Blount, Inc. Laminated adhesive core chain saw guide bar with containment and spacing wire. 5,067,243, Cl. 30-387.000.

O'Neill, Gary A.: *See—*
Nigro, William A.; and O'Neill, Gary A., 5,068,095, Cl. 423-122.000.

O'Neill, William P.: *See—*
Weinshenker, Ned M.; and O'Neill, William P., 5,068,226, Cl. 514-58.000.

Onishi, Masahiro: *See—*
Muraishi, Katsuaki; Onishi, Masahiro; Mori, Nobufumi; Nunome, Hiromi; and Oikawa, Tetsuo, 5,067,702, Cl. 271-134.000.

Onishi, Sei: *See—*
Yoshida, Susumu; Onishi, Sei; and Uchiyama, Kenji, 5,068,501, Cl. 200-61.58R.

Onnigian, Peter K.; and Onnigian, Philip M. Balanced antenna feed system. 5,068,672, Cl. 343-859.000.

Onnigian, Philip M.: *See—*
Onnigian, Peter K.; and Onnigian, Philip M., 5,068,672, Cl. 343-859.000.

Ono, Masahiro: *See—*
Kawazi, Toshikuni; Ono, Masahiro; and Inoue, Nobuko, 5,068,103, Cl. 424-81.000.

Onogi, Yukio: *See—*
Satake, Toshihiko; and Onogi, Yukio, 5,068,559, Cl. 310-112.000.

Ookubo, Satomi: *See—*
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Ootake, Yasuhiro: *See—*
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.

Ootani, Tetsuo: *See—*
Tsuyuki, Takao; Sato, Shigehiro; and Ootani, Tetsuo, 5,068,517, Cl. 219-543.000.

Opalko, Albert: *See—*
Archibald, John L.; Ward, Terence J.; and Opalko, Albert, 5,068,337, Cl. 514-256.000.

Opheij, Willem G.: *See—*
Braat, Josephus J. M.; and Opheij, Willem G., 5,068,751, Cl. 359-566.000.

Optum Corporation: *See—*
Filo, Andrew, 5,068,739, Cl. 358-237.000.

Ore, William C.: *See—*
Bjerklund, Gunnar; Ore, William C.; Pulawski, Casimir; and Notardonato, Luigi, 5,067,507, Cl. 137-3.000.

Oren, Josef: *See—*
Bekhazi, Michel; and Oren, Josef, 5,068,405, Cl. 562-83.000.

Orino, Kanjyo, to Canon Kabushiki Kaisha. Lens movement control device for zoom lens. 5,067,802, Cl. 359-700.000.

Oroskar, Anil R.: *See—*
Kulprathipanja, Santi; and Oroskar, Anil R., 5,068,418, Cl. 562-580.000.
Kulprathipanja, Santi; and Oroskar, Anil R., 5,068,419, Cl. 562-580.000.

Ortho-Vacon, Inc.: *See—*
Hollibush, Daniel J.; Fasnacht, Jeffery; and Eeg, Edward G., 5,068,107, Cl. 424-435.000.

Oscar Mayer Foods Corporation: *See—*
Kuethe, David F., 5,067,304, Cl. 53-410.000.

Oschansky, Brad; Olschansky, Scott; and Lee, Raymond H., Jr., to Lifeing, Inc. Multi-function exercise system. 5,067,708, Cl. 272-118.000.

O'Shaughnessy, Gerald M.: *See—*
Hemmings, John W.; Allan, Peter; and O'Shaughnessy, Gerald M., 5,067,972, Cl. 55-40.000.

Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, to Fuji Photo Film Co., Ltd. Apparatus for making booklets with photographs. 5,068,742, Cl. 358-296.000.

Oshima, Kazuyoshi: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Oshima, Takeshi: *See—*
Nakamura, Norio; Koike, Hiroyuki; and Oshima, Takeshi, 5,068,340, Cl. 548-119.000.

Osuna-Diaz, Jesus M. Injection molding apparatus with shut off valve pin actuation system. 5,067,893, Cl. 425-564.000.

Otani, Shinichi: *See—*
Kosugi, Hiromitsu; Otani, Shinichi; Kashino, Teruo; Andoh, Masakazu; Arai, Takeo; and Nagashima, Toshiharu, 5,068,681, Cl. 354-299.000.

Otowa, Hidekazu; Okada, Kazuhiro; Sonoda, Hidefumi; and Kaneko, Tadao, to Toyota Jidosha Kabushiki Kaisha. Apparatus for preventing discharge of fuel vapor. 5,067,468, Cl. 123-516.000.

Ott, Hans, to Gretag Aktiengesellschaft. Process for the determination of colorimetric differences between two screen pattern fields printed by a printing machine and process for the color control or ink regulation of the print of a printing machine. 5,068,810, Cl. 364-526.000.

Ouchi, Chidane, to Canon Kabushiki Kaisha. Illuminance distribution measuring system. 5,067,811, Cl. 356-121.000.

Ouderkirk, Dale L.; and Ouderkirk, Donald R. Foundation system for manufactured housing. 5,067,289, Cl. 52-169.110.

Ouderkirk, Donald R.: *See—*
Ouderkirk, Dale L.; and Ouderkirk, Donald R., 5,067,289, Cl. 52-169.110.

Owada, Nobuo; Horiuchi, Mitsuaki; Tsuneoka, Masatoshi; and Taneoka, Tadayuki, to Hitachi, Ltd. Semiconductor device with multilayer base contact. 5,068,710, Cl. 357-71.000.

Owatonna Tool Company: *See—*
Rypka, Dann B., 5,067,694, Cl. 269-20.000.

Oxford Science Industrial Co., Ltd.: *See—*
Chen, Chi-Min, 5,068,030, Cl. 210-95.000.

Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, to Mitsubishi Nuclear Fuel Co. Method of inserting fuel rods into a nuclear fuel assembly grid. 5,068,081, Cl. 376-261.000.

Oyama, Yoshio, to Yoshida Kogyo K.K. Method of and apparatus for assembling slide fastener sliders. 5,067,221, Cl. 29-409.000.

Ozaki, Akiyoshi: *See—*
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Ozaki, Keiichi: *See—*
Matsumoto, Etsuji; Araki, Mamoru; and Ozaki, Keiichi, 5,067,905, Cl. 439-76.000.

Ozawa, Osamu; Takahashi, Shuji; and Igarashi, Shigeru, to Yokohama Rubber Company, The. Rubbery laminate and composite hose. 5,068,137, Cl. 428-36.200.

Paige, Clive R., to Shop Vac Corporation. Pressure washer. 5,067,654, Cl. 239-124.000.

Paik, Woo H.: *See—*
Krause, Edward A.; Paik, Woo H.; Liu, Vincent; and Essserman, Jim, 5,068,724, Cl. 358-133.000.

Pal, Jack M.; Cosman, James P.; and Tan, Karen, to Dow Chemical Company, The. Polyurethane and/or polyurea dispersions in active hydrogen-containing compositions. 5,068,280, Cl. 524-728.000.

Palermo, Robert E.: *See—*
Han, Scott; Martenak, Daniel J.; Palermo, Robert E.; and Walsh, Dennis E., 5,068,486, Cl. 585-500.000.

Pangretic, Richard H., Jr.: *See—*
Bennett, Keith N.; and Pangretic, Richard H., Jr., 5,067,323, Cl. 60-734.000.

Panopoulos, Peter J. Variable point writing instrument. 5,067,837, Cl. 401-107.000.

Panten, Detlef; Naber, Dirk; and Bender, Franz, to Mercedes-Benz AG. Exhaust-gas recycling device for an internal-combustion engine. 5,067,470, Cl. 123-568.000.

Papavizas, George: *See—*
Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., 5,068,105, Cl. 424-93.000.

Pappas, Panagiotis T.: *See—*
Cure, Jorge; Pappas, Panagiotis T.; and Eichler, Harry, 5,068,039, Cl. 210-695.000.

Paques, Eric P.; and Stohr, Hans-Arnold, to Behringwerke Aktiengesellschaft. t-PA solution of high concentration and use of the solution in human and veterinary medicine. 5,068,106, Cl. 424-94.300.

Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., to Callaway Golf Company. Iron golf club heads. 5,067,711, Cl. 273-77.00A.

Parker, James. Anti-shaft effect motorcycle suspension. 5,067,580, Cl. 180-219.000.

Parker, Susan. Apparatus for grooming animals. 5,067,444, Cl. 119-85.000.

Parmenter, Ronald D., to Credence Systems Corporation. Dual function cam-ring system for DUT board parallel electrical inter-connection and prober/handler docking. 5,068,601, Cl. 324-158.00F.

Parriaux, Olivier: *See—*
Kotrotsios, Georges; and Parriaux, Olivier, 5,067,815, Cl. 356-345.000.

Paschal, Richard C. Air-water dental syringe with protective barrier. 5,067,899, Cl. 433-80.000.

Paspek, Stephen C.; Hauser, Jeffrey B.; Eppig, Christopher P.; and Adams, Harry A., to Standard Oil Company, The. Process for upgrading high-boiling hydrocaronaceous materials. 5,068,027, Cl. 208-125.000.

Patel, Arvind D.; McGlothlin, Raymond E.; Bleier, Roger D.; and Brinkley, H. N., to M-I Drilling Fluids Company. Oil based synthetic hydrocarbon drilling fluid. 5,068,041, Cl. 507-103.000.

Patel, Jayantilal S., to Bell Communications Research, Inc. Electronically tunable polarization-independent liquid crystal optical filter. 5,068,749, Cl. 359-93.000.

Patel, Kishor J.; and Stobbs, Thomas J., to Applied Power Inc. Proportional pressure control valve. 5,067,687, Cl. 251-129.080.

Patel, Narendra M.; and Di Leo, Leonard, to Sun Chemical Corporation. Thermosetting composition. 5,068,273, Cl. 524-166.000.

Patel, Nitin M.: *See—*
Bushinsky, Joseph P.; Nicholas, David M.; Wang, Shoou-I; and Patel, Nitin M., 5,068,058, Cl. 252-376.000.

Pattas, Konstatin N. Method of and an apparatus for regenerating a diesel particulate exhaust filter. 5,067,973, Cl. 55-96.000.

Patton, Samuel K.: *See—*
Tiggelbeck, Donald D.; and Patton, Samuel K., 5,068,029, Cl. 210-284.000.

Patwald, Wolfgang: *See—*
Auslander, Klaus; Fabris, Hans-Jurgen; Mock, Karl-Heinz; Patwald, Wolfgang; and Seichter, Helmut, 5,068,612, Cl. 324-327.000.

Paufve, Eldred H.; and Porterfield, Richard, to Universal Instruments Corporation. High frequency thermode driven device employing one-turn-secondary transformers. 5,068,509, Cl. 219-85.160.

Paul, Norbert; Huber, Rudolf; and Mielke, Ingolf, to Hoechst Aktiengesellschaft. Continuous telomerization process. 5,068,471, Cl. 570-139.000.

Pavese, Duilio: *See—*
Francioni, Renzo; and Pavese, Duilio, 5,067,307, Cl. 53-450.000.

Pavlik, Norman M.; Sefko, John; and Miller, Richard A., to ABB Power T & D Company, Inc. Drilling of steel sheet. 5,067,992, Cl. 148-307.000.

Payne, Lyle B.: *See—*
Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., 5,067,867, Cl. 414-391.000.

Pedain, Josef; Kahl, Lothar; and Weber, Karl-Arnold, to Bayer Aktiengesellschaft. Stabilized polyisocyanates. 5,068,402, Cl. 560-331.000.

Pedain, Josef: *See—*
Meixner, Jurgen; Pedain, Josef; Hohlein, Peter; and Kreuder, Hans-Joachim, 5,068,305, Cl. 528-49.000.

Pedrotti, Kenneth D.: *See—*
Sullivan, Gerard J.; Pedrotti, Kenneth D.; and Kroemer, Herbert, 5,067,828, Cl. 385-3.000.

Peiffer, Dennis G.; and Lundberg, Robert D., to Exxon Research and Engineering Company. Novel polyampholyte compositions possessing high degrees of acid, base, or salt tolerance in solution. 5,068,278, Cl. 524-547.000.

Pelletier, Michel, to Bombardier Inc. Variable geometry tiller. 5,067,263, Cl. 37-220.000.

Pelt & Hooykaas B.V.: *See—*
Hooykaas, Carel W. J., 5,067,981, Cl. 106-790.000.

Pendell, Barry J.: *See—*
Petigara, Ramesh B.; Leister, Norman A.; Pendell, Barry J.; and Woodruff, Robert A., 5,068,344, Cl. 548-213.000.

Pennell, Phillip E.; Blackmore, John M.; and Allen, Mark D., to MDR Group, Inc. Viscoelastic fluid for use in surgery and other therapies and method of using same. 5,068,225, Cl. 514-57.000.

Penning, Trevor M.; and Askonas, Leslie J., to University of Pennsylvania, Trustees of. Irreversible ligands for nonsteroidal antiinflammatory drug and prostaglandin binding sites. 5,068,250, Cl. 514-506.000.

Pennings, Albert J.; and Roukema, Mees, to Akzo N.V. Method of manufacturing polyethylene fibers by high speed spinning of ultra-high-molecular-weight polyethylene. 5,068,073, Cl. 264-205.000.

Pentair, Incorporated: *See—*
Fehlig, Kenneth L., 5,067,591, Cl. 184-55.100.

Periana, Roy A.; and Schaefer, George F., to Monsanto Company. Oxidation of tertiary-alkyl substituted aromatics. 5,068,407, Cl. 562-416.000.

Perkinson, Seth, to CDP Product Development Corporation. Diffuser screen for sparger nozzle. 5,067,559, Cl. 165-112.000.

Pessina, Gianluigi: *See—*
Camin, Daniel V.; Pessina, Gianluigi; and Previtali, Ezio, 5,068,623, Cl. 330-277.000.

Petainer S.A.: *See—*
Torsten, Nilsson, 5,067,888, Cl. 425-387.100.

Peter, John H.; Timm, Gerald L.; and Wiedenbeck, Roger D., to Johnson Corporation, The. Air controlled rotary joint compensator. 5,067,824, Cl. 384-99.000.

Peter Wolters AG: *See—*
Hollmann, Frank P., 5,067,203, Cl. 19-114.000.

Petersen, Richard A.: *See—*
Fordham, Donald S.; Petersen, Richard A.; and Gorbet, Charles E., 5,067,901, Cl. 434-224.000.

Petersen, Wayne E., to Dow Chemical Company, The. Method for plaza deck construction. 5,067,298, Cl. 52-741.000.

Peterson, Daryl. Annular base mold. 5,067,686, Cl. 249-57.000.

Petigara, Ramesh B.; Leister, Norman A.; Pendell, Barry J.; and Woodruff, Robert A., to Rohm and Haas Company. Process for the preparation of salt free, water free 3-isothiazolone compounds. 5,068,344, Cl. 548-213.000.

Petigara, Ramesh B.: *See—*
Bayer, Horst O.; Lange, Barry C.; and Petigara, Ramesh B., 5,068,338, Cl. 548-101.000.

Petio, Franz A.: *See—*
Lepoutre, Etienne; Devaux, Michel; Hirschberg, Bruno; Petio, Franz A.; and Weitzer, Paul, 5,067,693, Cl. 266-44.000.

Petit, Francis: *See—*
Brusson, Jean M.; Bujadoux, Karel; Petit, Francis; Fuchs, Jean M.; and Mortreux, Andre , 5,068,014, Cl. 204-59.00M.

Petroleo Brasileiro S.A. - Petrobras: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Petrushka, Robert G., to LTV Steel Company, Inc. Shrouding for top pouring of ingots. 5,067,552, Cl. 164-259.000.

Petty, Stephen E.: *See—*
Cook, F. Bert; Petty, Stephen E.; Meacham, Howard C., Jr.; Christensen, Richard N.; and McGahey, Kevin R., 5,067,330, Cl. 62-485.000.

Pews, R. Garth: *See—*
Puckett, Wallace E.; and Pews, R. Garth, 5,068,347, Cl. 548-263.800.

Pezant, Christian: *See—*
Falp, Benoit; and Pezant, Christian, 5,068,522, Cl. 250-206.100.

Pfeiffer, Pierre; Cheval, Benoit; and Sigwalt, Paul, to Sotralentz S. A. Container assembly for the transport, storage and dispensing of flowable materials. 5,067,636, Cl. 222-105.000.

Pfizer Inc.: *See—*
Murtiashaw, Charles W.; and Quallich, George J., 5,068,333, Cl. 546-116.000.

Phalon, Philip A., Jr.; Caramiciu, Marius A.; and DiGiovanni, Robert C., to Raytheon Company. Complaint hot bar apparatus. 5,068,508, Cl. 219-85.160.

Philip Morris Incorporated: *See—*
Brookman, Donald L.; Grollimund, Everett C.; Grollimund, Gary E.; and Spiers, Steven F., 5,067,303, Cl. 53-381.200.
Keritsis, Gus D., 5,067,500, Cl. 131-335.000.
Wheless, Jack C.; Keen, Billy J., Jr.; and Ritt, Renzer R., Sr., 5,067,498, Cl. 131-88.000.

Phillips, Don: *See—*
Hurnik, Frank; Jarmain, Eric; Phillips, Don; Kirkland, Michael; Harkes, Douglas; and Gordon, Donald J., 5,067,443, Cl. 119-71.000.

Phillips Petroleum Company: *See—*
Efner, Howard F., 5,068,274, Cl. 524-230.000.
Lee, Fu-Ming; and Brown, Ronald E., 5,068,011, Cl. 203-58.000.

Phillips Ptroleum Company: *See—*
Lee, Clifford C.; and Welch, M. Bruce, 5,068,212, Cl. 502-105.000.

Phillips, Thomas G. Multifunctional block and kit for science instruction. 5,067,902, Cl. 434-276.000.

Phipps, Harry C. Transmission drain plug. 5,067,689, Cl. 251-144.000.

Physical Optics Corporation: *See—*
Jannson, Tomasz P.; Jannson, Joanna L.; and Moslehi, Behzad, 5,067,788, Cl. 385-2.000.

Piazza, Francesco; and Pierfederici, Antonio. Architecture for the implementation of radar displays. 5,068,665, Cl. 342-177.000.

Pichler, Ludwig: *See—*
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.

Pickenhahn, Josef, to Lucas Industries Public Limited Company. Differential pressure control valve. 5,067,524, Cl. 137-627.500.

Pierce, John R.: *See—*
Lindert, Andreas; Pierce, John R.; McCormick, David R.; and Zimmermann, William D., 5,068,299, Cl. 526-313.000.

Pierfederici, Antonio: *See—*
Piazza, Francesco; and Pierfederici, Antonio, 5,068,665, Cl. 342-177.000.

Pierik, Ronald J.: *See—*
Hill, Philip G.; Pierik, Ronald J.; and Hodgins, K. Bruce, 5,067,467, Cl. 123-497.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Pimbley, Joseph M.: *See*—
Silverstein, Seth D.; and Pimbley, Joseph M., 5,068,597, Cl. 324-77.00B.
Pioneer Electronic Corporation: *See*—
Naito, Ryuuich, 5,068,842, Cl. 369-32.000.
Yoshida, Susumu; Onishi, Sei; and Uchiyama, Kenji, 5,068,501, Cl. 200-61.58R.
Pipella, Lawrence S.; Fanjoy, Logan M.; Lawless, Rodger L.; and Davies, James E., to Analysist Development Group, Inc. Means and methods of tabulating time and task performances. 5,068,787, Cl. 364-406.000.
Pipper, Gunter; Heinz, Gerhard; and Hisgen, Bernd, to BASF Aktiengesellschaft. Continuous preparation of aromatic polycondensates. 5,068,308, Cl. 528-171.000.
Pirchl, Gerhard, to AAW Producktions Aktiengesellschaft. Cutting and forming tool for complicated flat structures. 5,067,339, Cl. 72-329.000.
Pitney Bowes Inc.: *See*—
Sansone, Ronald P.; and Schumacher, Karl H., 5,068,797, Cl. 364-478.000.
Pittsburgh Corning Corporation: *See*—
Francik, Charles A.; Fleming, Harry A., Jr.; and Hock, Donald E., 5,067,295, Cl. 52-306.000.
Plants, William C.; and Fritz, Scott N., to Advanced Micro Devices. High speed static RAM sensing system. 5,068,830, Cl. 365-190.000.
Plastipak Packaging, Inc.: *See*—
Dunlap, Richard L.; and Sanford, Edward L., 5,067,890, Cl. 425-504.000.
Plee, Steven L.: *See*—
Remboski, Donald J.; Plee, Steven L.; Yang, Jialin; Law, Robert W.; and Vincent, Michael T., 5,067,463, Cl. 123-425.000.
Plester, George; Leddon, Warren E.; and Dalsis, David E., to Coca-Cola Company, The. Methods of discriminating between contaminated and uncontaminated containers. 5,067,616, Cl. 209-3.100.
Plonus, Frank: *See*—
Attinger, Thomas; and Plonus, Frank, 5,067,574, Cl. 180-68.400.
Plumton, Donald L.: *See*—
Morris, Francis J.; Plumton, Donald L.; Yang, Jau-Yuann; and Yuan, Han-Tzong, 5,068,756, Cl. 357-16.000.
Plunkett, James B., to J. B. Plunkett Associates, Inc. Method and apparatus for removing volatile contaminants from contaminated soil. 5,067,852, Cl. 405-128.000.
Podszun, Wolfgang: *See*—
Muller, Michael; and Podszun, Wolfgang, 5,068,264, Cl. 522-167.000.
Poetsch, Eike; and Casutt, Michael, to Merck Patent Gesellschaft mit Beschrankter Haftung. Optically active hydantoins. 5,068,341, Cl. 548-154.000.
Poetsch, Eike: *See*—
Reiffenrath, Volker; Poetsch, Eike; Krause, Joachim; and Weber, Georg, 5,068,053, Cl. 252-299.610.
Polgreen, Thomas L.: *See*—
Yang, Ping; Chatterjee, Amitava; Aur, Shian; and Polgreen, Thomas L., 5,068,696, Cl. 357-23.100.
Poli, E. Leonard: *See*—
Carder, Mervin L., Sr.; and Poli, E. Leonard, 5,067,533, Cl. 141-392.000.
Polinsky, Mark A.: *See*—
Grillo, John M.; Hilby, James A.; La Croix, Mark E.; Polinsky, Mark A.; and Steltzer, Gordon L., 5,067,350, Cl. 73-494.000.
Polivka, William M., to International Business Machines Corporation. Switched-mode DC-DC power converter for reducing effects of magnetization current. 5,068,776, Cl. 363-17.000.
Polyplastics Co., Ltd.: *See*—
Watanabe, Junji; Naka, Michiro; and Hijikata, Kenji, 5,068,052, Cl. 252-299.010.
Polysar Rubber Corporation: *See*—
Wiseman, William A., 5,068,275, Cl. 524-314.000.
Pomikacsek, Josef, to Linsinger Maschinenbau GmbH, Firma. Method and device for the treatment of the upper surfaces of rails. 5,067,283, Cl. 51-178.000.
Pommer, Ernst-Heinrich: *See*—
Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,245, Cl. 514-429.000.
Zipplies, Matthias; Sauter, Hubert; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,246, Cl. 514-429.000.
Ponting, Robert F. B., to Kwalu (Proprietary) Limited. Joint assembly including wire reinforcing element and foam material. 5,067,842, Cl. 403-265.000.
Pope, John: *See*—
King, James L., Sr.; King, James L., Jr.; and Pope, John, 5,067,590, Cl. 184-15.100.
Popovitch, Dragolyoub; and Andrews, Herbert L. Safing and arming device. 5,067,405, Cl. 102-232.000.
Population Counsil, Inc., The: *See*—
Sandhaus, Jeffrey J., 5,067,958, Cl. 606-142.000.
Porel, Louis C. Hydrostatically balanced rotary hydraulic connector. 5,067,753, Cl. 285-279.000.
Pors, Gary A.; and Tang, Gernia, to NEC Electronics Inc. DRAM memory cell with tapered capacitor electrodes. 5,068,707, Cl. 357-59.000.
Porter, Allan W. H. Warp knit fabric structure and method of production. 5,067,331, Cl. 66-195.000.
Porterfield, Richard: *See*—
Paufve, Eldred H.; and Porterfield, Richard, 5,068,509, Cl. 219-85.160.
Posnansky, Mario, to Atlantis Energie AG. Radiation shield. 5,067,475, Cl. 126-418.000.
Posthuma, Sytze A.; de Graaf, Johannes D.; and Boelen, Jan, to Shell Oil Company. Process for the preparation of hydrocarbons. 5,068,254, Cl. 518-705.000.
Potel, Michael: *See*—
Batson, James; Beernink, Ernie; Fung, David; Potel, Michael; Cabral, Art; and Clark, Cary, 5,068,644, Cl. 340-701.000.
Potvin, Robert E.: *See*—
Brown, David M.; and Potvin, Robert E., 5,068,319, Cl. 534-759.000.
Poulin, Stephen V.: *See*—
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., 5,067,875, Cl. 416-114.000.
Power Planter, Inc.: *See*—
Niewold, D. Wayne; and Bradley, Richard A., 5,067,571, Cl. 175-394.000.
PPG Industries, Inc.: *See*—
Taljan, Dennis N.; and Price, R. Douglas, 5,068,288, Cl. 525-155.000.
Prashad, Nagindra, to Board of Regents, The University of Texas Sysem. Method of detecting ras oncogene related malignancies. 5,068,175, Cl. 435-6.000.
Prater, Rudy L.: *See*—
Miller, Glen E.; and Prater, Rudy L., 5,068,528, Cl. 250-231.130.
Precision Systems, Inc.: *See*—
Heath, Warren J.; Langner, Rene J.; and Bell, Charles A., 5,068,798, Cl. 364-497.000.
President and Fellows of Harvard College: *See*—
Essex, Myron E.; Allan, Jonathan S.; and Lee, Tun-Hou, 5,068,174, Cl. 435-5.000.
Prestas, Gregory C.: *See*—
Stark, William D.; and Prestas, Gregory C., 5,068,814, Cl. 364-580.000.
Previtali, Ezio: *See*—
Camin, Daniel V.; Pessina, Gianluigi; and Previtali, Ezio, 5,068,623, Cl. 330-277.000.
Price, R. Douglas: *See*—
Taljan, Dennis N.; and Price, R. Douglas, 5,068,288, Cl. 525-155.000.
Priester, Claus-Ulrich: *See*—
Merger, Franz; Fischer, Rolf; Harder, Wolfgang; Priester, Claus-Ulrich; and Vagt, Uwe, 5,068,398, Cl. 560-156.000.
Prieur-Drevon, Pascal, to Thomson-CSF. Device for reading out quantities of electrical charge supplied by photodiodes having a semiconductor substrate. 5,068,701, Cl. 357-24.000.
Prince Corporation: *See*—
Frye, Dale J.; and Suman, Michael J., 5,067,765, Cl. 296-97.800.
Lanser, Michael L.; VanderVeen, Steven E.; and Becker, David J., 5,067,764, Cl. 296-97.500.
Prins, Willem M.: *See*—
Mehlkopf, Antoon F.; and Prins, Willem M., 5,068,610, Cl. 324-312.000.
Probst, Anton: *See*—
von Werner, Konrad; and Probst, Anton, 5,068,415, Cl. 562-541.000.
Procter & Gamble Company, The: *See*—
McClanahan, Stephen F., 5,068,100, Cl. 424-52.000.
Proform Fitness Products, Inc.: *See*—
Watterson, Scott R.; Bersonnet, George B.; Dalebout, William T.; and Burk, Michael, 5,067,710, Cl. 272-129.000.
Progressive Blasting Systems, Inc.: *See*—
Hilbrands, Martin J., 5,067,285, Cl. 51-426.000.
Progressive Medical Design, Inc.: *See*—
Greear, John; and Fournier, Marc W., 5,067,497, Cl. 128-207.150.
Progressive Tool & Industries Co.: *See*—
Schlatter, Howard M.; and Wisne, Lawrence A., 5,067,606, Cl. 198-465.100.
Proietto, Vincenzo; and Salhi, Ali, to Sanofi. N-substituted lauramides, their preparation and compositions in which they are present. 5,068,064, Cl. 260-404.500.
Prometrix Corporation: *See*—
Corle, Timothy R.; Mallory, Chester L.; and Wasserman, Philip D., 5,067,805, Cl. 359-235.000.
Propietary Technology, Inc.: *See*—
Bartholomew, Donald D., 5,067,754, Cl. 285-319.000.
Pruett, Wayner P.: *See*—
Weaver, Max A.; Pruett, Wayner P.; and Hilbert, Samuel D., 5,068,348, Cl. 548-264.400.
Prutech Research and Development Partnership: *See*—
Cochran, Mark D.; Shih, Meng-Fu; and MacConnell, William P., 5,068,192, Cl. 435-235.100.
Puckett, Wallace E.; and Pews, R. Garth, to DowElanco. Process for the preparation of 3-mercapto-5-amino-(1H)-1,2,4-triazole. 5,068,347, Cl. 548-263.800.
Pugachev, Valery F.: *See*—
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Pulawski, Casimir: *See*—
Bjerklund, Gunnar; Ore, William C.; Pulawski, Casimir; and Notardonato, Luigi, 5,067,507, Cl. 137-3.000.
Pullen, Antoinette D., Legal Representative: *See*—
Nicklas, James R.; Bright, Gerald; Pullen, Eric V., deceased; and Nicklas, James R., 5,067,513, Cl. 137-98.000.
Pullen, Eric V., deceased: *See*—
Nicklas, James R.; Bright, Gerald; Pullen, Eric V., deceased; and Nicklas, James R., 5,067,513, Cl. 137-98.000.
Puppe, Lothar: *See*—
Klug, Gunter; Buysch, Hans-Josef; and Puppe, Lothar, 5,068,434, Cl. 564-399.000.
Purdue Research Foundation: *See*—
Logsdon, James H.; Staller, Steven E.; De Roo, David W.; and Neudeck, Gerold W., 5,068,203, Cl. 437-89.000.
Putnam, Peter H.; and Durcan, Michael P., to Ex-Cell-O GmbH. Machine tool. 5,067,284, Cl. 51-281.00R.
Quallich, George J.: *See*—
Murtiashaw, Charles W.; and Quallich, George J., 5,068,333, Cl. 546-116.000.
Quick-Tab Fasteners, Inc.: *See*—
Zylka, Karl H.; and Buckley, Augustus M., Jr., 5,067,865, Cl. 411-531.000.
Quickfire, Inc.: *See*—
Wagner, Alan M., 5,067,683, Cl. 248-545.000.
Quintin, Michel, to International Business Machines Corporation. Adaptive loop gain phase filter. 5,068,875, Cl. 375-78.000.
Quintron, Inc.: *See*—
Monroe, Marvin E., 5,068,002, Cl. 156-345.000.
R. D. Werner Co., Inc.: *See*—
Bartnicki, Frederick J., 5,067,589, Cl. 182-223.000.
Bendickson, Roy B., 5,067,588, Cl. 182-107.000.
R. J. Reynolds Tobacco Company: *See*—
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.
Rabaey, Dirk H. L. C.; and Haspeslagh, Didier R., to Alcatel N.V. Multi-access device. 5,068,848, Cl. 370-85.600.
Rabalais, J. Wayne, to University of Houston - University Park. Time-of-flight ion-scattering spectrometer for scattering and recoiling for electron density and structure. 5,068,535, Cl. 250-309.000.
Rachlin, Adam: *See*—
Babbitt, Richard W.; Rachlin, Adam; and Koscica, Thomas E., 5,068,627, Cl. 331-99.000.
Radcliffe, Michael. Flight training device for aircraft. 5,067,670, Cl. 244-119.000.
Radnis, Bernard. Oscillating plow apparatus. 5,067,853, Cl. 405-182.000.
Ragsdale, Kelly J.; and Brady, Cory, to Cover-Pools, Inc. Swimming pool anchor and removal tool. 5,067,213, Cl. 24-704.100.
Rahn, Oskar; and Riedisser, Gunter, to L. Schuler GmbH. Ejection device for ejecting a workpiece from a die in a forming press. 5,067,892, Cl. 425-556.000.
Ransburg Corporation: *See*—
Kosmyna, Michael J., 5,067,518, Cl. 137-588.000.
Ransom, Charles R. Rifle rest. 5,067,268, Cl. 42-94.000.
Rao, V. N. Mallikarjuna: *See*—
Kellner, Carl S.; Rao, V. N. Mallikarjuna; and Weigert, Frank J., 5,068,473, Cl. 570-176.000.
Rasberry, Leslie. Variable arrangement floral design jigsaw puzzle. 5,067,714, Cl. 273-157.00R.
Rast, James P. Method and apparatus for lining the interior surface of a high temperature chamber with heat insulation material. 5,067,420, Cl. 110-336.000.
Raufoss AS: *See*—
Brubak, Jens P.; Eftestol, Bard; and Ladiszlaidesz, Ferenc, 5,067,994, Cl. 148-415.000.
Rauleder, Hartwig; and Kotzch, Hans-Joachim, to Huels Aktiengesellschaft. Process for the production of organosilicon compounds. 5,068,382, Cl. 556-495.000.
Rauscher, Elli: *See*—
Schmidt, Axel; Von Der Eltz, Herbert; and Rauscher, Elli, 5,068,182, Cl. 435-22.000.
Raute Oy: *See*—
Toivio, Juha, 5,067,534, Cl. 144-209.00R.
Raychem Corporation: *See*—
Gors, Heinrich C.; Horner, Patrick J.; and Jansons, Viktors, 5,068,447, Cl. 568-309.000.
Jervis, James E., 5,067,957, Cl. 606-108.000.
Raynor, Robert J.; and Duncan, Budd L., to Olin Corporation. Hypochlorous acid as a reagent for the oxidation of organic compounds in two phase systems. 5,068,408, Cl. 562-419.000.
Raytheon Company: *See*—
Montanari, Dennis G.; Gentilman, Richard L.; and Tustison, Randal W., 5,067,781, Cl. 359-350.000.
Phalon, Philip A., Jr.; Caramiciu, Marius A.; and DiGiovanni, Robert C., 5,068,508, Cl. 219-85.160.
Schroter, John C., 5,068,872, Cl. 375-1.000.
Sklenak, John S.; Bowen, Robert F.; and Dudley, Kenneth W., 5,068,086, Cl. 422-21.000.
Reality Imaging Corporation: *See*—
Wake, Robert H., 5,068,808, Cl. 395-119.000.
Reddi, A. Harri: *See*—
Khouri, Roger K.; and Reddi, A. Harri, 5,067,963, Cl. 623-16.000.
Redlich, Robert W.; and Bliss, Douglas, to Data Instruments, Inc. Electrical linear position transducer with silicon steel foil shield surrounding transducer coil. 5,068,607, Cl. 324-207.160.
Reed, Michael A., to Environmental Products Corporation. Acoustic holographic array measurement device and related material. 5,068,835, Cl. 367-135.000.
Reed, Russell, Jr.: *See*—
Lundstrom, Norman H.; and Reed, Russell, Jr., 5,067,996, Cl. 149-19.400.
Reedrill, Inc.: *See*—
Stiffler, Stephen P.; Beach, Wayne H.; and Frost, Robert L., 5,067,262, Cl. 37-142.00R.
Reeve, Aubrey C.: *See*—
Holzhauer, Juergen K.; Brown, Albert P.; and Reeve, Aubrey C., 5,068,406, Cl. 562-413.000.
Reeves, Thomas C.: *See*—
Ritchey, Albert E.; and Reeves, Thomas C., 5,067,174, Cl. 2-10.000.
Refrigeration Sales, Inc.: *See*—
Jenks, James K.; and Lyke, Russell V., 5,067,521, Cl. 137-625.500.
Refurbished Turbine Components Limited: *See*—
Fraser, Michael J., 5,067,234, Cl. 29-889.100.
Regie Nationale Des Usines Renault: *See*—
Herent, Gerard; Mahe, Michel; and Romagny, Alex, 5,068,584, Cl. 318-549.000.
Reich, Stefan J. Capacity probe for liquid measurements. 5,068,617, Cl. 324-663.000.
Reid, Helen B. Concealed facial skin uplifting device. 5,067,482, Cl. 128-76.00B.
Reiffen, Manfred: *See*—
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.
Reiffenrath, Volker; Poetsch, Eike; Krause, Joachim; and Weber, Georg, to Merck Patent Gesellschaft mit Beschrankter Haftung. Ethyne derivatives as a component of liquid crystal phases. 5,068,053, Cl. 252-299.610.
Reifschneider, Walter; Bisabri-Ershadi, Barat; Dripps, James E.; and Barron, J. Brian, to Dow Chemical Company, The. N-(((alkoxy(alkylthio)phosphinyl)amino)carbonyl)-aminoalkanoate ester insecticides. 5,068,230, Cl. 514-115.000.
Reimer, Heinz: *See*—
Balzer, Dieter; Reimer, Heinz; and Friedrich, Werner, 5,068,422, Cl. 562-587.000.
Reinfelder, Hans-Erich: *See*—
Bruder, Herbert; Fischer, Hubertus; Schmitt, Franz; and Reinfelder, Hans-Erich, 5,068,609, Cl. 324-309.000.
Reinhall, Rolf B., to Sunds Defibrator AB. Stress regulator for pulp grinding apparatus and method. 5,067,660, Cl. 241-37.000.
Reliance Comm/Tec Corporation: *See*—
Bu-Abbud, 5,067,810, Cl. 356-73.100.
Reliance Electric Industrial Company: *See*—
Kosem, Marion; Cachat, Anthony J.; and Toth, Thomas D., 5,068,778, Cl. 364-138.000.
Relja, Frank S. Quick hitch assembly for coupling a vehicle and trailer. 5,067,742, Cl. 280-479.200.
REM Technologies, Inc.: *See*—
Brook, Warren R.; and Miller, William H., 5,068,800, Cl. 364-507.000.
Remboski, Donald J.; Plee, Steven L.; Yang, Jialin; Law, Robert W.; and Vincent, Michael T., to Barrack Technology Limited. Method and apparatus for operating an engine. 5,067,463, Cl. 123-425.000.
Resce, James L.: *See*—
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.
Resnick, Paul R.: *See*—
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.
Resnikoff, Howard L.; and Zettler, William, Jr., to Aware, Inc. Method and apparatus for representing an image. 5,068,911, Cl. 382-56.000.
Reusable Rolls, Inc.: *See*—
Carter, Leewood C., 5,067,418, Cl. 108-56.300.
Reuss, George D.: *See*—
Reuss, George F.; and Reuss, George D., 5,067,869, Cl. 414-544.000.
Reuss, George F.; and Reuss, George D. Automobile transportation apparatus. 5,067,869, Cl. 414-544.000.
Reynolds Consumer Products, Inc.: *See*—
Wirth, Lawrence W.; Wegner, Wayne M.; Tomic, Mladomir; Buchko, Raymond; and Natterer, Johann, 5,067,822, Cl. 383-61.000.
Reynolds, Donald A., to Don Reynolds International Limited. Building system. 5,067,293, Cl. 52-235.000.
Reynolds, Graham A., to Rolls-Royce plc. Rail guns. 5,067,387, Cl. 89-8.000.
Reynolds, John H., IV: *See*—
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Rezende, Joel: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Rhodes, Robert T., Jr., to Majco Building Specialties, L.P. Artificial log assembly including combustable log members. 5,067,476. Cl. 126-540.000.

Rhone-Poulenc Chimie: *See—*
Crochemore, Michel; and Rochin, Christophe, 5,068,450, Cl. 568-435.000.
Gubelmann, Michel; Rochin, Christophe; and Allandrieu, Christian, 5,068,391, Cl. 560-25.000.
Mignani, Gerard; and Lebrun, Jean-Jacques, 5,068,154, Cl. 428-446.000.

Rhone-Poulenc Inc.: *See—*
Vukov, Rastko; and Behnam, Basil A., 5,068,277, Cl. 524-441.000.

Rhone-Poulenc Sante: *See—*
Cordier, Georges; Fouilloux, Pierre; and Grosselin, Jean-Michel, 5,068,214, Cl. 502-185.000.
Jimonet, Patrick; and Nemecek, Conception, 5,068,238, Cl. 514-367.000.

Rhovyl: *See—*
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.

Rhow, Harold: *See—*
Wang, Lawrence K.; Wang, Mu H. S.; Hwang, Chong S.; and Rhow, Harold, 5,068,031, Cl. 210-96.100.

Ribitch, Raymond, to Hitachi Metals International, Ltd. Method of applying phosphate conversion coatings to Fe-R-B substrates, and Fe-R-B articles having a phosphate conversion coating thereon. 5,067,990, Cl. 148-262.000.

Riccioni, Giovanna: *See—*
Lovrecich, Mara L.; and Riccioni, Giovanna, 5,068,111, Cl. 424-469.000.

Rich Ideas, Inc.: *See—*
Movrich, Wayne, 5,067,547, Cl. 160-327.000.

Richard, Fred V.: *See—*
Jaskie, James E.; Lebby, Michael S.; and Richard, Fred V., 5,067,829, Cl. 385-8.000.

Richburg, James B. Cylindrical sieve for meat deboning apparatus and method. 5,067,926, Cl. 452-135.000.

Richer, Raymond P. Planter. 5,067,286, Cl. 52-27.000.

Richmond, James W.; and Block, John J., to Stryker Corporation. Articular surface repair. 5,067,964, Cl. 623-18.000.

Richter, Dag: *See—*
Bosswell, Peter; Richter, Dag; Berce, Tatjana; and Negaty-Hindi, Guy, 5,067,554, Cl. 164-463.000.

Richter, Wolfgang; Fischer, Rolf; and Vagt, Uwe, to BASF Aktiengesellschaft. Preparation of caprolactone. 5,068,361, Cl. 549-273.000.

Richwine, Mark H. Lawn edging. 5,067,273, Cl. 47-33.000.

Rick, Bernard J.: *See—*
Nesser, Thomas A.; Nesser, Deborah L.; Joslyn, Edward P.; Rick, Bernard J.; Luckower, Herbert; and Barczak, John P., 5,067,630, Cl. 221-76.000.

Rickard, Brent N. Vertical filing device. 5,067,780, Cl. 312-193.000.

Ricoh Company, Ltd.: *See—*
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.
Hiroe, Akihiko, 5,068,526, Cl. 250-214.00R.
Suzuki, Takumi; and Uehara, Kiyohiro, 5,067,796, Cl. 359-88.000.
Tsuji, Takahiro, 5,068,540, Cl. 250-561.000.
Yoshida, Yoshiki; and Asada, Kenichirou, 5,068,676, Cl. 346-108.000.

Rideout, Janet L.: *See—*
Koszalka, George W.; Burns, Charlene L.; Krenitsky, Thomas A.; and Rideout, Janet L., 5,068,320, Cl. 536-24.000.

Ridgway, Richard W.: *See—*
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.

Ridings, Henry T.: *See—*
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Riedisser, Gunter: *See—*
Rahn, Oskar; and Riedisser, Gunter, 5,067,892, Cl. 425-556.000.

Riegel, Ulrich: *See—*
Engelhardt, Friedrich; Riegel, Ulrich; Gersdorf, Joachim; and Kleiner, Hans-Jerg, 5,068,298, Cl. 526-240.000.

Riello, Christopher S.: *See—*
Baker, Walter J.; and Riello, Christopher S., 5,067,305, Cl. 53-411.000.

Rienmueller, Rainer; Kalender, Willi; and Seissler, Wolfgang, to Siemens Aktiengesellschaft. Device for generating trigger signals for a medical apparatus dependent on the respiratory activity of a patient. 5,067,494, Cl. 128-653.100.

Riggin, Ralph M.: *See—*
Becker, Gerald W.; and Riggin, Ralph M., 5,068,317, Cl. 530-399.000.

Rim, Peter B.: *See—*
Nelson, Charles J.; Bheda, Jayendra H.; Rim, Peter B.; and Turner, James M., 5,067,538, Cl. 152-451.000.

Rinkavage, Raymond M. Method of playing a poker game. 5,067,724, Cl. 273-292.000.

Ritchey, Albert E.; and Reeves, Thomas C. Protective headgear. 5,067,174, Cl. 2-10.000.

Ritt, Renzer R., Sr.: *See—*
Wheless, Jack C.; Keen, Billy J., Jr.; and Ritt, Renzer R., Sr., 5,067,498, Cl. 131-88.000.

Ritter, Joachim; and Hochmuth, Harald, to INA Walzlager Schaeffler KG. Load-switching overrunning clutch. 5,067,598, Cl. 192-7.000.

Ritzer, Edwin: *See—*
Diehl, Herbert; Blank, Heinz U.; and Ritzer, Edwin, 5,068,428, Cl. 564-134.000.

Rivinius, Helmut: *See—*
Klingler, Otto; Gruhler, Siegfried; and Rivinius, Helmut, 5,068,653, Cl. 340-870.370.

Rix, David M.; Long, Martin W.; Lee, Thomas R.; and Dawes, Douglas E., to Cummins Engine Company, Inc. Fuel injector for an internal combustion engine. 5,067,464, Cl. 123-446.000.

Rizk, Reda: *See—*
Finsterwalder, Gerhard; Rizk, Reda; and Michels, Hans G., 5,067,880, Cl. 417-495.000.

Robb, Jenifer L., to Tioxide Group PLC. Aqueous dispersions of acicular titanium dioxide. 5,068,056, Cl. 252-313.100.

Robbins, John A.; Zarian, Jamshid J.; and Willford, Sandford R., to Lumenyte International Corporation. Linear optical conduits. 5,067,831, Cl. 385-123.000.

Robbins, John D.: *See—*
Fernandez, Antonio; Gaggioni, Hugo P.; Jaquez, Martin J.; Robbins, John D.; and Soper, E. Scott, 5,068,650, Cl. 340-799.000.

Robert Bosch GmbH: *See—*
Burger, Wilfried; Nitschke, Werner; Taufer, Peter; and Weller, Hugo, 5,068,640, Cl. 340-438.000.
Condne, Claus; Mattes, Bernhard; and Schmalz, Dieter, 5,068,793, Cl. 364-424.050.
Conzelmann, Gerhard; Haack, Dietmar; and Fiedler, Gerhard, 5,068,703, Cl. 357-36.000.
Joachim, Ernst-Ulrich; and Kull, Hermann, 5,067,461, Cl. 123-357.000.
Seipler, Dieter, 5,068,714, Cl. 357-80.000.

Roberts, William O.: *See—*
Cole, James A.; Roberts, William O.; and Turgeon, Joseph T., 5,068,134, Cl. 427-376.200.

Robertshaw Controls Company: *See—*
Genbauffe, Francis S., 5,067,651, Cl. 236-15.00A.

Robinett, Scott: *See—*
Buford, Thomas B., III; Brosnahan, Robert; Robinett, Scott; and Clark, James, 5,067,956, Cl. 606-73.000.

Robinson, Jeffrey I., to Star Semiconductor Corporation. Programmable integrated circuit using topological and parametric data to selectively connect and configure different high level functional blocks thereof. 5,068,823, Cl. 395-500.000.

Robles, Jerry: *See—*
Nichols, Robert N., 5,067,944, Cl. 604-192.000.

Robur Maskin AB: *See—*
Andersson, Morgan, 5,067,421, Cl. 111-36.000.

Rochin, Christophe: *See—*
Crochemore, Michel; and Rochin, Christophe, 5,068,450, Cl. 568-435.000.
Gubelmann, Michel; Rochin, Christophe; and Allandrieu, Christian, 5,068,391, Cl. 560-25.000.

Rockwell International Corporation: *See—*
Culp, Gordon W., 5,068,566, Cl. 310-328.000.
Sullivan, Gerard J.; Pedrotti, Kenneth D.; and Kroemer, Herbert, 5,067,828, Cl. 385-3.000.
Sutherland, Dennis W., 5,068,656, Cl. 340-989.000.
Szabo, Steve B.; and Chien, Daniel G., 5,067,732, Cl. 277-11.000.

Rode, Walter H. Spillproof oil well seal. 5,067,563, Cl. 166-84.000.

Roder, Manfred; and Konrad, Andreas, to Fichtel & Sachs AG. Arrangement for controlling a motor friction clutch. 5,067,599, Cl. 192-0.320.

Rodewald, Paul G.: *See—*
Chen, Catherine S. H.; and Rodewald, Paul G., 5,068,048, Cl. 252-52.00A.

Rodgers, Juliana: *See—*
Falk, Robert A.; Clark, Kirkland P.; Jacobson, Michael; Karydas, Athanasios; and Rodgers, Juliana, 5,068,397, Cl. 560-150.000.

Rodriques, Karen E.: *See—*
Brooks, Dee W.; and Rodriques, Karen E., 5,068,251, Cl. 514-506.000.

Roehl, Franz: *See—*
Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,245, Cl. 514-429.000.

Rogers, John E. Seat cushions and body supports, and fitting instruments for the same. 5,068,504, Cl. 200-85.00R.

Rogers, Russell L.: *See—*
Maiville, Randolph L.; and Rogers, Russell L., 5,067,752, Cl. 285-119.000.

Rogers, Stephen P.; and Lebby, Michael S., to Motorola, Inc. Etching of materials in a noncorrosive environment. 5,068,007, Cl. 156-643.000.

Rohm Co., Ltd.: *See—*
Kurita, Yoshio; and Akamatsu, Akira, 5,068,206, Cl. 437-220.000.

Nakamura, Nobuyuki; Sakamoto, Yuji; Kawakami, Takashi; and Ohkubo, Shinya, 5,067,229, Cl. 29-566.100.

Rohm and Haas Company: *See—*
Bayer, Horst O.; Lange, Barry C.; and Petigara, Ramesh B., 5,068,338, Cl. 548-101.000.
Petigara, Ramesh B.; Leister, Norman A.; Pendell, Barry J.; and Woodruff, Robert A., 5,068,344, Cl. 548-213.000.

Roley, George: *See—*
Schossig, Juergen; Koppenhoffer, Gerhard; Irgang, Matthias; Schnur, Rudi; and Roley, George, 5,068,468, Cl. 568-861.000.

Rolfe, Gary, to Lawrence, Neil. Resettable sandglass-type timing device which provides selective timing periods. 5,068,839, Cl. 368-93.000.

Rollerblade, Inc.: *See—*
Olson, Brennan J.; and Brace, Thomas J., 5,067,736, Cl. 280-11.200.

Rolls-Royce plc: *See—*
Reynolds, Graham A., 5,067,387, Cl. 89-8.000.

Rolscreen Company: *See—*
Hagemeyer, Bruce A., 5,067,279, Cl. 49-471.000.

Romagny, Alex: *See—*
Herent, Gerard; Mahe, Michel; and Romagny, Alex, 5,068,584, Cl. 318-549.000.

Ronzoni, Enrico, to Gildemeister Italiana S.p.A. Clamping device for locking the workpiece-carrying collet in automatic machine tools. 5,067,735, Cl. 279-1.00F.

Roosen, Johannes H. J.: *See—*
de Vrieze, Henricus M.; Roosen, Johannes H. J.; and Vriens, Leendert, 5,068,568, Cl. 313-474.000.

Rosa, John, to Westinghouse Electric Corp. 24-pulse hexagon-type AC/DC static converter. 5,068,774, Cl. 363-3.000.

Rose, Burkhard: *See—*
Tennigkeit, Jurgen; and Rose, Burkhard, 5,068,102, Cl. 424-72.000.

Rosen, Samuel R.: *See—*
DeVries, James E.; Rosen, Samuel R.; and Schneider, Robert D., 5,067,882, Cl. 417-511.000.

Rosen, Warren A.: *See—*
Kline, Todd A.; Rosen, Warren A.; Bermingham, William J.; and Alfonsi, Eric A., 5,068,880, Cl. 375-116.000.

Rosenfeld, Anne; and Barkman, Frank. Sanitary device. 5,067,194, Cl. 15-144.00A.

Rosenthal, Robert D., to Futrex, Inc. Method for providing custom calibration for near infrared instruments for measurement of blood glucose. 5,068,536, Cl. 250-341.000.

Roskowiak, Robert W.: *See—*
Chanen, Michael J.; and Roskowiak, Robert W., 5,068,114, Cl. 426-69.000.

Ross Operating Valve Company: *See—*
Russell, Neil E.; and Libby, Owen H., 5,067,519, Cl. 137-596.140.

Roth, Josef, to Karl Mayer Textilmaschinenfabrik GmbH. Guide bar bearing for warp knitting machines. 5,067,332, Cl. 66-207.000.

Roti, Joseph S.: *See—*
Go, Winston S.; Roti, Joseph S.; Lang, Mark G.; and Weiss, Charles O., 5,068,059, Cl. 252-389.530.

Roukema, Mees: *See—*
Pennings, Albert J.; and Roukema, Mees, 5,068,073, Cl. 264-205.000.

Roussel Uclaf: *See—*
Bonit, Marc; and Demoute, Jean-Pierre, 5,068,229, Cl. 514-114.000.
Moura, Anne-Marie; Clemence, Francois; Frechet, Daniel; and Fortin, Michel, 5,068,244, Cl. 514-428.000.

Rowe International, Inc.: *See—*
Dekker, Donald A., 5,067,701, Cl. 271-7.000.

Rowe, Ransom, to K&R Manufacturing, Inc. Drive adapter for firearm cartridge reloader. 5,067,383, Cl. 86-23.000.

Roy, Aroop K., to Dow Corning Corporation. Method for preparing sulfonimidoyl halides. 5,068,379, Cl. 556-422.000.

Royal Institution for the Advancement of Learning (McGill University), The: *See—*
Hunter, Ian W., 5,067,509, Cl. 137-14.000.

Rubertone, Joseph A.: *See—*
Schweighardt, Frank K.; and Rubertone, Joseph A., 5,068,098, Cl. 424-9.000.

Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., to Yellow Freight System, Inc. Conveyor for mixed freight handling system. 5,067,867, Cl. 414-391.000.

Ruebsam, Klemens: *See—*
Heinz, Jochen; Krug, Thomas; Ruebsam, Klemens; and Kessler, Hans, 5,068,915, Cl. 392-389.000.

Ruf, Erich, to Th. Goldschmidt AG. Method for the preparation of anhydrous tin-(IV)-carboxylates. 5,068,373, Cl. 556-105.000.

Ruf, Erich, to T. Goldschmidt AG. Method for the preparation of anhydrous tin-dicarboxylate-dihalides. 5,068,374, Cl. 556-105.000.

Ruf, Reinhold: *See—*
Aschaber, Hans; Bailer, Rudolf; Fochler, Fritz; Kleinstauber, Bernd; and Ruf, Reinhold, 5,067,937, Cl. 493-310.000.

Ruger, Wolfgang: *See—*
Nickel, Wolf-Ulrich; Ruger, Wolfgang; Urbach, Hansjorg; and Hock, Franz, 5,068,242, Cl. 514-412.000.

Ruppen, Mark E.; and Hagedorn, Scott, to Celgene Corporation. Hydroxyterephthalic acid. 5,068,414, Cl. 562-508.000.

Rupprecht, Kathleen M.: *See—*
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Rupprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.

Russeler, Wolfgang: *See—*
Dorf, Ernst-Ulrich; Russeler, Wolfgang; Kohler, Burkhard; Ebert, Wolfgang; and Schmitt, Walter, 5,068,312, Cl. 528-388.000.

Russell, Neil E.; and Libby, Owen H., to Ross Operating Valve Company. Safety valve for fluid systems. 5,067,519, Cl. 137-596.140.

Rutherford, Hal; and Taub, Floyd, to Applied Imaging Corporation. Method and apparatus for generating quantifiable video displays. 5,068,909, Cl. 382-49.000.

Ryan, Dana W.; Kaiser, James M.; and Hinsch, Robert M., to Ryan Medical, Inc. Safety needled medical devices capable of one-handed manipulation. 5,067,945, Cl. 604-198.000.

Ryan Medical, Inc.: *See—*
Ryan, Dana W.; Kaiser, James M.; and Hinsch, Robert M., 5,067,945, Cl. 604-198.000.

Ryan, Timothy R.: *See—*
Lindley, Daniel D.; Curtis, Thomas A.; Ryan, Timothy R.; de la Garza, Edward M.; Hilton, Charles B.; and Kenesson, Thomas M., 5,068,448, Cl. 568-319.000.

Rypka, Dann B., to Owatonna Tool Company. Automatic coupling system. 5,067,694, Cl. 269-20.000.

S. C. Johnson & Son, Inc.: *See—*
Sramek, John A., 5,068,099, Cl. 424-47.000.

Saeki, Junichi: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Saeki, Toshiro, to Seikosha Co., Ltd. IC holder. 5,067,911, Cl. 439-526.000.

Safe T.V., Inc.: *See—*
Herlitz, Nils G.; Iglehart, Karl I.; and Sentell, John S., 5,068,720, Cl. 358-100.000.

Sagawa, Tetsuya, to AMP Incorporated. Electrical connector. 5,067,913, Cl. 439-595.000.

Sahai, Om P.: *See—*
Knuth, Mark E.; and Sahai, Om P., 5,068,184, Cl. 435-41.000.

St. Angelo, Stephen, Jr.; Lucci, John J.; Carver, George C.; Heads, Alan; and Mitchell, James F., to General Motors Corporation. Method of a robot for installing weather stripping in a door or like opening. 5,067,225, Cl. 29-451.000.

St. Germain, Gene R., to Caterpillar Inc. Load check and pressure compensating valve. 5,067,389, Cl. 91-446.000.

St. John, Michael R.: *See—*
Bhattacharyya, Bhupati R.; and St. John, Michael R., 5,068,297, Cl. 526-287.000.

St. Phillips, Eric A.: *See—*
Grosz, Edward G.; Herrington, Fox J.; and St. Phillips, Eric A., 5,067,633, Cl. 221-279.000.
Herrington, F. John, Jr.; and St. Phillips, Eric A., 5,067,208, Cl. 24-400.000.

Saito, Keikichi: *See—*
Uchida, Tadahiro; Shimamura, Kuniyuki; Nogawa, Hayabu; Saito, Keikichi; and Hara, Minoru, 5,067,938, Cl. 494-12.000.

Saito, Mitsuo: *See—*
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Saito, Shigeru: *See—*
Fukada, Eiichi; Saito, Shigeru; Yagi, Toshiharu; and Higashihata, Yoshihide, 5,067,488, Cl. 128-777.000.

Saitou, Tetuji: *See—*
Yoshida, Yzo; Saitou, Tetuji; and Momose, Yoshiaki, 5,068,136, Cl. 428-35.700.

Sajtos, Alexander; Kloimstein, Engelbert; Hollinger, Karl; and Farnlettner, Lorenz, to Chemie Linz Gesellschaft m.b.H. Process for the continuous preparation of glyoxylic acid. 5,068,417, Cl. 562-577.000.

Sakagawa, Kazuo: *See—*
Nojima, Satoshi; Sakagawa, Kazuo; and Suzuki, Hideo, 5,068,820, Cl. 395-275.000.

Sakaguchi, Takashi, to Kabushiki Kaisha Toshiba. Delta-sigma modulation analog to digital converter. 5,068,659, Cl. 341-143.000.

Sakai, Ichiro; Arai, Yasuhisa; Yamamoto, Masataka; and Matsui, Hiroki, to Honda Giken Kogyo Kabushiki Kaisha. Vehicle automatic transmission control system. 5,067,374, Cl. 74-866.000.

Sakai, Isoji: *See—*
Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, 5,067,797, Cl. 359-76.000.

Sakai, Takayuki: *See—*
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.

Sakamoto, Kiichiro: *See—*
Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, 5,068,742, Cl. 358-296.000.

Sakamoto, Yuji: *See—*
Nakamura, Nobuyuki; Sakamoto, Yuji; Kawakami, Takashi; and Ohkubo, Shinya, 5,067,229, Cl. 29-566.100.

VOL 1132 ISS 4 NO 26 1991 UMI

Sakashita, Katsuaki: *See—*
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.

Sakashita, Takeshi: *See—*
Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, 5,068,400, Cl. 560-223.000.

Sakayori, Akio: *See—*
Tsuihiji, Yutaka; and Sakayori, Akio, 5,067,704, Cl. 271-262.000.

Sakuma, Kouichi, to Suzuki Manufacturing Co., Ltd. Buttonhole sewing machine. 5,067,422, Cl. 112-68.000.

Sakura Finetechnical Co., Ltd.: *See—*
Toya, Matsumi, 5,068,091, Cl. 422-99.000.

Sakurada, Koichi: *See—*
Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, 5,068,082, Cl. 376-428.000.

Sakurai, Keiichi: *See—*
Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, 5,068,148, Cl. 428-335.000.

Sakurai, Shoji: *See—*
Imanaka, Tadayuki; and Sakurai, Shoji, 5,068,194, Cl. 435-252.500.

Sakurai, Shungo: *See—*
Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, 5,068,082, Cl. 376-428.000.

Salaba, Timothy A.; and Wilfong, Debra L., to Minnesota Mining and Manufacturing Company. Reaction injection molding machine. 5,067,886, Cl. 425-145.000.

Salhi, Ali: *See—*
Proietto, Vincenzo; and Salhi, Ali, 5,068,064, Cl. 260-404.500.

Samejima, Masayoshi; Noda, Kazuo; Hirakawa, Yoshiyuki; and Yoshino, Hiroyuki, to Tanabe Seiyaku Co., Ltd. Controlled release pharmaceutical preparation and method for producing the same. 5,068,112, Cl. 424-495.000.

Samsung Electron Devices Co., Ltd.: *See—*
Won, Song, 5,068,157, Cl. 428-690.000.

Samsung Electronics Co., Ltd.: *See—*
Chang, Kyujeong, 5,068,699, Cl. 357-23.700.
Choi, Kwang-Moon, 5,068,758, Cl. 360-96.600.
Kang, Laegu; and Kim, Kyungtae, 5,068,200, Cl. 437-52.000.
Ki-Joon, Kim, 5,068,516, Cl. 219-388.000.
Oh, Tae S., 5,067,473, Cl. 126-113.000.

San Andres, Luis A.: *See—*
Vance, John M.; and San Andres, Luis A., 5,067,825, Cl. 384-99.000.

Sanden Corporation: *See—*
Ishii, Yutaka, 5,067,562, Cl. 165-146.000.

Sanderson, John R.; and Marquis, Edward T., to Texaco Chemical Company. Simultaneous epoxide and carboxylic acid manufacture by co-oxidation in the presence of a cobalt catalyst. 5,068,366, Cl. 549-533.000.

Sanderson, Neil E.: *See—*
Bradshaw, Neil; and Sanderson, Neil E., 5,068,534, Cl. 250-288.000.

Sandhaus, Jeffrey J., to Population Counsil, Inc., The. Apparatus for effecting occlusion of target vessels or tissue. 5,067,958, Cl. 606-142.000.

Sandhu, Gurtej S., to Micron Technology, Inc. Method for anodizing a polysilicon layer lower capacitor plate of a DRAM to increase capacitance. 5,068,199, Cl. 437-52.000.

Sandler, Stanley R.; Schon, Steven G.; and Gardner, David M., to Atochem North America, Inc. Process for the preparation of alkane- and arenesulfonamides. 5,068,427, Cl. 564-84.000.

Sanford, Edward L.: *See—*
Dunlap, Richard L.; and Sanford, Edward L., 5,067,890, Cl. 425-504.000.

Sankyo Company, Limited: *See—*
Nakamura, Norio; Koike, Hiroyuki; and Oshima, Takeshi, 5,068,340, Cl. 548-119.000.

Sannohe, Kanetaro: *See—*
Nakamura, Yoshinobu; Sannohe, Kanetaro; Sohama, Yoshio; Iwasaki, Toru; and Yamano, Sumiko, 5,068,150, Cl. 428-407.000.

Sano, Yoshiyuki: *See—*
Takagaki, Hidetsugu; Nakanishi, Shigenori; Abe, Masayoshi; Ohki, Hiromi; and Sano, Yoshiyuki, 5,068,364, Cl. 549-415.000.

Sanofi: *See—*
Proietto, Vincenzo; and Salhi, Ali, 5,068,064, Cl. 260-404.500.

Sanshin Industries Co., Ltd.: *See—*
Nakase, Ryoichi; and Mineo, Shigeharu, 5,067,448, Cl. 123-41.310.
Okita, Ryozo, 5,067,919, Cl. 440-61.000.

Sanshin Kogyo Kabushiki Kaisha: *See—*
Takashima, Kazutoshi, 5,067,453, Cl. 123-193.00P.

Sansone, Ronald P.; and Schumacher, Karl H., to Pitney Bowes Inc. Optimizing mail delivery systems by routing. 5,068,797, Cl. 364-478.000.

Santangelo, John, to Codman & Shurtleff, Inc. Low wear bearing for a surgical retractor. 5,067,477, Cl. 128-20.000.

Santel, Hans-Joachim: *See—*
Andree, Roland; Haug, Michael; Santel, Hans-Joachim; Schmidt, Robert R.; and Strang, Harry, 5,068,394, Cl. 560-56.000.

Santos, Luiz D.: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Sanwa Diamond Industrial Co., Ltd.: *See—*
Matsuda, Yusaku, 5,067,969, Cl. 51-293.000.

Sanyo Electric Co., Ltd.: *See—*
Ishiguro, Kazuhisa; and Sekiguchi, Yutaka, 5,068,544, Cl. 307-268.000.
Nagasawa, Naobumi; and Arai, Hiroyuki, 5,068,856, Cl. 371-37.500.

Saratoga Spa & Bath Co.: *See—*
Gardenier, John, 5,067,228, Cl. 29-525.100.

Sarcos Group: *See—*
Jacobsen, Stephen C.; Iversen, Edwin K.; Knutti, David F.; and Davis, Clark C., 5,067,512, Cl. 137-83.000.

Saringer, John; and Galbreath, Andrew, to Toronto Medical Corp. Continuous passive motion device. 5,067,479, Cl. 128-26.000.

Sasa, Nobumasa; Shimizu, Kunio; and Watanabe, Manabu, to Konica Corporation. Method for transferring images and an apparatus used therefor. 5,068,689, Cl. 355-107.000.

Sasaki, Makoto; Takatsu, Haruyoshi; and Takeuchi, Kiyofumi, to Dainippon Ink and Chemicals, Inc. Fluorine-substituted compound containing ether bond and intermediate thereof. 5,068,462, Cl. 568-661.000.

Sasaki, Masaomi: *See—*
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.

Sasaki, Shigeo: *See—*
Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, 5,068,247, Cl. 514-440.000.

Satake Engineering Co., Ltd.: *See—*
Satake, Toshihiko; and Onogi, Yukio, 5,068,559, Cl. 310-112.000.

Satake, Toshihiko; and Onogi, Yukio, to Satake Engineering Co., Ltd. Induction motor switchable between series delta and parallel wye. 5,068,559, Cl. 310-112.000.

Sato, Kazuhiko, to Diesel Kili Co., Ltd. Differential gear mechanism. 5,067,934, Cl. 475-227.000.

Sato, Koichi; and Ikeda, Masami, to Canon Kabushiki Kaisha. Liquid jet recording head stabilization. 5,068,674, Cl. 346-1.100.

Sato, Kunihito: *See—*
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Sato, Masato: *See—*
Ueno, Tsugio; Sato, Masato; and Mori, Yoshiaki, 5,067,231, Cl. 29-809.000.

Sato, Osamu: *See—*
Kawasaki, Masahiro; and Sato, Osamu, 5,068,680, Cl. 354-286.000.

Sato, Ryo: *See—*
Nakagawa, Akio; Imamura, Kaoru; Sato, Ryo; and Hoshi, Tadahide, 5,068,704, Cl. 357-38.000.

Sato, Shigehiro: *See—*
Tsuyuki, Takao; Sato, Shigehiro; and Ootani, Tetsuo, 5,068,517, Cl. 219-543.000.

Sato, Shinichi, to Fujitsu Limited. Signal processing circuit of a bar code reader. 5,068,520, Cl. 235-462.000.

Sato, Yoshihiro: *See—*
Fujisawa, Masao; Tagomori, Satoshi; Takasaki, Mamoru; and Sato, Yoshihiro, 5,067,851, Cl. 405-115.000.

Satoh, Atsushi: *See—*
Furusawa, Toshihiro; Satoh, Atsushi; Nakajima, Takashi; and Matsugishi, Noriaki, 5,068,068, Cl. 264-23.000.

Satoh, Yutaka, to Hitachi, Ltd. Video display apparatus. 5,068,732, Cl. 358-180.000.

Sauer, Joe D.: *See—*
Borland, James E.; Chen, Y.-D. Mark; Sauer, Joe D.; Smith, Kim R.; and Smith, Rebecca F., 5,068,430, Cl. 564-298.000.

Sauk Valley Equipment Company: *See—*
King, James L., Sr.; King, James L., Jr.; and Pope, John, 5,067,590, Cl. 184-15.100.

Sauter Feinmechanik GmbH: *See—*
Sauter, Willy; Thumm, Helmut; Wahl, Rainer; and Widmann, Dieter, 5,067,371, Cl. 74-813.00L.

Sauter, Hubert: *See—*
Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,245, Cl. 514-429.000.
Zipplies, Matthias; Sauter, Hubert; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, 5,068,246, Cl. 514-429.000.

Sauter, Robert: *See—*
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.

Sauter, Willy; Thumm, Helmut; Wahl, Rainer; and Widmann, Dieter, to Sauter Feinmechanik GmbH. Method and apparatus to control locking of a tool turret. 5,067,371, Cl. 74-813.00L.

Savage, John M., Jr. Reflector lens cap and/or clip for LED. 5,068,771, Cl. 362-255.000.

Savant Instruments, Inc.: *See—*
Zlobinsky, Yury; and Mattes, Donald A., 5,067,251, Cl. 34-5.000.

Savelainen, Matti, to Instrumentarium Corp. Measuring procedure for the elimination of faults from an NMR signal by comparing RF field components spinning in opposite directions. 5,068,611, Cl. 324-314.000.

Savrun, Ender: *See—*
Giunchi, Giovanni; Savrun, Ender; Grenni, Alberto; and Chen, Ching-Fong, 5,068,211, Cl. 501-98.000.

Sawa, Takao; and Okamura, Masami, to Kabushiki Kaisha Toshiba. Fe-based soft magnetic alloy. 5,067,991, Cl. 148-305.000.

Sawada, Hideo; and Nakayama, Masaharu, to Nippon Oil & Fats Co., Ltd. Polyfluoroalkanoyl peroxide. 5,068,454, Cl. 568-566.000.

Sawada, Kenji: *See—*
Kamimura, Kuniaki; Sawada, Kenji; and Yamade, Yasushi, 5,068,687, Cl. 355-45.000.

Sawaki, Shohei: *See—*
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.

Sawato, Tatsuya: *See—*
Itakura, Tadakatsu; and Sawato, Tatsuya, 5,067,368, Cl. 74-560.000.

Scala, Eraldus, to Cortland Cable Company, Inc. Braider method and apparatus for manufactured faired rope or cable. 5,067,384, Cl. 87-6.000.

Scapa, Inc.: *See—*
Maguire, Michael, 5,067,217, Cl. 29-121.300.

Schaap, Arthur P.; and Akhavan-Jaffi, Hashem, to Board of Governors of Wayne State University. Enhanced chemiluminescence from 1,2-dioxetanes through energy transfer to tethered fluorescers. 5,068,339, Cl. 548-110.000.

Schaefer, Fritz P.; Szatmari, Sandor; and Jethwa, Jaydev, to Max-Planck-Gesellschaft zur Foerderung der Wissenschaften e.V. Apparatus for measuring the duration of single optical radiation pulses. 5,068,525, Cl. 250-213.0VT.

Schaefer, George F.: *See—*
Periana, Roy A.; and Schaefer, George F., 5,068,407, Cl. 562-416.000.

Schaefer, Thomas J.; and Shur, Robert D., to VLSI Technology, Inc. Event-controlled LCC stimulation. 5,068,812, Cl. 364-578.000.

Schafer, Peter: *See—*
Lehr, Hans-Thomas; and Schafer, Peter, 5,068,792, Cl. 364-424.050.

Schaffer, Ronald R.: *See—*
Egner, Walter A.; Schaffer, Ronald R.; Stauffer, Larry R.; and Warner, Gary N., 5,067,226, Cl. 29-452.000.

Schauflinger, Hans: *See—*
Hilz, Wolfgang; Schuster, Rudolf; and Schauflinger, Hans, 5,068,600, Cl. 324-158.00F.

Schaule, Max W.: *See—*
Titcomb, Forrest; Cordova, Jackie; and Schaule, Max W., 5,067,528, Cl. 141-4.000.

Scherk, Randall P.; and Steneker, Daniel J., to AFD Systems, Inc. Interactive facsimile information retrieval system and method. 5,068,888, Cl. 379-100.000.

Scheuneman, James H.; and Fontaine, Lawrence R., to Unisys Corp. Accessing control with predetermined priority based on a feedback arrangement. 5,068,782, Cl. 395-425.000.

Schiessl, Henry W., to Olin Corporation. Process for minimizing residual free hydrazine in polymer latices. 5,068,313, Cl. 528-483.000.

Schildknecht, Manfred; and Honcia, Gunter, to Battelle Institut e.V. Shaped charge for combating armored targets. 5,067,409, Cl. 102-476.000.

Schilling, Harold D. Forage feeding device. 5,067,442, Cl. 119-60.000.

Schiltmans, Ronald P. A.: *See—*
Verheijen, Paulus A. M.; and Schiltmans, Ronald P. A., 5,068,918, Cl. 455-142.000.

Schingnitz, Gunter: *See—*
Grell, Wolfgang; Hurnaus, Rudolf; Reiffen, Manfred; Sauter, Robert; Pichler, Ludwig; Kobinger, Walter; Entzeroth, Michael; Mierau, Joachim; and Schingnitz, Gunter, 5,068,325, Cl. 514-215.000.

Schirbl, Reinhard; Deinhardt, Gunther; and Kasowski, Hermann, to Siemens Aktiengesellschaft. Electronic modules. 5,067,785, Cl. 385-38.000.

Schissel, David N.; and Haitko, Deborah A., to General Electric Company. Bisimidodiphenol derivatives. 5,068,352, Cl. 548-461.000.

Schissel, David N.: *See—*
Yeager, Gary W.; and Schissel, David N., 5,068,457, Cl. 568-633.000.

Schlatter, Howard M.; and Wisne, Lawrence A., to Progressive Tool & Industries Co. Clamp actuating system for a conveyor carried clamping frame. 5,067,606, Cl. 198-465.100.

Schlingmann, Merten; Keller, Reinhold; Wiesner, Matthias; Treder, Wolfgang; and Thiem, Joachim, to Hoechst Aktiengesellschaft. Process for the enzymatic preparation of disaccharide fluorides using α-glycosyl fluorides as substrates. 5,068,186, Cl. 435-96.000.

Schlueter, Charles. Clamp-hub. 5,067,845, Cl. 403-344.000.

Schlumberger Industries, S.A.: *See—*
De Rego, Andre , 5,068,074, Cl. 264-257.000.

Schlussler, Jim: *See—*
Sichmann, Eggo; Fritsche, Wolf-Eckart; and Schlussler, Jim, 5,068,021, Cl. 204-192.140.

Schmalz, Dieter: *See—*
Condne, Claus; Mattes, Bernhard; and Schmalz, Dieter, 5,068,793, Cl. 364-424.050.

Schmidhammer, Ludwig; Haselwarter, Klaus; Klaus, Hermann; and Mohr, Klaus-Peter, to Wacker-Chemie GmbH. Process for purifying unreacted 1,2-dichloroethane from a 1,2-dichloroethane pyrolysis process. 5,068,475, Cl. 570-262.000.

Schmidt, Axel; Von Der Eltz, Herbert; and Rauscher, Elli, to Boehringer Mannheim GmbH. Substrates and reagents useful in determining α-amylase and a method for determining α-amylase. 5,068,182, Cl. 435-22.000.

Schmidt, Bodo: *See—*
Leidecker, Hans-Dieter; Schmidt, Bodo; Krause, Helmut; and Dobener, Karl-Heinz, 5,067,594, Cl. 188-73.350.

Schmidt, Glenn H.; Sheehan, John P.; and Helmstetter, Richard C., to Callaway Golf Company. Hollow, metallic golf club head with dendritic structure. 5,067,715, Cl. 273-167.00F.

Schmidt, Robert R.: *See—*
Andree, Roland; Haug, Michael; Santel, Hans-Joachim; Schmidt, Robert R.; and Strang, Harry, 5,068,394, Cl. 560-56.000.

Schmitt, Eugene W., to Sloan Valve Company. Air brake system for an articulated railroad car. 5,067,777, Cl. 303-22.600.

Schmitt, Franz: *See—*
Bruder, Herbert; Fischer, Hubertus; Schmitt, Franz; and Reinfelder, Hans-Erich, 5,068,609, Cl. 324-309.000.

Schmitt, Walter: *See—*
Dorf, Ernst-Ulrich; Russeler, Wolfgang; Kohler, Burkhard; Ebert, Wolfgang; and Schmitt, Walter, 5,068,312, Cl. 528-388.000.

Schneider, Robert D.: *See—*
DeVries, James E.; Rosen, Samuel R.; and Schneider, Robert D., 5,067,882, Cl. 417-511.000.

Schneider, Thomas P.: *See—*
Johnson, Richard B.; and Schneider, Thomas P., 5,067,641, Cl. 224-042.03B.

Schnur, Rudi: *See—*
Schossig, Juergen; Koppenhoffer, Gerhard; Irgang, Matthias; Schnur, Rudi; and Roley, George, 5,068,468, Cl. 568-861.000.

Schoch, Walter K.: *See—*
Hill, Gary; Schoch, Walter K.; and Warkentien, Michael, 5,068,078, Cl. 264-512.000.

Scholl, Stephen R.: *See—*
Valentine, Michael D.; Scholl, Stephen R.; and Nusair, Marwan E., 5,068,663, Cl. 342-20.000.

Schon, Steven G.: *See—*
Sandler, Stanley R.; Schon, Steven G.; and Gardner, David M., 5,068,427, Cl. 564-84.000.

Schoner, Brigitte E.: *See—*
Epp, Janet K.; and Schoner, Brigitte E., 5,068,189, Cl. 435-183.000.

Schoofs, Franciscus A. C. M., to U.S. Philips Corporation. Switched bridge circuit. 5,068,571, Cl. 315-205.000.

Schork, Tom: *See—*
Farago, Zoltan; and Schork, Tom, 5,067,655, Cl. 239-124.000.

Schossig, Juergen; Koppenhoffer, Gerhard; Irgang, Matthias; Schnur, Rudi; and Roley, George, to BASF Aktiengesellschaft. Hydrogenation of acetylenic alcohols. 5,068,468, Cl. 568-861.000.

Schroter, John C., to Raytheon Company. Apparatus and method for short cycling sequences of a p-code generator. 5,068,872, Cl. 375-1.000.

Schubert, Erdmann F.: *See—*
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., 5,068,868, Cl. 372-45.000.

Schubert, Werner: *See—*
Nuber, Roland; Schubert, Werner; Sohler, Wolfgang; and Sutter, Franz, 5,067,557, Cl. 165-51.000.

Schuerwegen, Ronald: *See—*
Coppens, Paul J.; Vervloet, Ludovicus H.; Leenders, Luc H.; and Schuerwegen, Ronald, 5,068,165, Cl. 430-204.000.

Schultz, Loren D.: *See—*
Hopper, James E.; Schultz, Loren D.; Hofmann, Kathryn J.; and Ellis, Ronald W., 5,068,185, Cl. 435-69.100.

Schumacher, Karl H.: *See—*
Sansone, Ronald P.; and Schumacher, Karl H., 5,068,797, Cl. 364-478.000.

Schuster, Rudolf, to Siemens Aktiengesellschaft. Soldering means which has at least one stirrup electrode which can be heated by electrical resistance. 5,068,510, Cl. 219-85.160.

Schuster, Rudolf: *See—*
Hilz, Wolfgang; Schuster, Rudolf; and Schauflinger, Hans, 5,068,600, Cl. 324-158.00F.

Schwartz, William K. Method for dispensing drinking straws and a supply arrangement therefor. 5,067,629, Cl. 221-70.000.

Schwarz, Karl-Heinz: *See—*
Miess, Georg-Emerich; Schwarz, Karl-Heinz; Tetzlaff, Heribert; and Wojtech, Bernhard, 5,068,358, Cl. 548-555.000.

Schwarzbauer, Herbert, to Siemens Aktiengesellschaft. Apparatus for fastening semiconductor components to substrates. 5,067,647, Cl. 228-5.500.

Schweighardt, Frank K.; and Rubertone, Joseph A., to Air Products and Chemicals, Inc. Perfluoro-crown ethers in fluorine magnetic resonance spectroscopy. 5,068,098, Cl. 424-9.000.

Science Applications International Corporation: *See—*
DeHaan, Daniel; and deLesdernier, David L., 5,068,883, Cl. 378-86.000.

Scientific Atlanta, Inc.: *See—*
West, Lamar E.; Lafay, William P.; Ghanouni, Majid; and Cook, Alex M., Jr., 5,068,893, Cl. 380-7.000.

Scordamaglia, Raimondo: *See—*
Albizzati, Enrico; Morini, Giampiero; Giannini, Umberto; Barino, Luisa; Scordamaglia, Raimondo; Barbe, Pier C.; and Noristi, Luciano, 5,068,213, Cl. 502-126.000.

Scosche Industries, Inc.: *See—*
Nimpoeno, Roy, 5,068,765, Cl. 361-422.000.

Scott, Kenneth C., to A. O. Smith Corporation. Brushless pulsed D.C. motor. 5,068,582, Cl. 318-254.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Scott, Mary Ellen A.: *See—*
Hwang, Deng R.; and Scott, Mary Ellen A., 5,068,180, Cl. 435-7.920.

Scragg, Carl: *See—*
Vespoli, Michael; Nelson, Bruce D.; Scragg, Carl; and Fuchs, Paul, 5,067,426, Cl. 114-56.000.

Scripps Clinic and Research Foundation: *See—*
Carson, Dennis A.; Fong, Sherman; and Chen, Pojen P., 5,068,177, Cl. 435-7.920.

SDS Biotech K.K.: *See—*
Kobayashi, Hiroshi; and Shimizu, Masaaki, 5,068,411, Cl. 562-484.000.

Seagate Technology, Inc.: *See—*
Garde, Lawrence, 5,068,754, Cl. 360-45.000.

Sealright Co., Inc.: *See—*
Ward, Larry K., 5,067,308, Cl. 53-471.000.

Searcy, Gus; and Kavan, Franz. Voice recognition system. 5,068,900, Cl. 381-43.000.

Sears, Martin D.: *See—*
Vogel, Michael A.; and Sears, Martin D., 5,067,472, Cl. 124-35.200.

Seefeldt, Joachim, to bielomatik Leuze GmbH & Co. Cutting mechanism for materials in web or layer form. 5,067,380, Cl. 83-481.000.

Seferiadis, Johann: *See—*
Britz, Lothar; Krug, Wolfgang; and Seferiadis, Johann, 5,068,492, Cl. 174-31.500.

Sefko, John: *See—*
Pavlik, Norman M.; Sefko, John; and Miller, Richard A., 5,067,992, Cl. 148-307.000.

Segawa, Masanori: *See—*
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Seichter, Helmut: *See—*
Auslander, Klaus; Fabris, Hans-Jurgen; Mock, Karl-Heinz; Patwald, Wolfgang; and Seichter, Helmut, 5,068,612, Cl. 324-327.000.

Seidel, Peter; and Zell, Karl, to Siemens Aktiengesellschaft. Method for contacting shielding plates. 5,067,232, Cl. 29-837.000.

Seidel, Peter; and Zell, Karl, to Siemens Aktiengesellschaft. Multi-pole connector having a centering strip with a shield. 5,067,914, Cl. 439-609.000.

Seidel, Winfried: *See—*
Akram, Mustafa; and Seidel, Winfried, 5,067,967, Cl. 8-415.000.

Seidensha Electronics Co., Ltd.: *See—*
Furusawa, Toshihiro; Satoh, Atsushi; Nakajima, Takashi; and Matsugishi, Noriaki, 5,068,068, Cl. 264-23.000.

Seikagaku Kogyo Co. Ltd.: *See—*
Nakamura, Takanori; Iwanaga, Sadaaki; Ohno, Motonori; and Miyazaki, Kyosuke, 5,068,314, Cl. 530-317.000.

Seiko Epson Corporation: *See—*
Abe, Nobumasa; Kobayashi, Atsushi; Watanabe, Koji; Morishita, Norio; and Tanaka, Yuji, 5,068,684, Cl. 355-27.000.
Takeuchi, Kesatoshi, 5,068,731, Cl. 358-180.000.
Toda, Shigeo, 5,068,713, Cl. 357-72.000.

Seikosha Co., Ltd.: *See—*
Saeki, Toshiro, 5,067,911, Cl. 439-526.000.
Tagami, Shigeru; Umedu, Yoshio; and Niwa, Katsuhito, 5,068,562, Cl. 310-256.000.

Seipler, Dieter, to Robert Bosch GmbH. Method of electrically and mechanically connecting a semiconductor to a substrate using an electrically conductive tacky adhesive and the device so made. 5,068,714, Cl. 357-80.000.

Seissler, Wolfgang: *See—*
Rienmueller, Rainer; Kalender, Willi; and Seissler, Wolfgang, 5,067,494, Cl. 128-653.100.

Seitz, Kurt: *See—*
Thur, Alex; and Seitz, Kurt, 5,067,434, Cl. 118-629.000.

Seki, Yasukazu: *See—*
Nishiura, Akira; Kumagai, Naoki; and Seki, Yasukazu, 5,068,581, Cl. 315-370.000.

Sekiba, Toshinobu: *See—*
Sugita, Naomasa; Yotumoto, Yoshiharu; Moriguchi, Kouji; and Sekiba, Toshinobu, 5,068,706, Cl. 357-51.000.

Sekiguchi, Yutaka: *See—*
Ishiguro, Kazuhisa; and Sekiguchi, Yutaka, 5,068,544, Cl. 307-268.000.

Sekino, Hitoshi: *See—*
Matsuura, Kazuo; Sekino, Hitoshi; Nishiguchi, Keizo; and Yoshida, Narutaka, 5,068,677, Cl. 346-108.000.

Sekisui Kagaku Kogyo Kabushiki Kaisha: *See—*
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.

Selenia Industrie Elettroniche Associate S.p.A.: *See—*
Busacca, Guido; and Muratore, Antonio, 5,068,569, Cl. 315-3.500.

Semet, Christian: *See—*
Gabillard, Robert; Nguyen, Yann; and Semet, Christian, 5,068,655, Cl. 340-988.000.

Semons, William. Zipper attachment assembly. 5,067,207, Cl. 24-381.000.

Senatore, Daniele, to Gianni Bulgari S.p.A. Adjustable transparency spectacles. 5,067,795, Cl. 359-84.000.

Sendelweck, Gene K., to Thomson Consumer Electronics, Inc. Video control circuit. 5,068,730, Cl. 358-169.000.

Sensabaugh, Andrew J., Jr.: *See—*
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Sentell, John S.: *See—*
Herlitz, Nils G.; Iglehart, Karl I.; and Sentell, John S., 5,068,720, Cl. 358-100.000.

Serini, Volker: *See—*
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, 5,068,302, Cl. 528-21.000.

Sersen, Stanley J. Roof sheathing test system. 5,067,353, Cl. 73-849.000.

Seto, Nobuo; Morigaki, Masakazu; and Naruse, Hideaki, to Fuji Photo Film Co., Ltd. Silver halide color photographic materials. 5,068,172, Cl. 430-551.000.

Seto, Nobuo: *See—*
Morigaki, Masakazu; and Seto, Nobuo, 5,068,171, Cl. 430-9.000.

Sewell Plastics, Inc.: *See—*
Hill, Gary; Schoch, Walter K.; and Warkentien, Michael, 5,068,078, Cl. 264-512.000.

Sexton, Daniel W.; and Bentley, William F., to GE Fanuc Automation North America, Inc. Bit processor with powers flow register switches control a function block processor for execution of the current command. 5,068,821, Cl. 395-800.000.

Sfarzetta, Mario: *See—*
De Matthaeis, Sisto L.; and Sfarzetta, Mario, 5,067,658, Cl. 239-533.800.

SGS-Thomson Microelectronics, Inc.: *See—*
Spinner, Charles R., III; and Kiou, Fu-Tai, 5,068,201, Cl. 437-60.000.

SGS-Thomson Microelectronics S.r.l.: *See—*
Crotti, Pier L.; and Iazzi, Nadia, 5,068,202, Cl. 437-67.000.

SGS-Thomson Mocroelectronics S.r.l.: *See—*
Botti, Edoardo; Stefani, Fabrizio; and Nebuloni, Daniela, 5,068,620, Cl. 330-2.000.

Shacklette, Lawrence W.: *See—*
Jen, Kwan-Yue A.; Elsenbaumer, Ronald L.; and Shacklette, Lawrence W., 5,068,060, Cl. 252-500.000.

Shacklock, Frank W.: *See—*
Duncan, Gerald; Shacklock, Frank W.; and Greenman, Murray, 5,067,333, Cl. 68-23.700.

Shaffer, Timothy D., to General Electric Co. Polyphenylene ether process, catalyst and resin composition. 5,068,310, Cl. 528-215.000.

Shannon, Michael D.: *See—*
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Shap Inc.: *See—*
Staniszewski, Tadeusz, 5,067,846, Cl. 403-370.000.

Shapiro, Ascher H., to Bird Machine Company. Conveyorless clarifier. 5,067,939, Cl. 494-53.000.

Shapiro, James; and Zakrzewski, Bogdan, to Troy Lighting, Inc. Recessed lighting fixture. 5,068,772, Cl. 362-365.000.

Sharp Kabushiki Kaisha: *See—*
Araki, Shigeharu, 5,068,743, Cl. 358-304.000.
Kawahara, Masafumi; Bowman, George A.; and Matthews, Joseph B., 5,068,586, Cl. 318-696.000.
Kira, Tohru, 5,068,760, Cl. 360-121.000.
Matsuyama, Kazuhiro, 5,067,664, Cl. 242-67.200.
Nakayama, Junichiro; Katayama, Hiroyuki; and Ohta, Kenji, 5,068,841, Cl. 369-13.000.
Suzuki, Tomonari; Wada, Hiroshi; Yoshimoto, Yoshikazu; and Yoshida, Masaru, 5,068,126, Cl. 427-122.000.
Yamashita, Kouji, 5,068,889, Cl. 379-62.000.
Yoshikawa, Shuuichi; Watanabe, Masahiko; Ikeuchi, Michio; Murata, Yasumoto; and Nakano, Takahiko, 5,068,876, Cl. 375-80.000.

Sharpoint L.P.: *See—*
Vanderbilt, David P.; Cowsar, Donald R.; Dunn, Richard L.; and English, James P., 5,068,220, Cl. 514-3.000.

Shea, Timothy J.: *See—*
Campbell, John R.; Shea, Timothy J.; Hobbs, Stanley Y.; and Brown, Sterling B., 5,068,286, Cl. 525-92.000.

Sheehan, James E.: *See—*
Streckert, Holger H.; Sheehan, James E.; and Mazdiyasni, Khodabakhsh, 5,067,999, Cl. 156-89.000.

Sheehan, John P.: *See—*
Schmidt, Glenn H.; Sheehan, John P.; and Helmstetter, Richard C., 5,067,715, Cl. 273-167.00F.

Shelar, Gary R.: *See—*
Banerjee, Chandra K.; Farrier, Ernest G.; Harris, James L.; Norman, Alan B.; Resce, James L.; Reynolds, John H., IV; Ridings, Henry T.; Sensabaugh, Andrew J., Jr.; Shannon, Michael D.; and Shelar, Gary R., 5,067,499, Cl. 131-194.000.

Shell Internationale Research Maatschappij B.V.: *See—*
Bramham, Eric, 5,067,921, Cl. 441-102.000.

Shell Oil Company: *See—*
Bhan, Opindar K., 5,068,025, Cl. 208-57.000.
Dewhirst, Kenneth C., 5,068,268, Cl. 523-445.000.
DuBois, Donn A., 5,068,294, Cl. 526-194.000.

George, Eric R.; and Gergen, William P., 5,068,289, Cl. 525-179.000.
Mitchell, Neil F.; and Djiauw, Lie K., 5,068,138, Cl. 428-36.800.
Posthuma, Sytze A.; de Graaf, Johannes D.; and Boelen, Jan, 5,068,254, Cl. 518-705.000.
Slaugh, Lynn H., 5,068,488, Cl. 585-516.000.
Thigpen, David R.; Lawson, Jimmie B.; and Nelson, Richard C., 5,068,043, Cl. 252-855.400.
Wang, Pen-Chung, 5,068,396, Cl. 560-102.000.

Shen, Peter S.: *See—*
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., 5,068,576, Cl. 315-291.000.

Shenandoah Manufacturing Co., Inc.: *See—*
Bender, Glenn, 5,067,894, Cl. 431-208.000.

Sheng-Shun, Hsieh: *See—*
Ting-Chih, Liu; Sheng-Shun, Hsieh; and Shih-Shiung, Huang, 5,067,517, Cl. 137-426.000.

Sher, Arden: *See—*
Mooney, John B.; and Sher, Arden, 5,068,695, Cl. 357-16.000.

Shibanuma, Naoki: *See—*
Ohshima, Yasunobu; and Shibanuma, Naoki, 5,068,865, Cl. 372-36.000.

Shibata, Eiji: *See—*
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,067,539, Cl. 157-13.000.

Shibata, Juzo: *See—*
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Shibuya, Akihiko: *See—*
Misaizu, Iwao; Hanada, Kazuyuki; Shibuya, Akihiko; and Kuriyama, Katsumi, 5,068,295, Cl. 526-245.000.

Shida, Yoshiaki: *See—*
Takahashi, Wataru; Sugimoto, Yoshihito; Nakanishi, Mutsuo; Shida, Yoshiaki; and Okada, Minoru, 5,068,003, Cl. 148-421.000.

Shidoh, Masaya: *See—*
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Shifferly, Richard E. Method for manufacturing an automatic tire mounting and demounting machine roller. 5,067,236, Cl. 29-895.300.

Shigeru Saito: *See—*
Fukada, Eiichi; Saito, Shigeru; Yagi, Toshiharu; and Higashihata, Yoshihide, 5,067,488, Cl. 128-777.000.

Shih, Meng-Fu: *See—*
Cochran, Mark D.; Shih, Meng-Fu; and MacConnell, William P., 5,068,192, Cl. 435-235.100.

Shih-Shiung, Huang: *See—*
Ting-Chih, Liu; Sheng-Shun, Hsieh; and Shih-Shiung, Huang, 5,067,517, Cl. 137-426.000.

Shikakura, Akihiro: *See—*
Kashida, Motokazu; Shikakura, Akihiro; Yamashita, Shinichi; and Shimizu, Tetsuya, 5,068,855, Cl. 371-37.400.

Shiley Incorporated: *See—*
Eisele, Robert F., 5,067,496, Cl. 128-207.150.

Shim, Kyu H.: *See—*
Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., 5,068,884, Cl. 378-119.000.

Shimada, Fumio; and Kainuma, Tadashi, to Mitsubishi Materials Corporation. Wire member of cemented carbide. 5,068,149, Cl. 428-367.000.

Shimada, Junichi: *See—*
Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, 5,068,236, Cl. 514-263.000.

Shimada, Michio, to NEC Corporation. Encryption and decryption methods using bit-length preservation decryptor. 5,068,895, Cl. 380-28.000.

Shimada, Tomoyuki: *See—*
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.

Shimakawa, Chitoshi: *See—*
Oi, Ryu; Takenaka, Shinji; and Shimakawa, Chitoshi, 5,068,459, Cl. 568-638.000.

Shimamoto, Keiko: *See—*
Ohfune, Yasufumi; Shimamoto, Keiko; Shinozaki, Haruhiko; and Ishida, Michiko, 5,068,412, Cl. 562-506.000.

Shimamura, Kuniyuki: *See—*
Uchida, Tadahiro; Shimamura, Kuniyuki; Nogawa, Hayabu; Saito, Keikichi; and Hara, Minoru, 5,067,938, Cl. 494-12.000.

Shimizu Construction Co., Ltd.: *See—*
Takahama, Yoshihiro; Kurihara, Kazushige; and Nishiya, Takayuki, 5,067,288, Cl. 52-80.000.

Shimizu, Kunio: *See—*
Sasa, Nobumasa; Shimizu, Kunio; and Watanabe, Manabu, 5,068,689, Cl. 355-107.000.

Shimizu, Masaaki: *See—*
Kobayashi, Hiroshi; and Shimizu, Masaaki, 5,068,411, Cl. 562-484.000.

Shimizu, Tetsuya: *See—*
Kashida, Motokazu; Shikakura, Akihiro; Yamashita, Shinichi; and Shimizu, Tetsuya, 5,068,855, Cl. 371-37.400.

Shimizu, Toshiharu: *See—*
Kobayashi, Hisamine; and Shimizu, Toshiharu, 5,067,860, Cl. 409-185.000.

Shimoda, Tomoaki: *See—*
Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, 5,068,400, Cl. 560-223.000.

Shimozawa, Hiroshi: *See—*
Uchida, Ken; Higashi, Michiya; Kihara, Naoko; Shimozawa, Hiroshi; and Yoshizumo, Akira, 5,068,267, Cl. 523-435.000.

Shimp, David A.; and Vanderlip, Jeffrey T., to Hi-Tek Polymers, Inc. Low temperature curable dicyanate ester of dihydric phenol composition. 5,068,309, Cl. 528-211.000.

Shimura, Kazuo, to Fuji Photo Film Co., Ltd. Image filing method. 5,068,745, Cl. 358-403.000.

Shin-Etsu Chemical Co., Ltd.: *See—*
Ito, Yoshihiko; and Murakami, Masahiro, 5,068,381, Cl. 556-431.000.
Kawamoto, Hideyuki; Ichinohe, Shoji; and Tsubone, Kazuyuki, 5,068,377, Cl. 556-418.000.
Meguriya, Noriyuki; Azechi, Syuuichi; and Tanaka, Masaki, 5,068,380, Cl. 556-428.000.
Okamura, Yoshio; Takarada, Mitsuhiro; Kobayashi, Yoshiteru; and Takahashi, Tadashi, 5,068,301, Cl. 528-15.000.

Shin Etsu Handotai Co., Ltd.: *See—*
Yokota, Shuji; and Yamagishi, Hirotoshi, 5,067,989, Cl. 148-33.000.

Shinkai, Kunio; Suzuki, Toyoo; Nomura, Yukitaka; Kurachi, Yoshio; and Kureishi, Hiroyuki, to Howa Machinery Ltd. Method for continuously supplying slivers to a roving frame. 5,067,204, Cl. 19-159.00A.

Shinozaki, Haruhiko: *See—*
Ohfune, Yasufumi; Shimamoto, Keiko; Shinozaki, Haruhiko; and Ishida, Michiko, 5,068,412, Cl. 562-506.000.

Shinzawa, Motohiro, to Nissan Motor Company, Ltd. Swirl chamber type diesel engine. 5,067,457, Cl. 123-269.000.

Shiota, Kazuo: *See—*
Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, 5,068,742, Cl. 358-296.000.

Shiovitz, Nathan N.; Maloney, John G.; and Steele, Michael F., to Brunswick Corporation. Release apparatus for spin stabilized self-propelled projectiles. 5,067,386, Cl. 89-1.808.

Shipley Company Inc.: *See—*
Bernards, Roger F.; Fischer, Gordon; and Sonnenberg, Wade, 5,068,013, Cl. 204-24.000.

Shirahata, Akihiko, to Dow Corning Toray Silicone Company, Ltd. Preparation of tertiary-hydrocarbylsilyl compounds. 5,068,386, Cl. 556-480.000.

Shirai, Hidenori: *See—*
Gunji, Akihiko; Masuki, Tetsuya; and Shirai, Hidenori, 5,068,070, Cl. 264-41.000.

Shirakawa, Masaki, to Olympus Optical Company Limited. Composite optical article and method of manufacture thereof. 5,067,800, Cl. 359-642.000.

Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, to Isuzu Motors Limited; Fujitsu Limited; Akebono Brake Industry Co., Ltd.; and Akebono Research and Development Centre Ltd. Traction control system for motor vehicles. 5,067,578, Cl. 180-197.000.

Shivers, Charles B., Jr. Aircraft optimization indicia and the use thereof. 5,067,667, Cl. 244-1.00R.

Shon, Russell D.: *See—*
Lin, Shaw-Yueh; and Shon, Russell D., 5,068,878, Cl. 375-111.000.

Shong, D. Simon: *See—*
Froes, Francis H.; Shong, D. Simon; Kim, Young-Won; and Yolton, Frederick C., 5,067,988, Cl. 148-20.300.

Shop Vac Corporation: *See—*
Paige, Clive R., 5,067,654, Cl. 239-124.000.

Shore, William P., to Commonwealth Industrial Gases Ltd., The. Balloon inflating machine. 5,067,301, Cl. 53-79.000.

Shorr, Leonard M.: *See—*
Vainberg, Olga; and Shorr, Leonard M., 5,068,409, Cl. 562-480.000.

Short, Edward H., III, to Allied Plastics, Inc. Waste oil collection and disposal system. 5,067,530, Cl. 141-98.000.

Short, William R., to Bose Corporation. Audible noise reducing. 5,068,896, Cl. 381-13.000.

Shortt, Robert A.: *See—*
Speer, Howard D.; and Shortt, Robert A., 5,067,887, Cl. 425-256.000.

Shotey, Michael J. Cover and sheath for electrical outlets. 5,067,907, Cl. 439-135.000.

Shrier, Karen P., to Electromer Corporation. Overvoltage protection device and material. 5,068,634, Cl. 338-21.000.

Shur, Robert D.: *See—*
Schaefer, Thomas J.; and Shur, Robert D., 5,068,812, Cl. 364-578.000.

SiArc: *See—*
El Gamel, Abbas, 5,068,548, Cl. 307-446.000.

Sichmann, Eggo; Fritsche, Wolf-Eckart; and Schlussler, Jim, to Leybold Aktiengesellschaft. Device for coating a polymethylmethacrylate substrate with aluminum. 5,068,021, Cl. 204-192.140.

Sickert, Armin: *See—*
Meixner, Jurgen; Clemens, Horst; and Sickert, Armin, 5,068,125, Cl. 427-55.000.

Siecor Corporation: *See—*
McAlpine, Warren W.; and Kundis, Dieter, 5,067,830, Cl. 385-114.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Siemens Aktiengesellschaft: *See—*
Barre, Claude, 5,068,550, Cl. 307-475.000.
Bruder, Herbert; Fischer, Hubertus; Schmitt, Franz; and Reinfelder, Hans-Erich, 5,068,609, Cl. 324-309.000.
Feucht, Peter, 5,067,953, Cl. 606-34.000.
Frunder, Henning; and Wiedemer, Manfred, 5,067,404, Cl. 101-488.000.
Hilbert, Ferdinand, 5,068,766, Cl. 361-534.000.
Hilz, Wolfgang; Schuster, Rudolf; and Schauflinger, Hans, 5,068,600, Cl. 324-158.00F.
Kienast, Fritz, 5,067,915, Cl. 439-620.000.
Ohlsson, Thomas; and Hjorth, Bo, 5,068,658, Cl. 341-131.000.
Rienmueller, Rainer; Kalender, Willi; and Seissler, Wolfgang, 5,067,494, Cl. 128-653.100.
Schirbl, Reinhard; Deinhardt, Gunther; and Kasowski, Hermann, 5,067,785, Cl. 385-38.000.
Schuster, Rudolf, 5,068,510, Cl. 219-85.160.
Schwarzbauer, Herbert, 5,067,647, Cl. 228-5.500.
Seidel, Peter; and Zell, Karl, 5,067,232, Cl. 29-837.000.
Seidel, Peter; and Zell, Karl, 5,067,914, Cl. 439-609.000.
Siemens-Bendix Automotive Electronics Limited: *See—*
Davenport, Thomas A., 5,068,502, Cl. 200-61.45M.
Siemens-Pacesetter, Inc.: *See—*
Szyszkowski, Andrew J., 5,067,903, Cl. 439-55.000.
SIGRI GmbH: *See—*
Jager, Hubert; and Lorenz, Alfred, 5,068,026, Cl. 208-125.000.
Sigwalt, Paul: *See—*
Pfeiffer, Pierre; Cheval, Benoit; and Sigwalt, Paul, 5,067,636, Cl. 222-105.000.
Silbernagel, Hermann; and Wiegand, Ulfried, to Silbernagel, Hermann; and Beiersdorf AG. Marking nail having body suitable for magazine feeding and mechanical installation. 5,067,849, Cl. 404-9.000.
Silverstein, Seth D.; and Pimbley, Joseph M., to General Electric Company. Spectral estimation utilizing a minimum free energy method with recursive reflection coefficients. 5,068,597, Cl. 324-77.00B.
Simandi, Laszlo : *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.
Simmons, Kenneth G.: *See—*
Johnson, Ivy D.; and Simmons, Kenneth G., 5,068,216, Cl. 502-241.000.
Singer, Mark G. Multiple design punch and embosser. 5,067,242, Cl. 30-364.000.
Singh, Raj N.; and Gaddipati, Achuta R., to General Electric Company. Fibrous material-containing composite. 5,067,998, Cl. 156-89.000.
Singhal, Gophal H., to Exxon Research & Engineering Company. Substituted noble metal xanthates. 5,068,375, Cl. 556-136.000.
Sisk, David E. In-line air filter for dry bulk tank trailers. 5,067,856, Cl. 406-41.000.
Sit, Sing-Yuen; and Wright, John J., to Bristol-Myers Company. Tetrazole compounds. 5,068,346, Cl. 548-253.000.
SKF GmbH: *See—*
Bokel, Arnold, 5,067,827, Cl. 384-537.000.
Sklenak, John S.; Bowen, Robert F.; and Dudley, Kenneth W., to Raytheon Company. Method and apparatus for batch fixating tissue specimens. 5,068,086, Cl. 422-21.000.
Skottner, Anna: *See—*
Fryklund, Linda; Hansson, Hans A.; Kanje, Martin; and Skottner, Anna, 5,068,224, Cl. 514-21.000.
Sladky, Hans. High-pressure sensor for fluid conditions and method and apparatus using same. 5,068,503, Cl. 200-83.00L.
Slaugh, Lynn H., to Shell Oil Company. Olefin ethylation process. 5,068,488, Cl. 585-516.000.
Sloan Valve Company: *See—*
Schmitt, Eugene W., 5,067,777, Cl. 303-22.600.
Smiley, William A., III: *See—*
Carey, Michael D.; Smiley, William A., III; and Jansky, Gerald A., 5,067,560, Cl. 165-124.000.
Smith, Clinton L.: *See—*
Knox, J. Paul; Murray, Robert B., III; and Smith, Clinton L., 5,067,718, Cl. 273-185.00R.
Smith, James E., to Graves Spray Supply, Inc. Compact spray gun. 5,067,515, Cl. 137-327.000.
Smith, Kenneth L.: *See—*
Bickford, Wayne F.; and Smith, Kenneth L., 5,067,912, Cl. 439-578.000.
Smith, Kim R.: *See—*
Borland, James E.; Chen, Y.-D. Mark; Sauer, Joe D.; Smith, Kim R.; and Smith, Rebecca F., 5,068,430, Cl. 564-298.000.
Smith, Lawrence N.; Woodard, Ollie C., Sr.; and Herrell, Dennis J., to Microelectronics and Computer Technology Corporation. Electrical beam switch. 5,068,580, Cl. 315-366.000.
Smith, Morton R.; and Maassel, James L. Process for converting a fluid system of a machine from an oil based fluid system to a water based fluid system. 5,068,129, Cl. 427-239.000.
Smith & Nephew Richards Inc.: *See—*
Buford, Thomas B., III; Brosnahan, Robert; Robinett, Scott; and Clark, James, 5,067,956, Cl. 606-73.000.
Smith, Rebecca F.: *See—*
Borland, James E.; Chen, Y.-D. Mark; Sauer, Joe D.; Smith, Kim R.; and Smith, Rebecca F., 5,068,430, Cl. 564-298.000.
Smith, Robert A.: *See—*
Fry, John J.; and Smith, Robert A., 5,068,618, Cl. 324-706.000.
Smith, Ronald W.: *See—*
Brown, Robert T. K.; and Smith, Ronald W., 5,067,296, Cl. 52-309.700.
Smith, Stephen D.: *See—*
Liboff, Abraham R.; McLeod, Bruce R.; and Smith, Stephen D., 5,067,940, Cl. 600-13.000.
Smith, W. Novis; and Louer, Christopher, to Cyprus Foote Mineral Company. Stabilized lithium acetylide and reactions therewith. 5,068,368, Cl. 552-556.000.
Smithers, Matthew C.: *See—*
Bland, Donald L.; and Smithers, Matthew C., 5,068,764, Cl. 361-386.000.
Smythe, Stephen R.; Cole, Martin G.; and Grier, James S., to NorAm Chemical Company. Process for the manufacture of 2,6-dichloro-4-nitroaniline. 5,068,443, Cl. 564-496.000.
Snyder, Dan E.: *See—*
Tsuda, George I.; and Snyder, Dan E., 5,068,668, Cl. 342-362.000.
Sobol, John E., to Watson Bowman Acme Corp. Expansion-joint cover assemblies. 5,067,297, Cl. 52-396.000.
Societe Anonyme Dite: L'Oreal: *See—*
Maignan, Jean; Malle, Gerard; and Lang, Gerard, 5,068,393, Cl. 560-51.000.
Societe de Fabrication de Material Orthopedique: *See—*
Cotrel, Yves P. C., 5,067,955, Cl. 606-61.000.
Societe dite: Eparco S.A.: *See—*
Bavaveas, Tristan, 5,067,638, Cl. 222-205.000.
Societe Europeene De Propulsion: *See—*
Bonniot, Claude E., 5,067,316, Cl. 60-263.000.
Societe Nationale d'Etude et de Construction de Moteurs d'Aviation "S.N.E.C.M.A.": *See—*
Fournes, Jean-Paul; and Morbioli, Rene J., 5,068,127, Cl. 427-237.000.
Societe Nationale Elf Aquitaine: *See—*
Barthomeuf, Denise; and de Quivillic, Viviane Q., 5,068,483, Cl. 585-467.000.
Juge, Sylvain, 5,068,425, Cl. 564-12.000.
Societe Nationale Elf Aquitaine (Production): *See—*
Arretz, Emmanuel, 5,068,445, Cl. 568-21.000.
Societe Nationale Industrielle et Aerospatiale: *See—*
Appriou, Alain; Barthelemy, Regis; and Coulombeix, Colette, 5,068,664, Cl. 342-90.000.
Floret, Michel, 5,067,352, Cl. 73-583.000.
Soga, Takashi: *See—*
Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, 5,068,718, Cl. 358-27.000.
Sohama, Yoshio: *See—*
Nakamura, Yoshinobu; Sannohe, Kanetaro; Sohama, Yoshio; Iwasaki, Toru; and Yamano, Sumiko, 5,068,150, Cl. 428-407.000.
Sohler, Wolfgang: *See—*
Nuber, Roland; Schubert, Werner; Sohler, Wolfgang; and Sutter, Franz, 5,067,557, Cl. 165-51.000.
Sohma, Kenichi: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.
Solbach, Bernd: *See—*
Auweiler, Willi; Solbach, Bernd; and Luetzeler, Robert, 5,067,250, Cl. 33-783.000.
Solomon, Allen L., to Grumman Aerospace Corporation. Method of forming an integrated circuit module. 5,067,233, Cl. 29-852.000.
Solvay & Cie: *See—*
Strebelle, Michel, 5,068,474, Cl. 570-238.000.
Soma, Utami; Koseki, Yasufumi; and Asakawa, Minoru, to Konica Corporations. Fail-safe apparatus for image forming apparatus. 5,068,853, Cl. 371-16.300.
Someya, Sinzo: *See—*
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.
Sondages Injections Furages "S.I.F." Enterprise Bachy: *See—*
Delmas, Francis M. L.; and Gandais, Michel A. G., 5,067,416, Cl. 106-632.000.
Sonnenberg, Wade: *See—*
Bernards, Roger F.; Fischer, Gordon; and Sonnenberg, Wade, 5,068,013, Cl. 204-24.000.
Sonoco Products Company: *See—*
Gandy, Carroll E.; and Watford, Roland S., Jr., 5,067,936, Cl. 493-287.000.
Sonoda, Hidefumi: *See—*
Otowa, Hidekazu; Okada, Kazuhiro; Sonoda, Hidefumi; and Kaneko, Tadao, 5,067,468, Cl. 123-516.000.
Sony Corporation: *See—*
Hamasaki, Masaharu, 5,068,736, Cl. 358-213.130.
Kondo, Tetsujiro; and Takahashi, Kenji, 5,068,726, Cl. 358-135.000.
Noda, Masanori; and Nakamura, Akihiro, 5,068,697, Cl. 357-23.500.
Takagi, Kotaro; and Yokoya, Satoshi, 5,068,626, Cl. 331-17.000.
Takayama, Jun; Fujita, Tadao; and Ninomiya, Takeshi, 5,068,716, Cl. 358-13.000.
Uchida, Hiroshi, 5,067,573, Cl. 178-18.000.
Soper, E. Scott: *See—*
Fernandez, Antonio; Gaggioni, Hugo P.; Jaquez, Martin J.; Robbins, John D.; and Soper, E. Scott, 5,068,650, Cl. 340-799.000.

Soptei, Csaba: *See—*
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.
Sorensen, Dent G.; and Hatch, Newell J. Cooking device with heat funnel. 5,067,396, Cl. 99-340.000.
Sorkilmo, Clayton O. Door lock security device. 5,067,334, Cl. 70-416.000.
Sotralentz S. A.: *See—*
Pfeiffer, Pierre; Cheval, Benoit; and Sigwalt, Paul, 5,067,636, Cl. 222-105.000.
Sotton, Michel: *See—*
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.
Souders, Ralph W.: *See—*
Brown, Stephen E.; Meeks, Donnie F.; Souders, Ralph W.; and Thompson, Richard A., 5,068,763, Cl. 361-364.000.
Soules, Jack A.; and Carpenter, Bryan D., to Technical Systems Corp. Coded playing cards and apparatus for dealing a set of cards. 5,067,713, Cl. 273-149.00P.
Southwire Company: *See—*
Sullivan, James H., 5,067,343, Cl. 73-40.700.
Sparrow, James A.: *See—*
John, Clarence D., Jr.; and Sparrow, James A., 5,068,083, Cl. 376-449.000.
Spector, George: *See—*
D'Orsi, Anthony; and Spector, George, 5,067,502, Cl. 132-213.100.
Spectra-Physics, Inc.: *See—*
Gatten, Ronald A., 5,068,806, Cl. 395-113.000.
Spectra-Physics Lasers, Inc.: *See—*
Abbott, Rexford J.; and Wright, David L., 5,068,861, Cl. 372-20.000.
Speer, Howard D.; and Shortt, Robert A., to Black & Decker Inc. Hot-melt adhesive recycling system. 5,067,887, Cl. 425-256.000.
Speier, John L.: *See—*
Kleyer, Don L.; and Speier, John L., 5,068,387, Cl. 556-485.000.
Spencer, Donald J.: *See—*
Mirels, Harold; Spencer, Donald J.; and Hofland, Robert, Jr., 5,067,801, Cl. 359-666.000.
Spiers, Steven F.: *See—*
Brookman, Donald L.; Grollimund, Everett C.; Grollimund, Gary E.; and Spiers, Steven F., 5,067,303, Cl. 53-381.200.
Spinner, Charles R., III; and Kiou, Fu-Tai, to SGS-Thomson Microelectronics, Inc. Method for forming a high valued resistive load element and low resistance interconnect for integrated circuits. 5,068,201, Cl. 437-60.000.
Spohr, Horst; and Huegin, Walter, to bautex Adolf Stoever Soehne KG. Worm drive for setting the angular position of vertical lamella blinds. 5,067,544, Cl. 160-177.000.
Sporleder, Arthur O. Refuse disposal device. 5,067,425, Cl. 114-26.000.
Sports Licensing, Inc.: *See—*
Brine, William H., III; and Brine, Peter J., 5,067,726, Cl. 273-326.000.
Spreckelmeyer, Bernhard: *See—*
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, 5,068,015, Cl. 204-89.000.
Sramek, John A., to S. C. Johnson & Son, Inc. Hair spray package with low volatile organic compound emission. 5,068,099, Cl. 424-47.000.
SRI International: *See—*
Mooney, John B.; and Sher, Arden, 5,068,695, Cl. 357-16.000.
Staffanson, Leroy. Hay bale unroller. 5,067,870, Cl. 414-724.000.
Stahlecker, Fritz, to Stahlecker, Hans, a part interest. Process for splicing the ends of two double yarns. 5,067,315, Cl. 57-22.000.
Stahlecker, Hans: *See—*
Stahlecker, Fritz, 5,067,315, Cl. 57-22.000.
Staller, Steven E.: *See—*
Logsdon, James H.; Staller, Steven E.; De Roo, David W.; and Neudeck, Gerold W., 5,068,203, Cl. 437-89.000.
Standard Oil Company: *See—*
Bartek, Joseph P.; Brazdil, James F., Jr.; Hupp, John M.; and Grasselli, Robert K., 5,068,215, Cl. 502-208.000.
Paspek, Stephen C.; Hauser, Jeffrey B.; Eppig, Christopher P.; and Adams, Harry A., 5,068,027, Cl. 208-125.000.
Staniszewski, Tadeusz, to Shap Inc. Mounting device. 5,067,846, Cl. 403-370.000.
Stanley Electric Co., Ltd.: *See—*
Umeda, Toru; Kondo, Hidetaka; and Kato, Kouichi, 5,068,769, Cl. 362-61.000.
Star Semiconductor Corporation: *See—*
Robinson, Jeffrey I., 5,068,823, Cl. 395-500.000.
Stark, William D.; and Prestas, Gregory C., to Array Analysis, Inc. Interactive adaptive inference system. 5,068,814, Cl. 364-580.000.
Starr, Tina F. Oil absorbent. 5,067,984, Cl. 134-7.000.
Statman, Joseph I.: *See—*
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.
Stauffer, Jr., Harold F.: *See—*
Taylor, Chandler R., Jr.; Cale. Jr., Albert D.; Johnson, David N.; and Stauffer. Jr., Harold F., 5,068,231, Cl. 514-210.000.
Stauffer, Larry R.: *See—*
Egner, Walter A.; Schaffer, Ronald R.; Stauffer, Larry R.; and Warner, Gary N., 5,067,226, Cl. 29-452.000.
Steel, Geoffrey, to British Aerospace Public Limited Company. Sound generating transducer. 5,068,836, Cl. 367-174.000.
Steele, Michael F., to Brunswick Corporation. Method and apparatus for aligning spin-stabilized self-propelled missiles. 5,067,385, Cl. 89-1.808.
Steele, Michael F.: *See—*
Shiovitz, Nathan N.; Maloney, John G.; and Steele, Michael F., 5,067,386, Cl. 89-1.808.
Stefani, Fabrizio: *See—*
Botti, Edoardo; Stefani, Fabrizio; and Nebuloni, Daniela, 5,068,620, Cl. 330-2.000.
Steiner, Eginhard; Beyeler, Harry; and Husler, Rinaldo, to Ciba-Geigy Corporation. Novel nitrogen-containing titanocenes, and the use thereof. 5,068,371, Cl. 556-52.000.
Steiner, Klaus; Herrmann, Wolfgang; Crone, Gunter; and Combs, Charles S., to Godecke Aktiengesellschaft. Process for the preparation of cyclic amino acids and intermediates useful in the process. 5,068,413, Cl. 562-507.000.
Steltzer, Gordon L.: *See—*
Grillo, John M.; Hilby, James A.; La Croix, Mark E.; Polinsky, Mark A.; and Steltzer, Gordon L., 5,067,350, Cl. 73-494.000.
Stemmler, Kurt, to Winkler & Dunnebier Maschinenfabrik und Eisengiesserei KG. Method and apparatus for manufacturing interfolded toweling. 5,067,698, Cl. 270-39.000.
Stendel, Wilhelm: *See—*
Fuchs, Rainer; Erdelen, Christoph; Becker, Benedikt; and Stendel, Wilhelm, 5,068,241, Cl. 514-403.000.
Steneker, Daniel J.: *See—*
Scherk, Randall P.; and Steneker, Daniel J., 5,068,888, Cl. 379-100.000.
Sterling Drug Inc.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.
Stevanovic, Maya D.: *See—*
Malhotra, Shadi L.; Martins, Maria L.; Stevanovic, Maya D.; and Jones, Arthur Y., 5,068,140, Cl. 428-216.000.
Stevenson, James F.; and Miller, William H., to GenCorp Inc. Rapid change die assembly. 5,067,885, Cl. 425-131.100.
Steyr-Daimler-Puch AG: *See—*
Moser, Franz, 5,067,319, Cl. 60-288.000.
Stiffler, Stephen P.; Beach, Wayne H.; and Frost, Robert L., to Kennametal Inc.; and Reedrill, Inc. Digging tooth. 5,067,262, Cl. 37-142.00R.
Stile, Thomas W. Dental apparatus for flossing teeth. 5,067,503, Cl. 132-324.000.
Stobbs, Thomas J.: *See—*
Patel, Kishor J.; and Stobbs, Thomas J., 5,067,687, Cl. 251-129.080.
Stockham, Charles: *See—*
Goodenough, David J.; and Stockham, Charles, 5,068,788, Cl. 364-413.140.
Stohr, Hans-Arnold: *See—*
Paques, Eric P.; and Stohr, Hans-Arnold, 5,068,106, Cl. 424-94.300.
Stong, Gayvin E.: *See—*
Dervisoglu, Bulent I.; and Stong, Gayvin E., 5,068,881, Cl. 377-70.000.
Stout, James C., to Honeywell Inc. Fiber optic network architecture having data feedback for monitoring communications thereon. 5,068,847, Cl. 359-118.000.
Stout, James T., to Mead Corporation, The. Packaging and display case for dissimilar objects. 5,067,609, Cl. 206-45.110.
Stowe, David W.: *See—*
Gillham, Frederick J.; and Stowe, David W., 5,067,787, Cl. 385-50.000.
Stowell, Brian D.: *See—*
Stowell, Norman L.; Stowell, Brian D.; and Stowell, Gregory T., 5,067,200, Cl. 16-237.000.
Stowell, Gregory T.: *See—*
Stowell, Norman L.; Stowell, Brian D.; and Stowell, Gregory T., 5,067,200, Cl. 16-237.000.
Stowell, Norman L.; Stowell, Brian D.; and Stowell, Gregory T. Hinge for inset doors. 5,067,200, Cl. 16-237.000.
Strandholm, John J., to Kraft General Foods, Inc. Method of making simulated cheese containing casein materials. 5,068,118, Cl. 426-582.000.
Strang, Harry: *See—*
Andree, Roland; Haug, Michael; Santel, Hans-Joachim; Schmidt, Robert R.; and Strang, Harry, 5,068,394, Cl. 560-56.000.
Strauss, Guenther: *See—*
Falke, Holger; and Strauss, Guenther, 5,068,217, Cl. 502-330.000.
Strebelle, Michel, to Solvay & Cie. Process for the purification of vinyl chloride. 5,068,474, Cl. 570-238.000.
Streckert, Holger H.; Sheehan, James E.; and Mazdiyasni, Khodabakhsh, to General Atomics. Method for providing a silicon carbide matrix in carbon-fiber reinforced composites. 5,067,999, Cl. 156-89.000.
Strid, Eric W.; and Leake, Bernard W., to Cascade Microtech, Inc. Noise parameter test apparatus. 5,068,615, Cl. 324-613.000.
Stromswold, Daivd C.: *See—*
Allen, L. Scott; Mills, William R.; and Stromswold, Daivd C., 5,068,531, Cl. 250-269.000.
Struglinski, Mark J.: *See—*
Chung, David Y.; and Struglinski, Mark J., 5,068,047, Cl. 252-051.50A.

VOL 1132 ISS 4 NO 26 1991 UMI

Stryker Corporation: *See*—
Richmond, James W.; and Block, John J., 5,067,964, Cl. 623-18.000.

Sudou, Masaru: *See*—
Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, 5,068,400, Cl. 560-223.000.

Suganuma, Yoshimi: *See*—
Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, 5,068,742, Cl. 358-296.000.

Sugimoto, Kenichi: *See*—
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.

Sugimoto, Yoshihito: *See*—
Takahashi, Wataru; Sugimoto, Yoshihito; Nakanishi, Mutsuo; Shida, Yoshiaki; and Okada, Minoru, 5,068,003, Cl. 148-421.000.

Sugimura, Koichi; Kimura, Fumio; and Izawa, Shigeru, to Kabushiki Kaisha CSK. Systems for inspecting defects in an optical recording medium. 5,067,812, Cl. 356-237.000.

Sugita, Naomasa; Yotumoto, Yoshiharu; Moriguchi, Kouji; and Sekiba, Toshinobu, to Kabushiki Kaisha Toshiba. Semiconductor device with fuse function. 5,068,706, Cl. 357-51.000.

Sugiura, Masamichi, to Minolta Camera Kabushiki Kaisha. Image reader with platen criterial mark for determining document scan start. 5,068,913, Cl. 382-61.000.

Sugiyama, Kenji, to Victor Company of Japan, Ltd. Motion vector estimating apparatus. 5,068,722, Cl. 358-105.000.

Sugiyama, Shouji; Ohtani, Daisuke; and Tajima, Tadao, to Matsushita Electric Industrial Co., Ltd. Portable radio transceiver. 5,068,917, Cl. 455-90.000.

Sugiyama, Yukinori, to NEC Corporation. Bus control for small computer system interface with transfer indication preceding final word transfer and buffer empty indication preceding receipt acknowledgement. 5,068,785, Cl. 395-325.000.

Suitch, Paul R.; Coppage, A. Taylor; and Brown, Alan J., to E.C.C. America Inc. Chemically aggregated mineral pigments. 5,068,276, Cl. 524-413.000.

Sullivan, Gerard J.; Pedrotti, Kenneth D.; and Kroemer, Herbert, to Rockwell International Corporation. Transferred electron effective mass modulator. 5,067,828, Cl. 385-3.000.

Sullivan, James H., to Southwire Company. Method for testing water impervious cable. 5,067,343, Cl. 73-40.700.

Sullivan, Michael T.; and Tock, Gary S., to MTS Systems Corporation. Degree of freedom digital control system for a hydraulic press. 5,068,779, Cl. 364-167.010.

Sulzer Brothers Limited: *See*—
de Jager, Godert, 5,067,527, Cl. 139-435.200.

Sulzer-Escher Wyss AG: *See*—
Mauer, Josef, 5,068,093, Cl. 423-82.000.

Sulzer, Harry E.: *See*—
Frank, Armin C.; and Sulzer, Harry E., 5,067,222, Cl. 29-411.000.

Suman, Michael J.: *See*—
Frye, Dale J.; and Suman, Michael J., 5,067,765, Cl. 296-97.800.

Sumitomo Chemical Company, Limited: *See*—
Horinouchi, Kazuo; Mouri, Masahide; and Kameda, Isao, 5,068,072, Cl. 264-66.000.
Miyamoto, Tetsuya; Takahashi, Miyao; Fujisaki, Takahiko; Ikeou, Shinei; and Omura, Takashi, 5,068,327, Cl. 544-76.000.
Ohmae, Tadayuki; Toyoshima, Yoshiki; Mashita, Kentaro; and Nambu, Jinsho, 5,068,283, Cl. 525-64.000.

Sumitomo Electric Industries, Ltd.: *See*—
Nishiyama, Satoshi, 5,067,791, Cl. 385-101.000.

Sumitomo Metal Industries, Ltd.: *See*—
Takahashi, Wataru; Sugimoto, Yoshihito; Nakanishi, Mutsuo; Shida, Yoshiaki; and Okada, Minoru, 5,068,003, Cl. 148-421.000.

Sumitomo Rubber Industries, Ltd.: *See*—
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,067,539, Cl. 157-13.000.
Nakamura, Yoshinobu, 5,068,151, Cl. 428-407.000.

Summa; Gareth D.: *See*—
Moore, Archie S., deceased; Teske, Robert J.; and Summa, Gareth D., 5,067,414, Cl. 104-172.200.

Sumner, Charles E., Jr.; Hitch, Brenda J.; and Bernard, Bobby L., to Eastman Kodak Company. Process for preparation of resorcinol. 5,068,460, Cl. 568-648.000.

Sun Chemical Corporation: *See*—
Patel, Narendra M.; and Di Leo, Leonard, 5,068,273, Cl. 524-166.000.

Sun Electric Corporation: *See*—
Kreft, Keith A.; Dikopf, Michael; and Loewe, Thomas D., 5,068,613, Cl. 324-379.000.

Sun Microsystems, Inc.: *See*—
Valdes, Jacobo; and Martinez, Eduardo, 5,068,803, Cl. 395-150.000.

Sunata, Tomihisa: *See*—
Ukai, Yasuhiro; Sunata, Tomihisa; Yukawa, Teizou; and Inada, Toshiya, 5,068,748, Cl. 359-59.000.

Sunbeam Plastics Corporation: *See*—
Julian, Randall K.; and Luker, Edward, 5,067,891, Cl. 425-533.000.

Sunds Defibrator AB: *See*—
Reinhall, Rolf B., 5,067,660, Cl. 241-37.000.

Sundstrand Corporation: *See*—
Glennon, Timothy F.; Mehl, Byron R.; Thollot, Pierre; and Krinickas, Alexander, 5,068,590, Cl. 322-10.000.
Hoegberg, Lon; and Maddali, Vijay, 5,068,591, Cl. 322-29.000.

Sunohara, Izuru: *See*—
Ohsawa, Hidefumi; Katayama, Akihiro; Hosokawa, Hiroshi; Sunohara, Izuru; and Yoshimoto, Masahiko, 5,068,746, Cl. 358-443.000.

Suntory Limited: *See*—
Ohfune, Yasufumi; Shimamoto, Keiko; Shinozaki, Haruhiko; and Ishida, Michiko, 5,068,412, Cl. 562-506.000.

Sussman, David P. Portable pill crusher. 5,067,666, Cl. 241-36.000.

Sussman, Harold I. Device for cleaning dental implant posts. 5,067,195, Cl. 15-167.001.

Sutherland, Dennis W., to Rockwell International Corporation. System and method for monitoring and reporting out-of-route mileage for long haul trucks. 5,068,656, Cl. 340-989.000.

Sutter, Franz: *See*—
Nuber, Roland; Schubert, Werner; Sohler, Wolfgang; and Sutter, Franz, 5,067,557, Cl. 165-51.000.

Sutter, Marius: *See*—
Huxley, Alica; Kunz, Walter; Ackermann, Peter; and Sutter, Marius, 5,068,359, Cl. 549-58.000.

Suzuka, Susumu: *See*—
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.

Suzuki, Akihiro: *See*—
Tuchiya, Kazumichi; Nagashima, Nobuhara; Wasada, Masayoshi; and Suzuki, Akihiro, 5,068,735, Cl. 358-209.000.

Suzuki, Akira, to Kabushiki Kaisha Tokai Rika Denki Seisakusho. Switch having a locking mechanism. 5,068,506, Cl. 200-526.000.

Suzuki, Fumio; Shimada, Junichi; Kubo, Kazuhiro; Ohno, Tetsuji; Karasawa, Akira; Ishii, Akio; and Nonaka, Hiromi, to Kyowa Hakko Kogyo Co., Ltd. Xanthine derivatives. 5,068,236, Cl. 514-263.000.

Suzuki, Hideo: *See*—
Kuroda, Yasuhiro; and Suzuki, Hideo, 5,067,290, Cl. 52-208.000.
Nojima, Satoshi; Sakagawa, Kazuo; and Suzuki, Hideo, 5,068,820, Cl. 395-275.000.

Suzuki, Hiroyuki: *See*—
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Suzuki, Kazuichi: *See*—
Oyama, Junichi; Suzuki, Kazuichi; Kato, Akihiro; Inada, Hitoshi; Mori, Masaji; Miyai, Hiromasa; and Kawagoe, Toshiyuki, 5,068,081, Cl. 376-261.000.

Suzuki, Keiichiro: *See*—
Fukukawa, Takao; and Suzuki, Keiichiro, 5,067,841, Cl. 403-140.000.

Suzuki, Makoto: *See*—
Hisada, Hidenori; and Suzuki, Makoto, 5,068,685, Cl. 355-32.000.

Suzuki Manufacturing Co., Ltd.: *See*—
Sakuma, Kouichi, 5,067,422, Cl. 112-68.000.

Suzuki, Motokazu: *See*—
Hagino, Sadaaki; Suzuki, Motokazu; Kondo, Hideyuki; Nishikawa, Shigeru; and Hayashi, Kenichi, 5,068,219, Cl. 505-1.000.

Suzuki, Nobuo: *See*—
Hashimoto, Mitsuru; Shimada, Tomoyuki; Suzuki, Nobuo; Sakai, Takayuki; Suzuka, Susumu; and Sasaki, Masaomi, 5,068,350, Cl. 548-444.000.

Suzuki, Riichiro; Akiyama, Shigeyuki; and Kubo, Yoshihiro, to Horiba, Ltd. Apparatus for measuring fine particles in liquid. 5,067,814, Cl. 356-339.000.

Suzuki, Takumi; and Uehara, Kiyohiro, to Ricoh Company, Ltd. Liquid crystal display device with cut-out portions in lead electrodes for connection to driving circuit. 5,067,796, Cl. 359-88.000.

Suzuki, Tomoko: *See*—
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.

Suzuki, Tomonari; Wada, Hiroshi; Yoshimoto, Yoshikazu; and Yoshida, Masaru, to Sharp Kabushiki Kaisha. Process for producing graphite electrodes. 5,068,126, Cl. 427-122.000.

Suzuki, Toyoo: *See*—
Shinkai, Kunio; Suzuki, Toyoo; Nomura, Yukitaka; Kurachi, Yoshio; and Kureishi, Hiroyuki, 5,067,204, Cl. 19-159.00A.

Suzuki, Yutaka, to Nissan Motor Co., Ltd. Control system for continuously variable transmission. 5,067,372, Cl. 74-866.000.

Swallen, William R.: *See*—
Weedling, Robert E.; Swallen, William R.; Johnson, Raynor; Wegener, Jack; and Davis, David T., 5,067,189, Cl. 5-81.00R.

Swanson, Dail L.; Green, Raymond M.; and Bennorth, Gregory S., to Valmont Industries, Inc. Wall box dimmer. 5,068,639, Cl. 338-179.000.

Swanson, Eric J.; and Del Signore, Bruce P., to Crystal Semiconductor Corporation. Combining fully-differential and single-ended signal processing in a delta-sigma modulator. 5,068,660, Cl. 341-143.000.

Swearingen, Steven H.: *See*—
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Sweeney, Gerald T., to Aardvark Corporation. Apparatus and technique for installing an elongated rod in an earth formation. 5,067,854, Cl. 405-184.000.

Swinkels, Johannes M. M.: *See*—
Dona, Marinus J. J.; and Swinkels, Johannes M. M., 5,067,377, Cl. 82-138.000.

Sydansk, Robert D., to Marathon Oil Company. Selective placement of a permeability-reducing material to inhibit fluid communication between a near well bore interval and an underlying aquifer. 5,067,564, Cl. 166-270.000.

Synaptics, Incorporated: *See*—
Mead, Carver A.; and Allen, Timothy P., 5,068,622, Cl. 330-253.000.

Syntex (U.S.A.) Inc.: *See*—
DeHoff, Bradley S., 5,068,360, Cl. 549-74.000.
Gibbons, Ian; Ullman, Edwin F.; and Felgner, Philip L., 5,068,198, Cl. 436-535.000.

Systems Division Incorporated: *See*—
Korbonski, John A., 5,067,859, Cl. 408-1.00R.

Szablikowski, Klaus: *See*—
Buysch, Hans-Josef; Klausener, Alexander; Szablikowski, Klaus; Balser, Klaus; and Wilke, Michaela, 5,068,321, Cl. 536-32.000.

Szabo, Steve B.; and Chien, Daniel G., to Rockwell International Corporation. Seal assembly. 5,067,732, Cl. 277-11.000.

Szatmari, Sandor: *See*—
Schaefer, Fritz P.; Szatmari, Sandor; and Jethwa, Jaydev, 5,068,525, Cl. 250-213.0VT.

Szmanda, Jeffrey P.; and Szmanda, William J. Input keyboard apparatus for information processing device and other keyboard devices. 5,067,834, Cl. 400-489.000.

Szmanda, William J.: *See*—
Szmanda, Jeffrey P.; and Szmanda, William J., 5,067,834, Cl. 400-489.000.

Szyszkowski, Andrew J., to Siemens-Pacesetter, Inc. Ribbon conductor set and method. 5,067,903, Cl. 439-55.000.

T. Goldschmidt AG: *See*—
Ruf, Erich, 5,068,374, Cl. 556-105.000.

T Z & B Products: *See*—
Tomlinson, David L., 5,067,329, Cl. 62-457.400.

Tabakoff, Boris: *See*—
Hendricks, Katherine A., 5,067,941, Cl. 600-27.000.

Tabata, Akihiko: *See*—
Kunimi, Yuji; Tabata, Akihiko; and Fujita, Yatsuka, 5,068,467, Cl. 568-852.000.

Tabata, Kuniaki: *See*—
Watanabe, Tan; Nishino, Hideki; Iwami, Hidefumi; and Tabata, Kuniaki, 5,068,804, Cl. 395-147.000.

Tagami, Shigeru; Umedu, Yoshio; and Niwa, Katsuhito, to Seikosha Co., Ltd. Small stepping motor. 5,068,562, Cl. 310-256.000.

Tagawa, Shinichi: *See*—
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Tagomori, Satoshi: *See*—
Fujisawa, Masao; Tagomori, Satoshi; Takasaki, Mamoru; and Sato, Yoshihiro, 5,067,851, Cl. 405-115.000.

Taguchi, Eiji: *See*—
Kiuchi, Naoyuki; Fujimaru, Masanori; Nakagawa, Susumu; Taguchi, Eiji; Kasagi, Masao; Kimura, Akio; and Kawabe, Shinji, 5,067,413, Cl. 104-168.000.

Taiho Pharmaceutical Company, Limited: *See*—
Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, 5,068,235, Cl. 514-258.000.

Taira, Hiroshi, to Brother Kogyo Kabushiki Kaisha. Color image recording apparatus having trial printing with variable exposure. 5,068,686, Cl. 355-32.000.

Taisho Pharmaceutical Co., Ltd.: *See*—
Murata, Mitsuo; Yokoo, Chihiro; and Hanada, Kazunori, 5,068,354, Cl. 548-517.000.

Taito Co., Ltd.: *See*—
Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, 5,068,247, Cl. 514-440.000.

Tajima, Tadao: *See*—
Sugiyama, Shouji; Ohtani, Daisuke; and Tajima, Tadao, 5,068,917, Cl. 455-90.000.

Takagaki, Hidetsugu; Nakanishi, Shigenori; Abe, Masayoshi; Ohki, Hiromi; and Sano, Yoshiyuki, to Dainippon Ink and Chemicals, Inc. Chalcone derivatives and process for producing the same. 5,068,364, Cl. 549-415.000.

Takagawa, Makoto; Yamagishi, Ken; Yoshihara, Jyun; Inamasa, Kenji; and Watabe, Kumiko, to Mitsubishi Gas Chemical Company, Inc. Process for producing 2,6-dimethylnaphthalene. 5,068,480, Cl. 585-411.000.

Takagi, Izumi: *See*—
Hardesty, Lee R.; and Takagi, Izumi, 5,067,933, Cl. 475-32.000.

Takagi, Kazutoshi: *See*—
Kitajima, Nobuaki; and Takagi, Kazutoshi, 5,067,804, Cl. 359-369.000.

Takagi, Kotaro; and Yokoya, Satoshi, to Sony Corporation. Charge pump circuit. 5,068,626, Cl. 331-17.000.

Takahama, Yoshihiro; Kurihara, Kazushige; and Nishiya, Takayuki, to Shimizu Construction Co., Ltd. Dome structure. 5,067,288, Cl. 52-80.000.

Takahashi, Katsutoshi: *See*—
Nowatari, Hiroyoshi; Hayami, Hiroshi; Kuroda, Yasuo; Yoda, Sumio; and Takahashi, Katsutoshi, 5,068,376, Cl. 556-137.000.

Takahashi, Kenji: *See*—
Kondo, Tetsujiro; and Takahashi, Kenji, 5,068,726, Cl. 358-135.000.

Takahashi, Masatomo, to Canon Kabushiki Kaisha. Image output apparatus for reproducing, adjacent each other, leading image data portions of plural image units. 5,068,741, Cl. 358-296.000.

Takahashi, Miyao: *See*—
Miyamoto, Tetsuya; Takahashi, Miyao; Fujisaki, Takahiko; Ikeou, Shinei; and Omura, Takashi, 5,068,327, Cl. 544-76.000.

Takahashi, Satoshi: *See*—
Kato, Hisataka; and Takahashi, Satoshi, 5,067,235, Cl. 29-890.043.

Takahashi, Shuji: *See*—
Ozawa, Osamu; Takahashi, Shuji; and Igarashi, Shigeru, 5,068,137, Cl. 428-36.200.

Takahashi, Tadashi: *See*—
Okamura, Yoshio; Takarada, Mitsuhiro; Kobayashi, Yoshiteru; and Takahashi, Tadashi, 5,068,301, Cl. 528-15.000.

Takahashi, Tastuhiko: *See*—
Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, 5,067,593, Cl. 187-73.000.

Takahashi, Toshimasa: *See*—
Fudono, Kanji; Takahashi, Toshimasa; Ogawa, Hiroshi; and Yamashita, Toshio, 5,067,556, Cl. 165-29.000.

Takahashi, Wataru; Sugimoto, Yoshihito; Nakanishi, Mutsuo; Shida, Yoshiaki; and Okada, Minoru, to Sumitomo Metal Industries, Ltd. Wear-resistant titanium alloy and articles made thereof. 5,068,003, Cl. 148-421.000.

Takajo, Shigeaki: *See*—
Kiyota, Yoshisato; Ohta, Junichi; Ohtsubo, Hiroshi; and Takajo, Shigeaki, 5,067,979, Cl. 75-243.000.

Takakura, Yoshio: *See*—
Ban, Takeshi; Matsunaga, Shigeru; Hirano, Hidemi; Isobe, Tuguo; and Takakura, Yoshio, 5,067,555, Cl. 164-480.000.

Takami, Harumi, successor: *See*—
Matsumoto, Hisashi; and Takami, Masaaki, deceased, 5,068,133, Cl. 427-358.000.

Takami, Masaaki, deceased: *See*—
Matsumoto, Hisashi; and Takami, Masaaki, deceased, 5,068,133, Cl. 427-358.000.

Takami, Masao: *See*—
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,067,539, Cl. 157-13.000.

Takaoka, Toshio: *See*—
Kushi, Naoto; Takaoka, Toshio; and Muramatsu, Motoyasu, 5,067,579, Cl. 180-197.000.
Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, 5,067,465, Cl. 123-489.000.

Takarada, Mitsuhiro: *See*—
Okamura, Yoshio; Takarada, Mitsuhiro; Kobayashi, Yoshiteru; and Takahashi, Tadashi, 5,068,301, Cl. 528-15.000.

Takasaki, Hidenori: *See*—
Matsushima, Eiji; and Takasaki, Hidenori, 5,067,436, Cl. 118-676.000.

Takasaki, Mamoru: *See*—
Fujisawa, Masao; Tagomori, Satoshi; Takasaki, Mamoru; and Sato, Yoshihiro, 5,067,851, Cl. 405-115.000.

Takashima, Atsuyuki: *See*—
Yamato, Toshitaka; Ito, Tatsuo; Takashima, Atsuyuki; and Motojima, Akira, 5,068,897, Cl. 381-24.000.

Takashima, Kazutoshi, to Sanshin Kogyo Kabushiki Kaisha. Piston of two-cycle engine. 5,067,453, Cl. 123-193.00P.

Takashima, Tadashi: *See*—
Koda, Yoshiharu; and Takashima, Tadashi, 5,068,574, Cl. 315-225.000.

Takata, Tadahiko: *See*—
Nose, Kenkichi; Takata, Tadahiko; and Tsuge, Masuo, 5,068,142, Cl. 428-232.000.

Takatsu, Haruyoshi: *See*—
Sasaki, Makoto; Takatsu, Haruyoshi; and Takeuchi, Kiyofumi, 5,068,462, Cl. 568-661.000.

Takayama, Hajime: *See*—
Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, 5,068,481, Cl. 585-426.000.
Akatsu, Masahiro; Takayama, Hajime; and Matsuoka, Takeshi, 5,068,482, Cl. 585-429.000.

Takayama, Jun; Fujita, Tadao; and Ninomiya, Takeshi, to Sony Corporation. Sampling rate converter. 5,068,716, Cl. 358-13.000.

Takebe, Hideharu; and Okura, Makoto, to Mitsubishi Denki Kabushiki Kaisha. Image display apparatus. 5,068,651, Cl. 340-814.000.

Takechi, Satoshi; Nakamura, Yuko; and Mihara, Yukari, to Fujitsu Limited. Process for production of semiconductor device. 5,068,169, Cl. 430-313.000.

Takeda, Akihiko, to Yoshida Kogyo K.K. Method of attaching curtain wall units to a building skeleton framework. 5,067,300, Cl. 52-745.000.

Takeda, Mamoru: *See*—
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Takehara, Hiroshi; and Ikeda, Hideo, to Fumi Photo Film Co., Ltd. Photosensitive silver halide emulsions containing parallel multiple twin silver halide grains and photographic materials containing the same. 5,068,173, Cl. 430-567.000.

Takehara, Nobumitsu: *See*—
Oshikoshi, Yuji; Suganuma, Yoshimi; Hara, Hiroshi; Shiota, Kazuo; Takehara, Nobumitsu; and Sakamoto, Kiichiro, 5,068,742, Cl. 358-296.000.

Takenaka, Shinji: *See*—
Oi, Ryu; Takenaka, Shinji; and Shimakawa, Chitoshi, 5,068,459, Cl. 568-638.000.

Takeo, Hideya, to Fuji Photo Film Co., Ltd. Method of recognizing irradiation field. 5,068,907, Cl. 382-48.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Takeshita, Nobuo; and Fujita, Teruo, to Mitsubishi Denki Kabushiki Kaisha. Optical read-write apparatus. 5,068,843, Cl. 369-44.130.

Takeuchi, Kesatoshi, to Seiko Epson Corporation. Video image enlargement and reduction system and method. 5,068,731, Cl. 358-180.000.

Takeuchi, Kiyofumi: *See—*
Sasaki, Makoto; Takatsu, Haruyoshi; and Takeuchi, Kiyofumi, 5,068,462, Cl. 568-661.000.

Takeuchi, Shigeru; Murayama, Takayuki; Horiguchi, Motokuni; and Hukunaga, Masami, to Kabushiki Kaisha Hitachi Seisakusho; Hitachi Micro Computor Engineering Kabushiki Kaisha; and Enplas Corporation. IC socket. 5,067,904, Cl. 439-73.000.

Takeuchi, Yukihisa: *See—*
Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, 5,067,455, Cl. 123-196.00R.

Taljan, Dennis N.; and Price, R. Douglas, to PPG Industries, Inc. Acid etch resistant clear coats. 5,068,288, Cl. 525-155.000.

Tamaoki, Akihiro: *See—*
Kumai, Seisaku; Yokokoji, Osamu; and Tamaoki, Akihiro, 5,068,449, Cl. 568-335.000.

Tamayama, Hiroshi: *See—*
Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, 5,068,718, Cl. 358-27.000.

Tamura, Tadahiko: *See—*
Kinuhata, Satoru; Takami, Masao; Shibata, Eiji; and Tamura, Tadahiko, 5,067,539, Cl. 157-13.000.

Tan, Karen: *See—*
Pal, Jack M.; Cosman, James P.; and Tan, Karen, 5,068,280, Cl. 524-728.000.

Tanabe, Kazunori, to Brother Kogyo Kabushiki Kaisha. Device for automatically loading an image recording apparatus with a recording medium. 5,068,688, Cl. 355-99.000.

Tanabe Seiyaku Co., Ltd.: *See—*
Samejima, Masayoshi; Noda, Kazuo; Hirakawa, Yoshiyuki; and Yoshino, Hiroyuki, 5,068,112, Cl. 424-495.000.

Tanagawa, Kouji; and Yoshida, Tomoaki, to Oki Electric Industry Co., Ltd. Microcomputer having a built-in PROM for storing an optional program. 5,068,783, Cl. 395-575.000.

Tanaka, Akihiro, to Asahi Kogaku Kogyo Kabushiki Kaisha. Objective lens mount utilizing leaf springs. 5,068,844, Cl. 369-44.160.

Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, to Matsushita Electric Industrial Co., Ltd. Apparatus for recording/reproducing a digital audio signal with a video signal. 5,068,752, Cl. 360-32.000.

Tanaka, Hirotoshi: *See—*
Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, 5,068,605, Cl. 324-158.00R.

Tanaka, Masahide; Agou, Tokinori; Kuwahara, Masahiro; Sakashita, Takeshi; Shimoda, Tomoaki; and Sudou, Masaru, to Mitsui Petrochemical Industries, Ltd. Fluorine-containing mono- or poly-alkylene glycol and method for producing same. 5,068,400, Cl. 560-223.000.

Tanaka, Masakatsu; Itoh, Masanobu; Arabori, Noboru; Nara, Toshihiko; Takahashi, Tastuhiko; Masuda, Katutaro; and Saito, Mitsuo, to Hitachi, Ltd. Braking device for elevator winding machine and elevator using the braking device. 5,067,593, Cl. 187-73.000.

Tanaka, Masaki: *See—*
Meguriya, Noriyuki; Azechi, Syuuichi; and Tanaka, Masaki, 5,068,380, Cl. 556-428.000.

Tanaka, Nobuo: *See—*
Negi, Taichi; Hirofuji, Satoshi; Tanaka, Nobuo; and Kawai, Syuji, 5,068,077, Cl. 264-512.000.

Tanaka, Teruhiko, to Kabushiki Kaisha Daikin Seisakusho. Double wrap brake band and its manufacturing method. 5,067,227, Cl. 29-469.000.

Tanaka, Toru; and Inari, Masato, to Mitsubishi Gas Chemical Company, Inc. Process for producing highly pure 2,6-naphthalene dicarboxylic acid. 5,068,410, Cl. 562-483.000.

Tanaka, Yasuhiro, to Mitsubishi Denki Kabushiki Kaisha. Cyclic data transmission method. 5,068,849, Cl. 370-85.500.

Tanaka, Yuji: *See—*
Abe, Nobumasa; Kobayashi, Atsushi; Watanabe, Koji; Morishita, Norio; and Tanaka, Yuji, 5,068,684, Cl. 355-27.000.

Taneichi, Yoshio; and Fujiwara, Yukinari, to Hitachi Denshi Kabushiki Kaisha. Amplifier. 5,068,624, Cl. 330-293.000.

Taneoka, Tadayuki: *See—*
Owada, Nobuo; Horiuchi, Mitsuaki; Tsuneoka, Masatoshi; and Taneoka, Tadayuki, 5,068,710, Cl. 357-71.000.

Tang, Gernia: *See—*
Pors, Gary A.; and Tang, Gernia, 5,068,707, Cl. 357-59.000.

Tang, Wing T.: *See—*
Betterton, Kathleen M.; Hinsberg, William D.; Nguyen, Huu T.; Tang, Wing T.; and Twieg, Robert J., 5,068,054, Cl. 252-299.620.

Tani, Yasunori: *See—*
Kaneaki, Tetsuhiko; Nuriya, Kozo; and Tani, Yasunori, 5,068,661, Cl. 341-143.000.

Taniguchi, Masato, to NGK Spark Plug. Ceramic camshaft. 5,067,369, Cl. 74-567.000.

Taniguchi, Masayuki: *See—*
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Taniguchi, Nobuyuki; Karasaki, Toshihiko; Ishida, Tokuji; Hamada, Masataka; and Norita, Toshio, to Minolta Camera Kabushiki Kaisha. Image sensor having multiple pairs of array sensors. 5,068,737, Cl. 358-227.000.

Tanimoto, Yoshimitsu; and Kamada, Akitoshi, to Mitsubishi Denki Kabushiki Kaisha. Solenoid valve. 5,067,688, Cl. 251-129.180.

Tanisake, Hiroka: *See—*
Okumura, Hiroyuki; Kurokawa, Masashi; Namikawa, Akira; and Tanisake, Hiroka, 5,068,281, Cl. 524-753.000.

Tanken Seiko Kabushiki Kaisha: *See—*
Nagai, Yataro; Matsushita, Mitsuyoshi; and Yamauchi, Yuji, 5,067,733, Cl. 277-11.000.

Tarrenn Corporation: *See—*
Christianson, John, 5,067,709, Cl. 272-121.000.

Taub, Floyd: *See—*
Rutherford, Hal; and Taub, Floyd, 5,068,909, Cl. 382-49.000.

Taufer, Peter: *See—*
Burger, Wilfried; Nitschke, Werner; Taufer, Peter; and Weller, Hugo, 5,068,640, Cl. 340-438.000.

Taupier, Roger: *See—*
Waddington, Clive; Lagasse, Normand L.; and Taupier, Roger, 5,067,454, Cl. 123-196.00S.

Tawaki, Shinichirou: *See—*
Mamoru, Takeichi; Naoshi, Hagihara; Hitoshi, Tarukawa; Tawaki, Shinichirou; and Makiguchi, Nobuyoshi, 5,068,187, Cl. 435-106.000.

Taylor, Chandler R., Jr.; Cale. Jr., Albert D.; Johnson, David N.; and Stauffer. Jr., Harold F., to A. H. Robins Company Incorporated. Method of treating muscular tension, muscle spasticity and anxiety with 3-aryloxy and 3-arylthioazetidinecarboxamides. 5,068,231, Cl. 514-210.000.

Taylor, John R.: *See—*
Agger, Reginald T.; Taylor, John R.; and Hardy, Alan, 5,068,143, Cl. 428-241.000.

Taylor, Julian S. High presssure fluid emergency shutoff valve. 5,067,511, Cl. 137-67.000.

Taylor, Maylon S., II; and Williams, Joel L., to Becton, Dickinson and Company. Barrier coating on blood contacting devices. 5,067,491, Cl. , ?-748.000.

Taylor, Stewart S.: *See—*
Hayward, Wesley H.; and Taylor, Stewart S., 5,068,621, Cl. 330-253.000.

TDK Corporation: *See—*
Matsuzaki, Mikio, 5,068,759, Cl. 360-103.000.
Nakayama, Masatoshi; Ueda, Kunihiro; and Okamura, Masatoshi, 5,068,146, Cl. 428-336.000.

Technical Systems Corp.: *See—*
Soules, Jack A.; and Carpenter, Bryan D., 5,067,713, Cl. 273-149.00P.

Technicon Instruments Corporation: *See—*
Hwang, Deng R.; and Scott, Mary Ellen A., 5,068,180, Cl. 435-7.920.

Tecumseh Products Company: *See—*
Bonde, Kevin G., 5,067,449, Cl. 123-41.860.

Teetz, Volker; Wissmann, Hans; and Urbach, Hansjorg, to Hoechst Aktiengesellschaft. Process for the preparation of n octahydropenta (6) pyrrole carboxylates. 5,068,351, Cl. 548-452.000.

Teijin Limited: *See—*
Hara, Shigeyoshi; Inata, Hiroo; and Matsumura, Shunichi, 5,068,307, Cl. 528-125.000.
Inata, Hiroo; Matsumura, Shunichi; Itoh, Seiji; and Okada, Masuhiro, 5,068,062, Cl. 252-518.000.
Nose, Kenkichi; Takata, Tadahiko; and Tsuge, Masuo, 5,068,142, Cl. 428-232.000.

Teikoku Seiyaku Kabushiki Kaisha: *See—*
Kawazi, Toshikuni; Ono, Masahiro; and Inoue, Nobuko, 5,068,103, Cl. 424-81.000.

Teillard, Roger: *See—*
Hartemann, Frederic; Bres, Michel; and Teillard, Roger, 5,068,860, Cl. 372-2.000.

Teio Tsushin Kogyo Kabushiki Kaisha: *See—*
Yashina, Kazuo, 5,068,643, Cl. 340-571.000.

Teixeira, Joao C.: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Tektronix, Inc.: *See—*
DiLazzaro, John F.; McAlpin, James L.; and Mark, Joanne R., 5,068,210, Cl. 501-32.000.
Fields, Walter D.; and Gumm, Linley F., 5,068,614, Cl. 324-534.000.
Mielke, Joseph A., 5,068,602, Cl. 324-158.00F.
Van Horne, Arthur C.; Hoffman, Eldon P.; and Bakke, Paul D., 5,067,705, Cl. 271-277.000.

Teledyne Industries, Inc.: *See—*
Clark, Rodney L.; and Hester, Charles F., 5,068,801, Cl. 395-25.000.

Telefonaktiebolaget L M Ericsson: *See—*
Nortenius, Bengt-Arne; Olsson, Per-Erik B.; and Grip, Nils-Erik G., 5,067,248, Cl. 33-744.000.

Telemecanique: *See—*
Leonard, Didier; and Even, Stephane, 5,068,592, Cl. 323-224.000.

Telschow, Jeffrey E., to Akzo N.V. Purification of N,N-Dialkylcarbamoylmethylphosphine oxide. 5,068,426, Cl. 564-15.000.

Tennigkeit, Jurgen; and Rose, Burkhard, to Goldwell AG. Agent for the long-lasting shaping of hair. 5,068,102, Cl. 424-72.000.

Tenti, Paolo: *See—*
Borgatti, Riccardo; and Tenti, Paolo, 5,068,775, Cl. 363-15.000.

Tenuta, Ralph D.: *See—*
Dewey, George G.; and Tenuta, Ralph D., 5,067,864, Cl. 411-344.000.

Terabe, Kuniyuki: *See—*
Mundstock, Rene ; Terabe, Kuniyuki; Lamprecht, Antonio R.; Teixeira, Joao C.; Batista, Altair R. D.; Dias, Edson d.; Santos, Luiz D.; Amorim, Osvaldo; Rezende, Joel; Filho, Jorge H.; Gobbo, Joao C.; and Machado, Romeu, 5,068,010, Cl. 202-99.000.

Terada, Yasuharu; Ishii, Susumu; and Mizuno, Hiroshi, to Yoshida Kogyo K.K. Slide fastener slider. 5,067,209, Cl. 24-429.000.

Terane, Hideyuki: *See—*
Uramoto, Shinichi; and Terane, Hideyuki, 5,068,818, Cl. 364-734.000.

Terrigno, Matthew. Map scaling instrument. 5,067,249, Cl. 33-773.000.

Tervo, John N.: *See—*
Ball, Larry K.; Hines, Marshall U.; and Tervo, John N., 5,067,506, Cl. 137-1.000.

Teske, Robert J.: *See—*
Moore, Archie S., deceased; Teske, Robert J.; and Summa, Gareth D., 5,067,414, Cl. 104-172.200.

Testardi, David A. High performance anti-lock brake system for original equipment and after-market applications. 5,067,778, Cl. 303-113.00R.

Tetra Pak Holdings S.A.: *See—*
Andersson, Helge, 5,067,311, Cl. 53-551.000.
Jonsson, Tommy, 5,067,614, Cl. 229-123.100.

Tetzlaff, Heribert: *See—*
Miess, Georg-Emerich; Schwarz, Karl-Heinz; Tetzlaff, Heribert; and Wojtech, Bernhard, 5,068,358, Cl. 548-555.000.

Texaco Chemical Company: *See—*
Cuscurida, Michael; McCoy, David R.; and Lin, Jiang-Jen, 5,068,444, Cl. 564-505.000.
Nieh, Edward C. Y., 5,068,456, Cl. 568-618.000.
Sanderson, John R.; and Marquis, Edward T., 5,068,366, Cl. 549-533.000.

Texas Instruments Incorporated: *See—*
Love, Andrew M., 5,068,553, Cl. 307-605.000.
Mahant-Shetti, Shivaling S.; and Harward, Mark G., 5,068,825, Cl. 365-154.000.
Morris, Francis J.; Plumton, Donald L.; Yang, Jau-Yuann; and Yuan, Han-Tzong, 5,068,756, Cl. 357-16.000.
Niehaus, Jeffrey A., 5,068,599, Cl. 324-158.00R.
Offiler, Stephen B.; Berg, Peter G.; and Kawate, Keith W., 5,068,589, Cl. 322-7.000.
Tran, Liem T., 5,068,705, Cl. 357-43.000.
Yang, Ping; Chatterjee, Amitava; Aur, Shian; and Polgreen, Thomas L., 5,068,696, Cl. 357-23.100.

Th. Goldschmidt AG: *See—*
Ruf, Erich, 5,068,373, Cl. 556-105.000.

Thaler, Warren A.: *See—*
Brownawell, Darrell W.; Thaler, Warren A.; Bannister, Eric; and Ladwig, Paul K., 5,068,044, Cl. 252-25.000.

Thanisch, Klaus, to Zeller Plastik GmbH. Plastic closure for containers. 5,067,624, Cl. 215-235.000.

Theriot, Kevin J., to Ethyl Corporation. Olefin oligomerization with BF_3 alcohol alkoxylate co-catalysts. 5,068,487, Cl. 585-510.000.

Thermalloy Incorporated: *See—*
Bland, Donald L.; and Smithers, Matthew C., 5,068,764, Cl. 361-386.000.

Theurer, Josef; and Worgotter, Herbert, to Franz Plasser Bahnbaumaschinen-Industriegesellschaft m.b.H. Tie plate inserting machine. 5,067,412, Cl. 104-16.000.

Thiele, Dwain L.: *See—*
Lipsky, Peter E.; and Thiele, Dwain L., 5,068,223, Cl. 514-019.000.

Thiem, Joachim: *See—*
Schlingmann, Merten; Keller, Reinhold; Wiesner, Matthias; Treder, Wolfgang; and Thiem, Joachim, 5,068,186, Cl. 435-96.000.

Thigpen, David R.; Lawson, Jimmie B.; and Nelson, Richard C., to Shell Oil Company. Preformed surfactant-optimized aqueous alkaline flood. 5,068,043, Cl. 252-855.400.

Thoen, Bradford K., to MTS Systems Corporation. Phased digital filtering in multichannel environment. 5,068,813, Cl. 364-572.000.

Thollot, Pierre: *See—*
Glennon, Timothy F.; Mehl, Byron R.; Thollot, Pierre; and Krinickas, Alexander, 5,068,590, Cl. 322-10.000.

Thoma, Norman E. Can crusher. 5,067,398, Cl. 100-53.000.

Thomas, Bruce W.: *See—*
Wormald, Malcolm R.; and Thomas, Bruce W., 5,068,532, Cl. 250-270.000.

Thomas, Daniel J., to Container Graphics Corporation. Rotary printing plate washing apparatus. 5,067,193, Cl. 15-88.300.

Thompson, Elmer R. Sewing machine drive assembly, including pulley belt traction enhancement device. 5,067,423, Cl. 112-220.000.

Thompson, Richard A.: *See—*
Brown, Stephen E.; Meeks, Donnie F.; Souders, Ralph W.; and Thompson, Richard A., 5,068,763, Cl. 361-364.000.

Thomsen, Peter. Dispenser pouch and holder and dispensing unit therefor. 5,067,635, Cl. 222-103.000.

Thomson Consumer Electronics, Inc.: *See—*
Sendelweck, Gene K., 5,068,730, Cl. 358-169.000.

Thomson-CSF: *See—*
Champeau, Andre , 5,068,632, Cl. 333-238.000.
Fromont, Bernard, 5,068,834, Cl. 367-135.000.
Meunier, Paul-Louis; Coutellier, Jean-Marc; and Lehureau, Jean-Claude, 5,067,230, Cl. 29-603.000.
Prieur-Drevon, Pascal, 5,068,701, Cl. 357-24.000.

Thomson Tubes Electroniques: *See—*
Hartemann, Frederic; Bres, Michel; and Teillard, Roger, 5,068,860, Cl. 372-2.000.

Thorn EMI Electronics Limited: *See—*
Voles, Roger, 5,068,666, Cl. 342-192.000.

Thorson, Thomas A.: *See—*
Zimmerman, Eckehart; and Thorson, Thomas A., 5,067,382, Cl. 83-879.000.

Three-D Composites Research Corporation: *See—*
Tsuzuki, Makoto; Kimbara, Masahiko; Fukuta, Kenji; and Machii, Akihiko, 5,067,525, Cl. 139-11.000.

Thumm, Helmut: *See—*
Sauter, Willy; Thumm, Helmut; Wahl, Rainer; and Widmann, Dieter, 5,067,371, Cl. 74-813.00L.

Thur, Alex; and Seitz, Kurt, to Wagner International AG. Electrostatic paint spray gun. 5,067,434, Cl. 118-629.000.

Tieka, Bernd: *See—*
Decher, Gero; and Tieka, Bernd, 5,068,318, Cl. 534-573.000.

Tierney, Elaine: *See—*
Batey, John; and Tierney, Elaine, 5,068,124, Cl. 427-39.000.

Tigg Corporation: *See—*
Tiggelbeck, Donald D.; and Patton, Samuel K., 5,068,029, Cl. 210-284.000.

Tiggelbeck, Donald D.; and Patton, Samuel K., to Tigg Corporation. Two-chamber fluid/solids treatment vessel. 5,068,029, Cl. 210-284.000.

Timm, Eberhard. Device for preparing hot drinks. 5,067,395, Cl. 99-282.000.

Timm, Gerald L.: *See—*
Peter, John H.; Timm, Gerald L.; and Wiedenbeck, Roger D., 5,067,824, Cl. 384-99.000.

Ting-Chih, Liu; Sheng-Shun, Hsieh; and Shih-Shiung, Huang. Quantitative liquid level controlling device. 5,067,517, Cl. 137-426.000.

Tioxide Group PLC: *See—*
Robb, Jenifer L., 5,068,056, Cl. 252-313.100.

Tipton Manufacturing Corporation: *See—*
Kobayashi, Hisamine; and Shimizu, Toshiharu, 5,067,860, Cl. 409-185.000.

Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Rupprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., to Merck & Co., Inc. N-alkenyl-3-hydroxybenzo[b]thiophene-2-carboxamide derivatives as dual cyclooxygenase and lipoxygenase inhibitors. 5,068,248, Cl. 514-443.000.

Titcomb, Forrest; Cordova, Jackie; and Schaule, Max W., to Digital Equipment Corporation. Hydrodynamic bearing. 5,067,528, Cl. 141-4.000.

Toa Medical Electronics Co., Ltd.: *See—*
Kosaka, Tokihiro, 5,068,906, Cl. 382-48.000.

Tobias, Samuel; and Hazlehurst, Fred T., to Hayward Industries, Inc. Underdrain assembly with pivotally-mounted and lockable laterals. 5,068,033, Cl. 210-169.000.

Tock, Gary S.: *See—*
Sullivan, Michael T.; and Tock, Gary S., 5,068,779, Cl. 364-167.010.

Toda, Atsushi: *See—*
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Toda, Shigeo, to Seiko Epson Corporation. Solid state image sensing device. 5,068,713, Cl. 357-72.000.

Todokoro, Hideo: *See—*
Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, 5,068,605, Cl. 324-158.00R.

Toftkjor, Helle: *See—*
Foldager, Jorgen; Toftkjor, Helle; and Kjornos, Kim, 5,068,109, Cl. 424-441.000.

Toivanen, Tapio. Electrode arrangement. 5,068,023, Cl. 204-196.000.

Toivio, Juha, to Raute Oy. Spindle drive for a veneer lathe. 5,067,534, Cl. 144-209.00R.

Tokai Kogyo Kabushiki Kaisha: *See—*
Arima, Hidetoshi, 5,067,280, Cl. 49-498.000.

Tokudera, Hiromu: *See—*
Nishikawa, Toshio; Okada, Takekazu; Dejima, Hiroki; and Tokudera, Hiromu, 5,068,629, Cl. 333-1.100.

Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, to Tosoh Corporation; and Agro-Kanesho Co., Ltd. Hexahydrophthalic anilide derivatives. 5,068,365, Cl. 549-496.000.

Tokyo Aircraft Instrument Co., Ltd.: *See—*
Tsuihiji, Yutaka; and Sakayori, Akio, 5,067,704, Cl. 271-262.000.

Tokyo Electron Limited: *See—*
Tomoyasu, Masayuki, 5,067,798, Cl. 359-286.000.

Tomic, Mladomir: *See—*
Wirth, Lawrence W.; Wegner, Wayne M.; Tomic, Mladomir; Buchko, Raymond; and Natterer, Johann, 5,067,822, Cl. 383-61.000.

Tomida, Yasuko: *See—*
Koike, Shoji; and Tomida, Yasuko, 5,067,980, Cl. 106-22.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Tomii, Kaoru; Miyama, Hiroshi; and Kawauchi, Yoshikazu, to Matsushita Electric Industrial Co., Ltd. Flat configuration color CRT display apparatus with scanning correction for component positioning error. 5,068,579, Cl. 315-366.000.

Tomlinson, David L., to T Z & B Products; and Tomlinson, David L., a part interest. Canned beverage holder. 5,067,329, Cl. 62-457.400.

Tomordi, Elemer: *See*—
Besenyei, Gabor; Nemeth, Sandor; Simandi, Laszlo ; Belak, Maria; Dukai, Jozsef; Nagy, Lajos; Tomordi, Elemer; Soptei, Csaba; and Dioszegine, Erzsebet E., 5,068,424, Cl. 562-870.000.

Tomoyasu, Masayuki, to Tokyo Electron Limited. Laser beam scanning system. 5,067,798, Cl. 359-286.000.

Tonelli, Claudio; and Torelli, Vito, to Ausimont, S.r.l. Perfluoroalkenes and fluorination products thereof. 5,068,470, Cl. 570-134.000.

Tong-Lung Metal Industry Co., Ltd.: *See*—
Fann, Yaw-Shin; Chiou, Ming-Shyang; and Kuo, Ching-Chuan, 5,067,758, Cl. 292-347.000.

Torelli, Vito: *See*—
Tonelli, Claudio; and Torelli, Vito, 5,068,470, Cl. 570-134.000.

Toronto Medical Corp.: *See*—
Saringer, John; and Galbreath, Andrew, 5,067,479, Cl. 128-26.000.

Torre, Arturo D.: *See*—
Melloni, Piero; Torre, Arturo D.; Lazzari, Ettore; and Mazzini, Giuseppe, 5,068,433, Cl. 564-349.000.

Torrington Company, The: *See*—
Grillo, John M.; Hilby, James A.; La Croix, Mark E.; Polinsky, Mark A.; and Steltzer, Gordon L., 5,067,350, Cl. 73-494.000.

Torrington Product Ventures, Inc.: *See*—
Weinstein, Lee D., 5,067,441, Cl. 119-29.000.

Torsten, Nilsson, to Petainer S.A. Apparatus for shaping a tubular preform into a hollow body. 5,067,888, Cl. 425-387.100.

Toshiba Kikai Kabushiki Kaisha: *See*—
Kusanagi, Hiroaki, 5,067,401, Cl. 101-148.000.

Toshiba Lighting & Technology Corporation: *See*—
Tsuyuki, Takao; Sato, Shigehiro; and Ootani, Tetsuo, 5,068,517, Cl. 219-543.000.

Tosoh Corporation: *See*—
Kagawa, Takumi; Morooka, Takashi; and Tsuzuki, Kenji, 5,068,336, Cl. 546-302.000.
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.

Toth, Louis, to Aqua-Lawn, Inc. Retractable low voltage lighting fixture. 5,068,773, Cl. 362-386.000.

Toth, Thomas D.: *See*—
Kosem, Marion; Cachat, Anthony J.; and Toth, Thomas D., 5,068,778, Cl. 364-138.000.

Townsend, Bruce L.: *See*—
Ellis, John G.; and Townsend, Bruce L., 5,068,899, Cl. 381-31.000.

Toya, Matsumi, to Kabushiki Kaisha Tiyoda Seisakusho; and Sakura Finetechnical Co., Ltd. Device for dyeing tissues for immune response observation. 5,068,091, Cl. 422-99.000.

Toyo Radiator Co., Ltd.: *See*—
Kato, Hisataka; and Takahashi, Satoshi, 5,067,235, Cl. 29-890.043.

Toyo Seikan Kaisha Ltd.: *See*—
Kojima, Shunji; Watanabe, Yoshiki; Goto, Hiroaki; and Moriga, Toshinori, 5,068,266, Cl. 523-336.000.

Toyoda Gosei Co., Ltd.: *See*—
Hashiba, Takahiro; and Kaga, Kouichi, 5,067,367, Cl. 74-552.000.

Toyoshima, Yoshiki: *See*—
Ohmae, Tadayuki; Toyoshima, Yoshiki; Mashita, Kentaro; and Nambu, Jinsho, 5,068,283, Cl. 525-64.000.

Toyota Jidosha Kabushiki Kaisha: *See*—
Kato, Nobuyuki; Habuchi, Ryoji; Morisawa, Kunio; and Itoh, Hiroshi, 5,067,603, Cl. 192-0.076.
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.
Kushi, Naoto; Takaoka, Toshio; and Muramatsu, Motoyasu, 5,067,579, Cl. 180-197.000.
Okumura, Hiroyuki; Kurokawa, Masashi; Namikawa, Akira; and Tanisake, Hiroka, 5,068,281, Cl. 524-753.000.
Otowa, Hidekazu; Okada, Kazuhiro; Sonoda, Hidefumi; and Kaneko, Tadao, 5,067,468, Cl. 123-516.000.
Uchida, Kiyoshi; Noda, Shoji; and Higuchi, Kazuo, 5,068,871, Cl. 373-17.000.
Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, 5,067,465, Cl. 123-489.000.

Trainham, James A.: *See*—
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Tran, Liem T., to Texas Instruments Incorporated. Junction field effect transistor with bipolar device and method. 5,068,705, Cl. 357-43.000.

Transportation Technologies, Inc.: *See*—
Gresham, Gary E.; and Tucker, Burnis H., 5,068,583, Cl. 318-266.000.

Treder, Wolfgang: *See*—
Schlingmann, Merten; Keller, Reinhold; Wiesner, Matthias; Treder, Wolfgang; and Thiem, Joachim, 5,068,186, Cl. 435-96.000.

Tremper, Henry S., III, to Du Pont de Nemours, E. I., and Company. Non-carbon black containing conductive coating composition. 5,068,063, Cl. 252-518.000.

Treuner, Uwe D., to E. R. Squibb & Sons, Inc. Certain (2-carboxy or 2-propenoic or 2-carbonyl)-3-halo-4,5-dioxy pyridine intermediates and the corresponding 1,4-dihydro-4-pyridones). 5,068,331, Cl. 546-14.000.

Tri/West Systems, Inc.: *See*—
Volk, John F.; and Michaels, Thomas, 5,067,947, Cl. 604-201.000.

Trieselt, Wolfgang: *See*—
Baur, Richard; Gousetis, Charalampos; Trieselt, Wolfgang; Bochnitschek, Werner; and Oftring, Alfred, 5,068,416, Cl. 562-571.000.

TriQuint Semiconductor, Inc.: *See*—
Hayward, Wesley H.; and Taylor, Stewart S., 5,068,621, Cl. 330-253.000.

Trofimenko, Swiatoslaw: *See*—
Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, 5,068,472, Cl. 570-157.000.

Trotta, Robert A.: *See*—
Miller, Gary R.; Borden, Frederick R.; and Trotta, Robert A., 5,067,238, Cl. 30-34.002.

Trowland, Mark G., to Marketmont Pty, Ltd. Cone shaped inflatable bag for lifting a load. 5,067,774, Cl. 298-1.00A.

Troy Lighting, Inc.: *See*—
Shapiro, James; and Zakrzewski, Bogdan, 5,068,772, Cl. 362-365.000.

TRW Nelson BolzenschweiB-Technik GmbH & Co. KG: *See*—
Aubry, Friedhelm, 5,067,632, Cl. 221-266.000.

TRW Vehicle Safety Systems Inc.: *See*—
Ellis, Robert P., 5,067,212, Cl. 24-642.000.

Tsai, Philips: *See*—
Huang, Ali; Tsai, Philips; and Chen, Bonbo, 5,067,681, Cl. 248-442.200.

Tsai, Sheng-Jen, to AT&T Bell Laboratories. Method and apparatus for testing delta-sigma modulators. 5,068,657, Cl. 341-120.000.

Tsai, Wen-Guo. Multiple-purpose assembled playing set. 5,067,706, Cl. 272-85.000.

Tsubone, Kazuyuki: *See*—
Kawamoto, Hideyuki; Ichinohe, Shoji; and Tsubone, Kazuyuki, 5,068,377, Cl. 556-418.000.

Tsubosaki, Kunihiro: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Tsubota, Takashi, to Oki Electric Industry Co., Ltd. Opto-semiconductor device and method of fabrication of the same. 5,067,809, Cl. 357-17.000.

Tsuchiya, Mikio; Kawase, Shoichi; and Watanabe, Hirofumi, to Honshu Sangyou Kabushiki Kaisha; and Honshu Paper Co., Ltd. Shrink film package having perforated folded strip. 5,067,612, Cl. 206-497.000.

Tsuda, George I.; and Snyder, Dan E., to Hughes Aircraft Company. Adaptive polarization combining system. 5,068,668, Cl. 342-362.000.

Tsuge, Masuo: *See*—
Nose, Kenkichi; Takata, Tadahiko; and Tsuge, Masuo, 5,068,142, Cl. 428-232.000.

Tsuihiji, Yutaka; and Sakayori, Akio, to Tokyo Aircraft Instrument Co., Ltd. Double-feed sheet detection apparatus. 5,067,704, Cl. 271-262.000.

Tsuji, Kiyoshi, to Olympus Optical Co., Ltd. Endoscope photometric apparatus. 5,068,719, Cl. 358-98.000.

Tsuji, Takahiro, to Ricoh Company, Ltd. Distance measuring apparatus having automatic gain control. 5,068,540, Cl. 250-561.000.

Tsukamoto, Keisuke: *See*—
Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, 5,067,465, Cl. 123-489.000.

Tsukiji, Masaaki: *See*—
Ishizuka, Kou; Nishimura, Tetsuharu; Tsukiji, Masaaki; and Ishii, Satoshi, 5,067,813, Cl. 356-351.000.

Tsumura, Ryuichiro; Muraishi, Teruo; Ideda, Keiichi; and Wang, Jin-Kai, to Mitsui Toatsu Chemicals, Inc. Preparation of N-substituted maleimides by use of tin catalysts. 5,068,357, Cl. 548-548.000.

Tsuneoka, Masatoshi: *See*—
Owada, Nobuo; Horiuchi, Mitsuaki; Tsuneoka, Masatoshi; and Taneoka, Tadayuki, 5,068,710, Cl. 357-71.000.

Tsuyuki, Takao; Sato, Shigehiro; and Ootani, Tetsuo, to Toshiba Lighting & Technology Corporation. Printed strip heater. 5,068,517, Cl. 219-543.000.

Tsuzuki, Kenji: *See*—
Kagawa, Takumi; Morooka, Takashi; and Tsuzuki, Kenji, 5,068,336, Cl. 546-302.000.
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.

Tsuzuki, Makoto; Kimbara, Masahiko; Fukuta, Kenji; and Machii, Akihiko, to Three-D Composites Research Corporation. Three-dimensional fabric woven by interlacing threads with rotor driven carriers. 5,067,525, Cl. 139-11.000.

Tsuzuki, Sadachika: *See*—
Kamimura, Kenji; and Tsuzuki, Sadachika, 5,068,795, Cl. 364-449.000.

Tsuzuki, Toru, to Brother Kogyo Kabushiki Kaisha. Data processor for processing original image information into bit map data, having means for permitting the bit map data to be always stored in varying-capacity memory. 5,068,805, Cl. 395-164.000.

Tu, Li Wei: *See*—
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., 5,068,868, Cl. 372-45.000.

Tuchiya, Kazumichi; Nagashima, Nobuhara; Wasada, Masayoshi; and Suzuki, Akihiro, to Fuji Photo Optical Co., Ltd. System for controlling the aiming direction, focus, zooming, and/or position of a television camera. 5,068,735, Cl. 358-209.000.

Tucker, Burnis H.: *See*—
Gresham, Gary E.; and Tucker, Burnis H., 5,068,583, Cl. 318-266.000.

Tuneberg, Lee H., to American Orthodontics Corporation. Twin tie wing bracket. 5,067,897, Cl. 433-8.000.

Turgeon, Joseph T.: *See*—
Cole, James A.; Roberts, William O.; and Turgeon, Joseph T., 5,068,134, Cl. 427-376.200.

Turner, James M.: *See*—
Nelson, Charles J.; Bheda, Jayendra H.; Rim, Peter B.; and Turner, James M., 5,067,538, Cl. 152-451.000.

Tustison, Randal W.: *See*—
Montanari, Dennis G.; Gentilman, Richard L.; and Tustison, Randal W., 5,067,781, Cl. 359-350.000.

Tutida, Syuniti: *See*—
Itou, Yuuzi; and Tutida, Syuniti, 5,068,552, Cl. 307-494.000.

Twieg, Robert J.: *See*—
Betterton, Kathleen M.; Hinsberg, William D.; Nguyen, Huu T.; Tang, Wing T.; and Twieg, Robert J., 5,068,054, Cl. 252-299.620.

Tyagi, Surendera K.: *See*—
Hall, Lee O.; Zoski, Glenn; and Tyagi, Surendera K., 5,068,088, Cl. 422-52.000.

Tyler, Rex A., to Eaton Indiana, Inc. Recoil spring end retainer. 5,067,451, Cl. 123-185.0BA.

Tyree, William H.: *See*—
Donohoue, Thomas P.; Oertel, Christopher P.; Tyree, William H.; and Valdez, Joe L., 5,067,820, Cl. 374-31.000.

U.R. Engineering Pty., Ltd.: *See*—
Burke, Desmond C., 5,067,314, Cl. 56-330.000.

Uchida, Hiroshi, to Sony Corporation. Hand-writing input apparatus. 5,067,573, Cl. 178-18.000.

Uchida, Ken; Higashi, Michiya; Kihara, Naoko; Shimozawa, Hiroshi; and Yoshizumo, Akira, to Kabushiki Kaisha Toshiba. Semiconductor device encapsulant consisting of epoxy resin composition. 5,068,267, Cl. 523-435.000.

Uchida, Kiyoshi; Noda, Shoji; and Higuchi, Kazuo, to Kabushiki Kaisha Toyota Chuo Kenkyusho; and Toyota Jidosha Kabushiki Kaisha. Process for synthesizing diamond and apparatus therefor. 5,068,871, Cl. 373-17.000.

Uchida, Tadahiro; Shimamura, Kuniyuki; Nogawa, Hayabu; Saito, Keikichi; and Hara, Minoru, to Kabushiki Kaisha Kubota Seisakusho. Centrifugal separator. 5,067,938, Cl. 494-12.000.

Uchino, Masahide, to Japan Field Company Ltd. Method and apparatus for cleaning object. 5,067,983, Cl. 134-1.000.

Uchiyama, Kenji: *See*—
Yoshida, Susumu; Onishi, Sei; and Uchiyama, Kenji, 5,068,501, Cl. 200-61.58R.

Ueda, Kunihiro: *See*—
Nakayama, Masatoshi; Ueda, Kunihiro; and Okamura, Masatoshi, 5,068,146, Cl. 428-336.000.

Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, to Kabushiki Kaisha Toshiba. Fuel assembly for nuclear reactor. 5,068,082, Cl. 376-428.000.

Ueda, Seitaro: *See*—
Nagamatsu, Hiromitsu; and Ueda, Seitaro, 5,067,931, Cl. 474-162.000.

Ueda, Yutaka: *See*—
Isobe, Kazuyuki; Aizawa, Takao; Yamaguchi, Noboru; and Ueda, Yutaka, 5,068,270, Cl. 524-68.000.

Uehara, Kiyohiro: *See*—
Suzuki, Takumi; and Uehara, Kiyohiro, 5,067,796, Cl. 359-88.000.

Uematsu, Nobuyuki: *See*—
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Ueno, Tsugio; Sato, Masato; and Mori, Yoshiaki, to Honda Giken Kogyo Kabushiki Kaisha. System for press-fitting parts into workpiece. 5,067,231, Cl. 29-809.000.

Uhlmann Pac-Systeme GmbH & Co. KG: *See*—
Aschaber, Hans; Bailer, Rudolf; Fochler, Fritz; Kleinstauber, Bernd; and Ruf, Reinhold, 5,067,937, Cl. 493-310.000.

Uijttewaal, Arnoldus: *See*—
Naef, Ferdinand; Delay, Francois; and Uijttewaal, Arnoldus, 5,068,452, Cl. 568-442.000.

Uitterlinden, Andreas G.: *See*—
Vijg, Jan; and Uitterlinden, Andreas G., 5,068,176, Cl. 435-6.000.

Ukai, Yasuhiro; Sunata, Tomihisa; Yukawa, Teizou; and Inada, Toshiya, to Hosiden Corporation. Active matrix liquid crystal display device having improved electrostatic discharge protection. 5,068,748, Cl. 359-59.000.

Ukima Colour & Chemicals Mfg. Co., Ltd.: *See*—
Misaizu, Iwao; Hanada, Kazuyuki; Shibuya, Akihiko; and Kuriyama, Katsumi, 5,068,295, Cl. 526-245.000.

Ullman, Edwin F.: *See*—
Gibbons, Ian; Ullman, Edwin F.; and Felgner, Philip L., 5,068,198, Cl. 436-535.000.

Ullman, Timothy J.; and Gambale, Ronald J., to General Electric Company. Blocked amine terminated polycarbonates and products obtained therefrom. 5,068,284, Cl. 525-67.000.

Ulmer, Peter F. Fan blade remover. 5,067,219, Cl. 29-252.000.

Umeda, Toru; Kondo, Hidetaka; and Kato, Kouichi, to Stanley Electric Co., Ltd. Horizontal sighting apparatus for head-lamps. 5,068,769, Cl. 362-61.000.

Umedu, Yoshio: *See*—
Tagami, Shigeru; Umedu, Yoshio; and Niwa, Katsuhito, 5,068,562, Cl. 310-256.000.

Umemoto, Yasunari: *See*—
Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, 5,068,605, Cl. 324-158.00R.

Umezawa, Kazumi, to Asahi Chemical Polyflex Co., Ltd. Process and apparatus for processing easy-opening bag. 5,067,306, Cl. 53-412.000.

Umezawa, Manami: *See*—
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.

Unilever Patent Holdings B.V.: *See*—
Motion, Keith R.; and Newman, Christopher P., 5,068,466, Cl. 568-781.000.

Unilift Corporation: *See*—
Walter, Thomas P., 5,068,034, Cl. 210-232.000.

Union Carbide Chemicals and Plastics Technology Corporation: *See*—
Burgess, Lloyd M.; and Gibson, Charles A., 5,068,329, Cl. 544-402.000.
Burgess, Lloyd M.; and Gibson, Charles A., 5,068,330, Cl. 544-402.000.
Edwards, David N.; Jorgensen, Robert J.; Lee, Kiu H.; and Marcinkowsky, Arthur E., 5,068,489, Cl. 585-524.000.

Union Carbide Industrial Gases Technology Corporation: *See*—
Bikson, Benjamin; Giglia, Salvatore; and Nelson, Joyce K., 5,067,971, Cl. 55-16.000.

Unirac Corp.: *See*—
Gordon, Roger G., 5,067,605, Cl. 194-248.000.

Uniroyal Chemical Company, Inc.: *See*—
Wheeler, Edward L.; Barrows, Franklin H.; and Franko, Robert J., 5,068,271, Cl. 524-100.000.

Unisys Corp.: *See*—
Concannon, David J.; Copenhaver, Gary B.; and Catchpole, Clive E., 5,068,912, Cl. 382-61.000.
Scheuneman, James H.; and Fontaine, Lawrence R., 5,068,782, Cl. 395-425.000.

United Kingdom Atomic Energy Authority: *See*—
Wormald, Malcolm R.; and Thomas, Bruce W., 5,068,532, Cl. 250-270.000.

United Kingdom of Great Britain and Northern Ireland, The Secretary of State for Defence in Her Britannic Majesty's Government of the: *See*—
Elliott, Charles T.; and White, Anthony M., 5,068,524, Cl. 250-211.00J.

United States of America
Agriculture: *See*—
Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., 5,068,105, Cl. 424-93.000.
Air Force: *See*—
Carver, Michael W.; and Kolesar, Edward S., Jr., 5,067,985, Cl. 136-255.000.
Froes, Francis H.; Shong, D. Simon; Kim, Young-Won; and Yolton, Frederick C., 5,067,988, Cl. 148-20.300.
Wicks, Michael C.; and Etten, Paul V., 5,068,671, Cl. 343-799.000.
Army: *See*—
Babbitt, Richard W.; Rachlin, Adam; and Koscica, Thomas E., 5,068,627, Cl. 331-99.000.
Murnane, James F., III; and Kuhnle, William G., 5,067,410, Cl. 102-489.000.
Olson, Donald N.; and Huerta, Joseph, 5,067,406, Cl. 102-374.000.
Energy: *See*—
Donohoue, Thomas P.; Oertel, Christopher P.; Tyree, William H.; and Valdez, Joe L., 5,067,820, Cl. 374-31.000.
Iton, Lennox E.; and Maroni, Victor A., 5,068,485, Cl. 585-500.000.
Kasper, Stanley, 5,067,317, Cl. 60-39.050.
Nutt, Gerald L., 5,067,995, Cl. 149-2.000.
Health and Human Services: *See*—
Kovacs, Joseph; Masur, Henry; and Allegra, Carmen, 5,068,253, Cl. 514-553.000.
Interior: *See*—
Constantz, James E., 5,067,272, Cl. 47-27.000.
National Aeronautics and Space Administration: *See*—
Crews, Jeanne L.; and Cour-Palais, Burton G., 5,067,388, Cl. 89-36.020.
Navy: *See*—
Banura, George A., 5,068,596, Cl. 323-351.000.
Higa, Kelvin T., 5,068,370, Cl. 556-19.000.
Kirkpatrick, Thomas I., 5,068,832, Cl. 367-97.000.
Kline, Todd A.; Rosen, Warren A.; Bermingham, William J.; and Alfonsi, Eric A., 5,068,880, Cl. 375-116.000.
Lundstrom, Norman H.; and Reed, Russell, Jr., 5,067,996, Cl. 149-19.400.

VOL 1132 ISS 4 NO 26 1991 UMI

U.S. Philips Corporation: *See—*
Bachmann, Peter K.; Khoe, Giok D.; Mahon, Cathal J.; and Lydtin, Hans-Jurgen, 5,067,793, Cl. 385-127.000.
Baker, Stephen J., 5,068,646, Cl. 340-725.000.
Blankers, Hendrik J., 5,068,572, Cl. 315-209.00R.
Braat, Josephus J. M.; and Opheij, Willem G., 5,068,751, Cl. 359-566.000.
de Vrieze, Henricus M.; Roosen, Johannes H. J.; and Vriens, Leendert, 5,068,568, Cl. 313-474.000.
Dona, Marinus J. J.; and Swinkels, Johannes M. M., 5,067,377, Cl. 82-138.000.
Falp, Benoit; and Pezant, Christian, 5,068,522, Cl. 250-206.100.
Gris, Joel, 5,068,630, Cl. 333-100.000.
Haghiri, Mohammed R.; Guntzburger, Philippe; Fonsalas, Frederic; and Le Queau, Marcel, 5,068,727, Cl. 358-138.000.
Hoppe, Joseph, 5,068,894, Cl. 380-23.000.
Kramer, Pieter, 5,068,846, Cl. 369-275.100.
Lalesse, Herman C., 5,067,873, Cl. 414-789.900.
Mehlkopf, Antoon F.; and Prins, Willem M., 5,068,610, Cl. 324-312.000.
Schoofs, Franciscus A. C. M., 5,068,571, Cl. 315-205.000.
Van de Lagemaat, Dirk, 5,068,604, Cl. 324-158.00R.
Verheijen, Paulus A. M.; and Schiltmans, Ronald P. A., 5,068,918, Cl. 455-142.000.
Vetter, Axel, 5,068,885, Cl. 378-133.000.
Wegener, Armin, 5,068,578, Cl. 315-307.000.
United States Surgical Corporation: *See—*
Korthoff, Herbert W., 5,067,959, Cl. 606-224.000.
United Technologies Corporation: *See—*
Bennett, Keith N.; and Pangretic, Richard H., Jr., 5,067,323, Cl. 60-734.000.
Beytes, Deane; and Lindstrom, Erik A., 5,067,324, Cl. 60-752.000.
Cetel, Alan D.; and Duhl, David N., 5,068,084, Cl. 420-443.000.
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., 5,067,875, Cl. 416-114.000.
Youssef, Nashed A., 5,067,877, Cl. 416-220.00R.
Unitika Ltd.: *See—*
Kubo, Eiichi; Kammuri, Yoshihiro; Nagaoka, Koichi; Kitahara, Takeshi; Miyahara, Yoshiki; Kiriyama, Syunichi; and Mishima, Yasunobu, 5,068,141, Cl. 428-219.000.
Universal Beverage Equipment, Inc.: *See—*
Bjerklund, Gunnar; Ore, William C.; Pulawski, Casimir; and Notardonato, Luigi, 5,067,507, Cl. 137-3.000.
Universal Instruments Corporation: *See—*
Paufve, Eldred H.; and Porterfield, Richard, 5,068,509, Cl. 219-85.160.
Universite des Sciences et Techniques de Lille (U.S.T.L.) Flandres Artois: *See—*
Gabillard, Robert; Nguyen, Yann; and Semet, Christian, 5,068,655, Cl. 340-988.000.
University Corporation for Atmospheric Research: *See—*
Businger, Joost A., 5,067,356, Cl. 73-863.020.
University of British Columbia, The: *See—*
Hill, Philip G.; Pierik, Ronald J.; and Hodgins, K. Bruce, 5,067,467, Cl. 123-497.000.
University of Dundee: *See—*
Buultjens, Travis E. J.; Jahoda, Colin A. B.; and Oliver, Roy F., 5,068,315, Cl. 530-324.000.
University of Houston - University Park: *See—*
Rabalais, J. Wayne, 5,068,535, Cl. 250-309.000.
University of North Carolina at Chapel Hill, The: *See—*
Chu, Wei-kan; and Childs, Charles B., 5,068,020, Cl. 204-192.110.
University of Pennsylvania, Trustees of: *See—*
Penning, Trevor M.; and Askonas, Leslie J., 5,068,250, Cl. 514-506.000.
University of Rochester, The: *See—*
Haun, Niels; and Moore, Duncan T., 5,068,208, Cl. 501-12.000.
University of Utah: *See—*
Miller, Jan D.; Ye, Yi; and Jang, Woo-Hyuk, 5,068,028, Cl. 209-167.000.
UOP: *See—*
James, Robert B., Jr.; and Kalnes, Tom N., 5,068,484, Cl. 585-469.000.
Kulprathipanja, Santi; and Oroskar, Anil R., 5,068,418, Cl. 562-580.000.
Kulprathipanja, Santi; and Oroskar, Anil R., 5,068,419, Cl. 562-580.000.
Uram, Stuart Z., to Certech Incorporated. Method of forming a ceramic mold for metal casting. 5,067,548, Cl. 164-15.000.
Uramoto, Shinichi; and Terane, Hideyuki, to Mitbushi Denki Kabushiki Kaisha. Hardware implemented moving average processor. 5,068,818, Cl. 364-734.000.
Urbach, Hansjorg: *See—*
Nickel, Wolf-Ulrich; Ruger, Wolfgang; Urbach, Hansjorg; and Hock, Franz, 5,068,242, Cl. 514-412.000.
Teetz, Volker; Wissmann, Hans; and Urbach, Hansjorg, 5,068,351, Cl. 548-452.000.
Urquhart, Robert J.: *See—*
Misra, Mamata; Urquhart, Robert J.; Vanover, Miachel T.; and Voltin, John A., 5,068,819, Cl. 364-736.000.
Urquiola, Omar. Convertible infant bed assembly. 5,067,183, Cl. 5-2.100.
Ushijima, Ryosuke: *See—*
Nakagawa, Susumu; Ushijima, Ryosuke; Nakano, Fumio; Yamada, Koji; and Mano, Eiichi, 5,068,322, Cl. 540-222.000.
Utagawa, Ken, to Nikon Corporation. Focus adjuster. 5,068,682, Cl. 354-402.000.
Uyar, M. Umit: *See—*
Near, Christopher D.; and Uyar, M. Umit, 5,068,877, Cl. 375-107.000.
Vachey, Lucien. Method of manufacturing a silver alloy which is blackened throughout its bulk. 5,067,987, Cl. 148-20.300.
Vagt, Uwe: *See—*
Merger, Franz; Fischer, Rolf; Harder, Wolfgang; Priester, Claus-Ulrich; and Vagt, Uwe, 5,068,398, Cl. 560-156.000.
Richter, Wolfgang; Fischer, Rolf; and Vagt, Uwe, 5,068,361, Cl. 549-273.000.
Vainberg, Olga; and Shorr, Leonard M., to Bromine Compounds Ltd. Bis(4-halo-phthalic acid) quarter salt, process for their preparation and their use. 5,068,409, Cl. 562-480.000.
Valdes, Jacobo; and Martinez, Eduardo, to Sun Microsystems, Inc. Method and apparatus for filling contours in digital typefaces. 5,068,803, Cl. 395-150.000.
Valdez, Joe L.: *See—*
Donohoue, Thomas P.; Oertel, Christopher P.; Tyree, William H.; and Valdez, Joe L., 5,067,820, Cl. 374-31.000.
Valentine, Michael D.; Scholl, Stephen R.; and Nusair, Marwan E., to Valentine Research, Inc. Motor vehicle radar detector including amplitude detection. 5,068,663, Cl. 342-20.000.
Valentine Research, Inc.: *See—*
Valentine, Michael D.; Scholl, Stephen R.; and Nusair, Marwan E., 5,068,663, Cl. 342-20.000.
Valley Industries, Inc.: *See—*
Johnson, Richard B.; and Schneider, Thomas P., 5,067,641, Cl. 224-042.03B.
Valmont Industries, Inc.: *See—*
Swanson, Dail L.; Green, Raymond M.; and Bennorth, Gregory S., 5,068,639, Cl. 338-179.000.
Valyocsik, Ernest W., to Mobil Oil Corporation. Synthesis of crystalline silicate MCM-47. 5,068,096, Cl. 423-277.000.
Van Dorn Company: *See—*
Garver, Lawrence E.; and Kimbrough, Gregory L., 5,067,622, Cl. 215-1.00C.
Vance, John M.; and San Andres, Luis A. Aircraft engine rotor squeeze film damper. 5,067,825, Cl. 384-99.000.
Van de Lagemaat, Dirk, to U.S. Philips Corporation. Method of and device for testing multiple power supply connections of an integrated circuit on a printed circuit board. 5,068,604, Cl. 324-158.00R.
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, to Ciba-Geigy Corporation. Apparatus for homogenizing the non-homogeneous light distribution of a laser beam. 5,068,515, Cl. 219-121.730.
van den Dorpel, Jan: *See—*
Caransa, Abraham; and van den Dorpel, Jan, 5,067,982, Cl. 127-67.000.
Vanderbilt, David P.; Cowsar, Donald R.; Dunn, Richard L.; and English, James P., to Sharpoint L.P. Biodegradable polyamides for providing a controlled release therapeutic drug. 5,068,220, Cl. 514-3.000.
Vanderlip, Jeffrey T.: *See—*
Shimp, David A.; and Vanderlip, Jeffrey T., 5,068,309, Cl. 528-211.000.
VanderVeen, Steven E.: *See—*
Lanser, Michael L.; VanderVeen, Steven E.; and Becker, David J., 5,067,764, Cl. 296-97.500.
Van Dijk, Dick, to Apollo B.V. Process and device for packing objects in stretch film. 5,067,312, Cl. 53-556.000.
Van Duyne, Edward, to Massachusetts Institute of Technology. Variable air/fuel ratio engine control system with closed-loop control around maximum efficiency and combination of Otto-diesel throttling. 5,067,460, Cl. 123-337.000.
Van Geel, Jacobus; Magill, Joseph; Werner, Paul; and Hiernaut, Jean-Pol, to European Atomic Energy Community. Device for producing amorphous ceramic products or metal alloys. 5,068,512, Cl. 219-121.600.
Vanguard Products Corporation: *See—*
Benn, Robert C., Sr.; and Benn, Robert C., Jr., 5,068,493, Cl. 174-35.0GC.
Van Horn, Jesse A.; and Van Horn, Linda L., to Van Horn, Linda L. Portable landing zone for helicopters. 5,067,669, Cl. 244-114.00R.
Van Horn, Linda L.: *See—*
Van Horn, Jesse A.; and Van Horn, Linda L., 5,067,669, Cl. 244-114.00R.
Van Horne, Arthur C.; Hoffman, Eldon P.; and Bakke, Paul D., to Tektronix, Inc. Printer sheet feed apparatus with single driver. 5,067,705, Cl. 271-277.000.
VanKoevering, Dennis G.: *See—*
Bourgoin, Jodi A.; Freeburne, Steven K.; Halm, Roland L.; Naasz, Brian M.; Niswonger, David S.; and VanKoevering, Dennis G., 5,068,383, Cl. 556-452.000.
Vanover, Miachel T.: *See—*
Misra, Mamata; Urquhart, Robert J.; Vanover, Miachel T.; and Voltin, John A., 5,068,819, Cl. 364-736.000.
van Riesen, Reiner. Belt lock for belt strap retaining systems. 5,067,211, Cl. 24-641.000.
van Vliembergen, Eduardus J. W., to OCE-Nederland B.V. Method and means for grammatically processing a natural language sentence. 5,068,789, Cl. 364-419.000.

Varaprath, Padmakumari J.: *See—*
Halloran, Daniel J.; and Varaprath, Padmakumari J., 5,068,378, Cl. 556-420.000.
Vaughan, Donald T.: *See—*
Hellenguard, Hanh P.; Koth, Lawrence J.; and Vaughan, Donald T., 5,068,796, Cl. 364-469.000.
Vazquez, Carlos; and Miller, Joel S., to Du Pont de Nemours, E. I., and Company. Tetracyano-1,4-hydroquinone and tetracyano-1, 4-benzoquinone. 5,068,367, Cl. 552-310.000.
Vectorpharma International S.p.A.: *See—*
Lovrecich, Mara L.; and Riccioni, Giovanna, 5,068,111, Cl. 424-469.000.
Veldman, Paul R.: *See—*
Bruning, Gert W.; and Veldman, Paul R., 5,068,573, Cl. 315-209.00R.
Velluz, Alain: *See—*
Morris, Anthony F.; Naef, Regula; Escher, Sina; and Velluz, Alain, 5,068,362, Cl. 549-346.000.
Verheijen, Paulus A. M.; and Schiltmans, Ronald P. A., to U.S. Philips Corporation. Receiver for terrestrial AM and satellite FM-TV broadcasting signals. 5,068,918, Cl. 455-142.000.
Verhelst, Paulus W. E.; Winiger, Werner J.; and Collard, Rene F. A., to Oce-Nederland B.V. Formatting system. 5,068,809, Cl. 395-145.000.
Verrijp, Bastiaan: *See—*
Hazenbroek, Jacobus E.; and Verrijp, Bastiaan, 5,067,927, Cl. 452-136.000.
Vervloet, Ludovicus H.: *See—*
Coppens, Paul J.; Vervloet, Ludovicus H.; Leenders, Luc H.; and Schuerwegen, Ronald, 5,068,165, Cl. 430-204.000.
Vespoli, Michael; Nelson, Bruce D.; Scragg, Carl; and Fuchs, Paul. Eight man rowing shell. 5,067,426, Cl. 114-56.000.
Vetter, Axel, to U.S. Philips Corporation. Rotary-anode X-ray tube comprising a helical-groove sleeve bearing and lubricant reservoir with connecting duct system. 5,068,885, Cl. 378-133.000.
VG Instruments Group Limited: *See—*
Bradshaw, Neil; and Sanderson, Neil E., 5,068,534, Cl. 250-288.000.
Victor Company of Japan, Ltd.: *See—*
Sugiyama, Kenji, 5,068,722, Cl. 358-105.000.
Vida-Weld Pty. Limited: *See—*
Dick, Ian R.; Henderson, Ian D.; Kimpton, Gordon L.; and Wyatt, David S., 5,068,507, Cl. 219-73.110.
Vigilant, Ltd.: *See—*
Heyche, Albert; Latteur, Alain; and Dekoninck, Philippe, 5,067,674, Cl. 244-190.000.
Vijg, Jan; and Uitterlinden, Andreas G., to Nederlandse Organisatie voor toegepastnatuurwetenschappelijk onderzoek TNO. Method for the simultaneous determination of DNA sequence variations at a large number of sites, and a kit suitable therefor. 5,068,176, Cl. 435-6.000.
Vince, Richard A., to AT&T Bell Laboratories. Sub power plane to provide EMC filtering for VLSI devices. 5,068,631, Cl. 333-181.000.
Vincent, Michael T.: *See—*
Remboski, Donald J.; Plee, Steven L.; Yang, Jialin; Law, Robert W.; and Vincent, Michael T., 5,067,463, Cl. 123-425.000.
Vinitsky, Valery B.: *See—*
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.
Virdis, Angelo: *See—*
Lorenzoni, Loreno; Dessantis, Nino; and Virdis, Angelo, 5,068,429, Cl. 564-160.000.
Vizzotto, Raffaele: *See—*
Hruby, Vincenzo; and Vizzotto, Raffaele, 5,068,642, Cl. 340-562.000.
VLSI Technology, Inc.: *See—*
Schaefer, Thomas J.; and Shur, Robert D., 5,068,812, Cl. 364-578.000.
Vogel, Michael A.; and Sears, Martin D. Bow string release. 5,067,472, Cl. 124-35.200.
Voles, Roger, to Thorn EMI Electronics Limited. Radar. 5,068,666, Cl. 342-192.000.
Volk, John F.; and Michaels, Thomas, to Tri/West Systems, Inc. Syringe plunger rod mount. 5,067,947, Cl. 604-201.000.
Voltin, John A.: *See—*
Misra, Mamata; Urquhart, Robert J.; Vanover, Miachel T.; and Voltin, John A., 5,068,819, Cl. 364-736.000.
Von Duprin, Inc.: *See—*
Cohrs, Richard B.; Haeck, Paul J.; and Jacobs, Gary R., 5,067,757, Cl. 292-336.300.
Von Der Eltz, Herbert: *See—*
Schmidt, Axel; Von Der Eltz, Herbert; and Rauscher, Elli, 5,068,182, Cl. 435-22.000.
von Werner, Konrad; and Probst, Anton, to Hoechst Aktiengesellschaft. Process for the preparation of halogenotetrafluoropropionic acid. 5,068,415, Cl. 562-541.000.
Vriens, Leendert: *See—*
de Vrieze, Henricus M.; Roosen, Johannes H. J.; and Vriens, Leendert, 5,068,568, Cl. 313-474.000.
Vukov, Rastko; and Behnam, Basil A., to Rhone-Poulenc Inc. Hydrolyzable silicone polymers. 5,068,277, Cl. 524-441.000.
W. R. Grace & Co.-Conn.: *See—*
Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., 5,068,105, Cl. 424-93.000.
Wang, I-Fan; and Minhas, Bhupender S., 5,067,970, Cl. 55-16.000.
Wachtler, Andreas; Eidenschink, Rudolf; Krause, Joachim; and Kurmeier, Hans-Adolf, to Merck Patent Gesellschaft Mit Beschrankter Haftung. Tertiary alcohols. 5,068,389, Cl. 558-411.000.
Wacker-Chemie GmbH: *See—*
Schmidhammer, Ludwig; Haselwarter, Klaus; Klaus, Hermann; and Mohr, Klaus-Peter, 5,068,475, Cl. 570-262.000.
Wada, Hiroshi: *See—*
Suzuki, Tomonari; Wada, Hiroshi; Yoshimoto, Yoshikazu; and Yoshida, Masaru, 5,068,126, Cl. 427-122.000.
Wada, Masaru; and Itoh, Kunio, to Matsushita Electric Industrial Co., Ltd. Semiconductor laser apparatus. 5,068,866, Cl. 372-36.000.
Waddington, Clive; Lagasse, Normand L.; and Taupier, Roger, to Avco Corporation. Self compensating flow control lubrication system. 5,067,454, Cl. 123-196.00S.
Wade, Paul C.; and Grady, JJ, III, to Digital Equipment Corporation. High-power, high-performance integrated circuit chip package. 5,068,715, Cl. 357-81.000.
Wagner, Alan M., to Quickfire, Inc. Portable target holder. 5,067,683, Cl. 248-545.000.
Wagner, Gebhard: *See—*
Degen, Bruno; Feldner, Kurt; Licht, Elke; and Wagner, Gebhard, 5,068,385, Cl. 556-472.000.
Wagner International AG: *See—*
Thur, Alex; and Seitz, Kurt, 5,067,434, Cl. 118-629.000.
Wagnieres, Georges: *See—*
van den Bergh, Hubert; Cornaz, Peter F., deceased; Cornaz, Max M., heir; Cornaz, Jean-Pierre, heir; Cornaz, Maria I., heir; and Wagnieres, Georges, 5,068,515, Cl. 219-121.730.
Wahl, Rainer: *See—*
Sauter, Willy; Thumm, Helmut; Wahl, Rainer; and Widmann, Dieter, 5,067,371, Cl. 74-813.00L.
Wakai, Kunio: *See—*
Kitakami, Osamu; Fujiwara, Hideo; Ojima, Kiyotaka; Ogawa, Youichi; and Wakai, Kunio, 5,068,144, Cl. 428-323.000.
Wakamoto Pharmaceutical Co., Ltd.: *See—*
Inukai, Sinji; Agata, Mitsuzi; Umezawa, Manami; Horio, Yoshihiro; Ootake, Yasuhiro; Sawaki, Shohei; and Goto, Masayoshi, 5,068,239, Cl. 514-381.000.
Wake, Robert H., to Reality Imaging Corporation. Imager and process. 5,068,808, Cl. 395-119.000.
Wakita, Saburo; Yamaguchi, Kiyoshi; and Yanagisawa, Norio, to Mitsubishi Materials Corporation. Magnetic core material made of Fe-Co base alloy for high frequencies. 5,067,993, Cl. 148-311.000.
Walden, James V.: *See—*
Gustafson, Bruce L.; and Walden, James V., 5,068,057, Cl. 252-373.000.
Walker, Michael, to Alcatel N.V. Method of and arrangement for linearizing the frequency response of a loudspeaker system. 5,068,903, Cl. 381-96.000.
Walsh, Dennis E.: *See—*
Han, Scott; Martenak, Daniel J.; Palermo, Robert E.; and Walsh, Dennis E., 5,068,486, Cl. 585-500.000.
Walsh, Teresa M.: *See—*
Fitzgerald, John V.; and Walsh, Teresa M., 5,067,344, Cl. 73-54.000.
Walter, Eberhard. Process for the preparation of tetrabromo-4,4'-alkylidenediphenols. 5,068,463, Cl. 568-726.000.
Walter, James F.: *See—*
Lewis, Jack A.; Lumsden, Douglas; Papavizas, George; Hollenbeck, Martha D.; and Walter, James F., 5,068,105, Cl. 424-93.000.
Walter, Thomas P., to Unilift Corporation. Underdrain with means to compensate for flow and pressure differences between laterals. 5,068,034, Cl. 210-232.000.
Walters, Bobby L.: *See—*
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.
Walworth, Van T.; and DeBoalt, Steve L., to American Cast Iron Pipe Company. Gasket for field adaptable push-on restrained joint and joint thus produced. 5,067,751, Cl. 285-105.000.
Wanalista, Charles. Sports game organization. 5,067,730, Cl. 273-411.000.
Wang, I-Fan; and Minhas, Bhupender S., to W. R. Grace & Co.-Conn. Asymmetric polyimide membranes. 5,067,970, Cl. 55-16.000.
Wang, Jin-Kai: *See—*
Tsumura, Ryuichiro; Muraishi, Teruo; Ideda, Keiichi; and Wang, Jin-Kai, 5,068,357, Cl. 548-548.000.
Wang Laboratories, Inc.: *See—*
Drumm, Donald E., 5,068,645, Cl. 340-710.000.
Wang, Lawrence K.; Wang, Mu H. S.; Hwang, Chong S.; and Rhow, Harold, to Int'l Environmental Systems, Inc.; and Globe Environmental Protection, Inc. Sludge treatment apparatus. 5,068,031, Cl. 210-96.100.
Wang, Mu H. S.: *See—*
Wang, Lawrence K.; Wang, Mu H. S.; Hwang, Chong S.; and Rhow, Harold, 5,068,031, Cl. 210-96.100.
Wang, Pen-Chung, to Shell Oil Company. Arylcyclobutene carboxylate esters. 5,068,396, Cl. 560-102.000.
Wang, Shing C.; Ogura, Mutsuo; Wang, Shyh; and Hsin, Wei, to Lockheed Missiles & Space Company, Inc. Surface-emitting laser diode. 5,068,869, Cl. 372-45.000.
Wang, Shoou-I: *See—*
Bushinsky, Joseph P.; Nicholas, David M.; Wang, Shoou-I; and Patel, Nitin M., 5,068,058, Cl. 252-376.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Wang, Shyh: *See—*
Wang, Shing C.; Ogura, Mutsuo; Wang, Shyh; and Hsin, Wei, 5,068,869, Cl. 372-45.000.

Wankel GmbH: *See—*
Nuber, Roland; Schubert, Werner; Sohler, Wolfgang; and Sutter, Franz, 5,067,557, Cl. 165-51.000.

Warashina, Yoshihisa: *See—*
Mizushima, Yoshihiko; Nakajima, Kazutoshi; Hirohata, Toru; Iida, Takashi; Warashina, Yoshihisa; Sugimoto, Kenichi; Suzuki, Tomoko; and Kan, Hirofumi, 5,068,815, Cl. 364-713.000.

Ward, Gary L., to Epic Corporation. Method and apparatus for reducing acoustical distortion. 5,068,902, Cl. 381-68.600.

Ward, Larry K., to Sealright Co., Inc. Mechanism and method for supporting and individual dispensing of nested containers. 5,067,308, Cl. 53-471.000.

Ward, Susan J.: *See—*
D'Ambra, Thomas E.; Bacon, Edward R.; Bell, Malcolm R.; Carabateas, Philip M.; Eissenstat, Michael A.; Kumar, Virendra; Mallamo, John P.; and Ward, Susan J., 5,068,234, Cl. 514-235.200.

Ward, Terence J.: *See—*
Archibald, John L.; Ward, Terence J.; and Opalko, Albert, 5,068,337, Cl. 514-256.000.

Ward, Thomas J., to Coors Brewing Company. Apparatus for diverting the movement of cylindrical bodies. 5,067,857, Cl. 406-181.000.

Warkentien, Michael: *See—*
Hill, Gary; Schoch, Walter K.; and Warkentien, Michael, 5,068,078, Cl. 264-512.000.

Warner, Gary N.: *See—*
Egner, Walter A.; Schaffer, Ronald R.; Stauffer, Larry R.; and Warner, Gary N., 5,067,226, Cl. 29-452.000.

Warner-Lambert Company: *See—*
Fawzi, Mahdi B.; Kubert, Daniel A.; and Murthy, Kuchi S., 5,068,110, Cl. 424-461.000.
Hobbs, Sheila H., 5,068,237, Cl. 514-365.000.

Wasada, Masayoshi: *See—*
Tuchiya, Kazumichi; Nagashima, Nobuhara; Wasada, Masayoshi; and Suzuki, Akihiro, 5,068,735, Cl. 358-209.000.

Washington University: *See—*
Khouri, Roger K.; and Reddi, A. Harri, 5,067,963, Cl. 623-16.000.

Washio, Isomi: *See—*
Ohnishi, Kenji; Washio, Isomi; and Nakano, Koji, 5,067,381, Cl. 83-820.000.

Wasserman, Philip D.: *See—*
Corle, Timothy R.; Mallory, Chester L.; and Wasserman, Philip D., 5,067,805, Cl. 359-235.000.

Watabe, Kumiko: *See—*
Takagawa, Makoto; Yamagishi, Ken; Yoshihara, Jyun; Inamasa, Kenji; and Watabe, Kumiko, 5,068,480, Cl. 585-411.000.

Watanabe, Hideaki: *See—*
Shirata, Akihiro; Watanabe, Hideaki; Hagiya, Naoyuki; Ookubo, Satomi; and Moride, Shigeki, 5,067,578, Cl. 180-197.000.

Watanabe, Hideomi; and Okita, Tsutomu, to Fuji Photo Film Co., Ltd. Magnetic recording medium in which the magnetic layer contains a vinyl compound having an inner salt of an alkyl amino alkyl group. 5,068,145, Cl. 428-323.000.

Watanabe, Hirofumi: *See—*
Tsuchiya, Mikio; Kawase, Shoichi; and Watanabe, Hirofumi, 5,067,612, Cl. 206-497.000.

Watanabe, Hiroyuki: *See—*
Tokunaga, Takumi; Watanabe, Hiroyuki; Tsuzuki, Kenji; Someya, Sinzo; Koura, Seigo; and Ito, Mikio, 5,068,365, Cl. 549-496.000.

Watanabe, Junji; Naka, Michiro; and Hijikata, Kenji, to Polyplastics Co., Ltd. Resin composition containing smectic liquid crystal. 5,068,052, Cl. 252-299.010.

Watanabe, Kiminori: *See—*
Yamaguchi, Yoshihiro; Watanabe, Kiminori; and Nakagawa, Akio, 5,068,700, Cl. 357-23.800.

Watanabe, Koji: *See—*
Abe, Nobumasa; Kobayashi, Atsushi; Watanabe, Koji; Morishita, Norio; and Tanaka, Yuji, 5,068,684, Cl. 355-27.000.

Watanabe, Kunitoshi: *See—*
Iwaki, Takashi; Itou, Kazunori; Matsumoto, Hiroshi; Watanabe, Kunitoshi; Suzuki, Hiroyuki; Shibata, Juzo; Uematsu, Nobuyuki; and Takeda, Mamoru, 5,067,447, Cl. 123-3.000.

Watanabe, Manabu: *See—*
Sasa, Nobumasa; Shimizu, Kunio; and Watanabe, Manabu, 5,068,689, Cl. 355-107.000.

Watanabe, Masahiko: *See—*
Yoshikawa, Shuuichi; Watanabe, Masahiko; Ikeuchi, Michio; Murata, Yasumoto; and Nakano, Takahiko, 5,068,876, Cl. 375-80.000.

Watanabe, Mitsuo: *See—*
Araki, Toshimitsu; Kawamata, Fumihiko; Ogino, Masayuki; Miyagawa, Hitoshi; Kamata, Toshio; Watanabe, Mitsuo; and Miyashita, Kunihiro, 5,067,653, Cl. 239-18.000.

Watanabe, Tan; Nishino, Hideki; Iwami, Hidefumi; and Tabata, Kuniaki, to Hitachi, Ltd. Document input method and apparatus. 5,068,804, Cl. 395-147.000.

Watanabe, Tohru; and Okumura, Katsuya, to Kabushiki Kaisha Toshiba. Apparatus for coating of silicon semiconductor surface. 5,067,437, Cl. 118-715.000.

Watanabe, Yoshihisa: *See—*
Kanto, Jumpei; Akada, Masanori; Kamakari, Katsuhiro; Asahina, Kenichi; Sakashita, Katsuaki; and Watanabe, Yoshihisa, 5,068,282, Cl. 525-61.000.

Watanabe, Yoshiki: *See—*
Kojima, Shunji; Watanabe, Yoshiki; Goto, Hiroaki; and Moriga, Toshinori, 5,068,266, Cl. 523-336.000.

Watford, Roland S., Jr.: *See—*
Gandy, Carroll E.; and Watford, Roland S., Jr., 5,067,936, Cl. 493-287.000.

Watson Bowman Acme Corp.: *See—*
Sobol, John E., 5,067,297, Cl. 52-396.000.

Watterson, Scott R.; Bersonnet, George B.; Dalebout, William T.; and Burk, Michael, to Proform Fitness Products, Inc. Computerized exercise machine. 5,067,710, Cl. 272-129.000.

Wattiez, Daniel: *See—*
Bourgeois, Michel; Chatelin, Roger; Wattiez, Daniel; Sotton, Michel; Belet, Francois; and Achard, Georges, 5,068,113, Cl. 424-496.000.

Wavelengths Lasers, Inc.: *See—*
Fulton, Forrest F., 5,068,863, Cl. 372-31.000.

Weaver, Max A.; Pruett, Wayner P.; and Hilbert, Samuel D., to Eastman Kodak Company. Triazole methine compounds. 5,068,348, Cl. 548-264.400.

Weaver, William R.; and Matzinger, James E., to Libbey-Owens-Ford Co. Method of forming an encapsulated glazing unit. 5,068,076, Cl. 264-511.000.

Weber, Georg: *See—*
Reiffenrath, Volker; Poetsch, Eike; Krause, Joachim; and Weber, Georg, 5,068,053, Cl. 252-299.610.

Weber, Karl-Arnold: *See—*
Pedain, Josef; Kahl, Lothar; and Weber, Karl-Arnold, 5,068,402, Cl. 560-331.000.

Weber, Peter: *See—*
Hesske, Benno; Adnrae, Franz; and Weber, Peter, 5,067,246, Cl. 33-555.400.

Weber, Rainer: *See—*
Block, Hans-Dieter; Lonhoff, Norbert; Makowka, Bernd; Klotz, Helmut; Weber, Rainer; and Spreckelmeyer, Bernhard, 5,068,015, Cl. 204-89.000.

Weber S.r.l.: *See—*
De Matthaeis, Sisto L.; and Sfarzetta, Mario, 5,067,658, Cl. 239-533.800.

Webster, Duncan A., to British Nuclear Fuels plc. Remote handling apparatus. 5,067,567, Cl. 173-141.000.

Webster, James L.; Trofimenko, Swiatoslaw; Resnick, Paul R.; Bruhnke, Douglas W.; Lerou, Jan J.; Manogue, William H.; Manzer, Leo E.; McCann, Elrey L.; Swearingen, Steven H.; Trainham, James A.; and Bonifaz, Cristobal, to Du Pont de Nemours, E. I., and Company. Multistep synthesis of hexafluoropropylene. 5,068,472, Cl. 570-157.000.

Weedling, Robert E.; Swallen, William R.; Johnson, Raynor; Wegener, Jack; and Davis, David T. Air chamber type patient mover air pallet with multiple control features. 5,067,189, Cl. 5-81.00R.

Wegener, Armin, to U. S. Philips Corporation. Circuit arrangement for supplying a load. 5,068,578, Cl. 315-307.000.

Wegener, Jack: *See—*
Weedling, Robert E.; Swallen, William R.; Johnson, Raynor; Wegener, Jack; and Davis, David T., 5,067,189, Cl. 5-81.00R.

Wegner, Wayne M.: *See—*
Wirth, Lawrence W.; Wegner, Wayne M.; Tomic, Mladomir; Buchko, Raymond; and Natterer, Johann, 5,067,822, Cl. 383-61.000.

Wehner, Rainer: *See—*
Deeg, Rolf; Wehner, Rainer; Mattersberger, Johann; and Becker, Udo, 5,068,179, Cl. 435-7.920.

Weigert, Frank J.: *See—*
Kellner, Carl S.; Rao, V. N. Mallikarjuna; and Weigert, Frank J., 5,068,473, Cl. 570-176.000.

Weiler, Rolf; Bach, Uwe; and Ceylan, Ahmet D., to Alfred Teves GmbH. Spot-type disc brake. 5,067,595, Cl. 188-73.450.

Weinshenker, Ned M.; and O'Neill, William P., to Cyclex, Inc. Pharmaceutical preparations containing cyclodextrins and their use in iontophoretic therapies. 5,068,226, Cl. 514-58.000.

Weinshenker, Ned M., to Cyclex, Inc. Cyclodextrins as carriers. 5,068,227, Cl. 514-58.000.

Weinstein, Lee D., to Torrington Product Ventures, Inc. Electronic assembly for restricting animals to defined areas. 5,067,441, Cl. 119-29.000.

Weis, Alexander L.: *See—*
Illig, Carl R.; and Weis, Alexander L., 5,068,345, Cl. 548-230.000.

Weiss, Charles O.: *See—*
Go, Winston S.; Roti, Joseph S.; Lang, Mark G.; and Weiss, Charles O., 5,068,059, Cl. 252-389.530.

Weitnauer, Ronald M.: *See—*
Henneberger, Roy L.; Weitnauer, Ronald M.; and Johnson, Wayne A., 5,067,678, Cl. 248-68.100.

Weitzer, Paul: *See—*
Lepoutre, Etienne; Devaux, Michel; Hirschberg, Bruno; Petio, Franz A.; and Weitzer, Paul, 5,067,693, Cl. 266-44.000.

Welch, M. Bruce: *See—*
Lee, Clifford C.; and Welch, M. Bruce, 5,068,212, Cl. 502-105.000.

Wella Aktiengesellschaft: *See—*
Mager, Herbert; and Braun, Hans-Jurgen, 5,067,966, Cl. 8-405.000.

Weller, Hugo: *See—*
Burger, Wilfried; Nitschke, Werner; Taufer, Peter; and Weller, Hugo, 5,068,640, Cl. 340-438.000.

Wellman, Tim A., to Crown Equipment Corporation. Wire guidance control system. 5,068,790, Cl. 364-424.020.

Wellman, Tim A.: *See—*
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.

Wennemar, James A.: *See—*
Wolter, Eric H.; and Wennemar, James A., 5,067,375, Cl. 81-9.420.

Wenoka Seastyle - A Div. of Schur, Inc.: *See—*
Collins, Walter W., 5,067,239, Cl. 30-151.000.

Werkzeug-gesellschaft mit beschranter Haftung: *See—*
Wolff, Robert, 5,067,535, Cl. 144-286.00R.

Werner, Kurt: *See—*
Hauch, Dennis W.; and Werner, Kurt, 5,067,253, Cl. 34-82.000.

Werner, Paul: *See—*
Van Geel, Jacobus; Magill, Joseph; Werner, Paul; and Hiernaut, Jean-Pol, 5,068,512, Cl. 219-121.600.

Wernquest, Charles A. Combination holder/enclosure for multi-leaf articles, especially newspapers. 5,067,748, Cl. 281-48.000.

Wesner, Francis P. Method of playing a board game. 5,067,722, Cl. 273-248.000.

West, Atwell G. Infant's toy. 5,067,925, Cl. 446-397.000.

West, Lamar E.; Lafay, William P.; Ghanouni, Majid; and Cook, Alex M., Jr., to Scientific Atlanta, Inc. Television signal processing network for subscription television jamming signals. 5,068,893, Cl. 380-7.000.

West Point Pepperell, Inc.: *See—*
Lauderdale, Harold L., 5,068,000, Cl. 156-148.000.

Westeppe, Uwe: *See—*
Horlacher, Peter; Serini, Volker; Freitag, Dieter; Grigo, Ulrich; Idel, Karsten-Josef; and Westeppe, Uwe, 5,068,302, Cl. 528-21.000.

Westinghouse Electric Corp.: *See—*
Clark, William G., Jr., 5,068,608, Cl. 324-220.000.
Impink, Albert J., Jr.; and Lipner, Melvin H., 5,068,080, Cl. 376-215.000.
John, Clarence D., Jr.; and Sparrow, James A., 5,068,083, Cl. 376-449.000.
Rosa, John, 5,068,774, Cl. 363-3.000.

Whaley, John F.: *See—*
Hosmer, Christopher E.; and Whaley, John F., 5,067,214, Cl. 26-89.000.

Wheeler, Bryce A.: *See—*
Cook, Lacy G.; and Wheeler, Bryce A., 5,068,750, Cl. 359-399.000.

Wheeler, Edward L.; Barrows, Franklin H.; and Franko, Robert J., to Uniroyal Chemical Company, Inc. Arylenediamine substituted pyrimidines compositions. 5,068,271, Cl. 524-100.000.

Wheless, Jack C.; Keen, Billy J., Jr.; and Ritt, Renzer R., Sr., to Philip Morris Incorporated. Tube cutting and forming apparatus. 5,067,498, Cl. 131-88.000.

Whirlpool Corporation: *See—*
Hauch, Dennis W.; and Werner, Kurt, 5,067,253, Cl. 34-82.000.

White, Anthony M.: *See—*
Elliott, Charles T.; and White, Anthony M., 5,068,524, Cl. 250-211.00J.

White, Kevin A.: *See—*
Hunter, Dave H.; Lauck, Kenneth L.; White, Kevin A.; Milne, Robert J.; Doolin, Leonard J.; and Poulin, Stephen V., 5,067,875, Cl. 416-114.000.

White, Thayer: *See—*
Clausen, Henrik; Yamamoto, Fumi-ichiro; White, Thayer; and Hakomori, Sen-itiroh, 5,068,191, Cl. 435-193.000.

Whybrow, Derek: *See—*
Jeffery, James E.; and Whybrow, Derek, 5,068,440, Cl. 564-442.000.

Wicher, Jerome, to Atochem North America, Inc. Hindered phenolic N-(amido)imides. 5,068,356, Cl. 548-546.000.

Wickes Manufacturing Company: *See—*
Fischbach, Roderick C., 5,067,768, Cl. 296-107.000.

Wicks, Michael C.; and Etten, Paul V., to United States of America, Air Force. Orthogonally polarized quadraphase electromagnetic radiator. 5,068,671, Cl. 343-799.000.

Wico Distribution Corp.: *See—*
Engel, Raul R., 5,068,498, Cl. 200-6.00A.

Widen, Bo. Cylinder lock and locking tumbler. 5,067,335, Cl. 70-495.000.

Widmann, Dieter: *See—*
Sauter, Willy; Thumm, Helmut; Wahl, Rainer; and Widmann, Dieter, 5,067,371, Cl. 74-813.00L.

Wiedemer, Manfred: *See—*
Frunder, Henning; and Wiedemer, Manfred, 5,067,404, Cl. 101-488.000.

Wiedenbeck, Roger D.: *See—*
Peter, John H.; Timm, Gerald L.; and Wiedenbeck, Roger D., 5,067,824, Cl. 384-99.000.

Wiegand, Ulfried: *See—*
Silbernagel, Hermann; and Wiegand, Ulfried, 5,067,849, Cl. 404-9.000.

Wiesner, Matthias: *See—*
Schlingmann, Merten; Keller, Reinhold; Wiesner, Matthias; Treder, Wolfgang; and Thiem, Joachim, 5,068,186, Cl. 435-96.000.

Wiff, Donald R.: *See—*
Lenke, Gerd M.; and Wiff, Donald R., 5,068,292, Cl. 525-509.000.

Wiggins, Fred R.: *See—*
Lee, Yung N.; and Wiggins, Fred R., 5,067,508, Cl. 137-13.000.

Wilchynski, Ronald. Metal working attachment for portable power tool. 5,067,338, Cl. 72-182.000.

Wild Leitz GmbH: *See—*
Meinert, Norbert; Gelzenleuchter, Dieter; and Franek, Henning, 5,068,209, Cl. 501-30.000.

Wilfong, Debra L.: *See—*
Salaba, Timothy A.; and Wilfong, Debra L., 5,067,886, Cl. 425-145.000.

Wilke, Michaela: *See—*
Buysch, Hans-Josef; Klausener, Alexander; Szablikowski, Klaus; Balser, Klaus; and Wilke, Michaela, 5,068,321, Cl. 536-32.000.

Wilkins, Bruce G.; and Helm, Randolf E. Mini blind hold down bracket. 5,067,545, Cl. 160-178.100.

Willford, Sandford R.: *See—*
Robbins, John A.; Zarian, Jamshid J.; and Willford, Sandford R., 5,067,831, Cl. 385-123.000.

William Prym-Werke GmbH & Co. KG: *See—*
Hagmann, Paul; and Greven, Hermann, 5,067,611, Cl. 206-383.000.

Williams, Douglas D.: *See—*
Gillett, Richard B., Jr.; and Williams, Douglas D., 5,068,781, Cl. 395-325.000.

Williams, Joel L.: *See—*
Taylor, Maylon S., II; and Williams, Joel L., 5,067,491, Cl. 128-748.000.

Williams, Michael G.: *See—*
Bhogal, Balbir S.; Williams, Michael G.; and Miller, Glenn A., 5,068,104, Cl. 424-88.000.

Williams, Owen P., to Motorola, Inc. Vacuum wafer transport and processing system and method using a plurality of wafer transport arms. 5,067,218, Cl. 29-25.010.

Williams, William H.; and Jacobs, Paul G. Low cost replaceable type sound dampening unit for vacuum cleaning machine. 5,067,584, Cl. 181-231.000.

Wilson, Keith B.: *See—*
Agrawal, Rakesh; Farrell, Brian E.; and Wilson, Keith B., 5,067,976, Cl. 62-22.000.

Winiger, Werner J.: *See—*
Verhelst, Paulus W. E.; Winiger, Werner J.; and Collard, Rene F. A., 5,068,809, Cl. 395-145.000.

Winkler & Dunnebier Maschinenfabrik und Eisengiesserei KG: *See—*
Stemmler, Kurt, 5,067,698, Cl. 270-39.000.

Wirth, Lawrence W.; Wegner, Wayne M.; Tomic, Mladomir; Buchko, Raymond; and Natterer, Johann, to Reynolds Consumer Products, Inc. Method of forming recloseable packages, profiles used therein, and packages produced thereby. 5,067,822, Cl. 383-61.000.

Wise, Donald L.; Augenstein, Don C.; and Gresser, Joseph D., to Northeastern University. Process for manufacture of alkaline earth acetates. 5,068,188, Cl. 435-140.000.

Wiseman, William A., to Polysar Rubber Corporation. Plasticized hydrogenated nitrile rubber. 5,068,275, Cl. 524-314.000.

Wisne, Lawrence A.: *See—*
Schlatter, Howard M.; and Wisne, Lawrence A., 5,067,606, Cl. 198-465.100.

Wissmann, Hans: *See—*
Teetz, Volker; Wissmann, Hans; and Urbach, Hansjorg, 5,068,351, Cl. 548-452.000.

Witco Corporation: *See—*
Karalis, Anastasios; Morong, Thomas; and Juszkiewicz, Charles, 5,068,431, Cl. 564-301.000.

Witte, James R., to General Electric Company. Shaft torque measurement. 5,067,355, Cl. 73-862.340.

Witzel, Bruce E.: *See—*
Tischler, Allan N.; Durette, Philippe L.; Witzel, Bruce E.; Ruprecht, Kathleen M.; Gallagher, Timothy F.; Goldenberg, Marvin M.; and Allison, Debra L., 5,068,248, Cl. 514-443.000.

Wojtech, Bernhard: *See—*
Miess, Georg-Emerich; Schwarz, Karl-Heinz; Tetzlaff, Heribert; and Wojtech, Bernhard, 5,068,358, Cl. 548-555.000.

Wolf, Hubert: *See—*
Fischer, Joachim; and Wolf, Hubert, 5,068,038, Cl. 210-662.000.

Wolff, Robert, to Werkzeug-gesellschaft mit beschranter Haftung. Worktable. 5,067,535, Cl. 144-286.00R.

Wolff Walsrode Aktiengesellschaft: *See—*
Buysch, Hans-Josef; Klausener, Alexander; Szablikowski, Klaus; Balser, Klaus; and Wilke, Michaela, 5,068,321, Cl. 536-32.000.

Wolter, Eric H.; and Wennemar, James A., to Ideal Industries, Inc. Power operated wire stripper. 5,067,375, Cl. 81-9.420.

Won, Song, to Samsung Electron Devices Co., Ltd. Electroluminescent element. 5,068,157, Cl. 428-690.000.

Woodard, Ollie C., Sr.: *See—*
Smith, Lawrence N.; Woodard, Ollie C., Sr.; and Herrell, Dennis J., 5,068,580, Cl. 315-366.000.

Woodgate, Terence A., to GTE Rotaflex Limited. Electric current distribution apparatus. 5,067,906, Cl. 439-115.000.

Woodroffe, Brian W., to Hewlett-Packard Company. Monitoring of digital transmission systems. 5,068,879, Cl. 375-115.000.

Woodruff, Robert A.: *See—*
Petigara, Ramesh B.; Leister, Norman A.; Pendell, Barry J.; and Woodruff, Robert A., 5,068,344, Cl. 548-213.000.

Woog, Philippe-Guy E.; and Moret, Michel A., to Les Produits Associes LPA-Broxo S.A. Stimulator. 5,067,480, Cl. 128-32.000.

Worgotter, Herbert: *See—*
Theurer, Josef; and Worgotter, Herbert, 5,067,412, Cl. 104-16.000.

Wormald, Malcolm R.; and Thomas, Bruce W., to United Kingdom Atomic Energy Authority. Analysis using neutrons. 5,068,532, Cl. 250-270.000.

Wormser Company, The: *See—*
Wormser, Walter S., 5,067,179, Cl. 2-269.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Wormser, Walter S., to Wormser Company, The. Convertible garment leg construction. 5,067,179, Cl. 2-269.000.

Worrell, Dean A.: *See*—
Kyrtsos, Christos T.; and Worrell, Dean A., 5,067,572, Cl. 177-139.000.

Wright, David L.: *See*—
Abbott, Rexford J.; and Wright, David L., 5,068,861, Cl. 372-20.000.

Wright, John J.: *See*—
Sit, Sing-Yuen; and Wright, John J., 5,068,346, Cl. 548-253.000.

Wright, Michael E., to National Semiconductor Corporation. Piecewise current source whose output falls as control voltage rises. 5,068,593, Cl. 323-315.000.

Wright, Tommy T.: *See*—
Jones, Mark G.; and Wright, Tommy T., 5,067,650, Cl. 232-17.000.

Wu, Chih-Cheng. Built-up cup rack. 5,067,619, Cl. 211-71.000.

Wu, Margaret M.; and Ho, Suzzy C., to Mobil Oil Corporation. Lubricant oligomers of C_2–C_5 olefins. 5,068,476, Cl. 585-12.000.

Wyatt, David S.: *See*—
Dick, Ian R.; Henderson, Ian D.; Kimpton, Gordon L.; and Wyatt, David S., 5,068,507, Cl. 219-73.110.

Wynn, David K.; and Brown, Omar L., to Dayton Reliable Tool & Mfg. Co. Transfer plate lifts for shell press. 5,067,341, Cl. 72-426.000.

Wyvratt, Matthew J., Jr.; Beattie, Thomas R.; Ok, Hyun; Arison, Byron H.; and Fisher, Michael H., to Merck & Co., Inc. Thermally rearranged FK-506 derivatives having immunosuppressant activity. 5,068,323, Cl. 540-456.000.

Xerox Corporation: *See*—
Fisher, Almon P., 5,068,006, Cl. 156-633.000.
Malhotra, Shadi L.; Martins, Maria L.; Stevanovic, Maya D.; and Jones, Arthur Y., 5,068,140, Cl. 428-216.000.

Xilinx, Inc.: *See*—
Mahoney, John E., 5,068,603, Cl. 324-158.00R.

Y&B Investment Corporation: *See*—
Zuck, Daniel R., 5,067,668, Cl. 244-7.00R.

Yagi, Katsuya, to Konica Corporation. Optical pickup device for reading information on an optical disk. 5,068,845, Cl. 369-112.000.

Yagi, Kiyoshi: *See*—
Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, 5,067,465, Cl. 123-489.000.

Yagi, Soichi: *See*—
Oda, Goichi; Shidoh, Masaya; Toda, Atsushi; Ozaki, Akiyoshi; Matsumoto, Akihiro; Yagi, Soichi; and Murata, Atsuhiko, 5,068,570, Cl. 315-128.000.

Yagi, Tetsuya; and Hironaka, Misao, to Mitsubishi Denki Kabushiki Kaisha. Semiconductor light emission system. 5,068,870, Cl. 372-50.000.

Yagi, Toshiharu: *See*—
Fukada, Eiichi; Saito, Shigeru; Yagi, Toshiharu; and Higashihata, Yoshihide, 5,067,488, Cl. 128-777.000.

Yaguchi, Akihiro: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Yajima, Yasuhito, to NGK Insulators, LTD. Stress sensor having deformable ceramic hollow member. 5,068,635, Cl. 338-42.000.

Yakhontov, Nikolai E.: *See*—
Gudov, Vasily F.; Yakhontov, Nikolai E.; Kharchenko, Vladimir P.; Dolotov, Boris K.; Belousov, Evgeny L.; Vinitsky, Valery B.; Kozlov, Alexandr M.; Akhalaya, Mikail G.; Koveshinikov, Alexandr D.; and Pugachev, Valery F., 5,067,952, Cl. 606-28.000.

Yamada, Hirokazu: *See*—
Nakatani, Keiji; and Yamada, Hirokazu, 5,068,690, Cl. 355-218.000.

Yamada Iryo Shomei Kabushiki Kaisha: *See*—
Koyama, Mitsuhiro, 5,068,767, Cl. 362-33.000.

Yamada, Kazuhiro; and Ishibashi, Tadao, to Chisso Corporation. Opaque, laminated and stretched products, and method for making them. 5,068,155, Cl. 428-515.000.

Yamada, Koji: *See*—
Nakagawa, Susumu; Ushijima, Ryosuke; Nakano, Fumio; Yamada, Koji; and Mano, Eiichi. 5,068,322, Cl. 540-222.000.

Yamada, Seiji; and Naruke, Kiyomi, to Kabushiki Kaisha Toshiba. Method of applying a program voltage for a non-volatile semiconductor memory and apparatus for implementing the same. 5,068,827, Cl. 365-189.010.

Yamada, Yasuharu: *See*—
Kaji, Masashi; Aramaki, Takanori; Nakahara, Norito; and Yamada, Yasuharu, 5,068,293, Cl. 525-534.000.

Yamade, Yasushi: *See*—
Kamimura, Kuniaki; Sawada, Kenji; and Yamade, Yasushi, 5,068,687, Cl. 355-45.000.

Yamagami, Nobuo: *See*—
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Yamagishi, Hirotoshi: *See*—
Yokota, Shuji; and Yamagishi, Hirotoshi, 5,067,989, Cl. 148-33.000.

Yamagishi, Ken: *See*—
Takagawa, Makoto; Yamagishi, Ken; Yoshihara, Jyun; Inamasa, Kenji; and Watabe, Kumiko, 5,068,480, Cl. 585-411.000.

Yamaguchi, Atsuo, to Mitsubishi Denki Kabushiki Kaisha. Non-contact IC card. 5,068,521, Cl. 235-492.000.

Yamaguchi, Kiyoshi: *See*—
Wakita, Saburo; Yamaguchi, Kiyoshi; and Yanagisawa, Norio, 5,067,993, Cl. 148-311.000.

Yamaguchi, Noboru: *See*—
Isobe, Kazuyuki; Aizawa, Takao; Yamaguchi, Noboru; and Ueda, Yutaka, 5,068,270, Cl. 524-68.000.

Yamaguchi, Susumu: *See*—
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.

Yamaguchi, Yasunori; and Miyake, Jun, to Hitachi, Ltd. Semiconductor memory device. 5,068,829, Cl. 365-189.070.

Yamaguchi, Yoshihiro; Watanabe, Kiminori; and Nakagawa, Akio, to Kabushiki Kaisha Toshiba. Lateral conductivity modulated MOSFET. 5,068,700, Cl. 357-23.800.

Yamaguchi, Yoshiyuki: *See*—
Higuchi, Toshibiko; Nakano, Yasuhiko; Kunii, Nobuaki; Yamaguchi, Yoshiyuki; and Kozawa, Shigeyuki, 5,068,304, Cl. 528-28.000.

Yamaha Hatsudoki Kabushiki Kaisha: *See*—
Kobayashi, Noboru, 5,067,427, Cl. 114-56.000.
Kobayashi, Noboru, 5,067,918, Cl. 440-39.000.

Yamamoto, Fumi-ichiro: *See*—
Clausen, Henrik; Yamamoto, Fumi-ichiro; White, Thayer; and Hakomori, Sen-itiroh, 5,068,191, Cl. 435-193.000.

Yamamoto, Junji: *See*—
Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, 5,068,235, Cl. 514-258.000.

Yamamoto, Masataka: *See*—
Sakai, Ichiro; Arai, Yasuhisa; Yamamoto, Masataka; and Matsui, Hiroki, 5,067,374, Cl. 74-866.000.

Yamamoto, Shosaku; and Kakinuma, Kazuo, to Nippon Oil and Fats Co., Ltd. Primer compositions. 5,068,287, Cl. 525-124.000.

Yamamoto, Takemi; and Ishikawa, Shigeo, to Brother Kogyo Kabushiki Kaisha. Printing apparatus. 5,067,835, Cl. 400-582.000.

Yamamura, Akira, to Nippon Ferrofluidics Corporation. Magnetic bearing device. 5,068,558, Cl. 310-90.500.

Yamamuro, Takao: *See*—
Kokubo, Tadashi; Yamamuro, Takao; and Abe, Yoshio, 5,068,122, Cl. 427-2.000.

Yamanaka, Mitsuaki, to Chuo Packaging Machinery Co., Ltd. Raw material supply device at a stow-packaging machine. 5,067,310, Cl. 53-551.000.

Yamane, Manabu: *See*—
Kubota, Hitoshi; Yamane, Manabu; and Anezaki, Takashi, 5,068,588, Cl. 318-640.000.

Yamano, Sumiko: *See*—
Nakamura, Yoshinobu; Sannohe, Kanetaro; Sohama, Yoshio; Iwasaki, Toru; and Yamano, Sumiko, 5,068,150, Cl. 428-407.000.

Yamasaki, Hirofumi; Yagi, Kiyoshi; Tsukamoto, Keisuke; Takaoka, Toshio; and Fukuma, Takao, to Fujitsu Ten Limited; and Toyota Jidosha Kabushiki Kaisha. Lean burn internal combustion engine. 5,067,465, Cl. 123-489.000.

Yamashita, Kouji, to Sharp Kabushiki Kaisha. Cordless telephone capable of programming an ID code into both a base and cordless remote unit via the cordless remote unit. 5,068,889, Cl. 379-62.000.

Yamashita, Mikio: *See*—
Maekawa, Shigeki; Yamashita, Mikio; Kawaguchi, Kenji; and Kobayashi, Yuji, 5,067,550, Cl. 164-120.000.

Yamashita, Shinichi: *See*—
Kashida, Motokazu; Shikakura, Akihiro; Yamashita, Shinichi; and Shimizu, Tetsuya, 5,068,855, Cl. 371-37.400.

Yamashita, Toshio: *See*—
Fudono, Kanji; Takahashi, Toshimasa; Ogawa, Hiroshi; and Yamashita, Toshio, 5,067,556, Cl. 165-29.000.

Yamashita, Yoshiro: *See*—
Mukai, Toshio; and Yamashita, Yoshiro, 5,068,328, Cl. 544-350.000.

Yamato, Toshitaka; Ito, Tatsuo; Takashima, Atsuyuki; and Motojima, Akira, to Fujitsu Ten Limited. Mobile acoustic reproducing apparatus. 5,068,897, Cl. 381-24.000.

Yamauchi, Eiji: *See*—
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.

Yamauchi, Yuji: *See*—
Nagai, Yataro; Matsushita, Mitsuyoshi; and Yamauchi, Yuji, 5,067,733, Cl. 277-11.000.

Yamazaki, Hitoshi, to Casio Electronics Manufacturing; and Casio Computer Co. Ltd. Image memory circuit for use in a rotation of image data. 5,068,904, Cl. 382-46.000.

Yamazaki, Takashi: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Yamazaki, Yasuou: *See*—
Okajima, Atsushi; Yamazaki, Yasuou; Okamoto, Yasuhide; Nozawa, Masaei; Takeuchi, Yukihisa; and Akado, Hajime, 5,067,455, Cl. 123-196.00R.

Yanagisawa, Norio: *See*—
Wakita, Saburo; Yamaguchi, Kiyoshi; and Yanagisawa, Norio, 5,067,993, Cl. 148-311.000.

Yang, Jau-Yuann: *See*—
Morris, Francis J.; Plumton, Donald L.; Yang, Jau-Yuann; and Yuan, Han-Tzong, 5,068,756, Cl. 357-16.000.

Yang, Jeon W.: *See*—
Choe, Young K.; Yang, Jeon W.; Lee, Jin H.; Lee, Jae S.; Shim, Kyu H.; and Kang, Jin Y., 5,068,884, Cl. 378-119.000.

Yang, Jialin: *See*—
Remboski, Donald J.; Plee, Steven L.; Yang, Jialin; Law, Robert W.; and Vincent, Michael T., 5,067,463, Cl. 123-425.000.

Yang, Kevin: *See*—
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., 5,068,576, Cl. 315-291.000.

Yang, Ping; Chatterjee, Amitava; Aur, Shian; and Polgreen, Thomas L., to Texas Instruments Incorporated. Programmable interconnect or cell using silicided MOS transistors. 5,068,696, Cl. 357-23.100.

Yano, Takashi: *See*—
Iwabe, Kazuki; Kubo, Naoki; Tamayama, Hiroshi; Yano, Takashi; Soga, Takashi; and Koike, Hitoshi, 5,068,718, Cl. 358-27.000.

Yarger, Ronald G.; Klemann, Lawrence P.; and Finley, John W., to Nabisco Brands, Inc. Amine ester derivatives as low calorie fat mimetics. 5,068,120, Cl. 426-611.000.

Yashina, Kazuo, to Teio Tsushin Kogyo Kabushiki Kaisha. Burglarproof device. 5,068,643, Cl. 340-571.000.

Yasuda, Shigeyuki. Self-temperature control flexible plane heater. 5,068,518, Cl. 219-549.000.

Yasuda, Takashi: *See*—
Kukimoto, Hiroshi; Mitsuishi, Iwao; and Yasuda, Takashi, 5,068,204, Cl. 437-127.000.

Yasuki, Seijiro: *See*—
Ogawa, Yoshihiko; Yasuki, Seijiro; and Kawai, Kiyoyuki, 5,068,725, Cl. 358-135.000.

Yasumoto, Mitsugi: *See*—
Hasegawa, Etsuo; Kawaguchi, Akihiro; Kajitani, Makoto; Yasumoto, Mitsugi; Kasahara, Nobuo; and Yamamoto, Junji, 5,068,235, Cl. 514-258.000.

Yasunaga, Moritoshi; Masuda, Noboru; Todokoro, Hideo; Umemoto, Yasunari; Tanaka, Hirotoshi; and Itoh, Hiroyuki, to Hitachi, Ltd. Semiconductor integrated circuit device and method of testing the same. 5,068,605, Cl. 324-158.00R.

Yates, Donald N., Jr.; and Myers, William D., Jr., to Baker Hughes Incorporated. Well perforating gun. 5,067,568, Cl. 175-4.520.

Yazaki Corporation: *See*—
Matsumoto, Etsuji; Araki, Mamoru; and Ozaki, Keiichi, 5,067,905, Cl. 439-76.000.

Ye, Yi: *See*—
Miller, Jan D.; Ye, Yi; and Jang, Woo-Hyuk, 5,068,028, Cl. 209-167.000.

Yeager, Gary W.; and Schissel, David N., to General Electric Company. Method for making hydroxy-terminated arylene ethers. 5,068,457, Cl. 568-633.000.

Yelderman, Mark; Goldberger, Daniel S.; and Braig, James R., to Critikon, Inc. Disposable airway adapter. 5,067,492, Cl. 128-719.000.

Yellow Freight System, Inc.: *See*—
Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., 5,067,867, Cl. 414-391.000.

Yhtyneet Paperitehtaat Oy Walkisoft Engineering: *See*—
Gustafsson, Helmer, 5,068,079, Cl. 264-518.000.

Yoda, Sumio: *See*—
Nowatari, Hiroyoshi; Hayami, Hiroshi; Kuroda, Yasuo; Yoda, Sumio; and Takahashi, Katsutoshi, 5,068,376, Cl. 556-137.000.

Yokhikawa, Takashi: *See*—
Murakami, Katsuhiko; Yamagami, Nobuo; Nakanishi, Toshiyuki; Nakano, Iwao; Kobayashi, Keiichi; and Yokhikawa, Takashi, 5,067,551, Cl. 164-122.200.

Yokohama Rubber Company, The: *See*—
Ozawa, Osamu; Takahashi, Shuji; and Igarashi, Shigeru, 5,068,137, Cl. 428-36.200.

Yokokoji, Osamu: *See*—
Kumai, Seisaku; Yokokoji, Osamu; and Tamaoki, Akihiro, 5,068,449, Cl. 568-335.000.

Yokokura, Hisao; Nakada, Tadao; Kitamura, Teruo; Mukoh, Akio; Kando, Yasuhiko; Sakai, Isoji; Fujimura, Yasuo; Masutani, Noboru; Matsumoto, Tsunetaka; and Imanishi, Yasuo, to Hitachi, Ltd.; and Nitto Denko Corporation. Liquid crystal display cell and process for producing the same. 5,067,797, Cl. 359-76.000.

Yokoo, Chihiro: *See*—
Murata, Mitsuo; Yokoo, Chihiro; and Hanada, Kazunori, 5,068,354, Cl. 548-517.000.

Yokota, Shuji; and Yamagishi, Hirotoshi, to Shin Etsu Handotai Co., Ltd. Single crystal silicon. 5,067,989, Cl. 148-33.000.

Yokoya, Satoshi: *See*—
Takagi, Kotaro; and Yokoya, Satoshi, 5,068,626, Cl. 331-17.000.

Yokoyama, Hideki, to Mazda Motor Corporation. Instrument panel structure of car body. 5,067,747, Cl. 280-777.000.

Yokoyama, Takashi: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Yolton, Frederick C.: *See*—
Froes, Francis H.; Shong, D. Simon; Kim, Young-Won; and Yolton, Frederick C., 5,067,988, Cl. 148-20.300.

Yonekawa, Takashi: *See*—
Kokubo, Kouichi; Tagawa, Shinichi; Kawanishi, Masaki; Sato, Kunihito; Buma, Shuuichi; Yonekawa, Takashi; and Aburaya, Toshio, 5,067,743, Cl. 280-707.000.

Yorozu, Kiyotaka; and Ohno, Hiroyasu, to Mitsui Petrochemical Industries, Ltd. 3-(2-hydroperoxy-2-propyl)phenol and method of producing resorcinol using the same. 5,068,455, Cl. 568-567.000.

Yoshida, Hideo, to Mitsubishi Denki Kabushiki Kaisha. Error correction circuit. 5,068,857, Cl. 371-37.700.

Yoshida, Hirotaka: *See*—
Ogata, Yoshinori; Kikuchi, Yutaka; Makino, Tsutomu; Kobayashi, Teruo; and Yoshida, Hirotaka, 5,068,491, Cl. 174-16.200.

Yoshida, Isamu: *See*—
Murakami, Gen; Tsubosaki, Kunihiro; Ichitani, Masahiro; Nishi, Kunihiko; Anjo, Ichiro; Nishimura, Asao; Kitano, Makoto; Yaguchi, Akihiro; Kawai, Sueo; Ogata, Masatsugu; Eguchi, Syuuji; Kokaku, Hiroyoshi; Segawa, Masanori; Hozoji, Hiroshi; Yokoyama, Takashi; Kinjo, Noriyuki; Kaneda, Aizo; Saeki, Junichi; Nakamura, Shozo; Hasebe, Akio; Kikuchi, Hiroshi; Yoshida, Isamu; Yamazaki, Takashi; Oshima, Kazuyoshi; and Matsumoto, Tetsuro, 5,068,712, Cl. 357-72.000.

Yoshida, Kazuetsu: *See*—
Futamoto, Masaaki; Honda, Yukio; and Yoshida, Kazuetsu, 5,068,158, Cl. 428-694.000.

Yoshida Kogyo K.K.: *See*—
Ishikawa, Kiichirou; Dudek, Chet; and Hutcherson, James, 5,067,424, Cl. 112-307.000.
Kayaki, Keiichi, 5,067,210, Cl. 24-452.000.
Oyama, Yoshio, 5,067,221, Cl. 29-409.000.
Takeda, Akihiko, 5,067,300, Cl. 52-745.000.
Terada, Yasuharu; Ishii, Susumu; and Mizuno, Hiroshi, 5,067,209, Cl. 24-429.000.

Yoshida, Masaru: *See*—
Suzuki, Tomonari; Wada, Hiroshi; Yoshimoto, Yoshikazu; and Yoshida, Masaru, 5,068,126, Cl. 427-122.000.

Yoshida, Narutaka: *See*—
Matsuura, Kazuo; Sekino, Hitoshi; Nishiguchi, Keizo; and Yoshida, Narutaka, 5,068,677, Cl. 346-108.000.

Yoshida, Susumu; Onishi, Sei; and Uchiyama, Kenji, to Pioneer Electronic Corporation. Tape end switch detecting device for tape player. 5,068,501, Cl. 200-61.58R.

Yoshida, Takashi; Kawase, Tsueno; and Hiratsuka, Nobuo, to Fuji Photo Film Co., Ltd. Electrophoresis film support. 5,068,019, Cl. 204-182.800.

Yoshida, Tomoaki: *See*—
Tanagawa, Kouji; and Yoshida, Tomoaki, 5,068,783, Cl. 395-575.000.

Yoshida, Yoshiki; and Asada, Kenichirou, to Ricoh Company, Ltd. Image data storing device for an image forming apparatus. 5,068,676, Cl. 346-108.000.

Yoshida, Yzo; Saitou, Tetuji; and Momose, Yoshiaki, to Mitsubishi Gas Chemical Company, Inc. Five-layered container. 5,068,136, Cl. 428-35.700.

Yoshihara, Jyun: *See*—
Takagawa, Makoto; Yamagishi, Ken; Yoshihara, Jyun; Inamasa, Kenji; and Watabe, Kumiko, 5,068,480, Cl. 585-411.000.

Yoshihara, Toshiyuki, to Canon Kabushiki Kaisha. Electrophotographic charging device. 5,068,762, Cl. 361-225.000.

Yoshii, Yasuo: *See*—
Kobayashi, Hironobu; Azuhata, Shigeru; Narato, Kiyoshi; Sohma, Kenichi; Yoshii, Yasuo; Arashi, Norio; Nishimoto, Shigekazu; Koyama, Isao; Inata, Tooru; Kikuchi, Hideo; Murakami, Tadayoshi; Taniguchi, Masayuki; Miyadera, Hiroshi; Koda, Fumio; Enomoto, Tatsuzou; and Kobayashi, Kenshi, 5,067,419, Cl. 110-234.000.

Yoshikawa, Hironori, to Nissan Motor Co., Ltd. Air bag ignition control system for automotive vehicle and the method. 5,067,745, Cl. 280-735.000.

Yoshikawa, Shuuichi; Watanabe, Masahiko; Ikeuchi, Michio; Murata, Yasumoto; and Nakano, Takahiko, to Sharp Kabushiki Kaisha. Phase shift angle detector. 5,068,876, Cl. 375-80.000.

Yoshikawa, Takashi: *See*—
Ishikawa, Haruo; Kawana, Kiyoshi; Honma, Ko; and Yoshikawa, Takashi, 5,068,537, Cl. 250-342.000.

Yoshimoto, Masahiko: *See*—
Ohsawa, Hidefumi; Katayama, Akihiro; Hosokawa, Hiroshi; Sunohara, Izuru; and Yoshimoto, Masahiko, 5,068,746, Cl. 358-443.000.

Yoshimoto, Yoshikazu: *See*—
Suzuki, Tomonari; Wada, Hiroshi; Yoshimoto, Yoshikazu; and Yoshida, Masaru, 5,068,126, Cl. 427-122.000.

Yoshimura, Hironori: *See*—
Nakahara, Kei; Sakurai, Keiichi; Okamura, Toshihiko; Yoshimura, Hironori; Eto, Hiroyuki; and Kikuchi, Noribumi, 5,068,148, Cl. 428-335.000.

Yoshino, Hiroyuki: *See*—
Samejima, Masayoshi; Noda, Kazuo; Hirakawa, Yoshiyuki; and Yoshino, Hiroyuki, 5,068,112, Cl. 424-495.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Yoshino, Tadashi: *See*—
Tanaka, Hiroshi; Ishiwata, Tetsuo; Hitotsumachi, Shuzo; Komae, Hitoshi; Yamaguchi, Susumu; Yoshino, Tadashi; and Yamauchi, Eiji, 5,068,752, Cl. 360-32.000.

Yoshioka, Ritsuo: *See*—
Ueda, Makoto; Sakurada, Koichi; Sakurai, Shungo; Yoshioka, Ritsuo; Ogiya, Shunsuke; and Nagano, Mamoru, 5,068,082, Cl. 376-428.000.

Yoshitomi Pharmaceutical Industries, Ltd.: *See*—
Fujita, Tetsuro; Ikumoto, Takeshi; Sasaki, Shigeo; Kenji, Chiba; and Hoshino, Yukio, 5,068,247, Cl. 514-440.000.

Yoshiya, Masahide: *See*—
Ogawa, Yoshikatsu; Hisada, Haruhiko; Kasahara, Takeshi; Kizaki, Fumihiko; and Yoshiya, Masahide, 5,068,446, Cl. 568-33.000.

Yoshizumo, Akira: *See*—
Uchida, Ken; Higashi, Michiya; Kihara, Naoko; Shimozawa, Hiroshi; and Yoshizumo, Akira, 5,068,267, Cl. 523-435.000.

Yotumoto, Yoshiharu: *See*—
Sugita, Naomasa; Yotumoto, Yoshiharu; Moriguchi, Kouji; and Sekiba, Toshinobu, 5,068,706, Cl. 357-51.000.

You, Yen-Jen. Cutter for cable, plastic pipe or the like. 5,067,240, Cl. 30-2.490.

Young, David A.; Jung, John A.; and McLaughlin, Mark L., to Exxon Chemical Patents Inc. Process for preparation of condensed alcohols by alkoxide catalysts. 5,068,469, Cl. 568-878.000.

Young Engineering, Inc.: *See*—
Young, William O., Jr.; and Lark, George H., 5,067,646, Cl. 226-015.000.

Young, J. Winslow. Disposable bag apparatus and method. 5,067,821, Cl. 383-36.000.

Young, Timothy M.; Coppedge, Charles D.; and McCasland, Charles S., to Halliburton Company. Burner nozzle. 5,067,657, Cl. 239-403.000.

Young, Warren J. Hub and exciter ring assembly. 5,067,597, Cl. 188-181.00R.

Young, William O., Jr.; and Lark, George H., to Young Engineering, Inc. Apparatus for controlling a web. 5,067,646, Cl. 226-015.000.

Youssef, Mustafa: *See*—
Blangetti, Francisco; Muri, Werner; and Youssef, Mustafa, 5,067,446, Cl. 122-441.000.

Youssef, Nashed A., to United Technologies Corporation. Fan blade axial retention device. 5,067,877, Cl. 416-220.00R.

Yu, Chen-Hua D.: *See*—
Manocha, Ajit S.; and Yu, Chen-Hua D., 5,068,207, Cl. 437-231.000.

Yuan, Han-Tzong: *See*—
Morris, Francis J.; Plumton, Donald L.; Yang, Jau-Yuann; and Yuan, Han-Tzong, 5,068,756, Cl. 357-16.000.

Yukawa, Teizou: *See*—
Ukai, Yasuhiro; Sunata, Tomihisa; Yukawa, Teizou; and Inada, Toshiya, 5,068,748, Cl. 359-59.000.

Yurkovic, Paula M., to Irwin Toy Ltd. Head mask tabletop action game. 5,067,723, Cl. 273-249.000.

Zaclon Corporation: *See*—
Cole, James A.; Roberts, William O.; and Turgeon, Joseph T., 5,068,134, Cl. 427-376.200.

Zahnradfabrik Friedrichshafen AG: *See*—
Holdenried, Willy, 5,067,362, Cl. 74-335.000.

Zakrzewski, Bogdan: *See*—
Shapiro, James; and Zakrzewski, Bogdan, 5,068,772, Cl. 362-365.000.

Zarian, Jamshid J.: *See*—
Robbins, John A.; Zarian, Jamshid J.; and Willford, Sandford R., 5,067,831, Cl. 385-123.000.

Zask, Arie; and Jirkovsky, Ivo, to American Home Products Corporation. 5-[(1- and 2-naphthalenyl)thio and sulfonyl]-2,4-thiazolidinediones and derivatives thereof. 5,068,342, Cl. 548-183.000.

Zavatteri, Ignazio; and Gambini, Tiziana, to Ausimont S.p.A.; and Larac S.p.A. Aqueous dispersions of fluorinated polyurethanes and their use for textile coatings. 5,068,135, Cl. 427-439.000.

Zelinski, Matthew S.: *See*—
Klopfleisch, Kim A.; Wellman, Tim A.; Kaiser, Willard D.; Koenig, Mark J.; Ridgway, Richard W.; Walters, Bobby L.; and Zelinski, Matthew S., 5,068,791, Cl. 364-424.020.

Zell, Karl: *See*—
Seidel, Peter; and Zell, Karl, 5,067,232, Cl. 29-837.000.
Seidel, Peter; and Zell, Karl, 5,067,914, Cl. 439-609.000.

Zeller Plastik GmbH: *See*—
Thanisch, Klaus, 5,067,624, Cl. 215-235.000.

Zettler, Mark W.: *See*—
McKendry, Lennon H.; and Zettler, Mark W., 5,068,392, Cl. 560-46.000.

Zettler, William, Jr.: *See*—
Resnikoff, Howard L.; and Zettler, William, Jr., 5,068,911, Cl. 382-56.000.

Zhadanov, Semen. Injury resistant needle device. 5,067,946, Cl. 604-198.000.

Zhu, Joshau S.: *See*—
Hu, Feng-Kang; Lau, Chung M.; Yang, Kevin; Zhu, Joshau S.; Shen, Peter S.; and Jednacz, Thomas C., 5,068,576, Cl. 315-291.000.

Ziegler, Carl B., Jr.; Curran, William V.; and Feigelson, Gregg, to American Cyanamid Company. Novel 2-substituted alkyl-3-carboxy carbapenems as antibiotics and a method of producing them. 5,068,232, Cl. 514-210.000.

Zimmerman, Eckehart; and Thorson, Thomas A., to Cray Computer Corporation. Method and apparatus for notching a lead wire attached to an IC chip to facilitate severing the wire. 5,067,382, Cl. 83-879.000.

Zimmerman, George A.: *See*—
Collins, Oliver; Dolinar, Samuel J., Jr.; Hus, In-Shek; Bozzola, Fabrizio P.; Olson, Erlend M.; Statman, Joseph I.; and Zimmerman, George A., 5,068,859, Cl. 371-43.000.

Zimmermann, Claus: *See*—
Hemmerich, Andreas; McIntyre, David; Zimmermann, Claus; and Haensch, Theodor, 5,068,546, Cl. 359-328.000.

Zimmermann, Clifton; and Mumford, Glen, to BASF Aktiengesellschaft. Pulsed laser. 5,068,862, Cl. 372-25.000.

Zimmermann, William D.: *See*—
Lindert, Andreas; Pierce, John R.; McCormick, David R.; and Zimmermann, William D., 5,068,299, Cl. 526-313.000.

Zip-Pak Incorporated: *See*—
Boeckmann, Hugo, 5,067,302, Cl. 53-374.800.

Zipplies, Matthias; Sauter, Hubert; Roehl, Franz; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, to BASF Aktiengesellschaft. Fungicidal N-substituted 3-arylpyrrolidine derivatives. 5,068,245, Cl. 514-429.000.

Zipplies, Matthias; Sauter, Hubert; Himmele, Walter; Ammermann, Eberhard; and Pommer, Ernst-Heinrich, to BASF Aktiengesellschaft. Fungicidal N-substituted 3-alkyl-4-arylpyrrolidine derivatives. 5,068,246, Cl. 514-429.000.

Zlobinsky, Yury; and Mattes, Donald A., to Savant Instruments, Inc. Vacuum pump with heated vapor pre-trap. 5,067,251, Cl. 34-5.000.

Zoski, Glenn: *See*—
Hall, Lee O.; Zoski, Glenn; and Tyagi, Surendera K., 5,068,088, Cl. 422-52.000.

Zozaya, Michael A.: *See*—
Campbell, Todd D.; and Zozaya, Michael A., 5,067,962, Cl. 623-13.000.

Zuck, Daniel R., to Y&B Investment Corporation. Compound helicopter with no tail rotor. 5,067,668, Cl. 244-7.00R.

Zumsteg, Deborah M.: *See*—
Cantwell, Robert R.; and Zumsteg, Deborah M., 5,067,505, Cl. 135-104.000.

Zweig, Arnold A.: *See*—
Ruder, Carl J.; Haney, Ronald J.; Chutorash, Richard J.; Bostad, Wayne W.; Zweig, Arnold A.; and Payne, Lyle B., 5,067,867, Cl. 414-391.000.

Zydzik, George J.: *See*—
Deppe, Dennis G.; Feldman, Leonard C.; Kopf, Rose F.; Schubert, Erdmann F.; Tu, Li Wei; and Zydzik, George J., 5,068,868, Cl. 372-45.000.

Zylka, Karl H.; and Buckley, Augustus M., Jr., to Quick-Tab Fasteners, Inc. Method and apparatus for feeding tabs or discs to an automatic staple or nail gun. 5,067,865, Cl. 411-531.000.

501 Hans Schwarzkopf GmbH: *See*—
Akram, Mustafa; and Seidel, Winfried, 5,067,967, Cl. 8-415.000.

LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 26TH DAY OF NOVEMBER, 1991

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Brauer, Melvin; Downey, William J.; Naughton, Frank C.; and Chao, Jerry C., to CasChem, Inc. Grease compatible extended polyurethanes. Re. 33,754, Cl. 428-380.000.

Brauer, Melvin: *See*—
Downey, William J.; Brauer, Melvin; and Chao, Jerry C., Re. 33,755, Cl. 524-296.000.

CasChem, Inc.: *See*—
Brauer, Melvin; Downey, William J.; Naughton, Frank C.; and Chao, Jerry C., Re. 33,754, Cl. 428-380.000.
Downey, William J.; Brauer, Melvin; and Chao, Jerry C., Re. 33,755, Cl. 524-296.000.

Centro Sviluppo Materiali S.p.A.: *See*—
Vacchiano, Sergio; Lanfranco, Giovanni; and Gubiotti, Roberto, Re. 33,753, Cl. 420-47.000.

Chao, Jerry C.: *See*—
Brauer, Melvin; Downey, William J.; Naughton, Frank C.; and Chao, Jerry C., Re. 33,754, Cl. 428-380.000.
Downey, William J.; Brauer, Melvin; and Chao, Jerry C., Re. 33,755, Cl. 524-296.000.

DeLucia, Frank: *See*—
Geczy, Bela; and DeLucia, Frank, Re. 33,751, Cl. 175-61.000.

Downey, William J.; Brauer, Melvin; and Chao, Jerry C., to CasChem, Inc. Ester plasticizers for polyurethane compositions. Re. 33,755, Cl. 524-296.000.

Downey, William J.: *See*—
Brauer, Melvin; Downey, William J.; Naughton, Frank C.; and Chao, Jerry C., Re. 33,754, Cl. 428-380.000.

Geczy, Bela; and DeLucia, Frank, to Smith International, Inc. System and method for controlled directional drilling. Re. 33,751, Cl. 175-61.000.

Gubiotti, Roberto: *See*—
Vacchiano, Sergio; Lanfranco, Giovanni; and Gubiotti, Roberto, Re. 33,753, Cl. 420-47.000.

Lanfranco, Giovanni: *See*—
Vacchiano, Sergio; Lanfranco, Giovanni; and Gubiotti, Roberto, Re. 33,753, Cl. 420-47.000.

Lee, Noel. Signal cable assembly. Re. 33,750, Cl. 174-115.000.

Naughton, Frank C.: *See*—
Brauer, Melvin; Downey, William J.; Naughton, Frank C.; and Chao, Jerry C., Re. 33,754, Cl. 428-380.000.

Poss, Werner. Apparatus for the separation of mixtures of materials of different consistencies such as meat and bone. Re. 33,752, Cl. 241-74.000.

Smith International, Inc.: *See*—
Geczy, Bela; and DeLucia, Frank, Re. 33,751, Cl. 175-61.000.

Vacchiano, Sergio; Lanfranco, Giovanni; and Gubiotti, Roberto, to Centro Sviluppo Materiali S.p.A. Austenitic steel with improved high-temperature strength and corrosion resistance. Re. 33,753, Cl. 420-47.000.

LIST OF REEXAMINATION PATENTEES

TO WHOM

CERTIFICATES WERE ISSUED

Bayer Aktiengesellschaft: *See*—
Jacobs, Gundolf; Haas, Peter; Illger, Hans-Walter; Kogelnik, Hans-Joachim; and Wolf, Klaus-Dieter, B1 4,970,243, Cl. 521-155.000.

Bliss, George N.: *See*—
McEvoy, John C.; Bliss, George N.; and Thomas, Leslie P., B1 4,569,444, Cl. 209-510.000.

Bordoni, Maurice E.; and Lieberman, Ephraim, to Cadema Medical Products, Inc. Aerosol inhalation apparatus. B1 4,823,784, 11-26-91, Cl. 128-200.140.

Cadema Medical Products, Inc.: *See*—
Bordoni, Maurice E.; and Lieberman, Ephraim, B1 4,823,784, Cl. 128-200.140.

CRC-Evans Pipeline International, Inc.: *See*—
Layh, Ricky L.; and Landrum, Christy B., Jr., B1 4,633,602, Cl. 37-195.000.

Diamond Automations, Inc.: *See*—
McEvoy, John C.; Bliss, George N.; and Thomas, Leslie P., B1 4,569,444, Cl. 209-510.000.

Haas, Peter: *See*—
Jacobs, Gundolf; Haas, Peter; Illger, Hans-Walter; Kogelnik, Hans-Joachim; and Wolf, Klaus-Dieter, B1 4,970,243, Cl. 521-155.000.

Illger, Hans-Walter: *See*—
Jacobs, Gundolf; Haas, Peter; Illger, Hans-Walter; Kogelnik, Hans-Joachim; and Wolf, Klaus-Dieter, B1 4,970,243, Cl. 521-155.000.

Jacobs, Gundolf; Haas, Peter; Illger, Hans-Walter; Kogelnik, Hans-Joachim; and Wolf, Klaus-Dieter, to Bayer Aktiengesellschaft. Process for the production of flexible slabstock polyurethane foams. B1 4,970,243, 11-26-91, Cl. 521-155.000.

Kogelnik, Hans-Joachim: *See*—
Jacobs, Gundolf; Haas, Peter; Illger, Hans-Walter; Kogelnik, Hans-Joachim; and Wolf, Klaus-Dieter, B1 4,970,243, Cl. 521-155.000.

Landrum, Christy B., Jr.: *See*—
Layh, Ricky L.; and Landrum, Christy B., Jr., B1 4,633,602, Cl. 37-195.000.

Layh, Ricky L.; and Landrum, Christy B., Jr., to CRC-Evans Pipeline International, Inc. Method and apparatus for padding pipe. B1 4,633,602, 11-26-91, Cl. 37-195.000.

Lieberman, Ephraim: *See*—
Bordoni, Maurice E.; and Lieberman, Ephraim, B1 4,823,784, Cl. 128-200.140.

Luke, Roger D.; and Rhodes, John M., to Siemens-Allis, Inc. Panelboard having distributed neutral. B1 4,167,769, 11-26-91, Cl. 361-355.000.

McEvoy, John C.; Bliss, George N.; and Thomas, Leslie P., to Diamond Automations, Inc. Egg processing system. B1 4,569,444, 11-26-91, Cl. 209-510.000.

Rhodes, John M.: *See*—
Luke, Roger D.; and Rhodes, John M., B1 4,167,769, Cl. 361-355.000.

Siemens-Allis, Inc.: *See*—
Luke, Roger D.; and Rhodes, John M., B1 4,167,769, Cl. 361-355.000.

Thomas, Leslie P.: *See*—
McEvoy, John C.; Bliss, George N.; and Thomas, Leslie P., B1 4,569,444, Cl. 209-510.000.

Wolf, Klaus-Dieter: *See*—
Jacobs, Gundolf; Haas, Peter; Illger, Hans-Walter; Kogelnik, Hans-Joachim; and Wolf, Klaus-Dieter, B1 4,970,243, Cl. 521-155.000.

VOL 1132 ISS 4 NO 26 1991 UMI

LIST OF DESIGN PATENTEES

A.M.K. Investments Ltd.: *See*—
Kraus, Arthur M., 321,786, Cl. D3-65.000.
Kraus, Arthur M., 321,787, Cl. D3-65.000.
Abe, Karl-Heinz; and Gevert, Klaus V., to Bayerische Motoren Werke AG. Motorcycle. 321,849, 11-26-91, Cl. D12-110.000.
Abiney, Hassin A.: *See*—
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger, 321,878, Cl. D14-191.000.
Adams, Duane D., to North American Philips Corp. Coffee maker. 321,807, 11-26-91, Cl. D7-309.000.
Aktiebolaget Volvo: *See*—
Falck, Stig F. O.; and Falck, Frans G., 321,946, Cl. D26-35.000.
Malmgren, Rolf A.; and Falck, Frans G., 321,943, Cl. D26-28.000.
Malmgren, Rolf A.; and Falck, Frans G., 321,944, Cl. D26-28.000.
Alcan Aluminum Limited: *See*—
Zobrist, Peter, 321,809, Cl. D7-359.000.
Alliance Telecommunications Corp.: *See*—
Metivier, Donald E., 321,886, Cl. D14-238.000.
Alterbaum, Reinold. Motor-driven golf-bag caddy. 321,964, 11-26-91, Cl. D34-15.000.
AMC International Alfa Metalcraft Corporation AG: *See*—
Schultz, Horst, 321,810, Cl. D7-363.000.
American Design Group, Inc.: *See*—
Blum, Marvin D., 321,800, Cl. D6-472.000.
American Standard Inc.: *See*—
Enthoven, Axel, 321,950, Cl. D26-92.000.
Anderson, Curt, to Gold Star Co., Ltd. Facsimile. 321,867, 11-26-91, Cl. D14-118.000.
Anderson, Curt, to Gold Star Co., Ltd. Facsimile. 321,868, 11-26-91, Cl. D14-118.000.
Ando, Takaharu, to Kabushiki Kaisha Toshiba. Telephone. 321,871, 11-26-91, Cl. D14-151.000.
Ando, Takaharu, to Kabushiki Kaisha Toshiba. Telephone. 321,872, 11-26-91, Cl. D14-151.000.
Ando, Takaharu, to Kabushiki Kaisha Toshiba. Telephone. 321,873, 11-26-91, Cl. D14-151.000.
Ando, Takaharu, to Kabushiki Kaisha Toshiba. Telephone. 321,874, 11-26-91, Cl. D14-151.000.
Ando, Takaharu, to Kabushiki Kaisha Toshiba. Telephone. 321,875, 11-26-91, Cl. D14-151.000.
Appelbaum, Paul. Shackleless padlock. 321,824, 11-26-91, Cl. D8-334.000.
Apple Computer, Inc.: *See*—
Ross, Grant D., Jr., 321,855, Cl. D13-107.000.
Arndt, Robert: *See*—
Polansky, Edwin H.; and Arndt, Robert, 321,833, Cl. D10-30.000.
Asakawa, Nobuyuki: *See*—
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,858, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,860, Cl. D13-147.000.
Asics Corporation: *See*—
Kawasaki, Toshiaki, 321,777, Cl. D2-320.000.
AT&T Bell Laboratories: *See*—
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., 321,870, Cl. D14-130.000.
Attwood Corporation: *See*—
Whitley, Warwick M., II; and Kusiak, James L., 321,856, Cl. D13-119.000.
Austin, Arnold S., to Quabaug Corporation. Bottom and periphery of a footwear unit sole. 321,778, 11-26-91, Cl. D2-320.000.
Aylott, David H., to Eylure Limited. Fingernail repair device. 321,954, 11-26-91, Cl. D28-57.000.
Baby Trend, Inc.: *See*—
Mong-Hsing, Chai, 321,850, Cl. D12-129.000.
Barcanic, Timothy J. Sandal. 321,775, 11-26-91, Cl. D2-293.000.
Barrett, David. Antenna. 321,884, 11-26-91, Cl. D14-234.000.
Bartley, Harold D.; and Gaiser, William R., to Broadway Companies, Inc. Bottle. 321,827, 11-26-91, Cl. D9-370.000.
Basore, Charles W.; and Gilbert, Robert W. Children's playground slide. 321,922, 11-26-91, Cl. D21-244.000.
Bausch & Lomb Incorporated: *See*—
Ramp, Robert H., 321,895, Cl. D16-102.000.
Baxter Diagnostics Inc.: *See*—
D'Aquino, Michael; Rao, Manjeshwar S.; and Kirchick, Howard J., 321,940, Cl. D24-226.000.
Bayerische Motoren Werke AG: *See*—
Abe, Karl-Heinz; and Gevert, Klaus V., 321,849, Cl. D12-110.000.
Bean, W. Edward. Table top novelty. 321,841, 11-26-91, Cl. D11-131.000.
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., to AT&T Bell Laboratories. Video telephone set. 321,870, 11-26-91, Cl. D14-130.000.
Blaisdell, Ronald G.; and Pai, Robert Y., to GTE Products Corporation. Fluorescent lamp holder or the like. 321,857, 11-26-91, Cl. D13-136.000.
Blanchard, Robert G. Physical exercise platform. 321,918, 11-26-91, Cl. D21-191.000.
Blum, Marvin D., to American Design Group, Inc. Display case. 321,800, 11-26-91, Cl. D6-472.000.
Boesch, Timothy J.: *See*—
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., 321,889, Cl. D15-17.000.
Bond, Treva. Game piece or similar. 321,916, 11-26-91, Cl. D21-51.000.
Bonner, Yong S. Portable sun protector. 321,924, 11-26-91, Cl. D21-253.000.
Boone, Jack M.: *See*—
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., 321,889, Cl. D15-17.000.
Borchardt, Robert L., to Recoton Corporation. Antenna. 321,883, 11-26-91, Cl. D14-230.000.
Bowdler, Michael A., to Hall China Company, The. Sugar packet holder. 321,815, 11-26-91, Cl. D7-560.000.
Brady, Mark D. Support base for a desk set or similar article. 321,908, 11-26-91, Cl. D19-97.000.
Brady, Mark D. Support base for a desk set or similar article. 321,909, 11-26-91, Cl. D19-97.000.
Brady, Mark D. Support base for a desk set or similar article. 321,910, 11-26-91, Cl. D19-97.000.
Brady, Mark D. Support base for a desk set or similar article. 321,911, 11-26-91, Cl. D19-97.000.
Braun Aktiengesellschaft: *See*—
Littmann, Ludwig, 321,811, Cl. D7-379.000.
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger. Combined pager and magnetic key. 321,878, 11-26-91, Cl. D14-191.000.
Bridgestone/Firestone, Inc.: *See*—
Guspodin, James G., 321,852, Cl. D12-147.000.
Broadway Companies, Inc.: *See*—
Bartley, Harold D.; and Gaiser, William R., 321,827, Cl. D9-370.000.
Brodix, Inc.: *See*—
Brotherton, J. V., 321,888, Cl. D15-5.000.
Brook Design Products Limited: *See*—
Logue, Alan V.; and Divers, William, 321,934, Cl. D23-388.000.
Brotherton, J. V., to Brodix, Inc. Intake manifold. 321,888, 11-26-91, Cl. D15-5.000.
Brown, Tobias; and Siegal, Burton L., to Sellstrom Manufacturing Company. Face shield. 321,957, 11-26-91, Cl. D29-9.000.
Brunelle, Virginia: *See*—
Evans, Nancy L.; Dipko, Kathleen; Hudson, Daisy L.; and Brunelle, Virginia, 321,917, Cl. D21-171.000.
Bryant, William C., to Empire Brushes, Inc. Push broom. 321,793, 11-26-91, Cl. D4-135.000.
Buckley, Robert S. Shopping cart holder. 321,798, 11-26-91, Cl. D6-462.000.
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., to Murray Ohio Manufacturing Company, The. Grass collecting cart for a riding lawn mower. 321,889, 11-26-91, Cl. D15-17.000.
Burt, Cheryl L. Baby bottle holder. 321,938, 11-26-91, Cl. D24-199.000.
Butzko, Betty: *See*—
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,952, Cl. D28-35.000.
Cabot Safety Corporation: *See*—
Salce, Arthur J.; and Metcalfe, Richard T., 321,958, Cl. D29-16.000.
Cain, Ann S., to 'totes', incorporation. Umbrella handle. 321,780, 11-26-91, Cl. D3-12.000.
Cain, Ann S., to 'totes', incorporated. Umbrella handle. 321,781, 11-26-91, Cl. D3-12.000.
Cain, Ann S., to 'totes', incorporated. Umbrella handle. 321,782, 11-26-91, Cl. D3-12.000.
Callaway Golf Company: *See*—
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., 321,920, Cl. D21-220.000.
Casablanca Fan Company, Inc.: *See*—
Ignon, Alexander B., 321,935, Cl. D23-413.000.
Chaney, David B., to EBCO Manufacturing Company. Drinking water dispenser or similar article. 321,806, 11-26-91, Cl. D7-308.000.
Chap, John P.; and Greenberg, Dorothy, to Selfix, Inc. Hook. 321,794, 11-26-91, Cl. D6-323.000.
Chase, David O.; Lynch, Peter F.; Maloney, Martin V.; and Oslecki, Scott W., to General Signal Corporation. Combined locomotive console and master controller cover. 321,853, 11-26-91, Cl. D12-192.000.
Chen, Ching-Ti, to Information Clock Industry Co., Ltd. Three-side clock. 321,832, 11-26-91, Cl. D10-14.000.
Chen, Pi-Chi. Tool box. 321,788, 11-26-91, Cl. D3-74.000.
Cheng, Michael H. L. Golf club head. 321,919, 11-26-91, Cl. D21-220.000.
Chepaitis, Elia V. Alphanumeric font. 321,903, 11-26-91, Cl. D18-26.000.
CJC Holdings, Inc.: *See*—
Waugh, J. T.; and Davis, Parke, 321,840, Cl. D11-33.000.
Cole, Theodore J.; and Swartzendruber, Ray E., to CTB, Inc. Feeder for poultry. 321,959, 11-26-91, Cl. D30-121.000.

Compaq Computer Corporation: *See*—
Kasee, Kimberly W.; Pankonien, Gary W.; and Goodrich, Donald S., 321,898, Cl. D18-55.000.
Cook, Stuart A.: *See*—
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., 321,889, Cl. D15-17.000.
Cooper, Richard N.: *See*—
Smith, Lawrence M.; and Cooper, Richard N., 321,927, Cl. D23-231.000.
Croll, Theodore P. Eyeglasses. 321,896, 11-26-91, Cl. D16-102.000.
CTB, Inc.: *See*—
Cole, Theodore J.; and Swartzendruber, Ray E., 321,959, Cl. D30-121.000.
Curtis, Jack M.: *See*—
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., 321,889, Cl. D15-17.000.
Dannenberg, Todd D.; and Poulson, Keith L., to Kohler Co. Shower enclosure. 321,929, 11-26-91, Cl. D23-305.000.
D'Aquino, Michael; Rao, Manjeshwar S.; and Kirchick, Howard J., to Baxter Diagnostics Inc. Sample cup for analyzer. 321,940, 11-26-91, Cl. D24-226.000.
Dataproducts Corporation: *See*—
Knox, Edward; and Smith, Philip N., 321,899, Cl. D18-58.000.
Davis, Parke: *See*—
Waugh, J. T.; and Davis, Parke, 321,840, Cl. D11-33.000.
Dawson, Chris R., to Kimberly-Clark Corporation. Tissue or towel dispenser. 321,803, 11-26-91, Cl. D6-518.000.
De La Cruz, Richard: *See*—
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., 321,920, Cl. D21-220.000.
Decra Stone, Inc.: *See*—
Lumaban, Nimfa O., 321,967, Cl. D34-44.000.
Delmerico, Paul E.; and Terek, Greg P., to Rubbermaid Commercial Products Inc. Container dolly. 321,965, 11-26-91, Cl. D34-23.000.
Derocher, Michael D., to Hewlett-Packard Company. Electronic notepad for data entry. 321,865, 11-26-91, Cl. D14-100.000.
Dieperink, Menno, to U.S. Philips Corporation. Desk lamp. 321,951, 11-26-91, Cl. D26-107.000.
Dierkes, J. Michael. Dental model trimmer basin or the like. 321,931, 11-26-91, Cl. D23-294.000.
Dinand, Pierre, to International Flavors & Fragrances I.F.F. (France) S.a.r.l. Vaporizer. 321,930, 11-26-91, Cl. D23-360.000.
Dipko, Kathleen: *See*—
Evans, Nancy L.; Dipko, Kathleen; Hudson, Daisy L.; and Brunelle, Virginia, 321,917, Cl. D21-171.000.
Divers, William: *See*—
Logue, Alan V.; and Divers, William, 321,934, Cl. D23-388.000.
Donovan, William P. Baby bottle. 321,936, 11-26-91, Cl. D24-197.000.
Duchess Industries, Inc.: *See*—
Polansky, Edwin H.; and Arndt, Robert, 321,833, Cl. D10-30.000.
During AG: *See*—
During, Walter, 321,828, Cl. D9-370.000.
During, Walter, to During AG. Combined foldable bottle and cap. 321,828, 11-26-91, Cl. D9-370.000.
Duszynski, Ralph E. Air freshener housing. 321,932, 11-26-91, Cl. D23-366.000.
Duz-Mor, Inc.: *See*—
Field, Carl R., 321,893, Cl. D15-122.000.
Eastman Kodak Company: *See*—
Reddig, Alan G., 321,897, Cl. D16-209.000.
EBCO Manufacturing Company: *See*—
Chaney, David B., 321,806, Cl. D7-308.000.
Eide, Ralph M.: *See*—
Foley, John J.; Eide, Ralph M.; and MacDonell, Ranald I., 321,854, Cl. D12-306.000.
Eldon Industries, Inc.: *See*—
Evenson, Mel, 321,912, Cl. D19-99.000.
Emmerling, Ronald, to Gemini Industries Inc. Stereo radio. 321,879, 11-26-91, Cl. D14-192.000.
Emmerling, Ronald, to Gemini Industries Inc. Stereo radio. 321,880, 11-26-91, Cl. D14-192.000.
Empire Brushes, Inc.: *See*—
Bryant, William C., 321,793, Cl. D4-135.000.
Encon Industries, Inc.: *See*—
Markwardt, Herbert W.; and Markwardt, Michael A., 321,933, Cl. D23-377.000.
Enthoven, Axel, to American Standard Inc. Wall-mounted light fixture or the like. 321,950, 11-26-91, Cl. D26-92.000.
Evans, Nancy L.; Dipko, Kathleen; Hudson, Daisy L.; and Brunelle, Virginia. Patch quilt doll. 321,917, 11-26-91, Cl. D21-171.000.
Evenson, Mel, to Eldon Industries, Inc. Paper tray cover. 321,912, 11-26-91, Cl. D19-99.000.
Eylure Limited: *See*—
Aylott, David H., 321,954, Cl. D28-57.000.
Falck, Frans G.: *See*—
Falck, Stig F. O.; and Falck, Frans G., 321,946, Cl. D26-35.000.
Malmgren, Rolf A.; and Falck, Frans G., 321,943, Cl. D26-28.000.
Malmgren, Rolf A.; and Falck, Frans G., 321,944, Cl. D26-28.000.
Falck, Stig F. O.; and Falck, Frans G., to Aktiebolaget Volvo. Rear light for an automobile. 321,946, 11-26-91, Cl. D26-35.000.
Field, Carl R., to Duz-Mor, Inc. Device for repairing and strengthening vehicles. 321,893, 11-26-91, Cl. D15-122.000.
Foley, John J.; Eide, Ralph M.; and MacDonell, Ranald I. Pedal operated water cycle. 321,854, 11-26-91, Cl. D12-306.000.
Forrand, George W. Mobile seat for garden weeding. 321,796, 11-26-91, Cl. D6-330.000.
Frenkler, Friedrich F.: *See*—
Ono, Masayuki; Suzuki, Akira; Uchibori, Noritaka; and Frenkler, Friedrich F., 321,902, Cl. D18-49.000.
Friedman, Frank A., to Herman Miller, Inc. Modules shelf unit. 321,801, 11-26-91, Cl. D6-492.000.
Fujimoto, Takanobu: *See*—
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,891, Cl. D15-72.000.
Fuller, John M., to Rubbermaid Commercial Products Inc. Stable cart lid. 321,966, 11-26-91, Cl. D34-27.000.
Fushiya, Fusao; and Haneda, Koji, to Makita Electric Works, Ltd. Tree pruner. 321,816, 11-26-91, Cl. D8-7.000.
Gaiser, William R.: *See*—
Bartley, Harold D.; and Gaiser, William R., 321,827, Cl. D9-370.000.
Garrity Industries, Inc.: *See*—
Garrity, Kevin S., 321,785, Cl. D3-63.000.
Garrity, Kevin S., to Garrity Industries, Inc. Combined key holder and flashlight. 321,785, 11-26-91, Cl. D3-63.000.
Gemini Industries Inc.: *See*—
Emmerling, Ronald, 321,879, Cl. D14-192.000.
Emmerling, Ronald, 321,880, Cl. D14-192.000.
General Signal Corporation: *See*—
Chase, David O.; Lynch, Peter F.; Maloney, Martin V.; and Oslecki, Scott W., 321,853, Cl. D12-192.000.
Gevert, Klaus V.: *See*—
Abe, Karl-Heinz; and Gevert, Klaus V., 321,849, Cl. D12-110.000.
Gilbert, Robert W.: *See*—
Basore, Charles W.; and Gilbert, Robert W., 321,922, Cl. D21-244.000.
Gillette Company, The: *See*—
Gray, Michael J., 321,953, Cl. D28-48.000.
Gold Star Co., Ltd.: *See*—
Anderson, Curt, 321,867, Cl. D14-118.000.
Anderson, Curt, 321,868, Cl. D14-118.000.
Golden, Scott M.: *See*—
Wennemar, James A.; and Golden, Scott M., 321,861, Cl. D13-150.000.
Goodrich, Donald S.: *See*—
Kasee, Kimberly W.; Pankonien, Gary W.; and Goodrich, Donald S., 321,898, Cl. D18-55.000.
Gordecki, Richard J.: *See*—
Scheid, William J.; and Gordecki, Richard J., 321,877, Cl. D14-191.000.
Gray, Michael J., to Gillette Company, The. Razor handle. 321,953, 11-26-91, Cl. D28-48.000.
Greenberg, Dorothy: *See*—
Chap, John P.; and Greenberg, Dorothy, 321,794, Cl. D6-323.000.
Grewe, Anthony J.: *See*—
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., 321,870, Cl. D14-130.000.
GTE Products Corporation: *See*—
Blaisdell, Ronald G.; and Pai, Robert Y., 321,857, Cl. D13-136.000.
Guiffre, Charles J.: *See*—
Roma, Samuel G.; and Guiffre, Charles J., 321,962, Cl. D32-49.000.
Guignard, Jean P., to Parfums Jean Jacques Vivier, societe a responsabilite limitee. Bottle. 321,823, 11-26-91, Cl. D9-314.000.
Guspodin, James G., to Bridgestone/Firestone, Inc. Tire. 321,852, 11-26-91, Cl. D12-147.000.
Hall China Company, The: *See*—
Bowdler, Michael A., 321,815, Cl. D7-560.000.
Haneda, Koji: *See*—
Fushiya, Fusao; and Haneda, Koji, 321,816, Cl. D8-7.000.
Hanlon, Tim: *See*—
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,952, Cl. D28-35.000.
Harley-Davidson, Inc.: *See*—
Iazzetta, Luigi, 321,829, Cl. D9-403.000.
Harris, Raymond L. Pipe fitting reamer. 321,894, 11-26-91, Cl. D15-139.000.
Hasegawa, Katsumi, to Kai R&D Center Co., Ltd. Scissors. 321,818, 11-26-91, Cl. D8-57.000.
Hasegawa, Shigeru: *See*—
Ito, Masafumi; Hasegawa, Shigeru; Sube, Minoru; and Takashima, Katsuhiro, 321,876, Cl. D14-164.000.
Hatfield, Tinker L., to Nike, Inc.; and Nike International Ltd. Shoe midsole lateral surface. 321,776, 11-26-91, Cl. D2-314.000.
Heili, Robert W.: *See*—
Marvy, James; and Heili, Robert W., 321,799, Cl. D6-457.000.
Helen of Troy Corporation: *See*—
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,952, Cl. D28-35.000.
Helmstetter, Richard C.: *See*—
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., 321,920, Cl. D21-220.000.
Henneberger, Roy. Guiding trough, horizontal T for optical fibers. 321,862, 11-26-91, Cl. D13-155.000.
Henneberger, Roy. Guiding trough, 90 degree up elbow for optical fibers. 321,863, 11-26-91, Cl. D13-155.000.
Herman Miller, Inc.: *See*—
Friedman, Frank A., 321,801, Cl. D6-492.000.
Hewlett-Packard Company: *See*—
Derocher, Michael D., 321,865, Cl. D14-100.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Hijo De E.F. Escofet S.A.: *See—*
Paris, Emilio F., 321,797, Cl. D6-381.000.
Hirabayashi, Yoshio, to Seiko Epson Corporation. Wristwatch. 321,835, 11-26-91, Cl. D10-39.000.
Hirayama, Yasuo: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,858, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,859, Cl. D13-146.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,860, Cl. D13-147.000.
Hoover Universal, Inc.: *See—*
York, Stuart A.; and Weissman, Dan, 321,830, Cl. D9-434.000.
Hopewell, Donald C. Radio. 321,881, 11-26-91, Cl. D14-192.000.
Huang, James C. S. Table lamp. 321,948, 11-26-91, Cl. D26-65.000.
Hudson, Daisy L.: *See—*
Evans, Nancy L.; Dipko, Kathleen; Hudson, Daisy L.; and Brunelle, Virginia, 321,917, Cl. D21-171.000.
Huei, Liu M. Radio receiver. 321,882, 11-26-91, Cl. D14-196.000.
Hughes, Andrew W. Adjustment tool for an orthopedic brace. 321,817, 11-26-91, Cl. D8-14.000.
Hysek, Jorg, to Interdica S.A. Watch. 321,836, 11-26-91, Cl. D10-39.000.
Iazzetta, Luigi, to Harley-Davidson, Inc. Combined bottle and cap. 321,829, 11-26-91, Cl. D9-403.000.
Ideal Industries, Inc.: *See—*
Wennemar, James A.; and Golden, Scott M., 321,861, Cl. D13-150.000.
Ignon, Alexander B., to Casablanca Fan Company, Inc. Ceiling fan blade. 321,935, 11-26-91, Cl. D23-413.000.
Information Clock Industry Co., Ltd.: *See—*
Chen, Ching-Ti, 321,832, Cl. D10-14.000.
Interdica S.A.: *See—*
Hysek, Jorg, 321,836, Cl. D10-39.000.
International Flavors & Fragrances I.F.F. (France) S.a.r.l.: *See—*
Dinand, Pierre, 321,930, Cl. D23-360.000.
Ishii, Tsuyoshi; and Yoshimura, Koichi, to Yamazaki Corporation. Floor cleaner. 321,961, 11-26-91, Cl. D32-38.000.
Ito, Masafumi; Hasegawa, Shigeru; Sube, Minoru; and Takashima, Katsuhiro, to TEAC Corporation. Data recorder/reproducer. 321,876, 11-26-91, Cl. D14-164.000.
Janome Sewing Machine Co. Ltd.: *See—*
Kuroki, Nobufusa, 321,890, Cl. D15-70.000.
Johnson, Larry K. Golf ball dispenser. 321,921, 11-26-91, Cl. D21-234.000.
Kabushiki Kaisha Toshiba: *See—*
Ando, Takaharu, 321,871, Cl. D14-151.000.
Ando, Takaharu, 321,872, Cl. D14-151.000.
Ando, Takaharu, 321,873, Cl. D14-151.000.
Ando, Takaharu, 321,874, Cl. D14-151.000.
Ando, Takaharu, 321,875, Cl. D14-151.000.
Kai R&D Center Co., Ltd.: *See—*
Hasegawa, Katsumi, 321,818, Cl. D8-57.000.
Kasee, Kimberly W.; Pankonien, Gary W.; and Goodrich, Donald S., to Compaq Computer Corporation. Portable printer. 321,898, 11-26-91, Cl. D18-55.000.
Kawasaki, Toshiaki, to Asics Corporation. Shoe sole. 321,777, 11-26-91, Cl. D2-320.000.
Kimberly-Clark Corporation: *See—*
Dawson, Chris R., 321,803, Cl. D6-518.000.
King, William L., to Samsonite Corporation. Luggage case. 321,791, 11-26-91, Cl. D3-77.000.
Kirchick, Howard J.: *See—*
D'Aquino, Michael; Rao, Manjeshwar S.; and Kirchick, Howard J., 321,940, Cl. D24-226.000.
Knox, Edward; and Smith, Philip N., to Dataproducts Corporation. Reinker cartridge. 321,899, 11-26-91, Cl. D18-58.000.
Kohler Co.: *See—*
Dannenberg, Todd D.; and Poulson, Keith L., 321,929, Cl. D23-305.000.
Kraft General Foods, Inc.: *See—*
Schlesselman, Kurt, 321,825, Cl. D9-310.000.
Kraus, Arthur M., to A.M.K. Investments Ltd. Key holder. 321,786, 11-26-91, Cl. D3-65.000.
Kraus, Arthur M., to A.M.K. Investments Ltd. Key holder. 321,787, 11-26-91, Cl. D3-65.000.
Kumagai, Toshio, to Seiko Epson Corporation. Ink cartridge. 321,900, 11-26-91, Cl. D18-56.000.
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, to Mitsubishi Denki Kabushiki Kaisha. Controller for a sewing machine. 321,891, 11-26-91, Cl. D15-72.000.
Kuroki, Nobufusa, to Janome Sewing Machine Co. Ltd. Sewing machine. 321,890, 11-26-91, Cl. D15-70.000.
Kusiak, James L.: *See—*
Whitley, Warwick M., II; and Kusiak, James L., 321,856, Cl. D13-119.000.
Kwikset Corporation: *See—*
Pechar, Stanley, 321,822, Cl. D8-301.000.
Littmann, Ludwig, to Braun Aktiengesellschaft. Head-held mixer. 321,811, 11-26-91, Cl. D7-379.000.
Logue, Alan V.; and Divers, William, to Brook Design Products Limited. Vent for mounting on window sill or frame. 321,934, 11-26-91, Cl. D23-388.000.
Louszko, Arthur C., Jr. Motorized stroller. 321,851, 11-26-91, Cl. D12-129.000.
Luchak, Robert M. Combined knife and dressing tool for use primarily by a hunter. 321,821, 11-26-91, Cl. D8-99.000.
Lumaban, Nimfa O., to Decra Stone, Inc. Wicker basket. 321,967, 11-26-91, Cl. D34-44.000.
Lynch, Peter F.: *See—*
Chase, David O.; Lynch, Peter F.; Maloney, Martin V.; and Oslecki, Scott W., 321,853, Cl. D12-192.000.
Lynn, Michael E., to Marley Tile A.G. Tile. 321,942, 11-26-91, Cl. D25-140.000.
Ma, Mark J. S. Notch for umbrella. 321,779, 11-26-91, Cl. D3-10.000.
Maass, Rudolf, to Robert Krups Stiftung & Co. KG. Food processor. 321,812, 11-26-91, Cl. D7-384.000.
MacDonell, Ranald I.: *See—*
Foley, John J.; Eide, Ralph M.; and MacDonell, Ranald I., 321,854, Cl. D12-306.000.
MacNeary, John P. Skateboard carrier. 321,792, 11-26-91, Cl. D3-104.000.
Magnor Pty. Limited: *See—*
Nicholas, Stephen B., 321,960, Cl. D32-35.000.
Makita Electric Works, Ltd.: *See—*
Fushiya, Fusao; and Haneda, Koji, 321,816, Cl. D8-7.000.
Mallory, Eric R. Adjustable four way mirror. 321,955, 11-26-91, Cl. D28-64.100.
Malmgren, Rolf A.; and Falck, Frans G., to Aktiebolaget Volvo. Rear light for an automobile. 321,943, 11-26-91, Cl. D26-28.000.
Malmgren, Rolf A.; and Falck, Frans G., to Aktiebolaget Volvo. Rear light for an automobile. 321,944, 11-26-91, Cl. D26-28.000.
Maloney, Martin V.: *See—*
Chase, David O.; Lynch, Peter F.; Maloney, Martin V.; and Oslecki, Scott W., 321,853, Cl. D12-192.000.
Marks, Jonathan A.: *See—*
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., 321,870, Cl. D14-130.000.
Markwardt, Herbert W.; and Markwardt, Michael A., to Encon Industries, Inc. Combined electric ceiling fan and light or the like. 321,933, 11-26-91, Cl. D23-377.000.
Markwardt, Michael A.: *See—*
Markwardt, Herbert W.; and Markwardt, Michael A., 321,933, Cl. D23-377.000.
Marley Tile A.G.: *See—*
Lynn, Michael E., 321,942, Cl. D25-140.000.
Martorella, Ellen. Accessory organizer. 321,789, 11-26-91, Cl. D3-75.000.
Martorella, Ellen. Accessory organizer. 321,790, 11-26-91, Cl. D3-75.000.
Maruzen Kabushiki Kaisha: *See—*
Matsuno, Moritoshi, 321,907, Cl. D19-72.000.
Marvy, James; and Heili, Robert W. Display stand or similar article. 321,799, 11-26-91, Cl. D6-457.000.
Matsuno, Moritoshi, to Maruzen Kabushiki Kaisha. Electric punch. 321,907, 11-26-91, Cl. D19-72.000.
Mazda Motor Corporation: *See—*
Yamamoto, Hiroshi, 321,945, Cl. D26-35.000.
McDiarmid, Roger: *See—*
Brenda, Beverly J.; Abiney, Hassin A.; and McDiarmid, Roger, 321,878, Cl. D14-191.000.
McGarvey, John N.: *See—*
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., 321,870, Cl. D14-130.000.
Metcalfe, Richard T.: *See—*
Salce, Arthur J.; and Metcalfe, Richard T., 321,958, Cl. D29-16.000.
Metivier, Donald E., to Alliance Telecommunications Corp. Antenna mount. 321,886, 11-26-91, Cl. D14-238.000.
Miller, Jack V. Recessed lighting fixture for ceiling or the like. 321,949, 11-26-91, Cl. D26-74.000.
Milo, Joseph V., to Universal Valve Company, Inc. Combination ball valve and check valve. 321,928, 11-26-91, Cl. D23-245.000.
Mitsubishi Denki Kabushiki Kaisha: *See—*
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,891, Cl. D15-72.000.
Mong-Hsing, Chai, to Baby Trend, Inc. Tandem seat baby stroller. 321,850, 11-26-91, Cl. D12-129.000.
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, to Helen of Troy Corporation. Curling iron. 321,952, 11-26-91, Cl. D28-35.000.
Motorola, Inc.: *See—*
Scheid, William J.; and Gordecki, Richard J., 321,877, Cl. D14-191.000.
Murray Ohio Manufacturing Company, The: *See—*
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., 321,889, Cl. D15-17.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,858, 11-26-91, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,859, 11-26-91, Cl. D13-146.000.

Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, to Sumitomo Wiring Systems, Ltd. Housing for an electrical connector. 321,860, 11-26-91, Cl. D13-147.000.
Nakamura, Yuko, to Sony Corporation. Video cassette tape. 321,869, 11-26-91, Cl. D14-121.000.
Neeley, Marilyn J. Calculating device. 321,906, 11-26-91, Cl. D19-64.000.
Newhouse, Thomas J. Combination lap-top computer console and mouse. 321,866, 11-26-91, Cl. D14-106.000.
Nicholas, Stephen B., to Magnor Pty. Limited. Handle interconnect bracket for scoops used to clean swimming pools. 321,960, 11-26-91, Cl. D32-35.000.
Nike, Inc.: *See—*
Hatfield, Tinker L., 321,776, Cl. D2-314.000.
Nike International Ltd.: *See—*
Hatfield, Tinker L., 321,776, Cl. D2-314.000.
Nohara, Toshikazu: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,859, Cl. D13-146.000.
North American Philips Corp.: *See—*
Adams, Duane D., 321,807, Cl. D7-309.000.
Nys, Peter. Sailboard sports figure. 321,842, 11-26-91, Cl. D11-163.000.
Nys, Peter. Baseball glove and baseball sports figure. 321,843, 11-26-91, Cl. D11-157.000.
Nys, Peter. Golf bag sports figure. 321,844, 11-26-91, Cl. D11-157.000.
Nys, Peter. Football helmet sports figure. 321,845, 11-26-91, Cl. D11-157.000.
Nys, Peter. Basketball hoop and basketball sports figure. 321,846, 11-26-91, Cl. D11-157.000.
Nys, Peter. Sailboat sports figure. 321,847, 11-26-91, Cl. D11-163.000.
Nys, Peter. Jet ski sports figure. 321,848, 11-26-91, Cl. D11-163.000.
Ohara, Toshimitsu: *See—*
Uchibori, Noritaka; and Ohara, Toshimitsu, 321,901, Cl. D18-49.000.
Ono, Masayuki; Suzuki, Akira; Uchibori, Noritaka; and Frenkler, Friedrich F., to Seiko Epson Corporation. Automatic paper feeder for printer. 321,902, 11-26-91, Cl. D18-49.000.
Oslecki, Scott W.: *See—*
Chase, David O.; Lynch, Peter F.; Maloney, Martin V.; and Oslecki, Scott W., 321,853, Cl. D12-192.000.
Ozeki, Jiro, to Slidex Corporation. File sheet for magnetic recording media. 321,783, 11-26-91, Cl. D3-35.000.
Page, Patricia. Towelette package. 321,826, 11-26-91, Cl. D9-345.000.
Pai, Robert Y.: *See—*
Blaisdell, Ronald G.; and Pai, Robert Y., 321,857, Cl. D13-136.000.
Pankonien, Gary W.: *See—*
Kasee, Kimberly W.; Pankonien, Gary W.; and Goodrich, Donald S., 321,898, Cl. D18-55.000.
Parente, Richard E.; De La Cruz, Richard; and Helmstetter, Richard C., to Callaway Golf Company. Golf club head. 321,920, 11-26-91, Cl. D21-220.000.
Parfums Jean Jacques Vivier, societe a responsabilite limitee: *See—*
Guignard, Jean P., 321,823, Cl. D9-314.000.
Paris, Emilio F., to Hijo De E.F. Escofet S.A. Bench. 321,797, 11-26-91, Cl. D6-381.000.
Pechar, Stanley, to Kwikset Corporation. Lever handle and rosette unit. 321,822, 11-26-91, Cl. D8-301.000.
Piarulli, Frank; and Piarulli, Vinny. Alarm clock. 321,831, 11-26-91, Cl. D10-7.000.
Piarulli, Vinny: *See—*
Piarulli, Frank; and Piarulli, Vinny, 321,831, Cl. D10-7.000.
Piciullo, Angelo M. Disposable car seat cover. 321,805, 11-26-91, Cl. D6-611.000.
Polansky, Edwin H.; and Arndt, Robert, to Duchess Industries, Inc. Watch case with strap adaptor. 321,833, 11-26-91, Cl. D10-30.000.
Poulson, Keith L.: *See—*
Dannenberg, Todd D.; and Poulson, Keith L., 321,929, Cl. D23-305.000.
Power, Steve: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,952, Cl. D28-35.000.
Quabaug Corporation: *See—*
Austin, Arnold S., 321,778, Cl. D2-320.000.
Ramp, Robert H., to Bausch & Lomb Incorporated. Pair of sunglasses or the like. 321,895, 11-26-91, Cl. D16-102.000.
Rao, Manjeshwar S.: *See—*
D'Aquino, Michael; Rao, Manjeshwar S.; and Kirchick, Howard J., 321,940, Cl. D24-226.000.
Rao, Matthew D.: *See—*
Burns, Stephen R.; Boesch, Timothy J.; Rao, Matthew D.; Cook, Stuart A.; Curtis, Jack M.; and Boone, Jack M., 321,889, Cl. D15-17.000.
Recoton Corporation: *See—*
Borchardt, Robert L., 321,883, Cl. D14-230.000.
Reddig, Alan G., to Eastman Kodak Company. Still camera. 321,897, 11-26-91, Cl. D16-209.000.
Rixen, Edgar, to Robert Krups Stiftung & Co. KG. Vacuum bottle. 321,808, 11-26-91, Cl. D7-317.000.
Robert, Jean, to Swatch AG (Swatch SA). Watch dial. 321,837, 11-26-91, Cl. D10-126.000.
Robert, Jean, to Swatch AG. Watch dial. 321,838, 11-26-91, Cl. D10-126.000.
Robert Krups Stiftung & Co. KG: *See—*
Maass, Rudolf, 321,812, Cl. D7-384.000.
Rixen, Edgar, 321,808, Cl. D7-317.000.
Rolex Watch U.S.A., Inc.: *See—*
Saint-Dizier, Gerald A. G., 321,834, Cl. D10-39.000.
Roma, Samuel G.; and Guiffre, Charles J. Barbecue grill cleaner. 321,962, 11-26-91, Cl. D32-49.000.
Rosato, Leo. Tree stand or similar article. 321,839, 11-26-91, Cl. D11-130.100.
Ross, Grant D., Jr., to Apple Computer, Inc. Battery recharger. 321,855, 11-26-91, Cl. D13-107.000.
Ross, Peter W. Sand and water playbox. 321,923, 11-26-91, Cl. D21-252.000.
Rubbermaid Commercial Products Inc.: *See—*
Delmerico, Paul E.; and Terek, Greg P., 321,965, Cl. D34-23.000.
Fuller, John M., 321,966, Cl. D34-27.000.
Rudd, Tom; and Stahel, Alwin J. Motorcycle taillight assembly. 321,947, 11-26-91, Cl. D26-35.000.
Russell, A. G. Knife. 321,820, 11-26-91, Cl. D8-99.000.
Saint-Dizier, Gerald A. G., to Rolex Watch U.S.A., Inc. Wristwatch. 321,834, 11-26-91, Cl. D10-39.000.
Salce, Arthur J.; and Metcalfe, Richard T., to Cabot Safety Corporation. Disposable faceshield. 321,958, 11-26-91, Cl. D29-16.000.
Samsonite Corporation: *See—*
King, William L., 321,791, Cl. D3-77.000.
Santhouse, Daniel: *See—*
Montagnino, James G.; Butzko, Betty; Santhouse, Daniel; Hanlon, Tim; and Power, Steve, 321,952, Cl. D28-35.000.
Scheid, William J.; and Gordecki, Richard J., to Motorola, Inc. Display pager or similar article. 321,877, 11-26-91, Cl. D14-191.000.
Schlesselman, Kurt, to Kraft General Foods, Inc. Container. 321,825, 11-26-91, Cl. D9-310.000.
Schultz, Horst, to AMC International Alfa Metalcraft Corporation AG. Griddle. 321,810, 11-26-91, Cl. D7-363.000.
Seiko Epson Corporation: *See—*
Hirabayashi, Yoshio, 321,835, Cl. D10-39.000.
Kumagai, Toshio, 321,900, Cl. D18-56.000.
Ono, Masayuki; Suzuki, Akira; Uchibori, Noritaka; and Frenkler, Friedrich F., 321,902, Cl. D18-49.000.
Uchibori, Noritaka; and Ohara, Toshimitsu, 321,901, Cl. D18-49.000.
Selfix, Inc.: *See—*
Chap, John P.; and Greenberg, Dorothy, 321,794, Cl. D6-323.000.
Sellstrom Manufacturing Company: *See—*
Brown, Tobias; and Siegal, Burton L., 321,957, Cl. D29-9.000.
Sheldrake, Christopher, to Technophone Limited. Holder for a portable telephone handset. 321,885, 11-26-91, Cl. D14-253.000.
Shiman, Lyle I.; and Shiman, Naomi. Anti-backlash attachment for fishing reel. 321,925, 11-26-91, Cl. D22-140.000.
Shiman, Naomi: *See—*
Shiman, Lyle I.; and Shiman, Naomi, 321,925, Cl. D22-140.000.
Siegal, Burton L.: *See—*
Brown, Tobias; and Siegal, Burton L., 321,957, Cl. D29-9.000.
Slidex Corporation: *See—*
Ozeki, Jiro, 321,783, Cl. D3-35.000.
Smith, Emily: *See—*
Smith, Lawrence M.; and Cooper, Richard N., 321,927, Cl. D23-231.000.
Smith, James A., Jr. Combined cape and costume. 321,774, 11-26-91, Cl. D2-79.000.
Smith, Lawrence: *See—*
Smith, Lawrence M.; and Cooper, Richard N., 321,927, Cl. D23-231.000.
Smith, Lawrence M.; and Cooper, Richard N., to Smith, Lawrence; and Smith, Emily. Hand held vacuum pump for use in delivery rooms. 321,927, 11-26-91, Cl. D23-231.000.
Smith, Philip N.: *See—*
Knox, Edward; and Smith, Philip N., 321,899, Cl. D18-58.000.
Smith, Richard D. Drawer for a cassette cabinet or similar article. 321,802, 11-26-91, Cl. D6-510.000.
Sony Corporation: *See—*
Nakamura, Yuko, 321,869, Cl. D14-121.000.
Stahel, Alwin J.: *See—*
Rudd, Tom; and Stahel, Alwin J., 321,947, Cl. D26-35.000.
Steinberg, Timothy D., to Wagner Spray Tech Corporation. Paint sprayer handle. 321,926, 11-26-91, Cl. D23-223.000.
Stollery, David J. Lifeguard tower. 321,941, 11-26-91, Cl. D25-16.000.
Sube, Minoru: *See—*
Ito, Masafumi; Hasegawa, Shigeru; Sube, Minoru; and Takashima, Katsuhiro, 321,876, Cl. D14-164.000.
Submersible Systems, Inc.: *See—*
Williamson, Larry H., 321,956, Cl. D29-7.000.
Sugihara Rinki Co., Ltd.: *See—*
Takishita, Mitsukazu, 321,819, Cl. D8-70.000.
Sumitomo Wiring Systems, Ltd.: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,858, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,859, Cl. D13-146.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,860, Cl. D13-147.000.
Suzuki, Akira: *See—*
Ono, Masayuki; Suzuki, Akira; Uchibori, Noritaka; and Frenkler, Friedrich F., 321,902, Cl. D18-49.000.

VOL 1132 ISS 4 NO 26 1991 UMI

Swartzendruber, Ray E.: *See—*
Cole, Theodore J.; and Swartzendruber, Ray E., 321,959, Cl. D30-121.000.
Swatch AG: *See—*
Robert, Jean, 321,838, Cl. D10-126.000.
Swatch AG (Swatch SA): *See—*
Robert, Jean, 321,837, Cl. D10-126.000.
Syracuse China Corporation: *See—*
Unger, Steve A., 321,813, Cl. D7-509.000.
Unger, Steve A., 321,814, Cl. D7-536.000.
Takashima, Katsuhiro: *See—*
Ito, Masafumi; Hasegawa, Shigeru; Sube, Minoru; and Takashima, Katsuhiro, 321,876, Cl. D14-164.000.
Takishita, Mitsukazu, to Sugihara Rinki Co., Ltd. Guide bar for chain saw. 321,819, 11-26-91, Cl. D8-70.000.
Tam, Sai Y. Price tag holder or similar article. 321,914, 11-26-91, Cl. D20-43.000.
TEAC Corporation: *See—*
Ito, Masafumi; Hasegawa, Shigeru; Sube, Minoru; and Takashima, Katsuhiro, 321,876, Cl. D14-164.000.
Technophone Limited: *See—*
Sheldrake, Christopher, 321,885, Cl. D14-253.000.
Tedham, Thomas A., to Wang Laboratories, Inc. Computer. 321,864, 11-26-91, Cl. D14-100.000.
Terek, Greg P.: *See—*
Delmerico, Paul E.; and Terek, Greg P., 321,965, Cl. D34-23.000.
Thomas, Kevin. Greeting card. 321,904, 11-26-91, Cl. D19-6.000.
Tom, Sheila. Baby bottle cover. 321,939, 11-26-91, Cl. D24-199.000.
Tomlinson, Robert A. Combined oil sump and cooler. 321,887, 11-26-91, Cl. D15-5.000.
'totes', incorporated: *See—*
Cain, Ann S., 321,781, Cl. D3-12.000.
Cain, Ann S., 321,782, Cl. D3-12.000.
'totes', incorporation: *See—*
Cain, Ann S., 321,780, Cl. D3-12.000.
Troxell, John F., Jr.: *See—*
Wolff, Robert A.; and Troxell, John F., Jr., 321,804, Cl. D6-566.000.
Tu, Charlie. Twin-nibbed writing instrument. 321,905, 11-26-91, Cl. D19-36.000.
Uchibori, Noritaka; and Ohara, Toshimitsu, to Seiko Epson Corporation. Automatic paper feeder for printer. 321,901, 11-26-91, Cl. D18-49.000.
Uchibori, Noritaka: *See—*
Ono, Masayuki; Suzuki, Akira; Uchibori, Noritaka; and Frenkler, Friedrich F., 321,902, Cl. D18-49.000.
Unger, Steve A., to Syracuse China Corporation. Bouillon cup or similar article. 321,813, 11-26-91, Cl. D7-509.000.
Unger, Steve A., to Syracuse China Corporation. Beverage cup or similar article. 321,814, 11-26-91, Cl. D7-536.000.
U.S. Philips Corporation: *See—*
Dieperink, Menno, 321,951, Cl. D26-107.000.
Universal Valve Company, Inc.: *See—*
Milo, Joseph V., 321,928, Cl. D23-245.000.
Urbanski, David C. Game controller holder. 321,915, 11-26-91, Cl. D21-48.000.
Vining, Louis D.: *See—*
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., 321,870, Cl. D14-130.000.
Wagner Spray Tech Corporation: *See—*
Steinberg, Timothy D., 321,926, Cl. D23-223.000.
Wakata, Shigekazu: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,858, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,859, Cl. D13-146.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,860, Cl. D13-147.000.
Wang Laboratories, Inc.: *See—*
Tedham, Thomas A., 321,864, Cl. D14-100.000.
Watford, Roger L. Boxing top actuator. 321,892, 11-26-91, Cl. D15-122.000.
Waugh, J. T.; and Davis, Parke, to CJC Holdings, Inc. Finger ring. 321,840, 11-26-91, Cl. D11-33.000.
Weissman, Dan: *See—*
York, Stuart A.; and Weissman, Dan, 321,830, Cl. D9-434.000.
Welder, Anton P. Bottle draining stand. 321,963, 11-26-91, Cl. D32-58.000.
Wennemar, James A.; and Golden, Scott M., to Ideal Industries, Inc. Screw-on electrical connector. 321,861, 11-26-91, Cl. D13-150.000.
White, Henry C. Wallet. 321,784, 11-26-91, Cl. D3-56.000.
Whitley, Warwick M., II; and Kusiak, James L., to Attwood Corporation. Battery storage tray. 321,856, 11-26-91, Cl. D13-119.000.
Williamson, Larry H., to Submersible Systems, Inc. Combined portable breathing unit and holster therefor. 321,956, 11-26-91, Cl. D29-7.000.
Winston, George A. Support hook for multiple garment hangers. 321,795, 11-26-91, Cl. D6-328.000.
Wolff, Robert A.; and Troxell, John F., Jr., to Wood-Mode, Incorporated. Combined cooling rack and cookbook holder. 321,804, 11-26-91, Cl. D6-566.000.
Wolff, Stephen H. Identification tag holder. 321,913, 11-26-91, Cl. D20-27.000.
Wood-Mode, Incorporated: *See—*
Wolff, Robert A.; and Troxell, John F., Jr., 321,804, Cl. D6-566.000.
Yamada, Shinichi: *See—*
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,858, Cl. D13-147.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Nohara, Toshikazu, 321,859, Cl. D13-146.000.
Nagasaka, Yasuhiro; Hirayama, Yasuo; Wakata, Shigekazu; Yamada, Shinichi; and Asakawa, Nobuyuki, 321,860, Cl. D13-147.000.
Yamamoto, Hiroshi, to Mazda Motor Corporation. Automobile front combination lamp. 321,945, 11-26-91, Cl. D26-35.000.
Yamauchi, Satomi: *See—*
Kumatani, Hiroshi; Yamauchi, Satomi; and Fujimoto, Takanobu, 321,891, Cl. D15-72.000.
Yamazaki Corporation: *See—*
Ishii, Tsuyoshi; and Yoshimura, Koichi, 321,961, Cl. D32-38.000.
York, Stuart A.; and Weissman, Dan, to Hoover Universal, Inc. Container bottom. 321,830, 11-26-91, Cl. D9-434.000.
Yoshimura, Koichi: *See—*
Ishii, Tsuyoshi; and Yoshimura, Koichi, 321,961, Cl. D32-38.000.
Young, Jeffrey E. Food dislodging aid for choking victims. 321,937, 11-26-91, Cl. D24-133.000.
Zambelli, Michael P.: *See—*
Beecher, Robert L., II; Grewe, Anthony J.; Marks, Jonathan A.; McGarvey, John N.; Vining, Louis D.; and Zambelli, Michael P., 321,870, Cl. D14-130.000.
Zobrist, Peter, to Alcan Aluminum Limited. Roasting pan. 321,809, 11-26-91, Cl. D7-359.000.

LIST OF PLANT PATENTEES

Bak, Gerardus J., to Corn. Bak B.V. Guzmania plant named Twilight. 7,727, 11-26-91, Cl. 88.000.
Bear Creek Gardens, Inc.: *See—*
Warriner, William A., 7,717, Cl. 9.000.
Conard-Pyle Company, The: *See—*
Meilland, Marie-Louise, deceased, 7,718, Cl. 20.000.
Corn. Bak B.V.: *See—*
Bak, Gerardus J., 7,727, Cl. 88.000.
Etablissement Guillou Freres Jacques, Bernard et Maurice: *See—*
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, 7,720, Cl. 68.000.
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, 7,721, Cl. 68.000.
Fisher, Wesley C., to Hidden Acres Nursery Inc. *Jasmine multiflorum* 'Tiffany' . 7,719, 11-26-91, Cl. 54.000.
Fruehwirth, Franz, to Paul Ecke Ranch, Inc. Poinsettia plant 'C-27 Pink'. 7,726, 11-26-91, Cl. 86.000.
Fuess, Janet S. Chrysanthemum plant named Gold Rush. 7,724, 11-26-91, Cl. 74.000.
Fuess, Janet S. Chrysanthemum plant named Fort Knox. 7,725, 11-26-91, Cl. 78.000.
Guillou, Bernard: *See—*
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, 7,720, Cl. 68.000.
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, 7,721, Cl. 68.000.
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, to Etablissement Guillou Freres Jacques, Bernard et Maurice. Variety of Geranium named Monique. 7,720, 11-26-91, Cl. 68.000.
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, to Etablissement Guillou Freres Jacques, Bernard et Maurice. Variety of Geranium named Yvette. 7,721, 11-26-91, Cl. 68.000.
Guillou, Maurice: *See—*
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, 7,720, Cl. 68.000.
Guillou, Jacques; Guillou, Bernard; and Guillou, Maurice, 7,721, Cl. 68.000.
Hidden Acres Nursery Inc.: *See—*
Fisher, Wesley C., 7,719, Cl. 54.000.
Le Naour, Jean-Pierre, legal representative: *See—*
Meilland, Marie-Louise, deceased, 7,718, Cl. 20.000.
Meilland, Marie-Louise, deceased (by Le Naour, Jean-Pierre, legal representative), to Conard-Pyle Company, The. Rose plant—Meicauf variety. 7,718, 11-26-91, Cl. 20.000.
Mojonnier, Erwin. Alstroemeria plant named Alicia. 7,722, 11-26-91, Cl. 68.000.
Paul Ecke Ranch, Inc.: *See—*
Fruehwirth, Franz, 7,726, Cl. 86.000.
Warriner, William A., to Bear Creek Gardens, Inc. Rose plant Jacoral. 7,717, 11-26-91, Cl. 9.000.
Yoshida, Eiichi. African violet named Katy. 7,723, 11-26-91, Cl. 69.000.

VOL
1132
ISS
4
NO
26
1991
UMI

CLASSIFICATION OF PATENTS

ISSUED NOVEMBER 26, 1991

NOTE.—First number, class; second number, subclass; third number, patent number

CLASS 2

10 5,067,174
16 5,067,175
237 5,067,176
239 5,067,177
250 5,067,178
269 5,067,179

CLASS 4

326 5,067,180
425 5,067,181
498 5,067,182
502 5,067,184
661 5,067,185
665 5,067,186

CLASS 5

2.1 5,067,183
12.1 5,067,187
81 R 5,067,188
5,067,189

CLASS 7

149 5,067,190

CLASS 8

405 5,067,966
415 5,067,967

CLASS 14

2.4 5,067,191

CLASS 15

88.3 5,067,193
144 A 5,067,194
167.001 5,067,195
238 5,067,196
244.1 5,067,197
250.34 5,067,198
302 5,067,192
320 5,067,199

CLASS 16

237 5,067,200
270 5,067,201

CLASS 19

65 A 5,067,202
114 5,067,203
159 A 5,067,204

CLASS 24

67.9 5,067,205
290 5,067,206
381 5,067,207
400 5,067,208
429 5,067,209
452 5,067,210
641 5,067,211
642 5,067,212
704.1 5,067,213

CLASS 26

89 5,067,214

CLASS 28

190 5,067,215

CLASS 29

25.01 5,067,218
79 5,067,216
121.3 5,067,217
252 5,067,219
259 5,067,220
409 5,067,221
411 5,067,222
426.5 5,067,223
432.2 5,067,224
451 5,067,225
452 5,067,226
469 5,067,227
525.1 5,067,228
566.1 5,067,229
603 5,067,230
809 5,067,231
837 5,067,232
852 5,067,233
889.1 5,067,234
890.043 5,067,235
895.3 5,067,236

CLASS 30

1 5,067,237
2.49 5,067,240
34.002 5,067,238
151 5,067,239
289 5,067,241
364 5,067,242
387 5,067,243

CLASS 33

261 5,067,244
289 5,067,245
555.4 5,067,246
613 5,067,247
744 5,067,248
773 5,067,249
783 5,067,250

CLASS 34

5 5,067,251
57 A 5,067,252
82 5,067,253
137 5,067,254

CLASS 36

7.10 R 5,067,260
43.0 5,067,255
69 5,067,256
93 5,067,257
117 5,067,258
133 5,067,259

CLASS 37

2 P 5,067,261
142 R 5,067,262
195 B1 4,633,602
220 5,067,263
222 5,067,264

CLASS 40

1.5 5,067,265

CLASS 42

70.08 5,067,266
85 5,067,267
94 5,067,268

CLASS 43

17 5,067,269
55 5,067,270
60 5,067,271

CLASS 44

550 5,067,968

CLASS 47

27 5,067,272
33 5,067,273
47 5,067,274
62 5,067,275

CLASS 49

331 5,067,276
386 5,067,277
463 5,067,278
471 5,067,279
498 5,067,280
502 5,067,281

CLASS 51

165.77 5,067,282
178 5,067,283
281 R 5,067,284
293 5,067,969
426 5,067,285

CLASS 52

27 5,067,286
29 5,067,287
80 5,067,288
169.11 5,067,289
208 5,067,290
219 5,067,291
235 5,067,292
5,067,293
241 5,067,294
306 5,067,295
309.7 5,067,296
396 5,067,297
741 5,067,298
745 5,067,299
5,067,300

CLASS 53

79 5,067,301
374.8 5,067,302
381.2 5,067,303
410 5,067,304
411 5,067,305
412 5,067,306
450 5,067,307
471 5,067,308
520 5,067,309
551 5,067,310
5,067,311
556 5,067,312
576 5,067,313

CLASS 55

16 5,067,970
5,067,971
40 5,067,972
96 5,067,973
223 5,067,974

CLASS 56

330 5,067,314

CLASS 57

22 5,067,315

CLASS 60

39.05 5,067,317
263 5,067,316
286 5,067,318
288 5,067,319
297 5,067,320
426 5,067,321
734 5,067,323
752 5,067,324

CLASS 62

22 5,067,976
77 5,067,325
193 5,067,326
292 5,067,327
457.2 5,067,328
457.4 5,067,329
485 5,067,330
515 5,067,322

CLASS 65

3.12 5,067,975
29 5,067,977
134 5,067,978

CLASS 66

195 5,067,331
207 5,067,332

CLASS 68

23.7 5,067,333

CLASS 70

416 5,067,334
495 5,067,335

CLASS 72

57 5,067,336
161 5,067,337
182 5,067,338
329 5,067,339
389 5,067,340
426 5,067,341
447 5,067,342

CLASS 73

40.7 5,067,343
54 5,067,344
61.10 R 5,067,345
81 5,067,346
146 5,067,347
460 5,067,348
472 5,067,349
494 5,067,350
516 LM 5,067,351
583 5,067,352
849 5,067,353
862.34 5,067,334
5,067,355
863.02 5,067,356

CLASS 74

7 E 5,067,357
61 5,067,358
107 5,067,359
200 5,067,360
325 5,067,361
335 5,067,362
392 5,067,363
440 5,067,364
501.5 R 5,067,365
535 5,067,366
552 5,067,367
560 5,067,368
567 5,067,369
594.2 5,067,370
813 L 5,067,371
866 5,067,372
5,067,373
5,067,374

CLASS 75

243 5,067,979

CLASS 81

9.42 5,067,375
115 5,067,376

CLASS 82

138 5,067,377

CLASS 83

13 5,067,378
5,067,379
481 5,067,380
820 5,067,381
879 5,067,382

CLASS 86

23 5,067,383

CLASS 87

6 5,067,384

CLASS 89

1.808 5,067,385
5,067,386
8 5,067,387
36.02 5,067,388

CLASS 91

446 5,067,389

CLASS 92

48 5,067,390
5,067,391
98 D 5,067,392
186 5,067,393

CLASS 98

42.03 5,067,394

CLASS 99

282 5,067,395
340 5,067,396
542 5,067,397

CLASS 100

53 5,067,398

CLASS 101

11 5,067,399
129 5,067,400
148 5,067,401
226 5,067,402
248 5,067,403
488 5,067,404

CLASS 102

232 5,067,405
374 5,067,406
434 5,067,407
5,067,408
476 5,067,409
489 5,067,410
5,067,411

CLASS 104

16 5,067,412
168 5,067,413
172.2 5,067,414
281 5,067,415

CLASS 106

22 5,067,980
632 5,067,416
790 5,067,981

CLASS 108

36 5,067,417
56.3 5,067,418

CLASS 110

234 5,067,419
336 5,067,420

CLASS 111

36 5,067,421

CLASS 112

68 5,067,422
220 5,067,423
307 5,067,424

CLASS 114

26 5,067,425
56 5,067,426
5,067,427
230 5,067,428
5,067,429
294 5,067,430

CLASS 118

57 5,067,431
413 5,067,432
500 5,067,433
629 5,067,434
653 5,067,435
676 5,067,436
715 5,067,437

CLASS 119

5 5,067,438
5,067,439
29 5,067,440
5,067,441
60 5,067,442
71 5,067,443
85 5,067,444
152 5,067,445

CLASS 122

441 5,067,446

CLASS 123

3 5,067,447
41.31 5,067,448
41.86 5,067,449
90.17 5,067,450
185 BA 5,067,451
193 H 5,067,452
193 P 5,067,453
196 R 5,067,455
196 S 5,067,454
197 AC 5,067,456
269 5,067,457
292 5,067,458
295 5,067,459
337 5,067,460
357 5,067,461
414 5,067,462
425 5,067,463
446 5,067,464
489 5,067,465
494 5,067,466
497 5,067,467
516 5,067,468
520 5,067,469
568 5,067,470

CLASS 124

21 5,067,471
35.2 5,067,472

CLASS 126

113 5,067,473
374 5,067,474
418 5,067,475
540 5,067,476

CLASS 127

67 5,067,982

CLASS 128

20 5,067,477
24.5 5,067,478
26 5,067,479
32 5,067,480
66 5,067,481
76 B 5,067,482
76 R 5,067,483
78 5,067,484
79 5,067,485
80 H 5,067,486
200.14 B1 4,823,784
205.13 5,067,487
207.15 5,067,496
5,067,497
421 5,067,495
653.1 5,067,494
660.03 5,067,493
719 5,067,492
748 5,067,491
763 5,067,490
772 5,067,489
777 5,067,488

CLASS 131

88 5,067,498
194 5,067,499
335 5,067,500

CLASS 132

116 5,067,501
213.1 5,067,502
324 5,067,503

CLASS 134

1 5,067,983
7 5,067,984
172 5,067,504

CLASS 135

104 5,067,505

CLASS 136

255 5,067,985

CLASS 137

1 5,067,506
3 5,067,507
13 5,067,508
14 5,067,509
67 5,067,511
77 5,067,510
83 5,067,512
98 5,067,513
318 5,067,514
327 5,067,515
414 5,067,516
426 5,067,517
588 5,067,518
596.14 5,067,519
614.2 5,067,520
625.33 5,067,522
625.41 5,067,523
625.5 5,067,521
627.5 5,067,524

CLASS 139

11 5,067,525
383 A 5,067,526
435.2 5,067,527

CLASS 141

4 5,067,528
7 5,067,529
98 5,067,530
116 5,067,531
329 5,067,532
392 5,067,533

CLASS 144

209 R 5,067,534
286 R 5,067,535
361 5,067,536
372 5,067,537

CLASS 148

11.5 N 5,067,986
20.3 5,067,987
5,067,988
33 5,067,989
262 5,067,990
305 5,067,991
307 5,067,992
311 5,067,993
415 5,067,994
421 5,068,003

CLASS 149

2 5,067,995
19.4 5,067,996

CLASS 152

451 5,067,538

CLASS 156

64 5,067,997
89 5,067,998
5,067,999
148 5,068,000
222 5,068,001
345 5,068,002

VOL 1132 ISS 4 NO 26 1991 UMI

494 5,068,004
514 5,068,005
633 5,068,006
643 5,068,007
659.1 5,068,008

CLASS 157

13 5,067,539

CLASS 160

23.1 5,067,546
31 5,067,540
84.1 5,067,541
126 5,067,542
135 5,067,543
177 5,067,544
178.1 5,067,545
327 5,067,547

CLASS 162

9 5,068,009

CLASS 164

15 5,067,548
39 5,067,549
120 5,067,550
122.2 5,067,551
259 5,067,552
412 5,067,553
463 5,067,554
480 5,067,555

CLASS 165

29 5,067,556
51 5,067,557
95 5,067,558
112 5,067,559
124 5,067,560
140 5,067,561
146 5,067,562

CLASS 166

84 5,067,563
270 5,067,564
305.1 5,067,565
308 5,067,566

CLASS 173

141 5,067,567

CLASS 174

16.2 5,068,491
31.5 5,068,492
35 GC 5,068,493
65 R 5,068,495
5,068,496
65 SS 5,068,494
106 R 5,068,497
115 Re.33,750

CLASS 175

4.52 5,067,568
61 Re.33,751
209 5,067,569
5,067,570
394 5,067,571

CLASS 177

139 5,067,572

CLASS 178

18 5,067,573

CLASS 180

68.4 5,067,574
69.4 5,067,575
79.1 5,067,576
5,067,577
197 5,067,578
5,067,579
219 5,067,580
254 5,067,581
380 5,067,582

CLASS 181

151 5,067,583
231 5,067,584

CLASS 182

7 5,067,585
45 5,067,586
63 5,067,587
107 5,067,588
223 5,067,589

CLASS 184

15.1 5,067,590
55.1 5,067,591

CLASS 187

9 R 5,067,592
73 5,067,593

CLASS 188

73.35 5,067,594
73.45 5,067,595
79.54 5,067,596
181 R 5,067,597

CLASS 192

0.076 5,067,603
0.32 5,067,599
7 5,067,598
56 R 5,067,600
65 5,067,601
70.27 5,067,602

CLASS 194

203 5,067,604
248 5,067,605

CLASS 198

465.1 5,067,606
733 5,067,607
817 5,067,608

CLASS 200

6 A 5,068,498
5,068,499
19 R 5,068,500
61.45 M 5,068,502
61.58 R 5,068,501
83 L 5,068,503
85 R 5,068,504
525 5,068,505
526 5,068,506

CLASS 202

99 5,068,010

CLASS 203

58 5,068,011

CLASS 204

8 5,068,012
24 5,068,013
59 M 5,068,014
89 5,068,015
145 R 5,068,017
180.1 5,068,018
182.8 5,068,019
192.11 5,068,020
192.14 5,068,021
192.15 5,068,022
196 5,068,023

CLASS 206

45.11 5,067,609
315.1 5,067,610
383 5,067,611
497 5,067,612

CLASS 208

13 5,068,024
57 5,068,025
125 5,068,026
5,068,027

CLASS 209

3.1 5,067,616
167 5,068,028
510 B1 4,569,444

CLASS 210

95 5,068,030
96.1 5,068,031
5,068,032
169 5,068,033
232 5,068,034
236 5,068,035
284 5,068,029
606 5,068,036
638 5,068,037
662 5,068,038
695 5,068,039
748 5,068,040

CLASS 211

13 5,067,617
5,067,618
71 5,067,619
113 5,067,620
117 5,067,621

CLASS 215

1 C 5,067,622
227 5,067,623
235 5,067,624

CLASS 219

73.11 5,068,507
85.16 5,068,508
5,068,509
5,068,510
98 5,068,511
121.6 5,068,512
121.67 5,068,513
121.69 5,068,514
121.73 5,068,515
388 5,068,516
543 5,068,517
549 5,068,518

CLASS 220

343 5,067,625
475 5,067,626

CLASS 221

36 5,067,627
52 5,067,628
70 5,067,629
76 5,067,630
254 5,067,631
266 5,067,632
279 5,067,633
298 5,067,634

CLASS 222

103 5,067,635
105 5,067,636
175 5,067,637
205 5,067,638
521 5,067,639

CLASS 224

42.07 5,067,640
042.03 B 5,067,641
192 5,067,642
197 5,067,643
324 5,067,644

CLASS 225

93 5,067,645

CLASS 226

015 5,067,646

CLASS 228

5.5 5,067,647
47 5,067,648
107 5,067,649

CLASS 229

123.1 5,067,614
214 5,067,613
230 5,067,615

CLASS 232

17 5,067,650

CLASS 235

449 5,068,519
462 5,068,520
492 5,068,521

CLASS 236

15 A 5,067,651

CLASS 237

81 5,067,652

CLASS 239

18 5,067,653
124 5,067,654
5,067,655
290 5,067,656
403 5,067,657
533.8 5,067,658

CLASS 241

19 5,067,659
36 5,067,666
37 5,067,660
55 5,067,661
56 5,067,662
74 Re.33,752

CLASS 242

56 R 5,067,663
67.2 5,067,664
118.32 5,067,665

CLASS 244

1 R 5,067,667
7 R 5,067,668
114 R 5,067,669
119 5,067,670
122 AH 5,067,671
158 R 5,067,672
165 5,067,673
190 5,067,674

CLASS 248

48.2 5,067,675
56 5,067,676
68.1 5,067,677
5,067,678
75 5,067,679
311.3 5,067,680
442.2 5,067,681
453 5,067,682
545 5,067,683
550 5,067,684
676 5,067,685

CLASS 249

57 5,067,686

CLASS 250

206.1 5,068,522
208.1 5,068,523
211 J 5,068,524
213 VT 5,068,525
214 R 5,068,526
227.21 5,068,527
231.13 5,068,528
231.18 5,068,529
237 G 5,068,530
269 5,068,531
270 5,068,532
288 5,068,533
5,068,534
309 5,068,535
341 5,068,536
342 5,068,537
472.1 5,068,538
492.2 5,068,539
561 5,068,540
571 5,068,541
573 5,068,542

CLASS 251

129.08 5,067,687
129.18 5,067,688
144 5,067,689
149.8 5,067,690
315 5,067,691

CLASS 252

8.552 5,068,042
25 5,068,044
32.007 E 5,068,045
51.5 A 5,068,046
52 A 5,068,048
57 5,068,049
62.51 5,068,050
051.5 A 5,068,047
162 5,068,051
299.01 5,068,052
299.61 5,068,053
299.62 5,068,054
301.4 R 5,068,055
313.1 5,068,056
373 5,068,057
376 5,068,058
389.53 5,068,059
500 5,068,060
511 5,068,061
518 5,068,062
5,068,063
855.4 5,068,043

CLASS 254

420 5,067,692

CLASS 260

404.5 5,068,064

CLASS 264

1.3 5,068,065
3.3 5,068,066
4.7 5,068,067
23 5,068,068
40.5 5,068,069
41 5,068,070
56 5,068,071
66 5,068,072
205 5,068,073
257 5,068,074
505 5,068,075
511 5,068,076
512 5,068,077
5,068,078
518 5,068,079

CLASS 266

44 5,067,693

CLASS 269

20 5,067,694
21 5,067,695
49 5,067,696

CLASS 270

37 5,067,697
39 5,067,698
55 5,067,699
5,067,700

CLASS 271

7 5,067,701
134 5,067,702
164 5,067,703
262 5,067,704
277 5,067,705

CLASS 272

85 5,067,706
99 5,067,707
118 5,067,708
121 5,067,709
129 5,067,710

CLASS 273

77 A 5,067,711
143 R 5,067,712
149 P 5,067,713
157 R 5,067,714
167 F 5,067,715
176 R 5,067,716
183 B 5,067,717
185 R 5,067,718
213 5,067,719
237 5,067,720
243 5,067,721
248 5,067,722
249 5,067,723
292 5,067,724
302 5,067,725
326 5,067,726
336 5,067,727
411 5,067,730
416 5,067,731
420 5,067,728
450 5,067,729

CLASS 277

11 5,067,732
5,067,733
236 5,067,734

CLASS 279

1 F 5,067,735

CLASS 280

11.2 5,067,736
47.31 5,067,737
204 5,067,738
304 5,067,739
407 5,067,740
419 5,067,741
479.2 5,067,742
707 5,067,743
734 5,067,744
735 5,067,745
763.1 5,067,746
777 5,067,747

CLASS 281

48 5,067,748

CLASS 283

117 5,067,749

CLASS 285

38 5,067,750
105 5,067,751
119 5,067,752
279 5,067,753
319 5,067,754

CLASS 292

33 5,067,755
292 5,067,756
336.3 5,067,757
347 5,067,758

CLASS 293

109 5,067,759
115 5,067,760

CLASS 294

3.5 5,067,761
64.3 5,067,762
65.5 5,067,763

CLASS 296

97.5 5,067,764
97.8 5,067,765
100 5,067,766
5,067,767
107 5,067,768
166 5,067,769

CLASS 297

184 5,067,770
378 5,067,771
452 5,067,772
457 5,067,773

CLASS 298

1 A 5,067,774

CLASS 299

86 5,067,775

CLASS 301

9 TV 5,067,776

CLASS 303

22.6 5,067,777
113 R 5,067,778
114 PN 5,067,779

CLASS 307

91 5,068,543
268 5,068,544
311 5,068,545
443 5,068,547
446 5,068,548
465.1 5,068,549
475 5,068,550
5,068,551
494 5,068,552
605 5,068,553

CLASS 310

12 5,068,554
52 5,068,555
90 5,068,556
5,068,557
90.5 5,068,558
112 5,068,559
125 5,068,560
178 5,068,561
256 5,068,562
261 5,068,563
270 5,068,564
328 5,068,565
5,068,566
332 5,068,567

CLASS 312

193 5,067,780

CLASS 313

474 5,068,568

CLASS 315

3.5 5,068,569
128 5,068,570
205 5,068,571
209 R 5,068,572
5,068,573
225 5,068,574
241 P 5,068,575
291 5,068,576
307 5,068,577
5,068,578
366 5,068,579
5,068,580
370 5,068,581

CLASS 318

254 5,068,582
266 5,068,583
549 5,068,584
569 5,068,585
640 5,068,588
696 5,068,586
771 5,068,587

CLASS 322

7 5,068,589
10 5,068,590
29 5,068,591

CLASS 323

224 5,068,592
314 5,068,594
315 5,068,593
316 5,068,595
351 5,068,596

CLASS 324

77 B 5,068,597
107 5,068,598
158 F 5,068,600
5,068,601
5,068,602
158 R 5,068,599
5,068,603
5,068,604
5,068,605
174 5,068,606
207.16 5,068,607
220 5,068,608
309 5,068,609
312 5,068,610
314 5,068,611
327 5,068,612
379 5,068,613
534 5,068,614
613 5,068,615
627 5,068,616
663 5,068,617
706 5,068,618
715 5,068,619

CLASS 330

2 5,068,620
253 5,068,621
5,068,622
277 5,068,623
293 5,068,624

CLASS 331

1 A 5,068,625
5,068,628
17 5,068,626
99 5,068,627

CLASS 333

1.1 5,068,629
100 5,068,630
181 5,068,631
238 5,068,632

CLASS 335

190 5,068,633

CLASS 338

21 5,068,634
42 5,068,635
49 5,068,636
57 5,068,637
114 5,068,638
179 5,068,639

CLASS 340

438 5,068,640
551 5,068,641
562 5,068,642
571 5,068,643
701 5,068,644
710 5,068,645
725 5,068,646
734 5,068,647
750 5,068,648
793 5,068,649
799 5,068,650
814 5,068,651
815.03 5,068,652
870.37 5,068,653
903 5,068,654
988 5,068,655
989 5,068,656

CLASS 341

120 5,068,657
131 5,068,658
143 5,068,659
5,068,660
5,068,661
161 5,068,662

CLASS 342

20 5,068,663
90 5,068,664
177 5,068,665
192 5,068,666
362 5,068,667
5,068,668

CLASS 343

700 MS 5,068,669
767 5,068,670
799 5,068,671
859 5,068,672
901 5,068,673

CLASS 346

1.1 5,068,674
76 PH 5,068,675
108 5,068,676
5,068,677

CLASS 351

233 5,067,806

CLASS 352

78 R 5,067,807
140 5,067,808

CLASS 354

199 5,068,678
271.1 5,068,679
286 5,068,680
299 5,068,681
402 5,068,682
484 5,068,683

CLASS 355

27 5,068,684
32 5,068,685
5,068,686
45 5,068,687
99 5,068,688
107 5,068,689
218 5,068,690
259 5,068,691
284 5,068,692
315 5,068,693

CLASS 356

73.1 5,067,810
121 5,067,811
237 5,067,812
339 5,067,814
345 5,067,815
351 5,067,813
373 5,067,816
376 5,067,817

CLASS 357

5 5,068,694
16 5,068,695
5,068,756
17 5,067,809
23.1 5,068,696
23.5 5,068,697
23.6 5,068,698
23.7 5,068,699
23.8 5,068,700
24 5,068,701
35 5,068,702
36 5,068,703
38 5,068,704
43 5,068,705
51 5,068,706
59 5,068,707
68 5,068,708
71 5,068,709
5,068,710
5,068,711
72 5,068,712
5,068,713
80 5,068,714
81 5,068,715

CLASS 358

13 5,068,716
17 5,068,717
27 5,068,718
98 5,068,719
100 5,068,720
5,068,721
105 5,068,722
133 5,068,723
5,068,724
135 5,068,725
5,068,726
138 5,068,727
141 5,068,728
5,068,729
169 5,068,730
180 5,068,731
5,068,732
5,068,733
181 5,068,734
191.1 5,068,735
209 5,068,736
213.13 5,068,737
227 5,068,738
237 5,068,739
241 5,068,740
296 5,068,741
5,068,742
304 5,068,743
310 5,068,744
403 5,068,745
443 5,068,746
448 5,068,747

CLASS 359

32 5,067,792
59 5,068,748
76 5,067,797
84 5,067,795
88 5,067,796
93 5,068,749
118 5,068,847
202 5,067,782
235 5,067,805
286 5,067,798
328 5,068,546
350 5,067,781
369 5,067,804
399 5,068,750
490 5,067,799
566 5,068,751
642 5,067,800
666 5,067,801
700 5,067,802
708 5,067,803
824 5,067,794

CLASS 360

32 5,068,752
45 5,068,754
46 5,068,753
72.1 5,068,755
77.130 5,068,757
96.6 5,068,758
103 5,068,759
121 5,068,760
133.0 5,068,761

CLASS 361

225 5,068,762
355 B1 4,167,769
364 5,068,763
386 5,068,764
422 5,068,765
534 5,068,766

CLASS 362

33 5,068,767
61 5,068,768
5,068,769
5,068,770
255 5,068,771
365 5,068,772
386 5,068,773

CLASS 363

3 5,068,774
15 5,068,775
17 5,068,776
97 5,068,777

CLASS 364

138 5,068,778
167.01 5,068,779
406 5,068,787
413.14 5,068,788
419 5,068,789
424.02 5,068,790
5,068,791
424.05 5,068,792
5,068,793
431.05 5,068,794
449 5,068,795
469 5,068,796
478 5,068,797
497 5,068,798
507 5,068,799
5,068,800
526 5,068,810
551.01 5,068,811
572 5,068,813
578 5,068,812
580 5,068,814
713 5,068,815
718 5,068,816
724.16 5,068,817
734 5,068,818
736 5,068,819

CLASS 365

154 5,068,825
170 5,068,826
189.01 5,068,827
5,068,828
189.07 5,068,829
190 5,068,830
203 5,068,831

CLASS 366

46 5,067,818
138 5,067,819

CLASS 367

97 5,068,832
98 5,068,833
135 5,068,834
5,068,835
174 5,068,836

CLASS 368

10 5,068,837
47 5,068,838
93 5,068,839
281 5,068,840

CLASS 369

13 5,068,841
32 5,068,842
44.13 5,068,843
44.16 5,068,844
112 5,068,845
275.1 5,068,846

CLASS 370

85.5 5,068,849
85.6 5,068,848
85.8 5,068,850

CLASS 371

16.1 5,068,851
16.2 5,068,852
16.3 5,068,853
37.1 5,068,854
37.4 5,068,855
37.5 5,068,856
37.7 5,068,857
41 5,068,858
43 5,068,859

CLASS 372

2 5,068,860
20 5,068,861
25 5,068,862
31 5,068,863
32 5,068,864
36 5,068,865
5,068,866
45 5,068,867
5,068,868
5,068,869
50 5,068,870

CLASS 373

17 5,068,871

CLASS 374

31 5,067,820

CLASS 375

1 5,068,872
13 5,068,873
51 5,068,874
78 5,068,875
80 5,068,876
107 5,068,877
111 5,068,878
115 5,068,879
116 5,068,880

CLASS 376

215 5,068,080
261 5,068,081
428 5,068,082
449 5,068,083

CLASS 377

70 5,068,881

CLASS 378

4 5,068,882
86 5,068,883
119 5,068,884
265 5,067,842
301 5,067,843
305 5,067,844
344 5,067,845
370 5,067,846
5,067,847
406.1 5,067,848

CLASS 404

9 5,067,849

CLASS 405

92 5,067,850
115 5,067,851
128 5,067,852
182 5,067,853
184 5,067,854
186 5,067,855

CLASS 406

41 5,067,856
181 5,067,857

CLASS 407

114 5,067,858

CLASS 408

1 R 5,067,859

CLASS 409

185 5,067,860
234 5,067,861

CLASS 410

26 5,067,862

CLASS 411

85 5,067,863
344 5,067,864
531 5,067,865

CLASS 414

228 5,067,866
391 5,067,867
510 5,067,868
544 5,067,869
724 5,067,870
786 5,067,871
5,067,872
789.9 5,067,873

CLASS 415

230 5,067,874

CLASS 416

114 5,067,875
219 R 5,067,876
220 R 5,067,877

CLASS 417

312 5,067,878
472 5,067,879
495 5,067,880
498 5,067,881
511 5,067,882

CLASS 418

61.2 5,067,883
63 5,067,884

CLASS 420

47 Re.33,753
443 5,068,084

CLASS 422

1 5,068,085
21 5,068,086
26 5,068,087
52 5,068,088
61 5,068,089
82.02 5,068,090
99 5,068,091
253 5,068,092

CLASS 423

82 5,068,093
109 5,068,094
122 5,068,095
277 5,068,096
592 5,068,097

CLASS 424

9 5,068,098
47 5,068,099
52 5,068,100
71 5,068,101
72 5,068,102
81 5,068,103
88 5,068,104
93 5,068,105
94.3 5,068,106
435 5,068,107
438 5,068,108
441 5,068,109
461 5,068,110
469 5,068,111
495 5,068,112
496 5,068,113

CLASS 425

131.1 5,067,885
145 5,067,886
256 5,067,887
387.1 5,067,888
458 5,067,889
504 5,067,890
533 5,067,891
556 5,067,892
564 5,067,893

CLASS 426

23.1 5,068,116
69 5,068,114
77 5,068,115
511 5,068,117
582 5,068,118
601 5,068,119
611 5,068,120
636 5,068,121

CLASS 427

2 5,068,122
32 5,068,123
39 5,068,124
55 5,068,125
122 5,068,126
230 5,068,130
237 5,068,127
239 5,068,129
240 5,068,131
358 5,068,133
376.2 5,068,134
421 5,068,132
439 5,068,135

CLASS 428

35.7 5,068,136
36.2 5,068,137
36.8 5,068,138
215 5,068,139
216 5,068,140
219 5,068,141
232 5,068,142
241 5,068,143
323 5,068,144
5,068,145
335 5,068,148
336 5,068,146
5,068,147
367 5,068,149
380 Re.33,754
407 5,068,150
5,068,151
408 5,068,152
413 5,068,153
446 5,068,154
515 5,068,155
620 5,068,156
690 5,068,157
694 5,068,158

CLASS 429

16 5,068,159
44 5,068,161
72 5,068,160
116 5,068,162

CLASS 430

9 5,068,171
192 5,068,163
204 5,068,164
5,068,165
256 5,068,166
264 5,068,167
270 5,068,168
313 5,068,169
393 5,068,170
551 5,068,172
567 5,068,173

CLASS 431

208 5,067,894
253 5,067,895

CLASS 433

6 5,067,896
8 5,067,897
75 5,067,898
80 5,067,899
81 5,067,900

CLASS 434

224 5,067,901
276 5,067,902

CLASS 435

5 5,068,174
6 5,068,175
5,068,176
7.2 5,068,178
7.92 5,068,177
5,068,179
5,068,180
13 5,068,181
22 5,068,182

VOL 1132 ISS 4 NO 26 1991 UMI

5,068,183
41 5,068,184
69.1 5,068,185
96 5,068,186
106 5,068,187
140 5,068,188
183 5,068,189
190 5,068,190
193 5,068,191
235.1 5,068,192
252.3 5,068,193
252.5 5,068,194
284 5,068,195

CLASS 436

6 5,068,196
66 5,068,197
535 5,068,198

CLASS 437

52 5,068,199
5,068,200
60 5,068,201
67 5,068,202
89 5,068,203
127 5,068,204
205 5,068,205
220 5,068,206
231 5,068,207

CLASS 439

55 5,067,903
73 5,067,904
76 5,067,905
115 5,067,906
135 5,067,907
248 5,067,908
315 5,067,909
402 5,067,910
526 5,067,911
578 5,067,912
595 5,067,913
609 5,067,914
620 5,067,915
857 5,067,916
890 5,067,917

CLASS 440

39 5,067,918
61 5,067,919

CLASS 441

25 5,067,920
102 5,067,921

CLASS 446

71 5,067,922
236 5,067,923
320 5,067,924
397 5,067,925

CLASS 452

135 5,067,926
136 5,067,927

CLASS 453

17 5,067,928

CLASS 455

39 5,068,916
90 5,068,917
142 5,068,918

CLASS 464

145 5,067,929

CLASS 474

144 5,067,930
162 5,067,931

CLASS 475

5 5,067,932
32 5,067,933
227 5,067,934
248 5,067,935

CLASS 493

287 5,067,936
310 5,067,937

CLASS 494

12 5,067,938
53 5,067,939

CLASS 501

12 5,068,208
30 5,068,209
32 5,068,210
98 5,068,211

CLASS 502

17 5,068,404
105 5,068,212
126 5,068,213
185 5,068,214
208 5,068,215
241 5,068,216
330 5,068,217
439 5,068,218

CLASS 505

1 5,068,219

CLASS 507

103 5,068,041

CLASS 514

3 5,068,220
15 5,068,221
5,068,222
21 5,068,224
57 5,068,225
58 5,068,226
5,068,227
019 5,068,223
114 5,068,228
5,068,229
115 5,068,230
210 5,068,231
5,068,232
212 5,068,233
215 5,068,325
235.2 5,068,234
256 5,068,337
258 5,068,235
263 5,068,236
365 5,068,237
367 5,068,238
381 5,068,239
401 5,068,240
403 5,068,241
412 5,068,242
413 5,068,243
428 5,068,244
429 5,068,245
5,068,246
440 5,068,247
443 5,068,248
471 5,068,249
506 5,068,250
5,068,251
543 5,068,252
553 5,068,253

CLASS 518

705 5,068,254

CLASS 521

28 5,068,255
150 5,068,256
155 B1 4,970,243

CLASS 522

31 5,068,257
5,068,258
5,068,259
5,068,260
39 5,068,261
95 5,068,262
109 5,068,263
167 5,068,264

CLASS 523

176 5,068,265
336 5,068,266
435 5,068,267
445 5,068,268

CLASS 524

35 5,068,269
68 5,068,270
100 5,068,271
155 5,068,272
166 5,068,273
230 5,068,274
296 Re.33,755
314 5,068,275
413 5,068,276
441 5,068,277
347 5,068,278
593 5,068,279
728 5,068,280
753 5,068,281

CLASS 525

61 5,068,282
64 5,068,283
67 5,068,284
5,068,285
92 5,068,286
124 5,068,287
155 5,068,288
179 5,068,289
192 5,068,290
366 5,068,291
509 5,068,292
534 5,068,293

CLASS 526

194 5,068,294
240 5,068,298
245 5,068,295
282 5,068,296
287 5,068,297
313 5,068,299
318.2 5,068,300

CLASS 528

15 5,068,301
21 5,068,302
25 5,068,303
28 5,068,304
49 5,068,305
68 5,068,306
125 5,068,307
171 5,068,308
211 5,068,309
215 5,068,310
324 5,068,311
388 5,068,312
483 5,068,313

CLASS 530

317 5,068,314
324 5,068,315
399 5,068,317

CLASS 534

573 5,068,318
759 5,068,319

CLASS 536

24 5,068,320
32 5,068,321

CLASS 540

222 5,068,322
456 5,068,323
471 5,068,324
594 5,068,326

CLASS 544

76 5,068,327
350 5,068,328
402 5,068,329
5,068,330

CLASS 546

14 5,068,331
18 5,068,332
116 5,068,333
157 5,068,334
242 5,068,335
302 5,068,336

CLASS 548

101 5,068,338
110 5,068,339
119 5,068,340
154 5,068,341
183 5,068,342
194 5,068,343
213 5,068,344
230 5,068,345
253 5,068,346
263.8 5,068,347
264.4 5,068,348
418 5,068,349
444 5,068,350
452 5,068,351
461 5,068,352
5,068,353
517 5,068,354
527 5,068,355
546 5,068,356
548 5,068,357
555 5,068,358

CLASS 549

58 5,068,359
74 5,068,360
273 5,068,361
346 5,068,362
355 5,068,363
415 5,068,364
496 5,068,365
533 5,068,366

CLASS 552

310 5,068,367
556 5,068,368

CLASS 556

16 5,068,369
19 5,068,370
53 5,068,371
70 5,068,372
105 5,068,373
5,068,374
136 5,068,375
137 5,068,376
418 5,068,377
420 5,068,378
422 5,068,379
428 5,068,380
431 5,068,381
452 5,068,383
472 5,068,385
480 5,068,386
485 5,068,387
495 5,068,382

CLASS 558

74 5,068,388
411 5,068,389
461 5,068,390

CLASS 560

25 5,068,391
46 5,068,392
51 5,068,393
56 5,068,394
90 5,068,395
102 5,068,396
150 5,068,397
156 5,068,398
212 5,068,399
223 5,068,400
236 5,068,401
331 5,068,402

CLASS 562

7 5,068,403
83 5,068,405
413 5,068,406
416 5,068,407
419 5,068,408
453 5,068,384
480 5,068,409
483 5,068,410
484 5,068,411
506 5,068,412
507 5,068,413
508 5,068,414
541 5,068,415
571 5,068,416
577 5,068,417
580 5,068,418
5,068,419
583 5,068,420
5,068,421
587 5,068,422
840 5,068,423
870 5,068,424

CLASS 564

12 5,068,425
15 5,068,426
84 5,068,427
134 5,068,428
160 5,068,429
298 5,068,430
301 5,068,431
347 5,068,432
349 5,068,433
399 5,068,434
409 5,068,435
417 5,068,436
5,068,437
434 5,068,438
5,068,439
442 5,068,440
5,068,441
479 5,068,442
496 5,068,443
505 5,068,444

CLASS 568

21 5,068,445
33 5,068,446
309 5,068,447
319 5,068,448
335 5,068,449
357 5,068,464
435 5,068,450
442 5,068,451
5,068,452
494 5,068,453
566 5,068,454
567 5,068,455
618 5,068,456
633 5,068,457
634 5,068,458
638 5,068,459
648 5,068,460
655 5,068,461
661 5,068,462
726 5,068,463
765 5,068,465
781 5,068,466
852 5,068,467
861 5,068,468
878 5,068,469

CLASS 570

134 5,068,470
139 5,068,471
157 5,068,472
176 5,068,473
238 5,068,474
262 5,068,475

CLASS 585

12 5,068,476
274 5,068,477
324 5,068,478
411 5,068,479
5,068,480
426 5,068,481
429 5,068,482
467 5,068,483
469 5,068,484
500 5,068,485
5,068,486
510 5,068,487
516 5,068,488
524 5,068,489
525 5,068,490

CLASS 600

13 5,067,940
27 5,067,941

CLASS 604

110 5,067,942
141 5,067,943
192 5,067,944
198 5,067,945
5,067,946
201 5,067,947
213 5,067,948
263 5,067,949
317 5,067,950

CLASS 606

28 5,067,952
34 5,067,953
58 5,067,954
61 5,067,955
73 5,067,956
004 5,067,951
108 5,067,957
142 5,067,958
224 5,067,959

CLASS 623

3 5,067,960
5 5,067,961
13 5,067,962
16 5,067,963
18 5,067,964
66 5,067,965

D2—	79	321,774		309	321,807		130.1	321,839			321,872	D19—	6	321,904
	293	321,775		317	321,808		131	321,841			321,873		36	321,905
	314	321,776		359	321,809		157	321,843			321,874		64	321,906
	320	321,777		363	321,810			321,844			321,875		72	321,907
		321,778		379	321,811			321,845		164	321,876		97	321,908
D3—	10	321,779		384	321,812			321,846		191	321,877			321,909
	12	321,780		509	321,813		163	321,842			321,878			321,910
		321,781		536	321,814			321,847		192	321,879			321,911
		321,782		560	321,815			321,848			321,880		99	321,912
	35	321,783	D8—	7	321,816	D12—	110	321,849			321,881	D20—	27	321,913
	56	321,784		14	321,817		129	321,850		196	321,882		43	321,914
	63	321,785		57	321,818			321,851		230	321,883	D21—	48	321,915
	65	321,786		70	321,819		147	321,852		234	321,884		51	321,916
		321,787		99	321,820		192	321,853		238	321,886		171	321,917
	74	321,788			321,821		306	321,854		253	321,885		191	321,918
	75	321,789		301	321,822	D13—	107	321,855	D15—	5	321,887		220	321,919
		321,790		334	321,824		119	321,856			321,888			321,920
	77	321,791	D9—	310	321,825		136	321,857		17	321,889		234	321,921
	104	321,792		314	321,823		146	321,859		70	321,890		244	321,922
D4—	135	321,793		345	321,826		147	321,858		72	321,891		252	321,923
D6—	323	321,794		370	321,827			321,860		122	321,892		253	321,924
	328	321,795			321,828			321,861			321,893	D22—	140	321,925
	330	321,796		403	321,829		150	321,862		139	321,894	D23—	223	321,926
	381	321,797		434	321,830		155	321,863	D16—	102	321,895		231	321,927
	457	321,799	D10—	7	321,831	D14—	100	321,864			321,896		245	321,928
	462	321,798		14	321,832			321,865		209	321,897		294	321,931
	472	321,800		30	321,833		106	321,866	D18—	26	321,903		305	321,929
	492	321,801		39	321,834		118	321,867		49	321,901		360	321,930
	510	321,802			321,835			321,868			321,902		366	321,932
	518	321,803			321,836		121	321,869		55	321,898		377	321,933
	566	321,804		126	321,837		130	321,870		56	321,900		388	321,934
	611	321,805			321,838		151	321,871		58	321,899		413	321,935
D7—	308	321,806	D11—	33	321,840									

D24—	133	321,937												
	197	321,936												
	199	321,938												
		321,939												
	226	321,940												
D25—	16	321,941												
	140	321,942												
D26—	28	321,943												
		321,944												
	35	321,945												
		321,946												
		321,947												
	65	321,948												
	74	321,949												
	92	321,950												
	107	321,951												
D28—	35	321,952												
	48	321,953												
	57	321,954												
	64.1	321,955												
D29—	7	321,956												
	9	321,957												
	16	321,958												
D30—	121	321,959												
D32—	35	321,960												
	38	321,961												
	49	321,962												
	58	321,963												
D34—	15	321,964												
	23	321,965												
	27	321,966												
	44	321,967												

CLASSIFICATION OF PLANTS

P.—	9	7,717		54	7,719			7,721		69	7,723		78	7,725
	20	7,718		68	7,720			7,722		74	7,724		86	7,726

VOL
1132
ISS
4
NO
26
1991
UMI

GEOGRAPHICAL INDEX
OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

01 :	5,067,174	5,067,644	5,068,504	5,068,225	13 :	5,067,217	5,068,484
	5,067,270	5,067,645	5,068,543	5,068,360		5,067,343	5,068,485
	5,067,667	5,067,668	5,068,547	5,068,757		5,067,424	5,068,490
	5,067,751	5,067,670	5,068,548	09 : 5,067,266		5,067,609	5,068,494
	5,068,000	5,067,671	5,068,566	5,067,305		5,067,729	5,068,498
	5,068,085	5,067,673	5,068,576	5,067,338		5,067,783	5,068,590
	5,068,220	5,067,682	5,068,582	5,067,350		5,068,276	5,068,591
	5,068,801	5,067,711	5,068,593	5,067,378		5,068,324	5,068,613
04 :	5,067,218	5,067,715	5,068,596	5,067,426		5,068,799	5,068,625
	5,067,268	5,067,727	5,068,603	5,067,454		5,068,893	5,068,639
	5,067,428	5,067,728	5,068,622	5,067,483		4,167,769	5,068,890
	5,067,506	5,067,771	5,068,628	5,067,542	15 :	5,067,618	5,068,892
	5,067,642	5,067,780	5,068,634	5,067,724	16 :	5,067,695	5,068,898
	5,067,665	5,067,788	5,068,644	5,067,748		5,067,988	5,068,901
	5,067,666	5,067,792	5,068,668	5,067,875		5,068,199	18 : 5,067,281
	5,067,799	5,067,801	5,068,672	5,067,959	17 :	5,067,179	5,067,322
	5,067,807	5,067,805	5,068,695	5,068,084		5,067,188	5,067,464
	5,067,829	5,067,806	5,068,702	5,068,124		5,067,201	5,067,476
	5,067,907	5,067,828	5,068,707	5,068,271		5,067,302	5,067,513
	5,068,007	5,067,831	5,068,708	5,068,313		5,067,375	5,067,596
	5,068,787	5,067,843	5,068,724	5,068,333		5,067,389	5,067,602
	5,068,847	5,067,859	5,068,728	5,068,346		5,067,399	5,067,669
	5,068,887	5,067,903	5,068,729	5,068,408		5,067,444	5,067,731
05 :	5,068,095	5,067,908	5,068,739	5,068,493		5,067,458	5,067,757
06 :	Re.33,750	5,067,922	5,068,750	5,068,496		5,067,507	5,067,891
	5,067,180	5,067,923	5,068,755	5,068,773		5,067,547	5,068,189
	5,067,181	5,067,930	5,068,765	5,068,797		5,067,549	5,068,203
	5,067,184	5,067,942	5,068,771	5,068,823		5,067,571	5,068,317
	5,067,233	5,067,948	5,068,772	5,068,916		5,067,572	5,068,353
	5,067,247	5,067,957	5,068,803	10 : 5,068,022		5,067,590	5,068,355
	5,067,257	5,067,962	5,068,806	5,068,134		5,067,600	5,068,432
	5,067,272	5,067,995	5,068,812	5,068,303		5,067,604	5,068,595
	5,067,274	5,067,999	5,068,826	5,068,367		5,067,692	5,068,730
	5,067,291	5,068,040	5,068,830	5,068,473		5,067,693	19 : 5,067,254
	5,067,299	5,068,054	5,068,832	11 : 5,068,669		5,067,703	5,067,279
	5,067,309	5,068,138	5,068,840	5,068,734		5,067,723	5,067,442
	5,067,349	5,068,160	5,068,850	12 : 5,067,182		5,067,777	5,067,716
	5,067,385	5,068,177	5,068,854	5,067,183		5,067,837	5,068,656
	5,067,386	5,068,184	5,068,858	5,067,186		5,067,853	20 : 5,067,265
	5,067,394	5,068,192	5,068,861	5,067,323		5,067,864	5,067,867
	5,067,417	5,068,193	5,068,863	5,067,324		5,067,941	5,068,717
	5,067,430	5,068,197	5,068,867	5,067,383		5,068,017	21 : 5,067,397
	5,067,438	5,068,198	5,068,869	5,067,515		5,068,036	5,067,431
	5,067,471	5,068,226	5,068,878	5,067,526		5,068,037	5,068,115
	5,067,482	5,068,227	5,068,883	5,067,541		5,068,101	5,068,309
	5,067,487	5,068,230	5,068,900	5,067,685		5,068,118	5,068,383
	5,067,490	5,068,248	5,068,909	5,067,766		5,068,251	22 : 5,067,219
	5,067,496	5,068,252	08 : 5,067,382	5,067,865		5,068,297	5,067,510
	5,067,529	5,068,370	5,067,528	5,067,985		5,068,395	5,068,131
	5,067,584	5,068,403	5,067,564	5,068,039		5,068,406	5,068,375
	5,067,605	5,068,407	5,067,652	5,068,859		5,068,418	5,068,388
	5,067,628	5,068,423	5,067,820	5,068,874		5,068,419	5,068,430
	5,067,639	5,068,447	5,067,857	5,068,891		5,068,431	5,068,469

5,068,487
5,068,662
5,068,720
23 : 5,067,497
5,067,852
24 : 5,067,353
5,067,406
5,067,445
5,067,708
5,067,887
5,067,932
5,067,970
5,068,088
5,068,105
5,068,195
5,068,253
5,063,536
5,068,788
25 : 5,067,197
5,067,207
5,067,238
5,067,255
5,067,376
5,067,460
5,067,463
5,067,477
5,067,583
5,067,656
5,067,726
5,067,781
5,067,787
5,067,817
5,067,896
5,067,909
5,067,939
5,067,971
5,068,008
5,068,013
5,068,086
5,068,168
5,068,174
5,068,188
5,068,372
5,068,508
5,068,513
5,068,533
5,068,589
5,068,606
5,068,631
5,068,636
5,068,645
5,068,715
5,068,723
5,068,780
5,068,781
5,068,798
5,068,822
5,068,833
5,068,851
5,068,860
5,068,864
5,068,872
5,068,881
5,068,896
5,068,911
26 5,067,178
5,067,212
5,067,220
5,067,225
5,067,253
5,067,275
5,067,285
5,067,391
5,067,414
5,067,451
5,067,469
5,067,472
5,067,484
5,067,519
5,067,521
5,067,575
5,067,576
5,067,606
5,067,640
5,067,641
5,067,679
5,067,701
5,067,732
5,067,752
5,067,754
5,067,764
5,057,765
5,067,768
5,067,772
5,067,773
5,067,824
5,067,858
5,067,879
5,067,893

5,067,940
5,067,964
5,067,990
5,067,997
5,068,071
5,068,092
5,068,139
5,068,237
5,068,255
5,068,299
5,068,306
5,068,339
5,068,378
5,068,379
5,068,384
5,068,387
5,068,392
5,068,443
5,068,511
5,068,912
4,569,444
27 5,067,298
5,067,334
5,067,407
5,067,408
5,067,485
5,067,489
5,067,503
5,067,637
5,067,678
5,067,694
5,067,736
5,067,740
5,067,749
5,067,836
5,067,868
5,067,886
5,068,065
5,068,114
5,068,754
5,068,779
5,068,782
5,068,813
29 : 5,067,308
5,067,328
5,067,505
5,067,533
5,067,591
5,067,689
5,067,718
5,067,742
5,067,746
5,067,845
5,067,856
5,067,863
5,067,894
5,067,963
5,068,078
5,068,404
5,068,420
5,068,421
30 5,067,269
5,067,276
5,067,643
5,067,760
5,067,870
5,068,089
31 : 5,067,273
5,068,886
32 : 5,067,569
5,067,570
5,067,712
5,067,928
33 : 5,067,200
5,067,648
5,067,912
5,068,505
5,068,835
34 Re.33,754
Re.33,755
5,067,176
5,067,223
5,067,241
5,067,294
5,067,340
5,067,344
5,067,410
5,067,537
5,067,548
5,067,677
5,067,680
5,067,826
5,067,846
5,067,946
5,067,950

5,068,046
5,068,047
5,068,048
5,068,059
5,068,060
5,068,061
5,068,063
5,068,110
5,068,119
5,068,120
5,068,153
5,068,196
5,068,216
5,068,278
5,068,291
5,068,323
5,068,363
5,068,414
5,068,437
5,068,476
4,569,486
5,068,538
5,068,557
5,068,627
5,068,749
5,068,800
5,068,877
35 : 5,067,351
5,067,580
5,068,654
4,633,602
36 : 5,067,194
5,067,195
5,067,208
5,067,228
5,067,251
5,067,278
5,067,289
5,067,297
5,067,384
5,067,502
5,067,523
5,067,531
5,067,561
5,067,615
5,067,629
5,067,630
5,067,633
5,067,662
5,067,684
5,067,725
5,067,770
5,067,789
5,067,848
5,067,872
5,067,889
5,067,924
5,067,949
5,067,958
5,067,961
5,067,998
5,068,006
5,068,031
5,068,180
5,068,208
5,068,232
5,068,234
5,068,284
5,068,286
5,068,310
5,068,342
5,068,345
5,068,352
5,068,356
5,068,397
5,068,426
5,068,457
5,068,509
5,068,523
5,068,564
5,068,567
5,068,573
5,068,575
5,068,597
5,068,650
5,068,671
5,068,776
5,068,814
5,068,816
5,068,838
5,068,882
5,068,905
5,068,914
4,823,784
37 : 5,067,193
5,067,260
5,067,313
5,067,370
5,067,486

5,067,491
5,067,499
5,067,559
5,067,621
5,067,627
5,067,830
5,067,975
5,068,018
5,068,020
5,068,181
5,068,319
5,068,320
39 : 5,067,177
5,067,236
5,067,330
5,067,341
5,067,355
5,067,433
5,067,439
5,067,504
5,067,518
5,067,543
5,067,552
5,067,613
5,067,683
5,067,699
5,067,700
5,067,713
5,067,719
5,067,876
5,067,882
5,067,885
5,067,890
5,067,944
5,067,968
5,067,977
5,068,002
5,068,027
5,068,076
5,068,090
5,068,100
5,068,117
5,068,129
5,068,130
5,068,215
5,068,288
5,068,292
5,068,439
5,068,465
5,068,545
5,068,556
5,068,607
5,068,618
5,068,663
5,068,778
5,068,790
5,068,791
5,068,808
40 : 5,067,261
5,067,329
5,067,508
5,067,511
5,067,530
5,067,565
5,068,011
5,068,035
5,068,132
5,068,212
5,068,274
5,068,837
41 : 5,067,243
5,067,267
5,067,597
5,067,617
5,067,705
5,067,721
5,068,210
5,068,560
5,068,601
5,068,602
5,068,614
5,068,615
5,068,621
5,068,650
42 : 5,067,189
5,067,222
5,067,226
5,067,242
5,067,262
5,067,295
5,067,317
5,067,398
5,067,405
5,067,478
5,067,585
5,067,588
5,067,589
5,067,626
5,067,651

5,067,654
5,067,722
5,067,730
5,067,769
5,067,775
5,067,869
5,067,916
5,067,947
5,067,976
5,067,992
5,068,029
5,068,034
5,068,055
5,068,058
5,068,075
5,068,080
5,068,083
5,068,087
5,068,096
5,068,098
5,068,161
5,068,162
5,068,185
5,068,205
5,068,207
5,068,250
5,068,273
5,068,279
5,068,326
5,068,332
5,068,338
5,068,344
5,068,368
5,068,390
5,068,427
5,068,435
5,068,436
5,068,519
5,068,608
5,068,637
5,068,657
5,068,740
5,068,774
5,068,880
44 : 5,067,943
45 : 5,067,214
5,067,239
5,067,245
5,067,622
5,067,646
5,067,714
5,067,926
5,067,936
5,068,733
47 : 5,067,418
5,067,420
5,067,899
5,067,900
5,067,945
5,067,956
5,068,057
5,068,347
5,068,348
5,068,460
5,068,763
48 : Re.33,751
5,067,237
5,067,244
5,067,252
5,067,326
5,067,345
5,067,388
5,067,423
5,067,425
5,067,441
5,067,492
5,067,522
5,067,545
5,067,558
5,067,566
5,067,587
5,067,650
5,067,657
5,067,717
5,067,734
5,067,756
5,067,810
5,067,825
5,067,901
5,067,910
5,067,920
5,067,925
5,067,965
5,067,978
5,068,024
5,068,025
5,068,041

5,068,043
5,068,116
5,068,175
5,068,201
5,068,221
5,068,223
5,068,268
5,068,285
5,068,289
5,068,294
5,068,349
5,068,366
5,068,396
5,068,444
5,068,448
5,068,456
5,068,464
5,068,488
5,068,531
5,068,535
5,068,553
5,068,580
5,068,583
5,068,599
5,068,649
5,068,660
5,068,696
5,068,705
5,068,756
5,068,764
5,068,819
5,068,825
5,068,868
49 : 5,067,213
5,067,264
5,067,396
5,067,512
5,067,592
5,067,610
5,067,710
5,067,755
5,067,819
5,067,821
5,067,996
5,068,028
5,068,577
50 : 5,067,720
51 : 5,067,249
5,067,259
5,067,303
5,067,498
5,067,500
5,067,538
5,067,761
5,067,778
5,067,850
5,067,892
5,067,898
5,067,918
5,067,921
5,067,933
5,067,952
5,067,774
5,067,775
5,067,916
5,067,965
5,067,966
53 : 5,067,854
55 : 5,067,796
5,067,929
5,067,947

05 : 321,820
321,888
06 : 321,792
321,801
321,802
321,822
321,850
321,855
321,867
321,868
321,878
321,881
321,887
321,894
321,899
321,908
321,909
321,910
321,911
321,912
321,919

321,920
321,924
321,925
321,935
321,938
321,941
321,949
321,956
08 : 321,791
321,824
09 : 321,785
321,807
321,830
321,903
321,936
12 : 321,784
321,789
321,790
321,805
321,856
321,877

321,884
321,904
321,906
321,940
13 : 321,817
321,889
321,931
17 : 321,794
321,861
321,957
18 : 321,825
321,870
321,959
19 : 321,893
25 : 321,778
321,857
321,864
321,953
321,958
26 : 321,795
321,866

27 : 321,799
321,862
321,863
321,915
321,926
29 : 321,800
321,937
33 : 321,798
34 : 321,833
321,879
321,880
321,928
36 : 321,813
321,814
321,831
321,851
321,853
321,883
321,895
321,897

321,913
37 : 321,793
38 : 321,963
39 : 321,780
321,781
321,782
321,806
321,815
321,827
321,852
321,917
321,932
41 : 321,776
321,865
321,927
42 : 321,804
321,826
321,896
321,955
321,962

47 : 321,841
321,922
48 : 321,821
321,840
321,886
321,892
321,898
321,918
321,921
321,933
321,952
51 : 321,774
321,775
321,916
321,965
321,966
53 : 321,854
55 : 321,796
321,929
321,947

PLANT PATENTS

06 : 7,717
7,722

7,723

7,726

12 : 7,719

36 : 7,724

7,725

U.S. GOVERNMENT PRINTING OFFICE : 0—1991

VOL 1132 ISS 4 NO 26 1991 UMI

VOL
1132
ISS
4
NO
26
1991
UMI

CHANGE OF ADDRESS FORM

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

Mail this form to: NEW ADDRESS

Superintendent of Documents
Government Printing Office SSOM
Washington, D.C. 20402

Attach last subscription label here.

SUBSCRIPTION ORDER FORM

SUBSCRIPTION ORDER FORM

ENTER MY SUBSCRIPTION TO:

@ $ Domestic; @ $ Foreign.

NAME—FIRST, LAST

COMPANY NAME OR ADDITIONAL ADDRESS LINE

STREET ADDRESS

CITY | STATE | ZIP CODE

PLEASE PRINT OR TYPE

(or) COUNTRY

☐ Remittance Enclosed (Make checks payable to Superintendent of Documents)

☐ Charge to my Deposit Account No. .....

MAIL ORDER FORM TO:
Superintendent of Documents
Government Printing Office
Washington, D.C. 20402

VOL
1132

ISS
4

NO
26

1991

UMI

VOL
1132

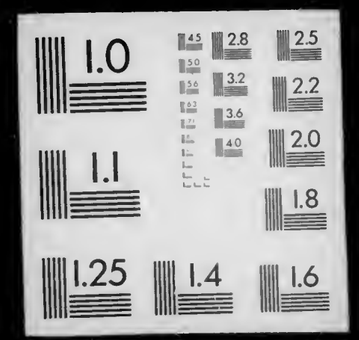
ISS
4

NO
26

1991

U.S. DEPARTMENT OF COMMERCE
Robert A. Mosbacher, *Secretary*
PATENT AND TRADEMARK OFFICE
Harry F. Manbeck, Jr., *Commissioner*

UMI





END